

# BBIT/BPTM

*Raysulate busbar insulating tubing (5–35 kV)\**

## BBIT (5–35 kV)

Heavy-wall tubing for use on straight or bent bars where maximum clearance reduction or 35 kV insulation is required.

## BPTM (5–25 kV)

Medium-wall tubing for use on straight or bent bars where some clearance reduction or 25 kV insulation is required. These heat-shrinkable tubes for straight and bent busbars are extremely flexible, allowing them to be easily positioned on

busbars and quickly installed using a gas torch or oven. They have a high expansion ratio, so each size of tubing fits a range of busbar sizes. Both BBIT and BPTM tubing are ideal for original equipment assembly, and for retrofit applications where access to one end is available.

BBIT and BPTM tubings are also ideal for protection against accidental bridging caused by birds and animals.



Rated to ANSI/IEEE C37.20-1987.

### Selection information (dimensions in inches/millimeters)

#### BBIT (5–35 kV)\*

Catalog number	Busbar dimensions			BBIT tubing diameter as supplied and fully recovered
	Rectangular bar** (bus width)	Square bar (each side)	Round bar (diameter min.–max.)	
BBIT-25/10-A/U	0.5 (12)		0.50–0.70 (12–18)	0.98–0.39 (25–10)
BBIT-40/16-A/U	1.0 (25)		0.70–1.10 (18–28)	1.57–0.63 (40–16)
BBIT-65/25-A/U	2.0 (50)	1.0 (25)	1.10–1.55 (28–40)	2.56–0.98 (65–25)
BBIT-100/40-A/U	3.0 (75)	2.0 (50)	1.75–2.45 (44–62)	3.94–1.57 (100–40)
BBIT-150/60-A/U	4.0 (100)	3.0 (75)	2.60–3.60 (66–91)	5.91–2.36 (150–60)
BBIT-175/80-A/U	5.0–6.0 (125–150)	4.0 (100)	3.45–4.75 (88–121)	6.89–3.15 (175–80)

#### BPTM 5–25 kV\*

Catalog number	5–15 kV		25 kV		5–15 kV		25 kV		BPTM tubing diameter as supplied and fully recovered
	5–15 kV	25 kV	5–15 kV	25 kV	5–15 kV	25 kV	5–15 kV	25 kV	
BPTM-15/6-A/U	N/A	N/A	N/A	N/A	0.26–0.52 (7–13)	0.26–0.30 (7–8)	0.59–0.24 (15–6)		
BPTM-30/12-A/U	.25–0.5 (12)		0.5 (12)	0.5 (12)	0.53–0.90 (14–23)	0.53–0.65 (14–16)	1.18–0.47 (30–12)		
BPTM-50/20-A/U	1.0 (25)	1.0 (25)	1.0 (25)	N/A	0.90–1.35 (23–33)	0.90–1.10 (23–28)	1.97–0.79 (50–20)		
BPTM-75/30-A/U	2.0 (50)	2.0 (50)	1.5 (38)	1.0 (25)	1.30–2.00 (33–51)	1.30–1.65 (33–42)	2.95–1.18 (75–30)		
BPTM-100/40-A/U	3.0 (75)	3.0 (75)	2.0 (50)	1.5 (38)	1.75–2.75 (44–70)	1.75–2.30 (44–58)	3.94–1.57 (100–40)		
BPTM-120/50-A/U	4.0–5.0 (100–127)	4.0 (100)	3.0 (75)	2.0 (50)	2.15–4.00 (55–102)	2.15–3.20 (55–81)	4.72–1.97 (120–50)		
BPTM-175/70-A/U	6.0–7.0 (150–178)	5.0–6.0 (127–150)	4.0 (100)	3.0 (75)	3.20–5.50 (81–140)	3.20–4.40 (81–112)	6.88–2.75 (175–70)		
BPTM-205/110-A/U	8.0 (200)	8.0 (200)	5.0 (127)	4.0 (100)	4.75–7.00 (120–178)	4.75–6.80 (120–174)	8.07–4.33 (205–110)		
BPTM 235/130-A/U	12 (300)	10 (250)	6 (150)	6 (150)	5.70–8.45 (145–215)	5.70–8.07 (145–205)	9.25–5.12 (235–130)		

\* See Ordering information #2 below. \*\* See Ordering information #3 below.

### Ordering information

- Select the appropriate catalog number. Confirm selection with bus dimensions.
- These products may be suitable for applications with higher voltages than those listed. Please contact your Tyco Electronics representative for more information.
- Rectangular bus thickness range is 1/4 to 5/8 inch.
- Bolted connections require two layers of tubing or a fiber bolt pad (BP-46 from page 147).
- To environmentally seal the bus at each end of the BBIT tubing, order S-1251-50-300-1 or S-1251-25-300-4 sealant strip separately from page 49.
- Standard package:  
 BBIT-25/10-A/U: 65 feet/box.  
 BBIT-40/16-A/U: 60 feet/box.  
 BBIT-65/25 A/U: 50 feet/box.  
 BBIT-100/40: 50 feet/box.  
 BBIT-150/60: 50 feet/box.  
 BBIT-175/80: 50 feet/box.  
 BPTM 235/130: 66 feet/box.  
 All other BPTM sizes: 50 feet/box. BBIT and BPTM are also available in bulk spooled quantities. Contact your Tyco Electronics representative for more information.
- Related test reports: BBIT–[UVR-8136](#) [UVR-8137](#), BPTM–[UVR-8019](#)
- Minimum continuous length is 15 feet (4.5 meters).  
 Related installation instructions [BBIT/BPTM](#)



## HVBT

*Raysulate high-voltage busbar insulating tape (5–15 kV)\**

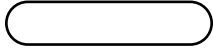
HVBT tape is an adhesive-coated, high-voltage, heat-shrinkable general-purpose tape for insulating straight and bent bars in retrofit applications where tubing cannot be used. In addition, HVBT easily insulates unusual connections and geometries in the factory or field.

HVBT tape is also ideal for protection against incidental/accidental bridging caused by birds and animals. HVBT may be suitable for higher-voltage applications (see Ordering information #2 below). The HVBT adhesive layer fuses the tape layers but does not stick to bus or hardware, thus providing environmental sealing while allowing fast, easy removal.

HVBT tape may be used in applications up to 15 kV in accordance with ANSI/IEEE specifications and up to 36 kV in accordance with IEC specifications.

Rated to ANSI/IEEE C37.20-1987.

### Selection information (dimensions in inches/millimeters)

Bus width	Recommended product	Bus length insulated per roll
<b>Rectangular busbar</b>		
		
1 in (25 mm)	HVBT-1-R	2.5 ft (0.7 m)
2 in (50 mm)	HVBT-2-R	3.3 ft (1.0 m)
3 in (75 mm)	HVBT-2-R	2.2 ft (0.6 m)
4 in (100 mm)	HVBT-2-R	1.6 ft (0.5 m)
6 in (150 mm)	HVBT-2-R	1.0 ft (0.3 m)
8 in (200 mm)	HVBT-4-R	1.6 ft (0.5 m)

Maximum thickness: 5/8 inch (15 mm)

### Square busbar



1 in x 1 in (25 mm)	HVBT-2-R	4.0 ft (1.2 m)
2 in x 2 in (50 mm)	HVBT-2-R	2.0 ft (0.6 m)
3 in x 3 in (75 mm)	HVBT-2-R	1.3 ft (0.4 m)
4 in x 4 in (100 mm)	HVBT-4-R	2.0 ft (0.6 m)
6 in x 6 in (150 mm)	HVBT-4-R	1.3 ft (0.4 m)

### Round busbar



0.5 in (12 mm)	HVBT-1-R	5.0 ft (1.5 m)
1.0 in (25 mm)	HVBT-2-R	5.0 ft (1.5 m)
2.0 in (50 mm)	HVBT-2-R	2.5 ft (0.7 m)
3.0 in (75 mm)	HVBT-2-R	1.5 ft (0.4 m)
4.0 in (100 mm)	HVBT-4-R	2.5 ft (0.7 m)

### Ordering information

- Select the appropriate catalog number for the application. Confirm selection with the following recommendations and HVBT tape dimensions:
  - HVBT-1-R is best for short lengths and small bus sizes.
  - HVBT-2-R is the most versatile width for general purpose use.
  - HVBT-4-R is useful for long lengths and larger bus sizes.

#### HVBT tape dimensions

Catalog number	Roll width	Roll length
HVBT-1-R	1 inch	25 feet
HVBT-2-R	2 inches	25 feet
HVBT-4-R	4 inches	25 feet

- HVBT may be suitable for applications with higher voltage than those listed. Please contact your Tyco Electronics representative for more information.
- To environmentally seal the bus, order S-1251-50-300-1 or S-1251-25-300-4 sealant strips separately (see page 49).
- Recommended application is by wrapping the tape around the bus bar using a two-thirds overlap.
- Bolted connections require two layers of tape.
- Standard package:
  - HVBT-1-R: 8 rolls/box.
  - HVBT-2-R: 4 rolls/box.
  - HVBT-4-R: 2 rolls/box.
- Continuous operating temperature: 70°C
- Related test reports:
  - [UVR-8023](#)
  - [EDR-5154](#)

Related installation instructions  
[HVBT](#)

# HVBC

*Raysulate electrical insulator cable-to-bus connection kit (5–15 kV)*

The HVBC kit contains heat-shrinkable insulating tubing and sealant strips for insulating and environmentally sealing high-voltage in-line cable-to-busbar connections. For multiple cable connections, the kit also contains a heat-shrinkable sealing boot. The kit greatly simplifies field installation and eliminates the labor and skill needed for tape-and-putty methods.

HVBC may be used in applications up to 15 kV in accordance with ANSI/IEEE specifications, and up to 36 kV in accordance with IEC applications.

Rated to ANSI/IEEE C37.20-1987.



When HVBC kits are used with Tyco Electronics' high-voltage terminations, the diameter buildup over the cable is minimal. This increases working space in cramped areas and allows up to four cable connections.

### Selection information (dimensions in inches/millimeters)

Catalog number	Bus width: 2–4 inches	Bus width: 5–6 inches	Number of cables	Cable size range (min.–max.)
HVBC-41		HVBC-61	1	#4–1000 kcmil
HVBC-42		HVBC-62	2	#4–1000 kcmil
HVBC-43		HVBC-63	3	#4–1000 kcmil
HVBC-44		HVBC-64	4	#4–1000 kcmil

### Bolt pad

BP-46

### Ordering information

- Select the appropriate catalog number. Confirm selection with dimensions. One HVBC kit insulates one phase of an in-line cable-to-bus connection.
    - Maximum bolt length: 2 inches.
    - Maximum busbar thickness: 5/8 inch.
    - Maximum bare bus length: 9 inches.
  - BBIT tubing, and BPTM tubing, shown on page 131, or HVBT tape, shown on page 130, can be used to insulate the exposed busbar before installing the HVBC products.
  - Shielded cable must be terminated before installing the HVBC products; use Tyco Electronics' HVT terminations (see page 91 for selection).
  - Standard package: 3 kits/box.
  - Related test report: [IEDR-5103](#)
- Related installation instructions [HVBC](#)



## HVIS

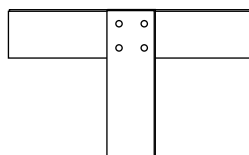
*Raysulate high-voltage busbar insulating sheet (5–15 kV)\**

HVIS is an adhesive-coated, heat-shrinkable sheet that shrinks in two directions to tightly conform to complex shapes. It is ideal for insulating busbar tees, elbows, and other connections where tubing or tape cannot be used.

HVIS may also be used in conjunction with Raysulate electrical insulating tapes and tubings, or alone to help protect against accidental bridging caused by birds and animals.

Rated to ANSI/IEEE C37.20-1987.

132

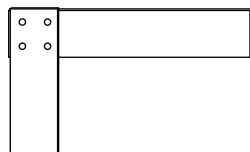


### Selection information (dimensions in inches/millimeters)

Catalog number	Width	Length
HVIS-05 (sheet)	26 in (660 mm)	20 in (508 mm)
HVIS-10 (roll)	26 in (660 mm)	33 ft (10 m)

Bus width	Cut size needed	No. of installations per sheet/roll	
		HVIS-05 sheet	HVIS-10 roll
<b>T connection</b>			
1 (25)	11 x 9 (275 x 225)	4	88
2 (50)	13 x 10 (325 x 250)	4	78
3 (75)	16 x 11 (400 x 275)	2	48
4 (100)	18 x 13 (450 x 325)	2	44
6 (150)	22 x 17 (550 x 425)	1	23

<b>Elbow connection</b>			
1 (25)	11 x 7 (275 x 175)	4	112
2 (50)	13 x 9 (325 x 225)	4	88
3 (75)	15 x 10 (375 x 250)	2	52
4 (100)	18 x 11 (450 x 275)	2	44
6 (150)	22 x 13 (550 x 325)	1	36



### Ordering information

- Select the appropriate catalog number. Confirm selection with dimensions.
- Busbars are assumed to be insulated to within 1 inch of the joint. Cut size should extend a minimum of 4 inches onto each leg of the joint before shrinking.
- The above table should be used as a guide only; experiment to confirm final cut size. Table is based on 5/8-inch bus thickness.
- To environmentally seal each leg of the bus, order S-1251-50-300-1 or S-1251-25-300-4 sealant strips separately (see page 49).
- HVIS may be rated for applications up to 35 kV. Please contact your Tyco Electronics representative for more information.
- Standard package:  
HVIS-05: 3 sheets/box  
HVIS-10: 1 roll/box
- Related test report: [EDR-5175](#)
- Brackets and clamps are available for sale (see page 192).  
Related installation instructions [HVIS](#)



## LVIT

*Raysulate low-voltage busbar insulating tubing (1000 V)*

LVIT is a heat-shrinkable medium-wall, flame-retardant, low voltage tubing for insulating straight and bent busbars during original equipment assembly or in retrofit applications where access to one end of the busbar is available.

Rated to ANSI/IEEE C37.20.1-1987. UL recognized to Standard 224 (file E 137416), 600 V-125°C-VW.1.

When used according to the selection guidelines, LVIT may be used in applications up to 1 kV in accordance with ANSI/IEEE C37.20 specification. LVIT tubing may be used in applications up to 3.6 kV in accordance with IEC specifications.

152

### Selection information (dimensions in inches/millimeters)

Catalog number	Busbar dimensions			LVIT tubing diameter as supplied and fully recovered (min.–max.) inches (millimeters)
	Rectangular bar* (bus width) inches (millimeters)	Square bar (each side) inches (millimeters)	Round bar (diameter min.–max.) inches (millimeters)	
LVIT-30/10-A/U	0.50–1.0 (12–25)		0.40–1.0 (11–25)	1.18–0.39 (30–10)
LVIT-75/25-A/U	2.0–3.0 (50–75)	1 (25)	1.0–2.0 (25–50)	2.95–0.98 (75–25)
LVIT-150/50-A/U	4.0–6.0 (100–150)	2–3 (50–75)	2.0–4.0 (50–100)	5.91–1.97 (150–50)

### Ordering information

1. Select the appropriate catalog number. Confirm selection with dimensions.
- \*2. Rectangular bus thickness range is 1/4 to 5/8 inch.
3. Bolted connections require two layers of tubing.
4. Tubing is supplied spooled and may be field cut for required length.
5. If sealing is needed, order S-1052-6-150 sealant strips from page 49.
6. Standard package: LVIT-30/10-A/U: 200 feet (60m)/box.  
LVIT-75/25-A/U: 100 feet (30 m)/box.  
LVIT-150/50-A/U: 100 feet (30 m)/box.  
Bulk spooled packaging is also available. Contact your Tyco Electronics representative for more information.
7. Minimum continuous length: 15 feet (4.5 meters).
8. Related test reports: [UVR-8148](#) [UVR-8165](#)

Related installation instructions  
[LVIT](#)

Bus insulation and wildlife protection products

# LVBT

*Raysulate low-voltage busbar insulating tape (1000 V)*

LVBT is an adhesive-coated, low-voltage heat-shrinkable tape. One wrap insulates straight and bent bars in retrofit applications where tubing cannot be used. In addition, LVBT easily insulates unusual connections and geometries in the factory or field.


1kV in accordance with ANSI C37.20-1987 and up to 3.6 kV in accordance with IEC specifications.

Rated to ANSI/IEEE C37.20-1987. UL-recognized to Standard 224 (file E137417), 600 V-125°C-VW.1.


The LVBT adhesive layer fuses the tape layers but does not stick to bus or hardware, providing tough insulation up to




**Selection information (dimensions in inches/millimeters)**

Bus width	Recommended catalog number	Bus length insulated per roll
		
<b>Rectangular busbar*</b>		
1 (25)	LVBT-1-R	3.8 ft (1.2 m)
2 (50)	LVBT-2-R	4.8 ft (1.5 m)
3 (75)	LVBT-2-R	3.5 ft (1.1 m)
4 (100)	LVBT-2-R	2.7 ft (0.8 m)
6 (150)	LVBT-2-R	1.9 ft (0.6 m)
8 (200)	LVBT-4-R	2.9 ft (0.9 m)

\*Maximum thickness: 5/8 (15)

		
<b>Square busbar</b>		
1 (25)	LVBT-2-R	6.25 ft (2.0 m)
2 (50)	LVBT-2-R	3.1 ft (1.0 m)
3 (75)	LVBT-2-R	2.0 ft (0.6 m)
4 (100)	LVBT-4-R	3.1 ft (1.0 m)
6 (150)	LVBT-4-R	2.0 ft (0.6 m)

		
<b>Round busbar</b>		
0.5 in (12 mm)	LVBT-1-R	8.0 ft (2.6 m)
1.0 in (25 mm)	LVBT-2-R	8.0 ft (2.6 m)
2.0 in (50 mm)	LVBT-2-R	4.0 ft (1.3 m)
3.0 in (75 mm)	LVBT-2-R	2.6 ft (0.9 m)
4.0 in (100 mm)	LVBT-4-R	4.0 ft (1.3 m)

**Ordering information**

- Select the appropriate catalog number. Confirm selection with the following recommendations and LVBT tape dimensions:
  - LVBT-1-R is best for shorter lengths.
  - LVBT-2-R is the most versatile width for general purpose use.
  - LVBT-4-R is useful for long lengths and larger bus sizes.

**LVBT tape dimensions**

Catalog number	Roll width	Roll length
LVBT-1-R	1 (25)	25 ft (7.5 m)
LVBT-2-R	2 (50)	25 ft (7.5 m)
LVBT-4-R	4 (100)	25 ft (7.5 m)

- If sealing is needed, order the S-1052-6-150 sealant strips from page 49.
- Recommended application is by wrapping the tape around the bus bar using a two-thirds overlap.
- Bolted connections require two layers of tape.
- Standard package:
  - LVBT-1-R: 8 rolls/box.
  - LVBT-2-R: 4 rolls/box.
  - LVBT-4-R: 2 rolls/box.
- Related test reports: see LVIT reports, [UVR-8148](#) [UVR-8165](#)

Related installation instructions [LVBT](#)