INTERNATIONAL STANDARD 1175

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Shipbuilding — Dimensions and sectional properties of aluminium alloy sections for marine use

Construction navale — Dimensions et caractéristiques des sections des profilés en alliages d'aluminium pour usage maritime

Second edition — 1976-08-15

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Descriptors : shipbuilding, sections, aluminium alloys, dimensions, cross sections, linear density, materials specifications.

Price based on 8 pages

FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up has the right to be represented on that Committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

Prior to 1972, the results of the work of the Technical Committees were published as ISO Recommendations; those documents have subsequently been transformed into International Standards. As part of that process, in 1973 Technical Committee ISO/TC 8, *Shipbuilding,* reviewed ISO Recommendation R 1175-1970 and found it suitable for transformation. International Standard ISO 1175-1974 therefore replaced ISO Recommendation R 1175-1970.

ISO Recommendation R 1175-1970 had been approved by the Member Bodies of the following countries :

Australia	Israel	Spain
Belgium	Italy	Sweden
Czechoslovakia	Japan	Thailand
Egypt, Arab Rep. of	Netherlands	Turkey
France	New Zealand	United Kingdom
Germany	Norway	Yugoslavia
Greece	Philippines	
India	Poland	

The Member Body of the following country had expressed disapproval of the Recommendation on technical grounds, and also disapproved its transformation into an International Standard :

U.S.S.R.

ISO 1175-1976, the second edition of this International Standard, contains the new sub-clauses 3.6 and 3.7, which were circulated, in the form of an Addendum, to the Member Bodies in September 1974.

This Addendum has been approved by the Member Bodies of the following countries :

Australia	France	Romania
Austria	Germany	South Africa, Rep. of
Belgium	Mexico	Turkey
Bulgaria	Netherlands	United Kingdom
Czechoslovakia	Norway	U.S.S.R.

The Member Bodies of the following countries expressed disapproval of the Addendum on technical grounds :

Italy
Poland

This second edition cancels and replaces ISO 1175-1974.

Printed in Switzerland

Shipbuilding — Dimensions and sectional properties of aluminium alloy sections for marine use

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies dimensions, sectional properties and masses per unit length of aluminium alloy sections, with and without welding flange, for marine use.

2 CLASSIFICATION

The dimensions, sectional properties and masses per unit length of the following types of aluminium alloy section are given in clause 3 :

- tee bars without welding flange;
- tee bars with welding flange;
- bulb plates without welding flange;
- bulb plates with welding flange;
- bulb angle,
- symmetrical bulb plates with trapezoidal head without welding flange,
- asymmetrical bulb plates with trapezoidal head without welding flange.

3 DIMENSIONS, SECTIONAL PROPERTIES AND MASSES PER UNIT LENGTH

The calculated masses in kilograms per metre, shown in the tables, are based on an average density of 2,65 kg/dm^3.

Where $e_{NA} > A$, the neutral axis lies in the plate.

Where $e_{NA} < \frac{A + t}{2}$, the neutral axis is closer to the outer face of the tee bar or bulb plate than to the upper face of the plate.

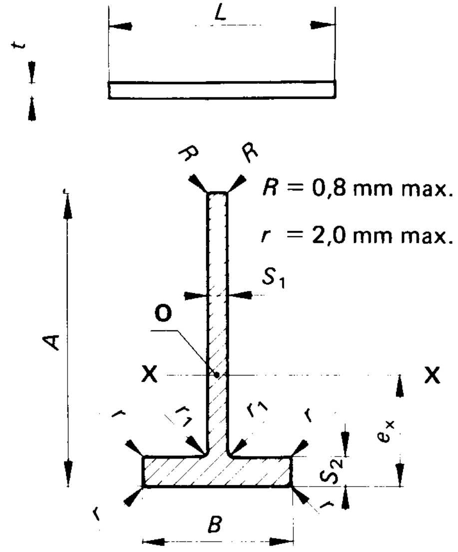
3.1 Tee bars without welding flange

Section without plate

F = sectional area
O = centre of gravity
e_x = distance of centre of gravity from the outer face of the flange
G = mass
I_x = second moment of area

Section with plate

NA = neutral axis
e_{NA} = distance of centre of gravity of assembly from the outer face of the flange
= distance of neutral axis from the extreme outer fibres
I = second moment of area
$Z = \frac{I}{e_{NA}}$ = section modulus
t = plate thickness : 5, 10 or 15 mm
L = 40 t



Dimensions					Mass (without plate)	Sectional properties											
						Section without plate			Section with plate								
									$L \times t$: 200 mm × 5 mm			$L \times t$: 400 mm × 10 mm			$L \times t$: 600 mm × 15 mm		
A mm	B mm	S_1 mm	S_2 mm	r_1 mm	G kg/m	F cm^2	e_x cm	I_x cm^4	e_{NA} cm	I cm^4	Z cm^3	e_{NA} cm	I cm^4	Z cm^3	e_{NA} cm	I cm^4	Z cm^3
80	40	4,0	8,0	6,0	1,642	6,197	2,27	36,9	5,96	174,0	29,2	7,66	248,6	32,4	8,33	297,4	35,7
90	45	4,0	9,0	6,0	1,963	7,407	2,43	54,5	6,35	252,8	39,8	8,39	370,5	44,1	9,19	438,4	47,7
100	50	4,0	10,0	6,0	2,310	8,717	2,57	77,1	6,67	351,8	52,7	9,08	530,1	58,4	10,03	625,3	62,4
110	55	4,0	11,0	6,0	2,684	10,127	2,71	105,3	6,95	472,7	68,0	9,72	733,3	75,4	10,84	866,4	80,0
120	60	4,0	12,0	6,0	3,084	11,637	2,83	140,0	7,19	617,0	85,9	10,32	985,5	95,5	11,61	1 170,1	100,7
130	65	4,5	13,0	7,0	3,680	13,888	3,12	198,4	7,36	794,7	107,9	10,83	1 311,6	121,2	12,33	1 573,8	127,6
140	70	5,0	14,0	7,5	4,321	16,304	3,42	273,1	7,53	1 000,9	132,8	11,29	1 699,6	150,5	13,01	2 063,4	158,6
150	75	5,0	15,0	7,5	4,824	18,204	3,54	342,1	7,69	1 227,3	159,5	11,76	2 134,7	181,5	13,70	2 616,0	191,0
160	80	5,5	16,0	8,5	5,563	20,993	3,83	453,3	7,84	1 498,2	191,2	12,14	2 666,4	219,7	14,31	3 311,3	231,5
170	85	6,0	17,0	9,0	6,344	23,941	4,12	589,0	7,99	1 804,8	225,9	12,49	3 272,5	262,0	14,89	4 117,6	276,6
180	90	6,0	18,0	9,0	6,951	26,231	4,25	709,9	8,11	2 129,5	262,5	12,86	3 931,1	305,8	15,48	4 998,4	323,0
190	95	6,5	19,0	10,0	7,833	29,557	4,54	898,6	8,26	2 516,1	304,7	13,14	4 707,0	358,2	15,99	6 064,3	379,3
200	100	7,0	20,0	10,5	8,755	33,036	4,83	1 121,9	8,41	2 947,4	350,3	13,41	5 567,9	415,1	16,48	7 263,4	440,9
220	110	7,5	22,0	11,0	10,476	39,532	5,25	1 611,2	8,68	3 918,4	451,4	13,92	7 531,9	540,9	17,41	10 041,6	576,8
240	120	8,0	24,0	12,0	12,365	46,661	5,66	2 244,8	8,94	5 090,4	569,2	14,36	9 891,0	688,9	18,23	13 457,9	738,1
260	130	9,0	26,0	13,5	14,735	55,605	6,24	3 179,7	9,29	6 571,9	707,1	14,72	12 727,7	864,7	18,92	17 647,8	932,8

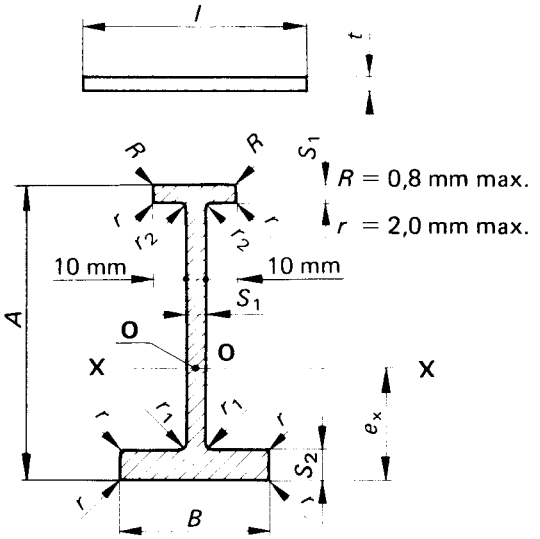
3.2 Tee bars with welding flange

Section without plate

F = sectional area
O = centre of gravity
e_x = distance of centre of gravity from the outer face of the flange
G = mass
I_x = second moment of area

Section with plate

NA = neutral axis
e_{NA} = distance of centre of gravity of assembly from the outer face of the flange
= distance of neutral axis from the extreme outer fibres
I = second moment of area
$Z = \frac{I}{e_{NA}}$ = section modulus
t = plate thickness : 5, 10 or 15 mm
L = 40 t



Dimensions						Mass (without plate)	Sectional properties											
							Section without plate			Section with plate								
										$L \times t$: 200 mm × 5 mm			$L \times t$: 400 mm × 10 mm			$L \times t$: 600 mm × 15 mm		
A mm	B mm	S_1 mm	S_2 mm	r_1 mm	r_2 mm	G kg/m	F cm^2	e_x cm	I_x cm^4	e_{NA} cm	I cm^4	Z cm^3	e_{NA} cm	I cm^4	Z cm^3	e_{NA} cm	I cm^4	Z cm^3
80	40	4,0	8,0	6,0	4,0	1,868	7,049	2,93	59,7	6,05	176,7	29,2	7,67	248,6	32,4	8,33	297,6	35,7
90	45	4,0	9,0	6,0	4,0	2,189	8,259	3,08	85,3	6,46	257,6	39,9	8,40	370,6	44,1	9,19	438,5	47,7
100	50	4,0	10,0	6,0	4,0	2,536	9,569	3,21	117,4	6,81	359,6	52,8	9,09	530,6	58,3	10,03	625,4	62,4
110	55	4,0	11,0	6,0	4,0	2,909	10,979	3,33	156,5	7,11	484,7	68,2	9,74	743,3	75,4	10,83	866,4	80,0
120	60	4,0	12,0	6,0	4,0	3,310	12,489	3,44	203,5	7,36	634,3	86,2	10,35	987,3	95,4	11,62	1 170,1	100,7
130	65	4,5	13,0	7,0	4,5	3,937	14,858	3,75	282,4	7,57	821,8	108,5	10,86	1 315,2	121,1	12,33	1 574,0	127,6
140	70	5,0	14,0	7,5	5,0	4,610	17,394	4,06	381,6	7,78	1 041,0	133,8	11,34	1 706,0	150,5	13,02	2 064,0	158,5
150	75	5,0	15,0	7,5	5,0	5,113	19,294	4,17	470,7	7,95	1 279,1	160,8	11,81	2 144,1	181,5	13,71	2 617,2	191,0
160	80	5,5	16,0	8,5	5,5	5,885	22,206	4,48	614,4	8,13	1 570,1	193,0	12,21	2 681,4	219,6	14,32	3 313,6	231,4
170	85	6,0	17,0	9,0	6,0	6,699	25,278	4,79	788,0	8,32	1 901,4	228,6	12,58	3 295,2	262,0	14,91	4 121,8	276,5
180	90	6,0	18,0	9,0	6,0	7,305	27,568	4,90	938,6	8,45	2 247,0	265,8	12,95	3 961,3	305,9	15,50	5 004,7	322,8
190	95	6,5	19,0	10,0	6,5	8,221	31,021	5,20	1 175,3	8,63	2 667,8	309,2	13,26	4 750,2	358,4	16,02	6 074,4	379,2
200	100	7,0	20,0	10,5	7,0	9,177	34,629	5,51	1 453,0	8,81	3 139,3	356,3	13,54	5 627,5	415,5	16,52	7 278,7	440,7
220	110	7,5	22,0	11,0	7,5	10,933	41,257	5,93	2 050,5	9,11	4 194,6	460,2	14,09	7 630,2	541,7	17,46	10 070,9	576,7
240	120	8,0	24,0	12,0	8,0	12,857	48,518	6,35	2 814,5	9,41	5 472,6	581,9	14,55	10 043,8	690,3	18,30	13 509,2	738,1
260	130	9,0	26,0	13,5	9,0	15,300	57,736	6,95	3 936,5	9,80	7 110,6	725,4	14,95	12 967,8	867,2	19,01	17 737,5	932,9

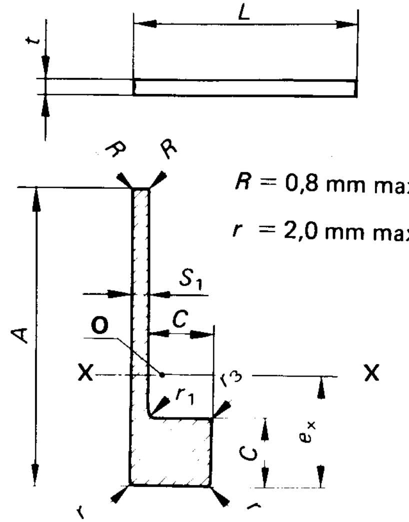
3.3 Bulb plates without welding flange

Section without plate

F = sectional area
O = centre of gravity
e_x = distance of centre of gravity from the outer face of the bulb
G = mass
I_x = second moment of area

Section with plate

NA = neutral axis
e_{NA} = distance of centre of gravity of assembly from the outer face of the bulb
= distance of neutral axis from the extreme outer fibres
I = second moment of area
$Z = \frac{I}{e_{NA}}$ = section modulus
t = plate thickness : 5, 10 or 15 mm
L = $40\,t$



Dimensions					Mass (without plate)	Sectional properties											
						Section without plate			Section with plate								
									$L \times t$: 200 mm × 5 mm			$L \times t$: 400 mm × 10 mm			$L \times t$: 600 mm × 15 mm		
A mm	C mm	S_1 mm	r_1 mm	r_3 mm	G kg/m	F cm^2	e_x cm	I_x cm^4	e_{NA} cm	I cm^4	Z cm^3	e_{NA} cm	I cm^4	Z cm^3	e_{NA} cm	I cm^4	Z cm^3
50	12	3,5	4,5	3,0	0,852	3,214	1,67	6,79	4,38	38,25	8,74	5,21	53,86	10,33	5,61	75,43	13,45
60	14	3,5	4,5	3,0	1,082	4,084	1,91	12,18	4,99	66,95	13,41	6,07	93,51	15,39	6,54	120,49	18,42
70	16	3,5	4,5	3,0	1,334	5,034	2,14	19,97	5,54	107,55	19,41	6,90	151,68	21,98	7,45	186,79	25,06
80	18	4,0	5,5	3,0	1,713	6,466	2,44	33,24	5,97	165,94	27,80	7,66	240,89	31,46	8,33	290,20	34,85
90	20	4,5	6,0	3,0	2,143	8,088	2,76	53,11	6,35	241,63	38,06	8,37	362,02	43,27	9,17	432,53	47,15
100	22	4,5	6,0	4,0	2,481	9,363	2,98	74,64	6,73	330,41	49,06	9,07	507,01	55,88	10,02	603,50	60,24
110	24	5,0	7,0	4,0	2,997	11,311	3,30	109,93	7,03	445,63	63,39	9,69	706,22	72,86	10,81	844,34	78,13
120	26	5,0	7,5	4,0	3,399	12,826	3,51	145,65	7,34	575,24	78,39	10,32	934,18	90,55	11,60	1 121,32	96,69
130	28	5,5	8,5	4,0	3,999	15,091	3,83	202,67	7,58	736,68	97,14	10,85	1 230,77	113,43	12,33	1 491,55	121,01
140	30	6,0	9,0	4,0	4,643	17,520	4,15	274,93	7,82	924,48	118,21	11,35	1 583,22	139,52	13,02	1 939,35	148,92
150	32	6,0	9,0	4,5	5,128	19,350	4,30	343,69	8,07	1 126,28	139,60	11,87	1 966,51	165,72	13,73	2 428,01	176,79
160	34	6,5	10,0	4,5	5,859	22,111	4,68	449,73	8,28	1 731,99	165,66	12,29	2 443,13	198,77	14,37	3 053,32	212,49
170	36	7,0	10,5	4,5	6,634	25,033	5,00	578,48	8,50	1 650,83	194,28	12,69	2 987,32	235,43	14,98	3 778,84	252,33
180	38	7,5	11,5	4,5	7,463	28,160	5,32	733,01	8,71	1 966,54	225,78	13,06	3 606,14	276,21	15,55	4 617,27	296,93
200	42	8,0	12,0	4,5	8,980	33,886	5,85	1 082,22	9,13	2 683,79	293,94	13,78	5 023,42	364,53	16,67	6 565,21	393,75
220	46	9,0	13,5	4,5	10,941	41,288	6,49	1 609,57	9,57	3 608,23	377,19	14,37	6 817,83	474,44	17,64	9 105,72	516,26

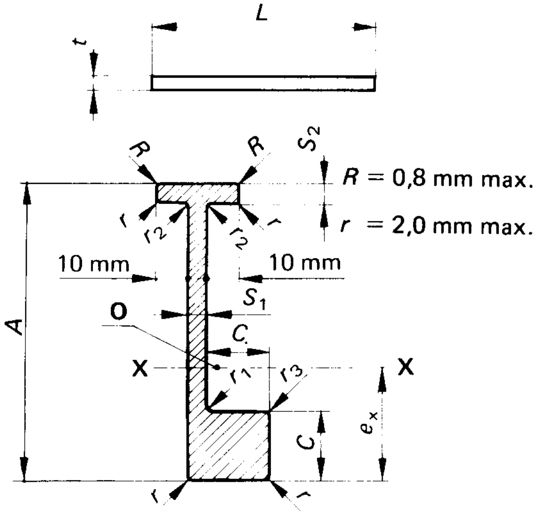
3.4 Bulb plates with welding flange

Section without plate

F = sectional area
O = centre of gravity
e_x = distance of centre of gravity from the outer face of the bulb
G = mass
I_x = second moment of area

Section with plate

NA = neutral axis
e_{NA} = distance of centre of gravity of assembly from the outer face of the bulb
= distance of neutral axis from the extreme outer fibres
I = second moment of area
$Z = \frac{I}{e_{NA}}$ = section modulus
t = plate thickness : 5, 10 or 15 mm
L = 40 t



Dimensions							Mass (without plate)	Sectional properties												
								Section without plate			Section with plate									
											$L \times t$: 200 mm × 5 mm			$L \times t$: 400 mm × 10 mm			$L \times t$: 600 mm × 15 mm		
A mm	C mm	S_1 mm	S_2 mm	r_1 mm	r_2 mm	r_3 mm	G kg/m	F cm^2	e_x cm	I_x cm^4	e_{NA} cm	I cm^4	Z cm^3	e_{NA} cm	I cm^4	Z cm^3	e_{NA} cm	I cm^4	Z cm^3
50	12	3,5	4,0	4,5	3,5	3,0	1,068	4,030	2,30	13,14	4,40	38,39	8,72	5,21	54,02	10,37	5,60	75,99	13,56
60	14	3,5	4,0	4,5	3,5	3,0	1,298	4,900	2,56	22,39	5,04	67,45	13,40	6,07	93,59	15,42	6,53	120,97	18,51
70	16	3,5	4,0	4,5	3,5	3,0	1,550	5,850	2,79	35,12	5,60	108,77	19,41	6,90	151,70	21,99	7,45	187,16	25,13
80	18	4,0	4,0	5,5	4,0	3,0	1,939	7,317	3,06	54,70	6,06	168,61	27,83	7,66	240,92	31,45	8,32	290,45	34,90
90	20	4,5	4,5	6,0	4,5	3,0	2,400	9,058	3,40	84,18	6,47	246,95	38,17	8,37	362,18	43,25	9,17	432,72	47,19
100	22	4,5	4,5	6,0	4,5	4,0	2,738	10,333	3,62	114,93	6,88	338,82	49,26	9,09	507,46	55,85	10,02	603,59	60,27
110	24	5,0	5,0	7,0	5,0	4,0	3,286	12,401	3,95	164,67	7,21	459,76	63,77	9,71	707,37	72,82	10,81	844,38	78,14
120	26	5,0	5,0	7,5	5,0	4,0	3,688	13,917	4,15	213,40	7,54	595,23	78,97	10,35	936,31	90,51	11,60	1 121,37	96,68
130	28	5,5	5,5	8,5	5,5	4,0	4,320	16,303	4,49	390,76	7,82	766,83	98,07	10,89	1 234,81	113,38	12,33	1 491,75	120,99
140	30	6,0	6,0	9,0	6,0	4,0	4,997	18,857	4,82	387,19	8,09	967,92	119,63	11,40	1 590,23	139,49	13,03	1 939,94	148,88
150	32	6,0	6,0	9,0	6,0	4,5	5,482	20,688	5,02	476,37	8,35	1 181,81	141,45	11,93	1 976,72	165,72	13,74	2 429,19	176,73
160	34	6,5	6,5	10,0	6,5	4,5	6,247	23,575	5,36	614,22	8,60	1 447,48	168,27	12,37	2 459,06	198,82	14,39	3 055,66	212,42
170	36	7,0	7,0	10,5	7,0	4,5	7,056	26,626	5,69	779,63	8,85	1 750,65	197,83	12,78	3 011,05	235,57	15,00	3 783,02	252,24
180	38	7,5	7,5	11,5	7,5	4,5	7,919	29,885	6,03	976,17	9,09	2 095,65	230,49	13,17	3 640,28	276,48	15,58	4 624,22	296,83
200	42	8,0	8,0	12,0	8,0	4,5	9,472	35,743	6,56	1 411,40	9,55	2 876,23	301,11	13,92	5 083,22	365,14	16,72	6 580,17	393,64
220	46	9,0	9,0	13,5	9,0	4,5	11,506	43,418	7,23	2 062,80	10,04	3 897,20	388,17	14,55	6 922,04	475,71	17,70	9 136,38	516,22

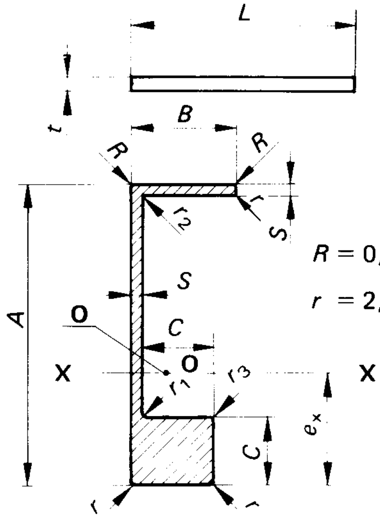
3.5 Bulb angles

Section without plate

F = sectional area
O = centre of gravity
e_x = distance of centre of gravity from the outer face of the bulb
G = mass
I_x = second moment of area

Section with plate

NA = neutral axis
e_{NA} = distance of centre of gravity of assembly from the outer face of the bulb
= distance of neutral axis from the extreme outer fibres
I = second moment of area
$Z = \frac{I}{e_{NA}}$ = section modulus
t = plate thickness : 5, 10 or 15 mm
L = 40 t



R = 0,8 mm max.
r = 2,0 mm max.

Dimensions							Mass (without plate)	Sectional properties											
								Section without plate			Section with plate								
											$L \times t$: 200 mm × 5 mm			$L \times t$: 400 mm × 10 mm			$L \times t$: 600 mm × 15 mm		
A mm	B mm	C mm	S mm	r_1 mm	r_2 mm	r_3 mm	G kg/m	F cm^2	e_x cm	I_x cm^4	e_{NA} cm	I cm^4	Z cm^3	e_{NA} cm	I cm^4	Z cm^3	e_{NA} cm	I cm^4	Z cm^3
30	27	8	3,0	4,5	3,0	3,0	0,603	2,275	1,63	2,74	2,95	7,83	2,65	3,40	13,62	4,01	3,70	29,61	8,01
40	27	10	3,0	4,5	3,0	3,0	0,778	2,935	1,95	6,36	3,73	18,55	4,98	4,33	27,45	6,35	4,66	45,49	9,76
50	27	12	3,0	4,5	3,0	3,0	0,974	3,675	2,22	12,15	4,44	36,96	8,33	5,22	51,59	9,88	5,61	72,91	12,99
60	27	14	3,0	4,5	3,0	3,0	1,191	4,495	2,46	20,58	5,08	65,29	12,86	6,09	89,81	14,74	6,55	116,18	17,75
70	27	16	3,0	4,5	3,0	3,0	1,430	5,395	2,67	32,11	5,65	105,71	18,72	6,93	146,18	21,10	7,46	180,15	24,14
80	32	18	3,5	5,5	3,5	3,0	1,876	7,081	3,12	56,21	6,13	165,33	26,99	7,69	233,39	30,34	8,34	280,83	33,67
90	32	20	3,5	5,5	3,5	3,0	2,171	8,191	3,32	79,01	6,58	237,49	36,09	8,45	341,90	40,46	9,21	406,17	44,08
100	36	22	4,0	6,0	4,0	4,0	2,695	10,169	3,76	122,95	6,98	335,80	48,14	9,15	495,06	54,21	10,04	586,78	58,44
110	41	24	4,5	7,0	4,5	4,0	3,296	12,438	4,21	185,00	7,35	460,00	62,61	9,77	692,66	70,89	10,83	823,26	75,99
120	45	26	5,0	7,5	5,0	4,0	3,940	14,872	4,64	265,25	7,70	611,68	79,44	10,37	938,22	90,48	11,60	1 121,41	96,67
130	50	28	5,5	8,5	5,5	4,0	4,663	17,595	5,09	372,33	8,05	796,70	98,93	10,93	1 239,16	113,35	12,33	1 491,99	120,96
140	54	30	6,0	9,0	6,0	4,0	5,424	20,468	5,52	504,67	8,39	1 016,31	121,16	11,46	1 598,70	139,48	13,04	1 940,73	148,82
150	54	32	6,0	9,0	6,0	4,5	5,909	22,299	5,72	616,99	8,67	1 243,86	143,43	12,00	1 988,99	165,74	13,76	2 430,73	176,67

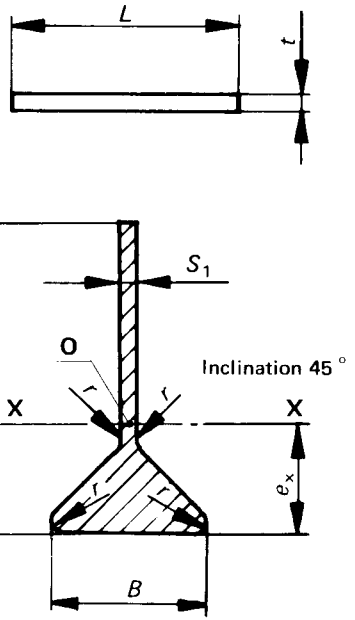
3.6 Symmetrical bulb plates with trapezoidal head without welding flange

Section without plate

F = sectional area
O = centre of gravity
e_x = distance of centre of gravity from the outer face of the bulb
G = mass
I_x = second moment of area

Section with plate

NA = neutral axis
e_{NA} = distance of centre of gravity of assembly from the outer face of the bulb
= distance of neutral axis from the extreme outer fibres
I = second moment of area
$Z = \frac{I}{e_{NA}}$ = section modulus
t = plate thickness : 5, 10 or 15 mm
L = 40 t



Dimensions				Mass (without plate)	Sectional properties										
					Section without plate			Section with plate							
								$L \times t$: 200 mm × 5 mm			$L \times t$: 400 mm × 10 mm			$L \times t$: 600 mm × 15 mm		
A mm	B mm	S_1 mm	r mm	G kg/m	F cm^2	e_x cm	I_x cm^4	e_{NA} cm	I cm^4	Z cm^3	e_{NA} cm	I cm^4	Z cm^3	e_{NA} cm	I cm^4	Z cm^3
40	13	2,5	2,0	0,42	1,55	1,48	2,39	3,63	11,59	3,19	4,38	20,06	4,57	4,70	42,46	9,03
50	17	3,5	2,5	0,72	2,66	1,89	6,36	4,29	28,06	6,56	5,29	40,0	7,60	5,62	62,53	11,13
60	20	3,5	3,0	0,93	3,44	2,23	11,76	4,98	51,06	10,25	6,17	77,0	12,50	6,58	100,0	15,2
70	21	4,0	3,5	1,16	4,31	2,60	20,37	5,54	83,87	15,12	6,52	102,67	15,80	7,52	150,64	20,4
80	25	4,0	4,0	1,46	5,41	2,78	32,78	6,08	135,78	22,25	7,32	172,78	23,58	8,44	220,15	26,18
90	29	4,0	4,0	1,76	6,50	2,96	49,20	6,51	202,2	31,10	8,14	265,2	32,6	9,29	320,67	34,56
100	31	4,5	4,5	2,12	7,85	3,37	74,20	6,98	280,2	40,25	8,87	381,2	43,0	10,15	479,97	47,2
120	38	5,0	5,0	2,96	10,95	3,90	147,20	7,64	514,2	67,37	10,14	749,2	73,7	11,75	930,77	79,3
140	42	6,0	5,0	3,92	14,53	4,71	270	8,38	817,0	97,6	11,38	1 253	110,0	13,40	1 509,67	112,5
160	48	6,5	7,0	5,01	18,59	5,27	448	9,13	1 230	135,0	12,42	2 012	162,0	14,75	2 481,67	168,3
180	54	7,5	9,0	6,61	24,46	5,91	737	9,50	1 825	192,6	13,20	3 113	235,8	15,97	3 990	250,0
200	58	8,0	10,0	7,80	28,87	6,55	1 082	10,06	2 440	242,5	14,15	4 306	304,8	17,30	5 630	325,8