Hongshang

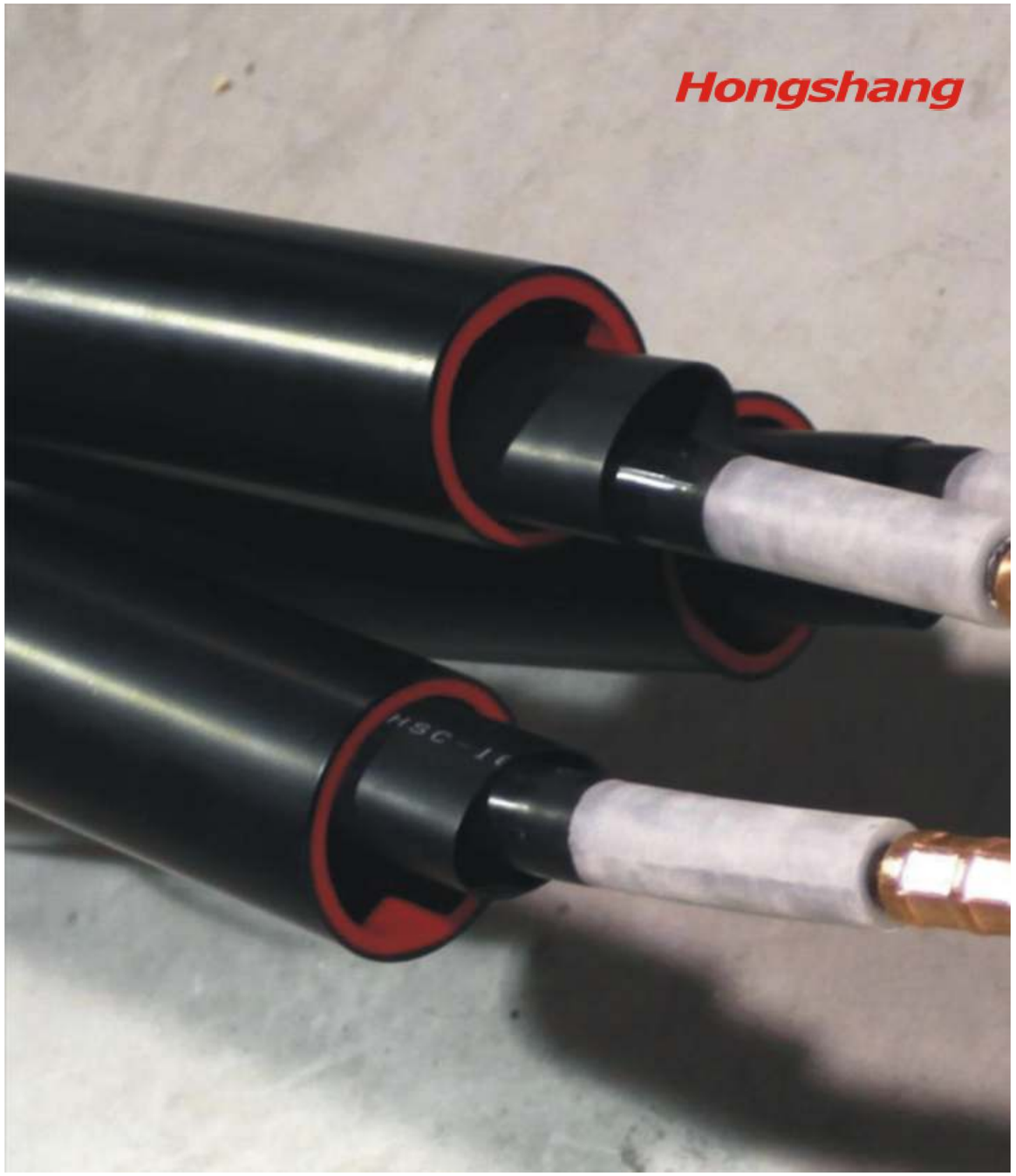
Specialist in heat shrinkable technology
and manufacture

Hongshang Heat Shrinkable Materials Co., Ltd.

No.9 Qilin Rd, Nanken Cun, Bantian, Longgang,
Shenzhen 518129, China
Phone: +86-(0)755-2848 4008 28483808
Fax: +86-(0)755-2848 3682 28485850
E-mail: sales@hongshang.com

www.hongshang.com

Hongshang Catalog – Energy Products 2010



Medium & Heavy Wall Tubing
Medium Voltage Tubing
Moulded Parts

www.hongshang.com

Hongshang

Company Presentation

We specialize in heat shrinkable technology and manufacture.

As the leading manufacturer for radiation cross-linked heat shrinkable products in China, Hongshang develops and manufactures varieties heat shrinkable protection for the field of energy, electronic, automotive, communication, building & shipbuilding, and other major industries to provide effective insulation and protection the functional parts, components and systems.

With commitment that Reliable through Honesty, Trust, Effective, and Superior Service, we accompany our customers into the world's growth markets so that we can be a reliable partner close to them.

Understanding of collaborative partnership on tradition, harmony and success, makes us even more attractive to our customers, our suppliers, partners, and employees, which is expressed in harmoniously bringing us on the correct direction to be Excellent & Reliable Supplier for heat shrinkable products with Low Cost and High Level Product Quality in the worldwide.

Our Technology

Compounding

With strong background of research and development radiation modified polymer materials, we ourselves are producing and developing varieties of chemical formulations for different heat shrinkable products. Advanced equipped mixing facilities ensure the fine dispersion of components in each formulation and the homogeneously physical, electrical and chemical properties on final products.

Extrusion

To obtain the products with stable and homogeneous dimensions, we equipped with 30 advanced extrusion line in which many key parts were improved by technology from foreign countries. The co-extrusion technology makes it possible for us to manufacture polyolefin/hot melt adhesive dual wall and insulation/conductive multi-layers tubing.

Radiation Crosslinking

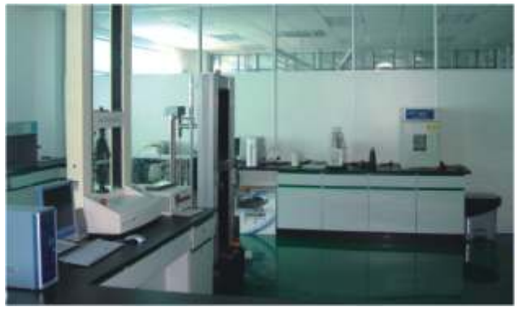
3 sets of powerful electronic accelerator were installed in our company. The specially designed advanced under beam facilities can be easily adjusted to meet the requirements of different size and shaped products and ensure the homogeneous crosslinking of products.

Expansion

Expansion is a very important and key process to obtain the final forms and dimensions of heat shrinkable products. With the equipments and technology from Europe, we can accurately control the dimensions, longitudinal changes and eccentricity of the final products.

R & D Center

In accordance with the requirement of UL 224, Sony-SS-00259, RoHS compliance, and IEC, we equipped more than 30 sets of instruments and facilities for R & D purpose by which we can test mechanical, thermal, electrical, chemical, flammable and fluid resistant performances of polymeric products. To meet the special requirement of power cable accessories products, we also have a high voltage laboratory to test high voltage performance of the power cable kits.



Testing Equipment and Facilities

Chemical Test Labs:

Gel/sol content test
Harmful heavy metal content test
Oxygen Index test
Aging property test
Corrosion test
Fluid resistance test
Water absorption test
Atomic Absorption Spectrophotometer test

Physical Test Labs:

Tensile strength test
Ultimate elongation test
Secant modulus test
Melting/crystallization temperature test
Hardness test
Melt flow rate test
Density test
Decomposition temperature test
Cold bend test (up to -45℃)
Ring-ball softening point test
Melt viscosity test
Rheology test

Electric Labs:

AC voltage withstand test (up to 150kV)
DC voltage withstand test (up to 100kV)
Leakage current test
Partial discharge test
Lightening impulse test
Electric heat cycle test
Dielectric constant test
Volume resistance test
Anti-tracking index test

Product Catalog

Medium & Heavy Wall Tubing

		Page
HRA2/HR2	Medium wall tubing with/without hot melting adhesive	2
HRA3/HR3	Heavy wall tubing, with/without hot melting adhesive	4
HRTM	Medium wall tubing, with hot melting adhesive	6
HRTH	Heavy wall tubing with hot melting adhesive	8
HFRA2	Flame retardant, medium wall tubing, with hot melting adhesive	10
HFRA3	Flame retardant, heavy wall tubing, with hot melting adhesive	12
HRA-6X	6:1 very high shrink ratio, heavy wall tubing, with hot melting adhesive	14
HSTV	Medium wall tubing for CATV network	16
HRS	Medium wall tubing, with black mastic for corrosion protection	18

Medium Voltage Tubing

HAT	Anti tracking insulation tubing, up to 36kV	20
HBM	Busbar insulation tubing, up to 36kV	22
HBTM/HBTH	Medium wall busbar insulation tubing, up to 36kV	24
HBIT	Busbar insulation tape, up to 36kV	26
HSCT	Semi-conductive tubing, up to 36kV	28
HSC-100	Stress control tubing, up to 24kV for cable joints and terminations	30
HSC-360	Stress control tubing, up to 36kV for cable joints and terminations	32
HDWT	Semi-conductive/insulation double layer tubing, up to 36kV	34
HEDT-100	Semi-conductive/elastomeric insulation double layer tubing, up to 15kV	36
HEDT-360	Semi-conductive/elastomeric insulation double layer tubing, up to 36kV	38
HGT	High insulation tubing, up to 36kV	40
HOT	Oil resistant tubing, up to 36kV	42

Moulded Parts

HSEC/HCEC	Cable end caps with spiral adhesive coating	44
HAS/HMB/HMR	Anti-tracking rain shed Medium voltage 3 cores cable breakout Medium voltage right/straight cable boot	46
HCFT	Low voltage, cable feed throughs	48
HLB	Low voltage breakout, 2 cores, 3 cores, 4 cores and 5 cores	50
HCB	Conductive cable breakout, 3 cores	52

Selection Guide 54

HRA2/HR2

Medium Wall Tubing with/ without Hot Melting Adhesive

Features:

- Medium Wall Tubing with adhesive
- Good environmental protection
- Good electrical & mechanical performance
- Ideal for LV applications
- UV resistant
- Operating temp.: -55°C to +125°C
- Min. full recovery temp.: 120°C

Dimensions:

Size (mm)	As supplied (mm)	After recovered (mm)		Standard length
	D*(Min.)	d*(Max.)	w*(Min.)	
HRA2 8/2	8	2	1.7	1000-1500mm
HRA2 12/3	12	3	1.8	1000-1500mm
HRA2 16/5	16	5	2.0	1000-1500mm
HRA2 22/6	22	6	2.2	1000-1500mm
HRA2 28/6	28	6	2.5	1000-1500mm
HRA2 33/8	33	8	2.5	1000-1500mm
HRA2 40/12	40	12	2.5	1000-1500mm
HRA2 55/16	55	16	2.7	1000-1500mm
HRA2 65/19	65	19	2.8	1000-1500mm
HRA2 75/22	75	22	3.0	1000-1500mm
HRA2 85/25	85	25	3.0	1000-1500mm
HRA2 95/25	95	25	3.0	1000-1500mm
HRA2 115/34	115	34	3.3	1000-1500mm
HRA2 140/42	140	42	3.5	1000-1500mm
HRA2 160/50	160	50	3.5	1000-1500mm
HRA2 180/58	180	58	3.5	1000-1500mm
HRA2 205/65	205	65	3.5	1000-1500mm
HRA2 235/65	235	65	3.7	1000-1500mm
HRA2 265/75	265	75	4.0	1000-1500mm
HRA2 300/75	300	75	4.0	1000-1500mm
HRA2 350/100	350	100	4.3	1000-1500mm
HRA2 380/150	380	150	4.3	1000-1220mm
HRA2 410/150	410	150	4.3	1000-1220mm

D*= Inner diameter as supplied d*= Inner diameter after recovered w*= Wall thickness after fully recovered

HR2 is available with the same size of HRA2. From size 12/3 to 140/42 are 30m/spool. The other cut length of the tubing are available on request.

Technical properties:

Property	Test Method	Typical Data
Property of jacket		
Tensile strength	ASTM D 2671	⩾14 Mpa
Ultimate elongation	ASTM D 2671	⩾400%
Heat aging Tensile strength Ultimate elongation	ASTM D 2671/150°C, 168 hrs.	 >12 MPa >300%
Density	ASTM D 792	1.05g/cm^3
Longitudinal shrinkage	UL 224	0 to -10%
Dielectric strength	IEC 243	⩾18kV/mm
Volume resistance	IEC 93	⩾10^{13} Ω.cm
Copper stability	ASTM D 2671	Pass
Water absorption	ISO 62/23°C, 14days	<0.15%
Property of adhesive		
Water absorption	ISO 62	<0.2%
Softening point	ASTM E28	85±5°C
Peel strength (PE)	DIN 30672	4 N/cm
Resistance to fungus and decay	ISO 846	Pass

Ordering information:

Standard colors:

Black

Special colors:

N/A

Packaging:

Standard packaging on 1m, 1.2m, 1.5m pieces are available on request

Other: Other cut lengths are available, please contact our sales department.

HRA3/HR3

Heavy Wall Tubing with/ without Hot Melting Adhesive

Features:

- Heavy wall adhesive lined crosslinked polyolefin
- Superior electrical & environmental insulation
- Excellent abrasion and impact resistance
- UV resistant
- Superior sealing property
- Operating temp.: -55°C to +125°C
- Min. full recovery temp.: 120°C

Dimensions:

Size (mm)	As supplied (mm)	After recovered (mm)		Standard length
	D*(Min.)	d*(Max.)	w*(Min.)	
HRA3 9/3	9	3	1.8	1000-1500mm
HRA3 15/4	15	4	2.4	1000-1500mm
HRA3 22/6	22	6	2.7	1000-1500mm
HRA3 33/8	33	8	3.2	1000-1500mm
HRA3 40/12	40	12	4.1	1000-1500mm
HRA3 45/12	45	12	4.1	1000-1500mm
HRA3 55/16	55	16	4.1	1000-1500mm
HRA3 75/22	75	22	4.1	1000-1500mm
HRA3 85/25	85	25	4.3	1000-1500mm
HRA3 95/30	95	30	4.3	1000-1500mm
HRA3 105/30	105	30	4.3	1000-1500mm
HRA3 115/34	115	34	4.3	1000-1500mm
HRA3 130/36	130	36	4.3	1000-1500mm
HRA3 160/50	160	50	4.3	1000-1500mm
HRA3 180/50	180	50	4.3	1000-1500mm
HRA3 200/60	200	60	4.3	1000-1500mm
HRA3 235/65	235	65	4.5	1000-1500mm
HRA3 265/75	265	75	4.5	1000-1500mm
HRA3 300/85	300	85	4.5	1000-1500mm
HRA3 350/100	350	100	4.5	1000-1500mm

D* = Inner diameter as supplied d* = Inner diameter after recovered w* = Wall thickness after fully recovered

HR3 is available with the same size of HRA3. From size 9/3 to 75/22 are 30m/spool. The other cut length of the tubing are available on request.

Technical properties:

Property	Test Method	Typical Data
Property of jacket		
Tensile strength	ASTM D 2671	≥14 Mpa
Ultimate elongation	ASTM D 2671	≥400%
Heat aging Tensile strength Ultimate elongation	ASTM D 2671/150°C, 168 hrs.	 >12 MPa >300%
Density	ASTM D 792	1.05g/cm^3
Longitudinal shrinkage	UL 224	0 to -10%
Dielectric strength	IEC 243	≥18kV/mm
Volume resistance	IEC 93	≥10^{13} Ω.cm
Copper stability	ASTM D 2671	Pass
Water absorption	ISO 62/23°C, 14days	<0.15%
Property of adhesive		
Water absorption	ISO 62	<0.2%
Softening point	ASTM E28	85±5°C
Peel strength (PE)	DIN 30672	4 N/cm
Resistance to fungus and decay	ISO 846	Pass

Ordering information:

Standard colors:

Black

Special colors:

N/A

Packaging:

Standard packaging on 1m, 1.22m, 1.5m pieces are available on request

Other: Other cut lengths are available, please contact our sales department.

HRTM

Medium Wall Tubing with Hot Melting Adhesive

Features:

- Medium wall adhesive coated crosslinked polyolefin
- Co extrusion technology
- Good sealing & shrinking property
- Excellent mechanical performance
- UV resistant
- Operating temp.: -55˚C to +110˚C
- Min. full recovery temp.: 120˚C

Dimensions:

Size (mm)	As supplied (mm)	After recovered (mm)		Standard length
	D*(Min.)	d*(Max.)	w*(Min.)	
HRTM 12/3	12	3	1.5	1000-1500mm
HRTM 16/5	16	5	1.5	1000-1500mm
HRTM 22/6	22	6	2.0	1000-1500mm
HRTM 33/8	33	8	2.0	1000-1500mm
HRTM 40/12	45	12	2.0	1000-1500mm
HRTM 55/16	55	16	2.0	1000-1500mm
HRTM 65/19	65	19	2.5	1000-1500mm
HRTM 75/22	75	22	2.7	1000-1500mm

D*= Inner diameter as supplied d*= Inner diameter after recovered w*= Wall thickness after fully recovered

Technical properties:

Property	Test Method	Typical Data
Property of jacket		
Tensile strength	ASTM D 2671	⩾14 Mpa
Ultimate elongation	ASTM D 2671	⩾400%
Heat aging Tensile strength Ultimate elongation	ASTM D 2671/150˚C, 168 hrs.	 >12 MPa >300%
Density	ASTM D 792	1.05g/cm^3
Longitudinal shrinkage	UL 224	0 to -10%
Dielectric strength	IEC 243	⩾18kV/mm
Volume resistance	IEC 93	⩾10^{13}Ω.cm
Copper stability	ASTM D 2671	Pass
Water absorption	ISO 62/23˚C, 14days	<0.15%
Property of adhesive		
Water absorption	ISO 62	<0.2%
Softening point	ASTM E28	85±5℃
Peel strength (PE)	DIN 30672	4 N/cm
Resistance to fungus and decay	ISO 846	Pass

Ordering information:

Standard colors:
Black

Special colors:
N/A

Packaging:
Standard packaging on 1m, 1.22m, 1.5m
Other: Other cut lengths are available, please contact our sales department.

HRTH

Heavy Wall Tubing with Hot Melting Adhesive

Features:

- Heavy wall adhesive coated crosslinked polyolefin
- Co extrusion technology
- Good sealing & shrinking property
- Excellent mechanical performance
- UV resistant
- Operating temp.: -55°C to +110°C
- Min. full recovery temp.: 120°C

Dimensions:

Size (mm)	As supplied (mm)	After recovered (mm)		Standard length
	D*(Min.)	d*(Max.)	w*(Min.)	
HRTH 9/3	9	3	2.0	1000-1500mm
HRTH 15/4	15	4	2.4	1000-1500mm
HRTH 22/6	22	6	2.5	1000-1500mm
HRTH 33/8	33	8	3.2	1000-1500mm
HRTH 45/12	45	12	4.3	1000-1500mm
HRTH 55/16	55	16	4.3	1000-1500mm

D* = Inner diameter as supplied d* = Inner diameter after recovered w* = Wall thickness after fully recovered

Technical properties:

Property	Test Method	Typical Data
Property of jacket		
Tensile strength	ASTM D 2671	⩾14 Mpa
Ultimate elongation	ASTM D 2671	⩾400%
Heat aging Tensile strength Ultimate elongation	ASTM D 2671/150°C, 168 hrs.	 >12 MPa >300%
Density	ASTM D 792	1.05g/cm^3
Longitudinal shrinkage	UL 224	0 to -10%
Dielectric strength	IEC 243	⩾18kV/mm
Volume resistance	IEC 93	⩾10^{13} Ω.cm
Copper stability	ASTM D 2671	Pass
Water absorption	ISO 62/23°C, 14days	<0.15%
Property of adhesive		
Water absorption	ISO 62	<0.2%
Softening point	ASTM E28	85±5°C
Peel strength (PE)	DIN 30672	4 N/cm
Resistance to fungus and decay	ISO 846	Pass

Ordering information:

Standard colors:

Black

Special colors:

N/A

Packaging:

Standard packaging on spools.

Special: 1m, 1.2m; 1.5m pieces are available on request

Other: Other cut lengths are available, please contact our sales department.

HFRA2

Flame Retardant Medium Wall Tubing with Hot Melting Adhesive

Features:

- Medium wall adhesive lined crosslinked polyolefin
- Good sealing & electrical properties
- Excellent mechanical performance
- Flame retardant
- Operating temp.: -55°C to +110°C
- Min. full recovery temp.: 120°C
- UV and weather resistance

Dimensions:

Size (mm)	As supplied (mm)	After recovered (mm)		Standard length
	D*(Min.)	d*(Max.)	w*(Min.)	
HFRA2 22/6	22	6	2.5	1000-1500mm
HFRA2 33/8	33	8	2.5	1000-1500mm
HFRA2 40/12	40	12	2.5	1000-1500mm
HFRA2 55/16	55	16	2.7	1000-1500mm
HFRA2 65/19	65	19	2.8	1000-1500mm
HFRA2 75/22	75	22	3.0	1000-1500mm
HFRA2 95/25	95	25	3.0	1000-1500mm
HFRA2 115/34	115	34	3.0	1000-1500mm
HFRA2 140/42	140	42	3.0	1000-1500mm
HFRA2 160/50	160	50	3.0	1000-1500mm

D*= Inner diameter as supplied d*= Inner diameter after recovered w*= Wall thickness after fully recovered

Technical properties:

Property	Test Method	Typical Data
Property of jacket		
Tensile strength	ASTM D 2671	⩾14 Mpa
Ultimate elongation	ASTM D 2671	⩾400%
Heat aging Tensile strength Ultimate elongation	ASTM D 2671/150°C, 168 hrs.	 >12 MPa >300%
Density	ASTM D 792	1.05g/cm^3
Longitudinal shrinkage	UL 224	0 to -10%
Dielectric strength	IEC 243	⩾18kV/mm
Volume resistance	IEC 93	⩾10^{13}Ω.cm
Flammability	-	Self extinguish in 60 sec.
Property of adhesive		
Water absorption	ISO 62	<0.2%
Softening point	ASTM E28	85±5°C
Peel strength (PE)	DIN 30672	4 N/cm
Resistance to fungus and decay	ISO 846	Pass

Ordering information:

Standard colors:
Black

Special colors:
N/A

Packaging:
Standard packaging on 1m, 1.22m, 1.5m pieces are available on request
Other: Other cut lengths are available, please contact our sales department.

HFRA3

Flame Retardant Heavy Wall Tubing with Hot Melting Adhesive

Features:

- Heavy wall adhesive lined crosslinked polyolefin
- Good sealing & electrical properties
- Excellent mechanical performance
- Flame retardant
- Operating temp.: -55°C to +110°C
- Min. full recovery temp.: 120°C
- UV and weather resistance

Dimensions:

Size (mm)	As supplied (mm)	After recovered (mm)		Standard length
	D*(Min.)	d*(Max.)	w*(Min.)	
HFRA3 9/3	9	3	2	1000-1500mm
HFRA3 13/4	13	4	2.5	1000-1500mm
HFRA3 22/6	22	6	2.7	1000-1500mm
HFRA3 33/8	33	8	3.2	1000-1500mm
HFRA3 40/12	40	12	4.1	1000-1500mm
HFRA3 55/16	55	16	4.1	1000-1500mm
HFRA3 75/22	75	22	4.1	1000-1500mm
HFRA3 95/29	95	29	4.1	1000-1500mm
HFRA3 115/34	115	34	4.3	1000-1500mm
HFRA3 130/36	130	36	4.3	1000-1500mm

D*= Inner diameter as supplied d*= Inner diameter after recovered w*= Wall thickness after fully recovered

Technical properties:

Property	Test Method	Typical Data
Property of jacket		
Tensile strength	ASTM D 2671	≥14 Mpa
Ultimate elongation	ASTM D 2671	≥400%
Heat aging Tensile strength Ultimate elongation	ASTM D 2671/150°C, 168 hrs.	 >12 MPa >300%
Density	ASTM D 792	1.05g/cm^3
Longitudinal shrinkage	UL 224	0 to -10%
Dielectric strength	IEC 243	≥18kV/mm
Volume resistance	IEC 93	≥10^{13} Ω.cm
Flammability	-	Self extinguish in 60 sec.
Property of adhesive		
Water absorption	ISO 62	<0.2%
Softening point	ASTM E28	85±5°C
Peel strength (PE)	DIN 30672	4 N/cm
Resistance to fungus and decay	ISO 846	Pass

Ordering information:

Standard colors:
Black

Special colors:
N/A

Packaging:
Standard packaging on 1m, 1.22m, 1.5m pieces are available on request
Other: Other cut lengths are available, please contact our sales department.

HRA-6X

Heavy Wall Tubing with Hot Melting Adhesive

Features:

- Extra high shrink ratio crosslinked polyolefin
- Adhesive lined
- Perfect sealing property
- Superior abrasion and impact resistance
- Extra thick wall
- UV and weather resistance
- Operating temp.: -55˚C to +110˚C
- Min. full recovery temp.: 120˚C
- Shrink ratio: 6:1

Dimensions:

Size (mm)	As supplied (mm)	After recovered (mm)		Standard length
	D*(Min.)	d*(Max.)	w*(Min.)	
HRA-6X 19/3.2	19.0	3.2	3.2	1000-1220mm
HRA-6X 33/5.5	33.0	5.5	3.4	1000-1220mm
HRA-6X 44.4/7.4	44.4	7.4	3.6	1000-1220mm
HRA-6X 50.8/8.3	50.8	8.3	4.3	1000-1220mm
HRA-6X 69.8/11.7	69.8	11.7	4.8	1000-1220mm
HRA-6X 88.9/17.1	88.9	17.1	4.8	1000-1220mm
HRA-6X 119.4/22.9	119.4	22.9	4.8	1000-1220mm
HRA-6X 235/40	235.0	40.0	4.8	1000-1220mm

D*= Inner diameter as supplied d*= Inner diameter after recovered w*= Wall thickness after fully recovered

Technical properties:

Property	Test Method	Typical Data
Property of jacket		
Tensile strength	ASTM D 2671	⩾14 Mpa
Ultimate elongation	ASTM D 2671	⩾400%
Heat aging Tensile strength Ultimate elongation	ASTM D 2671/150˚C, 168 hrs.	 >12 MPa >300%
Density	ASTM D 792	1.05g/cm^3
Longitudinal shrinkage	UL 224	0 to -10%
Dielectric strength	IEC 243	⩾18kV/mm
Volume resistance	IEC 93	⩾10^{13}Ω.cm
Copper stability	ASTM D 2671	Pass
Water absorption	ISO 62/23˚C, 14days	<0.15%
Property of adhesive		
Water absorption	ISO 62	<0.2%
Softening point	ASTM E28	85±5˚C
Peel strength (PE)	DIN 30672	4 N/cm
Resistance to fungus and decay	ISO 846	Pass

Ordering information:

Standard colors:
Black

Special colors:
N/A

Packaging:
Standard packaging on 1m, 1.22m, 1.5m pieces are available on request
Other: Other cut lengths are available, please contact our sales department.

HSTV

Medium Wall Tubing for CATV Network

Features:

- Medium wall crosslinked polyolefin
- Excellent environmental seal
- Thermo-chromatic stripes/paints
- Re-enterable
- Easy to remove and repair
- Designed for CATV industry
- UV resistant
- Operating temp.: -55°C to +110°C
- Min. full recovery temp.: 120°C

Dimensions:

Size (mm)	As supplied (mm)	After recovered (mm)		Standard length
	D*(Min.)	d*(Max.)	w*(Min.)	
HSTV 0400(10/3.8)	10.0	2.0	2.0	1220mm
HSTV 0750(19/5.6)	19.0	2.4	2.4	1220mm
HSTV 1100(28/9)	28.0	2.4	2.4	1220mm
HSTV 1300(33/10)	33.0	2.4	2.4	1220mm
HSTV 1500(38/12)	38.1	2.4	2.4	1220mm
HSTV 1700(45/13)	45.0	2.4	2.4	1220mm
HSTV 2050(55/19)	55.0	2.4	2.4	1220mm
HSTV 2750(70/25)	70.0	2.4	2.4	1220mm

D*= Inner diameter as supplied d*= Inner diameter after recovered w*= Wall thickness after fully recovered

Technical properties:

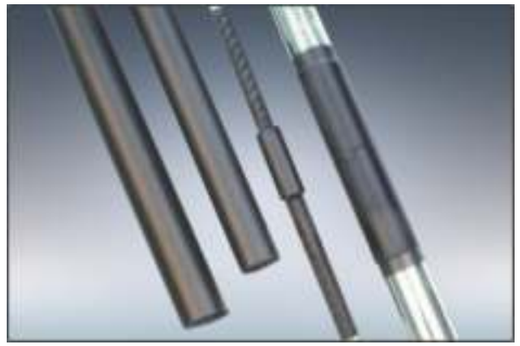
Property	Test Method	Typical Data
Property of jacket		
Tensile strength	ASTM D 2671	⩾14 Mpa
Ultimate elongation	ASTM D 2671	⩾400%
Heat aging Tensile strength Ultimate elongation	ASTM D 2671/150°C, 168 hrs.	 >12 MPa >300%
Density	ASTM D 792	1.05g/cm^3
Longitudinal shrinkage	UL 224	0 to -10%
Dielectric strength	IEC 243	⩾18kV/mm
Volume resistance	IEC 93	⩾10^{13} Ω.cm
Copper stability	ASTM D 2671	Pass
Water absorption	ISO 62/23°C, 14days	<0.15%
Property of adhesive		
Water absorption	ISO 62	<0.2%
Softening point	ASTM E28	85±5°C
Peel strength (PE)	DIN 30672	4 N/cm
Resistance to fungus and decay	ISO 846	Pass

Ordering information:

Standard colors:
Black

Special colors:
N/A

Packaging:
Standard packaging on 1m, 1.22m, 1.5m pieces are available on request
Other: Other cut lengths are available, please contact our sales department.



HRS

Medium Wall Tubing with Black Sealant Mastic Coated

Features:

- Medium wall crosslinked polyolefin
- Mastic coating
- Excellent corrosion protection properties
- Excellent bonding to both metal and wood
- UV resistant
- Operating temp.: -35°C to +110°C
- Min. full recovery temp.: 120°C

Dimensions:

Size (mm)	As supplied (mm)	After recovered (mm)		Standard length
	D*(Min.)	d*(Max.)	w*(Min.)	
HRS 33/8	33	2.5	2.5	1000-1500mm
HRS 40/12	40	2.5	2.5	1000-1500mm
HRS 55/20	55	2.0	2.0	1000-1500mm
HRS 75/25	75	2.0	2.0	1000-1500mm
HRS 95/30	95	2.0	2.0	1000-1500mm
HRS 120/40	120	2.0	2.0	1000-1500mm
HRS 140/50	140	2.3	2.3	1000-1500mm
HRS 160/50	160	2.3	2.3	1000-1500mm
HRS 180/66	180	2.5	2.5	1000-1500mm
HRS 205/66	205	2.5	2.5	1000-1500mm
HRS 235/70	235	2.5	2.5	1000-1500mm
HRS 265/75	265	3.0	3.0	1000-1500mm
HRS 300/85	300	3.0	3.0	1000-1500mm
HRS 350/100	350	3.0	3.0	1000-1220mm
HRS 380/150	380	3.5	3.5	500-1000mm
HRS 410/150	410	4.0	4.0	500-1000mm

D* = Inner diameter as supplied d* = Inner diameter after recovered w* = Wall thickness after fully recovered

Technical properties:

Property	Test Method	Typical Data
Property of jacket		
Tensile strength	ASTM D 2671	⩾14 Mpa
Ultimate elongation	ASTM D 2671	⩾400%
Heat aging Tensile strength Ultimate elongation	ASTM D 2671/150°C, 168 hrs.	 >12 MPa >300%
Density	ASTM D 792	1.05g/cm^3
Longitudinal shrinkage	UL 224	0 to -10%
Dielectric strength	IEC 243	⩾18kV/mm
Volume resistance	IEC 93	⩾10^{13} Ω.cm
Copper stability	ASTM D 2671	Pass
Water absorption	ISO 62/23°C, 14days	<0.15%
Property of adhesive		
Water absorption	ISO 62	<0.2%
Softening point	ASTM E28	85±5°C
Resistance to fungus and decay	ISO 846	Pass

Ordering information:

Standard colors:

Black

Special colors:

N/A

Packaging:

Standard packaging on 1m, 1.22m, 1.5m pieces are available on request

Other: Other cut lengths are available, please contact our sales department.

HAT

Anti Tracking Insulation Tubing

Features:

- Non tracking tubing
- Heavy wall
- Semi flexible
- Excellent electrical properties
- UV and weather resistance
- Excellent creeping resistance
- Up to 36kV
- Min. full recovery temp.: 110°C

Dimensions:

Size (mm)	As supplied (mm)	After recovered (mm)		Standard length
	D*(Min.)	d*(Max.)	w*(Min.)	
Continues length tubing				
HAT 30/10	30	10	2.8	30m/spool 15m/spool 1.0-1.5m
HAT 38/12	38	12	2.8	30m/spool 15m/spool 1.0-1.5m
HAT 43/14	43	14	2.9	30m/spool 15m/spool 1.0-1.5m
HAT 49/16	49	16	2.9	30m/spool 15m/spool 1.0-1.5m
HAT 55/18	55	18	3.0	30m/spool 15m/spool 1.0-1.5m
HAT 60/21	60	21	3.0	30m/spool 15m/spool 1.0-1.5m
HAT 70/26	70	26	3.1	30m/spool 15m/spool 1.0-1.5m
Cut length tubing				
HAT 75/25	75	25	4.0	1000-1500mm
HAT 85/30	85	30	4.0	1000-1500mm
HAT 100/40	100	40	4.5	1000-1500mm

D*= Inner diameter as supplied d*= Inner diameter after recovered w*= Wall thickness after fully recovered

Technical properties:

Property	Test Method	Typical Data
Tensile strength	ASTM D 2671	⩾11 MPa
Ultimate elongation	ASTM D 2671	⩾400%
Longitudinal shrinkage	ASTM D 2671	0 to -10%
Heat aging Tensile strength Ultimate elongation	120°C, 168 hrs.	 >10 MPa >250%
Dielectric strength	IEC 243	⩾15kV/mm
Tracking resistance	ASTM D 2303 /3.75 kV, 1 hr.	Pass
Dielectric constant	IEC 250	⩽3.0
Volume resistance	ASTM D 2671	$\geqslant 10^{13}\,\Omega$.cm
Flammability (Oxygen Index)	ISO 4589	⩾25
Copper corrosion	ASTM D 2671	No corrosion
Cold bend	ASTM D 2671/-40°C, 4 hrs.	No cracking
Water absorption	ISO 62/23°C, 14days	<0.15%

Ordering information:

Standard colors:
Red

Special colors:
N/A

Packaging:
Standard packaging on spools and/or piece.
Special: 1m, 1.22m, 1.5m pieces are available on request
Other: Other cut lengths are available, please contact our sales department.

HBM

Halogen Free Busbar Insulation Tubing

Features:

- Medium wall bus bar tubing
- Cross linked polyolefin
- Good tracking resistance
- Excellent electrical properties
- Halogen free
- UV and weather resistance
- Up to 36kV
- Min. full recovery temp.: 110°C

Technical properties:

Property	Test Method	Typical Data
Tensile strength	ASTM D 2671	⩾12 MPa
Ultimate elongation	ASTM D 2671	⩾500%
Longitudinal shrinkage	ASTM D 2671	0 to -10%
Heat aging Tensile strength Ultimate elongation	120°C, 168 hrs.	 >10 MPa >250%
Dielectric strength	IEC 243	⩾18kV/mm
Dielectric constant	IEC 250	⩽3.0
Volume resistance	IEC 93	⩾10^{13} Ω .cm
Flammability (Oxygen Index)	IEC 4589	⩾25
Copper corrosion	UL 224	No corrosion
Cold bend	ASTM D 2671/-40°C, 4 hrs.	No cracking
Water absorption	ISO 62/23°C, 14days	<0.5%

Dimensions:

Size (mm)	As supplied (mm)	After recovered (mm)		Standard length
	D*(Min.)	d*(Max.)	w*(Min.)	
Continues length tubing				
HBM 19/6	19	6	2	30m/spool
HBM 25/10	25	10	2	30 m/spool
HBM 30/12	30	12	2	30 m/spool
HBM 35/14	35	14	2	30 m/spool
HBM 40/16	40	16	2	30 m/spool
HBM 50/20	50	20	2	30 m/spool
HBM 65/25	65	25	2	30 m/spool
HBM 75/30	75	30	2	15 m/spool
HBM 100/40	100	40	2	15 m/spool
Cut length tubing				
HBM 120/50	120	50	3	1000mm
HBM 150/60	150	60	3	1000mm
HBM 180/60	180	60	3	1000mm
HBM 205/75	205	75	3.3	1000mm
HBM 235/75	235	75	3.3	1000mm

D* = Inner diameter as supplied d* = Inner diameter after recovered w* = Wall thickness after fully recovered

Ordering information:

Standard colors:
Red

Special colors:
N/A

Packaging:
Standard packaging on spools.
Special:1m pieces are available on request.
Other: Other cut lengths are available, please contact our sales department.

HBTM/HBTH

Medium/Heavy Wall Halogen Free Busbar Insulation Tubing

Features:

- Medium/Heavy wall flexible bus bar tubing
- Modified polyolefin
- Tracking resistance
- Excellent electrical properties
- Good shrinking performance
- Halogen free
- UV and weather resistance
- Up to 36kV
- Min. full recovery temp.: 120˚C

Technical properties:

Property	Test Method	Typical Data
Tensile strength	ASTM D 2671	⩾14 MPa
Ultimate elongation	ASTM D 2671	⩾800%
Longitudinal shrinkage	ASTM D 2671	0 to -10%
Heat aging Tensile strength Ultimate elongation	120˚C, 168 hrs.	 >10 MPa >200%
Dielectric strength	IEC 243	⩾19kV/mm
Dielectric constant	IEC 250	⩽3.5
Volume resistance	IEC 93	⩾10^{14}Ω.cm
Flammability (Oxygen Index)	ISO 4589	⩾25
Copper corrosion	UL 224	No corrosion
Cold bend	ASTM D 2671/-40˚C, 4 hrs.	No cracking
Water absorption	ISO 62/23˚C, 14days	<0.5%

Dimensions:

Size (mm)	As supplied (mm)	After recovered (mm)		Standard length
	D*(Min.)	d*(Max.)	w*(Min.)	
Medium wall tubing-HBTM, continues length				
HBTM 15/6	15	6	2.0	30m/spool
HBTM 30/12	30	12	2.3	30m/spool
HBTM 40/16	40	16	2.5	30m/spool
HBTM 50/20	50	20	2.5	15m/spool
HBTM 65/25	65	25	2.5	15m/spool
HBTM 75/30	75	30	2.6	15m/spool
HBTM 100/40	100	40	2.8	15m/spool
HBTM 120/50	120	50	2.8	15m/spool
Medium wall tubing-HBTM, cut length				
HBTM 150/60	150	60	3.3	1000-1500mm
HBTM 180/60	180	60	3.3	1000-1500mm
HBTM 205/75	205	75	3.8	1000-1500mm
HBTM 235/75	235	75	3.8	1000-1500mm
Heavy wall tubing-HBTH				
HBTH 25/10	25	10	4.0	15m/spool
HBTH 40/16	40	16	4.0	15m/spool
HBTH 65/25	65	25	4.0	1.0-1.5m
HBTH 75/25	75	25	4.0	1.0-1.5m
HBTH 95/30	95	30	4.0	1.0-1.5m
HBTH 120/40	120	40	4.2	1.0-1.5m
HBTH 180/58	180	58	4.2	1.0-1.5m

D*= Inner diameter as supplied d*= Inner diameter after recovered w*= Wall thickness after fully recovered

Ordering information:

Standard colors:
Red

Special colors:
N/A

Packaging:
Standard packaging on spools.
Special: 1m piece is available on request
Other: Other cut lengths are available, please contact our sales department.

HBIT

Busbar Insulation Tape

Features:

- Bus bar insulating tape
- Crosslinked polyolefin
- Good tracking resistance
- Excellent electrical insulation
- UV and weather resistance
- Operating temp.: -55°C to +105°C
- Up to 36kV
- Min. full recovery temp.: 100°C

Dimensions:

Size (mm)	As supplied (mm)	After recovered (mm)	Standard length
	Width of tape (Nom.)	Wall thickness (Min.)	
HBIT-1	25	1.0±0.1	5m or 10m
HBIT-2	50	1.0±0.1	5m or 10m
HBIT-4	100	1.0±0.1	5m or 10m

D*= Inner diameter as supplied d*= Inner diameter after recovered w*= Wall thickness after fully recovered

Technical properties:

Property	Test Method	Typical Data
Tensile strength	ASTM D 2671	⩾11.8 Mpa
Ultimate elongation	ASTM D 2671	⩾550%
Heat aging Tensile strength Ultimate elongation	120°C, 168 hrs.	 >10 MPa >450%
Dielectric strength	IEC 243	⩾20kV/mm
Volume resistance	IEC 93	$\geqslant 10^{13}\,\Omega$.cm
Dielectric constant	IEC250	⩽3.5
Copper corrosion	ASTM D 2671/120°C, 168 hrs.	No corrosion
Water absorption	ISO 62/23°C, 14days	<0.5%
Flammability	ASTM D 2671	Self extinguish in 60 sec.

Ordering information:

Standard colors:

Red

Special colors:

N/A

Packaging:

Standard packaging on box.

HSCT

Semi-Conductive Tubing

Features:

- Crosslinked polyolefin
- Excellent electrical & mechanical properties
- UV and weather resistance
- Operating temp.: -45˚C to +105˚C
- Up to 36kV
- Min. shrink temp.: 100˚C
- Min. full recovery temp.: 120˚C

Dimensions:

Size (mm)	As supplied (mm)	After recovered (mm)		Standard length
	D*(Min.)	d*(Max.)	w*(Min.)	
HSCT 30/12	30	12	2.2	30m/spool
HSCT 44/16	44	16	2.2	30m/spool
HSCT 55/18	55	18	2.5	30m/spool
HSCT 65/20	65	20	2.7	30m/spool
HSCT 70/24	70	24	2.7	30m/spool
HSCT 95/35	95	35	3.0	15m/spool

D*= Inner diameter as supplied d*= Inner diameter after recovered w*= Wall thickness after fully recovered

Technical properties:

Property	Test Method	Typical Data
Tensile strength	ASTM D 638	⩾14 MPa
Ultimate elongation	ASTM D 638	⩾300%
Water absorption	ISO 62	<0.15%
Ultimate elongation after aging	150˚C, 168 hrs.	⩾200%
Volume resistance	IEC 93	$<10^4\Omega$.cm
Longitudinal shrinkage	-	0±5%

Ordering information:

Standard colors:
Black

Special colors:
N/A

Packaging:
Standard packaging on spools.
Other: Other cut lengths are available, please contact our sales department.

HSC-100

Stress Control Tubing

Features:

- Stress control tubing
- Modified polyolefin
- Flexible, excellent shrinking properties
- Up to 20kV
- Min. shrink temp.: 100˚C
- Min. full recovery temp.: 130˚C

Dimensions:

Size (mm)	As supplied (mm)	After recovered (mm)		Standard length
	D*(Min.)	d*(Max.)	w*(Min.)	
Continues length tubing				
HSC-100 26/10	26	10	2.2	30m/spool
HSC-100 30/12	30	12	2.3	30m/spool
HSC-100 35/14	35	14	2.4	30m/spool
HSC-100 47/17	47	17	2.5	30m/spool
HSC-100 55/21	55	21	2.5	30m/spool
Cut length tubing				
HSC-100 38/14	38	14	3.0	1000-1500mm
HSC-100 47/18	47	18	3.0	1000-1500mm
HSC-100 55/21	55	21	3.0	1000-1500mm
HSC-100 65/24	65	24	3.0	1000-1500mm
HSC-100 85/30	85	30	3.0	1000-1500mm

D*= Inner diameter as supplied d*= Inner diameter after recovered w*= Wall thickness after fully recovered

Technical properties:

Property	Test Method	Typical Data
Tensile strength	ASTM D 638	⩾10 MPa
Ultimate elongation	ASTM D 638	⩾300%
Longitudinal shrinkage	-	0 to -10%
Heat shock	ASTM D 2671/200˚C, 30mins.	No splitting, cracking, dropping, flowing
Dielectric constant	IEC 250	15～30
Loss Factor (50Hz)	IEC 250	⩽1.0 (1000V)
Volume Resistance	IEC 93	$\geqslant 10^{11}\,\Omega$.cm
Water absorption	ISO 62	<1.0%

Ordering information:

Standard colors:

Black

Special colors:

N/A

Packaging:

Standard packaging on spools and/or piece.

Special: 1m, 1.22m pieces are available on request.

Other: Other cut lengths are available, please contact our sales department.

HSC-360

Stress Control Tubing

Features:

- Stress control tubing
- Modified polyolefin
- Excellent electrical & shrinking properties
- Up to 36kV
- Min. shrink temp.: 100˚C
- Min. full recovery temp.: 130˚C

Dimensions:

Size (mm)	As supplied (mm)	After recovered (mm)		Standard length
	D*(Min.)	d*(Max.)	w*(Min.)	
HSC-360 47/18	47	18	3.0	1000-1500mm
HSC-360 55/21	55	21	3.0	1000-1500mm
HSC-360 65/24	65	24	3.0	1000-1500mm
HSC-360 85/30	85	30	3.0	1000-1500mm
HSC-360 95/45	95	45	3.0	1000-1500mm

D*= Inner diameter as supplied d*= Inner diameter after recovered w*= Wall thickness after fully recovered

Technical properties:

Property	Test Method	Typical Data
Tensile strength	ASTM D 638	⩾10 MPa
Ultimate elongation	ASTM D 638	⩾300%
Longitudinal shrinkage	-	0 to -10%
Heat shock	ASTM D 2671/200˚C, 30mins.	No splitting, cracking, dropping, flowing
Dielectric constant	IEC 250	35～55
Loss Factor (50Hz)	IEC 250	⩽1.0 (1000V)
Volume Resistance	IEC 93	⩾10^{9}Ω.cm
Water absorption	ISO 62	<1.0%

Ordering information:

Standard colors:

Black

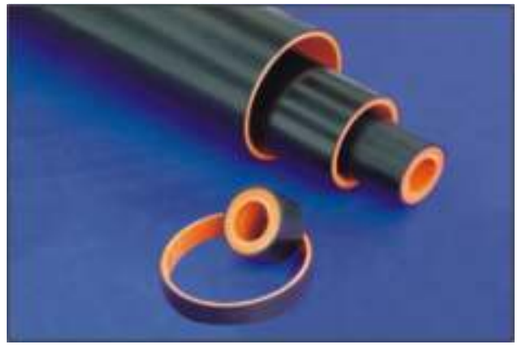
Special colors:

N/A

Packaging:

Standard packaging on 1m, 1.22m, 1.5m.

Other: Other cut lengths are available, please contact our sales department.



HDWT

Semi-Conductive/Insulation Double Layer Tubing

Features:

- Dual wall conducting/insulating
- Crosslinked polyolefin
- Co-extrusion technology
- Excellent electrical properties
- Extra heavy wall of insulation
- Up to 36kV
- Min. shrink temp.: 110˚C
- Min. full recovery temp.: 130˚C

Dimensions:

Size (mm)	As supplied (mm)	After recovered (mm)		Standard length
	D*(Min.)	d*(Max.)	w*(Min.)	
HDWT 36/12	36	12	5.0	1000-1200mm
HDWT 45/14	46	14	5.0	1000-1200mm
HDWT 55/16	55	16	5.5	1000-1200mm
HDWT 62/18	62	18	5.5	1000-1200mm
HDWT 66/20	66	20	5.5	1000-1200mm
HDWT 73/23	73	23	5.5	1000-1200mm
HDWT 85/26	86	26	5.5	1000-1200mm
HDWT 95/30	95	30	5.5	1000-1200mm
HDWT 115/34	115	34	5.5	1000-1200mm

D*= Inner diameter as supplied d*= Inner diameter after recovered w*= Wall thickness after fully recovered

Technical properties:

Property	Test Method	Typical Data
Inner layer		
Tensile strength	ASTM D 2671	⩾12MPa
Ultimate elongation	ASTM D 2671	⩾300%
Water absorption	ISO 62	<0.5%
Volume resistance	IEC 93	⩾10^{14}Ω. cm
Dielectric strength	IEC 243	⩾20 kV/mm
Density	ASTM D 257-98	1.15g/cm^3
External layer		
Tensile strength	ASTM D 638	⩾14 MPa
Ultimate elongation	ASTM D 638	⩾300%
Water absorption	ISO 62	<0.5%
Volume resistance	IEC 93	<10^{4}Ω. cm
Density	ASTM D 257-98	1.15g/cm^3

Ordering information:

Standard colors:

Black/Red

Special colors:

N/A

Packaging:

Standard packaging on 1m, 1.22m.

Other: Other cut lengths are available, please contact our sales department.

HEDT-100

Semi-Conductive/ Elastomeric Insulation Double Layers Tubing

Features:

- Dual wall Crosslinked polyolefin/ EPDM
- Co-extrusion technology
- Excellent electrical properties
- Up to 15kV
- Min. shrink temp.: 110˚C
- Min. full recovery temp.: 130˚C

Dimensions:

Size (mm)	As supplied (mm)		After recovered (mm)			
	Min. inside diameter	Max. inside diameter	Max. inside diameter	Min. Red layer wall thickness	Min. Black layer wall thickness	Standard length
HEDT-100 35/13	40	45	13	6.0	2.4	1000mm
HEDT-100 45/17	48	54	17	6.6	2.6	1000mm
HEDT-100 50/21	56	62	21	7.0	2.7	1000mm
HEDT-100 65/26	68	73	26	7.0	2.7	1000mm

Technical properties:

Property	Test Method	Typical Data
Inner layer		
Tensile strength	ASTM D 638	⩾5MPa
Ultimate elongation	ASTM D 638	⩾800%
Water absorption	ISO 62	<0.5%
Volume resistance	IEC 93	⩾10^{15}Ω. cm
Dielectric strength	IEC 243	⩾28 kV/mm
Density	ASTM D 257-98	1.0g/cm^3
External layer		
Tensile strength	ASTM D 638	⩾14 MPa
Ultimate elongation	ASTM D 638	⩾300%
Water absorption	ISO 62	<0.5%
Volume resistance	IEC 93	<10^4Ω.cm
Density	ASTM D 257-98	1.15g/cm^3

Ordering information:

Standard colors:

Black/Red

Special colors:

N/A

Packaging:

Standard packaging on 1m.

Other: Other cut lengths are available, please contact our sales department.

HEDT-360

Semi-Conductive/ Elastomeric Insulation Double Layers Tubing

Features:

- Dual wall Crosslinked polyolefin/EPDM
- Co-extrusion technology
- Excellent electrical properties
- Extra heavy wall insulation
- Up to 36kV
- Min. shrink temp.: 110°C
- Min. full recovery temp.: 130°C

Dimensions:

Size (mm)	As supplied (mm)	After recovered (mm)			Standard length
	D*(Min.)	d*(Max.)	W1*(Min.)	W2*(Min.)	
HEDT-360 37/13	37	13	11.0	8	1000mm
HEDT-360 46/17	46	17	12.0	9	1000mm
HEDT-360 56/21	54	21	13.5	10	1000mm
HEDT-360 66/26	66	26	13.5	10	1000mm
HEDT-360 82/26	82	26	13.5	10	1000mm
HEDT-360 78/34	78	34	13.5	10	1000mm
HEDT-360 88/34	88	34	13.5	10	1000mm
HEDT-360 95/42	95	42	13.5	10	1000mm
HEDT-360 115/53	115	53	13.5	10	1000mm
HEDT-360 125/62	125	62	14.0	10	1000mm

D*= Inner diameter as supplied d*= Inner diameter after recovered W1*= Total recovered wall thickness W2*= Recovered wall thickness of red layer

Technical properties:

Property	Test Method	Typical Data
Tensile strength	ASTM D 638	⩾5MPa
Ultimate elongation	ASTM D 638	⩾800%
Water absorption	ISO 62	<0.5%
Volume resistance	IEC 93	$\geqslant 10^{15}\Omega.cm$
Dielectric strength	IEC 243	⩾28 kV/mm
Density	ASTM D 257-98	$1.0g/cm^3$
External layer		
Tensile strength	ASTM D 638	⩾14 MPa
Ultimate elongation	ASTM D 638	⩾300%
Water absorption	ISO 62	<0.5%
Volume resistance	IEC 93	$<10^{4}\Omega.cm$
Density	ASTM D 257-98	$1.15g/cm^3$

Ordering information:

Standard colors:
Black/Red

Special colors:
N/A

Packaging:
Standard packaging on 1m.
Other: Other cut lengths are available, please contact our sales department.

HGT

High Insulation Tubing

Features:

- Heavy wall, insulating tube
- Crosslinked polyolefin
- Excellent insulating properties
- Extra heavy wall
- Up to 36kV
- Operating temp.: -40˚C to +110˚C
- Min. shrink temp.: 90˚C
- Min. full recovery temp.: 110˚C

Dimensions:

Size (mm)	As supplied (mm)	After recovered (mm)		Standard length
	D*(Min.)	d*(Max.)	w*(Min.)	
HGT 36/10	36	10	3.0	1000-1500mm
HGT 46/14	47	14	3.0	1000-1500mm
HGT 54/16	55	16	3.0	1000-1500mm
HGT 62/18	62	18	3.0	1000-1500mm
HGT 66/20	66	20	3.0	1000-1500mm
HGT 75/25	75	25	4.5	1000-1500mm
HGT 85/26	85	26	5.0	1000-1500mm
HGT 95/30	95	30	5.0	1000-1500mm

D*= Inner diameter as supplied d*= Inner diameter after recovered w*= Wall thickness after fully recovered

Technical properties:

Property	Test Method	Typical Data
Tensile strength	ASTM D 2671	⩾12 MPa
Ultimate elongation	ASTM D 2671	⩾300%
Density	ASTM D 792	1.0g/cm^3
Longitudinal shrinkage	-	0 to -10%
Dielectric strength	IEC 243	⩾20kV/mm
Volume resistance	IEC 93	⩾10^{14} Ω.cm
Dielectric constant	IEC 250	⩽3.0
Water absorption	ISO 62/23˚C, 14days	<0.5%

Ordering information:

Standard colors:

Red

Special colors:

N/A

Packaging:

Standard packaging on 1m, 1.22m, 1.5m.

Other: Other cut lengths are available, please contact our sales department.

HOT

Oil Resistant Tubing

Features:

- Crosslinked polyolefin
- Designed for paper insulated cabels
- Oil resistant
- Up to 36kV
- Operating temperature: -40˚C to +110˚C
- Min. shrink temp.: 110˚C
- Min. full recovery temp.: 130˚C

Dimensions:

Size (mm)	As supplied (mm)	After recovered (mm)		Standard length
	D*(Min.)	d*(Max.)	w*(Min.)	
HOT 19/6	19	6	2.0	30m/spool
HOT 25/10	25	10	2.0	30m/spool
HOT 30/12	30	12	2.0	30m/spool
HOT 35/14	35	14	2.5	30m/spool
HOT 40/16	40	16	2.5	30m/spool
HOT 50/20	50	20	2.5	15m/spool
HOT 65/25	65	25	3.0	15m/spool
HOT 85/35	85	35	3.0	15m/spool

D*= Inner diameter as supplied d*= Inner diameter after recovered w*= Wall thickness after fully recovered

Technical properties:

Property	Test Method	Typical Data
Tensile strength	ASTM D 2671	⩾13 MPa
Ultimate elongation	ASTM D 2671	⩾400%
Longitudinal shrinkage	UL 224	0 to -10%
Dielectric strength	IEC 243	⩾20kV/mm
Volume resistance	IEC 93	$\geqslant 10^{14}\,\Omega.cm$
Water absorption	ISO 62, 14days	<0.5%
Oil resistance	Transform oil/24 hrs.	Weight increase <10%

Ordering information:

Standard colors:

Clear

Special colors:

N/A

Packaging:

Standard packaging on spools.

Special: 1m, 1.2m pieces are available on request.

Other: Other cut lengths are available, please contact our sales department.

HSEC/HCEC

Cable End Caps with Spiral Adhesive Coating

Features:

- Crosslinked polyolefin
- Excellent sealing properties
- UV and weather resistance
- Operating temperature: -55°C to +110°C
- Min. full recovery temp.:120°C
- Available with or without adhesive

Dimensions:

Size (mm)	As supplied (mm)	After recovered (mm)			
	D*(Min.)	A*(±10%)	d*(Max.)	L*(±10%)	w*(±10%)
Cable end cap-HSEC, standard length					
HSEC 105 12/4	12	15	4	40	2.6
HSEC 110 14/5	14	18	5	45	2.2
HSEC 115 20/6	20	25	6	55	2.8
HSEC 120 25/8.5	25	30	8.5	68	2.8
HSEC 130 35/16	35	35	16	83	3.3
HSEC 135 40/16	40	35	16	90	3.3
HSEC 140 55/26	55	50	26	103	3.5
HSEC 150 75/36	75	55	36	120	4.0
HSEC 160 100/52	100	70	52	140	4.0
HSEC 170 120/60	120	70	60	150	4.0
HSEC 180 145/60	145	70	60	150	4.0
HSEC 190 160/82	160	70	80	150	4.0
Cable end cap-HSEC-L, extended length					
HSEC 110L 14/5	14	30	5	55	2.2
HSEC 130L 40/15	40	40	15	90	3.3
HSEC 135L 42/15	42	40	15	110	3.3
HSEC 140L 55/23	55	70	23	140	3.8
HSEC 145L 62/23	62	70	23	140	3.8
HSEC 150L 75/36	75	70	36	150	4.0
HSEC 150XL 75/36	75	70	36	170	4.2
HSEC 160L 100/47	100	65	47	155	4.0
Conductive cable end cap-HCEC, standard length					
HCEC 120-25/8.5	25	30	8.5	68	2.8
HCEC 130-42/15	42	40	15	110	3.3
HCEC 140-55/23	55	70	23	140	3.8
HCEC 145-62/23	62	70	23	140	3.8
HCEC 150-75/32	75	65	32	150	4.0
HCEC 150L-75/36	75	70	36	170	4.2
HCEC 160-105/45	105	65	45	150	4.0

D*= Inner diameter as supplied d*= Inner diameter after recovered w*= Wall thickness after fully recovered A*= Length of adhesive L*= Length of end cap

Technical properties:

Property	Test Method	Typical Data
Tensile strength	ASTM D 638	>11 MPa
Ultimate elongation	ASTM D 638	>400%
Density	ASTM D 792	1.05g/cm^3
Ultimate elongation after aging	150°C, 168 hrs.	>300%
Dielectric strength	IEC 243	>15kV/mm
Volume resistance	IEC 93	>10^{14} Ω.cm

Ordering information:

Standard colors:
Black

Special colors:
N/A

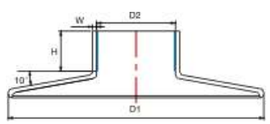
Packaging:
Standard packaging on bag.

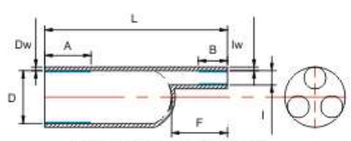
HAS/HMB/HMR

Anti-Tracking Rain Shed
Medium Voltage 3 Cores Cable Breakout
Medium Voltage Right / Straight Cable Boot

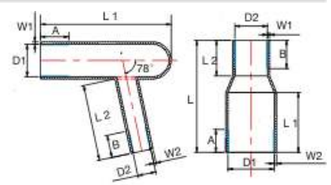
Features:

- Crosslinked polyolefin
- Non-tracking
- Red mastic applied to collars
- UV and weather resistance
- Min. full recovery temp.: 110℃





Hot melt adhesive A-50mm B-25mm



Anti-track red mastic A-50mm B-25mm

Dimensions:

Anti-tracking rain shed - HAS

Size (mm)	D2 a*(Min.)	D2 b*(±10%)	D1 (Nom.)	H (Min.)	w (±10%)
HAS 110 35/12	35	12	95	18	3
HAS 120 48/20	48	20	120	21	3
HAS 130 60/20	60	20	120	21	3
HAS 140 60/30	60	30	140	25	3
HAS 150 75/30	75	30	140	25	3
HAS 160 100/35	100	35	140	35	3
HAS 170 120/45	120	45	200	35	3

MV 3 cores cable breakout - HMB

Size (mm)	D		I		Recovered length ±10%		Recovered wall ±20%	
	a*(Min.)	b*(Max.)	a*(Min.)	b*(Max.)	L	F	Dw	lw
HMB 320-60/24	60	24	25	8	180	45	3.0	2.5
HMB 330-80/36	80	38	35	11	210	57	4.0	4.0
HMB 340-110/48	110	50	46	17.5	250	65	4.0	4.0
HMB 350-125/55	125	57	55	20	260	57	4.0	4.0
HMB 360-140/68	140	70	62	26	280	70	4.0	4.0

MV right/straight cable boot - HMR

	Size (mm)	As supplied (mm)		After recovered (mm)						
		D1 (Min.)	D2 (Min.)	D1 (Max.)	D2 (Max.)	L1 (Nom.)	L2 (±10%)	L (±10%)	W1 (±10%)	W2 (±10%)
Right Angle	HMR 110(80/36-35/18)	80	35	36	18	170	125	/	4.2	3.5
Right Angle	HMR 120(80/36-50/18)	80	50	36	18	170	125	/	3.8	3.5
Right Angle	HMR 130(80/36-50/27)	80	50	36	27	160	140	/	3.8	3.5
Right Angle	HMR 140(95/38-70/28)	95	70	38	28	160	140	/	4.2	4.8
Right Angle	HMR 150(145/72-68/34)	145	68	72	34	215	140	/	4.0	4.0
Straight	HMR 160(80/35-34/20)	80	34	35	20	145	30	220	3.2	3.2
Straight	HMR 170(80/35-58/20)	80	58	35	20	145	30	220	3.2	3.2
Straight	HMR 180(140/65-90/33)	140	90	65	33	155	40	320	4.0	4.0

a*= as supplied b*= after recovery

Technical properties:

Property	Test Method	Typical Data
Anti-tracking rain shed - HAS		
Tensile strength	ASTM D 2671	⩾13 MPa
Ultimate elongation	ASTM D 2671	⩾400%
Tensile strength after aging	ASTM D 2671/120˚C, 168 hrs.	⩾10.4 MPa
Ultimate elongation after aging	ASTM D 2671/120˚C, 168 hrs.	⩾350%
Dielectric strength	ASTM D 2671/3.75kV, 1hr.	⩾15 kV/mm
Tracking resistance	ASTM D 2303	Pass
Electric constant	IEC 250	⩾3.0
Volume resistance	IEC 93	⩾10^{14}Ω.cm
Flammability (Oxygen Index)	ISO 4589	⩾25
Copper corrosion	ASTM D 2671/120˚C, 168 hrs.	No corrosion
Cold bend	ASTM D 2671/-40˚C, 4 hrs.	No cracking
MV 3 cores cable breakout - HMB		
Tensile strength	ASTM D 2671	⩾8 MPa
Tensile strength after thermal aging	ASTM D 2671/120˚C, 168 hrs.	⩾7 MPa
Ultimate elongation	ASTM D 2671	⩾300%
Ultimate elongation after thermal aging	ASTM D 2671/120˚C, 168 hrs.	⩾200%
Dielectric strength	IEC 243	⩾20 kV/mm
Volume resistance	IEC 93	⩾10^{13}Ω.cm
Water absorption	ISO 62	⩽1%
Resistance to tracking	ASTM D 2303	No tracking
MV right/straight cable boot - HMR		
Tensile strength	ASTM D 2671	⩾12 MPa
Tensile strength after thermal aging	ASTM D 2671/120˚C, 168 hrs.	⩾8.5 MPa
Ultimate elongation	ASTM D 2671	⩾300%
Ultimate elongation after thermal aging	ASTM D 2671/120˚C, 168 hrs.	⩾200%
Dielectric strength	IEC 243	⩾15 kV/mm
Volume resistance	IEC 93	⩾10^{13}Ω.cm
Tracking resistance	ASTM D 2303/3.75 kV, 1hr.	Pass
Water absorption	ISO 62	⩽1%
Flammability(oxygen index)	ISO 4589	⩾25
Copper corrosion	ASTM D 2671/120˚C, 168 hrs.	No corrosion
Cold bend	ASTM D 2671/-40˚C, 4 hrs.	No cracking

Ordering information:

Standard colors:
Red

Special colors:
N/A

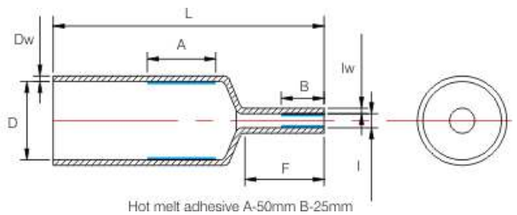
Packaging:
Standard packaging on bag.

HCFT

Cable Feed Throughs

Features:

- Crosslinked polyolefin
- Superior environmental protection
- Fast recovery
- Adhesive lined
- UV and weather resistance
- Operating temperature: -55˚C to +110˚C
- Min. full recovery temp.: 110˚C



Hot melt adhesive A-50mm B-25mm

Dimensions:

Size (mm)	D (mm)		I (mm)		Recovered length ± 10%		Recovered wall ± 10%	
	a*(Min.)	b*(Max.)	a*(Min.)	b*(Max.)	L (mm)	F (mm)	Dw (mm)	Iw (mm)
HCFT 110(85/42-15/5)	85	42	15	5	130	45	2.5	2.8
HCFT 120(60/30-45/10)	60	30	45	10	130	45	2.5	4.5
HCFT 130(100/52-20/8)	100	52	20	8	150	65	3.0	3.0
HCFT 130L(100/50-20/8)	100	50	20	8	210	70	3.0	3.0
HCFT 135(150/92-14/5)	150	92	14	5	150	55	3.5	3.5
HCFT 140(160/92-60/20)	160	92	60	20	150	50	3.2	3.0
HCFT 150(160/92-100/45)	160	92	100	45	150	50	3.5	3.5

a*= as supplied b*= after recovery

Technical properties:

Property	Test Method	Typical Data
Tensile strength	ASTM D 2671	⩾13 MPa
Ultimate elongation	ASTM D 2671	⩾300%
Tensile strength after aging	ASTM D 2671/120˚C, 168 hrs.	⩾10 MPa
Ultimate elongation after aging	ASTM D 2671/120˚C, 168 hrs.	⩾250%
Dielectric strength	ASTM D 2671	⩾15 kV/mm
Volume resistance	IEC 93	⩾10^{13}Ω.cm
Water absorption	ISO 62	⩽1%

Ordering information:

Standard colors:
Black

Special colors:
N/A

Packaging:
Standard packaging on bag.

HLB

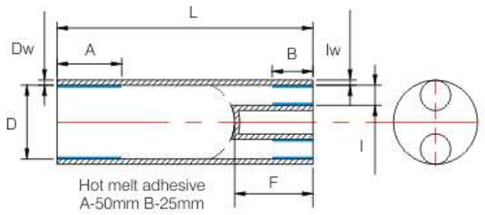
Low Voltage Cable Breakout 2 to 5 Cores

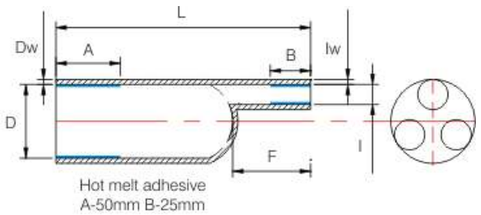
Features:

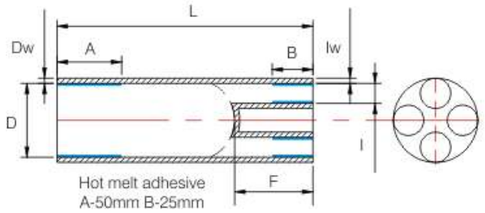
- Crosslinked polyolefin
- UV and weather resistant
- Available for 2 to 5 cores cables
- Excellent sealing properties
- Adhesive lined
- Operating temp.: -55˚C to +110˚C
- Min. shrink temp.: 110˚C
- Min. full recovery temp.: 130˚C

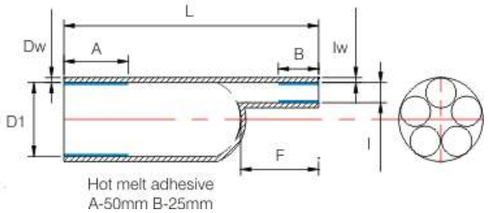
Technical properties:

Property	Test Method	Typical Data
Tensile strength	ASTM D 2671	⩾13 MPa
Tensile strength after thermal aging	ASTM D 2671/120℃, 168 hrs.	⩾10 MPa
Ultimate elongation	ASTM D 2671	⩾300%
Ultimate elongation after thermal aging	ASTM D 2671/120℃, 168 hrs.	⩾250%
Dielectric strength	IEC 243	⩾15 kV/mm
Volume resistance	IEC 93	⩾10^{13} Ω.cm
Water absorption	ISO 62	⩽1%









Dimensions:

Size (mm)	D		I		Recovered length±10%		Recovered wall±20%	
	a*(Min.)	b*(Max .)	a*(Min .)	b*(Max .)	L	F	Dw	Iw
2 cores cable breakout								
HLB 205-22/8	22	8	9	3.5	55	18	2.2	1.8
HLB 210-30/12	30	12	14	4.5	93	23	2.6	2.2
HLB 215-40/16	40	16	15	5	125	35	2.1	2.1
HLB 220-60/23	60	23	25	7.5	118	29	2.6	2.6
HLB 220L-60/23	60	23	25	7.5	155	45	2.6	2.6
HLB 230-100/42	100	42	30	9	155	55	3.1	3.1
HLB 240-150/75	150	75	20	6	170	64	3.8	3.8
3 cores cable breakout								
HLB 310-38/16	38	17	14	4.5	98	23	2.7	2.7
HLB 320-60/24	60	25	25	8	165	50	3	2.5
HLB 330-80/36	80	38	35	11	185	55	3.5	3.5
HLB 340-110/48	110	50	46	17.5	250	65	4	4
HLB 350-125/57	125	57	55	20	260	75	4	4
HLB 360-140/70	140	70	62	26	280	75	4	4
HLB 370-170/77	170	77	75	28	280	80	4	4
HLB 310L-40/16	40	16	15	4.5	125	35	2.1	2.1
HLB 320L-60/24	60	24	25	8	180	45	3.2	2.8
HLB 330L-80/36	80	38	35	11	215	57	4	4
4 cores cable breakout								
HLB 410-40/15	42	15	14	3.5	105	26	2.2	2
HLB 420-55/21	55	21	20	5	150	40	3.1	2.6
HLB 425-65/26	65	26	26	7	175	45	3.3	2.9
HLB 430-75/26	75	26	28	7	175	45	3.3	2.9
HLB 440-82/37	82	37	30	9	190	60	4	3
HLB 445-90/37	90	37	32	9	190	60	4	3
HLB 450-100/47	102	47	38	12	198	58	4	3
HLB 460-125/52	130	52	52	15	240	75	4	4
HLB 470-160/70	160	70	64	19	260	75	4	4
5 cores cable breakout								
HLB 510-40/19	40	19	13	4	98	25	2.5	2
HLB 520-55/24	55	24	18	5	155	40	3.2	2.6
HLB 530-80/33	80	33	26	8	175	53	3	2.8
HLB 540-100/42	100	42	34	10	190	60	3	3

a*= as supplied b*= after recovery

Ordering information:

Standard colors:
Black

Special colors:
N/A

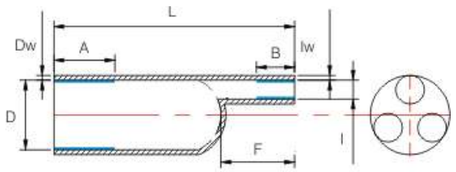
Packaging:
Standard packaging on bag.

HCB

3 Cores Conductive Cable Breakout

Features:

- Crosslinked polyolefin
- Conductive
- UV and weather resistant
- Red non tracking mastic applied
- Operating temp.: -55˚C to +105˚C
- Min. shrink temp.: 110˚C
- Min. full recovery temp.: 130˚C



Hot melt adhesive A-50mm B-25mm

Dimensions:

Size (mm)	D		I		Recovered length ±10%		Recovered wall ±20%	
	a*(Min.)	b*(Max.)	a*(Min.)	b*(Max.)	L	F	Dw	lw
HCB 320-60/24	60	24	25	8	183	45	3.0	2.5
HCB 330-80/36	80	38	35	11	215	57	4.0	4.0
HCB 340-110/48	110	50	46	17.5	250	65	4.0	4.0
HCB 350-125/55	125	57	55	20	260	57	4.0	4.0
HCB 360-140/68	140	70	62	26	280	70	4.0	4.0

a*= as supplied b*= after recovery

Technical properties:

Property	Test Method	Typical Data
Tensile strength	ASTM D 2671	≥12 MPa
Tensile strength after thermal aging	ASTM D 2671/120˚C, 168 hrs.	≥10 MPa
Ultimate elongation	ASTM D 2671	≥250%
Ultimate elongation after thermal aging	ASTM D 2671/120˚C, 168 hrs.	≥200%
Water absorption	ISO 62	≤1%
Volume resistance	IEC 93	$\geq 10^{4}\,\Omega$.cm

Ordering information:

Standard colors:
Black

Special colors:
N/A

Packaging:
Standard packaging on bag.

Selection Guide

Heat Shrinkable Medium & Heavy Wall Tubing

Product Name	Material	Product Type	Shrink Ratio	Operating Temp	Shrink Temp.*	Flame Retardant	MIL Spec.	General Description
HRA2/HR2	Polyolefin	Medium Wall	3:1	-55℃ to+125℃,	120℃	—	—	Resistance to UV, high electrical insulation, excellent mechanical protection to cable joints and terminations. Size: 8-410mm
HRA3/HR3	Polyolefin	Heavy Wall	3:1	-55℃ to+125℃,	120℃	—	—	High electrical insulation, excellent mechanical protection to cable joints and terminations. Size: 9-350mm
HRTM	Polyolefin	Medium Wall	3:1	-55℃ to+110℃,	120℃	—	—	High electrical insulation, excellent mechanical protection to cable joints and terminations. Size: 12-75mm
HRTH	Polyolefin	Heavy Wall	3:1	-55℃ to+110℃,	120℃	—	—	High electrical insulation, excellent mechanical protection to cable joints and terminations. Size: 9-55mm
HFRA2	Polyolefin	Medium Wall	3:1	-55℃ to+110℃,	120℃	Self-extinguish in 60 seconds	—	Medium wall adhesived-lined flame-retardant polyolefin tubing. Size: 22-160mm
HFRA3	Polyolefin	Heavy Wall	3:1	-55℃ to+110℃,	120℃	Self-extinguish in 60 seconds	—	Medium wall adhesived-lined flame-retardant polyolefin tubing. Size: 9-130mm
HRA-6X	Polyolefin	Heavy Wall	6:1	-55℃ to+110℃,	120℃	—	—	6:1 very high shrink ratio, excellent mechanical protection to cable joints and terminations. Size: 19-235mm
HSTV	Polyolefin	Medium Wall	3:1	-55℃ to+110℃,	120℃	—	—	Medium wall tubing for CATV industry splices and connectors protection. Size: 10-70mm
HRS	Polyolefin	Medium Wall	3:1	-35℃ to+110℃,	120℃	—	—	Medium wall tubing with black sealant mastic for metal pipes joint protection. Size: 30-410mm

Moulded Parts

Product Name	Material	Product Type	Shrink Ratio	Operating Temp	Shrink Temp.*	Flame Retardant	MIL Spec.	General Description
HSEC/HCEC	Polyolefin	—	—	-55℃ to+110℃,	120℃	—	—	Spiral hot melt adhesive coated cable end cap, for protecting cable end from the environmental effects.
HAS/HMB/HMR	Polyolefin	—	—	-55℃ to+105℃,	110℃	—	—	High creep resistance & anti-tracking rain sheds, protect cable outdoor termination.
HCFT	Polyolefin	—	—	-55℃ to+110℃	110℃-130℃	—	—	Cable feed-throughs
HLB	Polyolefin	—	—	-55℃ to+110℃	110℃-130℃	—	—	Insulation & sealing of cable breakouts for 1kV cables, 2 cores to 5 cores.
HCB	Polyolefin	—	—	-55℃ to+105℃	110℃-130℃	—	—	Conductive & sealing of 3 cores cable breakout.

Medium Voltage Insulation Tubing & Tape

Product Name	Material	Product Type	Shrink Ratio	Operating Temp & Potential Rating	Shrink Temp.*	Flame Retardant	MIL Spec.	General Description
HAT	Polyolefin	Medium Wall	2.5:1	-55℃ to+105℃, up to 36kV	110℃	ISO 4589	—	Non-tracking tubing, high creep resistance & anti-tracking properties. Size: 30-70mm (continues length) 75-100mm (cut length)
HBM	Polyolefin	Medium Wall	2.5:1	-55℃ to+105℃, up to 36kV	110℃	ISO 4589	—	Halogen free, medium-voltage bus-bar insulation tubing. Size: 19-100mm (continues length), 120-235mm (cut length)
HBTM	Polyolefin	Medium Wall	2.5:1	-55℃ to+105℃, up to 36kV	120℃	ISO 4589	—	Medium wall, halogen free, medium voltage bus-bar insulation tubing. Size: 15-120mm
HBTH	Polyolefin	Heavy Wall	2.5:1	-55℃ to+105℃, up to 36kV	120℃	ISO 4589	—	Heavy wall, halogen free, medium voltage bus-bar insulation tubing. Size: 25-180mm
HBIT	Polyolefin	Medium Wall	1.4:1	-55℃ to+105℃, up to 36kV	100℃	ISO 4589	—	Medium voltage bus-bar insulation tape, wall thickness: 1mm, width: 25mm/50mm/100mm
HSCT	Polyolefin	Medium Wall	2:1	-45℃ to+105℃, up to 36kV	120℃	—	—	Semi-conductive tubing, provide effective insulation screen on high voltage cable connectors. Size: 30-95mm
HSC-100	Polyolefin	Medium Wall	2:1	-45℃ to+100℃, up to 24kV	100℃-130℃	—	—	Stress control tubing, effective control the high electrical stress present at the end of the cable terminations and joints up to 24kV. Size: 26-55mm (continues length), 38-85mm (cut length)
HSC-360	Polyolefin	Medium Wall	2.5:1	-45℃ to+100℃, up to 36kV	100℃-130℃	—	—	Stress control tubing, effective control the high electricalstress present at the end of the cable terminations and joints up to 36KV Size: 47-95mm
HDWT	Polyolefin	Heavy Wall	3:1	-45℃ to+100℃, up to 36kV	110℃-130℃	—	—	Semi-conducting/Insulation dual wall tubing, suitable for applications in power cable joints up to 36kV. Size: 36-115mm
HEDT-100	Polyolefin	Heavy Wall	2.5:1	-45℃ to+100℃, up to 15kV	110℃-130℃	—	—	Semi-conducting/elastomeric insulation dual wall tubing for power cable joints. Size: 35-65mm
HEDT-360	Polyolefin	Heavy Wall	2.5:1	-45℃ to+100℃, up to 36kV	110℃-130℃	—	—	Semi-conducting/elastomeric insulation dual wall tubing for power cable joints. Size: 37-125mm
HGT	Polyolefin	Heavy Wall	3:1	-40℃ to+110℃, up to 36kV	90℃-110℃	—	—	High insulation tubing for power cable joints. Size: 36-95mm
HOT	Polyolefin	Medium Wall	2.5:1	-40℃ to+140℃, up to 36kV	110℃-130℃	—	—	Oil resistance tubing for the cable terminations and joints. Size: 19-85mm