

## Technical Information

### Gland Information for Armored Cables

#### Thomas and Betts

Part No.	Hub Size NPT	Range Over Jacket			
		Minimum		Maximum	
		Inch	mm	Inch	mm
ST050-462	1/2	.525	13.34	.650	16.51
ST050-464	1/2	.600	15.24	.760	19.30
ST050-465	1/2	.725	18.42	.885	22.48
ST050-466	1/2	.825	20.96	.985	25.02
ST075-467	3/4	.880	22.35	1.065	27.05
ST075-468	3/4	1.025	26.04	1.205	30.61
ST100-469	1	1.187	30.15	1.375	34.93
ST125-470	1-1/4	1.350	34.29	1.625	41.28
ST125-550	1-1/4	1.500	38.10	1.625	41.28
ST125-471	1-1/4	1.600	40.64	1.875	47.63
ST150-472	1-1/2	1.700	43.18	1.965	49.91
ST150-473	1-1/2	1.900	48.26	2.187	55.55
ST200-551	2	1.900	48.26	2.187	55.55
ST200-474	2	2.100	53.34	2.375	60.33
ST200-475	2	2.300	58.42	2.565	65.15
ST200-476	2	2.500	63.50	2.750	69.85
ST250-477	2-1/2	2.380	60.45	2.640	67.06
ST250-478	2-1/2	2.580	65.53	2.840	72.14
ST300-479	3	2.790	70.87	3.060	77.72
ST300-480	3	3.000	76.20	3.270	83.06
ST300-481	3	3.210	81.53	3.480	88.39
ST350-482	3-1/2	3.420	86.67	3.690	93.73
ST350-483	3-1/2	3.610	91.69	3.870	98.30
ST400-484	4	3.810	96.77	4.030	102.36
ST400-485	4	3.965	100.71	4.185	106.30
ST400-486	4	4.120	104.65	4.340	110.24

#### Crouse Hinds

NPT Thread Size	Armor OD Range (Inch)	Non-Hazardous Part No.	Hazardous Part No.
1/2	.440 to .650	TMC165	TMCX165*
3/4	.600 to .850	TMC285	TMCX285*
1	.800 to 1.120	TMC3112	TMCX3112*
1-1/4	1.100 to 1.400	TMC4140	TMCX4140*
1-1/2	1.330 to 1.610	TMC5161	TMCX5161*
2	1.570 to 2.060	TMC6206	TMCX6206*
2-1/2	1.930 to 2.470	TMC7247	TMCX7247*
3	2.450 to 3.020	TMC8302	TMCX8302
3-1/2	2.950 to 3.520	TMC9352	TMCX9352
4	3.500 to 4.020	TMC10402	TMCX10402

\* TMCX Catalog numbers listed are suitable for use with Type TC tray cable in hazardous locations when installed in accordance with NEC Articles 501-5(e) and 502-5. TMCX series is not suitable for use in Class III locations when used with tray cable.

#### Hawke

Hawke Size Ref.	Standard Seal 1348 Diameter				Alternative Seal 1498 Diameter				NPT Size
	Minimum		Maximum		Minimum		Maximum		
	Inch	mm	Inch	mm	Inch	mm	Inch	mm	
711-A	.590	14.99	.820	20.83	.470	11.94	.610	15.49	1/2
711-B	.790	20.07	.060	26.92	.630	16.00	.840	21.34	3/4
711-C	.930	23.62	1.310	33.27	.830	21.08	1.090	27.69	1
711-C2	1.260	32.00	1.690	42.93	1.100	27.94	1.340	34.04	1-1/4
711-D	1.690	42.93	2.060	52.32	1.300	33.02	1.610	40.89	2
711-E	2.050	52.07	2.560	65.02	1.810	45.97	2.160	54.86	2-1/2
711-F	2.560	65.02	3.070	77.98	2.240	56.90	2.640	67.06	3
711-H	2.990	75.95	3.520	89.41	Special Order				3-1/2
711-J	3.500	88.90	4.110	104.39	Special Order				4

#### Adalet — PLM

Part No.**	Diameter Over Jacket				Conduit Size
	Minimum		Maximum		
	Inch	mm	Inch	mm	
PS/PSX 45-05	.350	8.89	.450	11.43	1/2
PS/PSX 55-05	.450	11.43	.550	13.97	1/2
PS/PSX 65-05	.550	13.97	.650	16.51	1/2
PS/PSX 75-05	.650	16.51	.750	19.05	1/2
PS/PSX 85-05	.750	19.05	.850	21.59	1/2
PS/PSX 95-05	.850	21.59	.950	24.13	1/2
PS/PSX 99-07	.850	21.59	.990	25.15	3/4
PS/PSX 107-07	.920	23.37	1.070	27.18	3/4
PS/PSX 113-07	.980	24.89	1.130	28.70	3/4
PS/PSX 121-07	1.070	27.18	1.210	30.73	3/4
PS/PSX 112-10	1.000	25.40	1.120	28.45	1
PS/PSX 125-10	1.120	28.45	1.250	31.25	1
PS/PSX 138-10	1.220	30.99	1.380	35.05	1
PS/PSX 138-12	1.280	32.51	1.380	35.05	1-1/4
PS/PSX 156-12	1.380	35.05	1.560	39.62	1-1/4
PS/PSX 174-12	1.560	39.62	1.740	44.20	1-1/4
PS/PSX 188-12	1.740	44.20	1.880	47.75	1-1/4
PS/PSX 174-15	1.600	40.64	1.740	44.20	1-1/2
PS/PSX 188-15	1.740	44.20	1.880	47.75	1-1/2
PS/PSX 200-15	1.880	47.75	2.000	50.80	1-1/2
PS/PSX 218-15	2.000	50.80	2.180	55.37	1-1/2
PS/PSX 219-20	2.050	52.07	2.190	55.63	2
PS/PSX 236-20	2.190	55.63	2.360	59.94	2
PS/PSX 247-20	2.350	59.69	2.470	62.74	2
PS/PSX 261-20	2.470	62.74	2.610	66.29	2
PS/PSX 263-25	2.460	62.48	2.630	66.80	2-1/2
PS/PSX 280-25	2.620	66.55	2.800	71.12	2-1/2
PS/PSX 296-25	2.800	71.12	2.960	75.18	2-1/2
PS/PSX 297-30	2.800	71.12	2.970	75.44	3
PS/PSX 311-30	2.950	74.93	3.110	78.99	3
PS/PSX 327-30	3.100	78.74	3.270	83.06	3
PS/PSX 343-30	3.260	82.80	3.430	87.12	3
PS/PSX 359-30	3.420	86.87	3.590	91.19	3
PS/PSX 375-35	3.520	89.41	3.750	95.25	3-1/2
PS/PSX 392-35	3.750	95.25	3.920	99.57	3-1/2
PS/PSX 412-35	3.900	99.06	4.120	104.65	3-1/2
PS/PSX 423-40	4.050	102.87	4.230	107.44	4
PS/PSX 437-40	4.200	106.68	4.370	111.00	4
PS/PSX 451-40	4.340	110.24	4.510	114.55	4
PS/PSX 462-40	4.430	112.52	4.620	117.35	4

\*\* Use PS for non-hazardous locations and PSX for hazardous locations.

## Technical Information

### LSZH Jacketed Cables and Hazardous Locations Reference

#### Approvals and Standards/Performance Data for Low-Smoke, Zero-Halogen Jacketed Cable

XLPE Insulation	
Physical: (per UL-44)	
Tensile (min)	1500 psi
Elongation (min)	150%
Deformation (max)	3.35
LOI	27

Haloarrest® Jacket	
Physical	
Tensile (min)	1500 psi
Elongation (min)	100%
Tear resistance	74 lbs/inch
LOI	38
Halogen Content	
IEC 754-1	0%
BS6425	0%
MIL-C-24643	<0.2%
NBS Smoke Chamber (.100" wall)	
Flaming Mode	141 D <sub>m</sub> corrected typical
Smoldering Mode	311 D <sub>m</sub> corrected typical
Acid Gas	
IEC 754-2	4.3 pH, 28 μS/cm
VDE 0472 Part 813	4.3 pH, 27 μS/cm
Toxicity Index	
NES 713	1

#### Low-Smoke, Zero-Halogen Jacketed Cable Specifications

##### 600V, 90°C TC-LS NEC 340/UL 1277 & 1685

##### Instrumentation

- 18 to 12 AWG, BC or TC
- 90°C XLPE insulation
- UL 44 XHHW-2 — 90°C dry/wet
- Shielded or unshielded
- Haloarrest jacket

##### Control or Power

- 14 to 4/0 AWG, BC or TC
- 90°C XLPE insulation
- UL 44 XHHW-2 — 90°C dry/wet
- Shielded or unshielded
- Haloarrest jacket

#### Hazardous Locations Cable Reference

##### Article 500

###### Class I Division 1 Hazards

- Locations where flammable gases or vapors may exist under normal operating conditions, under frequent repair or maintenance operations, or where breakdown or faulty operation of process equipment might also cause simultaneous failure of electrical equipment.
- Use conduit or MI cable with approved termination fittings.

###### Class I Division 2 Hazards

- Locations where flammable gases, vapors or volatile liquids are handled either in a closed system, or confined within suitable enclosures, or where hazardous concentrations are normally prevented by positive mechanical ventilation. Areas adjacent to Division 1 areas belong in Division 2.
- Use PLTC, ITC, TC, MC, MV, MI with approved termination fittings.

###### Class II Division 1

- Locations where combustible dusts exist under normal conditions.
- Use conduit or MI with approved termination fittings.

###### Class II Division 2

- Locations where combustible dusts exist under abnormal conditions.
- Use conduit or PLTC, ITC, TC, MC with ventilated channel cable trays.
- Use conduit or MC, MI with approved termination fittings.

###### Class III Division 1

- Locations where easily ignitable fibers and flyings exist under normal conditions.
- Use conduit or MC, MI with approved termination fittings.

###### Class III Division 2

- Locations where easily ignitable fibers and flyings exist under abnormal conditions.
- Use conduit or MC, MI with approved termination fittings.

##### Article 504

###### Intrinsically Safe

- Equipment and wiring that are incapable of releasing sufficient electrical energy under normal or abnormal conditions to cause ignition of a specific hazardous atmospheric mixture in its most easily ignited concentration.
- Use CL3, CL2, PLTC, TC or CM cable, colored light blue, with approved sealing and separation.

##### Hazardous Location Cable Reference per Canadian Electrical Code CEC Section 18

All Armored cables printed "HL" per CSA C22.2 #174 are rated for all Hazardous Location Classes and Divisions (ie. Class 1, Div. 1).

All Tray Cables printed "TC" per per CSA C22.2 #230 are rated for all Hazardous Location Classes and Division 2 or lower. (ie. Class 1, Div. 2 or lower).

## Technical Information

### UL Approved Insulation/Jacketing Options

UL Listed for MC and TC			
Insulation/Jacket	Max. Temp Rating		Flame Tests
	Wet	Dry	
PVC-Nylon/PVC (THHN or THWN) 14 AWG & larger	75°C	90°C	UL 1685 FT4/ IEEE 1202/383 ICEA T-29-520
PVC-Nylon/PVC (TFN or TFFN) 16 & 18 AWG	NA	90°C	UL 1685 FT4/ IEEE 1202/383 ICEA T-29-520
XLPE/PVC or CPE (XHHW-2) 14 AWG & larger	90°C	90°C	UL 1685 FT4/ IEEE 1202/383 VW-1 rated singles ICEA T-29-520
XLPE/PVC or CPE (RFH-2) 16 & 18 AWG	75°C	75°C	UL 1685 FT4/ IEEE 1202/383 VW-1 rated singles ICEA T-29-520
FRPO/PVC 18 AWG & larger	—	75°C	UL 1685
TPE/TPE	75°C	90°C	UL 1685
FRPO/PVC	75°C	90°C	UL 1685
XLPE/Haloarrest (XHHW-2) 14 AWG & larger	90°C	90°C	UL 1685 FT4/IEEE 1202/383 ICEA T-29-520
XLPE/Haloarrest (RFH-2) 16 & 18 AWG	75°C	75°C	UL 1685 FT4/IEEE 1202/383 ICEA T-29-520
FEP/PVC	90°C	90°C	UL 1685

UL Listed for PLTC	
Insulation/Jacket	Max. Temp Rating
XLPE/PVC	90°C
XLPE/CPE	90°C
PVC/PVC	105°C
PVC/CPE	105°C
PE/PVC	75°C
FPE/PVC	75°C
TPE/TPE	105°C
XLPE/Haloarrest®	90°C
FEP/FEP	200°C

### Abbreviations Key

<b>CPE</b>	Chlorinated Polyethylene
<b>FEP</b>	Fluorinated Ethylene-propylene
<b>FPE</b>	Foam Polyethylene
<b>FRPO</b>	Flame-Retardant Polyolefin
<b>PE</b>	Polyethylene
<b>PVC</b>	Polyvinyl Chloride Nylon insulated singles are type THHN or THWN for conductors 14 AWG or larger. Conductor sizes 16 and 18 AWG are Type TFN or TFFN singles.
<b>TPE</b>	Thermoplastic Elastomer
<b>XLPE</b>	Cross-Linked Polyethylene Cross-Linked Polyethylene (XLPE) insulated singles are type XHHW-2 for conductors 14 AWG or larger. Conductor sizes 16 and 18 AWG are RFH-2.

### Vertical Tray Flame Test Comparison

Test	UL-1685 (UL-1581)	FT4/IEEE 1202/ IEEE 383-2003	IEEE 383-1974	IEC 323-3	ICEA T-29-520
<b>Flame Test Chamber</b>	Vertical Tray	Vertical Tray	Vertical Tray	Vertical Tray	Vertical Tray
<b>Burner Type</b>	Ribbon gas burner	Ribbon gas burner	Ribbon gas burner	Ribbon gas burner	Ribbon gas burner
<b>Theoretical Heat Input</b>	70,000 BTU/hr	70,000 BTU/hr	70,000 BTU/hr	70,000 BTU/hr	210,000 BTU/hr
<b>Burner Positioning</b>	horizontal 3" from samples  18" from tray base	20° up from horizontal 2.95" from cable surface 11.8" above floor	horizontal 3" from samples 18" above tray bottom	horizontal 2.95" from cable surface 23.6" above floor	horizontal 8-1/4" from cable surface 12-1/4" above tray base
<b>Tray Dimensions</b>	8' length 12" width 3" side flanges	9.84' length 11.81" width 2.85" side flanges	8' length 12" width 3" side flanges	11.5' length 19.7" width none	8' length 12" width 3" side flanges
<b>Sample Spacing</b>	1/2 cable diameter	1/2 cable diameter	1/2 cable diameter	lesser of 1/2 cable diameter and .78"	1/2 cable diameter
<b>Duration of Flame Application</b>	20 minutes	20 minutes	20 minutes	20 minutes	20 minutes
<b>Mode of Failure</b>	Cable blistering or charring has reached the top of the sample after the cable has self-extinguished.	Cable char has exceeded a length of 4.92'.	Cable blistering or charring has reached the top of the sample after the cable has self-extinguished.	Cable charring has reached a height of 98.4" above the bottom of the burner.	Cable blistering or charring has reached the top of the sample after the cable has self-extinguished.