PSGSG105	SPECIFICATIONS FOR INSULATING TUBE ASSY.	Drg.No.	RD DG 4 35 0619 6110
		Date	01.02.16
		Product	GSM-420

1.0 APPLICATION:

Tubular insulator with metal flanges is a part of a high voltage, heavy duty switchgear. The component is intended for a 420 kV AC, 50 Hz System.

2.0 SPECIFICATION:

2.1 <u>TUBE MATERIAL</u>

2.1.1 The POLYESTER lining used for tube shall have following properties:

#	**Property**	**Unit**	**Value**
1	Density	g/ccm	~1.3
2	Tensile strength	MPa	>100
3	Impulse dielectric Strength	kV/mm	≥ 16
4	Relative permittivity	-	~3.4
5	Dielectric loss factor	%	~0.4
6	SHRINKAGE	%	< 0.5
7	Water Absorption	%	< 0.5
8	Water Absorption @ 100^0C	%	< 0.5

2.1.2 **Type of Fiber:** Aramid / Kevlar or a combination of these fibers. The material shall be resistant against arced SF6.

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	2.1.3	**Manufacturing process:** The fibers shall be wound and impregnated with hot curing epoxy resin in vacuum/ pressure. The casting shall be void free and shall achieve required electrical and mechanical properties. The epoxy used shall be compatible to arced SF6 gas.
	2.1.4	The processed material shall have good Chemical resistance against organic and inorganic acids.
	2.1.5	The shape of the tube shall be in accordance to the approved drawing.
2.2		**METAL INSERTS**
	2.2.1	Profiled metal inserts as per approved drawing shall be machined using NC machining from aluminium alloy with good electrical conductivity and mechanical properties as per (DIN/BIS/IS standards).
	2.2.2	The aluminium flanges shall be glued to the epoxy tube using a hot curing adhesive (compatible to arced SF6 gas) and joined as per the practices of the supplier.
	2.2.3	The bonding between insulator and metal flanges shall be done without roll pins /threaded bolts/ cross bolts. The bonding shall withstand specified mechanical forces.
	2.2.4	Helical grooves are only optional, made on the flanges for better bonding between aluminium flanges and insulating tube.
3.0		**FACTORY TEST**
	3.1	Dimensional report.
	3.2	Mechanical load bearing capability (Tensile, 30 kN+ 10%).

4.0 **QUALIFYING REQUIREMENTS**

The supplier shall be of national / International repute with proven record and should have supplied insulating tubes for high voltage gas insulation applications at least for last three years. The supplier must submit along with the quotation a few references to whom the supplier has supplied a similar material.

5.0 **GENERAL**

5.1 Metal Flanges shall be free from sharp corners. Wherever not specified in the drawing, a radius of R 0.5mm^{o} shall be provided at unspecified corner/Edge.

5.2 The components shall be packed individually in appropriate packing so as to prevent transit damages.

5.3 The components shall be guaranteed against all manufacturing defects.