

Heavy-wall heat-shrinkable tubing

HS Series



3:1 Shrink ratio

- Made of thermally stabilized cross-linked polyolefin, enabling a recovered wall thickness greater than that of the cable jacket replaced
- Withstands severe mechanical requirements of U.R.D., submersible and direct burial installations
- Tubing, featuring an internally applied sealant, offers protection against moisture, and may be used over lead, steel, aluminum, copper, standard plastic and elastomeric insulating materials
- Shrink temperature of 120 °C
- High-impact, abrasion, corrosion and chemical resistance
- Rated for 600 V, 90 °C continuous use
- Thermoplastic adhesive liner provides complete environmental protection and insulation
- Meets: UL and CSA standards, ANSI C119.1, Western Underground Guide Nos. 2.4, 2.5, ICEA and NEMA insulation thickness requirements
- Continuous operating temperature: -55 °C to 110 °C
- ABB recommended up to 1 kV
- UV rated (ASTM G53)



HS Series specifications

Property	Test method	Typical performances
Physical		
Tensile strength	ASTM D412, ISO 37	2100 psi (14.5 MPa)
Elongation	ASTM D412, ISO 37	600%
Elongation after heat aging (168 hrs. at 150 °C)	ASTM D2671	500%
Heat shock (4 hrs. at 225 °C)	ASTM D2671	No cracking or flowing
Longitudinal change	ASTM D2671	+1%, -10%
Low temperature flexibility (4 hrs. at -55 °C)	ASTM D2671	No cracking
Specific gravity	ASTM D792	1.1
Hardness (Shore D)	ASTM D2240	50D
Electrical		
Dielectric strength	ASTM D149	500 V/mil (20 kV/mm)
Dielectric voltage withstand (2500 V, 600 Hz, 1 min.)	UL 486D	No breakdown, 24 kV-1 min., 15 kV-4 hrs.
Volume resistivity	ASTM D257	1016 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 shear (1 in./min. at 23 °C)	ASTM D1002	125 psi (0.875 MPa)
Adhesive softening point	ASTM E28	90 °C ±5 °C
Adhesive peel strength (300 mm/min. at 23 °C)		
– To steel, aluminum, P.E.	ASTM D 1000	35 linear lb/in.
– PVC	ASTM D 1000	20 linear lb/in.
Water penetration	STM 706	No penetration after 236 hrs. of continuous immersion

Heavy-wall heat-shrinkable tubing

HS Series

Heavy-wall heat-shrinkable tubing – Black



Cat. no.	Min. expanded I.D. (in.)	Max. recovered I.D. (in.)	Nom. recovered wall (in.)	Std. length (in.)	Fits any listed or certified Al or Cu splice with dia. no larger than		Cable range (AWG) or kcmil	Std. pkg. qty.
					O.D. (in.)	Length (in.)		
HS16-12	0.35	0.12	0.07	3	0.27	1.00	#16-#12	25
HS16-12L	0.35	0.12	0.07	6	0.27	1.00	#16-#12	25
HS16-12-4	0.35	0.12	0.07	48	0.27	1.00	#16-#12	5
HS12-6	0.51	0.16	0.09	3	0.38	1.75	#12-#6	25
HS12-6L	0.51	0.16	0.09	6	0.38	1.75	#12-#6	25
HS12-6-4	0.51	0.16	0.09	48	0.38	1.75	#12-#6	5
HS6-1	0.75	0.24	0.09	4	0.63	2.50	#6-#2	25
HS6-1L	0.75	0.24	0.09	8	0.63	2.50	#6-#2	25
HS6-1-4	0.75	0.24	0.09	48	0.63	2.50	#6-#2	5
HS4-30	1.10	0.35	0.12	5	0.75	3.25	#4-3/0	20
HS4-30L	1.10	0.35	0.12	9	0.75	3.25	#4-3/0	10
HS4-30-4	1.10	0.35	0.12	48	0.75	3.25	#4-3/0	5
HS40-400	1.50	0.47	0.16	8	-	-	2/0-350	10
HS40-400L	1.50	0.47	0.16	12	-	-	2/0-350	10
HS40-400-4	1.50	0.47	0.16	48	-	-	2/0-350	5
HS500-1000	2.00	0.63	0.16	9	-	-	500-1000	5
HS500-1000L	2.00	0.63	0.16	15	-	-	500-1000	2
HS500-1000-4	2.00	0.63	0.16	48	-	-	500-1000	2
HS12-30**	3.54	1.18	0.16	12	-	-	800-1250	2
HS30-30**	3.54	1.18	0.16	30	-	-	800-1250	2
HS30-4**	3.54	1.18	0.16	48	-	-	800-1250	1
HS12-40**	4.72	1.57	0.17	12	-	-	1500-2500	1
HS30-40**	4.72	1.57	0.17	30	-	-	1500-2500	1
HS40-4-TB	4.72	1.57	0.17	48	-	-	1500-2500	1

Order multiple is std. pkg. All lengths have factory-applied sealant

**UL not applicable

Heavy-wall heat-shrinkable tubing – Red



Cat. No.	Min. expanded I.D. (in.)	Max. recovered I.D. (in.)	Length (in.)	For 2-way connector cable sizes (AWG)		Std. pkg. qty.
				For 2-way connector cable sizes (AWG)	Std. pkg. qty.	
HS12-6LR	0.51	0.16	6	#8-6	25	
HS6-1LR	0.75	0.24	8	#6-2	25	
HS4-30LR	1.10	0.35	9	#1-3/0	10	

Order multiple is std. pkg. All lengths have factory-applied sealant

Heavy-wall tubing (25 ft. rolls) – Black



Cat. No.	Min. expanded I.D. (in.)	Max. recovered I.D. (in.)	Nom. recovered wall (in.)	For 2-way connector cable sizes (AWG) or kcmil		Std. pkg. qty.
				For 2-way connector cable sizes (AWG) or kcmil	Std. pkg. qty.	
HS16-12-25	0.35	0.12	0.07	#14-10	1	
HS12-6-25	0.51	0.16	0.09	#8-6	1	
HS6-1-25	0.75	0.24	0.09	#6-#2	1	
HS4-30-25	1.10	0.35	0.12	#1-3/0	1	
HS40-400-25	1.50	0.47	0.16	2/0-350	1	
HS500-1000-25	2.00	0.63	0.16	250-500	1	

Order by reel, not by feet. 25 ft. reels not supplied with factory applied sealant

Heavy-wall heat-shrinkable tubing

HSHR Series



Heavy-wall heat-shrinkable tubing

High shrink ratio of 6:1

- Accommodates a wide variety of connector shapes and configurations
- Thermoplastic adhesive liner for complete environmental protection and insulation
- Continuous operating temperature: -55 °C to 110 °C
- Shrink temperature: 120 °C
- Flame-retardant

Cat. no.	Min. expanded I.D. (in.)	Max. recovered I.D. (in.)	Nominal recovered wall (in.)	Code cable size (AWG) or kcmil	Standard length (in.)	Std. pkg. qty.
HSHR750-4	0.75	0.13	0.10	#22-#46	48	25
HSHR1300-4	1.30	0.22	0.12	#8-700	48	25
HSHR1750-4	1.75	0.29	0.13	#4-1,000	48	25
HSHR2000-4	2.00	0.33	0.13	#2-1,250	48	25
HSHR2750-4	2.75	0.46	0.14	1/0-1,500	48	15
HSHR3500-4	3.50	0.58	0.15	3/0-1,750	48	10
HSHR4700-4	4.70	0.78	0.15	300-2,000	48	5

HSHR Series specifications

Property	Test method	Typical performances
Physical		
Tensile strength	ASTM D412, ISO 37	2,100 psi (14.5 MPa)
Elongation	ASTM D412, ISO 37	600%
Elongation after heat aging (168 hrs. at 150 °C)	ASTM D2671	500%
Heat shock (4 hrs. at 225 °C)	ASTM D2671	No cracking or flowing
Longitudinal change	ASTM D2671	+1%, -10%
Low temperature flexibility (4 hrs. at -55 °C)	ASTM D2671	No cracking
Specific gravity	ASTM D792	1.1
Hardness (Shore D)	ASTM D2240	50D
Electrical		
Dielectric strength	ASTM D149, IEC 243	500 V/mil (20 kV/mm)
Dielectric voltage withstand (2500 V, 60 Hz, 1 min.)	UL 486D	No breakdown, 15 kV-4 hrs.
Volume resistivity	ASTM D257	1,016 ohm-cm
Chemical		
Fluid resistance	MIL-DTL-23053/15	Good to excellent
Fungus resistance	ASTM G21	No growth
Copper corrosion	ASTM D2671	No corrosion
Water absorption	ASTM D570	0.1%
Adhesive		
Adhesive lap shear (1 in./min. at 23 °C)	ASTM D1002	125 psi (0.875 MPa)
Adhesive softening point	ASTM E28	90 °C ±5 °C
Adhesive peel strength (300 mm/min. at 23 °C)		
– To steel, aluminum, P.E.	ASTM D 1000	35 linear lb/in.
– PVC	ASTM D 1000	20 linear lb/in.
Adhesive blocking (30 °C)	ASTM D1146	No blocking
Water penetration	STM 706	No penetration after 236 hrs. of continuous immersion

Heavy-wall heat-shrinkable tubing

HSFR Series



3:1 Shrink ratio

Flame-retardant heavy-wall

- Insulates and protects electrical splices and terminations
- High-impact and abrasion resistance
- Thermoplastic adhesive liner
- Rated for up to 2 kV
- Continuous operating temperature: -55 °C to 110 °C

- Shrink temperature of 120 °C
- Meets: UL and CSA standards, ANSI C119.1, Western Underground Guide 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
- UV rated (ASTM G53)

Heavy-wall heat-shrinkable tubing – Flame-retardant

	Cat. no.	Min. expanded I.D. (in.)	Max. recovered I.D. (in.)	Nominal recovered wall (in.)	Code cable size (AWG) or kcmil	Standard length (in.)	Std. pkg. qty.
	HSFR16-12-4	0.35	0.12	0.07	#14-#10	48	25
	HSFR12-6-4	0.51	0.16	0.09	#8-#6	48	25
	HSFR6-1-4	0.75	0.24	0.09	#6-#2	48	25
	HSFR4-30-4	1.10	0.35	0.12	#1-3/0	48	25
	HSFR40-400-4	1.50	0.47	0.16	2/0-350	48	25
	HSFR500-1000-4	2.00	0.63	0.16	250-500	48	25

Order multiple is std. pkg. – Standard colour: black

HSFR Series specifications

Property	Test method	Typical performances
Physical		
Tensile strength	ASTM D412, ISO 37	2,100 psi (14.5 MPa)
Elongation	ASTM D412, ISO 37	600%
Longitudinal change	ASTM D2671	+1%, -10%
Specific gravity	ASTM D792	1.2
Elongation after heat aging (168 hrs. at 175 °C)	ASTM D2671, ISO 37	500%
Heat shock (4 hrs. at 225 °C)	ASTM D2671	No cracking or flowing
Low temperature flexibility (4 hrs. 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 (20 kV/mm)
Dielectric voltage withstand (2500 V, 60 Hz, 1 min.)	UL 486D	No breakdown, 24 kV-4hrs, 15 kV-4 hrs.
Volume resistivity	ASTM D257	1,016 ohm-cm
Chemical		
Fluid resistance	MIL-DTL-23053/5	Good to excellent
Fungus resistance	ASTM G21	No growth
Copper corrosion	ASTM D2671	No corrosion
Water absorption	ASTM D570	0.2%
Adhesive		
Adhesive lap shear (1 in./min. at 23 °C)	ASTM D1002	125 psi (0.875 MPa)
Adhesive softening point	ASTM E28	90 °C ±5 °C
Adhesive peel strength (300 mm/min. at 23 °C)		
– To steel, aluminum, P.E.	ASTM D 1000	35 linear lb/in.
– PVC	ASTM D 1000	20 linear lb/in.
Adhesive blocking (30 °C)	ASTM D1146	No blocking
Adhesive water absorption	ASTM D570	Less than 0.3%
Water penetration	STM 706	No penetration after 286 hrs. of continuous immersion

Heavy-wall heat-shrinkable tubing

HSC Series – Heat-shrinkable end caps



3:1 Shrink ratio

- Provides effective method for sealing cable ends, pipe conduit, etc.
- Extra thickness at the tip of the end cap prevents sharp ends of the cable from puncturing the seal
- Flame-retardant
- Rated from 600/1,000 V, 90 °C continuous use
- Shrink temperature of 120 °C
- Resistant to common fluids and solvents
- Adhesive liner provides complete environmental protection and insulation
- Heat indicating lines; continuous operating temperature: -55 °C to 110 °C

Heat-shrinkable end caps



	Cat. no.	Min. expanded I.D. (in.)	Max. recovered I.D. (in.)	Recovered wall (in.)	Code cable size (AWG) or kcmil	Nom. length (in.)	Std. pkg. qty.
	HSC8-4	0.51	0.16	0.09	#8-#6	2.50	100
	HSC2-20	0.75	0.24	0.09	#6-#2	2.50	100
	HSC30-250	1.10	0.35	0.12	#1-3/0	3.00	50
	HSC300-600	1.50	0.47	0.16	2/0-350	3.25	50
	HSC700-1000	2.00	0.63	0.16	250-500	3.50	50
	HSC750	2.70	0.87	0.16	600-1,000	4.00	10
	HSC300	3.50	1.18	0.16	800-1,250	4.50	5
	HSC500	4.70	1.57	0.17	1,500-2,500	5.50	5

Order multiple is std. pkg.

HSC Series specifications

Property	Test method	Typical performances
Physical		
Tensile strength	ASTM D412, ISO 37	2,100 psi (14.5 MPa)
Elongation	ASTM D412, ISO 37	550%
Elongation after heat aging (168 hrs. at 150 °C)	ASTM D412, ISO 37	500%
Heat shock (4 hrs. at 225 °C)	ASTM D2671	No cracking or flowing
Longitudinal change on recovery	ASTM D2671	+1%, -10%
Low temperature flexibility (4 hrs. at -55 °C)	ASTM D2671	No cracking
Specific gravity	ASTM D792	1.1
Hardness (Shore D)	ASTM D2240	50D
Electrical		
Dielectric strength	ASTM D149, IEC 243	500 V/mil (20 kV/mm)
Dielectric voltage withstand (2500 V, 60 Hz, 1 min.)	UL 486D	No breakdown, 15 kV-4 hrs.
Volume resistivity	ASTM D257	1,016 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 shear (1 in./min. at 23 °C)	ASTM D1002	125 psi (0.875 MPa)
Adhesive softening point	ASTM E28	90 °C ±5 °C
Adhesive peel strength (300 mm/min. at 23 °C)		
– To steel, aluminum, P.E.	ASTM D 1000 (mod.)	35 linear lb/in.
– PVC	ASTM D 1000 (mod.)	20 linear lb/in.
Adhesive blocking (30 °C)	ASTM D1146	No blocking
Water penetration	STM 706	No penetration after 236 hrs. of continuous immersion
Room temperature	168 hrs./40 psi	No leaks
Temp. cycling (-40 °C to 60 °C)	50 cycles/15 psi	No leaks
Burst pressure		100 psi (0.70 MPa)

Heavy-wall heat-shrinkable tubing

HSB Series – Heat-shrinkable breakout boots

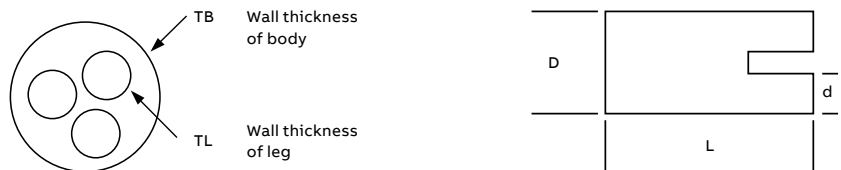


- Boots for 2-, 3- and 4-cable breakouts
- Thermoplastic adhesive liner provides complete environmental protection and insulation
- Meets ESI 09-11
- Strain relief and mechanical protection
- Continuous operating temperature: -55 °C to 100 °C
- Shrink temperature of 135 °C

Heat-shrinkable breakout boots

Cat. no.	No. legs	D		d		L	TB	TL	Application legs 600 V conductor (AWG/kcmil)	Std. pkg. qty.
		Expanded dia. (min.) (in.)	Recovered dia. (max.) (in.)	Expanded dia. (min.) (in.)	Recovered dia. (max.) (in.)					
HSB200-75-2	2	1.97	0.90	0.83	0.30	4.69	0.13	0.13	#3–300	10
HSB120-50-3	3	1.50	0.50	0.65	0.16	4.47	0.11	0.11	#8–3/0	10
HSB170-82-3	3	2.20	0.89	1.20	0.35	7.09	0.12	0.12	#1–600	10
HSB240-112-3	3	2.83	1.38	1.46	0.69	7.01	0.16	0.12	300–1,000	10
HSB125-50-4	4	1.83	0.47	0.59	0.12	3.74	0.10	0.08	#12–2/0	10
HSB175-82-4	4	2.36	0.90	1.18	0.25	7.95	0.16	0.13	#4–600	10
HSB265-120-4	4	3.10	1.40	1.50	0.49	9.45	0.13	0.13	3/0–1,000	10
HSB350-138-3	3	3.54	1.34	1.38	0.55	7.87	0.12	0.08	4/0–1,000	5
HSB430-157-3	3	4.33	1.38	1.57	0.69	7.01	0.16	0.12	300–1,000	5
HSB490-200-3	3	4.92	2.32	2.00	1.00	11.14	0.15	0.15	450–1,000	5
HSB520-135-4	4	5.25	3.00	1.35	0.55	10.02	0.13	0.16	4/0–1,000	5

Diagrams



HSB Series specifications

Property	Test method	Typical performances
Physical		
Tensile strength	ASTM D412, ISO 540	2,100 psi (14.5 MPa)
Ultimate elongation	ASTM D412, ISO 540	600%
Elongation after heat aging (168 hrs. at 175 °C)	ASTM D412, ISO 540	520%
Heat shock (4 hrs. at 225 °C)	ASTM2671	No dripping, cracking, flowing
Low temperature flexibility (-55 °C)	ASTM2671	No cracking
Flammability	ASTM D630	Self ext. within 1.97 sec.
Electrical		
Dielectric strength	ASTM D2671	280 V/mil (11 kV/mm)
Chemical		
Water absorption	ASTM D570	0.03%