Příloha A:
Report CAESAR II

CAESAR II 2019 Ver.11.00.00.4800, (Build 200203) Date: JUN 3, 2020 Time: 13:46

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LISTING OF STATIC LOAD CASES FOR THIS ANALYSIS

1 (HYD) WW+HP+H
2 (OPE) W+D1+T1+P1+H
3 (OPE) W+D2+T2+P2+H
4 (SUS) W+P1+H
5 (SUS) W+P2+H
6 (EXP) L6=L2-L4
7 (EXP) L7=L3-L

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DISPLACEMENTS REPORT: Nodal Movements
CASE 1 (HYD) WW+HP+H

Node	DX mm	DY mm	DZ mm	RX deg.	RY deg.	RZ deg.
747	-0.000	-0.000	0.000	-0.0000	0.0000	-0.0000
752	0.000	-0.000	0.000	0.0000	0.0000	0.0000
6660	-0.008	0.000	0.000	-0.0004	-0.0000	-0.0004
6665	-0.091	0.049	0.012	-0.0036	0.0011	-0.0245
6670	-0.093	0.048	0.012	-0.0036	0.0011	-0.0245
6675	-0.593	0.007	0.096	-0.0046	0.0005	-0.0260
6680	-0.680	0.041	0.115	-0.0050	0.0004	-0.0190
6685	-0.680	0.042	0.115	-0.0050	0.0004	-0.0190
6690	-0.950	0.250	0.189	-0.0051	-0.0006	-0.0105
6695	-0.945	0.209	0.190	-0.0041	-0.0031	0.0327
6700	-0.945	0.207	0.189	-0.0041	-0.0031	0.0328
NDB11BQ014 (6705)	-0.958	-0.000	0.170	-0.0039	-0.0036	0.0404
6710	-0.986	-0.630	0.114	-0.0034	-0.0050	0.0511
6715	-0.781	-0.876	0.076	0.0009	-0.0114	0.0263
6720	-0.779	-0.876	0.076	0.0009	-0.0114	0.0263
NDB11BQ002 (6725)	0.000	-0.956	-0.000	0.0040	-0.0178	0.0189
6730	0.252	-0.987	-0.062	0.0039	-0.0203	0.0177
6735	0.376	-0.988	-0.089	0.0039	-0.0203	0.0177
6740	0.407	-0.991	-0.096	0.0033	-0.0206	0.0177
6745	0.438	-0.995	-0.102	0.0028	-0.0209	0.0177
6750	0.561	-0.996	-0.121	0.0026	-0.0210	0.0177
6755	0.689	-1.011	-0.127	-0.0015	-0.0223	0.0180
6760	0.660	-0.882	-0.049	-0.0353	-0.0262	0.0184
6765	0.658	-0.880	-0.049	-0.0353	-0.0262	0.0184
NDB11BQ003 (6770)	-0.000	-0.000	0.002	-0.0297	-0.0277	0.0210
6775	-0.151	0.143	0.014	-0.0249	-0.0276	0.0216
6780	-0.176	0.119	-0.026	-0.0097	-0.0194	0.0268
6785	-0.175	0.118	-0.027	-0.0097	-0.0194	0.0268
6790	-0.102	0.083	-0.034	-0.0028	-0.0208	0.0125
6795	-0.101	0.083	-0.034	-0.0028	-0.0208	0.0125
6800	0.153	0.029	-0.021	0.0010	-0.0173	0.0095
6805	0.126	-0.032	-0.060	0.0157	-0.0117	0.0115
6810	0.126	-0.032	-0.060	0.0157	-0.0117	0.0115
6815	-0.010	-0.227	-0.033	0.0144	-0.0091	0.0116
6820	-0.047	-0.224	-0.006	0.0106	-0.0026	0.0124
6825	-0.047	-0.224	-0.006	0.0106	-0.0026	0.0124
NDB11BQ004 (6830)	0.001	-0.000	-0.001	0.0088	0.0015	0.0045
6835	0.036	-0.002	-0.031	0.0075	0.0014	-0.0023
6840	0.050	-0.055	-0.044	0.0029	0.0027	-0.0030
6845	0.050	-0.055	-0.044	0.0029	0.0027	-0.0030
6850	0.051	-0.041	0.016	-0.0035	-0.0026	-0.0031
6855	0.037	-0.000	0.002	-0.0043	-0.0015	-0.0001
6860	0.037	-0.000	0.002	-0.0043	-0.0015	-0.0001
NDB11BQ005 (6865)	0.029	-0.000	-0.004	-0.0042	-0.0018	0.0006
6870	0.003	-0.024	-0.029	-0.0036	-0.0015	0.0025
6875	-0.003	-0.014	-0.028	-0.0047	-0.0025	-0.0001

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DISPLACEMENTS REPORT: Nodal Movements
CASE 1 (HYD) WW+HP+H

Node	DX mm	DY mm	DZ mm	RX deg.	RY deg.	RZ deg.
6880	-0.003	-0.014	-0.027	-0.0047	-0.0025	-0.0001
6885	-0.005	-0.007	-0.025	-0.0006	0.0001	0.0004
6890	-0.005	-0.007	-0.025	-0.0006	0.0001	0.0004
6895	-0.004	-0.005	-0.017	-0.0006	0.0003	0.0003
6900	-0.000	-0.000	-0.001	-0.0001	0.0001	0.0000
31NDC11AP001/S (6905)	-0.000	-0.000	-0.000	-0.0001	0.0001	0.0000
6906	-0.000	-0.000	-0.000	-0.0001	0.0001	0.0000
6910	-0.000	0.000	-0.000	-0.0000	0.0000	0.0000
6915	-0.000	-0.000	0.000	-0.0000	0.0000	0.0000
31NDC11AP001/D (6920)	0.000	-0.002	-0.001	-0.0002	0.0001	-0.0001
6925	0.000	-0.002	-0.001	-0.0002	0.0001	-0.0001
6930	0.000	-0.002	-0.001	-0.0002	0.0002	-0.0001
6935	0.001	-0.004	-0.002	-0.0003	0.0004	-0.0002
6940	0.001	-0.003	-0.003	-0.0004	0.0005	-0.0002
6945	0.001	-0.003	-0.003	-0.0004	0.0006	-0.0002
6950	0.003	-0.002	-0.007	-0.0003	0.0006	-0.0002
6955	0.004	-0.001	-0.007	-0.0002	0.0006	-0.0001
NDB12BQ001 (6960)	0.004	0.000	-0.008	0.0000	0.0007	-0.0000
NDB12BQ002 (6965)	-0.000	0.025	0.000	0.0015	0.0012	0.0008
6970	-0.042	0.092	0.066	0.0002	0.0023	0.0009
6975	-0.047	0.083	0.060	-0.0011	0.0012	-0.0021
6980	-0.047	0.083	0.060	-0.0011	0.0012	-0.0021
6985	-0.068	0.078	0.004	0.0022	-0.0002	-0.0052
6990	-0.067	0.087	-0.003	0.0029	-0.0006	-0.0056
6995	-0.071	0.083	-0.013	0.0061	0.0037	-0.0092
7000	-0.070	0.082	-0.013	0.0061	0.0037	-0.0092
NDB12BQ003 (7002)	-0.053	-0.000	-0.040	0.0070	0.0033	-0.0117
7005	0.022	-0.358	-0.133	0.0109	0.0010	-0.0009
7010	0.098	0.069	-0.054	0.0148	-0.0063	0.0206
7015	0.043	0.088	-0.007	0.0246	-0.0110	0.0184
7020	0.043	0.087	-0.007	0.0246	-0.0110	0.0184
NDB12BQ005 (7025)	0.003	-0.000	0.001	0.0261	-0.0114	0.0180
7030	-0.054	-0.135	0.011	0.0281	-0.0117	0.0173
7035	-0.089	-0.221	0.017	0.0286	-0.0118	0.0169
7040	-0.078	-0.349	-0.081	0.0098	-0.0139	0.0133
7045	-0.077	-0.349	-0.081	0.0098	-0.0139	0.0133
7050	0.142	-0.386	-0.222	0.0070	-0.0137	0.0131
7055	0.154	-0.421	-0.259	0.0057	-0.0108	0.0164
7060	0.153	-0.421	-0.259	0.0056	-0.0108	0.0164
7065	0.017	-0.475	-0.230	0.0028	-0.0096	0.0179
7069	-0.021	-0.445	-0.214	-0.0025	-0.0107	0.0200
7070	-0.038	-0.360	-0.173	-0.0039	-0.0110	0.0215
7075	-0.038	-0.359	-0.173	-0.0039	-0.0110	0.0215
NDB12BQ006 (7080)	0.001	-0.000	-0.001	-0.0057	-0.0081	0.0155
7085	0.027	0.142	0.085	-0.0069	-0.0064	0.0098
7089	0.039	0.148	0.114	-0.0098	-0.0093	0.0016

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DISPLACEMENTS REPORT: Nodal Movements
CASE 1 (HYD) WW+HP+H

Node	DX mm	DY mm	DZ mm	RX deg.	RY deg.	RZ deg.
7090	0.081	0.106	0.130	-0.0117	-0.0128	-0.0005
7095	0.082	0.106	0.130	-0.0117	-0.0128	-0.0005
NDB12BQ008 (7097)	0.197	0.000	0.110	-0.0109	-0.0121	-0.0024
7100	0.207	-0.009	0.109	-0.0108	-0.0121	-0.0026
7104	0.240	-0.032	0.115	-0.0014	-0.0084	-0.0051
7105	0.222	-0.030	0.106	0.0056	-0.0061	-0.0106
7110	0.221	-0.030	0.105	0.0056	-0.0061	-0.0106
7115	0.061	-0.059	0.031	0.0050	-0.0050	-0.0126
7119	0.017	-0.041	0.011	0.0020	-0.0035	-0.0098
7120	0.005	-0.016	0.002	0.0002	-0.0002	-0.0015
7125	0.005	-0.016	0.002	0.0002	-0.0002	-0.0015
7130	0.004	-0.006	0.001	0.0002	-0.0002	-0.0014
7135	0.004	-0.004	0.000	0.0002	-0.0002	-0.0014
8100	0.004	0.001	-0.000	-0.0007	-0.0000	0.0004
8105	0.004	0.001	-0.000	-0.0008	-0.0001	0.0004
8109	0.008	0.020	-0.008	-0.0050	0.0036	0.0067
8110	0.026	0.066	-0.015	-0.0115	0.0053	0.0094
8115	0.026	0.067	-0.015	-0.0115	0.0053	0.0094
8120	0.044	0.109	-0.007	-0.0119	0.0046	0.0096
8124	0.057	0.138	-0.003	-0.0099	0.0021	0.0113
8125	0.059	0.095	0.001	-0.0061	0.0004	0.0200
8130	0.059	0.094	0.001	-0.0061	0.0004	0.0200
NDB13BQ010 (8135)	0.049	0.000	0.000	-0.0049	-0.0004	0.0221
NDB13BQ008 (8137)	0.049	-0.001	0.000	-0.0049	-0.0004	0.0221
8140	0.022	-0.307	-0.016	-0.0017	-0.0025	0.0248
8144	-0.017	-0.403	-0.039	-0.0018	-0.0075	0.0242
8145	-0.101	-0.439	-0.053	0.0013	-0.0083	0.0207
8150	-0.102	-0.439	-0.053	0.0014	-0.0083	0.0207
8155	-0.150	-0.434	-0.049	0.0017	-0.0091	0.0202
8160	-0.218	-0.426	-0.042	0.0022	-0.0102	0.0195
8165	-0.543	-0.389	0.010	0.0034	-0.0157	0.0187
8170	-0.549	-0.328	0.054	0.0155	-0.0216	0.0196
8175	-0.547	-0.327	0.054	0.0155	-0.0216	0.0196
NDB13BQ001 (8180)	-0.000	-0.000	0.002	0.0079	-0.0211	0.0249
8185	0.146	0.039	-0.014	0.0044	-0.0196	0.0264
8190	0.244	-0.133	-0.108	-0.0052	-0.0179	0.0309
8195	0.244	-0.135	-0.109	-0.0052	-0.0179	0.0309
8200	0.270	-0.301	-0.162	0.0003	0.0014	0.0239
8205	0.270	-0.301	-0.162	0.0003	0.0015	0.0239
8210	0.125	-0.042	-0.249	0.0119	0.0067	0.0104
8215	0.075	-0.007	-0.237	0.0047	0.0109	0.0098
8220	0.074	-0.007	-0.237	0.0047	0.0110	0.0098
8225	0.023	-0.006	-0.188	0.0013	0.0055	-0.0014
8230	0.022	-0.006	-0.188	0.0013	0.0055	-0.0014
NDB13BQ009 (8235)	0.015	-0.000	-0.168	-0.0002	0.0058	-0.0011
8240	0.007	0.003	-0.147	-0.0016	0.0060	-0.0005
8245	0.006	0.006	-0.105	-0.0018	0.0060	-0.0005
8250	0.003	0.007	-0.094	-0.0025	0.0061	-0.0001

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DISPLACEMENTS REPORT: Nodal Movements
CASE 1 (HYD) WW+HP+H

Node	DX mm	DY mm	DZ mm	RX deg.	RY deg.	RZ deg.
8255	-0.001	0.007	-0.084	-0.0032	0.0061	0.0003
8260	-0.002	0.005	-0.041	-0.0034	0.0061	0.0004
8265	-0.010	0.001	-0.020	-0.0048	0.0061	0.0024
NDB13BQ002 (8266)	0.001	0.001	0.001	-0.0048	0.0061	0.0024
8267	0.000	0.001	0.000	0.0000	0.0000	0.0000
8268	0.000	0.000	0.000	0.0000	0.0000	0.0000
8270	-0.021	-0.023	0.013	-0.0073	0.0058	0.0046
8275	-0.075	-0.127	0.058	-0.0113	0.0126	0.0083
8280	-0.076	-0.128	0.058	-0.0113	0.0126	0.0082
8285	-0.142	-0.189	0.009	-0.0047	0.0056	-0.0019
8290	-0.142	-0.189	0.009	-0.0047	0.0056	-0.0019
NDB13BQ007 (8295)	-0.000	-0.103	-0.000	0.0011	0.0038	-0.0024
8300	0.012	-0.027	-0.001	-0.0009	0.0023	0.0007
8305	0.001	-0.008	0.010	0.0022	0.0003	0.0001
8310	0.001	-0.008	0.010	0.0021	0.0003	0.0000
12000	-0.034	0.078	0.059	0.0015	0.0021	0.0013
13100	0.003	0.001	-0.000	-0.0007	-0.0000	0.0004
31NDB20AT001/N2 (13200)	0.000	0.000	-0.000	-0.0000	0.0000	0.0000
13205	0.000	0.000	-0.000	-0.0000	0.0000	0.0000
13300	0.003	-0.002	0.000	0.0002	-0.0002	-0.0013
31NDB20AT001/N1 (13400)	0.000	-0.000	-0.000	-0.0000	-0.0000	-0.0000
13405	0.000	-0.000	-0.000	-0.0000	-0.0000	-0.0000
13500	0.000	-0.000	-0.000	-0.0000	-0.0000	-0.0000
13600	0.000	-0.000	-0.000	-0.0000	0.0000	-0.0000
14000	0.000	-0.000	-0.000	-0.0000	-0.0000	-0.0000

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DISPLACEMENTS
REPORT: Nodal Movements
CASE 2 (OPE) W+D1+T1+P1+H

Node	DX mm	DY mm	DZ mm	RX deg.	RY deg.	RZ deg.
747	0.164	5.261	-0.924	-0.0000	0.0000	0.0000
752	0.314	5.508	-0.955	0.0000	0.0000	-0.0000
6660	0.098	5.253	-0.923	-0.0003	0.0007	0.0020
6665	0.021	5.125	-0.869	-0.0067	0.0106	0.0009
6670	0.021	5.124	-0.869	-0.0067	0.0106	0.0009
6675	0.084	4.753	-0.733	-0.0067	0.0152	0.0097
6680	0.161	4.626	-0.683	-0.0070	0.0167	0.0500
6685	0.162	4.623	-0.682	-0.0070	0.0167	0.0500
6690	0.753	3.486	-0.325	-0.0045	0.0204	0.0684
6695	0.808	3.130	-0.238	-0.0042	0.0225	0.1016
6700	0.807	3.124	-0.237	-0.0042	0.0225	0.1017
NDB11BQ014 (6705)	0.698	2.521	-0.105	-0.0032	0.0229	0.1056
6710	0.453	1.125	0.200	-0.0010	0.0235	0.1023
6715	0.555	0.668	0.312	0.0052	0.0207	-0.0019
6720	0.555	0.667	0.311	0.0052	0.0207	-0.0020
NDB11BQ002 (6725)	0.000	-0.003	-0.000	0.0133	0.0203	-0.0176
6730	-0.202	-0.264	-0.207	0.0155	0.0202	-0.0121
6735	-0.286	-0.393	-0.315	0.0154	0.0201	-0.0120
6740	-0.307	-0.426	-0.342	0.0152	0.0201	-0.0116
6745	-0.326	-0.458	-0.369	0.0148	0.0201	-0.0112
6750	-0.404	-0.587	-0.472	0.0147	0.0201	-0.0111
6755	-0.480	-0.722	-0.568	0.0115	0.0200	-0.0104
6760	-0.423	-0.741	-0.452	-0.0289	0.0190	-0.0091
6765	-0.422	-0.739	-0.451	-0.0289	0.0190	-0.0091
NDB11BQ003 (6770)	-0.004	-0.000	0.002	-0.0255	0.0143	-0.0088
6775	0.068	0.124	0.104	-0.0218	0.0129	-0.0087
6780	0.008	0.150	0.249	-0.0048	0.0010	-0.0107
6785	0.007	0.149	0.249	-0.0048	0.0010	-0.0107
6790	-0.077	0.100	0.258	-0.0006	-0.0012	-0.0186
6795	-0.078	0.099	0.258	-0.0006	-0.0012	-0.0186
6800	-0.537	-0.351	0.262	-0.0005	-0.0038	-0.0175
6805	-0.599	-0.424	0.374	-0.0078	0.0018	-0.0048
6810	-0.599	-0.424	0.375	-0.0078	0.0018	-0.0048
6815	-0.570	-0.314	0.616	-0.0088	0.0035	0.0013
6820	-0.415	-0.226	0.625	-0.0114	0.0251	0.0112
6825	-0.414	-0.226	0.623	-0.0114	0.0251	0.0112
NDB11BQ004 (6830)	0.003	-0.000	-0.002	-0.0064	0.0303	0.0034
6835	0.302	-0.044	-0.495	-0.0028	0.0298	-0.0057
6840	0.493	-0.100	-0.521	0.0021	0.0088	-0.0124
6845	0.493	-0.101	-0.520	0.0021	0.0088	-0.0124
6850	0.608	-0.110	0.002	-0.0018	-0.0006	-0.0125
6855	0.462	-0.033	0.022	-0.0017	-0.0212	-0.0092
6860	0.461	-0.032	0.021	-0.0017	-0.0212	-0.0092
NDB11BQ005 (6865)	0.395	-0.000	-0.055	-0.0014	-0.0218	-0.0085
6870	0.167	0.088	-0.325	-0.0005	-0.0214	-0.0067

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DISPLACEMENTS
REPORT: Nodal Movements
CASE 2 (OPE) W+D1+T1+P1+H

Node	DX mm	DY mm	DZ mm	RX deg.	RY deg.	RZ deg.
6875	0.008	0.070	-0.322	-0.0016	-0.0059	-0.0010
6880	0.008	0.069	-0.321	-0.0016	-0.0059	-0.0010
6885	-0.001	0.060	-0.271	-0.0012	-0.0008	0.0001
6890	-0.001	0.060	-0.270	-0.0012	-0.0008	0.0001
6895	-0.002	0.065	-0.205	-0.0012	-0.0002	0.0001
6900	-0.000	0.072	-0.056	-0.0001	0.0001	-0.0000
31NDC11AP001/S (6905)	-0.000	0.072	-0.036	-0.0001	0.0001	-0.0000
6906	-0.000	0.072	-0.036	-0.0001	0.0001	-0.0000
6910	0.000	0.073	-0.000	-0.0001	0.0001	-0.0000
6915	-0.000	-0.000	0.000	-0.0000	0.0000	-0.0000
31NDC11AP001/D (6920)	0.001	0.169	-0.001	-0.0001	0.0011	-0.0003
6925	0.001	0.169	-0.001	-0.0001	0.0011	-0.0003
6930	0.002	0.186	-0.001	-0.0001	0.0013	-0.0004
6935	0.004	0.236	-0.001	-0.0002	0.0041	-0.0009
6940	0.006	0.269	-0.002	-0.0002	0.0047	-0.0009
6945	0.007	0.302	-0.002	-0.0002	0.0054	-0.0009
6950	0.017	0.495	-0.004	-0.0002	0.0055	-0.0009
6955	0.018	0.528	-0.005	-0.0001	0.0061	-0.0006
NDB12BQ001 (6960)	0.019	0.583	-0.005	0.0000	0.0072	-0.0000
NDB12BQ002 (6965)	-0.000	0.815	0.000	0.0009	0.0116	0.0037
6970	-0.231	1.425	-0.017	-0.0053	0.0231	0.0071
6975	-0.389	1.379	-0.211	-0.0368	0.0282	0.0029
6980	-0.390	1.377	-0.212	-0.0368	0.0282	0.0029
6985	-1.143	0.416	-0.700	-0.0337	0.0273	-0.0058
6990	-1.238	0.301	-0.765	-0.0325	0.0263	-0.0070
6995	-1.233	0.116	-0.921	-0.0239	0.0021	-0.0128
7000	-1.232	0.116	-0.921	-0.0238	0.0021	-0.0128
NDB12BQ003 (7002)	-1.079	-0.000	-0.928	-0.0207	0.0002	-0.0161
7005	-0.418	-0.494	-0.807	-0.0069	-0.0077	-0.0025
7010	0.256	0.007	-0.323	0.0072	-0.0198	0.0261
7015	0.160	0.090	-0.067	0.0247	-0.0432	0.0251
7020	0.158	0.088	-0.066	0.0247	-0.0433	0.0251
NDB12BQ005 (7025)	0.005	-0.000	-0.000	0.0272	-0.0437	0.0251
7030	-0.209	-0.144	0.091	0.0303	-0.0438	0.0252
7035	-0.340	-0.238	0.147	0.0315	-0.0438	0.0253
7040	-0.427	-0.527	0.050	0.0355	-0.0413	0.0282
7045	-0.425	-0.528	0.049	0.0355	-0.0413	0.0282
7050	0.063	-0.843	-0.536	0.0337	-0.0399	0.0305
7055	0.071	-1.077	-0.593	0.0194	-0.0307	0.0427
7060	0.069	-1.078	-0.592	0.0194	-0.0307	0.0427
7065	-0.320	-1.308	-0.347	0.0160	-0.0284	0.0472
7069	-0.383	-1.275	-0.243	0.0073	-0.0197	0.0518
7070	-0.340	-1.072	-0.158	0.0037	-0.0107	0.0594
7075	-0.339	-1.069	-0.157	0.0037	-0.0107	0.0594
NDB12BQ006 (7080)	-0.001	-0.000	0.001	0.0010	-0.0073	0.0558

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DISPLACEMENTS
REPORT: Nodal Movements
CASE 2 (OPE) W+D1+T1+P1+H

Node	DX mm	DY mm	DZ mm	RX deg.	RY deg.	RZ deg.
7085	0.223	0.626	0.078	-0.0007	-0.0054	0.0498
7089	0.294	0.781	0.059	-0.0062	0.0004	0.0355
7090	0.312	0.792	-0.014	-0.0139	0.0050	0.0299
7095	0.311	0.791	-0.015	-0.0139	0.0050	0.0299
NDB12BQ008 (7097)	0.260	0.658	-0.188	-0.0154	0.0055	0.0252
7100	0.256	0.644	-0.204	-0.0155	0.0055	0.0247
7104	0.267	0.550	-0.246	-0.0172	0.0079	0.0209
7105	0.312	0.455	-0.217	-0.0127	0.0107	0.0106
7110	0.313	0.454	-0.216	-0.0126	0.0106	0.0106
7115	0.433	0.195	-0.056	-0.0106	0.0089	0.0075
7119	0.425	0.118	-0.017	-0.0038	0.0058	0.0039
7120	0.360	0.081	-0.003	-0.0005	0.0003	0.0001
7125	0.359	0.081	-0.003	-0.0005	0.0003	0.0001
7130	0.230	0.080	-0.001	-0.0004	0.0002	0.0001
7135	0.210	0.080	-0.001	-0.0004	0.0002	0.0001
8100	0.210	0.532	-0.002	0.0003	0.0004	0.0007
8105	0.230	0.533	-0.002	0.0003	0.0004	0.0007
8109	0.300	0.558	0.024	-0.0019	-0.0014	0.0112
8110	0.311	0.588	0.098	-0.0021	-0.0086	0.0148
8115	0.310	0.588	0.099	-0.0021	-0.0087	0.0149
8120	0.278	0.595	0.164	-0.0015	-0.0098	0.0170
8124	0.190	0.549	0.205	0.0102	-0.0219	0.0248
8125	0.081	0.397	0.134	0.0186	-0.0281	0.0451
8130	0.080	0.395	0.133	0.0186	-0.0281	0.0452
NDB13BQ010 (8135)	-0.006	0.181	0.001	0.0202	-0.0277	0.0481
NDB13BQ008 (8137)	-0.006	0.179	0.000	0.0202	-0.0277	0.0482
8140	-0.239	-0.459	-0.331	0.0245	-0.0264	0.0513
8144	-0.380	-0.610	-0.389	0.0267	-0.0253	0.0416
8145	-0.536	-0.598	-0.316	0.0321	-0.0242	0.0265
8150	-0.538	-0.597	-0.314	0.0321	-0.0242	0.0265
8155	-0.599	-0.553	-0.238	0.0324	-0.0246	0.0255
8160	-0.686	-0.488	-0.124	0.0327	-0.0251	0.0242
8165	-1.053	-0.162	0.440	0.0306	-0.0277	0.0184
8170	-0.935	0.017	0.461	0.0054	-0.0375	0.0046
8175	-0.933	0.018	0.460	0.0054	-0.0375	0.0046
NDB13BQ001 (8180)	0.000	-0.000	-0.000	-0.0098	-0.0376	-0.0032
8185	0.267	-0.096	-0.133	-0.0153	-0.0367	-0.0055
8190	0.340	-0.178	-0.384	-0.0242	-0.0245	-0.0167
8195	0.339	-0.177	-0.385	-0.0242	-0.0245	-0.0167
8200	0.338	-0.114	-0.593	-0.0135	-0.0148	-0.0428
8205	0.338	-0.115	-0.594	-0.0135	-0.0148	-0.0429
8210	0.697	-0.445	-1.361	-0.0019	0.0014	-0.0841
8215	0.791	-0.420	-1.432	-0.0019	0.0161	-0.0853
8220	0.793	-0.419	-1.433	-0.0019	0.0162	-0.0854
8225	0.957	0.178	-1.337	0.0111	0.0440	-0.1086
8230	0.956	0.184	-1.335	0.0111	0.0441	-0.1086
NDB13BQ009 (8235)	0.890	0.567	-1.177	0.0097	0.0463	-0.1098

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DISPLACEMENTS
REPORT: Nodal Movements
CASE 2 (OPE) W+D1+T1+P1+H

Node	DX mm	DY mm	DZ mm	RX deg.	RY deg.	RZ deg.
8240	0.825	0.954	-1.011	0.0084	0.0483	-0.1104
8245	0.696	1.725	-0.672	0.0083	0.0485	-0.1103
8250	0.663	1.918	-0.587	0.0076	0.0492	-0.1093
8255	0.631	2.109	-0.500	0.0069	0.0498	-0.1081
8260	0.502	2.863	-0.152	0.0068	0.0499	-0.1077
8265	0.437	3.233	0.024	0.0055	0.0506	-0.1016
NDB13BQ002 (8266)	-0.007	3.152	0.001	0.0055	0.0506	-0.1016
8267	-0.000	3.152	0.000	0.0000	0.0000	0.0000
8268	-0.000	3.152	0.000	0.0000	0.0000	0.0000
8270	0.335	3.755	0.301	0.0033	0.0511	-0.0933
8275	-0.027	4.007	0.475	-0.0237	0.0451	-0.0399
8280	-0.030	4.006	0.474	-0.0237	0.0451	-0.0398
8285	-0.129	3.999	0.300	-0.0068	0.0492	-0.0104
8290	-0.128	4.000	0.300	-0.0068	0.0492	-0.0104
NDB13BQ007 (8295)	0.000	4.770	-0.000	-0.0145	0.0275	-0.0049
8300	0.323	5.425	-0.711	-0.0203	0.0091	-0.0088
8305	0.316	5.502	-0.867	0.0008	0.0011	-0.0023
8310	0.315	5.502	-0.868	0.0008	0.0011	-0.0023
12000	-0.180	1.301	0.007	-0.0026	0.0208	0.0079
13100	0.190	0.532	-0.002	0.0003	0.0003	0.0006
31NDB20AT001/N2 (13200)	0.161	0.532	-0.000	-0.0000	0.0000	0.0000
13205	0.161	0.532	-0.000	-0.0000	0.0000	0.0000
13300	0.190	0.080	-0.000	-0.0004	0.0002	0.0001
31NDB20AT001/N1 (13400)	0.161	0.081	-0.000	-0.0000	0.0000	-0.0000
13405	0.161	0.081	-0.000	-0.0000	0.0000	-0.0000
13500	0.000	0.081	-0.000	-0.0000	0.0000	-0.0000
13600	0.000	0.532	-0.000	-0.0000	0.0000	0.0000
14000	0.000	-0.000	-0.000	-0.0000	0.0000	-0.0000

CAESAR II 2019 Ver.11.00.00.4800, (Build 200203) Date: JUN 3, 2020 Time: 13:46

DISPLACEMENTS REPORT: Nodal Movements
CASE 3 (OPE) W+D2+T2+P2+H

Node	DX mm	DY mm	DZ mm	RX deg.	RY deg.	RZ deg.
747	-0.018	12.759	-1.674	-0.0000	0.0000	0.0000
752	0.658	13.587	-1.681	0.0000	0.0000	-0.0000
6660	-0.289	12.747	-1.670	-0.0010	0.0020	0.0041
6665	-0.537	12.227	-1.519	-0.0198	0.0291	0.0390
6670	-0.535	12.223	-1.518	-0.0199	0.0291	0.0390
6675	0.353	10.693	-1.116	-0.0198	0.0412	0.0541
6680	0.522	10.271	-0.977	-0.0190	0.0446	0.1023
6685	0.523	10.264	-0.975	-0.0190	0.0447	0.1023
6690	1.020	7.511	-0.034	-0.0106	0.0537	0.1199
6695	0.936	6.874	0.186	-0.0078	0.0557	0.1501
6700	0.932	6.866	0.189	-0.0078	0.0557	0.1501
NDB11BQ014 (6705)	0.481	5.985	0.515	-0.0044	0.0565	0.1531
6710	-0.535	3.979	1.257	0.0032	0.0564	0.1485
6715	-0.528	2.988	1.443	0.0282	0.0399	0.0337
6720	-0.526	2.983	1.441	0.0282	0.0399	0.0336
NDB11BQ002 (6725)	0.000	0.220	-0.000	0.0564	0.0312	0.0036
6730	0.023	-0.857	-0.858	0.0633	0.0278	-0.0006
6735	0.019	-1.390	-1.300	0.0632	0.0278	-0.0007
6740	0.017	-1.526	-1.411	0.0620	0.0273	-0.0014
6745	0.014	-1.661	-1.519	0.0605	0.0269	-0.0020
6750	-0.000	-2.194	-1.940	0.0601	0.0268	-0.0022
6755	-0.028	-2.752	-2.335	0.0475	0.0251	-0.0056
6760	-0.053	-2.874	-1.879	-0.1072	0.0051	-0.0322
6765	-0.053	-2.869	-1.875	-0.1073	0.0051	-0.0323
NDB11BQ003 (6770)	-0.008	-0.000	0.005	-0.1131	-0.0021	-0.0488
6775	-0.025	0.590	0.426	-0.1054	-0.0034	-0.0525
6780	-0.544	0.912	1.027	-0.0514	-0.0184	-0.0558
6785	-0.549	0.911	1.028	-0.0513	-0.0184	-0.0558
6790	-0.921	0.722	1.141	-0.0260	-0.0243	-0.0758
6795	-0.925	0.718	1.142	-0.0259	-0.0243	-0.0758
6800	-2.739	-1.145	1.632	-0.0203	-0.0129	-0.0704
6805	-2.948	-1.362	2.188	-0.0444	0.0285	-0.0221
6810	-2.947	-1.360	2.192	-0.0444	0.0285	-0.0220
6815	-2.518	-0.765	3.192	-0.0457	0.0401	-0.0052
6820	-1.730	-0.487	3.083	-0.0465	0.1284	0.0208
6825	-1.726	-0.486	3.076	-0.0465	0.1284	0.0209
NDB11BQ004 (6830)	0.006	-0.000	-0.005	-0.0293	0.1430	0.0133
6835	1.249	0.067	-2.269	-0.0169	0.1353	-0.0008
6840	2.063	0.020	-2.415	0.0079	0.0392	-0.0226
6845	2.065	0.019	-2.411	0.0079	0.0391	-0.0226
6850	2.608	-0.242	-0.245	0.0084	0.0009	-0.0270
6855	2.044	-0.113	-0.111	0.0033	-0.0744	-0.0317
6860	2.040	-0.111	-0.115	0.0033	-0.0744	-0.0317
NDB11BQ005 (6865)	1.768	-0.000	-0.382	0.0031	-0.0768	-0.0317
6870	0.819	0.382	-1.344	0.0026	-0.0774	-0.0305
6875	0.123	0.318	-1.333	-0.0033	-0.0324	-0.0114

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DISPLACEMENTS REPORT: Nodal Movements
CASE 3 (OPE) W+D2+T2+P2+H

Node	DX mm	DY mm	DZ mm	RX deg.	RY deg.	RZ deg.
6880	0.121	0.316	-1.330	-0.0033	-0.0323	-0.0114
6885	0.059	0.269	-1.125	-0.0027	-0.0100	-0.0050
6890	0.058	0.270	-1.120	-0.0027	-0.0099	-0.0050
6895	0.029	0.281	-0.850	-0.0027	-0.0069	-0.0035
6900	0.001	0.299	-0.233	-0.0004	-0.0002	-0.0002
31NDC11AP001/S (6905)	0.001	0.299	-0.150	-0.0004	-0.0001	-0.0002
6906	0.001	0.299	-0.150	-0.0004	-0.0001	-0.0002
6910	0.000	0.300	-0.001	-0.0003	-0.0001	-0.0001
6915	0.000	-0.000	-0.000	-0.0000	-0.0000	-0.0000
31NDC11AP001/D (6920)	0.004	0.700	-0.009	-0.0023	0.0023	-0.0010
6925	0.004	0.700	-0.009	-0.0023	0.0023	-0.0010
6930	0.005	0.769	-0.011	-0.0025	0.0027	-0.0011
6935	0.012	0.973	-0.026	-0.0054	0.0093	-0.0024
6940	0.017	1.109	-0.037	-0.0056	0.0107	-0.0025
6945	0.022	1.244	-0.048	-0.0056	0.0122	-0.0025
6950	0.048	2.044	-0.107	-0.0054	0.0126	-0.0024
6955	0.052	2.180	-0.116	-0.0036	0.0140	-0.0016
NDB12BQ001 (6960)	0.055	2.405	-0.123	-0.0000	0.0163	-0.0000
NDB12BQ002 (6965)	-0.000	3.376	0.000	0.0233	0.0266	0.0104
6970	-0.657	5.918	1.293	0.0288	0.0533	0.0206
6975	-1.030	5.907	0.725	-0.1394	0.0627	0.0079
6980	-1.033	5.899	0.721	-0.1395	0.0627	0.0078
6985	-2.676	1.796	-1.300	-0.1635	0.0572	-0.0152
6990	-2.872	1.225	-1.571	-0.1627	0.0541	-0.0183
6995	-2.625	0.263	-2.044	-0.1536	-0.0036	-0.0303
7000	-2.621	0.261	-2.044	-0.1535	-0.0037	-0.0303
NDB12BQ003 (7002)	-1.985	-0.000	-2.000	-0.1468	-0.0031	-0.0323
7005	0.762	-0.862	-2.089	-0.1177	0.0019	-0.0091
7010	3.565	-0.600	-1.728	-0.0880	-0.0283	0.0171
7015	3.505	-0.166	-0.989	-0.0481	-0.1159	-0.0041
7020	3.499	-0.163	-0.985	-0.0480	-0.1160	-0.0041
NDB12BQ005 (7025)	3.086	-0.000	-0.714	-0.0441	-0.1188	-0.0055
7030	2.498	0.199	-0.336	-0.0385	-0.1214	-0.0074
7035	2.133	0.308	-0.105	-0.0356	-0.1223	-0.0085
7040	1.377	-0.020	0.306	0.0145	-0.1313	-0.0164
7045	1.376	-0.024	0.305	0.0145	-0.1313	-0.0164
7050	1.133	-1.330	0.002	0.0192	-0.1303	-0.0092
7055	0.603	-1.838	0.301	0.0183	-0.0993	0.0384
7060	0.598	-1.839	0.305	0.0183	-0.0993	0.0385
7065	-0.660	-2.073	1.321	0.0190	-0.0904	0.0582
7069	-0.816	-2.053	1.710	0.0196	-0.0519	0.0667
7070	-0.588	-1.780	1.943	0.0148	-0.0115	0.0931
7075	-0.584	-1.775	1.944	0.0148	-0.0115	0.0932
NDB12BQ006 (7080)	0.819	-0.000	2.000	0.0279	0.0026	0.0978
7085	1.747	1.132	1.938	0.0366	0.0075	0.0902
7089	2.012	1.476	1.774	0.0322	0.0163	0.0648

CAESAR II 2019 Ver.11.00.00.4800, (Build 200203) Date: JUN 3, 2020 Time: 13:46

DISPLACEMENTS REPORT: Nodal Movements
CASE 3 (OPE) W+D2+T2+P2+H

Node	DX mm	DY mm	DZ mm	RX deg.	RY deg.	RZ deg.
7090	2.059	1.690	1.458	0.0330	0.0198	0.0568
7095	2.058	1.692	1.454	0.0331	0.0198	0.0567
NDB12BQ008 (7097)	1.872	2.006	0.737	0.0329	0.0191	0.0432
7100	1.855	2.035	0.669	0.0326	0.0189	0.0419
7104	1.849	2.024	0.340	0.0245	0.0181	0.0337
7105	1.896	1.771	0.145	0.0158	0.0231	0.0070
7110	1.896	1.767	0.145	0.0158	0.0230	0.0069
7115	1.919	0.699	-0.037	0.0103	0.0136	-0.0015
7119	1.783	0.420	-0.035	0.0012	0.0125	-0.0057
7120	1.488	0.319	-0.008	0.0012	0.0009	-0.0013
7125	1.484	0.319	-0.008	0.0012	0.0009	-0.0013
7130	0.950	0.328	-0.002	0.0010	0.0007	-0.0012
7135	0.868	0.329	-0.001	0.0010	0.0007	-0.0012
8100	0.868	2.196	-0.009	0.0046	0.0016	0.0015
8105	0.951	2.198	-0.011	0.0048	0.0016	0.0016
8109	1.240	2.239	0.094	0.0123	-0.0047	0.0271
8110	1.289	2.189	0.399	0.0402	-0.0355	0.0333
8115	1.287	2.187	0.403	0.0403	-0.0356	0.0335
8120	1.155	2.034	0.673	0.0448	-0.0407	0.0433
8124	0.787	1.680	0.839	0.0944	-0.0913	0.0753
8125	0.338	1.103	0.547	0.1197	-0.1146	0.1381
8130	0.334	1.096	0.541	0.1197	-0.1146	0.1382
NDB13BQ010 (8135)	-0.024	0.440	0.004	0.1223	-0.1125	0.1442
NDB13BQ008 (8137)	-0.027	0.435	0.000	0.1223	-0.1125	0.1442
8140	-0.993	-1.410	-1.329	0.1291	-0.1044	0.1463
8144	-1.480	-1.798	-1.502	0.1335	-0.0984	0.1165
8145	-1.958	-1.673	-1.140	0.1374	-0.0977	0.0758
8150	-1.962	-1.669	-1.133	0.1374	-0.0977	0.0757
8155	-2.137	-1.486	-0.807	0.1373	-0.0983	0.0730
8160	-2.385	-1.215	-0.327	0.1363	-0.0992	0.0692
8165	-3.445	0.138	1.938	0.1182	-0.1036	0.0537
8170	-3.021	0.729	1.913	-0.0127	-0.1233	0.0211
8175	-3.015	0.728	1.909	-0.0128	-0.1233	0.0211
NDB13BQ001 (8180)	0.000	-0.000	0.000	-0.0419	-0.1193	0.0018
8185	0.841	-0.320	-0.554	-0.0459	-0.1154	-0.0038
8190	0.961	-0.479	-1.418	-0.0380	-0.0727	-0.0353
8195	0.957	-0.477	-1.422	-0.0380	-0.0727	-0.0354
8200	0.821	-0.285	-2.140	-0.0104	-0.0402	-0.0818
8205	0.824	-0.286	-2.145	-0.0104	-0.0401	-0.0819
8210	1.808	-0.325	-5.326	0.0087	0.0034	-0.1422
8215	1.907	-0.167	-5.596	0.0096	0.0539	-0.1344
8220	1.910	-0.163	-5.598	0.0096	0.0540	-0.1345
8225	1.720	0.954	-5.259	0.0424	0.1431	-0.1561
8230	1.716	0.963	-5.251	0.0424	0.1432	-0.1561
NDB13BQ009 (8235)	1.445	1.513	-4.739	0.0403	0.1487	-0.1581
8240	1.174	2.069	-4.209	0.0382	0.1534	-0.1593
8245	0.641	3.182	-3.137	0.0380	0.1537	-0.1593
8250	0.506	3.460	-2.867	0.0369	0.1547	-0.1586

CAESAR II 2019 Ver.11.00.00.4800, (Build 200203) Date: JUN 3, 2020 Time: 13:46

DISPLACEMENTS REPORT: Nodal Movements
CASE 3 (OPE) W+D2+T2+P2+H

Node	DX mm	DY mm	DZ mm	RX deg.	RY deg.	RZ deg.
8255	0.370	3.738	-2.595	0.0359	0.1556	-0.1576
8260	-0.163	4.838	-1.508	0.0357	0.1557	-0.1573
8265	-0.434	5.381	-0.963	0.0336	0.1549	-0.1516
NDB13BQ002 (8266)	-1.095	5.048	-1.110	0.0336	0.1549	-0.1516
8267	-0.000	5.048	-0.000	0.0000	0.0000	0.0000
8268	-0.000	5.048	-0.000	0.0000	0.0000	0.0000
8270	-0.854	6.176	-0.130	0.0316	0.1525	-0.1437
8275	-1.941	6.856	0.205	0.0053	0.1116	-0.0917
8280	-1.947	6.856	0.201	0.0053	0.1115	-0.0917
8285	-2.045	7.292	-0.164	0.0096	0.0987	-0.0671
8290	-2.041	7.296	-0.163	0.0096	0.0987	-0.0670
NDB13BQ007 (8295)	-0.000	10.496	-0.000	-0.0114	0.0592	-0.0332
8300	0.742	13.207	-0.830	-0.0270	0.0259	-0.0107
8305	0.667	13.579	-1.316	0.0011	0.0037	-0.0031
8310	0.667	13.579	-1.320	0.0011	0.0036	-0.0031
12000	-0.510	5.403	1.055	0.0394	0.0479	0.0225
13100	0.785	2.195	-0.007	0.0045	0.0016	0.0015
31NDB20AT001/N2 (13200)	0.666	2.196	-0.002	-0.0000	0.0001	-0.0000
13205	0.666	2.196	-0.002	-0.0000	0.0001	-0.0000
13300	0.785	0.331	-0.001	0.0009	0.0007	-0.0011
31NDB20AT001/N1 (13400)	0.666	0.333	-0.000	-0.0000	0.0000	-0.0000
13405	0.666	0.333	-0.000	-0.0000	0.0000	-0.0000
13500	0.000	0.333	-0.000	-0.0000	0.0000	-0.0000
13600	0.000	2.196	-0.001	-0.0000	0.0000	-0.0000
14000	0.000	-0.000	-0.000	-0.0000	0.0000	-0.0000

CAESAR II 2019 Ver.11.00.00.4800, (Build 200203) Date: JUN 3, 2020 Time: 13:46

DISPLACEMENTS REPORT: Nodal Movements
CASE 4 (SUS) W+P1+H

Node	DX mm	DY mm	DZ mm	RX deg.	RY deg.	RZ deg.
747	-0.000	-0.000	0.000	0.0000	0.0000	0.0000
752	0.000	-0.000	0.000	0.0000	0.0000	0.0000
6660	-0.001	-0.005	0.000	0.0000	0.0002	0.0011
6665	-0.016	-0.009	0.009	-0.0004	0.0020	-0.0080
6670	-0.016	-0.009	0.009	-0.0004	0.0020	-0.0080
6675	-0.167	-0.017	0.013	-0.0000	0.0031	-0.0045
6680	-0.146	-0.033	0.017	0.0005	0.0033	0.0178
6685	-0.145	-0.033	0.017	0.0005	0.0033	0.0178
6690	0.191	-0.379	0.059	0.0014	0.0043	0.0295
6695	0.251	-0.544	0.074	0.0015	0.0049	0.0568
6700	0.251	-0.547	0.074	0.0015	0.0049	0.0568
NDB11BQ014 (6705)	0.249	-0.888	0.103	0.0018	0.0050	0.0608
6710	0.245	-1.715	0.171	0.0025	0.0053	0.0612
6715	0.365	-1.931	0.182	0.0042	0.0050	-0.0022
6720	0.365	-1.931	0.182	0.0042	0.0050	-0.0022
NDB11BQ002 (6725)	0.000	-1.943	-0.000	0.0062	0.0056	-0.0106
6730	-0.115	-1.948	-0.085	0.0048	0.0058	-0.0061
6735	-0.157	-1.948	-0.118	0.0046	0.0058	-0.0061
6740	-0.167	-1.948	-0.126	0.0038	0.0059	-0.0056
6745	-0.177	-1.948	-0.132	0.0029	0.0059	-0.0052
6750	-0.213	-1.949	-0.152	0.0027	0.0059	-0.0051
6755	-0.245	-1.950	-0.153	-0.0031	0.0060	-0.0039
6760	-0.203	-1.701	-0.003	-0.0686	0.0089	0.0027
6765	-0.202	-1.697	-0.003	-0.0686	0.0089	0.0027
NDB11BQ003 (6770)	-0.002	-0.000	0.003	-0.0611	0.0070	0.0068
6775	0.034	0.308	0.004	-0.0546	0.0064	0.0078
6780	0.106	0.436	0.096	-0.0152	-0.0046	0.0148
6785	0.107	0.435	0.097	-0.0152	-0.0046	0.0148
6790	0.145	0.416	0.118	-0.0016	-0.0092	0.0050
6795	0.145	0.416	0.118	-0.0016	-0.0092	0.0050
6800	0.208	0.408	0.059	0.0055	-0.0096	0.0011
6805	0.152	0.335	0.003	0.0156	-0.0101	-0.0010
6810	0.152	0.335	0.003	0.0156	-0.0101	-0.0010
6815	0.026	0.137	0.006	0.0146	-0.0091	-0.0014
6820	-0.004	0.072	0.022	0.0099	0.0001	-0.0009
6825	-0.004	0.072	0.022	0.0099	0.0001	-0.0009
NDB11BQ004 (6830)	0.001	-0.000	0.002	0.0068	0.0009	-0.0088
6835	0.005	-0.211	-0.005	0.0046	0.0001	-0.0150
6840	0.006	-0.299	-0.005	-0.0033	0.0001	-0.0123
6845	0.006	-0.298	-0.005	-0.0033	0.0001	-0.0122
6850	0.003	-0.099	0.002	-0.0101	-0.0003	-0.0102
6855	0.001	-0.007	0.000	-0.0066	-0.0004	-0.0022
6860	0.001	-0.007	0.000	-0.0066	-0.0004	-0.0021
NDB11BQ005 (6865)	0.001	-0.000	-0.001	-0.0060	-0.0005	-0.0010
6870	-0.002	-0.011	-0.009	-0.0041	-0.0005	0.0014
6875	-0.000	-0.007	-0.004	-0.0019	-0.0007	0.0014

CAESAR II 2019 Ver.11.00.00.4800, (Build 200203) Date: JUN 3, 2020 Time: 13:46

DISPLACEMENTS REPORT: Nodal Movements
CASE 4 (SUS) W+P1+H

Node	DX mm	DY mm	DZ mm	RX deg.	RY deg.	RZ deg.
6880	-0.000	-0.007	-0.004	-0.0019	-0.0007	0.0014
6885	-0.000	-0.004	-0.003	-0.0005	-0.0001	0.0012
6890	-0.000	-0.004	-0.003	-0.0005	-0.0001	0.0012
6895	-0.000	-0.003	-0.002	-0.0004	-0.0000	0.0008
6900	-0.000	-0.000	-0.000	-0.0000	0.0000	0.0000
31NDC11AP001/S (6905)	-0.000	0.000	-0.000	-0.0000	0.0000	0.0000
6906	-0.000	0.000	-0.000	-0.0000	0.0000	0.0000
6910	-0.000	0.000	-0.000	-0.0000	0.0000	0.0000
6915	-0.000	0.000	0.000	-0.0000	0.0000	0.0000
31NDC11AP001/D (6920)	-0.000	0.000	-0.000	-0.0001	0.0001	0.0000
6925	-0.000	0.000	-0.000	-0.0001	0.0001	0.0000
6930	-0.000	0.000	-0.000	-0.0001	0.0001	0.0000
6935	-0.000	0.001	-0.001	-0.0001	0.0003	0.0000
6940	-0.000	0.002	-0.001	-0.0001	0.0003	0.0000
6945	-0.000	0.003	-0.001	-0.0001	0.0004	0.0000
6950	-0.001	0.003	-0.002	-0.0001	0.0004	0.0000
6955	-0.001	0.004	-0.002	-0.0001	0.0004	0.0000
NDB12BQ001 (6960)	-0.001	0.005	-0.002	0.0000	0.0005	-0.0000
NDB12BQ002 (6965)	-0.000	0.006	0.000	0.0005	0.0008	-0.0001
6970	0.020	0.011	0.017	-0.0002	0.0016	-0.0013
6975	0.028	-0.001	0.007	-0.0011	0.0009	-0.0038
6980	0.028	-0.001	0.007	-0.0011	0.0009	-0.0038
6985	0.005	0.047	0.001	0.0058	0.0007	-0.0061
6990	0.003	0.069	0.000	0.0066	0.0006	-0.0064
6995	0.001	0.089	-0.001	0.0112	0.0001	-0.0098
7000	0.001	0.088	-0.001	0.0112	0.0001	-0.0098
NDB12BQ003 (7002)	0.003	-0.000	-0.001	0.0121	0.0001	-0.0128
7005	0.013	-0.407	-0.009	0.0159	0.0002	-0.0012
7010	0.024	0.089	-0.005	0.0199	-0.0005	0.0243
7015	0.012	0.107	0.001	0.0300	-0.0044	0.0234
7020	0.012	0.106	0.001	0.0301	-0.0044	0.0234
NDB12BQ005 (7025)	-0.004	-0.000	0.002	0.0318	-0.0050	0.0230
7030	-0.031	-0.164	0.003	0.0338	-0.0059	0.0225
7035	-0.049	-0.268	0.004	0.0342	-0.0064	0.0222
7040	-0.001	-0.431	-0.132	0.0176	-0.0133	0.0169
7045	-0.000	-0.431	-0.133	0.0176	-0.0133	0.0169
7050	0.281	-0.437	-0.397	0.0146	-0.0156	0.0171
7055	0.293	-0.501	-0.467	0.0099	-0.0172	0.0193
7060	0.292	-0.502	-0.467	0.0099	-0.0172	0.0193
7065	0.064	-0.617	-0.464	0.0075	-0.0174	0.0212
7069	-0.001	-0.596	-0.437	0.0004	-0.0163	0.0242
7070	-0.025	-0.494	-0.381	-0.0021	-0.0132	0.0280
7075	-0.025	-0.492	-0.380	-0.0021	-0.0132	0.0280
NDB12BQ006 (7080)	-0.021	-0.000	-0.172	-0.0054	-0.0090	0.0240
7085	-0.018	0.252	-0.087	-0.0075	-0.0059	0.0194
7089	-0.014	0.295	-0.074	-0.0110	-0.0011	0.0114

CAESAR II 2019 Ver.11.00.00.4800, (Build 200203) Date: JUN 3, 2020 Time: 13:46

DISPLACEMENTS REPORT: Nodal Movements
CASE 4 (SUS) W+P1+H

Node	DX mm	DY mm	DZ mm	RX deg.	RY deg.	RZ deg.
7090	-0.016	0.258	-0.074	-0.0160	0.0012	0.0084
7095	-0.016	0.257	-0.074	-0.0160	0.0012	0.0084
NDB12BQ008 (7097)	-0.029	0.106	-0.077	-0.0168	0.0014	0.0065
7100	-0.031	0.090	-0.077	-0.0169	0.0014	0.0063
7104	-0.027	0.029	-0.053	-0.0128	0.0016	0.0050
7105	-0.018	0.014	-0.024	-0.0031	0.0023	0.0015
7110	-0.018	0.014	-0.024	-0.0031	0.0023	0.0015
7115	-0.006	0.009	0.001	-0.0012	0.0011	0.0007
7119	-0.002	0.007	0.004	-0.0000	0.0003	0.0015
7120	0.001	0.002	0.003	0.0001	-0.0002	0.0003
7125	0.001	0.002	0.003	0.0001	-0.0002	0.0002
7130	0.000	0.000	0.001	0.0001	-0.0002	0.0002
7135	0.000	0.000	0.001	0.0001	-0.0002	0.0002
8100	0.000	0.001	0.000	-0.0009	-0.0001	0.0005
8105	0.000	0.002	0.000	-0.0009	-0.0001	0.0005
8109	0.001	0.023	-0.001	-0.0059	0.0010	0.0078
8110	0.008	0.078	-0.003	-0.0139	0.0025	0.0111
8115	0.008	0.079	-0.003	-0.0139	0.0025	0.0111
8120	0.017	0.130	-0.002	-0.0145	0.0025	0.0114
8124	0.026	0.167	0.002	-0.0131	0.0019	0.0131
8125	0.028	0.121	0.005	-0.0091	-0.0008	0.0229
8130	0.028	0.120	0.005	-0.0091	-0.0008	0.0229
NDB13BQ010 (8135)	0.027	0.013	0.000	-0.0080	-0.0015	0.0252
NDB13BQ008 (8137)	0.027	0.012	-0.000	-0.0080	-0.0015	0.0252
8140	0.024	-0.339	-0.032	-0.0049	-0.0037	0.0287
8144	-0.017	-0.442	-0.062	-0.0046	-0.0076	0.0243
8145	-0.094	-0.476	-0.085	-0.0004	-0.0076	0.0169
8150	-0.095	-0.476	-0.085	-0.0003	-0.0077	0.0168
8155	-0.134	-0.476	-0.085	0.0001	-0.0082	0.0164
8160	-0.189	-0.475	-0.084	0.0007	-0.0090	0.0158
8165	-0.452	-0.471	-0.043	0.0039	-0.0132	0.0150
8170	-0.452	-0.400	0.007	0.0176	-0.0178	0.0151
8175	-0.451	-0.399	0.007	0.0176	-0.0179	0.0151
NDB13BQ001 (8180)	-0.000	-0.000	0.001	0.0103	-0.0174	0.0187
8185	0.121	0.051	-0.001	0.0058	-0.0163	0.0197
8190	0.187	-0.089	-0.053	-0.0068	-0.0065	0.0232
8195	0.187	-0.090	-0.053	-0.0068	-0.0065	0.0232
8200	0.190	-0.216	-0.069	-0.0022	0.0022	0.0137
8205	0.190	-0.217	-0.069	-0.0022	0.0022	0.0137
8210	0.025	-0.114	-0.079	0.0061	0.0061	-0.0050
8215	0.009	-0.101	-0.076	-0.0017	0.0061	-0.0078
8220	0.009	-0.101	-0.076	-0.0017	0.0061	-0.0078
8225	0.041	-0.056	-0.098	-0.0123	-0.0002	-0.0153
8230	0.041	-0.055	-0.098	-0.0123	-0.0002	-0.0153
NDB13BQ009 (8235)	0.040	-0.000	-0.098	-0.0145	-0.0000	-0.0152
8240	0.040	0.053	-0.098	-0.0167	0.0001	-0.0146
8245	0.039	0.154	-0.097	-0.0169	0.0002	-0.0145
8250	0.039	0.180	-0.097	-0.0180	0.0004	-0.0137

CAESAR II 2019 Ver.11.00.00.4800, (Build 200203) Date: JUN 3, 2020 Time: 13:46

DISPLACEMENTS REPORT: Nodal Movements
CASE 4 (SUS) W+P1+H

Node	DX mm	DY mm	DZ mm	RX deg.	RY deg.	RZ deg.
8255	0.039	0.204	-0.096	-0.0191	0.0006	-0.0128
8260	0.038	0.293	-0.092	-0.0193	0.0006	-0.0126
8265	0.038	0.332	-0.089	-0.0214	0.0012	-0.0086
NDB13BQ002 (8266)	-0.000	0.332	0.004	-0.0214	0.0012	-0.0086
8267	-0.000	0.332	0.000	0.0000	0.0000	0.0000
8268	-0.000	0.333	0.000	0.0000	0.0000	0.0000
8270	0.036	0.358	-0.079	-0.0257	0.0019	-0.0039
8275	0.018	0.137	-0.062	-0.0364	0.0035	0.0104
8280	0.017	0.135	-0.062	-0.0364	0.0035	0.0104
8285	-0.024	-0.019	-0.160	-0.0026	-0.0011	0.0015
8290	-0.024	-0.019	-0.160	-0.0025	-0.0011	0.0015
NDB13BQ007 (8295)	-0.000	-0.013	-0.000	0.0037	-0.0005	-0.0008
8300	0.002	-0.005	0.003	-0.0015	0.0000	0.0003
8305	0.000	-0.003	0.001	0.0006	0.0000	0.0001
8310	0.000	-0.003	0.001	0.0006	0.0000	0.0001
12000	0.012	0.010	0.016	0.0003	0.0014	-0.0010
13100	0.000	0.001	0.000	-0.0008	-0.0001	0.0004
31NDB20AT001/N2 (13200)	-0.000	0.000	0.000	-0.0000	-0.0000	0.0000
13205	-0.000	0.000	0.000	-0.0000	-0.0000	0.0000
13300	0.000	-0.000	0.000	0.0001	-0.0002	0.0002
31NDB20AT001/N1 (13400)	0.000	-0.000	0.000	0.0000	-0.0000	0.0000
13405	0.000	-0.000	0.000	0.0000	-0.0000	0.0000
13500	0.000	-0.000	0.000	-0.0000	-0.0000	0.0000
13600	-0.000	0.000	0.000	-0.0000	-0.0000	0.0000
14000	0.000	-0.000	0.000	0.0000	-0.0000	0.0000

CAESAR II 2019 Ver.11.00.00.4800, (Build 200203) Date: JUN 3, 2020 Time: 13:46

DISPLACEMENTS REPORT: Nodal Movements
CASE 5 (SUS) W+P2+H

Node	DX mm	DY mm	DZ mm	RX deg.	RY deg.	RZ deg.
747	-0.000	-0.000	0.000	-0.0000	0.0000	0.0000
752	0.000	-0.000	0.000	0.0000	0.0000	0.0000
6660	-0.005	-0.005	0.000	-0.0000	0.0002	0.0012
6665	-0.030	-0.003	0.011	-0.0010	0.0023	-0.0110
6670	-0.030	-0.003	0.011	-0.0010	0.0023	-0.0110
6675	-0.236	-0.033	0.029	-0.0007	0.0034	-0.0075
6680	-0.223	-0.046	0.036	-0.0003	0.0035	0.0163
6685	-0.222	-0.046	0.036	-0.0003	0.0035	0.0164
6690	0.070	-0.379	0.092	0.0007	0.0044	0.0272
6695	0.128	-0.541	0.107	0.0010	0.0047	0.0570
6700	0.128	-0.544	0.107	0.0010	0.0047	0.0570
NDB11BQ014 (6705)	0.119	-0.886	0.135	0.0014	0.0048	0.0610
6710	0.101	-1.719	0.198	0.0022	0.0049	0.0622
6715	0.231	-1.944	0.204	0.0046	0.0036	0.0006
6720	0.231	-1.944	0.204	0.0046	0.0036	0.0005
NDB11BQ002 (6725)	0.000	-1.995	-0.000	0.0072	0.0033	-0.0070
6730	-0.069	-2.015	-0.100	0.0057	0.0031	-0.0032
6735	-0.091	-2.015	-0.139	0.0056	0.0031	-0.0031
6740	-0.096	-2.018	-0.149	0.0047	0.0031	-0.0027
6745	-0.100	-2.020	-0.156	0.0036	0.0031	-0.0024
6750	-0.116	-2.021	-0.181	0.0034	0.0031	-0.0023
6755	-0.129	-2.030	-0.185	-0.0032	0.0030	-0.0013
6760	-0.097	-1.772	-0.030	-0.0709	0.0047	0.0038
6765	-0.096	-1.768	-0.030	-0.0709	0.0047	0.0038
NDB11BQ003 (6770)	-0.002	-0.000	0.003	-0.0638	0.0026	0.0073
6775	0.010	0.322	0.010	-0.0570	0.0020	0.0081
6780	0.072	0.459	0.107	-0.0185	-0.0044	0.0159
6785	0.073	0.458	0.108	-0.0185	-0.0044	0.0159
6790	0.107	0.439	0.138	-0.0031	-0.0093	0.0024
6795	0.107	0.439	0.138	-0.0030	-0.0093	0.0024
6800	0.110	0.404	0.106	0.0044	-0.0086	-0.0011
6805	0.060	0.324	0.047	0.0185	-0.0065	-0.0010
6810	0.060	0.323	0.047	0.0185	-0.0065	-0.0010
6815	-0.016	0.090	0.064	0.0171	-0.0049	-0.0008
6820	-0.029	0.022	0.066	0.0113	0.0018	0.0012
6825	-0.029	0.022	0.066	0.0113	0.0018	0.0012
NDB11BQ004 (6830)	0.001	-0.000	0.002	0.0081	0.0027	-0.0066
6835	0.023	-0.178	-0.029	0.0058	0.0011	-0.0130
6840	0.029	-0.262	-0.035	-0.0022	0.0012	-0.0106
6845	0.030	-0.262	-0.035	-0.0022	0.0011	-0.0106
6850	0.020	-0.090	0.003	-0.0093	-0.0018	-0.0089
6855	0.012	-0.005	-0.003	-0.0066	-0.0008	-0.0016
6860	0.012	-0.005	-0.003	-0.0066	-0.0008	-0.0016
NDB11BQ005 (6865)	0.007	-0.000	-0.006	-0.0062	-0.0011	-0.0005
6870	-0.009	-0.017	-0.023	-0.0045	-0.0010	0.0021
6875	-0.008	-0.010	-0.018	-0.0036	-0.0011	0.0010

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DISPLACEMENTS REPORT: Nodal Movements
CASE 5 (SUS) W+P2+H

Node	DX mm	DY mm	DZ mm	RX deg.	RY deg.	RZ deg.
6880	-0.008	-0.010	-0.018	-0.0036	-0.0011	0.0010
6885	-0.008	-0.005	-0.016	-0.0005	0.0005	0.0011
6890	-0.007	-0.005	-0.016	-0.0005	0.0005	0.0011
6895	-0.005	-0.003	-0.011	-0.0005	0.0006	0.0008
6900	-0.000	0.000	-0.000	-0.0001	0.0001	0.0000
31NDC11AP001/S (6905)	-0.000	0.000	-0.000	-0.0001	0.0001	0.0000
6906	-0.000	0.000	-0.000	-0.0001	0.0001	0.0000
6910	-0.000	0.000	-0.000	-0.0000	0.0000	0.0000
6915	-0.000	0.000	0.000	-0.0000	0.0000	0.0000
31NDC11AP001/D (6920)	-0.000	0.001	-0.001	-0.0002	0.0001	-0.0000
6925	-0.000	0.001	-0.001	-0.0002	0.0001	-0.0000
6930	-0.000	0.001	-0.001	-0.0002	0.0001	-0.0000
6935	0.000	0.004	-0.002	-0.0003	0.0004	-0.0001
6940	0.000	0.007	-0.002	-0.0003	0.0004	-0.0001
6945	0.000	0.009	-0.003	-0.0003	0.0005	-0.0001
6950	0.001	0.011	-0.007	-0.0003	0.0005	-0.0001
6955	0.001	0.014	-0.007	-0.0002	0.0005	-0.0000
NDB12BQ001 (6960)	0.001	0.018	-0.007	0.0000	0.0006	-0.0000
NDB12BQ002 (6965)	-0.000	0.033	0.000	0.0014	0.0009	0.0003
6970	-0.006	0.074	0.068	0.0008	0.0018	-0.0005
6975	-0.001	0.063	0.062	-0.0014	0.0007	-0.0036
6980	-0.001	0.063	0.062	-0.0014	0.0007	-0.0036
6985	-0.012	0.075	0.026	0.0038	-0.0002	-0.0065
6990	-0.011	0.090	0.021	0.0046	-0.0005	-0.0069
6995	-0.013	0.095	0.016	0.0091	0.0024	-0.0105
7000	-0.013	0.094	0.016	0.0091	0.0024	-0.0106
NDB12BQ003 (7002)	-0.002	-0.000	-0.002	0.0102	0.0023	-0.0135
7005	0.046	-0.415	-0.081	0.0148	0.0013	-0.0011
7010	0.095	0.089	-0.042	0.0194	-0.0043	0.0246
7015	0.044	0.109	-0.003	0.0304	-0.0117	0.0232
7020	0.044	0.107	-0.003	0.0304	-0.0118	0.0232
NDB12BQ005 (7025)	0.001	-0.000	0.002	0.0322	-0.0122	0.0228
7030	-0.060	-0.166	0.009	0.0343	-0.0127	0.0223
7035	-0.099	-0.271	0.013	0.0347	-0.0129	0.0219
7040	-0.072	-0.427	-0.108	0.0126	-0.0166	0.0180
7045	-0.071	-0.427	-0.108	0.0126	-0.0166	0.0180
7050	0.229	-0.452	-0.291	0.0097	-0.0171	0.0181
7055	0.247	-0.511	-0.347	0.0111	-0.0156	0.0213
7060	0.246	-0.512	-0.347	0.0111	-0.0156	0.0213
7065	0.044	-0.642	-0.329	0.0085	-0.0149	0.0230
7069	-0.013	-0.622	-0.305	0.0014	-0.0147	0.0260
7070	-0.035	-0.515	-0.253	-0.0011	-0.0125	0.0294
7075	-0.035	-0.514	-0.253	-0.0011	-0.0125	0.0294
NDB12BQ006 (7080)	-0.010	-0.000	-0.066	-0.0046	-0.0074	0.0250
7085	0.006	0.263	-0.002	-0.0068	-0.0040	0.0201
7089	0.010	0.306	0.008	-0.0108	-0.0020	0.0108

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DISPLACEMENTS REPORT: Nodal Movements
CASE 5 (SUS) W+P2+H

Node	DX mm	DY mm	DZ mm	RX deg.	RY deg.	RZ deg.
7090	0.017	0.267	0.011	-0.0166	-0.0025	0.0072
7095	0.017	0.266	0.011	-0.0166	-0.0025	0.0072
NDB12BQ008 (7097)	0.038	0.109	-0.002	-0.0176	-0.0022	0.0048
7100	0.040	0.093	-0.004	-0.0177	-0.0022	0.0046
7104	0.052	0.033	0.019	-0.0111	-0.0012	0.0028
7105	0.054	0.021	0.038	0.0006	0.0001	-0.0022
7110	0.054	0.021	0.038	0.0007	0.0001	-0.0022
7115	0.011	0.001	0.015	0.0019	-0.0010	-0.0036
7119	0.003	0.003	0.007	0.0010	-0.0010	-0.0007
7120	0.003	0.002	0.003	0.0002	-0.0003	0.0003
7125	0.003	0.002	0.003	0.0002	-0.0003	0.0003
7130	0.002	0.000	0.001	0.0002	-0.0003	0.0002
7135	0.002	0.000	0.001	0.0002	-0.0003	0.0002
8100	0.002	0.001	-0.000	-0.0008	-0.0000	0.0005
8105	0.002	0.002	-0.000	-0.0008	-0.0000	0.0005
8109	0.006	0.023	-0.006	-0.0057	0.0032	0.0079
8110	0.023	0.076	-0.013	-0.0132	0.0053	0.0112
8115	0.023	0.077	-0.013	-0.0132	0.0052	0.0112
8120	0.041	0.125	-0.008	-0.0137	0.0048	0.0116
8124	0.056	0.159	-0.002	-0.0118	0.0028	0.0135
8125	0.059	0.108	0.003	-0.0076	-0.0001	0.0238
8130	0.059	0.107	0.003	-0.0076	-0.0001	0.0238
NDB13BQ010 (8135)	0.053	-0.005	0.000	-0.0064	-0.0009	0.0261
NDB13BQ008 (8137)	0.053	-0.006	0.000	-0.0064	-0.0009	0.0261
8140	0.036	-0.367	-0.025	-0.0032	-0.0032	0.0293
8144	-0.008	-0.476	-0.052	-0.0032	-0.0080	0.0266
8145	-0.096	-0.515	-0.072	0.0005	-0.0085	0.0207
8150	-0.097	-0.514	-0.072	0.0005	-0.0085	0.0207
8155	-0.145	-0.511	-0.070	0.0009	-0.0092	0.0202
8160	-0.214	-0.507	-0.065	0.0015	-0.0102	0.0194
8165	-0.536	-0.483	-0.017	0.0038	-0.0152	0.0184
8170	-0.538	-0.410	0.035	0.0185	-0.0212	0.0181
8175	-0.537	-0.409	0.035	0.0185	-0.0212	0.0181
NDB13BQ001 (8180)	-0.000	-0.000	0.001	0.0105	-0.0209	0.0221
8185	0.144	0.053	-0.009	0.0061	-0.0195	0.0233
8190	0.236	-0.103	-0.092	-0.0061	-0.0142	0.0270
8195	0.236	-0.104	-0.092	-0.0061	-0.0142	0.0270
8200	0.254	-0.248	-0.134	-0.0011	0.0020	0.0177
8205	0.254	-0.248	-0.134	-0.0011	0.0020	0.0177
8210	0.078	-0.084	-0.189	0.0080	0.0073	-0.0003
8215	0.045	-0.069	-0.186	-0.0024	0.0098	-0.0022
8220	0.045	-0.069	-0.186	-0.0024	0.0098	-0.0023
8225	0.046	-0.046	-0.192	-0.0119	0.0029	-0.0125
8230	0.046	-0.045	-0.191	-0.0120	0.0029	-0.0125
NDB13BQ009 (8235)	0.041	-0.000	-0.180	-0.0141	0.0033	-0.0123
8240	0.037	0.042	-0.168	-0.0163	0.0036	-0.0116
8245	0.036	0.123	-0.144	-0.0165	0.0036	-0.0115
8250	0.034	0.143	-0.137	-0.0176	0.0038	-0.0108

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DISPLACEMENTS REPORT: Nodal Movements
CASE 5 (SUS) W+P2+H

Node	DX mm	DY mm	DZ mm	RX deg.	RY deg.	RZ deg.
8255	0.031	0.162	-0.130	-0.0187	0.0040	-0.0099
8260	0.030	0.230	-0.103	-0.0189	0.0040	-0.0096
8265	0.026	0.260	-0.088	-0.0211	0.0044	-0.0058
NDB13BQ002 (8266)	0.000	0.260	0.004	-0.0211	0.0044	-0.0058
8267	0.000	0.260	0.000	0.0000	0.0000	0.0000
8268	0.000	0.259	0.000	0.0000	0.0000	0.0000
8270	0.018	0.270	-0.062	-0.0252	0.0048	-0.0012
8275	-0.027	0.047	-0.023	-0.0341	0.0098	0.0110
8280	-0.027	0.045	-0.023	-0.0341	0.0098	0.0110
8285	-0.093	-0.104	-0.123	-0.0044	0.0029	-0.0001
8290	-0.093	-0.104	-0.123	-0.0043	0.0029	-0.0001
NDB13BQ007 (8295)	-0.000	-0.053	-0.000	0.0037	0.0021	-0.0018
8300	0.008	-0.006	0.009	-0.0019	0.0014	0.0006
8305	0.001	-0.004	0.007	0.0009	0.0002	0.0001
8310	0.001	-0.003	0.006	0.0009	0.0002	0.0001
12000	-0.008	0.066	0.058	0.0018	0.0017	-0.0001
13100	0.002	0.001	-0.000	-0.0008	-0.0000	0.0005
31NDB20AT001/N2 (13200)	0.000	0.000	-0.000	-0.0000	-0.0000	0.0000
13205	0.000	0.000	-0.000	-0.0000	-0.0000	0.0000
13300	0.002	-0.000	0.000	0.0002	-0.0003	0.0002
31NDB20AT001/N1 (13400)	0.000	-0.000	0.000	-0.0000	-0.0000	0.0000
13405	0.000	-0.000	0.000	-0.0000	-0.0000	0.0000
13500	0.000	-0.000	0.000	-0.0000	-0.0000	0.0000
13600	0.000	0.000	-0.000	-0.0000	-0.0000	0.0000
14000	0.000	-0.000	0.000	-0.0000	-0.0000	-0.0000

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DISPLACEMENTS REPORT: Nodal Movements
CASE 6 (EXP) L6=L2-L4

Node	DX mm	DY mm	DZ mm	RX deg.	RY deg.	RZ deg.
747	0.164	5.261	-0.924	-0.0000	0.0000	0.0000
752	0.314	5.508	-0.955	0.0000	0.0000	-0.0000
6660	0.099	5.258	-0.923	-0.0003	0.0006	0.0009
6665	0.036	5.134	-0.878	-0.0063	0.0086	0.0090
6670	0.037	5.133	-0.877	-0.0063	0.0086	0.0090
6675	0.250	4.769	-0.746	-0.0067	0.0121	0.0142
6680	0.307	4.659	-0.700	-0.0075	0.0134	0.0322
6685	0.307	4.657	-0.699	-0.0075	0.0135	0.0322
6690	0.562	3.865	-0.384	-0.0059	0.0161	0.0389
6695	0.557	3.674	-0.312	-0.0057	0.0176	0.0449
6700	0.556	3.672	-0.311	-0.0057	0.0176	0.0449
NDB11BQ014 (6705)	0.449	3.409	-0.208	-0.0050	0.0179	0.0448
6710	0.207	2.840	0.030	-0.0036	0.0182	0.0410
6715	0.191	2.599	0.130	0.0010	0.0157	0.0003
6720	0.191	2.598	0.130	0.0010	0.0157	0.0003
NDB11BQ002 (6725)	0.000	1.941	0.000	0.0071	0.0147	-0.0070
6730	-0.088	1.684	-0.122	0.0107	0.0143	-0.0059
6735	-0.129	1.555	-0.197	0.0108	0.0143	-0.0059
6740	-0.139	1.522	-0.216	0.0113	0.0143	-0.0059
6745	-0.150	1.490	-0.237	0.0119	0.0142	-0.0060
6750	-0.191	1.361	-0.320	0.0120	0.0142	-0.0060
6755	-0.236	1.228	-0.415	0.0146	0.0140	-0.0065
6760	-0.221	0.960	-0.449	0.0397	0.0101	-0.0118
6765	-0.220	0.958	-0.448	0.0397	0.0100	-0.0118
NDB11BQ003 (6770)	-0.002	0.000	-0.000	0.0356	0.0073	-0.0156
6775	0.034	-0.184	0.100	0.0329	0.0065	-0.0164
6780	-0.098	-0.286	0.152	0.0105	0.0055	-0.0255
6785	-0.100	-0.286	0.152	0.0104	0.0055	-0.0255
6790	-0.222	-0.316	0.140	0.0010	0.0080	-0.0236
6795	-0.223	-0.317	0.140	0.0010	0.0080	-0.0236
6800	-0.745	-0.759	0.202	-0.0060	0.0058	-0.0187
6805	-0.751	-0.760	0.371	-0.0234	0.0118	-0.0038
6810	-0.751	-0.759	0.372	-0.0234	0.0118	-0.0038
6815	-0.597	-0.451	0.610	-0.0234	0.0125	0.0027
6820	-0.411	-0.298	0.602	-0.0213	0.0249	0.0121
6825	-0.410	-0.298	0.601	-0.0213	0.0249	0.0121
NDB11BQ004 (6830)	0.002	-0.000	-0.004	-0.0132	0.0294	0.0122
6835	0.297	0.167	-0.490	-0.0074	0.0297	0.0093
6840	0.487	0.198	-0.515	0.0054	0.0086	-0.0001
6845	0.488	0.198	-0.514	0.0054	0.0086	-0.0001
6850	0.605	-0.012	0.000	0.0083	-0.0002	-0.0023
6855	0.460	-0.026	0.021	0.0049	-0.0208	-0.0071
6860	0.459	-0.025	0.020	0.0049	-0.0208	-0.0071
NDB11BQ005 (6865)	0.395	0.000	-0.054	0.0046	-0.0212	-0.0075
6870	0.170	0.099	-0.316	0.0036	-0.0208	-0.0081
6875	0.008	0.077	-0.318	0.0003	-0.0052	-0.0024

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DISPLACEMENTS REPORT: Nodal Movements
CASE 6 (EXP) L6=L2-L4

Node	DX mm	DY mm	DZ mm	RX deg.	RY deg.	RZ deg.
6880	0.008	0.077	-0.317	0.0003	-0.0052	-0.0024
6885	-0.001	0.064	-0.268	-0.0007	-0.0006	-0.0011
6890	-0.001	0.064	-0.267	-0.0007	-0.0006	-0.0010
6895	-0.002	0.067	-0.203	-0.0007	-0.0002	-0.0007
6900	-0.000	0.072	-0.056	-0.0001	0.0001	-0.0001
31NDC11AP001/S (6905)	-0.000	0.072	-0.036	-0.0000	0.0001	-0.0000
6906	-0.000	0.072	-0.036	-0.0000	0.0001	-0.0000
6910	0.000	0.072	-0.000	-0.0000	0.0001	-0.0000
6915	-0.000	-0.000	0.000	-0.0000	0.0000	-0.0000
31NDC11AP001/D (6920)	0.001	0.169	-0.000	-0.0001	0.0010	-0.0004
6925	0.001	0.169	-0.000	-0.0001	0.0010	-0.0004
6930	0.002	0.186	-0.000	-0.0001	0.0012	-0.0004
6935	0.004	0.235	-0.001	-0.0001	0.0038	-0.0009
6940	0.006	0.267	-0.001	-0.0001	0.0044	-0.0009
6945	0.008	0.299	-0.001	-0.0001	0.0050	-0.0009
6950	0.017	0.492	-0.002	-0.0001	0.0051	-0.0009
6955	0.019	0.524	-0.002	-0.0001	0.0057	-0.0006
NDB12BQ001 (6960)	0.020	0.578	-0.002	0.0000	0.0067	-0.0000
NDB12BQ002 (6965)	-0.000	0.809	0.000	0.0004	0.0108	0.0038
6970	-0.251	1.414	-0.034	-0.0051	0.0215	0.0084
6975	-0.417	1.380	-0.219	-0.0357	0.0273	0.0067
6980	-0.418	1.378	-0.220	-0.0357	0.0273	0.0067
6985	-1.148	0.369	-0.701	-0.0395	0.0266	0.0003
6990	-1.240	0.232	-0.765	-0.0391	0.0257	-0.0006
6995	-1.234	0.028	-0.920	-0.0350	0.0020	-0.0030
7000	-1.233	0.028	-0.920	-0.0350	0.0020	-0.0030
NDB12BQ003 (7002)	-1.082	0.000	-0.927	-0.0327	0.0001	-0.0033
7005	-0.431	-0.087	-0.798	-0.0228	-0.0079	-0.0014
7010	0.232	-0.082	-0.318	-0.0127	-0.0192	0.0018
7015	0.148	-0.018	-0.068	-0.0054	-0.0388	0.0016
7020	0.146	-0.017	-0.067	-0.0054	-0.0388	0.0016
NDB12BQ005 (7025)	0.009	0.000	-0.002	-0.0046	-0.0387	0.0021
7030	-0.178	0.020	0.087	-0.0035	-0.0379	0.0027
7035	-0.291	0.030	0.142	-0.0027	-0.0375	0.0031
7040	-0.426	-0.096	0.183	0.0179	-0.0280	0.0113
7045	-0.425	-0.097	0.182	0.0179	-0.0280	0.0113
7050	-0.219	-0.407	-0.139	0.0191	-0.0243	0.0134
7055	-0.222	-0.576	-0.126	0.0095	-0.0135	0.0234
7060	-0.223	-0.576	-0.125	0.0095	-0.0135	0.0235
7065	-0.384	-0.692	0.116	0.0085	-0.0110	0.0260
7069	-0.383	-0.679	0.195	0.0069	-0.0034	0.0276
7070	-0.315	-0.578	0.223	0.0058	0.0025	0.0313
7075	-0.314	-0.576	0.223	0.0058	0.0025	0.0313
NDB12BQ006 (7080)	0.020	0.000	0.173	0.0064	0.0017	0.0318
7085	0.241	0.374	0.164	0.0068	0.0005	0.0304
7089	0.309	0.486	0.133	0.0049	0.0015	0.0241

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DISPLACEMENTS REPORT: Nodal Movements
CASE 6 (EXP) L6=L2-L4

Node	DX mm	DY mm	DZ mm	RX deg.	RY deg.	RZ deg.
7090	0.327	0.534	0.060	0.0022	0.0038	0.0215
7095	0.327	0.534	0.059	0.0022	0.0038	0.0215
NDB12BQ008 (7097)	0.290	0.553	-0.111	0.0014	0.0041	0.0187
7100	0.286	0.554	-0.127	0.0013	0.0041	0.0184
7104	0.294	0.520	-0.192	-0.0044	0.0063	0.0159
7105	0.330	0.441	-0.193	-0.0095	0.0083	0.0091
7110	0.331	0.440	-0.193	-0.0096	0.0083	0.0091
7115	0.438	0.186	-0.057	-0.0094	0.0078	0.0068
7119	0.427	0.111	-0.020	-0.0037	0.0055	0.0025
7120	0.359	0.079	-0.005	-0.0006	0.0005	-0.0001
7125	0.358	0.079	-0.005	-0.0006	0.0005	-0.0001
7130	0.229	0.080	-0.002	-0.0005	0.0005	-0.0001
7135	0.209	0.080	-0.001	-0.0005	0.0005	-0.0001
8100	0.209	0.531	-0.002	0.0011	0.0004	0.0002
8105	0.229	0.532	-0.003	0.0012	0.0004	0.0002
8109	0.298	0.534	0.024	0.0040	-0.0024	0.0034
8110	0.303	0.510	0.101	0.0118	-0.0111	0.0037
8115	0.302	0.509	0.102	0.0119	-0.0111	0.0037
8120	0.261	0.465	0.166	0.0129	-0.0123	0.0056
8124	0.164	0.382	0.203	0.0233	-0.0238	0.0117
8125	0.053	0.276	0.129	0.0277	-0.0273	0.0222
8130	0.052	0.274	0.128	0.0277	-0.0273	0.0223
NDB13BQ010 (8135)	-0.033	0.169	0.001	0.0282	-0.0262	0.0229
NDB13BQ008 (8137)	-0.034	0.168	0.000	0.0282	-0.0262	0.0229
8140	-0.263	-0.120	-0.299	0.0294	-0.0227	0.0227
8144	-0.363	-0.168	-0.326	0.0313	-0.0177	0.0172
8145	-0.443	-0.122	-0.231	0.0324	-0.0166	0.0097
8150	-0.443	-0.121	-0.229	0.0324	-0.0166	0.0097
8155	-0.465	-0.078	-0.153	0.0323	-0.0164	0.0092
8160	-0.496	-0.013	-0.040	0.0319	-0.0161	0.0083
8165	-0.601	0.309	0.483	0.0267	-0.0146	0.0034
8170	-0.483	0.418	0.454	-0.0122	-0.0196	-0.0105
8175	-0.482	0.417	0.453	-0.0122	-0.0196	-0.0106
NDB13BQ001 (8180)	0.000	0.000	-0.001	-0.0201	-0.0202	-0.0220
8185	0.146	-0.147	-0.132	-0.0211	-0.0204	-0.0253
8190	0.153	-0.090	-0.331	-0.0174	-0.0180	-0.0399
8195	0.152	-0.088	-0.332	-0.0174	-0.0180	-0.0399
8200	0.147	0.102	-0.524	-0.0113	-0.0170	-0.0565
8205	0.148	0.101	-0.525	-0.0113	-0.0170	-0.0565
8210	0.672	-0.331	-1.282	-0.0081	-0.0047	-0.0791
8215	0.781	-0.318	-1.356	-0.0002	0.0100	-0.0775
8220	0.784	-0.318	-1.357	-0.0002	0.0101	-0.0776
8225	0.915	0.235	-1.239	0.0234	0.0443	-0.0932
8230	0.914	0.240	-1.237	0.0234	0.0443	-0.0933
NDB13BQ009 (8235)	0.850	0.567	-1.078	0.0242	0.0464	-0.0946
8240	0.785	0.901	-0.912	0.0251	0.0482	-0.0958
8245	0.657	1.570	-0.575	0.0251	0.0483	-0.0958
8250	0.624	1.738	-0.490	0.0256	0.0488	-0.0956

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DISPLACEMENTS REPORT: Nodal Movements
CASE 6 (EXP) L6=L2-L4

Node	DX mm	DY mm	DZ mm	RX deg.	RY deg.	RZ deg.
8255	0.592	1.905	-0.404	0.0260	0.0493	-0.0953
8260	0.463	2.570	-0.060	0.0261	0.0493	-0.0951
8265	0.399	2.900	0.114	0.0269	0.0494	-0.0930
NDB13BQ002 (8266)	-0.007	2.820	-0.004	0.0269	0.0494	-0.0929
8267	-0.000	2.820	-0.000	0.0000	0.0000	0.0000
8268	-0.000	2.819	-0.000	0.0000	0.0000	0.0000
8270	0.299	3.397	0.380	0.0289	0.0492	-0.0893
8275	-0.045	3.870	0.537	0.0127	0.0416	-0.0502
8280	-0.047	3.870	0.536	0.0127	0.0416	-0.0502
8285	-0.105	4.018	0.460	-0.0043	0.0504	-0.0120
8290	-0.104	4.019	0.460	-0.0043	0.0503	-0.0119
NDB13BQ007 (8295)	0.000	4.784	-0.000	-0.0181	0.0280	-0.0041
8300	0.321	5.431	-0.714	-0.0188	0.0091	-0.0091
8305	0.315	5.504	-0.868	0.0003	0.0011	-0.0024
8310	0.315	5.504	-0.869	0.0003	0.0011	-0.0024
12000	-0.192	1.292	-0.009	-0.0028	0.0193	0.0088
13100	0.189	0.531	-0.002	0.0011	0.0004	0.0002
31NDB20AT001/N2 (13200)	0.161	0.532	-0.001	-0.0000	0.0000	-0.0000
13205	0.161	0.532	-0.001	-0.0000	0.0000	-0.0000
13300	0.189	0.080	-0.001	-0.0004	0.0004	-0.0001
31NDB20AT001/N1 (13400)	0.161	0.081	-0.000	-0.0000	0.0000	-0.0000
13405	0.161	0.081	-0.000	-0.0000	0.0000	-0.0000
13500	0.000	0.081	-0.000	-0.0000	0.0000	-0.0000
13600	0.000	0.532	-0.000	-0.0000	0.0000	-0.0000
14000	0.000	-0.000	-0.000	-0.0000	0.0000	-0.0000

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DISPLACEMENTS REPORT: Nodal Movements
CASE 7 (EXP) L7=L3-L5

Node	DX mm	DY mm	DZ mm	RX deg.	RY deg.	RZ deg.
747	-0.018	12.759	-1.674	-0.0000	0.0000	0.0000
752	0.658	13.587	-1.681	0.0000	0.0000	-0.0000
6660	-0.284	12.753	-1.670	-0.0010	0.0018	0.0029
6665	-0.507	12.231	-1.530	-0.0189	0.0268	0.0500
6670	-0.505	12.227	-1.529	-0.0189	0.0269	0.0501
6675	0.589	10.726	-1.144	-0.0191	0.0379	0.0616
6680	0.745	10.316	-1.013	-0.0188	0.0411	0.0859
6685	0.745	10.310	-1.011	-0.0187	0.0411	0.0859
6690	0.950	7.890	-0.125	-0.0113	0.0492	0.0926
6695	0.808	7.415	0.079	-0.0088	0.0510	0.0932
6700	0.804	7.410	0.081	-0.0088	0.0510	0.0931
NDB11BQ014 (6705)	0.362	6.871	0.380	-0.0058	0.0517	0.0921
6710	-0.636	5.698	1.059	0.0010	0.0515	0.0862
6715	-0.759	4.931	1.238	0.0236	0.0363	0.0331
6720	-0.757	4.927	1.237	0.0236	0.0362	0.0331
NDB11BQ002 (6725)	0.000	2.215	-0.000	0.0492	0.0279	0.0105
6730	0.092	1.157	-0.759	0.0576	0.0247	0.0026
6735	0.109	0.625	-1.161	0.0576	0.0246	0.0024
6740	0.113	0.492	-1.262	0.0573	0.0242	0.0014
6745	0.114	0.359	-1.362	0.0569	0.0238	0.0003
6750	0.116	-0.174	-1.759	0.0567	0.0237	0.0001
6755	0.101	-0.722	-2.150	0.0506	0.0220	-0.0043
6760	0.043	-1.102	-1.850	-0.0363	0.0004	-0.0361
6765	0.043	-1.100	-1.845	-0.0363	0.0004	-0.0361
NDB11BQ003 (6770)	-0.006	0.000	0.002	-0.0493	-0.0047	-0.0561
6775	-0.035	0.269	0.416	-0.0484	-0.0054	-0.0606
6780	-0.617	0.453	0.920	-0.0329	-0.0141	-0.0717
6785	-0.622	0.453	0.921	-0.0329	-0.0141	-0.0717
6790	-1.028	0.283	1.003	-0.0229	-0.0150	-0.0782
6795	-1.032	0.279	1.004	-0.0229	-0.0150	-0.0782
6800	-2.850	-1.548	1.527	-0.0247	-0.0043	-0.0693
6805	-3.008	-1.686	2.141	-0.0629	0.0351	-0.0211
6810	-3.007	-1.683	2.145	-0.0630	0.0351	-0.0210
6815	-2.502	-0.855	3.127	-0.0628	0.0450	-0.0044
6820	-1.701	-0.509	3.016	-0.0578	0.1265	0.0196
6825	-1.697	-0.508	3.010	-0.0578	0.1266	0.0196
NDB11BQ004 (6830)	0.004	-0.000	-0.006	-0.0373	0.1403	0.0198
6835	1.225	0.245	-2.240	-0.0227	0.1342	0.0122
6840	2.034	0.282	-2.380	0.0101	0.0381	-0.0120
6845	2.036	0.281	-2.376	0.0101	0.0380	-0.0121
6850	2.589	-0.152	-0.249	0.0177	0.0027	-0.0181
6855	2.032	-0.108	-0.108	0.0099	-0.0736	-0.0301
6860	2.028	-0.106	-0.112	0.0099	-0.0737	-0.0301
NDB11BQ005 (6865)	1.761	0.000	-0.375	0.0093	-0.0757	-0.0312
6870	0.829	0.399	-1.321	0.0071	-0.0763	-0.0325
6875	0.131	0.328	-1.316	0.0003	-0.0313	-0.0125

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DISPLACEMENTS REPORT: Nodal Movements
CASE 7 (EXP) L7=L3-L5

Node	DX mm	DY mm	DZ mm	RX deg.	RY deg.	RZ deg.
6880	0.129	0.326	-1.312	0.0003	-0.0312	-0.0124
6885	0.067	0.274	-1.109	-0.0023	-0.0105	-0.0061
6890	0.066	0.275	-1.105	-0.0023	-0.0104	-0.0061
6895	0.034	0.284	-0.839	-0.0022	-0.0076	-0.0043
6900	0.001	0.298	-0.232	-0.0003	-0.0002	-0.0002
31NDC11AP001/S (6905)	0.001	0.299	-0.150	-0.0003	-0.0002	-0.0002
6906	0.001	0.299	-0.150	-0.0003	-0.0002	-0.0002
6910	0.000	0.299	-0.001	-0.0003	-0.0001	-0.0002
6915	0.000	-0.000	-0.000	-0.0000	-0.0000	-0.0000
31NDC11AP001/D (6920)	0.004	0.698	-0.008	-0.0022	0.0021	-0.0010
6925	0.004	0.698	-0.008	-0.0022	0.0021	-0.0010
6930	0.005	0.768	-0.011	-0.0024	0.0025	-0.0011
6935	0.012	0.969	-0.025	-0.0051	0.0089	-0.0023
6940	0.017	1.102	-0.035	-0.0053	0.0103	-0.0024
6945	0.021	1.235	-0.045	-0.0053	0.0117	-0.0024
6950	0.047	2.033	-0.100	-0.0050	0.0121	-0.0023
6955	0.051	2.166	-0.109	-0.0034	0.0135	-0.0015
NDB12BQ001 (6960)	0.054	2.387	-0.116	-0.0000	0.0157	0.0000
NDB12BQ002 (6965)	-0.000	3.343	0.000	0.0219	0.0256	0.0101
6970	-0.651	5.844	1.225	0.0280	0.0515	0.0211
6975	-1.029	5.843	0.663	-0.1379	0.0620	0.0114
6980	-1.032	5.836	0.659	-0.1381	0.0621	0.0114
6985	-2.664	1.721	-1.326	-0.1673	0.0574	-0.0087
6990	-2.860	1.135	-1.592	-0.1673	0.0546	-0.0113
6995	-2.612	0.168	-2.060	-0.1627	-0.0060	-0.0198
7000	-2.608	0.167	-2.060	-0.1627	-0.0060	-0.0198
NDB12BQ003 (7002)	-1.983	0.000	-1.998	-0.1570	-0.0054	-0.0188
7005	0.716	-0.447	-2.008	-0.1325	0.0006	-0.0080
7010	3.470	-0.689	-1.686	-0.1074	-0.0240	-0.0075
7015	3.461	-0.275	-0.987	-0.0784	-0.1042	-0.0273
7020	3.456	-0.270	-0.983	-0.0784	-0.1042	-0.0273
NDB12BQ005 (7025)	3.085	0.000	-0.716	-0.0763	-0.1066	-0.0283
7030	2.558	0.365	-0.345	-0.0728	-0.1087	-0.0296
7035	2.232	0.579	-0.118	-0.0703	-0.1094	-0.0305
7040	1.449	0.407	0.413	0.0019	-0.1148	-0.0344
7045	1.447	0.403	0.413	0.0019	-0.1147	-0.0344
7050	0.904	-0.878	0.292	0.0094	-0.1132	-0.0273
7055	0.357	-1.327	0.648	0.0072	-0.0837	0.0171
7060	0.352	-1.327	0.652	0.0072	-0.0836	0.0172
7065	-0.704	-1.432	1.650	0.0105	-0.0755	0.0352
7069	-0.803	-1.431	2.016	0.0182	-0.0372	0.0407
7070	-0.553	-1.264	2.196	0.0159	0.0010	0.0638
7075	-0.549	-1.261	2.196	0.0159	0.0010	0.0638
NDB12BQ006 (7080)	0.829	0.000	2.066	0.0325	0.0100	0.0728
7085	1.741	0.870	1.940	0.0434	0.0115	0.0701
7089	2.002	1.170	1.766	0.0430	0.0182	0.0540

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DISPLACEMENTS REPORT: Nodal Movements
CASE 7 (EXP) L7=L3-L5

Node	DX mm	DY mm	DZ mm	RX deg.	RY deg.	RZ deg.
7090	2.042	1.424	1.448	0.0497	0.0223	0.0495
7095	2.041	1.426	1.443	0.0497	0.0223	0.0495
NDB12BQ008 (7097)	1.834	1.898	0.739	0.0504	0.0213	0.0384
7100	1.816	1.942	0.672	0.0502	0.0211	0.0373
7104	1.797	1.991	0.321	0.0356	0.0192	0.0310
7105	1.841	1.750	0.107	0.0151	0.0230	0.0092
7110	1.842	1.746	0.107	0.0151	0.0229	0.0092
7115	1.908	0.698	-0.052	0.0084	0.0146	0.0021
7119	1.780	0.417	-0.042	0.0002	0.0134	-0.0050
7120	1.484	0.317	-0.011	0.0010	0.0012	-0.0016
7125	1.480	0.317	-0.011	0.0010	0.0012	-0.0016
7130	0.948	0.328	-0.003	0.0008	0.0010	-0.0014
7135	0.865	0.329	-0.002	0.0008	0.0010	-0.0014
8100	0.866	2.195	-0.009	0.0054	0.0016	0.0011
8105	0.948	2.196	-0.011	0.0056	0.0016	0.0011
8109	1.234	2.216	0.100	0.0179	-0.0080	0.0192
8110	1.266	2.113	0.412	0.0534	-0.0408	0.0222
8115	1.264	2.110	0.416	0.0535	-0.0409	0.0223
8120	1.113	1.908	0.680	0.0585	-0.0455	0.0318
8124	0.730	1.521	0.841	0.1062	-0.0940	0.0618
8125	0.279	0.995	0.545	0.1273	-0.1146	0.1144
8130	0.274	0.989	0.538	0.1273	-0.1146	0.1144
NDB13BQ010 (8135)	-0.077	0.445	0.004	0.1287	-0.1116	0.1181
NDB13BQ008 (8137)	-0.080	0.441	0.000	0.1287	-0.1116	0.1181
8140	-1.029	-1.043	-1.305	0.1323	-0.1012	0.1171
8144	-1.473	-1.322	-1.450	0.1367	-0.0904	0.0898
8145	-1.862	-1.158	-1.068	0.1369	-0.0892	0.0551
8150	-1.865	-1.154	-1.061	0.1369	-0.0892	0.0550
8155	-1.992	-0.975	-0.738	0.1363	-0.0891	0.0529
8160	-2.171	-0.709	-0.262	0.1348	-0.0890	0.0497
8165	-2.909	0.621	1.955	0.1144	-0.0884	0.0353
8170	-2.483	1.138	1.878	-0.0312	-0.1021	0.0030
8175	-2.477	1.137	1.874	-0.0313	-0.1021	0.0030
NDB13BQ001 (8180)	0.000	0.000	-0.001	-0.0524	-0.0984	-0.0203
8185	0.697	-0.373	-0.545	-0.0520	-0.0959	-0.0271
8190	0.725	-0.376	-1.326	-0.0319	-0.0585	-0.0624
8195	0.721	-0.373	-1.329	-0.0318	-0.0585	-0.0624
8200	0.567	-0.038	-2.007	-0.0093	-0.0422	-0.0995
8205	0.569	-0.038	-2.011	-0.0093	-0.0421	-0.0996
8210	1.730	-0.241	-5.137	0.0007	-0.0039	-0.1419
8215	1.862	-0.097	-5.409	0.0121	0.0441	-0.1322
8220	1.865	-0.094	-5.412	0.0121	0.0443	-0.1323
8225	1.674	1.000	-5.067	0.0543	0.1402	-0.1436
8230	1.670	1.008	-5.060	0.0543	0.1403	-0.1436
NDB13BQ009 (8235)	1.404	1.513	-4.559	0.0544	0.1454	-0.1458
8240	1.138	2.027	-4.041	0.0545	0.1498	-0.1477
8245	0.605	3.058	-2.994	0.0545	0.1501	-0.1477
8250	0.472	3.317	-2.730	0.0545	0.1510	-0.1478

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DISPLACEMENTS REPORT: Nodal Movements
CASE 7 (EXP) L7=L3-L5

Node	DX mm	DY mm	DZ mm	RX deg.	RY deg.	RZ deg.
8255	0.339	3.576	-2.464	0.0546	0.1516	-0.1478
8260	-0.194	4.607	-1.405	0.0546	0.1517	-0.1477
8265	-0.460	5.122	-0.875	0.0547	0.1504	-0.1458
NDB13BQ002 (8266)	-1.096	4.789	-1.114	0.0546	0.1504	-0.1458
8267	-0.000	4.789	-0.000	0.0000	0.0000	0.0000
8268	-0.000	4.789	-0.000	0.0000	0.0000	0.0000
8270	-0.873	5.906	-0.068	0.0568	0.1477	-0.1424
8275	-1.914	6.809	0.228	0.0394	0.1017	-0.1028
8280	-1.919	6.811	0.224	0.0394	0.1017	-0.1027
8285	-1.952	7.397	-0.041	0.0140	0.0958	-0.0670
8290	-1.949	7.401	-0.040	0.0140	0.0958	-0.0669
NDB13BQ007 (8295)	0.000	10.549	-0.000	-0.0151	0.0571	-0.0313
8300	0.733	13.214	-0.839	-0.0251	0.0244	-0.0113
8305	0.666	13.583	-1.322	0.0002	0.0035	-0.0032
8310	0.666	13.583	-1.326	0.0002	0.0034	-0.0032
12000	-0.502	5.337	0.997	0.0377	0.0462	0.0226
13100	0.783	2.194	-0.007	0.0053	0.0016	0.0010
31NDB20AT001/N2 (13200)	0.666	2.196	-0.002	-0.0000	0.0001	-0.0000
13205	0.666	2.196	-0.002	-0.0000	0.0001	-0.0000
13300	0.783	0.331	-0.001	0.0007	0.0009	-0.0014
31NDB20AT001/N1 (13400)	0.666	0.333	-0.000	-0.0000	0.0000	-0.0000
13405	0.666	0.333	-0.000	-0.0000	0.0000	-0.0000
13500	0.000	0.333	-0.000	-0.0000	0.0000	-0.0000
13600	0.000	2.196	-0.001	-0.0000	0.0000	-0.0000
14000	0.000	-0.000	-0.000	-0.0000	0.0000	-0.0000

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RESTRAINT SUMMARY EXTENDED REPORT: Loads On Restraints
Various Load Cases

LOAD CASE DEFINITION KEY

CASE 1 (HYD) WW+HP+H
CASE 2 (OPE) W+D1+T1+P1+H
CASE 3 (OPE) W+D2+T2+P2+H
CASE 4 (SUS) W+P1+H
CASE 5 (SUS) W+P2+H
CASE 6 (EXP) L6=L2-L4
CASE 7 (EXP) L7=L3-L5

Node	Load Case	FX N	FY N	FZ N	MX N.m	MY N.m	MZ N.m	DX mm	DY mm
747		TYPE=Displ. Reaction;							
	1(HYD)	-146	-404	70	-139	1	-128	-0.000	-0.000
	2(OPE)	-1364	-3652	115	-101	335	1235	0.164	5.261
	3(OPE)	-862	-3557	388	-336	899	2081	-0.018	12.759
	4(SUS)	-903	-2723	19	14	77	760	-0.000	-0.000
	5(SUS)	-778	-2558	31	-5	82	786	-0.000	-0.000
	6(EXP)	-461	-929	96	-116	258	475	0.164	5.261
	7(EXP)	-83	-999	357	-331	817	1295	-0.018	12.759
	MAX	-1364/L2	-3652/L2	388/L3	-336/L3	899/L3	2081/L3	0.164/L6	12.759/L3
752		TYPE=Displ. Reaction;							
	1(HYD)	116	-1720	27	930	118	13	0.000	-0.000
	2(OPE)	-578	-2474	730	595	287	-584	0.314	5.508
	3(OPE)	151	-2764	1083	708	1179	-761	0.658	13.587
	4(SUS)	55	-906	244	298	14	22	0.000	-0.000
	5(SUS)	95	-841	153	401	78	17	0.000	-0.000
	6(EXP)	-633	-1568	485	297	273	-606	0.314	5.508
	7(EXP)	55	-1923	931	307	1101	-778	0.658	13.587
	MAX	-633/L6	-2764/L3	1083/L3	930/L1	1179/L3	-778/L7	0.658/L3	13.587/L3
NDB11BQ014 (6705)		TYPE=User Design VSH;							
		0	-5149	0	0	0	0	-0.958	-0.000

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Various Load Cases

Node	Load Case	FX N	FY N	FZ N	MX N.m	MY N.m	MZ N.m	DX mm	DY mm
	1(HYD)								
	2(OPE)	0	-2832	0	0	0	0	0.698	2.521
	3(OPE)	0	-2601	0	0	0	0	0.481	5.985
	4(SUS)	0	-3059	0	0	0	0	0.249	-0.888
	5(SUS)	0	-3059	0	0	0	0	0.119	-0.886
	6(EXP)	0	227	0	0	0	0	0.449	3.409
	7(EXP)	0	458	0	0	0	0	0.362	6.871
	MAX		-5149/L1					-0.958/L1	6.871/L7
NDB11BQ002 (6725)		TYPE=Rigid Z; Rigid X;							
	1(HYD)	27	-189	-610	0	0	0	0.000	-0.956
	2(OPE)	1642	-692	-688	0	0	0	0.000	-0.003
	3(OPE)	1021	1050	-2478	0	0	0	0.000	0.220
	4(SUS)	1043	-520	-695	0	0	0	0.000	-1.943
	5(SUS)	897	-498	-807	0	0	0	0.000	-1.995
	6(EXP)	599	-173	6	0	0	0	0.000	1.941
	7(EXP)	124	1547	-1672	0	0	0	0.000	2.215
	MAX	1642/L2	1547/L7	-2478/L3				0.000/L2	2.215/L7
NDB11BQ003 (6770)		TYPE=Rigid X w/gap; Rigid +Y;							
	1(HYD)	-85	-4478	361	0	0	0	-0.000	-0.000
	2(OPE)	-766	-4178	388	0	0	0	-0.004	-0.000
	3(OPE)	-1327	-5347	878	0	0	0	-0.008	-0.000
	4(SUS)	-349	-5671	450	0	0	0	-0.002	-0.000
	5(SUS)	-362	-5808	452	0	0	0	-0.002	-0.000
	6(EXP)	-417	1494	-61	0	0	0	-0.002	0.000
	7(EXP)	-965	461	426	0	0	0	-0.006	0.000

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RESTRAINT SUMMARY EXTENDED REPORT: Loads On Restraints
Various Load Cases

Node	Load Case	FX N	FY N	FZ N	MX N.m	MY N.m	MZ N.m	DX mm	DY mm
	MAX	-1327/L3	-5808/L5	878/L3				-0.008/L3	-0.000/L5
NDB11BQ004 (6830)		TYPE=Rigid +Y;							
	1(HYD)	207	-2636	-191	0	0	0	0.001	-0.000
	2(OPE)	484	-3688	-430	0	0	0	0.003	-0.000
	3(OPE)	968	-4986	-792	0	0	0	0.006	-0.000
	4(SUS)	210	-2833	283	0	0	0	0.001	-0.000
	5(SUS)	234	-2890	303	0	0	0	0.001	-0.000
	6(EXP)	274	-855	-713	0	0	0	0.002	-0.000
	7(EXP)	734	-2096	-1095	0	0	0	0.004	-0.000
	MAX	968/L3	-4986/L3	-1095/L7				0.006/L3	-0.000/L3
NDB11BQ005 (6865)		TYPE=Rigid Z w/gap; Rigid +Y;							
	1(HYD)	458	-1751	-68	0	0	0	0.029	-0.000
	2(OPE)	516	-1768	-72	0	0	0	0.395	-0.000
	3(OPE)	205	-695	-44	0	0	0	1.768	-0.000
	4(SUS)	101	-2400	-209	0	0	0	0.001	-0.000
	5(SUS)	464	-2297	-400	0	0	0	0.007	-0.000
	6(EXP)	415	633	137	0	0	0	0.395	0.000
	7(EXP)	-259	1602	356	0	0	0	1.761	0.000
	MAX	516/L2	-2400/L4	-400/L5				1.768/L3	-0.000/L4
31NDC11AP001/S (6905)		TYPE=Rigid ANC;							
	1(HYD)	-460	-727	438	-261	189	40	-0.000	-0.000
	2(OPE)	-512	-940	687	-412	85	17	-0.000	0.072
	3(OPE)	-6	-1672	2048	-848	-1260	-475	0.001	0.299
	4(SUS)	-102	-546	152	-167	20	120	-0.000	0.000

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RESTRAINT SUMMARY EXTENDED REPORT: Loads On Restraints
Various Load Cases

Node	Load Case	FX N	FY N	FZ N	MX N.m	MY N.m	MZ N.m	DX mm	DY mm
	5(SUS)	-454	-641	421	-198	236	112	-0.000	0.000
	6(EXP)	-410	-395	536	-245	65	-103	-0.000	0.072
	7(EXP)	449	-1031	1627	-650	-1496	-586	0.001	0.299
	MAX	-512/L2	-1672/L3	2048/L3	-848/L3	-1496/L7	-586/L7	0.001/L7	0.299/L3
6915		TYPE=Rigid ANC;							
	1(HYD)	-386	-28269	299	-362	281	78	-0.000	-0.000
	2(OPE)	-161	-10	607	-428	555	-174	-0.000	-0.000
	3(OPE)	948	-3611	-96	-2436	-330	-1300	0.000	-0.000
	4(SUS)	-113	1153	111	-227	60	152	-0.000	0.000
	5(SUS)	-428	914	289	-288	320	189	-0.000	0.000
	6(EXP)	-48	-1163	496	-201	494	-326	-0.000	-0.000
	7(EXP)	1376	-4525	-385	-2148	-650	-1488	0.000	-0.000
	MAX	1376/L7	-28269/L1	607/L2	-2436/L3	-650/L7	-1488/L7	0.000/L7	-0.000/L1
31NDC11AP001/D (6920)		TYPE=Rigid ANC;							
	1(HYD)	-74	27542	139	45	-41	27	0.000	-0.002
	2(OPE)	-350	-931	80	23	-412	123	0.001	0.169
	3(OPE)	-953	1938	2144	736	-929	326	0.004	0.700
	4(SUS)	12	-1699	41	12	-29	-2	-0.000	0.000
	5(SUS)	-27	-1555	132	43	-32	11	-0.000	0.001
	6(EXP)	-362	768	40	11	-383	125	0.001	0.169
	7(EXP)	-927	3493	2012	693	-897	314	0.004	0.698
	MAX	-953/L3	27542/L1	2144/L3	736/L3	-929/L3	326/L3	0.004/L7	0.700/L3
NDB12BQ001 (6960)		TYPE=User Design VSH;							
	1(HYD)	0	22638	0	0	0	0	0.004	0.000

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RESTRAINT SUMMARY EXTENDED REPORT: Loads On Restraints
Various Load Cases

Node	Load Case	FX N	FY N	FZ N	MX N.m	MY N.m	MZ N.m	DX mm	DY mm
	2(OPE)	0	-6922	0	0	0	0	0.019	0.583
	3(OPE)	0	-6680	0	0	0	0	0.055	2.405
	4(SUS)	0	-6999	0	0	0	0	-0.001	0.005
	5(SUS)	0	-6998	0	0	0	0	0.001	0.018
	6(EXP)	0	77	0	0	0	0	0.020	0.578
	7(EXP)	0	318	0	0	0	0	0.054	2.387
	MAX		22638/L1					0.055/L3	2.405/L3
NDB12BQ002 (6965)		TYPE=Rigid X; Rigid Z;							
	1(HYD)	-192	102	446	0	0	0	-0.000	0.025
	2(OPE)	-792	275	534	0	0	0	-0.000	0.815
	3(OPE)	-2132	1274	5638	0	0	0	-0.000	3.376
	4(SUS)	-27	23	149	0	0	0	-0.000	0.006
	5(SUS)	-107	72	397	0	0	0	-0.000	0.033
	6(EXP)	-765	252	385	0	0	0	-0.000	0.809
	7(EXP)	-2025	1202	5240	0	0	0	-0.000	3.343
	MAX	-2132/L3	1274/L3	5638/L3				-0.000/L3	3.376/L3
NDB12BQ003 (7002)		TYPE=Rigid +Y; Rigid GUI w/gap;							
	1(HYD)	-543	-2480	-412	0	0	0	-0.053	-0.000
	2(OPE)	-624	-2650	-537	0	0	0	-1.079	-0.000
	3(OPE)	-1221	-780	-4200	0	0	0	-1.985	-0.000
	4(SUS)	521	-3066	-127	0	0	0	0.003	-0.000
	5(SUS)	-299	-2961	-362	0	0	0	-0.002	-0.000
	6(EXP)	-1145	417	-409	0	0	0	-1.082	0.000
	7(EXP)	-921	2182	-3839	0	0	0	-1.983	0.000
	MAX	-1221/L3	-	-				-	-

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RESTRAINT SUMMARY EXTENDED REPORT: Loads On Restraints
Various Load Cases

Node	Load Case	FX N	FY N	FZ N	MX N.m	MY N.m	MZ N.m	DX mm	DY mm
			3066/L4	4200/L3				1.985/L3	0.000/L4
NDB12BQ005 (7025)		TYPE=Rigid +Y; Rigid X w/gap;							
	1(HYD)	481	-3252	88	0	0	0	0.003	-0.000
	2(OPE)	829	-3771	-78	0	0	0	0.005	-0.000
	3(OPE)	1028	-3257	-238	0	0	0	3.086	-0.000
	4(SUS)	-674	-4019	333	0	0	0	-0.004	-0.000
	5(SUS)	198	-4022	374	0	0	0	0.001	-0.000
	6(EXP)	1503	248	-411	0	0	0	0.009	0.000
	7(EXP)	830	765	-612	0	0	0	3.085	0.000
	MAX	1503/L6	-4022/L5	-612/L7				3.086/L3	-0.000/L5
NDB12BQ006 (7080)		TYPE=Rigid +Y; Rigid Z w/gap;							
	1(HYD)	143	-2525	-93	0	0	0	0.001	-0.000
	2(OPE)	-130	-2263	241	0	0	0	-0.001	-0.000
	3(OPE)	292	-1663	786	0	0	0	0.819	-0.000
	4(SUS)	-83	-2319	-691	0	0	0	-0.021	-0.000
	5(SUS)	-105	-2297	-681	0	0	0	-0.010	-0.000
	6(EXP)	-47	56	932	0	0	0	0.020	0.000
	7(EXP)	397	633	1467	0	0	0	0.829	0.000
	MAX	397/L7	-2525/L1	1467/L7				0.829/L7	-0.000/L1
NDB12BQ008 (7097)		TYPE=User Design VSH;							
	1(HYD)	0	396	0	0	0	0	0.197	0.000
	2(OPE)	0	-2178	0	0	0	0	0.260	0.658
	3(OPE)	0	-2133	0	0	0	0	1.872	2.006
		0	-2196	0	0	0	0	-0.029	0.106

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RESTRAINT SUMMARY EXTENDED REPORT: Loads On Restraints
Various Load Cases

Node	Load Case	FX N	FY N	FZ N	MX N.m	MY N.m	MZ N.m	DX mm	DY mm
	4(SUS)								
	5(SUS)	0	-2196	0	0	0	0	0.038	0.109
	6(EXP)	0	18	0	0	0	0	0.290	0.553
	7(EXP)	0	63	0	0	0	0	1.834	1.898
	MAX		-2196/L4					1.872/L3	2.006/L3
NDB13BQ010 (8135)		TYPE=User Design VSH;							
	1(HYD)	0	-3315	0	0	0	0	0.049	0.000
	2(OPE)	0	-3588	0	0	0	0	-0.006	0.181
	3(OPE)	0	-3571	0	0	0	0	-0.024	0.440
	4(SUS)	0	-3599	0	0	0	0	0.027	0.013
	5(SUS)	0	-3600	0	0	0	0	0.053	-0.005
	6(EXP)	0	11	0	0	0	0	-0.033	0.169
	7(EXP)	0	30	0	0	0	0	-0.077	0.445
	MAX		-3600/L5					-0.077/L7	0.445/L7
NDB13BQ008 (8137)		TYPE=Rigid Z;							
	1(HYD)	163	-3	588	0	0	0	0.049	-0.001
	2(OPE)	-21	571	2135	0	0	0	-0.006	0.179
	3(OPE)	-152	2469	9026	0	0	0	-0.027	0.435
	4(SUS)	97	41	-312	0	0	0	0.027	0.012
	5(SUS)	57	-6	190	0	0	0	0.053	-0.006
	6(EXP)	-117	530	2447	0	0	0	-0.034	0.168
	7(EXP)	-208	2475	8836	0	0	0	-0.080	0.441
	MAX	-208/L7	2475/L7	9026/L3				-0.080/L7	0.441/L7
NDB13BQ001 (8180)		TYPE=Rigid +Y; Rigid X;							
		-296	-2798	365	0	0	0	-0.000	-0.000

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RESTRAINT SUMMARY EXTENDED REPORT: Loads On Restraints
Various Load Cases

Node	Load Case	FX N	FY N	FZ N	MX N.m	MY N.m	MZ N.m	DX mm	DY mm
	1(HYD)								
	2(OPE)	197	-3200	-14	0	0	0	0.000	-0.000
	3(OPE)	450	-1518	21	0	0	0	0.000	-0.000
	4(SUS)	-279	-3414	220	0	0	0	-0.000	-0.000
	5(SUS)	-294	-3327	271	0	0	0	-0.000	-0.000
	6(EXP)	476	214	-234	0	0	0	0.000	0.000
	7(EXP)	744	1809	-250	0	0	0	0.000	0.000
	MAX	744/L7	-3414/L4	365/L1				0.000/L7	-0.000/L4
NDB13BQ009 (8235)		TYPE=Rigid +Y;							
	1(HYD)	42	-1666	-467	0	0	0	0.015	-0.000
	2(OPE)	0	0	0	0	0	0	0.890	0.567
	3(OPE)	0	0	0	0	0	0	1.445	1.513
	4(SUS)	158	-1349	-385	0	0	0	0.040	-0.000
	5(SUS)	95	-1399	-413	0	0	0	0.041	-0.000
	6(EXP)	-158	1349	385	0	0	0	0.850	0.567
	7(EXP)	-95	1399	413	0	0	0	1.404	1.513
	MAX	158/L4	-1666/L1	-467/L1				1.445/L3	1.513/L3
NDB13BQ002 (8266)		TYPE=Rigid +Y;							
	1(HYD)	88	-3755	207	0	0	0	0.001	0.001
	2(OPE)	-1166	-5680	101	0	0	0	-0.007	3.152
	3(OPE)	-1068	-5427	-1082	0	0	0	-1.095	5.048
	4(SUS)	-16	-6056	749	0	0	0	-0.000	0.332
	5(SUS)	66	-6065	649	0	0	0	0.000	0.260
	6(EXP)	-1150	376	-649	0	0	0	-0.007	2.820
	7(EXP)	-1134	638	-1731	0	0	0	-1.096	4.789
	MAX	-1166/L2	-	-				-	5.048/L3

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RESTRAINT SUMMARY EXTENDED REPORT: Loads On Restraints
Various Load Cases

Node	Load Case	FX N	FY N	FZ N	MX N.m	MY N.m	MZ N.m	DX mm	DY mm
			6065/L5	1731/L7				1.096/L7	
8267		TYPE=Rigid RX; Rigid RZ; Rigid GUI; Rigid GUI;							
	1(HYD)	88	0	207	0	0	0	0.000	0.001
	2(OPE)	-1166	0	101	0	0	0	-0.000	3.152
	3(OPE)	-1068	0	-1082	0	0	0	-0.000	5.048
	4(SUS)	-16	0	749	0	0	0	-0.000	0.332
	5(SUS)	66	0	649	0	0	0	0.000	0.260
	6(EXP)	-1150	0	-649	0	0	0	-0.000	2.820
	7(EXP)	-1134	0	-1731	0	0	0	-0.000	4.789
	MAX	-1166/L2		-1731/L7				-0.000/L2	5.048/L3
8268		TYPE=User Design VSH;							
	1(HYD)	0	-3755	0	0	0	0	0.000	0.000
	2(OPE)	0	-5680	0	0	0	0	-0.000	3.152
	3(OPE)	0	-5427	0	0	0	0	-0.000	5.048
	4(SUS)	0	-6056	0	0	0	0	-0.000	0.333
	5(SUS)	0	-6065	0	0	0	0	0.000	0.259
	6(EXP)	0	376	0	0	0	0	-0.000	2.819
	7(EXP)	0	638	0	0	0	0	-0.000	4.789
	MAX		-6065/L5					-0.000/L2	5.048/L3
NDB13BQ007 (8295)		TYPE=Rigid GUI; Rigid GUI;							
	1(HYD)	-347	0	-309	0	0	0	-0.000	-0.103
	2(OPE)	1382	0	-1325	0	0	0	0.000	4.770
		-57	0	-1920	0	0	0	-0.000	10.496

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RESTRAINT SUMMARY EXTENDED REPORT: Loads On Restraints
Various Load Cases

Node	Load Case	FX N	FY N	FZ N	MX N.m	MY N.m	MZ N.m	DX mm	DY mm
	3(OPE)								
	4(SUS)	-220	0	-839	0	0	0	-0.000	-0.013
	5(SUS)	-322	0	-745	0	0	0	-0.000	-0.053
	6(EXP)	1602	0	-486	0	0	0	0.000	4.784
	7(EXP)	265	0	-1175	0	0	0	0.000	10.549
	MAX	1602/L6		-1920/L3				0.000/L6	10.549/L7
31NDB20AT001/N2 (13200)		TYPE=Rigid ANC;							
	1(HYD)	234	342	-411	-546	-28	421	0.000	0.000
	2(OPE)	186	-569	-1626	213	401	608	0.161	0.532
	3(OPE)	675	-4128	-7129	3331	1785	1264	0.666	2.196
	4(SUS)	204	342	323	-636	-84	459	-0.000	0.000
	5(SUS)	302	301	-104	-592	-13	463	0.000	0.000
	6(EXP)	-19	-911	-1949	850	485	149	0.161	0.532
	7(EXP)	373	-4428	-7024	3923	1799	801	0.666	2.196
	MAX	675/L3	-4428/L7	-7129/L3	3923/L7	1799/L7	1264/L3	0.666/L3	2.196/L3
31NDB20AT001/N1 (13400)		TYPE=Rigid ANC;							
	1(HYD)	38	-2440	109	139	-192	-1447	0.000	-0.000
	2(OPE)	367	-777	-80	-284	225	43	0.161	0.081
	3(OPE)	1080	-2189	159	697	633	-1187	0.666	0.333
	4(SUS)	224	-478	371	49	-231	166	0.000	-0.000
	5(SUS)	227	-508	406	146	-282	195	0.000	-0.000
	6(EXP)	143	-300	-451	-333	456	-122	0.161	0.081
	7(EXP)	853	-1681	-247	551	915	-1381	0.666	0.333
	MAX	1080/L3	-2440/L1	-451/L6	697/L3	915/L7	-1447/L1	0.666/L3	0.333/L7
14000		TYPE=Rigid ANC;							

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RESTRAINT SUMMARY EXTENDED REPORT: Loads On Restraints
Various Load Cases

Node	Load Case	FX N	FY N	FZ N	MX N.m	MY N.m	MZ N.m	DX mm	DY mm
	1(HYD)	271	-2098	-302	-1059	-69	-2470	0.000	-0.000
	2(OPE)	553	-1346	-1707	-2775	1479	-419	0.000	-0.000
	3(OPE)	1755	-6317	-6969	-7694	5903	-4465	0.000	-0.000
	4(SUS)	428	-135	693	38	-662	164	0.000	-0.000
	5(SUS)	530	-208	301	-517	-446	-2	0.000	-0.000
	6(EXP)	125	-1211	-2400	-2812	2141	-583	0.000	-0.000
	7(EXP)	1225	-6109	-7271	-7177	6349	-4464	0.000	-0.000
	MAX	1755/L3	-6317/L3	-7271/L7	-7694/L3	6349/L7	-4465/L3	0.000/L3	-0.000/L3

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 1 (HYD) WW+HP+H

Note: This report indicates generic stresses. For code-defined stresses, see the Stresses report.
Piping Code: EN-13480 = EN-13480 -2017 (Issued June 2017)

CODE STRESS CHECK PASSED : LOADCASE 1 (HYD) WW+HP+H

Highest Stresses: (N/mm2)

Ratio (%):	16.5	@Node 6695	
Code Stress:	36.8	Allowable Stress:	223.3
Axial Stress:	20.4	@Node 6715	
Bending Stress:	20.9	@Node 6695	
Torsion Stress:	1.3	@Node 8105	
Hoop Stress:	41.0	@Node 6660	
Max Stress Intensity:	44.8	@Node 8265	

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
747	19.91	0.59	-0.32	40.97	44.76	1.000	1.000	22.00	223.26	9.85	EN-13480		
6660	19.91	0.90	0.32	40.97	44.76	1.000	1.000	22.23	223.26	9.96	EN-13480		
6660	19.91	2.43	-0.32	40.97	44.76	2.693	2.693	23.36	223.26	10.46	EN-13480		
6665	19.87	2.87	0.08	40.97	44.76	2.693	2.693	23.30	223.26	10.44	EN-13480		
6665	19.87	1.07	-0.08	40.97	44.76	1.000	1.000	22.21	223.26	9.95	EN-13480		
6670	19.87	1.06	0.08	40.97	44.76	1.000	1.000	22.20	223.26	9.95	EN-13480		
6670	19.87	1.06	-0.08	40.97	44.76	1.000	1.000	22.20	223.26	9.95	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 1 (HYD) WW+HP+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
6675	19.70	0.24	0.08	40.97	44.76	1.000	1.000	21.41	223.26	9.59	EN-13480		
6675	19.70	0.64	-0.08	40.97	44.76	2.704	2.704	21.71	223.26	9.72	EN-13480		
6680	19.75	0.96	0.10	40.97	44.76	2.704	2.704	21.96	223.26	9.84	EN-13480		
6680	19.75	0.35	-0.10	40.97	44.76	1.000	1.000	21.54	223.26	9.65	EN-13480		
6685	19.75	0.36	0.10	40.97	44.76	1.000	1.000	21.55	223.26	9.65	EN-13480		
6685	19.75	0.36	-0.10	40.97	44.76	1.000	1.000	21.55	223.26	9.65	EN-13480		
6690	19.62	5.96	0.10	40.97	44.76	1.000	1.000	27.10	223.26	12.14	EN-13480		
6690	19.62	15.97	-0.10	40.97	44.76	2.679	2.679	33.12	223.26	14.83	EN-13480		
6695	19.91	20.90	-0.10	40.97	44.76	2.679	2.679	36.81	223.26	16.49	EN-13480		
6695	19.91	7.80	0.10	40.97	44.76	1.000	1.000	28.94	223.26	12.96	EN-13480		
6700	19.91	7.83	-0.10	40.97	44.76	1.000	1.000	28.96	223.26	12.97	EN-13480		
6700	19.91	7.83	0.10	40.97	44.76	1.000	1.000	28.96	223.26	12.97	EN-13480		
NDB11BQ014 (6705)	19.91	10.83	-0.10	40.97	44.76	1.000	1.000	31.96	223.26	14.32	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 1 (HYD) WW+HP+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
NDB11BQ014 (6705)	19.91	10.83	0.10	40.97	44.76	1.000	1.000	31.96	223.26	14.32	EN-13480		
6710	19.91	1.40	-0.10	40.97	44.76	1.000	1.000	22.54	223.26	10.10	EN-13480		
6710	19.91	3.77	0.10	40.97	44.76	2.693	2.693	23.98	223.26	10.74	EN-13480		
6715	20.42	5.88	0.49	40.97	44.77	2.693	2.693	25.96	223.26	11.63	EN-13480		
6715	20.42	2.18	-0.49	40.97	44.77	1.000	1.000	23.52	223.26	10.53	EN-13480		
6720	20.42	2.18	0.49	40.97	44.77	1.000	1.000	23.52	223.26	10.53	EN-13480		
6720	20.42	2.18	-0.49	40.97	44.77	1.000	1.000	23.52	223.26	10.53	EN-13480		
NDB11BQ002 (6725)	20.10	1.24	0.49	40.97	44.77	1.000	1.000	22.71	223.26	10.17	EN-13480		
NDB11BQ002 (6725)	20.15	1.24	-0.49	40.97	44.77	1.000	1.000	22.71	223.26	10.17	EN-13480		
6730	20.02	1.08	0.49	40.97	44.77	1.000	1.000	22.59	223.26	10.12	EN-13480		
6735	19.88	2.01	-0.49	40.97	44.77	1.000	1.000	23.37	223.26	10.47	EN-13480		
6740	19.86	2.26	0.49	40.97	44.77	1.000	1.000	23.59	223.26	10.57	EN-13480		
6740	19.86	2.26	-0.49	40.97	44.77	1.000	1.000	23.59	223.26	10.57	EN-13480		
6745	19.85	2.51	0.49	40.97	44.77	1.000	1.000	23.82	223.26	10.67	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 1 (HYD) WW+HP+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6750	19.70	3.50	-0.49	40.97	44.77	1.000	1.000	24.77	223.26	11.09	EN-13480		
6755	19.64	4.54	0.49	40.97	44.77	1.000	1.000	25.77	223.26	11.54	EN-13480		
6755	19.64	12.22	-0.49	40.97	44.78	2.693	2.693	30.50	223.26	13.66	EN-13480		
6760	19.75	9.88	0.30	40.97	44.77	2.693	2.693	28.63	223.26	12.83	EN-13480		
6760	19.75	3.67	-0.30	40.97	44.76	1.000	1.000	24.85	223.26	11.13	EN-13480		
6765	19.75	3.65	0.30	40.97	44.76	1.000	1.000	24.83	223.26	11.12	EN-13480		
6765	19.75	3.65	-0.30	40.97	44.76	1.000	1.000	24.83	223.26	11.12	EN-13480		
NDB11BQ003 (6770)	19.75	7.79	0.30	40.97	44.76	1.000	1.000	28.94	223.26	12.96	EN-13480		
NDB11BQ003 (6770)	19.84	7.79	-0.30	40.97	44.76	1.000	1.000	28.94	223.26	12.96	EN-13480		
6775	19.84	4.74	0.30	40.97	44.76	1.000	1.000	25.90	223.26	11.60	EN-13480		
6775	19.84	12.76	-0.30	40.97	44.77	2.693	2.693	30.77	223.26	13.78	EN-13480		
6780	20.20	3.53	-0.91	40.97	44.80	2.693	2.693	25.65	223.26	11.49	EN-13480		
6780	20.20	1.31	0.91	40.97	44.79	1.000	1.000	23.37	223.26	10.47	EN-13480		
6785	20.20	1.32	-0.91	40.97	44.79	1.000	1.000	23.37	223.26	10.47	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 1 (HYD) WW+HP+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
6785	20.20	3.56	0.91	40.97	44.80	2.693	2.693	25.66	223.26	11.49	EN-13480		
6790	20.25	6.11	-0.39	40.97	44.77	2.693	2.693	25.98	223.26	11.64	EN-13480		
6790	20.25	2.27	0.39	40.97	44.77	1.000	1.000	23.53	223.26	10.54	EN-13480		
6795	20.25	2.27	-0.39	40.97	44.77	1.000	1.000	23.53	223.26	10.54	EN-13480		
6795	20.25	2.27	0.39	40.97	44.77	1.000	1.000	23.53	223.26	10.54	EN-13480		
6800	20.04	0.59	-0.39	40.97	44.77	1.000	1.000	22.11	223.26	9.91	EN-13480		
6800	20.04	1.59	0.39	40.97	44.77	2.693	2.693	23.12	223.26	10.36	EN-13480		
6805	19.84	3.06	0.03	40.97	44.76	2.693	2.693	23.43	223.26	10.49	EN-13480		
6805	19.84	1.14	-0.03	40.97	44.76	1.000	1.000	22.27	223.26	9.97	EN-13480		
6810	19.84	1.14	0.03	40.97	44.76	1.000	1.000	22.27	223.26	9.98	EN-13480		
6810	19.84	1.14	-0.03	40.97	44.76	1.000	1.000	22.27	223.26	9.98	EN-13480		
6815	19.84	1.93	0.03	40.97	44.76	1.000	1.000	23.06	223.26	10.33	EN-13480		
6815	19.84	5.20	-0.03	40.97	44.76	2.693	2.693	25.03	223.26	11.21	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 1 (HYD) WW+HP+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6820	19.83	4.98	-0.22	40.97	44.76	2.693	2.693	24.97	223.26	11.18	EN-13480		
6820	19.83	1.85	0.22	40.97	44.76	1.000	1.000	23.03	223.26	10.32	EN-13480		
6825	19.83	1.85	-0.22	40.97	44.76	1.000	1.000	23.03	223.26	10.32	EN-13480		
6825	19.83	1.85	0.22	40.97	44.76	1.000	1.000	23.03	223.26	10.32	EN-13480		
NDB11BQ004 (6830)	19.83	5.47	-0.22	40.97	44.76	1.000	1.000	26.62	223.26	11.92	EN-13480		
NDB11BQ004 (6830)	19.88	5.47	0.22	40.97	44.76	1.000	1.000	26.62	223.26	11.92	EN-13480		
6835	19.88	1.23	-0.22	40.97	44.76	1.000	1.000	22.44	223.26	10.05	EN-13480		
6835	19.88	3.32	0.22	40.97	44.76	2.693	2.693	23.78	223.26	10.65	EN-13480		
6840	19.79	4.89	-0.01	40.97	44.76	2.693	2.693	24.79	223.26	11.11	EN-13480		
6840	19.79	1.81	0.01	40.97	44.76	1.000	1.000	22.94	223.26	10.28	EN-13480		
6845	19.79	1.82	-0.01	40.97	44.76	1.000	1.000	22.95	223.26	10.28	EN-13480		
6845	19.79	1.82	0.01	40.97	44.76	1.000	1.000	22.95	223.26	10.28	EN-13480		
6850	19.79	1.53	-0.01	40.97	44.76	1.000	1.000	22.66	223.26	10.15	EN-13480		
6850	19.79	4.11	0.01	40.97	44.76	2.693	2.693	24.21	223.26	10.84	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 1 (HYD) WW+HP+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
6855	19.88	3.67	-0.13	40.97	44.76	2.693	2.693	23.93	223.26	10.72	EN-13480		
6855	19.88	1.36	0.13	40.97	44.76	1.000	1.000	22.52	223.26	10.09	EN-13480		
6860	19.88	1.37	-0.13	40.97	44.76	1.000	1.000	22.53	223.26	10.09	EN-13480		
6860	19.88	1.37	0.13	40.97	44.76	1.000	1.000	22.53	223.26	10.09	EN-13480		
NDB11BQ005 (6865)	19.88	2.05	-0.13	40.97	44.76	1.000	1.000	23.19	223.26	10.39	EN-13480		
NDB11BQ005 (6865)	19.77	2.05	0.13	40.97	44.76	1.000	1.000	23.19	223.26	10.39	EN-13480		
6870	19.77	1.02	-0.13	40.97	44.76	1.000	1.000	22.18	223.26	9.94	EN-13480		
6870	19.77	2.75	0.13	40.97	44.76	2.693	2.693	23.26	223.26	10.42	EN-13480		
6875	19.78	2.20	-0.28	40.97	44.76	2.693	2.693	23.14	223.26	10.36	EN-13480		
6875	19.78	0.82	0.28	40.97	44.76	1.000	1.000	22.12	223.26	9.91	EN-13480		
6880	19.78	0.81	-0.28	40.97	44.76	1.000	1.000	22.12	223.26	9.91	EN-13480		
6880	19.78	2.18	0.29	40.97	44.76	2.711	2.711	23.14	223.26	10.37	EN-13480		
6885	19.78	1.81	-0.09	40.97	44.76	2.711	2.711	22.54	223.26	10.09	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 1 (HYD) WW+HP+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6885	19.78	0.67	0.09	40.97	44.76	1.000	1.000	21.82	223.26	9.77	EN-13480		
6890	19.78	0.66	-0.09	40.97	44.76	1.000	1.000	21.82	223.26	9.77	EN-13480		
6890	19.78	0.66	0.09	40.97	44.76	1.000	1.000	21.82	223.26	9.77	EN-13480		
6895	19.78	0.24	-0.09	40.97	44.76	1.000	1.000	21.43	223.26	9.60	EN-13480		
6895	19.78	0.24	0.09	40.97	44.76	1.000	1.000	21.43	223.26	9.60	EN-13480		
6900	19.78	1.25	-0.09	40.97	44.76	1.000	1.000	22.39	223.26	10.03	EN-13480		
6930	-3.36	1.43	-0.37	20.18	26.14	1.773	1.773	12.21	223.26	5.47	EN-13480		
6935	13.37	0.17	0.09	40.97	44.76	1.773	1.773	21.41	223.26	9.59	EN-13480		
6935	13.37	0.09	-0.09	40.97	44.76	1.000	1.000	21.34	223.26	9.56	EN-13480		
6940	13.38	0.02	0.09	40.97	44.76	1.000	1.000	21.32	223.26	9.55	EN-13480		
6940	13.38	0.02	-0.09	40.97	44.76	1.000	1.000	21.32	223.26	9.55	EN-13480		
6945	13.40	0.05	0.09	40.97	44.76	1.000	1.000	21.33	223.26	9.55	EN-13480		
6950	13.77	0.48	-0.09	40.97	44.76	1.000	1.000	21.65	223.26	9.70	EN-13480		
6955	13.79	0.56	0.09	40.97	44.76	1.000	1.000	21.72	223.26	9.73	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 1 (HYD) WW+HP+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6955	13.79	0.56	-0.09	40.97	44.76	1.000	1.000	21.72	223.26	9.73	EN-13480		
NDB12BQ001 (6960)	13.81	0.68	0.09	40.97	44.76	1.000	1.000	21.83	223.26	9.78	EN-13480		
NDB12BQ001 (6960)	19.19	0.68	-0.09	40.97	44.76	1.000	1.000	21.83	223.26	9.78	EN-13480		
NDB12BQ002 (6965)	19.30	1.20	0.09	40.97	44.76	1.000	1.000	22.34	223.26	10.01	EN-13480		
NDB12BQ002 (6965)	19.32	1.20	-0.09	40.97	44.76	1.000	1.000	22.34	223.26	10.01	EN-13480		
12000	19.56	1.09	0.09	40.97	44.76	1.000	1.000	22.24	223.26	9.96	EN-13480		
12000	19.56	1.09	-0.09	40.97	44.76	1.000	1.000	22.24	223.26	9.96	EN-13480		
6970	19.62	1.66	0.09	40.97	44.76	1.000	1.000	22.80	223.26	10.21	EN-13480		
6970	19.62	4.48	-0.09	40.97	44.76	2.693	2.693	24.51	223.26	10.98	EN-13480		
6975	19.81	2.01	0.32	40.97	44.76	2.693	2.693	23.12	223.26	10.35	EN-13480		
6975	19.81	0.75	-0.32	40.97	44.76	1.000	1.000	22.11	223.26	9.90	EN-13480		
6980	19.81	0.73	0.32	40.97	44.76	1.000	1.000	22.11	223.26	9.90	EN-13480		
6980	19.81	0.73	-0.32	40.97	44.76	1.000	1.000	22.11	223.26	9.90	EN-13480		
6985	19.81	1.61	0.32	40.97	44.76	1.000	1.000	22.87	223.26	10.24	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 1 (HYD) WW+HP+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
6985	19.81	1.61	-0.32	40.97	44.76	1.000	1.000	22.87	223.26	10.24	EN-13480		
6990	19.81	1.49	0.32	40.97	44.76	1.000	1.000	22.75	223.26	10.19	EN-13480		
6990	19.81	4.01	-0.32	40.97	44.76	2.693	2.693	24.40	223.26	10.93	EN-13480		
6995	19.85	4.02	0.30	40.97	44.76	2.693	2.693	24.38	223.26	10.92	EN-13480		
6995	19.85	1.49	-0.30	40.97	44.76	1.000	1.000	22.74	223.26	10.18	EN-13480		
7000	19.85	1.50	0.30	40.97	44.76	1.000	1.000	22.74	223.26	10.19	EN-13480		
7000	19.85	1.50	-0.30	40.97	44.76	1.000	1.000	22.74	223.26	10.19	EN-13480		
NDB12BQ003 (7002)	19.85	3.03	0.30	40.97	44.76	1.000	1.000	24.22	223.26	10.85	EN-13480		
NDB12BQ003 (7002)	19.72	3.03	-0.30	40.97	44.76	1.000	1.000	24.22	223.26	10.85	EN-13480		
7005	19.72	5.35	0.30	40.97	44.76	1.000	1.000	26.51	223.26	11.88	EN-13480		
7005	19.72	5.35	-0.30	40.97	44.76	1.000	1.000	26.51	223.26	11.88	EN-13480		
7010	19.72	2.18	0.30	40.97	44.76	1.000	1.000	23.39	223.26	10.48	EN-13480		
7010	19.72	5.87	-0.30	40.97	44.76	2.693	2.693	25.70	223.26	11.51	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 1 (HYD) WW+HP+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
7015	19.85	7.28	-0.36	40.97	44.77	2.693	2.693	26.78	223.26	12.00	EN-13480		
7015	19.85	2.70	0.36	40.97	44.77	1.000	1.000	23.93	223.26	10.72	EN-13480		
7020	19.85	2.72	-0.36	40.97	44.77	1.000	1.000	23.94	223.26	10.72	EN-13480		
7020	19.85	2.72	0.36	40.97	44.77	1.000	1.000	23.94	223.26	10.72	EN-13480		
NDB12BQ005 (7025)	19.85	3.88	-0.36	40.97	44.77	1.000	1.000	25.08	223.26	11.23	EN-13480		
NDB12BQ005 (7025)	19.88	3.88	0.36	40.97	44.77	1.000	1.000	25.08	223.26	11.23	EN-13480		
7030	19.88	1.83	-0.36	40.97	44.76	1.000	1.000	23.10	223.26	10.35	EN-13480		
7030	19.88	1.83	0.36	40.97	44.76	1.000	1.000	23.10	223.26	10.35	EN-13480		
7035	19.88	0.69	-0.36	40.97	44.76	1.000	1.000	22.13	223.26	9.91	EN-13480		
7035	19.88	1.86	0.36	40.97	44.76	2.693	2.693	23.15	223.26	10.37	EN-13480		
7040	20.14	3.32	-0.04	40.97	44.76	2.693	2.693	23.63	223.26	10.58	EN-13480		
7040	20.14	1.23	0.04	40.97	44.76	1.000	1.000	22.37	223.26	10.02	EN-13480		
7045	20.14	1.23	-0.04	40.97	44.76	1.000	1.000	22.36	223.26	10.02	EN-13480		
7045	20.14	1.23	0.04	40.97	44.76	1.000	1.000	22.36	223.26	10.02	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 1 (HYD) WW+HP+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
7050	19.99	1.26	-0.04	40.97	44.76	1.000	1.000	22.39	223.26	10.03	EN-13480		
7050	19.99	3.38	0.04	40.97	44.76	2.693	2.693	23.67	223.26	10.60	EN-13480		
7055	19.88	4.36	0.29	40.97	44.76	2.693	2.693	24.61	223.26	11.02	EN-13480		
7055	19.88	1.62	-0.29	40.97	44.76	1.000	1.000	22.85	223.26	10.24	EN-13480		
7060	19.88	1.62	0.29	40.97	44.76	1.000	1.000	22.85	223.26	10.24	EN-13480		
7060	19.88	1.62	-0.29	40.97	44.76	1.000	1.000	22.85	223.26	10.24	EN-13480		
7065	19.88	1.54	0.29	40.97	44.76	1.000	1.000	22.78	223.26	10.20	EN-13480		
7065	19.88	4.15	-0.29	40.97	44.76	2.693	2.693	24.46	223.26	10.96	EN-13480		
7069	19.85	3.80	-0.13	40.97	44.76	2.693	2.693	24.03	223.26	10.76	EN-13480		
7069	19.85	3.80	0.13	40.97	44.76	2.693	2.693	24.03	223.26	10.76	EN-13480		
7070	19.84	3.27	-0.27	40.97	44.76	2.693	2.693	23.82	223.26	10.67	EN-13480		
7070	19.84	1.22	0.27	40.97	44.76	1.000	1.000	22.46	223.26	10.06	EN-13480		
7075	19.84	1.22	-0.27	40.97	44.76	1.000	1.000	22.46	223.26	10.06	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 1 (HYD) WW+HP+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
7075	19.84	1.22	0.27	40.97	44.76	1.000	1.000	22.46	223.26	10.06	EN-13480		
NDB12BQ006 (7080)	19.84	5.12	-0.27	40.97	44.76	1.000	1.000	26.28	223.26	11.77	EN-13480		
NDB12BQ006 (7080)	19.87	5.12	0.27	40.97	44.76	1.000	1.000	26.28	223.26	11.77	EN-13480		
7085	19.87	2.14	-0.27	40.97	44.76	1.000	1.000	23.34	223.26	10.45	EN-13480		
7085	19.87	5.76	0.27	40.97	44.76	2.693	2.693	25.59	223.26	11.46	EN-13480		
7089	19.89	3.57	0.37	40.97	44.77	2.693	2.693	24.20	223.26	10.84	EN-13480		
7089	19.89	3.57	-0.37	40.97	44.77	2.693	2.693	24.20	223.26	10.84	EN-13480		
7090	19.91	1.64	0.56	40.97	44.77	2.693	2.693	23.72	223.26	10.62	EN-13480		
7090	19.91	0.61	-0.56	40.97	44.77	1.000	1.000	22.41	223.26	10.04	EN-13480		
7095	19.91	0.61	0.56	40.97	44.77	1.000	1.000	22.41	223.26	10.04	EN-13480		
7095	19.91	0.61	-0.56	40.97	44.77	1.000	1.000	22.41	223.26	10.04	EN-13480		
NDB12BQ008 (7097)	19.91	0.94	0.56	40.97	44.77	1.000	1.000	22.59	223.26	10.12	EN-13480		
NDB12BQ008 (7097)	19.91	0.94	-0.56	40.97	44.77	1.000	1.000	22.59	223.26	10.12	EN-13480		
7100	19.91	0.86	0.56	40.97	44.77	1.000	1.000	22.55	223.26	10.10	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 1 (HYD) WW+HP+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
7100	19.91	2.33	-0.56	40.97	44.77	2.693	2.693	24.00	223.26	10.75	EN-13480		
7104	19.81	3.02	0.24	40.97	44.76	2.693	2.693	23.60	223.26	10.57	EN-13480		
7104	19.81	3.02	-0.24	40.97	44.76	2.693	2.693	23.60	223.26	10.57	EN-13480		
7105	19.72	2.90	-0.21	40.97	44.76	2.693	2.693	23.47	223.26	10.51	EN-13480		
7105	19.72	1.08	0.21	40.97	44.76	1.000	1.000	22.29	223.26	9.98	EN-13480		
7110	19.72	1.08	-0.21	40.97	44.76	1.000	1.000	22.29	223.26	9.98	EN-13480		
7110	19.72	1.08	0.21	40.97	44.76	1.000	1.000	22.29	223.26	9.98	EN-13480		
7115	19.60	1.06	-0.21	40.97	44.76	1.000	1.000	22.27	223.26	9.97	EN-13480		
7115	19.60	2.84	0.21	40.97	44.76	2.693	2.693	23.42	223.26	10.49	EN-13480		
7119	19.66	2.25	0.05	40.97	44.76	2.693	2.693	22.83	223.26	10.22	EN-13480		
7119	19.66	2.25	-0.05	40.97	44.76	2.693	2.693	22.83	223.26	10.22	EN-13480		
7120	19.89	3.22	0.32	40.97	44.76	2.693	2.693	23.87	223.26	10.69	EN-13480		
7120	19.89	1.20	-0.32	40.97	44.76	1.000	1.000	22.49	223.26	10.07	EN-13480		
7125	19.89	1.22	0.32	40.97	44.76	1.000	1.000	22.50	223.26	10.08	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 1 (HYD) WW+HP+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
8105	19.94	3.14	1.25	40.97	44.83	2.003	2.003	25.57	223.26	11.45	EN-13480		
8109	19.85	4.64	-0.51	40.97	44.77	2.003	2.003	24.93	223.26	11.17	EN-13480		
8109	19.85	4.64	0.51	40.97	44.77	2.003	2.003	24.93	223.26	11.17	EN-13480		
8110	19.78	3.86	0.19	40.97	44.76	2.003	2.003	24.08	223.26	10.79	EN-13480		
8110	19.78	1.93	-0.19	40.97	44.76	1.000	1.000	23.09	223.26	10.34	EN-13480		
8115	19.78	1.92	0.19	40.97	44.76	1.000	1.000	23.09	223.26	10.34	EN-13480		
8115	19.78	1.92	-0.19	40.97	44.76	1.000	1.000	23.09	223.26	10.34	EN-13480		
8120	19.78	1.68	0.19	40.97	44.76	1.000	1.000	22.85	223.26	10.23	EN-13480		
8120	19.78	4.52	-0.19	40.97	44.76	2.693	2.693	24.60	223.26	11.02	EN-13480		
8124	19.77	5.68	0.01	40.97	44.76	2.693	2.693	25.39	223.26	11.37	EN-13480		
8124	19.77	5.68	-0.01	40.97	44.76	2.693	2.693	25.39	223.26	11.37	EN-13480		
8125	19.82	7.06	-0.70	40.97	44.79	2.693	2.693	27.14	223.26	12.16	EN-13480		
8125	19.82	2.62	0.70	40.97	44.78	1.000	1.000	24.11	223.26	10.80	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 1 (HYD) WW+HP+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
8130	19.82	2.64	-0.70	40.97	44.78	1.000	1.000	24.12	223.26	10.80	EN-13480		
8130	19.82	2.64	0.70	40.97	44.78	1.000	1.000	24.12	223.26	10.80	EN-13480		
NDB13BQ010 (8135)	19.82	4.17	-0.70	40.97	44.78	1.000	1.000	25.53	223.26	11.44	EN-13480		
NDB13BQ010 (8135)	19.82	4.17	0.70	40.97	44.78	1.000	1.000	25.53	223.26	11.44	EN-13480		
NDB13BQ008 (8137)	19.82	4.16	-0.70	40.97	44.78	1.000	1.000	25.52	223.26	11.43	EN-13480		
NDB13BQ008 (8137)	19.79	4.16	0.70	40.97	44.78	1.000	1.000	25.52	223.26	11.43	EN-13480		
8140	19.79	1.67	-0.70	40.97	44.78	1.000	1.000	23.31	223.26	10.44	EN-13480		
8140	19.79	4.50	0.70	40.97	44.78	2.693	2.693	25.54	223.26	11.44	EN-13480		
8144	19.63	4.87	-1.05	40.97	44.81	2.693	2.693	26.74	223.26	11.97	EN-13480		
8144	19.63	4.87	1.05	40.97	44.81	2.693	2.693	26.74	223.26	11.97	EN-13480		
8145	19.66	5.83	-0.86	40.97	44.80	2.693	2.693	26.71	223.26	11.96	EN-13480		
8145	19.66	2.17	0.86	40.97	44.79	1.000	1.000	23.89	223.26	10.70	EN-13480		
8150	19.66	2.16	-0.86	40.97	44.79	1.000	1.000	23.89	223.26	10.70	EN-13480		
8150	19.66	2.16	0.86	40.97	44.79	1.000	1.000	23.89	223.26	10.70	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 1 (HYD) WW+HP+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
8155	19.68	1.89	-0.86	40.97	44.79	1.000	1.000	23.69	223.26	10.61	EN-13480		
8155	19.68	1.89	0.86	40.97	44.79	1.000	1.000	23.69	223.26	10.61	EN-13480		
8160	19.71	1.50	-0.86	40.97	44.79	1.000	1.000	23.41	223.26	10.49	EN-13480		
8160	19.71	1.50	0.86	40.97	44.79	1.000	1.000	23.41	223.26	10.49	EN-13480		
8165	19.86	0.61	-0.86	40.97	44.79	1.000	1.000	22.95	223.26	10.28	EN-13480		
8165	19.86	1.65	0.86	40.97	44.79	2.693	2.693	24.81	223.26	11.11	EN-13480		
8170	19.84	3.27	-0.58	40.97	44.77	2.693	2.693	24.53	223.26	10.99	EN-13480		
8170	19.84	1.22	0.58	40.97	44.77	1.000	1.000	22.81	223.26	10.22	EN-13480		
8175	19.84	1.21	-0.58	40.97	44.77	1.000	1.000	22.81	223.26	10.22	EN-13480		
8175	19.84	1.21	0.58	40.97	44.77	1.000	1.000	22.81	223.26	10.22	EN-13480		
NDB13BQ001 (8180)	19.84	5.16	-0.58	40.97	44.78	1.000	1.000	26.42	223.26	11.83	EN-13480		
NDB13BQ001 (8180)	19.75	5.16	0.58	40.97	44.78	1.000	1.000	26.42	223.26	11.83	EN-13480		
8185	19.75	2.68	-0.58	40.97	44.77	1.000	1.000	24.05	223.26	10.77	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 1 (HYD) WW+HP+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
8185	19.75	7.22	0.58	40.97	44.78	2.693	2.693	27.03	223.26	12.11	EN-13480		
8190	19.86	2.94	0.20	40.97	44.76	2.693	2.693	23.48	223.26	10.52	EN-13480		
8190	19.86	1.09	-0.20	40.97	44.76	1.000	1.000	22.29	223.26	9.98	EN-13480		
8195	19.86	1.09	0.20	40.97	44.76	1.000	1.000	22.29	223.26	9.98	EN-13480		
8195	19.86	2.93	-0.20	40.97	44.76	2.693	2.693	23.48	223.26	10.52	EN-13480		
8200	19.75	2.33	0.89	40.97	44.79	2.693	2.693	25.14	223.26	11.26	EN-13480		
8200	19.75	0.86	-0.89	40.97	44.79	1.000	1.000	23.11	223.26	10.35	EN-13480		
8205	19.75	0.87	0.89	40.97	44.79	1.000	1.000	23.12	223.26	10.35	EN-13480		
8205	19.75	0.87	-0.89	40.97	44.79	1.000	1.000	23.12	223.26	10.35	EN-13480		
8210	19.75	1.52	0.89	40.97	44.79	1.000	1.000	23.47	223.26	10.51	EN-13480		
8210	19.75	4.08	-0.89	40.97	44.80	2.693	2.693	25.86	223.26	11.58	EN-13480		
8215	19.95	1.80	1.17	40.97	44.82	2.693	2.693	26.03	223.26	11.66	EN-13480		
8215	19.95	0.67	-1.17	40.97	44.81	1.000	1.000	23.56	223.26	10.55	EN-13480		
8220	19.95	0.68	1.17	40.97	44.81	1.000	1.000	23.56	223.26	10.55	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 1 (HYD) WW+HP+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
8220	19.95	1.84	-1.17	40.97	44.82	2.693	2.693	26.04	223.26	11.66	EN-13480		
8225	19.86	2.41	1.13	40.97	44.82	2.693	2.693	26.05	223.26	11.67	EN-13480		
8225	19.86	0.90	-1.13	40.97	44.81	1.000	1.000	23.57	223.26	10.56	EN-13480		
8230	19.86	0.89	1.13	40.97	44.81	1.000	1.000	23.56	223.26	10.55	EN-13480		
8230	19.86	0.89	-1.13	40.97	44.81	1.000	1.000	23.56	223.26	10.55	EN-13480		
NDB13BQ009 (8235)	19.86	1.28	1.13	40.97	44.81	1.000	1.000	23.73	223.26	10.63	EN-13480		
NDB13BQ009 (8235)	19.85	1.28	-1.13	40.97	44.81	1.000	1.000	23.73	223.26	10.63	EN-13480		
8240	19.85	1.09	1.13	40.97	44.81	1.000	1.000	23.64	223.26	10.59	EN-13480		
8245	19.85	1.34	-1.13	40.97	44.81	1.000	1.000	23.76	223.26	10.64	EN-13480		
8250	19.85	1.55	1.13	40.97	44.81	1.000	1.000	23.87	223.26	10.69	EN-13480		
8250	19.85	1.55	-1.13	40.97	44.81	1.000	1.000	23.87	223.26	10.69	EN-13480		
8255	19.85	1.79	1.13	40.97	44.81	1.000	1.000	24.02	223.26	10.76	EN-13480		
8260	19.85	3.40	-1.13	40.97	44.82	1.000	1.000	25.21	223.26	11.29	EN-13480		
8265	19.85	4.55	1.13	40.97	44.82	1.000	1.000	26.21	223.26	11.74	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 1 (HYD) WW+HP+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
8265	19.82	4.65	-1.25	40.97	44.84	1.000	1.000	26.41	223.26	11.83	EN-13480		
8270	19.82	1.40	1.25	40.97	44.83	1.000	1.000	24.00	223.26	10.75	EN-13480		
8270	19.82	3.78	-1.25	40.97	44.83	2.693	2.693	26.93	223.26	12.06	EN-13480		
8275	19.81	1.78	0.83	40.97	44.79	2.693	2.693	24.74	223.26	11.08	EN-13480		
8275	19.81	0.66	-0.83	40.97	44.79	1.000	1.000	22.92	223.26	10.26	EN-13480		
8280	19.81	0.67	0.83	40.97	44.79	1.000	1.000	22.92	223.26	10.27	EN-13480		
8280	19.81	1.82	-0.83	40.97	44.79	2.693	2.693	24.75	223.26	11.09	EN-13480		
8285	19.50	7.68	-0.12	40.97	44.76	2.693	2.693	26.91	223.26	12.05	EN-13480		
8285	19.50	2.85	0.12	40.97	44.76	1.000	1.000	23.99	223.26	10.75	EN-13480		
8290	19.50	2.85	-0.12	40.97	44.76	1.000	1.000	23.99	223.26	10.74	EN-13480		
8290	19.50	2.85	0.12	40.97	44.76	1.000	1.000	23.99	223.26	10.74	EN-13480		
NDB13BQ007 (8295)	19.86	1.29	-0.12	40.97	44.76	1.000	1.000	22.44	223.26	10.05	EN-13480		
NDB13BQ007 (8295)	19.86	1.29	0.12	40.97	44.76	1.000	1.000	22.44	223.26	10.05	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 1 (HYD) WW+HP+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
8300	20.17	0.31	-0.12	40.97	44.76	1.000	1.000	21.52	223.26	9.64	EN-13480		
8300	20.17	0.82	0.12	40.97	44.76	2.693	2.693	21.91	223.26	9.81	EN-13480		
8305	19.89	6.16	0.03	40.97	44.76	2.693	2.693	25.75	223.26	11.53	EN-13480		
8305	19.89	2.29	-0.03	40.97	44.76	1.000	1.000	23.42	223.26	10.49	EN-13480		
8310	19.89	2.31	0.03	40.97	44.76	1.000	1.000	23.44	223.26	10.50	EN-13480		
8310	19.89	2.31	-0.03	40.97	44.76	1.000	1.000	23.44	223.26	10.50	EN-13480		
752	19.89	4.30	0.03	40.97	44.76	1.000	1.000	25.43	223.26	11.39	EN-13480		
13100	19.94	1.81	1.25	40.97	44.83	1.000	1.000	24.22	223.26	10.85	EN-13480		
31NDB20AT001/N2 (13200)	19.94	1.94	-1.25	40.97	44.83	1.000	1.000	24.30	223.26	10.88	EN-13480		
13300	19.89	5.73	-0.32	40.97	44.76	1.000	1.000	26.89	223.26	12.05	EN-13480		
31NDB20AT001/N1 (13400)	19.89	6.70	0.32	40.97	44.76	1.000	1.000	27.86	223.26	12.48	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 2 (OPE) W+D1+T1+P1+H

Note: This report indicates generic stresses. For code-defined stresses, see the Stresses report.
Piping Code: EN-13480 = EN-13480 -2017 (Issued June 2017)

NO CODE STRESS CHECK PROCESSED: LOADCASE 2 (OPE) W+D1+T1+P1+H

Highest Stresses: (N/mm2)

Ratio (%):	0.0	@Node	6715
OPE Stress:	29.0	Allowable Stress:	0.0
Axial Stress:	3.1	@Node	6665
Bending Stress:	26.5	@Node	6715
Torsion Stress:	3.8	@Node	6930
Hoop Stress:	4.9	@Node	6660
Max Stress Intensity:	34.7	@Node	6715

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
747	2.71	5.88	-0.23	4.92	10.17	1.000	1.000	8.43	0.00	0.00	EN-13480		
6660	2.71	2.78	0.23	4.92	6.81	1.000	1.000	5.36	0.00	0.00	EN-13480		
6660	2.71	7.73	-0.23	4.92	12.33	2.776	2.776	10.37	0.00	0.00	EN-13480		
6665	3.13	1.43	-0.64	4.92	6.80	2.776	2.776	6.35	0.00	0.00	EN-13480		
6665	3.13	0.52	0.64	4.92	6.61	1.000	1.000	3.91	0.00	0.00	EN-13480		
6670	3.13	0.50	-0.64	4.92	6.61	1.000	1.000	3.90	0.00	0.00	EN-13480		
6670	3.13	0.50	0.64	4.92	6.61	1.000	1.000	3.90	0.00	0.00	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 2 (OPE) W+D1+T1+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6675	2.93	6.66	-0.64	4.92	11.42	1.000	1.000	9.32	0.00	0.00	EN-13480		
6675	2.93	18.57	0.64	4.92	25.31	2.788	2.788	21.44	0.00	0.00	EN-13480		
6680	2.97	19.89	-0.57	4.92	26.90	2.788	2.788	22.68	0.00	0.00	EN-13480		
6680	2.97	7.13	0.57	4.92	12.00	1.000	1.000	9.76	0.00	0.00	EN-13480		
6685	2.97	7.13	-0.57	4.92	11.99	1.000	1.000	9.75	0.00	0.00	EN-13480		
6685	2.97	7.13	0.58	4.92	11.99	1.000	1.000	9.75	0.00	0.00	EN-13480		
6690	2.82	6.01	-0.58	4.92	10.53	1.000	1.000	8.66	0.00	0.00	EN-13480		
6690	2.82	16.60	0.58	4.92	22.88	2.762	2.762	19.44	0.00	0.00	EN-13480		
6695	2.71	15.21	-0.45	4.92	21.11	2.762	2.762	17.95	0.00	0.00	EN-13480		
6695	2.71	5.51	0.45	4.92	9.79	1.000	1.000	8.12	0.00	0.00	EN-13480		
6700	2.71	5.49	-0.45	4.92	9.77	1.000	1.000	8.10	0.00	0.00	EN-13480		
6700	2.71	5.49	0.45	4.92	9.77	1.000	1.000	8.10	0.00	0.00	EN-13480		
NDB11BQ014 (6705)	2.71	4.12	-0.45	4.92	8.28	1.000	1.000	6.75	0.00	0.00	EN-13480		
NDB11BQ014	2.71	4.12	0.45	4.92	8.28	1.000	1.000	6.75	0.00	0.00	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 2 (OPE) W+D1+T1+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
(6705)											13480		
6710	2.71	7.32	-0.45	4.92	11.89	1.000	1.000	9.91	0.00	0.00	EN-13480		
6710	2.71	20.33	0.45	4.92	27.11	2.776	2.776	23.02	0.00	0.00	EN-13480		
6715	3.02	26.47	0.03	4.92	34.66	2.776	2.776	29.00	0.00	0.00	EN-13480		
6715	3.02	9.53	-0.03	4.92	14.81	1.000	1.000	12.07	0.00	0.00	EN-13480		
6720	3.02	9.51	0.03	4.92	14.78	1.000	1.000	12.05	0.00	0.00	EN-13480		
6720	3.02	9.51	-0.03	4.92	14.78	1.000	1.000	12.05	0.00	0.00	EN-13480		
NDB11BQ002 (6725)	2.65	3.92	0.03	4.92	7.87	1.000	1.000	6.46	0.00	0.00	EN-13480		
NDB11BQ002 (6725)	2.82	3.92	-0.03	4.92	8.06	1.000	1.000	6.46	0.00	0.00	EN-13480		
6730	2.67	2.28	0.03	4.92	6.36	1.000	1.000	4.81	0.00	0.00	EN-13480		
6735	2.51	2.04	-0.03	4.92	6.36	1.000	1.000	4.57	0.00	0.00	EN-13480		
6740	2.49	2.08	0.03	4.92	6.36	1.000	1.000	4.61	0.00	0.00	EN-13480		
6740	2.49	2.08	-0.03	4.92	6.36	1.000	1.000	4.61	0.00	0.00	EN-13480		
6745	2.48	2.16	0.03	4.92	6.36	1.000	1.000	4.69	0.00	0.00	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 2 (OPE) W+D1+T1+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6750	2.31	2.78	-0.03	4.92	6.36	1.000	1.000	5.32	0.00	0.00	EN-13480		
6755	2.24	3.71	0.03	4.92	7.49	1.000	1.000	6.24	0.00	0.00	EN-13480		
6755	2.24	10.29	-0.03	4.92	15.12	2.776	2.776	12.83	0.00	0.00	EN-13480		
6760	2.25	9.23	0.04	4.92	13.86	2.776	2.776	11.76	0.00	0.00	EN-13480		
6760	2.25	3.32	-0.04	4.92	7.05	1.000	1.000	5.86	0.00	0.00	EN-13480		
6765	2.25	3.31	0.04	4.92	7.03	1.000	1.000	5.85	0.00	0.00	EN-13480		
6765	2.25	3.31	-0.04	4.92	7.03	1.000	1.000	5.85	0.00	0.00	EN-13480		
NDB11BQ003 (6770)	2.25	6.73	0.04	4.92	10.92	1.000	1.000	9.26	0.00	0.00	EN-13480		
NDB11BQ003 (6770)	2.34	6.73	-0.04	4.92	10.82	1.000	1.000	9.26	0.00	0.00	EN-13480		
6775	2.34	3.78	0.04	4.92	7.45	1.000	1.000	6.32	0.00	0.00	EN-13480		
6775	2.34	10.49	-0.04	4.92	15.23	2.776	2.776	13.03	0.00	0.00	EN-13480		
6780	2.73	4.16	-0.04	4.92	8.23	2.776	2.776	6.71	0.00	0.00	EN-13480		
6780	2.73	1.50	0.04	4.92	6.36	1.000	1.000	4.04	0.00	0.00	EN-13480		
6785	2.73	1.51	-0.04	4.92	6.36	1.000	1.000	4.04	0.00	0.00	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 2 (OPE) W+D1+T1+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6785	2.73	4.18	0.04	4.92	8.24	2.776	2.776	6.72	0.00	0.00	EN-13480		
6790	2.71	3.79	0.29	4.92	7.86	2.776	2.776	6.66	0.00	0.00	EN-13480		
6790	2.71	1.37	-0.29	4.92	6.43	1.000	1.000	4.02	0.00	0.00	EN-13480		
6795	2.71	1.36	0.29	4.92	6.43	1.000	1.000	4.02	0.00	0.00	EN-13480		
6795	2.71	1.36	-0.29	4.92	6.43	1.000	1.000	4.02	0.00	0.00	EN-13480		
6800	2.46	1.95	0.29	4.92	6.46	1.000	1.000	4.57	0.00	0.00	EN-13480		
6800	2.46	5.40	-0.29	4.92	9.33	2.776	2.776	8.18	0.00	0.00	EN-13480		
6805	2.34	2.63	1.27	4.92	7.64	2.776	2.776	10.08	0.00	0.00	EN-13480		
6805	2.34	0.95	-1.27	4.92	7.06	1.000	1.000	5.25	0.00	0.00	EN-13480		
6810	2.34	0.95	1.27	4.92	7.06	1.000	1.000	5.25	0.00	0.00	EN-13480		
6810	2.34	0.95	-1.27	4.92	7.06	1.000	1.000	5.25	0.00	0.00	EN-13480		
6815	2.34	1.76	1.27	4.92	7.28	1.000	1.000	5.63	0.00	0.00	EN-13480		
6815	2.34	4.89	-1.27	4.92	9.28	2.776	2.776	11.13	0.00	0.00	EN-13480		
6820	2.27	7.15	0.60	4.92	11.48	2.776	2.776	10.43	0.00	0.00	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 2 (OPE) W+D1+T1+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
6820	2.27	2.57	-0.60	4.92	6.84	1.000	1.000	5.38	0.00	0.00	EN-13480		
6825	2.27	2.56	0.60	4.92	6.84	1.000	1.000	5.37	0.00	0.00	EN-13480		
6825	2.27	2.56	-0.60	4.92	6.84	1.000	1.000	5.37	0.00	0.00	EN-13480		
NDB11BQ004 (6830)	2.27	7.28	0.60	4.92	11.64	1.000	1.000	9.92	0.00	0.00	EN-13480		
NDB11BQ004 (6830)	2.38	7.28	-0.60	4.92	11.50	1.000	1.000	9.92	0.00	0.00	EN-13480		
6835	2.38	1.99	0.60	4.92	6.70	1.000	1.000	4.87	0.00	0.00	EN-13480		
6835	2.38	5.54	-0.60	4.92	9.50	2.776	2.776	9.01	0.00	0.00	EN-13480		
6840	2.24	6.54	-0.02	4.92	10.71	2.776	2.776	9.07	0.00	0.00	EN-13480		
6840	2.24	2.35	0.02	4.92	6.36	1.000	1.000	4.89	0.00	0.00	EN-13480		
6845	2.24	2.35	-0.02	4.92	6.36	1.000	1.000	4.89	0.00	0.00	EN-13480		
6845	2.24	2.35	0.02	4.92	6.36	1.000	1.000	4.89	0.00	0.00	EN-13480		
6850	2.24	2.38	-0.02	4.92	6.36	1.000	1.000	4.92	0.00	0.00	EN-13480		
6850	2.24	6.61	0.02	4.92	10.80	2.776	2.776	9.14	0.00	0.00	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 2 (OPE) W+D1+T1+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6855	2.39	4.95	-0.20	4.92	8.72	2.776	2.776	7.61	0.00	0.00	EN-13480		
6855	2.39	1.78	0.20	4.92	6.40	1.000	1.000	4.36	0.00	0.00	EN-13480		
6860	2.39	1.78	-0.20	4.92	6.40	1.000	1.000	4.36	0.00	0.00	EN-13480		
6860	2.39	1.78	0.20	4.92	6.40	1.000	1.000	4.36	0.00	0.00	EN-13480		
NDB11BQ005 (6865)	2.39	2.12	-0.20	4.92	6.41	1.000	1.000	4.70	0.00	0.00	EN-13480		
NDB11BQ005 (6865)	2.26	2.12	0.20	4.92	6.40	1.000	1.000	4.70	0.00	0.00	EN-13480		
6870	2.26	1.41	-0.20	4.92	6.38	1.000	1.000	4.00	0.00	0.00	EN-13480		
6870	2.26	3.90	0.20	4.92	7.69	2.776	2.776	6.59	0.00	0.00	EN-13480		
6875	2.22	4.05	-0.41	4.92	7.94	2.776	2.776	7.17	0.00	0.00	EN-13480		
6875	2.22	1.46	0.41	4.92	6.47	1.000	1.000	4.20	0.00	0.00	EN-13480		
6880	2.22	1.45	-0.41	4.92	6.46	1.000	1.000	4.20	0.00	0.00	EN-13480		
6880	2.22	4.03	0.41	4.92	7.92	2.794	2.794	7.18	0.00	0.00	EN-13480		
6885	2.22	3.64	-0.04	4.92	7.43	2.794	2.794	6.18	0.00	0.00	EN-13480		
6885	2.22	1.30	0.04	4.92	6.36	1.000	1.000	3.84	0.00	0.00	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 2 (OPE) W+D1+T1+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
6890	2.22	1.30	-0.04	4.92	6.36	1.000	1.000	3.83	0.00	0.00	EN-13480		
6890	2.22	1.30	0.04	4.92	6.36	1.000	1.000	3.83	0.00	0.00	EN-13480		
6895	2.22	0.90	-0.04	4.92	6.36	1.000	1.000	3.43	0.00	0.00	EN-13480		
6895	2.22	0.90	0.04	4.92	6.36	1.000	1.000	3.43	0.00	0.00	EN-13480		
6900	2.22	1.66	-0.04	4.92	6.36	1.000	1.000	4.20	0.00	0.00	EN-13480		
6930	1.60	3.44	-3.77	2.42	9.97	1.773	1.773	15.09	0.00	0.00	EN-13480		
6935	2.64	0.42	0.95	4.92	6.75	1.773	1.773	5.92	0.00	0.00	EN-13480		
6935	2.64	0.24	-0.95	4.92	6.73	1.000	1.000	4.44	0.00	0.00	EN-13480		
6940	2.66	0.07	0.95	4.92	6.71	1.000	1.000	4.43	0.00	0.00	EN-13480		
6940	2.66	0.07	-0.95	4.92	6.71	1.000	1.000	4.43	0.00	0.00	EN-13480		
6945	2.68	0.10	0.95	4.92	6.72	1.000	1.000	4.43	0.00	0.00	EN-13480		
6950	3.07	1.08	-0.95	4.92	6.98	1.000	1.000	4.72	0.00	0.00	EN-13480		
6955	3.09	1.25	0.95	4.92	7.04	1.000	1.000	4.80	0.00	0.00	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 2 (OPE) W+D1+T1+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6955	3.09	1.25	-0.95	4.92	7.04	1.000	1.000	4.80	0.00	0.00	EN-13480		
NDB12BQ001 (6960)	3.12	1.52	0.95	4.92	7.15	1.000	1.000	4.97	0.00	0.00	EN-13480		
NDB12BQ001 (6960)	1.48	1.52	-0.95	4.92	6.74	1.000	1.000	4.97	0.00	0.00	EN-13480		
NDB12BQ002 (6965)	1.61	2.71	0.95	4.92	7.43	1.000	1.000	5.84	0.00	0.00	EN-13480		
NDB12BQ002 (6965)	1.67	2.71	-0.95	4.92	7.35	1.000	1.000	5.84	0.00	0.00	EN-13480		
12000	1.94	2.53	0.95	4.92	7.06	1.000	1.000	5.69	0.00	0.00	EN-13480		
12000	1.94	2.53	-0.95	4.92	7.06	1.000	1.000	5.69	0.00	0.00	EN-13480		
6970	2.01	3.49	0.95	4.92	7.81	1.000	1.000	6.51	0.00	0.00	EN-13480		
6970	2.01	9.70	-0.95	4.92	14.86	2.776	2.776	13.57	0.00	0.00	EN-13480		
6975	2.28	6.69	0.90	4.92	11.05	2.776	2.776	10.88	0.00	0.00	EN-13480		
6975	2.28	2.41	-0.90	4.92	7.09	1.000	1.000	5.54	0.00	0.00	EN-13480		
6980	2.28	2.39	0.90	4.92	7.09	1.000	1.000	5.53	0.00	0.00	EN-13480		
6980	2.28	2.39	-0.90	4.92	7.09	1.000	1.000	5.53	0.00	0.00	EN-13480		
6985	2.28	2.97	0.90	4.92	7.36	1.000	1.000	6.00	0.00	0.00	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 2 (OPE) W+D1+T1+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6985	2.28	2.97	-0.90	4.92	7.36	1.000	1.000	6.00	0.00	0.00	EN-13480		
6990	2.28	3.22	0.90	4.92	7.51	1.000	1.000	6.22	0.00	0.00	EN-13480		
6990	2.28	8.95	-0.90	4.92	13.66	2.776	2.776	12.78	0.00	0.00	EN-13480		
6995	2.28	8.59	1.05	4.92	13.30	2.776	2.776	12.91	0.00	0.00	EN-13480		
6995	2.28	3.09	-1.05	4.92	7.60	1.000	1.000	6.27	0.00	0.00	EN-13480		
7000	2.28	3.09	1.05	4.92	7.60	1.000	1.000	6.27	0.00	0.00	EN-13480		
7000	2.28	3.09	-1.05	4.92	7.60	1.000	1.000	6.27	0.00	0.00	EN-13480		
NDB12BQ003 (7002)	2.28	3.75	1.05	4.92	8.05	1.000	1.000	6.83	0.00	0.00	EN-13480		
NDB12BQ003 (7002)	2.13	3.75	-1.05	4.92	8.01	1.000	1.000	6.83	0.00	0.00	EN-13480		
7005	2.13	6.81	1.05	4.92	11.43	1.000	1.000	9.66	0.00	0.00	EN-13480		
7005	2.13	6.81	-1.05	4.92	11.43	1.000	1.000	9.66	0.00	0.00	EN-13480		
7010	2.13	3.42	1.05	4.92	7.70	1.000	1.000	6.54	0.00	0.00	EN-13480		
7010	2.13	9.49	-1.05	4.92	14.51	2.776	2.776	13.66	0.00	0.00	EN-13480		
7015	2.37	12.18	0.06	4.92	17.19	2.776	2.776	14.72	0.00	0.00	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 2 (OPE) W+D1+T1+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
7015	2.37	4.39	-0.06	4.92	8.10	1.000	1.000	6.93	0.00	0.00	EN-13480		
7020	2.37	4.41	0.06	4.92	8.12	1.000	1.000	6.94	0.00	0.00	EN-13480		
7020	2.37	4.41	-0.06	4.92	8.12	1.000	1.000	6.94	0.00	0.00	EN-13480		
NDB12BQ005 (7025)	2.37	5.77	0.06	4.92	9.66	1.000	1.000	8.30	0.00	0.00	EN-13480		
NDB12BQ005 (7025)	2.35	5.77	-0.06	4.92	9.68	1.000	1.000	8.30	0.00	0.00	EN-13480		
7030	2.35	3.33	0.06	4.92	6.94	1.000	1.000	5.87	0.00	0.00	EN-13480		
7030	2.35	3.33	-0.06	4.92	6.94	1.000	1.000	5.87	0.00	0.00	EN-13480		
7035	2.35	1.98	0.06	4.92	6.36	1.000	1.000	4.52	0.00	0.00	EN-13480		
7035	2.35	5.50	-0.06	4.92	9.37	2.776	2.776	8.05	0.00	0.00	EN-13480		
7040	2.69	1.63	-0.23	4.92	6.42	2.776	2.776	4.60	0.00	0.00	EN-13480		
7040	2.69	0.59	0.23	4.92	6.38	1.000	1.000	3.28	0.00	0.00	EN-13480		
7045	2.69	0.59	-0.23	4.92	6.38	1.000	1.000	3.28	0.00	0.00	EN-13480		
7045	2.69	0.59	0.23	4.92	6.38	1.000	1.000	3.28	0.00	0.00	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 2 (OPE) W+D1+T1+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
7050	2.52	1.86	-0.23	4.92	6.42	1.000	1.000	4.45	0.00	0.00	EN-13480		
7050	2.52	5.15	0.23	4.92	9.10	2.776	2.776	7.84	0.00	0.00	EN-13480		
7055	2.35	5.42	0.91	4.92	9.52	2.776	2.776	9.96	0.00	0.00	EN-13480		
7055	2.35	1.95	-0.91	4.92	6.98	1.000	1.000	5.21	0.00	0.00	EN-13480		
7060	2.35	1.96	0.91	4.92	6.98	1.000	1.000	5.21	0.00	0.00	EN-13480		
7060	2.35	1.96	-0.91	4.92	6.98	1.000	1.000	5.21	0.00	0.00	EN-13480		
7065	2.35	2.19	0.91	4.92	7.06	1.000	1.000	5.39	0.00	0.00	EN-13480		
7065	2.35	6.09	-0.91	4.92	10.29	2.776	2.776	10.46	0.00	0.00	EN-13480		
7069	2.32	7.20	0.21	4.92	11.40	2.776	2.776	9.82	0.00	0.00	EN-13480		
7069	2.32	7.20	-0.21	4.92	11.40	2.776	2.776	9.82	0.00	0.00	EN-13480		
7070	2.33	5.50	-0.39	4.92	9.44	2.776	2.776	8.45	0.00	0.00	EN-13480		
7070	2.33	1.98	0.39	4.92	6.52	1.000	1.000	4.67	0.00	0.00	EN-13480		
7075	2.33	1.97	-0.39	4.92	6.51	1.000	1.000	4.66	0.00	0.00	EN-13480		
7075	2.33	1.97	0.39	4.92	6.51	1.000	1.000	4.66	0.00	0.00	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 2 (OPE) W+D1+T1+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
NDB12BQ006 (7080)	2.33	4.50	-0.39	4.92	8.31	1.000	1.000	7.10	0.00	0.00	EN-13480		
NDB12BQ006 (7080)	2.30	4.50	0.39	4.92	8.34	1.000	1.000	7.10	0.00	0.00	EN-13480		
7085	2.30	3.12	-0.39	4.92	6.90	1.000	1.000	5.75	0.00	0.00	EN-13480		
7085	2.30	8.66	0.39	4.92	13.17	2.776	2.776	11.47	0.00	0.00	EN-13480		
7089	2.31	7.53	0.71	4.92	11.91	2.776	2.776	11.03	0.00	0.00	EN-13480		
7089	2.31	7.53	-0.71	4.92	11.91	2.776	2.776	11.03	0.00	0.00	EN-13480		
7090	2.37	3.14	1.38	4.92	8.05	2.776	2.776	10.79	0.00	0.00	EN-13480		
7090	2.37	1.13	-1.38	4.92	7.20	1.000	1.000	5.51	0.00	0.00	EN-13480		
7095	2.37	1.13	1.38	4.92	7.20	1.000	1.000	5.51	0.00	0.00	EN-13480		
7095	2.37	1.13	-1.38	4.92	7.20	1.000	1.000	5.51	0.00	0.00	EN-13480		
NDB12BQ008 (7097)	2.37	1.63	1.38	4.92	7.35	1.000	1.000	5.74	0.00	0.00	EN-13480		
NDB12BQ008 (7097)	2.37	1.63	-1.38	4.92	7.35	1.000	1.000	5.74	0.00	0.00	EN-13480		
7100	2.37	1.27	1.38	4.92	7.24	1.000	1.000	5.57	0.00	0.00	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 2 (OPE) W+D1+T1+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
7100	2.37	3.54	-1.38	4.92	8.31	2.776	2.776	10.95	0.00	0.00	EN-13480		
7104	2.61	4.11	1.11	4.92	8.69	2.776	2.776	9.95	0.00	0.00	EN-13480		
7104	2.61	4.11	-1.11	4.92	8.69	2.776	2.776	9.95	0.00	0.00	EN-13480		
7105	2.68	6.70	0.35	4.92	11.10	2.776	2.776	9.50	0.00	0.00	EN-13480		
7105	2.68	2.41	-0.35	4.92	6.68	1.000	1.000	5.04	0.00	0.00	EN-13480		
7110	2.68	2.41	0.35	4.92	6.67	1.000	1.000	5.04	0.00	0.00	EN-13480		
7110	2.68	2.41	-0.35	4.92	6.67	1.000	1.000	5.04	0.00	0.00	EN-13480		
7115	2.54	1.50	0.35	4.92	6.46	1.000	1.000	4.18	0.00	0.00	EN-13480		
7115	2.54	4.15	-0.35	4.92	8.08	2.776	2.776	7.11	0.00	0.00	EN-13480		
7119	2.52	4.44	-0.19	4.92	8.32	2.776	2.776	7.10	0.00	0.00	EN-13480		
7119	2.52	4.44	0.19	4.92	8.32	2.776	2.776	7.10	0.00	0.00	EN-13480		
7120	2.47	3.46	-0.65	4.92	7.58	2.776	2.776	7.55	0.00	0.00	EN-13480		
7120	2.47	1.25	0.65	4.92	6.63	1.000	1.000	4.34	0.00	0.00	EN-13480		
7125	2.47	1.25	-0.65	4.92	6.63	1.000	1.000	4.34	0.00	0.00	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 2 (OPE) W+D1+T1+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
8105	2.43	6.66	-0.49	4.92	10.80	2.065	2.065	9.49	0.00	0.00	EN-13480		
8109	2.14	4.57	1.51	4.92	9.23	2.065	2.065	10.28	0.00	0.00	EN-13480		
8109	2.14	4.57	-1.51	4.92	9.23	2.065	2.065	10.28	0.00	0.00	EN-13480		
8110	2.00	5.15	1.66	4.92	10.15	2.065	2.065	11.11	0.00	0.00	EN-13480		
8110	2.00	2.49	-1.66	4.92	7.83	1.000	1.000	6.69	0.00	0.00	EN-13480		
8115	2.00	2.50	1.66	4.92	7.83	1.000	1.000	6.69	0.00	0.00	EN-13480		
8115	2.00	2.50	-1.66	4.92	7.83	1.000	1.000	6.69	0.00	0.00	EN-13480		
8120	2.00	2.74	1.66	4.92	7.94	1.000	1.000	6.84	0.00	0.00	EN-13480		
8120	2.00	7.61	-1.66	4.92	12.86	2.776	2.776	14.49	0.00	0.00	EN-13480		
8124	2.08	11.43	0.66	4.92	16.71	2.776	2.776	14.54	0.00	0.00	EN-13480		
8124	2.08	11.43	-0.66	4.92	16.71	2.776	2.776	14.54	0.00	0.00	EN-13480		
8125	2.34	11.37	-0.92	4.92	16.41	2.776	2.776	15.01	0.00	0.00	EN-13480		
8125	2.34	4.10	0.92	4.92	8.25	1.000	1.000	7.03	0.00	0.00	EN-13480		
8130	2.34	4.10	-0.92	4.92	8.26	1.000	1.000	7.04	0.00	0.00	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 2 (OPE) W+D1+T1+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
8130	2.34	4.10	0.92	4.92	8.26	1.000	1.000	7.04	0.00	0.00	EN-13480		
NDB13BQ010 (8135)	2.34	5.26	-0.92	4.92	9.35	1.000	1.000	8.11	0.00	0.00	EN-13480		
NDB13BQ010 (8135)	2.34	5.26	0.92	4.92	9.35	1.000	1.000	8.11	0.00	0.00	EN-13480		
NDB13BQ008 (8137)	2.34	5.24	-0.92	4.92	9.33	1.000	1.000	8.09	0.00	0.00	EN-13480		
NDB13BQ008 (8137)	2.35	5.24	0.92	4.92	9.33	1.000	1.000	8.09	0.00	0.00	EN-13480		
8140	2.35	1.13	-0.92	4.92	6.80	1.000	1.000	4.70	0.00	0.00	EN-13480		
8140	2.35	3.15	0.92	4.92	7.54	2.776	2.776	8.54	0.00	0.00	EN-13480		
8144	2.12	7.40	-0.79	4.92	12.01	2.776	2.776	11.13	0.00	0.00	EN-13480		
8144	2.12	7.40	0.79	4.92	12.01	2.776	2.776	11.13	0.00	0.00	EN-13480		
8145	2.09	8.78	-0.40	4.92	13.56	2.776	2.776	11.60	0.00	0.00	EN-13480		
8145	2.09	3.16	0.40	4.92	7.11	1.000	1.000	5.80	0.00	0.00	EN-13480		
8150	2.09	3.16	-0.40	4.92	7.11	1.000	1.000	5.80	0.00	0.00	EN-13480		
8150	2.09	3.16	0.40	4.92	7.11	1.000	1.000	5.80	0.00	0.00	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 2 (OPE) W+D1+T1+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
8155	2.12	2.96	-0.40	4.92	6.86	1.000	1.000	5.61	0.00	0.00	EN-13480		
8155	2.12	2.96	0.40	4.92	6.86	1.000	1.000	5.61	0.00	0.00	EN-13480		
8160	2.15	2.72	-0.40	4.92	6.64	1.000	1.000	5.37	0.00	0.00	EN-13480		
8160	2.15	2.72	0.40	4.92	6.64	1.000	1.000	5.37	0.00	0.00	EN-13480		
8165	2.33	2.78	-0.40	4.92	6.74	1.000	1.000	5.43	0.00	0.00	EN-13480		
8165	2.33	7.72	0.40	4.92	12.03	2.776	2.776	10.58	0.00	0.00	EN-13480		
8170	2.26	7.70	0.86	4.92	12.22	2.776	2.776	11.58	0.00	0.00	EN-13480		
8170	2.26	2.78	-0.86	4.92	7.20	1.000	1.000	5.80	0.00	0.00	EN-13480		
8175	2.26	2.78	0.86	4.92	7.20	1.000	1.000	5.80	0.00	0.00	EN-13480		
8175	2.26	2.78	-0.86	4.92	7.20	1.000	1.000	5.80	0.00	0.00	EN-13480		
NDB13BQ001 (8180)	2.26	7.11	0.86	4.92	11.53	1.000	1.000	9.85	0.00	0.00	EN-13480		
NDB13BQ001 (8180)	2.27	7.11	-0.86	4.92	11.53	1.000	1.000	9.85	0.00	0.00	EN-13480		
8185	2.27	3.83	0.86	4.92	7.90	1.000	1.000	6.73	0.00	0.00	EN-13480		
8185	2.27	10.63	-0.86	4.92	15.61	2.776	2.776	14.18	0.00	0.00	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 2 (OPE) W+D1+T1+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
8190	2.30	10.74	0.74	4.92	15.66	2.776	2.776	14.03	0.00	0.00	EN-13480		
8190	2.30	3.87	-0.74	4.92	7.85	1.000	1.000	6.68	0.00	0.00	EN-13480		
8195	2.30	3.88	0.74	4.92	7.86	1.000	1.000	6.69	0.00	0.00	EN-13480		
8195	2.30	10.78	-0.74	4.92	15.71	2.776	2.776	14.07	0.00	0.00	EN-13480		
8200	2.27	2.22	2.71	4.92	8.98	2.776	2.776	17.72	0.00	0.00	EN-13480		
8200	2.27	0.80	-2.71	4.92	8.40	1.000	1.000	8.01	0.00	0.00	EN-13480		
8205	2.27	0.81	2.71	4.92	8.40	1.000	1.000	8.01	0.00	0.00	EN-13480		
8205	2.27	0.81	-2.71	4.92	8.40	1.000	1.000	8.01	0.00	0.00	EN-13480		
8210	2.27	4.76	2.71	4.92	10.69	1.000	1.000	9.75	0.00	0.00	EN-13480		
8210	2.27	13.23	-2.71	4.92	19.58	2.776	2.776	22.55	0.00	0.00	EN-13480		
8215	2.47	1.24	3.65	4.92	9.67	2.776	2.776	22.86	0.00	0.00	EN-13480		
8215	2.47	0.45	-3.65	4.92	9.34	1.000	1.000	9.86	0.00	0.00	EN-13480		
8220	2.47	0.46	3.65	4.92	9.35	1.000	1.000	9.86	0.00	0.00	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 2 (OPE) W+D1+T1+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
8220	2.47	1.28	-3.65	4.92	9.69	2.776	2.776	22.86	0.00	0.00	EN-13480		
8225	2.30	15.82	1.03	4.92	21.66	2.776	2.776	19.36	0.00	0.00	EN-13480		
8225	2.30	5.70	-1.03	4.92	9.96	1.000	1.000	8.60	0.00	0.00	EN-13480		
8230	2.30	5.68	1.03	4.92	9.94	1.000	1.000	8.58	0.00	0.00	EN-13480		
8230	2.30	5.68	-1.03	4.92	9.94	1.000	1.000	8.58	0.00	0.00	EN-13480		
NDB13BQ009 (8235)	2.30	4.64	1.03	4.92	8.80	1.000	1.000	7.62	0.00	0.00	EN-13480		
NDB13BQ009 (8235)	2.30	4.64	-1.03	4.92	8.80	1.000	1.000	7.62	0.00	0.00	EN-13480		
8240	2.30	3.84	1.03	4.92	8.12	1.000	1.000	6.90	0.00	0.00	EN-13480		
8245	2.30	4.45	-1.03	4.92	8.63	1.000	1.000	7.45	0.00	0.00	EN-13480		
8250	2.30	5.20	1.03	4.92	9.40	1.000	1.000	8.13	0.00	0.00	EN-13480		
8250	2.30	5.20	-1.03	4.92	9.40	1.000	1.000	8.13	0.00	0.00	EN-13480		
8255	2.30	6.09	1.03	4.92	10.41	1.000	1.000	8.97	0.00	0.00	EN-13480		
8260	2.30	10.87	-1.03	4.92	15.91	1.000	1.000	13.60	0.00	0.00	EN-13480		
8265	2.30	13.78	1.03	4.92	19.29	1.000	1.000	16.47	0.00	0.00	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 2 (OPE) W+D1+T1+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
8265	2.58	12.45	-1.09	4.92	17.84	1.000	1.000	15.18	0.00	0.00	EN-13480		
8270	2.58	9.21	1.09	4.92	14.10	1.000	1.000	12.00	0.00	0.00	EN-13480		
8270	2.58	25.57	-1.09	4.92	33.15	2.776	2.776	28.82	0.00	0.00	EN-13480		
8275	2.24	4.91	-3.21	4.92	11.58	2.776	2.776	21.02	0.00	0.00	EN-13480		
8275	2.24	1.77	3.21	4.92	9.32	1.000	1.000	9.19	0.00	0.00	EN-13480		
8280	2.24	1.79	-3.21	4.92	9.32	1.000	1.000	9.20	0.00	0.00	EN-13480		
8280	2.24	4.96	3.21	4.92	11.62	2.776	2.776	21.03	0.00	0.00	EN-13480		
8285	2.05	15.65	-1.42	4.92	21.88	2.776	2.776	20.06	0.00	0.00	EN-13480		
8285	2.05	5.64	1.42	4.92	10.43	1.000	1.000	8.85	0.00	0.00	EN-13480		
8290	2.05	5.63	-1.42	4.92	10.41	1.000	1.000	8.84	0.00	0.00	EN-13480		
8290	2.05	5.63	1.42	4.92	10.41	1.000	1.000	8.84	0.00	0.00	EN-13480		
NDB13BQ007 (8295)	2.48	5.68	-1.42	4.92	10.26	1.000	1.000	8.88	0.00	0.00	EN-13480		
NDB13BQ007 (8295)	2.48	5.68	1.42	4.92	10.26	1.000	1.000	8.88	0.00	0.00	EN-13480		
8300	2.84	2.86	-1.42	4.92	8.24	1.000	1.000	6.57	0.00	0.00	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 2 (OPE) W+D1+T1+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
8300	2.84	7.95	1.42	4.92	13.11	2.776	2.776	13.74	0.00	0.00	EN-13480		
8305	2.56	5.67	-1.34	4.92	10.28	2.776	2.776	11.89	0.00	0.00	EN-13480		
8305	2.56	2.04	1.34	4.92	7.54	1.000	1.000	5.91	0.00	0.00	EN-13480		
8310	2.56	2.03	-1.34	4.92	7.54	1.000	1.000	5.90	0.00	0.00	EN-13480		
8310	2.56	2.03	1.34	4.92	7.54	1.000	1.000	5.90	0.00	0.00	EN-13480		
752	2.56	3.04	-1.34	4.92	8.07	1.000	1.000	6.59	0.00	0.00	EN-13480		
13100	2.43	3.23	-0.49	4.92	7.19	1.000	1.000	5.91	0.00	0.00	EN-13480		
31NDB20AT001/N2 (13200)	2.43	3.34	0.49	4.92	7.28	1.000	1.000	6.02	0.00	0.00	EN-13480		
13300	2.47	1.12	0.65	4.92	6.61	1.000	1.000	4.25	0.00	0.00	EN-13480		
31NDB20AT001/N1 (13400)	2.47	1.05	-0.65	4.92	6.60	1.000	1.000	4.21	0.00	0.00	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 3 (OPE) W+D2+T2+P2+H

Note: This report indicates generic stresses. For code-defined stresses, see the Stresses report.
Piping Code: EN-13480 = EN-13480 -2017 (Issued June 2017)

NO CODE STRESS CHECK PROCESSED: LOADCASE 3 (OPE) W+D2+T2+P2+H

Highest Stresses: (N/mm2)

Ratio (%):	0.0	@Node	8120
OPE Stress:	67.4	Allowable Stress:	0.0
Axial Stress:	13.4	@Node	6665
Bending Stress:	41.5	@Node	6975
Torsion Stress:	9.6	@Node	8109
Hoop Stress:	26.2	@Node	6660
Max Stress Intensity:	65.6	@Node	8124

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
747	12.93	10.41	-0.77	26.22	34.03	1.000	1.000	24.05	0.00	0.00	EN-13480		
6660	12.93	7.39	0.77	26.22	33.98	1.000	1.000	21.07	0.00	0.00	EN-13480		
6660	12.93	20.52	-0.77	26.22	40.20	2.776	2.776	34.49	0.00	0.00	EN-13480		
6665	13.45	8.73	-1.61	26.22	34.37	2.776	2.776	26.03	0.00	0.00	EN-13480		
6665	13.45	3.15	1.61	26.22	34.14	1.000	1.000	18.03	0.00	0.00	EN-13480		
6670	13.44	3.15	-1.61	26.22	34.14	1.000	1.000	18.04	0.00	0.00	EN-13480		
6670	13.44	3.15	1.61	26.22	34.14	1.000	1.000	18.04	0.00	0.00	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 3 (OPE) W+D2+T2+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6675	13.24	7.52	-1.61	26.22	34.28	1.000	1.000	21.70	0.00	0.00	EN-13480		
6675	13.24	20.95	1.61	26.22	41.37	2.788	2.788	36.33	0.00	0.00	EN-13480		
6680	13.20	21.03	-1.57	26.22	41.38	2.788	2.788	36.31	0.00	0.00	EN-13480		
6680	13.20	7.54	1.57	26.22	34.26	1.000	1.000	21.70	0.00	0.00	EN-13480		
6685	13.20	7.53	-1.57	26.22	34.26	1.000	1.000	21.69	0.00	0.00	EN-13480		
6685	13.20	7.53	1.58	26.22	34.26	1.000	1.000	21.69	0.00	0.00	EN-13480		
6690	13.05	4.87	-1.58	26.22	34.16	1.000	1.000	19.33	0.00	0.00	EN-13480		
6690	13.05	13.45	1.58	26.22	35.04	2.762	2.762	29.55	0.00	0.00	EN-13480		
6695	12.93	11.87	-1.52	26.22	34.58	2.762	2.762	28.06	0.00	0.00	EN-13480		
6695	12.93	4.30	1.52	26.22	34.13	1.000	1.000	18.79	0.00	0.00	EN-13480		
6700	12.93	4.28	-1.52	26.22	34.13	1.000	1.000	18.78	0.00	0.00	EN-13480		
6700	12.93	4.28	1.52	26.22	34.13	1.000	1.000	18.78	0.00	0.00	EN-13480		
NDB11BQ014 (6705)	12.93	2.96	-1.52	26.22	34.10	1.000	1.000	17.76	0.00	0.00	EN-13480		
NDB11BQ014	12.93	2.96	1.52	26.22	34.10	1.000	1.000	17.76	0.00	0.00	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 3 (OPE) W+D2+T2+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
(6705)											13480		
6710	12.93	7.43	-1.52	26.22	34.22	1.000	1.000	21.55	0.00	0.00	EN-13480		
6710	12.93	20.64	1.52	26.22	40.64	2.776	2.776	35.82	0.00	0.00	EN-13480		
6715	13.28	28.96	0.64	26.22	49.99	2.776	2.776	42.70	0.00	0.00	EN-13480		
6715	13.28	10.43	-0.64	26.22	34.00	1.000	1.000	24.03	0.00	0.00	EN-13480		
6720	13.28	10.42	0.64	26.22	34.00	1.000	1.000	24.02	0.00	0.00	EN-13480		
6720	13.28	10.42	-0.64	26.22	34.00	1.000	1.000	24.02	0.00	0.00	EN-13480		
NDB11BQ002 (6725)	12.91	7.42	0.64	26.22	33.95	1.000	1.000	21.05	0.00	0.00	EN-13480		
NDB11BQ002 (6725)	12.65	7.42	-0.64	26.22	33.95	1.000	1.000	21.05	0.00	0.00	EN-13480		
6730	12.51	2.36	0.64	26.22	33.93	1.000	1.000	16.20	0.00	0.00	EN-13480		
6735	12.34	4.99	-0.64	26.22	33.93	1.000	1.000	18.68	0.00	0.00	EN-13480		
6740	12.33	5.87	0.64	26.22	33.94	1.000	1.000	19.53	0.00	0.00	EN-13480		
6740	12.33	5.87	-0.64	26.22	33.94	1.000	1.000	19.53	0.00	0.00	EN-13480		
6745	12.31	6.76	0.64	26.22	33.94	1.000	1.000	20.41	0.00	0.00	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 3 (OPE) W+D2+T2+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6750	12.15	10.47	-0.64	26.22	33.98	1.000	1.000	24.07	0.00	0.00	EN-13480		
6755	12.07	14.37	0.64	26.22	34.15	1.000	1.000	27.95	0.00	0.00	EN-13480		
6755	12.07	39.88	-0.64	26.22	62.89	2.776	2.776	53.56	0.00	0.00	EN-13480		
6760	12.23	35.58	-1.79	26.22	57.80	2.776	2.776	50.46	0.00	0.00	EN-13480		
6760	12.23	12.82	1.79	26.22	34.84	1.000	1.000	26.83	0.00	0.00	EN-13480		
6765	12.23	12.78	-1.79	26.22	34.83	1.000	1.000	26.79	0.00	0.00	EN-13480		
6765	12.23	12.78	1.79	26.22	34.83	1.000	1.000	26.79	0.00	0.00	EN-13480		
NDB11BQ003 (6770)	12.23	10.80	-1.79	26.22	34.54	1.000	1.000	24.90	0.00	0.00	EN-13480		
NDB11BQ003 (6770)	12.44	10.80	1.79	26.22	34.56	1.000	1.000	24.90	0.00	0.00	EN-13480		
6775	12.44	9.03	-1.79	26.22	34.41	1.000	1.000	23.23	0.00	0.00	EN-13480		
6775	12.44	25.05	1.79	26.22	45.41	2.776	2.776	40.47	0.00	0.00	EN-13480		
6780	13.02	12.61	-3.05	26.22	36.26	2.776	2.776	34.64	0.00	0.00	EN-13480		
6780	13.02	4.54	3.05	26.22	34.82	1.000	1.000	21.13	0.00	0.00	EN-13480		
6785	13.02	4.53	-3.05	26.22	34.82	1.000	1.000	21.12	0.00	0.00	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 3 (OPE) W+D2+T2+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6785	13.02	12.56	3.05	26.22	36.24	2.776	2.776	34.61	0.00	0.00	EN-13480		
6790	12.82	16.25	-1.25	26.22	36.07	2.776	2.776	31.18	0.00	0.00	EN-13480		
6790	12.82	5.85	1.25	26.22	34.08	1.000	1.000	19.89	0.00	0.00	EN-13480		
6795	12.82	5.83	-1.25	26.22	34.08	1.000	1.000	19.87	0.00	0.00	EN-13480		
6795	12.82	5.83	1.25	26.22	34.08	1.000	1.000	19.87	0.00	0.00	EN-13480		
6800	12.57	5.66	-1.25	26.22	34.07	1.000	1.000	19.71	0.00	0.00	EN-13480		
6800	12.57	15.72	1.25	26.22	35.50	2.776	2.776	30.70	0.00	0.00	EN-13480		
6805	12.44	13.70	3.42	26.22	36.84	2.776	2.776	36.93	0.00	0.00	EN-13480		
6805	12.44	4.94	-3.42	26.22	35.02	1.000	1.000	21.96	0.00	0.00	EN-13480		
6810	12.44	4.94	3.42	26.22	35.02	1.000	1.000	21.96	0.00	0.00	EN-13480		
6810	12.44	4.94	-3.42	26.22	35.02	1.000	1.000	21.96	0.00	0.00	EN-13480		
6815	12.44	8.27	3.42	26.22	35.41	1.000	1.000	24.25	0.00	0.00	EN-13480		
6815	12.44	22.96	-3.42	26.22	43.71	2.776	2.776	43.31	0.00	0.00	EN-13480		
6820	12.45	25.34	2.02	26.22	45.76	2.776	2.776	41.24	0.00	0.00	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 3 (OPE) W+D2+T2+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
6820	12.45	9.13	-2.02	26.22	34.55	1.000	1.000	23.51	0.00	0.00	EN-13480		
6825	12.45	9.10	2.02	26.22	34.55	1.000	1.000	23.48	0.00	0.00	EN-13480		
6825	12.45	9.10	-2.02	26.22	34.55	1.000	1.000	23.48	0.00	0.00	EN-13480		
NDB11BQ004 (6830)	12.45	9.93	2.02	26.22	34.63	1.000	1.000	24.24	0.00	0.00	EN-13480		
NDB11BQ004 (6830)	12.68	9.93	-2.02	26.22	34.65	1.000	1.000	24.24	0.00	0.00	EN-13480		
6835	12.68	7.95	2.02	26.22	34.48	1.000	1.000	22.45	0.00	0.00	EN-13480		
6835	12.68	22.08	-2.02	26.22	42.14	2.776	2.776	38.30	0.00	0.00	EN-13480		
6840	12.25	28.71	-0.40	26.22	49.58	2.776	2.776	42.32	0.00	0.00	EN-13480		
6840	12.25	10.34	0.40	26.22	33.93	1.000	1.000	23.90	0.00	0.00	EN-13480		
6845	12.25	10.34	-0.40	26.22	33.93	1.000	1.000	23.89	0.00	0.00	EN-13480		
6845	12.25	10.34	0.40	26.22	33.93	1.000	1.000	23.89	0.00	0.00	EN-13480		
6850	12.25	8.61	-0.40	26.22	33.92	1.000	1.000	22.17	0.00	0.00	EN-13480		
6850	12.25	23.91	0.40	26.22	44.19	2.776	2.776	37.54	0.00	0.00	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 3 (OPE) W+D2+T2+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6855	12.77	15.29	0.11	26.22	34.12	2.776	2.776	28.82	0.00	0.00	EN-13480		
6855	12.77	5.51	-0.11	26.22	33.89	1.000	1.000	19.03	0.00	0.00	EN-13480		
6860	12.77	5.48	0.11	26.22	33.89	1.000	1.000	19.01	0.00	0.00	EN-13480		
6860	12.77	5.48	-0.11	26.22	33.89	1.000	1.000	19.01	0.00	0.00	EN-13480		
NDB11BQ005 (6865)	12.77	3.65	0.11	26.22	33.89	1.000	1.000	17.18	0.00	0.00	EN-13480		
NDB11BQ005 (6865)	12.72	3.65	-0.11	26.22	33.89	1.000	1.000	17.18	0.00	0.00	EN-13480		
6870	12.72	3.20	0.11	26.22	33.89	1.000	1.000	16.73	0.00	0.00	EN-13480		
6870	12.72	8.88	-0.11	26.22	33.89	2.776	2.776	22.43	0.00	0.00	EN-13480		
6875	12.19	17.11	-0.50	26.22	36.68	2.776	2.776	30.85	0.00	0.00	EN-13480		
6875	12.19	6.16	0.50	26.22	33.92	1.000	1.000	19.77	0.00	0.00	EN-13480		
6880	12.19	6.16	-0.50	26.22	33.92	1.000	1.000	19.77	0.00	0.00	EN-13480		
6880	12.19	17.20	0.53	26.22	36.77	2.794	2.794	30.97	0.00	0.00	EN-13480		
6885	12.24	16.26	1.09	26.22	35.74	2.794	2.794	30.88	0.00	0.00	EN-13480		
6885	12.24	5.82	-1.09	26.22	34.02	1.000	1.000	19.74	0.00	0.00	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 3 (OPE) W+D2+T2+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
6890	12.24	5.82	1.09	26.22	34.02	1.000	1.000	19.74	0.00	0.00	EN-13480		
6890	12.24	5.82	-1.09	26.22	34.02	1.000	1.000	19.74	0.00	0.00	EN-13480		
6895	12.24	5.83	1.09	26.22	34.02	1.000	1.000	19.75	0.00	0.00	EN-13480		
6895	12.24	5.83	-1.09	26.22	34.02	1.000	1.000	19.75	0.00	0.00	EN-13480		
6900	12.24	6.73	1.09	26.22	34.04	1.000	1.000	20.60	0.00	0.00	EN-13480		
6930	5.20	22.12	-8.49	12.91	39.35	1.773	1.773	44.24	0.00	0.00	EN-13480		
6935	12.30	2.65	2.13	26.22	34.27	1.773	1.773	21.54	0.00	0.00	EN-13480		
6935	12.30	1.50	-2.13	26.22	34.24	1.000	1.000	18.04	0.00	0.00	EN-13480		
6940	12.31	0.42	2.13	26.22	34.22	1.000	1.000	17.81	0.00	0.00	EN-13480		
6940	12.31	0.42	-2.13	26.22	34.22	1.000	1.000	17.81	0.00	0.00	EN-13480		
6945	12.33	0.66	2.13	26.22	34.22	1.000	1.000	17.84	0.00	0.00	EN-13480		
6950	12.73	7.12	-2.13	26.22	34.48	1.000	1.000	21.82	0.00	0.00	EN-13480		
6955	12.75	8.20	2.13	26.22	34.56	1.000	1.000	22.77	0.00	0.00	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 3 (OPE) W+D2+T2+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6955	12.75	8.20	-2.13	26.22	34.56	1.000	1.000	22.77	0.00	0.00	EN-13480		
NDB12BQ001 (6960)	12.78	9.99	2.13	26.22	34.75	1.000	1.000	24.38	0.00	0.00	EN-13480		
NDB12BQ001 (6960)	11.19	9.99	-2.13	26.22	34.57	1.000	1.000	24.38	0.00	0.00	EN-13480		
NDB12BQ002 (6965)	11.32	17.74	2.13	26.22	38.69	1.000	1.000	31.77	0.00	0.00	EN-13480		
NDB12BQ002 (6965)	11.63	17.74	-2.13	26.22	38.34	1.000	1.000	31.77	0.00	0.00	EN-13480		
12000	11.90	7.90	2.13	26.22	34.48	1.000	1.000	22.50	0.00	0.00	EN-13480		
12000	11.90	7.90	-2.13	26.22	34.48	1.000	1.000	22.50	0.00	0.00	EN-13480		
6970	11.97	14.27	2.13	26.22	35.50	1.000	1.000	28.42	0.00	0.00	EN-13480		
6970	11.97	39.62	-2.13	26.22	62.89	2.776	2.776	54.87	0.00	0.00	EN-13480		
6975	11.89	41.46	2.31	26.22	65.16	2.776	2.776	56.92	0.00	0.00	EN-13480		
6975	11.89	14.94	-2.31	26.22	35.91	1.000	1.000	29.16	0.00	0.00	EN-13480		
6980	11.89	14.89	2.31	26.22	35.89	1.000	1.000	29.12	0.00	0.00	EN-13480		
6980	11.89	14.89	-2.31	26.22	35.89	1.000	1.000	29.12	0.00	0.00	EN-13480		
6985	11.89	5.56	2.31	26.22	34.43	1.000	1.000	20.75	0.00	0.00	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 3 (OPE) W+D2+T2+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6985	11.89	5.56	-2.31	26.22	34.43	1.000	1.000	20.75	0.00	0.00	EN-13480		
6990	11.89	6.98	2.31	26.22	34.51	1.000	1.000	21.89	0.00	0.00	EN-13480		
6990	11.89	19.37	-2.31	26.22	39.87	2.776	2.776	36.74	0.00	0.00	EN-13480		
6995	12.44	12.06	2.15	26.22	35.05	2.776	2.776	30.50	0.00	0.00	EN-13480		
6995	12.44	4.34	-2.15	26.22	34.34	1.000	1.000	19.64	0.00	0.00	EN-13480		
7000	12.44	4.30	2.15	26.22	34.34	1.000	1.000	19.60	0.00	0.00	EN-13480		
7000	12.44	4.30	-2.15	26.22	34.34	1.000	1.000	19.60	0.00	0.00	EN-13480		
NDB12BQ003 (7002)	12.44	4.30	2.15	26.22	34.34	1.000	1.000	19.60	0.00	0.00	EN-13480		
NDB12BQ003 (7002)	12.15	4.30	-2.15	26.22	34.33	1.000	1.000	19.60	0.00	0.00	EN-13480		
7005	12.15	7.50	2.15	26.22	34.48	1.000	1.000	22.17	0.00	0.00	EN-13480		
7005	12.15	7.50	-2.15	26.22	34.48	1.000	1.000	22.17	0.00	0.00	EN-13480		
7010	12.15	9.06	2.15	26.22	34.59	1.000	1.000	23.56	0.00	0.00	EN-13480		
7010	12.15	25.16	-2.15	26.22	45.94	2.776	2.776	41.38	0.00	0.00	EN-13480		
7015	12.56	26.36	-1.02	26.22	46.61	2.776	2.776	40.49	0.00	0.00	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 3 (OPE) W+D2+T2+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
7015	12.56	9.50	1.02	26.22	34.09	1.000	1.000	23.24	0.00	0.00	EN-13480		
7020	12.56	9.49	-1.02	26.22	34.09	1.000	1.000	23.23	0.00	0.00	EN-13480		
7020	12.56	9.49	1.02	26.22	34.09	1.000	1.000	23.23	0.00	0.00	EN-13480		
NDB12BQ005 (7025)	12.56	9.65	-1.02	26.22	34.09	1.000	1.000	23.38	0.00	0.00	EN-13480		
NDB12BQ005 (7025)	12.50	9.65	1.02	26.22	34.09	1.000	1.000	23.38	0.00	0.00	EN-13480		
7030	12.50	7.61	-1.02	26.22	34.04	1.000	1.000	21.40	0.00	0.00	EN-13480		
7030	12.50	7.61	1.02	26.22	34.04	1.000	1.000	21.40	0.00	0.00	EN-13480		
7035	12.50	6.57	-1.02	26.22	34.02	1.000	1.000	20.40	0.00	0.00	EN-13480		
7035	12.50	18.23	1.02	26.22	37.62	2.776	2.776	32.62	0.00	0.00	EN-13480		
7040	12.85	11.05	-0.15	26.22	33.90	2.776	2.776	24.60	0.00	0.00	EN-13480		
7040	12.85	3.98	0.15	26.22	33.89	1.000	1.000	17.52	0.00	0.00	EN-13480		
7045	12.85	3.97	-0.15	26.22	33.89	1.000	1.000	17.50	0.00	0.00	EN-13480		
7045	12.85	3.97	0.15	26.22	33.89	1.000	1.000	17.50	0.00	0.00	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 3 (OPE) W+D2+T2+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
7050	12.67	5.96	-0.15	26.22	33.89	1.000	1.000	19.49	0.00	0.00	EN-13480		
7050	12.67	16.54	0.15	26.22	35.46	2.776	2.776	30.09	0.00	0.00	EN-13480		
7055	12.50	6.68	3.94	26.22	35.58	2.776	2.776	36.38	0.00	0.00	EN-13480		
7055	12.50	2.41	-3.94	26.22	35.12	1.000	1.000	21.76	0.00	0.00	EN-13480		
7060	12.50	2.42	3.94	26.22	35.12	1.000	1.000	21.76	0.00	0.00	EN-13480		
7060	12.50	2.42	-3.94	26.22	35.12	1.000	1.000	21.76	0.00	0.00	EN-13480		
7065	12.50	7.25	3.94	26.22	35.66	1.000	1.000	24.23	0.00	0.00	EN-13480		
7065	12.50	20.13	-3.94	26.22	41.63	2.776	2.776	43.24	0.00	0.00	EN-13480		
7069	12.33	23.47	3.75	26.22	44.38	2.776	2.776	44.88	0.00	0.00	EN-13480		
7069	12.33	23.47	-3.75	26.22	44.38	2.776	2.776	44.88	0.00	0.00	EN-13480		
7070	12.40	26.73	1.90	26.22	47.34	2.776	2.776	42.25	0.00	0.00	EN-13480		
7070	12.40	9.63	-1.90	26.22	34.51	1.000	1.000	23.87	0.00	0.00	EN-13480		
7075	12.40	9.60	1.90	26.22	34.51	1.000	1.000	23.85	0.00	0.00	EN-13480		
7075	12.40	9.60	-1.90	26.22	34.51	1.000	1.000	23.85	0.00	0.00	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 3 (OPE) W+D2+T2+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
NDB12BQ006 (7080)	12.40	4.34	1.90	26.22	34.24	1.000	1.000	19.29	0.00	0.00	EN-13480		
NDB12BQ006 (7080)	12.47	4.34	-1.90	26.22	34.24	1.000	1.000	19.29	0.00	0.00	EN-13480		
7085	12.47	6.39	1.90	26.22	34.32	1.000	1.000	20.96	0.00	0.00	EN-13480		
7085	12.47	17.75	-1.90	26.22	37.64	2.776	2.776	34.17	0.00	0.00	EN-13480		
7089	12.57	9.22	3.66	26.22	35.80	2.776	2.776	35.85	0.00	0.00	EN-13480		
7089	12.57	9.22	-3.66	26.22	35.80	2.776	2.776	35.85	0.00	0.00	EN-13480		
7090	12.76	5.68	3.82	26.22	35.40	2.776	2.776	35.50	0.00	0.00	EN-13480		
7090	12.76	2.05	-3.82	26.22	35.05	1.000	1.000	21.44	0.00	0.00	EN-13480		
7095	12.76	2.02	3.82	26.22	35.04	1.000	1.000	21.43	0.00	0.00	EN-13480		
7095	12.76	2.02	-3.82	26.22	35.04	1.000	1.000	21.43	0.00	0.00	EN-13480		
NDB12BQ008 (7097)	12.76	2.93	3.82	26.22	35.12	1.000	1.000	21.71	0.00	0.00	EN-13480		
NDB12BQ008 (7097)	12.76	2.93	-3.82	26.22	35.12	1.000	1.000	21.71	0.00	0.00	EN-13480		
7100	12.76	3.06	3.82	26.22	35.13	1.000	1.000	21.76	0.00	0.00	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 3 (OPE) W+D2+T2+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
7100	12.76	8.49	-3.82	26.22	35.83	2.776	2.776	36.39	0.00	0.00	EN-13480		
7104	12.75	10.09	3.66	26.22	36.03	2.776	2.776	36.19	0.00	0.00	EN-13480		
7104	12.75	10.09	-3.66	26.22	36.03	2.776	2.776	36.19	0.00	0.00	EN-13480		
7105	12.68	18.29	1.79	26.22	38.22	2.776	2.776	34.34	0.00	0.00	EN-13480		
7105	12.68	6.59	-1.79	26.22	34.29	1.000	1.000	21.02	0.00	0.00	EN-13480		
7110	12.68	6.58	1.79	26.22	34.29	1.000	1.000	21.01	0.00	0.00	EN-13480		
7110	12.68	6.58	-1.79	26.22	34.29	1.000	1.000	21.01	0.00	0.00	EN-13480		
7115	12.54	3.71	1.79	26.22	34.19	1.000	1.000	18.68	0.00	0.00	EN-13480		
7115	12.54	10.30	-1.79	26.22	34.52	2.776	2.776	27.84	0.00	0.00	EN-13480		
7119	12.74	2.28	2.35	26.22	34.36	2.776	2.776	26.77	0.00	0.00	EN-13480		
7119	12.74	2.28	-2.35	26.22	34.36	2.776	2.776	26.77	0.00	0.00	EN-13480		
7120	12.98	9.52	1.60	26.22	34.38	2.776	2.776	26.55	0.00	0.00	EN-13480		
7120	12.98	3.43	-1.60	26.22	34.14	1.000	1.000	18.21	0.00	0.00	EN-13480		
7125	12.98	3.43	1.60	26.22	34.14	1.000	1.000	18.22	0.00	0.00	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 3 (OPE) W+D2+T2+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
8105	12.88	20.17	-7.65	26.22	45.77	2.065	2.065	51.00	0.00	0.00	EN-13480		
8109	11.64	12.56	9.59	26.22	42.69	2.065	2.065	55.08	0.00	0.00	EN-13480		
8109	11.64	12.56	-9.59	26.22	42.69	2.065	2.065	55.08	0.00	0.00	EN-13480		
8110	11.03	29.24	7.39	26.22	54.45	2.065	2.065	55.78	0.00	0.00	EN-13480		
8110	11.03	14.16	-7.39	26.22	40.70	1.000	1.000	33.98	0.00	0.00	EN-13480		
8115	11.03	14.13	7.39	26.22	40.69	1.000	1.000	33.96	0.00	0.00	EN-13480		
8115	11.03	14.13	-7.39	26.22	40.69	1.000	1.000	33.96	0.00	0.00	EN-13480		
8120	11.03	12.59	7.39	26.22	40.04	1.000	1.000	32.93	0.00	0.00	EN-13480		
8120	11.03	34.94	-7.39	26.22	60.82	2.776	2.776	67.40	0.00	0.00	EN-13480		
8124	11.41	41.13	3.32	26.22	65.58	2.776	2.776	58.58	0.00	0.00	EN-13480		
8124	11.41	41.13	-3.32	26.22	65.58	2.776	2.776	58.58	0.00	0.00	EN-13480		
8125	12.56	29.49	-1.44	26.22	50.22	2.776	2.776	44.07	0.00	0.00	EN-13480		
8125	12.56	10.62	1.44	26.22	34.34	1.000	1.000	24.53	0.00	0.00	EN-13480		
8130	12.56	10.57	-1.44	26.22	34.34	1.000	1.000	24.48	0.00	0.00	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 3 (OPE) W+D2+T2+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
8130	12.56	10.57	1.44	26.22	34.34	1.000	1.000	24.48	0.00	0.00	EN-13480		
NDB13BQ010 (8135)	12.56	10.33	-1.44	26.22	34.32	1.000	1.000	24.25	0.00	0.00	EN-13480		
NDB13BQ010 (8135)	12.56	10.33	1.44	26.22	34.32	1.000	1.000	24.25	0.00	0.00	EN-13480		
NDB13BQ008 (8137)	12.56	10.34	-1.44	26.22	34.32	1.000	1.000	24.26	0.00	0.00	EN-13480		
NDB13BQ008 (8137)	12.60	10.34	1.44	26.22	34.32	1.000	1.000	24.26	0.00	0.00	EN-13480		
8140	12.60	4.63	-1.44	26.22	34.10	1.000	1.000	18.98	0.00	0.00	EN-13480		
8140	12.60	12.86	1.44	26.22	34.63	2.776	2.776	28.66	0.00	0.00	EN-13480		
8144	12.12	20.62	-0.94	26.22	40.72	2.776	2.776	34.79	0.00	0.00	EN-13480		
8144	12.12	20.62	0.94	26.22	40.72	2.776	2.776	34.79	0.00	0.00	EN-13480		
8145	12.04	22.38	-0.66	26.22	42.75	2.776	2.776	36.21	0.00	0.00	EN-13480		
8145	12.04	8.06	0.66	26.22	33.95	1.000	1.000	21.69	0.00	0.00	EN-13480		
8150	12.04	8.06	-0.66	26.22	33.95	1.000	1.000	21.69	0.00	0.00	EN-13480		
8150	12.04	8.06	0.66	26.22	33.95	1.000	1.000	21.69	0.00	0.00	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 3 (OPE) W+D2+T2+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
8155	12.06	7.79	-0.66	26.22	33.95	1.000	1.000	21.43	0.00	0.00	EN-13480		
8155	12.06	7.79	0.66	26.22	33.95	1.000	1.000	21.43	0.00	0.00	EN-13480		
8160	12.10	7.74	-0.66	26.22	33.95	1.000	1.000	21.38	0.00	0.00	EN-13480		
8160	12.10	7.74	0.66	26.22	33.95	1.000	1.000	21.38	0.00	0.00	EN-13480		
8165	12.28	12.42	-0.66	26.22	34.04	1.000	1.000	26.01	0.00	0.00	EN-13480		
8165	12.28	34.48	0.66	26.22	56.32	2.776	2.776	48.20	0.00	0.00	EN-13480		
8170	12.27	32.80	2.06	26.22	54.55	2.776	2.776	48.25	0.00	0.00	EN-13480		
8170	12.27	11.82	-2.06	26.22	34.89	1.000	1.000	26.03	0.00	0.00	EN-13480		
8175	12.27	11.80	2.06	26.22	34.88	1.000	1.000	26.01	0.00	0.00	EN-13480		
8175	12.27	11.80	-2.06	26.22	34.88	1.000	1.000	26.01	0.00	0.00	EN-13480		
NDB13BQ001 (8180)	12.27	6.18	2.06	26.22	34.37	1.000	1.000	20.95	0.00	0.00	EN-13480		
NDB13BQ001 (8180)	12.27	6.18	-2.06	26.22	34.37	1.000	1.000	20.95	0.00	0.00	EN-13480		
8185	12.27	5.10	2.06	26.22	34.32	1.000	1.000	20.08	0.00	0.00	EN-13480		
8185	12.27	14.16	-2.06	26.22	35.49	2.776	2.776	31.71	0.00	0.00	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 3 (OPE) W+D2+T2+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
8190	12.49	19.24	0.01	26.22	38.68	2.776	2.776	32.76	0.00	0.00	EN-13480		
8190	12.49	6.93	-0.01	26.22	33.89	1.000	1.000	20.45	0.00	0.00	EN-13480		
8195	12.49	6.93	0.01	26.22	33.89	1.000	1.000	20.46	0.00	0.00	EN-13480		
8195	12.49	19.24	-0.01	26.22	38.69	2.776	2.776	32.77	0.00	0.00	EN-13480		
8200	12.27	6.77	3.85	26.22	35.49	2.776	2.776	35.96	0.00	0.00	EN-13480		
8200	12.27	2.44	-3.85	26.22	35.05	1.000	1.000	21.61	0.00	0.00	EN-13480		
8205	12.27	2.46	3.85	26.22	35.05	1.000	1.000	21.61	0.00	0.00	EN-13480		
8205	12.27	2.46	-3.85	26.22	35.05	1.000	1.000	21.61	0.00	0.00	EN-13480		
8210	12.27	12.60	3.85	26.22	36.80	1.000	1.000	28.29	0.00	0.00	EN-13480		
8210	12.27	34.96	-3.85	26.22	57.59	2.776	2.776	54.51	0.00	0.00	EN-13480		
8215	12.58	12.05	7.34	26.22	40.44	2.776	2.776	56.00	0.00	0.00	EN-13480		
8215	12.58	4.34	-7.34	26.22	37.98	1.000	1.000	28.83	0.00	0.00	EN-13480		
8220	12.58	4.35	7.34	26.22	37.99	1.000	1.000	28.83	0.00	0.00	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 3 (OPE) W+D2+T2+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
8220	12.58	12.08	-7.34	26.22	40.46	2.776	2.776	56.01	0.00	0.00	EN-13480		
8225	12.49	34.92	1.57	26.22	56.68	2.776	2.776	49.52	0.00	0.00	EN-13480		
8225	12.49	12.58	-1.57	26.22	34.67	1.000	1.000	26.49	0.00	0.00	EN-13480		
8230	12.49	12.55	1.57	26.22	34.66	1.000	1.000	26.46	0.00	0.00	EN-13480		
8230	12.49	12.55	-1.57	26.22	34.66	1.000	1.000	26.46	0.00	0.00	EN-13480		
NDB13BQ009 (8235)	12.49	10.43	1.57	26.22	34.40	1.000	1.000	24.42	0.00	0.00	EN-13480		
NDB13BQ009 (8235)	12.49	10.43	-1.57	26.22	34.40	1.000	1.000	24.42	0.00	0.00	EN-13480		
8240	12.49	8.34	1.57	26.22	34.26	1.000	1.000	22.44	0.00	0.00	EN-13480		
8245	12.49	5.12	-1.57	26.22	34.15	1.000	1.000	19.53	0.00	0.00	EN-13480		
8250	12.49	4.97	1.57	26.22	34.15	1.000	1.000	19.40	0.00	0.00	EN-13480		
8250	12.49	4.97	-1.57	26.22	34.15	1.000	1.000	19.40	0.00	0.00	EN-13480		
8255	12.49	5.24	1.57	26.22	34.16	1.000	1.000	19.63	0.00	0.00	EN-13480		
8260	12.49	9.64	-1.57	26.22	34.34	1.000	1.000	23.66	0.00	0.00	EN-13480		
8265	12.49	12.86	1.57	26.22	34.72	1.000	1.000	26.76	0.00	0.00	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 3 (OPE) W+D2+T2+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
8265	12.75	11.65	-0.95	26.22	34.16	1.000	1.000	25.33	0.00	0.00	EN-13480		
8270	12.75	9.34	0.95	26.22	34.06	1.000	1.000	23.06	0.00	0.00	EN-13480		
8270	12.75	25.93	-0.95	26.22	45.99	2.776	2.776	39.98	0.00	0.00	EN-13480		
8275	12.52	13.59	-3.12	26.22	36.51	2.776	2.776	35.55	0.00	0.00	EN-13480		
8275	12.52	4.90	3.12	26.22	34.85	1.000	1.000	21.46	0.00	0.00	EN-13480		
8280	12.52	4.90	-3.12	26.22	34.85	1.000	1.000	21.46	0.00	0.00	EN-13480		
8280	12.52	13.60	3.12	26.22	36.51	2.776	2.776	35.55	0.00	0.00	EN-13480		
8285	12.46	17.22	-2.51	26.22	37.83	2.776	2.776	35.67	0.00	0.00	EN-13480		
8285	12.46	6.20	2.51	26.22	34.60	1.000	1.000	21.50	0.00	0.00	EN-13480		
8290	12.46	6.20	-2.51	26.22	34.60	1.000	1.000	21.50	0.00	0.00	EN-13480		
8290	12.46	6.20	2.51	26.22	34.60	1.000	1.000	21.50	0.00	0.00	EN-13480		
NDB13BQ007 (8295)	12.89	9.49	-2.51	26.22	34.97	1.000	1.000	24.26	0.00	0.00	EN-13480		
NDB13BQ007 (8295)	12.89	9.49	2.51	26.22	34.97	1.000	1.000	24.26	0.00	0.00	EN-13480		
8300	13.24	4.17	-2.51	26.22	34.53	1.000	1.000	20.05	0.00	0.00	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 3 (OPE) W+D2+T2+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
8300	13.24	11.59	2.51	26.22	35.47	2.776	2.776	31.64	0.00	0.00	EN-13480		
8305	12.98	14.51	-1.75	26.22	35.63	2.776	2.776	30.98	0.00	0.00	EN-13480		
8305	12.98	5.23	1.75	26.22	34.23	1.000	1.000	19.81	0.00	0.00	EN-13480		
8310	12.98	5.23	-1.75	26.22	34.23	1.000	1.000	19.81	0.00	0.00	EN-13480		
8310	12.98	5.23	1.75	26.22	34.23	1.000	1.000	19.81	0.00	0.00	EN-13480		
752	12.98	6.32	-1.75	26.22	34.27	1.000	1.000	20.74	0.00	0.00	EN-13480		
13100	12.88	9.16	-7.65	26.22	39.76	1.000	1.000	31.35	0.00	0.00	EN-13480		
31NDB20AT001/N2 (13200)	12.88	10.04	7.65	26.22	40.09	1.000	1.000	31.82	0.00	0.00	EN-13480		
13300	12.98	5.46	-1.60	26.22	34.19	1.000	1.000	19.85	0.00	0.00	EN-13480		
31NDB20AT001/N1 (13400)	12.98	6.18	1.60	26.22	34.21	1.000	1.000	20.48	0.00	0.00	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 4 (SUS) W+P1+H

Note: This report indicates generic stresses. For code-defined stresses, see the Stresses report.
Piping Code: EN-13480 = EN-13480 -2017 (Issued June 2017)

CODE STRESS CHECK PASSED : LOADCASE 4 (SUS) W+P1+H

Highest Stresses: (N/mm2)

Ratio (%):	13.7	@Node 6775	
Code Stress:	16.5	Allowable Stress:	120.0
Axial Stress:	3.3	@Node 6960	
Bending Stress:	18.4	@Node 6775	
Torsion Stress:	2.1	@Node 8270	
Hoop Stress:	4.9	@Node 6660	
Max Stress Intensity:	24.5	@Node 6775	

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
747	2.60	3.51	0.03	4.92	7.35	1.000	1.000	6.04	120.00	5.04	EN-13480		
6660	2.60	1.11	-0.03	4.92	6.36	1.000	1.000	3.65	120.00	3.04	EN-13480		
6660	2.60	3.08	0.03	4.92	6.87	2.776	2.776	4.85	120.00	4.04	EN-13480		
6665	2.91	3.04	-0.15	4.92	7.22	2.776	2.776	4.90	120.00	4.09	EN-13480		
6665	2.91	1.10	0.15	4.92	6.38	1.000	1.000	3.67	120.00	3.06	EN-13480		
6670	2.91	1.08	-0.15	4.92	6.38	1.000	1.000	3.66	120.00	3.05	EN-13480		
6670	2.91	1.08	0.15	4.92	6.38	1.000	1.000	3.66	120.00	3.05	EN-13480		
6675	2.71	3.60	-0.15	4.92	7.59	1.000	1.000	6.14	120.00	5.12	EN-		

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CASE 4 (SUS) W+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
6675	2.71	10.02	0.15	4.92	15.01	2.788	2.788	10.08	120.00	8.40	EN-13480		
6680	2.73	11.08	-0.18	4.92	16.28	2.788	2.788	10.88	120.00	9.07	EN-13480		
6680	2.73	3.97	0.18	4.92	8.05	1.000	1.000	6.53	120.00	5.44	EN-13480		
6685	2.73	3.97	-0.18	4.92	8.04	1.000	1.000	6.52	120.00	5.44	EN-13480		
6685	2.73	3.97	0.18	4.92	8.04	1.000	1.000	6.52	120.00	5.44	EN-13480		
6690	2.58	4.66	-0.18	4.92	8.63	1.000	1.000	7.21	120.00	6.01	EN-13480		
6690	2.58	12.88	0.18	4.92	18.21	2.762	2.762	12.22	120.00	10.19	EN-13480		
6695	2.60	13.42	-0.15	4.92	18.87	2.762	2.762	12.62	120.00	10.52	EN-13480		
6695	2.60	4.86	0.15	4.92	8.86	1.000	1.000	7.40	120.00	6.17	EN-13480		
6700	2.60	4.86	-0.15	4.92	8.86	1.000	1.000	7.40	120.00	6.17	EN-13480		
6700	2.60	4.86	0.15	4.92	8.86	1.000	1.000	7.40	120.00	6.17	EN-13480		
NDB11BQ014 (6705)	2.60	4.91	-0.15	4.92	8.92	1.000	1.000	7.45	120.00	6.21	EN-13480		
NDB11BQ014 (6705)	2.60	4.91	0.15	4.92	8.92	1.000	1.000	7.45	120.00	6.21	EN-13480		
6710	2.60	4.09	-0.15	4.92	8.01	1.000	1.000	6.64	120.00	5.53	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 4 (SUS) W+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
6710	2.60	11.36	0.15	4.92	16.45	2.776	2.776	11.08	120.00	9.23	EN-13480		
6715	2.85	16.42	-0.04	4.92	22.68	2.776	2.776	14.85	120.00	12.38	EN-13480		
6715	2.85	5.92	0.04	4.92	10.37	1.000	1.000	8.45	120.00	7.04	EN-13480		
6720	2.85	5.90	-0.04	4.92	10.35	1.000	1.000	8.44	120.00	7.03	EN-13480		
6720	2.85	5.90	0.04	4.92	10.35	1.000	1.000	8.44	120.00	7.03	EN-13480		
NDB11BQ002 (6725)	2.49	2.59	-0.04	4.92	6.37	1.000	1.000	5.13	120.00	4.27	EN-13480		
NDB11BQ002 (6725)	2.61	2.59	0.04	4.92	6.39	1.000	1.000	5.13	120.00	4.27	EN-13480		
6730	2.47	2.83	-0.04	4.92	6.46	1.000	1.000	5.37	120.00	4.47	EN-13480		
6735	2.30	3.67	0.04	4.92	7.37	1.000	1.000	6.21	120.00	5.17	EN-13480		
6740	2.29	3.92	-0.04	4.92	7.66	1.000	1.000	6.45	120.00	5.38	EN-13480		
6740	2.29	3.92	0.04	4.92	7.66	1.000	1.000	6.45	120.00	5.38	EN-13480		
6745	2.27	4.17	-0.04	4.92	7.97	1.000	1.000	6.71	120.00	5.59	EN-13480		
6750	2.10	5.26	0.04	4.92	9.38	1.000	1.000	7.80	120.00	6.50	EN-13480		
6755	2.03	6.45	-0.04	4.92	10.86	1.000	1.000	8.99	120.00	7.49	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 4 (SUS) W+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
6755	2.03	17.90	0.04	4.92	24.29	2.776	2.776	15.96	120.00	13.30	EN-13480		
6760	2.23	13.55	0.46	4.92	18.99	2.776	2.776	12.88	120.00	10.74	EN-13480		
6760	2.23	4.88	-0.46	4.92	8.88	1.000	1.000	7.51	120.00	6.26	EN-13480		
6765	2.23	4.86	0.46	4.92	8.85	1.000	1.000	7.48	120.00	6.23	EN-13480		
6765	2.23	4.86	-0.46	4.92	8.85	1.000	1.000	7.48	120.00	6.23	EN-13480		
NDB11BQ003 (6770)	2.23	10.41	0.46	4.92	15.31	1.000	1.000	12.98	120.00	10.82	EN-13480		
NDB11BQ003 (6770)	2.33	10.41	-0.46	4.92	15.18	1.000	1.000	12.98	120.00	10.82	EN-13480		
6775	2.33	6.62	0.46	4.92	10.76	1.000	1.000	9.23	120.00	7.69	EN-13480		
6775	2.33	18.39	-0.46	4.92	24.52	2.776	2.776	16.46	120.00	13.72	EN-13480		
6780	2.78	7.03	-1.00	4.92	11.82	2.776	2.776	9.26	120.00	7.71	EN-13480		
6780	2.78	2.53	1.00	4.92	7.53	1.000	1.000	5.76	120.00	4.80	EN-13480		
6785	2.78	2.54	-1.00	4.92	7.54	1.000	1.000	5.77	120.00	4.81	EN-13480		
6785	2.78	7.05	1.00	4.92	11.84	2.776	2.776	9.27	120.00	7.72	EN-13480		
6790	2.85	9.22	0.05	4.92	14.25	2.776	2.776	9.46	120.00	7.88	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 4 (SUS) W+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
6790	2.85	3.32	-0.05	4.92	7.44	1.000	1.000	5.86	120.00	4.88	EN-13480		
6795	2.85	3.32	0.05	4.92	7.44	1.000	1.000	5.86	120.00	4.88	EN-13480		
6795	2.85	3.32	-0.05	4.92	7.44	1.000	1.000	5.86	120.00	4.88	EN-13480		
6800	2.61	1.45	0.05	4.92	6.36	1.000	1.000	3.98	120.00	3.32	EN-13480		
6800	2.61	4.01	-0.05	4.92	7.92	2.776	2.776	5.55	120.00	4.63	EN-13480		
6805	2.33	0.59	-0.09	4.92	6.36	2.776	2.776	3.12	120.00	2.60	EN-13480		
6805	2.33	0.21	0.09	4.92	6.36	1.000	1.000	2.82	120.00	2.35	EN-13480		
6810	2.33	0.21	-0.09	4.92	6.36	1.000	1.000	2.82	120.00	2.35	EN-13480		
6810	2.33	0.21	0.09	4.92	6.36	1.000	1.000	2.82	120.00	2.35	EN-13480		
6815	2.33	1.30	-0.09	4.92	6.36	1.000	1.000	3.84	120.00	3.20	EN-13480		
6815	2.33	3.60	0.09	4.92	7.26	2.776	2.776	5.26	120.00	4.38	EN-13480		
6820	2.34	2.83	-0.37	4.92	6.73	2.776	2.776	5.17	120.00	4.31	EN-13480		
6820	2.34	1.02	0.37	4.92	6.43	1.000	1.000	3.80	120.00	3.17	EN-13480		
6825	2.34	1.02	-0.37	4.92	6.43	1.000	1.000	3.80	120.00	3.17	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 4 (SUS) W+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
6825	2.34	1.02	0.37	4.92	6.43	1.000	1.000	3.80	120.00	3.17	EN-13480		
NDB11BQ004 (6830)	2.34	5.46	-0.37	4.92	9.37	1.000	1.000	8.04	120.00	6.70	EN-13480		
NDB11BQ004 (6830)	2.39	5.46	0.37	4.92	9.33	1.000	1.000	8.04	120.00	6.70	EN-13480		
6835	2.39	0.59	-0.37	4.92	6.42	1.000	1.000	3.49	120.00	2.91	EN-13480		
6835	2.39	1.64	0.37	4.92	6.47	2.776	2.776	4.52	120.00	3.76	EN-13480		
6840	2.40	4.34	0.20	4.92	8.07	2.776	2.776	5.89	120.00	4.91	EN-13480		
6840	2.40	1.56	-0.20	4.92	6.39	1.000	1.000	4.15	120.00	3.46	EN-13480		
6845	2.40	1.57	0.20	4.92	6.39	1.000	1.000	4.16	120.00	3.46	EN-13480		
6845	2.40	1.57	-0.20	4.92	6.39	1.000	1.000	4.16	120.00	3.46	EN-13480		
6850	2.40	0.41	0.20	4.92	6.37	1.000	1.000	3.11	120.00	2.59	EN-13480		
6850	2.40	1.15	-0.20	4.92	6.38	2.776	2.776	3.73	120.00	3.11	EN-13480		
6855	2.39	5.00	-0.43	4.92	8.85	2.776	2.776	6.69	120.00	5.58	EN-13480		
6855	2.39	1.80	0.43	4.92	6.53	1.000	1.000	4.53	120.00	3.78	EN-13480		
6860	2.39	1.82	-0.43	4.92	6.53	1.000	1.000	4.55	120.00	3.79	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 4 (SUS) W+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
6860	2.39	1.82	0.43	4.92	6.53	1.000	1.000	4.55	120.00	3.79	EN-13480		
NDB11BQ005 (6865)	2.39	2.93	-0.43	4.92	6.88	1.000	1.000	5.59	120.00	4.65	EN-13480		
NDB11BQ005 (6865)	2.36	2.93	0.43	4.92	6.87	1.000	1.000	5.59	120.00	4.65	EN-13480		
6870	2.36	0.29	-0.43	4.92	6.43	1.000	1.000	3.44	120.00	2.87	EN-13480		
6870	2.36	0.80	0.43	4.92	6.45	2.776	2.776	4.43	120.00	3.69	EN-13480		
6875	2.38	0.90	-0.31	4.92	6.41	2.776	2.776	3.99	120.00	3.33	EN-13480		
6875	2.38	0.32	0.31	4.92	6.40	1.000	1.000	3.24	120.00	2.70	EN-13480		
6880	2.38	0.32	-0.31	4.92	6.40	1.000	1.000	3.23	120.00	2.69	EN-13480		
6880	2.38	0.89	0.31	4.92	6.41	2.794	2.794	4.00	120.00	3.33	EN-13480		
6885	2.35	0.85	-0.28	4.92	6.40	2.794	2.794	3.86	120.00	3.21	EN-13480		
6885	2.35	0.30	0.28	4.92	6.39	1.000	1.000	3.17	120.00	2.64	EN-13480		
6890	2.35	0.30	-0.28	4.92	6.39	1.000	1.000	3.17	120.00	2.64	EN-13480		
6890	2.35	0.30	0.28	4.92	6.39	1.000	1.000	3.17	120.00	2.64	EN-13480		
6895	2.35	0.22	-0.28	4.92	6.39	1.000	1.000	3.13	120.00	2.61	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 4 (SUS) W+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
6895	2.35	0.22	0.28	4.92	6.39	1.000	1.000	3.13	120.00	2.61	EN-13480		
6900	2.35	0.63	-0.28	4.92	6.39	1.000	1.000	3.38	120.00	2.81	EN-13480		
6930	1.96	0.32	-0.26	2.42	3.54	1.773	1.773	2.03	120.00	1.69	EN-13480		
6935	2.82	0.03	0.07	4.92	6.36	1.773	1.773	2.71	120.00	2.26	EN-13480		
6935	2.82	0.02	-0.07	4.92	6.36	1.000	1.000	2.67	120.00	2.22	EN-13480		
6940	2.84	0.01	0.07	4.92	6.36	1.000	1.000	2.67	120.00	2.22	EN-13480		
6940	2.84	0.01	-0.07	4.92	6.36	1.000	1.000	2.67	120.00	2.22	EN-13480		
6945	2.86	0.02	0.07	4.92	6.36	1.000	1.000	2.67	120.00	2.23	EN-13480		
6950	3.26	0.14	-0.07	4.92	6.36	1.000	1.000	2.73	120.00	2.27	EN-13480		
6955	3.27	0.16	0.07	4.92	6.36	1.000	1.000	2.74	120.00	2.29	EN-13480		
6955	3.27	0.16	-0.07	4.92	6.36	1.000	1.000	2.74	120.00	2.29	EN-13480		
NDB12BQ001 (6960)	3.30	0.19	0.07	4.92	6.36	1.000	1.000	2.77	120.00	2.31	EN-13480		
NDB12BQ001 (6960)	1.64	0.19	-0.07	4.92	6.36	1.000	1.000	2.77	120.00	2.31	EN-13480		
NDB12BQ002	1.77	0.33	0.07	4.92	6.36	1.000	1.000	2.89	120.00	2.41	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 4 (SUS) W+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
(6965)											13480		
NDB12BQ002 (6965)	1.78	0.33	-0.07	4.92	6.36	1.000	1.000	2.89	120.00	2.41	EN-13480		
12000	2.05	0.56	0.07	4.92	6.36	1.000	1.000	3.11	120.00	2.59	EN-13480		
12000	2.05	0.56	-0.07	4.92	6.36	1.000	1.000	3.11	120.00	2.59	EN-13480		
6970	2.12	0.75	0.07	4.92	6.36	1.000	1.000	3.30	120.00	2.75	EN-13480		
6970	2.12	2.08	-0.07	4.92	6.36	2.776	2.776	4.12	120.00	3.43	EN-13480		
6975	2.36	1.40	0.24	4.92	6.40	2.776	2.776	3.98	120.00	3.31	EN-13480		
6975	2.36	0.50	-0.24	4.92	6.38	1.000	1.000	3.23	120.00	2.69	EN-13480		
6980	2.36	0.51	0.24	4.92	6.38	1.000	1.000	3.24	120.00	2.70	EN-13480		
6980	2.36	0.51	-0.24	4.92	6.38	1.000	1.000	3.24	120.00	2.70	EN-13480		
6985	2.36	1.91	0.24	4.92	6.42	1.000	1.000	4.51	120.00	3.76	EN-13480		
6985	2.36	1.91	-0.24	4.92	6.42	1.000	1.000	4.51	120.00	3.76	EN-13480		
6990	2.36	1.52	0.24	4.92	6.40	1.000	1.000	4.12	120.00	3.44	EN-13480		
6990	2.36	4.21	-0.24	4.92	7.92	2.776	2.776	5.84	120.00	4.87	EN-13480		
6995	2.38	4.23	0.30	4.92	7.96	2.776	2.776	5.94	120.00	4.95	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 4 (SUS) W+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
6995	2.38	1.52	-0.30	4.92	6.43	1.000	1.000	4.17	120.00	3.48	EN-13480		
7000	2.38	1.54	0.30	4.92	6.43	1.000	1.000	4.18	120.00	3.49	EN-13480		
7000	2.38	1.54	-0.30	4.92	6.43	1.000	1.000	4.18	120.00	3.49	EN-13480		
NDB12BQ003 (7002)	2.38	3.82	0.30	4.92	7.52	1.000	1.000	6.40	120.00	5.33	EN-13480		
NDB12BQ003 (7002)	2.50	3.82	-0.30	4.92	7.66	1.000	1.000	6.40	120.00	5.33	EN-13480		
7005	2.50	6.07	0.30	4.92	10.16	1.000	1.000	8.64	120.00	7.20	EN-13480		
7005	2.50	6.07	-0.30	4.92	10.16	1.000	1.000	8.64	120.00	7.20	EN-13480		
7010	2.50	1.40	0.30	4.92	6.43	1.000	1.000	4.06	120.00	3.38	EN-13480		
7010	2.50	3.89	-0.30	4.92	7.73	2.776	2.776	5.70	120.00	4.75	EN-13480		
7015	2.38	7.96	-0.30	4.92	12.23	2.776	2.776	8.63	120.00	7.19	EN-13480		
7015	2.38	2.87	0.30	4.92	6.69	1.000	1.000	5.46	120.00	4.55	EN-13480		
7020	2.38	2.89	-0.30	4.92	6.71	1.000	1.000	5.49	120.00	4.57	EN-13480		
7020	2.38	2.89	0.30	4.92	6.71	1.000	1.000	5.49	120.00	4.57	EN-13480		
NDB12BQ005	2.38	4.53	-0.30	4.92	8.28	1.000	1.000	7.10	120.00	5.92	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 4 (SUS) W+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
(7025)											13480		
NDB12BQ005 (7025)	2.46	4.53	0.30	4.92	8.37	1.000	1.000	7.10	120.00	5.92	EN-13480		
7030	2.46	1.97	-0.30	4.92	6.46	1.000	1.000	4.59	120.00	3.82	EN-13480		
7030	2.46	1.97	0.30	4.92	6.46	1.000	1.000	4.59	120.00	3.82	EN-13480		
7035	2.46	1.00	-0.30	4.92	6.41	1.000	1.000	3.70	120.00	3.08	EN-13480		
7035	2.46	2.77	0.30	4.92	6.69	2.776	2.776	4.96	120.00	4.13	EN-13480		
7040	2.75	5.47	0.36	4.92	9.76	2.776	2.776	6.91	120.00	5.76	EN-13480		
7040	2.75	1.97	-0.36	4.92	6.57	1.000	1.000	4.64	120.00	3.86	EN-13480		
7045	2.75	1.97	0.36	4.92	6.57	1.000	1.000	4.63	120.00	3.86	EN-13480		
7045	2.75	1.97	-0.36	4.92	6.57	1.000	1.000	4.63	120.00	3.86	EN-13480		
7050	2.57	0.76	0.36	4.92	6.43	1.000	1.000	3.59	120.00	2.99	EN-13480		
7050	2.57	2.10	-0.36	4.92	6.56	2.776	2.776	4.72	120.00	3.94	EN-13480		
7055	2.46	2.78	0.39	4.92	6.80	2.776	2.776	5.19	120.00	4.32	EN-13480		
7055	2.46	1.00	-0.39	4.92	6.45	1.000	1.000	3.81	120.00	3.17	EN-13480		
7060	2.46	1.00	0.39	4.92	6.45	1.000	1.000	3.81	120.00	3.18	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 4 (SUS) W+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
7060	2.46	1.00	-0.39	4.92	6.45	1.000	1.000	3.81	120.00	3.18	EN-13480		
7065	2.46	1.38	0.39	4.92	6.47	1.000	1.000	4.13	120.00	3.44	EN-13480		
7065	2.46	3.84	-0.39	4.92	7.69	2.776	2.776	5.85	120.00	4.88	EN-13480		
7069	2.41	3.85	-0.16	4.92	7.52	2.776	2.776	5.50	120.00	4.58	EN-13480		
7069	2.41	3.85	0.16	4.92	7.52	2.776	2.776	5.50	120.00	4.58	EN-13480		
7070	2.34	2.62	-0.49	4.92	6.77	2.776	2.776	5.37	120.00	4.47	EN-13480		
7070	2.34	0.94	0.49	4.92	6.48	1.000	1.000	3.90	120.00	3.25	EN-13480		
7075	2.34	0.95	-0.49	4.92	6.48	1.000	1.000	3.90	120.00	3.25	EN-13480		
7075	2.34	0.95	0.49	4.92	6.48	1.000	1.000	3.90	120.00	3.25	EN-13480		
NDB12BQ006 (7080)	2.34	4.71	-0.49	4.92	8.55	1.000	1.000	7.34	120.00	6.12	EN-13480		
NDB12BQ006 (7080)	2.33	4.71	0.49	4.92	8.56	1.000	1.000	7.34	120.00	6.12	EN-13480		
7085	2.33	2.06	-0.49	4.92	6.61	1.000	1.000	4.82	120.00	4.01	EN-13480		
7085	2.33	5.72	0.49	4.92	9.71	2.776	2.776	7.28	120.00	6.07	EN-13480		
7089	2.41	4.58	0.14	4.92	8.33	2.776	2.776	6.02	120.00	5.02	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 4 (SUS) W+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
7089	2.41	4.58	-0.14	4.92	8.33	2.776	2.776	6.02	120.00	5.02	EN-13480		
7090	2.47	2.01	0.56	4.92	6.69	2.776	2.776	5.32	120.00	4.43	EN-13480		
7090	2.47	0.72	-0.56	4.92	6.52	1.000	1.000	3.87	120.00	3.23	EN-13480		
7095	2.47	0.72	0.56	4.92	6.52	1.000	1.000	3.87	120.00	3.23	EN-13480		
7095	2.47	0.72	-0.56	4.92	6.52	1.000	1.000	3.87	120.00	3.23	EN-13480		
NDB12BQ008 (7097)	2.47	0.76	0.56	4.92	6.52	1.000	1.000	3.89	120.00	3.24	EN-13480		
NDB12BQ008 (7097)	2.47	0.76	-0.56	4.92	6.52	1.000	1.000	3.89	120.00	3.24	EN-13480		
7100	2.47	0.36	0.56	4.92	6.49	1.000	1.000	3.72	120.00	3.10	EN-13480		
7100	2.47	1.00	-0.56	4.92	6.54	2.776	2.776	5.00	120.00	4.16	EN-13480		
7104	2.74	3.89	0.51	4.92	8.12	2.776	2.776	6.15	120.00	5.12	EN-13480		
7104	2.74	3.89	-0.51	4.92	8.12	2.776	2.776	6.15	120.00	5.12	EN-13480		
7105	2.75	5.09	0.25	4.92	9.31	2.776	2.776	6.49	120.00	5.41	EN-13480		
7105	2.75	1.83	-0.25	4.92	6.45	1.000	1.000	4.44	120.00	3.70	EN-13480		
7110	2.75	1.83	0.25	4.92	6.45	1.000	1.000	4.43	120.00	3.69	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 4 (SUS) W+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
7110	2.75	1.83	-0.25	4.92	6.45	1.000	1.000	4.43	120.00	3.69	EN-13480		
7115	2.61	0.30	0.25	4.92	6.38	1.000	1.000	3.12	120.00	2.60	EN-13480		
7115	2.61	0.82	-0.25	4.92	6.39	2.776	2.776	3.75	120.00	3.13	EN-13480		
7119	2.55	0.63	0.15	4.92	6.37	2.776	2.776	3.32	120.00	2.77	EN-13480		
7119	2.55	0.63	-0.15	4.92	6.37	2.776	2.776	3.32	120.00	2.77	EN-13480		
7120	2.44	1.86	0.11	4.92	6.37	2.776	2.776	4.01	120.00	3.34	EN-13480		
7120	2.44	0.67	-0.11	4.92	6.36	1.000	1.000	3.24	120.00	2.70	EN-13480		
7125	2.44	0.68	0.11	4.92	6.36	1.000	1.000	3.25	120.00	2.71	EN-13480		
8105	2.43	3.39	1.46	4.92	8.35	2.065	2.065	7.73	120.00	6.44	EN-13480		
8109	2.47	5.04	-0.61	4.92	9.08	2.065	2.065	6.76	120.00	5.63	EN-13480		
8109	2.47	5.04	0.61	4.92	9.08	2.065	2.065	6.76	120.00	5.63	EN-13480		
8110	2.46	3.34	0.24	4.92	7.09	2.065	2.065	5.14	120.00	4.29	EN-13480		
8110	2.46	1.62	-0.24	4.92	6.41	1.000	1.000	4.22	120.00	3.52	EN-13480		
8115	2.46	1.60	0.24	4.92	6.41	1.000	1.000	4.21	120.00	3.50	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 4 (SUS) W+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
8115	2.46	1.60	-0.24	4.92	6.41	1.000	1.000	4.21	120.00	3.50	EN-13480		
8120	2.46	0.56	0.24	4.92	6.38	1.000	1.000	3.27	120.00	2.72	EN-13480		
8120	2.46	1.55	-0.24	4.92	6.40	2.776	2.776	4.06	120.00	3.38	EN-13480		
8124	2.41	3.66	0.10	4.92	7.30	2.776	2.776	5.31	120.00	4.43	EN-13480		
8124	2.41	3.66	-0.10	4.92	7.30	2.776	2.776	5.31	120.00	4.43	EN-13480		
8125	2.34	7.32	-0.67	4.92	11.63	2.776	2.776	8.70	120.00	7.25	EN-13480		
8125	2.34	2.64	0.67	4.92	6.97	1.000	1.000	5.50	120.00	4.58	EN-13480		
8130	2.34	2.66	-0.67	4.92	6.98	1.000	1.000	5.52	120.00	4.60	EN-13480		
8130	2.34	2.66	0.67	4.92	6.98	1.000	1.000	5.52	120.00	4.60	EN-13480		
NDB13BQ010 (8135)	2.34	4.73	-0.67	4.92	8.64	1.000	1.000	7.45	120.00	6.21	EN-13480		
NDB13BQ010 (8135)	2.34	4.73	0.67	4.92	8.64	1.000	1.000	7.45	120.00	6.21	EN-13480		
NDB13BQ008 (8137)	2.34	4.71	-0.67	4.92	8.63	1.000	1.000	7.44	120.00	6.20	EN-13480		
NDB13BQ008 (8137)	2.31	4.71	0.67	4.92	8.65	1.000	1.000	7.44	120.00	6.20	EN-13480		
8140	2.31	1.32	-0.67	4.92	6.63	1.000	1.000	4.42	120.00	3.68	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 4 (SUS) W+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
8140	2.31	3.66	0.67	4.92	7.62	2.776	2.776	6.45	120.00	5.38	EN-13480		
8144	2.16	3.82	-0.92	4.92	7.98	2.776	2.776	7.33	120.00	6.11	EN-13480		
8144	2.16	3.82	0.92	4.92	7.98	2.776	2.776	7.33	120.00	6.11	EN-13480		
8145	2.18	5.52	-0.64	4.92	9.71	2.776	2.776	7.46	120.00	6.22	EN-13480		
8145	2.18	1.99	0.64	4.92	6.69	1.000	1.000	4.90	120.00	4.09	EN-13480		
8150	2.18	1.99	-0.64	4.92	6.69	1.000	1.000	4.90	120.00	4.08	EN-13480		
8150	2.18	1.99	0.64	4.92	6.69	1.000	1.000	4.90	120.00	4.08	EN-13480		
8155	2.20	1.85	-0.64	4.92	6.67	1.000	1.000	4.78	120.00	3.99	EN-13480		
8155	2.20	1.85	0.64	4.92	6.67	1.000	1.000	4.78	120.00	3.99	EN-13480		
8160	2.24	1.66	-0.64	4.92	6.64	1.000	1.000	4.63	120.00	3.86	EN-13480		
8160	2.24	1.66	0.64	4.92	6.64	1.000	1.000	4.63	120.00	3.86	EN-13480		
8165	2.42	1.32	-0.64	4.92	6.62	1.000	1.000	4.37	120.00	3.64	EN-13480		
8165	2.42	3.65	0.64	4.92	7.68	2.776	2.776	6.36	120.00	5.30	EN-13480		
8170	2.38	3.12	-0.39	4.92	6.97	2.776	2.776	5.39	120.00	4.49	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 4 (SUS) W+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
8170	2.38	1.12	0.39	4.92	6.45	1.000	1.000	3.91	120.00	3.26	EN-13480		
8175	2.38	1.12	-0.39	4.92	6.45	1.000	1.000	3.90	120.00	3.25	EN-13480		
8175	2.38	1.12	0.39	4.92	6.45	1.000	1.000	3.90	120.00	3.25	EN-13480		
NDB13BQ001 (8180)	2.38	6.15	-0.39	4.92	10.14	1.000	1.000	8.74	120.00	7.28	EN-13480		
NDB13BQ001 (8180)	2.33	6.15	0.39	4.92	10.20	1.000	1.000	8.74	120.00	7.28	EN-13480		
8185	2.33	3.12	-0.39	4.92	6.93	1.000	1.000	5.75	120.00	4.79	EN-13480		
8185	2.33	8.65	0.39	4.92	13.11	2.776	2.776	9.23	120.00	7.69	EN-13480		
8190	2.38	3.68	0.48	4.92	7.52	2.776	2.776	5.93	120.00	4.94	EN-13480		
8190	2.38	1.32	-0.48	4.92	6.51	1.000	1.000	4.17	120.00	3.47	EN-13480		
8195	2.38	1.34	0.48	4.92	6.51	1.000	1.000	4.18	120.00	3.48	EN-13480		
8195	2.38	3.71	-0.48	4.92	7.54	2.776	2.776	5.95	120.00	4.96	EN-13480		
8200	2.33	1.80	1.24	4.92	7.25	2.776	2.776	7.86	120.00	6.55	EN-13480		
8200	2.33	0.65	-1.24	4.92	6.96	1.000	1.000	5.09	120.00	4.24	EN-13480		
8205	2.33	0.66	1.24	4.92	6.97	1.000	1.000	5.10	120.00	4.25	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 4 (SUS) W+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
8205	2.33	0.66	-1.24	4.92	6.97	1.000	1.000	5.10	120.00	4.25	EN-13480		
8210	2.33	1.05	1.24	4.92	7.05	1.000	1.000	5.22	120.00	4.35	EN-13480		
8210	2.33	2.92	-1.24	4.92	7.74	2.776	2.776	8.13	120.00	6.78	EN-13480		
8215	2.54	6.07	1.16	4.92	10.57	2.776	2.776	9.17	120.00	7.64	EN-13480		
8215	2.54	2.19	-1.16	4.92	7.40	1.000	1.000	5.72	120.00	4.77	EN-13480		
8220	2.54	2.20	1.16	4.92	7.41	1.000	1.000	5.73	120.00	4.78	EN-13480		
8220	2.54	6.10	-1.16	4.92	10.60	2.776	2.776	9.19	120.00	7.66	EN-13480		
8225	2.38	1.95	1.69	4.92	7.80	2.776	2.776	9.73	120.00	8.11	EN-13480		
8225	2.38	0.70	-1.69	4.92	7.39	1.000	1.000	5.99	120.00	4.99	EN-13480		
8230	2.38	0.69	1.69	4.92	7.39	1.000	1.000	5.99	120.00	4.99	EN-13480		
8230	2.38	0.69	-1.69	4.92	7.39	1.000	1.000	5.99	120.00	4.99	EN-13480		
NDB13BQ009 (8235)	2.38	1.07	1.69	4.92	7.49	1.000	1.000	6.08	120.00	5.07	EN-13480		
NDB13BQ009 (8235)	2.34	1.07	-1.69	4.92	7.48	1.000	1.000	6.08	120.00	5.07	EN-13480		
8240	2.34	1.47	1.69	4.92	7.61	1.000	1.000	6.22	120.00	5.19	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 4 (SUS) W+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
8245	2.34	2.99	-1.69	4.92	8.30	1.000	1.000	7.05	120.00	5.87	EN-13480		
8250	2.34	3.53	1.69	4.92	8.63	1.000	1.000	7.42	120.00	6.19	EN-13480		
8250	2.34	3.53	-1.69	4.92	8.63	1.000	1.000	7.42	120.00	6.19	EN-13480		
8255	2.34	4.11	1.69	4.92	9.04	1.000	1.000	7.86	120.00	6.55	EN-13480		
8260	2.34	7.11	-1.69	4.92	11.94	1.000	1.000	10.41	120.00	8.67	EN-13480		
8265	2.34	8.99	1.69	4.92	14.04	1.000	1.000	12.14	120.00	10.12	EN-13480		
8265	2.35	8.97	-2.12	4.92	14.33	1.000	1.000	12.46	120.00	10.38	EN-13480		
8270	2.35	3.48	2.12	4.92	9.07	1.000	1.000	8.02	120.00	6.69	EN-13480		
8270	2.35	9.67	-2.12	4.92	15.10	2.776	2.776	13.96	120.00	11.63	EN-13480		
8275	2.24	1.73	0.77	4.92	6.76	2.776	2.776	5.98	120.00	4.98	EN-13480		
8275	2.24	0.62	-0.77	4.92	6.61	1.000	1.000	4.19	120.00	3.49	EN-13480		
8280	2.24	0.67	0.77	4.92	6.61	1.000	1.000	4.21	120.00	3.51	EN-13480		
8280	2.24	1.86	-0.77	4.92	6.78	2.776	2.776	6.01	120.00	5.01	EN-13480		
8285	1.68	12.45	0.04	4.92	18.31	2.776	2.776	11.88	120.00	9.90	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 4 (SUS) W+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
8285	1.68	4.49	-0.04	4.92	9.02	1.000	1.000	7.02	120.00	5.85	EN-13480		
8290	1.68	4.48	0.04	4.92	9.00	1.000	1.000	7.01	120.00	5.84	EN-13480		
8290	1.68	4.48	-0.04	4.92	9.00	1.000	1.000	7.01	120.00	5.84	EN-13480		
NDB13BQ007 (8295)	2.11	2.21	0.04	4.92	6.36	1.000	1.000	4.75	120.00	3.96	EN-13480		
NDB13BQ007 (8295)	2.11	2.21	-0.04	4.92	6.36	1.000	1.000	4.75	120.00	3.96	EN-13480		
8300	2.47	0.08	0.04	4.92	6.36	1.000	1.000	2.65	120.00	2.21	EN-13480		
8300	2.47	0.23	-0.04	4.92	6.36	2.776	2.776	2.78	120.00	2.31	EN-13480		
8305	2.44	1.04	0.05	4.92	6.36	2.776	2.776	3.34	120.00	2.79	EN-13480		
8305	2.44	0.37	-0.05	4.92	6.36	1.000	1.000	2.92	120.00	2.44	EN-13480		
8310	2.44	0.38	0.05	4.92	6.36	1.000	1.000	2.93	120.00	2.44	EN-13480		
8310	2.44	0.38	-0.05	4.92	6.36	1.000	1.000	2.93	120.00	2.44	EN-13480		
752	2.44	1.37	0.05	4.92	6.36	1.000	1.000	3.91	120.00	3.26	EN-13480		
13100	2.43	1.97	1.46	4.92	7.59	1.000	1.000	6.06	120.00	5.05	EN-13480		
31NDB20AT001/N2	2.43	2.14	-1.46	4.92	7.66	1.000	1.000	6.16	120.00	5.13	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 4 (SUS) W+P1+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
(13200)											13480		
13300	2.44	1.31	-0.11	4.92	6.36	1.000	1.000	3.86	120.00	3.22	EN-13480		
31NDB20AT001/N1 (13400)	2.44	1.31	0.11	4.92	6.36	1.000	1.000	3.86	120.00	3.22	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 5 (SUS) W+P2+H

Note: This report indicates generic stresses. For code-defined stresses, see the Stresses report.
Piping Code: EN-13480 = EN-13480 -2017 (Issued June 2017)

CODE STRESS CHECK PASSED : LOADCASE 5 (SUS) W+P2+H

Highest Stresses: (N/mm2)

Ratio (%):	23.9	@Node 6755	
Code Stress:	28.6	Allowable Stress:	120.0
Axial Stress:	13.6	@Node 6960	
Bending Stress:	20.1	@Node 6755	
Torsion Stress:	2.1	@Node 8270	
Hoop Stress:	26.2	@Node 6660	
Max Stress Intensity:	39.9	@Node 6755	

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
747	12.91	3.63	-0.01	26.22	33.89	1.000	1.000	17.15	120.00	14.29	EN-13480		
6660	12.91	1.38	0.01	26.22	33.89	1.000	1.000	14.90	120.00	12.42	EN-13480		
6660	12.91	3.82	-0.01	26.22	33.89	2.776	2.776	16.39	120.00	13.66	EN-13480		
6665	13.21	2.12	-0.15	26.22	33.89	2.776	2.776	15.23	120.00	12.69	EN-13480		
6665	13.21	0.76	0.15	26.22	33.89	1.000	1.000	14.34	120.00	11.95	EN-13480		
6670	13.21	0.75	-0.15	26.22	33.89	1.000	1.000	14.33	120.00	11.95	EN-13480		
6670	13.21	0.75	0.15	26.22	33.89	1.000	1.000	14.33	120.00	11.95	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 5 (SUS) W+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6675	13.01	3.28	-0.15	26.22	33.89	1.000	1.000	16.81	120.00	14.01	EN-13480		
6675	13.01	9.13	0.15	26.22	33.90	2.788	2.788	20.40	120.00	17.00	EN-13480		
6680	13.02	10.04	-0.18	26.22	33.90	2.788	2.788	21.09	120.00	17.57	EN-13480		
6680	13.02	3.60	0.18	26.22	33.89	1.000	1.000	17.14	120.00	14.28	EN-13480		
6685	13.02	3.60	-0.18	26.22	33.89	1.000	1.000	17.14	120.00	14.28	EN-13480		
6685	13.02	3.60	0.18	26.22	33.89	1.000	1.000	17.14	120.00	14.28	EN-13480		
6690	12.87	4.44	-0.18	26.22	33.89	1.000	1.000	17.98	120.00	14.98	EN-13480		
6690	12.87	12.27	0.18	26.22	33.90	2.762	2.762	22.75	120.00	18.96	EN-13480		
6695	12.91	13.12	-0.17	26.22	33.91	2.762	2.762	23.38	120.00	19.49	EN-13480		
6695	12.91	4.75	0.17	26.22	33.89	1.000	1.000	18.28	120.00	15.24	EN-13480		
6700	12.91	4.75	-0.17	26.22	33.89	1.000	1.000	18.28	120.00	15.24	EN-13480		
6700	12.91	4.75	0.17	26.22	33.89	1.000	1.000	18.28	120.00	15.24	EN-13480		
NDB11BQ014 (6705)	12.91	5.05	-0.17	26.22	33.89	1.000	1.000	18.58	120.00	15.49	EN-13480		
NDB11BQ014	12.91	5.05	0.17	26.22	33.89	1.000	1.000	18.58	120.00	15.49	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 5 (SUS) W+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
(6705)											13480		
6710	12.91	3.38	-0.17	26.22	33.89	1.000	1.000	16.92	120.00	14.10	EN-13480		
6710	12.91	9.38	0.17	26.22	33.90	2.776	2.776	20.59	120.00	17.16	EN-13480		
6715	13.15	14.30	0.03	26.22	33.89	2.776	2.776	24.25	120.00	20.21	EN-13480		
6715	13.15	5.15	-0.03	26.22	33.89	1.000	1.000	18.68	120.00	15.56	EN-13480		
6720	13.15	5.14	0.03	26.22	33.89	1.000	1.000	18.67	120.00	15.55	EN-13480		
6720	13.15	5.14	-0.03	26.22	33.89	1.000	1.000	18.67	120.00	15.55	EN-13480		
NDB11BQ002 (6725)	12.78	2.25	0.03	26.22	33.89	1.000	1.000	15.77	120.00	13.14	EN-13480		
NDB11BQ002 (6725)	12.90	2.25	-0.03	26.22	33.89	1.000	1.000	15.77	120.00	13.14	EN-13480		
6730	12.76	2.76	0.03	26.22	33.89	1.000	1.000	16.28	120.00	13.57	EN-13480		
6735	12.60	3.89	-0.03	26.22	33.89	1.000	1.000	17.41	120.00	14.51	EN-13480		
6740	12.58	4.20	0.03	26.22	33.89	1.000	1.000	17.72	120.00	14.77	EN-13480		
6740	12.58	4.20	-0.03	26.22	33.89	1.000	1.000	17.72	120.00	14.77	EN-13480		
6745	12.56	4.52	0.03	26.22	33.89	1.000	1.000	18.04	120.00	15.04	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 5 (SUS) W+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6750	12.40	5.85	-0.03	26.22	33.89	1.000	1.000	19.37	120.00	16.14	EN-13480		
6755	12.32	7.26	0.03	26.22	33.89	1.000	1.000	20.78	120.00	17.32	EN-13480		
6755	12.32	20.15	-0.03	26.22	39.90	2.776	2.776	28.63	120.00	23.86	EN-13480		
6760	12.54	15.58	0.39	26.22	34.55	2.776	2.776	25.32	120.00	21.10	EN-13480		
6760	12.54	5.61	-0.39	26.22	33.91	1.000	1.000	19.19	120.00	15.99	EN-13480		
6765	12.54	5.58	0.39	26.22	33.91	1.000	1.000	19.16	120.00	15.97	EN-13480		
6765	12.54	5.58	-0.39	26.22	33.91	1.000	1.000	19.16	120.00	15.97	EN-13480		
NDB11BQ003 (6770)	12.54	10.87	0.39	26.22	33.93	1.000	1.000	24.42	120.00	20.35	EN-13480		
NDB11BQ003 (6770)	12.65	10.87	-0.39	26.22	33.93	1.000	1.000	24.42	120.00	20.35	EN-13480		
6775	12.65	7.15	0.39	26.22	33.91	1.000	1.000	20.72	120.00	17.26	EN-13480		
6775	12.65	19.86	-0.39	26.22	39.20	2.776	2.776	28.50	120.00	23.75	EN-13480		
6780	13.12	7.63	-1.26	26.22	34.13	2.776	2.776	21.28	120.00	17.73	EN-13480		
6780	13.12	2.75	1.26	26.22	34.04	1.000	1.000	17.25	120.00	14.37	EN-13480		
6785	13.12	2.75	-1.26	26.22	34.04	1.000	1.000	17.25	120.00	14.38	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 5 (SUS) W+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6785	13.12	7.64	1.26	26.22	34.13	2.776	2.776	21.29	120.00	17.74	EN-13480		
6790	13.18	10.23	-0.08	26.22	33.89	2.776	2.776	21.20	120.00	17.67	EN-13480		
6790	13.18	3.68	0.08	26.22	33.89	1.000	1.000	17.21	120.00	14.34	EN-13480		
6795	13.18	3.68	-0.08	26.22	33.89	1.000	1.000	17.20	120.00	14.34	EN-13480		
6795	13.18	3.68	0.08	26.22	33.89	1.000	1.000	17.20	120.00	14.34	EN-13480		
6800	12.93	1.19	-0.08	26.22	33.89	1.000	1.000	14.72	120.00	12.27	EN-13480		
6800	12.93	3.30	0.08	26.22	33.89	2.776	2.776	16.02	120.00	13.35	EN-13480		
6805	12.65	1.53	0.03	26.22	33.89	2.776	2.776	14.68	120.00	12.23	EN-13480		
6805	12.65	0.55	-0.03	26.22	33.89	1.000	1.000	14.08	120.00	11.73	EN-13480		
6810	12.65	0.56	0.03	26.22	33.89	1.000	1.000	14.08	120.00	11.74	EN-13480		
6810	12.65	0.56	-0.03	26.22	33.89	1.000	1.000	14.08	120.00	11.74	EN-13480		
6815	12.65	1.69	0.03	26.22	33.89	1.000	1.000	15.21	120.00	12.68	EN-13480		
6815	12.65	4.68	-0.03	26.22	33.89	2.776	2.776	17.04	120.00	14.20	EN-13480		
6820	12.67	3.52	-0.39	26.22	33.91	2.776	2.776	16.63	120.00	13.85	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 5 (SUS) W+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
6820	12.67	1.27	0.39	26.22	33.90	1.000	1.000	15.01	120.00	12.51	EN-13480		
6825	12.67	1.27	-0.39	26.22	33.90	1.000	1.000	15.01	120.00	12.51	EN-13480		
6825	12.67	1.27	0.39	26.22	33.90	1.000	1.000	15.01	120.00	12.51	EN-13480		
NDB11BQ004 (6830)	12.67	5.59	-0.39	26.22	33.91	1.000	1.000	19.17	120.00	15.97	EN-13480		
NDB11BQ004 (6830)	12.72	5.59	0.39	26.22	33.91	1.000	1.000	19.17	120.00	15.97	EN-13480		
6835	12.72	0.99	-0.39	26.22	33.90	1.000	1.000	14.79	120.00	12.32	EN-13480		
6835	12.72	2.75	0.39	26.22	33.91	2.776	2.776	16.15	120.00	13.46	EN-13480		
6840	12.72	4.96	0.16	26.22	33.89	2.776	2.776	17.30	120.00	14.42	EN-13480		
6840	12.72	1.79	-0.16	26.22	33.89	1.000	1.000	15.34	120.00	12.78	EN-13480		
6845	12.72	1.79	0.16	26.22	33.89	1.000	1.000	15.34	120.00	12.79	EN-13480		
6845	12.72	1.79	-0.16	26.22	33.89	1.000	1.000	15.34	120.00	12.79	EN-13480		
6850	12.72	0.87	0.16	26.22	33.89	1.000	1.000	14.45	120.00	12.04	EN-13480		
6850	12.72	2.41	-0.16	26.22	33.89	2.776	2.776	15.45	120.00	12.88	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 5 (SUS) W+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6855	12.73	5.10	-0.37	26.22	33.91	2.776	2.776	17.65	120.00	14.71	EN-13480		
6855	12.73	1.84	0.37	26.22	33.90	1.000	1.000	15.51	120.00	12.92	EN-13480		
6860	12.73	1.85	-0.37	26.22	33.90	1.000	1.000	15.52	120.00	12.93	EN-13480		
6860	12.73	1.85	0.37	26.22	33.90	1.000	1.000	15.52	120.00	12.93	EN-13480		
NDB11BQ005 (6865)	12.73	2.90	-0.37	26.22	33.90	1.000	1.000	16.52	120.00	13.77	EN-13480		
NDB11BQ005 (6865)	12.62	2.90	0.37	26.22	33.90	1.000	1.000	16.52	120.00	13.77	EN-13480		
6870	12.62	0.81	-0.37	26.22	33.90	1.000	1.000	14.62	120.00	12.19	EN-13480		
6870	12.62	2.25	0.37	26.22	33.90	2.776	2.776	15.82	120.00	13.18	EN-13480		
6875	12.65	1.27	-0.37	26.22	33.90	2.776	2.776	15.33	120.00	12.77	EN-13480		
6875	12.65	0.46	0.37	26.22	33.90	1.000	1.000	14.39	120.00	11.99	EN-13480		
6880	12.65	0.45	-0.37	26.22	33.90	1.000	1.000	14.39	120.00	11.99	EN-13480		
6880	12.65	1.24	0.37	26.22	33.90	2.794	2.794	15.33	120.00	12.78	EN-13480		
6885	12.62	1.17	-0.26	26.22	33.90	2.794	2.794	14.91	120.00	12.43	EN-13480		
6885	12.62	0.42	0.26	26.22	33.90	1.000	1.000	14.19	120.00	11.82	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 5 (SUS) W+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
6890	12.62	0.41	-0.26	26.22	33.90	1.000	1.000	14.18	120.00	11.82	EN-13480		
6890	12.62	0.41	0.26	26.22	33.90	1.000	1.000	14.18	120.00	11.82	EN-13480		
6895	12.62	0.07	-0.26	26.22	33.90	1.000	1.000	14.04	120.00	11.70	EN-13480		
6895	12.62	0.07	0.26	26.22	33.90	1.000	1.000	14.04	120.00	11.70	EN-13480		
6900	12.62	1.21	-0.26	26.22	33.90	1.000	1.000	14.84	120.00	12.37	EN-13480		
6930	6.83	1.23	-0.30	12.91	18.11	1.773	1.773	8.09	120.00	6.74	EN-13480		
6935	13.12	0.14	0.07	26.22	33.89	1.773	1.773	13.75	120.00	11.46	EN-13480		
6935	13.12	0.08	-0.07	26.22	33.89	1.000	1.000	13.69	120.00	11.41	EN-13480		
6940	13.14	0.02	0.07	26.22	33.89	1.000	1.000	13.67	120.00	11.39	EN-13480		
6940	13.14	0.02	-0.07	26.22	33.89	1.000	1.000	13.67	120.00	11.39	EN-13480		
6945	13.16	0.05	0.07	26.22	33.89	1.000	1.000	13.68	120.00	11.40	EN-13480		
6950	13.56	0.42	-0.07	26.22	33.89	1.000	1.000	13.96	120.00	11.64	EN-13480		
6955	13.58	0.48	0.07	26.22	33.89	1.000	1.000	14.02	120.00	11.69	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 5 (SUS) W+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6955	13.58	0.48	-0.07	26.22	33.89	1.000	1.000	14.02	120.00	11.69	EN-13480		
NDB12BQ001 (6960)	13.61	0.58	0.07	26.22	33.89	1.000	1.000	14.12	120.00	11.77	EN-13480		
NDB12BQ001 (6960)	11.95	0.58	-0.07	26.22	33.89	1.000	1.000	14.12	120.00	11.77	EN-13480		
NDB12BQ002 (6965)	12.08	1.02	0.07	26.22	33.89	1.000	1.000	14.56	120.00	12.13	EN-13480		
NDB12BQ002 (6965)	12.09	1.02	-0.07	26.22	33.89	1.000	1.000	14.56	120.00	12.13	EN-13480		
12000	12.36	0.90	0.07	26.22	33.89	1.000	1.000	14.43	120.00	12.03	EN-13480		
12000	12.36	0.90	-0.07	26.22	33.89	1.000	1.000	14.43	120.00	12.03	EN-13480		
6970	12.43	1.38	0.07	26.22	33.89	1.000	1.000	14.91	120.00	12.42	EN-13480		
6970	12.43	3.83	-0.07	26.22	33.89	2.776	2.776	16.41	120.00	13.67	EN-13480		
6975	12.66	0.73	0.31	26.22	33.90	2.776	2.776	14.91	120.00	12.42	EN-13480		
6975	12.66	0.26	-0.31	26.22	33.90	1.000	1.000	14.19	120.00	11.82	EN-13480		
6980	12.66	0.25	0.31	26.22	33.90	1.000	1.000	14.18	120.00	11.82	EN-13480		
6980	12.66	0.25	-0.31	26.22	33.90	1.000	1.000	14.18	120.00	11.82	EN-13480		
6985	12.66	1.87	0.31	26.22	33.90	1.000	1.000	15.49	120.00	12.90	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 5 (SUS) W+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6985	12.66	1.87	-0.31	26.22	33.90	1.000	1.000	15.49	120.00	12.90	EN-13480		
6990	12.66	1.59	0.31	26.22	33.90	1.000	1.000	15.23	120.00	12.69	EN-13480		
6990	12.66	4.41	-0.31	26.22	33.90	2.776	2.776	17.07	120.00	14.22	EN-13480		
6995	12.70	4.33	0.35	26.22	33.90	2.776	2.776	17.08	120.00	14.24	EN-13480		
6995	12.70	1.56	-0.35	26.22	33.90	1.000	1.000	15.23	120.00	12.69	EN-13480		
7000	12.70	1.57	0.35	26.22	33.90	1.000	1.000	15.24	120.00	12.70	EN-13480		
7000	12.70	1.57	-0.35	26.22	33.90	1.000	1.000	15.24	120.00	12.70	EN-13480		
NDB12BQ003 (7002)	12.70	3.62	0.35	26.22	33.90	1.000	1.000	17.21	120.00	14.35	EN-13480		
NDB12BQ003 (7002)	12.63	3.62	-0.35	26.22	33.90	1.000	1.000	17.21	120.00	14.35	EN-13480		
7005	12.63	6.20	0.35	26.22	33.91	1.000	1.000	19.76	120.00	16.47	EN-13480		
7005	12.63	6.20	-0.35	26.22	33.91	1.000	1.000	19.76	120.00	16.47	EN-13480		
7010	12.63	2.08	0.35	26.22	33.90	1.000	1.000	15.72	120.00	13.10	EN-13480		
7010	12.63	5.77	-0.35	26.22	33.91	2.776	2.776	18.09	120.00	15.07	EN-13480		
7015	12.70	8.50	-0.31	26.22	33.91	2.776	2.776	20.03	120.00	16.69	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 5 (SUS) W+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
7015	12.70	3.06	0.31	26.22	33.90	1.000	1.000	16.65	120.00	13.87	EN-13480		
7020	12.70	3.08	-0.31	26.22	33.90	1.000	1.000	16.67	120.00	13.89	EN-13480		
7020	12.70	3.08	0.31	26.22	33.90	1.000	1.000	16.67	120.00	13.89	EN-13480		
NDB12BQ005 (7025)	12.70	4.52	-0.31	26.22	33.90	1.000	1.000	18.08	120.00	15.07	EN-13480		
NDB12BQ005 (7025)	12.79	4.52	0.31	26.22	33.90	1.000	1.000	18.08	120.00	15.07	EN-13480		
7030	12.79	1.83	-0.31	26.22	33.90	1.000	1.000	15.46	120.00	12.88	EN-13480		
7030	12.79	1.83	0.31	26.22	33.90	1.000	1.000	15.46	120.00	12.88	EN-13480		
7035	12.79	0.49	-0.31	26.22	33.90	1.000	1.000	14.32	120.00	11.93	EN-13480		
7035	12.79	1.36	0.31	26.22	33.90	2.776	2.776	15.18	120.00	12.65	EN-13480		
7040	13.08	5.19	0.09	26.22	33.89	2.776	2.776	17.44	120.00	14.53	EN-13480		
7040	13.08	1.87	-0.09	26.22	33.89	1.000	1.000	15.40	120.00	12.84	EN-13480		
7045	13.08	1.87	0.09	26.22	33.89	1.000	1.000	15.40	120.00	12.83	EN-13480		
7045	13.08	1.87	-0.09	26.22	33.89	1.000	1.000	15.40	120.00	12.83	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 5 (SUS) W+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
7050	12.91	0.74	0.09	26.22	33.89	1.000	1.000	14.29	120.00	11.91	EN-13480		
7050	12.91	2.06	-0.09	26.22	33.89	2.776	2.776	15.12	120.00	12.60	EN-13480		
7055	12.79	2.73	0.35	26.22	33.90	2.776	2.776	16.02	120.00	13.35	EN-13480		
7055	12.79	0.98	-0.35	26.22	33.90	1.000	1.000	14.72	120.00	12.27	EN-13480		
7060	12.79	0.99	0.35	26.22	33.90	1.000	1.000	14.73	120.00	12.27	EN-13480		
7060	12.79	0.99	-0.35	26.22	33.90	1.000	1.000	14.73	120.00	12.27	EN-13480		
7065	12.79	1.60	0.35	26.22	33.90	1.000	1.000	15.26	120.00	12.72	EN-13480		
7065	12.79	4.43	-0.35	26.22	33.90	2.776	2.776	17.14	120.00	14.29	EN-13480		
7069	12.74	4.44	-0.22	26.22	33.90	2.776	2.776	16.98	120.00	14.15	EN-13480		
7069	12.74	4.44	0.22	26.22	33.90	2.776	2.776	16.98	120.00	14.15	EN-13480		
7070	12.68	3.75	-0.52	26.22	33.92	2.776	2.776	17.06	120.00	14.22	EN-13480		
7070	12.68	1.35	0.52	26.22	33.91	1.000	1.000	15.22	120.00	12.69	EN-13480		
7075	12.68	1.35	-0.52	26.22	33.91	1.000	1.000	15.23	120.00	12.69	EN-13480		
7075	12.68	1.35	0.52	26.22	33.91	1.000	1.000	15.23	120.00	12.69	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 5 (SUS) W+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
NDB12BQ006 (7080)	12.68	4.97	-0.52	26.22	33.92	1.000	1.000	18.60	120.00	15.50	EN-13480		
NDB12BQ006 (7080)	12.67	4.97	0.52	26.22	33.92	1.000	1.000	18.60	120.00	15.50	EN-13480		
7085	12.67	2.34	-0.52	26.22	33.91	1.000	1.000	16.09	120.00	13.40	EN-13480		
7085	12.67	6.51	0.52	26.22	33.93	2.776	2.776	18.86	120.00	15.71	EN-13480		
7089	12.75	5.32	0.22	26.22	33.90	2.776	2.776	17.61	120.00	14.68	EN-13480		
7089	12.75	5.32	-0.22	26.22	33.90	2.776	2.776	17.61	120.00	14.68	EN-13480		
7090	12.82	2.39	0.70	26.22	33.94	2.776	2.776	16.96	120.00	14.13	EN-13480		
7090	12.82	0.86	-0.70	26.22	33.93	1.000	1.000	15.17	120.00	12.64	EN-13480		
7095	12.82	0.86	0.70	26.22	33.93	1.000	1.000	15.17	120.00	12.64	EN-13480		
7095	12.82	0.86	-0.70	26.22	33.93	1.000	1.000	15.17	120.00	12.64	EN-13480		
NDB12BQ008 (7097)	12.82	0.92	0.70	26.22	33.93	1.000	1.000	15.21	120.00	12.67	EN-13480		
NDB12BQ008 (7097)	12.82	0.92	-0.70	26.22	33.93	1.000	1.000	15.21	120.00	12.67	EN-13480		
7100	12.82	0.50	0.70	26.22	33.93	1.000	1.000	15.02	120.00	12.51	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 5 (SUS) W+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
7100	12.82	1.38	-0.70	26.22	33.93	2.776	2.776	16.63	120.00	13.86	EN-13480		
7104	13.07	3.64	0.58	26.22	33.93	2.776	2.776	17.17	120.00	14.31	EN-13480		
7104	13.07	3.64	-0.58	26.22	33.93	2.776	2.776	17.17	120.00	14.31	EN-13480		
7105	13.08	4.87	0.21	26.22	33.90	2.776	2.776	17.28	120.00	14.40	EN-13480		
7105	13.08	1.75	-0.21	26.22	33.90	1.000	1.000	15.33	120.00	12.77	EN-13480		
7110	13.08	1.75	0.21	26.22	33.90	1.000	1.000	15.32	120.00	12.77	EN-13480		
7110	13.08	1.75	-0.21	26.22	33.90	1.000	1.000	15.32	120.00	12.77	EN-13480		
7115	12.94	0.28	0.21	26.22	33.89	1.000	1.000	14.03	120.00	11.69	EN-13480		
7115	12.94	0.79	-0.21	26.22	33.90	2.776	2.776	14.58	120.00	12.15	EN-13480		
7119	12.88	1.12	0.27	26.22	33.90	2.776	2.776	14.92	120.00	12.43	EN-13480		
7119	12.88	1.12	-0.27	26.22	33.90	2.776	2.776	14.92	120.00	12.43	EN-13480		
7120	12.78	2.50	0.34	26.22	33.90	2.776	2.776	15.86	120.00	13.22	EN-13480		
7120	12.78	0.90	-0.34	26.22	33.90	1.000	1.000	14.64	120.00	12.20	EN-13480		
7125	12.78	0.91	0.34	26.22	33.90	1.000	1.000	14.65	120.00	12.21	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 5 (SUS) W+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
8105	12.79	3.53	1.36	26.22	34.07	2.065	2.065	18.50	120.00	15.41	EN-13480		
8109	12.76	4.97	-0.51	26.22	33.92	2.065	2.065	17.57	120.00	14.64	EN-13480		
8109	12.76	4.97	0.51	26.22	33.92	2.065	2.065	17.57	120.00	14.64	EN-13480		
8110	12.70	3.39	0.30	26.22	33.90	2.065	2.065	16.23	120.00	13.52	EN-13480		
8110	12.70	1.64	-0.30	26.22	33.90	1.000	1.000	15.27	120.00	12.72	EN-13480		
8115	12.70	1.63	0.30	26.22	33.90	1.000	1.000	15.26	120.00	12.71	EN-13480		
8115	12.70	1.63	-0.30	26.22	33.90	1.000	1.000	15.26	120.00	12.71	EN-13480		
8120	12.70	1.11	0.30	26.22	33.90	1.000	1.000	14.78	120.00	12.31	EN-13480		
8120	12.70	3.07	-0.30	26.22	33.90	2.776	2.776	16.13	120.00	13.44	EN-13480		
8124	12.65	5.17	0.11	26.22	33.89	2.776	2.776	17.43	120.00	14.52	EN-13480		
8124	12.65	5.17	-0.11	26.22	33.89	2.776	2.776	17.43	120.00	14.52	EN-13480		
8125	12.65	7.96	-0.69	26.22	33.96	2.776	2.776	20.16	120.00	16.80	EN-13480		
8125	12.65	2.87	0.69	26.22	33.93	1.000	1.000	16.71	120.00	13.92	EN-13480		
8130	12.65	2.89	-0.69	26.22	33.93	1.000	1.000	16.73	120.00	13.94	EN-		

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CASE 5 (SUS) W+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
8130	12.65	2.89	0.69	26.22	33.93	1.000	1.000	16.73	120.00	13.94	EN-13480		
NDB13BQ010 (8135)	12.65	4.72	-0.69	26.22	33.94	1.000	1.000	18.44	120.00	15.37	EN-13480		
NDB13BQ010 (8135)	12.65	4.72	0.69	26.22	33.94	1.000	1.000	18.44	120.00	15.37	EN-13480		
NDB13BQ008 (8137)	12.65	4.70	-0.69	26.22	33.94	1.000	1.000	18.43	120.00	15.36	EN-13480		
NDB13BQ008 (8137)	12.64	4.70	0.69	26.22	33.94	1.000	1.000	18.43	120.00	15.36	EN-13480		
8140	12.64	1.58	-0.69	26.22	33.93	1.000	1.000	15.63	120.00	13.02	EN-13480		
8140	12.64	4.40	0.69	26.22	33.94	2.776	2.776	17.91	120.00	14.92	EN-13480		
8144	12.47	4.82	-1.02	26.22	34.00	2.776	2.776	19.09	120.00	15.91	EN-13480		
8144	12.47	4.82	1.02	26.22	34.00	2.776	2.776	19.09	120.00	15.91	EN-13480		
8145	12.50	6.16	-0.78	26.22	33.96	2.776	2.776	19.17	120.00	15.98	EN-13480		
8145	12.50	2.22	0.78	26.22	33.94	1.000	1.000	16.24	120.00	13.53	EN-13480		
8150	12.50	2.21	-0.78	26.22	33.94	1.000	1.000	16.23	120.00	13.53	EN-13480		
8150	12.50	2.21	0.78	26.22	33.94	1.000	1.000	16.23	120.00	13.53	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 5 (SUS) W+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
8155	12.52	2.00	-0.78	26.22	33.94	1.000	1.000	16.06	120.00	13.39	EN-13480		
8155	12.52	2.00	0.78	26.22	33.94	1.000	1.000	16.06	120.00	13.39	EN-13480		
8160	12.56	1.70	-0.78	26.22	33.94	1.000	1.000	15.83	120.00	13.19	EN-13480		
8160	12.56	1.70	0.78	26.22	33.94	1.000	1.000	15.83	120.00	13.19	EN-13480		
8165	12.74	0.84	-0.78	26.22	33.94	1.000	1.000	15.29	120.00	12.75	EN-13480		
8165	12.74	2.32	0.78	26.22	33.94	2.776	2.776	17.21	120.00	14.34	EN-13480		
8170	12.70	3.01	-0.44	26.22	33.91	2.776	2.776	16.44	120.00	13.70	EN-13480		
8170	12.70	1.08	0.44	26.22	33.91	1.000	1.000	14.92	120.00	12.44	EN-13480		
8175	12.70	1.08	-0.44	26.22	33.91	1.000	1.000	14.92	120.00	12.43	EN-13480		
8175	12.70	1.08	0.44	26.22	33.91	1.000	1.000	14.92	120.00	12.43	EN-13480		
NDB13BQ001 (8180)	12.70	6.10	-0.44	26.22	33.92	1.000	1.000	19.68	120.00	16.40	EN-13480		
NDB13BQ001 (8180)	12.64	6.10	0.44	26.22	33.92	1.000	1.000	19.68	120.00	16.40	EN-13480		
8185	12.64	3.13	-0.44	26.22	33.91	1.000	1.000	16.77	120.00	13.98	EN-13480		
8185	12.64	8.68	0.44	26.22	33.92	2.776	2.776	20.29	120.00	16.91	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 5 (SUS) W+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
8190	12.71	3.75	0.42	26.22	33.91	2.776	2.776	16.84	120.00	14.04	EN-13480		
8190	12.71	1.35	-0.42	26.22	33.91	1.000	1.000	15.12	120.00	12.60	EN-13480		
8195	12.71	1.36	0.42	26.22	33.91	1.000	1.000	15.12	120.00	12.60	EN-13480		
8195	12.71	3.77	-0.42	26.22	33.91	2.776	2.776	16.86	120.00	14.05	EN-13480		
8200	12.64	2.02	1.19	26.22	34.01	2.776	2.776	18.72	120.00	15.60	EN-13480		
8200	12.64	0.73	-1.19	26.22	34.00	1.000	1.000	16.02	120.00	13.35	EN-13480		
8205	12.64	0.74	1.19	26.22	34.00	1.000	1.000	16.02	120.00	13.35	EN-13480		
8205	12.64	0.74	-1.19	26.22	34.00	1.000	1.000	16.02	120.00	13.35	EN-13480		
8210	12.64	1.37	1.19	26.22	34.01	1.000	1.000	16.28	120.00	13.57	EN-13480		
8210	12.64	3.81	-1.19	26.22	34.03	2.776	2.776	19.26	120.00	16.05	EN-13480		
8215	12.86	5.22	1.31	26.22	34.08	2.776	2.776	20.22	120.00	16.85	EN-13480		
8215	12.86	1.88	-1.31	26.22	34.03	1.000	1.000	16.74	120.00	13.95	EN-13480		
8220	12.86	1.89	1.31	26.22	34.03	1.000	1.000	16.75	120.00	13.96	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 5 (SUS) W+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
8220	12.86	5.25	-1.31	26.22	34.08	2.776	2.776	20.24	120.00	16.87	EN-13480		
8225	12.71	2.67	1.69	26.22	34.14	2.776	2.776	20.85	120.00	17.37	EN-13480		
8225	12.71	0.96	-1.69	26.22	34.11	1.000	1.000	17.04	120.00	14.20	EN-13480		
8230	12.71	0.95	1.69	26.22	34.11	1.000	1.000	17.04	120.00	14.20	EN-13480		
8230	12.71	0.95	-1.69	26.22	34.11	1.000	1.000	17.04	120.00	14.20	EN-13480		
NDB13BQ009 (8235)	12.71	1.29	1.69	26.22	34.12	1.000	1.000	17.14	120.00	14.29	EN-13480		
NDB13BQ009 (8235)	12.69	1.29	-1.69	26.22	34.12	1.000	1.000	17.14	120.00	14.29	EN-13480		
8240	12.69	1.61	1.69	26.22	34.12	1.000	1.000	17.27	120.00	14.39	EN-13480		
8245	12.69	2.97	-1.69	26.22	34.15	1.000	1.000	18.03	120.00	15.02	EN-13480		
8250	12.69	3.48	1.69	26.22	34.16	1.000	1.000	18.38	120.00	15.31	EN-13480		
8250	12.69	3.48	-1.69	26.22	34.16	1.000	1.000	18.38	120.00	15.31	EN-13480		
8255	12.69	4.02	1.69	26.22	34.17	1.000	1.000	18.78	120.00	15.65	EN-13480		
8260	12.69	6.90	-1.69	26.22	34.26	1.000	1.000	21.21	120.00	17.67	EN-13480		
8265	12.69	8.72	1.69	26.22	34.35	1.000	1.000	22.88	120.00	19.07	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 5 (SUS) W+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
8265	12.67	8.80	-2.06	26.22	34.57	1.000	1.000	23.24	120.00	19.37	EN-13480		
8270	12.67	3.24	2.06	26.22	34.28	1.000	1.000	18.77	120.00	15.64	EN-13480		
8270	12.67	8.98	-2.06	26.22	34.58	2.776	2.776	24.45	120.00	20.37	EN-13480		
8275	12.58	2.53	0.92	26.22	33.97	2.776	2.776	17.80	120.00	14.84	EN-13480		
8275	12.58	0.91	-0.92	26.22	33.96	1.000	1.000	15.58	120.00	12.98	EN-13480		
8280	12.58	0.95	0.92	26.22	33.96	1.000	1.000	15.60	120.00	13.00	EN-13480		
8280	12.58	2.65	-0.92	26.22	33.97	2.776	2.776	17.84	120.00	14.87	EN-13480		
8285	12.00	13.43	-0.05	26.22	33.89	2.776	2.776	23.60	120.00	19.66	EN-13480		
8285	12.00	4.84	0.05	26.22	33.89	1.000	1.000	18.36	120.00	15.30	EN-13480		
8290	12.00	4.83	-0.05	26.22	33.89	1.000	1.000	18.35	120.00	15.29	EN-13480		
8290	12.00	4.83	0.05	26.22	33.89	1.000	1.000	18.35	120.00	15.29	EN-13480		
NDB13BQ007 (8295)	12.43	2.06	-0.05	26.22	33.89	1.000	1.000	15.58	120.00	12.99	EN-13480		
NDB13BQ007 (8295)	12.43	2.06	0.05	26.22	33.89	1.000	1.000	15.58	120.00	12.99	EN-13480		
8300	12.79	0.44	-0.05	26.22	33.89	1.000	1.000	13.97	120.00	11.65	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 5 (SUS) W+P2+H

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
8300	12.79	1.22	0.05	26.22	33.89	2.776	2.776	14.46	120.00	12.05	EN-13480		
8305	12.76	2.66	0.04	26.22	33.89	2.776	2.776	15.53	120.00	12.94	EN-13480		
8305	12.76	0.96	-0.04	26.22	33.89	1.000	1.000	14.49	120.00	12.07	EN-13480		
8310	12.76	0.97	0.04	26.22	33.89	1.000	1.000	14.49	120.00	12.08	EN-13480		
8310	12.76	0.97	-0.04	26.22	33.89	1.000	1.000	14.49	120.00	12.08	EN-13480		
752	12.76	1.88	0.04	26.22	33.89	1.000	1.000	15.40	120.00	12.83	EN-13480		
13100	12.79	1.99	1.36	26.22	34.05	1.000	1.000	16.90	120.00	14.08	EN-13480		
31NDB20AT001/N2 (13200)	12.79	2.13	-1.36	26.22	34.05	1.000	1.000	16.98	120.00	14.15	EN-13480		
13300	12.78	1.57	-0.34	26.22	33.90	1.000	1.000	15.23	120.00	12.69	EN-13480		
31NDB20AT001/N1 (13400)	12.78	1.57	0.34	26.22	33.90	1.000	1.000	15.23	120.00	12.69	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 6 (EXP) L6=L2-L4

Note: This report indicates generic stresses. For code-defined stresses, see the Stresses report.
Piping Code: EN-13480 = EN-13480 -2017 (Issued June 2017)

CODE STRESS CHECK PASSED : LOADCASE 6 (EXP) L6=L2-L4

Highest Stresses: (N/mm2)

Ratio (%):	8.0	@Node 8280	
Code Stress:	22.5	Allowable Stress:	280.5
Axial Stress:	0.5	@Node 8110	
Bending Stress:	19.4	@Node 8285	
Torsion Stress:	4.0	@Node 8275	
Hoop Stress:	0.0	@Node 6660	
Max Stress Intensity:	23.5	@Node 8285	

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
747	0.11	2.48	-0.27	0.00	3.10	1.000	1.000	2.54	423.64	0.60	EN-13480		
6660	0.11	1.72	0.27	0.00	2.24	1.000	1.000	1.80	425.90	0.42	EN-13480		
6660	0.11	4.78	-0.27	0.00	5.77	2.776	2.776	5.00	424.41	1.18	EN-13480		
6665	0.22	2.17	-0.48	0.00	3.02	2.776	2.776	3.44	425.56	0.81	EN-13480		
6665	0.22	0.78	0.48	0.00	1.63	1.000	1.000	1.24	426.45	0.29	EN-13480		
6670	0.22	0.79	-0.48	0.00	1.63	1.000	1.000	1.24	426.46	0.29	EN-13480		
6670	0.22	0.79	0.48	0.00	1.63	1.000	1.000	1.24	426.46	0.29	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 6 (EXP) L6=L2-L4

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6675	0.22	3.07	-0.48	0.00	4.02	1.000	1.000	3.21	423.98	0.76	EN-13480		
6675	0.22	8.54	0.48	0.00	10.34	2.788	2.788	8.96	420.39	2.13	EN-13480		
6680	0.23	8.86	-0.39	0.00	10.70	2.788	2.788	9.13	419.71	2.18	EN-13480		
6680	0.23	3.18	0.39	0.00	4.11	1.000	1.000	3.27	423.66	0.77	EN-13480		
6685	0.23	3.17	-0.39	0.00	4.10	1.000	1.000	3.27	423.66	0.77	EN-13480		
6685	0.23	3.17	0.40	0.00	4.10	1.000	1.000	3.27	423.66	0.77	EN-13480		
6690	0.23	1.35	-0.40	0.00	2.08	1.000	1.000	1.56	422.82	0.37	EN-13480		
6690	0.23	3.72	0.40	0.00	4.73	2.762	2.762	4.32	418.04	1.03	EN-13480		
6695	0.11	2.11	-0.30	0.00	2.70	2.762	2.762	2.69	417.41	0.65	EN-13480		
6695	0.11	0.77	0.30	0.00	1.25	1.000	1.000	0.98	422.51	0.23	EN-13480		
6700	0.11	0.75	-0.30	0.00	1.24	1.000	1.000	0.97	422.51	0.23	EN-13480		
6700	0.11	0.75	0.30	0.00	1.24	1.000	1.000	0.97	422.51	0.23	EN-13480		
NDB11BQ014 (6705)	0.11	0.87	-0.30	0.00	1.35	1.000	1.000	1.06	422.21	0.25	EN-13480		
NDB11BQ014	0.11	0.87	0.30	0.00	1.35	1.000	1.000	1.06	422.21	0.25	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 6 (EXP) L6=L2-L4

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
(6705)											13480		
6710	0.11	3.23	-0.30	0.00	3.98	1.000	1.000	3.29	423.88	0.78	EN-13480		
6710	0.11	8.97	0.30	0.00	10.67	2.776	2.776	9.13	420.20	2.17	EN-13480		
6715	0.17	10.12	0.08	0.00	12.06	2.776	2.776	10.12	416.55	2.43	EN-13480		
6715	0.17	3.64	-0.08	0.00	4.47	1.000	1.000	3.65	422.12	0.86	EN-13480		
6720	0.17	3.64	0.08	0.00	4.47	1.000	1.000	3.64	422.13	0.86	EN-13480		
6720	0.17	3.64	-0.08	0.00	4.47	1.000	1.000	3.64	422.13	0.86	EN-13480		
NDB11BQ002 (6725)	0.17	1.80	0.08	0.00	2.31	1.000	1.000	1.81	425.03	0.42	EN-13480		
NDB11BQ002 (6725)	0.21	1.80	-0.08	0.00	2.36	1.000	1.000	1.81	425.03	0.42	EN-13480		
6730	0.21	2.02	0.08	0.00	2.63	1.000	1.000	2.03	424.51	0.48	EN-13480		
6735	0.21	2.20	-0.08	0.00	2.83	1.000	1.000	2.20	423.38	0.52	EN-13480		
6740	0.21	2.25	0.08	0.00	2.88	1.000	1.000	2.25	423.07	0.53	EN-13480		
6740	0.21	2.25	-0.08	0.00	2.88	1.000	1.000	2.25	423.07	0.53	EN-13480		
6745	0.21	2.30	0.08	0.00	2.94	1.000	1.000	2.30	422.75	0.54	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 6 (EXP) L6=L2-L4

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6750	0.21	2.51	-0.08	0.00	3.19	1.000	1.000	2.51	421.43	0.60	EN-13480		
6755	0.21	2.75	0.08	0.00	3.48	1.000	1.000	2.76	420.02	0.66	EN-13480		
6755	0.21	7.64	-0.08	0.00	9.20	2.776	2.776	7.65	412.16	1.86	EN-13480		
6760	0.02	4.51	-0.42	0.00	5.41	2.776	2.776	5.09	415.48	1.22	EN-13480		
6760	0.02	1.63	0.42	0.00	2.17	1.000	1.000	1.83	421.61	0.43	EN-13480		
6765	0.02	1.61	-0.42	0.00	2.16	1.000	1.000	1.82	421.64	0.43	EN-13480		
6765	0.02	1.61	0.42	0.00	2.16	1.000	1.000	1.82	421.64	0.43	EN-13480		
NDB11BQ003 (6770)	0.02	4.20	-0.42	0.00	5.05	1.000	1.000	4.28	416.38	1.03	EN-13480		
NDB11BQ003 (6770)	0.01	4.20	0.42	0.00	5.03	1.000	1.000	4.28	416.38	1.03	EN-13480		
6775	0.01	3.24	-0.42	0.00	3.94	1.000	1.000	3.35	420.08	0.80	EN-13480		
6775	0.01	8.99	0.42	0.00	10.60	2.776	2.776	9.30	412.30	2.25	EN-13480		
6780	-0.06	3.43	0.96	0.00	4.67	2.776	2.776	6.33	419.52	1.51	EN-13480		
6780	-0.06	1.24	-0.96	0.00	2.71	1.000	1.000	2.28	423.55	0.54	EN-13480		
6785	-0.06	1.24	0.96	0.00	2.71	1.000	1.000	2.28	423.54	0.54	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 6 (EXP) L6=L2-L4

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6785	-0.06	3.43	-0.96	0.00	4.67	2.776	2.776	6.33	419.51	1.51	EN-13480		
6790	-0.15	6.28	0.25	0.00	7.56	2.776	2.776	6.43	419.60	1.53	EN-13480		
6790	-0.15	2.26	-0.25	0.00	2.89	1.000	1.000	2.32	423.59	0.55	EN-13480		
6795	-0.15	2.26	0.25	0.00	2.89	1.000	1.000	2.32	423.59	0.55	EN-13480		
6795	-0.15	2.26	-0.25	0.00	2.89	1.000	1.000	2.32	423.59	0.55	EN-13480		
6800	-0.15	3.03	0.25	0.00	3.78	1.000	1.000	3.07	426.07	0.72	EN-13480		
6800	-0.15	8.42	-0.25	0.00	10.06	2.776	2.776	8.53	424.77	2.01	EN-13480		
6805	0.01	2.81	1.37	0.00	4.61	2.776	2.776	8.09	426.12	1.90	EN-13480		
6805	0.01	1.01	-1.37	0.00	3.42	1.000	1.000	2.91	426.72	0.68	EN-13480		
6810	0.01	1.00	1.37	0.00	3.42	1.000	1.000	2.91	426.71	0.68	EN-13480		
6810	0.01	1.00	-1.37	0.00	3.42	1.000	1.000	2.91	426.71	0.68	EN-13480		
6815	0.01	1.38	1.37	0.00	3.59	1.000	1.000	3.06	425.59	0.72	EN-13480		
6815	0.01	3.83	-1.37	0.00	5.52	2.776	2.776	8.50	423.76	2.00	EN-13480		
6820	-0.07	6.30	0.98	0.00	7.81	2.776	2.776	8.32	424.17	1.96	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 6 (EXP) L6=L2-L4

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
6820	-0.07	2.27	-0.98	0.00	3.57	1.000	1.000	3.00	425.78	0.70	EN-13480		
6825	-0.07	2.26	0.98	0.00	3.57	1.000	1.000	2.99	425.79	0.70	EN-13480		
6825	-0.07	2.26	-0.98	0.00	3.57	1.000	1.000	2.99	425.79	0.70	EN-13480		
NDB11BQ004 (6830)	-0.07	2.33	0.98	0.00	3.63	1.000	1.000	3.04	421.63	0.72	EN-13480		
NDB11BQ004 (6830)	-0.00	2.33	-0.98	0.00	3.57	1.000	1.000	3.04	421.63	0.72	EN-13480		
6835	-0.00	1.51	0.98	0.00	2.90	1.000	1.000	2.47	426.01	0.58	EN-13480		
6835	-0.00	4.18	-0.98	0.00	5.41	2.776	2.776	6.85	424.64	1.61	EN-13480		
6840	-0.16	7.67	-0.21	0.00	9.19	2.776	2.776	7.76	423.49	1.83	EN-13480		
6840	-0.16	2.76	0.21	0.00	3.46	1.000	1.000	2.80	425.46	0.66	EN-13480		
6845	-0.16	2.76	-0.21	0.00	3.46	1.000	1.000	2.79	425.45	0.66	EN-13480		
6845	-0.16	2.76	0.21	0.00	3.46	1.000	1.000	2.79	425.45	0.66	EN-13480		
6850	-0.16	2.20	-0.21	0.00	2.82	1.000	1.000	2.24	426.35	0.53	EN-13480		
6850	-0.16	6.11	0.21	0.00	7.37	2.776	2.776	6.23	425.34	1.46	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 6 (EXP) L6=L2-L4

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6855	0.00	4.06	0.23	0.00	4.79	2.776	2.776	4.26	423.14	1.01	EN-13480		
6855	0.00	1.46	-0.23	0.00	1.80	1.000	1.000	1.53	425.29	0.36	EN-13480		
6860	0.00	1.46	0.23	0.00	1.79	1.000	1.000	1.53	425.28	0.36	EN-13480		
6860	0.00	1.46	-0.23	0.00	1.79	1.000	1.000	1.53	425.28	0.36	EN-13480		
NDB11BQ005 (6865)	0.00	1.16	0.23	0.00	1.47	1.000	1.000	1.25	424.28	0.29	EN-13480		
NDB11BQ005 (6865)	-0.10	1.16	-0.23	0.00	1.57	1.000	1.000	1.25	424.28	0.29	EN-13480		
6870	-0.10	1.14	0.23	0.00	1.54	1.000	1.000	1.23	426.17	0.29	EN-13480		
6870	-0.10	3.15	-0.23	0.00	3.85	2.776	2.776	3.40	424.98	0.80	EN-13480		
6875	-0.16	4.14	-0.10	0.00	5.04	2.776	2.776	4.17	425.47	0.98	EN-13480		
6875	-0.16	1.49	0.10	0.00	1.95	1.000	1.000	1.50	426.41	0.35	EN-13480		
6880	-0.16	1.48	-0.10	0.00	1.94	1.000	1.000	1.50	426.41	0.35	EN-13480		
6880	-0.16	4.14	0.10	0.00	5.05	2.794	2.794	4.18	425.47	0.98	EN-13480		
6885	-0.13	3.00	0.24	0.00	3.71	2.794	2.794	3.28	425.89	0.77	EN-13480		
6885	-0.13	1.07	-0.24	0.00	1.51	1.000	1.000	1.17	426.61	0.27	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 6 (EXP) L6=L2-L4

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
6890	-0.13	1.07	0.24	0.00	1.51	1.000	1.000	1.17	426.62	0.27	EN-13480		
6890	-0.13	1.07	-0.24	0.00	1.51	1.000	1.000	1.17	426.62	0.27	EN-13480		
6895	-0.13	0.70	0.24	0.00	1.12	1.000	1.000	0.85	426.76	0.20	EN-13480		
6895	-0.13	0.70	-0.24	0.00	1.12	1.000	1.000	0.85	426.76	0.20	EN-13480		
6900	-0.13	1.03	0.24	0.00	1.47	1.000	1.000	1.13	425.96	0.27	EN-13480		
6930	-0.36	3.46	-3.50	0.00	9.24	1.773	1.773	12.89	432.71	2.98	EN-13480		
6935	-0.18	0.42	0.88	0.00	2.18	1.773	1.773	3.15	427.05	0.74	EN-13480		
6935	-0.18	0.24	-0.88	0.00	2.12	1.000	1.000	1.78	427.10	0.42	EN-13480		
6940	-0.18	0.07	0.88	0.00	2.09	1.000	1.000	1.76	427.12	0.41	EN-13480		
6940	-0.18	0.07	-0.88	0.00	2.09	1.000	1.000	1.76	427.12	0.41	EN-13480		
6945	-0.18	0.10	0.88	0.00	2.09	1.000	1.000	1.76	427.12	0.41	EN-13480		
6950	-0.18	1.10	-0.88	0.00	2.56	1.000	1.000	2.08	426.83	0.49	EN-13480		
6955	-0.18	1.27	0.88	0.00	2.68	1.000	1.000	2.17	426.77	0.51	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 6 (EXP) L6=L2-L4

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6955	-0.18	1.27	-0.88	0.00	2.68	1.000	1.000	2.17	426.77	0.51	EN-13480		
NDB12BQ001 (6960)	-0.18	1.55	0.88	0.00	2.89	1.000	1.000	2.34	426.68	0.55	EN-13480		
NDB12BQ001 (6960)	-0.16	1.55	-0.88	0.00	2.88	1.000	1.000	2.34	426.68	0.55	EN-13480		
NDB12BQ002 (6965)	-0.16	2.75	0.88	0.00	3.99	1.000	1.000	3.26	426.24	0.77	EN-13480		
NDB12BQ002 (6965)	-0.10	2.75	-0.88	0.00	3.93	1.000	1.000	3.26	426.24	0.77	EN-13480		
12000	-0.10	2.07	0.88	0.00	3.28	1.000	1.000	2.72	426.37	0.64	EN-13480		
12000	-0.10	2.07	-0.88	0.00	3.28	1.000	1.000	2.72	426.37	0.64	EN-13480		
6970	-0.10	2.78	0.88	0.00	3.96	1.000	1.000	3.29	425.89	0.77	EN-13480		
6970	-0.10	7.71	-0.88	0.00	9.39	2.776	2.776	9.13	424.39	2.15	EN-13480		
6975	-0.08	7.79	0.66	0.00	9.36	2.776	2.776	8.61	425.89	2.02	EN-13480		
6975	-0.08	2.81	-0.66	0.00	3.73	1.000	1.000	3.10	426.61	0.73	EN-13480		
6980	-0.08	2.80	0.66	0.00	3.72	1.000	1.000	3.10	426.61	0.73	EN-13480		
6980	-0.08	2.80	-0.66	0.00	3.72	1.000	1.000	3.10	426.61	0.73	EN-13480		
6985	-0.08	1.65	0.66	0.00	2.56	1.000	1.000	2.11	425.31	0.50	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 6 (EXP) L6=L2-L4

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6985	-0.08	1.65	-0.66	0.00	2.56	1.000	1.000	2.11	425.31	0.50	EN-13480		
6990	-0.08	2.14	0.66	0.00	3.03	1.000	1.000	2.52	425.57	0.59	EN-13480		
6990	-0.08	5.95	-0.66	0.00	7.24	2.776	2.776	6.98	423.73	1.65	EN-13480		
6995	-0.10	5.97	0.75	0.00	7.33	2.776	2.776	7.28	423.71	1.72	EN-13480		
6995	-0.10	2.15	-0.75	0.00	3.17	1.000	1.000	2.62	425.56	0.62	EN-13480		
7000	-0.10	2.15	0.75	0.00	3.16	1.000	1.000	2.62	425.55	0.61	EN-13480		
7000	-0.10	2.15	-0.75	0.00	3.16	1.000	1.000	2.62	425.55	0.61	EN-13480		
NDB12BQ003 (7002)	-0.10	1.31	0.75	0.00	2.41	1.000	1.000	1.99	423.58	0.47	EN-13480		
NDB12BQ003 (7002)	-0.37	1.31	-0.75	0.00	2.64	1.000	1.000	1.99	423.58	0.47	EN-13480		
7005	-0.37	1.94	0.75	0.00	3.23	1.000	1.000	2.45	421.04	0.58	EN-13480		
7005	-0.37	1.94	-0.75	0.00	3.23	1.000	1.000	2.45	421.04	0.58	EN-13480		
7010	-0.37	2.58	0.75	0.00	3.88	1.000	1.000	2.99	425.08	0.70	EN-13480		
7010	-0.37	7.17	-0.75	0.00	9.01	2.776	2.776	8.29	422.71	1.96	EN-13480		
7015	-0.02	4.23	0.35	0.00	5.05	2.776	2.776	4.66	420.77	1.11	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 6 (EXP) L6=L2-L4

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
7015	-0.02	1.52	-0.35	0.00	1.99	1.000	1.000	1.68	424.15	0.40	EN-13480		
7020	-0.02	1.52	0.35	0.00	1.98	1.000	1.000	1.67	424.13	0.39	EN-13480		
7020	-0.02	1.52	-0.35	0.00	1.98	1.000	1.000	1.67	424.13	0.39	EN-13480		
NDB12BQ005 (7025)	-0.02	1.77	0.35	0.00	2.26	1.000	1.000	1.91	422.71	0.45	EN-13480		
NDB12BQ005 (7025)	-0.11	1.77	-0.35	0.00	2.36	1.000	1.000	1.91	422.71	0.45	EN-13480		
7030	-0.11	2.05	0.35	0.00	2.67	1.000	1.000	2.17	425.34	0.51	EN-13480		
7030	-0.11	2.05	-0.35	0.00	2.67	1.000	1.000	2.17	425.34	0.51	EN-13480		
7035	-0.11	2.22	0.35	0.00	2.86	1.000	1.000	2.33	426.48	0.55	EN-13480		
7035	-0.11	6.15	-0.35	0.00	7.40	2.776	2.776	6.46	425.62	1.52	EN-13480		
7040	-0.05	4.83	-0.59	0.00	5.89	2.776	2.776	5.85	423.36	1.38	EN-13480		
7040	-0.05	1.74	0.59	0.00	2.52	1.000	1.000	2.11	425.39	0.50	EN-13480		
7045	-0.05	1.73	-0.59	0.00	2.52	1.000	1.000	2.10	425.40	0.49	EN-13480		
7045	-0.05	1.73	0.59	0.00	2.52	1.000	1.000	2.10	425.40	0.49	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 6 (EXP) L6=L2-L4

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
7050	-0.05	1.12	-0.59	0.00	1.96	1.000	1.000	1.63	426.51	0.38	EN-13480		
7050	-0.05	3.10	0.59	0.00	3.96	2.776	2.776	4.53	425.68	1.06	EN-13480		
7055	-0.11	4.28	0.52	0.00	5.29	2.776	2.776	5.16	424.77	1.22	EN-13480		
7055	-0.11	1.54	-0.52	0.00	2.29	1.000	1.000	1.86	426.07	0.44	EN-13480		
7060	-0.11	1.54	0.52	0.00	2.29	1.000	1.000	1.86	426.07	0.44	EN-13480		
7060	-0.11	1.54	-0.52	0.00	2.29	1.000	1.000	1.86	426.07	0.44	EN-13480		
7065	-0.11	1.42	0.52	0.00	2.17	1.000	1.000	1.76	425.54	0.41	EN-13480		
7065	-0.11	3.94	-0.52	0.00	4.90	2.776	2.776	4.88	423.65	1.15	EN-13480		
7069	-0.09	3.88	0.37	0.00	4.74	2.776	2.776	4.40	423.82	1.04	EN-13480		
7069	-0.09	3.88	-0.37	0.00	4.74	2.776	2.776	4.40	423.82	1.04	EN-13480		
7070	-0.01	3.02	0.10	0.00	3.57	2.776	2.776	3.07	423.73	0.73	EN-13480		
7070	-0.01	1.09	-0.10	0.00	1.31	1.000	1.000	1.11	425.57	0.26	EN-13480		
7075	-0.01	1.08	0.10	0.00	1.30	1.000	1.000	1.10	425.57	0.26	EN-13480		
7075	-0.01	1.08	-0.10	0.00	1.30	1.000	1.000	1.10	425.57	0.26	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 6 (EXP) L6=L2-L4

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
NDB12BQ006 (7080)	-0.01	1.50	0.10	0.00	1.78	1.000	1.000	1.51	422.20	0.36	EN-13480		
NDB12BQ006 (7080)	-0.03	1.50	-0.10	0.00	1.81	1.000	1.000	1.51	422.20	0.36	EN-13480		
7085	-0.03	1.23	0.10	0.00	1.50	1.000	1.000	1.25	424.71	0.29	EN-13480		
7085	-0.03	3.42	-0.10	0.00	4.06	2.776	2.776	3.47	421.94	0.82	EN-13480		
7089	-0.10	2.97	0.56	0.00	3.84	2.776	2.776	4.31	423.19	1.02	EN-13480		
7089	-0.10	2.97	-0.56	0.00	3.84	2.776	2.776	4.31	423.19	1.02	EN-13480		
7090	-0.11	1.23	0.81	0.00	2.47	2.776	2.776	4.68	423.84	1.10	EN-13480		
7090	-0.11	0.44	-0.81	0.00	2.01	1.000	1.000	1.69	425.62	0.40	EN-13480		
7095	-0.11	0.44	0.81	0.00	2.01	1.000	1.000	1.69	425.63	0.40	EN-13480		
7095	-0.11	0.44	-0.81	0.00	2.01	1.000	1.000	1.69	425.63	0.40	EN-13480		
NDB12BQ008 (7097)	-0.11	0.89	0.81	0.00	2.23	1.000	1.000	1.85	425.59	0.44	EN-13480		
NDB12BQ008 (7097)	-0.11	0.89	-0.81	0.00	2.23	1.000	1.000	1.85	425.59	0.44	EN-13480		
7100	-0.11	0.95	0.81	0.00	2.28	1.000	1.000	1.89	425.78	0.44	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 6 (EXP) L6=L2-L4

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
7100	-0.11	2.65	-0.81	0.00	3.75	2.776	2.776	5.23	424.16	1.23	EN-13480		
7104	-0.13	4.09	0.60	0.00	5.14	2.776	2.776	5.27	423.63	1.24	EN-13480		
7104	-0.13	4.09	-0.60	0.00	5.14	2.776	2.776	5.27	423.63	1.24	EN-13480		
7105	-0.07	4.46	0.09	0.00	5.32	2.776	2.776	4.49	423.52	1.06	EN-13480		
7105	-0.07	1.61	-0.09	0.00	1.98	1.000	1.000	1.62	425.47	0.38	EN-13480		
7110	-0.07	1.60	0.09	0.00	1.97	1.000	1.000	1.61	425.48	0.38	EN-13480		
7110	-0.07	1.60	-0.09	0.00	1.97	1.000	1.000	1.61	425.48	0.38	EN-13480		
7115	-0.07	1.27	0.09	0.00	1.59	1.000	1.000	1.29	426.77	0.30	EN-13480		
7115	-0.07	3.54	-0.09	0.00	4.24	2.776	2.776	3.58	426.22	0.84	EN-13480		
7119	-0.03	3.81	-0.34	0.00	4.57	2.776	2.776	4.26	425.88	1.00	EN-13480		
7119	-0.03	3.81	0.34	0.00	4.57	2.776	2.776	4.26	425.88	1.00	EN-13480		
7120	0.03	2.41	-0.76	0.00	3.38	2.776	2.776	4.88	424.94	1.15	EN-13480		
7120	0.03	0.87	0.76	0.00	2.08	1.000	1.000	1.76	426.15	0.41	EN-13480		
7125	0.03	0.87	-0.76	0.00	2.08	1.000	1.000	1.76	426.15	0.41	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 6 (EXP) L6=L2-L4

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
8105	-0.00	3.32	-1.95	0.00	6.01	2.065	2.065	8.71	279.86	3.11	EN-13480		
8109	-0.33	3.63	2.12	0.00	6.81	2.065	2.065	9.49	280.79	3.38	EN-13480		
8109	-0.33	3.63	-2.12	0.00	6.81	2.065	2.065	9.49	280.79	3.38	EN-13480		
8110	-0.46	7.31	1.42	0.00	9.71	2.065	2.065	9.38	282.13	3.33	EN-13480		
8110	-0.46	3.54	-1.42	0.00	5.76	1.000	1.000	4.54	283.09	1.60	EN-13480		
8115	-0.46	3.53	1.42	0.00	5.75	1.000	1.000	4.54	283.10	1.60	EN-13480		
8115	-0.46	3.53	-1.42	0.00	5.75	1.000	1.000	4.54	283.10	1.60	EN-13480		
8120	-0.46	2.95	1.42	0.00	5.22	1.000	1.000	4.10	283.58	1.45	EN-13480		
8120	-0.46	8.19	-1.42	0.00	10.68	2.776	2.776	11.38	282.22	4.03	EN-13480		
8124	-0.32	7.84	0.57	0.00	9.66	2.776	2.776	8.44	280.93	3.01	EN-13480		
8124	-0.32	7.84	-0.57	0.00	9.66	2.776	2.776	8.44	280.93	3.01	EN-13480		
8125	0.00	4.50	-0.25	0.00	5.32	2.776	2.776	4.71	278.20	1.69	EN-13480		
8125	0.00	1.62	0.25	0.00	1.99	1.000	1.000	1.70	281.65	0.60	EN-13480		
8130	0.00	1.62	-0.25	0.00	1.99	1.000	1.000	1.69	281.63	0.60	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 6 (EXP) L6=L2-L4

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
8130	0.00	1.62	0.25	0.00	1.99	1.000	1.000	1.69	281.63	0.60	EN-13480		
NDB13BQ010 (8135)	0.00	2.82	-0.25	0.00	3.37	1.000	1.000	2.87	279.91	1.02	EN-13480		
NDB13BQ010 (8135)	0.00	2.82	0.25	0.00	3.37	1.000	1.000	2.87	279.91	1.02	EN-13480		
NDB13BQ008 (8137)	0.00	2.84	-0.25	0.00	3.39	1.000	1.000	2.88	279.93	1.03	EN-13480		
NDB13BQ008 (8137)	0.03	2.84	0.25	0.00	3.42	1.000	1.000	2.88	279.93	1.03	EN-13480		
8140	0.03	1.40	-0.25	0.00	1.78	1.000	1.000	1.49	282.73	0.53	EN-13480		
8140	0.03	3.89	0.25	0.00	4.64	2.776	2.776	4.13	280.45	1.47	EN-13480		
8144	-0.04	3.81	0.14	0.00	4.53	2.776	2.776	3.89	279.26	1.39	EN-13480		
8144	-0.04	3.81	-0.14	0.00	4.53	2.776	2.776	3.89	279.26	1.39	EN-13480		
8145	-0.09	4.12	0.24	0.00	4.97	2.776	2.776	4.33	279.19	1.55	EN-13480		
8145	-0.09	1.49	-0.24	0.00	1.93	1.000	1.000	1.56	282.12	0.55	EN-13480		
8150	-0.09	1.49	0.24	0.00	1.93	1.000	1.000	1.56	282.13	0.55	EN-13480		
8150	-0.09	1.49	-0.24	0.00	1.93	1.000	1.000	1.56	282.13	0.55	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 6 (EXP) L6=L2-L4

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
8155	-0.09	1.64	0.24	0.00	2.10	1.000	1.000	1.71	282.30	0.61	EN-13480		
8155	-0.09	1.64	-0.24	0.00	2.10	1.000	1.000	1.71	282.30	0.61	EN-13480		
8160	-0.09	1.94	0.24	0.00	2.45	1.000	1.000	2.00	282.53	0.71	EN-13480		
8160	-0.09	1.94	-0.24	0.00	2.45	1.000	1.000	2.00	282.53	0.71	EN-13480		
8165	-0.09	3.99	0.24	0.00	4.82	1.000	1.000	4.02	283.06	1.42	EN-13480		
8165	-0.09	11.08	-0.24	0.00	13.11	2.776	2.776	11.16	281.15	3.97	EN-13480		
8170	-0.12	9.58	1.25	0.00	11.74	2.776	2.776	11.82	281.92	4.19	EN-13480		
8170	-0.12	3.45	-1.25	0.00	5.11	1.000	1.000	4.26	283.44	1.50	EN-13480		
8175	-0.12	3.44	1.25	0.00	5.10	1.000	1.000	4.25	283.44	1.50	EN-13480		
8175	-0.12	3.44	-1.25	0.00	5.10	1.000	1.000	4.25	283.44	1.50	EN-13480		
NDB13BQ001 (8180)	-0.12	1.20	1.25	0.00	3.31	1.000	1.000	2.77	278.67	0.99	EN-13480		
NDB13BQ001 (8180)	-0.06	1.20	-1.25	0.00	3.28	1.000	1.000	2.77	278.67	0.99	EN-13480		
8185	-0.06	0.75	1.25	0.00	3.08	1.000	1.000	2.61	281.58	0.93	EN-13480		
8185	-0.06	2.07	-1.25	0.00	3.85	2.776	2.776	7.24	278.07	2.60	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 6 (EXP) L6=L2-L4

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
8190	-0.08	7.55	0.26	0.00	8.97	2.776	2.776	7.69	281.51	2.73	EN-13480		
8190	-0.08	2.72	-0.26	0.00	3.34	1.000	1.000	2.77	283.24	0.98	EN-13480		
8195	-0.08	2.72	0.26	0.00	3.34	1.000	1.000	2.77	283.23	0.98	EN-13480		
8195	-0.08	7.56	-0.26	0.00	8.98	2.776	2.776	7.70	281.50	2.73	EN-13480		
8200	-0.06	1.10	1.47	0.00	3.70	2.776	2.776	8.23	279.63	2.94	EN-13480		
8200	-0.06	0.40	-1.47	0.00	3.49	1.000	1.000	2.96	282.34	1.05	EN-13480		
8205	-0.06	0.40	1.47	0.00	3.49	1.000	1.000	2.96	282.33	1.05	EN-13480		
8205	-0.06	0.40	-1.47	0.00	3.49	1.000	1.000	2.96	282.33	1.05	EN-13480		
8210	-0.06	4.16	1.47	0.00	6.03	1.000	1.000	5.09	282.08	1.80	EN-13480		
8210	-0.06	11.54	-1.47	0.00	14.03	2.776	2.776	14.13	279.10	5.06	EN-13480		
8215	-0.07	4.88	2.49	0.00	8.25	2.776	2.776	14.69	278.13	5.28	EN-13480		
8215	-0.07	1.76	-2.49	0.00	6.23	1.000	1.000	5.29	281.62	1.88	EN-13480		
8220	-0.07	1.76	2.49	0.00	6.23	1.000	1.000	5.29	281.61	1.88	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 6 (EXP) L6=L2-L4

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
8220	-0.07	4.89	-2.49	0.00	8.25	2.776	2.776	14.69	278.12	5.28	EN-13480		
8225	-0.08	13.89	-0.66	0.00	16.45	2.776	2.776	14.36	277.51	5.18	EN-13480		
8225	-0.08	5.00	0.66	0.00	6.16	1.000	1.000	5.17	281.32	1.84	EN-13480		
8230	-0.08	5.00	-0.66	0.00	6.16	1.000	1.000	5.17	281.32	1.84	EN-13480		
8230	-0.08	5.00	0.66	0.00	6.16	1.000	1.000	5.17	281.32	1.84	EN-13480		
NDB13BQ009 (8235)	-0.08	4.88	-0.66	0.00	6.02	1.000	1.000	5.05	281.21	1.80	EN-13480		
NDB13BQ009 (8235)	-0.04	4.88	0.66	0.00	5.97	1.000	1.000	5.05	281.21	1.80	EN-13480		
8240	-0.04	3.80	-0.66	0.00	4.76	1.000	1.000	4.02	281.09	1.43	EN-13480		
8245	-0.04	2.24	0.66	0.00	3.09	1.000	1.000	2.60	280.33	0.93	EN-13480		
8250	-0.04	2.15	-0.66	0.00	3.00	1.000	1.000	2.52	279.98	0.90	EN-13480		
8250	-0.04	2.15	0.66	0.00	3.00	1.000	1.000	2.52	279.98	0.90	EN-13480		
8255	-0.04	2.23	-0.66	0.00	3.08	1.000	1.000	2.59	279.58	0.93	EN-13480		
8260	-0.04	3.77	0.66	0.00	4.73	1.000	1.000	3.99	277.15	1.44	EN-13480		
8265	-0.04	4.85	-0.66	0.00	5.94	1.000	1.000	5.02	275.48	1.82	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 6 (EXP) L6=L2-L4

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
8265	0.23	3.53	1.03	0.00	5.03	1.000	1.000	4.09	275.11	1.49	EN-13480		
8270	0.23	5.76	-1.03	0.00	7.43	1.000	1.000	6.12	279.59	2.19	EN-13480		
8270	0.23	15.99	1.03	0.00	19.17	2.776	2.776	16.98	273.91	6.20	EN-13480		
8275	-0.00	4.32	-3.98	0.00	10.61	2.776	2.776	22.49	280.56	8.02	EN-13480		
8275	-0.00	1.56	3.98	0.00	9.50	1.000	1.000	8.10	282.78	2.87	EN-13480		
8280	-0.00	1.57	-3.98	0.00	9.50	1.000	1.000	8.11	282.76	2.87	EN-13480		
8280	-0.00	4.37	3.98	0.00	10.64	2.776	2.776	22.50	280.52	8.02	EN-13480		
8285	0.37	19.44	-1.46	0.00	23.48	2.776	2.776	21.06	274.76	7.67	EN-13480		
8285	0.37	7.00	1.46	0.00	9.30	1.000	1.000	7.59	280.00	2.71	EN-13480		
8290	0.37	6.99	-1.46	0.00	9.29	1.000	1.000	7.58	280.01	2.71	EN-13480		
8290	0.37	6.99	1.46	0.00	9.29	1.000	1.000	7.58	280.01	2.71	EN-13480		
NDB13BQ007 (8295)	0.37	4.57	-1.46	0.00	6.74	1.000	1.000	5.43	282.78	1.92	EN-13480		
NDB13BQ007 (8295)	0.37	4.57	1.46	0.00	6.74	1.000	1.000	5.43	282.78	1.92	EN-13480		
8300	0.37	2.82	-1.46	0.00	5.07	1.000	1.000	4.06	284.38	1.43	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 6 (EXP) L6=L2-L4

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
8300	0.37	7.83	1.46	0.00	10.21	2.776	2.776	11.27	283.90	3.97	EN-13480		
8305	0.12	5.87	-1.39	0.00	7.73	2.776	2.776	9.70	282.83	3.43	EN-13480		
8305	0.12	2.11	1.39	0.00	4.18	1.000	1.000	3.49	283.87	1.23	EN-13480		
8310	0.12	2.10	-1.39	0.00	4.17	1.000	1.000	3.48	283.86	1.23	EN-13480		
8310	0.12	2.10	1.39	0.00	4.17	1.000	1.000	3.48	283.86	1.23	EN-13480		
752	0.12	1.85	-1.39	0.00	4.00	1.000	1.000	3.34	282.96	1.18	EN-13480		
13100	-0.00	1.78	-1.95	0.00	5.03	1.000	1.000	4.29	281.46	1.52	EN-13480		
31NDB20AT001/N2 (13200)	-0.00	2.33	1.95	0.00	5.33	1.000	1.000	4.54	281.38	1.61	EN-13480		
13300	0.03	1.96	0.76	0.00	2.95	1.000	1.000	2.49	283.13	0.88	EN-13480		
31NDB20AT001/N1 (13400)	0.03	2.17	-0.76	0.00	3.14	1.000	1.000	2.65	283.13	0.94	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 7 (EXP) L7=L3-L5

Note: This report indicates generic stresses. For code-defined stresses, see the Stresses report.
Piping Code: EN-13480 = EN-13480 -2017 (Issued June 2017)

CODE STRESS CHECK PASSED : LOADCASE 7 (EXP) L7=L3-L5

Highest Stresses: (N/mm2)

Ratio (%):	18.6	@Node 8120	
Code Stress:	51.7	Allowable Stress:	277.4
Axial Stress:	1.7	@Node 8110	
Bending Stress:	40.7	@Node 6975	
Torsion Stress:	10.1	@Node 8109	
Hoop Stress:	0.0	@Node 6660	
Max Stress Intensity:	48.9	@Node 6975	

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
747	0.02	7.03	-0.76	0.00	8.45	1.000	1.000	7.19	415.00	1.73	EN-13480		
6660	0.02	6.08	0.76	0.00	7.37	1.000	1.000	6.27	417.25	1.50	EN-13480		
6660	0.02	16.88	-0.76	0.00	19.90	2.776	2.776	17.40	415.76	4.19	EN-13480		
6665	0.24	10.77	-1.46	0.00	13.36	2.776	2.776	13.49	416.92	3.24	EN-13480		
6665	0.24	3.88	1.46	0.00	5.92	1.000	1.000	4.86	417.81	1.16	EN-13480		
6670	0.24	3.88	-1.46	0.00	5.92	1.000	1.000	4.86	417.82	1.16	EN-13480		
6670	0.24	3.88	1.46	0.00	5.92	1.000	1.000	4.86	417.82	1.16	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 7 (EXP) L7=L3-L5

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6675	0.24	4.26	-1.46	0.00	6.29	1.000	1.000	5.17	415.34	1.24	EN-13480		
6675	0.24	11.87	1.46	0.00	14.60	2.788	2.788	14.40	411.75	3.50	EN-13480		
6680	0.18	11.18	-1.40	0.00	13.72	2.788	2.788	13.63	411.06	3.32	EN-13480		
6680	0.18	4.01	1.40	0.00	5.91	1.000	1.000	4.89	415.01	1.18	EN-13480		
6685	0.18	4.00	-1.40	0.00	5.90	1.000	1.000	4.88	415.01	1.18	EN-13480		
6685	0.18	4.00	1.40	0.00	5.90	1.000	1.000	4.88	415.01	1.18	EN-13480		
6690	0.18	0.88	-1.40	0.00	3.52	1.000	1.000	2.94	414.17	0.71	EN-13480		
6690	0.18	2.43	1.40	0.00	4.49	2.762	2.762	8.12	409.39	1.98	EN-13480		
6695	0.02	3.38	-1.35	0.00	5.09	2.762	2.762	8.19	408.77	2.00	EN-13480		
6695	0.02	1.22	1.35	0.00	3.49	1.000	1.000	2.97	413.87	0.72	EN-13480		
6700	0.02	1.23	-1.35	0.00	3.49	1.000	1.000	2.97	413.87	0.72	EN-13480		
6700	0.02	1.23	1.35	0.00	3.49	1.000	1.000	2.97	413.87	0.72	EN-13480		
NDB11BQ014 (6705)	0.02	2.21	-1.35	0.00	4.11	1.000	1.000	3.49	413.56	0.84	EN-13480		
NDB11BQ014	0.02	2.21	1.35	0.00	4.11	1.000	1.000	3.49	413.56	0.84	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 7 (EXP) L7=L3-L5

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
(6705)											13480		
6710	0.02	4.08	-1.35	0.00	5.76	1.000	1.000	4.90	415.23	1.18	EN-13480		
6710	0.02	11.33	1.35	0.00	13.68	2.776	2.776	13.59	411.56	3.30	EN-13480		
6715	0.13	15.70	0.61	0.00	18.61	2.776	2.776	16.06	407.90	3.94	EN-13480		
6715	0.13	5.65	-0.61	0.00	6.93	1.000	1.000	5.78	413.47	1.40	EN-13480		
6720	0.13	5.66	0.61	0.00	6.93	1.000	1.000	5.79	413.48	1.40	EN-13480		
6720	0.13	5.66	-0.61	0.00	6.93	1.000	1.000	5.79	413.48	1.40	EN-13480		
NDB11BQ002 (6725)	0.13	7.61	0.61	0.00	9.19	1.000	1.000	7.71	416.38	1.85	EN-13480		
NDB11BQ002 (6725)	-0.25	7.61	-0.61	0.00	9.33	1.000	1.000	7.71	416.38	1.85	EN-13480		
6730	-0.25	4.39	0.61	0.00	5.63	1.000	1.000	4.56	415.87	1.10	EN-13480		
6735	-0.25	4.16	-0.61	0.00	5.37	1.000	1.000	4.33	414.74	1.05	EN-13480		
6740	-0.25	4.31	0.61	0.00	5.55	1.000	1.000	4.48	414.43	1.08	EN-13480		
6740	-0.25	4.31	-0.61	0.00	5.55	1.000	1.000	4.48	414.43	1.08	EN-13480		
6745	-0.25	4.55	0.61	0.00	5.81	1.000	1.000	4.71	414.11	1.14	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 7 (EXP) L7=L3-L5

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6750	-0.25	6.01	-0.61	0.00	7.49	1.000	1.000	6.14	412.78	1.49	EN-13480		
6755	-0.25	8.02	0.61	0.00	9.81	1.000	1.000	8.11	411.37	1.97	EN-13480		
6755	-0.25	22.26	-0.61	0.00	26.44	2.776	2.776	22.52	403.51	5.58	EN-13480		
6760	-0.31	20.09	-2.17	0.00	24.46	2.776	2.776	23.44	406.83	5.76	EN-13480		
6760	-0.31	7.24	2.17	0.00	10.22	1.000	1.000	8.44	412.96	2.04	EN-13480		
6765	-0.31	7.22	-2.17	0.00	10.20	1.000	1.000	8.43	412.99	2.04	EN-13480		
6765	-0.31	7.22	2.17	0.00	10.20	1.000	1.000	8.43	412.99	2.04	EN-13480		
NDB11BQ003 (6770)	-0.31	1.57	-2.17	0.00	5.56	1.000	1.000	4.63	407.73	1.13	EN-13480		
NDB11BQ003 (6770)	-0.21	1.57	2.17	0.00	5.51	1.000	1.000	4.63	407.73	1.13	EN-13480		
6775	-0.21	1.87	-2.17	0.00	5.66	1.000	1.000	4.74	411.43	1.15	EN-13480		
6775	-0.21	5.20	2.17	0.00	8.14	2.776	2.776	13.15	403.65	3.26	EN-13480		
6780	-0.10	5.81	-1.79	0.00	8.11	2.776	2.776	11.52	410.87	2.80	EN-13480		
6780	-0.10	2.09	1.79	0.00	4.93	1.000	1.000	4.15	414.90	1.00	EN-13480		
6785	-0.10	2.07	-1.79	0.00	4.91	1.000	1.000	4.14	414.90	1.00	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 7 (EXP) L7=L3-L5

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6785	-0.10	5.74	1.79	0.00	8.03	2.776	2.776	11.48	410.86	2.80	EN-13480		
6790	-0.36	6.27	-1.16	0.00	8.24	2.776	2.776	9.00	410.95	2.19	EN-13480		
6790	-0.36	2.26	1.16	0.00	4.11	1.000	1.000	3.24	414.94	0.78	EN-13480		
6795	-0.36	2.24	-1.16	0.00	4.10	1.000	1.000	3.23	414.94	0.78	EN-13480		
6795	-0.36	2.24	1.16	0.00	4.10	1.000	1.000	3.23	414.94	0.78	EN-13480		
6800	-0.36	6.44	-1.16	0.00	8.44	1.000	1.000	6.85	417.43	1.64	EN-13480		
6800	-0.36	17.89	1.16	0.00	21.57	2.776	2.776	19.01	416.13	4.57	EN-13480		
6805	-0.21	12.20	3.39	0.00	16.58	2.776	2.776	22.41	417.47	5.37	EN-13480		
6805	-0.21	4.40	-3.39	0.00	9.60	1.000	1.000	8.07	418.07	1.93	EN-13480		
6810	-0.21	4.39	3.39	0.00	9.60	1.000	1.000	8.07	418.07	1.93	EN-13480		
6810	-0.21	4.39	-3.39	0.00	9.60	1.000	1.000	8.07	418.07	1.93	EN-13480		
6815	-0.21	7.28	3.39	0.00	11.84	1.000	1.000	9.94	416.94	2.38	EN-13480		
6815	-0.21	20.20	-3.39	0.00	25.22	2.776	2.776	27.60	415.11	6.65	EN-13480		
6820	-0.22	22.87	2.41	0.00	27.66	2.776	2.776	26.51	415.52	6.38	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 7 (EXP) L7=L3-L5

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
6820	-0.22	8.24	-2.41	0.00	11.42	1.000	1.000	9.55	417.14	2.29	EN-13480		
6825	-0.22	8.22	2.41	0.00	11.40	1.000	1.000	9.53	417.14	2.28	EN-13480		
6825	-0.22	8.22	-2.41	0.00	11.40	1.000	1.000	9.53	417.14	2.28	EN-13480		
NDB11BQ004 (6830)	-0.22	4.62	2.41	0.00	8.01	1.000	1.000	6.68	412.98	1.62	EN-13480		
NDB11BQ004 (6830)	-0.05	4.62	-2.41	0.00	7.87	1.000	1.000	6.68	412.98	1.62	EN-13480		
6835	-0.05	7.04	2.41	0.00	10.05	1.000	1.000	8.53	417.36	2.04	EN-13480		
6835	-0.05	19.53	-2.41	0.00	23.64	2.776	2.776	23.69	416.00	5.69	EN-13480		
6840	-0.47	28.07	-0.57	0.00	33.49	2.776	2.776	28.25	414.85	6.81	EN-13480		
6840	-0.47	10.11	0.57	0.00	12.48	1.000	1.000	10.18	416.81	2.44	EN-13480		
6845	-0.47	10.11	-0.57	0.00	12.48	1.000	1.000	10.17	416.81	2.44	EN-13480		
6845	-0.47	10.11	0.57	0.00	12.48	1.000	1.000	10.17	416.81	2.44	EN-13480		
6850	-0.47	7.88	-0.57	0.00	9.89	1.000	1.000	7.96	417.70	1.91	EN-13480		
6850	-0.47	21.87	0.57	0.00	26.23	2.776	2.776	22.10	416.70	5.30	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 7 (EXP) L7=L3-L5

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6855	0.05	14.46	0.48	0.00	17.05	2.776	2.776	14.71	414.50	3.55	EN-13480		
6855	0.05	5.21	-0.48	0.00	6.26	1.000	1.000	5.30	416.64	1.27	EN-13480		
6860	0.05	5.19	0.48	0.00	6.24	1.000	1.000	5.28	416.63	1.27	EN-13480		
6860	0.05	5.19	-0.48	0.00	6.24	1.000	1.000	5.28	416.63	1.27	EN-13480		
NDB11BQ005 (6865)	0.05	3.88	0.48	0.00	4.73	1.000	1.000	3.99	415.63	0.96	EN-13480		
NDB11BQ005 (6865)	0.11	3.88	-0.48	0.00	4.80	1.000	1.000	3.99	415.63	0.96	EN-13480		
6870	0.11	2.40	0.48	0.00	3.15	1.000	1.000	2.58	417.52	0.62	EN-13480		
6870	0.11	6.65	-0.48	0.00	8.00	2.776	2.776	7.17	416.33	1.72	EN-13480		
6875	-0.46	15.96	-0.13	0.00	19.26	2.776	2.776	15.98	416.82	3.83	EN-13480		
6875	-0.46	5.75	0.13	0.00	7.29	1.000	1.000	5.76	417.76	1.38	EN-13480		
6880	-0.46	5.76	-0.13	0.00	7.30	1.000	1.000	5.76	417.76	1.38	EN-13480		
6880	-0.46	16.08	0.16	0.00	19.39	2.794	2.794	16.10	416.82	3.86	EN-13480		
6885	-0.39	15.09	1.35	0.00	18.42	2.794	2.794	16.86	417.24	4.04	EN-13480		
6885	-0.39	5.40	-1.35	0.00	7.49	1.000	1.000	6.03	417.96	1.44	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 7 (EXP) L7=L3-L5

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
6890	-0.39	5.41	1.35	0.00	7.49	1.000	1.000	6.04	417.97	1.44	EN-13480		
6890	-0.39	5.41	-1.35	0.00	7.49	1.000	1.000	6.04	417.97	1.44	EN-13480		
6895	-0.39	5.83	1.35	0.00	7.94	1.000	1.000	6.42	418.11	1.54	EN-13480		
6895	-0.39	5.83	-1.35	0.00	7.94	1.000	1.000	6.42	418.11	1.54	EN-13480		
6900	-0.39	7.26	1.35	0.00	9.51	1.000	1.000	7.74	417.31	1.86	EN-13480		
6930	-1.63	20.91	-8.19	0.00	32.29	1.773	1.773	35.80	424.06	8.44	EN-13480		
6935	-0.83	2.51	2.06	0.00	6.22	1.773	1.773	7.72	418.40	1.84	EN-13480		
6935	-0.83	1.42	-2.06	0.00	5.50	1.000	1.000	4.35	418.46	1.04	EN-13480		
6940	-0.83	0.40	2.06	0.00	5.04	1.000	1.000	4.14	418.48	0.99	EN-13480		
6940	-0.83	0.40	-2.06	0.00	5.04	1.000	1.000	4.14	418.48	0.99	EN-13480		
6945	-0.83	0.62	2.06	0.00	5.12	1.000	1.000	4.16	418.47	0.99	EN-13480		
6950	-0.83	6.72	-2.06	0.00	10.09	1.000	1.000	7.88	418.19	1.88	EN-13480		
6955	-0.83	7.74	2.06	0.00	11.15	1.000	1.000	8.76	418.13	2.10	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 7 (EXP) L7=L3-L5

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6955	-0.83	7.74	-2.06	0.00	11.15	1.000	1.000	8.76	418.13	2.10	EN-13480		
NDB12BQ001 (6960)	-0.83	9.42	2.06	0.00	12.96	1.000	1.000	10.28	418.03	2.46	EN-13480		
NDB12BQ001 (6960)	-0.75	9.42	-2.06	0.00	12.88	1.000	1.000	10.28	418.03	2.46	EN-13480		
NDB12BQ002 (6965)	-0.75	16.75	2.06	0.00	21.09	1.000	1.000	17.25	417.59	4.13	EN-13480		
NDB12BQ002 (6965)	-0.47	16.75	-2.06	0.00	20.76	1.000	1.000	17.25	417.59	4.13	EN-13480		
12000	-0.47	7.05	2.06	0.00	10.05	1.000	1.000	8.16	417.72	1.95	EN-13480		
12000	-0.47	7.05	-2.06	0.00	10.05	1.000	1.000	8.16	417.72	1.95	EN-13480		
6970	-0.47	12.91	2.06	0.00	16.42	1.000	1.000	13.55	417.24	3.25	EN-13480		
6970	-0.47	35.85	-2.06	0.00	42.85	2.776	2.776	37.62	415.74	9.05	EN-13480		
6975	-0.77	40.74	2.00	0.00	48.89	2.776	2.776	42.23	417.24	10.12	EN-13480		
6975	-0.77	14.67	-2.00	0.00	18.71	1.000	1.000	15.21	417.96	3.64	EN-13480		
6980	-0.77	14.64	2.00	0.00	18.68	1.000	1.000	15.18	417.97	3.63	EN-13480		
6980	-0.77	14.64	-2.00	0.00	18.68	1.000	1.000	15.18	417.97	3.63	EN-13480		
6985	-0.77	5.07	2.00	0.00	8.30	1.000	1.000	6.46	416.66	1.55	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 7 (EXP) L7=L3-L5

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
6985	-0.77	5.07	-2.00	0.00	8.30	1.000	1.000	6.46	416.66	1.55	EN-13480		
6990	-0.77	6.05	2.00	0.00	9.27	1.000	1.000	7.25	416.92	1.74	EN-13480		
6990	-0.77	16.79	-2.00	0.00	21.12	2.776	2.776	20.14	415.08	4.85	EN-13480		
6995	-0.26	9.05	1.80	0.00	11.71	2.776	2.776	13.49	415.07	3.25	EN-13480		
6995	-0.26	3.26	-1.80	0.00	5.91	1.000	1.000	4.86	416.92	1.17	EN-13480		
7000	-0.26	3.21	1.80	0.00	5.86	1.000	1.000	4.82	416.91	1.16	EN-13480		
7000	-0.26	3.21	-1.80	0.00	5.86	1.000	1.000	4.82	416.91	1.16	EN-13480		
NDB12BQ003 (7002)	-0.26	5.01	1.80	0.00	7.48	1.000	1.000	6.17	414.93	1.49	EN-13480		
NDB12BQ003 (7002)	-0.48	5.01	-1.80	0.00	7.70	1.000	1.000	6.17	414.93	1.49	EN-13480		
7005	-0.48	1.94	1.80	0.00	5.09	1.000	1.000	4.09	412.39	0.99	EN-13480		
7005	-0.48	1.94	-1.80	0.00	5.09	1.000	1.000	4.09	412.39	0.99	EN-13480		
7010	-0.48	7.58	1.80	0.00	10.35	1.000	1.000	8.39	416.43	2.01	EN-13480		
7010	-0.48	21.03	-1.80	0.00	25.58	2.776	2.776	23.29	414.06	5.62	EN-13480		
7015	-0.15	18.78	-0.71	0.00	22.25	2.776	2.776	19.19	412.12	4.66	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 7 (EXP) L7=L3-L5

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
7015	-0.15	6.77	0.71	0.00	8.27	1.000	1.000	6.91	415.50	1.66	EN-13480		
7020	-0.15	6.74	-0.71	0.00	8.25	1.000	1.000	6.89	415.48	1.66	EN-13480		
7020	-0.15	6.74	0.71	0.00	8.25	1.000	1.000	6.89	415.48	1.66	EN-13480		
NDB12BQ005 (7025)	-0.15	5.49	-0.71	0.00	6.82	1.000	1.000	5.67	414.07	1.37	EN-13480		
NDB12BQ005 (7025)	-0.29	5.49	0.71	0.00	6.98	1.000	1.000	5.67	414.07	1.37	EN-13480		
7030	-0.29	5.77	-0.71	0.00	7.31	1.000	1.000	5.95	416.69	1.43	EN-13480		
7030	-0.29	5.77	0.71	0.00	7.31	1.000	1.000	5.95	416.69	1.43	EN-13480		
7035	-0.29	6.26	-0.71	0.00	7.86	1.000	1.000	6.42	417.83	1.54	EN-13480		
7035	-0.29	17.37	0.71	0.00	20.78	2.776	2.776	17.82	416.97	4.27	EN-13480		
7040	-0.23	16.15	-0.24	0.00	19.22	2.776	2.776	16.21	414.71	3.91	EN-13480		
7040	-0.23	5.82	0.24	0.00	7.12	1.000	1.000	5.84	416.75	1.40	EN-13480		
7045	-0.23	5.80	-0.24	0.00	7.10	1.000	1.000	5.82	416.75	1.40	EN-13480		
7045	-0.23	5.80	0.24	0.00	7.10	1.000	1.000	5.82	416.75	1.40	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 7 (EXP) L7=L3-L5

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
7050	-0.23	5.53	-0.24	0.00	6.79	1.000	1.000	5.55	417.86	1.33	EN-13480		
7050	-0.23	15.36	0.24	0.00	18.29	2.776	2.776	15.42	417.03	3.70	EN-13480		
7055	-0.29	5.97	3.59	0.00	11.18	2.776	2.776	20.82	416.13	5.00	EN-13480		
7055	-0.29	2.15	-3.59	0.00	8.90	1.000	1.000	7.50	417.43	1.80	EN-13480		
7060	-0.29	2.17	3.59	0.00	8.90	1.000	1.000	7.51	417.42	1.80	EN-13480		
7060	-0.29	2.17	-3.59	0.00	8.90	1.000	1.000	7.51	417.42	1.80	EN-13480		
7065	-0.29	7.16	3.59	0.00	12.13	1.000	1.000	10.14	416.89	2.43	EN-13480		
7065	-0.29	19.87	-3.59	0.00	25.09	2.776	2.776	28.15	415.01	6.78	EN-13480		
7069	-0.41	19.81	3.96	0.00	25.47	2.776	2.776	29.62	415.17	7.13	EN-13480		
7069	-0.41	19.81	-3.96	0.00	25.47	2.776	2.776	29.62	415.17	7.13	EN-13480		
7070	-0.28	23.62	2.42	0.00	28.60	2.776	2.776	27.17	415.09	6.55	EN-13480		
7070	-0.28	8.51	-2.42	0.00	11.77	1.000	1.000	9.79	416.93	2.35	EN-13480		
7075	-0.28	8.49	2.42	0.00	11.74	1.000	1.000	9.77	416.92	2.34	EN-13480		
7075	-0.28	8.49	-2.42	0.00	11.74	1.000	1.000	9.77	416.92	2.34	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 7 (EXP) L7=L3-L5

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
NDB12BQ006 (7080)	-0.28	1.18	2.42	0.00	5.92	1.000	1.000	4.98	413.55	1.20	EN-13480		
NDB12BQ006 (7080)	-0.20	1.18	-2.42	0.00	5.90	1.000	1.000	4.98	413.55	1.20	EN-13480		
7085	-0.20	4.14	2.42	0.00	7.62	1.000	1.000	6.37	416.06	1.53	EN-13480		
7085	-0.20	11.50	-2.42	0.00	14.84	2.776	2.776	17.67	413.29	4.28	EN-13480		
7089	-0.18	4.02	3.45	0.00	9.47	2.776	2.776	19.55	414.54	4.72	EN-13480		
7089	-0.18	4.02	-3.45	0.00	9.47	2.776	2.776	19.55	414.54	4.72	EN-13480		
7090	-0.06	7.19	3.12	0.00	11.21	2.776	2.776	18.75	415.19	4.52	EN-13480		
7090	-0.06	2.59	-3.12	0.00	7.95	1.000	1.000	6.76	416.98	1.62	EN-13480		
7095	-0.06	2.57	3.12	0.00	7.94	1.000	1.000	6.75	416.98	1.62	EN-13480		
7095	-0.06	2.57	-3.12	0.00	7.94	1.000	1.000	6.75	416.98	1.62	EN-13480		
NDB12BQ008 (7097)	-0.06	2.24	3.12	0.00	7.80	1.000	1.000	6.63	416.94	1.59	EN-13480		
NDB12BQ008 (7097)	-0.06	2.24	-3.12	0.00	7.80	1.000	1.000	6.63	416.94	1.59	EN-13480		
7100	-0.06	2.64	3.12	0.00	7.97	1.000	1.000	6.78	417.13	1.62	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 7 (EXP) L7=L3-L5

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
7100	-0.06	7.33	-3.12	0.00	11.34	2.776	2.776	18.81	415.52	4.53	EN-13480		
7104	-0.32	11.04	3.08	0.00	15.16	2.776	2.776	20.33	414.98	4.90	EN-13480		
7104	-0.32	11.04	-3.08	0.00	15.16	2.776	2.776	20.33	414.98	4.90	EN-13480		
7105	-0.40	17.49	1.58	0.00	21.30	2.776	2.776	19.56	414.87	4.72	EN-13480		
7105	-0.40	6.30	-1.58	0.00	8.69	1.000	1.000	7.05	416.82	1.69	EN-13480		
7110	-0.40	6.29	1.58	0.00	8.67	1.000	1.000	7.04	416.83	1.69	EN-13480		
7110	-0.40	6.29	-1.58	0.00	8.67	1.000	1.000	7.04	416.83	1.69	EN-13480		
7115	-0.40	3.48	1.58	0.00	5.86	1.000	1.000	4.70	418.12	1.12	EN-13480		
7115	-0.40	9.65	-1.58	0.00	12.35	2.776	2.776	13.03	417.57	3.12	EN-13480		
7119	-0.14	1.69	2.08	0.00	5.33	2.776	2.776	11.69	417.23	2.80	EN-13480		
7119	-0.14	1.69	-2.08	0.00	5.33	2.776	2.776	11.69	417.23	2.80	EN-13480		
7120	0.20	10.68	1.27	0.00	13.11	2.776	2.776	12.79	416.29	3.07	EN-13480		
7120	0.20	3.85	-1.27	0.00	5.60	1.000	1.000	4.61	417.51	1.10	EN-13480		
7125	0.20	3.86	1.27	0.00	5.62	1.000	1.000	4.62	417.50	1.11	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 7 (EXP) L7=L3-L5

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
8105	0.09	16.75	-9.01	0.00	28.91	2.065	2.065	40.80	275.05	14.83	EN-13480		
8109	-1.12	13.00	10.10	0.00	28.90	2.065	2.065	43.70	275.98	15.83	EN-13480		
8109	-1.12	13.00	-10.10	0.00	28.90	2.065	2.065	43.70	275.98	15.83	EN-13480		
8110	-1.67	30.59	7.09	0.00	41.33	2.065	2.065	42.35	277.32	15.27	EN-13480		
8110	-1.67	14.81	-7.09	0.00	25.50	1.000	1.000	20.51	278.28	7.37	EN-13480		
8115	-1.67	14.77	7.09	0.00	25.46	1.000	1.000	20.47	278.29	7.36	EN-13480		
8115	-1.67	14.77	-7.09	0.00	25.46	1.000	1.000	20.47	278.29	7.36	EN-13480		
8120	-1.67	12.05	7.09	0.00	23.15	1.000	1.000	18.61	278.77	6.68	EN-13480		
8120	-1.67	33.45	-7.09	0.00	44.42	2.776	2.776	51.66	277.42	18.62	EN-13480		
8124	-1.24	36.05	3.20	0.00	44.37	2.776	2.776	40.20	276.12	14.56	EN-13480		
8124	-1.24	36.05	-3.20	0.00	44.37	2.776	2.776	40.20	276.12	14.56	EN-13480		
8125	-0.09	22.17	-0.74	0.00	26.15	2.776	2.776	22.55	273.39	8.25	EN-13480		
8125	-0.09	7.99	0.74	0.00	9.63	1.000	1.000	8.12	276.84	2.93	EN-13480		
8130	-0.09	7.93	-0.74	0.00	9.56	1.000	1.000	8.06	276.82	2.91	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 7 (EXP) L7=L3-L5

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
8130	-0.09	7.93	0.74	0.00	9.56	1.000	1.000	8.06	276.82	2.91	EN-13480		
NDB13BQ010 (8135)	-0.09	9.01	-0.74	0.00	10.81	1.000	1.000	9.13	275.11	3.32	EN-13480		
NDB13BQ010 (8135)	-0.09	9.01	0.74	0.00	10.81	1.000	1.000	9.13	275.11	3.32	EN-13480		
NDB13BQ008 (8137)	-0.09	9.06	-0.74	0.00	10.87	1.000	1.000	9.18	275.12	3.34	EN-13480		
NDB13BQ008 (8137)	-0.04	9.06	0.74	0.00	10.81	1.000	1.000	9.18	275.12	3.34	EN-13480		
8140	-0.04	4.69	-0.74	0.00	5.81	1.000	1.000	4.92	277.92	1.77	EN-13480		
8140	-0.04	13.02	0.74	0.00	15.41	2.776	2.776	13.66	275.64	4.96	EN-13480		
8144	-0.35	15.95	0.08	0.00	19.12	2.776	2.776	15.96	274.46	5.82	EN-13480		
8144	-0.35	15.95	-0.08	0.00	19.12	2.776	2.776	15.96	274.46	5.82	EN-13480		
8145	-0.46	17.57	0.12	0.00	21.14	2.776	2.776	17.58	274.38	6.41	EN-13480		
8145	-0.46	6.33	-0.12	0.00	7.96	1.000	1.000	6.33	277.31	2.28	EN-13480		
8150	-0.46	6.33	0.12	0.00	7.97	1.000	1.000	6.33	277.32	2.28	EN-13480		
8150	-0.46	6.33	-0.12	0.00	7.97	1.000	1.000	6.33	277.32	2.28	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 7 (EXP) L7=L3-L5

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
8155	-0.46	6.52	0.12	0.00	8.19	1.000	1.000	6.52	277.49	2.35	EN-13480		
8155	-0.46	6.52	-0.12	0.00	8.19	1.000	1.000	6.52	277.49	2.35	EN-13480		
8160	-0.46	7.12	0.12	0.00	8.89	1.000	1.000	7.13	277.72	2.57	EN-13480		
8160	-0.46	7.12	-0.12	0.00	8.89	1.000	1.000	7.13	277.72	2.57	EN-13480		
8165	-0.46	13.25	0.12	0.00	16.08	1.000	1.000	13.26	278.26	4.76	EN-13480		
8165	-0.46	36.79	-0.12	0.00	43.68	2.776	2.776	36.80	276.34	13.32	EN-13480		
8170	-0.43	33.40	2.50	0.00	40.10	2.776	2.776	36.17	277.11	13.05	EN-13480		
8170	-0.43	12.03	-2.50	0.00	15.75	1.000	1.000	13.03	278.63	4.68	EN-13480		
8175	-0.43	12.01	2.50	0.00	15.72	1.000	1.000	13.00	278.63	4.67	EN-13480		
8175	-0.43	12.01	-2.50	0.00	15.72	1.000	1.000	13.00	278.63	4.67	EN-13480		
NDB13BQ001 (8180)	-0.43	1.61	2.50	0.00	6.33	1.000	1.000	5.25	273.87	1.92	EN-13480		
NDB13BQ001 (8180)	-0.37	1.61	-2.50	0.00	6.30	1.000	1.000	5.25	273.87	1.92	EN-13480		
8185	-0.37	3.31	2.50	0.00	7.28	1.000	1.000	6.00	276.78	2.17	EN-13480		
8185	-0.37	9.20	-2.50	0.00	12.66	2.776	2.776	16.65	273.26	6.09	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 7 (EXP) L7=L3-L5

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
8190	-0.22	15.71	-0.41	0.00	18.70	2.776	2.776	15.88	276.71	5.74	EN-13480		
8190	-0.22	5.66	0.41	0.00	6.96	1.000	1.000	5.72	278.43	2.05	EN-13480		
8195	-0.22	5.65	-0.41	0.00	6.95	1.000	1.000	5.71	278.43	2.05	EN-13480		
8195	-0.22	15.69	0.41	0.00	18.67	2.776	2.776	15.86	276.69	5.73	EN-13480		
8200	-0.37	4.75	2.66	0.00	8.65	2.776	2.776	15.51	274.83	5.64	EN-13480		
8200	-0.37	1.71	-2.66	0.00	6.70	1.000	1.000	5.59	277.53	2.01	EN-13480		
8205	-0.37	1.72	2.66	0.00	6.70	1.000	1.000	5.59	277.53	2.01	EN-13480		
8205	-0.37	1.72	-2.66	0.00	6.70	1.000	1.000	5.59	277.53	2.01	EN-13480		
8210	-0.37	11.43	2.66	0.00	15.18	1.000	1.000	12.61	277.27	4.55	EN-13480		
8210	-0.37	31.73	-2.66	0.00	38.15	2.776	2.776	35.00	274.29	12.76	EN-13480		
8215	-0.28	14.83	6.03	0.00	22.67	2.776	2.776	36.62	273.33	13.40	EN-13480		
8215	-0.28	5.34	-6.03	0.00	15.60	1.000	1.000	13.19	276.81	4.77	EN-13480		
8220	-0.28	5.35	6.03	0.00	15.61	1.000	1.000	13.20	276.80	4.77	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 7 (EXP) L7=L3-L5

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
8220	-0.28	14.85	-6.03	0.00	22.69	2.776	2.776	36.63	273.31	13.40	EN-13480		
8225	-0.22	32.26	-0.12	0.00	38.07	2.776	2.776	32.26	272.70	11.83	EN-13480		
8225	-0.22	11.62	0.12	0.00	13.88	1.000	1.000	11.62	276.51	4.20	EN-13480		
8230	-0.22	11.60	-0.12	0.00	13.86	1.000	1.000	11.60	276.51	4.20	EN-13480		
8230	-0.22	11.60	0.12	0.00	13.86	1.000	1.000	11.60	276.51	4.20	EN-13480		
NDB13BQ009 (8235)	-0.22	10.32	-0.12	0.00	12.36	1.000	1.000	10.32	276.41	3.73	EN-13480		
NDB13BQ009 (8235)	-0.19	10.32	0.12	0.00	12.33	1.000	1.000	10.32	276.41	3.73	EN-13480		
8240	-0.19	8.18	-0.12	0.00	9.83	1.000	1.000	8.19	276.28	2.96	EN-13480		
8245	-0.19	4.01	0.12	0.00	4.94	1.000	1.000	4.02	275.52	1.46	EN-13480		
8250	-0.19	3.04	-0.12	0.00	3.80	1.000	1.000	3.04	275.17	1.11	EN-13480		
8250	-0.19	3.04	0.12	0.00	3.80	1.000	1.000	3.04	275.17	1.11	EN-13480		
8255	-0.19	2.16	-0.12	0.00	2.78	1.000	1.000	2.18	274.77	0.79	EN-13480		
8260	-0.19	3.16	0.12	0.00	3.94	1.000	1.000	3.17	272.34	1.16	EN-13480		
8265	-0.19	5.16	-0.12	0.00	6.29	1.000	1.000	5.17	270.67	1.91	EN-13480		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 7 (EXP) L7=L3-L5

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
8265	0.08	4.25	1.12	0.00	5.71	1.000	1.000	4.80	270.31	1.78	EN-13480		
8270	0.08	6.52	-1.12	0.00	8.17	1.000	1.000	6.89	274.78	2.51	EN-13480		
8270	0.08	18.10	1.12	0.00	21.47	2.776	2.776	19.13	269.10	7.11	EN-13480		
8275	-0.06	12.44	-4.04	0.00	17.45	2.776	2.776	25.66	275.75	9.31	EN-13480		
8275	-0.06	4.48	4.04	0.00	10.87	1.000	1.000	9.24	277.97	3.33	EN-13480		
8280	-0.06	4.49	-4.04	0.00	10.87	1.000	1.000	9.25	277.95	3.33	EN-13480		
8280	-0.06	12.46	4.04	0.00	17.47	2.776	2.776	25.67	275.71	9.31	EN-13480		
8285	0.46	23.34	-2.46	0.00	28.50	2.776	2.776	27.03	269.95	10.01	EN-13480		
8285	0.46	8.41	2.46	0.00	11.89	1.000	1.000	9.74	275.19	3.54	EN-13480		
8290	0.46	8.41	-2.46	0.00	11.88	1.000	1.000	9.74	275.20	3.54	EN-13480		
8290	0.46	8.41	2.46	0.00	11.88	1.000	1.000	9.74	275.20	3.54	EN-13480		
NDB13BQ007 (8295)	0.46	7.45	-2.46	0.00	10.91	1.000	1.000	8.92	277.97	3.21	EN-13480		
NDB13BQ007 (8295)	0.46	7.45	2.46	0.00	10.91	1.000	1.000	8.92	277.97	3.21	EN-13480		
8300	0.46	4.35	-2.46	0.00	8.06	1.000	1.000	6.56	279.58	2.35	EN-		

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STRESSES EXTENDED (LEGACY) REPORT: Stresses Extended (Legacy) on Elements
CASE 7 (EXP) L7=L3-L5

Node	Axial Stress N/mm2	Bending Stress N/mm2	Torsion Stress N/mm2	Hoop Stress N/mm2	Max Stress Intensity N/mm2	SIF/Index In-Plane	SIF/Index Out-Plane	Code Stress N/mm2	Allowable Stress N/mm2	Ratio %	Piping Code		Element Name
											13480		
8300	0.46	12.06	2.46	0.00	15.77	2.776	2.776	18.20	279.09	6.52	EN-13480		
8305	0.22	14.10	-1.79	0.00	17.31	2.776	2.776	17.24	278.02	6.20	EN-13480		
8305	0.22	5.08	1.79	0.00	7.50	1.000	1.000	6.21	279.06	2.23	EN-13480		
8310	0.22	5.08	-1.79	0.00	7.49	1.000	1.000	6.21	279.06	2.22	EN-13480		
8310	0.22	5.08	1.79	0.00	7.49	1.000	1.000	6.21	279.06	2.22	EN-13480		
752	0.22	5.25	-1.79	0.00	7.66	1.000	1.000	6.35	278.15	2.28	EN-13480		
13100	0.09	7.70	-9.01	0.00	23.01	1.000	1.000	19.59	276.65	7.08	EN-13480		
31NDB20AT001/N2 (13200)	0.09	9.04	9.01	0.00	23.68	1.000	1.000	20.15	276.57	7.29	EN-13480		
13300	0.20	6.99	-1.27	0.00	8.94	1.000	1.000	7.44	278.32	2.67	EN-13480		
31NDB20AT001/N1 (13400)	0.20	7.61	1.27	0.00	9.63	1.000	1.000	8.02	278.32	2.88	EN-13480		

Příloha B:
Report VVD

Rozpis materiálu

ID	No	Popis	Rozmìry komponenty	Materiálová norma
E3.1	1	Torosférické dno-	De= 1000, wt= 12, h= 261.99, R= 800, r= 154, KORBBOGEN DIN 28013-28014/SMS 482	ID 1, EN 10028-2:2017, 1.0425 P265GH plate and strip, HT:N
E3.2	1	Torosférické dno-	De= 1000, wt= 12, h= 261.99, R= 800, r= 154, KORBBOGEN DIN 28013-28014/SMS 482	ID 1, EN 10028-2:2017, 1.0425 P265GH plate and strip, HT:N
E5.1	1	Šroubované ploché dn-	Do= 755, wt= 44	ID 3, EN 10028-2:2017, 1.0473 P355GH plate and strip, HT:N
E5.2	1	Šroubované ploché dn-	Do= 755, wt= 44	ID 3, EN 10028-2:2017, 1.0473 P355GH plate and strip, HT:N
F.1	1	WN - Pøíruba-	OD= 755, ID= 479.6, thk= 52, h= 68, g1= 40.2	ID 4, EN 10222-4:1998/A1:01, 1.0571 P355QH1 forging, HT:QT
F.1	20	Šrouby	M39x3 ;, Plocha= 979.7	ID 6, EN 10269:2013, 1.7218 25CrMo4 bar, bolt, HT:QT
F.2	1	WN - Pøíruba-	OD= 755, ID= 479.6, thk= 52, h= 68, g1= 40.2	ID 8, EN 10028-2:2017, 1.0473 P355GH plate and strip, HT:N
F.2	20	Šrouby	M39x3 ;, Plocha= 979.7	ID 6, EN 10269:2013, 1.7218 25CrMo4 bar, bolt, HT:QT
N.1	1	Flange:EN1092 :Class PN 25	WN - Type 11 Weld Neck flange, A Flat Face	3E0, P245GH, EN10222-2, 1.0352, Forgings
N.1	1	Hrdlo,Bezešvá /svaøov-	DN 200 do=219.1,wt=8,L=174.5,ho=150	ID 5, EN 10216-2:2013, 1.0425 P265GH seamless tube, HT:N
N.2	1	Flange:EN1092 :Class PN 25	WN - Type 11 Weld Neck flange, A Flat Face	3E0, P245GH, EN10222-2, 1.0352, Forgings
N.2	1	Hrdlo,Bezešvá /svaøov-	DN 200 do=219.1,wt=8,L=174.5,ho=150	ID 5, EN 10216-2:2013, 1.0425 P265GH seamless tube, HT:N
N.3	1	Hrdlo,Plech-	do=508,wt=14.2,L=78.4,ho=25	ID 10, EN 10028-2:2017, 1.0473 P355GH plate and strip, HT:N
N.4	1	Hrdlo,Plech-	do=508,wt=14.2,L=78.4,ho=25	ID 10, EN 10028-2:2017, 1.0473 P355GH plate and strip, HT:N
S1.1	1	Válcový pláš• - Main Shell	De= 1000, en= 12, L= 1800	ID 1, EN 10028-2:2017, 1.0425 P265GH plate and strip, HT:N

Návrhová data a procesní informace

Popis	Units	VÝPOÈTOVÁ DATA
PROCESNÍ KARTA		General Design Data
Návrhové pøedpisy a specifikace		EN13445 TG = 3b
Vnitøní výpoètový pøetlak (MPa)	MPa	1.6
Vnìjší výpoètový pøetlak (MPa)	MPa	
Hydrostatický zkušební pøetlak (MPa)	MPa	
Maximální výpoètová teplota ('C)	'C	130
Minimální výpoètová teplota ('C)	'C	0
Provozní teplota ('C)	'C	
Korozní pøídavek (mm)	mm	1
Název média		
Mìrná hmotnost provozního média		1
Provozní výška hladiny NLL (mm)	mm	

Hmotnost a objem nádoby

ID	No.	Wt-Výchozí	Wt-Koneèná	Celkový objem	Wt zk.náplnì	Wt pr.náplnì
E3.1	1	102.0 kg	82.2 kg	0.124 m3	124.0 kg	123.6 kg
E3.2	1	102.0 kg	82.2 kg	0.124 m3	124.0 kg	0.0 kg
E5.1	1	154.0 kg	154.0 kg	0.000 m3	0.0 kg	0.0 kg
E5.2	1	154.0 kg	154.0 kg	0.000 m3	0.0 kg	0.0 kg
F.1	1	119.0 kg	119.0 kg	0.022 m3	22.0 kg	0.0 kg
F.2	1	119.0 kg	119.0 kg	0.022 m3	22.0 kg	21.9 kg
N.1	1	24.0 kg	24.0 kg	0.005 m3	5.0 kg	0.0 kg
N.2	1	24.0 kg	24.0 kg	0.005 m3	5.0 kg	0.0 kg
N.3	1	14.0 kg	14.0 kg	0.007 m3	7.0 kg	6.7 kg
N.4	1	14.0 kg	14.0 kg	0.007 m3	7.0 kg	0.0 kg
S1.1	1	527.0 kg	519.9 kg	1.355 m3	1355.0 kg	0.0 kg
Total	**11**	**1353.0 kg**	**1306.3 kg**	**1.671 m3**	**1671.0 kg**	**152.1 kg**

Weight Summary/Condition	Weights
Prázdná hmotnost nádoby vèetnì 5% rezervy .....:	1372 kg / 1.4 Tons
Celková zkušební tíha nádoby (Zkouška s vodou) :	3043 kg / 3.0 Tons
Celková provozní tíha nádoby .....:	1524 kg / 1.5 Tons

Seznam hrdel

ID	Service	SIZE	STANDARD/CLASS	ID	Standout	X	Y	Z	Rot.	Orient.
N.1		DN 200	EN1092 PN 25 WN -- Flat Face	207.1	150	-494	0	250	180	Radial
N.2		DN 200	EN1092 PN 25 WN -- Flat Face	207.1	150	-494	0	1650	180	Radial
N.3			DIN 2635: Class PN 40	482.6	25	0	0	-256	0	Radial
N.4			DIN 2635: Class PN 40	482.6	25	0	0	2056	0	Radial

Zatížení hrdel

ID	Popis zatížení	Zatížení hrdel
N.1	Fz=.367/1.119kN,My=-1.256/.043,Mx=.225/.643,Mt=-.284/.722kNm	
N.2	Fz=.221/.835kN,My=.573/1.228,Mx=.421/1.896,Mt=.23/3.193kNm,F	

VSTUPNÍ DATA

PØIPOJENÍ/POLOHA KOMPONENTY

HLAVNÍ VÝPOÈTOVÁ DATA

ZATÍŽENÍ TLAKEM: Výpoèet komponenty pro vnitøní a vnìjší tlak
PROCESNÍ KARTA:
HLAVNÍ VÝPOÈTOVÁ DATA : Temp= 130°C, P=1.6000 MPa, c=1.0 mm, Pext=0.0000 MPa
SPECIFICKÁ HUSTOTA PROVOZNÍHO MEDIA.....:SG 1.0000
HYDROSTATICKÁ VÝŠKA KAPALINY.....:LH 0.00 mm

DATA SKOØEPINY

POLOTOVAR VÁLCOVÉ SKOØEPINY: Plech
SOUÈINITEL SVAROVÉHO SPOJE: Zkušební skupina 3 (z=0.85)
VSTUPNÍ PRÙMÌR: Výpoèet pro vnìjší prùmìr skoøepiny
EN 10028-2:2017, 1.0425 P265GH plate and strip, HT:N THK<=16mm 130'C
Rm=410 Rp=265 Rpt=230.2 f=153.47 f20=170.83 ftest=252.38 E=203868(N/mm2) ro=7.85
VNEJŠÍ PRUMER PLÁŠTE.....:De 1000.00 mm
DÉLKA VÁLCOVÉ CÁSTI PLÁŠTE.....:Lcyl 1800.00 mm
SOUCINITEL BEZPECNOSTI (1.0 uhlíková a 1.25 austenitická ocel):s 1.0000
PROVEDENÁ TLOUŠTKA HRDLA (nezkorodovaná).....:en 12.00 mm
ZÁPORNÁ ÚCHYLKA TVÁRENÍ/TOLERANCE PLECHU.....:th 0.5000 mm
Rozdilit pláš• na více lubù a zahrnout informace o svaøovaní: Ne

DATA VÝSTUŽNÉHO KRUHU SKOØEPINY

VÝSTUŽNÝ KRUH SKOØEPINY: Skoøepina bez výztužných kruhù
NEVYZTUŽENÁ DÉLKA VÁLCOVÉHO PLÁŠTE (Obr. 8.5-2).....:L 2016.00 mm

VÝPOÈTOVÁ DATA

7.4.2 - VÁLCOVÁ SKOØEPINA ZATÍŽENÁ VNITØNÍM TLAKEM

Min. požadovaná tlouš•ka skoøepiny bez kor.pøídavku emin :
emin = De * P / (2 * f * z + P) (7.4-2)
=1000*1.6/(2*153.47*0.85+1.6)= 6.0953 mm

Min. požadovaná tlouš•ka skoøepiny s kor.pøídavkem :
emina = emin + c + NegDev =6.1+1+0.5= 7.5953 mm

Analyzovaná tlouš•ka
ea = en - c - NegDev =12-1-0.5= 10.50 mm

»7.4.1 Podmínky platnosti emin/De=0.0061 <= 0.16« » OK«

Vnitøní pøetlak emina=7.6 <= en=12[mm]	63.2%	OK

MAXIMÁLNÍ PØÍPUSTNÝ TLAK Pmax :

Vnitøní prùmìr skoøepiny
Di = De - 2 * ea =1000-2*10.5= 979.00 mm
Støední prùmìr skoøepiny
Dm = (De + Di) / 2 =(1000+979)/2= 989.50 mm
Pmax - PROVOZNÍ ZKORODOVANÝ STAV
MAWPHC = 2 * f * z * ea / Dm
=2*153.47*0.85*10.5/989.5= 2.7685 MPa

Pmax - NOVÝ STUDENÝ STAV
MAWPNC = 2 * f20 * z * (ea + c) / Dm
=2*170.83*0.85*(10.5+1)/989.5= 3.3752 MPa

MAXIMÁLNÍ ZKUŠEBNÍ TLAK Ptest (Nezkorodovaný stav pøi teplotì okolí)

Ptmax = 2 * ftest * ztest * (ea + c) / Dm
=2*252.38*1*(10.5+1)/989.5= 5.8663 MPa

EN13445-5;10.2.3.3 POŽADOVANÝ MIN.HYDROSTATICKÝ ZKUŠEBNÍ TLAK:Ptmin

NOVÝ PØI TEPLOTÌ OKOLÍ PRO ZKUŠEBNÍ SKUPINY 1, 2 a 3
Ptmin = 1.25 * Pd * f20 / f =1.25*1.6*170.83/153.47= 2.2262 MPa

Ptmin = 1.43 * Pd =1.43*1.6= 2.2880 MPa

Zkušební tlak Ptmin=2.29 <= Ptmax=5.87[MPa]	39.0%	OK

MAXIMÁLNÍ PRÙMÌR NEVYZTUŽENÉHO OTVORU VE SKOØEPINÌ

Vnitøní polomìr skoøepiny
ris = Di / 2 (9.5-3) =979/2= 489.50 mm
Délka skoøepiny pøispívající k vyztužení
Is = Sqr((2 * ris + ea) * ea) (9.5-2)
=Sqr((2*489.5+10.5)*10.5)= 101.93 mm
Maximální prùmìr nevyztuženého otvoru kontrtolovat dle požadavkù v èásti 9
dmax1 = MIN(0.5*Di,(ea*Is*(f-0.5*P)/P-ris*Is)/(0.5*ris+0.5*ea)) (9.5-7,22,23)
=MIN(0.5*979,(10.5*101.93*(153.47-0.5*1.6)/1.6-489.5*101.93)/(0.5*489.5+0.5*10.5))= = 208.91 mm

Maximální prùmìr otvoru nevyžaduje kontrolu na vyztužení
dmax2 = 0.15 * Sqr((2 * ris + ea) * ea) (9.5-18)
=0.15*Sqr((2*489.5+10.5)*10.5)= 15.29 mm

Maximální prùmìr nevyztuženého otvoru
dmax = MAX(dmax1, dmax2) =MAX(208.91,15.29)= 208.91 mm

8.5 - VÁLCOVÁ SKOØEPINA ZATÍŽENÁ VNÌJŠÍM TLAKEM

8.5.1.1 Úchylky kruhovitosti

»Požadavky èl. 8.5.2 a 8.5.2 aplikované na válce s ovalitou do 0.5% polomìru (tzn. 0.005R) mìøené ze skuteèného støedu. Tolerence bude zobrazena na výkrese aparátu.

8.4.2 Dovolená elastická mez Sige:

```
Sige = Rpt (8.4.2-1) =230.2=                                    230.20 N/mm2
```

PØEDBÌŽNÝ VÝPOÈET

```
R = Dm / 2 =989.5/2=                                            494.75 mm
Z = PI * R / L (8.5.2-7) =3.14*494.75/2016=                     0.7710
Delta = 1.28 / Sqr( R * ea) (8.5.3-20) =1.28/Sqr(494.75*10.5)=   0.0178
gamma = 0 pro Nevyztužený
```

URÈENÍ eps Z OBRÁZKU 8.5-3 :

```
eps je minimální když n= 4
eps (z obr. 8.5-3) = 0.00074
```

TLAK PRO MEM.NAPÌTÍ ROVNÉ MEZI KLUZU py

```
py = Sige * ea / (R * (1 - gamma * G ))                                (8.5.3-15)
=230.2*10.5/(494.75*(1-0*0))=                                  4.8855 MPa
```

TLAK ELASTICKÉ INSTABILITY pe

```
pm = E * ea * eps / R                                                  (8.5.2-5)
=2.0387E05*10.5*7.3959E-04/494.75=                             3.1999 MPa
```

MAXIMÁLNÍ PØÍPUSTNÝ VNÌJŠÍ TLAK Pmax

```
Hodnota pr/py z obrázku 8.5-5 køivka  1
Value1 =  ==                                                    0.3298
pr = Value1 * py =0.3298*4.89=                                  1.6111 MPa
Maximální pøípustný vnìjší tlak
Pmax = pr / S (8.5.2-8) =1.61/1.5=                              1.0741 MPa
```

Vnìjší tlak Pmax=1.07 >= Pext=0[MPa]	0.0%	OK

EN13445-4 Sect. 9.2 Ratio of Deformation

```
F = en / Dm * 100 (9.2-2) =12/989.5*100=                        1.2127 %
```

VÝPOÈET - SOUHRN

7.4.2 - VÁLCOVÁ SKOØEPINA ZATÍŽENÁ VNITØNÍM TLAKEM

```
Min. požadovaná tlouš•ka skoøepiny bez kor.pøídavku emin :
emin = De * P / (2 * f * z + P)                                        (7.4-2)
=1000*1.6/(2*153.47*0.85+1.6)=                                 6.0953 mm

Min. požadovaná tlouš•ka skoøepiny s kor.pøídavkem :
emina = emin + c + NegDev =6.1+1+0.5=                           7.5953 mm
```

Vnitøní pøetlak emina=7.6 <= en=12[mm]	63.2%	OK

MAXIMÁLNÍ ZKUŠEBNÍ TLAK Ptest (Nezkorodovaný stav pøi teplotì okolí)

```
Ptmax = 2 * ftest * ztest * (ea + c) / Dm
=2*252.38*1*(10.5+1)/989.5=                    5.8663 MPa
```

EN13445-5;10.2.3.3 POŽADOVANÝ MIN.HYDROSTATICKÝ ZKUŠEBNÍ TLAK:Ptmin

```
NOVÝ PØI TEPLOTÌ OKOLÍ PRO ZKUŠEBNÍ SKUPINY 1, 2 a 3
Ptmin = 1.25 * Pd * f20 / f =1.25*1.6*170.83/153.47=    2.2262 MPa
Ptmin = 1.43 * Pd =1.43*1.6=                           2.2880 MPa
```

Zkušební tlak Ptmin=2.29 <= Ptmax=5.87[MPa]	39.0%	OK

MAXIMÁLNÍ PRÙMÌR NEVYZTUŽENÉHO OTVORU VE SKOØEPINÌ

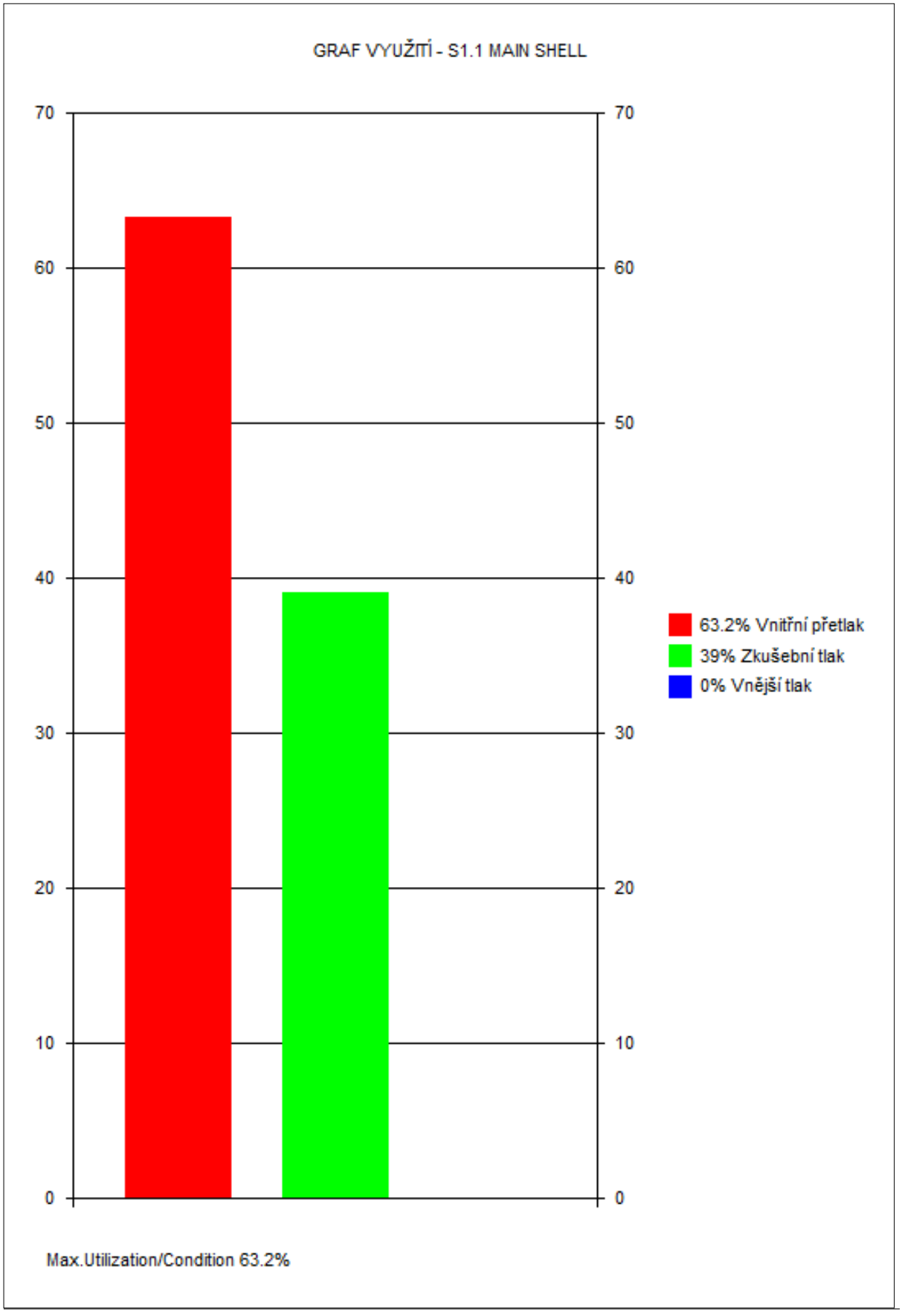
```
Maximální prùmìr nevyztuženého otvoru
dmax = MAX( dmax1, dmax2) =MAX(208.91,15.29)=          208.91 mm
```

8.5 - VÁLCOVÁ SKOØEPINA ZATÍŽENÁ VNÌJŠÍM TLAKEM

```
Maximální pøípustný vnìjší tlak
Pmax = pr / S (8.5.2-8) =1.61/1.5=                     1.0741 MPa
```

Vnìjší tlak Pmax=1.07 >= Pext=0[MPa]	0.0%	OK

Objem :1.35 m3 Tíha:526.3 kg (SG= 7.85)


GRAF VYUŽITÍ - S1.1 MAIN SHELL
70
60
50
40
30
20
10
0
63.2% Vnitřní přetlak
39% Zkušební tlak
0% Vnější tlak
Max.Utilization/Condition 63.2%

VSTUPNÍ DATA

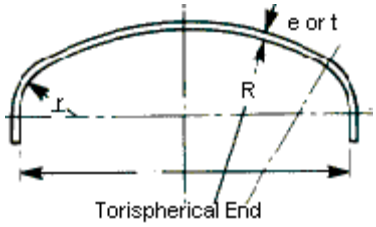
PØIPOJENÍ/POLOHA KOMPONENTY

```
Pøipojení: S1.1    Válcový pláš•        Main Shell
Poloha: Podél osy z zo=  0
```

HLAVNÍ VÝPOÈTOVÁ DATA

```
ZATÍŽENÍ TLAKEM: Výpoèet komponenty pro vnitøní a vnìjší tlak
PROCESNÍ KARTA:
HLAVNÍ VÝPOÈTOVÁ DATA : Temp= 130°C, P=1.6000 MPa, c=1.0 mm, Pext=0.0000 MPa
SPECIFICKÁ HUSTOTA PROVOZNÍHO MEDIA.................:SG        1.0000
HYDROSTATICKÁ VÝŠKA KAPALINY.......................:LH          0.00 mm
```

ROZMÌRY DNA




```
Typ torosférického dna: Dished End KORBBOGEN DIN 28013-28014/SMS 482
SOUÈINITEL SVAROVÉHO SPOJE: Zkušební skupina  3   (z=0.85)
VNEJŠÍ PRUMER VÁLCOVÉHO OKRAJE DNA.................:De       1000.00 mm
DÉLKA VÁLCOVÉHO OKRAJE DNA.........................:Lcyl        0.00 mm
ZÁPORNÁ ÚCHYLKA TVÁRENÍ/TOLERANCE PLECHU...........:th         0.5000 mm
PROVEDENÁ TLOUŠTKA DNA (nezkorodovaná).............:en          12.00 mm
Include calculation of forming during fabrication to EN13445-4 Section 9.: Ne
```

DATA MATERIÁLU DNA

```
EN 10028-2:2017, 1.0425 P265GH plate and strip, HT:N THK<=16mm 130'C
Rm=410 Rp=265 Rpt=230.2 f=153.47 f20=170.83 ftest=252.38 E=203868(N/mm2) ro=7.85
SOUCINITEL BEZPECNOSTI (1.0 uhlíková a 1.25 austenitická ocel):s   1.0000
Materiál a výchozí polotovar:
Austenitická ocel , NE za studena bezešvì kovotlaèitelsky tváøená
```

HRDLA V OBLASTI ANULOIDU DLE ÈÁSTI 7.7

```
Hrdla v oblasti anuloidu: Ne
```

VÝPOÈTOVÁ DATA

7.5.3 - TOROSFÉRICKÁ DNA ZATÍŽENÁ VNITØNÍM TLAKEM

7.5.3.2 Požadovaná minimální tlouš•ka dna

```
Požadovaná tlouš•ka dna pro omezení membránového napìtí ve støední èásti
es = P * R / (2 * f * z - 0.5 * P)                                  (7.5-1)
=1.6*800/(2*153.47*0.85-0.5*1.6)=                          4.9212 mm

fb = Rpt / 1.5 (7.5-4) =230.2/1.5=                          153.47 N/mm2
Požadovaná tlouš•ka anuloidu pro zabránìní plastického zborcení
eb = (0.75*R+0.2*Di)*((P/(111*fb)*(Di/r)^0.825)^(0.667)             (7.5-3)
=(0.75*800+0.2*978)*((1.6/(111*153.47)*(978/154)^0.825)^(0.667)=   4.5322 mm

7.5.3.5 Vzorce pro výpoèet souèinitele Beta
Y = MIN( emin / R, 0.04) (7.5-9) =MIN(5.62/800,0.04)=        0.0070
Z = LOG( 1 / Y) (7.5-10) =LOG(1/0.007)=                      2.1537
X = r / Di (7.5-11) =154/988.77=                             0.1557
N = 1.006 - 1 / (6.2 + (90 * Y) ^ 4)                               (7.5-12)
=1.006-1/(6.2+(90*0.007)^4)=                               0.8488
Beta01 = N*(-0.1833*Z^3+1.0383*Z^2-1.2943*Z+0.837)                 (7.5-15)
=0.8488*(-0.1833*2.15^3+1.0383*2.15^2-1.2943*2.15+0.837)=   0.8779
Beta02 = MAX( 0.5, 0.95 * (0.56 - 1.94 * Y - 82.5 * Y ^ 2))        (7.5-17)
=MAX(0.5,0.95*(0.56-1.94*0.007-82.5*0.007^2))=             0.5152
beta = 10 * ((0.2 - X) * Beta01 + (X - 0.1) * Beta02)              (7.5-16)
=10*((0.2-0.1557)*0.8779+(0.1557-0.1)*0.5152)=             0.6757
Požadovaná tlouš•ka anuloidu pro zabránìní axiálních deformací
ey = beta * P * (0.75 * R + 0.2 * Di) / f                          (7.5-2)
=0.6757*1.6*(0.75*800+0.2*988.77)/153.47=                  5.6199 mm
```

NOTE/NOTE 3, since ey(5.6) > 0.005*Di(4.9) it is NOT necessary to calculate/consider eb.

```
Požadovaná minimální tlouš•ka dna bez kor. pøídavku emin :
emin = emin =5.62=                                           5.6199 mm

Požadovaná minimální tlouš•ka dna vèetnì kor. pøídavku :
emina = emin + c + th =5.62+1+0.5=                           7.1200 mm
```

Vnitøní pøetlak emina=7.12 <= en=12[mm]	59.3%	OK

```
Analyzovaná tlouš•ka
ea = en - c - th =12-1-0.5=                                   10.50 mm
Vnitøní prùmìr skoøepiny
Di = De - 2 * (en - c) =1000-2*(12-1)=                       978.00 mm
Støední prùmìr skoøepiny
Dm = (De + Di) / 2 =(1000+978)/2=                            989.00 mm
```

7.5.3.4 - Požadovaná minimální tlouš•ka válcového lemu

```
Llim = 0.2 * SQR( Di * emin) =0.2*SQR(978*5.62)=              14.83 mm
Když Lcyl <= Llim je požadovaná tlouš•ka válcového lemu rovna tlouš•ce anuloidu
Minimální tlouš•ka válcového lemu bez kor. pøídavku
ecyl = MAX( ey, eb ) =MAX(5.62,4.53)=                        5.6199 mm

Minimum Thickness of Straight Flange Incl.Corr. :
ecyla = ecyl + c =5.62+1=                                    6.6200 mm
```

7.5.3.1 Podmínky platnosti - Eliptická dna:

»Kontrola geometrie r=154 <= 0.2 * Di=195.6[mm] « » OK«

»Kontrola geometrie r=154 >= 0.06 * Di=58.68[mm] « » OK«

»Kontrola geometrie r=154 >= 2*e=11.24[mm] « » OK«

»Kontrola geometrie e=5.62 <= 0.08*De=80[mm] « » OK«

»Kontrola geometrie ea=10.5 >= 0.001*De=1[mm] « » OK«

»Kontrola geometrie R=800 <= De=1000[mm] « » OK«

MAXIMÁLNÍ PØÍPUSTNÝ TLAK Pmax :NOVÝ STUDENÝ STAV

```
Ps = 2 * f * z * ea / (R + 0.5 * ea)                              (7.5-6)
=2*170.83*0.85*11.5/(799+0.5*11.5)=                          4.1500 MPa
Py = f * ea / ( beta * ( 0.75 * R + 0.2 * Di))                    (7.5-7)
=170.83*11.5/(0.6034*(0.75*799+0.2*978))=                    4.0958 MPa
PB = 111*fb*(ea/(0.75*R+0.2*Di))^1.5*(r/Di)^0.825                 (7.5-8)
=111*176.67*(11.5/(0.75*799+0.2*978))^1.5*(154/978)^0.825=    7.4263 MPa
Pmax (is the least of Ps, Py, Pb and Pcyl) = Pmax
=4.1=                                                        4.0958 MPa
```

MAXIMÁLNÍ PØÍPUSTNÝ TLAK Pmax :PROVOZNÍ ZKORODOVANÝ STAV

```
Ps = 2 * f * z * ea / (R + 0.5 * ea)                              (7.5-6)
=2*153.47*0.85*10.5/(800+0.5*10.5)=                          3.4020 MPa
Py = f * ea / ( beta * ( 0.75 * R + 0.2 * Di))                    (7.5-7)
=153.47*10.5/(0.6092*(0.75*800+0.2*978))=                    3.3247 MPa
PB = 111*fb*(ea/(0.75*R+0.2*Di))^1.5*(r/Di)^0.825                 (7.5-8)
=111*153.47*(10.5/(0.75*800+0.2*978))^1.5*(154/978)^0.825=    5.6202 MPa
Pmax (is the least of Ps, Py, Pb and Pcyl) = Pmax
=3.32=                                                       3.3247 MPa
```

MAXIMÁLNÍ ZKUŠEBNÍ TLAK Ptest (Nezkorodovaný stav pøi teplotì okolí)

```
Ps = 2 * f * z * ea / (R + 0.5 * ea)                                  (7.5-6)
=2*252.38*1*11.5/(799+0.5*11.5)=                              7.2131 MPa
Py = f * ea / ( beta * ( 0.75 * R + 0.2 * Di))                        (7.5-7)
=252.38*11.5/(0.6034*(0.75*799+0.2*978))=                     6.0510 MPa
PB = 111*fb*(ea/(0.75*R+0.2*Di))^1.5*(r/Di)^0.825                     (7.5-8)
=111*252.38*(11.5/(0.75*799+0.2*978))^1.5*(154/978)^0.825=      10.61 MPa
Pmax (is the least of Ps, Py, Pb and Pcyl) = Pmax
=6.05=                                                        6.0510 MPa
```

EN13445-5;10.2.3.3 POŽADOVANÝ MIN.HYDROSTATICKÝ ZKUŠEBNÍ TLAK:Ptmin

```
NOVÝ PØI TEPLOTÌ OKOLÍ PRO ZKUŠEBNÍ SKUPINY 1, 2 a 3
Ptmin = 1.25 * Pd * f20 / f =1.25*1.6*170.83/153.47=           2.2262 MPa

Ptmin = 1.43 * Pd =1.43*1.6=                                   2.2880 MPa
```

Zkušební tlak Ptmin=2.29 <= Ptmax=6.05[MPa]	37.8%	OK

Maximální prùmìr otvoru nevyžaduje kontrolu na vyztužení , dmax

```
ris = R (9.5-4) =800=                                           800.00 mm
Délka skoøepiny pøispívající k vyztužení
Is = Sqr(( 2 * ris + ea) * ea)                                        (9.5-2)
=Sqr((2*800+10.5)*10.5)=                                      130.04 mm
Maximální prùmìr nevyztuženého otvoru kontrtolovat dle požadavkù v èásti 9
dmax1 = (ea*Is*(f-0.5*P)/P-ris*Is)/(0.5*ris+0.5*ea)                (9.5-7,22,23)
=(10.5*130.04*(153.47-0.5*1.6)/1.6-800*130.04)/(0.5*800+0.5*10.5)=    64.79 mm

Maximální prùmìr otvoru nevyžaduje kontrolu na vyztužení
dmax2 = 0.15 * Sqr(( 2 * ris + ea) * ea)                          (9.5-18)
=0.15*Sqr((2*800+10.5)*10.5)=                                  19.51 mm

Maximální prùmìr nevyztuženého otvoru
dmax = MAX( dmax1, dmax2) =MAX(64.79,19.51)=                     64.79 mm
```

8.7 - KULOVÁ SKOØEPINA ZATÍŽENÁ VNÌJŠÍM TLAKEM

8.4.2 Dovolená elastická mez Sige:

```
Sige = Rpt (8.4.2-1) =230.2=                                    230.20 N/mm2
Støední polomìr R:
Rmean = R + ea / 2 =800+10.5/2=                                 805.25 mm
TLAK PRO MEM.NAPÌTÍ ROVNÉ MEZI KLUZU py
py = 2 * Sige * ea / Rmean (8.7.1-1) =2*230.2*10.5/805.25=      6.0034 MPa

TLAK ELASTICKÉ INSTABILITY pm
pm = 1.21 * E * ea ^ 2 / Rmean ^ 2                                    (8.7.1-2)
=1.21*2.0387E05*10.5^2/805.25^2=                               41.94 MPa

Hodnota pr/py z obrázku 8.5-5 køivka  2
Value1 =  ==                                                    0.5700
```

MAXIMÁLNÍ PØÍPUSTNÝ VNÌJŠÍ TLAK Pmax

```
pr = Value1 * py =0.57*6.=                                      3.4219 MPa
Pmax = pr / S =3.42/1.5=                                        2.2813 MPa
```

Vnìjší tlak Pmax=2.28 >= Pext=0[MPa]	0.0%	OK

8.7.2 - Dovolené úchylky tvaru

»Metoda z 8.7.1 aplikovaná na klenutá dna , která mají kulovitost do 1% polomìru a polomìr køivosti založený na délce oblouku 2.4*Sqr(ea*Rmax) nepøesahuje nominální hodnotu o více než 30%.

VÝPOÈET - SOUHRN

7.5.3 - TOROSFÉRICKÁ DNA ZATÍŽENÁ VNITØNÍM TLAKEM

7.5.3.2 Požadovaná minimální tlouš•ka dna

Požadovaná minimální tlouš•ka dna bez kor. pøídavku emin :
emin = emin =5.62= 5.6199 mm

Požadovaná minimální tlouš•ka dna vèetnì kor. pøídavku :
emina = emin + c + th =5.62+1+0.5= 7.1200 mm

Vnitøní pøetlak emina=7.12 <= en=12[mm]	59.3%	OK

Minimum Thickness of Straight Flange Incl.Corr. :
ecyla = ecyl + c =5.62+1= 6.6200 mm

MAXIMÁLNÍ PØÍPUSTNÝ TLAK Pmax :NOVÝ STUDENÝ STAV

Pmax (is the least of Ps, Py, Pb and Pcyl) = Pmax
=4.1= 4.0958 MPa

MAXIMÁLNÍ PØÍPUSTNÝ TLAK Pmax :PROVOZNÍ ZKORODOVANÝ STAV

Pmax (is the least of Ps, Py, Pb and Pcyl) = Pmax
=3.32= 3.3247 MPa

MAXIMÁLNÍ ZKUŠEBNÍ TLAK Ptest (Nezkorodovaný stav pøi teplotì okolí)

Pmax (is the least of Ps, Py, Pb and Pcyl) = Pmax
=6.05= 6.0510 MPa

EN13445-5;10.2.3.3 POŽADOVANÝ MIN.HYDROSTATICKÝ ZKUŠEBNÍ TLAK:Ptmin

NOVÝ PØI TEPLOTÌ OKOLÍ PRO ZKUŠEBNÍ SKUPINY 1, 2 a 3
Ptmin = 1.25 * Pd * f20 / f =1.25*1.6*170.83/153.47= 2.2262 MPa

Ptmin = 1.43 * Pd =1.43*1.6= 2.2880 MPa

Zkušební tlak Ptmin=2.29 <= Ptmax=6.05[MPa]	37.8%	OK

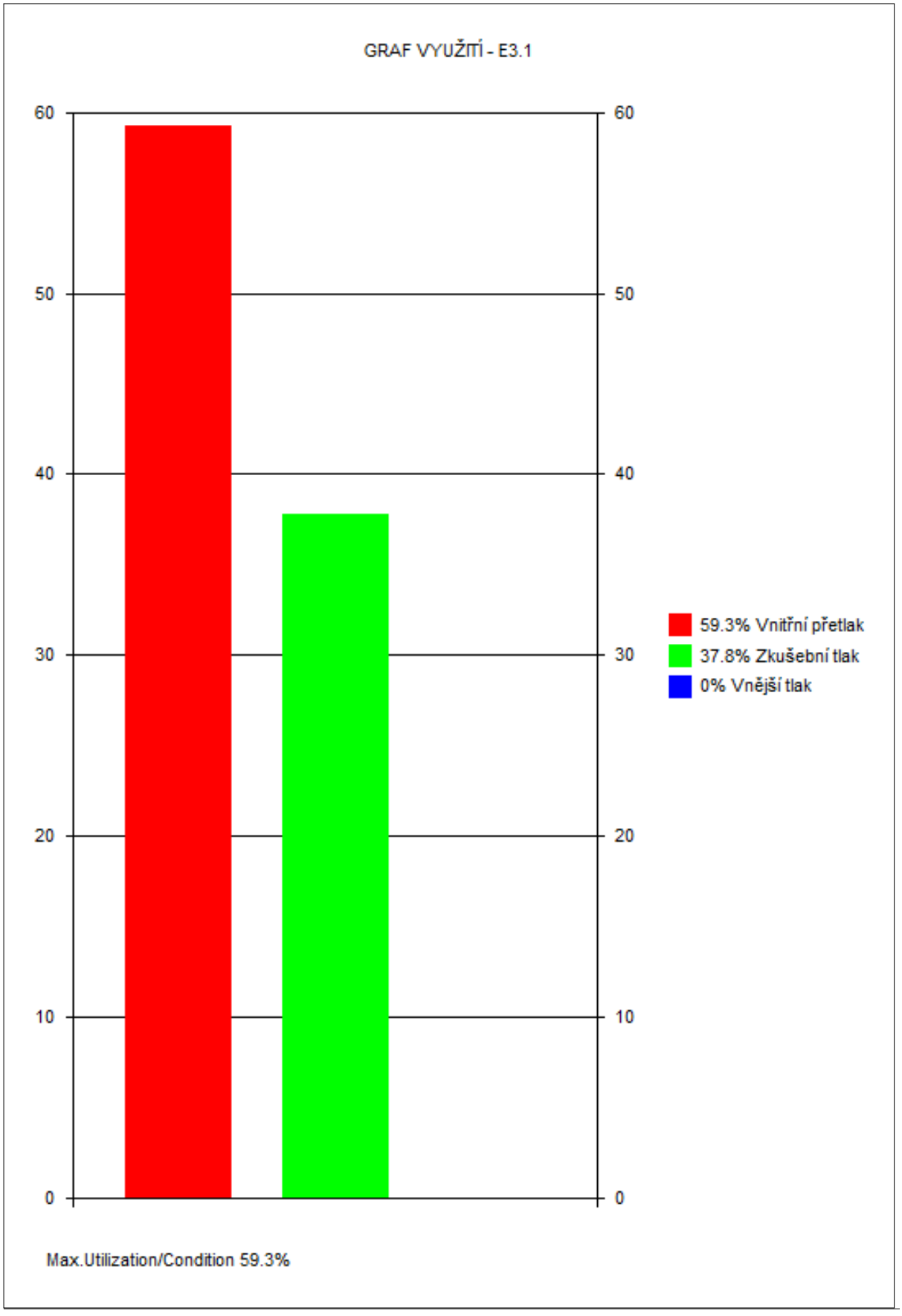
Maximální prùmìr otvoru nevyžaduje kontrolu na vyztužení , dmax

Maximální prùmìr nevyztuženého otvoru
dmax = MAX(dmax1, dmax2) =MAX(64.79,19.51)= 64.79 mm

8.7 - KULOVÁ SKOØEPINA ZATÍŽENÁ VNÌJŠÍM TLAKEM

Vnìjší tlak Pmax=2.28 >= Pext=0[MPa]	0.0%	OK

Objem :0.1236 m3 Tíha:101.2 kg (SG= 7.85)


GRAF VYUŽITÍ - E3.1
60
50
40
30
20
10
0
59.3% Vnitřní přetlak
37.8% Zkušební tlak
0% Vnější tlak
Max.Utilization/Condition 59.3%

VSTUPNÍ DATA

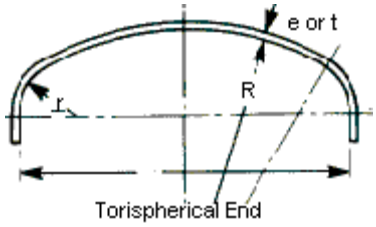
PØIPOJENÍ/POLOHA KOMPONENTY

Pøipojení: S1.1 Válcový pláš• Main Shell
Poloha: Podél osy z z1= 1800

HLAVNÍ VÝPOÈTOVÁ DATA

ZATÍŽENÍ TLAKEM: Výpoèet komponenty pro vnitøní a vnìjší tlak
PROCESNÍ KARTA:
HLAVNÍ VÝPOÈTOVÁ DATA : Temp= 130°C, P=1.6000 MPa, c=1.0 mm, Pext=0.0000 MPa
SPECIFICKÁ HUSTOTA PROVOZNÍHO MEDIA.....:SG 1.0000
HYDROSTATICKÁ VÝŠKA KAPALINY.....:LH 0.00 mm

ROZMÌRY DNA



Typ torosférického dna: Dished End KORBBOGEN DIN 28013-28014/SMS 482
SOUÈINITEL SVAROVÉHO SPOJE: Zkušební skupina 3 (z=0.85)
VNEJŠÍ PRUMER VÁLCOVÉHO OKRAJE DNA.....:De 1000.00 mm
DÉLKA VÁLCOVÉHO OKRAJE DNA.....:Lcyl 0.00 mm
ZÁPORNÁ ÚCHYLKA TVÁRENÍ/TOLERANCE PLECHU.....:th 0.5000 mm
PROVEDENÁ TLOUŠTKA DNA (nezkorodovaná).....:en 12.00 mm
Include calculation of forming during fabrication to EN13445-4 Section 9.: Ne

DATA MATERIÁLU DNA

EN 10028-2:2017, 1.0425 P265GH plate and strip, HT:N THK<=16mm 130'C
Rm=410 Rp=265 Rpt=230.2 f=153.47 f20=170.83 ftest=252.38 E=203868(N/mm2) ro=7.85
SOUCINITEL BEZPECNOSTI (1.0 uhlíková a 1.25 austenitická ocel):s 1.0000
Materiál a výchozí polotovar:
Austenitická ocel , NE za studena bezešvì kovotlaèitelsky tváøená

HRDLA V OBLASTI ANULOIDU DLE ÈÁSTI 7.7

Hrdla v oblasti anuloidu: Ne

VÝPOÈTOVÁ DATA

7.5.3 - TOROSFÉRICKÁ DNA ZATÍŽENÁ VNITØNÍM TLAKEM

7.5.3.2 Požadovaná minimální tlouš•ka dna

```
Požadovaná tlouš•ka dna pro omezení membránového napìtí ve støední èásti
es = P * R / (2 * f * z - 0.5 * P)                                  (7.5-1)
=1.6*800/(2*153.47*0.85-0.5*1.6)=                          4.9212 mm

fb = Rpt / 1.5 (7.5-4) =230.2/1.5=                          153.47 N/mm2
Požadovaná tlouš•ka anuloidu pro zabránìní plastického zborcení
eb = (0.75*R+0.2*Di)*((P/(111*fb)*(Di/r)^0.825)^(0.667)             (7.5-3)
=(0.75*800+0.2*978)*((1.6/(111*153.47)*(978/154)^0.825)^(0.667)=   4.5322 mm

7.5.3.5 Vzorce pro výpoèet souèinitele Beta
Y = MIN( emin / R, 0.04) (7.5-9) =MIN(5.62/800,0.04)=        0.0070
Z = LOG( 1 / Y) (7.5-10) =LOG(1/0.007)=                      2.1537
X = r / Di (7.5-11) =154/988.77=                             0.1557
N = 1.006 - 1 / (6.2 + (90 * Y) ^ 4)                               (7.5-12)
=1.006-1/(6.2+(90*0.007)^4)=                               0.8488
Beta01 = N*(-0.1833*Z^3+1.0383*Z^2-1.2943*Z+0.837)                 (7.5-15)
=0.8488*(-0.1833*2.15^3+1.0383*2.15^2-1.2943*2.15+0.837)=   0.8779
Beta02 = MAX( 0.5, 0.95 * (0.56 - 1.94 * Y - 82.5 * Y ^ 2))        (7.5-17)
=MAX(0.5,0.95*(0.56-1.94*0.007-82.5*0.007^2))=             0.5152
beta = 10 * ((0.2 - X) * Beta01 + (X - 0.1) * Beta02)              (7.5-16)
=10*((0.2-0.1557)*0.8779+(0.1557-0.1)*0.5152)=             0.6757
Požadovaná tlouš•ka anuloidu pro zabránìní axiálních deformací
ey = beta * P * (0.75 * R + 0.2 * Di) / f                          (7.5-2)
=0.6757*1.6*(0.75*800+0.2*988.77)/153.47=                  5.6199 mm
```

NOTE/NOTE 3, since ey(5.6) > 0.005*Di(4.9) it is NOT necessary to calculate/consider eb.

```
Požadovaná minimální tlouš•ka dna bez kor. pøídavku emin :
emin = emin =5.62=                                           5.6199 mm

Požadovaná minimální tlouš•ka dna vèetnì kor. pøídavku :
emina = emin + c + th =5.62+1+0.5=                           7.1200 mm
```

Vnitøní pøetlak emina=7.12 <= en=12[mm]	59.3%	OK

```
Analyzovaná tlouš•ka
ea = en - c - th =12-1-0.5=                                   10.50 mm
Vnitøní prùmìr skoøepiny
Di = De - 2 * (en - c) =1000-2*(12-1)=                       978.00 mm
Støední prùmìr skoøepiny
Dm = (De + Di) / 2 =(1000+978)/2=                            989.00 mm
```

7.5.3.4 - Požadovaná minimální tlouš•ka válcového lemu

```
Llim = 0.2 * SQR( Di * emin) =0.2*SQR(978*5.62)=              14.83 mm
Když Lcyl <= Llim je požadovaná tlouš•ka válcového lemu rovna tlouš•ce anuloidu
Minimální tlouš•ka válcového lemu bez kor. pøídavku
ecyl = MAX( ey, eb ) =MAX(5.62,4.53)=                        5.6199 mm

Minimum Thickness of Straight Flange Incl.Corr. :
ecyla = ecyl + c =5.62+1=                                    6.6200 mm
```

7.5.3.1 Podmínky platnosti - Eliptická dna:

»Kontrola geometrie r=154 <= 0.2 * Di=195.6[mm] « » OK«

»Kontrola geometrie r=154 >= 0.06 * Di=58.68[mm] « » OK«

»Kontrola geometrie r=154 >= 2*e=11.24[mm] « » OK«

»Kontrola geometrie e=5.62 <= 0.08*De=80[mm] « » OK«

»Kontrola geometrie ea=10.5 >= 0.001*De=1[mm] « » OK«

»Kontrola geometrie R=800 <= De=1000[mm] « » OK«

MAXIMÁLNÍ PØÍPUSTNÝ TLAK Pmax :NOVÝ STUDENÝ STAV

```
Ps = 2 * f * z * ea / (R + 0.5 * ea)                              (7.5-6)
=2*170.83*0.85*11.5/(799+0.5*11.5)=                          4.1500 MPa
Py = f * ea / ( beta * ( 0.75 * R + 0.2 * Di))                    (7.5-7)
=170.83*11.5/(0.6034*(0.75*799+0.2*978))=                    4.0958 MPa
PB = 111*fb*(ea/(0.75*R+0.2*Di))^1.5*(r/Di)^0.825                 (7.5-8)
=111*176.67*(11.5/(0.75*799+0.2*978))^1.5*(154/978)^0.825=     7.4263 MPa
Pmax (is the least of Ps, Py, Pb and Pcyl) = Pmax
=4.1=                                                        4.0958 MPa
```

MAXIMÁLNÍ PØÍPUSTNÝ TLAK Pmax :PROVOZNÍ ZKORODOVANÝ STAV

```
Ps = 2 * f * z * ea / (R + 0.5 * ea)                              (7.5-6)
=2*153.47*0.85*10.5/(800+0.5*10.5)=                          3.4020 MPa
Py = f * ea / ( beta * ( 0.75 * R + 0.2 * Di))                    (7.5-7)
=153.47*10.5/(0.6092*(0.75*800+0.2*978))=                    3.3247 MPa
PB = 111*fb*(ea/(0.75*R+0.2*Di))^1.5*(r/Di)^0.825                 (7.5-8)
=111*153.47*(10.5/(0.75*800+0.2*978))^1.5*(154/978)^0.825=     5.6202 MPa
Pmax (is the least of Ps, Py, Pb and Pcyl) = Pmax
=3.32=                                                       3.3247 MPa
```

MAXIMÁLNÍ ZKUŠEBNÍ TLAK Ptest (Nezkorodovaný stav pøi teplotì okolí)

```
Ps = 2 * f * z * ea / (R + 0.5 * ea)                                  (7.5-6)
=2*252.38*1*11.5/(799+0.5*11.5)=                              7.2131 MPa
Py = f * ea / ( beta * ( 0.75 * R + 0.2 * Di))                        (7.5-7)
=252.38*11.5/(0.6034*(0.75*799+0.2*978))=                     6.0510 MPa
PB = 111*fb*(ea/(0.75*R+0.2*Di))^1.5*(r/Di)^0.825                     (7.5-8)
=111*252.38*(11.5/(0.75*799+0.2*978))^1.5*(154/978)^0.825=     10.61 MPa
Pmax (is the least of Ps, Py, Pb and Pcyl) = Pmax
=6.05=                                                        6.0510 MPa
```

EN13445-5;10.2.3.3 POŽADOVANÝ MIN.HYDROSTATICKÝ ZKUŠEBNÍ TLAK:Ptmin

```
NOVÝ PØI TEPLOTÌ OKOLÍ PRO ZKUŠEBNÍ SKUPINY 1, 2 a 3
Ptmin = 1.25 * Pd * f20 / f =1.25*1.6*170.83/153.47=           2.2262 MPa

Ptmin = 1.43 * Pd =1.43*1.6=                                   2.2880 MPa
```

Zkušební tlak Ptmin=2.29 <= Ptmax=6.05[MPa]	37.8%	OK

Maximální prùmìr otvoru nevyžaduje kontrolu na vyztužení , dmax

```
ris = R (9.5-4) =800=                                           800.00 mm
Délka skoøepiny pøispívající k vyztužení
Is = Sqr(( 2 * ris + ea) * ea)                                        (9.5-2)
=Sqr((2*800+10.5)*10.5)=                                      130.04 mm
Maximální prùmìr nevyztuženého otvoru kontrtolovat dle požadavkù v èásti 9
dmax1 = (ea*Is*(f-0.5*P)/P-ris*Is)/(0.5*ris+0.5*ea)                (9.5-7,22,23)
=(10.5*130.04*(153.47-0.5*1.6)/1.6-800*130.04)/(0.5*800+0.5*10.5)=    64.79 mm

Maximální prùmìr otvoru nevyžaduje kontrolu na vyztužení
dmax2 = 0.15 * Sqr(( 2 * ris + ea) * ea)                          (9.5-18)
=0.15*Sqr((2*800+10.5)*10.5)=                                  19.51 mm

Maximální prùmìr nevyztuženého otvoru
dmax = MAX( dmax1, dmax2) =MAX(64.79,19.51)=                   64.79 mm
```

8.7 - KULOVÁ SKOØEPINA ZATÍŽENÁ VNÌJŠÍM TLAKEM

8.4.2 Dovolená elastická mez Sige:

```
Sige = Rpt (8.4.2-1) =230.2=                                    230.20 N/mm2
Støední polomìr R:
Rmean = R + ea / 2 =800+10.5/2=                                 805.25 mm
TLAK PRO MEM.NAPÌTÍ ROVNÉ MEZI KLUZU py
py = 2 * Sige * ea / Rmean (8.7.1-1) =2*230.2*10.5/805.25=     6.0034 MPa

TLAK ELASTICKÉ INSTABILITY pm
pm = 1.21 * E * ea ^ 2 / Rmean ^ 2                                    (8.7.1-2)
=1.21*2.0387E05*10.5^2/805.25^2=                               41.94 MPa

Hodnota pr/py z obrázku 8.5-5 køivka  2
Value1 =  ==                                                    0.5700
```

MAXIMÁLNÍ PØÍPUSTNÝ VNÌJŠÍ TLAK Pmax

```
pr = Value1 * py =0.57*6.=                                      3.4219 MPa
Pmax = pr / S =3.42/1.5=                                        2.2813 MPa
```

Vnìjší tlak Pmax=2.28 >= Pext=0[MPa]	0.0%	OK

8.7.2 - Dovolené úchylky tvaru

»Metoda z 8.7.1 aplikovaná na klenutá dna , která mají kulovitost do 1% polomìru a polomìr køivosti založený na délce oblouku 2.4*Sqr(ea*Rmax) nepøesahuje nominální hodnotu o více než 30%.

VÝPOÈET - SOUHRN

7.5.3 - TOROSFÉRICKÁ DNA ZATÍŽENÁ VNITØNÍM TLAKEM

7.5.3.2 Požadovaná minimální tlouš•ka dna

Požadovaná minimální tlouš•ka dna bez kor. pøídavku emin :
emin = emin =5.62= 5.6199 mm

Požadovaná minimální tlouš•ka dna vèetnì kor. pøídavku :
emina = emin + c + th =5.62+1+0.5= 7.1200 mm

Vnitøní pøetlak emina=7.12 <= en=12[mm]	59.3%	OK

Minimum Thickness of Straight Flange Incl.Corr. :
ecyla = ecyl + c =5.62+1= 6.6200 mm

MAXIMÁLNÍ PØÍPUSTNÝ TLAK Pmax :NOVÝ STUDENÝ STAV

Pmax (is the least of Ps, Py, Pb and Pcyl) = Pmax
=4.1= 4.0958 MPa

MAXIMÁLNÍ PØÍPUSTNÝ TLAK Pmax :PROVOZNÍ ZKORODOVANÝ STAV

Pmax (is the least of Ps, Py, Pb and Pcyl) = Pmax
=3.32= 3.3247 MPa

MAXIMÁLNÍ ZKUŠEBNÍ TLAK Ptest (Nezkorodovaný stav pøi teplotì okolí)

Pmax (is the least of Ps, Py, Pb and Pcyl) = Pmax
=6.05= 6.0510 MPa

EN13445-5;10.2.3.3 POŽADOVANÝ MIN.HYDROSTATICKÝ ZKUŠEBNÍ TLAK:Ptmin

NOVÝ PØI TEPLOTÌ OKOLÍ PRO ZKUŠEBNÍ SKUPINY 1, 2 a 3
Ptmin = 1.25 * Pd * f20 / f =1.25*1.6*170.83/153.47= 2.2262 MPa

Ptmin = 1.43 * Pd =1.43*1.6= 2.2880 MPa

Zkušební tlak Ptmin=2.29 <= Ptmax=6.05[MPa]	37.8%	OK

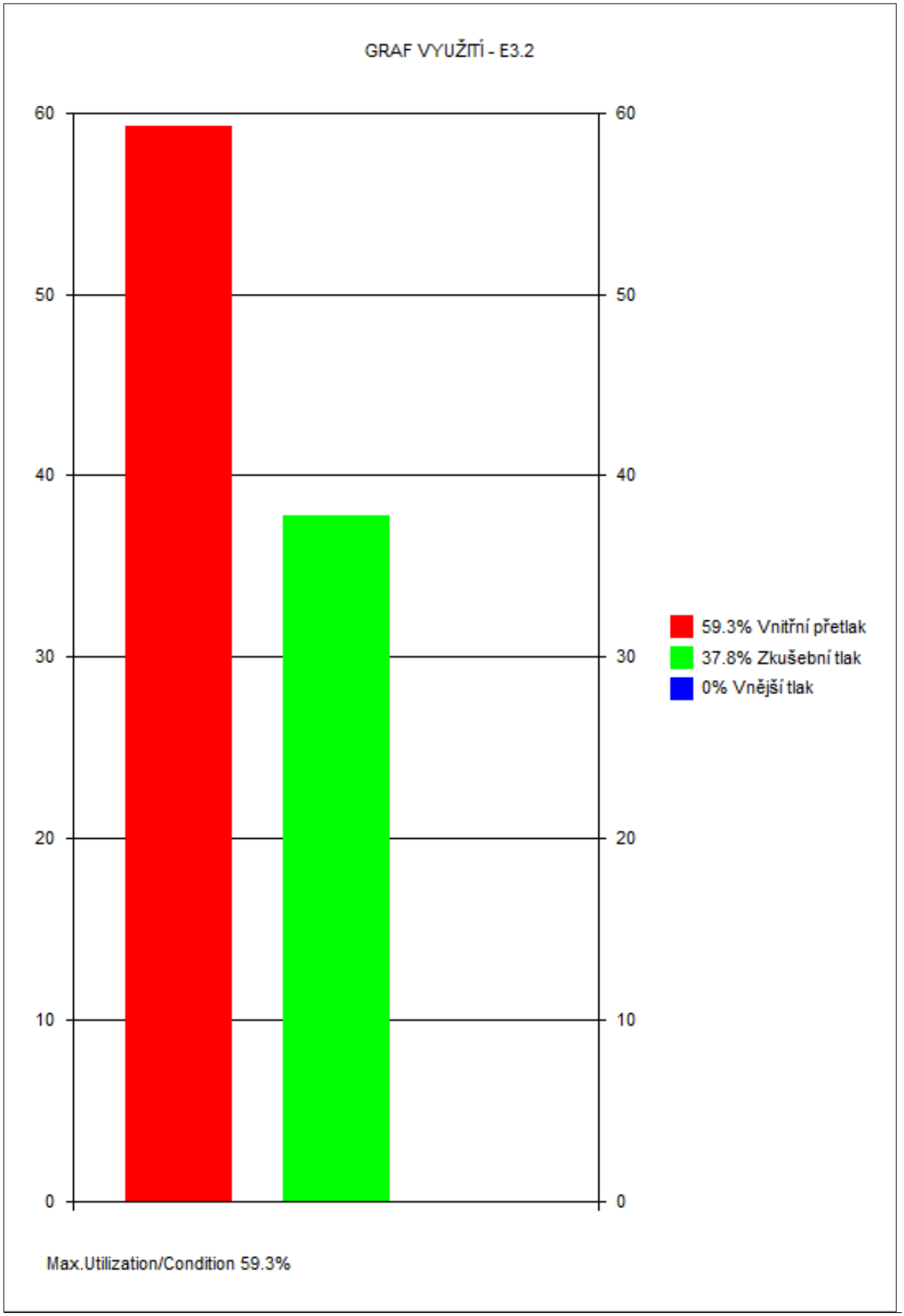
Maximální prùmìr otvoru nevyžaduje kontrolu na vyztužení , dmax

Maximální prùmìr nevyztuženého otvoru
dmax = MAX(dmax1, dmax2) =MAX(64.79,19.51)= 64.79 mm

8.7 - KULOVÁ SKOØEPINA ZATÍŽENÁ VNÌJŠÍM TLAKEM

Vnìjší tlak Pmax=2.28 >= Pext=0[MPa]	0.0%	OK

Objem :0.1236 m3 Tíha:101.2 kg (SG= 7.85)


GRAF VYUŽITÍ - E3.2
60
50
40
30
20
10
0
59.3% Vnitřní přetlak
37.8% Zkušební tlak
0% Vnější tlak
Max.Utilization/Condition 59.3%

VSTUPNÍ DATA

PØIPOJENÍ/POLOHA KOMPONENTY

```
Pøipojení: F.1     WN - Pøíruba                                    N.4
Poloha: Podél osy z z1=  151
```

HLAVNÍ VÝPOÈTOVÁ DATA

```
PROCESNÍ KARTA: HLAVNÍ VÝPOÈTOVÁ DATA : Temp= 130°C, P=1.6000 MPa, c=1.0 mm
SPECIFICKÁ HUSTOTA PROVOZNÍHO MEDIA.................:SG        1.0000
HYDROSTATICKÁ VÝŠKA KAPALINY........................:LH          0.00 mm
Check Deflection of Cover to TEMA RCB-9-21(multipass units): Ne
Stayed Flat Plate to section 20.2: Ne
Circular flat ends with radial reinforcement ribs to section 21: Ne
```

DATA PØIPOJENÉ PØÍRUBY (F.1)

```
TYP ZASLEPOVACÍ PØÍRUBY: Zaslepovací pøíruba s úzkým tìsnìním
VNEJŠÍ PRUMER PRÍRUBY...............................:A         755.00 mm
PRUMER ROZTECNÉ KRUŽNICE ŠROUBU.....................:C         670.00 mm
POCET ŠROUBU........................................:n          20.00
PRUMER DÍRY PRO ŠROUB V PRÍRUBE.....................:d          42.00 mm
VÝPOCTOVÉ ZATÍŽENÍ VE ŠROUBECH PRO MONTÁŽNÍ STAV....:W        1693.94 kN
VÝPOCTOVÝ PRUMER TESNENÍ V MÍSTE REAKCNÍ SÍLY.......:G         600.39 mm
SOUCINITEL TESNENÍ..................................:m         0.5000
ÚCINNÁ ŠÍRKA TESNENÍ................................:b          13.80 mm
```

DATA ZASLEPOVACÍ PØÍRUBY

```
PROVEDENÁ TLOUŠTKA DNA (nezkorodovaná)..............:en          44.00 mm
TLOUŠTKA LISTU PRÍRUBY(nezkorodovaná)...............:e           44.00 mm
EN 10028-2:2017, 1.0473 P355GH plate and strip, HT:N THK<=60mm 130'C
Rm=510 Rp=335 Rpt=291.2 f=194.13 f20=212.5 ftest=319.05 E=203868(N/mm2) ro=7.85
```

VÝPOÈTOVÁ DATA

10.5.2.1 MINIMÁLNÍ TLOUŠ•KA ZASLEPOVACÍ PØÍRUBY S ÚZKÝM TÌSNÌNÍM e

```
Støední rozteè šroubu
tB = PI * C / n =3.14*670/20=                              105.24 mm
Cf = MAX(Sqr(tB/(2*db+6*(eb-c)/(0.5+m))),1)                      (10.5-4)
=MAX(Sqr(105.24/(2*37.8+6*(44-1)/(0.5+0.5))),1)=          1.0000
Montážní podmínky (utahování)
ea = Sqr( Cf * 3 * (C - G) / (PI * G) * (W / f20))               (10.5-2)
=Sqr(1*3*(670-600.39)/(3.14*600.39)*(1693.94/212.5))=      29.71 mm

Provozní podmínky
eP = Sqr((0.31*G^2+3*Cf*(G/4+2*b*m)*(C-G))*P/f)                  (10.5-3)
=Sqr((0.31*600.39^2+3*1*(600.39/4+2*13.8*0.5)*(670-600.39))*1.6/194.13)
=    34.69 mm

Minimální tlouš•ka bez korozního pøídavku emin
emin = Max( eA , eP ) (10.5-1) =Max(29.71,34.69)=          34.69 mm

Minimální tlouš•ka vèetnì pøídavku e
e = emin + c =34.686+1=                                    35.69 mm
```

Tlouš• ka dna en=44 >= e=35.686[mm]	81.1%	OK

10.5.2.2 MINIMÁLNÍ TLOUŠ•KA PØÍRUBOVÉHO OKRAJE e1

```
eP1 = Sqr( 3 * Cf * (G / 4 + 2 * b * m) * (C - G) * P / f)          (10.5-6)
=Sqr(3*1*(600.39/4+2*13.8*0.5)*(670-600.39)*1.6/194.13)=    16.80 mm

e1 = Max( eA , eP1 ) (10.5-5) =Max(29.71,16.8)=               29.71 mm
```

Tlouš• ka pøírubového okraje eb=44 >= e1=29.708[mm]	67.5%	OK

VÝPOÈTY TLAKU

MAXIMÁLNÍ PØÍPUSTNÝ TLAK Pmax :NOVÝ STUDENÝ STAV

```
Pmax1 = ea^2*f/(0.31*G^2+3*Cf*(G/4+2*b*m)*(C-G))
=44^2*212.5/(0.31*600.39^2+3*1*(600.39/4+2*13.8*0.5)*(670-600.39))
=   2.8184 MPa

Pmax2 = e1^2*f/(3*Cf*(G/4+2*b*m)*(C-G))
=44^2*212.5/(3*1*(600.39/4+2*13.8*0.5)*(670-600.39))=       12.02 MPa

Pmax = MIN( Pmax1 , Pmax2) =MIN(2.82,12.02)=                 2.8184 MPa
```

MAXIMÁLNÍ PØÍPUSTNÝ TLAK Pmax :PROVOZNÍ ZKORODOVANÝ STAV

```
Pmax1 = ea^2*f/(0.31*G^2+3*Cf*(G/4+2*b*m)*(C-G))
=43^2*194.13/(0.31*600.39^2+3*1*(600.39/4+2*13.8*0.5)*(670-600.39))
=   2.4590 MPa

Pmax2 = e1^2*f/(3*Cf*(G/4+2*b*m)*(C-G))
=43^2*194.13/(3*1*(600.39/4+2*13.8*0.5)*(670-600.39))=      10.49 MPa

Pmax = MIN( Pmax1 , Pmax2) =MIN(2.46,10.49)=                 2.4590 MPa
```

MAXIMÁLNÍ ZKUŠEBNÍ TLAK Ptest (Nezkorodovaný stav pøi teplotì okolí)

```
Pmax1 = ea^2*f/(0.31*G^2+3*Cf*(G/4+2*b*m)*(C-G))
=44^2*319.05/(0.31*600.39^2+3*1*(600.39/4+2*13.8*0.5)*(670-600.39))
=   4.2315 MPa

Pmax2 = e1^2*f/(3*Cf*(G/4+2*b*m)*(C-G))
=44^2*319.05/(3*1*(600.39/4+2*13.8*0.5)*(670-600.39))=      18.05 MPa

Pmax = MIN( Pmax1 , Pmax2) =MIN(4.23,18.05)=                 4.2315 MPa
```

EN13445-5;10.2.3.3 POŽADOVANÝ MIN.HYDROSTATICKÝ ZKUŠEBNÍ TLAK:Ptmin

```
NOVÝ PØI TEPLOTÌ OKOLÍ PRO ZKUŠEBNÍ SKUPINY 1, 2 a 3
Ptmin = 1.25 * Pd * f20 / f =1.25*1.6*212.5/194.13=          2.1893 MPa

Ptmin = 1.43 * Pd =1.43*1.6=                                 2.2880 MPa
```

Zkušební tlak Ptmin=2.29 <= Ptmax=4.23[MPa]	54.0%	OK

VÝPOÈET - SOUHRN

10.5.2.1 MINIMÁLNÍ TLOUŠ•KA ZASLEPOVACÍ PØÍRUBY S ÚZKÝM TÌSNÌNÍM e

Minimální tlouš•ka bez korozního pøídavku emin
emin = Max(eA , eP) (10.5-1) =Max(29.71,34.69)= 34.69 mm

Minimální tlouš•ka vèetnì pøídavku e
e = emin + c =34.686+1= 35.69 mm

Tlouš• ka dna en=44 >= e=35.686[mm]	81.1%	OK

10.5.2.2 MINIMÁLNÍ TLOUŠ•KA PØÍRUBOVÉHO OKRAJE e1

e1 = Max(eA , eP1) (10.5-5) =Max(29.71,16.8)= 29.71 mm

Tlouš• ka pøírubového okraje eb=44 >= e1=29.708[mm]	67.5%	OK

VÝPOÈTY TLAKU

MAXIMÁLNÍ PØÍPUSTNÝ TLAK Pmax :NOVÝ STUDENÝ STAV

Pmax = MIN(Pmax1 , Pmax2) =MIN(2.82,12.02)= 2.8184 MPa

MAXIMÁLNÍ PØÍPUSTNÝ TLAK Pmax :PROVOZNÍ ZKORODOVANÝ STAV

Pmax = MIN(Pmax1 , Pmax2) =MIN(2.46,10.49)= 2.4590 MPa

MAXIMÁLNÍ ZKUŠEBNÍ TLAK Ptest (Nezkorodovaný stav pøi teplotì okolí)

Pmax = MIN(Pmax1 , Pmax2) =MIN(4.23,18.05)= 4.2315 MPa

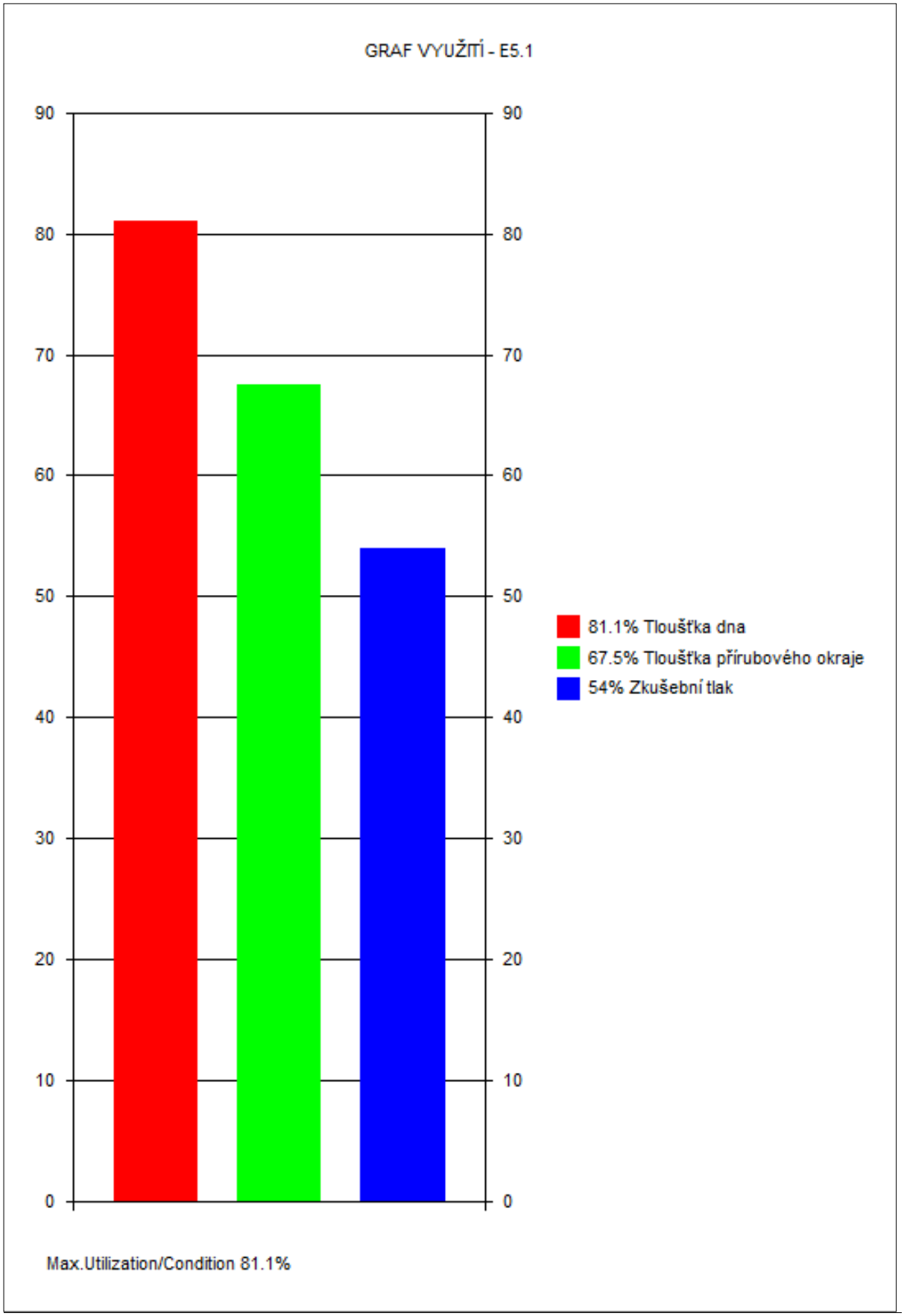
EN13445-5;10.2.3.3 POŽADOVANÝ MIN.HYDROSTATICKÝ ZKUŠEBNÍ TLAK:Ptmin

NOVÝ PØI TEPLOTÌ OKOLÍ PRO ZKUŠEBNÍ SKUPINY 1, 2 a 3
Ptmin = 1.25 * Pd * f20 / f =1.25*1.6*212.5/194.13= 2.1893 MPa

Ptmin = 1.43 * Pd =1.43*1.6= 2.2880 MPa

Zkušební tlak Ptmin=2.29 <= Ptmax=4.23[MPa]	54.0%	OK

Objem :0.00 m3 Tíha:154 kg (SG= 7.85)


GRAF VYUŽITÍ - E5.1
90
80
70
60
50
40
30
20
10
0
81.1% Tloušťka dna
67.5% Tloušťka přírubového okraje
54% Zkušební tlak
Max.Utilization/Condition 81.1%

VSTUPNÍ DATA

PØIPOJENÍ/POLOHA KOMPONENTY

```
Pøipojení: F.2     WN - Pøíruba                                    N.3
Poloha: Podél osy z z1= -151
```

HLAVNÍ VÝPOÈTOVÁ DATA

```
PROCESNÍ KARTA: HLAVNÍ VÝPOÈTOVÁ DATA : Temp= 130°C, P=1.6000 MPa, c=1.0 mm
SPECIFICKÁ HUSTOTA PROVOZNÍHO MEDIA.................:SG        1.0000
HYDROSTATICKÁ VÝŠKA KAPALINY........................:LH        406.99 mm
Check Deflection of Cover to TEMA RCB-9-21(multipass units): Ne
Stayed Flat Plate to section 20.2: Ne
Circular flat ends with radial reinforcement ribs to section 21: Ne
```

DATA PØIPOJENÉ PØÍRUBY (F.2)

```
TYP ZASLEPOVACÍ PØÍRUBY: Zaslepovací pøíruba s úzkým tìsnìním
VNEJŠÍ PRUMER PRÍRUBY..............................:A         755.00 mm
PRUMER ROZTECNÉ KRUŽNICE ŠROUBU.....................:C         670.00 mm
POCET ŠROUBU........................................:n          20.00
PRUMER DÍRY PRO ŠROUB V PRÍRUBE.....................:d          42.00 mm
VÝPOCTOVÉ ZATÍŽENÍ VE ŠROUBECH PRO MONTÁŽNÍ STAV....:W        1691.13 kN
VÝPOCTOVÝ PRUMER TESNENÍ V MÍSTE REAKCNÍ SÍLY.......:G         596.86 mm
SOUCINITEL TESNENÍ..................................:m         0.5000
ÚCINNÁ ŠÍRKA TESNENÍ................................:b          13.57 mm
```

DATA ZASLEPOVACÍ PØÍRUBY

```
PROVEDENÁ TLOUŠTKA DNA (nezkorodovaná)..............:en         44.00 mm
TLOUŠTKA LISTU PRÍRUBY(nezkorodovaná)...............:e          44.00 mm
EN 10028-2:2017, 1.0473 P355GH plate and strip, HT:N THK<=60mm 130'C
Rm=510 Rp=335 Rpt=291.2 f=194.13 f20=212.5 ftest=319.05 E=203868(N/mm2) ro=7.85
```

VÝPOÈTOVÁ DATA

10.5.2.1 MINIMÁLNÍ TLOUŠ•KA ZASLEPOVACÍ PØÍRUBY S ÚZKÝM TÌSNÌNÍM e

```
Støední rozteè šroubu
tB = PI * C / n =3.14*670/20=                              105.24 mm
Cf = MAX(Sqr(tB/(2*db+6*(eb-c)/(0.5+m))),1)                      (10.5-4)
=MAX(Sqr(105.24/(2*37.8+6*(44-1)/(0.5+0.5))),1)=          1.0000
Montážní podmínky (utahování)
ea = Sqr( Cf * 3 * (C - G) / (PI * G) * (W / f20))               (10.5-2)
=Sqr(1*3*(670-596.86)/(3.14*596.86)*(1691.13/212.5))=      30.52 mm

Provozní podmínky
eP = Sqr((0.31*G^2+3*Cf*(G/4+2*b*m)*(C-G))*P/f)                  (10.5-3)
=Sqr((0.31*596.86^2+3*1*(596.86/4+2*13.57*0.5)*(670-596.86))*1.604/194.13)
=    34.75 mm

Minimální tlouš•ka bez korozního pøídavku emin
emin = Max( eA , eP ) (10.5-1) =Max(30.52,34.75)=          34.75 mm

Minimální tlouš•ka vèetnì pøídavku e
e = emin + c =34.75+1=                                     35.75 mm
```

Tlouš• ka dna en=44 >= e=35.75[mm]	81.2%	OK

10.5.2.2 MINIMÁLNÍ TLOUŠ•KA PØÍRUBOVÉHO OKRAJE e1

```
eP1 = Sqr( 3 * Cf * (G / 4 + 2 * b * m) * (C - G) * P / f)          (10.5-6)
=Sqr(3*1*(596.86/4+2*13.57*0.5)*(670-596.86)*1.604/194.13)=    17.18 mm

e1 = Max( eA , eP1 ) (10.5-5) =Max(30.52,17.18)=               30.52 mm
```

Tlouš• ka pøírubového okraje eb=44 >= e1=30.517[mm]	69.3%	OK

VÝPOÈTY TLAKU

MAXIMÁLNÍ PØÍPUSTNÝ TLAK Pmax :NOVÝ STUDENÝ STAV

```
Pmax1 = ea^2*f/(0.31*G^2+3*Cf*(G/4+2*b*m)*(C-G))
=44^2*212.5/(0.31*596.86^2+3*1*(596.86/4+2*13.57*0.5)*(670-596.86))
=   2.8149 MPa

Pmax2 = e1^2*f/(3*Cf*(G/4+2*b*m)*(C-G))
=44^2*212.5/(3*1*(596.86/4+2*13.57*0.5)*(670-596.86))=      11.52 MPa

Pmax = MIN( Pmax1 , Pmax2) =MIN(2.81,11.52)=                 2.8149 MPa
```

MAXIMÁLNÍ PØÍPUSTNÝ TLAK Pmax :PROVOZNÍ ZKORODOVANÝ STAV

```
Pmax1 = ea^2*f/(0.31*G^2+3*Cf*(G/4+2*b*m)*(C-G))
=43^2*194.13/(0.31*596.86^2+3*1*(596.86/4+2*13.57*0.5)*(670-596.86))
=   2.4560 MPa

Pmax2 = e1^2*f/(3*Cf*(G/4+2*b*m)*(C-G))
=43^2*194.13/(3*1*(596.86/4+2*13.57*0.5)*(670-596.86))=      10.05 MPa

Pmax = MIN( Pmax1 , Pmax2) =MIN(2.46,10.05)=                 2.4560 MPa
```

MAXIMÁLNÍ ZKUŠEBNÍ TLAK Ptest (Nezkorodovaný stav pøi teplotì okolí)

```
Pmax1 = ea^2*f/(0.31*G^2+3*Cf*(G/4+2*b*m)*(C-G))
=44^2*319.05/(0.31*596.86^2+3*1*(596.86/4+2*13.57*0.5)*(670-596.86))
=   4.2263 MPa

Pmax2 = e1^2*f/(3*Cf*(G/4+2*b*m)*(C-G))
=44^2*319.05/(3*1*(596.86/4+2*13.57*0.5)*(670-596.86))=      17.29 MPa

Pmax = MIN( Pmax1 , Pmax2) =MIN(4.23,17.29)=                 4.2263 MPa
```

EN13445-5;10.2.3.3 POŽADOVANÝ MIN.HYDROSTATICKÝ ZKUŠEBNÍ TLAK:Ptmin

```
NOVÝ PØI TEPLOTÌ OKOLÍ PRO ZKUŠEBNÍ SKUPINY 1, 2 a 3
Ptmin = 1.25 * Pd * f20 / f =1.25*1.6*212.5/194.13=          2.1893 MPa

Ptmin = 1.43 * Pd =1.43*1.6=                                 2.2880 MPa
```

Zkušební tlak Ptmin=2.29 <= Ptmax=4.23[MPa]	54.1%	OK

VÝPOÈET - SOUHRN

10.5.2.1 MINIMÁLNÍ TLOUŠ•KA ZASLEPOVACÍ PØÍRUBY S ÚZKÝM TÌSNÌNÍM e

Minimální tlouš•ka bez korozního pøídavku emin
emin = Max(eA , eP) (10.5-1) =Max(30.52,34.75)= 34.75 mm

Minimální tlouš•ka vèetnì pøídavku e
e = emin + c =34.75+1= 35.75 mm

Tlouš• ka dna en=44 >= e=35.75[mm]	81.2%	OK

10.5.2.2 MINIMÁLNÍ TLOUŠ•KA PØÍRUBOVÉHO OKRAJE e1

e1 = Max(eA , eP1) (10.5-5) =Max(30.52,17.18)= 30.52 mm

Tlouš• ka pøírubového okraje eb=44 >= e1=30.517[mm]	69.3%	OK

VÝPOÈTY TLAKU

MAXIMÁLNÍ PØÍPUSTNÝ TLAK Pmax :NOVÝ STUDENÝ STAV

Pmax = MIN(Pmax1 , Pmax2) =MIN(2.81,11.52)= 2.8149 MPa

MAXIMÁLNÍ PØÍPUSTNÝ TLAK Pmax :PROVOZNÍ ZKORODOVANÝ STAV

Pmax = MIN(Pmax1 , Pmax2) =MIN(2.46,10.05)= 2.4560 MPa

MAXIMÁLNÍ ZKUŠEBNÍ TLAK Ptest (Nezkorodovaný stav pøi teplotì okolí)

Pmax = MIN(Pmax1 , Pmax2) =MIN(4.23,17.29)= 4.2263 MPa

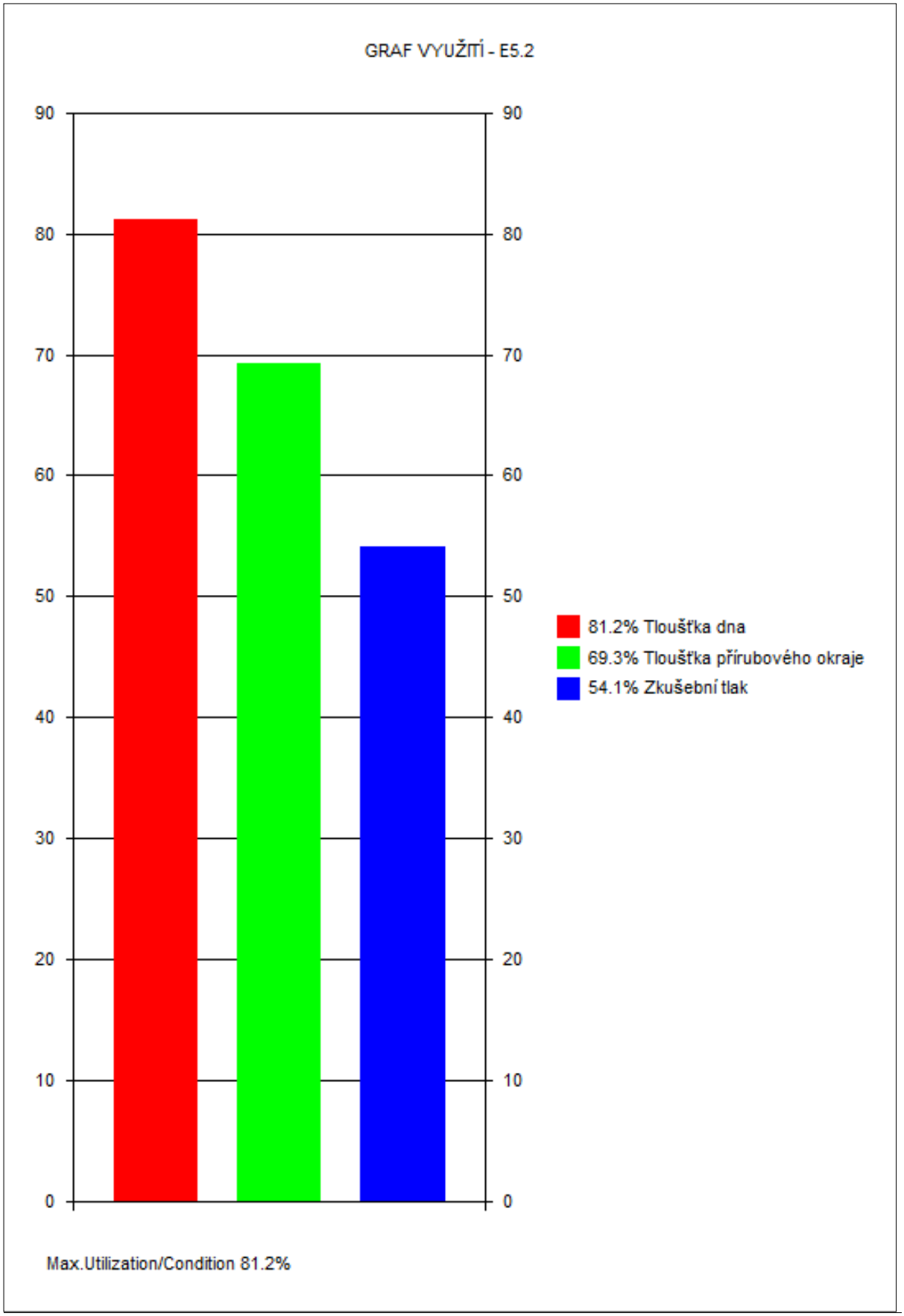
EN13445-5;10.2.3.3 POŽADOVANÝ MIN.HYDROSTATICKÝ ZKUŠEBNÍ TLAK:Ptmin

NOVÝ PØI TEPLOTÌ OKOLÍ PRO ZKUŠEBNÍ SKUPINY 1, 2 a 3
Ptmin = 1.25 * Pd * f20 / f =1.25*1.6*212.5/194.13= 2.1893 MPa

Ptmin = 1.43 * Pd =1.43*1.6= 2.2880 MPa

Zkušební tlak Ptmin=2.29 <= Ptmax=4.23[MPa]	54.1%	OK

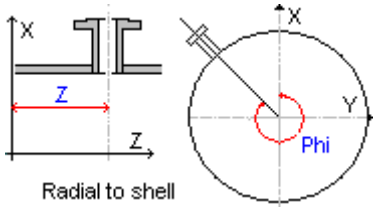
Objem :0.00 m3 Tíha:154 kg (SG= 7.85)


GRAF VYUŽITÍ - E5.2
90
80
70
60
50
40
30
20
10
0
81.2% Tloušťka dna
69.3% Tloušťka přírubového okraje
54.1% Zkušební tlak
Max.Utilization/Condition 81.2%

VSTUPNÍ DATA

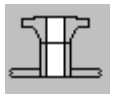
PØIPOJENÍ/POLOHA KOMPONENTY

Pøipojení: S1.1 Válcový pláš• Main Shell
Connect this nozzle to the nozzle neck of another nozzle: Ne



Orientace a poloha hrdla: Radiálnì k plášti
poloha-z hrdla podél osy pøipojení.....:z 250.00 mm
Úhel natoèení osy hrdla promítnutý do roviny x-y....:Phi 180.00 Degr.

HLAVNÍ VÝPOÈTOVÁ DATA



Typ otvoru: Hrdlo s ASME/ASME nebo DIN pøírubou
ZATÍŽENÍ TLAKEM: Výpoèet komponenty pro vnitøní a vnìjší tlak
PROCESNÍ KARTA:
HLAVNÍ VÝPOÈTOVÁ DATA : Temp= 130°C, P=1.6000 MPa, c=1.0 mm, Pext=0.0000 MPa
SPECIFICKÁ HUSTOTA PROVOZNÍHO MEDIA.....:SG 1.0000
HYDROSTATICKÁ VÝŠKA KAPALINY.....:LH 0.00 mm
Zahrnout výpoèet zatížení hrdla: Ano

DATA SKOØEPINY (S1.1)

Typ skoøepiny: Válcová skoøepina
VNEJŠÍ PRUMER PLÁŠTE.....:De 1000.00 mm
PROVEDENÁ TLOUŠTKA HRDLA (nezkorodovaná).....:en 12.00 mm
ZÁPORNÁ ÚCHYLKA TVÁRENÍ/TOLERANCE PLECHU.....:th 0.5000 mm
EN 10028-2:2017, 1.0425 P265GH plate and strip, HT:N THK<=16mm 130'C
Rm=410 Rp=265 Rpt=230.2 fs=153.47 f20=170.83 ftest=252.38 E=203868(N/mm2) ro=7.85

MATERIÁLOVÁ DATA HRDLA



Zpùsob dodání: Bezešvá/svaøovaná trubka
EN 10216-2:2013, 1.0425 P265GH seamless tube, HT:N THK<=16mm 130'C
Rm=410 Rp=265 Rpt=218.2 fb=145.47 f20=170.83 ftest=252.38 E=203868(N/mm2) ro=7.85

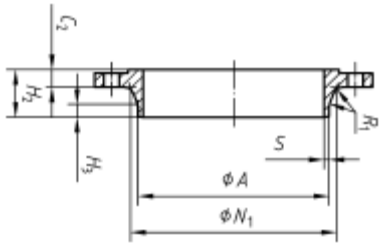
Rozmìrová data hrdla



Pøipojení: Vsazené hrdlo
Tvar hrdla/otvoru: Kruhový
Použití: 9.4.6.3 Bez únavy, výpoètová teplota mimo oblast creepu.
VNEJŠÍ PRUMER HRDLA.....:deb 219.10 mm
PROVEDENÁ TLOUŠTKA HRDLA (nezkorodovaná).....:enb 8.0000 mm
Velikost pøíruby a hrdla: DN 200
Poznámka(volitelná):
ZÁPORNÁ TOLERANCE/ÚCHYLKA TLOUŠTKY.....: 12.50 %
VYLOŽENÍ HRDLA MERENÉ OD VNEJŠÍHO PRUMERU NÁDOBY....:ho 150.00 mm

DATA PØÍRUBY

A: Norma Pøíruby: Pøíruby dle EN1092-1:2007
E: Tlaková tøída: EN1092 :Class PN 25



C: typ pøíruby: WN - Type 11 Weld Neck flange

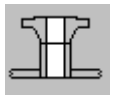


D: Facing Sketch: A Flat Face
Materiálová skupina pøíruby: 3E0, P245GH, EN10222-2, 1.0352, Forgings

DATA PØIVAØENÍ

Plocha svaru hrdla/límce a plášti:
Bez uvažování plochy pøípojného svaru hrdla a skoøepiny
Køížení hrdla a tupého svaru: Hrdlo neprotíná tupý svar skoøepiny
ÚHEL PhiC(ŠIKMÉ HRDLO V PRÍCNÉM REZU)Obr.9.5-2.....:PhiC 0.00 Degr.
ÚHEL PhiL(ŠIKMÉ HRDLO V PODÉLNÉM REZU)Obr.9.5-1.....:PhiL 0.00 Degr.

DATA VÝZTUŽNÉHO LÍMCE



Typ límce: Bez límce

MEZE VYZTUŽENÍ

Redukce pro meze vyztužení: Redukce není požadována

VNÌJŠÍ ZATÍŽENÍ NA HRDLO

SOUÈINITEL C4: C4 = 1.0 Tuhé pøipojení
TYP ZADÁNÍ ZATÍŽENÍ: ZATÌŽOVACÍ STAVY
Vnìjší zatížení hrdla: Uživatelem specifikované zatížení

DATA ZATÍŽENÍ

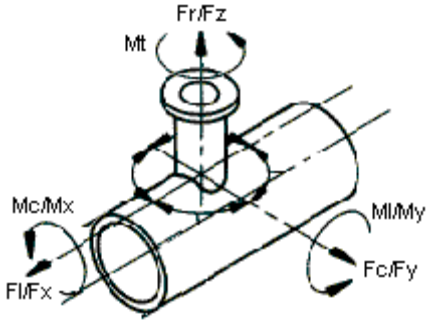


Table NOZZLE LOADS:

Oznaèení zatížení	ID	Jednotky	Návrhový stav	Provozní stav
Tlak	P	MPa	1.6	0.3
Radiální zatížení	Fz	kN	1.119	0.367
Podélný moment	My	kNm	-1.256	0.043
Obvodový moment…:	Mx	kNm	0.643	0.225
Osová smyková síla	Fl	kN	-2.226	-0.778
Obvodová smyková síla	Fc	kN	0.168	-0.081
Kroutící moment	Mt	kNm	0.722	-0.284

External Loads in Table Above acts at Flange Face: Ne

VÝPOÈTOVÁ DATA

JMENOVITÉ ZATÍŽENÍ PØÍRUB

EN1092 PN 25 Flange Rating(at 130C)= 2.248 MPa, Max.Test Pressure = 3.750 MPa

PØEDBÌŽNÝ VÝPOÈET

Analyzovaná tlouš•ka stìny skoøepiny
eas = en - c - th =12-1-0.5= 10.50 mm
Analyzovaná tlouš•ka stìny hrdla
eab = enb - c - NegDev =8-1-1= 6.0000 mm
Vnitøní polomìr zaoblení
ris = De / 2 - eas (9.5-3) =1000/2-10.5= 489.50 mm
dib = deb - 2 * eab =219.1-2*6= 207.10 mm
Min.tlouš•ka hrdla od vnitøního tlaku ebp
ebp = P * deb / (2 * fb * z + P)
=1.6*219.1/(2*145.47*1+1.6)= 1.2000 mm
Dovolené namáhání
fob = Min(fs, fb) (9.5-8) =Min(153.47,145.47)= 145.47 N/mm2

GEOMETRICKÉ MEZE

»Kontrola max. prùmìru hrdla dib/(2*ris)=0.2115 <= 1.00=1[mm] «» OK«

Min. tlouš• ka hrdla ebp=1.2 <= eab=6[mm]	19.9%	OK

9.5.2.4.4 Nozzles normal to the shell, with or without reinforcement pads.

Výpoèet efektivního vyztužujícího pøíèného prùøezu zatíženého napìtím

Plocha plášťì Afs

```
Limit vyztužení podél stìny skoøepiny
Iso = Sqr(( 2 * ris + eas) * eas)
=Sqr((2*489.5+10.5)*10.5)=                                  101.93 mm
Vsazené hrdlo
Afs = eas * Is (9.5-79) =10.5*101.93=                       1070.27 mm2
```

Plocha hrdla Afb

```
Mez vyztužení podél hrdla (vnì pláštì)
Ibo = MIN( Sqr(( deb - eb) * eb), ho)                                (9.5-76)
=MIN(Sqr((219.1-6)*6,)150)=                                  35.76 mm
Vsazené hrdlo
Afb = eb * (Ibo + Ibi + eas) (9.5-78) =6*(35.76+0+10.5)=     277.55 mm2
```

Výpoèet plochy zatížené tlakem

```
Plocha otvoru hrdla Afb
Apb = 0.5 * dib * (Ibo + eas) (9.5-84) =0.5*207.1*(35.76+10.5)=  4789.97 mm2

Válcová skoøepina v podélné rovinì Aps
ApsL = ris * (Is + a) (9.5-94) =489.5*(101.93+109.55)=    1,0352E05 mm2

Válcová skoøepina v obvodové rovinì Aps
ApsT = 0.5 * ris ^ 2 * (Is + a ) / (0.5 * eas + ris)             (9.5-105)
=0.5*489.5^2*(101.93+110.47)/(0.5*10.5+489.5)=           51432.22 mm2

Aps = MAX( ApsL ApsT) =MAX(1.0352E05,51432.22)=           1,0352E05 mm2
```

9.5.2 Pravidla pro vyztužování

Požadovaná tlaková plocha pA(req.)

```
pAReqL = P * (ApsL + Apb) (9.5-7) =1.6*(1.0352E05+4789.97)=   173.30 kN

pAReqT = P * (ApsT + Apb + 0.5 * Apphi)                          (9.5-7)
=1.6*(51432.22+4789.97+0.5*0)=                                89.96 kN

pAReq = MAX( pAReqL, pAReqT) =MAX(1.733E05,89955.49)=         173.30 kN
```

Dostupná tlaková plocha pA(aval.)

```
pAAval = (Afs+Afw)*(fs-0.5*P)+Afp*(fop-0.5*P)+Afb*(fob-0.5*P)      (9.5-7)
=(1070.27+0)*(153.47-0.5*1.6)+0*(0-0.5*1.6)+277.55*(145.47-0.5*1.6)
=   203.55 kN
```

Vyztužení hrdla pAAval=203.55 >= pAReq=173.3[kN]	85.1%	OK

Maximální dovolený tlak Pmax

```
Pmax = (Afs+Afw)*fs+Afb*fob/((ApsL+Apb)+0.5*(Afs+Afw+Afb+Afp))     (9.5-10)
=(1070.27+0)*153.47+277.55*145.47/((1.0352E05+4789.97)+0.5*(1070.27+0+277.5
5+0))=                                                    =   1.8776 MPa
```

Max. dovolený zkušební tlak Ptmax

```
Ptmax =  ==                                              3.4620 MPa
```

EN1092 PN 25 Flange Rating(at 130C) P=1.6 <= PMax(flange)=2.248[MPa]	71.1%	OK

16.5 LOKÁLNÍ ZATÍŽENÍ HRDEL NA VÁLCOVÝCH SKOØEPINÁCH

PØEDBÌŽNÝ VÝPOÈET

```
Analyzovaná tlouš•ka stìny skoøepiny
eas = en - c - th =12-1-0.5=                              10.50 mm
Analyzovaná tlouš•ka hrdla eb
eb = enb - c - NegDev =8-1-1=                             6.0000 mm
Støední prùmìr skoøepiny
D = De - ea =1000-10.5=                                   989.50 mm
Støední polomìr plášti
R = D / 2 =989.5/2=                                       494.75 mm
```

16.5.3 PODMÍNKY PLATNOSTI

»a) ea/D=0.0106 >= 0.001« » OK«

»a) ea/D=0.0106 <= 0.1« » OK«

»b) LamdaC=2.09 <= 10« » OK«

```
»c) Vzdálenost jakéhokoliv dalšího lokálního zatížení nesmí být menší než SQR(
D*ec)=                                                    =  101.9 mm
»d) Tlouš•ka hrdla bude dodržena podél vzdálenosti SQR(d*eb)=  35.8 mm
```

LOAD CASE NO: 1 - Návrhový stav

```
Celkový moment
MB = Sqr( Mx ^ 2 + My ^ 2) =Sqr(643000^2+-1.26E06^2)=     1.4110 kNm
```

NAPÌTÍ NA VNÌJŠÍM PRÙMÌRU HRDLA

```
Støední prùmìr hrdla
d = deb - eb =219.1-6=                                    213.10 mm
Kombinace analyzovaných tlouštìk
ec = ea =10.5=                                            10.50 mm
LamdaC = d / Sqr( D * ec) =213.1/Sqr(989.5*10.5)=         2.0906
Ratio1 = eb / ec =6/10.5=                                 0.5714
Ratio2 = D / ec =989.5/10.5=                              94.24
HODNOTY C1,C2 A C3 Z OBRÁZKU 16.5-2 AŽ 16.5-4
C1 =    2.601  C2 =    5.179  C3 =   13.253
```

16.5.5 MAXIMÁLNÍ DOVOLENÉ INDIVIDUÁLNÍ ZATÍŽENÍ

Dovolený tlak Pmax:
Pmax (from nozzle calculation) = Pmax (16.5-2) =1.88= 1.8776 MPa

Dovolené axiální zatížení Fzmax:
Fzmax = f * ec ^ 2 * C1 (16.5-3) =153.47*10.5^2*2.6= 44.01 kN

Dovolený obvodový moment Mxmax:
Mxmax = f * ec ^ 2 * d / 4 * C2 (16.5-5)
=153.47*10.5^2*213.1/4*5.18= 4.6681 kNm

Dovolený podélný moment Mxmax:
Mymax = f * ec ^ 2 * d / 4 * C3 (16.5-7)
=153.47*10.5^2*213.1/4*13.25= 11.95 kNm

SHEAR STRESS FORMULAES

Smykové napìtí od osové smykové síly, TauFl:
TauFl = 2 * Fl / (PI * deb * ec)
=2*-2230/(3.14*219.1*10.5)= -0.6160 N/mm2

Smykové napìtí od obvodové smykové síly, TauFc:
TauFc = 2 * Fc / (PI * deb * ec)
=2*168/(3.14*219.1*10.5)= 0.0465 N/mm2

Smykové napìtí od kroutícího momentu, TauMt:
TauMt = 2 * Mt / (PI * deb ^ 2 * ec)
=2*722000/(3.14*219.1^2*10.5)= 0.9119 N/mm2

Celkové smykové napìtí, Tau:
Tau = Sqr(TauFc ^ 2 + TauFl ^ 2) + TauMt
=Sqr(0.0465^2+-0.616^2)+0.9119= 1.5296 N/mm2

16.5.6 KOMBINACE VNÌJŠÍHO ZATÍŽENÍ A VNITØNÍHO TLAKU

PhiP = P / Pmax (16.5-9) =1.6/1.88= 0.8521

PhiZ = Fz / Fzmax (16.5-10) =1119/44005.7= 0.0254

PhiTau = 2 * Tau / f =2*1.53/153.47= 0.0199

PhiB = Sqr((Mx / Mxmax) ^ 2 + (My / Mymax) ^ 2) (16.5-11)
=Sqr((643000/4.6681E06)^2+(-1.26E06/1.1946E07)^2)= 0.1733

MaxAll = MAX(Abs(PhiP/C4+PhiZ),Abs(PhiZ),Abs(PhiP/C4-0.2*PhiZ) (16.5-15)
=MAX(Abs(0.8521/1+0.0254,)Abs(0.0254,)Abs(0.8521/1-0.2*0.0254)= 0.8776

PhiAll = Sqr(MaxAll ^ 2 + PhiB ^ 2 + PhiTau ^ 2) (16.5-15)
=Sqr(0.8776^2+0.1733^2+0.0199^2)= 0.8947

16.5.6.4 Kontrola limitù jednotlivých pomìrù vytížení

PhiP V MÍSTÌ OD HRDLA PhiP=0.8521 <= 1.0 =1(16.5-12)	85.2%	OK
PhiZ V MÍSTÌ OD HRDLA PhiZ=0.0254 <= 1.0=1(16.5-13)	2.5%	OK
PhiB V MÍSTÌ OD HRDLA PhiB=0.1733 <= 1.0=1(16.5-14)	17.3%	OK
PhiTau V MÍSTÌ OD HRDLA PhiTau=0.0199 <= 1.0=1	1.9%	OK
PhiAll V MÍSTÌ OD HRDLA PhiAll=0.8947 <= 1.0=1(16.5-15)	89.4%	OK

16.5.7 ROZSAHY NAPÌTÍ A JEJICH KOMBINACE

16.5.7.1 ROZSAHY ZATÍŽENÍ

```
DeltaP = Max( Pmax , 0) - Min( Pmin , 0)                          (16.5-16)
=Max(1.6,0)-Min(0,0)=                                        1.6000 MPa

DeltaFz = Max( Fzmax , 0) - Min( Fzmin , 0)                       (16.5-17)
=Max(1.119,0)-Min(0,0)=                                      1.1190 kN

DeltaMx = Max( Mxmax , 0) - Min( Mxmin , 0)                       (16.5-18)
=Max(0.643,0)-Min(0,0)=                                      0.6430 kNm

DeltaMy = Max( Mymax , 0) - Min( Mymin , 0)                       (16.5-19)
=Max(1.256,0)-Min(0,0)=                                      1.2560 kNm

DeltaFl = Max( Flmax , 0) - Min( Flmin , 0)
=Max(2.226,0)-Min(0,0)=                                        0.00 kN

DeltaFc = Max( Fcmax , 0) - Min( Fcmin , 0)
=Max(0.168,0)-Min(0,0)=                                      0.1680 kN

DeltaFshear = Sqr( DeltaFl ^ 2 + DeltaFc ^ 2)
=Sqr(0^2+168^2)=                                             0.1680 kN

DeltaMt = Max( Mtmax , 0) - Min( Mtmin , 0)
=Max(0.722,0)-Min(0,0)=                                      0.7220 kNm
```

16.5.7.2 EKVIVALENTNÍ TLOUŠ•KA PLÁŠTÌ

```
eeq = ec =10.5=                                                10.50 mm
```

16.5.7.3 NAPÌTÍ

```
HODNOTY C1,C2 A C3 Z OBRÁZKU 16.5-2 AŽ 16.5-4
C1 =    2.601  C2 =    5.179  C3 =   13.253
Tmp1 = Sqr( d * eb / (D * eeq))
=Sqr(213.1*6/(989.5*10.5))=                                  0.3508
Tmp2 = (2+2*d/D*Tmp1+1.25*d/D*Sqr(D/eeq))/(1+eb/eeq*Tmp1)
=(2+2*213.1/989.5*0.3508+1.25*213.1/989.5*Sqr(989.5/10.5))/(1+6/10.5*0.3508
)=                                                            =   3.9688
Napìtí od rozsahu zatížení tlakem
SigP = DeltaP * D / (2 * eeq) * Tmp2                              (16.5-21)
=1.6*989.5/(2*10.5)*3.97=                                  299.21 N/mm2

Napìtí od rozsahu axiálniho zatížení
SigFz = 2.25 / C1 * (DeltaFz / eeq ^ 2)                           (16.5-22)
=2.25/2.6*(1119/10.5^2)=                                   8.7807 N/mm2

Napìtí od rozsahu zatížení obvodovým momentem
SigMx = 2.25 / C2 * (4 * DeltaMx / (eeq ^ 2 * d))                 (16.5-23)
=2.25/5.18*(4*643000/(10.5^2*213.1))=                       47.56 N/mm2

Napìtí od rozsahu zatížení podélným momentem
SigMy = 2.25 / C3 * (4 * DeltaMy / (eeq ^ 2 * d))                 (16.5-24)
=2.25/13.25*(4*1.256E06/(10.5^2*213.1))=                    36.30 N/mm2

Smykové napìtí od osové smykové síly, DeltaFl:
TauFl = 2 * DeltaFl / (PI * deb * eeq)
=2*0/(3.14*219.1*10.5)=                                        0.00 N/mm2

Smykové napìtí od obvodové smykové síly, TauFc:
TauFc = 2 * DeltaFc / (PI * deb * eeq)
=2*168/(3.14*219.1*10.5)=                                  0.0465 N/mm2

Smykové napìtí od kroutícího momentu, TauMt:
TauMt = 2 * DeltaMt / (PI * deb ^ 2 * eeq)
=2*722000/(3.14*219.1^2*10.5)=                             0.9119 N/mm2

Celkové smykové napìtí, Tau:
Tau = Sqr( TauFc ^ 2 + TauFl ^ 2) + TauMt
=Sqr(0.0465^2+0^2)+0.9119=                                 0.9584 N/mm2
```

```
Intenzita celkových napìtí od rozsahu zatížení
SigTot = Abs(SigT+Sqr((SigP+SigFz)^2+SigMx^2+SigMy^2+4*Tau^2))     (16.5-25)
=Abs(0+Sqr((299.21+8.78)^2+47.56^2+36.3^2+4*0.9584^2))=    313.76 N/mm2
```

Celkové napìtí v plášti SigTot=313.76 <= 3*f=460.41[N/mm2]	68.1%	OK

STRESSES IN NOZZLE NECK

16.5.8 PODÉLNÉ NAPÌTÍ HRDLA

```
Maximální podélné napìtí hrdla
SigLong = P*d/(4*eb)+4*MB/(PI*d^2*eb)+Fz/(PI*d*eb)                 (16.5-26)
=1.6*213.1/(4*6)+4*1.411E06/(3.14*213.1^2*6)+1119/(3.14*213.1*6)
=    21.08 N/mm2
```

Podélné napìtí hrdla SigLong=21.08 <= fb=145.47[N/mm2]	14.4%	OK

16.14.8 COMPRESSIVE STRESS LIMITS

```
K = 1.21 * E * ea / (Sige * D)                                     (16.14-15)
=1.21*2.0387E05*6/(218.2*213.1)=                          31.83
alfa = 0.83 / Sqr( 1 + 0.005 * D / ea)                             (16.14-16)
=0.83/Sqr(1+0.005*213.1/6)=                               0.7649
delta = (1 - 0.4123 / (alfa * K) ^ 0.6) / S                        (16.14-19)
=(1-0.4123/(0.7649*31.83)^0.6)/1.5=                       0.6262
Maximální dovolené tlakové napìtí
Sigcall = Sige * delta (16.14-20) =218.2*0.6262=          136.63 N/mm2
```

16.14.4 JEDNOTLIVÁ DOVOLENÁ ZATÍŽENÍ

```
Maximální tahová síla Ftmax
Ftmax = PI * D * ea * f (16.14-1) =3.14*213.1*6*145.47=     584.33 kN

Maximální tlaková síla Fcmax
Fcmax = PI * D * ea * Sigcall (16.14-2) =3.14*213.1*6*136.63=   548.83 kN

Maximální ohybový moment Mmax
Mmax = PI / 4 * D ^ 2 * ea * Sigcall                               (16.14-3)
=3.14/4*213.1^2*6*136.63=                                 29.24 kNm

Kontrola stability v podélném smìru (P=0)
LongStab = MB / Mmax + Abs( Fzmin) / Fcmax                         (16.5-27)
=1.411E06/2.9239E07+Abs(0)/5.4883E05=                     0.0483
```

Podélná stabilita hrdla LongStab=0.0483 <= 1.0=1	4.8%	OK

LOAD CASE NO: 2 - Provozní stav

```
Celkový moment
MB = Sqr( Mx ^ 2 + My ^ 2) =Sqr(225000^2+43000^2)=          0.2291 kNm
```

NAPÌTÍ NA VNÌJŠÍM PRÙMÌRU HRDLA

```
Støední prùmìr hrdla
d = deb - eb =219.1-6=                                     213.10 mm
Kombinace analyzovaných tlouštìk
ec = ea =10.5=                                              10.50 mm
LamdaC = d / Sqr( D * ec) =213.1/Sqr(989.5*10.5)=          2.0906
Ratio1 = eb / ec =6/10.5=                                  0.5714
Ratio2 = D / ec =989.5/10.5=                                94.24
HODNOTY C1,C2 A C3 Z OBRÁZKU 16.5-2 AŽ 16.5-4
C1 =    2.601  C2 =    5.179  C3 =   13.253
```

16.5.5 MAXIMÁLNÍ DOVOLENÉ INDIVIDUÁLNÍ ZATÍŽENÍ

Dovolený tlak Pmax:
Pmax (from nozzle calculation) = Pmax (16.5-2) =1.88= 1.8776 MPa

Dovolené axiální zatížení Fzmax:
Fzmax = f * ec ^ 2 * C1 (16.5-3) =153.47*10.5^2*2.6= 44.01 kN

Dovolený obvodový moment Mxmax:
Mxmax = f * ec ^ 2 * d / 4 * C2 (16.5-5)
=153.47*10.5^2*213.1/4*5.18= 4.6681 kNm

Dovolený podélný moment Mxmax:
Mymax = f * ec ^ 2 * d / 4 * C3 (16.5-7)
=153.47*10.5^2*213.1/4*13.25= 11.95 kNm

SHEAR STRESS FORMULAES

Smykové napìtí od osové smykové síly, TauFl:
TauFl = 2 * Fl / (PI * deb * ec)
=2*-778/(3.14*219.1*10.5)= -0.2153 N/mm2

Smykové napìtí od obvodové smykové síly, TauFc:
TauFc = 2 * Fc / (PI * deb * ec)
=2*-81/(3.14*219.1*10.5)= -0.0224 N/mm2

Smykové napìtí od kroutícího momentu, TauMt:
TauMt = 2 * Mt / (PI * deb ^ 2 * ec)
=2*-2.84E05/(3.14*219.1^2*10.5)= -0.3587 N/mm2

Celkové smykové napìtí, Tau:
Tau = Sqr(TauFc ^ 2 + TauFl ^ 2) + TauMt
=Sqr(-0.0224^2+-0.2153^2)+-0.3587= 0.5751 N/mm2

16.5.6 KOMBINACE VNÌJŠÍHO ZATÍŽENÍ A VNITØNÍHO TLAKU

PhiP = P / Pmax (16.5-9) =0.3/1.88= 0.1598

PhiZ = Fz / Fzmax (16.5-10) =0.367/44005.7= 0.0083

PhiTau = 2 * Tau / f =2*0.5751/153.47= 0.0075

PhiB = Sqr((Mx / Mxmax) ^ 2 + (My / Mymax) ^ 2) (16.5-11)
=Sqr((0.225/4.6681E06)^2+(0.043/1.1946E07)^2)= 0.0483

MaxAll = MAX(Abs(PhiP/C4+PhiZ),Abs(PhiZ),Abs(PhiP/C4-0.2*PhiZ) (16.5-15)
=MAX(Abs(0.1598/1+0.0083,)Abs(0.0083,)Abs(0.1598/1-0.2*0.0083)= 0.1681

PhiAll = Sqr(MaxAll ^ 2 + PhiB ^ 2 + PhiTau ^ 2) (16.5-15)
=Sqr(0.1681^2+0.0483^2+0.0075^2)= 0.1751

16.5.6.4 Kontrola limitù jednotlivých pomìrù vytížení

PhiP V MÍSTÌ OD HRDLA PhiP=0.1598 <= 1.0 =1(16.5-12)	15.9%	OK
PhiZ V MÍSTÌ OD HRDLA PhiZ=0.0083 <= 1.0=1(16.5-13)	0.8%	OK
PhiB V MÍSTÌ OD HRDLA PhiB=0.0483 <= 1.0=1(16.5-14)	4.8%	OK
PhiTau V MÍSTÌ OD HRDLA PhiTau=0.0075 <= 1.0=1	0.7%	OK
PhiAll V MÍSTÌ OD HRDLA PhiAll=0.1751 <= 1.0=1(16.5-15)	17.5%	OK

16.5.7 ROZSAHY NAPÌTÍ A JEJICH KOMBINACE

16.5.7.1 ROZSAHY ZATÍŽENÍ

```
DeltaP = Max( Pmax , 0) - Min( Pmin , 0)                          (16.5-16)
=Max(0.3,0)-Min(0,0)=                                        0.3000 MPa

DeltaFz = Max( Fzmax , 0) - Min( Fzmin , 0)                       (16.5-17)
=Max(0.367,0)-Min(0,0)=                                      0.3670 kN

DeltaMx = Max( Mxmax , 0) - Min( Mxmin , 0)                       (16.5-18)
=Max(0.225,0)-Min(0,0)=                                      0.2250 kNm

DeltaMy = Max( Mymax , 0) - Min( Mymin , 0)                       (16.5-19)
=Max(0.043,0)-Min(0,0)=                                      0.0430 kNm

DeltaFl = Max( Flmax , 0) - Min( Flmin , 0)
=Max(0.778,0)-Min(0,0)=                                        0.00 kN

DeltaFc = Max( Fcmax , 0) - Min( Fcmin , 0)
=Max(0.081,0)-Min(0,0)=                                        0.00 kN

DeltaFshear = Sqr( DeltaFl ^ 2 + DeltaFc ^ 2)
=Sqr(0^2+0^2)=                                                 0.00 kN

DeltaMt = Max( Mtmax , 0) - Min( Mtmin , 0)
=Max(0.284,0)-Min(0,0)=                                        0.00 kNm
```

16.5.7.2 EKVIVALENTNÍ TLOUŠ•KA PLÁŠTÌ

```
eeq = ec =10.5=                                                10.50 mm
```

16.5.7.3 NAPÌTÍ

```
HODNOTY C1,C2 A C3 Z OBRÁZKU 16.5-2 AŽ 16.5-4
C1 =    2.601  C2 =    5.179  C3 =   13.253
Tmp1 = Sqr( d * eb / (D * eeq))
=Sqr(213.1*6/(989.5*10.5))=                                    0.3508
Tmp2 = (2+2*d/D*Tmp1+1.25*d/D*Sqr(D/eeq))/(1+eb/eeq*Tmp1)
=(2+2*213.1/989.5*0.3508+1.25*213.1/989.5*Sqr(989.5/10.5))/(1+6/10.5*0.3508
)=                                                              =   3.9688
Napìtí od rozsahu zatížení tlakem
SigP = DeltaP * D / (2 * eeq) * Tmp2                              (16.5-21)
=0.3*989.5/(2*10.5)*3.97=                                     56.10 N/mm2

Napìtí od rozsahu axiálniho zatížení
SigFz = 2.25 / C1 * (DeltaFz / eeq ^ 2)                           (16.5-22)
=2.25/2.6*(367/10.5^2)=                                      2.8798 N/mm2

Napìtí od rozsahu zatížení obvodovým momentem
SigMx = 2.25 / C2 * (4 * DeltaMx / (eeq ^ 2 * d))                 (16.5-23)
=2.25/5.18*(4*225000/(10.5^2*213.1))=                         16.64 N/mm2

Napìtí od rozsahu zatížení podélným momentem
SigMy = 2.25 / C3 * (4 * DeltaMy / (eeq ^ 2 * d))                 (16.5-24)
=2.25/13.25*(4*43000/(10.5^2*213.1))=                        1.2429 N/mm2

Smykové napìtí od osové smykové síly, DeltaFl:
TauFl = 2 * DeltaFl / (PI * deb * eeq)
=2*0/(3.14*219.1*10.5)=                                        0.00 N/mm2

Smykové napìtí od obvodové smykové síly, TauFc:
TauFc = 2 * DeltaFc / (PI * deb * eeq)
=2*0/(3.14*219.1*10.5)=                                        0.00 N/mm2

Smykové napìtí od kroutícího momentu, TauMt:
TauMt = 2 * DeltaMt / (PI * deb ^ 2 * eeq)
=2*0/(3.14*219.1^2*10.5)=                                      0.00 N/mm2

Celkové smykové napìtí, Tau:
Tau = Sqr( TauFc ^ 2 + TauFl ^ 2) + TauMt
=Sqr(0^2+0^2)+0=                                               0.00 N/mm2
```

```
Intenzita celkových napìtí od rozsahu zatížení
SigTot = Abs(SigT+Sqr((SigP+SigFz)^2+SigMx^2+SigMy^2+4*Tau^2))     (16.5-25)
=Abs(0+Sqr((56.1+2.88)^2+16.64^2+1.24^2+4*0^2))=          61.30 N/mm2
```

Celkové napìtí v plášti SigTot=61.3 <= 3*f=460.41[N/mm2]	13.3%	OK

STRESSES IN NOZZLE NECK

16.5.8 PODÉLNÉ NAP Ì TÍ HRDLA

```
Maximální podélné napìtí hrdla
SigLong = P*d/(4*eb)+4*MB/(PI*d^2*eb)+Fz/(PI*d*eb)                (16.5-26)
=1.6*213.1/(4*6)+4*2.2907E05/(3.14*213.1^2*6)+367/(3.14*213.1*6)
=   3.8256 N/mm2
```

Podélné napìtí hrdla SigLong=3.83 <= fb=145.47[N/mm2]	2.6%	OK

16.14.8 COMPRESSIVE STRESS LIMITS

```
K = 1.21 * E * ea / (Sige * D)                                    (16.14-15)
=1.21*2.0387E05*6/(218.2*213.1)=                          31.83
alfa = 0.83 / Sqr( 1 + 0.005 * D / ea)                            (16.14-16)
=0.83/Sqr(1+0.005*213.1/6)=                               0.7649
delta = (1 - 0.4123 / (alfa * K) ^ 0.6) / S                       (16.14-19)
=(1-0.4123/(0.7649*31.83)^0.6)/1.5=                       0.6262
Maximální dovolené tlakové napìtí
Sigcall = Sige * delta (16.14-20) =218.2*0.6262=           136.63 N/mm2
```

16.14.4 JEDNOTLIVÁ DOVOLENÁ ZATÍŽENÍ

```
Maximální tahová síla Ftmax
Ftmax = PI * D * ea * f (16.14-1) =3.14*213.1*6*145.47=     584.33 kN

Maximální tlaková síla Fcmax
Fcmax = PI * D * ea * Sigcall (16.14-2) =3.14*213.1*6*136.63=   548.83 kN

Maximální ohybový moment Mmax
Mmax = PI / 4 * D ^ 2 * ea * Sigcall                              (16.14-3)
=3.14/4*213.1^2*6*136.63=                                 29.24 kNm

Kontrola stability v podélném smìru (P=0)
LongStab = MB / Mmax + Abs( Fzmin) / Fcmax                        (16.5-27)
=2.2907E05/2.9239E07+Abs(0)/5.4883E05=                    0.0078
```

Podélná stabilita hrdla LongStab=0.0078 <= 1.0=1	0.7%	OK

```
Weight of Nozzle: 4.6kg  Flange: 19kg
```

VÝPOÈET - SOUHRN

Min. tlouš• ka hrdla ebp=1.2 <= eab=6[mm]	19.9%	OK

9.5.2.4.4 Nozzles normal to the shell, with or without reinforcement pads.

```
Limit vyztužení podél stìny skoøepiny
Iso = Sqr(( 2 * ris + eas) * eas)
=Sqr((2*489.5+10.5)*10.5)=                                101.93 mm
Mez vyztužení podél hrdla (vnì plášti)
Ibo = MIN( Sqr(( deb - eb) * eb), ho)                             (9.5-76)
=MIN(Sqr((219.1-6)*6,)150)=                                35.76 mm
```

Požadovaná tlaková plocha pA(req.)

```
pAReqL = P * (ApsL + Apb) (9.5-7) =1.6*(1.0352E05+4789.97)=   173.30 kN
pAReqT = P * (ApsT + Apb + 0.5 * Apphi)                          (9.5-7)
=1.6*(51432.22+4789.97+0.5*0)=                                89.96 kN
pAReq = MAX( pAReqL, pAReqT) =MAX(1.733E05,89955.49)=         173.30 kN
```

Dostupná tlaková plocha pA(aval.)

```
pAAval = (Afs+Afw)*(fs-0.5*P)+Afp*(fop-0.5*P)+Afb*(fob-0.5*P)      (9.5-7)
=(1070.27+0)*(153.47-0.5*1.6)+0*(0-0.5*1.6)+277.55*(145.47-0.5*1.6)
=   203.55 kN
```

Vyztužení hrdla pAAval=203.55 >= pAReq=173.3[kN]	85.1%	OK

Maximální dovolený tlak Pmax

```
Pmax = (Afs+Afw)*fs+Afb*fob/((ApsL+Apb)+0.5*(Afs+Afw+Afb+Afp))     (9.5-10)
=(1070.27+0)*153.47+277.55*145.47/((1.0352E05+4789.97)+0.5*(1070.27+0+277.5
5+0))=                                                    =   1.8776 MPa
```

EN1092 PN 25 Flange Rating(at 130C) P=1.6 <= PMax(flange)=2.248[MPa]	71.1%	OK

LOAD CASE NO: 1 - Návrhový stav

NAPÌTÍ NA VNÌJŠÍM PRÙMÌRU HRDLA

16.5.6.4 Kontrola limitù jednotlivých pomìrù vytížení

PhiP V MÍSTÌ OD HRDLA PhiP=0.8521 <= 1.0 =1(16.5-12)	85.2%	OK
PhiZ V MÍSTÌ OD HRDLA PhiZ=0.0254 <= 1.0=1(16.5-13)	2.5%	OK
PhiB V MÍSTÌ OD HRDLA PhiB=0.1733 <= 1.0=1(16.5-14)	17.3%	OK
PhiTau V MÍSTÌ OD HRDLA PhiTau=0.0199 <= 1.0=1	1.9%	OK
PhiAll V MÍSTÌ OD HRDLA PhiAll=0.8947 <= 1.0=1(16.5-15)	89.4%	OK

16.5.7 ROZSAHY NAPÌTÍ A JEJICH KOMBINACE

Celkové napìtí v plášti SigTot=313.76 <= 3*f=460.41[N/mm2]	68.1%	OK

STRESSES IN NOZZLE NECK

Podélné napìtí hrdla SigLong=21.08 <= fb=145.47[N/mm2]	14.4%	OK
Podélná stabilita hrdla LongStab=0.0483 <= 1.0=1	4.8%	OK

LOAD CASE NO: 2 - Provozní stav

NAPÌTÍ NA VNÌJŠÍM PRÙMÌRU HRDLA

16.5.6.4 Kontrola limitù jednotlivých pomìrù vytížení

PhiP V MÍSTÌ OD HRDLA PhiP=0.1598 <= 1.0 =1(16.5-12)	15.9%	OK
PhiZ V MÍSTÌ OD HRDLA PhiZ=0.0083 <= 1.0=1(16.5-13)	0.8%	OK
PhiB V MÍSTÌ OD HRDLA PhiB=0.0483 <= 1.0=1(16.5-14)	4.8%	OK
PhiTau V MÍSTÌ OD HRDLA PhiTau=0.0075 <= 1.0=1	0.7%	OK
PhiAll V MÍSTÌ OD HRDLA PhiAll=0.1751 <= 1.0=1(16.5-15)	17.5%	OK

16.5.7 ROZSAHY NAPÌTÍ A JEJICH KOMBINACE

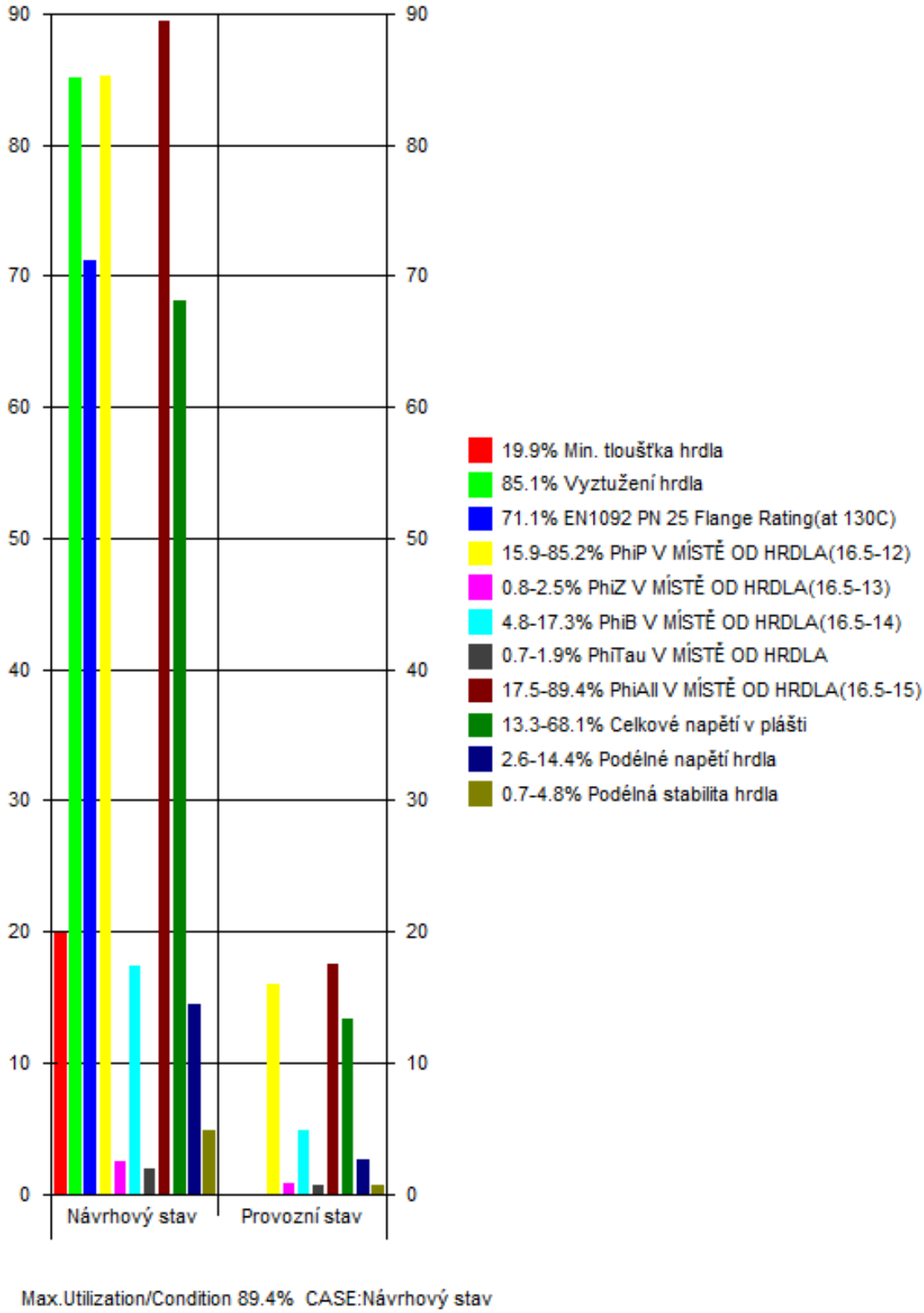
Celkové napìtí v plášti SigTot=61.3 <= 3*f=460.41[N/mm2]	13.3%	OK

STRESSES IN NOZZLE NECK

Podélné napìtí hrdla SigLong=3.83 <= fb=145.47[N/mm2]	2.6%	OK
Podélná stabilita hrdla LongStab=0.0078 <= 1.0=1	0.7%	OK

Objem :0.0052 m3 Tíha:23.5 kg (SG= 7.85)

GRAF VYUŽITÍ - N.1

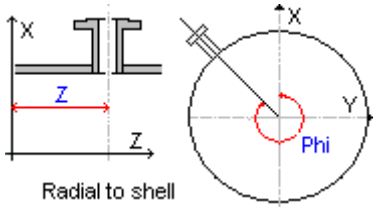


Max.Utilization/Condition 89.4% CASE:Návrhový stav

VSTUPNÍ DATA

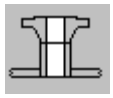
PØIPOJENÍ/POLOHA KOMPONENTY

Pøipojení: S1.1 Válcový pláš• Main Shell
Connect this nozzle to the nozzle neck of another nozzle: Ne



Orientace a poloha hrdla: Radiálnì k plášti
poloha-z hrdla podél osy pøipojení.....:z 1650.00 mm
Úhel natoèení osy hrdla promítnutý do roviny x-y....:Phi 180.00 Degr.

HLAVNÍ VÝPOÈTOVÁ DATA



Typ otvoru: Hrdlo s ASME/ASME nebo DIN pøírubou
ZATÍŽENÍ TLAKEM: Výpoèet komponenty pro vnitøní a vnìjší tlak
PROCESNÍ KARTA:
HLAVNÍ VÝPOÈTOVÁ DATA : Temp= 130°C, P=1.6000 MPa, c=1.0 mm, Pext=0.0000 MPa
SPECIFICKÁ HUSTOTA PROVOZNÍHO MEDIA.....:SG 1.0000
HYDROSTATICKÁ VÝŠKA KAPALINY.....:LH 0.00 mm
Zahrnout výpoèet zatížení hrdla: Ano

DATA SKOØEPINY (S1.1)

Typ skoøepiny: Válcová skoøepina
VNEJŠÍ PRUMER PLÁŠTE.....:De 1000.00 mm
PROVEDENÁ TLOUŠTKA HRDLA (nezkorodovaná).....:en 12.00 mm
ZÁPORNÁ ÚCHYLKA TVÁRENÍ/TOLERANCE PLECHU.....:th 0.5000 mm
EN 10028-2:2017, 1.0425 P265GH plate and strip, HT:N THK<=16mm 130'C
Rm=410 Rp=265 Rpt=230.2 fs=153.47 f20=170.83 ftest=252.38 E=203868(N/mm2) ro=7.85

MATERIÁLOVÁ DATA HRDLA



Zpùsob dodání: Bezešvá/svaøovaná trubka
EN 10216-2:2013, 1.0425 P265GH seamless tube, HT:N THK<=16mm 130'C
Rm=410 Rp=265 Rpt=218.2 fb=145.47 f20=170.83 ftest=252.38 E=203868(N/mm2) ro=7.85

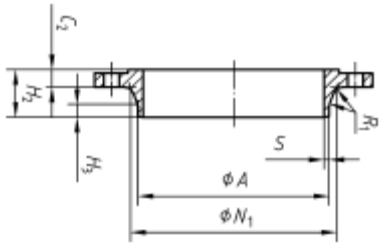
Rozmìrová data hrdla



Pøipojení: Vsazené hrdlo
Tvar hrdla/otvoru: Kruhový
Použití: 9.4.6.3 Bez únavy, výpoètová teplota mimo oblast creepu.
VNEJŠÍ PRUMER HRDLA.....:deb 219.10 mm
PROVEDENÁ TLOUŠTKA HRDLA (nezkorodovaná).....:enb 8.0000 mm
Velikost pøíruby a hrdla: DN 200
Poznámka(volitelná):
ZÁPORNÁ TOLERANCE/ÚCHYLKA TLOUŠTKY.....: 12.50 %
VYLOŽENÍ HRDLA MERENÉ OD VNEJŠÍHO PRUMERU NÁDOBY....:ho 150.00 mm

DATA PØÍRUBY

A: Norma Pøíruby: Pøíruby dle EN1092-1:2007
E: Tlaková tøída: EN1092 :Class PN 25



C: typ pøíruby: WN - Type 11 Weld Neck flange

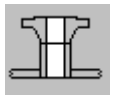


D: Facing Sketch: A Flat Face
Materiálová skupina pøíruby: 3E0, P245GH, EN10222-2, 1.0352, Forgings

DATA PØIVAØENÍ

Plocha svaru hrdla/límce a plášti:
Bez uvažování plochy pøípojného svaru hrdla a skoøepiny
Køížení hrdla a tupého svaru: Hrdlo neprotíná tupý svar skoøepiny
ÚHEL PhiC(ŠIKMÉ HRDLO V PRÍCNÉM REZU)Obr.9.5-2.....:PhiC 0.00 Degr.
ÚHEL PhiL(ŠIKMÉ HRDLO V PODÉLNÉM REZU)Obr.9.5-1.....:PhiL 0.00 Degr.

DATA VÝZTUŽNÉHO LÍMCE



Typ límce: Bez límce

MEZE VYZTUŽENÍ

Redukce pro meze vyztužení: Redukce není požadována

VN Ì JŠÍ ZATÍŽENÍ NA HRDLO

SOUÈINITEL C4: C4 = 1.0 Tuhé pøipojení
TYP ZADÁNÍ ZATÍŽENÍ: ZATÌŽOVACÍ STAVY
Vnìjší zatížení hrdla: Uživatelem specifikované zatížení

DATA ZATÍŽENÍ

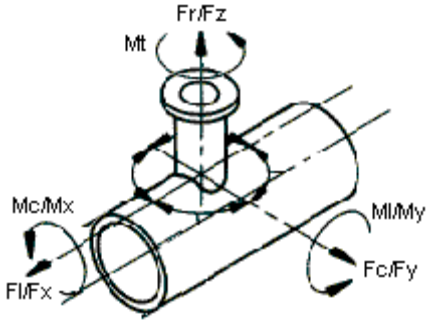


Table NOZZLE LOADS:

Oznaèení zatížení	ID	Jednotky	Návrhový stav	Provozní stav
Tlak	P	MPa	1.6	0.3
Radiální zatížení	Fz	kN	0.835	0.221
Podélný moment	My	kNm	1.228	0.573
Obvodový moment…:	Mx	kNm	1.896	0.421
Osová smyková síla	Fl	kN	-3.988	-0.572
Obvodová smyková síla	Fc	kN	-6.854	-1.551
Kroutící moment	Mt	kNm	3.193	0.230

External Loads in Table Above acts at Flange Face: Ne

VÝPOÈTOVÁ DATA

JMENOVITÉ ZATÍŽENÍ PØÍRUB

EN1092 PN 25 Flange Rating(at 130C)= 2.248 MPa, Max.Test Pressure = 3.750 MPa

PØEDB Ì ŽNÝ VÝPOÈET

Analyzovaná tlouš•ka stìny skoøepiny
eas = en - c - th =12-1-0.5= 10.50 mm
Analyzovaná tlouš•ka stìny hrdla
eab = enb - c - NegDev =8-1-1= 6.0000 mm
Vnitøní polomìr zaoblení
ris = De / 2 - eas (9.5-3) =1000/2-10.5= 489.50 mm
dib = deb - 2 * eab =219.1-2*6= 207.10 mm
Min.tlouš•ka hrdla od vnitøního tlaku ebp
ebp = P * deb / (2 * fb * z + P)
=1.6*219.1/(2*145.47*1+1.6)= 1.2000 mm
Dovolené namáhání
fob = Min(fs, fb) (9.5-8) =Min(153.47,145.47)= 145.47 N/mm2

GEOMETRICKÉ MEZE

»Kontrola max. prùmìru hrdla dib/(2*ris)=0.2115 <= 1.00=1[mm] «» OK«

Min. tlouš• ka hrdla ebp=1.2 <= eab=6[mm]	19.9%	OK

9.5.2.4.4 Nozzles normal to the shell, with or without reinforcement pads.

Výpoèet efektivního vyztužujícího pøíèného prùøezu zatíženého napìtím

Plocha plášti Afs

```
Limit vyztužení podél stìny skoøepiny
Iso = Sqr(( 2 * ris + eas) * eas)
=Sqr((2*489.5+10.5)*10.5)=                                  101.93 mm
Vsazené hrdlo
Afs = eas * Is (9.5-79) =10.5*101.93=                       1070.27 mm2
```

Plocha hrdla Afb

```
Mez vyztužení podél hrdla (vnìjší pláštì)
Ibo = MIN( Sqr(( deb - eb) * eb), ho)                                (9.5-76)
=MIN(Sqr((219.1-6)*6,)150)=                                  35.76 mm
Vsazené hrdlo
Afb = eb * (Ibo + Ibi + eas) (9.5-78) =6*(35.76+0+10.5)=     277.55 mm2
```

Výpoèet plochy zatížené tlakem

```
Plocha otvoru hrdla Afb
Apb = 0.5 * dib * (Ibo + eas) (9.5-84) =0.5*207.1*(35.76+10.5)=  4789.97 mm2

Válcová skoøepina v podélné rovinì Aps
ApsL = ris * (Is + a) (9.5-94) =489.5*(101.93+109.55)=    1,0352E05 mm2

Válcová skoøepina v obvodové rovinì Aps
ApsT = 0.5 * ris ^ 2 * (Is + a ) / (0.5 * eas + ris)             (9.5-105)
=0.5*489.5^2*(101.93+110.47)/(0.5*10.5+489.5)=          51432.22 mm2

Aps = MAX( ApsL ApsT) =MAX(1.0352E05,51432.22)=          1,0352E05 mm2
```

9.5.2 Pravidla pro vyztužování

Požadovaná tlaková plocha pA(req.)

```
pAReqL = P * (ApsL + Apb) (9.5-7) =1.6*(1.0352E05+4789.97)=  173.30 kN

pAReqT = P * (ApsT + Apb + 0.5 * Apphi)                          (9.5-7)
=1.6*(51432.22+4789.97+0.5*0)=                               89.96 kN

pAReq = MAX( pAReqL, pAReqT) =MAX(1.733E05,89955.49)=        173.30 kN
```

Dostupná tlaková plocha pA(aval.)

```
pAAval = (Afs+Afw)*(fs-0.5*P)+Afp*(fop-0.5*P)+Afb*(fob-0.5*P)      (9.5-7)
=(1070.27+0)*(153.47-0.5*1.6)+0*(0-0.5*1.6)+277.55*(145.47-0.5*1.6)
=   203.55 kN
```

Vyztužení hrdla pAAval=203.55 >= pAReq=173.3[kN]	85.1%	OK

Maximální dovolený tlak Pmax

```
Pmax = (Afs+Afw)*fs+Afb*fob/((ApsL+Apb)+0.5*(Afs+Afw+Afb+Afp))     (9.5-10)
=(1070.27+0)*153.47+277.55*145.47/((1.0352E05+4789.97)+0.5*(1070.27+0+277.5
5+0))=                                                    =   1.8776 MPa
```

Max. dovolený zkušební tlak Ptmax

```
Ptmax =  ==                                                 3.4620 MPa
```

EN1092 PN 25 Flange Rating(at 130C) P=1.6 <= PMax(flange)=2.248[MPa]	71.1%	OK

16.5 LOKÁLNÍ ZATÍŽENÍ HRDEL NA VÁLCOVÝCH SKOØEPINÁCH

PØEDBÌŽNÝ VÝPOÈET

```
Analyzovaná tlouš•ka stìny skoøepiny
eas = en - c - th =12-1-0.5=                                  10.50 mm
Analyzovaná tlouš•ka hrdla eb
eb = enb - c - NegDev =8-1-1=                                 6.0000 mm
Støední prùmìr skoøepiny
D = De - ea =1000-10.5=                                       989.50 mm
Støední polomìr plášti
R = D / 2 =989.5/2=                                           494.75 mm
```

16.5.3 PODMÍNKY PLATNOSTI

»a) ea/D=0.0106 >= 0.001« » OK«

»a) ea/D=0.0106 <= 0.1« » OK«

»b) LamdaC=2.09 <= 10« » OK«

```
»c) Vzdálenost jakéhokoliv dalšího lokálního zatížení nesmí být menší než SQR(
D*ec)=                                                    =  101.9 mm
»d) Tlouš•ka hrdla bude dodržena podél vzdálenosti SQR(d*eb)=  35.8 mm
```

LOAD CASE NO: 1 - Návrhový stav

```
Celkový moment
MB = Sqr( Mx ^ 2 + My ^ 2)
=Sqr(1.896E06^2+1.228E06^2)=                              2.2589 kNm
```

NAPÌTÍ NA VNÌJŠÍM PRÙMÌRU HRDLA

```
Støední prùmìr hrdla
d = deb - eb =219.1-6=                                        213.10 mm
Kombinace analyzovaných tlouštìk
ec = ea =10.5=                                                10.50 mm
LamdaC = d / Sqr( D * ec) =213.1/Sqr(989.5*10.5)=             2.0906
Ratio1 = eb / ec =6/10.5=                                     0.5714
Ratio2 = D / ec =989.5/10.5=                                  94.24
HODNOTY C1,C2 A C3 Z OBRÁZKU 16.5-2 AŽ 16.5-4
C1 =    2.601  C2 =    5.179  C3 =   13.253
```

16.5.5 MAXIMÁLNÍ DOVOLENÉ INDIVIDUÁLNÍ ZATÍŽENÍ

Dovolený tlak Pmax:
Pmax (from nozzle calculation) = Pmax (16.5-2) =1.88= 1.8776 MPa

Dovolené axiální zatížení Fzmax:
Fzmax = f * ec ^ 2 * C1 (16.5-3) =153.47*10.5^2*2.6= 44.01 kN

Dovolený obvodový moment Mxmax:
Mxmax = f * ec ^ 2 * d / 4 * C2 (16.5-5)
=153.47*10.5^2*213.1/4*5.18= 4.6681 kNm

Dovolený podélný moment Mxmax:
Mymax = f * ec ^ 2 * d / 4 * C3 (16.5-7)
=153.47*10.5^2*213.1/4*13.25= 11.95 kNm

SHEAR STRESS FORMULAES

Smykové napìtí od osové smykové síly, TauFl:
TauFl = 2 * Fl / (PI * deb * ec)
=2*-3990/(3.14*219.1*10.5)= -1.1 N/mm2

Smykové napìtí od obvodové smykové síly, TauFc:
TauFc = 2 * Fc / (PI * deb * ec)
=2*-6850/(3.14*219.1*10.5)= -1.9 N/mm2

Smykové napìtí od kroutícího momentu, TauMt:
TauMt = 2 * Mt / (PI * deb ^ 2 * ec)
=2*3.193E06/(3.14*219.1^2*10.5)= 4.0328 N/mm2

Celkové smykové napìtí, Tau:
Tau = Sqr(TauFc ^ 2 + TauFl ^ 2) + TauMt
=Sqr(-1.9^2+-1.1^2)+4.03= 6.2272 N/mm2

16.5.6 KOMBINACE VNÌJŠÍHO ZATÍŽENÍ A VNITØNÍHO TLAKU

PhiP = P / Pmax (16.5-9) =1.6/1.88= 0.8521

PhiZ = Fz / Fzmax (16.5-10) =835/44005.7= 0.0190

PhiTau = 2 * Tau / f =2*6.23/153.47= 0.0812

PhiB = Sqr((Mx / Mxmax) ^ 2 + (My / Mymax) ^ 2) (16.5-11)
=Sqr((1.896E06/4.6681E06)^2+(1.228E06/1.1946E07)^2)= 0.4190

MaxAll = MAX(Abs(PhiP/C4+PhiZ),Abs(PhiZ),Abs(PhiP/C4-0.2*PhiZ) (16.5-15)
=MAX(Abs(0.8521/1+0.019,)Abs(0.019,)Abs(0.8521/1-0.2*0.019)= 0.8711

PhiAll = Sqr(MaxAll ^ 2 + PhiB ^ 2 + PhiTau ^ 2) (16.5-15)
=Sqr(0.8711^2+0.419^2+0.0812^2)= 0.9700

16.5.6.4 Kontrola limitù jednotlivých pomìrù vytížení

PhiP V MÍSTÌ OD HRDLA PhiP=0.8521 <= 1.0 =1(16.5-12)	85.2%	OK
PhiZ V MÍSTÌ OD HRDLA PhiZ=0.019 <= 1.0=1(16.5-13)	1.8%	OK
PhiB V MÍSTÌ OD HRDLA PhiB=0.419 <= 1.0=1(16.5-14)	41.8%	OK
PhiTau V MÍSTÌ OD HRDLA PhiTau=0.0812 <= 1.0=1	8.1%	OK
PhiAll V MÍSTÌ OD HRDLA PhiAll=0.97 <= 1.0=1(16.5-15)	97.0%	OK

16.5.7 ROZSAHY NAPÌTÍ A JEJICH KOMBINACE

16.5.7.1 ROZSAHY ZATÍŽENÍ

```
DeltaP = Max( Pmax , 0) - Min( Pmin , 0)                          (16.5-16)
=Max(1.6,0)-Min(0,0)=                                        1.6000 MPa

DeltaFz = Max( Fzmax , 0) - Min( Fzmin , 0)                       (16.5-17)
=Max(0.835,0)-Min(0,0)=                                      0.8350 kN

DeltaMx = Max( Mxmax , 0) - Min( Mxmin , 0)                       (16.5-18)
=Max(1.896,0)-Min(0,0)=                                      1.8960 kNm

DeltaMy = Max( Mymax , 0) - Min( Mymin , 0)                       (16.5-19)
=Max(1.228,0)-Min(0,0)=                                      1.2280 kNm

DeltaFl = Max( Flmax , 0) - Min( Flmin , 0)
=Max(3.988,0)-Min(0,0)=                                        0.00 kN

DeltaFc = Max( Fcmax , 0) - Min( Fcmin , 0)
=Max(6.854,0)-Min(0,0)=                                        0.00 kN

DeltaFshear = Sqr( DeltaFl ^ 2 + DeltaFc ^ 2)
=Sqr(0^2+0^2)=                                                 0.00 kN

DeltaMt = Max( Mtmax , 0) - Min( Mtmin , 0)
=Max(3.193,0)-Min(0,0)=                                      3.1930 kNm
```

16.5.7.2 EKVIVALENTNÍ TLOUŠ•KA PLÁŠTÌ

```
eeq = ec =10.5=                                                10.50 mm
```

16.5.7.3 NAPÌTÍ

```
HODNOTY C1,C2 A C3 Z OBRÁZKU 16.5-2 AŽ 16.5-4
C1 =    2.601  C2 =    5.179  C3 =   13.253
Tmp1 = Sqr( d * eb / (D * eeq))
=Sqr(213.1*6/(989.5*10.5))=                                  0.3508
Tmp2 = (2+2*d/D*Tmp1+1.25*d/D*Sqr(D/eeq))/(1+eb/eeq*Tmp1)
=(2+2*213.1/989.5*0.3508+1.25*213.1/989.5*Sqr(989.5/10.5))/(1+6/10.5*0.3508
)=                                                            =   3.9688
Napìtí od rozsahu zatížení tlakem
SigP = DeltaP * D / (2 * eeq) * Tmp2                              (16.5-21)
=1.6*989.5/(2*10.5)*3.97=                                  299.21 N/mm2

Napìtí od rozsahu axiálniho zatížení
SigFz = 2.25 / C1 * (DeltaFz / eeq ^ 2)                           (16.5-22)
=2.25/2.6*(835/10.5^2)=                                    6.5521 N/mm2

Napìtí od rozsahu zatížení obvodovým momentem
SigMx = 2.25 / C2 * (4 * DeltaMx / (eeq ^ 2 * d))                 (16.5-23)
=2.25/5.18*(4*1.896E06/(10.5^2*213.1))=                    140.25 N/mm2

Napìtí od rozsahu zatížení podélným momentem
SigMy = 2.25 / C3 * (4 * DeltaMy / (eeq ^ 2 * d))                 (16.5-24)
=2.25/13.25*(4*1.228E06/(10.5^2*213.1))=                    35.50 N/mm2

Smykové napìtí od osové smykové síly, DeltaFl:
TauFl = 2 * DeltaFl / (PI * deb * eeq)
=2*0/(3.14*219.1*10.5)=                                        0.00 N/mm2

Smykové napìtí od obvodové smykové síly, TauFc:
TauFc = 2 * DeltaFc / (PI * deb * eeq)
=2*0/(3.14*219.1*10.5)=                                        0.00 N/mm2

Smykové napìtí od kroutícího momentu, TauMt:
TauMt = 2 * DeltaMt / (PI * deb ^ 2 * eeq)
=2*3.193E06/(3.14*219.1^2*10.5)=                           4.0328 N/mm2

Celkové smykové napìtí, Tau:
Tau = Sqr( TauFc ^ 2 + TauFl ^ 2) + TauMt
=Sqr(0^2+0^2)+4.03=                                        4.0328 N/mm2
```

```
Intenzita celkových napìtí od rozsahu zatížení
SigTot = Abs(SigT+Sqr((SigP+SigFz)^2+SigMx^2+SigMy^2+4*Tau^2))     (16.5-25)
=Abs(0+Sqr((299.21+6.55)^2+140.25^2+35.5^2+4*4.03^2))=     338.36 N/mm2
```

Celkové napìtí v plášti SigTot=338.36 <= 3*f=460.41[N/mm2]	73.4%	OK

STRESSES IN NOZZLE NECK

16.5.8 PODÉLNÉ NAPÌTÍ HRDLA

```
Maximální podélné napìtí hrdla
SigLong = P*d/(4*eb)+4*MB/(PI*d^2*eb)+Fz/(PI*d*eb)                  (16.5-26)
=1.6*213.1/(4*6)+4*2.2589E06/(3.14*213.1^2*6)+835/(3.14*213.1*6)
=    24.97 N/mm2
```

Podélné napìtí hrdla SigLong=24.97 <= fb=145.47[N/mm2]	17.1%	OK

16.14.8 COMPRESSIVE STRESS LIMITS

```
K = 1.21 * E * ea / (Sige * D)                                      (16.14-15)
=1.21*2.0387E05*6/(218.2*213.1)=                          31.83
alfa = 0.83 / Sqr( 1 + 0.005 * D / ea)                              (16.14-16)
=0.83/Sqr(1+0.005*213.1/6)=                               0.7649
delta = (1 - 0.4123 / (alfa * K) ^ 0.6) / S                         (16.14-19)
=(1-0.4123/(0.7649*31.83)^0.6)/1.5=                       0.6262
Maximální dovolené tlakové napìtí
Sigcall = Sige * delta (16.14-20) =218.2*0.6262=          136.63 N/mm2
```

16.14.4 JEDNOTLIVÁ DOVOLENÁ ZATÍŽENÍ

```
Maximální tahová síla Ftmax
Ftmax = PI * D * ea * f (16.14-1) =3.14*213.1*6*145.47=    584.33 kN

Maximální tlaková síla Fcmax
Fcmax = PI * D * ea * Sigcall (16.14-2) =3.14*213.1*6*136.63=   548.83 kN

Maximální ohybový moment Mmax
Mmax = PI / 4 * D ^ 2 * ea * Sigcall                                (16.14-3)
=3.14/4*213.1^2*6*136.63=                                 29.24 kNm

Kontrola stability v podélném smìru (P=0)
LongStab = MB / Mmax + Abs( Fzmin) / Fcmax                          (16.5-27)
=2.2589E06/2.9239E07+Abs(0)/5.4883E05=                    0.0773
```

Podélná stabilita hrdla LongStab=0.0773 <= 1.0=1	7.7%	OK

LOAD CASE NO: 2 - Provozní stav

```
Celkový moment
MB = Sqr( Mx ^ 2 + My ^ 2) =Sqr(421000^2+573000^2)=          0.7110 kNm
```

NAPÌTÍ NA VNÌJŠÍM PRÙMÌRU HRDLA

```
Støední prùmìr hrdla
d = deb - eb =219.1-6=                                      213.10 mm
Kombinace analyzovaných tlouštìk
ec = ea =10.5=                                               10.50 mm
LamdaC = d / Sqr( D * ec) =213.1/Sqr(989.5*10.5)=           2.0906
Ratio1 = eb / ec =6/10.5=                                   0.5714
Ratio2 = D / ec =989.5/10.5=                                 94.24
HODNOTY C1,C2 A C3 Z OBRÁZKU 16.5-2 AŽ 16.5-4
C1 =    2.601  C2 =    5.179  C3 =   13.253
```

16.5.5 MAXIMÁLNÍ DOVOLENÉ INDIVIDUÁLNÍ ZATÍŽENÍ

Dovolený tlak Pmax:
Pmax (from nozzle calculation) = Pmax (16.5-2) =1.88= 1.8776 MPa

Dovolené axiální zatížení Fzmax:
Fzmax = f * ec ^ 2 * C1 (16.5-3) =153.47*10.5^2*2.6= 44.01 kN

Dovolený obvodový moment Mxmax:
Mxmax = f * ec ^ 2 * d / 4 * C2 (16.5-5)
=153.47*10.5^2*213.1/4*5.18= 4.6681 kNm

Dovolený podélný moment Mxmax:
Mymax = f * ec ^ 2 * d / 4 * C3 (16.5-7)
=153.47*10.5^2*213.1/4*13.25= 11.95 kNm

SHEAR STRESS FORMULAES

Smykové napìtí od osové smykové síly, TauFl:
TauFl = 2 * Fl / (PI * deb * ec)
=2*-572/(3.14*219.1*10.5)= -0.1583 N/mm2

Smykové napìtí od obvodové smykové síly, TauFc:
TauFc = 2 * Fc / (PI * deb * ec)
=2*-1550/(3.14*219.1*10.5)= -0.4292 N/mm2

Smykové napìtí od kroutícího momentu, TauMt:
TauMt = 2 * Mt / (PI * deb ^ 2 * ec)
=2*230000/(3.14*219.1^2*10.5)= 0.2905 N/mm2

Celkové smykové napìtí, Tau:
Tau = Sqr(TauFc ^ 2 + TauFl ^ 2) + TauMt
=Sqr(-0.4292^2+-0.1583^2)+0.2905= 0.7479 N/mm2

16.5.6 KOMBINACE VNÌJŠÍHO ZATÍŽENÍ A VNITØNÍHO TLAKU

PhiP = P / Pmax (16.5-9) =0.3/1.88= 0.1598

PhiZ = Fz / Fzmax (16.5-10) =0.221/44005.7= 0.0050

PhiTau = 2 * Tau / f =2*0.7479/153.47= 0.0097

PhiB = Sqr((Mx / Mxmax) ^ 2 + (My / Mymax) ^ 2) (16.5-11)
=Sqr((0.421/4.6681E06)^2+(0.573/1.1946E07)^2)= 0.1021

MaxAll = MAX(Abs(PhiP/C4+PhiZ),Abs(PhiZ),Abs(PhiP/C4-0.2*PhiZ) (16.5-15)
=MAX(Abs(0.1598/1+0.005,)Abs(0.005,)Abs(0.1598/1-0.2*0.005)= 0.1648

PhiAll = Sqr(MaxAll ^ 2 + PhiB ^ 2 + PhiTau ^ 2) (16.5-15)
=Sqr(0.1648^2+0.1021^2+0.0097^2)= 0.1941

16.5.6.4 Kontrola limitù jednotlivých pomìrù vytížení

PhiP V MÍSTÌ OD HRDLA PhiP=0.1598 <= 1.0 =1(16.5-12)	15.9%	OK
PhiZ V MÍSTÌ OD HRDLA PhiZ=0.005 <= 1.0=1(16.5-13)	0.5%	OK
PhiB V MÍSTÌ OD HRDLA PhiB=0.1021 <= 1.0=1(16.5-14)	10.2%	OK
PhiTau V MÍSTÌ OD HRDLA PhiTau=0.0097 <= 1.0=1	0.9%	OK
PhiAll V MÍSTÌ OD HRDLA PhiAll=0.1941 <= 1.0=1(16.5-15)	19.4%	OK

16.5.7 ROZSAHY NAPÌTÍ A JEJICH KOMBINACE

16.5.7.1 ROZSAHY ZATÍŽENÍ

```
DeltaP = Max( Pmax , 0) - Min( Pmin , 0)                          (16.5-16)
=Max(0.3,0)-Min(0,0)=                                        0.3000 MPa

DeltaFz = Max( Fzmax , 0) - Min( Fzmin , 0)                       (16.5-17)
=Max(0.221,0)-Min(0,0)=                                      0.2210 kN

DeltaMx = Max( Mxmax , 0) - Min( Mxmin , 0)                       (16.5-18)
=Max(0.421,0)-Min(0,0)=                                      0.4210 kNm

DeltaMy = Max( Mymax , 0) - Min( Mymin , 0)                       (16.5-19)
=Max(0.573,0)-Min(0,0)=                                      0.5730 kNm

DeltaFl = Max( Flmax , 0) - Min( Flmin , 0)
=Max(0.572,0)-Min(0,0)=                                        0.00 kN

DeltaFc = Max( Fcmax , 0) - Min( Fcmin , 0)
=Max(1.551,0)-Min(0,0)=                                        0.00 kN

DeltaFshear = Sqr( DeltaFl ^ 2 + DeltaFc ^ 2)
=Sqr(0^2+0^2)=                                                 0.00 kN

DeltaMt = Max( Mtmax , 0) - Min( Mtmin , 0)
=Max(0.23,0)-Min(0,0)=                                       0.2300 kNm
```

16.5.7.2 EKVIVALENTNÍ TLOUŠ•KA PLÁŠTÌ

```
eeq = ec =10.5=                                                10.50 mm
```

16.5.7.3 NAPÌTÍ

```
HODNOTY C1,C2 A C3 Z OBRÁZKU 16.5-2 AŽ 16.5-4
C1 =    2.601  C2 =    5.179  C3 =   13.253
Tmp1 = Sqr( d * eb / (D * eeq))
=Sqr(213.1*6/(989.5*10.5))=                                  0.3508
Tmp2 = (2+2*d/D*Tmp1+1.25*d/D*Sqr(D/eeq))/(1+eb/eeq*Tmp1)
=(2+2*213.1/989.5*0.3508+1.25*213.1/989.5*Sqr(989.5/10.5))/(1+6/10.5*0.3508
)=                                                            =   3.9688
Napìtí od rozsahu zatížení tlakem
SigP = DeltaP * D / (2 * eeq) * Tmp2                              (16.5-21)
=0.3*989.5/(2*10.5)*3.97=                                    56.10 N/mm2

Napìtí od rozsahu axiálniho zatížení
SigFz = 2.25 / C1 * (DeltaFz / eeq ^ 2)                           (16.5-22)
=2.25/2.6*(221/10.5^2)=                                      1.7342 N/mm2

Napìtí od rozsahu zatížení obvodovým momentem
SigMx = 2.25 / C2 * (4 * DeltaMx / (eeq ^ 2 * d))                 (16.5-23)
=2.25/5.18*(4*421000/(10.5^2*213.1))=                        31.14 N/mm2

Napìtí od rozsahu zatížení podélným momentem
SigMy = 2.25 / C3 * (4 * DeltaMy / (eeq ^ 2 * d))                 (16.5-24)
=2.25/13.25*(4*573000/(10.5^2*213.1))=                       16.56 N/mm2

Smykové napìtí od osové smykové síly, DeltaFl:
TauFl = 2 * DeltaFl / (PI * deb * eeq)
=2*0/(3.14*219.1*10.5)=                                        0.00 N/mm2

Smykové napìtí od obvodové smykové síly, TauFc:
TauFc = 2 * DeltaFc / (PI * deb * eeq)
=2*0/(3.14*219.1*10.5)=                                        0.00 N/mm2

Smykové napìtí od kroutícího momentu, TauMt:
TauMt = 2 * DeltaMt / (PI * deb ^ 2 * eeq)
=2*230000/(3.14*219.1^2*10.5)=                               0.2905 N/mm2

Celkové smykové napìtí, Tau:
Tau = Sqr( TauFc ^ 2 + TauFl ^ 2) + TauMt
=Sqr(0^2+0^2)+0.2905=                                        0.2905 N/mm2
```

```
Intenzita celkových napìtí od rozsahu zatížení
SigTot = Abs(SigT+Sqr((SigP+SigFz)^2+SigMx^2+SigMy^2+4*Tau^2))     (16.5-25)
=Abs(0+Sqr((56.1+1.73)^2+31.14^2+16.56^2+4*0.2905^2))=      67.75 N/mm2
```

Celkové napìtí v plášti SigTot=67.75 <= 3*f=460.41[N/mm2]	14.7%	OK

STRESSES IN NOZZLE NECK

16.5.8 PODÉLNÉ NAP Ì TÍ HRDLA

```
Maximální podélné napìtí hrdla
SigLong = P*d/(4*eb)+4*MB/(PI*d^2*eb)+Fz/(PI*d*eb)                 (16.5-26)
=1.6*213.1/(4*6)+4*7.1103E05/(3.14*213.1^2*6)+221/(3.14*213.1*6)
=   6.0414 N/mm2
```

Podélné napìtí hrdla SigLong=6.04 <= fb=145.47[N/mm2]	4.1%	OK

16.14.8 COMPRESSIVE STRESS LIMITS

```
K = 1.21 * E * ea / (Sige * D)                                     (16.14-15)
=1.21*2.0387E05*6/(218.2*213.1)=                          31.83
alfa = 0.83 / Sqr( 1 + 0.005 * D / ea)                             (16.14-16)
=0.83/Sqr(1+0.005*213.1/6)=                               0.7649
delta = (1 - 0.4123 / (alfa * K) ^ 0.6) / S                        (16.14-19)
=(1-0.4123/(0.7649*31.83)^0.6)/1.5=                       0.6262
Maximální dovolené tlakové napìtí
Sigcall = Sige * delta (16.14-20) =218.2*0.6262=           136.63 N/mm2
```

16.14.4 JEDNOTLIVÁ DOVOLENÁ ZATÍŽENÍ

```
Maximální tahová síla Ftmax
Ftmax = PI * D * ea * f (16.14-1) =3.14*213.1*6*145.47=     584.33 kN

Maximální tlaková síla Fcmax
Fcmax = PI * D * ea * Sigcall (16.14-2) =3.14*213.1*6*136.63=   548.83 kN

Maximální ohybový moment Mmax
Mmax = PI / 4 * D ^ 2 * ea * Sigcall                               (16.14-3)
=3.14/4*213.1^2*6*136.63=                                 29.24 kNm

Kontrola stability v podélném smìru (P=0)
LongStab = MB / Mmax + Abs( Fzmin) / Fcmax                         (16.5-27)
=7.1103E05/2.9239E07+Abs(0)/5.4883E05=                    0.0243
```

Podélná stabilita hrdla LongStab=0.0243 <= 1.0=1	2.4%	OK

```
Weight of Nozzle: 4.6kg  Flange: 19kg
```

VÝPOÈET - SOUHRN

Min. tlouš• ka hrdla ebp=1.2 <= eab=6[mm]	19.9%	OK

9.5.2.4.4 Nozzles normal to the shell, with or without reinforcement pads.

```
Limit vyztužení podél stìny skoøepiny
Iso = Sqr(( 2 * ris + eas) * eas)
=Sqr((2*489.5+10.5)*10.5)=                                101.93 mm
Mez vyztužení podél hrdla (vnì plášti)
Ibo = MIN( Sqr(( deb - eb) * eb), ho)                              (9.5-76)
=MIN(Sqr((219.1-6)*6,)150)=                                35.76 mm
```

Požadovaná tlaková plocha pA(req.)

```
pAReqL = P * (ApsL + Apb) (9.5-7) =1.6*(1.0352E05+4789.97)=   173.30 kN
pAReqT = P * (ApsT + Apb + 0.5 * Apphi)                          (9.5-7)
=1.6*(51432.22+4789.97+0.5*0)=                                89.96 kN
pAReq = MAX( pAReqL, pAReqT) =MAX(1.733E05,89955.49)=         173.30 kN
```

Dostupná tlaková plocha pA(aval.)

```
pAAval = (Afs+Afw)*(fs-0.5*P)+Afp*(fop-0.5*P)+Afb*(fob-0.5*P)      (9.5-7)
=(1070.27+0)*(153.47-0.5*1.6)+0*(0-0.5*1.6)+277.55*(145.47-0.5*1.6)
=   203.55 kN
```

Vyztužení hrdla pAAval=203.55 >= pAReq=173.3[kN]	85.1%	OK

Maximální dovolený tlak Pmax

```
Pmax = (Afs+Afw)*fs+Afb*fob/((ApsL+Apb)+0.5*(Afs+Afw+Afb+Afp))     (9.5-10)
=(1070.27+0)*153.47+277.55*145.47/((1.0352E05+4789.97)+0.5*(1070.27+0+277.5
5+0))=                                                    =   1.8776 MPa
```

EN1092 PN 25 Flange Rating(at 130C) P=1.6 <= PMax(flange)=2.248[MPa]	71.1%	OK

LOAD CASE NO: 1 - Návrhový stav

NAPÌTÍ NA VNÌJŠÍM PRÙMÌRU HRDLA

16.5.6.4 Kontrola limitù jednotlivých pomìrù vytížení

PhiP V MÍSTÌ OD HRDLA PhiP=0.8521 <= 1.0 =1(16.5-12)	85.2%	OK
PhiZ V MÍSTÌ OD HRDLA PhiZ=0.019 <= 1.0=1(16.5-13)	1.8%	OK
PhiB V MÍSTÌ OD HRDLA PhiB=0.419 <= 1.0=1(16.5-14)	41.8%	OK
PhiTau V MÍSTÌ OD HRDLA PhiTau=0.0812 <= 1.0=1	8.1%	OK
PhiAll V MÍSTÌ OD HRDLA PhiAll=0.97 <= 1.0=1(16.5-15)	97.0%	OK

16.5.7 ROZSAHY NAPÌTÍ A JEJICH KOMBINACE

Celkové napìtí v plášti SigTot=338.36 <= 3*f=460.41[N/mm2]	73.4%	OK

STRESSES IN NOZZLE NECK

Podélné napìtí hrdla SigLong=24.97 <= fb=145.47[N/mm2]	17.1%	OK
Podélná stabilita hrdla LongStab=0.0773 <= 1.0=1	7.7%	OK

LOAD CASE NO: 2 - Provozní stav

NAPÌTÍ NA VNÌJŠÍM PRÙMÌRU HRDLA

16.5.6.4 Kontrola limitù jednotlivých pomìrù vytížení

PhiP V MÍSTÌ OD HRDLA PhiP=0.1598 <= 1.0 =1(16.5-12)	15.9%	OK
PhiZ V MÍSTÌ OD HRDLA PhiZ=0.005 <= 1.0=1(16.5-13)	0.5%	OK
PhiB V MÍSTÌ OD HRDLA PhiB=0.1021 <= 1.0=1(16.5-14)	10.2%	OK
PhiTau V MÍSTÌ OD HRDLA PhiTau=0.0097 <= 1.0=1	0.9%	OK
PhiAll V MÍSTÌ OD HRDLA PhiAll=0.1941 <= 1.0=1(16.5-15)	19.4%	OK

16.5.7 ROZSAHY NAPÌTÍ A JEJICH KOMBINACE

Celkové napìtí v plášti SigTot=67.75 <= 3*f=460.41[N/mm2]	14.7%	OK

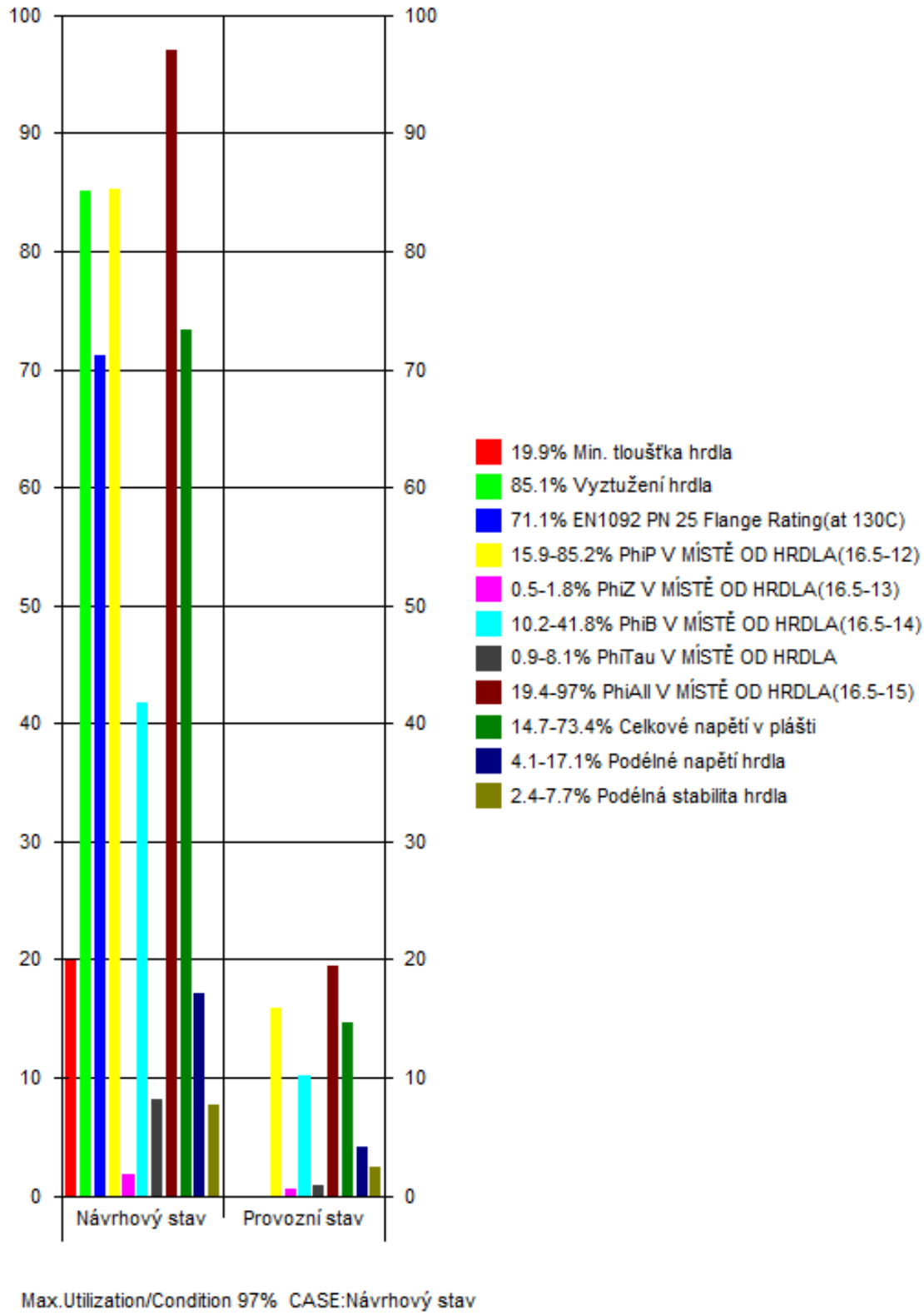
STRESSES IN NOZZLE NECK

Podélné napìtí hrdla SigLong=6.04 <= fb=145.47[N/mm2]	4.1%	OK
Podélná stabilita hrdla LongStab=0.0243 <= 1.0=1	2.4%	OK

WARNING/WARNING: THE NOZZLE IS LOCATED CLOSE TO A DISCONTINUITY AT z= 1800. REDUCE THE LIMIT OF REINFORCEMENT TO Islim= 40.4

Objem :0.0052 m3 Tíha:23.5 kg (SG= 7.85)

GRAF VYUŽITÍ - N.2

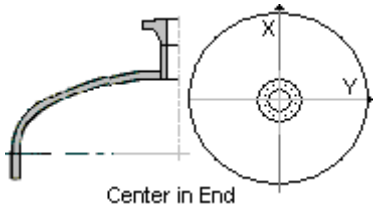


Max.Utilization/Condition 97% CASE:Návrhový stav

VSTUPNÍ DATA

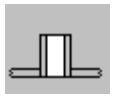
PØIPOJENÍ/POLOHA KOMPONENTY

Pøipojení: E3.1 Torosférické dno S1.1
Connect this nozzle to the nozzle neck of another nozzle: Ne



Orientace a poloha hrdla: Ve støedu dna

HLAVNÍ VÝPOÈTOVÁ DATA



Typ otvoru: Hrdlo bez ASME/ASME nebo DIN pøíruby
ZATÍŽENÍ TLAKEM: Výpoèet komponenty pro vnitøní a vnìjší tlak
PROCESNÍ KARTA:
HLAVNÍ VÝPOÈTOVÁ DATA : Temp= 130°C, P=1.6000 MPa, c=1.0 mm, Pext=0.0000 MPa
SPECIFICKÁ HUSTOTA PROVOZNÍHO MEDIA.....:SG 1.0000
HYDROSTATICKÁ VÝŠKA KAPALINY.....:LH 255.99 mm
Zahrnout výpoèet zatížení hrdla: Ne

DATA SKOØEPINY (E3.1)

Typ skoøepiny: Torosférické dno
VNEJŠÍ PRUMER PLÁŠTE.....:De 1000.00 mm
PROVEDENÁ TLOUŠTKA HRDLA (nezkorodovaná).....:en 12.00 mm
ZÁPORNÁ ÚCHYLKA TVÁRENÍ/TOLERANCE PLECHU.....:th 0.5000 mm
VNITRNÍ POLOMER KLENUTÍ (zkorodovaný).....:R 800.00 mm
EN 10028-2:2017, 1.0425 P265GH plate and strip, HT:N THK<=16mm 130'C
Rm=410 Rp=265 Rpt=230.2 fs=153.47 f20=170.83 ftest=252.38 E=203868(N/mm2) ro=7.85

MATERIÁLOVÁ DATA HRDLA



Zpùsob dodání: Plech
SOUÈINITEL SVAROVÉHO SPOJE: Zkušební skupina 3 (z=0.85)
EN 10028-2:2017, 1.0473 P355GH plate and strip, HT:N THK<=16mm 130'C
Rm=510 Rp=355 Rpt=308.6 fb=205.73 f20=212.5 ftest=338.1 E=203868(N/mm2) ro=7.85

Rozmìrová data hrdla

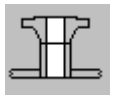


Pøipojení: Vsazené hrdlo
Tvar hrdla/otvoru: Kruhový
Prùmìr hrdla: Výpoèet pro vnìjší prùmìr hrdla
Použití: 9.4.6.3 Bez únavy, výpoètová teplota mimo oblast creepu.
VNEJŠÍ PRUMER HRDLA.....:deb 508.00 mm
PROVEDENÁ TLOUŠTKA HRDLA (nezkorodovaná).....:enb 14.20 mm
Velikost pøíruby a hrdla:
Poznámka(volitelná):
ZÁPORNÁ TOLERANCE/ÚCHYLKA TLOUŠTKY.....: 0.5000 mm
VYLOŽENÍ HRDLA MERENÉ OD VNEJŠÍHO PRUMERU NÁDOBY....:ho 25.00 mm

DATA PØIVAØENÍ

Plocha svaru hrdla/límce a plášti:
Bez uvažování plochy pøípojného svaru hrdla a skoøepiny
Køížení hrdla a tupého svaru: Hrdlo neprotíná tupý svar skoøepiny
ÚHEL MEZI OSOU HRDLA A NORMÁLOU K POVRCHU PLÁŠTE....:Phi 0.00 Degr.

DATA VÝZTUŽNÉHO LÍMCE



Typ límce: Bez límce

MEZE VYZTUŽENÍ

Redukce pro meze vyztužení: Redukce není požadována

VÝPOÈTOVÁ DATA

PØEDBÌŽNÝ VÝPOÈET

Analyzovaná tlouš•ka stìny skoøepiny
eas = en - c - th =12-1-0.5= 10.50 mm
Analyzovaná tlouš•ka stìny hrdla
eab = enb - c - NegDev =14.2-1-0.5= 12.70 mm
Redukovaná pevnost materiálu hrdla v dùsledku podélného svaru hrdla
fb = fb * z =205.73*0.85= 174.87 N/mm2
ris = R (9.5-4) =800= 800.00 mm
dib = deb - 2 * eab =508-2*12.7= 482.60 mm
Min.tlouš•ka hrdla od vnitøního tlaku ebp
ebp = P * deb / (2 * fb * z + P)
=1.6025*508/(2*205.73*0.85+1.6025)= 2.3200 mm
Dovolené namáhání
fob = Min(fs, fb) (9.5-8) =Min(153.47,174.87)= 153.47 N/mm2

GEOMETRICKÉ MEZE

»Kontrola max. prùmìru hrdla dib/De=0.4826 <= 0.60=0.6[mm] (9.4.5.3)«» OK«

Min. tlouš• ka hrdla ebp=2.32 <= eab=12.7[mm]	18.2%	OK

»Poloha ve dnì podle Obr.9.5-4 L=246 >= De/10=100[mm] « » OK«

9.5.2.4.4 Nozzles normal to the shell, with or without reinforcement pads.

Výpoèet efektivního vyztužujícího pøíèného prùøezu zatíženého napìtím

Plocha plášti Afs

Limit vyztužení podél stìny skoøepiny
Iso = Sqr((2 * ris + eas) * eas)
=Sqr((2*800+10.5)*10.5)= 130.04 mm
Vsazené hrdlo
Afs = eas * Is (9.5-79) =10.5*130.04= 1365.41 mm2

Plocha hrdla Afb

Mez vyztužení podél hrdla (vnì plášti)
Ibo = MIN(Sqr((deb - eb) * eb), ho) (9.5-76)
=MIN(Sqr((508-12.7)*12.7,)25)= 25.00 mm
Vsazené hrdlo
Afb = eb * (Ibo + Ibi + eas) (9.5-78) =12.7*(25+0+10.5)= 450.85 mm2

Výpoèet plochy zatížené tlakem

Plocha otvoru hrdla Afb
Apb = 0.5 * dib * (Ibo + eas) (9.5-84) =0.5*482.6*(25+10.5)= 8566.15 mm2

Kuželová skoøepina v obvodové rovinì Aps
Aps = 0.5 * ris ^ 2 * (Is + a) / (0.5 * eas + ris) (9.5-105)
=0.5*800^2*(130.04+258.41)/(0.5*10.5+800)= 1,5437E05 mm2

9.5.2 Pravidla pro vyztužování

Požadovaná tlaková plocha pA(req.)

pAReq = P * (Aps + Apb + 0.5 * Apphi) (9.5-7)
=1.6025*(1.5437E05+8566.15+0.5*0)= 261.10 kN

Dostupná tlaková plocha pA(aval.)

pAAval = (Afs+Afw)*(fs-0.5*P)+Afp*(fop-0.5*P)+Afb*(fob-0.5*P) (9.5-7)
=(1365.41+0)*(153.47-0.5*1.6025)+0*(0-0.5*1.6025)+450.85*(153.47-0.5*1.6025
)= = 277.29 kN

Vyztužení hrdla pAAval=277.29 >= pAReq=261.1[kN]	94.1%	OK

Maximální dovolený tlak Pmax

Pmax = (Afs+Afw)*fs+Afb*fob/((Aps+Apb+0.5*Apphi)+0.5*(Afs+Afw+Afb+Afp)) (9.5-10)
=(1365.41+0)*153.47+450.85*153.47/((1.5437E05+8566.15+0.5*0)+0.5*(1365.41+0
+450.85+0))= = 1.7013 MPa

Max. dovolený zkušební tlak Ptmax

```
Ptmax =  ==                                          3.0512 MPa
Weight of Nozzle: 13.6kg
```

VÝPOÈET - SOUHRN

Min. tlouš• ka hrdla ebp=2.32 <= eab=12.7[mm]	18.2%	OK

9.5.2.4.4 Nozzles normal to the shell, with or without reinforcement pads.

```
Limit vyztužení podél stìny skoøepiny
Iso = Sqr(( 2 * ris + eas) * eas)
=Sqr((2*800+10.5)*10.5)=                                130.04 mm
Mez vyztužení podél hrdla (vnì plášti)
Ibo = MIN( Sqr(( deb - eb) * eb), ho)                              (9.5-76)
=MIN(Sqr((508-12.7)*12.7,)25)=                           25.00 mm
```

Požadovaná tlaková plocha pA(req.)

```
pAReq = P * (Aps + Apb + 0.5 * Apphi)                              (9.5-7)
=1.6025*(1.5437E05+8566.15+0.5*0)=                      261.10 kN
```

Dostupná tlaková plocha pA(aval.)

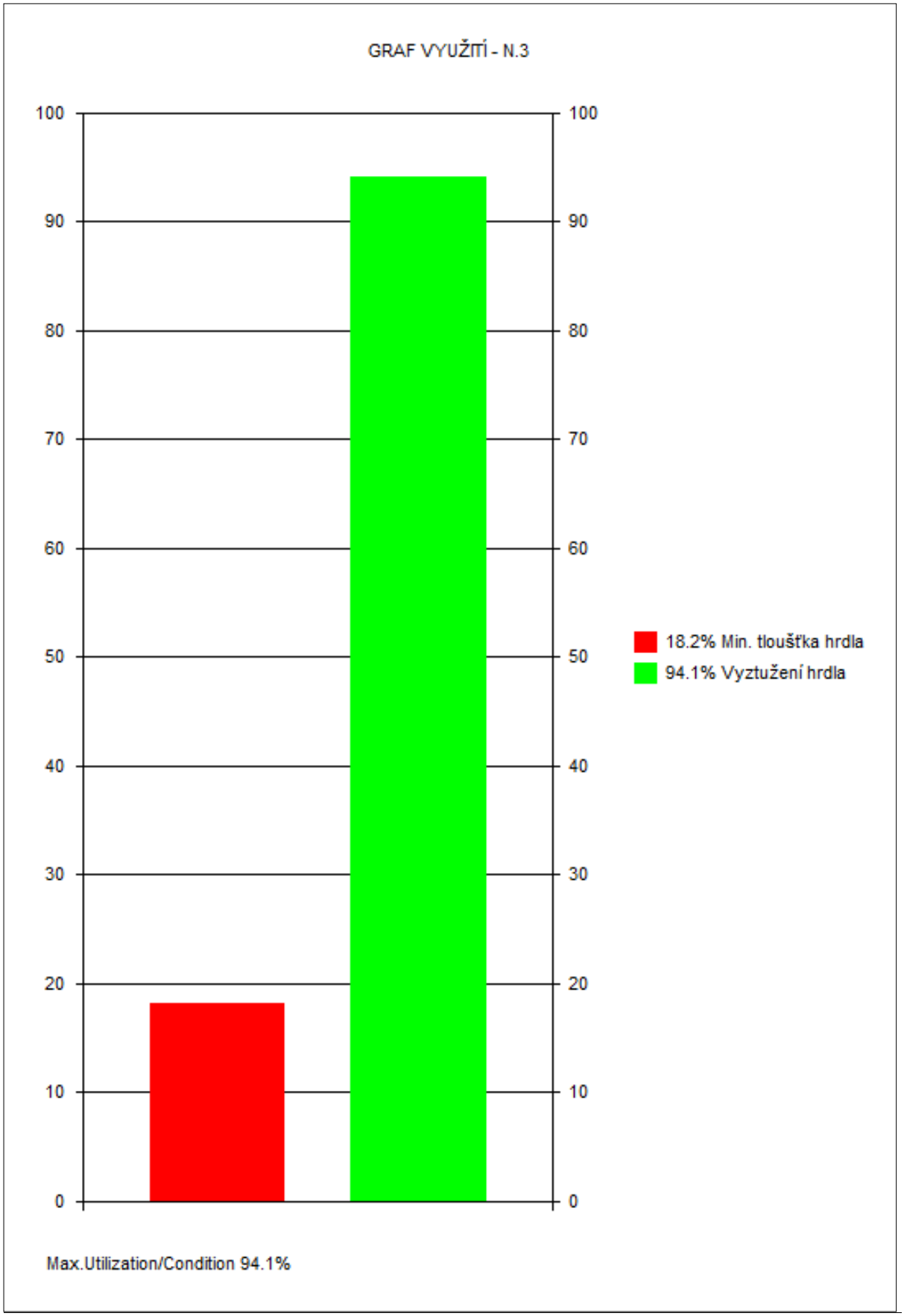
```
pAAval = (Afs+Afw)*(fs-0.5*P)+Afp*(fop-0.5*P)+Afb*(fob-0.5*P)      (9.5-7)
=(1365.41+0)*(153.47-0.5*1.6025)+0*(0-0.5*1.6025)+450.85*(153.47-0.5*1.6025
)=                                                      =   277.29 kN
```

Vyztužení hrdla pAAval=277.29 >= pAReq=261.1[kN]	94.1%	OK

Maximální dovolený tlak Pmax

```
Pmax = (Afs+Afw)*fs+Afb*fob/((Aps+Apb+0.5*Apphi)+0.5*(Afs+Afw+Afb+Afp)) (9.5-10)
=(1365.41+0)*153.47+450.85*153.47/((1.5437E05+8566.15+0.5*0)+0.5*(1365.41+0
+450.85+0))=                                            =   1.7013 MPa
```

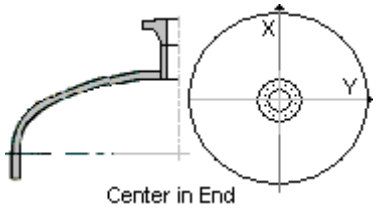
Objem :0.0067 m3 Tíha:13.6 kg (SG= 7.85)


GRAF VYUŽITÍ - N.3
100
90
80
70
60
50
40
30
20
10
0
18.2% Min. tloušťka hrdla
94.1% Vyztužení hrdla
Max.Utilization/Condition 94.1%

VSTUPNÍ DATA

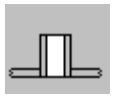
PØIPOJENÍ/POLOHA KOMPONENTY

Pøipojení: E3.2 Torosférické dno S1.1
Connect this nozzle to the nozzle neck of another nozzle: Ne



Orientace a poloha hrdla: Ve støedu dna

HLAVNÍ VÝPOÈTOVÁ DATA



Typ otvoru: Hrdlo bez ASME/ASME nebo DIN pøíruby
ZATÍŽENÍ TLAKEM: Výpoèet komponenty pro vnitøní a vnìjší tlak
PROCESNÍ KARTA:
HLAVNÍ VÝPOÈTOVÁ DATA : Temp= 130°C, P=1.6000 MPa, c=1.0 mm, Pext=0.0000 MPa
SPECIFICKÁ HUSTOTA PROVOZNÍHO MEDIA.....:SG 1.0000
HYDROSTATICKÁ VÝŠKA KAPALINY.....:LH 0.00 mm
Zahrnout výpoèet zatížení hrdla: Ne

DATA SKOØEPINY (E3.2)

Typ skoøepiny: Torosférické dno
VNEJŠÍ PRUMER PLÁŠTE.....:De 1000.00 mm
PROVEDENÁ TLOUŠTKA HRDLA (nezkorodovaná).....:en 12.00 mm
ZÁPORNÁ ÚCHYLKA TVÁRENÍ/TOLERANCE PLECHU.....:th 0.5000 mm
VNITRNÍ POLOMER KLENUTÍ (zkorodovaný).....:R 800.00 mm
EN 10028-2:2017, 1.0425 P265GH plate and strip, HT:N THK<=16mm 130'C
Rm=410 Rp=265 Rpt=230.2 fs=153.47 f20=170.83 ftest=252.38 E=203868(N/mm2) ro=7.85

MATERIÁLOVÁ DATA HRDLA



Zpùsob dodání: Plech
SOUÈINITEL SVAROVÉHO SPOJE: Zkušební skupina 3 (z=0.85)
EN 10028-2:2017, 1.0473 P355GH plate and strip, HT:N THK<=16mm 130'C
Rm=510 Rp=355 Rpt=308.6 fb=205.73 f20=212.5 ftest=338.1 E=203868(N/mm2) ro=7.85

Rozmìrová data hrdla

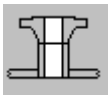


Pøipojení: Vsazené hrdlo
Tvar hrdla/otvoru: Kruhový
Prùmìr hrdla: Výpoèet pro vnìjší prùmìr hrdla
Použití: 9.4.6.3 Bez únavy, výpoètová teplota mimo oblast creepu.
VNEJŠÍ PRUMER HRDLA.....:deb 508.00 mm
PROVEDENÁ TLOUŠTKA HRDLA (nezkorodovaná).....:enb 14.20 mm
Velikost pøíruby a hrdla:
Poznámka(volitelná):
ZÁPORNÁ TOLERANCE/ÚCHYLKA TLOUŠTKY.....: 0.5000 mm
VYLOŽENÍ HRDLA MERENÉ OD VNEJŠÍHO PRUMERU NÁDOBY....:ho 25.00 mm

DATA PØIVAØENÍ

Plocha svaru hrdla/límce a plášti:
Bez uvažování plochy pøípojného svaru hrdla a skoøepiny
Køížení hrdla a tupého svaru: Hrdlo neprotíná tupý svar skoøepiny
ÚHEL MEZI OSOU HRDLA A NORMÁLOU K POVRCHU PLÁŠTE....:Phi 0.00 Degr.

DATA VÝZTUŽNÉHO LÍMCE



Typ límce: Bez límce

MEZE VYZTUŽENÍ

Redukce pro meze vyztužení: Redukce není požadována

VÝPOÈTOVÁ DATA

PØEDBÌŽNÝ VÝPOÈET

Analyzovaná tlouš•ka stìny skoøepiny
eas = en - c - th =12-1-0.5= 10.50 mm
Analyzovaná tlouš•ka stìny hrdla
eab = enb - c - NegDev =14.2-1-0.5= 12.70 mm
Redukovaná pevnost materiálu hrdla v dùsledku podélného svaru hrdla
fb = fb * z =205.73*0.85= 174.87 N/mm2
ris = R (9.5-4) =800= 800.00 mm
dib = deb - 2 * eab =508-2*12.7= 482.60 mm
Min.tlouš•ka hrdla od vnitøního tlaku ebp
ebp = P * deb / (2 * fb * z + P)
=1.6*508/(2*205.73*0.85+1.6)= 2.3100 mm
Dovolené namáhání
fob = Min(fs, fb) (9.5-8) =Min(153.47,174.87)= 153.47 N/mm2

GEOMETRICKÉ MEZE

»Kontrola max. prùmìru hrdla dib/De=0.4826 <= 0.60=0.6[mm] (9.4.5.3)«» OK«

Min. tlouš• ka hrdla ebp=2.31 <= eab=12.7[mm]	18.1%	OK

»Poloha ve dnì podle Obr.9.5-4 L=246 >= De/10=100[mm] « » OK«

9.5.2.4.4 Nozzles normal to the shell, with or without reinforcement pads.

Výpoèet efektivního vyztužujícího pøíèného prùøezu zatíženého napìtím

Plocha plášti Afs

```
Limit vyztužení podél stìny skoøepiny
Iso = Sqr(( 2 * ris + eas) * eas)
=Sqr((2*800+10.5)*10.5)=                                   130.04 mm
Vsazené hrdlo
Afs = eas * Is (9.5-79) =10.5*130.04=                      1365.41 mm2
```

Plocha hrdla Afb

```
Mez vyztužení podél hrdla (vnì plášti)
Ibo = MIN( Sqr(( deb - eb) * eb), ho)                                (9.5-76)
=MIN(Sqr((508-12.7)*12.7,)25)=                              25.00 mm
Vsazené hrdlo
Afb = eb * (Ibo + Ibi + eas) (9.5-78) =12.7*(25+0+10.5)=    450.85 mm2
```

Výpoèet plochy zatížené tlakem

```
Plocha otvoru hrdla Afb
Apb = 0.5 * dib * (Ibo + eas) (9.5-84) =0.5*482.6*(25+10.5)=  8566.15 mm2

Kuželová skoøepina v obvodové rovinì Aps
Aps = 0.5 * ris ^ 2 * (Is + a) / (0.5 * eas + ris)                   (9.5-105)
=0.5*800^2*(130.04+258.41)/(0.5*10.5+800)=              1,5437E05 mm2
```

9.5.2 Pravidla pro vyztužování

Požadovaná tlaková plocha pA(req.)

```
pAReq = P * (Aps + Apb + 0.5 * Apphi)                                (9.5-7)
=1.6*(1.5437E05+8566.15+0.5*0)=                             260.69 kN
```

Dostupná tlaková plocha pA(aval.)

```
pAAval = (Afs+Afw)*(fs-0.5*P)+Afp*(fop-0.5*P)+Afb*(fob-0.5*P)      (9.5-7)
=(1365.41+0)*(153.47-0.5*1.6)+0*(0-0.5*1.6)+450.85*(153.47-0.5*1.6)
=   277.29 kN
```

Vyztužení hrdla pAAval=277.29 >= pAReq=260.69[kN]	94.0%	OK

Maximální dovolený tlak Pmax

```
Pmax = (Afs+Afw)*fs+Afb*fob/((Aps+Apb+0.5*Apphi)+0.5*(Afs+Afw+Afb+Afp)) (9.5-10)
=(1365.41+0)*153.47+450.85*153.47/((1.5437E05+8566.15+0.5*0)+0.5*(1365.41+0
+450.85+0))=                                                =   1.7013 MPa
```

Max. dovolený zkušební tlak Ptmax

```
Ptmax =  ==                                          3.0512 MPa
Weight of Nozzle: 13.6kg
```

VÝPOÈET - SOUHRN

Min. tlouš• ka hrdla ebp=2.31 <= eab=12.7[mm]	18.1%	OK

9.5.2.4.4 Nozzles normal to the shell, with or without reinforcement pads.

```
Limit vyztužení podél stìny skoøepiny
Iso = Sqr(( 2 * ris + eas) * eas)
=Sqr((2*800+10.5)*10.5)=                             130.04 mm
Mez vyztužení podél hrdla (vnì plášti)
Ibo = MIN( Sqr(( deb - eb) * eb), ho)                        (9.5-76)
=MIN(Sqr((508-12.7)*12.7,)25)=                        25.00 mm
```

Požadovaná tlaková plocha pA(req.)

```
pAReq = P * (Aps + Apb + 0.5 * Apphi)                        (9.5-7)
=1.6*(1.5437E05+8566.15+0.5*0)=                      260.69 kN
```

Dostupná tlaková plocha pA(aval.)

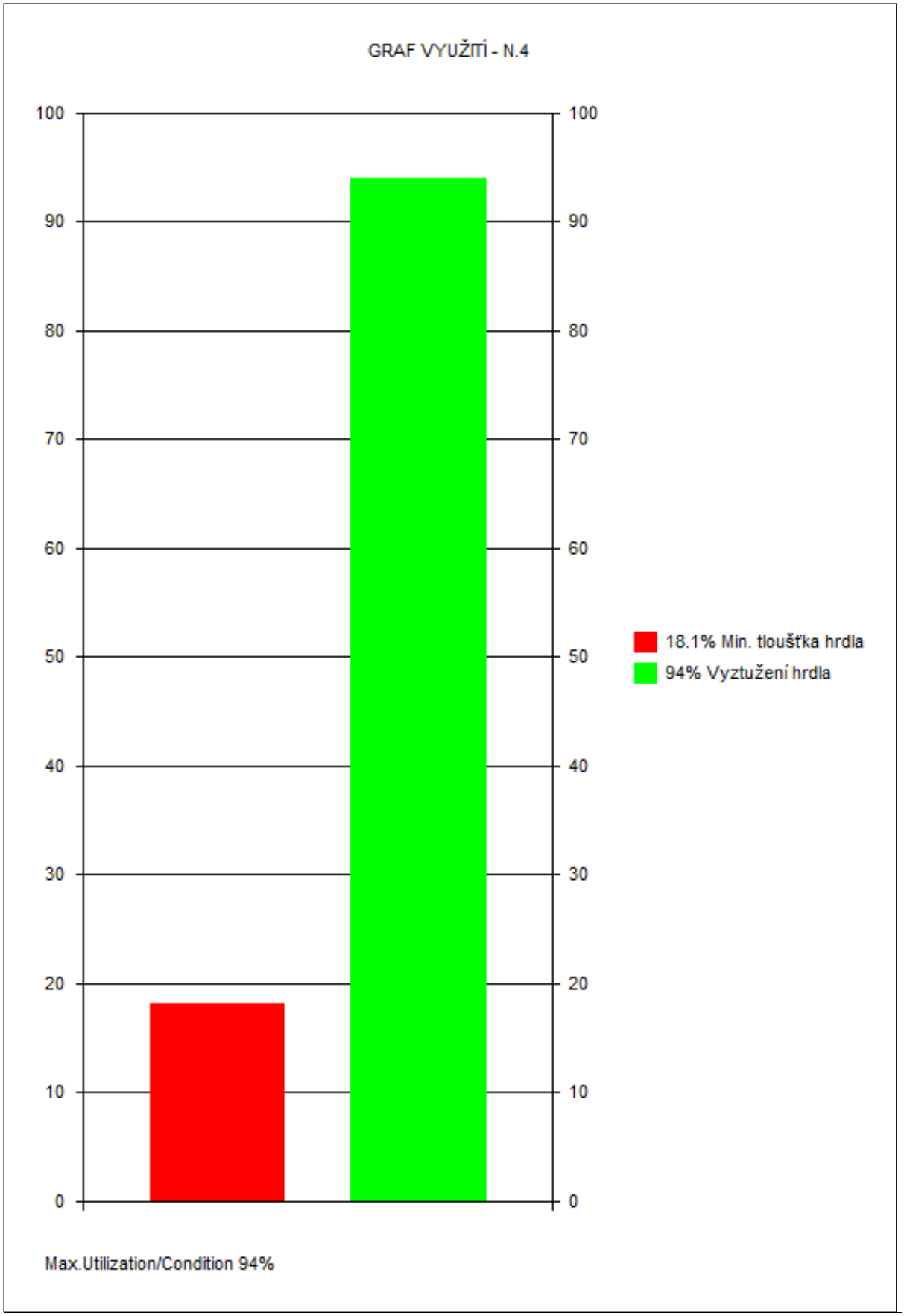
```
pAAval = (Afs+Afw)*(fs-0.5*P)+Afp*(fop-0.5*P)+Afb*(fob-0.5*P)      (9.5-7)
=(1365.41+0)*(153.47-0.5*1.6)+0*(0-0.5*1.6)+450.85*(153.47-0.5*1.6)
=   277.29 kN
```

Vyztužení hrdla pAAval=277.29 >= pAReq=260.69[kN]	94.0%	OK

Maximální dovolený tlak Pmax

```
Pmax = (Afs+Afw)*fs+Afb*fob/((Aps+Apb+0.5*Apphi)+0.5*(Afs+Afw+Afb+Afp)) (9.5-10)
=(1365.41+0)*153.47+450.85*153.47/((1.5437E05+8566.15+0.5*0)+0.5*(1365.41+0
+450.85+0))=                                         =   1.7013 MPa
```

Objem :0.0067 m3 Tíha:13.6 kg (SG= 7.85)


GRAF VYUŽITÍ - N.4
100
90
80
70
60
50
40
30
20
10
0
18.1% Min. tloušťka hrdla
94% Vyztužení hrdla
Max.Utilization/Condition 94%

VSTUPNÍ DATA

PØIPOJENÍ/POLOHA KOMPONENTY

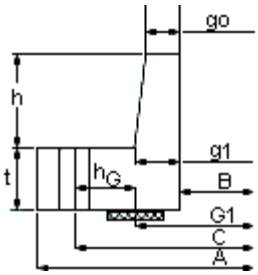
Pøipojení: N.4 Hrdlo,Plech E3.2
Poloha: Podél osy z z1= 31
Metoda výpoètu pøíruby: Section 11 - Taylor Forge

HLAVNÍ VÝPOÈTOVÁ DATA

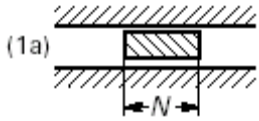
PROCESNÍ KARTA: HLAVNÍ VÝPOÈTOVÁ DATA : Temp= 130°C, P=1.6000 MPa, c=1.0 mm
SPECIFICKÁ HUSTOTA PROVOZNÍHO MEDIA.....:SG 1.0000
HYDROSTATICKÁ VÝŠKA KAPALINY.....:LH 0.00 mm
B: Tlakové zatížení: Pøíruba zatížená vnitøním tlakem
VNÌJŠÍ ZATÍŽENÍ PØÍRUBY (PD5500 ENQ 5500/123): Ne
SPECIFY BOLT LOADS FROM 2nd./MATING FLANGE: Ne

TYP PØÍRUBY A T Ì SNÍCÍ PLOCHY

A: Norma Pøíruby: Pøíruby dle DIN



C: typ pøíruby: WN Pøíruba s pøivaøovacím krkem



D: Tìsnící plocha (náèrt/popis): 1a Rovná tìsnící plocha

DATA PLÁŠT Ì /HRDLA

VELIKOST PLÁŠTÌ/HRDLA & POZNÁMKY: N.4
EN 10028-2:2017, 1.0473 P355GH plate and strip, HT:N THK<=16mm 130'C
Rm=510 Rp=355 Rpt=308.6 fs=205.73 fs20=212.5 ftest=338.1 E=203868(N/mm2) ro=7.85
VNEJŠÍ PRUMER PLÁŠTE/HRDLA .....:Do 508.00 mm
TLOUŠTKA STENY HRDLA/PLÁŠTE(nezkorodovaná).....:s1 14.20 mm

Pøíruby dle DIN

E: Tlaková tøída: DIN 2635: Tøída PN 40

DATA PØÍRUBY

VNITØNÍ PØÍRUBA: Ne (Šrouby jsou umístìny na vnìjší stranì)
VÝPOÈTOVÁ METODA: A) JAKO INTEGRÁLNÍ PØÍRUBA
VNÌJŠÍ PRÙMÌR PØÍRUBY.....:A 755.00 mm
TLOUŠTKA LISTU PRÍRUBY(nezkorodovaná).....:e 52.00 mm
KOROZNÍ PRÍDAVEK CELNÍ PLOCHY PRÍRUBY.....:cf 0.00 mm
EN 10222-4:1998/A1:01, 1.0571 P355QH1 forging, HT:QT THK<=100mm 130'C
Rm=470 Rp=315 Rpt=282.6 SFO=188.4 SFA=195.83 ftest=300 E=203868(N/mm2) ro=7.85
NOTE/POZNÁMKA: SPECIFICKÉ POSOUZENÍ MATERIÁLU(PMA) MÙŽE BÝT POŽADOVÁNO PRO

TENTOMATERIÁL.

DATA KRKU PØÍRUBY

DÉLKA KRKU.....:h 68.00 mm
TLOUŠTKA KRKU V MÍSTE LISTU PRÍRUBY zkorodovaná.....:g1 40.20 mm
TLOUŠTKA KRKU V MÍSTE NAPOJENÍ PLÁŠTE zkorodovaná...:go 13.20 mm
EN 10028-2:2017, 1.0473 P355GH plate and strip, HT:N THK<=100mm 130'C
Rm=490 Rp=315 Rpt=273.8 SHO=182.53 SHA=204.17 ftest=300 E=203868(N/mm2) ro=7.85

DATA ŠROUBÙ

REDUCE SAFETY AGAINST ABUSE BY CAREFULLY CONTROLLING THE BOLTING-UP TORQUE: Ne
VÝPOÈET UTAHOVACÍHO MOMENTU ŠROUBÙ: Ne
JMENOVITÁ VELIKOST ŠROUBÙ & POZNÁMKY: M39x3 ;
EFEKTIVNÍ PLOCHA PRUREZU ŠROUBU.....:Ae 979.70 mm2
DOPORUCENÁ MIN. VZDÁLENOST OSY ŠROUBU OD OKRAJE PRÍRUBY:Bce 39.00 mm
DOPORUCENÁ MIN. VZDÁLENOST OSY ŠROUBU OD PLÁŠTE/KRKU PRÍRUBY:Bcr 53.00 mm
PRUMER DÍRY PRO ŠROUB V PRÍRUBE.....:d 42.00 mm
POCET ŠROUBU.....:n 20.00
PRUMER ROZTECNÉ KRUŽNICE ŠROUBU.....:C 670.00 mm
EN 10269:2013, 1.7218 25CrMo4 bar, bolt, HT:QT THK<=100mm 130'C
Rm=600 Rp=440 Rpt=423.2 Sb=141.07 Sa=146.67 ftest=220 E=190636(N/mm2) ro=7.93
NOTE/NOTE: ALLOWABLE STRESSES HAS BEEN BASED ON THE ALTERNATIVE ROUTE.

DATA T Ì SN Ì NÍ

Tabulka H-1 Souèinitelé tìsnìní m & y Èelní plocha:
Plochý kroužek z pryže, tvrdost do 75 BS m=0.5 Y=0.0 2 1a,1b,1c,1d,4,5
VNEJŠÍ PRUMER TESNÍCÍ/ZVÝŠENÉ CELNÍ PLOCHY.....:Go 628.00 mm
VETŠÍ Z HODNOT VNITRNÍHO PRUMERU TESNENÍ/CELA PRÍRUBY:A1 508.00 mm
TEMA RGP-RCB-11.7 Zahrnout pøídavné zatížení od tìsnìní pøepážek chodù: Ne

VÝPOÈTOVÁ DATA

Korekèní souèinitel napìtí K
k (D < 1000 mm) = 1 =1= 1.0000

DETAILY O T Ì SN Ì NÍ

b = MIN VALUE(2.52 * Sqr(bo), bo) = == 13.80 mm

ZATÍŽENÍ PØÍRUBY

HD = 0.785 * B ^ 2 * p =0.785*481.6^2*1.6= 291.31 kN
H = 0.785 * G ^ 2 * p (11.5-5) =0.785*600.39^2*1.6= 452.76 kN
HG = (2 * PI * b * G * m) * p (11.5-6)
=(2*3.14*13.8*600.39*0.5)*1.6= 41.65 kN
HT = H - HD (11.5-11) =4.5276E05-2.9131E05= 161.44 kN

RAMENA PÙSOBÍCÍCH MOMENTÙ

hG = (C - G) / 2 (11.5-14) =(670-600.39)/2= 34.80 mm
hD = (C - B - g1) / 2 (11.5-12) =(670-481.6-40.2)/2= 74.10 mm
hT = (2 * C - B - G) / 4 (11.5-15) =(2*670-481.6-600.39)/4= 64.50 mm

ZATÍŽENÍ ŠROUBÙ

Provozní podmínky
Wop = H + HG (11.5-8) =4.5276E05+41647.2= 494.40 kN

Montážní podmínky
Wamb = PI * b * G * y (11.5-7) =3.14*13.8*600.39*0= 0.00 kN

PLOCHA ŠROUBÙ

```
Am1 = Wop / Sb =4.944E05/141.07=                          3504.66 mm2
Am2 = Wamb / Sa =0/146.67=                                   0.00 mm2
Požadovaná plocha šroubù Am
Am = MAX( Am1 , Am2) =MAX(3504.66,0)=                     3504.66 mm2
Využitelná plocha šroubù Ab
Ab (num.bolts*root area) = n * Ae =20*979.7=              19594.00 mm2
```

Kontrola plochy šroubù Ab=19594 >= Am=3504.66[mm2]	17.8%	OK

```
W = 0.5 * (Ab + Am) * Sa (11.5-16) =0.5*(19594+3504.66)*146.67=  1693.94 kN
```

MOMENTY PÙSOBÍCÍ NA PØÍRUBU

```
Mop = HD * hD + HT * hT + HG * hG                                  (11.5-18)
=2.9131E05*74.1+1.6144E05*64.5+41647.2*34.8=            33448.98 Nm
Mamb = W * hG (11.5-17) =1.6939E06*34.8=                58953.54 Nm
ROZTEÈ ŠROUBÙ
Bs = C * PI / n =670*3.14/20=                             105.24 mm
Korekèní faktor rozteèe šroubù
CF = MAX( Sqr( Bs / (2 * db + 6 * e / (m + 0.5))) , 1)             (11.5-20)
=MAX(Sqr(105.24/(2*39+6*52/(0.5+0.5))),1)=              1.0000
Mo = Mop * CF / B (11.5-27) =33448.98*1/481.6=            69.45 Nm/mm
Ma = Mamb * CF / B (11.5-26) =58953.54*1/481.6=          122.41 Nm/mm
```

TVAROVÉ KONSTANTY

```
K = A / B (11.5-21) =755/481.6=                            1.5677
lo = SQR( B * go) (11.5-22) =SQR(481.6*13.2)=              79.73
h/lo=  0.853  K=A/B=  1.568  g1/go=  3.045
HODNOTY Z OBRÁZKÙ 11.5-4 až 8
BetaT =    1.681  BetaZ =    2.372  BetaY =    4.493  BetaU =    4.937
BetaF=     0.719  BetaV =    0.093  phi =    1.166
lamda = (e*BetaF+lo)/(BetaT*lo)+e^3*BetaV/(BetaU*lo*go^2)
=(52*0.7193+79.73)/(1.681*79.73)+52^3*0.0931/(4.937*79.73*13.2^2)=   1.0647
```

Provozní podmínky

```
M = Mo =69.45=                                            69.45 Nm/mm
```

11.5.4.1 Napìtí pøíruby s tlouš•kou pøíruby e= 52 mm

```
Podélné napìtí v pøírubì
SigH = phi * M / (lamda * g1 ^ 2)                                  (11.5-32)
=1.17*69.45/(1.06*40.2^2)=                                47.08 N/mm2
Radiální napìtí v pøírubì
Sigr = (1.333 * e * BetaF + lo) * M / (lamda * e ^ 2 * lo)         (11.5-33)
=(1.333*52*0.7193+79.73)*69.45/(1.06*52^2*79.73)=         39.21 N/mm2
Tangenciální napìtí v pøírubì
SigTeta = BetaY*M/e^2-Sigr*(K^2+1)/(K^2-1)                         (11.5-34)
=4.493*69.45/52^2-39.21*(1.57^2+1)/(1.57^2-1)=            22.40 N/mm2
```

11.5.4.2 Limity napìtí

Napìtí v krku k*SigH=47.08 <= 1.5 * MIN(f;fH)=273.79[N/mm2] (11.5-90)	17.1%	OK
Radiální napìtí k*SigR=39.21 <= f=188.4[N/mm2] (11.5-91)	20.8%	OK
Tangenciální napìtí k*SigTeta=22.4 <= f=188.4[N/mm2] (11.5-92)	11.8%	OK

Radiální napìtí + napìtí v krku 0.5*k*(SigH+SigR)=43.14 <= f=188.4[N/mm2] (11.5-93)	22.8%	OK
Tangenciální napìtí + napìtí v krku 0.5*k*(SigH+SigTeta)=34.74 <= f=188.4[N/mm2] (11.5-94)	18.4%	OK

Montážní podmínky

M = Ma =122.41= 122.41 Nm/mm

11.5.4.1 Napìtí pøíruby s tlouš•kou pøíruby e= 52 mm

Podélné napìtí v pøírubì
SigH = phi * M / (lamda * g1 ^ 2) (11.5-32)
=1.17*122.41/(1.06*40.2^2)= 82.97 N/mm2

Radiální napìtí v pøírubì
Sigr = (1.333 * e * BetaF + lo) * M / (lamda * e ^ 2 * lo) (11.5-33)
=(1.333*52*0.7193+79.73)*122.41/(1.06*52^2*79.73)= 69.11 N/mm2

Tangenciální napìtí v pøírubì
SigTeta = BetaY*M/e^2-Sigr*(K^2+1)/(K^2-1) (11.5-34)
=4.493*122.41/52^2-69.11*(1.57^2+1)/(1.57^2-1)= 39.47 N/mm2

11.5.4.2 Limity napìtí

Napìtí v krku k*SigH=82.97 <= 1.5 * MIN(f;fH)=293.75[N/mm2] (11.5-90)	28.2%	OK
Radiální napìtí k*SigR=69.11 <= f=195.83[N/mm2] (11.5-91)	35.2%	OK
Tangenciální napìtí k*SigTeta=39.47 <= f=195.83[N/mm2] (11.5-92)	20.1%	OK
Radiální napìtí + napìtí v krku 0.5*k*(SigH+SigR)=76.04 <= f=195.83[N/mm2] (11.5-93)	38.8%	OK
Tangenciální napìtí + napìtí v krku 0.5*k*(SigH+SigTeta)=61.22 <= f=195.83[N/mm2] (11.5-94)	31.2%	OK

EN13445-5;10.2.3.3 POŽADOVANÝ MIN.HYDROSTATICKÝ ZKUŠEBNÍ TLAK:Ptmin

NOVÝ PØI TEPLOTÌ OKOLÍ PRO ZKUŠEBNÍ SKUPINY 1, 2 a 3
Ptmin = 1.25 * Pd * f20 / f =1.25*1.6*204.17/182.53= 2.2371 MPa

Ptmin = 1.43 * Pd =1.43*1.6= 2.2880 MPa

Zkušební tlak Ptmin=2.29 <= Ptmax=11.136[MPa]	20.5%	OK

SOUHRN PRO TLAK A KRUT

Table PRESSURE AND TORQUE SUMMARY FOR F.1 :

Description	Temp(C)	P(MPa)	Limited By	Min.Req.Total Bolt Force(kN)
Design Pressure(corroded)	130	1.60	Radial+Hub Stress	494.4
Max.Allow.Pressure(corroded)	130	6.99	Radial+Hub Stress	2159.55
Max.Allow.Pressure(corroded)	Ambient	7.27	Radial+Hub Stress	2246.56
Max.Allow.Test Pressure(corroded)	Ambient	11.14	Radial+Hub Stress	3441.04
Required Test Pressure	Ambient	2.24	Radial+Hub Stress	691.27

Velikost jmenovité síly a krutu jsou založeny na následujících metodách utahování:

VÝPOÈET - SOUHRN

PLOCHA ŠROUBÙ

Kontrola plochy šroubù Ab=19594 >= Am=3504.66[mm2]	17.8%	OK

Provozní podmínky

11.5.4.1 Napìtí pøíruby s tlouš•kou pøíruby e= 52 mm

Podélné napìtí v pøírubì
SigH = phi * M / (lamda * g1 ^ 2) (11.5-32)
=1.17*69.45/(1.06*40.2^2)= 47.08 N/mm2

Radiální napìtí v pøírubì
Sigr = (1.333 * e * BetaF + lo) * M / (lamda * e ^ 2 * lo) (11.5-33)
=(1.333*52*0.7193+79.73)*69.45/(1.06*52^2*79.73)= 39.21 N/mm2

Tangenciální napìtí v pøírubì
SigTeta = BetaY*M/e^2-Sigr*(K^2+1)/(K^2-1) (11.5-34)
=4.493*69.45/52^2-39.21*(1.57^2+1)/(1.57^2-1)= 22.40 N/mm2

11.5.4.2 Limity napìtí

Napìtí v krku k*SigH=47.08 <= 1.5 * MIN(f;fH)=273.79[N/mm2] (11.5-90)	17.1%	OK
Radiální napìtí k*SigR=39.21 <= f=188.4[N/mm2] (11.5-91)	20.8%	OK
Tangenciální napìtí k*SigTeta=22.4 <= f=188.4[N/mm2] (11.5-92)	11.8%	OK
Radiální napìtí + napìtí v krku 0.5*k*(SigH+SigR)=43.14 <= f=188.4[N/mm2] (11.5-93)	22.8%	OK
Tangenciální napìtí + napìtí v krku 0.5*k*(SigH+SigTeta)=34.74 <= f=188.4[N/mm2] (11.5-94)	18.4%	OK

Montážní podmínky

11.5.4.1 Napìtí pøíruby s tlouš•kou pøíruby e= 52 mm

Podélné napìtí v pøírubì
SigH = phi * M / (lamda * g1 ^ 2) (11.5-32)
=1.17*122.41/(1.06*40.2^2)= 82.97 N/mm2

Radiální napìtí v pøírubì
Sigr = (1.333 * e * BetaF + lo) * M / (lamda * e ^ 2 * lo) (11.5-33)
=(1.333*52*0.7193+79.73)*122.41/(1.06*52^2*79.73)= 69.11 N/mm2

Tangenciální napìtí v pøírubì
SigTeta = BetaY*M/e^2-Sigr*(K^2+1)/(K^2-1) (11.5-34)
=4.493*122.41/52^2-69.11*(1.57^2+1)/(1.57^2-1)= 39.47 N/mm2

11.5.4.2 Limity napìtí

Napìtí v krku k*SigH=82.97 <= 1.5 * MIN(f;fH)=293.75[N/mm2] (11.5-90)	28.2%	OK
Radiální napìtí k*SigR=69.11 <= f=195.83[N/mm2] (11.5-91)	35.2%	OK
Tangenciální napìtí k*SigTeta=39.47 <= f=195.83[N/mm2] (11.5-92)	20.1%	OK

Radiální napìtí + napìtí v krku 0.5*k*(SigH+SigR)=76.04 <= f=195.83[N/mm2] (11.5-93)	38.8%	OK
Tangenciální napìtí + napìtí v krku 0.5*k*(SigH+SigTeta)=61.22 <= f=195.83[N/mm2] (11.5-94)	31.2%	OK

EN13445-5;10.2.3.3 POŽADOVANÝ MIN.HYDROSTATICKÝ ZKUŠEBNÍ TLAK:Ptmin

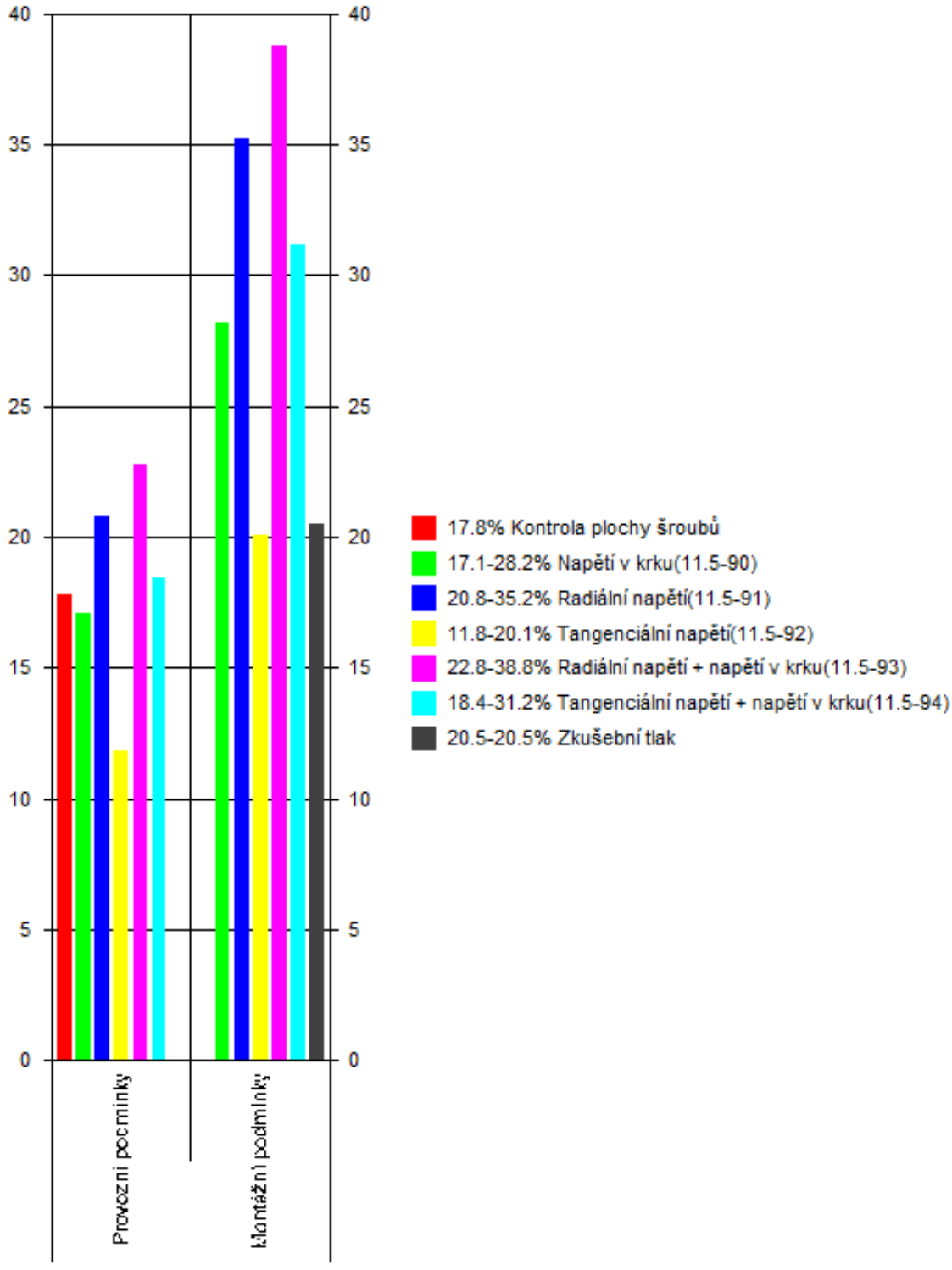
```
NOVÝ PØI TEPLOTÌ OKOLÍ PRO ZKUŠEBNÍ SKUPINY 1, 2 a 3
Ptmin = 1.25 * Pd * f20 / f =1.25*1.6*204.17/182.53=        2.2371 MPa
Ptmin = 1.43 * Pd =1.43*1.6=                               2.2880 MPa
```

Zkušební tlak Ptmin=2.29 <= Ptmax=11.136[MPa]	20.5%	OK

WARNING: THE ALTERNATIVE ROUTE TO SECTION 6.3 CAN ONLY BE APPLIED FOR TEST GROUP 1, RELATED TO MATERIAL: EN 10269:2013, 1.7218 25CrMo4 bar, bolt, HT:QT THK<=100mm 130'C

Objem :0.0219 m3 Tíha:119 kg (SG= 7.85)

GRAF VYUŽITÍ - F.1



Max.Utilization/Condition 38.8% CASE:Montážní podmínky

VSTUPNÍ DATA

PØIPOJENÍ/POLOHA KOMPONENTY

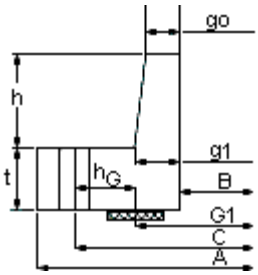
```
Pøipojení: N.3     Hrdlo,Plech                                          E3.1
Poloha: Podél osy z z1= -31
Metoda výpoètu pøíruby: Section 11 - Taylor Forge
```

HLAVNÍ VÝPOÈTOVÁ DATA

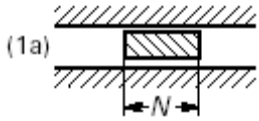
```
PROCESNÍ KARTA: HLAVNÍ VÝPOÈTOVÁ DATA : Temp= 130°C, P=1.6000 MPa, c=1.0 mm
SPECIFICKÁ HUSTOTA PROVOZNÍHO MEDIA.................:SG        1.0000
HYDROSTATICKÁ VÝŠKA KAPALINY.......................:LH        286.99 mm
B: Tlakové zatížení: Pøíruba zatížená vnitøním tlakem
VNÌJŠÍ ZATÍŽENÍ PØÍRUBY (PD5500 ENQ 5500/123): Ne
SPECIFY BOLT LOADS FROM 2nd./MATING FLANGE: Ne
```

TYP PØÍRUBY A TÌSNÍCÍ PLOCHY

```
A: Norma Pøíruby: Pøíruby dle DIN
```




```
C: typ pøíruby: WN Pøíruba s pøivaøovacím krkem
```




```
D: Tìsnící plocha (náèrt/popis): 1a Rovná tìsnící plocha
```

DATA PLÁŠTÌ/HRDLA

```
VELIKOST PLÁŠTÌ/HRDLA & POZNÁMKY: N.3
EN 10028-2:2017, 1.0473 P355GH plate and strip, HT:N THK<=16mm 130'C
Rm=510 Rp=355 Rpt=308.6 fs=205.73 fs20=212.5 ftest=338.1 E=203868(N/mm2) ro=7.85
VNEJŠÍ PRUMER PLÁŠTE/HRDLA .........................:Do        508.00 mm
TLOUŠTKA STENY HRDLA/PLÁŠTE(nezkorodovaná)..........:s1         14.20 mm
```

Pøíruby dle DIN

```
E:  Tlaková tøída: DIN 2635: Tøída PN 40
```

DATA PØÍRUBY

```
VNITØNÍ PØÍRUBA: Ne (Šrouby jsou umístìny na vnìjší stranì)
VÝPOÈTOVÁ METODA: A) JAKO INTEGRÁLNÍ PØÍRUBA
VNÌJŠÍ PRÙMÌR PØÍRUBY..............................:A         755.00 mm
TLOUŠTKA LISTU PRÍRUBY(nezkorodovaná)...............:e          52.00 mm
KOROZNÍ PRÍDAVEK CELNÍ PLOCHY PRÍRUBY...............:cf          0.00 mm
EN 10028-2:2017, 1.0473 P355GH plate and strip, HT:N THK<=100mm 130'C
Rm=490 Rp=315 Rpt=273.8 SFO=182.53 SFA=204.17 ftest=300 E=203868(N/mm2) ro=7.85
```

DATA KRKU PØÍRUBY

DÉLKA KRKU.....:h 68.00 mm
TLOUŠTKA KRKU V MÍSTE LISTU PRÍRUBY zkorodovaná.....:g1 40.20 mm
TLOUŠTKA KRKU V MÍSTE NAPOJENÍ PLÁŠTE zkorodovaná...:go 13.20 mm
EN 10028-2:2017, 1.0473 P355GH plate and strip, HT:N THK<=60mm 130'C
Rm=510 Rp=335 Rpt=291.2 SHO=194.13 SHA=212.5 ftest=319.05 E=203868(N/mm2) ro=7.85

DATA ŠROUBÙ

REDUCE SAFETY AGAINST ABUSE BY CAREFULLY CONTROLLING THE BOLTING-UP TORQUE: Ne
VÝPOÈET UTAHOVACÍHO MOMENTU ŠROUBÙ: Ne
JMENOVITÁ VELIKOST ŠROUBÙ & POZNÁMKY: M39x3 ;
EFEKTIVNÍ PLOCHA PRUREZU ŠROUBU.....:Ae 979.70 mm2
DOPORUCENÁ MIN. VZDÁLENOST OSY ŠROUBU OD OKRAJE PRÍRUBY:Bce 39.00 mm
DOPORUCENÁ MIN. VZDÁLENOST OSY ŠROUBU OD PLÁŠTE/KRKU PRÍRUBY:Bcr 53.00 mm
PRUMER DÍRY PRO ŠROUB V PRÍRUBE.....:d 42.00 mm
POCET ŠROUBU.....:n 20.00
PRUMER ROZTECNÉ KRUŽNICE ŠROUBU.....:C 670.00 mm
EN 10269:2013, 1.7218 25CrMo4 bar, bolt, HT:QT THK<=100mm 130'C
Rm=600 Rp=440 Rpt=423.2 Sb=141.07 Sa=146.67 ftest=220 E=190636(N/mm2) ro=7.93
NOTE/NOTE: ALLOWABLE STRESSES HAS BEEN BASED ON THE ALTERNATIVE ROUTE.

DATA TÌSNÌNÍ

Tabulka H-1 Souèinitelé tìsnìní m & y Èelní plocha:
Plochý kroužek z pryže, tvrdost do 75 BS m=0.5 Y=0.0 2 1a,1b,1c,1d,4,5
VNEJŠÍ PRUMER TESNÍCÍ/ZVÝŠENÉ CELNÍ PLOCHY.....:Go 624.00 mm
VETŠÍ Z HODNOT VNITRNÍHO PRUMERU TESNENÍ/CELA PRÍRUBY:A1 508.00 mm
TEMA RGP-RCB-11.7 Zahrnout pøídavné zatížení od tìsnìní pøepážek chodù: Ne

VÝPOÈTOVÁ DATA

Korekèní souèinitel napìtí K
k (D < 1000 mm) = 1 =1= 1.0000

DETAILY O TÌSNÌNÍ

b = MIN VALUE(2.52 * Sqr(bo), bo) = == 13.57 mm

ZATÍŽENÍ PØÍRUBY

HD = 0.785 * B ^ 2 * p =0.785*481.6^2*1.6028= 291.82 kN
H = 0.785 * G ^ 2 * p (11.5-5) =0.785*596.86^2*1.6028= 448.22 kN
HG = (2 * PI * b * G * m) * p (11.5-6)
=(2*3.14*13.57*596.86*0.5)*1.6028= 40.78 kN
HT = H - HD (11.5-11) =4.4822E05-2.9182E05= 156.40 kN

RAMENA PÙSOBÍCÍCH MOMENTÙ

hG = (C - G) / 2 (11.5-14) =(670-596.86)/2= 36.57 mm
hD = (C - B - g1) / 2 (11.5-12) =(670-481.6-40.2)/2= 74.10 mm
hT = (2 * C - B - G) / 4 (11.5-15) =(2*670-481.6-596.86)/4= 65.39 mm

ZATÍŽENÍ ŠROUBÙ

Provozní podmínky
Wop = H + HG (11.5-8) =4.4822E05+40783.14= 489.00 kN

Montážní podmínky
Wamb = PI * b * G * y (11.5-7) =3.14*13.57*596.86*0= 0.00 kN

PLOCHA ŠROUBÙ

```
Am1 = Wop / Sb =4.89E05/141.07=                          3466.39 mm2
Am2 = Wamb / Sa =0/146.67=                                  0.00 mm2
Požadovaná plocha šroubù Am
Am = MAX( Am1 , Am2) =MAX(3466.39,0)=                    3466.39 mm2
Využitelná plocha šroubù Ab
Ab (num.bolts*root area) = n * Ae =20*979.7=             19594.00 mm2
```

Kontrola plochy šroubù Ab=19594 >= Am=3466.39[mm2]	17.6%	OK

```
W = 0.5 * (Ab + Am) * Sa (11.5-16) =0.5*(19594+3466.39)*146.67=  1691.13 kN
```

MOMENTY PÙSOBÍCÍ NA PØÍRUBU

```
Mop = HD * hD + HT * hT + HG * hG                                  (11.5-18)
=2.9182E05*74.1+1.564E05*65.39+40783.14*36.57=          33341.69 Nm
Mamb = W * hG (11.5-17) =1.6911E06*36.57=                 61845.81 Nm
ROZTEÈ ŠROUBÙ
Bs = C * PI / n =670*3.14/20=                               105.24 mm
Korekèní faktor rozteèe šroubù
CF = MAX( Sqr( Bs / (2 * db + 6 * e / (m + 0.5))) , 1)             (11.5-20)
=MAX(Sqr(105.24/(2*39+6*52/(0.5+0.5))),1)=                1.0000
Mo = Mop * CF / B (11.5-27) =33341.69*1/481.6=              69.23 Nm/mm
Ma = Mamb * CF / B (11.5-26) =61845.81*1/481.6=            128.42 Nm/mm
```

TVAROVÉ KONSTANTY

```
K = A / B (11.5-21) =755/481.6=                             1.5677
lo = SQR( B * go) (11.5-22) =SQR(481.6*13.2)=               79.73
h/lo=  0.853  K=A/B=  1.568  g1/go=  3.045
HODNOTY Z OBRÁZKÙ 11.5-4 až 8
BetaT =    1.681  BetaZ =    2.372  BetaY =    4.493  BetaU =    4.937
BetaF=     0.719  BetaV =    0.093  phi =    1.166
lamda = (e*BetaF+lo)/(BetaT*lo)+e^3*BetaV/(BetaU*lo*go^2)
=(52*0.7193+79.73)/(1.681*79.73)+52^3*0.0931/(4.937*79.73*13.2^2)=   1.0647
```

Provozní podmínky

```
M = Mo =69.23=                                              69.23 Nm/mm
```

11.5.4.1 Napìtí pøíruby s tlouš•kou pøíruby e= 52 mm

```
Podélné napìtí v pøírubì
SigH = phi * M / (lamda * g1 ^ 2)                                  (11.5-32)
=1.17*69.23/(1.06*40.2^2)=                                 46.92 N/mm2
Radiální napìtí v pøírubì
Sigr = (1.333 * e * BetaF + lo) * M / (lamda * e ^ 2 * lo)         (11.5-33)
=(1.333*52*0.7193+79.73)*69.23/(1.06*52^2*79.73)=          39.08 N/mm2
Tangenciální napìtí v pøírubì
SigTeta = BetaY*M/e^2-Sigr*(K^2+1)/(K^2-1)                         (11.5-34)
=4.493*69.23/52^2-39.08*(1.57^2+1)/(1.57^2-1)=             22.33 N/mm2
```

11.5.4.2 Limity napìtí

Napìtí v krku k*SigH=46.92 <= 1.5 * MIN(f;fH)=273.79[N/mm2] (11.5-90)	17.1%	OK
Radiální napìtí k*SigR=39.08 <= f=182.53[N/mm2] (11.5-91)	21.4%	OK
Tangenciální napìtí k*SigTeta=22.33 <= f=182.53[N/mm2] (11.5-92)	12.2%	OK

Radiální napìtí + napìtí v krku 0.5*k*(SigH+SigR)=43. <= f=182.53[N/mm2] (11.5-93)	23.5%	OK
Tangenciální napìtí + napìtí v krku 0.5*k*(SigH+SigTeta)=34.62 <= f=182.53[N/mm2] (11.5-94)	18.9%	OK

Montážní podmínky

M = Ma =128.42= 128.42 Nm/mm

11.5.4.1 Napìtí pøíruby s tlouš•kou pøíruby e= 52 mm

Podélné napìtí v pøírubì
SigH = phi * M / (lamda * g1 ^ 2) (11.5-32)
=1.17*128.42/(1.06*40.2^2)= 87.04 N/mm2

Radiální napìtí v pøírubì
Sigr = (1.333 * e * BetaF + lo) * M / (lamda * e ^ 2 * lo) (11.5-33)
=(1.333*52*0.7193+79.73)*128.42/(1.06*52^2*79.73)= 72.50 N/mm2

Tangenciální napìtí v pøírubì
SigTeta = BetaY*M/e^2-Sigr*(K^2+1)/(K^2-1) (11.5-34)
=4.493*128.42/52^2-72.5*(1.57^2+1)/(1.57^2-1)= 41.41 N/mm2

11.5.4.2 Limity napìtí

Napìtí v krku k*SigH=87.04 <= 1.5 * MIN(f;fH)=306.25[N/mm2] (11.5-90)	28.4%	OK
Radiální napìtí k*SigR=72.5 <= f=204.17[N/mm2] (11.5-91)	35.5%	OK
Tangenciální napìtí k*SigTeta=41.41 <= f=204.17[N/mm2] (11.5-92)	20.2%	OK
Radiální napìtí + napìtí v krku 0.5*k*(SigH+SigR)=79.77 <= f=204.17[N/mm2] (11.5-93)	39.0%	OK
Tangenciální napìtí + napìtí v krku 0.5*k*(SigH+SigTeta)=64.23 <= f=204.17[N/mm2] (11.5-94)	31.4%	OK

EN13445-5;10.2.3.3 POŽADOVANÝ MIN.HYDROSTATICKÝ ZKUŠEBNÍ TLAK:Ptmin

NOVÝ PØI TEPLOTÌ OKOLÍ PRO ZKUŠEBNÍ SKUPINY 1, 2 a 3
Ptmin = 1.25 * Pd * f20 / f =1.25*1.6*204.17/182.53= 2.2371 MPa

Ptmin = 1.43 * Pd =1.43*1.6= 2.2880 MPa

Zkušební tlak Ptmin=2.29 <= Ptmax=11.19[MPa]	20.4%	OK

SOUHRN PRO TLAK A KRUT

Table PRESSURE AND TORQUE SUMMARY FOR F.2 :

Description	Temp(C)	P(MPa)	Limited By	Min.Req.Total Bolt Force(kN)
Design Pressure(corroded)	130	1.60	Radial+Hub Stress	489
Max.Allow.Pressure(corroded)	130	6.81	Radial+Hub Stress	2076.86
Max.Allow.Pressure(corroded)	Ambient	7.62	Radial+Hub Stress	2323.68
Max.Allow.Test Pressure(corroded)	Ambient	11.19	Radial+Hub Stress	3414
Required Test Pressure	Ambient	2.24	Radial+Hub Stress	683.38

Velikost jmenovité síly a krutu jsou založeny na následujících metodách utahování:

VÝPOÈET - SOUHRN

PLOCHA ŠROUBÙ

Kontrola plochy šroubù Ab=19594 >= Am=3466.39[mm2]	17.6%	OK

Provozní podmínky

11.5.4.1 Napìtí pøíruby s tlouš•kou pøíruby e= 52 mm

Podélné napìtí v pøírubì
SigH = phi * M / (lamda * g1 ^ 2) (11.5-32)
=1.17*69.23/(1.06*40.2^2)= 46.92 N/mm2

Radiální napìtí v pøírubì
Sigr = (1.333 * e * BetaF + lo) * M / (lamda * e ^ 2 * lo) (11.5-33)
=(1.333*52*0.7193+79.73)*69.23/(1.06*52^2*79.73)= 39.08 N/mm2

Tangenciální napìtí v pøírubì
SigTeta = BetaY*M/e^2-Sigr*(K^2+1)/(K^2-1) (11.5-34)
=4.493*69.23/52^2-39.08*(1.57^2+1)/(1.57^2-1)= 22.33 N/mm2

11.5.4.2 Limity napìtí

Napìtí v krku k*SigH=46.92 <= 1.5 * MIN(f;fH)=273.79[N/mm2] (11.5-90)	17.1%	OK
Radiální napìtí k*SigR=39.08 <= f=182.53[N/mm2] (11.5-91)	21.4%	OK
Tangenciální napìtí k*SigTeta=22.33 <= f=182.53[N/mm2] (11.5-92)	12.2%	OK
Radiální napìtí + napìtí v krku 0.5*k*(SigH+SigR)=43. <= f=182.53[N/mm2] (11.5-93)	23.5%	OK
Tangenciální napìtí + napìtí v krku 0.5*k*(SigH+SigTeta)=34.62 <= f=182.53[N/mm2] (11.5-94)	18.9%	OK

Montážní podmínky

11.5.4.1 Napìtí pøíruby s tlouš•kou pøíruby e= 52 mm

Podélné napìtí v pøírubì
SigH = phi * M / (lamda * g1 ^ 2) (11.5-32)
=1.17*128.42/(1.06*40.2^2)= 87.04 N/mm2

Radiální napìtí v pøírubì
Sigr = (1.333 * e * BetaF + lo) * M / (lamda * e ^ 2 * lo) (11.5-33)
=(1.333*52*0.7193+79.73)*128.42/(1.06*52^2*79.73)= 72.50 N/mm2

Tangenciální napìtí v pøírubì
SigTeta = BetaY*M/e^2-Sigr*(K^2+1)/(K^2-1) (11.5-34)
=4.493*128.42/52^2-72.5*(1.57^2+1)/(1.57^2-1)= 41.41 N/mm2

11.5.4.2 Limity napìtí

Napìtí v krku k*SigH=87.04 <= 1.5 * MIN(f;fH)=306.25[N/mm2] (11.5-90)	28.4%	OK
Radiální napìtí k*SigR=72.5 <= f=204.17[N/mm2] (11.5-91)	35.5%	OK
Tangenciální napìtí k*SigTeta=41.41 <= f=204.17[N/mm2] (11.5-92)	20.2%	OK

Radiální napìtí + napìtí v krku 0.5*k*(SigH+SigR)=79.77 <= f=204.17[N/mm2] (11.5-93)	39.0%	OK
Tangenciální napìtí + napìtí v krku 0.5*k*(SigH+SigTeta)=64.23 <= f=204.17[N/mm2] (11.5-94)	31.4%	OK

EN13445-5;10.2.3.3 POŽADOVANÝ MIN.HYDROSTATICKÝ ZKUŠEBNÍ TLAK:Ptmin

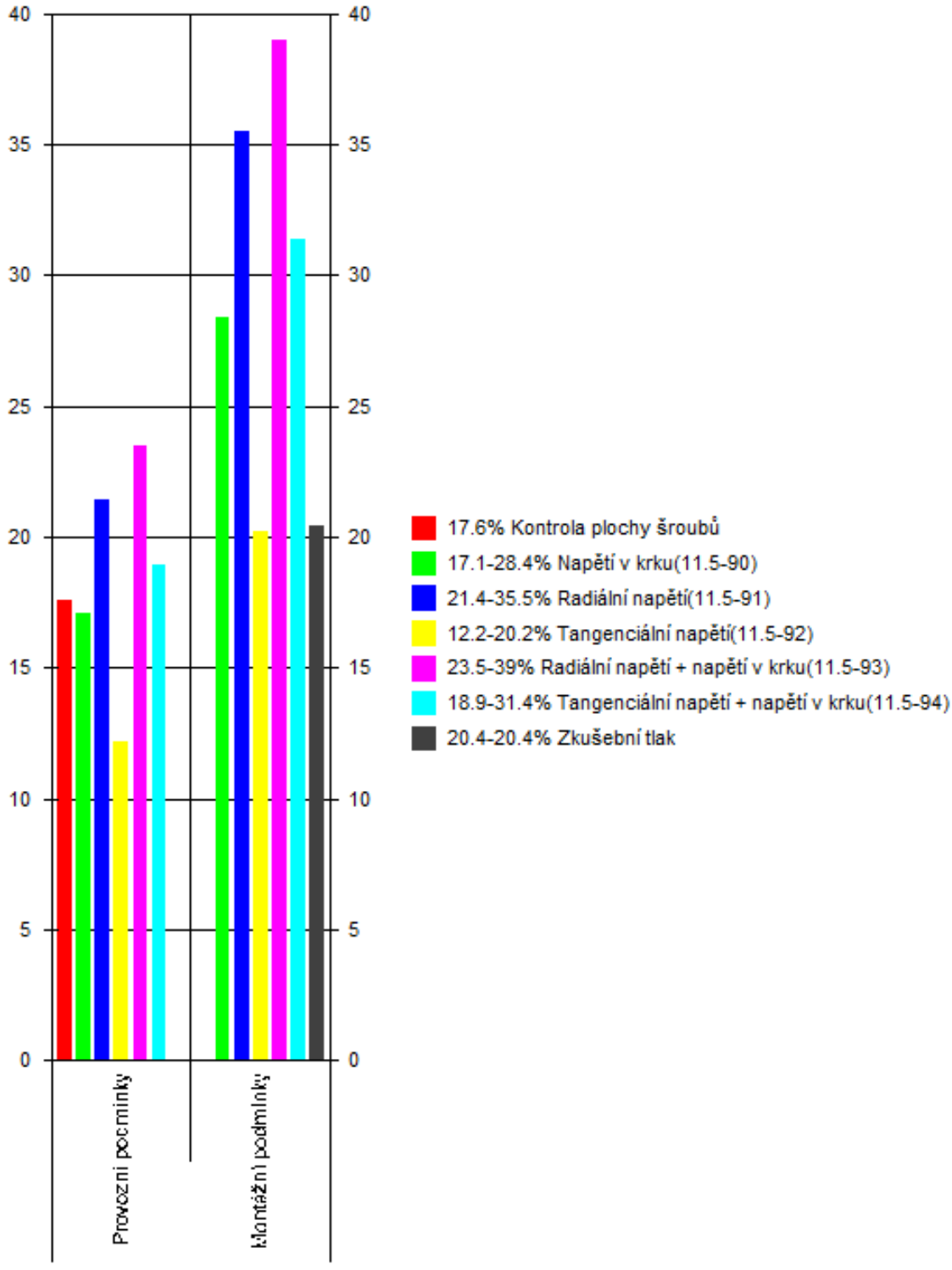
```
NOVÝ PØI TEPLOTÌ OKOLÍ PRO ZKUŠEBNÍ SKUPINY 1, 2 a 3
Ptmin = 1.25 * Pd * f20 / f =1.25*1.6*204.17/182.53=        2.2371 MPa
Ptmin = 1.43 * Pd =1.43*1.6=                               2.2880 MPa
```

Zkušební tlak Ptmin=2.29 <= Ptmax=11.19[MPa]	20.4%	OK

WARNING: THE ALTERNATIVE ROUTE TO SECTION 6.3 CAN ONLY BE APPLIED FOR TEST GROUP 1, RELATED TO MATERIAL: EN 10269:2013, 1.7218 25CrMo4 bar, bolt, HT:QT THK<=100mm 130'C

Objem :0.0219 m3 Tíha:119 kg (SG= 7.85)

GRAF VYUŽITÍ - F.2

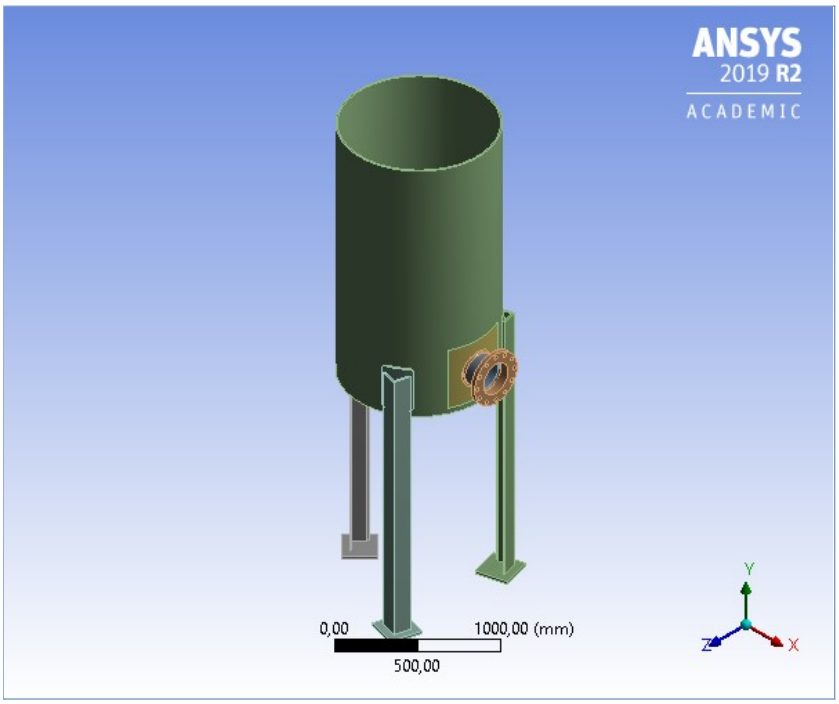


Max.Utilization/Condition 39% CASE:Montážní podmínky

Příloha C:
Výstup metody kategorizace napětí v ANSYS Workbench

Thermal analysis - Nozzle N1 - DESIGN CASE**

First Saved	Monday, January 20, 2020
Last Saved	Tuesday, April 14, 2020
Product Version	2019 R2
Save Project Before Solution	No
Save Project After Solution	No



Contents

- Units
- Model (E4)
  - Geometry
    - Shell_N1_Rev2
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    - Contacts
  - Mesh
    - Hex Dominant Method
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    - Solution (E6)
      - Solution Information
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- Material Data
  - Structural Steel
  - P245GH
  - P265GH
  - P265GH_nozzle

Units

TABLE 1

Unit System	Metric (mm, kg, N, s, mV, mA) Degrees rad/s Celsius
Angle	Degrees
Rotational Velocity	rad/s
Temperature	Celsius

Model (E4)

Geometry

TABLE 2
Model (E4) > Geometry

Object Name	*Geometry*
State	Fully Defined
Definition	
Source	C:\Users\prochazka.tomas\AppData\Local\Temp\Model_N3.tmp\Model_N3_files\dp0\Geom-1\DM\Geom-1.agdb
Type	DesignModeler
Length Unit	Meters
Element Control	Program Controlled
Display Style	Body Color
Bounding Box	
Length X	1310,5 mm
Length Y	3370, mm
Length Z	1144, mm
Properties	
Volume	7,9986e+007 mm³
Mass	627,89 kg
Scale Factor Value	1,
Statistics	
Bodies	8
Active Bodies	8
Nodes	786931
Elements	396011
Mesh Metric	None
Update Options	
Assign Default Material	No
Basic Geometry Options	
Parameters	Independent
Parameter Key	
Attributes	Yes
Attribute Key	
Named Selections	Yes
Named Selection Key	
Material Properties	Yes
Advanced Geometry Options	
Use Associativity	Yes
Coordinate Systems	Yes
Coordinate System Key	
Reader Mode Saves Updated File	No

Use Instances	Yes
Smart CAD Update	Yes
Compare Parts On Update	No
Analysis Type	3-D
Clean Bodies On Import	No
Stitch Surfaces On Import	None
Decompose Disjoint Geometry	Yes
Enclosure and Symmetry Processing	Yes

TABLE 3
Model (E4) > Geometry > Body Groups

Object Name	*Shell_N1_Rev2*
State	Meshed
Graphics Properties	
Visible	Yes
Definition	
Suppressed	No
Assignment	Multiple Materials
Coordinate System	Default Coordinate System
Bounding Box	
Length X	1310,5 mm
Length Y	3370, mm
Length Z	1144, mm
Properties	
Volume	7,9986e+007 mm³
Mass	627,89 kg
Centroid X	16,888 mm
Centroid Y	2073,6 mm
Centroid Z	-3,3667e-002 mm
Moment of Inertia Ip1	5,4729e+008 kg·mm²
Moment of Inertia Ip2	1,6323e+008 kg·mm²
Moment of Inertia Ip3	5,5363e+008 kg·mm²
Statistics	
Nodes	786931
Elements	396011
Mesh Metric	None
CAD Attributes	
DMBodyGroup	1

TABLE 4
Model (E4) > Geometry > Shell_N1_Rev2 > Parts

Object Name	*Tělo-Přesunout/kopírovat1 [7]*	*Příruba DN 200*	*Tělo-Přesunout/kopírovat1 [2]*	*Rozdělit5[2]*	*Tělo-Přesunout/kopírovat1 [3]*	*Hrdlo*	*Plášť*	*Rozdělit5 [1]*
State	Meshed							
Graphics Properties								
Visible	Yes							
Glow	0							
Shininess	1							
Transparency	1							
Specularity	1							
Definition								
Suppressed	No							
ID (Beta)	197	199	201	203	228	230	232	234
Stiffness Behavior	Flexible							
Coordinate System	Default Coordinate System							
Reference Temperature	By Environment							
Treatment	None							
Material								
Assignment	Structural Steel	P245GH	Structural Steel	P265GH	Structural Steel	P265GH_nozzle	P265GH	
Nonlinear Effects	Yes							
Thermal Strain Effects	Yes							
Bounding Box								
Length X	269,44 mm	80, mm	269,44 mm	58,541 mm	311,13 mm	92,916 mm	1000, mm	29,15 mm
Length Y	1920, mm	360, mm	1920, mm	422,96 mm	1920, mm	219,1 mm	1800, mm	247,98 mm
Length Z	269,44 mm	360, mm	269,44 mm	422,96 mm	311,13 mm	219,1 mm	1000, mm	240,78 mm
Properties								
Volume	6,3755e+006 mm³	2,133e+006 mm³	6,3755e+006 mm³	1,5425e+006 mm³	6,3755e+006 mm³	3,4625e+005 mm³	5,6812e+007 mm³	25963 mm³
Mass	50,048 kg	16,744 kg	50,048 kg	12,109 kg	50,048 kg	2,7181 kg	445,97 kg	0,20381 kg
Centroid X	266,72 mm	630,23 mm	266,74 mm	474,86 mm	-533,44 mm	526,71 mm	-16,219 mm	497,77 mm
Centroid Y	895,23 mm	1820, mm	895,65 mm	1819,9 mm	895,23 mm	1820,1 mm	2488,4 mm	1819,5 mm
Centroid Z	-461,97 mm	-3,8181e-003 mm	461,93 mm	-6,4712e-002 mm	-5,5236e-003 mm	-3,4218e-002 mm	-4,0355e-002 mm	-2,5665e-004 mm

Moment of Inertia Ip1	2,0958e+007 kg·mm²	3,3359e+005 kg·mm²	2,0975e+007 kg·mm²	4,4359e+005 kg·mm²	2,1013e+007 kg·mm²	30599 kg·mm²	1,7529e+008 kg·mm²	2525, kg·mm²
Moment of Inertia Ip2	1,8284e+005 kg·mm²	1,705e+005 kg·mm²	1,8301e+005 kg·mm²	2,2737e+005 kg·mm²	1,8284e+005 kg·mm²	17527 kg·mm²	1,0907e+008 kg·mm²	1070,4 kg·mm²
Moment of Inertia Ip3	2,1013e+007 kg·mm²	1,7057e+005 kg·mm²	2,103e+007 kg·mm²	2,214e+005 kg·mm²	2,0958e+007 kg·mm²	16485 kg·mm²	1,7157e+008 kg·mm²	1466,4 kg·mm²
Statistics								
Nodes	28734	29780	28592	13272	28510	7994	658180	1679
Elements	14149	9076	14089	2594	14021	2073	339450	559
Mesh Metric	None							

TABLE 5
Model (E4) > Materials

Object Name	*Materials*
State	Fully Defined
Statistics	
Materials	7
Material Assignments	0

Coordinate Systems

TABLE 6
Model (E4) > Coordinate Systems > Coordinate System

Object Name	*Global Coordinate System*
State	Fully Defined
Definition	
Type	Cartesian
Coordinate System ID	0,
Origin	
Origin X	0, mm
Origin Y	0, mm
Origin Z	0, mm
Directional Vectors	
X Axis Data	[1, 0, 0,]
Y Axis Data	[0, 1, 0,]
Z Axis Data	[0, 0, 1,]

Connections

TABLE 7
Model (E4) > Connections

Object Name	*Connections*
State	Fully Defined
Auto Detection	
Generate Automatic Connection On Refresh	Yes
Transparency	
Enabled	Yes

TABLE 8
Model (E4) > Connections > Contacts

Object Name	*Contacts*
State	Fully Defined
Definition	
Connection Type	Contact
Scope	
Scoping Method	Geometry Selection
Geometry	All Bodies
Auto Detection	
Tolerance Type	Slider
Tolerance Slider	0,
Tolerance Value	9,4812 mm
Use Range	No
Face/Face	Yes
Face-Face Angle Tolerance	75, °
Face Overlap Tolerance	Off
Cylindrical Faces	Include
Face/Edge	No
Edge/Edge	No
Priority	Include All
Group By	Bodies
Search Across	Bodies
Statistics	
Connections	0
Active Connections	0

Mesh

TABLE 9
Model (E4) > Mesh

Object Name	*Mesh*
State	Solved
Display	

Display Style	Use Geometry Setting
Defaults	
Physics Preference	Mechanical
Element Order	Program Controlled
Element Size	10, mm
Sizing	
Use Adaptive Sizing	Yes
Resolution	Default (2)
Mesh Defeaturing	Yes
Defeature Size	Default
Transition	Fast
Span Angle Center	Coarse
Initial Size Seed	Assembly
Bounding Box Diagonal	3792,5 mm
Average Surface Area	1,2505e+005 mm²
Minimum Edge Length	9,8599 mm
Quality	
Check Mesh Quality	Yes, Errors
Error Limits	Standard Mechanical
Target Quality	Default (0.050000)
Smoothing	Medium
Mesh Metric	None
Inflation	
Use Automatic Inflation	None
Inflation Option	Smooth Transition
Transition Ratio	0,272
Maximum Layers	5
Growth Rate	1,2
Inflation Algorithm	Pre
View Advanced Options	No
Advanced	
Number of CPUs for Parallel Part Meshing	Program Controlled
Straight Sided Elements	No
Rigid Body Behavior	Dimensionally Reduced
Triangle Surface Mesher	Program Controlled
Use Asymmetric Mapped Mesh (Beta)	No
Topology Checking	Yes
Pinch Tolerance	Please Define
Generate Pinch on Refresh	No
Statistics	
Nodes	786931
Elements	396011

TABLE 10
Model (E4) > Mesh > Mesh Controls

Object Name	*Hex Dominant Method*
State	Fully Defined
Scope	
Scoping Method	Geometry Selection
Geometry	4 Bodies
Definition	
Suppressed	No
Method	Hex Dominant
Element Order	Use Global Setting
Free Face Mesh Type	Quad/Tri
Control Messages	Yes, Click To Display...

Steady-State Thermal (E5)

TABLE 11
Model (E4) > Analysis

Object Name	*Steady-State Thermal (E5)*
State	Solved
Definition	
Physics Type	Thermal
Analysis Type	Steady-State
Solver Target	Mechanical APDL
Options	
Generate Input Only	No

TABLE 12
Model (E4) > Steady-State Thermal (E5) > Initial Condition

Object Name	*Initial Temperature*
State	Fully Defined
Definition	
Initial Temperature	Uniform Temperature
Initial Temperature Value	20, °C

TABLE 13
Model (E4) > Steady-State Thermal (E5) > Analysis Settings

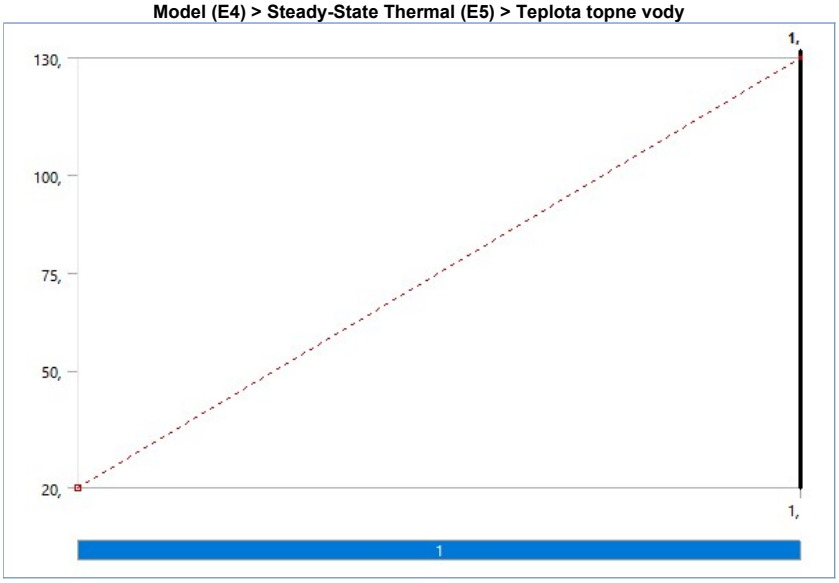
Object Name	*Analysis Settings*
State	Fully Defined

Step Controls	
Number Of Steps	1,
Current Step Number	1,
Step End Time	1, s
Auto Time Stepping	Program Controlled
Solver Controls	
Solver Type	Program Controlled
Solver Pivot Checking	Program Controlled
Radiosity Controls	
Radiosity Solver	Program Controlled
Flux Convergence	1,e-004
Maximum Iteration	1000,
Solver Tolerance	1,e-007 W/mm²
Over Relaxation	0,1
Hemicube Resolution	10,
Nonlinear Controls	
Heat Convergence	Program Controlled
Temperature Convergence	Program Controlled
Line Search	Program Controlled
Output Controls	
Calculate Thermal Flux	Yes
Contact Data	Yes
Nodal Forces	No
Contact Miscellaneous	No
General Miscellaneous	No
Store Results At	All Time Points
Cache Results in Memory (Beta)	Never
Combine Distributed Result Files (Beta)	Program Controlled
Result File Compression	Program Controlled
Analysis Data Management	
Solver Files Directory	C:\Users\prochazka.tomas\AppData\Local\Temp\Model_N3.tmp\Model_N3_files\dp0\SYS-14\MECH\
Future Analysis	None
Scratch Solver Files Directory	
Save MAPDL db	No
Contact Summary	Program Controlled
Delete Unneeded Files	Yes
Nonlinear Solution	No
Solver Units	Active System
Solver Unit System	nmm

TABLE 14
Model (E4) > Steady-State Thermal (E5) > Loads

Object Name	*Teplota topne vody*
State	Fully Defined
Scope	
Scoping Method	Geometry Selection
Geometry	6 Faces
Definition	
ID (Beta)	76
Type	Temperature
Magnitude	130, °C (ramped)
Suppressed	No

FIGURE 1
Model (E4) > Steady-State Thermal (E5) > Teplota topne vody



Solution (E6)

TABLE 15
Model (E4) > Steady-State Thermal (E5) > Solution

Object Name	*Solution (E6)*
State	Solved
Solution	
Number Of Cores to Use (Beta)	Solve Process Settings
Adaptive Mesh Refinement	
Max Refinement Loops	1,
Refinement Depth	2,
Information	
Status	Done
MAPDL Elapsed Time	30, s
MAPDL Memory Used	2,4668 GB
MAPDL Result File Size	177,25 MB
Post Processing	
Distributed Post Processing (Beta)	Program Controlled
Mesh Source (Beta)	Program Controlled
Beam Section Results	No
On Demand Stress/Strain	No

TABLE 16
Model (E4) > Steady-State Thermal (E5) > Solution (E6) > Solution Information

Object Name	*Solution Information*
State	Solved
Solution Information	
Solution Output	Solver Output
Update Interval	2,5 s
Display Points	All
FE Connection Visibility	
Activate Visibility	Yes
Display	All FE Connectors
Draw Connections Attached To	All Nodes
Line Color	Connection Type
Visible on Results	No
Line Thickness	Single
Display Type	Lines

TABLE 17
Model (E4) > Steady-State Thermal (E5) > Solution (E6) > Results

Object Name	*Temperature*	*Total Heat Flux*
State	Solved	
Scope		
Scoping Method	Geometry Selection	
Geometry	All Bodies	
Definition		
Type	Temperature	Total Heat Flux
By	Time	
Display Time	Last	
Calculate Time History	Yes	
Identifier		
Suppressed	No	
Results		
Minimum	130, °C	3,434e-017 W/mm²
Maximum	130, °C	5,8011e-011 W/mm²
Average	130, °C	3,3491e-014 W/mm²
Minimum Occurs On	Tělo-Přesunout/kopírovat1[7]	
Maximum Occurs On	Tělo-Přesunout/kopírovat1[7]	Rozdělit5[2]
Information		
Time	1, s	
Load Step	1	
Substep	1	
Iteration Number	1	
Integration Point Results		
Display Option		Averaged
Average Across Bodies		No

FIGURE 2
Model (E4) > Steady-State Thermal (E5) > Solution (E6) > Temperature

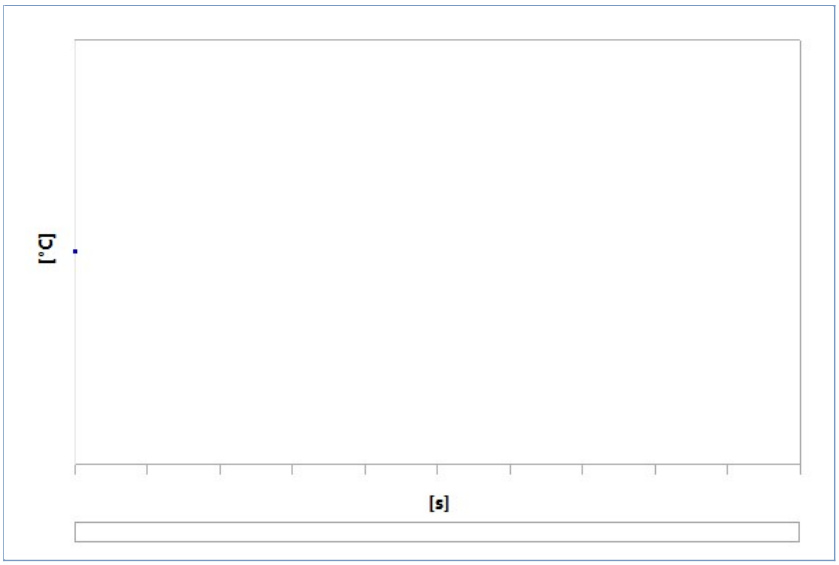


TABLE 18
Model (E4) > Steady-State Thermal (E5) > Solution (E6) > Temperature

Time [s]	Minimum [°C]	Maximum [°C]	Average [°C]
1,	130,	130,	130,

FIGURE 3
Model (E4) > Steady-State Thermal (E5) > Solution (E6) > Total Heat Flux

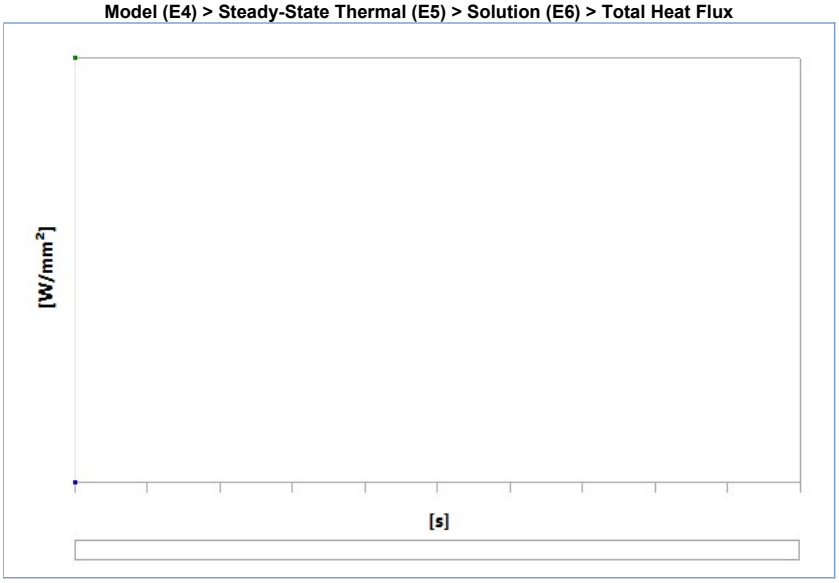


TABLE 19
Model (E4) > Steady-State Thermal (E5) > Solution (E6) > Total Heat Flux

Time [s]	Minimum [W/mm²]	Maximum [W/mm²]	Average [W/mm²]
1,	3,434e-017	5,8011e-011	3,3491e-014

Material Data

Structural Steel

TABLE 20
Structural Steel > Constants

Density	7,85e-006 kg mm^-3
Coefficient of Thermal Expansion	1,2e-005 C^-1
Specific Heat	4,34e+005 mJ kg^-1 C^-1
Thermal Conductivity	6,05e-002 W mm^-1 C^-1
Resistivity	1,7e-004 ohm mm

TABLE 21
Structural Steel > Color

Red	Green	Blue
132,	139,	179,

TABLE 22
Structural Steel > Compressive Ultimate Strength

Compressive Ultimate Strength MPa
0,

TABLE 23
Structural Steel > Compressive Yield Strength

Compressive Yield Strength MPa
250,

TABLE 24
Structural Steel > Tensile Yield Strength

Tensile Yield Strength MPa
265,

TABLE 25
Structural Steel > Tensile Ultimate Strength

Tensile Ultimate Strength MPa
410,

TABLE 26
Structural Steel > Isotropic Secant Coefficient of Thermal Expansion

Zero-Thermal-Strain Reference Temperature C
22,

TABLE 27
Structural Steel > S-N Curve

Alternating Stress MPa	Cycles	Mean Stress MPa
3999,	10,	0,
2827,	20,	0,
1896,	50,	0,
1413,	100,	0,
1069,	200,	0,
441,	2000,	0,
262,	10000	0,
214,	20000	0,
138,	1,e+005	0,
114,	2,e+005	0,
86,2	1,e+006	0,

TABLE 28
Structural Steel > Strain-Life Parameters

Strength Coefficient MPa	Strength Exponent	Ductility Coefficient	Ductility Exponent	Cyclic Strength Coefficient MPa	Cyclic Strain Hardening Exponent
920,	-0,106	0,213	-0,47	1000,	0,2

TABLE 29
Structural Steel > Isotropic Elasticity

Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,e+005	0,3	1,6667e+005	76923	

TABLE 30
Structural Steel > Isotropic Relative Permeability

Relative Permeability
10000

P245GH

TABLE 31
P245GH > Constants

Density	7,85e-006 kg mm^-3
Coefficient of Thermal Expansion	1,2e-005 C^-1
Specific Heat	4,34e+005 mJ kg^-1 C^-1
Thermal Conductivity	6,05e-002 W mm^-1 C^-1
Resistivity	1,7e-004 ohm mm

TABLE 32
P245GH > Color

Red	Green	Blue
132,	139,	179,

TABLE 33
P245GH > Compressive Ultimate Strength

Compressive Ultimate Strength MPa
0,

TABLE 34
P245GH > Compressive Yield Strength

Compressive Yield Strength MPa
250,

TABLE 35
P245GH > Tensile Yield Strength

Tensile Yield Strength MPa
245,

TABLE 36
P245GH > Tensile Ultimate Strength

Tensile Ultimate Strength MPa

410,

TABLE 37
P245GH > Isotropic Secant Coefficient of Thermal Expansion

Zero-Thermal-Strain Reference Temperature C
22,

TABLE 38
P245GH > S-N Curve

Alternating Stress MPa	Cycles	Mean Stress MPa
3999,	10,	0,
2827,	20,	0,
1896,	50,	0,
1413,	100,	0,
1069,	200,	0,
441,	2000,	0,
262,	10000	0,
214,	20000	0,
138,	1,e+005	0,
114,	2,e+005	0,
86,2	1,e+006	0,

TABLE 39
P245GH > Strain-Life Parameters

Strength Coefficient MPa	Strength Exponent	Ductility Coefficient	Ductility Exponent	Cyclic Strength Coefficient MPa	Cyclic Strain Hardening Exponent
920,	-0,106	0,213	-0,47	1000,	0,2

TABLE 40
P245GH > Isotropic Elasticity

Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,0387e+005	0,3	1,6989e+005	78411	

TABLE 41
P245GH > Isotropic Relative Permeability

Relative Permeability
10000

P265GH

TABLE 42
P265GH > Constants

Density	7,85e-006 kg mm^-3
Coefficient of Thermal Expansion	1,2e-005 C^-1
Specific Heat	4,34e+005 mJ kg^-1 C^-1
Thermal Conductivity	6,05e-002 W mm^-1 C^-1
Resistivity	1,7e-004 ohm mm

TABLE 43
P265GH > Color

Red	Green	Blue
132,	139,	179,

TABLE 44
P265GH > Compressive Ultimate Strength

Compressive Ultimate Strength MPa
0,

TABLE 45
P265GH > Compressive Yield Strength

Compressive Yield Strength MPa
250,

TABLE 46
P265GH > Tensile Yield Strength

Tensile Yield Strength MPa
265,

TABLE 47
P265GH > Tensile Ultimate Strength

Tensile Ultimate Strength MPa
410,

TABLE 48
P265GH > Isotropic Secant Coefficient of Thermal Expansion

Zero-Thermal-Strain Reference Temperature C
22,

TABLE 49
P265GH > S-N Curve

Alternating Stress MPa	Cycles	Mean Stress MPa
3999,	10,	0,
2827,	20,	0,
1896,	50,	0,

1413,	100,	0,
1069,	200,	0,
441,	2000,	0,
262,	10000	0,
214,	20000	0,
138,	1,e+005	0,
114,	2,e+005	0,
86,2	1,e+006	0,

TABLE 50
P265GH > Strain-Life Parameters

Strength Coefficient MPa	Strength Exponent	Ductility Coefficient	Ductility Exponent	Cyclic Strength Coefficient MPa	Cyclic Strain Hardening Exponent
920,	-0,106	0,213	-0,47	1000,	0,2

TABLE 51
P265GH > Isotropic Elasticity

Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,0387e+005	0,3	1,6989e+005	78411	

TABLE 52
P265GH > Isotropic Relative Permeability

Relative Permeability
10000

P265GH_nozzle

TABLE 53
P265GH_nozzle > Constants

Density	7,85e-006 kg mm^-3
Coefficient of Thermal Expansion	1,2e-005 C^-1
Specific Heat	4,34e+005 mJ kg^-1 C^-1
Thermal Conductivity	6,05e-002 W mm^-1 C^-1
Resistivity	1,7e-004 ohm mm

TABLE 54
P265GH_nozzle > Color

Red	Green	Blue
132,	139,	179,

TABLE 55
P265GH_nozzle > Compressive Ultimate Strength

Compressive Ultimate Strength MPa
0,

TABLE 56
P265GH_nozzle > Compressive Yield Strength

Compressive Yield Strength MPa
250,

TABLE 57
P265GH_nozzle > Tensile Yield Strength

Tensile Yield Strength MPa
265,

TABLE 58
P265GH_nozzle > Tensile Ultimate Strength

Tensile Ultimate Strength MPa
410,

TABLE 59
P265GH_nozzle > Isotropic Secant Coefficient of Thermal Expansion

Zero-Thermal-Strain Reference Temperature C
22,

TABLE 60
P265GH_nozzle > S-N Curve

Alternating Stress MPa	Cycles	Mean Stress MPa
3999,	10,	0,
2827,	20,	0,
1896,	50,	0,
1413,	100,	0,
1069,	200,	0,
441,	2000,	0,
262,	10000	0,
214,	20000	0,
138,	1,e+005	0,
114,	2,e+005	0,
86,2	1,e+006	0,

TABLE 61
P265GH_nozzle > Strain-Life Parameters

Strength Coefficient MPa	Strength Exponent	Ductility Coefficient	Ductility Exponent	Cyclic Strength Coefficient MPa	Cyclic Strain Hardening Exponent
920,	-0,106	0,213	-0,47	1000,	0,2

TABLE 62
P265GH_nozzle > Isotropic Elasticity

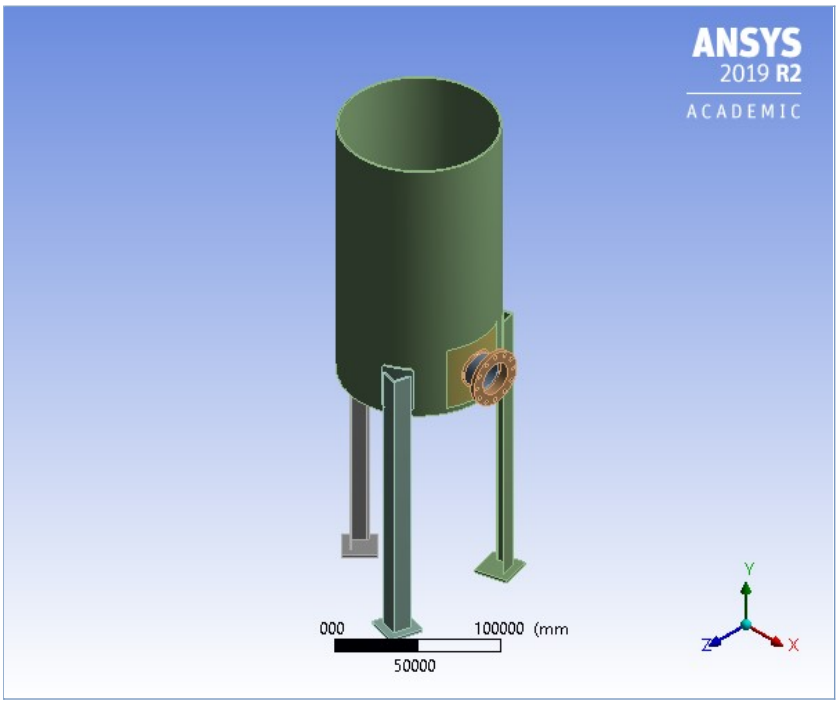
Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,0387e+005	0,3	1,6989e+005	78411	

TABLE 63
P265GH_nozzle > Isotropic Relative Permeability

Relative Permeability
10000

Stress categorization - Nozzle N1 - DESIGN CASE*

First Saved	Friday, November 29, 2019
Last Saved	Tuesday, April 14, 2020
Product Version	2019 R2
Save Project Before Solution	No
Save Project After Solution	No



Contents

- Units
- Model (F4)
  - Geometry
    - Shell_N1_Rev2
      - Parts
  - Materials
  - Coordinate Systems
  - Connections
    - Contacts
  - Mesh
    - Hex Dominant Method
  - Named Selections
  - Static Structural (F5)
    - Analysis Settings
    - Loads
    - Imported Load (E6)
      - Imported Body Temperature
    - Solution (F6)
      - Solution Information
      - Results
- Material Data
  - Structural Steel
  - P245GH
  - P265GH
  - P265GH_nozzle

Units

TABLE 1

Unit System	Metric (mm, kg, N, s, mV, mA) Degrees rad/s Celsius
Angle	Degrees
Rotational Velocity	rad/s
Temperature	Celsius

Model (F4)

Geometry

TABLE 2
Model (F4) > Geometry

Object Name	*Geometry*
State	Fully Defined
Definition	
Source	C:\Users\prochazka.tomas\AppData\Local\Temp\Model_N3.tmp\Model_N3_files\dp0\Geom-1\DM\Geom-1.agdb
Type	DesignModeler
Length Unit	Meters
Element Control	Program Controlled
Display Style	Body Color
Bounding Box	
Length X	1310,5 mm
Length Y	3370, mm
Length Z	1144, mm
Properties	
Volume	7,9986e+007 mm³
Mass	627,89 kg
Scale Factor Value	1,
Statistics	
Bodies	8
Active Bodies	8
Nodes	1171355
Elements	616909
Mesh Metric	None
Update Options	
Assign Default Material	No
Basic Geometry Options	
Parameters	Independent
Parameter Key	
Attributes	Yes
Attribute Key	
Named Selections	Yes
Named Selection Key	
Material Properties	Yes
Advanced Geometry Options	
Use Associativity	Yes
Coordinate Systems	Yes

Coordinate System Key	
Reader Mode Saves Updated File	No
Use Instances	Yes
Smart CAD Update	Yes
Compare Parts On Update	No
Analysis Type	3-D
Clean Bodies On Import	No
Stitch Surfaces On Import	None
Decompose Disjoint Geometry	Yes
Enclosure and Symmetry Processing	Yes

TABLE 3
Model (F4) > Geometry > Body Groups

Object Name	*Shell_N1_Rev2*
State	Meshed
Graphics Properties	
Visible	Yes
Definition	
Suppressed	No
Assignment	Multiple Materials
Coordinate System	Default Coordinate System
Bounding Box	
Length X	1310,5 mm
Length Y	3370, mm
Length Z	1144, mm
Properties	
Volume	7,9986e+007 mm³
Mass	627,89 kg
Centroid X	16,888 mm
Centroid Y	2073,6 mm
Centroid Z	-3,3667e-002 mm
Moment of Inertia Ip1	5,4729e+008 kg·mm²
Moment of Inertia Ip2	1,6323e+008 kg·mm²
Moment of Inertia Ip3	5,5363e+008 kg·mm²
Statistics	
Nodes	1171355
Elements	616909
Mesh Metric	None
CAD Attributes	
DMBodyGroup	1

TABLE 4
Model (F4) > Geometry > Shell_N1_Rev2 > Parts

Object Name	*Tělo-Přesunout/kopírovat1 [7]*	*Příruba DN 200*	*Tělo-Přesunout/kopírovat1 [2]*	*Rozdělit5[2]*	*Tělo-Přesunout/kopírovat1 [3]*	*Hrdlo*	*Plášť*	*Rozdělit5 [1]*
State	Meshed							
Graphics Properties								
Visible	Yes							
Glow	0							
Shininess	1							
Transparency	1							
Specularity	1							
Definition								
Suppressed	No							
ID (Beta)	440	442	444	446	512	514	516	518
Stiffness Behavior	Flexible							
Coordinate System	Default Coordinate System							
Reference Temperature	By Environment							
Treatment	None							
Material								
Assignment	Structural Steel	P245GH	Structural Steel	P265GH	Structural Steel	P265GH_nozzle	P265GH	
Nonlinear Effects	Yes							
Thermal Strain Effects	Yes							
Bounding Box								
Length X	269,44 mm	80, mm	269,44 mm	58,541 mm	311,13 mm	92,916 mm	1000, mm	29,15 mm
Length Y	1920, mm	360, mm	1920, mm	422,96 mm	1920, mm	219,1 mm	1800, mm	247,98 mm
Length Z	269,44 mm	360, mm	269,44 mm	422,96 mm	311,13 mm	219,1 mm	1000, mm	240,78 mm
Properties								
Volume	6,3755e+006 mm³	2,133e+006 mm³	6,3755e+006 mm³	1,5425e+006 mm³	6,3755e+006 mm³	3,4625e+005 mm³	5,6812e+007 mm³	25963 mm³
Mass	50,048 kg	16,744 kg	50,048 kg	12,109 kg	50,048 kg	2,7181 kg	445,97 kg	0,20381 kg
Centroid X	266,72 mm	630,23 mm	266,74 mm	474,86 mm	-533,44 mm	526,71 mm	-16,219 mm	497,77 mm
Centroid Y	895,23 mm	1820, mm	895,65 mm	1819,9 mm	895,23 mm	1820,1 mm	2488,4 mm	1819,5 mm

Centroid Z	-461,97 mm	-3,8181e-003 mm	461,93 mm	-6,4712e-002 mm	-5,5236e-003 mm	-3,4218e-002 mm	-4,0355e-002 mm	-2,5665e-004 mm
Moment of Inertia Ip1	2,0958e+007 kg·mm²	3,3359e+005 kg·mm²	2,0975e+007 kg·mm²	4,4359e+005 kg·mm²	2,1013e+007 kg·mm²	30599 kg·mm²	1,7529e+008 kg·mm²	2525, kg·mm²
Moment of Inertia Ip2	1,8284e+005 kg·mm²	1,705e+005 kg·mm²	1,8301e+005 kg·mm²	2,2737e+005 kg·mm²	1,8284e+005 kg·mm²	17527 kg·mm²	1,0907e+008 kg·mm²	1070,4 kg·mm²
Moment of Inertia Ip3	2,1013e+007 kg·mm²	1,7057e+005 kg·mm²	2,103e+007 kg·mm²	2,214e+005 kg·mm²	2,0958e+007 kg·mm²	16485 kg·mm²	1,7157e+008 kg·mm²	1466,4 kg·mm²
Statistics								
Nodes	103872	20600	104579	12412	104613	7791	826697	1710
Elements	60049	5749	60541	2390	60505	2024	425053	598
Mesh Metric	None							

TABLE 5
Model (F4) > Materials

Object Name	*Materials*
State	Fully Defined
Statistics	
Materials	7
Material Assignments	0

Coordinate Systems

TABLE 6
Model (F4) > Coordinate Systems > Coordinate System

Object Name	*Global Coordinate System*
State	Fully Defined
Definition	
Type	Cartesian
Coordinate System ID	0,
Origin	
Origin X	0, mm
Origin Y	0, mm
Origin Z	0, mm
Directional Vectors	
X Axis Data	[1, 0, 0,]
Y Axis Data	[0, 1, 0,]
Z Axis Data	[0, 0, 1,]

Connections

TABLE 7
Model (F4) > Connections

Object Name	*Connections*
State	Fully Defined
Auto Detection	
Generate Automatic Connection On Refresh	Yes
Transparency	
Enabled	Yes

TABLE 8
Model (F4) > Connections > Contacts

Object Name	*Contacts*
State	Fully Defined
Definition	
Connection Type	Contact
Scope	
Scoping Method	Geometry Selection
Geometry	All Bodies
Auto Detection	
Tolerance Type	Slider
Tolerance Slider	0,
Tolerance Value	9,4812 mm
Use Range	No
Face/Face	Yes
Face-Face Angle Tolerance	75, °
Face Overlap Tolerance	Off
Cylindrical Faces	Include
Face/Edge	No
Edge/Edge	No
Priority	Include All
Group By	Bodies
Search Across	Bodies
Statistics	
Connections	0
Active Connections	0

Mesh

TABLE 9
Model (F4) > Mesh

Object Name	*Mesh*

State	Solved
Display	
Display Style	Use Geometry Setting
Defaults	
Physics Preference	Mechanical
Element Order	Program Controlled
Element Size	10, mm
Sizing	
Use Adaptive Sizing	No
Growth Rate	Default (1,85)
Max Size	Default (20, mm)
Mesh Defeaturing	Yes
Defeature Size	Default (5,e-002 mm)
Capture Curvature	Yes
Curvature Min Size	Default (0,1 mm)
Curvature Normal Angle	Default (70,395°)
Capture Proximity	No
Size Formulation (Beta)	Program Controlled
Bounding Box Diagonal	3792,5 mm
Average Surface Area	1,2505e+005 mm²
Minimum Edge Length	9,8599 mm
Enable Size Field (Beta)	No
Quality	
Check Mesh Quality	Yes, Errors
Error Limits	Standard Mechanical
Target Quality	Default (0.050000)
Smoothing	Medium
Mesh Metric	None
Inflation	
Use Automatic Inflation	None
Inflation Option	Smooth Transition
Transition Ratio	0,272
Maximum Layers	2
Growth Rate	1,2
Inflation Algorithm	Pre
View Advanced Options	No
Advanced	
Number of CPUs for Parallel Part Meshing	Program Controlled
Straight Sided Elements	No
Rigid Body Behavior	Dimensionally Reduced
Triangle Surface Mesher	Program Controlled
Use Asymmetric Mapped Mesh (Beta)	No
Topology Checking	Yes
Pinch Tolerance	Default (9,e-002 mm)
Generate Pinch on Refresh	No
Statistics	
Nodes	1171355
Elements	616909

TABLE 10
Model (F4) > Mesh > Mesh Controls

Object Name	*Hex Dominant Method*
State	Fully Defined
Scope	
Scoping Method	Geometry Selection
Geometry	4 Bodies
Definition	
Suppressed	No
Method	Hex Dominant
Element Order	Use Global Setting
Free Face Mesh Type	Quad/Tri
Control Messages	Yes, Click To Display...

Named Selections

Static Structural (F5)

TABLE 11
Model (F4) > Analysis

Object Name	*Static Structural (F5)*
State	Solved
Definition	
Physics Type	Structural
Analysis Type	Static Structural
Solver Target	Mechanical APDL
Options	
Environment Temperature	20, °C
Generate Input Only	No

TABLE 12
Model (F4) > Static Structural (F5) > Analysis Settings

Object Name	*Analysis Settings*
State	Fully Defined
Step Controls	
Number Of Steps	1,
Current Step Number	1,
Step End Time	1, s
Auto Time Stepping	Program Controlled
Solver Controls	
Solver Type	Program Controlled
Weak Springs	Off
Solver Pivot Checking	Program Controlled
Large Deflection	Off
Inertia Relief	Off
Rotordynamics Controls	
Coriolis Effect	Off
Restart Controls	
Generate Restart Points	Program Controlled
Retain Files After Full Solve	No
Combine Restart Files	Program Controlled
Nonlinear Controls	
Newton-Raphson Option	Program Controlled
Force Convergence	Program Controlled
Moment Convergence	Program Controlled
Displacement Convergence	Program Controlled
Rotation Convergence	Program Controlled
Line Search	Program Controlled
Stabilization	Program Controlled
Output Controls	
Stress	Yes
Surface Stress	No
Back Stress	No
Strain	Yes
Contact Data	Yes
Nonlinear Data	No
Nodal Forces	No
Contact Miscellaneous	No
General Miscellaneous	No
Store Results At	All Time Points
Cache Results in Memory (Beta)	Never
Combine Distributed Result Files (Beta)	Program Controlled
Result File Compression	Program Controlled
Analysis Data Management	
Solver Files Directory	C:\Users\prochazka.tomas\AppData\Local\Temp\Model_N3.tmp\Model_N3_files\dp0\SYS-5\MECH\
Future Analysis	None
Scratch Solver Files Directory	
Save MAPDL db	No
Contact Summary	Program Controlled
Delete Unneeded Files	Yes
Nonlinear Solution	No
Solver Units	Active System
Solver Unit System	nmm

TABLE 13
Model (F4) > Static Structural (F5) > Loads

Object Name	*Návrhový tlak*	*Fixed Support*	*Ekvivaletní síla od tlaku - hrdlo*	*Zatěžující síla od potrubí*	*Ekvivaletní síla od tlaku - plášť I*	*Ekvivaletní síla od tlaku - plášť II*	*Moment od potrubí*	*Tíha komponent*	*Tíha komponent + hmotnost média*
State	Fully Defined								
Scope									
Scoping Method	Geometry Selection								
Geometry	6 Faces	3 Faces	1 Face						
Definition									
ID (Beta)	63	156	267	269	357	359	402	503	505
Type	Pressure	Fixed Support	Force				Moment	Force	
Define By	Normal To		Components						
Applied By	Surface Effect								
Magnitude	1,6 MPa (ramped)								
Suppressed	No								
Coordinate System			Global Coordinate System						
X Component			55457 N (ramped)	1119, N (ramped)	0, N (ramped)		722, N·mm (ramped)	0, N (ramped)	
Y Component			0, N (ramped)	-2226, N (ramped)	-1,2044e+006 N (ramped)	1,2044e+006 N (ramped)	643, N·mm (ramped)	-3816,1 N (ramped)	-20209 N (ramped)
Z Component			0, N (ramped)	168, N (ramped)	0, N (ramped)		-1256, N·mm (ramped)	0, N (ramped)	
Behavior							Deformable		
Advanced									
Pinball							All		

Region			

FIGURE 1
Model (F4) > Static Structural (F5) > Návrhový tlak

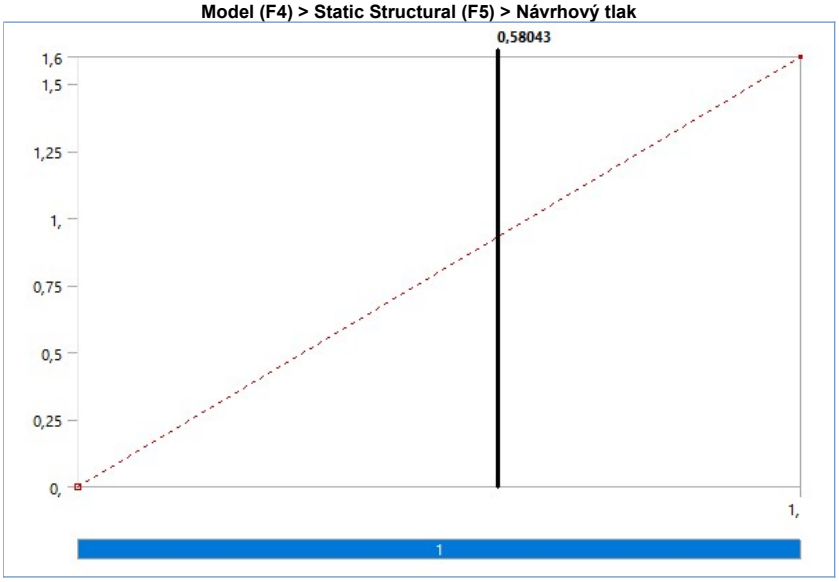


FIGURE 2
Model (F4) > Static Structural (F5) > Ekvivaletní síla od tlaku - hrdlo

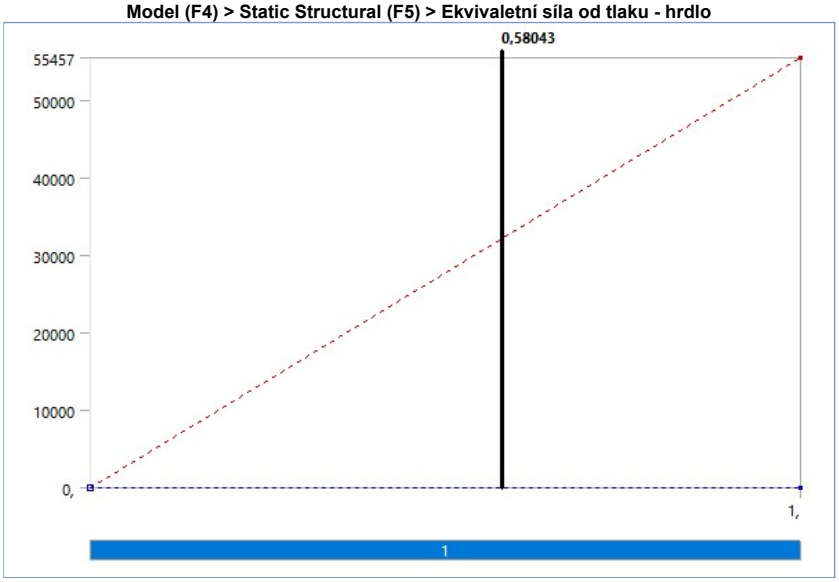


FIGURE 3
Model (F4) > Static Structural (F5) > Zatěžující síla od potrubí

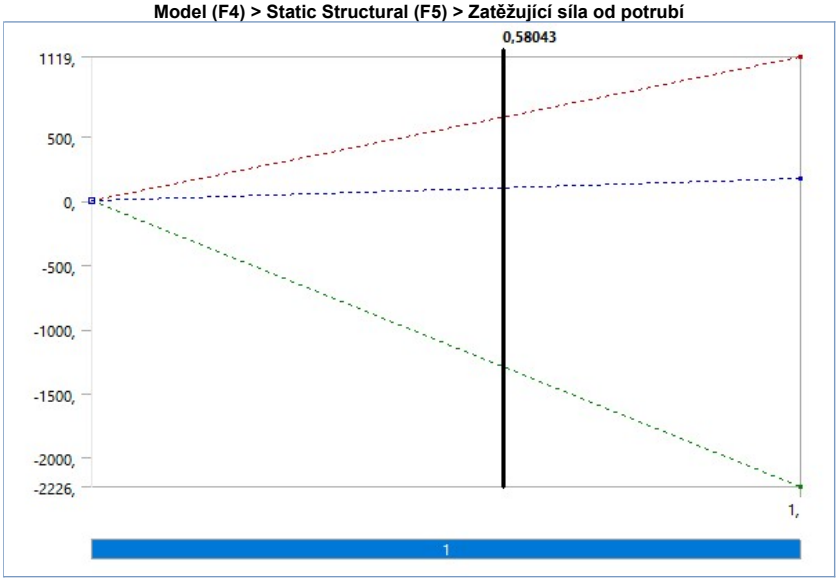


FIGURE 4

Model (F4) > Static Structural (F5) > Ekvivaletní síla od tlaku - plášť I

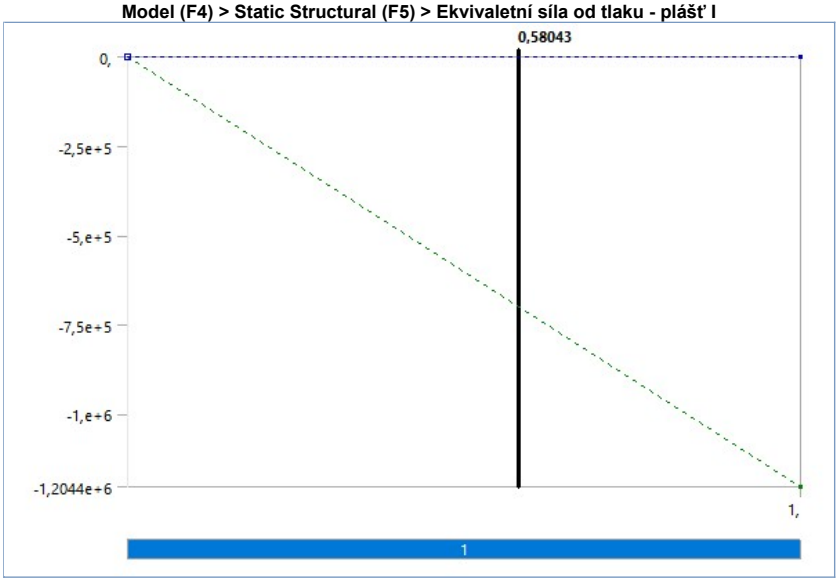


FIGURE 5
Model (F4) > Static Structural (F5) > Ekvivaletní síla od tlaku - plášť II

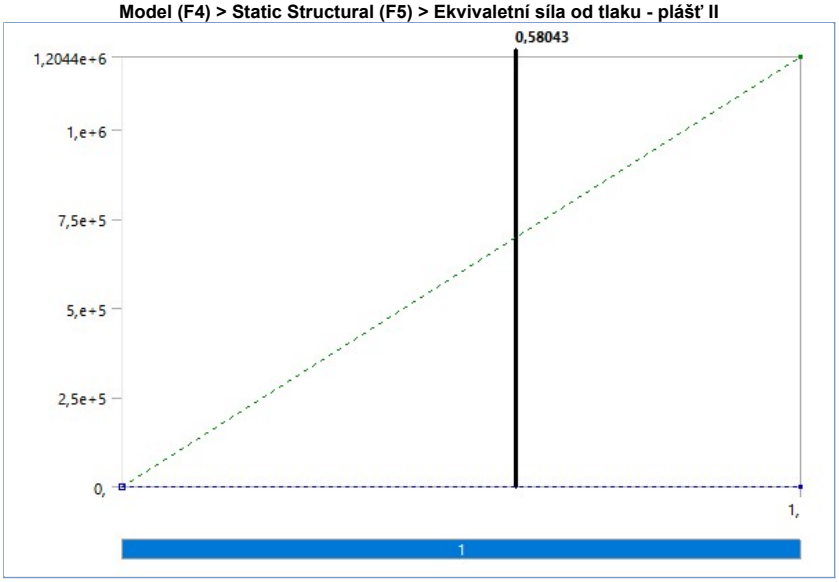


FIGURE 6
Model (F4) > Static Structural (F5) > Moment od potrubí

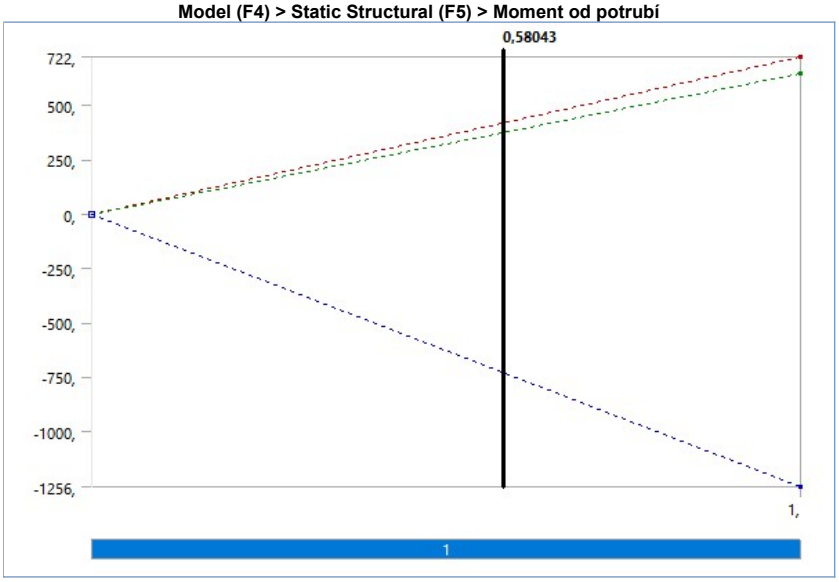


FIGURE 7
Model (F4) > Static Structural (F5) > Tíha komponent



FIGURE 8
Model (F4) > Static Structural (F5) > Tíha komponent + hmotnost média

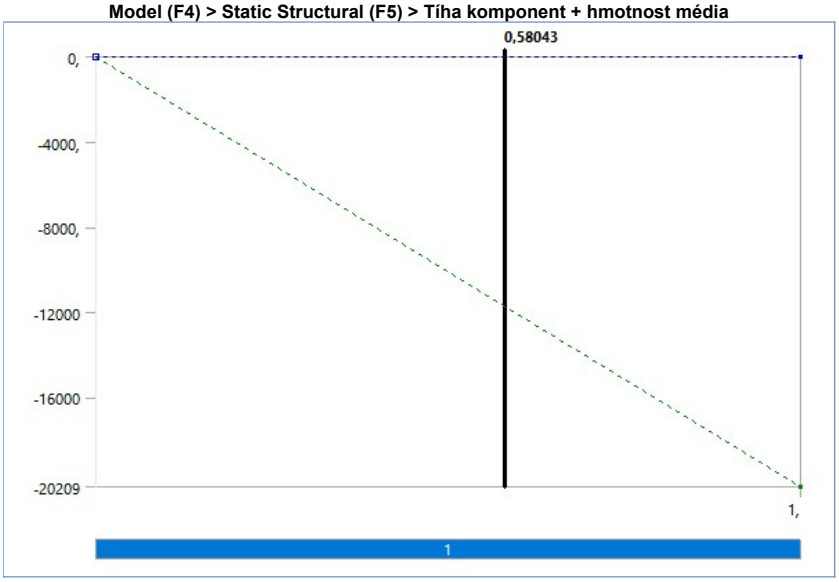


TABLE 14
Model (F4) > Static Structural (F5) > Imported Load (E6)

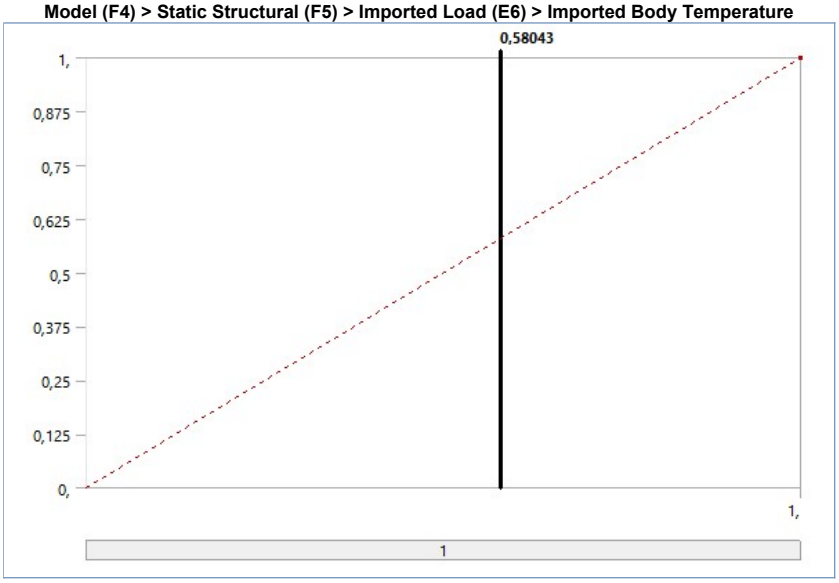
Object Name	*Imported Load (E6)*
State	Fully Defined
Definition	
Type	Imported Data
Interpolation Type	Mechanical Results Transfer
Suppressed	No
Source	E6::Solution 8

TABLE 15
Model (F4) > Static Structural (F5) > Imported Load (E6) > Imported Body Temperature

Object Name	*Imported Body Temperature*
State	Solved
Scope	
Scoping Method	Geometry Selection
Geometry	8 Bodies
Definition	
Type	Imported Body Temperature
Tabular Loading	Program Controlled
Suppressed	No
Source Bodies	Automatic
Tolerance	5, %
Source Time	Worksheet
Beta Options (Beta)	
Show Body Wireframe (Beta)	No
Settings	
Mapping Control	Program Controlled
Mapping	Profile Preserving
Weighting	Shape Function
Transfer Type	Volumetric

Rigid Transformation	
Mesh Alignment	Use Origin and Euler Angles
Origin X	0, mm
Origin Y	0, mm
Origin Z	0, mm
Theta XY	0, degree
Theta YZ	0, degree
Theta ZX	0, degree
Graphics Controls	
Display Source Points	Off
Display Source Point Ids	Off
Legend Controls	
Legend Range	Program Controlled
Minimum Source	130, °C
Maximum Source	130, °C
Named Selection Creation	
Unmapped Nodes	Off
Mapped Nodes	Off
Outside Nodes	Off

FIGURE 9
Model (F4) > Static Structural (F5) > Imported Load (E6) > Imported Body Temperature



Model (F4) > Static Structural (F5) > Imported Load (E6) > Imported Body Temperature

	Source Time (s)	Analysis Time (s)
1	End Time	1
*		

Model (F4) > Static Structural (F5) > Imported Load (E6) > Imported Body Temperature > Imported Load Transfer Summary

Target Body	Source Material Id	Volume Difference (%)	Distance Between Centroids (mm)	Bounding Box Diagonal (mm)	Distance Between Centroids/Bounding Box Diagonal (%)
Tělo-Přesunout/kopírovat1[7]	1,	9,5656e-006	0,35863	1957,4	1,8321e-002

Tue Apr 14, 2020 09:31:18

Using multiple cores: [Yes]
Number of cores requested: 8

Number of source nodes: 28734
Number of target nodes: 103872

Number of nodes mapped : 103872
Number of nodes not mapped : 0
Number of nodes outside : 0

Percent nodes mapped: 100%
Weight calculation time: 0.445 (s)
Interpolation time: 5.e-003 (s)

Target Body	Source Material Id	Volume Difference (%)	Distance Between Centroids (mm)	Bounding Box Diagonal (mm)	Distance Between Centroids/Bounding Box Diagonal (%)
Příruba DN 200	2,	3,9426e-003	4,5182e-002	515,36	8,767e-003

Tue Apr 14, 2020 09:31:19

Using multiple cores: [Yes]
Number of cores requested: 8

Number of source nodes: 29780
Number of target nodes: 20600

Number of nodes mapped : 20600
Number of nodes not mapped : 0
Number of nodes outside : 33

Percent nodes mapped: 100%
Weight calculation time: 0.3 (s)
Interpolation time: 3.e-003 (s)

Target Body	Source Material Id	Volume Difference (%)	Distance Between Centroids (mm)	Bounding Box Diagonal (mm)	Distance Between Centroids/Bounding Box Diagonal (%)
Télo-Přesunout/kopírovat1[2]	4,	8,9951e-006	0,77783	1957,4	3,9737e-002

Tue Apr 14, 2020 09:31:20

Using multiple cores: [Yes]
Number of cores requested: 8

Number of source nodes: 28592
Number of target nodes: 104579

Number of nodes mapped : 104579
Number of nodes not mapped : 0
Number of nodes outside : 0

Percent nodes mapped: 100%
Weight calculation time: 0.436 (s)
Interpolation time: 5.e-003 (s)

Target Body	Source Material Id	Volume Difference (%)	Distance Between Centroids (mm)	Bounding Box Diagonal (mm)	Distance Between Centroids/Bounding Box Diagonal (%)
Rozdělit5[2]	5,	1,993e-004	0,6413	601,01	0,1067

Tue Apr 14, 2020 09:31:21

Using multiple cores: [Yes]
Number of cores requested: 8

Number of source nodes: 13272
Number of target nodes: 12412

Number of nodes mapped : 12412
Number of nodes not mapped : 0
Number of nodes outside : 2

Percent nodes mapped: 100%
Weight calculation time: 0.106 (s)
Interpolation time: 2.e-003 (s)

Target Body	Source Material Id	Volume Difference (%)	Distance Between Centroids (mm)	Bounding Box Diagonal (mm)	Distance Between Centroids/Bounding Box Diagonal (%)
Télo-Přesunout/kopírovat1[3]	7,	9,4973e-006	0,35845	1969,8	1,8197e-002

Tue Apr 14, 2020 09:31:21

Using multiple cores: [Yes]
Number of cores requested: 8

Number of source nodes: 28510
Number of target nodes: 104613

Number of nodes mapped : 104613
Number of nodes not mapped : 0
Number of nodes outside : 0

Percent nodes mapped: 100%
Weight calculation time: 0.481 (s)
Interpolation time: 5.e-003 (s)

Target Body	Source Material Id	Volume Difference (%)	Distance Between Centroids (mm)	Bounding Box Diagonal (mm)	Distance Between Centroids/Bounding Box Diagonal (%)
Hrdlo	8,	0,19303	0,14268	323,49	4,4107e-002

Tue Apr 14, 2020 09:31:22

Using multiple cores: [Yes]
Number of cores requested: 8

Number of source nodes: 7994
Number of target nodes: 7107

Number of nodes mapped : 7107
Number of nodes not mapped : 0
Number of nodes outside : 321

Percent nodes mapped: 100%
Weight calculation time: 0.103 (s)
Interpolation time: 2.e-003 (s)

Target Body	Source Material Id	Volume Difference (%)	Distance Between Centroids (mm)	Bounding Box Diagonal (mm)	Distance Between Centroids/Bounding Box Diagonal (%)
Plášť	10,	4,6303e-007	3,8528	2289,1	0,16831

Tue Apr 14, 2020 09:31:25

Using multiple cores: [Yes]
Number of cores requested: 8

Number of source nodes: 658180
Number of target nodes: 817090

Number of nodes mapped : 817090
Number of nodes not mapped : 0
Number of nodes outside : 0

Percent nodes mapped: 100%
Weight calculation time: 5.942 (s)
Interpolation time: 6.4e-002 (s)

Target Body	Source Material Id	Volume Difference (%)	Distance Between Centroids (mm)	Bounding Box Diagonal (mm)	Distance Between Centroids/Bounding Box Diagonal (%)
Rozdělit5[1]	12,	2,4301	0,48937	346,87	0,14108

Tue Apr 14, 2020 09:31:33

Using multiple cores: [Yes]
Number of cores requested: 8

Number of source nodes: 1679
Number of target nodes: 1082

Number of nodes mapped : 1082
Number of nodes not mapped : 0
Number of nodes outside : 97

Percent nodes mapped: 100%
Weight calculation time: 4.3e-002 (s)
Interpolation time: 1.e-003 (s)

Solution (F6)

TABLE 16
Model (F4) > Static Structural (F5) > Solution

Object Name	*Solution (F6)*
State	Solved
Solution	
Number Of Cores to Use (Beta)	Solve Process Settings
Adaptive Mesh Refinement	
Max Refinement Loops	1,
Refinement Depth	2,
Information	
Status	Done
MAPDL Elapsed Time	6 m 12 s
MAPDL Memory Used	6,6143 GB
MAPDL Result File Size	501,25 MB
Post Processing	
Distributed Post Processing (Beta)	Program Controlled
Mesh Source (Beta)	Program Controlled
Beam Section Results	No
On Demand Stress/Strain	No

TABLE 17
Model (F4) > Static Structural (F5) > Solution (F6) > Solution Information

Object Name	*Solution Information*
State	Solved
Solution Information	
Solution Output	Force Convergence
Newton-Raphson Residuals	0

Identify Element Violations	0
Update Interval	2,5 s
Display Points	All
FE Connection Visibility	
Activate Visibility	Yes
Display	All FE Connectors
Draw Connections Attached To	All Nodes
Line Color	Connection Type
Visible on Results	No
Line Thickness	Single
Display Type	Lines

TABLE 18
Model (F4) > Static Structural (F5) > Solution (F6) > Results

Object Name	*Total Deformation*	*Equivalent Stress*	*Stress Intensity*
State	Solved		
Scope			
Scoping Method	Geometry Selection		
Geometry	All Bodies		
Definition			
Type	Total Deformation	Equivalent (von-Mises) Stress	Stress Intensity
By	Time		
Display Time	Last		
Calculate Time History	Yes		
Identifier			
Suppressed	No		
Results			
Minimum	0, mm	5,3157e-003 MPa	5,9503e-003 MPa
Maximum	4,7675 mm	854,84 MPa	964,73 MPa
Average	2,8699 mm	61,379 MPa	69,38 MPa
Minimum Occurs On	Tělo-Přesunout/kopírovat1[7]	Tělo-Přesunout/kopírovat1[2]	
Maximum Occurs On	Plášť	Tělo-Přesunout/kopírovat1[3]	Tělo-Přesunout/kopírovat1[7]
Information			
Time	1, s		
Load Step	1		
Substep	1		
Iteration Number	1		
Integration Point Results			
Display Option		Averaged	
Average Across Bodies		No	

FIGURE 10
Model (F4) > Static Structural (F5) > Solution (F6) > Total Deformation

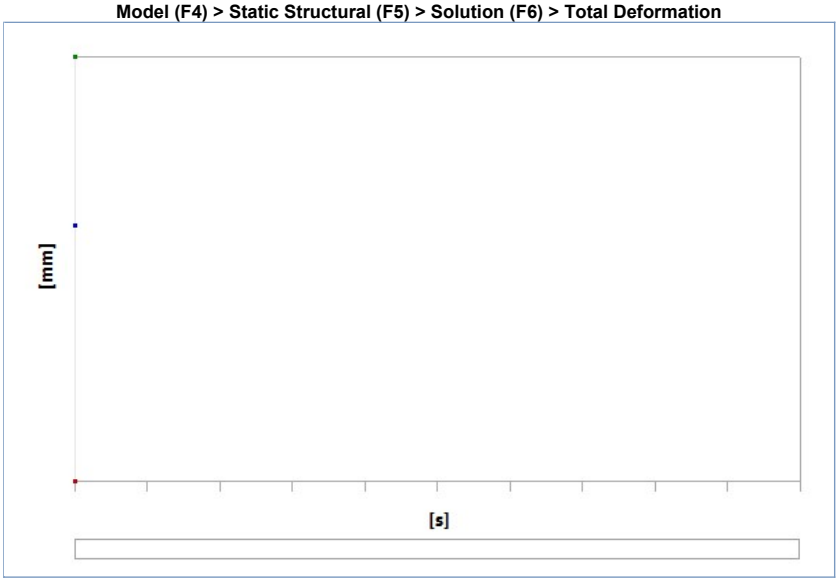


TABLE 19
Model (F4) > Static Structural (F5) > Solution (F6) > Total Deformation

Time [s]	Minimum [mm]	Maximum [mm]	Average [mm]
1,	0,	4,7675	2,8699

FIGURE 11
Model (F4) > Static Structural (F5) > Solution (F6) > Equivalent Stress

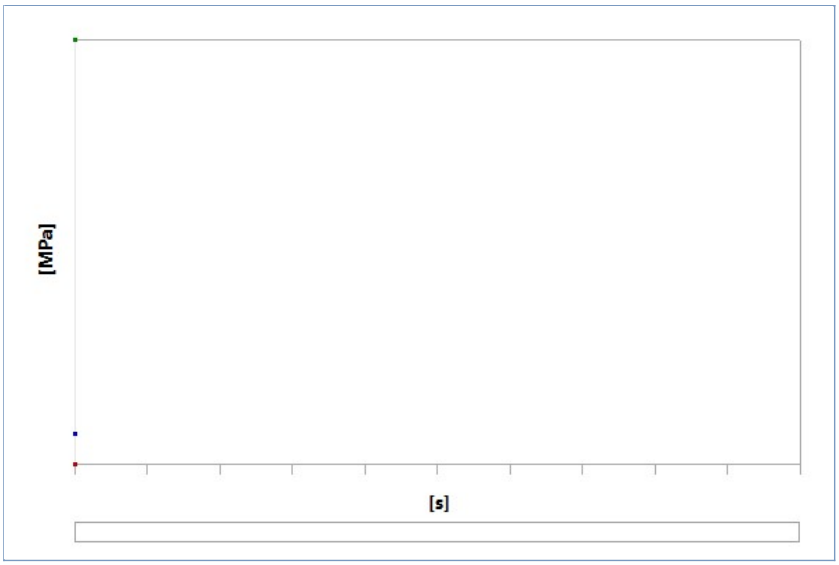


TABLE 20
Model (F4) > Static Structural (F5) > Solution (F6) > Equivalent Stress

Time [s]	Minimum [MPa]	Maximum [MPa]	Average [MPa]
1,	5,3157e-003	854,84	61,379

FIGURE 12
Model (F4) > Static Structural (F5) > Solution (F6) > Stress Intensity

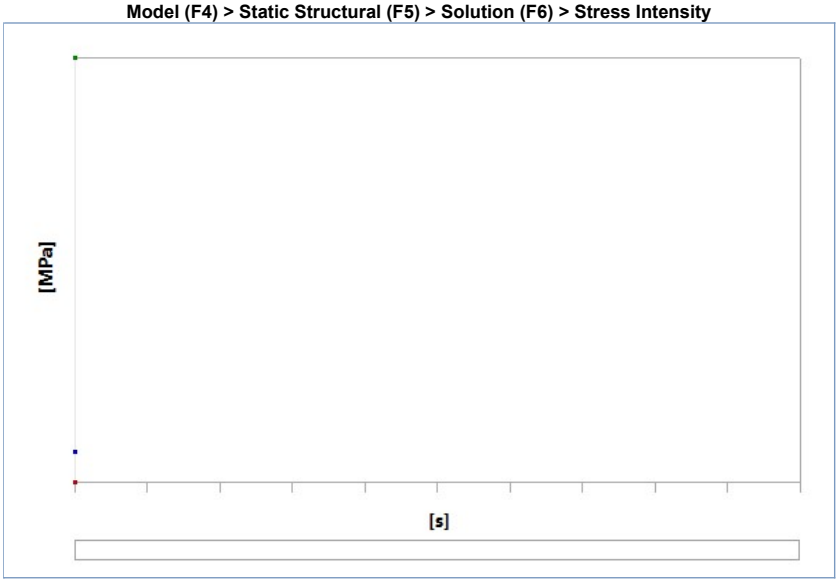


TABLE 21
Model (F4) > Static Structural (F5) > Solution (F6) > Stress Intensity

Time [s]	Minimum [MPa]	Maximum [MPa]	Average [MPa]
1,	5,9503e-003	964,73	69,38

Material Data

Structural Steel

TABLE 22
Structural Steel > Constants

Density	7,85e-006 kg mm^-3
Coefficient of Thermal Expansion	1,2e-005 C^-1
Specific Heat	4,34e+005 mJ kg^-1 C^-1
Thermal Conductivity	6,05e-002 W mm^-1 C^-1
Resistivity	1,7e-004 ohm mm

TABLE 23
Structural Steel > Color

Red	Green	Blue
132,	139,	179,

TABLE 24
Structural Steel > Compressive Ultimate Strength

Compressive Ultimate Strength MPa
0,

TABLE 25
Structural Steel > Compressive Yield Strength

Compressive Yield Strength MPa
250,

TABLE 26
Structural Steel > Tensile Yield Strength

Tensile Yield Strength MPa
265,

TABLE 27
Structural Steel > Tensile Ultimate Strength

Tensile Ultimate Strength MPa
410,

TABLE 28
Structural Steel > Isotropic Secant Coefficient of Thermal Expansion

Zero-Thermal-Strain Reference Temperature C
22,

TABLE 29
Structural Steel > S-N Curve

Alternating Stress MPa	Cycles	Mean Stress MPa
3999,	10,	0,
2827,	20,	0,
1896,	50,	0,
1413,	100,	0,
1069,	200,	0,
441,	2000,	0,
262,	10000	0,
214,	20000	0,
138,	1,e+005	0,
114,	2,e+005	0,
86,2	1,e+006	0,

TABLE 30
Structural Steel > Strain-Life Parameters

Strength Coefficient MPa	Strength Exponent	Ductility Coefficient	Ductility Exponent	Cyclic Strength Coefficient MPa	Cyclic Strain Hardening Exponent
920,	-0,106	0,213	-0,47	1000,	0,2

TABLE 31
Structural Steel > Isotropic Elasticity

Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,e+005	0,3	1,6667e+005	76923	

TABLE 32
Structural Steel > Isotropic Relative Permeability

Relative Permeability
10000

P245GH

TABLE 33
P245GH > Constants

Density	7,85e-006 kg mm^-3
Coefficient of Thermal Expansion	1,2e-005 C^-1
Specific Heat	4,34e+005 mJ kg^-1 C^-1
Thermal Conductivity	6,05e-002 W mm^-1 C^-1
Resistivity	1,7e-004 ohm mm

TABLE 34
P245GH > Color

Red	Green	Blue
132,	139,	179,

TABLE 35
P245GH > Compressive Ultimate Strength

Compressive Ultimate Strength MPa
0,

TABLE 36
P245GH > Compressive Yield Strength

Compressive Yield Strength MPa
250,

TABLE 37
P245GH > Tensile Yield Strength

Tensile Yield Strength MPa
245,

TABLE 38
P245GH > Tensile Ultimate Strength

Tensile Ultimate Strength MPa

410,

TABLE 39
P245GH > Isotropic Secant Coefficient of Thermal Expansion

Zero-Thermal-Strain Reference Temperature C
22,

TABLE 40
P245GH > S-N Curve

Alternating Stress MPa	Cycles	Mean Stress MPa
3999,	10,	0,
2827,	20,	0,
1896,	50,	0,
1413,	100,	0,
1069,	200,	0,
441,	2000,	0,
262,	10000	0,
214,	20000	0,
138,	1,e+005	0,
114,	2,e+005	0,
86,2	1,e+006	0,

TABLE 41
P245GH > Strain-Life Parameters

Strength Coefficient MPa	Strength Exponent	Ductility Coefficient	Ductility Exponent	Cyclic Strength Coefficient MPa	Cyclic Strain Hardening Exponent
920,	-0,106	0,213	-0,47	1000,	0,2

TABLE 42
P245GH > Isotropic Elasticity

Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,0387e+005	0,3	1,6989e+005	78411	

TABLE 43
P245GH > Isotropic Relative Permeability

Relative Permeability
10000

P265GH

TABLE 44
P265GH > Constants

Density	7,85e-006 kg mm^-3
Coefficient of Thermal Expansion	1,2e-005 C^-1
Specific Heat	4,34e+005 mJ kg^-1 C^-1
Thermal Conductivity	6,05e-002 W mm^-1 C^-1
Resistivity	1,7e-004 ohm mm

TABLE 45
P265GH > Color

Red	Green	Blue
132,	139,	179,

TABLE 46
P265GH > Compressive Ultimate Strength

Compressive Ultimate Strength MPa
0,

TABLE 47
P265GH > Compressive Yield Strength

Compressive Yield Strength MPa
250,

TABLE 48
P265GH > Tensile Yield Strength

Tensile Yield Strength MPa
265,

TABLE 49
P265GH > Tensile Ultimate Strength

Tensile Ultimate Strength MPa
410,

TABLE 50
P265GH > Isotropic Secant Coefficient of Thermal Expansion

Zero-Thermal-Strain Reference Temperature C
22,

TABLE 51
P265GH > S-N Curve

Alternating Stress MPa	Cycles	Mean Stress MPa
3999,	10,	0,
2827,	20,	0,
1896,	50,	0,

1413,	100,	0,
1069,	200,	0,
441,	2000,	0,
262,	10000	0,
214,	20000	0,
138,	1,e+005	0,
114,	2,e+005	0,
86,2	1,e+006	0,

TABLE 52
P265GH > Strain-Life Parameters

Strength Coefficient MPa	Strength Exponent	Ductility Coefficient	Ductility Exponent	Cyclic Strength Coefficient MPa	Cyclic Strain Hardening Exponent
920,	-0,106	0,213	-0,47	1000,	0,2

TABLE 53
P265GH > Isotropic Elasticity

Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,0387e+005	0,3	1,6989e+005	78411	

TABLE 54
P265GH > Isotropic Relative Permeability

Relative Permeability
10000

P265GH_nozzle

TABLE 55
P265GH_nozzle > Constants

Density	7,85e-006 kg mm^-3
Coefficient of Thermal Expansion	1,2e-005 C^-1
Specific Heat	4,34e+005 mJ kg^-1 C^-1
Thermal Conductivity	6,05e-002 W mm^-1 C^-1
Resistivity	1,7e-004 ohm mm

TABLE 56
P265GH_nozzle > Color

Red	Green	Blue
132,	139,	179,

TABLE 57
P265GH_nozzle > Compressive Ultimate Strength

Compressive Ultimate Strength MPa
0,

TABLE 58
P265GH_nozzle > Compressive Yield Strength

Compressive Yield Strength MPa
250,

TABLE 59
P265GH_nozzle > Tensile Yield Strength

Tensile Yield Strength MPa
265,

TABLE 60
P265GH_nozzle > Tensile Ultimate Strength

Tensile Ultimate Strength MPa
410,

TABLE 61
P265GH_nozzle > Isotropic Secant Coefficient of Thermal Expansion

Zero-Thermal-Strain Reference Temperature C
22,

TABLE 62
P265GH_nozzle > S-N Curve

Alternating Stress MPa	Cycles	Mean Stress MPa
3999,	10,	0,
2827,	20,	0,
1896,	50,	0,
1413,	100,	0,
1069,	200,	0,
441,	2000,	0,
262,	10000	0,
214,	20000	0,
138,	1,e+005	0,
114,	2,e+005	0,
86,2	1,e+006	0,

TABLE 63
P265GH_nozzle > Strain-Life Parameters

Strength Coefficient MPa	Strength Exponent	Ductility Coefficient	Ductility Exponent	Cyclic Strength Coefficient MPa	Cyclic Strain Hardening Exponent
920,	-0,106	0,213	-0,47	1000,	0,2

TABLE 64
P265GH_nozzle > Isotropic Elasticity

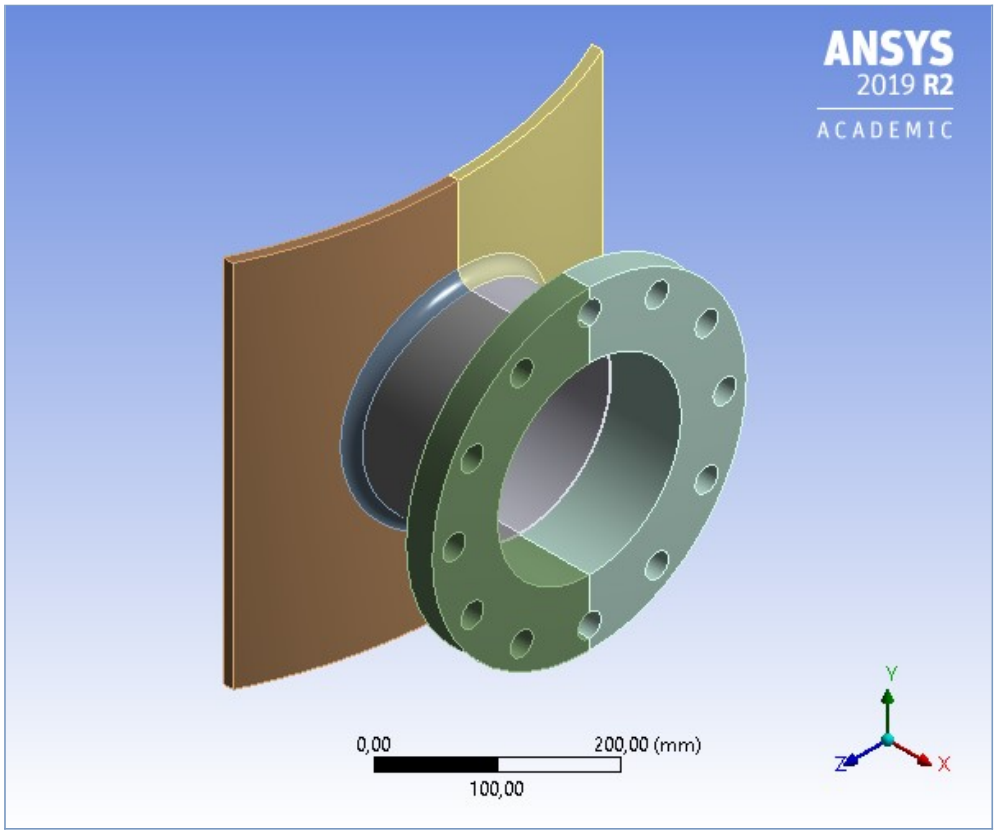
Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,0387e+005	0,3	1,6989e+005	78411	

TABLE 65
P265GH_nozzle > Isotropic Relative Permeability

Relative Permeability
10000

Stress categorization - Nozzle N1 - DESIGN CASE (Submodel)*

First Saved	Friday, November 29, 2019
Last Saved	Sunday, April 19, 2020
Product Version	2019 R2
Save Project Before Solution	No
Save Project After Solution	No



Contents

- **Units**
- **Model (J4)**
  - Geometry
    - Submodel_Rev2
      - Parts
  - Materials
  - Construction Geometry
    - Paths
  - Coordinate Systems
  - Connections
    - Contacts
  - Mesh
    - Hex Dominant Method
  - Named Selections
  - **Static Structural (J5)**
    - Analysis Settings
    - Loads
    - Submodeling (F6)
      - Imported Body Temperature
    - Solution (J6)
      - Solution Information
      - Results
- **Material Data**
  - P245GH
  - P265GH
  - P265GH_nozzle

Units

TABLE 1

Unit System	Metric (mm, kg, N, s, mV, mA) Degrees rad/s Celsius
Angle	Degrees
Rotational Velocity	rad/s
Temperature	Celsius

Model (J4)

Geometry

TABLE 2
Model (J4) > Geometry

Object Name	*Geometry*
State	Fully Defined
Definition	
Source	C:\Users\prochazka.tomas\AppData\Local\Temp\Model_N3.tmp\Model_N3_files\dp0\Geom-2\DM\Geom-2.agdb
Type	DesignModeler
Length Unit	Meters
Element Control	Program Controlled
Display Style	Body Color
Bounding Box	
Length X	208,54 mm
Length Y	422,96 mm
Length Z	422,96 mm
Properties	
Volume	4,0488e+006 mm³
Mass	31,783 kg
Scale Factor Value	1,
Statistics	
Bodies	8
Active Bodies	8
Nodes	1405355

Elements	355711
Mesh Metric	None
Update Options	
Assign Default Material	No
Basic Geometry Options	
Parameters	Independent
Parameter Key	
Attributes	Yes
Attribute Key	
Named Selections	Yes
Named Selection Key	
Material Properties	Yes
Advanced Geometry Options	
Use Associativity	Yes
Coordinate Systems	Yes
Coordinate System Key	
Reader Mode Saves Updated File	No
Use Instances	Yes
Smart CAD Update	Yes
Compare Parts On Update	No
Analysis Type	3-D
Clean Bodies On Import	No
Stitch Surfaces On Import	None
Decompose Disjoint Geometry	Yes
Enclosure and Symmetry Processing	Yes

TABLE 3
Model (J4) > Geometry > Body Groups

Object Name	*Submodel_Rev2*
State	Meshed
Graphics Properties	
Visible	Yes
Definition	
Suppressed	No
Assignment	Multiple Materials
Coordinate System	Default Coordinate System
Bounding Box	
Length X	208,54 mm
Length Y	422,96 mm
Length Z	422,96 mm
Properties	
Volume	4,0488e+006 mm³
Mass	31,783 kg
Centroid X	561,4 mm
Centroid Y	1820, mm
Centroid Z	-1,1266e-002 mm
Moment of Inertia Ip1	8,1024e+005 kg·mm²
Moment of Inertia Ip2	5,8975e+005 kg·mm²
Moment of Inertia Ip3	5,8362e+005 kg·mm²
Statistics	
Nodes	1405355
Elements	355711
Mesh Metric	None
CAD Attributes	
DMBodyGroup	1

TABLE 4
Model (J4) > Geometry > Submodel_Rev2 > Parts

Object Name	*Příruba DN 200*	*Plášť*	*Vsazené hrdlo*	*Svar*	*Příruba DN 200*	*Plášť*	*Vsazené hrdlo*	*Svar*
State	Meshed							
Graphics Properties								
Visible	Yes							
Glow	0							
Shininess	1							
Transparency	1							

Specularity	1							
Definition								
Suppressed	No							
ID (Beta)	538	540	694	696	1010	1012	1014	1016
Stiffness Behavior	Flexible							
Coordinate System	Default Coordinate System							
Reference Temperature	By Environment							
Treatment	None							
Material								
Assignment	P245GH	P265GH	P265GH_nozzle	P265GH	P245GH	P265GH_nozzle		P265GH
Nonlinear Effects	Yes							
Thermal Strain Effects	Yes							
Bounding Box								
Length X	80, mm	58,541 mm	92,916 mm	29,15 mm	80, mm	58,541 mm	92,916 mm	29,15 mm
Length Y	360, mm	422,96 mm	219,1 mm	247,98 mm	360, mm	422,96 mm	219,1 mm	247,98 mm
Length Z	180, mm	211,48 mm	109,55 mm	120,39 mm	180, mm	211,48 mm	109,55 mm	120,39 mm
Properties								
Volume	1,0665e+006 mm³	7,7129e+005 mm³	1,7364e+005 mm³	12937 mm³	1,0665e+006 mm³	7,7129e+005 mm³	1,7375e+005 mm³	12941 mm³
Mass	8,3718 kg	6,0546 kg	1,3631 kg	0,10156 kg	8,372 kg	6,0546 kg	1,3639 kg	0,10159 kg
Centroid X	630,21 mm	475,12 mm	526,69 mm	497,53 mm	630,23 mm	475,12 mm	526,77 mm	497,52 mm
Centroid Y	1820, mm	1820,2 mm	1819,4 mm	1820,3 mm	1820, mm	1819,6 mm	1820,4 mm	1819,7 mm
Centroid Z	88,91 mm	123,11 mm	69,211 mm	64,654 mm	-88,949 mm	-123,09 mm	-69,258 mm	-64,645 mm
Moment of Inertia Ip1	1,0097e+005 kg·mm²	1,3061e+005 kg·mm²	8910,9 kg·mm²	895,81 kg·mm²	1,0105e+005 kg·mm²	1,3057e+005 kg·mm²	8911,2 kg·mm²	895,92 kg·mm²
Moment of Inertia Ip2	19392 kg·mm²	21356 kg·mm²	2295,5 kg·mm²	132,41 kg·mm²	19401 kg·mm²	21378 kg·mm²	2294,3 kg·mm²	132,61 kg·mm²
Moment of Inertia Ip3	85257 kg·mm²	1,0952e+005 kg·mm²	8299,9 kg·mm²	765,06 kg·mm²	85320 kg·mm²	1,0946e+005 kg·mm²	8300,6 kg·mm²	764,96 kg·mm²
Statistics								
Nodes	324036	272517	102319	12338	324769	274268	102679	12386
Elements	83114	64454	26338	3139	83385	65595	26524	3162
Mesh Metric	None							

TABLE 5
Model (J4) > Materials

Object Name	*Materials*
State	Fully Defined
Statistics	
Materials	7
Material Assignments	0

TABLE 6
Model (J4) > Construction Geometry

Object Name	*Construction Geometry*
State	Fully Defined
Display	
Show Mesh	No

TABLE 7
Model (J4) > Construction Geometry > Paths

Object Name	*Path*	*Path 2*	*Path 3*	*Path 4*	*Path 5*	*Path 6*
State	Fully Defined					
Definition						
Path Type	Two Points					
Path Coordinate System	Global Coordinate System					
Number of Sampling Points	47,					
Suppressed	No					
Start						

Coordinate System	Global Coordinate System					
Start X Coordinate	504,3 mm	500, mm	520, mm	504,64 mm	500, mm	520, mm
Start Y Coordinate	1934, mm	1944, mm	1929,5 mm	1706,3 mm	1691,2 mm	1716,4 mm
Start Z Coordinate	0, mm					
Location	Defined					
End						
Coordinate System	Global Coordinate System					
End X Coordinate	489,65 mm	489,5 mm	520, mm	489,65 mm	489,5 mm	520, mm
End Y Coordinate	1925,2 mm	1944, mm	1923,5 mm	1714,8 mm	1691,2 mm	1710,5 mm
End Z Coordinate	0, mm					
Location	Defined					

Coordinate Systems

TABLE 8
Model (J4) > Coordinate Systems > Coordinate System

Object Name	*Global Coordinate System*
State	Fully Defined
Definition	
Type	Cartesian
Coordinate System ID	0,
Origin	
Origin X	0, mm
Origin Y	0, mm
Origin Z	0, mm
Directional Vectors	
X Axis Data	[1, 0, 0,]
Y Axis Data	[0, 1, 0,]
Z Axis Data	[0, 0, 1,]

Connections

TABLE 9
Model (J4) > Connections

Object Name	*Connections*
State	Fully Defined
Auto Detection	
Generate Automatic Connection On Refresh	Yes
Transparency	
Enabled	Yes

TABLE 10
Model (J4) > Connections > Contacts

Object Name	*Contacts*
State	Fully Defined
Definition	
Connection Type	Contact
Scope	
Scoping Method	Geometry Selection
Geometry	All Bodies
Auto Detection	
Tolerance Type	Slider
Tolerance Slider	0,
Tolerance Value	1,5837 mm
Use Range	No
Face/Face	Yes
Face-Face Angle Tolerance	75, °
Face Overlap Tolerance	Off
Cylindrical Faces	Include
Face/Edge	No
Edge/Edge	No
Priority	Include All
Group By	Bodies
Search Across	Bodies
Statistics	
Connections	0
Active Connections	0

Mesh

TABLE 11
Model (J4) > Mesh

Object Name	*Mesh*
State	Solved
Display	
Display Style	Use Geometry Setting
Defaults	
Physics Preference	Mechanical
Element Order	Quadratic
Element Size	2,5 mm
Sizing	
Use Adaptive Sizing	No
Growth Rate	Default (1,85)
Max Size	Default (5, mm)
Mesh Defeaturing	Yes
Defeature Size	Default (1,25e-002 mm)
Capture Curvature	Yes
Curvature Min Size	Default (2,5e-002 mm)
Curvature Normal Angle	Default (70,395°)
Capture Proximity	No
Size Formulation (Beta)	Program Controlled
Bounding Box Diagonal	633,47 mm
Average Surface Area	8576,4 mm²
Minimum Edge Length	0,785 mm
Enable Size Field (Beta)	No
Quality	
Check Mesh Quality	Yes, Errors
Error Limits	Standard Mechanical
Target Quality	Default (0.050000)
Smoothing	Medium
Mesh Metric	None
Inflation	
Use Automatic Inflation	None
Inflation Option	Smooth Transition
Transition Ratio	0,272
Maximum Layers	2
Growth Rate	1,2
Inflation Algorithm	Pre
View Advanced Options	No
Advanced	
Number of CPUs for Parallel Part Meshing	Program Controlled
Straight Sided Elements	No
Rigid Body Behavior	Dimensionally Reduced
Triangle Surface Mesher	Program Controlled
Use Asymmetric Mapped Mesh (Beta)	No
Topology Checking	Yes
Pinch Tolerance	Default (2,25e-002 mm)
Generate Pinch on Refresh	No
Statistics	
Nodes	1405355
Elements	355711

TABLE 12
Model (J4) > Mesh > Mesh Controls

Object Name	*Hex Dominant Method*
State	Fully Defined
Scope	
Scoping Method	Geometry Selection
Geometry	8 Bodies
Definition	
Suppressed	No
Method	Hex Dominant
Element Order	Use Global Setting
Free Face Mesh Type	Quad/Tri
Control Messages	Yes, Click To Display...

Named Selections

Static Structural (J5)

TABLE 13
Model (J4) > Analysis

Object Name	*Static Structural (J5)*
State	Solved
Definition	
Physics Type	Structural
Analysis Type	Static Structural
Solver Target	Mechanical APDL
Options	
Environment Temperature	20, °C
Generate Input Only	No

TABLE 14
Model (J4) > Static Structural (J5) > Analysis Settings

Object Name	*Analysis Settings*
State	Fully Defined
Step Controls	
Number Of Steps	1,
Current Step Number	1,
Step End Time	1, s
Auto Time Stepping	Program Controlled
Solver Controls	
Solver Type	Program Controlled
Weak Springs	Off
Solver Pivot Checking	Program Controlled
Large Deflection	Off
Inertia Relief	Off
Rotordynamics Controls	
Coriolis Effect	Off
Restart Controls	
Generate Restart Points	Program Controlled
Retain Files After Full Solve	No
Combine Restart Files	Program Controlled
Nonlinear Controls	
Newton-Raphson Option	Program Controlled
Force Convergence	Program Controlled
Moment Convergence	Program Controlled
Displacement Convergence	Program Controlled
Rotation Convergence	Program Controlled
Line Search	Program Controlled
Stabilization	Program Controlled
Output Controls	
Stress	Yes
Surface Stress	No
Back Stress	No
Strain	Yes
Contact Data	Yes
Nonlinear Data	No
Nodal Forces	No
Contact Miscellaneous	No
General Miscellaneous	No
Store Results At	All Time Points
Cache Results in Memory (Beta)	Never
Combine Distributed Result Files (Beta)	Program Controlled
Result File Compression	Program Controlled
Analysis Data Management	
Solver Files Directory	C:\Users\prochazka.tomas\AppData\Local\Temp\Model_N3.tmp\Model_N3_files\dp0\SYS-10\MECH\
Future Analysis	None
Scratch Solver Files Directory	
Save MAPDL db	No
Contact Summary	Program Controlled
Delete Unneeded Files	Yes
Nonlinear Solution	No
Solver Units	Active System
Solver Unit System	nmm

TABLE 15
Model (J4) > Static Structural (J5) > Loads

Object Name	*Navrhovy tlak*	*Ekvivaletní síla od tlaku*	*Moment*	*Zatezujici sila potrubi*
State	Fully Defined			
Scope				
Scoping Method	Geometry Selection			
Geometry	12 Faces	2 Faces		
Definition				
ID (Beta)	63	267	434	269
Type	Pressure	Force	Moment	Force
Define By	Normal To	Components		
Applied By	Surface Effect			
Magnitude	1,6 MPa (ramped)			
Suppressed	No			
Coordinate System		Global Coordinate System		
X Component		55457 N (ramped)	722, N·mm (ramped)	1119, N (ramped)
Y Component		0, N (ramped)	643, N·mm (ramped)	-2226, N (ramped)
Z Component		0, N (ramped)	-1256, N·mm (ramped)	168, N (ramped)
Behavior			Deformable	
Advanced				
Pinball Region			All	

FIGURE 1
Model (J4) > Static Structural (J5) > Navrhovy tlak

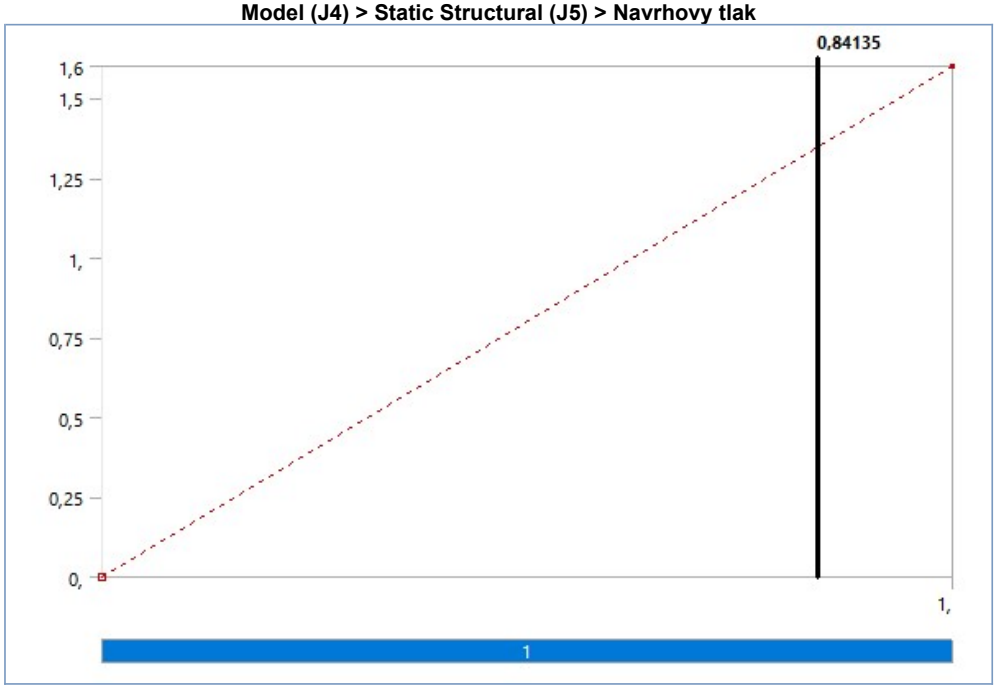


FIGURE 2
Model (J4) > Static Structural (J5) > Ekvivaletní síla od tlaku

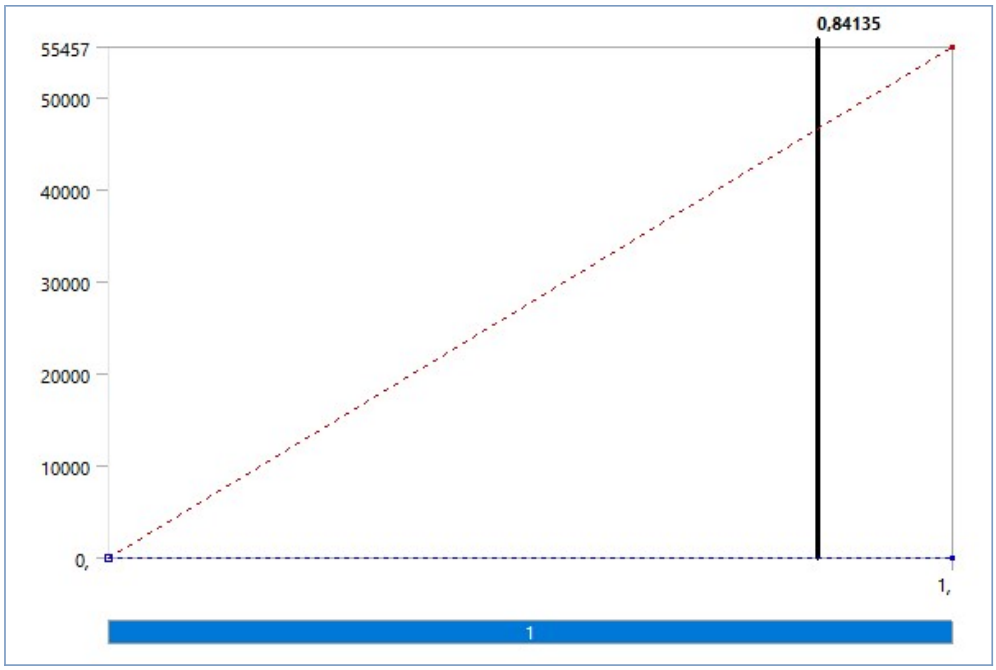


FIGURE 3
Model (J4) > Static Structural (J5) > Moment

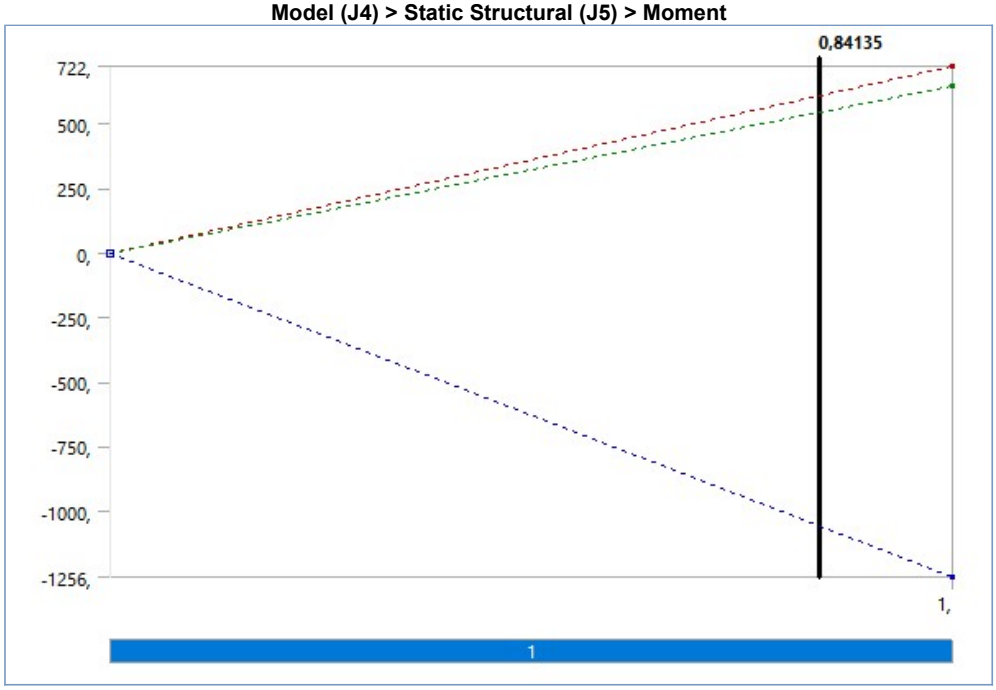


FIGURE 4
Model (J4) > Static Structural (J5) > Zatezujici sila potrubi

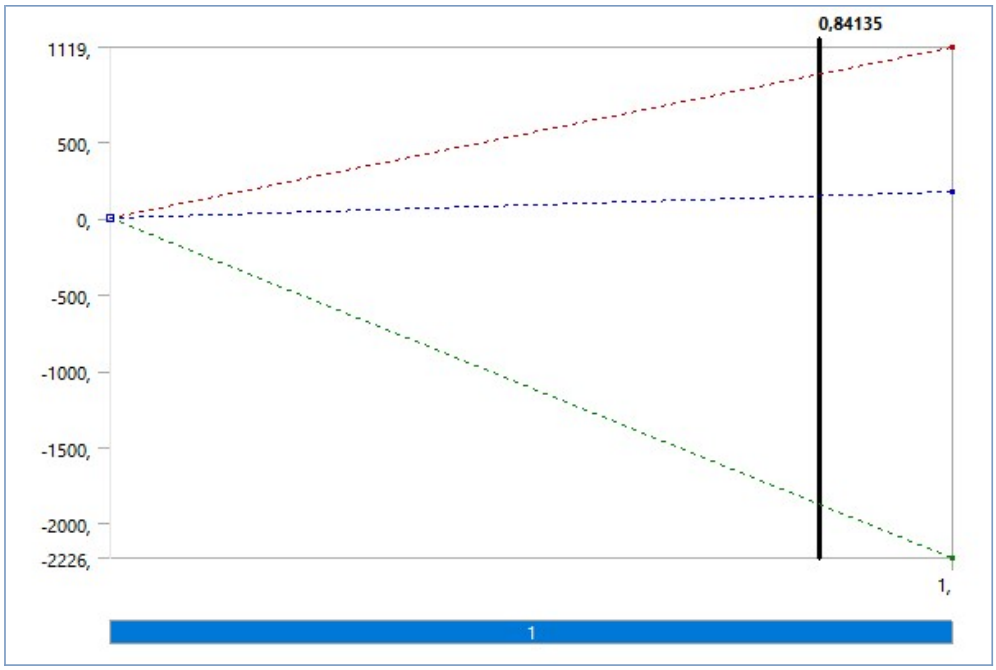


TABLE 16
Model (J4) > Static Structural (J5) > Submodeling (F6)

Object Name	*Submodeling (F6)*
State	Fully Defined
Definition	
Type	Imported Data
Interpolation Type	Mechanical Results Transfer
Suppressed	No
Source	F6::Solution 2

TABLE 17
Model (J4) > Static Structural (J5) > Submodeling (F6) > Imported Body Temperature

Object Name	*Imported Body Temperature*	*Imported Cut Boundary Constraint*
State	Solved	
Scope		
Scoping Method	Geometry Selection	
Geometry	8 Bodies	6 Faces
Definition		
Type	Imported Body Temperature	Imported Displacement
Tabular Loading	Program Controlled	
Suppressed	No	
Source Bodies	All	
Submodeling Type	3D to 3D	
Transfer Key	Solid-Solid	
Source Time	Worksheet	
Override Constraints		No
Beta Options (Beta)		
Show Body Wireframe (Beta)	No	
Settings		
Mapping Control	Program Controlled	
Mapping	Profile Preserving	
Weighting	Shape Function	
Transfer Type	Volumetric	
Rigid Transformation		
Mesh Alignment	Use Origin and Euler Angles	
Origin X	0, mm	
Origin Y	0, mm	
Origin Z	0, mm	
Theta XY	0, degree	
Theta YZ	0, degree	
Theta ZX	0, degree	
Graphics Controls		
Display Source Points	Off	
Display Source Point Ids	Off	
Component		All

Legend Controls		
Legend Range	Program Controlled	
Minimum Source	130, °C	
Maximum Source	130, °C	
Named Selection Creation		
Unmapped Nodes	Off	
Mapped Nodes	Off	
Outside Nodes	Off	

Model (J4) > Static Structural (J5) > Submodeling (F6) > Imported Body Temperature

	Source Time (s)	Analysis Time (s)
1	End Time	1
*		

Model (J4) > Static Structural (J5) > Submodeling (F6) > Imported Body Temperature > Imported Load Transfer Summary

Tue Apr 14, 2020 14:16:04

Using multiple cores: [Yes]
Number of cores requested: 8

Number of source nodes: 1171355
Number of target nodes: 1405355

Number of nodes mapped : 1405355
Number of nodes not mapped : 0
Number of nodes outside : 1098

Percent nodes mapped: 100%
Weight calculation time: 53.01 (s)
Interpolation time: 9.2e-002 (s)

Model (J4) > Static Structural (J5) > Submodeling (F6) > Imported Cut Boundary Constraint

	Source Time (s)	Analysis Time (s)
1	End Time	1
*		

Model (J4) > Static Structural (J5) > Submodeling (F6) > Imported Cut Boundary Constraint > Imported Load Transfer Summary

Tue Apr 14, 2020 14:17:20

Using multiple cores: [Yes]
Number of cores requested: 8

Number of source nodes: 1171355
Number of target nodes: 10670

Number of nodes mapped : 10670
Number of nodes not mapped : 0
Number of nodes outside : 0

Percent nodes mapped: 100%
Weight calculation time: 0.245 (s)
Interpolation time: 0.117 (s)

Solution (J6)

TABLE 18
Model (J4) > Static Structural (J5) > Solution

Object Name	*Solution (J6)*
State	Solved
Solution	
Number Of Cores to Use (Beta)	Solve Process Settings
Adaptive Mesh Refinement	

Max Refinement Loops	1,
Refinement Depth	2,
Information	
Status	Done
MAPDL Elapsed Time	9 m 36 s
MAPDL Memory Used	7,4023 GB
MAPDL Result File Size	460,31 MB
Post Processing	
Distributed Post Processing (Beta)	Program Controlled
Mesh Source (Beta)	Program Controlled
Beam Section Results	No
On Demand Stress/Strain	No

TABLE 19
Model (J4) > Static Structural (J5) > Solution (J6) > Solution Information

Object Name	*Solution Information*
State	Solved
Solution Information	
Solution Output	Solver Output
Newton-Raphson Residuals	0
Identify Element Violations	0
Update Interval	2,5 s
Display Points	All
FE Connection Visibility	
Activate Visibility	Yes
Display	All FE Connectors
Draw Connections Attached To	All Nodes
Line Color	Connection Type
Visible on Results	No
Line Thickness	Single
Display Type	Lines

TABLE 20
Model (J4) > Static Structural (J5) > Solution (J6) > Results

Object Name	*Stress Intensity*	*Total Deformation*	*Equivalent Stress*	*Linearized Equivalent Stress*	*Linearized Equivalent Stress 2*	*Linearized Equivalent Stress 3*	*Linearized Equivalent Stress 4*	*Linearized Equivalent Stress 5*	*Linearized Equivalent Stress 6*
State	Solved								
Scope									
Scoping Method	Geometry Selection			Path					
Geometry	All Bodies								
Path				Path	Path 2	Path 3	Path 4	Path 5	Path 6
Definition									
Type	Stress Intensity	Total Deformation	Equivalent (von-Mises) Stress	Linearized Equivalent Stress					
By	Time								
Display Time	Last								
Calculate Time History	Yes								
Identifier									
Suppressed	No								
Subtype				All					
Coordinate System				Global Coordinate System					
Zero Through-Thickness Bending Stress				No					
Integration Point Results									
Display Option	Averaged		Averaged						
Average Across Bodies	No		No						
Results									
Minimum	9,1003e-002 MPa	2,3351 mm	8,3215e-002 MPa						
Maximum	258,94 MPa	2,9932 mm	257,58 MPa						
Average	59,566 MPa	2,7212 mm	53,973 MPa						
Minimum Occurs On	Příruba DN 200	Plášť	Příruba DN 200						

Maximum Occurs On	Vsazené hrdlo	Příruba DN 200	Vsazené hrdlo						
Membrane				195,13 MPa	155,6 MPa	109,21 MPa	194,81 MPa	145,25 MPa	102,18 MPa
Bending (Inside)				68,433 MPa	73,065 MPa	12,896 MPa	67,795 MPa	43,878 MPa	19,598 MPa
Bending (Outside)				68,433 MPa	73,065 MPa	12,896 MPa	67,795 MPa	43,878 MPa	19,598 MPa
Membrane+Bending (Inside)				152,17 MPa	169,7 MPa	97,91 MPa	146,24 MPa	150,56 MPa	117,2 MPa
Membrane+Bending (Center)				195,13 MPa	155,6 MPa	109,21 MPa	194,81 MPa	145,25 MPa	102,18 MPa
Membrane+Bending (Outside)				249,72 MPa	174,07 MPa	120,83 MPa	252,4 MPa	152,88 MPa	88,96 MPa
Peak (Inside)				54,866 MPa	28,912 MPa	12,593 MPa	45,958 MPa	9,8524 MPa	9,2099 MPa
Peak (Center)				25,946 MPa	5,7452 MPa	6,4092 MPa	22,573 MPa	5,5318 MPa	9,2226 MPa
Peak (Outside)				40,063 MPa	7,1163 MPa	12,919 MPa	33,678 MPa	9,0471 MPa	9,23 MPa
Total (Inside)				171,24 MPa	185,34 MPa	97,06 MPa	160,05 MPa	150,19 MPa	116,89 MPa
Total (Center)				199,37 MPa	155,34 MPa	110,09 MPa	198,21 MPa	145,61 MPa	103,4 MPa
Total (Outside)				241,34 MPa	172,17 MPa	120,46 MPa	245,87 MPa	152,51 MPa	88,462 MPa
Information									
Time	1, s								
Load Step	1								
Substep	1								
Iteration Number	1								

FIGURE 5
Model (J4) > Static Structural (J5) > Solution (J6) > Stress Intensity

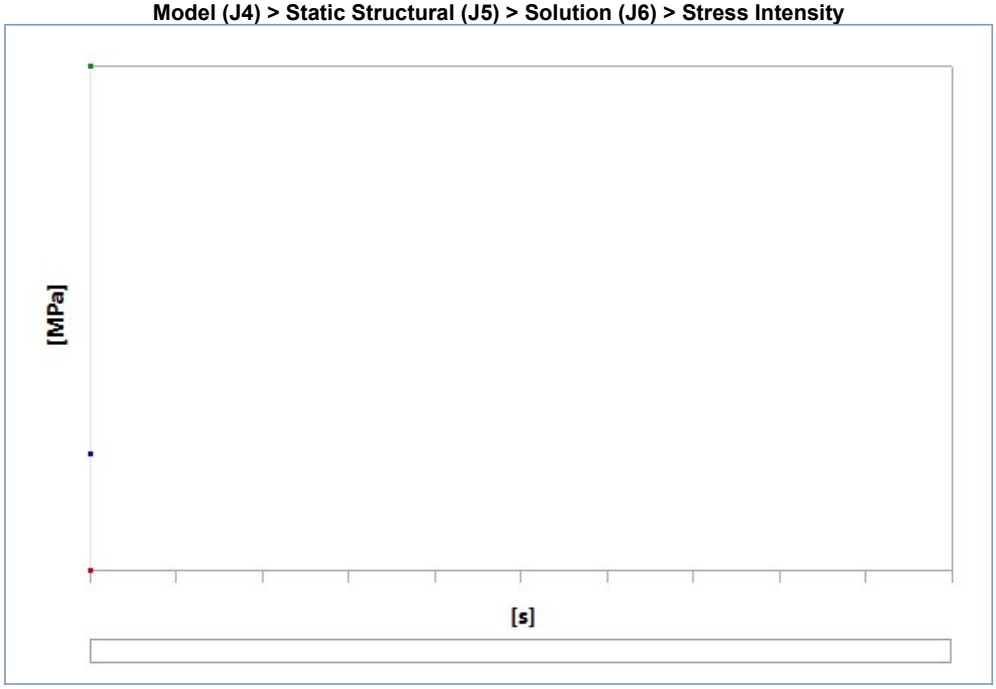


TABLE 21
Model (J4) > Static Structural (J5) > Solution (J6) > Stress Intensity

Time [s]	Minimum [MPa]	Maximum [MPa]	Average [MPa]
1,	9,1003e-002	258,94	59,566

FIGURE 6
Model (J4) > Static Structural (J5) > Solution (J6) > Total Deformation

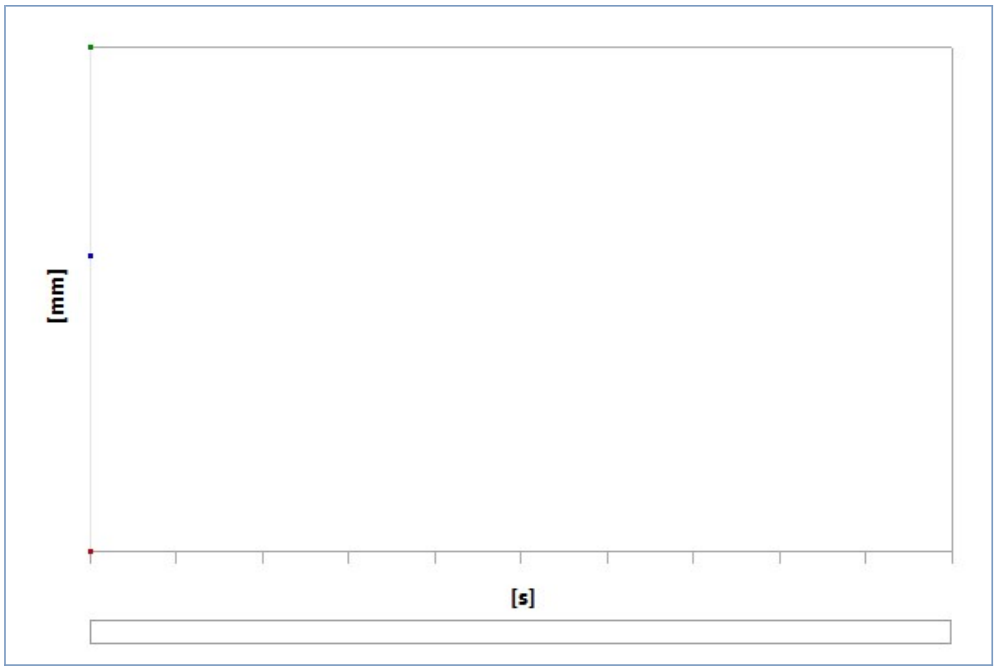


TABLE 22
Model (J4) > Static Structural (J5) > Solution (J6) > Total Deformation

Time [s]	Minimum [mm]	Maximum [mm]	Average [mm]
1,	2,3351	2,9932	2,7212

FIGURE 7
Model (J4) > Static Structural (J5) > Solution (J6) > Equivalent Stress

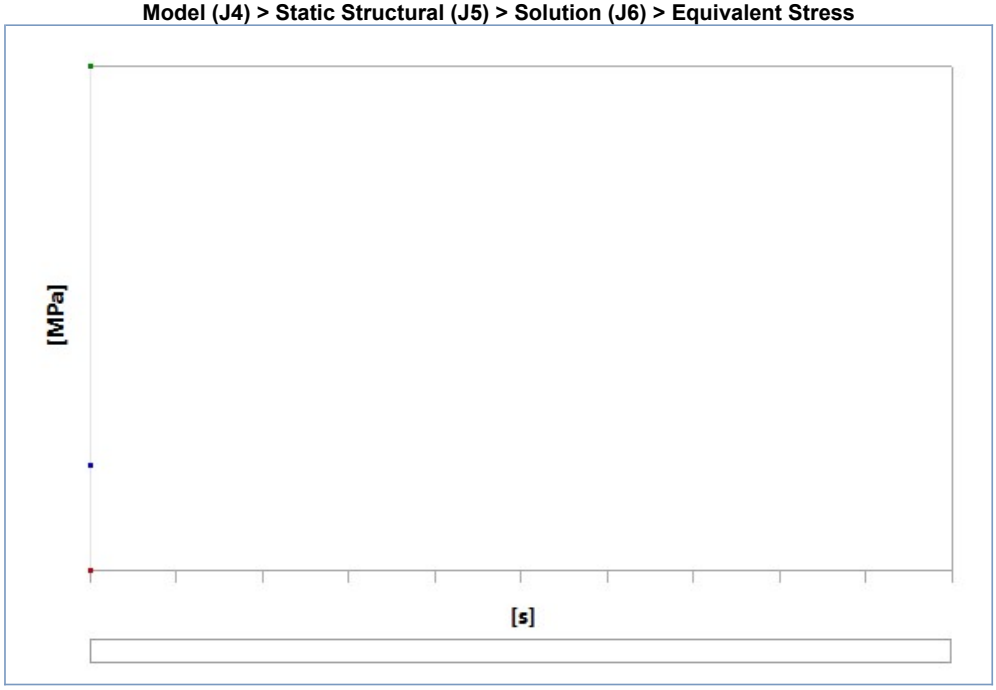


TABLE 23
Model (J4) > Static Structural (J5) > Solution (J6) > Equivalent Stress

Time [s]	Minimum [MPa]	Maximum [MPa]	Average [MPa]
1,	8,3215e-002	257,58	53,973

FIGURE 8
Model (J4) > Static Structural (J5) > Solution (J6) > Linearized Equivalent Stress

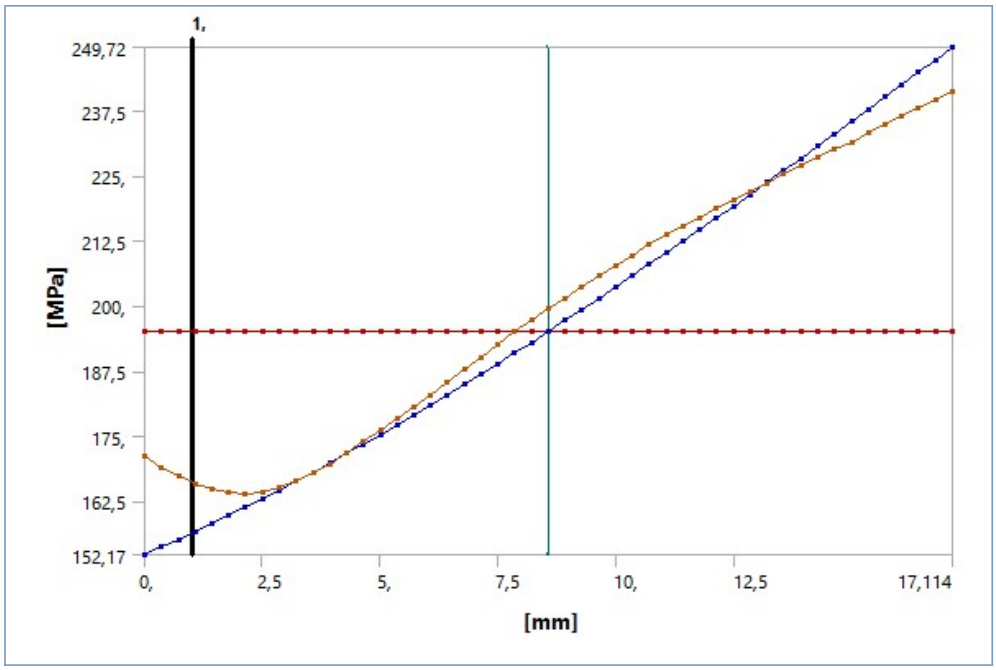


TABLE 24
Model (J4) > Static Structural (J5) > Solution (J6) > Linearized Equivalent Stress

Length [mm]	Membrane [MPa]	Bending [MPa]	Membrane+Bending [MPa]	Peak [MPa]	Total [MPa]
0,	195,13	68,433	152,17	54,866	171,24
0,35654		65,581	153,59	47,892	168,98
0,71308		62,73	155,06	41,292	167,19
1,0696		59,878	156,55	35,008	165,81
1,4262		57,027	158,09	28,99	164,83
1,7827		54,176	159,66	23,203	164,23
2,1392		51,324	161,27	17,639	163,97
2,4958		48,473	162,91	12,634	164,3
2,8523		45,622	164,59	7,9928	165,19
3,2089		42,77	166,29	3,461	166,39
3,5654		39,919	168,03	1,024	167,86
3,922		37,068	169,8	5,2771	169,61
4,2785		34,216	171,59	9,4154	171,6
4,635		31,365	173,42	13,386	173,8
4,9916		28,514	175,27	17,161	176,19
5,3481		25,662	177,15	18,103	178,25
5,7047		22,811	179,06	19,694	180,57
6,0612		19,959	180,99	21,146	182,92
6,4177		17,108	182,94	22,459	185,31
6,7743		14,257	184,92	23,632	187,71
7,1308		11,405	186,92	24,665	190,13
7,4874		8,5541	188,94	25,558	192,54
7,8439		5,7027	190,98	26,311	194,96
8,2005		2,8514	193,04	26,577	197,28
8,557		4,549e-013	195,13	25,946	199,37
8,9135		2,8514	197,23	24,884	201,54
9,2701		5,7027	199,35	23,762	203,66
9,6266		8,5541	201,49	22,554	205,73
9,9832		11,405	203,64	21,26	207,77
10,34		14,257	205,82	19,88	209,75
10,696		17,108	208,01	18,416	211,7
11,053		19,959	210,21	16,867	213,61
11,409		22,811	212,43	14,226	215,31
11,766		25,662	214,67	11,443	216,98
12,122		28,514	216,92	8,6398	218,63
12,479		31,365	219,18	5,8277	220,28
12,835		34,216	221,46	2,851	221,97
13,192		37,068	223,75	1,114	223,67
13,549		39,919	226,06	3,7283	225,38
13,905		42,77	228,37	7,2422	226,94
14,262		45,622	230,7	11,019	228,46
14,618		48,473	233,04	14,827	230,

14,975		51,324	235,39	18,694	231,56
15,331		54,176	237,75	22,616	233,14
15,688		57,027	240,13	26,433	234,74
16,044		59,878	242,51	30,109	236,35
16,401		62,73	244,9	33,576	238,
16,757		65,581	247,3	36,904	239,66
17,114		68,433	249,72	40,063	241,34

FIGURE 9
Model (J4) > Static Structural (J5) > Solution (J6) > Linearized Equivalent Stress 2

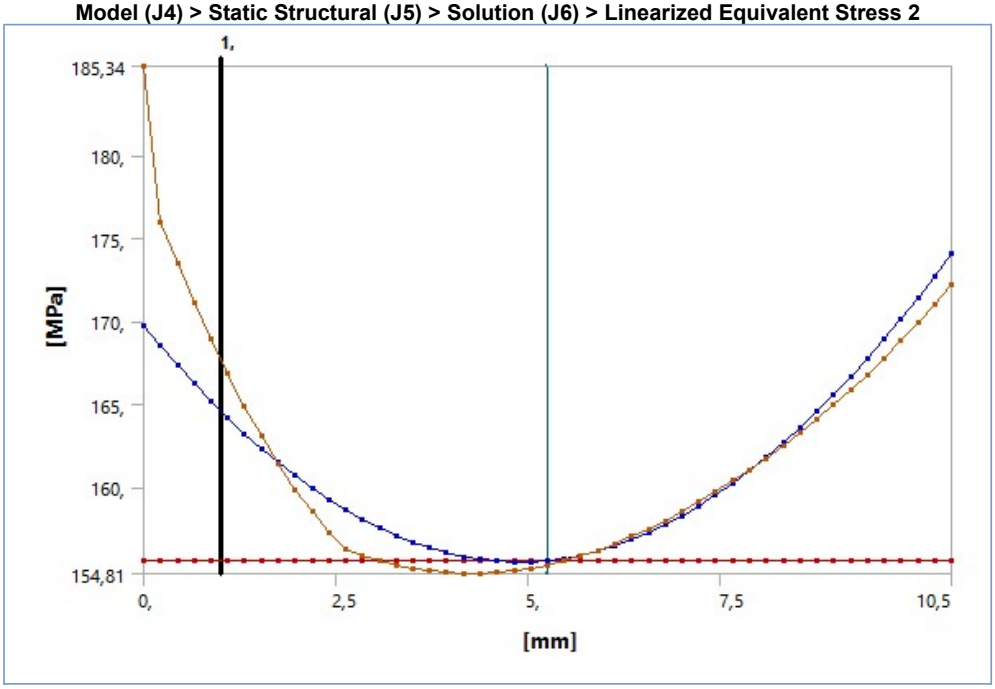


TABLE 25
Model (J4) > Static Structural (J5) > Solution (J6) > Linearized Equivalent Stress 2

Length [mm]	Membrane [MPa]	Bending [MPa]	Membrane+Bending [MPa]	Peak [MPa]	Total [MPa]
0,	155,6	73,065	169,7	28,912	185,34
0,21875		70,021	168,51	17,583	175,94
0,4375		66,976	167,36	15,018	173,48
0,65625		63,932	166,26	12,472	171,13
0,875		60,888	165,21	9,9427	168,92
1,0938		57,843	164,2	7,4312	166,83
1,3125		54,799	163,25	4,9372	164,88
1,5313		51,754	162,35	2,4613	163,07
1,75		48,71	161,5	0,14168	161,4
1,9688		45,666	160,71	2,4531	159,89
2,1875		42,621	159,97	4,8799	158,52
2,4063		39,577	159,28	7,2922	157,31
2,625		36,533	158,65	9,4723	156,31
2,8438		33,488	158,08	9,175	155,93
3,0625		30,444	157,56	8,8754	155,61
3,2813		27,399	157,1	8,5736	155,34
3,5		24,355	156,7	8,2697	155,13
3,7188		21,311	156,35	7,9637	154,97
3,9375		18,266	156,07	7,6557	154,86
4,1563		15,222	155,84	7,3457	154,81
4,375		12,178	155,67	7,034	
4,5938		9,1331	155,57	6,7207	154,86
4,8125		6,0888	155,52	6,4059	154,97
5,0313		3,0444	155,53	6,0898	155,13
5,25		3,8628e-013	155,6	5,7452	155,34
5,4688		3,0444	155,73	5,1322	155,6
5,6875		6,0888	155,92	4,5198	155,9
5,9063		9,1331	156,17	3,9085	156,24
6,125		12,178	156,47	3,2994	156,62
6,3438		15,222	156,84	2,6944	157,04
6,5625		18,266	157,27	2,0975	157,5
6,7813		21,311	157,75	1,5192	158,

7,		24,355	158,29	0,99363	158,54
7,2188		27,399	158,88	0,66319	159,12
7,4375		30,444	159,53	0,81727	159,74
7,6563		33,488	160,24	1,2938	160,39
7,875		36,533	161,	1,8348	161,08
8,0938		39,577	161,81	2,1775	161,76
8,3125		42,621	162,68	2,5706	162,49
8,5313		45,666	163,6	2,993	163,26
8,75		48,71	164,57	3,4329	164,08
8,9688		51,754	165,59	3,8834	164,94
9,1875		54,799	166,66	4,3402	165,85
9,4063		57,843	167,78	4,8007	166,8
9,625		60,888	168,95	5,2634	167,79
9,8438		63,932	170,16	5,727	168,83
10,063		66,976	171,42	6,1907	169,9
10,281		70,021	172,72	6,6539	171,02
10,5		73,065	174,07	7,1163	172,17

FIGURE 10
Model (J4) > Static Structural (J5) > Solution (J6) > Linearized Equivalent Stress 3

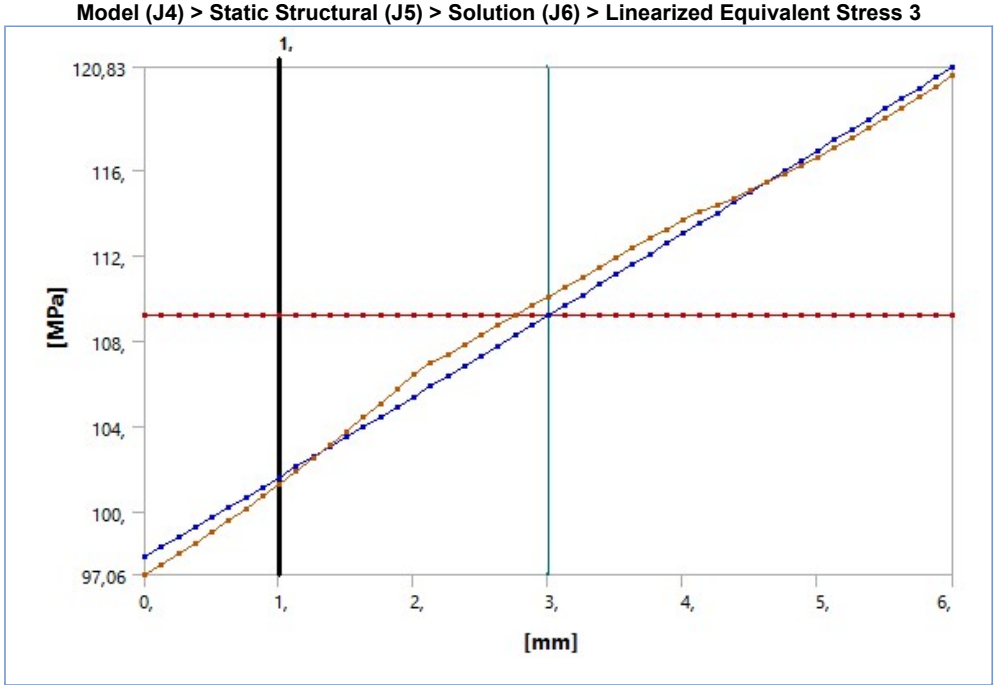


TABLE 26
Model (J4) > Static Structural (J5) > Solution (J6) > Linearized Equivalent Stress 3

Length [mm]	Membrane [MPa]	Bending [MPa]	Membrane+Bending [MPa]	Peak [MPa]	Total [MPa]
0,		12,896	97,91	12,593	97,06
0,125		12,359	98,372	11,422	97,54
0,25		11,821	98,836	10,252	98,036
0,375		11,284	99,301	9,0817	98,546
0,5		10,747	99,766	7,9112	99,071
0,625		10,209	100,23	6,7408	99,61
0,75001		9,6719	100,7	5,5705	100,16
0,87501		9,1346	101,17	4,4009	100,73
1,		8,5972	101,63	3,2326	101,31
1,125		8,0599	102,1	2,0688	101,91
1,25		7,5226	102,57	0,9269	102,52
1,375		6,9853	103,04	0,43541	103,14
1,5		6,4479	103,51	1,5076	103,77
1,625		5,9106	103,98	2,6667	104,42
1,75		5,3733	104,46	3,8348	105,08
1,875		4,8359	104,93	5,0059	105,75
2,		4,2986	105,4	6,1784	106,44
2,125		3,7613	105,87	6,4565	106,94
2,25		3,224	106,35	6,4452	107,39
2,375		2,6866	106,82	6,4352	107,84
2,5		2,1493	107,3	6,4268	108,29
2,625		1,612	107,78	6,42	108,74

2,75		1,0747	108,25	6,4147	109,19
2,875		0,53733	108,73	6,4111	109,64
3,		1,8626e-015	109,21	6,4092	110,09
3,125		0,53733	109,69	6,409	110,54
3,25		1,0747	110,17	6,4106	110,99
3,375		1,612	110,64	6,4139	111,44
3,5		2,1493	111,12	6,4192	111,89
3,625		2,6866	111,61	6,4263	112,35
3,75		3,224	112,09	6,4353	112,8
3,875		3,7613	112,57	6,4462	113,25
4,		4,2986	113,05	6,4592	113,7
4,125		4,8359	113,53	5,3956	114,03
4,25		5,3733	114,02	4,1796	114,36
4,375	109,21	5,9106	114,5	2,9656	114,7
4,5		6,4479	114,98	1,7582	115,06
4,625		6,9853	115,47	0,60049	115,43
4,75		7,5226	115,95	0,77693	115,82
4,875		8,0599	116,44	1,955	116,22
5,		8,5972	116,92	3,1649	116,63
5,125		9,1346	117,41	4,3806	117,06
5,25		9,6719	117,9	5,5984	117,51
5,375		10,209	118,38	6,8173	117,97
5,5		10,747	118,87	8,0368	118,44
5,625		11,284	119,36	9,2569	118,92
5,75		11,821	119,85	10,477	119,42
5,875		12,359	120,34	11,698	119,93
6,		12,896	120,83	12,919	120,46

FIGURE 11
Model (J4) > Static Structural (J5) > Solution (J6) > Linearized Equivalent Stress 4

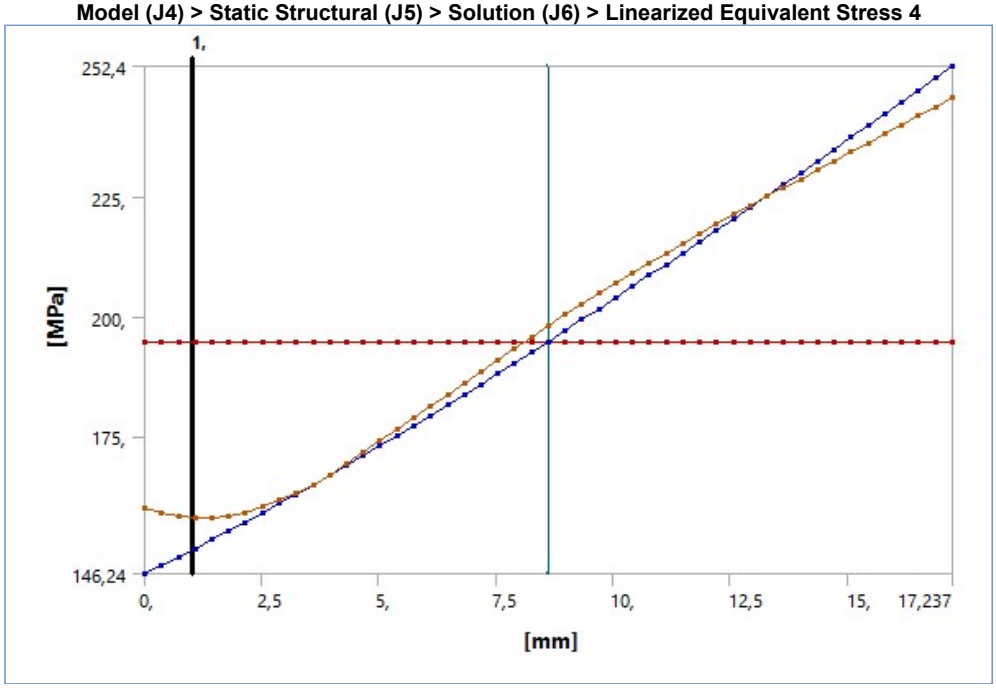


TABLE 27
Model (J4) > Static Structural (J5) > Solution (J6) > Linearized Equivalent Stress 4

Length [mm]	Membrane [MPa]	Bending [MPa]	Membrane+Bending [MPa]	Peak [MPa]	Total [MPa]
0,		67,795	146,24	45,958	160,05
0,35911		64,97	147,96	40,65	158,91
0,71823		62,145	149,72	35,354	158,16
1,0773		59,321	151,5	30,069	157,81
1,4365		56,496	153,32	24,794	157,85
1,7956		53,671	155,17	19,529	158,26
2,1547		50,846	157,05	14,275	159,05
2,5138		48,021	158,96	9,0756	160,21
2,8729		45,197	160,89	5,6631	161,56
3,232		42,372	162,85	2,3185	163,11
3,5911		39,547	164,83	1,5106	164,84
3,9503		36,722	166,84	4,7075	166,9

4,3094		33,897	168,88	7,9981	169,15
4,6685		31,073	170,93	11,094	171,54
5,0276		28,248	173,01	13,951	174,03
5,3867		25,423	175,1	14,843	176,49
5,7458		22,598	177,22	16,242	178,83
6,1049		19,774	179,36	17,521	181,2
6,4641		16,949	181,51	18,67	183,61
6,8232		14,124	183,69	19,681	186,03
7,1823		11,299	185,88	20,552	188,46
7,5414		8,4744	188,09	21,28	190,9
7,9005		5,6496	190,31	21,863	193,34
8,2596		2,8248	192,55	22,303	195,76
8,6187		1,3645e-014	194,81	22,573	198,21
8,9779		2,8248	197,08	21,443	200,48
9,337		5,6496	199,36	20,237	202,72
9,6961		8,4744	201,66	18,955	204,92
10,055		11,299	203,97	17,595	207,09
10,414		14,124	206,3	16,156	209,23
10,773	194,81	16,949	208,63	14,638	211,33
11,133		19,774	210,98	13,041	213,4
11,492		22,598	213,34	11,366	215,44
11,851		25,423	215,71	9,6157	217,44
12,21		28,248	218,09	7,7946	219,41
12,569		31,073	220,49	5,7167	221,34
12,928		33,897	222,89	3,3311	223,25
13,287		36,722	225,3	1,1544	225,12
13,646		39,547	227,72	3,1469	226,99
14,005		42,372	230,15	6,2356	228,86
14,365		45,197	232,59	9,3989	230,74
14,724		48,021	235,04	12,585	232,63
15,083		50,846	237,5	15,784	234,52
15,442		53,671	239,96	18,997	236,41
15,801		56,496	242,44	22,228	238,29
16,16		59,321	244,92	25,39	240,15
16,519		62,145	247,4	28,143	242,06
16,878		64,97	249,9	30,907	243,96
17,237		67,795	252,4	33,678	245,87

FIGURE 12
Model (J4) > Static Structural (J5) > Solution (J6) > Linearized Equivalent Stress 5

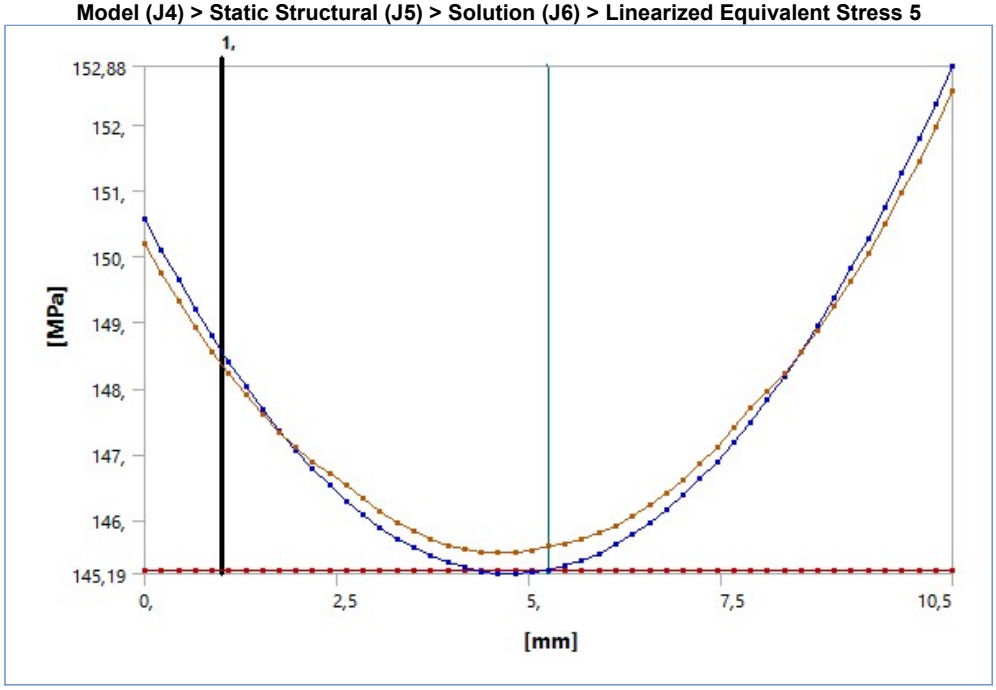


TABLE 28
Model (J4) > Static Structural (J5) > Solution (J6) > Linearized Equivalent Stress 5

Length [mm]	Membrane [MPa]	Bending [MPa]	Membrane+Bending [MPa]	Peak [MPa]	Total [MPa]
0,		43,878	150,56	9,8524	150,19
0,21875		42,05	150,09	8,8494	149,75

0,4375		40,221	149,64	7,8445	149,33
0,65625		38,393	149,2	6,8379	148,93
0,875		36,565	148,79	5,8297	148,56
1,0938		34,737	148,4	4,8202	148,22
1,3125		32,908	148,04	3,8101	147,9
1,5313		31,08	147,69	2,8009	147,61
1,75		29,252	147,37	1,7975	147,34
1,9688		27,424	147,07	0,82947	147,1
2,1875		25,595	146,79	0,47858	146,89
2,4063		23,767	146,53	1,3664	146,7
2,625		21,939	146,29	2,3215	146,54
2,8438		20,111	146,08	2,5914	146,32
3,0625		18,282	145,89	2,8634	146,14
3,2813		16,454	145,72	3,1368	145,97
3,5		14,626	145,58	3,4109	145,83
3,7188		12,798	145,46	3,6855	145,71
3,9375		10,969	145,36	3,9601	145,62
4,1563		9,1412	145,28	4,2348	145,56
4,375		7,313	145,23	4,5092	145,52
4,5938		5,4847	145,2	4,7835	145,5
4,8125		3,6565	145,19	5,0574	145,51
5,0313		1,8282	145,21	5,331	145,55
5,25		2,3506e-013	145,25	5,5318	145,61
5,4688	145,25	1,8282	145,31	5,2115	145,65
5,6875		3,6565	145,39	4,8904	145,72
5,9063		5,4847	145,5	4,5685	145,81
6,125		7,313	145,63	4,2458	145,92
6,3438		9,1412	145,78	3,9223	146,06
6,5625		10,969	145,96	3,5981	146,22
6,7813		12,798	146,16	3,2732	146,41
7,		14,626	146,38	2,9477	146,62
7,2188		16,454	146,63	2,6215	146,86
7,4375		18,282	146,89	2,2949	147,11
7,6563		20,111	147,18	1,9681	147,4
7,875		21,939	147,49	1,6033	147,7
8,0938		23,767	147,82	0,72078	147,95
8,3125		25,595	148,18	0,21511	148,24
8,5313		27,424	148,55	1,0723	148,55
8,75		29,252	148,95	1,9568	148,88
8,9688		31,08	149,37	2,843	149,25
9,1875		32,908	149,81	3,7295	149,63
9,4063		34,737	150,27	4,6161	150,05
9,625		36,565	150,75	5,5026	150,49
9,8438		38,393	151,26	6,389	150,96
10,063		40,221	151,78	7,2752	151,45
10,281		42,05	152,32	8,1613	151,97
10,5		43,878	152,88	9,0471	152,51

FIGURE 13
Model (J4) > Static Structural (J5) > Solution (J6) > Linearized Equivalent Stress 6

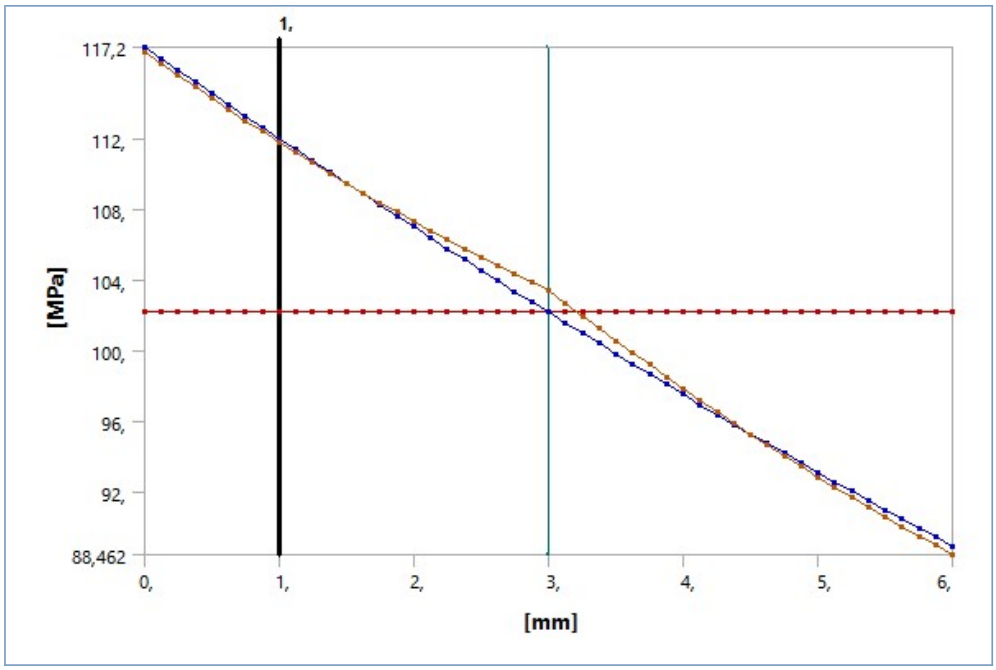


TABLE 29
Model (J4) > Static Structural (J5) > Solution (J6) > Linearized Equivalent Stress 6

Length [mm]	Membrane [MPa]	Bending [MPa]	Membrane+Bending [MPa]	Peak [MPa]	Total [MPa]
0,	102,18	19,598	117,2	9,2099	116,89
0,125		18,781	116,55	8,4438	116,23
0,25		17,964	115,9	7,6775	115,58
0,375		17,148	115,25	6,9111	114,94
0,5		16,331	114,6	6,1445	114,3
0,625		15,515	113,96	5,3777	113,68
0,75		14,698	113,31	4,6108	113,06
0,875		13,882	112,67	3,8437	112,44
1,		13,065	112,04	3,0764	111,84
1,125		12,248	111,4	2,309	111,24
1,25		11,432	110,77	1,5414	110,66
1,375		10,615	110,14	0,77366	110,08
1,5		9,7988	109,51	1,1258e-002	109,51
1,625		8,9822	108,88	0,7625	108,95
1,75		8,1656	108,26	1,5307	108,4
1,875		7,3491	107,64	2,2992	107,85
2,		6,5325	107,02	3,0677	107,32
2,125		5,7159	106,41	3,8365	106,8
2,25		4,8994	105,79	4,6054	106,28
2,375		4,0828	105,19	5,3746	105,78
2,5		3,2663	104,58	6,1438	105,28
2,625		2,4497	103,97	6,9133	104,8
2,75		1,6331	103,37	7,6829	104,32
2,875		0,81656	102,78	8,4527	103,86
3,		7,2525e-013	102,18	9,2226	103,4
3,125		0,81656	101,59	8,4536	102,69
3,25		1,6331	101,	7,6862	101,98
3,375		2,4497	100,41	6,9186	101,27
3,5		3,2663	99,832	6,1509	100,58
3,625		4,0828	99,252	5,3831	99,888
3,75		4,8994	98,677	4,6151	99,207
3,875		5,7159	98,104	3,847	98,534
4,		6,5325	97,536	3,0788	97,869
4,125		7,3491	96,97	2,3105	97,213
4,25		8,1656	96,409	1,542	96,565
4,375		8,9822	95,851	0,77348	95,925
4,5		9,7988	95,296	1,1833e-002	95,294
4,625		10,615	94,746	0,76424	94,672
4,75		11,432	94,199	1,5332	94,058
4,875		12,248	93,656	2,3023	93,454
5,		13,065	93,118	3,0715	92,86
5,125		13,882	92,583	3,8409	92,275

5,25		14,698	92,052	4,6103	91,699
5,375		15,515	91,526	5,38	91,134
5,5		16,331	91,004	6,1497	90,579
5,625		17,148	90,486	6,9196	90,034
5,75		17,964	89,973	7,6896	89,499
5,875		18,781	89,464	8,4597	88,975
6,		19,598	88,96	9,23	88,462

Material Data

P245GH

TABLE 30
P245GH > Constants

Density	7,85e-006 kg mm^-3
Coefficient of Thermal Expansion	1,2e-005 C^-1
Specific Heat	4,34e+005 mJ kg^-1 C^-1
Thermal Conductivity	6,05e-002 W mm^-1 C^-1
Resistivity	1,7e-004 ohm mm

TABLE 31
P245GH > Color

Red	Green	Blue
132,	139,	179,

TABLE 32
P245GH > Compressive Ultimate Strength

Compressive Ultimate Strength MPa
0,

TABLE 33
P245GH > Compressive Yield Strength

Compressive Yield Strength MPa
250,

TABLE 34
P245GH > Tensile Yield Strength

Tensile Yield Strength MPa
245,

TABLE 35
P245GH > Tensile Ultimate Strength

Tensile Ultimate Strength MPa
410,

TABLE 36
P245GH > Isotropic Secant Coefficient of Thermal Expansion

Zero-Thermal-Strain Reference Temperature C
22,

TABLE 37
P245GH > S-N Curve

Alternating Stress MPa	Cycles	Mean Stress MPa
3999,	10,	0,
2827,	20,	0,
1896,	50,	0,
1413,	100,	0,
1069,	200,	0,
441,	2000,	0,
262,	10000	0,
214,	20000	0,
138,	1,e+005	0,
114,	2,e+005	0,
86,2	1,e+006	0,

TABLE 38
P245GH > Strain-Life Parameters

Strength Coefficient MPa	Strength Exponent	Ductility Coefficient	Ductility Exponent	Cyclic Strength Coefficient MPa	Cyclic Strain Hardening Exponent

920,	-0,106	0,213	-0,47	1000,	0,2

TABLE 39
P245GH > Isotropic Elasticity

Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,0387e+005	0,3	1,6989e+005	78411	

TABLE 40
P245GH > Isotropic Relative Permeability

Relative Permeability
10000

P265GH

TABLE 41
P265GH > Constants

Density	7,85e-006 kg mm^-3
Coefficient of Thermal Expansion	1,2e-005 C^-1
Specific Heat	4,34e+005 mJ kg^-1 C^-1
Thermal Conductivity	6,05e-002 W mm^-1 C^-1
Resistivity	1,7e-004 ohm mm

TABLE 42
P265GH > Color

Red	Green	Blue
132,	139,	179,

TABLE 43
P265GH > Compressive Ultimate Strength

Compressive Ultimate Strength MPa
0,

TABLE 44
P265GH > Compressive Yield Strength

Compressive Yield Strength MPa
250,

TABLE 45
P265GH > Tensile Yield Strength

Tensile Yield Strength MPa
265,

TABLE 46
P265GH > Tensile Ultimate Strength

Tensile Ultimate Strength MPa
410,

TABLE 47
P265GH > Isotropic Secant Coefficient of Thermal Expansion

Zero-Thermal-Strain Reference Temperature C
22,

TABLE 48
P265GH > S-N Curve

Alternating Stress MPa	Cycles	Mean Stress MPa
3999,	10,	0,
2827,	20,	0,
1896,	50,	0,
1413,	100,	0,
1069,	200,	0,
441,	2000,	0,
262,	10000	0,
214,	20000	0,
138,	1,e+005	0,
114,	2,e+005	0,
86,2	1,e+006	0,

TABLE 49
P265GH > Strain-Life Parameters

Strength Coefficient	Strength	Ductility	Ductility	Cyclic Strength Coefficient	Cyclic Strain Hardening

MPa	Exponent	Coefficient	Exponent	MPa	Exponent
920,	-0,106	0,213	-0,47	1000,	0,2

TABLE 50
P265GH > Isotropic Elasticity

Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,0387e+005	0,3	1,6989e+005	78411	

TABLE 51
P265GH > Isotropic Relative Permeability

Relative Permeability
10000

P265GH_nozzle

TABLE 52
P265GH_nozzle > Constants

Density	7,85e-006 kg mm^-3
Coefficient of Thermal Expansion	1,2e-005 C^-1
Specific Heat	4,34e+005 mJ kg^-1 C^-1
Thermal Conductivity	6,05e-002 W mm^-1 C^-1
Resistivity	1,7e-004 ohm mm

TABLE 53
P265GH_nozzle > Color

Red	Green	Blue
132,	139,	179,

TABLE 54
P265GH_nozzle > Compressive Ultimate Strength

Compressive Ultimate Strength MPa
0,

TABLE 55
P265GH_nozzle > Compressive Yield Strength

Compressive Yield Strength MPa
250,

TABLE 56
P265GH_nozzle > Tensile Yield Strength

Tensile Yield Strength MPa
265,

TABLE 57
P265GH_nozzle > Tensile Ultimate Strength

Tensile Ultimate Strength MPa
410,

TABLE 58
P265GH_nozzle > Isotropic Secant Coefficient of Thermal Expansion

Zero-Thermal-Strain Reference Temperature C
22,

TABLE 59
P265GH_nozzle > S-N Curve

Alternating Stress MPa	Cycles	Mean Stress MPa
3999,	10,	0,
2827,	20,	0,
1896,	50,	0,
1413,	100,	0,
1069,	200,	0,
441,	2000,	0,
262,	10000	0,
214,	20000	0,
138,	1,e+005	0,
114,	2,e+005	0,
86,2	1,e+006	0,

TABLE 60
P265GH_nozzle > Strain-Life Parameters

Strength Coefficient MPa	Strength Exponent	Ductility Coefficient	Ductility Exponent	Cyclic Strength Coefficient MPa	Cyclic Strain Hardening Exponent
920,	-0,106	0,213	-0,47	1000,	0,2

TABLE 61
P265GH_nozzle > Isotropic Elasticity

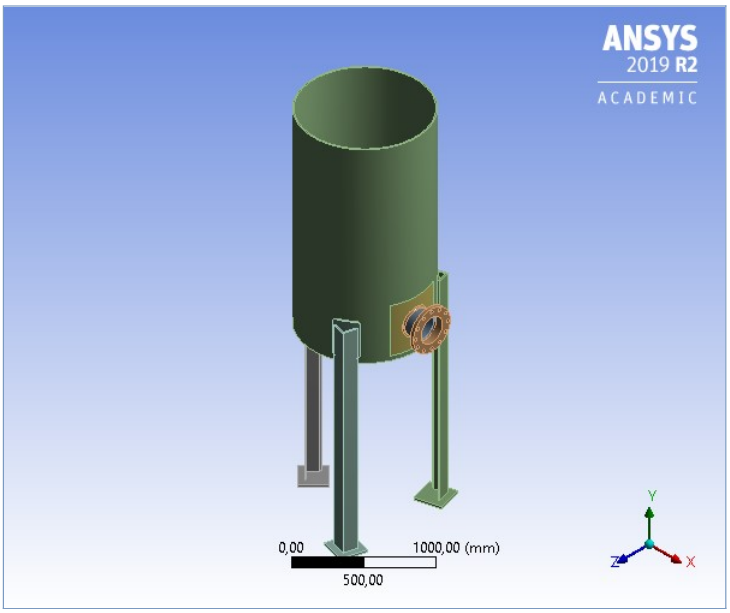
Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,0387e+005	0,3	1,6989e+005	78411	

TABLE 62
P265GH_nozzle > Isotropic Relative Permeability

Relative Permeability
10000

Thermal analysis - Nozzle N1 - OPERATION CASE*

First Saved	Monday, January 20, 2020
Last Saved	Tuesday, April 14, 2020
Product Version	2019 R2
Save Project Before Solution	No
Save Project After Solution	No



Contents

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      - Solution Information
      - Results
- Material Data
  - Structural Steel
  - P245GH
  - P265GH
  - P265GH_nozzle

Units

TABLE 1

Unit System	Metric (mm, kg, N, s, mV, mA) Degrees rad/s Celsius
Angle	Degrees
Rotational Velocity	rad/s
Temperature	Celsius

Model (G4)

Geometry

TABLE 2
Model (G4) > Geometry

Object Name	*Geometry*
State	Fully Defined
Definition	
Source	C:\Users\prochazka.tomas\AppData\Local\Temp\Model_N3.tmp\Model_N3_files\dp0\Geom-1\DM\Geom-1.agdb
Type	DesignModeler
Length Unit	Meters
Element Control	Program Controlled
Display Style	Body Color
Bounding Box	
Length X	1310,5 mm
Length Y	3370, mm
Length Z	1144, mm
Properties	
Volume	7,9986e+007 mm³
Mass	627,89 kg
Scale Factor Value	1,
Statistics	
Bodies	8
Active Bodies	8
Nodes	786969
Elements	395985
Mesh Metric	Element Quality
Min	1,35026466081882E-03
Max	0,999521100224586
Average	0,708062600192526
Standard Deviation	0,170552073773108
Update Options	
Assign Default Material	No
Basic Geometry Options	
Parameters	Independent
Parameter Key	
Attributes	Yes
Attribute Key	
Named Selections	Yes
Named Selection Key	
Material Properties	Yes
Advanced Geometry Options	
Use Associativity	Yes
Coordinate Systems	Yes
Coordinate System Key	
Reader Mode Saves Updated File	No
Use Instances	Yes
Smart CAD Update	Yes
Compare Parts On Update	No
Analysis Type	3-D
Clean Bodies On Import	No
Stitch Surfaces On Import	None
Decompose Disjoint Geometry	Yes
Enclosure and Symmetry Processing	Yes

TABLE 3
Model (G4) > Geometry > Body Groups

Object Name	*Shell_N1_Rev2*
State	Meshed
Graphics Properties	
Visible	Yes
Definition	
Suppressed	No
Assignment	Multiple Materials
Coordinate System	Default Coordinate System
Bounding Box	
Length X	1310,5 mm
Length Y	3370, mm
Length Z	1144, mm
Properties	
Volume	7,9986e+007 mm³
Mass	627,89 kg
Centroid X	16,888 mm
Centroid Y	2073,6 mm
Centroid Z	-3,3667e-002 mm
Moment of Inertia Ip1	5,4729e+008 kg·mm²
Moment of Inertia Ip2	1,6323e+008 kg·mm²
Moment of Inertia Ip3	5,5363e+008 kg·mm²
Statistics	
Nodes	786969
Elements	395985
Mesh Metric	Element Quality
Min	1,35026466081882E-03
Max	0,999521100224586
Average	0,708062600192526
Standard Deviation	0,170552073773108
CAD Attributes	
DMBodyGroup	1

TABLE 4
Model (G4) > Geometry > Shell_N1_Rev2 > Parts

Object Name	*Tělo-Přesunout/kopírovat1 [7]*	*Příruba DN 200*	*Tělo-Přesunout/kopírovat1 [2]*	*Rozdělit5[2]*	*Tělo-Přesunout/kopírovat1 [3]*	*Hrdlo*	*Plášť*	*F*
State	Meshed							
Graphics Properties								
Visible	Yes							
Glow	0							
Shininess	1							
Transparency	1							
Specularity	1							
Definition								
Suppressed	No							
ID (Beta)	141	143	145	147	162	164	166	
Stiffness Behavior	Flexible							
Coordinate System	Default Coordinate System							
Reference Temperature	By Environment							
Treatment	None							
Material								
Assignment	Structural Steel	P245GH	Structural Steel	P265GH	Structural Steel	P265GH_nozzle	P265GH	
Nonlinear Effects	Yes							
Thermal Strain Effects	Yes							
Bounding Box								
Length X	269,44 mm	80, mm	269,44 mm	58,541 mm	311,13 mm	92,916 mm	1000, mm	
Length Y	1920, mm	360, mm	1920, mm	422,96 mm	1920, mm	219,1 mm	1800, mm	
Length Z	269,44 mm	360, mm	269,44 mm	422,96 mm	311,13 mm	219,1 mm	1000, mm	
Properties								
Volume	6,3755e+006 mm³	2,133e+006 mm³	6,3755e+006 mm³	1,5425e+006 mm³	6,3755e+006 mm³	3,4625e+005 mm³	5,6812e+007 mm³	
Mass	50,048 kg	16,744 kg	50,048 kg	12,109 kg	50,048 kg	2,7181 kg	445,97 kg	
Centroid X	266,72 mm	630,23 mm	266,74 mm	474,86 mm	-533,44 mm	526,71 mm	-16,219 mm	
Centroid Y	895,23 mm	1820, mm	895,65 mm	1819,9 mm	895,23 mm	1820,1 mm	2488,4 mm	
Centroid Z	-461,97 mm	-3,8181e-003 mm	461,93 mm	-6,4712e-002 mm	-5,5236e-003 mm	-3,4218e-002 mm	-4,0355e-002 mm	-2,5
Moment of Inertia Ip1	2,0958e+007 kg·mm²	3,3359e+005 kg·mm²	2,0975e+007 kg·mm²	4,4359e+005 kg·mm²	2,1013e+007 kg·mm²	30599 kg·mm²	1,7529e+008 kg·mm²	25
Moment of Inertia Ip2	1,8284e+005 kg·mm²	1,705e+005 kg·mm²	1,8301e+005 kg·mm²	2,2737e+005 kg·mm²	1,8284e+005 kg·mm²	17527 kg·mm²	1,0907e+008 kg·mm²	10
Moment of Inertia Ip3	2,1013e+007 kg·mm²	1,7057e+005 kg·mm²	2,103e+007 kg·mm²	2,214e+005 kg·mm²	2,0958e+007 kg·mm²	16485 kg·mm²	1,7157e+008 kg·mm²	14
Statistics								
Nodes	28734	29818	28592	13272	28510	7994	658180	
Elements	14149	9050	14089	2594	14021	2073	339450	
Mesh Metric	Element Quality							
Min	0,158334248353338	2,19250424486552E-02	0,123484158703013	1,35026466081882E-03	0,11098772059209	1,35331994409663E-02	7,52563193986367E-02	1,023
Max	0,987936715033729	0,999521100224586	0,99796078241439	0,998043169269101	0,998877044429406	0,915528422919044	0,99915613636587	0,92
Average	0,71322972711121	0,54110539767166	0,714188630160911	0,733480679231357	0,712855140657579	0,438717379840441	0,713943140953874	0,315
Standard Deviation	0,129921659245755	0,243130475919768	0,130540701395818	0,261821048281941	0,131001736245076	0,219960807511058	0,166983526729138	0,177

TABLE 5
Model (G4) > Materials

Object Name	*Materials*
State	Fully Defined
Statistics	
Materials	7
Material Assignments	0

Coordinate Systems

TABLE 6
Model (G4) > Coordinate Systems > Coordinate System

Object Name	*Global Coordinate System*
State	Fully Defined
Definition	
Type	Cartesian
Coordinate System ID	0,
Origin	
Origin X	0, mm
Origin Y	0, mm
Origin Z	0, mm
Directional Vectors	
X Axis Data	[1, 0, 0,]
Y Axis Data	[0, 1, 0,]
Z Axis Data	[0, 0, 1,]

Connections

TABLE 7
Model (G4) > Connections

Object Name	*Connections*
State	Fully Defined
Auto Detection	
Generate Automatic Connection On Refresh	Yes
Transparency	
Enabled	Yes

TABLE 8
Model (G4) > Connections > Contacts

Object Name	*Contacts*
State	Fully Defined
Definition	
Connection Type	Contact
Scope	
Scoping Method	Geometry Selection
Geometry	All Bodies
Auto Detection	
Tolerance Type	Slider
Tolerance Slider	0,
Tolerance Value	9,4812 mm
Use Range	No
Face/Face	Yes
Face-Face Angle Tolerance	75, °
Face Overlap Tolerance	Off
Cylindrical Faces	Include
Face/Edge	No
Edge/Edge	No
Priority	Include All
Group By	Bodies
Search Across	Bodies
Statistics	
Connections	0
Active Connections	0

Mesh

TABLE 9
Model (G4) > Mesh

Object Name	*Mesh*
State	Solved
Display	
Display Style	Use Geometry Setting
Defaults	
Physics Preference	Mechanical
Element Order	Program Controlled
Element Size	10, mm
Sizing	
Use Adaptive Sizing	Yes
Resolution	Default (2)
Mesh Defeaturing	Yes
Defeature Size	Default
Transition	Fast
Span Angle Center	Coarse
Initial Size Seed	Assembly
Bounding Box Diagonal	3792,5 mm
Average Surface Area	1,2505e+005 mm²
Minimum Edge Length	9,8599 mm
Quality	
Check Mesh Quality	Yes, Errors
Error Limits	Standard Mechanical
Target Quality	Default (0.050000)
Smoothing	Medium
Mesh Metric	Element Quality
Min	1,3503e-003
Max	0,99952
Average	0,70806
Standard Deviation	0,17055
Inflation	
Use Automatic Inflation	None
Inflation Option	Smooth Transition
Transition Ratio	0,272
Maximum Layers	5

Growth Rate	1,2
Inflation Algorithm	Pre
View Advanced Options	No
Advanced	
Number of CPUs for Parallel Part Meshing	Program Controlled
Straight Sided Elements	No
Rigid Body Behavior	Dimensionally Reduced
Triangle Surface Mesher	Program Controlled
Use Asymmetric Mapped Mesh (Beta)	No
Topology Checking	Yes
Pinch Tolerance	Please Define
Generate Pinch on Refresh	No
Statistics	
Nodes	786969
Elements	395985

TABLE 10
Model (G4) > Mesh > Mesh Controls

Object Name	*Hex Dominant Method*
State	Fully Defined
Scope	
Scoping Method	Geometry Selection
Geometry	4 Bodies
Definition	
Suppressed	No
Method	Hex Dominant
Element Order	Use Global Setting
Free Face Mesh Type	Quad/Tri
Control Messages	Yes, Click To Display...

Steady-State Thermal (G5)

TABLE 11
Model (G4) > Analysis

Object Name	*Steady-State Thermal (G5)*
State	Solved
Definition	
Physics Type	Thermal
Analysis Type	Steady-State
Solver Target	Mechanical APDL
Options	
Generate Input Only	No

TABLE 12
Model (G4) > Steady-State Thermal (G5) > Initial Condition

Object Name	*Initial Temperature*
State	Fully Defined
Definition	
Initial Temperature	Uniform Temperature
Initial Temperature Value	20, °C

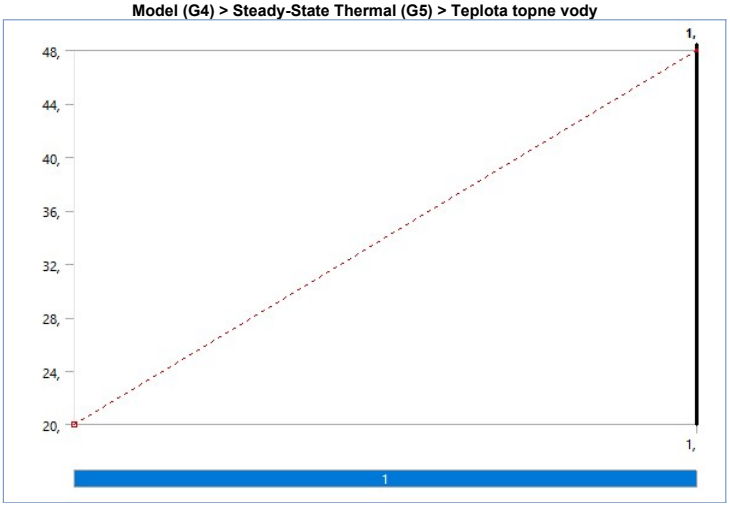
TABLE 13
Model (G4) > Steady-State Thermal (G5) > Analysis Settings

Object Name	*Analysis Settings*
State	Fully Defined
Step Controls	
Number Of Steps	1,
Current Step Number	1,
Step End Time	1, s
Auto Time Stepping	Program Controlled
Solver Controls	
Solver Type	Program Controlled
Solver Pivot Checking	Program Controlled
Radiosity Controls	
Radiosity Solver	Program Controlled
Flux Convergence	1,e-004
Maximum Iteration	1000,
Solver Tolerance	1,e-007 W/mm²
Over Relaxation	0,1
Hemicube Resolution	10,
Nonlinear Controls	
Heat Convergence	Program Controlled
Temperature Convergence	Program Controlled
Line Search	Program Controlled
Output Controls	
Calculate Thermal Flux	Yes
Contact Data	Yes
Nodal Forces	No
Contact Miscellaneous	No
General Miscellaneous	No
Store Results At	All Time Points
Cache Results in Memory (Beta)	Never
Combine Distributed Result Files (Beta)	Program Controlled
Result File Compression	Program Controlled
Analysis Data Management	
Solver Files Directory	C:\Users\prochazka.tomas\AppData\Local\Temp\Model_N3.tmp\Model_N3_files\dp0\SYS-15\MECH\
Future Analysis	None
Scratch Solver Files Directory	
Save MAPDL db	No
Contact Summary	Program Controlled
Delete Unneeded Files	Yes
Nonlinear Solution	No
Solver Units	Active System
Solver Unit System	nmm

TABLE 14
Model (G4) > Steady-State Thermal (G5) > Loads

Object Name	*Teplota topne vody*
State	Fully Defined
Scope	
Scoping Method	Geometry Selection
Geometry	6 Faces
Definition	
ID (Beta)	76
Type	Temperature
Magnitude	48, °C (ramped)
Suppressed	No

FIGURE 1
Model (G4) > Steady-State Thermal (G5) > Teplota topne vody



Solution (G6)

TABLE 15
Model (G4) > Steady-State Thermal (G5) > Solution

Object Name	*Solution (G6)*
State	Solved
Solution	
Number Of Cores to Use (Beta)	Solve Process Settings
Adaptive Mesh Refinement	
Max Refinement Loops	1,
Refinement Depth	2,
Information	
Status	Done
MAPDL Elapsed Time	35, s
MAPDL Memory Used	2,9756 GB
MAPDL Result File Size	167,94 MB
Post Processing	
Distributed Post Processing (Beta)	Program Controlled
Mesh Source (Beta)	Program Controlled
Beam Section Results	No
On Demand Stress/Strain	No

TABLE 16
Model (G4) > Steady-State Thermal (G5) > Solution (G6) > Solution Information

Object Name	*Solution Information*
State	Solved
Solution Information	
Solution Output	Solver Output
Update Interval	2,5 s
Display Points	All
FE Connection Visibility	
Activate Visibility	Yes
Display	All FE Connectors
Draw Connections Attached To	All Nodes
Line Color	Connection Type
Visible on Results	No
Line Thickness	Single
Display Type	Lines

TABLE 17
Model (G4) > Steady-State Thermal (G5) > Solution (G6) > Results

Object Name	*Temperature*	*Total Heat Flux*
State	Solved	
Scope		
Scoping Method	Geometry Selection	
Geometry	All Bodies	
Definition		
Type	Temperature	Total Heat Flux
By	Time	
Display Time	Last	
Calculate Time History	Yes	
Identifier		
Suppressed	No	
Results		
Minimum	48, °C	4,4327e-018 W/mm²

Maximum	48, °C	2,158e-011 W/mm²
Average	48, °C	8,601e-015 W/mm²
Minimum Occurs On	Tělo-Přesunout/kopírovat1[7]	Plášť
Maximum Occurs On	Tělo-Přesunout/kopírovat1[7]	Rozdělit5[2]
Information		
Time	1, s	
Load Step	1	
Substep	1	
Iteration Number	1	
Integration Point Results		
Display Option		Averaged
Average Across Bodies		No

FIGURE 2
Model (G4) > Steady-State Thermal (G5) > Solution (G6) > Temperature

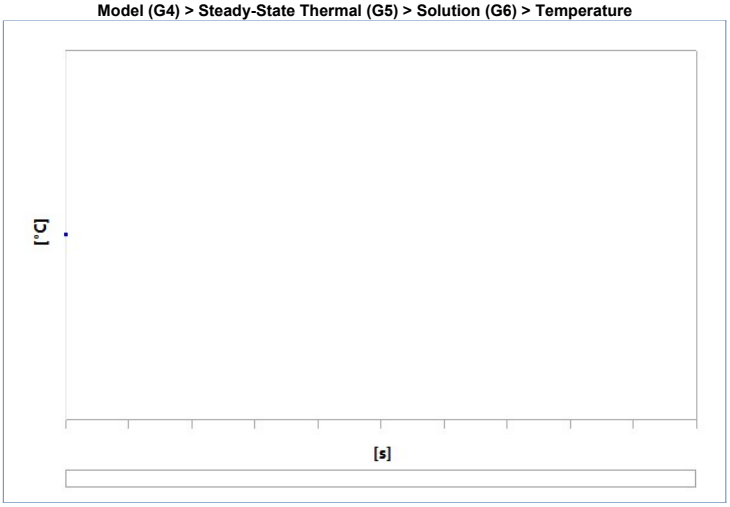


TABLE 18
Model (G4) > Steady-State Thermal (G5) > Solution (G6) > Temperature

Time [s]	Minimum [°C]	Maximum [°C]	Average [°C]
1,	48,	48,	48,

FIGURE 3
Model (G4) > Steady-State Thermal (G5) > Solution (G6) > Total Heat Flux

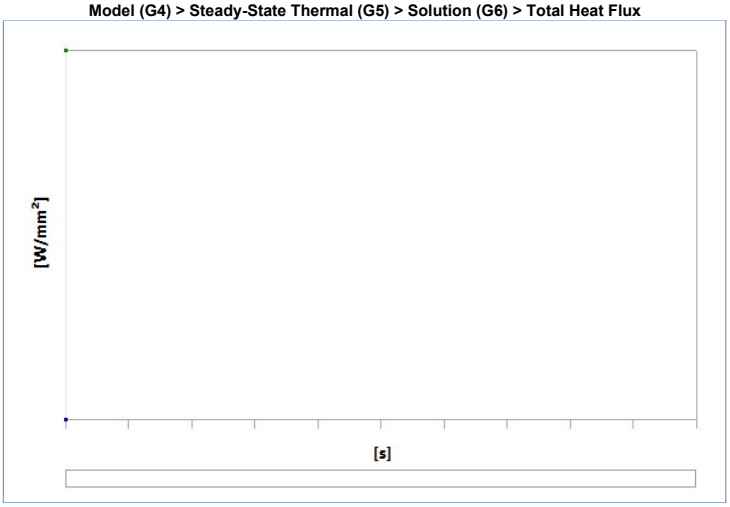


TABLE 19
Model (G4) > Steady-State Thermal (G5) > Solution (G6) > Total Heat Flux

Time [s]	Minimum [W/mm²]	Maximum [W/mm²]	Average [W/mm²]
1,	4,4327e-018	2,158e-011	8,601e-015

Material Data

Structural Steel

TABLE 20
Structural Steel > Constants

Density	7,85e-006 kg mm^-3
Coefficient of Thermal Expansion	1,2e-005 C^-1
Specific Heat	4,34e+005 mJ kg^-1 C^-1
Thermal Conductivity	6,05e-002 W mm^-1 C^-1
Resistivity	1,7e-004 ohm mm

TABLE 21
Structural Steel > Color

Red	Green	Blue
132,	139,	179,

TABLE 22
Structural Steel > Compressive Ultimate Strength

Compressive Ultimate Strength MPa
0,

TABLE 23
Structural Steel > Compressive Yield Strength

Compressive Yield Strength MPa
250,

TABLE 24
Structural Steel > Tensile Yield Strength

Tensile Yield Strength MPa
265,

TABLE 25
Structural Steel > Tensile Ultimate Strength

Tensile Ultimate Strength MPa
410,

TABLE 26
Structural Steel > Isotropic Secant Coefficient of Thermal Expansion

Zero-Thermal-Strain Reference Temperature C
22,

TABLE 27
Structural Steel > S-N Curve

Alternating Stress MPa	Cycles	Mean Stress MPa
3999,	10,	0,
2827,	20,	0,
1896,	50,	0,
1413,	100,	0,
1069,	200,	0,
441,	2000,	0,
262,	10000	0,
214,	20000	0,
138,	1,e+005	0,
114,	2,e+005	0,
86,2	1,e+006	0,

TABLE 28
Structural Steel > Strain-Life Parameters

Strength Coefficient MPa	Strength Exponent	Ductility Coefficient	Ductility Exponent	Cyclic Strength Coefficient MPa	Cyclic Strain Hardening Exponent
920,	-0,106	0,213	-0,47	1000,	0,2

TABLE 29
Structural Steel > Isotropic Elasticity

Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,e+005	0,3	1,6667e+005	76923	

TABLE 30
Structural Steel > Isotropic Relative Permeability

Relative Permeability
10000

P245GH

TABLE 31
P245GH > Constants

Density	7,85e-006 kg mm^-3
Coefficient of Thermal Expansion	1,2e-005 C^-1
Specific Heat	4,34e+005 mJ kg^-1 C^-1
Thermal Conductivity	6,05e-002 W mm^-1 C^-1
Resistivity	1,7e-004 ohm mm

TABLE 32
P245GH > Color

Red	Green	Blue
132,	139,	179,

TABLE 33
P245GH > Compressive Ultimate Strength

Compressive Ultimate Strength MPa
0,

TABLE 34
P245GH > Compressive Yield Strength

Compressive Yield Strength MPa
250,

TABLE 35
P245GH > Tensile Yield Strength

Tensile Yield Strength MPa
245,

TABLE 36
P245GH > Tensile Ultimate Strength

Tensile Ultimate Strength MPa
410,

TABLE 37
P245GH > Isotropic Secant Coefficient of Thermal Expansion

Zero-Thermal-Strain Reference Temperature C
22,

TABLE 38
P245GH > S-N Curve

Alternating Stress MPa	Cycles	Mean Stress MPa

3999,	10,	0,
2827,	20,	0,
1896,	50,	0,
1413,	100,	0,
1069,	200,	0,
441,	2000,	0,
262,	10000	0,
214,	20000	0,
138,	1,e+005	0,
114,	2,e+005	0,
86,2	1,e+006	0,

TABLE 39
P245GH > Strain-Life Parameters

Strength Coefficient MPa	Strength Exponent	Ductility Coefficient	Ductility Exponent	Cyclic Strength Coefficient MPa	Cyclic Strain Hardening Exponent
920,	-0,106	0,213	-0,47	1000,	0,2

TABLE 40
P245GH > Isotropic Elasticity

Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,0387e+005	0,3	1,6989e+005	78411	

TABLE 41
P245GH > Isotropic Relative Permeability

Relative Permeability
10000

P265GH

TABLE 42
P265GH > Constants

Density	7,85e-006 kg mm^-3
Coefficient of Thermal Expansion	1,2e-005 C^-1
Specific Heat	4,34e+005 mJ kg^-1 C^-1
Thermal Conductivity	6,05e-002 W mm^-1 C^-1
Resistivity	1,7e-004 ohm mm

TABLE 43
P265GH > Color

Red	Green	Blue
132,	139,	179,

TABLE 44
P265GH > Compressive Ultimate Strength

Compressive Ultimate Strength MPa
0,

TABLE 45
P265GH > Compressive Yield Strength

Compressive Yield Strength MPa
250,

TABLE 46
P265GH > Tensile Yield Strength

Tensile Yield Strength MPa
265,

TABLE 47
P265GH > Tensile Ultimate Strength

Tensile Ultimate Strength MPa
410,

TABLE 48
P265GH > Isotropic Secant Coefficient of Thermal Expansion

Zero-Thermal-Strain Reference Temperature C
22,

TABLE 49
P265GH > S-N Curve

Alternating Stress MPa	Cycles	Mean Stress MPa
3999,	10,	0,
2827,	20,	0,
1896,	50,	0,
1413,	100,	0,
1069,	200,	0,
441,	2000,	0,
262,	10000	0,
214,	20000	0,
138,	1,e+005	0,
114,	2,e+005	0,
86,2	1,e+006	0,

TABLE 50
P265GH > Strain-Life Parameters

Strength Coefficient MPa	Strength Exponent	Ductility Coefficient	Ductility Exponent	Cyclic Strength Coefficient MPa	Cyclic Strain Hardening Exponent
920,	-0,106	0,213	-0,47	1000,	0,2

TABLE 51
P265GH > Isotropic Elasticity

Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,0387e+005	0,3	1,6989e+005	78411	

TABLE 52
P265GH > Isotropic Relative Permeability

Relative Permeability
10000

P265GH_nozzle

TABLE 53
P265GH_nozzle > Constants

Density	7,85e-006 kg mm^-3
Coefficient of Thermal Expansion	1,2e-005 C^-1
Specific Heat	4,34e+005 mJ kg^-1 C^-1
Thermal Conductivity	6,05e-002 W mm^-1 C^-1
Resistivity	1,7e-004 ohm mm

TABLE 54
P265GH_nozzle > Color

Red	Green	Blue
132,	139,	179,

TABLE 55
P265GH_nozzle > Compressive Ultimate Strength

Compressive Ultimate Strength MPa
0,

TABLE 56
P265GH_nozzle > Compressive Yield Strength

Compressive Yield Strength MPa
250,

TABLE 57
P265GH_nozzle > Tensile Yield Strength

Tensile Yield Strength MPa
265,

TABLE 58
P265GH_nozzle > Tensile Ultimate Strength

Tensile Ultimate Strength MPa
410,

TABLE 59
P265GH_nozzle > Isotropic Secant Coefficient of Thermal Expansion

Zero-Thermal-Strain Reference Temperature C
22,

TABLE 60
P265GH_nozzle > S-N Curve

Alternating Stress MPa	Cycles	Mean Stress MPa
3999,	10,	0,
2827,	20,	0,
1896,	50,	0,
1413,	100,	0,
1069,	200,	0,
441,	2000,	0,
262,	10000	0,
214,	20000	0,
138,	1,e+005	0,
114,	2,e+005	0,
86,2	1,e+006	0,

TABLE 61
P265GH_nozzle > Strain-Life Parameters

Strength Coefficient MPa	Strength Exponent	Ductility Coefficient	Ductility Exponent	Cyclic Strength Coefficient MPa	Cyclic Strain Hardening Exponent
920,	-0,106	0,213	-0,47	1000,	0,2

TABLE 62
P265GH_nozzle > Isotropic Elasticity

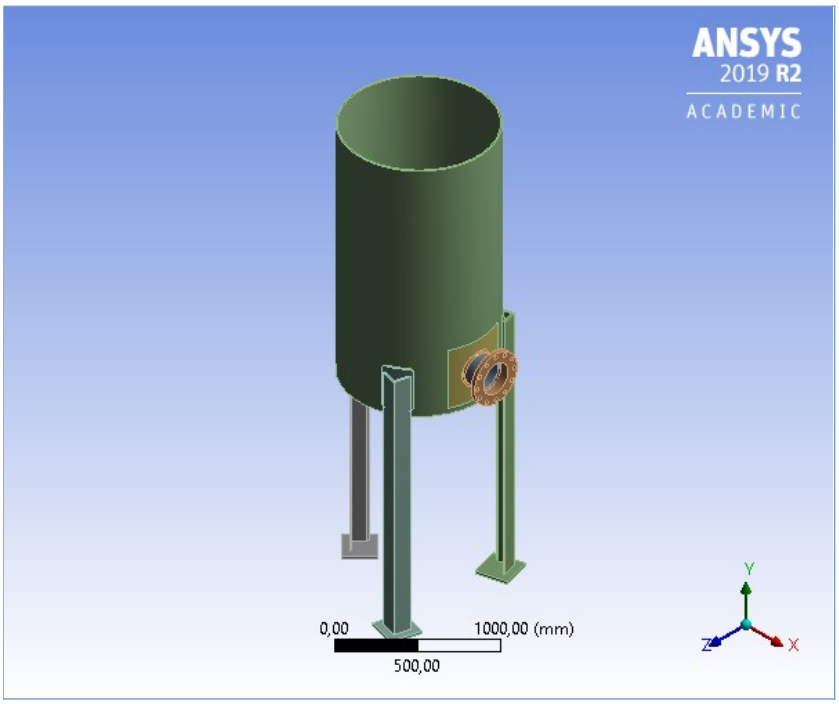
Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,0387e+005	0,3	1,6989e+005	78411	

TABLE 63
P265GH_nozzle > Isotropic Relative Permeability

Relative Permeability
10000

Stress categorization - Nozzle N1 - OPERATION CASE*

First Saved	Friday, November 29, 2019
Last Saved	Tuesday, April 14, 2020
Product Version	2019 R2
Save Project Before Solution	No
Save Project After Solution	No



Contents

- **Units**
- **Model (H4)**
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    - Shell_N1_Rev2
      - Parts
  - Materials
  - Construction Geometry
    - Paths
  - Coordinate Systems
  - Connections
    - Contacts
  - Mesh
    - Hex Dominant Method
  - Named Selections
  - **Static Structural (H5)**
    - Analysis Settings
    - Loads
    - Imported Load (G6)
      - Imported Body Temperature
    - Solution (H6)
      - Solution Information
      - Results
- **Material Data**
  - Structural Steel
  - P245GH
  - P265GH
  - P265GH_nozzle

Units

TABLE 1

Unit System	Metric (mm, kg, N, s, mV, mA) Degrees rad/s Celsius
Angle	Degrees
Rotational Velocity	rad/s
Temperature	Celsius

Model (H4)

Geometry

TABLE 2
Model (H4) > Geometry

Object Name	*Geometry*
State	Fully Defined
Definition	
Source	C:\Users\prochazka.tomas\AppData\Local\Temp\Model_N3.tmp\Model_N3_files\dp0\Geom-1\DM\Geom-1.agdb
Type	DesignModeler
Length Unit	Meters
Element Control	Program Controlled
Display Style	Body Color
Bounding Box	
Length X	1310,5 mm
Length Y	3370, mm
Length Z	1144, mm
Properties	
Volume	7,9986e+007 mm³
Mass	627,89 kg
Scale Factor Value	1,
Statistics	
Bodies	8
Active Bodies	8
Nodes	1171355
Elements	616909
Mesh Metric	None
Update Options	
Assign Default Material	No
Basic Geometry Options	
Parameters	Independent
Parameter Key	
Attributes	Yes
Attribute Key	
Named Selections	Yes
Named Selection Key	
Material Properties	Yes
Advanced Geometry Options	

Use Associativity	Yes
Coordinate Systems	Yes
Coordinate System Key	
Reader Mode Saves Updated File	No
Use Instances	Yes
Smart CAD Update	Yes
Compare Parts On Update	No
Analysis Type	3-D
Clean Bodies On Import	No
Stitch Surfaces On Import	None
Decompose Disjoint Geometry	Yes
Enclosure and Symmetry Processing	Yes

TABLE 3
Model (H4) > Geometry > Body Groups

Object Name	*Shell_N1_Rev2*
State	Meshed
Graphics Properties	
Visible	Yes
Definition	
Suppressed	No
Assignment	Multiple Materials
Coordinate System	Default Coordinate System
Bounding Box	
Length X	1310,5 mm
Length Y	3370, mm
Length Z	1144, mm
Properties	
Volume	7,9986e+007 mm³
Mass	627,89 kg
Centroid X	16,888 mm
Centroid Y	2073,6 mm
Centroid Z	-3,3667e-002 mm
Moment of Inertia Ip1	5,4729e+008 kg·mm²
Moment of Inertia Ip2	1,6323e+008 kg·mm²
Moment of Inertia Ip3	5,5363e+008 kg·mm²
Statistics	
Nodes	1171355
Elements	616909
Mesh Metric	None
CAD Attributes	
DMBodyGroup	1

TABLE 4
Model (H4) > Geometry > Shell_N1_Rev2 > Parts

Object Name	*Tělo-Přesunout/kopírovat1 [7]*	*Příruba DN 200*	*Tělo-Přesunout/kopírovat1 [2]*	*Rozdělit5[2]*	*Tělo-Přesunout/kopírovat1 [3]*	*Hrdlo*	*Plášť*	*Rozdělit5 [1]*
State	Meshed							
Graphics Properties								
Visible	Yes							
Glow	0							
Shininess	1							
Transparency	1							
Specularity	1							
Definition								
Suppressed	No							
ID (Beta)	463	465	467	469	504	506	508	510
Stiffness Behavior	Flexible							
Coordinate System	Default Coordinate System							
Reference Temperature	By Environment							
Treatment	None							
Material								
Assignment	Structural Steel	P245GH	Structural Steel	P265GH	Structural Steel	P265GH_nozzle	P265GH	
Nonlinear Effects	Yes							
Thermal Strain Effects	Yes							
Bounding Box								
Length X	269,44 mm	80, mm	269,44 mm	58,541 mm	311,13 mm	92,916 mm	1000, mm	29,15 mm
Length Y	1920, mm	360, mm	1920, mm	422,96 mm	1920, mm	219,1 mm	1800, mm	247,98 mm
Length Z	269,44 mm	360, mm	269,44 mm	422,96 mm	311,13 mm	219,1 mm	1000, mm	240,78 mm
Properties								
Volume	6,3755e+006 mm³	2,133e+006 mm³	6,3755e+006 mm³	1,5425e+006 mm³	6,3755e+006 mm³	3,4625e+005 mm³	5,6812e+007 mm³	25963 mm³
Mass	50,048 kg	16,744 kg	50,048 kg	12,109 kg	50,048 kg	2,7181 kg	445,97 kg	0,20381 kg
Centroid X	266,72 mm	630,23 mm	266,74 mm	474,86 mm	-533,44 mm	526,71 mm	-16,219 mm	497,77 mm

Centroid Y	895,23 mm	1820, mm	895,65 mm	1819,9 mm	895,23 mm	1820,1 mm	2488,4 mm	1819,5 mm
Centroid Z	-461,97 mm	-3,8181e-003 mm	461,93 mm	-6,4712e-002 mm	-5,5236e-003 mm	-3,4218e-002 mm	-4,0355e-002 mm	-2,5665e-004 mm
Moment of Inertia Ip1	2,0958e+007 kg·mm²	3,3359e+005 kg·mm²	2,0975e+007 kg·mm²	4,4359e+005 kg·mm²	2,1013e+007 kg·mm²	30599 kg·mm²	1,7529e+008 kg·mm²	2525, kg·mm²
Moment of Inertia Ip2	1,8284e+005 kg·mm²	1,705e+005 kg·mm²	1,8301e+005 kg·mm²	2,2737e+005 kg·mm²	1,8284e+005 kg·mm²	17527 kg·mm²	1,0907e+008 kg·mm²	1070,4 kg·mm²
Moment of Inertia Ip3	2,1013e+007 kg·mm²	1,7057e+005 kg·mm²	2,103e+007 kg·mm²	2,214e+005 kg·mm²	2,0958e+007 kg·mm²	16485 kg·mm²	1,7157e+008 kg·mm²	1466,4 kg·mm²
Statistics								
Nodes	103872	20600	104579	12412	104613	7791	826697	1710
Elements	60049	5749	60541	2390	60505	2024	425053	598
Mesh Metric	None							

TABLE 5
Model (H4) > Materials

Object Name	*Materials*
State	Fully Defined
Statistics	
Materials	7
Material Assignments	0

TABLE 6
Model (H4) > Construction Geometry

Object Name	*Construction Geometry*
State	Fully Defined
Display	
Show Mesh	No

TABLE 7
Model (H4) > Construction Geometry > Paths

Object Name	*Path*	*Path 2*	*Path 3*
State	Suppressed		
Definition			
Path Type	Two Points		
Path Coordinate System	Global Coordinate System		
Number of Sampling Points	47,		
Suppressed	Yes		
Start			
Coordinate System	Global Coordinate System		
Start X Coordinate	254, mm		255,42 mm
Start Y Coordinate	220,51 mm	228,99 mm	220,03 mm
Start Z Coordinate	0, mm		
Location	Defined		
End			
Coordinate System	Global Coordinate System		
End X Coordinate	239,8 mm		255,93 mm
End Y Coordinate	207,84 mm	228,84 mm	207,18 mm
End Z Coordinate	0, mm		
Location	Defined		

Coordinate Systems

TABLE 8
Model (H4) > Coordinate Systems > Coordinate System

Object Name	*Global Coordinate System*
State	Fully Defined
Definition	
Type	Cartesian
Coordinate System ID	0,
Origin	
Origin X	0, mm
Origin Y	0, mm
Origin Z	0, mm
Directional Vectors	
X Axis Data	[1, 0, 0,]
Y Axis Data	[0, 1, 0,]
Z Axis Data	[0, 0, 1,]

Connections

TABLE 9
Model (H4) > Connections

Object Name	*Connections*
State	Fully Defined
Auto Detection	
Generate Automatic Connection On Refresh	Yes
Transparency	
Enabled	Yes

TABLE 10
Model (H4) > Connections > Contacts

Object Name	*Contacts*
State	Fully Defined
Definition	
Connection Type	Contact
Scope	
Scoping Method	Geometry Selection
Geometry	All Bodies
Auto Detection	
Tolerance Type	Slider
Tolerance Slider	0,
Tolerance Value	9,4812 mm
Use Range	No
Face/Face	Yes
Face-Face Angle Tolerance	75, °
Face Overlap Tolerance	Off
Cylindrical Faces	Include
Face/Edge	No
Edge/Edge	No
Priority	Include All
Group By	Bodies
Search Across	Bodies
Statistics	
Connections	0
Active Connections	0

Mesh

TABLE 11
Model (H4) > Mesh

Object Name	*Mesh*
State	Solved
Display	
Display Style	Use Geometry Setting
Defaults	
Physics Preference	Mechanical
Element Order	Program Controlled
Element Size	10, mm
Sizing	
Use Adaptive Sizing	No
Growth Rate	Default (1,85)
Max Size	Default (20, mm)
Mesh Defeaturing	Yes
Defeature Size	Default (5,e-002 mm)
Capture Curvature	Yes
Curvature Min Size	Default (0,1 mm)
Curvature Normal Angle	Default (70,395°)
Capture Proximity	No
Size Formulation (Beta)	Program Controlled
Bounding Box Diagonal	3792,5 mm
Average Surface Area	1,2505e+005 mm²
Minimum Edge Length	9,8599 mm
Enable Size Field (Beta)	No
Quality	
Check Mesh Quality	Yes, Errors
Error Limits	Standard Mechanical
Target Quality	Default (0.050000)
Smoothing	Medium
Mesh Metric	None
Inflation	
Use Automatic Inflation	None
Inflation Option	Smooth Transition
Transition Ratio	0,272
Maximum Layers	2
Growth Rate	1,2
Inflation Algorithm	Pre
View Advanced Options	No
Advanced	
Number of CPUs for Parallel Part Meshing	Program Controlled
Straight Sided Elements	No
Rigid Body Behavior	Dimensionally Reduced
Triangle Surface Mesher	Program Controlled
Use Asymmetric Mapped Mesh (Beta)	No
Topology Checking	Yes
Pinch Tolerance	Default (9,e-002 mm)
Generate Pinch on Refresh	No
Statistics	
Nodes	1171355
Elements	616909

TABLE 12
Model (H4) > Mesh > Mesh Controls

Object Name	*Hex Dominant Method*

State	Fully Defined
Scope	
Scoping Method	Geometry Selection
Geometry	4 Bodies
Definition	
Suppressed	No
Method	Hex Dominant
Element Order	Use Global Setting
Free Face Mesh Type	Quad/Tri
Control Messages	Yes, Click To Display...

Named Selections

Static Structural (H5)

TABLE 13
Model (H4) > Analysis

Object Name	*Static Structural (H5)*
State	Solved
Definition	
Physics Type	Structural
Analysis Type	Static Structural
Solver Target	Mechanical APDL
Options	
Environment Temperature	20, °C
Generate Input Only	No

TABLE 14
Model (H4) > Static Structural (H5) > Analysis Settings

Object Name	*Analysis Settings*
State	Fully Defined
Step Controls	
Number Of Steps	1,
Current Step Number	1,
Step End Time	1, s
Auto Time Stepping	Program Controlled
Solver Controls	
Solver Type	Program Controlled
Weak Springs	Off
Solver Pivot Checking	Program Controlled
Large Deflection	Off
Inertia Relief	Off
Rotordynamics Controls	
Coriolis Effect	Off
Restart Controls	
Generate Restart Points	Program Controlled
Retain Files After Full Solve	No
Combine Restart Files	Program Controlled
Nonlinear Controls	
Newton-Raphson Option	Program Controlled
Force Convergence	Program Controlled
Moment Convergence	Program Controlled
Displacement Convergence	Program Controlled
Rotation Convergence	Program Controlled
Line Search	Program Controlled
Stabilization	Program Controlled
Output Controls	
Stress	Yes
Surface Stress	No
Back Stress	No
Strain	Yes
Contact Data	Yes
Nonlinear Data	No
Nodal Forces	No
Contact Miscellaneous	No
General Miscellaneous	No
Store Results At	All Time Points
Cache Results in Memory (Beta)	Never
Combine Distributed Result Files (Beta)	Program Controlled
Result File Compression	Program Controlled
Analysis Data Management	
Solver Files Directory	C:\Users\prochazka.tomas\AppData\Local\Temp\Model_N3.tmp\Model_N3_files\dp0\SYS-16\MECH\
Future Analysis	None
Scratch Solver Files Directory	
Save MAPDL db	No
Contact Summary	Program Controlled
Delete Unneeded Files	Yes
Nonlinear Solution	No
Solver Units	Active System
Solver Unit System	nmm

TABLE 15
Model (H4) > Static Structural (H5) > Loads

Object Name	*Provozni tlak 0,3 bar*	*Fixed Support*	*Ekvivaletní síla od tlaku - hrdlo*	*Zatezujici sila potrubi*	*Ekvivaletní síla od tlaku - plast I*	*Ekvivaletní síla od tlaku - plast II*	*Moment od potrubi*	*Tíha komponent*	*Tíha komponent + hmotnost média*
State	Fully Defined								
Scope									
Scoping Method	Geometry Selection								
Geometry	6 Faces	3 Faces	1 Face						
Definition									
ID (Beta)	63	156	267	269	357	359	402	492	494
Type	Pressure	Fixed Support	Force				Moment	Force	
Define By	Normal To		Components						
Applied By	Surface Effect								
Magnitude	0,3 MPa (ramped)								
Suppressed	No								
Coordinate System			Global Coordinate System						
X Component			10398 N (ramped)	367, N (ramped)	0, N (ramped)		-284, N·mm (ramped)	0, N (ramped)	
Y Component			0, N (ramped)	-778, N (ramped)	-2,2583e+005 N (ramped)	2,2583e+005 N (ramped)	225, N·mm (ramped)	-3816,1 N (ramped)	-3804,3 N (ramped)
Z Component			0, N (ramped)	-81, N (ramped)	0, N (ramped)		43, N·mm (ramped)	0, N (ramped)	
Behavior							Deformable		
Advanced									
Pinball Region							All		

FIGURE 1
Model (H4) > Static Structural (H5) > Provozni tlak 0,3 bar

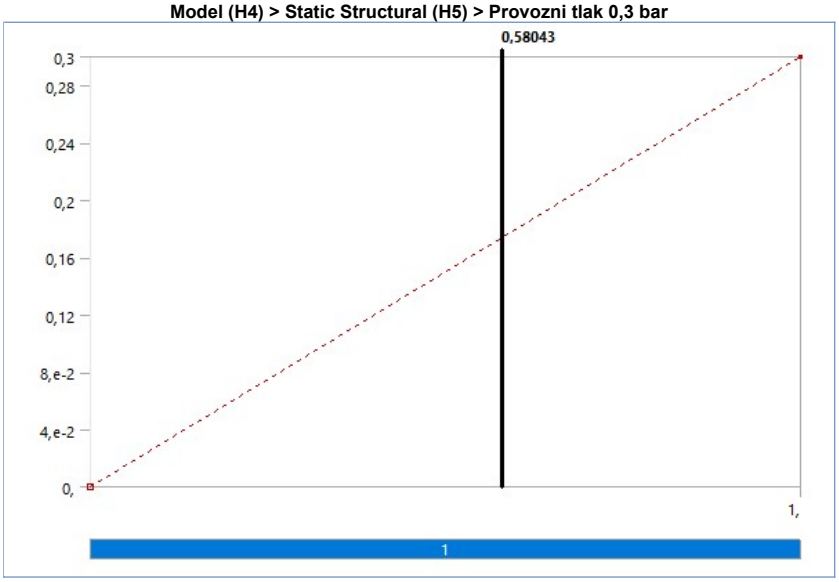


FIGURE 2
Model (H4) > Static Structural (H5) > Ekvivaletní síla od tlaku - hrdlo

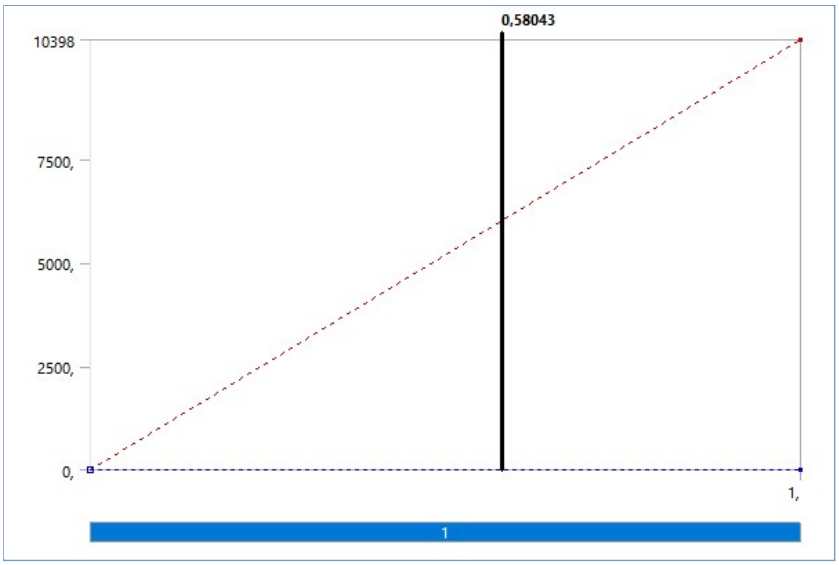


FIGURE 3
Model (H4) > Static Structural (H5) > Zatezujici sila potrubi

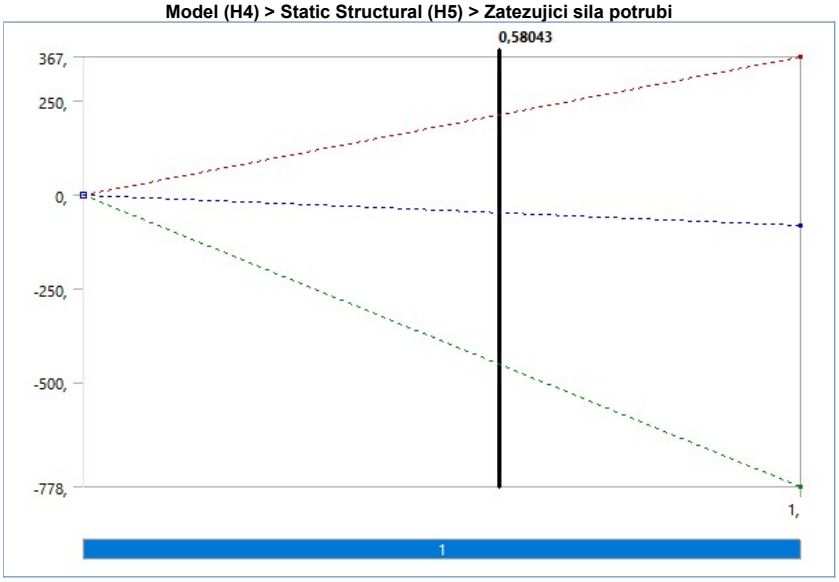


FIGURE 4
Model (H4) > Static Structural (H5) > Ekvivaletní síla od tlaku - plast I

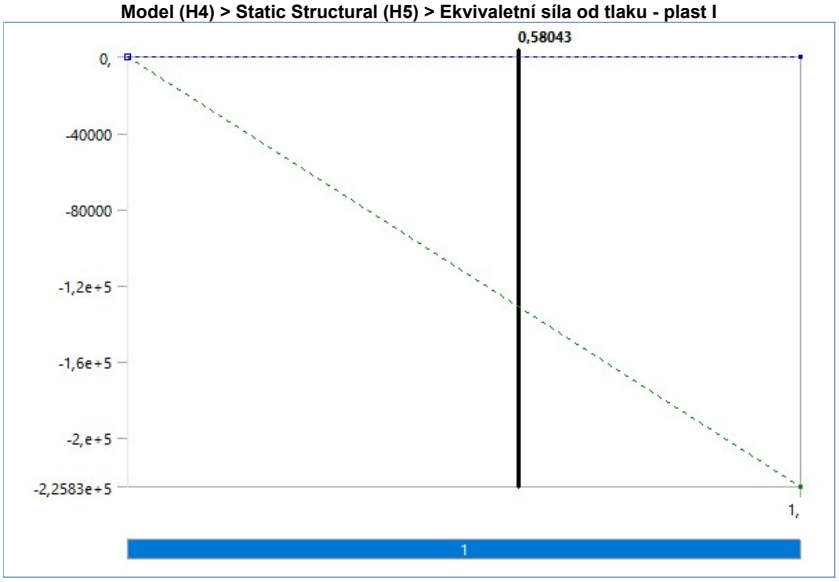


FIGURE 5
Model (H4) > Static Structural (H5) > Ekvivaletní síla od tlaku - plast II

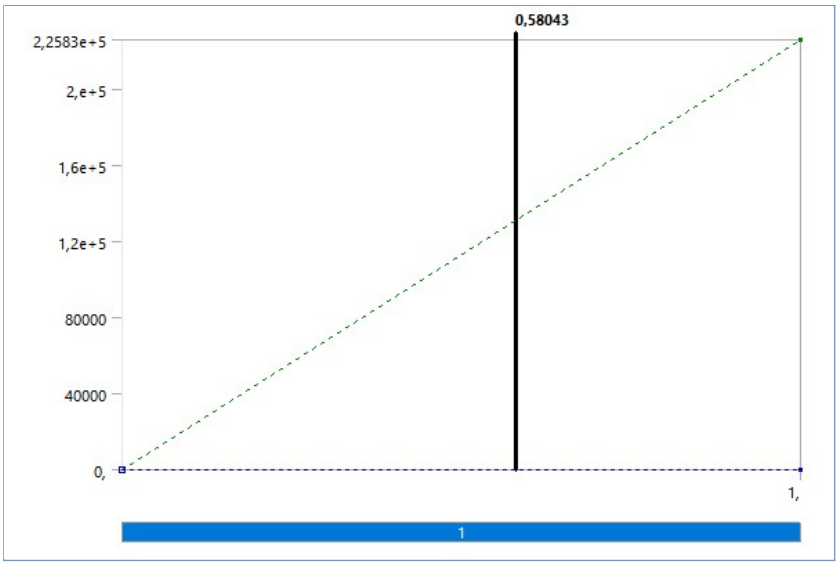


FIGURE 6
Model (H4) > Static Structural (H5) > Moment od potrubi

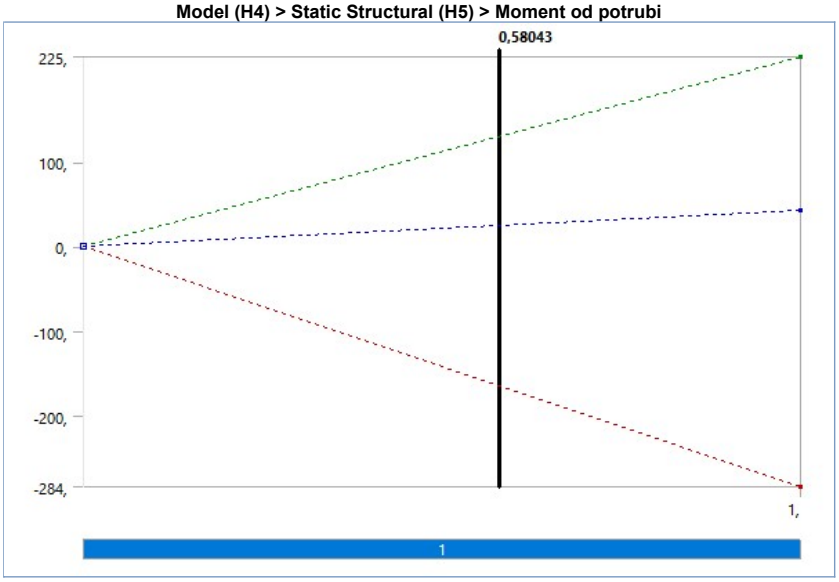


FIGURE 7
Model (H4) > Static Structural (H5) > Tíha komponent

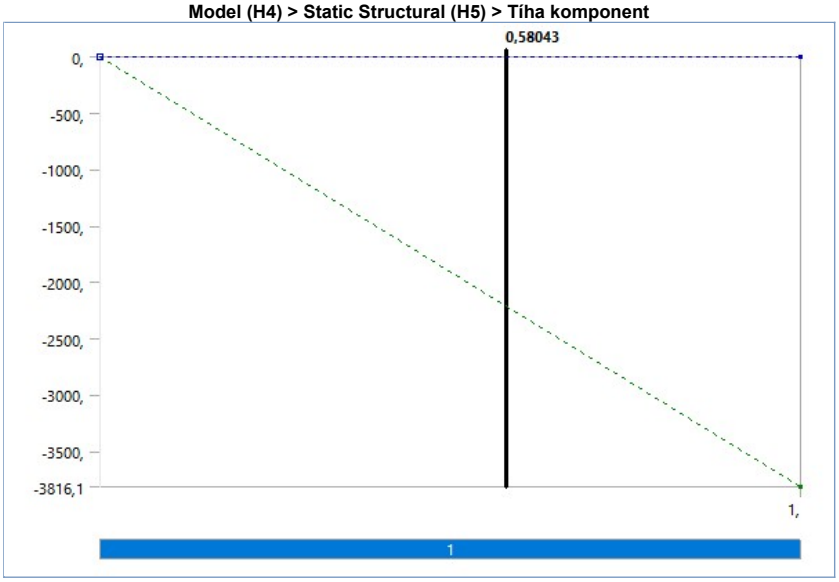


FIGURE 8
Model (H4) > Static Structural (H5) > Tíha komponent + hmotnost média



TABLE 16
Model (H4) > Static Structural (H5) > Imported Load (G6)

Object Name	*Imported Load (G6)*
State	Fully Defined
Definition	
Type	Imported Data
Interpolation Type	Mechanical Results Transfer
Suppressed	No
Source	G6::Solution 6

TABLE 17
Model (H4) > Static Structural (H5) > Imported Load (G6) > Imported Body Temperature

Object Name	*Imported Body Temperature*
State	Solved
Scope	
Scoping Method	Geometry Selection
Geometry	8 Bodies
Definition	
Type	Imported Body Temperature
Tabular Loading	Program Controlled
Suppressed	No
Source Bodies	Automatic
Tolerance	5, %
Source Time	Worksheet
Beta Options (Beta)	
Show Body Wireframe (Beta)	No
Settings	
Mapping Control	Program Controlled
Mapping	Profile Preserving
Weighting	Shape Function
Transfer Type	Volumetric
Rigid Transformation	
Mesh Alignment	Use Origin and Euler Angles
Origin X	0, mm
Origin Y	0, mm
Origin Z	0, mm
Theta XY	0, degree
Theta YZ	0, degree
Theta ZX	0, degree
Graphics Controls	
Display Source Points	Off
Display Source Point Ids	Off
Legend Controls	
Legend Range	Program Controlled
Minimum Source	48, °C
Maximum Source	48, °C
Named Selection Creation	
Unmapped Nodes	Off
Mapped Nodes	Off
Outside Nodes	Off

Model (H4) > Static Structural (H5) > Imported Load (G6) > Imported Body Temperature

	Source Time (s)	Analysis Time (s)
1	End Time	1
*		

Model (H4) > Static Structural (H5) > Imported Load (G6) > Imported Body Temperature > Imported Load Transfer Summary

Target Body	Source Material Id	Volume Difference (%)	Distance Between Centroids (mm)	Bounding Box Diagonal (mm)	Distance Between Centroids/Bounding Box Diagonal (%)
Tělo-Přesunout/kopírovat1[7]	1.	9,5656e-006	0,35863	1957,4	1,8321e-002

Tue Apr 14, 2020 09:44:15

Using multiple cores: [Yes]
Number of cores requested: 8

Number of source nodes: 28734
Number of target nodes: 103872

Number of nodes mapped : 103872
Number of nodes not mapped : 0
Number of nodes outside : 0

Percent nodes mapped: 100%
Weight calculation time: 0.482 (s)
Interpolation time: 5.e-003 (s)

Target Body	Source Material Id	Volume Difference (%)	Distance Between Centroids (mm)	Bounding Box Diagonal (mm)	Distance Between Centroids/Bounding Box Diagonal (%)
Příruba DN 200	2.	1,4561e-003	3,2768e-002	515,36	6,3583e-003

Tue Apr 14, 2020 09:44:16

Using multiple cores: [Yes]
Number of cores requested: 8

Number of source nodes: 29818
Number of target nodes: 20600

Number of nodes mapped : 20600
Number of nodes not mapped : 0
Number of nodes outside : 33

Percent nodes mapped: 100%
Weight calculation time: 0.291 (s)
Interpolation time: 3.e-003 (s)

Target Body	Source Material Id	Volume Difference (%)	Distance Between Centroids (mm)	Bounding Box Diagonal (mm)	Distance Between Centroids/Bounding Box Diagonal (%)
Tělo-Přesunout/kopírovat1[2]	4.	8,9951e-006	0,77783	1957,4	3,9737e-002

Tue Apr 14, 2020 09:44:17

Using multiple cores: [Yes]
Number of cores requested: 8

Number of source nodes: 28592
Number of target nodes: 104579

Number of nodes mapped : 104579
Number of nodes not mapped : 0
Number of nodes outside : 0

Percent nodes mapped: 100%
Weight calculation time: 0.432 (s)
Interpolation time: 5.e-003 (s)

Target Body	Source Material Id	Volume Difference (%)	Distance Between Centroids (mm)	Bounding Box Diagonal (mm)	Distance Between Centroids/Bounding Box Diagonal (%)
Rozdělit5[2]	5.	4,5234e-004	0,6414	601,01	0,10672

Tue Apr 14, 2020 09:44:18

Using multiple cores: [Yes]
Number of cores requested: 8

Number of source nodes: 13272
Number of target nodes: 12412

Number of nodes mapped : 12412
Number of nodes not mapped : 0
Number of nodes outside : 2

Percent nodes mapped: 100%
Weight calculation time: 0.109 (s)
Interpolation time: 2.e-003 (s)

Target Body	Source Material Id	Volume Difference (%)	Distance Between Centroids (mm)	Bounding Box Diagonal (mm)	Distance Between Centroids/Bounding Box Diagonal (%)
Tělo-Přesunout/koplrovat1[3]	7,	9,4973e-006	0,35845	1969,8	1,8197e-002

Tue Apr 14, 2020 09:44:18

Using multiple cores: [Yes]
Number of cores requested: 8

Number of source nodes: 28510
Number of target nodes: 104613

Number of nodes mapped : 104613
Number of nodes not mapped : 0
Number of nodes outside : 0

Percent nodes mapped: 100%
Weight calculation time: 0.487 (s)
Interpolation time: 5.e-003 (s)

Target Body	Source Material Id	Volume Difference (%)	Distance Between Centroids (mm)	Bounding Box Diagonal (mm)	Distance Between Centroids/Bounding Box Diagonal (%)
Hrdlo	8,	0,1759	0,15032	323,49	4,647e-002

Tue Apr 14, 2020 09:44:19

Using multiple cores: [Yes]
Number of cores requested: 8

Number of source nodes: 7994
Number of target nodes: 7107

Number of nodes mapped : 7107
Number of nodes not mapped : 0
Number of nodes outside : 311

Percent nodes mapped: 100%
Weight calculation time: 0.11 (s)
Interpolation time: 1.e-003 (s)

Target Body	Source Material Id	Volume Difference (%)	Distance Between Centroids (mm)	Bounding Box Diagonal (mm)	Distance Between Centroids/Bounding Box Diagonal (%)
Plášť	10,	4,6303e-007	3,8528	2289,1	0,16831

Tue Apr 14, 2020 09:44:22

Using multiple cores: [Yes]
Number of cores requested: 8

Number of source nodes: 658180
Number of target nodes: 817090

Number of nodes mapped : 817090
Number of nodes not mapped : 0
Number of nodes outside : 0

Percent nodes mapped: 100%
Weight calculation time: 6.037 (s)
Interpolation time: 6.7e-002 (s)

Target Body	Source Material Id	Volume Difference (%)	Distance Between Centroids (mm)	Bounding Box Diagonal (mm)	Distance Between Centroids/Bounding Box Diagonal (%)
Rozdělit5[1]	12,	2,3341	0,59347	346,87	0,17109

Tue Apr 14, 2020 09:44:31

Using multiple cores: [Yes]
Number of cores requested: 8

Number of source nodes: 1679
Number of target nodes: 1082

Number of nodes mapped : 1082
Number of nodes not mapped : 0
Number of nodes outside : 100

Percent nodes mapped: 100%
Weight calculation time: 4.8e-002 (s)
Interpolation time: 1.e-003 (s)

Solution (H6)

TABLE 18
Model (H4) > Static Structural (H5) > Solution

Object Name	*Solution (H6)*
State	Solved
Solution	
Number Of Cores to Use (Beta)	Solve Process Settings
Adaptive Mesh Refinement	
Max Refinement Loops	1,
Refinement Depth	2,
Information	
Status	Done
MAPDL Elapsed Time	6 m 37 s
MAPDL Memory Used	6,6475 GB
MAPDL Result File Size	501,25 MB
Post Processing	
Distributed Post Processing (Beta)	Program Controlled
Mesh Source (Beta)	Program Controlled
Beam Section Results	No
On Demand Stress/Strain	No

TABLE 19
Model (H4) > Static Structural (H5) > Solution (H6) > Solution Information

Object Name	*Solution Information*
State	Solved
Solution Information	
Solution Output	Solver Output
Newton-Raphson Residuals	0
Identify Element Violations	0
Update Interval	2,5 s
Display Points	All
FE Connection Visibility	
Activate Visibility	Yes
Display	All FE Connectors
Draw Connections Attached To	All Nodes
Line Color	Connection Type
Visible on Results	No
Line Thickness	Single
Display Type	Lines

TABLE 20
Model (H4) > Static Structural (H5) > Solution (H6) > Results

Object Name	*Total Deformation*	*Stress Intensity*	*Equivalent Stress*
State	Solved		
Scope			
Scoping Method	Geometry Selection		
Geometry	All Bodies		
Definition			
Type	Total Deformation	Stress Intensity	Equivalent (von-Mises) Stress
By	Time		
Display Time	Last		
Calculate Time History	Yes		
Identifier			
Suppressed	No		
Results			
Minimum	0, mm	3,0061e-003 MPa	2,7294e-003 MPa
Maximum	1,2171 mm	245,57 MPa	217,59 MPa
Average	0,72717 mm	13,987 MPa	12,441 MPa
Minimum Occurs On	Tělo-Přesunout/kopírovat1[7]	Tělo-Přesunout/kopírovat1[3]	
Maximum Occurs On	Plášť	Tělo-Přesunout/kopírovat1[7]	Tělo-Přesunout/kopírovat1[3]
Information			
Time	1, s		
Load Step	1		
Substep	1		
Iteration Number	1		
Integration Point Results			
Display Option		Averaged	
Average Across Bodies		No	

FIGURE 9
Model (H4) > Static Structural (H5) > Solution (H6) > Total Deformation

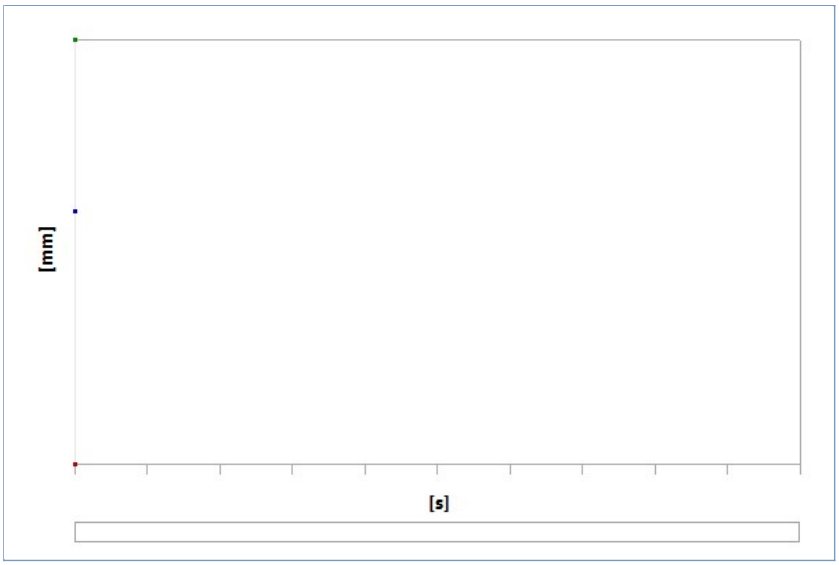


TABLE 21
Model (H4) > Static Structural (H5) > Solution (H6) > Total Deformation

Time [s]	Minimum [mm]	Maximum [mm]	Average [mm]
1,	0,	1,2171	0,72717

FIGURE 10
Model (H4) > Static Structural (H5) > Solution (H6) > Stress Intensity

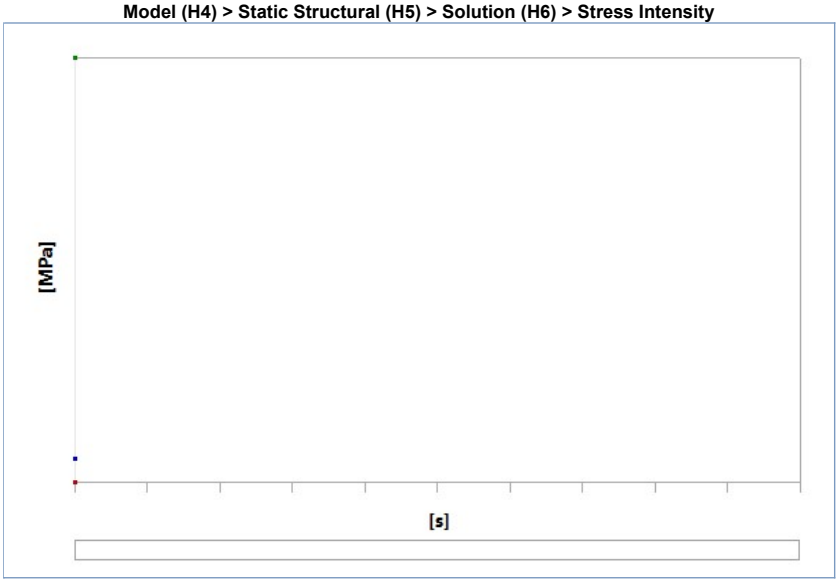


TABLE 22
Model (H4) > Static Structural (H5) > Solution (H6) > Stress Intensity

Time [s]	Minimum [MPa]	Maximum [MPa]	Average [MPa]
1,	3,0061e-003	245,57	13,987

FIGURE 11
Model (H4) > Static Structural (H5) > Solution (H6) > Equivalent Stress

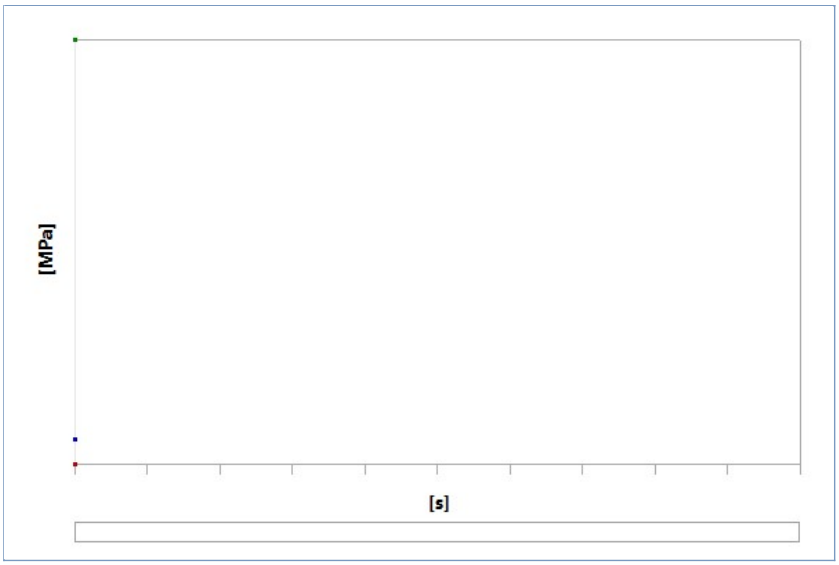


TABLE 23
Model (H4) > Static Structural (H5) > Solution (H6) > Equivalent Stress

Time [s]	Minimum [MPa]	Maximum [MPa]	Average [MPa]
1,	2,7294e-003	217,59	12,441

Material Data

Structural Steel

TABLE 24
Structural Steel > Constants

Density	7,85e-006 kg mm^-3
Coefficient of Thermal Expansion	1,2e-005 C^-1
Specific Heat	4,34e+005 mJ kg^-1 C^-1
Thermal Conductivity	6,05e-002 W mm^-1 C^-1
Resistivity	1,7e-004 ohm mm

TABLE 25
Structural Steel > Color

Red	Green	Blue
132,	139,	179,

TABLE 26
Structural Steel > Compressive Ultimate Strength

Compressive Ultimate Strength MPa
0,

TABLE 27
Structural Steel > Compressive Yield Strength

Compressive Yield Strength MPa
250,

TABLE 28
Structural Steel > Tensile Yield Strength

Tensile Yield Strength MPa
265,

TABLE 29
Structural Steel > Tensile Ultimate Strength

Tensile Ultimate Strength MPa
410,

TABLE 30
Structural Steel > Isotropic Secant Coefficient of Thermal Expansion

Zero-Thermal-Strain Reference Temperature C
22,

TABLE 31
Structural Steel > S-N Curve

Alternating Stress MPa	Cycles	Mean Stress MPa
3999,	10,	0,
2827,	20,	0,
1896,	50,	0,
1413,	100,	0,
1069,	200,	0,
441,	2000,	0,
262,	10000	0,
214,	20000	0,

138,	1,e+005	0,
114,	2,e+005	0,
86,2	1,e+006	0,

TABLE 32
Structural Steel > Strain-Life Parameters

Strength Coefficient MPa	Strength Exponent	Ductility Coefficient	Ductility Exponent	Cyclic Strength Coefficient MPa	Cyclic Strain Hardening Exponent
920,	-0,106	0,213	-0,47	1000,	0,2

TABLE 33
Structural Steel > Isotropic Elasticity

Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,e+005	0,3	1,6667e+005	76923	

TABLE 34
Structural Steel > Isotropic Relative Permeability

Relative Permeability
10000

P245GH

TABLE 35
P245GH > Constants

Density	7,85e-006 kg mm^-3
Coefficient of Thermal Expansion	1,2e-005 C^-1
Specific Heat	4,34e+005 mJ kg^-1 C^-1
Thermal Conductivity	6,05e-002 W mm^-1 C^-1
Resistivity	1,7e-004 ohm mm

TABLE 36
P245GH > Color

Red	Green	Blue
132,	139,	179,

TABLE 37
P245GH > Compressive Ultimate Strength

Compressive Ultimate Strength MPa
0,

TABLE 38
P245GH > Compressive Yield Strength

Compressive Yield Strength MPa
250,

TABLE 39
P245GH > Tensile Yield Strength

Tensile Yield Strength MPa
245,

TABLE 40
P245GH > Tensile Ultimate Strength

Tensile Ultimate Strength MPa
410,

TABLE 41
P245GH > Isotropic Secant Coefficient of Thermal Expansion

Zero-Thermal-Strain Reference Temperature C
22,

TABLE 42
P245GH > S-N Curve

Alternating Stress MPa	Cycles	Mean Stress MPa
3999,	10,	0,
2827,	20,	0,
1896,	50,	0,
1413,	100,	0,
1069,	200,	0,
441,	2000,	0,
262,	10000	0,
214,	20000	0,
138,	1,e+005	0,
114,	2,e+005	0,
86,2	1,e+006	0,

TABLE 43
P245GH > Strain-Life Parameters

Strength Coefficient MPa	Strength Exponent	Ductility Coefficient	Ductility Exponent	Cyclic Strength Coefficient MPa	Cyclic Strain Hardening Exponent
920,	-0,106	0,213	-0,47	1000,	0,2

TABLE 44
P245GH > Isotropic Elasticity

Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,0387e+005	0,3	1,6989e+005	78411	

TABLE 45
P245GH > Isotropic Relative Permeability

Relative Permeability
10000

P265GH

TABLE 46
P265GH > Constants

Density	7,85e-006 kg mm^-3
Coefficient of Thermal Expansion	1,2e-005 C^-1
Specific Heat	4,34e+005 mJ kg^-1 C^-1
Thermal Conductivity	6,05e-002 W mm^-1 C^-1
Resistivity	1,7e-004 ohm mm

TABLE 47
P265GH > Color

Red	Green	Blue
132,	139,	179,

TABLE 48
P265GH > Compressive Ultimate Strength

Compressive Ultimate Strength MPa
0,

TABLE 49
P265GH > Compressive Yield Strength

Compressive Yield Strength MPa
250,

TABLE 50
P265GH > Tensile Yield Strength

Tensile Yield Strength MPa
265,

TABLE 51
P265GH > Tensile Ultimate Strength

Tensile Ultimate Strength MPa
410,

TABLE 52
P265GH > Isotropic Secant Coefficient of Thermal Expansion

Zero-Thermal-Strain Reference Temperature C
22,

TABLE 53
P265GH > S-N Curve

Alternating Stress MPa	Cycles	Mean Stress MPa
3999,	10,	0,
2827,	20,	0,
1896,	50,	0,
1413,	100,	0,
1069,	200,	0,
441,	2000,	0,
262,	10000	0,
214,	20000	0,
138,	1,e+005	0,
114,	2,e+005	0,
86,2	1,e+006	0,

TABLE 54
P265GH > Strain-Life Parameters

Strength Coefficient MPa	Strength Exponent	Ductility Coefficient	Ductility Exponent	Cyclic Strength Coefficient MPa	Cyclic Strain Hardening Exponent
920,	-0,106	0,213	-0,47	1000,	0,2

TABLE 55
P265GH > Isotropic Elasticity

Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,0387e+005	0,3	1,6989e+005	78411	

TABLE 56
P265GH > Isotropic Relative Permeability

Relative Permeability
10000

P265GH_nozzle

TABLE 57
P265GH_nozzle > Constants

Density	7,85e-006 kg mm^-3
Coefficient of Thermal Expansion	1,2e-005 C^-1
Specific Heat	4,34e+005 mJ kg^-1 C^-1
Thermal Conductivity	6,05e-002 W mm^-1 C^-1

Resistivity	1,7e-004 ohm mm

TABLE 58
P265GH_nozzle > Color

Red	Green	Blue
132,	139,	179,

TABLE 59
P265GH_nozzle > Compressive Ultimate Strength

Compressive Ultimate Strength MPa
0,

TABLE 60
P265GH_nozzle > Compressive Yield Strength

Compressive Yield Strength MPa
250,

TABLE 61
P265GH_nozzle > Tensile Yield Strength

Tensile Yield Strength MPa
265,

TABLE 62
P265GH_nozzle > Tensile Ultimate Strength

Tensile Ultimate Strength MPa
410,

TABLE 63
P265GH_nozzle > Isotropic Secant Coefficient of Thermal Expansion

Zero-Thermal-Strain Reference Temperature C
22,

TABLE 64
P265GH_nozzle > S-N Curve

Alternating Stress MPa	Cycles	Mean Stress MPa
3999,	10,	0,
2827,	20,	0,
1896,	50,	0,
1413,	100,	0,
1069,	200,	0,
441,	2000,	0,
262,	10000	0,
214,	20000	0,
138,	1,e+005	0,
114,	2,e+005	0,
86,2	1,e+006	0,

TABLE 65
P265GH_nozzle > Strain-Life Parameters

Strength Coefficient MPa	Strength Exponent	Ductility Coefficient	Ductility Exponent	Cyclic Strength Coefficient MPa	Cyclic Strain Hardening Exponent
920,	-0,106	0,213	-0,47	1000,	0,2

TABLE 66
P265GH_nozzle > Isotropic Elasticity

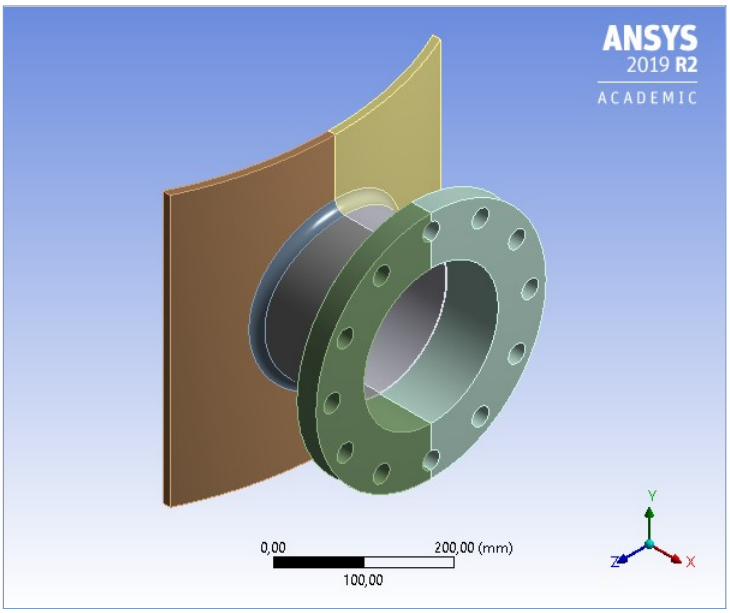
Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,0387e+005	0,3	1,6989e+005	78411	

TABLE 67
P265GH_nozzle > Isotropic Relative Permeability

Relative Permeability
10000

Stress categorization - Nozzle N1 - OPERATION CASE (Submodel)*

First Saved	Friday, November 29, 2019
Last Saved	Tuesday, April 14, 2020
Product Version	2019 R2
Save Project Before Solution	No
Save Project After Solution	No



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  - P245GH
  - P265GH
  - P265GH_nozzle

Units

TABLE 1

Unit System	Metric (mm, kg, N, s, mV, mA) Degrees rad/s Celsius
Angle	Degrees
Rotational Velocity	rad/s
Temperature	Celsius

Model (I4)

Geometry

TABLE 2
Model (I4) > Geometry

Object Name	*Geometry*
State	Fully Defined
Definition	
Source	C:\Users\prochazka.tomas\AppData\Local\Temp\Model_N3.tmp\Model_N3_files\dp0\Geom-2\DM\Geom-2.agdb
Type	DesignModeler
Length Unit	Meters
Element Control	Program Controlled
Display Style	Body Color
Bounding Box	
Length X	208,54 mm
Length Y	422,96 mm
Length Z	422,96 mm
Properties	
Volume	4,0488e+006 mm³
Mass	31,783 kg
Scale Factor Value	1,
Statistics	
Bodies	8
Active Bodies	8
Nodes	1469170
Elements	366484
Mesh Metric	Element Quality
Min	5,28304667322578E-04
Max	0,99999998661568
Average	0,812556242100263
Standard Deviation	0,244090800865331
Update Options	
Assign Default Material	No
Basic Geometry Options	
Parameters	Independent
Parameter Key	
Attributes	Yes
Attribute Key	
Named Selections	Yes
Named Selection Key	
Material Properties	Yes
Advanced Geometry Options	
Use Associativity	Yes
Coordinate Systems	Yes
Coordinate System Key	
Reader Mode Saves Updated File	No
Use Instances	Yes
Smart CAD Update	Yes
Compare Parts On Update	No
Analysis Type	3-D
Clean Bodies On Import	No
Stitch Surfaces On Import	None

Decompose Disjoint Geometry	Yes
Enclosure and Symmetry Processing	Yes

TABLE 3
Model (I4) > Geometry > Body Groups

Object Name	*Submodel_Rev2*
State	Meshed
Graphics Properties	
Visible	Yes
Definition	
Suppressed	No
Assignment	Multiple Materials
Coordinate System	Default Coordinate System
Bounding Box	
Length X	208,54 mm
Length Y	422,96 mm
Length Z	422,96 mm
Properties	
Volume	4,0488e+006 mm³
Mass	31,783 kg
Centroid X	561,4 mm
Centroid Y	1820, mm
Centroid Z	-1,1266e-002 mm
Moment of Inertia Ip1	8,1024e+005 kg·mm²
Moment of Inertia Ip2	5,8975e+005 kg·mm²
Moment of Inertia Ip3	5,8362e+005 kg·mm²
Statistics	
Nodes	1469170
Elements	366484
Mesh Metric	Element Quality
Min	5,28304667322578E-04
Max	0,99999998661568
Average	0,812556242100263
Standard Deviation	0,244090800865331
CAD Attributes	
DMBodyGroup	1

TABLE 4
Model (I4) > Geometry > Submodel_Rev2 > Parts

Object Name	*Příruba DN 200*	*Plášť*	*Vsazené hrdlo*	*Svar*	*Příruba DN 200*	*Plášť*	*Vsazené hrdlo*	
State	Meshed							
Graphics Properties								
Visible	Yes							
Glow	0							
Shininess	1							
Transparency	1							
Specularity	1							
Definition								
Suppressed	No							
ID (Beta)	538	540	694	696	884	886	888	
Stiffness Behavior	Flexible							
Coordinate System	Default Coordinate System							
Reference Temperature	By Environment							
Treatment	None							
Material								
Assignment	P245GH	P265GH	P265GH_nozzle	P265GH	P245GH	P265GH	P265GH_nozzle	F
Nonlinear Effects	Yes							
Thermal Strain Effects	Yes							
Bounding Box								
Length X	80, mm	58,541 mm	92,916 mm	29,15 mm	80, mm	58,541 mm	92,916 mm	2
Length Y	360, mm	422,96 mm	219,1 mm	247,98 mm	360, mm	422,96 mm	219,1 mm	24
Length Z	180, mm	211,48 mm	109,55 mm	120,39 mm	180, mm	211,48 mm	109,55 mm	12
Properties								
Volume	1,0665e+006 mm³	7,7129e+005 mm³	1,7364e+005 mm³	12937 mm³	1,0665e+006 mm³	7,7129e+005 mm³	1,7375e+005 mm³	12
Mass	8,3718 kg	6,0546 kg	1,3631 kg	0,10156 kg	8,372 kg	6,0546 kg	1,3639 kg	0,
Centroid X	630,21 mm	475,12 mm	526,69 mm	497,53 mm	630,23 mm	475,12 mm	526,77 mm	49
Centroid Y	1820, mm	1820,2 mm	1819,4 mm	1820,3 mm	1820, mm	1819,6 mm	1820,4 mm	18
Centroid Z	88,91 mm	123,11 mm	69,211 mm	64,654 mm	-88,949 mm	-123,09 mm	-69,258 mm	-64
Moment of Inertia Ip1	1,0097e+005 kg·mm²	1,3061e+005 kg·mm²	8910,9 kg·mm²	895,81 kg·mm²	1,0105e+005 kg·mm²	1,3057e+005 kg·mm²	8911,2 kg·mm²	895
Moment of Inertia Ip2	19392 kg·mm²	21356 kg·mm²	2295,5 kg·mm²	132,41 kg·mm²	19401 kg·mm²	21378 kg·mm²	2294,3 kg·mm²	132
Moment of Inertia Ip3	85257 kg·mm²	1,0952e+005 kg·mm²	8299,9 kg·mm²	765,06 kg·mm²	85320 kg·mm²	1,0946e+005 kg·mm²	8300,6 kg·mm²	764
Statistics								
Nodes	342447	293796	93828	13433	348905	294185	91410	
Elements	88556	68195	22881	3558	89832	68353	21792	
Mesh Metric	Element Quality							
Min	2,23829711887629E-02	1,92535680433895E-02	2,10222255188284E-02	5,28304667322578E-04	3,07469508059639E-02	2,30596306755123E-02	0,019132514624617	1,5165
Max	0,999999824384358	0,99999998661568	0,999997123608116	0,994275843088033	0,999999464171814	0,999999740613324	0,999999049309759	0,994
Average	0,822590519517448	0,839207485619588	0,741851889163104	0,391398616531887	0,82779841631932	0,83484255688243	0,760622451936763	0,4053
Standard Deviation	0,231364584876224	0,23362895938249	0,253695516071633	0,276241400645173	0,227830166689515	0,23816597774756	0,250361507544635	0,278

TABLE 5
Model (I4) > Materials

Object Name	*Materials*
State	Fully Defined
Statistics	
Materials	7

Material Assignments	0

TABLE 6
Model (I4) > Construction Geometry

Object Name	*Construction Geometry*
State	Fully Defined
Display	
Show Mesh	No

TABLE 7
Model (I4) > Construction Geometry > Paths

Object Name	*Path*	*Path 2*	*Path 3*	*Path 4*	*Path 5*	*Path 6*
State	Fully Defined					
Definition						
Path Type	Two Points					
Path Coordinate System	Global Coordinate System					
Number of Sampling Points	47,					
Suppressed	No					
Start						
Coordinate System	Global Coordinate System					
Start X Coordinate	504,3 mm	500, mm	520, mm	504,64 mm	500, mm	520, mm
Start Y Coordinate	1934, mm	1944, mm	1929,5 mm	1706,3 mm	1691,2 mm	1716,4 mm
Start Z Coordinate	0, mm					
Location	Defined					
End						
Coordinate System	Global Coordinate System					
End X Coordinate	489,65 mm	489,5 mm	520, mm	489,65 mm	489,5 mm	520, mm
End Y Coordinate	1925,2 mm	1944, mm	1923,5 mm	1714,8 mm	1691,2 mm	1710,5 mm
End Z Coordinate	0, mm			-4,5724e-014 mm	0, mm	
Location	Defined					

Coordinate Systems

TABLE 8
Model (I4) > Coordinate Systems > Coordinate System

Object Name	*Global Coordinate System*
State	Fully Defined
Definition	
Type	Cartesian
Coordinate System ID	0,
Origin	
Origin X	0, mm
Origin Y	0, mm
Origin Z	0, mm
Directional Vectors	
X Axis Data	[1, 0, 0,]
Y Axis Data	[0, 1, 0,]
Z Axis Data	[0, 0, 1,]

Connections

TABLE 9
Model (I4) > Connections

Object Name	*Connections*
State	Fully Defined
Auto Detection	
Generate Automatic Connection On Refresh	Yes
Transparency	
Enabled	Yes

TABLE 10
Model (I4) > Connections > Contacts

Object Name	*Contacts*
State	Fully Defined
Definition	
Connection Type	Contact
Scope	
Scoping Method	Geometry Selection
Geometry	All Bodies
Auto Detection	
Tolerance Type	Slider
Tolerance Slider	0,
Tolerance Value	1,5837 mm
Use Range	No
Face/Face	Yes
Face-Face Angle Tolerance	75, °
Face Overlap Tolerance	Off
Cylindrical Faces	Include
Face/Edge	No
Edge/Edge	No
Priority	Include All
Group By	Bodies
Search Across	Bodies
Statistics	
Connections	0
Active Connections	0

Mesh

TABLE 11
Model (I4) > Mesh

Object Name	*Mesh*
State	Solved
Display	

Display Style	Use Geometry Setting
Defaults	
Physics Preference	Mechanical
Element Order	Program Controlled
Element Size	2,5 mm
Sizing	
Use Adaptive Sizing	Yes
Resolution	2
Mesh Defeaturing	Yes
Defeature Size	Default
Transition	Fast
Span Angle Center	Coarse
Initial Size Seed	Assembly
Bounding Box Diagonal	633,47 mm
Average Surface Area	8576,4 mm²
Minimum Edge Length	0,785 mm
Quality	
Check Mesh Quality	Yes, Errors
Error Limits	Standard Mechanical
Target Quality	Default (0.050000)
Smoothing	Medium
Mesh Metric	Element Quality
Min	5,283e-004
Max	1,
Average	0,81256
Standard Deviation	0,24409
Inflation	
Use Automatic Inflation	None
Inflation Option	Smooth Transition
Transition Ratio	0,272
Maximum Layers	5
Growth Rate	1,2
Inflation Algorithm	Pre
View Advanced Options	No
Advanced	
Number of CPUs for Parallel Part Meshing	Program Controlled
Straight Sided Elements	No
Rigid Body Behavior	Dimensionally Reduced
Triangle Surface Mesher	Program Controlled
Use Asymmetric Mapped Mesh (Beta)	No
Topology Checking	Yes
Pinch Tolerance	Please Define
Generate Pinch on Refresh	No
Statistics	
Nodes	1469170
Elements	366484

TABLE 12
Model (I4) > Mesh > Mesh Controls

Object Name	*Hex Dominant Method*
State	Fully Defined
Scope	
Scoping Method	Geometry Selection
Geometry	8 Bodies
Definition	
Suppressed	No
Method	Hex Dominant
Element Order	Use Global Setting
Free Face Mesh Type	Quad/Tri
Control Messages	Yes, Click To Display...

Static Structural (I5)

TABLE 13
Model (I4) > Analysis

Object Name	*Static Structural (I5)*
State	Solved
Definition	
Physics Type	Structural
Analysis Type	Static Structural
Solver Target	Mechanical APDL
Options	
Environment Temperature	20, °C
Generate Input Only	No

TABLE 14
Model (I4) > Static Structural (I5) > Analysis Settings

Object Name	*Analysis Settings*
State	Fully Defined
Step Controls	
Number Of Steps	1,
Current Step Number	1,
Step End Time	1, s
Auto Time Stepping	Program Controlled
Solver Controls	
Solver Type	Program Controlled
Weak Springs	Off
Solver Pivot Checking	Program Controlled
Large Deflection	Off
Inertia Relief	Off
Rotordynamics Controls	
Coriolis Effect	Off
Restart Controls	
Generate Restart Points	Program Controlled

Retain Files After Full Solve	No
Combine Restart Files	Program Controlled
Nonlinear Controls	
Newton-Raphson Option	Program Controlled
Force Convergence	Program Controlled
Moment Convergence	Program Controlled
Displacement Convergence	Program Controlled
Rotation Convergence	Program Controlled
Line Search	Program Controlled
Stabilization	Program Controlled
Output Controls	
Stress	Yes
Surface Stress	No
Back Stress	No
Strain	Yes
Contact Data	Yes
Nonlinear Data	No
Nodal Forces	No
Contact Miscellaneous	No
General Miscellaneous	No
Store Results At	All Time Points
Cache Results in Memory (Beta)	Never
Combine Distributed Result Files (Beta)	Program Controlled
Result File Compression	Program Controlled
Analysis Data Management	
Solver Files Directory	C:\Users\prochazka.tomas\AppData\Local\Temp\Model_N3.tmp\Model_N3_files\dp0\SYS-18\MECH\
Future Analysis	None
Scratch Solver Files Directory	
Save MAPDL db	No
Contact Summary	Program Controlled
Delete Unneeded Files	Yes
Nonlinear Solution	No
Solver Units	Active System
Solver Unit System	nmm

TABLE 15
Model (I4) > Static Structural (I5) > Loads

Object Name	*Provozni tlak*	*Ekvivaletní síla od tlaku*	*Moment*	*Zatěžující síla potrubí*
State	Fully Defined			
Scope				
Scoping Method	Geometry Selection			
Geometry	10 Faces	2 Faces		
Definition				
ID (Beta)	63	267	434	269
Type	Pressure	Force	Moment	Force
Define By	Normal To	Components		
Applied By	Surface Effect			
Magnitude	0,3 MPa (ramped)			
Suppressed	No			
Coordinate System		Global Coordinate System		
X Component		10106 N (ramped)	-284, N·mm (ramped)	367, N (ramped)
Y Component		0, N (ramped)	225, N·mm (ramped)	-778, N (ramped)
Z Component		0, N (ramped)	43, N·mm (ramped)	-81, N (ramped)
Behavior			Deformable	
Advanced				
Pinball Region			All	

FIGURE 1
Model (I4) > Static Structural (I5) > Provozni tlak

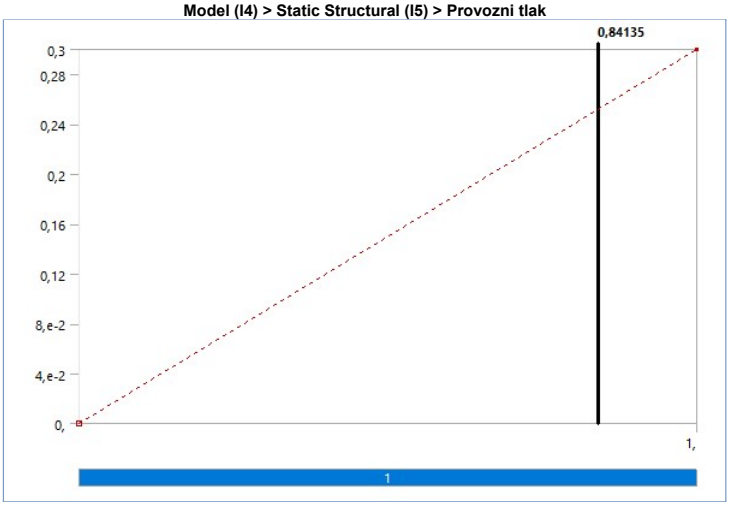


FIGURE 2
Model (I4) > Static Structural (I5) > Ekvivaletní síla od tlaku

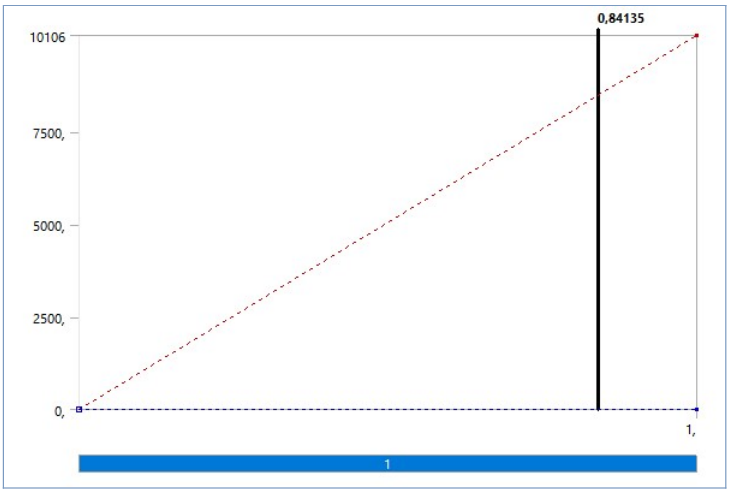


FIGURE 3
Model (I4) > Static Structural (I5) > Moment

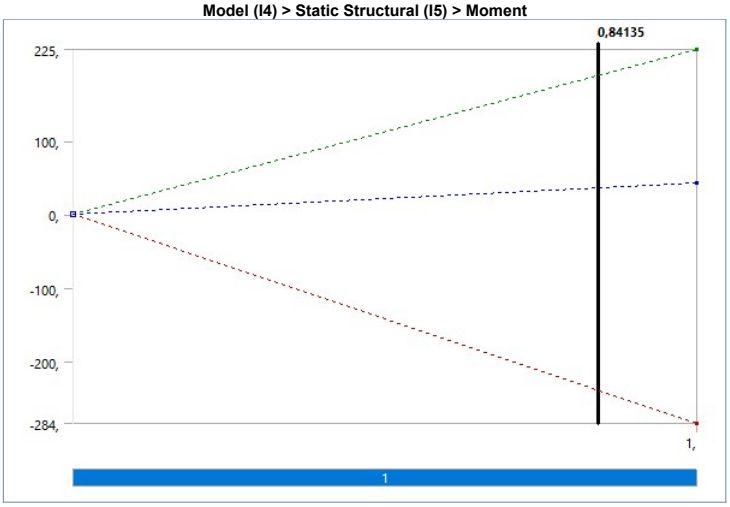


FIGURE 4
Model (I4) > Static Structural (I5) > Zatěžující síla potrubí

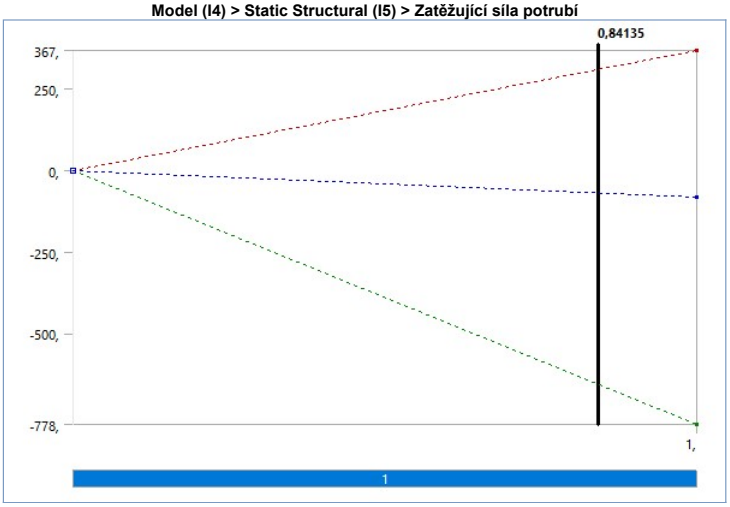


TABLE 16
Model (I4) > Static Structural (I5) > Submodeling (H6)

Object Name	*Submodeling (H6)*
State	Fully Defined
Definition	
Type	Imported Data
Interpolation Type	Mechanical Results Transfer
Suppressed	No
Source	H6::Solution 4

TABLE 17
Model (I4) > Static Structural (I5) > Submodeling (H6) > Imported Body Temperature

Object Name	*Imported Body Temperature*	*Imported Cut Boundary Constraint*
State	Solved	
Scope		
Scoping Method	Geometry Selection	
Geometry	8 Bodies	6 Faces
Definition		

Type	Imported Body Temperature	Imported Displacement
Tabular Loading	Program Controlled	
Suppressed	No	
Source Bodies	All	
Submodeling Type	3D to 3D	
Transfer Key	Solid-Solid	
Source Time	Worksheet	
Override Constraints		No
Beta Options (Beta)		
Show Body Wireframe (Beta)	No	
Settings		
Mapping Control	Program Controlled	
Mapping	Profile Preserving	
Weighting	Shape Function	
Transfer Type	Volumetric	
Rigid Transformation		
Mesh Alignment	Use Origin and Euler Angles	
Origin X	0, mm	
Origin Y	0, mm	
Origin Z	0, mm	
Theta XY	0, degree	
Theta YZ	0, degree	
Theta ZX	0, degree	
Graphics Controls		
Display Source Points	Off	
Display Source Point Ids	Off	
Component		All
Legend Controls		
Legend Range	Program Controlled	
Minimum Source	48, °C	
Maximum Source	48, °C	
Named Selection Creation		
Unmapped Nodes	Off	
Mapped Nodes	Off	
Outside Nodes	Off	

Model (I4) > Static Structural (I5) > Submodeling (H6) > Imported Body Temperature

	Source Time (s)	Analysis Time (s)
1	End Time	1
*		

Model (I4) > Static Structural (I5) > Submodeling (H6) > Imported Body Temperature > Imported Load Transfer Summary

Tue Apr 14, 2020 14:49:37

Using multiple cores: [Yes]
Number of cores requested: 8

Number of source nodes: 1171355
Number of target nodes: 1469170

Number of nodes mapped : 1469170
Number of nodes not mapped : 0
Number of nodes outside : 1119

Percent nodes mapped: 100%
Weight calculation time: 54.794 (s)
Interpolation time: 9.4e-002 (s)

Model (I4) > Static Structural (I5) > Submodeling (H6) > Imported Cut Boundary Constraint

	Source Time (s)	Analysis Time (s)
1	End Time	1
*		

Model (I4) > Static Structural (I5) > Submodeling (H6) > Imported Cut Boundary Constraint > Imported Load Transfer Summary

Tue Apr 14, 2020 14:50:42

Using multiple cores: [Yes]
Number of cores requested: 8

Number of source nodes: 1171355
Number of target nodes: 10892

Number of nodes mapped : 10892
Number of nodes not mapped : 0
Number of nodes outside : 0

Percent nodes mapped: 100%
Weight calculation time: 0.242 (s)
Interpolation time: 0.125 (s)

Solution (I6)

TABLE 18
Model (I4) > Static Structural (I5) > Solution

Object Name	*Solution (I6)*
State	Solved
Solution	
Number Of Cores to Use (Beta)	Solve Process Settings
Adaptive Mesh Refinement	

Max Refinement Loops	1,
Refinement Depth	2,
Information	
Status	Done
MAPDL Elapsed Time	9 m 40 s
MAPDL Memory Used	7,6611 GB
MAPDL Result File Size	477, MB
Post Processing	
Distributed Post Processing (Beta)	Program Controlled
Mesh Source (Beta)	Program Controlled
Beam Section Results	No
On Demand Stress/Strain	No

TABLE 19
Model (I4) > Static Structural (I5) > Solution (I6) > Solution Information

Object Name	*Solution Information*
State	Solved
Solution Information	
Solution Output	Solver Output
Newton-Raphson Residuals	0
Identify Element Violations	0
Update Interval	2,5 s
Display Points	All
FE Connection Visibility	
Activate Visibility	Yes
Display	All FE Connectors
Draw Connections Attached To	All Nodes
Line Color	Connection Type
Visible on Results	No
Line Thickness	Single
Display Type	Lines

TABLE 20
Model (I4) > Static Structural (I5) > Solution (I6) > Results

Object Name	*Stress Intensity*	*Total Deformation*	*Equivalent Stress*	*Linearized Equivalent Stress*	*Linearized Equivalent Stress 2*	*Linearized Equivalent Stress 3*	*Linearized Equivalent Stress 4*	*Linearized Equivalent Stress 5*	*Linearized Equivalent Stress 6*
State	Solved								
Scope									
Scoping Method	Geometry Selection			Path					
Geometry	All Bodies								
Path				Path	Path 2	Path 3	Path 4	Path 5	Path 6
Definition									
Type	Stress Intensity	Total Deformation	Equivalent (von-Mises) Stress	Linearized Equivalent Stress					
By	Time								
Display Time	Last								
Calculate Time History	Yes								
Identifier									
Suppressed	No								
Subtype				All					
Coordinate System				Global Coordinate System					
Zero Through-Thickness Bending Stress				No					
Integration Point Results									
Display Option	Averaged		Averaged						
Average Across Bodies	No		No						
Results									
Minimum	2,0308e-002 MPa	0,59187 mm	1,7691e-002 MPa						
Maximum	48,627 MPa	0,75569 mm	47,502 MPa						
Average	10,93 MPa	0,68562 mm	9,8452 MPa						
Minimum Occurs On	Příruba DN 200	Plášť	Příruba DN 200						
Maximum Occurs On	Vsazené hrdlo	Příruba DN 200	Vsazené hrdlo						
Membrane				37,073 MPa	29,54 MPa	21,261 MPa	36,065 MPa	26,972 MPa	18,626 MPa
Bending (Inside)				12,927 MPa	14,645 MPa	2,1496 MPa	12,508 MPa	7,871 MPa	3,7383 MPa
Bending (Outside)				12,927 MPa	14,645 MPa	2,1496 MPa	12,508 MPa	7,871 MPa	3,7383 MPa
Membrane+Bending (Inside)				29,275 MPa	32,907 MPa	19,188 MPa	26,923 MPa	27,592 MPa	21,393 MPa
Membrane+Bending (Center)				37,073 MPa	29,54 MPa	21,261 MPa	36,065 MPa	26,972 MPa	18,626 MPa
Membrane+Bending (Outside)				47,18 MPa	33,035 MPa	23,348 MPa	46,791 MPa	28,594 MPa	16,253 MPa
Peak (Inside)				10,887 MPa	5,8559 MPa	2,5506 MPa	8,0439 MPa	1,8471 MPa	1,9847 MPa
Peak (Center)				5,1347 MPa	1,0307 MPa	1,2819 MPa	3,8261 MPa	0,88311 MPa	0,97019 MPa
Peak (Outside)				7,8913 MPa	1,3266 MPa	2,5845 MPa	5,9757 MPa	1,7031 MPa	1,9077 MPa
Total (Inside)				33,076 MPa	36,167 MPa	18,999 MPa	29,242 MPa	27,527 MPa	21,393 MPa
Total (Center)				37,929 MPa	29,487 MPa	21,447 MPa	36,603 MPa	27,027 MPa	18,732 MPa
Total (Outside)				45,495 MPa	32,648 MPa	23,257 MPa	45,683 MPa	28,528 MPa	16,164 MPa
Information									
Time	1, s								
Load Step	1								
Substep	1								
Iteration Number	1								

FIGURE 5
Model (I4) > Static Structural (I5) > Solution (I6) > Stress Intensity

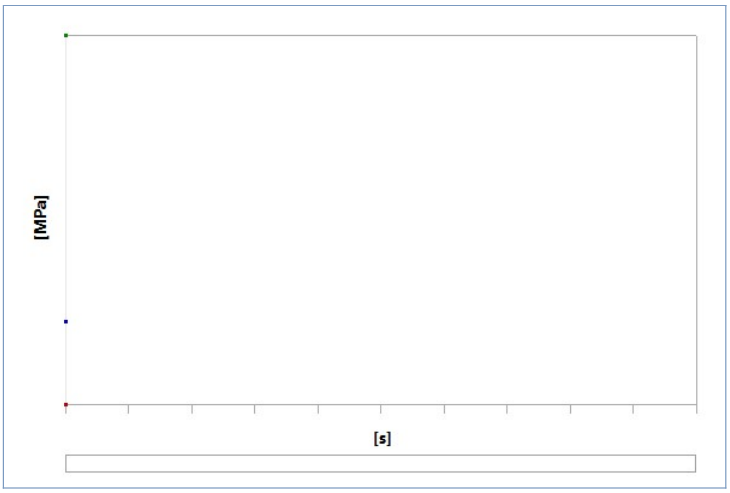


TABLE 21
Model (I4) > Static Structural (I5) > Solution (I6) > Stress Intensity

Time [s]	Minimum [MPa]	Maximum [MPa]	Average [MPa]
1,	2,0308e-002	48,627	10,93

FIGURE 6
Model (I4) > Static Structural (I5) > Solution (I6) > Total Deformation

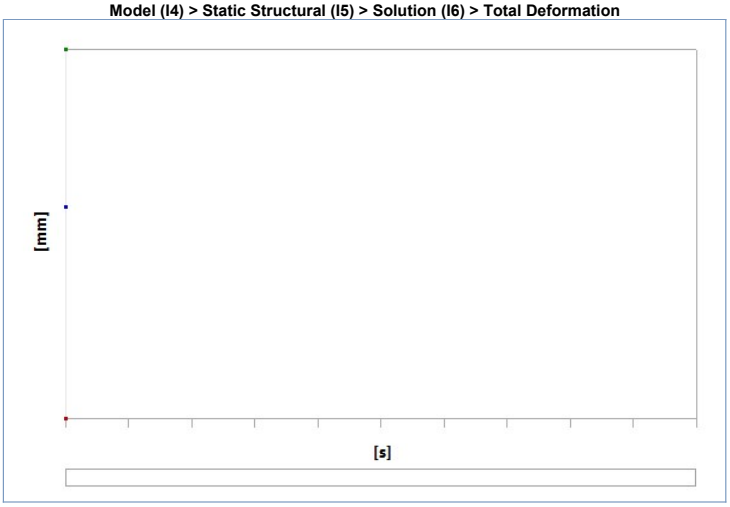


TABLE 22
Model (I4) > Static Structural (I5) > Solution (I6) > Total Deformation

Time [s]	Minimum [mm]	Maximum [mm]	Average [mm]
1,	0,59187	0,75569	0,68562

FIGURE 7
Model (I4) > Static Structural (I5) > Solution (I6) > Equivalent Stress

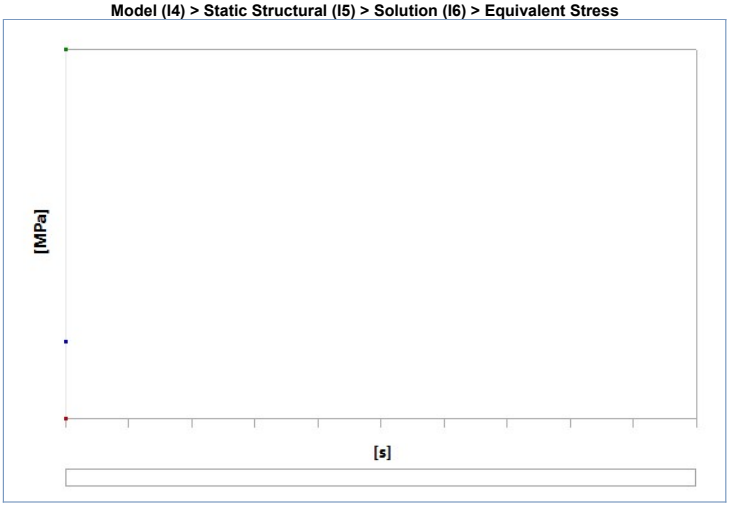


TABLE 23
Model (I4) > Static Structural (I5) > Solution (I6) > Equivalent Stress

Time [s]	Minimum [MPa]	Maximum [MPa]	Average [MPa]
1,	1,7691e-002	47,502	9,8452

FIGURE 8
Model (I4) > Static Structural (I5) > Solution (I6) > Linearized Equivalent Stress

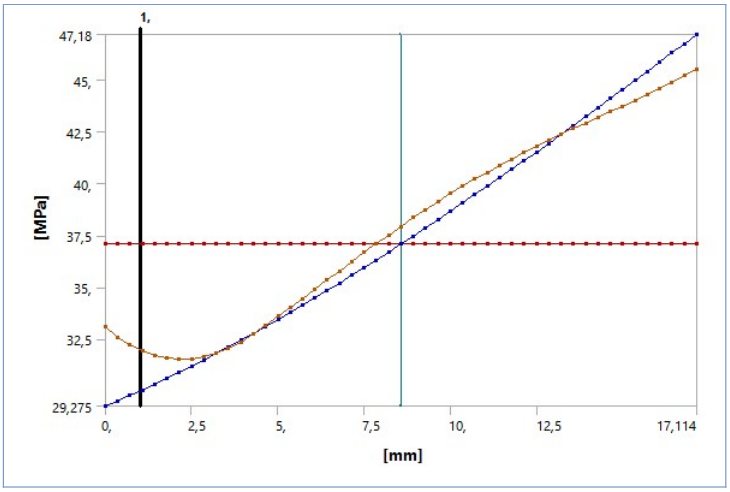


TABLE 24
Model (I4) > Static Structural (I5) > Solution (I6) > Linearized Equivalent Stress

Length [mm]	Membrane [MPa]	Bending [MPa]	Membrane+Bending [MPa]	Peak [MPa]	Total [MPa]
0,		12,927	29,275	10,887	33,076
0,35654		12,388	29,528	9,596	32,604
0,71308		11,849	29,789	8,313	32,221
1,0696		11,311	30,057	7,0391	31,928
1,4262		10,772	30,332	5,7764	31,727
1,7827		10,234	30,614	4,5847	31,602
2,1393		9,6949	30,904	3,5088	31,539
2,4958		9,1563	31,199	2,4748	31,56
2,8523		8,6177	31,501	1,4878	31,659
3,2089		8,0791	31,81	0,55927	31,83
3,5654		7,5405	32,124	0,36184	32,067
3,922		7,0019	32,445	1,1608	32,362
4,2785		6,4633	32,771	1,8293	32,738
4,635		5,9247	33,103	2,4679	33,153
4,9916		5,3861	33,44	3,0773	33,595
5,3481		4,8474	33,782	3,4839	34,013
5,7047		4,3088	34,129	3,8503	34,444
6,0612		3,7702	34,481	4,1859	34,884
6,4178		3,2316	34,838	4,4904	35,333
6,7743		2,693	35,2	4,764	35,786
7,1308		2,1544	35,566	5,0066	36,243
7,4874		1,6158	35,937	5,21	36,7
7,8439		1,0772	36,311	5,2059	37,114
8,2005		0,53861	36,69	5,1809	37,523
8,557	37,073	2,6205e-015	37,073	5,1347	37,929
8,9135		0,53861	37,459	5,05	38,35
9,2701		1,0772	37,85	4,8695	38,748
9,6266		1,6158	38,243	4,6662	39,138
9,9832		2,1544	38,641	4,4405	39,518
10,34		2,693	39,042	4,0512	39,863
10,696		3,2316	39,446	3,6301	40,198
11,053		3,7702	39,853	3,1981	40,528
11,409		4,3088	40,263	2,7553	40,851
11,766		4,8474	40,676	2,3016	41,169
12,122		5,3861	41,093	1,8373	41,481
12,479		5,9247	41,512	1,3634	41,787
12,836		6,4633	41,933	0,72115	42,078
13,192		7,0019	42,358	0,17515	42,358
13,549		7,5405	42,785	0,82477	42,637
13,905		8,0791	43,214	1,57	42,913
14,262		8,6177	43,646	2,3197	43,187
14,618		9,1563	44,08	3,0699	43,458
14,975		9,6949	44,517	3,8199	43,724
15,331		10,234	44,955	4,5716	43,988
15,688		10,772	45,396	5,3195	44,263
16,044		11,311	45,839	6,01	44,562
16,401		11,849	46,284	6,6709	44,872
16,757		12,388	46,731	7,3083	45,184
17,114		12,927	47,18	7,8913	45,495

FIGURE 9
Model (I4) > Static Structural (I5) > Solution (I6) > Linearized Equivalent Stress 2

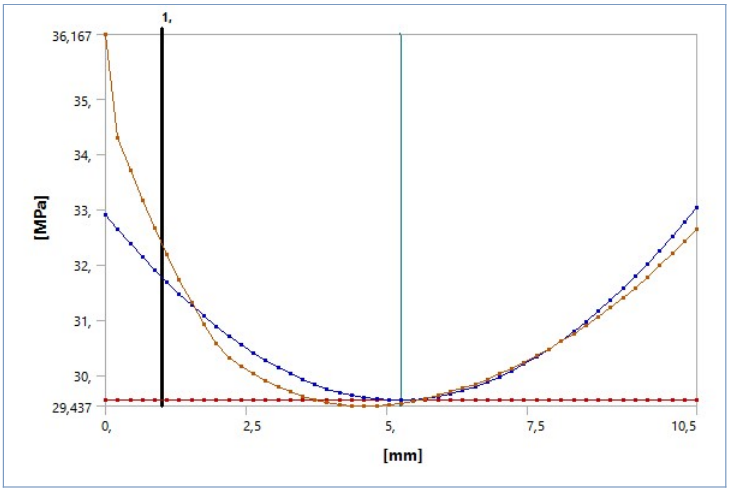


TABLE 25
Model (I4) > Static Structural (I5) > Solution (I6) > Linearized Equivalent Stress 2

Length [mm]	Membrane [MPa]	Bending [MPa]	Membrane+Bending [MPa]	Peak [MPa]	Total [MPa]
0,		14,645	32,907	5,8559	36,167
0,21875		14,034	32,642	3,7524	34,286
0,4375		13,424	32,387	3,1433	33,713
0,65625		12,814	32,142	2,5378	33,168
0,875		12,204	31,906	1,9358	32,654
1,0938		11,594	31,681	1,3374	32,171
1,3125		10,984	31,465	0,74309	31,72
1,5313		10,373	31,261	0,16201	31,303
1,75		9,7631	31,066	0,4462	30,92
1,9688		9,1529	30,883	1,0293	30,574
2,1875		8,5427	30,71	1,4604	30,301
2,4063		7,9325	30,549	1,4627	30,156
2,625		7,3223	30,399	1,4648	30,023
2,8438		6,7122	30,261	1,4667	29,903
3,0625		6,102	30,134	1,4684	29,796
3,2813		5,4918	30,02	1,4701	29,702
3,5		4,8816	29,917	1,4718	29,621
3,7188		4,2714	29,827	1,4734	29,554
3,9375		3,6612	29,748	1,4751	29,5
4,1563		3,051	29,682	1,4768	29,46
4,375		2,4408	29,629	1,4224	29,44
4,5938		1,8306	29,588	1,325	29,437
4,8125		1,2204	29,559	1,2272	29,444
5,0313		0,6102	29,543	1,1291	29,46
5,25	29,54	7,7423e-014	29,54	1,0307	29,487
5,4688		0,6102	29,549	0,93195	29,523
5,6875		1,2204	29,571	0,83296	29,568
5,9063		1,8306	29,606	0,73376	29,623
6,125		2,4408	29,653	0,63442	29,688
6,3438		3,051	29,712	0,53511	29,762
6,5625		3,6612	29,784	0,41882	29,838
6,7813		4,2714	29,868	0,30378	29,922
7,		4,8816	29,964	0,19284	30,014
7,2188		5,4918	30,073	0,10059	30,116
7,4375		6,102	30,193	0,10524	30,225
7,6563		6,7122	30,325	0,20013	30,343
7,875		7,3223	30,469	0,31153	30,47
8,0938		7,9325	30,624	0,42669	30,604
8,3125		8,5427	30,791	0,54324	30,747
8,5313		9,1529	30,968	0,63668	30,896
8,75		9,7631	31,157	0,70373	31,051
8,9688		10,373	31,356	0,7752	31,217
9,1875		10,984	31,566	0,84979	31,393
9,4063		11,594	31,786	0,92661	31,579
9,625		12,204	32,017	1,005	31,774
9,8438		12,814	32,257	1,0845	31,979
10,063		13,424	32,507	1,1648	32,193
10,281		14,034	32,766	1,2455	32,416
10,5		14,645	33,035	1,3266	32,648

FIGURE 10
Model (I4) > Static Structural (I5) > Solution (I6) > Linearized Equivalent Stress 3

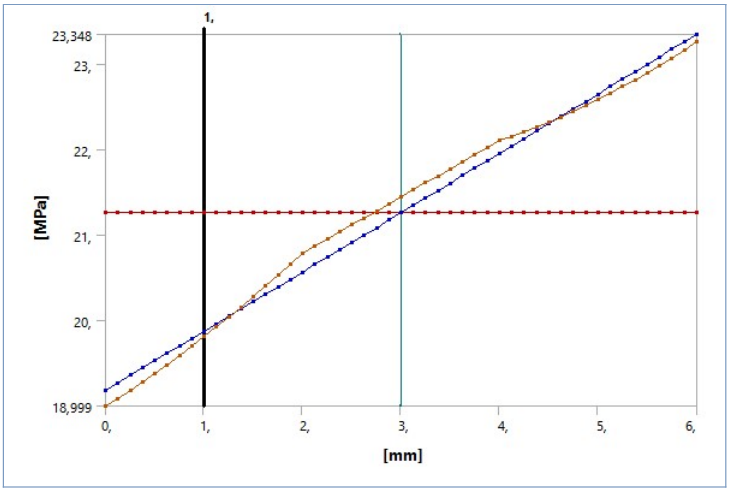


TABLE 26
Model (I4) > Static Structural (I5) > Solution (I6) > Linearized Equivalent Stress 3

Length [mm]	Membrane [MPa]	Bending [MPa]	Membrane+Bending [MPa]	Peak [MPa]	Total [MPa]
0,		2,1496	19,188	2,5506	18,999
0,125		2,06	19,274	2,3112	19,09
0,25		1,9704	19,36	2,0719	19,184
0,375		1,8809	19,446	1,8327	19,281
0,5		1,7913	19,532	1,5938	19,381
0,625		1,7017	19,618	1,3549	19,484
0,75001		1,6122	19,704	1,1163	19,59
0,87501		1,5226	19,791	0,878	19,698
1,		1,4331	19,877	0,64015	19,81
1,125		1,3435	19,963	0,4034	19,924
1,25		1,2539	20,05	0,17187	20,04
1,375		1,1644	20,136	0,10029	20,16
1,5		1,0748	20,222	0,32269	20,281
1,625		0,98522	20,309	0,5582	20,406
1,75		0,89566	20,395	0,79515	20,533
1,875		0,80609	20,482	1,0325	20,662
2,		0,71653	20,568	1,2623	20,792
2,125		0,62696	20,655	1,2632	20,874
2,25		0,53739	20,741	1,2646	20,956
2,375		0,44783	20,828	1,2664	21,037
2,5		0,35826	20,914	1,2687	21,119
2,625		0,2687	21,001	1,2714	21,201
2,75		0,17913	21,088	1,2746	21,283
2,875		8,9566e-002	21,174	1,2781	21,365
3,	21,261	7,955e-014	21,261	1,2819	21,447
3,125		8,9566e-002	21,348	1,286	21,529
3,25		0,17913	21,435	1,2905	21,611
3,375		0,2687	21,521	1,2952	21,693
3,5		0,35826	21,608	1,3002	21,775
3,625		0,44783	21,695	1,3053	21,857
3,75		0,53739	21,782	1,3107	21,94
3,875		0,62696	21,869	1,3163	22,022
4,		0,71653	21,955	1,322	22,104
4,125		0,80609	22,042	1,0736	22,153
4,25		0,89566	22,129	0,82928	22,206
4,375		0,98522	22,216	0,58566	22,262
4,5		1,0748	22,303	0,34379	22,321
4,625		1,1644	22,39	0,11416	22,384
4,75		1,2539	22,477	0,1651	22,449
4,875		1,3435	22,564	0,40076	22,517
5,		1,4331	22,651	0,64252	22,588
5,125		1,5226	22,738	0,88525	22,661
5,25		1,6122	22,825	1,1282	22,738
5,375		1,7017	22,913	1,3712	22,818
5,5		1,7913	23,	1,6141	22,9
5,625		1,8809	23,087	1,8569	22,985
5,75		1,9704	23,174	2,0996	23,073
5,875		2,06	23,261	2,3421	23,164
6,		2,1496	23,348	2,5845	23,257

FIGURE 11
Model (I4) > Static Structural (I5) > Solution (I6) > Linearized Equivalent Stress 4

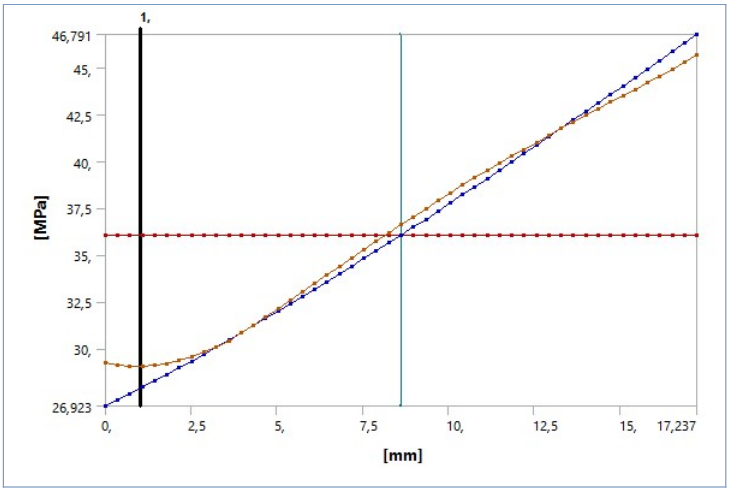


TABLE 27
Model (I4) > Static Structural (I5) > Solution (I6) > Linearized Equivalent Stress 4

Length [mm]	Membrane [MPa]	Bending [MPa]	Membrane+Bending [MPa]	Peak [MPa]	Total [MPa]
0,		12,508	26,923	8,0439	29,242
0,35911		11,987	27,251	7,1126	29,113
0,71823		11,466	27,584	6,1858	29,044
1,0773		10,944	27,923	5,2638	29,036
1,4365		10,423	28,268	4,3474	29,089
1,7956		9,9021	28,618	3,4379	29,2
2,1547		9,3809	28,974	2,539	29,37
2,5138		8,8597	29,334	1,7436	29,57
2,8729		8,3386	29,699	1,0219	29,806
3,232		7,8174	30,068	0,34125	30,088
3,5911		7,2963	30,442	0,26352	30,424
3,9503		6,7751	30,821	0,78529	30,814
4,3094		6,2539	31,203	1,2847	31,227
4,6685		5,7328	31,59	1,7578	31,66
5,0276		5,2116	31,98	2,2041	32,11
5,3867		4,6905	32,374	2,5999	32,573
5,7458		4,1693	32,771	2,8583	33,012
6,1049		3,6481	33,172	3,0965	33,459
6,464		3,127	33,576	3,3139	33,91
6,8232		2,6058	33,984	3,5103	34,365
7,1823		2,0846	34,394	3,6853	34,823
7,5414		1,5635	34,808	3,839	35,283
7,9005		1,0423	35,224	3,9094	35,731
8,2596		0,52116	35,643	3,8802	36,159
8,6187	36,065	5,0985e-014	36,065	3,8261	36,603
8,9778		0,52116	36,489	3,7151	37,042
9,337		1,0423	36,916	3,5891	37,476
9,6961		1,5635	37,345	3,4485	37,904
10,055		2,0846	37,776	3,2933	38,328
10,414		2,6058	38,21	3,0564	38,733
10,773		3,127	38,646	2,7434	39,123
11,133		3,6481	39,084	2,4215	39,509
11,492		4,1693	39,524	2,0906	39,892
11,851		4,6905	39,966	1,7511	40,271
12,21		5,2116	40,409	1,4034	40,648
12,569		5,7328	40,855	1,033	41,021
12,928		6,2539	41,302	0,55126	41,388
13,287		6,7751	41,752	0,18906	41,746
13,646		7,2963	42,202	0,61798	42,104
14,005		7,8174	42,655	1,1567	42,459
14,365		8,3386	43,109	1,7028	42,813
14,724		8,8597	43,564	2,2498	43,165
15,083		9,3809	44,021	2,7962	43,514
15,442		9,9021	44,479	3,3676	43,861
15,801		10,423	44,939	3,9345	44,208
16,16		10,944	45,4	4,4783	44,565
16,519		11,466	45,862	5,0075	44,94
16,878		11,987	46,326	5,5144	45,314
17,237		12,508	46,791	5,9757	45,683

FIGURE 12
Model (I4) > Static Structural (I5) > Solution (I6) > Linearized Equivalent Stress 5

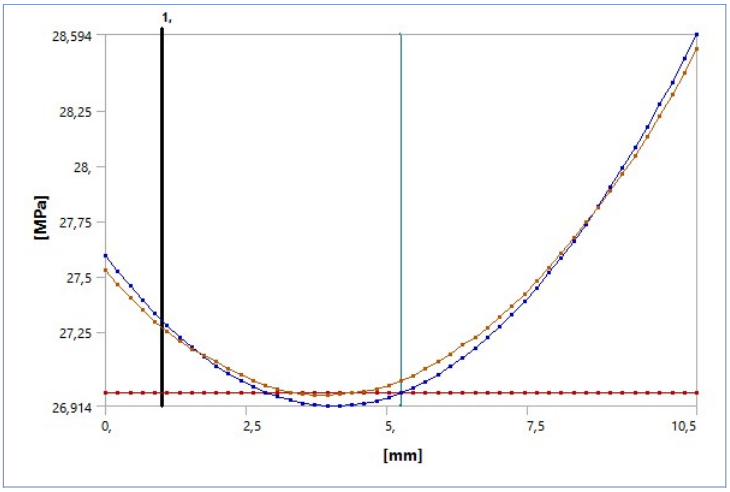


TABLE 28
Model (I4) > Static Structural (I5) > Solution (I6) > Linearized Equivalent Stress 5

Length [mm]	Membrane [MPa]	Bending [MPa]	Membrane+Bending [MPa]	Peak [MPa]	Total [MPa]
0,		7,871	27,592	1,8471	27,527
0,21875		7,5431	27,522	1,6501	27,462
0,4375		7,2151	27,455	1,4529	27,402
0,65625		6,8872	27,392	1,2556	27,346
0,875		6,5592	27,333	1,0582	27,296
1,0938		6,2312	27,278	0,86094	27,249
1,3125		5,9033	27,226	0,66403	27,208
1,5313		5,5753	27,179	0,46835	27,172
1,75		5,2474	27,135	0,27707	27,14
1,9688		4,9194	27,095	0,1162	27,113
2,1875		4,5914	27,059	0,11815	27,084
2,4063		4,2635	27,027	0,18516	27,053
2,625		3,9355	26,999	0,26973	27,027
2,8438		3,6076	26,975	0,35959	27,005
3,0625		3,2796	26,955	0,45154	26,988
3,2813		2,9516	26,938	0,54446	26,975
3,5		2,6237	26,926	0,63789	26,967
3,7188		2,2957	26,918	0,7316	26,963
3,9375		1,9678	26,914	0,82547	26,964
4,1563		1,6398		0,91941	26,969
4,375		1,3118	26,917	0,90918	26,972
4,5938		0,98388	26,925	0,90303	26,98
4,8125		0,65592	26,937	0,89662	26,991
5,0313		0,32796	26,953	0,88998	27,007
5,25	26,972	4,2444e-014	26,972	0,88311	27,027
5,4688		0,32796	26,996	0,87601	27,052
5,6875		0,65592	27,024	0,86872	27,08
5,9063		0,98388	27,055	0,86123	27,113
6,125		1,3118	27,091	0,85356	27,15
6,3438		1,6398	27,13	0,81433	27,188
6,5625		1,9678	27,174	0,72578	27,226
6,7813		2,2957	27,221	0,63717	27,268
7,		2,6237	27,272	0,54852	27,314
7,2188		2,9516	27,327	0,45983	27,364
7,4375		3,2796	27,386	0,37112	27,418
7,6563		3,6076	27,448	0,28242	27,477
7,875		3,9355	27,515	0,19385	27,539
8,0938		4,2635	27,585	0,10588	27,606
8,3125		4,5914	27,659	2,65e-002	27,676
8,5313		4,9194	27,736	0,13854	27,743
8,75		5,2474	27,817	0,31181	27,812
8,9688		5,5753	27,902	0,48575	27,885
9,1875		5,9033	27,99	0,65978	27,963
9,4063		6,2312	28,082	0,83379	28,045
9,625		6,5592	28,178	1,0078	28,132
9,8438		6,8872	28,276	1,1817	28,224
10,063		7,2151	28,379	1,3556	28,321
10,281		7,5431	28,484	1,5294	28,422
10,5		7,871	28,594	1,7031	28,528

FIGURE 13
Model (I4) > Static Structural (I5) > Solution (I6) > Linearized Equivalent Stress 6

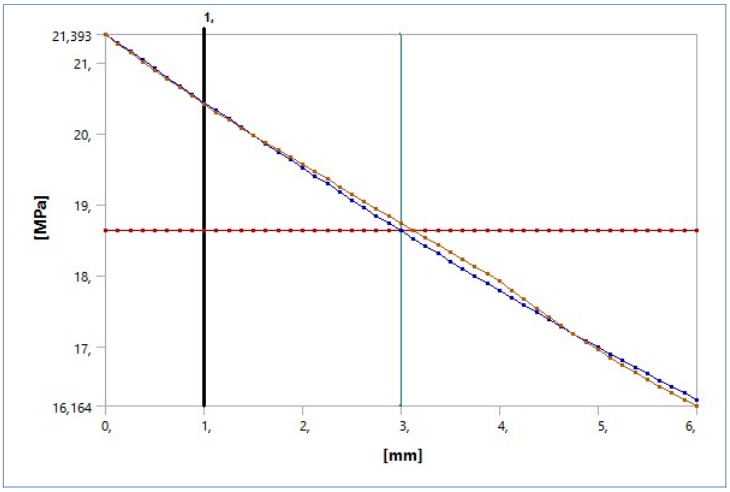


TABLE 29
Model (I4) > Static Structural (I5) > Solution (I6) > Linearized Equivalent Stress 6

Length [mm]	Membrane [MPa]	Bending [MPa]	Membrane+Bending [MPa]	Peak [MPa]	Total [MPa]
0,		3,7383	21,393	1,9847	21,393
0,125		3,5826	21,272	1,7935	21,263
0,25		3,4268	21,151	1,6029	21,135
0,375		3,271	21,031	1,4129	21,009
0,5		3,1153	20,911	1,2234	20,884
0,625		2,9595	20,792	1,0345	20,762
0,75		2,8037	20,673	0,84621	20,642
0,875		2,648	20,554	0,65857	20,524
1,		2,4922	20,436	0,47171	20,408
1,125		2,3365	20,319	0,28614	20,295
1,25		2,1807	20,202	0,10598	20,184
1,375		2,0249	20,086	0,10001	20,075
1,5		1,8692	19,97	0,27862	19,968
1,625		1,7134	19,855	0,46213	19,864
1,75		1,5576	19,74	0,64597	19,762
1,875		1,4019	19,626	0,8296	19,662
2,		1,2461	19,512	0,9815	19,564
2,125		1,0903	19,4	0,97749	19,459
2,25		0,93458	19,287	0,9744	19,355
2,375		0,77882	19,175	0,97214	19,25
2,5		0,62306	19,064	0,97062	19,146
2,625		0,46729	18,954	0,96974	19,042
2,75		0,31153	18,844	0,96943	18,939
2,875		0,15576	18,735	0,96961	18,835
3,	18,626	1,3835e-013	18,626	0,97019	18,732
3,125		0,15576	18,518	0,9711	18,63
3,25		0,31153	18,411	0,97229	18,528
3,375		0,46729	18,305	0,97368	18,426
3,5		0,62306	18,199	0,97521	18,324
3,625		0,77882	18,094	0,97684	18,224
3,75		0,93458	17,989	0,97852	18,123
3,875		1,0903	17,886	0,98021	18,023
4,		1,2461	17,783	0,95525	17,919
4,125		1,4019	17,681	0,773	17,79
4,25		1,5576	17,58	0,59161	17,662
4,375		1,7134	17,479	0,41147	17,537
4,5		1,8692	17,38	0,23419	17,415
4,625		2,0249	17,281	7,7473e-002	17,295
4,75		2,1807	17,183	0,14898	17,177
4,875		2,3365	17,086	0,3207	17,063
5,		2,4922	16,99	0,49738	16,951
5,125		2,648	16,894	0,67473	16,842
5,25		2,8037	16,8	0,85202	16,736
5,375		2,9595	16,706	1,029	16,633
5,5		3,1153	16,614	1,2056	16,532
5,625		3,271	16,522	1,3818	16,435
5,75		3,4268	16,431	1,5576	16,342
5,875		3,5826	16,342	1,7329	16,251
6,		3,7383	16,253	1,9077	16,164

Material Data

P245GH

TABLE 30
P245GH > Constants

Density	7,85e-006 kg mm^-3
Coefficient of Thermal Expansion	1,2e-005 C^-1
Specific Heat	4,34e+005 mJ kg^-1 C^-1
Thermal Conductivity	6,05e-002 W mm^-1 C^-1
Resistivity	1,7e-004 ohm mm

TABLE 31
P245GH > Color

Red	Green	Blue
132,	139,	179,

TABLE 32
P245GH > Compressive Ultimate Strength

Compressive Ultimate Strength MPa
0,

TABLE 33
P245GH > Compressive Yield Strength

Compressive Yield Strength MPa
250,

TABLE 34
P245GH > Tensile Yield Strength

Tensile Yield Strength MPa
245,

TABLE 35
P245GH > Tensile Ultimate Strength

Tensile Ultimate Strength MPa
410,

TABLE 36
P245GH > Isotropic Secant Coefficient of Thermal Expansion

Zero-Thermal-Strain Reference Temperature C
22,

TABLE 37
P245GH > S-N Curve

Alternating Stress MPa	Cycles	Mean Stress MPa
3999,	10,	0,
2827,	20,	0,
1896,	50,	0,
1413,	100,	0,
1069,	200,	0,
441,	2000,	0,
262,	10000	0,
214,	20000	0,
138,	1,e+005	0,
114,	2,e+005	0,
86,2	1,e+006	0,

TABLE 38
P245GH > Strain-Life Parameters

Strength Coefficient MPa	Strength Exponent	Ductility Coefficient	Ductility Exponent	Cyclic Strength Coefficient MPa	Cyclic Strain Hardening Exponent
920,	-0,106	0,213	-0,47	1000,	0,2

TABLE 39
P245GH > Isotropic Elasticity

Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,0387e+005	0,3	1,6989e+005	78411	

TABLE 40
P245GH > Isotropic Relative Permeability

Relative Permeability
10000

P265GH

TABLE 41
P265GH > Constants

Density	7,85e-006 kg mm^-3
Coefficient of Thermal Expansion	1,2e-005 C^-1
Specific Heat	4,34e+005 mJ kg^-1 C^-1
Thermal Conductivity	6,05e-002 W mm^-1 C^-1
Resistivity	1,7e-004 ohm mm

TABLE 42
P265GH > Color

Red	Green	Blue
132,	139,	179,

TABLE 43
P265GH > Compressive Ultimate Strength

Compressive Ultimate Strength MPa
0,

TABLE 44
P265GH > Compressive Yield Strength

Compressive Yield Strength MPa
250,

TABLE 45
P265GH > Tensile Yield Strength

Tensile Yield Strength MPa
265,

TABLE 46
P265GH > Tensile Ultimate Strength

Tensile Ultimate Strength MPa
410,

TABLE 47
P265GH > Isotropic Secant Coefficient of Thermal Expansion

Zero-Thermal-Strain Reference Temperature C
22,

TABLE 48

P265GH > S-N Curve

Alternating Stress MPa	Cycles	Mean Stress MPa
3999,	10,	0,
2827,	20,	0,
1896,	50,	0,
1413,	100,	0,
1069,	200,	0,
441,	2000,	0,
262,	10000	0,
214,	20000	0,
138,	1,e+005	0,
114,	2,e+005	0,
86,2	1,e+006	0,

TABLE 49
P265GH > Strain-Life Parameters

Strength Coefficient MPa	Strength Exponent	Ductility Coefficient	Ductility Exponent	Cyclic Strength Coefficient MPa	Cyclic Strain Hardening Exponent
920,	-0,106	0,213	-0,47	1000,	0,2

TABLE 50
P265GH > Isotropic Elasticity

Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,0387e+005	0,3	1,6989e+005	78411	

TABLE 51
P265GH > Isotropic Relative Permeability

Relative Permeability
10000

P265GH_nozzle

TABLE 52
P265GH_nozzle > Constants

Density	7,85e-006 kg mm^-3
Coefficient of Thermal Expansion	1,2e-005 C^-1
Specific Heat	4,34e+005 mJ kg^-1 C^-1
Thermal Conductivity	6,05e-002 W mm^-1 C^-1
Resistivity	1,7e-004 ohm mm

TABLE 53
P265GH_nozzle > Color

Red	Green	Blue
132,	139,	179,

TABLE 54
P265GH_nozzle > Compressive Ultimate Strength

Compressive Ultimate Strength MPa
0,

TABLE 55
P265GH_nozzle > Compressive Yield Strength

Compressive Yield Strength MPa
250,

TABLE 56
P265GH_nozzle > Tensile Yield Strength

Tensile Yield Strength MPa
265,

TABLE 57
P265GH_nozzle > Tensile Ultimate Strength

Tensile Ultimate Strength MPa
410,

TABLE 58
P265GH_nozzle > Isotropic Secant Coefficient of Thermal Expansion

Zero-Thermal-Strain Reference Temperature C
22,

TABLE 59
P265GH_nozzle > S-N Curve

Alternating Stress MPa	Cycles	Mean Stress MPa
3999,	10,	0,
2827,	20,	0,
1896,	50,	0,
1413,	100,	0,
1069,	200,	0,
441,	2000,	0,
262,	10000	0,
214,	20000	0,
138,	1,e+005	0,
114,	2,e+005	0,
86,2	1,e+006	0,

TABLE 60
P265GH_nozzle > Strain-Life Parameters

Strength Coefficient MPa	Strength Exponent	Ductility Coefficient	Ductility Exponent	Cyclic Strength Coefficient MPa	Cyclic Strain Hardening Exponent
920,	-0,106	0,213	-0,47	1000,	0,2

TABLE 61
P265GH_nozzle > Isotropic Elasticity

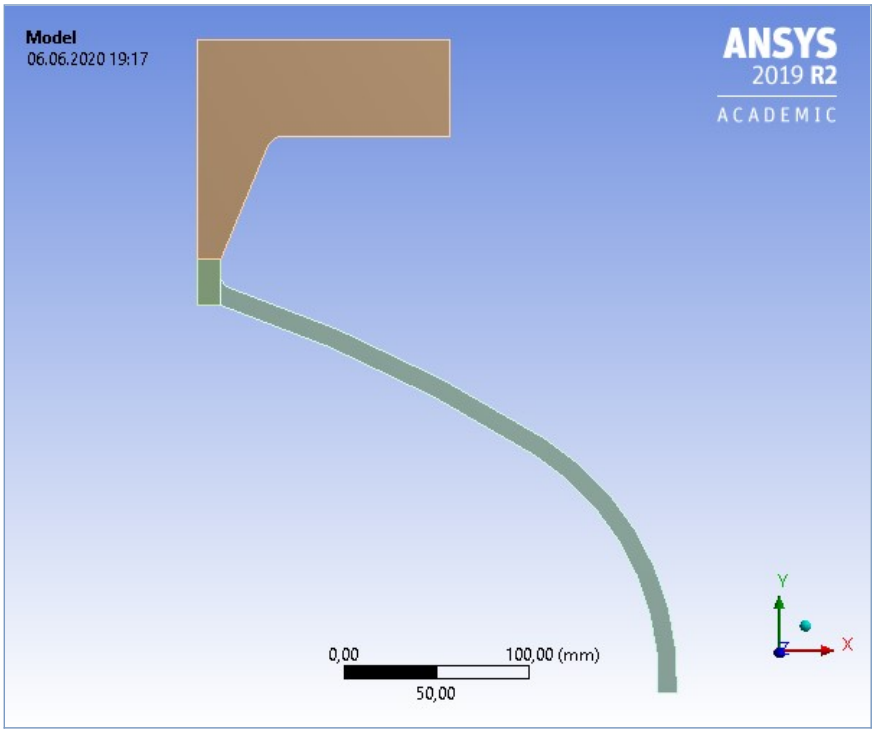
Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,0387e+005	0,3	1,6989e+005	78411	

TABLE 62
P265GH_nozzle > Isotropic Relative Permeability

Relative Permeability
10000

Stress categorization - Nozzle N3 - DESIGN CASE*

First Saved	Friday, November 29, 2019
Last Saved	Tuesday, April 14, 2020
Product Version	2019 R2
Save Project Before Solution	No
Save Project After Solution	No



Contents

- **Units**
- **Model (C4)**
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    - Model_2D_Rev2
      - Parts
  - Materials
  - Construction Geometry
    - Paths
  - Coordinate Systems
  - Connections
    - Contacts
      - Contact Region
  - Mesh
    - Mesh Controls
  - **Static Structural (C5)**
    - Analysis Settings
    - Loads
    - Solution (C6)
      - Solution Information
      - Results
- **Material Data**
  - P355GH
  - P355QH1
  - P265GH

Units

TABLE 1

Unit System	Metric (mm, kg, N, s, mV, mA) Degrees rad/s Celsius
Angle	Degrees
Rotational Velocity	rad/s
Temperature	Celsius

Model (C4)

Geometry

TABLE 2
Model (C4) > Geometry

Object Name	*Geometry*
State	Fully Defined
Definition	
Source	C:\Users\prochazka.tomas\AppData\Local\Temp\Model_N3.tmp\Model_N3_files\dp0\Geom\DM\Geom.agdb
Type	DesignModeler
Length Unit	Meters
Element Control	Program Controlled
2D Behavior	Axisymmetric
Display Style	Body Color
Bounding Box	
Length X	258,87 mm
Length Y	352,84 mm
Properties	
Volume	N/A
Mass	N/A
Surface Area(approx.)	12811 mm²
Scale Factor Value	1,
Statistics	
Bodies	3
Active Bodies	3
Nodes	67112
Elements	21881
Mesh Metric	None
Update Options	
Assign Default Material	No
Basic Geometry Options	
Parameters	Independent

Parameter Key	
Attributes	Yes
Attribute Key	
Named Selections	Yes
Named Selection Key	
Material Properties	Yes
Advanced Geometry Options	
Use Associativity	Yes
Coordinate Systems	Yes
Coordinate System Key	
Reader Mode Saves Updated File	No
Use Instances	Yes
Smart CAD Update	Yes
Compare Parts On Update	No
Analysis Type	2-D
Clean Bodies On Import	No
Stitch Surfaces On Import	None
Decompose Disjoint Geometry	Yes
Enclosure and Symmetry Processing	Yes

TABLE 3
Model (C4) > Geometry > Body Groups

Object Name	*Model_2D_Rev2*
State	Meshed
Graphics Properties	
Visible	Yes
Definition	
Suppressed	No
Assignment	Multiple Materials
Coordinate System	Default Coordinate System
Bounding Box	
Length X	258,87 mm
Length Y	352,84 mm
Properties	
Volume	0, mm³
Mass	0, kg
Centroid X	0, mm
Centroid Y	0, mm
Centroid Z	0, mm
Moment of Inertia Ip1	0, kg·mm²
Moment of Inertia Ip2	0, kg·mm²
Moment of Inertia Ip3	0, kg·mm²
Surface Area(approx.)	12811 mm²
Statistics	
Nodes	67112
Elements	21881
Mesh Metric	None
CAD Attributes	
DMBodyGroup	1
DMSheetThickness	0

TABLE 4
Model (C4) > Geometry > Model_2D_Rev2 > Parts

Object Name	*Model_2D_Rev2@Povrch-Rovina3*	*Model_2D_Rev2@Povrch-Rovina2*	*Model_2D_Rev2@Torosférické dno*
State	Meshed		
Graphics Properties			
Visible	Yes		
Glow	0		
Shininess	1		
Transparency	1		
Specularity	1		
Definition			
Suppressed	No		
Stiffness Behavior	Flexible		
Coordinate System	Default Coordinate System		
Reference Temperature	By Environment		
Treatment	None		
Material			
Assignment	P355GH	P355QH1	P265GH
Nonlinear Effects	Yes		
Thermal Strain Effects	Yes		
Bounding Box			
Length X	12,7 mm	136,2 mm	246,17 mm

Length Y	25, mm	118,42 mm	223,88 mm
Properties			
Volume	N/A		
Mass	N/A		
Centroid X	N/A		
Centroid Y	N/A		
Centroid Z	N/A		
Moment of Inertia Ip1	N/A		
Moment of Inertia Ip2	N/A		
Moment of Inertia Ip3	N/A		
Surface Area(approx.)	317,5 mm²	8847,3 mm²	3645,7 mm²
Statistics			
Nodes	15603	30072	21657
Elements	5100	9845	6936
Mesh Metric	None		

TABLE 5
Model (C4) > Materials

Object Name	*Materials*
State	Fully Defined
Statistics	
Materials	7
Material Assignments	0

TABLE 6
Model (C4) > Construction Geometry

Object Name	*Construction Geometry*
State	Fully Defined
Display	
Show Mesh	No

TABLE 7
Model (C4) > Construction Geometry > Paths

Object Name	*Path*	*Path 2*	*Path 3*
State	Fully Defined		
Definition			
Path Type	Two Points		
Path Coordinate System	Global Coordinate System		
Number of Sampling Points	47,		
Suppressed	No		
Start			
Coordinate System	Global Coordinate System		
Start X Coordinate	255,42 mm	254, mm	260,89 mm
Start Y Coordinate	221,24 mm	228,9 mm	218,16 mm
Location	Defined		
End			
Coordinate System	Global Coordinate System		
End X Coordinate	241,3 mm		257,32 mm
End Y Coordinate	209,43 mm	228,9 mm	208,29 mm
Location	Defined		

Coordinate Systems

TABLE 8
Model (C4) > Coordinate Systems > Coordinate System

Object Name	*Global Coordinate System*
State	Fully Defined
Definition	
Type	Cartesian
Coordinate System ID	0,
Origin	
Origin X	0, mm
Origin Y	0, mm
Directional Vectors	
X Axis Data	[1, 0,]
Y Axis Data	[0, 1,]

Connections

TABLE 9
Model (C4) > Connections

Object Name	*Connections*
State	Fully Defined

Auto Detection	
Generate Automatic Connection On Refresh	Yes
Transparency	
Enabled	Yes

TABLE 10
Model (C4) > Connections > Contacts

Object Name	*Contacts*
State	Fully Defined
Definition	
Connection Type	Contact
Scope	
Scoping Method	Geometry Selection
Geometry	All Bodies
Auto Detection	
Tolerance Type	Slider
Tolerance Slider	0,
Tolerance Value	1,0941 mm
Use Range	No
Edge/Edge	Yes
Priority	Include All
Group By	Bodies
Search Across	Bodies
Statistics	
Connections	1
Active Connections	1

TABLE 11
Model (C4) > Connections > Contacts > Contact Regions

Object Name	*Contact Region*
State	Fully Defined
Scope	
Scoping Method	Geometry Selection
Contact	1 Edge
Target	1 Edge
Contact Bodies	Multiple
Target Bodies	Model_2D_Rev2@Torosférické dno
Shell Thickness Effect	No
Protected	No
Definition	
Type	Bonded
Scope Mode	Automatic
Behavior	Program Controlled
Trim Contact	Program Controlled
Trim Tolerance	1,0941 mm
Suppressed	No
Advanced	
Formulation	Program Controlled
Small Sliding	Program Controlled
Detection Method	Program Controlled
Penetration Tolerance	Program Controlled
Elastic Slip Tolerance	Program Controlled
Normal Stiffness	Program Controlled
Update Stiffness	Program Controlled
Pinball Region	Program Controlled
Geometric Modification	
Contact Geometry Correction	None
Target Geometry Correction	None

Mesh

TABLE 12
Model (C4) > Mesh

Object Name	*Mesh*
State	Solved
Display	
Display Style	Use Geometry Setting
Defaults	
Physics Preference	Mechanical
Element Order	Quadratic
Element Size	1, mm
Sizing	
Use Adaptive Sizing	No

Growth Rate	Default (1,2)
Mesh Defeaturing	Yes
Defeature Size	Default (5,e-003 mm)
Capture Curvature	Yes
Curvature Min Size	Default (1,e-002 mm)
Curvature Normal Angle	Default (30,°)
Capture Proximity	No
Size Formulation (Beta)	Program Controlled
Bounding Box Diagonal	437,62 mm
Average Surface Area	4270,2 mm²
Minimum Edge Length	1,2034 mm
Enable Size Field (Beta)	No
Quality	
Check Mesh Quality	Yes, Errors
Error Limits	Standard Mechanical
Target Quality	Default (0.050000)
Smoothing	Medium
Mesh Metric	None
Inflation	
Use Automatic Inflation	None
Inflation Option	Smooth Transition
Transition Ratio	0,272
Maximum Layers	2
Growth Rate	1,2
Inflation Algorithm	Pre
View Advanced Options	No
Batch Connections	
Mesh Based Connection	No
Advanced	
Number of CPUs for Parallel Part Meshing	Program Controlled
Straight Sided Elements	No
Rigid Body Behavior	Dimensionally Reduced
Triangle Surface Mesher	Program Controlled
Use Asymmetric Mapped Mesh (Beta)	No
Topology Checking	Yes
Use Sheet Thickness for Pinch	No
Pinch Tolerance	Default (9,e-003 mm)
Generate Pinch on Refresh	No
Sheet Loop Removal	No
Statistics	
Nodes	67112
Elements	21881

TABLE 13
Model (C4) > Mesh > Mesh Controls

Object Name	*Vertex Sizing*	*Automatic Method*
State	Fully Defined	
Scope		
Scoping Method	Geometry Selection	
Geometry	1 Vertex	3 Bodies
Definition		
Suppressed	No	
Type	Sphere of Influence	
Sphere Radius	30, mm	
Element Size	0,25 mm	
Method		Quadrilateral Dominant
Element Order		Quadratic
Free Face Mesh Type		Quad/Tri

Static Structural (C5)

TABLE 14
Model (C4) > Analysis

Object Name	*Static Structural (C5)*
State	Solved
Definition	
Physics Type	Structural
Analysis Type	Static Structural
Solver Target	Mechanical APDL
Options	
Environment Temperature	20, °C
Generate Input Only	No

TABLE 15
Model (C4) > Static Structural (C5) > Analysis Settings

Object Name	*Analysis Settings*
State	Fully Defined
Step Controls	
Number Of Steps	1,
Current Step Number	1,
Step End Time	1, s
Auto Time Stepping	Program Controlled
Solver Controls	
Solver Type	Program Controlled
Weak Springs	Off
Solver Pivot Checking	Program Controlled
Large Deflection	Off
Inertia Relief	Off
Rotordynamics Controls	
Coriolis Effect	Off
Restart Controls	
Generate Restart Points	Program Controlled
Retain Files After Full Solve	No
Combine Restart Files	Program Controlled
Nonlinear Controls	
Newton-Raphson Option	Program Controlled
Force Convergence	Program Controlled
Moment Convergence	Program Controlled
Displacement Convergence	Program Controlled
Rotation Convergence	Program Controlled
Line Search	Program Controlled
Stabilization	Program Controlled
Output Controls	
Stress	Yes
Surface Stress	No
Back Stress	No
Strain	Yes
Contact Data	Yes
Nonlinear Data	No
Nodal Forces	No
Contact Miscellaneous	No
General Miscellaneous	No
Store Results At	All Time Points
Cache Results in Memory (Beta)	Never
Combine Distributed Result Files (Beta)	Program Controlled
Result File Compression	Program Controlled
Analysis Data Management	
Solver Files Directory	C:\Users\prochazka.tomas\AppData\Local\Temp\Model_N3.tmp\Model_N3_files\dp0\SYS\MECH\
Future Analysis	None
Scratch Solver Files Directory	
Save MAPDL db	No
Contact Summary	Program Controlled
Delete Unneeded Files	Yes
Nonlinear Solution	No
Solver Units	Active System
Solver Unit System	nmm

TABLE 16
Model (C4) > Static Structural (C5) > Loads

Object Name	*Displacement*	*Navrhovy tlak 16 bar*	*Navrhova teplota*	*Hmotnost plocheho dna 154 kg*	*Ekvivalentni sila od vnitrniho tlaku*
State	Fully Defined				
Scope					
Scoping Method	Geometry Selection				
Geometry	1 Edge	5 Edges	3 Bodies	1 Edge	
Definition					
ID (Beta)	61	63	65	83	184
Type	Displacement	Pressure	Thermal Condition	Force	
Define By	Components	Normal To		Components	
Coordinate System	Global Coordinate System			Global Coordinate System	
X Component	Free			0, N (ramped)	
Y Component	0, mm (ramped)			-1510,7 N (ramped)	2,9579e+005 N (ramped)
Suppressed	No				
Applied By		Surface Effect			
Magnitude		1,6 MPa (ramped)	130, °C (ramped)		

FIGURE 1
Model (C4) > Static Structural (C5) > Displacement

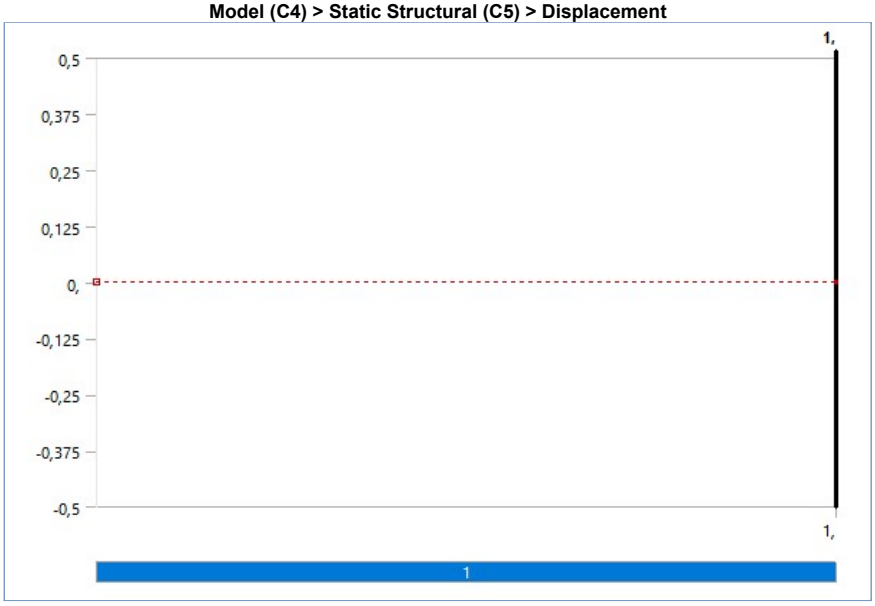


FIGURE 2
Model (C4) > Static Structural (C5) > Navrhovy tlak 16 bar

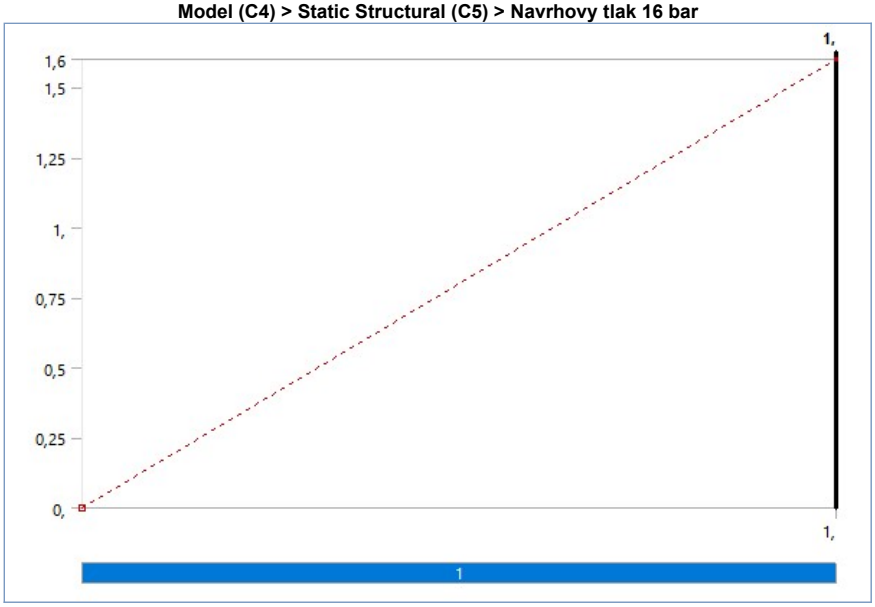


FIGURE 3
Model (C4) > Static Structural (C5) > Navrhova teplota

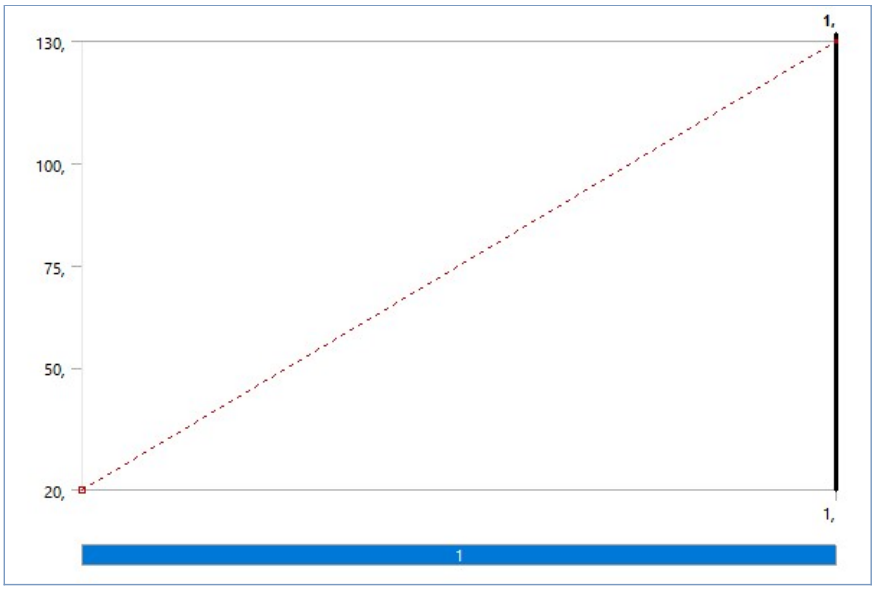


FIGURE 4
Model (C4) > Static Structural (C5) > Hmotnost plocheho dna 154 kg

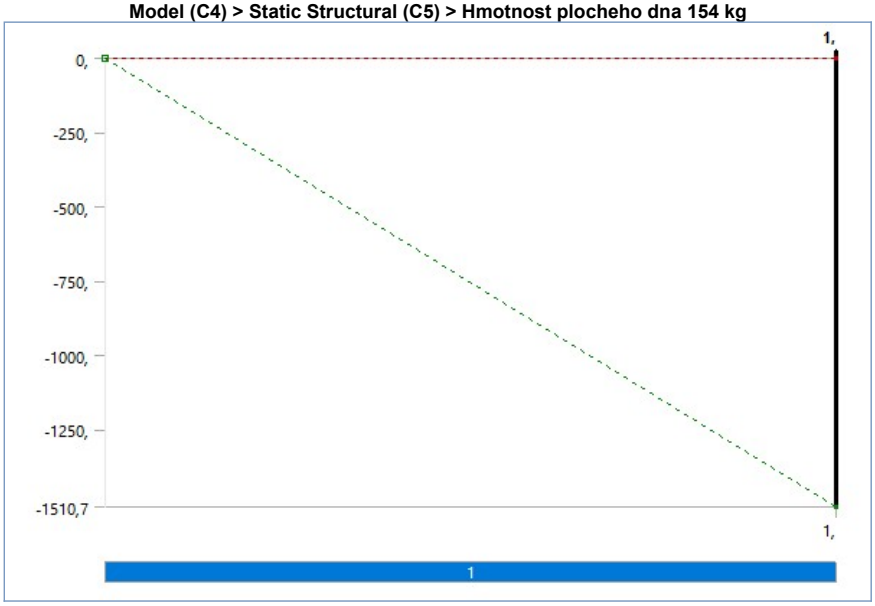
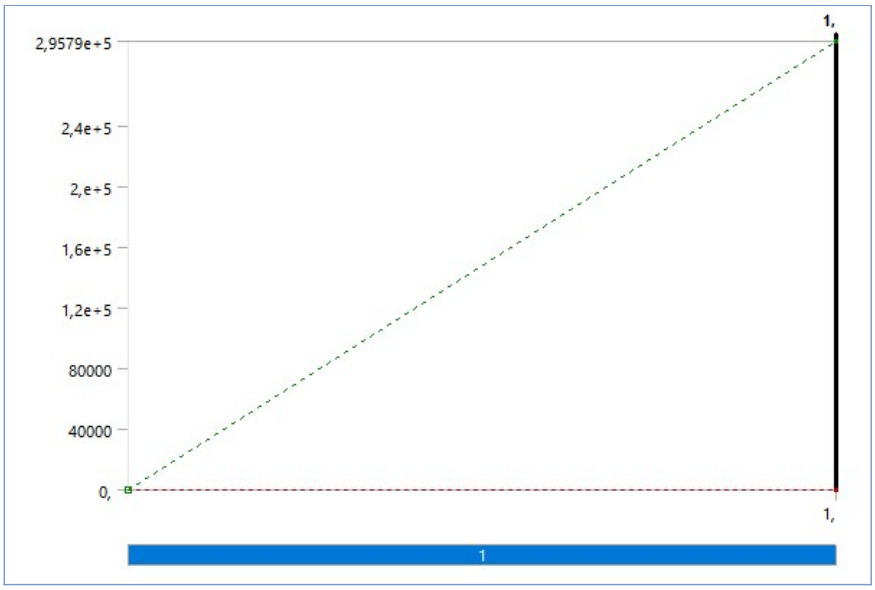


FIGURE 5
Model (C4) > Static Structural (C5) > Ekvivalentni sila od vnitrniho tlaku



Solution (C6)

TABLE 17
Model (C4) > Static Structural (C5) > Solution

Object Name	*Solution (C6)*
State	Solved
Solution	
Number Of Cores to Use (Beta)	Solve Process Settings
Adaptive Mesh Refinement	
Max Refinement Loops	1,
Refinement Depth	2,
Information	
Status	Done
MAPDL Elapsed Time	6, s
MAPDL Memory Used	462, MB
MAPDL Result File Size	15,813 MB
Post Processing	
Distributed Post Processing (Beta)	Program Controlled
Mesh Source (Beta)	Program Controlled
Beam Section Results	No
On Demand Stress/Strain	No

TABLE 18
Model (C4) > Static Structural (C5) > Solution (C6) > Solution Information

Object Name	*Solution Information*
State	Solved
Solution Information	
Solution Output	Solver Output
Newton-Raphson Residuals	0
Identify Element Violations	0
Update Interval	2,5 s
Display Points	All
FE Connection Visibility	
Activate Visibility	Yes
Display	All FE Connectors
Draw Connections Attached To	All Nodes
Line Color	Connection Type
Visible on Results	No
Line Thickness	Single
Display Type	Lines

TABLE 19
Model (C4) > Static Structural (C5) > Solution (C6) > Results

Object Name	*Stress Intensity*	*Total Deformation*	*Linearized Equivalent Stress*	*Linearized Equivalent Stress 2*	*Linearized Equivalent Stress 3*	*Equivalent Stress*
State	Solved					
Scope						
Scoping Method	Geometry Selection		Path			Geometry Selection

Geometry	All Bodies					
Path			Path	Path 2	Path 3	
Definition						
Type	Stress Intensity	Total Deformation	Linearized Equivalent Stress			Equivalent (von-Mises) Stress
By	Time					
Display Time	Last					
Calculate Time History	Yes					Yes
Identifier						
Suppressed	No					
Subtype			All			
Coordinate System			Global Coordinate System			
2D Behavior			Planar			
Integration Point Results						
Display Option	Averaged					Averaged
Average Across Bodies	No					No
Results						
Minimum	0,37173 MPa	0,44994 mm				0,32661 MPa
Maximum	327,91 MPa	1,5054 mm				293,46 MPa
Average	99,988 MPa	1,1655 mm				90,186 MPa
Minimum Occurs On	Model_2D_Rev2@Povrch-Rovina2	Model_2D_Rev2@Torosférické dno				Model_2D_Rev2@Povrch-Rovina2
Maximum Occurs On	Model_2D_Rev2@Torosférické dno	Model_2D_Rev2@Povrch-Rovina2				Model_2D_Rev2@Torosférické dno
Membrane			152,26 MPa	140,34 MPa	149,06 MPa	
Bending (Inside)			66,451 MPa	49,976 MPa	148,71 MPa	
Bending (Outside)			66,451 MPa	49,976 MPa	148,71 MPa	
Membrane+Bending (Inside)			132,88 MPa	137,81 MPa	208,11 MPa	
Membrane+Bending (Center)			152,26 MPa	140,34 MPa	149,06 MPa	
Membrane+Bending (Outside)			193,75 MPa	159,34 MPa	212,97 MPa	
Peak (Inside)			151,51 MPa	30,438 MPa	14,792 MPa	
Peak (Center)			48,09 MPa	13,989 MPa	4,0747 MPa	
Peak (Outside)			61,108 MPa	27,253 MPa	10,503 MPa	
Total (Inside)			214,71 MPa	134,51 MPa	207,91 MPa	
Total (Center)			167,55 MPa	143,36 MPa	148,82 MPa	
Total (Outside)			172,87 MPa	157,48 MPa	214,31 MPa	
Information						
Time	1, s					
Load Step	1					
Substep	1					
Iteration Number	1					

FIGURE 6
Model (C4) > Static Structural (C5) > Solution (C6) > Stress Intensity

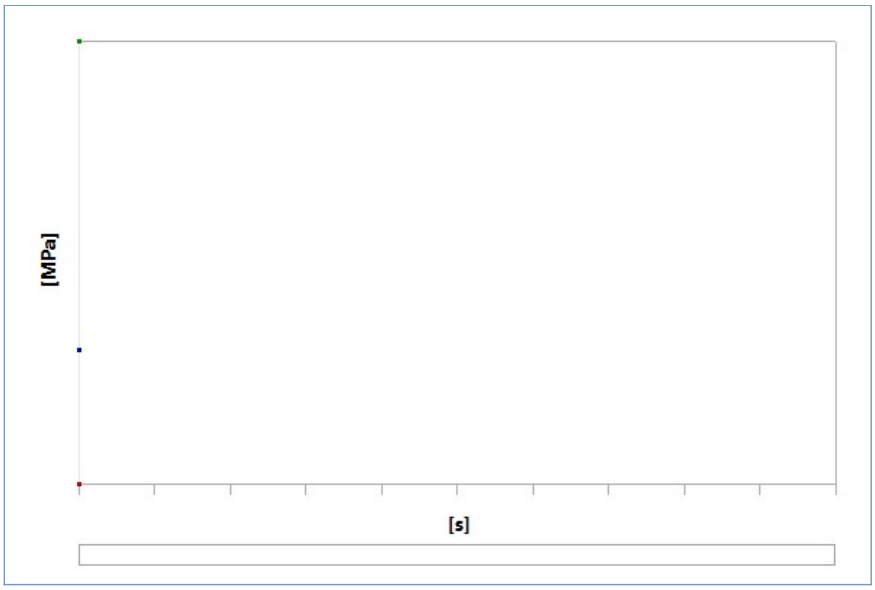


TABLE 20
Model (C4) > Static Structural (C5) > Solution (C6) > Stress Intensity

Time [s]	Minimum [MPa]	Maximum [MPa]	Average [MPa]
1,	0,37173	327,91	99,988

FIGURE 7
Model (C4) > Static Structural (C5) > Solution (C6) > Total Deformation

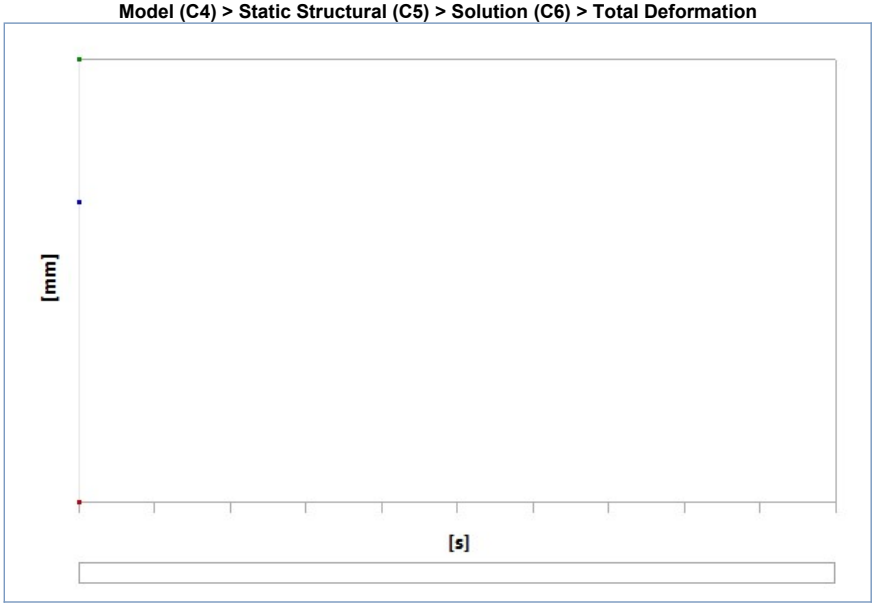


TABLE 21
Model (C4) > Static Structural (C5) > Solution (C6) > Total Deformation

Time [s]	Minimum [mm]	Maximum [mm]	Average [mm]
1,	0,44994	1,5054	1,1655

FIGURE 8
Model (C4) > Static Structural (C5) > Solution (C6) > Linearized Equivalent Stress

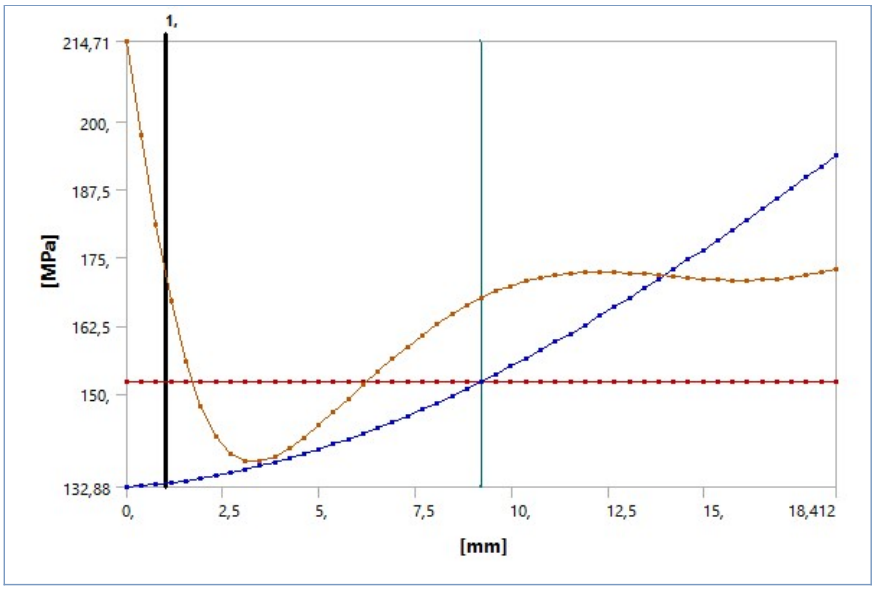


TABLE 22
Model (C4) > Static Structural (C5) > Solution (C6) > Linearized Equivalent Stress

Length [mm]	Membrane [MPa]	Bending [MPa]	Membrane+Bending [MPa]	Peak [MPa]	Total [MPa]
0,		66,451	132,88	151,51	214,71
0,38358		63,682	133,08	122,58	197,42
0,76716		60,914	133,34	98,699	181,13
1,1507		58,145	133,66	77,379	167,04
1,5343		55,376	134,03	58,574	155,84
1,9179		52,607	134,46	42,446	147,67
2,3015		49,838	134,94	29,153	142,25
2,6851		47,07	135,48	19,141	139,07
3,0687		44,301	136,08	14,125	137,66
3,4522		41,532	136,73	15,496	137,56
3,8358		38,763	137,42	20,278	138,42
4,2194		35,994	138,18	25,65	139,95
4,603		33,226	138,98	30,709	141,92
4,9866		30,457	139,83	35,214	144,17
5,3701		27,688	140,74	39,118	146,6
5,7537		24,919	141,69	42,424	149,1
6,1373		22,15	142,68	45,134	151,6
6,5209		19,382	143,73	47,282	154,06
6,9045		16,613	144,82	48,899	156,43
7,2881		13,844	145,95	49,998	158,69
7,6716		11,075	147,13	50,595	160,81
8,0552		8,3064	148,35	50,696	162,77
8,4388		5,5376	149,61	50,297	164,55
8,8224	152,26	2,7688	150,91	49,425	166,14
9,206		8,1191e-014	152,26	48,09	167,55
9,5895		2,7688	153,63	46,302	168,76
9,9731		5,5376	155,05	44,072	169,79
10,357		8,3064	156,5	41,394	170,62
10,74		11,075	157,99	38,303	171,27
11,124		13,844	159,51	34,815	171,75
11,507		16,613	161,07	30,954	172,08
11,891		19,382	162,65	26,748	172,26
12,275		22,15	164,27	22,233	172,32
12,658		24,919	165,92	17,482	172,28
13,042		27,688	167,6	12,66	172,15
13,425		30,457	169,31	8,2611	171,96
13,809		33,226	171,04	6,2026	171,74
14,193		35,994	172,81	8,8592	171,5
14,576		38,763	174,59	13,933	171,27
14,96		41,532	176,41	19,698	171,07
15,343		44,301	178,24	25,675	170,92
15,727		47,07	180,11	31,658	170,83
16,11		49,838	181,99	37,501	170,82
16,494		52,607	183,9	43,058	170,89
16,878		55,376	185,83	48,162	171,06
17,261		58,145	187,78	52,634	171,33

17,645		60,914	189,75	56,287	171,71
18,028		63,682	191,74	58,989	172,22
18,412		66,451	193,75	61,108	172,87

FIGURE 9
Model (C4) > Static Structural (C5) > Solution (C6) > Linearized Equivalent Stress 2

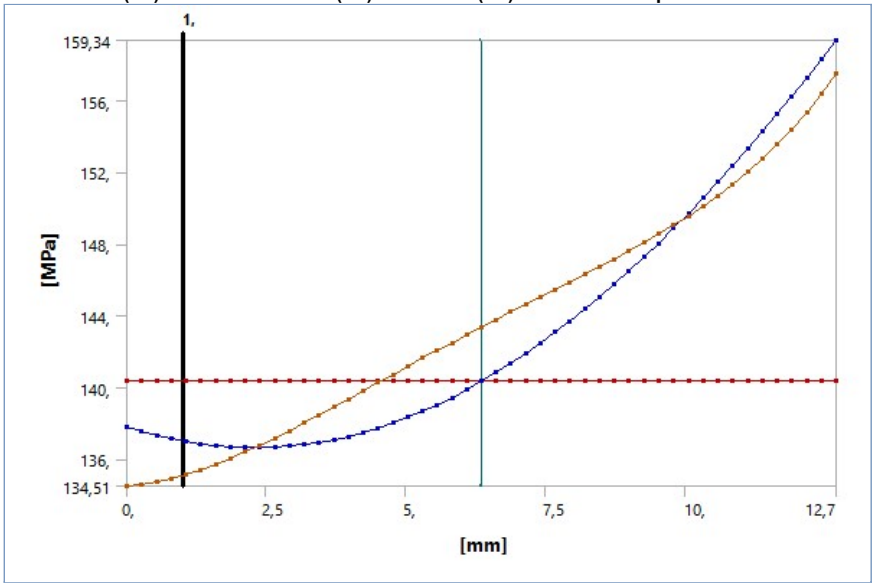


TABLE 23
Model (C4) > Static Structural (C5) > Solution (C6) > Linearized Equivalent Stress 2

Length [mm]	Membrane [MPa]	Bending [MPa]	Membrane+Bending [MPa]	Peak [MPa]	Total [MPa]
0,		49,976	137,81	30,438	134,51
0,26458		47,894	137,56	26,869	134,61
0,52917		45,811	137,33	23,331	134,75
0,79375		43,729	137,14	19,856	134,94
1,0583		41,647	136,98	16,472	135,17
1,3229		39,564	136,85	13,211	135,43
1,5875		37,482	136,75	10,1	135,72
1,8521		35,4	136,68	7,1737	136,05
2,1167		33,317	136,64	4,4874	136,4
2,3813		31,235		2,2538	136,78
2,6458		29,153	136,67	1,8087	137,18
2,9104		27,07	136,73	3,4301	137,59
3,175		24,988	136,82	5,272	138,03
3,4396		22,906	136,94	6,9886	138,47
3,7042		20,823	137,09	8,5258	138,92
3,9688		18,741	137,28	9,872	139,37
4,2333		16,659	137,5	11,026	139,82
4,4979		14,576	137,74	11,992	140,28
4,7625		12,494	138,02	12,768	140,73
5,0271		10,412	138,33	13,366	141,18
5,2917	140,34	8,3293	138,67	13,797	141,63
5,5562		6,247	139,04	14,067	142,07
5,8208		4,1647	139,44	14,185	142,5
6,0854		2,0823	139,88	14,157	142,93
6,35		7,4506e-015	140,34	13,989	143,36
6,6146		2,0823	140,82	13,689	143,78
6,8792		4,1647	141,34	13,26	144,2
7,1438		6,247	141,89	12,71	144,62
7,4083		8,3293	142,47	12,04	145,03
7,6729		10,412	143,07	11,255	145,45
7,9375		12,494	143,7	10,358	145,87
8,2021		14,576	144,36	9,3481	146,29
8,4667		16,659	145,04	8,2241	146,72
8,7312		18,741	145,76	6,9909	147,15
8,9958		20,823	146,49	5,6481	147,6
9,2604		22,906	147,26	4,196	148,06
9,525		24,988	148,05	2,6361	148,54
9,7896		27,07	148,86	1,0014	149,04
10,054		29,153	149,7	0,9846	149,56
10,319		31,235	150,56	2,8639	150,11

10,583		33,317	151,45	4,9228	150,7
10,848		35,4	152,36	7,1284	151,33
11,112		37,482	153,29	9,4835	152,
11,377		39,564	154,25	11,995	152,73
11,642		41,647	155,22	14,673	153,52
11,906		43,729	156,22	17,526	154,38
12,171		45,811	157,24	20,566	155,32
12,435		47,894	158,28	23,804	156,35
12,7		49,976	159,34	27,253	157,48

FIGURE 10
Model (C4) > Static Structural (C5) > Solution (C6) > Linearized Equivalent Stress 3

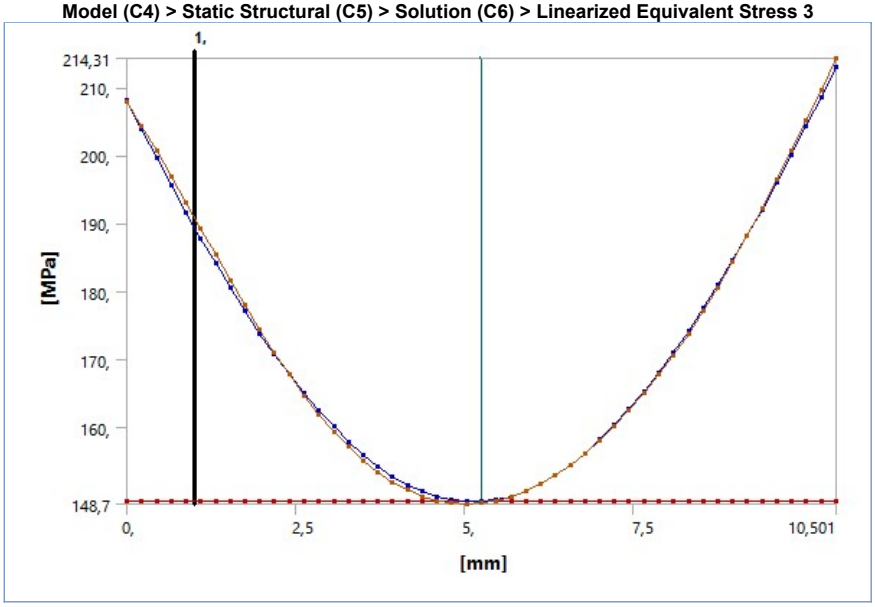


TABLE 24
Model (C4) > Static Structural (C5) > Solution (C6) > Linearized Equivalent Stress 3

Length [mm]	Membrane [MPa]	Bending [MPa]	Membrane+Bending [MPa]	Peak [MPa]	Total [MPa]
0,		148,71	208,11	14,792	207,91
0,21877		142,51	203,83	12,776	204,32
0,43755		136,32	199,65	10,755	200,64
0,65632		130,12	195,58	8,7701	196,89
0,87509		123,93	191,63	6,8587	193,08
1,0939		117,73	187,8	5,0574	189,25
1,3126		111,53	184,09	3,4103	185,43
1,5314		105,34	180,52	2,0084	181,65
1,7502		99,141	177,1	1,2165	177,95
1,969		92,944	173,83	1,5952	174,37
2,1877		86,748	170,72	2,4445	170,96
2,4065		80,552	167,78	3,273	167,73
2,6253		74,355	165,03	3,9862	164,71
2,8441		68,159	162,46	4,5653	161,93
3,0628		61,963	160,09	5,0092	159,4
3,2816		55,767	157,93	5,3235	157,13
3,5004		49,57	155,99	5,5164	155,12
3,7191	149,06	43,374	154,27	5,5822	153,4
3,9379		37,178	152,79	5,5528	151,95
4,1567		30,981	151,54	5,4399	150,77
4,3755		24,785	150,54	5,2556	149,86
4,5942		18,589	149,78	5,013	149,21
4,813		12,393	149,28	4,7256	148,83
5,0318		6,1963	149,04	4,4089	148,7
5,2506		4,9132e-014	149,06	4,0747	148,82
5,4693		6,1963	149,33	3,7352	149,19
5,6881		12,393	149,85	3,4162	149,78
5,9069		18,589	150,64	3,1351	150,61
6,1257		24,785	151,67	2,9009	151,66
6,3444		30,981	152,94	2,7218	152,94
6,5632		37,178	154,45	2,5997	154,43
6,782		43,374	156,2	2,5261	156,13
7,0007		49,57	158,16	2,4822	158,03
7,2195		55,767	160,35	2,4367	160,15

7,4383		61,963	162,74	2,371	162,48
7,6571		68,159	165,33	2,266	165,
7,8758		74,355	168,1	2,11	167,73
8,0946		80,552	171,06	1,9035	170,67
8,3134		86,748	174,18	1,6728	173,79
8,5322		92,944	177,47	1,4965	177,12
8,7509		99,141	180,91	1,5296	180,63
8,9697		105,34	184,5	1,9203	184,32
9,1885		111,53	188,22	2,6421	188,19
9,4072		117,73	192,06	3,603	192,21
9,626		123,93	196,03	4,7429	196,39
9,8448		130,12	200,11	6,0262	200,69
10,064		136,32	204,3	7,4279	205,12
10,282		142,51	208,59	8,9267	209,66
10,501		148,71	212,97	10,503	214,31

FIGURE 11
Model (C4) > Static Structural (C5) > Solution (C6) > Equivalent Stress

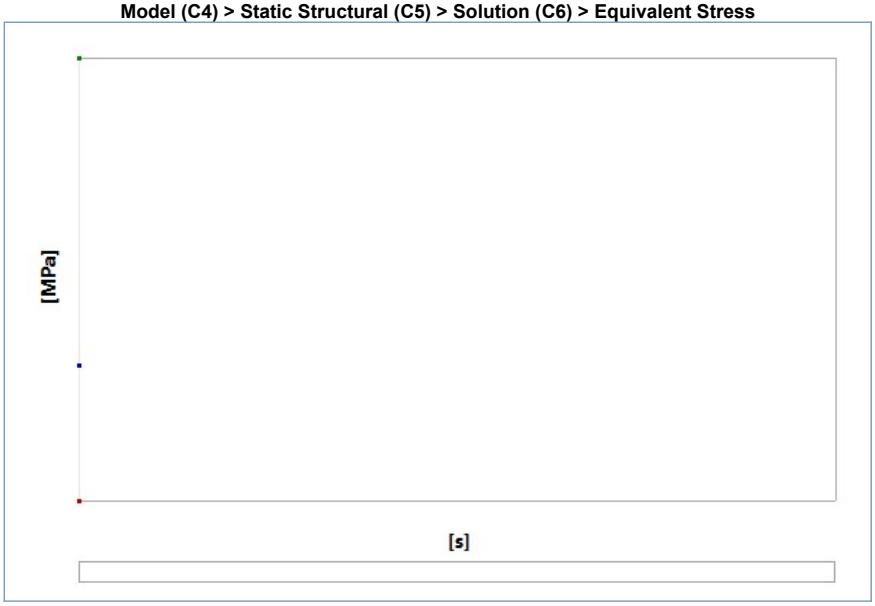


TABLE 25
Model (C4) > Static Structural (C5) > Solution (C6) > Equivalent Stress

Time [s]	Minimum [MPa]	Maximum [MPa]	Average [MPa]
1,	0,32661	293,46	90,186

Material Data

P355GH

TABLE 26
P355GH > Constants

Density	7,85e-006 kg mm^-3
Coefficient of Thermal Expansion	1,2e-005 C^-1
Specific Heat	4,34e+005 mJ kg^-1 C^-1
Thermal Conductivity	6,05e-002 W mm^-1 C^-1
Resistivity	1,7e-004 ohm mm

TABLE 27
P355GH > Color

Red	Green	Blue
132,	139,	179,

TABLE 28
P355GH > Compressive Ultimate Strength

Compressive Ultimate Strength MPa
0,

TABLE 29
P355GH > Compressive Yield Strength

Compressive Yield Strength MPa
250,

TABLE 30
P355GH > Tensile Yield Strength

Tensile Yield Strength MPa
355,

TABLE 31
P355GH > Tensile Ultimate Strength

Tensile Ultimate Strength MPa
510,

TABLE 32
P355GH > Isotropic Secant Coefficient of Thermal Expansion

Zero-Thermal-Strain Reference Temperature C
22,

TABLE 33
P355GH > S-N Curve

Alternating Stress MPa	Cycles	Mean Stress MPa
3999,	10,	0,
2827,	20,	0,
1896,	50,	0,
1413,	100,	0,
1069,	200,	0,
441,	2000,	0,
262,	10000	0,
214,	20000	0,
138,	1,e+005	0,
114,	2,e+005	0,
86,2	1,e+006	0,

TABLE 34
P355GH > Strain-Life Parameters

Strength Coefficient MPa	Strength Exponent	Ductility Coefficient	Ductility Exponent	Cyclic Strength Coefficient MPa	Cyclic Strain Hardening Exponent
920,	-0,106	0,213	-0,47	1000,	0,2

TABLE 35
P355GH > Isotropic Elasticity

Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,0387e+005	0,3	1,6989e+005	78411	

TABLE 36
P355GH > Isotropic Relative Permeability

Relative Permeability
10000

P355QH1

TABLE 37
P355QH1 > Constants

Density	7,85e-006 kg mm^-3
Coefficient of Thermal Expansion	1,2e-005 C^-1
Specific Heat	4,34e+005 mJ kg^-1 C^-1
Thermal Conductivity	6,05e-002 W mm^-1 C^-1
Resistivity	1,7e-004 ohm mm

TABLE 38
P355QH1 > Color

Red	Green	Blue
132,	139,	179,

TABLE 39
P355QH1 > Compressive Ultimate Strength

Compressive Ultimate Strength MPa
0,

TABLE 40
P355QH1 > Compressive Yield Strength

Compressive Yield Strength MPa
250,

TABLE 41
P355QH1 > Tensile Yield Strength

Tensile Yield Strength MPa
315,

TABLE 42
P355QH1 > Tensile Ultimate Strength

Tensile Ultimate Strength MPa
470,

TABLE 43
P355QH1 > Isotropic Secant Coefficient of Thermal Expansion

Zero-Thermal-Strain Reference Temperature C
22,

TABLE 44
P355QH1 > S-N Curve

Alternating Stress MPa	Cycles	Mean Stress MPa
3999,	10,	0,
2827,	20,	0,
1896,	50,	0,
1413,	100,	0,
1069,	200,	0,
441,	2000,	0,
262,	10000	0,
214,	20000	0,
138,	1,e+005	0,
114,	2,e+005	0,
86,2	1,e+006	0,

TABLE 45
P355QH1 > Strain-Life Parameters

Strength Coefficient MPa	Strength Exponent	Ductility Coefficient	Ductility Exponent	Cyclic Strength Coefficient MPa	Cyclic Strain Hardening Exponent
920,	-0,106	0,213	-0,47	1000,	0,2

TABLE 46
P355QH1 > Isotropic Elasticity

Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,0387e+005	0,3	1,6989e+005	78411	

TABLE 47
P355QH1 > Isotropic Relative Permeability

Relative Permeability
10000

P265GH

TABLE 48
P265GH > Constants

Density	7,85e-006 kg mm^-3
Coefficient of Thermal Expansion	1,2e-005 C^-1
Specific Heat	4,34e+005 mJ kg^-1 C^-1
Thermal Conductivity	6,05e-002 W mm^-1 C^-1
Resistivity	1,7e-004 ohm mm

TABLE 49
P265GH > Color

Red	Green	Blue
132,	139,	179,

TABLE 50
P265GH > Compressive Ultimate Strength

Compressive Ultimate Strength MPa
0,

TABLE 51
P265GH > Compressive Yield Strength

Compressive Yield Strength MPa
250,

TABLE 52
P265GH > Tensile Yield Strength

Tensile Yield Strength MPa
265,

TABLE 53
P265GH > Tensile Ultimate Strength

Tensile Ultimate Strength MPa
410,

TABLE 54
P265GH > Isotropic Secant Coefficient of Thermal Expansion

Zero-Thermal-Strain Reference Temperature C
22,

TABLE 55
P265GH > S-N Curve

Alternating Stress MPa	Cycles	Mean Stress MPa
3999,	10,	0,
2827,	20,	0,
1896,	50,	0,
1413,	100,	0,
1069,	200,	0,
441,	2000,	0,
262,	10000	0,
214,	20000	0,
138,	1,e+005	0,
114,	2,e+005	0,
86,2	1,e+006	0,

TABLE 56
P265GH > Strain-Life Parameters

Strength Coefficient MPa	Strength Exponent	Ductility Coefficient	Ductility Exponent	Cyclic Strength Coefficient MPa	Cyclic Strain Hardening Exponent
920,	-0,106	0,213	-0,47	1000,	0,2

TABLE 57
P265GH > Isotropic Elasticity

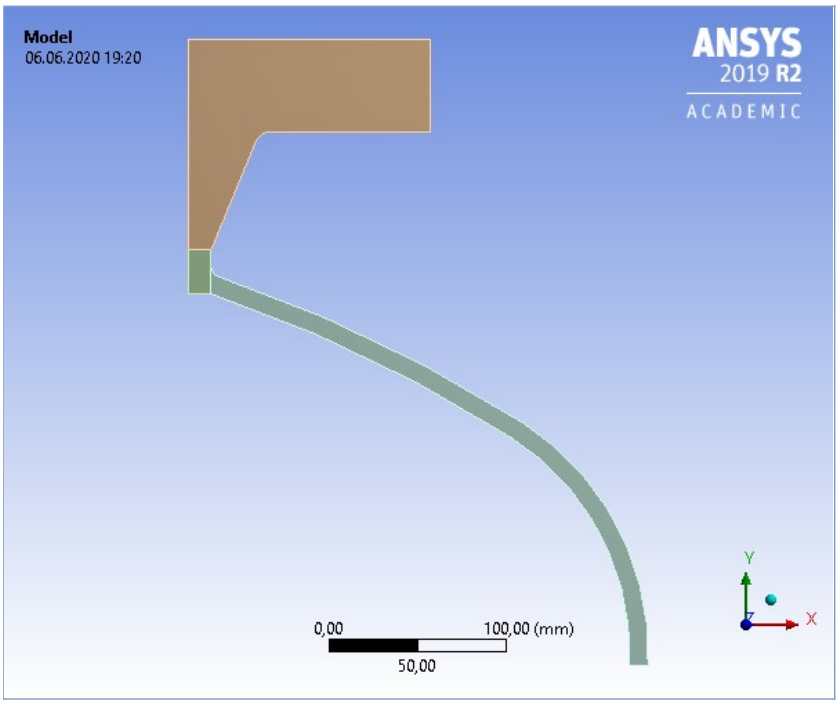
Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,0387e+005	0,3	1,6989e+005	78411	

TABLE 58
P265GH > Isotropic Relative Permeability

Relative Permeability
10000

Stress categorization - Nozzle N3 - OPERATION CASE*

First Saved	Friday, November 29, 2019
Last Saved	Tuesday, April 14, 2020
Product Version	2019 R2
Save Project Before Solution	No
Save Project After Solution	No



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  - Mesh
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      - Results
- Material Data
  - P355GH
  - P355QH1
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Units

TABLE 1

Unit System	Metric (mm, kg, N, s, mV, mA) Degrees rad/s Celsius
Angle	Degrees
Rotational Velocity	rad/s
Temperature	Celsius

Model (D4)

Geometry

TABLE 2
Model (D4) > Geometry

Object Name	*Geometry*
State	Fully Defined
Definition	
Source	C:\Users\prochazka.tomas\AppData\Local\Temp\Model_N3.tmp\Model_N3_files\dp0\Geom\DM\Geom.agdb
Type	DesignModeler
Length Unit	Meters
Element Control	Program Controlled
2D Behavior	Axisymmetric
Display Style	Body Color
Bounding Box	
Length X	258,87 mm
Length Y	352,84 mm
Properties	
Volume	N/A
Mass	N/A
Surface Area(approx.)	12811 mm²
Scale Factor Value	1,
Statistics	
Bodies	3
Active Bodies	3
Nodes	17211
Elements	5486
Mesh Metric	None
Update Options	
Assign Default Material	No
Basic Geometry Options	
Parameters	Independent
Parameter Key	
Attributes	Yes
Attribute Key	
Named Selections	Yes
Named Selection Key	
Material Properties	Yes
Advanced Geometry Options	
Use Associativity	Yes
Coordinate Systems	Yes

Coordinate System Key	
Reader Mode Saves Updated File	No
Use Instances	Yes
Smart CAD Update	Yes
Compare Parts On Update	No
Analysis Type	2-D
Clean Bodies On Import	No
Stitch Surfaces On Import	None
Decompose Disjoint Geometry	Yes
Enclosure and Symmetry Processing	Yes

TABLE 3
Model (D4) > Geometry > Body Groups

Object Name	*Model_2D_Rev2*
State	Meshed
Graphics Properties	
Visible	Yes
Definition	
Suppressed	No
Assignment	Multiple Materials
Coordinate System	Default Coordinate System
Bounding Box	
Length X	258,87 mm
Length Y	352,84 mm
Properties	
Volume	0, mm³
Mass	0, kg
Centroid X	0, mm
Centroid Y	0, mm
Centroid Z	0, mm
Moment of Inertia Ip1	0, kg·mm²
Moment of Inertia Ip2	0, kg·mm²
Moment of Inertia Ip3	0, kg·mm²
Surface Area(approx.)	12811 mm²
Statistics	
Nodes	17211
Elements	5486
Mesh Metric	None
CAD Attributes	
DMBodyGroup	1
DMSheetThickness	0

TABLE 4
Model (D4) > Geometry > Model_2D_Rev2 > Parts

Object Name	*Model_2D_Rev2@Povrch-Rovina3*	*Model_2D_Rev2@Povrch-Rovina2*	*Model_2D_Rev2@Torosférické dno*
State	Meshed		
Graphics Properties			
Visible	Yes		
Glow	0		
Shininess	1		
Transparency	1		
Specularity	1		
Definition			
Suppressed	No		
Stiffness Behavior	Flexible		
Coordinate System	Default Coordinate System		
Reference Temperature	By Environment		
Treatment	None		
Material			
Assignment	P355GH	P355QH1	P265GH
Nonlinear Effects	Yes		
Thermal Strain Effects	Yes		
Bounding Box			
Length X	12,7 mm	136,2 mm	246,17 mm
Length Y	25, mm	118,42 mm	223,88 mm
Properties			
Volume	N/A		
Mass	N/A		
Centroid X	N/A		
Centroid Y	N/A		
Centroid Z	N/A		
Moment of Inertia Ip1	N/A		
Moment of Inertia Ip2	N/A		
Moment of Inertia Ip3	N/A		
Surface Area(approx.)	317,5 mm²	8847,3 mm²	3645,7 mm²
Statistics			
Nodes	3901	7854	5566
Elements	1250	2527	1709
Mesh Metric	None		

TABLE 5
Model (D4) > Materials

Object Name	*Materials*
State	Fully Defined
Statistics	
Materials	7
Material Assignments	0

TABLE 6
Model (D4) > Construction Geometry

Object Name	*Construction Geometry*
State	Fully Defined
Display	
Show Mesh	No

TABLE 7
Model (D4) > Construction Geometry > Paths

Object Name	*Path*	*Path 2*	*Path 3*
State	Fully Defined		
Definition			
Path Type	Two Points		
Path Coordinate System	Global Coordinate System		
Number of Sampling Points	47,		
Suppressed	No		
Start			
Coordinate System	Global Coordinate System		
Start X Coordinate	255,42 mm	254, mm	260,89 mm
Start Y Coordinate	221,24 mm	228,9 mm	218,16 mm
Location	Defined		
End			
Coordinate System	Global Coordinate System		
End X Coordinate	241,3 mm		257,32 mm
End Y Coordinate	209,43 mm	228,93 mm	208,29 mm
Location	Defined		

Coordinate Systems

TABLE 8
Model (D4) > Coordinate Systems > Coordinate System

Object Name	*Global Coordinate System*
State	Fully Defined
Definition	
Type	Cartesian
Coordinate System ID	0,
Origin	
Origin X	0, mm
Origin Y	0, mm
Directional Vectors	
X Axis Data	[1, 0,]
Y Axis Data	[0, 1,]

Connections

TABLE 9
Model (D4) > Connections

Object Name	*Connections*
State	Fully Defined
Auto Detection	
Generate Automatic Connection On Refresh	Yes
Transparency	
Enabled	Yes

TABLE 10
Model (D4) > Connections > Contacts

Object Name	*Contacts*
State	Fully Defined
Definition	
Connection Type	Contact
Scope	
Scoping Method	Geometry Selection
Geometry	All Bodies
Auto Detection	
Tolerance Type	Slider
Tolerance Slider	0,
Tolerance Value	1,0941 mm
Use Range	No
Edge/Edge	Yes
Priority	Include All
Group By	Bodies
Search Across	Bodies
Statistics	
Connections	1
Active Connections	1

TABLE 11
Model (D4) > Connections > Contacts > Contact Regions

Object Name	*Contact Region*
State	Fully Defined
Scope	
Scoping Method	Geometry Selection
Contact	1 Edge
Target	1 Edge
Contact Bodies	Multiple
Target Bodies	Model_2D_Rev2@Torosférické dno
Shell Thickness Effect	No
Protected	No
Definition	
Type	Bonded
Scope Mode	Automatic
Behavior	Program Controlled
Trim Contact	Program Controlled
Trim Tolerance	1,0941 mm
Suppressed	No
Advanced	
Formulation	Program Controlled
Small Sliding	Program Controlled
Detection Method	Program Controlled
Penetration Tolerance	Program Controlled
Elastic Slip Tolerance	Program Controlled
Normal Stiffness	Program Controlled
Update Stiffness	Program Controlled
Pinball Region	Program Controlled
Geometric Modification	
Contact Geometry Correction	None
Target Geometry Correction	None

Mesh

TABLE 12
Model (D4) > Mesh

Object Name	*Mesh*
State	Solved
Display	
Display Style	Use Geometry Setting
Defaults	
Physics Preference	Mechanical
Element Order	Quadratic
Element Size	2, mm
Sizing	
Use Adaptive Sizing	No
Growth Rate	Default (1,2)
Mesh Defeaturing	Yes
Defeature Size	Default (1,e-002 mm)
Capture Curvature	Yes
Curvature Min Size	Default (2,e-002 mm)
Curvature Normal Angle	Default (30,°)
Capture Proximity	No
Size Formulation (Beta)	Program Controlled
Bounding Box Diagonal	437,62 mm
Average Surface Area	4270,2 mm²
Minimum Edge Length	1,2034 mm
Enable Size Field (Beta)	No
Quality	
Check Mesh Quality	Yes, Errors
Error Limits	Standard Mechanical
Target Quality	Default (0.050000)
Smoothing	Medium
Mesh Metric	None
Inflation	
Use Automatic Inflation	None
Inflation Option	Smooth Transition
Transition Ratio	0,272
Maximum Layers	2
Growth Rate	1,2
Inflation Algorithm	Pre
View Advanced Options	No
Batch Connections	
Mesh Based Connection	No
Advanced	
Number of CPUs for Parallel Part Meshing	Program Controlled
Straight Sided Elements	No
Rigid Body Behavior	Dimensionally Reduced
Triangle Surface Mesher	Program Controlled
Use Asymmetric Mapped Mesh (Beta)	No
Topology Checking	Yes
Use Sheet Thickness for Pinch	No

Pinch Tolerance	Default (1,8e-002 mm)
Generate Pinch on Refresh	No
Sheet Loop Removal	No
Statistics	
Nodes	17211
Elements	5486

TABLE 13
Model (D4) > Mesh > Mesh Controls

Object Name	*Vertex Sizing*	*Automatic Method*
State	Fully Defined	
Scope		
Scoping Method	Geometry Selection	
Geometry	1 Vertex	3 Bodies
Definition		
Suppressed	No	
Type	Sphere of Influence	
Sphere Radius	30, mm	
Element Size	0,5 mm	
Method		Quadrilateral Dominant
Element Order		Quadratic
Free Face Mesh Type		Quad/Tri

Static Structural (D5)

TABLE 14
Model (D4) > Analysis

Object Name	*Static Structural (D5)*
State	Solved
Definition	
Physics Type	Structural
Analysis Type	Static Structural
Solver Target	Mechanical APDL
Options	
Environment Temperature	20, °C
Generate Input Only	No

TABLE 15
Model (D4) > Static Structural (D5) > Analysis Settings

Object Name	*Analysis Settings*
State	Fully Defined
Step Controls	
Number Of Steps	1,
Current Step Number	1,
Step End Time	1, s
Auto Time Stepping	Program Controlled
Solver Controls	
Solver Type	Program Controlled
Weak Springs	Off
Solver Pivot Checking	Program Controlled
Large Deflection	Off
Inertia Relief	Off
Rotordynamics Controls	
Coriolis Effect	Off
Restart Controls	
Generate Restart Points	Program Controlled
Retain Files After Full Solve	No
Combine Restart Files	Program Controlled
Nonlinear Controls	
Newton-Raphson Option	Program Controlled
Force Convergence	Program Controlled
Moment Convergence	Program Controlled
Displacement Convergence	Program Controlled
Rotation Convergence	Program Controlled
Line Search	Program Controlled
Stabilization	Program Controlled
Output Controls	
Stress	Yes
Surface Stress	No
Back Stress	No
Strain	Yes
Contact Data	Yes
Nonlinear Data	No
Nodal Forces	No
Contact Miscellaneous	No
General Miscellaneous	No
Store Results At	All Time Points
Cache Results in Memory (Beta)	Never
Combine Distributed Result Files (Beta)	Program Controlled
Result File Compression	Program Controlled
Analysis Data Management	

Solver Files Directory	C:\Users\prochazka.tomas\AppData\Local\Temp\Model_N3.tmp\Model_N3_files\dp0\SYS-8\MECH\
Future Analysis	None
Scratch Solver Files Directory	
Save MAPDL db	No
Contact Summary	Program Controlled
Delete Unneeded Files	Yes
Nonlinear Solution	No
Solver Units	Active System
Solver Unit System	nmm

TABLE 16
Model (D4) > Static Structural (D5) > Loads

Object Name	*Displacement*	*Provozní tlak 3 bar*	*Provozní teplota*	*Hmotnost plocheho dna 154 kg*	*Ekvivalentní síla od vnitrního tlaku*
State	Fully Defined				
Scope					
Scoping Method	Geometry Selection				
Geometry	1 Edge	5 Edges	3 Bodies	1 Edge	
Definition					
ID (Beta)	61	63	65	83	226
Type	Displacement	Pressure	Thermal Condition	Force	
Define By	Components	Normal To		Components	
Coordinate System	Global Coordinate System			Global Coordinate System	
X Component	Free			0, N (ramped)	
Y Component	0, mm (ramped)			-1510,7 N (ramped)	55460 N (ramped)
Suppressed	No				
Applied By		Surface Effect			
Magnitude		0,3 MPa (ramped)	48, °C (ramped)		

FIGURE 1
Model (D4) > Static Structural (D5) > Displacement

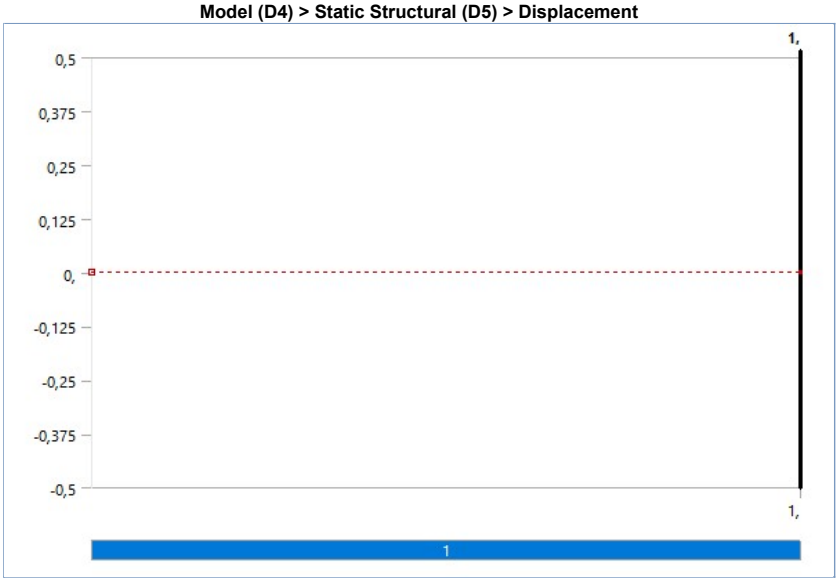


FIGURE 2
Model (D4) > Static Structural (D5) > Provozní tlak 3 bar

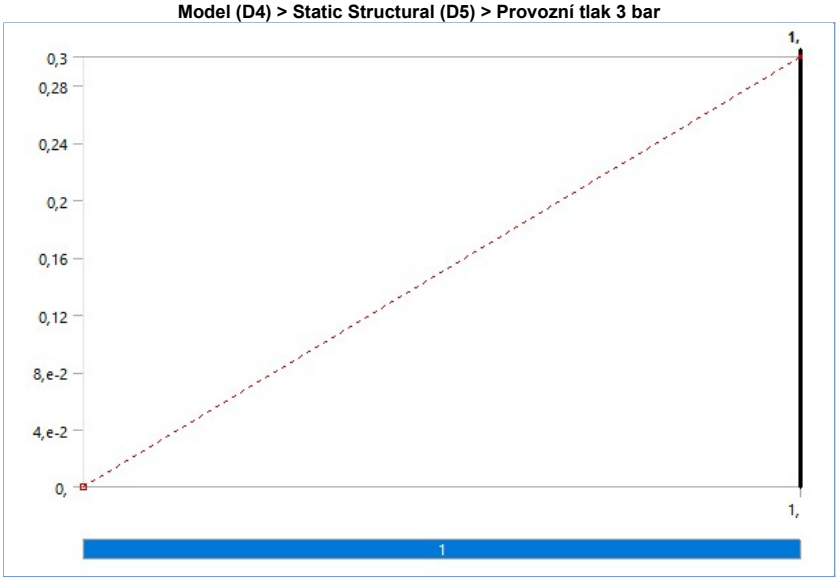


FIGURE 3
Model (D4) > Static Structural (D5) > Provozní teplota

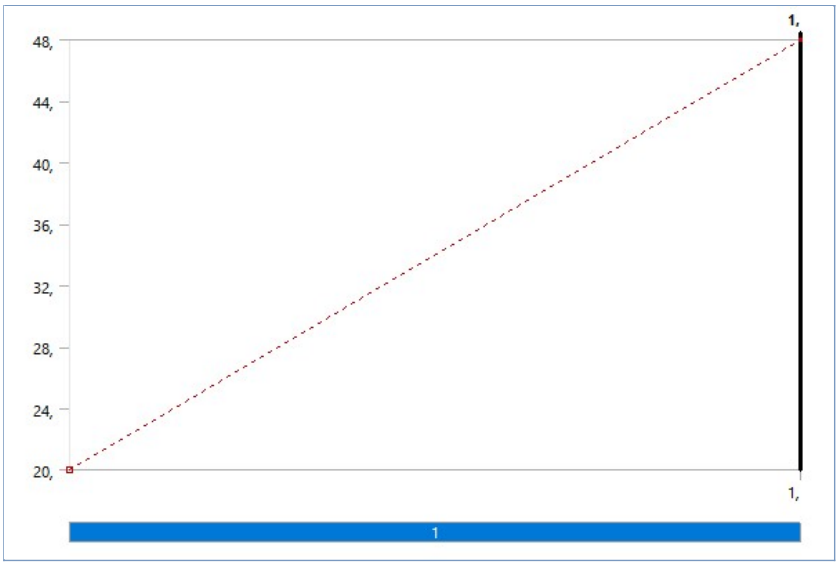


FIGURE 4
Model (D4) > Static Structural (D5) > Hmotnost plocheho dna 154 kg

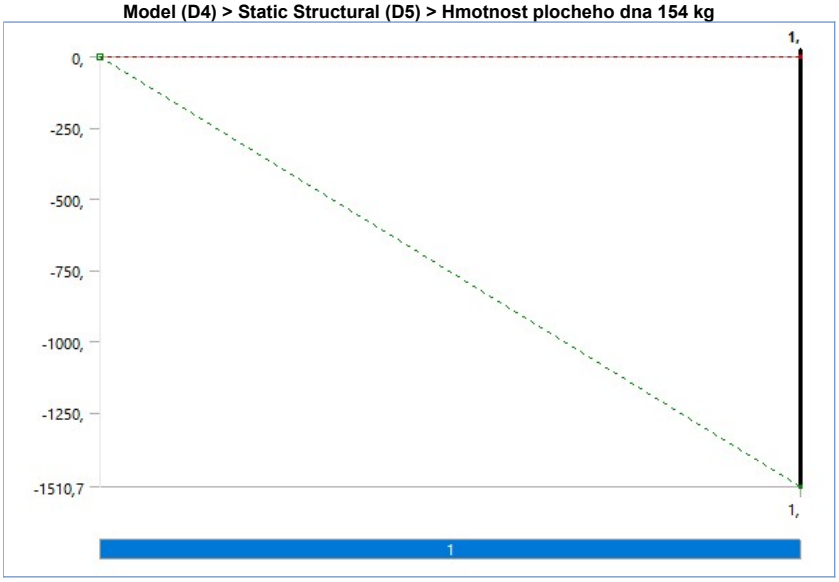
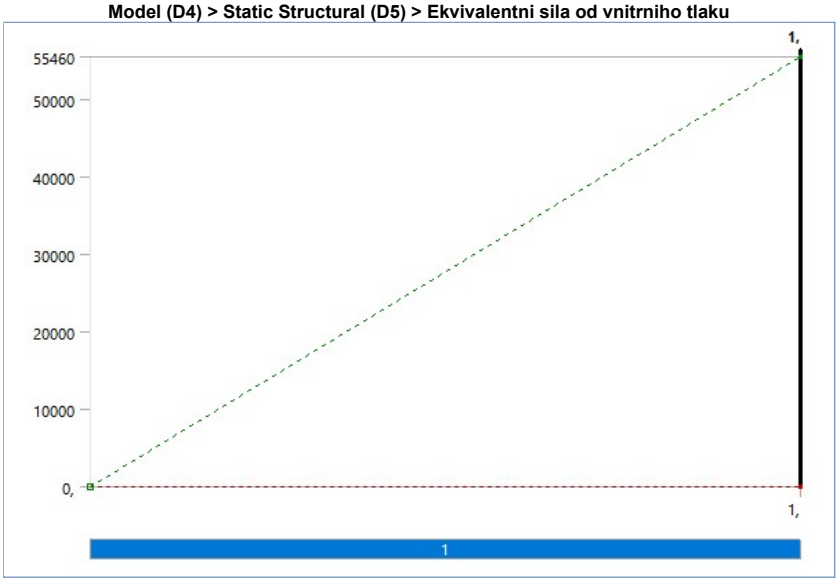


FIGURE 5
Model (D4) > Static Structural (D5) > Ekvivalentni sila od vnitrniho tlaku



Solution (D6)

TABLE 17
Model (D4) > Static Structural (D5) > Solution

Object Name	*Solution (D6)*

State	Solved
Solution	
Number Of Cores to Use (Beta)	Solve Process Settings
Adaptive Mesh Refinement	
Max Refinement Loops	1,
Refinement Depth	2,
Information	
Status	Done
MAPDL Elapsed Time	3, s
MAPDL Memory Used	309, MB
MAPDL Result File Size	4,1875 MB
Post Processing	
Distributed Post Processing (Beta)	Program Controlled
Mesh Source (Beta)	Program Controlled
Beam Section Results	No
On Demand Stress/Strain	No

TABLE 18
Model (D4) > Static Structural (D5) > Solution (D6) > Solution Information

Object Name	*Solution Information*
State	Solved
Solution Information	
Solution Output	Solver Output
Newton-Raphson Residuals	0
Identify Element Violations	0
Update Interval	2,5 s
Display Points	All
FE Connection Visibility	
Activate Visibility	Yes
Display	All FE Connectors
Draw Connections Attached To	All Nodes
Line Color	Connection Type
Visible on Results	No
Line Thickness	Single
Display Type	Lines

TABLE 19
Model (D4) > Static Structural (D5) > Solution (D6) > Results

Object Name	*Stress Intensity*	*Total Deformation*	*Linearized Equivalent Stress*	*Linearized Equivalent Stress 2*	*Linearized Equivalent Stress 3*	*Equivalent Stress*
State	Solved					
Scope						
Scoping Method	Geometry Selection		Path			Geometry Selection
Geometry	All Bodies					
Path			Path	Path 2	Path 3	
Definition						
Type	Stress Intensity	Total Deformation	Linearized Equivalent Stress			Equivalent (von-Mises) Stress
By	Time					
Display Time	Last					
Calculate Time History	Yes					Yes
Identifier						
Suppressed	No					
Subtype			All			
Coordinate System			Global Coordinate System			
2D Behavior			Planar			
Integration Point Results						
Display Option	Averaged					Averaged
Average Across Bodies	No					No
Results						
Minimum	6,8234e-002 MPa	0,1265 mm				5,9094e-002 MPa
Maximum	56,953 MPa	0,32046 mm				50,951 MPa
Average	18,636 MPa	0,24947 mm				16,825 MPa
Minimum Occurs On	Model_2D_Rev2@Povrch-Rovina2	Model_2D_Rev2@Torosférické dno				Model_2D_Rev2@Povrch-Rovina2
Maximum Occurs On	Model_2D_Rev2@Torosférické dno	Model_2D_Rev2@Povrch-Rovina2				Model_2D_Rev2@Torosférické dno
Membrane			28,253 MPa	25,988 MPa	27,652 MPa	
Bending (Inside)			12,234 MPa	9,0066 MPa	27,295 MPa	
Bending (Outside)			12,234 MPa	9,0066 MPa	27,295 MPa	
Membrane+Bending (Inside)			24,652 MPa	25,467 MPa	38,364 MPa	
Membrane+Bending (Center)			28,253 MPa	25,988 MPa	27,652 MPa	
Membrane+Bending (Outside)			35,889 MPa	29,4 MPa	39,339 MPa	
Peak (Inside)			27,687 MPa	5,616 MPa	2,7003 MPa	
			8,8116	2,5814	0,74384	

Peak (Center)		MPa	MPa	MPa	
Peak (Outside)		11,203 MPa	5,0323 MPa	1,9072 MPa	
Total (Inside)		39,506 MPa	24,863 MPa	38,339 MPa	
Total (Center)		31,031 MPa	26,546 MPa	27,609 MPa	
Total (Outside)		32,085 MPa	29,051 MPa	39,583 MPa	
Information					
Time	1, s				
Load Step	1				
Substep	1				
Iteration Number	1				

FIGURE 6
Model (D4) > Static Structural (D5) > Solution (D6) > Stress Intensity

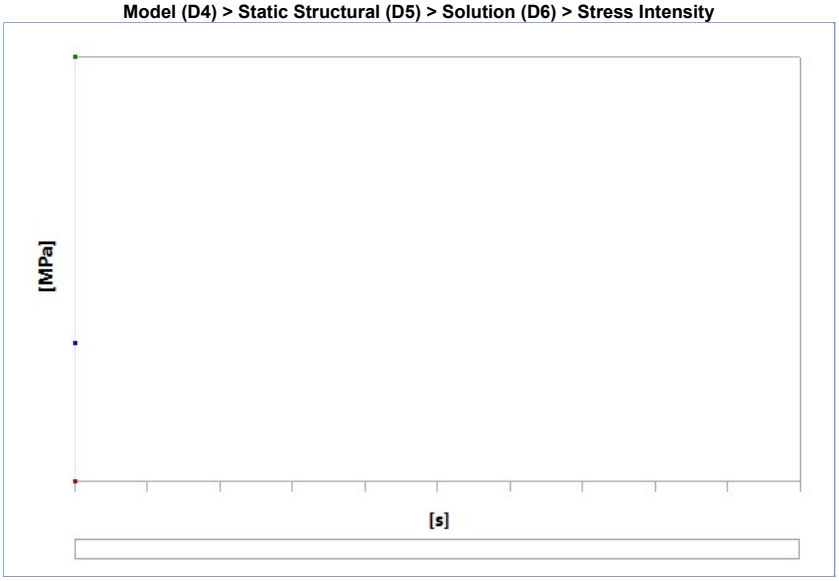


TABLE 20
Model (D4) > Static Structural (D5) > Solution (D6) > Stress Intensity

Time [s]	Minimum [MPa]	Maximum [MPa]	Average [MPa]
1,	6,8234e-002	56,953	18,636

FIGURE 7
Model (D4) > Static Structural (D5) > Solution (D6) > Total Deformation

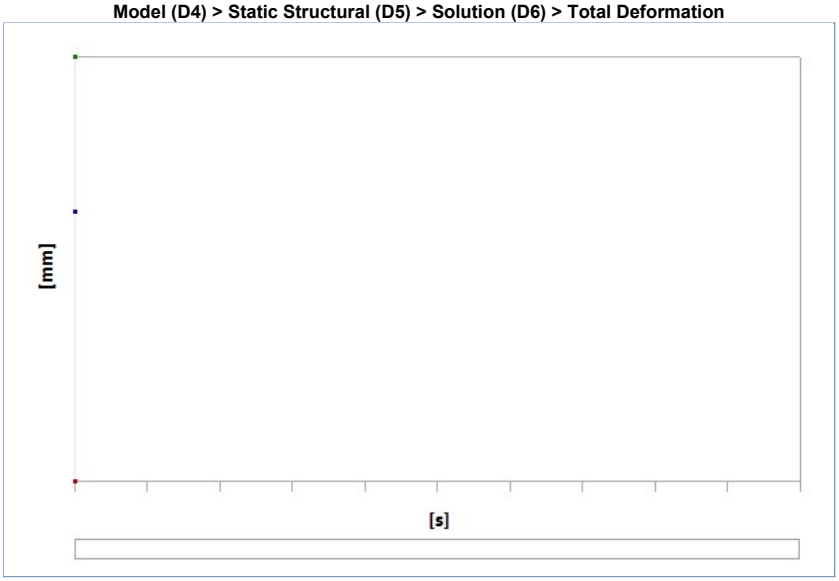


TABLE 21
Model (D4) > Static Structural (D5) > Solution (D6) > Total Deformation

Time [s]	Minimum [mm]	Maximum [mm]	Average [mm]
1,	0,1265	0,32046	0,24947

FIGURE 8
Model (D4) > Static Structural (D5) > Solution (D6) > Linearized Equivalent Stress

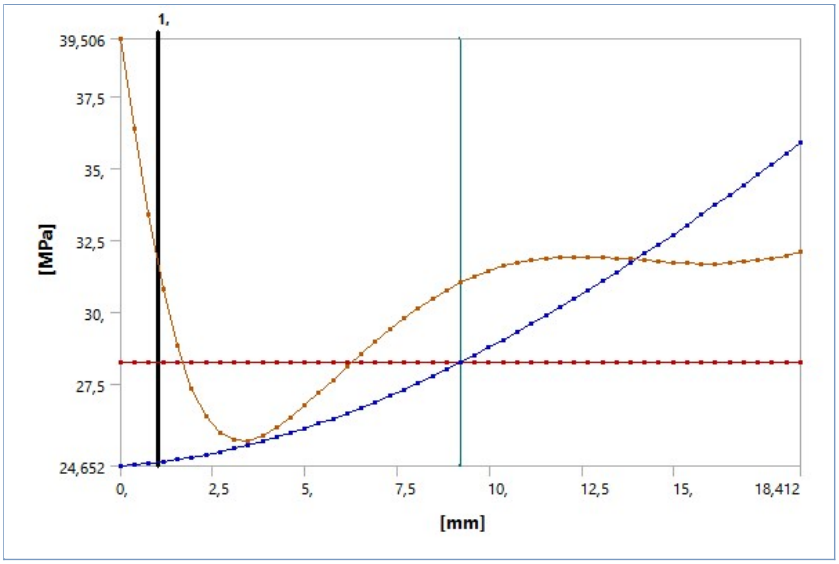


TABLE 22
Model (D4) > Static Structural (D5) > Solution (D6) > Linearized Equivalent Stress

Length [mm]	Membrane [MPa]	Bending [MPa]	Membrane+Bending [MPa]	Peak [MPa]	Total [MPa]
0,		12,234	24,652	27,687	39,506
0,38358		11,724	24,691	22,415	36,359
0,76716		11,214	24,741	18,095	33,396
1,1507		10,705	24,802	14,152	30,824
1,5343		10,195	24,873	10,736	28,827
1,9179		9,6851	24,954	7,7449	27,329
2,3015		9,1754	25,045	5,3348	26,365
2,6851		8,6656	25,146	3,4916	25,794
3,0687		8,1559	25,257	2,573	25,544
3,4522		7,6461	25,378	2,8362	25,534
3,8358		7,1364	25,509	3,7183	25,693
4,2194		6,6267	25,649	4,6967	25,974
4,603		6,1169	25,798	5,6286	26,336
4,9866		5,6072	25,956	6,4528	26,748
5,3701		5,0974	26,124	7,163	27,191
5,7537		4,5877	26,3	7,7768	27,65
6,1373		4,0779	26,485	8,2632	28,105
6,5209		3,5682	26,678	8,6613	28,555
6,9045		3,0585	26,88	8,9567	28,989
7,2881		2,5487	27,089	9,1529	29,401
7,6716		2,039	27,307	9,2702	29,792
8,0552		1,5292	27,532	9,2761	30,147
8,4388		1,0195	27,765	9,2197	30,479
8,8224		0,50974	28,005	9,0458	30,768
9,206	28,253	1,3138e-014	28,253	8,8116	31,031
9,5895		0,50974	28,507	8,4749	31,252
9,9731		1,0195	28,768	8,0715	31,444
10,357		1,5292	29,036	7,5784	31,598
10,74		2,039	29,31	7,0167	31,722
11,124		2,5487	29,59	6,3779	31,814
11,507		3,0585	29,876	5,6714	31,877
11,891		3,5682	30,169	4,8977	31,914
12,275		4,0779	30,467	4,0757	31,93
12,658		4,5877	30,77	3,199	31,925
13,042		5,0974	31,079	2,3269	31,908
13,425		5,6072	31,394	1,511	31,875
13,809		6,1169	31,713	1,1373	31,841
14,193		6,6267	32,037	1,6275	31,799
14,576		7,1364	32,366	2,5475	31,763
14,96		7,6461	32,7	3,6094	31,729
15,343		8,1559	33,038	4,7003	31,705
15,727		8,6656	33,38	5,7976	31,692
16,11		9,1754	33,727	6,8698	31,694
16,494		9,6851	34,078	7,8859	31,71
16,878		10,195	34,433	8,828	31,743
17,261		10,705	34,791	9,6372	31,794
17,645		11,214	35,154	10,335	31,866
18,028		11,724	35,52	10,784	31,961
18,412		12,234	35,889	11,203	32,085

FIGURE 9
Model (D4) > Static Structural (D5) > Solution (D6) > Linearized Equivalent Stress 2

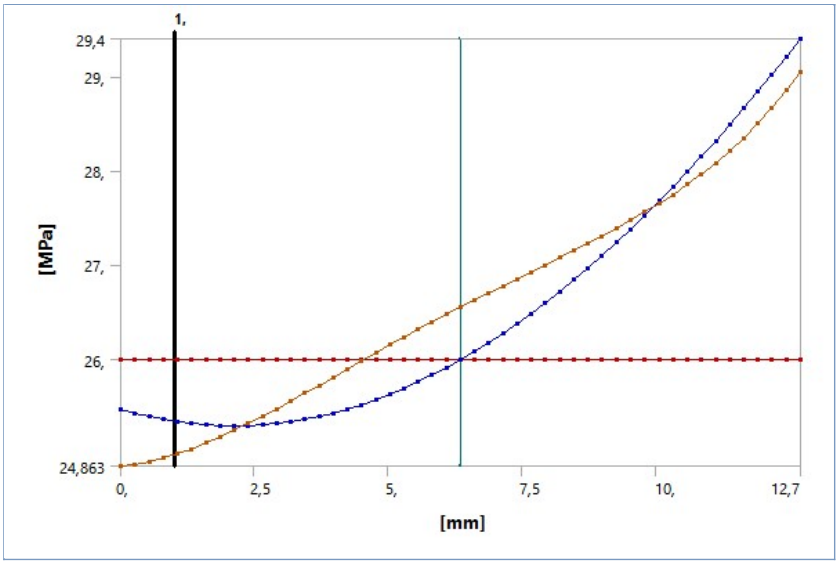


TABLE 23
Model (D4) > Static Structural (D5) > Solution (D6) > Linearized Equivalent Stress 2

Length [mm]	Membrane [MPa]	Bending [MPa]	Membrane+Bending [MPa]	Peak [MPa]	Total [MPa]
0,		9,0066	25,467	5,616	24,863
0,26458		8,6313	25,425	4,9576	24,88
0,52917		8,256	25,389	4,3053	24,914
0,79375		7,8807	25,358	3,6665	24,948
1,0583		7,5055	25,333	3,0397	24,996
1,3229		7,1302	25,314	2,4412	25,046
1,5875		6,7549	25,299	1,8647	25,106
1,8521		6,3796	25,291	1,3265	25,169
2,1167		6,0044	25,288	0,82973	25,239
2,3813		5,6291	25,29	0,415	25,312
2,6458		5,2538	25,299	0,32841	25,389
2,9104		4,8786	25,312	0,63134	25,471
3,175		4,5033	25,332	0,96568	25,552
3,4396		4,128	25,356	1,2907	25,638
3,7042		3,7527	25,387	1,5651	25,721
3,9688		3,3775	25,422	1,8246	25,809
4,2333		3,0022	25,464	2,0259	25,892
4,4979		2,6269	25,511	2,2167	25,98
4,7625		2,2516	25,563	2,3487	26,062
5,0271		1,8764	25,62	2,4742	26,148
5,2917		1,5011	25,683	2,5415	26,228
5,5563		1,1258	25,751	2,6066	26,313
5,8208		0,75055	25,825	2,6158	26,389
6,0854		0,37527	25,904	2,6237	26,471
6,35	25,988	3,3293e-015	25,988	2,5814	26,546
6,6146		0,37527	26,077	2,538	26,626
6,8792		0,75055	26,171	2,4479	26,699
7,1438		1,1258	26,27	2,3567	26,776
7,4083		1,5011	26,374	2,223	26,848
7,6729		1,8764	26,483	2,0868	26,925
7,9375		2,2516	26,597	1,9119	26,997
8,2021		2,6269	26,716	1,7332	27,074
8,4667		3,0022	26,839	1,5185	27,148
8,7313		3,3775	26,967	1,2975	27,227
8,9958		3,7527	27,1	1,0437	27,305
9,2604		4,128	27,237	0,78021	27,387
9,525		4,5033	27,379	0,48737	27,47
9,7896		4,8786	27,525	0,18719	27,559
10,054		5,2538	27,675	0,17881	27,65
10,319		5,6291	27,829	0,52671	27,748
10,583		6,0044	27,988	0,90764	27,851
10,848		6,3796	28,151	1,3177	27,961
11,113		6,7549	28,318	1,7504	28,081
11,377		7,1302	28,489	2,2203	28,209
11,642		7,5055	28,664	2,709	28,349
11,906		7,8807	28,842	3,2462	28,501
12,171		8,256	29,025	3,7973	28,667
12,435		8,6313	29,211	4,4108	28,85
12,7		9,0066	29,4	5,0323	29,051

FIGURE 10
Model (D4) > Static Structural (D5) > Solution (D6) > Linearized Equivalent Stress 3

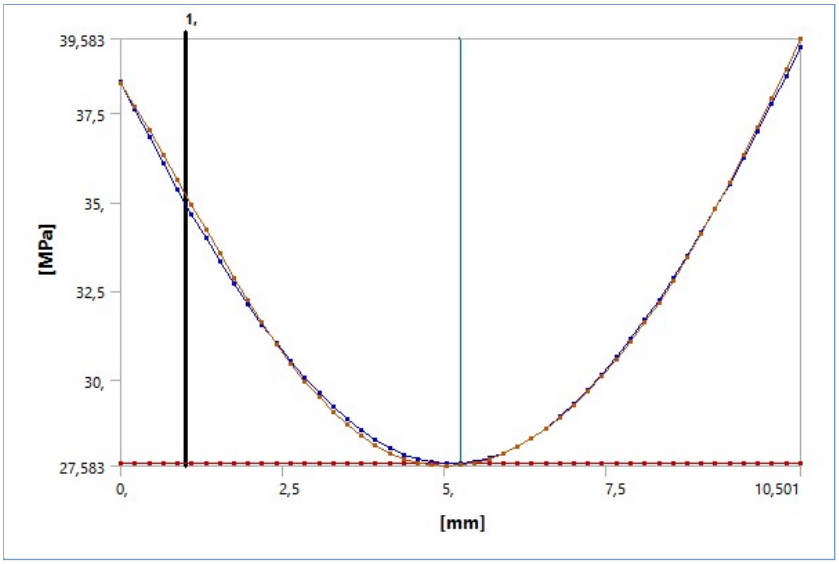


TABLE 24
Model (D4) > Static Structural (D5) > Solution (D6) > Linearized Equivalent Stress 3

Length [mm]	Membrane [MPa]	Bending [MPa]	Membrane+Bending [MPa]	Peak [MPa]	Total [MPa]
0,		27,295	38,364	2,7003	38,339
0,21877		26,158	37,584	2,326	37,665
0,43755		25,021	36,823	1,9624	37,008
0,65632		23,883	36,082	1,6045	36,317
0,87509		22,746	35,362	1,2526	35,626
1,0939		21,609	34,664	0,92665	34,933
1,3126		20,471	33,99	0,62696	34,231
1,5314		19,334	33,341	0,3693	33,552
1,7502		18,197	32,719	0,22006	32,873
1,969		17,06	32,125	0,30124	32,227
2,1877		15,922	31,561	0,442	31,605
2,4065		14,785	31,028	0,60098	31,018
2,6253		13,648	30,528	0,7296	30,472
2,8441		12,51	30,063	0,83237	29,967
3,0628		11,373	29,635	0,92101	29,507
3,2816		10,236	29,244	0,96801	29,098
3,5004		9,0984	28,893	1,0159	28,732
3,7191		7,9611	28,583	1,017	28,424
3,9379		6,8238	28,315	1,018	28,159
4,1567		5,6865	28,091	0,99415	27,949
4,3755		4,5492	27,911	0,96061	27,785
4,5942		3,4119	27,777	0,91707	27,671
4,813		2,2746	27,688	0,86201	27,605
5,0318		1,1373	27,647	0,80718	27,583
5,2506	27,652	9,018e-015	27,652	0,74384	27,609
5,4693		1,1373	27,704	0,68347	27,676
5,6881		2,2746	27,802	0,62447	27,788
5,9069		3,4119	27,947	0,57138	27,941
6,1257		4,5492	28,136	0,5278	28,135
6,3444		5,6865	28,37	0,49479	28,369
6,5632		6,8238	28,647	0,47188	28,641
6,782		7,9611	28,966	0,45728	28,953
7,0007		9,0984	29,326	0,45238	29,302
7,2195		10,236	29,725	0,43985	29,69
7,4383		11,373	30,162	0,43359	30,115
7,6571		12,51	30,635	0,41129	30,577
7,8758		13,648	31,142	0,38517	31,076
8,0946		14,785	31,682	0,34993	31,611
8,3134		15,922	32,253	0,30247	32,184
8,5322		17,06	32,853	0,2753	32,789
8,7509		18,197	33,481	0,28177	33,432
8,9697		19,334	34,136	0,34656	34,105
9,1885		20,471	34,815	0,486	34,811
9,4072		21,609	35,518	0,65463	35,547
9,626		22,746	36,243	0,86487	36,308
9,8448		23,883	36,989	1,0995	37,095
10,064		25,021	37,754	1,3507	37,904
10,282		26,158	38,538	1,6286	38,732
10,501		27,295	39,339	1,9072	39,583

FIGURE 11
Model (D4) > Static Structural (D5) > Solution (D6) > Equivalent Stress

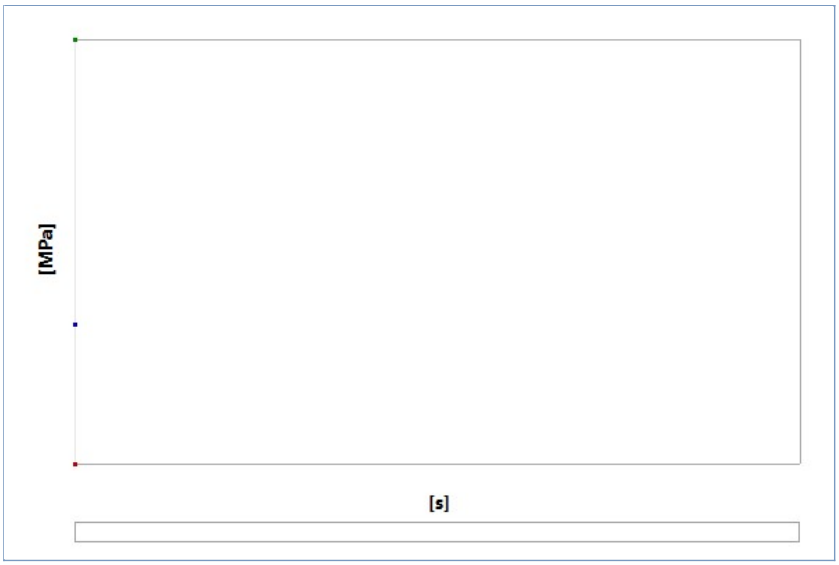


TABLE 25
Model (D4) > Static Structural (D5) > Solution (D6) > Equivalent Stress

Time [s]	Minimum [MPa]	Maximum [MPa]	Average [MPa]
1,	5,9094e-002	50,951	16,825

Material Data

P355GH

TABLE 26
P355GH > Constants

Density	7,85e-006 kg mm^-3
Coefficient of Thermal Expansion	1,2e-005 C^-1
Specific Heat	4,34e+005 mJ kg^-1 C^-1
Thermal Conductivity	6,05e-002 W mm^-1 C^-1
Resistivity	1,7e-004 ohm mm

TABLE 27
P355GH > Color

Red	Green	Blue
132,	139,	179,

TABLE 28
P355GH > Compressive Ultimate Strength

Compressive Ultimate Strength MPa
0,

TABLE 29
P355GH > Compressive Yield Strength

Compressive Yield Strength MPa
250,

TABLE 30
P355GH > Tensile Yield Strength

Tensile Yield Strength MPa
355,

TABLE 31
P355GH > Tensile Ultimate Strength

Tensile Ultimate Strength MPa
510,

TABLE 32
P355GH > Isotropic Secant Coefficient of Thermal Expansion

Zero-Thermal-Strain Reference Temperature C
22,

TABLE 33
P355GH > S-N Curve

Alternating Stress MPa	Cycles	Mean Stress MPa
3999,	10,	0,
2827,	20,	0,
1896,	50,	0,
1413,	100,	0,
1069,	200,	0,
441,	2000,	0,
262,	10000	0,
214,	20000	0,

138,	1,e+005	0,
114,	2,e+005	0,
86,2	1,e+006	0,

TABLE 34
P355GH > Strain-Life Parameters

Strength Coefficient MPa	Strength Exponent	Ductility Coefficient	Ductility Exponent	Cyclic Strength Coefficient MPa	Cyclic Strain Hardening Exponent
920,	-0,106	0,213	-0,47	1000,	0,2

TABLE 35
P355GH > Isotropic Elasticity

Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,0387e+005	0,3	1,6989e+005	78411	

TABLE 36
P355GH > Isotropic Relative Permeability

Relative Permeability
10000

P355QH1

TABLE 37
P355QH1 > Constants

Density	7,85e-006 kg mm^-3
Coefficient of Thermal Expansion	1,2e-005 C^-1
Specific Heat	4,34e+005 mJ kg^-1 C^-1
Thermal Conductivity	6,05e-002 W mm^-1 C^-1
Resistivity	1,7e-004 ohm mm

TABLE 38
P355QH1 > Color

Red	Green	Blue
132,	139,	179,

TABLE 39
P355QH1 > Compressive Ultimate Strength

Compressive Ultimate Strength MPa
0,

TABLE 40
P355QH1 > Compressive Yield Strength

Compressive Yield Strength MPa
250,

TABLE 41
P355QH1 > Tensile Yield Strength

Tensile Yield Strength MPa
315,

TABLE 42
P355QH1 > Tensile Ultimate Strength

Tensile Ultimate Strength MPa
470,

TABLE 43
P355QH1 > Isotropic Secant Coefficient of Thermal Expansion

Zero-Thermal-Strain Reference Temperature C
22,

TABLE 44
P355QH1 > S-N Curve

Alternating Stress MPa	Cycles	Mean Stress MPa
3999,	10,	0,
2827,	20,	0,
1896,	50,	0,
1413,	100,	0,
1069,	200,	0,
441,	2000,	0,
262,	10000	0,
214,	20000	0,
138,	1,e+005	0,
114,	2,e+005	0,
86,2	1,e+006	0,

TABLE 45
P355QH1 > Strain-Life Parameters

Strength Coefficient MPa	Strength Exponent	Ductility Coefficient	Ductility Exponent	Cyclic Strength Coefficient MPa	Cyclic Strain Hardening Exponent
920,	-0,106	0,213	-0,47	1000,	0,2

TABLE 46
P355QH1 > Isotropic Elasticity

Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,0387e+005	0,3	1,6989e+005	78411	

TABLE 47
P355QH1 > Isotropic Relative Permeability

Relative Permeability
10000

P265GH

TABLE 48
P265GH > Constants

Density	7,85e-006 kg mm^-3
Coefficient of Thermal Expansion	1,2e-005 C^-1
Specific Heat	4,34e+005 mJ kg^-1 C^-1
Thermal Conductivity	6,05e-002 W mm^-1 C^-1
Resistivity	1,7e-004 ohm mm

TABLE 49
P265GH > Color

Red	Green	Blue
132,	139,	179,

TABLE 50
P265GH > Compressive Ultimate Strength

Compressive Ultimate Strength MPa
0,

TABLE 51
P265GH > Compressive Yield Strength

Compressive Yield Strength MPa
250,

TABLE 52
P265GH > Tensile Yield Strength

Tensile Yield Strength MPa
265,

TABLE 53
P265GH > Tensile Ultimate Strength

Tensile Ultimate Strength MPa
410,

TABLE 54
P265GH > Isotropic Secant Coefficient of Thermal Expansion

Zero-Thermal-Strain Reference Temperature C
22,

TABLE 55
P265GH > S-N Curve

Alternating Stress MPa	Cycles	Mean Stress MPa
3999,	10,	0,
2827,	20,	0,
1896,	50,	0,
1413,	100,	0,
1069,	200,	0,
441,	2000,	0,
262,	10000	0,
214,	20000	0,
138,	1,e+005	0,
114,	2,e+005	0,
86,2	1,e+006	0,

TABLE 56
P265GH > Strain-Life Parameters

Strength Coefficient MPa	Strength Exponent	Ductility Coefficient	Ductility Exponent	Cyclic Strength Coefficient MPa	Cyclic Strain Hardening Exponent
920,	-0,106	0,213	-0,47	1000,	0,2

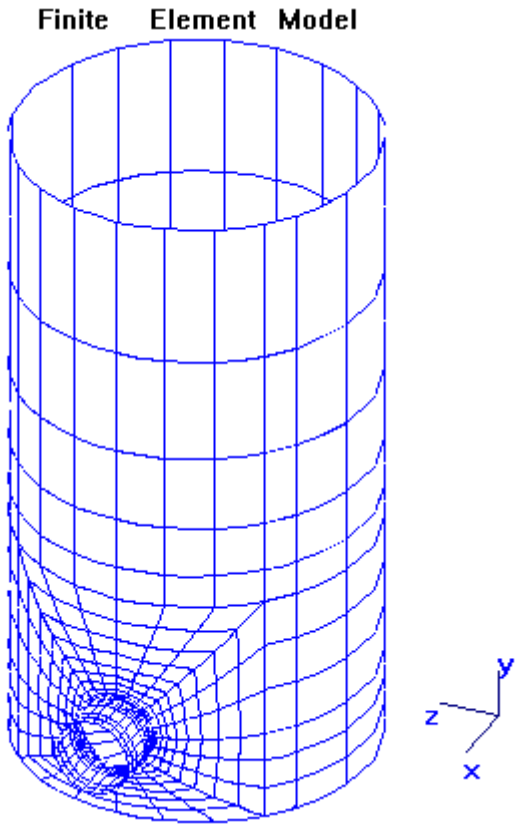
TABLE 57
P265GH > Isotropic Elasticity

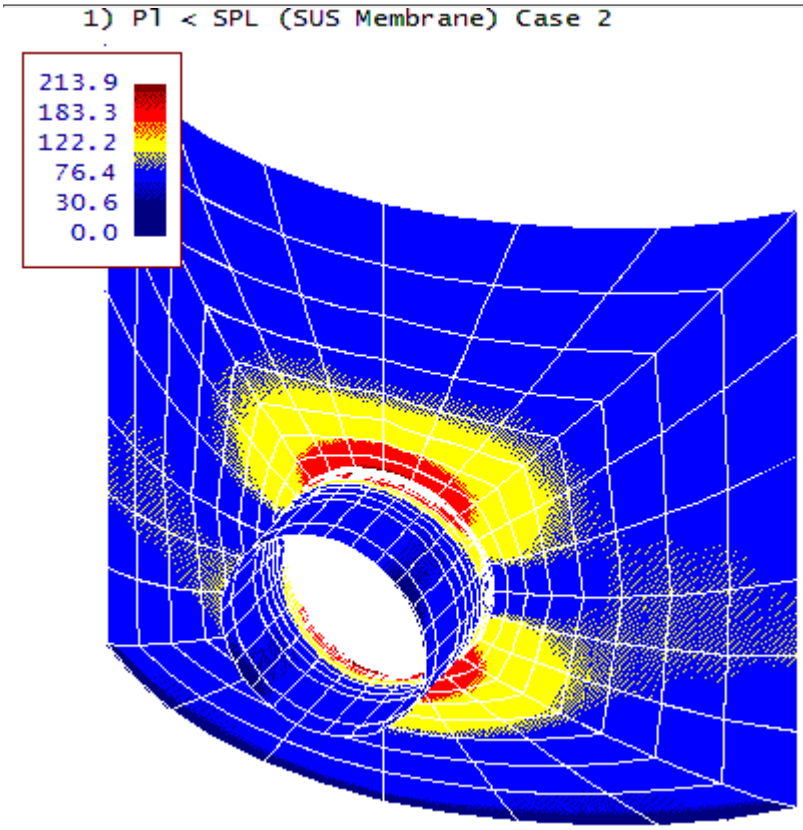
Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,0387e+005	0,3	1,6989e+005	78411	

TABLE 58
P265GH > Isotropic Relative Permeability

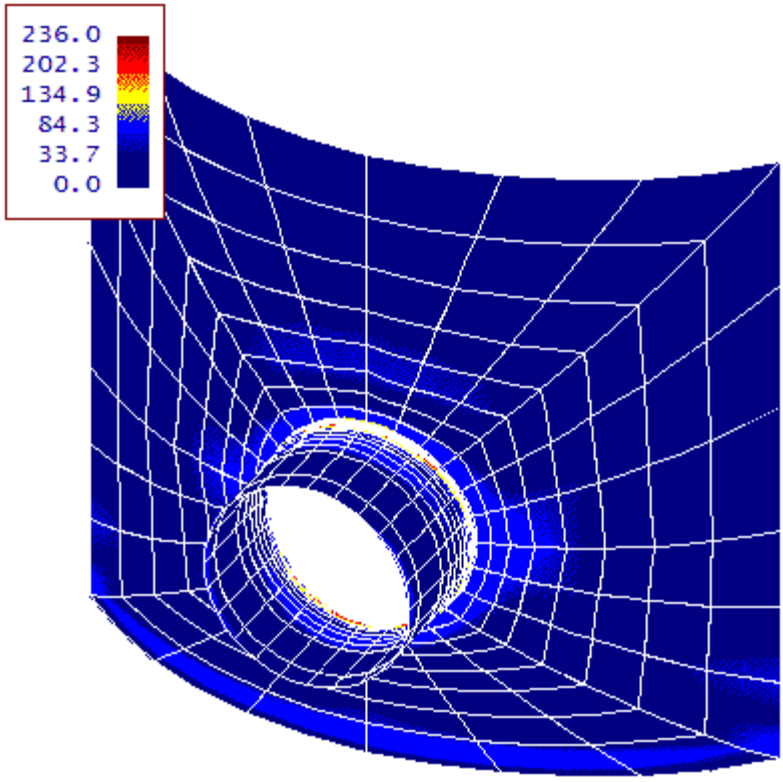
Relative Permeability
10000

Příloha D:
Report NozzlePRO

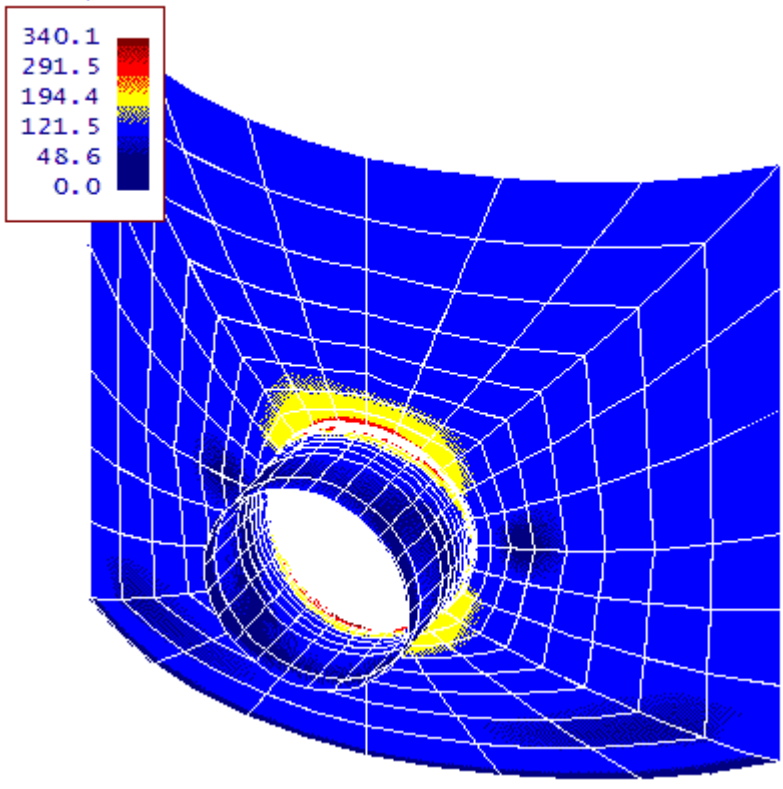

Finite Element Model
Y
Z
X


1) Pl < SPL (SUS Membrane) Case 2
213.9
183.3
122.2
76.4
30.6
0.0

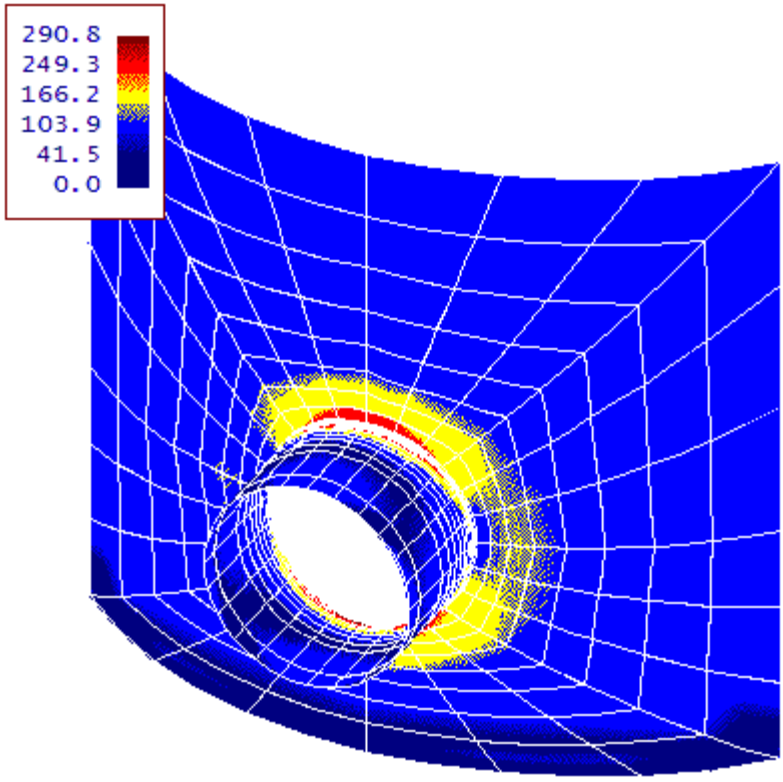
2) Qb < SPS (SUS Bending) Case 2



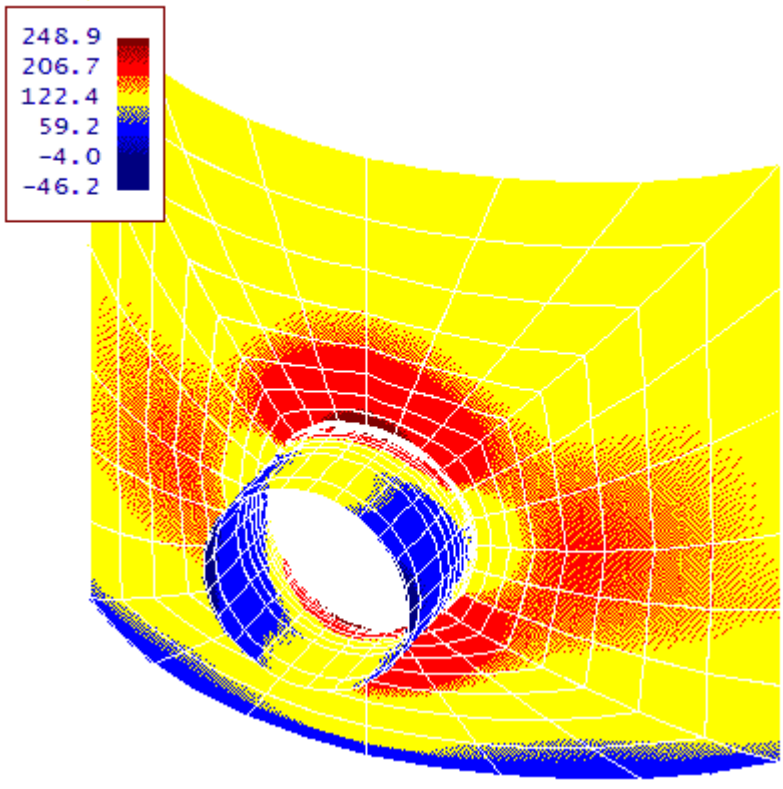
3) Pl+Pb+Q < SPS (SUS Inside) Case 2



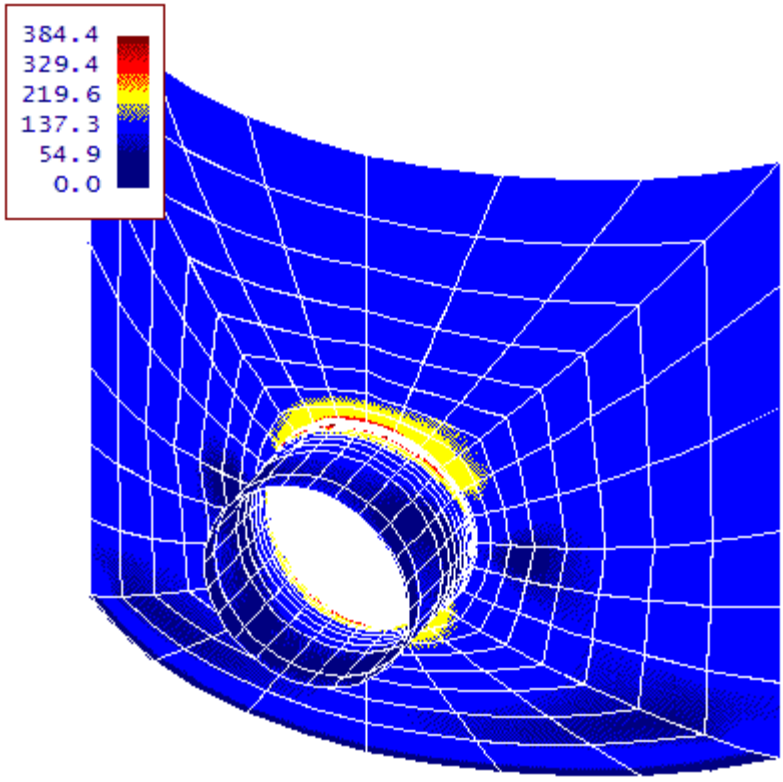
4) Pl+Pb+Q < SPS (SUS Outside) Case 2



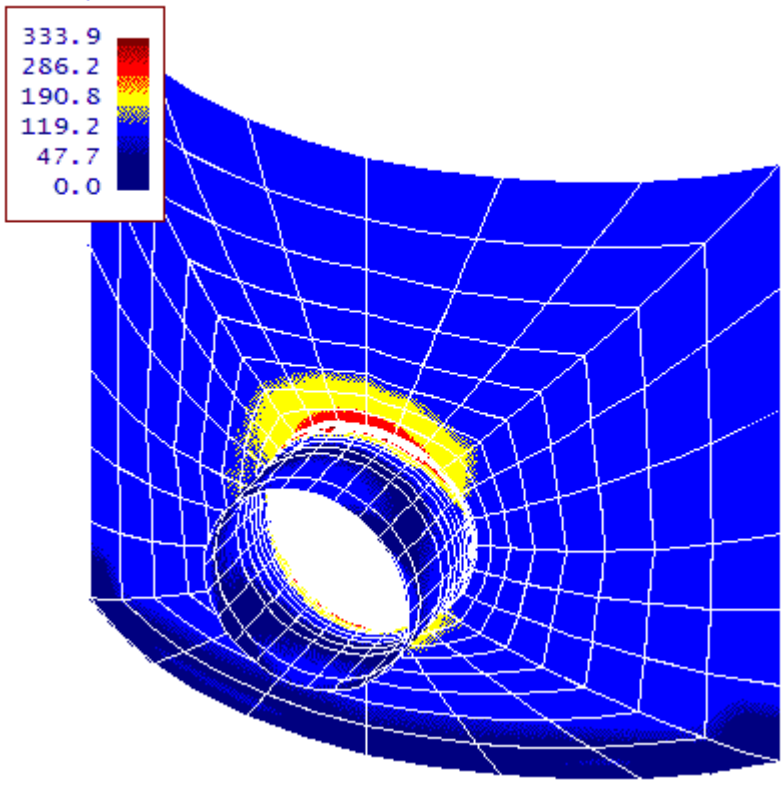
5) S1+S2+S3 < 4S (SUS S1+S2+S3) Case 2



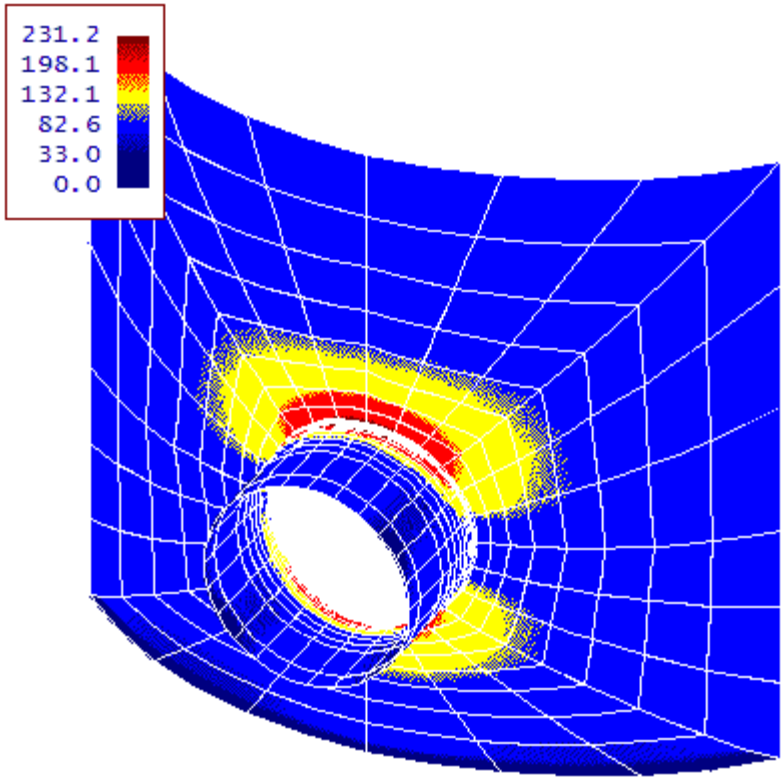
6) Pl+Pb+Q < SPS (OPE Inside) Case 3



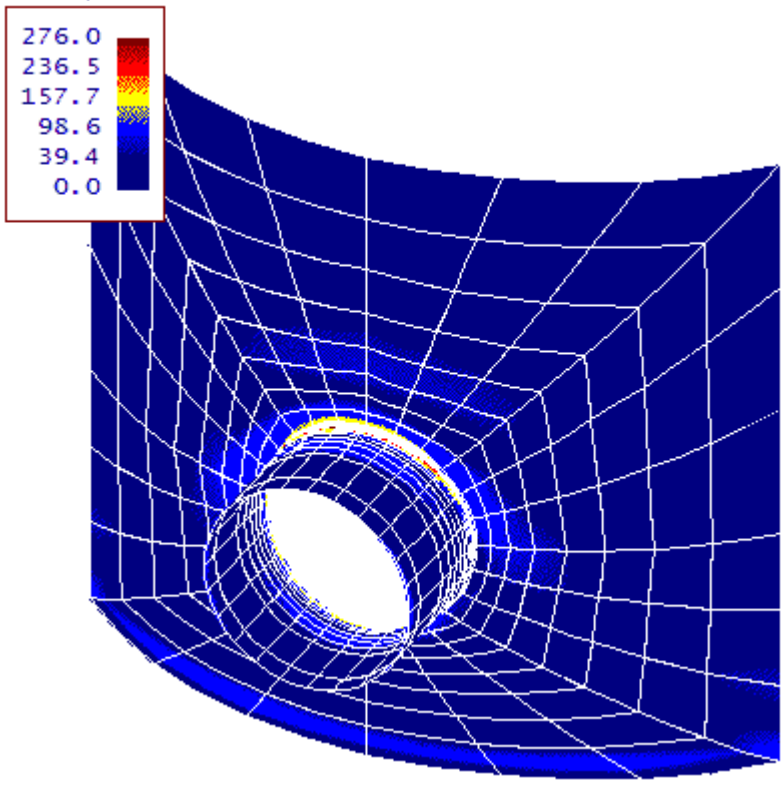
7) Pl+Pb+Q < SPS (OPE Outside) Case 3



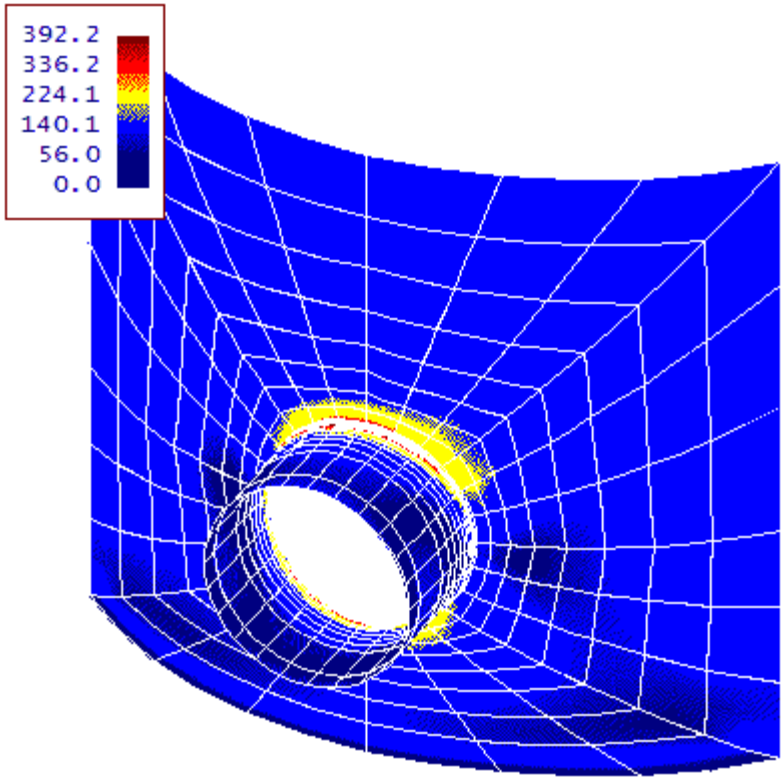
8) Membrane < User (OPE Membrane) Case 3



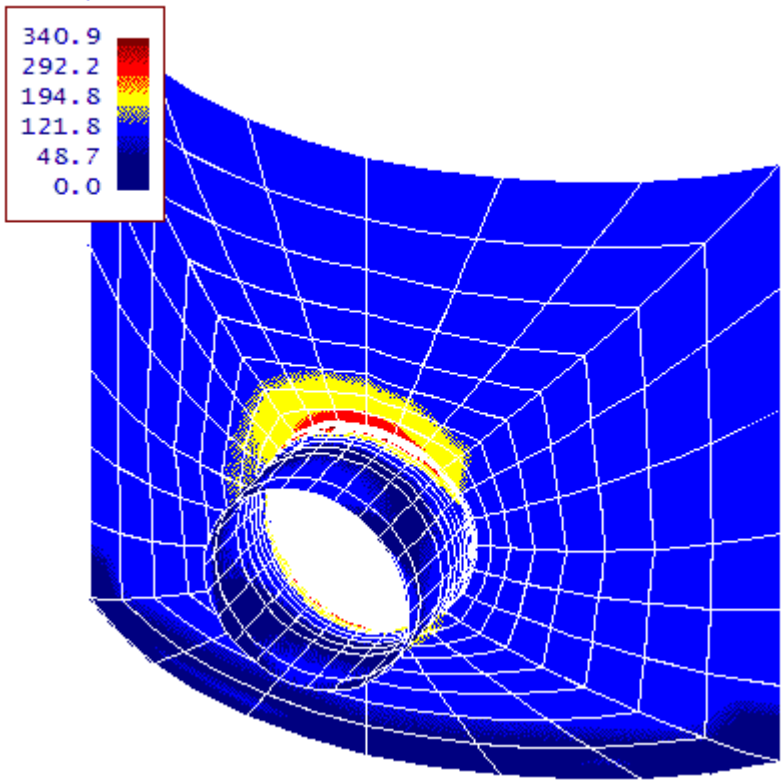
9) Bending < User (OPE Bending) Case 3



10) Pl+Pb+Q < SPS (EXP Inside) Case 4



11) Pl+Pb+Q < SPS (EXP Outside) Case 4



Finite Element Model

- Finite Element Model

Elements at Discontinuity

- 1) Pl < SPL (SUS Membrane) Case 2
- 2) Qb < SPS (SUS Bending) Case 2
- 3) Pl+Pb+Q < SPS (SUS Inside) Case 2
- 4) Pl+Pb+Q < SPS (SUS Outside) Case 2
- 5) S1+S2+S3 < 4S (SUS S1+S2+S3) Case 2
- 6) Pl+Pb+Q < SPS (OPE Inside) Case 3
- 7) Pl+Pb+Q < SPS (OPE Outside) Case 3
- 8) Membrane < User (OPE Membrane) Case 3
- 9) Bending < User (OPE Bending) Case 3
- 10) Pl+Pb+Q < SPS (EXP Inside) Case 4
- 11) Pl+Pb+Q < SPS (EXP Outside) Case 4

Finite Element Model

- Finite Element Model

Elements at Discontinuity

- 1) Pl < SPL (SUS Membrane) Case 2
- 2) Qb < SPS (SUS Bending) Case 2
- 3) Pl+Pb+Q < SPS (SUS Inside) Case 2
- 4) Pl+Pb+Q < SPS (SUS Outside) Case 2
- 5) S1+S2+S3 < 4S (SUS S1+S2+S3) Case 2
- 6) Pl+Pb+Q < SPS (OPE Inside) Case 3
- 7) Pl+Pb+Q < SPS (OPE Outside) Case 3
- 8) Membrane < User (OPE Membrane) Case 3
- 9) Bending < User (OPE Bending) Case 3
- 10) Pl+Pb+Q < SPS (EXP Inside) Case 4
- 11) Pl+Pb+Q < SPS (EXP Outside) Case 4

Tabular Results

Results were generated with the finite element program FE/Pipe®. Stress results are post-processed in accordance with the rules specified in ASME Section III and ASME Section VIII, Division 2.

Analysis Time Stamp: Mon Mar 23 11:57:00 2020.

- Model Notes
- Load Case Report
- Solution Data
- ASME Code Stress Output Plots
- Stress Results - Notes
- ASME Overstressed Areas
- Highest Primary Stress Ratios
- Highest Secondary Stress Ratios
- Stress Intensification Factors
- Allowable Loads
- Flexibilities
- Graphical Results

Model Notes
Model Notes

Input Echo:

Model Type	:	Cylindrical Shell

Parent Geometry

Parent Outside Diam.	:	1000.000 mm.
Thickness	:	10.500 mm.

Parent Properties:

Cold Allowable	:	170.8 MPa
Hot Allowable	:	153.5 MPa
Material ID #1	:	Low Carbon Steel
Ultimate Tensile (Amb)	:	410.0 MPa
Yield Strength (Amb)	:	265.0 MPa
Yield Strength (Hot)	:	230.2 MPa
Elastic Modulus (Amb)	:	203868.0 MPa
Poissons Ratio	:	0.300
Expansion Coefficient	:	0.1080E-04 mm./mm./deg.
Weight Density	:	0.0000E+00 N /cu.mm.(NOT USED)

Nozzle Geometry

Nozzle Outside Diam.	:	219.100 mm.
Thickness	:	6.000 mm.
Length	:	150.000 mm.
Nozzle Tilt Angle	:	0.000 deg.
Distance from Top	:	1550.000 mm.
Distance from Bottom	:	250.000 mm.

Nozzle Properties

Cold Allowable	:	170.8 MPa
Hot Allowable	:	145.5 MPa
Material ID #1	:	Low Carbon Steel
Ultimate Tensile (Amb)	:	410.0 MPa
Yield Strength (Amb)	:	265.0 MPa
Yield Strength (Hot)	:	218.2 MPa
Elastic Modulus (Amb)	:	203868.0 MPa
Poissons Ratio	:	0.300
Expansion Coefficient	:	0.1080E-04 mm./mm./deg.
Weight Density	:	0.0000E+00 N /cu.mm. (NOT USED)

Design Operating Cycles	:	500.
Ambient Temperature (Deg.)	:	20.00

Uniform thermal expansion produces no stress in this geometry.
Any thermal loads will come through operating forces and
moments applied through the nozzle.

Nozzle Inside Temperature	:	130.00 deg.
Nozzle Outside Temperature	:	130.00 deg.
Vessel Inside Temperature	:	130.00 deg.
Vessel Outside Temperature	:	130.00 deg.

Nozzle Pressure	:	1.600 MPa
Vessel Pressure	:	1.600 MPa

Operating Pressure	:	1.6 MPa

The operating pressure is used for secondary and peak stress

cases. The design pressure is used for primary cases. The ratio
of the operating/design pressure = 1.000

User Defined Load Input Echo:
Loads are given at the End of Nozzle
Loads are defined in Global Coordinates

Forces(N) Moments (N-m)

Load Case	FX	FY	FZ	MX	MY	MZ
WEIGHT:	227.0	-508.0	406.0	146.0	-282.0	195.0
OPER:	1119.0	-2226.0	168.0	722.0	643.0	-1256.0

FEA Model Loads:
These are the actual loads applied to the FEA model.
These are the User Defined Loads translated to the
end of the nozzle and reported in global coordinates.

Forces(N) Moments (N-m)

Load Case	FX	FY	FZ	MX	MY	MZ
WEIGHT:	227.0	-508.0	406.0	146.0	-282.0	195.0
OPER:	1119.0	-2226.0	168.0	722.0	643.0	-1256.0

The "bottom" or "negative" end of this model is "free" in
the axial and translational directions.

Stresses ARE nodally AVERAGED.

No weld dimensions have been given for the nozzle
connection to the shell. This will produce conservative
results for external loads and may tend to produce more
realistic inside surface pressure stresses.

Vessel Centerline Vector : 0.000 1.000 0.000
Nozzle Orientation Vector : 1.000 0.000 0.000

Table of Contents

Load Case Report
FE/Pipe Version 10.1 Jobname: NOZZLE $P
Released Jul 2018 11:53am MAR 23,2020

Load Case Report $X

Inner and outer element temperatures are the same
throughout the model. No thermal ratcheting
calculations will be performed.

THE 9 LOAD CASES ANALYZED ARE:

1 WEIGHT ONLY (Wgt Only)

Weight ONLY case run to get the stress range
between the installed and the operating states.

/-------- Loads in Case 1
Loads due to Weight

2 SUSTAINED (Wgt+Pr)

Sustained case run to satisfy local primary
membrane and bending stress limits.

/-------- Loads in Case 2
Loads due to Weight
Pressure Case 1

3 OPERATING

Case run to compute the operating stresses used in
secondary, peak and range calculations as needed.

/-------- Loads in Case 3
Pressure Case 1
Loads from (Operating)

```
  4   RANGE          (Fatigue Calc Performed)

      Case run to get the RANGE of stresses.
      as described in NB-3222.2, 5.5.3.2, 5.5.5.2 or 5.5.6.1.

      /-------- Combinations in Range Case   4
        Plus  Stress Results from CASE   3
        Minus Stress Results from CASE   1

  5   Program Generated -- Force Only

      Case run to compute sif's and flexibilities.
      /-------- Loads in Case   5
        Loads from (Axial)

  6   Program Generated -- Force Only

      Case run to compute sif's and flexibilities.
      /-------- Loads in Case   6
        Loads from (Inplane)

  7   Program Generated -- Force Only

      Case run to compute sif's and flexibilities.
      /-------- Loads in Case   7
        Loads from (Outplane)

  8   Program Generated -- Force Only

      Case run to compute sif's and flexibilities.
      /-------- Loads in Case   8
        Loads from (Torsion)

  9   Program Generated -- Force Only

      Case run to compute sif's and flexibilities.
      /-------- Loads in Case   9
        Pressure Case    1
```

Table of Contents

```
Solution Data
FE/Pipe Version 10.1          Jobname: NOZZLE                $P
Released Jul 2018             11:53am  MAR 23,2020



Solution Data


Maximum Solution Row Size =     948
Number of Nodes           =    2076
Number of Elements        =     684
Number of Solution Cases  =       8

Summation of Loads per Case

Case #               FX                  FY                  FZ

   1                227.                -508.               406.
   2              -2941.           -1230851.               406.
   3              -2049.           -1232574.               168.
   4             553906.                   0.                 0.
   5                  0.                   0.                 0.
   6                  0.                   0.                 0.
   7                  0.                   0.                 0.
   8              -3168.           -1230343.                 0.
```

Table of Contents

```
ASME Code Stress Output Plots
FE/Pipe Version 10.1          Jobname: NOZZLE                $P
Released Jul 2018             11:56am  MAR 23,2020
```

ASME Code Stress Output Plots $X

1) Pl < SPL (SUS,Membrane) Case 2

2) Qb < SPS (SUS,Bending) Case 2

3) Pl+Pb+Q < SPS (SUS,Inside) Case 2

4) Pl+Pb+Q < SPS (SUS,Outside) Case 2

5) S1+S2+S3 < 4S (SUS,S1+S2+S3) Case 2

6) Pl+Pb+Q < SPS (OPE,Inside) Case 3

7) Pl+Pb+Q < SPS (OPE,Outside) Case 3

8) Membrane < User (OPE,Membrane) Case 3

9) Bending < User (OPE,Bending) Case 3

10) Pl+Pb+Q < SPS (EXP,Inside) Case 4

11) Pl+Pb+Q < SPS (EXP,Outside) Case 4

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Stress Results - Notes
FE/Pipe Version 10.1 Jobname: NOZZLE $P
Released Jul 2018 11:56am MAR 23,2020

Stress Results - Notes

- Results in this analysis were generated using the finite element solution method.

- The component loading condition has been screened and it has determined that a fatigue analysis is NOT required. All fatigue reports will be omitted from this output. See the ASME panel for the controlling check box.

- Using 2013-2017 ASME Section VIII Division 2

- Use Polished Bar fatigue curve.

- Ratio between Operating and Design Pressure = 1.000000
  Assume pressure increases all other stresses.

- Assume free end displacements of attached pipe (e.g. thermal loads) are secondary within the limits of nozzle reinforcement.

- User OVERRIDE - USE Equivalent Stress (Von Mises) for ASME calculation. Von Mises may be 10% lower than stress intensity (TRESCA).

- S1+S2+S3 evaluation omitted from operating stress.
  Include S1+S2+S3 evaluation in primary case evaluation.
  Assume bending stress not local primary for S1+S2+S3.

- Use local tensor values for averaged and not averaged stresses.

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ASME Overstressed Areas
FE/Pipe Version 10.1 Jobname: NOZZLE $P
Released Jul 2018 11:56am MAR 23,2020

ASME Overstressed Areas $X

*** NO OVERSTRESSED NODES IN THIS MODEL ***

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Highest Primary Stress Ratios
FE/Pipe Version 10.1 Jobname: NOZZLE $P
Released Jul 2018 11:56am MAR 23,2020

Highest Primary Stress Ratios $X

Header Next to Nozzle Weld

Pl	SPL	Primary Membrane Load Case 2
205	230	Plot Reference:
MPa	MPa	1) Pl < SPL (SUS,Membrane) Case 2

89%

Branch Next to Header Weld

Pl	SPL	Primary Membrane Load Case 2
214	218	Plot Reference:
MPa	MPa	1) Pl < SPL (SUS,Membrane) Case 2

98%

Branch Transition

Pl	SPL	Primary Membrane Load Case 2
54	218	Plot Reference:
MPa	MPa	1) Pl < SPL (SUS,Membrane) Case 2

24%

Header away from Junction

Pl	SPL	Primary Membrane Load Case 2
141	230	Plot Reference:
MPa	MPa	1) Pl < SPL (SUS,Membrane) Case 2

61%

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Highest Secondary Stress Ratios
FE/Pipe Version 10.1 Jobname: NOZZLE $P
Released Jul 2018 11:56am MAR 23,2020

Highest Secondary Stress Ratios $X

Header Next to Nozzle Weld

Pl+Pb+Q	SPS	Primary+Secondary (Inner) Load Case 4
258	495	Plot Reference:
MPa	MPa	10) Pl+Pb+Q < SPS (EXP,Inside) Case 4

52%

Branch Next to Header Weld

Pl+Pb+Q	SPS	Primary+Secondary (Inner) Load Case 4
392	483	Plot Reference:
MPa	MPa	10) Pl+Pb+Q < SPS (EXP,Inside) Case 4

81%

Branch Transition

Pl+Pb+Q	SPS	Primary+Secondary (Inner) Load Case 4
96	483	Plot Reference:
MPa	MPa	10) Pl+Pb+Q < SPS (EXP,Inside) Case 4

19%

Header away from Junction

Pl+Pb+Q	SPS	Primary+Secondary (Outer) Load Case 2
156	495	Plot Reference:
MPa	MPa	4) Pl+Pb+Q < SPS (SUS,Outside) Case 2

31%

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Stress Intensification Factors
FE/Pipe Version 10.1 Jobname: NOZZLE $P
Released Jul 2018 11:56am MAR 23,2020

Stress Intensification Factors $X

Branch/Nozzle Sif Summary

	Peak	Primary	Secondary	SSI
Axial :	0.000	9.400	18.801	0.000
Inplane :	0.000	5.324	10.649	0.000
Outplane:	0.000	9.040	18.079	0.000
Torsion :	0.000	0.981	1.066	0.000
Pressure:	0.000	2.745	4.384	0.000

The above stress intensification factors are to be used in a beam-type analysis of the piping system. Inplane, Outplane and Torsional sif's should be used with the matching branch pipe whose diameter and thickness is given below. The axial sif should be used to intensify the axial stress in the branch pipe calculated by F/A. The pressure sif should be used to intensify the nominal pressure stress in the PARENT or HEADER, calculated from PDo/2T. B31 calculations use mean diameters and Section VIII calculations use outside diameters. SSIs are based on peak stress factors and correlated test results.

Pipe OD : 219.100 mm.
Pipe Thk: 6.000 mm.
Z approx: 213997.016 cu.mm.
Z exact : 208301.750 cu.mm.

B31.3 (Branch)		
Peak Stress Sif	0.000	Axial
	5.175	Inplane
	6.709	Outplane
	1.000	Torsional
B31.1 (Branch)		
Peak Stress Sif	0.000	Axial
	5.047	Inplane
	5.047	Outplane
	5.047	Torsional
WRC 330 (Branch)		
Peak Stress Sif	0.000	Axial
	3.407	Inplane
	3.407	Outplane
	1.000	Torsional

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Allowable Loads
FE/Pipe Version 10.1 Jobname: NOZZLE $P
Released Jul 2018 11:56am MAR 23,2020

Allowable Loads $X

SECONDARY Load Type (Range):		Maximum Individual Occuring	Conservative Simultaneous Occuring	Realistic Simultaneous Occuring
Axial Force	(N)	103238.	11030.	16545.
Inplane Moment	(mm. N)	9451929.	687644.	1458713.
Outplane Moment	(mm. N)	5567308.	421532.	894204.
Torsional Moment	(mm. N)	94417248.	9727070.	14590605.
Pressure	(MPa)	2.31	1.60	1.60

PRIMARY Load Type:		Maximum Individual Occuring	Conservative Simultaneous Occuring	Realistic Simultaneous Occuring
Axial Force	(N)	93241.	1296.	1944.
Inplane Moment	(mm. N)	8536664.	83911.	178003.
Outplane Moment	(mm. N)	5028206.	49425.	104846.
Torsional Moment	(mm. N)	46349288.	644304.	966457.
Pressure	(MPa)	1.67	1.60	1.60

NOTES:

1) Maximum Individual Occuring Loads are the maximum allowed values of the respective loads if all other load components are zero, i.e. the listed axial force may be applied if the inplane, outplane and torsional moments, and the pressure are zero.

2) The Conservative Allowable Simultaneous loads are the maximum loads that can be applied simultaneously. A conservative stress combination equation is used that typically produces stresses within 50-70% of the allowable stress.

3) The Realistic Allowable Simultaneous loads are the maximum loads that can be applied simultaneously. A more realistic stress combination equation is used based on experience at Paulin Research. Stresses are typically produced within 80-105% of the allowable.

4) Secondary allowable loads are limits for expansion and operating piping loads.

5) Primary allowable loads are limits for weight, primary and sustained type piping loads.

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Flexibilities
FE/Pipe Version 10.1 Jobname: NOZZLE $P
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Flexibilities $X

The following stiffnesses should be used in a piping, "beam-type" analysis of the intersection. The stiff-nesses should be inserted at the surface of the branch/header or nozzle/vessel junction. The general characteristics used for the branch pipe should be:

Outside Diameter = 219.100 mm.
Wall Thickness = 6.000 mm.

Axial Translational Stiffness = 135491. N /mm.
Inplane Rotational Stiffness = 36539976. mm. N /deg
Outplane Rotational Stiffness = 15497176. mm. N /deg

```
Torsional Rotational Stiffness  =     889399808.  mm. N /deg


Intersection Flexibility Factors for Branch/Nozzle

Find axial stiffness: K = 3EI/(kd)^3   N /mm.
Find bending and torsional stiffnesses: K = EI/(kd)  mm. N per radian.
The EI product is   0.46552E+13    N mm.^2
The value of (d) to use is: 213.100  mm..
The resulting bending stiffness is in units of force x length per radian.

Axial Flexibility Factor     (k) =     2.200
Inplane Flexibility Factor   (k) =    10.434
Outplane Flexibility Factor  (k) =    24.602
Torsional Flexibility Factor (k) =     0.429
```

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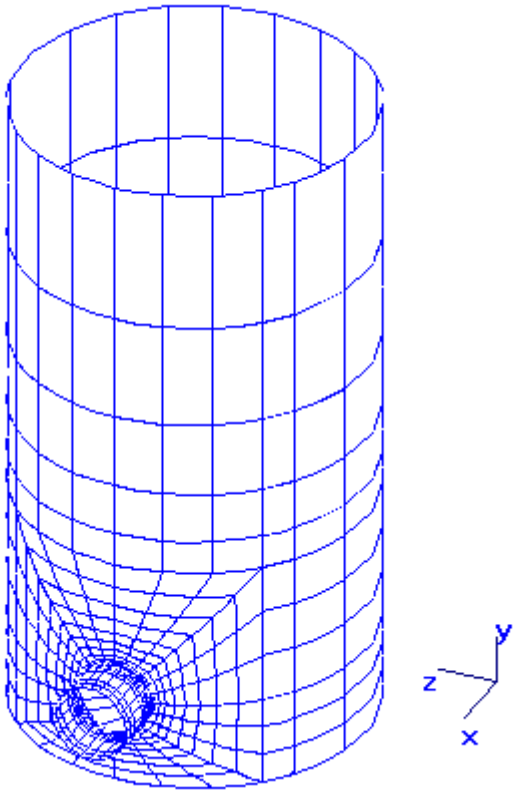
Finite Element Model

- Finite Element Model

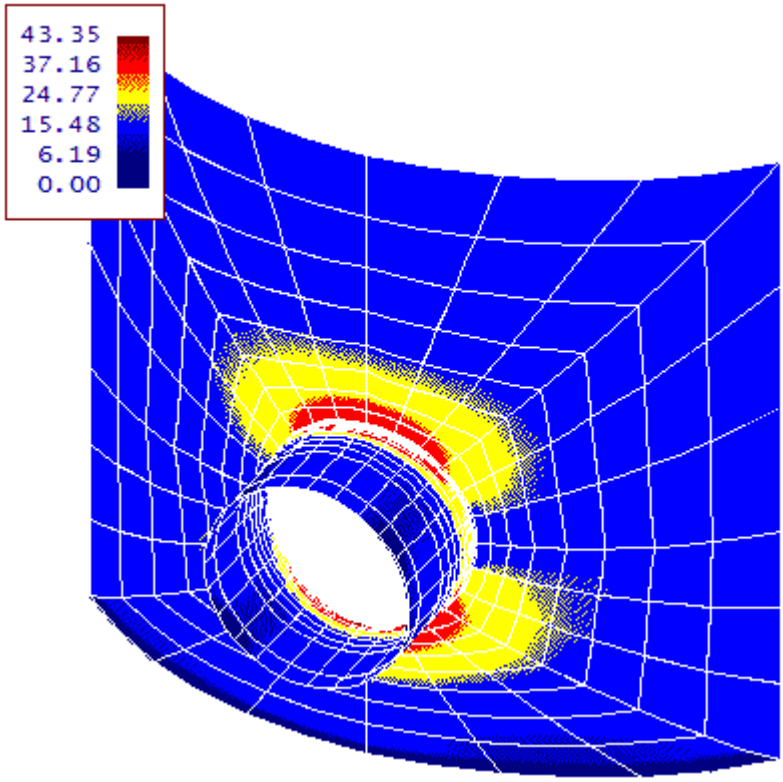
Elements at Discontinuity

- 1) Pl < SPL (SUS Membrane) Case 2
- 2) Qb < SPS (SUS Bending) Case 2
- 3) Pl+Pb+Q < SPS (SUS Inside) Case 2
- 4) Pl+Pb+Q < SPS (SUS Outside) Case 2
- 5) S1+S2+S3 < 4S (SUS S1+S2+S3) Case 2
- 6) Pl+Pb+Q < SPS (OPE Inside) Case 3
- 7) Pl+Pb+Q < SPS (OPE Outside) Case 3
- 8) Membrane < User (OPE Membrane) Case 3
- 9) Bending < User (OPE Bending) Case 3
- 10) Pl+Pb+Q < SPS (EXP Inside) Case 4
- 11) Pl+Pb+Q < SPS (EXP Outside) Case 4

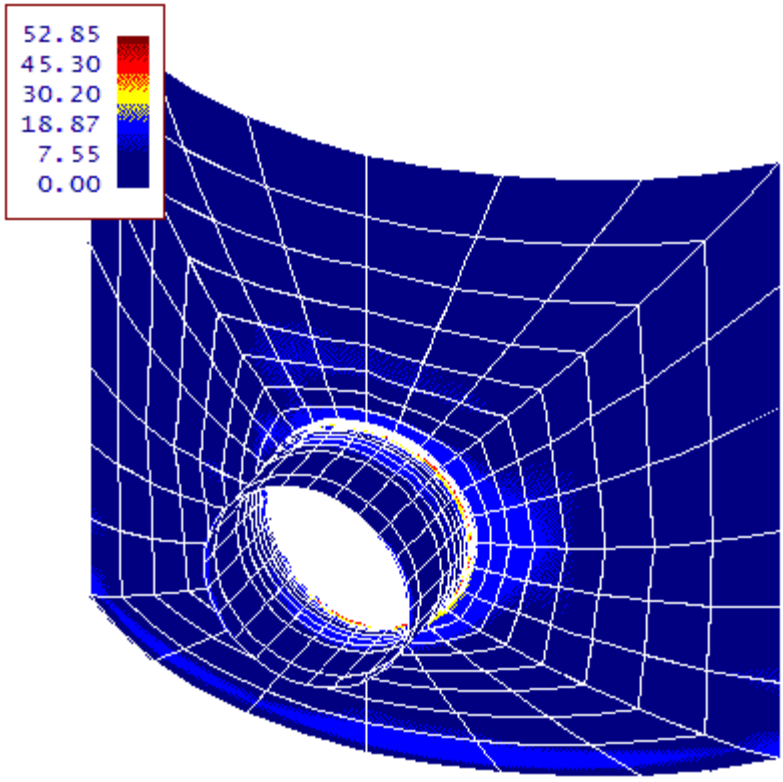
Finite Element Model



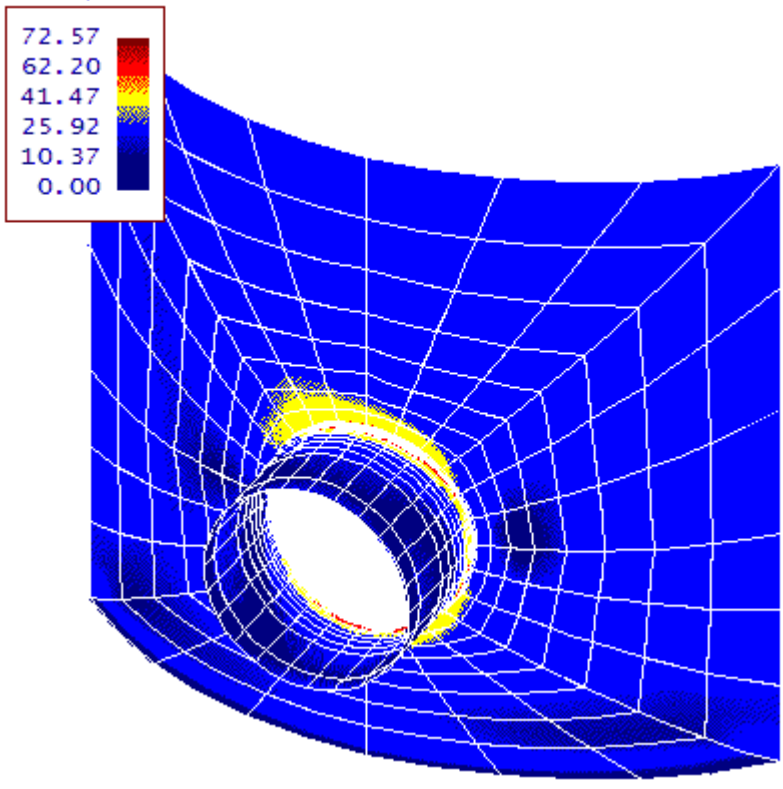
1) Pl < SPL (SUS Membrane) Case 2



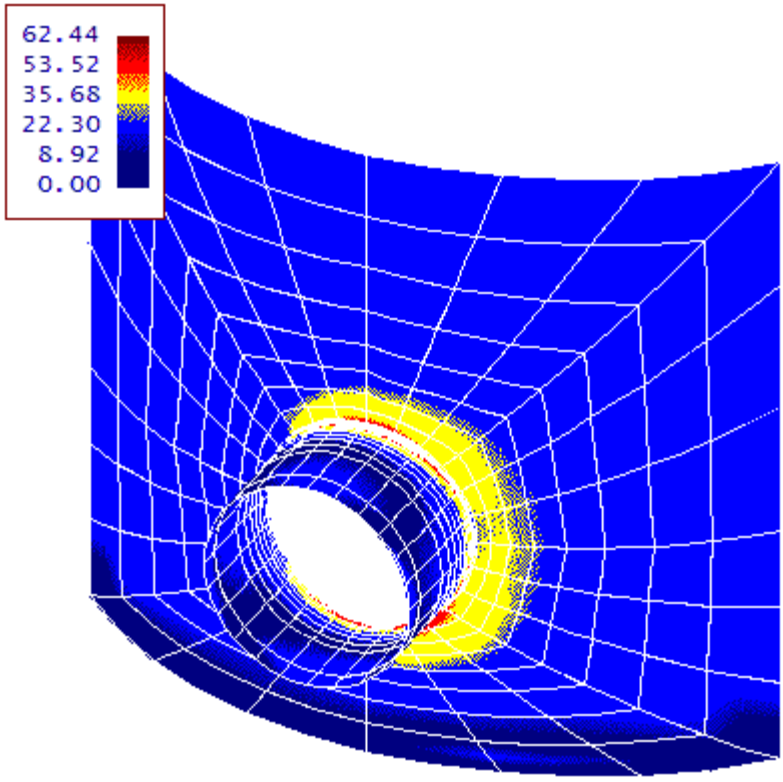
2) Qb < SPS (SUS Bending) Case 2



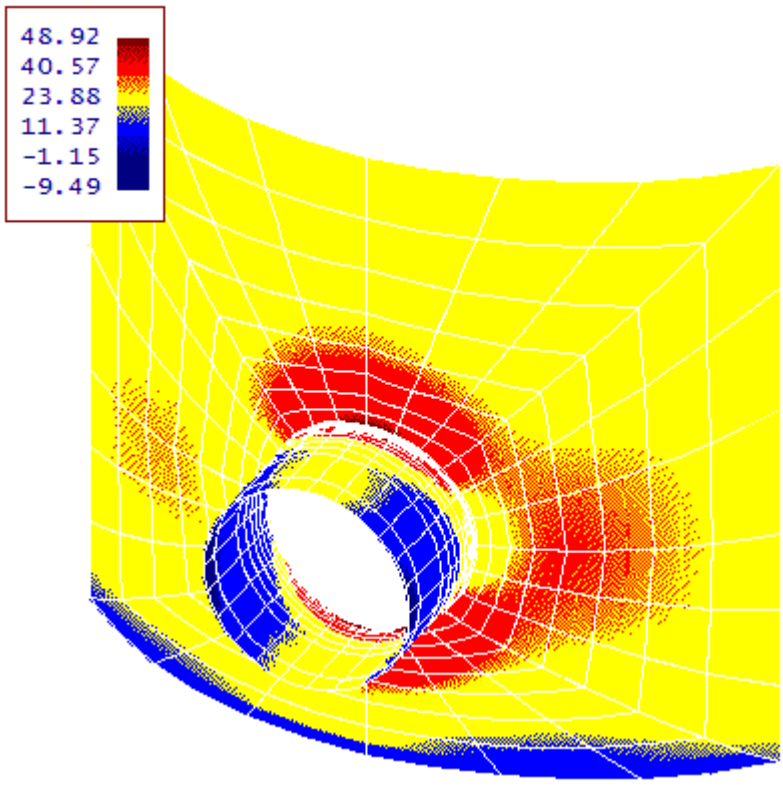
3) Pl+Pb+Q < SPS (SUS Inside) Case 2



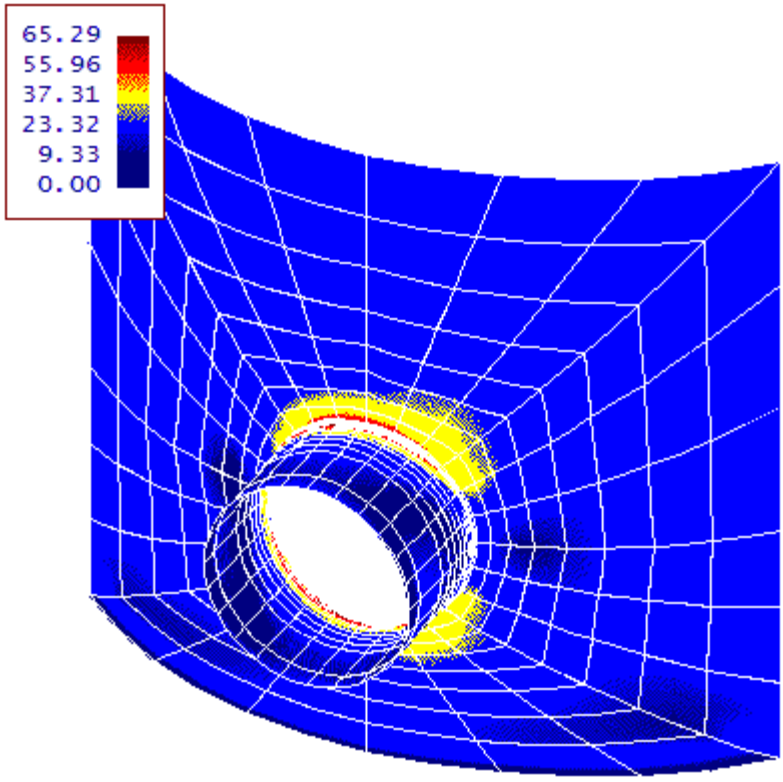
4) Pl+Pb+Q < SPS (SUS Outside) Case 2



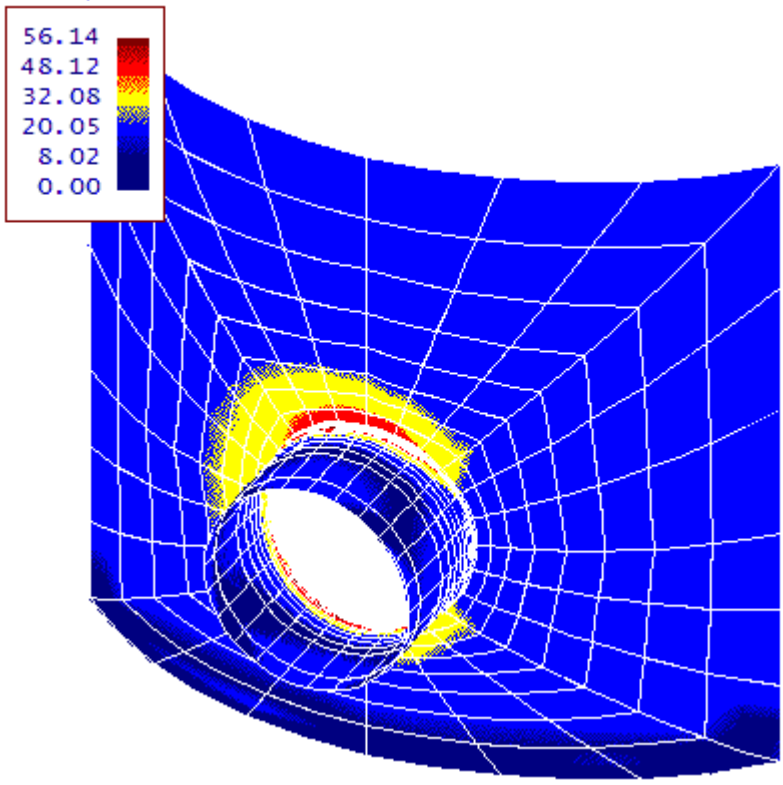
5) S1+S2+S3 < 4S (SUS S1+S2+S3) Case 2



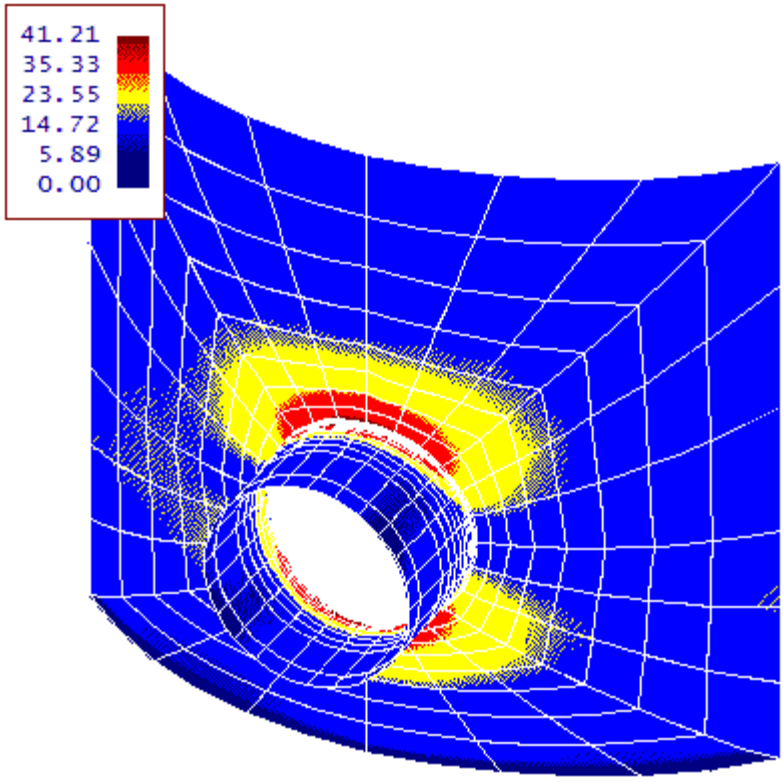
6) Pl+Pb+Q < SPS (OPE Inside) Case 3



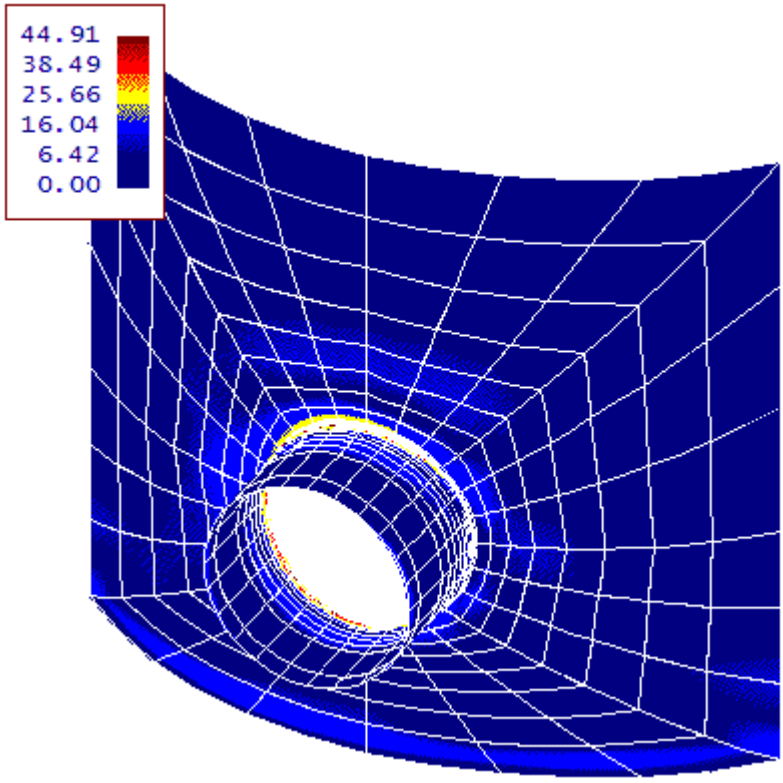
7) Pl+Pb+Q < SPS (OPE Outside) Case 3



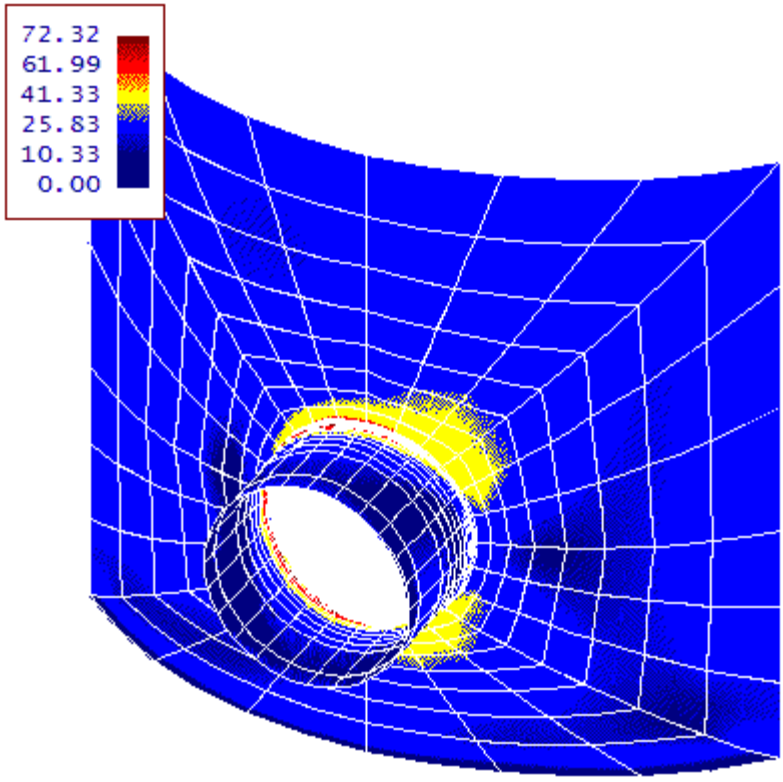
8) Membrane < User (OPE Membrane) Case 3



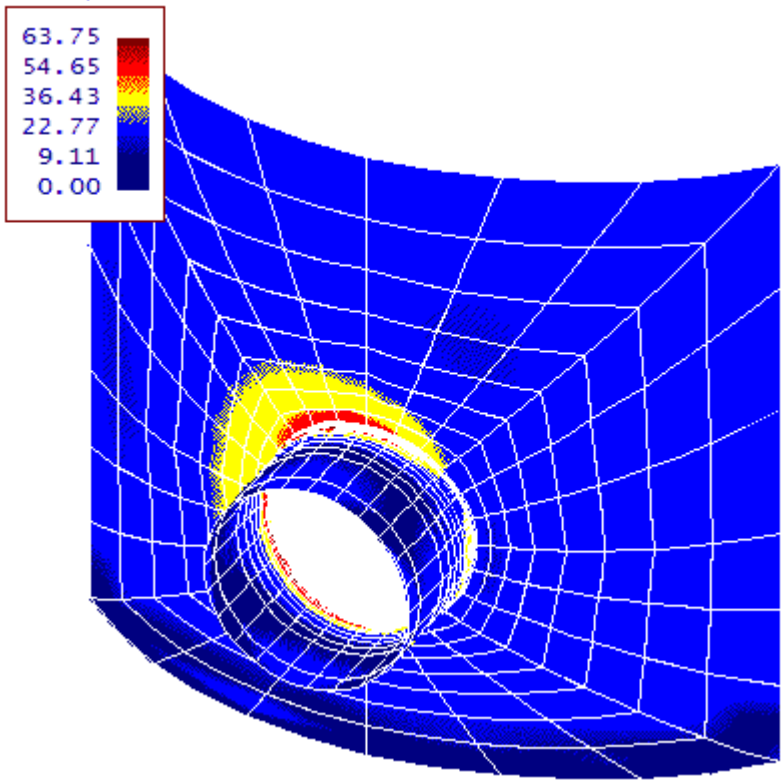
9) Bending < User (OPE Bending) Case 3



10) Pl+Pb+Q < SPS (EXP Inside) Case 4



11) Pl+Pb+Q < SPS (EXP Outside) Case 4



Tabular Results

Results were generated with the finite element program FE/Pipe®. Stress results are post-processed in accordance with the rules specified in ASME Section III and ASME Section VIII, Division 2.

Analysis Time Stamp: Mon Mar 23 12:20:33 2020.

- Model Notes
- Load Case Report
- Solution Data
- ASME Code Stress Output Plots
- Stress Results - Notes
- ASME Overstressed Areas
- Highest Primary Stress Ratios
- Highest Secondary Stress Ratios
- Stress Intensification Factors
- Allowable Loads
- Flexibilities
- Graphical Results

Model Notes
Model Notes

Input Echo:

Model Type	:	Cylindrical Shell

Parent Geometry

Parent Outside Diam.	:	1000.000 mm.
Thickness	:	10.500 mm.

Parent Properties:

Cold Allowable	:	170.8 MPa
Hot Allowable	:	153.5 MPa
Material ID #1	:	Low Carbon Steel
Ultimate Tensile (Amb)	:	410.0 MPa
Yield Strength (Amb)	:	265.0 MPa
Yield Strength (Hot)	:	230.2 MPa
Elastic Modulus (Amb)	:	203868.0 MPa
Poissons Ratio	:	0.300
Expansion Coefficient	:	0.1080E-04 mm./mm./deg.
Weight Density	:	0.0000E+00 N /cu.mm.(NOT USED)

Nozzle Geometry

Nozzle Outside Diam.	:	219.100 mm.
Thickness	:	6.000 mm.
Length	:	150.000 mm.
Nozzle Tilt Angle	:	0.000 deg.
Distance from Top	:	1550.000 mm.
Distance from Bottom	:	250.000 mm.

Nozzle Properties

Cold Allowable	:	170.8 MPa
Hot Allowable	:	145.5 MPa
Material ID #1	:	Low Carbon Steel
Ultimate Tensile (Amb)	:	410.0 MPa
Yield Strength (Amb)	:	265.0 MPa
Yield Strength (Hot)	:	218.2 MPa
Elastic Modulus (Amb)	:	203868.0 MPa
Poissons Ratio	:	0.300
Expansion Coefficient	:	0.1080E-04 mm./mm./deg.
Weight Density	:	0.0000E+00 N /cu.mm. (NOT USED)

Design Operating Cycles	:	500.
Ambient Temperature (Deg.)	:	20.00

Uniform thermal expansion produces no stress in this geometry.
Any thermal loads will come through operating forces and
moments applied through the nozzle.

Nozzle Inside Temperature	:	48.00 deg.
Nozzle Outside Temperature	:	48.00 deg.
Vessel Inside Temperature	:	48.00 deg.
Vessel Outside Temperature	:	48.00 deg.

Nozzle Pressure	:	0.300 MPa
Vessel Pressure	:	0.300 MPa

Operating Pressure	:	0.3 MPa

The operating pressure is used for secondary and peak stress

cases. The design pressure is used for primary cases. The ratio
of the operating/design pressure = 1.000

User Defined Load Input Echo:
Loads are given at the End of Nozzle
Loads are defined in Global Coordinates

Forces(N) Moments (N-m)

Load Case	FX	FY	FZ	MX	MY	MZ
WEIGHT:	224.0	-478.0	371.0	49.0	-231.0	166.0
OPER:	367.0	-778.0	-81.0	-284.0	225.0	43.0

FEA Model Loads:
These are the actual loads applied to the FEA model.
These are the User Defined Loads translated to the
end of the nozzle and reported in global coordinates.

Forces(N) Moments (N-m)

Load Case	FX	FY	FZ	MX	MY	MZ
WEIGHT:	224.0	-478.0	371.0	49.0	-231.0	166.0
OPER:	367.0	-778.0	-81.0	-284.0	225.0	43.0

The "bottom" or "negative" end of this model is "free" in
the axial and translational directions.

Stresses ARE nodally AVERAGED.

No weld dimensions have been given for the nozzle
connection to the shell. This will produce conservative
results for external loads and may tend to produce more
realistic inside surface pressure stresses.

Vessel Centerline Vector : 0.000 1.000 0.000
Nozzle Orientation Vector : 1.000 0.000 0.000

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Load Case Report
FE/Pipe Version 10.1 Jobname: NOZZLE $P
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Load Case Report $X

Inner and outer element temperatures are the same
throughout the model. No thermal ratcheting
calculations will be performed.

THE 9 LOAD CASES ANALYZED ARE:

1 WEIGHT ONLY (Wgt Only)

Weight ONLY case run to get the stress range
between the installed and the operating states.

/-------- Loads in Case 1
Loads due to Weight

2 SUSTAINED (Wgt+Pr)

Sustained case run to satisfy local primary
membrane and bending stress limits.

/-------- Loads in Case 2
Loads due to Weight
Pressure Case 1

3 OPERATING

Case run to compute the operating stresses used in
secondary, peak and range calculations as needed.

/-------- Loads in Case 3
Pressure Case 1
Loads from (Operating)

```
  4   RANGE          (Fatigue Calc Performed)

      Case run to get the RANGE of stresses.
      as described in NB-3222.2, 5.5.3.2, 5.5.5.2 or 5.5.6.1.

      /-------- Combinations in Range Case   4
        Plus  Stress Results from CASE   3
        Minus Stress Results from CASE   1

  5   Program Generated -- Force Only

      Case run to compute sif's and flexibilities.
      /-------- Loads in Case   5
        Loads from (Axial)

  6   Program Generated -- Force Only

      Case run to compute sif's and flexibilities.
      /-------- Loads in Case   6
        Loads from (Inplane)

  7   Program Generated -- Force Only

      Case run to compute sif's and flexibilities.
      /-------- Loads in Case   7
        Loads from (Outplane)

  8   Program Generated -- Force Only

      Case run to compute sif's and flexibilities.
      /-------- Loads in Case   8
        Loads from (Torsion)

  9   Program Generated -- Force Only

      Case run to compute sif's and flexibilities.
      /-------- Loads in Case   9
        Pressure Case    1
```

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```
Solution Data
FE/Pipe Version 10.1          Jobname: NOZZLE                $P
Released Jul 2018             12:18am  MAR 23,2020



Solution Data


Maximum Solution Row Size =     948
Number of Nodes           =    2076
Number of Elements        =     684
Number of Solution Cases  =       8

Summation of Loads per Case

Case #               FX                  FY                  FZ

   1                224.                -478.               371.
   2               -370.             -231167.              371.
   3               -227.             -231467.              -81.
   4             553906.                   0.                0.
   5                  0.                   0.                0.
   6                  0.                   0.                0.
   7                  0.                   0.                0.
   8               -594.             -230689.                0.
```

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```
ASME Code Stress Output Plots
FE/Pipe Version 10.1          Jobname: NOZZLE                $P
Released Jul 2018             12:20am  MAR 23,2020
```

ASME Code Stress Output Plots $X

1) Pl < SPL (SUS,Membrane) Case 2

2) Qb < SPS (SUS,Bending) Case 2

3) Pl+Pb+Q < SPS (SUS,Inside) Case 2

4) Pl+Pb+Q < SPS (SUS,Outside) Case 2

5) S1+S2+S3 < 4S (SUS,S1+S2+S3) Case 2

6) Pl+Pb+Q < SPS (OPE,Inside) Case 3

7) Pl+Pb+Q < SPS (OPE,Outside) Case 3

8) Membrane < User (OPE,Membrane) Case 3

9) Bending < User (OPE,Bending) Case 3

10) Pl+Pb+Q < SPS (EXP,Inside) Case 4

11) Pl+Pb+Q < SPS (EXP,Outside) Case 4

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Stress Results - Notes
FE/Pipe Version 10.1 Jobname: NOZZLE $P
Released Jul 2018 12:20am MAR 23,2020

Stress Results - Notes

- Results in this analysis were generated using the finite element solution method.
- The component loading condition has been screened and it has determined that a fatigue analysis is NOT required. All fatigue reports will be omitted from this output. See the ASME panel for the controlling check box.
- Using 2013-2017 ASME Section VIII Division 2
- Use Polished Bar fatigue curve.
- Ratio between Operating and Design Pressure = 1.000000
  Assume pressure increases all other stresses.
- Assume free end displacements of attached pipe (e.g. thermal loads) are secondary within the limits of nozzle reinforcement.
- User OVERRIDE - USE Equivalent Stress (Von Mises) for ASME calculation. Von Mises may be 10% lower than stress intensity (TRESCA).
- S1+S2+S3 evaluation omitted from operating stress. Include S1+S2+S3 evaluation in primary case evaluation. Assume bending stress not local primary for S1+S2+S3.
- Use local tensor values for averaged and not averaged stresses.

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ASME Overstressed Areas
FE/Pipe Version 10.1 Jobname: NOZZLE $P
Released Jul 2018 12:20am MAR 23,2020

ASME Overstressed Areas $X

*** NO OVERSTRESSED NODES IN THIS MODEL ***

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Highest Primary Stress Ratios
FE/Pipe Version 10.1 Jobname: NOZZLE $P
Released Jul 2018 12:20am MAR 23,2020

Highest Primary Stress Ratios $X

Header Next to Nozzle Weld

Pl	SPL	Primary Membrane Load Case 2
40	230	Plot Reference:
MPa	MPa	1) Pl < SPL (SUS,Membrane) Case 2

17%

Branch Next to Header Weld

Pl	SPL	Primary Membrane Load Case 2
43	218	Plot Reference:
MPa	MPa	1) Pl < SPL (SUS,Membrane) Case 2

19%

Branch Transition

Pl	SPL	Primary Membrane Load Case 2
11	218	Plot Reference:
MPa	MPa	1) Pl < SPL (SUS,Membrane) Case 2

4%

Header away from Junction

Pl	SPL	Primary Membrane Load Case 2
27	230	Plot Reference:
MPa	MPa	1) Pl < SPL (SUS,Membrane) Case 2

11%

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Highest Secondary Stress Ratios
FE/Pipe Version 10.1 Jobname: NOZZLE $P
Released Jul 2018 12:20am MAR 23,2020

Highest Secondary Stress Ratios $X

Header Next to Nozzle Weld

Pl+Pb+Q	SPS	Primary+Secondary (Inner) Load Case 2
48	495	Plot Reference:
MPa	MPa	3) Pl+Pb+Q < SPS (SUS,Inside) Case 2

9%

Branch Next to Header Weld

Pl+Pb+Q	SPS	Primary+Secondary (Inner) Load Case 2
73	483	Plot Reference:
MPa	MPa	3) Pl+Pb+Q < SPS (SUS,Inside) Case 2

15%

Branch Transition

Pl+Pb+Q	SPS	Primary+Secondary (Outer) Load Case 4
18	483	Plot Reference:
MPa	MPa	11) Pl+Pb+Q < SPS (EXP,Outside) Case 4

3%

Header away from Junction

Pl+Pb+Q	SPS	Primary+Secondary (Outer) Load Case 2
30	495	Plot Reference:
MPa	MPa	4) Pl+Pb+Q < SPS (SUS,Outside) Case 2

6%

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Stress Intensification Factors
FE/Pipe Version 10.1 Jobname: NOZZLE $P
Released Jul 2018 12:20am MAR 23,2020

Stress Intensification Factors $X

Branch/Nozzle Sif Summary

	Peak	Primary	Secondary	SSI
Axial :	0.000	9.400	18.801	0.000
Inplane :	0.000	5.324	10.649	0.000
Outplane:	0.000	9.040	18.079	0.000
Torsion :	0.000	0.981	1.066	0.000
Pressure:	0.000	2.745	4.384	0.000

The above stress intensification factors are to be used in a beam-type analysis of the piping system. Inplane, Outplane and Torsional sif's should be used with the matching branch pipe whose diameter and thickness is given below. The axial sif should be used to intensify the axial stress in the branch pipe calculated by F/A. The pressure sif should be used to intensify the nominal pressure stress in the PARENT or HEADER, calculated from PDo/2T. B31 calculations use mean diameters and Section VIII calculations use outside diameters. SSIs are based on peak stress factors and correlated test results.

Pipe OD :	219.100	mm.
Pipe Thk:	6.000	mm.
Z approx:	213997.016	cu.mm.
Z exact :	208301.750	cu.mm.

B31.3 (Branch)		
Peak Stress Sif	0.000	Axial
	5.175	Inplane
	6.709	Outplane
	1.000	Torsional
B31.1 (Branch)		
Peak Stress Sif	0.000	Axial
	5.047	Inplane
	5.047	Outplane
	5.047	Torsional
WRC 330 (Branch)		
Peak Stress Sif	0.000	Axial
	3.407	Inplane
	3.407	Outplane
	1.000	Torsional

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Allowable Loads
FE/Pipe Version 10.1 Jobname: NOZZLE $P
Released Jul 2018 12:20am MAR 23,2020

Allowable Loads $X

SECONDARY Load Type (Range):		Maximum Individual Occuring	Conservative Simultaneous Occuring	Realistic Simultaneous Occuring
Axial Force	(N)	103238.	30609.	45913.
Inplane Moment	(mm. N)	9451929.	1939054.	4113355.
Outplane Moment	(mm. N)	5567308.	1167184.	2475971.
Torsional Moment	(mm. N)	94417248.	27428898.	41143348.
Pressure	(MPa)	2.31	0.30	0.30

PRIMARY Load Type:		Maximum Individual Occuring	Conservative Simultaneous Occuring	Realistic Simultaneous Occuring
Axial Force	(N)	93241.	25496.	38244.
Inplane Moment	(mm. N)	8536664.	1650574.	3501395.
Outplane Moment	(mm. N)	5028206.	972209.	2062367.
Torsional Moment	(mm. N)	46349288.	12673739.	19010608.
Pressure	(MPa)	1.67	0.30	0.30

NOTES:

1) Maximum Individual Occuring Loads are the maximum allowed values of the respective loads if all other load components are zero, i.e. the listed axial force may be applied if the inplane, outplane and torsional moments, and the pressure are zero.

2) The Conservative Allowable Simultaneous loads are the maximum loads that can be applied simultaneously. A conservative stress combination equation is used that typically produces stresses within 50-70% of the allowable stress.

3) The Realistic Allowable Simultaneous loads are the maximum loads that can be applied simultaneously. A more realistic stress combination equation is used based on experience at Paulin Research. Stresses are typically produced within 80-105% of the allowable.

4) Secondary allowable loads are limits for expansion and operating piping loads.

5) Primary allowable loads are limits for weight, primary and sustained type piping loads.

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Flexibilities
FE/Pipe Version 10.1 Jobname: NOZZLE $P
Released Jul 2018 12:20am MAR 23,2020

Flexibilities $X

The following stiffnesses should be used in a piping, "beam-type" analysis of the intersection. The stiff-nesses should be inserted at the surface of the branch/header or nozzle/vessel junction. The general characteristics used for the branch pipe should be:

Outside Diameter = 219.100 mm.
Wall Thickness = 6.000 mm.

Axial Translational Stiffness = 135491. N /mm.
Inplane Rotational Stiffness = 36539976. mm. N /deg
Outplane Rotational Stiffness = 15497176. mm. N /deg

```
Torsional Rotational Stiffness  =     889399808.  mm. N /deg


Intersection Flexibility Factors for Branch/Nozzle

Find axial stiffness: K = 3EI/(kd)^3   N /mm.
Find bending and torsional stiffnesses: K = EI/(kd)  mm. N per radian.
The EI product is   0.46552E+13    N mm.^2
The value of (d) to use is: 213.100  mm..
The resulting bending stiffness is in units of force x length per radian.

Axial Flexibility Factor     (k) =     2.200
Inplane Flexibility Factor   (k) =    10.434
Outplane Flexibility Factor  (k) =    24.602
Torsional Flexibility Factor (k) =     0.429
```

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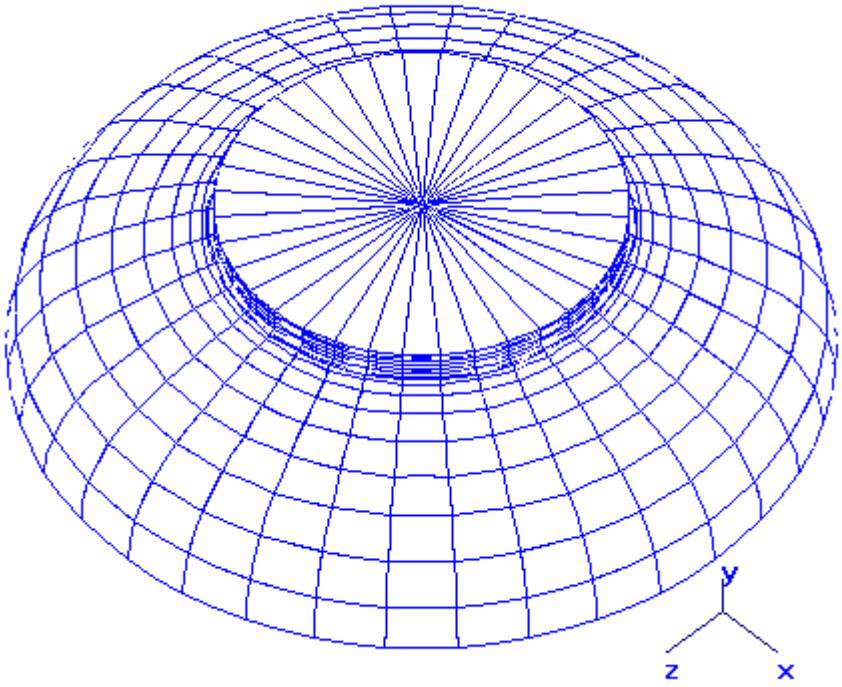
Finite Element Model

- Finite Element Model

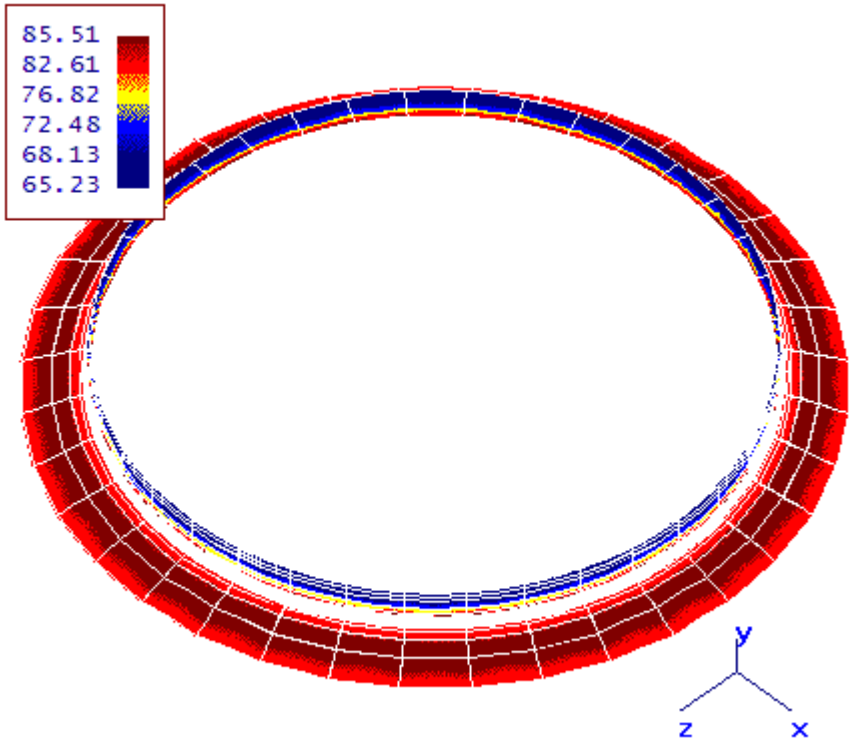
Discontinuity at Center Nozzle

- 1) Pl < SPL (SUS Membrane) Case 2
- 2) Qb < SPS (SUS Bending) Case 2
- 3) Pl+Pb+Q < SPS (SUS Inside) Case 2
- 4) Pl+Pb+Q < SPS (SUS Outside) Case 2
- 5) S1+S2+S3 < 4S (SUS S1+S2+S3) Case 2
- 6) Pl+Pb+Q < SPS (OPE Inside) Case 3
- 7) Pl+Pb+Q < SPS (OPE Outside) Case 3
- 8) Membrane < User (OPE Membrane) Case 3
- 9) Bending < User (OPE Bending) Case 3
- 10) Pl+Pb+Q < SPS (EXP Inside) Case 4
- 11) Pl+Pb+Q < SPS (EXP Outside) Case 4

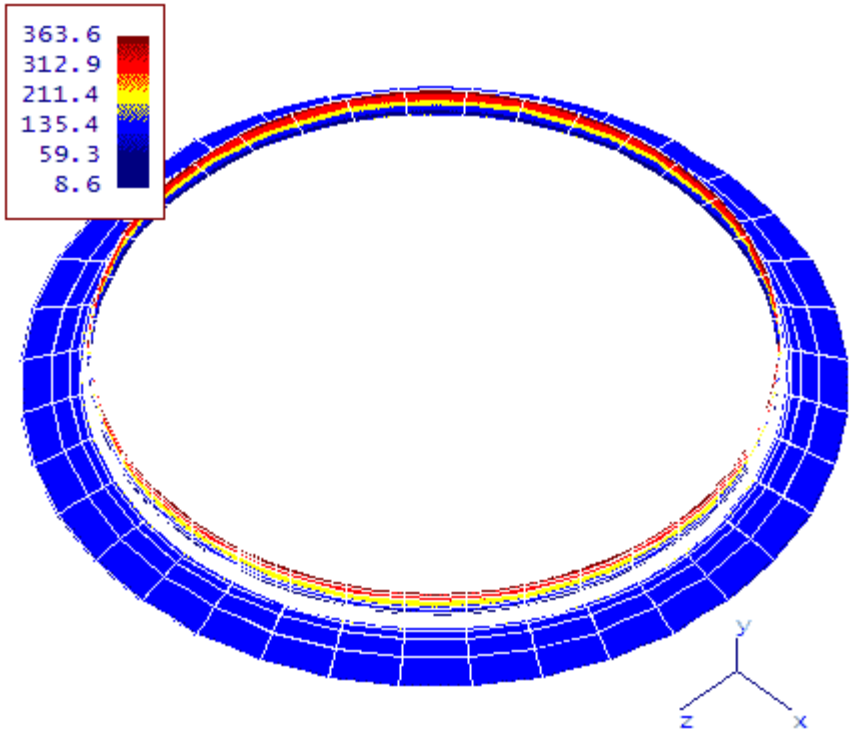
Finite Element Model



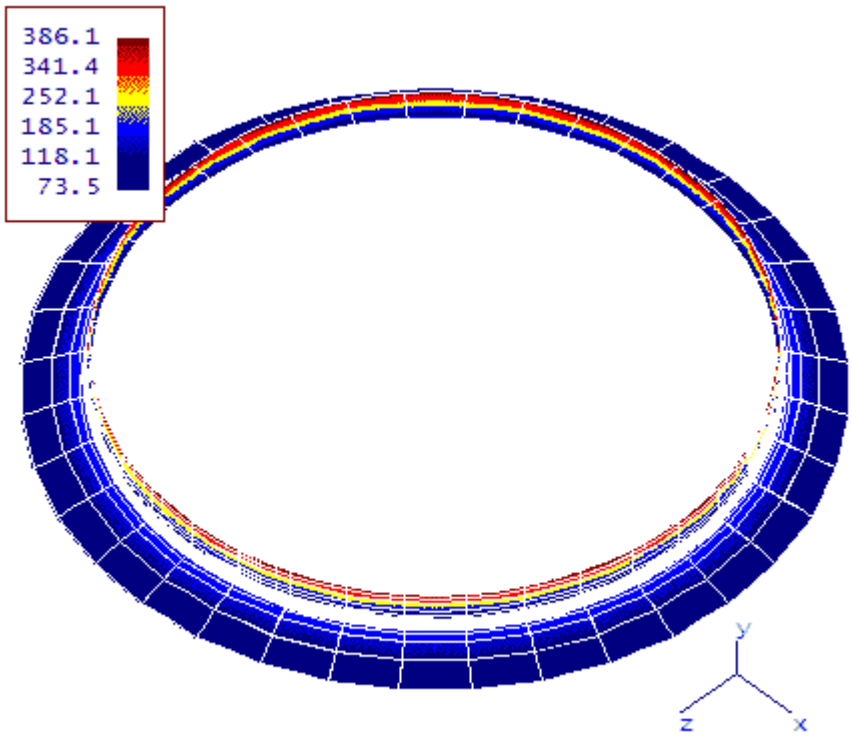
1) Pl < SPL (SUS Membrane) Case 2



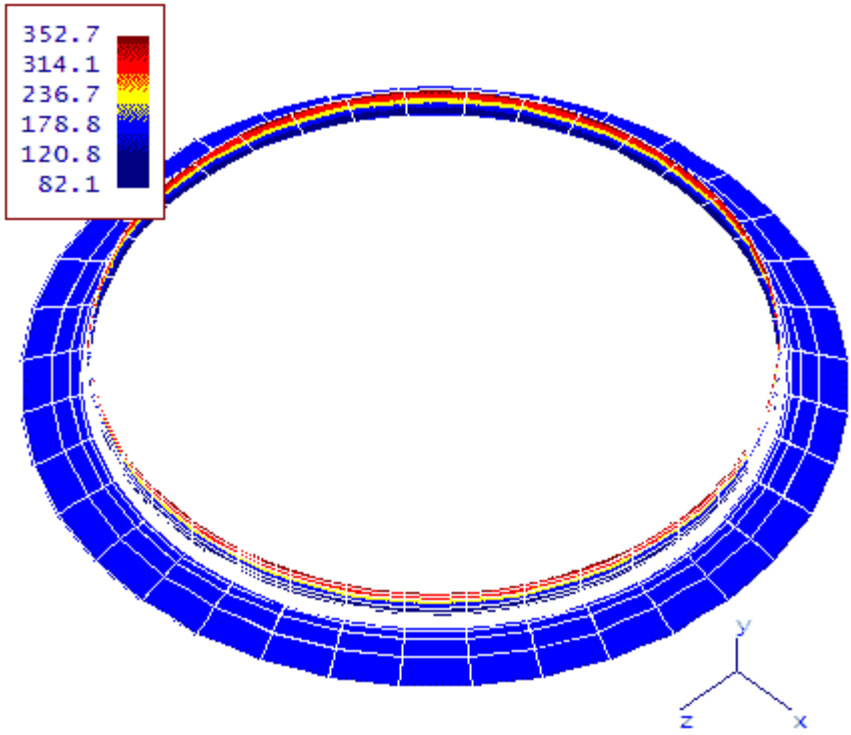
2) Qb < SPS (SUS Bending) Case 2



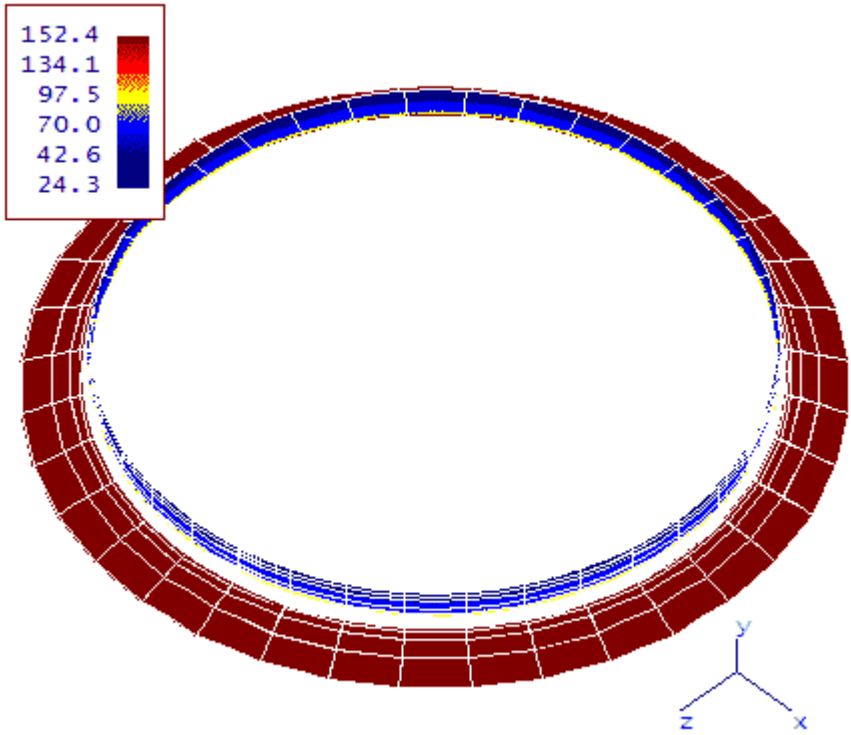
3) Pl+Pb+Q < SPS (SUS Inside) Case 2



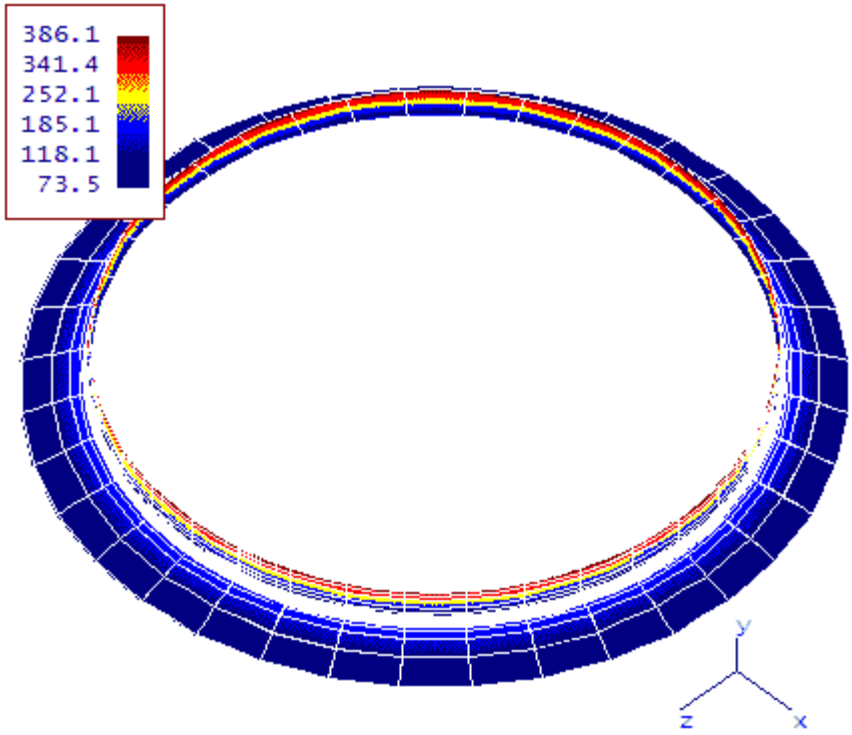
4) Pl+Pb+Q < SPS (SUS Outside) Case 2



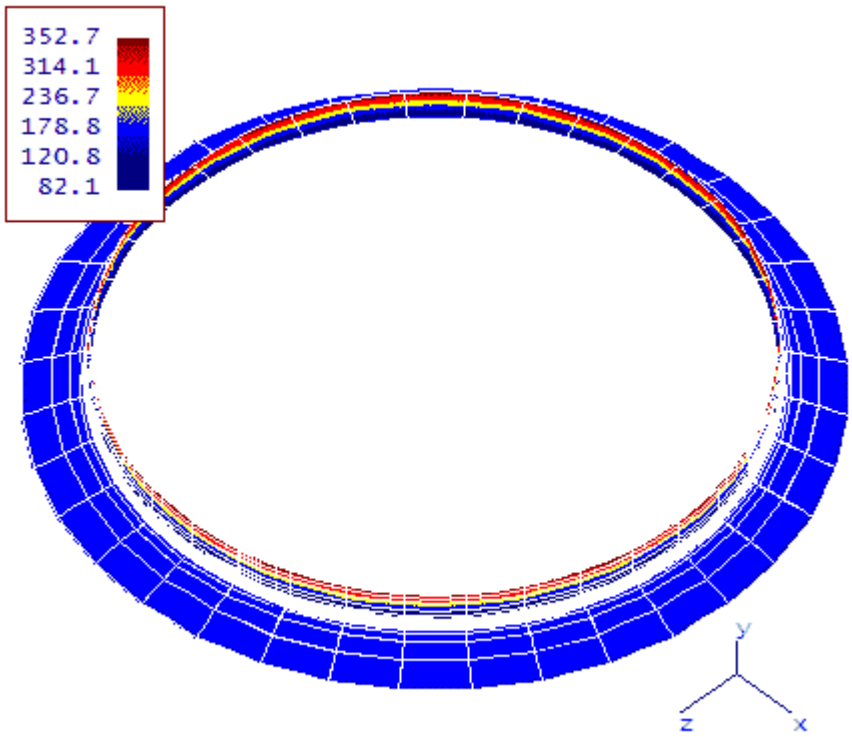
5) S1+S2+S3 < 4S (SUS S1+S2+S3) Case 2



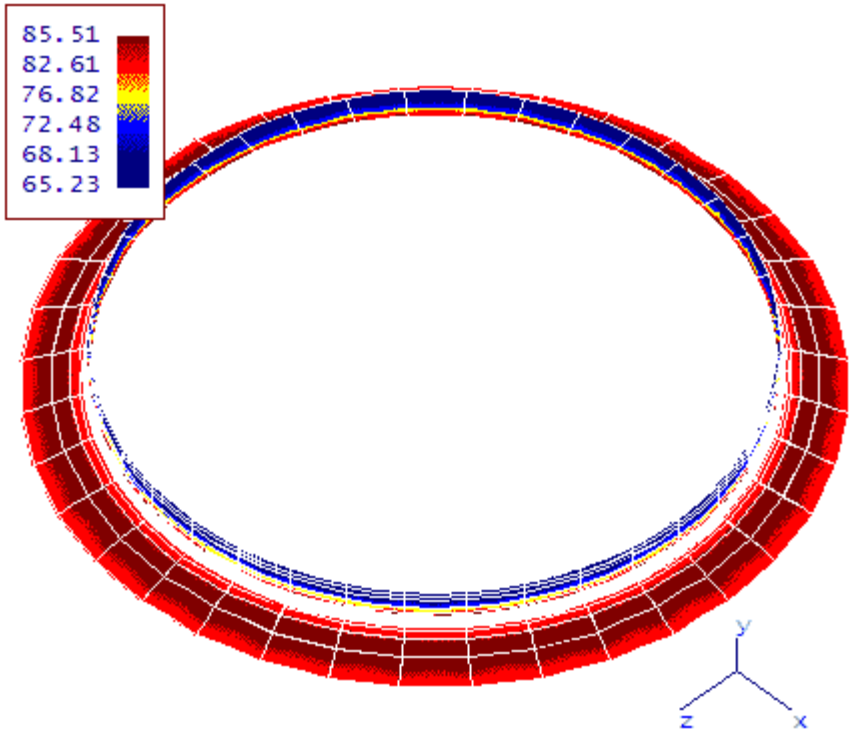
6) Pl+Pb+Q < SPS (OPE Inside) Case 3



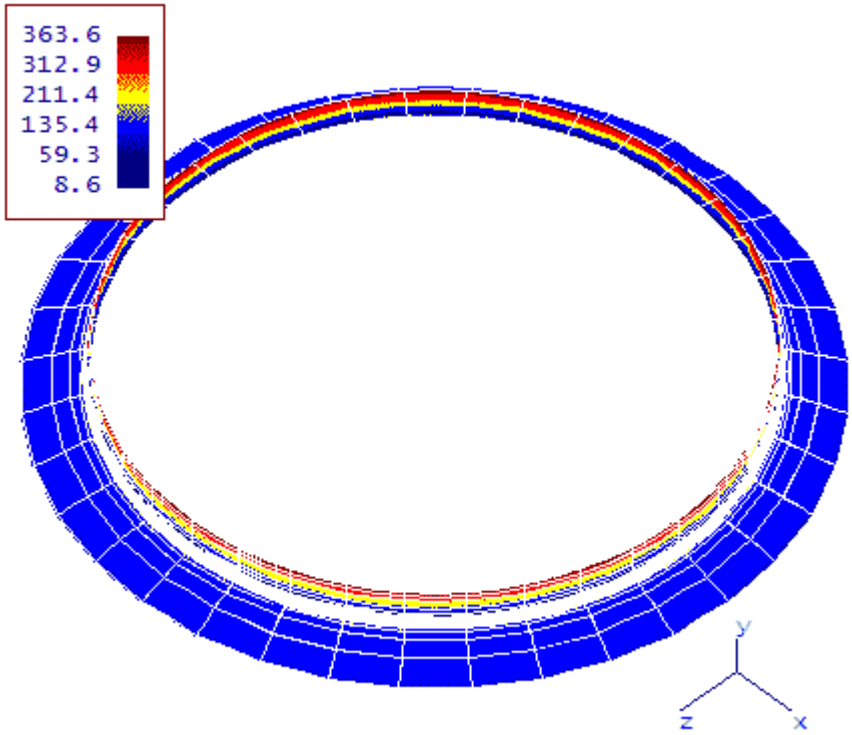
7) Pl+Pb+Q < SPS (OPE Outside) Case 3



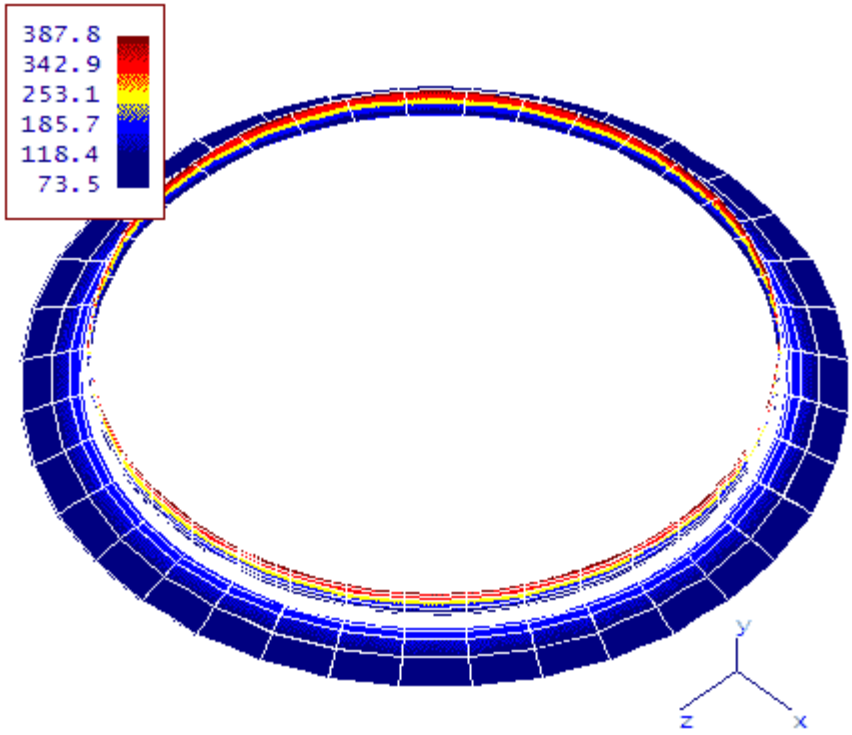
8) Membrane < User (OPE Membrane) Case 3



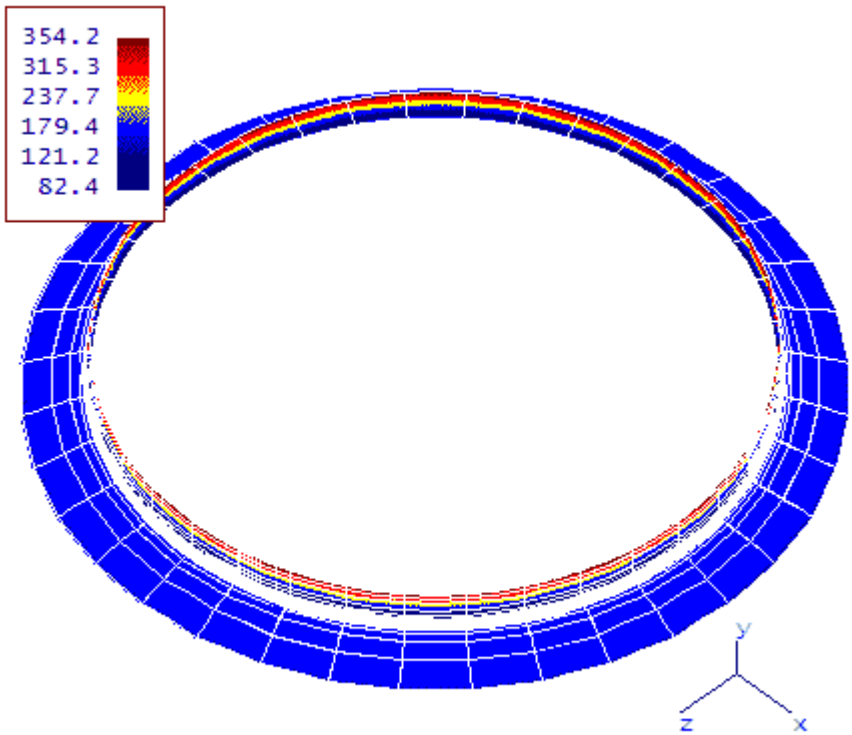
9) Bending < User (OPE Bending) Case 3



10) Pl+Pb+Q < SPS (EXP Inside) Case 4



11) Pl+Pb+Q < SPS (EXP Outside) Case 4



Tabular Results

Results were generated with the finite element program FE/Pipe®. Stress results are post-processed in accordance with the rules specified in ASME Section III and ASME Section VIII, Division 2.

Analysis Time Stamp: Mon Mar 23 12:30:02 2020.

- Model Notes
- Load Case Report
- Solution Data
- ASME Code Stress Output Plots
- Stress Results - Notes
- ASME Overstressed Areas
- Highest Primary Stress Ratios
- Highest Secondary Stress Ratios
- Stress Intensification Factors
- Allowable Loads
- Flexibilities
- Graphical Results

Model Notes
Model Notes

Input Echo:

Model Type	:	Dished Head
Parent Geometry		
Parent Outside Diam.	:	1000.000 mm.
Thickness	:	10.500 mm.
Inside Crown Radius	:	800.000 mm.
Inside Knuckle Radius	:	154.000 mm.
Parent Properties:		
Cold Allowable	:	170.8 MPa
Hot Allowable	:	153.5 MPa
Material ID #1	:	Low Carbon Steel
Ultimate Tensile (Amb)	:	410.0 MPa
Yield Strength (Amb)	:	265.0 MPa
Yield Strength (Hot)	:	230.2 MPa
Elastic Modulus (Amb)	:	203868.0 MPa
Poissons Ratio	:	0.300
Expansion Coefficient	:	0.1080E-04 mm./mm./deg.
Weight Density	:	0.0000E+00 N /cu.mm.(NOT USED)
Nozzle Geometry		
Nozzle Outside Diam.	:	508.000 mm.
Thickness	:	12.700 mm.
Length	:	25.000 mm.
Location perpendicular to the head centerline	:	0.000 mm.
Nozzle Tilt Angle	:	0.000 deg.
Nozzle Properties		
Cold Allowable	:	212.5 MPa
Hot Allowable	:	205.7 MPa
Material ID #1	:	Low Carbon Steel
Ultimate Tensile (Amb)	:	510.0 MPa
Yield Strength (Amb)	:	355.0 MPa
Yield Strength (Hot)	:	308.6 MPa
Elastic Modulus (Amb)	:	203868.0 MPa
Poissons Ratio	:	0.300
Expansion Coefficient	:	0.1080E-04 mm./mm./deg.
Weight Density	:	0.0000E+00 N /cu.mm. (NOT USED)
Design Operating Cycles	:	7000.
Ambient Temperature (Deg.)	:	21.10

Uniform thermal expansion produces no stress in this geometry.
Any thermal loads will come through operating forces and
moments applied through the nozzle.

Nozzle Inside Temperature	:	130.00 deg.
Nozzle Outside Temperature	:	130.00 deg.
Vessel Inside Temperature	:	130.00 deg.
Vessel Outside Temperature	:	130.00 deg.
Nozzle Pressure	:	1.600 MPa
Vessel Pressure	:	1.600 MPa

Operating Pressure : 1.6 MPa

The operating pressure is used for secondary and peak stress cases. The design pressure is used for primary cases. The ratio of the operating/design pressure = 1.000

User Defined Load Input Echo:
Loads are given at the End of Nozzle
Loads are defined in Global Coordinates

Forces(N) Moments (N-m)

Load Case	FX	FY	FZ	MX	MY	MZ
WEIGHT:	0.0	-2678.1	0.0	0.0	0.0	0.0
OPER:	0.0	-2678.1	0.0	0.0	0.0	0.0

FEA Model Loads:
These are the actual loads applied to the FEA model.
These are the User Defined Loads translated to the end of the nozzle and reported in global coordinates.

Forces(N) Moments (N-m)

Load Case	FX	FY	FZ	MX	MY	MZ
WEIGHT:	0.0	-2678.0	0.0	0.0	0.0	0.0
OPER:	0.0	-2678.0	0.0	0.0	0.0	0.0

Stresses ARE nodally AVERAGED.

No weld dimensions have been given for the nozzle connection to the shell. This will produce conservative results for external loads and may tend to produce more realistic inside surface pressure stresses.

Vessel Centerline Vector: 0.000 1.000 0.000
Nozzle Centerline Vector: 0.000 1.000 0.000
Zero Degree Orientation Vector: 1.000 0.000 0.000

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Load Case Report
FE/Pipe Version 10.1 Jobname: NOZZLE $P
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Load Case Report $X

Inner and outer element temperatures are the same throughout the model. No thermal ratcheting calculations will be performed.

THE 9 LOAD CASES ANALYZED ARE:

1 WEIGHT ONLY (Wgt Only)

Weight ONLY case run to get the stress range between the installed and the operating states.

/-------- Loads in Case 1
Loads due to Weight

2 SUSTAINED (Wgt+Pr)

Sustained case run to satisfy local primary membrane and bending stress limits.

/-------- Loads in Case 2
Loads due to Weight
Pressure Case 1

3 OPERATING

Case run to compute the operating stresses used in secondary, peak and range calculations as needed.

/-------- Loads in Case 3
Pressure Case 1

```
        Loads from (Operating)

  4   RANGE          (Fatigue Calc Performed)

      Case run to get the RANGE of stresses.
      as described in NB-3222.2, 5.5.3.2, 5.5.5.2 or 5.5.6.1.

      /-------- Combinations in Range Case   4
        Plus  Stress Results from CASE   3
        Minus Stress Results from CASE   1

  5   Program Generated -- Force Only

      Case run to compute sif's and flexibilities.
      /-------- Loads in Case   5
        Loads from (Axial)

  6   Program Generated -- Force Only

      Case run to compute sif's and flexibilities.
      /-------- Loads in Case   6
        Loads from (Inplane)

  7   Program Generated -- Force Only

      Case run to compute sif's and flexibilities.
      /-------- Loads in Case   7
        Loads from (Outplane)

  8   Program Generated -- Force Only

      Case run to compute sif's and flexibilities.
      /-------- Loads in Case   8
        Loads from (Torsion)

  9   Program Generated -- Force Only

      Case run to compute sif's and flexibilities.
      /-------- Loads in Case   9
        Pressure Case    1
```

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```
Solution Data
FE/Pipe Version 10.1          Jobname: NOZZLE                $P
Released Jul 2018             12:26am  MAR 23,2020



Solution Data


Maximum Solution Row Size =     714
Number of Nodes           =    2053
Number of Elements        =     684
Number of Solution Cases  =       8

Summation of Loads per Case

Case #               FX                  FY                  FZ

   1                  0.              -2680.                  0.
   2                  0.            1227704.                  0.
   3                  0.            1227704.                  0.
   4                  0.            2724964.                  0.
   5                  0.                  0.                  0.
   6                  0.                  0.                  0.
   7                  0.                  0.                  0.
   8                  0.            1230384.                  0.
```

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```
ASME Code Stress Output Plots
FE/Pipe Version 10.1          Jobname: NOZZLE                $P
Released Jul 2018             12:29am  MAR 23,2020
```

ASME Code Stress Output Plots $X

1) Pl < SPL (SUS,Membrane) Case 2

2) Qb < SPS (SUS,Bending) Case 2

3) Pl+Pb+Q < SPS (SUS,Inside) Case 2

4) Pl+Pb+Q < SPS (SUS,Outside) Case 2

5) S1+S2+S3 < 4S (SUS,S1+S2+S3) Case 2

6) Pl+Pb+Q < SPS (OPE,Inside) Case 3

7) Pl+Pb+Q < SPS (OPE,Outside) Case 3

8) Membrane < User (OPE,Membrane) Case 3

9) Bending < User (OPE,Bending) Case 3

10) Pl+Pb+Q < SPS (EXP,Inside) Case 4

11) Pl+Pb+Q < SPS (EXP,Outside) Case 4

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Stress Results - Notes
FE/Pipe Version 10.1 Jobname: NOZZLE $P
Released Jul 2018 12:29am MAR 23,2020

Stress Results - Notes

- Results in this analysis were generated using the finite element solution method.

- The component loading condition has been screened and it has determined that a fatigue analysis is NOT required. All fatigue reports will be omitted from this output. See the ASME panel for the controlling check box.

- Using 2013-2017 ASME Section VIII Division 2

- Use Polished Bar fatigue curve.

- Ratio between Operating and Design Pressure = 1.000000
  Assume pressure increases all other stresses.

- Assume free end displacements of attached pipe (e.g. thermal loads) are secondary within the limits of nozzle reinforcement.

- User OVERRIDE - USE Equivalent Stress (Von Mises) for ASME calculation. Von Mises may be 10% lower than stress intensity (TRESCA).

- S1+S2+S3 evaluation omitted from operating stress.
  Include S1+S2+S3 evaluation in primary case evaluation.
  Assume bending stress not local primary for S1+S2+S3.

- Use local tensor values for averaged and not averaged stresses.

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ASME Overstressed Areas
FE/Pipe Version 10.1 Jobname: NOZZLE $P
Released Jul 2018 12:29am MAR 23,2020

ASME Overstressed Areas $X

*** NO OVERSTRESSED NODES IN THIS MODEL ***

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Highest Primary Stress Ratios
FE/Pipe Version 10.1 Jobname: NOZZLE $P
Released Jul 2018 12:29am MAR 23,2020

Highest Primary Stress Ratios $X

Shell Next to Nozzle 1

Pl	SPL	Primary Membrane Load Case 2
85	230	Plot Reference:
MPa	MPa	1) Pl < SPL (SUS,Membrane) Case 2

37%

Nozzle 1 Next to Shell

Pl+Pb+Q	SPS	Primary+Secondary (Inner) Load Case 2
247	664	Plot Reference:
MPa	MPa	3) Pl+Pb+Q < SPS (SUS,Inside) Case 2

37%

Shell In Nozzle 1 Vicinity

Pl	SPL	Primary Membrane Load Case 2
82	230	Plot Reference:
MPa	MPa	1) Pl < SPL (SUS,Membrane) Case 2

35%

Nozzle 1

Pl+Pb+Q	SPS	Primary+Secondary (Inner) Load Case 2
386	664	Plot Reference:
MPa	MPa	3) Pl+Pb+Q < SPS (SUS,Inside) Case 2

58%

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Highest Secondary Stress Ratios
FE/Pipe Version 10.1 Jobname: NOZZLE $P
Released Jul 2018 12:29am MAR 23,2020

Highest Secondary Stress Ratios $X

Shell Next to Nozzle 1

Pl+Pb+Q	SPS	Primary+Secondary (Outer) Load Case 4
167	495	Plot Reference:
MPa	MPa	11) Pl+Pb+Q < SPS (EXP,Outside) Case 4

33%

Nozzle 1 Next to Shell

```
  Pl+Pb+Q            SPS     Primary+Secondary (Inner) Load Case 4
      248            664     Plot Reference:
      MPa            MPa     10) Pl+Pb+Q < SPS (EXP,Inside) Case 4

            37%


Shell In Nozzle 1 Vicinity

  Pl+Pb+Q            SPS     Primary+Secondary (Outer) Load Case 4
      118            495     Plot Reference:
      MPa            MPa     11) Pl+Pb+Q < SPS (EXP,Outside) Case 4

            23%


Nozzle 1

  Pl+Pb+Q            SPS     Primary+Secondary (Inner) Load Case 4
      388            664     Plot Reference:
      MPa            MPa     10) Pl+Pb+Q < SPS (EXP,Inside) Case 4

            58%
```

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```
Stress Intensification Factors
FE/Pipe Version 10.1          Jobname: NOZZLE                $P
Released Jul 2018             12:29am  MAR 23,2020



Stress Intensification Factors                          $X


Branch/Nozzle Sif Summary

                  Peak      Primary    Secondary      SSI
Axial    :       0.000        6.214       12.429    0.000
Inplane :        0.000        5.468       10.935    0.000
Outplane:        0.000        5.463       10.926    0.000
Torsion :        0.000        0.987        0.994    0.000
Pressure:        0.000        2.545        5.089    0.000

The above stress intensification factors are to be used
in a beam-type analysis of the piping system.  Inplane,
Outplane and Torsional sif's should be used with the
matching branch pipe whose diameter and thickness is given
below.  The axial sif should be used to intensify the
axial stress in the branch pipe calculated by F/A.  The
pressure sif should be used to intensify the nominal
pressure stress in the PARENT or HEADER, calculated
from PDo/2T. B31 calculations use mean diameters and
Section VIII calculations use outside diameters. SSIs are
based on peak stress factors and correlated test results.

Pipe OD :      508.000  mm.
Pipe Thk:       12.700  mm.
Z approx:  2446977.000  cu.mm.
Z exact :  2387371.250  cu.mm.

B31.3   (Branch)
Peak Stress Sif ....    0.000         Axial
                       10.953         Inplane
                       14.201         Outplane
                        1.000         Torsional
B31.1  (Branch)
Peak Stress Sif ....    0.000         Axial
                       14.201         Inplane
                       14.201         Outplane
                       14.201         Torsional
WRC 330  (Branch)
Peak Stress Sif ....    0.000         Axial
                        9.810         Inplane
                       11.021         Outplane
                        5.516         Torsional
```

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Allowable Loads
FE/Pipe Version 10.1 Jobname: NOZZLE $P
Released Jul 2018 12:29am MAR 23,2020

Allowable Loads $X

SECONDARY Load Type (Range):		Maximum Individual Occuring	Conservative Simultaneous Occuring	Realistic Simultaneous Occuring
Axial Force	(N)	867904.	146197.	219295.
Inplane Moment	(mm. N)	108109280.	16258452.	34489384.
Outplane Moment	(mm. N)	108207464.	16251504.	34474644.
Torsional Moment	(mm. N)	1189479936.	259786448.	389679680.
Pressure	(MPa)	2.74	1.60	1.60

PRIMARY Load Type:		Maximum Individual Occuring	Conservative Simultaneous Occuring	Realistic Simultaneous Occuring
Axial Force	(N)	806930.	121605.	182408.
Inplane Moment	(mm. N)	100514120.	13523630.	28687950.
Outplane Moment	(mm. N)	100605400.	13517851.	28675690.
Torsional Moment	(mm. N)	556892608.	107824544.	161736816.
Pressure	(MPa)	2.55	1.60	1.60

NOTES:

1) Maximum Individual Occuring Loads are the maximum allowed values of the respective loads if all other load components are zero, i.e. the listed axial force may be applied if the inplane, outplane and torsional moments, and the pressure are zero.

2) The Conservative Allowable Simultaneous loads are the maximum loads that can be applied simultaneously. A conservative stress combination equation is used that typically produces stresses within 50-70% of the allowable stress.

3) The Realistic Allowable Simultaneous loads are the maximum loads that can be applied simultaneously. A more realistic stress combination equation is used based on experience at Paulin Research. Stresses are typically produced within 80-105% of the allowable.

4) Secondary allowable loads are limits for expansion and operating piping loads.

5) Primary allowable loads are limits for weight, primary and sustained type piping loads.

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Flexibilities
FE/Pipe Version 10.1 Jobname: NOZZLE $P
Released Jul 2018 12:29am MAR 23,2020

Flexibilities $X

The following stiffnesses should be used in a piping, "beam-type" analysis of the intersection. The stiff-nesses should be inserted at the surface of the branch/header or nozzle/vessel junction. The general characteristics used for the branch pipe should be:

Outside Diameter = 508.000 mm.
Wall Thickness = 12.700 mm.

Axial Translational Stiffness = 750282. N /mm.
Inplane Rotational Stiffness = 572853248. mm. N /deg
Outplane Rotational Stiffness = 572852608. mm. N /deg

```
Torsional Rotational Stiffness  =   10830216192.  mm. N /deg


Intersection Flexibility Factors for Branch/Nozzle

Find axial stiffness: K = 3EI/(kd)^3   N /mm.
Find bending and torsional stiffnesses: K = EI/(kd)  mm. N per radian.
The EI product is   0.12370E+15    N mm.^2
The value of (d) to use is: 495.300  mm..
The resulting bending stiffness is in units of force x length per radian.

Axial Flexibility Factor     (k) =     1.597
Inplane Flexibility Factor   (k) =     7.609
Outplane Flexibility Factor  (k) =     7.609
Torsional Flexibility Factor (k) =     0.402
```

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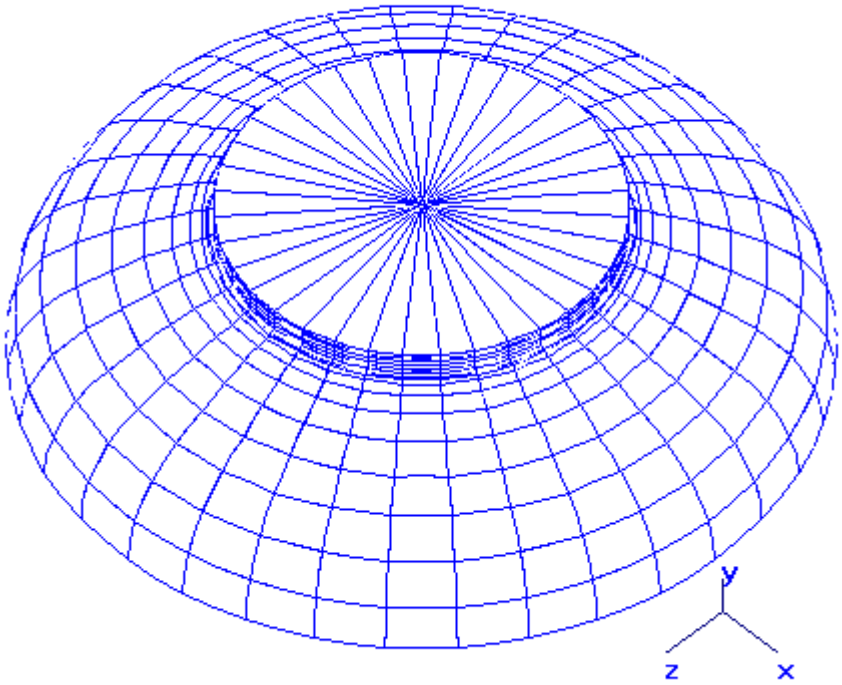
Finite Element Model

- Finite Element Model

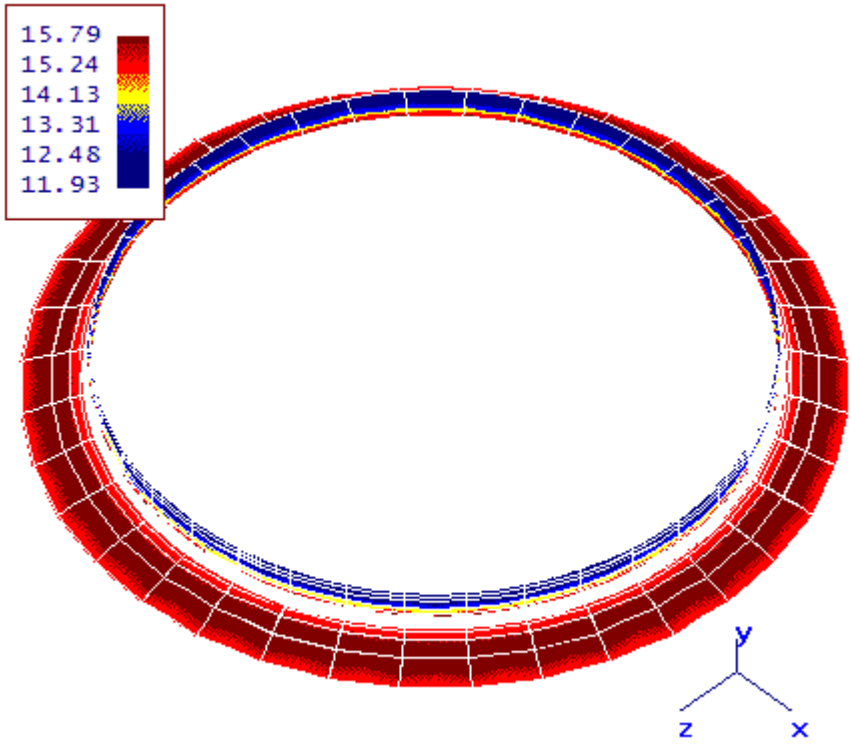
Discontinuity at Center Nozzle

- 1) Pl < SPL (SUS Membrane) Case 2
- 2) Qb < SPS (SUS Bending) Case 2
- 3) Pl+Pb+Q < SPS (SUS Inside) Case 2
- 4) Pl+Pb+Q < SPS (SUS Outside) Case 2
- 5) S1+S2+S3 < 4S (SUS S1+S2+S3) Case 2
- 6) Pl+Pb+Q < SPS (OPE Inside) Case 3
- 7) Pl+Pb+Q < SPS (OPE Outside) Case 3
- 8) Membrane < User (OPE Membrane) Case 3
- 9) Bending < User (OPE Bending) Case 3
- 10) Pl+Pb+Q < SPS (EXP Inside) Case 4
- 11) Pl+Pb+Q < SPS (EXP Outside) Case 4

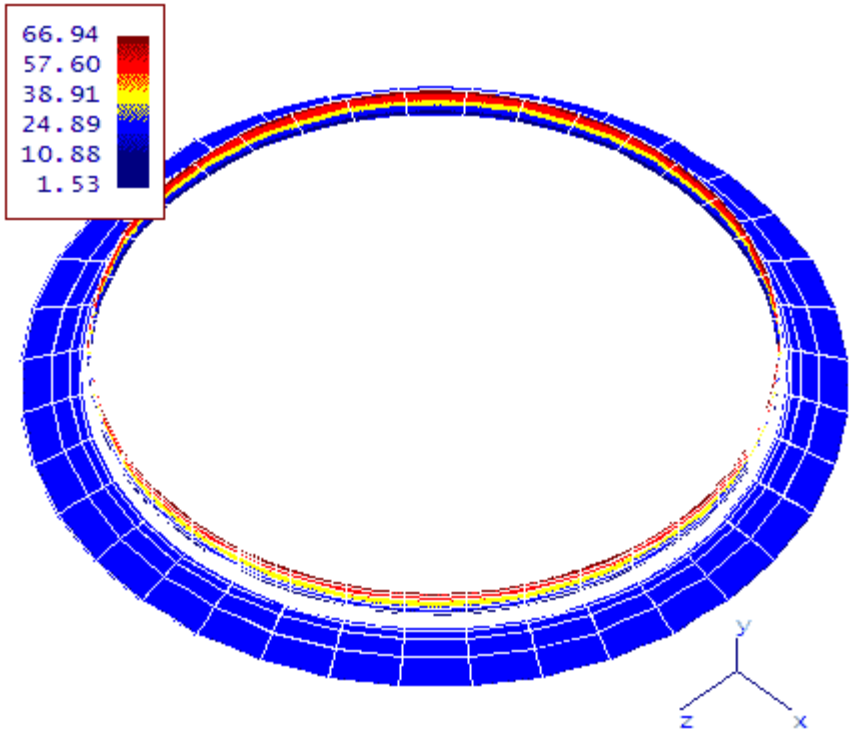
Finite Element Model



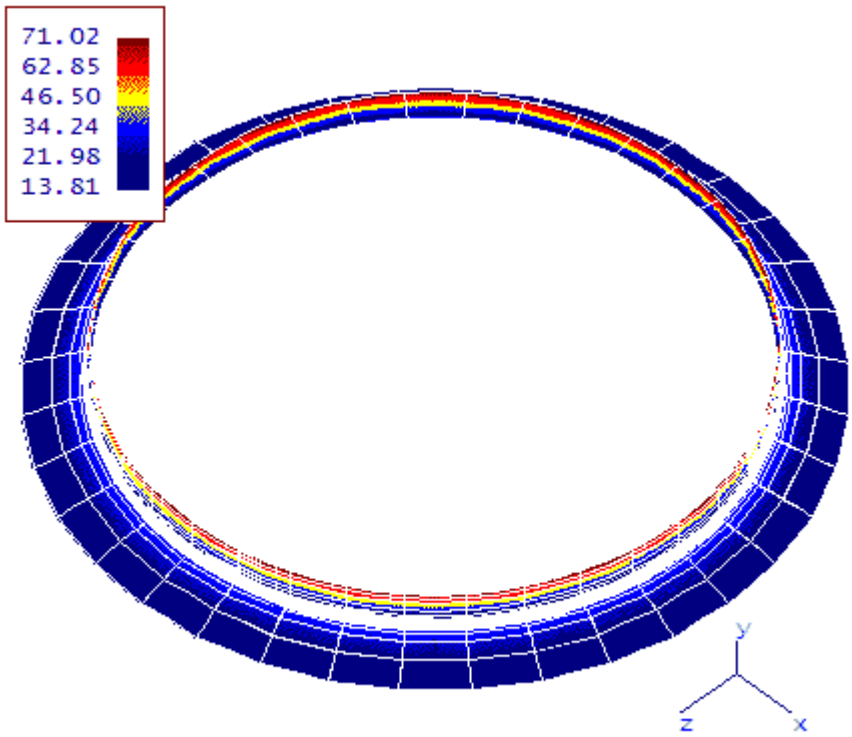
1) Pl < SPL (SUS Membrane) Case 2



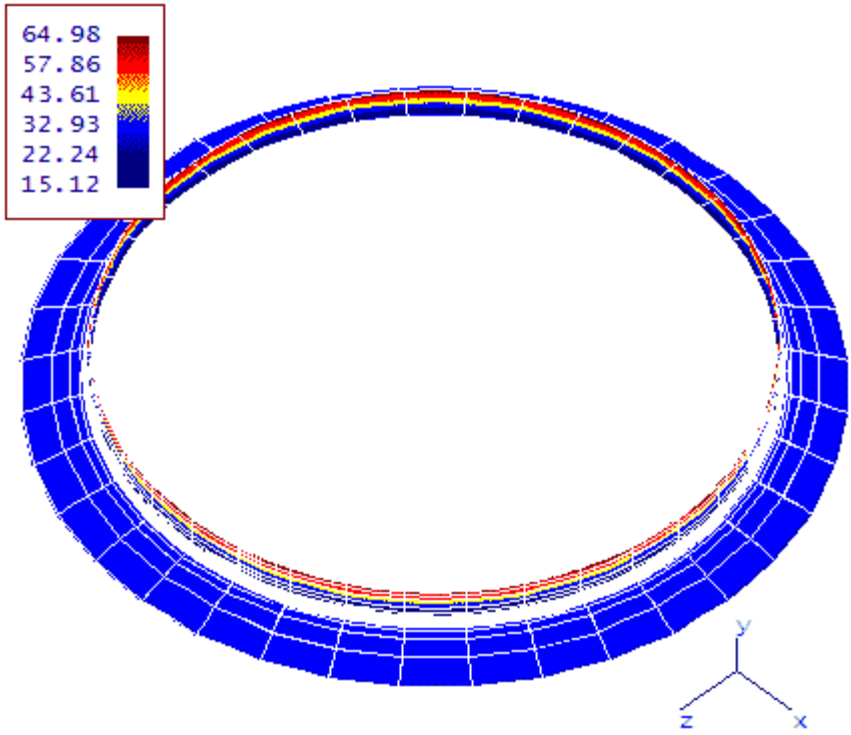
2) Qb < SPS (SUS Bending) Case 2



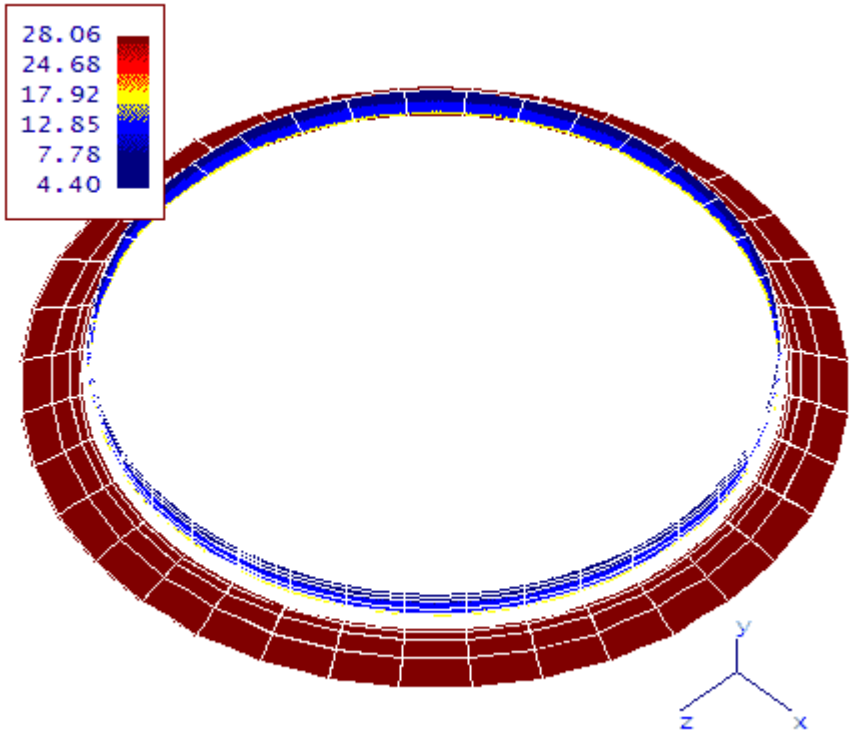
3) Pl+Pb+Q < SPS (SUS Inside) Case 2



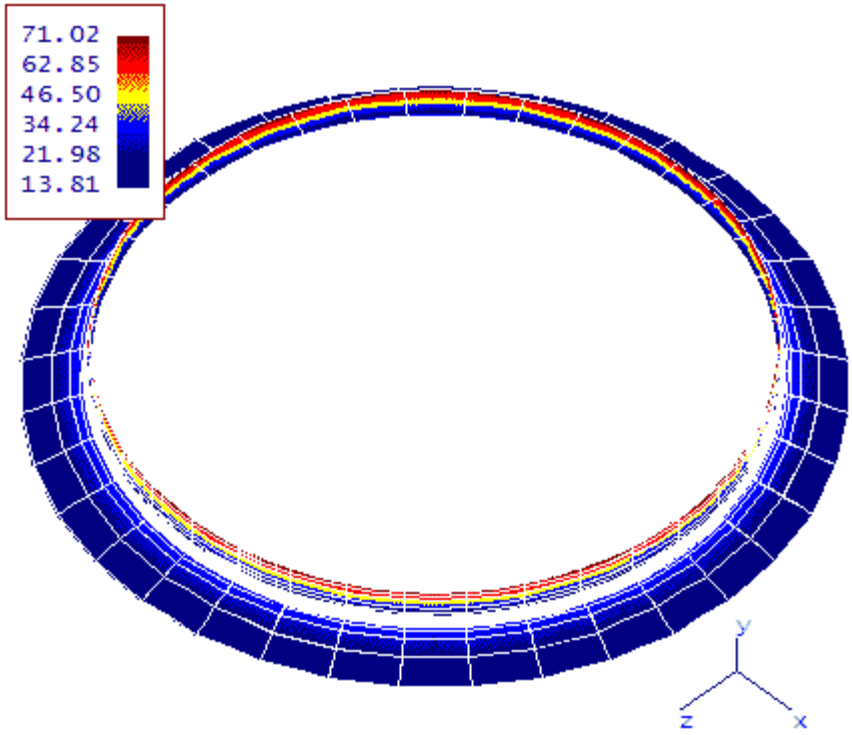
4) Pl+Pb+Q < SPS (SUS Outside) Case 2



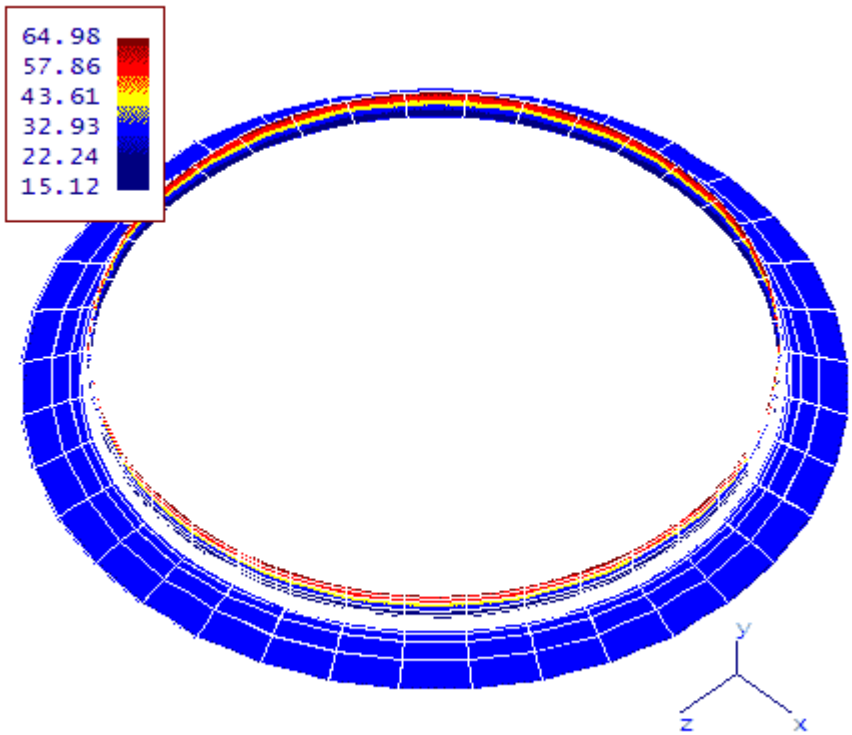
5) S1+S2+S3 < 4S (SUS S1+S2+S3) Case 2



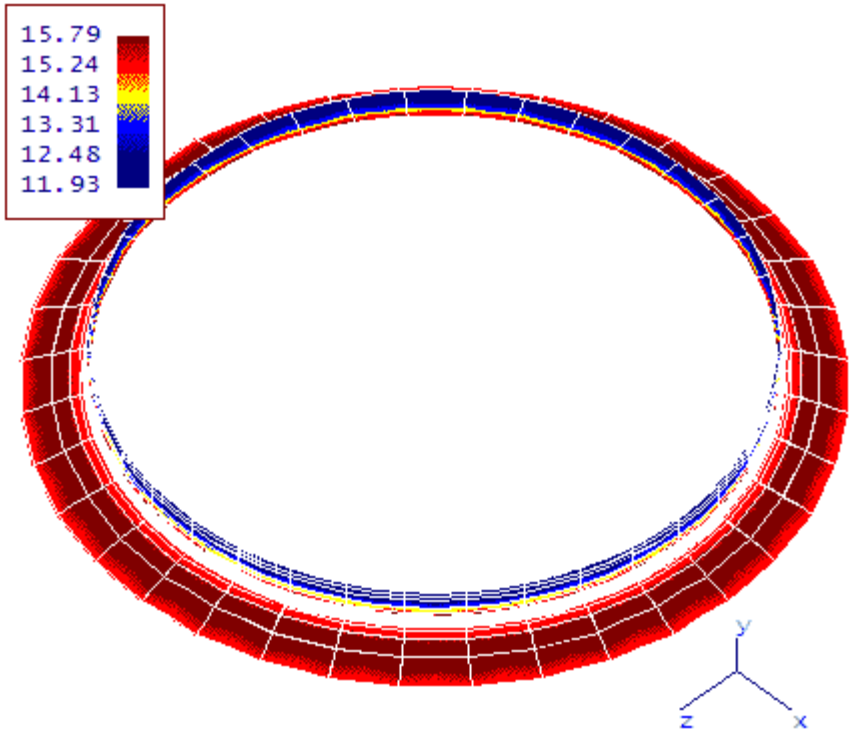
6) Pl+Pb+Q < SPS (OPE Inside) Case 3



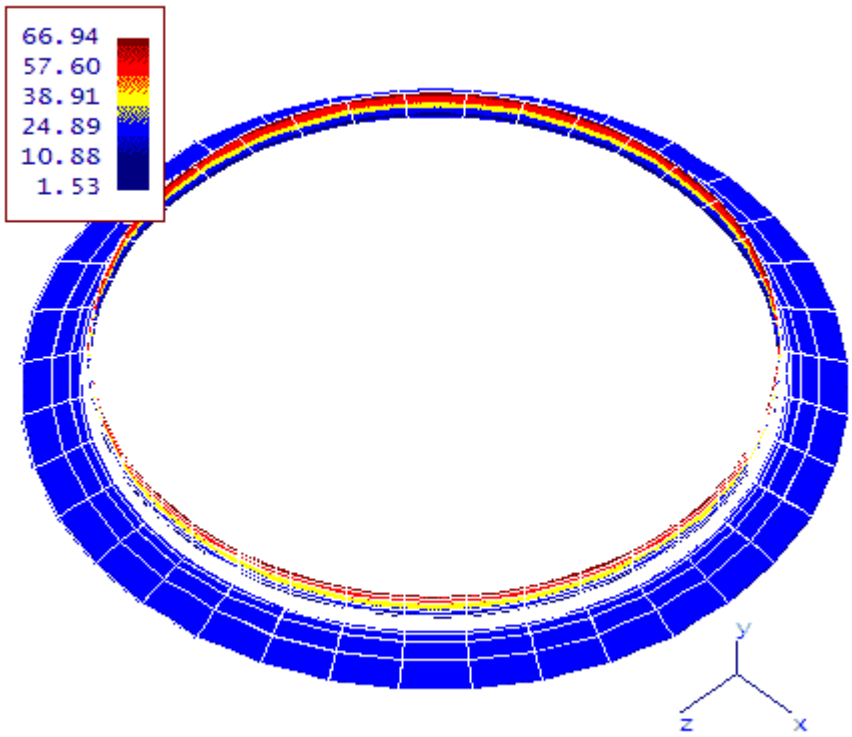
7) Pl+Pb+Q < SPS (OPE Outside) Case 3



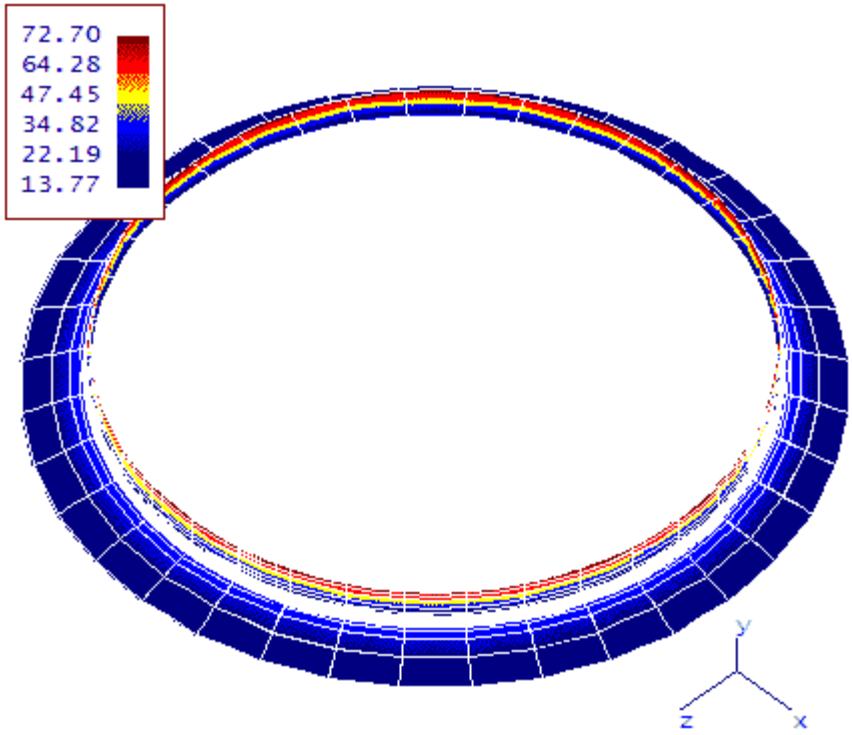
8) Membrane < User (OPE Membrane) Case 3



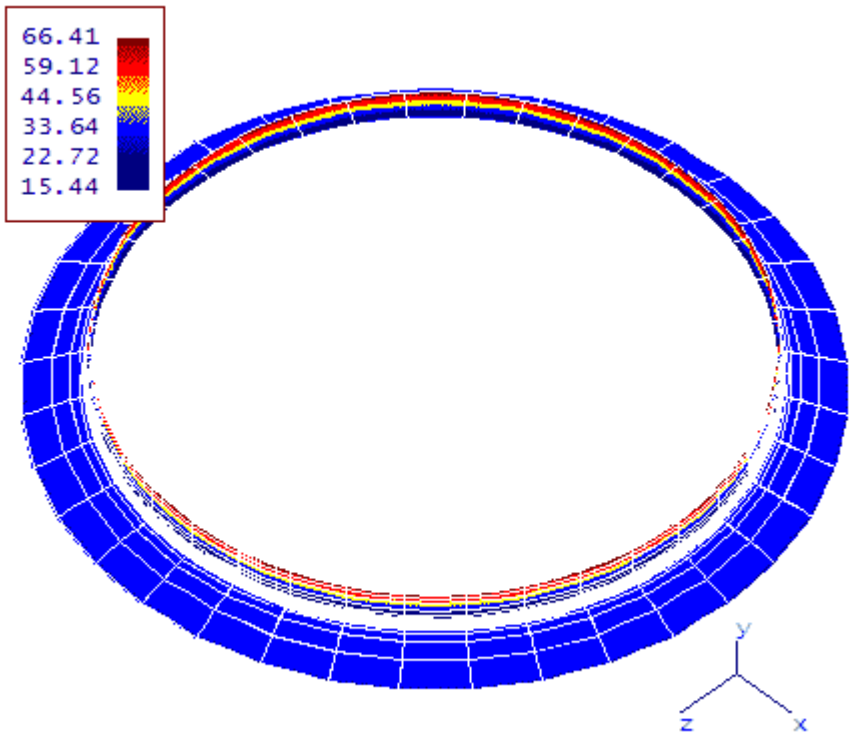
9) Bending < User (OPE Bending) Case 3



10) Pl+Pb+Q < SPS (EXP Inside) Case 4



11) Pl+Pb+Q < SPS (EXP Outside) Case 4



Tabular Results

Results were generated with the finite element program FE/Pipe®. Stress results are post-processed in accordance with the rules specified in ASME Section III and ASME Section VIII, Division 2.

Analysis Time Stamp: Mon Mar 23 12:38:43 2020.

- Model Notes
- Load Case Report
- Solution Data
- ASME Code Stress Output Plots
- Stress Results - Notes
- ASME Overstressed Areas
- Highest Primary Stress Ratios
- Highest Secondary Stress Ratios
- Stress Intensification Factors
- Allowable Loads
- Flexibilities
- Graphical Results

Model Notes
Model Notes

Input Echo:

Model Type	:	Dished Head
Parent Geometry		
Parent Outside Diam.	:	1000.000 mm.
Thickness	:	10.500 mm.
Inside Crown Radius	:	800.000 mm.
Inside Knuckle Radius	:	154.000 mm.
Parent Properties:		
Cold Allowable	:	170.8 MPa
Hot Allowable	:	153.5 MPa
Material ID #1	:	Low Carbon Steel
Ultimate Tensile (Amb)	:	410.0 MPa
Yield Strength (Amb)	:	265.0 MPa
Yield Strength (Hot)	:	230.2 MPa
Elastic Modulus (Amb)	:	203868.0 MPa
Poissons Ratio	:	0.300
Expansion Coefficient	:	0.1080E-04 mm./mm./deg.
Weight Density	:	0.0000E+00 N /cu.mm.(NOT USED)
Nozzle Geometry		
Nozzle Outside Diam.	:	508.000 mm.
Thickness	:	12.700 mm.
Length	:	25.000 mm.
Location perpendicular to the head centerline	:	0.000 mm.
Nozzle Tilt Angle	:	0.000 deg.
Nozzle Properties		
Cold Allowable	:	212.5 MPa
Hot Allowable	:	205.7 MPa
Material ID #1	:	Low Carbon Steel
Ultimate Tensile (Amb)	:	510.0 MPa
Yield Strength (Amb)	:	355.0 MPa
Yield Strength (Hot)	:	308.6 MPa
Elastic Modulus (Amb)	:	203868.0 MPa
Poissons Ratio	:	0.300
Expansion Coefficient	:	0.1080E-04 mm./mm./deg.
Weight Density	:	0.0000E+00 N /cu.mm. (NOT USED)
Design Operating Cycles	:	7000.
Ambient Temperature (Deg.)	:	21.10

Uniform thermal expansion produces no stress in this geometry.
Any thermal loads will come through operating forces and
moments applied through the nozzle.

Nozzle Inside Temperature	:	48.00 deg.
Nozzle Outside Temperature	:	48.00 deg.
Vessel Inside Temperature	:	48.00 deg.
Vessel Outside Temperature	:	48.00 deg.
Nozzle Pressure	:	0.300 MPa
Vessel Pressure	:	0.300 MPa

Operating Pressure : 0.3 MPa

The operating pressure is used for secondary and peak stress cases. The design pressure is used for primary cases. The ratio of the operating/design pressure = 1.000

User Defined Load Input Echo:
Loads are given at the End of Nozzle
Loads are defined in Global Coordinates

Forces(N) Moments (N-m)

Load Case	FX	FY	FZ	MX	MY	MZ
WEIGHT:	0.0	-2678.1	0.0	0.0	0.0	0.0
OPER:	0.0	-2678.1	0.0	0.0	0.0	0.0

FEA Model Loads:
These are the actual loads applied to the FEA model.
These are the User Defined Loads translated to the end of the nozzle and reported in global coordinates.

Forces(N) Moments (N-m)

Load Case	FX	FY	FZ	MX	MY	MZ
WEIGHT:	0.0	-2678.0	0.0	0.0	0.0	0.0
OPER:	0.0	-2678.0	0.0	0.0	0.0	0.0

Stresses ARE nodally AVERAGED.

No weld dimensions have been given for the nozzle connection to the shell. This will produce conservative results for external loads and may tend to produce more realistic inside surface pressure stresses.

Vessel Centerline	Vector:	0.000	1.000	0.000
Nozzle Centerline	Vector:	0.000	1.000	0.000
Zero Degree Orientation	Vector:	1.000	0.000	0.000

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Load Case Report
FE/Pipe Version 10.1 Jobname: NOZZLE $P
Released Jul 2018 12:34am MAR 23,2020

Load Case Report $X

Inner and outer element temperatures are the same throughout the model. No thermal ratcheting calculations will be performed.

THE 9 LOAD CASES ANALYZED ARE:

1 WEIGHT ONLY (Wgt Only)

Weight ONLY case run to get the stress range between the installed and the operating states.

/-------- Loads in Case 1
Loads due to Weight

2 SUSTAINED (Wgt+Pr)

Sustained case run to satisfy local primary membrane and bending stress limits.

/-------- Loads in Case 2
Loads due to Weight
Pressure Case 1

3 OPERATING

Case run to compute the operating stresses used in secondary, peak and range calculations as needed.

/-------- Loads in Case 3
Pressure Case 1

```
        Loads from (Operating)

  4   RANGE          (Fatigue Calc Performed)

      Case run to get the RANGE of stresses.
      as described in NB-3222.2, 5.5.3.2, 5.5.5.2 or 5.5.6.1.

      /-------- Combinations in Range Case   4
        Plus  Stress Results from CASE   3
        Minus Stress Results from CASE   1

  5   Program Generated -- Force Only

      Case run to compute sif's and flexibilities.
      /-------- Loads in Case   5
        Loads from (Axial)

  6   Program Generated -- Force Only

      Case run to compute sif's and flexibilities.
      /-------- Loads in Case   6
        Loads from (Inplane)

  7   Program Generated -- Force Only

      Case run to compute sif's and flexibilities.
      /-------- Loads in Case   7
        Loads from (Outplane)

  8   Program Generated -- Force Only

      Case run to compute sif's and flexibilities.
      /-------- Loads in Case   8
        Loads from (Torsion)

  9   Program Generated -- Force Only

      Case run to compute sif's and flexibilities.
      /-------- Loads in Case   9
        Pressure Case    1
```

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```
Solution Data
FE/Pipe Version 10.1          Jobname: NOZZLE                $P
Released Jul 2018             12:35am  MAR 23,2020



Solution Data


Maximum Solution Row Size =     714
Number of Nodes           =    2053
Number of Elements        =     684
Number of Solution Cases  =       8

Summation of Loads per Case

Case #               FX                  FY                  FZ

   1                  0.              -2680.                  0.
   2                  0.             228017.                  0.
   3                  0.             228017.                  0.
   4                  0.            2724964.                  0.
   5                  0.                  0.                  0.
   6                  0.                  0.                  0.
   7                  0.                  0.                  0.
   8                  0.             230697.                  0.
```

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```
ASME Code Stress Output Plots
FE/Pipe Version 10.1          Jobname: NOZZLE                $P
Released Jul 2018             12:38am  MAR 23,2020
```

ASME Code Stress Output Plots $X

1) Pl < SPL (SUS,Membrane) Case 2

2) Qb < SPS (SUS,Bending) Case 2

3) Pl+Pb+Q < SPS (SUS,Inside) Case 2

4) Pl+Pb+Q < SPS (SUS,Outside) Case 2

5) S1+S2+S3 < 4S (SUS,S1+S2+S3) Case 2

6) Pl+Pb+Q < SPS (OPE,Inside) Case 3

7) Pl+Pb+Q < SPS (OPE,Outside) Case 3

8) Membrane < User (OPE,Membrane) Case 3

9) Bending < User (OPE,Bending) Case 3

10) Pl+Pb+Q < SPS (EXP,Inside) Case 4

11) Pl+Pb+Q < SPS (EXP,Outside) Case 4

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Stress Results - Notes
FE/Pipe Version 10.1 Jobname: NOZZLE $P
Released Jul 2018 12:38am MAR 23,2020

Stress Results - Notes

- Results in this analysis were generated using the finite element solution method.

- The component loading condition has been screened and it has determined that a fatigue analysis is NOT required. All fatigue reports will be omitted from this output. See the ASME panel for the controlling check box.

- Using 2013-2017 ASME Section VIII Division 2

- Use Polished Bar fatigue curve.

- Ratio between Operating and Design Pressure = 1.000000
  Assume pressure increases all other stresses.

- Assume free end displacements of attached pipe (e.g. thermal loads) are secondary within the limits of nozzle reinforcement.

- User OVERRIDE - USE Equivalent Stress (Von Mises) for ASME calculation. Von Mises may be 10% lower than stress intensity (TRESCA).

- S1+S2+S3 evaluation omitted from operating stress.
  Include S1+S2+S3 evaluation in primary case evaluation.
  Assume bending stress not local primary for S1+S2+S3.

- Use local tensor values for averaged and not averaged stresses.

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ASME Overstressed Areas
FE/Pipe Version 10.1 Jobname: NOZZLE $P
Released Jul 2018 12:38am MAR 23,2020

ASME Overstressed Areas $X

*** NO OVERSTRESSED NODES IN THIS MODEL ***

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Highest Primary Stress Ratios
FE/Pipe Version 10.1 Jobname: NOZZLE $P
Released Jul 2018 12:38am MAR 23,2020

Highest Primary Stress Ratios $X

Shell Next to Nozzle 1

Pl	SPL	Primary Membrane Load Case 2
16	230	Plot Reference:
MPa	MPa	1) Pl < SPL (SUS,Membrane) Case 2

6%

Nozzle 1 Next to Shell

Pl+Pb+Q	SPS	Primary+Secondary (Inner) Load Case 2
45	664	Plot Reference:
MPa	MPa	3) Pl+Pb+Q < SPS (SUS,Inside) Case 2

6%

Shell In Nozzle 1 Vicinity

Pl	SPL	Primary Membrane Load Case 2
15	230	Plot Reference:
MPa	MPa	1) Pl < SPL (SUS,Membrane) Case 2

6%

Nozzle 1

Pl+Pb+Q	SPS	Primary+Secondary (Inner) Load Case 2
71	664	Plot Reference:
MPa	MPa	3) Pl+Pb+Q < SPS (SUS,Inside) Case 2

10%

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Highest Secondary Stress Ratios
FE/Pipe Version 10.1 Jobname: NOZZLE $P
Released Jul 2018 12:38am MAR 23,2020

Highest Secondary Stress Ratios $X

Shell Next to Nozzle 1

Pl+Pb+Q	SPS	Primary+Secondary (Outer) Load Case 4
31	495	Plot Reference:
MPa	MPa	11) Pl+Pb+Q < SPS (EXP,Outside) Case 4

6%

Nozzle 1 Next to Shell

```
  Pl+Pb+Q            SPS     Primary+Secondary (Inner) Load Case 4
       46            664     Plot Reference:
      MPa            MPa     10) Pl+Pb+Q < SPS (EXP,Inside) Case 4

             6%


Shell In Nozzle 1 Vicinity

  Pl+Pb+Q            SPS     Primary+Secondary (Outer) Load Case 4
       22            495     Plot Reference:
      MPa            MPa     11) Pl+Pb+Q < SPS (EXP,Outside) Case 4

             4%


Nozzle 1

  Pl+Pb+Q            SPS     Primary+Secondary (Inner) Load Case 4
       73            664     Plot Reference:
      MPa            MPa     10) Pl+Pb+Q < SPS (EXP,Inside) Case 4

            10%
```

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```
Stress Intensification Factors
FE/Pipe Version 10.1          Jobname: NOZZLE                $P
Released Jul 2018             12:38am  MAR 23,2020



Stress Intensification Factors                          $X


Branch/Nozzle Sif Summary

                   Peak      Primary    Secondary      SSI
Axial    :        0.000        6.214       12.429    0.000
Inplane :         0.000        5.468       10.935    0.000
Outplane:         0.000        5.463       10.926    0.000
Torsion :         0.000        0.987        0.994    0.000
Pressure:         0.000        2.545        5.089    0.000

The above stress intensification factors are to be used
in a beam-type analysis of the piping system.  Inplane,
Outplane and Torsional sif's should be used with the
matching branch pipe whose diameter and thickness is given
below.  The axial sif should be used to intensify the
axial stress in the branch pipe calculated by F/A.  The
pressure sif should be used to intensify the nominal
pressure stress in the PARENT or HEADER, calculated
from PDo/2T. B31 calculations use mean diameters and
Section VIII calculations use outside diameters. SSIs are
based on peak stress factors and correlated test results.

Pipe OD :      508.000  mm.
Pipe Thk:       12.700  mm.
Z approx:  2446977.000  cu.mm.
Z exact :  2387371.250  cu.mm.

B31.3   (Branch)
Peak Stress Sif ....    0.000         Axial
                       10.953         Inplane
                       14.201         Outplane
                        1.000         Torsional
B31.1  (Branch)
Peak Stress Sif ....    0.000         Axial
                       14.201         Inplane
                       14.201         Outplane
                       14.201         Torsional
WRC 330  (Branch)
Peak Stress Sif ....    0.000         Axial
                        9.810         Inplane
                       11.021         Outplane
                        5.516         Torsional
```

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Allowable Loads
FE/Pipe Version 10.1 Jobname: NOZZLE $P
Released Jul 2018 12:38am MAR 23,2020

Allowable Loads $X

SECONDARY Load Type (Range):		Maximum Individual Occuring	Conservative Simultaneous Occuring	Realistic Simultaneous Occuring
Axial Force	(N)	867904.	271003.	406505.
Inplane Moment	(mm. N)	108109280.	23869898.	50635696.
Outplane Moment	(mm. N)	108207464.	23891574.	50681680.
Torsional Moment	(mm. N)	1189479936.	376571520.	564857280.
Pressure	(MPa)	2.74	0.30	0.30

PRIMARY Load Type:		Maximum Individual Occuring	Conservative Simultaneous Occuring	Realistic Simultaneous Occuring
Axial Force	(N)	806930.	250206.	375309.
Inplane Moment	(mm. N)	100514120.	22038110.	46749888.
Outplane Moment	(mm. N)	100605400.	22058124.	46792344.
Torsional Moment	(mm. N)	556892608.	172676688.	259015024.
Pressure	(MPa)	2.55	0.30	0.30

NOTES:

1) Maximum Individual Occuring Loads are the maximum allowed values of the respective loads if all other load components are zero, i.e. the listed axial force may be applied if the inplane, outplane and torsional moments, and the pressure are zero.

2) The Conservative Allowable Simultaneous loads are the maximum loads that can be applied simultaneously. A conservative stress combination equation is used that typically produces stresses within 50-70% of the allowable stress.

3) The Realistic Allowable Simultaneous loads are the maximum loads that can be applied simultaneously. A more realistic stress combination equation is used based on experience at Paulin Research. Stresses are typically produced within 80-105% of the allowable.

4) Secondary allowable loads are limits for expansion and operating piping loads.

5) Primary allowable loads are limits for weight, primary and sustained type piping loads.

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Flexibilities
FE/Pipe Version 10.1 Jobname: NOZZLE $P
Released Jul 2018 12:38am MAR 23,2020

Flexibilities $X

The following stiffnesses should be used in a piping, "beam-type" analysis of the intersection. The stiff-nesses should be inserted at the surface of the branch/header or nozzle/vessel junction. The general characteristics used for the branch pipe should be:

Outside Diameter = 508.000 mm.
Wall Thickness = 12.700 mm.

Axial Translational Stiffness = 750282. N /mm.
Inplane Rotational Stiffness = 572853248. mm. N /deg
Outplane Rotational Stiffness = 572852608. mm. N /deg

```
Torsional Rotational Stiffness  =   10830216192.  mm. N /deg


Intersection Flexibility Factors for Branch/Nozzle

Find axial stiffness: K = 3EI/(kd)^3   N /mm.
Find bending and torsional stiffnesses: K = EI/(kd)  mm. N per radian.
The EI product is   0.12370E+15    N mm.^2
The value of (d) to use is: 495.300  mm..
The resulting bending stiffness is in units of force x length per radian.

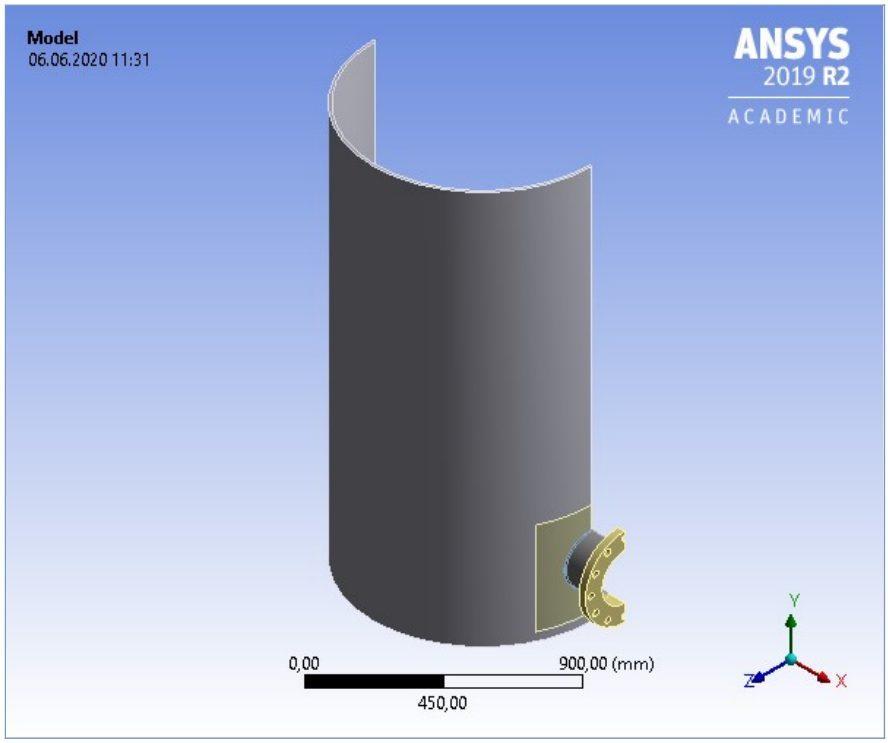
Axial Flexibility Factor     (k) =     1.597
Inplane Flexibility Factor   (k) =     7.609
Outplane Flexibility Factor  (k) =     7.609
Torsional Flexibility Factor (k) =     0.402
```

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Příloha E:
Výstup přímého způsobu v ANSYS Workbench

Direct Route - Nozzle N1 (brick elements)*

First Saved	Saturday, February 8, 2020
Last Saved	Saturday, June 6, 2020
Product Version	2019 R2
Save Project Before Solution	No
Save Project After Solution	No



Contents

- Units
- Model (B4)
  - Geometry
    - Model_GPD - kopie
      - Parts
  - Materials
  - Construction Geometry
    - Paths
  - Coordinate Systems
  - Symmetry
    - Symmetry Region
  - Remote Points
    - Remote Force_i_s_ekvivalentni - Remote Point
  - Connections
    - Contacts
  - Mesh
    - Mesh Controls
  - Named Selections
  - Static Structural (B5)
    - Analysis Settings
    - Loads
    - Solution (B6)
      - Solution Information
      - Results
      - User Defined Result
      - EPEL2-1 2
- Material Data
  - P245GH
  - P265GH
  - P265GH_nozzle

Units

TABLE 1

Unit System	Metric (mm, kg, N, s, mV, mA) Degrees rad/s Celsius
Angle	Degrees
Rotational Velocity	rad/s
Temperature	Celsius

Model (B4)

Geometry

TABLE 2
Model (B4) > Geometry

Object Name	*Geometry*
State	Fully Defined
Definition	
Source	C:\Users\prochazka.tomas\AppData\Local\Temp\GPD.tmp3\GPD_files\dp0\Geom-1\DM\Geom-1.agdb
Type	DesignModeler
Length Unit	Meters
Element Control	Program Controlled
Display Style	Body Color
Bounding Box	
Length X	1150, mm
Length Y	1800, mm
Length Z	500, mm
Properties	
Volume	3,0441e+007 mm³
Mass	238,96 kg
Scale Factor Value	1,
Statistics	
Bodies	5
Active Bodies	5
Nodes	1328286
Elements	340346
Mesh Metric	None
Update Options	
Assign Default Material	No
Basic Geometry Options	

Parameters	Independent
Parameter Key	
Attributes	Yes
Attribute Key	
Named Selections	Yes
Named Selection Key	
Material Properties	Yes
Advanced Geometry Options	
Use Associativity	Yes
Coordinate Systems	Yes
Coordinate System Key	
Reader Mode Saves Updated File	No
Use Instances	Yes
Smart CAD Update	Yes
Compare Parts On Update	No
Analysis Type	3-D
Clean Bodies On Import	No
Stitch Surfaces On Import	None
Decompose Disjoint Geometry	Yes
Enclosure and Symmetry Processing	Yes

TABLE 3
Model (B4) > Geometry > Body Groups

Object Name	*Model_GPD - kopie*
State	Meshed
Graphics Properties	
Visible	Yes
Definition	
Suppressed	No
Assignment	Multiple Materials
Coordinate System	Default Coordinate System
Bounding Box	
Length X	1150, mm
Length Y	1800, mm
Length Z	500, mm
Properties	
Volume	3,0441e+007 mm³
Mass	238,96 kg
Centroid X	23,502 mm
Centroid Y	877,75 mm
Centroid Z	306,14 mm
Moment of Inertia Ip1	7,1519e+007 kg·mm²
Moment of Inertia Ip2	3,6715e+007 kg·mm²
Moment of Inertia Ip3	9,6948e+007 kg·mm²
Statistics	
Nodes	1328286
Elements	340346
Mesh Metric	None
CAD Attributes	
DMBodyGroup	1

TABLE 4
Model (B4) > Geometry > Model_GPD - kopie > Parts

Object Name	*Rozdělit10[1]*	*Přidat vysunutím10*	*Rozdělit11[1]*	*Rozdělit10[2]*	*Kombinovat1*
State	Meshed				
Graphics Properties					
Visible	Yes				
Glow	0				
Shininess	1				
Transparency	1				
Specularity	1				
Definition					
Suppressed	No				
ID (Beta)	521	523	525	527	529
Stiffness Behavior	Flexible				
Coordinate System	Default Coordinate System				
Reference Temperature	By Environment				
Treatment	None				
Material					
Assignment	P245GH	P265GH		P265GH_nozzle	P265GH
Nonlinear Effects	Yes				
Thermal Strain Effects	Yes				
Bounding Box					
Length X	80, mm	1000, mm	58,541 mm	92,916 mm	27,935 mm
Length Y	360, mm	1800, mm	422,96 mm	219,1 mm	227,58 mm
Length Z	180, mm	500, mm	211,48 mm	109,55 mm	114,25 mm
Properties					

Volume	1,0872e+006 mm³	2,8406e+007 mm³	7,6238e+005 mm³	1,7322e+005 mm³	12684 mm³
Mass	8,5345 kg	222,99 kg	5,9847 kg	1,3598 kg	9,9571e-002 kg
Centroid X	629,83 mm	-15,093 mm	474,7 mm	526,91 mm	490,54 mm
Centroid Y	250, mm	922,72 mm	250,6 mm	249,62 mm	250,4 mm
Centroid Z	88,496 mm	320,92 mm	123,75 mm	69,16 mm	69,622 mm
Moment of Inertia Ip1	1,0207e+005 kg·mm²	6,3688e+007 kg·mm²	1,2973e+005 kg·mm²	8852,3 kg·mm²	735,44 kg·mm²
Moment of Inertia Ip2	19780 kg·mm²	3,1017e+007 kg·mm²	21038 kg·mm²	2276, kg·mm²	119,76 kg·mm²
Moment of Inertia Ip3	86255 kg·mm²	8,4924e+007 kg·mm²	1,0895e+005 kg·mm²	8249,8 kg·mm²	619,39 kg·mm²
Statistics					
Nodes	41167	82989	343979	801107	100241
Elements	11726	16917	85560	199864	26279
Mesh Metric	None				

TABLE 5
Model (B4) > Materials

Object Name	*Materials*
State	Fully Defined
Statistics	
Materials	5
Material Assignments	0

TABLE 6
Model (B4) > Construction Geometry

Object Name	*Construction Geometry*
State	Fully Defined
Display	
Show Mesh	No

TABLE 7
Model (B4) > Construction Geometry > Paths

Object Name	*Path*	*Path 2*	*Path 3*
State	Fully Defined		
Definition			
Path Type	Two Points		
Path Coordinate System	Global Coordinate System		
Number of Sampling Points	47,		
Suppressed	No		
Start			
Coordinate System	Global Coordinate System		
Start X Coordinate	506,64 mm	509,64 mm	512,64 mm
Start Y Coordinate	359,55 mm		
Start Z Coordinate	0, mm		
Location	Defined		
End			
Coordinate System	Global Coordinate System		
End X Coordinate	506,64 mm	509,64 mm	512,64 mm
End Y Coordinate	353,55 mm		
End Z Coordinate	0, mm		
Location	Defined		

Coordinate Systems

TABLE 8
Model (B4) > Coordinate Systems > Coordinate System

Object Name	*Global Coordinate System*	*Cylindrical*	*XYPlane*
State	Fully Defined		
Definition			
Type	Cartesian	Cylindrical	Cartesian
Coordinate System ID	0,		
Coordinate System		Program Controlled	
APDL Name			
Suppressed		No	
Origin			
Origin X	0, mm	3,0215e-014 mm	0, mm
Origin Y	0, mm	922,46 mm	0, mm
Origin Z	0, mm	-3,0215e-014 mm	0, mm
Define By		Geometry Selection	Global Coordinates
Geometry		Defined	
Location			Defined
Directional Vectors			
X Axis Data	[1, 0, 0,]		
Y Axis Data	[0, 1, 0,]	[0, 0, -1,]	[0, 1, 0,]
Z Axis Data	[0, 0, 1,]	[0, 1, 0,]	[0, 0, 1,]
Principal Axis			
Axis		X	
Define By		Global X Axis	Fixed Vector
Orientation About Principal Axis			

Axis		Y	
Define By		Default	Fixed Vector
Transformations			
Base Configuration		Absolute	
Transformed Configuration		[3,0215e-014 922,46 -3,0215e-014]	[0, 0, 0,]

Symmetry

TABLE 9
Model (B4) > Symmetry

Object Name	*Symmetry*
State	Fully Defined
Graphical Expansion 1 (Beta)	
Num Repeat	0
Type	Cartesian
Method	Full
ΔX	0, mm
ΔY	0, mm
ΔZ	0, mm
Coordinate System	Global Coordinate System
Graphical Expansion 2 (Beta)	
Num Repeat	0
Type	Cartesian
Method	Full
ΔX	0, mm
ΔY	0, mm
ΔZ	0, mm
Coordinate System	Global Coordinate System
Graphical Expansion 3 (Beta)	
Num Repeat	0
Type	Cartesian
Method	Full
ΔX	0, mm
ΔY	0, mm
ΔZ	0, mm
Coordinate System	Global Coordinate System

TABLE 10
Model (B4) > Symmetry > Symmetry Region

Object Name	*Symmetry Region*
State	Fully Defined
Scope	
Scoping Method	Named Selection
Named Selection	Symmetry:XYPlane
Definition	
Scope Mode	Automatic
Type	Symmetric
Coordinate System	XYPlane
Symmetry Normal	Z Axis
Suppressed	No

Remote Points

TABLE 11
Model (B4) > Remote Points

Object Name	*Remote Points*
State	Fully Defined
Display	
Show Connection Lines	Yes

TABLE 12
Model (B4) > Remote Points > Remote Force_i_s_ekvivalentni - Remote Point

Object Name	*Remote Force_i_s_ekvivalentni - Remote Point*
State	Fully Defined
Scope	
Scoping Method	Geometry Selection
Geometry	1 Face
Coordinate System	Global Coordinate System
X Coordinate	650, mm
Y Coordinate	250, mm
Z Coordinate	0, mm
Location	Defined
Definition	
ID (Beta)	71
Suppressed	No
Behavior	Rigid
Pinball Region	All

DOF Selection	Program Controlled
Pilot Node APDL Name	

Connections

TABLE 13
Model (B4) > Connections

Object Name	*Connections*
State	Fully Defined
Auto Detection	
Generate Automatic Connection On Refresh	Yes
Transparency	
Enabled	Yes

TABLE 14
Model (B4) > Connections > Contacts

Object Name	*Contacts*
State	Fully Defined
Definition	
Connection Type	Contact
Scope	
Scoping Method	Geometry Selection
Geometry	All Bodies
Auto Detection	
Tolerance Type	Slider
Tolerance Slider	0,
Tolerance Value	5,4844 mm
Use Range	No
Face/Face	Yes
Face-Face Angle Tolerance	75, °
Face Overlap Tolerance	Off
Cylindrical Faces	Include
Face/Edge	No
Edge/Edge	No
Priority	Include All
Group By	Bodies
Search Across	Bodies
Statistics	
Connections	0
Active Connections	0

Mesh

TABLE 15
Model (B4) > Mesh

Object Name	*Mesh*
State	Solved
Display	
Display Style	Use Geometry Setting
Defaults	
Physics Preference	Nonlinear Mechanical
Element Order	Program Controlled
Element Size	20, mm
Sizing	
Growth Rate	Default (1,5)
Max Size	Default (40, mm)
Mesh Defeaturing	Yes
Defeature Size	Default (0,1 mm)
Capture Curvature	Yes
Curvature Min Size	Default (0,2 mm)
Curvature Normal Angle	Default (60,°)
Capture Proximity	No
Size Formulation (Beta)	Program Controlled
Bounding Box Diagonal	2193,7 mm
Average Surface Area	1,0266e+005 mm²
Minimum Edge Length	0,7 mm
Enable Size Field (Beta)	No
Quality	
Check Mesh Quality	Yes, Errors
Target Skewness	Default (0.900000)
Target Jacobian Ratio (Corner Nodes)	Default (0.040000)
Mesh Metric	None
Inflation	
Use Automatic Inflation	None
Inflation Option	Smooth Transition
Transition Ratio	0,272
Maximum Layers	5

Growth Rate	1,2
Inflation Algorithm	Pre
View Advanced Options	No
Advanced	
Number of CPUs for Parallel Part Meshing	Program Controlled
Straight Sided Elements	No
Rigid Body Behavior	Dimensionally Reduced
Triangle Surface Mesher	Program Controlled
Use Asymmetric Mapped Mesh (Beta)	No
Topology Checking	Yes
Pinch Tolerance	Default (0,18 mm)
Generate Pinch on Refresh	No
Statistics	
Nodes	1328286
Elements	340346

TABLE 16
Model (B4) > Mesh > Mesh Controls

Object Name	*Body Sizing*	*Body Sizing 2*	*Hex Dominant Method*	*Body Sizing 3*	*Body Sizing 4*
State	Fully Defined				
Scope					
Scoping Method	Geometry Selection				
Geometry	1 Body		5 Bodies	1 Body	
Definition					
Suppressed	No				
Type	Element Size			Element Size	
Element Size	2,5 mm	1, mm		1, mm	10, mm
Method			Hex Dominant		
Element Order			Use Global Setting		
Free Face Mesh Type			Quad/Tri		
Control Messages			Yes, Click To Display...		
Advanced					
Defeature Size	Default (0,1 mm)			Default (0,1 mm)	
Behavior	Soft			Soft	
Growth Rate	Default (1,5)			Default (1,5)	
Capture Curvature	No			No	
Capture Proximity	No			No	

Named Selections

TABLE 17
Model (B4) > Named Selections > Named Selections

Object Name	*Symmetry:XYPlane*
State	Fully Defined
Scope	
Scoping Method	Geometry Selection
Geometry	13 Faces
Definition	
Send to Solver	No
Protected	Program Controlled
Visible	Yes
Program Controlled Inflation	Exclude
Statistics	
Type	Imported
Total Selection	13 Faces
Surface Area	40441 mm²
Suppressed	0
Used by Mesh Worksheet	No

Static Structural (B5)

TABLE 18
Model (B4) > Analysis

Object Name	*Static Structural (B5)*
State	Solved
Definition	
Physics Type	Structural
Analysis Type	Static Structural
Solver Target	Mechanical APDL
Options	
Environment Temperature	20, °C
Generate Input Only	No

TABLE 19
Model (B4) > Static Structural (B5) > Analysis Settings

Object Name	*Analysis Settings*
State	Fully Defined

Step Controls	
Number Of Steps	1,
Current Step Number	1,
Step End Time	1, s
Auto Time Stepping	On
Define By	Time
Initial Time Step	5,e-002 s
Minimum Time Step	1,e-004 s
Maximum Time Step	5,e-002 s
Solver Controls	
Solver Type	Program Controlled
Weak Springs	Off
Solver Pivot Checking	Program Controlled
Large Deflection	Off
Inertia Relief	Off
Rotordynamics Controls	
Coriolis Effect	Off
Restart Controls	
Generate Restart Points	Program Controlled
Retain Files After Full Solve	No
Combine Restart Files	Program Controlled
Nonlinear Controls	
Newton-Raphson Option	Program Controlled
Force Convergence	Program Controlled
Moment Convergence	Program Controlled
Displacement Convergence	Program Controlled
Rotation Convergence	Program Controlled
Line Search	Program Controlled
Stabilization	Program Controlled
Output Controls	
Stress	Yes
Surface Stress	No
Back Stress	No
Strain	Yes
Contact Data	Yes
Nonlinear Data	No
Nodal Forces	No
Contact Miscellaneous	No
General Miscellaneous	No
Store Results At	All Time Points
Cache Results in Memory (Beta)	Never
Combine Distributed Result Files (Beta)	Program Controlled
Result File Compression	Program Controlled
Analysis Data Management	
Solver Files Directory	C:\Users\prochazka.tomas\AppData\Local\Temp\GPD.tmp3\GPD_files\dp0\SYS-1\MECH\
Future Analysis	None
Scratch Solver Files Directory	
Save MAPDL db	No
Contact Summary	Program Controlled
Delete Unneeded Files	Yes
Nonlinear Solution	Yes
Solver Units	Active System
Solver Unit System	nmm

TABLE 20
Model (B4) > Static Structural (B5) > Loads

Object Name	*Tlak*	*Moment*	*Thermal Condition*	*Sila od potrubi + ekvivaletni sila*	*Displacement*	*Ekvivalentní síla*	*Tiha komponent*
State	Fully Defined						
Scope							
Scoping Method	Geometry Selection	Remote Point	Geometry Selection	Remote Point	Geometry Selection		
Geometry	6 Faces		5 Bodies		1 Face		
Remote Points		Remote Force_i_s_ekvivalentni - Remote Point		Remote Force_i_s_ekvivalentni - Remote Point			
Coordinate System				Global Coordinate System			
X Coordinate				650, mm			
Y Coordinate				250, mm			
Z Coordinate				0, mm			
Location				Defined			
Definition							
ID (Beta)	57	76	84	81	95	305	307
Type	Pressure	Moment	Thermal Condition	Remote Force	Displacement	Force	
Define By	Normal To	Components		Components			
Applied By	Surface						

	Effect						
Magnitude	1,92 MPa (ramped)		130, °C (ramped)				
Suppressed	No						
Coordinate System		Global Coordinate System			Cylindrical	Global Coordinate System	
X Component		3,756e+005 N·mm (ramped)		32920 N (ramped)	Free	0, N (ramped)	
Y Component		2,928e+005 N·mm (ramped)		-1163,8 N (ramped)	0, mm (ramped)	7,2265e+005 N (ramped)	-1526,4 N (ramped)
Z Component		-6,08e+005 N·mm (ramped)		124,6 N (ramped)	0, mm (ramped)	0, N (ramped)	
Behavior		Rigid		Rigid			
Advanced							
Pinball Region		All		All			

FIGURE 1
Model (B4) > Static Structural (B5) > Tlak

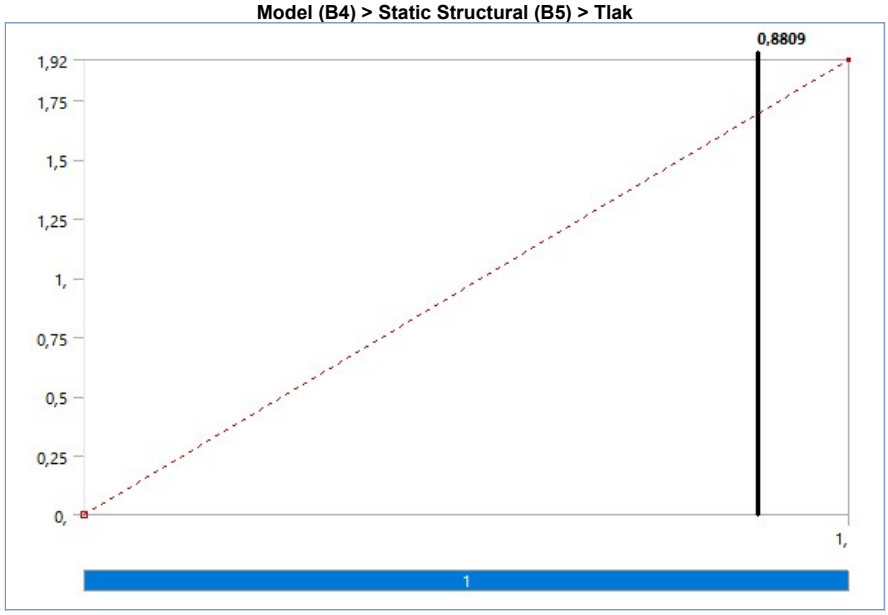


FIGURE 2
Model (B4) > Static Structural (B5) > Moment

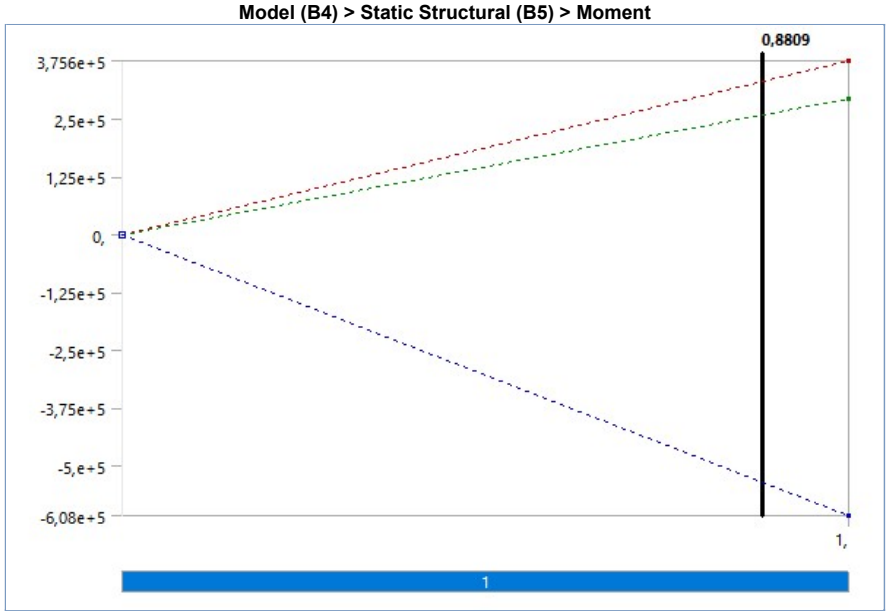


FIGURE 3
Model (B4) > Static Structural (B5) > Thermal Condition

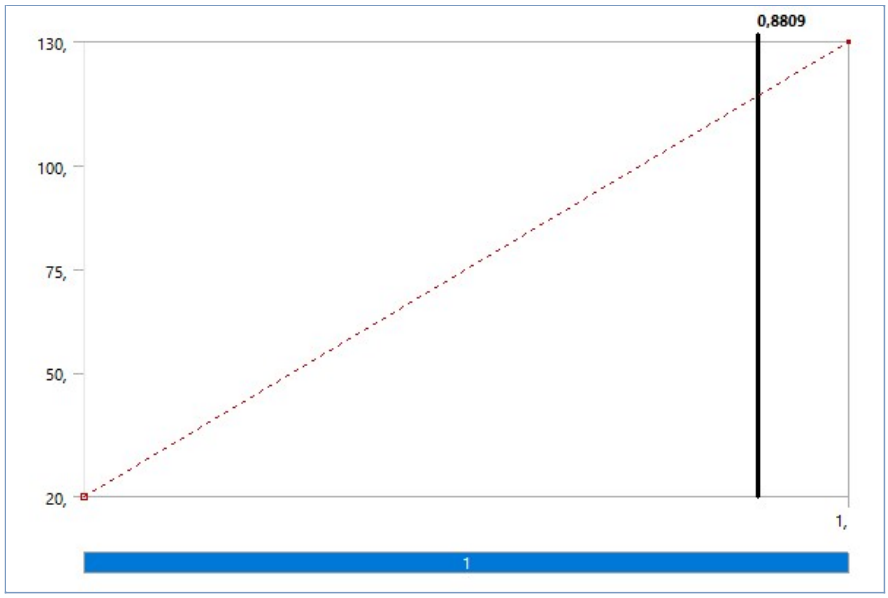


FIGURE 4
Model (B4) > Static Structural (B5) > Sila od potrubi + ekvivaletni sila

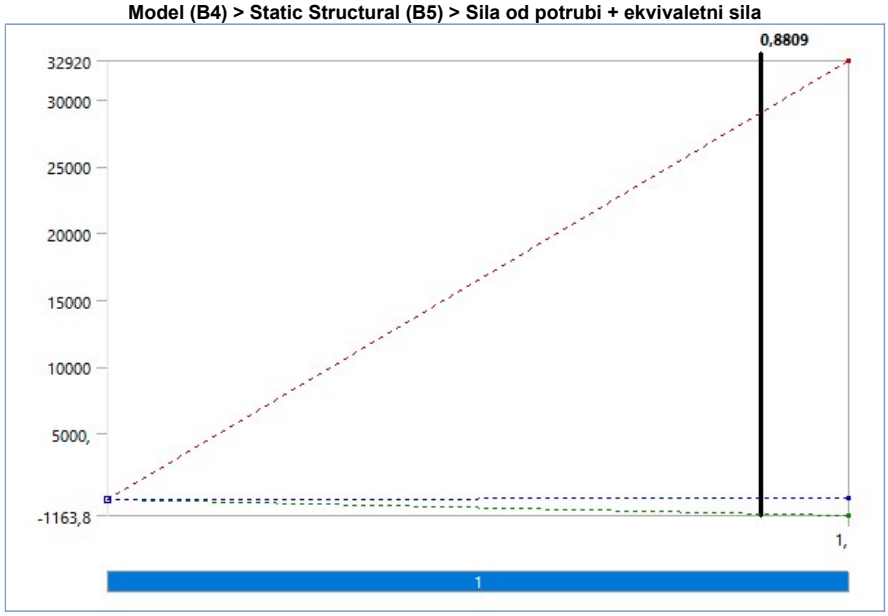


FIGURE 5
Model (B4) > Static Structural (B5) > Displacement

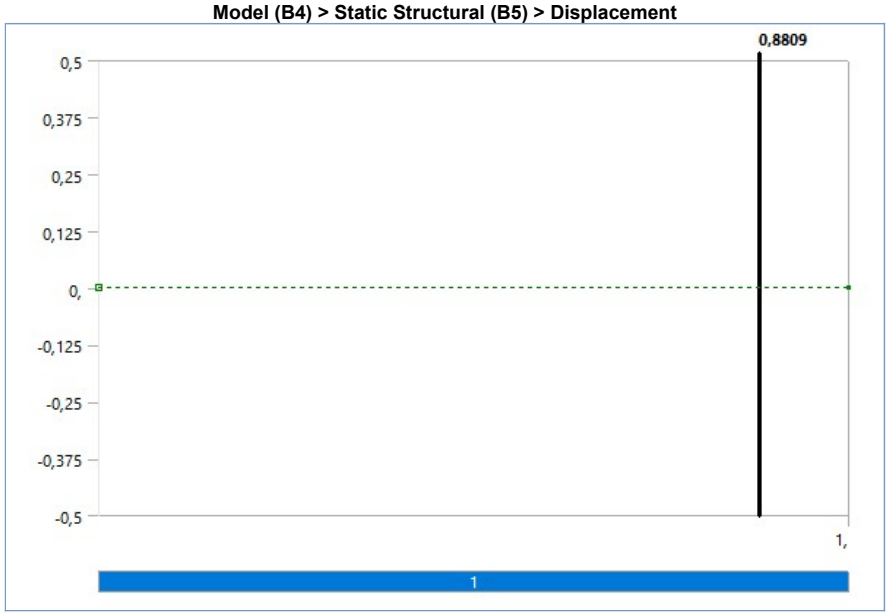


FIGURE 6

Model (B4) > Static Structural (B5) > Ekvivalentní síla

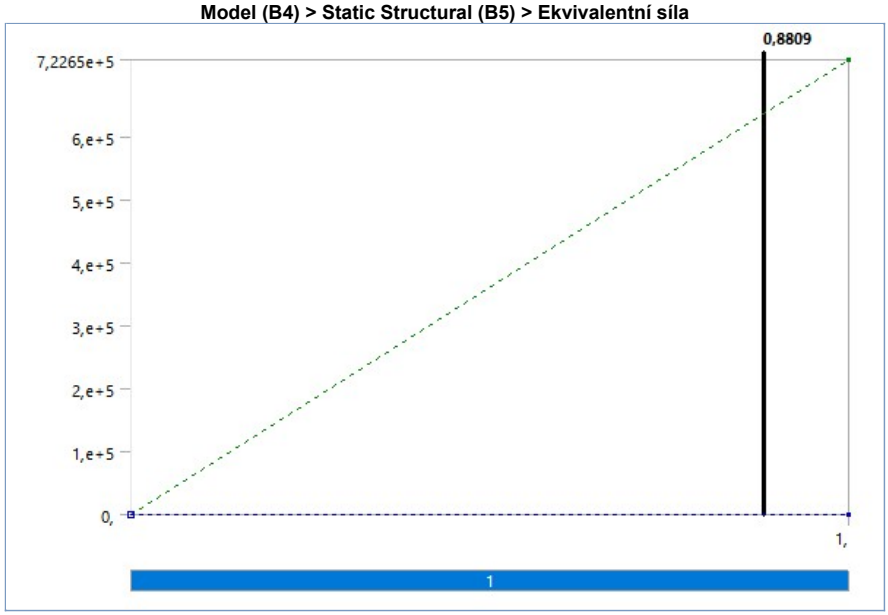


FIGURE 7
Model (B4) > Static Structural (B5) > Tiha komponent

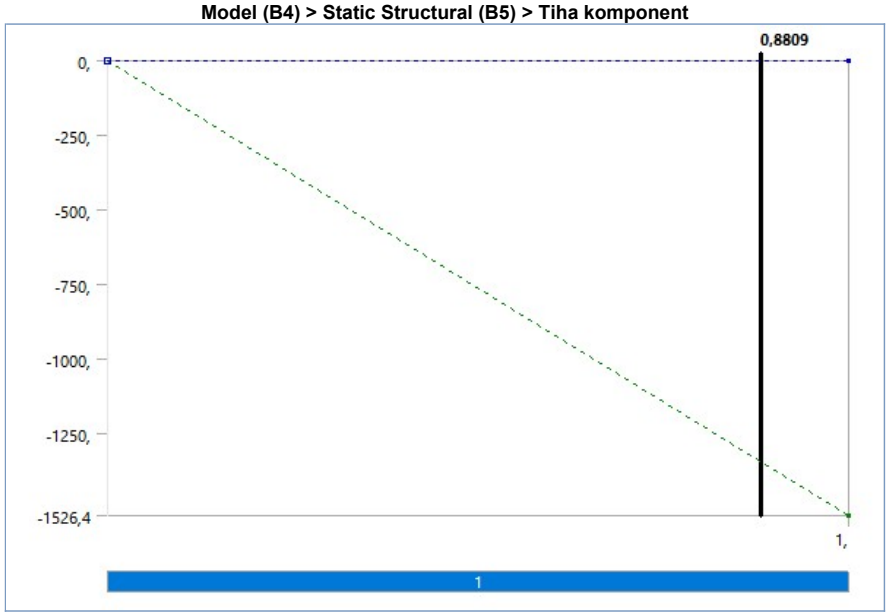


TABLE 21
Model (B4) > Static Structural (B5) > Command Snippet

Object Name	*Commands (APDL)*
State	Fully Defined
File	
File Name	
File Status	File not found
Definition	
Suppressed	No
Target	Mechanical APDL
Issue Solve Command	Yes
Input Arguments	
ARG1	
ARG2	
ARG3	
ARG4	
ARG5	
ARG6	
ARG7	
ARG8	
ARG9	

Model (B4) > Static Structural (B5) > Commands (APDL)

```
!   Commands inserted into this file will be executed just prior to the ANSYS SOLVE command.
!   These commands may supersede command settings set by Workbench.
```

```
!   Active UNIT system in Workbench when this object was created:  Metric (mm, kg, N, s, mV, mA)
!   NOTE:  Any data that requires units (such as mass) is assumed to be in the consistent solver unit system.
!                See Solving Units in the help system for more information.


/SOLU
ERESX,no
NEQIT,15
```

Solution (B6)

TABLE 22
Model (B4) > Static Structural (B5) > Solution

Object Name	*Solution (B6)*
State	Solved
Solution	
Number Of Cores to Use (Beta)	Solve Process Settings
Adaptive Mesh Refinement	
Max Refinement Loops	3,
Refinement Depth	2,
Information	
Status	Done
MAPDL Elapsed Time	3 h 1 m
MAPDL Memory Used	8,3945 GB
MAPDL Result File Size	5,0637 GB
Post Processing	
Distributed Post Processing (Beta)	Program Controlled
Mesh Source (Beta)	Program Controlled
Beam Section Results	No
On Demand Stress/Strain	No

TABLE 23
Model (B4) > Static Structural (B5) > Solution (B6) > Solution Information

Object Name	*Solution Information*
State	Solved
Solution Information	
Solution Output	Force Convergence
Newton-Raphson Residuals	0
Identify Element Violations	0
Update Interval	2,5 s
Display Points	All
FE Connection Visibility	
Activate Visibility	Yes
Display	All FE Connectors
Draw Connections Attached To	All Nodes
Line Color	Connection Type
Visible on Results	No
Line Thickness	Single
Display Type	Lines

FIGURE 8
Model (B4) > Static Structural (B5) > Solution (B6) > Solution Information

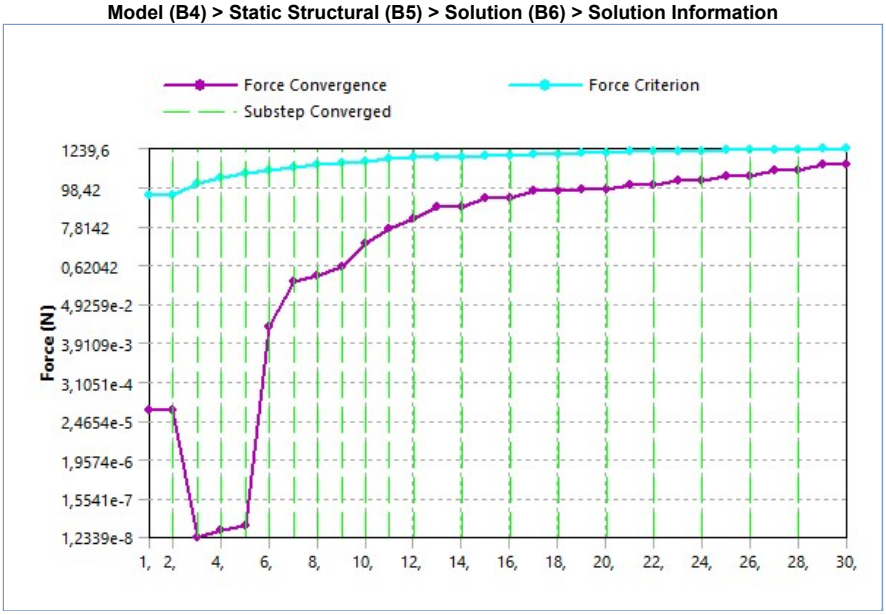


FIGURE 9
Model (B4) > Static Structural (B5) > Solution (B6) > Solution Information

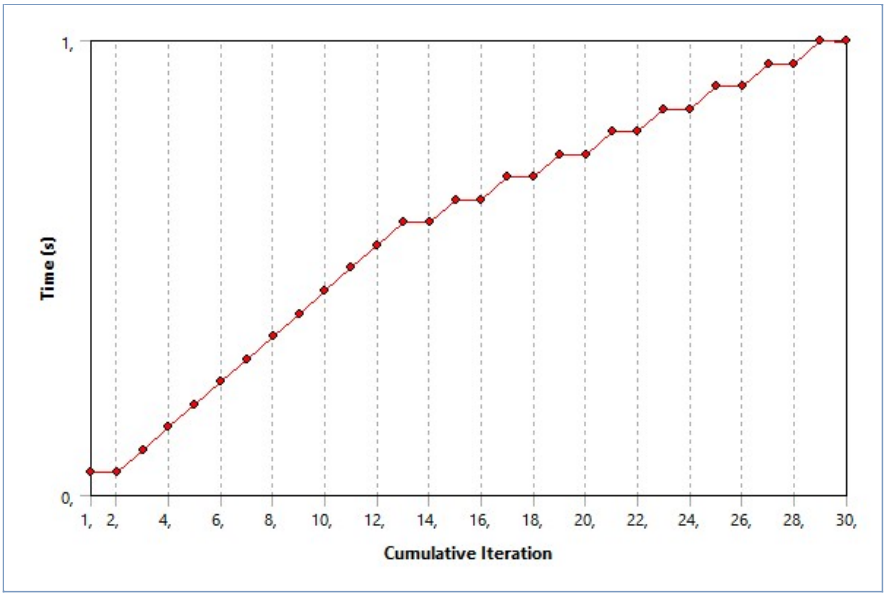


TABLE 24
Model (B4) > Static Structural (B5) > Solution (B6) > Results

Object Name	*Total Deformation*	*Equivalent Stress*	*Stress Intensity*
State	Solved		
Scope			
Scoping Method	Geometry Selection		
Geometry	All Bodies		
Definition			
Type	Total Deformation	Equivalent (von-Mises) Stress	Stress Intensity
By	Time		
Display Time	1, s		0,83974 s
Calculate Time History	Yes		
Identifier			
Suppressed	No		
Results			
Minimum	0,12712 mm	0,13931 MPa	0,10281 MPa
Maximum	1,063 mm	159,5 MPa	184,17 MPa
Average	0,55505 mm	103,92 MPa	94,81 MPa
Minimum Occurs On	Přidat vysunutím10	Rozdělit10[1]	
Maximum Occurs On	Rozdělit10[1]	Rozdělit11[1]	Kombinovat1
Minimum Value Over Time			
Minimum	7,3138e-003 mm	4,147e-003 MPa	4,7832e-003 MPa
Maximum	0,12712 mm	0,13931 MPa	0,15981 MPa
Maximum Value Over Time			
Minimum	2,5824e-002 mm	35,26 MPa	40,699 MPa
Maximum	1,063 mm	159,5 MPa	184,17 MPa
Information			
Time	1, s		0,83974 s
Load Step	1		
Substep	20		17
Iteration Number	30		24
Integration Point Results			
Display Option		Averaged	
Average Across Bodies		No	

FIGURE 10
Model (B4) > Static Structural (B5) > Solution (B6) > Total Deformation

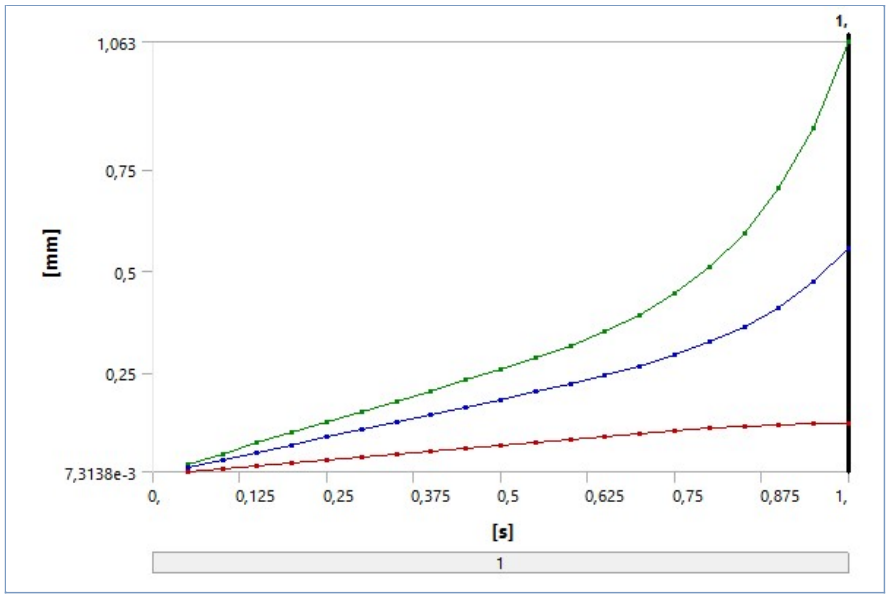


TABLE 25
Model (B4) > Static Structural (B5) > Solution (B6) > Total Deformation

Time [s]	Minimum [mm]	Maximum [mm]	Average [mm]
5,e-002	7,3138e-003	2,5824e-002	1,8416e-002
0,1	1,4628e-002	5,1648e-002	3,6831e-002
0,15	2,1941e-002	7,7471e-002	5,5247e-002
0,2	2,9255e-002	0,1033	7,3663e-002
0,25	3,6569e-002	0,12912	9,2079e-002
0,3	4,3883e-002	0,15494	0,11049
0,35	5,1197e-002	0,18077	0,12891
0,4	5,851e-002	0,2066	0,14733
0,45	6,5822e-002	0,23253	0,16577
0,5	7,3124e-002	0,25891	0,18431
0,55	8,0399e-002	0,28652	0,20317
0,6	8,7612e-002	0,31664	0,22275
0,65	9,4676e-002	0,35107	0,24376
0,7	0,1015	0,39281	0,26717
0,75	0,10799	0,4447	0,2939
0,8	0,11395	0,50983	0,32539
0,85	0,11919	0,5931	0,36361
0,9	0,12344	0,70272	0,41123
0,95	0,1263	0,85205	0,4726
1,	0,12712	1,063	0,55505

FIGURE 11
Model (B4) > Static Structural (B5) > Solution (B6) > Equivalent Stress

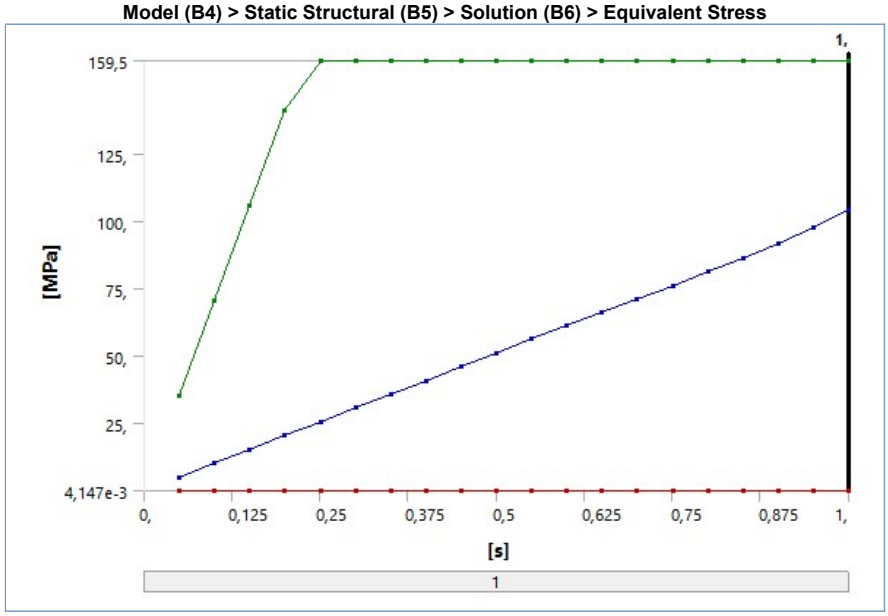


TABLE 26
Model (B4) > Static Structural (B5) > Solution (B6) > Equivalent Stress

Time [s]	Minimum [MPa]	Maximum [MPa]	Average [MPa]

5,e-002	4,147e-003	35,26	5,1173
0,1	8,2939e-003	70,52	10,235
0,15	1,2441e-002	105,78	15,352
0,2	1,6588e-002	141,04	20,469
0,25	2,0735e-002	159,5	25,587
0,3	2,4882e-002		30,703
0,35	2,9029e-002		35,818
0,4	3,3176e-002		40,93
0,45	3,7331e-002		46,038
0,5	4,1539e-002		51,14
0,55	4,5939e-002		56,237
0,6	5,0761e-002		61,309
0,65	5,6247e-002		66,302
0,7	6,2825e-002		71,23
0,75	7,0713e-002		76,16
0,8	8,0121e-002		81,146
0,85	9,1383e-002		86,29
0,9	0,10485		91,712
0,95	0,12086		97,544
1,	0,13931		103,92

FIGURE 12
Model (B4) > Static Structural (B5) > Solution (B6) > Stress Intensity

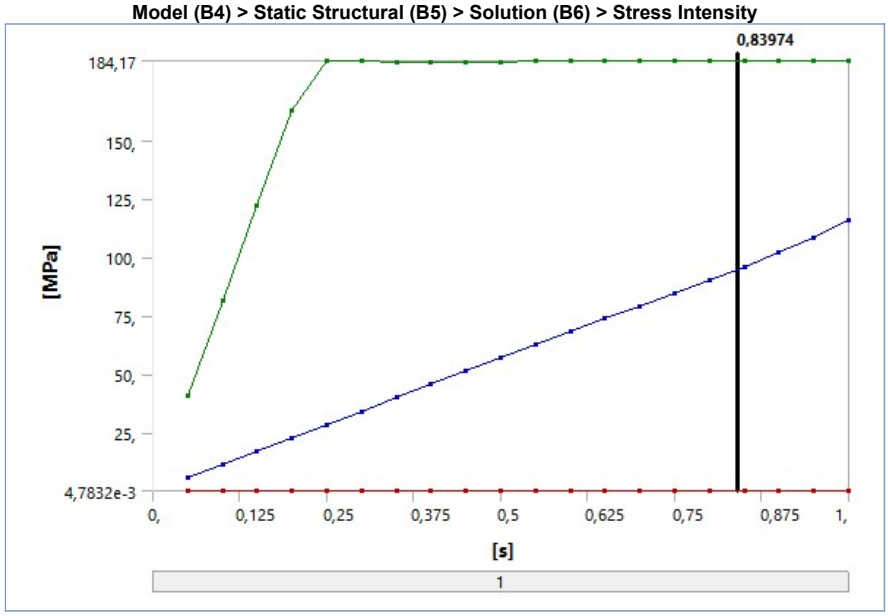


TABLE 27
Model (B4) > Static Structural (B5) > Solution (B6) > Stress Intensity

Time [s]	Minimum [MPa]	Maximum [MPa]	Average [MPa]
5,e-002	4,7832e-003	40,699	5,6866
0,1	9,5665e-003	81,397	11,373
0,15	1,435e-002	122,1	17,06
0,2	1,9133e-002	162,79	22,747
0,25	2,3916e-002	183,92	28,433
0,3	2,8699e-002	183,97	34,119
0,35	3,3483e-002	183,68	39,802
0,4	3,8266e-002	183,7	45,483
0,45	4,3059e-002	183,74	51,159
0,5	4,7912e-002	183,86	56,828
0,55	5,299e-002	183,95	62,49
0,6	5,856e-002	183,92	68,125
0,65	6,4904e-002	184,17	73,677
0,7	7,2519e-002		79,168
0,75	8,1646e-002		84,67
0,8	9,2513e-002		90,243
0,85	0,10547		95,996
0,9	0,12089		102,05
0,95	0,13906		108,55
1,	0,15981		115,64

TABLE 28
Model (B4) > Static Structural (B5) > Solution (B6) > User Defined Result

Object Name	*User Defined Result*	*User Defined Result 2*	*User Defined Result 3*	*User Defined Result 4*	*EPEL1-1*	*EPEL2-1*	*EPEL3-1*	*EPPL1-1*	*EPPL2-1*	*EPPL3-1*	*EPEL1-1 2*
State	Solved										
Scope											

Scoping Method	Geometry Selection	Path									
Geometry	All Bodies										
Path		Path	Path 2	Path 3	Path						Path 2
Definition											
Type	User Defined Result										
Expression	= max(abs(EPTO1);abs(EPTO2);abs(EPTO3))				= EPEL1	= EPEL2	= EPEL3	= EPPL1	= EPPL2	= EPPL3	= EPEL1
Input Unit System	Metric (mm, kg, N, s, mV, mA)										
Output Unit					Strain						
By	Time										
Display Time	Last										
Coordinate System	Global Coordinate System							Global Coordinate System			
Calculate Time History	Yes										
Identifier											
Suppressed	No										
Integration Point Results											
Display Option	Averaged										
Average Across Bodies	No										
Results											
Minimum	5,4391e-007	3,0427e-003	2,4613e-003	2,0315e-003	4,0084e-004 mm/mm	4,4034e-005 mm/mm	-6,6422e-004 mm/mm	2,2819e-003 mm/mm	-1,5891e-004 mm/mm	-4,7374e-003 mm/mm	6,5407e-004 mm/mm
Maximum	2,4343e-002	5,177e-003	2,7157e-003	2,2961e-003	6,1584e-004 mm/mm	5,0617e-004 mm/mm	-4,3955e-004 mm/mm	2,7525e-003 mm/mm	2,3066e-003 mm/mm	-2,3407e-003 mm/mm	6,9037e-004 mm/mm
Average	7,3916e-004	3,6926e-003	2,5806e-003	2,1621e-003	5,4979e-004 mm/mm	2,5946e-004 mm/mm	-4,8978e-004 mm/mm	2,4568e-003 mm/mm	6,9569e-004 mm/mm	-3,1525e-003 mm/mm	6,7608e-004 mm/mm
Minimum Occurs On	Rozdělit10[1]	Rozdělit10[2]									
Maximum Occurs On	Kombinovat1	Rozdělit10[2]									
Minimum Value Over Time											
Minimum	1,6872e-008	5,511e-005	4,972e-005	4,387e-005	5,511e-005 mm/mm	-9,4417e-005 mm/mm	-6,6422e-004 mm/mm	-7,4525e-009 mm/mm	-1,7222e-004 mm/mm	-4,7374e-003 mm/mm	4,972e-005 mm/mm
Maximum	5,4391e-007	3,0427e-003	2,4613e-003	2,0315e-003	6,0769e-004 mm/mm	4,4034e-005 mm/mm	-5,0326e-005 mm/mm	2,2819e-003 mm/mm	0, mm/mm		6,9798e-004 mm/mm
Maximum Value Over Time											
Minimum	1,7098e-004	6,2712e-005	5,6975e-005	5,0752e-005	6,2712e-005 mm/mm	3,361e-005 mm/mm	-4,4069e-004 mm/mm	0, mm/mm		-2,3407e-003 mm/mm	5,6975e-005 mm/mm
Maximum	2,4343e-002	5,177e-003	2,7157e-003	2,2961e-003	7,1819e-004 mm/mm	5,1276e-004 mm/mm	-2,8976e-005 mm/mm	2,7525e-003 mm/mm	2,3066e-003 mm/mm	1,0793e-008 mm/mm	7,2566e-004 mm/mm
Information											
Time	1, s										
Load Step	1										
Substep	20										
Iteration Number	30										
Graph Controls											
X-Axis		S									

FIGURE 13
Model (B4) > Static Structural (B5) > Solution (B6) > User Defined Result

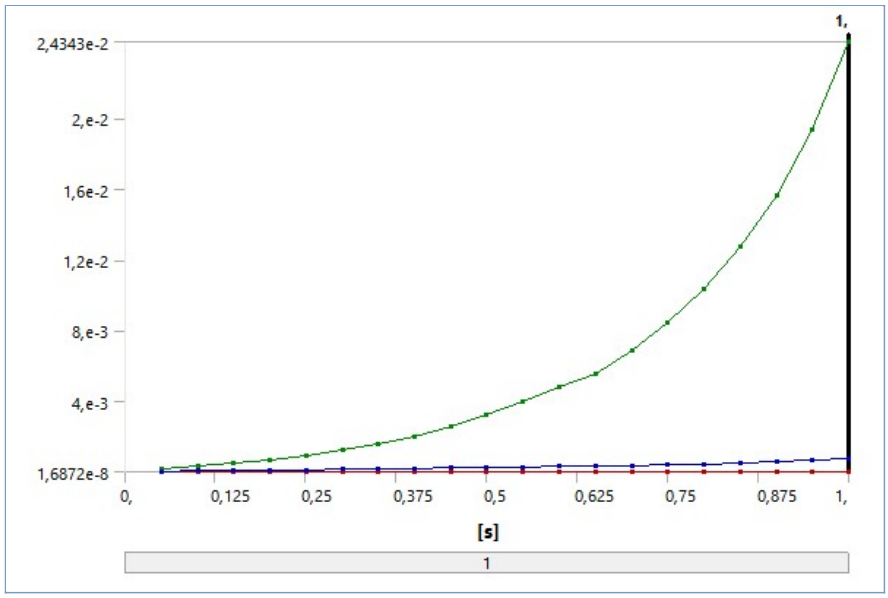


TABLE 29
Model (B4) > Static Structural (B5) > Solution (B6) > User Defined Result

Time [s]	Minimum	Maximum	Average
5,e-002	1,6872e-008	1,7098e-004	2,4078e-005
0,1	3,3744e-008	3,4197e-004	4,8157e-005
0,15	5,0617e-008	5,1295e-004	7,2235e-005
0,2	6,7489e-008	6,8393e-004	9,6313e-005
0,25	8,4361e-008	8,9061e-004	1,2039e-004
0,3	1,0123e-007	1,2052e-003	1,4447e-004
0,35	1,1811e-007	1,5695e-003	1,6856e-004
0,4	1,3498e-007	1,9985e-003	1,9267e-004
0,45	1,5189e-007	2,5681e-003	2,1682e-004
0,5	1,6898e-007	3,2514e-003	2,411e-004
0,55	1,8662e-007	3,9527e-003	2,6574e-004
0,6	2,0539e-007	4,7674e-003	2,9124e-004
0,65	2,2594e-007	5,5828e-003	3,1846e-004
0,7	2,493e-007	6,8386e-003	3,4871e-004
0,75	2,7587e-007	8,4426e-003	3,8342e-004
0,8	3,0597e-007	1,037e-002	4,246e-004
0,85	3,4012e-007	1,273e-002	4,7509e-004
0,9	3,878e-007	1,564e-002	5,3903e-004
0,95	4,5958e-007	1,9365e-002	6,2324e-004
1,	5,4391e-007	2,4343e-002	7,3916e-004

FIGURE 14
Model (B4) > Static Structural (B5) > Solution (B6) > User Defined Result 2

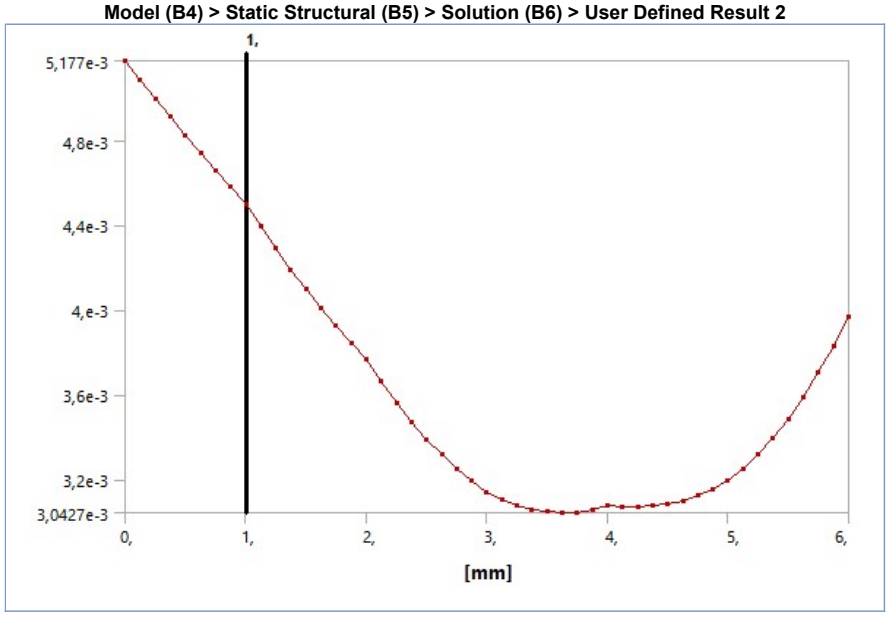


TABLE 30
Model (B4) > Static Structural (B5) > Solution (B6) > User Defined Result 2

Length [mm]	Value

0,	5,177e-003
0,125	5,0872e-003
0,25	4,9991e-003
0,375	4,9125e-003
0,5	4,8274e-003
0,625	4,744e-003
0,75	4,6622e-003
0,875	4,582e-003
1,	4,5034e-003
1,125	4,3948e-003
1,25	4,2912e-003
1,375	4,1923e-003
1,5	4,0982e-003
1,625	4,009e-003
1,75	3,9247e-003
1,875	3,8455e-003
2,	3,7713e-003
2,125	3,6633e-003
2,25	3,5637e-003
2,375	3,4726e-003
2,5	3,39e-003
2,625	3,3159e-003
2,75	3,2503e-003
2,875	3,1932e-003
3,	3,1374e-003
3,125	3,1031e-003
3,25	3,0767e-003
3,375	3,0579e-003
3,5	3,0466e-003
3,625	3,0427e-003
3,75	3,046e-003
3,875	3,0564e-003
4,	3,0738e-003
4,125	3,0732e-003
4,25	
4,375	3,077e-003
4,5	3,0857e-003
4,625	3,1007e-003
4,75	3,1231e-003
4,875	3,1543e-003
5,	3,1954e-003
5,125	3,2491e-003
5,25	3,3159e-003
5,375	3,3954e-003
5,5	3,4872e-003
5,625	3,5908e-003
5,75	3,7058e-003
5,875	3,8318e-003
6,	3,9684e-003

FIGURE 15
Model (B4) > Static Structural (B5) > Solution (B6) > User Defined Result 3

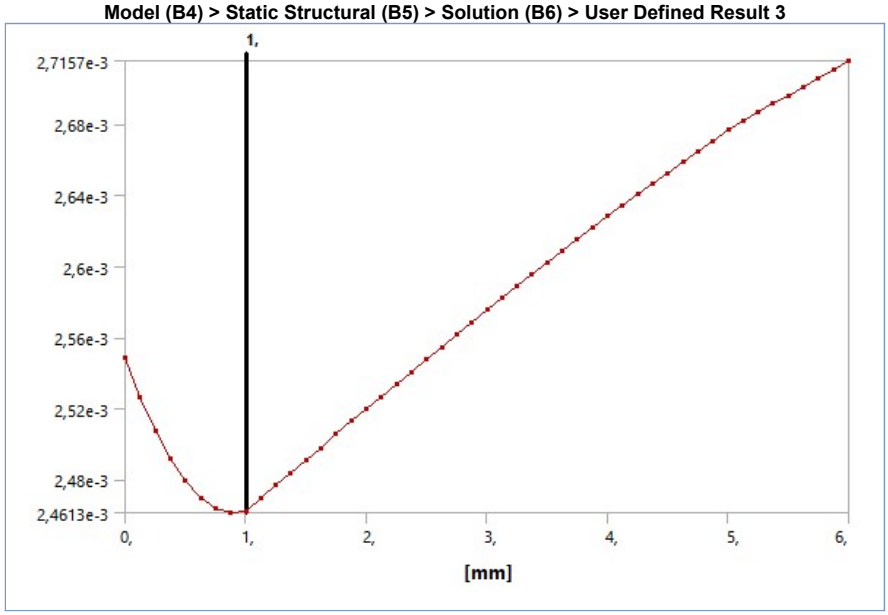


TABLE 31

Model (B4) > Static Structural (B5) > Solution (B6) > User Defined Result 3

Length [mm]	Value
0,	2,5485e-003
0,125	2,5265e-003
0,25	2,5075e-003
0,375	2,4917e-003
0,5	2,4791e-003
0,625	2,4698e-003
0,75	2,4638e-003
0,875	2,4613e-003
1,	2,4623e-003
1,125	2,4694e-003
1,25	2,4766e-003
1,375	2,4837e-003
1,5	2,4909e-003
1,625	2,4979e-003
1,75	2,5055e-003
1,875	2,5127e-003
2,	2,5197e-003
2,125	2,5266e-003
2,25	2,5336e-003
2,375	2,5405e-003
2,5	2,5474e-003
2,625	2,5544e-003
2,75	2,5614e-003
2,875	2,5684e-003
3,	2,5753e-003
3,125	2,582e-003
3,25	2,5886e-003
3,375	2,5952e-003
3,5	2,6018e-003
3,625	2,6084e-003
3,75	2,6151e-003
3,875	2,6217e-003
4,	2,6283e-003
4,125	2,6344e-003
4,25	2,6405e-003
4,375	2,6465e-003
4,5	2,6526e-003
4,625	2,6587e-003
4,75	2,6647e-003
4,875	2,6708e-003
5,	2,6769e-003
5,125	2,6817e-003
5,25	2,6866e-003
5,375	2,6914e-003
5,5	2,6963e-003
5,625	2,7012e-003
5,75	2,706e-003
5,875	2,7109e-003
6,	2,7157e-003

FIGURE 16
Model (B4) > Static Structural (B5) > Solution (B6) > User Defined Result 4

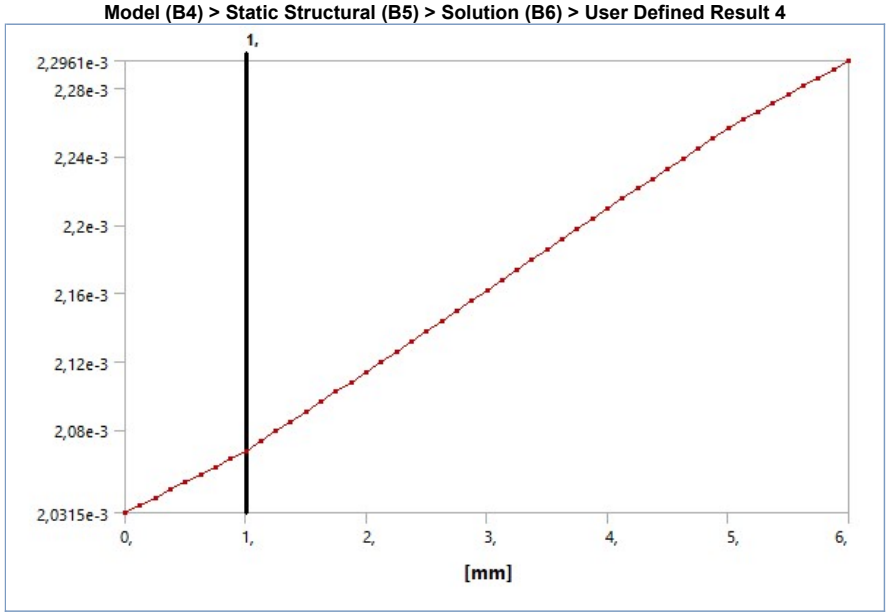


TABLE 32
Model (B4) > Static Structural (B5) > Solution (B6) > User Defined Result 4

Length [mm]	Value
0,	2,0315e-003
0,125	2,036e-003
0,25	2,0405e-003
0,375	2,045e-003
0,5	2,0495e-003
0,625	2,054e-003
0,75	2,0585e-003
0,875	2,063e-003
1,	2,0675e-003
1,125	2,0733e-003
1,25	2,0791e-003
1,375	2,0849e-003
1,5	2,0907e-003
1,625	2,0965e-003
1,75	2,1023e-003
1,875	2,1081e-003
2,	2,1139e-003
2,125	2,1199e-003
2,25	2,1258e-003
2,375	2,1317e-003
2,5	2,1377e-003
2,625	2,1436e-003
2,75	2,1496e-003
2,875	2,1556e-003
3,	2,1615e-003
3,125	2,1675e-003
3,25	2,1734e-003
3,375	2,1794e-003
3,5	2,1854e-003
3,625	2,1914e-003
3,75	2,1974e-003
3,875	2,2034e-003
4,	2,2094e-003
4,125	2,2153e-003
4,25	2,2212e-003
4,375	2,2271e-003
4,5	2,233e-003
4,625	2,2389e-003
4,75	2,2448e-003
4,875	2,2507e-003
5,	2,2566e-003
5,125	2,2615e-003
5,25	2,2665e-003
5,375	2,2714e-003
5,5	2,2764e-003
5,625	2,2813e-003
5,75	2,2862e-003
5,875	2,2911e-003
6,	2,2961e-003

FIGURE 17
Model (B4) > Static Structural (B5) > Solution (B6) > EPEL1-1

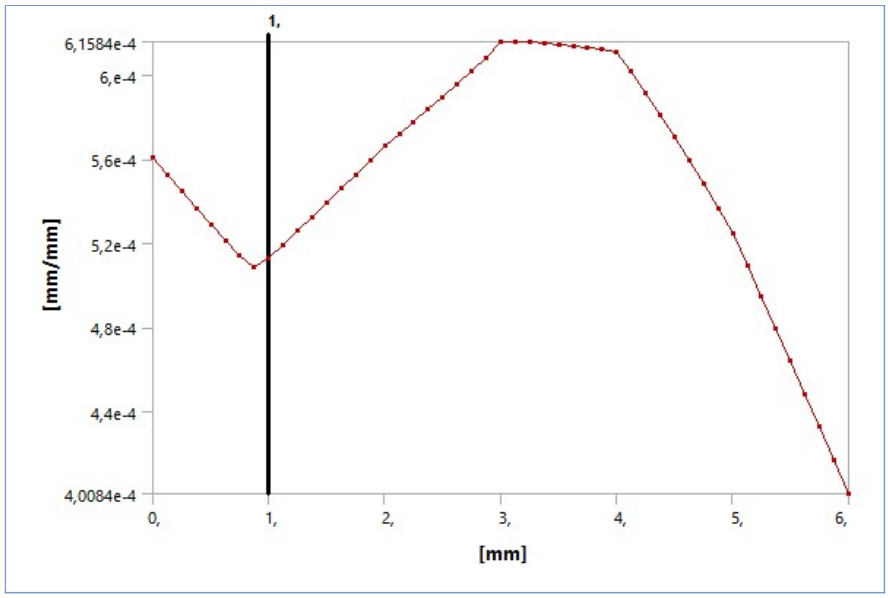


TABLE 33
Model (B4) > Static Structural (B5) > Solution (B6) > EPEL1-1

Length [mm]	Value [mm/mm]
0,	5,6119e-004
0,125	5,5273e-004
0,25	5,4453e-004
0,375	5,3657e-004
0,5	5,2888e-004
0,625	5,2146e-004
0,75	5,1433e-004
0,875	5,0834e-004
1,	5,1288e-004
1,125	5,1936e-004
1,25	5,2593e-004
1,375	5,3258e-004
1,5	5,3928e-004
1,625	5,4604e-004
1,75	5,5286e-004
1,875	5,5974e-004
2,	5,6667e-004
2,125	5,7221e-004
2,25	5,7789e-004
2,375	5,837e-004
2,5	5,8965e-004
2,625	5,9573e-004
2,75	6,0194e-004
2,875	6,0829e-004
3,	6,1584e-004
3,125	6,158e-004
3,25	6,1561e-004
3,375	6,1525e-004
3,5	6,1472e-004
3,625	6,1403e-004
3,75	6,1318e-004
3,875	6,1216e-004
4,	6,1098e-004
4,125	6,0183e-004
4,25	5,9169e-004
4,375	5,8125e-004
4,5	5,7049e-004
4,625	5,5942e-004
4,75	5,4805e-004
4,875	5,3636e-004
5,	5,2445e-004
5,125	5,0952e-004
5,25	4,9445e-004
5,375	4,7922e-004
5,5	4,6385e-004
5,625	4,4832e-004
5,75	4,3264e-004
5,875	4,1682e-004
6,	4,0084e-004

FIGURE 18
Model (B4) > Static Structural (B5) > Solution (B6) > EPEL2-1

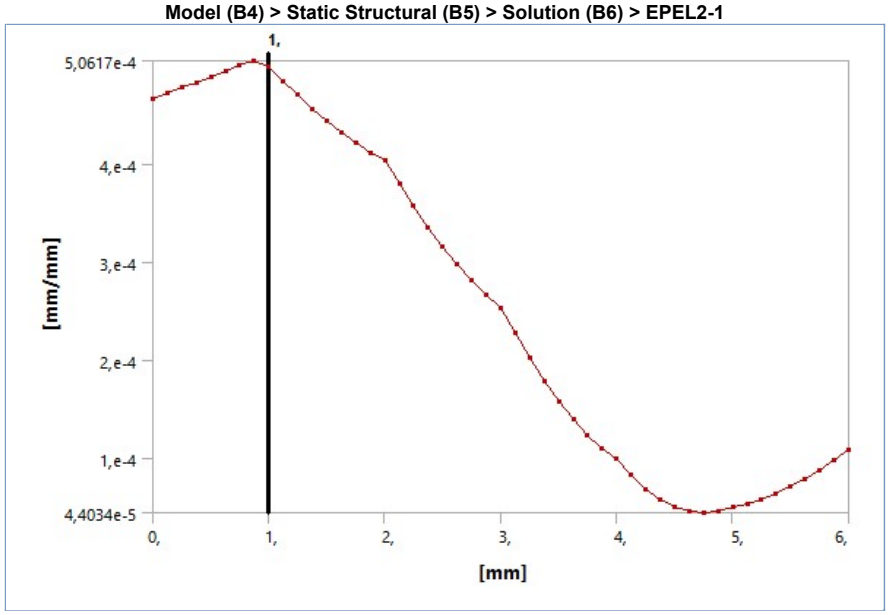


TABLE 34
Model (B4) > Static Structural (B5) > Solution (B6) > EPEL2-1

Length [mm]	Value [mm/mm]
0,	4,6683e-004
0,125	4,727e-004
0,25	4,7853e-004
0,375	4,8432e-004
0,5	4,9008e-004
0,625	4,9579e-004
0,75	5,0143e-004
0,875	5,0617e-004
1,	5,0062e-004
1,125	4,8542e-004
1,25	4,7107e-004
1,375	4,5753e-004
1,5	4,4487e-004
1,625	4,3314e-004
1,75	4,2237e-004
1,875	4,1261e-004
2,	4,0387e-004
2,125	3,802e-004
2,25	3,5763e-004
2,375	3,363e-004
2,5	3,164e-004
2,625	2,9807e-004
2,75	2,8149e-004
2,875	2,668e-004
3,	2,5397e-004
3,125	2,2736e-004
3,25	2,023e-004
3,375	1,7905e-004
3,5	1,5788e-004
3,625	1,3907e-004
3,75	1,2284e-004
3,875	1,0938e-004
4,	9,8803e-005
4,125	8,2513e-005
4,25	6,8428e-005
4,375	5,7491e-005
4,5	4,9803e-005
4,625	4,5357e-005
4,75	4,4034e-005
4,875	4,5625e-005
5,	4,9961e-005
5,125	5,3076e-005
5,25	5,7582e-005
5,375	6,3376e-005
5,5	7,0349e-005
5,625	7,8393e-005
5,75	8,7403e-005
5,875	9,7278e-005

6,	1,0792e-004

FIGURE 19
Model (B4) > Static Structural (B5) > Solution (B6) > EPEL3-1

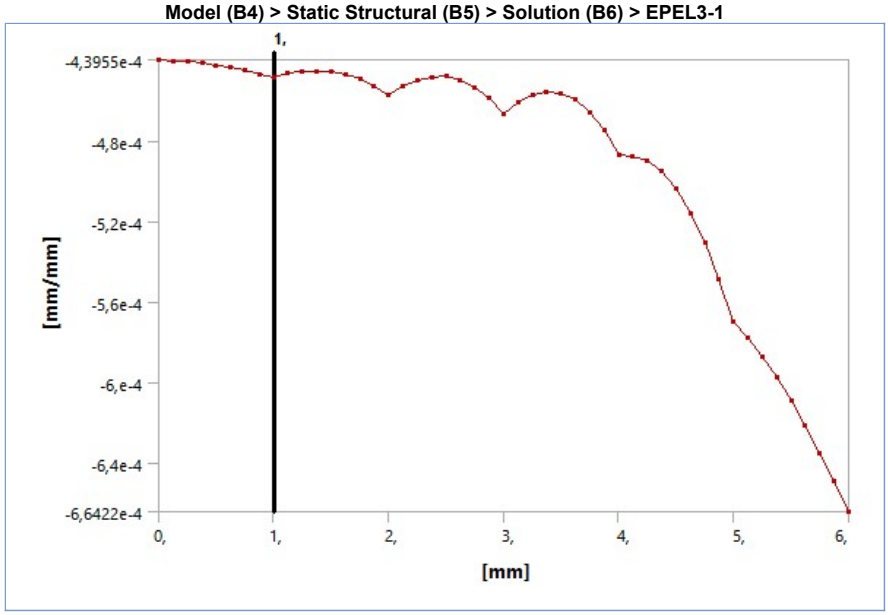


TABLE 35
Model (B4) > Static Structural (B5) > Solution (B6) > EPEL3-1

Length [mm]	Value [mm/mm]
0,	-4,3955e-004
0,125	-4,3992e-004
0,25	-4,4049e-004
0,375	-4,4126e-004
0,5	-4,4224e-004
0,625	-4,4343e-004
0,75	-4,4484e-004
0,875	-4,4647e-004
1,	-4,4832e-004
1,125	-4,4642e-004
1,25	-4,4531e-004
1,375	-4,45e-004
1,5	-4,4554e-004
1,625	-4,4698e-004
1,75	-4,4935e-004
1,875	-4,5271e-004
2,	-4,5706e-004
2,125	-4,527e-004
2,25	-4,496e-004
2,375	-4,4792e-004
2,5	-4,4783e-004
2,625	-4,4949e-004
2,75	-4,5307e-004
2,875	-4,587e-004
3,	-4,6631e-004
3,125	-4,6082e-004
3,25	-4,5711e-004
3,375	-4,5546e-004
3,5	-4,5614e-004
3,625	-4,5941e-004
3,75	-4,6551e-004
3,875	-4,7463e-004
4,	-4,8687e-004
4,125	-4,8746e-004
4,25	-4,8974e-004
4,375	-4,9516e-004
4,5	-5,0383e-004
4,625	-5,1575e-004
4,75	-5,3078e-004
4,875	-5,4874e-004
5,	-5,698e-004
5,125	-5,7777e-004
5,25	-5,8704e-004
5,375	-5,9752e-004
5,5	-6,0909e-004
5,625	-6,2165e-004

5,75	-6,3509e-004
5,875	-6,4931e-004
6,	-6,6422e-004

FIGURE 20
Model (B4) > Static Structural (B5) > Solution (B6) > EPPL1-1

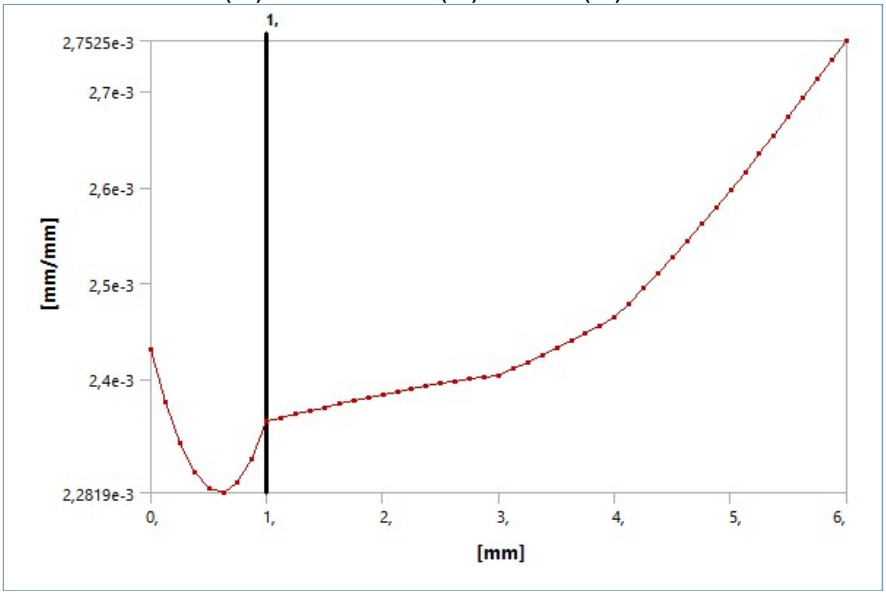


TABLE 36
Model (B4) > Static Structural (B5) > Solution (B6) > EPPL1-1

Length [mm]	Value [mm/mm]
0,	2,4308e-003
0,125	2,3761e-003
0,25	2,3333e-003
0,375	2,303e-003
0,5	2,2857e-003
0,625	2,2819e-003
0,75	2,2921e-003
0,875	2,3169e-003
1,	2,3567e-003
1,125	2,3598e-003
1,25	2,3634e-003
1,375	2,367e-003
1,5	2,3705e-003
1,625	2,374e-003
1,75	2,3775e-003
1,875	2,381e-003
2,	2,3844e-003
2,125	2,3874e-003
2,25	2,3903e-003
2,375	2,393e-003
2,5	2,3957e-003
2,625	2,3982e-003
2,75	2,4006e-003
2,875	2,4029e-003
3,	2,404e-003
3,125	2,411e-003
3,25	2,4181e-003
3,375	2,4253e-003
3,5	2,4327e-003
3,625	2,4403e-003
3,75	2,448e-003
3,875	2,4559e-003
4,	2,4639e-003
4,125	2,479e-003
4,25	2,4949e-003
4,375	2,5111e-003
4,5	2,5276e-003
4,625	2,5444e-003
4,75	2,5615e-003
4,875	2,5789e-003
5,	2,5965e-003
5,125	2,6155e-003
5,25	2,6347e-003
5,375	2,654e-003

5,5	2,6734e-003
5,625	2,693e-003
5,75	2,7127e-003
5,875	2,7325e-003
6,	2,7525e-003

FIGURE 21
Model (B4) > Static Structural (B5) > Solution (B6) > EPPL2-1

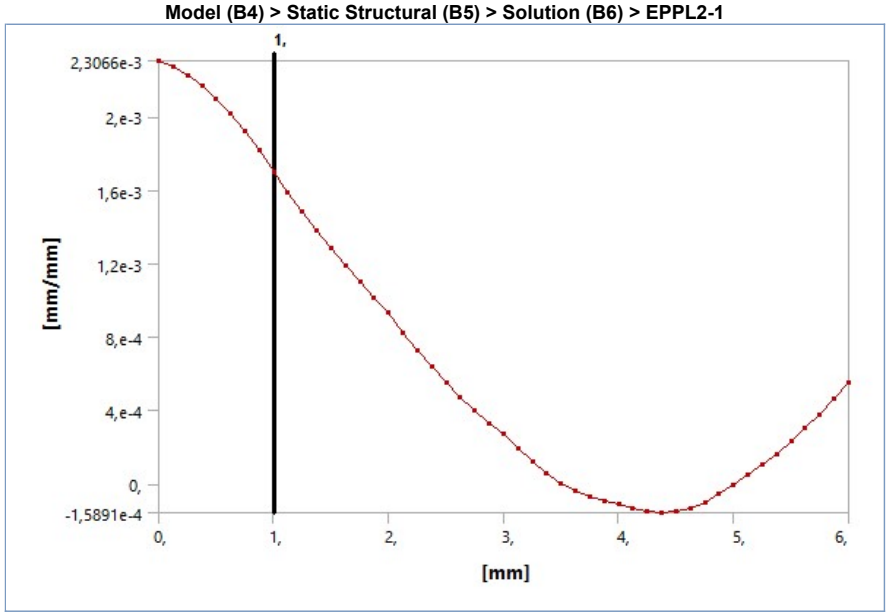


TABLE 37
Model (B4) > Static Structural (B5) > Solution (B6) > EPPL2-1

Length [mm]	Value [mm/mm]
0,	2,3066e-003
0,125	2,2712e-003
0,25	2,2253e-003
0,375	2,1682e-003
0,5	2,0995e-003
0,625	2,0187e-003
0,75	1,9253e-003
0,875	1,8188e-003
1,	1,6986e-003
1,125	1,5889e-003
1,25	1,4828e-003
1,375	1,3805e-003
1,5	1,2823e-003
1,625	1,188e-003
1,75	1,0979e-003
1,875	1,012e-003
2,	9,3027e-004
2,125	8,2598e-004
2,25	7,2766e-004
2,375	6,3548e-004
2,5	5,4958e-004
2,625	4,7012e-004
2,75	3,9725e-004
2,875	3,3114e-004
3,	2,6911e-004
3,125	1,8956e-004
3,25	1,1879e-004
3,375	5,6995e-005
3,5	4,3561e-006
3,625	-3,893e-005
3,75	-7,2671e-005
3,875	-9,6674e-005
4,	-1,1075e-004
4,125	-1,3746e-004
4,25	-1,5419e-004
4,375	-1,5891e-004
4,5	-1,5167e-004
4,625	-1,3251e-004
4,75	-1,0147e-004
4,875	-5,8575e-005
5,	-3,4311e-006
5,125	4,6043e-005

5,25	1,0137e-004
5,375	1,6248e-004
5,5	2,2927e-004
5,625	3,0167e-004
5,75	3,7959e-004
5,875	4,6294e-004
6,	5,5165e-004

FIGURE 22
Model (B4) > Static Structural (B5) > Solution (B6) > EPPL3-1

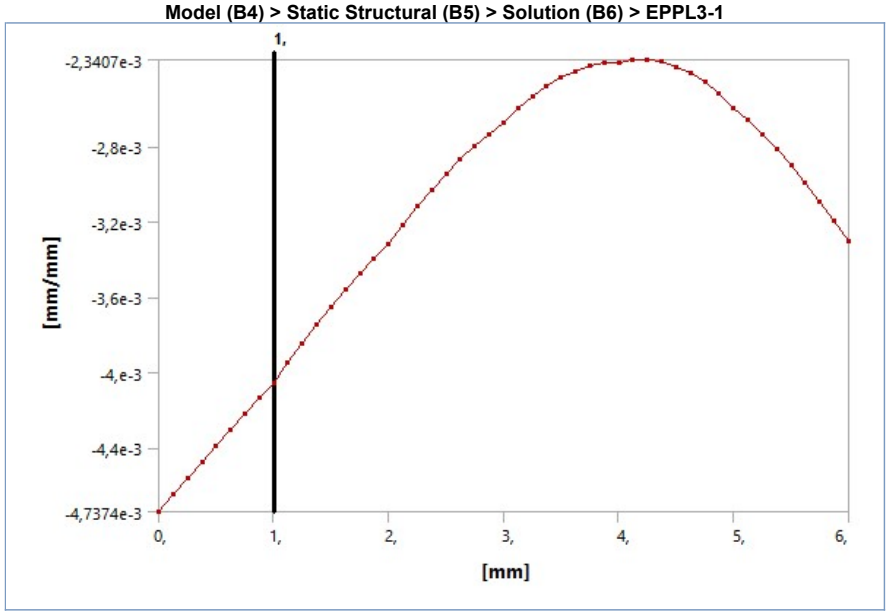


TABLE 38
Model (B4) > Static Structural (B5) > Solution (B6) > EPPL3-1

Length [mm]	Value [mm/mm]
0,	-4,7374e-003
0,125	-4,6473e-003
0,25	-4,5586e-003
0,375	-4,4712e-003
0,5	-4,3852e-003
0,625	-4,3006e-003
0,75	-4,2174e-003
0,875	-4,1356e-003
1,	-4,0553e-003
1,125	-3,9487e-003
1,25	-3,8462e-003
1,375	-3,7475e-003
1,5	-3,6528e-003
1,625	-3,562e-003
1,75	-3,4754e-003
1,875	-3,393e-003
2,	-3,3147e-003
2,125	-3,2134e-003
2,25	-3,1179e-003
2,375	-3,0285e-003
2,5	-2,9452e-003
2,625	-2,8683e-003
2,75	-2,7978e-003
2,875	-2,734e-003
3,	-2,6731e-003
3,125	-2,6005e-003
3,25	-2,5369e-003
3,375	-2,4823e-003
3,5	-2,4371e-003
3,625	-2,4014e-003
3,75	-2,3753e-003
3,875	-2,3592e-003
4,	-2,3532e-003
4,125	-2,3415e-003
4,25	-2,3407e-003
4,375	-2,3522e-003
4,5	-2,3759e-003
4,625	-2,4119e-003
4,75	-2,46e-003
4,875	-2,5203e-003

5,	-2,5931e-003
5,125	-2,6616e-003
5,25	-2,736e-003
5,375	-2,8164e-003
5,5	-2,9027e-003
5,625	-2,9946e-003
5,75	-3,0923e-003
5,875	-3,1955e-003
6,	-3,3041e-003

FIGURE 23
Model (B4) > Static Structural (B5) > Solution (B6) > EPEL1-1 2

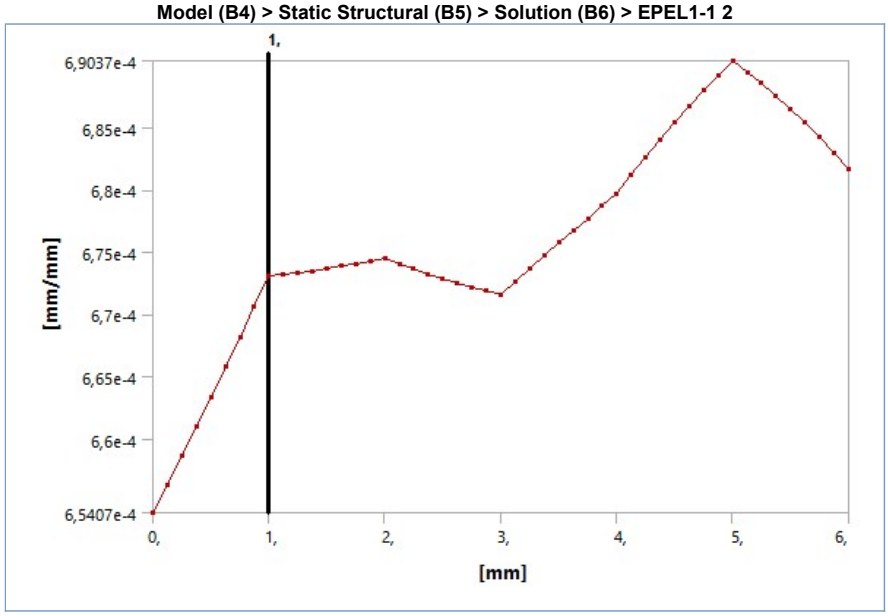


TABLE 39
Model (B4) > Static Structural (B5) > Solution (B6) > EPEL1-1 2

Length [mm]	Value [mm/mm]
0,	6,5407e-004
0,125	6,5635e-004
0,25	6,5866e-004
0,375	6,61e-004
0,5	6,6337e-004
0,625	6,6577e-004
0,75	6,682e-004
0,875	6,7066e-004
1,	6,7315e-004
1,125	6,7321e-004
1,25	6,7332e-004
1,375	6,7346e-004
1,5	6,7364e-004
1,625	6,7388e-004
1,75	6,7405e-004
1,875	6,7427e-004
2,	6,7453e-004
2,125	6,7408e-004
2,25	6,7367e-004
2,375	6,7327e-004
2,5	6,729e-004
2,625	6,7254e-004
2,75	6,7221e-004
2,875	6,719e-004
3,	6,7161e-004
3,125	6,7267e-004
3,25	6,7371e-004
3,375	6,7474e-004
3,5	6,7575e-004
3,625	6,7674e-004
3,75	6,7772e-004
3,875	6,7869e-004
4,	6,7964e-004
4,125	6,8118e-004
4,25	6,8266e-004
4,375	6,8408e-004
4,5	6,8545e-004
4,625	6,8677e-004

4,75	6,8802e-004
4,875	6,8922e-004
5,	6,9037e-004
5,125	6,8949e-004
5,25	6,8857e-004
5,375	6,876e-004
5,5	6,8655e-004
5,625	6,8544e-004
5,75	6,8427e-004
5,875	6,8302e-004
6,	6,8171e-004

TABLE 40
Model (B4) > Static Structural (B5) > Solution (B6) > EPEL2-1 2

Object Name	*EPEL2-1 2*	*EPEL3-1 2*	*EPPL1-1 2*	*EPPL2-1 2*	*EPPL3-1 2*	*EPEL1-1 3*	*EPEL2-1 3*	*EPEL3-1 3*	*EPPL1-1 3*	*EPPL2-1 3*	*EPPL3-1 3*
State	Solved										
Scope											
Scoping Method	Path										
Path	Path 2					Path 3					
Geometry	All Bodies										
Definition											
Type	User Defined Result										
Expression	= EPEL2	= EPEL3	= EPPL1	= EPPL2	= EPPL3	= EPEL1	= EPEL2	= EPEL3	= EPPL1	= EPPL2	= EPPL3
Input Unit System	Metric (mm, kg, N, s, mV, mA)										
Output Unit	Strain										
By	Time										
Display Time	Last										
Calculate Time History	Yes										
Suppressed	No										
Coordinate System			Global Coordinate System						Global Coordinate System		
Integration Point Results											
Display Option	Averaged										
Average Across Bodies	No										
Results											
Minimum	-1,3758e-004 mm/mm	-4,344e-004 mm/mm	1,7614e-003 mm/mm	-6,6938e-004 mm/mm	-2,1405e-003 mm/mm	7,0051e-004 mm/mm	-5,5332e-005 mm/mm	-4,048e-004 mm/mm	1,2845e-003 mm/mm	-5,0598e-004 mm/mm	-1,3073e-003 mm/mm
Maximum	3,2959e-004 mm/mm	-3,5656e-004 mm/mm	2,034e-003 mm/mm	3,7915e-004 mm/mm	-1,3541e-003 mm/mm	7,5116e-004 mm/mm	9,878e-005 mm/mm	-3,0589e-004 mm/mm	1,5449e-003 mm/mm	-1,487e-004 mm/mm	-1,0389e-003 mm/mm
Average	1,0719e-004 mm/mm	-4,0903e-004 mm/mm	1,8951e-003 mm/mm	-1,4368e-004 mm/mm	-1,7514e-003 mm/mm	7,2379e-004 mm/mm	5,0206e-005 mm/mm	-3,6827e-004 mm/mm	1,4384e-003 mm/mm	-2,577e-004 mm/mm	-1,1807e-003 mm/mm
Minimum Occurs On	Rozdělit10[2]										
Maximum Occurs On	Rozdělit10[2]										
Graph Controls											
X-Axis	S										
Minimum Value Over Time											
Minimum	-1,5823e-004 mm/mm	-4,344e-004 mm/mm	0, mm/mm	-6,6938e-004 mm/mm	-2,1405e-003 mm/mm	4,387e-005 mm/mm	-1,5495e-004 mm/mm	-4,048e-004 mm/mm	0, mm/mm	-5,0598e-004 mm/mm	-1,3073e-003 mm/mm
Maximum	-1,1573e-005 mm/mm	-3,1281e-005 mm/mm	1,7614e-003 mm/mm	0, mm/mm		7,2772e-004 mm/mm	-1,4026e-005 mm/mm	-2,315e-005 mm/mm	1,2845e-003 mm/mm	0, mm/mm	
Maximum Value Over Time											
Minimum	1,9137e-005 mm/mm	-3,5656e-004 mm/mm	0, mm/mm		-1,3541e-003 mm/mm	5,0752e-005 mm/mm	8,7861e-006 mm/mm	-3,0589e-004 mm/mm	0, mm/mm	-1,487e-004 mm/mm	-1,0389e-003 mm/mm
Maximum	3,2959e-004 mm/mm	-2,5991e-005 mm/mm	2,034e-003 mm/mm	3,7915e-004 mm/mm	0, mm/mm	7,5305e-004 mm/mm	9,878e-005 mm/mm	-1,6569e-005 mm/mm	1,5449e-003 mm/mm	0, mm/mm	
Information											
Time	1, s										
Load Step	1										
Substep	20										
Iteration Number	30										

FIGURE 24
Model (B4) > Static Structural (B5) > Solution (B6) > EPEL2-1 2

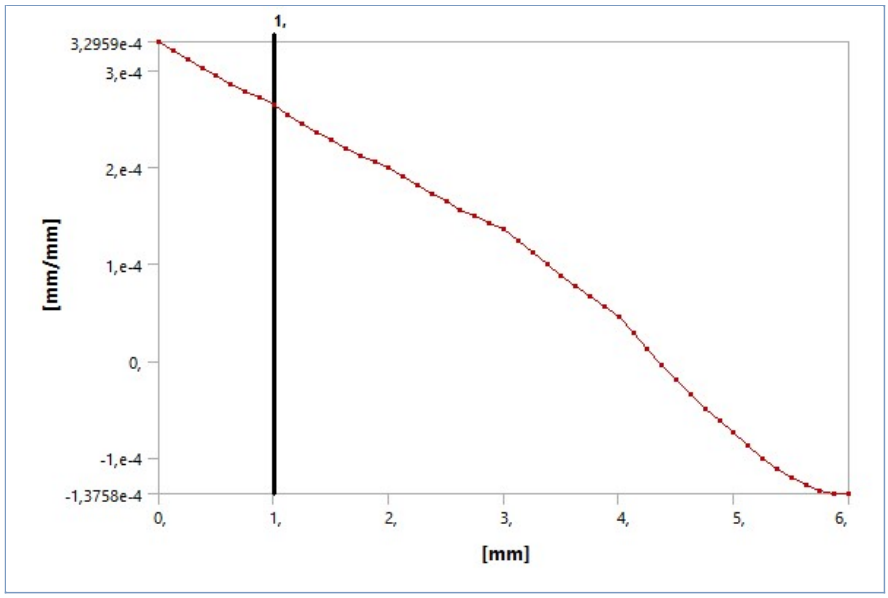


TABLE 41
Model (B4) > Static Structural (B5) > Solution (B6) > EPEL2-1 2

Length [mm]	Value [mm/mm]
0,	3,2959e-004
0,125	3,2031e-004
0,25	3,1133e-004
0,375	3,0266e-004
0,5	2,9433e-004
0,625	2,8634e-004
0,75	2,7871e-004
0,875	2,7146e-004
1,	2,6458e-004
1,125	2,5464e-004
1,25	2,4515e-004
1,375	2,3614e-004
1,5	2,2763e-004
1,625	2,1962e-004
1,75	2,1225e-004
1,875	2,0546e-004
2,	1,9926e-004
2,125	1,8995e-004
2,25	1,81e-004
2,375	1,724e-004
2,5	1,6416e-004
2,625	1,5633e-004
2,75	1,4892e-004
2,875	1,4198e-004
3,	1,3548e-004
3,125	1,2326e-004
3,25	1,1123e-004
3,375	9,9457e-005
3,5	8,7968e-005
3,625	7,6817e-005
3,75	6,6059e-005
3,875	5,5749e-005
4,	4,5838e-005
4,125	2,8833e-005
4,25	1,2149e-005
4,375	-4,1199e-006
4,5	-1,9857e-005
4,625	-3,4924e-005
4,75	-4,9153e-005
4,875	-6,2354e-005
5,	-7,4312e-005
5,125	-8,8023e-005
5,25	-1,0061e-004
5,375	-1,1185e-004
5,5	-1,2141e-004
5,625	-1,2899e-004
5,75	-1,3429e-004
5,875	-1,3716e-004
6,	-1,3758e-004

FIGURE 25
Model (B4) > Static Structural (B5) > Solution (B6) > EPEL3-1 2

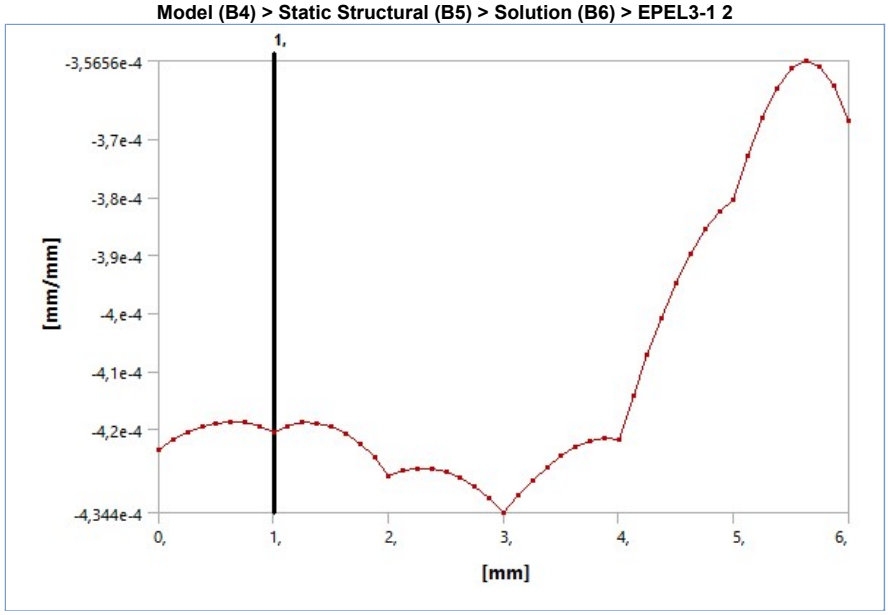


TABLE 42
Model (B4) > Static Structural (B5) > Solution (B6) > EPEL3-1 2

Length [mm]	Value [mm/mm]
0,	-4,235e-004
0,125	-4,2184e-004
0,25	-4,2052e-004
0,375	-4,1955e-004
0,5	-4,1894e-004
0,625	-4,1872e-004
0,75	-4,1888e-004
0,875	-4,1945e-004
1,	-4,2044e-004
1,125	-4,1941e-004
1,25	-4,189e-004
1,375	-4,1893e-004
1,5	-4,1952e-004
1,625	-4,207e-004
1,75	-4,2248e-004
1,875	-4,2491e-004
2,	-4,2799e-004
2,125	-4,2715e-004
2,25	-4,2677e-004
2,375	-4,2681e-004
2,5	-4,2731e-004
2,625	-4,283e-004
2,75	-4,2979e-004
2,875	-4,3183e-004
3,	-4,344e-004
3,125	-4,3144e-004
3,25	-4,2879e-004
3,375	-4,2648e-004
3,5	-4,2456e-004
3,625	-4,2308e-004
3,75	-4,221e-004
3,875	-4,2166e-004
4,	-4,2171e-004
4,125	-4,1431e-004
4,25	-4,0731e-004
4,375	-4,008e-004
4,5	-3,949e-004
4,625	-3,8975e-004
4,75	-3,8551e-004
4,875	-3,8238e-004
5,	-3,8057e-004
5,125	-3,7287e-004
5,25	-3,664e-004
5,375	-3,6131e-004
5,5	-3,5792e-004
5,625	-3,5656e-004
5,75	-3,575e-004
5,875	-3,6091e-004

6,	-3,668e-004

FIGURE 26
Model (B4) > Static Structural (B5) > Solution (B6) > EPPL1-1 2

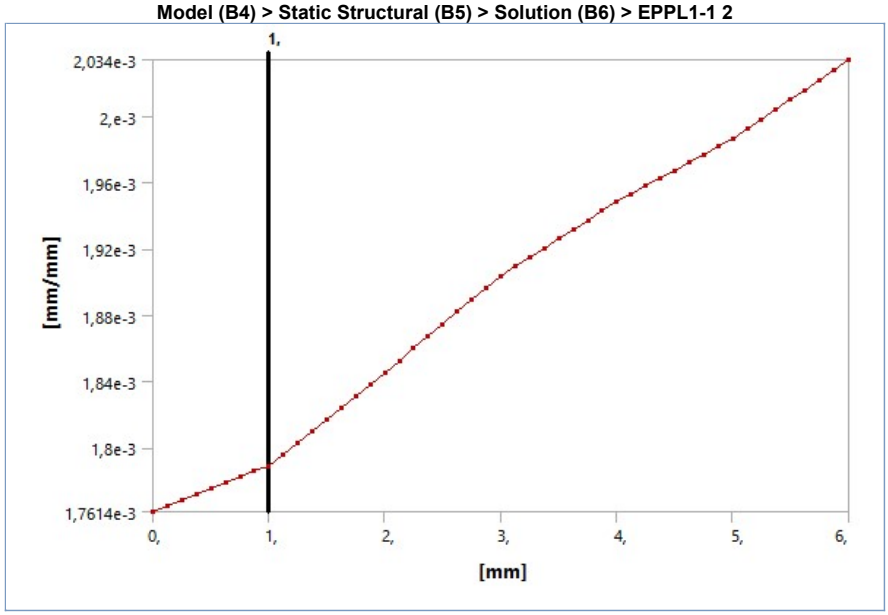


TABLE 43
Model (B4) > Static Structural (B5) > Solution (B6) > EPPL1-1 2

Length [mm]	Value [mm/mm]
0,	1,7614e-003
0,125	1,7649e-003
0,25	1,7684e-003
0,375	1,7719e-003
0,5	1,7754e-003
0,625	1,7789e-003
0,75	1,7823e-003
0,875	1,7857e-003
1,	1,7891e-003
1,125	1,7962e-003
1,25	1,8032e-003
1,375	1,8103e-003
1,5	1,8172e-003
1,625	1,8242e-003
1,75	1,8312e-003
1,875	1,8382e-003
2,	1,8452e-003
2,125	1,8526e-003
2,25	1,8599e-003
2,375	1,8672e-003
2,5	1,8745e-003
2,625	1,8819e-003
2,75	1,8892e-003
2,875	1,8965e-003
3,	1,9037e-003
3,125	1,9093e-003
3,25	1,9149e-003
3,375	1,9204e-003
3,5	1,9261e-003
3,625	1,9317e-003
3,75	1,9373e-003
3,875	1,943e-003
4,	1,9487e-003
4,125	1,9532e-003
4,25	1,9578e-003
4,375	1,9624e-003
4,5	1,9671e-003
4,625	1,9719e-003
4,75	1,9767e-003
4,875	1,9816e-003
5,	1,9865e-003
5,125	1,9922e-003
5,25	1,998e-003
5,375	2,0038e-003
5,5	2,0097e-003
5,625	2,0157e-003

5,75	2,0217e-003
5,875	2,0278e-003
6,	2,034e-003

FIGURE 27
Model (B4) > Static Structural (B5) > Solution (B6) > EPPL2-1 2

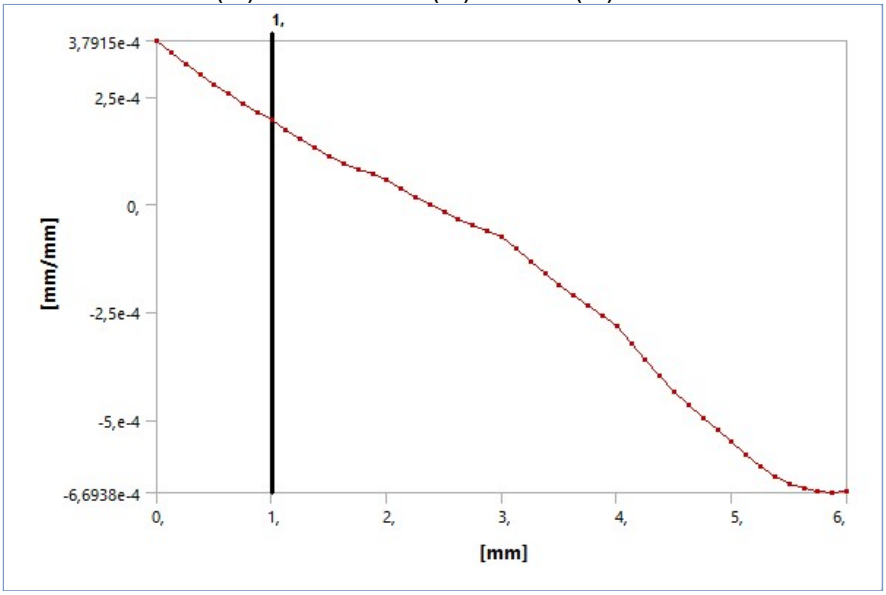


TABLE 44
Model (B4) > Static Structural (B5) > Solution (B6) > EPPL2-1 2

Length [mm]	Value [mm/mm]
0,	3,7915e-004
0,125	3,5215e-004
0,25	3,2629e-004
0,375	3,0157e-004
0,5	2,78e-004
0,625	2,5556e-004
0,75	2,3426e-004
0,875	2,1411e-004
1,	1,951e-004
1,125	1,7187e-004
1,25	1,5032e-004
1,375	1,3042e-004
1,5	1,122e-004
1,625	9,5427e-005
1,75	8,126e-005
1,875	6,8703e-005
2,	5,7772e-005
2,125	3,7026e-005
2,25	1,7532e-005
2,375	-8,3678e-007
2,5	-1,8037e-005
2,625	-3,4026e-005
2,75	-4,8761e-005
2,875	-6,22e-005
3,	-7,4401e-005
3,125	-1,0385e-004
3,25	-1,324e-004
3,375	-1,5997e-004
3,5	-1,865e-004
3,625	-2,119e-004
3,75	-2,3612e-004
3,875	-2,5907e-004
4,	-2,8098e-004
4,125	-3,2212e-004
4,25	-3,6138e-004
4,375	-3,9862e-004
4,5	-4,3372e-004
4,625	-4,6655e-004
4,75	-4,9699e-004
4,875	-5,2491e-004
5,	-5,5017e-004
5,125	-5,823e-004
5,25	-6,0937e-004
5,375	-6,3152e-004

5,5	-6,4866e-004
5,625	-6,6073e-004
5,75	-6,6766e-004
5,875	-6,6938e-004
6,	-6,6583e-004

FIGURE 28
Model (B4) > Static Structural (B5) > Solution (B6) > EPPL3-1 2

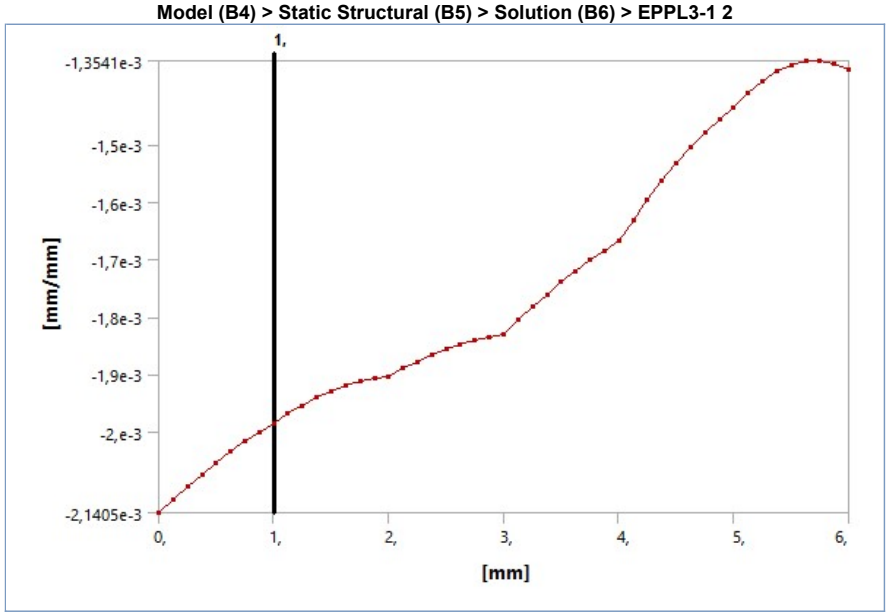


TABLE 45
Model (B4) > Static Structural (B5) > Solution (B6) > EPPL3-1 2

Length [mm]	Value [mm/mm]
0,	-2,1405e-003
0,125	-2,1171e-003
0,25	-2,0947e-003
0,375	-2,0735e-003
0,5	-2,0534e-003
0,625	-2,0344e-003
0,75	-2,0166e-003
0,875	-1,9998e-003
1,	-1,9842e-003
1,125	-1,9681e-003
1,25	-1,9536e-003
1,375	-1,9407e-003
1,5	-1,9294e-003
1,625	-1,9196e-003
1,75	-1,9125e-003
1,875	-1,9069e-003
2,	-1,903e-003
2,125	-1,8896e-003
2,25	-1,8774e-003
2,375	-1,8664e-003
2,5	-1,8565e-003
2,625	-1,8478e-003
2,75	-1,8404e-003
2,875	-1,8343e-003
3,	-1,8293e-003
3,125	-1,8054e-003
3,25	-1,7825e-003
3,375	-1,7605e-003
3,5	-1,7396e-003
3,625	-1,7198e-003
3,75	-1,7012e-003
3,875	-1,6839e-003
4,	-1,6677e-003
4,125	-1,6311e-003
4,25	-1,5964e-003
4,375	-1,5638e-003
4,5	-1,5334e-003
4,625	-1,5053e-003
4,75	-1,4797e-003
4,875	-1,4567e-003
5,	-1,4363e-003
5,125	-1,4099e-003

5,25	-1,3886e-003
5,375	-1,3723e-003
5,5	-1,3611e-003
5,625	-1,355e-003
5,75	-1,3541e-003
5,875	-1,3584e-003
6,	-1,3682e-003

FIGURE 29
Model (B4) > Static Structural (B5) > Solution (B6) > EPEL1-1 3

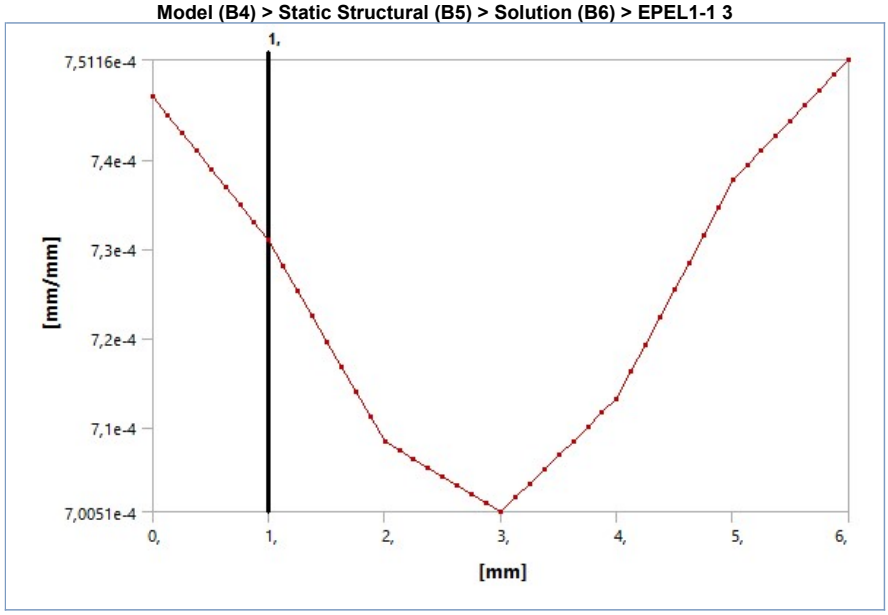


TABLE 46
Model (B4) > Static Structural (B5) > Solution (B6) > EPEL1-1 3

Length [mm]	Value [mm/mm]
0,	7,4699e-004
0,125	7,4496e-004
0,25	7,4294e-004
0,375	7,4093e-004
0,5	7,3893e-004
0,625	7,3693e-004
0,75	7,3495e-004
0,875	7,3297e-004
1,	7,31e-004
1,125	7,2812e-004
1,25	7,2526e-004
1,375	7,2241e-004
1,5	7,1957e-004
1,625	7,1673e-004
1,75	7,1391e-004
1,875	7,1109e-004
2,	7,0832e-004
2,125	7,0733e-004
2,25	7,0635e-004
2,375	7,0537e-004
2,5	7,044e-004
2,625	7,0342e-004
2,75	7,0245e-004
2,875	7,0148e-004
3,	7,0051e-004
3,125	7,0212e-004
3,25	7,0369e-004
3,375	7,0527e-004
3,5	7,0685e-004
3,625	7,0844e-004
3,75	7,1003e-004
3,875	7,1162e-004
4,	7,1321e-004
4,125	7,1624e-004
4,25	7,1927e-004
4,375	7,2232e-004
4,5	7,2538e-004
4,625	7,2844e-004
4,75	7,3152e-004
4,875	7,3461e-004

5,	7,3771e-004
5,125	7,3934e-004
5,25	7,41e-004
5,375	7,4266e-004
5,5	7,4434e-004
5,625	7,4603e-004
5,75	7,4773e-004
5,875	7,4944e-004
6,	7,5116e-004

FIGURE 30
Model (B4) > Static Structural (B5) > Solution (B6) > EPEL2-1 3

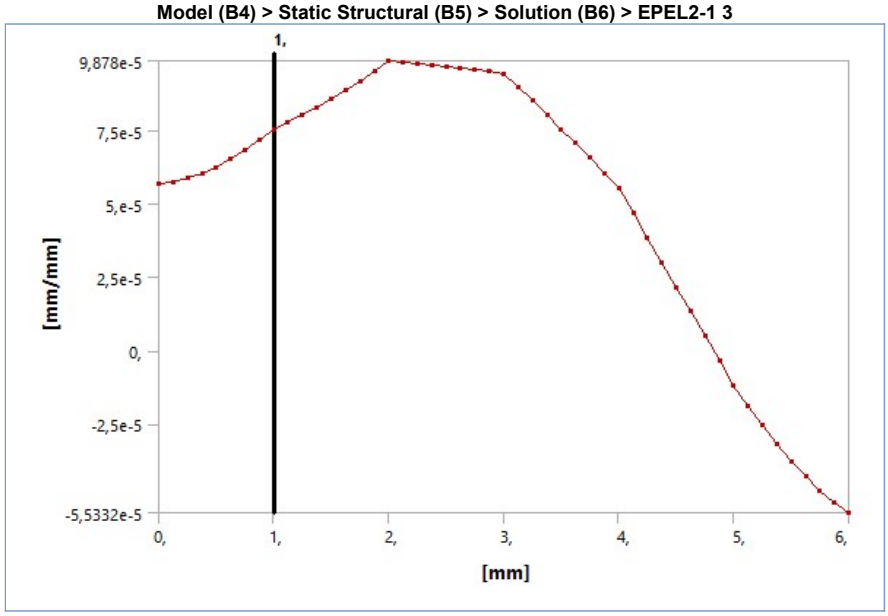


TABLE 47
Model (B4) > Static Structural (B5) > Solution (B6) > EPEL2-1 3

Length [mm]	Value [mm/mm]
0,	5,6847e-005
0,125	5,7525e-005
0,25	5,8704e-005
0,375	6,0375e-005
0,5	6,2526e-005
0,625	6,5142e-005
0,75	6,8204e-005
0,875	7,1692e-005
1,	7,5585e-005
1,125	7,7748e-005
1,25	8,0155e-005
1,375	8,2776e-005
1,5	8,5606e-005
1,625	8,8637e-005
1,75	9,1864e-005
1,875	9,5278e-005
2,	9,878e-005
2,125	9,8271e-005
2,25	9,775e-005
2,375	9,7219e-005
2,5	9,6681e-005
2,625	9,6137e-005
2,75	9,5592e-005
2,875	9,5047e-005
3,	9,4505e-005
3,125	8,9851e-005
3,25	8,5173e-005
3,375	8,0411e-005
3,5	7,5566e-005
3,625	7,0637e-005
3,75	6,5625e-005
3,875	6,0528e-005
4,	5,5354e-005
4,125	4,6946e-005
4,25	3,8528e-005
4,375	3,0107e-005
4,5	2,1689e-005
4,625	1,328e-005

4,75	4,8887e-006
4,875	-3,4747e-006
5,	-1,1799e-005
5,125	-1,8831e-005
5,25	-2,5525e-005
5,375	-3,1824e-005
5,5	-3,7673e-005
5,625	-4,3011e-005
5,75	-4,7776e-005
5,875	-5,1903e-005
6,	-5,5332e-005

FIGURE 31
Model (B4) > Static Structural (B5) > Solution (B6) > EPEL3-1 3

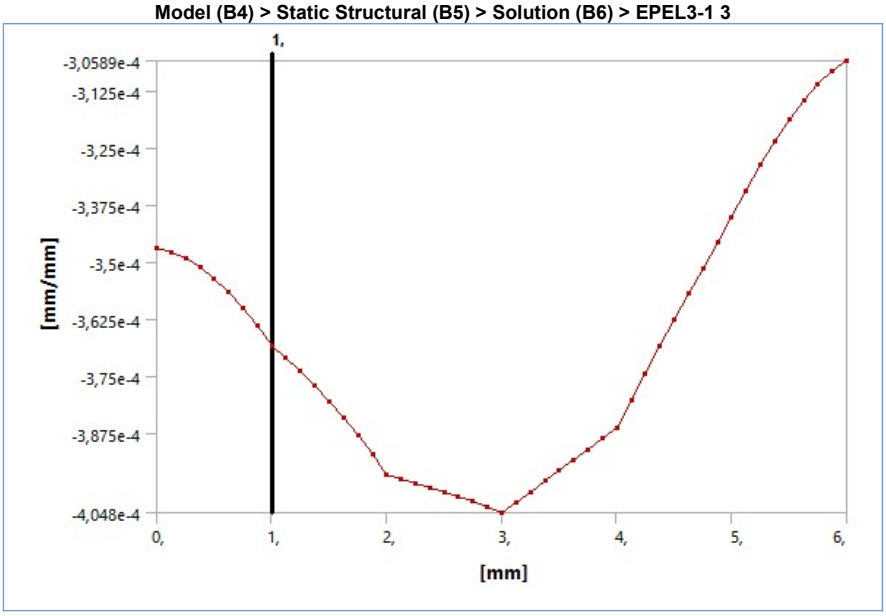


TABLE 48
Model (B4) > Static Structural (B5) > Solution (B6) > EPEL3-1 3

Length [mm]	Value [mm/mm]
0,	-3,4683e-004
0,125	-3,4774e-004
0,25	-3,4918e-004
0,375	-3,5114e-004
0,5	-3,536e-004
0,625	-3,5655e-004
0,75	-3,5998e-004
0,875	-3,6386e-004
1,	-3,6817e-004
1,125	-3,708e-004
1,25	-3,7372e-004
1,375	-3,7691e-004
1,5	-3,8035e-004
1,625	-3,8404e-004
1,75	-3,8798e-004
1,875	-3,9215e-004
2,	-3,9647e-004
2,125	-3,9734e-004
2,25	-3,9826e-004
2,375	-3,9922e-004
2,5	-4,0022e-004
2,625	-4,0128e-004
2,75	-4,024e-004
2,875	-4,0357e-004
3,	-4,048e-004
3,125	-4,0247e-004
3,25	-4,0019e-004
3,375	-3,9789e-004
3,5	-3,9557e-004
3,625	-3,9325e-004
3,75	-3,9091e-004
3,875	-3,8856e-004
4,	-3,8621e-004
4,125	-3,8023e-004
4,25	-3,743e-004
4,375	-3,6843e-004

4,5	-3,6263e-004
4,625	-3,5691e-004
4,75	-3,5127e-004
4,875	-3,4573e-004
5,	-3,4029e-004
5,125	-3,3423e-004
5,25	-3,2857e-004
5,375	-3,2335e-004
5,5	-3,1862e-004
5,625	-3,1445e-004
5,75	-3,109e-004
5,875	-3,0802e-004
6,	-3,0589e-004

FIGURE 32
Model (B4) > Static Structural (B5) > Solution (B6) > EPPL1-1 3

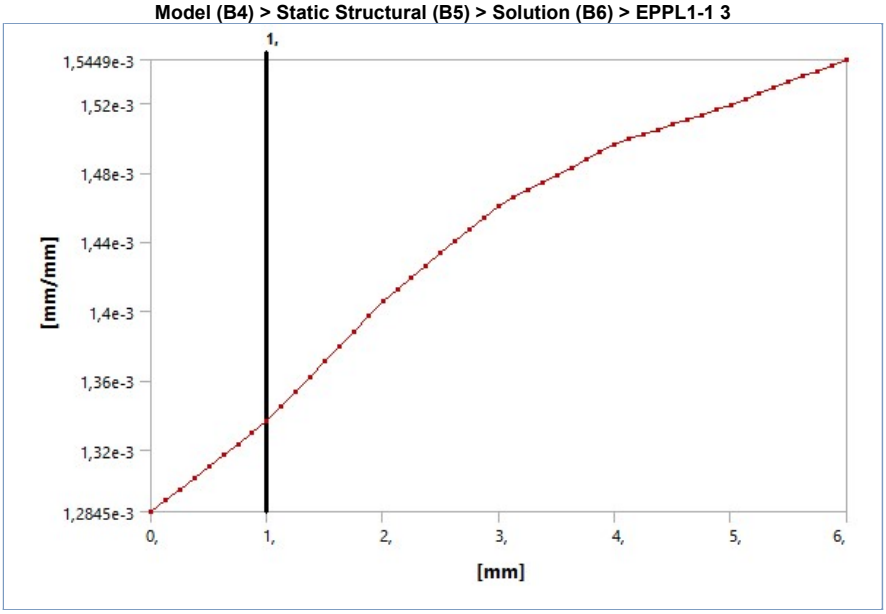


TABLE 49
Model (B4) > Static Structural (B5) > Solution (B6) > EPPL1-1 3

Length [mm]	Value [mm/mm]
0,	1,2845e-003
0,125	1,291e-003
0,25	1,2975e-003
0,375	1,304e-003
0,5	1,3105e-003
0,625	1,317e-003
0,75	1,3235e-003
0,875	1,33e-003
1,	1,3365e-003
1,125	1,3452e-003
1,25	1,3538e-003
1,375	1,3625e-003
1,5	1,3711e-003
1,625	1,3798e-003
1,75	1,3884e-003
1,875	1,397e-003
2,	1,4056e-003
2,125	1,4125e-003
2,25	1,4195e-003
2,375	1,4264e-003
2,5	1,4333e-003
2,625	1,4402e-003
2,75	1,4471e-003
2,875	1,4541e-003
3,	1,461e-003
3,125	1,4654e-003
3,25	1,4698e-003
3,375	1,4742e-003
3,5	1,4786e-003
3,625	1,483e-003
3,75	1,4874e-003
3,875	1,4918e-003
4,	1,4962e-003
4,125	1,4991e-003

4,25	1,5019e-003
4,375	1,5048e-003
4,5	1,5076e-003
4,625	1,5105e-003
4,75	1,5133e-003
4,875	1,5161e-003
5,	1,5189e-003
5,125	1,5222e-003
5,25	1,5255e-003
5,375	1,5288e-003
5,5	1,532e-003
5,625	1,5353e-003
5,75	1,5385e-003
5,875	1,5417e-003
6,	1,5449e-003

FIGURE 33
Model (B4) > Static Structural (B5) > Solution (B6) > EPPL2-1 3

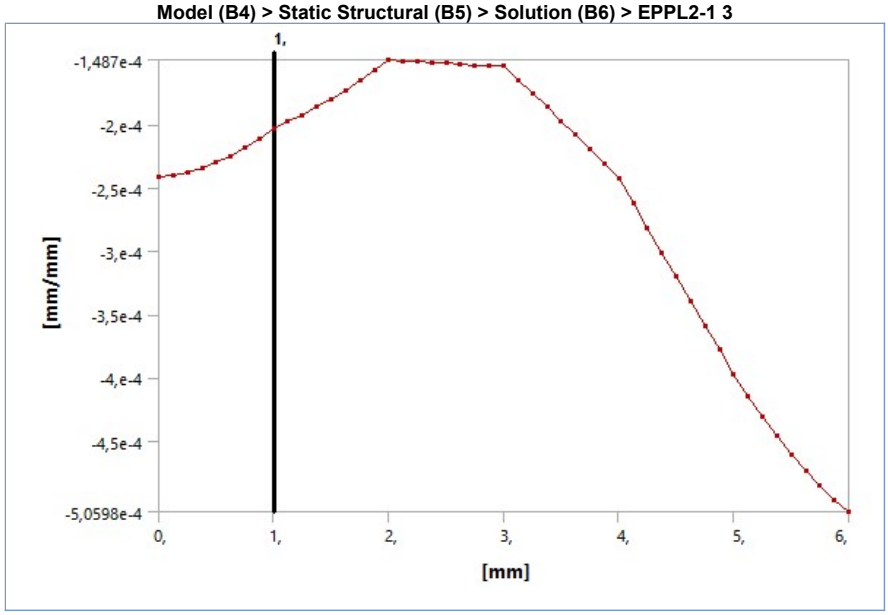


TABLE 50
Model (B4) > Static Structural (B5) > Solution (B6) > EPPL2-1 3

Length [mm]	Value [mm/mm]
0,	-2,4139e-004
0,125	-2,3994e-004
0,25	-2,3753e-004
0,375	-2,3416e-004
0,5	-2,2983e-004
0,625	-2,2453e-004
0,75	-2,1826e-004
0,875	-2,1103e-004
1,	-2,0283e-004
1,125	-1,9773e-004
1,25	-1,9214e-004
1,375	-1,8608e-004
1,5	-1,7955e-004
1,625	-1,7254e-004
1,75	-1,6503e-004
1,875	-1,5702e-004
2,	-1,487e-004
2,125	-1,4946e-004
2,25	-1,5019e-004
2,375	-1,5089e-004
2,5	-1,5157e-004
2,625	-1,522e-004
2,75	-1,5278e-004
2,875	-1,533e-004
3,	-1,5375e-004
3,125	-1,6443e-004
3,25	-1,7512e-004
3,375	-1,8596e-004
3,5	-1,9696e-004
3,625	-2,0812e-004
3,75	-2,1943e-004
3,875	-2,3089e-004

4,	-2,4249e-004
4,125	-2,6197e-004
4,25	-2,8139e-004
4,375	-3,0077e-004
4,5	-3,2011e-004
4,625	-3,3943e-004
4,75	-3,5874e-004
4,875	-3,7804e-004
5,	-3,9736e-004
5,125	-4,1474e-004
5,25	-4,3105e-004
5,375	-4,4627e-004
5,5	-4,6041e-004
5,625	-4,7345e-004
5,75	-4,8539e-004
5,875	-4,9624e-004
6,	-5,0598e-004

FIGURE 34
Model (B4) > Static Structural (B5) > Solution (B6) > EPPL3-1 3

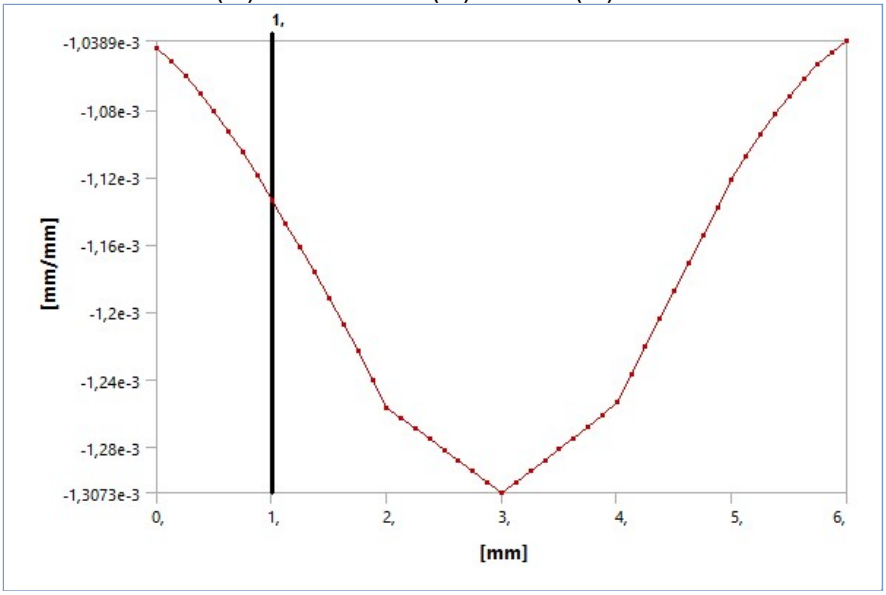


TABLE 51
Model (B4) > Static Structural (B5) > Solution (B6) > EPPL3-1 3

Length [mm]	Value [mm/mm]
0,	-1,0431e-003
0,125	-1,0511e-003
0,25	-1,06e-003
0,375	-1,0699e-003
0,5	-1,0807e-003
0,625	-1,0925e-003
0,75	-1,1052e-003
0,875	-1,119e-003
1,	-1,1337e-003
1,125	-1,1474e-003
1,25	-1,1617e-003
1,375	-1,1764e-003
1,5	-1,1916e-003
1,625	-1,2072e-003
1,75	-1,2234e-003
1,875	-1,24e-003
2,	-1,2569e-003
2,125	-1,2631e-003
2,25	-1,2693e-003
2,375	-1,2755e-003
2,5	-1,2817e-003
2,625	-1,288e-003
2,75	-1,2944e-003
2,875	-1,3008e-003
3,	-1,3073e-003
3,125	-1,3009e-003
3,25	-1,2946e-003
3,375	-1,2882e-003
3,5	-1,2816e-003
3,625	-1,2748e-003

3,75	-1,2679e-003
3,875	-1,2609e-003
4,	-1,2537e-003
4,125	-1,2371e-003
4,25	-1,2205e-003
4,375	-1,204e-003
4,5	-1,1875e-003
4,625	-1,171e-003
4,75	-1,1546e-003
4,875	-1,1381e-003
5,	-1,1216e-003
5,125	-1,1075e-003
5,25	-1,0944e-003
5,375	-1,0825e-003
5,5	-1,0716e-003
5,625	-1,0618e-003
5,75	-1,0531e-003
5,875	-1,0455e-003
6,	-1,0389e-003

Material Data

P245GH

TABLE 52
P245GH > Constants

Density	7,85e-006 kg mm^-3
Specific Heat	4,34e+005 mJ kg^-1 C^-1

TABLE 53
P245GH > Isotropic Elasticity

Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,05e+005	0,3	1,7083e+005	78846	

TABLE 54
P245GH > Bilinear Isotropic Hardening

Yield Strength MPa	Tangent Modulus MPa	Temperature C
130,9	0,	

TABLE 55
P245GH > Color

Red	Green	Blue
184,	235,	197,

P265GH

TABLE 56
P265GH > Constants

Density	7,85e-006 kg mm^-3
Specific Heat	4,34e+005 mJ kg^-1 C^-1

TABLE 57
P265GH > Isotropic Elasticity

Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,05e+005	0,3	1,7083e+005	78846	

TABLE 58
P265GH > Bilinear Isotropic Hardening

Yield Strength MPa	Tangent Modulus MPa	Temperature C
159,5	0,	

TABLE 59
P265GH > Color

Red	Green	Blue
184,	235,	197,

P265GH_nozzle

TABLE 60
P265GH_nozzle > Constants

Density	7,85e-006 kg mm^-3
Specific Heat	4,34e+005 mJ kg^-1 C^-1

TABLE 61
P265GH_nozzle > Isotropic Elasticity

Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,05e+005	0,3	1,7083e+005	78846	

TABLE 62
P265GH_nozzle > Bilinear Isotropic Hardening

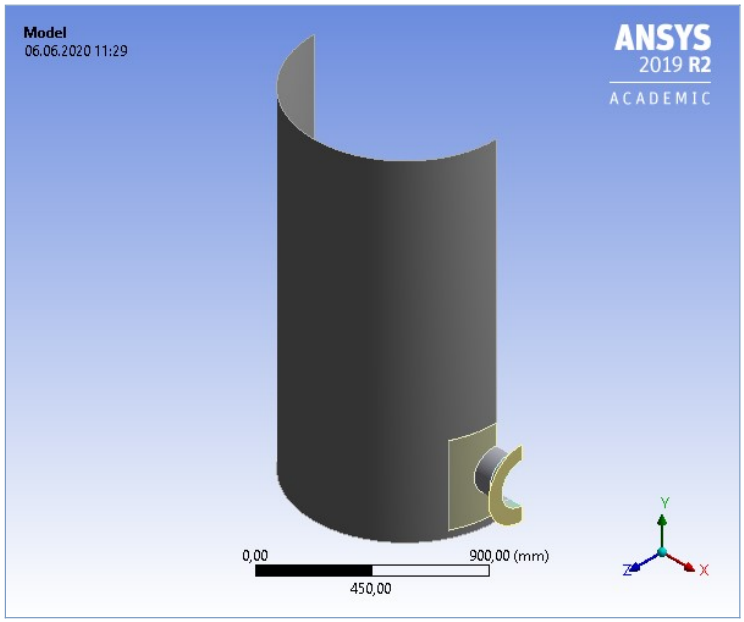
Yield Strength MPa	Tangent Modulus MPa	Temperature C
151,2	0,	

TABLE 63
P265GH_nozzle > Color

Red	Green	Blue
184,	235,	197,

Direct Route - Nozzle N1 (shell elements)*

First Saved	Saturday, February 8, 2020
Last Saved	Tuesday, June 2, 2020
Product Version	2019 R2
Save Project Before Solution	No
Save Project After Solution	No



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  - Connections
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  - P265GH nozzle
  - P265GH

Units

TABLE 1

Unit System	Metric (mm, kg, N, s, mV, mA) Degrees rad/s Celsius
Angle	Degrees
Rotational Velocity	rad/s
Temperature	Celsius

Model (E4)

Geometry

TABLE 2
Model (E4) > Geometry

Object Name	*Geometry*
State	Fully Defined
Definition	
Source	C:\Users\prochazka.tomas\AppData\Local\Temp\GPD.tmp3\GPD_files\dp0\Geom-3\DM\Geom-3.scdoc
Type	SpaceClaim
Length Unit	Meters
Element Control	Program Controlled
Display Style	Body Color
Bounding Box	
Length X	1129,7 mm
Length Y	1800, mm
Length Z	494,75 mm
Properties	
Volume	3,0473e+007 mm³
Mass	239,21 kg
Surface Area(approx.)	2,8618e+006 mm²
Scale Factor Value	1,
Statistics	
Bodies	5
Active Bodies	5
Nodes	46833
Elements	45655
Mesh Metric	None
Update Options	
Assign Default Material	No
Basic Geometry Options	
Solid Bodies	Yes
Surface Bodies	Yes
Line Bodies	Yes
Parameters	Independent
Parameter Key	
Attributes	Yes
Attribute Key	
Named Selections	Yes
Named Selection Key	

Material Properties	Yes
Advanced Geometry Options	
Use Associativity	Yes
Coordinate Systems	Yes
Coordinate System Key	
Reader Mode Saves Updated File	No
Use Instances	Yes
Smart CAD Update	Yes
Compare Parts On Update	No
Analysis Type	3-D
Mixed Import Resolution	None
Clean Bodies On Import	No
Stitch Surfaces On Import	None
Decompose Disjoint Geometry	Yes
Enclosure and Symmetry Processing	Yes

TABLE 3
Model (E4) > Geometry > Parts

Object Name	*Geom-3 \Shell_N1_GPD_shell@Krk příruby*	*Geom-3 \Shell_N1_GPD_shell@Příruba DN200*	*Geom-3 \Shell_N1_GPD_shell@Hrdlo*	*Geom-3 \Shell_N1_GPD_shell@Rozdělit2 [2]*	*Geom-3 \Shell_N1_GPD_shell@Rozdělit2 [1]*
State	Meshed				
Graphics Properties					
Visible	Yes				
Glow	0				
Shininess	1				
Transparency	1				
Specularity	1				
Definition					
Suppressed	No				
Dimension	3D				
Stiffness Behavior	Flexible				
Coordinate System	Default Coordinate System				
Reference Temperature	By Environment				
Thickness	6, mm	30, mm	6, mm	10,5 mm	
Thickness Mode	Manual				
Offset Type	Middle				
Treatment	None				
Material					
Assignment	P245GH		P265GH_nozzle	P265GH	
Nonlinear Effects	Yes				
Thermal Strain Effects	Yes				
Bounding Box					
Length X	65, mm	0, mm	86,861 mm	47,476 mm	989,5 mm
Length Y	213,1 mm	360, mm	213,1 mm	422,96 mm	1800, mm
Length Z	106,55 mm	180, mm	106,55 mm	211,48 mm	494,75 mm
Properties					
Volume	1,3055e+005 mm³	9,9182e+005 mm³	1,6275e+005 mm³	7,8209e+005 mm³	2,8406e+007 mm³
Mass	1,0248 kg	7,7858 kg	1,2776 kg	6,1394 kg	222,99 kg
Centroid X	602,5 mm	635, mm	529,38 mm	475,64 mm	-16,339 mm
Centroid Y	250, mm				922,21 mm
Centroid Z	67,807 mm	93,168 mm	69,432 mm	122,43 mm	321,83 mm
Moment of Inertia Ip1	6912,7 kg·mm²	1,0254e+005 kg·mm²	8348, kg·mm²	1,3084e+005 kg·mm²	6,3919e+007 kg·mm²
Moment of Inertia Ip2	1461,7 kg·mm²	17497 kg·mm²	2058,7 kg·mm²	21536 kg·mm²	3,1137e+007 kg·mm²
Moment of Inertia Ip3	6172,5 kg·mm²	85047 kg·mm²	7687,7 kg·mm²	1,0945e+005 kg·mm²	8,5224e+007 kg·mm²
Surface Area (approx.)	21758 mm²	33061 mm²	27125 mm²	74485 mm²	2,7053e+006 mm²
Statistics					
Nodes	5712	8621	6989	18542	6969
Elements	5511	8373	6787	18195	6789
Mesh Metric	None				
CAD Attributes					
PartTolerance:	0,00000001				
Color:175.143.175					
Color:159.175.143					
Color:143.143.175					
Color:175.159.143					
Color:143.175.175					

TABLE 4
Model (E4) > Materials

Object Name	*Materials*
State	Fully Defined
Statistics	
Materials	5
Material Assignments	0

TABLE 5
Model (E4) > Construction Geometry

Object Name	*Construction Geometry*
State	Fully Defined
Display	

Show Mesh	No

TABLE 6
Model (E4) > Construction Geometry > Paths

Object Name	*Path*
State	Fully Defined
Definition	
Path Type	Two Points
Path Coordinate System	Global Coordinate System
Number of Sampling Points	47,
Suppressed	No
Start	
Coordinate System	Global Coordinate System
Start X Coordinate	494,75 mm
Start Y Coordinate	356,55 mm
Start Z Coordinate	0, mm
Location	Defined
End	
Coordinate System	Global Coordinate System
End X Coordinate	512,64 mm
End Y Coordinate	356,55 mm
End Z Coordinate	0, mm
Location	Defined

Coordinate Systems

TABLE 7
Model (E4) > Coordinate Systems > Coordinate System

Object Name	*Global Coordinate System*	*Cylindrical*	*XYPlane*
State	Fully Defined		
Definition			
Type	Cartesian	Cylindrical	Cartesian
Coordinate System ID	0,		
Coordinate System		Program Controlled	
APDL Name			
Suppressed		No	
Origin			
Origin X	0, mm		
Origin Y	0, mm	922,21 mm	0, mm
Origin Z	0, mm	-8,1906e-014 mm	0, mm
Define By		Geometry Selection	Global Coordinates
Geometry		Defined	
Location			Defined
Directional Vectors			
X Axis Data	[1, 0, 0,]		
Y Axis Data	[0, 1, 0,]	[0, 0, -1,]	[0, 1, 0,]
Z Axis Data	[0, 0, 1,]	[0, 1, 0,]	[0, 0, 1,]
Principal Axis			
Axis		X	
Define By		Global X Axis	Fixed Vector
Orientation About Principal Axis			
Axis		Y	
Define By		Default	Fixed Vector
Transformations			
Base Configuration		Absolute	
Transformed Configuration		[0, 922,21 -8,1906e-014]	[0, 0, 0,]

Symmetry

TABLE 8
Model (E4) > Symmetry

Object Name	*Symmetry*
State	Fully Defined
Graphical Expansion 1 (Beta)	
Num Repeat	0
Type	Cartesian
Method	Full
ΔX	0, mm
ΔY	0, mm
ΔZ	0, mm
Coordinate System	Global Coordinate System
Graphical Expansion 2 (Beta)	
Num Repeat	0
Type	Cartesian
Method	Full
ΔX	0, mm
ΔY	0, mm
ΔZ	0, mm
Coordinate System	Global Coordinate System
Graphical Expansion 3 (Beta)	
Num Repeat	0
Type	Cartesian
Method	Full
ΔX	0, mm
ΔY	0, mm
ΔZ	0, mm

Coordinate System	Global Coordinate System

TABLE 9
Model (E4) > Symmetry > Symmetry Region

Object Name	*Symmetry Region*
State	Fully Defined
Scope	
Scoping Method	Named Selection
Named Selection	Symmetry:XYPlane
Definition	
Scope Mode	Automatic
Type	Symmetric
Coordinate System	XYPlane
Symmetry Normal	Z Axis
Suppressed	No

Remote Points

TABLE 10
Model (E4) > Remote Points

Object Name	*Remote Points*
State	Fully Defined
Display	
Show Connection Lines	Yes

TABLE 11
Model (E4) > Remote Points > Remote Force_i_s_ekvivalentni - Remote Point

Object Name	*Remote Force_i_s_ekvivalentni - Remote Point*
State	Fully Defined
Scope	
Scoping Method	Geometry Selection
Geometry	1 Face
Coordinate System	Global Coordinate System
X Coordinate	650, mm
Y Coordinate	250, mm
Z Coordinate	0, mm
Location	Defined
Definition	
ID (Beta)	71
Suppressed	No
Behavior	Rigid
Pinball Region	All
DOF Selection	Program Controlled
Pilot Node APDL Name	

Connections

TABLE 12
Model (E4) > Connections

Object Name	*Connections*
State	Fully Defined
Auto Detection	
Generate Automatic Connection On Refresh	Yes
Transparency	
Enabled	Yes

TABLE 13
Model (E4) > Connections > Contacts

Object Name	*Contacts*
State	Fully Defined
Definition	
Connection Type	Contact
Scope	
Scoping Method	Geometry Selection
Geometry	All Bodies
Auto Detection	
Tolerance Type	Slider
Tolerance Slider	0,
Tolerance Value	5,455 mm
Use Range	No
Face/Face	No
Face/Edge	No
Edge/Edge	Yes
Priority	Include All
Group By	Bodies
Search Across	Bodies
Statistics	
Connections	4
Active Connections	4

TABLE 14
Model (E4) > Connections > Contacts > Contact Regions

Object Name	*Contact Region*	*Contact Region 2*	*Contact Region 3*	*Contact Region 4*
State	Fully Defined			
Scope				
Scoping Method	Geometry Selection			

Contact	1 Edge			3 Edges
Target	1 Edge			3 Edges
Contact Bodies	Geom-3\Shell_N1_GPD_shell@Krk příruby		Geom-3\Shell_N1_GPD_shell@Hrdlo	Geom-3 \Shell_N1_GPD_shell@Rozdělit2[2]
Target Bodies	Geom-3\Shell_N1_GPD_shell@Příruba DN200	Geom-3 \Shell_N1_GPD_shell@Hrdlo	Geom-3 \Shell_N1_GPD_shell@Rozdělit2[2]	Geom-3 \Shell_N1_GPD_shell@Rozdělit2[1]
Shell Thickness Effect	No			
Protected	No			
Definition				
Type	Bonded			
Scope Mode	Automatic			
Trim Contact	Program Controlled			
Trim Tolerance	5,455 mm			
Suppressed	No			
Advanced				
Formulation	Program Controlled			
Small Sliding	Program Controlled			
Penetration Tolerance	Program Controlled			
Elastic Slip Tolerance	Program Controlled			
Normal Stiffness	Program Controlled			
Update Stiffness	Program Controlled			
Pinball Region	Program Controlled			

Mesh

TABLE 15
Model (E4) > Mesh

Object Name	*Mesh*
State	Solved
Display	
Display Style	Use Geometry Setting
Defaults	
Physics Preference	Nonlinear Mechanical
Element Order	Program Controlled
Element Size	2, mm
Sizing	
Growth Rate	Default (1,5)
Mesh Defeaturing	Yes
Defeature Size	Default (1,e-002 mm)
Capture Curvature	Yes
Curvature Min Size	Default (2,e-002 mm)
Curvature Normal Angle	Default (60,°)
Capture Proximity	No
Size Formulation (Beta)	Program Controlled
Bounding Box Diagonal	2182, mm
Average Surface Area	5,7216e+005 mm²
Minimum Edge Length	38,52 mm
Enable Size Field (Beta)	No
Quality	
Check Mesh Quality	Yes, Errors
Mesh Metric	None
Inflation	
Use Automatic Inflation	None
Inflation Option	Smooth Transition
Transition Ratio	0,272
Maximum Layers	2
Growth Rate	1,2
Inflation Algorithm	Pre
View Advanced Options	No
Batch Connections	
Mesh Based Connection	No
Advanced	
Number of CPUs for Parallel Part Meshing	Program Controlled
Straight Sided Elements	No
Rigid Body Behavior	Dimensionally Reduced
Triangle Surface Mesher	Program Controlled
Use Asymmetric Mapped Mesh (Beta)	No
Topology Checking	Yes
Use Sheet Thickness for Pinch	No
Pinch Tolerance	Default (1,8e-002 mm)
Generate Pinch on Refresh	No
Sheet Loop Removal	No
Statistics	
Nodes	46833
Elements	45655

TABLE 16
Model (E4) > Mesh > Mesh Controls

Object Name	*Automatic Method*	*Body Sizing*
State	Fully Defined	
Scope		
Scoping Method	Geometry Selection	
Geometry	5 Bodies	1 Body
Definition		

Suppressed	No	
Method	Quadrilateral Dominant	
Element Order	Use Global Setting	
Free Face Mesh Type	Quad/Tri	
Type		Element Size
Element Size		20, mm
Advanced		
Defeature Size		Default (1,e-002 mm)
Behavior		Soft
Growth Rate		Default (1,5)
Capture Curvature		No
Capture Proximity		No

Named Selections

TABLE 17
Model (E4) > Named Selections > Named Selections

Object Name	*Selection*	*Symmetry:XYPlane*
State	Fully Defined	
Scope		
Scoping Method	Worksheet	Geometry Selection
Geometry	1 Node	11 Edges
Definition		
Send to Solver	Yes	No
Visible	Yes	
Program Controlled Inflation	Exclude	
Protected		Program Controlled
Statistics		
Type	Manual	Imported
Total Selection	1 Node	11 Edges
Suppressed	0	
Used by Mesh Worksheet	No	
Length		3814,3 mm
Tolerance		
Tolerance Type	Program Controlled	
Zero Tolerance	1,e-008	
Relative Tolerance	1,e-003	
Angular Tolerance	1, °	

Static Structural (E5)

TABLE 18
Model (E4) > Analysis

Object Name	*Static Structural (E5)*
State	Solved
Definition	
Physics Type	Structural
Analysis Type	Static Structural
Solver Target	Mechanical APDL
Options	
Environment Temperature	20, °C
Generate Input Only	No

TABLE 19
Model (E4) > Static Structural (E5) > Analysis Settings

Object Name	*Analysis Settings*
State	Fully Defined
Step Controls	
Number Of Steps	1,
Current Step Number	1,
Step End Time	1, s
Auto Time Stepping	On
Define By	Time
Initial Time Step	5,e-002 s
Minimum Time Step	1,e-004 s
Maximum Time Step	5,e-002 s
Solver Controls	
Solver Type	Program Controlled
Weak Springs	Off
Solver Pivot Checking	Program Controlled
Large Deflection	Off
Inertia Relief	Off
Rotordynamics Controls	
Coriolis Effect	Off
Restart Controls	
Generate Restart Points	Program Controlled
Retain Files After Full Solve	No
Combine Restart Files	Program Controlled
Nonlinear Controls	
Newton-Raphson Option	Program Controlled
Force Convergence	Program Controlled
Moment Convergence	Program Controlled
Displacement Convergence	Program Controlled
Rotation Convergence	Program Controlled
Line Search	Program Controlled
Stabilization	Program Controlled

Output Controls	
Stress	Yes
Surface Stress	No
Back Stress	No
Strain	Yes
Contact Data	Yes
Nonlinear Data	No
Nodal Forces	No
Contact Miscellaneous	No
General Miscellaneous	No
Store Results At	All Time Points
Cache Results in Memory (Beta)	Never
Combine Distributed Result Files (Beta)	Program Controlled
Result File Compression	Program Controlled
Analysis Data Management	
Solver Files Directory	C:\Users\prochazka.tomas\AppData\Local\Temp\GPD.tmp3\GPD_files\dp0\SYS-2\MECH\
Future Analysis	None
Scratch Solver Files Directory	
Save MAPDL db	No
Contact Summary	Program Controlled
Delete Unneeded Files	Yes
Nonlinear Solution	Yes
Solver Units	Active System
Solver Unit System	nmm

TABLE 20
Model (E4) > Static Structural (E5) > Loads

Object Name	*Tlak*	*Moment*	*Síla od potrubí + ekvivaletní síla*	*Thermal Condition*	*Displacement*	*Ekvivalentní síla*	*Tíha komponent*
State	Fully Defined						
Scope							
Scoping Method	Geometry Selection	Remote Point		Geometry Selection			
Geometry	4 Faces			5 Bodies	1 Edge		
Remote Points		Remote Force_i_s_ekvivalentni - Remote Point					
Coordinate System			Global Coordinate System				
X Coordinate			650, mm				
Y Coordinate			250, mm				
Z Coordinate			0, mm				
Location			Defined				
Shell Face				Both			
Definition							
ID (Beta)	57	76	81	84	95	305	307
Type	Pressure	Moment	Remote Force	Thermal Condition	Displacement	Force	
Define By	Normal To	Components			Components		
Applied By	Surface Effect						
Magnitude	1,9 MPa (ramped)			130, °C (ramped)			
Suppressed	No						
Coordinate System		Global Coordinate System			Cylindrical	Global Coordinate System	
X Component		4,332e+005 N·mm (ramped)	33010 N (ramped)		Free	0, N (ramped)	
Y Component		3,858e+005 N·mm (ramped)	-1335,6 N (ramped)		0, mm (ramped)	7,2265e+005 N (ramped)	-1526,4 N (ramped)
Z Component		-7,536e+005 N·mm (ramped)	100,8 N (ramped)		0, mm (ramped)	0, N (ramped)	
Behavior		Rigid					
Advanced							
Pinball Region		All					

FIGURE 1
Model (E4) > Static Structural (E5) > Tlak

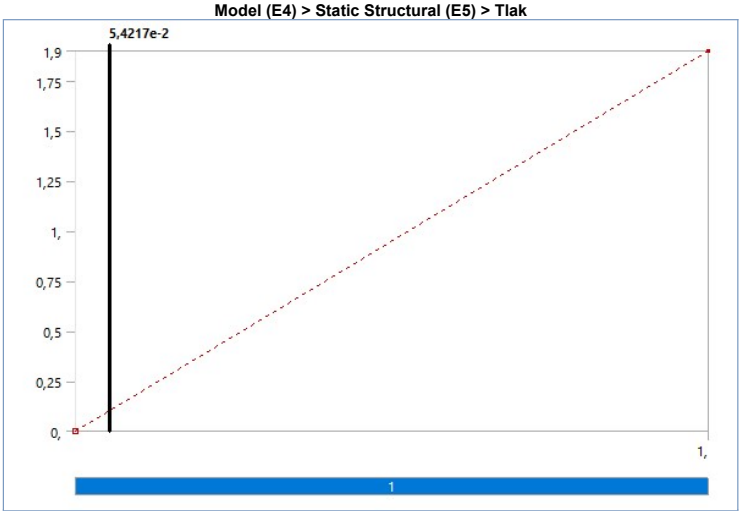


FIGURE 2
Model (E4) > Static Structural (E5) > Moment

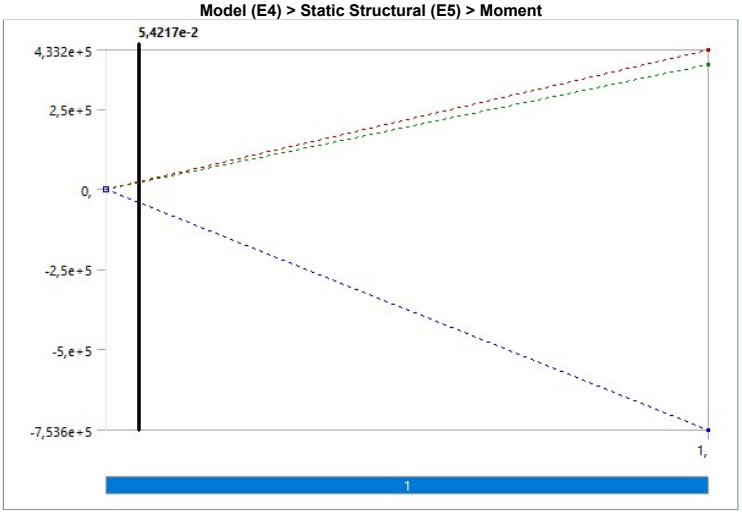


FIGURE 3
Model (E4) > Static Structural (E5) > Sila od potrubi + ekvivaletni sila

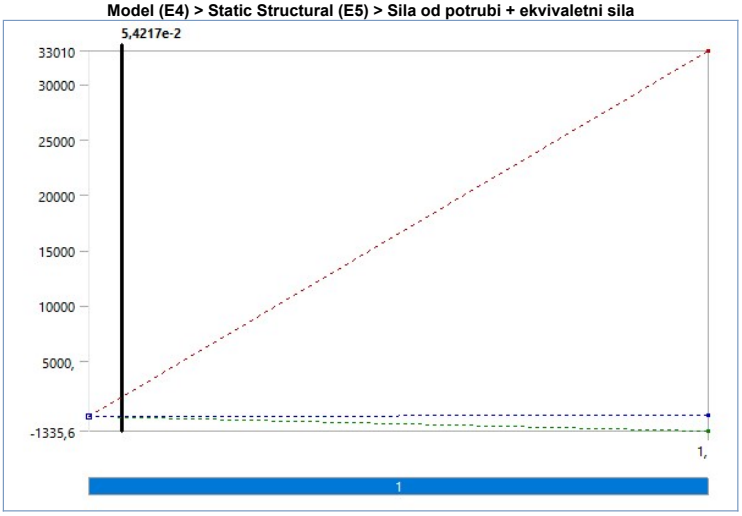


FIGURE 4
Model (E4) > Static Structural (E5) > Thermal Condition

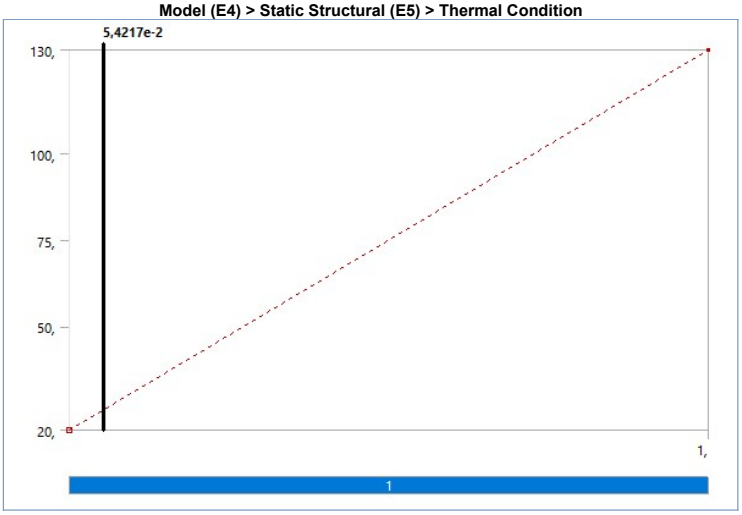


FIGURE 5
Model (E4) > Static Structural (E5) > Displacement

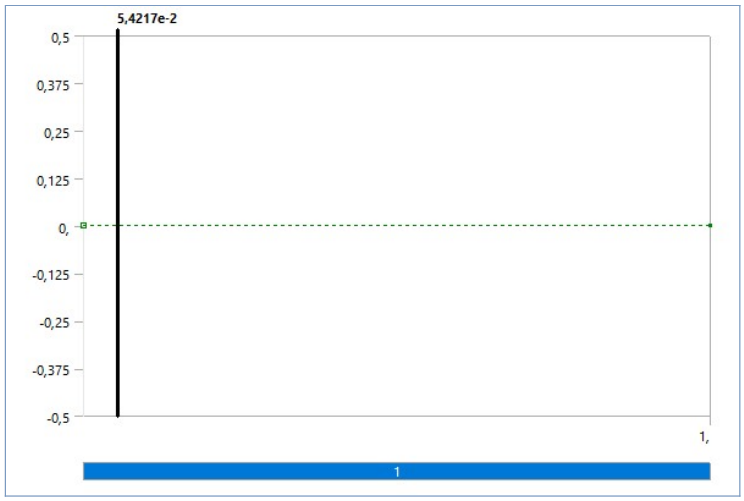


FIGURE 6
Model (E4) > Static Structural (E5) > Ekvivalentní síla

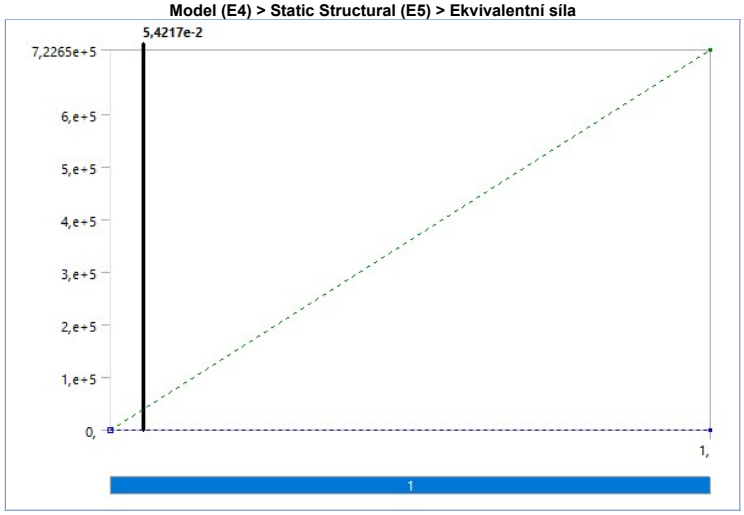


FIGURE 7
Model (E4) > Static Structural (E5) > Tiha komponent

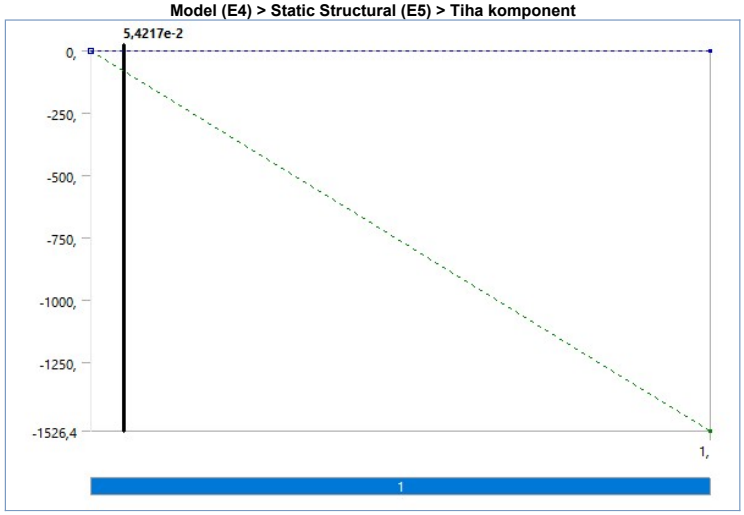


TABLE 21
Model (E4) > Static Structural (E5) > Command Snippet

Object Name	*Commands (APDL)*
State	Fully Defined
File	
File Name	
File Status	File not found
Definition	
Suppressed	No
Target	Mechanical APDL

Issue Solve Command	Yes
Input Arguments	
ARG1	
ARG2	
ARG3	
ARG4	
ARG5	
ARG6	
ARG7	
ARG8	
ARG9	

Model (E4) > Static Structural (E5) > Commands (APDL)

```
!   Commands inserted into this file will be executed just prior to the ANSYS SOLVE command.
!   These commands may supersede command settings set by Workbench.

!   Active UNIT system in Workbench when this object was created:  Metric (mm, kg, N, s, mV, mA)
!   NOTE:  Any data that requires units (such as mass) is assumed to be in the consistent solver unit system.
!               See Solving Units in the help system for more information.

/SOLU
ERESX,no
NEQIT,15
```

Solution (E6)

TABLE 22
Model (E4) > Static Structural (E5) > Solution

Object Name	*Solution (E6)*
State	Solved
Solution	
Number Of Cores to Use (Beta)	Solve Process Settings
Adaptive Mesh Refinement	
Max Refinement Loops	3,
Refinement Depth	2,
Information	
Status	Done
MAPDL Elapsed Time	18 m 18 s
MAPDL Memory Used	1,2129 GB
MAPDL Result File Size	887,69 MB
Post Processing	
Distributed Post Processing (Beta)	Program Controlled
Mesh Source (Beta)	Program Controlled
Beam Section Results	No
On Demand Stress/Strain	No

TABLE 23
Model (E4) > Static Structural (E5) > Solution (E6) > Solution Information

Object Name	*Solution Information*
State	Solved
Solution Information	
Solution Output	Force Convergence
Newton-Raphson Residuals	0
Identify Element Violations	0
Update Interval	2,5 s
Display Points	All
FE Connection Visibility	
Activate Visibility	Yes
Display	All FE Connectors
Draw Connections Attached To	All Nodes
Line Color	Connection Type
Visible on Results	No
Line Thickness	Single
Display Type	Lines

FIGURE 8
Model (E4) > Static Structural (E5) > Solution (E6) > Solution Information

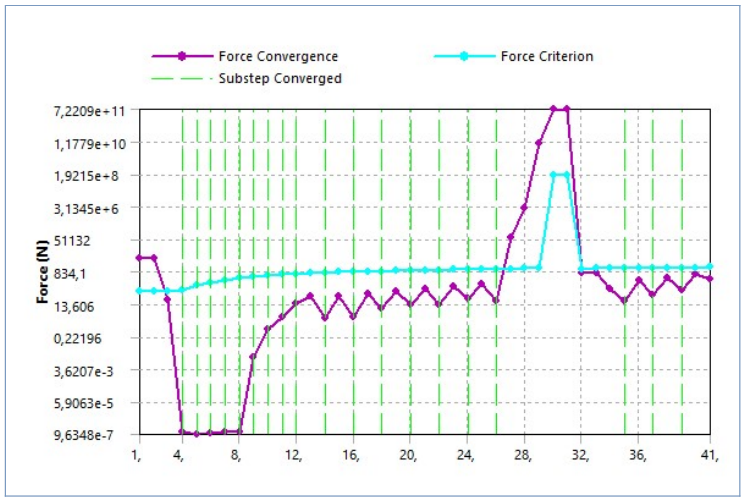


FIGURE 9
Model (E4) > Static Structural (E5) > Solution (E6) > Solution Information

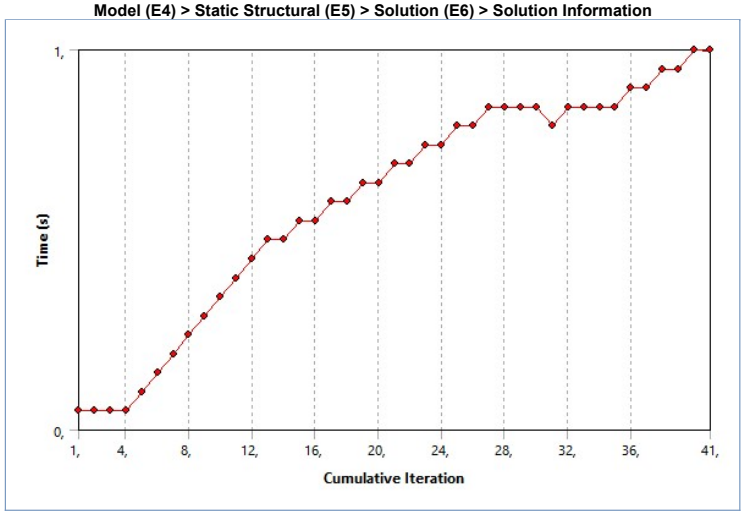


TABLE 24
Model (E4) > Static Structural (E5) > Solution (E6) > Results

Object Name	*Total Deformation*	*Equivalent Stress*	*Stress Intensity*
State	Solved		
Scope			
Scoping Method	Geometry Selection		
Geometry	All Bodies		
Layer		Entire Section	
Position		Top/Bottom	
Definition			
Type	Total Deformation	Equivalent (von-Mises) Stress	Stress Intensity
By	Time		
Display Time	1, s	0,83974 s	
Calculate Time History	Yes		
Identifier			
Suppressed	No		
Results			
Minimum	8,4677e-002 mm	4,1436e-014 MPa	4,78e-014 MPa
Maximum	2,353 mm	159,5 MPa	184,16 MPa
Average	0,85544 mm	65,179 MPa	72,602 MPa
Minimum Occurs On	Geom-3\Shell_N1_GPD_shell@Rozdělit2[1]	Geom-3\Shell_N1_GPD_shell@Příruba DN200	
Maximum Occurs On	Geom-3\Shell_N1_GPD_shell@Příruba DN200	Geom-3\Shell_N1_GPD_shell@Rozdělit2[2]	
Minimum Value Over Time			
Minimum	6,9672e-003 mm	1,8605e-015 MPa	2,1187e-015 MPa
Maximum	9,8967e-002 mm	1,0413e-013 MPa	1,1762e-013 MPa
Maximum Value Over Time			
Minimum	4,1846e-002 mm	30,151 MPa	33,489 MPa
Maximum	2,353 mm	159,5 MPa	184,17 MPa
Information			
Time	1, s	0,83974 s	
Load Step	1		
Substep	20	17	
Iteration Number	41	35	
Integration Point Results			
Display Option		Averaged	
Average Across Bodies		No	

FIGURE 10
Model (E4) > Static Structural (E5) > Solution (E6) > Total Deformation

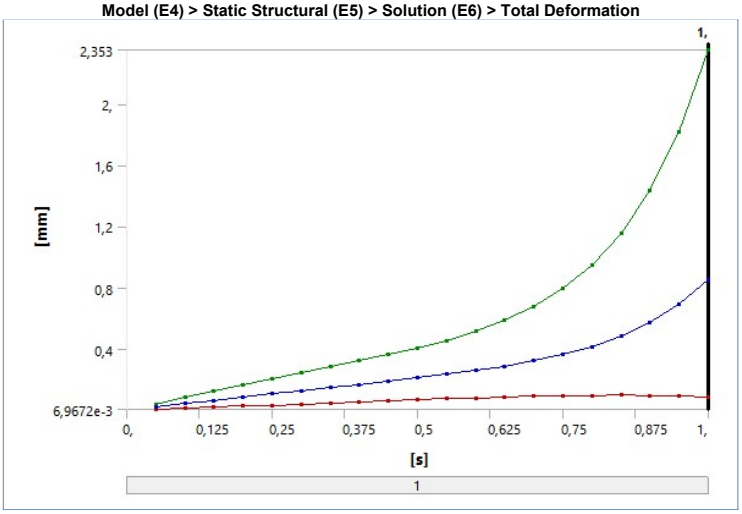


TABLE 25
Model (E4) > Static Structural (E5) > Solution (E6) > Total Deformation

Time [s]	Minimum [mm]	Maximum [mm]	Average [mm]
5,e-002	6,9672e-003	4,1846e-002	2,224e-002
0,1	1,3934e-002	8,3693e-002	4,4481e-002
0,15	2,0897e-002	0,12492	6,6347e-002
0,2	2,7889e-002	0,16524	8,7599e-002
0,25	3,4756e-002	0,20502	0,10851
0,3	4,1525e-002	0,24452	0,12924
0,35	4,8256e-002	0,28375	0,14984
0,4	5,4968e-002	0,32297	0,17037
0,45	6,1665e-002	0,36314	0,19106
0,5	6,8313e-002	0,40682	0,21246
0,55	7,4857e-002	0,45684	0,23528
0,6	8,1096e-002	0,51605	0,26043
0,65	8,6801e-002	0,58803	0,28906
0,7	9,1739e-002	0,67816	0,32277
0,75	9,5652e-002	0,79487	0,36392
0,8	9,8202e-002	0,95002	0,41592
0,85	9,8967e-002	1,1584	0,48325
0,9	9,7443e-002	1,4377	0,57153
0,95	9,3012e-002	1,817	0,68976
1,	8,4677e-002	2,353	0,85544

FIGURE 11
Model (E4) > Static Structural (E5) > Solution (E6) > Equivalent Stress

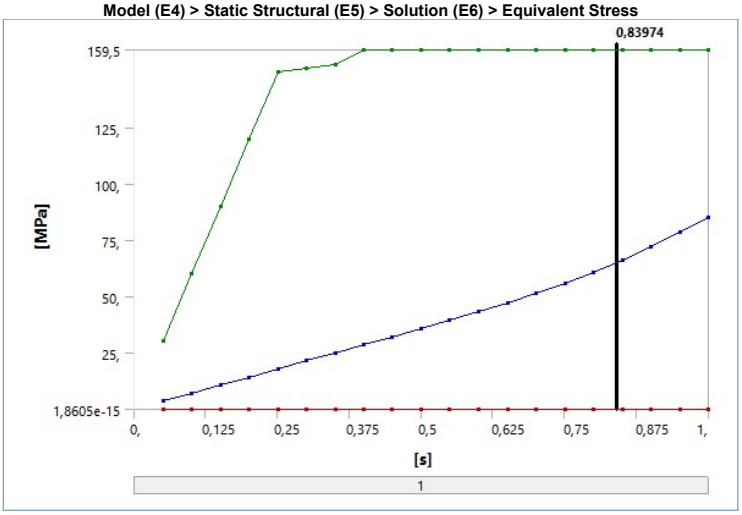


TABLE 26
Model (E4) > Static Structural (E5) > Solution (E6) > Equivalent Stress

Time [s]	Minimum [MPa]	Maximum [MPa]	Average [MPa]
5,e-002	1,8605e-015	30,151	3,5708
0,1	3,4144e-015	60,303	7,1415
0,15	3,0349e-015	90,308	10,712
0,2	3,2924e-015	120,16	14,286
0,25	2,6092e-015	149,93	17,862
0,3	9,7509e-015	151,2	21,439
0,35	8,3357e-015	153,13	25,017

0,4	1,6285e-014		28,59
0,45	4,1294e-015		32,16
0,5	1,1531e-014		35,764
0,55	4,7377e-015		39,445
0,6	3,0508e-014		43,255
0,65	2,2426e-014		47,247
0,7	3,7953e-014	159,5	51,481
0,75	3,5503e-014		56,018
0,8	6,2871e-014		60,928
0,85	4,203e-014		66,292
0,9	5,2173e-014		72,186
0,95	1,0413e-013		78,527
1,	8,343e-014		85,305

FIGURE 12
Model (E4) > Static Structural (E5) > Solution (E6) > Stress Intensity

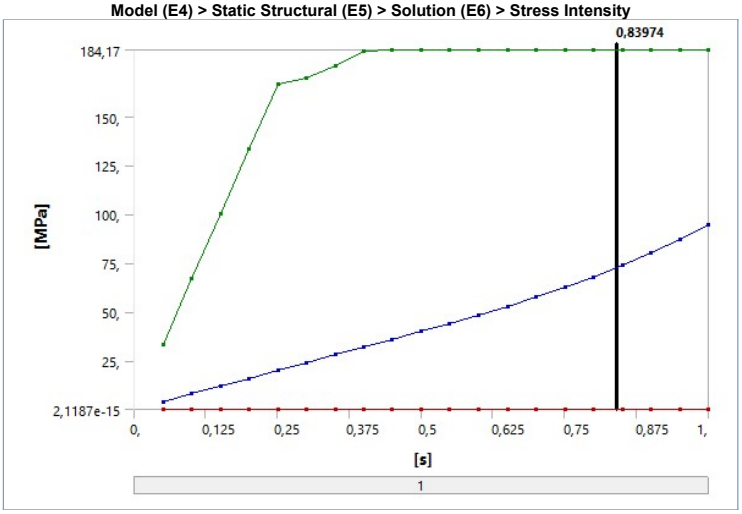


TABLE 27
Model (E4) > Static Structural (E5) > Solution (E6) > Stress Intensity

Time [s]	Minimum [MPa]	Maximum [MPa]	Average [MPa]
5,e-002	2,1187e-015	33,489	3,9832
0,1	3,9353e-015	66,978	7,9664
0,15	3,1301e-015	100,32	11,949
0,2	3,7836e-015	133,5	15,935
0,25	2,8676e-015	166,57	19,923
0,3	1,0827e-014	169,73	23,912
0,35	9,3798e-015	176,29	27,903
0,4	1,6852e-014	183,76	31,887
0,45	4,6311e-015	183,93	35,866
0,5	1,3255e-014	184,11	39,88
0,55	5,3315e-015	184,17	43,975
0,6	3,4022e-014	184,16	48,209
0,65	2,5878e-014	184,11	52,652
0,7	4,116e-014	184,12	57,373
0,75	3,6935e-014	184,15	62,429
0,8	6,4513e-014		67,891
0,85	4,8473e-014	184,17	73,836
0,9	5,9982e-014		80,34
0,95	1,1762e-013		87,308
1,	9,0328e-014		94,713

TABLE 28
Model (E4) > Static Structural (E5) > Solution (E6) > User Defined Result

Object Name	*User Defined Result*	*User Defined Result 4*
State	Solved	
Scope		
Scoping Method	Geometry Selection	Path
Geometry	All Bodies	
Sub Scope By	Layer	
Layer	Entire Section	
Position	Top/Bottom	Top
Path		Path
Definition		
Type	User Defined Result	
Expression	= max(abs(EPTO1);abs(EPTO2);abs(EPTO3))	
Input Unit System	Metric (mm, kg, N, s, mV, mA)	
Output Unit		
By	Time	
Display Time	Last	
Coordinate System	Global Coordinate System	
Calculate Time History	Yes	
Identifier		
Suppressed	No	

Integration Point Results		
Display Option	Averaged	
Average Across Bodies	No	
Results		
Minimum	3,8544e-019	3,0587e-003
Maximum	5,3079e-002	5,6588e-003
Average	6,346e-004	4,1079e-003
Minimum Occurs On	Geom-3\Shell_N1_GPD_shell@Příruba DN200	Geom-3\Shell_N1_GPD_shell@Hrdlo
Maximum Occurs On	Geom-3\Shell_N1_GPD_shell@Hrdlo	
Minimum Value Over Time		
Minimum	0,	3,9723e-005
Maximum	4,4681e-019	3,0587e-003
Maximum Value Over Time		
Minimum	1,3434e-004	7,8862e-005
Maximum	5,3079e-002	5,6588e-003
Information		
Time	1, s	
Load Step	1	
Substep	20	
Iteration Number	41	
Graph Controls		
X-Axis		S

FIGURE 13
Model (E4) > Static Structural (E5) > Solution (E6) > User Defined Result

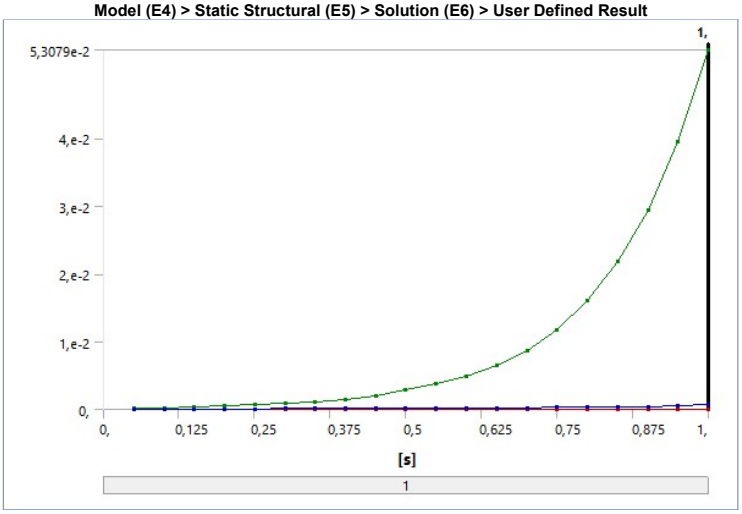


TABLE 29
Model (E4) > Static Structural (E5) > Solution (E6) > User Defined Result

Time [s]	Minimum	Maximum	Average
5,e-002	0,	1,3434e-004	1,6881e-005
0,1	1,6012e-020	2,6867e-004	3,3763e-005
0,15	0,	4,0224e-004	5,0642e-005
0,2	1,3094e-020	5,3504e-004	6,7528e-005
0,25	0,	6,6766e-004	8,4412e-005
0,3	4,3467e-020	8,2774e-004	1,0131e-004
0,35	3,6154e-020	1,0461e-003	1,1822e-004
0,4	7,18e-020	1,4276e-003	1,3519e-004
0,45	1,7763e-020	1,9901e-003	1,5233e-004
0,5	5,4818e-020	2,8694e-003	1,6999e-004
0,55	2,0531e-020	3,8093e-003	1,8859e-004
0,6	1,4883e-019	4,9589e-003	2,0868e-004
0,65	1,0851e-019	6,4993e-003	2,3099e-004
0,7	1,6005e-019	8,6482e-003	2,5659e-004
0,75	1,3749e-019	1,1712e-002	2,8707e-004
0,8	3,0301e-019	1,6003e-002	3,2476e-004
0,85	1,9798e-019	2,1816e-002	3,7267e-004
0,9	2,5582e-019	2,9469e-002	4,3494e-004
0,95	4,4681e-019	3,9496e-002	5,1811e-004
1,	3,8544e-019	5,3079e-002	6,346e-004

FIGURE 14
Model (E4) > Static Structural (E5) > Solution (E6) > User Defined Result 4

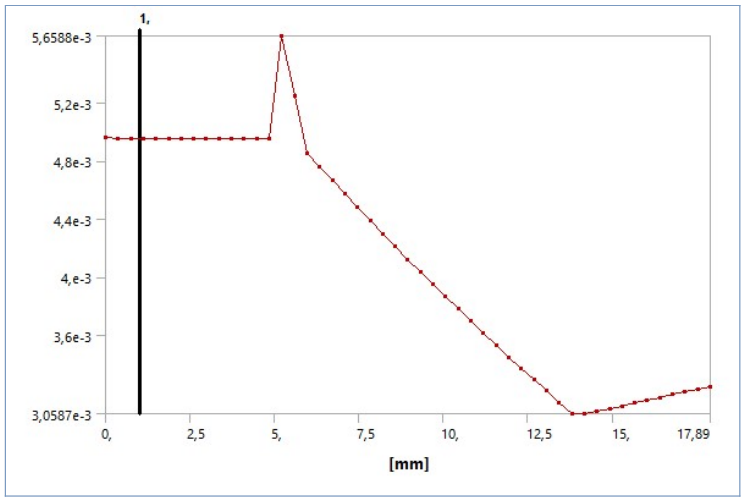


TABLE 30
Model (E4) > Static Structural (E5) > Solution (E6) > User Defined Result 4

Length [mm]	Value
0,	4,9562e-003
0,37271	4,9561e-003
0,74542	4,9559e-003
1,1181	4,9557e-003
1,4908	4,9555e-003
1,8635	4,9553e-003
2,2363	4,9552e-003
2,609	4,955e-003
2,9817	4,9548e-003
3,3544	4,9546e-003
3,7271	4,9544e-003
4,0998	4,9543e-003
4,4725	4,9541e-003
4,8452	4,9539e-003
5,2179	5,6588e-003
5,5906	5,2453e-003
5,9633	4,8512e-003
6,336	4,7582e-003
6,7088	4,6652e-003
7,0815	4,5723e-003
7,4542	4,4793e-003
7,8269	4,3863e-003
8,1996	4,2976e-003
8,5723	4,2103e-003
8,945	4,123e-003
9,3177	4,0358e-003
9,6904	3,9485e-003
10,063	3,8632e-003
10,436	3,7804e-003
10,809	3,6976e-003
11,181	3,6148e-003
11,554	3,532e-003
11,927	3,4498e-003
12,299	3,3717e-003
12,672	3,2935e-003
13,045	3,2154e-003
13,418	3,1372e-003
13,79	3,0591e-003
14,163	3,0587e-003
14,536	3,0769e-003
14,908	3,0951e-003
15,281	3,1132e-003
15,654	3,1314e-003
16,026	3,1503e-003
16,399	3,17e-003
16,772	3,1897e-003
17,145	3,2094e-003
17,517	3,229e-003
17,89	3,2465e-003

Material Data

P245GH

TABLE 31
P245GH > Constants

Density	7,85e-006 kg mm^-3
Specific Heat	4,34e+005 mJ kg^-1 C^-1

TABLE 32
P245GH > Isotropic Elasticity

Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,05e+005	0,3	1,7083e+005	78846	

TABLE 33
P245GH > Bilinear Isotropic Hardening

Yield Strength MPa	Tangent Modulus MPa	Temperature C
130,9	0,	

TABLE 34
P245GH > Color

Red	Green	Blue
184,	235,	197,

P265GH_nozzle

TABLE 35
P265GH_nozzle > Constants

Density	7,85e-006 kg mm^-3
Specific Heat	4,34e+005 mJ kg^-1 C^-1

TABLE 36
P265GH_nozzle > Isotropic Elasticity

Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,05e+005	0,3	1,7083e+005	78846	

TABLE 37
P265GH_nozzle > Bilinear Isotropic Hardening

Yield Strength MPa	Tangent Modulus MPa	Temperature C
151,2	0,	

TABLE 38
P265GH_nozzle > Color

Red	Green	Blue
184,	235,	197,

P265GH

TABLE 39
P265GH > Constants

Density	7,85e-006 kg mm^-3
Specific Heat	4,34e+005 mJ kg^-1 C^-1

TABLE 40
P265GH > Isotropic Elasticity

Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,05e+005	0,3	1,7083e+005	78846	

TABLE 41
P265GH > Bilinear Isotropic Hardening

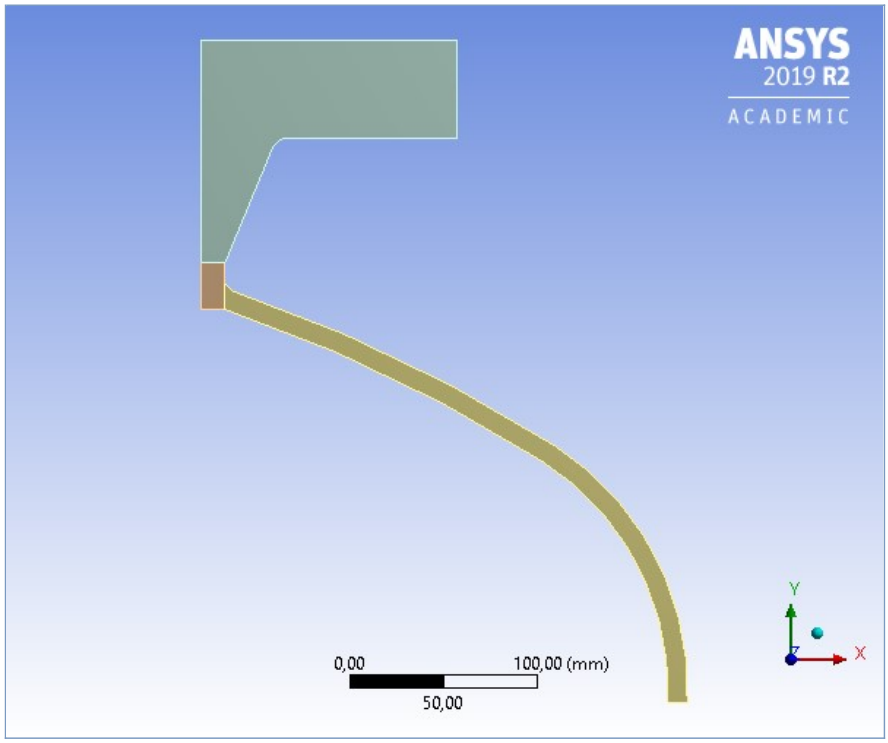
Yield Strength MPa	Tangent Modulus MPa	Temperature C
159,5	0,	

TABLE 42
P265GH > Color

Red	Green	Blue
184,	235,	197,

Direct Route - Nozzle N3*

First Saved	Saturday, February 8, 2020
Last Saved	Friday, June 5, 2020
Product Version	2019 R2
Save Project Before Solution	No
Save Project After Solution	No



Contents

- Units
- Model (F4)
  - Geometry
    - Model_2D_Rev3
      - Parts
  - Materials
  - Construction Geometry
    - Paths
  - Coordinate Systems
  - Connections
    - Contacts
  - Mesh
    - Mesh Controls
  - Static Structural (F5)
    - Analysis Settings
    - Loads
    - Solution (F6)
      - Solution Information
      - Results
      - User Defined Result
      - EPPL2
      - EPPL1 3
- Material Data
  - P355GH
  - P355QH1
  - P265GH

Units

TABLE 1

Unit System	Metric (mm, kg, N, s, mV, mA) Degrees rad/s Celsius
Angle	Degrees
Rotational Velocity	rad/s
Temperature	Celsius

Model (F4)

Geometry

TABLE 2
Model (F4) > Geometry

Object Name	*Geometry*
State	Fully Defined
Definition	
Source	C:\Users\prochazka.tomas\AppData\Local\Temp\GPD.tmp3\GPD_files\dp0\Geom-4\DM\Geom-4.agdb
Type	DesignModeler
Length Unit	Meters
Element Control	Program Controlled
2D Behavior	Axisymmetric
Display Style	Body Color
Bounding Box	
Length X	258,87 mm
Length Y	352,84 mm
Properties	
Volume	N/A
Mass	N/A
Surface Area(approx.)	12813 mm²
Scale Factor Value	1,
Statistics	
Bodies	3
Active Bodies	3
Nodes	66596
Elements	21709
Mesh Metric	None
Update Options	
Assign Default Material	No
Basic Geometry Options	
Parameters	Independent
Parameter Key	
Attributes	Yes

Attribute Key	
Named Selections	Yes
Named Selection Key	
Material Properties	Yes
Advanced Geometry Options	
Use Associativity	Yes
Coordinate Systems	Yes
Coordinate System Key	
Reader Mode Saves Updated File	No
Use Instances	Yes
Smart CAD Update	Yes
Compare Parts On Update	No
Analysis Type	2-D
Clean Bodies On Import	No
Stitch Surfaces On Import	None
Decompose Disjoint Geometry	Yes
Enclosure and Symmetry Processing	Yes

TABLE 3
Model (F4) > Geometry > Body Groups

Object Name	*Model_2D_Rev3*
State	Meshed
Graphics Properties	
Visible	Yes
Definition	
Suppressed	No
Assignment	Multiple Materials
Coordinate System	Default Coordinate System
Bounding Box	
Length X	258,87 mm
Length Y	352,84 mm
Properties	
Volume	0, mm³
Mass	0, kg
Centroid X	0, mm
Centroid Y	0, mm
Centroid Z	0, mm
Moment of Inertia Ip1	0, kg·mm²
Moment of Inertia Ip2	0, kg·mm²
Moment of Inertia Ip3	0, kg·mm²
Surface Area(approx.)	12813 mm²
Statistics	
Nodes	66596
Elements	21709
Mesh Metric	None
CAD Attributes	
DMBodyGroup	1
DMSheetThickness	0

TABLE 4
Model (F4) > Geometry > Model_2D_Rev3 > Parts

Object Name	*Model_2D_Rev3@Povrch-Rovina3*	*Model_2D_Rev3@Povrch-Rovina2*	*Model_2D_Rev3@Povrch-Rovina1*
State	Meshed		
Graphics Properties			
Visible	Yes		
Glow	0		
Shininess	1		
Transparency	1		
Specularity	1		
Definition			
Suppressed	No		
Stiffness Behavior	Flexible		
Coordinate System	Default Coordinate System		
Reference Temperature	By Environment		
Treatment	None		
Material			
Assignment	P355GH	P355QH1	P265GH
Nonlinear Effects	Yes		
Thermal Strain Effects	Yes		
Bounding Box			
Length X	12,7 mm	136,2 mm	246,17 mm
Length Y	25, mm	118,42 mm	223,31 mm
Properties			
Volume	N/A		
Mass	N/A		
Centroid X	N/A		
Centroid Y	N/A		

Centroid Z	N/A		
Moment of Inertia Ip1	N/A		
Moment of Inertia Ip2	N/A		
Moment of Inertia Ip3	N/A		
Surface Area(approx.)	317,5 mm²	8847,3 mm²	3647,9 mm²
Statistics			
Nodes	15682	29747	21383
Elements	5127	9736	6846
Mesh Metric	None		

TABLE 5
Model (F4) > Materials

Object Name	*Materials*
State	Fully Defined
Statistics	
Materials	5
Material Assignments	0

TABLE 6
Model (F4) > Construction Geometry

Object Name	*Construction Geometry*
State	Fully Defined
Display	
Show Mesh	No

TABLE 7
Model (F4) > Construction Geometry > Paths

Object Name	*Path*	*Path 2*	*Path 3*	*Path 4*
State	Fully Defined			
Definition				
Path Type	Two Points			
Path Coordinate System	Coordinate System 2			
Number of Sampling Points	3,	47,		
Suppressed	No			
Start				
Coordinate System	Coordinate System 2			
Start X Coordinate	0, mm	4,2 mm	9,45 mm	14,7 mm
Start Y Coordinate	0, mm	7,616e-002 mm	0,13811 mm	0,16807 mm
Location	Defined			
End				
Coordinate System	Coordinate System 2			
End X Coordinate	6,5327e-002 mm	4,2 mm	9,45 mm	14,7 mm
End Y Coordinate	-10,501 mm	-10,427 mm	-10,362 mm	-10,332 mm
Location	Defined			

Coordinate Systems

TABLE 8
Model (F4) > Coordinate Systems > Coordinate System

Object Name	*Global Coordinate System*	*Coordinate System 2*
State	Fully Defined	
Definition		
Type	Cartesian	
Coordinate System ID	0,	
Coordinate System		Program Controlled
APDL Name		
Suppressed		No
Origin		
Origin X	0, mm	258,24 mm
Origin Y	0, mm	219,07 mm
Define By		Geometry Selection
Geometry		Defined
Directional Vectors		
X Axis Data	[1, 0,]	[0,93969 -0,34202]
Y Axis Data	[0, 1,]	[0,34202 0,93969]
Principal Axis		
Axis		X
Define By		Global X Axis
Orientation About Principal Axis		
Axis		Y
Define By		Default
Transformations		
Base Configuration		Absolute
Transformed Configuration		[258,24 219,07]

Connections

TABLE 9
Model (F4) > Connections

Object Name	*Connections*
State	Fully Defined
Auto Detection	
Generate Automatic Connection On Refresh	Yes
Transparency	
Enabled	Yes

TABLE 10
Model (F4) > Connections > Contacts

Object Name	*Contacts*
State	Fully Defined
Definition	
Connection Type	Contact
Scope	
Scoping Method	Geometry Selection
Geometry	All Bodies
Auto Detection	
Tolerance Type	Slider
Tolerance Slider	0,
Tolerance Value	1,0941 mm
Use Range	No
Edge/Edge	Yes
Priority	Include All
Group By	Bodies
Search Across	Bodies
Statistics	
Connections	0
Active Connections	0

Mesh

TABLE 11
Model (F4) > Mesh

Object Name	*Mesh*
State	Solved
Display	
Display Style	Use Geometry Setting
Defaults	
Physics Preference	Nonlinear Mechanical
Element Order	Program Controlled
Element Size	1, mm
Sizing	
Growth Rate	Default (1,5)
Mesh Defeaturing	Yes
Defeature Size	Default (5,e-003 mm)
Capture Curvature	Yes
Curvature Min Size	Default (1,e-002 mm)
Curvature Normal Angle	Default (60,°)
Capture Proximity	No
Size Formulation (Beta)	Program Controlled
Bounding Box Diagonal	437,62 mm
Average Surface Area	4270,9 mm²
Minimum Edge Length	5,9925 mm
Enable Size Field (Beta)	No
Quality	
Check Mesh Quality	Yes, Errors
Mesh Metric	None
Inflation	
Use Automatic Inflation	None
Inflation Option	Smooth Transition
Transition Ratio	0,272
Maximum Layers	2
Growth Rate	1,2
Inflation Algorithm	Pre
View Advanced Options	No
Batch Connections	
Mesh Based Connection	No
Advanced	
Number of CPUs for Parallel Part Meshing	Program Controlled
Straight Sided Elements	No
Rigid Body Behavior	Dimensionally Reduced
Triangle Surface Mesher	Program Controlled
Use Asymmetric Mapped Mesh (Beta)	No
Topology Checking	Yes
Use Sheet Thickness for Pinch	No
Pinch Tolerance	Default (9,e-003 mm)

Generate Pinch on Refresh	No
Sheet Loop Removal	No
Statistics	
Nodes	66596
Elements	21709

TABLE 12
Model (F4) > Mesh > Mesh Controls

Object Name	*Automatic Method*	*Vertex Sizing*
State	Fully Defined	
Scope		
Scoping Method	Geometry Selection	
Geometry	3 Bodies	1 Vertex
Definition		
Suppressed	No	
Method	Quadrilateral Dominant	
Element Order	Use Global Setting	
Free Face Mesh Type	Quad/Tri	
Type		Sphere of Influence
Sphere Radius		30, mm
Element Size		0,25 mm

Static Structural (F5)

TABLE 13
Model (F4) > Analysis

Object Name	*Static Structural (F5)*
State	Solved
Definition	
Physics Type	Structural
Analysis Type	Static Structural
Solver Target	Mechanical APDL
Options	
Environment Temperature	20, °C
Generate Input Only	No

TABLE 14
Model (F4) > Static Structural (F5) > Analysis Settings

Object Name	*Analysis Settings*
State	Fully Defined
Step Controls	
Number Of Steps	1,
Current Step Number	1,
Step End Time	1, s
Auto Time Stepping	On
Define By	Time
Initial Time Step	5,e-002 s
Minimum Time Step	1,e-004 s
Maximum Time Step	5,e-002 s
Solver Controls	
Solver Type	Direct
Weak Springs	Off
Solver Pivot Checking	Program Controlled
Large Deflection	Off
Inertia Relief	Off
Rotordynamics Controls	
Coriolis Effect	Off
Restart Controls	
Generate Restart Points	Program Controlled
Retain Files After Full Solve	No
Combine Restart Files	Program Controlled
Nonlinear Controls	
Newton-Raphson Option	Program Controlled
Force Convergence	Program Controlled
Moment Convergence	Program Controlled
Displacement Convergence	Program Controlled
Rotation Convergence	Program Controlled
Line Search	Program Controlled
Stabilization	Program Controlled
Output Controls	
Stress	Yes
Surface Stress	No
Back Stress	No
Strain	Yes
Contact Data	Yes
Nonlinear Data	No
Nodal Forces	No

Contact Miscellaneous	No
General Miscellaneous	No
Store Results At	All Time Points
Cache Results in Memory (Beta)	Never
Combine Distributed Result Files (Beta)	Program Controlled
Result File Compression	Program Controlled
Analysis Data Management	
Solver Files Directory	C:\Users\prochazka.tomas\AppData\Local\Temp\GPD.tmp3\GPD_files\dp0\SYS-3\MECH\
Future Analysis	None
Scratch Solver Files Directory	
Save MAPDL db	No
Contact Summary	Program Controlled
Delete Unneeded Files	Yes
Nonlinear Solution	Yes
Solver Units	Active System
Solver Unit System	nmm

TABLE 15
Model (F4) > Static Structural (F5) > Loads

Object Name	*Tlak*	*Teplota*	*Displacement*	*Ekvivalentni sila*	*Tiha komponenty*
State	Fully Defined				
Scope					
Scoping Method	Geometry Selection				
Geometry	5 Edges	3 Bodies	1 Edge		
Definition					
ID (Beta)	57	84	95	305	307
Type	Pressure	Thermal Condition	Displacement	Force	
Define By	Normal To		Components		
Applied By	Surface Effect				
Magnitude	1,92 MPa (ramped)	130, °C (ramped)			
Suppressed	No				
Coordinate System			Global Coordinate System		
X Component			Free	0, N (ramped)	
Y Component			0, mm (ramped)	3,5121e+005 N (ramped)	-1208,6 N (ramped)

FIGURE 1
Model (F4) > Static Structural (F5) > Tlak

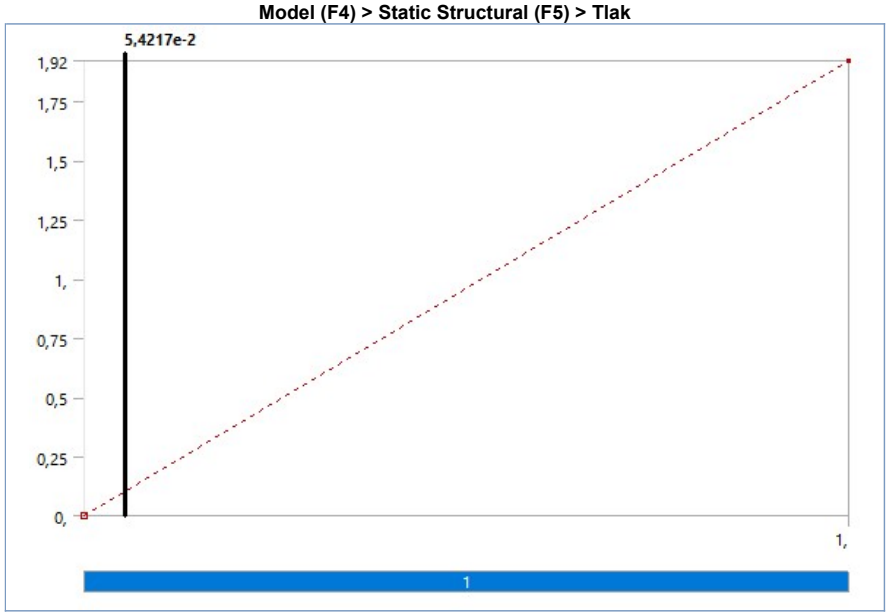


FIGURE 2
Model (F4) > Static Structural (F5) > Teplota

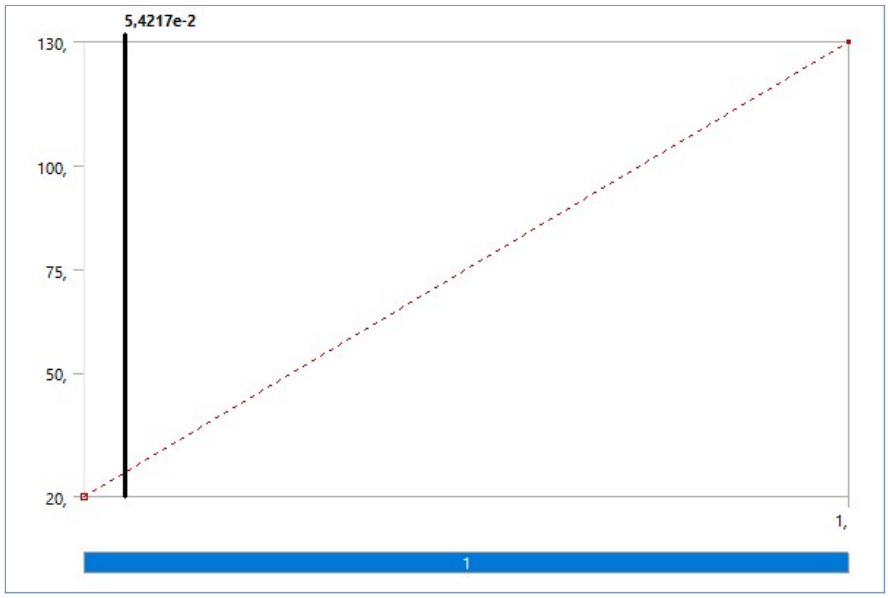


FIGURE 3
Model (F4) > Static Structural (F5) > Displacement

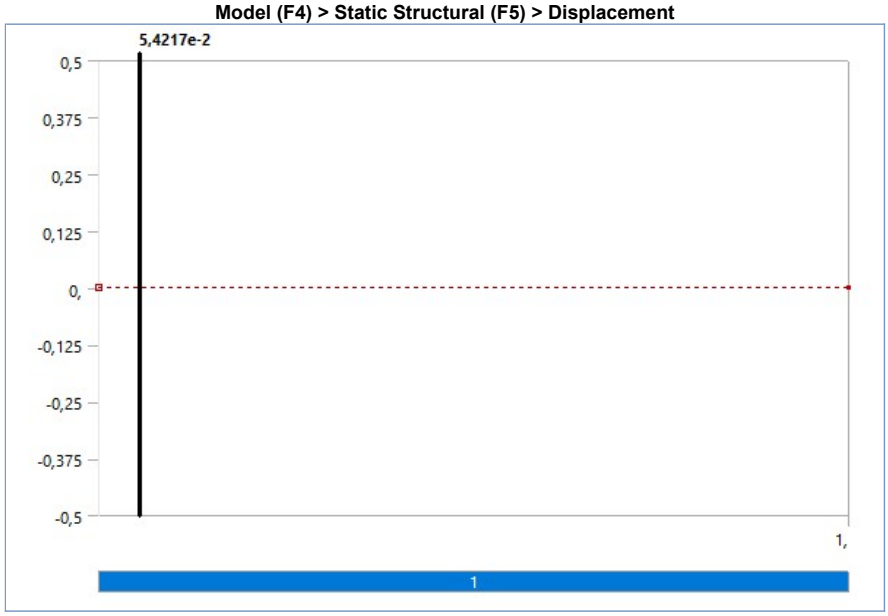


FIGURE 4
Model (F4) > Static Structural (F5) > Ekvivalentni sila

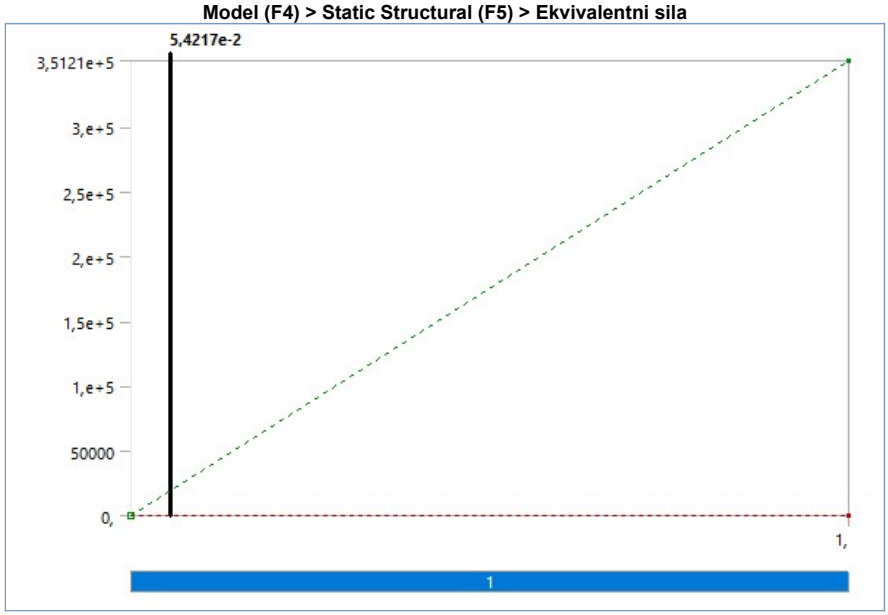


FIGURE 5

Model (F4) > Static Structural (F5) > Tiha komponenty

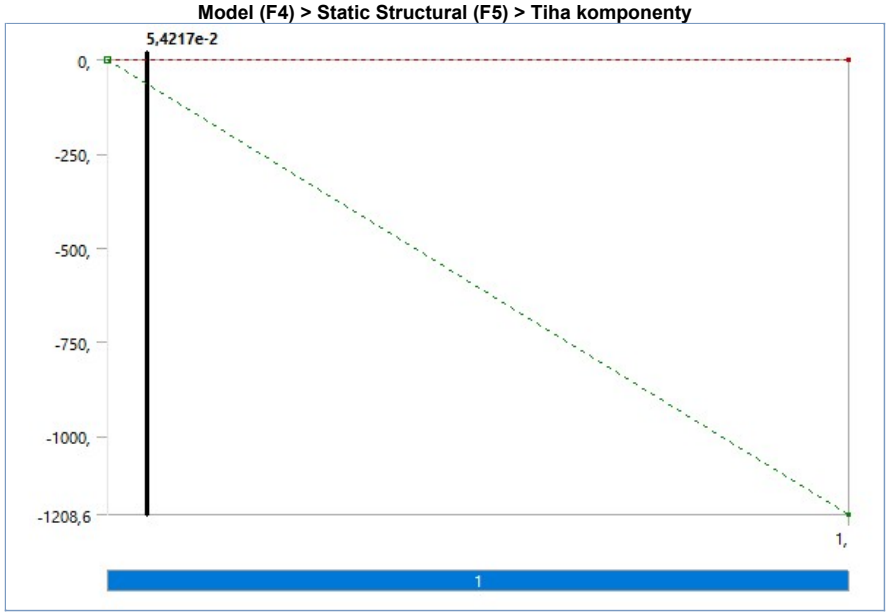


TABLE 16
Model (F4) > Static Structural (F5) > Command Snippet

Object Name	*Commands (APDL)*
State	Fully Defined
File	
File Name	
File Status	File not found
Definition	
Suppressed	No
Target	Mechanical APDL
Issue Solve Command	Yes
Input Arguments	
ARG1	
ARG2	
ARG3	
ARG4	
ARG5	
ARG6	
ARG7	
ARG8	
ARG9	

Model (F4) > Static Structural (F5) > Commands (APDL)

```
!   Commands inserted into this file will be executed just prior to the ANSYS SOLVE command.
!   These commands may supersede command settings set by Workbench.

!   Active UNIT system in Workbench when this object was created:  Metric (mm, kg, N, s, mV, mA)
!   NOTE:  Any data that requires units (such as mass) is assumed to be in the consistent solver unit system.
!               See Solving Units in the help system for more information.

/SOLU
ERESX,no
NEQIT,15
```

Solution (F6)

TABLE 17
Model (F4) > Static Structural (F5) > Solution

Object Name	*Solution (F6)*
State	Solved
Solution	
Number Of Cores to Use (Beta)	Solve Process Settings
Adaptive Mesh Refinement	
Max Refinement Loops	3,
Refinement Depth	2,
Information	
Status	Done
MAPDL Elapsed Time	1 m 0 s
MAPDL Memory Used	484, MB
MAPDL Result File Size	161,5 MB
Post Processing	
Distributed Post Processing (Beta)	Program Controlled
Mesh Source (Beta)	Program Controlled

Beam Section Results	No
On Demand Stress/Strain	No

TABLE 18
Model (F4) > Static Structural (F5) > Solution (F6) > Solution Information

Object Name	*Solution Information*
State	Solved
Solution Information	
Solution Output	Force Convergence
Newton-Raphson Residuals	0
Identify Element Violations	0
Update Interval	2,5 s
Display Points	All
FE Connection Visibility	
Activate Visibility	Yes
Display	All FE Connectors
Draw Connections Attached To	All Nodes
Line Color	Connection Type
Visible on Results	No
Line Thickness	Single
Display Type	Lines

FIGURE 6
Model (F4) > Static Structural (F5) > Solution (F6) > Solution Information

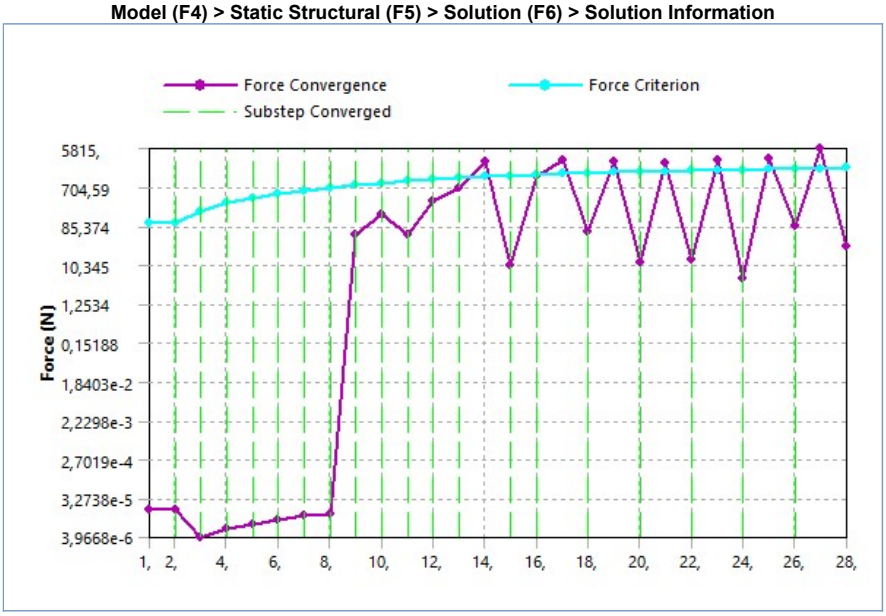


FIGURE 7
Model (F4) > Static Structural (F5) > Solution (F6) > Solution Information

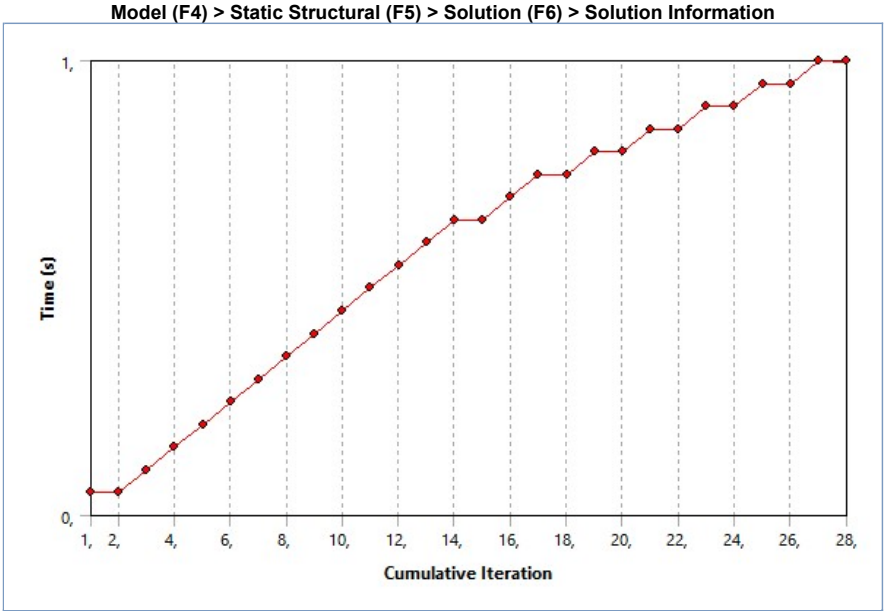


TABLE 19
Model (F4) > Static Structural (F5) > Solution (F6) > Results

Object Name	*Total Deformation*	*Stress Intensity*	*Equivalent Stress*

State	Solved		
Scope			
Scoping Method	Geometry Selection		
Geometry	All Bodies		
Definition			
Type	Total Deformation	Stress Intensity	Equivalent (von-Mises) Stress
By	Time		
Display Time	1, s	0,83974 s	Last
Calculate Time History	Yes		
Identifier			
Suppressed	No		
Results			
Minimum	0,1682 mm	0,37447 MPa	0,443 MPa
Maximum	1,2232 mm	246,04 MPa	213,8 MPa
Average	0,94026 mm	99,212 MPa	105,75 MPa
Minimum Occurs On	Model_2D_Rev3@Povrch-Rovina1	Model_2D_Rev3@Povrch-Rovina2	
Maximum Occurs On	Model_2D_Rev3@Povrch-Rovina2	Model_2D_Rev3@Povrch-Rovina3	
Minimum Value Over Time			
Minimum	8,3358e-003 mm	2,2297e-002 MPa	1,9373e-002 MPa
Maximum	0,1682 mm	0,44595 MPa	0,443 MPa
Maximum Value Over Time			
Minimum	5,7351e-002 mm	23,759 MPa	20,875 MPa
Maximum	1,2232 mm	246,86 MPa	213,8 MPa
Information			
Time	1, s	0,83974 s	1, s
Load Step	1		
Substep	20	17	20
Iteration Number	28	22	28
Integration Point Results			
Display Option		Averaged	
Average Across Bodies		No	

FIGURE 8
Model (F4) > Static Structural (F5) > Solution (F6) > Total Deformation

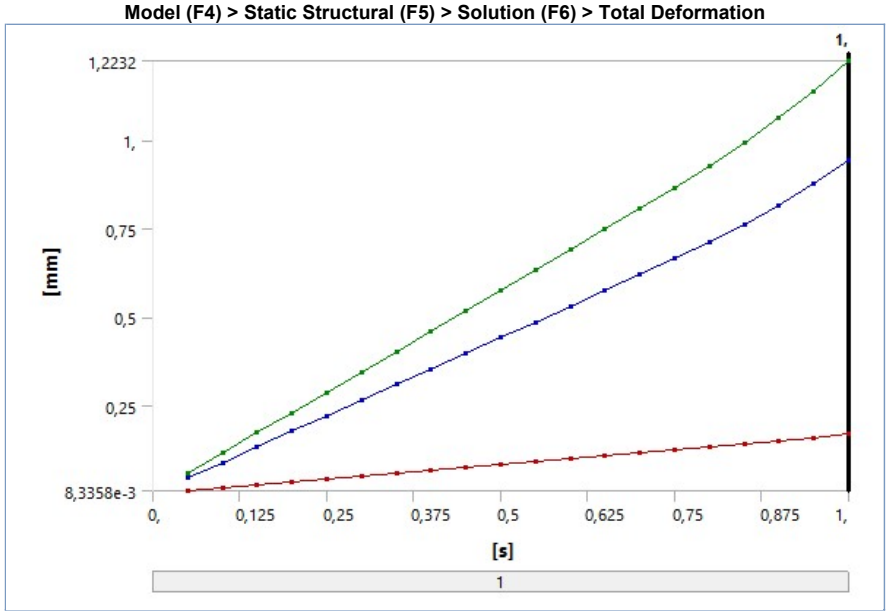


TABLE 20
Model (F4) > Static Structural (F5) > Solution (F6) > Total Deformation

Time [s]	Minimum [mm]	Maximum [mm]	Average [mm]
5,e-002	8,3358e-003	5,7351e-002	4,4058e-002
0,1	1,6672e-002	0,1147	8,8116e-002
0,15	2,5007e-002	0,17205	0,13217
0,2	3,3343e-002	0,2294	0,17623
0,25	4,1679e-002	0,28676	0,22029
0,3	5,0015e-002	0,34411	0,26435
0,35	5,8351e-002	0,40146	0,30841
0,4	6,6686e-002	0,45881	0,35247
0,45	7,5022e-002	0,51618	0,39654
0,5	8,3358e-002	0,57355	0,44061
0,55	9,1695e-002	0,63096	0,48471
0,6	0,10003	0,68843	0,52887
0,65	0,10837	0,74611	0,57317
0,7	0,11672	0,80439	0,61794
0,75	0,12508	0,86412	0,66383
0,8	0,13348	0,92618	0,71152

0,85	0,14193	0,99144	0,7617
0,9	0,15044	1,0615	0,81555
0,95	0,15912	1,1374	0,87403
1,	0,1682	1,2232	0,94026

FIGURE 9
Model (F4) > Static Structural (F5) > Solution (F6) > Stress Intensity

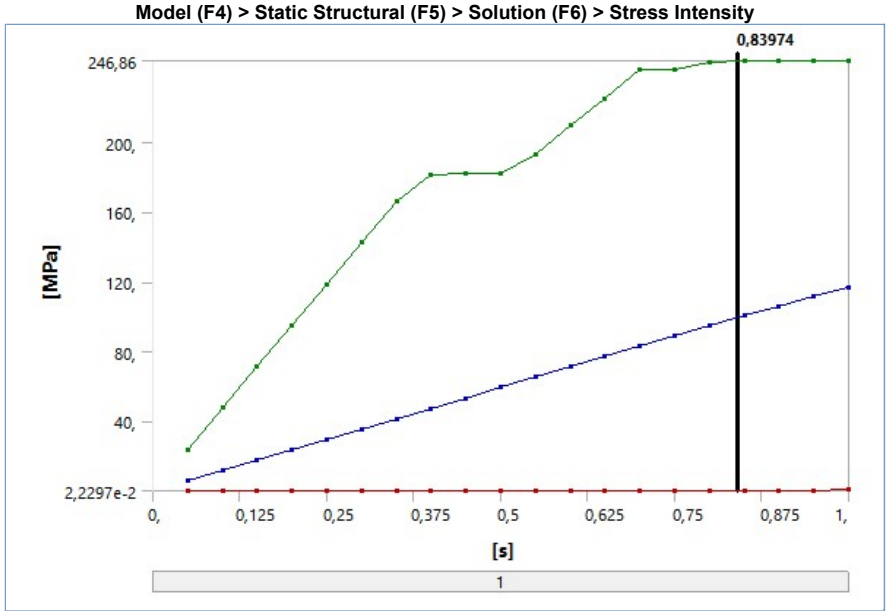


TABLE 21
Model (F4) > Static Structural (F5) > Solution (F6) > Stress Intensity

Time [s]	Minimum [MPa]	Maximum [MPa]	Average [MPa]
5,e-002	2,2297e-002	23,759	5,9244
0,1	4,4595e-002	47,519	11,849
0,15	6,6892e-002	71,278	17,773
0,2	8,9189e-002	95,038	23,698
0,25	0,11149	118,8	29,622
0,3	0,13378	142,56	35,547
0,35	0,15608	166,32	41,471
0,4	0,17838	181,67	47,395
0,45	0,20068	181,96	53,32
0,5	0,22297	182,18	59,245
0,55	0,24527	193,35	65,172
0,6	0,26757	209,52	71,102
0,65	0,28987	225,29	77,039
0,7	0,31216	241,78	82,969
0,75	0,33446	242,07	88,866
0,8	0,35675	246,13	94,684
0,85	0,37905	246,86	100,38
0,9	0,40135	246,85	105,89
0,95	0,42365	246,86	111,38
1,	0,44595		116,79

FIGURE 10
Model (F4) > Static Structural (F5) > Solution (F6) > Equivalent Stress

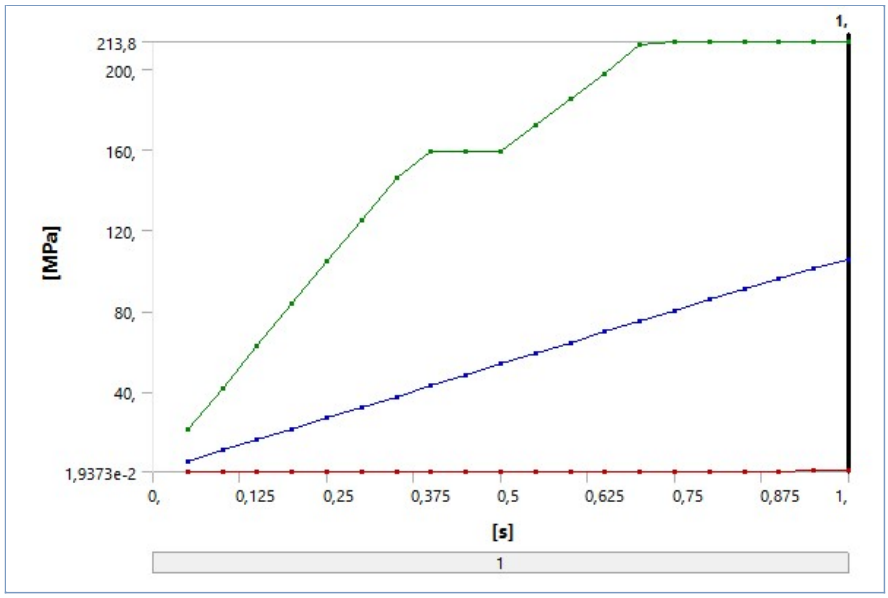


TABLE 22
Model (F4) > Static Structural (F5) > Solution (F6) > Equivalent Stress

Time [s]	Minimum [MPa]	Maximum [MPa]	Average [MPa]
5,e-002	1,9373e-002	20,875	5,3476
0,1	3,8745e-002	41,751	10,695
0,15	5,8118e-002	62,626	16,043
0,2	7,749e-002	83,502	21,39
0,25	9,6863e-002	104,38	26,738
0,3	0,11624	125,25	32,086
0,35	0,13561	146,13	37,433
0,4	0,15498	159,5	42,781
0,45	0,17436		48,128
0,5	0,19374		53,476
0,55	0,21312	172,15	58,824
0,6	0,23253	185,47	64,174
0,65	0,25198	197,98	69,524
0,7	0,27161	212,52	74,869
0,75	0,29169	213,8	80,198
0,8	0,31276		85,481
0,85	0,33576		90,691
0,9	0,36259		95,742
0,95	0,39612		100,79
1,	0,443		105,75

TABLE 23
Model (F4) > Static Structural (F5) > Solution (F6) > User Defined Result

Object Name	*User Defined Result*	*EPTO1*	*EPTO2*	*EPTO3*	*User Defined Result 2*	*User Defined Result 3*	*User Defined Result 4*	*EPEL1*	*EPEL2*	*EPEL3*	*EPPL1*
State	Solved										
Scope											
Scoping Method	Geometry Selection	Path									
Geometry	All Bodies										
Path		Path			Path 2	Path 3	Path 4	Path 2			
Definition											
Type	User Defined Result										
Expression	= max(abs(EPTO1);abs(EPTO2);abs(EPTO3))	= EPTO1	= EPTO2	= EPTO3	= max(abs(EPTO1);abs(EPTO2);abs(EPTO3))			= EPEL1	= EPEL2	= EPEL3	= EPPL1
Input Unit System	Metric (mm, kg, N, s, mV, mA)										
Output Unit		Strain						Strain			
By	Time										
Display Time	Last										
Coordinate System	Global Coordinate System	Solution Coordinate System			Global Coordinate System						Global Coordinate System
Calculate Time History	Yes										
Identifier											
Suppressed	No										
Integration Point Results											
Display											

Option	Averaged										
Average Across Bodies	No										
Results											
Minimum	1,671e-006	9,8028e-004 mm/mm	-1,9644e-004 mm/mm	-8,0413e-003 mm/mm	9,7993e-004	9,4589e-004	8,9525e-004	4,0968e-004 mm/mm	-1,506e-004 mm/mm	-7,1404e-004 mm/mm	1,8969e-004 mm/mm
Maximum	8,0413e-003	7,7341e-003 mm/mm	9,5769e-004 mm/mm	-4,0072e-004 mm/mm	1,71e-003	1,4078e-003	1,1494e-003	7,9453e-004 mm/mm	5,3895e-004 mm/mm	-3,0772e-004 mm/mm	7,1487e-004 mm/mm
Average	5,5007e-004	2,3499e-003 mm/mm	3,1989e-004 mm/mm	-2,3073e-003 mm/mm	1,1392e-003	1,0143e-003	9,4436e-004	6,4306e-004 mm/mm	1,9002e-004 mm/mm	-4,6957e-004 mm/mm	3,7631e-004 mm/mm
Minimum Occurs On	Model_2D_Rev3@Povrch-Rovina2	Model_2D_Rev3@Povrch-Rovina1									
Maximum Occurs On	Model_2D_Rev3@Povrch-Rovina1										
Minimum Value Over Time											
Minimum	9,4694e-008	4,4228e-005 mm/mm	-1,9644e-004 mm/mm	-8,0413e-003 mm/mm	4,3656e-005	4,2751e-005	4,0913e-005	4,3656e-005 mm/mm	-1,6738e-004 mm/mm	-7,1404e-004 mm/mm	0, mm/mm
Maximum	1,8299e-006	9,8028e-004 mm/mm	-9,3923e-006 mm/mm	-5,4618e-005 mm/mm	9,7993e-004	9,4589e-004	8,9525e-004	5,6873e-004 mm/mm	-1,0362e-005 mm/mm	-4,5967e-005 mm/mm	1,8969e-004 mm/mm
Maximum Value Over Time											
Minimum	9,5336e-005	9,4928e-005 mm/mm	4,3537e-005 mm/mm	-4,0072e-004 mm/mm	4,5967e-005	4,3348e-005	4,2741e-005	4,4535e-005 mm/mm	3,818e-005 mm/mm	-3,0772e-004 mm/mm	0, mm/mm
Maximum	8,0413e-003	7,7341e-003 mm/mm	9,5769e-004 mm/mm	-1,3923e-005 mm/mm	1,71e-003	1,4078e-003	1,1494e-003	7,958e-004 mm/mm	5,4286e-004 mm/mm	-1,6138e-005 mm/mm	7,1487e-004 mm/mm
Information											
Time	1, s										
Load Step	1										
Substep	20										
Iteration Number	28										
Graph Controls											
X-Axis		S									

FIGURE 11
Model (F4) > Static Structural (F5) > Solution (F6) > User Defined Result

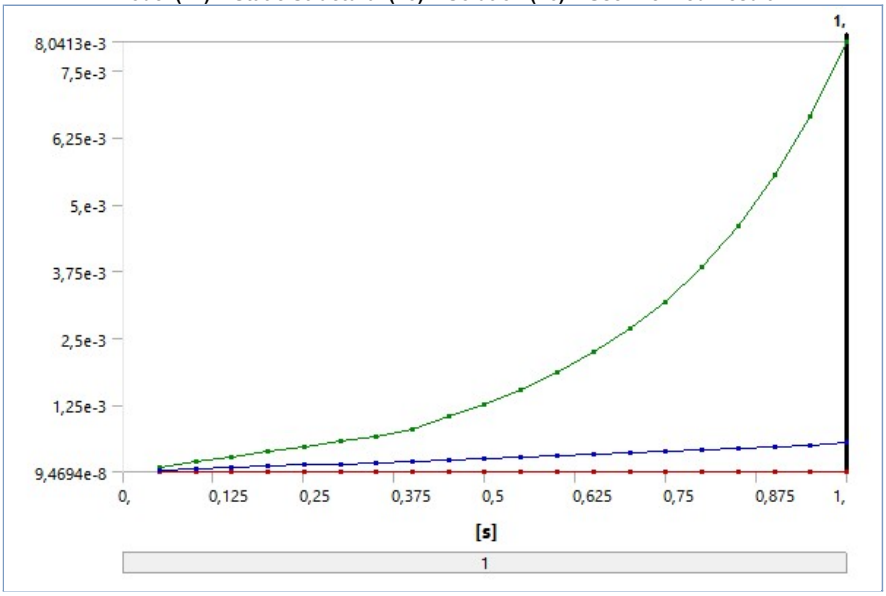


TABLE 24
Model (F4) > Static Structural (F5) > Solution (F6) > User Defined Result

Time [s]	Minimum	Maximum	Average
5,e-002	9,4694e-008	9,5336e-005	2,4705e-005
0,1	1,8939e-007	1,9067e-004	4,941e-005
0,15	2,8408e-007	2,8601e-004	7,4115e-005
0,2	3,7878e-007	3,8134e-004	9,882e-005

0,25	4,7347e-007	4,7668e-004	1,2352e-004
0,3	5,6817e-007	5,7202e-004	1,4823e-004
0,35	6,6286e-007	6,6735e-004	1,7293e-004
0,4	7,5758e-007	8,0657e-004	1,9764e-004
0,45	8,5236e-007	1,0265e-003	2,2236e-004
0,5	9,4716e-007	1,2491e-003	2,4708e-004
0,55	1,0421e-006	1,5275e-003	2,7182e-004
0,6	1,1373e-006	1,861e-003	2,9662e-004
0,65	1,2335e-006	2,2481e-003	3,2156e-004
0,7	1,3322e-006	2,6882e-003	3,4688e-004
0,75	1,4367e-006	3,1863e-003	3,7308e-004
0,8	1,5498e-006	3,8229e-003	4,0087e-004
0,85	1,6744e-006	4,5998e-003	4,3106e-004
0,9	1,8147e-006	5,5514e-003	4,6505e-004
0,95	1,8299e-006	6,6587e-003	5,0381e-004
1,	1,671e-006	8,0413e-003	5,5007e-004

FIGURE 12
Model (F4) > Static Structural (F5) > Solution (F6) > EPTO1

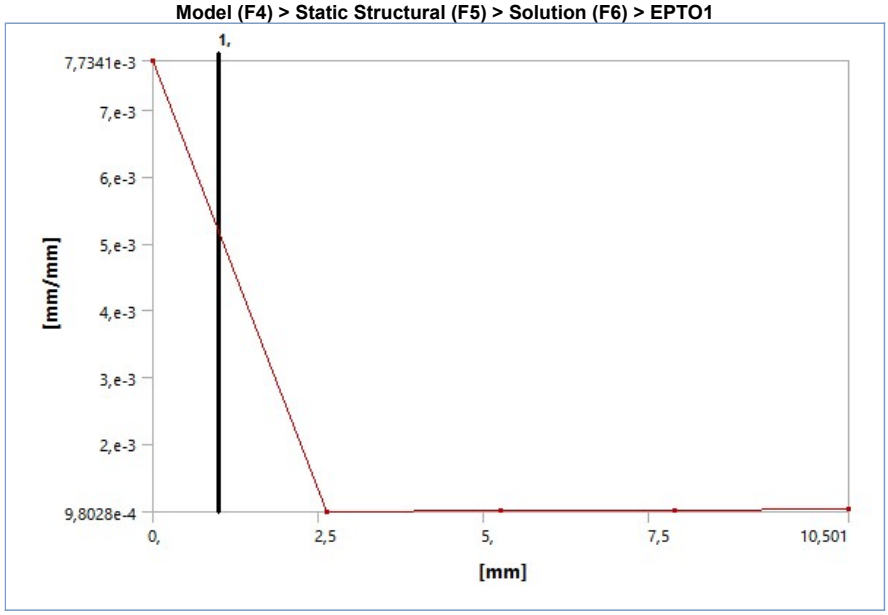


TABLE 25
Model (F4) > Static Structural (F5) > Solution (F6) > EPTO1

Length [mm]	Value [mm/mm]
0,	7,7341e-003
2,6253	9,8028e-004
5,2505	9,9681e-004
7,8758	1,0117e-003
10,501	1,0265e-003

FIGURE 13
Model (F4) > Static Structural (F5) > Solution (F6) > EPTO2

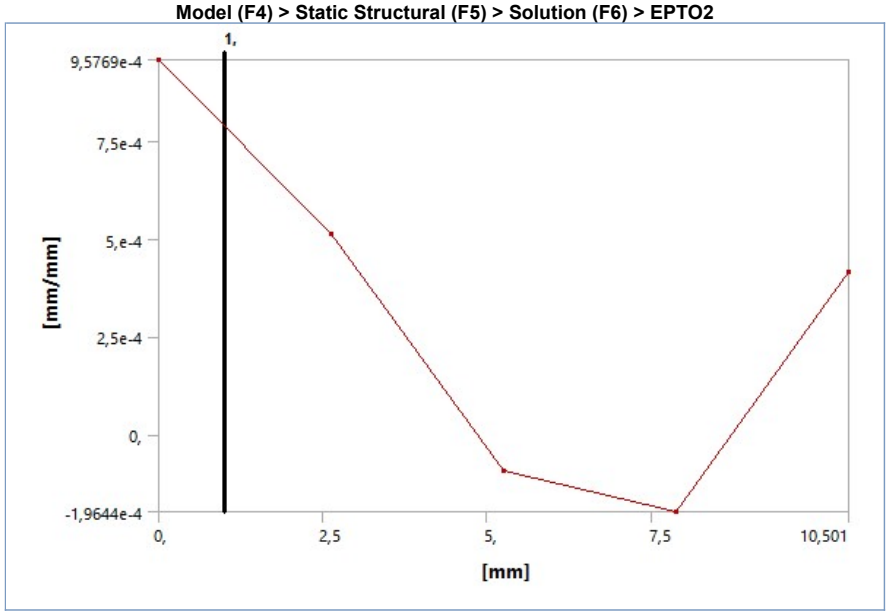


TABLE 26
Model (F4) > Static Structural (F5) > Solution (F6) > EPTO2

Length [mm]	Value [mm/mm]
0,	9,5769e-004
2,6253	5,1441e-004
5,2505	-9,1663e-005
7,8758	-1,9644e-004
10,501	4,1549e-004

FIGURE 14
Model (F4) > Static Structural (F5) > Solution (F6) > EPTO3

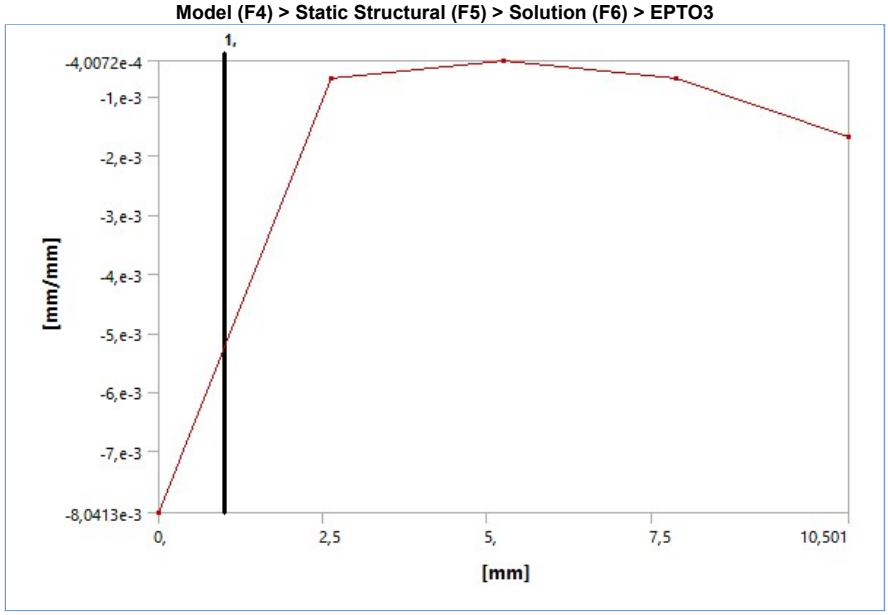


TABLE 27
Model (F4) > Static Structural (F5) > Solution (F6) > EPTO3

Length [mm]	Value [mm/mm]
0,	-8,0413e-003
2,6253	-7,0331e-004
5,2505	-4,0072e-004
7,8758	-7,0838e-004
10,501	-1,6829e-003

FIGURE 15
Model (F4) > Static Structural (F5) > Solution (F6) > User Defined Result 2

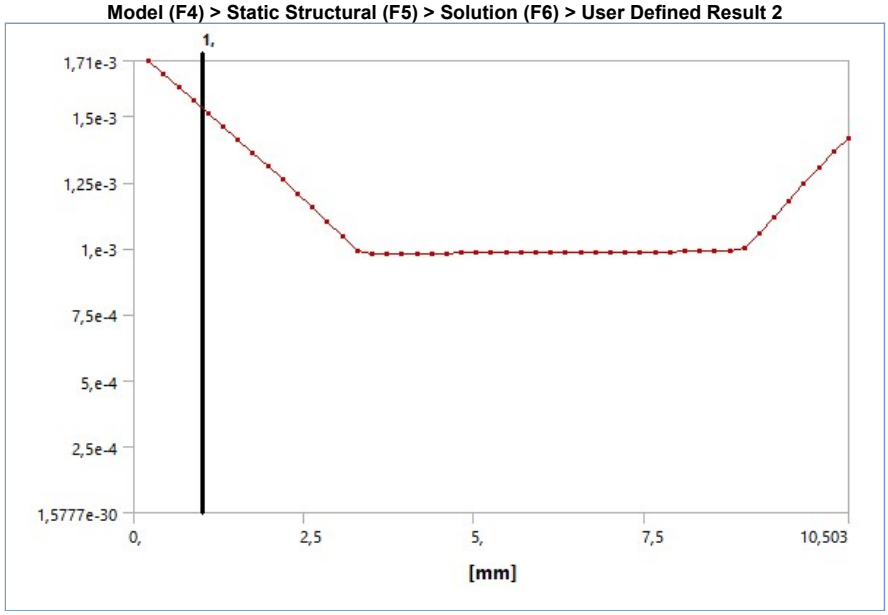


TABLE 28
Model (F4) > Static Structural (F5) > Solution (F6) > User Defined Result 2

Length [mm]	Value
0,	
0,21881	1,71e-003
0,43763	1,6617e-003
0,65644	1,6118e-003

0,87525	1,5619e-003
1,0941	1,512e-003
1,3129	1,4622e-003
1,5317	1,4122e-003
1,7505	1,3622e-003
1,9693	1,3117e-003
2,1881	1,2607e-003
2,4069	1,2089e-003
2,6258	1,156e-003
2,8446	1,102e-003
3,0634	1,0467e-003
3,2822	9,919e-004
3,501	9,7993e-004
3,7198	9,8039e-004
3,9386	9,8084e-004
4,1575	9,8129e-004
4,3763	9,8173e-004
4,5951	9,8216e-004
4,8139	9,8259e-004
5,0327	9,8301e-004
5,2515	9,8342e-004
5,4703	9,8383e-004
5,6891	9,8422e-004
5,908	9,8461e-004
6,1268	9,8499e-004
6,3456	9,8536e-004
6,5644	9,8572e-004
6,7832	9,8607e-004
7,002	9,8641e-004
7,2208	9,8674e-004
7,4397	9,8707e-004
7,6585	9,8738e-004
7,8773	9,8768e-004
8,0961	9,8797e-004
8,3149	9,8825e-004
8,5337	9,8851e-004
8,7525	9,8877e-004
8,9713	1,0001e-003
9,1902	1,058e-003
9,409	1,1192e-003
9,6278	1,1809e-003
9,8466	1,2431e-003
10,065	1,3059e-003
10,284	1,3674e-003
10,503	1,4179e-003

FIGURE 16
Model (F4) > Static Structural (F5) > Solution (F6) > User Defined Result 3

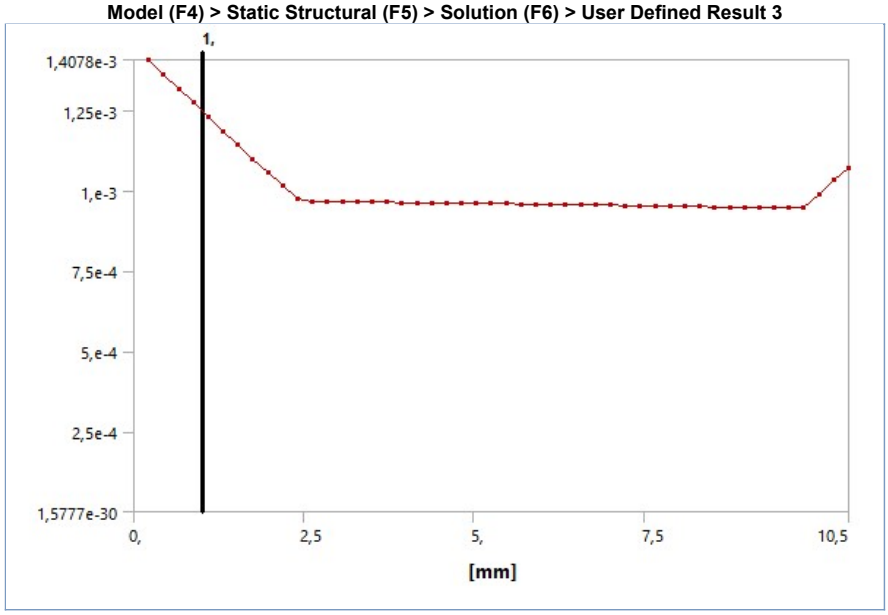


TABLE 29
Model (F4) > Static Structural (F5) > Solution (F6) > User Defined Result 3

Length [mm]	Value
0,	
0,21875	1,4078e-003

0,43751	1,3638e-003
0,65626	1,3187e-003
0,87502	1,2738e-003
1,0938	1,2294e-003
1,3125	1,1854e-003
1,5313	1,1418e-003
1,75	1,0987e-003
1,9688	1,0563e-003
2,1875	1,0146e-003
2,4063	9,7511e-004
2,6251	9,6647e-004
2,8438	9,6595e-004
3,0626	9,6542e-004
3,2813	9,6489e-004
3,5001	9,6434e-004
3,7188	9,6379e-004
3,9376	9,6323e-004
4,1563	9,6266e-004
4,3751	9,6209e-004
4,5939	9,6151e-004
4,8126	9,6092e-004
5,0314	9,6032e-004
5,2501	9,5972e-004
5,4689	9,5911e-004
5,6876	9,585e-004
5,9064	9,5788e-004
6,1251	9,5725e-004
6,3439	9,5662e-004
6,5626	9,5597e-004
6,7814	9,5532e-004
7,0002	9,5466e-004
7,2189	9,54e-004
7,4377	9,5332e-004
7,6564	9,5263e-004
7,8752	9,5193e-004
8,0939	9,5122e-004
8,3127	9,505e-004
8,5314	9,4977e-004
8,7502	9,4902e-004
8,969	9,4826e-004
9,1877	9,4749e-004
9,4065	9,467e-004
9,6252	9,4589e-004
9,844	9,4712e-004
10,063	9,8983e-004
10,281	1,0349e-003
10,5	1,0716e-003

FIGURE 17
Model (F4) > Static Structural (F5) > Solution (F6) > User Defined Result 4

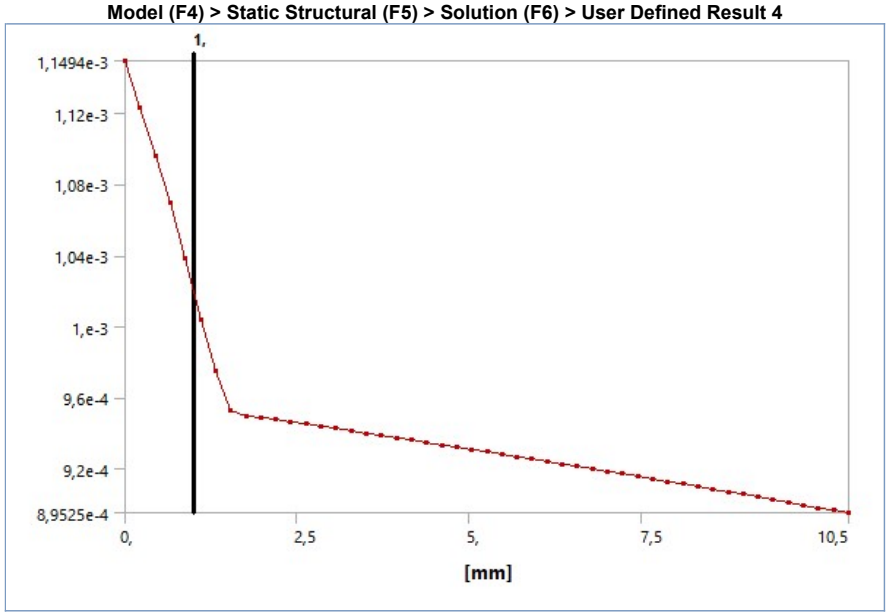


TABLE 30
Model (F4) > Static Structural (F5) > Solution (F6) > User Defined Result 4

Length [mm]	Value

0,	1,1494e-003
0,21876	1,1229e-003
0,43751	1,0964e-003
0,65627	1,0699e-003
0,87503	1,0383e-003
1,0938	1,004e-003
1,3125	9,7474e-004
1,5313	9,5248e-004
1,7501	9,4978e-004
1,9688	9,4879e-004
2,1876	9,4762e-004
2,4063	9,464e-004
2,6251	9,4514e-004
2,8438	9,4385e-004
3,0626	9,4255e-004
3,2814	9,4125e-004
3,5001	9,3996e-004
3,7189	9,3871e-004
3,9376	9,3743e-004
4,1564	9,3612e-004
4,3751	9,348e-004
4,5939	9,3349e-004
4,8127	9,3216e-004
5,0314	9,3082e-004
5,2502	9,2947e-004
5,4689	9,2813e-004
5,6877	9,2677e-004
5,9064	9,2549e-004
6,1252	9,2412e-004
6,344	9,2274e-004
6,5627	9,2137e-004
6,7815	9,1998e-004
7,0002	9,1859e-004
7,219	9,1718e-004
7,4377	9,1578e-004
7,6565	9,1436e-004
7,8753	9,1293e-004
8,094	9,1149e-004
8,3128	9,1004e-004
8,5315	9,0858e-004
8,7503	9,0711e-004
8,969	9,0562e-004
9,1878	9,0413e-004
9,4066	9,0262e-004
9,6253	9,011e-004
9,8441	8,9956e-004
10,063	8,9801e-004
10,282	8,9649e-004
10,5	8,9525e-004

FIGURE 18
Model (F4) > Static Structural (F5) > Solution (F6) > EPEL1

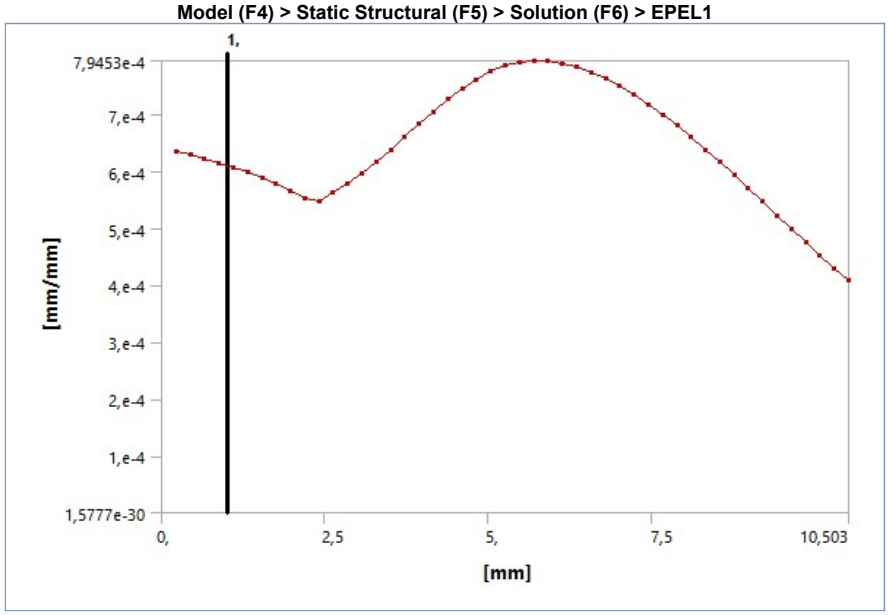


TABLE 31

Model (F4) > Static Structural (F5) > Solution (F6) > EPEL1

Length [mm]	Value [mm/mm]
0,	
0,21881	6,3582e-004
0,43763	6,2955e-004
0,65644	6,2253e-004
0,87525	6,1495e-004
1,0941	6,0675e-004
1,3129	5,9786e-004
1,5317	5,8818e-004
1,7505	5,7762e-004
1,9693	5,6588e-004
2,1881	5,5311e-004
2,4069	5,4668e-004
2,6258	5,6224e-004
2,8446	5,7914e-004
3,0634	5,9742e-004
3,2822	6,1698e-004
3,501	6,3796e-004
3,7198	6,6026e-004
3,9386	6,83e-004
4,1575	7,0537e-004
4,3763	7,2648e-004
4,5951	7,4561e-004
4,8139	7,6219e-004
5,0327	7,7571e-004
5,2515	7,8581e-004
5,4703	7,9187e-004
5,6891	7,9453e-004
5,908	7,9394e-004
6,1268	7,9033e-004
6,3456	7,8394e-004
6,5644	7,75e-004
6,7832	7,6378e-004
7,002	7,505e-004
7,2208	7,3513e-004
7,4397	7,1821e-004
7,6585	6,9992e-004
7,8773	6,8042e-004
8,0961	6,599e-004
8,3149	6,385e-004
8,5337	6,1638e-004
8,7525	5,9364e-004
8,9713	5,7036e-004
9,1902	5,4679e-004
9,409	5,2302e-004
9,6278	4,9911e-004
9,8466	4,7517e-004
10,065	4,5129e-004
10,284	4,2827e-004
10,503	4,0968e-004

FIGURE 19
Model (F4) > Static Structural (F5) > Solution (F6) > EPEL2

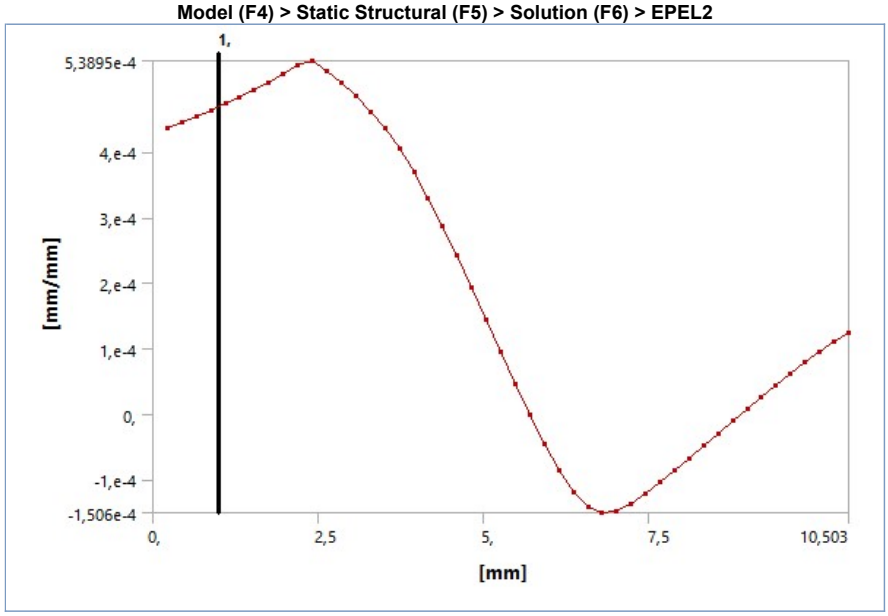


TABLE 32
Model (F4) > Static Structural (F5) > Solution (F6) > EPEL2

Length [mm]	Value [mm/mm]
0,	
0,21881	4,3721e-004
0,43763	4,4531e-004
0,65644	4,5415e-004
0,87525	4,6347e-004
1,0941	4,7328e-004
1,3129	4,8365e-004
1,5317	4,9466e-004
1,7505	5,0638e-004
1,9693	5,1899e-004
2,1881	5,3233e-004
2,4069	5,3895e-004
2,6258	5,2307e-004
2,8446	5,0511e-004
3,0634	4,8477e-004
3,2822	4,6176e-004
3,501	4,3537e-004
3,7198	4,043e-004
3,9386	3,6905e-004
4,1575	3,2982e-004
4,3763	2,8717e-004
4,5951	2,4162e-004
4,8139	1,9381e-004
5,0327	1,4461e-004
5,2515	9,4986e-005
5,4703	4,5912e-005
5,6891	-1,495e-006
5,908	-4,6143e-005
6,1268	-8,6409e-005
6,3456	-1,1962e-004
6,5644	-1,4194e-004
6,7832	-1,506e-004
7,002	-1,4735e-004
7,2208	-1,3653e-004
7,4397	-1,2163e-004
7,6585	-1,0454e-004
7,8773	-8,6304e-005
8,0961	-6,7486e-005
8,3149	-4,8444e-005
8,5337	-2,94e-005
8,7525	-1,0474e-005
8,9713	8,1365e-006
9,1902	2,6412e-005
9,409	4,43e-005
9,6278	6,1789e-005
9,8466	7,8846e-005
10,065	9,5436e-005
10,284	1,1108e-004
10,503	1,2346e-004

FIGURE 20
Model (F4) > Static Structural (F5) > Solution (F6) > EPEL3

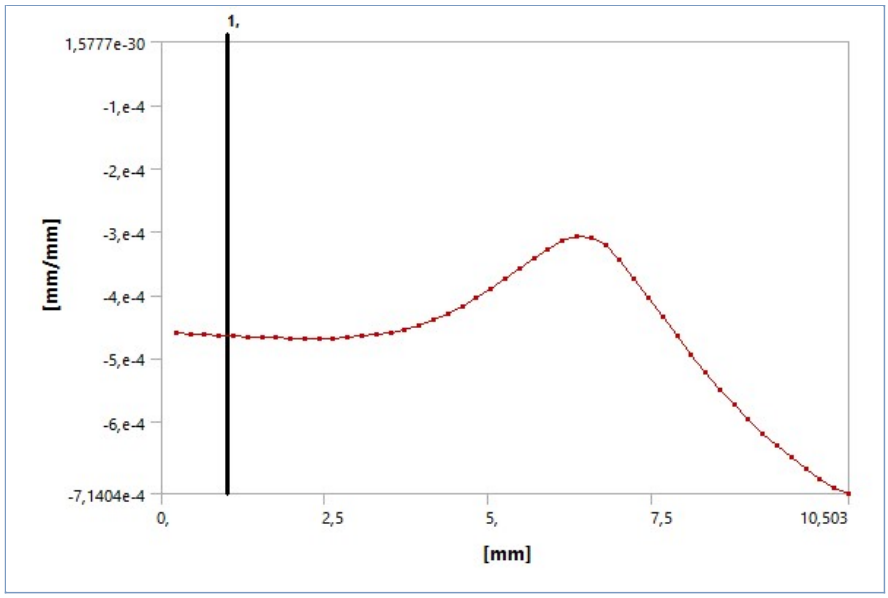


TABLE 33
Model (F4) > Static Structural (F5) > Solution (F6) > EPEL3

Length [mm]	Value [mm/mm]
0,	
0,21881	-4,6021e-004
0,43763	-4,6134e-004
0,65644	-4,6252e-004
0,87525	-4,6366e-004
1,0941	-4,6477e-004
1,3129	-4,658e-004
1,5317	-4,6675e-004
1,7505	-4,6756e-004
1,9693	-4,6815e-004
2,1881	-4,6848e-004
2,4069	
2,6258	-4,6804e-004
2,8446	-4,6706e-004
3,0634	-4,654e-004
3,2822	-4,6291e-004
3,501	-4,5939e-004
3,7198	-4,5431e-004
3,9386	-4,477e-004
4,1575	-4,3943e-004
4,3763	-4,2951e-004
4,5951	-4,1794e-004
4,8139	-4,0483e-004
5,0327	-3,9039e-004
5,2515	-3,7497e-004
5,4703	-3,5879e-004
5,6891	-3,4275e-004
5,908	-3,2772e-004
6,1268	-3,1518e-004
6,3456	-3,0772e-004
6,5644	-3,0913e-004
6,7832	-3,2217e-004
7,002	-3,4515e-004
7,2208	-3,7346e-004
7,4397	-4,04e-004
7,6585	-4,3493e-004
7,8773	-4,653e-004
8,0961	-4,9461e-004
8,3149	-5,2257e-004
8,5337	-5,4904e-004
8,7525	-5,7399e-004
8,9713	-5,9709e-004
9,1902	-6,1861e-004
9,409	-6,386e-004
9,6278	-6,571e-004
9,8466	-6,7415e-004
10,065	-6,8978e-004
10,284	-7,0367e-004
10,503	-7,1404e-004

FIGURE 21
Model (F4) > Static Structural (F5) > Solution (F6) > EPPL1

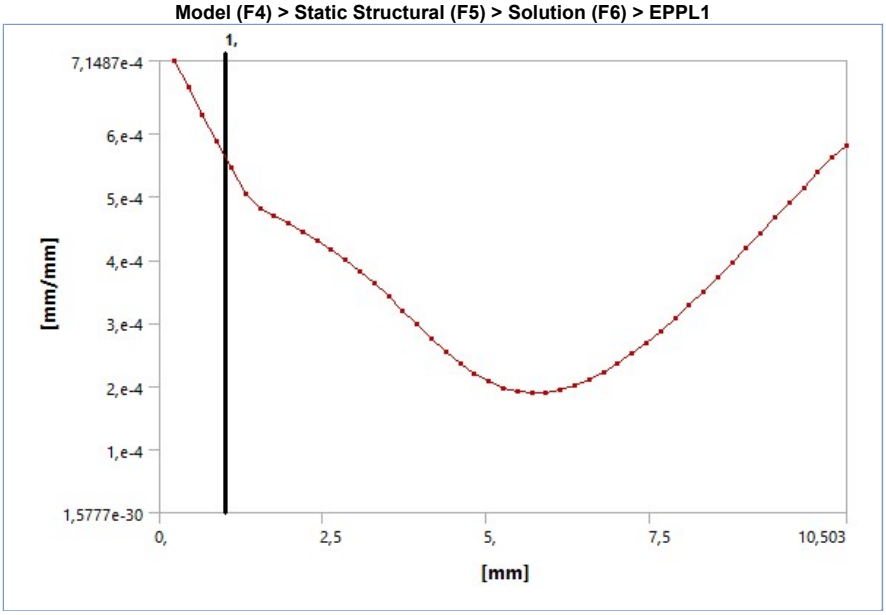


TABLE 34
Model (F4) > Static Structural (F5) > Solution (F6) > EPPL1

Length [mm]	Value [mm/mm]
0,	
0,21881	7,1487e-004
0,43763	6,7293e-004
0,65644	6,301e-004
0,87525	5,878e-004
1,0941	5,4608e-004
1,3129	5,0344e-004
1,5317	4,809e-004
1,7505	4,6971e-004
1,9693	4,5761e-004
2,1881	4,4477e-004
2,4069	4,309e-004
2,6258	4,1583e-004
2,8446	3,994e-004
3,0634	3,8159e-004
3,2822	3,625e-004
3,501	3,4197e-004
3,7198	3,2013e-004
3,9386	2,9784e-004
4,1575	2,7592e-004
4,3763	2,5525e-004
4,5951	2,3655e-004
4,8139	2,204e-004
5,0327	2,0731e-004
5,2515	1,9761e-004
5,4703	1,9195e-004
5,6891	1,8969e-004
5,908	1,9066e-004
6,1268	1,9465e-004
6,3456	2,0142e-004
6,5644	2,1071e-004
6,7832	2,2229e-004
7,002	2,3591e-004
7,2208	2,5162e-004
7,4397	2,6886e-004
7,6585	2,8746e-004
7,8773	3,0726e-004
8,0961	3,2807e-004
8,3149	3,4975e-004
8,5337	3,7214e-004
8,7525	3,9513e-004
8,9713	4,1864e-004
9,1902	4,4244e-004
9,409	4,6642e-004
9,6278	4,9052e-004
9,8466	5,1464e-004
10,065	5,3868e-004
10,284	5,6184e-004

10,503	5,8054e-004

TABLE 35
Model (F4) > Static Structural (F5) > Solution (F6) > EPPL2

Object Name	*EPPL2*	*EPPL3*	*EPEL1 2*	*EPEL2 2*	*EPEL3 2*	*EPPL1 2*	*EPPL2 2*	*EPPL3 2*	*EPEL1 3*	*EPEL2 3*	*EPEL3 3*
State	Solved										
Scope											
Scoping Method	Path										
Path	Path 2		Path 3						Path 4		
Geometry	All Bodies										
Definition											
Type	User Defined Result										
Expression	= EPPL2	= EPPL3	= EPEL1	= EPEL2	= EPEL3	= EPPL1	= EPPL2	= EPPL3	= EPEL1	= EPEL2	= EPEL3
Input Unit System	Metric (mm, kg, N, s, mV, mA)										
Output Unit	Strain										
By	Time										
Display Time	Last										
Coordinate System	Global Coordinate System					Global Coordinate System					
Calculate Time History	Yes										
Suppressed	No										
Integration Point Results											
Display Option	Averaged										
Average Across Bodies	No										
Results											
Minimum	-8,3831e-005 mm/mm	-1,2498e-003 mm/mm	5,2426e-004 mm/mm	-1,6411e-004 mm/mm	-6,3808e-004 mm/mm	1,7237e-004 mm/mm	-7,57e-005 mm/mm	-9,4214e-004 mm/mm	5,6346e-004 mm/mm	-1,7853e-004 mm/mm	-5,5372e-004 mm/mm
Maximum	5,3494e-004 mm/mm	-1,2638e-004 mm/mm	7,8547e-004 mm/mm	5,4206e-004 mm/mm	-3,1111e-004 mm/mm	4,7334e-004 mm/mm	4,688e-004 mm/mm	-1,1234e-004 mm/mm	7,884e-004 mm/mm	5,2497e-004 mm/mm	-2,9753e-004 mm/mm
Average	1,1594e-004 mm/mm	-4,9225e-004 mm/mm	6,7184e-004 mm/mm	1,5431e-004 mm/mm	-4,4356e-004 mm/mm	2,9169e-004 mm/mm	5,6859e-005 mm/mm	-3,4855e-004 mm/mm	7,0288e-004 mm/mm	1,2156e-004 mm/mm	-4,1511e-004 mm/mm
Minimum Occurs On	Model_2D_Rev3@Povrch-Rovina1										
Maximum Occurs On	Model_2D_Rev3@Povrch-Rovina1										
Graph Controls											
X-Axis	S										
Minimum Value Over Time											
Minimum	-8,3831e-005 mm/mm	-1,2498e-003 mm/mm	4,2751e-005 mm/mm	-1,738e-004 mm/mm	-6,3808e-004 mm/mm	0, mm/mm	-7,57e-005 mm/mm	-9,4214e-004 mm/mm	4,0913e-005 mm/mm	-1,8474e-004 mm/mm	-5,5372e-004 mm/mm
Maximum	0, mm/mm		6,0762e-004 mm/mm	-1,0201e-005 mm/mm	-3,8889e-005 mm/mm	1,7237e-004 mm/mm	0, mm/mm		6,3263e-004 mm/mm	-1,0207e-005 mm/mm	-3,2357e-005 mm/mm
Maximum Value Over Time											
Minimum	0, mm/mm	-1,2638e-004 mm/mm	4,3348e-005 mm/mm	3,3376e-005 mm/mm	-3,1111e-004 mm/mm	0, mm/mm		-1,1234e-004 mm/mm	4,2741e-005 mm/mm	2,9705e-005 mm/mm	-2,9753e-004 mm/mm
Maximum	5,3494e-004 mm/mm	0, mm/mm	7,881e-004 mm/mm	5,4356e-004 mm/mm	-1,6293e-005 mm/mm	4,7334e-004 mm/mm	4,688e-004 mm/mm	0, mm/mm	7,8948e-004 mm/mm	5,2497e-004 mm/mm	-1,539e-005 mm/mm
Information											
Time	1, s										
Load Step	1										
Substep	20										
Iteration Number	28										

FIGURE 22
Model (F4) > Static Structural (F5) > Solution (F6) > EPPL2

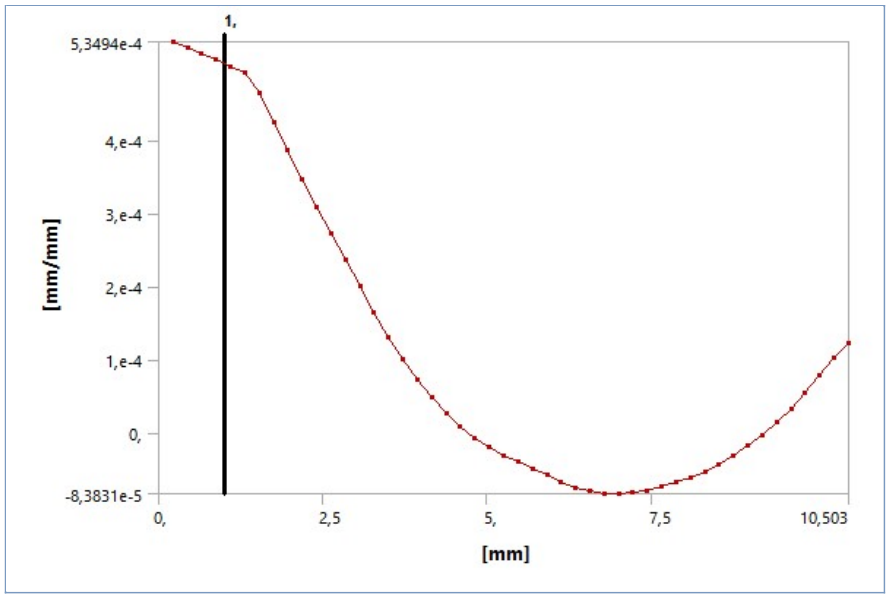


TABLE 36
Model (F4) > Static Structural (F5) > Solution (F6) > EPPL2

Length [mm]	Value [mm/mm]
0,	
0,21881	5,3494e-004
0,43763	5,2743e-004
0,65644	5,1918e-004
0,87525	5,1044e-004
1,0941	5,0119e-004
1,3129	4,9293e-004
1,5317	4,646e-004
1,7505	4,2492e-004
1,9693	3,8597e-004
2,1881	3,4745e-004
2,4069	3,095e-004
2,6258	2,7219e-004
2,8446	2,3558e-004
3,0634	1,9971e-004
3,2822	1,6468e-004
3,501	1,3109e-004
3,7198	1,0012e-004
3,9386	7,208e-005
4,1575	4,7339e-005
4,3763	2,588e-005
4,5951	7,6686e-006
4,8139	-7,4998e-006
5,0327	-2,0177e-005
5,2515	-3,0998e-005
5,4703	-4,0619e-005
5,6891	-4,9761e-005
5,908	-5,8683e-005
6,1268	-6,731e-005
6,3456	-7,5043e-005
6,5644	-8,0738e-005
6,7832	-8,358e-005
7,002	-8,3831e-005
7,2208	-8,2152e-005
7,4397	-7,894e-005
7,6585	-7,4461e-005
7,8773	-6,875e-005
8,0961	-6,172e-005
8,3149	-5,3249e-005
8,5337	-4,3256e-005
8,7525	-3,1747e-005
8,9713	-1,8308e-005
9,1902	-3,027e-006
9,409	1,4161e-005
9,6278	3,3241e-005
9,8466	5,4292e-005
10,065	7,7434e-005
10,284	1,0186e-004
10,503	1,2328e-004

FIGURE 23
Model (F4) > Static Structural (F5) > Solution (F6) > EPPL3

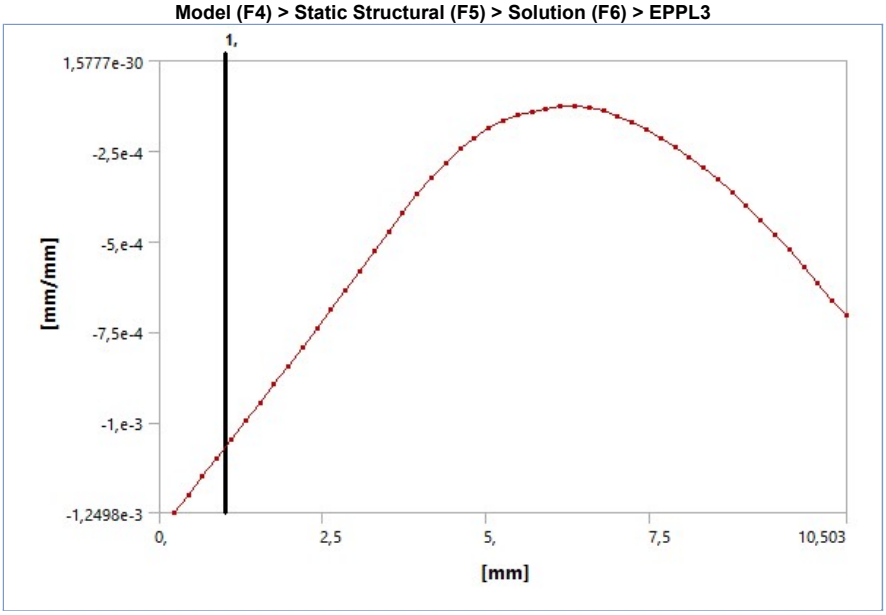


TABLE 37
Model (F4) > Static Structural (F5) > Solution (F6) > EPPL3

Length [mm]	Value [mm/mm]
0,	
0,21881	-1,2498e-003
0,43763	-1,2004e-003
0,65644	-1,1493e-003
0,87525	-1,0982e-003
1,0941	-1,0473e-003
1,3129	-9,9637e-004
1,5317	-9,455e-004
1,7505	-8,9462e-004
1,9693	-8,4358e-004
2,1881	-7,9222e-004
2,4069	-7,4041e-004
2,6258	-6,8802e-004
2,8446	-6,3498e-004
3,0634	-5,8131e-004
3,2822	-5,2717e-004
3,501	-4,7307e-004
3,7198	-4,2024e-004
3,9386	-3,6992e-004
4,1575	-3,2326e-004
4,3763	-2,8113e-004
4,5951	-2,4422e-004
4,8139	-2,129e-004
5,0327	-1,8713e-004
5,2515	-1,6661e-004
5,4703	-1,5133e-004
5,6891	-1,3993e-004
5,908	-1,3198e-004
6,1268	-1,2734e-004
6,3456	-1,2638e-004
6,5644	-1,2998e-004
6,7832	-1,3871e-004
7,002	-1,5208e-004
7,2208	-1,6946e-004
7,4397	-1,8992e-004
7,6585	-2,13e-004
7,8773	-2,3851e-004
8,0961	-2,6635e-004
8,3149	-2,965e-004
8,5337	-3,2888e-004
8,7525	-3,6338e-004
8,9713	-4,0034e-004
9,1902	-4,3942e-004
9,409	-4,8058e-004
9,6278	-5,2376e-004
9,8466	-5,6893e-004
10,065	-6,1612e-004
10,284	-6,6371e-004

10,503	-7,0383e-004

FIGURE 24
Model (F4) > Static Structural (F5) > Solution (F6) > EPEL1 2

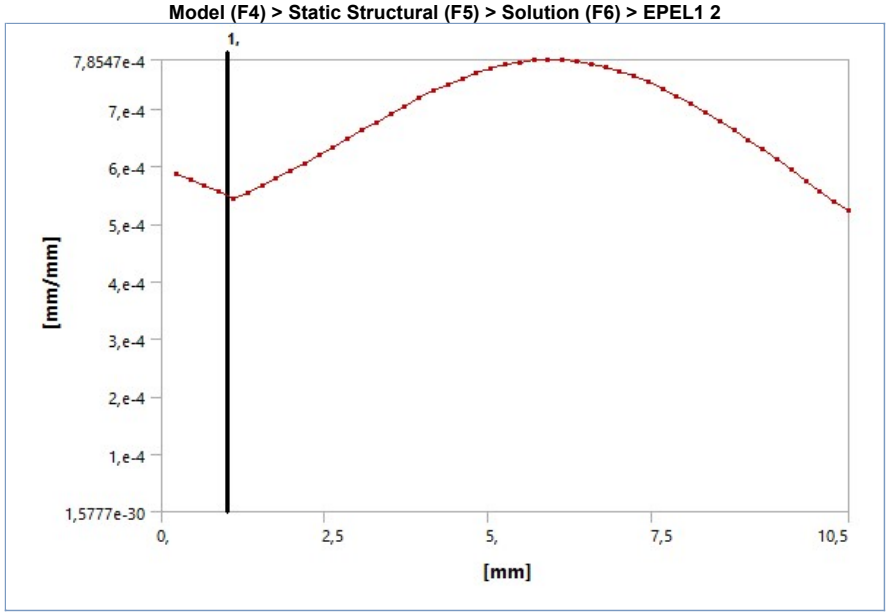


TABLE 38
Model (F4) > Static Structural (F5) > Solution (F6) > EPEL1 2

Length [mm]	Value [mm/mm]
0,	
0,21875	5,8667e-004
0,43751	5,7763e-004
0,65626	5,6759e-004
0,87502	5,5674e-004
1,0938	5,4503e-004
1,3125	5,5398e-004
1,5313	5,6629e-004
1,75	5,7907e-004
1,9688	5,9236e-004
2,1875	6,0604e-004
2,4063	6,1996e-004
2,6251	6,3408e-004
2,8438	6,4836e-004
3,0626	6,6274e-004
3,2813	6,7711e-004
3,5001	6,9132e-004
3,7188	7,0514e-004
3,9376	7,1834e-004
4,1563	7,3082e-004
4,3751	7,4243e-004
4,5939	7,5301e-004
4,8126	7,6237e-004
5,0314	7,7036e-004
5,2501	7,7684e-004
5,4689	7,8143e-004
5,6876	7,8432e-004
5,9064	7,8547e-004
6,1251	7,8488e-004
6,3439	7,8256e-004
6,5626	7,7856e-004
6,7814	7,7294e-004
7,0002	7,6576e-004
7,2189	7,5691e-004
7,4377	7,4675e-004
7,6564	7,3536e-004
7,8752	7,2285e-004
8,0939	7,0933e-004
8,3127	6,9489e-004
8,5314	6,7963e-004
8,7502	6,6364e-004
8,969	6,4693e-004
9,1877	6,297e-004
9,4065	6,1204e-004
9,6252	5,9403e-004
9,844	5,7573e-004

10,063	5,572e-004
10,281	5,3906e-004
10,5	5,2426e-004

FIGURE 25
Model (F4) > Static Structural (F5) > Solution (F6) > EPEL2 2

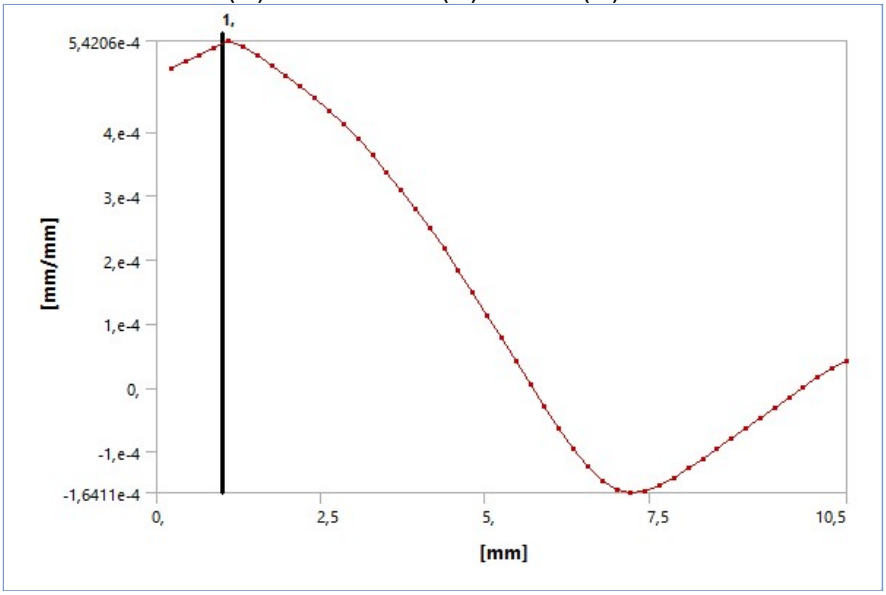


TABLE 39
Model (F4) > Static Structural (F5) > Solution (F6) > EPEL2 2

Length [mm]	Value [mm/mm]
0,	
0,21875	4,9914e-004
0,43751	5,0896e-004
0,65626	5,1953e-004
0,87502	5,3057e-004
1,0938	5,4206e-004
1,3125	5,3242e-004
1,5313	5,1887e-004
1,75	5,0422e-004
1,9688	4,8816e-004
2,1875	4,708e-004
2,4063	4,5218e-004
2,6251	4,3222e-004
2,8438	4,1082e-004
3,0626	3,8784e-004
3,2813	3,6327e-004
3,5001	3,3705e-004
3,7188	3,0897e-004
3,9376	2,7953e-004
4,1563	2,4866e-004
4,3751	2,1643e-004
4,5939	1,8298e-004
4,8126	1,485e-004
5,0314	1,1325e-004
5,2501	7,7471e-005
5,4689	4,1436e-005
5,6876	5,6783e-006
5,9064	-2,9356e-005
6,1251	-6,3066e-005
6,3439	-9,4578e-005
6,5626	-1,2254e-004
6,7814	-1,449e-004
7,0002	-1,5919e-004
7,2189	-1,6411e-004
7,4377	-1,6095e-004
7,6564	-1,5229e-004
7,8752	-1,4031e-004
8,0939	-1,2638e-004
8,3127	-1,1133e-004
8,5314	-9,563e-005
8,7502	-7,9594e-005
8,969	-6,3462e-005
9,1877	-4,7331e-005
9,4065	-3,1305e-005

9,6252	-1,5456e-005
9,844	1,6648e-007
10,063	1,5526e-005
10,281	3,0165e-005
10,5	4,1818e-005

FIGURE 26
Model (F4) > Static Structural (F5) > Solution (F6) > EPEL3 2

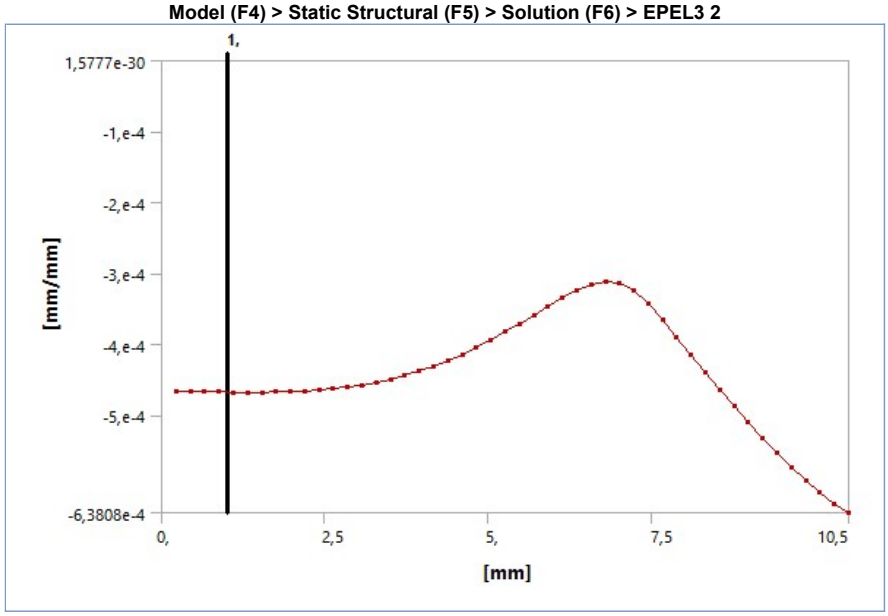


TABLE 40
Model (F4) > Static Structural (F5) > Solution (F6) > EPEL3 2

Length [mm]	Value [mm/mm]
0,	
0,21875	-4,6569e-004
0,43751	-4,6637e-004
0,65626	-4,6698e-004
0,87502	-4,6748e-004
1,0938	-4,6783e-004
1,3125	-4,6801e-004
1,5313	-4,6798e-004
1,75	-4,6771e-004
1,9688	-4,671e-004
2,1875	-4,6612e-004
2,4063	-4,6473e-004
2,6251	-4,6289e-004
2,8438	-4,6052e-004
3,0626	-4,5756e-004
3,2813	-4,5393e-004
3,5001	-4,4957e-004
3,7188	-4,4427e-004
3,9376	-4,3814e-004
4,1563	-4,3113e-004
4,3751	-4,2321e-004
4,5939	-4,1438e-004
4,8126	-4,0466e-004
5,0314	-3,9411e-004
5,2501	-3,8282e-004
5,4689	-3,7078e-004
5,6876	-3,5839e-004
5,9064	-3,4597e-004
6,1251	-3,3399e-004
6,3439	-3,2322e-004
6,5626	-3,1493e-004
6,7814	-3,1111e-004
7,0002	-3,1418e-004
7,2189	-3,252e-004
7,4377	-3,4309e-004
7,6564	-3,6526e-004
7,8752	-3,8956e-004
8,0939	-4,1463e-004
8,3127	-4,3968e-004
8,5314	-4,6428e-004
8,7502	-4,8813e-004
8,969	-5,1091e-004

9,1877	-5,3271e-004
9,4065	-5,535e-004
9,6252	-5,7322e-004
9,844	-5,9189e-004
10,063	-6,0953e-004
10,281	-6,2569e-004
10,5	-6,3808e-004

FIGURE 27
Model (F4) > Static Structural (F5) > Solution (F6) > EPPL1 2

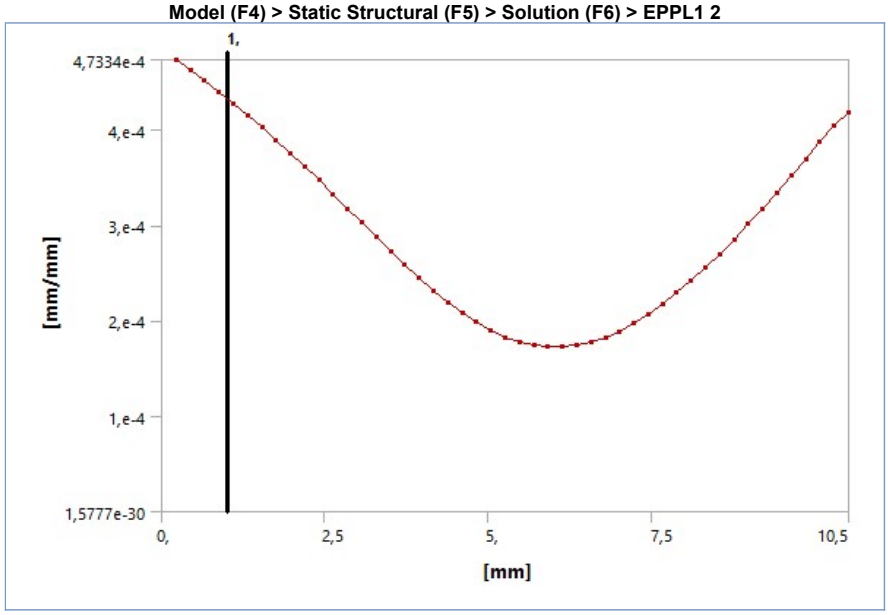


TABLE 41
Model (F4) > Static Structural (F5) > Solution (F6) > EPPL1 2

Length [mm]	Value [mm/mm]
0,	
0,21875	4,7334e-004
0,43751	4,6208e-004
0,65626	4,5115e-004
0,87502	4,3969e-004
1,0938	4,2776e-004
1,3125	4,1539e-004
1,5313	4,0262e-004
1,75	3,8938e-004
1,9688	3,7561e-004
2,1875	3,6144e-004
2,4063	3,4702e-004
2,6251	3,3239e-004
2,8438	3,1759e-004
3,0626	3,0268e-004
3,2813	2,8778e-004
3,5001	2,7302e-004
3,7188	2,5866e-004
3,9376	2,449e-004
4,1563	2,3184e-004
4,3751	2,1965e-004
4,5939	2,085e-004
4,8126	1,9855e-004
5,0314	1,8997e-004
5,2501	1,8288e-004
5,4689	1,7768e-004
5,6876	1,7418e-004
5,9064	1,7241e-004
6,1251	1,7237e-004
6,3439	1,7405e-004
6,5626	1,7741e-004
6,7814	1,8238e-004
7,0002	1,889e-004
7,2189	1,9708e-004
7,4377	2,0657e-004
7,6564	2,1727e-004
7,8752	2,2908e-004
8,0939	2,4189e-004
8,3127	2,5562e-004
8,5314	2,7014e-004

8,7502	2,8538e-004
8,969	3,0133e-004
9,1877	3,1779e-004
9,4065	3,3466e-004
9,6252	3,5186e-004
9,844	3,6934e-004
10,063	3,8703e-004
10,281	4,0434e-004
10,5	4,1846e-004

FIGURE 28
Model (F4) > Static Structural (F5) > Solution (F6) > EPPL2 2

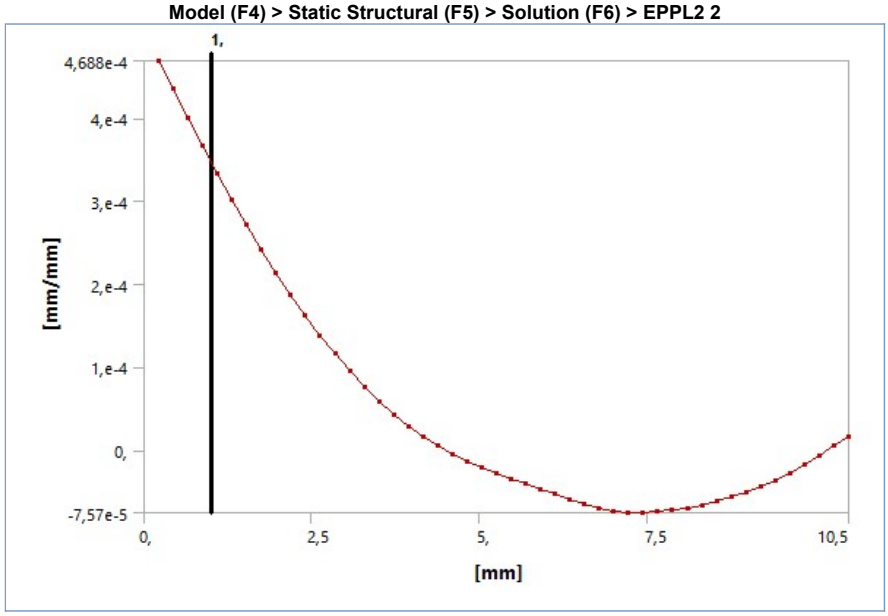


TABLE 42
Model (F4) > Static Structural (F5) > Solution (F6) > EPPL2 2

Length [mm]	Value [mm/mm]
0,	
0,21875	4,688e-004
0,43751	4,3536e-004
0,65626	4,0052e-004
0,87502	3,6668e-004
1,0938	3,3383e-004
1,3125	3,0198e-004
1,5313	2,712e-004
1,75	2,4164e-004
1,9688	2,1361e-004
2,1875	1,8699e-004
2,4063	1,6172e-004
2,6251	1,3785e-004
2,8438	1,1551e-004
3,0626	9,4811e-005
3,2813	7,5788e-005
3,5001	5,8464e-005
3,7188	4,3042e-005
3,9376	2,8996e-005
4,1563	1,6406e-005
4,3751	5,2315e-006
4,5939	-4,6514e-006
4,8126	-1,3409e-005
5,0314	-2,1225e-005
5,2501	-2,8295e-005
5,4689	-3,4817e-005
5,6876	-4,1067e-005
5,9064	-4,7195e-005
6,1251	-5,3285e-005
6,3439	-5,9311e-005
6,5626	-6,5058e-005
6,7814	-7,0041e-005
7,0002	-7,3631e-005
7,2189	-7,5511e-005
7,4377	-7,57e-005
7,6564	-7,4642e-005
7,8752	-7,2652e-005
8,0939	-6,9875e-005

8,3127	-6,6351e-005
8,5314	-6,2067e-005
8,7502	-5,699e-005
8,969	-5,1045e-005
9,1877	-4,4182e-005
9,4065	-3,6344e-005
9,6252	-2,7488e-005
9,844	-1,7617e-005
10,063	-6,7219e-006
10,281	4,8699e-006
10,5	1,5091e-005

FIGURE 29
Model (F4) > Static Structural (F5) > Solution (F6) > EPPL3 2

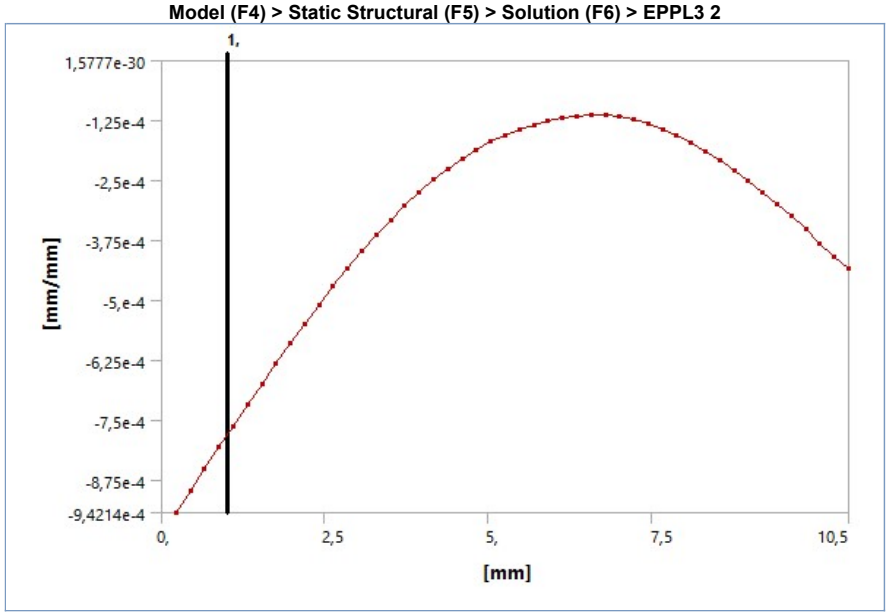


TABLE 43
Model (F4) > Static Structural (F5) > Solution (F6) > EPPL3 2

Length [mm]	Value [mm/mm]
0,	
0,21875	-9,4214e-004
0,43751	-8,9744e-004
0,65626	-8,5167e-004
0,87502	-8,0637e-004
1,0938	-7,6158e-004
1,3125	-7,1738e-004
1,5313	-6,7382e-004
1,75	-6,3102e-004
1,9688	-5,8923e-004
2,1875	-5,4844e-004
2,4063	-5,0874e-004
2,6251	-4,7024e-004
2,8438	-4,331e-004
3,0626	-3,9749e-004
3,2813	-3,6357e-004
3,5001	-3,3149e-004
3,7188	-3,017e-004
3,9376	-2,7389e-004
4,1563	-2,4825e-004
4,3751	-2,2489e-004
4,5939	-2,0385e-004
4,8126	-1,8515e-004
5,0314	-1,6874e-004
5,2501	-1,5459e-004
5,4689	-1,4286e-004
5,6876	-1,3311e-004
5,9064	-1,2521e-004
6,1251	-1,1909e-004
6,3439	-1,1474e-004
6,5626	-1,1235e-004
6,7814	-1,1234e-004
7,0002	-1,1527e-004
7,2189	-1,2157e-004
7,4377	-1,3087e-004
7,6564	-1,4263e-004

7,8752	-1,5643e-004
8,0939	-1,7202e-004
8,3127	-1,8926e-004
8,5314	-2,0807e-004
8,7502	-2,2839e-004
8,969	-2,5029e-004
9,1877	-2,7361e-004
9,4065	-2,9831e-004
9,6252	-3,2437e-004
9,844	-3,5172e-004
10,063	-3,8031e-004
10,281	-4,0921e-004
10,5	-4,3355e-004

FIGURE 30
Model (F4) > Static Structural (F5) > Solution (F6) > EPEL1 3

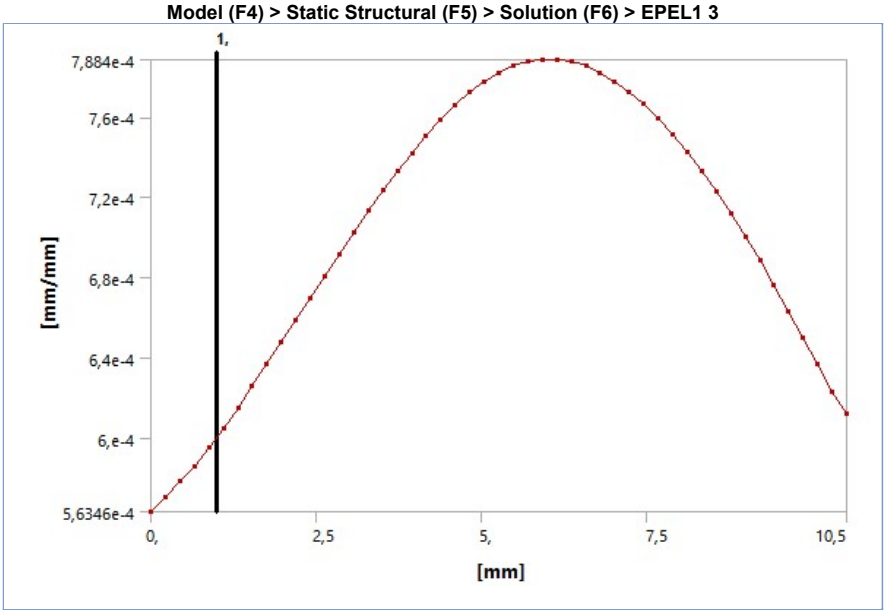


TABLE 44
Model (F4) > Static Structural (F5) > Solution (F6) > EPEL1 3

Length [mm]	Value [mm/mm]
0,	5,6346e-004
0,21876	5,71e-004
0,43751	5,7851e-004
0,65627	5,8599e-004
0,87503	5,9531e-004
1,0938	6,0525e-004
1,3125	6,1542e-004
1,5313	6,2597e-004
1,7501	6,3692e-004
1,9688	6,4794e-004
2,1876	6,5897e-004
2,4063	6,6977e-004
2,6251	6,807e-004
2,8438	6,9193e-004
3,0626	7,0286e-004
3,2814	7,1337e-004
3,5001	7,234e-004
3,7189	7,3297e-004
3,9376	7,4215e-004
4,1564	7,5079e-004
4,3751	7,5873e-004
4,5939	7,6587e-004
4,8127	7,7216e-004
5,0314	7,7753e-004
5,2502	7,8189e-004
5,4689	7,8514e-004
5,6877	7,8733e-004
5,9064	7,8838e-004
6,1252	7,884e-004
6,344	7,8734e-004
6,5627	7,8521e-004
6,7815	7,8202e-004
7,0002	7,7781e-004
7,219	7,725e-004

7,4377	7,6627e-004
7,6565	7,5915e-004
7,8753	7,512e-004
8,094	7,4248e-004
8,3128	7,3302e-004
8,5315	7,2288e-004
8,7503	7,1211e-004
8,969	7,0066e-004
9,1878	6,8872e-004
9,4066	6,7629e-004
9,6253	6,6344e-004
9,8441	6,5022e-004
10,063	6,3666e-004
10,282	6,2318e-004
10,5	6,1206e-004

FIGURE 31
Model (F4) > Static Structural (F5) > Solution (F6) > EPEL2 3

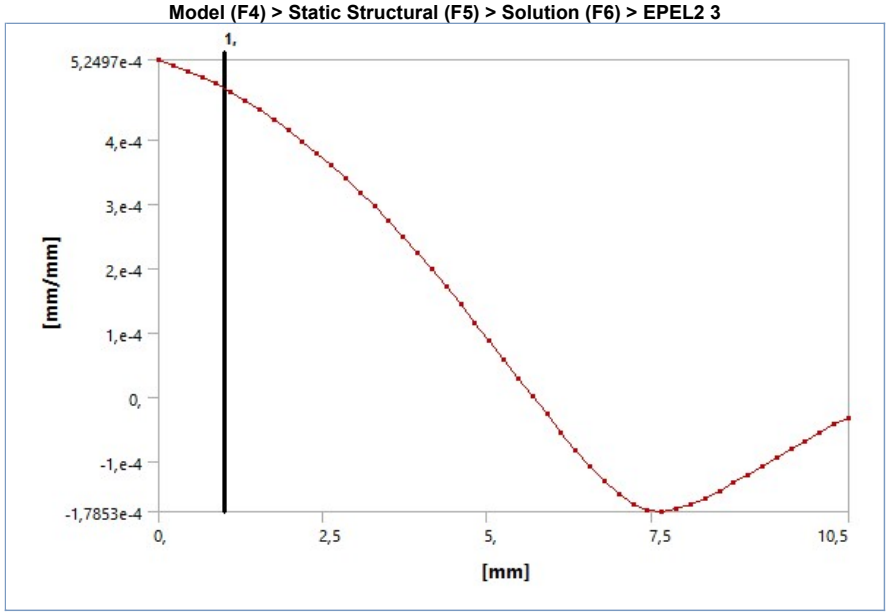


TABLE 45
Model (F4) > Static Structural (F5) > Solution (F6) > EPEL2 3

Length [mm]	Value [mm/mm]
0,	5,2497e-004
0,21876	5,1614e-004
0,43751	5,0739e-004
0,65627	4,9873e-004
0,87503	4,8752e-004
1,0938	4,7472e-004
1,3125	4,6139e-004
1,5313	4,475e-004
1,7501	4,3161e-004
1,9688	4,1544e-004
2,1876	3,9812e-004
2,4063	3,803e-004
2,6251	3,6125e-004
2,8438	3,4036e-004
3,0626	3,1875e-004
3,2814	2,9646e-004
3,5001	2,7356e-004
3,7189	2,4978e-004
3,9376	2,2456e-004
4,1564	1,9838e-004
4,3751	1,7147e-004
4,5939	1,4394e-004
4,8127	1,159e-004
5,0314	8,7497e-005
5,2502	5,9091e-005
5,4689	2,9766e-005
5,6877	6,1255e-007
5,9064	-2,7059e-005
6,1252	-5,4747e-005
6,344	-8,182e-005
6,5627	-1,0761e-004
6,7815	-1,3137e-004

7,0002	-1,5189e-004
7,219	-1,6753e-004
7,4377	-1,7656e-004
7,6565	-1,7853e-004
7,8753	-1,7475e-004
8,094	-1,6715e-004
8,3128	-1,5723e-004
8,5315	-1,4589e-004
8,7503	-1,3371e-004
8,969	-1,2101e-004
9,1878	-1,0801e-004
9,4066	-9,4829e-005
9,6253	-8,1561e-005
9,8441	-6,8289e-005
10,063	-5,5059e-005
10,282	-4,2257e-005
10,5	-3,1954e-005

FIGURE 32
Model (F4) > Static Structural (F5) > Solution (F6) > EPEL3 3

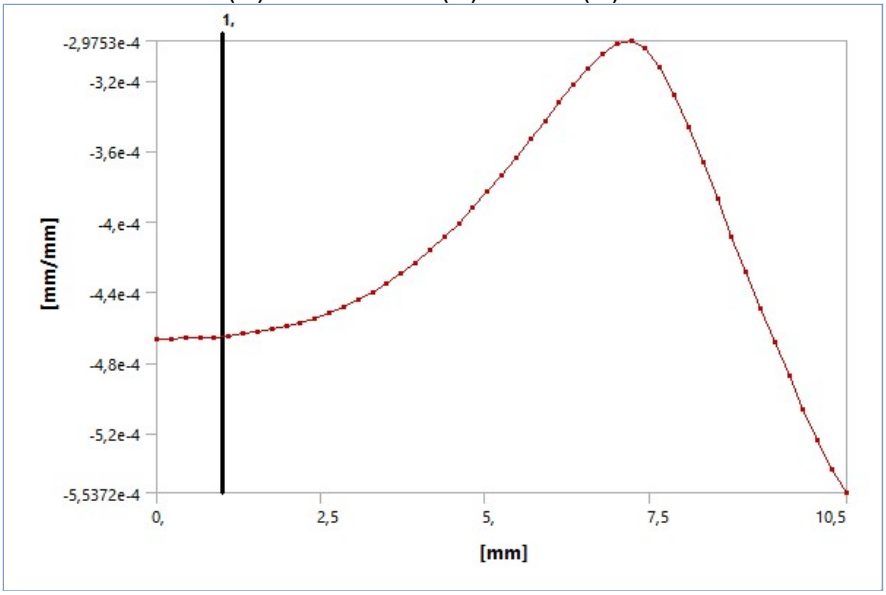


TABLE 46
Model (F4) > Static Structural (F5) > Solution (F6) > EPEL3 3

Length [mm]	Value [mm/mm]
0,	-4,6668e-004
0,21876	-4,6641e-004
0,43751	-4,6616e-004
0,65627	-4,6594e-004
0,87503	-4,6551e-004
1,0938	-4,6469e-004
1,3125	-4,6374e-004
1,5313	-4,6274e-004
1,7501	-4,6109e-004
1,9688	-4,5937e-004
2,1876	-4,5718e-004
2,4063	-4,5468e-004
2,6251	-4,5177e-004
2,8438	-4,4821e-004
3,0626	-4,4422e-004
3,2814	-4,3976e-004
3,5001	-4,3484e-004
3,7189	-4,2937e-004
3,9376	-4,2316e-004
4,1564	-4,1633e-004
4,3751	-4,0891e-004
4,5939	-4,0092e-004
4,8127	-3,9238e-004
5,0314	-3,8334e-004
5,2502	-3,7392e-004
5,4689	-3,6373e-004
5,6877	-3,5328e-004
5,9064	-3,431e-004
6,1252	-3,3272e-004
6,344	-3,2253e-004

6,5627	-3,13e-004
6,7815	-3,0483e-004
7,0002	-2,9916e-004
7,219	-2,9753e-004
7,4377	-3,0174e-004
7,6565	-3,123e-004
7,8753	-3,2783e-004
8,094	-3,4639e-004
8,3128	-3,6654e-004
8,5315	-3,8734e-004
8,7503	-4,0823e-004
8,969	-4,2882e-004
9,1878	-4,4899e-004
9,4066	-4,6867e-004
9,6253	-4,8777e-004
9,8441	-5,0622e-004
10,063	-5,2401e-004
10,282	-5,4069e-004
10,5	-5,5372e-004

TABLE 47
Model (F4) > Static Structural (F5) > Solution (F6) > EPPL1 3

Object Name	*EPPL1 3*	*EPPL2 3*	*EPPL3 3*
State	Solved		
Scope			
Scoping Method	Path		
Path	Path 4		
Geometry	All Bodies		
Definition			
Type	User Defined Result		
Expression	= EPPL1	= EPPL2	= EPPL3
Input Unit System	Metric (mm, kg, N, s, mV, mA)		
Output Unit	Strain		
By	Time		
Display Time	Last		
Coordinate System	Global Coordinate System		
Calculate Time History	Yes		
Suppressed	No		
Integration Point Results			
Display Option	Averaged		
Average Across Bodies	No		
Results			
Minimum	1,354e-004 mm/mm	-6,2669e-005 mm/mm	-6,8273e-004 mm/mm
Maximum	3,9518e-004 mm/mm	2,8755e-004 mm/mm	-8,5179e-005 mm/mm
Average	2,2584e-004 mm/mm	2,5178e-005 mm/mm	-2,5102e-004 mm/mm
Minimum Occurs On	Model_2D_Rev3@Povrch-Rovina1		
Maximum Occurs On	Model_2D_Rev3@Povrch-Rovina1		
Graph Controls			
X-Axis	S		
Minimum Value Over Time			
Minimum	0, mm/mm	-6,2669e-005 mm/mm	-6,8273e-004 mm/mm
Maximum	1,354e-004 mm/mm	0, mm/mm	
Maximum Value Over Time			
Minimum	0, mm/mm		-8,5179e-005 mm/mm
Maximum	3,9518e-004 mm/mm	2,8755e-004 mm/mm	0, mm/mm
Information			
Time	1, s		
Load Step	1		
Substep	20		
Iteration Number	28		

FIGURE 33
Model (F4) > Static Structural (F5) > Solution (F6) > EPPL1 3

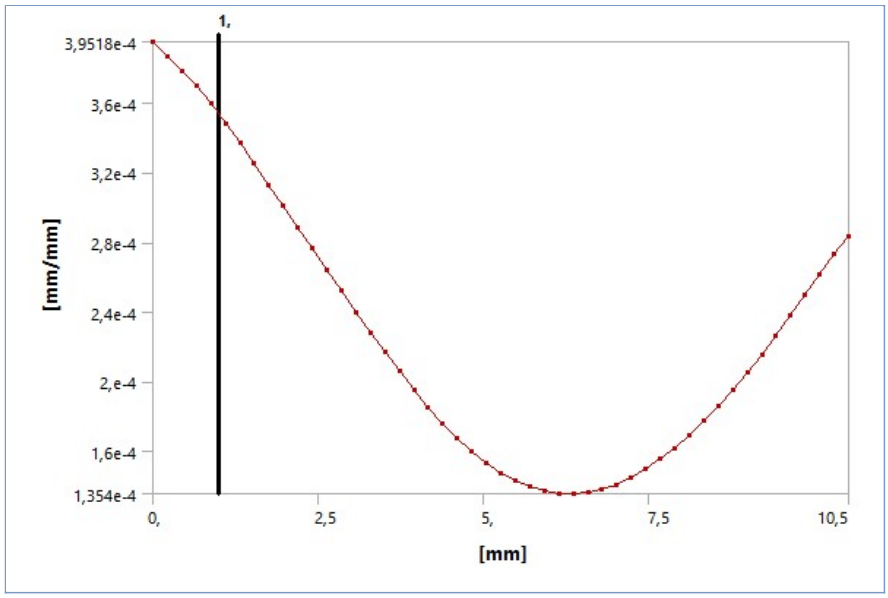


TABLE 48
Model (F4) > Static Structural (F5) > Solution (F6) > EPPL1 3

Length [mm]	Value [mm/mm]
0,	3,9518e-004
0,21876	3,8671e-004
0,43751	3,7828e-004
0,65627	3,699e-004
0,87503	3,5954e-004
1,0938	3,4845e-004
1,3125	3,3712e-004
1,5313	3,2539e-004
1,7501	3,1315e-004
1,9688	3,0085e-004
2,1876	2,8864e-004
2,4063	2,7663e-004
2,6251	2,6444e-004
2,8438	2,5192e-004
3,0626	2,397e-004
3,2814	2,2789e-004
3,5001	2,1656e-004
3,7189	2,0574e-004
3,9376	1,9527e-004
4,1564	1,8533e-004
4,3751	1,7608e-004
4,5939	1,6761e-004
4,8127	1,6e-004
5,0314	1,5329e-004
5,2502	1,4759e-004
5,4689	1,43e-004
5,6877	1,3944e-004
5,9064	1,3711e-004
6,1252	1,3572e-004
6,344	1,354e-004
6,5627	1,3616e-004
6,7815	1,3796e-004
7,0002	1,4077e-004
7,219	1,4469e-004
7,4377	1,4951e-004
7,6565	1,5521e-004
7,8753	1,6173e-004
8,094	1,6901e-004
8,3128	1,7702e-004
8,5315	1,857e-004
8,7503	1,95e-004
8,969	2,0496e-004
9,1878	2,1541e-004
9,4066	2,2633e-004
9,6253	2,3766e-004
9,8441	2,4935e-004
10,063	2,6136e-004
10,282	2,7331e-004
10,5	2,8319e-004

FIGURE 34
Model (F4) > Static Structural (F5) > Solution (F6) > EPPL2 3

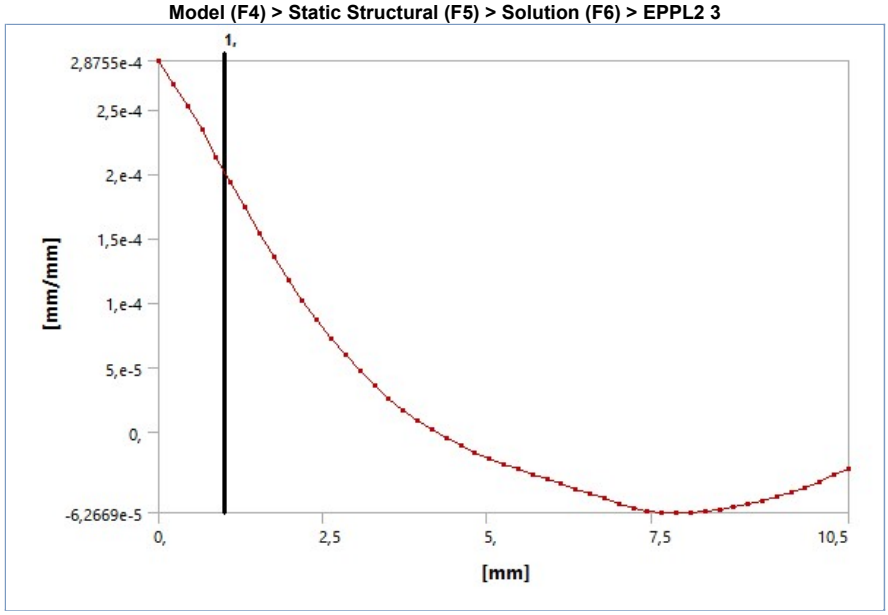


TABLE 49
Model (F4) > Static Structural (F5) > Solution (F6) > EPPL2 3

Length [mm]	Value [mm/mm]
0,	2,8755e-004
0,21876	2,6975e-004
0,43751	2,5191e-004
0,65627	2,3403e-004
0,87503	2,1321e-004
1,0938	1,9336e-004
1,3125	1,7382e-004
1,5313	1,5389e-004
1,7501	1,3574e-004
1,9688	1,1781e-004
2,1876	1,0156e-004
2,4063	8,6688e-005
2,6251	7,2631e-005
2,8438	5,9247e-005
3,0626	4,6941e-005
3,2814	3,5719e-005
3,5001	2,5709e-005
3,7189	1,6792e-005
3,9376	8,7312e-006
4,1564	1,4707e-006
4,3751	-4,9908e-006
4,5939	-1,0745e-005
4,8127	-1,5899e-005
5,0314	-2,0556e-005
5,2502	-2,4813e-005
5,4689	-2,891e-005
5,6877	-3,282e-005
5,9064	-3,6506e-005
6,1252	-4,0247e-005
6,344	-4,4071e-005
6,5627	-4,7968e-005
6,7815	-5,187e-005
7,0002	-5,5595e-005
7,219	-5,8875e-005
7,4377	-6,1219e-005
7,6565	-6,2431e-005
7,8753	-6,2669e-005
8,094	-6,2219e-005
8,3128	-6,127e-005
8,5315	-5,9912e-005
8,7503	-5,8167e-005
8,969	-5,6001e-005
9,1878	-5,3453e-005
9,4066	-5,0463e-005
9,6253	-4,6991e-005
9,8441	-4,3007e-005
10,063	-3,848e-005
10,282	-3,3553e-005

10,5	-2,9169e-005

FIGURE 35
Model (F4) > Static Structural (F5) > Solution (F6) > EPPL3 3

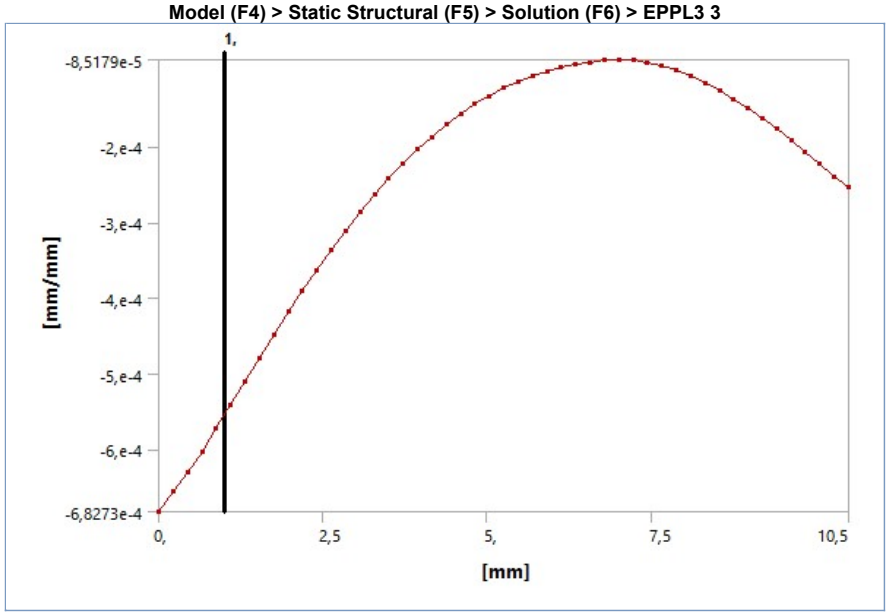


TABLE 50
Model (F4) > Static Structural (F5) > Solution (F6) > EPPL3 3

Length [mm]	Value [mm/mm]
0,	-6,8273e-004
0,21876	-6,5646e-004
0,43751	-6,3019e-004
0,65627	-6,0393e-004
0,87503	-5,7275e-004
1,0938	-5,4182e-004
1,3125	-5,1094e-004
1,5313	-4,7928e-004
1,7501	-4,4889e-004
1,9688	-4,1866e-004
2,1876	-3,902e-004
2,4063	-3,6332e-004
2,6251	-3,3707e-004
2,8438	-3,1117e-004
3,0626	-2,8664e-004
3,2814	-2,6361e-004
3,5001	-2,4227e-004
3,7189	-2,2254e-004
3,9376	-2,0401e-004
4,1564	-1,868e-004
4,3751	-1,7109e-004
4,5939	-1,5687e-004
4,8127	-1,441e-004
5,0314	-1,3273e-004
5,2502	-1,2277e-004
5,4689	-1,1409e-004
5,6877	-1,0662e-004
5,9064	-1,0061e-004
6,1252	-9,5473e-005
6,344	-9,1329e-005
6,5627	-8,8191e-005
6,7815	-8,6091e-005
7,0002	-8,5179e-005
7,219	-8,5811e-005
7,4377	-8,8292e-005
7,6565	-9,2781e-005
7,8753	-9,9059e-005
8,094	-1,0679e-004
8,3128	-1,1575e-004
8,5315	-1,2579e-004
8,7503	-1,3683e-004
8,969	-1,4896e-004
9,1878	-1,6196e-004
9,4066	-1,7586e-004
9,6253	-1,9066e-004
9,8441	-2,0634e-004

10,063	-2,2288e-004
10,282	-2,3976e-004
10,5	-2,5402e-004

Material Data

P355GH

TABLE 51
P355GH > Constants

Density	7,85e-006 kg mm^-3
Specific Heat	4,34e+005 mJ kg^-1 C^-1

TABLE 52
P355GH > Isotropic Elasticity

Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,05e+005	0,3	1,7083e+005	78846	

TABLE 53
P355GH > Bilinear Isotropic Hardening

Yield Strength MPa	Tangent Modulus MPa	Temperature C
213,8	0,	

TABLE 54
P355GH > Color

Red	Green	Blue
184,	235,	197,

P355QH1

TABLE 55
P355QH1 > Constants

Density	7,85e-006 kg mm^-3
Specific Heat	4,34e+005 mJ kg^-1 C^-1

TABLE 56
P355QH1 > Isotropic Elasticity

Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,05e+005	0,3	1,7083e+005	78846	

TABLE 57
P355QH1 > Bilinear Isotropic Hardening

Yield Strength MPa	Tangent Modulus MPa	Temperature C
195,8	0,	

TABLE 58
P355QH1 > Color

Red	Green	Blue
184,	235,	197,

P265GH

TABLE 59
P265GH > Constants

Density	7,85e-006 kg mm^-3
Specific Heat	4,34e+005 mJ kg^-1 C^-1

TABLE 60
P265GH > Isotropic Elasticity

Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa	Temperature C
2,05e+005	0,3	1,7083e+005	78846	

TABLE 61
P265GH > Bilinear Isotropic Hardening

Yield Strength MPa	Tangent Modulus MPa	Temperature C
159,5	0,	

TABLE 62
P265GH > Color

Red	Green	Blue
184,	235,	197,