BBIT - BUSBAR INSULATION TUBING
VOLTAGE CLASS 36 KV, APPLICATION Ø 11-125 MM

WILDLIFE AND ASSET PROTECTION PRODUCTS

a RAYCHEM product

KEY FEATURES

• Exceptional insulation and long term reliability even at high continuous operating temperatures

• Extremely durable, resists damage from solvents, ultraviolet light, weathering, mechanical impact

• Flame retardant and non-halogen based material reduces flammability and the toxic and corrosive effects in fire situations

• Good thermal emissivity and contact with busbars means no derating is required

Raychem thick wall, heat-shrinkable BBIT tubing provides insulation enhancement and protection against flashover and accidentally induced discharge. Particularly useful in confined spaces, Raychem BBIT tubing can be used on both circular and rectangular copper or aluminium busbars.

On application of heat the tubing shrinks snugly over the busbar profile ensuring that the required minimum wall thickness is obtained. Raychem BBIT tubing can be installed easily during large scale production using an oven or in the field using a gas torch or hot air. Raychem BBIT tubing is manufactured from a non-halogen based polymer which has excellent performance in high voltage environments and reduces the noxious and corrosive effects in fire situations.

The use of Raychem BBIT tubing allows equipment designers the freedom to reduce air spacing between busbars, such as in the manufacture of switchgear cabinets where space is at a premium. Raychem BBIT tubing provides flashover protection up to 36 kV.

Customers can count on consistent, high quality products, driven by TE's proven innovation and backed by our extraordinary customer support.

TE connectivity

TE's wildlife and asset protection products and systems of tubes, tapes, sheets, pre-formed covers and barriers provide a proven, cost-effective and easy-to-install solution to bird, animal and weather related outages.

Round busbars			
Rated voltage (kV)	Phase–phase (mm)	Phase–ground (mm)	IEC 71-2 air clearance (mm)
12	30	40	120
17.5	45	60	160
24	60	90	220
36	100	160	320

Rectangular busbars			
Rated voltage (kV)	Phase–phase (mm)	Phase–ground (mm)	IEC 71-2 air clearance (mm)
12	35	45	120
17.5	55	65	160
24	70	100	220
36	140	190	320

CLEARANCE REDUCTION

The tables indicate the clearance reductions which are possible using Raychem BBIT tubing. These are derived from BIL, AC withstand, DC withstand and discharge extinction tests. These clearances should not be adopted without testing by the user. Sharp electrodes and unusual geometries may require wider clearances.

Key product specifications	Test method	Requirement
Thermal endurance	IEC 216	105°C min.
Accelerated ageing - Tensile strength - Ultimate elongation	ISO 188, ASTM D2671	168 hrs @ 120°C 10 MPa min. 300% min.
Comparative tracking index	IEC 112, VDE 0303/1	KA 3c
Dielectric strength	ASTM D149, IEC 243	180 kV/cm min. @ 2 mm 150 kV/cm min. @ 2.5 mm 120 kV/cm min. @ 3 mm
Low temperature flexibility	ASTM D2671 Procedure C	No cracking after 4 hrs @ -40°C
Smoke index	NES 711	Less than 120
Acid gas generation	Raychem PPS 3010 4.23	Less than 1% by weight
Low temperature flexibility	ASTM D2671 Procedure C	No cracking after 4 hrs @ -40 °C
Flammability	ANSI C37.20/IEEE-27	No flame conveyance, 60 sec. max.
Tracking and Erosion Resistance	ASTM D2303	No tracking, erosion to top surface or flame failure after 1 hr. at 2.5 kV, after 1 hr. at 2.75 kV, 1% max.

Note: For further product specification information see Raychem PPS 3010/04.

Ordering description	Product selection				Ordering information				
	Rectangular bars L + T (mm)		Round bars D (mm)		Inside diameter (mm)		Wall thickness (mm)		UOM: roll of length (m)
	min.	max.	min.	max.	H min.	h max.	W min.	w max.	
BBIT-25/10-A/U-4	17	28	11	20	25	10	1.6	3.6	25
BBIT-40/16-A/U-4	28	45	18	32	40	16	1.6	3.6	20
BBIT-65/25-A/U-4	44	69	28	47	65	25	1.6	3.6	15
BBIT-100/40-A/U-4	69	102	44	72	100	40	1.6	3.6	15
BBIT-150/60-A/U-4	102	148	65	105	150	60	1.6	3.6	15
BBIT-175/80-A/U-4	133	196	85	125	175	80	1.6	3.6	10

Note: W, H = as supplied w, h = after free recovery.
Maximum longitudinal change after free recovery: 35%. Maximum eccentricity: 35% (as supplied), 15% (after free recovery). Fit the larger size of BBIT if two sizes fit the required application.
Installation instructions EPP 0618 6/08 and Material Safety
Data Sheet available on request.

TECHNICAL REPORT

EDR-5533 BBIT Tubing Qualification Report
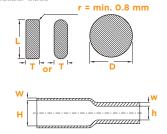
UVR 8003 – Supplementary qualification of BBIT

UVR 8130 – Resistance of BBIT, MWTM and RNF 100 to 10% HF solution, surface resistance and other tests

UVR 8091 – Production-scale installation of BBIT/ BPTM

UVR 8194 – Long term weathering and thermal ageing of BBIT and BPTM tubing

PRODUCT SELECTION

BBIT should normally be used on the following busbar sizes

r = min. 0.8 mm

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TE connectivity