

Technical Specification
for

MAGNETIC LEVEL SWITCH ASSEMBLY

1.0 DESCRIPTION

Magnetic Level Switch Assembly with Float, Chamber & Micro-switches generally in line with our drawing No. **2-17505-40356** Rev.01.

2.0 Salient Technical Requirements

2.1 Level switch assembly shall be suitable for use in dusty, humid & tropical climate conditions of a thermal power plant.

2.2 Level switch assembly shall be suitable for the Design Pressure & Temperature conditions specified in the drawing. Level switch assemblies shall also be suitable for the full vacuum conditions.

2.3 **Differential between make & break** of a switch shall be **12 ± 2** mm (Fixed).

2.4 **Type of contacts:**

Micro-Switch type contacts.

Two (2) Nos. S.P.D.T. (2 NO + 2 NC)

2.5 **Specific Gravity** of condensate at operating conditions shall be considered as **0.80**. Float to be designed accordingly.

Actual Net Weight of each float, in grams & liquid volume displaced by float, in cubic centimeters, shall be indicated in the level switch drawing & shall also be marked on each float body.

2.6 Float shall be checked against buoyancy requirements.

2.7 Construction of level switch assembly shall be generally inline with the drawing furnished. However vendor to furnish drawing of the level switch assembly offer ensuring compliance to the specification requirements.

3.0 Tests to be performed at vendor's work

3.1 Butt weld seam in stainless steel float should be checked by full radiography examination as per UW-51 of ASME Sec.VIII Divn.1; 2010.

3.2 All other weld joints to be checked by Dye Penetration examination as per appendix-8 of ASME Sec.VIII Divn.1; 2010.

3.3 **High Voltage Test:** Each electronic micro-switches shall be subjected to high voltage insulation test at 2 KV for one minute.

3.4 Hydrostatic Test

Each Level switch chamber along with its piping in finished stage shall be subjected to hydrostatic test at the pressure indicated on the drawing.

3.5 Vacuum Test

Each Level switch chamber along with its piping in finished stage shall be subjected to vacuum test at **0.05** kg/sq.cm.abs.

4.0 Inspection

Each level switch shall be inspected & certified by Inspecting authority as per IBR in addition to the inspection & certification by BHEL(CQS) as per approved Q.A. Plan.

5.0 Test Certificates

Six (6) copies of Test Certificates covering the following duly endorsed by Inspection Agency/Authority are required.

- a. Material Test Certificates.
- b. High Voltage test of micro-switches- Certificate
- c. Radiography examination records for weld seams in float.
- d. Hydrostatic test Certificate.
- e. Dimension Measurement Report.
- f. Functional Test Report including verification of make & break limits.
- g. Guarantee Certificates.
- h. BHEL-Approved Level switch drawing.
- i. IBR approved manufacturing drawing.

6.0 Quality Assurance

Quality plan incorporating stages of Inspection to be furnished for approval after the placement of order.

7.0 Drawings

- a. Three (3) copies of drawings indicating gauge arrangement, overall & major dimensions, material of construction of each part with Specification reference weight etc. to be furnished along with offer.
- b. Six (6) copies of above drawings along with QA Plan are required for review & approval after placement of order.

9.0 Operating Manual

Six (6) copies of installation & maintenance instruction required alongwith final documents.

10.0 Packing

Level Switch should be suitably packed to avoid damage during transportation and handling.

11.0 Identification

Each level switch shall be identified with unique identification number & shall have a identification plate fitted on it with following markings.

“ Level Switch for HP Heaters : 50 kscg”

12.0 Protection, Packing & Despatch

- a. Each switch assembly shall be protected by applying Heat Resistant Air Drying aluminium paint on outside surface after ensuring surface cleanliness.
- b. Inside surface shall be cleaned by acid picking (only carbon steel parts i.e. chamber & its legs), passivated & dried out. Then the open ends shall be capped to prevent entry of foreign particles.
- c. Level switch assembly shall be packed properly so as to prevent any kind of damage during handling, transit & storage.

13.0 Guarantee

Each level switch assembly shall be guaranteed for the satisfactory performance of each part for a period of ***24 months from the date of supply & 18 months from the date of commissioning whichever is later.***