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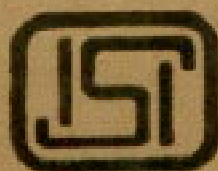
“Knowledge is such a treasure which cannot be stolen”

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Indian Standard
SPECIFICATION FOR
ALUMINIUM TEE-SECTIONS
(*First Revision*).

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INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Indian Standard

SPECIFICATION FOR ALUMINIUM TEE-SECTIONS

(First Revision)

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Indian Standard

SPECIFICATION FOR ALUMINIUM TEE-SECTIONS

(*First Revision*)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 20 December 1985, after the draft finalized by the Structural Sectional Committee had been approved by the Structural and Metals Division Council.

0.2 Aluminium because of its lightness, strength and better resistance to atmospheric corrosion has gained popularity in structures especially for use in hilly areas and in defence installations.

0.3 A large number of variety of aluminium sections are being produced in the country. In order to standardize these sections for their economic production, the Sectional Committee had formulated an Indian Standard series covering angles, channels, beams and the sections for structural use and other applications.

0.4 This Indian Standard was first published in 1971. In this revision alloys with new designations as covered in IS : 733-1983* have been used.

0.5 In the preparation of this standard, the Sectional Committee kept in view manufacturing and trade practices followed in the country in this field.

0.6 A code of practice for use of aluminium alloys in structures, namely, IS : 8147-1976† has already been published which covers provisions for the design of structures (except bridges and pressure vessels) using aluminium alloys.

0.7 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960‡. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

*Specification for wrought aluminium and aluminium alloy bars, rods and sections (for general engineering purposes) (*third revision*).

†Code of practice for use of aluminium alloys in structures.

‡Rules for rounding off numerical values (*revised*).

1. SCOPE

1.1 This standard covers the material, dimensions and sectional properties of aluminium tee-sections for structural use and other applications.

2. TERMINOLOGY

2.0 For the purpose of this standard, the following definitions shall apply.

2.1 X-X Axis — A line parallel to the axis of the flange and passing through the centre of gravity of the profile of the section.

2.2 Y-Y Axis — A line passing through the centre of gravity of the profile of the section, and at right angles to the X-X axis.

3. SYMBOLS

3.1 Letter symbols used in this standard have been indicated in the figure appearing along with Table 1. The letter symbols used in Table 1 shall have the meaning indicated against each as given below:

a = sectional area,

M = mass of section per unit length,

I_x = moment of inertia about X-X axis,

I_y = moment of inertia about Y-Y axis,

e_x = distance of the extreme fibre from X-X axis = $h - C_x$,

e_y = distance of the extreme fibre from Y-Y axis C_y ,

$Z_x = \frac{I_x}{e_x}$ = modulus of section about X-X axis,

$Z_y = \frac{I_y}{e_y}$ = modulus of section about Y-Y axis,

$r_x = \sqrt{\frac{I_x}{a}}$ = radius of gyration about X-X axis, and

$r_y = \sqrt{\frac{I_y}{a}}$ = radius of gyration about Y-Y axis.

4. DESIGNATION

4.1 Aluminium tee-sections shall be designated as ALT in mm, followed by the depth of the section in mm width of flange in mm and mass in kg/in of the section:

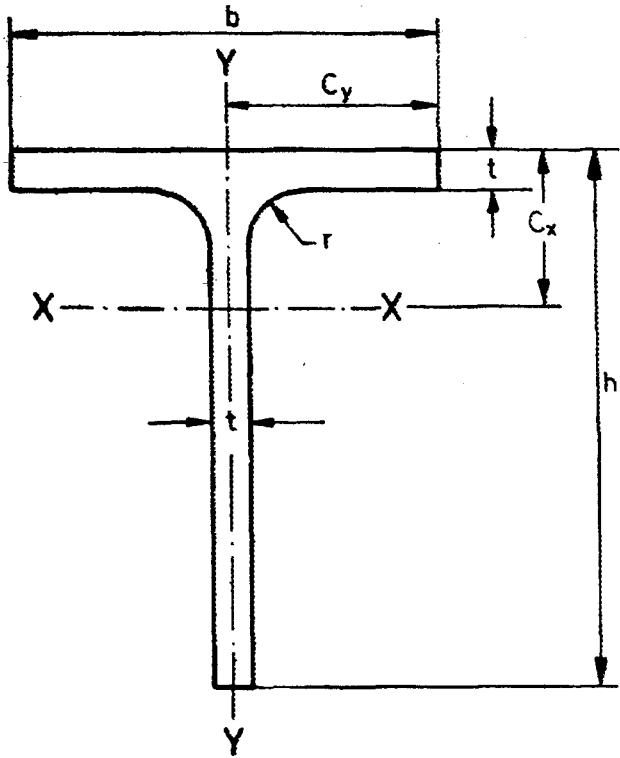
Example:

ALT 125 × 100 — 7.0

TABLE 1 DIMENSIONS AND SECTIONAL PROPERTIES OF ALUMINIUM TEE-SECTIONS

IS : 6445 - 1985

(Clauses 3.1, 6.1 and 6.1.1)



DESIGNATION	MASS* PER METRE (M)	SEC- TIONAL AREA (a)	DIMENSIONS				CENTRE OF GRAVITY C _x	SECTIONAL PROPERTIES				MODULI OF SECTION	
			Depth of Section (h)	Width of Flange (b)	Thick- ness (t)	Radius at Root (r)		Moment of Inertia		Radii to Gyration		Z _x	Z _y
								I _x	I _y	r _x	r _y		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	kg/m	cm ²	mm	mm	mm	mm	cm	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³
ALT 25×25-0.4	0.4	1.60	25	25	3.2	5.0	0.72	0.9	0.4	0.73	0.52	0.51	0.3
ALT 30×30-0.5	0.5	1.82	30	30	3.0	5.0	0.83	1.5	0.7	0.90	0.62	0.69	0.5
ALT 30×30-0.7	0.7	2.60	30	30	4.5	5.0	0.90	2.1	1.0	0.89	0.63	1.00	0.7
ALT 40×50-0.8	0.8	2.88	40	50	3.2	5.0	1.47	7.2	1.7	1.58	0.49	2.85	0.9
ALT 50×50-1.2	1.2	4.45	50	50	4.5	6.0	1.39	10.4	4.7	1.53	1.03	2.88	1.9
ALT 50×50-1.6	1.6	5.79	50	50	6.0	6.0	1.45	13.2	6.4	1.51	1.05	2.61	2.5
ALT 65×65-1.6	1.6	5.85	65	65	4.5	7.0	1.75	23.5	7.4	2.00	1.12	4.95	2.3
ALT 65×65-2.1	2.1	7.66	65	65	6.0	7.0	1.82	30.2	13.9	1.99	1.35	6.45	4.3
ALT 65×65-2.7	2.7	9.97	65	65	8.0	7.0	1.90	38.5	18.6	1.96	1.37	8.37	5.7
ALT 65×65-3.3	3.3	12.21	65	65	10.0	7.0	1.98	46.0	23.4	1.94	1.39	10.2	7.2
ALT 75×75-2.4	2.4	18.88	75	75	6.0	7.5	2.06	47.3	21.3	2.31	1.55	8.69	5.7
ALT 75×75-3.1	3.1	11.60	75	75	8.0	7.5	2.14	60.5	28.5	2.28	1.57	11.3	7.6
ALT 75×100-2.8	2.8	10.41	75	100	6.0	8.0	3.02	105.7	21.3	3.19	1.43	23.6	5.7
ALT 75×100-3.7	3.7	13.63	75	100	8.0	8.0	3.11	136.1	28.6	3.16	1.45	31.0	7.6
ALT 100×75-2.0	2.8	10.41	100	75	6.0	8.0	1.80	51.4	50.2	2.22	2.20	6.27	10.8
ALT 100×75-3.1	3.7	13.63	100	75	8.0	8.0	1.89	65.8	67.1	2.20	2.22	8.11	13.4
ALT 100×75-4.5	4.5	16.77	100	75	10.0	8.0	1.96	79.3	84.0	2.17	2.24	9.86	16.8
ALT 100×75-5.4	5.4	19.83	100	75	12.0	8.0	2.04	91.8	101.1	2.15	2.26	11.5	20.2
ALT 100×100-4.2	4.2	15.71	100	100	8.0	9.0	2.76	149.3	67.2	3.08	2.07	20.6	13.4
ALT 100×100-5.2	5.2	19.35	100	100	10.0	9.0	2.84	181.0	84.3	3.06	2.09	25.3	16.9
ALT 100×100-6.2	6.2	22.91	100	100	12.0	9.0	2.92	210.8	101.5	3.03	2.10	29.8	20.3
ALT 125×75-5.2	5.2	19.35	125	75	10.0	9.0	1.77	84.2	163.5	2.09	2.91	7.85	26.2
ALT 125×75-6.2	6.2	22.91	125	75	12.0	9.0	1.85	197.6	196.5	2.06	2.93	18.5	31.4
ALT 125×100-5.9	5.9	21.93	125	100	10.0	10.0	2.57	193.4	163.8	2.97	2.73	19.5	26.2
ALT 125×100-7.0	7.0	25.99	125	100	12.0	10.0	2.66	225.5	196.9	2.95	2.75	22.9	31.5
ALT 150×75-5.9	5.9	21.93	150	75	10.0	10.0	1.63	88.0	282.0	2.00	3.59	6.58	37.6
ALT 150×75-7.0	7.0	25.99	150	75	12.0	10.0	1.70	102.1	338.7	1.98	3.61	7.68	45.2
ALT 150×100-7.9	7.9	29.08	150	100	12.0	11.0	2.43	237.2	339.2	2.86	3.41	18.9	45.2
ALT 150×100-10.2	10.2	37.96	150	100	16.0	11.0	2.58	299.8	453.5	2.81	3.46	24.1	60.5
ALT 150×150-9.5	9.5	35.18	150	150	12.0	12.0	4.15	754.7	340.0	4.63	3.11	69.6	45.3
ALT 150×150-12.4	12.4	46.06	150	150	16.0	12.0	4.31	966.7	455.3	4.58	3.14	90.4	60.7
ALT 175×175-11.2	11.2	41.40	175	175	12.0	14.0	4.75	1 220.0	539.0	5.43	3.61	95.7	61.6
ALT 175×175-14.7	14.7	54.28	175	175	16.0	14.0	4.92	1 570.2	721.1	5.38	3.64	124.8	82.4
ALT 200×200-12.8	12.8	47.53	200	200	12.0	15.0	5.37	1 844.8	803.6	6.23	4.11	126.1	80.4
ALT 200×200-16.8	16.8	62.41	200	200	16.0	15.0	5.54	2 383.5	1 074.3	6.18	4.15	164.8	107.4

*Based on density of 2.7 g/cm³.

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5. MATERIAL

5.1 Aluminium sections covered in this standard shall be manufactured from the following alloys in appropriate temper:

19000, 24345, 24534, 52000, 53000, 54300, 63400, 64423, 64430, 65032 and 74530.

5.1.1 Aluminium alloys and temper selected shall conform to the provisions of IS : 733-1983*.

6. DIMENSIONS AND SECTIONAL PROPERTIES

6.1 Dimensions and mass of Indian Standard aluminium tee-section shall be as given in Table 1. For convenience of reference sectional properties are also given in Table 1.

6.1.1 Sections of dimensions other than those included in Table 1 may also be manufactured subject to the agreement between the purchaser and the manufacturer.

6.1.2 Sections without root radius (square fillet) may also be manufactured subject to the agreement between the purchaser and the manufacturer.

6.2 Dimensional tolerances for the sections shall be as specified in IS : 3965-1981†.

7. PACKING

7.1 Aluminium tee-sections shall be securely bundled and wrapped in bitumenized hessian cloth or in wooden boxes or as mutually agreed. Weight of each bundle may be as agreed to between the purchaser and the manufacturer.

8. MARKING

8.1 Aluminium tee-sections shall be clearly marked with designation, alloy and temper, manufacturer's name and lot number/year of manufacture.

8.2 Tee-sections may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

*Specification for wrought aluminium and aluminium alloy, bars, rods and sections (for general engineering purposes) (*third revision*).

†Dimensions for wrought aluminium and aluminium alloys, bar, rod, and section (*first revision*).

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