

Raychem

HVBT High voltage busbar insulation tape Voltage class 25 kV

Product description

HVBT is a heat-shrinkable, adhesive-coated tape which provides insulation enhancement and protection against accidentally induced discharge. HVBT tape is designed to combine the integrity of a heat-shrinkable tubing with the versatility of a wraparound product.

HVBT tape is quick and easy to install. Upon application of heat the tape shrinks down and the adhesive lining melts amalgamating the overlapping layers together, producing a complete lap to lap seal.

A single layer of HVBT tape, two-thirds overlapped, will provide AC voltage withstand (flashover protection) to at least 17.5 kV increasing to 25 kV if a second layer is applied.

Although HVBT tape will stick to itself and other insulating materials it will not adhere to metal or porcelain allowing easy removal for maintenance.

Applications

HVBT tape offers a simple and effective solution to the problems of retrofit insulation of busbars particularly where existing equipment cannot be dismantled.

It can be used for indoor and outdoor applications and is easily installed over a wide variety of shapes including complex connections.

Clearance reduction

The table below indicates the clearance reductions which are possible using HVBT tape. 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.

Rated voltage (kV)	Phase – phase (mm)	Phase – ground (mm)	IEC 71-2 air clearance (mm)
Round busbars			
12	55	65	120
17.5	70	85	160
24	95	125	220
36	150	205	320
Rectangular busbars			
12	65	75	120
17.5	85	104	160
24	115	150	220
36	200	285	320

Features/benefits

- Compatible with all other products in the Raychem MV insulation enhancement system
- Easy to apply using readily available equipment
- Suitable for both indoor and outdoor use
- Excellent anti-tracking properties
- Continuous operating temperature up to 70°C
- Extremely versatile and flexible at temperatures as low as -40°C, the 30% shrink ratio enables coverage of almost any shape
- Good thermal emissivity and contact with busbars means no derating is required
- Manufactured from non-halogen based materials, reducing the toxic and corrosive effects in the event of fire
- Can be stored indefinitely at temperatures up to 50°C without loss of performance



HVBT

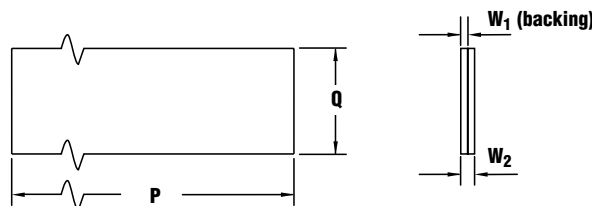
High voltage busbar insulation tape

Key product specifications	Test method	Requirement
Dielectric strength	ASTM D149, IEC 243	130 kV/cm min. @ 2 mm
Accelerated ageing - Tensile strength - Ultimate elongation	ISO 188, ASTM D2671	168 hrs @ 120°C 10 MPa min. 300% min.
Low temperature flexibility	ASTM D2671 Procedure C	No cracking after 4 hrs @ -40°C
Volume resistivity	ASTM D257, IEC 93	1 x 10 ¹³ Ohm cm min.
Smoke index	NES 711	Less than 50
Acid gas generation	Raychem PPS 3010 4.23	Less than 3% by weight
Resistance to transformer oil - Tensile strength - Ultimate elongation	VDE 0370	168 hrs @ 23°C 10 MPa min. 300% min.

Note: For further product specification information see Raychem PPS 3010/33. The above information refers to backing material only, for adhesive requirements see PPS 3012/13.

Product selection Rectangular busbars width (mm)	Recommended product	HVBT length needed per metre of busbar	Round busbars diameter (mm)	Recommended product	HVBT length needed per metre of busbar
25	HVBT-12-A	10.0	12	HVBT-12-A	5.0
50	HVBT-14-A	7.6	25	HVBT-14-A	5.0
75	HVBT-14-A	11.4	50	HVBT-14-A	10.0
100	HVBT-14-A	15.6	75	HVBT-14-A	16.7
150	HVBT-14-A	25.0	100	HVBT-16-A	10.0
200	HVBT-16-A	15.6			

Ordering information



Ordering description	Dimensions Q a min.	W ₁ a min.	W ₁ b min.	W ₂ b min.	UOM: roll of length, P (m)
HVBT-12-A	25	0.38	0.56	0.86	10
HVBT-14-A	50	0.38	0.56	0.86	10
HVBT-15-A	75	0.38	0.56	0.86	10
HVBT-16-A	100	0.38	0.56	0.86	10

Note: Dimensions in mm unless otherwise stated. a = as supplied b = after free recovery. Maximum longitudinal change after free recovery: -30 %. Installation instructions EPP 0619 5/96 and Material Safety Data Sheet available on request.

Technical reports

UVR 8023 – Qualification report for HVBT
UVR 8147 – Testing of HVBT tape to demonstrate its capability as electrical insulation on busbars

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MORLYNN INSULATORS

Raychem

SIMEL

Argentina

Phone: ++54-11-4733 2277
Fax: ++54-11-4733 2267

Australia

Phone: ++61-2-4390 1111
Fax: ++61-2-4353 2497

Brazil

Phone: ++55-11-861 1311
Fax: ++55-11-861 1862

Canada

Phone: ++1-905-475 6222
Fax: ++1-905-470-4453

France

Phone: ++33-3-80583200
Fax: ++33-3-80341015

Mexico

Phone: ++52-5-729 0405
Fax: ++52-5-361-8545

Thailand

Phone: ++66-2-7394026 - 32
Fax: ++66-2-3260563 - 64

United States of America

Phone: ++1-800-327-6996
Fax: ++1-800-527-8350

Tyco Electronics Raychem GmbH

Energy Division
Haidgraben 6, 85521 Ottobrunn/Munich, Germany
Phone: ++49-89-6089-0, Fax: ++49-89-6096345

<http://energy.tycoelectronics.com>