

TITLE : TECHNICAL SPECIFICATION FOR BOUGHT OUT ITEM FOR ESP
ITEM : DISCONNECTING SWITCH
CUSTOMER : BHEL STANDARD

	NAME	DESIGNATION	SIGNATURE	DATE
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ISSUED BY

EDC / ECI

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Clause 5.5.0 revised.Clause 5.12.0 of Rev01 deleted.

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1.0.0 SCOPE OF SUPPLY:

The scope of supply of DISCONNECTING SWITCH includes the manufacture, Inspection, testing, packing and delivery.

2.0.0 APPLICATION:

2.1.0 The DISCONNECTING SWITCH is used in ELECTROSTATIC PRECIPITATOR to disconnect the field from high voltage in OFF condition and to earth the field. The high voltage encountered in the system is of the order of 70 KV /80 KV/95KV, DC (peak) unfiltered voltage.

3.0.0 APPLICABLE STANDARDS:

3.1.0 The DISCONNECTING SWITCH shall be manufactured as per the following standards.

3.1.1 IS 13947 - Low voltage Switch gear and Control gear:
(IP-55) switches, disconnectors, switch disconnectors and fuse combination units.

3.1.2 IS 2071 - Method of High voltage testing.

3.1.3 IS 2544 - Specification for porcelain post insulators.

3.1.4 IS 5350 - Dimensions of indoor & outdoor porcelain post insulators & post insulator units for systems with Nominal voltages greater than 1000V.

3.1.5 IS 6005 - Code of practice for Phosphate coatings of Iron and Steel.

4.0.0 SITE CONDITIONS:

4.1.0 The DISCONNECTING SWITCH shall be manufactured considering the following site conditions.

4.1.1 Ambient temperature : 5 Deg.C to 50 Deg.C

4.1.2 Design ambient temperature : 50 Deg.C

4.1.3 Relative humidity : 100%

4.1.4 Environment condition : Highly polluted, abrasive & dusty atmosphere

4.1.5 Location : Outdoor

5.0.0 **GENERAL REQUIREMENTS:**

- 5.1.0 The DISCONNECTING SWITCH (DC Switch) shall be of welded construction. The surfaces and edges shall be smooth. Burr if any shall be removed.
- 5.2.0 All parts of DC SWITCH shall be of corrosive resistance.
- 5.3.0 The DC Switch shall be fabricated as per BHEL specification and BHEL approved vendor drawing.
- 5.4.0 All the current carrying parts shall be made of Tinned copper & connecting ends shall be made of Nickel Chromium plated brass fittings.
- 5.5.0 The enclosure shall be suitable for IP 55-Category 1 Degree of protection.
- 5.6.0 The DC SWITCH shall be capable of withstanding 170 KV (peak) (negative), 1.2/50 microsecond impulse voltage.
- 5.7.0 The DC SWITCH shall be capable of withstanding power frequency dry withstand voltage of 75 KV (rms) for 1 minute.
- 5.8.0 The design of knife contact shall be such that after repeated ON/ OFF operations for 500 times, the knife contact gap shall not show an increased gap of more than 0.4 mm.
- 5.9.0 The insulator shall be any one of the following makes. BHEL/JAYSHREE/
W.S.INDUSTRIES/UCE.
- 5.10.0 The bonding of metal parts, shall withstand a torsion load of atleast 15 Kg-m.
- 5.11.0 The bonding of metal parts, shall withstand a tensile load of 4500 N (459 Kg).
- 5.12.0 Painting shall be done,after pre-treatment as per IS 6005.The metal surface shall be subject to degreasing,acid cleaning,alkali neutralising followed by primary coat of zinc chromate.Two final coats of epoxy based paint shall be applied.Phosphating shall be done as per IS 6005 Class B (min).The thickness of paint shall not be less than 50 microns.Painting colour shall be 631 of IS 5.
- 5.13.0 The manufacturer shall fix a name plate on the DC Switch enclosure.The name plate shall be made of non corrosive material indicating manufacturer's name,Serial Number,type (variant number) etc.
- 5.14.0 Two (2) Numbers distinct earthing shall be seperatly brought out by the vendor for connection to external main earthgrid of size 50 x 6 GI Flat (BHEL Scope).Suitable Bolt,Nut and washer shall also be provided by the vendor to connect to this earthgrid.Earth symbol shall be provided just above the earth terminal.Earth Symbol shall be black in lines on yellow background.

5.15.0 In the case of New Vendor / First time supply, before taking up bulk manufacturing, the approved prototype should have been passed successfully, the type tests indicated under Clause number 5.5 to 5.8 of this specification. The tests should be conducted at CPRI Bangalore in the presence of BHEL representative. Test indicated under 5.8.0 can be conducted in house, if facility is available in house.

6.0.0 INSPECTION AND TESTING:

6.1.0 The DC SWITCH shall be inspected and tested as per the following documents.

1. BHEL Purchase order.
2. BHEL approved vendor drawings.
3. BHEL Technical specification (TEP).
4. Inspection checklist referred in the Enquiry/Purchase Order.

7.0.0 PACKING:

Packing shall be as per BHEL Drg no. 3-00-114-39672

Note: Suitable labelling for belt lifting shall be provided on packing.

8.0.0 DOCUMENTATION :

The supplier shall submit six sets of all detailed drawings & in soft copy prepared in Autocad for approval within 15 days from the date of purchase order. After final approval the supplier shall also submit the approved drawings in CD apart from 6 hard copies.
