RAYCHEM HIGH VOLTAGE THICK WALLED BUSBAR INSULATION TUBES HTIT

WILDLIFE AND ASSET PROTECTION PRODUCTS

FLASHOVER PROTECTION UP TO 72 kV THANKS TO THE THICK WALLED HEAT SHRINK TUBES

APPLICATIONS

- Round and Rectangular Busbar
- Switchgear
- Substations

RELEVANT STANDARDS AND TESTING

- Busbar Spacing - IEC 60071
- Thermal Endurance - IEC 60216
- Dielectric Strength - ASTM D149
- UV Resistance - ASTM G154

KEY FEATURES

- Exceptional insulation and long term reliability even at high continuous operating temperatures
- Suitable for indoor and outdoor use
- Good anti-tracking properties and thermal emissivity
- Flame retardant and halogen-free
- REACH and RoHS compliant

TE Connectivity's (TE) Raychem HTIT high voltage thick-wall, heat shrink busbar insulating offer improved insulation and protection against accidental induced discharge and flashover. These tubes are useful in confined spaces on circular and rectangular copper or aluminum busbars. They are applicable to both outdoor and indoor environments.

Our HTIT tubes feature an extra-thick wall of 5.1-5.2 mm, optimizing phase-to-phase and phase-to-ground clearance for highly compact equipment according to IEC 60071 for any applications where busbar insulation is up to 72 kV, such as in the manufacture of switchgear cabinets where space is at a premium. When heated, the tube shrinks snugly over the busbar profile to obtain the minimum required wall thickness. The HTIT tubes can be installed easily during large-scale production using an oven or in-field using a gas torch or hot air.

The HTIT tubes are manufactured from a halogen-free polymer with excellent performance in high-voltage environments, reducing the toxic and corrosive effects in fire situations. They offer exceptional insulation and long-term reliability, even at high continuous operating temperatures. The tubings have good thermal emissivity, long shelf life, and storage temperatures of up to 50 °C without performance loss.

TECHNICAL SPECIFICATIONS

PRODUCT SELECTION				
Ordering description	Rectangular bars L + T mm (in)		Round bars D mm (in)	
	min.	max.	min.	max.
HTIT-44/18-A/U-4	33 (1.30)	62 (2.44)	21 (0.83)	40 (1.57)
HTIT-65/27-A/U-4	48 (1.89)	92 (3.62)	31 (1.22)	59 (2.32)
HTIT-95/43-A/U-4	77 (3.03)	135 (5.31)	49 (1.93)	86 (3.39)

ORDERING INFORMATION

ORDERING INFORMATION				
Ordering description	Inside diameter mm (in)		Wall thickness mm (in)	
	H min.	h max.	W nom.	w min.
HTIT-44/18-A/U-4	44 (1.73)	18 (0.71)	2.3 (0.90)	5.2 (0.20)
HTIT-65/27-A/U-4	65 (2.56)	27 (1.06)	2.3 (0.90)	5.2 (0.20)
HTIT-95/43-A/U-4	95 (3.74)	43 (1.69)	2.2 (0.90)	5.1 (0.20)

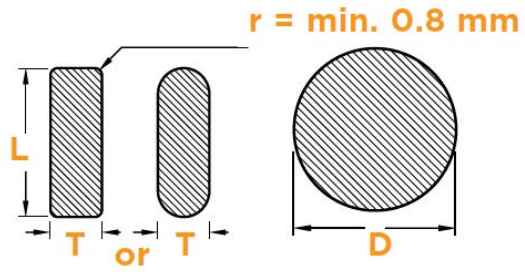
CLEARANCE REDUCTION

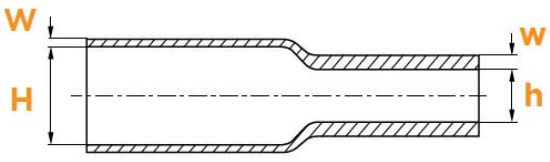
Specified Voltage kV	Minimum spacing		
	Phase/Phase mm (inch)	Phase/Ground mm (inch)	IEC 60071 air clearance mm (inch)
Round bars			
36	100 (3.94)	160 (6.30)	380 (14.96)
52	115 (4.54)	170 (6.69)	480 (18.90)
72	250 (9.84)	330 (12.99)	630 (24.80)
Rectangular bars			
36	95 (3.74)	110 (4.33)	380 (14.96)
52	150 (5.91)	240 (9.45)	480 (18.90)
72	290 (11.42)	410 (16.14)	630 (24.80)

Note: W, H = as supplied w, h = after free recovery.

Maximum longitudinal change after free recovery: ±5%.
Maximum eccentricity: 35% (as supplied),
15% (after free recovery). Fit the larger size of HTIT if two sizes fit the required application. Installation instructions EPP-3264 and Material Safety

Data Sheet available on request.





TECHNICAL SPECIFICATIONS

KEY PRODUCT SPECIFICATIONS	TEST METHOD	REQUIREMENT
Thermal Endurance	IEC 60216	125°C min. (257°F min.)
Accelerated Ageing 168 hrs @ 150°C (302°F) Tensile Strength Ulitmate Elongation	ASTM D2671	10 MPa min.
		300% min.
Inclined Tracking Test	IEC 60587; ASTM D2303	No Tracking or Erosion
		1 hr @ 2.5 kV
		1 hr @ 2.75 kV
Dielectric Strength	ASTM D149	350 kV/cm min. @ 1.00 mm (889 v/mil min. @ 0.04 in)
		180 kV/cm min. @ 2.00 mm (450 v/mil min. @ 0.08 in)
		150 kV/cm min. @ 2.50 mm (381 v/mil min. @ 0.10 in)
		120 kV/cm min. @ 3.00 mm (304.80 v/mil @ 0.12 in)
Volume Resistivity	ASTM D257	1E+10^{14} Ωcm
Low Temperature Flexibility	ASTM D2671 Procedure C	No Cracking after 4 hrs @ -40°C (-40°F)
Smoke Index	NES 711	Less than 120
Flammability	ANSI C37.20/IEEE-27	No Flame Conveyance, 60 sec. max.

TECHNICAL REPORTS

Document Reference	Material Test Report
PPR-3725	Material Test Report for MV and HV Busbar Insulation Tubing
PPR-3756	Product Qualification Report

INSTALLATION INSTRUCTIONS

Document Reference	Description
EPP-3264	Installation Instructions

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