



# ALUMINIUM MAGNESIUM ALLOY SHEET & STRIP

SPEC. No. B 2947 A & B  
ISSUE No. 4  
20 FEB 1997

STANDARD

## 1 SCOPE

This specification covers the requirements of Aluminium Magnesium Alloy Sheet and Strip in *two different tempers*. It is suitable for moderate degree of forming and pressing.

## 2 REFERENCES

- i. IS 737-1986 Specification for wrought aluminium and aluminium alloy sheet and strip for general engineering purposes. Method for bend test.
- ii. IS 1599-1985 Method for tensile test for light metals and their alloys.
- iii. IS 1816-1979 Dimension for wrought aluminium and aluminium alloys sheet and strip.
- iv. IS 2676-1981

## 2.1 Equivalents

This specification is in line with IS designation 52000,111/H2 condition of IS 737-1986.

## 3 GENERAL CHARACTERISTICS

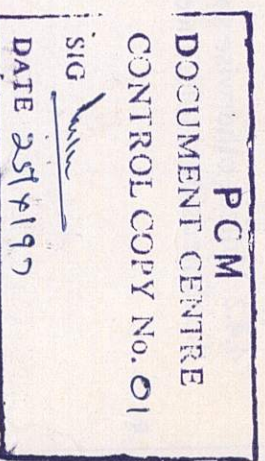
The material shall be bright, uniform in composition and temper. It shall be free from laminations, seams, blisters, pittings, undue waviness, twist, bow, buckle, deep scratches, rolling marks, inclusions and other internal and external defects which may impair strength and corrosion resistance of the material. The edges shall be straight and square and the material shall be uniform in thickness.

## 4 REQUIREMENTS

### 4.1 Chemical Composition (IS 737-1986 Designation 52000)

Element	Percent	
	Min.,	Max.,
Copper	-	0.1
Magnesium	1.7	2.6
Silicon	-	0.6
Iron	-	0.7
Manganese	-	0.5
Zinc	-	0.2
Titanium	-	0.2
Chromium	-	0.25
Aluminium	Remainder	

Note: Chromium + manganese shall not exceed 0.5 percent.





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## 4.2 Physical Condition

The material shall be supplied in either of the two conditions as given below:

Condition A: Strain hardened - H1 condition.

Condition B: Strain hardened and partially annealed - H2 condition.

## 4.3 Mechanical Properties

Property	Requirement	Test Method
Tensile Strength	Condition A      20 - 24 kg/mm <sup>2</sup> Condition B      23 - 27 kg/mm <sup>2</sup>	IS 1816-1979
Elongation % Min, on GL 50 mm thickness > 0.5 - ≤ 0.8	3	IS 1816-1979
thickness > 0.8 - ≤ 1.3	4	
thickness > 1.3 - ≤ 2.6	5	
thickness > 2.6 - ≤ 6.3	6	

Bend Test: shall withstand 180°  
bend with 1/2 t radius

shall withstand 180° IS 1 599-1985  
bend with 1t radius

Note: 1. For thickness 2.6 mm and less, elongation values are for guidance only.  
2. Bend Test is not applicable for thickness above 2.6 mm.

## 4.4 Dimensions and Dimensional Tolerances

4.4.1 The dimensions of the material shall be as specified in the Purchase Order.

4.4.2 Unless otherwise specified in the purchase order, the sheets and strips shall meet the dimensional tolerances as given in Table 1, 2, 3 and 4.



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Table 1 Tolerances on thickness of sheet and strip

Thickness (mm)	≤ 1000		For width (mm)	
	Plus	Minus	> 1000 Plus	≤ 1200 Minus
0.15	0.03	0.03	-	-
0.19	0.03	0.03	-	-
0.23	0.03	0.05	-	-
0.28	0.05	0.05	-	-
0.32	0.05	0.05	-	-
0.36	0.05	0.05	-	-
0.40	0.05	0.05	-	-
0.45	0.05	0.05	0.06	0.06
0.50	0.05	0.05	0.08	0.08
0.56	0.05	0.08	0.08	0.08
0.63	0.05	0.08	0.08	0.08
0.71	0.08	0.08	0.08	0.10
0.80	0.08	0.08	0.08	0.10
0.90	0.08	0.08	0.10	0.10
1.00	0.08	0.08	0.10	0.10
1.12	0.08	0.10	0.10	0.13
1.25	0.08	0.10	0.10	0.13
1.40	0.10	0.13	0.10	0.13
1.60	0.10	0.13	0.13	0.13
1.80	0.10	0.13	0.13	0.13
2.00	0.10	0.13	0.13	0.15
2.24	0.10	0.13	0.15	0.15
2.50	0.13	0.13	0.15	0.15
2.80	0.13	0.13	0.15	0.15
3.15	0.13	0.13	0.15	0.15
3.55	0.13	0.13	0.15	0.18
4.00	0.13	0.15	0.18	0.18
4.50	0.15	0.15	0.18	0.18
5.00	0.15	0.15	0.18	0.18
6.00	0.18	0.18	0.20	0.20

Note: 1. Thickness shall be measured not less than 15 mm from the edge of the sheet and strip.

2. The tolerances for intermediate sizes shall be taken as for the next higher size in the table.

C O R P O R A T E S T A N D A R D D E P T I T I L T D O P Y R I G H T R E S E R V E D

**Table 2 Tolerances on width of strip**

Thickness (mm) Above	upto	Tolerance on width (mm) > 6 ≤ 100	Tolerance on width (mm) > 100 ≤ 600
-	1.12	+/- 0.40	+/- 1.0
1.12	2.80	+/- 0.80	+/- 1.0
2.80	4.50	+/- 1.2	+/- 2.0
4.50	6.00	+/- 1.60	+/- 2.0

**Table 3 Tolerances on width of sheet**

Thickness (mm)	Length ≤ 1000	Length > 1000 ≤ 2000	Length > 2000 ≤ 3000	Length > 3000
For all thicknesses of sheet upto 6	+/- 3	+/- 4	+/- 5	+/- 5

**Table 4 Tolerance on Length of Strip and Sheet**

Length (mm) Above	Upto	Tolerance (mm) +/-
-	1000	3
1000	2000	4
2000	3000	5

**4.4.3 Squareness Tolerance for Sheets**

The difference of the two diagonal distances between opposite corners of any sheet shall not exceed the total tolerance on the length of the sheet, i.e. sum of positive and negative tolerance.

**4.4.4 Edgewise Bow for Strips**

Any edgewise deviation from a straight line shall be in smooth arc and shall not exceed 13 mm in 3000 mm.



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4.4.5 Interim Protection

If any internal protection between the sheet / strip is required and the same shall be clearly specified in the purchase order, in such case the material shall be covered with suitable interleaving material.

5. PACKING AND MARKING

5.1 Packing

The material to be supplied shall be suitably packed so as to protect from any damage during transit, handling and storage and also to avoid ingress of moisture.

5.2 Marking

Each bundle / case containing the material shall be marked with the following details.

- a) Purchase order No.
- b) Specification No.
- c) Nett and gross weight.
- d) Size of the material.
- e) Supplier's name or Trade mark and any other relevant details.

6 ORDERING

While ordering, the following codes as indicated against each type shall be quoted in the purchase order in addition to the specification No. and the same codification shall be maintained for stocking / issuing the material:

For type of material and condition	Code
IS 737-1986 Designation 52000 Condition H1	B2947-A
IS 737-1986 Designation 52000 Condition H2	B2947-B

7 TEST CERTIFICATE

The supplier shall send a test certificate along with each consignment indicating the test results obtained on testing as per this specification.

C O R P O R A T E  
S T A N D A R D  
D E P T  
I T I  
L T D  
C O P Y R I G H T  
R E S E R V E D



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## 8 TYPE APPROVAL TESTS

The supplier shall submit free samples for type approval purpose. The size and quantity of samples shall be as per ITI specification D3800. The requirements as called for in clause 3 to 4.4 and 7 shall be checked for type approval purpose.

## 9 BATCH ACCEPTANCE TESTS

The sample size and quantity of the material shall be as per ITI specification D3801. The requirements as called for in clause 3 to 5 and 7 shall be checked for batch acceptance.

## 10 REJECTION OF SUPPLIES

ITI LIMITED has the right to reject any material which does not conform to this specification and to return any material which subsequently proves faulty in manufacture.

## 11 DEPARTURE FROM SPECIFICATION

Any departure from this specification must be agreed to in writing by the company before placement of the order.

## 12 ACCEPTANCE

The acceptance of this specification without any comment shall be taken to indicate that the supplier agrees to comply with the conditions herein contained.

PREPARED

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Ref: B 2947 Issue No. 3 &  
TC-04 10th. Meeting Minutes  
dated: 8.10.96.

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