



**PLANT PURCHASING
SPECIFICATION
HYDERABAD**

HY 12390

REV. NO: 01

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99% ALLUMINIUM PLATES, SHEETS & STRIPS HALF HARD
(Gr. 19000 H2)

1.0 GENERAL:

This specification governs the requirements of half-hard aluminium plate, sheet & strip.

2.0 APPLICATION:

For general Engineering purpose.

3.0 CONDITION OF DELIVERY:

Half-hard to the specified properties.

4.0 COMPLIANCE WITH NATIONAL STANDARDS:

This specification in general complies with the following:

4.1 For Plates: IS: 736-1986 Gr.19000 H2

4.2 For sheets & strips: IS 737-1986 Gr.19000 H2

5.0 DIMENSIONS AND TOLERANCES

5.1 Sizes: The plates, sheets and strips shall be supplied to the dimensions specified in the order.

5.2 Tolerances: Tolerances shall be as per IS: 2677-1979 for plate and as per IS: 2676-1981 general grade, for sheets and strips.

6.0 FINISH:

The plates, sheets and strips shall be supplied flat with sheared, milled, sawn or slit edges.

7.0 FREEDOM FROM DEFECTS

The material shall be sound, flat, uniform in thickness and free from harmful defects.

8.0 CHEMICAL COMPOSITION:

The chemical composition of the material shall be as follows.

Revision: Brought in line with IS:736 and Is:737 of 1986.

Issued :
**STANDARDS ENGINEERING
DEPARTMENT**

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Element (%)	Al	Cu	Mg	Si	Fe	Mn	Zn
Min.	99.0	-	-	-	-	-	-
Max.	-	0.1	0.2	0.5	0.7	0.1	0.1

$$\text{Cu} + \text{Mg} + \text{Si} + \text{Fe} + \text{Mn} + \text{Zn} = 1.0\%$$

9.0 MECHANICAL PROPERTIES:

The test piece when tested in accordance with IS: 1816 (Method for tensile test for light metals and their alloys) shall have the following properties.

9.1 For Plates:

- Tensile strength 110 to 140 N/mm²
- Elongation on 50 mm guage length: 7%
Over 6.0 upto and including 12.5 thick

9.2 For Sheets & Strips:

- Tensile strength 105 to 140 N/mm²
- Elongation on 50mm guage length.
0.5 to 0.8 mm thick = 3% min.
Over 0.8 to 1.3 mm thick = 4% min.
Over 1.3 to 6.3 mm thick = 5% min.
- Bend Test:** Transverse. The test piece shall not crack when bent once through an angle of 180° around a former having a radius equal to half the thickness of material.

NOTE: For thickness 2.6mm and less, elongation values are for information only bend test is applicable

10.0 TEST SAMPLES:

Selection of test samples shall be as per relevant IS.

11.0 TEST CERTIFICATES:

Three copies of test certificate bearing the following information shall be supplied.

- BHEL Order No:
- BHEL Specification No. HY 12390 / Rev.01
- Supplier's Name & Identification No.
- Results of chemical analysis, mechanical and all other tests as called for in this specification / order.



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12.0 PACKING AND MARKING:

The material shall be suitably packed to prevent damage during transit. Each package shall be legibly marked with the following information.

HY 12390 : Al plate or Sheet or Strip. Half-hard

BHEL Order No.

Consignment or Identification No.

Supplier's Name.

13.0 REJECTION AND REPLACEMENT:

If the material do not comply with the requirements of this specification during receipt inspection at BHEL or if any defect is found during further processing of the pipes. BHEL reserves the right to reject the whole consignment and the supplier shall replace the material free of cost.



AMENDMENT-NOTIFICATION

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“IS 1816 (Method for tensile test for light metals and their alloys)’ shall be replaced by “IS 1608 (Mechanical testing of metals – Tensile testing)’.

REF: IS1816 is superseded by IS1608.	Amd.No.	APPROVED	ISSUED	DATE	CUM.Sr.No
	01	MANAGER, STD.ENGG.	STDS. ENGG	23.11.2001	A 0353