

Tubing & Sleeving



Tubing & Sleeving

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TUBING & SLEEVING SELECTION GUIDE

Product	Shrink Ratio	Material	Description	Optimal Environments*	Operating Temperature	Longitudinal Change	Available Sizes	Available Colors	Page #
GENERAL PURPOSE HEAT SHRINKABLE TUBING									
OLFLEX® TWPVC	2 to 1	Irradiated PVC	Durable PVC Resistant to Oils, Lubricants, Solvents, Chemicals & Acids	General Purpose	-20°C to +105°C -4°F to +221°F	±15%	1/16" - 2"	Black	550
OLFLEX® TWPV	2 to 1	Irradiated Polyolefin	Multi-Purpose, Flexible Insulation Protection	General Purpose UV Light	-55°C to +135°C -67°F to +275°F (200°C/392°F short durations)	±5%	3/64" - 2"	Black, Clear, White, Red, Yellow, Green, Blue	551
OLFLEX® TWPG	2 to 1	Irradiated Polyolefin	Ground Identification	General Purpose	-55°C to +135°C -67°F to +275°F (200°C/392°F short durations)	±5%	1/8" - 1"	Green/Yellow	552
OLFLEX® TWP3:1	3 to 1	Irradiated Polyolefin	Over-expanded, Multi-Purpose, Flexible Insulation Protection	General Purpose UV Light	-55°C to +135°C -67°F to +275°F (200°C/392°F short durations)	+5%, -15%	1/8" - 1"	Black	553
OLFLEX® TWP4:1	4 to 1	Irradiated Polyolefin	Over-expanded, Multi-Purpose, Flexible Insulation Protection	General Purpose UV Light	-55°C to +135°C -67°F to +275°F (200°C/392°F short durations)	±5%	1" - 4"	Black	554
LIQUID TIGHT, ADHESIVE LINED HEAT SHRINKABLE TUBING									
OLFLEX® ALP	2 to 1	Irradiated Polyolefin with Polyamide Inner Wall	Light duty, Adhesive Lined Insulation	Water Resistance UV Light	-55°C to +110°C -67°F to +230°F	+1%, -5%	1/4" - 1-1/2"	Black	555
OLFLEX® MWA3:1	3 to 1	Irradiated Polyolefin with Polyamide Inner Wall	Over-expanded, Dual Wall, Adhesive Lined Insulation	Water Resistance UV Light	-55°C to +125°C -67°F to +257°F	+1%, -15%	1/8" - 1-1/2"	Black	556
OLFLEX® MWA4:1	4 to 1	Irradiated Polyolefin with Polyamide Inner Wall	Over-expanded, Dual Wall, Adhesive Lined Insulation	Water Resistance UV Light	-55°C to +125°C -67°F to +257°F	+5%, -15%	3/16" - 2"	Black	557
HIGH PERFORMANCE HEAT SHRINKABLE TUBING									
OLFLEX® SRP	2 to 1	Irradiated Polyolefin	Semi-Rigid Insulation for Strength and Rigidity	General Purpose UV Light	-55°C to +135°C -67°F to +275°F	±5%	1/16" - 3/4"	Black	558
OLFLEX® HF	2 to 1	Chlorinated Polyolefin Elastomer	Highly Flexible Insulation for Rugged Environments	Abrasion Flexing	-75°C to +120°C -103°F to +248°F (200°C/392°F short durations)	+1%, -10%	1/4" - 2"	Black	559
OLFLEX® CRE	2 to 1	Fluoroelastomer	Chemical & Temperature Resistant Fluoroelastomer	Oil/Fuel, Chemical Water Resistance Temperature, Flexing	-40°C to +200°C -40°F to 392°F (300°C/572°F short durations)	-20%	1/8" - 1"	Black	560
OLFLEX® ZH	2 to 1	Halogen-Free Irradiated Polyolefin	Halogen-Free Insulation	Hazardous Environments	-55°C to +105°C -67°F to +221°F	+5%, -15%	3/8" - 2"	Black	561
OLFLEX® WOVEN	2 to 1	Polyethylene/Polyester	Abrasion Resistant Shrinkable Woven Fabric	Abrasion Flexing	-40°C to +125°C -40°F to +257°F	±20%	1/2" - 2-3/4"	Black	562
WIRE & CABLE MANAGEMENT ACCESSORIES									
OLFLEX® ZT	-	Vinyl Coated Polyester	Heavy duty Wireway for Routing and Bundling Cables	General Purpose	-40°C to +82°C -40°F to +180°F	--	1" - 3"	Black	565
PVC Sleeving	-	PVC	Multi-Purpose PVC Sleeving	General Purpose	-20°C to +105°C -4°F to +221°F	--	1/64" - 2-1/2"	Black, White, Red, Yellow, Clear	566
OLFLEX® O WRAP	-	Polyester Multifilament	Split Wrap for Bundling Wire and Cable	Flexing	-70°C to +125°C -94°F to +257°F	--	1/2" - 1-1/2"	Black	567
OLFLEX® CC/ CC (FR)	-	Polyethylene Terephthalate (PET)	PET Sleeving that Cuts Clean with Scissors	Flexing	-75°C to +125°C -103°F to +257°F	--	1/8" - 1-1/2"	Black, Gray (FR)- Black, White	568
OLFLEX® PET/ PET (FR)	-	Polyethylene Terephthalate (PET)	PET Sleeving for Electronics, Automotive and Industrial Applications	Flexing	-75°C to +125°C -103°F to +257°F	--	1/8" - 3"	19 Colors (FR)- Black, White	569
OLFLEX® WRAP/ WRAP (FR)	-	Polyethylene Terephthalate (PET)	PET Sleeve with Velcro for Easy Access and Installation	Flexing	-75°C to +125°C -103°F to +257°F	--	1/2" - 2"	Black, White, Gray, Beige	570
OLFLEX® SW/ SW (FR)	-	Polyethylene Terephthalate (PET)	Semi-Rigid PET Sleeve with Split Wrap for Easy Installation	Flexing	-75°C to +125°C -103°F to +257°F	--	1/8" - 2"	Black (FR)- Black	571

OLFLEX® TUBING & SLEEVING ENVIRONMENTAL CHART

Product	Shrink Ratio	Abrasion	Oil/Fuel	Chemical	Water	Direct Burial	UV Light	Temperature	Flexing	Page #
GENERAL PURPOSE HEAT SHRINKABLE TUBING										
OLFLEX® TWPVC	2 to 1	Good	Good	Good	Good	Fair	Good	Good	Good	550
OLFLEX® TWPV	2 to 1	Good	Good	Good	Good	Fair	Excellent (Black Only)	Good	Good	551
OLFLEX® TWPG	2 to 1	Good	Good	Good	Good	Fair	Good	Good	Good	552
OLFLEX® TWP3:1	3 to 1	Good	Good	Good	Good	Fair	Excellent	Good	Good	553
OLFLEX® TWP4:1	4 to 1	Good	Good	Good	Good	Fair	Excellent	Good	Good	554
LIQUID TIGHT, ADHESIVE LINED HEAT SHRINKABLE TUBING										
OLFLEX® ALP	2 to 1	Good	Good	Good	Excellent	Good	Excellent	Good	Good	555
OLFLEX® MWA3:1	3 to 1	Good	Good	Good	Excellent	Good	Excellent	Good	Good	556
OLFLEX® MWA4:1	4 to 1	Good	Good	Good	Excellent	Good	Excellent	Good	Good	557
HIGH PERFORMANCE HEAT SHRINKABLE TUBING										
OLFLEX® SRP	2 to 1	Good	Good	Good	Good	Good	Excellent	Good	Poor	558
OLFLEX® HF	2 to 1	Excellent	Good	Good	Good	Poor	Good	Good	Excellent	559
OLFLEX® CRE	2 to 1	Good	Excellent	Excellent	Excellent	Good	Good	Fair	Excellent	560
OLFLEX® ZH	2 to 1	Good	Fair	Fair	Fair	Poor	Fair	Fair	Good	561
OLFLEX® WOVEN	2 to 1	Excellent	Fair	Fair	Fair	Poor	Good	Fair	Excellent	562
WIRE & CABLE MANAGEMENT ACCESSORIES										
OLFLEX® ZT		Good	Good	Good	Good	Poor	Fair	Good	Good	565
PVC Sleeving		Good	Good	Good	Fair	Poor	Good (Black Only)	Good	Fair	566
OLFLEX® O WRAP		Good	Good	Good	Fair	Poor	Fair	Good	Excellent	567
OLFLEX® CC CC (FR)		Good	Good	Good	Good	Poor	Good	Fair/(FR)Good	Excellent	568
OLFLEX® PET/ PET (FR)		Good	Good	Good	Good	Poor	Good	Fair/(FR)Good	Excellent	569
OLFLEX® WRAP/ WRAP (FR)		Good	Good	Good	Good	Poor	Good	Fair/(FR)Good	Excellent	570
OLFLEX® SW/ SW (FR)		Good	Good	Good	Good	Poor	Good	Fair/(FR)Good	Excellent	571

OLFLEX® TWPVC

Multi-Purpose, Irradiated PVC Tubing
High Strength, Extra Durable



OLFLEX® TWPVC is a high strength, extra durable insulation for industrial use with flexing and non-flexing industrial cables that require superior cable to connector strain relief and outstanding resistance to oils, lubricants, solvents, chemicals and acids.

Performance Characteristics:

- Highly abrasion and cut through resistant
- 30% greater tensile strength than polyolefin tubing
- Superior resistance to oils, lubricants, solvents, chemicals and acids
- Highly flame-retardant UL VW-1
- Longitudinal shrinkage ±15%
- Compatible with all PVC jacketed cable products
- Resists sunlight and moisture for outdoor and indoor use



Performance Advantages:

- Quick, easy fitting for OEM production or MRO uses, reducing installation costs
- Resists mechanical damage in industrial environments ensuring no machine or systems downtime
- Superior, low cost insulation for use in harsh environments; resistant against oils, lubricants, moisture, dirt and abrasion
- Shrinks @ 100°C for faster installation and less potential damage to heat sensitive substrates
- Easily surface printed for systems identification

Technical Data:

Material:	Irradiated PVC
Operating Temperature:	-20°C to +105°C -4°F to +221°F
Shrink Temperature:	Min 100°C/212°F
Operating Voltage:	600V
Approvals:	UL CSA SAE-AMS-DTL-23053/2 Class 1 * with the exception of longitudinal shrinkage ASTM D 3150

Performance Properties:

• Tensile Strength:	3000 PSI
• Elongation:	300% Minimum
• Low Temperature Flexibility:	-20°C
• Longitudinal Shrinkage:	±15%
• Dielectric Strength:	1083V per mil Minimum
• Corrosion Resistance:	Non-Corrosive
• Water Absorption:	0.1%
• Flammability Rating:	UL VW-1

Color: Black

Part Number	Reference	Diameter Inches	MIN Inside Diameter as Supplied inches	MAX Inside Diameter after Recovery mm	NOM Wall Thickness after Recovery mm	Standard Pkg. Spools (FT)
61U80000	TWPVC 1/16 BK S	1/16	.063	1.60	.032	0.82
61U80001	TWPVC 1/8 BK S	1/8	.125	3.18	.063	1.60
61U80002	TWPVC 3/16 BK S	3/16	.187	4.75	.093	2.36
61U80003	TWPVC 1/4 BK S	1/4	.250	6.35	.125	3.18
61U80004	TWPVC 3/8 BK S	3/8	.375	9.53	.187	4.75
61U80005	TWPVC 1/2 BK S	1/2	.500	12.70	.250	6.35
61U80006	TWPVC 3/4 BK S	3/4	.750	19.05	.375	9.53
61U80007	TWPVC 1 BK S	1	1.000	25.40	.500	12.70
61U80008	TWPVC 1-1/2 BK S	1-1/2	1.500	38.10	.750	19.05
61U80009	TWPVC 2 BK S	2	2.000	50.80	1.000	25.40

Additional sizes and colors available upon request.

Tubing is air spooled 1/4" and smaller.

Please see page 572 for full installation instructions.

OLFLEX® TWPV

Multi-Purpose, Irradiated Polyolefin
Low Recovery Temperature, Flame Retardant



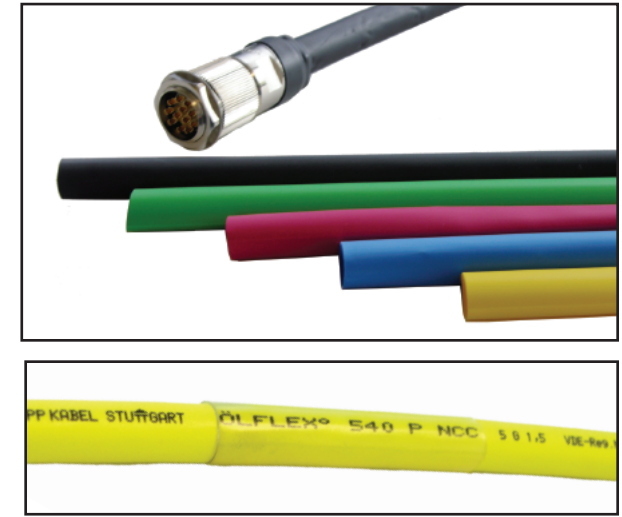
OLFLEX® TWPV is a multi-purpose, indoor use insulation for light duty cable to connector strain relief, wire harnessing, systems identification, conductor termination/splices and cable bundling.

Performance Characteristics:

- Excellent multi-purpose, highly flexible insulation protection
- Low recovery temperature @ 90°C/194°F
- Highly flame-retardant UL VW-1 (except clear tubing)
- Vibrant, intense colors
- Superior longitudinal shrink control less than ±5%

Performance Advantages:

- Quick, easy fitting for OEM production or MRO uses, reducing installation costs
- Designed to replace multiple products for a wide variety of applications, reducing inventory
- Shrinks @ 90°C for faster installation and less potential damage to heat sensitive substrates
- Distinct colors for visual and systems identification
- Consistent diameter and wall thickness for precise installation
- Easily surface printed for systems identification



Technical Data:

Material:	Irradiated polyolefin
Operating Temperature:	-55°C to +135°C -67°F to +275°F short durations
Shrink Temperature:	Min 90°C/194°F
Operating Voltage:	600V
Approvals:	UL/CSA SAE-AMS-DTL-23053/5 Cl.1 & 3 SAE-AMS-DTL-23053/5 Cl. 2

Performance Properties:

• Tensile Strength:	1500 PSI
• Elongation:	200% Minimum
• Low Temperature Flexibility:	-55°C/-67°F
• Longitudinal Shrinkage:	±5%
• Dielectric Strength:	500V per mil Minimum
• Corrosion Resistance:	Non-Corrosive
• Water Absorption:	0.5% Maximum
• Flammability Rating:	UL VW-1**

Color:

0- Black, 1- White, 2- Red, 3- Yellow, 4- Green, 5- Blue, 6- Clear
Replace 1st X in Part number with corresponding # for color.
Replace 2nd X in Part number with length: 1- 4Ft and 2- Spool

Part Number	Diameter Inches	MIN Inside Diameter as Supplied inches	MAX Inside Diameter after Recovery mm	NOM Wall Thickness after Recovery mm	Standard Packages	
					4 Ft Lengths	Spools
Standard Footage						
61U801XX	3/64*	.046	1.2	.023	.6	.016 .40 100 (25x4) *1000
61U802XX	1/16	.063	1.6	.031	.8	.017 .43 100 (25x4) 1000
61U803XX	3/32	.093	2.4	.046	1.2	.020 .51 100 (25x4) 500
61U804XX	1/8	.125	3.2	.062	1.6	.020 .51 100 (25x4) 500
61U805XX	3/16	.187	4.8	.093	2.4	.020 .51 100 (25x4) 200
61U806XX	1/4	.250	6.4	.125	3.2	.025 .64 100 (25x4) 200
61U807XX	3/8	.375	9.5	.187	4.8	.025 .64 100 (25x4) 200
61U808XX	1/2	.500	12.7	.250	6.4	.025 .64 20 (5x4) 200
61U809XX	3/4	.750	19.1	.375	9.5	.030 .76 20 (5x4) 200
61U810XX	1	1.000	25.4	.500	12.7	.035 .89 20 (5x4) 200
61U811XX	1-1/2*	1.500	38.1	.750	19.1	.040 1.02 20 (5x4) *200
61U812XX	2*	2.000	50.8	1.000	25.4	.045 1.14 *20 (5x4) *200
Bulk Footage- Only Available in Black & Clear						
61U813XX	3/64*	.046	1.2	.023	.6	.016 .40 *1000 (250x4) *3000 (3x1000)
61U814XX	1/16	.063	1.6	.031	.8	.017 .43 *1000 (250x4) *3000 (3x1000)
61U815XX	3/32	.093	2.4	.046	1.2	.020 .51 *1000 (250x4) *1500 (3x500)
61U816XX	1/8	.125	3.2	.062	1.6	.020 .51 *1000 (250x4) *1500 (3x500)
61U817XX	3/16	.187	4.8	.093	2.4	.020 .51 *1000 (250x4) *600 (3x200)
61U818XX	1/4	.250	6.4	.125	3.2	.025 .64 *1000 (250x4) *400 (2x200)
61U819XX	3/8	.375	9.5	.187	4.8	.025 .64 *1000 (250x4) *400 (2x200)
61U820XX	1/2	.500	12.7	.250	6.4	.025 .64 *800 (200x4) *400 (2x200)
61U821XX	3/4	.750	19.1	.375	9.5	.030 .76 *500 (125x4) --
61U822XX	1	1.000	25.4	.500	12.7	.035 .89 *300 (75x4) --

*3/64", 1-1/2", 2" and bulk sizes only available in Black and Clear. 1st X= Color, 2nd X= Put up 1= 4ft Length or 2= Spool.

Additional colors and sizes available upon request. **Clear tubing does not meet UL/CSA or UL VW-1 flame test. Tubing is air spooled 1/4" and smaller.

Please see page 572 for full installation instructions.

OLFLEX® TWPG

Multi-Purpose, Irradiated Polyolefin
Green/Yellow Ground Identification

2 to 1



OLFLEX® TWPG is a multi-purpose, indoor use insulation for green/yellow ground identification for wire harnessing and conductor termination/splices.

Performance Characteristics:

- Excellent multi-purpose, highly flexible insulation protection
- Green/Yellow color for ground identification
- Color extruded with 70% Green/ 30% Yellow
- Low recovery temperature @ 90°C/194°F
- Highly flame-retardant UL VW-1
- Longitudinal shrink control less than ±5%

Performance Advantages:

- Quick, easy fitting for OEM production or MRO uses, reducing installation costs
- Shrinks @ 90°C for faster installation and less potential damage to heat sensitive substrates
- Distinct colors for visual ground lead identification
- Consistent diameter and wall thickness for precise installation



Technical Data:

Material:	Irradiated polyolefin
Operating Temperature:	-55°C to +135°C -67°F to +275°F short durations
Shrink Temperature:	Min 90°C/194°F
Operating Voltage:	600V
Approvals:	UL CSA NFPA 600V ground lead

Performance Properties:

• Tensile Strength:	1500 PSI
• Elongation:	200% Minimum
• Low Temperature Flexibility:	-55°C/-67°F
• Longitudinal Shrinkage:	±5%
• Dielectric Strength:	500V per mil Minimum
• Corrosion Resistance:	Non-Corrosive
• Water Absorption:	0.5% Maximum
• Flammability Rating:	UL VW-1
Color:	Green/Yellow

Part Number	Reference	Diameter Inches	MIN Inside Diameter as Supplied inches	MIN Supplied mm	MAX Inside Diameter after Recovery inches	MAX Recovery mm	NOM Wall Thickness after Recovery inches	NOM Recovery mm	Standard Pkg. Spools (FT)
61U80010	TWPG 1/8 GY S	1/8	.125	3.2	.062	1.6	.020	.51	500
61U80011	TWPG 1/4 GY S	1/4	.250	6.4	.125	3.2	.025	.64	250
61U80012	TWPG 3/8 GY S	3/8	.375	9.5	.187	4.8	.025	.64	250
61U80013	TWPG 1/2 GY S	1/2	.500	12.7	.250	6.4	.025	.64	250
61U80014	TWPG 3/4 GY S	3/4	.750	19.1	.375	9.5	.030	.76	250
61U80015	TWPG 1 GY S	1	1.000	25.4	.500	12.7	.035	.89	250

Additional sizes available upon request.

Tubing is air spooled 1/4" and smaller.

Please see page 572 for full installation instructions.

OLFLEX® TWP3:1

High Shrink Ratio, Irradiated Polyolefin
Low Recovery Temperature, Flame Retardant

3 to 1



OLFLEX® TWP3:1 is a high shrink ratio, multi-purpose, indoor use insulation for light duty cable to oversized connector strain relief, wire harnessing, conductor termination/splices and cable bundling.

Performance Characteristics:

- Excellent multi-purpose, highly flexible insulation protection
- Covers small to large substrates and irregular shapes
- Low recovery temperature @ 90°C/194°F
- Highly flame-retardant UL VW-1
- Longitudinal shrinkage +5%, -15%

Performance Advantages:

- Quick, easy fitting for OEM production or MRO uses, reducing installation costs
- Faster recovery time with reduced wall thickness
- Better economies and reduced inventory, as one size tubing can often replace two standard sizes
- Shrinks @ 90°C for faster installation and less potential damage to heat sensitive substrates
- Consistent diameter and wall thickness for precise installation
- Easily surface printed for systems identification



Technical Data:

Material:	Irradiated polyolefin
Operating Temperature:	-55°C to +135°C -67°F to +275°F short durations
Shrink Temperature:	Min 90°C/194°F
Operating Voltage:	600V
Approvals:	UL CSA SAE-AMS-DTL-23053/5 Class 1 & 3 *

Performance Properties:

• Tensile Strength:	1500 PSI
• Elongation:	200% Minimum
• Low Temperature Flexibility:	-55°C/-67°F
• Longitudinal Shrinkage:	+5%, -15%
• Dielectric Strength:	500V per mil Minimum
• Corrosion Resistance:	Non-Corrosive
• Water Absorption:	0.5% Maximum
• Flammability Rating:	UL VW-1

Color: Black

* with exception to dimensions

Part Number	Reference	Approx. Diameter Inches	MIN Inside Diameter as Supplied inches	MIN Supplied mm	MAX Inside Diameter after Recovery inches	MAX Recovery mm	NOM Wall Thickness after Recovery inches	NOM Recovery mm	Standard Pkg. Spools (FT)
61U80024	TWP3:1 1/8 BK S	1/8	.120	3	.040	1	.024	.60	500
61U80025	TWP3:1 1/4 BK S	1/4	.240	6	.080	2	.028	.70	200
61U80026	TWP3:1 3/8 BK S	3/8	.360	9	.120	3	.031	.80	200
61U80027	TWP3:1 1/2 BK S	1/2	.472	12	.160	4	.033	.85	200
61U80028	TWP3:1 3/4 BK S	3/4	.720	18	.240	6	.039	1.00	200
61U80029	TWP3:1 1 BK S	1	.945	24	.315	8	.048	1.20	200

Additional sizes available upon request.

Tubing is air spooled 1/4" and smaller.

Please see page 572 for full installation instructions.

OLFLEX® TWP4:1

Extra High Shrink Ratio, Irradiated Polyolefin
Low Recovery Temperature, Flame Retardant

4 to 1



OLFLEX® TWP4:1 is an extremely high shrink ratio, multi-purpose, indoor use insulation for light duty cable to oversized connector strain relief, wire harnessing, conductor termination/splices and cable bundling.

Performance Characteristics:

- Excellent multi-purpose, highly flexible insulation protection
- Covers small to large substrates and irregular shapes
- Low recovery temperature @ 90°C/194°F
- Highly flame-retardant UL VW-1
- Superior longitudinal shrink control less than ±5%

Performance Advantages:

- Quick, easy fitting for OEM production or MRO uses, reducing installation costs
- Faster recovery time with reduced wall thickness
- Better economies and reduced inventory, as one size tubing can often replace two standard sizes
- Shrinks @ 90°C for faster installation and less potential damage to heat sensitive substrates
- Consistent diameter and wall thickness for precise installation



Technical Data:

Material:	Irradiated polyolefin
Operating Temperature:	-55°C to +135°C -67°F to +275°F short durations
Shrink Temperature:	Min 90°C/194°F
Operating Voltage:	600V
Approvals:	UL SAE-AMS-DTL-23053/5C, Class 1, overexpanded*

Performance Properties:

• Tensile Strength:	1500 PSI
• Elongation:	200% Minimum
• Low Temperature Flexibility:	-55°C/-67°F
• Longitudinal Shrinkage:	±5%
• Dielectric Strength:	500V per mil minimum
• Corrosion Resistance:	Non-Corrosive
• Water Absorption:	0.5% Maximum
• Flammability Rating:	UL VW-1

Color: Black

* except wall thickness

Part Number	Reference	Diameter Inches	MIN Inside Diameter as Supplied inches	MIN mm	MAX Inside Diameter after Recovery inches	MAX mm	NOM Wall Thickness after Recovery inches	NOM mm	Standard Pkg. 3 Ft/ 4 Ft Lengths
61U80030	TWP4:1 1 BK 4'	1	1.0	25.4	.260	6.6	.059	1.5	20 (5x4)
61U80031	TWP4:1 1-1/2 BK 4'	1-1/2	1.5	38.1	.375	9.5	.059	1.5	20 (5x4)
61U80032	TWP4:1 2 BK 4'	2	2.0	50.4	.500	12.7	.059	1.5	20 (5x4)
61U80033	TWP4:1 3 BK 3'	3*	3.0	76.2	.750	19.1	.059	1.5	6 (2x3)
61U80034	TWP4:1 4 BK 3'	4*	4.0	101.6	1.000	25.4	.059	1.5	6 (2x3)

*Available in 3 Foot lengths

Please see page 572 for full installation instructions.

OLFLEX® ALP

Dual Wall, Adhesive Lined, Irradiated Polyolefin
High Durability, Liquid Tight Sealing

2 to 1



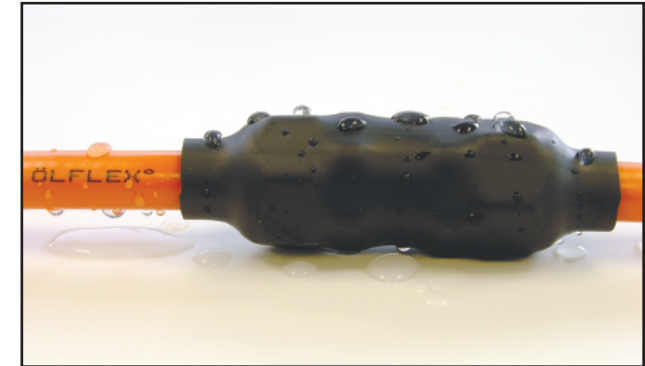
OLFLEX® ALP is a light duty, adhesive lined insulation for liquid tight sealing of substrates including splices, cable to connector terminations and wire harnesses that offers outstanding protection in extreme environments.

Performance Characteristics:

- Total encapsulation and waterproof environmental sealing
- Liquid tight water and corrosion protection
- Bonds to a wide variety of plastics, rubbers, metals, polyethylene and thermoplastic elastomers
- Excellent mechanical strength and cut-through resistance
- Longitudinal shrinkage +1%, -5%

Performance Advantages:

- Superior bonding adhesive provides an outstanding liquid tight seal ensuring safety and systems integrity and protection
- Thin layer adhesive encapsulates and conforms to sensitive electronic parts and components in extreme environments
- Easily surface printed for systems identification



Technical Data:

Material:	Irradiated polyolefin with polyamide inner wall
Operating Temperature:	-55°C to +110°C -67°F to +230°F
Shrink Temperature:	Min 110°C/230°F
Operating Voltage:	600V
Approvals:	UL CSA SAE-AMS-DTL-23053/4, Class 2 (except longitudinal change)

Performance Properties:

• Tensile Strength:	1500 PSI
• Elongation:	200% Minimum
• Cold Impact:	-55°C/-67°F
• Longitudinal Shrinkage:	+1%, -5%
• Dielectric Strength:	500V per mil Minimum
• Corrosion Resistance:	Non-Corrosive
• Water Absorption:	0.5% Maximum
• Flammability Rating:	UL 224

Color: Black

Part Number	Reference	Diameter Inches	MIN Inside Diameter as Supplied inches	MIN mm	MAX Inside Diameter after Recovery inches	MAX mm	NOM Wall Thickness after Recovery inches	NOM mm	Standard Pkg. 4 Ft Lengths
61U80035	ALP 1/4 BK 4'	1/4	.250	6.4	.125	3.2	.030	.75	100 (25x4)
61U80036	ALP 3/8 BK 4'	3/8*	.375	9.5	.187	4.8	.030	.75	100 (25x4)
61U80037	ALP 1/2 BK 4'	1/2	.500	12.7	.250	6.4	.030	.75	20 (5x4)
61U80038	ALP 3/4 BK 4'	3/4	.750	19.1	.375	9.5	.035	.90	20 (5x4)
61U80039	ALP 1 BK 4'	1	1.000	25.4	.500	12.7	.042	1.10	20 (5x4)
61U80040	ALP 1-1/2 BK 4'	1-1/2	1.500	38.1	.750	19.1	.047	1.20	20 (5x4)

* Non SAE Spec Size

Additional sizes available upon request.

Please see page 572 for full installation instructions.

OLFLEX® MWA3:1

Dual Wall, High Shrink Ratio, Adhesive Lined, Irradiated Polyolefin
High Durability, Liquid Tight Sealing

3 to 1



OLFLEX® MWA3:1 is a heavy duty, adhesive lined insulation that offers outstanding protection in extreme environments for liquid tight sealing of substrates including splices, cable to oversized connector terminations and wire harnesses.

Performance Characteristics:

- Total encapsulation and waterproof environmental sealing
- Robust, double thick insulation for durability and mechanical strength
- Covers small to large substrates and irregular shapes
- Bonds to a wide variety of plastics, rubbers, metals, polyethylene and thermoplastic elastomers
- Excellent mechanical strength and cut-through resistance
- Longitudinal shrinkage +1%, -15%



Performance Advantages:

- Superior bonding adhesive provides an outstanding liquid tight seal ensuring safety and systems integrity and protection
- Thick adhesive wall fills in voids, encapsulates and seals rough or uneven substrates
- Extreme mechanical protection from abrasion, cut-through and physical impact ensures systems protection
- Easily surface printed for systems identification

Technical Data:

Material:	Irradiated polyolefin with polyamide
Operating Temperature:	-55°C to +125°C -67°F to +257°F
Shrink Temperature:	Min 110°C/230°F
Operating Voltage:	600V
Approvals:	UL CSA SAE-AMS-DTL-23053/4, Class 3

Performance Properties:

• Tensile Strength:	1500 PSI
• Elongation:	250% Minimum
• Cold Impact:	-55°C/-67°F
• Longitudinal Shrinkage:	+1%, -15%
• Dielectric Strength:	300V per mil Minimum
• Corrosion Resistance:	Non-Corrosive
• Water Absorption:	1.0% Maximum
• Flammability Rating:	UL 224

Color: Black

Part Number	Reference	Approx. Diameter Inches	MIN Inside Diameter as Supplied inches	MAX Inside Diameter after Recovery mm	NOM Wall Thickness after Recovery inches	Standard Pkg. 4 Ft Lengths
61U80041	MWA3:1 1/8 BK 4'	1/8	.125	3.2	.024	100 (25x4)
61U80042	MWA3:1 1/4 BK 4'	1/4	.252	6.4	.079	100 (25x4)
61U80043	MWA3:1 1/2 BK 4'	1/2	.500	12.7	.157	20 (5x4)
61U80044	MWA3:1 1 BK 4'	1	.945	24.0	.315	20 (5x4)
61U80045	MWA3:1 1-1/2 BK 4'	1-1/2	1.575	40.0	.512	20 (5x4)

Additional sizes available upon request.

Please see page 572 for full installation instructions.

OLFLEX® MWA4:1

Dual Wall, Extra High Shrink Ratio, Adhesive Lined, Irradiated Polyolefin
High Durability, Liquid Tight Sealing

4 to 1



OLFLEX® MWA4:1 is an extremely high shrink ratio, heavy duty, adhesive lined insulation that offers outstanding protection in extreme environments for liquid tight sealing of substrates including splices, cable to oversized connector terminations and wire harnesses.

Performance Characteristics:

- Total encapsulation and waterproof environmental sealing
- Robust, double thick insulation for durability and mechanical strength
- Extra thick insulation allows coverage of irregular objects
- Bonds to a wide variety of plastics, rubbers, metals, polyethylene and thermo-plastic elastomers
- Longitudinal shrinkage +5%, -15%



Performance Advantages:

- Superior bonding adhesive provides an outstanding liquid tight seal ensuring safety and systems integrity and protection
- Can replace tape wrap or molded shapes and parts, providing a substantial cost savings
- Thick adhesive wall fills in voids, encapsulates and seals rough or uneven substrates
- Extreme mechanical protection from abrasion, cut-through and physical impact ensures systems protection
- Easily surface printed for systems identification

Technical Data:

Material:	Irradiated polyolefin with polyamide inner wall
Operating Temperature:	-55°C to +125°C -67°F to +257°F
Shrink Temperature:	Min 110°C/230°F
Operating Voltage:	600V
Approvals:	UL SAE-AMS-DTL-23053 *with exception of dimensions & longitudinal change

Performance Properties:

• Tensile Strength:	1500 PSI
• Elongation:	250% Minimum
• Cold Impact:	-55°C/-67°F
• Longitudinal Shrinkage:	+5%, -15%
• Dielectric Strength:	300V per mil Minimum
• Corrosion Resistance:	Non-Corrosive
• Water Absorption:	1.0% Maximum
• Flammability Rating:	UL 224

Color: Black

Part Number	Reference	Approx. Diameter Inches	MIN Inside Diameter as Supplied inches	MAX Inside Diameter after Recovery mm	NOM Wall Thickness after Recovery inches	Standard Pkg. 4 Ft Lengths
61U80046	MWA4:1 3/16 BK 4'	3/16	.157	4	.039	100 (25x4)
61U80047	MWA4:1 5/16 BK 4'	5/16	.315	8	.079	100 (25x4)
61U80048	MWA4:1 1/2 BK 4'	1/2	.472	12	.118	20 (5x4)
61U80049	MWA4:1 5/8 BK 4'	5/8	.630	16	.157	20 (5x4)
61U80050	MWA4:1 1 BK 4'	1	.945	24	.236	20 (5x4)
61U80051	MWA4:1 1-1/4 BK 4'	1-1/4	1.260	32	.315	20 (5x4)
61U80052	MWA4:1 2 BK 4'	2	2.047	52	.512	20 (5x4)

Additional sizes available upon request.

Please see page 572 for full installation instructions.

OLFLEX® SRP

Semi-Rigid, Irradiated Polyolefin
Superior Mechanical Strength



OLFLEX® SRP is an insulation that provides extreme strength and rigidity in applications requiring heavy duty cable, connector or strain relief and solder joints, repair wire splices and other cable terminations.

Performance Characteristics:

- Provides extreme strength and rigidity needed for strain relief applications
- Superior cut through and abrasion resistance in mechanical environments
- Low water absorption
- Resistant to water and UV light



Performance Advantages:

- Mechanical strength and stiffness holds all substrates directly in place and allows cable connector assembly to be routed vertically and at 90° angles
- Economical alternative to rigid fluoropolymer insulations

Technical Data:

- Material: Irradiated polyolefin
- Operating Temperature: -55°C to +135°C
-67°F to +275°F
- Shrink Temperature: Min 135°C/275°F
- Operating Voltage: 600V
- Approvals: UL
CSA
SAE-AMS-DTL-23053/6, Class 1

Performance Properties:

- Tensile Strength: 2000 PSI
- Elongation: 200% Minimum
- Low Temperature Flexibility: -55°C/-67°F
- Longitudinal Shrinkage: ±5%
- Dielectric Strength: 500V per mil Minimum
- Corrosion Resistance: Non-Corrosive
- Water Absorption: 0.5% Maximum
- Flammability Rating: UL VW-1

Color: Black

Part Number	Reference	Diameter Inches	MIN Inside Diameter as Supplied inches	MAX Inside Diameter after Recovery mm	NOM Wall Thickness after Recovery inches	Standard Pkg. 4 Ft Lengths
61U80016	SRP 1/16 BK 4'	1/16	.063	1.60	.031	.79
61U80017	SRP 3/32 BK 4'	3/32	.093	2.36	.046	1.17
61U80018	SRP 1/8 BK 4'	1/8	.125	3.17	.062	1.57
61U80019	SRP 3/16 BK 4'	3/16	.187	4.74	.093	2.36
61U80020	SRP 1/4 BK 4'	1/4	.250	6.35	.125	3.17
61U80021	SRP 3/8 BK 4'	3/8	.375	9.50	.187	4.74
61U80022	SRP 1/2 BK 4'	1/2	.500	12.70	.250	6.35
61U80023	SRP 3/4 BK 4'	3/4	.750	19.10	.375	9.50

Additional sizes available upon request.

Please see page 572 for full installation instructions.

OLFLEX® HF

Highly Flexible Irradiated Elastomer
Flexible Rugged Protection



OLFLEX® HF is the ultimate heavy duty, highly flexible insulation for rugged, industrial cable to connector strain relief, heavy wire harnesses and replacement cable jackets where extreme mechanical protection is required.

Performance Characteristics:

- Very flexible, rugged, rubber-like tubing
- Operates in both extreme low and high temperature environments
- Outstanding performance in environments where impact, vibration, abrasion and cut-through resistance are required
- Highly resistant to fuels, oils, lubricants, solvents and coolants
- UV resistant for outdoor use



Performance Advantages:

- Can be used as temporary or permanent repair for damaged cable jackets, saving total replacement
- Provides severe low and high temperature protection for extreme environments ensuring systems reliability
- The ultimate insulation solution for extreme exposure to fuels, oils, lubricants, solvents and coolants eliminating machine downtime

Technical Data:

- Material: Chlorinated Polyolefin Elastomer
- Operating Temperature: -75°C to +120°C
-103°F to +248°F
short durations
- Shrink Temperature: Min 130°C/266°F
- Operating Voltage: 600V
- Approvals: SAE-AMS-DTL-23053/1C, Class 1 and Class 2

Performance Properties:

- Tensile Strength: 1500 PSI
- Elongation: 250% Minimum
- Low Temperature Flexibility: -75°C/-103°F
- Longitudinal Shrinkage: +1%, -10%
- Dielectric Strength: 300V per mil Minimum
- Corrosion Resistance: Non-Corrosive
- Water Absorption: 1.0% Maximum
- Flammability Rating: SAE-AMS-DTL-23053

Color: Black

Part Number	Reference	Diameter Inches	MIN Inside Diameter as Supplied inches	MAX Inside Diameter after Recovery mm	NOM Wall Thickness after Recovery inches	Standard Pkg. Spools Ft
61U80053	HF 1/4 BK S	1/4	.250	6.4	.125	3.2
61U80054	HF 3/8 BK S	3/8	.375	9.5	.187	4.8
61U80055	HF 1/2 BK S	1/2	.500	12.7	.250	6.4
61U80056	HF 5/8 BK S	5/8	.625	15.9	.315	8.0
61U80057	HF 3/4 BK S	3/4	.750	19.1	.375	9.5
61U80058	HF 7/8 BK S	7/8	.875	22.2	.433	11.0
61U80059	HF 1 BK S	1	1.000	25.4	.500	12.7
61U80060	HF 1-1/4 BK S	1-1/4	1.250	31.8	.625	15.9
61U80061	HF 1-1/2 BK S	1-1/2	1.500	38.1	.750	19.1
61U80062	HF 1-3/4 BK S	1-3/4	1.750	44.5	.875	22.2
61U80063	HF 2 BK S	2	2.000	50.8	1.000	25.4

Additional sizes available upon request.

Tubing is air spooled 1/4" and smaller.

Please see page 572 for full installation instructions.

OLFLEX® CRE

Chemical and Temperature Resistant Irradiated Fluoroelastomer
Extreme Hazard Protection



OLFLEX® CRE is the ultimate heavy duty, tough rubber-like, durable abrasion resistant and highly flame retardant insulation. It is highly resistant to fuels, oils, lubricants, solvents and coolants and ideal for use as low or high temperature jacket protection in harsh environments.

Performance Characteristics:

- Operates in extreme low and high temperature environments
- Abrasion, cut through and heat resistant
- Superior resistance to fuels, oils, lubricants, solvents and coolants
- Meets NASA SP-R-0022A Outgas Requirements

Performance Advantages:

- Extremely long service life when exposed to high heat environments
- Can be used as temporary or permanent repair for damaged cable jackets, saving total replacement
- Protects system circuits exposed to fuels, oils, lubricants, solvents and coolants to preserve system reliability



OLFLEX® ZH

Halogen-Free, Reduced Smoke Emission Irradiated Polyolefin
Environmentally Safe Tubing



OLFLEX® ZH is a halogen-free, low smoke emission insulation for use with all halogen-free and low smoke jacketed cable products. It provides outstanding performance in commercial and industrial environments where safety from fire or overheating of electrical circuits is a concern.

Performance Characteristics:

- Extremely reduced acid gas and smoke emissions
- Halogen-free
- Minimal longitudinal shrinkage + 5%, -15%
- Compatible with all Halogen-Free and Low Smoke jacketed cable products

Performance Advantages:

- Halogen-free, low smoke insulation provides added safety from fire hazards to human life



Technical Data:

Material:	Fluoroelastomer
Operating Temperature:	-40°C to +200°C -40°F to +392°F short durations up to 300°C/572°F
Shrink Temperature:	Min 120°C/248°F
Operating Voltage:	600V
Approvals:	SAE-AMS-DTL-23053/13 B, MIL-R-46846, Type III, Class I NASA SP-R-0022A

Performance Properties:

• Tensile Strength:	1200 PSI
• Elongation:	250% Minimum
• Cold Impact:	-40°C/-40°F
• Longitudinal Shrinkage:	-20%
• Dielectric Strength:	200V per mil Minimum
• Corrosion Resistance:	Non-Corrosive
• Water Absorption:	0.5% Maximum
• Flammability Rating:	SAE AMS-DTL-23053

Color: Black

Part Number	Reference	Diameter Inches	MIN Inside Diameter as Supplied inches	MIN Inside Diameter as Supplied mm	MAX Inside Diameter after Recovery inches	MAX Inside Diameter after Recovery mm	NOM Wall Thickness after Recovery inches	NOM Wall Thickness after Recovery mm	Standard Pkg. Spools Total Ft.
61U80064	CRE 1/8 BK S	1/8	.125	3.2	.062	1.6	.031	.8	100
61U80065	CRE 3/16 BK S	3/16	.187	4.8	.093	2.4	.035	.9	100
61U80066	CRE 1/4 BK S	1/4	.250	6.4	.125	3.2	.035	.9	100
61U80067	CRE 3/8 BK S	3/8	.375	9.5	.187	4.8	.035	.9	100
61U80068	CRE 1/2 BK S	1/2	.500	12.7	.250	6.4	.035	.9	100
61U80069	CRE 3/4 BK S	3/4	.750	19.1	.375	9.5	.042	1.1	100
61U80070	CRE 1 BK S	1	1.000	25.4	.500	12.7	.049	1.2	100

Additional sizes available upon request.

Tubing is air spooled 1/4" and smaller.

Please see page 572 for full installation instructions.

Technical Data:

Material:	Halogen-Free irradiated polyolefin
Operating Temperature:	-55°C to +105°C -67°F to +221°F
Shrink Temperature:	Min 115°C/239°F
Operating Voltage:	600V

Performance Properties:

• Tensile Strength:	1500 PSI
• Elongation:	200% Minimum
• Low Temperature Flexibility:	-55°C/-67°F
• Longitudinal Shrinkage:	+5%, -15%
• Dielectric Strength:	500V per mil Minimum
• Corrosion Resistance:	Non-Corrosive
• Water Absorption:	1.0% Maximum
• Flammability Rating:	SAE AMS-DTL-23053
• Acid Gas Generation:	0.2% Maximum, MIL-C-24643

Color: Black

Part Number	Reference	Diameter Inches	MIN Inside Diameter as Supplied inches	MIN Inside Diameter as Supplied mm	MAX Inside Diameter after Recovery inches	MAX Inside Diameter after Recovery mm	NOM Wall Thickness after Recovery inches	NOM Wall Thickness after Recovery mm	Standard Pkg. Spools Total Ft.
61U80071	ZH 3/8 BK S	3/8	.375	9.5	.187	4.8	.040	1.0	25
61U80072	ZH 1/2 BK S	1/2	.500	12.7	.250	6.4	.048	1.2	25
61U80073	ZH 3/4 BK S	3/4	.750	19.1	.375	9.5	.057	1.4	25
61U80074	ZH 1 BK S	1	1.000	25.4	.500	12.7	.070	1.8	25
61U80075	ZH 1-1/2 BK S	1-1/2	1.500	38.1	.750	19.1	.080	2.0	25
61U80076	ZH 2 BK S	2	2.000	50.8	1.000	25.4	.095	2.4	25

Additional sizes available upon request.

Please see page 572 for full installation instructions.

OLFLEX® WOVEN

Heat Shrinkable Woven Fabric Tubing
High Abrasion Resistance



OLFLEX® WOVEN is a highly flexible, shrinkable woven fabric for use in applications requiring heavy duty protection from abrasion, cut through and mechanical damage for wire harnesses, single cables or multiple dress pack cables.

Performance Characteristics:

- Outstanding abrasion, chafing and cutting protection
- Resistant to harsh environments
- Highly resistant to oils, hydraulic fluids and fuels
- Performs in a wide temperature range
- Halogen-Free
- Flexible woven fabric covers variable substrates

Performance Advantages:

- Quick, easy fitting for OEM production or MRO uses, reducing installation costs
- Grips substrates tightly without adhesives or tie wraps
- Resists mechanical damage in industrial environments ensuring no machine or systems downtime
- Superior protection for use in harsh environments; resistant against oils, lubricants, moisture, dirt and abrasion
- Halogen-free for building safety



OLFLEX® HG1

Multi-Purpose, Versatile, Economical Heat Gun



OLFLEX® HG1 is a multi-purpose, versatile, economical heat gun for installation of shrinkable OLFLEX® TUBING. This high quality heat gun allows the user to vary the shrink temperature via a variable temperature knob in the rear of the gun and select from low and high airflow settings.

Performance Characteristics:

- Multi-purpose heat gun for general applications
- Three position variable airflow switch for cool air, low and high airflow
- Temperature variable switch allows heat control at any setting
- Includes two additional nozzles for added airflow control and faster tubing installation
- Six foot SJO power cord for long service life

Performance Advantages:

- Lightweight and easy to use
- Ultra quiet operation
- Cool air option allows tubing to set completely before handling
- Multi-purpose use across all tubing types
- Ergonomic, soft handle for easy operation



Technical Data:

- Material: Polyethylene/Polyester
- Operating Temperature: -40°C to +125°C
-40°F to +257°F
- Shrink Temperature: Min 80°C/176°F
- Operating Voltage: 600V
- Approvals: UL

Performance Properties:

- Longitudinal Shrinkage: ±20%
- Flammability Rating: MVSS 302 Horizontal Burn Test

Color: Black

Part Number	Reference	Approx. Diameter Inches	MIN Inside Diameter as Supplied inches	MIN Inside Diameter after Recovery mm	MAX Inside Diameter after Recovery mm	NOM Wall Thickness after Recovery inches	NOM Wall Thickness after Recovery mm	Standard Pkg. Spool Ft	
61U80077	WOVEN 1/2 BK S	1/2	.47	12	.24	6	.039	.99	100
61U80078	WOVEN 3/4 BK S	3/4	.79	20	.39	10	.039	.99	100
61U80079	WOVEN 1-3/16 BK S	1-3/16	1.18	30	.59	15	.039	.99	100
61U80080	WOVEN 1-1/2 BK S	1-1/2	1.57	40	.79	20	.039	.99	50
61U80081	WOVEN 2 BK S	2	1.97	50	.98	25	.039	.99	50
61U80082	WOVEN 2-3/8 BK S	2-3/8	2.36	60	1.18	30	.039	.99	50
61U80083	WOVEN 2-3/4 BK S	2-3/4	2.76	70	1.38	35	.039	.99	50

Additional sizes available upon request.

Please see page 572 for full installation instructions.

Technical Data:

- Temperature Range: 60°C to 565°C
140°F/1050°F
- Output: 1400 watts
- Voltage: 120VAC/60 Hz
- Approvals: UL
c(UL)

Included with Gun:

- 1.5 inch Reflector Nozzle- Directs hot air around tubing for even heating
- 3.0 inch Spreader Nozzle- Spreads hot air over a wide area

Part Number	Description
61U80084	HG1 - Multi-Purpose Economical Heat Gun

For complete safety instructions on the use of OLFLEX® HG1, please consult the Heat Gun Owner's Manual or visit www.lappusa.com/gunhg1.htm

1 Year Warranty of all working parts, including heating element and motor, under normal operating conditions

OLFLEX® HG3 LCD

Ultimate Precision, Industrial Performance Heat Gun
High Heat, High Airflow



OLFLEX® HG3 LCD is a high heat, high force industrial performance heat gun with an LCD temperature display. It is ideal for use in installation of shrinkable OLFLEX® TUBING. It is designed for long service life in production OEM applications. It allows the user to vary the shrink temperature with a thermo-electronic temperature dial, variable airflow settings and a cool air option.

Performance Characteristics:

- Precision, high performance appliance for continuous production OEM use
- Dual temperature switch for cool air or heat application
- Thermo-electronic temperature dial that allows temperature control in 10°F increments
- Continuously variable airflow control
- Solid base construction allows for hands free operation
- Includes two additional nozzles for added airflow control and faster tubing installation
- High precision temperature and airflow control
- Six foot SJO power cord for long service life
- Ceramic heating element for maximum life cycle

Performance Advantages:

- Precision control of heat and airflow independently of each other
- Monitors actual heat output via LCD display
- Fast, easy use provides installation cost savings
- Cool air option allows tubing to set completely before handling
- Multi-purpose use across all tubing types
- Ergonomic, soft handle for easy operation



Technical Data:

Temperature Range:	49°C to 593°C 120°F/1100°F
Output	1500 watts
Voltage:	120VAC/60 Hz
Approvals:	UL c(UL)

Included with Gun:

- 1.5 inch Reflector Nozzle- Directs hot air around tubing for even heating
- 3.0 inch Spreader Nozzle- Spreads hot air over a wide area

Part Number	Description
61U80085	HG3 LCD- High Heat, High Force, Industrial Performance Heat Gun

For complete safety instructions on the use of OLFLEX® HG3 LCD, please consult the Heat Gun Owner's Manual or visit www.lappusa.com/gunhg3.htm

1 Year Warranty of all working parts, including heating element and motor, under normal operating conditions

OLFLEX® ZT

Flexible Vinyl Zipper Style Tubing
Protective, High Strength, Cable Management Wireway



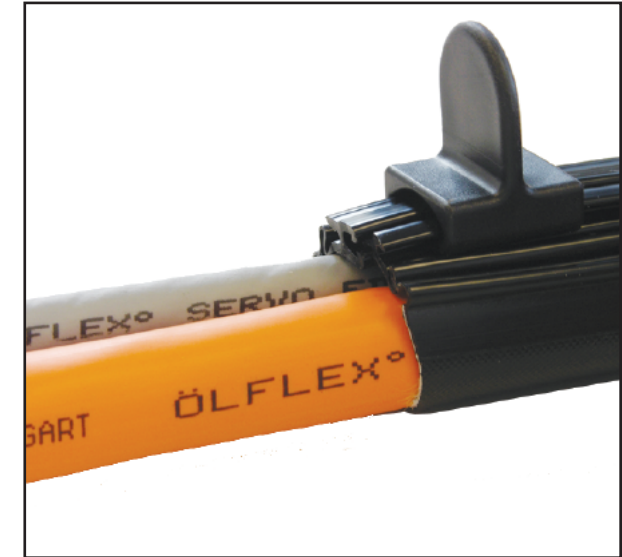
OLFLEX® ZT is a high performance, heavy duty wireway that routes and bundles cable assemblies and wire harnesses while protecting against rugged environments. The zipper feature allows this product to be installed after wire or cable installation.

Performance Characteristics:

- Tough, flexible vinyl coated polyester outer jacket
- Easy to use sliding closure track
- Provides added protection against harsh environments
- Can be re-entered and expanded up to 15% of the original size

Performance Advantages:

- Provides protection in environments where cables are exposed to abrasion, rock impact and wear and tear
- Eliminates exposed wiring
- Zipper feature allows for cable expansion if additional cable routing is required
- Installable after wiring harnesses and cable assemblies are fixed within the equipment



Technical Data:

Material:	Vinyl coated polyester
Operating Temperature Range:	-40°C to +82°C -40°F to +180°F

Performance Properties:

Flexibility:	Good
Solvent Resistance:	Good
Tear Strength:	Good
Color:	Black

Part Number	Reference	Diameter Inches	Standard Put-up Spools (FT)
61U80090	ZH 1 BK S	1	25
61U80091	ZH 1-1/2 BK S	1-1/2	25
61U80092	ZH 2 BK S	2	25
61U80093	ZH 2-1/2 BK S	2-1/2	25
61U80094	ZH 3 BK S	3	25
61U80095*	Slider Tool		

*Slider tool required for use with OLFLEX® ZT

Additional sizes available upon request.

OLFLEX® PVC Sleeving

Multi-Purpose PVC Sleeving in Multiple Colors



OLFLEX® PVC is a multi-purpose sleeving for abrasion protection and exposure to chemicals and oils in industrial plant applications.

Performance Characteristics:

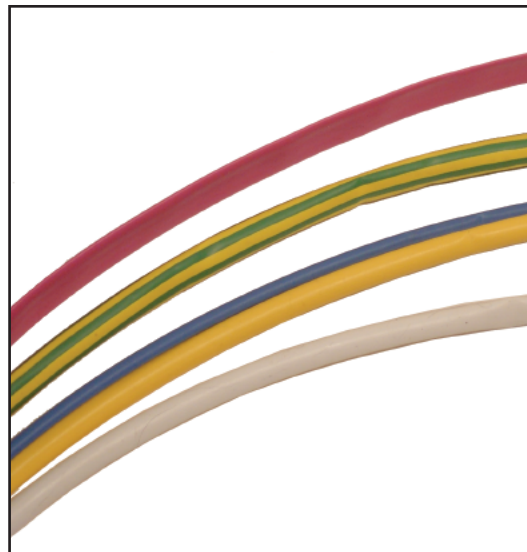
- Exhibits high dielectric strength
- Provides protection against chafing and most chemicals, oils and acids
- Flexible for handling and installation

Performance Advantages:

- Provides a secondary layer of insulation for safety purposes
- Increased cable performance life and decreased equipment downtime

Technical Data:

- Material: PVC
- Temperature Range: -20°C to +105°C
-4°F to +221°F
- Rated Voltage: 300V
"24" - "1":
"5/16" - "2-1/2": 600V
- Approvals: UL Standard 224
CSA Standard 198
ASTM D 922
AMS 3631



Color:
Black, white, red, yellow, & clear

Testing Information:

Property	Test Method	Typical Value
• Specific Gravity	ASTM D 792	1.32
• Tensile Strength	ASTM D 876	2800 psi
• Elongation	ASTM D 876	288%
• Brittleness Temperature	ASTM D 746	-20°C
• Flammability	UL VW-1, CSA OFT	Pass
• Volume Resistivity	ASTM D 257	5.4X10 ²
• Dielectric Strength- 0.021" specimen	ASTM D 149	750 vpm

Part Number	Nominal Outer Diameter inches	Nominal Wall inches	Put-up Lengths Spool	Put-up Lengths Box	Part Number	Nominal Outer Diameter inches	Nominal Wall inches	Put-up Lengths Spool	Put-up Lengths Box
4900-24-X	.022	.012	1000	4000	4900-2-X	.263	.020	1000	2000
4900-22-X	.027	.012	1000	4000	4900-1-X	.294	.020	1000	2000
4900-20-X	.034	.016	1000	4000	4900-5/16-X	.313	.025	500	1000
4900-19-X	.038	.016	1000	4000	4900-0-X	.330	.025	500	1000
4900-18-X	.042	.016	1000	4000	4900-3/8-X	.375	.025	500	1000
4900-17-X	.047	.016	1000	4000	4900-7/16-X	.438	.025	500	1000
4900-16-X	.053	.016	1000	4000	4900-1/2-X	.500	.025	500	1000
4900-15-X	.059	.016	1000	4000	4900-9/16-X	.563	.030	250	500
4900-14-X	.066	.016	1000	4000	4900-5/8-X	.625	.030	250	500
4900-13-X	.076	.016	1000	4000	4900-3/4-X	.750	.035	250	500
4900-12-X	.085	.016	1000	4000	4900-7/8-X	.875	.035	100	400
4900-11-X	.095	.016	1000	4000	4900-1IN-X	1.000	.035	100	400
4900-10-X	.106	.016	1000	4000	4900-1-1/8-X	1.125	.035	100	400
4900-9-X	.118	.020	1000	4000	4900-1-1/4-X	1.250	.040	100	400
4900-8-X	.133	.020	1000	4000	4900-1-3/8-X	1.375	.045	50	200
4900-7-X	.148	.020	1000	4000	4900-1-1/2-X	1.500	.045	50	200
4900-6-X	.166	.020	1000	2000	4900-1-3/4-X	1.750	.055	50	200
4900-5-X	.186	.020	1000	2000	4900-2IN-X	2.000	.060	50	200
4900-4-X	.208	.020	1000	2000	4900-2-1/4-X	2.250	.065	50	200
4900-3-X	.234	.020	1000	2000	4900-2-1/2-X	2.500	.070	50	200
4900-1/4-X	.250	.020	1000	2000					

Enter the digit of the color where the "X" is in the P/N when ordering: 0= Black, 9= White, 2= Red, 4= Yellow, C= Clear

OLFLEX® O WRAP

Polyester Protective Split Wrap
Flexible & Tough for Bundling



OLFLEX® O WRAP is a tough, flexible, lightweight split wrap used to bundle and protect wire harnesses and cable assemblies. It is used in industrial machinery, robotics and factory automation systems.

Performance Characteristics:

- Easily applied with a self-wrapping overlap
- Self-wrapping design with 45° to 135° overlap
- Outstanding protection from chafing, cutting and abrasion
- Unaffected by exposure to fuels, oils, lubricants and salt water
- Rugged yet smooth fabric texture and appearance

Performance Advantages:

- Easy installation and removal for assembly and maintenance
- Organizes and bundles wires on plant site to improve work safety
- Resists mechanical damage in industrial environments ensuring no machine or systems downtime
- Superior protection for use in harsh environments, resistant against oils, lubricants, moisture, dirt and abrasion



Technical Data:

- Material: Polyethylene Terephthalate (PET) filaments
- Operating Temperature: -75°C to +125°C
-103°F to +257°F
- Melt Temperature: 250°C/ 482°F
- Approvals: UL
CSA

Performance Properties:

- Low Temperature Flexibility: -70°C/-94°F
- Corrosion Resistance: Non-Corrosive
- Flammability Rating: UL 224

Color: Black

Part Number	Reference	Diameter Inches	Standard Put-up Spools (FT)
61U80086	O WRAP 1/2 BK S	1/2	164
61U80087	O WRAP 3/4 BK S	3/4	82
61U80088	O WRAP 1 BK S	1	82
61U80089	O WRAP 1-1/2 BK S	1-1/2	49

Additional sizes and colors available upon request.

OLFLEX® CC/CC FR

Non-Fraying PET Sleeving
Expandable



OLFLEX® CC is a high density braid that is used in industrial wire and harness applications and is excellent in bundling and routing wires where durability is crucial. OLFLEX® CC FR is a flame retardant version, designed to quickly self-extinguish and minimize the spread of flame.

Performance Characteristics:

- High density braid does not fray when cut and expands without unraveling
- Resistant to oil, chemicals, and abrasion
- Increased braid density for fuller coverage

Performance Advantages:

- Hot knife is not required for cutting, improving safety
- Virtually frayless when cut with a hot knife
- Denser coverage provides for increased protection of substrates for increased product life



Technical Data:

Material:	Polyethylene Terephthalate (PET) filaments	Colors:	- OLFLEX® CC - OLFLEX® CC FR	Black, Gray Black, White
Temperature Range: operating	-75°C to +125°C -103°F to +257°F	Approvals:	- OLFLEX® CC - OLFLEX® CC FR	UL/CSA UL/CSA, Mil-202, FAR 25, VW-1
Melt Temperature:	- OLFLEX® CC - OLFLEX® CC FR			230°C/446°F 250°C/482°F

OLFLEX® CC

Part Number	Nominal Size	Expansion Range		Standard Put-Ups		lbs./100 ft
		Min.	Max.	Bulk Spool	Mini Spool	
CC-1/8-XX	1/8"	1/8"	1/4"	1000	100	0.396
CC-1/4-XX	1/4"	5/32"	7/16"	1000	100	0.464
CC-3/8-XX	3/8"	3/16"	5/8"	500	100	0.744
CC-1/2-XX	1/2"	1/4"	3/4"	500	100	0.822
CC-3/4-XX	3/4"	5/8"	1"	250	75	1.113
CC-1-XX	1"	3/4"	1-3/16"	250	50	1.236
CC-1-1/4-XX	1-1/4"	1"	1-1/2"	250	50	1.555
CC-1-1/2-XX	1-1/2"	1-1/4"	2"	250	50	1.850

Available in black or gray. Enter BK for black or GY for gray in place of the "XX".

OLFLEX® CC FR: Flame Retardant Version

Part Number	Nominal Size	Expansion Range		Standard Put-Ups		lbs./100 ft
		Min.	Max.	Bulk Spool	Mini Spool	
CCFR-1/8-XX	1/8"	1/8"	1/4"	1000	100	0.396
CCFR-1/4-XX	1/4"	5/32"	7/16"	1000	100	0.464
CCFR-3/8-XX	3/8"	3/16"	5/8"	500	100	0.744
CCFR-1/2-XX	1/2"	1/4"	3/4"	500	100	0.822
CCFR-3/4-XX	3/4"	5/8"	1"	250	75	1.113
CCFR-1-XX	1"	3/4"	1-3/16"	250	50	1.236
CCFR-1-1/4-XX	1-1/4"	1"	1-1/2"	250	50	1.555
CCFR-1-1/2-XX	1-1/2"	1-1/4"	2"	250	50	1.850

Available in black with white tracers or white with black tracers. Enter BW for black or WB for white in place of the "XX".

OLFLEX® PET/PET FR

General Purpose PET Sleeving
Economical



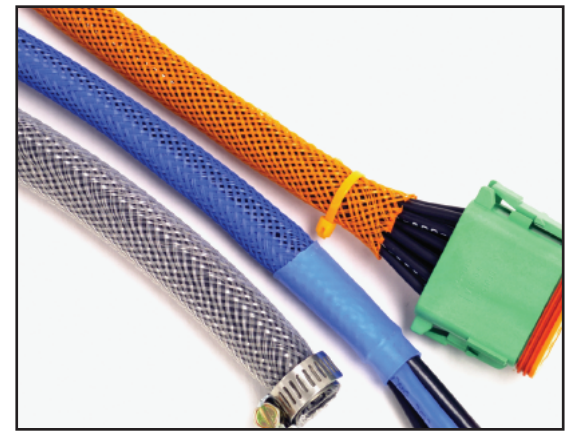
OLFLEX® PET is an economical solution that provides bundling and protection of wires, cables and hoses. OLFLEX® PET FR is a flame retardant version, designed to quickly self-extinguish and minimize the spread of flame.

Performance Characteristics:

- High resistance to gasoline, chemicals and cleaning solvents
- Increased braid density for fuller coverage
- Expands up to 150%
- Halogen-free
- Cuts cleanly when a hot knife is used

Performance Advantages:

- Denser coverage provides for increased protection of substrates for increased product life
- Economical alternative for low budget installations
- Increased product life in industrial applications where gasolines, chemicals and cleaning solvents are present
- Available in a wide variety of colors for color coding installations



Technical Data:

Material:	Polyethylene Terephthalate (PET) filaments	Colors:	- OLFLEX® PET - OLFLEX® PET FR	Various Black, White
Operating Temperature:	-75°C to +125°C -103°F to +257°F	Approvals:	- OLFLEX® PET - OLFLEX® PET FR	UL/CSA FAR 25, FMVSS 302 UL/CSA Mil-202, FAR 25, FMVSS 302, VW-1
Melt Temperature:	- OLFLEX® PET - OLFLEX® PET FR			230°C/446°F 250°C/482°F

OLFLEX® PET

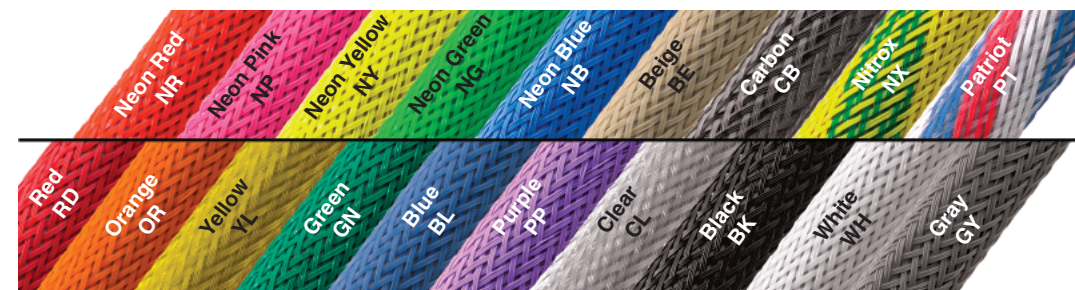
Part Number	Nominal Size	Expansion Range		Standard Put-Ups		lbs./100 ft	Part Number	Nominal Size	Expansion Range		Standard Put-Ups		lbs./100 ft
		Min.	Max.	Bulk Spool	Mini Spool				Min.	Max.	Bulk Spool	Mini Spool	
PET-1/8-XX	1/8"	3/32"	1/4"	1000	225	0.16	PET-1-1/4-XX	1-1/4"	3/4"	1-3/4"	250	50	1.60
PET-1/4-XX	1/4"	1/8"	7/16"	1000	200	0.24	PET-1-1/2-XX	1-1/2"	1"	2-1/2"	200	40	1.96
PET-3/8-XX	3/8"	3/16"	5/8"	500	125	0.57	PET-1-3/4-XX	1-3/4"	1-1/4"	2-3/4"	200	30	2.70
PET-1/2-XX	1/2"	1/4"	3/4"	500	100	0.77	PET-2-XX	2"	1-1/2"	3-1/2"	200	50	3.30
PET-5/8-XX	5/8"	3/8"	1"	500	100	0.95	PET-2-1/2-XX	2-1/2"	1-3/4"	4-1/2"	200	50	3.80
PET-3/4-XX	3/4"	1/2"	1-1/4"	250	75	1.20	PET-3-XX	3"	2-1/2"	4-3/4"	100	50	4.00
PET-1-XX	1"	5/8"	1-5/8"	250	65	1.34							

Available in many colors: see below chart. Enter the 2 digit letters where the XX is when ordering.

OLFLEX® PET FR: Flame Retardant Version

Part Number	Nominal Size	Expansion Range		Standard Put-Ups		lbs./100 ft	Part Number	Nominal Size	Expansion Range		Standard Put-Ups		lbs./100 ft
		Min.	Max.	Bulk Spool	Mini Spool				Min.	Max.	Bulk Spool	Mini Spool	
PETFR-1/8-XX	1/8"	3/32"	1/4"	1000	225	0.16	PETFR-1-1/2-XX	1-1/2"	1"	2-1/2"	200	40	1.96
PETFR-1/4-XX	1/4"	1/8"	7/16"	1000	200	0.24	PETFR-1-3/4-XX	1-3/4"	1-1/4"	2-3/4"	200	30	2.70
PETFR-3/8-XX	3/8"	3/16"	5/8"	500	125	0.57	PETFR-2-XX	2"	1-1/2"	3-1/2"	200	50	3.30
PETFR-1/2-XX	1/2"	1/4"	3/4"	500	100	0.77	PETFR-2-1/2-XX	2-1/2"	1-3/4"	4-1/2"	200	50	3.80
PETFR-3/4-XX	3/4"	1/2"	1-1/4"	250	75	1.20	PETFR-3-XX	3"	2-1/2"	4-3/4"	100	50	4.00
PETFR-1-1/4-XX	1-1/4"	3/4"	1-3/4"	250	50	1.60							

Available in black with white tracers or white with black tracers. Enter BW for black or WB for white in place of the "XX".



OLFLEX® WRAP/WRAP FR

PET Sleeve with Velcro
Easy Access and Installation



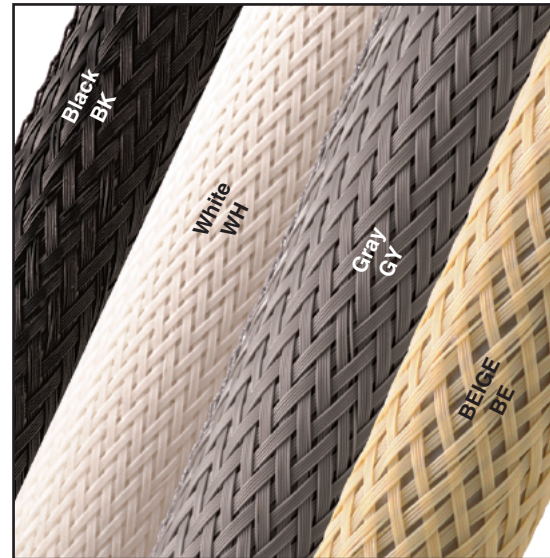
OLFLEX® WRAP is a PET sleeving that allows for breaking out cables or hoses from bundles for connection and retrofit applications. OLFLEX® WRAP FR is a flame retardant version, designed to quickly self-extinguish and minimize the spread of flame.

Performance Characteristics:

- Easily opened and closed by velcro edges
- Flexible material expands over various shapes
- Cut with a hot knife to avoid fraying

Performance Advantages:

- Varied access provides easy connections and rework
- Time savings solutions for varied applications
- Halogen-free



Technical Data:

Material:	Polyethylene Terephthalate (PET) filaments	Colors:	- OLFLEX® WRAP Black, White, Gray, Beige - OLFLEX® WRAP FR Black
Temperature Range: operating	-75°C to +125°C -103°F to +257°F	Approvals:	- OLFLEX® WRAP UL/CSA - OLFLEX® WRAP FR UL/CSA Mil-202, VW-1
Melt Temperature:	- OLFLEX® WRAP 230°C/446°F - OLFLEX® WRAP FR 250°C/482°F		

OLFLEX® WRAP

Part Number	Nominal Size	Hook & Loop Width	Standard Put-Ups		lbs./100 ft
			Bulk Spool	Mini Spool	
FW-1/2-XX	1/2"	1/4"	100	20	1.3
FW-3/4-XX	3/4"	5/8"	100	15	1.8
FW-1-1/4-XX	1-1/4"	5/8"	100	12	2.3
FW-2-XX	2"	5/8"	100	10	3.2

Available in black, white, gray or beige. Enter BK for black, WH for white, GY for gray or BE for beige in place of "XX".

OLFLEX® WRAP FR: Flame Retardant Version

Part Number	Nominal Size	Hook & Loop Width	Standard Put-Ups		lbs./100 ft
			Bulk Spool	Mini Spool	
FWFR-1/2	1/2"	1/4"	100	20	1.3
FWFR-3/4	3/4"	5/8"	100	15	1.8
FWFR-1-1/4	1-1/4"	5/8"	100	12	2.3
FWFR-2	2"	5/8"	100	10	3.2

Available in black with white tracers only.

OLFLEX® SW/SW FR

Semi-Rigid PET Sleeve with Split Wrap for
Easy Installation



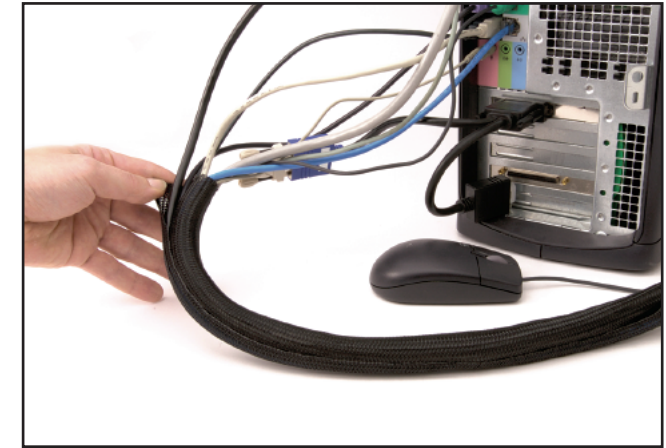
OLFLEX® SW is a preformed PET sleeve provided with a built-in split. Simply pull the wrap apart, install your wire and hoses and release. OLFLEX® SW FR is a flame retardant version, designed to quickly self-extinguish and minimize the spread of flame.

Performance Characteristics:

- Preformed split allows for easy installation of wire and hoses
- More flexible than spiral wrap
- Tight bend radius without splitting open
- Quiet in installations with high vibrations
- 25% edge overlap
- SW FR is packed in an easy access box to protect its cylindrical shape

Performance Advantages:

- Provides a large overlap for full coverage over splices and in-line connections
- Ease of installation provides for labor and costs savings
- Halogen-free



Technical Data:

Material:	Polyethylene Terephthalate (PET) filaments	Color:	Black
Temperature Range: operating	-75°C to +125°C -103°F to +257°F	Approvals:	- OLFLEX® SW UL/CSA - OLFLEX® SW FR UL/CSA, VW-1
Melt Temperature:	- OLFLEX® SW 230°C/446°F - OLFLEX® SW FR 250°C/482°F		

OLFLEX® SW/SWFR

OLFLEX® SW Part Number	OLFLEX® SW-FR Part Number	Nominal Size	Expansion Range Min/Max	Standard Put-Ups		lbs./100 ft
				Bulk Spool	Mini Spool	
SW-1/8	SWFR-1/8	1/8"	NA	400	100	0.2
SW-1/4	SWFR-1/4	1/4"	NA	200	100	0.6
SW-1/2	SWFR-1/2	1/2"	NA	150	75	1.4
SW-3/4	SWFR-3/4	3/4"	NA	100	50	1.6
SW-1	SWFR-1	1"	NA	100	50	2.0
SW-1-1/2	SWFR-1-1/2	1-1/2"	NA	75	25	2.7
SW-2	SWFR-2	2"	NA	50	25	3.6

Available in black only.

CUTTING TOOLS:



Serrated Edge Scissors:

These scissors have a serrated blade on an angle for easy cutting of sleeving.

Part Number
812056

* Other cutting tools available upon request.



Bench Mount Hot Knife:

The bench mount hot knife has a 2-1/2" cutting blade and heats to 600°C in 30 seconds. 110 volts for operation. Replacement blades available.

Part Number
Bench mount Hot Knife: 812057
Replacement blades: 812058

Warning:

- 1) Follow installation instructions carefully.
- 2) Use caution and proper safety procedures when working with an open flame and high temperatures.
- 3) Maintain a well ventilated workplace and avoid charring or burning product to prevent fumes that may cause eye, nose and throat irritation.
- 4) Consult M.S.D.S prior to handling or use for complete details.

Installation Instructions:

- 1) Position heat shrink tubing over object to be covered.
- 2) Using a heat gun, infrared heat source, soft yellow flame torch or oven, heat the tubing uniformly until it fully recovers and conforms to the object. Please consult the Lapp catalog or www.lappusa.com for the appropriate shrink temperatures.
- 3) If working with a long piece of tubing, start at one end and rotate while applying heat.
- 4) Avoid overheating the shrink tubing.
- 5) Remove the heat source and allow the shrink tubing to cool completely.



Heat shrinkable tubing is sold in its Expanded I.D. state. The application of heat activates the tubing's memory, causing the expanded tubing to “recover” or shrink down. When fully recovered, the tubing will shrink down to the Recovered I.D. When shrinking tubing, it is highly recommended to adhere to the estimated shrink temperature.

OLFLEX® TUBING is available in three heat shrink ratio varieties.

- 2➡1 Tubing will shrink down approximately 50%.
- 3➡1 Tubing will shrink down approximately 67%.
- 4➡1 Tubing will shrink down approximately 75%.

As the tubing recovers, the tubing wall thickens. A small reduction in the tubing length known as longitudinal shrinkage will also occur during the shrinking process. Longitudinal shrinkage will typically range from 5-15% depending on the product.

When covering multiple substrates, you must consider the larger sized substrate that needs to be covered (i.e. connector) as well as the smaller cable diameter.

2:1 Shrink Ratio Example:

OLFLEX® 190, PN 601612 - Nominal O.D. 0.524 inch

*Note the cable O.D. is a nominal value that can vary roughly 5%

Rule of thumb: The Recovered I.D. should not be larger than the substrate O.D.

Choose tubing with a Recovered I.D. that is approximately 20-25% smaller than the substrate's O.D.

For example, Cable O.D.- .524” X .80 = .419, Cable O.D.- .524” X .75 = .393

- 2➡1 Tubing will shrink down approximately 50%.
.75” tubing size x .5 = .375

Choice: The 3/4” size will adequately meet the shrink tube requirements

2➡1 SHRINK RATIO EXAMPLE

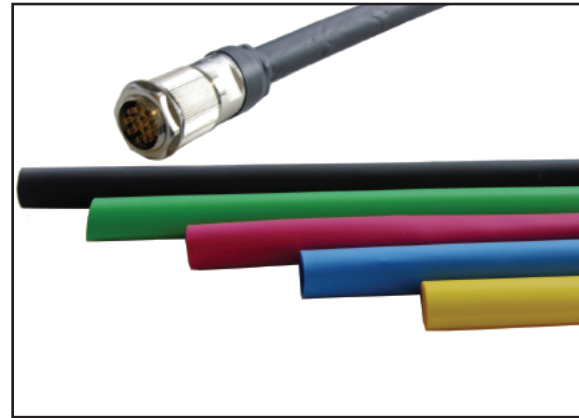
For an O.D. of .524 inches and 2:1 Shrink Ratio, the recommended tubing size would be 3/4”

SIZE	INSIDE DIAMETER AS SUPPLIED (MIN)		INSIDE DIAMETER AFTER RECOVERY (MAX)		WALL THICKNESS AFTER RECOVERY (NOM)	
	INCH	(MM)	INCH	(MM)	INCH	(MM)
1/16	0.063	1.60	0.032	0.82	0.020	0.51
1/8	0.125	3.18	0.063	1.60	0.025	0.64
3/16	0.187	4.75	0.093	2.36	0.025	0.64
1/4	0.250	6.35	0.125	3.18	0.025	0.64
3/8	0.375	9.53	0.187	4.75	0.028	0.71
1/2	0.500	12.70	0.250	6.35	0.028	0.71
3/4	0.750	19.05	0.375	9.53	0.033	0.84
1	1.000	25.40	0.500	12.70	0.038	0.97
1 1/2	1.500	38.10	0.750	19.05	0.043	1.09
2	2.000	50.80	1.000	25.40	0.048	1.22

INSULATE



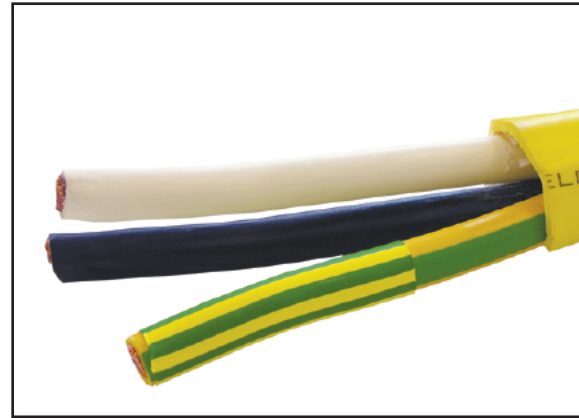
BEAUTIFY



HARNESS



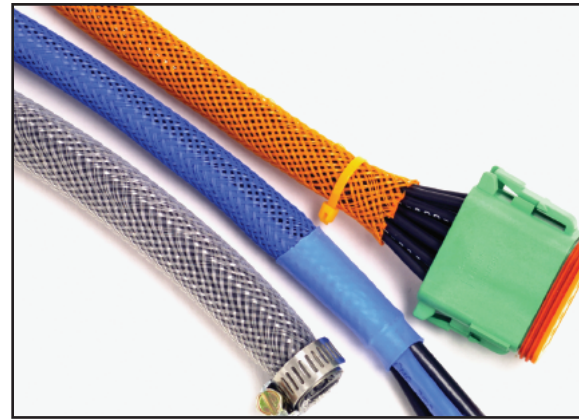
IDENTIFY



SEAL



SHIELD



BUNDLE



PROTECT

