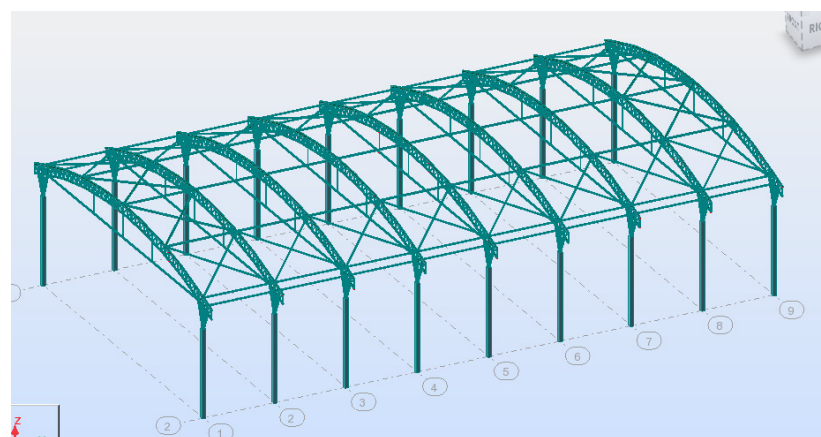
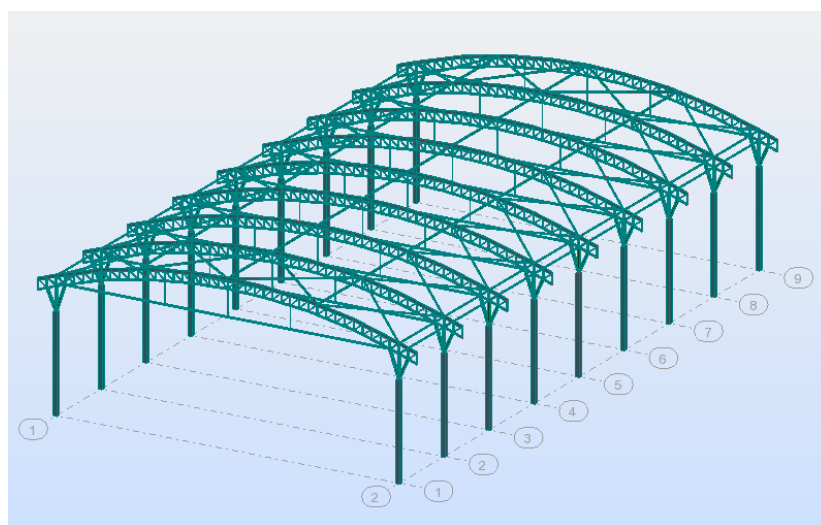
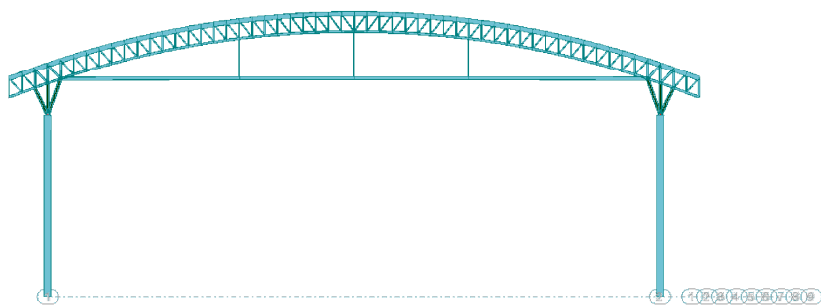
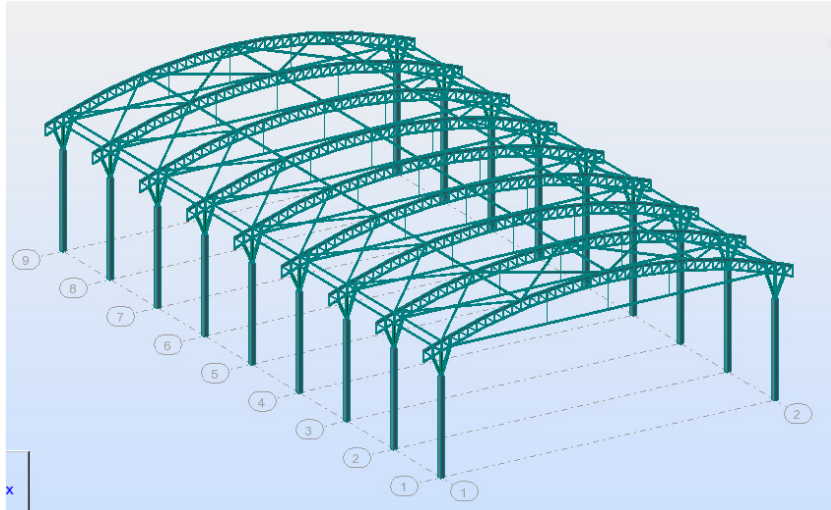


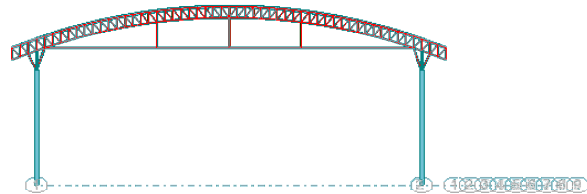
Arkveida nojumes aprēķins

Aprēķina modelis



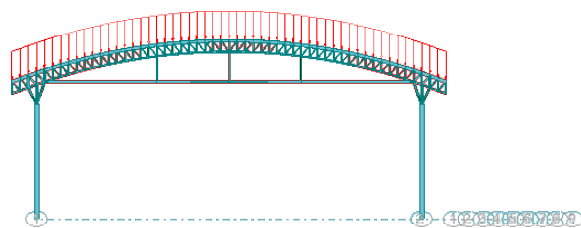


View - Cases: 1 (DL1)



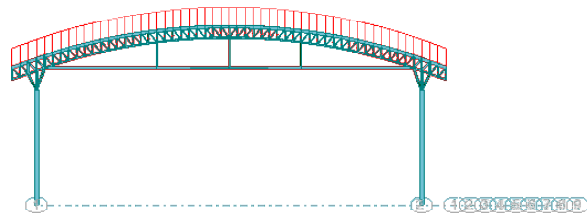
-PZ kG
Cases: 1 (DL1)


View - Cases: 2 (DL2)



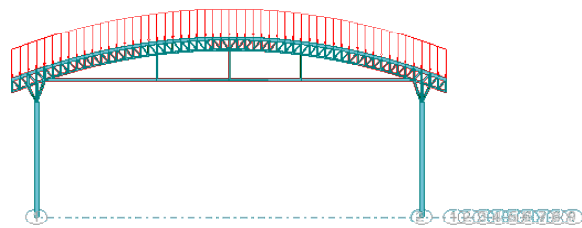
$\square \square$ kN/m
Cases: 2 (DL2)


View - Cases: 3 (DL3)



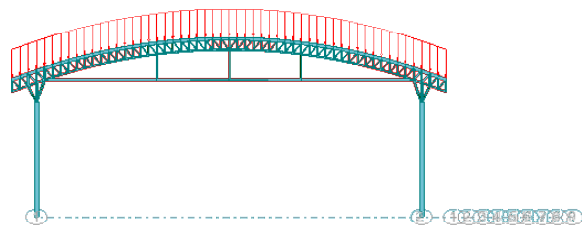
 kN/m
Cases: 3 (DL3)


View - Cases: 4 (SN1)



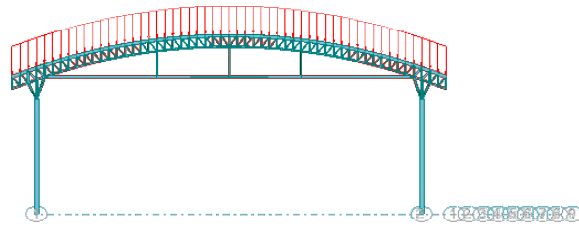
 kN/m
Cases: 4 (SN1)

View - Cases: 5 (LL1)



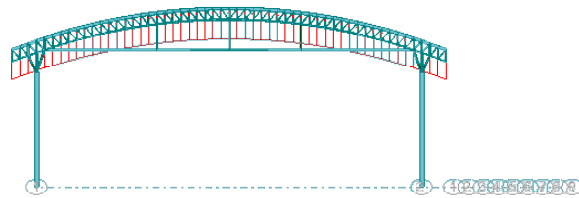
 kN/m
Cases: 5 (LL1)

View - Cases: 6 (WIND1)



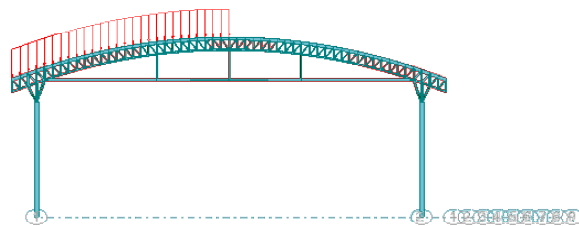
KN/m
Cases: 6 (WIND1)

View - Cases: 7 (WIND2)



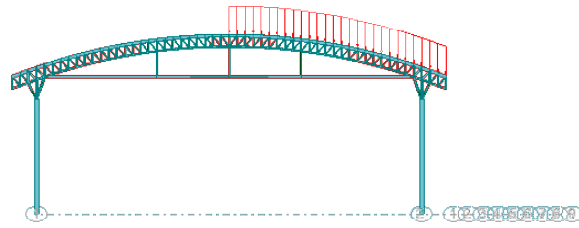
KN/m
Cases: 7 (WIND2)

View - Cases: 8 (SN2)



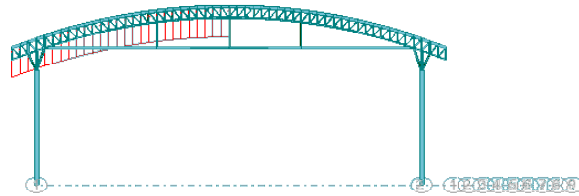
KN/m
Cases: 8 (SN2)


View - Cases: 9 (SN3)



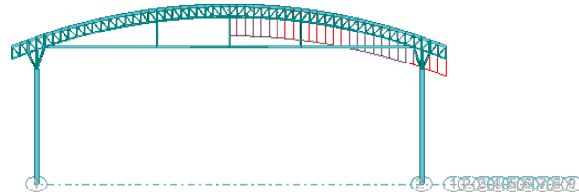
 kN/m
 Cases: 9 (SN3)

View - Cases: 10 (WIND3)



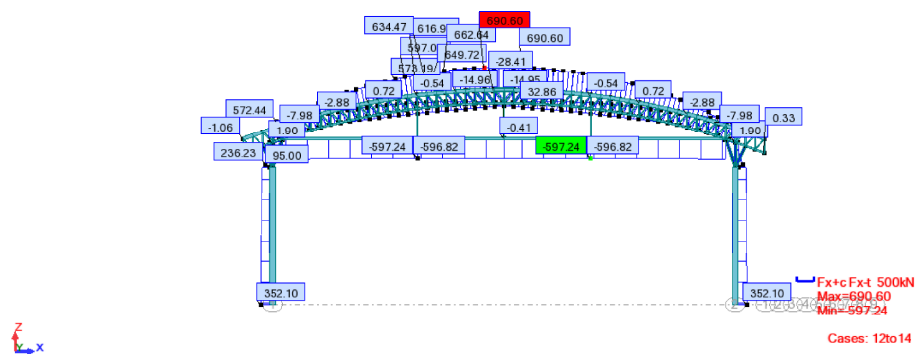
 kN/m
 Cases: 10 (WIND3)

View - Cases: 11 (WIND4)

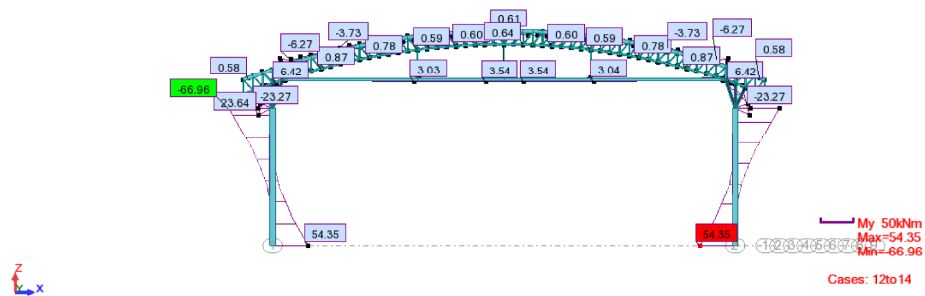


 kN/m
 Cases: 11 (WIND4)

View - FX; Cases: 12to14 ULS



View - MY; Cases: 12to14



Data - Nodes

Node	X (m)	Y (m)	Z (m)	Support code	Support
1	0.0	0.0	7.82		
2	0.0	0.0	9.20		
3	13.21	0.0	9.41		
4	8.26	0.0	9.41		
5	26.40	0.0	0.0		
10	2.76	0.0	10.05		
11	5.51	0.0	10.69		
12	8.26	0.0	11.13		
13	10.46	0.0	11.34		
14	0.0	0.0	9.99		
15	2.76	0.0	10.83		
16	5.51	0.0	11.45		
17	8.26	0.0	11.88		
18	10.46	0.0	12.09		
19	0.56	0.0	9.39		
20	1.11	0.0	9.57		
21	1.66	0.0	9.74		
22	2.21	0.0	9.90		
37	0.56	0.0	10.18		
38	1.11	0.0	10.35		
39	1.66	0.0	10.52		

40	2.21	0.0	10.68		
41	3.31	0.0	10.19		
42	3.86	0.0	10.33		
43	4.41	0.0	10.46		
44	4.96	0.0	10.58		
45	3.31	0.0	10.97		
46	3.86	0.0	11.10		
47	4.41	0.0	11.23		
48	4.96	0.0	11.34		
49	6.06	0.0	10.79		
50	6.61	0.0	10.89		
51	7.16	0.0	10.98		
52	7.71	0.0	11.06		
53	6.06	0.0	11.55		
54	6.61	0.0	11.65		
55	7.16	0.0	11.73		
56	7.71	0.0	11.81		
57	8.80	0.0	11.19		
58	9.36	0.0	11.25		
59	9.91	0.0	11.30		
60	9.91	0.0	12.05		
61	9.36	0.0	12.00		
62	8.80	0.0	11.95		
63	-0.57	0.0	9.00		
64	-1.12	0.0	8.79		
65	-0.57	0.0	9.79		
66	-1.12	0.0	9.59		
69	-1.67	0.0	8.59		
71	-1.67	0.0	9.40		
72	12.66	0.0	11.43		
76	12.66	0.0	12.18		
98	13.21	0.0	11.43		
99	13.21	0.0	12.18		
100	12.11	0.0	12.17		
101	12.11	0.0	11.42		
102	11.56	0.0	12.15		
103	11.56	0.0	11.40		
104	11.01	0.0	12.12		
105	11.01	0.0	11.37		
110	0.0	0.0	0.0	xxxxxx	Fixed
149	26.41	0.0	7.82		
150	26.41	0.0	9.20		
152	26.41	0.0	0.0	xxxxxx	Fixed
153	25.86	0.0	9.39		
156	18.15	0.0	9.41		
158	28.08	0.0	8.59		
159	27.53	0.0	8.79		
160	28.08	0.0	9.40		
161	27.53	0.0	9.59		
162	26.41	0.0	9.99		
163	23.66	0.0	10.05		
164	23.66	0.0	10.83		
165	20.91	0.0	10.69		
166	20.91	0.0	11.45		
167	18.16	0.0	11.13		
168	18.16	0.0	11.88		
169	15.96	0.0	11.34		
170	15.96	0.0	12.09		
171	25.86	0.0	10.18		
172	25.31	0.0	9.57		
173	25.31	0.0	10.35		
174	24.76	0.0	9.74		
175	24.76	0.0	10.52		
176	24.21	0.0	9.90		
177	24.21	0.0	10.68		
178	23.11	0.0	10.19		
179	23.11	0.0	10.97		

180	22.56	0.0	10.33		
181	22.56	0.0	11.10		
182	22.01	0.0	10.46		
183	22.01	0.0	11.23		
184	21.46	0.0	10.58		
185	21.46	0.0	11.34		
186	20.36	0.0	10.79		
187	20.36	0.0	11.55		
188	19.81	0.0	10.89		
189	19.81	0.0	11.65		
190	19.26	0.0	10.98		
191	19.26	0.0	11.73		
192	18.71	0.0	11.06		
193	18.71	0.0	11.81		
194	17.61	0.0	11.95		
195	17.61	0.0	11.19		
196	17.06	0.0	12.00		
197	17.06	0.0	11.25		
198	16.51	0.0	12.05		
199	16.51	0.0	11.30		
200	26.98	0.0	9.00		
201	26.98	0.0	9.79		
202	13.76	0.0	11.43		
203	13.76	0.0	12.18		
204	14.31	0.0	12.17		
205	14.31	0.0	11.42		
206	14.86	0.0	12.15		
207	14.86	0.0	11.40		
208	15.41	0.0	12.12		
209	15.41	0.0	11.37		

Data - Bars

Bar	Node 1	Node 2	Section	Material	Length (m)	Gamma (Deg)	Type
1	1	2	HEA 160	S 355	1.38	0.0	Column
2	2	19	TCAR 100x5	S 355	0.59	0.0	Simple bar
3	12	4	TCAR 35x4	S 355	1.72	0.0	Simple bar
5	19	4	TREC 150x100x6.3	S 355	7.71	0.0	Simple bar
6	4	3	TREC 150x100x6.3	S 355	4.95	0.0	Simple bar
16	2	14	TCAR 100x5	S 355	0.79	0.0	Simple bar
17	10	15	TCAR 60x4	S 355	0.78	0.0	Simple bar
18	11	16	TCAR 60x4	S 355	0.76	0.0	Simple bar
19	12	17	TCAR 60x4	S 355	0.76	0.0	Simple bar
20	13	18	TCAR 60x4	S 355	0.75	0.0	Simple bar
21	19	37	TCAR 100x5	S 355	0.79	0.0	Simple bar
22	20	38	TCAR	S 355	0.79	0.0	Simple bar

			60x4				
23	21	39	TCAR 60x4	S 355	0.78	0.0	Simple bar
24	22	40	TCAR 60x4	S 355	0.78	0.0	Simple bar
26	14	19	TCAR 100x5	S 355	0.82	0.0	Simple bar
27	37	20	TCAR 60x4	S 355	0.82	0.0	Simple bar
28	38	21	TCAR 60x4	S 355	0.83	0.0	Simple bar
29	39	22	TCAR 60x4	S 355	0.83	0.0	Simple bar
30	40	10	TCAR 60x4	S 355	0.83	0.0	Simple bar
31	41	45	TCAR 60x4	S 355	0.77	0.0	Simple bar
32	42	46	TCAR 60x4	S 355	0.77	0.0	Simple bar
33	43	47	TCAR 60x4	S 355	0.77	0.0	Simple bar
34	44	48	TCAR 60x4	S 355	0.77	0.0	Simple bar
35	15	41	TCAR 60x4	S 355	0.84	0.0	Simple bar
36	45	42	TCAR 60x4	S 355	0.84	0.0	Simple bar
37	46	43	TCAR 60x4	S 355	0.85	0.0	Simple bar
38	47	44	TCAR 60x4	S 355	0.85	0.0	Simple bar
39	48	11	TCAR 60x4	S 355	0.86	0.0	Simple bar
40	49	53	TCAR 60x4	S 355	0.76	0.0	Simple bar
41	50	54	TCAR 60x4	S 355	0.76	0.0	Simple bar
42	51	55	TCAR 60x4	S 355	0.76	0.0	Simple bar
43	52	56	TCAR 60x4	S 355	0.76	0.0	Simple bar
44	16	49	TCAR 60x4	S 355	0.86	0.0	Simple bar
45	53	50	TCAR 60x4	S 355	0.86	0.0	Simple bar
46	54	51	TCAR 60x4	S 355	0.87	0.0	Simple bar
47	55	52	TCAR 60x4	S 355	0.87	0.0	Simple bar
48	56	12	TCAR 60x4	S 355	0.88	0.0	Simple bar
49	62	57	TCAR 60x4	S 355	0.75	0.0	Simple bar
50	61	58	TCAR 60x4	S 355	0.75	0.0	Simple bar
51	60	59	TCAR 60x4	S 355	0.75	0.0	Simple bar
52	17	57	TCAR 60x4	S 355	0.88	0.0	Simple bar
53	62	58	TCAR 60x4	S 355	0.89	0.0	Simple bar
54	61	59	TCAR 60x4	S 355	0.89	0.0	Simple bar
55	60	13	TCAR 60x4	S 355	0.90	0.0	Simple bar
56	64	63	TCAR 100x5	S 355	0.59	0.0	Simple bar
57	63	2	TCAR 100x5	S 355	0.60	0.0	Simple bar

58	66	65	TREC 200x10 0x6	S 355	0.58	0.0	Simple bar
59	65	14	TREC 200x10 0x6	S 355	0.60	0.0	Simple bar
60	64	66	TCAR 60x4	S 355	0.80	0.0	Simple bar
61	63	65	TCAR 100x5	S 355	0.79	0.0	Simple bar
62	66	63	TCAR 60x4	S 355	0.81	0.0	Simple bar
63	65	2	TCAR 100x5	S 355	0.82	0.0	Simple bar
64	1	63	HEA 160	S 355	1.31	0.0	Column
65	1	19	HEA 160	S 355	1.66	0.0	Column
73	69	64	TCAR 100x5	S 355	0.58	0.0	Simple bar
74	71	66	TREC 200x10 0x6	S 355	0.58	0.0	Simple bar
75	69	71	TCAR 60x4	S 355	0.80	0.0	Simple bar
76	71	64	TCAR 60x4	S 355	0.82	0.0	Simple bar
79	72	76	TCAR 60x4	S 355	0.75	180.0	Simple bar
84	19	20	TCAR 100x5	S 355	0.58	0.0	Simple bar
102	98	99	TCAR 60x4	S 355	0.75	180.0	Simple bar
107	76	98	TCAR 60x4	S 355	0.93	0.0	Simple bar
108	100	101	TCAR 60x4	S 355	0.75	180.0	Simple bar
109	102	103	TCAR 60x4	S 355	0.75	180.0	Simple bar
110	104	105	TCAR 60x4	S 355	0.75	180.0	Simple bar
111	100	72	TCAR 60x4	S 355	0.92	0.0	Simple bar
112	102	101	TCAR 60x4	S 355	0.91	0.0	Simple bar
113	104	103	TCAR 60x4	S 355	0.91	0.0	Simple bar
114	18	105	TCAR 60x4	S 355	0.90	0.0	Simple bar
125	110	1	C R30x3 0	C25/30	7.82	0.0	RC column
126	20	21	TCAR 100x5	S 355	0.58	0.0	Simple bar
127	3	98	TCAR 35x4	S 355	2.03	0.0	Simple bar
128	21	22	TCAR 100x5	S 355	0.57	0.0	Simple bar
129	22	10	TCAR 100x5	S 355	0.57	0.0	Simple bar
130	14	37	TREC 200x10 0x6	S 355	0.59	0.0	Simple bar
131	37	38	TREC 200x10 0x6	S 355	0.58	0.0	Simple bar
132	38	39	TREC 200x10 0x6	S 355	0.57	0.0	Simple bar

133	39	40	TREC 200x10 0x6	S 355	0.57	0.0	Simple bar
134	40	15	TREC 200x10 0x6	S 355	0.57	0.0	Simple bar
135	10	41	TCAR 100x5	S 355	0.57	0.0	Simple bar
136	41	42	TCAR 100x5	S 355	0.57	0.0	Simple bar
137	42	43	TCAR 100x5	S 355	0.56	0.0	Simple bar
138	43	44	TCAR 100x5	S 355	0.56	0.0	Simple bar
139	44	11	TCAR 100x5	S 355	0.56	0.0	Simple bar
140	15	45	TREC 200x10 0x6	S 355	0.57	0.0	Simple bar
141	45	46	TREC 200x10 0x6	S 355	0.57	0.0	Simple bar
142	46	47	TREC 200x10 0x6	S 355	0.56	0.0	Simple bar
143	47	48	TREC 200x10 0x6	S 355	0.56	0.0	Simple bar
144	48	16	TREC 200x10 0x6	S 355	0.56	0.0	Simple bar
145	16	53	TREC 200x10 0x6	S 355	0.56	0.0	Simple bar
146	53	54	TREC 200x10 0x6	S 355	0.56	0.0	Simple bar
147	54	55	TREC 200x10 0x6	S 355	0.56	0.0	Simple bar
148	55	56	TREC 200x10 0x6	S 355	0.56	0.0	Simple bar
149	56	17	TREC 200x10 0x6	S 355	0.55	0.0	Simple bar
150	11	49	TCAR 100x5	S 355	0.56	0.0	Simple bar
151	49	50	TCAR 100x5	S 355	0.56	0.0	Simple bar
152	50	51	TCAR 100x5	S 355	0.56	0.0	Simple bar
153	51	52	TCAR 100x5	S 355	0.56	0.0	Simple bar
154	52	12	TCAR 100x5	S 355	0.55	0.0	Simple bar
155	12	57	TCAR 100x5	S 355	0.55	0.0	Simple bar
156	57	58	TCAR 100x5	S 355	0.55	0.0	Simple bar
157	58	59	TCAR 100x5	S 355	0.55	0.0	Simple bar
158	59	13	TCAR 100x5	S 355	0.55	0.0	Simple bar
159	17	62	TREC 200x10 0x6	S 355	0.55	0.0	Simple bar
160	62	61	TREC 200x10 0x6	S 355	0.55	0.0	Simple bar

161	61	60	TREC 200x10 0x6	S 355	0.55	0.0	Simple bar
162	60	18	TREC 200x10 0x6	S 355	0.55	0.0	Simple bar
163	72	101	TCAR 100x5	S 355	0.55	0.0	Simple bar
164	101	103	TCAR 100x5	S 355	0.55	0.0	Simple bar
165	103	105	TCAR 100x5	S 355	0.55	0.0	Simple bar
166	105	13	TCAR 100x5	S 355	0.55	0.0	Simple bar
167	76	100	TREC 200x10 0x6	S 355	0.55	0.0	Simple bar
168	100	102	TREC 200x10 0x6	S 355	0.55	0.0	Simple bar
169	102	104	TREC 200x10 0x6	S 355	0.55	0.0	Simple bar
170	104	18	TREC 200x10 0x6	S 355	0.55	0.0	Simple bar
175	98	72	TCAR 100x5	S 355	0.55	0.0	Simple bar
180	99	76	TREC 200x10 0x6	S 355	0.55	0.0	Simple bar
181	149	150	HEA 160	S 355	1.38	180.0	Column
183	149	153	HEA 160	S 355	1.66	0.0	Column
185	150	153	TCAR 100x5	S 355	0.59	0.0	Simple bar
186	153	172	TCAR 100x5	S 355	0.58	0.0	Simple bar
189	158	159	TCAR 100x5	S 355	0.58	0.0	Simple bar
190	160	161	TREC 200x10 0x6	S 355	0.58	0.0	Simple bar
191	158	160	TCAR 60x4	S 355	0.80	180.0	Simple bar
192	160	159	TCAR 60x4	S 355	0.82	0.0	Simple bar
193	150	162	TCAR 100x5	S 355	0.79	180.0	Simple bar
194	163	164	TCAR 60x4	S 355	0.78	180.0	Simple bar
195	165	166	TCAR 60x4	S 355	0.76	180.0	Simple bar
196	167	168	TCAR 60x4	S 355	0.76	180.0	Simple bar
197	169	170	TCAR 60x4	S 355	0.75	180.0	Simple bar
198	153	171	TCAR 100x5	S 355	0.79	180.0	Simple bar
199	172	173	TCAR 60x4	S 355	0.79	180.0	Simple bar
200	174	175	TCAR 60x4	S 355	0.78	180.0	Simple bar
201	176	177	TCAR 60x4	S 355	0.78	180.0	Simple bar
202	167	156	TCAR 35x4	S 355	1.72	0.0	Simple bar
203	162	153	TCAR	S 355	0.82	0.0	Simple bar

			100x5				
204	171	172	TCAR 60x4	S 355	0.82	0.0	Simple bar
205	173	174	TCAR 60x4	S 355	0.83	0.0	Simple bar
206	175	176	TCAR 60x4	S 355	0.83	0.0	Simple bar
207	177	163	TCAR 60x4	S 355	0.83	0.0	Simple bar
208	178	179	TCAR 60x4	S 355	0.77	180.0	Simple bar
209	180	181	TCAR 60x4	S 355	0.77	180.0	Simple bar
210	182	183	TCAR 60x4	S 355	0.77	180.0	Simple bar
211	184	185	TCAR 60x4	S 355	0.77	180.0	Simple bar
212	164	178	TCAR 60x4	S 355	0.84	0.0	Simple bar
213	179	180	TCAR 60x4	S 355	0.84	0.0	Simple bar
214	181	182	TCAR 60x4	S 355	0.85	0.0	Simple bar
215	183	184	TCAR 60x4	S 355	0.85	0.0	Simple bar
216	185	165	TCAR 60x4	S 355	0.86	0.0	Simple bar
217	186	187	TCAR 60x4	S 355	0.76	180.0	Simple bar
218	188	189	TCAR 60x4	S 355	0.76	180.0	Simple bar
219	190	191	TCAR 60x4	S 355	0.76	180.0	Simple bar
220	192	193	TCAR 60x4	S 355	0.76	180.0	Simple bar
221	166	186	TCAR 60x4	S 355	0.86	0.0	Simple bar
222	187	188	TCAR 60x4	S 355	0.86	0.0	Simple bar
223	189	190	TCAR 60x4	S 355	0.87	0.0	Simple bar
224	191	192	TCAR 60x4	S 355	0.87	0.0	Simple bar
225	193	167	TCAR 60x4	S 355	0.88	0.0	Simple bar
226	194	195	TCAR 60x4	S 355	0.75	180.0	Simple bar
227	196	197	TCAR 60x4	S 355	0.75	180.0	Simple bar
228	198	199	TCAR 60x4	S 355	0.75	180.0	Simple bar
229	168	195	TCAR 60x4	S 355	0.88	0.0	Simple bar
230	194	197	TCAR 60x4	S 355	0.89	0.0	Simple bar
231	196	199	TCAR 60x4	S 355	0.89	0.0	Simple bar
232	198	169	TCAR 60x4	S 355	0.90	0.0	Simple bar
233	159	200	TCAR 100x5	S 355	0.59	0.0	Simple bar
234	200	150	TCAR 100x5	S 355	0.60	0.0	Simple bar
235	161	201	TREC 200x10 0x6	S 355	0.58	0.0	Simple bar
236	201	162	TREC 200x10 0x6	S 355	0.60	0.0	Simple bar

237	159	161	TCAR 60x4	S 355	0.80	180.0	Simple bar
238	200	201	TCAR 100x5	S 355	0.79	180.0	Simple bar
239	161	200	TCAR 60x4	S 355	0.81	0.0	Simple bar
240	201	150	TCAR 100x5	S 355	0.82	0.0	Simple bar
241	149	200	HEA 160	S 355	1.31	0.0	Column
242	202	203	TCAR 60x4	S 355	0.75	0.0	Simple bar
243	203	98	TCAR 60x4	S 355	0.93	0.0	Simple bar
244	204	205	TCAR 60x4	S 355	0.75	0.0	Simple bar
245	206	207	TCAR 60x4	S 355	0.75	0.0	Simple bar
246	208	209	TCAR 60x4	S 355	0.75	0.0	Simple bar
247	204	202	TCAR 60x4	S 355	0.92	0.0	Simple bar
248	206	205	TCAR 60x4	S 355	0.91	0.0	Simple bar
249	208	207	TCAR 60x4	S 355	0.91	0.0	Simple bar
250	170	209	TCAR 60x4	S 355	0.90	0.0	Simple bar
251	152	149	C R30x3 0	C25/30	7.82	180.0	RC column
252	153	156	TREC 150x10 0x6.3	S 355	7.71	0.0	Simple bar
253	156	3	TREC 150x10 0x6.3	S 355	4.94	0.0	Simple bar
254	172	174	TCAR 100x5	S 355	0.58	0.0	Simple bar
255	174	176	TCAR 100x5	S 355	0.57	0.0	Simple bar
256	176	163	TCAR 100x5	S 355	0.57	0.0	Simple bar
257	162	171	TREC 200x10 0x6	S 355	0.59	0.0	Simple bar
258	171	173	TREC 200x10 0x6	S 355	0.58	0.0	Simple bar
259	173	175	TREC 200x10 0x6	S 355	0.57	0.0	Simple bar
260	175	177	TREC 200x10 0x6	S 355	0.57	0.0	Simple bar
261	177	164	TREC 200x10 0x6	S 355	0.57	0.0	Simple bar
262	163	178	TCAR 100x5	S 355	0.57	0.0	Simple bar
263	178	180	TCAR 100x5	S 355	0.57	0.0	Simple bar
264	180	182	TCAR 100x5	S 355	0.56	0.0	Simple bar
265	182	184	TCAR 100x5	S 355	0.56	0.0	Simple bar
266	184	165	TCAR 100x5	S 355	0.56	0.0	Simple bar
267	164	179	TREC	S 355	0.57	0.0	Simple bar

			200x10 0x6				
268	179	181	TREC 200x10 0x6	S 355	0.57	0.0	Simple bar
269	181	183	TREC 200x10 0x6	S 355	0.56	0.0	Simple bar
270	183	185	TREC 200x10 0x6	S 355	0.56	0.0	Simple bar
271	185	166	TREC 200x10 0x6	S 355	0.56	0.0	Simple bar
272	166	187	TREC 200x10 0x6	S 355	0.56	0.0	Simple bar
273	187	189	TREC 200x10 0x6	S 355	0.56	0.0	Simple bar
274	189	191	TREC 200x10 0x6	S 355	0.56	0.0	Simple bar
275	191	193	TREC 200x10 0x6	S 355	0.56	0.0	Simple bar
276	193	168	TREC 200x10 0x6	S 355	0.55	0.0	Simple bar
277	165	186	TCAR 100x5	S 355	0.56	0.0	Simple bar
278	186	188	TCAR 100x5	S 355	0.56	0.0	Simple bar
279	188	190	TCAR 100x5	S 355	0.56	0.0	Simple bar
280	190	192	TCAR 100x5	S 355	0.56	0.0	Simple bar
281	192	167	TCAR 100x5	S 355	0.55	0.0	Simple bar
282	167	195	TCAR 100x5	S 355	0.55	0.0	Simple bar
283	195	197	TCAR 100x5	S 355	0.55	0.0	Simple bar
284	197	199	TCAR 100x5	S 355	0.55	0.0	Simple bar
285	199	169	TCAR 100x5	S 355	0.55	0.0	Simple bar
286	168	194	TREC 200x10 0x6	S 355	0.55	0.0	Simple bar
287	194	196	TREC 200x10 0x6	S 355	0.55	0.0	Simple bar
288	196	198	TREC 200x10 0x6	S 355	0.55	0.0	Simple bar
289	198	170	TREC 200x10 0x6	S 355	0.55	0.0	Simple bar
290	202	205	TCAR 100x5	S 355	0.55	0.0	Simple bar
291	205	207	TCAR 100x5	S 355	0.55	0.0	Simple bar
292	207	209	TCAR 100x5	S 355	0.55	0.0	Simple bar
293	209	169	TCAR 100x5	S 355	0.55	0.0	Simple bar
294	203	204	TREC 200x10 0x6	S 355	0.55	0.0	Simple bar

295	204	206	TREC 200x10 0x6	S 355	0.55	0.0	Simple bar
296	206	208	TREC 200x10 0x6	S 355	0.55	0.0	Simple bar
297	208	170	TREC 200x10 0x6	S 355	0.55	0.0	Simple bar
298	98	202	TCAR 100x5	S 355	0.55	0.0	Simple bar
299	99	203	TREC 200x10 0x6	S 355	0.55	0.0	Simple bar

Data - Sections

	Section name	Bar list	AX (cm2)	AY (cm2)	AZ (cm2)	IX (cm4)	IY (cm4)	IZ (cm4)
	TCAR 100x5	2 16 21 26 56 57 61 63 73 84 126 128 129 135to13 9 150to15 8 163to16 6 175 185 186 189 193 198 203 233 234 238 240 254to25 6 262to26 6 277to28 5 290to29 3 298	18.88	8.39	8.39	438.80	282.80	282.80
	TREC 150x100x6.3	5 6 252 253	29.70	13.21	13.21	985.10	910.10	479.30
	C R30x30	125 251	900.00	750.00	750.00	113872. 30	67500.0 0	67500.0 0
	TCAR 35x4	3 127 202	4.88	2.17	2.17	12.50	7.72	7.72
	HEA 160	1 64 65 181 183 241	38.77	27.96	9.75	10.90	1672.98	615.57
	TREC 200x100x6	58 59 74 130to13 4 140to14 9 159to16 2 167to17 0 180	33.45	14.87	14.87	1416.00	1685.00	572.30

		190 235 236 257to26 1 267to27 6 286to28 9 294to29 7 299						
	TCAR 60x4	17to20 22to24 27to55 60 62 75 76 79 102 107to11 4 191 192 194to19 7 199to20 1 204to23 2 237 239 242to25 0	8.88	3.95	3.95	72.41	46.14	46.14

Data - Materials

	Materia l	E (MPa)	G (MPa)	N I	LX (1/°C)	RO (kN/m3)	Re (MPa)
1	S 355	210000 .00	81000. 00	0 . 3 0	0.00	77.01	355.00
2	C25/30	31000. 00	12916. 67	0 . 2 0	0.00	24.53	25.00

Data - Supports

	Support name	List of nodes	List of edges	List of objects	Support conditions
	Fixed	110 152			UX UY UZ RX RY RZ

Loads - Cases

Case	Label	Case name	Nature	Analysis type
1	DL1	DL1	Structural	Static - Linear
2	DL2	DL2	Structural	Static - Linear
3	DL3	DL3	Structural	Static - Linear
4	SN1	SN1	snow	Static - Linear
5	LL1	LL1	Category A	Static - Linear
6	WIND1	WIND1	wind	Static - Linear
7	WIND2	WIND2	wind	Static - Linear
8	SN2	SN2	snow	Static - Linear
9	SN3	SN3	snow	Static - Linear
10	WIND3	WIND3	wind	Static - Linear
11	WIND4	WIND4	wind	Static - Linear
12		ULS		Static - Linear
13		ULS+		Static - Linear
14		ULS-		Static - Linear
15		SLS		Static - Linear
16		SLS+		Static - Linear
17		SLS-		Static - Linear
18		SLS:CHR		Static - Linear
19		SLS:CHR+		Static - Linear
20		SLS:CHR-		Static - Linear
21		SLS:FRE		Static - Linear
22		SLS:FRE+		Static - Linear
23		SLS:FRE-		Static - Linear
24		SLS:QPR		Static - Linear
25		SLS:QPR+		Static - Linear
26		SLS:QPR-		Static - Linear

Loads - Values

- Cases: 1to26

	Case	Load type	List	Load values
	1	self-weight	1to3 16to24 26to65 73to76 107to114 125to170 5 6 79 84 102 175 180 181 183 185 186 189to299	PZ Negative Factor=1.00
	2	uniform load	58 59 74 130to134 140to149 159to162 167to170 180 190 235 236 257to261 267to276 286to289 294to297	PZ=-1.80(kN/m)

			299	
	3	uniform load	2 56 57 73 84 126 128 129 135to139 150to158 163to166 175 185 186 189 233 234 254to256 262to266 277to285 290to293 298	PZ=-0.50(kN/m)
	4	uniform load	58 59 74 130to134 140to149 159to162 167to170 180 190 235 236 257to261 267to276 286to289 294to297 299	PZ=-7.50(kN/m)
	5	uniform load	58 59 74 130to134 140to149 159to162 167to170 180 190 235 236 257to261 267to276 286to289 294to297 299	PZ=-4.20(kN/m)
	6	uniform load	58 59 74 130to134 140to149 159to162 167to170 180 190 235 236 257to261 267to276 286to289 294to297 299	PZ=-1.80(kN/m)
	7	uniform load	58 59 74 130to134 140to149 159to162 167to170 180 190 235 236 257to261 267to276 286to289 294to297 299	PZ=1.80(kN/m)
	8	uniform load	58 59 74 130to134 140to149 159to162 167to170 180	PZ=-7.50(kN/m)
	9	uniform load	190 235 236	PZ=-7.50(kN/m)

			257to261 267to276 286to289 294to297 299	
	10	uniform load	58 59 74 130to134 140to149 159to162 167to170 180	PZ=1.80(kN/m)
	11	uniform load	190 235 236 257to261 267to276 286to289 294to297 299	PZ=1.80(kN/m)

Reactions - Values

in the coordinate system: global - Cases: 1to11 13to25By3 14to26By3

Node/Case	FX (kN)	FY (kN)	FZ (kN)	MX (kNm)	MY (kNm)	MZ (kNm)
110/ 1	0.62	0.00	31.04	-0.00	2.17	0.00
110/ 2	1.30	0.00	27.39	-0.00	4.54	0.00
110/ 3	0.36	0.00	7.61	-0.00	1.26	0.00
110/ 4	5.40	0.00	114.12	-0.00	18.91	0.00
110/ 5	3.02	0.00	63.91	-0.00	10.59	0.00
110/ 6	1.30	0.00	27.39	-0.00	4.54	0.00
110/ 7	-1.30	-0.00	-27.39	0.00	-4.54	-0.00
110/ 8	2.70	0.00	89.96	-0.00	4.13	0.00
110/ 9	2.70	0.00	24.16	-0.00	14.78	0.00
110/ 10	-0.65	-0.00	-21.59	0.00	-0.99	-0.00
110/ 11	-0.65	-0.00	-5.80	0.00	-3.55	-0.00
110/ ULS+	15.51	0.00	352.10	-0.00	54.35	0.00
110/ ULS-	0.33	0.00	24.96	-0.00	1.17	0.00
110/ SLS+	10.57	0.00	241.34	-0.00	37.03	0.00
110/ SLS-	0.98	0.00	38.65	-0.00	3.44	0.00
110/ SLS:C HR+	10.57	0.00	241.34	-0.00	37.03	0.00
110/ SLS:C HR-	0.98	0.00	38.65	-0.00	3.44	0.00
110/ SLS:F RE+	4.26	0.00	108.04	-0.00	14.94	0.00
110/ SLS:F RE-	2.02	0.00	60.57	-0.00	7.07	0.00
110/ SLS:Q PR+	3.18	0.00	85.22	-0.00	11.15	0.00
110/ SLS:Q PR-	2.28	0.00	66.04	-0.00	7.98	0.00
152/ 1	-0.62	-0.00	31.04	0.00	-2.17	0.00
152/ 2	-1.30	-0.00	27.39	0.00	-4.54	0.00

152/	3	-0.36	-0.00	7.61	0.00	-1.26	0.00
152/	4	-5.40	-0.00	114.12	0.00	-18.91	0.00
152/	5	-3.02	-0.00	63.91	0.00	-10.59	0.00
152/	6	-1.30	-0.00	27.39	0.00	-4.54	0.00
152/	7	1.30	0.00	-27.39	-0.00	4.54	-0.00
152/	8	-2.70	-0.00	24.16	0.00	-14.78	0.00
152/	9	-2.70	-0.00	89.96	0.00	-4.13	0.00
152/	10	0.65	0.00	-5.80	-0.00	3.55	-0.00
152/	11	0.65	0.00	-21.59	-0.00	0.99	-0.00
152/	ULS+	-0.33	-0.00	352.10	0.00	-1.17	0.00
152/	ULS-	-15.51	-0.00	24.96	0.00	-54.35	0.00
152/	SLS+	-0.98	-0.00	241.34	0.00	-3.44	0.00
152/	SLS-	-10.57	-0.00	38.65	0.00	-37.03	0.00
152/	SLS:C	-0.98	-0.00	241.34	0.00	-3.44	0.00
HR+							
152/	SLS:C	-10.57	-0.00	38.65	0.00	-37.03	0.00
HR-							
152/	SLS:F	-2.02	-0.00	108.04	0.00	-7.07	0.00
RE+							
152/	SLS:F	-4.26	-0.00	60.57	0.00	-14.94	0.00
RE-							
152/	SLS:Q	-2.28	-0.00	85.22	0.00	-7.98	0.00
PR+							
152/	SLS:Q	-3.18	-0.00	66.04	0.00	-11.15	0.00
PR-							
Case 1	DL1						
Sum of val.		0.00	0.00	62.08	-0.00	-0.00	0.00
Sum of reac.		0.00	0.00	62.08	-0.00	-819.74	0.00
Sum of forc.		-0.00	0.0	-62.08	0.0	819.74	0.0
Check val.		0.00	0.00	0.00	-0.00	0.00	0.00
Precision		5.92859e-014	1.67796e-028				
Case 2	DL2						
Sum of val.		0.00	0.00	54.78	-0.00	0.00	0.00
Sum of reac.		0.00	0.00	54.78	-0.00	-723.36	0.00
Sum of forc.		0.00	0.0	-54.78	0.0	723.36	0.0
Check val.		0.00	0.00	0.00	-0.00	0.00	0.00
Precision		1.02081e-013	9.73046e-028				
Case 3	DL3						
Sum of val.		0.00	0.00	15.23	-0.00	0.00	0.00
Sum of reac.		0.00	0.00	15.23	-0.00	-201.10	0.00
Sum of forc.		0.00	0.0	-15.23	0.0	201.10	0.0
Check val.		0.00	0.00	0.00	-0.00	0.00	0.00
Precision		7.06946e-014	9.43877e-028				
Case 4	SN1						
Sum of val.		0.00	0.00	228.25	-0.00	0.00	0.00
Sum of reac.		0.00	0.00	228.25	-0.00	-3014.00	0.00
Sum of forc.		-0.00	0.0	-228.25	0.0	3014.00	0.0
Check val.		0.00	0.00	0.00	-0.00	0.00	0.00
Precision		5.35909e-014	9.15736e-028				
Case 5	LL1						
Sum of val.		0.00	0.00	127.82	-0.00	0.00	0.00
Sum of reac.		0.00	0.00	127.82	-0.00	-1687.84	0.00
Sum of forc.		-0.00	0.0	-127.82	0.0	1687.84	0.0

Check val.	0.00	0.00	0.00	-0.00	0.00	0.00
Precision	7.45750e-014	9.12500e-028				
Case 6	WIND1					
Sum of val.	0.00	0.00	54.78	-0.00	0.00	0.00
Sum of reac.	0.00	0.00	54.78	-0.00	-723.36	0.00
Sum of forc.	0.00	0.0	-54.78	0.0	723.36	0.0
Check val.	0.00	0.00	0.00	-0.00	0.00	0.00
Precision	1.02081e-013	9.73046e-028				
Case 7	WIND2					
Sum of val.	-0.00	-0.00	-54.78	0.00	-0.00	-0.00
Sum of reac.	-0.00	-0.00	-54.78	0.00	723.36	-0.00
Sum of forc.	-0.00	0.0	54.78	0.0	-723.36	0.0
Check val.	-0.00	-0.00	-0.00	0.00	-0.00	-0.00
Precision	1.02081e-013	9.73046e-028				
Case 8	SN2					
Sum of val.	0.00	0.00	114.12	-0.00	-10.65	0.00
Sum of reac.	0.00	0.00	114.12	-0.00	-648.70	0.00
Sum of forc.	-0.00	0.0	-114.12	0.0	648.70	0.0
Check val.	0.00	0.00	0.00	-0.00	-0.00	0.00
Precision	1.19697e-013	4.79343e-026				
Case 9	SN3					
Sum of val.	0.00	0.00	114.12	-0.00	10.65	0.00
Sum of reac.	0.00	0.00	114.12	-0.00	-2365.30	0.00
Sum of forc.	-0.00	0.0	-114.12	0.0	2365.30	0.0
Check val.	0.00	0.00	-0.00	-0.00	0.00	0.00
Precision	9.65663e-014	4.61325e-027				
Case 10	WIND3					
Sum of val.	-0.00	-0.00	-27.39	0.00	2.56	-0.00
Sum of reac.	-0.00	-0.00	-27.39	0.00	155.69	-0.00
Sum of forc.	-0.00	0.0	27.39	0.0	-155.69	0.0
Check val.	-0.00	-0.00	-0.00	0.00	0.00	-0.00
Precision	1.07161e-013	4.94024e-026				
Case 11	WIND4					
Sum of val.	-0.00	-0.00	-27.39	0.00	-2.56	-0.00
Sum of reac.	-0.00	-0.00	-27.39	0.00	567.67	-0.00
Sum of forc.	0.00	0.0	27.39	0.0	-567.67	0.0
Check val.	-0.00	-0.00	0.00	0.00	-0.00	-0.00
Precision	9.06489e-014	4.69158e-027				
Case ULS+	ULS+					
Sum of val.	15.18	0.00	704.20	0.00	53.18	0.00
Sum of reac.	0.00	0.00	278.62	-0.00	-4781.24	0.00
Sum of forc.	-0.00	0.0	-278.62	0.0	4781.24	0.0
Check val.	0.00	0.00	-0.00	-0.00	0.00	0.00
Precision	4.58495e-013	1.32270e-026				
Case ULS-	ULS-					
Sum of val.	-15.18	-0.00	49.92	-0.00	-53.18	0.00
Sum of reac.	0.00	0.00	278.62	-0.00	-4781.24	0.00
Sum of forc.	-0.00	0.0	-278.62	0.0	4781.24	0.0
Check val.	0.00	0.00	-0.00	-0.00	0.00	0.00
Precision	4.58495e-013	1.32270e-026				

Case SLS+	SLS+					
Sum of val.	9.59	0.00	482.67	0.00	33.59	0.00
Sum of reac.	0.00	0.00	132.09	-0.00	-1744.20	0.00
Sum of forc.	0.00	0.0	-132.09	0.0	1744.20	0.0
Check val.	0.00	0.00	0.00	-0.00	0.00	0.00
Precision	2.32061e-013	2.08472e-027				
Case SLS-	SLS-					
Sum of val.	-9.59	-0.00	77.31	-0.00	-33.59	0.00
Sum of reac.	0.00	0.00	132.09	-0.00	-1744.20	0.00
Sum of forc.	0.00	0.0	-132.09	0.0	1744.20	0.0
Check val.	0.00	0.00	0.00	-0.00	0.00	0.00
Precision	2.32061e-013	2.08472e-027				
Case SLS:CHR+	SLS:CHR+					
Sum of val.	9.59	0.00	482.67	0.00	33.59	0.00
Sum of reac.	0.00	0.00	229.78	-0.00	-3768.89	0.00
Sum of forc.	-0.00	0.0	-229.78	0.0	3768.89	0.0
Check val.	0.00	0.00	0.00	-0.00	0.00	0.00
Precision	3.83017e-013	9.51292e-027				
Case SLS:CHR-	SLS:CHR-					
Sum of val.	-9.59	-0.00	77.31	-0.00	-33.59	0.00
Sum of reac.	0.00	0.00	229.78	-0.00	-3768.89	0.00
Sum of forc.	-0.00	0.0	-229.78	0.0	3768.89	0.0
Check val.	0.00	0.00	0.00	-0.00	0.00	0.00
Precision	3.83017e-013	9.51292e-027				
Case SLS:FRE+	SLS:FRE+					
Sum of val.	2.25	0.00	216.08	0.00	7.87	0.00
Sum of reac.	0.00	0.00	154.91	-0.00	-2217.25	0.00
Sum of forc.	-0.00	0.0	-154.91	0.0	2217.25	0.0
Check val.	0.00	0.00	0.00	-0.00	0.00	0.00
Precision	2.51375e-013	3.00737e-027				
Case SLS:FRE-	SLS:FRE-					
Sum of val.	-2.25	-0.00	121.13	-0.00	-7.87	0.00
Sum of reac.	0.00	0.00	154.91	-0.00	-2217.25	0.00
Sum of forc.	-0.00	0.0	-154.91	0.0	2217.25	0.0
Check val.	0.00	0.00	0.00	-0.00	0.00	0.00
Precision	2.51375e-013	3.00737e-027				
Case SLS:QPR+	SLS:QPR+					
Sum of val.	0.91	0.00	170.43	0.00	3.18	0.00
Sum of reac.	0.00	0.00	132.09	-0.00	-1744.20	0.00
Sum of forc.	0.00	0.0	-132.09	0.0	1744.20	0.0
Check val.	0.00	0.00	0.00	-0.00	0.00	0.00
Precision	2.32061e-013	2.08472e-027				
Case SLS:QPR-	SLS:QPR-					
Sum of val.	-0.91	-0.00	132.09	-0.00	-3.18	0.00
Sum of reac.	0.00	0.00	132.09	-0.00	-1744.20	0.00
Sum of forc.	0.00	0.0	-132.09	0.0	1744.20	0.0
Check val.	0.00	0.00	0.00	-0.00	0.00	0.00
Precision	2.32061e-013	2.08472e-027				

Reactions ULS: global extremes

in the coordinate system: global - Cases: 1to11 13 14

	FX (kN)	FY (kN)	FZ (kN)	MX (kNm)	MY (kNm)	MZ (kNm)
MAX	15.51	0.00	352.10	0.00	54.35	0.00
Node	110	110	152	152	110	152
Case	ULS/110	ULS/110	ULS/110	ULS/110	ULS/110	ULS/110
MIN	-15.51	-0.00	-27.39	-0.00	-54.35	-0.00
Node	152	152	152	110	152	152
Case	ULS/110	ULS/110	7	ULS/110	ULS/110	7

Displacements SLS: global extremes

- Cases: 1to11 16to25By3 17to26By3

	UX (cm)	UY (cm)	UZ (cm)	RX (Rad)	RY (Rad)	RZ (Rad)
MAX	1.9	0.0	0.8	0.000	0.007	0.000
Node	178	193	98	158	47	200
Case	SLS/67	7	7	SLS/57	SLS/57	SLS/57
MIN	-1.9	-0.0	-6.6	-0.000	-0.007	-0.000
Node	41	193	3	158	183	102
Case	SLS/65	SLS/57	SLS/57	7	SLS/57	SLS/57

Forces - Envelope

- Cases: 1to11 13to25By3 14to26By3

Bar/Node/Case	FX (kN)	FY (kN)	FZ (kN)	MX (kNm)	MY (kNm)	MZ (kNm)
1/ 1/ ULS/110	95.00>>	0.00	21.50	0.00	-23.27	0.00
1/ 1/ 7	-7.90<<	-0.00	-1.78	-0.00	1.93	-0.00
1/ 1/ ULS/110	95.00	0.00>>	21.50	0.00	-23.27	0.00
1/ 1/ 7	-7.90	-0.00<<	-1.78	-0.00	1.93	-0.00
1/ 1/ ULS/110	95.00	0.00	21.50>>	0.00	-23.27	0.00
1/ 1/ 7	-7.90	-0.00	-1.78<<	-0.00	1.93	-0.00
1/ 1/ ULS/110	95.00	0.00	21.50	0.00>>	-23.27	0.00
1/ 1/ 7	-7.90	-0.00	-1.78	-0.00<<	1.93	-0.00
1/ 2/ ULS/110	94.44	0.00	21.50	0.00	6.42>>	0.00
1/ 1/	95.00	0.00	21.50	0.00	-23.27<<	0.00

	Uls/110						
1/	1/ Uls/110	95.00	0.00	21.50	0.00	-23.27	0.00>>
1/	1/ 7	-7.90	-0.00	-1.78	-0.00	1.93	-0.00<<
2/	2/ 7	3.31>>	0.00	0.20	0.00	-0.02	0.00
2/	19/ Uls/110	-40.79<<	-0.00	-3.37	-0.00	-1.48	0.00
2/	2/ 7	3.31	0.00>>	0.20	0.00	-0.02	0.00
2/	2/ Uls/110	-40.62	-0.00<<	-2.88	-0.00	0.35	-0.00
2/	2/ 7	3.31	0.00	0.20>>	0.00	-0.02	0.00
2/	19/ Uls/110	-40.79	-0.00	-3.37<<	-0.00	-1.48	0.00
2/	2/ 7	3.31	0.00	0.20	0.00>>	-0.02	0.00
2/	2/ Uls/110	-40.62	-0.00	-2.88	-0.00<<	0.35	-0.00
2/	2/ Uls/110	-40.62	-0.00	-2.88	-0.00	0.35>>	-0.00
2/	19/ Uls/110	-40.79	-0.00	-3.37	-0.00	-1.48<<	0.00
2/	19/ Uls/110	-40.79	-0.00	-3.37	-0.00	-1.48	0.00>>
2/	2/ Uls/110	-40.62	-0.00	-2.88	-0.00	0.35	-0.00<<
3/	12/ 8	0.30>>	0.00	0.13	0.00	-0.11	0.00
3/	12/ Uls/112	-3.55<<	0.00	-0.60	0.00	0.52	0.00
3/	12/ Uls/110	-3.10	0.00>>	-0.41	0.00	0.35	0.00
3/	12/ 7	0.08	-0.00<<	0.04	-0.00	-0.03	-0.00
3/	12/ Uls/165	-1.15	0.00	0.19>>	0.00	-0.17	0.00
3/	4/ Uls/112	-3.46	0.00	-0.60<<	0.00	-0.51	-0.00
3/	12/ Uls/110	-3.10	0.00	-0.41	0.00>>	0.35	0.00
3/	12/ 7	0.08	-0.00	0.04	-0.00<<	-0.03	-0.00
3/	12/ Uls/112	-3.55	0.00	-0.60	0.00	0.52>>	0.00
3/	4/ Uls/112	-3.46	0.00	-0.60	0.00	-0.51<<	-0.00
3/	12/ Uls/110	-3.10	0.00	-0.41	0.00	0.35	0.00>>
3/	4/ Uls/110	-3.01	0.00	-0.41	0.00	-0.35	-0.00<<
5/	19/ 7	49.91>>	-0.00	-0.07	0.00	0.31	-0.00
5/	4/ Uls/110	-596.82<<	0.00	-0.28	-0.00	1.63	-0.00
5/	19/ Uls/110	-596.81	0.00>>	2.10	-0.00	-5.39	0.00
5/	19/ 7	49.91	-0.00<<	-0.07	0.00	0.31	-0.00
5/	19/ Uls/110	-596.81	0.00	2.10>>	-0.00	-5.39	0.00
5/	4/ Uls/63	-42.83	0.00	-1.07<<	-0.00	-0.99	-0.00
5/	19/ 7	49.91	-0.00	-0.07	0.00>>	0.31	-0.00
5/	19/ Uls/110	-596.81	0.00	2.10	-0.00<<	-5.39	0.00
5/	4/ Uls/141	-410.81	0.00	-0.04	-0.00	3.03>>	-0.00
5/	19/ Uls/110	-596.81	0.00	2.10	-0.00	-5.39<<	0.00
5/	19/ Uls/110	-596.81	0.00	2.10	-0.00	-5.39	0.00>>
5/	4/ Uls/110	-596.82	0.00	-0.28	-0.00	1.63	-0.00<<
6/	4/ 7	49.94>>	-0.00	-0.02	0.00	-0.21	0.00
6/	4/ Uls/110	-597.24<<	0.00	1.18	-0.00	1.28	-0.00

6/	4/	-597.24	0.00>>	1.18	-0.00	1.28	-0.00
	ULS/110						
6/	4/ 7	49.94	-0.00<<	-0.02	0.00	-0.21	0.00
6/	4/	-373.55	0.00	1.64>>	-0.00	-2.19	-0.00
	ULS/118						
6/	3/	-251.56	0.00	-1.04<<	-0.00	1.02	-0.00
	ULS/135						
6/	4/ 7	49.94	-0.00	-0.02	0.00>>	-0.21	0.00
6/	4/	-597.24	0.00	1.18	-0.00<<	1.28	-0.00
	ULS/110						
6/	3/	-597.24	0.00	-0.35	-0.00	3.35>>	-0.00
	ULS/110						
6/	4/	-251.18	0.00	1.59	-0.00	-2.69<<	-0.00
	ULS/133						
6/	3/ 7	49.94	-0.00	-0.02	0.00	-0.31	0.00>>
6/	3/	-597.24	0.00	-0.35	-0.00	3.35	-0.00<<
	ULS/110						
16/	2/	81.80>>	0.00	-3.47	0.00	1.54	0.00
	ULS/110						
16/	2/ 7	-6.81<<	-0.00	0.29	-0.00	-0.13	-0.00
16/	2/	81.80	0.00>>	-3.47	0.00	1.54	0.00
	ULS/110						
16/	2/ 7	-6.81	-0.00<<	0.29	-0.00	-0.13	-0.00
16/	2/ 7	-6.81	-0.00	0.29>>	-0.00	-0.13	-0.00
16/	2/	81.80	0.00	-3.47<<	0.00	1.54	0.00
	ULS/110						
16/	2/	81.80	0.00	-3.47	0.00>>	1.54	0.00
	ULS/110						
16/	2/ 7	-6.81	-0.00	0.29	-0.00<<	-0.13	-0.00
16/	2/	81.80	0.00	-3.47	0.00	1.54>>	0.00
	ULS/110						
16/	14/	81.65	0.00	-3.47	0.00	-1.20<<	0.00
	ULS/110						
16/	2/	81.80	0.00	-3.47	0.00	1.54	0.00>>
	ULS/110						
16/	2/ 7	-6.81	-0.00	0.29	-0.00	-0.13	-0.00<<
17/	10/	68.55>>	0.00	-2.28	0.00	0.87	0.00
	ULS/111						
17/	10/ 10	-6.17<<	-0.00	0.19	-0.00	-0.07	-0.00
17/	10/	64.09	0.00>>	-2.33	0.00	0.87	0.00
	ULS/110						
17/	10/ 7	-5.46	-0.00<<	0.20	-0.00	-0.07	-0.00
17/	10/ 7	-5.46	-0.00	0.20>>	-0.00	-0.07	-0.00
17/	10/	64.09	0.00	-2.33<<	0.00	0.87	0.00
	ULS/110						
17/	10/	64.09	0.00	-2.33	0.00>>	0.87	0.00
	ULS/110						
17/	10/ 7	-5.46	-0.00	0.20	-0.00<<	-0.07	-0.00
17/	10/	68.55	0.00	-2.28	0.00	0.87>>	0.00
	ULS/111						
17/	15/	64.02	0.00	-2.33	0.00	-0.93<<	0.00
	ULS/110						
17/	10/	64.09	0.00	-2.33	0.00	0.87	0.00>>
	ULS/110						
17/	10/ 7	-5.46	-0.00	0.20	-0.00	-0.07	-0.00<<
18/	11/	48.04>>	0.00	-2.06	0.00	0.78	0.00
	ULS/110						
18/	11/ 7	-4.04<<	-0.00	0.17	-0.00	-0.07	-0.00
18/	11/	48.04	0.00>>	-2.06	0.00	0.78	0.00
	ULS/110						
18/	11/ 7	-4.04	-0.00<<	0.17	-0.00	-0.07	-0.00
18/	11/ 7	-4.04	-0.00	0.17>>	-0.00	-0.07	-0.00
18/	11/	48.04	0.00	-2.06<<	0.00	0.78	0.00
	ULS/110						
18/	11/	48.04	0.00	-2.06	0.00>>	0.78	0.00
	ULS/110						
18/	11/ 7	-4.04	-0.00	0.17	-0.00<<	-0.07	-0.00
18/	11/	48.04	0.00	-2.06	0.00	0.78>>	0.00
	ULS/110						

18/	16/ ULS/110	47.97	0.00	-2.06	0.00	-0.79<<	0.00
18/	11/ ULS/110	48.04	0.00	-2.06	0.00	0.78	0.00>>
18/	11/ 7	-4.04	-0.00	0.17	-0.00	-0.07	-0.00<<
19/	12/ ULS/110	28.37>>	0.00	-1.54	0.00	0.59	0.00
19/	12/ 7	-2.50<<	-0.00	0.13	-0.00	-0.05	-0.00
19/	12/ ULS/110	28.37	0.00>>	-1.54	0.00	0.59	0.00
19/	12/ 7	-2.50	-0.00<<	0.13	-0.00	-0.05	-0.00
19/	12/ 7	-2.50	-0.00	0.13>>	-0.00	-0.05	-0.00
19/	12/ ULS/110	28.37	0.00	-1.54<<	0.00	0.59	0.00
19/	12/ ULS/110	28.37	0.00	-1.54	0.00>>	0.59	0.00
19/	12/ 7	-2.50	-0.00	0.13	-0.00<<	-0.05	-0.00
19/	12/ ULS/110	28.37	0.00	-1.54	0.00	0.59>>	0.00
19/	17/ ULS/110	28.30	0.00	-1.54	0.00	-0.58<<	0.00
19/	12/ ULS/110	28.37	0.00	-1.54	0.00	0.59	0.00>>
19/	12/ 7	-2.50	-0.00	0.13	-0.00	-0.05	-0.00<<
20/	13/ ULS/118	29.84>>	0.00	-1.59	0.00	0.59	0.00
20/	18/ ULS/165	-14.96<<	0.00	0.46	0.00	0.19	0.00
20/	13/ ULS/110	15.59	0.00>>	-1.15	0.00	0.44	0.00
20/	13/ 7	-1.37	-0.00<<	0.10	-0.00	-0.04	-0.00
20/	13/ ULS/165	-14.91	0.00	0.46>>	0.00	-0.16	0.00
20/	13/ ULS/112	29.12	0.00	-1.61<<	0.00	0.60	0.00
20/	13/ ULS/110	15.59	0.00	-1.15	0.00>>	0.44	0.00
20/	13/ 7	-1.37	-0.00	0.10	-0.00<<	-0.04	-0.00
20/	13/ ULS/112	29.12	0.00	-1.61	0.00	0.60>>	0.00
20/	18/ ULS/112	29.05	0.00	-1.61	0.00	-0.61<<	0.00
20/	13/ ULS/110	15.59	0.00	-1.15	0.00	0.44	0.00>>
20/	13/ 7	-1.37	-0.00	0.10	-0.00	-0.04	-0.00<<
21/	19/ ULS/111	107.80>>	0.00	-11.53	0.00	4.43	0.00
21/	19/ 10	-9.99<<	-0.00	0.85	-0.00	-0.31	-0.00
21/	19/ ULS/110	96.71	0.00>>	-12.65	0.00	4.95	0.00
21/	19/ 7	-8.22	-0.00<<	1.02	-0.00	-0.40	-0.00
21/	19/ 7	-8.22	-0.00	1.02>>	-0.00	-0.40	-0.00
21/	19/ ULS/110	96.71	0.00	-12.65<<	0.00	4.95	0.00
21/	19/ ULS/110	96.71	0.00	-12.65	0.00>>	4.95	0.00
21/	19/ 7	-8.22	-0.00	1.02	-0.00<<	-0.40	-0.00
21/	19/ ULS/110	96.71	0.00	-12.65	0.00	4.95>>	0.00
21/	37/ ULS/110	96.56	0.00	-12.65	0.00	-5.04<<	0.00
21/	19/ ULS/110	96.71	0.00	-12.65	0.00	4.95	0.00>>
21/	19/ 7	-8.22	-0.00	1.02	-0.00	-0.40	-0.00<<
22/	20/ ULS/111	71.72>>	-0.00	-2.39	0.00	0.87	0.00
22/	38/ ULS/163	-7.98<<	-0.00	0.05	0.00	-0.01	0.00
22/	20/ 7	-5.32	0.00>>	0.19	-0.00	-0.07	-0.00

22/	20/ ULS/110	61.95	-0.00<<	-2.23	0.00	0.79	0.00
22/	20/ 10	-6.89	0.00	0.22>>	-0.00	-0.08	-0.00
22/	20/ ULS/111	71.72	-0.00	-2.39<<	0.00	0.87	0.00
22/	20/ ULS/110	61.95	-0.00	-2.23	0.00>>	0.79	0.00
22/	20/ 7	-5.32	0.00	0.19	-0.00<<	-0.07	-0.00
22/	20/ ULS/111	71.72	-0.00	-2.39	0.00	0.87>>	0.00
22/	38/ ULS/111	71.65	-0.00	-2.39	0.00	-1.01<<	0.00
22/	38/ ULS/110	61.88	-0.00	-2.23	0.00	-0.96	0.00>>
22/	38/ 7	-5.32	0.00	0.19	-0.00	0.08	-0.00<<
23/	21/ ULS/111	79.11>>	-0.00	-2.46	0.00	0.93	0.00
23/	21/ 10	-7.41<<	0.00	0.21	-0.00	-0.08	-0.00
23/	21/ 7	-6.00	0.00>>	0.20	-0.00	-0.08	-0.00
23/	21/ ULS/110	70.25	-0.00<<	-2.39	0.00	0.89	0.00
23/	21/ 10	-7.41	0.00	0.21>>	-0.00	-0.08	-0.00
23/	21/ ULS/111	79.11	-0.00	-2.46<<	0.00	0.93	0.00
23/	21/ ULS/110	70.25	-0.00	-2.39	0.00>>	0.89	0.00
23/	21/ 7	-6.00	0.00	0.20	-0.00<<	-0.08	-0.00
23/	21/ ULS/111	79.11	-0.00	-2.46	0.00	0.93>>	0.00
23/	39/ ULS/111	79.04	-0.00	-2.46	0.00	-0.99<<	0.00
23/	39/ ULS/110	70.17	-0.00	-2.39	0.00	-0.98	0.00>>
23/	39/ 7	-6.00	0.00	0.20	-0.00	0.08	-0.00<<
24/	22/ ULS/111	73.89>>	-0.00	-2.39	0.00	0.91	0.00
24/	22/ 10	-6.82<<	0.00	0.20	-0.00	-0.08	-0.00
24/	22/ 7	-5.71	0.00>>	0.20	-0.00	-0.07	-0.00
24/	22/ ULS/110	66.97	-0.00<<	-2.36	0.00	0.88	0.00
24/	22/ 10	-6.82	0.00	0.20>>	-0.00	-0.08	-0.00
24/	22/ ULS/111	73.89	-0.00	-2.39<<	0.00	0.91	0.00
24/	22/ ULS/110	66.97	-0.00	-2.36	0.00>>	0.88	0.00
24/	22/ 7	-5.71	0.00	0.20	-0.00<<	-0.07	-0.00
24/	22/ ULS/111	73.89	-0.00	-2.39	0.00	0.91>>	0.00
24/	40/ ULS/110	66.90	-0.00	-2.36	0.00	-0.96<<	0.00
24/	40/ ULS/110	66.90	-0.00	-2.36	0.00	-0.96	0.00>>
24/	40/ 7	-5.71	0.00	0.20	-0.00	0.08	-0.00<<
26/	14/ 7	7.62>>	-0.00	0.51	-0.00	-0.17	0.00
26/	14/ ULS/110	-92.12<<	0.00	-6.51	0.00	2.13	-0.00
26/	14/ ULS/110	-92.12	0.00>>	-6.51	0.00	2.13	-0.00
26/	14/ 7	7.62	-0.00<<	0.51	-0.00	-0.17	0.00
26/	14/ 7	7.62	-0.00	0.51>>	-0.00	-0.17	0.00
26/	19/ ULS/110	-92.00	0.00	-6.62<<	0.00	-3.25	-0.00
26/	14/ ULS/110	-92.12	0.00	-6.51	0.00>>	2.13	-0.00
26/	14/ 7	7.62	-0.00	0.51	-0.00<<	-0.17	0.00
26/	14/ ULS/110	-92.12	0.00	-6.51	0.00	2.13>>	-0.00
26/	19/ ULS/110	-92.00	0.00	-6.62	0.00	-3.25<<	-0.00

26/	19/	7	7.62	-0.00	0.51	-0.00	0.25	0.00>>
26/	19/	ULS/110	-92.00	0.00	-6.62	0.00	-3.25	-0.00<<
27/	20/	ULS/163	8.85>>	0.00	0.36	0.00	0.14	-0.00
27/	37/	ULS/111	-71.17<<	0.00	-0.85	0.00	0.29	-0.00
27/	37/	ULS/110	-59.97	0.00>>	-0.51	0.00	0.13	-0.00
27/	37/	7	5.05	-0.00<<	0.05	-0.00	-0.01	0.00
27/	37/	ULS/163	8.81	0.00	0.40>>	0.00	-0.18	-0.00
27/	20/	ULS/120	-68.19	0.00	-0.91<<	0.00	-0.43	-0.00
27/	37/	ULS/110	-59.97	0.00	-0.51	0.00>>	0.13	-0.00
27/	37/	7	5.05	-0.00	0.05	-0.00<<	-0.01	0.00
27/	37/	ULS/120	-68.24	0.00	-0.86	0.00	0.30>>	-0.00
27/	20/	ULS/111	-71.12	0.00	-0.90	0.00	-0.43<<	-0.00
27/	20/	7	5.05	-0.00	0.05	-0.00	0.03	0.00>>
27/	20/	ULS/110	-59.92	0.00	-0.56	0.00	-0.31	-0.00<<
28/	21/	ULS/163	10.10>>	0.00	0.30	0.00	0.09	-0.00
28/	38/	ULS/111	-78.68<<	0.00	-1.42	0.00	0.57	-0.00
28/	38/	ULS/110	-66.39	0.00>>	-1.08	0.00	0.41	-0.00
28/	38/	7	5.64	-0.00<<	0.09	-0.00	-0.04	0.00
28/	38/	ULS/163	10.06	0.00	0.34>>	0.00	-0.17	-0.00
28/	21/	ULS/111	-78.62	0.00	-1.47<<	0.00	-0.62	-0.00
28/	38/	ULS/110	-66.39	0.00	-1.08	0.00>>	0.41	-0.00
28/	38/	7	5.64	-0.00	0.09	-0.00<<	-0.04	0.00
28/	38/	ULS/111	-78.68	0.00	-1.42	0.00	0.57>>	-0.00
28/	21/	ULS/111	-78.62	0.00	-1.47	0.00	-0.62<<	-0.00
28/	21/	7	5.64	-0.00	0.09	-0.00	0.04	0.00>>
28/	21/	ULS/110	-66.33	0.00	-1.13	0.00	-0.51	-0.00<<
29/	22/	ULS/163	7.45>>	0.00	0.26	0.00	0.08	-0.00
29/	39/	ULS/111	-74.86<<	0.00	-1.34	0.00	0.56	-0.00
29/	39/	ULS/110	-64.86	0.00>>	-1.05	0.00	0.40	-0.00
29/	39/	7	5.49	-0.00<<	0.09	-0.00	-0.04	0.00
29/	39/	ULS/163	7.41	0.00	0.30>>	0.00	-0.16	-0.00
29/	22/	ULS/111	-74.81	0.00	-1.40<<	0.00	-0.58	-0.00
29/	39/	ULS/110	-64.86	0.00	-1.05	0.00>>	0.40	-0.00
29/	39/	7	5.49	-0.00	0.09	-0.00<<	-0.04	0.00
29/	39/	ULS/111	-74.86	0.00	-1.34	0.00	0.56>>	-0.00
29/	22/	ULS/111	-74.81	0.00	-1.40	0.00	-0.58<<	-0.00
29/	22/	7	5.49	-0.00	0.09	-0.00	0.04	0.00>>
29/	22/	ULS/110	-64.80	0.00	-1.10	0.00	-0.49	-0.00<<
30/	40/	10	6.56>>	-0.00	0.13	-0.00	-0.06	0.00
30/	40/	ULS/111	-70.59<<	0.00	-1.26	0.00	0.54	-0.00

30/	40/ ULS/110	-62.67	0.00>>	-1.02	0.00	0.40	-0.00
30/	40/ 7	5.30	-0.00<<	0.09	-0.00	-0.03	0.00
30/	40/ ULS/163	5.06	0.00	0.24>>	0.00	-0.13	-0.00
30/	10/ ULS/111	-70.53	0.00	-1.31<<	0.00	-0.54	-0.00
30/	40/ ULS/110	-62.67	0.00	-1.02	0.00>>	0.40	-0.00
30/	40/ 7	5.30	-0.00	0.09	-0.00<<	-0.03	0.00
30/	40/ ULS/111	-70.59	0.00	-1.26	0.00	0.54>>	-0.00
30/	10/ ULS/111	-70.53	0.00	-1.31	0.00	-0.54<<	-0.00
30/	10/ 7	5.30	-0.00	0.09	-0.00	0.04	0.00>>
30/	10/ ULS/110	-62.61	0.00	-1.07	0.00	-0.47	-0.00<<
31/	41/ ULS/111	63.25>>	0.00	-2.18	0.00	0.84	0.00
31/	41/ 10	-5.55<<	-0.00	0.18	-0.00	-0.07	-0.00
31/	41/ ULS/110	60.93	0.00>>	-2.29	0.00	0.86	0.00
31/	41/ 7	-5.18	-0.00<<	0.19	-0.00	-0.07	-0.00
31/	41/ 7	-5.18	-0.00	0.19>>	-0.00	-0.07	-0.00
31/	41/ ULS/110	60.93	0.00	-2.29<<	0.00	0.86	0.00
31/	41/ ULS/110	60.93	0.00	-2.29	0.00>>	0.86	0.00
31/	41/ 7	-5.18	-0.00	0.19	-0.00<<	-0.07	-0.00
31/	41/ ULS/110	60.93	0.00	-2.29	0.00	0.86>>	0.00
31/	45/ ULS/110	60.86	0.00	-2.29	0.00	-0.91<<	0.00
31/	41/ ULS/110	60.93	0.00	-2.29	0.00	0.86	0.00>>
31/	41/ 7	-5.18	-0.00	0.19	-0.00	-0.07	-0.00<<
32/	42/ ULS/110	58.02>>	0.00	-2.24	0.00	0.85	0.00
32/	42/ 7	-4.92<<	-0.00	0.19	-0.00	-0.07	-0.00
32/	42/ ULS/110	58.02	0.00>>	-2.24	0.00	0.85	0.00
32/	42/ 7	-4.92	-0.00<<	0.19	-0.00	-0.07	-0.00
32/	42/ 7	-4.92	-0.00	0.19>>	-0.00	-0.07	-0.00
32/	42/ ULS/110	58.02	0.00	-2.24<<	0.00	0.85	0.00
32/	42/ ULS/110	58.02	0.00	-2.24	0.00>>	0.85	0.00
32/	42/ 7	-4.92	-0.00	0.19	-0.00<<	-0.07	-0.00
32/	42/ ULS/110	58.02	0.00	-2.24	0.00	0.85>>	0.00
32/	46/ ULS/110	57.95	0.00	-2.24	0.00	-0.88<<	0.00
32/	42/ ULS/110	58.02	0.00	-2.24	0.00	0.85	0.00>>
32/	42/ 7	-4.92	-0.00	0.19	-0.00	-0.07	-0.00<<
33/	43/ ULS/110	54.09>>	0.00	-2.18	0.00	0.83	0.00
33/	43/ 7	-4.58<<	-0.00	0.18	-0.00	-0.07	-0.00
33/	43/ ULS/110	54.09	0.00>>	-2.18	0.00	0.83	0.00
33/	43/ 7	-4.58	-0.00<<	0.18	-0.00	-0.07	-0.00
33/	43/ 7	-4.58	-0.00	0.18>>	-0.00	-0.07	-0.00
33/	43/ ULS/110	54.09	0.00	-2.18<<	0.00	0.83	0.00
33/	43/ ULS/110	54.09	0.00	-2.18	0.00>>	0.83	0.00
33/	43/ 7	-4.58	-0.00	0.18	-0.00<<	-0.07	-0.00
33/	43/ ULS/110	54.09	0.00	-2.18	0.00	0.83>>	0.00

33/	47/ ULS/110	54.02	0.00	-2.18	0.00	-0.85<<	0.00
33/	43/ ULS/110	54.09	0.00	-2.18	0.00	0.83	0.00>>
33/	43/ 7	-4.58	-0.00	0.18	-0.00	-0.07	-0.00<<
34/	44/ ULS/110	51.48>>	0.00	-2.13	0.00	0.81	0.00
34/	44/ 7	-4.34<<	-0.00	0.18	-0.00	-0.07	-0.00
34/	44/ ULS/110	51.48	0.00>>	-2.13	0.00	0.81	0.00
34/	44/ 7	-4.34	-0.00<<	0.18	-0.00	-0.07	-0.00
34/	44/ 7	-4.34	-0.00	0.18>>	-0.00	-0.07	-0.00
34/	44/ ULS/110	51.48	0.00	-2.13<<	0.00	0.81	0.00
34/	44/ ULS/110	51.48	0.00	-2.13	0.00>>	0.81	0.00
34/	44/ 7	-4.34	-0.00	0.18	-0.00<<	-0.07	-0.00
34/	44/ ULS/110	51.48	0.00	-2.13	0.00	0.81>>	0.00
34/	48/ ULS/110	51.41	0.00	-2.13	0.00	-0.82<<	0.00
34/	44/ ULS/110	51.48	0.00	-2.13	0.00	0.81	0.00>>
34/	44/ 7	-4.34	-0.00	0.18	-0.00	-0.07	-0.00<<
35/	15/ 10	6.02>>	-0.00	0.12	-0.00	-0.05	0.00
35/	15/ ULS/111	-66.49<<	0.00	-1.17	0.00	0.51	-0.00
35/	15/ ULS/110	-61.02	0.00>>	-0.98	0.00	0.40	-0.00
35/	15/ 7	5.14	-0.00<<	0.09	-0.00	-0.03	0.00
35/	15/ ULS/163	2.26	0.00	0.17>>	0.00	-0.11	-0.00
35/	41/ ULS/111	-66.43	0.00	-1.22<<	0.00	-0.49	-0.00
35/	15/ ULS/110	-61.02	0.00	-0.98	0.00>>	0.40	-0.00
35/	15/ 7	5.14	-0.00	0.09	-0.00<<	-0.03	0.00
35/	15/ ULS/111	-66.49	0.00	-1.17	0.00	0.51>>	-0.00
35/	41/ ULS/111	-66.43	0.00	-1.22	0.00	-0.49<<	-0.00
35/	41/ 7	5.14	-0.00	0.09	-0.00	0.04	0.00>>
35/	41/ ULS/110	-60.96	0.00	-1.03	0.00	-0.44	-0.00<<
36/	45/ 10	5.44>>	-0.00	0.10	-0.00	-0.05	0.00
36/	45/ ULS/111	-61.89<<	0.00	-1.08	0.00	0.49	-0.00
36/	45/ ULS/110	-58.69	0.00>>	-0.95	0.00	0.40	-0.00
36/	45/ 7	4.93	-0.00<<	0.08	-0.00	-0.03	0.00
36/	45/ ULS/163	-0.30	0.00	0.11>>	0.00	-0.08	-0.00
36/	42/ ULS/111	-61.83	0.00	-1.13<<	0.00	-0.44	-0.00
36/	45/ ULS/110	-58.69	0.00	-0.95	0.00>>	0.40	-0.00
36/	45/ 7	4.93	-0.00	0.08	-0.00<<	-0.03	0.00
36/	45/ ULS/111	-61.89	0.00	-1.08	0.00	0.49>>	-0.00
36/	42/ ULS/111	-61.83	0.00	-1.13	0.00	-0.44<<	-0.00
36/	42/ 7	4.93	-0.00	0.08	-0.00	0.04	0.00>>
36/	42/ ULS/110	-58.63	0.00	-1.00	0.00	-0.42	-0.00<<
37/	46/ 10	4.82>>	-0.00	0.09	-0.00	-0.04	0.00
37/	46/ ULS/111	-57.00<<	0.00	-0.98	0.00	0.46	-0.00
37/	46/ ULS/110	-56.38	0.00>>	-0.90	0.00	0.39	-0.00

37/	46/	7	4.72	-0.00<<	0.08	-0.00	-0.03	0.00
37/	46/	10	4.82	-0.00	0.09>>	-0.00	-0.04	0.00
37/	43/	ULS/111	-56.94	0.00	-1.03<<	0.00	-0.40	-0.00
37/	46/	ULS/110	-56.38	0.00	-0.90	0.00>>	0.39	-0.00
37/	46/	7	4.72	-0.00	0.08	-0.00<<	-0.03	0.00
37/	46/	ULS/111	-57.00	0.00	-0.98	0.00	0.46>>	-0.00
37/	43/	ULS/111	-56.94	0.00	-1.03	0.00	-0.40<<	-0.00
37/	43/	7	4.72	-0.00	0.08	-0.00	0.03	0.00>>
37/	43/	ULS/110	-56.32	0.00	-0.95	0.00	-0.39	-0.00<<
38/	47/	7	4.50>>	-0.00	0.07	-0.00	-0.03	0.00
38/	47/	ULS/110	-53.92<<	0.00	-0.86	0.00	0.38	-0.00
38/	47/	ULS/110	-53.92	0.00>>	-0.86	0.00	0.38	-0.00
38/	47/	7	4.50	-0.00<<	0.07	-0.00	-0.03	0.00
38/	47/	10	4.27	-0.00	0.08>>	-0.00	-0.04	0.00
38/	44/	ULS/111	-52.38	0.00	-0.94<<	0.00	-0.35	-0.00
38/	47/	ULS/110	-53.92	0.00	-0.86	0.00>>	0.38	-0.00
38/	47/	7	4.50	-0.00	0.07	-0.00<<	-0.03	0.00
38/	47/	ULS/111	-52.44	0.00	-0.89	0.00	0.43>>	-0.00
38/	44/	ULS/110	-53.86	0.00	-0.91	0.00	-0.37<<	-0.00
38/	44/	7	4.50	-0.00	0.07	-0.00	0.03	0.00>>
38/	44/	ULS/110	-53.86	0.00	-0.91	0.00	-0.37	-0.00<<
39/	48/	7	4.29>>	-0.00	0.07	-0.00	-0.03	0.00
39/	48/	ULS/110	-51.60<<	0.00	-0.81	0.00	0.37	-0.00
39/	48/	ULS/110	-51.60	0.00>>	-0.81	0.00	0.37	-0.00
39/	48/	7	4.29	-0.00<<	0.07	-0.00	-0.03	0.00
39/	48/	7	4.29	-0.00	0.07>>	-0.00	-0.03	0.00
39/	11/	ULS/110	-51.54	0.00	-0.86<<	0.00	-0.34	-0.00
39/	48/	ULS/110	-51.60	0.00	-0.81	0.00>>	0.37	-0.00
39/	48/	7	4.29	-0.00	0.07	-0.00<<	-0.03	0.00
39/	48/	ULS/111	-47.54	0.00	-0.79	0.00	0.40>>	-0.00
39/	11/	ULS/110	-51.54	0.00	-0.86	0.00	-0.34<<	-0.00
39/	11/	7	4.29	-0.00	0.07	-0.00	0.03	0.00>>
39/	11/	ULS/110	-51.54	0.00	-0.86	0.00	-0.34	-0.00<<
40/	49/	ULS/110	44.80>>	0.00	-1.99	0.00	0.76	0.00
40/	49/	7	-3.76<<	-0.00	0.17	-0.00	-0.06	-0.00
40/	49/	ULS/110	44.80	0.00>>	-1.99	0.00	0.76	0.00
40/	49/	7	-3.76	-0.00<<	0.17	-0.00	-0.06	-0.00
40/	49/	7	-3.76	-0.00	0.17>>	-0.00	-0.06	-0.00
40/	49/	ULS/110	44.80	0.00	-1.99<<	0.00	0.76	0.00
40/	49/	ULS/110	44.80	0.00	-1.99	0.00>>	0.76	0.00
40/	49/	7	-3.76	-0.00	0.17	-0.00<<	-0.06	-0.00
40/	49/	ULS/110	44.80	0.00	-1.99	0.00	0.76>>	0.00
40/	53/	ULS/110	44.73	0.00	-1.99	0.00	-0.76<<	0.00
40/	49/		44.80	0.00	-1.99	0.00	0.76	0.00>>

	ULS/110						
40/	49/ 7	-3.76	-0.00	0.17	-0.00	-0.06	-0.00<<
41/	50/ ULS/110	41.58>>	0.00	-1.91	0.00	0.73	0.00
41/	50/ 7	-3.48<<	-0.00	0.16	-0.00	-0.06	-0.00
41/	50/ ULS/110	41.58	0.00>>	-1.91	0.00	0.73	0.00
41/	50/ 7	-3.48	-0.00<<	0.16	-0.00	-0.06	-0.00
41/	50/ 7	-3.48	-0.00	0.16>>	-0.00	-0.06	-0.00
41/	50/ ULS/110	41.58	0.00	-1.91<<	0.00	0.73	0.00
41/	50/ ULS/110	41.58	0.00	-1.91	0.00>>	0.73	0.00
41/	50/ 7	-3.48	-0.00	0.16	-0.00<<	-0.06	-0.00
41/	50/ ULS/110	41.58	0.00	-1.91	0.00	0.73>>	0.00
41/	54/ ULS/110	41.51	0.00	-1.91	0.00	-0.72<<	0.00
41/	50/ ULS/110	41.58	0.00	-1.91	0.00	0.73	0.00>>
41/	50/ 7	-3.48	-0.00	0.16	-0.00	-0.06	-0.00<<
42/	51/ ULS/110	37.90>>	0.00	-1.81	0.00	0.69	0.00
42/	51/ 7	-3.15<<	-0.00	0.15	-0.00	-0.06	-0.00
42/	51/ ULS/110	37.90	0.00>>	-1.81	0.00	0.69	0.00
42/	51/ 7	-3.15	-0.00<<	0.15	-0.00	-0.06	-0.00
42/	51/ 7	-3.15	-0.00	0.15>>	-0.00	-0.06	-0.00
42/	51/ ULS/110	37.90	0.00	-1.81<<	0.00	0.69	0.00
42/	51/ ULS/110	37.90	0.00	-1.81	0.00>>	0.69	0.00
42/	51/ 7	-3.15	-0.00	0.15	-0.00<<	-0.06	-0.00
42/	51/ ULS/110	37.90	0.00	-1.81	0.00	0.69>>	0.00
42/	55/ ULS/110	37.83	0.00	-1.81	0.00	-0.68<<	0.00
42/	51/ ULS/110	37.90	0.00	-1.81	0.00	0.69	0.00>>
42/	51/ 7	-3.15	-0.00	0.15	-0.00	-0.06	-0.00<<
43/	52/ ULS/110	34.18>>	0.00	-1.74	0.00	0.67	0.00
43/	52/ 7	-2.85<<	-0.00	0.14	-0.00	-0.06	-0.00
43/	52/ ULS/118	26.75	0.00>>	-1.39	0.00	0.52	0.00
43/	52/ 8	2.84	-0.00<<	-0.13	0.00	0.06	0.00
43/	52/ 7	-2.85	-0.00	0.14>>	-0.00	-0.06	-0.00
43/	52/ ULS/110	34.18	0.00	-1.74<<	0.00	0.67	0.00
43/	52/ ULS/110	34.18	0.00	-1.74	0.00>>	0.67	0.00
43/	52/ 7	-2.85	-0.00	0.14	-0.00<<	-0.06	-0.00
43/	52/ ULS/110	34.18	0.00	-1.74	0.00	0.67>>	0.00
43/	56/ ULS/110	34.11	0.00	-1.74	0.00	-0.65<<	0.00
43/	52/ ULS/110	34.18	0.00	-1.74	0.00	0.67	0.00>>
43/	52/ 7	-2.85	-0.00	0.14	-0.00	-0.06	-0.00<<
44/	16/ 7	4.03>>	-0.00	0.07	-0.00	-0.03	0.00
44/	16/ ULS/110	-48.60<<	0.00	-0.76	0.00	0.36	-0.00
44/	16/ ULS/110	-48.60	0.00>>	-0.76	0.00	0.36	-0.00
44/	16/ 7	4.03	-0.00<<	0.07	-0.00	-0.03	0.00
44/	16/ 7	4.03	-0.00	0.07>>	-0.00	-0.03	0.00
44/	49/ ULS/110	-48.54	0.00	-0.82<<	0.00	-0.32	-0.00

44/	16/ ULS/110	-48.60	0.00	-0.76	0.00>>	0.36	-0.00
44/	16/ 7	4.03	-0.00	0.07	-0.00<<	-0.03	0.00
44/	16/ ULS/111	-42.32	0.00	-0.69	0.00	0.36>>	-0.00
44/	49/ ULS/110	-48.54	0.00	-0.82	0.00	-0.32<<	-0.00
44/	49/ 7	4.03	-0.00	0.07	-0.00	0.03	0.00>>
44/	49/ ULS/110	-48.54	0.00	-0.82	0.00	-0.32	-0.00<<
45/	53/ 7	3.80>>	-0.00	0.06	-0.00	-0.03	0.00
45/	53/ ULS/110	-46.15<<	0.00	-0.71	0.00	0.35	-0.00
45/	53/ ULS/110	-46.15	0.00>>	-0.71	0.00	0.35	-0.00
45/	53/ 7	3.80	-0.00<<	0.06	-0.00	-0.03	0.00
45/	53/ 7	3.80	-0.00	0.06>>	-0.00	-0.03	0.00
45/	50/ ULS/110	-46.09	0.00	-0.76<<	0.00	-0.29	-0.00
45/	53/ ULS/110	-46.15	0.00	-0.71	0.00>>	0.35	-0.00
45/	53/ 7	3.80	-0.00	0.06	-0.00<<	-0.03	0.00
45/	53/ ULS/110	-46.15	0.00	-0.71	0.00	0.35>>	-0.00
45/	50/ ULS/110	-46.09	0.00	-0.76	0.00	-0.29<<	-0.00
45/	50/ 7	3.80	-0.00	0.06	-0.00	0.02	0.00>>
45/	50/ ULS/110	-46.09	0.00	-0.76	0.00	-0.29	-0.00<<
46/	54/ 7	3.49>>	-0.00	0.06	-0.00	-0.03	0.00
46/	54/ ULS/110	-42.59<<	0.00	-0.66	0.00	0.34	-0.00
46/	54/ ULS/110	-42.59	0.00>>	-0.66	0.00	0.34	-0.00
46/	54/ 7	3.49	-0.00<<	0.06	-0.00	-0.03	0.00
46/	54/ 7	3.49	-0.00	0.06>>	-0.00	-0.03	0.00
46/	51/ ULS/110	-42.53	0.00	-0.71<<	0.00	-0.26	-0.00
46/	54/ ULS/110	-42.59	0.00	-0.66	0.00>>	0.34	-0.00
46/	54/ 7	3.49	-0.00	0.06	-0.00<<	-0.03	0.00
46/	54/ ULS/110	-42.59	0.00	-0.66	0.00	0.34>>	-0.00
46/	51/ ULS/110	-42.53	0.00	-0.71	0.00	-0.26<<	-0.00
46/	51/ 7	3.49	-0.00	0.06	-0.00	0.02	0.00>>
46/	51/ ULS/110	-42.53	0.00	-0.71	0.00	-0.26	-0.00<<
47/	55/ 7	3.26>>	-0.00	0.05	-0.00	-0.03	0.00
47/	55/ ULS/110	-39.86<<	0.00	-0.61	0.00	0.32	-0.00
47/	55/ ULS/110	-39.86	0.00>>	-0.61	0.00	0.32	-0.00
47/	55/ 7	3.26	-0.00<<	0.05	-0.00	-0.03	0.00
47/	55/ 7	3.26	-0.00	0.05>>	-0.00	-0.03	0.00
47/	52/ ULS/110	-39.80	0.00	-0.66<<	0.00	-0.23	-0.00
47/	55/ ULS/110	-39.86	0.00	-0.61	0.00>>	0.32	-0.00
47/	55/ 7	3.26	-0.00	0.05	-0.00<<	-0.03	0.00
47/	55/ ULS/110	-39.86	0.00	-0.61	0.00	0.32>>	-0.00
47/	52/ ULS/112	-33.14	0.00	-0.56	0.00	-0.24<<	-0.00
47/	52/ 7	3.26	-0.00	0.05	-0.00	0.02	0.00>>
47/	52/ ULS/110	-39.80	0.00	-0.66	0.00	-0.23	-0.00<<
48/	56/ 7	2.95>>	-0.00	0.04	-0.00	-0.02	0.00
48/	56/	-36.35<<	0.00	-0.49	0.00	0.29	-0.00

	ULS/110						
48/	56/ ULS/110	-36.35	0.00>>	-0.49	0.00	0.29	-0.00
48/	56/ 7	2.95	-0.00<<	0.04	-0.00	-0.02	0.00
48/	56/ 7	2.95	-0.00	0.04>>	-0.00	-0.02	0.00
48/	12/ ULS/110	-36.29	0.00	-0.54<<	0.00	-0.17	-0.00
48/	56/ ULS/110	-36.35	0.00	-0.49	0.00>>	0.29	-0.00
48/	56/ 7	2.95	-0.00	0.04	-0.00<<	-0.02	0.00
48/	56/ ULS/110	-36.35	0.00	-0.49	0.00	0.29>>	-0.00
48/	12/ ULS/112	-33.77	0.00	-0.48	0.00	-0.19<<	-0.00
48/	12/ 7	2.95	-0.00	0.04	-0.00	0.01	0.00>>
48/	12/ ULS/110	-36.29	0.00	-0.54	0.00	-0.17	-0.00<<
49/	57/ ULS/112	28.72>>	-0.00	-1.52	0.00	-0.57	0.00
49/	62/ 11	-2.72<<	0.00	0.13	-0.00	-0.05	-0.00
49/	62/ 7	-2.25	0.00>>	0.13	-0.00	-0.05	-0.00
49/	62/ ULS/110	25.76	-0.00<<	-1.46	0.00	0.54	0.00
49/	62/ 11	-2.72	0.00	0.13>>	-0.00	-0.05	-0.00
49/	62/ ULS/112	28.65	-0.00	-1.52<<	0.00	0.58	0.00
49/	62/ ULS/110	25.76	-0.00	-1.46	0.00>>	0.54	0.00
49/	62/ 7	-2.25	0.00	0.13	-0.00<<	-0.05	-0.00
49/	62/ ULS/112	28.65	-0.00	-1.52	0.00	0.58>>	0.00
49/	57/ ULS/112	28.72	-0.00	-1.52	0.00	-0.57<<	0.00
49/	57/ ULS/110	25.83	-0.00	-1.46	0.00	-0.56	0.00>>
49/	57/ 7	-2.25	0.00	0.13	-0.00	0.05	-0.00<<
50/	58/ ULS/112	28.57>>	-0.00	-1.55	0.00	-0.58	0.00
50/	61/ ULS/165	-6.69<<	-0.00	0.14	0.00	-0.07	0.00
50/	61/ 7	-1.93	0.00>>	0.12	-0.00	-0.04	-0.00
50/	61/ ULS/110	21.97	-0.00<<	-1.36	0.00	0.50	0.00
50/	61/ 11	-2.98	0.00	0.15>>	-0.00	-0.06	-0.00
50/	61/ ULS/112	28.50	-0.00	-1.55<<	0.00	0.59	0.00
50/	61/ ULS/110	21.97	-0.00	-1.36	0.00>>	0.50	0.00
50/	61/ 7	-1.93	0.00	0.12	-0.00<<	-0.04	-0.00
50/	61/ ULS/112	28.50	-0.00	-1.55	0.00	0.59>>	0.00
50/	58/ ULS/112	28.57	-0.00	-1.55	0.00	-0.58<<	0.00
50/	58/ ULS/110	22.04	-0.00	-1.36	0.00	-0.52	0.00>>
50/	58/ 7	-1.93	0.00	0.12	-0.00	0.04	-0.00<<
51/	59/ ULS/112	29.00>>	-0.00	-1.58	0.00	-0.59	0.00
51/	60/ ULS/165	-10.90<<	-0.00	0.30	0.00	-0.13	0.00
51/	60/ 7	-1.66	0.00>>	0.11	-0.00	-0.04	-0.00
51/	60/ ULS/110	18.84	-0.00<<	-1.25	0.00	0.46	0.00
51/	60/ ULS/165	-10.90	-0.00	0.30>>	0.00	-0.13	0.00
51/	60/ ULS/112	28.93	-0.00	-1.58<<	0.00	0.60	0.00
51/	60/ ULS/110	18.84	-0.00	-1.25	0.00>>	0.46	0.00

51/	60/	7	-1.66	0.00	0.11	-0.00<<	-0.04	-0.00
51/	60/	ULS/112	28.93	-0.00	-1.58	0.00	0.60>>	0.00
51/	59/	ULS/112	29.00	-0.00	-1.58	0.00	-0.59<<	0.00
51/	59/	ULS/110	18.91	-0.00	-1.25	0.00	-0.48	0.00>>
51/	59/	7	-1.66	0.00	0.11	-0.00	0.04	-0.00<<
52/	17/	11	2.78>>	-0.00	0.05	-0.00	-0.02	0.00
52/	17/	ULS/112	-31.72<<	0.00	-0.49	0.00	0.23	-0.00
52/	17/	ULS/110	-30.51	0.00>>	-0.45	0.00	0.27	-0.00
52/	17/	7	2.59	-0.00<<	0.04	-0.00	-0.02	0.00
52/	17/	11	2.78	-0.00	0.05>>	-0.00	-0.02	0.00
52/	57/	ULS/112	-31.66	0.00	-0.54<<	0.00	-0.22	-0.00
52/	17/	ULS/110	-30.51	0.00	-0.45	0.00>>	0.27	-0.00
52/	17/	7	2.59	-0.00	0.04	-0.00<<	-0.02	0.00
52/	17/	ULS/110	-30.51	0.00	-0.45	0.00	0.27>>	-0.00
52/	57/	ULS/112	-31.66	0.00	-0.54	0.00	-0.22<<	-0.00
52/	57/	7	2.59	-0.00	0.04	-0.00	0.01	0.00>>
52/	57/	ULS/110	-30.45	0.00	-0.50	0.00	-0.15	-0.00<<
53/	58/	ULS/165	5.19>>	0.00	0.09	0.00	0.11	-0.00
53/	62/	ULS/112	-32.66<<	0.00	-0.49	0.00	0.24	-0.00
53/	62/	ULS/110	-26.89	0.00>>	-0.38	0.00	0.25	-0.00
53/	62/	7	2.30	-0.00<<	0.04	-0.00	-0.02	0.00
53/	62/	ULS/165	5.14	0.00	0.12>>	0.00	0.02	-0.00
53/	58/	ULS/112	-32.59	0.00	-0.54<<	0.00	-0.22	-0.00
53/	62/	ULS/110	-26.89	0.00	-0.38	0.00>>	0.25	-0.00
53/	62/	7	2.30	-0.00	0.04	-0.00<<	-0.02	0.00
53/	62/	ULS/110	-26.89	0.00	-0.38	0.00	0.25>>	-0.00
53/	58/	ULS/118	-31.35	0.00	-0.52	0.00	-0.22<<	-0.00
53/	58/	7	2.30	-0.00	0.04	-0.00	0.01	0.00>>
53/	58/	ULS/110	-26.82	0.00	-0.43	0.00	-0.11	-0.00<<
54/	59/	ULS/165	10.36>>	0.00	0.18	0.00	0.15	-0.00
54/	61/	ULS/112	-33.80<<	0.00	-0.51	0.00	0.26	-0.00
54/	61/	ULS/110	-23.59	0.00>>	-0.32	0.00	0.23	-0.00
54/	61/	7	2.01	-0.00<<	0.03	-0.00	-0.02	0.00
54/	61/	ULS/165	10.32	0.00	0.21>>	0.00	-0.02	-0.00
54/	59/	ULS/112	-33.73	0.00	-0.56<<	0.00	-0.22	-0.00
54/	61/	ULS/110	-23.59	0.00	-0.32	0.00>>	0.23	-0.00
54/	61/	7	2.01	-0.00	0.03	-0.00<<	-0.02	0.00
54/	61/	ULS/112	-33.80	0.00	-0.51	0.00	0.26>>	-0.00
54/	59/	ULS/118	-33.39	0.00	-0.56	0.00	-0.23<<	-0.00
54/	59/	7	2.01	-0.00	0.03	-0.00	0.01	0.00>>
54/	59/	ULS/110	-23.53	0.00	-0.37	0.00	-0.08	-0.00<<

55/	13/ ULS/165	15.75>>	0.00	0.26	0.00	0.19	-0.00
55/	60/ ULS/118	-35.38<<	0.00	-0.54	0.00	0.26	-0.00
55/	60/ ULS/110	-19.98	0.00>>	-0.27	0.00	0.21	-0.00
55/	60/ 7	1.69	-0.00<<	0.03	-0.00	-0.02	0.00
55/	60/ ULS/165	15.70	0.00	0.30>>	0.00	-0.06	-0.00
55/	13/ ULS/118	-35.31	0.00	-0.59<<	0.00	-0.24	-0.00
55/	60/ ULS/110	-19.98	0.00	-0.27	0.00>>	0.21	-0.00
55/	60/ 7	1.69	-0.00	0.03	-0.00<<	-0.02	0.00
55/	60/ ULS/112	-34.77	0.00	-0.53	0.00	0.27>>	-0.00
55/	13/ ULS/118	-35.31	0.00	-0.59	0.00	-0.24<<	-0.00
55/	13/ 7	1.69	-0.00	0.03	-0.00	0.00	0.00>>
55/	13/ ULS/110	-19.91	0.00	-0.32	0.00	-0.06	-0.00<<
56/	64/ ULS/111	3.28>>	0.00	-3.79	0.00	0.57	-0.00
56/	64/ 10	-0.27<<	-0.00	0.31	-0.00	-0.05	0.00
56/	64/ ULS/110	3.27	0.00>>	-4.10	0.00	0.60	-0.00
56/	64/ 7	-0.27	-0.00<<	0.36	-0.00	-0.05	0.00
56/	64/ 7	-0.27	-0.00	0.36>>	-0.00	-0.05	0.00
56/	63/ ULS/110	3.09	0.00	-4.58<<	0.00	-1.95	-0.00
56/	64/ ULS/110	3.27	0.00	-4.10	0.00>>	0.60	-0.00
56/	64/ 7	-0.27	-0.00	0.36	-0.00<<	-0.05	0.00
56/	64/ ULS/110	3.27	0.00	-4.10	0.00	0.60>>	-0.00
56/	63/ ULS/110	3.09	0.00	-4.58	0.00	-1.95<<	-0.00
56/	63/ 7	-0.27	-0.00	0.36	-0.00	0.16	0.00>>
56/	63/ ULS/110	3.09	0.00	-4.58	0.00	-1.95	-0.00<<
57/	63/ 7	1.92>>	0.00	0.78	0.00	-0.23	0.00
57/	2/ ULS/110	-23.56<<	-0.00	-9.54	-0.00	-2.87	0.00
57/	63/ 7	1.92	0.00>>	0.78	0.00	-0.23	0.00
57/	63/ ULS/110	-23.39	-0.00<<	-9.04	-0.00	2.73	-0.00
57/	63/ 7	1.92	0.00	0.78>>	0.00	-0.23	0.00
57/	2/ ULS/110	-23.56	-0.00	-9.54<<	-0.00	-2.87	0.00
57/	63/ 7	1.92	0.00	0.78	0.00>>	-0.23	0.00
57/	63/ ULS/110	-23.39	-0.00	-9.04	-0.00<<	2.73	-0.00
57/	63/ ULS/110	-23.39	-0.00	-9.04	-0.00	2.73>>	-0.00
57/	2/ ULS/110	-23.56	-0.00	-9.54	-0.00	-2.87<<	0.00
57/	2/ ULS/110	-23.56	-0.00	-9.54	-0.00	-2.87	0.00>>
57/	63/ ULS/110	-23.39	-0.00	-9.04	-0.00	2.73	-0.00<<
58/	65/ 10	1.37>>	0.00	0.72	0.00	0.18	-0.00
58/	65/ ULS/111	-15.71<<	-0.00	-8.34	-0.00	-2.18	0.00
58/	66/ 7	0.97	0.00>>	-0.24	0.00	0.04	-0.00
58/	66/ ULS/110	-11.48	-0.00<<	2.47	-0.00	-0.49	0.00
58/	66/ ULS/111	-11.75	-0.00	2.69>>	-0.00	-0.53	0.00
58/	65/	-15.43	-0.00	-8.56<<	-0.00	-2.28	0.00

	ULS/110						
58/	66/ 7	0.97	0.00	-0.24	0.00>>	0.04	-0.00
58/	66/ ULS/110	-11.48	-0.00	2.47	-0.00<<	-0.49	0.00
58/	65/ 7	1.32	0.00	0.75	0.00	0.19>>	-0.00
58/	65/ ULS/110	-15.43	-0.00	-8.56	-0.00	-2.28<<	0.00
58/	65/ ULS/110	-15.43	-0.00	-8.56	-0.00	-2.28	0.00>>
58/	65/ 7	1.32	0.00	0.75	0.00	0.19	-0.00<<
59/	14/ 7	1.38>>	-0.00	-0.11	0.00	-0.04	-0.00
59/	14/ ULS/110	-15.86<<	0.00	1.88	-0.00	0.55	0.00
59/	65/ ULS/110	-11.85	0.00>>	13.25	-0.00	-4.00	0.00
59/	65/ 7	1.02	-0.00<<	-1.13	0.00	0.34	-0.00
59/	65/ ULS/110	-11.85	0.00	13.25>>	-0.00	-4.00	0.00
59/	65/ 7	1.02	-0.00	-1.13<<	0.00	0.34	-0.00
59/	65/ 7	1.02	-0.00	-1.13	0.00>>	0.34	-0.00
59/	65/ ULS/110	-11.85	0.00	13.25	-0.00<<	-4.00	0.00
59/	14/ ULS/118	-5.87	0.00	2.53	-0.00	0.83>>	0.00
59/	65/ ULS/110	-11.85	0.00	13.25	-0.00	-4.00<<	0.00
59/	65/ ULS/110	-11.85	0.00	13.25	-0.00	-4.00	0.00>>
59/	65/ 7	1.02	-0.00	-1.13	0.00	0.34	-0.00<<
60/	64/ 9	0.16>>	-0.00	0.01	-0.00	-0.00	0.00
60/	66/ ULS/111	-1.59<<	-0.00	0.24	-0.00	0.08	0.00
60/	64/ 7	0.07	0.00>>	-0.02	0.00	0.01	-0.00
60/	64/ ULS/110	-1.28	-0.00<<	0.25	-0.00	-0.12	0.00
60/	64/ ULS/110	-1.28	-0.00	0.25>>	-0.00	-0.12	0.00
60/	64/ 7	0.07	0.00	-0.02<<	0.00	0.01	-0.00
60/	64/ 7	0.07	0.00	-0.02	0.00>>	0.01	-0.00
60/	64/ ULS/110	-1.28	-0.00	0.25	-0.00<<	-0.12	0.00
60/	66/ ULS/110	-1.35	-0.00	0.25	-0.00	0.09>>	0.00
60/	64/ ULS/110	-1.28	-0.00	0.25	-0.00	-0.12<<	0.00
60/	66/ ULS/110	-1.35	-0.00	0.25	-0.00	0.09	0.00>>
60/	66/ 7	0.07	0.00	-0.02	0.00	-0.01	-0.00<<
61/	63/ ULS/111	12.31>>	0.00	-2.12	0.00	1.09	0.00
61/	65/ ULS/163	-1.40<<	0.00	-0.57	0.00	-0.16	0.00
61/	63/ ULS/110	10.66	0.00>>	-2.44	0.00	1.25	0.00
61/	63/ 7	-0.91	-0.00<<	0.20	-0.00	-0.10	-0.00
61/	63/ 7	-0.91	-0.00	0.20>>	-0.00	-0.10	-0.00
61/	63/ ULS/110	10.66	0.00	-2.44<<	0.00	1.25	0.00
61/	63/ ULS/110	10.66	0.00	-2.44	0.00>>	1.25	0.00
61/	63/ 7	-0.91	-0.00	0.20	-0.00<<	-0.10	-0.00
61/	63/ ULS/110	10.66	0.00	-2.44	0.00	1.25>>	0.00
61/	65/ ULS/110	10.50	0.00	-2.44	0.00	-0.69<<	0.00
61/	63/ ULS/110	10.66	0.00	-2.44	0.00	1.25	0.00>>
61/	63/ 7	-0.91	-0.00	0.20	-0.00	-0.10	-0.00<<
62/	63/	11.53>>	-0.00	-0.33	0.00	-0.18	0.00

	Uls/111						
62/	66/ 10	-1.03<<	0.00	0.02	-0.00	-0.00	-0.00
62/	66/ 7	-0.93	0.00>>	0.03	-0.00	-0.01	-0.00
62/	66/ Uls/110	10.88	-0.00<<	-0.32	0.00	0.07	0.00
62/	66/ 7	-0.93	0.00	0.03>>	-0.00	-0.01	-0.00
62/	63/ Uls/110	10.93	-0.00	-0.37<<	0.00	-0.21	0.00
62/	66/ Uls/110	10.88	-0.00	-0.32	0.00>>	0.07	0.00
62/	66/ 7	-0.93	0.00	0.03	-0.00<<	-0.01	-0.00
62/	66/ Uls/110	10.88	-0.00	-0.32	0.00	0.07>>	0.00
62/	63/ Uls/110	10.93	-0.00	-0.37	0.00	-0.21<<	0.00
62/	63/ Uls/110	10.93	-0.00	-0.37	0.00	-0.21	0.00>>
62/	63/ 7	-0.93	0.00	0.03	-0.00	0.02	-0.00<<
63/	2/ Uls/110	12.70>>	0.00	-3.35	0.00	-1.66	-0.00
63/	65/ 7	-1.08<<	-0.00	0.28	-0.00	-0.09	-0.00
63/	65/ Uls/110	12.59	0.00>>	-3.24	0.00	1.03	0.00
63/	65/ 7	-1.08	-0.00<<	0.28	-0.00	-0.09	-0.00
63/	65/ 7	-1.08	-0.00	0.28>>	-0.00	-0.09	-0.00
63/	2/ Uls/110	12.70	0.00	-3.35<<	0.00	-1.66	-0.00
63/	65/ Uls/110	12.59	0.00	-3.24	0.00>>	1.03	0.00
63/	65/ 7	-1.08	-0.00	0.28	-0.00<<	-0.09	-0.00
63/	65/ Uls/110	12.59	0.00	-3.24	0.00	1.03>>	0.00
63/	2/ Uls/110	12.70	0.00	-3.35	0.00	-1.66<<	-0.00
63/	65/ Uls/110	12.59	0.00	-3.24	0.00	1.03	0.00>>
63/	2/ Uls/110	12.70	0.00	-3.35	0.00	-1.66	-0.00<<
64/	1/ Uls/111	20.87>>	0.00	-19.49	0.00	20.27	0.00
64/	63/ Uls/163	-2.12<<	0.00	-5.38	0.00	-1.34	-0.00
64/	1/ Uls/110	17.87	0.00>>	-22.66	0.00	23.64	0.00
64/	1/ 7	-1.45	-0.00<<	1.90	-0.00	-1.97	-0.00
64/	1/ 7	-1.45	-0.00	1.90>>	-0.00	-1.97	-0.00
64/	63/ Uls/110	17.40	0.00	-22.88<<	0.00	-6.13	-0.00
64/	1/ Uls/110	17.87	0.00	-22.66	0.00>>	23.64	0.00
64/	1/ 7	-1.45	-0.00	1.90	-0.00<<	-1.97	-0.00
64/	1/ Uls/110	17.87	0.00	-22.66	0.00	23.64>>	0.00
64/	63/ Uls/110	17.40	0.00	-22.88	0.00	-6.13<<	-0.00
64/	1/ Uls/110	17.87	0.00	-22.66	0.00	23.64	0.00>>
64/	63/ Uls/110	17.40	0.00	-22.88	0.00	-6.13	-0.00<<
65/	1/ Uls/110	236.23>>	0.00	14.43	0.00	-20.06	0.00
65/	1/ 7	-19.72<<	-0.00	-1.23	-0.00	1.69	-0.00
65/	1/ Uls/110	236.23	0.00>>	14.43	0.00	-20.06	0.00
65/	1/ 7	-19.72	-0.00<<	-1.23	-0.00	1.69	-0.00
65/	1/ Uls/110	236.23	0.00	14.43>>	0.00	-20.06	0.00
65/	1/ 7	-19.72	-0.00	-1.23<<	-0.00	1.69	-0.00
65/	1/	236.23	0.00	14.43	0.00>>	-20.06	0.00

	ULS/110						
65/	1/ 7	-19.72	-0.00	-1.23	-0.00<<	1.69	-0.00
65/	19/ ULS/110	235.60	0.00	14.20	0.00	3.77>>	0.00
65/	1/ ULS/110	236.23	0.00	14.43	0.00	-20.06<<	0.00
65/	1/ ULS/110	236.23	0.00	14.43	0.00	-20.06	0.00>>
65/	1/ 7	-19.72	-0.00	-1.23	-0.00	1.69	-0.00<<
73/	69/ ULS/110	0.33>>	0.00	0.93	0.00	-0.00	0.00
73/	64/ ULS/63	-0.08<<	0.00	-0.23	0.00	0.01	-0.00
73/	69/ ULS/110	0.33	0.00>>	0.93	0.00	-0.00	0.00
73/	69/ 7	-0.02	-0.00<<	-0.06	-0.00	0.00	-0.00
73/	69/ ULS/110	0.33	0.00	0.93>>	0.00	-0.00	0.00
73/	64/ ULS/63	-0.08	0.00	-0.23<<	0.00	0.01	-0.00
73/	69/ ULS/110	0.33	0.00	0.93	0.00>>	-0.00	0.00
73/	69/ 7	-0.02	-0.00	-0.06	-0.00<<	0.00	-0.00
73/	64/ ULS/110	0.16	0.00	0.45	0.00	0.40>>	-0.00
73/	64/ 7	-0.02	-0.00	-0.06	-0.00	-0.04<<	0.00
73/	69/ ULS/110	0.33	0.00	0.93	0.00	-0.00	0.00>>
73/	64/ ULS/110	0.16	0.00	0.45	0.00	0.40	-0.00<<
74/	66/ 7	0.59>>	0.00	0.58	0.00	0.04	-0.00
74/	66/ ULS/110	-6.83<<	-0.00	-6.48	-0.00	-0.51	0.00
74/	71/ 7	0.23	0.00>>	-0.41	0.00	-0.00	-0.00
74/	71/ ULS/110	-2.88	-0.00<<	4.55	-0.00	0.06	0.00
74/	71/ ULS/110	-2.88	-0.00	4.55>>	-0.00	0.06	0.00
74/	66/ ULS/111	-6.76	-0.00	-6.56<<	-0.00	-0.55	0.00
74/	71/ 7	0.23	0.00	-0.41	0.00>>	-0.00	-0.00
74/	71/ ULS/110	-2.88	-0.00	4.55	-0.00<<	0.06	0.00
74/	71/ ULS/111	-2.81	-0.00	4.47	-0.00	0.06>>	0.00
74/	66/ ULS/111	-6.76	-0.00	-6.56	-0.00	-0.55<<	0.00
74/	66/ ULS/110	-6.83	-0.00	-6.48	-0.00	-0.51	0.00>>
74/	66/ 7	0.59	0.00	0.58	0.00	0.04	-0.00<<
75/	69/ 7	0.06>>	0.00	-0.00	0.00	-0.00	-0.00
75/	71/ ULS/110	-1.06<<	-0.00	0.00	-0.00	0.01	0.00
75/	69/ 7	0.06	0.00>>	-0.00	0.00	-0.00	-0.00
75/	69/ ULS/110	-0.99	-0.00<<	0.00	-0.00	0.00	0.00
75/	69/ ULS/150	-0.79	-0.00	0.01>>	-0.00	0.00	0.00
75/	69/ ULS/133	-0.35	-0.00	-0.00<<	-0.00	0.00	0.00
75/	69/ 7	0.06	0.00	-0.00	0.00>>	-0.00	-0.00
75/	69/ ULS/110	-0.99	-0.00	0.00	-0.00<<	0.00	0.00
75/	71/ ULS/111	-1.02	-0.00	0.01	-0.00	0.01>>	0.00
75/	71/ 9	-0.03	-0.00	-0.00	-0.00	-0.00<<	0.00
75/	71/ ULS/110	-1.06	-0.00	0.00	-0.00	0.01	0.00>>
75/	71/ 7	0.06	0.00	-0.00	0.00	-0.00	-0.00<<

76/	64/ ULS/110	6.15>>	0.00	0.15	0.00	0.09	0.00
76/	71/ 7	-0.52<<	-0.00	-0.01	-0.00	0.00	-0.00
76/	71/ ULS/110	6.09	0.00>>	0.20	0.00	-0.05	0.00
76/	71/ 7	-0.52	-0.00<<	-0.01	-0.00	0.00	-0.00
76/	71/ ULS/110	6.09	0.00	0.20>>	0.00	-0.05	0.00
76/	71/ 7	-0.52	-0.00	-0.01<<	-0.00	0.00	-0.00
76/	71/ ULS/110	6.09	0.00	0.20	0.00>>	-0.05	0.00
76/	71/ 7	-0.52	-0.00	-0.01	-0.00<<	0.00	-0.00
76/	64/ ULS/110	6.15	0.00	0.15	0.00	0.09>>	0.00
76/	71/ ULS/110	6.09	0.00	0.20	0.00	-0.05<<	0.00
76/	71/ ULS/110	6.09	0.00	0.20	0.00	-0.05	0.00>>
76/	71/ 7	-0.52	-0.00	-0.01	-0.00	0.00	-0.00<<
79/	72/ ULS/148	29.12>>	-0.00	1.64	0.00	-0.63	-0.00
79/	76/ ULS/135	-28.41<<	0.00	-1.00	0.00	-0.37	-0.00
79/	72/ ULS/165	-28.34	0.00>>	-1.03	0.00	0.39	0.00
79/	72/ ULS/118	29.11	-0.00<<	1.68	0.00	-0.64	-0.00
79/	72/ ULS/118	29.11	-0.00	1.68>>	0.00	-0.64	-0.00
79/	72/ ULS/165	-28.34	0.00	-1.03<<	0.00	0.39	0.00
79/	72/ ULS/110	0.97	-0.00	0.65	0.00>>	-0.25	-0.00
79/	72/ 7	-0.10	0.00	-0.05	-0.00<<	0.02	0.00
79/	76/ ULS/118	29.04	-0.00	1.68	0.00	0.61>>	0.00
79/	72/ ULS/118	29.11	-0.00	1.68	0.00	-0.64<<	-0.00
79/	76/ ULS/118	29.04	-0.00	1.68	0.00	0.61	0.00>>
79/	72/ ULS/118	29.11	-0.00	1.68	0.00	-0.64	-0.00<<
84/	19/ ULS/110	572.44>>	-0.00	-0.72	-0.00	-0.52	0.00
84/	19/ 7	-48.04<<	0.00	0.03	0.00	0.07	-0.00
84/	19/ 7	-48.04	0.00>>	0.03	0.00	0.07	-0.00
84/	19/ ULS/110	572.44	-0.00<<	-0.72	-0.00	-0.52	0.00
84/	19/ ULS/165	200.57	-0.00	1.81>>	-0.00	-1.01	0.00
84/	20/ ULS/118	367.68	-0.00	-3.32<<	-0.00	-1.07	0.00
84/	19/ 7	-48.04	0.00	0.03	0.00>>	0.07	-0.00
84/	19/ ULS/110	572.44	-0.00	-0.72	-0.00<<	-0.52	0.00
84/	19/ ULS/133	250.15	-0.00	-2.78	-0.00	0.88>>	0.00
84/	19/ ULS/150	318.26	-0.00	1.75	-0.00	-1.18<<	0.00
84/	20/ ULS/110	572.28	-0.00	-1.20	-0.00	-1.08	0.00>>
84/	20/ 7	-48.04	0.00	0.03	0.00	0.08	-0.00<<
102/	98/ 7	0.54>>	-0.00	-0.00	-0.00	0.00	-0.00
102/	99/ ULS/110	-7.29<<	0.00	0.00	0.00	-0.00	-0.00
102/	98/ ULS/120	-4.80	0.00>>	-1.17	0.00	0.45	0.00
102/	98/ ULS/163	-2.95	-0.00<<	1.17	0.00	-0.45	-0.00

102/	98/ ULS/148	-4.28	-0.00	1.17>>	0.00	-0.45	-0.00
102/	98/ ULS/135	-3.48	0.00	-1.17<<	0.00	0.45	0.00
102/	98/ ULS/110	-7.22	0.00	0.00	0.00>>	-0.00	0.00
102/	98/ 7	0.54	-0.00	-0.00	-0.00<<	0.00	-0.00
102/	98/ ULS/135	-3.48	0.00	-1.17	0.00	0.45>>	0.00
102/	98/ ULS/148	-4.28	-0.00	1.17	0.00	-0.45<<	-0.00
102/	98/ ULS/120	-4.80	0.00	-1.17	0.00	0.45	0.00>>
102/	98/ ULS/163	-2.95	-0.00	1.17	0.00	-0.45	-0.00<<
107/	98/ ULS/120	49.03>>	0.00	0.62	0.00	0.38	-0.00
107/	76/ ULS/163	-44.38<<	0.00	-0.46	0.00	0.25	-0.00
107/	76/ ULS/110	5.08	0.00>>	0.20	0.00	0.04	-0.00
107/	76/ 7	-0.48	-0.00<<	-0.01	-0.00	-0.00	0.00
107/	76/ ULS/120	48.96	0.00	0.67>>	0.00	-0.22	-0.00
107/	98/ ULS/163	-44.33	0.00	-0.49<<	0.00	-0.19	-0.00
107/	76/ ULS/110	5.08	0.00	0.20	0.00>>	0.04	-0.00
107/	76/ 7	-0.48	-0.00	-0.01	-0.00<<	-0.00	0.00
107/	98/ ULS/120	49.03	0.00	0.62	0.00	0.38>>	-0.00
107/	76/ ULS/165	47.66	0.00	0.62	0.00	-0.23<<	-0.00
107/	98/ 7	-0.48	-0.00	-0.01	-0.00	-0.02	0.00>>
107/	98/ ULS/110	5.15	0.00	0.15	0.00	0.19	-0.00<<
108/	101/ ULS/118	32.86>>	-0.00	1.73	0.00	0.64	0.00
108/	100/ ULS/165	-27.58<<	0.00	-0.95	0.00	0.37	0.00
108/	100/ ULS/165	-27.58	0.00>>	-0.95	0.00	0.37	0.00
108/	100/ ULS/118	32.79	-0.00<<	1.73	0.00	-0.66	-0.00
108/	100/ ULS/118	32.79	-0.00	1.73>>	0.00	-0.66	-0.00
108/	100/ ULS/165	-27.58	0.00	-0.95<<	0.00	0.37	0.00
108/	100/ ULS/110	5.53	-0.00	0.78	0.00>>	-0.29	-0.00
108/	100/ 7	-0.49	0.00	-0.07	-0.00<<	0.02	0.00
108/	101/ ULS/118	32.86	-0.00	1.73	0.00	0.64>>	0.00
108/	100/ ULS/118	32.79	-0.00	1.73	0.00	-0.66<<	-0.00
108/	101/ ULS/118	32.86	-0.00	1.73	0.00	0.64	0.00>>
108/	100/ ULS/118	32.79	-0.00	1.73	0.00	-0.66	-0.00<<
109/	103/ ULS/118	31.69>>	-0.00	1.71	0.00	0.64	0.00
109/	102/ ULS/165	-23.06<<	0.00	-0.80	0.00	0.31	0.00
109/	102/ ULS/165	-23.06	0.00>>	-0.80	0.00	0.31	0.00
109/	102/ ULS/118	31.62	-0.00<<	1.71	0.00	-0.65	-0.00
109/	102/ ULS/118	31.62	-0.00	1.71>>	0.00	-0.65	-0.00

109/	102/ ULS/165	-23.06	0.00	-0.80<<	0.00	0.31	0.00
109/	102/ ULS/110	9.00	-0.00	0.91	0.00>>	-0.34	-0.00
109/	102/ 7	-0.80	0.00	-0.08	-0.00<<	0.03	0.00
109/	103/ ULS/118	31.69	-0.00	1.71	0.00	0.64>>	0.00
109/	102/ ULS/118	31.62	-0.00	1.71	0.00	-0.65<<	-0.00
109/	103/ ULS/118	31.69	-0.00	1.71	0.00	0.64	0.00>>
109/	102/ ULS/118	31.62	-0.00	1.71	0.00	-0.65	-0.00<<
110/	105/ ULS/118	30.91>>	-0.00	1.65	0.00	0.61	0.00
110/	104/ ULS/165	-18.91<<	0.00	-0.63	0.00	0.25	0.00
110/	104/ ULS/165	-18.91	0.00>>	-0.63	0.00	0.25	0.00
110/	104/ ULS/118	30.84	-0.00<<	1.65	0.00	-0.63	-0.00
110/	104/ ULS/118	30.84	-0.00	1.65>>	0.00	-0.63	-0.00
110/	104/ ULS/165	-18.91	0.00	-0.63<<	0.00	0.25	0.00
110/	104/ ULS/110	12.50	-0.00	1.04	0.00>>	-0.38	-0.00
110/	104/ 7	-1.10	0.00	-0.09	-0.00<<	0.03	0.00
110/	105/ ULS/118	30.91	-0.00	1.65	0.00	0.61>>	0.00
110/	104/ ULS/118	30.84	-0.00	1.65	0.00	-0.63<<	-0.00
110/	105/ ULS/118	30.91	-0.00	1.65	0.00	0.61	0.00>>
110/	104/ ULS/118	30.84	-0.00	1.65	0.00	-0.63	-0.00<<
111/	72/ ULS/165	35.01>>	0.00	0.61	0.00	0.34	-0.00
111/	100/ ULS/118	-39.98<<	0.00	-0.67	0.00	0.36	-0.00
111/	100/ ULS/110	-4.72	0.00>>	-0.03	0.00	0.12	-0.00
111/	100/ 7	0.36	-0.00<<	0.00	-0.00	-0.01	0.00
111/	100/ ULS/135	34.63	0.00	0.65>>	0.00	-0.24	-0.00
111/	72/ ULS/118	-39.91	0.00	-0.72<<	0.00	-0.28	-0.00
111/	100/ ULS/110	-4.72	0.00	-0.03	0.00>>	0.12	-0.00
111/	100/ 7	0.36	-0.00	0.00	-0.00<<	-0.01	0.00
111/	100/ ULS/118	-39.98	0.00	-0.67	0.00	0.36>>	-0.00
111/	72/ ULS/163	-38.72	0.00	-0.69	0.00	-0.29<<	-0.00
111/	72/ 7	0.36	-0.00	0.00	-0.00	-0.01	0.00>>
111/	72/ ULS/110	-4.65	0.00	-0.09	0.00	0.06	-0.00<<
112/	101/ ULS/165	31.60>>	0.00	0.50	0.00	0.29	-0.00
112/	102/ ULS/118	-40.29<<	0.00	-0.61	0.00	0.33	-0.00
112/	102/ ULS/110	-8.56	0.00>>	-0.09	0.00	0.14	-0.00
112/	102/ 7	0.69	-0.00<<	0.01	-0.00	-0.01	0.00
112/	102/ ULS/135	31.06	0.00	0.54>>	0.00	-0.18	-0.00
112/	101/ ULS/118	-40.22	0.00	-0.66<<	0.00	-0.25	-0.00
112/	102/	-8.56	0.00	-0.09	0.00>>	0.14	-0.00

	ULS/110						
112/	102/ 7	0.69	-0.00	0.01	-0.00<<	-0.01	0.00
112/	102/ ULS/118	-40.29	0.00	-0.61	0.00	0.33>>	-0.00
112/	101/ ULS/163	-38.05	0.00	-0.62	0.00	-0.26<<	-0.00
112/	101/ 7	0.69	-0.00	0.01	-0.00	-0.00	0.00>>
112/	101/ ULS/110	-8.50	0.00	-0.14	0.00	0.04	-0.00<<
113/	103/ ULS/165	26.36>>	0.00	0.43	0.00	0.26	-0.00
113/	104/ ULS/118	-39.04<<	0.00	-0.60	0.00	0.31	-0.00
113/	104/ ULS/110	-12.71	0.00>>	-0.15	0.00	0.17	-0.00
113/	104/ 7	1.05	-0.00<<	0.02	-0.00	-0.01	0.00
113/	104/ ULS/165	26.31	0.00	0.47>>	0.00	-0.15	-0.00
113/	103/ ULS/118	-38.98	0.00	-0.65<<	0.00	-0.26	-0.00
113/	104/ ULS/110	-12.71	0.00	-0.15	0.00>>	0.17	-0.00
113/	104/ 7	1.05	-0.00	0.02	-0.00<<	-0.01	0.00
113/	104/ ULS/118	-39.04	0.00	-0.60	0.00	0.31>>	-0.00
113/	103/ ULS/133	-36.39	0.00	-0.61	0.00	-0.26<<	-0.00
113/	103/ 7	1.05	-0.00	0.02	-0.00	-0.00	0.00>>
113/	103/ ULS/110	-12.65	0.00	-0.20	0.00	0.00	-0.00<<
114/	105/ ULS/165	20.86>>	0.00	0.34	0.00	0.22	-0.00
114/	18/ ULS/118	-37.28<<	0.00	-0.57	0.00	0.29	-0.00
114/	18/ ULS/110	-16.61	0.00>>	-0.21	0.00	0.19	-0.00
114/	18/ 7	1.40	-0.00<<	0.02	-0.00	-0.02	0.00
114/	18/ ULS/165	20.81	0.00	0.38>>	0.00	-0.11	-0.00
114/	105/ ULS/118	-37.21	0.00	-0.62<<	0.00	-0.25	-0.00
114/	18/ ULS/110	-16.61	0.00	-0.21	0.00>>	0.19	-0.00
114/	18/ 7	1.40	-0.00	0.02	-0.00<<	-0.02	0.00
114/	18/ ULS/112	-35.77	0.00	-0.54	0.00	0.29>>	-0.00
114/	105/ ULS/118	-37.21	0.00	-0.62	0.00	-0.25<<	-0.00
114/	105/ 7	1.40	-0.00	0.02	-0.00	0.00	0.00>>
114/	105/ ULS/110	-16.54	0.00	-0.26	0.00	-0.03	-0.00<<
125/	110/ ULS/110	352.10>>	0.00	-15.51	0.00	54.35	0.00
125/	110/ 7	-27.39<<	-0.00	1.30	-0.00	-4.54	-0.00
125/	110/ ULS/110	352.10	0.00>>	-15.51	0.00	54.35	0.00
125/	110/ 7	-27.39	-0.00<<	1.30	-0.00	-4.54	-0.00
125/	110/ 7	-27.39	-0.00	1.30>>	-0.00	-4.54	-0.00
125/	110/ ULS/110	352.10	0.00	-15.51<<	0.00	54.35	0.00
125/	110/ ULS/110	352.10	0.00	-15.51	0.00>>	54.35	0.00
125/	110/ 7	-27.39	-0.00	1.30	-0.00<<	-4.54	-0.00
125/	110/ ULS/110	352.10	0.00	-15.51	0.00	54.35>>	0.00
125/	1/ ULS/110	328.79	0.00	-15.51	0.00	-66.96<<	0.00
125/	110/ ULS/110	352.10	0.00	-15.51	0.00	54.35	0.00>>

125/	110/	7	-27.39	-0.00	1.30	-0.00	-4.54	-0.00<<
126/	20/	ULS/110	526.15>>	-0.00	3.80	-0.00	-2.17	0.00
126/	20/	7	-44.12<<	0.00	-0.29	0.00	0.18	-0.00
126/	20/	7	-44.12	0.00>>	-0.29	0.00	0.18	-0.00
126/	20/	ULS/110	526.15	-0.00<<	3.80	-0.00	-2.17	0.00
126/	20/	ULS/111	358.92	-0.00	3.92>>	-0.00	-1.81	0.00
126/	20/	10	-17.36	0.00	-0.31<<	0.00	0.12	-0.00
126/	20/	7	-44.12	0.00	-0.29	0.00>>	0.18	-0.00
126/	20/	ULS/110	526.15	-0.00	3.80	-0.00<<	-2.17	0.00
126/	21/	ULS/165	160.33	-0.00	2.35	-0.00	0.42>>	0.00
126/	20/	ULS/110	526.15	-0.00	3.80	-0.00	-2.17<<	0.00
126/	21/	ULS/110	526.00	-0.00	3.32	-0.00	-0.13	0.00>>
126/	21/	7	-44.12	0.00	-0.29	0.00	0.01	-0.00<<
127/	3/	4	0.18>>	-0.00	-0.00	0.00	0.00	-0.00
127/	98/	ULS/63	-1.26<<	-0.00	-0.00	0.00	-0.00	0.00
127/	3/	7	-0.04	0.00>>	0.00	-0.00	-0.00	0.00
127/	3/	ULS/110	-0.69	-0.00<<	-0.00	0.00	0.00	-0.00
127/	3/	ULS/133	-0.99	-0.00	0.38>>	0.00	-0.38	-0.00
127/	98/	ULS/120	-0.97	-0.00	-0.38<<	0.00	-0.38	0.00
127/	3/	ULS/110	-0.69	-0.00	-0.00	0.00>>	0.00	-0.00
127/	3/	7	-0.04	0.00	0.00	-0.00<<	-0.00	0.00
127/	98/	ULS/163	-0.78	-0.00	0.38	0.00	0.38>>	0.00
127/	98/	ULS/120	-0.97	-0.00	-0.38	0.00	-0.38<<	0.00
127/	98/	ULS/110	-0.79	-0.00	-0.00	0.00	-0.00	0.00>>
127/	3/	ULS/110	-0.69	-0.00	-0.00	0.00	0.00	-0.00<<
128/	21/	ULS/110	474.36>>	-0.00	3.00	-0.00	-1.52	0.00
128/	21/	7	-39.72<<	0.00	-0.24	0.00	0.13	-0.00
128/	21/	7	-39.72	0.00>>	-0.24	0.00	0.13	-0.00
128/	21/	ULS/110	474.36	-0.00<<	3.00	-0.00	-1.52	0.00
128/	21/	ULS/111	299.00	-0.00	3.36>>	-0.00	-1.24	0.00
128/	22/	ULS/163	233.67	-0.00	-0.43<<	-0.00	-0.58	0.00
128/	21/	7	-39.72	0.00	-0.24	0.00>>	0.13	-0.00
128/	21/	ULS/110	474.36	-0.00	3.00	-0.00<<	-1.52	0.00
128/	22/	ULS/150	213.78	-0.00	2.66	-0.00	0.62>>	0.00
128/	21/	ULS/110	474.36	-0.00	3.00	-0.00	-1.52<<	0.00
128/	22/	ULS/110	474.22	-0.00	2.52	-0.00	0.06	0.00>>
128/	22/	7	-39.72	0.00	-0.24	0.00	-0.01	-0.00<<
129/	22/	ULS/110	424.59>>	-0.00	2.81	-0.00	-1.31	0.00
129/	22/	7	-35.51<<	0.00	-0.22	0.00	0.11	-0.00
129/	22/	7	-35.51	0.00>>	-0.22	0.00	0.11	-0.00
129/	22/	ULS/110	424.59	-0.00<<	2.81	-0.00	-1.31	0.00
129/	22/	ULS/111	242.72	-0.00	3.02>>	-0.00	-0.94	0.00

129/	10/ ULS/102	143.25	-0.00	-0.30<<	-0.00	-0.38	0.00
129/	22/ 7	-35.51	0.00	-0.22	0.00>>	0.11	-0.00
129/	22/ ULS/110	424.59	-0.00	2.81	-0.00<<	-1.31	0.00
129/	10/ ULS/120	184.44	-0.00	2.38	-0.00	0.70>>	0.00
129/	22/ ULS/110	424.59	-0.00	2.81	-0.00	-1.31<<	0.00
129/	10/ ULS/110	424.45	-0.00	2.33	-0.00	0.16	0.00>>
129/	10/ 7	-35.51	0.00	-0.22	0.00	-0.02	-0.00<<
130/	14/ ULS/110	56.96>>	0.00	-3.64	-0.00	-2.78	0.00
130/	14/ 7	-4.64<<	-0.00	0.31	0.00	0.23	-0.00
130/	14/ ULS/110	56.96	0.00>>	-3.64	-0.00	-2.78	0.00
130/	14/ 7	-4.64	-0.00<<	0.31	0.00	0.23	-0.00
130/	37/ 7	-4.30	-0.00	1.30>>	0.00	0.71	-0.00
130/	37/ ULS/110	53.19	0.00	-14.77<<	-0.00	-8.17	0.00
130/	14/ 7	-4.64	-0.00	0.31	0.00>>	0.23	-0.00
130/	14/ ULS/110	56.96	0.00	-3.64	-0.00<<	-2.78	0.00
130/	37/ 7	-4.30	-0.00	1.30	0.00	0.71>>	-0.00
130/	37/ ULS/110	53.19	0.00	-14.77	-0.00	-8.17<<	0.00
130/	14/ ULS/110	56.96	0.00	-3.64	-0.00	-2.78	0.00>>
130/	14/ 7	-4.64	-0.00	0.31	0.00	0.23	-0.00<<
131/	37/ ULS/111	120.90>>	0.00	22.58	-0.00	-12.48	0.00
131/	37/ 10	-10.07<<	-0.00	-2.12	0.00	0.99	-0.00
131/	37/ ULS/110	119.94	0.00>>	20.16	-0.00	-13.35	0.00
131/	37/ 7	-9.92	-0.00<<	-1.74	0.00	1.13	-0.00
131/	37/ ULS/111	120.90	0.00	22.58>>	-0.00	-12.48	0.00
131/	37/ 10	-10.07	-0.00	-2.12<<	0.00	0.99	-0.00
131/	37/ 7	-9.92	-0.00	-1.74	0.00>>	1.13	-0.00
131/	37/ ULS/110	119.94	0.00	20.16	-0.00<<	-13.35	0.00
131/	37/ 7	-9.92	-0.00	-1.74	0.00	1.13>>	-0.00
131/	37/ ULS/110	119.94	0.00	20.16	-0.00	-13.35<<	0.00
131/	37/ ULS/110	119.94	0.00	20.16	-0.00	-13.35	0.00>>
131/	37/ 7	-9.92	-0.00	-1.74	0.00	1.13	-0.00<<
132/	38/ ULS/111	174.74>>	0.00	9.99	-0.00	-4.22	0.00
132/	38/ 10	-15.28<<	-0.00	-0.94	0.00	0.20	-0.00
132/	38/ ULS/110	165.35	0.00>>	9.26	-0.00	-6.27	0.00
132/	38/ 7	-13.78	-0.00<<	-0.82	0.00	0.53	-0.00
132/	38/ ULS/111	174.74	0.00	9.99>>	-0.00	-4.22	0.00
132/	39/ ULS/110	162.01	0.00	-1.77<<	-0.00	-4.12	0.00
132/	38/ 7	-13.78	-0.00	-0.82	0.00>>	0.53	-0.00
132/	38/ ULS/110	165.35	0.00	9.26	-0.00<<	-6.27	0.00
132/	38/ 7	-13.78	-0.00	-0.82	0.00	0.53>>	-0.00
132/	38/ ULS/110	165.35	0.00	9.26	-0.00	-6.27<<	0.00
132/	38/ ULS/110	165.35	0.00	9.26	-0.00	-6.27	0.00>>
132/	38/ 7	-13.78	-0.00	-0.82	0.00	0.53	-0.00<<
133/	39/ ULS/111	228.95>>	0.00	10.18	-0.00	-3.20	0.00

133/	39/	10	-20.41<<	-0.00	-0.93	0.00	0.09	-0.00
133/	39/	ULS/110	212.49	0.00>>	9.70	-0.00	-5.51	0.00
133/	39/	7	-17.77	-0.00<<	-0.85	0.00	0.46	-0.00
133/	39/	ULS/111	228.95	0.00	10.18>>	-0.00	-3.20	0.00
133/	40/	ULS/140	198.60	0.00	-1.34<<	-0.00	-2.96	0.00
133/	39/	7	-17.77	-0.00	-0.85	0.00>>	0.46	-0.00
133/	39/	ULS/110	212.49	0.00	9.70	-0.00<<	-5.51	0.00
133/	40/	ULS/165	158.84	0.00	-0.31	-0.00	0.87>>	0.00
133/	39/	ULS/110	212.49	0.00	9.70	-0.00	-5.51<<	0.00
133/	39/	ULS/110	212.49	0.00	9.70	-0.00	-5.51	0.00>>
133/	39/	7	-17.77	-0.00	-0.85	0.00	0.46	-0.00<<
134/	40/	ULS/111	279.65>>	0.00	9.54	-0.00	-2.01	0.00
134/	40/	10	-25.11<<	-0.00	-0.86	0.00	-0.02	-0.00
134/	40/	ULS/110	257.66	0.00>>	9.20	-0.00	-4.47	0.00
134/	40/	7	-21.59	-0.00<<	-0.81	0.00	0.38	-0.00
134/	40/	ULS/111	279.65	0.00	9.54>>	-0.00	-2.01	0.00
134/	15/	ULS/110	254.65	0.00	-1.83<<	-0.00	-2.37	0.00
134/	40/	7	-21.59	-0.00	-0.81	0.00>>	0.38	-0.00
134/	40/	ULS/110	257.66	0.00	9.20	-0.00<<	-4.47	0.00
134/	15/	ULS/165	195.43	0.00	-0.82	-0.00	1.45>>	0.00
134/	40/	ULS/112	100.71	0.00	3.82	-0.00	-4.58<<	0.00
134/	40/	ULS/110	257.66	0.00	9.20	-0.00	-4.47	0.00>>
134/	40/	7	-21.59	-0.00	-0.81	0.00	0.38	-0.00<<
135/	10/	ULS/110	376.87>>	-0.00	2.88	-0.00	-1.18	0.00
135/	10/	7	-31.47<<	0.00	-0.22	0.00	0.10	-0.00
135/	10/	7	-31.47	0.00>>	-0.22	0.00	0.10	-0.00
135/	10/	ULS/110	376.87	-0.00<<	2.88	-0.00	-1.18	0.00
135/	10/	ULS/111	190.16	-0.00	2.96>>	-0.00	-0.76	0.00
135/	10/	10	-1.60	0.00	-0.24<<	0.00	0.03	-0.00
135/	10/	7	-31.47	0.00	-0.22	0.00>>	0.10	-0.00
135/	10/	ULS/110	376.87	-0.00	2.88	-0.00<<	-1.18	0.00
135/	41/	ULS/120	134.83	-0.00	2.29	-0.00	0.83>>	0.00
135/	10/	ULS/110	376.87	-0.00	2.88	-0.00	-1.18<<	0.00
135/	41/	ULS/110	376.74	-0.00	2.40	-0.00	0.32	0.00>>
135/	41/	7	-31.47	0.00	-0.22	0.00	-0.03	-0.00<<
136/	41/	ULS/112	348.31>>	-0.00	1.38	-0.00	-0.93	0.00
136/	41/	11	-30.37<<	0.00	0.01	0.00	0.07	-0.00
136/	41/	7	-27.61	0.00>>	-0.21	0.00	0.08	-0.00
136/	41/	ULS/110	331.10	-0.00<<	2.72	-0.00	-0.99	0.00
136/	41/	ULS/111	141.30	-0.00	2.76>>	-0.00	-0.54	0.00
136/	41/	10	2.75	0.00	-0.21<<	0.00	0.01	-0.00
136/	41/	7	-27.61	0.00	-0.21	0.00>>	0.08	-0.00
136/	41/	ULS/110	331.10	-0.00	2.72	-0.00<<	-0.99	0.00

136/	42/		89.00	-0.00	2.09	-0.00	0.92>>	0.00
	ULS/120							
136/	41/		331.10	-0.00	2.72	-0.00	-0.99<<	0.00
	ULS/110							
136/	42/		330.98	-0.00	2.24	-0.00	0.42	0.00>>
	ULS/110							
136/	42/	7	-27.61	0.00	-0.21	0.00	-0.04	-0.00<<
137/	42/		328.98>>	-0.00	1.57	-0.00	-0.91	0.00
	ULS/112							
137/	42/	11	-30.59<<	0.00	-0.02	0.00	0.08	-0.00
137/	42/	7	-23.94	0.00>>	-0.21	0.00	0.07	-0.00
137/	42/		287.43	-0.00<<	2.74	-0.00	-0.85	0.00
	ULS/110							
137/	42/		287.43	-0.00	2.74>>	-0.00	-0.85	0.00
	ULS/110							
137/	42/	7	-23.94	0.00	-0.21<<	0.00	0.07	-0.00
137/	42/	7	-23.94	0.00	-0.21	0.00>>	0.07	-0.00
137/	42/		287.43	-0.00	2.74	-0.00<<	-0.85	0.00
	ULS/110							
137/	43/		47.05	-0.00	1.90	-0.00	0.99>>	0.00
	ULS/120							
137/	42/		328.98	-0.00	1.57	-0.00	-0.91<<	0.00
	ULS/112							
137/	43/		287.32	-0.00	2.26	-0.00	0.56	0.00>>
	ULS/110							
137/	43/	7	-23.94	0.00	-0.21	0.00	-0.05	-0.00<<
138/	43/		309.02>>	-0.00	1.46	-0.00	-0.82	0.00
	ULS/112							
138/	44/		-53.77<<	-0.00	1.19	-0.00	0.89	0.00
	ULS/165							
138/	43/	7	-20.48	0.00>>	-0.19	0.00	0.05	-0.00
138/	43/		246.14	-0.00<<	2.52	-0.00	-0.66	0.00
	ULS/110							
138/	43/		246.14	-0.00	2.52>>	-0.00	-0.66	0.00
	ULS/110							
138/	43/	7	-20.48	0.00	-0.19<<	0.00	0.05	-0.00
138/	43/	7	-20.48	0.00	-0.19	0.00>>	0.05	-0.00
138/	43/		246.14	-0.00	2.52	-0.00<<	-0.66	0.00
	ULS/110							
138/	44/		9.22	-0.00	1.71	-0.00	1.05>>	0.00
	ULS/120							
138/	43/		309.02	-0.00	1.46	-0.00	-0.82<<	0.00
	ULS/112							
138/	44/		246.03	-0.00	2.04	-0.00	0.63	0.00>>
	ULS/110							
138/	44/	7	-20.48	0.00	-0.19	0.00	-0.05	-0.00<<
139/	44/		288.41>>	-0.00	1.70	-0.00	-0.82	0.00
	ULS/112							
139/	11/		-77.86<<	-0.00	1.00	-0.00	0.91	0.00
	ULS/165							
139/	44/	7	-17.20	0.00>>	-0.20	0.00	0.04	-0.00
139/	44/		206.90	-0.00<<	2.58	-0.00	-0.55	0.00
	ULS/110							
139/	44/		206.90	-0.00	2.58>>	-0.00	-0.55	0.00
	ULS/110							
139/	44/	7	-17.20	0.00	-0.20<<	0.00	0.04	-0.00
139/	44/	7	-17.20	0.00	-0.20	0.00>>	0.04	-0.00
139/	44/		206.90	-0.00	2.58	-0.00<<	-0.55	0.00
	ULS/110							
139/	11/		17.79	-0.00	1.76	-0.00	1.11>>	0.00
	ULS/111							
139/	44/		288.41	-0.00	1.70	-0.00	-0.82<<	0.00
	ULS/112							
139/	11/		206.81	-0.00	2.11	-0.00	0.76	0.00>>
	ULS/110							
139/	11/	7	-17.20	0.00	-0.20	0.00	-0.07	-0.00<<
140/	15/		326.72>>	0.00	9.61	-0.00	-1.13	0.00
	ULS/111							
140/	15/	10	-29.36<<	-0.00	-0.86	0.00	-0.10	-0.00

140/	15/ ULS/110	301.04	0.00>>	9.41	-0.00	-3.70	0.00
140/	15/ 7	-25.25	-0.00<<	-0.82	0.00	0.31	-0.00
140/	15/ ULS/111	326.72	0.00	9.61>>	-0.00	-1.13	0.00
140/	45/ ULS/110	298.22	0.00	-1.63<<	-0.00	-1.50	0.00
140/	15/ 7	-25.25	-0.00	-0.82	0.00>>	0.31	-0.00
140/	15/ ULS/110	301.04	0.00	9.41	-0.00<<	-3.70	0.00
140/	45/ ULS/165	228.75	0.00	-0.83	-0.00	2.08>>	0.00
140/	15/ ULS/112	117.55	0.00	4.05	-0.00	-4.33<<	0.00
140/	15/ ULS/110	301.04	0.00	9.41	-0.00	-3.70	0.00>>
140/	15/ 7	-25.25	-0.00	-0.82	0.00	0.31	-0.00<<
141/	45/ ULS/111	370.11>>	0.00	9.36	-0.00	-0.14	0.00
141/	45/ 10	-33.16<<	-0.00	-0.82	0.00	-0.19	-0.00
141/	45/ ULS/110	342.43	0.00>>	9.31	-0.00	-2.80	0.00
141/	45/ 7	-28.73	-0.00<<	-0.82	0.00	0.24	-0.00
141/	45/ ULS/111	370.11	0.00	9.36>>	-0.00	-0.14	0.00
141/	46/ ULS/110	339.76	0.00	-1.72<<	-0.00	-0.65	0.00
141/	45/ 7	-28.73	-0.00	-0.82	0.00>>	0.24	-0.00
141/	45/ ULS/110	342.43	0.00	9.31	-0.00<<	-2.80	0.00
141/	46/ ULS/165	258.81	0.00	-1.06	-0.00	2.64>>	0.00
141/	45/ ULS/112	135.17	0.00	4.17	-0.00	-4.00<<	0.00
141/	45/ ULS/110	342.43	0.00	9.31	-0.00	-2.80	0.00>>
141/	45/ 7	-28.73	-0.00	-0.82	0.00	0.24	-0.00<<
142/	46/ ULS/111	409.68>>	0.00	8.72	-0.00	0.80	0.00
142/	46/ 10	-36.49<<	-0.00	-0.76	0.00	-0.27	-0.00
142/	46/ ULS/110	381.83	0.00>>	8.83	-0.00	-1.92	0.00
142/	46/ 7	-32.03	-0.00<<	-0.77	0.00	0.16	-0.00
142/	46/ ULS/110	381.83	0.00	8.83>>	-0.00	-1.92	0.00
142/	47/ ULS/111	407.16	0.00	-2.31<<	-0.00	2.60	0.00
142/	46/ 7	-32.03	-0.00	-0.77	0.00>>	0.16	-0.00
142/	46/ ULS/110	381.83	0.00	8.83	-0.00<<	-1.92	0.00
142/	47/ ULS/165	285.44	0.00	-1.58	-0.00	3.00>>	0.00
142/	46/ ULS/118	92.09	0.00	2.73	-0.00	-3.73<<	0.00
142/	46/ ULS/110	381.83	0.00	8.83	-0.00	-1.92	0.00>>
142/	46/ 7	-32.03	-0.00	-0.77	0.00	0.16	-0.00<<
143/	47/ ULS/111	445.48>>	0.00	8.83	-0.00	1.45	0.00
143/	47/ 10	-39.38<<	-0.00	-0.76	0.00	-0.33	-0.00
143/	47/ ULS/110	418.95	0.00>>	9.02	-0.00	-1.27	0.00
143/	47/ 7	-35.14	-0.00<<	-0.79	0.00	0.11	-0.00
143/	47/ ULS/110	418.95	0.00	9.02>>	-0.00	-1.27	0.00
143/	48/ ULS/111	443.14	0.00	-2.20<<	-0.00	3.31	0.00
143/	47/ 7	-35.14	-0.00	-0.79	0.00>>	0.11	-0.00
143/	47/	418.95	0.00	9.02	-0.00<<	-1.27	0.00

	Uls/110						
143/	48/ Uls/120	415.52	0.00	-2.05	-0.00	3.63>>	0.00
143/	47/ Uls/118	105.75	0.00	2.89	-0.00	-3.52<<	0.00
143/	47/ Uls/110	418.95	0.00	9.02	-0.00	-1.27	0.00>>
143/	47/ 7	-35.14	-0.00	-0.79	0.00	0.11	-0.00<<
144/	48/ Uls/111	477.67>>	0.00	8.63	-0.00	2.23	0.00
144/	48/ 10	-41.82<<	-0.00	-0.73	0.00	-0.40	-0.00
144/	48/ Uls/110	454.25	0.00>>	9.00	-0.00	-0.49	0.00
144/	48/ 7	-38.08	-0.00<<	-0.79	0.00	0.04	-0.00
144/	48/ Uls/110	454.25	0.00	9.00>>	-0.00	-0.49	0.00
144/	16/ Uls/111	475.48	0.00	-2.40<<	-0.00	3.98	0.00
144/	48/ 7	-38.08	-0.00	-0.79	0.00>>	0.04	-0.00
144/	48/ Uls/110	454.25	0.00	9.00	-0.00<<	-0.49	0.00
144/	16/ Uls/120	444.76	0.00	-2.27	-0.00	4.23>>	0.00
144/	48/ Uls/118	120.97	0.00	3.08	-0.00	-3.28<<	0.00
144/	48/ Uls/110	454.25	0.00	9.00	-0.00	-0.49	0.00>>
144/	48/ 7	-38.08	-0.00	-0.79	0.00	0.04	-0.00<<
145/	16/ Uls/111	506.06>>	0.00	7.80	-0.00	3.00	0.00
145/	16/ 10	-43.82<<	-0.00	-0.65	0.00	-0.46	-0.00
145/	16/ Uls/110	487.28	0.00>>	8.30	-0.00	0.31	0.00
145/	16/ 7	-40.81	-0.00<<	-0.73	0.00	-0.03	-0.00
145/	16/ Uls/110	487.28	0.00	8.30>>	-0.00	0.31	0.00
145/	53/ Uls/111	504.01	0.00	-3.23<<	-0.00	4.27	0.00
145/	16/ 7	-40.81	-0.00	-0.73	0.00>>	-0.03	-0.00
145/	16/ Uls/110	487.28	0.00	8.30	-0.00<<	0.31	0.00
145/	53/ Uls/120	470.15	0.00	-3.07	-0.00	4.48>>	0.00
145/	16/ Uls/163	12.51	0.00	0.89	-0.00	-3.06<<	0.00
145/	16/ Uls/110	487.28	0.00	8.30	-0.00	0.31	0.00>>
145/	16/ 7	-40.81	-0.00	-0.73	0.00	-0.03	-0.00<<
146/	53/ Uls/111	530.64>>	0.00	8.42	-0.00	3.38	0.00
146/	53/ 10	-45.35<<	-0.00	-0.69	0.00	-0.48	-0.00
146/	53/ Uls/110	518.27	0.00>>	9.09	-0.00	0.75	0.00
146/	53/ 7	-43.37	-0.00<<	-0.79	0.00	-0.06	-0.00
146/	53/ Uls/110	518.27	0.00	9.09>>	-0.00	0.75	0.00
146/	54/ Uls/111	528.77	0.00	-2.61<<	-0.00	5.00	0.00
146/	53/ 7	-43.37	-0.00	-0.79	0.00>>	-0.06	-0.00
146/	53/ Uls/110	518.27	0.00	9.09	-0.00<<	0.75	0.00
146/	54/ Uls/120	491.67	0.00	-2.53	-0.00	5.12>>	0.00
146/	53/ Uls/163	22.32	0.00	1.14	-0.00	-2.95<<	0.00
146/	53/ Uls/110	518.27	0.00	9.09	-0.00	0.75	0.00>>
146/	53/ 7	-43.37	-0.00	-0.79	0.00	-0.06	-0.00<<
147/	54/	551.30>>	0.00	7.01	-0.00	4.21	0.00

	ULS/111						
147/	54/ 10	-46.43<<	-0.00	-0.55	0.00	-0.54	-0.00
147/	54/ ULS/110	546.83	0.00>>	7.81	-0.00	1.69	0.00
147/	54/ 7	-45.71	-0.00<<	-0.68	0.00	-0.14	-0.00
147/	54/ ULS/110	546.83	0.00	7.81>>	-0.00	1.69	0.00
147/	55/ ULS/111	549.55	0.00	-4.02<<	-0.00	5.04	0.00
147/	54/ 7	-45.71	-0.00	-0.68	0.00>>	-0.14	-0.00
147/	54/ ULS/110	546.83	0.00	7.81	-0.00<<	1.69	0.00
147/	55/ ULS/120	509.20	0.00	-3.86	-0.00	5.12>>	0.00
147/	54/ ULS/163	33.74	0.00	1.23	-0.00	-2.76<<	0.00
147/	54/ ULS/110	546.83	0.00	7.81	-0.00	1.69	0.00>>
147/	54/ 7	-45.71	-0.00	-0.68	0.00	-0.14	-0.00<<
148/	55/ ULS/110	573.19>>	0.00	8.82	-0.00	1.96	0.00
148/	55/ 7	-47.86<<	-0.00	-0.76	0.00	-0.16	-0.00
148/	55/ ULS/110	573.19	0.00>>	8.82	-0.00	1.96	0.00
148/	55/ 7	-47.86	-0.00<<	-0.76	0.00	-0.16	-0.00
148/	55/ ULS/110	573.19	0.00	8.82>>	-0.00	1.96	0.00
148/	56/ ULS/141	537.14	0.00	-3.25<<	-0.00	5.39	0.00
148/	55/ 7	-47.86	-0.00	-0.76	0.00>>	-0.16	-0.00
148/	55/ ULS/110	573.19	0.00	8.82	-0.00<<	1.96	0.00
148/	56/ ULS/111	566.56	0.00	-3.24	-0.00	5.61>>	0.00
148/	55/ ULS/163	46.93	0.00	1.66	-0.00	-2.58<<	0.00
148/	55/ ULS/110	573.19	0.00	8.82	-0.00	1.96	0.00>>
148/	55/ 7	-47.86	-0.00	-0.76	0.00	-0.16	-0.00<<
149/	56/ ULS/110	597.06>>	0.00	7.77	-0.00	2.85	0.00
149/	56/ 7	-49.81<<	-0.00	-0.68	0.00	-0.23	-0.00
149/	56/ ULS/110	597.06	0.00>>	7.77	-0.00	2.85	0.00
149/	56/ 7	-49.81	-0.00<<	-0.68	0.00	-0.23	-0.00
149/	56/ ULS/110	597.06	0.00	7.77>>	-0.00	2.85	0.00
149/	17/ ULS/111	579.67	0.00	-4.24<<	-0.00	5.74	0.00
149/	56/ 7	-49.81	-0.00	-0.68	0.00>>	-0.23	-0.00
149/	56/ ULS/110	597.06	0.00	7.77	-0.00<<	2.85	0.00
149/	17/ ULS/111	579.67	0.00	-4.24	-0.00	5.74>>	0.00
149/	56/ ULS/163	61.54	0.00	1.46	-0.00	-2.20<<	0.00
149/	56/ ULS/110	597.06	0.00	7.77	-0.00	2.85	0.00>>
149/	56/ 7	-49.81	-0.00	-0.68	0.00	-0.23	-0.00<<
150/	11/ ULS/118	268.39>>	-0.00	1.32	-0.00	-0.75	0.00
150/	49/ ULS/165	-98.61<<	-0.00	0.85	-0.00	0.93	0.00
150/	11/ 7	-14.12	0.00>>	-0.17	0.00	0.03	-0.00
150/	11/ ULS/110	169.83	-0.00<<	2.34	-0.00	-0.37	0.00
150/	11/ ULS/110	169.83	-0.00	2.34>>	-0.00	-0.37	0.00
150/	11/ 7	-14.12	0.00	-0.17<<	0.00	0.03	-0.00

150/	11/	7	-14.12	0.00	-0.17	0.00>>	0.03	-0.00
150/	11/	ULS/110	169.83	-0.00	2.34	-0.00<<	-0.37	0.00
150/	49/	ULS/111	-15.74	-0.00	1.53	-0.00	1.15>>	0.00
150/	11/	ULS/118	268.39	-0.00	1.32	-0.00	-0.75<<	0.00
150/	49/	ULS/110	169.74	-0.00	1.86	-0.00	0.81	0.00>>
150/	49/	7	-14.12	0.00	-0.17	0.00	-0.07	-0.00<<
151/	49/	ULS/118	250.99>>	-0.00	1.56	-0.00	-0.76	0.00
151/	50/	ULS/165	-115.98<<	-0.00	0.63	-0.00	0.93	0.00
151/	49/	7	-11.24	0.00>>	-0.18	0.00	0.02	-0.00
151/	49/	ULS/110	135.12	-0.00<<	2.37	-0.00	-0.26	0.00
151/	49/	ULS/110	135.12	-0.00	2.37>>	-0.00	-0.26	0.00
151/	49/	7	-11.24	0.00	-0.18<<	0.00	0.02	-0.00
151/	49/	7	-11.24	0.00	-0.18	0.00>>	0.02	-0.00
151/	49/	ULS/110	135.12	-0.00	2.37	-0.00<<	-0.26	0.00
151/	50/	ULS/111	-45.32	-0.00	1.35	-0.00	1.19>>	0.00
151/	49/	ULS/118	250.99	-0.00	1.56	-0.00	-0.76<<	0.00
151/	50/	ULS/110	135.04	-0.00	1.89	-0.00	0.92	0.00>>
151/	50/	7	-11.24	0.00	-0.18	0.00	-0.08	-0.00<<
152/	50/	ULS/118	232.30>>	-0.00	1.54	-0.00	-0.68	0.00
152/	51/	ULS/165	-130.03<<	-0.00	0.46	-0.00	0.92	0.00
152/	50/	7	-8.55	0.00>>	-0.16	0.00	0.01	-0.00
152/	50/	ULS/110	102.55	-0.00<<	2.16	-0.00	-0.09	0.00
152/	50/	ULS/110	102.55	-0.00	2.16>>	-0.00	-0.09	0.00
152/	50/	7	-8.55	0.00	-0.16<<	0.00	0.01	-0.00
152/	50/	7	-8.55	0.00	-0.16	0.00>>	0.01	-0.00
152/	50/	ULS/110	102.55	-0.00	2.16	-0.00<<	-0.09	0.00
152/	51/	ULS/111	-71.10	-0.00	1.11	-0.00	1.21>>	0.00
152/	50/	ULS/118	232.30	-0.00	1.54	-0.00	-0.68<<	0.00
152/	51/	ULS/110	102.48	-0.00	1.68	-0.00	0.98	0.00>>
152/	51/	7	-8.55	0.00	-0.16	0.00	-0.08	-0.00<<
153/	51/	ULS/118	212.68>>	-0.00	1.52	-0.00	-0.65	0.00
153/	52/	ULS/165	-140.55<<	-0.00	0.28	-0.00	0.90	0.00
153/	51/	7	-6.10	0.00>>	-0.14	0.00	-0.00	-0.00
153/	51/	ULS/110	72.67	-0.00<<	1.98	-0.00	0.03	0.00
153/	51/	ULS/110	72.67	-0.00	1.98>>	-0.00	0.03	0.00
153/	51/	7	-6.10	0.00	-0.14<<	0.00	-0.00	-0.00
153/	51/	7	-6.10	0.00	-0.14	0.00>>	-0.00	-0.00
153/	51/	ULS/110	72.67	-0.00	1.98	-0.00<<	0.03	0.00
153/	52/	ULS/111	-92.68	-0.00	0.88	-0.00	1.20>>	0.00
153/	51/	ULS/133	197.75	-0.00	1.17	-0.00	-0.66<<	0.00
153/	52/	ULS/110	72.60	-0.00	1.50	-0.00	0.99	0.00>>

153/	52/	7	-6.10	0.00	-0.14	0.00	-0.08	-0.00<<
154/	52/	ULS/118	192.00>>	-0.00	2.40	-0.00	-0.68	0.00
154/	12/	ULS/165	-147.82<<	-0.00	-0.05	-0.00	0.81	0.00
154/	52/	7	-3.83	0.00>>	-0.17	0.00	-0.01	-0.00
154/	52/	ULS/110	45.02	-0.00<<	2.44	-0.00	0.09	0.00
154/	52/	ULS/112	176.51	-0.00	2.54>>	-0.00	-0.57	0.00
154/	52/	11	-24.87	0.00	-0.19<<	0.00	0.10	-0.00
154/	52/	7	-3.83	0.00	-0.17	0.00>>	-0.01	-0.00
154/	52/	ULS/110	45.02	-0.00	2.44	-0.00<<	0.09	0.00
154/	12/	ULS/110	44.95	-0.00	1.96	-0.00	1.31>>	0.00
154/	52/	ULS/133	182.61	-0.00	1.98	-0.00	-0.71<<	0.00
154/	12/	ULS/110	44.95	-0.00	1.96	-0.00	1.31	0.00>>
154/	12/	7	-3.83	0.00	-0.17	0.00	-0.11	-0.00<<
155/	12/	ULS/118	171.17>>	-0.00	1.94	-0.00	-0.66	0.00
155/	57/	ULS/165	-152.00<<	-0.00	-0.36	-0.00	0.79	0.00
155/	12/	7	-1.83	0.00>>	-0.15	0.00	-0.01	-0.00
155/	12/	ULS/110	20.42	-0.00<<	1.88	-0.00	0.20	0.00
155/	12/	ULS/112	153.64	-0.00	2.05>>	-0.00	-0.54	0.00
155/	57/	ULS/73	-98.56	-0.00	-0.39<<	-0.00	0.52	0.00
155/	12/	7	-1.83	0.00	-0.15	0.00>>	-0.01	-0.00
155/	12/	ULS/110	20.42	-0.00	1.88	-0.00<<	0.20	0.00
155/	57/	ULS/111	-124.31	-0.00	0.29	-0.00	1.16>>	0.00
155/	12/	ULS/163	165.95	-0.00	1.46	-0.00	-0.71<<	0.00
155/	57/	ULS/110	20.36	-0.00	1.40	-0.00	1.11	0.00>>
155/	57/	7	-1.83	0.00	-0.15	0.00	-0.10	-0.00<<
156/	57/	ULS/148	150.82>>	-0.00	1.56	-0.00	-0.48	0.00
156/	58/	ULS/135	-152.30<<	-0.00	-0.33	-0.00	0.81	0.00
156/	57/	7	-0.04	0.00>>	-0.11	0.00	-0.04	-0.00
156/	57/	ULS/110	-0.61	-0.00<<	1.53	-0.00	0.40	0.00
156/	57/	ULS/112	131.56	-0.00	1.75>>	-0.00	-0.32	0.00
156/	58/	ULS/165	-152.03	-0.00	-0.34<<	-0.00	0.75	0.00
156/	57/	7	-0.04	0.00	-0.11	0.00>>	-0.04	-0.00
156/	57/	ULS/110	-0.61	-0.00	1.53	-0.00<<	0.40	0.00
156/	58/	ULS/111	-133.09	-0.00	0.16	-0.00	1.12>>	0.00
156/	57/	ULS/163	150.72	-0.00	1.29	-0.00	-0.56<<	0.00
156/	58/	ULS/110	-0.66	-0.00	1.06	-0.00	1.12	0.00>>
156/	58/	7	-0.04	0.00	-0.11	0.00	-0.10	-0.00<<
157/	58/	ULS/163	133.82>>	-0.00	1.43	-0.00	-0.55	0.00
157/	59/	ULS/120	-153.29<<	-0.00	-0.33	-0.00	0.97	0.00
157/	58/	7	1.54	0.00>>	-0.10	0.00	-0.04	-0.00
157/	58/		-19.03	-0.00<<	1.43	-0.00	0.48	0.00

	ULS/110						
157/	58/ ULS/112	109.11	-0.00	1.83>>	-0.00	-0.28	0.00
157/	59/ ULS/135	-149.52	-0.00	-0.58<<	-0.00	0.73	0.00
157/	58/ 7	1.54	0.00	-0.10	0.00>>	-0.04	-0.00
157/	58/ ULS/110	-19.03	-0.00	1.43	-0.00<<	0.48	0.00
157/	59/ ULS/110	-19.07	-0.00	0.95	-0.00	1.14>>	0.00
157/	58/ ULS/163	133.82	-0.00	1.43	-0.00	-0.55<<	0.00
157/	59/ ULS/110	-19.07	-0.00	0.95	-0.00	1.14	0.00>>
157/	59/ 7	1.54	0.00	-0.10	0.00	-0.10	-0.00<<
158/	59/ ULS/163	115.17>>	-0.00	1.54	-0.00	-0.52	0.00
158/	13/ ULS/120	-150.39<<	-0.00	-0.59	-0.00	0.88	0.00
158/	59/ 7	2.91	0.00>>	-0.09	0.00	-0.05	-0.00
158/	59/ ULS/110	-35.11	-0.00<<	1.27	-0.00	0.57	0.00
158/	59/ ULS/118	106.18	-0.00	1.87>>	-0.00	-0.38	0.00
158/	13/ ULS/135	-143.26	-0.00	-0.81<<	-0.00	0.64	0.00
158/	59/ 7	2.91	0.00	-0.09	0.00>>	-0.05	-0.00
158/	59/ ULS/110	-35.11	-0.00	1.27	-0.00<<	0.57	0.00
158/	13/ ULS/110	-35.15	-0.00	0.79	-0.00	1.14>>	0.00
158/	59/ ULS/163	115.17	-0.00	1.54	-0.00	-0.52<<	0.00
158/	13/ ULS/110	-35.15	-0.00	0.79	-0.00	1.14	0.00>>
158/	13/ 7	2.91	0.00	-0.09	0.00	-0.10	-0.00<<
159/	17/ ULS/110	616.92>>	0.00	7.58	-0.00	3.26	0.00
159/	17/ 7	-51.50<<	-0.00	-0.69	0.00	-0.26	-0.00
159/	17/ ULS/110	616.92	0.00>>	7.58	-0.00	3.26	0.00
159/	17/ 7	-51.50	-0.00<<	-0.69	0.00	-0.26	-0.00
159/	17/ ULS/110	616.92	0.00	7.58>>	-0.00	3.26	0.00
159/	62/ ULS/111	587.87	0.00	-4.48<<	-0.00	5.85	0.00
159/	17/ 7	-51.50	-0.00	-0.69	0.00>>	-0.26	-0.00
159/	17/ ULS/110	616.92	0.00	7.58	-0.00<<	3.26	0.00
159/	62/ ULS/111	587.87	0.00	-4.48	-0.00	5.85>>	0.00
159/	17/ ULS/163	76.21	0.00	1.26	-0.00	-1.96<<	0.00
159/	17/ ULS/110	616.92	0.00	7.58	-0.00	3.26	0.00>>
159/	17/ 7	-51.50	-0.00	-0.69	0.00	-0.26	-0.00<<
160/	62/ ULS/110	634.47>>	0.00	7.29	-0.00	3.61	0.00
160/	62/ 7	-53.00<<	-0.00	-0.65	0.00	-0.30	-0.00
160/	62/ ULS/110	634.47	0.00>>	7.29	-0.00	3.61	0.00
160/	62/ 7	-53.00	-0.00<<	-0.65	0.00	-0.30	-0.00
160/	62/ ULS/110	634.47	0.00	7.29>>	-0.00	3.61	0.00
160/	61/ ULS/111	591.93	0.00	-5.08<<	-0.00	5.76	0.00
160/	62/ 7	-53.00	-0.00	-0.65	0.00>>	-0.30	-0.00
160/	62/ ULS/110	634.47	0.00	7.29	-0.00<<	3.61	0.00

160/	61/ ULS/111	591.93	0.00	-5.08	-0.00	5.76>>	0.00
160/	62/ ULS/163	92.75	0.00	1.71	-0.00	-1.88<<	0.00
160/	62/ ULS/110	634.47	0.00	7.29	-0.00	3.61	0.00>>
160/	62/ 7	-53.00	-0.00	-0.65	0.00	-0.30	-0.00<<
161/	61/ ULS/110	649.72>>	0.00	7.55	-0.00	3.86	0.00
161/	61/ 7	-54.31<<	-0.00	-0.67	0.00	-0.32	-0.00
161/	61/ ULS/110	649.72	0.00>>	7.55	-0.00	3.86	0.00
161/	61/ 7	-54.31	-0.00<<	-0.67	0.00	-0.32	-0.00
161/	61/ ULS/110	649.72	0.00	7.55>>	-0.00	3.86	0.00
161/	60/ ULS/111	592.11	0.00	-4.99<<	-0.00	5.83	0.00
161/	61/ 7	-54.31	-0.00	-0.67	0.00>>	-0.32	-0.00
161/	61/ ULS/110	649.72	0.00	7.55	-0.00<<	3.86	0.00
161/	60/ ULS/111	592.11	0.00	-4.99	-0.00	5.83>>	0.00
161/	61/ ULS/163	111.03	0.00	1.95	-0.00	-1.62<<	0.00
161/	61/ ULS/110	649.72	0.00	7.55	-0.00	3.86	0.00>>
161/	61/ 7	-54.31	-0.00	-0.67	0.00	-0.32	-0.00<<
162/	60/ ULS/110	662.64>>	0.00	6.89	-0.00	4.31	0.00
162/	60/ 7	-55.41<<	-0.00	-0.61	0.00	-0.36	-0.00
162/	60/ ULS/110	662.64	0.00>>	6.89	-0.00	4.31	0.00
162/	60/ 7	-55.41	-0.00<<	-0.61	0.00	-0.36	-0.00
162/	60/ ULS/110	662.64	0.00	6.89>>	-0.00	4.31	0.00
162/	18/ ULS/111	588.33	0.00	-5.76<<	-0.00	5.58	0.00
162/	60/ 7	-55.41	-0.00	-0.61	0.00>>	-0.36	-0.00
162/	60/ ULS/110	662.64	0.00	6.89	-0.00<<	4.31	0.00
162/	60/ ULS/111	589.16	0.00	5.27	-0.00	5.72>>	0.00
162/	60/ ULS/163	131.06	0.00	2.04	-0.00	-1.29<<	0.00
162/	60/ ULS/110	662.64	0.00	6.89	-0.00	4.31	0.00>>
162/	60/ 7	-55.41	-0.00	-0.61	0.00	-0.36	-0.00<<
163/	101/ ULS/163	24.23>>	-0.00	-1.41	-0.00	-0.24	0.00
163/	72/ ULS/111	-100.66<<	-0.00	0.95	-0.00	0.72	-0.00
163/	72/ 7	6.23	0.00>>	0.03	0.00	-0.09	0.00
163/	72/ ULS/110	-74.74	-0.00<<	-0.11	-0.00	1.06	-0.00
163/	72/ ULS/135	-83.51	-0.00	1.20>>	-0.00	0.37	-0.00
163/	101/ ULS/118	5.10	-0.00	-1.57<<	-0.00	-0.01	0.00
163/	72/ 7	6.23	0.00	0.03	0.00>>	-0.09	0.00
163/	72/ ULS/110	-74.74	-0.00	-0.11	-0.00<<	1.06	-0.00
163/	101/ ULS/111	-100.65	-0.00	0.47	-0.00	1.11>>	0.00
163/	101/ ULS/163	24.23	-0.00	-1.41	-0.00	-0.24<<	0.00
163/	101/ ULS/110	-74.73	-0.00	-0.59	-0.00	0.87	0.00>>
163/	72/ ULS/110	-74.74	-0.00	-0.11	-0.00	1.06	-0.00<<

164/	103/ ULS/163	49.20>>	-0.00	-1.96	-0.00	-0.39	0.00
164/	101/ ULS/120	-117.67<<	-0.00	1.43	-0.00	0.52	-0.00
164/	101/ 7	5.75	0.00>>	0.05	0.00	-0.10	0.00
164/	101/ ULS/110	-68.76	-0.00<<	-0.35	-0.00	1.13	-0.00
164/	101/ ULS/135	-103.60	-0.00	1.55>>	-0.00	0.29	-0.00
164/	103/ ULS/118	31.60	-0.00	-2.17<<	-0.00	-0.19	0.00
164/	101/ 7	5.75	0.00	0.05	0.00>>	-0.10	0.00
164/	101/ ULS/110	-68.76	-0.00	-0.35	-0.00<<	1.13	-0.00
164/	103/ ULS/111	-116.02	-0.00	0.68	-0.00	1.18>>	0.00
164/	103/ ULS/163	49.20	-0.00	-1.96	-0.00	-0.39<<	0.00
164/	103/ ULS/110	-68.74	-0.00	-0.83	-0.00	0.80	0.00>>
164/	101/ ULS/110	-68.76	-0.00	-0.35	-0.00	1.13	-0.00<<
165/	105/ ULS/163	72.84>>	-0.00	-1.71	-0.00	-0.43	0.00
165/	103/ ULS/120	-132.62<<	-0.00	1.01	-0.00	0.71	-0.00
165/	103/ 7	5.02	0.00>>	0.06	0.00	-0.10	0.00
165/	103/ ULS/110	-60.05	-0.00<<	-0.53	-0.00	1.15	-0.00
165/	103/ ULS/135	-120.32	-0.00	1.17>>	-0.00	0.47	-0.00
165/	105/ ULS/118	57.48	-0.00	-1.97<<	-0.00	-0.25	0.00
165/	103/ 7	5.02	0.00	0.06	0.00>>	-0.10	0.00
165/	103/ ULS/110	-60.05	-0.00	-0.53	-0.00<<	1.15	-0.00
165/	103/ ULS/110	-60.05	-0.00	-0.53	-0.00	1.15>>	-0.00
165/	105/ ULS/163	72.84	-0.00	-1.71	-0.00	-0.43<<	0.00
165/	105/ ULS/110	-60.02	-0.00	-1.01	-0.00	0.72	0.00>>
165/	103/ ULS/110	-60.05	-0.00	-0.53	-0.00	1.15	-0.00<<
166/	13/ ULS/163	94.83>>	-0.00	-1.63	-0.00	-0.48	0.00
166/	105/ ULS/120	-143.43<<	-0.00	0.80	-0.00	0.80	-0.00
166/	105/ 7	4.07	0.00>>	0.08	0.00	-0.10	0.00
166/	105/ ULS/110	-48.75	-0.00<<	-0.67	-0.00	1.15	-0.00
166/	105/ ULS/135	-133.46	-0.00	0.98>>	-0.00	0.56	-0.00
166/	13/ ULS/118	82.36	-0.00	-1.93<<	-0.00	-0.31	0.00
166/	105/ 7	4.07	0.00	0.08	0.00>>	-0.10	0.00
166/	105/ ULS/110	-48.75	-0.00	-0.67	-0.00<<	1.15	-0.00
166/	105/ ULS/110	-48.75	-0.00	-0.67	-0.00	1.15>>	-0.00
166/	13/ ULS/163	94.83	-0.00	-1.63	-0.00	-0.48<<	0.00
166/	105/ 7	4.07	0.00	0.08	0.00	-0.10	0.00>>
166/	105/ ULS/110	-48.75	-0.00	-0.67	-0.00	1.15	-0.00<<
167/	100/ ULS/110	690.60>>	0.00	-7.03	-0.00	5.13	-0.00
167/	100/ 7	-57.72<<	-0.00	0.62	0.00	-0.43	0.00
167/	76/	690.38	0.00>>	4.00	-0.00	5.96	0.00

	ULS/110						
167/	76/ 7	-57.70	-0.00<<	-0.37	0.00	-0.49	-0.00
167/	76/ ULS/120	461.63	0.00	8.96>>	-0.00	2.65	0.00
167/	100/ ULS/112	484.46	0.00	-7.80<<	-0.00	2.42	-0.00
167/	76/ 7	-57.70	-0.00	-0.37	0.00>>	-0.49	-0.00
167/	76/ ULS/110	690.38	0.00	4.00	-0.00<<	5.96	0.00
167/	76/ ULS/110	690.38	0.00	4.00	-0.00	5.96>>	0.00
167/	76/ 7	-57.70	-0.00	-0.37	0.00	-0.49<<	-0.00
167/	76/ ULS/110	690.38	0.00	4.00	-0.00	5.96	0.00>>
167/	100/ ULS/110	690.60	0.00	-7.03	-0.00	5.13	-0.00<<
168/	102/ ULS/110	687.33>>	0.00	-6.39	-0.00	5.05	-0.00
168/	102/ 7	-57.46<<	-0.00	0.57	0.00	-0.42	0.00
168/	100/ ULS/110	686.94	0.00>>	4.64	-0.00	5.53	0.00
168/	100/ 7	-57.43	-0.00<<	-0.42	0.00	-0.46	-0.00
168/	100/ ULS/111	554.01	0.00	6.86>>	-0.00	4.80	0.00
168/	102/ ULS/110	687.33	0.00	-6.39<<	-0.00	5.05	-0.00
168/	100/ 7	-57.43	-0.00	-0.42	0.00>>	-0.46	-0.00
168/	100/ ULS/110	686.94	0.00	4.64	-0.00<<	5.53	0.00
168/	102/ ULS/111	554.39	0.00	-4.18	-0.00	5.54>>	-0.00
168/	102/ 10	-36.19	-0.00	0.21	0.00	-0.50<<	0.00
168/	100/ ULS/110	686.94	0.00	4.64	-0.00	5.53	0.00>>
168/	102/ ULS/110	687.33	0.00	-6.39	-0.00	5.05	-0.00<<
169/	104/ ULS/110	681.64>>	0.00	-6.77	-0.00	4.84	-0.00
169/	104/ 7	-57.00<<	-0.00	0.60	0.00	-0.40	0.00
169/	102/ ULS/110	681.12	0.00>>	4.27	-0.00	5.53	0.00
169/	102/ 7	-56.95	-0.00<<	-0.39	0.00	-0.46	-0.00
169/	102/ ULS/111	569.38	0.00	6.15>>	-0.00	5.30	0.00
169/	104/ ULS/110	681.64	0.00	-6.77<<	-0.00	4.84	-0.00
169/	102/ 7	-56.95	-0.00	-0.39	0.00>>	-0.46	-0.00
169/	102/ ULS/110	681.12	0.00	4.27	-0.00<<	5.53	0.00
169/	104/ ULS/111	569.90	0.00	-4.88	-0.00	5.64>>	-0.00
169/	104/ ULS/163	176.12	0.00	-2.35	-0.00	-0.56<<	-0.00
169/	104/ 7	-57.00	-0.00	0.60	0.00	-0.40	0.00>>
169/	104/ ULS/110	681.64	0.00	-6.77	-0.00	4.84	-0.00<<
170/	18/ ULS/110	673.35>>	0.00	-7.21	-0.00	4.45	-0.00
170/	18/ 7	-56.31<<	-0.00	0.64	0.00	-0.37	0.00
170/	104/ ULS/110	672.69	0.00>>	3.82	-0.00	5.39	-0.00
170/	104/ 7	-56.25	-0.00<<	-0.35	0.00	-0.45	0.00
170/	104/ ULS/111	580.85	0.00	5.62>>	-0.00	5.53	-0.00
170/	18/ ULS/110	673.35	0.00	-7.21<<	-0.00	4.45	-0.00
170/	104/ 7	-56.25	-0.00	-0.35	0.00>>	-0.45	0.00
170/	104/ ULS/110	672.69	0.00	3.82	-0.00<<	5.39	-0.00

170/	18/ ULS/111	581.51	0.00	-5.41	-0.00	5.59>>	-0.00
170/	18/ ULS/163	152.75	0.00	-2.29	-0.00	-0.96<<	-0.00
170/	18/ 7	-56.31	-0.00	0.64	0.00	-0.37	0.00>>
170/	18/ ULS/110	673.35	0.00	-7.21	-0.00	4.45	-0.00<<
175/	98/ 10	7.18>>	0.00	-0.30	0.00	0.02	0.00
175/	98/ ULS/111	-82.47<<	-0.00	1.36	-0.00	0.66	-0.00
175/	98/ 7	6.50	0.00>>	0.12	0.00	-0.14	0.00
175/	98/ ULS/110	-78.22	-0.00<<	-1.27	-0.00	1.70	-0.00
175/	98/ ULS/165	-57.20	-0.00	2.17>>	-0.00	-0.05	-0.00
175/	72/ ULS/118	-20.99	-0.00	-3.78<<	-0.00	-0.21	0.00
175/	98/ 7	6.50	0.00	0.12	0.00>>	-0.14	0.00
175/	98/ ULS/110	-78.22	-0.00	-1.27	-0.00<<	1.70	-0.00
175/	98/ ULS/112	-33.32	-0.00	-3.14	-0.00	1.85>>	-0.00
175/	72/ ULS/163	-0.97	-0.00	-3.33	-0.00	-0.43<<	0.00
175/	72/ ULS/110	-78.21	-0.00	-1.75	-0.00	0.87	0.00>>
175/	98/ ULS/110	-78.22	-0.00	-1.27	-0.00	1.70	-0.00<<
180/	76/ ULS/110	687.89>>	0.00	-9.67	-0.00	5.69	-0.00
180/	76/ 7	-57.46<<	-0.00	0.84	0.00	-0.47	0.00
180/	99/ ULS/110	687.81	0.00>>	1.36	-0.00	7.98	0.00
180/	99/ 7	-57.45	-0.00<<	-0.15	0.00	-0.66	-0.00
180/	99/ ULS/141	473.43	0.00	2.17>>	-0.00	5.30	0.00
180/	76/ ULS/110	687.89	0.00	-9.67<<	-0.00	5.69	-0.00
180/	99/ 7	-57.45	-0.00	-0.15	0.00>>	-0.66	-0.00
180/	99/ ULS/110	687.81	0.00	1.36	-0.00<<	7.98	0.00
180/	99/ ULS/110	687.81	0.00	1.36	-0.00	7.98>>	0.00
180/	99/ 7	-57.45	-0.00	-0.15	0.00	-0.66<<	-0.00
180/	99/ ULS/110	687.81	0.00	1.36	-0.00	7.98	0.00>>
180/	76/ ULS/110	687.89	0.00	-9.67	-0.00	5.69	-0.00<<
181/	149/ ULS/110	95.00>>	-0.00	21.50	-0.00	-23.27	-0.00
181/	149/ 7	-7.90<<	0.00	-1.78	0.00	1.93	0.00
181/	149/ 7	-7.90	0.00>>	-1.78	0.00	1.93	0.00
181/	149/ ULS/110	95.00	-0.00<<	21.50	-0.00	-23.27	-0.00
181/	149/ ULS/110	95.00	-0.00	21.50>>	-0.00	-23.27	-0.00
181/	149/ 7	-7.90	0.00	-1.78<<	0.00	1.93	0.00
181/	149/ 7	-7.90	0.00	-1.78	0.00>>	1.93	0.00
181/	149/ ULS/110	95.00	-0.00	21.50	-0.00<<	-23.27	-0.00
181/	150/ ULS/110	94.44	-0.00	21.50	-0.00	6.42>>	0.00
181/	149/ ULS/110	95.00	-0.00	21.50	-0.00	-23.27<<	-0.00
181/	150/ ULS/110	94.44	-0.00	21.50	-0.00	6.42	0.00>>
181/	149/ ULS/110	95.00	-0.00	21.50	-0.00	-23.27	-0.00<<
183/	149/	236.23>>	-0.00	14.43	0.00	-20.06	-0.00

	ULS/110						
183/	149/ 7	-19.72<<	0.00	-1.23	-0.00	1.69	0.00
183/	149/ 7	-19.72	0.00>>	-1.23	-0.00	1.69	0.00
183/	149/ ULS/110	236.23	-0.00<<	14.43	0.00	-20.06	-0.00
183/	149/ ULS/110	236.23	-0.00	14.43>>	0.00	-20.06	-0.00
183/	149/ 7	-19.72	0.00	-1.23<<	-0.00	1.69	0.00
183/	149/ ULS/110	236.23	-0.00	14.43	0.00>>	-20.06	-0.00
183/	149/ 7	-19.72	0.00	-1.23	-0.00<<	1.69	0.00
183/	153/ ULS/110	235.60	-0.00	14.20	0.00	3.77>>	0.00
183/	149/ ULS/110	236.23	-0.00	14.43	0.00	-20.06<<	-0.00
183/	153/ ULS/110	235.60	-0.00	14.20	0.00	3.77	0.00>>
183/	149/ ULS/110	236.23	-0.00	14.43	0.00	-20.06	-0.00<<
185/	150/ 7	3.31>>	-0.00	0.20	-0.00	-0.02	-0.00
185/	153/ ULS/110	-40.79<<	0.00	-3.37	0.00	-1.48	-0.00
185/	150/ ULS/110	-40.62	0.00>>	-2.88	0.00	0.35	0.00
185/	150/ 7	3.31	-0.00<<	0.20	-0.00	-0.02	-0.00
185/	150/ 7	3.31	-0.00	0.20>>	-0.00	-0.02	-0.00
185/	153/ ULS/110	-40.79	0.00	-3.37<<	0.00	-1.48	-0.00
185/	150/ ULS/110	-40.62	0.00	-2.88	0.00>>	0.35	0.00
185/	150/ 7	3.31	-0.00	0.20	-0.00<<	-0.02	-0.00
185/	150/ ULS/110	-40.62	0.00	-2.88	0.00	0.35>>	0.00
185/	153/ ULS/110	-40.79	0.00	-3.37	0.00	-1.48<<	-0.00
185/	150/ ULS/110	-40.62	0.00	-2.88	0.00	0.35	0.00>>
185/	153/ ULS/110	-40.79	0.00	-3.37	0.00	-1.48	-0.00<<
186/	153/ ULS/110	572.44>>	-0.00	-0.72	-0.00	-0.52	-0.00
186/	153/ 7	-48.04<<	0.00	0.03	0.00	0.07	0.00
186/	153/ 7	-48.04	0.00>>	0.03	0.00	0.07	0.00
186/	153/ ULS/110	572.44	-0.00<<	-0.72	-0.00	-0.52	-0.00
186/	153/ ULS/163	200.56	-0.00	1.81>>	-0.00	-1.01	-0.00
186/	172/ ULS/120	367.69	-0.00	-3.32<<	-0.00	-1.07	-0.00
186/	153/ 7	-48.04	0.00	0.03	0.00>>	0.07	0.00
186/	153/ ULS/110	572.44	-0.00	-0.72	-0.00<<	-0.52	-0.00
186/	153/ ULS/135	250.16	-0.00	-2.78	-0.00	0.88>>	-0.00
186/	153/ ULS/148	318.25	-0.00	1.74	-0.00	-1.18<<	-0.00
186/	153/ 7	-48.04	0.00	0.03	0.00	0.07	0.00>>
186/	153/ ULS/110	572.44	-0.00	-0.72	-0.00	-0.52	-0.00<<
189/	158/ ULS/110	0.33>>	0.00	0.93	-0.00	-0.00	0.00
189/	159/ ULS/63	-0.08<<	0.00	-0.23	-0.00	0.01	-0.00
189/	158/ ULS/110	0.33	0.00>>	0.93	-0.00	-0.00	0.00
189/	158/ 7	-0.02	-0.00<<	-0.06	0.00	0.00	-0.00
189/	158/ ULS/110	0.33	0.00	0.93>>	-0.00	-0.00	0.00
189/	159/	-0.08	0.00	-0.23<<	-0.00	0.01	-0.00

	ULS/63						
189/	158/ 7	-0.02	-0.00	-0.06	0.00>>	0.00	-0.00
189/	158/ ULS/110	0.33	0.00	0.93	-0.00<<	-0.00	0.00
189/	159/ ULS/110	0.16	0.00	0.45	-0.00	0.40>>	-0.00
189/	159/ 7	-0.02	-0.00	-0.06	0.00	-0.04<<	0.00
189/	158/ ULS/110	0.33	0.00	0.93	-0.00	-0.00	0.00>>
189/	159/ ULS/110	0.16	0.00	0.45	-0.00	0.40	-0.00<<
190/	161/ 7	0.59>>	0.00	0.58	0.00	0.04	-0.00
190/	161/ ULS/110	-6.83<<	-0.00	-6.48	-0.00	-0.51	0.00
190/	160/ 7	0.23	0.00>>	-0.41	0.00	-0.00	-0.00
190/	160/ ULS/110	-2.88	-0.00<<	4.55	-0.00	0.06	0.00
190/	160/ ULS/110	-2.88	-0.00	4.55>>	-0.00	0.06	0.00
190/	161/ ULS/112	-6.76	-0.00	-6.56<<	-0.00	-0.55	0.00
190/	160/ 7	0.23	0.00	-0.41	0.00>>	-0.00	-0.00
190/	160/ ULS/110	-2.88	-0.00	4.55	-0.00<<	0.06	0.00
190/	160/ ULS/112	-2.81	-0.00	4.47	-0.00	0.06>>	0.00
190/	161/ ULS/112	-6.76	-0.00	-6.56	-0.00	-0.55<<	0.00
190/	161/ ULS/110	-6.83	-0.00	-6.48	-0.00	-0.51	0.00>>
190/	161/ 7	0.59	0.00	0.58	0.00	0.04	-0.00<<
191/	158/ 7	0.06>>	0.00	-0.00	-0.00	-0.00	0.00
191/	160/ ULS/110	-1.06<<	-0.00	0.00	0.00	0.01	0.00
191/	158/ 7	0.06	0.00>>	-0.00	-0.00	-0.00	0.00
191/	158/ ULS/110	-0.99	-0.00<<	0.00	0.00	0.00	-0.00
191/	158/ ULS/148	-0.79	-0.00	0.01>>	0.00	0.00	-0.00
191/	158/ ULS/135	-0.35	-0.00	-0.00<<	0.00	0.00	-0.00
191/	158/ ULS/110	-0.99	-0.00	0.00	0.00>>	0.00	-0.00
191/	158/ 7	0.06	0.00	-0.00	-0.00<<	-0.00	0.00
191/	160/ ULS/112	-1.02	-0.00	0.01	0.00	0.01>>	0.00
191/	160/ 8	-0.03	-0.00	-0.00	0.00	-0.00<<	0.00
191/	160/ ULS/110	-1.06	-0.00	0.00	0.00	0.01	0.00>>
191/	158/ ULS/110	-0.99	-0.00	0.00	0.00	0.00	-0.00<<
192/	159/ ULS/110	6.15>>	0.00	0.15	0.00	0.09	-0.00
192/	160/ 7	-0.52<<	-0.00	-0.01	-0.00	0.00	-0.00
192/	160/ ULS/110	6.09	0.00>>	0.20	0.00	-0.05	0.00
192/	160/ 7	-0.52	-0.00<<	-0.01	-0.00	0.00	-0.00
192/	160/ ULS/110	6.09	0.00	0.20>>	0.00	-0.05	0.00
192/	160/ 7	-0.52	-0.00	-0.01<<	-0.00	0.00	-0.00
192/	160/ ULS/110	6.09	0.00	0.20	0.00>>	-0.05	0.00
192/	160/ 7	-0.52	-0.00	-0.01	-0.00<<	0.00	-0.00
192/	159/ ULS/110	6.15	0.00	0.15	0.00	0.09>>	-0.00
192/	160/ ULS/110	6.09	0.00	0.20	0.00	-0.05<<	0.00
192/	160/ ULS/110	6.09	0.00	0.20	0.00	-0.05	0.00>>

192/	159/ ULS/110	6.15	0.00	0.15	0.00	0.09	-0.00<<
193/	150/ ULS/110	81.80>>	0.00	-3.47	0.00	1.54	0.00
193/	150/ 7	-6.81<<	-0.00	0.29	-0.00	-0.13	-0.00
193/	150/ ULS/110	81.80	0.00>>	-3.47	0.00	1.54	0.00
193/	150/ 7	-6.81	-0.00<<	0.29	-0.00	-0.13	-0.00
193/	150/ 7	-6.81	-0.00	0.29>>	-0.00	-0.13	-0.00
193/	150/ ULS/110	81.80	0.00	-3.47<<	0.00	1.54	0.00
193/	150/ ULS/110	81.80	0.00	-3.47	0.00>>	1.54	0.00
193/	150/ 7	-6.81	-0.00	0.29	-0.00<<	-0.13	-0.00
193/	150/ ULS/110	81.80	0.00	-3.47	0.00	1.54>>	0.00
193/	162/ ULS/110	81.65	0.00	-3.47	0.00	-1.20<<	-0.00
193/	150/ ULS/110	81.80	0.00	-3.47	0.00	1.54	0.00>>
193/	162/ ULS/110	81.65	0.00	-3.47	0.00	-1.20	-0.00<<
194/	163/ ULS/112	68.55>>	0.00	-2.28	0.00	0.87	0.00
194/	163/ 11	-6.17<<	-0.00	0.19	-0.00	-0.07	-0.00
194/	163/ ULS/110	64.09	0.00>>	-2.33	0.00	0.87	0.00
194/	163/ 7	-5.46	-0.00<<	0.20	-0.00	-0.07	-0.00
194/	163/ 7	-5.46	-0.00	0.20>>	-0.00	-0.07	-0.00
194/	163/ ULS/110	64.09	0.00	-2.33<<	0.00	0.87	0.00
194/	163/ ULS/110	64.09	0.00	-2.33	0.00>>	0.87	0.00
194/	163/ 7	-5.46	-0.00	0.20	-0.00<<	-0.07	-0.00
194/	163/ ULS/112	68.55	0.00	-2.28	0.00	0.87>>	0.00
194/	164/ ULS/110	64.02	0.00	-2.33	0.00	-0.93<<	-0.00
194/	163/ ULS/110	64.09	0.00	-2.33	0.00	0.87	0.00>>
194/	164/ ULS/110	64.02	0.00	-2.33	0.00	-0.93	-0.00<<
195/	165/ ULS/110	48.04>>	0.00	-2.06	0.00	0.78	0.00
195/	165/ 7	-4.04<<	-0.00	0.17	-0.00	-0.07	-0.00
195/	165/ ULS/110	48.04	0.00>>	-2.06	0.00	0.78	0.00
195/	165/ 7	-4.04	-0.00<<	0.17	-0.00	-0.07	-0.00
195/	165/ 7	-4.04	-0.00	0.17>>	-0.00	-0.07	-0.00
195/	165/ ULS/110	48.04	0.00	-2.06<<	0.00	0.78	0.00
195/	165/ ULS/110	48.04	0.00	-2.06	0.00>>	0.78	0.00
195/	165/ 7	-4.04	-0.00	0.17	-0.00<<	-0.07	-0.00
195/	165/ ULS/110	48.04	0.00	-2.06	0.00	0.78>>	0.00
195/	166/ ULS/110	47.97	0.00	-2.06	0.00	-0.79<<	-0.00
195/	165/ ULS/110	48.04	0.00	-2.06	0.00	0.78	0.00>>
195/	166/ ULS/110	47.97	0.00	-2.06	0.00	-0.79	-0.00<<
196/	167/ ULS/110	28.37>>	0.00	-1.54	0.00	0.59	0.00
196/	167/ 7	-2.50<<	-0.00	0.13	-0.00	-0.05	-0.00
196/	167/ ULS/110	28.37	0.00>>	-1.54	0.00	0.59	0.00
196/	167/ 7	-2.50	-0.00<<	0.13	-0.00	-0.05	-0.00
196/	167/ 7	-2.50	-0.00	0.13>>	-0.00	-0.05	-0.00

196/	167/ ULS/110	28.37	0.00	-1.54<<	0.00	0.59	0.00
196/	167/ ULS/110	28.37	0.00	-1.54	0.00>>	0.59	0.00
196/	167/ 7	-2.50	-0.00	0.13	-0.00<<	-0.05	-0.00
196/	167/ ULS/110	28.37	0.00	-1.54	0.00	0.59>>	0.00
196/	168/ ULS/110	28.30	0.00	-1.54	0.00	-0.58<<	-0.00
196/	167/ ULS/110	28.37	0.00	-1.54	0.00	0.59	0.00>>
196/	168/ ULS/110	28.30	0.00	-1.54	0.00	-0.58	-0.00<<
197/	169/ ULS/120	29.83>>	0.00	-1.59	0.00	0.59	0.00
197/	170/ ULS/163	-14.95<<	-0.00	0.46	0.00	0.19	0.00
197/	169/ ULS/111	29.12	0.00>>	-1.61	0.00	0.60	0.00
197/	169/ ULS/163	-14.90	-0.00<<	0.46	0.00	-0.16	-0.00
197/	169/ ULS/163	-14.90	-0.00	0.46>>	0.00	-0.16	-0.00
197/	169/ ULS/111	29.12	0.00	-1.61<<	0.00	0.60	0.00
197/	169/ ULS/110	15.59	0.00	-1.15	0.00>>	0.44	0.00
197/	169/ 7	-1.37	-0.00	0.10	-0.00<<	-0.04	-0.00
197/	169/ ULS/111	29.12	0.00	-1.61	0.00	0.60>>	0.00
197/	170/ ULS/111	29.05	0.00	-1.61	0.00	-0.61<<	-0.00
197/	169/ ULS/111	29.12	0.00	-1.61	0.00	0.60	0.00>>
197/	170/ ULS/111	29.05	0.00	-1.61	0.00	-0.61	-0.00<<
198/	153/ ULS/112	107.80>>	0.00	-11.53	-0.00	4.43	0.00
198/	153/ 11	-9.99<<	-0.00	0.85	0.00	-0.31	-0.00
198/	153/ ULS/110	96.71	0.00>>	-12.65	-0.00	4.95	0.00
198/	153/ 7	-8.22	-0.00<<	1.02	0.00	-0.40	-0.00
198/	153/ 7	-8.22	-0.00	1.02>>	0.00	-0.40	-0.00
198/	153/ ULS/110	96.71	0.00	-12.65<<	-0.00	4.95	0.00
198/	153/ 7	-8.22	-0.00	1.02	0.00>>	-0.40	-0.00
198/	153/ ULS/110	96.71	0.00	-12.65	-0.00<<	4.95	0.00
198/	153/ ULS/110	96.71	0.00	-12.65	-0.00	4.95>>	0.00
198/	171/ ULS/110	96.55	0.00	-12.65	-0.00	-5.04<<	-0.00
198/	153/ ULS/110	96.71	0.00	-12.65	-0.00	4.95	0.00>>
198/	171/ ULS/110	96.55	0.00	-12.65	-0.00	-5.04	-0.00<<
199/	172/ ULS/112	71.71>>	0.00	-2.39	0.00	0.87	0.00
199/	173/ ULS/165	-7.98<<	-0.00	0.05	0.00	-0.01	-0.00
199/	172/ ULS/112	71.71	0.00>>	-2.39	0.00	0.87	0.00
199/	172/ 11	-6.89	-0.00<<	0.22	-0.00	-0.08	-0.00
199/	172/ 11	-6.89	-0.00	0.22>>	-0.00	-0.08	-0.00
199/	172/ ULS/112	71.71	0.00	-2.39<<	0.00	0.87	0.00
199/	172/ ULS/110	61.95	0.00	-2.23	0.00>>	0.79	0.00
199/	172/ 7	-5.32	-0.00	0.19	-0.00<<	-0.07	-0.00

199/	172/ ULS/112	71.71	0.00	-2.39	0.00	0.87>>	0.00
199/	173/ ULS/112	71.64	0.00	-2.39	0.00	-1.01<<	-0.00
199/	172/ ULS/112	71.71	0.00	-2.39	0.00	0.87	0.00>>
199/	173/ ULS/112	71.64	0.00	-2.39	0.00	-1.01	-0.00<<
200/	174/ ULS/112	79.11>>	0.00	-2.46	0.00	0.93	0.00
200/	174/ 11	-7.41<<	-0.00	0.21	-0.00	-0.08	-0.00
200/	174/ ULS/112	79.11	0.00>>	-2.46	0.00	0.93	0.00
200/	174/ 11	-7.41	-0.00<<	0.21	-0.00	-0.08	-0.00
200/	174/ 11	-7.41	-0.00	0.21>>	-0.00	-0.08	-0.00
200/	174/ ULS/112	79.11	0.00	-2.46<<	0.00	0.93	0.00
200/	174/ ULS/110	70.24	0.00	-2.39	0.00>>	0.89	0.00
200/	174/ 7	-6.00	-0.00	0.20	-0.00<<	-0.08	-0.00
200/	174/ ULS/112	79.11	0.00	-2.46	0.00	0.93>>	0.00
200/	175/ ULS/112	79.03	0.00	-2.46	0.00	-0.99<<	-0.00
200/	174/ ULS/112	79.11	0.00	-2.46	0.00	0.93	0.00>>
200/	175/ ULS/112	79.03	0.00	-2.46	0.00	-0.99	-0.00<<
201/	176/ ULS/112	73.88>>	0.00	-2.39	0.00	0.91	0.00
201/	176/ 11	-6.82<<	-0.00	0.20	-0.00	-0.08	-0.00
201/	176/ ULS/112	73.88	0.00>>	-2.39	0.00	0.91	0.00
201/	176/ 11	-6.82	-0.00<<	0.20	-0.00	-0.08	-0.00
201/	176/ 11	-6.82	-0.00	0.20>>	-0.00	-0.08	-0.00
201/	176/ ULS/112	73.88	0.00	-2.39<<	0.00	0.91	0.00
201/	176/ ULS/110	66.97	0.00	-2.36	0.00>>	0.88	0.00
201/	176/ 7	-5.71	-0.00	0.20	-0.00<<	-0.07	-0.00
201/	176/ ULS/112	73.88	0.00	-2.39	0.00	0.91>>	0.00
201/	177/ ULS/110	66.90	0.00	-2.36	0.00	-0.96<<	-0.00
201/	176/ ULS/112	73.88	0.00	-2.39	0.00	0.91	0.00>>
201/	177/ ULS/110	66.90	0.00	-2.36	0.00	-0.96	-0.00<<
202/	167/ 9	0.31>>	0.00	0.13	0.00	-0.11	0.00
202/	167/ ULS/111	-3.56<<	0.00	-0.60	0.00	0.52	0.00
202/	167/ ULS/110	-3.10	0.00>>	-0.41	0.00	0.35	0.00
202/	167/ 7	0.08	-0.00<<	0.04	-0.00	-0.03	-0.00
202/	167/ ULS/163	-1.14	0.00	0.20>>	0.00	-0.17	0.00
202/	156/ ULS/111	-3.47	0.00	-0.60<<	0.00	-0.51	-0.00
202/	167/ ULS/110	-3.10	0.00	-0.41	0.00>>	0.35	0.00
202/	167/ 7	0.08	-0.00	0.04	-0.00<<	-0.03	-0.00
202/	167/ ULS/111	-3.56	0.00	-0.60	0.00	0.52>>	0.00
202/	156/ ULS/111	-3.47	0.00	-0.60	0.00	-0.51<<	-0.00
202/	167/ ULS/110	-3.10	0.00	-0.41	0.00	0.35	0.00>>
202/	156/ ULS/110	-3.01	0.00	-0.41	0.00	-0.35	-0.00<<

203/	162/	7	7.62>>	0.00	0.51	0.00	-0.17	-0.00
203/	162/	ULS/110	-92.12<<	-0.00	-6.51	-0.00	2.13	0.00
203/	162/	7	7.62	0.00>>	0.51	0.00	-0.17	-0.00
203/	162/	ULS/110	-92.12	-0.00<<	-6.51	-0.00	2.13	0.00
203/	162/	7	7.62	0.00	0.51>>	0.00	-0.17	-0.00
203/	153/	ULS/110	-92.00	-0.00	-6.62<<	-0.00	-3.25	0.00
203/	162/	7	7.62	0.00	0.51	0.00>>	-0.17	-0.00
203/	162/	ULS/110	-92.12	-0.00	-6.51	-0.00<<	2.13	0.00
203/	162/	ULS/110	-92.12	-0.00	-6.51	-0.00	2.13>>	0.00
203/	153/	ULS/110	-92.00	-0.00	-6.62	-0.00	-3.25<<	0.00
203/	153/	ULS/110	-92.00	-0.00	-6.62	-0.00	-3.25	0.00>>
203/	153/	7	7.62	0.00	0.51	0.00	0.25	-0.00<<
204/	172/	ULS/165	8.85>>	0.00	0.36	0.00	0.14	-0.00
204/	171/	ULS/112	-71.17<<	0.00	-0.85	0.00	0.29	0.00
204/	171/	ULS/110	-59.97	0.00>>	-0.51	0.00	0.13	0.00
204/	171/	7	5.05	-0.00<<	0.05	-0.00	-0.01	-0.00
204/	171/	ULS/165	8.81	0.00	0.40>>	0.00	-0.18	0.00
204/	172/	ULS/118	-68.19	0.00	-0.91<<	0.00	-0.43	-0.00
204/	171/	ULS/110	-59.97	0.00	-0.51	0.00>>	0.13	0.00
204/	171/	7	5.05	-0.00	0.05	-0.00<<	-0.01	-0.00
204/	171/	ULS/118	-68.24	0.00	-0.86	0.00	0.30>>	0.00
204/	172/	ULS/112	-71.12	0.00	-0.90	0.00	-0.43<<	-0.00
204/	171/	ULS/110	-59.97	0.00	-0.51	0.00	0.13	0.00>>
204/	172/	ULS/110	-59.92	0.00	-0.56	0.00	-0.31	-0.00<<
205/	174/	ULS/165	10.10>>	0.00	0.30	0.00	0.09	-0.00
205/	173/	ULS/112	-78.67<<	0.00	-1.42	0.00	0.57	0.00
205/	173/	ULS/110	-66.39	0.00>>	-1.08	0.00	0.41	0.00
205/	173/	7	5.64	-0.00<<	0.09	-0.00	-0.04	-0.00
205/	173/	ULS/165	10.05	0.00	0.34>>	0.00	-0.17	0.00
205/	174/	ULS/112	-78.62	0.00	-1.47<<	0.00	-0.62	-0.00
205/	173/	ULS/110	-66.39	0.00	-1.08	0.00>>	0.41	0.00
205/	173/	7	5.64	-0.00	0.09	-0.00<<	-0.04	-0.00
205/	173/	ULS/112	-78.67	0.00	-1.42	0.00	0.57>>	0.00
205/	174/	ULS/112	-78.62	0.00	-1.47	0.00	-0.62<<	-0.00
205/	173/	ULS/110	-66.39	0.00	-1.08	0.00	0.41	0.00>>
205/	174/	ULS/110	-66.33	0.00	-1.13	0.00	-0.51	-0.00<<
206/	176/	ULS/165	7.45>>	0.00	0.26	0.00	0.08	-0.00
206/	175/	ULS/112	-74.86<<	0.00	-1.34	0.00	0.56	0.00
206/	175/	ULS/110	-64.86	0.00>>	-1.05	0.00	0.40	0.00

206/	175/	7	5.49	-0.00<<	0.09	-0.00	-0.04	-0.00
206/	175/	ULS/165	7.40	0.00	0.30>>	0.00	-0.16	0.00
206/	176/	ULS/112	-74.80	0.00	-1.40<<	0.00	-0.58	-0.00
206/	175/	ULS/110	-64.86	0.00	-1.05	0.00>>	0.40	0.00
206/	175/	7	5.49	-0.00	0.09	-0.00<<	-0.04	-0.00
206/	175/	ULS/112	-74.86	0.00	-1.34	0.00	0.56>>	0.00
206/	176/	ULS/112	-74.80	0.00	-1.40	0.00	-0.58<<	-0.00
206/	175/	ULS/110	-64.86	0.00	-1.05	0.00	0.40	0.00>>
206/	176/	ULS/110	-64.80	0.00	-1.10	0.00	-0.49	-0.00<<
207/	177/	11	6.56>>	-0.00	0.13	-0.00	-0.06	-0.00
207/	177/	ULS/112	-70.59<<	0.00	-1.26	0.00	0.54	0.00
207/	177/	ULS/110	-62.67	0.00>>	-1.02	0.00	0.40	0.00
207/	177/	7	5.30	-0.00<<	0.09	-0.00	-0.03	-0.00
207/	177/	ULS/165	5.06	0.00	0.24>>	0.00	-0.13	0.00
207/	163/	ULS/112	-70.53	0.00	-1.31<<	0.00	-0.54	-0.00
207/	177/	ULS/110	-62.67	0.00	-1.02	0.00>>	0.40	0.00
207/	177/	7	5.30	-0.00	0.09	-0.00<<	-0.03	-0.00
207/	177/	ULS/112	-70.59	0.00	-1.26	0.00	0.54>>	0.00
207/	163/	ULS/112	-70.53	0.00	-1.31	0.00	-0.54<<	-0.00
207/	177/	ULS/110	-62.67	0.00	-1.02	0.00	0.40	0.00>>
207/	163/	ULS/110	-62.61	0.00	-1.07	0.00	-0.47	-0.00<<
208/	178/	ULS/112	63.25>>	0.00	-2.18	0.00	0.84	0.00
208/	178/	11	-5.55<<	-0.00	0.17	-0.00	-0.07	-0.00
208/	178/	ULS/110	60.93	0.00>>	-2.29	0.00	0.86	0.00
208/	178/	7	-5.18	-0.00<<	0.19	-0.00	-0.07	-0.00
208/	178/	7	-5.18	-0.00	0.19>>	-0.00	-0.07	-0.00
208/	178/	ULS/110	60.93	0.00	-2.29<<	0.00	0.86	0.00
208/	178/	ULS/110	60.93	0.00	-2.29	0.00>>	0.86	0.00
208/	178/	7	-5.18	-0.00	0.19	-0.00<<	-0.07	-0.00
208/	178/	ULS/110	60.93	0.00	-2.29	0.00	0.86>>	0.00
208/	179/	ULS/110	60.86	0.00	-2.29	0.00	-0.91<<	-0.00
208/	178/	ULS/110	60.93	0.00	-2.29	0.00	0.86	0.00>>
208/	179/	ULS/110	60.86	0.00	-2.29	0.00	-0.91	-0.00<<
209/	180/	ULS/110	58.02>>	0.00	-2.24	0.00	0.85	0.00
209/	180/	7	-4.92<<	-0.00	0.19	-0.00	-0.07	-0.00
209/	180/	ULS/110	58.02	0.00>>	-2.24	0.00	0.85	0.00
209/	180/	7	-4.92	-0.00<<	0.19	-0.00	-0.07	-0.00
209/	180/	7	-4.92	-0.00	0.19>>	-0.00	-0.07	-0.00
209/	180/	ULS/110	58.02	0.00	-2.24<<	0.00	0.85	0.00
209/	180/	ULS/110	58.02	0.00	-2.24	0.00>>	0.85	0.00
209/	180/	7	-4.92	-0.00	0.19	-0.00<<	-0.07	-0.00

209/	180/ ULS/110	58.02	0.00	-2.24	0.00	0.85>>	0.00
209/	181/ ULS/110	57.94	0.00	-2.24	0.00	-0.88<<	-0.00
209/	180/ ULS/110	58.02	0.00	-2.24	0.00	0.85	0.00>>
209/	181/ ULS/110	57.94	0.00	-2.24	0.00	-0.88	-0.00<<
210/	182/ ULS/110	54.09>>	0.00	-2.18	0.00	0.83	0.00
210/	182/ 7	-4.58<<	-0.00	0.18	-0.00	-0.07	-0.00
210/	182/ ULS/110	54.09	0.00>>	-2.18	0.00	0.83	0.00
210/	182/ 7	-4.58	-0.00<<	0.18	-0.00	-0.07	-0.00
210/	182/ 7	-4.58	-0.00	0.18>>	-0.00	-0.07	-0.00
210/	182/ ULS/110	54.09	0.00	-2.18<<	0.00	0.83	0.00
210/	182/ ULS/110	54.09	0.00	-2.18	0.00>>	0.83	0.00
210/	182/ 7	-4.58	-0.00	0.18	-0.00<<	-0.07	-0.00
210/	182/ ULS/110	54.09	0.00	-2.18	0.00	0.83>>	0.00
210/	183/ ULS/110	54.02	0.00	-2.18	0.00	-0.85<<	-0.00
210/	182/ ULS/110	54.09	0.00	-2.18	0.00	0.83	0.00>>
210/	183/ ULS/110	54.02	0.00	-2.18	0.00	-0.85	-0.00<<
211/	184/ ULS/110	51.48>>	0.00	-2.13	0.00	0.81	0.00
211/	184/ 7	-4.34<<	-0.00	0.18	-0.00	-0.07	-0.00
211/	184/ ULS/110	51.48	0.00>>	-2.13	0.00	0.81	0.00
211/	184/ 7	-4.34	-0.00<<	0.18	-0.00	-0.07	-0.00
211/	184/ 7	-4.34	-0.00	0.18>>	-0.00	-0.07	-0.00
211/	184/ ULS/110	51.48	0.00	-2.13<<	0.00	0.81	0.00
211/	184/ ULS/110	51.48	0.00	-2.13	0.00>>	0.81	0.00
211/	184/ 7	-4.34	-0.00	0.18	-0.00<<	-0.07	-0.00
211/	184/ ULS/110	51.48	0.00	-2.13	0.00	0.81>>	0.00
211/	185/ ULS/110	51.41	0.00	-2.13	0.00	-0.82<<	-0.00
211/	184/ ULS/110	51.48	0.00	-2.13	0.00	0.81	0.00>>
211/	185/ ULS/110	51.41	0.00	-2.13	0.00	-0.82	-0.00<<
212/	164/ 11	6.02>>	-0.00	0.12	-0.00	-0.05	0.00
212/	164/ ULS/112	-66.48<<	0.00	-1.17	0.00	0.51	-0.00
212/	164/ ULS/110	-61.02	0.00>>	-0.98	0.00	0.40	-0.00
212/	164/ 7	5.14	-0.00<<	0.09	-0.00	-0.03	0.00
212/	164/ ULS/165	2.25	0.00	0.17>>	0.00	-0.11	-0.00
212/	178/ ULS/112	-66.42	0.00	-1.22<<	0.00	-0.49	-0.00
212/	164/ ULS/110	-61.02	0.00	-0.98	0.00>>	0.40	-0.00
212/	164/ 7	5.14	-0.00	0.09	-0.00<<	-0.03	0.00
212/	164/ ULS/112	-66.48	0.00	-1.17	0.00	0.51>>	-0.00
212/	178/ ULS/112	-66.42	0.00	-1.22	0.00	-0.49<<	-0.00
212/	178/ 7	5.14	-0.00	0.09	-0.00	0.04	0.00>>
212/	178/ ULS/110	-60.96	0.00	-1.03	0.00	-0.44	-0.00<<
213/	179/ 11	5.44>>	-0.00	0.10	-0.00	-0.05	0.00

213/	179/ ULS/112	-61.89<<	0.00	-1.08	0.00	0.49	-0.00
213/	179/ ULS/110	-58.69	0.00>>	-0.95	0.00	0.40	-0.00
213/	179/ 7	4.93	-0.00<<	0.08	-0.00	-0.03	0.00
213/	179/ ULS/165	-0.30	0.00	0.11>>	0.00	-0.08	-0.00
213/	180/ ULS/112	-61.83	0.00	-1.13<<	0.00	-0.44	-0.00
213/	179/ ULS/110	-58.69	0.00	-0.95	0.00>>	0.40	-0.00
213/	179/ 7	4.93	-0.00	0.08	-0.00<<	-0.03	0.00
213/	179/ ULS/112	-61.89	0.00	-1.08	0.00	0.49>>	-0.00
213/	180/ ULS/112	-61.83	0.00	-1.13	0.00	-0.44<<	-0.00
213/	180/ 7	4.93	-0.00	0.08	-0.00	0.04	0.00>>
213/	180/ ULS/110	-58.63	0.00	-1.00	0.00	-0.42	-0.00<<
214/	181/ 11	4.82>>	-0.00	0.09	-0.00	-0.04	0.00
214/	181/ ULS/112	-56.99<<	0.00	-0.98	0.00	0.46	-0.00
214/	181/ ULS/110	-56.38	0.00>>	-0.90	0.00	0.39	-0.00
214/	181/ 7	4.72	-0.00<<	0.08	-0.00	-0.03	0.00
214/	181/ 11	4.82	-0.00	0.09>>	-0.00	-0.04	0.00
214/	182/ ULS/112	-56.94	0.00	-1.03<<	0.00	-0.40	-0.00
214/	181/ ULS/110	-56.38	0.00	-0.90	0.00>>	0.39	-0.00
214/	181/ 7	4.72	-0.00	0.08	-0.00<<	-0.03	0.00
214/	181/ ULS/112	-56.99	0.00	-0.98	0.00	0.46>>	-0.00
214/	182/ ULS/112	-56.94	0.00	-1.03	0.00	-0.40<<	-0.00
214/	182/ 7	4.72	-0.00	0.08	-0.00	0.03	0.00>>
214/	182/ ULS/110	-56.32	0.00	-0.95	0.00	-0.39	-0.00<<
215/	183/ 7	4.50>>	-0.00	0.07	-0.00	-0.03	0.00
215/	183/ ULS/110	-53.92<<	0.00	-0.86	0.00	0.38	-0.00
215/	183/ ULS/110	-53.92	0.00>>	-0.86	0.00	0.38	-0.00
215/	183/ 7	4.50	-0.00<<	0.07	-0.00	-0.03	0.00
215/	183/ 11	4.27	-0.00	0.08>>	-0.00	-0.04	0.00
215/	184/ ULS/112	-52.38	0.00	-0.94<<	0.00	-0.35	-0.00
215/	183/ ULS/110	-53.92	0.00	-0.86	0.00>>	0.38	-0.00
215/	183/ 7	4.50	-0.00	0.07	-0.00<<	-0.03	0.00
215/	183/ ULS/112	-52.44	0.00	-0.89	0.00	0.43>>	-0.00
215/	184/ ULS/110	-53.86	0.00	-0.91	0.00	-0.37<<	-0.00
215/	184/ 7	4.50	-0.00	0.07	-0.00	0.03	0.00>>
215/	184/ ULS/110	-53.86	0.00	-0.91	0.00	-0.37	-0.00<<
216/	185/ 7	4.29>>	-0.00	0.07	-0.00	-0.03	0.00
216/	185/ ULS/110	-51.60<<	0.00	-0.81	0.00	0.37	-0.00
216/	185/ ULS/110	-51.60	0.00>>	-0.81	0.00	0.37	-0.00
216/	185/ 7	4.29	-0.00<<	0.07	-0.00	-0.03	0.00
216/	185/ 7	4.29	-0.00	0.07>>	-0.00	-0.03	0.00
216/	165/ ULS/110	-51.54	0.00	-0.86<<	0.00	-0.34	-0.00
216/	185/ ULS/110	-51.60	0.00	-0.81	0.00>>	0.37	-0.00
216/	185/ 7	4.29	-0.00	0.07	-0.00<<	-0.03	0.00

216/	185/ ULS/112	-47.54	0.00	-0.79	0.00	0.40>>	-0.00
216/	165/ ULS/110	-51.54	0.00	-0.86	0.00	-0.34<<	-0.00
216/	165/ 7	4.29	-0.00	0.07	-0.00	0.03	0.00>>
216/	165/ ULS/110	-51.54	0.00	-0.86	0.00	-0.34	-0.00<<
217/	186/ ULS/110	44.80>>	0.00	-1.99	0.00	0.76	0.00
217/	186/ 7	-3.76<<	-0.00	0.17	-0.00	-0.06	-0.00
217/	186/ ULS/110	44.80	0.00>>	-1.99	0.00	0.76	0.00
217/	186/ 7	-3.76	-0.00<<	0.17	-0.00	-0.06	-0.00
217/	186/ 7	-3.76	-0.00	0.17>>	-0.00	-0.06	-0.00
217/	186/ ULS/110	44.80	0.00	-1.99<<	0.00	0.76	0.00
217/	186/ ULS/110	44.80	0.00	-1.99	0.00>>	0.76	0.00
217/	186/ 7	-3.76	-0.00	0.17	-0.00<<	-0.06	-0.00
217/	186/ ULS/110	44.80	0.00	-1.99	0.00	0.76>>	0.00
217/	187/ ULS/110	44.73	0.00	-1.99	0.00	-0.76<<	-0.00
217/	186/ ULS/110	44.80	0.00	-1.99	0.00	0.76	0.00>>
217/	187/ ULS/110	44.73	0.00	-1.99	0.00	-0.76	-0.00<<
218/	188/ ULS/110	41.58>>	0.00	-1.91	0.00	0.73	0.00
218/	188/ 7	-3.48<<	-0.00	0.16	-0.00	-0.06	-0.00
218/	188/ ULS/110	41.58	0.00>>	-1.91	0.00	0.73	0.00
218/	188/ 7	-3.48	-0.00<<	0.16	-0.00	-0.06	-0.00
218/	188/ 7	-3.48	-0.00	0.16>>	-0.00	-0.06	-0.00
218/	188/ ULS/110	41.58	0.00	-1.91<<	0.00	0.73	0.00
218/	188/ ULS/110	41.58	0.00	-1.91	0.00>>	0.73	0.00
218/	188/ 7	-3.48	-0.00	0.16	-0.00<<	-0.06	-0.00
218/	188/ ULS/110	41.58	0.00	-1.91	0.00	0.73>>	0.00
218/	189/ ULS/110	41.51	0.00	-1.91	0.00	-0.72<<	-0.00
218/	188/ ULS/110	41.58	0.00	-1.91	0.00	0.73	0.00>>
218/	189/ ULS/110	41.51	0.00	-1.91	0.00	-0.72	-0.00<<
219/	190/ ULS/110	37.90>>	0.00	-1.81	0.00	0.69	0.00
219/	190/ 7	-3.15<<	-0.00	0.15	-0.00	-0.06	-0.00
219/	190/ ULS/110	37.90	0.00>>	-1.81	0.00	0.69	0.00
219/	190/ 7	-3.15	-0.00<<	0.15	-0.00	-0.06	-0.00
219/	190/ 7	-3.15	-0.00	0.15>>	-0.00	-0.06	-0.00
219/	190/ ULS/110	37.90	0.00	-1.81<<	0.00	0.69	0.00
219/	190/ ULS/110	37.90	0.00	-1.81	0.00>>	0.69	0.00
219/	190/ 7	-3.15	-0.00	0.15	-0.00<<	-0.06	-0.00
219/	190/ ULS/110	37.90	0.00	-1.81	0.00	0.69>>	0.00
219/	191/ ULS/110	37.83	0.00	-1.81	0.00	-0.68<<	-0.00
219/	190/ ULS/110	37.90	0.00	-1.81	0.00	0.69	0.00>>
219/	191/ ULS/110	37.83	0.00	-1.81	0.00	-0.68	-0.00<<
220/	192/ ULS/110	34.18>>	0.00	-1.74	0.00	0.67	0.00

220/	192/	7	-2.85<<	-0.00	0.14	-0.00	-0.06	-0.00
220/	192/	ULS/110	34.18	0.00>>	-1.74	0.00	0.67	0.00
220/	192/	7	-2.85	-0.00<<	0.14	-0.00	-0.06	-0.00
220/	192/	7	-2.85	-0.00	0.14>>	-0.00	-0.06	-0.00
220/	192/	ULS/110	34.18	0.00	-1.74<<	0.00	0.67	0.00
220/	192/	ULS/110	34.18	0.00	-1.74	0.00>>	0.67	0.00
220/	192/	7	-2.85	-0.00	0.14	-0.00<<	-0.06	-0.00
220/	192/	ULS/110	34.18	0.00	-1.74	0.00	0.67>>	0.00
220/	193/	ULS/110	34.11	0.00	-1.74	0.00	-0.65<<	-0.00
220/	192/	ULS/110	34.18	0.00	-1.74	0.00	0.67	0.00>>
220/	193/	ULS/110	34.11	0.00	-1.74	0.00	-0.65	-0.00<<
221/	166/	7	4.03>>	-0.00	0.07	-0.00	-0.03	0.00
221/	166/	ULS/110	-48.60<<	0.00	-0.76	0.00	0.36	-0.00
221/	166/	ULS/110	-48.60	0.00>>	-0.76	0.00	0.36	-0.00
221/	166/	7	4.03	-0.00<<	0.07	-0.00	-0.03	0.00
221/	166/	7	4.03	-0.00	0.07>>	-0.00	-0.03	0.00
221/	186/	ULS/110	-48.53	0.00	-0.82<<	0.00	-0.32	-0.00
221/	166/	ULS/110	-48.60	0.00	-0.76	0.00>>	0.36	-0.00
221/	166/	7	4.03	-0.00	0.07	-0.00<<	-0.03	0.00
221/	166/	ULS/112	-42.31	0.00	-0.69	0.00	0.36>>	-0.00
221/	186/	ULS/110	-48.53	0.00	-0.82	0.00	-0.32<<	-0.00
221/	186/	7	4.03	-0.00	0.07	-0.00	0.03	0.00>>
221/	186/	ULS/110	-48.53	0.00	-0.82	0.00	-0.32	-0.00<<
222/	187/	7	3.80>>	-0.00	0.06	-0.00	-0.03	0.00
222/	187/	ULS/110	-46.15<<	0.00	-0.71	0.00	0.35	-0.00
222/	187/	ULS/110	-46.15	0.00>>	-0.71	0.00	0.35	-0.00
222/	187/	7	3.80	-0.00<<	0.06	-0.00	-0.03	0.00
222/	187/	7	3.80	-0.00	0.06>>	-0.00	-0.03	0.00
222/	188/	ULS/110	-46.09	0.00	-0.76<<	0.00	-0.29	-0.00
222/	187/	ULS/110	-46.15	0.00	-0.71	0.00>>	0.35	-0.00
222/	187/	7	3.80	-0.00	0.06	-0.00<<	-0.03	0.00
222/	187/	ULS/110	-46.15	0.00	-0.71	0.00	0.35>>	-0.00
222/	188/	ULS/110	-46.09	0.00	-0.76	0.00	-0.29<<	-0.00
222/	188/	7	3.80	-0.00	0.06	-0.00	0.02	0.00>>
222/	188/	ULS/110	-46.09	0.00	-0.76	0.00	-0.29	-0.00<<
223/	189/	7	3.49>>	-0.00	0.06	-0.00	-0.03	0.00
223/	189/	ULS/110	-42.59<<	0.00	-0.66	0.00	0.34	-0.00
223/	189/	ULS/110	-42.59	0.00>>	-0.66	0.00	0.34	-0.00
223/	189/	7	3.49	-0.00<<	0.06	-0.00	-0.03	0.00
223/	189/	7	3.49	-0.00	0.06>>	-0.00	-0.03	0.00
223/	190/	ULS/110	-42.53	0.00	-0.71<<	0.00	-0.26	-0.00
223/	189/	ULS/110	-42.59	0.00	-0.66	0.00>>	0.34	-0.00
223/	189/	7	3.49	-0.00	0.06	-0.00<<	-0.03	0.00
223/	189/		-42.59	0.00	-0.66	0.00	0.34>>	-0.00

	Uls/110						
223/	190/ Uls/110	-42.53	0.00	-0.71	0.00	-0.26<<	-0.00
223/	190/ 7	3.49	-0.00	0.06	-0.00	0.02	0.00>>
223/	190/ Uls/110	-42.53	0.00	-0.71	0.00	-0.26	-0.00<<
224/	191/ 7	3.26>>	-0.00	0.05	-0.00	-0.03	0.00
224/	191/ Uls/110	-39.86<<	0.00	-0.61	0.00	0.32	-0.00
224/	191/ Uls/110	-39.86	0.00>>	-0.61	0.00	0.32	-0.00
224/	191/ 7	3.26	-0.00<<	0.05	-0.00	-0.03	0.00
224/	191/ 7	3.26	-0.00	0.05>>	-0.00	-0.03	0.00
224/	192/ Uls/110	-39.80	0.00	-0.66<<	0.00	-0.23	-0.00
224/	191/ Uls/110	-39.86	0.00	-0.61	0.00>>	0.32	-0.00
224/	191/ 7	3.26	-0.00	0.05	-0.00<<	-0.03	0.00
224/	191/ Uls/110	-39.86	0.00	-0.61	0.00	0.32>>	-0.00
224/	192/ Uls/111	-33.14	0.00	-0.56	0.00	-0.24<<	-0.00
224/	192/ 7	3.26	-0.00	0.05	-0.00	0.02	0.00>>
224/	192/ Uls/110	-39.80	0.00	-0.66	0.00	-0.23	-0.00<<
225/	193/ 7	2.95>>	0.00	0.04	-0.00	-0.02	0.00
225/	193/ Uls/110	-36.35<<	-0.00	-0.49	0.00	0.29	-0.00
225/	193/ 7	2.95	0.00>>	0.04	-0.00	-0.02	0.00
225/	193/ Uls/110	-36.35	-0.00<<	-0.49	0.00	0.29	-0.00
225/	193/ 7	2.95	0.00	0.04>>	-0.00	-0.02	0.00
225/	167/ Uls/110	-36.29	-0.00	-0.54<<	0.00	-0.17	-0.00
225/	193/ Uls/110	-36.35	-0.00	-0.49	0.00>>	0.29	-0.00
225/	193/ 7	2.95	0.00	0.04	-0.00<<	-0.02	0.00
225/	193/ Uls/110	-36.35	-0.00	-0.49	0.00	0.29>>	-0.00
225/	167/ Uls/111	-33.77	-0.00	-0.48	0.00	-0.19<<	-0.00
225/	193/ 7	2.95	0.00	0.04	-0.00	-0.02	0.00>>
225/	193/ Uls/110	-36.35	-0.00	-0.49	0.00	0.29	-0.00<<
226/	195/ Uls/111	28.71>>	0.00	-1.52	0.00	-0.57	-0.00
226/	194/ 10	-2.71<<	-0.00	0.13	-0.00	-0.05	-0.00
226/	194/ Uls/111	28.64	0.00>>	-1.52	0.00	0.58	0.00
226/	194/ 10	-2.71	-0.00<<	0.13	-0.00	-0.05	-0.00
226/	194/ 10	-2.71	-0.00	0.13>>	-0.00	-0.05	-0.00
226/	194/ Uls/111	28.64	0.00	-1.52<<	0.00	0.58	0.00
226/	194/ Uls/110	25.76	0.00	-1.46	0.00>>	0.54	0.00
226/	194/ 7	-2.25	-0.00	0.13	-0.00<<	-0.05	-0.00
226/	194/ Uls/111	28.64	0.00	-1.52	0.00	0.58>>	0.00
226/	195/ Uls/111	28.71	0.00	-1.52	0.00	-0.57<<	-0.00
226/	194/ Uls/111	28.64	0.00	-1.52	0.00	0.58	0.00>>
226/	195/ Uls/111	28.71	0.00	-1.52	0.00	-0.57	-0.00<<
227/	197/ Uls/111	28.57>>	0.00	-1.55	0.00	-0.58	-0.00
227/	196/ Uls/163	-6.68<<	-0.00	0.14	0.00	-0.07	-0.00
227/	196/	28.50	0.00>>	-1.55	0.00	0.59	0.00

	Uls/111						
227/	196/ 10	-2.98	-0.00<<	0.15	-0.00	-0.06	-0.00
227/	196/ 10	-2.98	-0.00	0.15>>	-0.00	-0.06	-0.00
227/	196/ Uls/111	28.50	0.00	-1.55<<	0.00	0.59	0.00
227/	196/ Uls/110	21.97	0.00	-1.36	0.00>>	0.50	0.00
227/	196/ 7	-1.93	-0.00	0.12	-0.00<<	-0.04	-0.00
227/	196/ Uls/111	28.50	0.00	-1.55	0.00	0.59>>	0.00
227/	197/ Uls/111	28.57	0.00	-1.55	0.00	-0.58<<	-0.00
227/	196/ Uls/111	28.50	0.00	-1.55	0.00	0.59	0.00>>
227/	197/ Uls/111	28.57	0.00	-1.55	0.00	-0.58	-0.00<<
228/	199/ Uls/111	29.00>>	0.00	-1.58	0.00	-0.59	-0.00
228/	198/ Uls/163	-10.90<<	-0.00	0.30	0.00	-0.13	-0.00
228/	198/ Uls/111	28.93	0.00>>	-1.58	0.00	0.60	0.00
228/	198/ Uls/163	-10.90	-0.00<<	0.30	0.00	-0.13	-0.00
228/	198/ Uls/163	-10.90	-0.00	0.30>>	0.00	-0.13	-0.00
228/	198/ Uls/111	28.93	0.00	-1.58<<	0.00	0.60	0.00
228/	198/ Uls/110	18.84	0.00	-1.25	0.00>>	0.46	0.00
228/	198/ 7	-1.66	-0.00	0.11	-0.00<<	-0.04	-0.00
228/	198/ Uls/111	28.93	0.00	-1.58	0.00	0.60>>	0.00
228/	199/ Uls/111	29.00	0.00	-1.58	0.00	-0.59<<	-0.00
228/	198/ Uls/111	28.93	0.00	-1.58	0.00	0.60	0.00>>
228/	199/ Uls/111	29.00	0.00	-1.58	0.00	-0.59	-0.00<<
229/	168/ 10	2.78>>	-0.00	0.05	-0.00	-0.02	0.00
229/	168/ Uls/111	-31.72<<	0.00	-0.49	0.00	0.23	-0.00
229/	168/ Uls/110	-30.51	0.00>>	-0.45	0.00	0.27	-0.00
229/	168/ 7	2.59	-0.00<<	0.04	-0.00	-0.02	0.00
229/	168/ 10	2.78	-0.00	0.05>>	-0.00	-0.02	0.00
229/	195/ Uls/111	-31.65	0.00	-0.54<<	0.00	-0.22	-0.00
229/	168/ Uls/110	-30.51	0.00	-0.45	0.00>>	0.27	-0.00
229/	168/ 7	2.59	-0.00	0.04	-0.00<<	-0.02	0.00
229/	168/ Uls/110	-30.51	0.00	-0.45	0.00	0.27>>	-0.00
229/	195/ Uls/111	-31.65	0.00	-0.54	0.00	-0.22<<	-0.00
229/	195/ 7	2.59	-0.00	0.04	-0.00	0.01	0.00>>
229/	195/ Uls/110	-30.45	0.00	-0.50	0.00	-0.15	-0.00<<
230/	197/ Uls/163	5.18>>	0.00	0.09	0.00	0.11	-0.00
230/	194/ Uls/111	-32.65<<	0.00	-0.49	0.00	0.24	-0.00
230/	194/ Uls/110	-26.89	0.00>>	-0.38	0.00	0.25	-0.00
230/	194/ 7	2.30	-0.00<<	0.04	-0.00	-0.02	0.00
230/	194/ Uls/163	5.13	0.00	0.12>>	0.00	0.02	-0.00
230/	197/ Uls/111	-32.59	0.00	-0.54<<	0.00	-0.22	-0.00

230/	194/ ULS/110	-26.89	0.00	-0.38	0.00>>	0.25	-0.00
230/	194/ 7	2.30	-0.00	0.04	-0.00<<	-0.02	0.00
230/	194/ ULS/110	-26.89	0.00	-0.38	0.00	0.25>>	-0.00
230/	197/ ULS/120	-31.34	0.00	-0.52	0.00	-0.22<<	-0.00
230/	197/ 7	2.30	-0.00	0.04	-0.00	0.01	0.00>>
230/	197/ ULS/110	-26.82	0.00	-0.43	0.00	-0.11	-0.00<<
231/	199/ ULS/163	10.35>>	0.00	0.18	0.00	0.15	-0.00
231/	196/ ULS/111	-33.79<<	0.00	-0.51	0.00	0.26	-0.00
231/	196/ ULS/110	-23.60	0.00>>	-0.32	0.00	0.23	-0.00
231/	196/ 7	2.01	-0.00<<	0.03	-0.00	-0.02	0.00
231/	196/ ULS/163	10.31	0.00	0.21>>	0.00	-0.02	-0.00
231/	199/ ULS/111	-33.73	0.00	-0.56<<	0.00	-0.22	-0.00
231/	196/ ULS/110	-23.60	0.00	-0.32	0.00>>	0.23	-0.00
231/	196/ 7	2.01	-0.00	0.03	-0.00<<	-0.02	0.00
231/	196/ ULS/111	-33.79	0.00	-0.51	0.00	0.26>>	-0.00
231/	199/ ULS/120	-33.39	0.00	-0.56	0.00	-0.23<<	-0.00
231/	199/ 7	2.01	-0.00	0.03	-0.00	0.01	0.00>>
231/	199/ ULS/110	-23.53	0.00	-0.37	0.00	-0.08	-0.00<<
232/	169/ ULS/163	15.74>>	0.00	0.26	0.00	0.19	-0.00
232/	198/ ULS/120	-35.37<<	0.00	-0.54	0.00	0.26	-0.00
232/	198/ ULS/110	-19.98	0.00>>	-0.27	0.00	0.21	-0.00
232/	198/ 7	1.69	-0.00<<	0.03	-0.00	-0.02	0.00
232/	198/ ULS/163	15.69	0.00	0.30>>	0.00	-0.06	-0.00
232/	169/ ULS/120	-35.31	0.00	-0.59<<	0.00	-0.24	-0.00
232/	198/ ULS/110	-19.98	0.00	-0.27	0.00>>	0.21	-0.00
232/	198/ 7	1.69	-0.00	0.03	-0.00<<	-0.02	0.00
232/	198/ ULS/111	-34.77	0.00	-0.52	0.00	0.27>>	-0.00
232/	169/ ULS/120	-35.31	0.00	-0.59	0.00	-0.24<<	-0.00
232/	169/ 7	1.69	-0.00	0.03	-0.00	0.00	0.00>>
232/	169/ ULS/110	-19.91	0.00	-0.32	0.00	-0.06	-0.00<<
233/	159/ ULS/112	3.28>>	0.00	-3.79	-0.00	0.57	-0.00
233/	159/ 11	-0.27<<	-0.00	0.31	0.00	-0.05	0.00
233/	159/ ULS/110	3.27	0.00>>	-4.10	-0.00	0.60	-0.00
233/	159/ 7	-0.27	-0.00<<	0.36	0.00	-0.05	0.00
233/	159/ 7	-0.27	-0.00	0.36>>	0.00	-0.05	0.00
233/	200/ ULS/110	3.09	0.00	-4.58<<	-0.00	-1.95	-0.00
233/	159/ 7	-0.27	-0.00	0.36	0.00>>	-0.05	0.00
233/	159/ ULS/110	3.27	0.00	-4.10	-0.00<<	0.60	-0.00
233/	159/ ULS/110	3.27	0.00	-4.10	-0.00	0.60>>	-0.00
233/	200/ ULS/110	3.09	0.00	-4.58	-0.00	-1.95<<	-0.00
233/	200/ 7	-0.27	-0.00	0.36	0.00	0.16	0.00>>

233/	200/ ULS/110	3.09	0.00	-4.58	-0.00	-1.95	-0.00<<
234/	200/ 7	1.92>>	0.00	0.78	0.00	-0.23	0.00
234/	150/ ULS/110	-23.56<<	-0.00	-9.54	-0.00	-2.87	0.00
234/	200/ 7	1.92	0.00>>	0.78	0.00	-0.23	0.00
234/	200/ ULS/110	-23.39	-0.00<<	-9.04	-0.00	2.73	-0.00
234/	200/ 7	1.92	0.00	0.78>>	0.00	-0.23	0.00
234/	150/ ULS/110	-23.56	-0.00	-9.54<<	-0.00	-2.87	0.00
234/	200/ 7	1.92	0.00	0.78	0.00>>	-0.23	0.00
234/	200/ ULS/110	-23.39	-0.00	-9.04	-0.00<<	2.73	-0.00
234/	200/ ULS/110	-23.39	-0.00	-9.04	-0.00	2.73>>	-0.00
234/	150/ ULS/110	-23.56	-0.00	-9.54	-0.00	-2.87<<	0.00
234/	150/ ULS/110	-23.56	-0.00	-9.54	-0.00	-2.87	0.00>>
234/	200/ ULS/110	-23.39	-0.00	-9.04	-0.00	2.73	-0.00<<
235/	201/ 11	1.37>>	0.00	0.72	0.00	0.18	-0.00
235/	201/ ULS/112	-15.71<<	-0.00	-8.34	-0.00	-2.18	0.00
235/	161/ 7	0.97	0.00>>	-0.24	0.00	0.04	-0.00
235/	161/ ULS/110	-11.48	-0.00<<	2.47	-0.00	-0.49	0.00
235/	161/ ULS/112	-11.75	-0.00	2.69>>	-0.00	-0.53	0.00
235/	201/ ULS/110	-15.43	-0.00	-8.56<<	-0.00	-2.28	0.00
235/	161/ 7	0.97	0.00	-0.24	0.00>>	0.04	-0.00
235/	161/ ULS/110	-11.48	-0.00	2.47	-0.00<<	-0.49	0.00
235/	201/ 7	1.32	0.00	0.75	0.00	0.19>>	-0.00
235/	201/ ULS/110	-15.43	-0.00	-8.56	-0.00	-2.28<<	0.00
235/	201/ ULS/110	-15.43	-0.00	-8.56	-0.00	-2.28	0.00>>
235/	201/ 7	1.32	0.00	0.75	0.00	0.19	-0.00<<
236/	162/ 7	1.38>>	0.00	-0.11	-0.00	-0.04	-0.00
236/	162/ ULS/110	-15.86<<	-0.00	1.88	0.00	0.55	0.00
236/	201/ ULS/95	0.04	0.00>>	0.07	0.00	-0.06	0.00
236/	201/ ULS/110	-11.85	-0.00<<	13.25	0.00	-4.00	0.00
236/	201/ ULS/110	-11.85	-0.00	13.25>>	0.00	-4.00	0.00
236/	201/ 7	1.02	0.00	-1.13<<	-0.00	0.34	-0.00
236/	201/ ULS/110	-11.85	-0.00	13.25	0.00>>	-4.00	0.00
236/	201/ 7	1.02	0.00	-1.13	-0.00<<	0.34	-0.00
236/	162/ ULS/120	-5.87	-0.00	2.53	0.00	0.83>>	0.00
236/	201/ ULS/110	-11.85	-0.00	13.25	0.00	-4.00<<	0.00
236/	162/ ULS/110	-15.86	-0.00	1.88	0.00	0.55	0.00>>
236/	162/ 7	1.38	0.00	-0.11	-0.00	-0.04	-0.00<<
237/	159/ 8	0.16>>	-0.00	0.01	0.00	-0.00	-0.00
237/	161/ ULS/112	-1.59<<	-0.00	0.24	0.00	0.08	0.00
237/	159/ 7	0.07	0.00>>	-0.02	-0.00	0.01	0.00
237/	159/ ULS/110	-1.28	-0.00<<	0.25	0.00	-0.12	-0.00
237/	159/ ULS/110	-1.28	-0.00	0.25>>	0.00	-0.12	-0.00

237/	159/	7	0.07	0.00	-0.02<<	-0.00	0.01	0.00
237/	159/	ULS/110	-1.28	-0.00	0.25	0.00>>	-0.12	-0.00
237/	159/	7	0.07	0.00	-0.02	-0.00<<	0.01	0.00
237/	161/	ULS/110	-1.35	-0.00	0.25	0.00	0.09>>	0.00
237/	159/	ULS/110	-1.28	-0.00	0.25	0.00	-0.12<<	-0.00
237/	161/	ULS/110	-1.35	-0.00	0.25	0.00	0.09	0.00>>
237/	159/	ULS/110	-1.28	-0.00	0.25	0.00	-0.12	-0.00<<
238/	200/	ULS/112	12.31>>	0.00	-2.12	0.00	1.09	0.00
238/	201/	ULS/165	-1.40<<	0.00	-0.57	0.00	-0.16	-0.00
238/	200/	ULS/110	10.66	0.00>>	-2.44	0.00	1.25	0.00
238/	200/	7	-0.91	-0.00<<	0.20	-0.00	-0.10	-0.00
238/	200/	7	-0.91	-0.00	0.20>>	-0.00	-0.10	-0.00
238/	200/	ULS/110	10.66	0.00	-2.44<<	0.00	1.25	0.00
238/	200/	ULS/110	10.66	0.00	-2.44	0.00>>	1.25	0.00
238/	200/	7	-0.91	-0.00	0.20	-0.00<<	-0.10	-0.00
238/	200/	ULS/110	10.66	0.00	-2.44	0.00	1.25>>	0.00
238/	201/	ULS/110	10.50	0.00	-2.44	0.00	-0.69<<	-0.00
238/	200/	ULS/110	10.66	0.00	-2.44	0.00	1.25	0.00>>
238/	201/	ULS/110	10.50	0.00	-2.44	0.00	-0.69	-0.00<<
239/	200/	ULS/112	11.53>>	0.00	-0.33	0.00	-0.18	-0.00
239/	161/	11	-1.03<<	-0.00	0.02	-0.00	-0.00	-0.00
239/	161/	ULS/110	10.88	0.00>>	-0.32	0.00	0.07	0.00
239/	161/	7	-0.93	-0.00<<	0.03	-0.00	-0.01	-0.00
239/	161/	7	-0.93	-0.00	0.03>>	-0.00	-0.01	-0.00
239/	200/	ULS/110	10.93	0.00	-0.37<<	0.00	-0.21	-0.00
239/	161/	ULS/110	10.88	0.00	-0.32	0.00>>	0.07	0.00
239/	161/	7	-0.93	-0.00	0.03	-0.00<<	-0.01	-0.00
239/	161/	ULS/110	10.88	0.00	-0.32	0.00	0.07>>	0.00
239/	200/	ULS/110	10.93	0.00	-0.37	0.00	-0.21<<	-0.00
239/	161/	ULS/110	10.88	0.00	-0.32	0.00	0.07	0.00>>
239/	200/	ULS/110	10.93	0.00	-0.37	0.00	-0.21	-0.00<<
240/	150/	ULS/110	12.70>>	-0.00	-3.35	-0.00	-1.66	-0.00
240/	201/	7	-1.08<<	0.00	0.28	0.00	-0.09	0.00
240/	201/	7	-1.08	0.00>>	0.28	0.00	-0.09	0.00
240/	201/	ULS/110	12.59	-0.00<<	-3.24	-0.00	1.03	-0.00
240/	201/	7	-1.08	0.00	0.28>>	0.00	-0.09	0.00
240/	150/	ULS/110	12.70	-0.00	-3.35<<	-0.00	-1.66	-0.00
240/	201/	7	-1.08	0.00	0.28	0.00>>	-0.09	0.00
240/	201/	ULS/110	12.59	-0.00	-3.24	-0.00<<	1.03	-0.00
240/	201/	ULS/110	12.59	-0.00	-3.24	-0.00	1.03>>	-0.00
240/	150/	ULS/110	12.70	-0.00	-3.35	-0.00	-1.66<<	-0.00

240/	201/	7	-1.08	0.00	0.28	0.00	-0.09	0.00>>
240/	201/	ULS/110	12.59	-0.00	-3.24	-0.00	1.03	-0.00<<
241/	149/	ULS/112	20.87>>	0.00	-19.49	-0.00	20.27	0.00
241/	200/	ULS/165	-2.13<<	0.00	-5.38	-0.00	-1.34	-0.00
241/	149/	ULS/110	17.87	0.00>>	-22.66	-0.00	23.64	0.00
241/	149/	7	-1.45	-0.00<<	1.90	0.00	-1.97	-0.00
241/	149/	7	-1.45	-0.00	1.90>>	0.00	-1.97	-0.00
241/	200/	ULS/110	17.40	0.00	-22.88<<	-0.00	-6.13	-0.00
241/	149/	7	-1.45	-0.00	1.90	0.00>>	-1.97	-0.00
241/	149/	ULS/110	17.87	0.00	-22.66	-0.00<<	23.64	0.00
241/	149/	ULS/110	17.87	0.00	-22.66	-0.00	23.64>>	0.00
241/	200/	ULS/110	17.40	0.00	-22.88	-0.00	-6.13<<	-0.00
241/	149/	ULS/110	17.87	0.00	-22.66	-0.00	23.64	0.00>>
241/	149/	7	-1.45	-0.00	1.90	0.00	-1.97	-0.00<<
242/	202/	ULS/150	29.11>>	0.00	1.64	0.00	-0.63	0.00
242/	203/	ULS/133	-28.41<<	-0.00	-1.00	0.00	-0.37	0.00
242/	202/	ULS/120	29.11	0.00>>	1.68	0.00	-0.64	0.00
242/	202/	ULS/163	-28.33	-0.00<<	-1.03	0.00	0.39	-0.00
242/	202/	ULS/120	29.11	0.00	1.68>>	0.00	-0.64	0.00
242/	202/	ULS/163	-28.33	-0.00	-1.03<<	0.00	0.39	-0.00
242/	202/	ULS/110	0.97	0.00	0.65	0.00>>	-0.25	0.00
242/	202/	7	-0.10	-0.00	-0.05	-0.00<<	0.02	-0.00
242/	203/	ULS/120	29.04	0.00	1.68	0.00	0.61>>	-0.00
242/	202/	ULS/120	29.11	0.00	1.68	0.00	-0.64<<	0.00
242/	202/	ULS/120	29.11	0.00	1.68	0.00	-0.64	0.00>>
242/	203/	ULS/120	29.04	0.00	1.68	0.00	0.61	-0.00<<
243/	98/	ULS/118	49.02>>	0.00	0.62	0.00	0.38	-0.00
243/	203/	ULS/165	-44.38<<	0.00	-0.46	0.00	0.25	-0.00
243/	203/	ULS/110	5.08	0.00>>	0.20	0.00	0.04	-0.00
243/	203/	7	-0.48	-0.00<<	-0.01	-0.00	-0.00	0.00
243/	203/	ULS/118	48.95	0.00	0.67>>	0.00	-0.22	-0.00
243/	98/	ULS/165	-44.33	0.00	-0.49<<	0.00	-0.19	-0.00
243/	203/	ULS/110	5.08	0.00	0.20	0.00>>	0.04	-0.00
243/	203/	7	-0.48	-0.00	-0.01	-0.00<<	-0.00	0.00
243/	98/	ULS/118	49.02	0.00	0.62	0.00	0.38>>	-0.00
243/	203/	ULS/163	47.65	0.00	0.62	0.00	-0.23<<	-0.00
243/	98/	7	-0.48	-0.00	-0.01	-0.00	-0.02	0.00>>
243/	98/	ULS/110	5.15	0.00	0.15	0.00	0.19	-0.00<<
244/	205/	ULS/120	32.86>>	0.00	1.73	0.00	0.64	-0.00

244/	204/ ULS/163	-27.57<<	-0.00	-0.95	0.00	0.37	-0.00
244/	204/ ULS/120	32.79	0.00>>	1.73	0.00	-0.66	0.00
244/	204/ ULS/163	-27.57	-0.00<<	-0.95	0.00	0.37	-0.00
244/	204/ ULS/120	32.79	0.00	1.73>>	0.00	-0.66	0.00
244/	204/ ULS/163	-27.57	-0.00	-0.95<<	0.00	0.37	-0.00
244/	204/ ULS/110	5.53	0.00	0.78	0.00>>	-0.29	0.00
244/	204/ 7	-0.49	-0.00	-0.07	-0.00<<	0.02	-0.00
244/	205/ ULS/120	32.86	0.00	1.73	0.00	0.64>>	-0.00
244/	204/ ULS/120	32.79	0.00	1.73	0.00	-0.66<<	0.00
244/	204/ ULS/120	32.79	0.00	1.73	0.00	-0.66	0.00>>
244/	205/ ULS/120	32.86	0.00	1.73	0.00	0.64	-0.00<<
245/	207/ ULS/120	31.68>>	0.00	1.71	0.00	0.64	-0.00
245/	206/ ULS/163	-23.05<<	-0.00	-0.80	0.00	0.31	-0.00
245/	206/ ULS/120	31.61	0.00>>	1.71	0.00	-0.65	0.00
245/	206/ ULS/163	-23.05	-0.00<<	-0.80	0.00	0.31	-0.00
245/	206/ ULS/120	31.61	0.00	1.71>>	0.00	-0.65	0.00
245/	206/ ULS/163	-23.05	-0.00	-0.80<<	0.00	0.31	-0.00
245/	206/ ULS/110	9.01	0.00	0.91	0.00>>	-0.34	0.00
245/	206/ 7	-0.80	-0.00	-0.08	-0.00<<	0.03	-0.00
245/	207/ ULS/120	31.68	0.00	1.71	0.00	0.64>>	-0.00
245/	206/ ULS/120	31.61	0.00	1.71	0.00	-0.65<<	0.00
245/	206/ ULS/120	31.61	0.00	1.71	0.00	-0.65	0.00>>
245/	207/ ULS/120	31.68	0.00	1.71	0.00	0.64	-0.00<<
246/	209/ ULS/120	30.90>>	0.00	1.65	0.00	0.61	-0.00
246/	208/ ULS/163	-18.90<<	-0.00	-0.63	0.00	0.25	-0.00
246/	208/ ULS/120	30.83	0.00>>	1.65	0.00	-0.63	0.00
246/	208/ ULS/163	-18.90	-0.00<<	-0.63	0.00	0.25	-0.00
246/	208/ ULS/120	30.83	0.00	1.65>>	0.00	-0.63	0.00
246/	208/ ULS/163	-18.90	-0.00	-0.63<<	0.00	0.25	-0.00
246/	208/ ULS/110	12.50	0.00	1.04	0.00>>	-0.38	0.00
246/	208/ 7	-1.10	-0.00	-0.09	-0.00<<	0.03	-0.00
246/	209/ ULS/120	30.90	0.00	1.65	0.00	0.61>>	-0.00
246/	208/ ULS/120	30.83	0.00	1.65	0.00	-0.63<<	0.00
246/	208/ ULS/120	30.83	0.00	1.65	0.00	-0.63	0.00>>
246/	209/ ULS/120	30.90	0.00	1.65	0.00	0.61	-0.00<<
247/	202/ ULS/163	35.00>>	0.00	0.61	0.00	0.34	-0.00

247/	204/ ULS/120	-39.98<<	0.00	-0.67	0.00	0.36	-0.00
247/	204/ ULS/110	-4.72	0.00>>	-0.03	0.00	0.12	-0.00
247/	204/ 7	0.36	-0.00<<	0.00	-0.00	-0.01	0.00
247/	204/ ULS/133	34.62	0.00	0.65>>	0.00	-0.24	-0.00
247/	202/ ULS/120	-39.91	0.00	-0.72<<	0.00	-0.28	-0.00
247/	204/ ULS/110	-4.72	0.00	-0.03	0.00>>	0.12	-0.00
247/	204/ 7	0.36	-0.00	0.00	-0.00<<	-0.01	0.00
247/	204/ ULS/120	-39.98	0.00	-0.67	0.00	0.36>>	-0.00
247/	202/ ULS/165	-38.71	0.00	-0.69	0.00	-0.29<<	-0.00
247/	202/ 7	0.36	-0.00	0.00	-0.00	-0.01	0.00>>
247/	202/ ULS/110	-4.65	0.00	-0.09	0.00	0.06	-0.00<<
248/	205/ ULS/163	31.59>>	0.00	0.50	0.00	0.29	-0.00
248/	206/ ULS/120	-40.28<<	0.00	-0.61	0.00	0.33	-0.00
248/	206/ ULS/110	-8.57	0.00>>	-0.09	0.00	0.14	-0.00
248/	206/ 7	0.69	-0.00<<	0.01	-0.00	-0.01	0.00
248/	206/ ULS/133	31.05	0.00	0.54>>	0.00	-0.18	-0.00
248/	205/ ULS/120	-40.21	0.00	-0.66<<	0.00	-0.25	-0.00
248/	206/ ULS/110	-8.57	0.00	-0.09	0.00>>	0.14	-0.00
248/	206/ 7	0.69	-0.00	0.01	-0.00<<	-0.01	0.00
248/	206/ ULS/120	-40.28	0.00	-0.61	0.00	0.33>>	-0.00
248/	205/ ULS/165	-38.04	0.00	-0.62	0.00	-0.26<<	-0.00
248/	205/ 7	0.69	-0.00	0.01	-0.00	-0.00	0.00>>
248/	205/ ULS/110	-8.50	0.00	-0.14	0.00	0.04	-0.00<<
249/	207/ ULS/163	26.35>>	0.00	0.43	0.00	0.26	-0.00
249/	208/ ULS/120	-39.04<<	0.00	-0.60	0.00	0.31	-0.00
249/	208/ ULS/110	-12.71	0.00>>	-0.15	0.00	0.17	-0.00
249/	208/ 7	1.05	-0.00<<	0.02	-0.00	-0.01	0.00
249/	208/ ULS/163	26.30	0.00	0.47>>	0.00	-0.15	-0.00
249/	207/ ULS/120	-38.97	0.00	-0.65<<	0.00	-0.26	-0.00
249/	208/ ULS/110	-12.71	0.00	-0.15	0.00>>	0.17	-0.00
249/	208/ 7	1.05	-0.00	0.02	-0.00<<	-0.01	0.00
249/	208/ ULS/120	-39.04	0.00	-0.60	0.00	0.31>>	-0.00
249/	207/ ULS/135	-36.39	0.00	-0.61	0.00	-0.26<<	-0.00
249/	207/ 7	1.05	-0.00	0.02	-0.00	-0.00	0.00>>
249/	207/ ULS/110	-12.65	0.00	-0.20	0.00	0.00	-0.00<<
250/	209/ ULS/163	20.85>>	0.00	0.34	0.00	0.22	-0.00
250/	170/ ULS/120	-37.27<<	0.00	-0.57	0.00	0.29	-0.00
250/	170/ ULS/110	-16.61	0.00>>	-0.21	0.00	0.19	-0.00
250/	170/ 7	1.40	-0.00<<	0.02	-0.00	-0.02	0.00
250/	170/	20.80	0.00	0.38>>	0.00	-0.11	-0.00

	ULS/163						
250/	209/ ULS/120	-37.20	0.00	-0.62<<	0.00	-0.25	-0.00
250/	170/ ULS/110	-16.61	0.00	-0.21	0.00>>	0.19	-0.00
250/	170/ 7	1.40	-0.00	0.02	-0.00<<	-0.02	0.00
250/	170/ ULS/111	-35.77	0.00	-0.54	0.00	0.29>>	-0.00
250/	209/ ULS/120	-37.20	0.00	-0.62	0.00	-0.25<<	-0.00
250/	209/ 7	1.40	-0.00	0.02	-0.00	0.00	0.00>>
250/	209/ ULS/110	-16.54	0.00	-0.26	0.00	-0.03	-0.00<<
251/	152/ ULS/110	352.10>>	0.00	-15.51	0.00	54.35	0.00
251/	152/ 7	-27.39<<	-0.00	1.30	-0.00	-4.54	-0.00
251/	152/ ULS/110	352.10	0.00>>	-15.51	0.00	54.35	0.00
251/	152/ 7	-27.39	-0.00<<	1.30	-0.00	-4.54	-0.00
251/	152/ 7	-27.39	-0.00	1.30>>	-0.00	-4.54	-0.00
251/	152/ ULS/110	352.10	0.00	-15.51<<	0.00	54.35	0.00
251/	152/ ULS/110	352.10	0.00	-15.51	0.00>>	54.35	0.00
251/	152/ 7	-27.39	-0.00	1.30	-0.00<<	-4.54	-0.00
251/	152/ ULS/110	352.10	0.00	-15.51	0.00	54.35>>	0.00
251/	149/ ULS/110	328.79	0.00	-15.51	0.00	-66.96<<	-0.00
251/	152/ ULS/110	352.10	0.00	-15.51	0.00	54.35	0.00>>
251/	149/ ULS/110	328.79	0.00	-15.51	0.00	-66.96	-0.00<<
252/	153/ 7	49.91>>	0.00	-0.07	0.00	0.31	0.00
252/	156/ ULS/110	-596.82<<	-0.00	-0.28	-0.00	1.63	0.00
252/	153/ 7	49.91	0.00>>	-0.07	0.00	0.31	0.00
252/	153/ ULS/110	-596.82	-0.00<<	2.10	-0.00	-5.39	-0.00
252/	153/ ULS/110	-596.82	-0.00	2.10>>	-0.00	-5.39	-0.00
252/	156/ ULS/63	-42.84	-0.00	-1.07<<	-0.00	-0.99	0.00
252/	153/ 7	49.91	0.00	-0.07	0.00>>	0.31	0.00
252/	153/ ULS/110	-596.82	-0.00	2.10	-0.00<<	-5.39	-0.00
252/	156/ ULS/142	-410.81	-0.00	-0.03	-0.00	3.04>>	0.00
252/	153/ ULS/110	-596.82	-0.00	2.10	-0.00	-5.39<<	-0.00
252/	156/ ULS/110	-596.82	-0.00	-0.28	-0.00	1.63	0.00>>
252/	153/ ULS/110	-596.82	-0.00	2.10	-0.00	-5.39	-0.00<<
253/	156/ 7	49.94>>	-0.00	-0.02	0.00	-0.21	-0.00
253/	156/ ULS/110	-597.24<<	0.00	1.18	-0.00	1.28	0.00
253/	156/ ULS/110	-597.24	0.00>>	1.18	-0.00	1.28	0.00
253/	156/ 7	49.94	-0.00<<	-0.02	0.00	-0.21	-0.00
253/	156/ ULS/120	-373.55	0.00	1.65>>	-0.00	-2.20	0.00
253/	3/ ULS/133	-251.56	0.00	-1.05<<	-0.00	1.00	0.00
253/	156/ 7	49.94	-0.00	-0.02	0.00>>	-0.21	-0.00
253/	156/ ULS/110	-597.24	0.00	1.18	-0.00<<	1.28	0.00
253/	3/ ULS/110	-597.24	0.00	-0.34	-0.00	3.35>>	0.00

253/	156/ ULS/135	-251.19	0.00	1.59	-0.00	-2.71<<	0.00
253/	156/ ULS/110	-597.24	0.00	1.18	-0.00	1.28	0.00>>
253/	156/ 7	49.94	-0.00	-0.02	0.00	-0.21	-0.00<<
254/	172/ ULS/110	526.15>>	-0.00	3.80	-0.00	-2.17	-0.00
254/	172/ 7	-44.12<<	0.00	-0.29	0.00	0.18	0.00
254/	172/ 7	-44.12	0.00>>	-0.29	0.00	0.18	0.00
254/	172/ ULS/110	526.15	-0.00<<	3.80	-0.00	-2.17	-0.00
254/	172/ ULS/112	358.92	-0.00	3.92>>	-0.00	-1.81	-0.00
254/	172/ 11	-17.36	0.00	-0.31<<	0.00	0.12	0.00
254/	172/ 7	-44.12	0.00	-0.29	0.00>>	0.18	0.00
254/	172/ ULS/110	526.15	-0.00	3.80	-0.00<<	-2.17	-0.00
254/	174/ ULS/163	160.33	-0.00	2.35	-0.00	0.42>>	0.00
254/	172/ ULS/110	526.15	-0.00	3.80	-0.00	-2.17<<	-0.00
254/	174/ ULS/110	526.00	-0.00	3.32	-0.00	-0.13	0.00>>
254/	172/ ULS/110	526.15	-0.00	3.80	-0.00	-2.17	-0.00<<
255/	174/ ULS/110	474.36>>	-0.00	3.00	-0.00	-1.52	0.00
255/	174/ 7	-39.72<<	0.00	-0.24	0.00	0.13	-0.00
255/	174/ 7	-39.72	0.00>>	-0.24	0.00	0.13	-0.00
255/	174/ ULS/110	474.36	-0.00<<	3.00	-0.00	-1.52	0.00
255/	174/ ULS/112	299.00	-0.00	3.36>>	-0.00	-1.24	0.00
255/	176/ ULS/165	233.68	-0.00	-0.43<<	-0.00	-0.58	0.00
255/	174/ 7	-39.72	0.00	-0.24	0.00>>	0.13	-0.00
255/	174/ ULS/110	474.36	-0.00	3.00	-0.00<<	-1.52	0.00
255/	176/ ULS/148	213.78	-0.00	2.66	-0.00	0.62>>	0.00
255/	174/ ULS/110	474.36	-0.00	3.00	-0.00	-1.52<<	0.00
255/	176/ ULS/110	474.22	-0.00	2.52	-0.00	0.06	0.00>>
255/	176/ 7	-39.72	0.00	-0.24	0.00	-0.01	-0.00<<
256/	176/ ULS/110	424.59>>	-0.00	2.81	-0.00	-1.31	0.00
256/	176/ 7	-35.51<<	0.00	-0.22	0.00	0.11	-0.00
256/	176/ 7	-35.51	0.00>>	-0.22	0.00	0.11	-0.00
256/	176/ ULS/110	424.59	-0.00<<	2.81	-0.00	-1.31	0.00
256/	176/ ULS/112	242.72	-0.00	3.02>>	-0.00	-0.94	0.00
256/	163/ ULS/105	143.26	-0.00	-0.30<<	-0.00	-0.38	0.00
256/	176/ 7	-35.51	0.00	-0.22	0.00>>	0.11	-0.00
256/	176/ ULS/110	424.59	-0.00	2.81	-0.00<<	-1.31	0.00
256/	163/ ULS/118	184.44	-0.00	2.38	-0.00	0.70>>	0.00
256/	176/ ULS/110	424.59	-0.00	2.81	-0.00	-1.31<<	0.00
256/	163/ ULS/110	424.46	-0.00	2.33	-0.00	0.16	0.00>>
256/	163/ 7	-35.51	0.00	-0.22	0.00	-0.02	-0.00<<
257/	162/ ULS/110	56.96>>	0.00	-3.64	0.00	-2.78	0.00
257/	162/ 7	-4.64<<	-0.00	0.31	-0.00	0.23	-0.00
257/	162/	56.96	0.00>>	-3.64	0.00	-2.78	0.00

	Uls/110						
257/	162/ Uls/95	2.23	-0.00<<	-0.07	0.00	-0.05	0.00
257/	171/ 7	-4.30	-0.00	1.30>>	-0.00	0.71	-0.00
257/	171/ Uls/110	53.19	0.00	-14.77<<	0.00	-8.17	0.00
257/	162/ Uls/110	56.96	0.00	-3.64	0.00>>	-2.78	0.00
257/	162/ 7	-4.64	-0.00	0.31	-0.00<<	0.23	-0.00
257/	171/ 7	-4.30	-0.00	1.30	-0.00	0.71>>	-0.00
257/	171/ Uls/110	53.19	0.00	-14.77	0.00	-8.17<<	0.00
257/	162/ Uls/110	56.96	0.00	-3.64	0.00	-2.78	0.00>>
257/	162/ 7	-4.64	-0.00	0.31	-0.00	0.23	-0.00<<
258/	171/ Uls/112	120.91>>	0.00	22.58	0.00	-12.48	0.00
258/	171/ 11	-10.07<<	-0.00	-2.12	-0.00	0.99	-0.00
258/	171/ Uls/110	119.94	0.00>>	20.16	0.00	-13.35	0.00
258/	171/ 7	-9.92	-0.00<<	-1.74	-0.00	1.13	-0.00
258/	171/ Uls/112	120.91	0.00	22.58>>	0.00	-12.48	0.00
258/	171/ 11	-10.07	-0.00	-2.12<<	-0.00	0.99	-0.00
258/	171/ Uls/110	119.94	0.00	20.16	0.00>>	-13.35	0.00
258/	171/ 7	-9.92	-0.00	-1.74	-0.00<<	1.13	-0.00
258/	171/ 7	-9.92	-0.00	-1.74	-0.00	1.13>>	-0.00
258/	171/ Uls/110	119.94	0.00	20.16	0.00	-13.35<<	0.00
258/	171/ Uls/110	119.94	0.00	20.16	0.00	-13.35	0.00>>
258/	171/ 7	-9.92	-0.00	-1.74	-0.00	1.13	-0.00<<
259/	173/ Uls/112	174.75>>	0.00	9.99	-0.00	-4.22	0.00
259/	173/ 11	-15.28<<	-0.00	-0.94	0.00	0.20	-0.00
259/	173/ Uls/110	165.35	0.00>>	9.26	-0.00	-6.27	0.00
259/	173/ 7	-13.78	-0.00<<	-0.82	0.00	0.53	-0.00
259/	173/ Uls/112	174.75	0.00	9.99>>	-0.00	-4.22	0.00
259/	175/ Uls/110	162.01	0.00	-1.77<<	-0.00	-4.12	0.00
259/	173/ 7	-13.78	-0.00	-0.82	0.00>>	0.53	-0.00
259/	173/ Uls/110	165.35	0.00	9.26	-0.00<<	-6.27	0.00
259/	173/ 7	-13.78	-0.00	-0.82	0.00	0.53>>	-0.00
259/	173/ Uls/110	165.35	0.00	9.26	-0.00	-6.27<<	0.00
259/	173/ Uls/110	165.35	0.00	9.26	-0.00	-6.27	0.00>>
259/	173/ 7	-13.78	-0.00	-0.82	0.00	0.53	-0.00<<
260/	175/ Uls/112	228.95>>	0.00	10.18	-0.00	-3.20	0.00
260/	175/ 11	-20.41<<	-0.00	-0.93	0.00	0.09	-0.00
260/	175/ Uls/110	212.49	0.00>>	9.70	-0.00	-5.51	0.00
260/	175/ 7	-17.77	-0.00<<	-0.85	0.00	0.46	-0.00
260/	175/ Uls/112	228.95	0.00	10.18>>	-0.00	-3.20	0.00
260/	177/ Uls/140	198.60	0.00	-1.34<<	-0.00	-2.96	0.00
260/	175/ 7	-17.77	-0.00	-0.85	0.00>>	0.46	-0.00
260/	175/ Uls/110	212.49	0.00	9.70	-0.00<<	-5.51	0.00
260/	177/ Uls/163	158.84	0.00	-0.31	-0.00	0.87>>	0.00
260/	175/ Uls/110	212.49	0.00	9.70	-0.00	-5.51<<	0.00

260/	175/ ULS/110	212.49	0.00	9.70	-0.00	-5.51	0.00>>
260/	175/ 7	-17.77	-0.00	-0.85	0.00	0.46	-0.00<<
261/	177/ ULS/112	279.65>>	0.00	9.54	-0.00	-2.01	0.00
261/	177/ 11	-25.11<<	-0.00	-0.86	0.00	-0.02	-0.00
261/	177/ ULS/110	257.66	0.00>>	9.20	-0.00	-4.47	0.00
261/	177/ 7	-21.59	-0.00<<	-0.81	0.00	0.38	-0.00
261/	177/ ULS/112	279.65	0.00	9.54>>	-0.00	-2.01	0.00
261/	164/ ULS/110	254.65	0.00	-1.83<<	-0.00	-2.37	0.00
261/	177/ 7	-21.59	-0.00	-0.81	0.00>>	0.38	-0.00
261/	177/ ULS/110	257.66	0.00	9.20	-0.00<<	-4.47	0.00
261/	164/ ULS/163	195.43	0.00	-0.82	-0.00	1.45>>	0.00
261/	177/ ULS/111	100.71	0.00	3.82	-0.00	-4.58<<	0.00
261/	177/ ULS/110	257.66	0.00	9.20	-0.00	-4.47	0.00>>
261/	177/ 7	-21.59	-0.00	-0.81	0.00	0.38	-0.00<<
262/	163/ ULS/110	376.87>>	-0.00	2.88	-0.00	-1.18	0.00
262/	163/ 7	-31.47<<	0.00	-0.22	0.00	0.10	-0.00
262/	163/ 7	-31.47	0.00>>	-0.22	0.00	0.10	-0.00
262/	163/ ULS/110	376.87	-0.00<<	2.88	-0.00	-1.18	0.00
262/	163/ ULS/112	190.17	-0.00	2.96>>	-0.00	-0.76	0.00
262/	163/ 11	-1.60	0.00	-0.24<<	0.00	0.03	-0.00
262/	163/ 7	-31.47	0.00	-0.22	0.00>>	0.10	-0.00
262/	163/ ULS/110	376.87	-0.00	2.88	-0.00<<	-1.18	0.00
262/	178/ ULS/118	134.83	-0.00	2.29	-0.00	0.83>>	0.00
262/	163/ ULS/110	376.87	-0.00	2.88	-0.00	-1.18<<	0.00
262/	178/ ULS/110	376.75	-0.00	2.40	-0.00	0.32	0.00>>
262/	178/ 7	-31.47	0.00	-0.22	0.00	-0.03	-0.00<<
263/	178/ ULS/111	348.31>>	-0.00	1.38	-0.00	-0.93	0.00
263/	178/ 10	-30.37<<	0.00	0.01	0.00	0.07	-0.00
263/	178/ 7	-27.61	0.00>>	-0.21	0.00	0.08	-0.00
263/	178/ ULS/110	331.10	-0.00<<	2.72	-0.00	-0.99	0.00
263/	178/ ULS/112	141.30	-0.00	2.76>>	-0.00	-0.54	0.00
263/	178/ 11	2.75	0.00	-0.21<<	0.00	0.01	-0.00
263/	178/ 7	-27.61	0.00	-0.21	0.00>>	0.08	-0.00
263/	178/ ULS/110	331.10	-0.00	2.72	-0.00<<	-0.99	0.00
263/	180/ ULS/118	89.00	-0.00	2.09	-0.00	0.92>>	0.00
263/	178/ ULS/110	331.10	-0.00	2.72	-0.00	-0.99<<	0.00
263/	180/ ULS/110	330.98	-0.00	2.24	-0.00	0.42	0.00>>
263/	180/ 7	-27.61	0.00	-0.21	0.00	-0.04	-0.00<<
264/	180/ ULS/111	328.99>>	-0.00	1.57	-0.00	-0.91	0.00
264/	180/ 10	-30.59<<	0.00	-0.02	0.00	0.08	-0.00
264/	180/ 7	-23.94	0.00>>	-0.21	0.00	0.07	-0.00
264/	180/ ULS/110	287.43	-0.00<<	2.74	-0.00	-0.85	0.00
264/	180/ ULS/110	287.43	-0.00	2.74>>	-0.00	-0.85	0.00

264/	180/	7	-23.94	0.00	-0.21<<	0.00	0.07	-0.00
264/	180/	7	-23.94	0.00	-0.21	0.00>>	0.07	-0.00
264/	180/	Uls/110	287.43	-0.00	2.74	-0.00<<	-0.85	0.00
264/	182/	Uls/118	47.05	-0.00	1.90	-0.00	0.99>>	0.00
264/	180/	Uls/111	328.99	-0.00	1.57	-0.00	-0.91<<	0.00
264/	182/	Uls/110	287.32	-0.00	2.26	-0.00	0.56	0.00>>
264/	182/	7	-23.94	0.00	-0.21	0.00	-0.05	-0.00<<
265/	182/	Uls/111	309.02>>	-0.00	1.46	-0.00	-0.82	0.00
265/	184/	Uls/163	-53.76<<	-0.00	1.19	-0.00	0.89	0.00
265/	182/	7	-20.48	0.00>>	-0.19	0.00	0.05	-0.00
265/	182/	Uls/110	246.14	-0.00<<	2.52	-0.00	-0.66	0.00
265/	182/	Uls/110	246.14	-0.00	2.52>>	-0.00	-0.66	0.00
265/	182/	7	-20.48	0.00	-0.19<<	0.00	0.05	-0.00
265/	182/	7	-20.48	0.00	-0.19	0.00>>	0.05	-0.00
265/	182/	Uls/110	246.14	-0.00	2.52	-0.00<<	-0.66	0.00
265/	184/	Uls/118	9.23	-0.00	1.71	-0.00	1.05>>	0.00
265/	182/	Uls/111	309.02	-0.00	1.46	-0.00	-0.82<<	0.00
265/	184/	Uls/110	246.04	-0.00	2.04	-0.00	0.63	0.00>>
265/	184/	7	-20.48	0.00	-0.19	0.00	-0.05	-0.00<<
266/	184/	Uls/111	288.40>>	-0.00	1.70	-0.00	-0.82	0.00
266/	165/	Uls/163	-77.85<<	-0.00	1.00	-0.00	0.91	0.00
266/	184/	7	-17.20	0.00>>	-0.20	0.00	0.04	-0.00
266/	184/	Uls/110	206.91	-0.00<<	2.58	-0.00	-0.55	0.00
266/	184/	Uls/110	206.91	-0.00	2.58>>	-0.00	-0.55	0.00
266/	184/	7	-17.20	0.00	-0.20<<	0.00	0.04	-0.00
266/	184/	7	-17.20	0.00	-0.20	0.00>>	0.04	-0.00
266/	184/	Uls/110	206.91	-0.00	2.58	-0.00<<	-0.55	0.00
266/	165/	Uls/112	17.80	-0.00	1.76	-0.00	1.11>>	0.00
266/	184/	Uls/111	288.40	-0.00	1.70	-0.00	-0.82<<	0.00
266/	165/	Uls/110	206.81	-0.00	2.11	-0.00	0.76	0.00>>
266/	165/	7	-17.20	0.00	-0.20	0.00	-0.07	-0.00<<
267/	164/	Uls/112	326.72>>	0.00	9.61	-0.00	-1.13	0.00
267/	164/	11	-29.36<<	-0.00	-0.86	0.00	-0.10	-0.00
267/	164/	Uls/110	301.04	0.00>>	9.41	-0.00	-3.70	0.00
267/	164/	7	-25.25	-0.00<<	-0.82	0.00	0.31	-0.00
267/	164/	Uls/112	326.72	0.00	9.61>>	-0.00	-1.13	0.00
267/	179/	Uls/110	298.22	0.00	-1.63<<	-0.00	-1.50	0.00
267/	164/	7	-25.25	-0.00	-0.82	0.00>>	0.31	-0.00
267/	164/	Uls/110	301.04	0.00	9.41	-0.00<<	-3.70	0.00
267/	179/	Uls/163	228.74	0.00	-0.83	-0.00	2.08>>	0.00
267/	164/	Uls/111	117.55	0.00	4.05	-0.00	-4.33<<	0.00
267/	164/		301.04	0.00	9.41	-0.00	-3.70	0.00>>

	ULS/110						
267/	164/ 7	-25.25	-0.00	-0.82	0.00	0.31	-0.00<<
268/	179/ ULS/112	370.11>>	0.00	9.36	-0.00	-0.14	0.00
268/	179/ 11	-33.16<<	-0.00	-0.82	0.00	-0.19	-0.00
268/	179/ ULS/110	342.43	0.00>>	9.31	-0.00	-2.80	0.00
268/	179/ 7	-28.73	-0.00<<	-0.82	0.00	0.24	-0.00
268/	179/ ULS/112	370.11	0.00	9.36>>	-0.00	-0.14	0.00
268/	181/ ULS/110	339.76	0.00	-1.72<<	-0.00	-0.65	0.00
268/	179/ 7	-28.73	-0.00	-0.82	0.00>>	0.24	-0.00
268/	179/ ULS/110	342.43	0.00	9.31	-0.00<<	-2.80	0.00
268/	181/ ULS/163	258.80	0.00	-1.06	-0.00	2.64>>	0.00
268/	179/ ULS/111	135.17	0.00	4.17	-0.00	-4.00<<	0.00
268/	179/ ULS/110	342.43	0.00	9.31	-0.00	-2.80	0.00>>
268/	179/ 7	-28.73	-0.00	-0.82	0.00	0.24	-0.00<<
269/	181/ ULS/112	409.68>>	0.00	8.72	-0.00	0.80	0.00
269/	181/ 11	-36.49<<	-0.00	-0.76	0.00	-0.27	-0.00
269/	181/ ULS/110	381.83	0.00>>	8.83	-0.00	-1.92	0.00
269/	181/ 7	-32.04	-0.00<<	-0.77	0.00	0.16	-0.00
269/	181/ ULS/110	381.83	0.00	8.83>>	-0.00	-1.92	0.00
269/	183/ ULS/112	407.15	0.00	-2.31<<	-0.00	2.60	0.00
269/	181/ 7	-32.04	-0.00	-0.77	0.00>>	0.16	-0.00
269/	181/ ULS/110	381.83	0.00	8.83	-0.00<<	-1.92	0.00
269/	183/ ULS/163	285.43	0.00	-1.58	-0.00	3.00>>	0.00
269/	181/ ULS/120	92.09	0.00	2.73	-0.00	-3.73<<	0.00
269/	181/ ULS/110	381.83	0.00	8.83	-0.00	-1.92	0.00>>
269/	181/ 7	-32.04	-0.00	-0.77	0.00	0.16	-0.00<<
270/	183/ ULS/112	445.47>>	0.00	8.83	-0.00	1.45	0.00
270/	183/ 11	-39.38<<	-0.00	-0.76	0.00	-0.33	-0.00
270/	183/ ULS/110	418.95	0.00>>	9.02	-0.00	-1.27	0.00
270/	183/ 7	-35.14	-0.00<<	-0.79	0.00	0.11	-0.00
270/	183/ ULS/110	418.95	0.00	9.02>>	-0.00	-1.27	0.00
270/	185/ ULS/112	443.13	0.00	-2.20<<	-0.00	3.31	0.00
270/	183/ 7	-35.14	-0.00	-0.79	0.00>>	0.11	-0.00
270/	183/ ULS/110	418.95	0.00	9.02	-0.00<<	-1.27	0.00
270/	185/ ULS/118	415.51	0.00	-2.05	-0.00	3.63>>	0.00
270/	183/ ULS/120	105.76	0.00	2.89	-0.00	-3.52<<	0.00
270/	183/ ULS/110	418.95	0.00	9.02	-0.00	-1.27	0.00>>
270/	183/ 7	-35.14	-0.00	-0.79	0.00	0.11	-0.00<<
271/	185/ ULS/112	477.65>>	0.00	8.63	-0.00	2.23	0.00
271/	185/ 11	-41.82<<	-0.00	-0.73	0.00	-0.39	-0.00
271/	185/ ULS/110	454.25	0.00>>	9.00	-0.00	-0.49	0.00
271/	185/ 7	-38.08	-0.00<<	-0.79	0.00	0.04	-0.00
271/	185/	454.25	0.00	9.00>>	-0.00	-0.49	0.00

	Uls/110						
271/	166/ Uls/112	475.47	0.00	-2.40<<	-0.00	3.98	0.00
271/	185/ 7	-38.08	-0.00	-0.79	0.00>>	0.04	-0.00
271/	185/ Uls/110	454.25	0.00	9.00	-0.00<<	-0.49	0.00
271/	166/ Uls/118	444.75	0.00	-2.27	-0.00	4.23>>	0.00
271/	185/ Uls/120	120.97	0.00	3.08	-0.00	-3.28<<	0.00
271/	185/ Uls/110	454.25	0.00	9.00	-0.00	-0.49	0.00>>
271/	185/ 7	-38.08	-0.00	-0.79	0.00	0.04	-0.00<<
272/	166/ Uls/112	506.05>>	0.00	7.80	-0.00	3.00	0.00
272/	166/ 11	-43.82<<	-0.00	-0.65	0.00	-0.46	-0.00
272/	166/ Uls/110	487.27	0.00>>	8.30	-0.00	0.31	0.00
272/	166/ 7	-40.81	-0.00<<	-0.73	0.00	-0.03	-0.00
272/	166/ Uls/110	487.27	0.00	8.30>>	-0.00	0.31	0.00
272/	187/ Uls/112	504.00	0.00	-3.23<<	-0.00	4.27	0.00
272/	166/ 7	-40.81	-0.00	-0.73	0.00>>	-0.03	-0.00
272/	166/ Uls/110	487.27	0.00	8.30	-0.00<<	0.31	0.00
272/	187/ Uls/118	470.14	0.00	-3.07	-0.00	4.48>>	0.00
272/	166/ Uls/165	12.51	0.00	0.89	-0.00	-3.06<<	0.00
272/	166/ Uls/110	487.27	0.00	8.30	-0.00	0.31	0.00>>
272/	166/ 7	-40.81	-0.00	-0.73	0.00	-0.03	-0.00<<
273/	187/ Uls/112	530.62>>	0.00	8.42	-0.00	3.38	0.00
273/	187/ 11	-45.35<<	-0.00	-0.69	0.00	-0.48	-0.00
273/	187/ Uls/110	518.26	0.00>>	9.09	-0.00	0.75	0.00
273/	187/ 7	-43.37	-0.00<<	-0.79	0.00	-0.06	-0.00
273/	187/ Uls/110	518.26	0.00	9.09>>	-0.00	0.75	0.00
273/	189/ Uls/112	528.76	0.00	-2.61<<	-0.00	5.00	0.00
273/	187/ 7	-43.37	-0.00	-0.79	0.00>>	-0.06	-0.00
273/	187/ Uls/110	518.26	0.00	9.09	-0.00<<	0.75	0.00
273/	189/ Uls/118	491.66	0.00	-2.53	-0.00	5.12>>	0.00
273/	187/ Uls/165	22.33	0.00	1.14	-0.00	-2.95<<	0.00
273/	187/ Uls/110	518.26	0.00	9.09	-0.00	0.75	0.00>>
273/	187/ 7	-43.37	-0.00	-0.79	0.00	-0.06	-0.00<<
274/	189/ Uls/112	551.28>>	0.00	7.01	-0.00	4.21	0.00
274/	189/ 11	-46.43<<	-0.00	-0.55	0.00	-0.54	-0.00
274/	189/ Uls/110	546.82	0.00>>	7.81	-0.00	1.69	0.00
274/	189/ 7	-45.71	-0.00<<	-0.68	0.00	-0.14	-0.00
274/	189/ Uls/110	546.82	0.00	7.81>>	-0.00	1.69	0.00
274/	191/ Uls/112	549.54	0.00	-4.03<<	-0.00	5.04	0.00
274/	189/ 7	-45.71	-0.00	-0.68	0.00>>	-0.14	-0.00
274/	189/ Uls/110	546.82	0.00	7.81	-0.00<<	1.69	0.00
274/	191/ Uls/118	509.18	0.00	-3.86	-0.00	5.12>>	0.00
274/	189/	33.75	0.00	1.23	-0.00	-2.76<<	0.00

	Uls/165						
274/	189/ Uls/110	546.82	0.00	7.81	-0.00	1.69	0.00>>
274/	189/ 7	-45.71	-0.00	-0.68	0.00	-0.14	-0.00<<
275/	191/ Uls/110	573.19>>	0.00	8.82	-0.00	1.96	0.00
275/	191/ 7	-47.87<<	-0.00	-0.76	0.00	-0.16	-0.00
275/	191/ Uls/110	573.19	0.00>>	8.82	-0.00	1.96	0.00
275/	191/ 7	-47.87	-0.00<<	-0.76	0.00	-0.16	-0.00
275/	191/ Uls/110	573.19	0.00	8.82>>	-0.00	1.96	0.00
275/	193/ Uls/142	537.12	0.00	-3.25<<	-0.00	5.39	0.00
275/	191/ 7	-47.87	-0.00	-0.76	0.00>>	-0.16	-0.00
275/	191/ Uls/110	573.19	0.00	8.82	-0.00<<	1.96	0.00
275/	193/ Uls/112	566.54	0.00	-3.24	-0.00	5.61>>	0.00
275/	191/ Uls/165	46.94	0.00	1.66	-0.00	-2.58<<	0.00
275/	191/ Uls/110	573.19	0.00	8.82	-0.00	1.96	0.00>>
275/	191/ 7	-47.87	-0.00	-0.76	0.00	-0.16	-0.00<<
276/	193/ Uls/110	597.06>>	0.00	7.77	-0.00	2.85	0.00
276/	193/ 7	-49.81<<	-0.00	-0.68	0.00	-0.23	-0.00
276/	193/ Uls/110	597.06	0.00>>	7.77	-0.00	2.85	0.00
276/	193/ 7	-49.81	-0.00<<	-0.68	0.00	-0.23	-0.00
276/	193/ Uls/110	597.06	0.00	7.77>>	-0.00	2.85	0.00
276/	168/ Uls/112	579.65	0.00	-4.24<<	-0.00	5.74	0.00
276/	193/ 7	-49.81	-0.00	-0.68	0.00>>	-0.23	-0.00
276/	193/ Uls/110	597.06	0.00	7.77	-0.00<<	2.85	0.00
276/	168/ Uls/112	579.65	0.00	-4.24	-0.00	5.74>>	0.00
276/	193/ Uls/165	61.55	0.00	1.46	-0.00	-2.20<<	0.00
276/	193/ Uls/110	597.06	0.00	7.77	-0.00	2.85	0.00>>
276/	193/ 7	-49.81	-0.00	-0.68	0.00	-0.23	-0.00<<
277/	165/ Uls/120	268.38>>	-0.00	1.32	-0.00	-0.75	0.00
277/	186/ Uls/163	-98.60<<	-0.00	0.85	-0.00	0.93	0.00
277/	165/ 7	-14.12	0.00>>	-0.17	0.00	0.03	-0.00
277/	165/ Uls/110	169.83	-0.00<<	2.34	-0.00	-0.37	0.00
277/	165/ Uls/110	169.83	-0.00	2.34>>	-0.00	-0.37	0.00
277/	165/ 7	-14.12	0.00	-0.17<<	0.00	0.03	-0.00
277/	165/ 7	-14.12	0.00	-0.17	0.00>>	0.03	-0.00
277/	165/ Uls/110	169.83	-0.00	2.34	-0.00<<	-0.37	0.00
277/	186/ Uls/112	-15.73	-0.00	1.53	-0.00	1.15>>	0.00
277/	165/ Uls/120	268.38	-0.00	1.32	-0.00	-0.75<<	0.00
277/	186/ Uls/110	169.74	-0.00	1.86	-0.00	0.81	0.00>>
277/	186/ 7	-14.12	0.00	-0.17	0.00	-0.07	-0.00<<
278/	186/ Uls/120	250.99>>	-0.00	1.56	-0.00	-0.76	0.00
278/	188/ Uls/163	-115.96<<	-0.00	0.63	-0.00	0.93	0.00
278/	186/ 7	-11.24	0.00>>	-0.18	0.00	0.02	-0.00

278/	186/ ULS/110	135.13	-0.00<<	2.37	-0.00	-0.26	0.00
278/	186/ ULS/110	135.13	-0.00	2.37>>	-0.00	-0.26	0.00
278/	186/ 7	-11.24	0.00	-0.18<<	0.00	0.02	-0.00
278/	186/ 7	-11.24	0.00	-0.18	0.00>>	0.02	-0.00
278/	186/ ULS/110	135.13	-0.00	2.37	-0.00<<	-0.26	0.00
278/	188/ ULS/112	-45.30	-0.00	1.35	-0.00	1.19>>	0.00
278/	186/ ULS/120	250.99	-0.00	1.56	-0.00	-0.76<<	0.00
278/	188/ ULS/110	135.04	-0.00	1.89	-0.00	0.92	0.00>>
278/	188/ 7	-11.24	0.00	-0.18	0.00	-0.08	-0.00<<
279/	188/ ULS/120	232.30>>	-0.00	1.54	-0.00	-0.68	0.00
279/	190/ ULS/163	-130.01<<	-0.00	0.46	-0.00	0.92	0.00
279/	188/ 7	-8.55	0.00>>	-0.16	0.00	0.01	-0.00
279/	188/ ULS/110	102.56	-0.00<<	2.16	-0.00	-0.09	0.00
279/	188/ ULS/110	102.56	-0.00	2.16>>	-0.00	-0.09	0.00
279/	188/ 7	-8.55	0.00	-0.16<<	0.00	0.01	-0.00
279/	188/ 7	-8.55	0.00	-0.16	0.00>>	0.01	-0.00
279/	188/ ULS/110	102.56	-0.00	2.16	-0.00<<	-0.09	0.00
279/	190/ ULS/112	-71.08	-0.00	1.11	-0.00	1.21>>	0.00
279/	188/ ULS/120	232.30	-0.00	1.54	-0.00	-0.68<<	0.00
279/	190/ ULS/110	102.48	-0.00	1.68	-0.00	0.98	0.00>>
279/	190/ 7	-8.55	0.00	-0.16	0.00	-0.08	-0.00<<
280/	190/ ULS/120	212.67>>	-0.00	1.52	-0.00	-0.65	0.00
280/	192/ ULS/163	-140.53<<	-0.00	0.28	-0.00	0.90	0.00
280/	190/ 7	-6.09	0.00>>	-0.14	0.00	-0.00	-0.00
280/	190/ ULS/110	72.67	-0.00<<	1.98	-0.00	0.03	0.00
280/	190/ ULS/110	72.67	-0.00	1.98>>	-0.00	0.03	0.00
280/	190/ 7	-6.09	0.00	-0.14<<	0.00	-0.00	-0.00
280/	190/ 7	-6.09	0.00	-0.14	0.00>>	-0.00	-0.00
280/	190/ ULS/110	72.67	-0.00	1.98	-0.00<<	0.03	0.00
280/	192/ ULS/112	-92.66	-0.00	0.88	-0.00	1.20>>	0.00
280/	190/ ULS/135	197.74	-0.00	1.17	-0.00	-0.66<<	0.00
280/	192/ ULS/110	72.60	-0.00	1.50	-0.00	0.99	0.00>>
280/	192/ 7	-6.09	0.00	-0.14	0.00	-0.08	-0.00<<
281/	192/ ULS/120	191.99>>	-0.00	2.40	-0.00	-0.68	0.00
281/	167/ ULS/163	-147.80<<	-0.00	-0.05	-0.00	0.81	0.00
281/	192/ 7	-3.83	0.00>>	-0.17	0.00	-0.01	-0.00
281/	192/ ULS/110	45.02	-0.00<<	2.44	-0.00	0.09	0.00
281/	192/ ULS/111	176.51	-0.00	2.54>>	-0.00	-0.57	0.00
281/	192/ 10	-24.87	0.00	-0.19<<	0.00	0.10	-0.00
281/	192/ 7	-3.83	0.00	-0.17	0.00>>	-0.01	-0.00
281/	192/ ULS/110	45.02	-0.00	2.44	-0.00<<	0.09	0.00
281/	167/	44.96	-0.00	1.96	-0.00	1.31>>	0.00

	Uls/110						
281/	192/ Uls/135	182.61	-0.00	1.98	-0.00	-0.71<<	0.00
281/	167/ Uls/110	44.96	-0.00	1.96	-0.00	1.31	0.00>>
281/	167/ 7	-3.83	0.00	-0.17	0.00	-0.11	-0.00<<
282/	167/ Uls/120	171.16>>	-0.00	1.94	-0.00	-0.66	0.00
282/	195/ Uls/163	-151.98<<	-0.00	-0.36	-0.00	0.79	0.00
282/	167/ 7	-1.83	0.00>>	-0.15	0.00	-0.01	-0.00
282/	167/ Uls/110	20.42	-0.00<<	1.88	-0.00	0.20	0.00
282/	167/ Uls/111	153.63	-0.00	2.05>>	-0.00	-0.54	0.00
282/	195/ Uls/70	-98.54	-0.00	-0.39<<	-0.00	0.52	0.00
282/	167/ 7	-1.83	0.00	-0.15	0.00>>	-0.01	-0.00
282/	167/ Uls/110	20.42	-0.00	1.88	-0.00<<	0.20	0.00
282/	195/ Uls/112	-124.29	-0.00	0.29	-0.00	1.16>>	0.00
282/	167/ Uls/165	165.94	-0.00	1.46	-0.00	-0.71<<	0.00
282/	195/ Uls/110	20.36	-0.00	1.40	-0.00	1.11	0.00>>
282/	195/ 7	-1.83	0.00	-0.15	0.00	-0.10	-0.00<<
283/	195/ Uls/150	150.81>>	-0.00	1.56	-0.00	-0.48	0.00
283/	197/ Uls/133	-152.28<<	-0.00	-0.33	-0.00	0.81	0.00
283/	195/ 7	-0.04	0.00>>	-0.11	0.00	-0.04	-0.00
283/	195/ Uls/110	-0.60	-0.00<<	1.53	-0.00	0.40	0.00
283/	195/ Uls/111	131.56	-0.00	1.75>>	-0.00	-0.32	0.00
283/	197/ Uls/163	-152.01	-0.00	-0.34<<	-0.00	0.75	0.00
283/	195/ 7	-0.04	0.00	-0.11	0.00>>	-0.04	-0.00
283/	195/ Uls/110	-0.60	-0.00	1.53	-0.00<<	0.40	0.00
283/	197/ Uls/112	-133.08	-0.00	0.16	-0.00	1.12>>	0.00
283/	195/ Uls/165	150.71	-0.00	1.29	-0.00	-0.56<<	0.00
283/	197/ Uls/110	-0.65	-0.00	1.06	-0.00	1.12	0.00>>
283/	197/ 7	-0.04	0.00	-0.11	0.00	-0.10	-0.00<<
284/	197/ Uls/165	133.82>>	-0.00	1.43	-0.00	-0.55	0.00
284/	199/ Uls/118	-153.27<<	-0.00	-0.33	-0.00	0.97	0.00
284/	197/ 7	1.54	0.00>>	-0.10	0.00	-0.04	-0.00
284/	197/ Uls/110	-19.02	-0.00<<	1.43	-0.00	0.48	0.00
284/	197/ Uls/111	109.12	-0.00	1.83>>	-0.00	-0.28	0.00
284/	199/ Uls/133	-149.51	-0.00	-0.58<<	-0.00	0.73	0.00
284/	197/ 7	1.54	0.00	-0.10	0.00>>	-0.04	-0.00
284/	197/ Uls/110	-19.02	-0.00	1.43	-0.00<<	0.48	0.00
284/	199/ Uls/110	-19.06	-0.00	0.95	-0.00	1.14>>	0.00
284/	197/ Uls/165	133.82	-0.00	1.43	-0.00	-0.55<<	0.00
284/	199/ Uls/110	-19.06	-0.00	0.95	-0.00	1.14	0.00>>
284/	199/ 7	1.54	0.00	-0.10	0.00	-0.10	-0.00<<

285/	199/ ULS/165	115.18>>	-0.00	1.54	-0.00	-0.52	0.00
285/	169/ ULS/118	-150.39<<	-0.00	-0.59	-0.00	0.88	0.00
285/	199/ 7	2.91	0.00>>	-0.09	0.00	-0.05	-0.00
285/	199/ ULS/110	-35.11	-0.00<<	1.27	-0.00	0.57	0.00
285/	199/ ULS/120	106.19	-0.00	1.87>>	-0.00	-0.38	0.00
285/	169/ ULS/133	-143.26	-0.00	-0.81<<	-0.00	0.64	0.00
285/	199/ 7	2.91	0.00	-0.09	0.00>>	-0.05	-0.00
285/	199/ ULS/110	-35.11	-0.00	1.27	-0.00<<	0.57	0.00
285/	169/ ULS/110	-35.15	-0.00	0.79	-0.00	1.14>>	0.00
285/	199/ ULS/165	115.18	-0.00	1.54	-0.00	-0.52<<	0.00
285/	169/ ULS/110	-35.15	-0.00	0.79	-0.00	1.14	0.00>>
285/	169/ 7	2.91	0.00	-0.09	0.00	-0.10	-0.00<<
286/	168/ ULS/110	616.92>>	0.00	7.58	-0.00	3.26	0.00
286/	168/ 7	-51.50<<	-0.00	-0.69	0.00	-0.26	-0.00
286/	168/ ULS/110	616.92	0.00>>	7.58	-0.00	3.26	0.00
286/	168/ 7	-51.50	-0.00<<	-0.69	0.00	-0.26	-0.00
286/	168/ ULS/110	616.92	0.00	7.58>>	-0.00	3.26	0.00
286/	194/ ULS/112	587.86	0.00	-4.48<<	-0.00	5.85	0.00
286/	168/ 7	-51.50	-0.00	-0.69	0.00>>	-0.26	-0.00
286/	168/ ULS/110	616.92	0.00	7.58	-0.00<<	3.26	0.00
286/	194/ ULS/112	587.86	0.00	-4.48	-0.00	5.85>>	0.00
286/	168/ ULS/165	76.22	0.00	1.26	-0.00	-1.96<<	0.00
286/	168/ ULS/110	616.92	0.00	7.58	-0.00	3.26	0.00>>
286/	168/ 7	-51.50	-0.00	-0.69	0.00	-0.26	-0.00<<
287/	194/ ULS/110	634.47>>	0.00	7.29	-0.00	3.61	0.00
287/	194/ 7	-53.00<<	-0.00	-0.65	0.00	-0.30	-0.00
287/	194/ ULS/110	634.47	0.00>>	7.29	-0.00	3.61	0.00
287/	194/ 7	-53.00	-0.00<<	-0.65	0.00	-0.30	-0.00
287/	194/ ULS/110	634.47	0.00	7.29>>	-0.00	3.61	0.00
287/	196/ ULS/112	591.92	0.00	-5.08<<	-0.00	5.76	0.00
287/	194/ 7	-53.00	-0.00	-0.65	0.00>>	-0.30	-0.00
287/	194/ ULS/110	634.47	0.00	7.29	-0.00<<	3.61	0.00
287/	196/ ULS/112	591.92	0.00	-5.08	-0.00	5.76>>	0.00
287/	194/ ULS/165	92.76	0.00	1.71	-0.00	-1.88<<	0.00
287/	194/ ULS/110	634.47	0.00	7.29	-0.00	3.61	0.00>>
287/	194/ 7	-53.00	-0.00	-0.65	0.00	-0.30	-0.00<<
288/	196/ ULS/110	649.72>>	0.00	7.55	-0.00	3.86	0.00
288/	196/ 7	-54.31<<	-0.00	-0.67	0.00	-0.32	-0.00
288/	196/ ULS/110	649.72	0.00>>	7.55	-0.00	3.86	0.00
288/	196/ 7	-54.31	-0.00<<	-0.67	0.00	-0.32	-0.00
288/	196/ ULS/110	649.72	0.00	7.55>>	-0.00	3.86	0.00

288/	198/ ULS/112	592.11	0.00	-4.98<<	-0.00	5.83	0.00
288/	196/ 7	-54.31	-0.00	-0.67	0.00>>	-0.32	-0.00
288/	196/ ULS/110	649.72	0.00	7.55	-0.00<<	3.86	0.00
288/	198/ ULS/112	592.11	0.00	-4.98	-0.00	5.83>>	0.00
288/	196/ ULS/165	111.03	0.00	1.95	-0.00	-1.62<<	0.00
288/	196/ ULS/110	649.72	0.00	7.55	-0.00	3.86	0.00>>
288/	196/ 7	-54.31	-0.00	-0.67	0.00	-0.32	-0.00<<
289/	198/ ULS/110	662.64>>	0.00	6.89	-0.00	4.31	0.00
289/	198/ 7	-55.41<<	-0.00	-0.61	0.00	-0.36	-0.00
289/	198/ ULS/110	662.64	0.00>>	6.89	-0.00	4.31	0.00
289/	198/ 7	-55.41	-0.00<<	-0.61	0.00	-0.36	-0.00
289/	198/ ULS/110	662.64	0.00	6.89>>	-0.00	4.31	0.00
289/	170/ ULS/112	588.33	0.00	-5.76<<	-0.00	5.58	0.00
289/	198/ 7	-55.41	-0.00	-0.61	0.00>>	-0.36	-0.00
289/	198/ ULS/110	662.64	0.00	6.89	-0.00<<	4.31	0.00
289/	198/ ULS/112	589.16	0.00	5.27	-0.00	5.72>>	0.00
289/	198/ ULS/165	131.05	0.00	2.04	-0.00	-1.28<<	0.00
289/	198/ ULS/110	662.64	0.00	6.89	-0.00	4.31	0.00>>
289/	198/ 7	-55.41	-0.00	-0.61	0.00	-0.36	-0.00<<
290/	205/ ULS/165	24.26>>	-0.00	-1.41	-0.00	-0.24	-0.00
290/	202/ ULS/112	-100.68<<	-0.00	0.95	-0.00	0.72	-0.00
290/	202/ 7	6.23	0.00>>	0.03	0.00	-0.09	0.00
290/	202/ ULS/110	-74.74	-0.00<<	-0.11	-0.00	1.06	-0.00
290/	202/ ULS/133	-83.53	-0.00	1.20>>	-0.00	0.37	-0.00
290/	205/ ULS/120	5.13	-0.00	-1.57<<	-0.00	-0.01	-0.00
290/	202/ 7	6.23	0.00	0.03	0.00>>	-0.09	0.00
290/	202/ ULS/110	-74.74	-0.00	-0.11	-0.00<<	1.06	-0.00
290/	205/ ULS/112	-100.67	-0.00	0.47	-0.00	1.11>>	-0.00
290/	205/ ULS/165	24.26	-0.00	-1.41	-0.00	-0.24<<	-0.00
290/	202/ 7	6.23	0.00	0.03	0.00	-0.09	0.00>>
290/	202/ ULS/110	-74.74	-0.00	-0.11	-0.00	1.06	-0.00<<
291/	207/ ULS/165	49.22>>	-0.00	-1.96	-0.00	-0.39	-0.00
291/	205/ ULS/118	-117.68<<	-0.00	1.42	-0.00	0.52	-0.00
291/	205/ 7	5.75	0.00>>	0.05	0.00	-0.10	0.00
291/	205/ ULS/110	-68.75	-0.00<<	-0.35	-0.00	1.13	-0.00
291/	205/ ULS/133	-103.61	-0.00	1.54>>	-0.00	0.29	-0.00
291/	207/ ULS/120	31.62	-0.00	-2.17<<	-0.00	-0.19	-0.00
291/	205/ 7	5.75	0.00	0.05	0.00>>	-0.10	0.00
291/	205/ ULS/110	-68.75	-0.00	-0.35	-0.00<<	1.13	-0.00
291/	207/ ULS/112	-116.03	-0.00	0.68	-0.00	1.18>>	-0.00

291/	207/ ULS/165	49.22	-0.00	-1.96	-0.00	-0.39<<	-0.00
291/	205/ 7	5.75	0.00	0.05	0.00	-0.10	0.00>>
291/	205/ ULS/110	-68.75	-0.00	-0.35	-0.00	1.13	-0.00<<
292/	209/ ULS/165	72.86>>	-0.00	-1.71	-0.00	-0.43	-0.00
292/	207/ ULS/118	-132.63<<	-0.00	1.01	-0.00	0.71	-0.00
292/	207/ 7	5.02	0.00>>	0.06	0.00	-0.10	0.00
292/	207/ ULS/110	-60.04	-0.00<<	-0.53	-0.00	1.15	-0.00
292/	207/ ULS/133	-120.33	-0.00	1.17>>	-0.00	0.47	-0.00
292/	209/ ULS/120	57.49	-0.00	-1.97<<	-0.00	-0.25	-0.00
292/	207/ 7	5.02	0.00	0.06	0.00>>	-0.10	0.00
292/	207/ ULS/110	-60.04	-0.00	-0.53	-0.00<<	1.15	-0.00
292/	207/ ULS/110	-60.04	-0.00	-0.53	-0.00	1.15>>	-0.00
292/	209/ ULS/165	72.86	-0.00	-1.71	-0.00	-0.43<<	-0.00
292/	207/ 7	5.02	0.00	0.06	0.00	-0.10	0.00>>
292/	207/ ULS/110	-60.04	-0.00	-0.53	-0.00	1.15	-0.00<<
293/	169/ ULS/165	94.84>>	-0.00	-1.63	-0.00	-0.48	-0.00
293/	209/ ULS/118	-143.43<<	-0.00	0.79	-0.00	0.80	-0.00
293/	209/ 7	4.07	0.00>>	0.08	0.00	-0.10	0.00
293/	209/ ULS/110	-48.74	-0.00<<	-0.67	-0.00	1.15	-0.00
293/	209/ ULS/133	-133.46	-0.00	0.98>>	-0.00	0.56	-0.00
293/	169/ ULS/120	82.37	-0.00	-1.93<<	-0.00	-0.31	-0.00
293/	209/ 7	4.07	0.00	0.08	0.00>>	-0.10	0.00
293/	209/ ULS/110	-48.74	-0.00	-0.67	-0.00<<	1.15	-0.00
293/	209/ ULS/110	-48.74	-0.00	-0.67	-0.00	1.15>>	-0.00
293/	169/ ULS/165	94.84	-0.00	-1.63	-0.00	-0.48<<	-0.00
293/	209/ 7	4.07	0.00	0.08	0.00	-0.10	0.00>>
293/	209/ ULS/110	-48.74	-0.00	-0.67	-0.00	1.15	-0.00<<
294/	204/ ULS/110	690.60>>	0.00	-7.03	-0.00	5.13	-0.00
294/	204/ 7	-57.72<<	-0.00	0.62	0.00	-0.43	0.00
294/	203/ ULS/110	690.38	0.00>>	4.00	-0.00	5.96	-0.00
294/	203/ 7	-57.70	-0.00<<	-0.37	0.00	-0.49	0.00
294/	203/ ULS/118	461.66	0.00	8.96>>	-0.00	2.65	-0.00
294/	204/ ULS/111	484.43	0.00	-7.80<<	-0.00	2.42	-0.00
294/	203/ 7	-57.70	-0.00	-0.37	0.00>>	-0.49	0.00
294/	203/ ULS/110	690.38	0.00	4.00	-0.00<<	5.96	-0.00
294/	203/ ULS/110	690.38	0.00	4.00	-0.00	5.96>>	-0.00
294/	203/ 7	-57.70	-0.00	-0.37	0.00	-0.49<<	0.00
294/	204/ 7	-57.72	-0.00	0.62	0.00	-0.43	0.00>>
294/	204/ ULS/110	690.60	0.00	-7.03	-0.00	5.13	-0.00<<
295/	206/ ULS/110	687.32>>	0.00	-6.39	-0.00	5.05	-0.00
295/	206/ 7	-57.46<<	-0.00	0.57	0.00	-0.42	0.00

295/	204/ ULS/110	686.94	0.00>>	4.64	-0.00	5.53	-0.00
295/	204/ 7	-57.43	-0.00<<	-0.42	0.00	-0.46	0.00
295/	204/ ULS/112	554.02	0.00	6.86>>	-0.00	4.80	-0.00
295/	206/ ULS/110	687.32	0.00	-6.39<<	-0.00	5.05	-0.00
295/	204/ 7	-57.43	-0.00	-0.42	0.00>>	-0.46	0.00
295/	204/ ULS/110	686.94	0.00	4.64	-0.00<<	5.53	-0.00
295/	206/ ULS/112	554.41	0.00	-4.18	-0.00	5.54>>	-0.00
295/	206/ 11	-36.19	-0.00	0.21	0.00	-0.50<<	0.00
295/	206/ 7	-57.46	-0.00	0.57	0.00	-0.42	0.00>>
295/	206/ ULS/110	687.32	0.00	-6.39	-0.00	5.05	-0.00<<
296/	208/ ULS/110	681.64>>	0.00	-6.77	-0.00	4.84	-0.00
296/	208/ 7	-57.00<<	-0.00	0.60	0.00	-0.40	0.00
296/	206/ ULS/110	681.12	0.00>>	4.27	-0.00	5.53	-0.00
296/	206/ 7	-56.95	-0.00<<	-0.39	0.00	-0.46	0.00
296/	206/ ULS/112	569.39	0.00	6.15>>	-0.00	5.30	-0.00
296/	208/ ULS/110	681.64	0.00	-6.77<<	-0.00	4.84	-0.00
296/	206/ 7	-56.95	-0.00	-0.39	0.00>>	-0.46	0.00
296/	206/ ULS/110	681.12	0.00	4.27	-0.00<<	5.53	-0.00
296/	208/ ULS/112	569.92	0.00	-4.88	-0.00	5.65>>	-0.00
296/	208/ ULS/165	176.11	0.00	-2.35	-0.00	-0.56<<	-0.00
296/	208/ 7	-57.00	-0.00	0.60	0.00	-0.40	0.00>>
296/	208/ ULS/110	681.64	0.00	-6.77	-0.00	4.84	-0.00<<
297/	170/ ULS/110	673.35>>	0.00	-7.21	-0.00	4.45	-0.00
297/	170/ 7	-56.31<<	-0.00	0.64	0.00	-0.37	0.00
297/	208/ ULS/110	672.69	0.00>>	3.82	-0.00	5.39	-0.00
297/	208/ 7	-56.25	-0.00<<	-0.35	0.00	-0.45	0.00
297/	208/ ULS/112	580.86	0.00	5.62>>	-0.00	5.53	-0.00
297/	170/ ULS/110	673.35	0.00	-7.21<<	-0.00	4.45	-0.00
297/	208/ 7	-56.25	-0.00	-0.35	0.00>>	-0.45	0.00
297/	208/ ULS/110	672.69	0.00	3.82	-0.00<<	5.39	-0.00
297/	170/ ULS/112	581.52	0.00	-5.41	-0.00	5.59>>	-0.00
297/	170/ ULS/165	152.73	0.00	-2.29	-0.00	-0.96<<	-0.00
297/	170/ 7	-56.31	-0.00	0.64	0.00	-0.37	0.00>>
297/	170/ ULS/110	673.35	0.00	-7.21	-0.00	4.45	-0.00<<
298/	98/ 11	7.19>>	0.00	-0.30	0.00	0.02	0.00
298/	98/ ULS/112	-82.49<<	-0.00	1.36	-0.00	0.66	-0.00
298/	98/ 7	6.50	0.00>>	0.12	0.00	-0.14	0.00
298/	98/ ULS/110	-78.21	-0.00<<	-1.27	-0.00	1.70	-0.00
298/	98/ ULS/163	-57.22	-0.00	2.17>>	-0.00	-0.05	-0.00
298/	202/ ULS/120	-20.96	-0.00	-3.78<<	-0.00	-0.21	-0.00
298/	98/ 7	6.50	0.00	0.12	0.00>>	-0.14	0.00
298/	98/ ULS/110	-78.21	-0.00	-1.27	-0.00<<	1.70	-0.00

298/	98/		-33.29	-0.00	-3.14	-0.00	1.85>>	-0.00
	ULS/111							
298/	202/		-0.94	-0.00	-3.33	-0.00	-0.43<<	-0.00
	ULS/165							
298/	98/	7	6.50	0.00	0.12	0.00	-0.14	0.00>>
298/	98/		-78.21	-0.00	-1.27	-0.00	1.70	-0.00<<
	ULS/110							
299/	203/		687.89>>	0.00	-9.67	-0.00	5.69	-0.00
	ULS/110							
299/	203/	7	-57.46<<	-0.00	0.84	0.00	-0.47	0.00
299/	99/		687.81	0.00>>	1.36	-0.00	7.98	-0.00
	ULS/110							
299/	99/	7	-57.45	-0.00<<	-0.15	0.00	-0.66	0.00
299/	99/		473.46	0.00	2.17>>	-0.00	5.31	-0.00
	ULS/142							
299/	203/		687.89	0.00	-9.67<<	-0.00	5.69	-0.00
	ULS/110							
299/	99/	7	-57.45	-0.00	-0.15	0.00>>	-0.66	0.00
299/	99/		687.81	0.00	1.36	-0.00<<	7.98	-0.00
	ULS/110							
299/	99/		687.81	0.00	1.36	-0.00	7.98>>	-0.00
	ULS/110							
299/	99/	7	-57.45	-0.00	-0.15	0.00	-0.66<<	0.00
299/	203/	7	-57.46	-0.00	0.84	0.00	-0.47	0.00>>
299/	203/		687.89	0.00	-9.67	-0.00	5.69	-0.00<<
	ULS/110							

Member Forces ULS: envelope

- Cases: 1to11 13 14

Bar	FX (kN)	FY (kN)	FZ (kN)	MX (kNm)	MY (kNm)	MZ (kNm)
1 / MAX	95.00	0.00	21.50	0.00	6.42	0.00
Node	1	1	1	1	2	1
Case	ULS/110	ULS/110	ULS/110	ULS/110	ULS/110	ULS/110
1 / MIN	-7.90	-0.00	-1.78	-0.00	-23.27	-0.00
Node	1	1	1	1	1	1
Case	7	7	7	7	ULS/110	7
2 / MAX	3.31	0.00	0.20	0.00	0.35	0.00
Node	2	2	2	2	2	19
Case	7	7	7	7	ULS/110	ULS/110
2 / MIN	-40.79	-0.00	-3.37	-0.00	-1.48	-0.00
Node	19	2	19	2	19	2
Case	ULS/110	ULS/110	ULS/110	ULS/110	ULS/110	ULS/110
3 / MAX	0.30	0.00	0.19	0.00	0.52	0.00
Node	12	12	12	12	12	12
Case	8	ULS/110	ULS/165	ULS/110	ULS/112	ULS/110
3 / MIN	-3.55	-0.00	-0.60	-0.00	-0.51	-0.00
Node	12	12	4	12	4	4
Case	ULS/112	7	ULS/112	7	ULS/112	ULS/110
5 / MAX	49.91	0.00	2.10	0.00	3.03	0.00
Node	19	19	19	19	4	19
Case	7	ULS/110	ULS/110	7	ULS/141	ULS/110
5 / MIN	-596.82	-0.00	-1.07	-0.00	-5.39	-0.00
Node	4	19	4	19	19	4
Case	ULS/110	7	ULS/63	ULS/110	ULS/110	ULS/110
6 / MAX	49.94	0.00	1.64	0.00	3.35	0.00
Node	4	4	4	4	3	3
Case	7	ULS/110	ULS/118	7	ULS/110	7
6 / MIN	-597.24	-0.00	-1.04	-0.00	-2.69	-0.00
Node	4	4	3	4	4	3

Case	ULS/110	7	ULS/135	ULS/110	ULS/133	ULS/110
16 / MAX	81.80	0.00	0.29	0.00	1.54	0.00
Node	2	2	2	2	2	2
Case	ULS/110	ULS/110	7	ULS/110	ULS/110	ULS/110
16 / MIN	-6.81	-0.00	-3.47	-0.00	-1.20	-0.00
Node	2	2	2	2	14	2
Case	7	7	ULS/110	7	ULS/110	7
17 / MAX	68.55	0.00	0.20	0.00	0.87	0.00
Node	10	10	10	10	10	10
Case	ULS/111	ULS/110	7	ULS/110	ULS/111	ULS/110
17 / MIN	-6.17	-0.00	-2.33	-0.00	-0.93	-0.00
Node	10	10	10	10	15	10
Case	10	7	ULS/110	7	ULS/110	7
18 / MAX	48.04	0.00	0.17	0.00	0.78	0.00
Node	11	11	11	11	11	11
Case	ULS/110	ULS/110	7	ULS/110	ULS/110	ULS/110
18 / MIN	-4.04	-0.00	-2.06	-0.00	-0.79	-0.00
Node	11	11	11	11	16	11
Case	7	7	ULS/110	7	ULS/110	7
19 / MAX	28.37	0.00	0.13	0.00	0.59	0.00
Node	12	12	12	12	12	12
Case	ULS/110	ULS/110	7	ULS/110	ULS/110	ULS/110
19 / MIN	-2.50	-0.00	-1.54	-0.00	-0.58	-0.00
Node	12	12	12	12	17	12
Case	7	7	ULS/110	7	ULS/110	7
20 / MAX	29.84	0.00	0.46	0.00	0.60	0.00
Node	13	13	13	13	13	13
Case	ULS/118	ULS/110	ULS/165	ULS/110	ULS/112	ULS/110
20 / MIN	-14.96	-0.00	-1.61	-0.00	-0.61	-0.00
Node	18	13	13	13	18	13
Case	ULS/165	7	ULS/112	7	ULS/112	7
21 / MAX	107.80	0.00	1.02	0.00	4.95	0.00
Node	19	19	19	19	19	19
Case	ULS/111	ULS/110	7	ULS/110	ULS/110	ULS/110
21 / MIN	-9.99	-0.00	-12.65	-0.00	-5.04	-0.00
Node	19	19	19	19	37	19
Case	10	7	ULS/110	7	ULS/110	7
22 / MAX	71.72	0.00	0.22	0.00	0.87	0.00
Node	20	20	20	20	20	38
Case	ULS/111	7	10	ULS/110	ULS/111	ULS/110
22 / MIN	-7.98	-0.00	-2.39	-0.00	-1.01	-0.00
Node	38	20	20	20	38	38
Case	ULS/163	ULS/110	ULS/111	7	ULS/111	7
23 / MAX	79.11	0.00	0.21	0.00	0.93	0.00
Node	21	21	21	21	21	39
Case	ULS/111	7	10	ULS/110	ULS/111	ULS/110
23 / MIN	-7.41	-0.00	-2.46	-0.00	-0.99	-0.00
Node	21	21	21	21	39	39
Case	10	ULS/110	ULS/111	7	ULS/111	7
24 / MAX	73.89	0.00	0.20	0.00	0.91	0.00
Node	22	22	22	22	22	40
Case	ULS/111	7	10	ULS/110	ULS/111	ULS/110
24 / MIN	-6.82	-0.00	-2.39	-0.00	-0.96	-0.00
Node	22	22	22	22	40	40
Case	10	ULS/110	ULS/111	7	ULS/110	7
26 / MAX	7.62	0.00	0.51	0.00	2.13	0.00
Node	14	14	14	14	14	19
Case	7	ULS/110	7	ULS/110	ULS/110	7
26 / MIN	-92.12	-0.00	-6.62	-0.00	-3.25	-0.00
Node	14	14	19	14	19	19
Case	ULS/110	7	ULS/110	7	ULS/110	ULS/110
27 / MAX	8.85	0.00	0.40	0.00	0.30	0.00
Node	20	37	37	37	37	20
Case	ULS/163	ULS/110	ULS/163	ULS/110	ULS/120	7
27 / MIN	-71.17	-0.00	-0.91	-0.00	-0.43	-0.00
Node	37	37	20	37	20	20
Case	ULS/111	7	ULS/120	7	ULS/111	ULS/110

28 / MAX	10.10	0.00	0.34	0.00	0.57	0.00
Node	21	38	38	38	38	21
Case	ULS/163	ULS/110	ULS/163	ULS/110	ULS/111	7
28 / MIN	-78.68	-0.00	-1.47	-0.00	-0.62	-0.00
Node	38	38	21	38	21	21
Case	ULS/111	7	ULS/111	7	ULS/111	ULS/110
29 / MAX	7.45	0.00	0.30	0.00	0.56	0.00
Node	22	39	39	39	39	22
Case	ULS/163	ULS/110	ULS/163	ULS/110	ULS/111	7
29 / MIN	-74.86	-0.00	-1.40	-0.00	-0.58	-0.00
Node	39	39	22	39	22	22
Case	ULS/111	7	ULS/111	7	ULS/111	ULS/110
30 / MAX	6.56	0.00	0.24	0.00	0.54	0.00
Node	40	40	40	40	40	10
Case	10	ULS/110	ULS/163	ULS/110	ULS/111	7
30 / MIN	-70.59	-0.00	-1.31	-0.00	-0.54	-0.00
Node	40	40	10	40	10	10
Case	ULS/111	7	ULS/111	7	ULS/111	ULS/110
31 / MAX	63.25	0.00	0.19	0.00	0.86	0.00
Node	41	41	41	41	41	41
Case	ULS/111	ULS/110	7	ULS/110	ULS/110	ULS/110
31 / MIN	-5.55	-0.00	-2.29	-0.00	-0.91	-0.00
Node	41	41	41	41	45	41
Case	10	7	ULS/110	7	ULS/110	7
32 / MAX	58.02	0.00	0.19	0.00	0.85	0.00
Node	42	42	42	42	42	42
Case	ULS/110	ULS/110	7	ULS/110	ULS/110	ULS/110
32 / MIN	-4.92	-0.00	-2.24	-0.00	-0.88	-0.00
Node	42	42	42	42	46	42
Case	7	7	ULS/110	7	ULS/110	7
33 / MAX	54.09	0.00	0.18	0.00	0.83	0.00
Node	43	43	43	43	43	43
Case	ULS/110	ULS/110	7	ULS/110	ULS/110	ULS/110
33 / MIN	-4.58	-0.00	-2.18	-0.00	-0.85	-0.00
Node	43	43	43	43	47	43
Case	7	7	ULS/110	7	ULS/110	7
34 / MAX	51.48	0.00	0.18	0.00	0.81	0.00
Node	44	44	44	44	44	44
Case	ULS/110	ULS/110	7	ULS/110	ULS/110	ULS/110
34 / MIN	-4.34	-0.00	-2.13	-0.00	-0.82	-0.00
Node	44	44	44	44	48	44
Case	7	7	ULS/110	7	ULS/110	7
35 / MAX	6.02	0.00	0.17	0.00	0.51	0.00
Node	15	15	15	15	15	41
Case	10	ULS/110	ULS/163	ULS/110	ULS/111	7
35 / MIN	-66.49	-0.00	-1.22	-0.00	-0.49	-0.00
Node	15	15	41	15	41	41
Case	ULS/111	7	ULS/111	7	ULS/111	ULS/110
36 / MAX	5.44	0.00	0.11	0.00	0.49	0.00
Node	45	45	45	45	45	42
Case	10	ULS/110	ULS/163	ULS/110	ULS/111	7
36 / MIN	-61.89	-0.00	-1.13	-0.00	-0.44	-0.00
Node	45	45	42	45	42	42
Case	ULS/111	7	ULS/111	7	ULS/111	ULS/110
37 / MAX	4.82	0.00	0.09	0.00	0.46	0.00
Node	46	46	46	46	46	43
Case	10	ULS/110	10	ULS/110	ULS/111	7
37 / MIN	-57.00	-0.00	-1.03	-0.00	-0.40	-0.00
Node	46	46	43	46	43	43
Case	ULS/111	7	ULS/111	7	ULS/111	ULS/110
38 / MAX	4.50	0.00	0.08	0.00	0.43	0.00
Node	47	47	47	47	47	44
Case	7	ULS/110	10	ULS/110	ULS/111	7
38 / MIN	-53.92	-0.00	-0.94	-0.00	-0.37	-0.00
Node	47	47	44	47	44	44
Case	ULS/110	7	ULS/111	7	ULS/110	ULS/110
39 / MAX	4.29	0.00	0.07	0.00	0.40	0.00

Node	48	48	48	48	48	11
Case	7	ULS/110	7	ULS/110	ULS/111	7
39 / MIN	-51.60	-0.00	-0.86	-0.00	-0.34	-0.00
Node	48	48	11	48	11	11
Case	ULS/110	7	ULS/110	7	ULS/110	ULS/110
40 / MAX	44.80	0.00	0.17	0.00	0.76	0.00
Node	49	49	49	49	49	49
Case	ULS/110	ULS/110	7	ULS/110	ULS/110	ULS/110
40 / MIN	-3.76	-0.00	-1.99	-0.00	-0.76	-0.00
Node	49	49	49	49	53	49
Case	7	7	ULS/110	7	ULS/110	7
41 / MAX	41.58	0.00	0.16	0.00	0.73	0.00
Node	50	50	50	50	50	50
Case	ULS/110	ULS/110	7	ULS/110	ULS/110	ULS/110
41 / MIN	-3.48	-0.00	-1.91	-0.00	-0.72	-0.00
Node	50	50	50	50	54	50
Case	7	7	ULS/110	7	ULS/110	7
42 / MAX	37.90	0.00	0.15	0.00	0.69	0.00
Node	51	51	51	51	51	51
Case	ULS/110	ULS/110	7	ULS/110	ULS/110	ULS/110
42 / MIN	-3.15	-0.00	-1.81	-0.00	-0.68	-0.00
Node	51	51	51	51	55	51
Case	7	7	ULS/110	7	ULS/110	7
43 / MAX	34.18	0.00	0.14	0.00	0.67	0.00
Node	52	52	52	52	52	52
Case	ULS/110	ULS/118	7	ULS/110	ULS/110	ULS/110
43 / MIN	-2.85	-0.00	-1.74	-0.00	-0.65	-0.00
Node	52	52	52	52	56	52
Case	7	8	ULS/110	7	ULS/110	7
44 / MAX	4.03	0.00	0.07	0.00	0.36	0.00
Node	16	16	16	16	16	49
Case	7	ULS/110	7	ULS/110	ULS/111	7
44 / MIN	-48.60	-0.00	-0.82	-0.00	-0.32	-0.00
Node	16	16	49	16	49	49
Case	ULS/110	7	ULS/110	7	ULS/110	ULS/110
45 / MAX	3.80	0.00	0.06	0.00	0.35	0.00
Node	53	53	53	53	53	50
Case	7	ULS/110	7	ULS/110	ULS/110	7
45 / MIN	-46.15	-0.00	-0.76	-0.00	-0.29	-0.00
Node	53	53	50	53	50	50
Case	ULS/110	7	ULS/110	7	ULS/110	ULS/110
46 / MAX	3.49	0.00	0.06	0.00	0.34	0.00
Node	54	54	54	54	54	51
Case	7	ULS/110	7	ULS/110	ULS/110	7
46 / MIN	-42.59	-0.00	-0.71	-0.00	-0.26	-0.00
Node	54	54	51	54	51	51
Case	ULS/110	7	ULS/110	7	ULS/110	ULS/110
47 / MAX	3.26	0.00	0.05	0.00	0.32	0.00
Node	55	55	55	55	55	52
Case	7	ULS/110	7	ULS/110	ULS/110	7
47 / MIN	-39.86	-0.00	-0.66	-0.00	-0.24	-0.00
Node	55	55	52	55	52	52
Case	ULS/110	7	ULS/110	7	ULS/112	ULS/110
48 / MAX	2.95	0.00	0.04	0.00	0.29	0.00
Node	56	56	56	56	56	12
Case	7	ULS/110	7	ULS/110	ULS/110	7
48 / MIN	-36.35	-0.00	-0.54	-0.00	-0.19	-0.00
Node	56	56	12	56	12	12
Case	ULS/110	7	ULS/110	7	ULS/112	ULS/110
49 / MAX	28.72	0.00	0.13	0.00	0.58	0.00
Node	57	62	62	62	62	57
Case	ULS/112	7	11	ULS/110	ULS/112	ULS/110
49 / MIN	-2.72	-0.00	-1.52	-0.00	-0.57	-0.00
Node	62	62	62	62	57	57
Case	11	ULS/110	ULS/112	7	ULS/112	7
50 / MAX	28.57	0.00	0.15	0.00	0.59	0.00
Node	58	61	61	61	61	58

Case	ULS/112	7	11	ULS/110	ULS/112	ULS/110
50 / MIN	-6.69	-0.00	-1.55	-0.00	-0.58	-0.00
Node	61	61	61	61	58	58
Case	ULS/165	ULS/110	ULS/112	7	ULS/112	7
51 / MAX	29.00	0.00	0.30	0.00	0.60	0.00
Node	59	60	60	60	60	59
Case	ULS/112	7	ULS/165	ULS/110	ULS/112	ULS/110
51 / MIN	-10.90	-0.00	-1.58	-0.00	-0.59	-0.00
Node	60	60	60	60	59	59
Case	ULS/165	ULS/110	ULS/112	7	ULS/112	7
52 / MAX	2.78	0.00	0.05	0.00	0.27	0.00
Node	17	17	17	17	17	57
Case	11	ULS/110	11	ULS/110	ULS/110	7
52 / MIN	-31.72	-0.00	-0.54	-0.00	-0.22	-0.00
Node	17	17	57	17	57	57
Case	ULS/112	7	ULS/112	7	ULS/112	ULS/110
53 / MAX	5.19	0.00	0.12	0.00	0.25	0.00
Node	58	62	62	62	62	58
Case	ULS/165	ULS/110	ULS/165	ULS/110	ULS/110	7
53 / MIN	-32.66	-0.00	-0.54	-0.00	-0.22	-0.00
Node	62	62	58	62	58	58
Case	ULS/112	7	ULS/112	7	ULS/118	ULS/110
54 / MAX	10.36	0.00	0.21	0.00	0.26	0.00
Node	59	61	61	61	61	59
Case	ULS/165	ULS/110	ULS/165	ULS/110	ULS/112	7
54 / MIN	-33.80	-0.00	-0.56	-0.00	-0.23	-0.00
Node	61	61	59	61	59	59
Case	ULS/112	7	ULS/112	7	ULS/118	ULS/110
55 / MAX	15.75	0.00	0.30	0.00	0.27	0.00
Node	13	60	60	60	60	13
Case	ULS/165	ULS/110	ULS/165	ULS/110	ULS/112	7
55 / MIN	-35.38	-0.00	-0.59	-0.00	-0.24	-0.00
Node	60	60	13	60	13	13
Case	ULS/118	7	ULS/118	7	ULS/118	ULS/110
56 / MAX	3.28	0.00	0.36	0.00	0.60	0.00
Node	64	64	64	64	64	63
Case	ULS/111	ULS/110	7	ULS/110	ULS/110	7
56 / MIN	-0.27	-0.00	-4.58	-0.00	-1.95	-0.00
Node	64	64	63	64	63	63
Case	10	7	ULS/110	7	ULS/110	ULS/110
57 / MAX	1.92	0.00	0.78	0.00	2.73	0.00
Node	63	63	63	63	63	2
Case	7	7	7	7	ULS/110	ULS/110
57 / MIN	-23.56	-0.00	-9.54	-0.00	-2.87	-0.00
Node	2	63	2	63	2	63
Case	ULS/110	ULS/110	ULS/110	ULS/110	ULS/110	ULS/110
58 / MAX	1.37	0.00	2.69	0.00	0.19	0.00
Node	65	66	66	66	65	65
Case	10	7	ULS/111	7	7	ULS/110
58 / MIN	-15.71	-0.00	-8.56	-0.00	-2.28	-0.00
Node	65	66	65	66	65	65
Case	ULS/111	ULS/110	ULS/110	ULS/110	ULS/110	7
59 / MAX	1.38	0.00	13.25	0.00	0.83	0.00
Node	14	65	65	65	14	65
Case	7	ULS/110	ULS/110	7	ULS/118	ULS/110
59 / MIN	-15.86	-0.00	-1.13	-0.00	-4.00	-0.00
Node	14	65	65	65	65	65
Case	ULS/110	7	7	ULS/110	ULS/110	7
60 / MAX	0.16	0.00	0.25	0.00	0.09	0.00
Node	64	64	64	64	66	66
Case	9	7	ULS/110	7	ULS/110	ULS/110
60 / MIN	-1.59	-0.00	-0.02	-0.00	-0.12	-0.00
Node	66	64	64	64	64	66
Case	ULS/111	ULS/110	7	ULS/110	ULS/110	7
61 / MAX	12.31	0.00	0.20	0.00	1.25	0.00
Node	63	63	63	63	63	63
Case	ULS/111	ULS/110	7	ULS/110	ULS/110	ULS/110

61 / MIN	-1.40	-0.00	-2.44	-0.00	-0.69	-0.00
Node	65	63	63	63	65	63
Case	ULS/163	7	ULS/110	7	ULS/110	7
62 / MAX	11.53	0.00	0.03	0.00	0.07	0.00
Node	63	66	66	66	66	63
Case	ULS/111	7	7	ULS/110	ULS/110	ULS/110
62 / MIN	-1.03	-0.00	-0.37	-0.00	-0.21	-0.00
Node	66	66	63	66	63	63
Case	10	ULS/110	ULS/110	7	ULS/110	7
63 / MAX	12.70	0.00	0.28	0.00	1.03	0.00
Node	2	65	65	65	65	65
Case	ULS/110	ULS/110	7	ULS/110	ULS/110	ULS/110
63 / MIN	-1.08	-0.00	-3.35	-0.00	-1.66	-0.00
Node	65	65	2	65	2	2
Case	7	7	ULS/110	7	ULS/110	ULS/110
64 / MAX	20.87	0.00	1.90	0.00	23.64	0.00
Node	1	1	1	1	1	1
Case	ULS/111	ULS/110	7	ULS/110	ULS/110	ULS/110
64 / MIN	-2.12	-0.00	-22.88	-0.00	-6.13	-0.00
Node	63	1	63	1	63	63
Case	ULS/163	7	ULS/110	7	ULS/110	ULS/110
65 / MAX	236.23	0.00	14.43	0.00	3.77	0.00
Node	1	1	1	1	19	1
Case	ULS/110	ULS/110	ULS/110	ULS/110	ULS/110	ULS/110
65 / MIN	-19.72	-0.00	-1.23	-0.00	-20.06	-0.00
Node	1	1	1	1	1	1
Case	7	7	7	7	ULS/110	7
73 / MAX	0.33	0.00	0.93	0.00	0.40	0.00
Node	69	69	69	69	64	69
Case	ULS/110	ULS/110	ULS/110	ULS/110	ULS/110	ULS/110
73 / MIN	-0.08	-0.00	-0.23	-0.00	-0.04	-0.00
Node	64	69	64	69	64	64
Case	ULS/63	7	ULS/63	7	7	ULS/110
74 / MAX	0.59	0.00	4.55	0.00	0.06	0.00
Node	66	71	71	71	71	66
Case	7	7	ULS/110	7	ULS/111	ULS/110
74 / MIN	-6.83	-0.00	-6.56	-0.00	-0.55	-0.00
Node	66	71	66	71	66	66
Case	ULS/110	ULS/110	ULS/111	ULS/110	ULS/111	7
75 / MAX	0.06	0.00	0.01	0.00	0.01	0.00
Node	69	69	69	69	71	71
Case	7	7	ULS/150	7	ULS/111	ULS/110
75 / MIN	-1.06	-0.00	-0.00	-0.00	-0.00	-0.00
Node	71	69	69	69	71	71
Case	ULS/110	ULS/110	ULS/133	ULS/110	9	7
76 / MAX	6.15	0.00	0.20	0.00	0.09	0.00
Node	64	71	71	71	64	71
Case	ULS/110	ULS/110	ULS/110	ULS/110	ULS/110	ULS/110
76 / MIN	-0.52	-0.00	-0.01	-0.00	-0.05	-0.00
Node	71	71	71	71	71	71
Case	7	7	7	7	ULS/110	7
79 / MAX	29.12	0.00	1.68	0.00	0.61	0.00
Node	72	72	72	72	76	76
Case	ULS/148	ULS/165	ULS/118	ULS/110	ULS/118	ULS/118
79 / MIN	-28.41	-0.00	-1.03	-0.00	-0.64	-0.00
Node	76	72	72	72	72	72
Case	ULS/135	ULS/118	ULS/165	7	ULS/118	ULS/118
84 / MAX	572.44	0.00	1.81	0.00	0.88	0.00
Node	19	19	19	19	19	20
Case	ULS/110	7	ULS/165	7	ULS/133	ULS/110
84 / MIN	-48.04	-0.00	-3.32	-0.00	-1.18	-0.00
Node	19	19	20	19	19	20
Case	7	ULS/110	ULS/118	ULS/110	ULS/150	7
102 / MAX	0.54	0.00	1.17	0.00	0.45	0.00
Node	98	98	98	98	98	98
Case	7	ULS/120	ULS/148	ULS/110	ULS/135	ULS/120
102 / MIN	-7.29	-0.00	-1.17	-0.00	-0.45	-0.00

Node	99	98	98	98	98	98
Case	ULS/110	ULS/163	ULS/135	7	ULS/148	ULS/163
107 / MAX	49.03	0.00	0.67	0.00	0.38	0.00
Node	98	76	76	76	98	98
Case	ULS/120	ULS/110	ULS/120	ULS/110	ULS/120	7
107 / MIN	-44.38	-0.00	-0.49	-0.00	-0.23	-0.00
Node	76	76	98	76	76	98
Case	ULS/163	7	ULS/163	7	ULS/165	ULS/110
108 / MAX	32.86	0.00	1.73	0.00	0.64	0.00
Node	101	100	100	100	101	101
Case	ULS/118	ULS/165	ULS/118	ULS/110	ULS/118	ULS/118
108 / MIN	-27.58	-0.00	-0.95	-0.00	-0.66	-0.00
Node	100	100	100	100	100	100
Case	ULS/165	ULS/118	ULS/165	7	ULS/118	ULS/118
109 / MAX	31.69	0.00	1.71	0.00	0.64	0.00
Node	103	102	102	102	103	103
Case	ULS/118	ULS/165	ULS/118	ULS/110	ULS/118	ULS/118
109 / MIN	-23.06	-0.00	-0.80	-0.00	-0.65	-0.00
Node	102	102	102	102	102	102
Case	ULS/165	ULS/118	ULS/165	7	ULS/118	ULS/118
110 / MAX	30.91	0.00	1.65	0.00	0.61	0.00
Node	105	104	104	104	105	105
Case	ULS/118	ULS/165	ULS/118	ULS/110	ULS/118	ULS/118
110 / MIN	-18.91	-0.00	-0.63	-0.00	-0.63	-0.00
Node	104	104	104	104	104	104
Case	ULS/165	ULS/118	ULS/165	7	ULS/118	ULS/118
111 / MAX	35.01	0.00	0.65	0.00	0.36	0.00
Node	72	100	100	100	100	72
Case	ULS/165	ULS/110	ULS/135	ULS/110	ULS/118	7
111 / MIN	-39.98	-0.00	-0.72	-0.00	-0.29	-0.00
Node	100	100	72	100	72	72
Case	ULS/118	7	ULS/118	7	ULS/163	ULS/110
112 / MAX	31.60	0.00	0.54	0.00	0.33	0.00
Node	101	102	102	102	102	101
Case	ULS/165	ULS/110	ULS/135	ULS/110	ULS/118	7
112 / MIN	-40.29	-0.00	-0.66	-0.00	-0.26	-0.00
Node	102	102	101	102	101	101
Case	ULS/118	7	ULS/118	7	ULS/163	ULS/110
113 / MAX	26.36	0.00	0.47	0.00	0.31	0.00
Node	103	104	104	104	104	103
Case	ULS/165	ULS/110	ULS/165	ULS/110	ULS/118	7
113 / MIN	-39.04	-0.00	-0.65	-0.00	-0.26	-0.00
Node	104	104	103	104	103	103
Case	ULS/118	7	ULS/118	7	ULS/133	ULS/110
114 / MAX	20.86	0.00	0.38	0.00	0.29	0.00
Node	105	18	18	18	18	105
Case	ULS/165	ULS/110	ULS/165	ULS/110	ULS/112	7
114 / MIN	-37.28	-0.00	-0.62	-0.00	-0.25	-0.00
Node	18	18	105	18	105	105
Case	ULS/118	7	ULS/118	7	ULS/118	ULS/110
125 / MAX	352.10	0.00	1.30	0.00	54.35	0.00
Node	110	110	110	110	110	110
Case	ULS/110	ULS/110	7	ULS/110	ULS/110	ULS/110
125 / MIN	-27.39	-0.00	-15.51	-0.00	-66.96	-0.00
Node	110	110	110	110	1	110
Case	7	7	ULS/110	7	ULS/110	7
126 / MAX	526.15	0.00	3.92	0.00	0.42	0.00
Node	20	20	20	20	21	21
Case	ULS/110	7	ULS/111	7	ULS/165	ULS/110
126 / MIN	-44.12	-0.00	-0.31	-0.00	-2.17	-0.00
Node	20	20	20	20	20	21
Case	7	ULS/110	10	ULS/110	ULS/110	7
127 / MAX	0.18	0.00	0.38	0.00	0.38	0.00
Node	3	3	3	3	98	98
Case	4	7	ULS/133	ULS/110	ULS/163	ULS/110
127 / MIN	-1.26	-0.00	-0.38	-0.00	-0.38	-0.00
Node	98	3	98	3	98	3

Case	ULS/63	ULS/110	ULS/120	7	ULS/120	ULS/110
128 / MAX	474.36	0.00	3.36	0.00	0.62	0.00
Node	21	21	21	21	22	22
Case	ULS/110	7	ULS/111	7	ULS/150	ULS/110
128 / MIN	-39.72	-0.00	-0.43	-0.00	-1.52	-0.00
Node	21	21	22	21	21	22
Case	7	ULS/110	ULS/163	ULS/110	ULS/110	7
129 / MAX	424.59	0.00	3.02	0.00	0.70	0.00
Node	22	22	22	22	10	10
Case	ULS/110	7	ULS/111	7	ULS/120	ULS/110
129 / MIN	-35.51	-0.00	-0.30	-0.00	-1.31	-0.00
Node	22	22	10	22	22	10
Case	7	ULS/110	ULS/102	ULS/110	ULS/110	7
130 / MAX	56.96	0.00	1.30	0.00	0.71	0.00
Node	14	14	37	14	37	14
Case	ULS/110	ULS/110	7	7	7	ULS/110
130 / MIN	-4.64	-0.00	-14.77	-0.00	-8.17	-0.00
Node	14	14	37	14	37	14
Case	7	7	ULS/110	ULS/110	ULS/110	7
131 / MAX	120.90	0.00	22.58	0.00	1.13	0.00
Node	37	37	37	37	37	37
Case	ULS/111	ULS/110	ULS/111	7	7	ULS/110
131 / MIN	-10.07	-0.00	-2.12	-0.00	-13.35	-0.00
Node	37	37	37	37	37	37
Case	10	7	10	ULS/110	ULS/110	7
132 / MAX	174.74	0.00	9.99	0.00	0.53	0.00
Node	38	38	38	38	38	38
Case	ULS/111	ULS/110	ULS/111	7	7	ULS/110
132 / MIN	-15.28	-0.00	-1.77	-0.00	-6.27	-0.00
Node	38	38	39	38	38	38
Case	10	7	ULS/110	ULS/110	ULS/110	7
133 / MAX	228.95	0.00	10.18	0.00	0.87	0.00
Node	39	39	39	39	40	39
Case	ULS/111	ULS/110	ULS/111	7	ULS/165	ULS/110
133 / MIN	-20.41	-0.00	-1.34	-0.00	-5.51	-0.00
Node	39	39	40	39	39	39
Case	10	7	ULS/140	ULS/110	ULS/110	7
134 / MAX	279.65	0.00	9.54	0.00	1.45	0.00
Node	40	40	40	40	15	40
Case	ULS/111	ULS/110	ULS/111	7	ULS/165	ULS/110
134 / MIN	-25.11	-0.00	-1.83	-0.00	-4.58	-0.00
Node	40	40	15	40	40	40
Case	10	7	ULS/110	ULS/110	ULS/112	7
135 / MAX	376.87	0.00	2.96	0.00	0.83	0.00
Node	10	10	10	10	41	41
Case	ULS/110	7	ULS/111	7	ULS/120	ULS/110
135 / MIN	-31.47	-0.00	-0.24	-0.00	-1.18	-0.00
Node	10	10	10	10	10	41
Case	7	ULS/110	10	ULS/110	ULS/110	7
136 / MAX	348.31	0.00	2.76	0.00	0.92	0.00
Node	41	41	41	41	42	42
Case	ULS/112	7	ULS/111	7	ULS/120	ULS/110
136 / MIN	-30.37	-0.00	-0.21	-0.00	-0.99	-0.00
Node	41	41	41	41	41	42
Case	11	ULS/110	10	ULS/110	ULS/110	7
137 / MAX	328.98	0.00	2.74	0.00	0.99	0.00
Node	42	42	42	42	43	43
Case	ULS/112	7	ULS/110	7	ULS/120	ULS/110
137 / MIN	-30.59	-0.00	-0.21	-0.00	-0.91	-0.00
Node	42	42	42	42	42	43
Case	11	ULS/110	7	ULS/110	ULS/112	7
138 / MAX	309.02	0.00	2.52	0.00	1.05	0.00
Node	43	43	43	43	44	44
Case	ULS/112	7	ULS/110	7	ULS/120	ULS/110
138 / MIN	-53.77	-0.00	-0.19	-0.00	-0.82	-0.00
Node	44	43	43	43	43	44
Case	ULS/165	ULS/110	7	ULS/110	ULS/112	7

139 / MAX	288.41	0.00	2.58	0.00	1.11	0.00
Node	44	44	44	44	11	11
Case	ULS/112	7	ULS/110	7	ULS/111	ULS/110
139 / MIN	-77.86	-0.00	-0.20	-0.00	-0.82	-0.00
Node	11	44	44	44	44	11
Case	ULS/165	ULS/110	7	ULS/110	ULS/112	7
140 / MAX	326.72	0.00	9.61	0.00	2.08	0.00
Node	15	15	15	15	45	15
Case	ULS/111	ULS/110	ULS/111	7	ULS/165	ULS/110
140 / MIN	-29.36	-0.00	-1.63	-0.00	-4.33	-0.00
Node	15	15	45	15	15	15
Case	10	7	ULS/110	ULS/110	ULS/112	7
141 / MAX	370.11	0.00	9.36	0.00	2.64	0.00
Node	45	45	45	45	46	45
Case	ULS/111	ULS/110	ULS/111	7	ULS/165	ULS/110
141 / MIN	-33.16	-0.00	-1.72	-0.00	-4.00	-0.00
Node	45	45	46	45	45	45
Case	10	7	ULS/110	ULS/110	ULS/112	7
142 / MAX	409.68	0.00	8.83	0.00	3.00	0.00
Node	46	46	46	46	47	46
Case	ULS/111	ULS/110	ULS/110	7	ULS/165	ULS/110
142 / MIN	-36.49	-0.00	-2.31	-0.00	-3.73	-0.00
Node	46	46	47	46	46	46
Case	10	7	ULS/111	ULS/110	ULS/118	7
143 / MAX	445.48	0.00	9.02	0.00	3.63	0.00
Node	47	47	47	47	48	47
Case	ULS/111	ULS/110	ULS/110	7	ULS/120	ULS/110
143 / MIN	-39.38	-0.00	-2.20	-0.00	-3.52	-0.00
Node	47	47	48	47	47	47
Case	10	7	ULS/111	ULS/110	ULS/118	7
144 / MAX	477.67	0.00	9.00	0.00	4.23	0.00
Node	48	48	48	48	16	48
Case	ULS/111	ULS/110	ULS/110	7	ULS/120	ULS/110
144 / MIN	-41.82	-0.00	-2.40	-0.00	-3.28	-0.00
Node	48	48	16	48	48	48
Case	10	7	ULS/111	ULS/110	ULS/118	7
145 / MAX	506.06	0.00	8.30	0.00	4.48	0.00
Node	16	16	16	16	53	16
Case	ULS/111	ULS/110	ULS/110	7	ULS/120	ULS/110
145 / MIN	-43.82	-0.00	-3.23	-0.00	-3.06	-0.00
Node	16	16	53	16	16	16
Case	10	7	ULS/111	ULS/110	ULS/163	7
146 / MAX	530.64	0.00	9.09	0.00	5.12	0.00
Node	53	53	53	53	54	53
Case	ULS/111	ULS/110	ULS/110	7	ULS/120	ULS/110
146 / MIN	-45.35	-0.00	-2.61	-0.00	-2.95	-0.00
Node	53	53	54	53	53	53
Case	10	7	ULS/111	ULS/110	ULS/163	7
147 / MAX	551.30	0.00	7.81	0.00	5.12	0.00
Node	54	54	54	54	55	54
Case	ULS/111	ULS/110	ULS/110	7	ULS/120	ULS/110
147 / MIN	-46.43	-0.00	-4.02	-0.00	-2.76	-0.00
Node	54	54	55	54	54	54
Case	10	7	ULS/111	ULS/110	ULS/163	7
148 / MAX	573.19	0.00	8.82	0.00	5.61	0.00
Node	55	55	55	55	56	55
Case	ULS/110	ULS/110	ULS/110	7	ULS/111	ULS/110
148 / MIN	-47.86	-0.00	-3.25	-0.00	-2.58	-0.00
Node	55	55	56	55	55	55
Case	7	7	ULS/141	ULS/110	ULS/163	7
149 / MAX	597.06	0.00	7.77	0.00	5.74	0.00
Node	56	56	56	56	17	56
Case	ULS/110	ULS/110	ULS/110	7	ULS/111	ULS/110
149 / MIN	-49.81	-0.00	-4.24	-0.00	-2.20	-0.00
Node	56	56	17	56	56	56
Case	7	7	ULS/111	ULS/110	ULS/163	7
150 / MAX	268.39	0.00	2.34	0.00	1.15	0.00

Node	11	11	11	11	49	49
Case	ULS/118	7	ULS/110	7	ULS/111	ULS/110
150 / MIN	-98.61	-0.00	-0.17	-0.00	-0.75	-0.00
Node	49	11	11	11	11	49
Case	ULS/165	ULS/110	7	ULS/110	ULS/118	7
151 / MAX	250.99	0.00	2.37	0.00	1.19	0.00
Node	49	49	49	49	50	50
Case	ULS/118	7	ULS/110	7	ULS/111	ULS/110
151 / MIN	-115.98	-0.00	-0.18	-0.00	-0.76	-0.00
Node	50	49	49	49	49	50
Case	ULS/165	ULS/110	7	ULS/110	ULS/118	7
152 / MAX	232.30	0.00	2.16	0.00	1.21	0.00
Node	50	50	50	50	51	51
Case	ULS/118	7	ULS/110	7	ULS/111	ULS/110
152 / MIN	-130.03	-0.00	-0.16	-0.00	-0.68	-0.00
Node	51	50	50	50	50	51
Case	ULS/165	ULS/110	7	ULS/110	ULS/118	7
153 / MAX	212.68	0.00	1.98	0.00	1.20	0.00
Node	51	51	51	51	52	52
Case	ULS/118	7	ULS/110	7	ULS/111	ULS/110
153 / MIN	-140.55	-0.00	-0.14	-0.00	-0.66	-0.00
Node	52	51	51	51	51	52
Case	ULS/165	ULS/110	7	ULS/110	ULS/133	7
154 / MAX	192.00	0.00	2.54	0.00	1.31	0.00
Node	52	52	52	52	12	12
Case	ULS/118	7	ULS/112	7	ULS/110	ULS/110
154 / MIN	-147.82	-0.00	-0.19	-0.00	-0.71	-0.00
Node	12	52	52	52	52	12
Case	ULS/165	ULS/110	11	ULS/110	ULS/133	7
155 / MAX	171.17	0.00	2.05	0.00	1.16	0.00
Node	12	12	12	12	57	57
Case	ULS/118	7	ULS/112	7	ULS/111	ULS/110
155 / MIN	-152.00	-0.00	-0.39	-0.00	-0.71	-0.00
Node	57	12	57	12	12	57
Case	ULS/165	ULS/110	ULS/73	ULS/110	ULS/163	7
156 / MAX	150.82	0.00	1.75	0.00	1.12	0.00
Node	57	57	57	57	58	58
Case	ULS/148	7	ULS/112	7	ULS/111	ULS/110
156 / MIN	-152.30	-0.00	-0.34	-0.00	-0.56	-0.00
Node	58	57	58	57	57	58
Case	ULS/135	ULS/110	ULS/165	ULS/110	ULS/163	7
157 / MAX	133.82	0.00	1.83	0.00	1.14	0.00
Node	58	58	58	58	59	59
Case	ULS/163	7	ULS/112	7	ULS/110	ULS/110
157 / MIN	-153.29	-0.00	-0.58	-0.00	-0.55	-0.00
Node	59	58	59	58	58	59
Case	ULS/120	ULS/110	ULS/135	ULS/110	ULS/163	7
158 / MAX	115.17	0.00	1.87	0.00	1.14	0.00
Node	59	59	59	59	13	13
Case	ULS/163	7	ULS/118	7	ULS/110	ULS/110
158 / MIN	-150.39	-0.00	-0.81	-0.00	-0.52	-0.00
Node	13	59	13	59	59	13
Case	ULS/120	ULS/110	ULS/135	ULS/110	ULS/163	7
159 / MAX	616.92	0.00	7.58	0.00	5.85	0.00
Node	17	17	17	17	62	17
Case	ULS/110	ULS/110	ULS/110	7	ULS/111	ULS/110
159 / MIN	-51.50	-0.00	-4.48	-0.00	-1.96	-0.00
Node	17	17	62	17	17	17
Case	7	7	ULS/111	ULS/110	ULS/163	7
160 / MAX	634.47	0.00	7.29	0.00	5.76	0.00
Node	62	62	62	62	61	62
Case	ULS/110	ULS/110	ULS/110	7	ULS/111	ULS/110
160 / MIN	-53.00	-0.00	-5.08	-0.00	-1.88	-0.00
Node	62	62	61	62	62	62
Case	7	7	ULS/111	ULS/110	ULS/163	7
161 / MAX	649.72	0.00	7.55	0.00	5.83	0.00
Node	61	61	61	61	60	61

Case	ULS/110	ULS/110	ULS/110	7	ULS/111	ULS/110
161 / MIN	-54.31	-0.00	-4.99	-0.00	-1.62	-0.00
Node	61	61	60	61	61	61
Case	7	7	ULS/111	ULS/110	ULS/163	7
162 / MAX	662.64	0.00	6.89	0.00	5.72	0.00
Node	60	60	60	60	60	60
Case	ULS/110	ULS/110	ULS/110	7	ULS/111	ULS/110
162 / MIN	-55.41	-0.00	-5.76	-0.00	-1.29	-0.00
Node	60	60	18	60	60	60
Case	7	7	ULS/111	ULS/110	ULS/163	7
163 / MAX	24.23	0.00	1.20	0.00	1.11	0.00
Node	101	72	72	72	101	101
Case	ULS/163	7	ULS/135	7	ULS/111	ULS/110
163 / MIN	-100.66	-0.00	-1.57	-0.00	-0.24	-0.00
Node	72	72	101	72	101	72
Case	ULS/111	ULS/110	ULS/118	ULS/110	ULS/163	ULS/110
164 / MAX	49.20	0.00	1.55	0.00	1.18	0.00
Node	103	101	101	101	103	103
Case	ULS/163	7	ULS/135	7	ULS/111	ULS/110
164 / MIN	-117.67	-0.00	-2.17	-0.00	-0.39	-0.00
Node	101	101	103	101	103	101
Case	ULS/120	ULS/110	ULS/118	ULS/110	ULS/163	ULS/110
165 / MAX	72.84	0.00	1.17	0.00	1.15	0.00
Node	105	103	103	103	103	105
Case	ULS/163	7	ULS/135	7	ULS/110	ULS/110
165 / MIN	-132.62	-0.00	-1.97	-0.00	-0.43	-0.00
Node	103	103	105	103	105	103
Case	ULS/120	ULS/110	ULS/118	ULS/110	ULS/163	ULS/110
166 / MAX	94.83	0.00	0.98	0.00	1.15	0.00
Node	13	105	105	105	105	105
Case	ULS/163	7	ULS/135	7	ULS/110	7
166 / MIN	-143.43	-0.00	-1.93	-0.00	-0.48	-0.00
Node	105	105	13	105	13	105
Case	ULS/120	ULS/110	ULS/118	ULS/110	ULS/163	ULS/110
167 / MAX	690.60	0.00	8.96	0.00	5.96	0.00
Node	100	76	76	76	76	76
Case	ULS/110	ULS/110	ULS/120	7	ULS/110	ULS/110
167 / MIN	-57.72	-0.00	-7.80	-0.00	-0.49	-0.00
Node	100	76	100	76	76	100
Case	7	7	ULS/112	ULS/110	7	ULS/110
168 / MAX	687.33	0.00	6.86	0.00	5.54	0.00
Node	102	100	100	100	102	100
Case	ULS/110	ULS/110	ULS/111	7	ULS/111	ULS/110
168 / MIN	-57.46	-0.00	-6.39	-0.00	-0.50	-0.00
Node	102	100	102	100	102	102
Case	7	7	ULS/110	ULS/110	10	ULS/110
169 / MAX	681.64	0.00	6.15	0.00	5.64	0.00
Node	104	102	102	102	104	104
Case	ULS/110	ULS/110	ULS/111	7	ULS/111	7
169 / MIN	-57.00	-0.00	-6.77	-0.00	-0.56	-0.00
Node	104	102	104	102	104	104
Case	7	7	ULS/110	ULS/110	ULS/163	ULS/110
170 / MAX	673.35	0.00	5.62	0.00	5.59	0.00
Node	18	104	104	104	18	18
Case	ULS/110	ULS/110	ULS/111	7	ULS/111	7
170 / MIN	-56.31	-0.00	-7.21	-0.00	-0.96	-0.00
Node	18	104	18	104	18	18
Case	7	7	ULS/110	ULS/110	ULS/163	ULS/110
175 / MAX	7.18	0.00	2.17	0.00	1.85	0.00
Node	98	98	98	98	98	72
Case	10	7	ULS/165	7	ULS/112	ULS/110
175 / MIN	-82.47	-0.00	-3.78	-0.00	-0.43	-0.00
Node	98	98	72	98	72	98
Case	ULS/111	ULS/110	ULS/118	ULS/110	ULS/163	ULS/110
180 / MAX	687.89	0.00	2.17	0.00	7.98	0.00
Node	76	99	99	99	99	99
Case	ULS/110	ULS/110	ULS/141	7	ULS/110	ULS/110

180 / MIN	-57.46	-0.00	-9.67	-0.00	-0.66	-0.00
Node	76	99	76	99	99	76
Case	7	7	ULS/110	ULS/110	7	ULS/110
181 / MAX	95.00	0.00	21.50	0.00	6.42	0.00
Node	149	149	149	149	150	150
Case	ULS/110	7	ULS/110	7	ULS/110	ULS/110
181 / MIN	-7.90	-0.00	-1.78	-0.00	-23.27	-0.00
Node	149	149	149	149	149	149
Case	7	ULS/110	7	ULS/110	ULS/110	ULS/110
183 / MAX	236.23	0.00	14.43	0.00	3.77	0.00
Node	149	149	149	149	153	153
Case	ULS/110	7	ULS/110	ULS/110	ULS/110	ULS/110
183 / MIN	-19.72	-0.00	-1.23	-0.00	-20.06	-0.00
Node	149	149	149	149	149	149
Case	7	ULS/110	7	7	ULS/110	ULS/110
185 / MAX	3.31	0.00	0.20	0.00	0.35	0.00
Node	150	150	150	150	150	150
Case	7	ULS/110	7	ULS/110	ULS/110	ULS/110
185 / MIN	-40.79	-0.00	-3.37	-0.00	-1.48	-0.00
Node	153	150	153	150	153	153
Case	ULS/110	7	ULS/110	7	ULS/110	ULS/110
186 / MAX	572.44	0.00	1.81	0.00	0.88	0.00
Node	153	153	153	153	153	153
Case	ULS/110	7	ULS/163	7	ULS/135	7
186 / MIN	-48.04	-0.00	-3.32	-0.00	-1.18	-0.00
Node	153	153	172	153	153	153
Case	7	ULS/110	ULS/120	ULS/110	ULS/148	ULS/110
189 / MAX	0.33	0.00	0.93	0.00	0.40	0.00
Node	158	158	158	158	159	158
Case	ULS/110	ULS/110	ULS/110	7	ULS/110	ULS/110
189 / MIN	-0.08	-0.00	-0.23	-0.00	-0.04	-0.00
Node	159	158	159	158	159	159
Case	ULS/63	7	ULS/63	ULS/110	7	ULS/110
190 / MAX	0.59	0.00	4.55	0.00	0.06	0.00
Node	161	160	160	160	160	161
Case	7	7	ULS/110	7	ULS/112	ULS/110
190 / MIN	-6.83	-0.00	-6.56	-0.00	-0.55	-0.00
Node	161	160	161	160	161	161
Case	ULS/110	ULS/110	ULS/112	ULS/110	ULS/112	7
191 / MAX	0.06	0.00	0.01	0.00	0.01	0.00
Node	158	158	158	158	160	160
Case	7	7	ULS/148	ULS/110	ULS/112	ULS/110
191 / MIN	-1.06	-0.00	-0.00	-0.00	-0.00	-0.00
Node	160	158	158	158	160	158
Case	ULS/110	ULS/110	ULS/135	7	8	ULS/110
192 / MAX	6.15	0.00	0.20	0.00	0.09	0.00
Node	159	160	160	160	159	160
Case	ULS/110	ULS/110	ULS/110	ULS/110	ULS/110	ULS/110
192 / MIN	-0.52	-0.00	-0.01	-0.00	-0.05	-0.00
Node	160	160	160	160	160	159
Case	7	7	7	7	ULS/110	ULS/110
193 / MAX	81.80	0.00	0.29	0.00	1.54	0.00
Node	150	150	150	150	150	150
Case	ULS/110	ULS/110	7	ULS/110	ULS/110	ULS/110
193 / MIN	-6.81	-0.00	-3.47	-0.00	-1.20	-0.00
Node	150	150	150	150	162	162
Case	7	7	ULS/110	7	ULS/110	ULS/110
194 / MAX	68.55	0.00	0.20	0.00	0.87	0.00
Node	163	163	163	163	163	163
Case	ULS/112	ULS/110	7	ULS/110	ULS/112	ULS/110
194 / MIN	-6.17	-0.00	-2.33	-0.00	-0.93	-0.00
Node	163	163	163	163	164	164
Case	11	7	ULS/110	7	ULS/110	ULS/110
195 / MAX	48.04	0.00	0.17	0.00	0.78	0.00
Node	165	165	165	165	165	165
Case	ULS/110	ULS/110	7	ULS/110	ULS/110	ULS/110
195 / MIN	-4.04	-0.00	-2.06	-0.00	-0.79	-0.00

Node	165	165	165	165	166	166
Case	7	7	ULS/110	7	ULS/110	ULS/110
196 / MAX	28.37	0.00	0.13	0.00	0.59	0.00
Node	167	167	167	167	167	167
Case	ULS/110	ULS/110	7	ULS/110	ULS/110	ULS/110
196 / MIN	-2.50	-0.00	-1.54	-0.00	-0.58	-0.00
Node	167	167	167	167	168	168
Case	7	7	ULS/110	7	ULS/110	ULS/110
197 / MAX	29.83	0.00	0.46	0.00	0.60	0.00
Node	169	169	169	169	169	169
Case	ULS/120	ULS/111	ULS/163	ULS/110	ULS/111	ULS/111
197 / MIN	-14.95	-0.00	-1.61	-0.00	-0.61	-0.00
Node	170	169	169	169	170	170
Case	ULS/163	ULS/163	ULS/111	7	ULS/111	ULS/111
198 / MAX	107.80	0.00	1.02	0.00	4.95	0.00
Node	153	153	153	153	153	153
Case	ULS/112	ULS/110	7	7	ULS/110	ULS/110
198 / MIN	-9.99	-0.00	-12.65	-0.00	-5.04	-0.00
Node	153	153	153	153	171	171
Case	11	7	ULS/110	ULS/110	ULS/110	ULS/110
199 / MAX	71.71	0.00	0.22	0.00	0.87	0.00
Node	172	172	172	172	172	172
Case	ULS/112	ULS/112	11	ULS/110	ULS/112	ULS/112
199 / MIN	-7.98	-0.00	-2.39	-0.00	-1.01	-0.00
Node	173	172	172	172	173	173
Case	ULS/165	11	ULS/112	7	ULS/112	ULS/112
200 / MAX	79.11	0.00	0.21	0.00	0.93	0.00
Node	174	174	174	174	174	174
Case	ULS/112	ULS/112	11	ULS/110	ULS/112	ULS/112
200 / MIN	-7.41	-0.00	-2.46	-0.00	-0.99	-0.00
Node	174	174	174	174	175	175
Case	11	11	ULS/112	7	ULS/112	ULS/112
201 / MAX	73.88	0.00	0.20	0.00	0.91	0.00
Node	176	176	176	176	176	176
Case	ULS/112	ULS/112	11	ULS/110	ULS/112	ULS/112
201 / MIN	-6.82	-0.00	-2.39	-0.00	-0.96	-0.00
Node	176	176	176	176	177	177
Case	11	11	ULS/112	7	ULS/110	ULS/110
202 / MAX	0.31	0.00	0.20	0.00	0.52	0.00
Node	167	167	167	167	167	167
Case	9	ULS/110	ULS/163	ULS/110	ULS/111	ULS/110
202 / MIN	-3.56	-0.00	-0.60	-0.00	-0.51	-0.00
Node	167	167	156	167	156	156
Case	ULS/111	7	ULS/111	7	ULS/111	ULS/110
203 / MAX	7.62	0.00	0.51	0.00	2.13	0.00
Node	162	162	162	162	162	153
Case	7	7	7	7	ULS/110	ULS/110
203 / MIN	-92.12	-0.00	-6.62	-0.00	-3.25	-0.00
Node	162	162	153	162	153	153
Case	ULS/110	ULS/110	ULS/110	ULS/110	ULS/110	7
204 / MAX	8.85	0.00	0.40	0.00	0.30	0.00
Node	172	171	171	171	171	171
Case	ULS/165	ULS/110	ULS/165	ULS/110	ULS/118	ULS/110
204 / MIN	-71.17	-0.00	-0.91	-0.00	-0.43	-0.00
Node	171	171	172	171	172	172
Case	ULS/112	7	ULS/118	7	ULS/112	ULS/110
205 / MAX	10.10	0.00	0.34	0.00	0.57	0.00
Node	174	173	173	173	173	173
Case	ULS/165	ULS/110	ULS/165	ULS/110	ULS/112	ULS/110
205 / MIN	-78.67	-0.00	-1.47	-0.00	-0.62	-0.00
Node	173	173	174	173	174	174
Case	ULS/112	7	ULS/112	7	ULS/112	ULS/110
206 / MAX	7.45	0.00	0.30	0.00	0.56	0.00
Node	176	175	175	175	175	175
Case	ULS/165	ULS/110	ULS/165	ULS/110	ULS/112	ULS/110
206 / MIN	-74.86	-0.00	-1.40	-0.00	-0.58	-0.00
Node	175	175	176	175	176	176

Case	ULS/112	7	ULS/112	7	ULS/112	ULS/110
207 / MAX	6.56	0.00	0.24	0.00	0.54	0.00
Node	177	177	177	177	177	177
Case	11	ULS/110	ULS/165	ULS/110	ULS/112	ULS/110
207 / MIN	-70.59	-0.00	-1.31	-0.00	-0.54	-0.00
Node	177	177	163	177	163	163
Case	ULS/112	7	ULS/112	7	ULS/112	ULS/110
208 / MAX	63.25	0.00	0.19	0.00	0.86	0.00
Node	178	178	178	178	178	178
Case	ULS/112	ULS/110	7	ULS/110	ULS/110	ULS/110
208 / MIN	-5.55	-0.00	-2.29	-0.00	-0.91	-0.00
Node	178	178	178	178	179	179
Case	11	7	ULS/110	7	ULS/110	ULS/110
209 / MAX	58.02	0.00	0.19	0.00	0.85	0.00
Node	180	180	180	180	180	180
Case	ULS/110	ULS/110	7	ULS/110	ULS/110	ULS/110
209 / MIN	-4.92	-0.00	-2.24	-0.00	-0.88	-0.00
Node	180	180	180	180	181	181
Case	7	7	ULS/110	7	ULS/110	ULS/110
210 / MAX	54.09	0.00	0.18	0.00	0.83	0.00
Node	182	182	182	182	182	182
Case	ULS/110	ULS/110	7	ULS/110	ULS/110	ULS/110
210 / MIN	-4.58	-0.00	-2.18	-0.00	-0.85	-0.00
Node	182	182	182	182	183	183
Case	7	7	ULS/110	7	ULS/110	ULS/110
211 / MAX	51.48	0.00	0.18	0.00	0.81	0.00
Node	184	184	184	184	184	184
Case	ULS/110	ULS/110	7	ULS/110	ULS/110	ULS/110
211 / MIN	-4.34	-0.00	-2.13	-0.00	-0.82	-0.00
Node	184	184	184	184	185	185
Case	7	7	ULS/110	7	ULS/110	ULS/110
212 / MAX	6.02	0.00	0.17	0.00	0.51	0.00
Node	164	164	164	164	164	178
Case	11	ULS/110	ULS/165	ULS/110	ULS/112	7
212 / MIN	-66.48	-0.00	-1.22	-0.00	-0.49	-0.00
Node	164	164	178	164	178	178
Case	ULS/112	7	ULS/112	7	ULS/112	ULS/110
213 / MAX	5.44	0.00	0.11	0.00	0.49	0.00
Node	179	179	179	179	179	180
Case	11	ULS/110	ULS/165	ULS/110	ULS/112	7
213 / MIN	-61.89	-0.00	-1.13	-0.00	-0.44	-0.00
Node	179	179	180	179	180	180
Case	ULS/112	7	ULS/112	7	ULS/112	ULS/110
214 / MAX	4.82	0.00	0.09	0.00	0.46	0.00
Node	181	181	181	181	181	182
Case	11	ULS/110	11	ULS/110	ULS/112	7
214 / MIN	-56.99	-0.00	-1.03	-0.00	-0.40	-0.00
Node	181	181	182	181	182	182
Case	ULS/112	7	ULS/112	7	ULS/112	ULS/110
215 / MAX	4.50	0.00	0.08	0.00	0.43	0.00
Node	183	183	183	183	183	184
Case	7	ULS/110	11	ULS/110	ULS/112	7
215 / MIN	-53.92	-0.00	-0.94	-0.00	-0.37	-0.00
Node	183	183	184	183	184	184
Case	ULS/110	7	ULS/112	7	ULS/110	ULS/110
216 / MAX	4.29	0.00	0.07	0.00	0.40	0.00
Node	185	185	185	185	185	165
Case	7	ULS/110	7	ULS/110	ULS/112	7
216 / MIN	-51.60	-0.00	-0.86	-0.00	-0.34	-0.00
Node	185	185	165	185	165	165
Case	ULS/110	7	ULS/110	7	ULS/110	ULS/110
217 / MAX	44.80	0.00	0.17	0.00	0.76	0.00
Node	186	186	186	186	186	186
Case	ULS/110	ULS/110	7	ULS/110	ULS/110	ULS/110
217 / MIN	-3.76	-0.00	-1.99	-0.00	-0.76	-0.00
Node	186	186	186	186	187	187
Case	7	7	ULS/110	7	ULS/110	ULS/110

218 / MAX	41.58	0.00	0.16	0.00	0.73	0.00
Node	188	188	188	188	188	188
Case	ULS/110	ULS/110	7	ULS/110	ULS/110	ULS/110
218 / MIN	-3.48	-0.00	-1.91	-0.00	-0.72	-0.00
Node	188	188	188	188	189	189
Case	7	7	ULS/110	7	ULS/110	ULS/110
219 / MAX	37.90	0.00	0.15	0.00	0.69	0.00
Node	190	190	190	190	190	190
Case	ULS/110	ULS/110	7	ULS/110	ULS/110	ULS/110
219 / MIN	-3.15	-0.00	-1.81	-0.00	-0.68	-0.00
Node	190	190	190	190	191	191
Case	7	7	ULS/110	7	ULS/110	ULS/110
220 / MAX	34.18	0.00	0.14	0.00	0.67	0.00
Node	192	192	192	192	192	192
Case	ULS/110	ULS/110	7	ULS/110	ULS/110	ULS/110
220 / MIN	-2.85	-0.00	-1.74	-0.00	-0.65	-0.00
Node	192	192	192	192	193	193
Case	7	7	ULS/110	7	ULS/110	ULS/110
221 / MAX	4.03	0.00	0.07	0.00	0.36	0.00
Node	166	166	166	166	166	186
Case	7	ULS/110	7	ULS/110	ULS/112	7
221 / MIN	-48.60	-0.00	-0.82	-0.00	-0.32	-0.00
Node	166	166	186	166	186	186
Case	ULS/110	7	ULS/110	7	ULS/110	ULS/110
222 / MAX	3.80	0.00	0.06	0.00	0.35	0.00
Node	187	187	187	187	187	188
Case	7	ULS/110	7	ULS/110	ULS/110	7
222 / MIN	-46.15	-0.00	-0.76	-0.00	-0.29	-0.00
Node	187	187	188	187	188	188
Case	ULS/110	7	ULS/110	7	ULS/110	ULS/110
223 / MAX	3.49	0.00	0.06	0.00	0.34	0.00
Node	189	189	189	189	189	190
Case	7	ULS/110	7	ULS/110	ULS/110	7
223 / MIN	-42.59	-0.00	-0.71	-0.00	-0.26	-0.00
Node	189	189	190	189	190	190
Case	ULS/110	7	ULS/110	7	ULS/110	ULS/110
224 / MAX	3.26	0.00	0.05	0.00	0.32	0.00
Node	191	191	191	191	191	192
Case	7	ULS/110	7	ULS/110	ULS/110	7
224 / MIN	-39.86	-0.00	-0.66	-0.00	-0.24	-0.00
Node	191	191	192	191	192	192
Case	ULS/110	7	ULS/110	7	ULS/111	ULS/110
225 / MAX	2.95	0.00	0.04	0.00	0.29	0.00
Node	193	193	193	193	193	193
Case	7	7	7	ULS/110	ULS/110	7
225 / MIN	-36.35	-0.00	-0.54	-0.00	-0.19	-0.00
Node	193	193	167	193	167	193
Case	ULS/110	ULS/110	ULS/110	7	ULS/111	ULS/110
226 / MAX	28.71	0.00	0.13	0.00	0.58	0.00
Node	195	194	194	194	194	194
Case	ULS/111	ULS/111	10	ULS/110	ULS/111	ULS/111
226 / MIN	-2.71	-0.00	-1.52	-0.00	-0.57	-0.00
Node	194	194	194	194	195	195
Case	10	10	ULS/111	7	ULS/111	ULS/111
227 / MAX	28.57	0.00	0.15	0.00	0.59	0.00
Node	197	196	196	196	196	196
Case	ULS/111	ULS/111	10	ULS/110	ULS/111	ULS/111
227 / MIN	-6.68	-0.00	-1.55	-0.00	-0.58	-0.00
Node	196	196	196	196	197	197
Case	ULS/163	10	ULS/111	7	ULS/111	ULS/111
228 / MAX	29.00	0.00	0.30	0.00	0.60	0.00
Node	199	198	198	198	198	198
Case	ULS/111	ULS/111	ULS/163	ULS/110	ULS/111	ULS/111
228 / MIN	-10.90	-0.00	-1.58	-0.00	-0.59	-0.00
Node	198	198	198	198	199	199
Case	ULS/163	ULS/163	ULS/111	7	ULS/111	ULS/111
229 / MAX	2.78	0.00	0.05	0.00	0.27	0.00

Node	168	168	168	168	168	195
Case	10	ULS/110	10	ULS/110	ULS/110	7
229 / MIN	-31.72	-0.00	-0.54	-0.00	-0.22	-0.00
Node	168	168	195	168	195	195
Case	ULS/111	7	ULS/111	7	ULS/111	ULS/110
230 / MAX	5.18	0.00	0.12	0.00	0.25	0.00
Node	197	194	194	194	194	197
Case	ULS/163	ULS/110	ULS/163	ULS/110	ULS/110	7
230 / MIN	-32.65	-0.00	-0.54	-0.00	-0.22	-0.00
Node	194	194	197	194	197	197
Case	ULS/111	7	ULS/111	7	ULS/120	ULS/110
231 / MAX	10.35	0.00	0.21	0.00	0.26	0.00
Node	199	196	196	196	196	199
Case	ULS/163	ULS/110	ULS/163	ULS/110	ULS/111	7
231 / MIN	-33.79	-0.00	-0.56	-0.00	-0.23	-0.00
Node	196	196	199	196	199	199
Case	ULS/111	7	ULS/111	7	ULS/120	ULS/110
232 / MAX	15.74	0.00	0.30	0.00	0.27	0.00
Node	169	198	198	198	198	169
Case	ULS/163	ULS/110	ULS/163	ULS/110	ULS/111	7
232 / MIN	-35.37	-0.00	-0.59	-0.00	-0.24	-0.00
Node	198	198	169	198	169	169
Case	ULS/120	7	ULS/120	7	ULS/120	ULS/110
233 / MAX	3.28	0.00	0.36	0.00	0.60	0.00
Node	159	159	159	159	159	200
Case	ULS/112	ULS/110	7	7	ULS/110	7
233 / MIN	-0.27	-0.00	-4.58	-0.00	-1.95	-0.00
Node	159	159	200	159	200	200
Case	11	7	ULS/110	ULS/110	ULS/110	ULS/110
234 / MAX	1.92	0.00	0.78	0.00	2.73	0.00
Node	200	200	200	200	200	150
Case	7	7	7	7	ULS/110	ULS/110
234 / MIN	-23.56	-0.00	-9.54	-0.00	-2.87	-0.00
Node	150	200	150	200	150	200
Case	ULS/110	ULS/110	ULS/110	ULS/110	ULS/110	ULS/110
235 / MAX	1.37	0.00	2.69	0.00	0.19	0.00
Node	201	161	161	161	201	201
Case	11	7	ULS/112	7	7	ULS/110
235 / MIN	-15.71	-0.00	-8.56	-0.00	-2.28	-0.00
Node	201	161	201	161	201	201
Case	ULS/112	ULS/110	ULS/110	ULS/110	ULS/110	7
236 / MAX	1.38	0.00	13.25	0.00	0.83	0.00
Node	162	201	201	201	162	162
Case	7	ULS/95	ULS/110	ULS/110	ULS/120	ULS/110
236 / MIN	-15.86	-0.00	-1.13	-0.00	-4.00	-0.00
Node	162	201	201	201	201	162
Case	ULS/110	ULS/110	7	7	ULS/110	7
237 / MAX	0.16	0.00	0.25	0.00	0.09	0.00
Node	159	159	159	159	161	161
Case	8	7	ULS/110	ULS/110	ULS/110	ULS/110
237 / MIN	-1.59	-0.00	-0.02	-0.00	-0.12	-0.00
Node	161	159	159	159	159	159
Case	ULS/112	ULS/110	7	7	ULS/110	ULS/110
238 / MAX	12.31	0.00	0.20	0.00	1.25	0.00
Node	200	200	200	200	200	200
Case	ULS/112	ULS/110	7	ULS/110	ULS/110	ULS/110
238 / MIN	-1.40	-0.00	-2.44	-0.00	-0.69	-0.00
Node	201	200	200	200	201	201
Case	ULS/165	7	ULS/110	7	ULS/110	ULS/110
239 / MAX	11.53	0.00	0.03	0.00	0.07	0.00
Node	200	161	161	161	161	161
Case	ULS/112	ULS/110	7	ULS/110	ULS/110	ULS/110
239 / MIN	-1.03	-0.00	-0.37	-0.00	-0.21	-0.00
Node	161	161	200	161	200	200
Case	11	7	ULS/110	7	ULS/110	ULS/110
240 / MAX	12.70	0.00	0.28	0.00	1.03	0.00
Node	150	201	201	201	201	201

Case	ULS/110	7	7	7	ULS/110	7
240 / MIN	-1.08	-0.00	-3.35	-0.00	-1.66	-0.00
Node	201	201	150	201	150	201
Case	7	ULS/110	ULS/110	ULS/110	ULS/110	ULS/110
241 / MAX	20.87	0.00	1.90	0.00	23.64	0.00
Node	149	149	149	149	149	149
Case	ULS/112	ULS/110	7	7	ULS/110	ULS/110
241 / MIN	-2.13	-0.00	-22.88	-0.00	-6.13	-0.00
Node	200	149	200	149	200	149
Case	ULS/165	7	ULS/110	ULS/110	ULS/110	7
242 / MAX	29.11	0.00	1.68	0.00	0.61	0.00
Node	202	202	202	202	203	202
Case	ULS/150	ULS/120	ULS/120	ULS/110	ULS/120	ULS/120
242 / MIN	-28.41	-0.00	-1.03	-0.00	-0.64	-0.00
Node	203	202	202	202	202	203
Case	ULS/133	ULS/163	ULS/163	7	ULS/120	ULS/120
243 / MAX	49.02	0.00	0.67	0.00	0.38	0.00
Node	98	203	203	203	98	98
Case	ULS/118	ULS/110	ULS/118	ULS/110	ULS/118	7
243 / MIN	-44.38	-0.00	-0.49	-0.00	-0.23	-0.00
Node	203	203	98	203	203	98
Case	ULS/165	7	ULS/165	7	ULS/163	ULS/110
244 / MAX	32.86	0.00	1.73	0.00	0.64	0.00
Node	205	204	204	204	205	204
Case	ULS/120	ULS/120	ULS/120	ULS/110	ULS/120	ULS/120
244 / MIN	-27.57	-0.00	-0.95	-0.00	-0.66	-0.00
Node	204	204	204	204	204	205
Case	ULS/163	ULS/163	ULS/163	7	ULS/120	ULS/120
245 / MAX	31.68	0.00	1.71	0.00	0.64	0.00
Node	207	206	206	206	207	206
Case	ULS/120	ULS/120	ULS/120	ULS/110	ULS/120	ULS/120
245 / MIN	-23.05	-0.00	-0.80	-0.00	-0.65	-0.00
Node	206	206	206	206	206	207
Case	ULS/163	ULS/163	ULS/163	7	ULS/120	ULS/120
246 / MAX	30.90	0.00	1.65	0.00	0.61	0.00
Node	209	208	208	208	209	208
Case	ULS/120	ULS/120	ULS/120	ULS/110	ULS/120	ULS/120
246 / MIN	-18.90	-0.00	-0.63	-0.00	-0.63	-0.00
Node	208	208	208	208	208	209
Case	ULS/163	ULS/163	ULS/163	7	ULS/120	ULS/120
247 / MAX	35.00	0.00	0.65	0.00	0.36	0.00
Node	202	204	204	204	204	202
Case	ULS/163	ULS/110	ULS/133	ULS/110	ULS/120	7
247 / MIN	-39.98	-0.00	-0.72	-0.00	-0.29	-0.00
Node	204	204	202	204	202	202
Case	ULS/120	7	ULS/120	7	ULS/165	ULS/110
248 / MAX	31.59	0.00	0.54	0.00	0.33	0.00
Node	205	206	206	206	206	205
Case	ULS/163	ULS/110	ULS/133	ULS/110	ULS/120	7
248 / MIN	-40.28	-0.00	-0.66	-0.00	-0.26	-0.00
Node	206	206	205	206	205	205
Case	ULS/120	7	ULS/120	7	ULS/165	ULS/110
249 / MAX	26.35	0.00	0.47	0.00	0.31	0.00
Node	207	208	208	208	208	207
Case	ULS/163	ULS/110	ULS/163	ULS/110	ULS/120	7
249 / MIN	-39.04	-0.00	-0.65	-0.00	-0.26	-0.00
Node	208	208	207	208	207	207
Case	ULS/120	7	ULS/120	7	ULS/135	ULS/110
250 / MAX	20.85	0.00	0.38	0.00	0.29	0.00
Node	209	170	170	170	170	209
Case	ULS/163	ULS/110	ULS/163	ULS/110	ULS/111	7
250 / MIN	-37.27	-0.00	-0.62	-0.00	-0.25	-0.00
Node	170	170	209	170	209	209
Case	ULS/120	7	ULS/120	7	ULS/120	ULS/110
251 / MAX	352.10	0.00	1.30	0.00	54.35	0.00
Node	152	152	152	152	152	152
Case	ULS/110	ULS/110	7	ULS/110	ULS/110	ULS/110

251 / MIN	-27.39	-0.00	-15.51	-0.00	-66.96	-0.00
Node	152	152	152	152	149	149
Case	7	7	ULS/110	7	ULS/110	ULS/110
252 / MAX	49.91	0.00	2.10	0.00	3.04	0.00
Node	153	153	153	153	156	156
Case	7	7	ULS/110	7	ULS/142	ULS/110
252 / MIN	-596.82	-0.00	-1.07	-0.00	-5.39	-0.00
Node	156	153	156	153	153	153
Case	ULS/110	ULS/110	ULS/63	ULS/110	ULS/110	ULS/110
253 / MAX	49.94	0.00	1.65	0.00	3.35	0.00
Node	156	156	156	156	3	156
Case	7	ULS/110	ULS/120	7	ULS/110	ULS/110
253 / MIN	-597.24	-0.00	-1.05	-0.00	-2.71	-0.00
Node	156	156	3	156	156	156
Case	ULS/110	7	ULS/133	ULS/110	ULS/135	7
254 / MAX	526.15	0.00	3.92	0.00	0.42	0.00
Node	172	172	172	172	174	174
Case	ULS/110	7	ULS/112	7	ULS/163	ULS/110
254 / MIN	-44.12	-0.00	-0.31	-0.00	-2.17	-0.00
Node	172	172	172	172	172	172
Case	7	ULS/110	11	ULS/110	ULS/110	ULS/110
255 / MAX	474.36	0.00	3.36	0.00	0.62	0.00
Node	174	174	174	174	176	176
Case	ULS/110	7	ULS/112	7	ULS/148	ULS/110
255 / MIN	-39.72	-0.00	-0.43	-0.00	-1.52	-0.00
Node	174	174	176	174	174	176
Case	7	ULS/110	ULS/165	ULS/110	ULS/110	7
256 / MAX	424.59	0.00	3.02	0.00	0.70	0.00
Node	176	176	176	176	163	163
Case	ULS/110	7	ULS/112	7	ULS/118	ULS/110
256 / MIN	-35.51	-0.00	-0.30	-0.00	-1.31	-0.00
Node	176	176	163	176	176	163
Case	7	ULS/110	ULS/105	ULS/110	ULS/110	7
257 / MAX	56.96	0.00	1.30	0.00	0.71	0.00
Node	162	162	171	162	171	162
Case	ULS/110	ULS/110	7	ULS/110	7	ULS/110
257 / MIN	-4.64	-0.00	-14.77	-0.00	-8.17	-0.00
Node	162	162	171	162	171	162
Case	7	ULS/95	ULS/110	7	ULS/110	7
258 / MAX	120.91	0.00	22.58	0.00	1.13	0.00
Node	171	171	171	171	171	171
Case	ULS/112	ULS/110	ULS/112	ULS/110	7	ULS/110
258 / MIN	-10.07	-0.00	-2.12	-0.00	-13.35	-0.00
Node	171	171	171	171	171	171
Case	11	7	11	7	ULS/110	7
259 / MAX	174.75	0.00	9.99	0.00	0.53	0.00
Node	173	173	173	173	173	173
Case	ULS/112	ULS/110	ULS/112	7	7	ULS/110
259 / MIN	-15.28	-0.00	-1.77	-0.00	-6.27	-0.00
Node	173	173	175	173	173	173
Case	11	7	ULS/110	ULS/110	ULS/110	7
260 / MAX	228.95	0.00	10.18	0.00	0.87	0.00
Node	175	175	175	175	177	175
Case	ULS/112	ULS/110	ULS/112	7	ULS/163	ULS/110
260 / MIN	-20.41	-0.00	-1.34	-0.00	-5.51	-0.00
Node	175	175	177	175	175	175
Case	11	7	ULS/140	ULS/110	ULS/110	7
261 / MAX	279.65	0.00	9.54	0.00	1.45	0.00
Node	177	177	177	177	164	177
Case	ULS/112	ULS/110	ULS/112	7	ULS/163	ULS/110
261 / MIN	-25.11	-0.00	-1.83	-0.00	-4.58	-0.00
Node	177	177	164	177	177	177
Case	11	7	ULS/110	ULS/110	ULS/111	7
262 / MAX	376.87	0.00	2.96	0.00	0.83	0.00
Node	163	163	163	163	178	178
Case	ULS/110	7	ULS/112	7	ULS/118	ULS/110
262 / MIN	-31.47	-0.00	-0.24	-0.00	-1.18	-0.00

Node	163	163	163	163	163	178
Case	7	ULS/110	11	ULS/110	ULS/110	7
263 / MAX	348.31	0.00	2.76	0.00	0.92	0.00
Node	178	178	178	178	180	180
Case	ULS/111	7	ULS/112	7	ULS/118	ULS/110
263 / MIN	-30.37	-0.00	-0.21	-0.00	-0.99	-0.00
Node	178	178	178	178	178	180
Case	10	ULS/110	11	ULS/110	ULS/110	7
264 / MAX	328.99	0.00	2.74	0.00	0.99	0.00
Node	180	180	180	180	182	182
Case	ULS/111	7	ULS/110	7	ULS/118	ULS/110
264 / MIN	-30.59	-0.00	-0.21	-0.00	-0.91	-0.00
Node	180	180	180	180	180	182
Case	10	ULS/110	7	ULS/110	ULS/111	7
265 / MAX	309.02	0.00	2.52	0.00	1.05	0.00
Node	182	182	182	182	184	184
Case	ULS/111	7	ULS/110	7	ULS/118	ULS/110
265 / MIN	-53.76	-0.00	-0.19	-0.00	-0.82	-0.00
Node	184	182	182	182	182	184
Case	ULS/163	ULS/110	7	ULS/110	ULS/111	7
266 / MAX	288.40	0.00	2.58	0.00	1.11	0.00
Node	184	184	184	184	165	165
Case	ULS/111	7	ULS/110	7	ULS/112	ULS/110
266 / MIN	-77.85	-0.00	-0.20	-0.00	-0.82	-0.00
Node	165	184	184	184	184	165
Case	ULS/163	ULS/110	7	ULS/110	ULS/111	7
267 / MAX	326.72	0.00	9.61	0.00	2.08	0.00
Node	164	164	164	164	179	164
Case	ULS/112	ULS/110	ULS/112	7	ULS/163	ULS/110
267 / MIN	-29.36	-0.00	-1.63	-0.00	-4.33	-0.00
Node	164	164	179	164	164	164
Case	11	7	ULS/110	ULS/110	ULS/111	7
268 / MAX	370.11	0.00	9.36	0.00	2.64	0.00
Node	179	179	179	179	181	179
Case	ULS/112	ULS/110	ULS/112	7	ULS/163	ULS/110
268 / MIN	-33.16	-0.00	-1.72	-0.00	-4.00	-0.00
Node	179	179	181	179	179	179
Case	11	7	ULS/110	ULS/110	ULS/111	7
269 / MAX	409.68	0.00	8.83	0.00	3.00	0.00
Node	181	181	181	181	183	181
Case	ULS/112	ULS/110	ULS/110	7	ULS/163	ULS/110
269 / MIN	-36.49	-0.00	-2.31	-0.00	-3.73	-0.00
Node	181	181	183	181	181	181
Case	11	7	ULS/112	ULS/110	ULS/120	7
270 / MAX	445.47	0.00	9.02	0.00	3.63	0.00
Node	183	183	183	183	185	183
Case	ULS/112	ULS/110	ULS/110	7	ULS/118	ULS/110
270 / MIN	-39.38	-0.00	-2.20	-0.00	-3.52	-0.00
Node	183	183	185	183	183	183
Case	11	7	ULS/112	ULS/110	ULS/120	7
271 / MAX	477.65	0.00	9.00	0.00	4.23	0.00
Node	185	185	185	185	166	185
Case	ULS/112	ULS/110	ULS/110	7	ULS/118	ULS/110
271 / MIN	-41.82	-0.00	-2.40	-0.00	-3.28	-0.00
Node	185	185	166	185	185	185
Case	11	7	ULS/112	ULS/110	ULS/120	7
272 / MAX	506.05	0.00	8.30	0.00	4.48	0.00
Node	166	166	166	166	187	166
Case	ULS/112	ULS/110	ULS/110	7	ULS/118	ULS/110
272 / MIN	-43.82	-0.00	-3.23	-0.00	-3.06	-0.00
Node	166	166	187	166	166	166
Case	11	7	ULS/112	ULS/110	ULS/165	7
273 / MAX	530.62	0.00	9.09	0.00	5.12	0.00
Node	187	187	187	187	189	187
Case	ULS/112	ULS/110	ULS/110	7	ULS/118	ULS/110
273 / MIN	-45.35	-0.00	-2.61	-0.00	-2.95	-0.00
Node	187	187	189	187	187	187

Case	11	7	ULS/112	ULS/110	ULS/165	7
274 / MAX	551.28	0.00	7.81	0.00	5.12	0.00
Node	189	189	189	189	191	189
Case	ULS/112	ULS/110	ULS/110	7	ULS/118	ULS/110
274 / MIN	-46.43	-0.00	-4.03	-0.00	-2.76	-0.00
Node	189	189	191	189	189	189
Case	11	7	ULS/112	ULS/110	ULS/165	7
275 / MAX	573.19	0.00	8.82	0.00	5.61	0.00
Node	191	191	191	191	193	191
Case	ULS/110	ULS/110	ULS/110	7	ULS/112	ULS/110
275 / MIN	-47.87	-0.00	-3.25	-0.00	-2.58	-0.00
Node	191	191	193	191	191	191
Case	7	7	ULS/142	ULS/110	ULS/165	7
276 / MAX	597.06	0.00	7.77	0.00	5.74	0.00
Node	193	193	193	193	168	193
Case	ULS/110	ULS/110	ULS/110	7	ULS/112	ULS/110
276 / MIN	-49.81	-0.00	-4.24	-0.00	-2.20	-0.00
Node	193	193	168	193	193	193
Case	7	7	ULS/112	ULS/110	ULS/165	7
277 / MAX	268.38	0.00	2.34	0.00	1.15	0.00
Node	165	165	165	165	186	186
Case	ULS/120	7	ULS/110	7	ULS/112	ULS/110
277 / MIN	-98.60	-0.00	-0.17	-0.00	-0.75	-0.00
Node	186	165	165	165	165	186
Case	ULS/163	ULS/110	7	ULS/110	ULS/120	7
278 / MAX	250.99	0.00	2.37	0.00	1.19	0.00
Node	186	186	186	186	188	188
Case	ULS/120	7	ULS/110	7	ULS/112	ULS/110
278 / MIN	-115.96	-0.00	-0.18	-0.00	-0.76	-0.00
Node	188	186	186	186	186	188
Case	ULS/163	ULS/110	7	ULS/110	ULS/120	7
279 / MAX	232.30	0.00	2.16	0.00	1.21	0.00
Node	188	188	188	188	190	190
Case	ULS/120	7	ULS/110	7	ULS/112	ULS/110
279 / MIN	-130.01	-0.00	-0.16	-0.00	-0.68	-0.00
Node	190	188	188	188	188	190
Case	ULS/163	ULS/110	7	ULS/110	ULS/120	7
280 / MAX	212.67	0.00	1.98	0.00	1.20	0.00
Node	190	190	190	190	192	192
Case	ULS/120	7	ULS/110	7	ULS/112	ULS/110
280 / MIN	-140.53	-0.00	-0.14	-0.00	-0.66	-0.00
Node	192	190	190	190	190	192
Case	ULS/163	ULS/110	7	ULS/110	ULS/135	7
281 / MAX	191.99	0.00	2.54	0.00	1.31	0.00
Node	192	192	192	192	167	167
Case	ULS/120	7	ULS/111	7	ULS/110	ULS/110
281 / MIN	-147.80	-0.00	-0.19	-0.00	-0.71	-0.00
Node	167	192	192	192	192	167
Case	ULS/163	ULS/110	10	ULS/110	ULS/135	7
282 / MAX	171.16	0.00	2.05	0.00	1.16	0.00
Node	167	167	167	167	195	195
Case	ULS/120	7	ULS/111	7	ULS/112	ULS/110
282 / MIN	-151.98	-0.00	-0.39	-0.00	-0.71	-0.00
Node	195	167	195	167	167	195
Case	ULS/163	ULS/110	ULS/70	ULS/110	ULS/165	7
283 / MAX	150.81	0.00	1.75	0.00	1.12	0.00
Node	195	195	195	195	197	197
Case	ULS/150	7	ULS/111	7	ULS/112	ULS/110
283 / MIN	-152.28	-0.00	-0.34	-0.00	-0.56	-0.00
Node	197	195	197	195	195	197
Case	ULS/133	ULS/110	ULS/163	ULS/110	ULS/165	7
284 / MAX	133.82	0.00	1.83	0.00	1.14	0.00
Node	197	197	197	197	199	199
Case	ULS/165	7	ULS/111	7	ULS/110	ULS/110
284 / MIN	-153.27	-0.00	-0.58	-0.00	-0.55	-0.00
Node	199	197	199	197	197	199
Case	ULS/118	ULS/110	ULS/133	ULS/110	ULS/165	7

285 / MAX	115.18	0.00	1.87	0.00	1.14	0.00
Node	199	199	199	199	169	169
Case	ULS/165	7	ULS/120	7	ULS/110	ULS/110
285 / MIN	-150.39	-0.00	-0.81	-0.00	-0.52	-0.00
Node	169	199	169	199	199	169
Case	ULS/118	ULS/110	ULS/133	ULS/110	ULS/165	7
286 / MAX	616.92	0.00	7.58	0.00	5.85	0.00
Node	168	168	168	168	194	168
Case	ULS/110	ULS/110	ULS/110	7	ULS/112	ULS/110
286 / MIN	-51.50	-0.00	-4.48	-0.00	-1.96	-0.00
Node	168	168	194	168	168	168
Case	7	7	ULS/112	ULS/110	ULS/165	7
287 / MAX	634.47	0.00	7.29	0.00	5.76	0.00
Node	194	194	194	194	196	194
Case	ULS/110	ULS/110	ULS/110	7	ULS/112	ULS/110
287 / MIN	-53.00	-0.00	-5.08	-0.00	-1.88	-0.00
Node	194	194	196	194	194	194
Case	7	7	ULS/112	ULS/110	ULS/165	7
288 / MAX	649.72	0.00	7.55	0.00	5.83	0.00
Node	196	196	196	196	198	196
Case	ULS/110	ULS/110	ULS/110	7	ULS/112	ULS/110
288 / MIN	-54.31	-0.00	-4.98	-0.00	-1.62	-0.00
Node	196	196	198	196	196	196
Case	7	7	ULS/112	ULS/110	ULS/165	7
289 / MAX	662.64	0.00	6.89	0.00	5.72	0.00
Node	198	198	198	198	198	198
Case	ULS/110	ULS/110	ULS/110	7	ULS/112	ULS/110
289 / MIN	-55.41	-0.00	-5.76	-0.00	-1.28	-0.00
Node	198	198	170	198	198	198
Case	7	7	ULS/112	ULS/110	ULS/165	7
290 / MAX	24.26	0.00	1.20	0.00	1.11	0.00
Node	205	202	202	202	205	202
Case	ULS/165	7	ULS/133	7	ULS/112	7
290 / MIN	-100.68	-0.00	-1.57	-0.00	-0.24	-0.00
Node	202	202	205	202	205	202
Case	ULS/112	ULS/110	ULS/120	ULS/110	ULS/165	ULS/110
291 / MAX	49.22	0.00	1.54	0.00	1.18	0.00
Node	207	205	205	205	207	205
Case	ULS/165	7	ULS/133	7	ULS/112	7
291 / MIN	-117.68	-0.00	-2.17	-0.00	-0.39	-0.00
Node	205	205	207	205	207	205
Case	ULS/118	ULS/110	ULS/120	ULS/110	ULS/165	ULS/110
292 / MAX	72.86	0.00	1.17	0.00	1.15	0.00
Node	209	207	207	207	207	207
Case	ULS/165	7	ULS/133	7	ULS/110	7
292 / MIN	-132.63	-0.00	-1.97	-0.00	-0.43	-0.00
Node	207	207	209	207	209	207
Case	ULS/118	ULS/110	ULS/120	ULS/110	ULS/165	ULS/110
293 / MAX	94.84	0.00	0.98	0.00	1.15	0.00
Node	169	209	209	209	209	209
Case	ULS/165	7	ULS/133	7	ULS/110	7
293 / MIN	-143.43	-0.00	-1.93	-0.00	-0.48	-0.00
Node	209	209	169	209	169	209
Case	ULS/118	ULS/110	ULS/120	ULS/110	ULS/165	ULS/110
294 / MAX	690.60	0.00	8.96	0.00	5.96	0.00
Node	204	203	203	203	203	204
Case	ULS/110	ULS/110	ULS/118	7	ULS/110	7
294 / MIN	-57.72	-0.00	-7.80	-0.00	-0.49	-0.00
Node	204	203	204	203	203	204
Case	7	7	ULS/111	ULS/110	7	ULS/110
295 / MAX	687.32	0.00	6.86	0.00	5.54	0.00
Node	206	204	204	204	206	206
Case	ULS/110	ULS/110	ULS/112	7	ULS/112	7
295 / MIN	-57.46	-0.00	-6.39	-0.00	-0.50	-0.00
Node	206	204	206	204	206	206
Case	7	7	ULS/110	ULS/110	11	ULS/110
296 / MAX	681.64	0.00	6.15	0.00	5.65	0.00

Node	208	206	206	206	208	208
Case	ULS/110	ULS/110	ULS/112	7	ULS/112	7
296 / MIN	-57.00	-0.00	-6.77	-0.00	-0.56	-0.00
Node	208	206	208	206	208	208
Case	7	7	ULS/110	ULS/110	ULS/165	ULS/110
297 / MAX	673.35	0.00	5.62	0.00	5.59	0.00
Node	170	208	208	208	170	170
Case	ULS/110	ULS/110	ULS/112	7	ULS/112	7
297 / MIN	-56.31	-0.00	-7.21	-0.00	-0.96	-0.00
Node	170	208	170	208	170	170
Case	7	7	ULS/110	ULS/110	ULS/165	ULS/110
298 / MAX	7.19	0.00	2.17	0.00	1.85	0.00
Node	98	98	98	98	98	98
Case	11	7	ULS/163	7	ULS/111	7
298 / MIN	-82.49	-0.00	-3.78	-0.00	-0.43	-0.00
Node	98	98	202	98	202	98
Case	ULS/112	ULS/110	ULS/120	ULS/110	ULS/165	ULS/110
299 / MAX	687.89	0.00	2.17	0.00	7.98	0.00
Node	203	99	99	99	99	203
Case	ULS/110	ULS/110	ULS/142	7	ULS/110	7
299 / MIN	-57.46	-0.00	-9.67	-0.00	-0.66	-0.00
Node	203	99	203	99	99	203
Case	7	7	ULS/110	ULS/110	7	ULS/110

Stresses - Global extremes

- Cases: 1to11 13to25By3 14to26By3

	S max (MPa)	S min (MPa)	S max(My) (MPa)	S max(Mz) (MPa)	S min(My) (MPa)	S min(Mz) (MPa)	Fx/Ax (MPa)
MAX	322.20	293.98	116.93	0.00	-0.00	0.00	303.20
Bar	186	186	202	181	102	241	186
Node	172	153	167	149	98	149	153
Case	ULS/110	ULS/110	ULS/111	ULS/110	ULS/128	ULS/110	ULS/110
MIN	-190.54	-245.36	0.00	-0.00	-116.93	-0.00	-201.09
Bar	6	252	102	198	202	181	253
Node	4	153	98	153	167	149	156
Case	ULS/110	ULS/110	ULS/128	ULS/110	ULS/111	ULS/110	ULS/110

Eigenvalues

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Case	Frequency (Hz)	Period (sec)	Rel.mas.UX (%)	Rel.mas.UY (%)	Rel.mas.UZ (%)	Cur.mas.UX (%)	Cur.mas.UY (%)	Cur.mas.UZ (%)
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Stories - Displacements

Case/Story	UX (cm)	UY (cm)	dr UX (cm)	dr UY (cm)	d UX	d UY	Max UX (cm)	Max UY (cm)
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Stories - Reduced forces

Case/Story	G (x,y,z) (m)	FX (kN)	FY (kN)	MZ (kNm)	FX to columns (kN)	FX to walls (kN)	FY to columns (kN)	FY to walls (kN)
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Members - Definition

Member	Name	Components	Code group	Section	Type	Ly (m)	Lz (m)
1	Simple bar_1	1	(N/A)	HEA 160	Column	1.38	1.38
2	Simple bar_2	2	(N/A)	TCAR 100x5	Simple bar	0.59	0.59
3	Simple bar_3	3	(N/A)	TCAR 35x4	Simple bar	1.72	1.72
5	Simple bar_5	5	(N/A)	TREC 150x100x6.3	Simple bar	7.71	7.71
6	Simple bar_6	6	(N/A)	TREC 150x100x6.3	Simple bar	4.95	4.95
16	Simple bar_16	16	(N/A)	TCAR 100x5	Simple bar	0.79	0.79
17	Simple bar_17	17	(N/A)	TCAR 60x4	Simple bar	0.78	0.78
18	Simple bar_18	18	(N/A)	TCAR 60x4	Simple bar	0.76	0.76
19	Simple bar_19	19	(N/A)	TCAR 60x4	Simple bar	0.76	0.76
20	Simple bar_20	20	(N/A)	TCAR 60x4	Simple bar	0.75	0.75
21	Simple bar_21	21	(N/A)	TCAR 100x5	Simple bar	0.79	0.79
22	Simple bar_22	22	(N/A)	TCAR 60x4	Simple bar	0.79	0.79
23	Simple bar_23	23	(N/A)	TCAR 60x4	Simple bar	0.78	0.78
24	Simple bar_24	24	(N/A)	TCAR 60x4	Simple bar	0.78	0.78
26	Simple bar_26	26	(N/A)	TCAR 100x5	Simple bar	0.82	0.82
27	Simple bar_27	27	(N/A)	TCAR 60x4	Simple bar	0.82	0.82

28	Simple bar_28	28	(N/A)	TCAR 60x4	Simple bar	0.83	0.83
29	Simple bar_29	29	(N/A)	TCAR 60x4	Simple bar	0.83	0.83
30	Simple bar_30	30	(N/A)	TCAR 60x4	Simple bar	0.83	0.83
31	Simple bar_31	31	(N/A)	TCAR 60x4	Simple bar	0.77	0.77
32	Simple bar_32	32	(N/A)	TCAR 60x4	Simple bar	0.77	0.77
33	Simple bar_33	33	(N/A)	TCAR 60x4	Simple bar	0.77	0.77
34	Simple bar_34	34	(N/A)	TCAR 60x4	Simple bar	0.77	0.77
35	Simple bar_35	35	(N/A)	TCAR 60x4	Simple bar	0.84	0.84
36	Simple bar_36	36	(N/A)	TCAR 60x4	Simple bar	0.84	0.84
37	Simple bar_37	37	(N/A)	TCAR 60x4	Simple bar	0.85	0.85
38	Simple bar_38	38	(N/A)	TCAR 60x4	Simple bar	0.85	0.85
39	Simple bar_39	39	(N/A)	TCAR 60x4	Simple bar	0.86	0.86
40	Simple bar_40	40	(N/A)	TCAR 60x4	Simple bar	0.76	0.76
41	Simple bar_41	41	(N/A)	TCAR 60x4	Simple bar	0.76	0.76
42	Simple bar_42	42	(N/A)	TCAR 60x4	Simple bar	0.76	0.76
43	Simple bar_43	43	(N/A)	TCAR 60x4	Simple bar	0.76	0.76
44	Simple bar_44	44	(N/A)	TCAR 60x4	Simple bar	0.86	0.86
45	Simple bar_45	45	(N/A)	TCAR 60x4	Simple bar	0.86	0.86
46	Simple bar_46	46	(N/A)	TCAR 60x4	Simple bar	0.87	0.87
47	Simple bar_47	47	(N/A)	TCAR 60x4	Simple bar	0.87	0.87
48	Simple bar_48	48	(N/A)	TCAR 60x4	Simple bar	0.88	0.88
49	Simple bar_49	49	(N/A)	TCAR 60x4	Simple bar	0.75	0.75
50	Simple bar_50	50	(N/A)	TCAR 60x4	Simple bar	0.75	0.75
51	Simple bar_51	51	(N/A)	TCAR 60x4	Simple bar	0.75	0.75
52	Simple bar_52	52	(N/A)	TCAR 60x4	Simple bar	0.88	0.88
53	Simple bar_53	53	(N/A)	TCAR 60x4	Simple bar	0.89	0.89
54	Simple bar_54	54	(N/A)	TCAR 60x4	Simple bar	0.89	0.89
55	Simple bar_55	55	(N/A)	TCAR 60x4	Simple bar	0.90	0.90
56	Simple bar_56	56	(N/A)	TCAR 100x5	Simple bar	0.59	0.59
57	Simple bar_57	57	(N/A)	TCAR 100x5	Simple bar	0.60	0.60
58	Simple bar_58	58	(N/A)	TREC 200x10 0x6	Simple bar	0.58	0.58
59	Simple bar_59	59	(N/A)	TREC 200x10 0x6	Simple bar	0.60	0.60
60	Simple bar_60	60	(N/A)	TCAR 60x4	Simple bar	0.80	0.80
61	Simple	61	(N/A)	TCAR	Simple bar	0.79	0.79

	bar_61			100x5			
62	Simple bar_62	62	(N/A)	TCAR 60x4	Simple bar	0.81	0.81
63	Simple bar_63	63	(N/A)	TCAR 100x5	Simple bar	0.82	0.82
64	Column_64	64	(N/A)	HEA 160	Column	1.31	1.31
65	Simple bar_1	65	(N/A)	HEA 160	Column	1.66	1.66
73	Simple bar_73	73	(N/A)	TCAR 100x5	Simple bar	0.58	0.58
74	Simple bar_74	74	(N/A)	TREC 200x10 0x6	Simple bar	0.58	0.58
75	Simple bar_75	75	(N/A)	TCAR 60x4	Simple bar	0.80	0.80
76	Simple bar_76	76	(N/A)	TCAR 60x4	Simple bar	0.82	0.82
79	Simple bar_79	79	(N/A)	TCAR 60x4	Simple bar	0.75	0.75
84	Simple bar_84	84	(N/A)	TCAR 100x5	Simple bar	0.58	0.58
102	Simple bar_102	102	(N/A)	TCAR 60x4	Simple bar	0.75	0.75
107	Simple bar_107	107	(N/A)	TCAR 60x4	Simple bar	0.93	0.93
108	Simple bar_108	108	(N/A)	TCAR 60x4	Simple bar	0.75	0.75
109	Simple bar_109	109	(N/A)	TCAR 60x4	Simple bar	0.75	0.75
110	Simple bar_110	110	(N/A)	TCAR 60x4	Simple bar	0.75	0.75
111	Simple bar_111	111	(N/A)	TCAR 60x4	Simple bar	0.92	0.92
112	Simple bar_112	112	(N/A)	TCAR 60x4	Simple bar	0.91	0.91
113	Simple bar_113	113	(N/A)	TCAR 60x4	Simple bar	0.91	0.91
114	Simple bar_114	114	(N/A)	TCAR 60x4	Simple bar	0.90	0.90
125	RC column_125	125	(N/A)	C R30x3 0	RC column	(N/A)	(N/A)
126	Simple bar_126	126	(N/A)	TCAR 100x5	Simple bar	0.58	0.58
127	Simple bar_127	127	(N/A)	TCAR 35x4	Simple bar	2.03	2.03
128	Simple bar_128	128	(N/A)	TCAR 100x5	Simple bar	0.57	0.57
129	Simple bar_129	129	(N/A)	TCAR 100x5	Simple bar	0.57	0.57
130	Simple bar_130	130	(N/A)	TREC 200x10 0x6	Simple bar	0.59	0.59
131	Simple bar_131	131	(N/A)	TREC 200x10 0x6	Simple bar	0.58	0.58
132	Simple bar_132	132	(N/A)	TREC 200x10 0x6	Simple bar	0.57	0.57
133	Simple bar_133	133	(N/A)	TREC 200x10 0x6	Simple bar	0.57	0.57
134	Simple bar_134	134	(N/A)	TREC 200x10 0x6	Simple bar	0.57	0.57
135	Simple bar_135	135	(N/A)	TCAR 100x5	Simple bar	0.57	0.57
136	Simple	136	(N/A)	TCAR	Simple bar	0.57	0.57

	bar_136			100x5			
137	Simple bar_137	137	(N/A)	TCAR 100x5	Simple bar	0.56	0.56
138	Simple bar_138	138	(N/A)	TCAR 100x5	Simple bar	0.56	0.56
139	Simple bar_139	139	(N/A)	TCAR 100x5	Simple bar	0.56	0.56
140	Simple bar_140	140	(N/A)	TREC 200x10 0x6	Simple bar	0.57	0.57
141	Simple bar_141	141	(N/A)	TREC 200x10 0x6	Simple bar	0.57	0.57
142	Simple bar_142	142	(N/A)	TREC 200x10 0x6	Simple bar	0.56	0.56
143	Simple bar_143	143	(N/A)	TREC 200x10 0x6	Simple bar	0.56	0.56
144	Simple bar_144	144	(N/A)	TREC 200x10 0x6	Simple bar	0.56	0.56
145	Simple bar_145	145	(N/A)	TREC 200x10 0x6	Simple bar	0.56	0.56
146	Simple bar_146	146	(N/A)	TREC 200x10 0x6	Simple bar	0.56	0.56
147	Simple bar_147	147	(N/A)	TREC 200x10 0x6	Simple bar	0.56	0.56
148	Simple bar_148	148	(N/A)	TREC 200x10 0x6	Simple bar	0.56	0.56
149	Simple bar_149	149	(N/A)	TREC 200x10 0x6	Simple bar	0.55	0.55
150	Simple bar_150	150	(N/A)	TCAR 100x5	Simple bar	0.56	0.56
151	Simple bar_151	151	(N/A)	TCAR 100x5	Simple bar	0.56	0.56
152	Simple bar_152	152	(N/A)	TCAR 100x5	Simple bar	0.56	0.56
153	Simple bar_153	153	(N/A)	TCAR 100x5	Simple bar	0.56	0.56
154	Simple bar_154	154	(N/A)	TCAR 100x5	Simple bar	0.55	0.55
155	Simple bar_155	155	(N/A)	TCAR 100x5	Simple bar	0.55	0.55
156	Simple bar_156	156	(N/A)	TCAR 100x5	Simple bar	0.55	0.55
157	Simple bar_157	157	(N/A)	TCAR 100x5	Simple bar	0.55	0.55
158	Simple bar_158	158	(N/A)	TCAR 100x5	Simple bar	0.55	0.55
159	Simple bar_159	159	(N/A)	TREC 200x10 0x6	Simple bar	0.55	0.55
160	Simple bar_160	160	(N/A)	TREC 200x10 0x6	Simple bar	0.55	0.55
161	Simple bar_161	161	(N/A)	TREC 200x10 0x6	Simple bar	0.55	0.55
162	Simple bar_162	162	(N/A)	TREC 200x10 0x6	Simple bar	0.55	0.55
163	Simple bar_163	163	(N/A)	TCAR 100x5	Simple bar	0.55	0.55
164	Simple	164	(N/A)	TCAR	Simple bar	0.55	0.55

	bar_164			100x5			
165	Simple bar_165	165	(N/A)	TCAR 100x5	Simple bar	0.55	0.55
166	Simple bar_166	166	(N/A)	TCAR 100x5	Simple bar	0.55	0.55
167	Simple bar_167	167	(N/A)	TREC 200x10 0x6	Simple bar	0.55	0.55
168	Simple bar_168	168	(N/A)	TREC 200x10 0x6	Simple bar	0.55	0.55
169	Simple bar_169	169	(N/A)	TREC 200x10 0x6	Simple bar	0.55	0.55
170	Simple bar_170	170	(N/A)	TREC 200x10 0x6	Simple bar	0.55	0.55
175	Simple bar_175	175	(N/A)	TCAR 100x5	Simple bar	0.55	0.55
180	Simple bar_180	180	(N/A)	TREC 200x10 0x6	Simple bar	0.55	0.55
181	Simple bar_1	181	(N/A)	HEA 160	Column	1.38	1.38
183	Simple bar_1	183	(N/A)	HEA 160	Column	1.66	1.66
185	Simple bar_185	185	(N/A)	TCAR 100x5	Simple bar	0.59	0.59
186	Simple bar_186	186	(N/A)	TCAR 100x5	Simple bar	0.58	0.58
189	Simple bar_189	189	(N/A)	TCAR 100x5	Simple bar	0.58	0.58
190	Simple bar_190	190	(N/A)	TREC 200x10 0x6	Simple bar	0.58	0.58
191	Simple bar_191	191	(N/A)	TCAR 60x4	Simple bar	0.80	0.80
192	Simple bar_192	192	(N/A)	TCAR 60x4	Simple bar	0.82	0.82
193	Simple bar_193	193	(N/A)	TCAR 100x5	Simple bar	0.79	0.79
194	Simple bar_194	194	(N/A)	TCAR 60x4	Simple bar	0.78	0.78
195	Simple bar_195	195	(N/A)	TCAR 60x4	Simple bar	0.76	0.76
196	Simple bar_196	196	(N/A)	TCAR 60x4	Simple bar	0.76	0.76
197	Simple bar_197	197	(N/A)	TCAR 60x4	Simple bar	0.75	0.75
198	Simple bar_198	198	(N/A)	TCAR 100x5	Simple bar	0.79	0.79
199	Simple bar_199	199	(N/A)	TCAR 60x4	Simple bar	0.79	0.79
200	Simple bar_200	200	(N/A)	TCAR 60x4	Simple bar	0.78	0.78
201	Simple bar_201	201	(N/A)	TCAR 60x4	Simple bar	0.78	0.78
202	Simple bar_202	202	(N/A)	TCAR 35x4	Simple bar	1.72	1.72
203	Simple bar_203	203	(N/A)	TCAR 100x5	Simple bar	0.82	0.82
204	Simple bar_204	204	(N/A)	TCAR 60x4	Simple bar	0.82	0.82
205	Simple bar_205	205	(N/A)	TCAR 60x4	Simple bar	0.83	0.83
206	Simple bar_206	206	(N/A)	TCAR 60x4	Simple bar	0.83	0.83
207	Simple bar_207	207	(N/A)	TCAR 60x4	Simple bar	0.83	0.83

208	Simple bar_208	208	(N/A)	TCAR 60x4	Simple bar	0.77	0.77
209	Simple bar_209	209	(N/A)	TCAR 60x4	Simple bar	0.77	0.77
210	Simple bar_210	210	(N/A)	TCAR 60x4	Simple bar	0.77	0.77
211	Simple bar_211	211	(N/A)	TCAR 60x4	Simple bar	0.77	0.77
212	Simple bar_212	212	(N/A)	TCAR 60x4	Simple bar	0.84	0.84
213	Simple bar_213	213	(N/A)	TCAR 60x4	Simple bar	0.84	0.84
214	Simple bar_214	214	(N/A)	TCAR 60x4	Simple bar	0.85	0.85
215	Simple bar_215	215	(N/A)	TCAR 60x4	Simple bar	0.85	0.85
216	Simple bar_216	216	(N/A)	TCAR 60x4	Simple bar	0.86	0.86
217	Simple bar_217	217	(N/A)	TCAR 60x4	Simple bar	0.76	0.76
218	Simple bar_218	218	(N/A)	TCAR 60x4	Simple bar	0.76	0.76
219	Simple bar_219	219	(N/A)	TCAR 60x4	Simple bar	0.76	0.76
220	Simple bar_220	220	(N/A)	TCAR 60x4	Simple bar	0.76	0.76
221	Simple bar_221	221	(N/A)	TCAR 60x4	Simple bar	0.86	0.86
222	Simple bar_222	222	(N/A)	TCAR 60x4	Simple bar	0.86	0.86
223	Simple bar_223	223	(N/A)	TCAR 60x4	Simple bar	0.87	0.87
224	Simple bar_224	224	(N/A)	TCAR 60x4	Simple bar	0.87	0.87
225	Simple bar_225	225	(N/A)	TCAR 60x4	Simple bar	0.88	0.88
226	Simple bar_226	226	(N/A)	TCAR 60x4	Simple bar	0.75	0.75
227	Simple bar_227	227	(N/A)	TCAR 60x4	Simple bar	0.75	0.75
228	Simple bar_228	228	(N/A)	TCAR 60x4	Simple bar	0.75	0.75
229	Simple bar_229	229	(N/A)	TCAR 60x4	Simple bar	0.88	0.88
230	Simple bar_230	230	(N/A)	TCAR 60x4	Simple bar	0.89	0.89
231	Simple bar_231	231	(N/A)	TCAR 60x4	Simple bar	0.89	0.89
232	Simple bar_232	232	(N/A)	TCAR 60x4	Simple bar	0.90	0.90
233	Simple bar_233	233	(N/A)	TCAR 100x5	Simple bar	0.59	0.59
234	Simple bar_234	234	(N/A)	TCAR 100x5	Simple bar	0.60	0.60
235	Simple bar_235	235	(N/A)	TREC 200x10 0x6	Simple bar	0.58	0.58
236	Simple bar_236	236	(N/A)	TREC 200x10 0x6	Simple bar	0.60	0.60
237	Simple bar_237	237	(N/A)	TCAR 60x4	Simple bar	0.80	0.80
238	Simple bar_238	238	(N/A)	TCAR 100x5	Simple bar	0.79	0.79
239	Simple bar_239	239	(N/A)	TCAR 60x4	Simple bar	0.81	0.81
240	Simple bar_240	240	(N/A)	TCAR 100x5	Simple bar	0.82	0.82
241	Column_241	241	(N/A)	HEA	Column	1.31	1.31

				160			
242	Simple bar_242	242	(N/A)	TCAR 60x4	Simple bar	0.75	0.75
243	Simple bar_243	243	(N/A)	TCAR 60x4	Simple bar	0.93	0.93
244	Simple bar_244	244	(N/A)	TCAR 60x4	Simple bar	0.75	0.75
245	Simple bar_245	245	(N/A)	TCAR 60x4	Simple bar	0.75	0.75
246	Simple bar_246	246	(N/A)	TCAR 60x4	Simple bar	0.75	0.75
247	Simple bar_247	247	(N/A)	TCAR 60x4	Simple bar	0.92	0.92
248	Simple bar_248	248	(N/A)	TCAR 60x4	Simple bar	0.91	0.91
249	Simple bar_249	249	(N/A)	TCAR 60x4	Simple bar	0.91	0.91
250	Simple bar_250	250	(N/A)	TCAR 60x4	Simple bar	0.90	0.90
251	RC column_251	251	(N/A)	C R30x30	RC column	(N/A)	(N/A)
252	Simple bar_252	252	(N/A)	TREC 150x100x6.3	Simple bar	7.71	7.71
253	Simple bar_253	253	(N/A)	TREC 150x100x6.3	Simple bar	4.94	4.94
254	Simple bar_254	254	(N/A)	TCAR 100x5	Simple bar	0.58	0.58
255	Simple bar_255	255	(N/A)	TCAR 100x5	Simple bar	0.57	0.57
256	Simple bar_256	256	(N/A)	TCAR 100x5	Simple bar	0.57	0.57
257	Simple bar_257	257	(N/A)	TREC 200x100x6	Simple bar	0.59	0.59
258	Simple bar_258	258	(N/A)	TREC 200x100x6	Simple bar	0.58	0.58
259	Simple bar_259	259	(N/A)	TREC 200x100x6	Simple bar	0.57	0.57
260	Simple bar_260	260	(N/A)	TREC 200x100x6	Simple bar	0.57	0.57
261	Simple bar_261	261	(N/A)	TREC 200x100x6	Simple bar	0.57	0.57
262	Simple bar_262	262	(N/A)	TCAR 100x5	Simple bar	0.57	0.57
263	Simple bar_263	263	(N/A)	TCAR 100x5	Simple bar	0.57	0.57
264	Simple bar_264	264	(N/A)	TCAR 100x5	Simple bar	0.56	0.56
265	Simple bar_265	265	(N/A)	TCAR 100x5	Simple bar	0.56	0.56
266	Simple bar_266	266	(N/A)	TCAR 100x5	Simple bar	0.56	0.56
267	Simple bar_267	267	(N/A)	TREC 200x100x6	Simple bar	0.57	0.57
268	Simple bar_268	268	(N/A)	TREC 200x100x6	Simple bar	0.57	0.57
269	Simple bar_269	269	(N/A)	TREC 200x100x6	Simple bar	0.56	0.56
270	Simple bar_270	270	(N/A)	TREC 200x100	Simple bar	0.56	0.56

				0x6			
271	Simple bar_271	271	(N/A)	TREC 200x10 0x6	Simple bar	0.56	0.56
272	Simple bar_272	272	(N/A)	TREC 200x10 0x6	Simple bar	0.56	0.56
273	Simple bar_273	273	(N/A)	TREC 200x10 0x6	Simple bar	0.56	0.56
274	Simple bar_274	274	(N/A)	TREC 200x10 0x6	Simple bar	0.56	0.56
275	Simple bar_275	275	(N/A)	TREC 200x10 0x6	Simple bar	0.56	0.56
276	Simple bar_276	276	(N/A)	TREC 200x10 0x6	Simple bar	0.55	0.55
277	Simple bar_277	277	(N/A)	TCAR 100x5	Simple bar	0.56	0.56
278	Simple bar_278	278	(N/A)	TCAR 100x5	Simple bar	0.56	0.56
279	Simple bar_279	279	(N/A)	TCAR 100x5	Simple bar	0.56	0.56
280	Simple bar_280	280	(N/A)	TCAR 100x5	Simple bar	0.56	0.56
281	Simple bar_281	281	(N/A)	TCAR 100x5	Simple bar	0.55	0.55
282	Simple bar_282	282	(N/A)	TCAR 100x5	Simple bar	0.55	0.55
283	Simple bar_283	283	(N/A)	TCAR 100x5	Simple bar	0.55	0.55
284	Simple bar_284	284	(N/A)	TCAR 100x5	Simple bar	0.55	0.55
285	Simple bar_285	285	(N/A)	TCAR 100x5	Simple bar	0.55	0.55
286	Simple bar_286	286	(N/A)	TREC 200x10 0x6	Simple bar	0.55	0.55
287	Simple bar_287	287	(N/A)	TREC 200x10 0x6	Simple bar	0.55	0.55
288	Simple bar_288	288	(N/A)	TREC 200x10 0x6	Simple bar	0.55	0.55
289	Simple bar_289	289	(N/A)	TREC 200x10 0x6	Simple bar	0.55	0.55
290	Simple bar_290	290	(N/A)	TCAR 100x5	Simple bar	0.55	0.55
291	Simple bar_291	291	(N/A)	TCAR 100x5	Simple bar	0.55	0.55
292	Simple bar_292	292	(N/A)	TCAR 100x5	Simple bar	0.55	0.55
293	Simple bar_293	293	(N/A)	TCAR 100x5	Simple bar	0.55	0.55
294	Simple bar_294	294	(N/A)	TREC 200x10 0x6	Simple bar	0.55	0.55
295	Simple bar_295	295	(N/A)	TREC 200x10 0x6	Simple bar	0.55	0.55
296	Simple bar_296	296	(N/A)	TREC 200x10 0x6	Simple bar	0.55	0.55
297	Simple bar_297	297	(N/A)	TREC 200x10 0x6	Simple bar	0.55	0.55
298	Simple	298	(N/A)	TCAR	Simple bar	0.55	0.55

	bar_298			100x5			
299	Simple bar_299	299	(N/A)	TREC 200x10 0x6	Simple bar	0.55	0.55

Code groups - Definition

Code group	Name	Components
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Member Verification

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 1 Simple bar_1

POINT: 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: HEA 160

h=15.2 cm	gM0=1.00	gM1=1.00	
b=16.0 cm	Ay=32.53 cm ²	Az=13.21 cm ²	Ax=38.77 cm ²
tw=0.6 cm	Iy=1672.98 cm ⁴	Iz=615.57 cm ⁴	Ix=10.90 cm ⁴
tf=0.9 cm	Wply=245.17 cm ³	Wplz=117.63 cm ³	

INTERNAL FORCES AND CAPACITIES:

N,Ed = 95.00 kN	My,Ed = -23.27 kN*m	
Nc,Rd = 1376.38 kN	My,pl,Rd = 87.03 kN*m	
Nb,Rd = 1195.51 kN	My,c,Rd = 87.03 kN*m	Vz,Ed = 21.50 kN
	MN,y,Rd = 87.03 kN*m	Vz,c,Rd = 270.78 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

Ly = 1.38 m	Lam_y = 0.28
Lcr,y = 1.38 m	Xy = 0.97
Lamy = 21.02	kyy = 0.73



About z axis:

Lz = 1.38 m	Lam_z = 0.45
Lcr,z = 1.38 m	Xz = 0.87
Lamz = 34.66	kzy = 0.38

VERIFICATION FORMULAS:

Section strength check:

$$N_{Ed}/N_{c,Rd} = 0.07 < 1.00 \quad (6.2.4.(1))$$

$$M_{y,Ed}/M_{y,c,Rd} = 0.27 < 1.00 \quad (6.2.5.(1))$$

$$V_{z,Ed}/V_{z,c,Rd} = 0.08 < 1.00 \quad (6.2.6.(1))$$

Global stability check of member:

$$\lambda_{y} = 21.02 < \lambda_{y,max} = 210.00 \quad \lambda_{z} = 34.66 < \lambda_{z,max} = 210.00 \quad \text{STABLE}$$

$$N_{Ed}/(X_y \cdot N_{Rk}/\gamma_{M1}) + k_{yy} \cdot M_{y,Ed}/(X_{LT} \cdot M_{y,Rk}/\gamma_{M1}) = 0.27 < 1.00 \quad (6.3.3.(4))$$

$$N_{Ed}/(X_z \cdot N_{Rk}/\gamma_{M1}) + k_{zy} \cdot M_{y,Ed}/(X_{LT} \cdot M_{y,Rk}/\gamma_{M1}) = 0.18 < 1.00 \quad (6.3.3.(4))$$

LIMIT DISPLACEMENTS**Deflections** Not analyzed**Displacements**

$$v_x = 0.7 \text{ cm} < v_{x,max} = L/150.00 = 0.9 \text{ cm}$$

Verified

$$\text{Governing Load Case: } 15 \text{ SLS /58/ } 1 \cdot 1.00 + 2 \cdot 1.00 + 3 \cdot 1.00 + 5 \cdot 0.70 + 6 \cdot 0.60 + 8 \cdot 1.00$$

$$v_y = 0.0 \text{ cm} < v_{y,max} = L/150.00 = 0.9 \text{ cm}$$

Verified

$$\text{Governing Load Case: } 15 \text{ SLS /57/ } 1 \cdot 1.00 + 2 \cdot 1.00 + 3 \cdot 1.00 + 4 \cdot 1.00 + 5 \cdot 0.70 + 6 \cdot 0.60$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 2 Simple bar_2

POINT: 3

COORDINATE: x = 1.00 L = 0.59 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

h=10.0 cm

gM0=1.00

gM1=1.00

b=10.0 cm

Ay=9.44 cm²

Az=9.44 cm²

Ax=18.88 cm²

tw=0.5 cm

Iy=282.80 cm⁴

Iz=282.80 cm⁴

Ix=438.80 cm⁴

tf=0.5 cm

Wply=67.75 cm³

Wplz=67.75 cm³

INTERNAL FORCES AND CAPACITIES:

N,Ed = -40.79 kN

My,Ed = -1.48 kN*m

Nt,Rd = 666.09 kN

My,pl,Rd = 24.05 kN*m

My,c,Rd = 24.05 kN*m

MN,y,Rd = 24.05 kN*m

Vz,Ed = -3.37 kN

Vz,c,Rd = 193.48 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.06 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.06 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 3 Simple bar_3

POINT: 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /112/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 35x4

h=3.5 cm

gM0=1.00

gM1=1.00

b=3.5 cm

Ay=2.44 cm²

Az=2.44 cm²

Ax=4.88 cm²

tw=0.4 cm

Iy=7.72 cm⁴

Iz=7.72 cm⁴

Ix=12.50 cm⁴

tf=0.4 cm

Wply=5.80 cm³

Wplz=5.80 cm³

INTERNAL FORCES AND CAPACITIES:

N_{Ed} = -3.55 kN

M_{y,Ed} = 0.52 kN*m

N_{t,Rd} = 172.27 kN

M_{y,pl,Rd} = 2.06 kN*m

M_{y,c,Rd} = 2.06 kN*m

MN_{y,Rd} = 2.06 kN*m

V_{z,Ed} = -0.60 kN

V_{z,c,Rd} = 50.04 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.02 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.25 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 5 Simple bar_5

POINT: 3

COORDINATE: $x = 1.00$ $L = 7.71$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 150x100x6.3

$h = 15.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 10.0$ cm

$A_y = 11.88$ cm²

$A_z = 17.82$ cm²

$A_x = 29.70$ cm²

$tw = 0.6$ cm

$I_y = 910.10$ cm⁴

$I_z = 479.30$ cm⁴

$I_x = 985.10$ cm⁴

$tf = 0.6$ cm

$W_{ply} = 150.00$ cm³

$W_{plz} = 112.61$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -596.82$ kN

$M_{y,Ed} = 1.63$ kN*m

$N_{t,Rd} = 1047.82$ kN

$M_{y,pl,Rd} = 53.25$ kN*m

$M_{y,c,Rd} = 53.25$ kN*m

$MN_{y,Rd} = 30.81$ kN*m

$V_{z,Ed} = -0.28$ kN

$V_{z,c,Rd} = 365.24$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.57 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.03 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.05 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.00 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 6 Simple bar_6

POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 150x100x6.3

$h = 15.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 10.0$ cm

$A_y = 11.88$ cm²

$A_z = 17.82$ cm²

$A_x = 29.70$ cm²

$tw = 0.6$ cm

$I_y = 910.10$ cm⁴

$I_z = 479.30$ cm⁴

$I_x = 985.10$ cm⁴

$tf = 0.6$ cm

$W_{ply} = 150.00$ cm³

$W_{plz} = 112.61$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -597.24$ kN

$M_{y,Ed} = 1.28$ kN*m

$N_{t,Rd} = 1047.82$ kN

$M_{y,pl,Rd} = 53.25$ kN*m

$M_{y,c,Rd} = 53.25$ kN*m

$MN_{y,Rd} = 30.78$ kN*m

$V_{z,Ed} = 1.18$ kN

$V_{z,c,Rd} = 365.24$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.57 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.02 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.04 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.00 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 16 Simple bar_16

POINT: 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

h=10.0 cm

gM0=1.00

gM1=1.00

b=10.0 cm

Ay=9.44 cm²

Az=9.44 cm²

Ax=18.88 cm²

tw=0.5 cm

Iy=282.80 cm⁴

Iz=282.80 cm⁴

Ix=438.80 cm⁴

tf=0.5 cm

Wply=67.75 cm³

Wplz=67.75 cm³

INTERNAL FORCES AND CAPACITIES:

N_{Ed} = 81.80 kN

M_{y,Ed} = 1.54 kN*m

N_{c,Rd} = 670.24 kN

M_{y,pl,Rd} = 24.05 kN*m

N_{b,Rd} = 660.23 kN

M_{y,c,Rd} = 24.05 kN*m

MN_{y,Rd} = 24.05 kN*m

V_{z,Ed} = -3.47 kN

V_{z,c,Rd} = 193.48 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L_y = 0.79 m

Lam_y = 0.27

L_{cr,y} = 0.79 m

X_y = 0.99

Lam_y = 20.41

k_{yy} = 0.97



About z axis:

L_z = 0.79 m

Lam_z = 0.27

L_{cr,z} = 0.79 m

X_z = 0.99

Lam_z = 20.41

k_{zy} = 0.58

VERIFICATION FORMULAS:

Section strength check:

N_{Ed}/N_{c,Rd} = 0.12 < 1.00 (6.2.4.(1))

M_{y,Ed}/M_{y,c,Rd} = 0.06 < 1.00 (6.2.5.(1))

M_{y,Ed}/MN_{y,Rd} = 0.06 < 1.00 (6.2.9.1.(2))

V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00 (6.2.6.(1))

Global stability check of member:

Lam_{bda,y} = 20.41 < Lam_{bda,max} = 210.00 Lam_{bda,z} = 20.41 < Lam_{bda,max} = 210.00 STABLE

N_{Ed}/(X_y*N_{Rk}/gM1) + k_{yy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.19 < 1.00 (6.3.3.(4))

N_{Ed}/(X_z*N_{Rk}/gM1) + k_{zy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.16 < 1.00 (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 17 Simple bar_17

POINT: 3

COORDINATE: x = 1.00 L = 0.78 m

LOADS:

Governing Load Case: 12 ULS /111/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm

gM0=1.00

gM1=1.00

b=6.0 cm

Ay=4.44 cm²

Az=4.44 cm²

Ax=8.88 cm²

tw=0.4 cm

Iy=46.14 cm⁴

Iz=46.14 cm⁴

Ix=72.41 cm⁴

tf=0.4 cm

Wply=18.85 cm³

Wplz=18.85 cm³

INTERNAL FORCES AND CAPACITIES:

N_{Ed} = 68.48 kN

M_{y,Ed} = -0.90 kN*m

N_{c,Rd} = 315.35 kN

M_{y,pl,Rd} = 6.69 kN*m

N_{b,Rd} = 296.54 kN

M_{y,c,Rd} = 6.69 kN*m

MN_{y,Rd} = 6.69 kN*m

V_{z,Ed} = -2.28 kN

V_{z,c,Rd} = 91.03 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L_y = 0.78 m

Lam_y = 0.45

L_{cr,y} = 0.78 m

X_y = 0.94

Lam_y = 34.05

k_{yy} = 0.99



About z axis:

L_z = 0.78 m

Lam_z = 0.45

L_{cr,z} = 0.78 m

X_z = 0.94

Lam_z = 34.05

k_{zy} = 0.60

VERIFICATION FORMULAS:

Section strength check:

N_{Ed}/N_{c,Rd} = 0.22 < 1.00 (6.2.4.(1))

M_{y,Ed}/M_{y,c,Rd} = 0.13 < 1.00 (6.2.5.(1))

M_{y,Ed}/MN_{y,Rd} = 0.13 < 1.00 (6.2.9.1.(2))

V_{z,Ed}/V_{z,c,Rd} = 0.03 < 1.00 (6.2.6.(1))

Global stability check of member:

Lam_{bda,y} = 34.05 < Lam_{bda,max} = 210.00 Lam_{bda,z} = 34.05 < Lam_{bda,max} = 210.00 STABLE

N_{Ed}/(X_y*N_{Rk}/gM1) + k_{yy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.36 < 1.00 (6.3.3.(4))

N_{Ed}/(X_z*N_{Rk}/gM1) + k_{zy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.31 < 1.00 (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 18 Simple bar_18

POINT: 3

COORDINATE: $x = 1.00$ $L = 0.76$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$tw = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$tf = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 47.97$ kN

$M_{y,Ed} = -0.79$ kN*m

$N_{c,Rd} = 315.35$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$N_{b,Rd} = 297.15$ kN

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -2.06$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.76$ m

$\lambda_{m,y} = 0.44$

$L_{cr,y} = 0.76$ m

$X_y = 0.94$

$\lambda_{m,y} = 33.52$

$k_{yy} = 0.99$



About z axis:

$L_z = 0.76$ m

$\lambda_{m,z} = 0.44$

$L_{cr,z} = 0.76$ m

$X_z = 0.94$

$\lambda_{m,z} = 33.52$

$k_{zy} = 0.60$

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{c,Rd} = 0.15 < 1.00$ (6.2.4.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.12 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.12 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00$ (6.2.6.(1))

Global stability check of member:

$\lambda_{bda,y} = 33.52 < \lambda_{bda,max} = 210.00$ $\lambda_{bda,z} = 33.52 < \lambda_{bda,max} = 210.00$ STABLE

$N_{Ed}/(X_y * N_{Rk}/gM1) + k_{yy} * M_{y,Ed}/(XLT * M_{y,Rk}/gM1) = 0.28 < 1.00$ (6.3.3.(4))

$N_{Ed}/(X_z * N_{Rk}/gM1) + k_{zy} * M_{y,Ed}/(XLT * M_{y,Rk}/gM1) = 0.23 < 1.00$ (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 19 Simple bar_19

POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h=6.0$ cm

$gM0=1.00$

$gM1=1.00$

$b=6.0$ cm

$A_y=4.44$ cm²

$A_z=4.44$ cm²

$A_x=8.88$ cm²

$tw=0.4$ cm

$I_y=46.14$ cm⁴

$I_z=46.14$ cm⁴

$I_x=72.41$ cm⁴

$tf=0.4$ cm

$W_{ply}=18.85$ cm³

$W_{plz}=18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 28.37$ kN

$M_{y,Ed} = 0.59$ kN*m

$N_{c,Rd} = 315.35$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$N_{b,Rd} = 297.55$ kN

$M_{y,c,Rd} = 6.69$ kN*m

$V_{z,Ed} = -1.54$ kN

$M_{N,y,Rd} = 6.69$ kN*m

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.76$ m

$\lambda_{m,y} = 0.43$

$L_{cr,y} = 0.76$ m

$X_y = 0.94$

$\lambda_{m,y} = 33.17$

$k_{yy} = 0.99$



About z axis:

$L_z = 0.76$ m

$\lambda_{m,z} = 0.43$

$L_{cr,z} = 0.76$ m

$X_z = 0.94$

$\lambda_{m,z} = 33.17$

$k_{zy} = 0.60$

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{c,Rd} = 0.09 < 1.00$ (6.2.4.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.09 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00$ (6.2.6.(1))

Global stability check of member:

$\lambda_{m,y} = 33.17 < \lambda_{m,max} = 210.00$ $\lambda_{m,z} = 33.17 < \lambda_{m,max} = 210.00$ STABLE

$N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.18 < 1.00$ (6.3.3.(4))

$N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.15 < 1.00$ (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 20 Simple bar_20

POINT: 3

COORDINATE: $x = 1.00$ $L = 0.75$ m

LOADS:

Governing Load Case: 12 ULS /118/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 10*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h=6.0$ cm

$gM0=1.00$

$gM1=1.00$

$b=6.0$ cm

$A_y=4.44$ cm²

$A_z=4.44$ cm²

$A_x=8.88$ cm²

$tw=0.4$ cm

$I_y=46.14$ cm⁴

$I_z=46.14$ cm⁴

$I_x=72.41$ cm⁴

$tf=0.4$ cm

$W_{ply}=18.85$ cm³

$W_{plz}=18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 29.77$ kN

$M_{y,Ed} = -0.60$ kN*m

$N_{c,Rd} = 315.35$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$N_{b,Rd} = 297.75$ kN

$M_{y,c,Rd} = 6.69$ kN*m

$M_{N,y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -1.59$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.75$ m

$\lambda_{m,y} = 0.43$

$L_{cr,y} = 0.75$ m

$X_y = 0.94$

$\lambda_{my} = 33.00$

$k_{yy} = 0.99$



About z axis:

$L_z = 0.75$ m

$\lambda_{m,z} = 0.43$

$L_{cr,z} = 0.75$ m

$X_z = 0.94$

$\lambda_{mz} = 33.00$

$k_{zy} = 0.60$

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{c,Rd} = 0.09 < 1.00$ (6.2.4.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.09 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00$ (6.2.6.(1))

Global stability check of member:

$\lambda_{m,y} = 33.00 < \lambda_{m,max} = 210.00$ $\lambda_{m,z} = 33.00 < \lambda_{m,max} = 210.00$ STABLE

$N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.19 < 1.00$ (6.3.3.(4))

$N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.15 < 1.00$ (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 21 Simple bar_21

POINT: 3

COORDINATE: $x = 1.00$ $L = 0.79$ m

LOADS:

Governing Load Case: 12 ULS /111/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

$h = 10.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 10.0$ cm

$A_y = 9.44$ cm²

$A_z = 9.44$ cm²

$A_x = 18.88$ cm²

$t_w = 0.5$ cm

$I_y = 282.80$ cm⁴

$I_z = 282.80$ cm⁴

$I_x = 438.80$ cm⁴

$t_f = 0.5$ cm

$W_{ply} = 67.75$ cm³

$W_{plz} = 67.75$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 107.64$ kN

$M_{y,Ed} = -4.68$ kN*m

$N_{c,Rd} = 670.24$ kN

$M_{y,pl,Rd} = 24.05$ kN*m

$N_{b,Rd} = 660.23$ kN

$M_{y,c,Rd} = 24.05$ kN*m

$V_{z,Ed} = -11.53$ kN

$V_{z,c,Rd} = 193.48$ kN

$M_{N,y,Rd} = 24.05$ kN*m

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.79$ m

$\lambda_{m,y} = 0.27$

$L_{cr,y} = 0.79$ m

$X_y = 0.99$

$\lambda_{m,y} = 20.41$

$k_{yy} = 0.96$



About z axis:

$L_z = 0.79$ m

$\lambda_{m,z} = 0.27$

$L_{cr,z} = 0.79$ m

$X_z = 0.99$

$\lambda_{m,z} = 20.41$

$k_{zy} = 0.58$

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{c,Rd} = 0.16 < 1.00$ (6.2.4.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.19 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/M_{N,y,Rd} = 0.19 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.06 < 1.00$ (6.2.6.(1))

Global stability check of member:

$\lambda_{bda,y} = 20.41 < \lambda_{bda,max} = 210.00$ $\lambda_{bda,z} = 20.41 < \lambda_{bda,max} = 210.00$ STABLE

$N_{Ed}/(X_y * N_{Rk}/gM1) + k_{yy} * M_{y,Ed}/(XLT * M_{y,Rk}/gM1) = 0.35 < 1.00$ (6.3.3.(4))

$N_{Ed}/(X_z * N_{Rk}/gM1) + k_{zy} * M_{y,Ed}/(XLT * M_{y,Rk}/gM1) = 0.28 < 1.00$ (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 22 Simple bar_22

POINT: 3

COORDINATE: x = 1.00 L = 0.79 m

LOADS:

Governing Load Case: 12 ULS /111/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm

gM0=1.00

gM1=1.00

b=6.0 cm

Ay=4.44 cm²

Az=4.44 cm²

Ax=8.88 cm²

tw=0.4 cm

Iy=46.14 cm⁴

Iz=46.14 cm⁴

Ix=72.41 cm⁴

tf=0.4 cm

Wply=18.85 cm³

Wplz=18.85 cm³

INTERNAL FORCES AND CAPACITIES:

N_{Ed} = 71.65 kN

M_{y,Ed} = -1.01 kN*m

N_{c,Rd} = 315.35 kN

M_{y,pl,Rd} = 6.69 kN*m

N_{b,Rd} = 296.08 kN

M_{y,c,Rd} = 6.69 kN*m

MN_{y,Rd} = 6.69 kN*m

V_{z,Ed} = -2.39 kN

V_{z,c,Rd} = 91.03 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L_y = 0.79 m

Lam_y = 0.45

L_{cr,y} = 0.79 m

X_y = 0.94

Lam_y = 34.44

k_{yy} = 0.99



About z axis:

L_z = 0.79 m

Lam_z = 0.45

L_{cr,z} = 0.79 m

X_z = 0.94

Lam_z = 34.44

k_{zy} = 0.60

VERIFICATION FORMULAS:

Section strength check:

N_{Ed}/N_{c,Rd} = 0.23 < 1.00 (6.2.4.(1))

M_{y,Ed}/M_{y,c,Rd} = 0.15 < 1.00 (6.2.5.(1))

M_{y,Ed}/MN_{y,Rd} = 0.15 < 1.00 (6.2.9.1.(2))

V_{z,Ed}/V_{z,c,Rd} = 0.03 < 1.00 (6.2.6.(1))

Global stability check of member:

Lam_{bda,y} = 34.44 < Lam_{bda,max} = 210.00 Lam_{bda,z} = 34.44 < Lam_{bda,max} = 210.00 STABLE

N_{Ed}/(X_y*N_{Rk}/gM1) + k_{yy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.39 < 1.00 (6.3.3.(4))

N_{Ed}/(X_z*N_{Rk}/gM1) + k_{zy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.33 < 1.00 (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 23 Simple bar_23

POINT: 3

COORDINATE: x = 1.00 L = 0.78 m

LOADS:

Governing Load Case: 12 ULS /111/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm

gM0=1.00

gM1=1.00

b=6.0 cm

Ay=4.44 cm²

Az=4.44 cm²

Ax=8.88 cm²

tw=0.4 cm

Iy=46.14 cm⁴

Iz=46.14 cm⁴

Ix=72.41 cm⁴

tf=0.4 cm

Wply=18.85 cm³

Wplz=18.85 cm³

INTERNAL FORCES AND CAPACITIES:

N_{Ed} = 79.04 kN

M_{y,Ed} = -0.99 kN*m

N_{c,Rd} = 315.35 kN

M_{y,pl,Rd} = 6.69 kN*m

N_{b,Rd} = 296.18 kN

M_{y,c,Rd} = 6.69 kN*m

MN_{y,Rd} = 6.51 kN*m

V_{z,Ed} = -2.46 kN

V_{z,c,Rd} = 91.03 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L_y = 0.78 m

Lam_y = 0.45

L_{cr,y} = 0.78 m

X_y = 0.94

Lam_y = 34.36

k_{yy} = 0.99



About z axis:

L_z = 0.78 m

Lam_z = 0.45

L_{cr,z} = 0.78 m

X_z = 0.94

Lam_z = 34.36

k_{zy} = 0.60

VERIFICATION FORMULAS:

Section strength check:

N_{Ed}/N_{c,Rd} = 0.25 < 1.00 (6.2.4.(1))

M_{y,Ed}/M_{y,c,Rd} = 0.15 < 1.00 (6.2.5.(1))

M_{y,Ed}/MN_{y,Rd} = 0.15 < 1.00 (6.2.9.1.(2))

V_{z,Ed}/V_{z,c,Rd} = 0.03 < 1.00 (6.2.6.(1))

Global stability check of member:

Lam_{bda,y} = 34.36 < Lam_{bda,max} = 210.00 Lam_{bda,z} = 34.36 < Lam_{bda,max} = 210.00 STABLE

N_{Ed}/(X_y*N_{Rk}/gM1) + k_{yy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.41 < 1.00 (6.3.3.(4))

N_{Ed}/(X_z*N_{Rk}/gM1) + k_{zy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.36 < 1.00 (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 24 Simple bar_24

POINT: 3

COORDINATE: x = 1.00 L = 0.78 m

LOADS:

Governing Load Case: 12 ULS /111/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm

gM0=1.00

gM1=1.00

b=6.0 cm

Ay=4.44 cm²

Az=4.44 cm²

Ax=8.88 cm²

tw=0.4 cm

Iy=46.14 cm⁴

Iz=46.14 cm⁴

Ix=72.41 cm⁴

tf=0.4 cm

Wply=18.85 cm³

Wplz=18.85 cm³

INTERNAL FORCES AND CAPACITIES:

N_{Ed} = 73.81 kN

M_{y,Ed} = -0.95 kN*m

N_{c,Rd} = 315.35 kN

M_{y,pl,Rd} = 6.69 kN*m

N_{b,Rd} = 296.39 kN

M_{y,c,Rd} = 6.69 kN*m

MN_{y,Rd} = 6.65 kN*m

V_{z,Ed} = -2.39 kN

V_{z,c,Rd} = 91.03 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L_y = 0.78 m

Lam_y = 0.45

L_{cr,y} = 0.78 m

X_y = 0.94

Lam_y = 34.18

k_{yy} = 0.99



About z axis:

L_z = 0.78 m

Lam_z = 0.45

L_{cr,z} = 0.78 m

X_z = 0.94

Lam_z = 34.18

k_{zy} = 0.60

VERIFICATION FORMULAS:

Section strength check:

N_{Ed}/N_{c,Rd} = 0.23 < 1.00 (6.2.4.(1))

M_{y,Ed}/M_{y,c,Rd} = 0.14 < 1.00 (6.2.5.(1))

M_{y,Ed}/MN_{y,Rd} = 0.14 < 1.00 (6.2.9.1.(2))

V_{z,Ed}/V_{z,c,Rd} = 0.03 < 1.00 (6.2.6.(1))

Global stability check of member:

Lam_{bda,y} = 34.18 < Lam_{bda,max} = 210.00 Lam_{bda,z} = 34.18 < Lam_{bda,max} = 210.00 STABLE

N_{Ed}/(X_y*N_{Rk}/gM1) + k_{yy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.39 < 1.00 (6.3.3.(4))

N_{Ed}/(X_z*N_{Rk}/gM1) + k_{zy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.33 < 1.00 (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 26 Simple bar_26

POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

$h = 10.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 10.0$ cm

$A_y = 9.44$ cm²

$A_z = 9.44$ cm²

$A_x = 18.88$ cm²

$tw = 0.5$ cm

$I_y = 282.80$ cm⁴

$I_z = 282.80$ cm⁴

$I_x = 438.80$ cm⁴

$tf = 0.5$ cm

$W_{ply} = 67.75$ cm³

$W_{plz} = 67.75$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -92.12$ kN

$M_{y,Ed} = 2.13$ kN*m

$N_{t,Rd} = 666.09$ kN

$M_{y,pl,Rd} = 24.05$ kN*m

$M_{y,c,Rd} = 24.05$ kN*m

$MN_{y,Rd} = 24.05$ kN*m

$V_{z,Ed} = -6.51$ kN

$V_{z,c,Rd} = 193.48$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.14 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.09 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.09 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.03 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 27 Simple bar_27

POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /111/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$tw = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$tf = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -71.17$ kN

$M_{y,Ed} = 0.29$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -0.85$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.23 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.04 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.04 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 28 Simple bar_28

POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /111/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$tw = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$tf = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -78.68$ kN

$M_{y,Ed} = 0.57$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.52$ kN*m

$V_{z,Ed} = -1.42$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.25 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.09 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.09 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 29 Simple bar_29

POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /111/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$tw = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$tf = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -74.86$ kN

$M_{y,Ed} = 0.56$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.63$ kN*m

$V_{z,Ed} = -1.34$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.24 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.08 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.08 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 30 Simple bar_30

POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /111/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h=6.0$ cm

$gM0=1.00$

$gM1=1.00$

$b=6.0$ cm

$A_y=4.44$ cm²

$A_z=4.44$ cm²

$A_x=8.88$ cm²

$tw=0.4$ cm

$I_y=46.14$ cm⁴

$I_z=46.14$ cm⁴

$I_x=72.41$ cm⁴

$tf=0.4$ cm

$W_{ply}=18.85$ cm³

$W_{plz}=18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -70.59$ kN

$M_{y,Ed} = 0.54$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -1.26$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.23 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.08 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.08 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 31 Simple bar_31

POINT: 3

COORDINATE: x = 1.00 L = 0.77 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm

gM0=1.00

gM1=1.00

b=6.0 cm

Ay=4.44 cm²

Az=4.44 cm²

Ax=8.88 cm²

tw=0.4 cm

Iy=46.14 cm⁴

Iz=46.14 cm⁴

Ix=72.41 cm⁴

tf=0.4 cm

Wply=18.85 cm³

Wplz=18.85 cm³

INTERNAL FORCES AND CAPACITIES:

N_{Ed} = 60.86 kN

M_{y,Ed} = -0.91 kN*m

N_{c,Rd} = 315.35 kN

M_{y,pl,Rd} = 6.69 kN*m

N_{b,Rd} = 296.69 kN

M_{y,c,Rd} = 6.69 kN*m

V_{z,Ed} = -2.29 kN

MN_{y,Rd} = 6.69 kN*m

V_{z,c,Rd} = 91.03 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L_y = 0.77 m

Lam_y = 0.44

L_{cr,y} = 0.77 m

X_y = 0.94

Lam_y = 33.92

k_{yy} = 0.99



About z axis:

L_z = 0.77 m

Lam_z = 0.44

L_{cr,z} = 0.77 m

X_z = 0.94

Lam_z = 33.92

k_{zy} = 0.60

VERIFICATION FORMULAS:

Section strength check:

N_{Ed}/N_{c,Rd} = 0.19 < 1.00 (6.2.4.(1))

M_{y,Ed}/M_{y,c,Rd} = 0.14 < 1.00 (6.2.5.(1))

M_{y,Ed}/M_{N,y,Rd} = 0.14 < 1.00 (6.2.9.1.(2))

V_{z,Ed}/V_{z,c,Rd} = 0.03 < 1.00 (6.2.6.(1))

Global stability check of member:

Lam_{bda,y} = 33.92 < Lam_{bda,max} = 210.00 Lam_{bda,z} = 33.92 < Lam_{bda,max} = 210.00 STABLE

N_{Ed}/(X_y*N_{Rk}/gM1) + k_{yy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.34 < 1.00 (6.3.3.(4))

N_{Ed}/(X_z*N_{Rk}/gM1) + k_{zy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.29 < 1.00 (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 32 Simple bar_32

POINT: 3

COORDINATE: x = 1.00 L = 0.77 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm

gM0=1.00

gM1=1.00

b=6.0 cm

Ay=4.44 cm²

Az=4.44 cm²

Ax=8.88 cm²

tw=0.4 cm

Iy=46.14 cm⁴

Iz=46.14 cm⁴

Ix=72.41 cm⁴

tf=0.4 cm

Wply=18.85 cm³

Wplz=18.85 cm³

INTERNAL FORCES AND CAPACITIES:

N_{Ed} = 57.95 kN

M_{y,Ed} = -0.88 kN*m

N_{c,Rd} = 315.35 kN

M_{y,pl,Rd} = 6.69 kN*m

N_{b,Rd} = 296.85 kN

M_{y,c,Rd} = 6.69 kN*m

MN_{y,Rd} = 6.69 kN*m

V_{z,Ed} = -2.24 kN

V_{z,c,Rd} = 91.03 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L_y = 0.77 m

Lam_y = 0.44

L_{cr,y} = 0.77 m

X_y = 0.94

Lam_y = 33.79

k_{yy} = 0.99



About z axis:

L_z = 0.77 m

Lam_z = 0.44

L_{cr,z} = 0.77 m

X_z = 0.94

Lam_z = 33.79

k_{zy} = 0.60

VERIFICATION FORMULAS:

Section strength check:

N_{Ed}/N_{c,Rd} = 0.18 < 1.00 (6.2.4.(1))

M_{y,Ed}/M_{y,c,Rd} = 0.13 < 1.00 (6.2.5.(1))

M_{y,Ed}/MN_{y,Rd} = 0.13 < 1.00 (6.2.9.1.(2))

V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00 (6.2.6.(1))

Global stability check of member:

Lam_{bda,y} = 33.79 < Lam_{bda,max} = 210.00 Lam_{bda,z} = 33.79 < Lam_{bda,max} = 210.00 STABLE

N_{Ed}/(X_y*N_{Rk}/gM1) + k_{yy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.32 < 1.00 (6.3.3.(4))

N_{Ed}/(X_z*N_{Rk}/gM1) + k_{zy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.27 < 1.00 (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 33 Simple bar_33

POINT: 3

COORDINATE: x = 1.00 L = 0.77 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm

gM0=1.00

gM1=1.00

b=6.0 cm

Ay=4.44 cm²

Az=4.44 cm²

Ax=8.88 cm²

tw=0.4 cm

Iy=46.14 cm⁴

Iz=46.14 cm⁴

Ix=72.41 cm⁴

tf=0.4 cm

Wply=18.85 cm³

Wplz=18.85 cm³

INTERNAL FORCES AND CAPACITIES:

N_{Ed} = 54.02 kN

M_{y,Ed} = -0.85 kN*m

N_{c,Rd} = 315.35 kN

M_{y,pl,Rd} = 6.69 kN*m

N_{b,Rd} = 296.90 kN

M_{y,c,Rd} = 6.69 kN*m

MN_{y,Rd} = 6.69 kN*m

V_{z,Ed} = -2.18 kN

V_{z,c,Rd} = 91.03 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L_y = 0.77 m

Lam_y = 0.44

L_{cr,y} = 0.77 m

X_y = 0.94

Lam_y = 33.74

k_{yy} = 0.99



About z axis:

L_z = 0.77 m

Lam_z = 0.44

L_{cr,z} = 0.77 m

X_z = 0.94

Lam_z = 33.74

k_{zy} = 0.60

VERIFICATION FORMULAS:

Section strength check:

N_{Ed}/N_{c,Rd} = 0.17 < 1.00 (6.2.4.(1))

M_{y,Ed}/M_{y,c,Rd} = 0.13 < 1.00 (6.2.5.(1))

M_{y,Ed}/MN_{y,Rd} = 0.13 < 1.00 (6.2.9.1.(2))

V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00 (6.2.6.(1))

Global stability check of member:

Lam_{bda,y} = 33.74 < Lam_{bda,max} = 210.00 Lam_{bda,z} = 33.74 < Lam_{bda,max} = 210.00 STABLE

N_{Ed}/(X_y*N_{Rk}/gM1) + k_{yy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.31 < 1.00 (6.3.3.(4))

N_{Ed}/(X_z*N_{Rk}/gM1) + k_{zy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.26 < 1.00 (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 34 Simple bar_34

POINT: 3

COORDINATE: x = 1.00 L = 0.77 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm

gM0=1.00

gM1=1.00

b=6.0 cm

Ay=4.44 cm²

Az=4.44 cm²

Ax=8.88 cm²

tw=0.4 cm

Iy=46.14 cm⁴

Iz=46.14 cm⁴

Ix=72.41 cm⁴

tf=0.4 cm

Wply=18.85 cm³

Wplz=18.85 cm³

INTERNAL FORCES AND CAPACITIES:

N_{Ed} = 51.41 kN

M_{y,Ed} = -0.82 kN*m

N_{c,Rd} = 315.35 kN

M_{y,pl,Rd} = 6.69 kN*m

N_{b,Rd} = 297.05 kN

M_{y,c,Rd} = 6.69 kN*m

MN_{y,Rd} = 6.69 kN*m

V_{z,Ed} = -2.13 kN

V_{z,c,Rd} = 91.03 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L_y = 0.77 m

Lam_y = 0.44

L_{cr,y} = 0.77 m

X_y = 0.94

Lam_y = 33.61

k_{yy} = 0.99



About z axis:

L_z = 0.77 m

Lam_z = 0.44

L_{cr,z} = 0.77 m

X_z = 0.94

Lam_z = 33.61

k_{zy} = 0.60

VERIFICATION FORMULAS:

Section strength check:

N_{Ed}/N_{c,Rd} = 0.16 < 1.00 (6.2.4.(1))

M_{y,Ed}/M_{y,c,Rd} = 0.12 < 1.00 (6.2.5.(1))

M_{y,Ed}/MN_{y,Rd} = 0.12 < 1.00 (6.2.9.1.(2))

V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00 (6.2.6.(1))

Global stability check of member:

Lam_{bda,y} = 33.61 < Lam_{bda,max} = 210.00 Lam_{bda,z} = 33.61 < Lam_{bda,max} = 210.00 STABLE

N_{Ed}/(X_y*N_{Rk}/gM1) + k_{yy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.29 < 1.00 (6.3.3.(4))

N_{Ed}/(X_z*N_{Rk}/gM1) + k_{zy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.25 < 1.00 (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 35 Simple bar_35

POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /111/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$tw = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$tf = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -66.49$ kN

$M_{y,Ed} = 0.51$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -1.17$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.21 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.08 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.08 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 36 Simple bar_36

POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /111/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h=6.0$ cm

$gM0=1.00$

$gM1=1.00$

$b=6.0$ cm

$A_y=4.44$ cm²

$A_z=4.44$ cm²

$A_x=8.88$ cm²

$tw=0.4$ cm

$I_y=46.14$ cm⁴

$I_z=46.14$ cm⁴

$I_x=72.41$ cm⁴

$tf=0.4$ cm

$W_{ply}=18.85$ cm³

$W_{plz}=18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -61.89$ kN

$M_{y,Ed} = 0.49$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -1.08$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.20 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.07 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.07 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 37 Simple bar_37

POINT: 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /111/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm

gM0=1.00

gM1=1.00

b=6.0 cm

Ay=4.44 cm²

Az=4.44 cm²

Ax=8.88 cm²

tw=0.4 cm

Iy=46.14 cm⁴

Iz=46.14 cm⁴

Ix=72.41 cm⁴

tf=0.4 cm

Wply=18.85 cm³

Wplz=18.85 cm³

INTERNAL FORCES AND CAPACITIES:

N,Ed = -57.00 kN

My,Ed = 0.46 kN*m

Nt,Rd = 313.39 kN

My,pl,Rd = 6.69 kN*m

My,c,Rd = 6.69 kN*m

Vz,Ed = -0.98 kN

MN,y,Rd = 6.69 kN*m

Vz,c,Rd = 91.03 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

N,Ed/Nt,Rd = 0.18 < 1.00 (6.2.3.(1))

My,Ed/My,c,Rd = 0.07 < 1.00 (6.2.5.(1))

My,Ed/MN,y,Rd = 0.07 < 1.00 (6.2.9.1.(2))

Vz,Ed/Vz,c,Rd = 0.01 < 1.00 (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 38 Simple bar_38

POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h=6.0$ cm

$gM0=1.00$

$gM1=1.00$

$b=6.0$ cm

$A_y=4.44$ cm²

$A_z=4.44$ cm²

$A_x=8.88$ cm²

$tw=0.4$ cm

$I_y=46.14$ cm⁴

$I_z=46.14$ cm⁴

$I_x=72.41$ cm⁴

$tf=0.4$ cm

$W_{ply}=18.85$ cm³

$W_{plz}=18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -53.92$ kN

$M_{y,Ed} = 0.38$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -0.86$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.17 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.06 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.06 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 39 Simple bar_39

POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$t_w = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$t_f = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -51.60$ kN

$M_{y,Ed} = 0.37$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -0.81$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.16 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.06 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.06 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 40 Simple bar_40

POINT: 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm

gM0=1.00

gM1=1.00

b=6.0 cm

Ay=4.44 cm²

Az=4.44 cm²

Ax=8.88 cm²

tw=0.4 cm

Iy=46.14 cm⁴

Iz=46.14 cm⁴

Ix=72.41 cm⁴

tf=0.4 cm

Wply=18.85 cm³

Wplz=18.85 cm³

INTERNAL FORCES AND CAPACITIES:

N_{Ed} = 44.80 kN

M_{y,Ed} = 0.76 kN*m

N_{c,Rd} = 315.35 kN

M_{y,pl,Rd} = 6.69 kN*m

N_{b,Rd} = 297.25 kN

M_{y,c,Rd} = 6.69 kN*m

MN_{y,Rd} = 6.69 kN*m

V_{z,Ed} = -1.99 kN

V_{z,c,Rd} = 91.03 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L_y = 0.76 m

Lam_y = 0.44

L_{cr,y} = 0.76 m

X_y = 0.94

Lam_y = 33.43

k_{yy} = 0.99



About z axis:

L_z = 0.76 m

Lam_z = 0.44

L_{cr,z} = 0.76 m

X_z = 0.94

Lam_z = 33.43

k_{zy} = 0.60

VERIFICATION FORMULAS:

Section strength check:

N_{Ed}/N_{c,Rd} = 0.14 < 1.00 (6.2.4.(1))

M_{y,Ed}/M_{y,c,Rd} = 0.11 < 1.00 (6.2.5.(1))

M_{y,Ed}/MN_{y,Rd} = 0.11 < 1.00 (6.2.9.1.(2))

V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00 (6.2.6.(1))

Global stability check of member:

Lam_{bda,y} = 33.43 < Lam_{bda,max} = 210.00 Lam_{bda,z} = 33.43 < Lam_{bda,max} = 210.00 STABLE

N_{Ed}/(X_y*N_{Rk}/gM1) + k_{yy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.26 < 1.00 (6.3.3.(4))

N_{Ed}/(X_z*N_{Rk}/gM1) + k_{zy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.22 < 1.00 (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 41 Simple bar_41

POINT: 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm

gM0=1.00

gM1=1.00

b=6.0 cm

Ay=4.44 cm²

Az=4.44 cm²

Ax=8.88 cm²

tw=0.4 cm

Iy=46.14 cm⁴

Iz=46.14 cm⁴

Ix=72.41 cm⁴

tf=0.4 cm

Wply=18.85 cm³

Wplz=18.85 cm³

INTERNAL FORCES AND CAPACITIES:

N_{Ed} = 41.58 kN

M_{y,Ed} = 0.73 kN*m

N_{c,Rd} = 315.35 kN

M_{y,pl,Rd} = 6.69 kN*m

N_{b,Rd} = 297.35 kN

M_{y,c,Rd} = 6.69 kN*m

MN_{y,Rd} = 6.69 kN*m

V_{z,Ed} = -1.91 kN

V_{z,c,Rd} = 91.03 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L_y = 0.76 m

Lam_y = 0.44

L_{cr,y} = 0.76 m

X_y = 0.94

Lam_y = 33.35

k_{yy} = 0.99



About z axis:

L_z = 0.76 m

Lam_z = 0.44

L_{cr,z} = 0.76 m

X_z = 0.94

Lam_z = 33.35

k_{zy} = 0.60

VERIFICATION FORMULAS:

Section strength check:

N_{Ed}/N_{c,Rd} = 0.13 < 1.00 (6.2.4.(1))

M_{y,Ed}/M_{y,c,Rd} = 0.11 < 1.00 (6.2.5.(1))

M_{y,Ed}/MN_{y,Rd} = 0.11 < 1.00 (6.2.9.1.(2))

V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00 (6.2.6.(1))

Global stability check of member:

Lam_{bda,y} = 33.35 < Lam_{bda,max} = 210.00 Lam_{bda,z} = 33.35 < Lam_{bda,max} = 210.00 STABLE

N_{Ed}/(X_y*N_{Rk}/gM1) + k_{yy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.25 < 1.00 (6.3.3.(4))

N_{Ed}/(X_z*N_{Rk}/gM1) + k_{zy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.21 < 1.00 (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 42 Simple bar_42

POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$t_w = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$t_f = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 37.90$ kN

$M_{y,Ed} = 0.69$ kN*m

$N_{c,Rd} = 315.35$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$N_{b,Rd} = 297.40$ kN

$M_{y,c,Rd} = 6.69$ kN*m

$V_{z,Ed} = -1.81$ kN

$M_{N,y,Rd} = 6.69$ kN*m

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.76$ m

$\lambda_{m,y} = 0.44$

$L_{cr,y} = 0.76$ m

$X_y = 0.94$

$\lambda_{m,y} = 33.30$

$k_{yy} = 0.99$



About z axis:

$L_z = 0.76$ m

$\lambda_{m,z} = 0.44$

$L_{cr,z} = 0.76$ m

$X_z = 0.94$

$\lambda_{m,z} = 33.30$

$k_{zy} = 0.60$

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{c,Rd} = 0.12 < 1.00$ (6.2.4.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.10 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/M_{N,y,Rd} = 0.10 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00$ (6.2.6.(1))

Global stability check of member:

$\lambda_{m,y} = 33.30 < \lambda_{m,max} = 210.00$ $\lambda_{m,z} = 33.30 < \lambda_{m,max} = 210.00$ STABLE

$N_{Ed}/(X_y * N_{c,Rd}/gM1) + k_{yy} * M_{y,Ed}/(XLT * M_{y,Rd}/gM1) = 0.23 < 1.00$ (6.3.3.(4))

$N_{Ed}/(X_z * N_{c,Rd}/gM1) + k_{zy} * M_{y,Ed}/(XLT * M_{y,Rd}/gM1) = 0.19 < 1.00$ (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 43 Simple bar_43

POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h=6.0$ cm

$gM0=1.00$

$gM1=1.00$

$b=6.0$ cm

$A_y=4.44$ cm²

$A_z=4.44$ cm²

$A_x=8.88$ cm²

$tw=0.4$ cm

$I_y=46.14$ cm⁴

$I_z=46.14$ cm⁴

$I_x=72.41$ cm⁴

$tf=0.4$ cm

$W_{ply}=18.85$ cm³

$W_{plz}=18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 34.18$ kN

$M_{y,Ed} = 0.67$ kN*m

$N_{c,Rd} = 315.35$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$N_{b,Rd} = 297.50$ kN

$M_{y,c,Rd} = 6.69$ kN*m

$M_{N,y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -1.74$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.76$ m

$\lambda_{m,y} = 0.43$

$L_{cr,y} = 0.76$ m

$X_y = 0.94$

$\lambda_{m,y} = 33.22$

$k_{yy} = 0.99$



About z axis:

$L_z = 0.76$ m

$\lambda_{m,z} = 0.43$

$L_{cr,z} = 0.76$ m

$X_z = 0.94$

$\lambda_{m,z} = 33.22$

$k_{zy} = 0.60$

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{c,Rd} = 0.11 < 1.00$ (6.2.4.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.10 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00$ (6.2.6.(1))

Global stability check of member:

$\lambda_{m,y} = 33.22 < \lambda_{m,max} = 210.00$ $\lambda_{m,z} = 33.22 < \lambda_{m,max} = 210.00$ STABLE

$N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.21 < 1.00$ (6.3.3.(4))

$N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.17 < 1.00$ (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 44 Simple bar_44

POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$tw = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$tf = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -48.60$ kN

$M_{y,Ed} = 0.36$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -0.76$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.16 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.05 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.05 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 45 Simple bar_45

POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$tw = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$tf = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -46.15$ kN

$M_{y,Ed} = 0.35$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -0.71$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.15 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.05 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.05 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 46 Simple bar_46

POINT: 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm

gM0=1.00

gM1=1.00

b=6.0 cm

Ay=4.44 cm²

Az=4.44 cm²

Ax=8.88 cm²

tw=0.4 cm

Iy=46.14 cm⁴

Iz=46.14 cm⁴

Ix=72.41 cm⁴

tf=0.4 cm

Wply=18.85 cm³

Wplz=18.85 cm³

INTERNAL FORCES AND CAPACITIES:

N_{Ed} = -42.59 kN

M_{y,Ed} = 0.34 kN*m

N_{t,Rd} = 313.39 kN

M_{y,pl,Rd} = 6.69 kN*m

M_{y,c,Rd} = 6.69 kN*m

MN_{y,Rd} = 6.69 kN*m

V_{z,Ed} = -0.66 kN

V_{z,c,Rd} = 91.03 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

N_{Ed}/N_{t,Rd} = 0.14 < 1.00 (6.2.3.(1))

M_{y,Ed}/M_{y,c,Rd} = 0.05 < 1.00 (6.2.5.(1))

M_{y,Ed}/MN_{y,Rd} = 0.05 < 1.00 (6.2.9.1.(2))

V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00 (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 47 Simple bar_47

POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$tw = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$tf = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -39.86$ kN

$M_{y,Ed} = 0.32$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -0.61$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.13 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.05 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.05 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 48 Simple bar_48

POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$tw = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$tf = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -36.35$ kN

$M_{y,Ed} = 0.29$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -0.49$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.12 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.04 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 49 Simple bar_49

POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /112/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h=6.0$ cm

$gM0=1.00$

$gM1=1.00$

$b=6.0$ cm

$A_y=4.44$ cm²

$A_z=4.44$ cm²

$A_x=8.88$ cm²

$tw=0.4$ cm

$I_y=46.14$ cm⁴

$I_z=46.14$ cm⁴

$I_x=72.41$ cm⁴

$tf=0.4$ cm

$W_{ply}=18.85$ cm³

$W_{plz}=18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 28.65$ kN

$M_{y,Ed} = 0.58$ kN*m

$N_{c,Rd} = 315.35$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$N_{b,Rd} = 297.65$ kN

$M_{y,c,Rd} = 6.69$ kN*m

$V_{z,Ed} = -1.52$ kN

$M_{N,y,Rd} = 6.69$ kN*m

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.75$ m

$\lambda_{m,y} = 0.43$

$L_{cr,y} = 0.75$ m

$X_y = 0.94$

$\lambda_{my} = 33.08$

$k_{yy} = 0.99$



About z axis:

$L_z = 0.75$ m

$\lambda_{m,z} = 0.43$

$L_{cr,z} = 0.75$ m

$X_z = 0.94$

$\lambda_{mz} = 33.08$

$k_{zy} = 0.60$

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{c,Rd} = 0.09 < 1.00$ (6.2.4.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.09 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00$ (6.2.6.(1))

Global stability check of member:

$\lambda_{m,y} = 33.08 < \lambda_{m,max} = 210.00$ $\lambda_{m,z} = 33.08 < \lambda_{m,max} = 210.00$ STABLE

$N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.18 < 1.00$ (6.3.3.(4))

$N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.15 < 1.00$ (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 50 Simple bar_50

POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /112/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h=6.0$ cm

$gM0=1.00$

$gM1=1.00$

$b=6.0$ cm

$A_y=4.44$ cm²

$A_z=4.44$ cm²

$A_x=8.88$ cm²

$tw=0.4$ cm

$I_y=46.14$ cm⁴

$I_z=46.14$ cm⁴

$I_x=72.41$ cm⁴

$tf=0.4$ cm

$W_{ply}=18.85$ cm³

$W_{plz}=18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 28.50$ kN

$M_{y,Ed} = 0.59$ kN*m

$N_{c,Rd} = 315.35$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$N_{b,Rd} = 297.70$ kN

$M_{y,c,Rd} = 6.69$ kN*m

$V_{z,Ed} = -1.55$ kN

$M_{N,y,Rd} = 6.69$ kN*m

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.75$ m

$\lambda_{m,y} = 0.43$

$L_{cr,y} = 0.75$ m

$X_y = 0.94$

$\lambda_{my} = 33.04$

$k_{yy} = 0.99$



About z axis:

$L_z = 0.75$ m

$\lambda_{m,z} = 0.43$

$L_{cr,z} = 0.75$ m

$X_z = 0.94$

$\lambda_{mz} = 33.04$

$k_{zy} = 0.60$

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{c,Rd} = 0.09 < 1.00$ (6.2.4.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.09 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00$ (6.2.6.(1))

Global stability check of member:

$\lambda_{m,y} = 33.04 < \lambda_{m,max} = 210.00$ $\lambda_{m,z} = 33.04 < \lambda_{m,max} = 210.00$ STABLE

$N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.18 < 1.00$ (6.3.3.(4))

$N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.15 < 1.00$ (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 51 Simple bar_51

POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /112/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h=6.0$ cm

$gM0=1.00$

$gM1=1.00$

$b=6.0$ cm

$A_y=4.44$ cm²

$A_z=4.44$ cm²

$A_x=8.88$ cm²

$tw=0.4$ cm

$I_y=46.14$ cm⁴

$I_z=46.14$ cm⁴

$I_x=72.41$ cm⁴

$tf=0.4$ cm

$W_{ply}=18.85$ cm³

$W_{plz}=18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 28.93$ kN

$M_{y,Ed} = 0.60$ kN*m

$N_{c,Rd} = 315.35$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$N_{b,Rd} = 297.75$ kN

$M_{y,c,Rd} = 6.69$ kN*m

$V_{z,Ed} = -1.58$ kN

$M_{N,y,Rd} = 6.69$ kN*m

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.75$ m

$\lambda_{m,y} = 0.43$

$L_{cr,y} = 0.75$ m

$X_y = 0.94$

$\lambda_{my} = 33.00$

$k_{yy} = 0.99$



About z axis:

$L_z = 0.75$ m

$\lambda_{m,z} = 0.43$

$L_{cr,z} = 0.75$ m

$X_z = 0.94$

$\lambda_{mz} = 33.00$

$k_{zy} = 0.60$

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{c,Rd} = 0.09 < 1.00$ (6.2.4.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.09 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00$ (6.2.6.(1))

Global stability check of member:

$\lambda_{m,y} = 33.00 < \lambda_{m,max} = 210.00$ $\lambda_{m,z} = 33.00 < \lambda_{m,max} = 210.00$ STABLE

$N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.19 < 1.00$ (6.3.3.(4))

$N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.15 < 1.00$ (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 52 Simple bar_52

POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /112/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$tw = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$tf = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -31.72$ kN

$M_{y,Ed} = 0.23$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -0.49$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.10 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.03 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 53 Simple bar_53

POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /112/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$tw = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$tf = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -32.66$ kN

$M_{y,Ed} = 0.24$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -0.49$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.10 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.04 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 54 Simple bar_54

POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /112/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h=6.0$ cm

$gM0=1.00$

$gM1=1.00$

$b=6.0$ cm

$A_y=4.44$ cm²

$A_z=4.44$ cm²

$A_x=8.88$ cm²

$tw=0.4$ cm

$I_y=46.14$ cm⁴

$I_z=46.14$ cm⁴

$I_x=72.41$ cm⁴

$tf=0.4$ cm

$W_{ply}=18.85$ cm³

$W_{plz}=18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -33.80$ kN

$M_{y,Ed} = 0.26$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -0.51$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.11 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.04 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 55 Simple bar_55

POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /118/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 10*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$tw = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$tf = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -35.38$ kN

$M_{y,Ed} = 0.26$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -0.54$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.11 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.04 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 56 Simple bar_56

POINT: 3

COORDINATE: $x = 1.00$ $L = 0.59$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

$h=10.0$ cm

$gM0=1.00$

$gM1=1.00$

$b=10.0$ cm

$A_y=9.44$ cm²

$A_z=9.44$ cm²

$A_x=18.88$ cm²

$tw=0.5$ cm

$I_y=282.80$ cm⁴

$I_z=282.80$ cm⁴

$I_x=438.80$ cm⁴

$tf=0.5$ cm

$W_{ply}=67.75$ cm³

$W_{plz}=67.75$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 3.09$ kN

$M_{y,Ed} = -1.95$ kN*m

$N_{c,Rd} = 670.24$ kN

$M_{y,pl,Rd} = 24.05$ kN*m

$N_{b,Rd} = 670.24$ kN

$M_{y,c,Rd} = 24.05$ kN*m

$V_{z,Ed} = -4.58$ kN

$M_{N,y,Rd} = 24.05$ kN*m

$V_{z,c,Rd} = 193.48$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.59$ m

$\lambda_{m,y} = 0.20$

$L_{cr,y} = 0.59$ m

$X_y = 1.00$

$\lambda_{m,y} = 15.18$

$k_{yy} = 1.00$



About z axis:

$L_z = 0.59$ m

$\lambda_{m,z} = 0.20$

$L_{cr,z} = 0.59$ m

$X_z = 1.00$

$\lambda_{m,z} = 15.18$

$k_{zy} = 0.60$

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{c,Rd} = 0.00 < 1.00$ (6.2.4.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.08 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00$ (6.2.6.(1))

Global stability check of member:

$\lambda_{m,y} = 15.18 < \lambda_{m,max} = 210.00$ $\lambda_{m,z} = 15.18 < \lambda_{m,max} = 210.00$ STABLE

$N_{Ed}/(X_y \cdot N_{c,Rd}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rd}/gM1) = 0.09 < 1.00$ (6.3.3.(4))

$N_{Ed}/(X_z \cdot N_{c,Rd}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rd}/gM1) = 0.05 < 1.00$ (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 57 Simple bar_57

POINT: 3

COORDINATE: $x = 1.00$ $L = 0.60$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

$h = 10.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 10.0$ cm

$A_y = 9.44$ cm²

$A_z = 9.44$ cm²

$A_x = 18.88$ cm²

$tw = 0.5$ cm

$I_y = 282.80$ cm⁴

$I_z = 282.80$ cm⁴

$I_x = 438.80$ cm⁴

$tf = 0.5$ cm

$W_{ply} = 67.75$ cm³

$W_{plz} = 67.75$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -23.56$ kN

$M_{y,Ed} = -2.87$ kN*m

$N_{t,Rd} = 666.09$ kN

$M_{y,pl,Rd} = 24.05$ kN*m

$M_{y,c,Rd} = 24.05$ kN*m

$MN_{y,Rd} = 24.05$ kN*m

$V_{z,Ed} = -9.54$ kN

$V_{z,c,Rd} = 193.48$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.04 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.12 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.05 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 58 Simple bar_58

POINT: 3

COORDINATE: $x = 1.00$ $L = 0.58$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 200x100x6

$h=20.0$ cm

$gM0=1.00$

$gM1=1.00$

$b=10.0$ cm

$A_y=11.15$ cm²

$A_z=22.30$ cm²

$A_x=33.45$ cm²

$tw=0.6$ cm

$I_y=1685.00$ cm⁴

$I_z=572.30$ cm⁴

$I_x=1416.00$ cm⁴

$tf=0.6$ cm

$W_{ply}=222.43$ cm³

$W_{plz}=136.03$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -15.43$ kN

$M_{y,Ed} = -2.28$ kN*m

$N_{t,Rd} = 1180.12$ kN

$M_{y,pl,Rd} = 78.96$ kN*m

$M_{y,c,Rd} = 78.96$ kN*m

$V_{z,Ed} = -8.56$ kN

$MN_{y,Rd} = 78.96$ kN*m

$V_{z,c,Rd} = 457.06$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.01 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.03 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 59 Simple bar_59

POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 200x100x6

$h=20.0$ cm

$gM0=1.00$

$gM1=1.00$

$b=10.0$ cm

$A_y=11.15$ cm²

$A_z=22.30$ cm²

$A_x=33.45$ cm²

$tw=0.6$ cm

$I_y=1685.00$ cm⁴

$I_z=572.30$ cm⁴

$I_x=1416.00$ cm⁴

$tf=0.6$ cm

$W_{ply}=222.43$ cm³

$W_{plz}=136.03$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -11.85$ kN

$M_{y,Ed} = -4.00$ kN*m

$N_{t,Rd} = 1180.12$ kN

$M_{y,pl,Rd} = 78.96$ kN*m

$M_{y,c,Rd} = 78.96$ kN*m

$MN_{y,Rd} = 78.96$ kN*m

$V_{z,Ed} = 13.25$ kN

$V_{z,c,Rd} = 457.06$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.01 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.05 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.03 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 60 Simple bar_60

POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$t_w = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$t_f = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -1.28$ kN

$M_{y,Ed} = -0.12$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = 0.25$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.00 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.02 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.00 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 61 Simple bar_61

POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

$h = 10.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 10.0$ cm

$A_y = 9.44$ cm²

$A_z = 9.44$ cm²

$A_x = 18.88$ cm²

$tw = 0.5$ cm

$I_y = 282.80$ cm⁴

$I_z = 282.80$ cm⁴

$I_x = 438.80$ cm⁴

$tf = 0.5$ cm

$W_{ply} = 67.75$ cm³

$W_{plz} = 67.75$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 10.66$ kN

$M_{y,Ed} = 1.25$ kN*m

$N_{c,Rd} = 670.24$ kN

$M_{y,pl,Rd} = 24.05$ kN*m

$N_{b,Rd} = 660.07$ kN

$M_{y,c,Rd} = 24.05$ kN*m

$V_{z,Ed} = -2.44$ kN

$M_{N,y,Rd} = 24.05$ kN*m

$V_{z,c,Rd} = 193.48$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.79$ m

$\lambda_{m,y} = 0.27$

$L_{cr,y} = 0.79$ m

$X_y = 0.98$

$\lambda_{m,y} = 20.49$

$k_{yy} = 1.00$



About z axis:

$L_z = 0.79$ m

$\lambda_{m,z} = 0.27$

$L_{cr,z} = 0.79$ m

$X_z = 0.98$

$\lambda_{m,z} = 20.49$

$k_{zy} = 0.60$

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{c,Rd} = 0.02 < 1.00$ (6.2.4.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.05 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Global stability check of member:

$\lambda_{m,y} = 20.49 < \lambda_{m,max} = 210.00$ $\lambda_{m,z} = 20.49 < \lambda_{m,max} = 210.00$ STABLE

$N_{Ed}/(X_y \cdot N_{c,Rd}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rd}/gM1) = 0.07 < 1.00$ (6.3.3.(4))

$N_{Ed}/(X_z \cdot N_{c,Rd}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rd}/gM1) = 0.05 < 1.00$ (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 62 Simple bar_62

POINT: 3

COORDINATE: $x = 1.00$ $L = 0.81$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$t_w = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$t_f = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 10.93$ kN

$M_{y,Ed} = -0.21$ kN*m

$N_{c,Rd} = 315.35$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$N_{b,Rd} = 294.72$ kN

$M_{y,c,Rd} = 6.69$ kN*m

$M_{N,y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -0.37$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.81$ m

$\lambda_{m,y} = 0.47$

$L_{cr,y} = 0.81$ m

$X_y = 0.93$

$\lambda_{m,y} = 35.58$

$k_{yy} = 1.00$



About z axis:

$L_z = 0.81$ m

$\lambda_{m,z} = 0.47$

$L_{cr,z} = 0.81$ m

$X_z = 0.93$

$\lambda_{m,z} = 35.58$

$k_{zy} = 0.60$

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{c,Rd} = 0.03 < 1.00$ (6.2.4.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.03 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.00 < 1.00$ (6.2.6.(1))

Global stability check of member:

$\lambda_{m,y} = 35.58 < \lambda_{m,max} = 210.00$ $\lambda_{m,z} = 35.58 < \lambda_{m,max} = 210.00$ STABLE

$N_{Ed}/(X_y \cdot N_{c,Rd}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rd}/gM1) = 0.07 < 1.00$ (6.3.3.(4))

$N_{Ed}/(X_z \cdot N_{c,Rd}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rd}/gM1) = 0.06 < 1.00$ (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 63 Simple bar_63

POINT: 3

COORDINATE: x = 1.00 L = 0.82 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

h=10.0 cm

gM0=1.00

gM1=1.00

b=10.0 cm

Ay=9.44 cm²

Az=9.44 cm²

Ax=18.88 cm²

tw=0.5 cm

Iy=282.80 cm⁴

Iz=282.80 cm⁴

Ix=438.80 cm⁴

tf=0.5 cm

Wply=67.75 cm³

Wplz=67.75 cm³

INTERNAL FORCES AND CAPACITIES:

N_{Ed} = 12.70 kN

M_{y,Ed} = -1.66 kN*m

N_{c,Rd} = 670.24 kN

M_{y,pl,Rd} = 24.05 kN*m

N_{b,Rd} = 658.76 kN

M_{y,c,Rd} = 24.05 kN*m

V_{z,Ed} = -3.35 kN

M_{N,y,Rd} = 24.05 kN*m

V_{z,c,Rd} = 193.48 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L_y = 0.82 m

Lam_y = 0.28

L_{cr,y} = 0.82 m

X_y = 0.98

Lam_y = 21.14

k_{yy} = 1.00



About z axis:

L_z = 0.82 m

Lam_z = 0.28

L_{cr,z} = 0.82 m

X_z = 0.98

Lam_z = 21.14

k_{zy} = 0.60

VERIFICATION FORMULAS:

Section strength check:

N_{Ed}/N_{c,Rd} = 0.02 < 1.00 (6.2.4.(1))

M_{y,Ed}/M_{y,c,Rd} = 0.07 < 1.00 (6.2.5.(1))

V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00 (6.2.6.(1))

Global stability check of member:

Lam_{bda,y} = 21.14 < Lam_{bda,max} = 210.00 Lam_{bda,z} = 21.14 < Lam_{bda,max} = 210.00 STABLE

N_{Ed}/(X_y*N_{Rk}/gM1) + k_{yy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.09 < 1.00 (6.3.3.(4))

N_{Ed}/(X_z*N_{Rk}/gM1) + k_{zy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.06 < 1.00 (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 64 Column_64

POINT: 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: HEA 160

h=15.2 cm	gM0=1.00	gM1=1.00	
b=16.0 cm	Ay=32.53 cm ²	Az=13.21 cm ²	Ax=38.77 cm ²
tw=0.6 cm	Iy=1672.98 cm ⁴	Iz=615.57 cm ⁴	Ix=10.90 cm ⁴
tf=0.9 cm	Wply=245.17 cm ³	Wplz=117.63 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 17.87 kN	M _{y,Ed} = 23.64 kN*m	
N _{c,Rd} = 1376.38 kN	M _{y,pl,Rd} = 87.03 kN*m	
N _{b,Rd} = 1213.50 kN	M _{y,c,Rd} = 87.03 kN*m	V _{z,Ed} = -22.66 kN
	M _{N,y,Rd} = 87.03 kN*m	V _{z,c,Rd} = 270.78 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L _y = 1.31 m	Lam _y = 0.26
L _{cr,y} = 1.31 m	X _y = 0.98
Lam _y = 19.90	k _{yy} = 0.73



About z axis:

L _z = 1.31 m	Lam _z = 0.43
L _{cr,z} = 1.31 m	X _z = 0.88
Lam _z = 32.81	k _{zy} = 0.38

VERIFICATION FORMULAS:

Section strength check:

$$N_{Ed}/N_{c,Rd} = 0.01 < 1.00 \quad (6.2.4.(1))$$

$$M_{y,Ed}/M_{y,c,Rd} = 0.27 < 1.00 \quad (6.2.5.(1))$$

$$V_{z,Ed}/V_{z,c,Rd} = 0.08 < 1.00 \quad (6.2.6.(1))$$

Global stability check of member:

$$\lambda_{y} = 19.90 < \lambda_{max} = 210.00 \quad \lambda_{z} = 32.81 < \lambda_{max} = 210.00 \quad \text{STABLE}$$

$$N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.21 < 1.00 \quad (6.3.3.(4))$$

$$N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.12 < 1.00 \quad (6.3.3.(4))$$

LIMIT DISPLACEMENTS



Deflections Not analyzed



Displacements

$$v_x = 0.6 \text{ cm} < v_{x \max} = L/150.00 = 0.9 \text{ cm} \quad \text{Verified}$$

$$\text{Governing Load Case: } 15 \text{ SLS } /58/ \quad 1*1.00 + 2*1.00 + 3*1.00 + 5*0.70 + 6*0.60 + 8*1.00$$

$$v_y = 0.0 \text{ cm} < v_{y \max} = L/150.00 = 0.9 \text{ cm} \quad \text{Verified}$$

$$\text{Governing Load Case: } 15 \text{ SLS } /57/ \quad 1*1.00 + 2*1.00 + 3*1.00 + 4*1.00 + 5*0.70 + 6*0.60$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 65 Simple bar_1

POINT: 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: HEA 160

h=15.2 cm	gM0=1.00	gM1=1.00	
b=16.0 cm	Ay=32.53 cm ²	Az=13.21 cm ²	Ax=38.77 cm ²
tw=0.6 cm	Iy=1672.98 cm ⁴	Iz=615.57 cm ⁴	Ix=10.90 cm ⁴
tf=0.9 cm	Wply=245.17 cm ³	Wplz=117.63 cm ³	

INTERNAL FORCES AND CAPACITIES:

N,Ed = 236.23 kN	My,Ed = -20.06 kN*m	
Nc,Rd = 1376.38 kN	My,pl,Rd = 87.03 kN*m	
Nb,Rd = 1123.89 kN	My,c,Rd = 87.03 kN*m	Vz,Ed = 14.43 kN
	MN,y,Rd = 82.74 kN*m	Vz,c,Rd = 270.78 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

Ly = 1.66 m	Lam_y = 0.33
Lcr,y = 1.66 m	Xy = 0.95
Lamy = 25.34	ky = 0.74



About z axis:

Lz = 1.66 m	Lam_z = 0.55
Lcr,z = 1.66 m	Xz = 0.82
Lamz = 41.77	kzy = 0.38

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{c,Rd} = 0.17 < 1.00$ (6.2.4.(1))
$M_{y,Ed}/M_{y,c,Rd} = 0.23 < 1.00$ (6.2.5.(1))
$M_{y,Ed}/M_{N,y,Rd} = 0.24 < 1.00$ (6.2.9.1.(2))
$V_{z,Ed}/V_{z,c,Rd} = 0.05 < 1.00$ (6.2.6.(1))

Global stability check of member:

$\lambda_{y} = 25.34 < \lambda_{y,max} = 210.00$	$\lambda_{z} = 41.77 < \lambda_{z,max} = 210.00$	STABLE
$N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.35 < 1.00$ (6.3.3.(4))		
$N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.30 < 1.00$ (6.3.3.(4))		

LIMIT DISPLACEMENTS



Deflections Not analyzed



Displacements

$v_x = 0.8$ cm $< v_{x,max} = L/150.00 = 1.1$ cm	Verified
Governing Load Case: 15 SLS /58/ 1*1.00 + 2*1.00 + 3*1.00 + 5*0.70 + 6*0.60 + 8*1.00	
$v_y = 0.0$ cm $< v_{y,max} = L/150.00 = 1.1$ cm	Verified
Governing Load Case: 15 SLS /57/ 1*1.00 + 2*1.00 + 3*1.00 + 4*1.00 + 5*0.70 + 6*0.60	

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 73 Simple bar_73

POINT: 3

COORDINATE: $x = 1.00$ $L = 0.58$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

$h = 10.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 10.0$ cm

$A_y = 9.44$ cm²

$A_z = 9.44$ cm²

$A_x = 18.88$ cm²

$t_w = 0.5$ cm

$I_y = 282.80$ cm⁴

$I_z = 282.80$ cm⁴

$I_x = 438.80$ cm⁴

$t_f = 0.5$ cm

$W_{ply} = 67.75$ cm³

$W_{plz} = 67.75$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 0.16$ kN

$M_{y,Ed} = 0.40$ kN*m

$N_{c,Rd} = 670.24$ kN

$M_{y,pl,Rd} = 24.05$ kN*m

$N_{b,Rd} = 670.24$ kN

$M_{y,c,Rd} = 24.05$ kN*m

$V_{z,Ed} = 0.45$ kN

$M_{N,y,Rd} = 24.05$ kN*m

$V_{z,c,Rd} = 193.48$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.58$ m

$\lambda_{m,y} = 0.20$

$L_{cr,y} = 0.58$ m

$X_y = 1.00$

$\lambda_{m,y} = 15.10$

$k_{yy} = 1.00$



About z axis:

$L_z = 0.58$ m

$\lambda_{m,z} = 0.20$

$L_{cr,z} = 0.58$ m

$X_z = 1.00$

$\lambda_{m,z} = 15.10$

$k_{zy} = 0.60$

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{c,Rd} = 0.00 < 1.00$ (6.2.4.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.02 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.00 < 1.00$ (6.2.6.(1))

Global stability check of member:

$\lambda_{m,y} = 15.10 < \lambda_{m,max} = 210.00$ $\lambda_{m,z} = 15.10 < \lambda_{m,max} = 210.00$ STABLE

$N_{Ed}/(X_y \cdot N_{c,Rd}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rd}/gM1) = 0.02 < 1.00$ (6.3.3.(4))

$N_{Ed}/(X_z \cdot N_{c,Rd}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rd}/gM1) = 0.01 < 1.00$ (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 74 Simple bar_74

POINT: 3

COORDINATE: $x = 1.00$ $L = 0.58$ m

LOADS:

Governing Load Case: 12 ULS /111/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 200x100x6

$h=20.0$ cm

$gM0=1.00$

$gM1=1.00$

$b=10.0$ cm

$A_y=11.15$ cm²

$A_z=22.30$ cm²

$A_x=33.45$ cm²

$t_w=0.6$ cm

$I_y=1685.00$ cm⁴

$I_z=572.30$ cm⁴

$I_x=1416.00$ cm⁴

$t_f=0.6$ cm

$W_{ply}=222.43$ cm³

$W_{plz}=136.03$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -6.76$ kN

$M_{y,Ed} = -0.55$ kN*m

$N_{t,Rd} = 1180.12$ kN

$M_{y,pl,Rd} = 78.96$ kN*m

$M_{y,c,Rd} = 78.96$ kN*m

$MN_{y,Rd} = 78.96$ kN*m

$V_{z,Ed} = -6.56$ kN

$V_{z,c,Rd} = 457.06$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.01 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.01 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 75 Simple bar_75

POINT: 3

COORDINATE: $x = 1.00$ $L = 0.80$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$tw = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$tf = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -1.06$ kN

$M_{y,Ed} = 0.01$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = 0.00$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.00 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.00 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.00 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 76 Simple bar_76

POINT: 3

COORDINATE: $x = 1.00$ $L = 0.82$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h=6.0$ cm

$gM0=1.00$

$gM1=1.00$

$b=6.0$ cm

$A_y=4.44$ cm²

$A_z=4.44$ cm²

$A_x=8.88$ cm²

$tw=0.4$ cm

$I_y=46.14$ cm⁴

$I_z=46.14$ cm⁴

$I_x=72.41$ cm⁴

$tf=0.4$ cm

$W_{ply}=18.85$ cm³

$W_{plz}=18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 6.15$ kN

$M_{y,Ed} = 0.09$ kN*m

$N_{c,Rd} = 315.35$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$N_{b,Rd} = 294.37$ kN

$M_{y,c,Rd} = 6.69$ kN*m

$M_{N,y,Rd} = 6.69$ kN*m

$V_{z,Ed} = 0.15$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.82$ m

$\lambda_{m,y} = 0.47$

$L_{cr,y} = 0.82$ m

$X_y = 0.93$

$\lambda_{m,y} = 35.88$

$k_{yy} = 1.00$



About z axis:

$L_z = 0.82$ m

$\lambda_{m,z} = 0.47$

$L_{cr,z} = 0.82$ m

$X_z = 0.93$

$\lambda_{m,z} = 35.88$

$k_{zy} = 0.60$

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{c,Rd} = 0.02 < 1.00$ (6.2.4.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.01 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.00 < 1.00$ (6.2.6.(1))

Global stability check of member:

$\lambda_{m,y} = 35.88 < \lambda_{m,max} = 210.00$ $\lambda_{m,z} = 35.88 < \lambda_{m,max} = 210.00$ STABLE

$N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.03 < 1.00$ (6.3.3.(4))

$N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.03 < 1.00$ (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 79 Simple bar_79

POINT: 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /118/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 10*0.90 + 9*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm

gM0=1.00

gM1=1.00

b=6.0 cm

Ay=4.44 cm²

Az=4.44 cm²

Ax=8.88 cm²

tw=0.4 cm

Iy=46.14 cm⁴

Iz=46.14 cm⁴

Ix=72.41 cm⁴

tf=0.4 cm

Wply=18.85 cm³

Wplz=18.85 cm³

INTERNAL FORCES AND CAPACITIES:

N_{Ed} = 29.11 kN

M_{y,Ed} = -0.64 kN*m

N_{c,Rd} = 315.35 kN

M_{y,pl,Rd} = 6.69 kN*m

N_{b,Rd} = 297.85 kN

M_{y,c,Rd} = 6.69 kN*m

V_{z,Ed} = 1.68 kN

M_{N,y,Rd} = 6.69 kN*m

V_{z,c,Rd} = 91.03 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L_y = 0.75 m

Lam_y = 0.43

L_{cr,y} = 0.75 m

X_y = 0.94

Lam_y = 32.91

k_{yy} = 0.99



About z axis:

L_z = 0.75 m

Lam_z = 0.43

L_{cr,z} = 0.75 m

X_z = 0.94

Lam_z = 32.91

k_{zy} = 0.60

VERIFICATION FORMULAS:

Section strength check:

N_{Ed}/N_{c,Rd} = 0.09 < 1.00 (6.2.4.(1))

M_{y,Ed}/M_{y,c,Rd} = 0.10 < 1.00 (6.2.5.(1))

V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00 (6.2.6.(1))

Global stability check of member:

Lam_{bda,y} = 32.91 < Lam_{bda,max} = 210.00 Lam_{bda,z} = 32.91 < Lam_{bda,max} = 210.00 STABLE

N_{Ed}/(X_y*N_{Rk}/gM1) + k_{yy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.19 < 1.00 (6.3.3.(4))

N_{Ed}/(X_z*N_{Rk}/gM1) + k_{zy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.16 < 1.00 (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 84 Simple bar_84

POINT: 3

COORDINATE: $x = 1.00$ $L = 0.58$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

$h = 10.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 10.0$ cm

$A_y = 9.44$ cm²

$A_z = 9.44$ cm²

$A_x = 18.88$ cm²

$tw = 0.5$ cm

$I_y = 282.80$ cm⁴

$I_z = 282.80$ cm⁴

$I_x = 438.80$ cm⁴

$tf = 0.5$ cm

$W_{ply} = 67.75$ cm³

$W_{plz} = 67.75$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 572.28$ kN

$M_{y,Ed} = -1.08$ kN*m

$N_{c,Rd} = 670.24$ kN

$M_{y,pl,Rd} = 24.05$ kN*m

$N_{b,Rd} = 670.24$ kN

$M_{y,c,Rd} = 24.05$ kN*m

$V_{z,Ed} = -1.20$ kN

$M_{N,y,Rd} = 4.60$ kN*m

$V_{z,c,Rd} = 193.48$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.58$ m

$\lambda_{m,y} = 0.20$

$L_{cr,y} = 0.58$ m

$X_y = 1.00$

$\lambda_{m,y} = 14.94$

$k_{yy} = 0.81$



About z axis:

$L_z = 0.58$ m

$\lambda_{m,z} = 0.20$

$L_{cr,z} = 0.58$ m

$X_z = 1.00$

$\lambda_{m,z} = 14.94$

$k_{zy} = 0.48$

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{c,Rd} = 0.85 < 1.00$ (6.2.4.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.04 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/M_{N,y,Rd} = 0.23 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Global stability check of member:

$\lambda_{bda,y} = 14.94 < \lambda_{bda,max} = 210.00$ $\lambda_{bda,z} = 14.94 < \lambda_{bda,max} = 210.00$ STABLE

$N_{Ed}/(X_y * N_{Rk}/gM1) + k_{yy} * M_{y,Ed}/(XLT * M_{y,Rk}/gM1) = 0.89 < 1.00$ (6.3.3.(4))

$N_{Ed}/(X_z * N_{Rk}/gM1) + k_{zy} * M_{y,Ed}/(XLT * M_{y,Rk}/gM1) = 0.88 < 1.00$ (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 102 Simple bar_102 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /135/ $1*1.35 + 2*1.35 + 3*1.35 + 11*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h=6.0$ cm

$gM0=1.00$

$gM1=1.00$

$b=6.0$ cm

$A_y=4.44$ cm²

$A_z=4.44$ cm²

$A_x=8.88$ cm²

$tw=0.4$ cm

$I_y=46.14$ cm⁴

$I_z=46.14$ cm⁴

$I_x=72.41$ cm⁴

$tf=0.4$ cm

$W_{ply}=18.85$ cm³

$W_{plz}=18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -3.48$ kN

$M_{y,Ed} = 0.45$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -1.17$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.01 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.07 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 107 Simple bar_107 **POINT:** 3

COORDINATE: x = 1.00 L = 0.93 m

LOADS:

Governing Load Case: 12 ULS /120/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 11*0.90 + 8*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm	gM0=1.00	gM1=1.00	
b=6.0 cm	Ay=4.44 cm ²	Az=4.44 cm ²	Ax=8.88 cm ²
tw=0.4 cm	Iy=46.14 cm ⁴	Iz=46.14 cm ⁴	Ix=72.41 cm ⁴
tf=0.4 cm	Wply=18.85 cm ³	Wplz=18.85 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 49.03 kN	M _{y,Ed} = 0.38 kN*m	
N _{c,Rd} = 315.35 kN	M _{y,pl,Rd} = 6.69 kN*m	
N _{b,Rd} = 288.17 kN	M _{y,c,Rd} = 6.69 kN*m	V _{z,Ed} = 0.62 kN
	MN _{y,Rd} = 6.69 kN*m	V _{z,c,Rd} = 91.03 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L _y = 0.93 m	Lam _y = 0.53
L _{cr,y} = 0.93 m	X _y = 0.91
Lam _y = 40.70	k _{yy} = 1.01



About z axis:

L _z = 0.93 m	Lam _z = 0.53
L _{cr,z} = 0.93 m	X _z = 0.91
Lam _z = 40.70	k _{zy} = 0.61

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.16 < 1.00 \quad (6.2.4.(1)) \\ M_{y,Ed}/M_{y,c,Rd} &= 0.06 < 1.00 \quad (6.2.5.(1)) \\ M_{y,Ed}/M_{N,y,Rd} &= 0.06 < 1.00 \quad (6.2.9.1.(2)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.01 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{b,y} &= 40.70 < \lambda_{b,max} = 210.00 \quad \lambda_{b,z} = 40.70 < \lambda_{b,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.23 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.21 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 108 Simple bar_108 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /118/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 10*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h=6.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=6.0$ cm	$A_y=4.44$ cm ²	$A_z=4.44$ cm ²	$A_x=8.88$ cm ²
$t_w=0.4$ cm	$I_y=46.14$ cm ⁴	$I_z=46.14$ cm ⁴	$I_x=72.41$ cm ⁴
$t_f=0.4$ cm	$W_{ply}=18.85$ cm ³	$W_{plz}=18.85$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 32.79$ kN	$M_{y,Ed} = -0.66$ kN*m	
$N_{c,Rd} = 315.35$ kN	$M_{y,pl,Rd} = 6.69$ kN*m	
$N_{b,Rd} = 297.85$ kN	$M_{y,c,Rd} = 6.69$ kN*m	$V_{z,Ed} = 1.73$ kN
	$M_{N,y,Rd} = 6.69$ kN*m	$V_{z,c,Rd} = 91.03$ kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.75$ m	$\lambda_{m,y} = 0.43$
$L_{cr,y} = 0.75$ m	$X_y = 0.94$
$\lambda_{m,y} = 32.91$	$k_{yy} = 0.99$



About z axis:

$L_z = 0.75$ m	$\lambda_{m,z} = 0.43$
$L_{cr,z} = 0.75$ m	$X_z = 0.94$
$\lambda_{m,z} = 32.91$	$k_{zy} = 0.60$

VERIFICATION FORMULAS:

Section strength check:

$$N_{Ed}/N_{c,Rd} = 0.10 < 1.00 \quad (6.2.4.(1))$$

$$M_{y,Ed}/M_{y,c,Rd} = 0.10 < 1.00 \quad (6.2.5.(1))$$

$$V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00 \quad (6.2.6.(1))$$

Global stability check of member:

$$\lambda_{m,y} = 32.91 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 32.91 < \lambda_{m,max} = 210.00 \quad \text{STABLE}$$

$$N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.21 < 1.00 \quad (6.3.3.(4))$$

$$N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.17 < 1.00 \quad (6.3.3.(4))$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 109 Simple bar_109 **POINT:** 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /118/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 10*0.90 + 9*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm	gM0=1.00	gM1=1.00	
b=6.0 cm	Ay=4.44 cm ²	Az=4.44 cm ²	Ax=8.88 cm ²
tw=0.4 cm	Iy=46.14 cm ⁴	Iz=46.14 cm ⁴	Ix=72.41 cm ⁴
tf=0.4 cm	Wply=18.85 cm ³	Wplz=18.85 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 31.62 kN	M _{y,Ed} = -0.65 kN*m	
N _{c,Rd} = 315.35 kN	M _{y,pl,Rd} = 6.69 kN*m	
N _{b,Rd} = 297.85 kN	M _{y,c,Rd} = 6.69 kN*m	V _{z,Ed} = 1.71 kN
	MN _{y,Rd} = 6.69 kN*m	V _{z,c,Rd} = 91.03 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L _y = 0.75 m	Lam _y = 0.43
L _{cr,y} = 0.75 m	X _y = 0.94
Lam _y = 32.91	k _{yy} = 0.99



About z axis:

L _z = 0.75 m	Lam _z = 0.43
L _{cr,z} = 0.75 m	X _z = 0.94
Lam _z = 32.91	k _{zy} = 0.60

VERIFICATION FORMULAS:

Section strength check:

$$N_{Ed}/N_{c,Rd} = 0.10 < 1.00 \quad (6.2.4.(1))$$

$$M_{y,Ed}/M_{y,c,Rd} = 0.10 < 1.00 \quad (6.2.5.(1))$$

$$V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00 \quad (6.2.6.(1))$$

Global stability check of member:

$$\lambda_{b,y} = 32.91 < \lambda_{b,max} = 210.00 \quad \lambda_{b,z} = 32.91 < \lambda_{b,max} = 210.00 \quad \text{STABLE}$$

$$N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.20 < 1.00 \quad (6.3.3.(4))$$

$$N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.16 < 1.00 \quad (6.3.3.(4))$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 110 Simple bar_110 **POINT:** 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /118/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 10*0.90 + 9*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm	gM0=1.00	gM1=1.00	
b=6.0 cm	Ay=4.44 cm ²	Az=4.44 cm ²	Ax=8.88 cm ²
tw=0.4 cm	Iy=46.14 cm ⁴	Iz=46.14 cm ⁴	Ix=72.41 cm ⁴
tf=0.4 cm	Wply=18.85 cm ³	Wplz=18.85 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 30.84 kN	M _{y,Ed} = -0.63 kN*m	
N _{c,Rd} = 315.35 kN	M _{y,pl,Rd} = 6.69 kN*m	
N _{b,Rd} = 297.80 kN	M _{y,c,Rd} = 6.69 kN*m	V _{z,Ed} = 1.65 kN
	MN _{y,Rd} = 6.69 kN*m	V _{z,c,Rd} = 91.03 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L _y = 0.75 m	Lam _y = 0.43
L _{cr,y} = 0.75 m	X _y = 0.94
Lam _y = 32.95	k _{yy} = 0.99



About z axis:

L _z = 0.75 m	Lam _z = 0.43
L _{cr,z} = 0.75 m	X _z = 0.94
Lam _z = 32.95	k _{zy} = 0.60

VERIFICATION FORMULAS:

Section strength check:

$$N_{Ed}/N_{c,Rd} = 0.10 < 1.00 \quad (6.2.4.(1))$$

$$M_{y,Ed}/M_{y,c,Rd} = 0.09 < 1.00 \quad (6.2.5.(1))$$

$$V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00 \quad (6.2.6.(1))$$

Global stability check of member:

$$\lambda_{b,y} = 32.95 < \lambda_{b,max} = 210.00 \quad \lambda_{b,z} = 32.95 < \lambda_{b,max} = 210.00 \quad \text{STABLE}$$

$$N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.20 < 1.00 \quad (6.3.3.(4))$$

$$N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.16 < 1.00 \quad (6.3.3.(4))$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 111 Simple bar_111 **POINT:** 3

COORDINATE: x = 1.00 L = 0.92 m

LOADS:

Governing Load Case: 12 ULS /165/ 1*1.00 + 2*1.00 + 3*1.00 + 11*0.90 + 8*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm

gM0=1.00

gM1=1.00

b=6.0 cm

Ay=4.44 cm²

Az=4.44 cm²

Ax=8.88 cm²

tw=0.4 cm

Iy=46.14 cm⁴

Iz=46.14 cm⁴

Ix=72.41 cm⁴

tf=0.4 cm

Wply=18.85 cm³

Wplz=18.85 cm³

INTERNAL FORCES AND CAPACITIES:

N_{Ed} = 35.01 kN

M_{y,Ed} = 0.34 kN*m

N_{c,Rd} = 315.35 kN

M_{y,pl,Rd} = 6.69 kN*m

N_{b,Rd} = 288.55 kN

M_{y,c,Rd} = 6.69 kN*m

MN_{y,Rd} = 6.69 kN*m

V_{z,Ed} = 0.61 kN

V_{z,c,Rd} = 91.03 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L_y = 0.92 m

Lam_y = 0.53

L_{cr,y} = 0.92 m

X_y = 0.92

Lam_y = 40.42

k_{yy} = 1.01



About z axis:

L_z = 0.92 m

Lam_z = 0.53

L_{cr,z} = 0.92 m

X_z = 0.92

Lam_z = 40.42

k_{zy} = 0.61

VERIFICATION FORMULAS:

Section strength check:

N_{Ed}/N_{c,Rd} = 0.11 < 1.00 (6.2.4.(1))

M_{y,Ed}/M_{y,c,Rd} = 0.05 < 1.00 (6.2.5.(1))

V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00 (6.2.6.(1))

Global stability check of member:

Lam_{bda,y} = 40.42 < Lam_{bda,max} = 210.00 Lam_{bda,z} = 40.42 < Lam_{bda,max} = 210.00 STABLE

N_{Ed}/(X_y*N_{Rk}/gM1) + k_{yy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.17 < 1.00 (6.3.3.(4))

N_{Ed}/(X_z*N_{Rk}/gM1) + k_{zy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.15 < 1.00 (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 112 Simple bar_112 POINT: 3

COORDINATE: $x = 1.00$ $L = 0.91$ m

LOADS:

Governing Load Case: 12 ULS /165/ $1*1.00 + 2*1.00 + 3*1.00 + 11*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$t_w = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$t_f = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 31.60$ kN

$M_{y,Ed} = 0.29$ kN*m

$N_{c,Rd} = 315.35$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$N_{b,Rd} = 288.93$ kN

$M_{y,c,Rd} = 6.69$ kN*m

$M_{N,y,Rd} = 6.69$ kN*m

$V_{z,Ed} = 0.50$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.91$ m

$\lambda_{m,y} = 0.53$

$L_{cr,y} = 0.91$ m

$X_y = 0.92$

$\lambda_{m,y} = 40.14$

$k_{yy} = 1.01$



About z axis:

$L_z = 0.91$ m

$\lambda_{m,z} = 0.53$

$L_{cr,z} = 0.91$ m

$X_z = 0.92$

$\lambda_{m,z} = 40.14$

$k_{zy} = 0.61$

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{c,Rd} = 0.10 < 1.00$ (6.2.4.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.04 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Global stability check of member:

$\lambda_{m,y} = 40.14 < \lambda_{m,max} = 210.00$ $\lambda_{m,z} = 40.14 < \lambda_{m,max} = 210.00$ STABLE

$N_{Ed}/(X_y \cdot N_{c,Rd}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rd}/gM1) = 0.15 < 1.00$ (6.3.3.(4))

$N_{Ed}/(X_z \cdot N_{c,Rd}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rd}/gM1) = 0.14 < 1.00$ (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 113 Simple bar_113 **POINT:** 3

COORDINATE: x = 1.00 L = 0.91 m

LOADS:

Governing Load Case: 12 ULS /165/ 1*1.00 + 2*1.00 + 3*1.00 + 11*0.90 + 8*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm	gM0=1.00	gM1=1.00	
b=6.0 cm	Ay=4.44 cm ²	Az=4.44 cm ²	Ax=8.88 cm ²
tw=0.4 cm	Iy=46.14 cm ⁴	Iz=46.14 cm ⁴	Ix=72.41 cm ⁴
tf=0.4 cm	Wply=18.85 cm ³	Wplz=18.85 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 26.36 kN	My _{Ed} = 0.26 kN*m	
N _{c,Rd} = 315.35 kN	My _{pl,Rd} = 6.69 kN*m	
N _{b,Rd} = 289.26 kN	My _{c,Rd} = 6.69 kN*m	Vz _{Ed} = 0.43 kN
	MN _{y,Rd} = 6.69 kN*m	Vz _{c,Rd} = 91.03 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

Ly = 0.91 m	Lam_y = 0.52
Lcr,y = 0.91 m	Xy = 0.92
Lamy = 39.89	kyy = 1.00



About z axis:

Lz = 0.91 m	Lam_z = 0.52
Lcr,z = 0.91 m	Xz = 0.92
Lamz = 39.89	kzy = 0.61

VERIFICATION FORMULAS:

Section strength check:

$$N_{Ed}/N_{c,Rd} = 0.08 < 1.00 \quad (6.2.4.(1))$$

$$M_{y,Ed}/M_{y,c,Rd} = 0.04 < 1.00 \quad (6.2.5.(1))$$

$$V_{z,Ed}/V_{z,c,Rd} = 0.00 < 1.00 \quad (6.2.6.(1))$$

Global stability check of member:

$$\lambda_{b,y} = 39.89 < \lambda_{b,max} = 210.00 \quad \lambda_{b,z} = 39.89 < \lambda_{b,max} = 210.00 \quad \text{STABLE}$$

$$N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.13 < 1.00 \quad (6.3.3.(4))$$

$$N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.11 < 1.00 \quad (6.3.3.(4))$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 114 Simple bar_114 **POINT:** 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /118/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 10*0.90 + 9*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm

gM0=1.00

gM1=1.00

b=6.0 cm

Ay=4.44 cm²

Az=4.44 cm²

Ax=8.88 cm²

tw=0.4 cm

Iy=46.14 cm⁴

Iz=46.14 cm⁴

Ix=72.41 cm⁴

tf=0.4 cm

Wply=18.85 cm³

Wplz=18.85 cm³

INTERNAL FORCES AND CAPACITIES:

N,Ed = -37.28 kN

My,Ed = 0.29 kN*m

Nt,Rd = 313.39 kN

My,pl,Rd = 6.69 kN*m

My,c,Rd = 6.69 kN*m

Vz,Ed = -0.57 kN

MN,y,Rd = 6.69 kN*m

Vz,c,Rd = 91.03 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

N,Ed/Nt,Rd = 0.12 < 1.00 (6.2.3.(1))

My,Ed/My,c,Rd = 0.04 < 1.00 (6.2.5.(1))

My,Ed/MN,y,Rd = 0.04 < 1.00 (6.2.9.1.(2))

Vz,Ed/Vz,c,Rd = 0.01 < 1.00 (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 126 Simple bar_126 **POINT:** 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

h=10.0 cm

gM0=1.00

gM1=1.00

b=10.0 cm

Ay=9.44 cm²

Az=9.44 cm²

Ax=18.88 cm²

tw=0.5 cm

Iy=282.80 cm⁴

Iz=282.80 cm⁴

Ix=438.80 cm⁴

tf=0.5 cm

Wply=67.75 cm³

Wplz=67.75 cm³

INTERNAL FORCES AND CAPACITIES:

N_{Ed} = 526.15 kN

M_{y,Ed} = -2.17 kN*m

N_{c,Rd} = 670.24 kN

M_{y,pl,Rd} = 24.05 kN*m

N_{b,Rd} = 670.24 kN

M_{y,c,Rd} = 24.05 kN*m

V_{z,Ed} = 3.80 kN

MN_{y,Rd} = 6.76 kN*m

V_{z,c,Rd} = 193.48 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L_y = 0.58 m

Lam_y = 0.19

L_{cr,y} = 0.58 m

X_y = 1.00

Lam_y = 14.87

k_{yy} = 0.82



About z axis:

L_z = 0.58 m

Lam_z = 0.19

L_{cr,z} = 0.58 m

X_z = 1.00

Lam_z = 14.87

k_{zy} = 0.48

VERIFICATION FORMULAS:

Section strength check:

N_{Ed}/N_{c,Rd} = 0.79 < 1.00 (6.2.4.(1))

M_{y,Ed}/M_{y,c,Rd} = 0.09 < 1.00 (6.2.5.(1))

M_{y,Ed}/MN_{y,Rd} = 0.32 < 1.00 (6.2.9.1.(2))

V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00 (6.2.6.(1))

Global stability check of member:

Lam_{bda,y} = 14.87 < Lam_{bda,max} = 210.00 Lam_{bda,z} = 14.87 < Lam_{bda,max} = 210.00 STABLE

N_{Ed}/(X_y*N_{Rk}/gM1) + k_{yy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.86 < 1.00 (6.3.3.(4))

N_{Ed}/(X_z*N_{Rk}/gM1) + k_{zy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.83 < 1.00 (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 127 Simple bar_127 POINT: 3

COORDINATE: $x = 1.00$ $L = 2.03$ m

LOADS:

Governing Load Case: 12 ULS /120/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 11*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 35x4

$h = 3.5$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 3.5$ cm

$A_y = 2.44$ cm²

$A_z = 2.44$ cm²

$A_x = 4.88$ cm²

$tw = 0.4$ cm

$I_y = 7.72$ cm⁴

$I_z = 7.72$ cm⁴

$I_x = 12.50$ cm⁴

$tf = 0.4$ cm

$W_{ply} = 5.80$ cm³

$W_{plz} = 5.80$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -0.97$ kN

$M_{y,Ed} = -0.38$ kN*m

$N_{t,Rd} = 172.27$ kN

$M_{y,pl,Rd} = 2.06$ kN*m

$M_{y,c,Rd} = 2.06$ kN*m

$MN_{y,Rd} = 2.06$ kN*m

$V_{z,Ed} = -0.38$ kN

$V_{z,c,Rd} = 50.04$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.01 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.19 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 128 Simple bar_128 **POINT:** 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

h=10.0 cm	gM0=1.00	gM1=1.00	
b=10.0 cm	Ay=9.44 cm ²	Az=9.44 cm ²	Ax=18.88 cm ²
tw=0.5 cm	Iy=282.80 cm ⁴	Iz=282.80 cm ⁴	Ix=438.80 cm ⁴
tf=0.5 cm	Wply=67.75 cm ³	Wplz=67.75 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 474.36 kN	M _{y,Ed} = -1.52 kN*m	
N _{c,Rd} = 670.24 kN	M _{y,pl,Rd} = 24.05 kN*m	
N _{b,Rd} = 670.24 kN	M _{y,c,Rd} = 24.05 kN*m	V _{z,Ed} = 3.00 kN
	MN _{y,Rd} = 9.19 kN*m	V _{z,c,Rd} = 193.48 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L _y = 0.57 m	Lam _y = 0.19
L _{cr,y} = 0.57 m	X _y = 1.00
Lam _y = 14.81	k _{yy} = 0.83



About z axis:

L _z = 0.57 m	Lam _z = 0.19
L _{cr,z} = 0.57 m	X _z = 1.00
Lam _z = 14.81	k _{zy} = 0.49

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.71 < 1.00 \quad (6.2.4.(1)) \\ M_{y,Ed}/M_{y,c,Rd} &= 0.06 < 1.00 \quad (6.2.5.(1)) \\ M_{y,Ed}/M_{N,y,Rd} &= 0.17 < 1.00 \quad (6.2.9.1.(2)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.02 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{b,y} &= 14.81 < \lambda_{b,max} = 210.00 \quad \lambda_{b,z} = 14.81 < \lambda_{b,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/g_{M1}) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/g_{M1}) &= 0.76 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/g_{M1}) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/g_{M1}) &= 0.74 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 129 Simple bar_129 **POINT:** 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

h=10.0 cm	gM0=1.00	gM1=1.00	
b=10.0 cm	Ay=9.44 cm ²	Az=9.44 cm ²	Ax=18.88 cm ²
tw=0.5 cm	Iy=282.80 cm ⁴	Iz=282.80 cm ⁴	Ix=438.80 cm ⁴
tf=0.5 cm	Wply=67.75 cm ³	Wplz=67.75 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 424.59 kN	M _{y,Ed} = -1.31 kN*m	
N _{c,Rd} = 670.24 kN	M _{y,pl,Rd} = 24.05 kN*m	
N _{b,Rd} = 670.24 kN	M _{y,c,Rd} = 24.05 kN*m	V _{z,Ed} = 2.81 kN
	MN _{y,Rd} = 11.53 kN*m	V _{z,c,Rd} = 193.48 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L _y = 0.57 m	Lam _y = 0.19
L _{cr,y} = 0.57 m	X _y = 1.00
Lam _y = 14.75	k _{yy} = 0.85



About z axis:

L _z = 0.57 m	Lam _z = 0.19
L _{cr,z} = 0.57 m	X _z = 1.00
Lam _z = 14.75	k _{zy} = 0.50

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.63 < 1.00 \quad (6.2.4.(1)) \\ M_{y,Ed}/M_{y,c,Rd} &= 0.05 < 1.00 \quad (6.2.5.(1)) \\ M_{y,Ed}/M_{N,y,Rd} &= 0.11 < 1.00 \quad (6.2.9.1.(2)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.01 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{b,y} &= 14.75 < \lambda_{b,max} = 210.00 \quad \lambda_{b,z} = 14.75 < \lambda_{b,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.68 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.66 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 130 Simple bar_130 POINT: 3

COORDINATE: $x = 1.00$ $L = 0.59$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 200x100x6

$h=20.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=10.0$ cm	$A_y=11.15$ cm ²	$A_z=22.30$ cm ²	$A_x=33.45$ cm ²
$t_w=0.6$ cm	$I_y=1685.00$ cm ⁴	$I_z=572.30$ cm ⁴	$I_x=1416.00$ cm ⁴
$t_f=0.6$ cm	$W_{ply}=222.43$ cm ³	$W_{plz}=136.03$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 53.19$ kN	$M_{y,Ed} = -8.17$ kN*m	
$N_{c,Rd} = 1187.47$ kN	$M_{y,pl,Rd} = 78.96$ kN*m	
$N_{b,Rd} = 1187.47$ kN	$M_{y,c,Rd} = 78.96$ kN*m	$V_{z,Ed} = -14.77$ kN
	$M_{N,y,Rd} = 78.96$ kN*m	$V_{z,c,Rd} = 457.06$ kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.59$ m	$\lambda_{m,y} = 0.11$
$L_{cr,y} = 0.59$ m	$X_y = 1.00$
$\lambda_{m,y} = 8.26$	$k_{yy} = 0.98$



About z axis:

$L_z = 0.59$ m	$\lambda_{m,z} = 0.19$
$L_{cr,z} = 0.59$ m	$X_z = 1.00$
$\lambda_{m,z} = 14.17$	$k_{zy} = 0.62$

VERIFICATION FORMULAS:

Section strength check:

$$N_{Ed}/N_{c,Rd} = 0.04 < 1.00 \quad (6.2.4.(1))$$

$$M_{y,Ed}/M_{y,c,Rd} = 0.10 < 1.00 \quad (6.2.5.(1))$$

$$V_{z,Ed}/V_{z,c,Rd} = 0.03 < 1.00 \quad (6.2.6.(1))$$

Global stability check of member:

$$\lambda_{bda,y} = 8.26 < \lambda_{bda,max} = 210.00 \quad \lambda_{bda,z} = 14.17 < \lambda_{bda,max} = 210.00 \quad \text{STABLE}$$

$$N_{Ed}/(X_y \cdot N_{c,Rd}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rd}/gM1) = 0.15 < 1.00 \quad (6.3.3.(4))$$

$$N_{Ed}/(X_z \cdot N_{c,Rd}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rd}/gM1) = 0.11 < 1.00 \quad (6.3.3.(4))$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 131 Simple bar_131 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 200x100x6

$h = 20.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 10.0$ cm

$A_y = 11.15$ cm²

$A_z = 22.30$ cm²

$A_x = 33.45$ cm²

$t_w = 0.6$ cm

$I_y = 1685.00$ cm⁴

$I_z = 572.30$ cm⁴

$I_x = 1416.00$ cm⁴

$t_f = 0.6$ cm

$W_{ply} = 222.43$ cm³

$W_{plz} = 136.03$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 119.94$ kN

$M_{y,Ed} = -13.35$ kN*m

$N_{c,Rd} = 1187.47$ kN

$M_{y,pl,Rd} = 78.96$ kN*m

$N_{b,Rd} = 1187.47$ kN

$M_{y,c,Rd} = 78.96$ kN*m

$V_{z,Ed} = 20.16$ kN

$V_{z,c,Rd} = 457.06$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.58$ m

$\lambda_{m,y} = 0.11$

$L_{cr,y} = 0.58$ m

$X_y = 1.00$

$\lambda_{m,y} = 8.13$

$k_{yy} = 0.95$



About z axis:

$L_z = 0.58$ m

$\lambda_{m,z} = 0.18$

$L_{cr,z} = 0.58$ m

$X_z = 1.00$

$\lambda_{m,z} = 13.95$

$k_{zy} = 0.60$

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{c,Rd} = 0.10 < 1.00$ (6.2.4.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.17 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.04 < 1.00$ (6.2.6.(1))

Global stability check of member:

$\lambda_{m,y} = 8.13 < \lambda_{m,max} = 210.00$ $\lambda_{m,z} = 13.95 < \lambda_{m,max} = 210.00$ STABLE

$N_{Ed}/(X_y \cdot N_{c,Rd}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rd}/gM1) = 0.26 < 1.00$ (6.3.3.(4))

$N_{Ed}/(X_z \cdot N_{c,Rd}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rd}/gM1) = 0.20 < 1.00$ (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 132 Simple bar_132 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 200x100x6

$h=20.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=10.0$ cm	$A_y=11.15$ cm ²	$A_z=22.30$ cm ²	$A_x=33.45$ cm ²
$t_w=0.6$ cm	$I_y=1685.00$ cm ⁴	$I_z=572.30$ cm ⁴	$I_x=1416.00$ cm ⁴
$t_f=0.6$ cm	$W_{ely}=168.50$ cm ³	$W_{elz}=114.46$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 165.35$ kN	$M_{y,Ed} = -6.27$ kN*m	
$N_{c,Rd} = 1187.47$ kN	$M_{y,el,Rd} = 59.82$ kN*m	
$N_{b,Rd} = 1187.47$ kN	$M_{y,c,Rd} = 59.82$ kN*m	$V_{z,Ed} = 9.26$ kN
		$V_{z,c,Rd} = 457.06$ kN
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.57$ m	$\lambda_{m,y} = 0.11$
$L_{cr,y} = 0.57$ m	$X_y = 1.00$
$\lambda_{m,y} = 8.10$	$k_{yy} = 1.00$



About z axis:

$L_z = 0.57$ m	$\lambda_{m,z} = 0.18$
$L_{cr,z} = 0.57$ m	$X_z = 1.00$
$\lambda_{m,z} = 13.90$	$k_{zy} = 1.00$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.10 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.24 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.24 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.02 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{m,y} &= 8.10 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 13.90 < \lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.24 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.24 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 133 Simple bar_133 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 200x100x6

$h=20.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=10.0$ cm	$A_y=11.15$ cm ²	$A_z=22.30$ cm ²	$A_x=33.45$ cm ²
$t_w=0.6$ cm	$I_y=1685.00$ cm ⁴	$I_z=572.30$ cm ⁴	$I_x=1416.00$ cm ⁴
$t_f=0.6$ cm	$W_{el,y}=168.50$ cm ³	$W_{el,z}=114.46$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 212.49$ kN	$M_{y,Ed} = -5.51$ kN*m	
$N_{c,Rd} = 1187.47$ kN	$M_{y,el,Rd} = 59.82$ kN*m	
$N_{b,Rd} = 1187.47$ kN	$M_{y,c,Rd} = 59.82$ kN*m	$V_{z,Ed} = 9.70$ kN
		$V_{z,c,Rd} = 457.06$ kN
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.57$ m	$\lambda_{m,y} = 0.11$
$L_{cr,y} = 0.57$ m	$X_y = 1.00$
$\lambda_{m,y} = 8.06$	$k_{yy} = 1.00$



About z axis:

$L_z = 0.57$ m	$\lambda_{m,z} = 0.18$
$L_{cr,z} = 0.57$ m	$X_z = 1.00$
$\lambda_{m,z} = 13.83$	$k_{zy} = 1.00$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.09 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.27 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.27 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.02 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{m,y} &= 8.06 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 13.83 < \lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.27 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.27 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 134 Simple bar_134 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 200x100x6

$h=20.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=10.0$ cm	$A_y=11.15$ cm ²	$A_z=22.30$ cm ²	$A_x=33.45$ cm ²
$t_w=0.6$ cm	$I_y=1685.00$ cm ⁴	$I_z=572.30$ cm ⁴	$I_x=1416.00$ cm ⁴
$t_f=0.6$ cm	$W_{ely}=168.50$ cm ³	$W_{elz}=114.46$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 257.66$ kN	$M_{y,Ed} = -4.47$ kN*m	
$N_{c,Rd} = 1187.47$ kN	$M_{y,el,Rd} = 59.82$ kN*m	
$N_{b,Rd} = 1187.47$ kN	$M_{y,c,Rd} = 59.82$ kN*m	$V_{z,Ed} = 9.20$ kN
		$V_{z,c,Rd} = 457.06$ kN
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.57$ m	$\lambda_{m,y} = 0.11$
$L_{cr,y} = 0.57$ m	$X_y = 1.00$
$\lambda_{m,y} = 8.03$	$k_{yy} = 1.00$



About z axis:

$L_z = 0.57$ m	$\lambda_{m,z} = 0.18$
$L_{cr,z} = 0.57$ m	$X_z = 1.00$
$\lambda_{m,z} = 13.78$	$k_{zy} = 1.00$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.07 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.29 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.29 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.02 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{m,y} &= 8.03 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 13.78 < \lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.29 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.29 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 135 Simple bar_135 **POINT:** 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

h=10.0 cm	gM0=1.00	gM1=1.00	
b=10.0 cm	Ay=9.44 cm ²	Az=9.44 cm ²	Ax=18.88 cm ²
tw=0.5 cm	Iy=282.80 cm ⁴	Iz=282.80 cm ⁴	Ix=438.80 cm ⁴
tf=0.5 cm	Wply=67.75 cm ³	Wplz=67.75 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 376.87 kN	M _{y,Ed} = -1.18 kN*m	
N _{c,Rd} = 670.24 kN	M _{y,pl,Rd} = 24.05 kN*m	
N _{b,Rd} = 670.24 kN	M _{y,c,Rd} = 24.05 kN*m	V _{z,Ed} = 2.88 kN
	MN _{y,Rd} = 13.76 kN*m	V _{z,c,Rd} = 193.48 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L _y = 0.57 m	Lam _y = 0.19
L _{cr,y} = 0.57 m	X _y = 1.00
Lam _y = 14.69	k _{yy} = 0.86



About z axis:

L _z = 0.57 m	Lam _z = 0.19
L _{cr,z} = 0.57 m	X _z = 1.00
Lam _z = 14.69	k _{zy} = 0.51

VERIFICATION FORMULAS:

Section strength check:

N _{Ed} /N _{c,Rd} = 0.56 < 1.00 (6.2.4.(1))
M _{y,Ed} /M _{y,c,Rd} = 0.05 < 1.00 (6.2.5.(1))
M _{y,Ed} /MN _{y,Rd} = 0.09 < 1.00 (6.2.9.1.(2))
V _{z,Ed} /V _{z,c,Rd} = 0.01 < 1.00 (6.2.6.(1))

Global stability check of member:

Lam _{bda,y} = 14.69 < Lam _{bda,max} = 210.00	Lam _{bda,z} = 14.69 < Lam _{bda,max} = 210.00	STABLE
N _{Ed} /(X _y *N _{Rk} /gM1) + k _{yy} *M _{y,Ed} /(XLT*M _{y,Rk} /gM1) = 0.60 < 1.00 (6.3.3.(4))		
N _{Ed} /(X _z *N _{Rk} /gM1) + k _{zy} *M _{y,Ed} /(XLT*M _{y,Rk} /gM1) = 0.59 < 1.00 (6.3.3.(4))		

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 136 Simple bar_136 **POINT:** 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /112/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

h=10.0 cm	gM0=1.00	gM1=1.00	
b=10.0 cm	Ay=9.44 cm ²	Az=9.44 cm ²	Ax=18.88 cm ²
tw=0.5 cm	Iy=282.80 cm ⁴	Iz=282.80 cm ⁴	Ix=438.80 cm ⁴
tf=0.5 cm	Wply=67.75 cm ³	Wplz=67.75 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 348.31 kN	M _{y,Ed} = -0.93 kN*m	
N _{c,Rd} = 670.24 kN	M _{y,pl,Rd} = 24.05 kN*m	
N _{b,Rd} = 670.24 kN	M _{y,c,Rd} = 24.05 kN*m	V _{z,Ed} = 1.38 kN
	MN _{y,Rd} = 15.10 kN*m	V _{z,c,Rd} = 193.48 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L _y = 0.57 m	Lam _y = 0.19
L _{cr,y} = 0.57 m	X _y = 1.00
Lam _y = 14.64	k _{yy} = 0.87



About z axis:

L _z = 0.57 m	Lam _z = 0.19
L _{cr,z} = 0.57 m	X _z = 1.00
Lam _z = 14.64	k _{zy} = 0.52

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.52 < 1.00 \quad (6.2.4.(1)) \\ M_{y,Ed}/M_{y,c,Rd} &= 0.04 < 1.00 \quad (6.2.5.(1)) \\ M_{y,Ed}/M_{N,y,Rd} &= 0.06 < 1.00 \quad (6.2.9.1.(2)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.01 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{b,y} &= 14.64 < \lambda_{b,max} = 210.00 \quad \lambda_{b,z} = 14.64 < \lambda_{b,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.55 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.54 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 137 Simple bar_137 **POINT:** 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /112/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

h=10.0 cm	gM0=1.00	gM1=1.00	
b=10.0 cm	Ay=9.44 cm ²	Az=9.44 cm ²	Ax=18.88 cm ²
tw=0.5 cm	Iy=282.80 cm ⁴	Iz=282.80 cm ⁴	Ix=438.80 cm ⁴
tf=0.5 cm	Wply=67.75 cm ³	Wplz=67.75 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 328.98 kN	M _{y,Ed} = -0.91 kN*m	
N _{c,Rd} = 670.24 kN	M _{y,pl,Rd} = 24.05 kN*m	
N _{b,Rd} = 670.24 kN	M _{y,c,Rd} = 24.05 kN*m	V _{z,Ed} = 1.57 kN
	MN _{y,Rd} = 16.01 kN*m	V _{z,c,Rd} = 193.48 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L _y = 0.56 m	Lam _y = 0.19
L _{cr,y} = 0.56 m	X _y = 1.00
Lam _y = 14.58	k _{yy} = 0.87



About z axis:

L _z = 0.56 m	Lam _z = 0.19
L _{cr,z} = 0.56 m	X _z = 1.00
Lam _z = 14.58	k _{zy} = 0.52

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.49 < 1.00 \quad (6.2.4.(1)) \\ M_{y,Ed}/M_{y,c,Rd} &= 0.04 < 1.00 \quad (6.2.5.(1)) \\ M_{y,Ed}/M_{N,y,Rd} &= 0.06 < 1.00 \quad (6.2.9.1.(2)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.01 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{b,y} &= 14.58 < \lambda_{b,max} = 210.00 \quad \lambda_{b,z} = 14.58 < \lambda_{b,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.52 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.51 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 138 Simple bar_138 **POINT:** 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /112/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

h=10.0 cm	gM0=1.00	gM1=1.00	
b=10.0 cm	Ay=9.44 cm ²	Az=9.44 cm ²	Ax=18.88 cm ²
tw=0.5 cm	Iy=282.80 cm ⁴	Iz=282.80 cm ⁴	Ix=438.80 cm ⁴
tf=0.5 cm	Wply=67.75 cm ³	Wplz=67.75 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 309.02 kN	M _{y,Ed} = -0.82 kN*m	
N _{c,Rd} = 670.24 kN	M _{y,pl,Rd} = 24.05 kN*m	
N _{b,Rd} = 670.24 kN	M _{y,c,Rd} = 24.05 kN*m	V _{z,Ed} = 1.46 kN
	MN _{y,Rd} = 16.95 kN*m	V _{z,c,Rd} = 193.48 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L _y = 0.56 m	Lam _y = 0.19
L _{cr,y} = 0.56 m	X _y = 1.00
Lam _y = 14.55	k _{yy} = 0.88



About z axis:

L _z = 0.56 m	Lam _z = 0.19
L _{cr,z} = 0.56 m	X _z = 1.00
Lam _z = 14.55	k _{zy} = 0.52

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.46 < 1.00 \quad (6.2.4.(1)) \\ M_{y,Ed}/M_{y,c,Rd} &= 0.03 < 1.00 \quad (6.2.5.(1)) \\ M_{y,Ed}/M_{N,y,Rd} &= 0.05 < 1.00 \quad (6.2.9.1.(2)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.01 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{b,y} &= 14.55 < \lambda_{b,max} = 210.00 \quad \lambda_{b,z} = 14.55 < \lambda_{b,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.49 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.48 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 139 Simple bar_139 **POINT:** 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /112/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

h=10.0 cm

gM0=1.00

gM1=1.00

b=10.0 cm

Ay=9.44 cm²

Az=9.44 cm²

Ax=18.88 cm²

tw=0.5 cm

Iy=282.80 cm⁴

Iz=282.80 cm⁴

Ix=438.80 cm⁴

tf=0.5 cm

Wply=67.75 cm³

Wplz=67.75 cm³

INTERNAL FORCES AND CAPACITIES:

N_{Ed} = 288.41 kN

M_{y,Ed} = -0.82 kN*m

N_{c,Rd} = 670.24 kN

M_{y,pl,Rd} = 24.05 kN*m

N_{b,Rd} = 670.24 kN

M_{y,c,Rd} = 24.05 kN*m

MN_{y,Rd} = 17.92 kN*m

V_{z,Ed} = 1.70 kN

V_{z,c,Rd} = 193.48 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L_y = 0.56 m

Lam_y = 0.19

L_{cr,y} = 0.56 m

X_y = 1.00

Lam_y = 14.50

k_{yy} = 0.89



About z axis:

L_z = 0.56 m

Lam_z = 0.19

L_{cr,z} = 0.56 m

X_z = 1.00

Lam_z = 14.50

k_{zy} = 0.53

VERIFICATION FORMULAS:

Section strength check:

N_{Ed}/N_{c,Rd} = 0.43 < 1.00 (6.2.4.(1))

M_{y,Ed}/M_{y,c,Rd} = 0.03 < 1.00 (6.2.5.(1))

M_{y,Ed}/MN_{y,Rd} = 0.05 < 1.00 (6.2.9.1.(2))

V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00 (6.2.6.(1))

Global stability check of member:

Lam_{bda,y} = 14.50 < Lam_{bda,max} = 210.00 Lam_{bda,z} = 14.50 < Lam_{bda,max} = 210.00 STABLE

N_{Ed}/(X_y*N_{Rk}/gM1) + k_{yy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.46 < 1.00 (6.3.3.(4))

N_{Ed}/(X_z*N_{Rk}/gM1) + k_{zy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.45 < 1.00 (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 140 Simple bar_140 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 200x100x6

$h=20.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=10.0$ cm	$A_y=11.15$ cm ²	$A_z=22.30$ cm ²	$A_x=33.45$ cm ²
$t_w=0.6$ cm	$I_y=1685.00$ cm ⁴	$I_z=572.30$ cm ⁴	$I_x=1416.00$ cm ⁴
$t_f=0.6$ cm	$W_{ely}=168.50$ cm ³	$W_{elz}=114.46$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 301.04$ kN	$M_{y,Ed} = -3.70$ kN*m	
$N_{c,Rd} = 1187.47$ kN	$M_{y,el,Rd} = 59.82$ kN*m	
$N_{b,Rd} = 1187.47$ kN	$M_{y,c,Rd} = 59.82$ kN*m	$V_{z,Ed} = 9.41$ kN
		$V_{z,c,Rd} = 457.06$ kN
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.57$ m	$\lambda_{m,y} = 0.10$
$L_{cr,y} = 0.57$ m	$X_y = 1.00$
$\lambda_{m,y} = 8.00$	$k_{yy} = 1.00$



About z axis:

$L_z = 0.57$ m	$\lambda_{m,z} = 0.18$
$L_{cr,z} = 0.57$ m	$X_z = 1.00$
$\lambda_{m,z} = 13.73$	$k_{zy} = 1.00$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.06 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.32 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.31 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.02 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{m,y} &= 8.00 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 13.73 < \lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.32 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.32 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 141 Simple bar_141 POINT: 3

COORDINATE: $x = 1.00$ $L = 0.57$ m

LOADS:

Governing Load Case: 12 ULS /111/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 200x100x6

$h=20.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=10.0$ cm	$A_y=11.15$ cm ²	$A_z=22.30$ cm ²	$A_x=33.45$ cm ²
$t_w=0.6$ cm	$I_y=1685.00$ cm ⁴	$I_z=572.30$ cm ⁴	$I_x=1416.00$ cm ⁴
$t_f=0.6$ cm	$W_{el,y}=168.50$ cm ³	$W_{el,z}=114.46$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 367.44$ kN	$M_{y,Ed} = 2.04$ kN*m	
$N_{c,Rd} = 1187.47$ kN	$M_{y,el,Rd} = 59.82$ kN*m	
$N_{b,Rd} = 1187.47$ kN	$M_{y,c,Rd} = 59.82$ kN*m	$V_{z,Ed} = -1.67$ kN
		$V_{z,c,Rd} = 457.06$ kN
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.57$ m	$\lambda_{m,y} = 0.10$
$L_{cr,y} = 0.57$ m	$X_y = 1.00$
$\lambda_{m,y} = 7.97$	$k_{yy} = 1.00$



About z axis:

$L_z = 0.57$ m	$\lambda_{m,z} = 0.18$
$L_{cr,z} = 0.57$ m	$X_z = 1.00$
$\lambda_{m,z} = 13.68$	$k_{zy} = 1.00$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.03 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.34 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.34 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.00 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{m,y} &= 7.97 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 13.68 < \lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.34 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.34 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 142 Simple bar_142 POINT: 3

COORDINATE: $x = 1.00$ $L = 0.56$ m

LOADS:

Governing Load Case: 12 ULS /111/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 200x100x6

$h=20.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=10.0$ cm	$A_y=11.15$ cm ²	$A_z=22.30$ cm ²	$A_x=33.45$ cm ²
$t_w=0.6$ cm	$I_y=1685.00$ cm ⁴	$I_z=572.30$ cm ⁴	$I_x=1416.00$ cm ⁴
$t_f=0.6$ cm	$W_{ely}=168.50$ cm ³	$W_{elz}=114.46$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 407.16$ kN	$M_{y,Ed} = 2.60$ kN*m	
$N_{c,Rd} = 1187.47$ kN	$M_{y,el,Rd} = 59.82$ kN*m	
$N_{b,Rd} = 1187.47$ kN	$M_{y,c,Rd} = 59.82$ kN*m	$V_{z,Ed} = -2.31$ kN
		$V_{z,c,Rd} = 457.06$ kN
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.56$ m	$\lambda_{m,y} = 0.10$
$L_{cr,y} = 0.56$ m	$X_y = 1.00$
$\lambda_{m,y} = 7.95$	$k_{yy} = 1.00$



About z axis:

$L_z = 0.56$ m	$\lambda_{m,z} = 0.18$
$L_{cr,z} = 0.56$ m	$X_z = 1.00$
$\lambda_{m,z} = 13.64$	$k_{zy} = 1.00$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.04 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.39 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.38 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.01 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{m,y} &= 7.95 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 13.64 < \lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.39 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.39 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 143 Simple bar_143 **POINT:** 3

COORDINATE: x = 1.00 L = 0.56 m

LOADS:

Governing Load Case: 12 ULS /111/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 200x100x6

h=20.0 cm	gM0=1.00	gM1=1.00	
b=10.0 cm	Ay=11.15 cm ²	Az=22.30 cm ²	Ax=33.45 cm ²
tw=0.6 cm	Iy=1685.00 cm ⁴	Iz=572.30 cm ⁴	Ix=1416.00 cm ⁴
tf=0.6 cm	Wely=168.50 cm ³	Welz=114.46 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 443.14 kN	M _{y,Ed} = 3.31 kN*m	
N _{c,Rd} = 1187.47 kN	M _{y,el,Rd} = 59.82 kN*m	
N _{b,Rd} = 1187.47 kN	M _{y,c,Rd} = 59.82 kN*m	V _{z,Ed} = -2.20 kN
		V _{z,c,Rd} = 457.06 kN
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L _y = 0.56 m	Lam _y = 0.10
L _{cr,y} = 0.56 m	X _y = 1.00
Lam _y = 7.92	k _{yy} = 1.00



About z axis:

L _z = 0.56 m	Lam _z = 0.18
L _{cr,z} = 0.56 m	X _z = 1.00
Lam _z = 13.59	k _{zy} = 1.00

VERIFICATION FORMULAS:

Section strength check:

$$M_{y,Ed}/M_{y,c,Rd} = 0.06 < 1.00 \quad (6.2.5.(1))$$

$$N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} = 0.43 < 1.00 \quad (6.2.9.3.(1))$$

$$\sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) = 0.43 < 1.00 \quad (6.2.1.(5))$$

$$V_{z,Ed}/V_{z,c,Rd} = 0.00 < 1.00 \quad (6.2.6.(1))$$

Global stability check of member:

$$\lambda_{b,y} = 7.92 < \lambda_{b,max} = 210.00 \quad \lambda_{b,z} = 13.59 < \lambda_{b,max} = 210.00 \quad \text{STABLE}$$

$$N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.43 < 1.00 \quad (6.3.3.(4))$$

$$N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.43 < 1.00 \quad (6.3.3.(4))$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 144 Simple bar_144 **POINT:** 3

COORDINATE: x = 1.00 L = 0.56 m

LOADS:

Governing Load Case: 12 ULS /111/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 200x100x6

h=20.0 cm	gM0=1.00	gM1=1.00	
b=10.0 cm	Ay=11.15 cm ²	Az=22.30 cm ²	Ax=33.45 cm ²
tw=0.6 cm	Iy=1685.00 cm ⁴	Iz=572.30 cm ⁴	Ix=1416.00 cm ⁴
tf=0.6 cm	Wely=168.50 cm ³	Welz=114.46 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 475.48 kN	My _{Ed} = 3.98 kN*m	
N _{c,Rd} = 1187.47 kN	My _{el,Rd} = 59.82 kN*m	
N _{b,Rd} = 1187.47 kN	My _{c,Rd} = 59.82 kN*m	Vz _{Ed} = -2.40 kN
		Vz _{c,Rd} = 457.06 kN
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

Ly = 0.56 m	Lam _y = 0.10
Lcr,y = 0.56 m	Xy = 1.00
Lamy = 7.90	kyy = 1.00



About z axis:

Lz = 0.56 m	Lam _z = 0.18
Lcr,z = 0.56 m	Xz = 1.00
Lamz = 13.56	kzy = 1.00

VERIFICATION FORMULAS:

Section strength check:

$$My_{Ed}/My_{c,Rd} = 0.07 < 1.00 \quad (6.2.5.(1))$$

$$N_{Ed}/N_{c,Rd} + My_{Ed}/My_{c,Rd} = 0.47 < 1.00 \quad (6.2.9.3.(1))$$

$$\sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) = 0.46 < 1.00 \quad (6.2.1.(5))$$

$$Vz_{Ed}/Vz_{c,Rd} = 0.01 < 1.00 \quad (6.2.6.(1))$$

Global stability check of member:

$$\lambda_{by} = 7.90 < \lambda_{b,max} = 210.00 \quad \lambda_{bz} = 13.56 < \lambda_{b,max} = 210.00 \quad \text{STABLE}$$

$$N_{Ed}/(Xy \cdot N_{Rk}/gM1) + kyy \cdot My_{Ed}/(XLT \cdot My_{Rk}/gM1) = 0.47 < 1.00 \quad (6.3.3.(4))$$

$$N_{Ed}/(Xz \cdot N_{Rk}/gM1) + kzy \cdot My_{Ed}/(XLT \cdot My_{Rk}/gM1) = 0.47 < 1.00 \quad (6.3.3.(4))$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 145 Simple bar_145 POINT: 2

COORDINATE: $x = 0.50 L = 0.28 \text{ m}$

LOADS:

Governing Load Case: 12 ULS /111/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00 \text{ MPa}$



SECTION PARAMETERS: TREC 200x100x6

$h=20.0 \text{ cm}$	$gM0=1.00$	$gM1=1.00$	
$b=10.0 \text{ cm}$	$A_y=11.15 \text{ cm}^2$	$A_z=22.30 \text{ cm}^2$	$A_x=33.45 \text{ cm}^2$
$tw=0.6 \text{ cm}$	$I_y=1685.00 \text{ cm}^4$	$I_z=572.30 \text{ cm}^4$	$I_x=1416.00 \text{ cm}^4$
$tf=0.6 \text{ cm}$	$W_{ely}=168.50 \text{ cm}^3$	$W_{elz}=114.46 \text{ cm}^3$	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 505.04 \text{ kN}$	$M_{y,Ed} = 4.41 \text{ kN}\cdot\text{m}$	
$N_{c,Rd} = 1187.47 \text{ kN}$	$M_{y,el,Rd} = 59.82 \text{ kN}\cdot\text{m}$	
$N_{b,Rd} = 1187.47 \text{ kN}$	$M_{y,c,Rd} = 59.82 \text{ kN}\cdot\text{m}$	$V_{z,Ed} = 2.28 \text{ kN}$
		$V_{z,c,Rd} = 457.06 \text{ kN}$
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.56 \text{ m}$	$\Lambda_{m,y} = 0.10$
$L_{cr,y} = 0.56 \text{ m}$	$X_y = 1.00$
$\Lambda_{m,y} = 7.88$	$k_{yy} = 1.00$



About z axis:

$L_z = 0.56 \text{ m}$	$\Lambda_{m,z} = 0.18$
$L_{cr,z} = 0.56 \text{ m}$	$X_z = 1.00$
$\Lambda_{m,z} = 13.52$	$k_{zy} = 1.00$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.07 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.50 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.49 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.00 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \Lambda_{m,y} &= 7.88 < \Lambda_{m,max} = 210.00 \quad \Lambda_{m,z} = 13.52 < \Lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.50 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.50 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 146 Simple bar_146 POINT: 2

COORDINATE: $x = 0.50 L = 0.28 \text{ m}$

LOADS:

Governing Load Case: 12 ULS /111/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00 \text{ MPa}$



SECTION PARAMETERS: TREC 200x100x6

$h=20.0 \text{ cm}$	$gM0=1.00$	$gM1=1.00$	
$b=10.0 \text{ cm}$	$A_y=11.15 \text{ cm}^2$	$A_z=22.30 \text{ cm}^2$	$A_x=33.45 \text{ cm}^2$
$tw=0.6 \text{ cm}$	$I_y=1685.00 \text{ cm}^4$	$I_z=572.30 \text{ cm}^4$	$I_x=1416.00 \text{ cm}^4$
$tf=0.6 \text{ cm}$	$W_{ely}=168.50 \text{ cm}^3$	$W_{elz}=114.46 \text{ cm}^3$	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 529.71 \text{ kN}$	$M_{y,Ed} = 4.96 \text{ kN}\cdot\text{m}$	
$N_{c,Rd} = 1187.47 \text{ kN}$	$M_{y,el,Rd} = 59.82 \text{ kN}\cdot\text{m}$	
$N_{b,Rd} = 1187.47 \text{ kN}$	$M_{y,c,Rd} = 59.82 \text{ kN}\cdot\text{m}$	$V_{z,Ed} = 2.91 \text{ kN}$
		$V_{z,c,Rd} = 457.06 \text{ kN}$
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.56 \text{ m}$	$\Lambda_{m,y} = 0.10$
$L_{cr,y} = 0.56 \text{ m}$	$X_y = 1.00$
$\Lambda_{m,y} = 7.86$	$k_{yy} = 1.00$



About z axis:

$L_z = 0.56 \text{ m}$	$\Lambda_{m,z} = 0.18$
$L_{cr,z} = 0.56 \text{ m}$	$X_z = 1.00$
$\Lambda_{m,z} = 13.49$	$k_{zy} = 1.00$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.08 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.53 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.52 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.01 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \Lambda_{m,y} &= 7.86 < \Lambda_{m,max} = 210.00 \quad \Lambda_{m,z} = 13.49 < \Lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.53 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.53 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 147 Simple bar_147 POINT: 2

COORDINATE: $x = 0.50 L = 0.28 \text{ m}$

LOADS:

Governing Load Case: 12 ULS /111/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00 \text{ MPa}$



SECTION PARAMETERS: TREC 200x100x6

$h=20.0 \text{ cm}$	$gM0=1.00$	$gM1=1.00$	
$b=10.0 \text{ cm}$	$A_y=11.15 \text{ cm}^2$	$A_z=22.30 \text{ cm}^2$	$A_x=33.45 \text{ cm}^2$
$tw=0.6 \text{ cm}$	$I_y=1685.00 \text{ cm}^4$	$I_z=572.30 \text{ cm}^4$	$I_x=1416.00 \text{ cm}^4$
$tf=0.6 \text{ cm}$	$W_{ely}=168.50 \text{ cm}^3$	$W_{elz}=114.46 \text{ cm}^3$	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 550.43 \text{ kN}$	$M_{y,Ed} = 5.39 \text{ kN}\cdot\text{m}$	
$N_{c,Rd} = 1187.47 \text{ kN}$	$M_{y,el,Rd} = 59.82 \text{ kN}\cdot\text{m}$	
$N_{b,Rd} = 1187.47 \text{ kN}$	$M_{y,c,Rd} = 59.82 \text{ kN}\cdot\text{m}$	$V_{z,Ed} = 1.49 \text{ kN}$
		$V_{z,c,Rd} = 457.06 \text{ kN}$
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.56 \text{ m}$	$\Lambda_{m,y} = 0.10$
$L_{cr,y} = 0.56 \text{ m}$	$X_y = 1.00$
$\Lambda_{m,y} = 7.85$	$k_{yy} = 1.01$



About z axis:

$L_z = 0.56 \text{ m}$	$\Lambda_{m,z} = 0.18$
$L_{cr,z} = 0.56 \text{ m}$	$X_z = 1.00$
$\Lambda_{m,z} = 13.46$	$k_{zy} = 1.01$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.09 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.55 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.55 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.00 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \Lambda_{m,y} &= 7.85 < \Lambda_{m,max} = 210.00 \quad \Lambda_{m,z} = 13.46 < \Lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.55 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.55 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 148 Simple bar_148 POINT: 2

COORDINATE: $x = 0.50 L = 0.28 \text{ m}$

LOADS:

Governing Load Case: 12 ULS /111/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00 \text{ MPa}$



SECTION PARAMETERS: TREC 200x100x6

$h=20.0 \text{ cm}$	$gM0=1.00$	$gM1=1.00$	
$b=10.0 \text{ cm}$	$A_y=11.15 \text{ cm}^2$	$A_z=22.30 \text{ cm}^2$	$A_x=33.45 \text{ cm}^2$
$tw=0.6 \text{ cm}$	$I_y=1685.00 \text{ cm}^4$	$I_z=572.30 \text{ cm}^4$	$I_x=1416.00 \text{ cm}^4$
$tf=0.6 \text{ cm}$	$W_{ely}=168.50 \text{ cm}^3$	$W_{elz}=114.46 \text{ cm}^3$	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 567.34 \text{ kN}$	$M_{y,Ed} = 5.75 \text{ kN}\cdot\text{m}$	
$N_{c,Rd} = 1187.47 \text{ kN}$	$M_{y,el,Rd} = 59.82 \text{ kN}\cdot\text{m}$	
$N_{b,Rd} = 1187.47 \text{ kN}$	$M_{y,c,Rd} = 59.82 \text{ kN}\cdot\text{m}$	$V_{z,Ed} = 2.27 \text{ kN}$
		$V_{z,c,Rd} = 457.06 \text{ kN}$
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.56 \text{ m}$	$\Lambda_{m,y} = 0.10$
$L_{cr,y} = 0.56 \text{ m}$	$X_y = 1.00$
$\Lambda_{m,y} = 7.83$	$k_{yy} = 1.01$



About z axis:

$L_z = 0.56 \text{ m}$	$\Lambda_{m,z} = 0.18$
$L_{cr,z} = 0.56 \text{ m}$	$X_z = 1.00$
$\Lambda_{m,z} = 13.43$	$k_{zy} = 1.01$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.10 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.57 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\text{Sig}_{x,Ed}^2 + 3*\text{Tau}_{z,Ed}^2)/(f_y/gM0)} &= 0.57 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.00 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \Lambda_{m,y} &= 7.83 < \Lambda_{m,max} = 210.00 \quad \Lambda_{m,z} = 13.43 < \Lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y*N_{c,Rd}/gM1) + k_{yy}*M_{y,Ed}/(XLT*M_{y,Rd}/gM1) &= 0.57 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z*N_{c,Rd}/gM1) + k_{zy}*M_{y,Ed}/(XLT*M_{y,Rd}/gM1) &= 0.57 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 149 Simple bar_149 POINT: 2

COORDINATE: $x = 0.50 L = 0.28 \text{ m}$

LOADS:

Governing Load Case: 12 ULS /111/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00 \text{ MPa}$



SECTION PARAMETERS: TREC 200x100x6

$h=20.0 \text{ cm}$	$gM0=1.00$	$gM1=1.00$	
$b=10.0 \text{ cm}$	$A_y=11.15 \text{ cm}^2$	$A_z=22.30 \text{ cm}^2$	$A_x=33.45 \text{ cm}^2$
$tw=0.6 \text{ cm}$	$I_y=1685.00 \text{ cm}^4$	$I_z=572.30 \text{ cm}^4$	$I_x=1416.00 \text{ cm}^4$
$tf=0.6 \text{ cm}$	$W_{ely}=168.50 \text{ cm}^3$	$W_{elz}=114.46 \text{ cm}^3$	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 580.39 \text{ kN}$	$M_{y,Ed} = 6.15 \text{ kN*m}$	
$N_{c,Rd} = 1187.47 \text{ kN}$	$M_{y,el,Rd} = 59.82 \text{ kN*m}$	
$N_{b,Rd} = 1187.47 \text{ kN}$	$M_{y,c,Rd} = 59.82 \text{ kN*m}$	$V_{z,Ed} = 1.28 \text{ kN}$
		$V_{z,c,Rd} = 457.06 \text{ kN}$
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.55 \text{ m}$	$\lambda_{m,y} = 0.10$
$L_{cr,y} = 0.55 \text{ m}$	$X_y = 1.00$
$\lambda_{m,y} = 7.81$	$k_{yy} = 1.01$



About z axis:

$L_z = 0.55 \text{ m}$	$\lambda_{m,z} = 0.18$
$L_{cr,z} = 0.55 \text{ m}$	$X_z = 1.00$
$\lambda_{m,z} = 13.41$	$k_{zy} = 1.01$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.10 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.59 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.59 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.00 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{m,y} &= 7.81 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 13.41 < \lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.59 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.59 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 150 Simple bar_150 **POINT:** 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /118/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 10*0.90 + 9*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

h=10.0 cm	gM0=1.00	gM1=1.00	
b=10.0 cm	Ay=9.44 cm ²	Az=9.44 cm ²	Ax=18.88 cm ²
tw=0.5 cm	Iy=282.80 cm ⁴	Iz=282.80 cm ⁴	Ix=438.80 cm ⁴
tf=0.5 cm	Wply=67.75 cm ³	Wplz=67.75 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 268.39 kN	M _{y,Ed} = -0.75 kN*m	
N _{c,Rd} = 670.24 kN	M _{y,pl,Rd} = 24.05 kN*m	
N _{b,Rd} = 670.24 kN	M _{y,c,Rd} = 24.05 kN*m	V _{z,Ed} = 1.32 kN
	MN _{y,Rd} = 18.85 kN*m	V _{z,c,Rd} = 193.48 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L _y = 0.56 m	Lam _y = 0.19
L _{cr,y} = 0.56 m	X _y = 1.00
Lam _y = 14.46	k _{yy} = 0.89



About z axis:

L _z = 0.56 m	Lam _z = 0.19
L _{cr,z} = 0.56 m	X _z = 1.00
Lam _z = 14.46	k _{zy} = 0.53

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.40 < 1.00 \quad (6.2.4.(1)) \\ M_{y,Ed}/M_{y,c,Rd} &= 0.03 < 1.00 \quad (6.2.5.(1)) \\ M_{y,Ed}/M_{N,y,Rd} &= 0.04 < 1.00 \quad (6.2.9.1.(2)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.01 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{b,y} &= 14.46 < \lambda_{b,max} = 210.00 \quad \lambda_{b,z} = 14.46 < \lambda_{b,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.43 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.42 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 151 Simple bar_151 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /118/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 10*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

$h=10.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=10.0$ cm	$A_y=9.44$ cm ²	$A_z=9.44$ cm ²	$A_x=18.88$ cm ²
$t_w=0.5$ cm	$I_y=282.80$ cm ⁴	$I_z=282.80$ cm ⁴	$I_x=438.80$ cm ⁴
$t_f=0.5$ cm	$W_{ply}=67.75$ cm ³	$W_{plz}=67.75$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 250.99$ kN	$M_{y,Ed} = -0.76$ kN*m	
$N_{c,Rd} = 670.24$ kN	$M_{y,pl,Rd} = 24.05$ kN*m	
$N_{b,Rd} = 670.24$ kN	$M_{y,c,Rd} = 24.05$ kN*m	$V_{z,Ed} = 1.56$ kN
	$MN_{y,Rd} = 19.67$ kN*m	$V_{z,c,Rd} = 193.48$ kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.56$ m	$\Lambda_{m,y} = 0.19$
$L_{cr,y} = 0.56$ m	$X_y = 1.00$
$\Lambda_{m,y} = 14.42$	$k_{yy} = 0.90$



About z axis:

$L_z = 0.56$ m	$\Lambda_{m,z} = 0.19$
$L_{cr,z} = 0.56$ m	$X_z = 1.00$
$\Lambda_{m,z} = 14.42$	$k_{zy} = 0.54$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.37 < 1.00 \quad (6.2.4.(1)) \\ M_{y,Ed}/M_{y,c,Rd} &= 0.03 < 1.00 \quad (6.2.5.(1)) \\ M_{y,Ed}/M_{N,y,Rd} &= 0.04 < 1.00 \quad (6.2.9.1.(2)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.01 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \Lambda_{bda,y} &= 14.42 < \Lambda_{bda,max} = 210.00 \quad \Lambda_{bda,z} = 14.42 < \Lambda_{bda,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.40 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.39 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 152 Simple bar_152 **POINT:** 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /118/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 10*0.90 + 9*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

h=10.0 cm	gM0=1.00	gM1=1.00	
b=10.0 cm	Ay=9.44 cm ²	Az=9.44 cm ²	Ax=18.88 cm ²
tw=0.5 cm	Iy=282.80 cm ⁴	Iz=282.80 cm ⁴	Ix=438.80 cm ⁴
tf=0.5 cm	Wply=67.75 cm ³	Wplz=67.75 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 232.30 kN	M _{y,Ed} = -0.68 kN*m	
N _{c,Rd} = 670.24 kN	M _{y,pl,Rd} = 24.05 kN*m	
N _{b,Rd} = 670.24 kN	M _{y,c,Rd} = 24.05 kN*m	V _{z,Ed} = 1.54 kN
	MN _{y,Rd} = 20.55 kN*m	V _{z,c,Rd} = 193.48 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L _y = 0.56 m	Lam _y = 0.19
L _{cr,y} = 0.56 m	X _y = 1.00
Lam _y = 14.39	k _{yy} = 0.91



About z axis:

L _z = 0.56 m	Lam _z = 0.19
L _{cr,z} = 0.56 m	X _z = 1.00
Lam _z = 14.39	k _{zy} = 0.54

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.35 < 1.00 \quad (6.2.4.(1)) \\ M_{y,Ed}/M_{y,c,Rd} &= 0.03 < 1.00 \quad (6.2.5.(1)) \\ M_{y,Ed}/M_{N,y,Rd} &= 0.03 < 1.00 \quad (6.2.9.1.(2)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.01 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{b,y} &= 14.39 < \lambda_{b,max} = 210.00 \quad \lambda_{b,z} = 14.39 < \lambda_{b,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/g_{M1}) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/g_{M1}) &= 0.37 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/g_{M1}) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/g_{M1}) &= 0.36 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 153 Simple bar_153 **POINT:** 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /118/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 10*0.90 + 9*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

h=10.0 cm	gM0=1.00	gM1=1.00	
b=10.0 cm	Ay=9.44 cm ²	Az=9.44 cm ²	Ax=18.88 cm ²
tw=0.5 cm	Iy=282.80 cm ⁴	Iz=282.80 cm ⁴	Ix=438.80 cm ⁴
tf=0.5 cm	Wply=67.75 cm ³	Wplz=67.75 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 212.68 kN	M _{y,Ed} = -0.65 kN*m	
N _{c,Rd} = 670.24 kN	M _{y,pl,Rd} = 24.05 kN*m	
N _{b,Rd} = 670.24 kN	M _{y,c,Rd} = 24.05 kN*m	V _{z,Ed} = 1.52 kN
	MN _{y,Rd} = 21.47 kN*m	V _{z,c,Rd} = 193.48 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L _y = 0.56 m	Lam _y = 0.19
L _{cr,y} = 0.56 m	X _y = 1.00
Lam _y = 14.36	k _{yy} = 0.91



About z axis:

L _z = 0.56 m	Lam _z = 0.19
L _{cr,z} = 0.56 m	X _z = 1.00
Lam _z = 14.36	k _{zy} = 0.55

VERIFICATION FORMULAS:

Section strength check:

N _{Ed} /N _{c,Rd} = 0.32 < 1.00 (6.2.4.(1))
M _{y,Ed} /M _{y,c,Rd} = 0.03 < 1.00 (6.2.5.(1))
M _{y,Ed} /MN _{y,Rd} = 0.03 < 1.00 (6.2.9.1.(2))
V _{z,Ed} /V _{z,c,Rd} = 0.01 < 1.00 (6.2.6.(1))

Global stability check of member:

Lam _{bda,y} = 14.36 < Lam _{bda,max} = 210.00	Lam _{bda,z} = 14.36 < Lam _{bda,max} = 210.00	STABLE
N _{Ed} /(X _y *N _{Rk} /gM1) + k _{yy} *M _{y,Ed} /(XLT*M _{y,Rk} /gM1) = 0.34 < 1.00 (6.3.3.(4))		
N _{Ed} /(X _z *N _{Rk} /gM1) + k _{zy} *M _{y,Ed} /(XLT*M _{y,Rk} /gM1) = 0.33 < 1.00 (6.3.3.(4))		

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 154 Simple bar_154 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /118/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 10*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

$h=10.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=10.0$ cm	$A_y=9.44$ cm ²	$A_z=9.44$ cm ²	$A_x=18.88$ cm ²
$t_w=0.5$ cm	$I_y=282.80$ cm ⁴	$I_z=282.80$ cm ⁴	$I_x=438.80$ cm ⁴
$t_f=0.5$ cm	$W_{ply}=67.75$ cm ³	$W_{plz}=67.75$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 192.00$ kN	$M_{y,Ed} = -0.68$ kN*m	
$N_{c,Rd} = 670.24$ kN	$M_{y,pl,Rd} = 24.05$ kN*m	
$N_{b,Rd} = 670.24$ kN	$M_{y,c,Rd} = 24.05$ kN*m	$V_{z,Ed} = 2.40$ kN
	$MN_{y,Rd} = 22.44$ kN*m	$V_{z,c,Rd} = 193.48$ kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.55$ m	$\lambda_{m,y} = 0.19$
$L_{cr,y} = 0.55$ m	$X_y = 1.00$
$\lambda_{m,y} = 14.33$	$k_{yy} = 0.92$



About z axis:

$L_z = 0.55$ m	$\lambda_{m,z} = 0.19$
$L_{cr,z} = 0.55$ m	$X_z = 1.00$
$\lambda_{m,z} = 14.33$	$k_{zy} = 0.55$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.29 < 1.00 \quad (6.2.4.(1)) \\ M_{y,Ed}/M_{y,c,Rd} &= 0.03 < 1.00 \quad (6.2.5.(1)) \\ M_{y,Ed}/M_{N,y,Rd} &= 0.03 < 1.00 \quad (6.2.9.1.(2)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.01 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{bda,y} &= 14.33 < \lambda_{bda,max} = 210.00 \quad \lambda_{bda,z} = 14.33 < \lambda_{bda,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.31 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.30 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 155 Simple bar_155 **POINT:** 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /118/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 10*0.90 + 9*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

h=10.0 cm	gM0=1.00	gM1=1.00	
b=10.0 cm	Ay=9.44 cm ²	Az=9.44 cm ²	Ax=18.88 cm ²
tw=0.5 cm	Iy=282.80 cm ⁴	Iz=282.80 cm ⁴	Ix=438.80 cm ⁴
tf=0.5 cm	Wply=67.75 cm ³	Wplz=67.75 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 171.17 kN	M _{y,Ed} = -0.66 kN*m	
N _{c,Rd} = 670.24 kN	M _{y,pl,Rd} = 24.05 kN*m	
N _{b,Rd} = 670.24 kN	M _{y,c,Rd} = 24.05 kN*m	V _{z,Ed} = 1.94 kN
	MN _{y,Rd} = 23.42 kN*m	V _{z,c,Rd} = 193.48 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L _y = 0.55 m	Lam _y = 0.19
L _{cr,y} = 0.55 m	X _y = 1.00
Lam _y = 14.31	k _{yy} = 0.93



About z axis:

L _z = 0.55 m	Lam _z = 0.19
L _{cr,z} = 0.55 m	X _z = 1.00
Lam _z = 14.31	k _{zy} = 0.56

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.26 < 1.00 \quad (6.2.4.(1)) \\ M_{y,Ed}/M_{y,c,Rd} &= 0.03 < 1.00 \quad (6.2.5.(1)) \\ M_{y,Ed}/M_{N,y,Rd} &= 0.03 < 1.00 \quad (6.2.9.1.(2)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.01 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{b,y} &= 14.31 < \lambda_{b,max} = 210.00 \quad \lambda_{b,z} = 14.31 < \lambda_{b,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.28 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.27 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 156 Simple bar_156 **POINT:** 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /163/ 1*1.00 + 2*1.00 + 3*1.00 + 10*0.90 + 9*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

h=10.0 cm	gM0=1.00	gM1=1.00	
b=10.0 cm	Ay=9.44 cm ²	Az=9.44 cm ²	Ax=18.88 cm ²
tw=0.5 cm	Iy=282.80 cm ⁴	Iz=282.80 cm ⁴	Ix=438.80 cm ⁴
tf=0.5 cm	Wply=67.75 cm ³	Wplz=67.75 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 150.72 kN	M _{y,Ed} = -0.56 kN*m	
N _{c,Rd} = 670.24 kN	M _{y,pl,Rd} = 24.05 kN*m	
N _{b,Rd} = 670.24 kN	M _{y,c,Rd} = 24.05 kN*m	V _{z,Ed} = 1.29 kN
	MN _{y,Rd} = 24.05 kN*m	V _{z,c,Rd} = 193.48 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L _y = 0.55 m	Lam _y = 0.19
L _{cr,y} = 0.55 m	X _y = 1.00
Lam _y = 14.29	k _{yy} = 0.94



About z axis:

L _z = 0.55 m	Lam _z = 0.19
L _{cr,z} = 0.55 m	X _z = 1.00
Lam _z = 14.29	k _{zy} = 0.56

VERIFICATION FORMULAS:

Section strength check:

N _{Ed} /N _{c,Rd} = 0.22 < 1.00 (6.2.4.(1))
M _{y,Ed} /M _{y,c,Rd} = 0.02 < 1.00 (6.2.5.(1))
M _{y,Ed} /MN _{y,Rd} = 0.02 < 1.00 (6.2.9.1.(2))
V _{z,Ed} /V _{z,c,Rd} = 0.01 < 1.00 (6.2.6.(1))

Global stability check of member:

Lam _{bda,y} = 14.29 < Lam _{bda,max} = 210.00	Lam _{bda,z} = 14.29 < Lam _{bda,max} = 210.00	STABLE
N _{Ed} /(X _y *N _{Rk} /gM1) + k _{yy} *M _{y,Ed} /(XLT*M _{y,Rk} /gM1) = 0.25 < 1.00 (6.3.3.(4))		
N _{Ed} /(X _z *N _{Rk} /gM1) + k _{zy} *M _{y,Ed} /(XLT*M _{y,Rk} /gM1) = 0.24 < 1.00 (6.3.3.(4))		

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 157 Simple bar_157 POINT: 3

COORDINATE: $x = 1.00$ $L = 0.55$ m

LOADS:

Governing Load Case: 12 ULS /120/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 11*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

$h = 10.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 10.0$ cm

$A_y = 9.44$ cm²

$A_z = 9.44$ cm²

$A_x = 18.88$ cm²

$tw = 0.5$ cm

$I_y = 282.80$ cm⁴

$I_z = 282.80$ cm⁴

$I_x = 438.80$ cm⁴

$tf = 0.5$ cm

$W_{ply} = 67.75$ cm³

$W_{plz} = 67.75$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -153.29$ kN

$M_{y,Ed} = 0.97$ kN*m

$N_{t,Rd} = 666.09$ kN

$M_{y,pl,Rd} = 24.05$ kN*m

$M_{y,c,Rd} = 24.05$ kN*m

$MN_{y,Rd} = 24.05$ kN*m

$V_{z,Ed} = -0.33$ kN

$V_{z,c,Rd} = 193.48$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.23 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.04 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.04 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.00 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 158 Simple bar_158 **POINT:** 3

COORDINATE: x = 1.00 L = 0.55 m

LOADS:

Governing Load Case: 12 ULS /120/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 11*0.90 + 8*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

h=10.0 cm

gM0=1.00

gM1=1.00

b=10.0 cm

Ay=9.44 cm²

Az=9.44 cm²

Ax=18.88 cm²

tw=0.5 cm

Iy=282.80 cm⁴

Iz=282.80 cm⁴

Ix=438.80 cm⁴

tf=0.5 cm

Wply=67.75 cm³

Wplz=67.75 cm³

INTERNAL FORCES AND CAPACITIES:

N_{Ed} = -150.39 kN

M_{y,Ed} = 0.88 kN*m

N_{t,Rd} = 666.09 kN

M_{y,pl,Rd} = 24.05 kN*m

M_{y,c,Rd} = 24.05 kN*m

MN_{y,Rd} = 24.05 kN*m

V_{z,Ed} = -0.59 kN

V_{z,c,Rd} = 193.48 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

N_{Ed}/N_{t,Rd} = 0.23 < 1.00 (6.2.3.(1))

M_{y,Ed}/M_{y,c,Rd} = 0.04 < 1.00 (6.2.5.(1))

M_{y,Ed}/MN_{y,Rd} = 0.04 < 1.00 (6.2.9.1.(2))

V_{z,Ed}/V_{z,c,Rd} = 0.00 < 1.00 (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 159 Simple bar_159 POINT: 2

COORDINATE: $x = 0.50 L = 0.28 \text{ m}$

LOADS:

Governing Load Case: 12 ULS /111/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00 \text{ MPa}$



SECTION PARAMETERS: TREC 200x100x6

$h=20.0 \text{ cm}$	$gM0=1.00$	$gM1=1.00$	
$b=10.0 \text{ cm}$	$A_y=11.15 \text{ cm}^2$	$A_z=22.30 \text{ cm}^2$	$A_x=33.45 \text{ cm}^2$
$tw=0.6 \text{ cm}$	$I_y=1685.00 \text{ cm}^4$	$I_z=572.30 \text{ cm}^4$	$I_x=1416.00 \text{ cm}^4$
$tf=0.6 \text{ cm}$	$W_{ely}=168.50 \text{ cm}^3$	$W_{elz}=114.46 \text{ cm}^3$	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 588.51 \text{ kN}$	$M_{y,Ed} = 6.33 \text{ kN}\cdot\text{m}$	
$N_{c,Rd} = 1187.47 \text{ kN}$	$M_{y,el,Rd} = 59.82 \text{ kN}\cdot\text{m}$	
$N_{b,Rd} = 1187.47 \text{ kN}$	$M_{y,c,Rd} = 59.82 \text{ kN}\cdot\text{m}$	$V_{z,Ed} = 1.04 \text{ kN}$
		$V_{z,c,Rd} = 457.06 \text{ kN}$
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.55 \text{ m}$	$\lambda_{m,y} = 0.10$
$L_{cr,y} = 0.55 \text{ m}$	$X_y = 1.00$
$\lambda_{m,y} = 7.80$	$k_{yy} = 1.01$



About z axis:

$L_z = 0.55 \text{ m}$	$\lambda_{m,z} = 0.18$
$L_{cr,z} = 0.55 \text{ m}$	$X_z = 1.00$
$\lambda_{m,z} = 13.38$	$k_{zy} = 1.01$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.11 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.60 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.60 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.00 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{m,y} &= 7.80 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 13.38 < \lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.60 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.60 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 160 Simple bar_160 POINT: 2

COORDINATE: $x = 0.50 L = 0.28 \text{ m}$

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00 \text{ MPa}$



SECTION PARAMETERS: TREC 200x100x6

$h=20.0 \text{ cm}$	$gM0=1.00$	$gM1=1.00$	
$b=10.0 \text{ cm}$	$A_y=11.15 \text{ cm}^2$	$A_z=22.30 \text{ cm}^2$	$A_x=33.45 \text{ cm}^2$
$tw=0.6 \text{ cm}$	$I_y=1685.00 \text{ cm}^4$	$I_z=572.30 \text{ cm}^4$	$I_x=1416.00 \text{ cm}^4$
$tf=0.6 \text{ cm}$	$W_{ely}=168.50 \text{ cm}^3$	$W_{elz}=114.46 \text{ cm}^3$	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 633.91 \text{ kN}$	$M_{y,Ed} = 4.86 \text{ kN}\cdot\text{m}$	
$N_{c,Rd} = 1187.47 \text{ kN}$	$M_{y,el,Rd} = 59.82 \text{ kN}\cdot\text{m}$	
$N_{b,Rd} = 1187.47 \text{ kN}$	$M_{y,c,Rd} = 59.82 \text{ kN}\cdot\text{m}$	$V_{z,Ed} = 1.77 \text{ kN}$
		$V_{z,c,Rd} = 457.06 \text{ kN}$
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.55 \text{ m}$	$\lambda_{m,y} = 0.10$
$L_{cr,y} = 0.55 \text{ m}$	$X_y = 1.00$
$\lambda_{m,y} = 7.79$	$k_{yy} = 1.01$



About z axis:

$L_z = 0.55 \text{ m}$	$\lambda_{m,z} = 0.17$
$L_{cr,z} = 0.55 \text{ m}$	$X_z = 1.00$
$\lambda_{m,z} = 13.37$	$k_{zy} = 1.01$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.08 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.62 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.61 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.00 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{m,y} &= 7.79 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 13.37 < \lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.62 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.62 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 161 Simple bar_161 POINT: 2

COORDINATE: $x = 0.50 L = 0.28 \text{ m}$

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00 \text{ MPa}$



SECTION PARAMETERS: TREC 200x100x6

$h=20.0 \text{ cm}$	$gM0=1.00$	$gM1=1.00$	
$b=10.0 \text{ cm}$	$A_y=11.15 \text{ cm}^2$	$A_z=22.30 \text{ cm}^2$	$A_x=33.45 \text{ cm}^2$
$tw=0.6 \text{ cm}$	$I_y=1685.00 \text{ cm}^4$	$I_z=572.30 \text{ cm}^4$	$I_x=1416.00 \text{ cm}^4$
$tf=0.6 \text{ cm}$	$W_{ely}=168.50 \text{ cm}^3$	$W_{elz}=114.46 \text{ cm}^3$	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 649.24 \text{ kN}$	$M_{y,Ed} = 5.18 \text{ kN}\cdot\text{m}$	
$N_{c,Rd} = 1187.47 \text{ kN}$	$M_{y,el,Rd} = 59.82 \text{ kN}\cdot\text{m}$	
$N_{b,Rd} = 1187.47 \text{ kN}$	$M_{y,c,Rd} = 59.82 \text{ kN}\cdot\text{m}$	$V_{z,Ed} = 2.03 \text{ kN}$
		$V_{z,c,Rd} = 457.06 \text{ kN}$
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.55 \text{ m}$	$\Lambda_{m,y} = 0.10$
$L_{cr,y} = 0.55 \text{ m}$	$X_y = 1.00$
$\Lambda_{m,y} = 7.78$	$k_{yy} = 1.01$



About z axis:

$L_z = 0.55 \text{ m}$	$\Lambda_{m,z} = 0.17$
$L_{cr,z} = 0.55 \text{ m}$	$X_z = 1.00$
$\Lambda_{m,z} = 13.35$	$k_{zy} = 1.01$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.09 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.63 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.63 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.00 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \Lambda_{m,y} &= 7.78 < \Lambda_{m,max} = 210.00 \quad \Lambda_{m,z} = 13.35 < \Lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.63 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.63 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 162 Simple bar_162 POINT: 2

COORDINATE: $x = 0.50 L = 0.28 \text{ m}$

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00 \text{ MPa}$



SECTION PARAMETERS: TREC 200x100x6

$h=20.0 \text{ cm}$	$gM0=1.00$	$gM1=1.00$	
$b=10.0 \text{ cm}$	$A_y=11.15 \text{ cm}^2$	$A_z=22.30 \text{ cm}^2$	$A_x=33.45 \text{ cm}^2$
$tw=0.6 \text{ cm}$	$I_y=1685.00 \text{ cm}^4$	$I_z=572.30 \text{ cm}^4$	$I_x=1416.00 \text{ cm}^4$
$tf=0.6 \text{ cm}$	$W_{ely}=168.50 \text{ cm}^3$	$W_{elz}=114.46 \text{ cm}^3$	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 662.23 \text{ kN}$	$M_{y,Ed} = 5.45 \text{ kN}\cdot\text{m}$	
$N_{c,Rd} = 1187.47 \text{ kN}$	$M_{y,el,Rd} = 59.82 \text{ kN}\cdot\text{m}$	
$N_{b,Rd} = 1187.47 \text{ kN}$	$M_{y,c,Rd} = 59.82 \text{ kN}\cdot\text{m}$	$V_{z,Ed} = 1.37 \text{ kN}$
		$V_{z,c,Rd} = 457.06 \text{ kN}$
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.55 \text{ m}$	$\lambda_{m,y} = 0.10$
$L_{cr,y} = 0.55 \text{ m}$	$X_y = 1.00$
$\lambda_{m,y} = 7.77$	$k_{yy} = 1.01$



About z axis:

$L_z = 0.55 \text{ m}$	$\lambda_{m,z} = 0.17$
$L_{cr,z} = 0.55 \text{ m}$	$X_z = 1.00$
$\lambda_{m,z} = 13.33$	$k_{zy} = 1.01$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.09 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.65 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.64 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.00 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{m,y} &= 7.77 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 13.33 < \lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.65 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.65 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 163 Simple bar_163 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /111/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

$h = 10.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 10.0$ cm

$A_y = 9.44$ cm²

$A_z = 9.44$ cm²

$A_x = 18.88$ cm²

$tw = 0.5$ cm

$I_y = 282.80$ cm⁴

$I_z = 282.80$ cm⁴

$I_x = 438.80$ cm⁴

$tf = 0.5$ cm

$W_{ply} = 67.75$ cm³

$W_{plz} = 67.75$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -100.66$ kN

$M_{y,Ed} = 0.72$ kN*m

$N_{t,Rd} = 666.09$ kN

$M_{y,pl,Rd} = 24.05$ kN*m

$M_{y,c,Rd} = 24.05$ kN*m

$MN_{y,Rd} = 24.05$ kN*m

$V_{z,Ed} = 0.95$ kN

$V_{z,c,Rd} = 193.48$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.15 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.03 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.03 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.00 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 164 Simple bar_164 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /120/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 11*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

$h = 10.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 10.0$ cm

$A_y = 9.44$ cm²

$A_z = 9.44$ cm²

$A_x = 18.88$ cm²

$tw = 0.5$ cm

$I_y = 282.80$ cm⁴

$I_z = 282.80$ cm⁴

$I_x = 438.80$ cm⁴

$tf = 0.5$ cm

$W_{ply} = 67.75$ cm³

$W_{plz} = 67.75$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -117.67$ kN

$M_{y,Ed} = 0.52$ kN*m

$N_{t,Rd} = 666.09$ kN

$M_{y,pl,Rd} = 24.05$ kN*m

$M_{y,c,Rd} = 24.05$ kN*m

$MN_{y,Rd} = 24.05$ kN*m

$V_{z,Ed} = 1.43$ kN

$V_{z,c,Rd} = 193.48$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.18 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.02 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.02 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 165 Simple bar_165 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /120/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 11*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

$h = 10.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 10.0$ cm

$A_y = 9.44$ cm²

$A_z = 9.44$ cm²

$A_x = 18.88$ cm²

$t_w = 0.5$ cm

$I_y = 282.80$ cm⁴

$I_z = 282.80$ cm⁴

$I_x = 438.80$ cm⁴

$t_f = 0.5$ cm

$W_{ply} = 67.75$ cm³

$W_{plz} = 67.75$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -132.62$ kN

$M_{y,Ed} = 0.71$ kN*m

$N_{t,Rd} = 666.09$ kN

$M_{y,pl,Rd} = 24.05$ kN*m

$M_{y,c,Rd} = 24.05$ kN*m

$MN_{y,Rd} = 24.05$ kN*m

$V_{z,Ed} = 1.01$ kN

$V_{z,c,Rd} = 193.48$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.20 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.03 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.03 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 166 Simple bar_166 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /120/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 11*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

$h = 10.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 10.0$ cm

$A_y = 9.44$ cm²

$A_z = 9.44$ cm²

$A_x = 18.88$ cm²

$tw = 0.5$ cm

$I_y = 282.80$ cm⁴

$I_z = 282.80$ cm⁴

$I_x = 438.80$ cm⁴

$tf = 0.5$ cm

$W_{ply} = 67.75$ cm³

$W_{plz} = 67.75$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -143.43$ kN

$M_{y,Ed} = 0.80$ kN*m

$N_{t,Rd} = 666.09$ kN

$M_{y,pl,Rd} = 24.05$ kN*m

$M_{y,c,Rd} = 24.05$ kN*m

$MN_{y,Rd} = 24.05$ kN*m

$V_{z,Ed} = 0.80$ kN

$V_{z,c,Rd} = 193.48$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.22 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.03 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.03 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.00 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 167 Simple bar_167 **POINT:** 2

COORDINATE: x = 0.50 L = 0.28 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 200x100x6

h=20.0 cm	gM0=1.00	gM1=1.00	
b=10.0 cm	Ay=11.15 cm ²	Az=22.30 cm ²	Ax=33.45 cm ²
tw=0.6 cm	Iy=1685.00 cm ⁴	Iz=572.30 cm ⁴	Ix=1416.00 cm ⁴
tf=0.6 cm	Wely=168.50 cm ³	Welz=114.46 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 690.49 kN	M _{y,Ed} = 6.30 kN*m	
N _{c,Rd} = 1187.47 kN	M _{y,el,Rd} = 59.82 kN*m	
N _{b,Rd} = 1187.47 kN	M _{y,c,Rd} = 59.82 kN*m	V _{z,Ed} = -1.51 kN
		V _{z,c,Rd} = 457.06 kN
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L _y = 0.55 m	Lam _y = 0.10
L _{cr,y} = 0.55 m	X _y = 1.00
Lam _y = 7.75	k _{yy} = 1.01



About z axis:

L _z = 0.55 m	Lam _z = 0.17
L _{cr,z} = 0.55 m	X _z = 1.00
Lam _z = 13.30	k _{zy} = 1.01

VERIFICATION FORMULAS:

Section strength check:

$$M_{y,Ed}/M_{y,c,Rd} = 0.11 < 1.00 \quad (6.2.5.(1))$$

$$N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} = 0.69 < 1.00 \quad (6.2.9.3.(1))$$

$$\sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) = 0.68 < 1.00 \quad (6.2.1.(5))$$

$$V_{z,Ed}/V_{z,c,Rd} = 0.00 < 1.00 \quad (6.2.6.(1))$$

Global stability check of member:

$$\lambda_{b,y} = 7.75 < \lambda_{b,max} = 210.00 \quad \lambda_{b,z} = 13.30 < \lambda_{b,max} = 210.00 \quad \text{STABLE}$$

$$N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.69 < 1.00 \quad (6.3.3.(4))$$

$$N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.69 < 1.00 \quad (6.3.3.(4))$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 168 Simple bar_168 POINT: 2

COORDINATE: $x = 0.50 L = 0.28 \text{ m}$

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00 \text{ MPa}$



SECTION PARAMETERS: TREC 200x100x6

$h=20.0 \text{ cm}$	$gM0=1.00$	$gM1=1.00$	
$b=10.0 \text{ cm}$	$A_y=11.15 \text{ cm}^2$	$A_z=22.30 \text{ cm}^2$	$A_x=33.45 \text{ cm}^2$
$tw=0.6 \text{ cm}$	$I_y=1685.00 \text{ cm}^4$	$I_z=572.30 \text{ cm}^4$	$I_x=1416.00 \text{ cm}^4$
$tf=0.6 \text{ cm}$	$W_{ely}=168.50 \text{ cm}^3$	$W_{elz}=114.46 \text{ cm}^3$	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 687.14 \text{ kN}$	$M_{y,Ed} = 6.05 \text{ kN}\cdot\text{m}$	
$N_{c,Rd} = 1187.47 \text{ kN}$	$M_{y,el,Rd} = 59.82 \text{ kN}\cdot\text{m}$	
$N_{b,Rd} = 1187.47 \text{ kN}$	$M_{y,c,Rd} = 59.82 \text{ kN}\cdot\text{m}$	$V_{z,Ed} = -0.87 \text{ kN}$
		$V_{z,c,Rd} = 457.06 \text{ kN}$
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.55 \text{ m}$	$\lambda_{m,y} = 0.10$
$L_{cr,y} = 0.55 \text{ m}$	$X_y = 1.00$
$\lambda_{m,y} = 7.75$	$k_{yy} = 1.01$



About z axis:

$L_z = 0.55 \text{ m}$	$\lambda_{m,z} = 0.17$
$L_{cr,z} = 0.55 \text{ m}$	$X_z = 1.00$
$\lambda_{m,z} = 13.30$	$k_{zy} = 1.01$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.10 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.68 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.67 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.00 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{m,y} &= 7.75 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 13.30 < \lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.68 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.68 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 169 Simple bar_169 **POINT:** 2

COORDINATE: x = 0.50 L = 0.28 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 200x100x6

h=20.0 cm	gM0=1.00	gM1=1.00	
b=10.0 cm	Ay=11.15 cm ²	Az=22.30 cm ²	Ax=33.45 cm ²
tw=0.6 cm	Iy=1685.00 cm ⁴	Iz=572.30 cm ⁴	Ix=1416.00 cm ⁴
tf=0.6 cm	Wely=168.50 cm ³	Welz=114.46 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 681.38 kN	My _{Ed} = 5.94 kN*m	
N _{c,Rd} = 1187.47 kN	My _{el,Rd} = 59.82 kN*m	
N _{b,Rd} = 1187.47 kN	My _{c,Rd} = 59.82 kN*m	Vz _{Ed} = -1.25 kN
		Vz _{c,Rd} = 457.06 kN
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

Ly = 0.55 m	Lam _y = 0.10
Lcr,y = 0.55 m	Xy = 1.00
Lamy = 7.76	kyy = 1.01



About z axis:

Lz = 0.55 m	Lam _z = 0.17
Lcr,z = 0.55 m	Xz = 1.00
Lamz = 13.31	kzy = 1.01

VERIFICATION FORMULAS:

Section strength check:

$$My_{Ed}/My_{c,Rd} = 0.10 < 1.00 \quad (6.2.5.(1))$$

$$N_{Ed}/N_{c,Rd} + My_{Ed}/My_{c,Rd} = 0.67 < 1.00 \quad (6.2.9.3.(1))$$

$$\sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) = 0.67 < 1.00 \quad (6.2.1.(5))$$

$$Vz_{Ed}/Vz_{c,Rd} = 0.00 < 1.00 \quad (6.2.6.(1))$$

Global stability check of member:

$$\lambda_{y} = 7.76 < \lambda_{y,max} = 210.00 \quad \lambda_{z} = 13.31 < \lambda_{z,max} = 210.00 \quad \text{STABLE}$$

$$N_{Ed}/(Xy \cdot N_{Rk}/gM1) + kyy \cdot My_{Ed}/(XLT \cdot My_{Rk}/gM1) = 0.67 < 1.00 \quad (6.3.3.(4))$$

$$N_{Ed}/(Xz \cdot N_{Rk}/gM1) + kzy \cdot My_{Ed}/(XLT \cdot My_{Rk}/gM1) = 0.67 < 1.00 \quad (6.3.3.(4))$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 170 Simple bar_170 POINT: 2

COORDINATE: $x = 0.50 L = 0.28 \text{ m}$

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00 \text{ MPa}$



SECTION PARAMETERS: TREC 200x100x6

$h=20.0 \text{ cm}$	$gM0=1.00$	$gM1=1.00$	
$b=10.0 \text{ cm}$	$A_y=11.15 \text{ cm}^2$	$A_z=22.30 \text{ cm}^2$	$A_x=33.45 \text{ cm}^2$
$tw=0.6 \text{ cm}$	$I_y=1685.00 \text{ cm}^4$	$I_z=572.30 \text{ cm}^4$	$I_x=1416.00 \text{ cm}^4$
$tf=0.6 \text{ cm}$	$W_{ely}=168.50 \text{ cm}^3$	$W_{elz}=114.46 \text{ cm}^3$	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 673.02 \text{ kN}$	$M_{y,Ed} = 5.68 \text{ kN*m}$	
$N_{c,Rd} = 1187.47 \text{ kN}$	$M_{y,el,Rd} = 59.82 \text{ kN*m}$	
$N_{b,Rd} = 1187.47 \text{ kN}$	$M_{y,c,Rd} = 59.82 \text{ kN*m}$	$V_{z,Ed} = -1.70 \text{ kN}$
		$V_{z,c,Rd} = 457.06 \text{ kN}$
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.55 \text{ m}$	$\lambda_{m,y} = 0.10$
$L_{cr,y} = 0.55 \text{ m}$	$X_y = 1.00$
$\lambda_{m,y} = 7.76$	$k_{yy} = 1.01$



About z axis:

$L_z = 0.55 \text{ m}$	$\lambda_{m,z} = 0.17$
$L_{cr,z} = 0.55 \text{ m}$	$X_z = 1.00$
$\lambda_{m,z} = 13.32$	$k_{zy} = 1.01$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.09 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.66 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.66 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.00 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{m,y} &= 7.76 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 13.32 < \lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.66 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.66 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 175 Simple bar_175 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /111/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

$h = 10.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 10.0$ cm

$A_y = 9.44$ cm²

$A_z = 9.44$ cm²

$A_x = 18.88$ cm²

$tw = 0.5$ cm

$I_y = 282.80$ cm⁴

$I_z = 282.80$ cm⁴

$I_x = 438.80$ cm⁴

$tf = 0.5$ cm

$W_{ply} = 67.75$ cm³

$W_{plz} = 67.75$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -82.47$ kN

$M_{y,Ed} = 0.66$ kN*m

$N_{t,Rd} = 666.09$ kN

$M_{y,pl,Rd} = 24.05$ kN*m

$M_{y,c,Rd} = 24.05$ kN*m

$MN_{y,Rd} = 24.05$ kN*m

$V_{z,Ed} = 1.36$ kN

$V_{z,c,Rd} = 193.48$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.12 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.03 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.03 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 180 Simple bar_180 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 200x100x6

$h=20.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=10.0$ cm	$A_y=11.15$ cm ²	$A_z=22.30$ cm ²	$A_x=33.45$ cm ²
$t_w=0.6$ cm	$I_y=1685.00$ cm ⁴	$I_z=572.30$ cm ⁴	$I_x=1416.00$ cm ⁴
$t_f=0.6$ cm	$W_{ely}=168.50$ cm ³	$W_{elz}=114.46$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 687.81$ kN	$M_{y,Ed} = 7.98$ kN*m	
$N_{c,Rd} = 1187.47$ kN	$M_{y,el,Rd} = 59.82$ kN*m	
$N_{b,Rd} = 1187.47$ kN	$M_{y,c,Rd} = 59.82$ kN*m	$V_{z,Ed} = 1.36$ kN
		$V_{z,c,Rd} = 457.06$ kN
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.55$ m	$\lambda_{m,y} = 0.10$
$L_{cr,y} = 0.55$ m	$X_y = 1.00$
$\lambda_{m,y} = 7.75$	$k_{yy} = 1.01$



About z axis:

$L_z = 0.55$ m	$\lambda_{m,z} = 0.17$
$L_{cr,z} = 0.55$ m	$X_z = 1.00$
$\lambda_{m,z} = 13.30$	$k_{zy} = 1.01$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.13 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.71 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.70 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.00 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{m,y} &= 7.75 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 13.30 < \lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.71 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.71 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 181 Simple bar_1

POINT: 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: HEA 160

$h=15.2$ cm	$gM0=1.00$	$gM1=1.00$	
$b=16.0$ cm	$A_y=32.53$ cm ²	$A_z=13.21$ cm ²	$A_x=38.77$ cm ²
$t_w=0.6$ cm	$I_y=1672.98$ cm ⁴	$I_z=615.57$ cm ⁴	$I_x=10.90$ cm ⁴
$t_f=0.9$ cm	$W_{ply}=245.17$ cm ³	$W_{plz}=117.63$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 95.00$ kN	$M_{y,Ed} = -23.27$ kN*m	
$N_{c,Rd} = 1376.38$ kN	$M_{y,pl,Rd} = 87.03$ kN*m	
$N_{b,Rd} = 1195.51$ kN	$M_{y,c,Rd} = 87.03$ kN*m	$V_{z,Ed} = 21.50$ kN
	$M_{N,y,Rd} = 87.03$ kN*m	$V_{z,c,Rd} = 270.78$ kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 1.38$ m	$\Lambda_{m,y} = 0.28$
$L_{cr,y} = 1.38$ m	$X_y = 0.97$
$\Lambda_{m,y} = 21.02$	$k_{yy} = 0.73$



About z axis:

$L_z = 1.38$ m	$\Lambda_{m,z} = 0.45$
$L_{cr,z} = 1.38$ m	$X_z = 0.87$
$\Lambda_{m,z} = 34.66$	$k_{zy} = 0.38$

VERIFICATION FORMULAS:

Section strength check:

$$N_{Ed}/N_{c,Rd} = 0.07 < 1.00 \quad (6.2.4.(1))$$

$$M_{y,Ed}/M_{y,c,Rd} = 0.27 < 1.00 \quad (6.2.5.(1))$$

$$V_{z,Ed}/V_{z,c,Rd} = 0.08 < 1.00 \quad (6.2.6.(1))$$

Global stability check of member:

$$\Lambda_{m,y} = 21.02 < \Lambda_{m,max} = 210.00 \quad \Lambda_{m,z} = 34.66 < \Lambda_{m,max} = 210.00 \quad \text{STABLE}$$

$$N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.27 < 1.00 \quad (6.3.3.(4))$$

$$N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.18 < 1.00 \quad (6.3.3.(4))$$

LIMIT DISPLACEMENTS



Deflections Not analyzed



Displacements

$$v_x = 0.7 \text{ cm} < v_{x,max} = L/150.00 = 0.9 \text{ cm} \quad \text{Verified}$$

$$\text{Governing Load Case: } 15 \text{ SLS } /59/ \quad 1*1.00 + 2*1.00 + 3*1.00 + 5*0.70 + 6*0.60 + 9*1.00$$

$$v_y = 0.0 \text{ cm} < v_{y,max} = L/150.00 = 0.9 \text{ cm} \quad \text{Verified}$$

$$\text{Governing Load Case: } 15 \text{ SLS } /57/ \quad 1*1.00 + 2*1.00 + 3*1.00 + 4*1.00 + 5*0.70 + 6*0.60$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 183 Simple bar_1

POINT: 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: HEA 160

h=15.2 cm	gM0=1.00	gM1=1.00	
b=16.0 cm	Ay=32.53 cm ²	Az=13.21 cm ²	Ax=38.77 cm ²
tw=0.6 cm	Iy=1672.98 cm ⁴	Iz=615.57 cm ⁴	Ix=10.90 cm ⁴
tf=0.9 cm	Wply=245.17 cm ³	Wplz=117.63 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 236.23 kN	M _{y,Ed} = -20.06 kN*m	
N _{c,Rd} = 1376.38 kN	M _{y,pl,Rd} = 87.03 kN*m	
N _{b,Rd} = 1123.89 kN	M _{y,c,Rd} = 87.03 kN*m	V _{z,Ed} = 14.43 kN
	MN _{y,Rd} = 82.74 kN*m	V _{z,c,Rd} = 270.78 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L _y = 1.66 m	Lam _y = 0.33
L _{cr,y} = 1.66 m	X _y = 0.95
Lam _y = 25.34	k _{yy} = 0.74



About z axis:

L _z = 1.66 m	Lam _z = 0.55
L _{cr,z} = 1.66 m	X _z = 0.82
Lam _z = 41.77	k _{zy} = 0.38

VERIFICATION FORMULAS:

Section strength check:

N _{Ed} /N _{c,Rd} = 0.17 < 1.00 (6.2.4.(1))
M _{y,Ed} /M _{y,c,Rd} = 0.23 < 1.00 (6.2.5.(1))
M _{y,Ed} /MN _{y,Rd} = 0.24 < 1.00 (6.2.9.1.(2))
V _{z,Ed} /V _{z,c,Rd} = 0.05 < 1.00 (6.2.6.(1))

Global stability check of member:

Lam _{da,y} = 25.34 < Lam _{da,max} = 210.00	Lam _{da,z} = 41.77 < Lam _{da,max} = 210.00	STABLE
N _{Ed} /(X _y *N _{Rk} /gM1) + k _{yy} *M _{y,Ed} /(XLT*M _{y,Rk} /gM1) = 0.35 < 1.00 (6.3.3.(4))		
N _{Ed} /(X _z *N _{Rk} /gM1) + k _{zy} *M _{y,Ed} /(XLT*M _{y,Rk} /gM1) = 0.30 < 1.00 (6.3.3.(4))		

LIMIT DISPLACEMENTS



Deflections Not analyzed



Displacements

v _x = 0.8 cm < v _{x,max} = L/150.00 = 1.1 cm	Verified
Governing Load Case: 15 SLS /59/ 1*1.00 + 2*1.00 + 3*1.00 + 5*0.70 + 6*0.60 + 9*1.00	
v _y = 0.0 cm < v _{y,max} = L/150.00 = 1.1 cm	Verified
Governing Load Case: 15 SLS /57/ 1*1.00 + 2*1.00 + 3*1.00 + 4*1.00 + 5*0.70 + 6*0.60	

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 185 Simple bar_185

POINT: 3

COORDINATE: $x = 1.00$ $L = 0.59$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

$h = 10.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 10.0$ cm

$A_y = 9.44$ cm²

$A_z = 9.44$ cm²

$A_x = 18.88$ cm²

$tw = 0.5$ cm

$I_y = 282.80$ cm⁴

$I_z = 282.80$ cm⁴

$I_x = 438.80$ cm⁴

$tf = 0.5$ cm

$W_{ply} = 67.75$ cm³

$W_{plz} = 67.75$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -40.79$ kN

$M_{y,Ed} = -1.48$ kN*m

$N_{t,Rd} = 666.09$ kN

$M_{y,pl,Rd} = 24.05$ kN*m

$M_{y,c,Rd} = 24.05$ kN*m

$MN_{y,Rd} = 24.05$ kN*m

$V_{z,Ed} = -3.37$ kN

$V_{z,c,Rd} = 193.48$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.06 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.06 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 186 Simple bar_186 **POINT:** 3

COORDINATE: x = 1.00 L = 0.58 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

h=10.0 cm	gM0=1.00	gM1=1.00	
b=10.0 cm	Ay=9.44 cm ²	Az=9.44 cm ²	Ax=18.88 cm ²
tw=0.5 cm	Iy=282.80 cm ⁴	Iz=282.80 cm ⁴	Ix=438.80 cm ⁴
tf=0.5 cm	Wply=67.75 cm ³	Wplz=67.75 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 572.29 kN	My _{Ed} = -1.08 kN*m	
N _{c,Rd} = 670.24 kN	My _{pl,Rd} = 24.05 kN*m	
N _{b,Rd} = 670.24 kN	My _{c,Rd} = 24.05 kN*m	Vz _{Ed} = -1.20 kN
	MN _{y,Rd} = 4.60 kN*m	Vz _{c,Rd} = 193.48 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

Ly = 0.58 m	Lam _y = 0.20
Lcr,y = 0.58 m	Xy = 1.00
Lamy = 14.94	kyy = 0.81



About z axis:

Lz = 0.58 m	Lam _z = 0.20
Lcr,z = 0.58 m	Xz = 1.00
Lamz = 14.94	kzy = 0.48

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.85 < 1.00 \quad (6.2.4.(1)) \\ My_{Ed}/My_{c,Rd} &= 0.04 < 1.00 \quad (6.2.5.(1)) \\ My_{Ed}/MN_{y,Rd} &= 0.23 < 1.00 \quad (6.2.9.1.(2)) \\ Vz_{Ed}/Vz_{c,Rd} &= 0.01 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \text{Lambda}_{y} &= 14.94 < \text{Lambda}_{\max} = 210.00 \quad \text{Lambda}_{z} = 14.94 < \text{Lambda}_{\max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(Xy \cdot N_{Rk}/gM1) + kyy \cdot My_{Ed}/(XLT \cdot My_{Rk}/gM1) &= 0.89 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(Xz \cdot N_{Rk}/gM1) + kzy \cdot My_{Ed}/(XLT \cdot My_{Rk}/gM1) &= 0.88 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 189 Simple bar_189 **POINT:** 3

COORDINATE: x = 1.00 L = 0.58 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

h=10.0 cm

gM0=1.00

gM1=1.00

b=10.0 cm

Ay=9.44 cm²

Az=9.44 cm²

Ax=18.88 cm²

tw=0.5 cm

Iy=282.80 cm⁴

Iz=282.80 cm⁴

Ix=438.80 cm⁴

tf=0.5 cm

Wply=67.75 cm³

Wplz=67.75 cm³

INTERNAL FORCES AND CAPACITIES:

N_{Ed} = 0.16 kN

M_{y,Ed} = 0.40 kN*m

N_{c,Rd} = 670.24 kN

M_{y,pl,Rd} = 24.05 kN*m

N_{b,Rd} = 670.24 kN

M_{y,c,Rd} = 24.05 kN*m

MN_{y,Rd} = 24.05 kN*m

V_{z,Ed} = 0.45 kN

V_{z,c,Rd} = 193.48 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L_y = 0.58 m

Lam_y = 0.20

L_{cr,y} = 0.58 m

X_y = 1.00

Lam_y = 15.10

k_{yy} = 1.00



About z axis:

L_z = 0.58 m

Lam_z = 0.20

L_{cr,z} = 0.58 m

X_z = 1.00

Lam_z = 15.10

k_{zy} = 0.60

VERIFICATION FORMULAS:

Section strength check:

N_{Ed}/N_{c,Rd} = 0.00 < 1.00 (6.2.4.(1))

M_{y,Ed}/M_{y,c,Rd} = 0.02 < 1.00 (6.2.5.(1))

V_{z,Ed}/V_{z,c,Rd} = 0.00 < 1.00 (6.2.6.(1))

Global stability check of member:

Lam_{bda,y} = 15.10 < Lam_{bda,max} = 210.00 Lam_{bda,z} = 15.10 < Lam_{bda,max} = 210.00 STABLE

N_{Ed}/(X_y*N_{Rk}/gM1) + k_{yy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.02 < 1.00 (6.3.3.(4))

N_{Ed}/(X_z*N_{Rk}/gM1) + k_{zy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.01 < 1.00 (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 190 Simple bar_190 **POINT:** 3

COORDINATE: x = 1.00 L = 0.58 m

LOADS:

Governing Load Case: 12 ULS /112/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 200x100x6

h=20.0 cm

gM0=1.00

gM1=1.00

b=10.0 cm

Ay=11.15 cm²

Az=22.30 cm²

Ax=33.45 cm²

tw=0.6 cm

Iy=1685.00 cm⁴

Iz=572.30 cm⁴

Ix=1416.00 cm⁴

tf=0.6 cm

Wply=222.43 cm³

Wplz=136.03 cm³

INTERNAL FORCES AND CAPACITIES:

N_{Ed} = -6.76 kN

M_{y,Ed} = -0.55 kN*m

N_{t,Rd} = 1180.12 kN

M_{y,pl,Rd} = 78.96 kN*m

M_{y,c,Rd} = 78.96 kN*m

MN_{y,Rd} = 78.96 kN*m

V_{z,Ed} = -6.56 kN

V_{z,c,Rd} = 457.06 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

N_{Ed}/N_{t,Rd} = 0.01 < 1.00 (6.2.3.(1))

M_{y,Ed}/M_{y,c,Rd} = 0.01 < 1.00 (6.2.5.(1))

V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00 (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 191 Simple bar_191 **POINT:** 3

COORDINATE: x = 1.00 L = 0.80 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm

gM0=1.00

gM1=1.00

b=6.0 cm

Ay=4.44 cm²

Az=4.44 cm²

Ax=8.88 cm²

tw=0.4 cm

Iy=46.14 cm⁴

Iz=46.14 cm⁴

Ix=72.41 cm⁴

tf=0.4 cm

Wply=18.85 cm³

Wplz=18.85 cm³

INTERNAL FORCES AND CAPACITIES:

N_{Ed} = -1.06 kN

M_{y,Ed} = 0.01 kN*m

N_{t,Rd} = 313.39 kN

M_{y,pl,Rd} = 6.69 kN*m

M_{y,c,Rd} = 6.69 kN*m

MN_{y,Rd} = 6.69 kN*m

V_{z,Ed} = 0.00 kN

V_{z,c,Rd} = 91.03 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

N_{Ed}/N_{t,Rd} = 0.00 < 1.00 (6.2.3.(1))

M_{y,Ed}/M_{y,c,Rd} = 0.00 < 1.00 (6.2.5.(1))

V_{z,Ed}/V_{z,c,Rd} = 0.00 < 1.00 (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 192 Simple bar_192 **POINT:** 3

COORDINATE: x = 1.00 L = 0.82 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm

gM0=1.00

gM1=1.00

b=6.0 cm

Ay=4.44 cm²

Az=4.44 cm²

Ax=8.88 cm²

tw=0.4 cm

Iy=46.14 cm⁴

Iz=46.14 cm⁴

Ix=72.41 cm⁴

tf=0.4 cm

Wply=18.85 cm³

Wplz=18.85 cm³

INTERNAL FORCES AND CAPACITIES:

N_{Ed} = 6.15 kN

M_{y,Ed} = 0.09 kN*m

N_{c,Rd} = 315.35 kN

M_{y,pl,Rd} = 6.69 kN*m

N_{b,Rd} = 294.37 kN

M_{y,c,Rd} = 6.69 kN*m

M_{N,y,Rd} = 6.69 kN*m

V_{z,Ed} = 0.15 kN

V_{z,c,Rd} = 91.03 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L_y = 0.82 m

Lam_y = 0.47

L_{cr,y} = 0.82 m

X_y = 0.93

Lam_y = 35.88

k_{yy} = 1.00



About z axis:

L_z = 0.82 m

Lam_z = 0.47

L_{cr,z} = 0.82 m

X_z = 0.93

Lam_z = 35.88

k_{zy} = 0.60

VERIFICATION FORMULAS:

Section strength check:

N_{Ed}/N_{c,Rd} = 0.02 < 1.00 (6.2.4.(1))

M_{y,Ed}/M_{y,c,Rd} = 0.01 < 1.00 (6.2.5.(1))

V_{z,Ed}/V_{z,c,Rd} = 0.00 < 1.00 (6.2.6.(1))

Global stability check of member:

Lam_{bda,y} = 35.88 < Lam_{bda,max} = 210.00 Lam_{bda,z} = 35.88 < Lam_{bda,max} = 210.00 STABLE

N_{Ed}/(X_y*N_{Rk}/gM1) + k_{yy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.03 < 1.00 (6.3.3.(4))

N_{Ed}/(X_z*N_{Rk}/gM1) + k_{zy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.03 < 1.00 (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 193 Simple bar_193 **POINT:** 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

h=10.0 cm	gM0=1.00	gM1=1.00	
b=10.0 cm	Ay=9.44 cm ²	Az=9.44 cm ²	Ax=18.88 cm ²
tw=0.5 cm	Iy=282.80 cm ⁴	Iz=282.80 cm ⁴	Ix=438.80 cm ⁴
tf=0.5 cm	Wply=67.75 cm ³	Wplz=67.75 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 81.80 kN	M _{y,Ed} = 1.54 kN*m	
N _{c,Rd} = 670.24 kN	M _{y,pl,Rd} = 24.05 kN*m	
N _{b,Rd} = 660.23 kN	M _{y,c,Rd} = 24.05 kN*m	V _{z,Ed} = -3.47 kN
	MN _{y,Rd} = 24.05 kN*m	V _{z,c,Rd} = 193.48 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L _y = 0.79 m	Lam _y = 0.27
L _{cr,y} = 0.79 m	X _y = 0.99
Lam _y = 20.41	k _{yy} = 0.97



About z axis:

L _z = 0.79 m	Lam _z = 0.27
L _{cr,z} = 0.79 m	X _z = 0.99
Lam _z = 20.41	k _{zy} = 0.58

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.12 < 1.00 \quad (6.2.4.(1)) \\ M_{y,Ed}/M_{y,c,Rd} &= 0.06 < 1.00 \quad (6.2.5.(1)) \\ M_{y,Ed}/M_{N,y,Rd} &= 0.06 < 1.00 \quad (6.2.9.1.(2)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.02 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{b,y} &= 20.41 < \lambda_{b,max} = 210.00 \quad \lambda_{b,z} = 20.41 < \lambda_{b,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.19 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.16 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 194 Simple bar_194 **POINT:** 3

COORDINATE: x = 1.00 L = 0.78 m

LOADS:

Governing Load Case: 12 ULS /112/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm

gM0=1.00

gM1=1.00

b=6.0 cm

Ay=4.44 cm²

Az=4.44 cm²

Ax=8.88 cm²

tw=0.4 cm

Iy=46.14 cm⁴

Iz=46.14 cm⁴

Ix=72.41 cm⁴

tf=0.4 cm

Wply=18.85 cm³

Wplz=18.85 cm³

INTERNAL FORCES AND CAPACITIES:

N_{Ed} = 68.48 kN

M_{y,Ed} = -0.90 kN*m

N_{c,Rd} = 315.35 kN

M_{y,pl,Rd} = 6.69 kN*m

N_{b,Rd} = 296.54 kN

M_{y,c,Rd} = 6.69 kN*m

MN_{y,Rd} = 6.69 kN*m

V_{z,Ed} = -2.28 kN

V_{z,c,Rd} = 91.03 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L_y = 0.78 m

Lam_y = 0.45

L_{cr,y} = 0.78 m

X_y = 0.94

Lam_y = 34.05

k_{yy} = 0.99



About z axis:

L_z = 0.78 m

Lam_z = 0.45

L_{cr,z} = 0.78 m

X_z = 0.94

Lam_z = 34.05

k_{zy} = 0.60

VERIFICATION FORMULAS:

Section strength check:

N_{Ed}/N_{c,Rd} = 0.22 < 1.00 (6.2.4.(1))

M_{y,Ed}/M_{y,c,Rd} = 0.13 < 1.00 (6.2.5.(1))

M_{y,Ed}/MN_{y,Rd} = 0.13 < 1.00 (6.2.9.1.(2))

V_{z,Ed}/V_{z,c,Rd} = 0.03 < 1.00 (6.2.6.(1))

Global stability check of member:

Lam_{bda,y} = 34.05 < Lam_{bda,max} = 210.00 Lam_{bda,z} = 34.05 < Lam_{bda,max} = 210.00 STABLE

N_{Ed}/(X_y*N_{Rk}/gM1) + k_{yy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.36 < 1.00 (6.3.3.(4))

N_{Ed}/(X_z*N_{Rk}/gM1) + k_{zy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.31 < 1.00 (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 195 Simple bar_195 **POINT:** 3

COORDINATE: x = 1.00 L = 0.76 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm

gM0=1.00

gM1=1.00

b=6.0 cm

Ay=4.44 cm²

Az=4.44 cm²

Ax=8.88 cm²

tw=0.4 cm

Iy=46.14 cm⁴

Iz=46.14 cm⁴

Ix=72.41 cm⁴

tf=0.4 cm

Wply=18.85 cm³

Wplz=18.85 cm³

INTERNAL FORCES AND CAPACITIES:

N_{Ed} = 47.97 kN

M_{y,Ed} = -0.79 kN*m

N_{c,Rd} = 315.35 kN

M_{y,pl,Rd} = 6.69 kN*m

N_{b,Rd} = 297.15 kN

M_{y,c,Rd} = 6.69 kN*m

MN_{y,Rd} = 6.69 kN*m

V_{z,Ed} = -2.06 kN

V_{z,c,Rd} = 91.03 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L_y = 0.76 m

Lam_y = 0.44

L_{cr,y} = 0.76 m

X_y = 0.94

Lam_y = 33.52

k_{yy} = 0.99



About z axis:

L_z = 0.76 m

Lam_z = 0.44

L_{cr,z} = 0.76 m

X_z = 0.94

Lam_z = 33.52

k_{zy} = 0.60

VERIFICATION FORMULAS:

Section strength check:

N_{Ed}/N_{c,Rd} = 0.15 < 1.00 (6.2.4.(1))

M_{y,Ed}/M_{y,c,Rd} = 0.12 < 1.00 (6.2.5.(1))

M_{y,Ed}/MN_{y,Rd} = 0.12 < 1.00 (6.2.9.1.(2))

V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00 (6.2.6.(1))

Global stability check of member:

Lam_{bda,y} = 33.52 < Lam_{bda,max} = 210.00 Lam_{bda,z} = 33.52 < Lam_{bda,max} = 210.00 STABLE

N_{Ed}/(X_y*N_{Rk}/gM1) + k_{yy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.28 < 1.00 (6.3.3.(4))

N_{Ed}/(X_z*N_{Rk}/gM1) + k_{zy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.23 < 1.00 (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 196 Simple bar_196 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h=6.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=6.0$ cm	$A_y=4.44$ cm ²	$A_z=4.44$ cm ²	$A_x=8.88$ cm ²
$t_w=0.4$ cm	$I_y=46.14$ cm ⁴	$I_z=46.14$ cm ⁴	$I_x=72.41$ cm ⁴
$t_f=0.4$ cm	$W_{ply}=18.85$ cm ³	$W_{plz}=18.85$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 28.37$ kN	$M_{y,Ed} = 0.59$ kN*m	
$N_{c,Rd} = 315.35$ kN	$M_{y,pl,Rd} = 6.69$ kN*m	
$N_{b,Rd} = 297.55$ kN	$M_{y,c,Rd} = 6.69$ kN*m	$V_{z,Ed} = -1.54$ kN
	$M_{N,y,Rd} = 6.69$ kN*m	$V_{z,c,Rd} = 91.03$ kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.76$ m	$\Lambda_{m,y} = 0.43$
$L_{cr,y} = 0.76$ m	$X_y = 0.94$
$\Lambda_{m,y} = 33.17$	$k_{yy} = 0.99$



About z axis:

$L_z = 0.76$ m	$\Lambda_{m,z} = 0.43$
$L_{cr,z} = 0.76$ m	$X_z = 0.94$
$\Lambda_{m,z} = 33.17$	$k_{zy} = 0.60$

VERIFICATION FORMULAS:

Section strength check:

$$N_{Ed}/N_{c,Rd} = 0.09 < 1.00 \quad (6.2.4.(1))$$

$$M_{y,Ed}/M_{y,c,Rd} = 0.09 < 1.00 \quad (6.2.5.(1))$$

$$V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00 \quad (6.2.6.(1))$$

Global stability check of member:

$$\Lambda_{m,y} = 33.17 < \Lambda_{m,max} = 210.00 \quad \Lambda_{m,z} = 33.17 < \Lambda_{m,max} = 210.00 \quad \text{STABLE}$$

$$N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.18 < 1.00 \quad (6.3.3.(4))$$

$$N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.15 < 1.00 \quad (6.3.3.(4))$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 197 Simple bar_197 **POINT:** 3

COORDINATE: x = 1.00 L = 0.75 m

LOADS:

Governing Load Case: 12 ULS /120/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 11*0.90 + 8*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm

gM0=1.00

gM1=1.00

b=6.0 cm

Ay=4.44 cm²

Az=4.44 cm²

Ax=8.88 cm²

tw=0.4 cm

Iy=46.14 cm⁴

Iz=46.14 cm⁴

Ix=72.41 cm⁴

tf=0.4 cm

Wply=18.85 cm³

Wplz=18.85 cm³

INTERNAL FORCES AND CAPACITIES:

N_{Ed} = 29.76 kN

M_{y,Ed} = -0.60 kN*m

N_{c,Rd} = 315.35 kN

M_{y,pl,Rd} = 6.69 kN*m

N_{b,Rd} = 297.75 kN

M_{y,c,Rd} = 6.69 kN*m

V_{z,Ed} = -1.59 kN

M_{N,y,Rd} = 6.69 kN*m

V_{z,c,Rd} = 91.03 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L_y = 0.75 m

Lam_y = 0.43

L_{cr,y} = 0.75 m

X_y = 0.94

Lam_y = 33.00

k_{yy} = 0.99



About z axis:

L_z = 0.75 m

Lam_z = 0.43

L_{cr,z} = 0.75 m

X_z = 0.94

Lam_z = 33.00

k_{zy} = 0.60

VERIFICATION FORMULAS:

Section strength check:

N_{Ed}/N_{c,Rd} = 0.09 < 1.00 (6.2.4.(1))

M_{y,Ed}/M_{y,c,Rd} = 0.09 < 1.00 (6.2.5.(1))

V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00 (6.2.6.(1))

Global stability check of member:

Lam_{bda,y} = 33.00 < Lam_{bda,max} = 210.00 Lam_{bda,z} = 33.00 < Lam_{bda,max} = 210.00 STABLE

N_{Ed}/(X_y*N_{Rk}/gM1) + k_{yy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.19 < 1.00 (6.3.3.(4))

N_{Ed}/(X_z*N_{Rk}/gM1) + k_{zy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.15 < 1.00 (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 198 Simple bar_198 **POINT:** 3

COORDINATE: x = 1.00 L = 0.79 m

LOADS:

Governing Load Case: 12 ULS /112/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

h=10.0 cm

gM0=1.00

gM1=1.00

b=10.0 cm

Ay=9.44 cm²

Az=9.44 cm²

Ax=18.88 cm²

tw=0.5 cm

Iy=282.80 cm⁴

Iz=282.80 cm⁴

Ix=438.80 cm⁴

tf=0.5 cm

Wply=67.75 cm³

Wplz=67.75 cm³

INTERNAL FORCES AND CAPACITIES:

N_{Ed} = 107.64 kN

M_{y,Ed} = -4.68 kN*m

N_{c,Rd} = 670.24 kN

M_{y,pl,Rd} = 24.05 kN*m

N_{b,Rd} = 660.23 kN

M_{y,c,Rd} = 24.05 kN*m

V_{z,Ed} = -11.53 kN

M_{N,y,Rd} = 24.05 kN*m

V_{z,c,Rd} = 193.48 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L_y = 0.79 m

Lam_y = 0.27

L_{cr,y} = 0.79 m

X_y = 0.99

Lam_y = 20.41

k_{yy} = 0.96



About z axis:

L_z = 0.79 m

Lam_z = 0.27

L_{cr,z} = 0.79 m

X_z = 0.99

Lam_z = 20.41

k_{zy} = 0.58

VERIFICATION FORMULAS:

Section strength check:

N_{Ed}/N_{c,Rd} = 0.16 < 1.00 (6.2.4.(1))

M_{y,Ed}/M_{y,c,Rd} = 0.19 < 1.00 (6.2.5.(1))

M_{y,Ed}/M_{N,y,Rd} = 0.19 < 1.00 (6.2.9.1.(2))

V_{z,Ed}/V_{z,c,Rd} = 0.06 < 1.00 (6.2.6.(1))

Global stability check of member:

Lam_{bda,y} = 20.41 < Lam_{bda,max} = 210.00 Lam_{bda,z} = 20.41 < Lam_{bda,max} = 210.00 STABLE

N_{Ed}/(X_y*N_{Rk}/gM1) + k_{yy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.35 < 1.00 (6.3.3.(4))

N_{Ed}/(X_z*N_{Rk}/gM1) + k_{zy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.28 < 1.00 (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 199 Simple bar_199 **POINT:** 3

COORDINATE: x = 1.00 L = 0.79 m

LOADS:

Governing Load Case: 12 ULS /112/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm	gM0=1.00	gM1=1.00	
b=6.0 cm	Ay=4.44 cm ²	Az=4.44 cm ²	Ax=8.88 cm ²
tw=0.4 cm	Iy=46.14 cm ⁴	Iz=46.14 cm ⁴	Ix=72.41 cm ⁴
tf=0.4 cm	Wply=18.85 cm ³	Wplz=18.85 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 71.64 kN	M _{y,Ed} = -1.01 kN*m	
N _{c,Rd} = 315.35 kN	M _{y,pl,Rd} = 6.69 kN*m	
N _{b,Rd} = 296.08 kN	M _{y,c,Rd} = 6.69 kN*m	V _{z,Ed} = -2.39 kN
	MN _{y,Rd} = 6.69 kN*m	V _{z,c,Rd} = 91.03 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L _y = 0.79 m	Lam _y = 0.45
L _{cr,y} = 0.79 m	X _y = 0.94
Lam _y = 34.44	k _{yy} = 0.99



About z axis:

L _z = 0.79 m	Lam _z = 0.45
L _{cr,z} = 0.79 m	X _z = 0.94
Lam _z = 34.44	k _{zy} = 0.60

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.23 < 1.00 \quad (6.2.4.(1)) \\ M_{y,Ed}/M_{y,c,Rd} &= 0.15 < 1.00 \quad (6.2.5.(1)) \\ M_{y,Ed}/M_{N,y,Rd} &= 0.15 < 1.00 \quad (6.2.9.1.(2)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.03 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \text{Lambda}_{y} &= 34.44 < \text{Lambda}_{\text{max}} = 210.00 \quad \text{Lambda}_{z} = 34.44 < \text{Lambda}_{\text{max}} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.39 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.33 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 200 Simple bar_200 POINT: 3

COORDINATE: $x = 1.00$ $L = 0.78$ m

LOADS:

Governing Load Case: 12 ULS /112/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h=6.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=6.0$ cm	$A_y=4.44$ cm ²	$A_z=4.44$ cm ²	$A_x=8.88$ cm ²
$tw=0.4$ cm	$I_y=46.14$ cm ⁴	$I_z=46.14$ cm ⁴	$I_x=72.41$ cm ⁴
$tf=0.4$ cm	$W_{ply}=18.85$ cm ³	$W_{plz}=18.85$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 79.03$ kN	$M_{y,Ed} = -0.99$ kN*m	
$N_{c,Rd} = 315.35$ kN	$M_{y,pl,Rd} = 6.69$ kN*m	
$N_{b,Rd} = 296.18$ kN	$M_{y,c,Rd} = 6.69$ kN*m	$V_{z,Ed} = -2.46$ kN
	$MN_{y,Rd} = 6.51$ kN*m	$V_{z,c,Rd} = 91.03$ kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.78$ m	$\Lambda_{m,y} = 0.45$
$L_{cr,y} = 0.78$ m	$X_y = 0.94$
$\Lambda_{m,y} = 34.36$	$k_{yy} = 0.99$



About z axis:

$L_z = 0.78$ m	$\Lambda_{m,z} = 0.45$
$L_{cr,z} = 0.78$ m	$X_z = 0.94$
$\Lambda_{m,z} = 34.36$	$k_{zy} = 0.60$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.25 < 1.00 \quad (6.2.4.(1)) \\ M_{y,Ed}/M_{y,c,Rd} &= 0.15 < 1.00 \quad (6.2.5.(1)) \\ M_{y,Ed}/M_{N,y,Rd} &= 0.15 < 1.00 \quad (6.2.9.1.(2)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.03 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \Lambda_{bda,y} &= 34.36 < \Lambda_{bda,max} = 210.00 \quad \Lambda_{bda,z} = 34.36 < \Lambda_{bda,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.41 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.36 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 201 Simple bar_201 **POINT:** 3

COORDINATE: x = 1.00 L = 0.78 m

LOADS:

Governing Load Case: 12 ULS /112/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm	gM0=1.00	gM1=1.00	
b=6.0 cm	Ay=4.44 cm ²	Az=4.44 cm ²	Ax=8.88 cm ²
tw=0.4 cm	Iy=46.14 cm ⁴	Iz=46.14 cm ⁴	Ix=72.41 cm ⁴
tf=0.4 cm	Wply=18.85 cm ³	Wplz=18.85 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 73.81 kN	M _{y,Ed} = -0.95 kN*m	
N _{c,Rd} = 315.35 kN	M _{y,pl,Rd} = 6.69 kN*m	
N _{b,Rd} = 296.39 kN	M _{y,c,Rd} = 6.69 kN*m	V _{z,Ed} = -2.39 kN
	MN _{y,Rd} = 6.65 kN*m	V _{z,c,Rd} = 91.03 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L _y = 0.78 m	Lam _y = 0.45
L _{cr,y} = 0.78 m	X _y = 0.94
Lam _y = 34.18	k _{yy} = 0.99



About z axis:

L _z = 0.78 m	Lam _z = 0.45
L _{cr,z} = 0.78 m	X _z = 0.94
Lam _z = 34.18	k _{zy} = 0.60

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.23 < 1.00 \quad (6.2.4.(1)) \\ M_{y,Ed}/M_{y,c,Rd} &= 0.14 < 1.00 \quad (6.2.5.(1)) \\ M_{y,Ed}/M_{N,y,Rd} &= 0.14 < 1.00 \quad (6.2.9.1.(2)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.03 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{b,y} &= 34.18 < \lambda_{b,max} = 210.00 \quad \lambda_{b,z} = 34.18 < \lambda_{b,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.39 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.33 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 202 Simple bar_202 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /111/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 35x4

$h = 3.5$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 3.5$ cm

$A_y = 2.44$ cm²

$A_z = 2.44$ cm²

$A_x = 4.88$ cm²

$tw = 0.4$ cm

$I_y = 7.72$ cm⁴

$I_z = 7.72$ cm⁴

$I_x = 12.50$ cm⁴

$tf = 0.4$ cm

$W_{ply} = 5.80$ cm³

$W_{plz} = 5.80$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -3.56$ kN

$M_{y,Ed} = 0.52$ kN*m

$N_{t,Rd} = 172.27$ kN

$M_{y,pl,Rd} = 2.06$ kN*m

$M_{y,c,Rd} = 2.06$ kN*m

$MN_{y,Rd} = 2.06$ kN*m

$V_{z,Ed} = -0.60$ kN

$V_{z,c,Rd} = 50.04$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.02 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.25 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 203 Simple bar_203 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

$h = 10.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 10.0$ cm

$A_y = 9.44$ cm²

$A_z = 9.44$ cm²

$A_x = 18.88$ cm²

$tw = 0.5$ cm

$I_y = 282.80$ cm⁴

$I_z = 282.80$ cm⁴

$I_x = 438.80$ cm⁴

$tf = 0.5$ cm

$W_{ply} = 67.75$ cm³

$W_{plz} = 67.75$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -92.12$ kN

$M_{y,Ed} = 2.13$ kN*m

$N_{t,Rd} = 666.09$ kN

$M_{y,pl,Rd} = 24.05$ kN*m

$M_{y,c,Rd} = 24.05$ kN*m

$MN_{y,Rd} = 24.05$ kN*m

$V_{z,Ed} = -6.51$ kN

$V_{z,c,Rd} = 193.48$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.14 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.09 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.09 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.03 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 204 Simple bar_204 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /112/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$tw = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$tf = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -71.17$ kN

$M_{y,Ed} = 0.29$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$V_{z,Ed} = -0.85$ kN

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.23 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.04 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.04 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 205 Simple bar_205 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /112/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$t_w = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$t_f = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -78.67$ kN

$M_{y,Ed} = 0.57$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.52$ kN*m

$V_{z,Ed} = -1.42$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.25 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.09 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.09 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 206 Simple bar_206 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /112/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$tw = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$tf = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -74.86$ kN

$M_{y,Ed} = 0.56$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.63$ kN*m

$V_{z,Ed} = -1.34$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.24 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.08 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.08 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 207 Simple bar_207 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /112/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$tw = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$tf = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -70.59$ kN

$M_{y,Ed} = 0.54$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -1.26$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.23 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.08 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.08 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 208 Simple bar_208 **POINT:** 3

COORDINATE: x = 1.00 L = 0.77 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm	gM0=1.00	gM1=1.00	
b=6.0 cm	Ay=4.44 cm ²	Az=4.44 cm ²	Ax=8.88 cm ²
tw=0.4 cm	Iy=46.14 cm ⁴	Iz=46.14 cm ⁴	Ix=72.41 cm ⁴
tf=0.4 cm	Wply=18.85 cm ³	Wplz=18.85 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 60.86 kN	M _{y,Ed} = -0.91 kN*m	
N _{c,Rd} = 315.35 kN	M _{y,pl,Rd} = 6.69 kN*m	
N _{b,Rd} = 296.69 kN	M _{y,c,Rd} = 6.69 kN*m	V _{z,Ed} = -2.29 kN
	MN _{y,Rd} = 6.69 kN*m	V _{z,c,Rd} = 91.03 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L _y = 0.77 m	Lam _y = 0.44
L _{cr,y} = 0.77 m	X _y = 0.94
Lam _y = 33.92	k _{yy} = 0.99



About z axis:

L _z = 0.77 m	Lam _z = 0.44
L _{cr,z} = 0.77 m	X _z = 0.94
Lam _z = 33.92	k _{zy} = 0.60

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.19 < 1.00 \quad (6.2.4.(1)) \\ M_{y,Ed}/M_{y,c,Rd} &= 0.14 < 1.00 \quad (6.2.5.(1)) \\ M_{y,Ed}/M_{N,y,Rd} &= 0.14 < 1.00 \quad (6.2.9.1.(2)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.03 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{b,y} &= 33.92 < \lambda_{b,max} = 210.00 \quad \lambda_{b,z} = 33.92 < \lambda_{b,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.34 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.29 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 209 Simple bar_209 **POINT:** 3

COORDINATE: x = 1.00 L = 0.77 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm	gM0=1.00	gM1=1.00	
b=6.0 cm	Ay=4.44 cm ²	Az=4.44 cm ²	Ax=8.88 cm ²
tw=0.4 cm	Iy=46.14 cm ⁴	Iz=46.14 cm ⁴	Ix=72.41 cm ⁴
tf=0.4 cm	Wply=18.85 cm ³	Wplz=18.85 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 57.94 kN	M _{y,Ed} = -0.88 kN*m	
N _{c,Rd} = 315.35 kN	M _{y,pl,Rd} = 6.69 kN*m	
N _{b,Rd} = 296.85 kN	M _{y,c,Rd} = 6.69 kN*m	V _{z,Ed} = -2.24 kN
	MN _{y,Rd} = 6.69 kN*m	V _{z,c,Rd} = 91.03 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L _y = 0.77 m	Lam _y = 0.44
L _{cr,y} = 0.77 m	X _y = 0.94
Lam _y = 33.79	k _{yy} = 0.99



About z axis:

L _z = 0.77 m	Lam _z = 0.44
L _{cr,z} = 0.77 m	X _z = 0.94
Lam _z = 33.79	k _{zy} = 0.60

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.18 < 1.00 \quad (6.2.4.(1)) \\ M_{y,Ed}/M_{y,c,Rd} &= 0.13 < 1.00 \quad (6.2.5.(1)) \\ M_{y,Ed}/M_{N,y,Rd} &= 0.13 < 1.00 \quad (6.2.9.1.(2)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.02 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{b,y} &= 33.79 < \lambda_{b,max} = 210.00 \quad \lambda_{b,z} = 33.79 < \lambda_{b,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.32 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.27 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 210 Simple bar_210 **POINT:** 3

COORDINATE: x = 1.00 L = 0.77 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm	gM0=1.00	gM1=1.00	
b=6.0 cm	Ay=4.44 cm ²	Az=4.44 cm ²	Ax=8.88 cm ²
tw=0.4 cm	Iy=46.14 cm ⁴	Iz=46.14 cm ⁴	Ix=72.41 cm ⁴
tf=0.4 cm	Wply=18.85 cm ³	Wplz=18.85 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 54.02 kN	M _{y,Ed} = -0.85 kN*m	
N _{c,Rd} = 315.35 kN	M _{y,pl,Rd} = 6.69 kN*m	
N _{b,Rd} = 296.90 kN	M _{y,c,Rd} = 6.69 kN*m	V _{z,Ed} = -2.18 kN
	MN _{y,Rd} = 6.69 kN*m	V _{z,c,Rd} = 91.03 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L _y = 0.77 m	Lam _y = 0.44
L _{cr,y} = 0.77 m	X _y = 0.94
Lam _y = 33.74	k _{yy} = 0.99



About z axis:

L _z = 0.77 m	Lam _z = 0.44
L _{cr,z} = 0.77 m	X _z = 0.94
Lam _z = 33.74	k _{zy} = 0.60

VERIFICATION FORMULAS:

Section strength check:

N _{Ed} /N _{c,Rd} = 0.17 < 1.00 (6.2.4.(1))
M _{y,Ed} /M _{y,c,Rd} = 0.13 < 1.00 (6.2.5.(1))
M _{y,Ed} /MN _{y,Rd} = 0.13 < 1.00 (6.2.9.1.(2))
V _{z,Ed} /V _{z,c,Rd} = 0.02 < 1.00 (6.2.6.(1))

Global stability check of member:

Lam _{bda,y} = 33.74 < Lam _{bda,max} = 210.00	Lam _{bda,z} = 33.74 < Lam _{bda,max} = 210.00	STABLE
N _{Ed} /(X _y *N _{Rk} /gM1) + k _{yy} *M _{y,Ed} /(XLT*M _{y,Rk} /gM1) = 0.31 < 1.00 (6.3.3.(4))		
N _{Ed} /(X _z *N _{Rk} /gM1) + k _{zy} *M _{y,Ed} /(XLT*M _{y,Rk} /gM1) = 0.26 < 1.00 (6.3.3.(4))		

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 211 Simple bar_211 **POINT:** 3

COORDINATE: x = 1.00 L = 0.77 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm	gM0=1.00	gM1=1.00	
b=6.0 cm	Ay=4.44 cm ²	Az=4.44 cm ²	Ax=8.88 cm ²
tw=0.4 cm	Iy=46.14 cm ⁴	Iz=46.14 cm ⁴	Ix=72.41 cm ⁴
tf=0.4 cm	Wply=18.85 cm ³	Wplz=18.85 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 51.41 kN	My _{Ed} = -0.82 kN*m	
N _{c,Rd} = 315.35 kN	My _{pl,Rd} = 6.69 kN*m	
N _{b,Rd} = 297.05 kN	My _{c,Rd} = 6.69 kN*m	Vz _{Ed} = -2.13 kN
	MN _{y,Rd} = 6.69 kN*m	Vz _{c,Rd} = 91.03 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

Ly = 0.77 m	Lam _y = 0.44
L _{cr,y} = 0.77 m	Xy = 0.94
Lam _y = 33.61	kyy = 0.99



About z axis:

Lz = 0.77 m	Lam _z = 0.44
L _{cr,z} = 0.77 m	Xz = 0.94
Lam _z = 33.61	kzy = 0.60

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.16 < 1.00 \quad (6.2.4.(1)) \\ My_{Ed}/My_{c,Rd} &= 0.12 < 1.00 \quad (6.2.5.(1)) \\ My_{Ed}/MN_{y,Rd} &= 0.12 < 1.00 \quad (6.2.9.1.(2)) \\ Vz_{Ed}/Vz_{c,Rd} &= 0.02 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{b,y} &= 33.61 < \lambda_{b,max} = 210.00 \quad \lambda_{b,z} = 33.61 < \lambda_{b,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot My_{Ed}/(XLT \cdot My_{Rk}/gM1) &= 0.29 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot My_{Ed}/(XLT \cdot My_{Rk}/gM1) &= 0.25 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 212 Simple bar_212 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /112/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$tw = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$tf = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -66.48$ kN

$M_{y,Ed} = 0.51$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -1.17$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.21 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.08 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.08 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: *EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.*

ANALYSIS TYPE: *Member Verification*

CODE GROUP:

MEMBER: *213 Simple bar_213* POINT: *1*

COORDINATE: *x = 0.00 L = 0.00 m*

LOADS:

Governing Load Case: *12 ULS /112/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50*

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: **TCAR 60x4**

$h=6.0$ cm

$gM0=1.00$

$gM1=1.00$

$b=6.0$ cm

$A_y=4.44$ cm²

$A_z=4.44$ cm²

$A_x=8.88$ cm²

$tw=0.4$ cm

$I_y=46.14$ cm⁴

$I_z=46.14$ cm⁴

$I_x=72.41$ cm⁴

$tf=0.4$ cm

$W_{ply}=18.85$ cm³

$W_{plz}=18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -61.89$ kN

$M_{y,Ed} = 0.49$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -1.08$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.20 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.07 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.07 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 214 Simple bar_214 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /112/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$tw = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$tf = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -56.99$ kN

$M_{y,Ed} = 0.46$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -0.98$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.18 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.07 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.07 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: *EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.*

ANALYSIS TYPE: *Member Verification*

CODE GROUP:

MEMBER: *215 Simple bar_215* POINT: *1*

COORDINATE: *x = 0.00 L = 0.00 m*

LOADS:

*Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90*

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: **TCAR 60x4**

$h=6.0$ cm

$gM0=1.00$

$gM1=1.00$

$b=6.0$ cm

$A_y=4.44$ cm²

$A_z=4.44$ cm²

$A_x=8.88$ cm²

$tw=0.4$ cm

$I_y=46.14$ cm⁴

$I_z=46.14$ cm⁴

$I_x=72.41$ cm⁴

$tf=0.4$ cm

$W_{ply}=18.85$ cm³

$W_{plz}=18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -53.92$ kN

$M_{y,Ed} = 0.38$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$V_{z,Ed} = -0.86$ kN

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.17 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.06 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.06 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 216 Simple bar_216 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$tw = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$tf = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -51.60$ kN

$M_{y,Ed} = 0.37$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -0.81$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.16 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.06 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.06 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 217 Simple bar_217 **POINT:** 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm	gM0=1.00	gM1=1.00	
b=6.0 cm	Ay=4.44 cm ²	Az=4.44 cm ²	Ax=8.88 cm ²
tw=0.4 cm	Iy=46.14 cm ⁴	Iz=46.14 cm ⁴	Ix=72.41 cm ⁴
tf=0.4 cm	Wply=18.85 cm ³	Wplz=18.85 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 44.80 kN	My _{Ed} = 0.76 kN*m	
N _{c,Rd} = 315.35 kN	My _{pl,Rd} = 6.69 kN*m	
N _{b,Rd} = 297.25 kN	My _{c,Rd} = 6.69 kN*m	Vz _{Ed} = -1.99 kN
	MN _{y,Rd} = 6.69 kN*m	Vz _{c,Rd} = 91.03 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

Ly = 0.76 m	Lam _y = 0.44
L _{cr,y} = 0.76 m	Xy = 0.94
Lam _y = 33.43	kyy = 0.99



About z axis:

Lz = 0.76 m	Lam _z = 0.44
L _{cr,z} = 0.76 m	Xz = 0.94
Lam _z = 33.43	kzy = 0.60

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.14 < 1.00 \quad (6.2.4.(1)) \\ My_{Ed}/My_{c,Rd} &= 0.11 < 1.00 \quad (6.2.5.(1)) \\ My_{Ed}/MN_{y,Rd} &= 0.11 < 1.00 \quad (6.2.9.1.(2)) \\ Vz_{Ed}/Vz_{c,Rd} &= 0.02 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{b,y} &= 33.43 < \lambda_{b,max} = 210.00 \quad \lambda_{b,z} = 33.43 < \lambda_{b,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot My_{Ed}/(XLT \cdot My_{Rk}/gM1) &= 0.26 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot My_{Ed}/(XLT \cdot My_{Rk}/gM1) &= 0.22 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 218 Simple bar_218 **POINT:** 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm	gM0=1.00	gM1=1.00	
b=6.0 cm	Ay=4.44 cm ²	Az=4.44 cm ²	Ax=8.88 cm ²
tw=0.4 cm	Iy=46.14 cm ⁴	Iz=46.14 cm ⁴	Ix=72.41 cm ⁴
tf=0.4 cm	Wply=18.85 cm ³	Wplz=18.85 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 41.58 kN	My _{Ed} = 0.73 kN*m	
N _{c,Rd} = 315.35 kN	My _{pl,Rd} = 6.69 kN*m	
N _{b,Rd} = 297.35 kN	My _{c,Rd} = 6.69 kN*m	Vz _{Ed} = -1.91 kN
	MN _{y,Rd} = 6.69 kN*m	Vz _{c,Rd} = 91.03 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

Ly = 0.76 m	Lam _y = 0.44
L _{cr,y} = 0.76 m	Xy = 0.94
Lam _y = 33.35	kyy = 0.99



About z axis:

Lz = 0.76 m	Lam _z = 0.44
L _{cr,z} = 0.76 m	Xz = 0.94
Lam _z = 33.35	kzy = 0.60

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.13 < 1.00 \quad (6.2.4.(1)) \\ My_{Ed}/My_{c,Rd} &= 0.11 < 1.00 \quad (6.2.5.(1)) \\ My_{Ed}/MN_{y,Rd} &= 0.11 < 1.00 \quad (6.2.9.1.(2)) \\ Vz_{Ed}/Vz_{c,Rd} &= 0.02 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{b,y} &= 33.35 < \lambda_{b,max} = 210.00 \quad \lambda_{b,z} = 33.35 < \lambda_{b,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot My_{Ed}/(XLT \cdot My_{Rk}/gM1) &= 0.25 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot My_{Ed}/(XLT \cdot My_{Rk}/gM1) &= 0.21 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 219 Simple bar_219 **POINT:** 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h=6.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=6.0$ cm	$A_y=4.44$ cm ²	$A_z=4.44$ cm ²	$A_x=8.88$ cm ²
$t_w=0.4$ cm	$I_y=46.14$ cm ⁴	$I_z=46.14$ cm ⁴	$I_x=72.41$ cm ⁴
$t_f=0.4$ cm	$W_{ply}=18.85$ cm ³	$W_{plz}=18.85$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 37.90$ kN	$M_{y,Ed} = 0.69$ kN*m	
$N_{c,Rd} = 315.35$ kN	$M_{y,pl,Rd} = 6.69$ kN*m	
$N_{b,Rd} = 297.40$ kN	$M_{y,c,Rd} = 6.69$ kN*m	$V_{z,Ed} = -1.81$ kN
	$MN_{y,Rd} = 6.69$ kN*m	$V_{z,c,Rd} = 91.03$ kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.76$ m	$\Lambda_{m,y} = 0.44$
$L_{cr,y} = 0.76$ m	$X_y = 0.94$
$\Lambda_{m,y} = 33.30$	$k_{yy} = 0.99$



About z axis:

$L_z = 0.76$ m	$\Lambda_{m,z} = 0.44$
$L_{cr,z} = 0.76$ m	$X_z = 0.94$
$\Lambda_{m,z} = 33.30$	$k_{zy} = 0.60$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.12 < 1.00 \quad (6.2.4.(1)) \\ M_{y,Ed}/M_{y,c,Rd} &= 0.10 < 1.00 \quad (6.2.5.(1)) \\ M_{y,Ed}/M_{N,y,Rd} &= 0.10 < 1.00 \quad (6.2.9.1.(2)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.02 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \Lambda_{bda,y} &= 33.30 < \Lambda_{bda,max} = 210.00 \quad \Lambda_{bda,z} = 33.30 < \Lambda_{bda,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.23 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.19 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 220 Simple bar_220 **POINT:** 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm

gM0=1.00

gM1=1.00

b=6.0 cm

Ay=4.44 cm²

Az=4.44 cm²

Ax=8.88 cm²

tw=0.4 cm

Iy=46.14 cm⁴

Iz=46.14 cm⁴

Ix=72.41 cm⁴

tf=0.4 cm

Wply=18.85 cm³

Wplz=18.85 cm³

INTERNAL FORCES AND CAPACITIES:

N_{Ed} = 34.18 kN

M_{y,Ed} = 0.67 kN*m

N_{c,Rd} = 315.35 kN

M_{y,pl,Rd} = 6.69 kN*m

N_{b,Rd} = 297.50 kN

M_{y,c,Rd} = 6.69 kN*m

M_{N,y,Rd} = 6.69 kN*m

V_{z,Ed} = -1.74 kN

V_{z,c,Rd} = 91.03 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L_y = 0.76 m

Lam_y = 0.43

L_{cr,y} = 0.76 m

X_y = 0.94

Lam_y = 33.22

k_{yy} = 0.99



About z axis:

L_z = 0.76 m

Lam_z = 0.43

L_{cr,z} = 0.76 m

X_z = 0.94

Lam_z = 33.22

k_{zy} = 0.60

VERIFICATION FORMULAS:

Section strength check:

N_{Ed}/N_{c,Rd} = 0.11 < 1.00 (6.2.4.(1))

M_{y,Ed}/M_{y,c,Rd} = 0.10 < 1.00 (6.2.5.(1))

V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00 (6.2.6.(1))

Global stability check of member:

Lam_{bda,y} = 33.22 < Lam_{bda,max} = 210.00 Lam_{bda,z} = 33.22 < Lam_{bda,max} = 210.00 STABLE

N_{Ed}/(X_y*N_{Rk}/gM1) + k_{yy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.21 < 1.00 (6.3.3.(4))

N_{Ed}/(X_z*N_{Rk}/gM1) + k_{zy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.17 < 1.00 (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: *EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.*

ANALYSIS TYPE: *Member Verification*

CODE GROUP:

MEMBER: 221 Simple bar_221 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h=6.0$ cm

$gM0=1.00$

$gM1=1.00$

$b=6.0$ cm

$A_y=4.44$ cm²

$A_z=4.44$ cm²

$A_x=8.88$ cm²

$tw=0.4$ cm

$I_y=46.14$ cm⁴

$I_z=46.14$ cm⁴

$I_x=72.41$ cm⁴

$tf=0.4$ cm

$W_{ply}=18.85$ cm³

$W_{plz}=18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -48.60$ kN

$M_{y,Ed} = 0.36$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -0.76$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.16 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.05 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.05 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 222 Simple bar_222 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$tw = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$tf = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -46.15$ kN

$M_{y,Ed} = 0.35$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -0.71$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.15 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.05 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.05 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 223 Simple bar_223 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$tw = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$tf = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -42.59$ kN

$M_{y,Ed} = 0.34$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -0.66$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.14 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.05 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.05 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 224 Simple bar_224 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$tw = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$tf = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -39.86$ kN

$M_{y,Ed} = 0.32$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -0.61$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.13 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.05 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.05 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 225 Simple bar_225 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$tw = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$tf = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -36.35$ kN

$M_{y,Ed} = 0.29$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -0.49$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.12 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.04 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 226 Simple bar_226 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /111/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h=6.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=6.0$ cm	$A_y=4.44$ cm ²	$A_z=4.44$ cm ²	$A_x=8.88$ cm ²
$t_w=0.4$ cm	$I_y=46.14$ cm ⁴	$I_z=46.14$ cm ⁴	$I_x=72.41$ cm ⁴
$t_f=0.4$ cm	$W_{ply}=18.85$ cm ³	$W_{plz}=18.85$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 28.64$ kN	$M_{y,Ed} = 0.58$ kN*m	
$N_{c,Rd} = 315.35$ kN	$M_{y,pl,Rd} = 6.69$ kN*m	
$N_{b,Rd} = 297.65$ kN	$M_{y,c,Rd} = 6.69$ kN*m	$V_{z,Ed} = -1.52$ kN
	$M_{N,y,Rd} = 6.69$ kN*m	$V_{z,c,Rd} = 91.03$ kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.75$ m	$\lambda_{m,y} = 0.43$
$L_{cr,y} = 0.75$ m	$X_y = 0.94$
$\lambda_{m,y} = 33.08$	$k_{yy} = 0.99$



About z axis:

$L_z = 0.75$ m	$\lambda_{m,z} = 0.43$
$L_{cr,z} = 0.75$ m	$X_z = 0.94$
$\lambda_{m,z} = 33.08$	$k_{zy} = 0.60$

VERIFICATION FORMULAS:

Section strength check:

$$N_{Ed}/N_{c,Rd} = 0.09 < 1.00 \quad (6.2.4.(1))$$

$$M_{y,Ed}/M_{y,c,Rd} = 0.09 < 1.00 \quad (6.2.5.(1))$$

$$V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00 \quad (6.2.6.(1))$$

Global stability check of member:

$$\lambda_{m,y} = 33.08 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 33.08 < \lambda_{m,max} = 210.00 \quad \text{STABLE}$$

$$N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.18 < 1.00 \quad (6.3.3.(4))$$

$$N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.15 < 1.00 \quad (6.3.3.(4))$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 227 Simple bar_227 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /111/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h=6.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=6.0$ cm	$A_y=4.44$ cm ²	$A_z=4.44$ cm ²	$A_x=8.88$ cm ²
$t_w=0.4$ cm	$I_y=46.14$ cm ⁴	$I_z=46.14$ cm ⁴	$I_x=72.41$ cm ⁴
$t_f=0.4$ cm	$W_{ply}=18.85$ cm ³	$W_{plz}=18.85$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 28.50$ kN	$M_{y,Ed} = 0.59$ kN*m	
$N_{c,Rd} = 315.35$ kN	$M_{y,pl,Rd} = 6.69$ kN*m	
$N_{b,Rd} = 297.70$ kN	$M_{y,c,Rd} = 6.69$ kN*m	$V_{z,Ed} = -1.55$ kN
	$M_{N,y,Rd} = 6.69$ kN*m	$V_{z,c,Rd} = 91.03$ kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.75$ m	$\lambda_{m,y} = 0.43$
$L_{cr,y} = 0.75$ m	$X_y = 0.94$
$\lambda_{m,y} = 33.04$	$k_{yy} = 0.99$



About z axis:

$L_z = 0.75$ m	$\lambda_{m,z} = 0.43$
$L_{cr,z} = 0.75$ m	$X_z = 0.94$
$\lambda_{m,z} = 33.04$	$k_{zy} = 0.60$

VERIFICATION FORMULAS:

Section strength check:

$$N_{Ed}/N_{c,Rd} = 0.09 < 1.00 \quad (6.2.4.(1))$$

$$M_{y,Ed}/M_{y,c,Rd} = 0.09 < 1.00 \quad (6.2.5.(1))$$

$$V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00 \quad (6.2.6.(1))$$

Global stability check of member:

$$\lambda_{m,y} = 33.04 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 33.04 < \lambda_{m,max} = 210.00 \quad \text{STABLE}$$

$$N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.18 < 1.00 \quad (6.3.3.(4))$$

$$N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.15 < 1.00 \quad (6.3.3.(4))$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 228 Simple bar_228 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /111/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h=6.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=6.0$ cm	$A_y=4.44$ cm ²	$A_z=4.44$ cm ²	$A_x=8.88$ cm ²
$t_w=0.4$ cm	$I_y=46.14$ cm ⁴	$I_z=46.14$ cm ⁴	$I_x=72.41$ cm ⁴
$t_f=0.4$ cm	$W_{ply}=18.85$ cm ³	$W_{plz}=18.85$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 28.93$ kN	$M_{y,Ed} = 0.60$ kN*m	
$N_{c,Rd} = 315.35$ kN	$M_{y,pl,Rd} = 6.69$ kN*m	
$N_{b,Rd} = 297.75$ kN	$M_{y,c,Rd} = 6.69$ kN*m	$V_{z,Ed} = -1.58$ kN
	$M_{N,y,Rd} = 6.69$ kN*m	$V_{z,c,Rd} = 91.03$ kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.75$ m	$\lambda_{m,y} = 0.43$
$L_{cr,y} = 0.75$ m	$X_y = 0.94$
$\lambda_{my} = 33.00$	$k_{yy} = 0.99$



About z axis:

$L_z = 0.75$ m	$\lambda_{m,z} = 0.43$
$L_{cr,z} = 0.75$ m	$X_z = 0.94$
$\lambda_{mz} = 33.00$	$k_{zy} = 0.60$

VERIFICATION FORMULAS:

Section strength check:

$$N_{Ed}/N_{c,Rd} = 0.09 < 1.00 \quad (6.2.4.(1))$$

$$M_{y,Ed}/M_{y,c,Rd} = 0.09 < 1.00 \quad (6.2.5.(1))$$

$$V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00 \quad (6.2.6.(1))$$

Global stability check of member:

$$\lambda_{m,y} = 33.00 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 33.00 < \lambda_{m,max} = 210.00 \quad \text{STABLE}$$

$$N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.19 < 1.00 \quad (6.3.3.(4))$$

$$N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.15 < 1.00 \quad (6.3.3.(4))$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 229 Simple bar_229 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /111/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$tw = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$tf = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -31.72$ kN

$M_{y,Ed} = 0.23$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -0.49$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.10 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.03 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 230 Simple bar_230 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /111/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$t_w = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$t_f = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -32.65$ kN

$M_{y,Ed} = 0.24$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -0.49$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.10 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.04 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 231 Simple bar_231 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /111/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$tw = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$tf = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -33.79$ kN

$M_{y,Ed} = 0.26$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -0.51$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.11 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.04 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: *EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.*

ANALYSIS TYPE: *Member Verification*

CODE GROUP:

MEMBER: *232 Simple bar_232* POINT: *1*

COORDINATE: *x = 0.00 L = 0.00 m*

LOADS:

*Governing Load Case: 12 ULS /120/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 11*0.90 + 8*1.50*

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: **TCAR 60x4**

$h=6.0$ cm

$gM0=1.00$

$gM1=1.00$

$b=6.0$ cm

$A_y=4.44$ cm²

$A_z=4.44$ cm²

$A_x=8.88$ cm²

$tw=0.4$ cm

$I_y=46.14$ cm⁴

$I_z=46.14$ cm⁴

$I_x=72.41$ cm⁴

$tf=0.4$ cm

$W_{ply}=18.85$ cm³

$W_{plz}=18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -35.37$ kN

$M_{y,Ed} = 0.26$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -0.54$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.11 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.04 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 233 Simple bar_233 POINT: 3

COORDINATE: $x = 1.00$ $L = 0.59$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

$h=10.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=10.0$ cm	$A_y=9.44$ cm ²	$A_z=9.44$ cm ²	$A_x=18.88$ cm ²
$t_w=0.5$ cm	$I_y=282.80$ cm ⁴	$I_z=282.80$ cm ⁴	$I_x=438.80$ cm ⁴
$t_f=0.5$ cm	$W_{ply}=67.75$ cm ³	$W_{plz}=67.75$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 3.09$ kN	$M_{y,Ed} = -1.95$ kN*m	
$N_{c,Rd} = 670.24$ kN	$M_{y,pl,Rd} = 24.05$ kN*m	
$N_{b,Rd} = 670.24$ kN	$M_{y,c,Rd} = 24.05$ kN*m	$V_{z,Ed} = -4.58$ kN
	$MN_{y,Rd} = 24.05$ kN*m	$V_{z,c,Rd} = 193.48$ kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.59$ m	$\lambda_{m,y} = 0.20$
$L_{cr,y} = 0.59$ m	$X_y = 1.00$
$\lambda_{m,y} = 15.18$	$k_{yy} = 1.00$



About z axis:

$L_z = 0.59$ m	$\lambda_{m,z} = 0.20$
$L_{cr,z} = 0.59$ m	$X_z = 1.00$
$\lambda_{m,z} = 15.18$	$k_{zy} = 0.60$

VERIFICATION FORMULAS:

Section strength check:

$$N_{Ed}/N_{c,Rd} = 0.00 < 1.00 \quad (6.2.4.(1))$$

$$M_{y,Ed}/M_{y,c,Rd} = 0.08 < 1.00 \quad (6.2.5.(1))$$

$$V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00 \quad (6.2.6.(1))$$

Global stability check of member:

$$\lambda_{m,y} = 15.18 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 15.18 < \lambda_{m,max} = 210.00 \quad \text{STABLE}$$

$$N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.09 < 1.00 \quad (6.3.3.(4))$$

$$N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.05 < 1.00 \quad (6.3.3.(4))$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 234 Simple bar_234 POINT: 3

COORDINATE: $x = 1.00$ $L = 0.60$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

$h = 10.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 10.0$ cm

$A_y = 9.44$ cm²

$A_z = 9.44$ cm²

$A_x = 18.88$ cm²

$tw = 0.5$ cm

$I_y = 282.80$ cm⁴

$I_z = 282.80$ cm⁴

$I_x = 438.80$ cm⁴

$tf = 0.5$ cm

$W_{ply} = 67.75$ cm³

$W_{plz} = 67.75$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -23.56$ kN

$M_{y,Ed} = -2.87$ kN*m

$N_{t,Rd} = 666.09$ kN

$M_{y,pl,Rd} = 24.05$ kN*m

$M_{y,c,Rd} = 24.05$ kN*m

$MN_{y,Rd} = 24.05$ kN*m

$V_{z,Ed} = -9.54$ kN

$V_{z,c,Rd} = 193.48$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.04 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.12 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.05 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 235 Simple bar_235 POINT: 3

COORDINATE: $x = 1.00$ $L = 0.58$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 200x100x6

$h=20.0$ cm

$gM0=1.00$

$gM1=1.00$

$b=10.0$ cm

$A_y=11.15$ cm²

$A_z=22.30$ cm²

$A_x=33.45$ cm²

$tw=0.6$ cm

$I_y=1685.00$ cm⁴

$I_z=572.30$ cm⁴

$I_x=1416.00$ cm⁴

$tf=0.6$ cm

$W_{ply}=222.43$ cm³

$W_{plz}=136.03$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -15.43$ kN

$M_{y,Ed} = -2.28$ kN*m

$N_{t,Rd} = 1180.12$ kN

$M_{y,pl,Rd} = 78.96$ kN*m

$M_{y,c,Rd} = 78.96$ kN*m

$MN_{y,Rd} = 78.96$ kN*m

$V_{z,Ed} = -8.56$ kN

$V_{z,c,Rd} = 457.06$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.01 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.03 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 236 Simple bar_236 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 200x100x6

$h=20.0$ cm

$gM0=1.00$

$gM1=1.00$

$b=10.0$ cm

$A_y=11.15$ cm²

$A_z=22.30$ cm²

$A_x=33.45$ cm²

$tw=0.6$ cm

$I_y=1685.00$ cm⁴

$I_z=572.30$ cm⁴

$I_x=1416.00$ cm⁴

$tf=0.6$ cm

$W_{ply}=222.43$ cm³

$W_{plz}=136.03$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -11.85$ kN

$M_{y,Ed} = -4.00$ kN*m

$N_{t,Rd} = 1180.12$ kN

$M_{y,pl,Rd} = 78.96$ kN*m

$M_{y,c,Rd} = 78.96$ kN*m

$MN_{y,Rd} = 78.96$ kN*m

$V_{z,Ed} = 13.25$ kN

$V_{z,c,Rd} = 457.06$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.01 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.05 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.03 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 237 Simple bar_237 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h=6.0$ cm

$gM0=1.00$

$gM1=1.00$

$b=6.0$ cm

$A_y=4.44$ cm²

$A_z=4.44$ cm²

$A_x=8.88$ cm²

$tw=0.4$ cm

$I_y=46.14$ cm⁴

$I_z=46.14$ cm⁴

$I_x=72.41$ cm⁴

$tf=0.4$ cm

$W_{ply}=18.85$ cm³

$W_{plz}=18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -1.28$ kN

$M_{y,Ed} = -0.12$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = 0.25$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.00 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.02 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.00 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 238 Simple bar_238 **POINT:** 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

h=10.0 cm

gM0=1.00

gM1=1.00

b=10.0 cm

Ay=9.44 cm²

Az=9.44 cm²

Ax=18.88 cm²

tw=0.5 cm

Iy=282.80 cm⁴

Iz=282.80 cm⁴

Ix=438.80 cm⁴

tf=0.5 cm

Wply=67.75 cm³

Wplz=67.75 cm³

INTERNAL FORCES AND CAPACITIES:

N_{Ed} = 10.66 kN

M_{y,Ed} = 1.25 kN*m

N_{c,Rd} = 670.24 kN

M_{y,pl,Rd} = 24.05 kN*m

N_{b,Rd} = 660.07 kN

M_{y,c,Rd} = 24.05 kN*m

V_{z,Ed} = -2.44 kN

M_{N,y,Rd} = 24.05 kN*m

V_{z,c,Rd} = 193.48 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L_y = 0.79 m

Lam_y = 0.27

L_{cr,y} = 0.79 m

X_y = 0.98

Lam_y = 20.49

k_{yy} = 1.00



About z axis:

L_z = 0.79 m

Lam_z = 0.27

L_{cr,z} = 0.79 m

X_z = 0.98

Lam_z = 20.49

k_{zy} = 0.60

VERIFICATION FORMULAS:

Section strength check:

N_{Ed}/N_{c,Rd} = 0.02 < 1.00 (6.2.4.(1))

M_{y,Ed}/M_{y,c,Rd} = 0.05 < 1.00 (6.2.5.(1))

V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00 (6.2.6.(1))

Global stability check of member:

Lam_{bda,y} = 20.49 < Lam_{bda,max} = 210.00 Lam_{bda,z} = 20.49 < Lam_{bda,max} = 210.00 STABLE

N_{Ed}/(X_y*N_{Rk}/gM1) + k_{yy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.07 < 1.00 (6.3.3.(4))

N_{Ed}/(X_z*N_{Rk}/gM1) + k_{zy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.05 < 1.00 (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 239 Simple bar_239 POINT: 3

COORDINATE: $x = 1.00$ $L = 0.81$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h=6.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=6.0$ cm	$A_y=4.44$ cm ²	$A_z=4.44$ cm ²	$A_x=8.88$ cm ²
$t_w=0.4$ cm	$I_y=46.14$ cm ⁴	$I_z=46.14$ cm ⁴	$I_x=72.41$ cm ⁴
$t_f=0.4$ cm	$W_{ply}=18.85$ cm ³	$W_{plz}=18.85$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 10.93$ kN	$M_{y,Ed} = -0.21$ kN*m	
$N_{c,Rd} = 315.35$ kN	$M_{y,pl,Rd} = 6.69$ kN*m	
$N_{b,Rd} = 294.72$ kN	$M_{y,c,Rd} = 6.69$ kN*m	$V_{z,Ed} = -0.37$ kN
	$MN_{y,Rd} = 6.69$ kN*m	$V_{z,c,Rd} = 91.03$ kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.81$ m	$\Lambda_{m,y} = 0.47$
$L_{cr,y} = 0.81$ m	$X_y = 0.93$
$\Lambda_{m,y} = 35.58$	$k_{yy} = 1.00$



About z axis:

$L_z = 0.81$ m	$\Lambda_{m,z} = 0.47$
$L_{cr,z} = 0.81$ m	$X_z = 0.93$
$\Lambda_{m,z} = 35.58$	$k_{zy} = 0.60$

VERIFICATION FORMULAS:

Section strength check:

$$N_{Ed}/N_{c,Rd} = 0.03 < 1.00 \quad (6.2.4.(1))$$

$$M_{y,Ed}/M_{y,c,Rd} = 0.03 < 1.00 \quad (6.2.5.(1))$$

$$V_{z,Ed}/V_{z,c,Rd} = 0.00 < 1.00 \quad (6.2.6.(1))$$

Global stability check of member:

$$\Lambda_{m,y} = 35.58 < \Lambda_{m,max} = 210.00 \quad \Lambda_{m,z} = 35.58 < \Lambda_{m,max} = 210.00 \quad \text{STABLE}$$

$$N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.07 < 1.00 \quad (6.3.3.(4))$$

$$N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.06 < 1.00 \quad (6.3.3.(4))$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 240 Simple bar_240 POINT: 3

COORDINATE: $x = 1.00$ $L = 0.82$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

$h=10.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=10.0$ cm	$A_y=9.44$ cm ²	$A_z=9.44$ cm ²	$A_x=18.88$ cm ²
$tw=0.5$ cm	$I_y=282.80$ cm ⁴	$I_z=282.80$ cm ⁴	$I_x=438.80$ cm ⁴
$tf=0.5$ cm	$W_{ply}=67.75$ cm ³	$W_{plz}=67.75$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 12.70$ kN	$M_{y,Ed} = -1.66$ kN*m	
$N_{c,Rd} = 670.24$ kN	$M_{y,pl,Rd} = 24.05$ kN*m	
$N_{b,Rd} = 658.76$ kN	$M_{y,c,Rd} = 24.05$ kN*m	$V_{z,Ed} = -3.35$ kN
	$MN_{y,Rd} = 24.05$ kN*m	$V_{z,c,Rd} = 193.48$ kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.82$ m	$\lambda_{m,y} = 0.28$
$L_{cr,y} = 0.82$ m	$X_y = 0.98$
$\lambda_{m,y} = 21.14$	$k_{yy} = 1.00$



About z axis:

$L_z = 0.82$ m	$\lambda_{m,z} = 0.28$
$L_{cr,z} = 0.82$ m	$X_z = 0.98$
$\lambda_{m,z} = 21.14$	$k_{zy} = 0.60$

VERIFICATION FORMULAS:

Section strength check:

$$N_{Ed}/N_{c,Rd} = 0.02 < 1.00 \quad (6.2.4.(1))$$

$$M_{y,Ed}/M_{y,c,Rd} = 0.07 < 1.00 \quad (6.2.5.(1))$$

$$V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00 \quad (6.2.6.(1))$$

Global stability check of member:

$$\lambda_{m,y} = 21.14 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 21.14 < \lambda_{m,max} = 210.00 \quad \text{STABLE}$$

$$N_{Ed}/(X_y \cdot N_{c,Rd}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rd}/gM1) = 0.09 < 1.00 \quad (6.3.3.(4))$$

$$N_{Ed}/(X_z \cdot N_{c,Rd}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rd}/gM1) = 0.06 < 1.00 \quad (6.3.3.(4))$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 241 Column_241

POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: HEA 160

$h=15.2$ cm	$gM0=1.00$	$gM1=1.00$	
$b=16.0$ cm	$A_y=32.53$ cm ²	$A_z=13.21$ cm ²	$A_x=38.77$ cm ²
$t_w=0.6$ cm	$I_y=1672.98$ cm ⁴	$I_z=615.57$ cm ⁴	$I_x=10.90$ cm ⁴
$t_f=0.9$ cm	$W_{ply}=245.17$ cm ³	$W_{plz}=117.63$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 17.87$ kN	$M_{y,Ed} = 23.64$ kN*m	
$N_{c,Rd} = 1376.38$ kN	$M_{y,pl,Rd} = 87.03$ kN*m	
$N_{b,Rd} = 1213.50$ kN	$M_{y,c,Rd} = 87.03$ kN*m	$V_{z,Ed} = -22.66$ kN
	$M_{N,y,Rd} = 87.03$ kN*m	$V_{z,c,Rd} = 270.78$ kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 1.31$ m	$\lambda_{m,y} = 0.26$
$L_{cr,y} = 1.31$ m	$X_y = 0.98$
$\lambda_{m,y} = 19.90$	$k_{yy} = 0.73$



About z axis:

$L_z = 1.31$ m	$\lambda_{m,z} = 0.43$
$L_{cr,z} = 1.31$ m	$X_z = 0.88$
$\lambda_{m,z} = 32.81$	$k_{zy} = 0.38$

VERIFICATION FORMULAS:

Section strength check:

$$N_{Ed}/N_{c,Rd} = 0.01 < 1.00 \quad (6.2.4.(1))$$

$$M_{y,Ed}/M_{y,c,Rd} = 0.27 < 1.00 \quad (6.2.5.(1))$$

$$V_{z,Ed}/V_{z,c,Rd} = 0.08 < 1.00 \quad (6.2.6.(1))$$

Global stability check of member:

$$\lambda_{m,y} = 19.90 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 32.81 < \lambda_{m,max} = 210.00 \quad \text{STABLE}$$

$$N_{Ed}/(X_y \cdot N_{c,Rd}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rd}/gM1) = 0.21 < 1.00 \quad (6.3.3.(4))$$

$$N_{Ed}/(X_z \cdot N_{c,Rd}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rd}/gM1) = 0.12 < 1.00 \quad (6.3.3.(4))$$

LIMIT DISPLACEMENTS



Deflections Not analyzed



Displacements

$$v_x = 0.6 \text{ cm} < v_{x,max} = L/150.00 = 0.9 \text{ cm} \quad \text{Verified}$$

$$\text{Governing Load Case: } 15 \text{ SLS } /59/ \quad 1*1.00 + 2*1.00 + 3*1.00 + 5*0.70 + 6*0.60 + 9*1.00$$

$$v_y = 0.0 \text{ cm} < v_{y,max} = L/150.00 = 0.9 \text{ cm} \quad \text{Verified}$$

$$\text{Governing Load Case: } 15 \text{ SLS } /57/ \quad 1*1.00 + 2*1.00 + 3*1.00 + 4*1.00 + 5*0.70 + 6*0.60$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 242 Simple bar_242 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /120/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 11*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h=6.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=6.0$ cm	$A_y=4.44$ cm ²	$A_z=4.44$ cm ²	$A_x=8.88$ cm ²
$t_w=0.4$ cm	$I_y=46.14$ cm ⁴	$I_z=46.14$ cm ⁴	$I_x=72.41$ cm ⁴
$t_f=0.4$ cm	$W_{ply}=18.85$ cm ³	$W_{plz}=18.85$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 29.11$ kN	$M_{y,Ed} = -0.64$ kN*m	
$N_{c,Rd} = 315.35$ kN	$M_{y,pl,Rd} = 6.69$ kN*m	
$N_{b,Rd} = 297.85$ kN	$M_{y,c,Rd} = 6.69$ kN*m	$V_{z,Ed} = 1.68$ kN
	$M_{N,y,Rd} = 6.69$ kN*m	$V_{z,c,Rd} = 91.03$ kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.75$ m	$\lambda_{m,y} = 0.43$
$L_{cr,y} = 0.75$ m	$X_y = 0.94$
$\lambda_{m,y} = 32.91$	$k_{yy} = 0.99$



About z axis:

$L_z = 0.75$ m	$\lambda_{m,z} = 0.43$
$L_{cr,z} = 0.75$ m	$X_z = 0.94$
$\lambda_{m,z} = 32.91$	$k_{zy} = 0.60$

VERIFICATION FORMULAS:

Section strength check:

$$N_{Ed}/N_{c,Rd} = 0.09 < 1.00 \quad (6.2.4.(1))$$

$$M_{y,Ed}/M_{y,c,Rd} = 0.10 < 1.00 \quad (6.2.5.(1))$$

$$V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00 \quad (6.2.6.(1))$$

Global stability check of member:

$$\lambda_{m,y} = 32.91 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 32.91 < \lambda_{m,max} = 210.00 \quad \text{STABLE}$$

$$N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.19 < 1.00 \quad (6.3.3.(4))$$

$$N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.16 < 1.00 \quad (6.3.3.(4))$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 243 Simple bar_243 **POINT:** 3

COORDINATE: x = 1.00 L = 0.93 m

LOADS:

Governing Load Case: 12 ULS /118/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 10*0.90 + 9*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h=6.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=6.0$ cm	$A_y=4.44$ cm ²	$A_z=4.44$ cm ²	$A_x=8.88$ cm ²
$t_w=0.4$ cm	$I_y=46.14$ cm ⁴	$I_z=46.14$ cm ⁴	$I_x=72.41$ cm ⁴
$t_f=0.4$ cm	$W_{ply}=18.85$ cm ³	$W_{plz}=18.85$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 49.02$ kN	$M_{y,Ed} = 0.38$ kN*m	
$N_{c,Rd} = 315.35$ kN	$M_{y,pl,Rd} = 6.69$ kN*m	
$N_{b,Rd} = 288.17$ kN	$M_{y,c,Rd} = 6.69$ kN*m	$V_{z,Ed} = 0.62$ kN
	$MN_{y,Rd} = 6.69$ kN*m	$V_{z,c,Rd} = 91.03$ kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.93$ m	$\Lambda_{m,y} = 0.53$
$L_{cr,y} = 0.93$ m	$X_y = 0.91$
$\Lambda_{m,y} = 40.70$	$k_{yy} = 1.01$



About z axis:

$L_z = 0.93$ m	$\Lambda_{m,z} = 0.53$
$L_{cr,z} = 0.93$ m	$X_z = 0.91$
$\Lambda_{m,z} = 40.70$	$k_{zy} = 0.61$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.16 < 1.00 \quad (6.2.4.(1)) \\ M_{y,Ed}/M_{y,c,Rd} &= 0.06 < 1.00 \quad (6.2.5.(1)) \\ M_{y,Ed}/M_{N,y,Rd} &= 0.06 < 1.00 \quad (6.2.9.1.(2)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.01 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \Lambda_{bda,y} &= 40.70 < \Lambda_{bda,max} = 210.00 \quad \Lambda_{bda,z} = 40.70 < \Lambda_{bda,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.23 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.21 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 244 Simple bar_244 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /120/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 11*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h=6.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=6.0$ cm	$A_y=4.44$ cm ²	$A_z=4.44$ cm ²	$A_x=8.88$ cm ²
$tw=0.4$ cm	$I_y=46.14$ cm ⁴	$I_z=46.14$ cm ⁴	$I_x=72.41$ cm ⁴
$tf=0.4$ cm	$W_{ply}=18.85$ cm ³	$W_{plz}=18.85$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 32.79$ kN	$M_{y,Ed} = -0.66$ kN*m	
$N_{c,Rd} = 315.35$ kN	$M_{y,pl,Rd} = 6.69$ kN*m	
$N_{b,Rd} = 297.85$ kN	$M_{y,c,Rd} = 6.69$ kN*m	$V_{z,Ed} = 1.73$ kN
	$MN_{y,Rd} = 6.69$ kN*m	$V_{z,c,Rd} = 91.03$ kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.75$ m	$\Lambda_{m,y} = 0.43$
$L_{cr,y} = 0.75$ m	$X_y = 0.94$
$\Lambda_{m,y} = 32.91$	$k_{yy} = 0.99$



About z axis:

$L_z = 0.75$ m	$\Lambda_{m,z} = 0.43$
$L_{cr,z} = 0.75$ m	$X_z = 0.94$
$\Lambda_{m,z} = 32.91$	$k_{zy} = 0.60$

VERIFICATION FORMULAS:

Section strength check:

$$N_{Ed}/N_{c,Rd} = 0.10 < 1.00 \quad (6.2.4.(1))$$

$$M_{y,Ed}/M_{y,c,Rd} = 0.10 < 1.00 \quad (6.2.5.(1))$$

$$V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00 \quad (6.2.6.(1))$$

Global stability check of member:

$$\Lambda_{m,y} = 32.91 < \Lambda_{m,max} = 210.00 \quad \Lambda_{m,z} = 32.91 < \Lambda_{m,max} = 210.00 \quad \text{STABLE}$$

$$N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.21 < 1.00 \quad (6.3.3.(4))$$

$$N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.17 < 1.00 \quad (6.3.3.(4))$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 245 Simple bar_245 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /120/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 11*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h=6.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=6.0$ cm	$A_y=4.44$ cm ²	$A_z=4.44$ cm ²	$A_x=8.88$ cm ²
$t_w=0.4$ cm	$I_y=46.14$ cm ⁴	$I_z=46.14$ cm ⁴	$I_x=72.41$ cm ⁴
$t_f=0.4$ cm	$W_{ply}=18.85$ cm ³	$W_{plz}=18.85$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 31.61$ kN	$M_{y,Ed} = -0.65$ kN*m	
$N_{c,Rd} = 315.35$ kN	$M_{y,pl,Rd} = 6.69$ kN*m	
$N_{b,Rd} = 297.85$ kN	$M_{y,c,Rd} = 6.69$ kN*m	$V_{z,Ed} = 1.71$ kN
	$M_{N,y,Rd} = 6.69$ kN*m	$V_{z,c,Rd} = 91.03$ kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.75$ m	$\lambda_{m,y} = 0.43$
$L_{cr,y} = 0.75$ m	$X_y = 0.94$
$\lambda_{m,y} = 32.91$	$k_{yy} = 0.99$



About z axis:

$L_z = 0.75$ m	$\lambda_{m,z} = 0.43$
$L_{cr,z} = 0.75$ m	$X_z = 0.94$
$\lambda_{m,z} = 32.91$	$k_{zy} = 0.60$

VERIFICATION FORMULAS:

Section strength check:

$$N_{Ed}/N_{c,Rd} = 0.10 < 1.00 \quad (6.2.4.(1))$$

$$M_{y,Ed}/M_{y,c,Rd} = 0.10 < 1.00 \quad (6.2.5.(1))$$

$$V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00 \quad (6.2.6.(1))$$

Global stability check of member:

$$\lambda_{m,y} = 32.91 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 32.91 < \lambda_{m,max} = 210.00 \quad \text{STABLE}$$

$$N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.20 < 1.00 \quad (6.3.3.(4))$$

$$N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.16 < 1.00 \quad (6.3.3.(4))$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 246 Simple bar_246 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /120/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 11*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h=6.0$ cm

$gM0=1.00$

$gM1=1.00$

$b=6.0$ cm

$A_y=4.44$ cm²

$A_z=4.44$ cm²

$A_x=8.88$ cm²

$tw=0.4$ cm

$I_y=46.14$ cm⁴

$I_z=46.14$ cm⁴

$I_x=72.41$ cm⁴

$tf=0.4$ cm

$W_{ply}=18.85$ cm³

$W_{plz}=18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 30.83$ kN

$M_{y,Ed} = -0.63$ kN*m

$N_{c,Rd} = 315.35$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$N_{b,Rd} = 297.80$ kN

$M_{y,c,Rd} = 6.69$ kN*m

$V_{z,Ed} = 1.65$ kN

$M_{N,y,Rd} = 6.69$ kN*m

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.75$ m

$\lambda_{m,y} = 0.43$

$L_{cr,y} = 0.75$ m

$X_y = 0.94$

$\lambda_{m,y} = 32.95$

$k_{yy} = 0.99$



About z axis:

$L_z = 0.75$ m

$\lambda_{m,z} = 0.43$

$L_{cr,z} = 0.75$ m

$X_z = 0.94$

$\lambda_{m,z} = 32.95$

$k_{zy} = 0.60$

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{c,Rd} = 0.10 < 1.00$ (6.2.4.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.09 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00$ (6.2.6.(1))

Global stability check of member:

$\lambda_{m,y} = 32.95 < \lambda_{m,max} = 210.00$ $\lambda_{m,z} = 32.95 < \lambda_{m,max} = 210.00$ STABLE

$N_{Ed}/(X_y \cdot N_{c,Rd}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rd}/gM1) = 0.20 < 1.00$ (6.3.3.(4))

$N_{Ed}/(X_z \cdot N_{c,Rd}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rd}/gM1) = 0.16 < 1.00$ (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 247 Simple bar_247 POINT: 3

COORDINATE: $x = 1.00$ $L = 0.92$ m

LOADS:

Governing Load Case: 12 ULS /163/ $1*1.00 + 2*1.00 + 3*1.00 + 10*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$t_w = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$t_f = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 35.00$ kN

$M_{y,Ed} = 0.34$ kN*m

$N_{c,Rd} = 315.35$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$N_{b,Rd} = 288.55$ kN

$M_{y,c,Rd} = 6.69$ kN*m

$V_{z,Ed} = 0.61$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.92$ m

$\lambda_{m,y} = 0.53$

$L_{cr,y} = 0.92$ m

$X_y = 0.92$

$\lambda_{m,y} = 40.42$

$k_{yy} = 1.01$



About z axis:

$L_z = 0.92$ m

$\lambda_{m,z} = 0.53$

$L_{cr,z} = 0.92$ m

$X_z = 0.92$

$\lambda_{m,z} = 40.42$

$k_{zy} = 0.61$

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{c,Rd} = 0.11 < 1.00$ (6.2.4.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.05 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Global stability check of member:

$\lambda_{m,y} = 40.42 < \lambda_{m,max} = 210.00$ $\lambda_{m,z} = 40.42 < \lambda_{m,max} = 210.00$ STABLE

$N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.17 < 1.00$ (6.3.3.(4))

$N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.15 < 1.00$ (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 248 Simple bar_248 POINT: 3

COORDINATE: $x = 1.00$ $L = 0.91$ m

LOADS:

Governing Load Case: 12 ULS /163/ $1*1.00 + 2*1.00 + 3*1.00 + 10*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h=6.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=6.0$ cm	$A_y=4.44$ cm ²	$A_z=4.44$ cm ²	$A_x=8.88$ cm ²
$t_w=0.4$ cm	$I_y=46.14$ cm ⁴	$I_z=46.14$ cm ⁴	$I_x=72.41$ cm ⁴
$t_f=0.4$ cm	$W_{ply}=18.85$ cm ³	$W_{plz}=18.85$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 31.59$ kN	$M_{y,Ed} = 0.29$ kN*m	
$N_{c,Rd} = 315.35$ kN	$M_{y,pl,Rd} = 6.69$ kN*m	
$N_{b,Rd} = 288.93$ kN	$M_{y,c,Rd} = 6.69$ kN*m	$V_{z,Ed} = 0.50$ kN
	$M_{N,y,Rd} = 6.69$ kN*m	$V_{z,c,Rd} = 91.03$ kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.91$ m	$\lambda_{m,y} = 0.53$
$L_{cr,y} = 0.91$ m	$X_y = 0.92$
$\lambda_{m,y} = 40.14$	$k_{yy} = 1.01$



About z axis:

$L_z = 0.91$ m	$\lambda_{m,z} = 0.53$
$L_{cr,z} = 0.91$ m	$X_z = 0.92$
$\lambda_{m,z} = 40.14$	$k_{zy} = 0.61$

VERIFICATION FORMULAS:

Section strength check:

$$N_{Ed}/N_{c,Rd} = 0.10 < 1.00 \quad (6.2.4.(1))$$

$$M_{y,Ed}/M_{y,c,Rd} = 0.04 < 1.00 \quad (6.2.5.(1))$$

$$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00 \quad (6.2.6.(1))$$

Global stability check of member:

$$\lambda_{m,y} = 40.14 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 40.14 < \lambda_{m,max} = 210.00 \quad \text{STABLE}$$

$$N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.15 < 1.00 \quad (6.3.3.(4))$$

$$N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) = 0.14 < 1.00 \quad (6.3.3.(4))$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 249 Simple bar_249 **POINT:** 3

COORDINATE: x = 1.00 L = 0.91 m

LOADS:

Governing Load Case: 12 ULS /163/ 1*1.00 + 2*1.00 + 3*1.00 + 10*0.90 + 9*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

h=6.0 cm

gM0=1.00

gM1=1.00

b=6.0 cm

Ay=4.44 cm²

Az=4.44 cm²

Ax=8.88 cm²

tw=0.4 cm

Iy=46.14 cm⁴

Iz=46.14 cm⁴

Ix=72.41 cm⁴

tf=0.4 cm

Wply=18.85 cm³

Wplz=18.85 cm³

INTERNAL FORCES AND CAPACITIES:

N_{Ed} = 26.35 kN

M_{y,Ed} = 0.26 kN*m

N_{c,Rd} = 315.35 kN

M_{y,pl,Rd} = 6.69 kN*m

N_{b,Rd} = 289.26 kN

M_{y,c,Rd} = 6.69 kN*m

MN_{y,Rd} = 6.69 kN*m

V_{z,Ed} = 0.43 kN

V_{z,c,Rd} = 91.03 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L_y = 0.91 m

Lam_y = 0.52

L_{cr,y} = 0.91 m

X_y = 0.92

Lam_y = 39.89

k_{yy} = 1.00



About z axis:

L_z = 0.91 m

Lam_z = 0.52

L_{cr,z} = 0.91 m

X_z = 0.92

Lam_z = 39.89

k_{zy} = 0.61

VERIFICATION FORMULAS:

Section strength check:

N_{Ed}/N_{c,Rd} = 0.08 < 1.00 (6.2.4.(1))

M_{y,Ed}/M_{y,c,Rd} = 0.04 < 1.00 (6.2.5.(1))

V_{z,Ed}/V_{z,c,Rd} = 0.00 < 1.00 (6.2.6.(1))

Global stability check of member:

Lam_{bda,y} = 39.89 < Lam_{bda,max} = 210.00 Lam_{bda,z} = 39.89 < Lam_{bda,max} = 210.00 STABLE

N_{Ed}/(X_y*N_{Rk}/gM1) + k_{yy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.13 < 1.00 (6.3.3.(4))

N_{Ed}/(X_z*N_{Rk}/gM1) + k_{zy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.11 < 1.00 (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 250 Simple bar_250 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /120/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 11*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 60x4

$h = 6.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 6.0$ cm

$A_y = 4.44$ cm²

$A_z = 4.44$ cm²

$A_x = 8.88$ cm²

$tw = 0.4$ cm

$I_y = 46.14$ cm⁴

$I_z = 46.14$ cm⁴

$I_x = 72.41$ cm⁴

$tf = 0.4$ cm

$W_{ply} = 18.85$ cm³

$W_{plz} = 18.85$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -37.27$ kN

$M_{y,Ed} = 0.29$ kN*m

$N_{t,Rd} = 313.39$ kN

$M_{y,pl,Rd} = 6.69$ kN*m

$M_{y,c,Rd} = 6.69$ kN*m

$MN_{y,Rd} = 6.69$ kN*m

$V_{z,Ed} = -0.57$ kN

$V_{z,c,Rd} = 91.03$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.12 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.04 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.04 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 252 Simple bar_252 POINT: 3

COORDINATE: $x = 1.00$ $L = 7.71$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 150x100x6.3

$h = 15.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 10.0$ cm

$A_y = 11.88$ cm²

$A_z = 17.82$ cm²

$A_x = 29.70$ cm²

$tw = 0.6$ cm

$I_y = 910.10$ cm⁴

$I_z = 479.30$ cm⁴

$I_x = 985.10$ cm⁴

$tf = 0.6$ cm

$W_{ply} = 150.00$ cm³

$W_{plz} = 112.61$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -596.82$ kN

$M_{y,Ed} = 1.63$ kN*m

$N_{t,Rd} = 1047.82$ kN

$M_{y,pl,Rd} = 53.25$ kN*m

$M_{y,c,Rd} = 53.25$ kN*m

$MN_{y,Rd} = 30.81$ kN*m

$V_{z,Ed} = -0.28$ kN

$V_{z,c,Rd} = 365.24$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.57 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.03 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.05 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.00 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 253 Simple bar_253 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 150x100x6.3

$h = 15.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 10.0$ cm

$A_y = 11.88$ cm²

$A_z = 17.82$ cm²

$A_x = 29.70$ cm²

$tw = 0.6$ cm

$I_y = 910.10$ cm⁴

$I_z = 479.30$ cm⁴

$I_x = 985.10$ cm⁴

$tf = 0.6$ cm

$W_{ply} = 150.00$ cm³

$W_{plz} = 112.61$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -597.24$ kN

$M_{y,Ed} = 1.28$ kN*m

$N_{t,Rd} = 1047.82$ kN

$M_{y,pl,Rd} = 53.25$ kN*m

$M_{y,c,Rd} = 53.25$ kN*m

$MN_{y,Rd} = 30.78$ kN*m

$V_{z,Ed} = 1.18$ kN

$V_{z,c,Rd} = 365.24$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.57 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.02 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.04 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.00 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 254 Simple bar_254 **POINT:** 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

h=10.0 cm

gM0=1.00

gM1=1.00

b=10.0 cm

Ay=9.44 cm²

Az=9.44 cm²

Ax=18.88 cm²

tw=0.5 cm

Iy=282.80 cm⁴

Iz=282.80 cm⁴

Ix=438.80 cm⁴

tf=0.5 cm

Wply=67.75 cm³

Wplz=67.75 cm³

INTERNAL FORCES AND CAPACITIES:

N_{Ed} = 526.15 kN

M_{y,Ed} = -2.17 kN*m

N_{c,Rd} = 670.24 kN

M_{y,pl,Rd} = 24.05 kN*m

N_{b,Rd} = 670.24 kN

M_{y,c,Rd} = 24.05 kN*m

V_{z,Ed} = 3.80 kN

MN_{y,Rd} = 6.76 kN*m

V_{z,c,Rd} = 193.48 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L_y = 0.58 m

Lam_y = 0.19

L_{cr,y} = 0.58 m

X_y = 1.00

Lam_y = 14.87

k_{yy} = 0.82



About z axis:

L_z = 0.58 m

Lam_z = 0.19

L_{cr,z} = 0.58 m

X_z = 1.00

Lam_z = 14.87

k_{zy} = 0.48

VERIFICATION FORMULAS:

Section strength check:

N_{Ed}/N_{c,Rd} = 0.79 < 1.00 (6.2.4.(1))

M_{y,Ed}/M_{y,c,Rd} = 0.09 < 1.00 (6.2.5.(1))

M_{y,Ed}/MN_{y,Rd} = 0.32 < 1.00 (6.2.9.1.(2))

V_{z,Ed}/V_{z,c,Rd} = 0.02 < 1.00 (6.2.6.(1))

Global stability check of member:

Lam_{bda,y} = 14.87 < Lam_{bda,max} = 210.00 Lam_{bda,z} = 14.87 < Lam_{bda,max} = 210.00 STABLE

N_{Ed}/(X_y*N_{Rk}/gM1) + k_{yy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.86 < 1.00 (6.3.3.(4))

N_{Ed}/(X_z*N_{Rk}/gM1) + k_{zy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.83 < 1.00 (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 255 Simple bar_255 **POINT:** 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

h=10.0 cm	gM0=1.00	gM1=1.00	
b=10.0 cm	Ay=9.44 cm ²	Az=9.44 cm ²	Ax=18.88 cm ²
tw=0.5 cm	Iy=282.80 cm ⁴	Iz=282.80 cm ⁴	Ix=438.80 cm ⁴
tf=0.5 cm	Wply=67.75 cm ³	Wplz=67.75 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 474.36 kN	M _{y,Ed} = -1.52 kN*m	
N _{c,Rd} = 670.24 kN	M _{y,pl,Rd} = 24.05 kN*m	
N _{b,Rd} = 670.24 kN	M _{y,c,Rd} = 24.05 kN*m	V _{z,Ed} = 3.00 kN
	MN _{y,Rd} = 9.19 kN*m	V _{z,c,Rd} = 193.48 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L _y = 0.57 m	Lam _y = 0.19
L _{cr,y} = 0.57 m	X _y = 1.00
Lam _y = 14.81	k _{yy} = 0.83



About z axis:

L _z = 0.57 m	Lam _z = 0.19
L _{cr,z} = 0.57 m	X _z = 1.00
Lam _z = 14.81	k _{zy} = 0.49

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.71 < 1.00 \quad (6.2.4.(1)) \\ M_{y,Ed}/M_{y,c,Rd} &= 0.06 < 1.00 \quad (6.2.5.(1)) \\ M_{y,Ed}/M_{N,y,Rd} &= 0.17 < 1.00 \quad (6.2.9.1.(2)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.02 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{b,y} &= 14.81 < \lambda_{b,max} = 210.00 \quad \lambda_{b,z} = 14.81 < \lambda_{b,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.76 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.74 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 256 Simple bar_256 **POINT:** 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

h=10.0 cm

gM0=1.00

gM1=1.00

b=10.0 cm

Ay=9.44 cm²

Az=9.44 cm²

Ax=18.88 cm²

tw=0.5 cm

Iy=282.80 cm⁴

Iz=282.80 cm⁴

Ix=438.80 cm⁴

tf=0.5 cm

Wply=67.75 cm³

Wplz=67.75 cm³

INTERNAL FORCES AND CAPACITIES:

N_{Ed} = 424.59 kN

M_{y,Ed} = -1.31 kN*m

N_{c,Rd} = 670.24 kN

M_{y,pl,Rd} = 24.05 kN*m

N_{b,Rd} = 670.24 kN

M_{y,c,Rd} = 24.05 kN*m

V_{z,Ed} = 2.81 kN

MN_{y,Rd} = 11.53 kN*m

V_{z,c,Rd} = 193.48 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L_y = 0.57 m

Lam_y = 0.19

L_{cr,y} = 0.57 m

X_y = 1.00

Lam_y = 14.75

k_{yy} = 0.85



About z axis:

L_z = 0.57 m

Lam_z = 0.19

L_{cr,z} = 0.57 m

X_z = 1.00

Lam_z = 14.75

k_{zy} = 0.50

VERIFICATION FORMULAS:

Section strength check:

N_{Ed}/N_{c,Rd} = 0.63 < 1.00 (6.2.4.(1))

M_{y,Ed}/M_{y,c,Rd} = 0.05 < 1.00 (6.2.5.(1))

M_{y,Ed}/MN_{y,Rd} = 0.11 < 1.00 (6.2.9.1.(2))

V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00 (6.2.6.(1))

Global stability check of member:

Lam_{bda,y} = 14.75 < Lam_{bda,max} = 210.00 Lam_{bda,z} = 14.75 < Lam_{bda,max} = 210.00 STABLE

N_{Ed}/(X_y*N_{Rk}/gM1) + k_{yy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.68 < 1.00 (6.3.3.(4))

N_{Ed}/(X_z*N_{Rk}/gM1) + k_{zy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.66 < 1.00 (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 257 Simple bar_257 POINT: 3

COORDINATE: $x = 1.00$ $L = 0.59$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 200x100x6

$h=20.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=10.0$ cm	$A_y=11.15$ cm ²	$A_z=22.30$ cm ²	$A_x=33.45$ cm ²
$t_w=0.6$ cm	$I_y=1685.00$ cm ⁴	$I_z=572.30$ cm ⁴	$I_x=1416.00$ cm ⁴
$t_f=0.6$ cm	$W_{ply}=222.43$ cm ³	$W_{plz}=136.03$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 53.19$ kN	$M_{y,Ed} = -8.17$ kN*m	
$N_{c,Rd} = 1187.47$ kN	$M_{y,pl,Rd} = 78.96$ kN*m	
$N_{b,Rd} = 1187.47$ kN	$M_{y,c,Rd} = 78.96$ kN*m	$V_{z,Ed} = -14.77$ kN
	$M_{N,y,Rd} = 78.96$ kN*m	$V_{z,c,Rd} = 457.06$ kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.59$ m	$\Lambda_{m,y} = 0.11$
$L_{cr,y} = 0.59$ m	$X_y = 1.00$
$\Lambda_{m,y} = 8.26$	$k_{yy} = 0.98$



About z axis:

$L_z = 0.59$ m	$\Lambda_{m,z} = 0.19$
$L_{cr,z} = 0.59$ m	$X_z = 1.00$
$\Lambda_{m,z} = 14.17$	$k_{zy} = 0.62$

VERIFICATION FORMULAS:

Section strength check:

$$N_{Ed}/N_{c,Rd} = 0.04 < 1.00 \quad (6.2.4.(1))$$

$$M_{y,Ed}/M_{y,c,Rd} = 0.10 < 1.00 \quad (6.2.5.(1))$$

$$V_{z,Ed}/V_{z,c,Rd} = 0.03 < 1.00 \quad (6.2.6.(1))$$

Global stability check of member:

$$\Lambda_{m,y} = 8.26 < \Lambda_{m,y,max} = 210.00 \quad \Lambda_{m,z} = 14.17 < \Lambda_{m,z,max} = 210.00 \quad \text{STABLE}$$

$$N_{Ed}/(X_y \cdot N_{c,Rd}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rd}/gM1) = 0.15 < 1.00 \quad (6.3.3.(4))$$

$$N_{Ed}/(X_z \cdot N_{c,Rd}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rd}/gM1) = 0.11 < 1.00 \quad (6.3.3.(4))$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 258 Simple bar_258 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 200x100x6

$h = 20.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 10.0$ cm

$A_y = 11.15$ cm²

$A_z = 22.30$ cm²

$A_x = 33.45$ cm²

$t_w = 0.6$ cm

$I_y = 1685.00$ cm⁴

$I_z = 572.30$ cm⁴

$I_x = 1416.00$ cm⁴

$t_f = 0.6$ cm

$W_{ply} = 222.43$ cm³

$W_{plz} = 136.03$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 119.94$ kN

$M_{y,Ed} = -13.35$ kN*m

$N_{c,Rd} = 1187.47$ kN

$M_{y,pl,Rd} = 78.96$ kN*m

$N_{b,Rd} = 1187.47$ kN

$M_{y,c,Rd} = 78.96$ kN*m

$V_{z,Ed} = 20.16$ kN

$V_{z,c,Rd} = 457.06$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.58$ m

$\lambda_{m,y} = 0.11$

$L_{cr,y} = 0.58$ m

$X_y = 1.00$

$\lambda_{m,y} = 8.13$

$k_{yy} = 0.95$



About z axis:

$L_z = 0.58$ m

$\lambda_{m,z} = 0.18$

$L_{cr,z} = 0.58$ m

$X_z = 1.00$

$\lambda_{m,z} = 13.95$

$k_{zy} = 0.60$

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{c,Rd} = 0.10 < 1.00$ (6.2.4.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.17 < 1.00$ (6.2.5.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.04 < 1.00$ (6.2.6.(1))

Global stability check of member:

$\lambda_{bda,y} = 8.13 < \lambda_{bda,max} = 210.00$ $\lambda_{bda,z} = 13.95 < \lambda_{bda,max} = 210.00$ STABLE

$N_{Ed}/(X_y * N_{Rk}/gM1) + k_{yy} * M_{y,Ed}/(XLT * M_{y,Rk}/gM1) = 0.26 < 1.00$ (6.3.3.(4))

$N_{Ed}/(X_z * N_{Rk}/gM1) + k_{zy} * M_{y,Ed}/(XLT * M_{y,Rk}/gM1) = 0.20 < 1.00$ (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 259 Simple bar_259 POINT: 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 200x100x6

h=20.0 cm	gM0=1.00	gM1=1.00	
b=10.0 cm	Ay=11.15 cm ²	Az=22.30 cm ²	Ax=33.45 cm ²
tw=0.6 cm	Iy=1685.00 cm ⁴	Iz=572.30 cm ⁴	Ix=1416.00 cm ⁴
tf=0.6 cm	Wely=168.50 cm ³	Welz=114.46 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 165.35 kN	My _{Ed} = -6.27 kN*m	
N _{c,Rd} = 1187.47 kN	My _{el,Rd} = 59.82 kN*m	
N _{b,Rd} = 1187.47 kN	My _{c,Rd} = 59.82 kN*m	Vz _{Ed} = 9.26 kN
		Vz _{c,Rd} = 457.06 kN
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

Ly = 0.57 m	Lam_y = 0.11
Lcr,y = 0.57 m	Xy = 1.00
Lamy = 8.10	kyy = 1.00



About z axis:

Lz = 0.57 m	Lam_z = 0.18
Lcr,z = 0.57 m	Xz = 1.00
Lamz = 13.90	kzy = 1.00

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} My_{Ed}/My_{c,Rd} &= 0.10 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + My_{Ed}/My_{c,Rd} &= 0.24 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.24 < 1.00 \quad (6.2.1.(5)) \\ Vz_{Ed}/Vz_{c,Rd} &= 0.02 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{y} &= 8.10 < \lambda_{y,max} = 210.00 \quad \lambda_{z} = 13.90 < \lambda_{z,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot My_{Ed}/(XLT \cdot My_{Rk}/gM1) &= 0.24 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot My_{Ed}/(XLT \cdot My_{Rk}/gM1) &= 0.24 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 260 Simple bar_260 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 200x100x6

$h=20.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=10.0$ cm	$A_y=11.15$ cm ²	$A_z=22.30$ cm ²	$A_x=33.45$ cm ²
$t_w=0.6$ cm	$I_y=1685.00$ cm ⁴	$I_z=572.30$ cm ⁴	$I_x=1416.00$ cm ⁴
$t_f=0.6$ cm	$W_{ely}=168.50$ cm ³	$W_{elz}=114.46$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 212.49$ kN	$M_{y,Ed} = -5.51$ kN*m	
$N_{c,Rd} = 1187.47$ kN	$M_{y,el,Rd} = 59.82$ kN*m	
$N_{b,Rd} = 1187.47$ kN	$M_{y,c,Rd} = 59.82$ kN*m	$V_{z,Ed} = 9.70$ kN
		$V_{z,c,Rd} = 457.06$ kN
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.57$ m	$\lambda_{m,y} = 0.11$
$L_{cr,y} = 0.57$ m	$X_y = 1.00$
$\lambda_{m,y} = 8.06$	$k_{yy} = 1.00$



About z axis:

$L_z = 0.57$ m	$\lambda_{m,z} = 0.18$
$L_{cr,z} = 0.57$ m	$X_z = 1.00$
$\lambda_{m,z} = 13.83$	$k_{zy} = 1.00$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.09 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.27 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.27 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.02 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{m,y} &= 8.06 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 13.83 < \lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.27 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.27 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 261 Simple bar_261 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 200x100x6

$h=20.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=10.0$ cm	$A_y=11.15$ cm ²	$A_z=22.30$ cm ²	$A_x=33.45$ cm ²
$t_w=0.6$ cm	$I_y=1685.00$ cm ⁴	$I_z=572.30$ cm ⁴	$I_x=1416.00$ cm ⁴
$t_f=0.6$ cm	$W_{ely}=168.50$ cm ³	$W_{elz}=114.46$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 257.66$ kN	$M_{y,Ed} = -4.47$ kN*m	
$N_{c,Rd} = 1187.47$ kN	$M_{y,el,Rd} = 59.82$ kN*m	
$N_{b,Rd} = 1187.47$ kN	$M_{y,c,Rd} = 59.82$ kN*m	$V_{z,Ed} = 9.20$ kN
		$V_{z,c,Rd} = 457.06$ kN
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.57$ m	$\lambda_{m,y} = 0.11$
$L_{cr,y} = 0.57$ m	$X_y = 1.00$
$\lambda_{m,y} = 8.03$	$k_{yy} = 1.00$



About z axis:

$L_z = 0.57$ m	$\lambda_{m,z} = 0.18$
$L_{cr,z} = 0.57$ m	$X_z = 1.00$
$\lambda_{m,z} = 13.78$	$k_{zy} = 1.00$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.07 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.29 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.29 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.02 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{m,y} &= 8.03 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 13.78 < \lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.29 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.29 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 262 Simple bar_262 **POINT:** 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /110/ 1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

h=10.0 cm	gM0=1.00	gM1=1.00	
b=10.0 cm	Ay=9.44 cm ²	Az=9.44 cm ²	Ax=18.88 cm ²
tw=0.5 cm	Iy=282.80 cm ⁴	Iz=282.80 cm ⁴	Ix=438.80 cm ⁴
tf=0.5 cm	Wply=67.75 cm ³	Wplz=67.75 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 376.87 kN	M _{y,Ed} = -1.18 kN*m	
N _{c,Rd} = 670.24 kN	M _{y,pl,Rd} = 24.05 kN*m	
N _{b,Rd} = 670.24 kN	M _{y,c,Rd} = 24.05 kN*m	V _{z,Ed} = 2.88 kN
	MN _{y,Rd} = 13.76 kN*m	V _{z,c,Rd} = 193.48 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L _y = 0.57 m	Lam _y = 0.19
L _{cr,y} = 0.57 m	X _y = 1.00
Lam _y = 14.69	k _{yy} = 0.86



About z axis:

L _z = 0.57 m	Lam _z = 0.19
L _{cr,z} = 0.57 m	X _z = 1.00
Lam _z = 14.69	k _{zy} = 0.51

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.56 < 1.00 \quad (6.2.4.(1)) \\ M_{y,Ed}/M_{y,c,Rd} &= 0.05 < 1.00 \quad (6.2.5.(1)) \\ M_{y,Ed}/M_{N,y,Rd} &= 0.09 < 1.00 \quad (6.2.9.1.(2)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.01 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{b,y} &= 14.69 < \lambda_{b,max} = 210.00 \quad \lambda_{b,z} = 14.69 < \lambda_{b,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.60 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.59 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 263 Simple bar_263 **POINT:** 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /111/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

h=10.0 cm	gM0=1.00	gM1=1.00	
b=10.0 cm	Ay=9.44 cm ²	Az=9.44 cm ²	Ax=18.88 cm ²
tw=0.5 cm	Iy=282.80 cm ⁴	Iz=282.80 cm ⁴	Ix=438.80 cm ⁴
tf=0.5 cm	Wply=67.75 cm ³	Wplz=67.75 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 348.31 kN	M _{y,Ed} = -0.93 kN*m	
N _{c,Rd} = 670.24 kN	M _{y,pl,Rd} = 24.05 kN*m	
N _{b,Rd} = 670.24 kN	M _{y,c,Rd} = 24.05 kN*m	V _{z,Ed} = 1.38 kN
	MN _{y,Rd} = 15.10 kN*m	V _{z,c,Rd} = 193.48 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L _y = 0.57 m	Lam _y = 0.19
L _{cr,y} = 0.57 m	X _y = 1.00
Lam _y = 14.64	k _{yy} = 0.87



About z axis:

L _z = 0.57 m	Lam _z = 0.19
L _{cr,z} = 0.57 m	X _z = 1.00
Lam _z = 14.64	k _{zy} = 0.52

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.52 < 1.00 \quad (6.2.4.(1)) \\ M_{y,Ed}/M_{y,c,Rd} &= 0.04 < 1.00 \quad (6.2.5.(1)) \\ M_{y,Ed}/M_{N,y,Rd} &= 0.06 < 1.00 \quad (6.2.9.1.(2)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.01 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{b,y} &= 14.64 < \lambda_{b,max} = 210.00 \quad \lambda_{b,z} = 14.64 < \lambda_{b,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.55 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.54 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 264 Simple bar_264 **POINT:** 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /111/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

h=10.0 cm

gM0=1.00

gM1=1.00

b=10.0 cm

Ay=9.44 cm²

Az=9.44 cm²

Ax=18.88 cm²

tw=0.5 cm

Iy=282.80 cm⁴

Iz=282.80 cm⁴

Ix=438.80 cm⁴

tf=0.5 cm

Wply=67.75 cm³

Wplz=67.75 cm³

INTERNAL FORCES AND CAPACITIES:

N_{Ed} = 328.99 kN

M_{y,Ed} = -0.91 kN*m

N_{c,Rd} = 670.24 kN

M_{y,pl,Rd} = 24.05 kN*m

N_{b,Rd} = 670.24 kN

M_{y,c,Rd} = 24.05 kN*m

MN_{y,Rd} = 16.01 kN*m

V_{z,Ed} = 1.57 kN

V_{z,c,Rd} = 193.48 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L_y = 0.56 m

Lam_y = 0.19

L_{cr,y} = 0.56 m

X_y = 1.00

Lam_y = 14.58

k_{yy} = 0.87



About z axis:

L_z = 0.56 m

Lam_z = 0.19

L_{cr,z} = 0.56 m

X_z = 1.00

Lam_z = 14.58

k_{zy} = 0.52

VERIFICATION FORMULAS:

Section strength check:

N_{Ed}/N_{c,Rd} = 0.49 < 1.00 (6.2.4.(1))

M_{y,Ed}/M_{y,c,Rd} = 0.04 < 1.00 (6.2.5.(1))

M_{y,Ed}/MN_{y,Rd} = 0.06 < 1.00 (6.2.9.1.(2))

V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00 (6.2.6.(1))

Global stability check of member:

Lam_{bda,y} = 14.58 < Lam_{bda,max} = 210.00 Lam_{bda,z} = 14.58 < Lam_{bda,max} = 210.00 STABLE

N_{Ed}/(X_y*N_{Rk}/gM1) + k_{yy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.52 < 1.00 (6.3.3.(4))

N_{Ed}/(X_z*N_{Rk}/gM1) + k_{zy}*M_{y,Ed}/(XLT*M_{y,Rk}/gM1) = 0.51 < 1.00 (6.3.3.(4))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 265 Simple bar_265 **POINT:** 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /111/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

h=10.0 cm	gM0=1.00	gM1=1.00	
b=10.0 cm	Ay=9.44 cm ²	Az=9.44 cm ²	Ax=18.88 cm ²
tw=0.5 cm	Iy=282.80 cm ⁴	Iz=282.80 cm ⁴	Ix=438.80 cm ⁴
tf=0.5 cm	Wply=67.75 cm ³	Wplz=67.75 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 309.02 kN	M _{y,Ed} = -0.82 kN*m	
N _{c,Rd} = 670.24 kN	M _{y,pl,Rd} = 24.05 kN*m	
N _{b,Rd} = 670.24 kN	M _{y,c,Rd} = 24.05 kN*m	V _{z,Ed} = 1.46 kN
	MN _{y,Rd} = 16.95 kN*m	V _{z,c,Rd} = 193.48 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L _y = 0.56 m	Lam _y = 0.19
L _{cr,y} = 0.56 m	X _y = 1.00
Lam _y = 14.55	k _{yy} = 0.88



About z axis:

L _z = 0.56 m	Lam _z = 0.19
L _{cr,z} = 0.56 m	X _z = 1.00
Lam _z = 14.55	k _{zy} = 0.52

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.46 < 1.00 \quad (6.2.4.(1)) \\ M_{y,Ed}/M_{y,c,Rd} &= 0.03 < 1.00 \quad (6.2.5.(1)) \\ M_{y,Ed}/M_{N,y,Rd} &= 0.05 < 1.00 \quad (6.2.9.1.(2)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.01 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{b,y} &= 14.55 < \lambda_{b,max} = 210.00 \quad \lambda_{b,z} = 14.55 < \lambda_{b,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.49 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.48 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 266 Simple bar_266 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /111/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

$h=10.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=10.0$ cm	$A_y=9.44$ cm ²	$A_z=9.44$ cm ²	$A_x=18.88$ cm ²
$tw=0.5$ cm	$I_y=282.80$ cm ⁴	$I_z=282.80$ cm ⁴	$I_x=438.80$ cm ⁴
$tf=0.5$ cm	$W_{ply}=67.75$ cm ³	$W_{plz}=67.75$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 288.40$ kN	$M_{y,Ed} = -0.82$ kN*m	
$N_{c,Rd} = 670.24$ kN	$M_{y,pl,Rd} = 24.05$ kN*m	
$N_{b,Rd} = 670.24$ kN	$M_{y,c,Rd} = 24.05$ kN*m	$V_{z,Ed} = 1.70$ kN
	$MN_{y,Rd} = 17.92$ kN*m	$V_{z,c,Rd} = 193.48$ kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.56$ m	$\Lambda_{m,y} = 0.19$
$L_{cr,y} = 0.56$ m	$X_y = 1.00$
$\Lambda_{m,y} = 14.50$	$k_{yy} = 0.89$



About z axis:

$L_z = 0.56$ m	$\Lambda_{m,z} = 0.19$
$L_{cr,z} = 0.56$ m	$X_z = 1.00$
$\Lambda_{m,z} = 14.50$	$k_{zy} = 0.53$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.43 < 1.00 \quad (6.2.4.(1)) \\ M_{y,Ed}/M_{y,c,Rd} &= 0.03 < 1.00 \quad (6.2.5.(1)) \\ M_{y,Ed}/M_{N,y,Rd} &= 0.05 < 1.00 \quad (6.2.9.1.(2)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.01 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \Lambda_{m,y} &= 14.50 < \Lambda_{m,max} = 210.00 \quad \Lambda_{m,z} = 14.50 < \Lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.46 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.45 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 267 Simple bar_267 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 200x100x6

$h=20.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=10.0$ cm	$A_y=11.15$ cm ²	$A_z=22.30$ cm ²	$A_x=33.45$ cm ²
$t_w=0.6$ cm	$I_y=1685.00$ cm ⁴	$I_z=572.30$ cm ⁴	$I_x=1416.00$ cm ⁴
$t_f=0.6$ cm	$W_{ely}=168.50$ cm ³	$W_{elz}=114.46$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 301.04$ kN	$M_{y,Ed} = -3.70$ kN*m	
$N_{c,Rd} = 1187.47$ kN	$M_{y,el,Rd} = 59.82$ kN*m	
$N_{b,Rd} = 1187.47$ kN	$M_{y,c,Rd} = 59.82$ kN*m	$V_{z,Ed} = 9.41$ kN
		$V_{z,c,Rd} = 457.06$ kN
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.57$ m	$\lambda_{m,y} = 0.10$
$L_{cr,y} = 0.57$ m	$X_y = 1.00$
$\lambda_{m,y} = 8.00$	$k_{yy} = 1.00$



About z axis:

$L_z = 0.57$ m	$\lambda_{m,z} = 0.18$
$L_{cr,z} = 0.57$ m	$X_z = 1.00$
$\lambda_{m,z} = 13.73$	$k_{zy} = 1.00$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.06 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.32 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.31 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.02 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{m,y} &= 8.00 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 13.73 < \lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.32 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.32 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 268 Simple bar_268 POINT: 3

COORDINATE: $x = 1.00$ $L = 0.57$ m

LOADS:

Governing Load Case: 12 ULS /112/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 200x100x6

$h=20.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=10.0$ cm	$A_y=11.15$ cm ²	$A_z=22.30$ cm ²	$A_x=33.45$ cm ²
$t_w=0.6$ cm	$I_y=1685.00$ cm ⁴	$I_z=572.30$ cm ⁴	$I_x=1416.00$ cm ⁴
$t_f=0.6$ cm	$W_{el,y}=168.50$ cm ³	$W_{el,z}=114.46$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 367.44$ kN	$M_{y,Ed} = 2.04$ kN*m	
$N_{c,Rd} = 1187.47$ kN	$M_{y,el,Rd} = 59.82$ kN*m	
$N_{b,Rd} = 1187.47$ kN	$M_{y,c,Rd} = 59.82$ kN*m	$V_{z,Ed} = -1.67$ kN
		$V_{z,c,Rd} = 457.06$ kN
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.57$ m	$\lambda_{m,y} = 0.10$
$L_{cr,y} = 0.57$ m	$X_y = 1.00$
$\lambda_{m,y} = 7.97$	$k_{yy} = 1.00$



About z axis:

$L_z = 0.57$ m	$\lambda_{m,z} = 0.18$
$L_{cr,z} = 0.57$ m	$X_z = 1.00$
$\lambda_{m,z} = 13.68$	$k_{zy} = 1.00$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.03 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.34 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.34 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.00 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{m,y} &= 7.97 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 13.68 < \lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.34 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.34 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 269 Simple bar_269 POINT: 3

COORDINATE: $x = 1.00$ $L = 0.56$ m

LOADS:

Governing Load Case: 12 ULS /112/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 200x100x6

$h=20.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=10.0$ cm	$A_y=11.15$ cm ²	$A_z=22.30$ cm ²	$A_x=33.45$ cm ²
$t_w=0.6$ cm	$I_y=1685.00$ cm ⁴	$I_z=572.30$ cm ⁴	$I_x=1416.00$ cm ⁴
$t_f=0.6$ cm	$W_{el,y}=168.50$ cm ³	$W_{el,z}=114.46$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 407.15$ kN	$M_{y,Ed} = 2.60$ kN*m	
$N_{c,Rd} = 1187.47$ kN	$M_{y,el,Rd} = 59.82$ kN*m	
$N_{b,Rd} = 1187.47$ kN	$M_{y,c,Rd} = 59.82$ kN*m	$V_{z,Ed} = -2.31$ kN
		$V_{z,c,Rd} = 457.06$ kN
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.56$ m	$\lambda_{m,y} = 0.10$
$L_{cr,y} = 0.56$ m	$X_y = 1.00$
$\lambda_{m,y} = 7.95$	$k_{yy} = 1.00$



About z axis:

$L_z = 0.56$ m	$\lambda_{m,z} = 0.18$
$L_{cr,z} = 0.56$ m	$X_z = 1.00$
$\lambda_{m,z} = 13.64$	$k_{zy} = 1.00$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.04 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.39 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.38 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.01 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{m,y} &= 7.95 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 13.64 < \lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.39 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.39 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 270 Simple bar_270 POINT: 3

COORDINATE: $x = 1.00$ $L = 0.56$ m

LOADS:

Governing Load Case: 12 ULS /112/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 200x100x6

$h=20.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=10.0$ cm	$A_y=11.15$ cm ²	$A_z=22.30$ cm ²	$A_x=33.45$ cm ²
$t_w=0.6$ cm	$I_y=1685.00$ cm ⁴	$I_z=572.30$ cm ⁴	$I_x=1416.00$ cm ⁴
$t_f=0.6$ cm	$W_{el,y}=168.50$ cm ³	$W_{el,z}=114.46$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 443.13$ kN	$M_{y,Ed} = 3.31$ kN*m	
$N_{c,Rd} = 1187.47$ kN	$M_{y,el,Rd} = 59.82$ kN*m	
$N_{b,Rd} = 1187.47$ kN	$M_{y,c,Rd} = 59.82$ kN*m	$V_{z,Ed} = -2.20$ kN
		$V_{z,c,Rd} = 457.06$ kN
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.56$ m	$\lambda_{m,y} = 0.10$
$L_{cr,y} = 0.56$ m	$X_y = 1.00$
$\lambda_{m,y} = 7.92$	$k_{yy} = 1.00$



About z axis:

$L_z = 0.56$ m	$\lambda_{m,z} = 0.18$
$L_{cr,z} = 0.56$ m	$X_z = 1.00$
$\lambda_{m,z} = 13.59$	$k_{zy} = 1.00$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.06 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.43 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.43 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.00 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{m,y} &= 7.92 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 13.59 < \lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.43 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.43 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 271 Simple bar_271 POINT: 3

COORDINATE: $x = 1.00$ $L = 0.56$ m

LOADS:

Governing Load Case: 12 ULS /112/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 200x100x6

$h=20.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=10.0$ cm	$A_y=11.15$ cm ²	$A_z=22.30$ cm ²	$A_x=33.45$ cm ²
$t_w=0.6$ cm	$I_y=1685.00$ cm ⁴	$I_z=572.30$ cm ⁴	$I_x=1416.00$ cm ⁴
$t_f=0.6$ cm	$W_{el,y}=168.50$ cm ³	$W_{el,z}=114.46$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 475.47$ kN	$M_{y,Ed} = 3.98$ kN*m	
$N_{c,Rd} = 1187.47$ kN	$M_{y,el,Rd} = 59.82$ kN*m	
$N_{b,Rd} = 1187.47$ kN	$M_{y,c,Rd} = 59.82$ kN*m	$V_{z,Ed} = -2.40$ kN
		$V_{z,c,Rd} = 457.06$ kN
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.56$ m	$\lambda_{m,y} = 0.10$
$L_{cr,y} = 0.56$ m	$X_y = 1.00$
$\lambda_{m,y} = 7.90$	$k_{yy} = 1.00$



About z axis:

$L_z = 0.56$ m	$\lambda_{m,z} = 0.18$
$L_{cr,z} = 0.56$ m	$X_z = 1.00$
$\lambda_{m,z} = 13.56$	$k_{zy} = 1.00$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.07 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.47 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.46 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.01 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{m,y} &= 7.90 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 13.56 < \lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.47 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.47 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 272 Simple bar_272 POINT: 2

COORDINATE: $x = 0.50 L = 0.28 \text{ m}$

LOADS:

Governing Load Case: 12 ULS /112/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00 \text{ MPa}$



SECTION PARAMETERS: TREC 200x100x6

$h=20.0 \text{ cm}$	$gM0=1.00$	$gM1=1.00$	
$b=10.0 \text{ cm}$	$A_y=11.15 \text{ cm}^2$	$A_z=22.30 \text{ cm}^2$	$A_x=33.45 \text{ cm}^2$
$tw=0.6 \text{ cm}$	$I_y=1685.00 \text{ cm}^4$	$I_z=572.30 \text{ cm}^4$	$I_x=1416.00 \text{ cm}^4$
$tf=0.6 \text{ cm}$	$W_{ely}=168.50 \text{ cm}^3$	$W_{elz}=114.46 \text{ cm}^3$	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 505.02 \text{ kN}$	$M_{y,Ed} = 4.41 \text{ kN}\cdot\text{m}$	
$N_{c,Rd} = 1187.47 \text{ kN}$	$M_{y,el,Rd} = 59.82 \text{ kN}\cdot\text{m}$	
$N_{b,Rd} = 1187.47 \text{ kN}$	$M_{y,c,Rd} = 59.82 \text{ kN}\cdot\text{m}$	$V_{z,Ed} = 2.28 \text{ kN}$
		$V_{z,c,Rd} = 457.06 \text{ kN}$
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.56 \text{ m}$	$\Lambda_{m,y} = 0.10$
$L_{cr,y} = 0.56 \text{ m}$	$X_y = 1.00$
$\Lambda_{m,y} = 7.88$	$k_{yy} = 1.00$



About z axis:

$L_z = 0.56 \text{ m}$	$\Lambda_{m,z} = 0.18$
$L_{cr,z} = 0.56 \text{ m}$	$X_z = 1.00$
$\Lambda_{m,z} = 13.52$	$k_{zy} = 1.00$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.07 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.50 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.49 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.00 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \Lambda_{m,y} &= 7.88 < \Lambda_{m,max} = 210.00 \quad \Lambda_{m,z} = 13.52 < \Lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.50 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.50 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 273 Simple bar_273 POINT: 2

COORDINATE: $x = 0.50 L = 0.28 \text{ m}$

LOADS:

Governing Load Case: 12 ULS /112/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00 \text{ MPa}$



SECTION PARAMETERS: TREC 200x100x6

$h=20.0 \text{ cm}$	$gM0=1.00$	$gM1=1.00$	
$b=10.0 \text{ cm}$	$A_y=11.15 \text{ cm}^2$	$A_z=22.30 \text{ cm}^2$	$A_x=33.45 \text{ cm}^2$
$tw=0.6 \text{ cm}$	$I_y=1685.00 \text{ cm}^4$	$I_z=572.30 \text{ cm}^4$	$I_x=1416.00 \text{ cm}^4$
$tf=0.6 \text{ cm}$	$W_{ely}=168.50 \text{ cm}^3$	$W_{elz}=114.46 \text{ cm}^3$	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 529.69 \text{ kN}$	$M_{y,Ed} = 4.96 \text{ kN}\cdot\text{m}$	
$N_{c,Rd} = 1187.47 \text{ kN}$	$M_{y,el,Rd} = 59.82 \text{ kN}\cdot\text{m}$	
$N_{b,Rd} = 1187.47 \text{ kN}$	$M_{y,c,Rd} = 59.82 \text{ kN}\cdot\text{m}$	$V_{z,Ed} = 2.91 \text{ kN}$
		$V_{z,c,Rd} = 457.06 \text{ kN}$
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.56 \text{ m}$	$\Lambda_{m,y} = 0.10$
$L_{cr,y} = 0.56 \text{ m}$	$X_y = 1.00$
$\Lambda_{m,y} = 7.86$	$k_{yy} = 1.00$



About z axis:

$L_z = 0.56 \text{ m}$	$\Lambda_{m,z} = 0.18$
$L_{cr,z} = 0.56 \text{ m}$	$X_z = 1.00$
$\Lambda_{m,z} = 13.49$	$k_{zy} = 1.00$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.08 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.53 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.52 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.01 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \Lambda_{m,y} &= 7.86 < \Lambda_{m,max} = 210.00 \quad \Lambda_{m,z} = 13.49 < \Lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.53 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.53 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 274 Simple bar_274 POINT: 2

COORDINATE: $x = 0.50 L = 0.28 \text{ m}$

LOADS:

Governing Load Case: 12 ULS /112/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00 \text{ MPa}$



SECTION PARAMETERS: TREC 200x100x6

$h=20.0 \text{ cm}$	$gM0=1.00$	$gM1=1.00$	
$b=10.0 \text{ cm}$	$A_y=11.15 \text{ cm}^2$	$A_z=22.30 \text{ cm}^2$	$A_x=33.45 \text{ cm}^2$
$tw=0.6 \text{ cm}$	$I_y=1685.00 \text{ cm}^4$	$I_z=572.30 \text{ cm}^4$	$I_x=1416.00 \text{ cm}^4$
$tf=0.6 \text{ cm}$	$W_{ely}=168.50 \text{ cm}^3$	$W_{elz}=114.46 \text{ cm}^3$	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 550.41 \text{ kN}$	$M_{y,Ed} = 5.39 \text{ kN}\cdot\text{m}$	
$N_{c,Rd} = 1187.47 \text{ kN}$	$M_{y,el,Rd} = 59.82 \text{ kN}\cdot\text{m}$	
$N_{b,Rd} = 1187.47 \text{ kN}$	$M_{y,c,Rd} = 59.82 \text{ kN}\cdot\text{m}$	$V_{z,Ed} = 1.49 \text{ kN}$
		$V_{z,c,Rd} = 457.06 \text{ kN}$
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.56 \text{ m}$	$\Lambda_{m,y} = 0.10$
$L_{cr,y} = 0.56 \text{ m}$	$X_y = 1.00$
$\Lambda_{m,y} = 7.85$	$k_{yy} = 1.01$



About z axis:

$L_z = 0.56 \text{ m}$	$\Lambda_{m,z} = 0.18$
$L_{cr,z} = 0.56 \text{ m}$	$X_z = 1.00$
$\Lambda_{m,z} = 13.46$	$k_{zy} = 1.01$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.09 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.55 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.55 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.00 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \Lambda_{m,y} &= 7.85 < \Lambda_{m,max} = 210.00 \quad \Lambda_{m,z} = 13.46 < \Lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.55 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.55 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 275 Simple bar_275 POINT: 2

COORDINATE: $x = 0.50 L = 0.28 \text{ m}$

LOADS:

Governing Load Case: 12 ULS /112/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00 \text{ MPa}$



SECTION PARAMETERS: TREC 200x100x6

$h=20.0 \text{ cm}$	$gM0=1.00$	$gM1=1.00$	
$b=10.0 \text{ cm}$	$A_y=11.15 \text{ cm}^2$	$A_z=22.30 \text{ cm}^2$	$A_x=33.45 \text{ cm}^2$
$tw=0.6 \text{ cm}$	$I_y=1685.00 \text{ cm}^4$	$I_z=572.30 \text{ cm}^4$	$I_x=1416.00 \text{ cm}^4$
$tf=0.6 \text{ cm}$	$W_{ely}=168.50 \text{ cm}^3$	$W_{elz}=114.46 \text{ cm}^3$	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 567.32 \text{ kN}$	$M_{y,Ed} = 5.75 \text{ kN*m}$	
$N_{c,Rd} = 1187.47 \text{ kN}$	$M_{y,el,Rd} = 59.82 \text{ kN*m}$	
$N_{b,Rd} = 1187.47 \text{ kN}$	$M_{y,c,Rd} = 59.82 \text{ kN*m}$	$V_{z,Ed} = 2.27 \text{ kN}$
		$V_{z,c,Rd} = 457.06 \text{ kN}$
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.56 \text{ m}$	$\Lambda_{m,y} = 0.10$
$L_{cr,y} = 0.56 \text{ m}$	$X_y = 1.00$
$\Lambda_{m,y} = 7.83$	$k_{yy} = 1.01$



About z axis:

$L_z = 0.56 \text{ m}$	$\Lambda_{m,z} = 0.18$
$L_{cr,z} = 0.56 \text{ m}$	$X_z = 1.00$
$\Lambda_{m,z} = 13.43$	$k_{zy} = 1.01$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.10 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.57 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\text{Sig}_{x,Ed}^2 + 3*\text{Tau}_{z,Ed}^2)/(f_y/gM0)} &= 0.57 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.00 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \Lambda_{m,y} &= 7.83 < \Lambda_{m,max} = 210.00 \quad \Lambda_{m,z} = 13.43 < \Lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y*N_{c,Rd}/gM1) + k_{yy}*M_{y,Ed}/(XLT*M_{y,Rd}/gM1) &= 0.57 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z*N_{c,Rd}/gM1) + k_{zy}*M_{y,Ed}/(XLT*M_{y,Rd}/gM1) &= 0.57 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 276 Simple bar_276 POINT: 2

COORDINATE: $x = 0.50 L = 0.28 \text{ m}$

LOADS:

Governing Load Case: 12 ULS /112/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00 \text{ MPa}$



SECTION PARAMETERS: TREC 200x100x6

$h=20.0 \text{ cm}$	$gM0=1.00$	$gM1=1.00$	
$b=10.0 \text{ cm}$	$A_y=11.15 \text{ cm}^2$	$A_z=22.30 \text{ cm}^2$	$A_x=33.45 \text{ cm}^2$
$t_w=0.6 \text{ cm}$	$I_y=1685.00 \text{ cm}^4$	$I_z=572.30 \text{ cm}^4$	$I_x=1416.00 \text{ cm}^4$
$t_f=0.6 \text{ cm}$	$W_{ely}=168.50 \text{ cm}^3$	$W_{elz}=114.46 \text{ cm}^3$	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 580.36 \text{ kN}$	$M_{y,Ed} = 6.15 \text{ kN}\cdot\text{m}$	
$N_{c,Rd} = 1187.47 \text{ kN}$	$M_{y,el,Rd} = 59.82 \text{ kN}\cdot\text{m}$	
$N_{b,Rd} = 1187.47 \text{ kN}$	$M_{y,c,Rd} = 59.82 \text{ kN}\cdot\text{m}$	$V_{z,Ed} = 1.28 \text{ kN}$
		$V_{z,c,Rd} = 457.06 \text{ kN}$
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.55 \text{ m}$	$\lambda_{m,y} = 0.10$
$L_{cr,y} = 0.55 \text{ m}$	$X_y = 1.00$
$\lambda_{m,y} = 7.81$	$k_{yy} = 1.01$



About z axis:

$L_z = 0.55 \text{ m}$	$\lambda_{m,z} = 0.18$
$L_{cr,z} = 0.55 \text{ m}$	$X_z = 1.00$
$\lambda_{m,z} = 13.41$	$k_{zy} = 1.01$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.10 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.59 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.59 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.00 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{m,y} &= 7.81 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 13.41 < \lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.59 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.59 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 277 Simple bar_277 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /120/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 11*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

$h=10.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=10.0$ cm	$A_y=9.44$ cm ²	$A_z=9.44$ cm ²	$A_x=18.88$ cm ²
$tw=0.5$ cm	$I_y=282.80$ cm ⁴	$I_z=282.80$ cm ⁴	$I_x=438.80$ cm ⁴
$tf=0.5$ cm	$W_{ply}=67.75$ cm ³	$W_{plz}=67.75$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 268.38$ kN	$M_{y,Ed} = -0.75$ kN*m	
$N_{c,Rd} = 670.24$ kN	$M_{y,pl,Rd} = 24.05$ kN*m	
$N_{b,Rd} = 670.24$ kN	$M_{y,c,Rd} = 24.05$ kN*m	$V_{z,Ed} = 1.32$ kN
	$MN_{y,Rd} = 18.85$ kN*m	$V_{z,c,Rd} = 193.48$ kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.56$ m	$\Lambda_{m,y} = 0.19$
$L_{cr,y} = 0.56$ m	$X_y = 1.00$
$\Lambda_{m,y} = 14.46$	$k_{yy} = 0.89$



About z axis:

$L_z = 0.56$ m	$\Lambda_{m,z} = 0.19$
$L_{cr,z} = 0.56$ m	$X_z = 1.00$
$\Lambda_{m,z} = 14.46$	$k_{zy} = 0.53$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.40 < 1.00 \quad (6.2.4.(1)) \\ M_{y,Ed}/M_{y,c,Rd} &= 0.03 < 1.00 \quad (6.2.5.(1)) \\ M_{y,Ed}/M_{N,y,Rd} &= 0.04 < 1.00 \quad (6.2.9.1.(2)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.01 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \Lambda_{m,y} &= 14.46 < \Lambda_{m,max} = 210.00 \quad \Lambda_{m,z} = 14.46 < \Lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.43 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.42 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 278 Simple bar_278 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /120/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 11*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

$h=10.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=10.0$ cm	$A_y=9.44$ cm ²	$A_z=9.44$ cm ²	$A_x=18.88$ cm ²
$tw=0.5$ cm	$I_y=282.80$ cm ⁴	$I_z=282.80$ cm ⁴	$I_x=438.80$ cm ⁴
$tf=0.5$ cm	$W_{ply}=67.75$ cm ³	$W_{plz}=67.75$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 250.99$ kN	$M_{y,Ed} = -0.76$ kN*m	
$N_{c,Rd} = 670.24$ kN	$M_{y,pl,Rd} = 24.05$ kN*m	
$N_{b,Rd} = 670.24$ kN	$M_{y,c,Rd} = 24.05$ kN*m	$V_{z,Ed} = 1.56$ kN
	$MN_{y,Rd} = 19.67$ kN*m	$V_{z,c,Rd} = 193.48$ kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.56$ m	$\Lambda_{m,y} = 0.19$
$L_{cr,y} = 0.56$ m	$X_y = 1.00$
$\Lambda_{m,y} = 14.42$	$k_{yy} = 0.90$



About z axis:

$L_z = 0.56$ m	$\Lambda_{m,z} = 0.19$
$L_{cr,z} = 0.56$ m	$X_z = 1.00$
$\Lambda_{m,z} = 14.42$	$k_{zy} = 0.54$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.37 < 1.00 \quad (6.2.4.(1)) \\ M_{y,Ed}/M_{y,c,Rd} &= 0.03 < 1.00 \quad (6.2.5.(1)) \\ M_{y,Ed}/M_{N,y,Rd} &= 0.04 < 1.00 \quad (6.2.9.1.(2)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.01 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \Lambda_{bda,y} &= 14.42 < \Lambda_{bda,max} = 210.00 \quad \Lambda_{bda,z} = 14.42 < \Lambda_{bda,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.40 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.39 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 279 Simple bar_279 **POINT:** 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /120/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 11*0.90 + 8*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

h=10.0 cm	gM0=1.00	gM1=1.00	
b=10.0 cm	Ay=9.44 cm ²	Az=9.44 cm ²	Ax=18.88 cm ²
tw=0.5 cm	Iy=282.80 cm ⁴	Iz=282.80 cm ⁴	Ix=438.80 cm ⁴
tf=0.5 cm	Wply=67.75 cm ³	Wplz=67.75 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 232.30 kN	M _{y,Ed} = -0.68 kN*m	
N _{c,Rd} = 670.24 kN	M _{y,pl,Rd} = 24.05 kN*m	
N _{b,Rd} = 670.24 kN	M _{y,c,Rd} = 24.05 kN*m	V _{z,Ed} = 1.54 kN
	MN _{y,Rd} = 20.55 kN*m	V _{z,c,Rd} = 193.48 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L _y = 0.56 m	Lam _y = 0.19
L _{cr,y} = 0.56 m	X _y = 1.00
Lam _y = 14.39	k _{yy} = 0.91



About z axis:

L _z = 0.56 m	Lam _z = 0.19
L _{cr,z} = 0.56 m	X _z = 1.00
Lam _z = 14.39	k _{zy} = 0.54

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.35 < 1.00 \quad (6.2.4.(1)) \\ M_{y,Ed}/M_{y,c,Rd} &= 0.03 < 1.00 \quad (6.2.5.(1)) \\ M_{y,Ed}/M_{N,y,Rd} &= 0.03 < 1.00 \quad (6.2.9.1.(2)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.01 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{b,y} &= 14.39 < \lambda_{b,max} = 210.00 \quad \lambda_{b,z} = 14.39 < \lambda_{b,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.37 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.36 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 280 Simple bar_280 **POINT:** 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /120/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 11*0.90 + 8*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

h=10.0 cm	gM0=1.00	gM1=1.00	
b=10.0 cm	Ay=9.44 cm ²	Az=9.44 cm ²	Ax=18.88 cm ²
tw=0.5 cm	Iy=282.80 cm ⁴	Iz=282.80 cm ⁴	Ix=438.80 cm ⁴
tf=0.5 cm	Wply=67.75 cm ³	Wplz=67.75 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 212.67 kN	M _{y,Ed} = -0.65 kN*m	
N _{c,Rd} = 670.24 kN	M _{y,pl,Rd} = 24.05 kN*m	
N _{b,Rd} = 670.24 kN	M _{y,c,Rd} = 24.05 kN*m	V _{z,Ed} = 1.52 kN
	MN _{y,Rd} = 21.47 kN*m	V _{z,c,Rd} = 193.48 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L _y = 0.56 m	Lam _y = 0.19
L _{cr,y} = 0.56 m	X _y = 1.00
Lam _y = 14.36	k _{yy} = 0.91



About z axis:

L _z = 0.56 m	Lam _z = 0.19
L _{cr,z} = 0.56 m	X _z = 1.00
Lam _z = 14.36	k _{zy} = 0.55

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.32 < 1.00 \quad (6.2.4.(1)) \\ M_{y,Ed}/M_{y,c,Rd} &= 0.03 < 1.00 \quad (6.2.5.(1)) \\ M_{y,Ed}/M_{N,y,Rd} &= 0.03 < 1.00 \quad (6.2.9.1.(2)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.01 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{b,y} &= 14.36 < \lambda_{b,max} = 210.00 \quad \lambda_{b,z} = 14.36 < \lambda_{b,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.34 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.33 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 281 Simple bar_281 **POINT:** 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 12 ULS /120/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 11*0.90 + 8*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

h=10.0 cm	gM0=1.00	gM1=1.00	
b=10.0 cm	Ay=9.44 cm ²	Az=9.44 cm ²	Ax=18.88 cm ²
tw=0.5 cm	Iy=282.80 cm ⁴	Iz=282.80 cm ⁴	Ix=438.80 cm ⁴
tf=0.5 cm	Wply=67.75 cm ³	Wplz=67.75 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 191.99 kN	M _{y,Ed} = -0.68 kN*m	
N _{c,Rd} = 670.24 kN	M _{y,pl,Rd} = 24.05 kN*m	
N _{b,Rd} = 670.24 kN	M _{y,c,Rd} = 24.05 kN*m	V _{z,Ed} = 2.40 kN
	MN _{y,Rd} = 22.44 kN*m	V _{z,c,Rd} = 193.48 kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

L _y = 0.55 m	Lam _y = 0.19
L _{cr,y} = 0.55 m	X _y = 1.00
Lam _y = 14.33	k _{yy} = 0.92



About z axis:

L _z = 0.55 m	Lam _z = 0.19
L _{cr,z} = 0.55 m	X _z = 1.00
Lam _z = 14.33	k _{zy} = 0.55

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.29 < 1.00 \quad (6.2.4.(1)) \\ M_{y,Ed}/M_{y,c,Rd} &= 0.03 < 1.00 \quad (6.2.5.(1)) \\ M_{y,Ed}/M_{N,y,Rd} &= 0.03 < 1.00 \quad (6.2.9.1.(2)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.01 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{b,y} &= 14.33 < \lambda_{b,max} = 210.00 \quad \lambda_{b,z} = 14.33 < \lambda_{b,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.31 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.30 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 282 Simple bar_282 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /120/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 11*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

$h=10.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=10.0$ cm	$A_y=9.44$ cm ²	$A_z=9.44$ cm ²	$A_x=18.88$ cm ²
$tw=0.5$ cm	$I_y=282.80$ cm ⁴	$I_z=282.80$ cm ⁴	$I_x=438.80$ cm ⁴
$tf=0.5$ cm	$W_{ply}=67.75$ cm ³	$W_{plz}=67.75$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 171.16$ kN	$M_{y,Ed} = -0.66$ kN*m	
$N_{c,Rd} = 670.24$ kN	$M_{y,pl,Rd} = 24.05$ kN*m	
$N_{b,Rd} = 670.24$ kN	$M_{y,c,Rd} = 24.05$ kN*m	$V_{z,Ed} = 1.94$ kN
	$MN_{y,Rd} = 23.42$ kN*m	$V_{z,c,Rd} = 193.48$ kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.55$ m	$\lambda_{m,y} = 0.19$
$L_{cr,y} = 0.55$ m	$X_y = 1.00$
$\lambda_{m,y} = 14.31$	$k_{yy} = 0.93$



About z axis:

$L_z = 0.55$ m	$\lambda_{m,z} = 0.19$
$L_{cr,z} = 0.55$ m	$X_z = 1.00$
$\lambda_{m,z} = 14.31$	$k_{zy} = 0.56$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.26 < 1.00 \quad (6.2.4.(1)) \\ M_{y,Ed}/M_{y,c,Rd} &= 0.03 < 1.00 \quad (6.2.5.(1)) \\ M_{y,Ed}/M_{N,y,Rd} &= 0.03 < 1.00 \quad (6.2.9.1.(2)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.01 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{bda,y} &= 14.31 < \lambda_{bda,max} = 210.00 \quad \lambda_{bda,z} = 14.31 < \lambda_{bda,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.28 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.27 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 283 Simple bar_283 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /165/ $1*1.00 + 2*1.00 + 3*1.00 + 11*0.90 + 8*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

$h=10.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=10.0$ cm	$A_y=9.44$ cm ²	$A_z=9.44$ cm ²	$A_x=18.88$ cm ²
$tw=0.5$ cm	$I_y=282.80$ cm ⁴	$I_z=282.80$ cm ⁴	$I_x=438.80$ cm ⁴
$tf=0.5$ cm	$W_{ply}=67.75$ cm ³	$W_{plz}=67.75$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 150.71$ kN	$M_{y,Ed} = -0.56$ kN*m	
$N_{c,Rd} = 670.24$ kN	$M_{y,pl,Rd} = 24.05$ kN*m	
$N_{b,Rd} = 670.24$ kN	$M_{y,c,Rd} = 24.05$ kN*m	$V_{z,Ed} = 1.29$ kN
	$MN_{y,Rd} = 24.05$ kN*m	$V_{z,c,Rd} = 193.48$ kN
		Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.55$ m	$\Lambda_{m,y} = 0.19$
$L_{cr,y} = 0.55$ m	$X_y = 1.00$
$\Lambda_{m,y} = 14.29$	$k_{yy} = 0.94$



About z axis:

$L_z = 0.55$ m	$\Lambda_{m,z} = 0.19$
$L_{cr,z} = 0.55$ m	$X_z = 1.00$
$\Lambda_{m,z} = 14.29$	$k_{zy} = 0.56$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.22 < 1.00 \quad (6.2.4.(1)) \\ M_{y,Ed}/M_{y,c,Rd} &= 0.02 < 1.00 \quad (6.2.5.(1)) \\ M_{y,Ed}/M_{N,y,Rd} &= 0.02 < 1.00 \quad (6.2.9.1.(2)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.01 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \Lambda_{bda,y} &= 14.29 < \Lambda_{bda,max} = 210.00 \quad \Lambda_{bda,z} = 14.29 < \Lambda_{bda,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.25 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.24 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 284 Simple bar_284 POINT: 3

COORDINATE: $x = 1.00$ $L = 0.55$ m

LOADS:

Governing Load Case: 12 ULS /118/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 10*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

$h = 10.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 10.0$ cm

$A_y = 9.44$ cm²

$A_z = 9.44$ cm²

$A_x = 18.88$ cm²

$tw = 0.5$ cm

$I_y = 282.80$ cm⁴

$I_z = 282.80$ cm⁴

$I_x = 438.80$ cm⁴

$tf = 0.5$ cm

$W_{ply} = 67.75$ cm³

$W_{plz} = 67.75$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -153.27$ kN

$M_{y,Ed} = 0.97$ kN*m

$N_{t,Rd} = 666.09$ kN

$M_{y,pl,Rd} = 24.05$ kN*m

$M_{y,c,Rd} = 24.05$ kN*m

$MN_{y,Rd} = 24.05$ kN*m

$V_{z,Ed} = -0.33$ kN

$V_{z,c,Rd} = 193.48$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.23 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.04 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.04 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.00 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 285 Simple bar_285 POINT: 3

COORDINATE: $x = 1.00$ $L = 0.55$ m

LOADS:

Governing Load Case: 12 ULS /118/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 10*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

$h = 10.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 10.0$ cm

$A_y = 9.44$ cm²

$A_z = 9.44$ cm²

$A_x = 18.88$ cm²

$tw = 0.5$ cm

$I_y = 282.80$ cm⁴

$I_z = 282.80$ cm⁴

$I_x = 438.80$ cm⁴

$tf = 0.5$ cm

$W_{ply} = 67.75$ cm³

$W_{plz} = 67.75$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -150.39$ kN

$M_{y,Ed} = 0.88$ kN*m

$N_{t,Rd} = 666.09$ kN

$M_{y,pl,Rd} = 24.05$ kN*m

$M_{y,c,Rd} = 24.05$ kN*m

$MN_{y,Rd} = 24.05$ kN*m

$V_{z,Ed} = -0.59$ kN

$V_{z,c,Rd} = 193.48$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.23 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.04 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.04 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.00 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 286 Simple bar_286 POINT: 2

COORDINATE: $x = 0.50 L = 0.28 \text{ m}$

LOADS:

Governing Load Case: 12 ULS /112/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00 \text{ MPa}$



SECTION PARAMETERS: TREC 200x100x6

$h=20.0 \text{ cm}$	$gM0=1.00$	$gM1=1.00$	
$b=10.0 \text{ cm}$	$A_y=11.15 \text{ cm}^2$	$A_z=22.30 \text{ cm}^2$	$A_x=33.45 \text{ cm}^2$
$tw=0.6 \text{ cm}$	$I_y=1685.00 \text{ cm}^4$	$I_z=572.30 \text{ cm}^4$	$I_x=1416.00 \text{ cm}^4$
$tf=0.6 \text{ cm}$	$W_{ely}=168.50 \text{ cm}^3$	$W_{elz}=114.46 \text{ cm}^3$	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 588.49 \text{ kN}$	$M_{y,Ed} = 6.33 \text{ kN}\cdot\text{m}$	
$N_{c,Rd} = 1187.47 \text{ kN}$	$M_{y,el,Rd} = 59.82 \text{ kN}\cdot\text{m}$	
$N_{b,Rd} = 1187.47 \text{ kN}$	$M_{y,c,Rd} = 59.82 \text{ kN}\cdot\text{m}$	$V_{z,Ed} = 1.04 \text{ kN}$
		$V_{z,c,Rd} = 457.06 \text{ kN}$
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.55 \text{ m}$	$\Lambda_{m,y} = 0.10$
$L_{cr,y} = 0.55 \text{ m}$	$X_y = 1.00$
$\Lambda_{m,y} = 7.80$	$k_{yy} = 1.01$



About z axis:

$L_z = 0.55 \text{ m}$	$\Lambda_{m,z} = 0.18$
$L_{cr,z} = 0.55 \text{ m}$	$X_z = 1.00$
$\Lambda_{m,z} = 13.38$	$k_{zy} = 1.01$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.11 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.60 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.60 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.00 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \Lambda_{m,y} &= 7.80 < \Lambda_{m,max} = 210.00 \quad \Lambda_{m,z} = 13.38 < \Lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.60 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.60 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 287 Simple bar_287 POINT: 2

COORDINATE: $x = 0.50 L = 0.28 \text{ m}$

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00 \text{ MPa}$



SECTION PARAMETERS: TREC 200x100x6

$h=20.0 \text{ cm}$	$gM0=1.00$	$gM1=1.00$	
$b=10.0 \text{ cm}$	$A_y=11.15 \text{ cm}^2$	$A_z=22.30 \text{ cm}^2$	$A_x=33.45 \text{ cm}^2$
$tw=0.6 \text{ cm}$	$I_y=1685.00 \text{ cm}^4$	$I_z=572.30 \text{ cm}^4$	$I_x=1416.00 \text{ cm}^4$
$tf=0.6 \text{ cm}$	$W_{ely}=168.50 \text{ cm}^3$	$W_{elz}=114.46 \text{ cm}^3$	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 633.91 \text{ kN}$	$M_{y,Ed} = 4.86 \text{ kN*m}$	
$N_{c,Rd} = 1187.47 \text{ kN}$	$M_{y,el,Rd} = 59.82 \text{ kN*m}$	
$N_{b,Rd} = 1187.47 \text{ kN}$	$M_{y,c,Rd} = 59.82 \text{ kN*m}$	$V_{z,Ed} = 1.77 \text{ kN}$
		$V_{z,c,Rd} = 457.06 \text{ kN}$
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.55 \text{ m}$	$\lambda_{m,y} = 0.10$
$L_{cr,y} = 0.55 \text{ m}$	$X_y = 1.00$
$\lambda_{m,y} = 7.79$	$k_{yy} = 1.01$



About z axis:

$L_z = 0.55 \text{ m}$	$\lambda_{m,z} = 0.17$
$L_{cr,z} = 0.55 \text{ m}$	$X_z = 1.00$
$\lambda_{m,z} = 13.37$	$k_{zy} = 1.01$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.08 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.62 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.61 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.00 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{m,y} &= 7.79 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 13.37 < \lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.62 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.62 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 288 Simple bar_288 POINT: 2

COORDINATE: $x = 0.50 L = 0.28 \text{ m}$

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00 \text{ MPa}$



SECTION PARAMETERS: TREC 200x100x6

$h=20.0 \text{ cm}$	$gM0=1.00$	$gM1=1.00$	
$b=10.0 \text{ cm}$	$A_y=11.15 \text{ cm}^2$	$A_z=22.30 \text{ cm}^2$	$A_x=33.45 \text{ cm}^2$
$tw=0.6 \text{ cm}$	$I_y=1685.00 \text{ cm}^4$	$I_z=572.30 \text{ cm}^4$	$I_x=1416.00 \text{ cm}^4$
$tf=0.6 \text{ cm}$	$W_{ely}=168.50 \text{ cm}^3$	$W_{elz}=114.46 \text{ cm}^3$	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 649.24 \text{ kN}$	$M_{y,Ed} = 5.18 \text{ kN}\cdot\text{m}$	
$N_{c,Rd} = 1187.47 \text{ kN}$	$M_{y,el,Rd} = 59.82 \text{ kN}\cdot\text{m}$	
$N_{b,Rd} = 1187.47 \text{ kN}$	$M_{y,c,Rd} = 59.82 \text{ kN}\cdot\text{m}$	$V_{z,Ed} = 2.03 \text{ kN}$
		$V_{z,c,Rd} = 457.06 \text{ kN}$
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.55 \text{ m}$	$\lambda_{m,y} = 0.10$
$L_{cr,y} = 0.55 \text{ m}$	$X_y = 1.00$
$\lambda_{m,y} = 7.78$	$k_{yy} = 1.01$



About z axis:

$L_z = 0.55 \text{ m}$	$\lambda_{m,z} = 0.17$
$L_{cr,z} = 0.55 \text{ m}$	$X_z = 1.00$
$\lambda_{m,z} = 13.35$	$k_{zy} = 1.01$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.09 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.63 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.63 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.00 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{m,y} &= 7.78 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 13.35 < \lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.63 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.63 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 289 Simple bar_289 POINT: 2

COORDINATE: $x = 0.50 L = 0.28 \text{ m}$

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00 \text{ MPa}$



SECTION PARAMETERS: TREC 200x100x6

$h=20.0 \text{ cm}$	$gM0=1.00$	$gM1=1.00$	
$b=10.0 \text{ cm}$	$A_y=11.15 \text{ cm}^2$	$A_z=22.30 \text{ cm}^2$	$A_x=33.45 \text{ cm}^2$
$tw=0.6 \text{ cm}$	$I_y=1685.00 \text{ cm}^4$	$I_z=572.30 \text{ cm}^4$	$I_x=1416.00 \text{ cm}^4$
$tf=0.6 \text{ cm}$	$W_{ely}=168.50 \text{ cm}^3$	$W_{elz}=114.46 \text{ cm}^3$	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 662.23 \text{ kN}$	$M_{y,Ed} = 5.45 \text{ kN}\cdot\text{m}$	
$N_{c,Rd} = 1187.47 \text{ kN}$	$M_{y,el,Rd} = 59.82 \text{ kN}\cdot\text{m}$	
$N_{b,Rd} = 1187.47 \text{ kN}$	$M_{y,c,Rd} = 59.82 \text{ kN}\cdot\text{m}$	$V_{z,Ed} = 1.37 \text{ kN}$
		$V_{z,c,Rd} = 457.06 \text{ kN}$
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.55 \text{ m}$	$\lambda_{m,y} = 0.10$
$L_{cr,y} = 0.55 \text{ m}$	$X_y = 1.00$
$\lambda_{m,y} = 7.77$	$k_{yy} = 1.01$



About z axis:

$L_z = 0.55 \text{ m}$	$\lambda_{m,z} = 0.17$
$L_{cr,z} = 0.55 \text{ m}$	$X_z = 1.00$
$\lambda_{m,z} = 13.33$	$k_{zy} = 1.01$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.09 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.65 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.64 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.00 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{m,y} &= 7.77 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 13.33 < \lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.65 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.65 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 290 Simple bar_290 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /112/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

$h = 10.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 10.0$ cm

$A_y = 9.44$ cm²

$A_z = 9.44$ cm²

$A_x = 18.88$ cm²

$tw = 0.5$ cm

$I_y = 282.80$ cm⁴

$I_z = 282.80$ cm⁴

$I_x = 438.80$ cm⁴

$tf = 0.5$ cm

$W_{ply} = 67.75$ cm³

$W_{plz} = 67.75$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -100.68$ kN

$M_{y,Ed} = 0.72$ kN*m

$N_{t,Rd} = 666.09$ kN

$M_{y,pl,Rd} = 24.05$ kN*m

$M_{y,c,Rd} = 24.05$ kN*m

$MN_{y,Rd} = 24.05$ kN*m

$V_{z,Ed} = 0.95$ kN

$V_{z,c,Rd} = 193.48$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.15 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.03 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.03 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.00 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 291 Simple bar_291 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /118/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 10*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

$h = 10.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 10.0$ cm

$A_y = 9.44$ cm²

$A_z = 9.44$ cm²

$A_x = 18.88$ cm²

$tw = 0.5$ cm

$I_y = 282.80$ cm⁴

$I_z = 282.80$ cm⁴

$I_x = 438.80$ cm⁴

$tf = 0.5$ cm

$W_{ply} = 67.75$ cm³

$W_{plz} = 67.75$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -117.68$ kN

$M_{y,Ed} = 0.52$ kN*m

$N_{t,Rd} = 666.09$ kN

$M_{y,pl,Rd} = 24.05$ kN*m

$M_{y,c,Rd} = 24.05$ kN*m

$MN_{y,Rd} = 24.05$ kN*m

$V_{z,Ed} = 1.42$ kN

$V_{z,c,Rd} = 193.48$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.18 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.02 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.02 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 292 Simple bar_292 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /118/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 10*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

$h = 10.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 10.0$ cm

$A_y = 9.44$ cm²

$A_z = 9.44$ cm²

$A_x = 18.88$ cm²

$tw = 0.5$ cm

$I_y = 282.80$ cm⁴

$I_z = 282.80$ cm⁴

$I_x = 438.80$ cm⁴

$tf = 0.5$ cm

$W_{ply} = 67.75$ cm³

$W_{plz} = 67.75$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -132.63$ kN

$M_{y,Ed} = 0.71$ kN*m

$N_{t,Rd} = 666.09$ kN

$M_{y,pl,Rd} = 24.05$ kN*m

$M_{y,c,Rd} = 24.05$ kN*m

$MN_{y,Rd} = 24.05$ kN*m

$V_{z,Ed} = 1.01$ kN

$V_{z,c,Rd} = 193.48$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.20 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.03 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.03 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: *EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.*

ANALYSIS TYPE: *Member Verification*

CODE GROUP:

MEMBER: *293 Simple bar_293* POINT: *1*

COORDINATE: *x = 0.00 L = 0.00 m*

LOADS:

Governing Load Case: *12 ULS /118/ 1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 10*0.90 + 9*1.50*

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: **TCAR 100x5**

$h=10.0$ cm

$gM0=1.00$

$gM1=1.00$

$b=10.0$ cm

$A_y=9.44$ cm²

$A_z=9.44$ cm²

$A_x=18.88$ cm²

$tw=0.5$ cm

$I_y=282.80$ cm⁴

$I_z=282.80$ cm⁴

$I_x=438.80$ cm⁴

$tf=0.5$ cm

$W_{ply}=67.75$ cm³

$W_{plz}=67.75$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -143.43$ kN

$M_{y,Ed} = 0.80$ kN*m

$N_{t,Rd} = 666.09$ kN

$M_{y,pl,Rd} = 24.05$ kN*m

$M_{y,c,Rd} = 24.05$ kN*m

$MN_{y,Rd} = 24.05$ kN*m

$V_{z,Ed} = 0.79$ kN

$V_{z,c,Rd} = 193.48$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.22 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.03 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.03 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.00 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 294 Simple bar_294 POINT: 2

COORDINATE: $x = 0.50 L = 0.28 \text{ m}$

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00 \text{ MPa}$



SECTION PARAMETERS: TREC 200x100x6

$h=20.0 \text{ cm}$	$gM0=1.00$	$gM1=1.00$	
$b=10.0 \text{ cm}$	$A_y=11.15 \text{ cm}^2$	$A_z=22.30 \text{ cm}^2$	$A_x=33.45 \text{ cm}^2$
$tw=0.6 \text{ cm}$	$I_y=1685.00 \text{ cm}^4$	$I_z=572.30 \text{ cm}^4$	$I_x=1416.00 \text{ cm}^4$
$tf=0.6 \text{ cm}$	$W_{ely}=168.50 \text{ cm}^3$	$W_{elz}=114.46 \text{ cm}^3$	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 690.49 \text{ kN}$	$M_{y,Ed} = 6.30 \text{ kN}\cdot\text{m}$	
$N_{c,Rd} = 1187.47 \text{ kN}$	$M_{y,el,Rd} = 59.82 \text{ kN}\cdot\text{m}$	
$N_{b,Rd} = 1187.47 \text{ kN}$	$M_{y,c,Rd} = 59.82 \text{ kN}\cdot\text{m}$	$V_{z,Ed} = -1.51 \text{ kN}$
		$V_{z,c,Rd} = 457.06 \text{ kN}$
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.55 \text{ m}$	$\lambda_{m,y} = 0.10$
$L_{cr,y} = 0.55 \text{ m}$	$X_y = 1.00$
$\lambda_{m,y} = 7.75$	$k_{yy} = 1.01$



About z axis:

$L_z = 0.55 \text{ m}$	$\lambda_{m,z} = 0.17$
$L_{cr,z} = 0.55 \text{ m}$	$X_z = 1.00$
$\lambda_{m,z} = 13.30$	$k_{zy} = 1.01$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.11 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.69 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.68 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.00 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{m,y} &= 7.75 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 13.30 < \lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.69 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.69 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 295 Simple bar_295 POINT: 2

COORDINATE: $x = 0.50 L = 0.28 \text{ m}$

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00 \text{ MPa}$



SECTION PARAMETERS: TREC 200x100x6

$h=20.0 \text{ cm}$	$gM0=1.00$	$gM1=1.00$	
$b=10.0 \text{ cm}$	$A_y=11.15 \text{ cm}^2$	$A_z=22.30 \text{ cm}^2$	$A_x=33.45 \text{ cm}^2$
$tw=0.6 \text{ cm}$	$I_y=1685.00 \text{ cm}^4$	$I_z=572.30 \text{ cm}^4$	$I_x=1416.00 \text{ cm}^4$
$tf=0.6 \text{ cm}$	$W_{ely}=168.50 \text{ cm}^3$	$W_{elz}=114.46 \text{ cm}^3$	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 687.13 \text{ kN}$	$M_{y,Ed} = 6.05 \text{ kN}\cdot\text{m}$	
$N_{c,Rd} = 1187.47 \text{ kN}$	$M_{y,el,Rd} = 59.82 \text{ kN}\cdot\text{m}$	
$N_{b,Rd} = 1187.47 \text{ kN}$	$M_{y,c,Rd} = 59.82 \text{ kN}\cdot\text{m}$	$V_{z,Ed} = -0.87 \text{ kN}$
		$V_{z,c,Rd} = 457.06 \text{ kN}$
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.55 \text{ m}$	$\lambda_{m,y} = 0.10$
$L_{cr,y} = 0.55 \text{ m}$	$X_y = 1.00$
$\lambda_{m,y} = 7.75$	$k_{yy} = 1.01$



About z axis:

$L_z = 0.55 \text{ m}$	$\lambda_{m,z} = 0.17$
$L_{cr,z} = 0.55 \text{ m}$	$X_z = 1.00$
$\lambda_{m,z} = 13.30$	$k_{zy} = 1.01$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.10 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.68 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.67 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.00 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{m,y} &= 7.75 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 13.30 < \lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.68 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.68 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 296 Simple bar_296 POINT: 2

COORDINATE: $x = 0.50 L = 0.28 \text{ m}$

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00 \text{ MPa}$



SECTION PARAMETERS: TREC 200x100x6

$h=20.0 \text{ cm}$	$gM0=1.00$	$gM1=1.00$	
$b=10.0 \text{ cm}$	$A_y=11.15 \text{ cm}^2$	$A_z=22.30 \text{ cm}^2$	$A_x=33.45 \text{ cm}^2$
$tw=0.6 \text{ cm}$	$I_y=1685.00 \text{ cm}^4$	$I_z=572.30 \text{ cm}^4$	$I_x=1416.00 \text{ cm}^4$
$tf=0.6 \text{ cm}$	$W_{ely}=168.50 \text{ cm}^3$	$W_{elz}=114.46 \text{ cm}^3$	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 681.38 \text{ kN}$	$M_{y,Ed} = 5.94 \text{ kN*m}$	
$N_{c,Rd} = 1187.47 \text{ kN}$	$M_{y,el,Rd} = 59.82 \text{ kN*m}$	
$N_{b,Rd} = 1187.47 \text{ kN}$	$M_{y,c,Rd} = 59.82 \text{ kN*m}$	$V_{z,Ed} = -1.25 \text{ kN}$
		$V_{z,c,Rd} = 457.06 \text{ kN}$
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.55 \text{ m}$	$\lambda_{m,y} = 0.10$
$L_{cr,y} = 0.55 \text{ m}$	$X_y = 1.00$
$\lambda_{m,y} = 7.76$	$k_{yy} = 1.01$



About z axis:

$L_z = 0.55 \text{ m}$	$\lambda_{m,z} = 0.17$
$L_{cr,z} = 0.55 \text{ m}$	$X_z = 1.00$
$\lambda_{m,z} = 13.31$	$k_{zy} = 1.01$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.10 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.67 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.67 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.00 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{m,y} &= 7.76 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 13.31 < \lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.67 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.67 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 297 Simple bar_297 POINT: 2

COORDINATE: $x = 0.50 L = 0.28 \text{ m}$

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00 \text{ MPa}$



SECTION PARAMETERS: TREC 200x100x6

$h=20.0 \text{ cm}$	$gM0=1.00$	$gM1=1.00$	
$b=10.0 \text{ cm}$	$A_y=11.15 \text{ cm}^2$	$A_z=22.30 \text{ cm}^2$	$A_x=33.45 \text{ cm}^2$
$tw=0.6 \text{ cm}$	$I_y=1685.00 \text{ cm}^4$	$I_z=572.30 \text{ cm}^4$	$I_x=1416.00 \text{ cm}^4$
$tf=0.6 \text{ cm}$	$W_{ely}=168.50 \text{ cm}^3$	$W_{elz}=114.46 \text{ cm}^3$	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 673.02 \text{ kN}$	$M_{y,Ed} = 5.68 \text{ kN}\cdot\text{m}$	
$N_{c,Rd} = 1187.47 \text{ kN}$	$M_{y,el,Rd} = 59.82 \text{ kN}\cdot\text{m}$	
$N_{b,Rd} = 1187.47 \text{ kN}$	$M_{y,c,Rd} = 59.82 \text{ kN}\cdot\text{m}$	$V_{z,Ed} = -1.70 \text{ kN}$
		$V_{z,c,Rd} = 457.06 \text{ kN}$
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.55 \text{ m}$	$\Lambda_{m,y} = 0.10$
$L_{cr,y} = 0.55 \text{ m}$	$X_y = 1.00$
$\Lambda_{m,y} = 7.76$	$k_{yy} = 1.01$



About z axis:

$L_z = 0.55 \text{ m}$	$\Lambda_{m,z} = 0.17$
$L_{cr,z} = 0.55 \text{ m}$	$X_z = 1.00$
$\Lambda_{m,z} = 13.32$	$k_{zy} = 1.01$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.09 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.66 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\text{Sig}_{x,Ed}^2 + 3*\text{Tau}_{z,Ed}^2)/(f_y/gM0)} &= 0.66 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.00 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \Lambda_{m,y} &= 7.76 < \Lambda_{m,max} = 210.00 \quad \Lambda_{m,z} = 13.32 < \Lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y*N_{c,Rd}/gM1) + k_{yy}*M_{y,Ed}/(XLT*M_{y,Rd}/gM1) &= 0.66 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z*N_{c,Rd}/gM1) + k_{zy}*M_{y,Ed}/(XLT*M_{y,Rd}/gM1) &= 0.66 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 298 Simple bar_298

POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /112/ $1*1.35 + 2*1.35 + 3*1.35 + 5*1.05 + 6*0.90 + 9*1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

$h = 10.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 10.0$ cm

$A_y = 9.44$ cm²

$A_z = 9.44$ cm²

$A_x = 18.88$ cm²

$tw = 0.5$ cm

$I_y = 282.80$ cm⁴

$I_z = 282.80$ cm⁴

$I_x = 438.80$ cm⁴

$tf = 0.5$ cm

$W_{ply} = 67.75$ cm³

$W_{plz} = 67.75$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -82.49$ kN

$M_{y,Ed} = 0.66$ kN*m

$N_{t,Rd} = 666.09$ kN

$M_{y,pl,Rd} = 24.05$ kN*m

$M_{y,c,Rd} = 24.05$ kN*m

$MN_{y,Rd} = 24.05$ kN*m

$V_{z,Ed} = 1.36$ kN

$V_{z,c,Rd} = 193.48$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.12 < 1.00$ (6.2.3.(1))

$M_{y,Ed}/M_{y,c,Rd} = 0.03 < 1.00$ (6.2.5.(1))

$M_{y,Ed}/MN_{y,Rd} = 0.03 < 1.00$ (6.2.9.1.(2))

$V_{z,Ed}/V_{z,c,Rd} = 0.01 < 1.00$ (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 299 Simple bar_299 POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: 12 ULS /110/ $1*1.35 + 2*1.35 + 3*1.35 + 4*1.50 + 5*1.05 + 6*0.90$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TREC 200x100x6

$h=20.0$ cm	$gM0=1.00$	$gM1=1.00$	
$b=10.0$ cm	$A_y=11.15$ cm ²	$A_z=22.30$ cm ²	$A_x=33.45$ cm ²
$t_w=0.6$ cm	$I_y=1685.00$ cm ⁴	$I_z=572.30$ cm ⁴	$I_x=1416.00$ cm ⁴
$t_f=0.6$ cm	$W_{ely}=168.50$ cm ³	$W_{elz}=114.46$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 687.81$ kN	$M_{y,Ed} = 7.98$ kN*m	
$N_{c,Rd} = 1187.47$ kN	$M_{y,el,Rd} = 59.82$ kN*m	
$N_{b,Rd} = 1187.47$ kN	$M_{y,c,Rd} = 59.82$ kN*m	$V_{z,Ed} = 1.36$ kN
		$V_{z,c,Rd} = 457.06$ kN
		Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

$L_y = 0.55$ m	$\lambda_{m,y} = 0.10$
$L_{cr,y} = 0.55$ m	$X_y = 1.00$
$\lambda_{m,y} = 7.75$	$k_{yy} = 1.01$



About z axis:

$L_z = 0.55$ m	$\lambda_{m,z} = 0.17$
$L_{cr,z} = 0.55$ m	$X_z = 1.00$
$\lambda_{m,z} = 13.30$	$k_{zy} = 1.01$

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} M_{y,Ed}/M_{y,c,Rd} &= 0.13 < 1.00 \quad (6.2.5.(1)) \\ N_{Ed}/N_{c,Rd} + M_{y,Ed}/M_{y,c,Rd} &= 0.71 < 1.00 \quad (6.2.9.3.(1)) \\ \sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{z,Ed})^2}/(f_y/gM0) &= 0.70 < 1.00 \quad (6.2.1.(5)) \\ V_{z,Ed}/V_{z,c,Rd} &= 0.00 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{m,y} &= 7.75 < \lambda_{m,max} = 210.00 \quad \lambda_{m,z} = 13.30 < \lambda_{m,max} = 210.00 \quad \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.71 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed}/(XLT \cdot M_{y,Rk}/gM1) &= 0.71 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

Section OK !!!

Balstmezglā aprēķins:

Slodze mezglā	$F_x =$	321,27	kN		
Moments	$M_y =$	57,68	kNm		
attālums no elementa centra līdz bultskrūvju centam	a	0,15	m		
Stiepes spēks	F	384,53	kN		
skrūvju skaits		3,00	gab		
slodze uz skrūvi		128,18	kN		
Drošības koef.		1,50			
Halfen HAB-H30	Nrd	146,93	kN	>	128,18
	Vrd	61,33	kN	>	53,55

Apakšējās saites savienošanas mezglā aprēķins:

Aprēķins bultskrūvēm:

N=	667	kN
6 bultskrūves	6	gb
2 plāksnes	2	gb
Slodze uz vienu skrūvi	55,58333	kN
Bultskrūves nestspēja cirpē	M24, 10,9	130 kN
56	<	130

Aprēķins plāksnēm:

S355	
N=	66 700 kg
Loksnes H	210 mm
Loksnes biezums	25 mm
cauruma diametrs	26 mm
cauruma daudzums	2 gab
An=	3950 mm ²
An=	39,5 cm ²
S355, fu=	5100 kg/cm ²
$y_m =$	2
$N/An < R_y/y_m$	
1689	< 2550 kg/cm ²
	151 %

Aprēķins plāksnēm:

S355	
N=	33 350 kg
Loksnes H	210 mm
Loksnes biezums	16 mm
cauruma diametrs	26 mm

cauruma daudzums	2	gab
$A_n =$	2528	mm ²
$A_n =$	25,28	cm ²
S355, $f_u =$	5100	kg/cm ²
$y_m =$	2	
$N/A_n < R_y/y_m$		
1319	<	2550
		kg/cm ²
	193	%

Aprēķins metināšanas šuvei:

$N =$	667	kN
$\beta_f =$	0,7	
$\beta_z =$	1	
$\kappa_f =$	0,6	cm
$L_{\text{šuves}} =$	35	cm
šuves puses	4	gab
$l_w =$	136	cm
$R_{wf} =$	18,5	kN/cm ²
ост.коэф.	1	
8,174019608	<	12,95
$R_{wz} =$	18,45	kN/cm ²
ост.коэф.	1	
8,174019608	<	18,45

Stabveida pamata nestspējas aprēķins

Grunšu nosaukums	Normatīvās vērtības					Iekšējās berzes leņķis, ϕ
	Grunts daļiņu blīvums $\rho_s, \text{g/cm}^3$	Grunts blīvums $\rho, \text{g/cm}^3$	Grunts daļiņu īpatnējais svars $\gamma_s, \text{kN/m}^3$	Grunts īpatnējais svars $\gamma, \text{kN/m}^3$	Saiste, C kPa	
Smalka, irdena smiltis	2,63	1,72	26,30	17,20	1,00	28,00

Pamata augstums	1,5 m
Pamata iebūves dziļums	1,5 m
Pamata platums	2 m
Pamata garums	2 m

Pārbaude izpildās

Projektēšanas situācija 1 (DA 1) Kombinācija 1

Aprēķina slodzes

Vertikālā slodze	352 kN
Horizontālā slodze	16 kN
Moments	55,0 kNm

Kopspēka ekscentritāte uz pamatu 0,178 m < 0,67

Pamata reducētie izmēri:

Pamata platums	1,64 m
Pamata garums	1,64 m

Bezdimensiju faktori spiedes pretestībai:

Ny	6,55
Nq	8,700
Nc	7,09

Bezdimensiju faktori pamata slīpumam:

by	1
bq	1
bc	1

Bezdimensiju faktori pamata formai:

sy	0,7
sq	1,39
sc	1,44

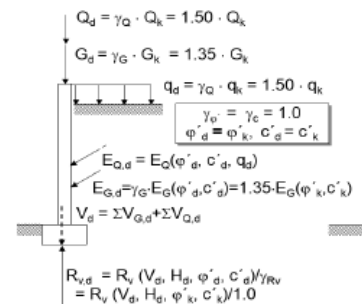
Bezdimensiju faktori pamata formai:

iy	0,8917183
iq	0,9335479
ic	0,9114994

Slodze no grunts uz pamatu 25,8 kN

Pamata aprēķina nestspēja 965,0 kN

Aprēķina slodze uz pamatni 455,2 kN



Aprēķina nestspēju var noteikt no vienādojuma:

$$R/A' = c' \cdot N_c \cdot b_c \cdot s_c \cdot i_c + q' \cdot N_q \cdot b_q \cdot s_q \cdot i_q + 0.5 \cdot g' \cdot B' \cdot N_\gamma \cdot b_\gamma \cdot s_\gamma \cdot i_\gamma$$

ar aprēķinātiem bezdimensiju faktoriem:

$$\text{spiedes pretestībai: } N_q = e^{\tan \phi'} \cdot \tan^2 (45 + \phi'/2)$$

$$N_c = (N_q - 1) \cot \phi'$$

$$N_\gamma = 2 (N_q - 1) \tan \phi', \text{ kur } d \geq \phi'/2 \text{ (nelīdzēnai virsmai)}$$

$$\text{pamatu pēdas slīpumam: } b_c = b_q - (1 - b_q) / (N_c \cdot \tan \phi')$$

$$b_q = b_\gamma = (1 - a \cdot \tan \phi')^2$$

pamata formai:

$$s_q = 1 + (B' / L') \sin \phi', \text{ taisnstūra pamatam;}$$

$$s_q = 1 + \sin \phi', \text{ kvadrāta vai apaļam pamatam;}$$

$$s_\gamma = 1 - 0.3 \cdot (B' / L'), \text{ taisnstūra pamatam;}$$

$$s_\gamma = 0.7, \text{ kvadrāta vai apaļam pamatam.}$$

$$s_c = (s_q \cdot N_q - 1) / (N_q - 1), \text{ taisnstūra, kvadrāta vai apaļam pamatam;}$$

horizontālās slodzes H izraisītais slodzes slīpums:

$$i_c = i_q \cdot (1 - i_q) / (N_c \cdot \tan \phi');$$

$$i_q = [1 - H / (V + A' c' \cot \phi')]^m;$$

$$i_\gamma = [1 - H / (V + A' c' \cot \phi')]^{m+1}, \text{ kur:}$$

$$m = m_B = [2 + (B' / L')] / [1 + (B' / L')], \text{ ja slodze H vērsta virzienā } B';$$

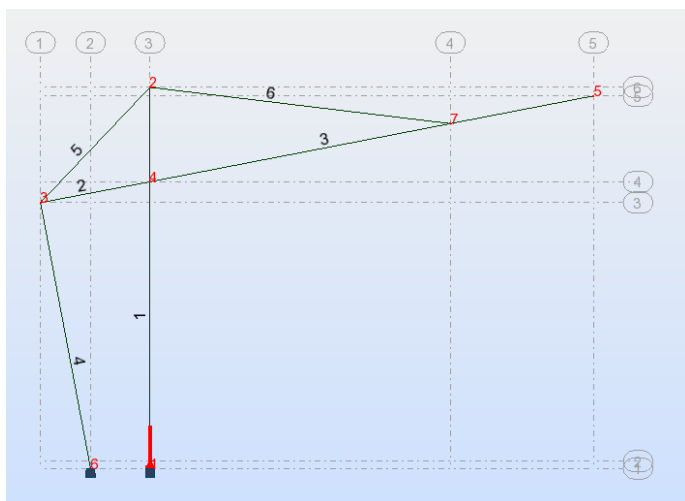
$$m = m_L = [2 + (L' / B')] / [1 + (L' / B')], \text{ ja slodze H vērsta virzienā } L'.$$

Ja horizontālās slodzes komponente darbojas virzienā, kas veido leņķi q ar L' virzienu, tad m nosaka šādi:

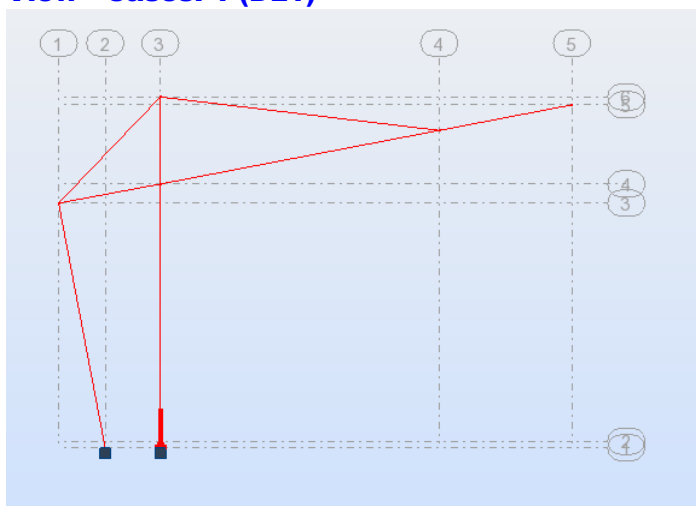
$$m = m_\theta = m_L \cos^2 \theta + m_B \sin^2 \theta$$

Tribiņu nojumes aprēķins

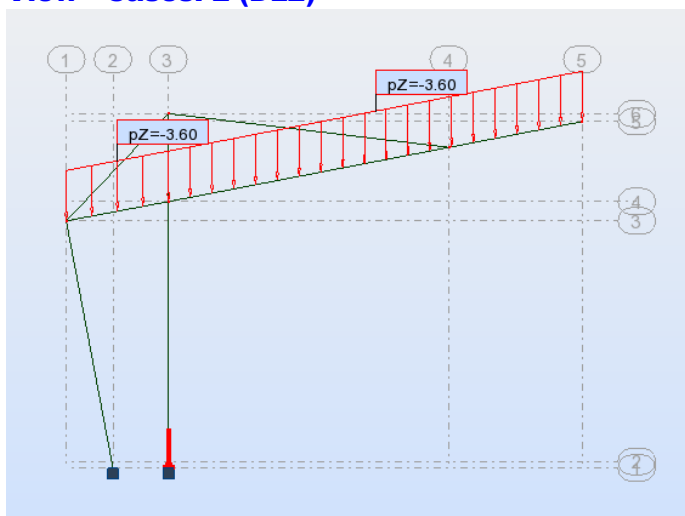
Aprēķina modelis



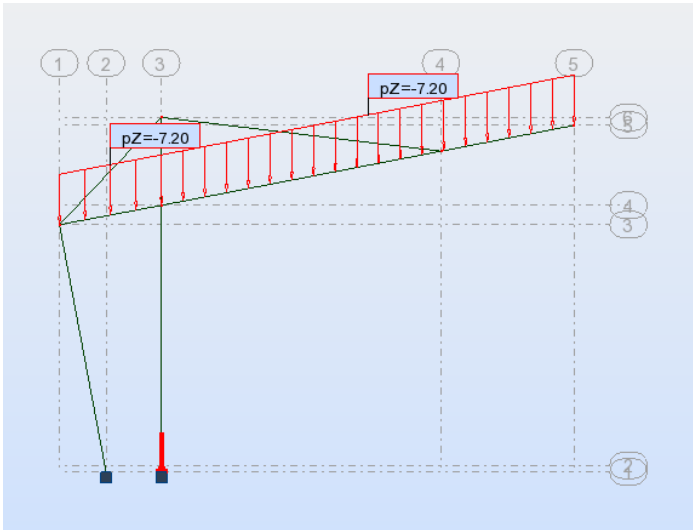
View - Cases: 1 (DL1)



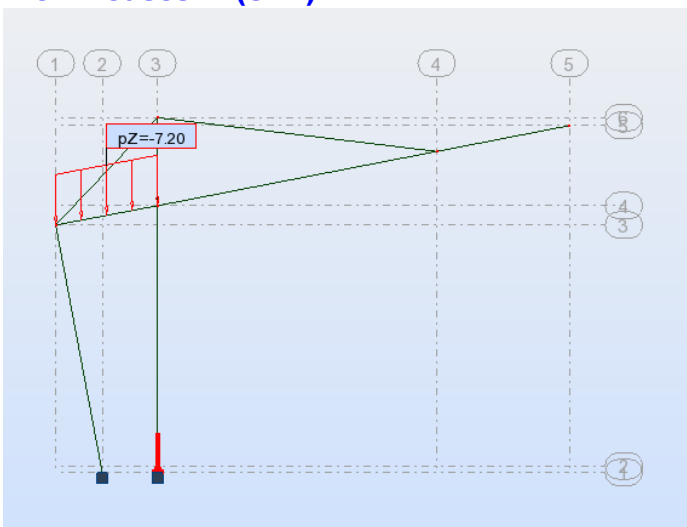
View - Cases: 2 (DL2)



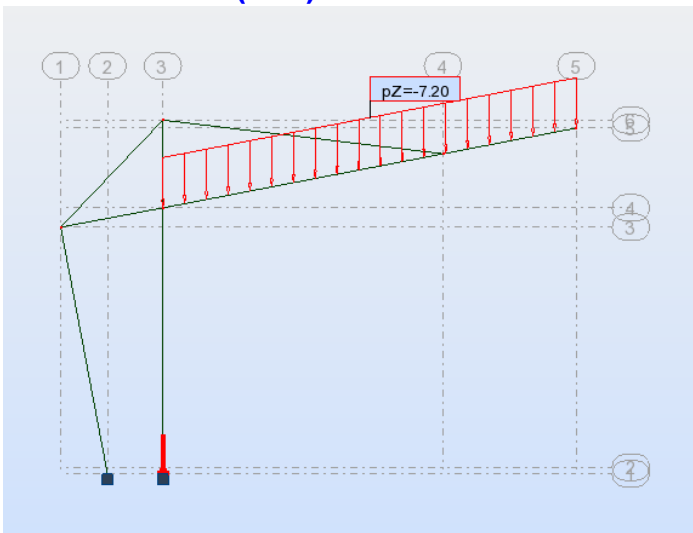
View - Cases: 3 (SN1)



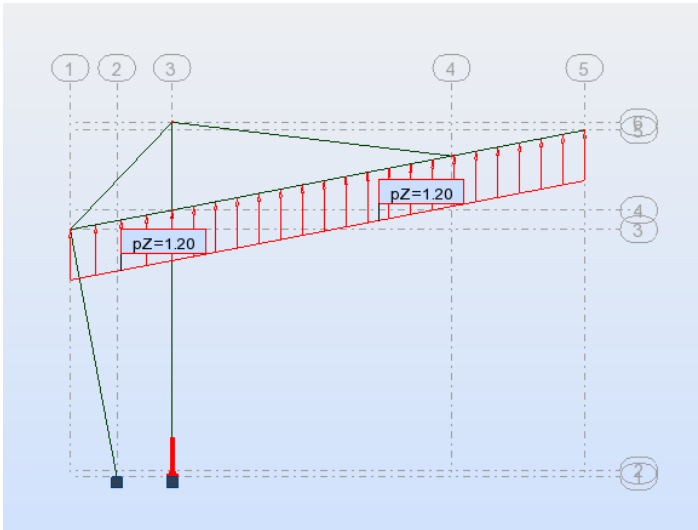
View - Cases: 4 (SN2)



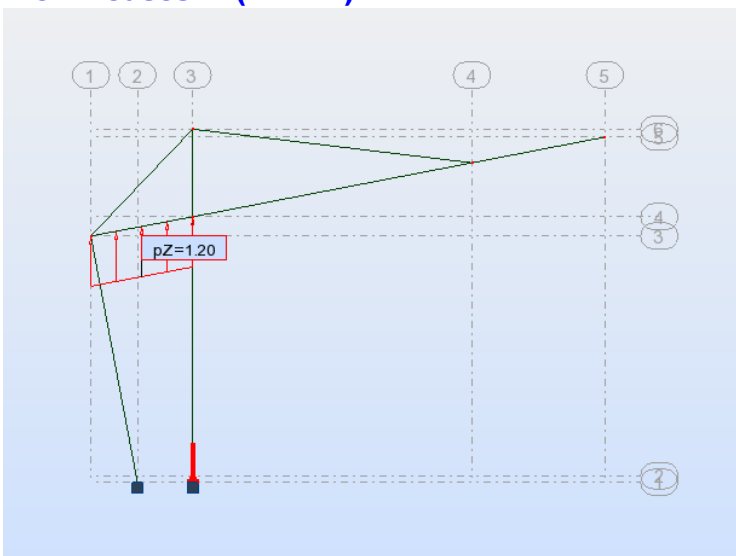
View - Cases: 5 (SN3)



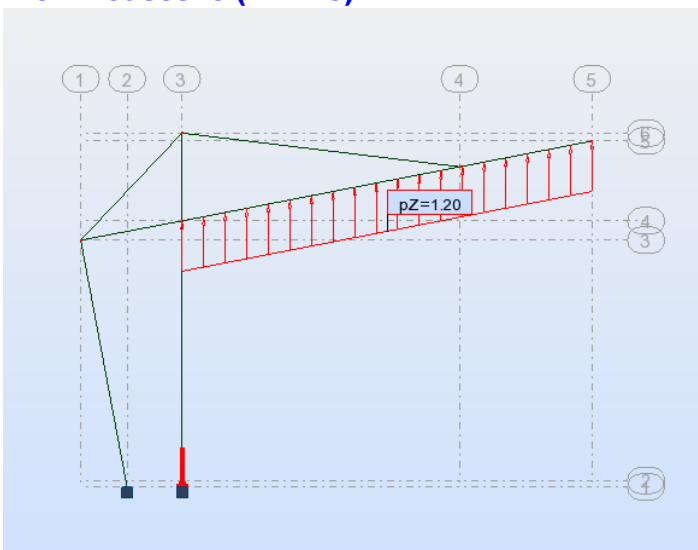
View - Cases: 6 (WIND1)



View - Cases: 7 (WIND2)



View - Cases: 8 (WIND3)



Data - Nodes

Node	X (m)	Z (m)	Support code	Support
1	1,53	0,0	xxx	Fixed
2	1,53	5,32		
3	0,0	3,71		
4	1,53	4,00		
5	7,73	5,20		
6	0,70	0,0	xxx	Fixed
7	5,73	4,81		

Data - Bars

Bar	Node 1	Node 2	Section	Material	Length (m)	Gamma (Deg)	Type
1	1	2	HEA 240	S 355	5,32	0,0	Column
2	3	4	IPE 300	S 355	1,56	0,0	Beam
3	4	5	IPE 300	S 355	6,32	0,0	Beam
4	6	3	TCAR 100x5	S 355	3,78	0,0	Simple bar
5	3	2	TCAR 100x5	S 355	2,22	0,0	Simple bar
6	2	7	TCAR 100x5	S 355	4,23	0,0	Simple bar

Data - Sections

	Section name	Bar list	AX (cm2)	AY (cm2)	AZ (cm2)	IX (cm4)	IY (cm4)	IZ (cm4)
	IPE 300	2 3	53,81	31,63	21,51	19,47	8356,11	603,78
	TCAR 100x5	4to6	18,88	8,39	8,39	438,80	282,80	282,80
	HEA 240	1	76,84	55,44	18,53	38,20	7763,18	2768,81

Data - Materials

	Material	E (MPa)	G (MPa)	N I	LX (1/°C)	RO (kN/m3)	Re (MPa)
1	S 235	210000,00	81000,00	0,30	0,00	77,01	235,00
2	Steel	210000,00	81000,00	0,30	0,00	77,01	235,00
3	S 355	210000,00	81000,00	0,30	0,00	77,01	355,00

Data - Supports

	Support name	List of nodes	List of edges	List of objects	Support conditions
	Fixed	1 6			UX UZ RY

Loads - Cases

Case	Label	Case name	Nature	Analysis type
1	DL1	DL1	Structural	Static - Linear
2	DL2	DL2	Structural	Static - Linear
3	SN1	SN1	snow	Static - Linear
4	SN2	SN2	snow	Static - Linear
5	SN3	SN3	snow	Static - Linear
6	WIND1	WIND1	wind	Static - Linear
7	WIND2	WIND2	wind	Static - Linear
8	WIND3	WIND3	wind	Static - Linear

Loads - Values

- Cases: 1to91

	Case	Load type	List	Load values
	1	self-weight	1to6	PZ Negative Factor=1,00
	2	uniform load	2 3	PZ=-3,60(kN/m)
	3	uniform load	2 3	PZ=-7,20(kN/m)
	4	uniform load	2	PZ=-7,20(kN/m)
	5	uniform load	3	PZ=-7,20(kN/m)
	6	uniform load	2 3	PZ=1,20(kN/m)
	7	uniform load	2	PZ=1,20(kN/m)
	8	uniform load	3	PZ=1,20(kN/m)

Combinations

- Cases: 9to91

Combinations	Name	Analysis type	Combination type	Case nature	Definition
9 (C)	ULS/1=1*1.35 + 2*1.35	Linear Combination		Structural	(1+2)*1.35
10 (C)	ULS/2=1*1.35 + 2*1.35 + 6*1.50	Linear Combination		Structural	(1+2)*1.35+6*1.50
11 (C)	ULS/3=1*1.35 + 2*1.35 + 6*1.50 + 3*0.75	Linear Combination		Structural	(1+2)*1.35+6*1.50+3*0.75
12 (C)	ULS/4=1*1.35 + 2*1.35 + 6*1.50 + 4*0.75	Linear Combination		Structural	(1+2)*1.35+6*1.50+4*0.75

13 (C)	ULS/5=1*1. 35 + 2*1.35 + 6*1.50 + 5*0.75	Linear Combination		Structural	(1+2)*1.35+6*1.50+5*0.75
14 (C)	ULS/6=1*1. 35 + 2*1.35 + 7*1.50	Linear Combination		Structural	(1+2)*1.35+7*1.50
15 (C)	ULS/7=1*1. 35 + 2*1.35 + 7*1.50 + 3*0.75	Linear Combination		Structural	(1+2)*1.35+7*1.50+3*0.75
16 (C)	ULS/8=1*1. 35 + 2*1.35 + 7*1.50 + 4*0.75	Linear Combination		Structural	(1+2)*1.35+7*1.50+4*0.75
17 (C)	ULS/9=1*1. 35 + 2*1.35 + 7*1.50 + 5*0.75	Linear Combination		Structural	(1+2)*1.35+7*1.50+5*0.75
18 (C)	ULS/10=1*1 .35 + 2*1.35 + 8*1.50	Linear Combination		Structural	(1+2)*1.35+8*1.50
19 (C)	ULS/11=1*1 .35 + 2*1.35 + 8*1.50 + 3*0.75	Linear Combination		Structural	(1+2)*1.35+8*1.50+3*0.75
20 (C)	ULS/12=1*1 .35 + 2*1.35 + 8*1.50 + 4*0.75	Linear Combination		Structural	(1+2)*1.35+8*1.50+4*0.75
21 (C)	ULS/13=1*1 .35 + 2*1.35 + 8*1.50 + 5*0.75	Linear Combination		Structural	(1+2)*1.35+8*1.50+5*0.75
22 (C)	ULS/14=1*1 .00 + 2*1.00	Linear Combination		Structural	(1+2)*1.00
23 (C)	ULS/15=1*1 .00 + 2*1.00 + 6*1.50	Linear Combination		Structural	(1+2)*1.00+6*1.50
24 (C)	ULS/16=1*1 .00 + 2*1.00 + 6*1.50 + 3*0.75	Linear Combination		Structural	(1+2)*1.00+6*1.50+3*0.75
25 (C)	ULS/17=1*1 .00 + 2*1.00 + 6*1.50 + 4*0.75	Linear Combination		Structural	(1+2)*1.00+6*1.50+4*0.75
26 (C)	ULS/18=1*1 .00 + 2*1.00 + 6*1.50 + 5*0.75	Linear Combination		Structural	(1+2)*1.00+6*1.50+5*0.75
27 (C)	ULS/19=1*1 .00 + 2*1.00 + 7*1.50	Linear Combination		Structural	(1+2)*1.00+7*1.50
28 (C)	ULS/20=1*1 .00 + 2*1.00 + 7*1.50 + 3*0.75	Linear Combination		Structural	(1+2)*1.00+7*1.50+3*0.75
29 (C)	ULS/21=1*1 .00 + 2*1.00 + 7*1.50 + 4*0.75	Linear Combination		Structural	(1+2)*1.00+7*1.50+4*0.75
30 (C)	ULS/22=1*1 .00 + 2*1.00 + 7*1.50 + 5*0.75	Linear Combination		Structural	(1+2)*1.00+7*1.50+5*0.75
31 (C)	ULS/23=1*1 .00 + 2*1.00 + 8*1.50	Linear Combination		Structural	(1+2)*1.00+8*1.50
32 (C)	ULS/24=1*1	Linear		Structural	(1+2)*1.00+8*1.50+3*0.75

	.00 + 2*1.00 + 8*1.50 + 3*0.75	Combination			
33 (C)	ULS/25=1*1 .00 + 2*1.00 + 8*1.50 + 4*0.75	Linear Combination		Structural	(1+2)*1.00+8*1.50+4*0.75
34 (C)	ULS/26=1*1 .00 + 2*1.00 + 8*1.50 + 5*0.75	Linear Combination		Structural	(1+2)*1.00+8*1.50+5*0.75
35 (C)	ULS/27=1*1 .35 + 2*1.35 + 3*1.50	Linear Combination		Structural	(1+2)*1.35+3*1.50
36 (C)	ULS/28=1*1 .35 + 2*1.35 + 4*1.50	Linear Combination		Structural	(1+2)*1.35+4*1.50
37 (C)	ULS/29=1*1 .35 + 2*1.35 + 5*1.50	Linear Combination		Structural	(1+2)*1.35+5*1.50
38 (C)	ULS/30=1*1 .35 + 2*1.35 + 6*0.90 + 3*1.50	Linear Combination		Structural	(1+2)*1.35+6*0.90+3*1.50
39 (C)	ULS/31=1*1 .35 + 2*1.35 + 6*0.90 + 4*1.50	Linear Combination		Structural	(1+2)*1.35+6*0.90+4*1.50
40 (C)	ULS/32=1*1 .35 + 2*1.35 + 6*0.90 + 5*1.50	Linear Combination		Structural	(1+2)*1.35+6*0.90+5*1.50
41 (C)	ULS/33=1*1 .35 + 2*1.35 + 7*0.90 + 3*1.50	Linear Combination		Structural	(1+2)*1.35+7*0.90+3*1.50
42 (C)	ULS/34=1*1 .35 + 2*1.35 + 7*0.90 + 4*1.50	Linear Combination		Structural	(1+2)*1.35+7*0.90+4*1.50
43 (C)	ULS/35=1*1 .35 + 2*1.35 + 7*0.90 + 5*1.50	Linear Combination		Structural	(1+2)*1.35+7*0.90+5*1.50
44 (C)	ULS/36=1*1 .35 + 2*1.35 + 8*0.90 + 3*1.50	Linear Combination		Structural	(1+2)*1.35+8*0.90+3*1.50
45 (C)	ULS/37=1*1 .35 + 2*1.35 + 8*0.90 + 4*1.50	Linear Combination		Structural	(1+2)*1.35+8*0.90+4*1.50
46 (C)	ULS/38=1*1 .35 + 2*1.35 + 8*0.90 + 5*1.50	Linear Combination		Structural	(1+2)*1.35+8*0.90+5*1.50
47 (C)	ULS/39=1*1 .00 + 2*1.00 + 3*1.50	Linear Combination		Structural	(1+2)*1.00+3*1.50
48 (C)	ULS/40=1*1 .00 + 2*1.00 + 4*1.50	Linear Combination		Structural	(1+2)*1.00+4*1.50
49 (C)	ULS/41=1*1 .00 + 2*1.00 + 5*1.50	Linear Combination		Structural	(1+2)*1.00+5*1.50
50 (C)	ULS/42=1*1 .00 + 2*1.00 + 6*0.90 + 3*1.50	Linear Combination		Structural	(1+2)*1.00+6*0.90+3*1.50
51 (C)	ULS/43=1*1	Linear		Structural	(1+2)*1.00+6*0.90+4*1.50

	.00 + 2*1.00 + 6*0.90 + 4*1.50	Combination			
52 (C)	ULS/44=1*1 .00 + 2*1.00 + 6*0.90 + 5*1.50	Linear Combination		Structural	(1+2)*1.00+6*0.90+5*1.50
53 (C)	ULS/45=1*1 .00 + 2*1.00 + 7*0.90 + 3*1.50	Linear Combination		Structural	(1+2)*1.00+7*0.90+3*1.50
54 (C)	ULS/46=1*1 .00 + 2*1.00 + 7*0.90 + 4*1.50	Linear Combination		Structural	(1+2)*1.00+7*0.90+4*1.50
55 (C)	ULS/47=1*1 .00 + 2*1.00 + 7*0.90 + 5*1.50	Linear Combination		Structural	(1+2)*1.00+7*0.90+5*1.50
56 (C)	ULS/48=1*1 .00 + 2*1.00 + 8*0.90 + 3*1.50	Linear Combination		Structural	(1+2)*1.00+8*0.90+3*1.50
57 (C)	ULS/49=1*1 .00 + 2*1.00 + 8*0.90 + 4*1.50	Linear Combination		Structural	(1+2)*1.00+8*0.90+4*1.50
58 (C)	ULS/50=1*1 .00 + 2*1.00 + 8*0.90 + 5*1.50	Linear Combination		Structural	(1+2)*1.00+8*0.90+5*1.50
59 (C)	SLS:CHR/1 =1*1.00 + 2*1.00	Linear Combination	SLS :CH R	dead	(1+2)*1.00
60 (C)	SLS:CHR/2 =1*1.00 + 2*1.00 + 6*1.00	Linear Combination	SLS :CH R	dead	(1+2+6)*1.00
61 (C)	SLS:CHR/3 =1*1.00 + 2*1.00 + 6*1.00 + 3*0.50	Linear Combination	SLS :CH R	dead	(1+2+6)*1.00+3*0.50
62 (C)	SLS:CHR/4 =1*1.00 + 2*1.00 + 6*1.00 + 4*0.50	Linear Combination	SLS :CH R	dead	(1+2+6)*1.00+4*0.50
63 (C)	SLS:CHR/5 =1*1.00 + 2*1.00 + 6*1.00 + 5*0.50	Linear Combination	SLS :CH R	dead	(1+2+6)*1.00+5*0.50
64 (C)	SLS:CHR/6 =1*1.00 + 2*1.00 + 7*1.00	Linear Combination	SLS :CH R	dead	(1+2+7)*1.00
65 (C)	SLS:CHR/7 =1*1.00 + 2*1.00 + 7*1.00 + 3*0.50	Linear Combination	SLS :CH R	dead	(1+2+7)*1.00+3*0.50
66 (C)	SLS:CHR/8 =1*1.00 + 2*1.00 + 7*1.00 + 4*0.50	Linear Combination	SLS :CH R	dead	(1+2+7)*1.00+4*0.50
67 (C)	SLS:CHR/9 =1*1.00 + 2*1.00 +	Linear Combination	SLS :CH R	dead	(1+2+7)*1.00+5*0.50

	7*1.00 + 5*0.50				
68 (C)	SLS:CHR/10 =1*1.00 + 2*1.00 + 8*1.00	Linear Combination	SLS :CH R	dead	(1+2+8)*1.00
69 (C)	SLS:CHR/11 =1*1.00 + 2*1.00 + 8*1.00 + 3*0.50	Linear Combination	SLS :CH R	dead	(1+2+8)*1.00+3*0.50
70 (C)	SLS:CHR/12 =1*1.00 + 2*1.00 + 8*1.00 + 4*0.50	Linear Combination	SLS :CH R	dead	(1+2+8)*1.00+4*0.50
71 (C)	SLS:CHR/13 =1*1.00 + 2*1.00 + 8*1.00 + 5*0.50	Linear Combination	SLS :CH R	dead	(1+2+8)*1.00+5*0.50
72 (C)	SLS:CHR/14 =1*1.00 + 2*1.00 + 3*1.00	Linear Combination	SLS :CH R	dead	(1+2+3)*1.00
73 (C)	SLS:CHR/15 =1*1.00 + 2*1.00 + 4*1.00	Linear Combination	SLS :CH R	dead	(1+2+4)*1.00
74 (C)	SLS:CHR/16 =1*1.00 + 2*1.00 + 5*1.00	Linear Combination	SLS :CH R	dead	(1+2+5)*1.00
75 (C)	SLS:CHR/17 =1*1.00 + 2*1.00 + 6*0.60 + 3*1.00	Linear Combination	SLS :CH R	dead	(1+2+3)*1.00+6*0.60
76 (C)	SLS:CHR/18 =1*1.00 + 2*1.00 + 6*0.60 + 4*1.00	Linear Combination	SLS :CH R	dead	(1+2+4)*1.00+6*0.60
77 (C)	SLS:CHR/19 =1*1.00 + 2*1.00 + 6*0.60 + 5*1.00	Linear Combination	SLS :CH R	dead	(1+2+5)*1.00+6*0.60
78 (C)	SLS:CHR/20 =1*1.00 + 2*1.00 + 7*0.60 + 3*1.00	Linear Combination	SLS :CH R	dead	(1+2+3)*1.00+7*0.60
79 (C)	SLS:CHR/21 =1*1.00 + 2*1.00 + 7*0.60 + 4*1.00	Linear Combination	SLS :CH R	dead	(1+2+4)*1.00+7*0.60
80 (C)	SLS:CHR/22 =1*1.00 + 2*1.00 + 7*0.60 + 5*1.00	Linear Combination	SLS :CH R	dead	(1+2+5)*1.00+7*0.60
81 (C)	SLS:CHR/23 =1*1.00 + 2*1.00 + 8*0.60 + 3*1.00	Linear Combination	SLS :CH R	dead	(1+2+3)*1.00+8*0.60
82 (C)	SLS:CHR/24 =1*1.00 + 2*1.00 +	Linear Combination	SLS :CH R	dead	(1+2+4)*1.00+8*0.60

	8*0.60 + 4*1.00				
83 (C)	SLS:CHR/25 =1*1.00 + 2*1.00 + 8*0.60 + 5*1.00	Linear Combination	SLS :CH R	dead	(1+2+5)*1.00+8*0.60
84 (C)	SLS:FRE/26 =1*1.00 + 2*1.00	Linear Combination	SLS :FR E	dead	(1+2)*1.00
85 (C)	SLS:FRE/27 =1*1.00 + 2*1.00 + 6*0.20	Linear Combination	SLS :FR E	dead	(1+2)*1.00+6*0.20
86 (C)	SLS:FRE/28 =1*1.00 + 2*1.00 + 7*0.20	Linear Combination	SLS :FR E	dead	(1+2)*1.00+7*0.20
87 (C)	SLS:FRE/29 =1*1.00 + 2*1.00 + 8*0.20	Linear Combination	SLS :FR E	dead	(1+2)*1.00+8*0.20
88 (C)	SLS:FRE/30 =1*1.00 + 2*1.00 + 3*0.20	Linear Combination	SLS :FR E	dead	(1+2)*1.00+3*0.20
89 (C)	SLS:FRE/31 =1*1.00 + 2*1.00 + 4*0.20	Linear Combination	SLS :FR E	dead	(1+2)*1.00+4*0.20
90 (C)	SLS:FRE/32 =1*1.00 + 2*1.00 + 5*0.20	Linear Combination	SLS :FR E	dead	(1+2)*1.00+5*0.20
91 (C)	SLS:QPR/33 =1*1.00 + 2*1.00	Linear Combination	SLS :QP R	dead	(1+2)*1.00

Reactions ULS: global extremes

in the coordinate system: global - Cases: 1to58

	FX (kN)	FZ (kN)	MY (kNm)
MAX	43,67	354,32	9,07
Node	6	1	1
Case	43 (C)	35 (C)	8
MIN	-43,67	-231,09	-121,09
Node	1	6	1
Case	43 (C)	43 (C)	43 (C)

Displacements SLS: global extremes

- Cases: 1to8

	UX (cm)	UZ (cm)	RY (Rad)
MAX	1,9	0,5	0,006
Node	5	5	5
Case	5	8	5
MIN	-0,3	-3,1	-0,001
Node	5	5	5

Case	8	5	8

Member Forces ULS: envelope

- Cases: 1to58

Bar	FX (kN)	FZ (kN)	MY (kNm)
1 / MAX	354,32	43,67	9,07
Node	1	1	1
Case	35 (C)	43 (C)	8
1 / MIN	-25,74	-6,68	-121,09
Node	1	2	1
Case	6	43 (C)	43 (C)
2 / MAX	252,13	5,37	6,67
Node	3	3	4
Case	43 (C)	4	6
2 / MIN	-18,64	-70,49	-90,45
Node	3	4	4
Case	8	35 (C)	35 (C)
3 / MAX	218,53	37,10	3,39
Node	4	4	4
Case	43 (C)	35 (C)	6
3 / MIN	-16,09	-2,74	-46,06
Node	4	4	4
Case	8	6	35 (C)
4 / MAX	17,68	0,07	0,0
Node	6	6	6
Case	8	9 (C)	1
4 / MIN	-235,91	-0,07	0,0
Node	3	3	6
Case	43 (C)	9 (C)	1
5 / MAX	22,98	0,15	0,0
Node	3	3	3
Case	8	9 (C)	1
5 / MIN	-311,12	-0,15	0,0
Node	2	2	3
Case	43 (C)	9 (C)	1
6 / MAX	15,39	0,41	0,0
Node	2	2	2
Case	8	9 (C)	1
6 / MIN	-209,09	-0,41	0,0
Node	2	7	2
Case	43 (C)	9 (C)	1

Steel Member Verification

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 1 Column_1

POINT: 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 43 ULS/35=1*1.35 + 2*1.35 + 7*0.90 + 5*1.50 (1+2)*1.35+7*0.90+5*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: HEA 240

h=23.0 cm	gM0=1.00	gM1=1.00	
b=24.0 cm	Ay=64.54 cm ²	Az=25.18 cm ²	Ax=76.84 cm ²
tw=0.8 cm	Iy=7763.18 cm ⁴	Iz=2768.81 cm ⁴	Ix=38.20 cm ⁴
tf=1.2 cm	Wply=744.68 cm ³	Wplz=351.70 cm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 346.53 kN	My _{Ed} = -121.09 kN*m	
N _{c,Rd} = 2727.66 kN	My _{Ed,max} = -121.09 kN*m	
N _{b,Rd} = 1236.66 kN	My _{c,Rd} = 264.36 kN*m	Vz _{Ed} = 43.67 kN
	MN _{y,Rd} = 263.80 kN*m	Vz _{c,Rd} = 516.00 kN
		Class of section = 2



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

Ly = 5.32 m	Lam_y = 0.69
Lcr,y = 5.32 m	Xy = 0.79
Lamy = 52.93	kyy = 0.82



About z axis:

Lz = 5.32 m	Lam_z = 1.16
Lcr,z = 5.32 m	Xz = 0.45
Lamz = 88.62	kzy = 0.41

VERIFICATION FORMULAS:

Section strength check:

$$\begin{aligned} N_{Ed}/N_{c,Rd} &= 0.13 < 1.00 \quad (6.2.4.(1)) \\ My_{Ed}/My_{c,Rd} &= 0.46 < 1.00 \quad (6.2.5.(1)) \\ My_{Ed}/MN_{y,Rd} &= 0.46 < 1.00 \quad (6.2.9.1.(2)) \\ Vz_{Ed}/Vz_{c,Rd} &= 0.08 < 1.00 \quad (6.2.6.(1)) \end{aligned}$$

Global stability check of member:

$$\begin{aligned} \lambda_{b,y} &= 52.93 < \lambda_{b,max} = 210.00 & \lambda_{b,z} &= 88.62 < \lambda_{b,max} = 210.00 & \text{STABLE} \\ N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot My_{Ed,max}/(XLT \cdot My_{Rk}/gM1) &= 0.54 < 1.00 \quad (6.3.3.(4)) \\ N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot My_{Ed,max}/(XLT \cdot My_{Rk}/gM1) &= 0.47 < 1.00 \quad (6.3.3.(4)) \end{aligned}$$

LIMIT DISPLACEMENTS



Deflections Not analyzed



Displacements

$$\begin{aligned} v_x &= 2.9 \text{ cm} < v_{x,max} = L/150.00 = 3.5 \text{ cm} & \text{Verified} \\ \text{Governing Load Case: } 80 \text{ SLS:CHR/22} &= 1 \cdot 1.00 + 2 \cdot 1.00 + 7 \cdot 0.60 + 5 \cdot 1.00 \quad (1+2+5) \cdot 1.00 + 7 \cdot 0.60 \\ v_y &= 0.0 \text{ cm} < v_{y,max} = L/150.00 = 3.5 \text{ cm} & \text{Verified} \\ \text{Governing Load Case: } &1 \text{ DL1} \end{aligned}$$

Section OK !!!

STEEL DESIGN

CODE: *EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.*

ANALYSIS TYPE: *Member Verification*

CODE GROUP:

MEMBER: **2 Beam_2**

POINT: **2**

COORDINATE: **x = 0.50 L = 0.78 m**

LOADS:

Governing Load Case: 43 ULS/35=1*1.35 + 2*1.35 + 7*0.90 + 5*1.50 (1+2)*1.35+7*0.90+5*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: IPE 300

h=30.0 cm	$gM0=1.00$	$gM1=1.00$	
b=15.0 cm	$A_y=36.16$ cm ²	$A_z=25.68$ cm ²	$A_x=53.81$ cm ²
tw=0.7 cm	$I_y=8356.11$ cm ⁴	$I_z=603.78$ cm ⁴	$I_x=19.47$ cm ⁴
tf=1.1 cm	$W_{ply}=628.40$ cm ³	$W_{plz}=125.22$ cm ³	

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = 251.51$ kN	$M_{y,Ed} = -43.76$ kN*m	
$N_{c,Rd} = 1910.33$ kN	$M_{y,Ed,max} = -90.11$ kN*m	
$N_{b,Rd} = 1910.33$ kN	$M_{y,c,Rd} = 223.08$ kN*m	$V_{z,Ed} = -57.86$ kN
	$MN_{y,Rd} = 223.08$ kN*m	$V_{z,c,Rd} = 526.37$ kN
	$Mb_{Rd} = 208.79$ kN*m	

Class of section = 1



LATERAL BUCKLING PARAMETERS:

$z = 1.00$	$M_{cr} = 587.63$ kN*m	Curve,LT - b	$XLT = 0.91$
$L_{cr,low} = 1.56$ m	$\Lambda_{m_LT} = 0.62$	$f_{i,LT} = 0.68$	$XLT_{mod} = 0.94$

BUCKLING PARAMETERS:



About y axis:

$$k_{yy} = 1.00$$



About z axis:

$$k_{zy} = 1.00$$

VERIFICATION FORMULAS:

Section strength check:

$$N_{Ed}/N_{c,Rd} = 0.13 < 1.00 \quad (6.2.4.(1))$$

$$M_{y,Ed}/M_{y,c,Rd} = 0.20 < 1.00 \quad (6.2.5.(1))$$

$$V_{z,Ed}/V_{z,c,Rd} = 0.11 < 1.00 \quad (6.2.6.(1))$$

Global stability check of member:

$$M_{y,Ed,max}/M_{b,Rd} = 0.43 < 1.00 \quad (6.3.2.1.(1))$$

$$N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed,max}/(XLT \cdot M_{y,Rk}/gM1) = 0.56 < 1.00 \quad (6.3.3.(4))$$

$$N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed,max}/(XLT \cdot M_{y,Rk}/gM1) = 0.56 < 1.00 \quad (6.3.3.(4))$$

LIMIT DISPLACEMENTS



Deflections

$$u_y = 0.0 \text{ cm} < u_{y,max} = L/200.00 = 0.8 \text{ cm}$$

Verified

Governing Load Case: 1 DL1

$$u_z = 0.1 \text{ cm} < u_{z,max} = L/200.00 = 0.8 \text{ cm}$$

Verified

Governing Load Case: 80 SLS:CHR/22=1*1.00 + 2*1.00 + 7*0.60 + 5*1.00 (1+2+5)*1.00+7*0.60



Displacements Not analyzed

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 3 Beam_3

POINT: 1

COORDINATE: x = 0.00 L = 0.00 m

LOADS:

Governing Load Case: 35 ULS/27=1*1.35 + 2*1.35 + 3*1.50 (1+2)*1.35+3*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: IPE 300

h=30.0 cm	gM0=1.00	gM1=1.00	
b=15.0 cm	Ay=36.16 cm ²	Az=25.68 cm ²	Ax=53.81 cm ²
tw=0.7 cm	Iy=8356.11 cm ⁴	Iz=603.78 cm ⁴	Ix=19.47 cm ⁴
tf=1.1 cm	Wply=628.40 cm ³	Wplz=125.22 cm ³	

INTERNAL FORCES AND CAPACITIES:

N,Ed = 218.00 kN	My,Ed = -46.06 kN*m		
Nc,Rd = 1910.33 kN	My,Ed,max = -46.06 kN*m		
Nb,Rd = 1910.33 kN	My,c,Rd = 223.08 kN*m	Vz,Ed = 37.10 kN	
	MN,y,Rd = 223.08 kN*m	Vz,c,Rd = 526.37 kN	
	Mb,Rd = 73.33 kN*m		
		Class of section = 1	



LATERAL BUCKLING PARAMETERS:

z = 1.00	Mcr = 73.33 kN*m	Curve,LT - b	XLT = 0.33
Lcr,low=6.32 m	Lam_LT = 1.74	fi,LT = 1.87	XLT,mod = 0.33

BUCKLING PARAMETERS:



About y axis:

$$k_{yy} = 1.00$$



About z axis:

$$k_{zy} = 1.00$$

VERIFICATION FORMULAS:

Section strength check:

$$N_{Ed}/N_{c,Rd} = 0.11 < 1.00 \quad (6.2.4.(1))$$

$$M_{y,Ed}/M_{y,c,Rd} = 0.21 < 1.00 \quad (6.2.5.(1))$$

$$V_{z,Ed}/V_{z,c,Rd} = 0.07 < 1.00 \quad (6.2.6.(1))$$

Global stability check of member:

$$M_{y,Ed,max}/M_{b,Rd} = 0.63 < 1.00 \quad (6.3.2.1.(1))$$

$$N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed,max}/(XLT \cdot M_{y,Rk}/gM1) = 0.74 < 1.00 \quad (6.3.3.(4))$$

$$N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed,max}/(XLT \cdot M_{y,Rk}/gM1) = 0.74 < 1.00 \quad (6.3.3.(4))$$

LIMIT DISPLACEMENTS



Deflections

$$u_y = 0.0 \text{ cm} < u_{y,max} = L/200.00 = 3.2 \text{ cm}$$

Verified

Governing Load Case: 1 DL1

$$u_z = 0.3 \text{ cm} < u_{z,max} = L/200.00 = 3.2 \text{ cm}$$

Verified

Governing Load Case: 72 SLS:CHR/14=1*1.00 + 2*1.00 + 3*1.00 (1+2+3)*1.00



Displacements Not analyzed

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 4 Simple bar_4

POINT: 3

COORDINATE: x = 1.00 L = 3.78 m

LOADS:

Governing Load Case: 43 ULS/35=1*1.35 + 2*1.35 + 7*0.90 + 5*1.50 (1+2)*1.35+7*0.90+5*1.50

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

h=10.0 cm

gM0=1.00

gM1=1.00

b=10.0 cm

Ay=9.44 cm²

Az=9.44 cm²

Ax=18.88 cm²

tw=0.5 cm

Iy=282.80 cm⁴

Iz=282.80 cm⁴

Ix=438.80 cm⁴

tf=0.5 cm

Wply=67.75 cm³

Wplz=67.75 cm³

INTERNAL FORCES AND CAPACITIES:

N,Ed = -235.91 kN

Nt,Rd = 670.24 kN

Vz,Ed = -0.07 kN

Vz,c,Rd = 193.48 kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

N,Ed/Nt,Rd = 0.35 < 1.00 (6.2.3.(1))

Vz,Ed/Vz,c,Rd = 0.00 < 1.00 (6.2.6.(1))

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 5 Simple bar_5

POINT: 3

COORDINATE: $x = 1.00$ $L = 2.22$ m

LOADS:

Governing Load Case: $43 \text{ ULS}/35 = 1 \cdot 1.35 + 2 \cdot 1.35 + 7 \cdot 0.90 + 5 \cdot 1.50 \quad (1+2) \cdot 1.35 + 7 \cdot 0.90 + 5 \cdot 1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

$h = 10.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 10.0$ cm

$A_y = 9.44$ cm²

$A_z = 9.44$ cm²

$A_x = 18.88$ cm²

$t_w = 0.5$ cm

$I_y = 282.80$ cm⁴

$I_z = 282.80$ cm⁴

$I_x = 438.80$ cm⁴

$t_f = 0.5$ cm

$W_{ply} = 67.75$ cm³

$W_{plz} = 67.75$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -311.12$ kN

$N_{t,Rd} = 670.24$ kN

$V_{z,Ed} = -0.15$ kN

$V_{z,c,Rd} = 193.48$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

$N_{Ed}/N_{t,Rd} = 0.46 < 1.00 \quad (6.2.3.(1))$

$V_{z,Ed}/V_{z,c,Rd} = 0.00 < 1.00 \quad (6.2.6.(1))$

Section OK !!!

STEEL DESIGN

CODE: EN 1993-1:2005/AC:2009, Eurocode 3: Design of steel structures.

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 6 Simple bar_6

POINT: 1

COORDINATE: $x = 0.00$ $L = 0.00$ m

LOADS:

Governing Load Case: $43 \text{ ULS}/35 = 1 \cdot 1.35 + 2 \cdot 1.35 + 7 \cdot 0.90 + 5 \cdot 1.50 \quad (1+2) \cdot 1.35 + 7 \cdot 0.90 + 5 \cdot 1.50$

MATERIAL:

S 355 (S 355) $f_y = 355.00$ MPa



SECTION PARAMETERS: TCAR 100x5

$h = 10.0$ cm

$gM0 = 1.00$

$gM1 = 1.00$

$b = 10.0$ cm

$A_y = 9.44$ cm²

$A_z = 9.44$ cm²

$A_x = 18.88$ cm²

$t_w = 0.5$ cm

$I_y = 282.80$ cm⁴

$I_z = 282.80$ cm⁴

$I_x = 438.80$ cm⁴

$t_f = 0.5$ cm

$W_{ply} = 67.75$ cm³

$W_{plz} = 67.75$ cm³

INTERNAL FORCES AND CAPACITIES:

$N_{Ed} = -209.09$ kN

$N_{t,Rd} = 670.24$ kN

$V_{z,Ed} = 0.41$ kN

$V_{z,c,Rd} = 193.48$ kN

Class of section = 1



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:



About z axis:

VERIFICATION FORMULAS:

Section strength check:

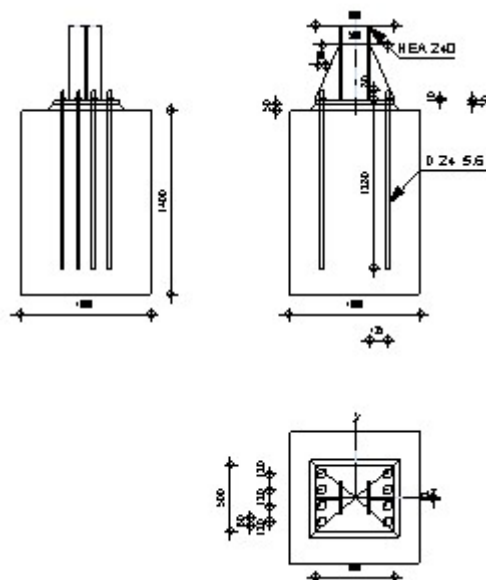
$N_{Ed}/N_{t,Rd} = 0.31 < 1.00$ (6.2.3.(1))

$V_{z,Ed}/V_{z,c,Rd} = 0.00 < 1.00$ (6.2.6.(1))

Section OK !!!

**Fixed column base design**

Eurocode 3: EN 1993-1-8:2005/AC:2009 + CEB Design Guide: Design of fastenings in concrete

**GENERAL**

Connection no.: 1
Connection name: Fixed column base
Structure node: 1
Structure bars: 1

GEOMETRY**COLUMN**

Section: HEA 240
Bar no.: 1

$L_c =$	5,32	[m]	Column length
$\alpha =$	0,0	[Deg]	Inclination angle
$h_c =$	230	[mm]	Height of column section
$b_{fc} =$	240	[mm]	Width of column section
$t_{wc} =$	8	[mm]	Thickness of the web of column section
$t_{fc} =$	12	[mm]	Thickness of the flange of column section
$r_c =$	21	[mm]	Radius of column section fillet
$A_c =$	76,84	[cm ²]	Cross-sectional area of a column
$I_{yc} =$	7763,18	[cm ⁴]	Moment of inertia of the column section
Material:	S 355		
$f_{yc} =$	355,00	[MPa]	Resistance
$f_{uc} =$	470,00	[MPa]	Yield strength of a material

COLUMN BASE

$l_{pd} =$	600	[mm]	Length
$b_{pd} =$	500	[mm]	Width
$t_{pd} =$	30	[mm]	Thickness
Material:	S 355		
$f_{ypd} =$	355,00	[MPa]	Resistance

Material: S 355
 $f_{ypd} = 355,00$ [MPa] Resistance
 $f_{upd} = 470,00$ [MPa] Yield strength of a material

ANCHORAGE

The shear plane passes through the UNTHREADED portion of the bolt.

Class = 5.6 Anchor class
 $f_{yb} = 300,00$ [MPa] Yield strength of the anchor material
 $f_{ub} = 500,00$ [MPa] Tensile strength of the anchor material
 $d = 24$ [mm] Bolt diameter
 $A_s = 3,53$ [cm²] Effective section area of a bolt
 $A_v = 4,52$ [cm²] Area of bolt section
 $n_H = 2$ Number of bolt columns
 $n_V = 4$ Number of bolt rows
Horizontal spacing $e_{Hi} = 500$ [mm]
Vertical spacing $e_{Vi} = 120; 120$ [mm]

Anchor dimensions

$L_1 = 80$ [mm]
 $L_2 = 1280$ [mm]

Washer

$l_{wd} = 60$ [mm] Length
 $b_{wd} = 60$ [mm] Width
 $t_{wd} = 10$ [mm] Thickness

STIFFENER

$l_s = 600$ [mm] Length
 $h_s = 400$ [mm] Height
 $t_s = 12$ [mm] Thickness
 $d_1 = 20$ [mm] Cut
 $d_2 = 20$ [mm] Cut

MATERIAL FACTORS

$\gamma_{M0} = 1,00$ Partial safety factor
 $\gamma_{M2} = 1,25$ Partial safety factor
 $\gamma_C = 1,50$ Partial safety factor

SPREAD FOOTING

$L = 1000$ [mm] Spread footing length
 $B = 1000$ [mm] Spread footing width
 $H = 1400$ [mm] Spread footing height

Concrete

Class C30/37
 $f_{ck} = 30,00$ [MPa] Characteristic resistance for compression

Grout layer

$t_g = 50$ [mm] Thickness of leveling layer (grout)
 $f_{ck,g} = 12,00$ [MPa] Characteristic resistance for compression
 $C_{f,d} = 0,30$ Coeff. of friction between the base plate and concrete

WELDS

$a_p = 6$ [mm] Footing plate of the column base
 $a_s = 8$ [mm] Stiffeners

LOADS

Case: 43: $ULS/35=1*1.35 + 2*1.35 + 7*0.90 + 5*1.50 (1+2)*1.35+7*0.90+5*1.50$

$N_{j,Ed} =$	-346,53	[kN]	Axial force
$V_{j,Ed,z} =$	-43,67	[kN]	Shear force
$M_{j,Ed,y} =$	121,09	[kN*m]	Bending moment

RESULTS

COMPRESSION ZONE

COMPRESSION OF CONCRETE

$f_{cd} =$	20,00	[MPa]	Design compressive resistance	EN 1992-1:[3.1.6.(1)]
$f_j =$	24,34	[MPa]	Design bearing resistance under the base plate	[6.2.5.(7)]
$c = t_p \sqrt{(f_{yp}/(3*f_j*\gamma_{M0}))}$				
$c =$	66	[mm]	Additional width of the bearing pressure zone	[6.2.5.(4)]
$b_{eff} =$	144	[mm]	Effective width of the bearing pressure zone under the flange	[6.2.5.(3)]
$l_{eff} =$	372	[mm]	Effective length of the bearing pressure zone under the flange	[6.2.5.(3)]
$A_{c0} =$	537,16	[cm ²]	Area of the joint between the base plate and the foundation	EN 1992-1:[6.7.(3)]
$A_{c1} =$	4328,60	[cm ²]	Maximum design area of load distribution	EN 1992-1:[6.7.(3)]
$F_{rd,u} = A_{c0}*f_{cd}*\sqrt{(A_{c1}/A_{c0})} \leq 3*A_{c0}*f_{cd}$				
$F_{rd,u} =$	3049,69	[kN]	Bearing resistance of concrete	EN 1992-1:[6.7.(3)]
$\beta_j =$	0,67		Reduction factor for compression	[6.2.5.(7)]
$f_{jd} = \beta_j * F_{rd,u} / (b_{eff} * l_{eff})$				
$f_{jd} =$	37,85	[MPa]	Design bearing resistance	[6.2.5.(7)]
$A_{c,n} =$	1520,35	[cm ²]	Bearing area for compression	[6.2.8.2.(1)]
$A_{c,y} =$	708,65	[cm ²]	Bearing area for bending M_y	[6.2.8.3.(1)]
$F_{c,Rd,i} = A_{c,i} * f_{jd}$				
$F_{c,Rd,n} =$	5754,45	[kN]	Bearing resistance of concrete for compression	[6.2.8.2.(1)]
$F_{c,Rd,y} =$	2682,22	[kN]	Bearing resistance of concrete for bending M_y	[6.2.8.3.(1)]

COLUMN FLANGE AND WEB IN COMPRESSION

$CL =$	3,00		Section class	EN 1993-1-1:[5.5.2]
$W_{el,y} =$	938,22	[cm ³]	Elastic section modulus	EN1993-1-1:[6.2.5.(2)]
$M_{c,Rd,y} =$	333,07	[kN*m]	Design resistance of the section for bending	EN1993-1-1:[6.2.5]
$h_{f,y} =$	282	[mm]	Distance between the centroids of flanges	[6.2.6.7.(1)]
$F_{c,fc,Rd,y} = M_{c,Rd,y} / h_{f,y}$				
$F_{c,fc,Rd,y} =$	1182,43	[kN]	Resistance of the compressed flange and web	[6.2.6.7.(1)]

RESISTANCES OF SPREAD FOOTING IN THE COMPRESSION ZONE

$N_{j,Rd} = F_{c,Rd,n}$				
$N_{j,Rd} =$	5754,45	[kN]	Resistance of a spread footing for axial compression	[6.2.8.2.(1)]
$F_{c,Rd,y} = \min(F_{c,Rd,y}, F_{c,fc,Rd,y})$				
$F_{c,Rd,y} =$	1182,43	[kN]	Resistance of spread footing in the compression zone	[6.2.8.3]

TENSION ZONE

STEEL FAILURE

$A_b =$	3,53	[cm ²]	Effective anchor area	[Table 3.4]
$f_{ub} =$	500,00	[MPa]	Tensile strength of the anchor material	[Table 3.4]
$\beta_a =$	0,85		Reduction factor of anchor resistance	[3.6.1.(3)]
$F_{t,Rd,s1} = \beta_a * 0.9 * f_{ub} * A_b / \gamma_{M2}$				
$F_{t,Rd,s1} =$	108,02	[kN]	Anchor resistance to steel failure	[Table 3.4]

$\gamma_{Ms} =$	1,20	Partial safety factor	CEB [3.2.3.2]
$f_{yb} =$	300,00 [MPa]	Yield strength of the anchor material	CEB [9.2.2]
$F_{t,Rd,s2} = f_{yb} \cdot A_b / \gamma_{Ms}$			
$F_{t,Rd,s2} =$	88,25 [kN]	Anchor resistance to steel failure	CEB [9.2.2]
$F_{t,Rd,s} = \min(F_{t,Rd,s1}, F_{t,Rd,s2})$			
$F_{t,Rd,s} =$	88,25 [kN]	Anchor resistance to steel failure	

PULL-OUT FAILURE

$f_{ck} =$	30,00 [MPa]	Characteristic compressive strength of concrete	EN 1992-1:[3.1.2]
$f_{ctd} = 0.7 \cdot 0.3 \cdot f_{ck}^{2/3} / \gamma_c$			
$f_{ctd} =$	1,35 [MPa]	Design tensile resistance	EN 1992-1:[8.4.2.(2)]
$\eta_1 =$	1,00	Coeff. related to the quality of the bond conditions and concreting conditions	EN 1992-1:[8.4.2.(2)]
$\eta_2 =$	1,00	Coeff. related to the bar diameter	EN 1992-1:[8.4.2.(2)]
$f_{bd} = 2.25 \cdot \eta_1 \cdot \eta_2 \cdot f_{ctd}$			
$f_{bd} =$	3,04 [MPa]	Design value of the ultimate bond stress	EN 1992-1:[8.4.2.(2)]
$h_{ef} =$	1280 [mm]	Effective anchorage depth	EN 1992-1:[8.4.2.(2)]
$F_{t,Rd,p} = \pi \cdot d \cdot h_{ef} \cdot f_{bd}$			
$F_{t,Rd,p} =$	293,51 [kN]	Design uplift capacity	EN 1992-1:[8.4.2.(2)]

CONCRETE CONE FAILURE

$h_{ef} =$	213 [mm]	Effective anchorage depth	CEB [9.2.4]
$N_{Rk,c}^0 = 7.5 [N^{0.5}/mm^{0.5}] \cdot f_{ck} \cdot h_{ef}^{1.5}$			
$N_{Rk,c}^0 =$	128,00 [kN]	Characteristic resistance of an anchor	CEB [9.2.4]
$s_{cr,N} =$	640 [mm]	Critical width of the concrete cone	CEB [9.2.4]
$c_{cr,N} =$	320 [mm]	Critical edge distance	CEB [9.2.4]
$A_{c,N0} =$	11400,00 [cm ²]	Maximum area of concrete cone	CEB [9.2.4]
$A_{c,N} =$	10000,00 [cm ²]	Actual area of concrete cone	CEB [9.2.4]
$\psi_{A,N} = A_{c,N} / A_{c,N0}$			
$\psi_{A,N} =$	0,88	Factor related to anchor spacing and edge distance	CEB [9.2.4]
$c =$	250 [mm]	Minimum edge distance from an anchor	CEB [9.2.4]
$\psi_{s,N} = 0.7 + 0.3 \cdot c / c_{cr,N} \leq 1.0$			
$\psi_{s,N} =$	0,93	Factor taking account the influence of edges of the concrete member on the distribution of stresses in the concrete	CEB [9.2.4]
$\psi_{ec,N} = 1,00$ Factor related to distribution of tensile forces acting on anchors			
$\psi_{re,N} = 0.5 + h_{ef}[mm]/200 \leq 1.0$			
$\psi_{re,N} =$	1,00	Shell spalling factor	CEB [9.2.4]
$\psi_{ucr,N} =$	1,00	Factor taking into account whether the anchorage is in cracked or non-cracked concrete	CEB [9.2.4]
$\gamma_{Mc} =$	2,16	Partial safety factor	CEB [3.2.3.1]
$F_{t,Rd,c} = N_{Rk,c}^0 \cdot \psi_{A,N} \cdot \psi_{s,N} \cdot \psi_{ec,N} \cdot \psi_{re,N} \cdot \psi_{ucr,N} / \gamma_{Mc}$			
$F_{t,Rd,c} =$	48,57 [kN]	Design anchor resistance to concrete cone failure	EN 1992-1:[8.4.2.(2)]

SPLITTING FAILURE

$h_{ef} =$	1280 [mm]	Effective anchorage depth	CEB [9.2.5]
$N_{Rk,c}^0 = 7.5 [N^{0.5}/mm^{0.5}] \cdot f_{ck} \cdot h_{ef}^{1.5}$			
$N_{Rk,c}^0 =$	1881,21 [kN]	Design uplift capacity	CEB [9.2.5]
$s_{cr,N} =$	2560 [mm]	Critical width of the concrete cone	CEB [9.2.5]
$c_{cr,N} =$	1280 [mm]	Critical edge distance	CEB [9.2.5]
$A_{c,N0} =$	89352,00 [cm ²]	Maximum area of concrete cone	CEB [9.2.5]
$A_{c,N} =$	10000,00 [cm ²]	Actual area of concrete cone	CEB [9.2.5]
$\psi_{A,N} = A_{c,N} / A_{c,N0}$			
$\psi_{A,N} =$	0,11	Factor related to anchor spacing and edge distance	CEB [9.2.5]
$c =$	250 [mm]	Minimum edge distance from an anchor	CEB [9.2.5]
$\psi_{s,N} = 0.7 + 0.3 \cdot c / c_{cr,N} \leq 1.0$			
$\psi_{s,N} =$	0,76	Factor taking account the influence of edges of the concrete member on the distribution of stresses in the concrete	CEB [9.2.5]
$\psi_{ec,N} = 1,00$ Factor related to distribution of tensile forces acting on anchors			
$\psi_{re,N} = 0.5 + h_{ef}[mm]/200 \leq 1.0$			
$\psi_{re,N} =$	1,00	Shell spalling factor	CEB [9.2.5]
$\psi_{ucr,N} =$	1,00	Factor taking into account whether the anchorage is in cracked or non-cracked concrete	CEB [9.2.5]
$\psi_{h,N} = (h/(2 \cdot h_{ef}))^{2/3} \leq 1.2$			
$\psi_{h,N} =$	0,67	Coeff. related to the foundation height	CEB [9.2.5]
$\gamma_{M,sp} =$	2,16	Partial safety factor	CEB [3.2.3.1]

$$F_{t,Rd,sp} = N_{Rk,c} \cdot \psi_{A,N} \cdot \psi_{s,N} \cdot \psi_{ec,N} \cdot \psi_{re,N} \cdot \psi_{ucr,N} \cdot \psi_{h,N} / \gamma_{M,sp}$$

$$F_{t,Rd,sp} = 49,45 \quad [\text{kN}] \quad \text{Design anchor resistance to splitting of concrete}$$

CEB [9.2.5]

TENSILE RESISTANCE OF AN ANCHOR

$$F_{t,Rd} = \min(F_{t,Rd,s}, F_{t,Rd,p}, F_{t,Rd,c}, F_{t,Rd,sp})$$

$$F_{t,Rd} = 48,57 \quad [\text{kN}] \quad \text{Tensile resistance of an anchor}$$

BENDING OF THE BASE PLATE

Bending moment $M_{j,Ed,y}$

$$l_{eff,1} = 297 \quad [\text{mm}] \quad \text{Effective length for a single bolt for mode 1} \quad [6.2.6.5]$$

$$l_{eff,2} = 378 \quad [\text{mm}] \quad \text{Effective length for a single bolt for mode 2} \quad [6.2.6.5]$$

$$m = 47 \quad [\text{mm}] \quad \text{Distance of a bolt from the stiffening edge} \quad [6.2.6.5]$$

$$M_{pl,1,Rd} = 23,69 \quad [\text{kN}\cdot\text{m}] \quad \text{Plastic resistance of a plate for mode 1} \quad [6.2.4]$$

$$M_{pl,2,Rd} = 30,17 \quad [\text{kN}\cdot\text{m}] \quad \text{Plastic resistance of a plate for mode 2} \quad [6.2.4]$$

$$F_{T,1,Rd} = 2007,48 \quad [\text{kN}] \quad \text{Resistance of a plate for mode 1} \quad [6.2.4]$$

$$F_{T,2,Rd} = 554,04 \quad [\text{kN}] \quad \text{Resistance of a plate for mode 2} \quad [6.2.4]$$

$$F_{T,3,Rd} = 194,28 \quad [\text{kN}] \quad \text{Resistance of a plate for mode 3} \quad [6.2.4]$$

$$F_{t,pl,Rd,y} = \min(F_{T,1,Rd}, F_{T,2,Rd}, F_{T,3,Rd})$$

$$F_{t,pl,Rd,y} = 194,28 \quad [\text{kN}] \quad \text{Tension resistance of a plate} \quad [6.2.4]$$

TENSILE RESISTANCE OF A COLUMN WEB

Bending moment $M_{j,Ed,y}$

$$t_{wc} = 8 \quad [\text{mm}] \quad \text{Effective thickness of the column web} \quad [6.2.6.3.(8)]$$

$$b_{eff,t,wc} = 250 \quad [\text{mm}] \quad \text{Effective width of the web for tension} \quad [6.2.6.3.(2)]$$

$$A_{wc} = 25,18 \quad [\text{cm}^2] \quad \text{Shear area} \quad \text{EN1993-1-1:[6.2.6.(3)]}$$

$$\omega = 0,76 \quad \text{Reduction factor for interaction with shear} \quad [6.2.6.3.(4)]$$

$$F_{t,wc,Rd,y} = \omega \cdot b_{eff,t,wc} \cdot t_{wc} \cdot f_{yc} / \gamma_{M0}$$

$$F_{t,wc,Rd,y} = 507,37 \quad [\text{kN}] \quad \text{Column web resistance} \quad [6.2.6.3.(1)]$$

RESISTANCES OF SPREAD FOOTING IN THE TENSION ZONE

$$F_{T,Rd,y} = \min(F_{t,pl,Rd,y}, F_{t,wc,Rd,y})$$

$$F_{T,Rd,y} = 194,28 \quad [\text{kN}] \quad \text{Resistance of a column base in the tension zone} \quad [6.2.8.3]$$

CONNECTION CAPACITY CHECK

$$N_{i,Ed} / N_{i,Rd} \leq 1,0 \quad (6.24) \quad 0,06 < 1,00 \quad \text{verified} \quad (0,06)$$

$$e_y = 349 \quad [\text{mm}] \quad \text{Axial force eccentricity} \quad [6.2.8.3]$$

$$z_{c,y} = 141 \quad [\text{mm}] \quad \text{Lever arm } F_{C,Rd,y} \quad [6.2.8.1.(2)]$$

$$z_{t,y} = 250 \quad [\text{mm}] \quad \text{Lever arm } F_{T,Rd,y} \quad [6.2.8.1.(3)]$$

$$M_{j,Rd,y} = 127,20 \quad [\text{kN}\cdot\text{m}] \quad \text{Connection resistance for bending} \quad [6.2.8.3]$$

$$M_{j,Ed,y} / M_{j,Rd,y} \leq 1,0 \quad (6.23) \quad 0,95 < 1,00 \quad \text{verified} \quad (0,95)$$

SHEAR

BEARING PRESSURE OF AN ANCHOR BOLT ONTO THE BASE PLATE

Shear force $V_{j,Ed,z}$

$$\alpha_{d,z} = 0,64 \quad \text{Coeff. taking account of the bolt position - in the direction of shear} \quad [\text{Table 3.4}]$$

$$\alpha_{b,z} = 0,64 \quad \text{Coeff. for resistance calculation } F_{1,vb,Rd} \quad [\text{Table 3.4}]$$

$$k_{1,z} = 2,50 \quad \text{Coeff. taking account of the bolt position - perpendicularly to the direction of shear} \quad [\text{Table 3.4}]$$

$$F_{1,vb,Rd,z} = k_{1,z} \cdot \alpha_{b,z} \cdot f_{up} \cdot d \cdot t_p / \gamma_{M2}$$

$$F_{1,vb,Rd,z} = 433,85 \quad [\text{kN}] \quad \text{Resistance of an anchor bolt for bearing pressure onto the base plate} \quad [6.2.2.(7)]$$

SHEAR OF AN ANCHOR BOLT

$$\alpha_b = 0,35 \quad \text{Coeff. for resistance calculation } F_{2,vb,Rd} \quad [6.2.2.(7)]$$

$$A_{vb} = 4,52 \quad [\text{cm}^2] \quad \text{Area of bolt section} \quad [6.2.2.(7)]$$

$$f_{ub} = 500,00 \quad [\text{MPa}] \quad \text{Tensile strength of the anchor material} \quad [6.2.2.(7)]$$

$$\gamma_{M2} = 1,25 \quad \text{Partial safety factor} \quad [6.2.2.(7)]$$

$$F_{2,vb,Rd} = \alpha_b \cdot f_{ub} \cdot A_{vb} / \gamma_{M2}$$

$$F_{2,vb,Rd} = 63,33 \quad [\text{kN}] \quad \text{Shear resistance of a bolt - without lever arm} \quad [6.2.2.(7)]$$

$$\alpha_M = 2,00 \quad \text{Factor related to the fastening of an anchor in the foundation} \quad \text{CEB [9.3.2.2]}$$

$$M_{Rk,s} = 0,29 \quad [\text{kN}\cdot\text{m}] \quad \text{Characteristic bending resistance of an anchor} \quad \text{CEB [9.3.2.2]}$$

$$l_{sm} = 77 \quad [\text{mm}] \quad \text{Lever arm length} \quad \text{CEB [9.3.2.2]}$$

$$\gamma_{Ms} = 1,20 \quad \text{Partial safety factor} \quad \text{CEB [3.2.3.2]}$$

$$F_{v,Rd,sm} = \alpha_M \cdot M_{Rk,s} / (l_{sm} \cdot \gamma_{Ms})$$

$$F_{v,Rd,sm} = 6,29 \quad [\text{kN}] \quad \text{Shear resistance of a bolt - with lever arm} \quad \text{CEB [9.3.1]}$$

CONCRETE PRY-OUT FAILURE

$$N_{Rk,c} = 104,91 \quad [\text{kN}] \quad \text{Design uplift capacity} \quad \text{CEB [9.2.4]}$$

$$k_3 = 2,00 \quad \text{Factor related to the anchor length} \quad \text{CEB [9.3.3]}$$

$$\gamma_{Mc} = 2,16 \quad \text{Partial safety factor} \quad \text{CEB [3.2.3.1]}$$

$$F_{v,Rd,cp} = k_3 \cdot N_{Rk,c} / \gamma_{Mc}$$

$$F_{v,Rd,cp} = 97,14 \quad [\text{kN}] \quad \text{Concrete resistance for pry-out failure} \quad \text{CEB [9.3.1]}$$

CONCRETE EDGE FAILURE

Shear force $V_{j,Ed,z}$

$$V_{Rk,c,z}^0 = 462,78 \quad [\text{kN}] \quad \text{Characteristic resistance of an anchor}$$

$$\psi_{A,V,z} = 0,85 \quad \text{Factor related to anchor spacing and edge distance}$$

$$\psi_{h,V,z} = 1,00 \quad \text{Factor related to the foundation thickness}$$

$$\psi_{s,V,z} = 0,96 \quad \text{Factor related to the influence of edges parallel to the shear load direction}$$

$$\psi_{ec,V,z} = 1,00 \quad \text{Factor taking account a group effect when different shear loads are acting on the in}$$

$$\psi_{\alpha,V,z} = 1,00 \quad \text{Factor related to the angle at which the shear load is applied}$$

$$\psi_{ucr,V,z} = 1,00 \quad \text{Factor related to the type of edge reinforcement used}$$

$$\gamma_{Mc} = 2,16 \quad \text{Partial safety factor}$$

$$F_{v,Rd,c,z} = V_{Rk,c,z}^0 \cdot \psi_{A,V,z} \cdot \psi_{h,V,z} \cdot \psi_{s,V,z} \cdot \psi_{ec,V,z} \cdot \psi_{\alpha,V,z} \cdot \psi_{ucr,V,z} / \gamma_{Mc}$$

$$F_{v,Rd,c,z} = 174,78 \quad [\text{kN}] \quad \text{Concrete resistance for edge failure} \quad \text{CEB [9.3.1]}$$

SPLITTING RESISTANCE

$$C_{f,d} = 0,30 \quad \text{Coeff. of friction between the base plate and concrete} \quad [6.2.2.(6)]$$

$$N_{c,Ed} = 346,53 \quad [\text{kN}] \quad \text{Compressive force} \quad [6.2.2.(6)]$$

$$F_{f,Rd} = C_{f,d} \cdot N_{c,Ed}$$

$$F_{f,Rd} = 103,96 \quad [\text{kN}] \quad \text{Slip resistance} \quad [6.2.2.(6)]$$

SHEAR CHECK

$$V_{j,Rd,z} = n_b \cdot \min(F_{1,vb,Rd,z}, F_{2,vb,Rd}, F_{v,Rd,sm}, F_{v,Rd,cp}, F_{v,Rd,c,z}) + F_{f,Rd}$$

$$V_{j,Rd,z} = 154,31 \quad [\text{kN}] \quad \text{Connection resistance for shear} \quad \text{CEB [9.3.1]}$$

$$V_{j,Ed,z} / V_{j,Rd,z} \leq 1,0 \quad 0,28 < 1,00 \quad \text{verified} \quad (0,28)$$

STIFFENER CHECK

Stiffener parallel to the web (along the extension of the column web)

$$M_1 = 24,97 \quad [\text{kN}\cdot\text{m}] \quad \text{Bending moment acting on a stiffener}$$

$$Q_1 = 184,94 \quad [\text{kN}] \quad \text{Shear force acting on a stiffener}$$

$$z_s = 67 \quad [\text{mm}] \quad \text{Location of the neutral axis (from the plate base)}$$

$$I_s = 23321,59 \quad [\text{cm}^4] \quad \text{Moment of inertia of a stiffener}$$

$$\sigma_d = 3,97 \quad [\text{MPa}] \quad \text{Normal stress on the contact surface between stiffener and plate} \quad \text{EN 1993-1-1:[6.2.1.(5)]}$$

$$\sigma_g = 38,85 \quad [\text{MPa}] \quad \text{Normal stress in upper fibers} \quad \text{EN 1993-1-1:[6.2.1.(5)]}$$

$$\tau = 38,53 \quad [\text{MPa}] \quad \text{Tangent stress in a stiffener} \quad \text{EN 1993-1-1:[6.2.1.(5)]}$$

$$\sigma_z = 66,85 \quad [\text{MPa}] \quad \text{Equivalent stress on the contact surface between stiffener and plate} \quad \text{EN 1993-1-1:[6.2.1.(5)]}$$

$$\max(\sigma_g, \tau / (0,58), \sigma_z) / (f_{yp} / \gamma_{M0}) \leq 1,0 \quad (6.1) \quad 0,19 < 1,00 \quad \text{verified} \quad (0,19)$$

WELDS BETWEEN THE COLUMN AND THE BASE PLATE

$$\sigma_{\perp} = 42,79 \quad [\text{MPa}] \quad \text{Normal stress in a weld} \quad [4.5.3.(7)]$$

$$\tau_{\perp} = 42,79 \quad [\text{MPa}] \quad \text{Perpendicular tangent stress} \quad [4.5.3.(7)]$$

$\sigma_{\perp} =$	42,79	[MPa]	Normal stress in a weld	[4.5.3.(7)]
$\tau_{yII} =$	0,00	[MPa]	Tangent stress parallel to $V_{j,Ed,y}$	[4.5.3.(7)]
$\tau_{zII} =$	-5,20	[MPa]	Tangent stress parallel to $V_{j,Ed,z}$	[4.5.3.(7)]
$\beta_W =$	0,90		Resistance-dependent coefficient	[4.5.3.(7)]
$\sigma_{\perp} / (0.9 \cdot f_u / \gamma_{M2}) \leq 1.0 \text{ (4.1)}$				
	0,13	<	1,00	verified (0,13)
$\sqrt{(\sigma_{\perp}^2 + 3.0 (\tau_{yII}^2 + \tau_{zII}^2))} / (f_u / (\beta_W \cdot \gamma_{M2})) \leq 1.0 \text{ (4.1)}$				
	0,20	<	1,00	verified (0,20)
$\sqrt{(\sigma_{\perp}^2 + 3.0 (\tau_{zII}^2 + \tau_{\perp}^2))} / (f_u / (\beta_W \cdot \gamma_{M2})) \leq 1.0 \text{ (4.1)}$				
	0,18	<	1,00	verified (0,18)

VERTICAL WELDS OF STIFFENERS

Stiffener parallel to the web (along the extension of the column web)

$\sigma_{\perp} =$	41,38	[MPa]	Normal stress in a weld	[4.5.3.(7)]
$\tau_{\perp} =$	41,38	[MPa]	Perpendicular tangent stress	[4.5.3.(7)]
$\tau_{II} =$	28,90	[MPa]	Parallel tangent stress	[4.5.3.(7)]
$\sigma_z =$	96,71	[MPa]	Total equivalent stress	[4.5.3.(7)]
$\beta_W =$	0,90		Resistance-dependent coefficient	[4.5.3.(7)]
$\max(\sigma_{\perp}, \tau_{II} \cdot \sqrt{3}, \sigma_z) / (f_u / (\beta_W \cdot \gamma_{M2})) \leq 1.0 \text{ (4.1)}$				
	0,23	<	1,00	verified (0,23)

TRANSVERSAL WELDS OF STIFFENERS

Stiffener parallel to the web (along the extension of the column web)

$\sigma_{\perp} =$	44,18	[MPa]	Normal stress in a weld	[4.5.3.(7)]
$\tau_{\perp} =$	44,18	[MPa]	Perpendicular tangent stress	[4.5.3.(7)]
$\tau_{II} =$	38,75	[MPa]	Parallel tangent stress	[4.5.3.(7)]
$\sigma_z =$	110,96	[MPa]	Total equivalent stress	[4.5.3.(7)]
$\beta_W =$	0,90		Resistance-dependent coefficient	[4.5.3.(7)]
$\max(\sigma_{\perp}, \tau_{II} \cdot \sqrt{3}, \sigma_z) / (f_u / (\beta_W \cdot \gamma_{M2})) \leq 1.0 \text{ (4.1)}$				
	0,27	<	1,00	verified (0,27)

CONNECTION STIFFNESS

Bending moment $M_{j,Ed,y}$

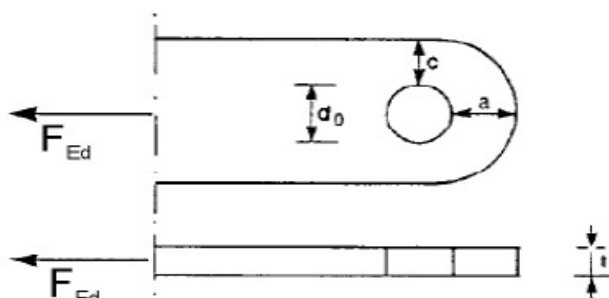
$b_{eff} =$	144	[mm]	Effective width of the bearing pressure zone under the flange	[6.2.5.(3)]
$l_{eff} =$	372	[mm]	Effective length of the bearing pressure zone under the flange	[6.2.5.(3)]
$k_{13,y} = E_c \cdot \sqrt{(b_{eff} \cdot l_{eff})} / (1.275 \cdot E)$				
$k_{13,y} =$	29	[mm]	Stiffness coeff. of compressed concrete	[Table 6.11]
$l_{eff} =$				
	297	[mm]	Effective length for a single bolt for mode 1	[6.2.6.5]
$m =$	47	[mm]	Distance of a bolt from the stiffening edge	[6.2.6.5]
$k_{15,y} = 0.425 \cdot l_{eff} \cdot t_p^3 / (m^3)$				
$k_{15,y} =$	32	[mm]	Stiffness coeff. of the base plate subjected to tension	[Table 6.11]
$L_b =$				
	294	[mm]	Effective anchorage depth	[Table 6.11]
$k_{16,y} = 1.6 \cdot A_b / L_b$				
$k_{16,y} =$	2	[mm]	Stiffness coeff. of an anchor subjected to tension	[Table 6.11]
$\lambda_{0,y} =$				
	0,69		Column slenderness	[5.2.2.5.(2)]
$S_{j,ini,y} =$	31502,35	[kN*m]	Initial rotational stiffness	[Table 6.12]
$S_{j,rig,y} =$	91932,39	[kN*m]	Stiffness of a rigid connection	[5.2.2.5]
$S_{j,ini,y} < S_{j,rig,y}$ SEMI-RIGID				[5.2.2.5.(2)]

WEAKEST COMPONENT:

FOUNDATION - CONCRETE CONE PULL-OUT FAILURE

Savilces locīklveida savienojuma aprēķins

Aprēķina asspēks	$F_{Ed}=$	308 kN
Plāksnes biezums	$t=$	2,5 cm
Tērauda stiprība	$f_y=$	35,5 kN/cm ²
Elastības modulis	$E=$	21000 kN/cm ²
Parc.droš koef.	$\gamma_m=$	1,25
Skrūves diametrs	$d=$	3,6 cm
Laukums	$A=$	10,2 cm ²
Momenta pretestība	$W_{el}=$	4,7 cm ³
Urbums skrūvei	$d_0=$	3,8 cm
Skrūves stiprība	$f_{up}=$	100 kN/cm ²
	$f_{yp}=$	90 kN/cm ²



$$a \geq \frac{F_{Ed} \gamma_{M0}}{2 t f_y} + \frac{2 d_0}{3} : c \geq \frac{F_{Ed} \gamma_{M0}}{2 t f_y} + \frac{d_0}{3}$$

Atālumu noteikšana	$a=c=$	4,7 cm
Pieņemts	$a=c=$	50 cm

Skrūves pārbaude cirpē

	$F_{v,Rd} = 0,6 A f_{up} / \gamma_{M2}$	$\geq F_{v,Ed}$
Skr. stiprība cirpē	$F_{v,Rd}=$	488,6 kN
	$F_{v,Ed}=$	308 kN
Pārbaude izpildās	Rezerve	59%

Virsmas spiedes pārbaude

$$F_{b,Rd} = 1,5 t d f_y / \gamma_{M0} \geq F_{b,Ed}$$

Stiprība spiedē	$F_{b,Rd} =$	383,4
	$F_{b,Ed} =$	308 kN
Pārbaude izpildās	Rezerve	24%

Skrūves pārbaude liecē

$$M_{Rd} = 1,5 W_{ef} f_{yp} / \gamma_{M0} \geq M_{Ed}$$

$$M_{Ed} = \frac{F_{Ed}}{8} (b + 4c + 2a)$$

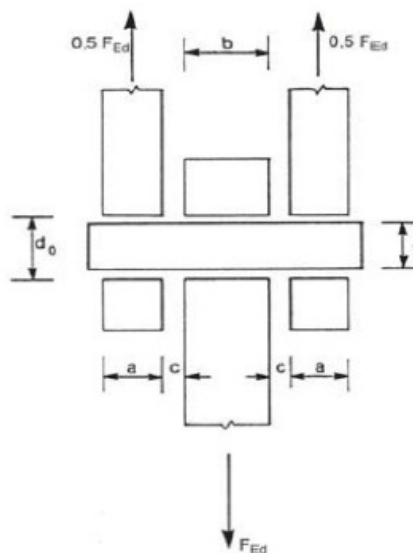
Momenti	$M_{Rd} =$	503,9 kNcm
	$M_{Ed} =$	192,5 kNcm
Pārbaude izpildās	Rezerve	162%

Skrūves pārbaude liecē un cirpē

$$\left[\frac{M_{Ed}}{M_{Rd}} \right]^2 + \left[\frac{F_{v,Ed}}{F_{v,Rd}} \right]^2 \leq 1$$

$$0,5 < 1$$

Pārbaude izpildās	Rezerve	84%
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Pamata SP-1 nestspējas aprēķins

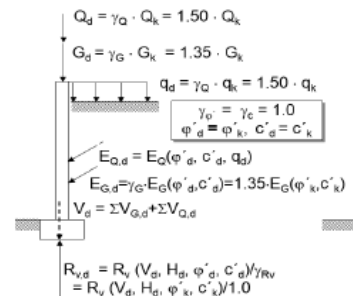
Grunšu nosaukums	Normatīvās vērtības					Iekšējās berzes leņķis, ϕ
	Grunts daļiņu blīvums $\rho_s, \text{g/cm}^3$	Grunts blīvums $\gamma, \text{g/cm}^3$	Grunts daļiņu īpatnējais svars $\gamma', \text{kN/m}^3$	Grunts īpatnējais svars $\gamma, \text{kN/m}^3$	Saiste, c, kPa	
Smalka, irdena smiltis	2,63	1,72	26,30	17,20	1,00	28,00

Pamata augstums	1,5 m
Pamata iebūves dziļums	1,5 m
Pamata platums	3,2 m
Pamata garums	2,5 m

Pārbauda izpildās

Projektēšanas situācija 1 (DA 1)

Kombinācija 1



Aprēķina slodzes	
Vertikālā slodze	355 kN
Horizontālā slodze	18 kN
Moments	300,0 kNm
Kospēka ekscentritāte uz pamatu	0,606 m
Pamata reducētie izmēri:	
Pamata platums	1,99 m
Pamata garums	1,29 m

Bezdimensiju faktori spiedes pretestībai:

Ny	6,55
Nq	8,700
Nc	7,09

Bezdimensiju faktori pamata slīpumam:

by	1
bq	1
bc	1

Bezdimensiju faktori pamata formai:

sy	0,7
sq	1,39
sc	1,44

Bezdimensiju faktori pamata formai:

iy	0,8844244
iq	0,9309978
ic	0,9081032

Slodze no grunts uz pamatu 25,8 kN

Pamata aprēķina nestspēja 941,6 kN

Aprēķina slodze uz pamatni 561,4 kN

Aprēķina nestspēju var noteikt no vienādojuma:

$$R/A' = c' \cdot N_c \cdot b_c \cdot s_c \cdot i_c + q' \cdot N_q \cdot b_q \cdot s_q \cdot i_q + 0,5 \cdot \gamma' \cdot B' \cdot N_\gamma \cdot b_\gamma \cdot s_\gamma \cdot i_\gamma$$

ar aprēķinātiem bezdimensiju faktoriem:

spiedes pretestībai:

$$N_q = e^{\tan \phi' \cdot \tan^2(45 + \phi'/2)}$$

$$N_c = (N_q - 1) \cot \phi'$$

$$N_\gamma = 2 (N_q - 1) \tan \phi', \text{ kur } d \geq \phi'/2 \text{ (nelīdzenai virsmai)}$$

pamatu pēdas slīpumam:

$$b_c = b_q \cdot (1 - b_q) / (N_c \cdot \tan \phi')$$

$$b_q = b_\gamma = (1 - a \cdot \tan \phi')^2$$

pamata formai:

$$s_q = 1 + (B' / L') \sin \phi', \text{ taisnstūra pamatam};$$

$$s_q = 1 + \sin \phi', \text{ kvadrāta vai apaļam pamatam};$$

$$s_\gamma = 1 - 0,3 \cdot (B' / L'), \text{ taisnstūra pamatam};$$

$$s_\gamma = 0,7, \text{ kvadrāta vai apaļam pamatam};$$

$$s_c = (s_q \cdot N_q - 1) / (N_q - 1), \text{ taisnstūra, kvadrāta vai apaļam pamatam};$$

horizontālās slodzes H izraisītais slodzes slīpums:

$$i_c = i_q \cdot (1 - i_q) / (N_c \cdot \tan \phi');$$

$$i_q = [1 - H / (V + A'c' \cot \phi')]^m;$$

$$i_\gamma = [1 - H / (V + A'c' \cot \phi')]^{m+1}, \text{ kur:}$$

$$m = m_B = [2 + (B' / L')] / [1 + (B' / L')], \text{ ja slodze } H \text{ vērsta virzienā } B';$$

$$m = m_L = [2 + (L' / B')] / [1 + (L' / B')], \text{ ja slodze } H \text{ vērsta virzienā } L'.$$

Ja horizontālās slodzes komponente darbojas virzienā, kas veido leņķi θ ar L' virzienu, tad m nosaka šādi:

$$m = m_B \cos^2 \theta + m_L \sin^2 \theta$$

Projekts: Mārupes novada Jaunmārupes stadiona pārbūve

Slodzes noteiktas atbilstoši:

LVS EN 1991-1-1:2006+AC 1. Eirokodekss. Iedarbes uz konstrukcijām. 1-1. daļa: Vispārīgās iedarbes. Blīvums, pašsvars, ēku lietderīgās slodzes;

LVS EN 1991-1-3:2006+AC 1. Eirokodekss. Iedarbes uz konstrukcijām. 1-3. daļa: Vispārīgās iedarbes. Sniega radītās slodzes

LVS EN 1991-1-4:2006+A1+AC 1. Eirokodekss. Iedarbes uz konstrukcijām. 1-4.daļa: Vispārīgās iedarbes. Vēja iedarbes;

Ņemta vērā:

Lietderīgā slodze uz kāpnēm, kāpņu laukumiņiem, tribīnēm - 5 kN/m²;

Konstrukciju pašsvara slodze;

Sniega slodze - 1,2 kN/m²;

Vēja ātrums - 26 m/s, III apbūves kategorija.

Autors: Būvkonstruktors Deniss Mišeņins