

2. **Primary Bushing - High Current**

Medium Voltage Bushing used as Primary Bushing For Generator Transformer 145 MVA, 138/13.8/4.4 kV -

In any Brand

Rated voltage 36 kV

Line-Earth Voltage 19 kV

Type of insulation Condenser OIP

B.I.L. 170 kVp

Current 10000 Amp

AC 1 min. Test voltage 70 kV

Total length 920 mm

Air-end length 505 mm

Oil-end length 415 mm

Total creepage length 760 mm

Oil-end diameter 260 mm

Porcelain OD 380 mm

Flange OD 400 mm

Mounting PCD 350 mm

Note that the existing primary bushing is of Xian brand.

3. **Tertiary Bushing - High Current**

3.) Tertiary Bushing - High Current

Medium Voltage Bushing used as Tertiary Bushing For Generator Transformer 145 MVA,
138/13.8/4.4 kV - In any Brand

Rated Voltage : 24 kV
Rated Current : 3000 A
Power Frequency Withstand Voltage : 50 kV
Impulse Withstand Voltage : 125 kV
Min Creepage Distance 550 mm.

4.) Labor for the Installation of Tertiary Bushing Hi Current

A: Scope of Works are as follows:

- 1.1 Supply of labor, materials, tools, required equipment and technical supervision to undertake the scope of work:
- 1.2 Prepare Oil storage tank for the insulating oil depleted from the Power Transformer.
- 1.3 Drain transformer oil below Tertiary bushing.
- 1.4 Replace suitable bushing gaskets and Bushing as being required.
- 1.5 Refilling of transformer oil after completing the assessment of the required secondary bushing leakage repair.
- 1.6 Purification process should be attained in four cycle as the DBV of insulating oil will pass on STEAG mandated standard.

B: Electrical Test before & after bushing leakage repair:

- Transformer Turns ratio
- Polarization Index Test
- Winding resistance test
- Transformer oil dielectric strength test.
- Insulation resistance test
- Excitation Current Test
- Bushing Power Factor Test.
- Hot Hollar Test
- Three Phase Short Circuit Impedance Test.
- Excitation Current test
- Simulation of mechanical protective devices.
- Dissolved Gas Analysis

Oil Treatment Plant::

Conditioning Process

Purification plant is suitable for conditioning and inhibiting transformer Oil and drying transformer insulation or oil. / paper insulation in general combined with fullers earth equipment, this type of plant can be used to generate both oil and insulation, thus adding years to the operating life of the transformer.

Remove dirt and sludge#s in the insulating oil.

Remove gasses in the insulating oil by the process of degasification and vacuuming.

Smallest particles retained on the fine and coarse filter element.

Degasification/Purification Plant Requirements:

Conditioning Flow = 6,000 liters / hour

Transformer Heating and Flushing Flow = 6,000 liters / hour

Three Stage Heating Element

Two Vacuum Pumps