



TSD 6208A

**PLANT STANDARD
BHOPAL**

BP 085 14 95

REV NO. 02

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**SUPERSEDES
BP 085 14 95 (Rev. 01)****GENERAL REQUIREMENT FOR ALUMINIUM NAME PLATES /
RATING PLATES AND DIALS
(ANODISED AND DYED/PAINTED)****1.0 GENERAL:**

This standard covers general **requirement** for Aluminium Name Plates, Rating Plates and Dials **finished** by anodizing and Dyeing / Painting.

2.0 APPLICATION:

Name Plates, Rating Plates and Dials used for displaying the BHEL logo on various equipments / products manufactured by **BHEL**.

3.0 CONDITION OF DELIVERY:

The Name Plates, Rating **Plates** & Dials shall be **manufactured** From Aluminium sheet & **shall be** anodized & dyed or painted as specified on the drawing.

4.0 COMPLIANCE WITH STANDARDS:

There is no Indian Standard covering anodized and dyed / painted Name Plates and Dials.

5.0 DIMENSIONS & TOLERANCES:

Shall comply to the drawing enclosed with our order.

6.0 MATERIAL:

The Name Plate shall be made from Aluminium Sheet, Half / Quarter Hard Grade to IS:737 - 1986, **Gr.19500 Reaff.2001**.

7.0 FREEDOM FROM DEFECTS:

The material shall be flat and free from burrs, sharp edges and scratches etc.

Revision : **Cl.9.1.6 Deleted**
(IS : 1868 withdrawn)

ISSUED by :

**STANDARDS AND MATERIALS GROUP
TECHNICAL SERVICES DEPARTMENT**

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8.0 FINISH:

8.1 The surface of the plate/dials shall be anodized overall.

8.2 Black paint of **stoving** type/Black dye shall be used on etched plates or as specified on the drawing.

8.3 Type of letters in general confirms to Gillson (**Medium**) 262 Series.

9.0 TEST ON **ANODISED** PLATES

9.1 Dyed Plates

9.1.1 Visual Appearance

The finish of the plates shall **be** natural and uniform in Colour And Texture. The **undyed** / unpainted areas shall be clear anodized and dyed/painted areas shall be **black**. The coating shall be **smooth**, continuous & free from defects such as **stains, blisters, cracks**, etc.

9.1.2 Tests for Anodic Films

Current should not flow through the anodized parts, When an electrical connection from the positive bus bar & another from the negative is connected with a small lamp bulb in circuit through the anodized article. Any failure of the anodic film, will at once, be apparent by illumination of the bulb.

9.1.3 Thickness of Anodic Coating

The thickness of anodic coating shall be within $\pm 10 X$ of the required thickness of 10 microns or as specified in the drawing. The thickness shall be tested in accordance with **IS:5523 - 1983 reaff.1999**. "Method of Testing Anodic Coatings on **Aluminium**"

9.1.4 Test for Sealing

The anodized parts shall pass the test for sealing when tested in accordance with **IS:5523-1983 reaff. 1999**.



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9.1.5 Resistance to Corrosion

The **Anodized** parts shall pass the 5 hours salt spray test, when tested in accordance with **IS:9844-1981 reaff.'2006**

9.1.6 Resistance to Tropical Cycle

The anodized plates, shall not be affected by five tropical test cycles. One cycle being defined as follows:
The plates shall be placed In **humidity** chamber at $27 \pm 5^{\circ}\text{C}$. The temperature shall then be Increased to $45 \pm 2^{\circ}\text{C}$, the relative humidity being kept in between 90 % to 100 %. These conditions shall be maintained for 12 **hours**. The chamber shall then be allowed to cool to $27 \pm 5^{\circ}\text{C}$ and saturation shall be allowed to occur. The lower temperature shall be maintained for the remainder of the 24 hour cycle and this time shall be not less than 5 **hours**.

9.2 Painted **Plates**:

9.2.1 Humidity Test:

When tested in accordance with relevant part of **IS-101-1982 reaff.'2001** by suspending the aluminium plate in a corrosion cabinet maintained at 90 to 100 X relative humidity and a temperature cycle of 42 to 48°C for 5 days there shall be no signs of blistering and flaking of paint film.

9.2.2 Resistance to Salt Spray;

Aluminium plate shall show no sign of blistering and flaking of paint film after continuous exposure for 4 days in salt spray cabinet when tested in accordance with **IS-2074-1922 reaff.'2002**.

9.2.2 Accelerated Weathering Test: (Type Test)

The paint should not show any sign of deterioration when subjected to accelerated weathering test of 21 days in accordance With **IS:2932-2003**.

9-2.4 Adhesion by Tape Test

The aluminium plate shall show no peeling/removal of paint when subjected to cross cut tape test. This test shall be carried out by applying and removing pressure sensitive adhesive tape over the cuts made in paint film to ensure that adhesion of paint film to metallic substrate is **adequate**.



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9-2.4 (Contd.)

The test shall be carried out generally in line with **ASTM-D 3359** except that Transparent Pressure Sensitive Adhesive Tape of 25 mm width, should bear **ISI** mark.

Method B of ASTM D 3359 shall be followed for thickness of paint film in between 50 to 125 microns and acceptance criterion shall be "**4B**", viz small flakes of the coating are detached at inter - sections, less than 5 X of the area is affected.

10.0 SEALING

The anodized and dyed plates shall be sealed so that no dye is removed by contact with water. The un dyed portions shall be discoloured and the anodized film shall be left in a condition so that clearly defined markings by Indian ink may readily made there on by means of a pen.

11.0 TEST SAMPLES:

11.1 Samples shall be selected at random from supplies from approved sources, once in any six consignments or once in a year, whichever is earlier. The number of samples to be sent to TSD are as follows.

Name Plate/Rating Plate / Dials - below 100 x 150 mm = 3 Nos
above 100 x 150 mm = 1 NO.

12.0 MARKING AND PARKING:

12.1 Each Plates shall be marked with the following Information , on the reverse side of the plate.

Order No.

Supplier's Name :

Drg.No.

12.2 The material shall be suitably packed to prevent damage during **transit.**