Transformer Bushing

'MEMF' Polymeric Transformer Bushing

A transformer bushing is an insulating structure that facilitates the passage of an energized, current-carrying conductor through the grounded tank of the transformer. The bushings used for the low voltage winding(s) of a transformer are often solid types with a porcelain or epoxy insulator. Their purpose is to control the voltage field around the center conductor so that the voltage distributes more uniformly across the surrounding insulation system in the bushing.

The MEMF Txf. Bushing has an epoxy base resin core that is a light in weight, ensure excellent mechanical performance and better insulation level with direct molded on the HTV silicone rubber. The HTV Silicone rubber is chemically bonded to the epoxy core providing impenetrable interface sealing mechanism and provide excellent resistance to degradation performance caused by atmospheric agents (sandstorms, UV radiations, Industrial pollutions etc.).

The complete molded components shall be equiped with an aluminum flange for fixing transformer tank.

The electric field inside the epoxy base resin core is controlled by ' Faraday cage' i.e. metal shiled . and this shiled shall be connected to earth in such a way to prevent internal and external shock hazards.

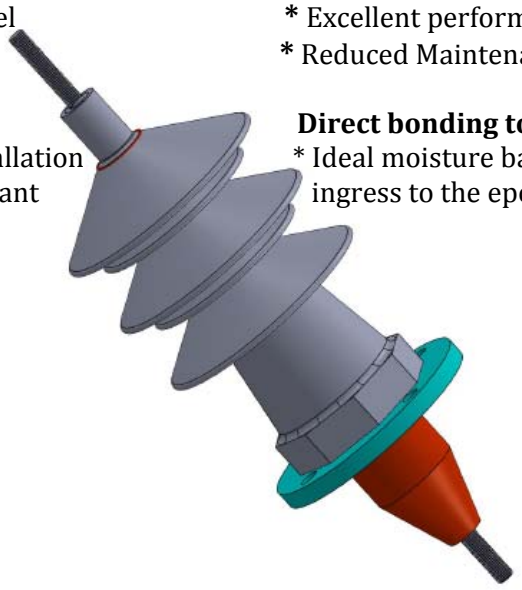
Features

Epoxy base resin technology
* Maximum mechanical strength with Excellent insulation level

Silicone Housing
* High tracking and erosion resistance
* Excellent performance under polluted
* Reduced Maintenance costs.

Composite design
* Lightweight – easy installation
* Vandal and break resistant
* Impact resistant

Direct bonding to epoxy base resin core
* Ideal moisture barrier, avoids moisture ingress to the epoxy core.



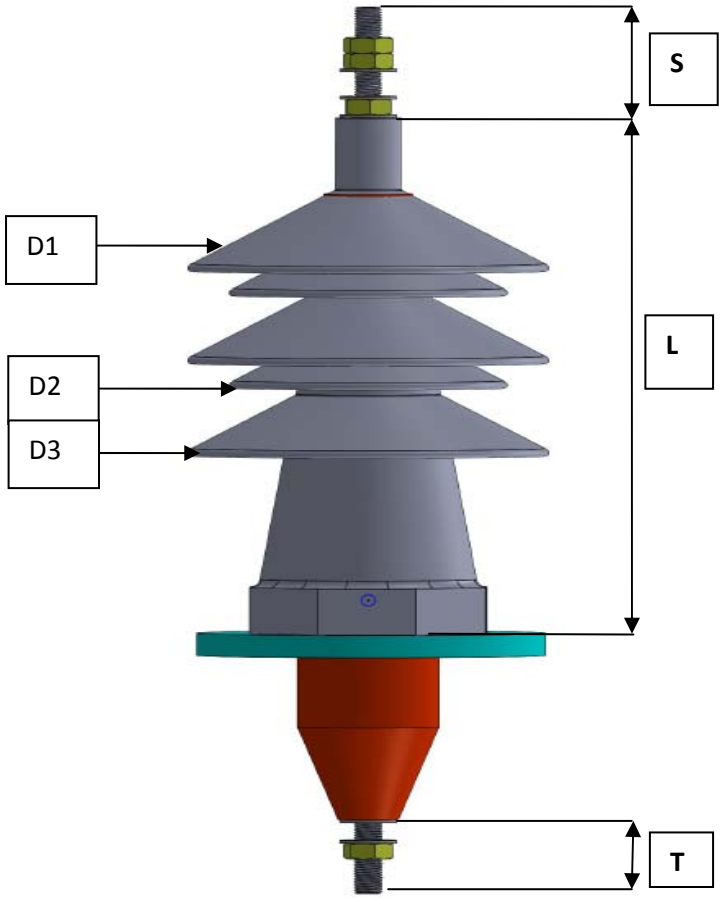
Reference Standards:-

- IEC 60815
- IEC 60137

Transformer Bushing

'MEMF' Transformer Bushing

Product Series	TXF-POLYBUSH-24-480	TXF-POLYBUSH-33-696
Model	KPBUSH-24-250/400/630-480	KPBUSH-33-250/400/630-696
Rated Voltage	24kV	33kV
Rated current	250A/400A/630A	250A/400A/630A
Length L (mm)	280±10	497±10
Standard stud length S (mm)	60±5	60±5
Standard stud length T (mm)	40±5	40±5
Diameter of Big Shed D1 (mm)	ϕ140±2	ϕ162±2
Diameter of Small Shed D2 (mm)	ϕ110±2	ϕ130±2
Creepage Distance (mm)	>600	>1320
Dry arc distance (mm)	>245	>440
Number of sheds (D3)	5	9
Electrical parameters		
Impulse Withstand (kV)	>125	>200
Wet power frequency withstand (kV)	>55	>95
Measurement of partial discharge	<10pC	<10pC
Temperature rise	<60K	<60K
Mechanical parameters		
Cantilever Load withstand	1000N*1 min.	1000N*1 min.



<u>Note:</u> Bushing shall be supplied with:

- ✓ **Brass made ,Nickel plated Nuts & washers**
- ✓ **Cork Rubber sealing provision**
- ✓ **Screen grounding provision**
- ✓ **HDG Nuts and washers for fixing to the transformer tanks.**

Transformer Bushing

Key Features of Trasnformer bushing with polymer housing

Factors	Polymer housing bushing	Ceramic bushing
Resistance to flashovers in Polluted atmosphere	High	Low
Resistance to puncture	Not puncturable	Puncturable
Anti-Tracking and erosion resistance	Excellent	Poor
Dielectric Strength	Excellent	Lower then Polymeric
Resistance to Cracking and Erosion in polluted atmosphere	High	Low
Contamination & Pollution	Performance not affected and has a longer life	Highly affected
Hydrophobicity	The hydrophobicity properties of silicone rubber provide excellent insulating behavior and resists wetting by forming beads water without the needs of washing and greasing even in humid or polluted climates. Hence low failure rate combined with low overall operating and maintenance cost.	Non hydrophobic, porcelain surface forms water films on the surface making easy path leading to more flashovers.
Self Cleaning property	Due to hydrophobicity recovery characteristic	Due to Glaze and inclination of sheds
Maintenance	No Maintenance is required	Needs maintenance like cleaning, washing, greasing
Safety	Polymeric housing provides very high level of safety, superior flexibility and strength. Not susceptible to explosion.	Porcelain housing is susceptible to explosion and breakages, due to high fragile properties.
Weight	Light (60-70% less than Ceramic Insulator)	More
Resistance to breakage and Vandalism	Unbreakable	Breakable in Vandalism prone areas
Oil in the bushing body	Free from oil to reduced possibility of losses and consequent fire	Oil must be require