Leading in Heat-Shrink Technology

Utility Program

CANUSA

Headquarter

DSG-Canusa GmbH & Co. KG
Heidestr. 5
D-53340 Meckenheim
Tel +49 2225 88920
Fax +49 2225 889244

Sales Offices

Sales Office North
Wolfgang Penner
Buchenweg 2
D-25337 Elmshorn
Tel +49 4121 76006
Fax +49 4121 76007
e-mail: canusa@t-online.de

DSG-Canusa UK LTD.
Bergstrand House, Parkwood Close
Broadley Ind. Park
Roborough, Plymouth PL6 7EZ
United Kingdom
Tel +44 1752 209880
Fax +44 1752 209850

DSG-CANUSA France S.A.R.L.
4 Rue Alexis de Tocqueville
F-92183 Antony Cedec
Tel +33 1 40968989
Fax +33 1 40968905

Canusa Systems Ltd.
Hungarian Representative Office
Felsözöldmáli út 60-62, A-1
H-1025 Budapest
Tel +36 1 3256966
Fax +36 1 2125284

DSG-Canusa Polska Sp.z.o.o.
Zagorki/Rychnowy
PL-77-300 Czluchow
Tel +48 59 83 23 30 1
Fax +48 59 83 23 30 4

DSG-Canusa Italia S.R.L.
Via Renata Bianchi, 38
I-16152 Genova-Cornigliano
Tel +39 010 6001472
Fax +39 010 6001536

Offices in preparation:
Barcelona, Stockholm, Istanbul

DSG CANUSA

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Using Heat Shrink technology, DSG-Canusa provides Electrical & Mechanical Insulation solutions for a wide range of applications and industries. With production facilities in Canada, the United Kingdom, Germany, Poland and the United States, as well as an experienced sales force, DSG-Canusa is a global manufacturer and marketer, with a broad base of satisfied customers on every continent.

DSG-Canusa's product offering includes Polyolefin, Fluoropolymer, Elastomer and PVC heat shrink based materials in thin, medium and heavy walls, with a variety of physical properties. These high quality products provide solutions in a variety of demanding market sectors. The key focus markets are Comunications, Electrical/Utility, Automotive and Electronics. A substantial presence in Medical, Transportation, Military and OEM markets rounds out DSG-Canusa's coverage.

DSG-Canusa can satisfy the most demanding customer needs through:

- A commitment to a formal Customer Satisfaction Program
- A Global Sales and Service Network
- State of the art equipment
- Significant expenditures in product development
- An ISO based Quality Program
- Training and development for all employees

The reward of this commitment to customer satisfaction is compounded annual growth of 42% over the past 5 years. Shaw Industries' financial strength allows DSG-Canusa to make the necessary investments to support this level of growth. Over the past 15 years of operation DSG-Canusa has developed a solid reputation for customer service and innovation in the global market.

Utility Program

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Utility Program

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CFW/CFM

Medium and heavy wall heat shrinkable polyolefin tubing, ideal for the protection of cable joints and terminations in low voltage power applications

Description

CFW/CFM is an excellent product for sealing and insulating cable splices, connections, terminations and jacket repairs. The tubing is designed to withstand the severe mechanical requirements of U.R.D. submersible, and direct buried installations.

Main Features

- **Continuous operating temperature range of -55°C to +125°C (Jacket Only)**
- **3:1 shrink ratio**
- **High resistance to abrasion, corrosion, and chemicals**
- **Excellent weatherability**
- **Available with Filmtech adhesive, sealant lined or unlined**
- **10 standard sizes in CFW**
- **14 standard sizes in CFM**
- **Meets requirements of ESI 09-11**

Technical Data

Physical

Property	Test Method	Typical Performance
Tensile Strength	ISO 37	14.0 MPA
Ultimate Elongation	ISO 37	300%
Operating Temperaure	-	-55°C to +125°C
Min. Shrink Temperature	-	120°C
Longitudinal Change	ASTM D2671	±10%
Specific Gravity	ISO/R1183	1.10
Dielectric Strength	IEC 243	min. 20 kV/mm
Elongation After Heat Ageing	ISO 37 (168 hrs at 150°C)	250%
Heat Shock	ASTM D2671 (4 hrs at 225°C)	No dripping, flowing or cracking
Low Temperaure Flexibility	ASTM D2671 (4 hrs at -55°C)	No cracking or splitting
Water Absorption	ASTM D570	0.05%
Fluid Resistance Various Fluids	ISO 1817, ISO 37 MIL-1-23053	Good to excellent

Adhesive Sealant

Property	Test Method	Adhesive	Sealant
Water Adsorption	-	< 0.3%	<0.1%
Softening Point	ASTM E8	95°C to 105°C	80°C to 90°C

Ordering

Refer to dimensional table and select the size which will shrink snugly over the component to be covered. If recovery is restricted the resultant wall thickness will be less than specified.

Standard Colour - Black.

Standard Lengths - adhesive lined: 1.2 m / 1.0 m
- uncoated: 7.6 m reels

Cut sleeves, non-standard lengths, colours and other dimensions are available to special order.

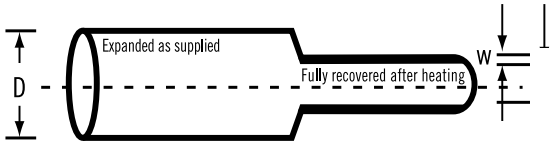
Order Code - D/A - Adhesive / **S** - Sealant / **U** - unlined

Approval to Standard: ESI-09-11 / CFW-UL 486D / CSA 22.2

Dimensions

Order Ref. No.	Diameter as supplied	Diameter after recovery	wall thickness	standard lengths
	mm	mm	mm	m
CFW 0350 9/3	9.0	3.0	1.8	1.2
CFW 0500 13/4	13.0	4.0	2.4	1.2
CFW 0750 19/6	19.0	6.0	2.4	1.2
CFW 1100 28/9	28.0	9.0	3.0	1.2
CFW 1500 38/12	38.0	12.0	4.1	1.2
CFW 1700 43/10	43.0	10.0	4.1	1.2
CFW 2000 51/16	51.0	16.0	4.1	1.2
CFW 2700 68/22	68.0	22.0	4.1	1.2
CFW 3500 90/30	90.0	30.0	4.1	1.2
CFW 4700 120/40	120.0	40.0	4.2	1.2

Order Ref. No.	Diameter as supplied	Diameter after recovery	wall thickness	standard lengths
	mm	mm	mm	m
CFM 0400 12/3	12.0	3.0	2.0	1.2
CFM 0750 20/6	20.0	6.0	2.0	1.2
CFM 0950 25/8	25.0	8.0	2.0	1.2
CFM 1100 30/10	30.0	10.0	2.0	1.2
CFM 1300 34/10	34.0	10.0	2.0	1.2
CFM 1500 40/12	40.0	12.0	2.0	1.2
CFM 1700 45/13	45.0	13.0	2.0	1.2
CFM 2050 54/18	54.0	18.0	2.0	1.2
CFM 2750 70/25	70.0	25.0	2.0	1.2
CFM 3500 90/30	90.0	30.0	2.4	1.2
CFM 4700 122/40	122.0	40.0	2.6	1.2
CFM 6000 152/48	152.0	48.0	2.8	1.2
CFM 6700 170/58	170.0	58.0	2.8	1.2
CFM 9000 229/77	229.0	77.0	3.0	1.2



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DSW/DSM

Medium and heavy wall heat shrinkable polyolefin tubing, ideal for the protection of cable joints and terminations in low voltage power applications

Description

DSW/DSM product range are specially produced with a spiral coated liner which produce a thicker adhesive moisture protection ring when recovered.

Main Features

- **Continuous operating temperature range of -55°C to +125°C (Jacket Only)**
- **3:1 shrink ratio**
- **High resistance to abrasion, corrosion, and chemicals**
- **Excellent weatherability**
- **Available with adhesive or sealant lining or unlined**
- **13 standard sizes in DSW**
- **9 standard sizes in DSM**
- **Meets requirements of ESI 09-11**

Technical Data

Physical

Property	Test Method	Typical Performance
Tensile strength	ISO 527-1,2	14 N/mm² (min.)
Elongation at break	ISO 527-1,2	350% (min.)
Specific gravity - DSW - DSM	 ASTM D1505 / ISO1183 ASTM D1505 / ISO1183	 1.00 g/cm³ (max.) 0.93 g/cm³ (max.)
Heat aging (168 hours, 155°C) - Decrease in tensile strength: - Decrease in elongation at break:	 ISO 527-1,2 ISO 527-1,2	 25% (max.) 25% (max.)
Heat shock (4hours at 250°C)	ASTM D2671	no dripping, flowing or cracking
Low temperature flexibility (4hours at -55°C)	ASTM D2671	no cracking

Electrical

Dielectric strength	ASTM D149 / IEC 243	20 kV/mm (min.)
Specific volume resistance - DSW - DSM	 ASTM D257 / IEC 93 ASTM D257 / IEC 93	 10^{13} Ohm.cm 10^{14} Ohm.cm
Permittivity - DSW - DSM	 ASTM D150 / IEC 250 ASTM D150 / IEC 250	 3.5 (max.) 2.5 (max.)

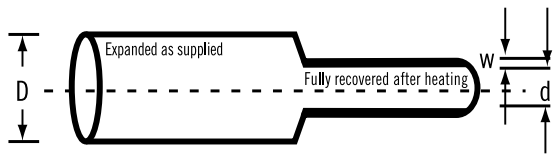
Chemical

Corrosion (160°C±2°C, 168 hours) - Elongation at break	ASTM D267 ISO 527-1,2	none 150% (min.)
Flammability - DSW	ASTM D2671/IEC 684-3-211	 flame retardant
Water absorption	ISO 62	0.2% (max.)
Resistance to chemicals (M-20 hydraulic oil, engine oil, kerosene) - Decrease in tensile strength	 ISO 527-1,2	 50% (max.)

Characteristics of the internal sealing adhesive

Type: - 1 - For operating temperatures up to 90°C (transparent)

Softening temperatures - Type 1	 ASTM E28	 103-120°C
Water absorption - Type 1	 ISO 62	 1.0% (max.)



Dimensions

Order Ref. No.	Diameter			Deliverable length (max)	
	as supplied	after recovery	wall thickness	without adhesive	coated with adhesive
	mm	mm	mm	mm	mm
DSW 0500 12/3	12.0	3.0	2.0	1000	500
DSW 0750 20/7	20.0	7.0	2.5	1000	500
DSW 0950 25/8	25.0	8.0	3.0	1000	600
DSW 1100 30/8	30.0	8.0	3.0	1000	600
DSW 1300 30/10	30.0	10.0	3.0	1000	600
DSW 1500 40/12	40.0	12.0	3.5	1000	1000
DSW 2000 55/18	55.0	18.0	3.5	1000	1000
DSW 2700 65/21	65.0	21.0	4.0	1000	1000
DSW 3000 80/22	80.0	22.0	4.0	1000	1000
DSW 4000 110/36	110.0	36.0	4.5	1100	1100
DSW 5100 130/37	130.0	37.0	4.5	1500	1500
DSW 6000 150/50	150.0	50.0	4.5	1500	1500
DSW 6700 180/65	180.0	65.0	4.0	1500	1500

Order Ref. No.	Diameter			Deliverable length (max)	
	as supplied	after recovery	wall thickness	without adhesive	coated with adhesive
	mm	mm	mm	mm	mm
DSM 0350 9/3	9.0	3.0	1.2	4000	150
DSM 0500 12/4	12.0	4.0	1.5	4000	500
DSM 0750 20/6	20.0	6.0	2.2	4000	500
DSM 0950 25/8	25.0	8.0	2.5	4000	600
DSM 1500 37/12	37.0	12.0	2.5	4000	600
DSM 2050 50/17	50.0	17.0	2.5	4000	1000
DSM 3000 80/24	80.0	24.0	2.5	1000	1000
DSM 3500 90/34	90.0	34.0	2.5	1000	1000
DSM 4000 110/34	110.0	34.0	2.5	1000	1000

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Ordering

Refer to dimensional table and select the size which will shrink snugly over the component to be covered.
If recovery is restricted the resultant wall thickness will be less then specified.
Standard Colour - Black.
Standard Lengths - see table.
Order Code - **D/A** - Adhesive / **S** - Sealant / **U** - unlined




CFHR

High Ratio Heat Shrinkable Tubing accommodates extreme differences between cables, connectors and backshells

Main Features

- 6:1 Shrink ratio
- Accommodates a wide variety of connector shapes and configurations
- Optional Thermoplastic Adhesive Liner for complete environmental protection and insulation
- Available in 7.6 m reels
- Continuous operating temperature: -55°C to 110°C
- Shrink temperature: 120°C

Technical Data

Physical

Property	Test Method	Typical Performance
Tensile Strength	ASTM D412, ISO 037	2100 psi (14.5 MPa)
Elongation	ASTM D412, ISO 037	600%
Elongation after Heat Aging (168hrs at 150°C)	ASTM D2671	500%
Heat Shock (4hrs at 225°C)	ASTM D2671	No cracking or flowing
Longitudinal Change	ASTM D2671	+1%, -10%
Low Temperature Flexibility (4hrs at -55°C)	ASTM D2671	No cracking
Specific Gravity	ASTM D792	1.10
Hardness (Shore D)	ASTM D2240	50D

Electrical

Dielectric Strength	ASTM D149, IEC 243	500 V/Mil (20 kV/mm)
Dielectric Voltage Withstand (2500 V, 60Hz, 1min)	UL 486D	No breakdown
Volume Resistivity	ASTM D257	10^{16} ohm-cm

Chemical

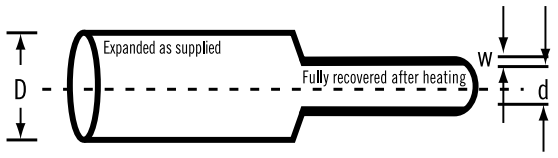
Fluid Resistance	MIL-DTL-23053	Good to excellent
Fungus Resistance	ASTM G21	No growth
Copper Corrosion	ASTM D2671	No corrosion
Water Absorption	ASTM D570	0.1%

Adhesive

Adhesive Lap Sheer (1in./min at 23°C)	ASTM D1002	125 psi (0.875 MPa)
Adhesive Softening Point	ASTM E28	92°C/-5°C
Adhesive Peel Strength (300mm/min at 23°C)	ASTM D1000	
- to steel, aluminum, P.E.		35 pli
- PVC		20 pli
Adhesive Blocking (30°C)	ASTM D1146	No blocking
Water Penetration	STM 706	No penetration after 236 hrs. of continuous immersion

Dimensions

ORDER REF. NO.	EXPANDED INTERNAL DIAMETER (MIN) D mm	RECOVERED INTERNAL DIAMETER (MAX) d mm	RECOVERED WALL THICKNESS (NOM) w mm	STANDARD LENGTHS
CFHR 0750	19.0	3.2	3.2	15cm, 30cm, 121 cm, 7.6 m
CFHR 1300	33.0	5.5	3.4	15cm, 30cm, 121 cm, 7.6 m
CFHR 1750	44.4	7.4	3.6	15cm, 30cm, 121 cm, 7.6 m
CFHR 2000	50.8	8.3	4.8	15cm, 30cm, 121 cm, 7.6 m
CFHR 2750	69.8	11.7	4.8	15cm, 30cm, 121 cm, 7.6 m
CFHR 3500	88.9	17.1	4.8	15cm, 30cm, 121 cm, 7.6 m
CFHR 4700	119.4	22.9	4.8	15cm, 30cm, 121 cm, 7.6 m



Lengths:	Also available on continuous 7.6 m reels uncoated.
Note:	Non-standard colors, sizes and lengths available subject to factory quotation.

REV 2

Ordering

Select a dimension which will shrink snugly over the component to be covered. If recovery is restricted the resultant wall thickness will be less than specified.

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FCFW

Heavy Wall, Heat Shrinkable Tubing insulates and protects electrical splices and terminations where maximum flame retardancy and exceptional insulating and sealing characteristics are required

Main Features

- High impact and abrasion resistance - capable of withstanding severe mechanical abuse of U.R.D., submersible and direct burial installations
- FCFW tubing will not split or rupture during installation, even when overheated
- Optional Thermoplastic Adhesive Liner provides complete environmental protection and insulation
- Flame retardant
- Meets UL 486D, CSA C22.2 No. 198.2, ANSI C119-1, Western Underground Guides Nos. 2.4, 2.5, MIL-DTL-23053/15,IEEE 383 Vertical Flame Test, ANSI C37.20.2, ICEA S-19-8 and NEMA insulation thickness requirements
- GL Approved
- Rated for 600 V, 90°C continuous use
- Continuous operating temperature: -55°C to 110°C
- Shrink temperature: 120°C

Technical Data

Physical

Property	Test Method	Typical Performance
Tensile Strength	ASTM D412, ISO 37	2100 psi (14.5 MPa)
Elongation	ASTM D412, ISO 37	600%
Elongation after Heat Aging (168 hrs at 175°C)	ASTM D2671, ISO 37	500% (250%)
Longitudinal Change on Recovery	ASTM D2671	+1%, -10%
Specific Gravity	ASTM D792	1.2
Heat Shock (4hrs at 225°C)	ASTM D2671	No cracking or flowing
Low Temperature Flexibility (4hrs at -55°C)	ASTM D2671	No cracking or splitting
Hardness (Shore D)	ASTM D2240	50D
Oxygen Index	ASTM D2863	27.00
Flammability	ASTM D2671	Flame Retardant

Electrical

Dielectric Strength	ASTM D149	500 V/Mil (20kV/mm)
Dielectric Voltage Withstand (2500V, 60Hz, 1 min.)	UL 486D	No breakdown, 24kV-1 min, 15kV-4hrs.
Volume Resistivity	ASTM D257	10^{16} ohm-cm

Chemical

Fluid Resistance	MIL-DTL-23053/15	Good to excellent
Copper Corrosion	ASTM D2671	No corrosion
Water Absorption	ASTM D570	0.2%
Fungus Resistance	ASTM G21	No growth

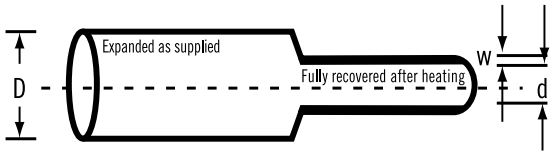
Adhesive

Adhesive softening point	ASTM E28	92°C +/- 5°C
Adhesive peel strength (300mm/min at 23°C)	ASTM D1000	
- to steel, alum, P.E.		35 pli
- to PVC		20 pli
Adhesive Lap Shear (1in./min at 23°C)	ASTM D1002	125 psi (0.875 MPa)
Adhesive Blocking (30°C)	ASTM D1146	No blocking
Adhesive Water Adsorption	ASTM D570	Less than 0.3%
Water Penetration	STM 706	No penetration after 236 hrs (min) of continuous immersion.

Dimensions

Art. Nr.	Expanded Internal Diameter	Recovered Internal Diameter	Recovered Wall Thickness	Standard Lengths
	D	d	W	
	mm	mm	mm	m
FCFW 0350 9/3	9.0	3.0	1.8	1.2
FCFW 0500 13/4	13.0	4.0	2.4	1.2
FCFW 0750 19/6	19.0	6.0	2.5	1.2
FCFW 1100 28/9	28.0	9.0	3.0	1.2
FCFW 1500 38/12	38.0	12.0	4.1	1.2
FCFW 2000 51/18	51.0	18.0	4.1	1.2
FCFW 2700 68/22	68.0	22.0	4.1	1.2
FCFW 3500 90/30	90.0	30.0	4.1	1.2
FCFW 4700 120/40	120.0	40.0	4.2	1.2

FCFW 3500 and FCFW 4700 are not UL or CSA listed.



Note: Non-standard colors, sizes and lengths available subject to factory quotation.

REV 1

Ordering

Refer to the table to select the size which will shrink snugly over the component to be covered.
If recovery is restricted the resultant wall thickness will be less than specified.

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DSFW/DSFM

Medium & Heavy Wall, Heat Shrinkable Tubing insulates and protects electrical splices and terminations where maximum flame retardancy and exceptional insulating and sealing characteristics are required

Main Features

- **DSFW/DSFM tubing will not split or rupture during installation, even when overheated**
- **Spiral Coated Adhesive Liner provides complete environmental protection and insulation**
- **Flame retardant**
- **Rated for 600 V, 90°C continuous use**
- **Continuous operating temperature: -55°C to 110°C**
- **Shrink temperature: 120°C**

Technical Data

Physical

Property	Test Method	Typical Performance
Tensile strength	ISO 527-1,2	14 N/mm² (min.)
Elongation at break	ISO 527-1,2	350% (min.)
Specific gravity		
- DSFW	ASTM D1505 / ISO1183	1.25 g/cm³ (max.)
- DSFM	ASTM D1505 / ISO1183	1.25 g/cm³ (max.)
Heat aging (168 hours, 155°C)		
- Decrease in tensile strength:	ISO 527-1,2	25% (max.)
- Decrease in elongation at break:	ISO 527-1,2	25% (max.)
Heat shock (4 hours at 250°C)	ASTM D2671	no dripping, flowing or cracking
Low temperature flexibility (4 hours at -55°C)	ASTM D2671	no cracking

Electrical

Dielectric strength	ASTM D149 / IEC 243	20 kV/mm (min.)
Specific volume resistance		
- DSFW	ASTM D257 / IEC 93	10^{13} Ohm.cm
- DSFM	ASTM D257 / IEC 93	10^{14} Ohm.cm
Permittivity		
- DSFW	ASTM D150 / IEC 250	3.5 (max.)
- DSFM	ASTM D150 / IEC 250	2.5 (max.)

Chemical

Corrosion (160°C ± 2°C, 168 hours)	ASTM D267	none
- Elongation at break	ISO 527-1,2	150% (min.)
Flammability	ASTM D2671/IEC 684-3-211	
- DSFW/DSFM		flame retardant
Water absorption	ISO 62	0.2% (max.)
Resistance to chemicals (M-20 hydraulic oil, cable mass, engine oil, kerosene)		
- Decrease in tensile strength	ISO 527-1,2	50% (max.)

Characteristics of the internal sealing adhesive

Type: - 1 - For operating temperatures up to 90°C (transparent)

Softening temperatures		
- Type 1	ASTM E28	103-120°C
Water absorption		
- Type 1	ISO 62	1.0% (max.)

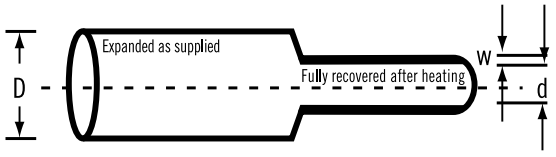
Ordering

Select a dimension which will shrink snugly over the component to be covered. If recovery is restricted the resultant wall thickness will be less than specified.

Dimensions

Order Ref. No.	Diameter			Deliverable length (max)	
	as supplied	after recovery	wall thickness	without adhesive	coated with adhesive
	mm	mm	mm	mm	mm
DSFW 0500 12/3	12.0	3.0	2.0	1000	500
DSFW 0750 20/7	20.0	7.0	2.5	1000	500
DSFW 0950 25/8	25.0	8.0	3.0	1000	600
DSFW 1100 30/8	30.0	8.0	3.0	1000	600
DSFW 1300 30/10	30.0	10.0	3.0	1000	600
DSFW 1500 40/12	40.0	12.0	3.5	1000	1000
DSFW 2000 55/18	55.0	18.0	3.5	1000	1000
DSFW 2700 65/21	65.0	21.0	4.0	1000	1000
DSFW 3000 80/22	80.0	22.0	4.0	1000	1000
DSFW 4000 110/36	110.0	36.0	4.5	1100	1100
DSFW 5100 130/37	130.0	37.0	4.5	1500	1500
DSFW 6000 150/50	150.0	50.0	4.5	1500	1500
DSFW 6700 180/65	180.0	65.0	4.0	1500	1500

Order Ref. No.	Diameter			Deliverable length (max)	
	as supplied	after recovery	wall thickness	without adhesive	coated with adhesive
	mm	mm	mm	mm	mm
DSFM 0350 9/3	9.0	3.0	1.2	4000	150
DSFM 0500 12/4	12.0	4.0	1.5	4000	500
DSFM 0750 20/6	20.0	6.0	2.2	4000	500
DSFM 0950 25/8	25.0	8.0	2.5	4000	600
DSFM 1500 37/12	37.0	12.0	2.5	4000	600
DSFM 2050 50/17	50.0	17.0	2.5	4000	1000
DSFM 3000 80/24	80.0	24.0	2.5	1000	1000
DSFM 3500 90/34	90.0	34.0	2.5	1000	1000
DSFM 4000 110/34	110.0	34.0	2.5	1000	1000



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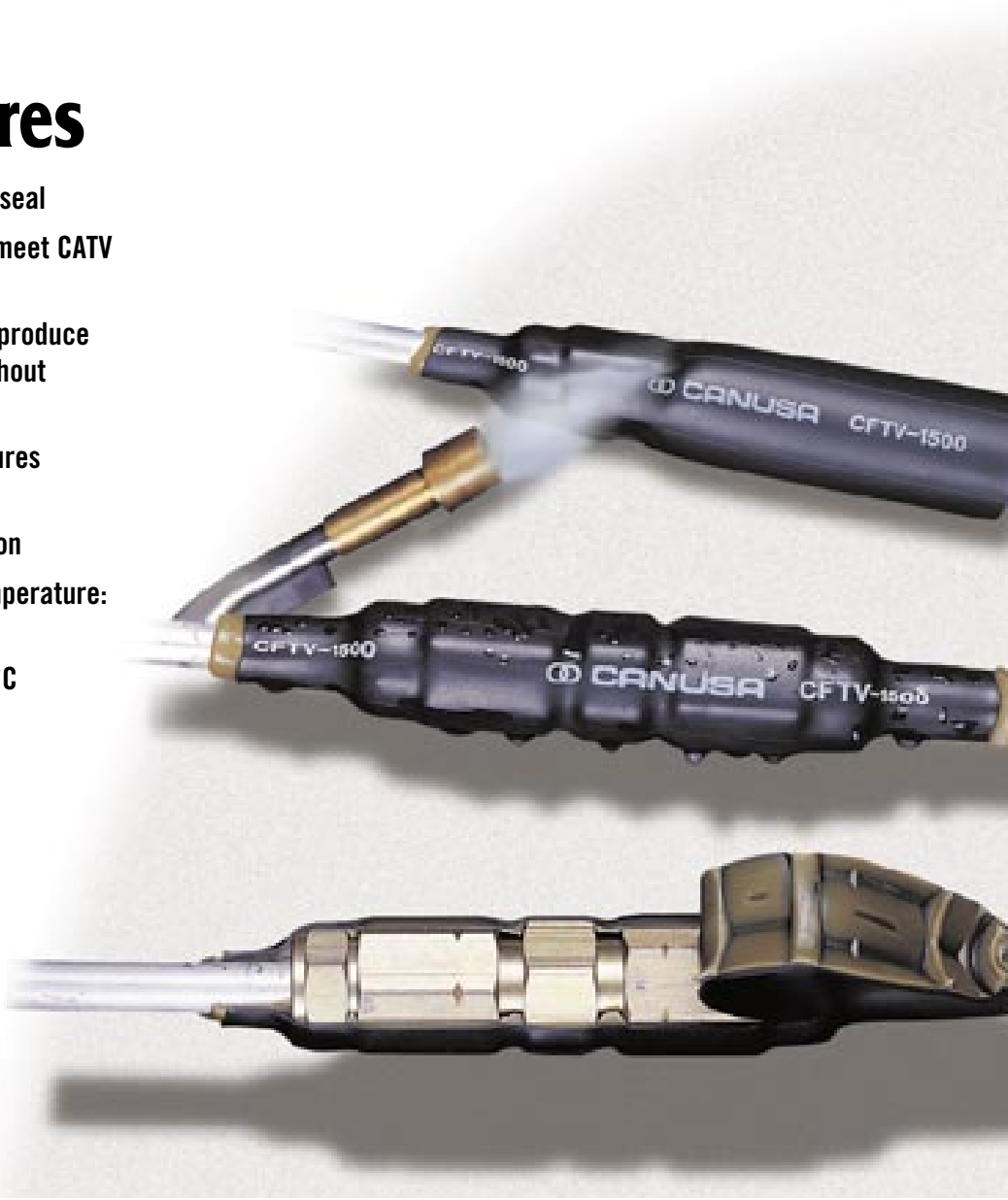
CFTV

Heat Shrinkable Tubing and adhesive liner combination that established the CATV industry standard for splice and connector protection

Main Features

- An absolutely waterproof seal
- Selective strippability to meet CATV industry specifications
- Minimal heat required to produce error free installation without splitting
- Heat indicative paint ensures integrity of seal
- Fast and simple installation
- Continuous operating temperature: -55°C to 110°C
- Shrink temperature: 120°C



Technical Data

Physical

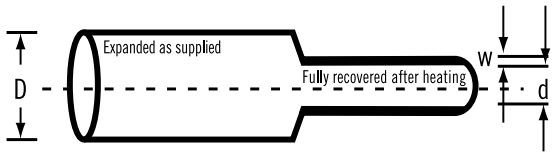
Property	Test Method	Typical Performance
Tensile Strength	ASTM D412, ISO 37	2100 psi (14.5 MPa)
Elongation	ASTM D412, ISO 37	600%
Low Temperature Flexibility (4hrs at -55°C)	ASTM D2671	No cracking
Abrasion Resistance (CS 17, 500g, 5000 cycles)	ASTM D2671	60 mg
Adhesive Softening Point	ASTM-E28	85°C
Adhesive Peel Strength to P.E.	ASTM D1000	35 pli (110N/25MM)
Adhesive Peel Strength to Aluminum	ASTM D1000	9 pli (40N/25MM)
Adhesive Lap Sheer (1 in./min. at 23°C)	ASTM D1002	135 psi (0.1 MPa)
Adhesive Viscosity (132°C)	ASTM D1084	32000 CPS
Water Penetration (on installed tubing: 50°C for 14 days)	STM-706	No penetration

Chemical

Copper Corrosion	ASTM D2671	No Corrosion
Water Absorption	ASTM D570	0.1 %
Fungus Resistance	ASTM G21	No Growth

Dimensions

ORDER REF. NO.	EXPANDED	RECOVERED		STANDARD LENGTHS
	INTERNAL DIAMETER (MIN)	INTERNAL DIAMETER (MAX)	WALL THICKNESS (NOM)	
	D mm	d mm	w mm	m
CFTV 0400	10.2	3.8	2	1.2
CFTV 0750	19.0	5.6	2	1.2
CFTV 1100	27.9	10.2	2	1.2
CFTV 1300	33.0	10.2	2	1.2
CFTV 1500	38.1	12.7	2	1.2
CFTV 1700	43.2	12.7	2	1.2
CFTV 2050	52.1	19.0	2	1.2
CFTV 2750	69.8	25.4	2	1.2



Ordering

Select a dimension which will shrink snugly over the component to be covered. If recovery is restricted the resultant wall thickness will be less than specified.

Colours:	Black
Lengths:	Standard length is 1.2 m.
Note:	Non-standard sizes and lengths available subject to factory quotation.

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Transition & Signal Cable Joints

Description

Sleeve types UMSP and UMSSP are particularly suitable for connecting polymeric insulated energy cables to paper-insulated compound-impregnated 0.6/1kV cables.

UMSP: Transition sleeve for crimp connectors

UMSSP: Transition sleeve (multi-region) for screw and crimp connectors

VMSSK: Signal cable sleeve

VMSSK heat shrinkable joint sleeves are suitable for connecting polymeric insulated control cables without armouring, e.g. NYY or NYSLY.

Main Features

- **Quick, easy installation**
- **Exceptionally good electrical insulation**
- **Good mechanical load-bearing ability**
- **No maintenance time necessary**
- **Can be used immediately**
- **Meets VDE 0278 Part 1+3**

Dimensions

Signal Kits

Description	Number of Cores	Cross Section of Conductors	Cable Type e.g.
VMSSK 7	4 - 7	1.0 - 2.5 mm²	NYY
VMSSK 14	8 - 14	1.0 - 2.5 mm²	NYY
VMSSK 21	15 - 21	1.0 - 2.5 mm²	NYY
VMSSK 40	22 - 40	1.0 - 2.5 mm²	NYY
VMSSK 75	41 - 75	1.0 - 2.5 mm²	NYY

Transition Joints

For Crimp Connectors			
Description	Number of Cores	Cross Section of Conductors	Cable Type e.g.
UMSP 3/16	3x6-16mm²	3x6-25mm²	NKBA of NYY
UMSP 3/70	3x25-70mm²	3x25-95mm²	NKBA of NYY
UMSP 3/150	3x95-150mm²	3x35-150mm²	NKBA of NYY
UMSP 3/240	3x95-240mm²	3x95-300mm²	NKBA of NYY
UMSP 4/16	4x6-16mm²	4x6-25mm²	NKBA of NYY
UMSP 4/70	4x25-70mm²	4x25-95mm²	NKBA of NYY
UMSP 4/150	4x95-150mm²	4x35-150mm²	NKBA of NYY
UMSP 4/240	4x95-240mm²	4x95-300mm²	NKBA of NYY
For Screw Connectors			
UMSSP 3/50	3x25-50mm²	3x25-50mm²	NKBA of NYY
UMSSP 3/95	3x70-95mm²	3x70-95mm²	NKBA of NYY
UMSSP 3/150	3x120-150mm²	3x120-150mm²	NKBA of NYY
UMSSP 3/240	3x185-240mm²	3x185-240mm²	NKBA of NYY
UMSSP 4/50	4x25-50mm²	4x25-50mm²	NKBA of NYY
UMSSP 4/95	4x70-95mm²	4x70-95mm²	NKBA of NYY
UMSSP 4/150	4x120-150mm²	4x120-150mm²	NKBA of NYY
UMSSP 4/240	4x185-240mm²	4x185-240mm²	NKBA of NYY

Cross Section mm²	Diameter / Length mm
25 - 50	25 / 60
70 - 95	32 / 110
120 - 150	32 / 110
185 - 240	38 / 130

Standard Contents

VMSSK

- 1 outer sleeve
- 7-75 inner sleeves
- abrasive paper
- cleaning cloth
- installation instructions

UMSP & UMSSP

- 1 outer sleeve
- 4(3) inner sleeves
- 4(3) core sleeves
- 1 divider cap
- 1 copper braided tube
- 2 roll springs
- abrasive paper
- cleaning cloth
- installation instructions

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Heat Shrinkable Joint Kits

Description

VMS, VMSS and VMSP connecting (cable-jointing) sleeves are outstandingly suitable for joining multi-core, polymeric insulated energy cables in the low voltage range.

VMS: Joint sleeve for polymeric insulated cables

VMSS: Multi-region joint sleeve for screw connectors

VMSP: Multi-region joint sleeve for crimp connectors

CJK/CTK: Joint and termination kits for armoured cables

Main Features

- **Quick, simple installation**
- **Exceptionally good electrical insulation**
- **Good mechanical load-bearing ability**
- **No maintenance time necessary**
- **Usable immediately**
- **Unlimited storage life**
- **Tested to DIN 47632/VDE 0278 Part 1 and 3**
- **Available with the following interior coatings**
  A = hot-melt adhesive
  S = sealing composition

Dimensions

Joint Kits

Joint kits for plastic-insulated 0.6/1kV cables			
Description	Cross Section of Conductors DIN 47632	Max. Capacity	Cable Type e.g.
VMS 3/16	3x6-16mm²	3x6-16mm²	N(A)YYN(A)2YY
VMS 3/35	3x25-35mm²	3x16-50mm²	N(A)YYN(A)2YY
VMS 3/70	3x50-70mm²	3x25-95mm²	N(A)YYN(A)2YY
VMS 3/150	3x95-150mm²	3x35-150mm²	N(A)YYN(A)2YY
VMS 3/240	3x185-240mm²	3x95-300mm²	N(A)YYN(A)2YY
VMS 5/6	5x1.5-6mm²	5x1.5-6mm²	N(A)YYN(A)2YY
VMS 5/16	5x6-16mm²	5x6-16mm²	N(A)YYN(A)2YY
VMS 4/16	4x6-16mm²	4x6-25mm²	N(A)YYN(A)2YY
VMS 4/35	4x25-35mm²	4x16-50mm²	N(A)YYN(A)2YY
VMS 4/70	4x50-70mm²	4x25-95mm²	N(A)YYN(A)2YY
VMS 4/150	4x95-150mm²	4x35-150mm²	N(A)YYN(A)2YY
VMS 4/240	4x185-240mm²	4x95-300mm²	N(A)YYN(A)2YY

Joint Kits

Joint kits for plastic-insulated 0.6/1kV cables		
Description	Cross Section of Conductors DIN 47632	Cable Type e.g.
For Screw Connectors		
VMSS 3/35	3x25-35mm²	N(A)YYN(A)2YY
VMSS 4/95	4x25-95mm²	N(A)YYN(A)2YY
VMSS 3/240	3x95-300mm²	N(A)YYN(A)2YY
VMSS 4/240	4x95-300mm²	N(A)YYN(A)2YY
For Crimp Connectors		
VMSP 3/25	3x6-25mm²	N(A)YYN(A)2YY
VMSP 4/25	4x6-25mm²	N(A)YYN(A)2YY
VMSP 3/185	3x35-185mm²	N(A)YYN(A)2YY
VMSP 4/185	4x35-185mm²	N(A)YYN(A)2YY

Joint Kit for Armoured Cables

Code	Core Size
CJK 0	4 x 1.5 - 4 mm²
CJK 1	4 x 6 - 16 mm²
CJK 2	4 x 25 - 50 mm²
CJK 3	4 x 70 - 120 mm²
CJK 4	4 x 150 - 240 mm²
CJK 5	4 x 240 - 300 mm²

Armour continuity included in all kits.
Earth continuity kits available as separate item - please contact the sales office.
Connectors not included in kit contents.
N.B. Kits for XLPE/PVC non armoured cable to meet VDE 0278 are also available.

Termination Kit for Armoured Cables

Code	Core Size
CTK 1	4 x 4 - 35 mm²
CTK2	4 x 35 - 95 mm²
CTK 3	4 x 120 - 185 mm²
CTK 4	4 x 185 - 300 mm²

N.B. Table is for 4 core cable only. Kits for 2 and 3 core cables including CNE cable available on request.
Earthing kits available as optional extra.
Cable Lugs not included.

Standard Contents

- **1 outer sleeve**
- **3, 4 or 5 inner sleeves**
- **Cleaning cloths**
- **Abrasive cloth**
- **Installation instructions**

Note

On request the sleeves can also be supplied in different lengths and/or diameters.

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Pot End Kits

Description

SEM voltage-proof end sleeves are used for moisture sealing 3-4 core energy cables.

Main Features

- **Quick, easy installation**
- **Exceptionally good electrical insulation**
- **Good mechanical load-bearing ability**
- **No maintenance time necessary**
- **Can be used immediately**

Dimensions

Description	Cable Size	Cable Types e.g.
	mm^2	
SEM 4(3) 25	4 (3) × 6 - 25	NAVY
SEM 4(3) 150	4 (3) × 35 - 150	NAVY
SEM 4(3) 300	4 (3) × 150 - 300	NAVY

Standard Contents

1 cover end cap
4(3) core end cap
cleaning cloth, abrasive cloth,
installation instructions

End Seals

Description

EVS Heat Shrinkable End Seals are used for hermetically sealing the cable end and as UV protection for the core insulation. EVS consists of a divider cap, core cover tubes and sealing tubes.

Main Features

- **Quick, easy installation**
- **Exceptionally good electrical insulation**
- **Good mechanical load-bearing ability**
- **No maintenance time necessary**
- **Can be used immediately**

Dimensions

Description	Cable Size mm^2	Breakout Core Diameter	Heat Shrink Length	
			Core Cover Tube mm	Seal Tube mm
for 3 core cable				
EVS 3/35	3 × 4-35	3/35	250	50
EVS 3/150	3 × 50-150	3/150	350	85
EVS 3/300	3 × 185-300	3/300	450	100
for 4 core cable				
EVS 4/35	4 × 4-35	4/35	250	50
EVS 4/70	4 × 35-70	4/70	350	85
EVS 4/150	4 × 70-150	4/150	350	85
EVS 4/300	4 × 185-300	4/300	450	100

End Caps & Cable Breakouts

Adhesive Lined Heat Shrink Shapes

Description

End Caps are designed to seal the end of cables against the ingress of moisture and contamination and provide insulation and resistance to abrasion, weathering and chemical attack. Cable Breakouts are designed for the insulation and sealing of cable crutches and provide resistance to abrasion, weathering and chemical attack. Extensively tested and widely used both these products have been proven through many years service in the field.

Main Features

General

- **Unaffected by ultra-violet light**
- **Good chemical and solvent resistance**
- **Unlimited storage life**

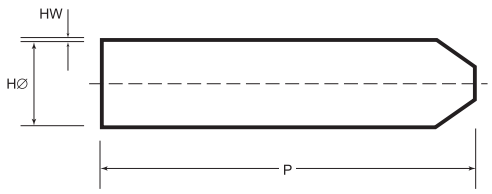
CCAP

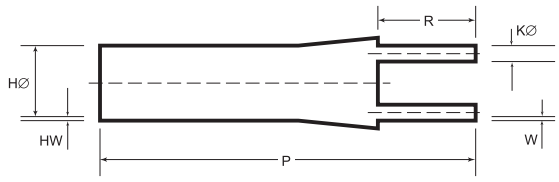
- **Superior resistance to weathering, moisture contamination and adverse environmental conditions**
- **Rated from 600/1000V, 90°C continuous use**
- **Variable lengths available**
- **Resistant to common fluids and solvents**
- **Heat indicating lines**

Technical Data

Physical

Property	Typical Performance
Tensile Strength	11 MPA
Ultimate Elongation	300%
Continuous Operating Temp.	-55°C to +100°C
Min Shrink Temperature	120°C
Specific Gravity	1.4 max
Dielectric Strength	8kV/mm min
Volume Resistivity	10^{13}ohm/cm
Low Temperature Flexibility	No cracking at -50°C
Heat Shock	No dripping, flowing or cracking
Water Absorption	0.2% max
Resistance to Fungus	Does not support growth
Copper Corrosion	Non corrosive





Dimensions

End Caps

ORDER SIZE	EXPANDED H (MIN)	EXPANDED H (MAX)	RECOVERED Hmax HW ±10%	RECOVERED Hmax FOR CABLE DIAMETER
	mm	mm	mm	mm²
CCAP 0400	10.2	3.8	2.0	4.0 - 8.5
CCAP 0750	19.0	5.8	2.0	6.0 - 16.5
CCAP 1500	38.1	12.7	2.0	14.0 - 35.0
CCAP 2050	52.1	19.0	2.0	21.0 - 45.0
CCAP 2750	69.8	25.4	2.0	30.0 - 63.0
CCAP 3500	88.9	30.0	2.0	33.0 - 83.0

End Caps

ORDER SIZE	EXPANDED H (MIN)	RECOVERED H (MAX)	RECOVERED P ±10%	RECOVERED HW ±10%	RECOVERED FOR CABLE DIAMETER
	mm	mm	mm	mm	mm²
CEC 10/4	10.0	4.0	33.5	2.0	4 - 8
CEC 14/6	14.0	4.5	30.0	2.0	6 - 11
CEC 20/7.5	22.0	8.0	60.0	2.5	8 - 16
CEC 35/12.7	35.0	10.0	184.1	3.3	13 - 28
CEC 35/15	35.0	15.0	85.0	3.0	16 - 30
CEC 55/22	55.0	22.0	125.0	3.2	25 - 44
CEC 75/43	75.0	43.0	120.0	3.7	45 - 70
CEC 100/42	100.0	42.0	162.5	3.9	45 - 95
CEC 125/70	125.0	70.0	130.0	4.0	75 - 120
CEC 158/63	158.0	63.0	127.0	3.3	64 - 125

Cable Breakouts

ORDER SIZE	EXPANDED H (MIN)	EXPANDED K (MIN)	RECOVERED H (MAX)	RECOVERED K (MIN)	RECOVERED S (NOM)	RECOVERED P ±10%	RECOVERED R ±10%	RECOVERED HW ±20%	RECOVERED W ±20%	RECOVERED NO. CORES	RECOVERED CONDUCTOR SIZE RANGE
	mm	mm	mm	mm	mm	mm	mm	mm	mm		mm²
CCB2-30/15	30.0	15.0	9.4	4.1	20.0	94	30.0	1.5	1.2	2	4 - 35
CCB2-50/21	50.0	21.0	24.0	7.0	29.0	187	29.0	3.0	2.5	2	35 - 150
CCB3-63/26	63.0	26.0	22.5	9.0	37.0	188	44.0	3.0	2.0	3	50 - 185
CCB4-35/15	35.0	15.0	12.0	3.0	22.0	95	24.0	2.5	2.0	4	4 - 35
CCB4-47/22A	47.4	21.5	35.6	6.4	38.1	165	38.1	4.1	3.3	4	35 - 95
CCB4-60/30A	60.0	30.0	27.0	8.8	48.0	165	38.1	4.1	3.3	4	120 - 185
CCB4-78/38A	78.0	38.1	35.6	12.8	50.8	205	38.1	3.8	3.3	4	120 - 300

Ordering

Part numbers and dimensions are given in the table above. Use the two right-hand columns as a guide to which the end cap you willrequire for any particular cable diameter. These parts are either available with a hot melt adhesive or a mastic inner coating.

To order, add A (hot melt adhesive or S (mastic) to the end of the part number eg. CEC 10/4A,

CEC 55/255.

Hot melt adhesive is recommended for general applications where good moisture sealing is required.

For further details of these products please contact Canusa

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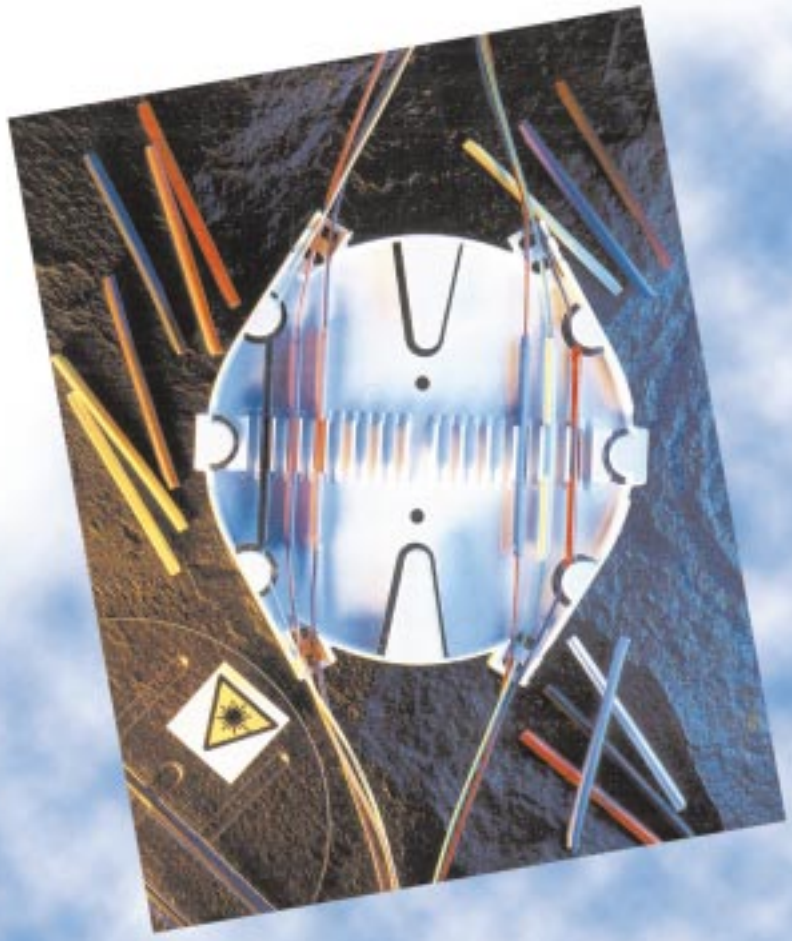
CFSP

A specially designed crosslinked polyolefin tubing system, with meltable liner, providing strength and protection to optical fiber splices

Main Features

- Single holed (preshrunk) ends eliminates improper fiber threading
- Smooth, deburred stainless steel reinforcing member ends decrease the risk of fiber damage during installation
- Extended liner length prevents contact between the fiber and the backbone
- Clear sleeve design permits easy centering of splice before heating
- Meets: AISA/SAE 302; Bellcore GR-1380-CORE
- Continuous operating temperature: -20°C to +60°C
- Shrink temperature: 90°C



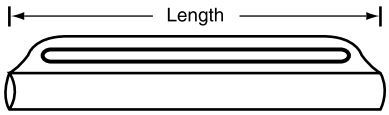
Technical Data

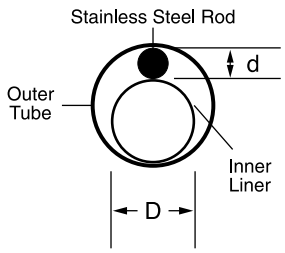
Physical

Property	Test Method	Typical Performance
Tensile Strength	ASTM D2671, ISO R527	3600 psi (25 MPa)
Density	ISO R1183D	0.94
Vicat Softening Point	ISO R306	66°C
Ultimate Elongation	ISO 37	400%
Longitudinal Change	ASTM D2671	+/-5%
Dielectric Strength	IEC 243	500 V/Mil (20 kV/mm)

Dimensions

ORDER REF. NO.	NOMINAL SLEEVE LENGTH	INSIDE DIAMETER OF INNER LINER	NOMINAL STEEL ROD DIAMETER
	mm	Min. mm	mm
CFSP-12-61	61.0	1.5	1.2
CFSP-12-45	45.0	1.5	1.2
CFSP-12-23	23.0	1.5	1.2





CFSPs are supplied in bags of 100.

Note: Non-standard colors, sizes and lengths available subject to factory quotation.

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CGEL 596

Gel filled closure provides complete environmental protection for Coaxil Drop Splices in burial and aerial applications

Main Features

- Single Piece, Clam Shell Design, requires no additional tools for installation
- GEL design provides complete water-proof protection
- Overflow chambers retain Gel within enclosure
- Fully re-enterable
- Accommodates a wide range of Standard F type and environmentally sealed Coaxil connectors
- Accommodates all Coaxil cable types including quad shielded cable
- Channel provided for retaining messenger cable
- Tough outer shell withstands impact testing to 5 ft-lbs force
- Meets SCTE IPSW-TP-013 requirements for water immersion and temperature cycling

Technical Data

Gel Properties

Physical	Test Method	Typical Performance
Cone Penetration	ASTM D1824	121 mm
Surface Tack		3.0 sec
Elongation		> 1200%
Specific Gravity	ASTM D70	0.98
Environmental	**Test Method**	**Typical Performance**
Heat Aging 60°C for 30 days		Passed all tests
Long Term Life		Properties retained for 20 years
Hydrophobic Properties		HLB < 2
Electrical	**Test Method**	**Typical Performance**
Dielectric Constant	ASTM D150	3.3 Max at 1 kHz 3.0 Max at 100 kHz
Power Factor	ASTM D150	0.03 Max at 1 kHz 0.03 Max at 100 kHz

Closure Properties

Material Property	Test Method	Typical Performance
Tensile Strength	ASTM D 638	3,900 psi (27 MPa)
Notched Izod Impact at 23°C	ASTM D 256A	2.0 ft-lbs/in
Drop Weight Impact Strength at -29°C	Montell	21 ft-lbs
Specific Gravity	ASTM D792	0.90

Installed Performance

Criteria	Test Method	Typical Performance
Moisture Migration	SCTE IPS-TP-013	No moisture migration
Impact Strength	CANUSA-AH-01 5 ft-lbs, -18°C, 38°C	No cracking or opening of closure

Dimensions

Order Ref. No.	Nominal Diameter D (min)	Standard Lengths
	mm	mm
0125	25.4	116

Application Ranges	
Cables:	All S9 & 6 Series Coaxil Cables including Quad Shield with Messengers
Connectors:	Augut: F Series, SNS Series, Environmentally sealed SNS. Gilbert: GF, GFW attd GF 360 F Type, Ultraseal Series PPC: U and UV Series

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CRLS

Rail-Less Heat Shrinkable Repair Sleeve.

Description

CRLS Rail-Less Sleeve used in cable repair and splicing applications will provide the insulation thickness required by ICEA and NEMA specifications for crosslinked polyethylene insulated wire and cable. The preferred method of crosslinking provides greater split resistance than that of the competitor.

Main Features

- **Up to 3:1 shrink ratio**
- **Insulation resistance**
- **Sealing integrity**
- **Mechanical durability**
- **Chemical resistance**
- **Moisture and fungus resistant**

® RAIL-LESS is a registered trademark of Shaw Industries

Technical Data

Physical

Property	Test Method	Typical Performance
Tensile Strength	ASTM D638	2700 psi (19 MPa)
Ultimate Elongation	ASTM D638	600%
Heat Shock (4hrs at 225°C)	ASTM D2671	No cracking or flowing
Air Oven Ageing (7 days at 150°C)	ASTM D2671	
Tensile Strength	ASTM D638	2100 psi (14.5 MPa)
Elongation	ASTM D638	540%
Specific Gravity	ASTM D792	0.94
Hardness (Shore D)	ASTM D2240	50 D

Electrical

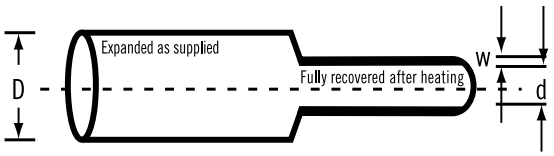
Dielectric Strength	ASTM D2671	700 V/Mil (28 kV/mm)
Volume Resistivity	ASTM D257	1.9×10^{16} ohm-cm
Dielectric Constant (1KHZ)	ASTM D150	4.05

Chemical

Fluid Resistance	MIL-DTL-23053/15	Good to excellent
Hydraulic Fluid (MIL H5606C)	MIL-DTL-23053/15	
Tensile Strength	ASTM D638, ISO 37	2500 psi (17MPa)
Elongation	ASTM D638, ISO 37	600%
Lubricating Oil (MIL L7808G)	MIL-DTL-23053/15	
Tensile Strength	ASTM D638, ISO 37	2400 psi (16MPa)
Elongation	ASTM D638, ISO 37	600%
Diesel Fuel	MIL-DTL-23053/15	
Tensile Strength	ASTM D638, ISO 37	2100psi (14.5MPa)
Elongation	ASTM D638, ISO 37	600%
Corrosivity	ASTM D2671	Non corrosive
Water Absorption	ASTM D570	<0.1%
Fungus Resistance	ASTM G21	No growth

Dimensions

ORDER REF.	EXPANDED INTERNAL DIAMETER (MIN)	RECOVERED INTERNAL DIAMETER (MAX)
	mm	mm
CRLS 1	30	6
CRLS 2	46	14
CRLS 3	68	24
CRLS 4	91	33
CRLS 5	126	47
CRLS 6	171	67



Standard lengths: 152 mm, 203 mm, 305 mm, 610 mm, 914 mm

Ordering

Refer to the table to select the size which will shrink snugly and allow for a minimum of 76 mm length overlap on each end of the area to be covered.

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CRDW

Description

Adhesive lined, heat shrinkable wraparound sleeve that is closed with a flexible stainless-steel locking channel. Used for general re-jacketing and sealing applications, protection of damaged cable or repair of cable joints. Installs easily in splice applications that are longer in length.

Main Features

- **Quick and easy installation**
- **Resistent to common fluids and aggressive media**
- **Corrosion resistent**
- **High resistance to impact and abrasion**
- **Installation temperature range -15°C to +50°C**

Art. Nr.	Min. Dia. at Delivery	Max. Dia. Fully Recovered	Min. Wall Thickness, Fully Recovered	Standard Lengths
	∅ mm	mm	mm	mm
CRDW 50/10	50	10	2.0	150, 250
CRDW 75/15	75	15	2.0	500, 750
CRDW 105/30	105	30	2.0	1000, 1500
CRDW 140/34	140	34	2.0	
CRDW 160/55	160	55	2.0	
CRDW 200/55	200	55	2.0	

Ordering

Refer to the table above to select a size which will shrink snugly over the component to be covered. Allow for a minimum of 76 mm lenght overlap beyond each end of the area to be covered.

MINI-BOXES

Canusa Mini-Boxes for heat shrink tubes, specially designed for users with lower demand

Description

Canusa Mini-Boxes will be supplied with CPX 55 or CPX 201 or CLST respectively.

On customers request we will supply other qualities in that packaging as well.

Main Features

- **Low storage capacity**
- **No scrap**
- **Recycleable packaging**
- **Standard CPX 55 in all colours**
- **Standard sizes from 1.6mm - 25.4mm**

Ordering

Refer to the dimensional table and select the size which will shrink snugly over the component to be covered. If recovery is restricted the resultant wall thickness will be less then specified.
CPX55 - Black. Red, White, Blue, Yellow, Green.
CLST - Black only.
CPX201 - Green/Yellow.

Box Contents
CPX 55 / CPX 201

Order Size	Contents
16	20 m
24	20 m
32	20 m
48	10 m
64	10 m
95	10 m
127	10 m
160	5 m
190	5 m
254	5 m

Please refer to the individual data sheets for all technical specification



CMD

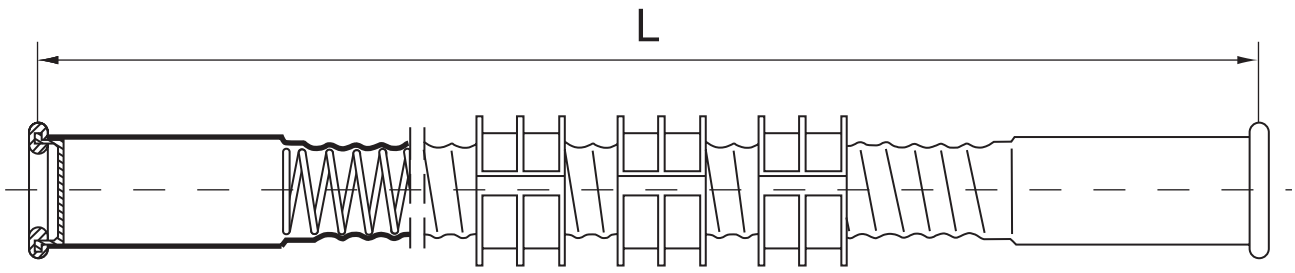
Description

CMD Wall Feed-Throughs are used for protecting cables and pipes entries into buildings.

They consist of a cross-linked polyolefin heat shrinkable tube. An inner galvanised helical steel coil supports the whole system.

Dimensions

Type	Length L	Max. Wall Thickness	Cable Diameter
	mm	mm	mm
CMD1 14/8	800	480	8 - 14
CMD2 26/12	800	480	12 - 26
CMD3 36/18	800	480	18 - 36



CFX

Extra heavy wall heat shrinkable polyolefin tubing
for insulation in medium voltage joints up to 36 kV.

Main Features

- **Extra heavy wall**
- **Shrink temperature: 120°C**
- **Reduces number of tubes required to complete a joint**
- **Simplifies installation**
- **Reduces cost**
- **Semi-rigid**

Technical Data

Properties of Jacket Material

Property	Test Method	T ypical Performance
Shrink Temperature	CSL Internal	120°C
Content		Cross-linked polyolefin
Density	ISO R1183	1.1 g/cm^3
Shore D Hardness	DIN 53505	>60
Tensile Strength	ISO R527	>14 MPA
Elongation at Break	ISO R527	>400 %
Heat Aging (168 hrs at 150°C)		
- Tensile Strength	ISO R527	12 MPA
- Elongation at Break	ISO R527	350%
Chemical Resistance (24 hrs at 23°C, oil & gasoline)		
- Tensile Strength	ISO R527	>10 MPA
- Elongation at Break	ISO R527	>300%
Thermal Resistance	IEC 216	105°C
Brittleness Temperature	ISO 974	-40°C
Water Absorption	DIN 53 495	<0.2%
Dielectric Strength	IEC 243	>20kV/mm
Volume Resistivity	IEC93	1 x 10^{13}ohm-cm

Dimensions

CFX 2200

Parameter	Minimum	Maximum
Expanded ID	54 mm	56 mm
Recovered ID	-	16 mm
Linear Shrinkage	+1%	-5%
Recovered Wall	5.4 mm	5.6 mm
Expanded Concentricity	70%	-

CFX 2800

Parameter	Minimum	Maximum
Expanded ID	69 mm	71 mm
Recovered ID	-	21 mm
Linear Shrinkage	+1%	-5%
Recovered Wall	5.4 mm	5.6 mm
Expanded Concentricity	70%	-

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DATS

Medium Wall Heat Shrinkable Non Tracking Tubing
For Use In MV Joints & Terminations Upto 36kV.

Description

DATS is a specially formulated product designed to meet the ERT requirements of medium voltage systems.

Main Features

- **Non Tracking**
- **UV stabilised**
- **Flame retardant**
- **Exceptional electrical and weathering properties**
- **Suitable for outdoor & indoor terminations**
- **Available in 6 sizes**
- **Available in continuous reels or cut to length**

Technical Data

Physical

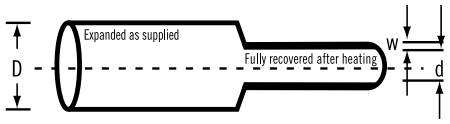
Property	Test Method	Typical Performance
Specific Gravity	ISO R1183	1.30
Tensile Strength	ISO 37	12.0 MPA
Ultimate Elongation	ISO 37	300 %
Water Absorption	ASTM D-970	1%
Hardness	ASTM D-2240	40 shore D
Operating Temperature		-55° to +125°C
Min. Shrink Temperature		120°C
Heat Shock (4 hrs at 225°C)	ASTM D2671	No dripping, flowing or cracking
Low Temperature Flexibility	ASTM D2671 (4 hrs at -55°C)	No cracking
Heat Ageing (168 hrs at 120°C) Tensile Strength Ultimate Elogation	ISO 37	8 N/mm^2 120%
Dielectric Strength	IEC 243	12kV mm
Volume Resistivity	IEC93	1 x 10^{14}ohm-cm
Dielectric Constant	IEC 250	5 (max)
ERT	ASTM D-2303	No failure by tracking or erosion after 1 hr at 2.5kV
Fungus Resistance	ASTM G-21	<1
Chemical Resistance	ISO 175	Good
Weathering Resistance	ASTM G-21	Good

Dimensions

SIZE	EXPANDED	RECOVERED		
	INTERNAL DIAMETER (MIN)	INTERNAL DIAMETER (MAX)	WALL THICKNESS (MAX)	STANDARD LENGTH*
	D mm	d mm	w mm	
DATS 350	35.0	12.0	2.8	1.2
DATS 420	40.0	15.0	2.8	1.2
DATS 540	55.0	18.0	3.2	1.2
DATS 600	65.0	21.0	3.5	1.2
DATS 760	80.0	26.0	3.5	1.2
DATS 1000	110.0	37.0	3.5	1.2

The norminal wall thickness refers to fully recovered tubing.
The wall thickness will be less than this value if shrinkage is restricted.

*Non standard lengths are available.



Lengths:	Supplied as 15 m reels.
Note:	Non-standard sizes, lengths and adhesive linings available subject to factory quotation.

Ordering

Refer to dimensional table and select the size which will shrink snugly over the component to be covered.
If recovery is restricted the resultant wall thickness will be less than specified.
Standard Colour - Brick Red.
Standard Lengths - 1 .2 metre - or rolls.

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CBTM/CBTH

Medium and Heavy Wall Anti-track Heat Shrinkable Tubing specifically designed for insulating medium voltage bus bar

Main Features

- **Reduces bus bar clearance requirements**
- **Protects against accidental flashover**
- **Anti-track**
- **Halogen free**
- **Tested to ANSI C37.20.2 standards for medium voltage switchgear applications to 36 kV**
- **Continuous operating temperature: -40°C to 125°C**
- **Shrink temperature: 120°C**
- **Slides into place easily over bends**

Technical Data

Physical

Property	Test Method	Typical Performance
Tensile Strength	ASTM D412, ISO 37	1200 psi (8.3 MPa)
Elongation	ASTM D412, ISO 37	370%
Heat Aging (7 days 175°C)		
Tensile Strength	ASTM D2671	1500 psi (10 MPa)
Elongation	ASTM D2671	200%
Heat Shock (4 hrs at 225°C)	ASTM D2671	No cracking or flowing
Low Temperature Flexibility (4 hrs at -25°C)	ASTM D2671	No cracking
Flammability	ANSI C37.20, ASTM D2671	Pass

Electrical

Dielectric Strength	ASTM D149	500 V/mil (20 kV/mm) at 2 mm
Surface Resistance	ASTM D257	510 x 10^9 ohm
Volume Resistivity	ASTM D257	2.20 x 10^{13} ohm-cm
Dielectric Constant	ASTM D150	3.4
Tracking Resistance (2500 V, 300 min)	ANSI C37.20, ASTM D2303	Non-tracking
Weathering	ASTM G53	Non-tracking after 6000 hrs

Chemical

Corrosion	ASTM D2671	No corrosion
Water Absorption	ASTM D570	0.25%
Fluid Resistance	MIL-DTL-23053/15	Good to excellent

Adhesive

Adhesive Softening Point	ASTM E28	100°C
Low Temperature Flexibility	STM C12	-25°C
Lap Sheer	STM C9	250 psi
Peel Strength: To Aluminum	STM C8	10 pli
Tracking Tests (2500 V, 300 min)	ANSI C37.20, ASTM D2303	Non-tracking

Clearances with Insulation

System Voltage	BIL kV	CBTM Medium Wall Tubing p to p	CBTM Medium Wall Tubing p to g	CBTH Heavy Wall Tubing p to p	CBTH Heavy Wall Tubing p to g
		mm	mm	mm	mm
15 kV	95	86.0	106.0	55.0	66.0
25 kV	125	114.0	152.0	71.0	101.0
36 kV	150	165.0	203.0	142.0	190.0

p to p: Phase to Phase orientation
p to g: Phase to Ground orientation
Spacing based on metal to metal dimension prior to insulation
Spacing based on insulation wall thickness per application range of above tables

Dimensions

ART. NU.	EXPANDED INTERNAL DIAMETER (MIN)	RECOVERED INTERNAL DIAMETER (MAX)	RECOVERED WALL THICKNESS (NOM)	APPLICATION RANGES RECTANGULAR BUS BAR MIN	RECTANGULAR BUS BAR MAX	ROUND BUS BAR MIN	ROUND BUS BAR MAX
	mm	mm	mm	mm	mm	mm	mm
CBTM 0750 20/6	19.0	5.5	2.7	6.4	6.4	6.8	15.2
CBTM 1300 33/10	33.0	10.1	3.0	12.7	28.5	12.4	27.9
CBTM 2050 52/19	52.0	19.0	2.8	31.5	50.8	22.3	43.1
CBTM 2750 70/25	69.8	25.4	2.9	44.4	76.2	29.7	58.4
CBTM 3500 90/30	88.9	29.9	3.1	57.1	101.6	35.8	73.6
CBTM 4700 120/40	119.3	39.9	3.2	73.0	142.8	47.7	101.6
CBTM 6700 170/58	170.1	58.4	3.2	114.3	203.2	69.5	144.7
CBTM 9000 228/77	228.6	76.9	3.3			91.9	190.5

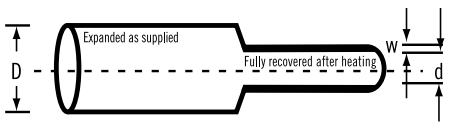
ART. NU.	EXPANDED INTERNAL DIAMETER (MIN)	RECOVERED INTERNAL DIAMETER (MAX)	RECOVERED WALL THICKNESS (NOM)	APPLICATION RANGES RECTANGULAR BUS BAR MIN	RECTANGULAR BUS BAR MAX	ROUND BUS BAR MIN	ROUND BUS BAR MAX
	mm	mm	mm	mm	mm	mm	mm
CBTH 1100 28/9	27.9	8.9	3.9			10.6	17.7
CBTH 2000 50/16	50.8	16.0	4.1	25.4	34.9	19.3	33.0
CBTH 2700 68/22	68.0	22.1	4.1	34.9	50.8	26.1	43.1
CBTH 3500 90/30	89.9	29.9	4.1	50.8	76.2	35.8	58.4
CBTH 4700 120/40	119.9	39.9	4.2	69.8	111.1	47.7	81.2
CBTH 6600 168/58	167.6	58.4	3.86	107.9	177.8	69.5	124.4

Rectangular Bus Bars have thickness of 1/4 to 5/8 inch

Application ranges noted above selected to obtain minimum insulation thickness required to meet ANSI C37.20.2 withstand requirements at bus bar spacing noted below. These spacings were determined from a limited number of test configurations. Due to the wide variety of bus bar configurations, these spacings should not be employed without actual testing by the user.

Ordering

Select a dimension which will shrink snugly over the component to be covered. If recovery is restricted the resultant wall thickness will be less than specified.



Lengths:	Supplied as 15 m reels. Max. 1 splice allowed with minimum length of 4.6m.
Standards:	Tested to ANSI C37.20.2 to 36kV. Test Report Available.
Note:	Non-standard sizes, lengths and adhesive linings available subject to factory quotation.

REV 2

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DBTM/DBTH

Medium and Heavy Wall Red Joint Insulating Tube for the core protection of medium voltage joints up to 36 kV. Tubes should be nested to achieve the required insulation thickness.

Main Features

- **Flexible**
- **Delivers consistent insulation thickness**
- **Can be used up to 36 kV**
- **1 to 4 tubes can be nested to provide insulation thickness to meet or exceed the cable**
- **DBTM/DBTH can be nested under CFX (extra heavy wall) to reduce the number of tubes needed to achieve the required insulation thickness**
- **Halogen free**
- **Flame retardant: ASTM D-2671/B or IEC 684/3/211**
- **Operating temperature: 120°C**
- **Shrink temperature: 100°C**

Technical Data

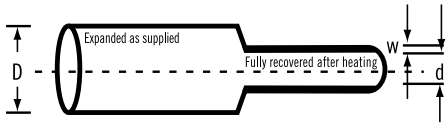
Physical, electrical and chemical propeties

Property	Test Method	Typical Performance
Tensile Strength	ASTM D 412 / ISO 37	9 N/mm^2 (min.)
Elongation	ASTM D 412 / ISO 37	300%
Heat ageing 168 hrs/175°C		
Tensile Strength	ASTM D 412 /	8 N/mm^2 (min.)
Elongation	ISO 37	200% (min.)
Heat Shock (4hrs. At 225°C)	ASTM D 2671	No cracking, no flowing
Low Temperature Flexibility (4hrs. At -40°)	ASTM D 2671	No cracking
Flammability	ANSI C37.20, ASTM D 2671	Pass flame retardant
Dielectric Strength	ASTM D 149 IEC 243	20kV/mm (min)
Volume Resistitvity	ASTM D257	10^{14} ohm.cm
Dielectric constant	ASTM D150	4 (max.)
Water Absorption	ASTM D570	1% (max.)

Dimensions

DBTM

ART. NU.	EXPANDED	RECOVERED		APPLICATION RANGES				MAXIMUM DELIVERABLE LENGTH	
	INTERNAL DIAMETER (MIN)	INTERNAL DIAME-TER (MAX)	WALL THICKNESS (NOM)	RECTANGULAR BUS BAR MIN	RECTANGULAR BUS BAR MAX	ROUND BUS BAR MIN	ROUND BUS BAR MAX	UNLINED	LINED
	mm	mm	mm	mm	mm	mm	mm	mm	mm
DBTM 0350 9/3	9.0	3.0	1.2					4000	150
DBTM 0500 12/4	12.0	4.0	1.5					4000	500
DBTM 0750 20/6	20.0	6.0	2.2	6.4	6.4	6.8	15.2	4000	500
DBTM 0950 25/8	25.0	8.0	2.5	9.5	12.7	12.7	19.1	4000	600
DBTM 1500 40/15	40.0	15.0	2.5	12.7	28.5	12.4	27.9	4000	1000
DBTM 2050 50/17	50.0	17.0	2.5	31.5	50.8	22.3	43.1	4000	1000
DBTM 3000 80/24	80.0	24.0	2.5	50.8	90.6	32.0	63.0	1000	1000
DBTM 3500 90/34	90.0	34.0	2.5	57.1	101.6	35.8	73.6	1000	1000
DBTM 4000 110/37	110.0	37.0	2.5	63.0	101.6	42.0	90.6	1000	1000



DBTH

ART. NU.	EXPANDED	RECOVERED		APPLICATION RANGES				MAXIMUM DELIVERABLE LENGTH
	INTERNAL DIAMETER (MIN)	INTERNAL DIAME-TER (MAX)	WALL THICKNESS (NOM)	RECTANGULAR BUS BAR MIN	RECTANGULAR BUS BAR MAX	ROUND BUS BAR MIN	ROUND BUS BAR MAX	
	mm	mm	mm	mm	mm	mm	mm	mm
DBTH 0750 20/7	20.0	7.0	2.5					4000
DBTH 1100 30/8	30.0	8.0	3.0			10.6	17.7	4000
DBTH 2000 55/18	55.0	18.0	3.5	25.4	34.9	19.3	33.0	1000
DBTH 2700 65/21	65.0	21.0	3.5	34.9	50.8	26.1	43.1	1000
DBTH 3500 88/26	88.0	26.0	4.0	50.8	76.2	35.8	58.4	1000
DBTH 4700 110/37	110.0	37.0	4.5	69.8	111.1	47.7	81.2	1100
DBTH 6600 150/50	150.0	50.0	4.5	107.9	177.8	69.5	124.4	1100

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CMVBT

Anti-Track, Adhesive Coated, Heat Shrinkable Tape specifically designed for insulating and protecting Medium Voltage Bus Bar

Main Features

- **Tested to ANSI C31.20.2 standards for medium voltage switchgear applications to 25 kV**
- **Reduces bus bar clearance requirements**
- **Protects against accidental flashover**
- **Anti-Track**
- **Halogen Free**
- **Continuous operating temperature: -25°C to 90°C**
- **Shrink temperature: 120°C**

Technical Data

Physical

Property	Test Method	Typical Performance
Tensile Strength	ASTM D412, ISO 37	1200 psi (8.3 MPa)
Elongation	ASTM D412, ISO 37	370%
Heat Aging (7 days 175°C)		
Tensile Strength	ASTM D2671	1500 psi (10 MPa)
Elongation	ASTM D2671	200%
Heat Shock (4 hrs at 225°C)	ASTM D2671	No cracking or flowing
Low Temperature Flexibility (4 hrs at -25°C)	ASTM D2671	No cracking
Flammability	ANSI C37.20, ASTM D2671	Pass

Electrical

Dielectric Strength	ASTM D149	500 V/mil (20 kV/mm) at 2 mm
Surface Resistance	ASTM D257	510 x 10^9 ohm
Volume Resistivity	ASTM D257	2.20 x 10^{13} ohm-cm
Dielectric Constant	ASTM D150	3.4
Tracking Resistance (2500 V, 300 min)	ANSI C37.20, ASTM D2303	Non-tracking
Weathering	ASTM G53	Non-tracking after 6000 hrs

Chemical

Corrosion	ASTM D2671	No corrosion
Water Absorption	ASTM D570	0.25%
Fluid Resistance	MIL-DTL-23053/15	Good to excellent

Adhesive

Adhesive Softening Point	ASTM E28	100°C
Low Temperature Flexibility	STM C12	-25°C
Lap Sheer	STM C9	250 psi
Peel Strength: To Aluminum	STM C8	10 pli
Tracking Tests (2500 V, 300 min)	ANSI C37.20, ASTM D2303	Non-tracking

Medium Voltage Bus Tape

For Services to 25 kV Over Bolted Bus Bar

ORDER REF. NO.	ROLL WIDTH (MIN)	BACKING THICKNESS RECOVERED (NOM)	ROLL LENGTH
	mm	mm	mm
CMVBT-1	25.4	1.06	7.62
CMVBT-2	50.8	1.06	7.62
CMVBT-4	101.6	1.06	7.62

Clearances with Insulation

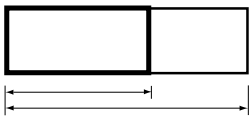
SYSTEM VOLTAGE	BIL kV	p to p (mm)	p to g (mm)
15 kV	95	64	74
17 kV	110	86	106
25 kV	125	114	152

p to p: Phase to Phase orientation
p to g: Phase to Ground orientation
Spacing based on metal to metal dimension prior to insulation

Application ranges noted above selected to obtain minimum insulation thickness required to meet ANSI C37.20.2 withstand requirements at bus bar spacing and operating voltages noted. These spacings were determined from a limited number of test configurations. Due to the wide variety of bus bar configurations, these spacings and recovered wall thicknesses should not be employed by the user without actual verification and testing for the intended application.

Installation Instructions

CMVBT-1 is best for short lengths
CMVBT-2 is most commonly used and versatile
CMVBT-4 is used for long lengths
A 2/3 overlap is recommended
One layer application required to 17kV
Two layer application required to 25kV



Shrink ratio of 1.7:1 on Heating

Ordering

Select a dimension which will shrink snugly over the component to be covered. If recovery is restricted the resultant wall thickness will be less than specified.

Lengths:	Supplied on 7.6 m rolls
Standards:	Tested to ANSI C37.20.2 for applications to 25kV Test report available

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HSCT

Medium Wall Heat Shrinkable Semi-Conductive Tubing For Use In MV Joints (Upto 36KV)

Description

A necessary component of any medium voltage heat shrink based jointing system. Canusa's HSCT formulation enjoys a very low volume resistivity.

Main Features

- **Operating temperature range: -55°C to +125°C**
- **4 Sizes**
- **Available in cut lengths if required**

Technical Data

Physical

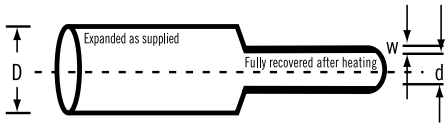
Property	Test Method	Typical Performance
Specific Gravity	ISO R1183	1.19
Tensile Strength	ISO 37	12.0 MPA
Ultimate Elongation	ISO 37	300%
Water Absorption	ASTM -570	0.5 %
Hardness	ASTM D2240	40 shore D
Operating Temperature		-55° to +125°C
Min Shrink Temperature		120°C
Heat Shock	ESI 0913 (30 min at 200°C)	No dripping, flowing or cracking
Low Temperature Flexibility	ASTM D2671 (4 hrs at -55°C)	No cracking
Heat Ageing (168 hrs at 120°C)	ISO 37	
Tensile Strength		10 MPA
Ultimate Elogation		250 %
	IEC 243	NA
Volume Resistivity	IEC93	20 Kohm-cm (max)
Dielectric Constant	IEC 250	15 (min)
Chemical Resistance	ISO 175	Good
Fungus Resistance	ASTM G-21	<1

Dimensions

SIZE	EXPANDED	RECOVERED		
	INTERNAL DIAMETER (MIN)	INTERNAL DIAMETER (MAX)	WALL THICKNESS (NOMINAL)	STANDARD LENGTH*
	D mm	d mm	W mm	m
HSCT 3816	38	16	2.0	1.2
HSCT 4218	42	18	2.0	1.2
HSCT 7024	70	24	2.5	1.2
HSCT 9338	93	38	2.0	1.2

The norminal wall thickness refers to fully recovered tubing.
The wall thickness will be less than this value if shrinkage is restricted.

*Non standard lengths are available.



Ordering

Refer to dimensional table and select the size which will shrink snugly over the component to be covered.
If recovery is restricted the resultant wall thickness will be less than specified.
Standard Colour - Black.
Standard Lengths - 1 .2 metre lengths.

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HVDW

A two-layer coextruded tube with a black outside semi-conductive layer and a brick inside insulating layer used for jointing MV cables up to 36 kV

Description

Two-layer EPDM extra heavy insulating wall polyethylene semi-conductive outer wall for use in medium voltage joints as an alternative to (CFX plus HSCT). One dual wall tube will replace multiple insulation tubes plus the semi-conductive tube reducing significantly installation time and installation skills required.

Main Features

- **Dual-wall XLPE/EPR heat shrinkable tube**
- **Reduces installation time**
- **Factory engineered system**
- **Reduces skill requirement of jointer**
- **Reduces the number of tubes in a MV joint kit**
- **Delivers consistent insulation thickness**

Technical Data

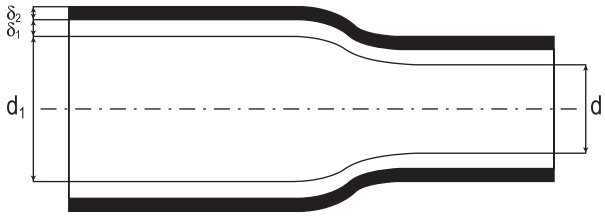
Property	Test Method	Typical Performance (min/max)
Outside semi-conducting layer		
Physical		
Density	IEC 684-2-4	1160 kg/m^3
Tensile Strength	IEC 684-2-19	15/20.5 N/mm^2
Ultimate Elongation	IEC 684-2-19	100/250 %
Electrical		
Resistivity		50/100 ohm-cm
Inside semi-conducting layer		
Physical		
Density	IEC 684-2-4	1200/1300 kg/m^3
Tensile Strength	IEC 684-2-19	5/6.5 N/mm^2
Ultimate Elongation	IEC 684-2-19	250/660 %
Electrical		
Dielectric Strength	IEC 684-2	21/26 kV/mm
Volume Resistivity	IEC 684-2	1x10^{15}/7x10^{15} ohm-cm
Dual Wall Heat Shrinkable Tube		
Physical		
Temperature at Continuous Duty		90/105°C
Shrinkage Temperature		>125°C
Shrinkage at Full Recovery		120/125 %

Electrical Ratings

Test Sequence	Test Voltage Highest Voltage for Cable Um (kV) 12	24	36	Results
A.C. Voltage Withstand 1 min	35	55	75	passed
Partial Discharge	12	24	36	≤10 pC
Impulse Voltage Withstand - 10 positive and 10 negative, 1.2/50 µs, between conductor and grounded screen	75	125	170	passed
Load Cycling - 3 cycles, 5 h heating, 3 h cooling - Conductor Temperature: XPLE cables 95°C paper insulated cables	15 75°C	30 70°C	45 65°C	passed
Partial Discharge	12	24	36	≤10 pC
Load Cycling - as above but 60 cycles	15	30	45	passed
Impulse Voltage Withstand - as above	75	125	170	passed
D.C. Voltage Withstand 30 min	35	55	75	passed
A.C. Voltage Withstand up to breakdown				

Dimensions

Type of Tubes	Recovered Dimensions Insulation EPDM δ_1 (mm)	Semi-cond PE δ_2 (mm)	Internal Diameter d (mm)	Expanded d_1 (mm)	Length (m)
HVDW 36/16	5.5	3.0	16.0	36.0	acc. buyer require-ments
HVDW 36/16S	8.5	4.0	16.0	36.0	
HVDW 45/20	8.5	4.0	20.0	45.0	
HVDW 56/25	12.0	4.0	25.0	56.0	



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CSCR

Medium Wall Heat Shrinkable Stress Control Tubing For Use In MV Joints & Terminations (Up To 36kV)

Description

An essential part of any heat shrink based joint or termination system Canusa's CSCR tubing is designed to give optimum performance in this demanding application

Main Features

- **Operating temperature range -55°C to +125°C**
- **3 standard sizes**
- **Shrink ratio: 3:1**
- **Available cut to length**

Technical Data

Physical

Property	Test Method	Typical Performance
Tensile Strength	ASTM D-412 / ISO 37	15 MPA
Ultimate Elongation	ASTM D-412 / ISO 37	320%
Water Absorption	ASTM D-570 / ISO 62	0.4%
Hardness (Shore D)	ASTM D-2240	44
Longitudinal Change	ASTM D-2671	-5%
Density	ISO R-1183(A) / ASTM D-1505	1.29 g/cm^3

Thermal

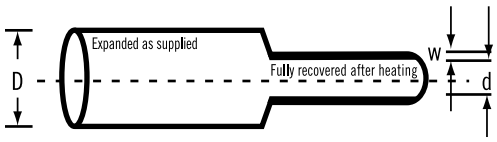
Heat Shock (30 min. at 200°C)	ESI 0913	Pass
Heat Aging (500 hrs at 120°C)	ASTM D-412 / ISO 37	
Tensile Strength		13 MPA
Ultimate Elongation		160%
Low Temperature Flexibility (-40°C)	ASTM D-2671	Pass
Flammability	ASTM D-2671(B)	Pass

Electrical

Volume Resistivity	ASTM D-257 / IEC 93	1x10^{10} Ohm.cm
Dielectric Constant	ASTM D-150 / IEC 250	16 (min); Typical 22

Dimensions

Art. Nr.	Expanded	Recovered		Standard Lengths
	Internal Diameter	Internal Diameter	Wall Thickness	
	D mm	d mm	W mm	m
CSCR 30/10	30.0	10.0	2.5	1.2
CSCR 45/15	45.0	15.0	3.0	1.2
CSCR 66/22	66.0	22.0	3.0	1.2



Ordering

Refer to dimensoional table and select the largest size which will shrink snugly over the component to be covered.
If recovery is restricted the resultant wall thickness will be less than specified.
Standard Colour - Black
Standard Length - 1.2 metre lengths.
Canusa will offer a cutting service.

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CCBA/CRSA/CRBA

CCBA anti-track cable break out boots seal and protect cable and conduit breakouts
CRSA anti-track rain skirts reduce flash over potential in terminations and insulators
CRBA anti-track right angle boots seal and protect right angle terminations

Main Features

- **Designed for Medium Voltage Applications to 36kV**
- **Shaped components to meet a variety of configuration requirements**
- **Meets ESI 09-13**
- **Continuous operating temperature: -55°C to 120°C**
- **Shrink temperature: 120°C**

Technical Data

Physical

Property	Test Method	Typical Performance
Tensile Strength	ASTM D412	2600 psi (18 MPa)
Elongation	ASTM D412	600%
Heat Aging (500hrs. at 120°C)		
Tensile Strength	ASTM D412	2200 psi (15.2 MPa)
Elongation	ASTM D412	400%
Low Temperature Flexibility (-40°C)	ASTM D2671	No cracking
Flammability	ASTM D635	Non burning classification
Weatherometer	ASTM G-53	
Tensile	ASTM D412	2000 psi (13.8 MPa)
Elongation	ASTM D412	600%
Dielectric Strength	ASTM D412	375 V/mil (15 kV/mm)
Tracking Resistance	ASTM D2303	Non-tracking

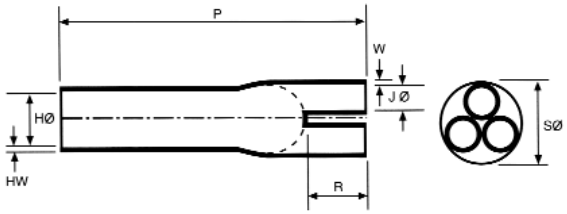
Electrical

Dielectric Strength	ASTM D149, IEC 243	400 V/mil (16 kV/mm)
Volume Resistivity	STM D257	1.9×10^{16} ohm-cm
Track Resistance	ASTM D2303	Non-tracking

Chemical

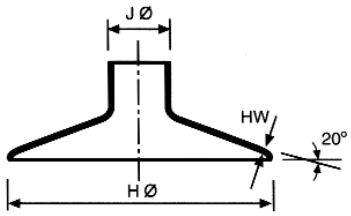
Chemical Resistance		
Tensile Strength	ASTM D412	1900 psi (13 MPa)
Elongation	ASTM D412	640%

Dimensions



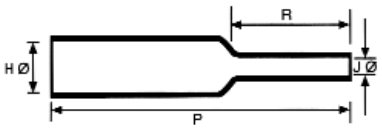
Breakouts

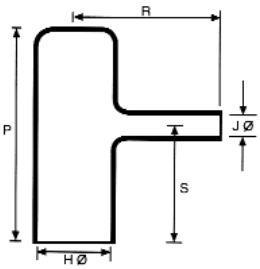
	EXPANDED MIN		RECOVERED MAX		RECOVERED DIMENSIONS FULLY SHRUNK				
ORDER REF.	H	J	H	J	S (NOMINAL)	P ±10%	R ±10%	HW ±20%	W ±20%
	mm	mm	mm	mm	mm	mm	mm	mm	mm
CCBA 220	55.8	30.4	23.5	9.5	37.0	180.0	44.0	3.0	2.0
CCBA 350	90.0	35.0	35.5	14.5	54.0	200.0	50.0	3.0	2.0
CCBA 430	110.0	40.0	35.5	18.0	55.0	230.0	45.0	4.0	3.0
CCBA 470	120.0	60.0	61.0	26.0	85.0	300.0	90.0	4.0	3.0



Rainsheds

	EXPANDED MIN	RECOVERED MAX	RECOVERED DIMENSIONS FULLY SHRUNK	
ORDER REF. NO.	J	J	H ±20%	HW ±20%
	mm	mm	mm	mm
CRSA 170	44	15	95.0	3.0
CRSA 230	58	22	115.0	3.0
CRSA 300	76	31	135.0	3.0





Breakouts

	EXPANDED MIN		RECOVERED MAX		RECOVERED DIMENSIONS FULLY SHRUNK		
ORDER REF.	H	J	H	J	P ±10%	R ±10%	S ±10%
	mm	mm	mm	mm	mm	mm	mm
STRAIGHT							
CRBA 335	85.0	45.0	41.5	21.0	240.0	120.0	
RIGHT ANGLE							
CRBA 335 L	85.0	45.0	43.0	21.0	183.0	150.0	110.0
CRBA 335 S	85.0	45.0	40.0	16.5	145.0	150.0	110.0

Ordering

Select a dimension which will shrink snugly over the component to be covered. If recovery is restricted the resultant wall thickness will be less than specified.

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CSAT-ZH

Self Amalgamating Tape

Description

CSAT-ZH is a flexible EPR based tape with excellent electrical, physical and chemical properties.
CSAT-ZH is a self amalgamating tape that maintains a tight insulation build up, for void free electrical stability and permanent resistance to moisture penetration.

Main Features

- **Self amalgamating**
- **Halogen free**
- **Outstanding corona, UV, ozone resistance**
- **Easily applied-no tools or heat required**
- **Excellent cold weather seal and corrosion protection**
- **Over 3:1 stretch ratio**
- **Operating temperature -55°C to 105°C**

Technical Data

Physical

Property	Test Method	Typical Performance
Tensile Strength	DEF 59/97-3	2.50 MPA
Elongation	DEF 59/97-3	750%
Heat Shock	DEF 59/97-3	150°C
Water Absorption	DEF 59/97-3	0.06%
Ozone Resistance	DEF 59/97-3	Pass (visual)
Fluid Resistance	DEF 59/97-3	Pass
UV Resistance	DEF 59/97-3	Pass
Dielectric Strength	DEF 59/97-3	30kV/mm
Dielectric Constant	ASTM D150	2.7 (24h at 23°C)

Dimensions

ORDERING REF	WIDTH (mm)
CSAT-ZH-19	19
CSAT-ZH-25	25
CSAT-ZH-38	38
CSAT-ZH-51	51

Colour:	Black
Thickness:	0.76 mm
Roll length:	9 m

Recommended Uses

- **Compression gland seal**
- **Insulating and jacketing of cables and terminations up to 65kV**
- **Cable jacket repairs & restoration**
- **Stable packing medium for splices**
- **Installation where flame and heat is prohibited**
- **Insulating and protecting busbars and fittings**

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CTSB-2/CTSG-1

CTSB-2
Specially designed, rubber based, black sealant tape for use with Heat Shrink Tubing
CTSG-1
Crosslinked, grey butyl tape suitable for continuous high temperature applications

Main Features

CTSB-2

- **Excellent adhesion to PVC, PE and steel**
- **Softens to fill voids**
- **Remains flexible over time**
- **Nonconductive**
- **Superior waterproof seal when used with other CANUSA products**

CTSG-1

- **Protects sharp edges and smooths transitions**
- **Environmentally seals areas and tubing**
- **Nonconductive**
- **Excellent high temperature performance**
- **Resistant to common fluids and solvents**

Technical Data

Physical

Property	Test Method	Typical Performance CTSB-2	Typical Performance CTSG-1
Elongation	ASTM D1000	350%	400%
Specific Gravity	ASTM D792	1.34	1.45
Adhesive Lap Shear	ASTM D1002	17 psi, (0.01 MPa)	17 psi, (0.01 MPa)
Shrinkage	TT-C-2671	0	0
Flow at Elevated Temp (50°C)	TT-C-1796	None	None
Low Temp Flexibility	AST M D 1043	-18°C	-40°C

Chemical

Water Absorption	ASTM D570	0.06%	0.06%
Corrosion	ASTM D 2203	Non-corrosive	Non-corrosive
Fungus Resistance	ASTM G-21	No Growth	No Growth
Water Solubility	GS-4.2	0.01%	0.01%
Cone Penetration	ASTM D-217	35	50
Plasticity	ASTM D-926	142	268

Electrical

Dielectric Strength	ASTM D-149	50 V/Mil (2kV/mm)	310 V/Mil (12 kV/mm)
Volume Resistivity	ASTM D-257	1.52 x 10^{14} ohm-cm	4.9 x 10^{14} ohm-cm

Dimensions

ORDER REF. NO.	WIDTH	THICKNESS	ROLL LENGTH
	mm	mm	mm
CTSB-2 (BLACK)	50.8	1.5	7620

ORDER REF. NO.	WIDTH	THICKNESS	ROLL LENGTH
	mm	mm	mm
CTSG-1 (GREY)	25.4	1.5	7620

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SCBR

Heat shrinkable three-way cable breakouts provide a positive environmental seal to the cable crutch. The breakouts are made of a semi-conductive material. The breakouts are supplied coated internally.

Main Features

- **Semi-conductive**
- **Mechanical strength at cable trifurcation**
- **Environmental sealing**
- **Internally coataed with adhesive**

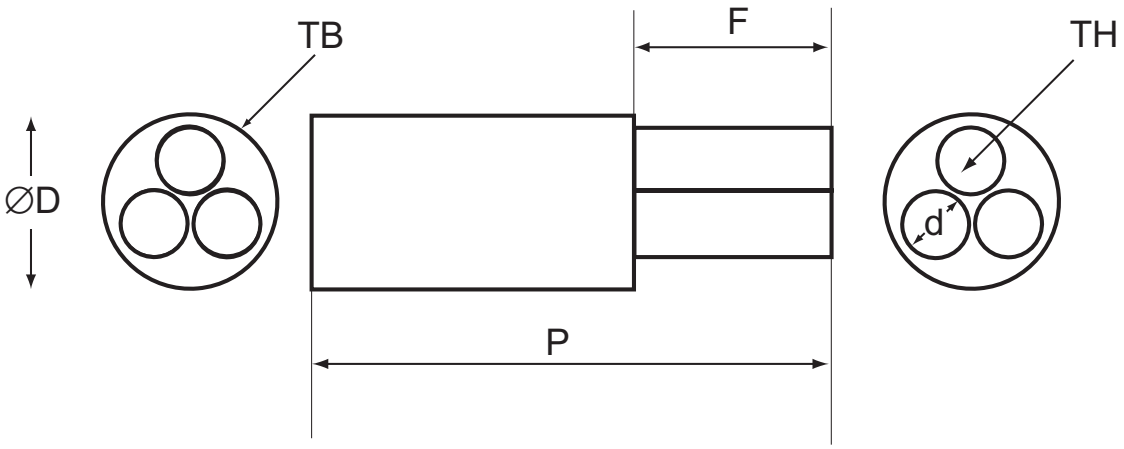
Technical Data

Physical

Property	Test Method	Typical Performance
Specific Gravity	ASTM D1505, ISO 1183	1.01 g/cm^3 (max.)
Tensile Strength	ASTM D412, ISO 37	12 N/mm^2 (min.)
Ultimate Elongation	ASTM D412, ISO 37	300% (min.)
Heat Ageing (120°C for 500 hrs)		
- Tensile Strength	ASTM D412, ISO 37	10 N/mm^2 (min.)
- Ultimate Elongation	ASTM D412, ISO 37	250% (min.)
Water Absorption	ASTM D570, ISO 37	1% (max.)
Volume Resistivity	ASTM D957 IEC 93	20 KOhm.cm (min.)

Dimensions

Type	Expanded ∅D		Recovered ∅d		P		F		TB	TH
	mm		mm		mm		mm		mm	mm
SCBR 0820	50	21	22	9	135	175	35	50	3.5	2.2
SCBR 0330	75	31	32	14	170	205	40	50	3.8	2.5
SCBR 2145	110	46	52	22	180	230	40	60	3.8	2.8
SCBR 2755	135	56	65	28	230	270	50	60	3.8	2.8



Ordering

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If recovery is restricted the resultant wall thickness will be less than specified.

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MV Terminations

Our medium voltage tubings and components are suitable for 1 and 3 core terminations up to 36 kV for XLPE, PVC, PILC and PE medium voltage cables

Description

Heat shrinkable power cable terminations consist of a non-tracking, weather resistant heat shrinkable protective tubing and heat shrinkable stress control tube and mastic. Each termination consists of appropriate tubes, rainsheds, cable breakouts, sealing materials, hardware and installation instructions.

Benefits of Canusa Components

- **Indoor & outdoor application**
- **Excellent stress control properties**
- **Excellent moisture sealing**
- **Exceptional insulation characteristics**
- **Very high tracking resistance**
- **Good long term weather performance**
- **Easy to install, even at low temperatures**
- **Simple cable preparation - no sanding, no grease**
- **Fully sealed against water ingress**
- **Unsurpassed performance in polluted environments**

Medium Voltage Applications

components may be combined for use in MV termination applications

MV Joint Kits

Our medium voltage tubings and components are suitable for medium voltage joints up to 36 kV for XLPE, PVC, PILC and PE medium voltage cables

Description

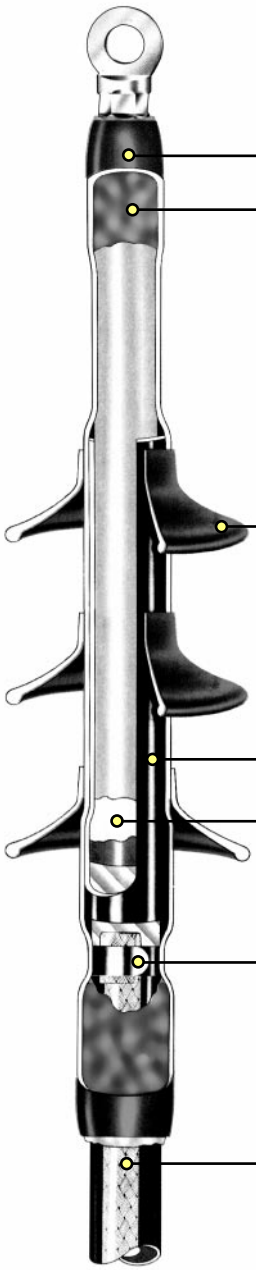
Heat shrinkable power cable joints consist of high voltage insulation tubings, stress control to smoothen the electrical field over the connector and screen ends, a conductive heat shrink sleeve to ensure a flawless bond between insulation and screen, copper mesh to ensure continuity of the of the connect shield, and an outer sealing jacket consisting of a heavy wall heat shrinkable sleeve, internally coated with adhesive resulting in a moisture and corrosion barrier on the cable oversheath.

Benefits of Canusa Components

Rebuild each layer of the cable at the connector and screen cutback:

- **Electrical stress control**
- **Insulation layer**
- **Semi-conductive layer**
- **Shielding and grounding**
- **Environmental sealing**
- **Mechanical protection**

Cross References



Terminations

Non-tracking, heat shrinkable outer insulation tubing

DATS - see page 36

- Provides excellent UV stability
- Withstands polluted environments
- Is proven to withstand severe applications

Non-tracking, high voltage sealant

Red Mastic

- Provides watertight seal over connector

Additional heat shrinkable creepage extenders for outdoor applications

CRSA - see page 50

- Increase surface creepage distance
- Easy to adapt indoor terminations to outdoor conditions

Heat shrinkable stress control tubing

CSCR - see page 48

- Reduces electrical stress gradient at the end of the cable shield to safe opearting levels

Stress relief material

Stress Grading Mastic

- Minimizes stress at the shield cutback
- Acts as a moisture seal

Ground clamp

- Has constant force roll spring, which provides secure grounding without soldering

Shielding and solderless grounding with ground braid

- Provides shield continuity

Cable Joints

DBTM/DBTH - see page 40 — **CFX** - see page 34

Sealant

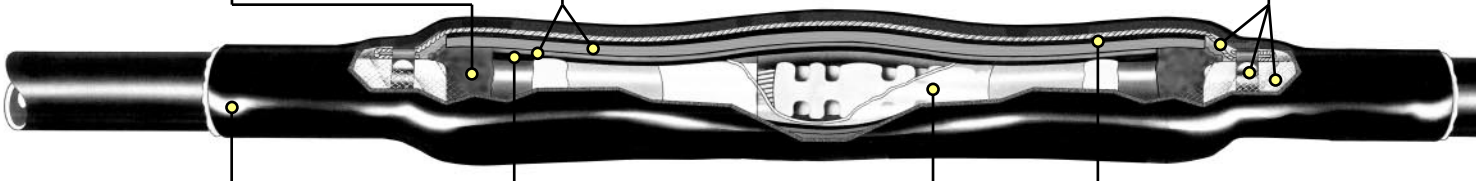
- Internal moisture seal inhibits migration of moisture

Insulation layer

- Delivers consistent insulation thickness without field measurement, in a factory-engineered system
- Insulation thickness should meet or exceed that of the cable

Grounding and shielding

- Ground braid provides continuity across the splice
- Ground clamp provide secure grounding without soldering
- Shielding mesh surrounds the splice for personnel protection



Heat shrinkable adhesive lined tube

- Adhesive lining provides moisture seal between the cable and splice
- Provides impact- and abrasion-resistance

CFW/CFM - see page 4

Heat shrinkable stress control tubing

- Reduces electrical stress to safe opearting levels

CSCR - see page 48

Stress relief material

- Minimizes stress around the connector and the shield cutback

Stress Grading Mastic

Stress Grading Pad

Semi-conductive layer

- Reconstructs the cable insulation shield

HSCT - see page 44

All information in this leaflet is believed to be reliable. We advise however that customers should separately evaluate the suitability of our products for their particular application.

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