



# PRODUCT STANDARD

## GAS INSULATED SWITCHGEAR

SG 10403 Rev.: 01

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### SPECIFICATION OF ELECTRICAL GRADE ALUMINIUM ALLOY (HE30)

**1. General:**

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

**2. Application:**

This material is used in switchgear and tap changer application.

**3. Compliance with National/International standards :**

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

A. INDIAN : IS : 733 : Alloy 64430 (WP), [HE 30 (WP)]

**4. Dimensions and Tolerances:**

As per drawings/Purchase order

**5. Finish:**

- Surface finish of the components shall be at least Ra 0.8.
- The component shall be free from dirt, grease and loose particles.
- Drawn profiles, to size, only shall be used for direct welding. No smithy is allowed for formation/ matching of profiles in view of defect inception.
- Weld splatter, if any, shall be removed by chipping or grinding on completion of the weld(if allowed in drawing).
- Any sharp corners shall be removed as per the drawing. Wherever not specified in the drawing, a radius of R1 shall be provided at the sharp corners and edges.
- Parallelism of the tube must be maintained within 0.1 degree and any deviation shall be subjected to rejection in supply.

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### 6. Properties :

Sl. No	Parameter	Test method	Unit	Value (Minimum)
1.	Chemical a) Aluminium b) Copper c) Magnesium d) Silicon e) Iron f) Manganese g) Zinc h) Titanium and/or other grain refining elements i) Chromium	IS 504	%	Remainder 0.1 max 0.4-1.2 0.6-1.3 0.6 max 0.4-1.0 0.1 max 0.2 max  0.25 max
2.	Density, minimum	IS 5802	g/cm <sup>3</sup>	2.7
3.	Tensile strength, Minimum	IS 1816	MPa	275-300
4.	Brinell Hardness	IS 1500	HB	84-91
5.	Elongation	IS 1608	%	6-9
6.	0.2 percent Proof-Stress	IS 1816	N/mm <sup>2</sup>	240-255
7.	Electrical Conductivity at 20°C (Minimum)	IS 5802	% IACS	45

### 7. Test Methods

Unless otherwise specified, the tests shall be conducted in accordance with relevant methods as mentioned against clause 7.

### 8. Sample for Tests

The set of test specimens prepared from same batch and in same manner as consignments shall be supplied for testing and approval. The test sample size should be as per requirement specified in relevant test method of clause 7.

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### 9. Test Certificate

The supplier shall submit a copy of test certificate for tests specified in clause 7 giving the following information:

- a. Results of chemical analysis, mechanical and all other tests as called for in this specification/order

### 10. Packing

The components shall be packed in high density cardboard boxes, with a primary wrapped in polyethylene and packed individually in dust free boxes after degreasing. The components shall be guaranteed against all manufacturing defects.

### 11. Acceptance criteria:

- a. Dimensional Report as per drawing.
- b. Finish as per clause 5.
- c. Silver Plating as per clause 6
- d. Test samples as per clause 9.
- e. Test certificate as per clause 10.
- f. Packing and Marking as per clause 11.

### 12. 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. Repairing of material is not acceptable.

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