



CORPORATE PURCHASING SPECIFICATION

AA 123 30

Rev. No. 02

PAGE 1 OF 7

ALUMINIUM ALLOY RODS, BARS, SECTIONS AND PROFILES Gr. 64430 (WP)

1. GENERAL :

This specification governs the requirements of wrought aluminium alloy bars, rods, sections and profiles.

2. APPLICATION :

General engineering purposes.

3. CONDITION OF DELIVERY :

Fully heat treated.

4. COMPLIANCE WITH NATIONAL STANDARDS :

The material shall comply with the requirements of the following national standard and also meet the requirements of this specification.

IS: 733-1983
(Reaffirmed 1996)
Gr: 64430 (WP) } WROUGHT ALUMINIUM AND ALUMINIUM ALLOY BARS,
RODS AND SECTIONS FOR GENERAL ENGINEERING
PURPOSES

5. DIMENSIONS AND TOLERANCES :

5.1 Sizes:

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

5.1.1 Sizes for equal leg angles shall be as per IS: 3908 (Specification for Aluminium Equal Leg Angles)

5.1.2 Sizes for unequal leg angles shall be as per IS: 3909 (Specification for Aluminium Unequal Leg Angles)

5.1.3 Sizes for channels shall be as per IS:3921 (Specification for Aluminium Channels)

5.2 Tolerances:

5.2.1 Tolerances on diameters of rods.

Diameter (mm)		Tolerances \pm mm
Over	Upto & incld	
-	12	0.20
12	25	0.25
25	40	0.30
40	50	0.38
50	56	0.46
56	71	0.53
71	80	0.61
80	-	1% of diameter

Note: In case of diameters other than standard and not included in the above table, the tolerances applicable are those for the nearest smaller diameters shown in the table.

Revisions:

Refer Clause.No. 13.18 of MOM MRC(NFC&W),
Cl. 16.3.65 OF MOM OF MRC-NFCW+HE

APPROVED:

INTERPLANT MATERIAL
RATIONALISATION COMMITTEE-
MRC(NFCW+HE)

Rev. No. 02

Amd No.01

Reaffirmed

Prepared
HARDWARIssued
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5.2.2 Tolerances on widths across flats of hexagonal bars.

Width Across Flats, mm	Tolerance mm
3, 3.5, 4 & 4.5	- 0.10
5, 5.5, 6, 7, 8, 9, 10	- 0.13
11 & 12	- 0.18
14, 17, 19 & 22	- 0.20
24, 27 & 30	- 0.25
32, 36, 41	- 0.30
46 & 50	- 0.38
55 & 60	- 0.51

* Plus tolerance is 0.00 mm

5.2.3 Tolerances on overall widths and widths across flats and regular sections (other than those covered in clause 5.2.1. And 5.2.2)

Width & Width across flats mm	Tolerance, ± mm	Width & Width across flats mm	Tolerance + mm
6.4	0.20	80	0.69
10.0	0.23	100	0.75
12.0	0.25	120	0.85
16.0	0.28	160	1.02
25.0	0.30	200	1.14
32.0	0.38	250	1.40
50.0	0.46	300	1.65
60.0	0.53	320	1.70

For intermediate sizes, tolerances for next higher size shall be taken.



5.2.4 Tolerances on thickness regular sections and bars (other than those covered by clause 5.2.1 and 5.2.2)
(All dimensions in millimeters)

Thickness of section	Width of Section														
	12	16	20	25	32	40	50	63	80	100	125	160	200	250	320
1.2	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
1.6	0.18	0.20	0.20	0.20	0.20	0.20	*	*	*	*	*	*	*	*	*
2	0.18	0.20	0.20	0.20	0.20	0.20	0.23	0.25	0.28	0.30	0.33	0.36	0.38	0.41	0.46 *
2.5	0.18	0.20	0.20	0.20	0.20	0.20	0.23	0.25	0.28	0.30	0.33	0.36	0.38	0.41	0.46 *
3.2	0.18	0.20	0.20	0.20	0.20	0.23	0.25	0.28	0.30	0.33	0.36	0.38	0.41	0.43	0.48 *
4	0.20	0.23	0.23	0.23	0.23	0.25	0.28	0.30	0.33	0.36	0.38	0.41	0.43	0.46	0.51 *
5	0.20	0.23	0.23	0.23	0.23	0.25	0.28	0.30	0.33	0.36	0.38	0.41	0.43	0.46	0.51 *
6	0.20	0.23	0.23	0.23	0.23	0.25	0.28	0.30	0.33	0.36	0.41	0.46	0.51	0.56	0.66 *
8	0.23	0.25	0.25	0.25	0.25	0.28	0.30	0.33	0.36	0.38	0.43	0.48	0.53	0.58	0.71 *
10	0.23	0.25	0.25	0.25	0.25	0.28	0.30	0.33	0.36	0.38	0.43	0.48	0.53	0.58	0.71 *
12	0.25	0.28	0.28	0.28	0.28	0.30	0.33	0.36	0.38	0.41	0.46	0.48	0.53	0.58	0.74 0.97
16	0.28	0.30	0.30	0.30	0.30	0.33	0.36	0.38	0.41	0.43	0.48	0.51	0.56	0.61	0.76 1.02
20		0.30	0.30	0.30	0.30	0.36	0.38	0.41	0.43	0.46	0.51	0.53	0.61	0.69	0.79 1.03
25		0.30	0.30	0.30	0.30	0.36	0.38	0.41	0.43	0.46	0.51	0.53	0.61	0.69	0.79 1.04
32						0.38	0.41	0.43	0.46	0.48	0.53	0.56	0.66	0.74	
40							0.46	0.48	0.5V	0.53	0.56	0.61	0.71	0.79	
50								0.53	0.56	0.58	0.61	0.66	0.76	0.84	
63									0.61	0.64	0.66	0.71	0.81	0.89	
80										0.69	0.71	0.74	0.86	0.94	
100											0.76	0.79	0.91	0.99	
125												0.89	0.97	1.04	
160													1.02	1.09	
200														1.14	

* To be regarded as special sections.

Note: 1. For Intermediate sizes take tolerances for the next higher value.

2. All the tolerances are plus and minus tolerances.

5.2.5 Tolerances for bars and sections of dimensions larger than those covered above shall be subject to mutual agreement between supplier and the purchaser.

5.2.5.1 Sections not covered in clause 5.2.1 and 5.2.4 and where additional manufacturing operations are necessary, where specially close tolerances are required, such tolerances shall be agreed upon between the supplier and the purchaser.

5.3 Tolerances for concavity and convexity:

Width of section (mm)		Tolerances
Over	up to & includ.	+ mm
—	25	0.18
25	38	0.25
38	50	0.30
50	—	0.30 plus 0.13 for every 25mm of width

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5.4 Tolerances for straightness and twist:

All bars and sections shall be supplied in straightened condition and reasonably free from twist. The tolerances for straightness & twist shall be as follows:

Dia. of circumscribing circle, mm		Allowable deviation from straightness, (mm/in of length)
Upto & Includg.	25	2.1
Over	25	2.7

Note: I. Twist is normally measured by placing the extruded section on a flat surface and measuring the maximum distance at any point along its length between the bottom surface of the section and flat surface. From the measurement, the deviation from true straightness is subtracted. The remainder is twist.

5.5 The bars, profiles, rods etc., shall be cut at right angle to the longitudinal axis. The skewing of the cut relative to the axis shall not exceed 3°.

5.6 Angular Tolerance:

The tolerance on angles of regular sections measured at the extremities of the section shall be as follows:

Thickness of thinnest leg		Allowable Deviation from angle specified
Over mm	Upto & incld. mm	
-	5.0	±2°
5.0	19.0	± 1.5°
19.0	—	± 1°

5.6.1 Tolerance on angle of other sections shall be agreed to between the supplier and the purchaser.

6. MANUFACTURE:

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

7. HEAT TREATMENT:

The bars, rods, sections and profiles shall be fully heat treated i.e., solution treated and subsequently precipitation hardened.

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.



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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 conventional/instrumental methods shall be as follows:

Element	Percent	
	Min	Max
Magnesium	0.4	1.2
silicon	0.6	1.3
Manganese	0.4	1.0
*Copper	-	0.1
*Iron	-	0.6
*Zinc	-	0.1
*Titanium and /or other grain Refining elements		0.2
*Chromium	-	0.25
Aluminium	Remainder	

Note: These elements 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:

10.1 Bars, rods, sections and profiles of the same dimensions produced under similar conditions and of the same composition, shall be grouped into lots as follows:

Diameter or Equivalent Cross-section		Weight of each lot in kg.
Over mm	Upto & incldg. mm	
-	10	1000
10	50	2000

Note: In case a heat treatment batch is less than a lot size as defined above, it shall be considered as a lot by itself

10.2 One test sample shall be cut from a bar rod, section or profile selected from each lot.

10.2.1 The test samples, after heat treatment shall not be mechanically worked except for preparing the test piece before they are tested.

10.2.2 Before any test samples are cut off, they shall be marked to identify them with the lot or heat treatment batch they represent.

10.3 One sample form each heat shall be analysed for chemical composition.

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11. MECHANICAL PROPERTIES:**11.1 Tensile Test:**

The material when tested in accordance with IS: 1608 shall show the following tensile properties:

Size Diameter or Minor cross sectional dimension,		0.2% proof stress N/mm ²	Tensile Strength, N/ mm ²	Percentage Elongation on 50mm gauge length
Over mm	Upto & includg. mm			
—	5	Min. 255	Min. 295	Min. 7
5	75	270	310	7
75	150	270	295	7
150	200	240	280	6

12. RETESTS:

Should any of the test pieces first selected, fail to pass the prescribed tests mentioned under various clauses in this specification, two further samples from the same batch shall be selected for testing, one of which shall be from the same component from which the original test sample was taken, unless that component has been withdrawn by the supplier.

Should the test pieces from both these additional samples pass, the batch represented by the test sample shall be accepted. Should the test pieces from either of these additional samples fail, the batch represented by the test sample shall be rejected.

13. INSPECTION AT SUPPLIER'S WORKS:

Tests and inspection are to be conducted in the presence of the customer's representative. The representative shall have free access at all times while the work on the contract is being performed, to all parts of the manufacturer's works. The supplier shall offer the purchaser's representative all reasonable facilities, without charge, to satisfy the latter that the material is being furnished in accordance with this specification. The supplier shall prepare and provide necessary test specimens for testing to be carried out at his premises. If facilities are not available at his works, the supplier shall make necessary arrangement for carrying out the prescribed test elsewhere.

14. TEST CERTIFICATES:

The supplier shall submit 5 copies of test certificates giving the following information:

BHEL Order No.

AA 12330 (Rev No xx) - Aluminium Alloy rods, bars, section and profiles Gr. 64430(WP)

Supplier's reference and Name

Batch No.

Results of chemical analysis, mechanical and all other tests as called for in this

Specification/order

Heat treatment details

Drawing/Pattern No.

Consignment/Identification No.



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15. PACKING AND MARKING :

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

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

BHEL Order No. No. AA 12330

Batch No.

Identification Mark/No

Weight

Supplier's reference and Name

16. REJECTION AND REPLACEMENT:

In the event of the material proving defective in the course of manufacture, such material shall be rejected notwithstanding any previous certification of satisfactory testing and/or inspection.

The supplier shall undertake to replace the material free of charge without delay and arrange to take back the rejected material at his own cost.



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AA 123 12

Rev. No. 03

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ALUMINIUM ALLOY SHEETS, Gr: 31000 H2

1.0 GENERAL:

This specification governs the quality requirements of strain hardened and partially annealed Aluminium Alloy Sheets over 0.15 mm thick but less than 6 mm. .

2.0 APPLICATION:

For general engineering purposes.

3.0 CONDITION OF DELIVERY:

Strain hardened and partially annealed.

4.0 COMPLIANCE WITH NATIONAL STANDARDS:

The material shall comply with the requirements of the following national standard and also meet the requirements of this specification.

IS:737- 2008	Aluminium Alloy Sheet And Strip For General
Gr: 31000, Condition: H2	Engineering Purposes.

5.0 DIMENSIONS AND TOLERANCES:

5.1 Sizes:

The material shall be supplied to the dimensions specified in BHEL order.

5.2 Tolerances:

The tolerance on thickness, width and length shall comply with IS:2676.

Revisions :

Cl. 24.1 of MOM of MRC-NFCW+HE

APPROVED :

INTERPLANT MATERIAL RATIONALISATION
COMMITTEE-MRC (NFCW+HE)

Rev. No. 03

Amd.No.

Reaffirmed

Prepared

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Dt :07.06.2012

Dt:

Year :

BHOPAL

Corp. R&D

Dec., 1977

AA 123 12	CORPORATE PURCHASING SPECIFICATION	
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6.0 FREEDOM FROM DEFECTS

The material shall be sound and free from harmful defects, such as scratches, cracks, laminations and other injurious imperfections.

7.0 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 conventional/instrumental methods shall be as specified below:


Element	Percent, min	Percent, max.
*Copper	-	0.1
*Magnesium	-	0.1
*Silicon	-	0.6
*Iron	-	0.7
*Manganese	0.8	1.5
*Zinc	-	0.2
*Chromium	-	0.2
*Titanium and/or other grain refining elements:	-	0.2
Aluminium	Remainder	

- * These elements 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 materials within the limits specified above.

8.0 TEST SAMPLES:

One sample per heat shall be taken for chemical analysis.

One sample per size per consignment per heat treatment batch shall be selected for mechanical tests.

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9.0 MECHANICAL PROPERTIES:

9.1 Tensile:

The material, when tested in accordance with IS:1608 shall show the following properties:

Tensile strength : 130 - 180 N/mm²

Elongation on 50mm gauge length : 5%, min.
(For sizes >2.6mm but <6mm thick.)

9.2 Bend Test (For sizes 2.6mm and thinner):


The bend test piece shall be not less than 15mm wide of convenient length and cut with its larger axis transverse to the direction of rolling. The test piece shall not crack nor show any visible crack on the outer surface when bent through angle of 180⁰ around a former having a radius equal to the thickness of the test piece.

10.0 INSPECTION AT SUPPLIER'S WORKS:

Whenever specified, tests and inspection are to be conducted in the presence of BHEL's representative.

BHEL's representative shall have free access at all the times while the work on the contract is being performed to all the parts of the manufacturer's works. The manufacturer shall offer BHEL's representative all reasonable facilities without charge to satisfy the latter that the material is being furnished in accordance with this specification. The manufacturer shall prepare and provide necessary test specimens for testing to be carried out at his premises. If facilities do not exist at his works, the manufacturer shall make necessary arrangements for carrying out the prescribed tests elsewhere. The manufacturer shall notify BHEL's representative in advance about the readiness of the material for inspection and testing.

BHEL reserves the right to test the material at BHEL's works and the final acceptance of the material shall be based on these test results.

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11.0 TEST CERTIFICATES:

Three copies of test certificates shall be supplied unless otherwise stated on BHEL order.

In addition, the supplier shall ensure to enclose one copy of the 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
AA 123 12 (Rev.No. 03)- Aluminium Alloy Sheets, Gr: 31000 H2

Supplier's reference and name:

Batch No.:

Consignment/Identification No.:

Dimensional inspection.

Size and Weight

Results of Chemical and Mechanical tests as called for in this specification.

12.0 PACKING AND MARKING

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

AA 123 12 :

BHEL Order No.

Consignment/Identification No.

Size and Weight

Supplier's Name and reference.

13.0 REFERRED STANDARDS (Latest Publications Including Amendments):

1. IS: 504 2. IS: 737 3. IS: 1608 4. IS : 2676



CORPORATE PURCHASING SPECIFICATION

AA 123 14

Rev. No. 02

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ALUMINIUM ALLOY SHEETS, Gr: 52000 H2**1.0 GENERAL:**

This specification governs the quality requirements of strain hardened and partially annealed Aluminium Alloy Sheets over 0.15 mm thick but less than 6 mm. .

2.0 APPLICATION:

For general engineering purposes.

3.0 CONDITION OF DELIVERY:

Strain hardened and partially annealed.

4.0 COMPLIANCE WITH NATIONAL STANDARDS:

The material shall comply with the requirements of the following national standard and also meet the requirements of this specification.

IS:737-1986 (Reaffirmed 1996) | Aluminium Alloy Sheet And Strip For General
Gr: 52000, Condition: H2 | Engineering Purposes.

5.0 DIMENSIONS AND TOLERANCES:**5.1 Sizes:**

The material shall be supplied to the dimensions specified in BHEL order.

5.2 Tolerances:

The tolerance on thickness, width and length shall comply with IS:2676.

Revisions : Cl. 16.3.60 of MOM of MRC-
NFCW+HE, Email:dtd.09.02.02 from TSD, Bhopal

APPROVED :
INTERPLANT MATERIAL RATIONALISATION
COMMITTEE-MRC (NFCW+HE)

Rev. No. 02

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Corp. R&D

01-03-78

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6.0 FREEDOM FROM DEFECTS

The material shall be sound and free from harmful defects, such as scratches, cracks, laminations and other injurious imperfections.

7.0 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 conventional/instrumental methods shall be as specified below:


Element	Percent, min	Percent, max.
*Copper	-	0.1
Magnesium	1.7	2.6
*Silicon	-	0.6
*Iron	-	0.7
*Manganese	-	0.5
*Zinc	-	0.2
*Chromium	-	0.25
*Titanium and/or other grain refining elements:	-	0.2
*Cr + Mn	-	0.5
Aluminium	Remainder	

* These elements 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 materials lies within the limits specified above.

8.0 TEST SAMPLES:

One sample per heat shall be taken for chemical analysis.

One sample per size per consignment per heat treatment batch shall be selected for mechanical tests.

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9.0 MECHANICAL PROPERTIES:

9.1 Tensile:

The material, when tested in accordance with IS:1608 shall show the following properties:

Tensile strength : 230 - 275 N/mm²

0.2% proof stress : 175 N/mm², min.

Elongation on 50mm gauge length : 4%, min.
(For sizes >2.6mm but <6mm thick.)

9.2 Bend Test (For sizes 2.6mm and thinner):

The bend test piece shall be not less than 15mm wide of convenient length and cut with its larger axis transverse to the direction of rolling. The test piece shall not crack nor show any visible crack on the outer surface when bent through angle of 180⁰ around a former having a radius equal to the thickness of the piece.

10.0 INSPECTION AT SUPPLIER'S WORKS:

Whenever specified, tests and inspection are to be conducted in the presence of BHEL's representative.

BHEL's representative shall have free access at all the times while the work on the contract is being performed to all the parts of the manufacturer's works. The manufacturer shall offer BHEL's representative all reasonable facilities without charge to satisfy the latter that the material is being furnished in accordance with this specification. The manufacturer shall prepare and provide necessary test specimens for testing to be carried out at his premises. If facilities do not exist at his works, the manufacturer shall make necessary arrangements for carrying out the prescribed tests elsewhere. The manufacturer shall notify BHEL's representative in advance about the readiness of the material for inspection and testing.

BHEL reserves the right to test the material at BHEL's works and the final acceptance of the material shall be based on these test results.

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11.0 TEST CERTIFICATES:

Three copies of test certificates shall be supplied unless otherwise stated on BHEL order.

In addition, the supplier shall ensure to enclose one copy of the 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

AA 123 14 (Rev.No. 02)- Aluminium Alloy Sheets, Gr: 52000 H2

Supplier's reference and name:

Batch No.:

Consignment/Identification No.:

Dimensional inspection.

Size and Weight

Results of Chemical and Mechanical tests as called for in this specification.

12.0 PACKING AND MARKING

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

AA 123 14:

BHEL Order No.

Consignment/Identification No.

Size and Weight

Supplier's Name and reference.

13.0 REFERRED STANDARDS (Latest Publications Including Amendments):

1. IS: 504

2. IS: 737

3. IS: 1608

4. IS : 2676



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BP 12391

REV NO. 05

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 SUPERSEDES
BP 12391 Rev 04

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

1. GENERAL :

This specification governs the quality of wrought aluminium alloy bars/ rods upto 150mm 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 2017)

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 2017)

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.

Revision :

Reaffirmed of IS added in cl 4 & Updated.

 Issued by : 

STANDARDS AND MATERIALS GROUP
TECHNICAL SERVICES DEPTMENT

Rev. 05

Date : 25.09.2021

Date of first Issue: Feb 1970



PLANT PURCHASING SPECIFICATION BHOPAL

BP 12391

REV NO. 05

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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 confirms 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 :

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



TSD 6207A

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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 alongwith each consignment.

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

The test certificate shall bear the following information :-

BHEL Order No.

BP12391 (Rev. 05) 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.