



PRODUCT STANDARD

SWITCHGEAR ENGINEERING DIVISION

SG 12980 REV.00

PAGE 1 OF 3

CAPACITIVE VOLTAGE DETECTING EPOXY INSULATORS AND VOLTAGE DETECTING UNIT

A.1 APPLICATION:

Capacitive voltage detecting insulators are generally used in medium voltage switchgears. Capacitive voltage detecting insulators are used as high voltage side for voltage detecting systems between medium voltage & Voltage indicating systems. Capacitive voltage detecting insulators works on the principle of capacitive voltage divider.

All items shall be procured from single source on package wise L-1 basis.

A.2 MECHANICAL AND ELECTRICAL PROPERTIES:

TABLE : A

Item	H.S.V	R.P.F withstand voltage	Lightning impulse withstand voltage	Strength	BHEL sketch with dia. size(enclosed)
001	3.6kV	10KV	40KVP	300KG	130 mm (item-001)
002	7.2KV	20KV	60KVP	300KG	130 mm (item-001)
003	12kV	28KV	75KVP	300KG	130 mm (item-001)
004	36KV	70KV	170 KVP	300KG	300 mm (item-002)

Notes:

- 1 All inserts shall be of steel with zinc plated and passivated and threads of metric coarse pitch. Alternatively, brass with threads of metric coarse pitch may be used.
1. Manufacturer's name, style no and date of manufacturer shall be embossed/engraved on each insulator at flange.
2. All test must be in accordance with IS:9431.
3. The material shall be homogeneous and the complete insulator shall have a smooth shining/ glazed surface finish with no surface blemishes. In case machining/ grinding is done surface shall be applied with anti-tracking epoxy varnish.

A. VOLTAGE DETECTING UNITS (VDU) - ITEM-005

B.1 APPLICATION:

The integrated voltage detecting system is used for voltage detection according to IEC-61243-5 at medium voltage switchgears for indoor use in standard environment, for intermediate panels of rated voltage from 3.6 kV up to 36 kV / 50Hz.

B.2 PRINCIPLE OF OPERATION:

Voltage indicating units are used for LED indication of R,Y,B phase of HV side in MV Swgrs. Voltage Indicating control Unit get 3-phase A.C input signal through capacitive voltage detecting insulator (Item 01, 02 , 03 & 04). For ease of the available phase HT supply, A LED will glow on the indicating unit.

NOTE: - Cable distance between upto 12KV insulator & VDU shall be approx. 7 mtrs, whereas for 33KV insulator & VDU it shall be 12 mtrs. Accordingly, compatibility of insulator & VDU shall be ensured.

REV.		PRINTS TO:-		APPROVED – MHN		
ALTD.				PREPARED	ISSUED	DATE
APPD.				NM	NM	19.02.2020
DATE.						

COPYRIGHT AND CONFIDENTIAL

The information on this document is the property of Bharat Heavy Electricals Limited
It must not be used directly or indirectly in any way detrimental to interest of Co.



PRODUCT STANDARD

SWITCHGEAR ENGINEERING DIVISION

SG 12980 REV.00

PAGE 2 OF 3

COPYRIGHT AND CONFIDENTIAL

The information on this document is the property of Bharat Heavy Electricals Limited
It must not be used directly or indirectly in any way detrimental to interest of Co.

B.3 SPECIFICATION :

TABLE:B

PARAMETER	REQUIREMENT	VENDOR COMPLIANCE
Dimension	Vendor standards	Vendor to furnish
Cutout Size	Vendor standards	Vendor to furnish
Mounting	Flush Panel Mounting.	
Indicator	RED Neon/LED Indication for R, Y and B Phase.	
Power Supply	Shall be informed at PO Stage	Vendor to inform
Range of voltage to be indicated	3.6 KV for Item 001, 7.2KV for item-002 12 KV for Item 003, 36 KV for item-004	
Earthing	Vendor standards	
Protection	Built-in protection by means of a surge arrester	
Type of connecting cable		Vendor to inform type of cable

B. CONNECTING CABLE FOR INSULATOR AND VOLTAGE DETECTING UNIT - ITEM- 005

- Suitable cable for connecting insulator and voltage detecting unit. Standard 100mtrs Roll/Drum.
- Necessary special hardware/ connector required for connecting cable to insulator and VDU shall be provided free of cost.

C. Documents required along with offer

1. 2 sets of Type test reports as per standard for insulator and VDU.
2. Insulator drawing for review and approval.

D. Acceptance criteria for insulator

1. Sample lot shall be taken as per appendix-B of IS:9431
2. Dimensional checks as per approved drawing
3. Mechanical strength inline with Table-A
4. Routine Test certificate of Power frequency test
5. Visual examination as per clause 9.14 of IS:9431

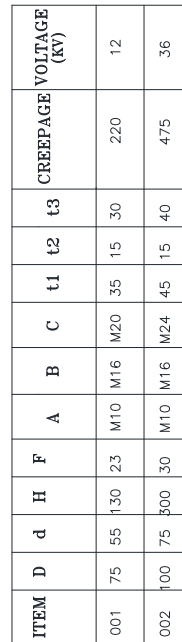
F. Acceptance criteria for Voltage detecting Unit

1. Availability of routine test certificate as per IEC-61243
2. Terminal marking as per clause 4.5 of IEC-61243-1
3. Visual examination as per clause 5.6.1 of IEC-61243.

G. Acceptance criteria for cable

1. Marking of Material code & quantity as per specification on Drum/Roll of cable.

Note: On account of Technical compatibility, all items to be procured from single source based on package wise L1 vendor.



THE INSULATOR SHALL COMPLY WITH THE FOLLOWING TECHNICAL PARTICULARS.

1. EPOXY USED SHALL COMPLY WITH B.S. 3816 AND IS 9431.
2. THE MATERIAL SHALL BE HOMOGENEOUS AND THE COMPLETED INSULATOR SHALL HAVE A SMOOTH SHINING/GLAZED SURFACE FINISH WITH NO SURFACE BLEMISHES IN CASE MACHINING/GRINDING IS DONE SURFACE SHALL BE APPLIED WITH ANTI-TRACKING EPOXY VARNISH.
3. SURFACES XX AND YY SHOULD BE PARALLEL WITHIN 0.2mm.
4. COLOUR OF THE INSULATOR SHALL BE RED.
5. SUPPLIER NAME, LOGO, PO. NO., SERIAL NO., SUPPLY DATE & BATCH NO. IS TO BE EMBOSSED/LASER PRINT AT LOCATION MARKED ## ON EACH PIECES (STICKER NOT ACCEPTABLE). BATCH NO. SHALL BE S/YY/XXXX WHERE YY IS THE YEAR OF MANUFACTURING AND XXXX IS 4 DIGIT RUNNING SERIAL NUMBER.
6. ALL INSERTS SHALL BE OF BRASS FOR ITEM 001 & 002.
AND THREADS OF METRIC COARSE PITCH WITH THREADS OF METRIC COARSE PITCH MAY BE USED.