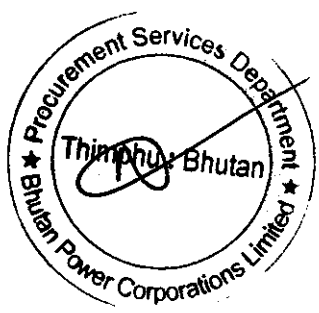
## Specifications of Potential Transformer

The Voltage Transformer for an auxiliary supply shall be designed and manufactured by IEC 61869-3 standards suitable for an altitude of 3000 meters above sea level. The following table indicates the particulars.

| Sl.No. | Description | Parameter | |
|---|---|---|---|
| 1. | Nominal System Voltage | 11 kV | 33kV |
| 2. | Corresponding Highest System Voltage | 12 kV | 36kV |
| 3. | System Frequency | 50 Hz | |
| 4. | Maximum Altitude | 3000 m above sea level | |
| 5. | Minimum Ambient Temperature | -10 Degree Celsius | |
| 6. | Maximum Ambient Temperature | 50 Degree Celsius | |
| 7. | Type of Voltage Transformer | Cycloaliphatic Epoxy Resin Cast Outdoor type single-phase – double bushing | |
| 8. | PT Ratio | 11kV/√3/110v/√3 | 33kV/√3/110v/√3 |
| 9. | Burden- Minimum | 300VA | |
| 10. | Class of Accuracy | 0.5, 5P10 | |
| 11. | Minimum Creepage Distance* | 25mm/kV | |
| 12. | Rated Primary Voltage | 11000/√3 | 33000/√3 |
| 13. | Rated Secondary Voltage | 230V | |
| 14. | Lightning Impulse voltage* | 75 | 170 |
| 15. | One Minute power frequency withstand voltage*(Primary voltage) | 28 | 70 |
| 16. | One Minute power frequency withstand voltage(Secondary voltage) | $3kV_{rms}$ | |
| 17. | Class of insulation | E | |
| 18. | Rated Voltage Factor | 1.2 Continuous & 1.5 for 30 Sec. | |
| 19. | Method of earthing the system | Solidly earthed | |

*The BIL shall be altitude corrected at the above-mentioned altitude



The voltage transformer shall be oil immersed, sealed type and self-cooled and the core shall be of high grade, non-ageing. Electrical silicon laminated steel of low hysteresis loss and high permeability to ensure high accuracy at both normal and over-voltages.

**Porcelain Housing**

The details of location and type joint, if provided on the porcelain shall be furnished by the Supplier along with the offer. The housing shall be made of homogeneous vitreous porcelain of high mechanical and dielectric strength. Glazing of porcelain shall be of uniform brown or dark brown colour with a smooth surface arranged to shed away rainwater particles (fog).

**Oil Leakages**

The Supplier shall ensure that the sealing of the instrument transformer is properly achieved. The metal tanks shall have a bare minimum number of welded joints so as to minimize possible locations of oil leakage. The metal tanks shall be made out of mild steel / stainless steel /aluminium alloy, depending on the requirement. Welding in a horizontal plane is to be avoided as welding at this location may give way due to vibrations during transport resulting in oil leakage.

**Surface Finish**

The ferrous parts exposed to the atmosphere shall be hot dip galvanized or coated with at least two coats of zinc-rich epoxy painting. All nuts, bolts and washers shall be made out of stainless steel.

**Lifting Arrangement**

The instrument transformer shall be provided with a suitable lifting arrangement to lift the entire unit. The lifting arrangement shall be clearly shown in the general arrangement drawings. The lifting arrangement (Lifting eye) shall be positioned in such a way so as to avoid any damage to the porcelain housing or the tanks during lifting for installation transport.

All acceptance and routine tests as stipulated in the relevant standards shall be carried out by the Supplier.