



PLANT PURCHASING SPECIFICATION
BHOPAL

BP 12391

Rev. No. 04

PAGE 1 OF 3

ALUMINIUM ALLOY RODS, BARS, AND PLATES
HEAT TREATED (Gr.24345 - WP)

SUPERSEDES
BP 12391 Rev.03

1. GENERAL :

This specification governs the quality of wrought aluminium alloy bars/ rods upto 150 mm size and plates over 6 mm & upto 25 mm thick.

2. APPLICATION :

For General engineering purposes.

3. CONDITION OF DELIVERY :

Fully heat treated (WP).

4. COMPLIANCE WITH NATIONAL STANDARDS :

i) For Bars and Rods :

IS: 733-1983
(Reaffirmed 2006)
Gr: 24345 Condition : WP

Specification for Wrought Aluminium & Aluminium Alloy Bars, Rods and Section for general Engineering Purposes

ii) For Plates

IS:736-1986
(Reaffirmed 2006)
Gr:24345 Condition : WP

Specification for Wrought Aluminium & Aluminium Alloy Plate For General Engineering Purposes.

5. DIMENSIONS AND TOLERANCES :

5.1 Sizes :

The material shall be supplied as per the dimensions specified in the order.

5.2 Tolerances :

5.2.1 For Bars & Rods :- The tolerance shall comply to IS: 3965.

5.2.2 For Plates :- The tolerance shall comply to IS: 2677

6. MANUFACTURE :

The method of manufacture of the material shall be at the discretion of the manufacturer.

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PLANT PURCHASING SPECIFICATION
BHOPAL

BP 12391

Rev. No. 04

Page 2 of 3

7. HEAT TREATMENT :

The material shall be fully heat treated i.e. solution treated and subsequently precipitation treated (W.P.)

8. FREEDOM FROM DEFECTS :

The material shall be clean, smooth and free from fins, spills, porosity, cracks, or other defects and shall be reasonably straight and free from twists.

9. CHEMICAL COMPOSITION :

The chemical composition of the material, when analysed in accordance with IS : 504 (Methods of chemical analysis of aluminium and its alloys) or any other suitable instrumental/chemical method shall be as follows :

Element	Percent	
	min.	max
Copper	3.8	5.0
Magnesium	0.2	0.8
Silicon	0.5	1.2
Manganese	0.3	1.2
Iron	-	0.7
*Zinc	-	0.2
Aluminium	Reminder	

Note :- Titanium and or other grain refining elements and/or chromium may be present upto 0.30 percent, max.

*This element need not be determined when the material supplied conforms with the mechanical properties specified in this specification. However, the supplier shall ensure that the composition of the material lies within the limits specified above.

10. TEST SAMPLES :

One test sample from each heat treatment batch per consignment shall be selected for test.

11. MECHANICAL PROPERTIES :

11.1 Tensile Test :

The material when tested in accordance with IS: 1608 (method for tensile test of light metals & their Alloys shall show the following tensile properties.

11.2 For Bars and Rods

Over	Size	0.2% proof stress N/mm ² min.	Tensile Strength N/mm ² min.	% Elongation on 50mm G.L min
	Upto & incldg. mm			
-	10	375	430	6
10	25	400	460	6
25	75	420	480	6
75	150	405	460	6



PLANT PURCHASING SPECIFICATION
BHOPAL

BP 12391

Rev No. 04

Page 3 of 3

11.3 For Plates : Over 6mm upto & including 25 mm thick:

0.2% Proof Stress N/mm ² Min.	Tensile Strength N/mm ² Min	Elongation on 50 mm G. L. % Min.	
		Over 6 mm Upto and including 12.5 mm thick	Over 12.5 mm Upto and including 25 mm thick
310	405	7	5

12. TEST CERTIFICATES :

Unless otherwise stated, three copies of certificates shall be supplied along with each consignment.

In addition, the supplier shall ensure to enclose one copy of test certificate along with their despatch documents to facilitate quick clearance of the material.

The test certificate shall bear the following information :-

BHEL Order No.
BP 12391 (Rev. 04) Aluminium Alloy Rod / Bars / Plates- Heat Treated
(Gr. 24345- WP)

Supplier's reference and Name.

Batch No.

Melt No

Size

Specification / Order

Drawing / Pattern No.

Consignment / Identification No.

Results of Test

Results of chemical analysis mechanical test dimensional tolerance and all other tests as called for in this specification / order.

13. PACKING AND MARKING :

The material shall be suitably packed to prevent corrosion & damage during transit.

Each package or crate shall be legibly marked with the following information.

BHEL Order No.

BP 12391: Aluminium Alloy Rod / Bars / Plates - Heat Treated (Gr. 24345- WP)

Batch No.

Identification Mark/No.

Weight.

Supplier's reference and name.