DIN 2395-3 RECTANGULAR AND SQUARE ELECTRIC WELDED PRECISION STEEL TUBES

1. Field of application

This Standard applies to the dimensions of rectangular and square electric-welded precision steel tubes made of the steel grades listed in section 5 and specifies the technical conditions of delivery for these.

Tubes in accordance with this Standard are manufactured by cold forming and electric resistance pressure welding and are used in motor vehicles.

1. Chemical composition

Code number for material	Chemical composition(%)						
	C	P	S	N	Si	Mn	Al
USt37-2	0.21Max	0.065Max	0.065Max	0.009Max	-	-	-
RSt37-2	0.19Max	0.060Max	0.060Max	0.010Max	-	-	-
St37-3	0.19Max	0.050Max	0.050Max	-	-	-	*)
St44-2	0.24Max	0.060Max	0.060Max	0.010Max	-	-	-
St44-3	0.23Max	0.050Max	0.050Max	-	-	-	*)
M22	0.16 to 0.23	0.040Max	0.040Max	-	0.28Max	0.40 to 0.75	0.02Min
QStE340N	0.18Max	0.035Max	0.035Max	-	9.53Max	1.56Max	-

*) Contains a sufficient quantity of aluminum or other nitrogen-fixing elements

2. Mechanical property

Code number for material	Mechanical properties for conditions on delivery					
	NBK (nominalized) [1])			BKM (welded and sized)		
	Tensile strength Rm N/mm^2	Yield point ReH N/mm^2 min.	Elongation at rupture A5% min.	Tensile strength Rm N/mm^2	Yield point ReH N/mm^2 min.	Elongation at rupture A5% min.
USt37-2	360 to 470	235	23	390	250	7
RSt37-2						
St37-3						
St44-2	430 to 540	275	21	460	290	6
St44-3						
M22	420Min	290	25	-	-	-

QStE340 N	460 to 580	340	27	-	-	-

[1]) After any heat treatment that may be necessary following working, the strength characteristics specified may fall at the most by 20-N/mm^2.

Table 3. Dimensions, cross sections, masses per unit length and static values

Side length			Wall thickness	Cross section	Mass per unit	Static values for axis of bending						Static values for torsion	
						x - x			y - y				
h Nominal dimension	b Nominal dimension	Per. dev. for h and b	s ±10%	A cm^2	length kg/m	Jx cm^4	Wx cm^3	ix cm	Jy cm^4	Wy cm^3	iy cm	Jt cm^4	Wt cm^3
15	15	±0.15	1.0	0.539	0.423	0.172	0.230	0.566	-	-	-	0.281	0.389
			1.5	0.762	0.598	0.224	0.229	0.543	-	-	-	0.380	0.538
			2.0	0.954	0.749	0.257	0.343	0.519	-	-	-	0.449	0.655
18	18	±0.15	1.0	0.659	0.517	0.312	0.347	0.688	-	-	-	0.503	0.575
			1.5	0.942	0.739	0.417	0.463	0.665	-	-	-	0.693	0.808
			2.0	1.19	0.937	0.492	0.546	0.642	-	-	-	0.842	1.00
20	10	±0.15	1.0	0.539	0.423	0.257	0.257	0.691	0.085	0.170	0.397	0.214	0.339
			1.5	0.762	0.598	0.335	0.335	0.663	0.108	0.215	0.376	0.281	0.463
	15		1.0	0.639	0.501	0.348	0.348	0.738	0.222	0.295	0.589	0.439	0.529
			1.5	0.912	0.716	0.464	0.464	0.713	0.293	0.391	0.567	0.601	0.740
	20		1.0	0.739	0.580	0.438	0.438	0.770	-	-	-	0.701	0.719
			1.5	1.06	0.833	0.592	0.592	0.747	-	-	-	0.976	1.02
			2.0	1.35	1.06	0.709	0.709	0.724	-	-	-	1.20	1.27
25	15	±0.15	1.0	0.739	0.580	0.603	0.482	0.903	0.271	0.361	0.605	0.607	0.669
			1.5	1.06	0.833	0.817	0.653	0.877	0.362	0.482	0.584	0.837	0.943
	20		1.0	0.839	0.658	0.747	0.597	0.944	0.528	0.528	0.794	0.986	0.909
			1.5	1.21	0.951	1.02	0.819	0.919	0.721	0.721	0.771	1.38	1.30
			2.0	1.55	1.22	1.24	0.996	0.895	0.871	0.871	0.749	1.72	1.63
	25		1.0	0.939	0.737	0.891	0.713	0.974	-	-	-	1.41	1.15
			1.5	1.36	1.07	1.23	0.985	0.951	-	-	-	1.99	1.65

			2.0	1.75	1.38	1.51	1.21	0.928	-	-	-	2.50	2.09
			2.5	2.12	1.66	1.73	1.38	0.904	-	-	-	2.93	2.49
30	15	±0.15	1.0	0.839	0.659	0.950	0.633	1.06	0.320	0.426	0.618	0.781	0.809
			1.5	1.21	0.951	1.30	0.868	1.04	0.430	0.574	0.596	1.08	1.15
	20		1.0	0.939	0.737	1.16	0.774	1.11	0.619	0.619	0.812	1.29	1.10
			1.5	1.36	1.07	1.6	1.07	1.09	0.849	0.849	0.790	1.82	1.57
			2.0	1.75	1.38	1.97	1.32	1.06	1.03	1.03	0.768	2.27	1.99
			2.5	2.12	1.66	2.27	1.51	1.04	1.18	1.18	0.746	2.64	2.36
			3.0	2.45	1.92	2.49	1.66	1.01	1.28	1.28	0.724	2.94	2.68
	25		1.0	1.04	0.815	1.37	0.914	1.15	1.03	0.828	1.00	1.86	1.39
			1.5	1.51	1.19	1.91	1.27	1.12	1.44	1.15	0.976	2.65	2.00
			2.0	1.95	1.53	2.37	1.58	1.10	1.77	1.42	0.953	3.34	2.55
			2.5	2.37	1.86	2.74	1.83	1.08	2.05	1.64	0.930	3.94	3.05
			3.0	2.75	2.16	3.04	2.03	1.05	2.26	1.81	0.908	4.44	3.49
	30		1.0	1.14	0.894	1.58	1.05	1.18	-	-	-	2.48	1.68
			1.5	1.66	1.30	2.22	1.48	1.16	-	-	-	3.55	2.43
			2.0	2.15	1.69	2.76	1.84	1.13	-	-	-	4.50	3.11
			2.5	2.62	2.05	3.21	2.14	1.11	-	-	-	5.35	3.74
			3.0	3.05	2.39	3.59	2.39	1.09	-	-	-	6.07	4.30
35	20	±0.2	1.0	1.04	0.815	1.69	0.966	1.28	0.709	0.709	0.826	1.60	1.29
			1.5	1.51	1.19	2.36	1.35	1.25	0.978	0.978	0.804	2.26	1.85
			2.0	1.95	1.53	2.92	1.67	1.22	1.20	1.20	0.783	2.84	2.35
			2.5	2.37	1.86	3.39	1.93	1.20	1.37	1.37	0.761	3.32	2.80
	25		1.5	1.14	0.894	2.78	1.59	1.29	1.6	1.32	1.00	3.33	2.35
			2.0	1.66	1.30	3.47	1.98	1.27	2.04	1.63	0.973	4.22	3.01
			2.5	2.15	1.69	4.05	2.31	1.24	2.37	1.89	0.951	4.99	3.61
			3.0	2.62	2.05	4.52	2.58	1.22	2.63	2.10	0.929	5.66	4.15

Table 3. (continued)

Side length			Wall thickness s ±10%	Cross section A cm²	Mass per unit length kg/m	Static values for axis of bending						Static values for torsion	
						x - x			y - y				
h Nominal dimension	b Nominal dimension	Per. dev. for h and b				Jx cm^4	Wx cm^3	ix cm	Jy cm^4	Wy cm^3	iy cm	Jt cm^4	Wt cm^3
35	30	±0.2	1.5	1.81	1.42	3.20	1.83	1.33	2.52	1.68	1.18	4.50	2.86
			2.0	2.35	1.85	4.01	2.29	1.31	3.15	2.10	1.16	5.74	3.64
			2.5	2.87	2.25	4.71	2.69	1.28	3.69	2.46	1.13	6.84	4.43
			3.0	3.35	2.63	5.29	3.02	1.26	4.14	2.76	1.11	7.81	5.11
	35	±0.25	1.5	1.96	1.54	3.62	2.07	1.36	-	-	-	5.75	3.36
			2.0	2.55	2.00	4.56	2.61	1.34	-	-	-	7.36	4.33
			2.5	3.12	2.45	5.37	3.07	1.31	-	-	-	8.81	5.24
			3.0	3.65	2.86	6.06	3.46	1.29	-	-	-	10.1	6.07
40	20	±0.2	1.0	1.14	0.894	2.35	1.18	1.44	0.799	0.799	0.838	1.92	1.48
			1.5	1.66	1.30	3.30	1.65	1.41	1.11	1.11	0.816	2.72	2.13
			2.0	2.15	1.69	4.12	2.06	1.38	1.36	1.36	0.794	3.42	2.71
			2.5	2.62	2.05	4.80	2.40	1.35	1.56	1.56	0.773	4.01	3.24
			3.0	3.05	2.39	5.36	2.68	1.33	1.72	1.72	0.752	4.50	3.70
	25		1.5	1.81	1.42	3.86	1.93	1.46	1.85	1.48	1.01	4.04	2.71
			2.0	2.35	1.85	4.84	2.42	1.43	2.31	1.84	0.990	5.13	3.47
			2.5	2.87	2.25	5.68	2.84	1.41	2.68	2.15	0.968	6.09	4.18
			3.0	3.35	2.63	6.39	3.19	1.38	2.99	2.40	0.946	6.92	4.81
	30		1.0	1.34	1.05	3.11	1.56	1.52	2.00	1.33	1.22	3.81	2.26
			1.5	1.96	1.54	4.42	2.21	1.50	2.83	1.88	1.20	5.49	3.28
			2.0	2.55	2.00	5.56	2.78	1.48	3.55	2.36	1.18	7.02	4.23
			2.5	3.12	2.45	6.56	3.28	1.45	4.16	2.78	1.16	8.39	5.11
			3.0	3.65	2.86	7.42	3.71	1.43	4.69	3.12	1.13	9.62	5.92

	35	±0.25	1.5	2.11	1.66	4.57	2.49	1.53	4.05	2.31	1.38	7.06	3.86
			2.0	2.75	2.16	6.29	3.14	1.51	5.10	2.92	1.36	9.06	4.99
			2.5	3.37	2.64	7.44	3.72	1.49	6.03	3.45	1.34	10.9	6.05
			3.0	3.95	3.10	8.45	4.22	1.46	6.83	3.90	1.32	12.5	7.03
	40		1.5	2.26	1.78	5.53	2.76	1.56	-	-	-	8.71	4.44
			32.0	2.95	2.32	7.01	3.50	1.54	-	-	-	11.2	5.75
			2.5	3.62	2.84	8.32	4.16	1.52	-	-	-	13.5	6.99
			3.0	4.25	3.33	9.47	4.74	1.49	-	-	-	15.6	8.14
			4.0	5.42	4.25	11.3	5.67	1.45	-	-	-	19.2	10.2
45	25	±0.25	1.5	1.96	1.54	5.16	2.30	1.62	2.06	1.65	1.03	4.77	3.06
			2.0	2.55	2.00	6.51	2.89	1.60	2.57	2.06	1.00	6.06	3.93
			2.5	3.12	2.45	7.67	3.41	1.57	3.00	2.40	0.981	7.21	4.74
			3.0	3.65	2.86	8.67	3.85	1.54	3.36	2.69	0.960	8.21	5.47
	30		1.5	2.11	1.66	5.87	2.61	1.67	3.13	2.09	1.22	6.52	3.71
			2.0	2.75	2.16	7.43	3.30	1.64	3.94	2.63	1.20	8.35	4.79
			2.5	3.37	2.64	8.80	3.91	1.62	4.64	3.09	1.17	10.0	5.80
			3.0	3.95	3.10	10.0	4.44	1.59	5.24	3.49	1.15	11.5	6.73
	35	±0.3	1.5	2.26	1.78	6.58	2.93	1.71	4.47	2.55	1.41	8.42	4.36
			2.0	2.95	2.32	8.36	3.71	1.68	5.65	3.23	1.38	10.8	5.65
			2.5	3.62	2.84	9.93	4.41	1.66	6.69	3.82	1.36	13.0	6.86
			3.0	4.25	3.33	11.3	5.03	1.63	7.60	4.35	1.34	15.0	7.99
	40		1.5	2.41	1.89	7.29	3.24	1.74	6.08	3.04	1.59	10.4	5.02
			2.0	3.15	2.48	9.28	4.12	1.72	7.73	3.87	1.57	13.5	6.51
			2.5	3.87	3.03	11.1	4.92	1.69	9.20	4.60	1.54	16.3	7.93
			3.0	4.55	3.57	12.6	5.62	1.67	10.5	5.25	1.52	18.8	9.25
			4.0	5.82	4.57	15.3	6.78	1.62	12.6	6.32	1.47	23.3	11.6

Table 3. (continued)

Side length			Wall	Cross	Mass	Static values for axis of bending						Static values	
						x - x			y - y			for torsion	
h Nominal dimension	b Nominal dimension	Per. dev. for h and b	thickness s ±10%	section A cm^2	per unit length kg/m	Jx cm^4	Wx cm^3	ix cm	Jy cm^4	Wy cm^3	iy cm	Jt cm^4	Wt cm^3
45	45	±0.35	1.5	2.56	2.01	8.00	3.56	1.77	-	-	-	12.5	5.67
			2.0	3.35	2.63	10.2	4.54	1.74	-	-	-	16.2	7.37
			2.5	4.12	3.23	12.2	5.42	1.72	-	-	-	19.6	8.99
			3.0	4.85	3.80	14.0	6.21	1.70	-	-	-	22.8	10.5
			4.0	6.22	4.88	17.0	7.53	1.65	-	-	-	28.4	13.3
50	25	±0.25	1.5	2.11	1.66	6.71	2.69	1.78	2.27	1.81	1.04	5.51	3.41
			2.0	2.75	2.16	8.49	3.40	1.76	2.84	2.27	1.01	7.01	4.39
			2.5	3.37	2.64	10.1	4.02	1.73	3.32	2.66	0.993	8.35	5.30
			3.0	3.95	3.10	11.4	4.56	1.70	3.72	2.98	0.972	9.53	6.13
	30		1.5	2.26	1.78	7.60	3.04	1.83	3.44	2.29	1.23	7.57	4.14
			2.0	2.95	2.32	9.64	3.86	1.81	4.33	2.89	1.21	9.51	5.35
			2.5	3.62	2.84	11.5	4.59	1.78	5.11	3.41	1.19	11.6	6.49
			3.0	4.25	3.33	13.1	5.23	1.75	5.78	3.86	1.17	13.4	7.54
	35	±0.3	1.5	2.41	1.89	8.48	3.39	1.87	4.89	2.79	1.42	9.81	4.87
			2.0	3.15	2.48	10.8	4.32	1.85	6.19	3.54	1.40	12.6	6.31
			2.5	3.87	3.03	12.9	5.15	1.83	7.35	4.20	1.38	15.2	7.68
			3.0	4.55	3.57	14.7	5.89	1.80	8.37	4.79	1.36	17.6	8.95
	40		1.5	2.56	2.01	9.36	3.74	1.91	6.64	3.32	1.61	12.2	5.59
			2.0	3.35	2.63	11.9	4.78	1.89	8.45	4.23	1.59	15.8	7.27
			2.5	4.12	3.23	14.3	5.71	1.86	10.1	5.04	1.57	19.1	8.86
			3.0	4.85	3.80	16.4	6.55	1.84	11.5	5.77	1.54	22.2	10.4
			4.0	6.22	4.88	19.9	7.96	1.79	13.9	6.97	1.50	27.5	13.1
	50	±0.35	1.5	2.86	2.25	11.1	4.45	1.97	-	-	-	17.4	7.05
			2.0	3.75	2.95	14.3	5.70	1.95	-	-	-	22.5	9.19

			2.5	4.62	3.62	17.1	6.84	1.93	-	-	-	27.4	11.2
			3.0	5.45	4.28	19.7	7.88	1.90	-	-	-	31.9	13.2
			4.0	7.02	5.51	24.2	9.66	1.86	-	-	-	40.0	16.8
			5.0	8.36	6.56	27.0	10.8	1.80	-	-	-	46.8	19.8
55	35	±0.3	1.5	2.56	2.01	10.7	3.88	2.04	5.31	3.03	1.44	11.2	5.37
			2.0	3.35	2.63	13.6	4.96	2.02	6.74	3.85	1.42	14.5	6.97
			2.5	4.12	3.23	16.3	5.93	1.99	8.02	4.58	1.40	17.5	8.49
			3.0	4.85	3.80	18.7	6.80	1.96	9.14	5.23	1.37	20.3	9.91
	55	±0.35	1.5	3.16	2.48	15.0	5.44	2.18	-	-	-	23.3	8.58
			2.0	4.15	3.26	19.2	7.00	2.15	-	-	-	30.3	11.2
			2.5	5.12	4.02	23.2	8.44	2.13	-	-	-	36.9	13.7
			3.0	6.05	4.75	26.8	9.75	2.11	-	-	-	43.1	16.2
			4.0	7.82	6.14	33.2	12.1	2.06	-	-	-	54.5	20.6
			5.0	9.36	7.34	37.6	13.7	2.00	-	-	-	64.2	24.5
60	25	±0.3	1.5	2.41	1.89	10.6	3.54	2.10	2.68	2.15	1.05	7.02	4.12
			2.0	3.15	2.48	13.5	4.51	2.07	3.37	2.69	1.03	8.95	5.37
			2.5	3.87	3.03	16.1	5.37	2.04	3.95	3.16	1.01	10.7	6.43
	30		1.5	2.56	2.01	11.9	3.97	2.16	4.05	2.70	1.26	9.73	4.98
			2.0	3.35	2.63	15.2	5.07	2.13	5.12	3.41	1.24	12.5	6.4
			2.5	4.12	3.23	18.2	6.06	2.10	6.06	4.04	1.21	15.0	7.8
			3.0	4.85	3.80	20.8	6.95	2.07	6.88	4.59	1.19	17.3	9.1

Table 3. (continued)

Side length			Wall thickness s ±10%	Cross section A cm^2	Mass per unit length kg/m	Static values for axis of bending						Static values for torsion	
						x - x			y - y				
H Nominal dimension	b Nominal dimension	Per. dev. for h and b				Jx cm^4	Wx cm^3	ix cm	Jy cm^4	Wy cm^3	iy cm	Jt cm^4	Wt cm^3

60	40	±0.35	1.5	2.86	2.25	14.5	4.82	2.25	7.75	3.88	1.65	15.9	6.75
			2.0	3.75	2.95	18.6	6.19	2.22	9.90	4.95	1.62	20.6	8.79
			2.5	4.62	3.62	22.3	7.44	2.20	11.8	5.92	1.60	25.0	10.7
			3.0	5.45	4.28	25.7	8.57	2.17	13.6	6.80	1.58	29.1	12.6
			4.0	7.02	5.51	31.6	10.5	2.12	16.5	8.27	1.54	36.3	16.0
	50	±0.4	1.5	3.16	2.48	17.0	5.68	2.32	12.9	5.16	2.02	22.9	8.50
			2.0	4.15	3.26	21.9	7.31	2.30	16.6	6.62	2.00	29.7	11.1
			2.5	5.12	4.02	26.4	8.82	2.27	19.9	7.97	1.97	36.2	13.6
			3.0	6.05	4.75	30.6	10.2	2.25	23.0	9.21	1.95	42.3	16.0
			4.0	7.82	6.14	37.9	12.6	2.20	28.4	11.4	1.91	53.4	20.4
			5.0	9.36	7.34	42.9	14.3	2.14	32.1	12.8	1.85	62.9	24.3
	60	±0.5	2.0	4.65	3.57	25.3	8.43	2.36	-	-	-	39.6	13.4
			2.5	5.62	4.41	30.6	10.2	2.33	-	-	-	48.4	16.5
			3.0	6.65	5.22	35.5	11.8	2.31	-	-	-	56.8	19.4
			4.0	8.62	6.76	44.2	14.7	2.26	-	-	-	72.1	24.9
			5.0	10.4	8.13	50.5	16.8	2.21	-	-	-	85.6	29.8
			6.0	12.0	9.44	56.1	18.7	2.16	-	-	-	97.0	34.2
70	30	±0.3	2.0	3.75	2.95	22.4	6.41	2.44	5.90	3.93	1.25	15.4	7.59
			2.5	4.62	3.62	26.9	7.70	2.42	7.01	4.67	1.23	18.5	9.24
			3.0	5.45	4.28	31.0	8.87	2.39	7.95	5.32	1.21	21.3	10.8
	40	±0.35	2.0	4.15	3.26	27.1	7.73	2.55	11.3	5.67	1.65	25.6	10.3
			2.5	5.12	4.02	32.6	9.33	2.53	13.6	6.80	1.63	31.1	12.6
			3.0	6.05	4.75	37.8	10.8	2.50	15.6	7.82	1.61	36.2	14.8
			4.0	7.82	6.14	46.8	13.4	2.45	19.1	9.57	1.57	45.4	18.8
	50	±0.4	2.0	4.55	3.57	31.7	90.5	2.64	18.9	7.55	2.04	37.3	13.0

			2.5	5.62	4.41	38.3	11.0	2.61	22.8	9.10	2.01	45.5	16.0
			3.0	6.65	5.22	44.5	12.7	2.59	26.3	10.5	1.99	53.3	18.8
			4.0	8.62	6.76	55.5	15.9	2.54	32.6	13.1	1.95	67.5	24.1
			5.0	10.4	8.13	63.5	18.1	2.48	37.2	14.9	1.90	79.9	28.8
	60	±0.5	2.0	4.95	3.89	36.3	10.4	2.71	28.7	9.55	2.41	50.1	15.8
			2.5	6.12	4.80	44.0	12.6	2.68	34.7	11.6	2.38	61.3	19.4
			3.0	7.25	5.69	51.3	14.6	2.66	40.4	13.5	2.36	72.0	22.8
			4.0	9.42	7.39	64.2	18.4	2.61	50.4	16.8	2.31	91.8	29.4
			5.0	11.4	8.91	74.0	21.2	2.55	58.1	19.4	2.26	110	35.3
			6.0	13.2	10.4	82.8	23.7	2.50	64.8	21.6	2.21	125	40.6
	70	±0.5	2.0	5.35	4.20	40.9	11.7	2.77	-	-	-	63.7	18.5
			2.5	6.62	5.19	49.7	14.2	2.74	-	-	-	78.2	22.7
			3.0	7.85	6.16	58.0	16.6	2.72	-	-	-	92.0	26.9
			4.0	10.2	8.02	72.9	20.8	2.67	-	-	-	118	34.7
			5.0	12.4	9.70	84.6	24.2	2.62	-	-	-	141	41.8
			6.0	14.4	11.3	95.2	27.2	2.57	-	-	-	162	48.3
80 2)	40	±0.45	2.0	4.55	3.57	37.6	9.41	2.87	12.8	6.39	1.68	30.8	11.8
			2.5	5.62	4.41	45.5	11.4	2.85	15.4	7.68	1.65	37.4	14.5
			3.0	6.65	5.22	52.9	13.2	2.82	17.7	8.85	1.63	43.6	17.0
			4.0	8.62	6.76	65.9	16.5	2.77	21.8	10.9	1.59	54.7	21.7
2) With these tubes the weld may also lie in the wide side of the section; for the deviations of centers see section 9.3.1													

Table 3. (continued)

Side length			Wall thickness s ±10%	Cross section A cm^2	Mass per unit length kg/m	Static values for axis of bending						Static values for torsion	
						x - x			y - y				
h Nominal dimension	b Nominal dimension	Per dev. for h and b				Jx cm^4	Wx cm^3	ix cm	Jy cm^4	Wy cm^3	iy cm	Jt cm^4	Wt cm^3
80 2)	50	±0.5	2.0	4.95	3.89	43.7	10.9	2.97	21.2	8.47	2.07	45.1	15.0
			2.5	6.12	4.80	53.0	13.3	2.95	25.6	10.2	2.05	55.1	18.4
			3.0	7.25	5.69	61.8	15.4	2.92	29.7	11.9	2.02	64.6	21.6
			4.0	9.42	7.39	77.4	19.4	2.87	36.9	14.8	1.98	82.1	27.8
			5.0	11.4	8.91	89.2	22.3	2.80	42.3	16.9	1.93	97.5	33.3
	60	±0.6	2.0	5.35	4.20	49.8	12.5	3.05	32.0	10.7	2.45	61.0	18.1
			2.5	6.62	5.19	60.6	15.1	3.03	38.9	13.0	2.42	74.8	22.2
			3.0	7.85	6.16	70.7	17.7	3.00	45.2	15.1	2.40	87.9	26.3
			4.0	10.2	8.02	89.0	22.3	2.95	56.7	18.9	2.36	112	33.9
			5.0	12.4	9.70	103	25.8	2.89	65.7	21.9	2.31	135	40.8
			6.0	14.4	11.3	116	29.1	2.84	73.6	24.5	2.26	154	47.1
	80	±0.7	2.0	6.15	4.83	62.0	15.5	3.17	-	-	-	96.1	24.3
			2.5	7.62	5.98	75.6	18.9	3.15	-	-	-	118	30.0
			3.0	9.05	7.10	88.5	22.1	3.13	-	-	-	139	35.5
			4.0	11.8	9.28	112	28.0	3.08	-	-	-	179	46.0
			5.0	14.4	11.3	131	32.9	3.03	-	-	-	217	55.8
			6.0	16.8	13.2	149	37.3	2.98	-	-	-	250	64.9
90 2)	50	±0.5	2.0	5.35	4.20	58.2	12.9	3.30	23.5	9.39	2.09	53.2	16.9
			3.0	7.85	6.16	82.6	18.4	3.25	33.0	13.2	2.05	76.3	24.5
			4.0	10.2	8.02	104	23.1	3.19	41.1	16.5	2.01	97.0	31.5
			5.0	12.4	9.70	121	26.8	3.12	47.4	18.9	1.96	115	37.8

	606	±0.6	2.0	5.75	4.52	66.0	14.7	3.39	35.4	11.8	2.48	72.3	20.4
			3.0	8.45	6.63	94.0	20.9	3.34	50.1	16.7	2.44	104	29.7
			4.0	11.0	8.65	119	26.4	3.29	63.0	21.0	2.39	134	38.4
			5.0	13.4	10.5	139	30.8	3.22	73.2	24.4	2.34	160	46.3
			6.0	15.6	12.3	157	34.9	3.17	82.4	27.5	2.30	184	53.6
	90	±0.7	2.0	6.95	5.46	89.2	19.8	3.58	-	-	-	138	31.0
			3.0	10.2	8.04	128	28.5	3.54	-	-	-	201	45.3
			4.0	13.4	10.5	163	36.3	3.49	-	-	-	259	59.0
			5.0	16.4	12.8	193	42.9	3.43	-	-	-	315	71.8
			6.0	19.2	15.1	220	49.0	3.39	-	-	-	365	83.8
100 2)	40	±0.6	2.0	5.35	4.20	65.8	13.2	3.51	15.7	7.84	1.71	41.3	14.9
			3.0	7.85	6.16	93.3	18.7	3.45	21.8	10.9	1.61	58.7	21.5
			4.0	10.2	8.02	117	23.5	3.39	27.0	13.5	1.62	73.9	27.5
	50		2.0	5.75	4.52	75.4	15.1	3.62	25.8	10.3	2.12	61.4	18.8
			3.0	8.45	6.63	107	21.5	3.57	36.3	14.5	2.07	88.1	27.3
			4.0	11.0	8.65	136	27.2	3.51	45.4	18.1	2.03	112	35.2
			5.0	13.4	10.5	158	31.6	3.44	21.0	21.0	1.98	134	42.3
	60		3.0	9.05	7.10	122	24.3	3.67	55.0	18.3	2.47	121	33.1
			4.0	11.8	9.28	154	30.9	3.61	69.3	23.1	2.42	155	42.8
			5.0	14.4	11.3	181	36.2	3.55	80.8	26.9	2.37	187	51.8
			6.0	16.8	13.2	205	41.1	3.49	91.2	30.4	2.33	214	60.1
	80	±0.7	3.0	10.2	8.04	150	30.0	3.82	106	26.6	3.22	195	44.7
			4.0	13.4	10.5	191	38.2	3.77	135	33.8	3.18	252	58.2
			5.0	16.4	12.8	226	45.2	3.72	160	39.9	3.12	306	70.8
			6.0	19.2	15.1	258	51.7	3.67	182	45.5	3.08	355	82.6

2) See page 8

Table 3. (continued)

Side length			Wall thickness	Cross section	Mass per unit length	Static values for axis of bending						Static values for torsion	
						x - x			y - y				
h Nominal dimension	b Nominal dimension	Per. dev. for h and b	s ±10%	A cm^2	kg/m	Jx cm^4	Wx cm^3	ix cm	Jy cm^4	Wy cm^3	iy cm	Jt cm^4	Wt cm^3
100 2)	100	±0.7	3.0	11.4	8.99	178	35.6	3.94	-	-	-	278	56.4
			4.0	15.0	11.8	228	45.6	3.90	-	-	-	360	73.6
			5.0	18.4	14.4	271	54.2	3.84	-	-	-	439	89.8
			6.0	21.6	17.0	311	62.3	3.79	-	-	-	512	105
110 2)	70	±0.6	3.0	10.2	8.04	171	31.1	4.08	84.9	24.3	2.88	180	42.9
			4.0	13.4	10.5	218	39.6	4.03	108	30.8	2.84	232	55.8
			5.0	16.4	12.8	258	46.8	3.97	127	36.3	2.79	281	67.8
			6.0	19.2	15.1	295	53.6	3.91	144	41.3	2.74	325	79.0
120 2)	40	±0.6	2.5	7.62	5.98	128	21.3	4.09	22.4	11.2	1.72	63.5	22.0
			3.0	9.05	7.10	149	24.9	4.06	25.9	13.0	1.69	74.2	25.9
			4.0	11.8	9.28	189	31.6	4.00	32.2	16.1	1.65	93.5	33.2
			5.0	14.4	11.3	221	36.8	3.92	36.9	18.5	1.60	110	39.8
			6.0	16.8	13.2	250	41.7	3.85	41.0	20.5	1.56	124	45.7
	50		3.0	9.65	7.57	170	28.3	4.20	42.9	17.2	2.11	112	32.9
			4.0	12.6	9.90	216	36.0	4.14	53.9	21.5	2.07	143	42.5
			5.0	15.4	12.1	254	42.3	4.07	62.6	25.0	2.02	171	51.3
			6.0	18.0	14.2	289	48.2	4.00	70.4	28.1	1.98	195	59.4
	60		3.0	10.2	8.04	191	31.8	4.31	64.7	21.6	2.51	156	39.9
			4.0	13.4	10.5	243	40.5	4.26	81.9	27.3	2.47	200	51.8
			5.0	16.4	12.8	287	47.8	4.19	96.0	32.0	2.42	241	62.8
			6.0	19.2	15.1	328	54.7	4.13	109	36.3	2.38	277	73.0

	80	±0.7	3.0	11.4	8.99	232	38.6	4.50	124	31.0	3.29	255	54.0
			4.0	15.0	11.8	297	49.5	4.45	158	39.6	3.25	330	70.4
			5.0	18.4	14.4	353	58.9	4.39	188	46.9	3.20	401	85.8
			6.0	21.6	17.0	406	67.7	4.33	215	53.8	3.15	466	100
	120		4.0	18.2	14.3	405	67.5	4.71	-	-	-	634	107
			5.0	22.4	17.5	485	80.9	4.66	-	-	-	777	132
			6.0	26.4	20.7	562	93.7	4.61	-	-	-	910	155
2) See page 8													