PSGSG106	SPECIFICATIONS FOR **Arcing Insulators**	Drg.No.	RD DG 4 35 0617 0250
		Date	29.12.14
		Product	GSM-400

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	N/cm	~1000
3	Impulse dielectric Strength	kV/mm	≥ 16
4	Relative permittivity	-	~3.4
5	Dielectric loss factor	%	~0.4
6	SHRINKAGE15 HR160 ^{o}C	%	≤ 2
7	SHRINKAGE	%	< 0.5
8	Water Absorption	%	< 0.5
9	Water Absorption @ 100^{0}C	%	< 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 inside diameter of the tube shall be lined with (0.4-0.6mm) arc resistance material (compatible to arced SF6) to minimize the filament erosion by arced SF6.
	2.1.5	The processed material shall have good Chemical resistance against organic and inorganic acids.
	2.1.6	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 mechanical grade aluminum alloy as per (DIN/BIS/IS standards).
	2.2.2	The aluminum 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 not only withstand specified mechanical forces but also offer leak tightness for use in differential pressure application.
3.0		**FACTORY TEST**
	3.1	Dimensional report
	3.2	Mechanical load bearing capability (Tensile, 100 kN+ 10%). Necessary test shall be conducted. Breaking load shall be minimum of 200kN.

4.0 **GENERAL**

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

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

4.3 The components shall be guaranteed against all manufacturing defects.

4.4 In case of doubts in specifications, the supplier shall contact BHEL for clarifications.