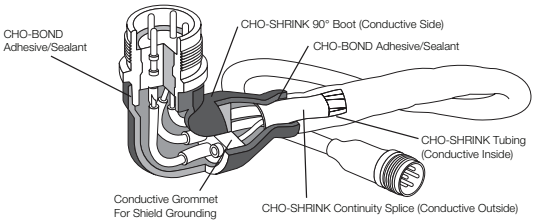
CHO-SHRINK® 1120

Commercial Grade Conductive Heat Shrinkable EMI Cable Shielding System



Tubing • Connector Boots • Cable Transitions • Boot Adapters

Customer Value Proposition

Chomerics' Silver Plated Copper CHO-SHRINK 1120 is formulated and manufactured for commercial EMI cable shielding applications to provide a low cost, light weight, 360° EMI shielding for cables, transitions, connectors and terminations. CHO-SHRINK's ease of application reduces assembly costs and provides a reliable, professional looking EMI cable shielding solution for electronic equipment. CHO-SHRINK also provides an effective shielding solution which simplifies connector and termination designs. The product consists of polyolefin heat shrinkable tubing, connector boots, and transition pieces that are coated with Chomerics' unique silver-plated copper filled coating system.

The CHO-SHRINK cable shielding system allows for relatively easy assembly of shielding systems for complex cable wiring harnesses using conventional heat shrink tubing heating devices. The system offers excellent shielding and significant weight savings over traditional metal braid cable shielding systems.

In addition, CHO-SHRINK offers an environmental shield against dust, moisture and other contaminants. CHO-SHRINK's unique flexible coating remains intact even after maximum shrinkage to support any necessary cable routing. Easy repair or rework of cables is facilitated by cutting off the CHO-SHRINK material and installing new material.

CHO-SHRINK materials are ideal for installation on cabling for medical device electronic assemblies which require reliable EMI shielding performance and may benefit from silver's antimicrobial properties.

Typical applications include automotive cable assemblies, laboratory equipment, medical electronics, and telecom cabling.

Contact Information:

Parker Hannifin Corporation
Chomerics Division
77 Dragon Court
Woburn, MA 01801
phone 781 935 4850
fax 781 933 4318
chomailbox@parker.com
www.parker.com/chomerics



Product Features

- Good 360° cable shielding effectiveness performance, 50 - 60 dB attenuation above 500 MHz
- Provides professional looking appearance to cable shielding solutions
- Simplifies connector and transition shielding designs
- Easy installation and assembly with conventional heat guns and ovens
- Professional appearance
- Excellent seal against moisture and contaminants
- Complex cable assembly EMI shielding possible with a wide selection of cable transitions, including T, Y, and other custom shapes
- Standard (stocked) lengths for tubing are 4 feet. Transition tubing sections are available for longer lengths.
- Unique coating system can be applied internal or external to the heat shrinkable tubing
- Weight savings from 40 – 65% vs. conventional braided mesh shielding systems with labor savings as well
- CHO-SHRINK cable assemblies remain flexible after installation
- CHO-SHRINK connector boots provide EMI shielding, cable shield grounding, and strain relief at connector backshell terminations.
- CHO-SHRINK boots shrink to a wide range of cable diameters (shrink ratio is 4:1 at the cable end). They can be supplied with a conductive hot melt adhesive/sealant applied to each end.
- Mil-R-46846 Polyolefin Tubing and Boots

Parker Chomerics

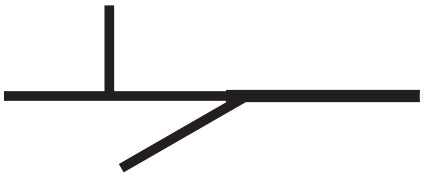
ENGINEERING YOUR SUCCESS.

Application Instructions

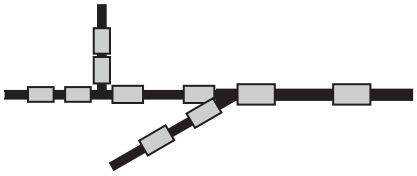
- One of the major advantages of the CHO-SHRINK EMI cable shielding system over conventional metal shielding is its ease of assembly. The following has been prepared as a guide to the proper application and assembly of CHO-SHRINK tubing, connector boots, and transitions.
- All CHO-SHRINK products may be recovered (shrunk) with the same heating equipment used on ordinary nonconductive shrinkable plastics. Hot air blowers and infrared heating devices provide the simplest method of shrinking. Ovens may be used to recover tubing, but boots, transitions and other molded parts often require some hand positioning during the shrinking process to assure correct alignment. Shrink temperatures should not exceed 375°F. Care should be taken to shrink the product slowly and uniformly. Exceeding 375°F (191°C) may cause a loss of shielding integrity.
- To achieve a good mechanical grip between CHO-SHRINK boots and connector backshells, Chomerics strongly recommends the use of Shrink Boot Adapters, which provide a knurled and grooved surface to enhance resistance to torque, snap-off and pull-off stresses. Tie-wraps should also be applied.
- CHO-SHRINK molded parts are available with a highly conductive hot-melt adhesive/sealant at each opening. This hot melt will flow during shrinking to provide an effective environmental seal without degrading EMI shielding characteristics. If excess sealant flows outside the molded part during recovery, it can be easily wiped away while still warm.
- The only assembly procedure peculiar to CHO-SHRINK is the necessity to maintain electrical continuity through conductive inside surfaces from connector to connector. Where two CHO-SHRINK parts meet (boot/tubing, tubing/transition, etc.), a continuity splice must be achieved. This is accomplished by using CHO-SHRINK splice sleeves, which are short lengths of CHO-SHRINK tubing with a conductive outside surface.
- For optimal shielding performance, be sure to terminate the shield at both ends with full 360° contact to a low impedance ground. Incorporate mechanical strain relief into the cable design itself. That is, avoid stretching and bending the cable excessively. Transition pieces should be generous to preserve continuity at all junction points.

CHO-SHRINK Assembly Procedure

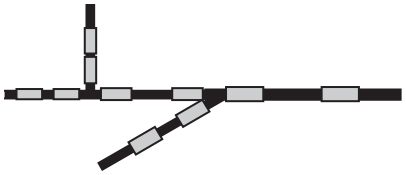
1. Lay out entire cable, with all branches in proper place.



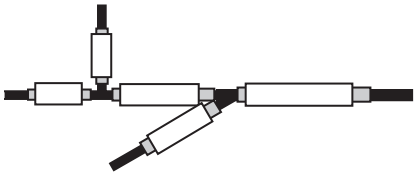
2. Slide CHO-SHRINK continuity splice sleeves (coating outside, black inside) into position wherever connector boots or transitions will be shrunk against the cable.



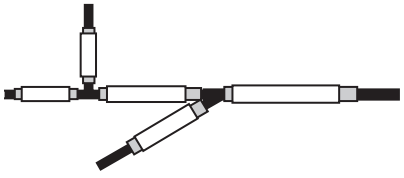
3. Apply heat to shrink continuity splices tightly against wire bundle.



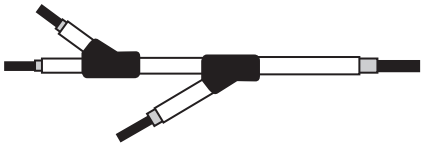
4. Slide pre-cut lengths of CHO-SHRINK tubing (inside-coated) into position so that ends overlap approximately one-half of each continuity splice sleeve. When determining cut-lengths, allow for a maximum of 5% longitudinal shrinkage.



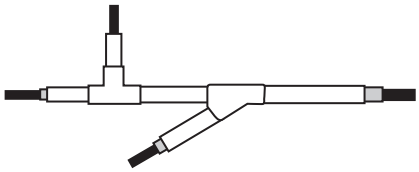
5. Apply heat to shrink tubing against wire bundle. Approximately ½ to 1 -1/2 inches of conductive surface should be exposed at each continuity splice.



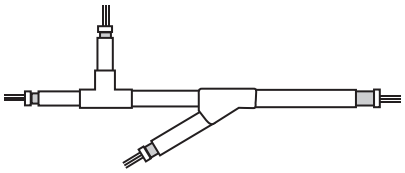
6. Slide CHO-SHRINK transitions into position, bending branches where required to allow the expanded transition to pass breakout intersections. When properly positioned, exposed continuity splices should be entirely covered by the transition.



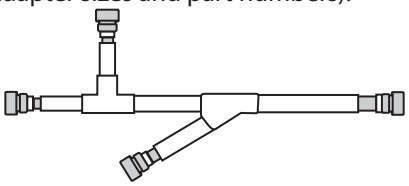
7. Apply heat to shrink transitions in place. During the shrinking process, transitions can be positioned by hand to assure correct alignment and convenient breakout angles. Ends of each transition should be pressed down onto the splice sleeve so that the conductive hot melt adhesive around each opening flows around splice to provide a mechanical bond and seal. Note: Do not handle cables after transition shrinkage until cool.



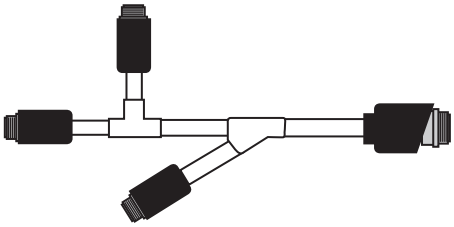
8. If CHO-SEAL conductive grommets are to be used to terminate individual wire shields:
   a. Strip outer jacket off each wire and cut shield away leaving ¼" – 3/8" of shield exposed.
   b. Comb exposed shield back over jacket.
   c. Insert wires into grommet so that exposed shields are securely located in center of grommet.



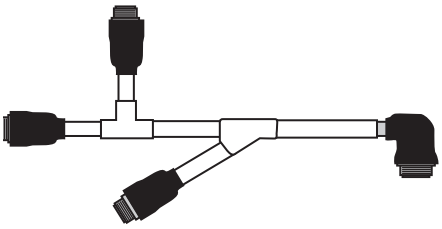
9. Terminate connector. Note: If connector backshell does not provide a knurled and grooved surface for the CHO-SHRINK boot to grasp, a Shrink Boot Adapter should be installed on the backshell before wires are terminated (see table of Adapter sizes and part numbers).



10. Slide CHO-SHRINK boot over connector, and align so that boot will shrink over threads of backshell (or adapter) at one end and exposed continuity splice at other end.



11. Apply heat and begin shrinking boot at connector end first, using hands to assure proper positioning. Press boot tightly against backshell so that conductive hot melt adhesive provides mechanical bond and seal. Continue shrinking boot, working from connector towards cable. Press "tail" end of boot down against exposed splice so that conductive hot melt bonds and seals.



Product Information

Typical Properties	CHO-SHRINK® 1120: CHO-SHRINK Boots	CHO-SHRINK® 1120: CHO-SHRINK Tubing
Boot Material	Heat shrinkable polyolefin per MIL-R-46846 Type 5	
Conductive Filler	Silver-plated copper in polyolefin	
Shore D Hardness (ASTM D-676)	50 ±10	
Operating Temperature Limits	-55°C to 150°C (-67°F to 300°F)	-54°C to 135°C (-66°F to 275°F)
Dielectric Strength* (ASTM D-876)	200 V/mil	
Shrink Temperature	121°C (250°F) min. 191°C (375°F) max.	
Outgassing (NASA Reference Publication 1124) (ASTM E595)		
Total Mass Loss (TML) (%)	0.68	0.68
Collectible Volatile Condensable Materials (CVCM) (%)	0.05	0.05
Flammability (ASTM D-635)***	UL VW-1	UL VW-1
Shrink Ratio	up to 4:1	up to 2:1
Shielding Effectiveness (CHO-TM-TP12)	See Figure 1	See Figure 1
DC Resistance**	N/A	1.0 ohm/foot
Shelf Life (from date of manufacture)	2 years	2 years

* Recovered base material
** After 100% recovery
*** Tested internally by Chomerics

CHO-SHIELD® 1120 Typical Shielding Effectiveness Per CHO-TM-TP12

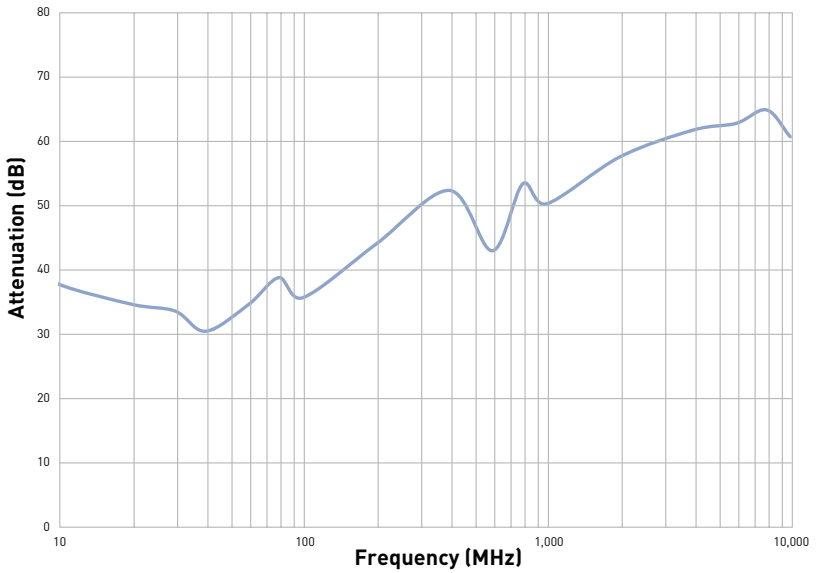


Figure 1 Shielding Effectiveness for CHO-SHRINK 1120, 1/2" diameter tubing

Ordering Information

CHO-SHRINK® Tubing

Use the following part numbering system to order CHO-SHRINK tubing. Standard (stocked) lengths are 4 feet. Ordering quantity should specify total length required. Part number indicates length of pieces.

Example: 70-41-0016-0004-10 = 4 feet of 1" diameter, with tubing coated on the inside cut to 10" lengths

70 - 4__ - ____ - 0004 - ___

Cut lengths are in inches
For example:
10 = 10 inches

Expanded Inside Diameter Code
Enter inside diameter in 1/16ths
For example:
0004 = 1/4" ID
0008 = 1/2" ID
0016 = 1" ID

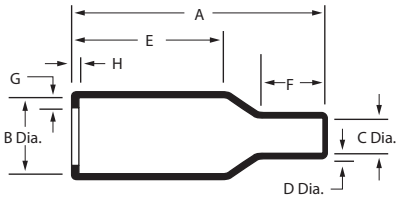
Coating Configuration
1 = Coated inside
2 = Coated outside
3 - Coated inside & outside

Available Standard Diameters and Wall Thicknesses

Expanded Inside Dia. Inches (mm)	Expanded Inside Dia. Code	Typical Recovered Wall Thickness Inches (mm)
1/8 (3.18)	0002	.020 (0.51)
3/16 (4.76)	0003	.020 (0.51)
1/4 (6.35)	0004	.025 (0.63)
3/8 (9.53)	0006	.025 (0.63)
1/2 (12.7)	0008	.025 (0.63)
3/4 (19.05)	0012	.030 (0.76)
1 (25.4)	0016	.035 (0.89)

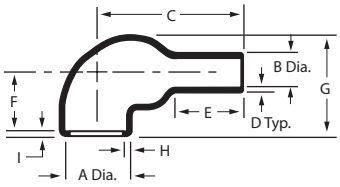
For non-standard sizes, contact Chomerics.

CHO-SHRINK Straight Polyolefin Boots with Lip. (To Fit Shrink Boot Adapters)



Chomerics Part Number*	Nominal Dimensions, inches (mm in parentheses)										For Use With...		
	A	B Dia.		C Dia.		D	E	F	G	H		MIL-C-26482 Adapters	
	Recovered (±20%)	Supplied (min)	Recovered (max)	Supplied (min)	Recovered (max)	Recovered (±20%)	Recovered (±20%)	Recovered (±20%)	Recovered	Recovered	Mil-C-5015 Adapters	Solid	Rotating
71-04-7053-XXXX	1.50 (38.10)	.92 (23.37)	.41 (10.41)	.92 (23.37)	.22 (5.59)	.07 (1.78)	.92 (23.37	.40 (10.16)	.04 (1.02)	.12 (3.05)	—	—	8
71-04-7054-XXXX	2.16 (54.86)	1.12 (28.45)	0.56 (14.22)	1.12 (28.45)	0.26 (6.60)	0.07 (1.78)	1.27 (32.26)	.65 (16.51)	.04 (1.02)	.12 (3.05)	10SL, 12S	8	10
71-04-7055-XXXX	2.63 (66.80)	1.22 (30.99)	.70 (17.78)	1.22 (30.99)	.28 (7.11)	.08 (2.03)	1.59 (40.39)	.70 (17.78)	.04 (1.02)	.12 (3.05)	14S	10	12, 14
71-04-7056-XXXX	3.15 (80.01)	1.42 (36.07)	.88 (22.35)	1.42 (36.07)	.33 (8.38)	.08 (2.03)	1.73 (43.94)	.82 (20.83)	.04 (1.02)	.12 (3.05)	16S, 16, 18	12, 14	16, 18
71-04-7057-XXXX	4.08 (103.63)	1.68 (42.67)	1.11 (28.19)	1.68 (42.67)	.39 (9.91)	.09 (2.29)	2.47 (62.74)	.97 (24.64)	.065 (1.65)	.12 (3.05)	20, 22	16, 18	20
71-04-7058-XXXX	5.13 (130.30)	2.04 (51.82)	1.38 (35.05)	2.04 (51.82)	.62 (15.75)	.13 (3.30)	3.02 (76.71)	1.56 (39.62)	.065 (1.65)	.12 (3.05)	24, 28	20, 22, 24	22, 24
71-04-7059-XXXX	6.50 (165.10)	2.60 (66.04)	1.75 (44.45)	2.60 (66.04)	.80 (20.32)	.16 (4.06)	3.55 (90.17)	1.90 (48.26)	.08 (2.03)	.12 (3.05)	32, 36	—	—

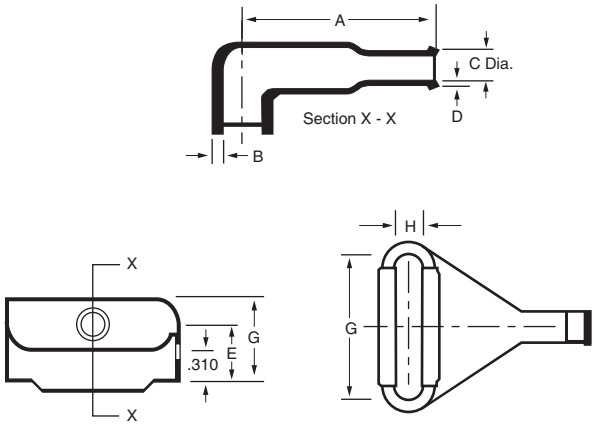
CHO-SHRINK 90° Polyolefin Boots with Lip (To Fit Shrink Boot Adapters)



Chomerics Part Number*	Nominal Dimensions, inches (mm in parentheses)											For Use With...		
	A Dia.		B Dia.		C	D	E	F	G	H	I		MIL-C-26482 Adapters	
	Supplied (min)	Recovered (max)	Supplied (min)	Recovered (max)	Recovered (±10%)	Recovered (±20%)	Recovered (±10%)	Recovered (±10%)	Recovered (±10%)	Recovered (±20%)	Recovered (±10%)	Mil-C-5015 Adapters	Solid	Rotating
71-04-7126-XXXX	.92 (23.37)	.41 (10.41)	.92 (23.37)	.22 (5.59)	.84 (21.34)	.05 (1.27)	.23 (5.84)	.65 (16.51)	.89 (22.61)	.04 (1.02)	.12 (3.05)	—	—	8
71-04-7127-XXXX	1.12 (28.45)	.56 (14.22)	1.12 (28.45)	.26 (6.60)	1.33 (33.78)	.06 (1.52)	.65 (16.51)	.76 (19.30)	1.07 (27.18)	.04 (1.02)	.12 (3.05)	10SL, 12S	8	10
71-04-7128-XXXX	1.22 (30.99)	.70 (17.78)	1.22 (30.99)	.28 (7.11)	1.44 (36.58)	.07 (1.78)	.50 (12.70)	.83 (21.08)	1.22 (30.99)	.04 (1.02)	.12 (3.05)	14S	10	12, 14
71-04-7129-XXXX	1.42 (36.07)	.88 (22.35)	1.42 (36.07)	.33 (8.38)	1.72 (43.69)	.07 (1.78)	.57 (14.48)	.90 (22.86)	1.38 (35.05)	.04 (1.02)	.12 (3.05)	16S, 16, 18	12, 14	16, 18
71-04-7130-XXXX	1.68 (42.67)	1.11 (28.19)	1.68 (42.67)	.39 (9.91)	2.11 (53.59)	.08 (2.03)	.69 (17.53)	1.14 (28.96)	1.73 (43.94)	.065 (1.65)	.12 (3.05)	20, 22	16, 18	20
71-04-7131-XXXX	2.04 (51.82)	1.38 (35.05)	2.04 (51.82)	.62 (15.75)	3.07 (77.98	.13 (3.30)	1.32 (33.53)	1.32 (33.53)	2.08 (52.83)	.065 (1.65)	.12 (3.05)	24, 28	20, 22, 24	22, 24
71-04-7132-XXXX	2.60 (66.04)	1.75 (44.45)	2.60 (66.04)	.80 (20.32)	3.84 (97.54)	.15 (3.81)	1.58 (40.13)	1.65 (41.66)	2.60 (66.04)	.08 (2.03)	.12 (3.05)	32, 36	—	—

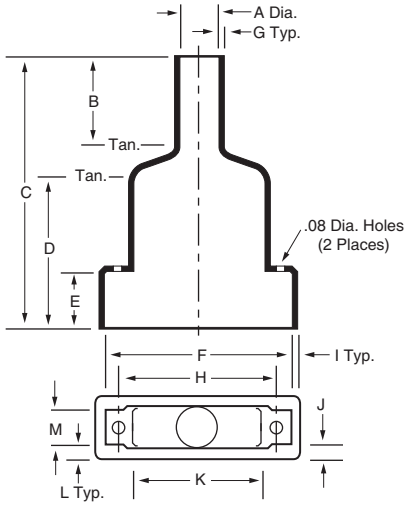
NOTE: For non-lipped boots and alternate configurations, contact Chomerics.
*XXXX will indicate adhesive/sealant option: if desired, last four digits shall be 1000; if not desired specify 0000.
Allow 0.020" (0.51 mm) nominal adhesive thickness on the "Supplied" and "Recovered" diameters.

CHO-SHRINK Side Entry 90° Rectangular Polyolefin Boot



Chomerics Part Number*	Nominal Dimensions, inches (mm in parentheses)											"D" Subminiature Connector Pin Count
	A	B	C Dia.		D	E	F	G		H		
	Recovered (±10%)	Recovered (±20%)	Supplied (min)	Recovered (max)	Recovered (±20%)	Recovered (±10%)	Recovered (±10%)	Supplied (±5%)	Recovered (±5%)	Supplied (±5%)	Recovered (±5%)	
71-04-7604-XXXX	1.10 (27.94)	.12 (3.05)	.31 (7.87)	.16 (4.06)	.04 (1.02)	.50 (12.70)	.73 (18.54)	.80 (20.352)	.80 (20.32)	.42 (10.67)	.42 (10.67)	9
71-04-7605-XXXX	1.38 (35.05)	.12 (3.05)	.40 (10.16)	.21 (5.33)	.04 (1.02)	.50 (12.70)	.74 (18.80)	1.11 (28.19)	1.11 (28.19)	.42 (10.67)	.42 (10.67)	15
71-04-7606-XXXX	1.87 (47.50)	.12 (3.05)	.55 (13.97)	.25 (6.35)	.04 (1.02)	56 (14.22)	.79 (20.07)	1.66 (42.16)	1.66 (42.16)	.42 (10.67)	.42 (10.67)	25
71-04-7607-XXXX	2.35 (59.69)	.12 (3.05)	.68 (17.27)	.31 (7.87)	.04 (1.02)	56 (14.22)	.79 (20.07)	2.31 (58.67)	2.31 (58.67)	.42 (10.67)	.42 (10.67)	37
71-04-7608-XXXX	2.49 (63.25)	.12 (3.05)	.75 (19.05)	.36 (9.14)	.04 (1.02)	.69 (17.53)	1.04 (26.42)	2.28 (57.91)	2.28 (57.91)	.54 (13.72)	.54 (13.72)	50

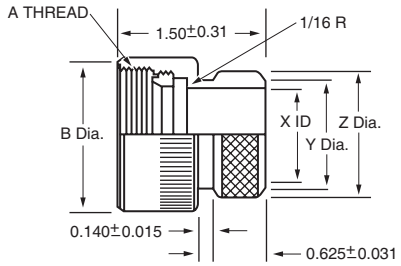
CHO-SHRINK Top Entry Rectangular Polyolefin Boot



Chomerics Part Number*	Nominal Dimensions, inches (mm in parentheses)															Fits Cinch Tykon Connectors
	A Dia.		B	C	D	E	F		G	H	I	J	K	L	M	
	Supplied (min)	Recovered (max)	Recovered (±10%)	Recovered (±10%)	Recovered (±10%)	Recovered (±10%)	Supplied (min)	Recovered (max)	Recovered (±20%)	Recovered (±10%)	Recovered (±20%)	Recovered (±10%)	Recovered (±10%)	Recovered (±20%)	Supplied (min)	Recovered (max)	
71-04-7518-XXXX	1.35 (34.29)	0.27 (6.86)	0.55 (13.97)	1.7 (43.18)	0.95 (24.13)	0.35 (8.89)	1.35 (34.29)	1.18 (29.97)	0.04 (1.02)	1 (25.40)	0.05 (1.27)	0.07 (1.78)	0.8 (20.32)	0.05 (1.27)	0.35 (8.89)	0.28 (7.11)	255-15-30-210

NOTE: For non-lipped boots and alternate configurations, contact Chomerics.
*XXXX will indicate adhesive/sealant option: if desired, last four digits shall be 1000; if not desired specify 0000.
Allow 0.020" (0.51 mm) nominal adhesive thickness on the "Supplied" and "Recovered" diameters.

SHRINK BOOT ADAPTERS

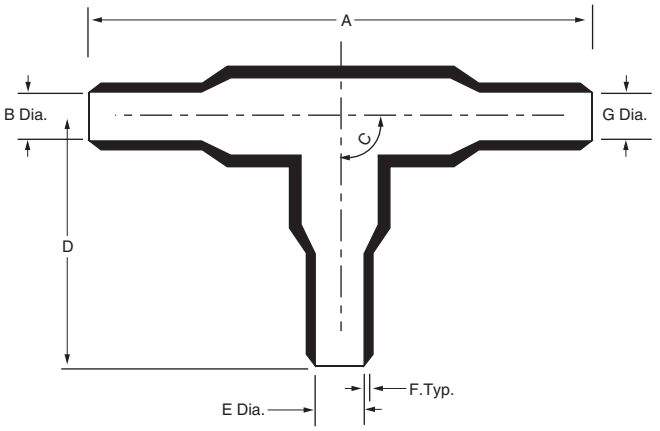


Proper termination of Chomerics' CHO-SHRINK boots requires a Shrink Boot Adapter threaded onto the connector backshell. This adapter provides a knurled surface which increases resistance to torque loads, and a groove which accepts the lip on a CHO-SHRINK boot. The following table gives adapter sizes and part nubmers for circular MS connectors. Chomerics does not supply these adapters. We refer you to Electro-Adaptor, Inc* for the sizes shown in the table below.

Connector Size				Dimensions (inches)				Fits CHO-SHRINK P/N	
MIL-C-81511	MIL-C-005015 MIL-C-0026482 MIL-C-83723 NAS1599	A Thread	Electro Adapter Part No.*	X Dia. ±0.020	Y Dia. ±0.031	Z Dia. ±0.031	B Dia. ±0.031	Straight	90°
8	—	1/2-28 UNEF	971-0801-0603	0.250	0.375	0.500	0.625	71-04-7053-1000	71-04-7126-1000
10	—	5/8-28 UN	971-1002-0603	0.375	0.500	0.625	0.750	71-04-7054-1000	71-04-7127-1000
—	10S, 10SL	5/8-24 NEF	3654-1002-0603	0.375	0.500	0.625	0.750	71-04-7054-1000	71-04-7127-1000
—	12, 12S	3/4-20 UNEF	3654-1203-0603	0.500	0.625	0.750	0.875	71-04-7055-1000	71-04-7128-1000
12	—	3/4-28 UN	971-1203-0603	0.500	0.625	0.750	0.875	71-04-7055-1000	71-04-7128-1000
14	—	7/8-28 UN	971-1403-0603	0.500	0.625	0.750	1.000	71-04-7055-1000	71-04-7128-1000
—	14, 14S	7/8-20 UNEF	3654-1403-0603	0.500	0.625	0.750	1.000	71-04-7055-1000	71-04-7128-1000
—	16, 16S	1-20 UNEF	3654-1605-0603	0.875	1.000	1.125	1.125	71-04-7056-1000	71-04-7129-1000
16	—	1-28 UN	971-1605-0603	0.875	1.000	1.125	1.125	71-04-7056-1000	71-04-7129-1000
18	—	1-1/8-28 UN	971-1805-0603	1.062	1.188	1.312	1.250	71-04-7057-1000	71-04-7130-1000
—	18	1-1/16-18 UNEF	3654-1805-0603	0.875	1.000	1.125	1.125	71-04-7056-1000	71-04-7129-1000
20	—	1-1/4-28 UN	971-2006-0603	1.062	1.188	1.312	1.375	71-04-7057-1000	71-04-7130-1000
—	20	1-3/16-18 UNEF	3654-2006-0603	1.062	1.188	1.312	1.312	71-04-7057-1000	71-04-7130-1000
—	22	1-5/16-18 UNEF	3654-2206-0603	1.062	1.188	1.312	1.438	71-04-7057-1000	71-04-7130-1000
22	—	1-3/8-28 UN	971-2206-0603	1.062	1.188	1.312	1.500	71-04-7057-1000	71-04-7130-1000
—	24	1-7/16-18 UNEF	3654-2407-0603	1.312	1.438	1.562	1.562	71-04-7058-1000	71-04-7131-1000
24	—	1-1/2-28 UN	971-2407-0603	1.312	1.438	1.562	1.625	71-04-7058-1000	71-04-7131-1000
—	28	1-3/4-18 UNS	3654-2807-0603	1.312	1.438	1.562	1.875	71-04-7058-1000	71-04-7131-1000
—	32	2-18 UNS	3654-3208-0603	1.688	1.812	1.812	2.125	71-04-7059-1000	71-04-7132-1000
—	36	2-1/4-16 UN	3654-3608-0603	1.688	1.812	1.812	2.375	71-04-7059-1000	71-04-7132-1000

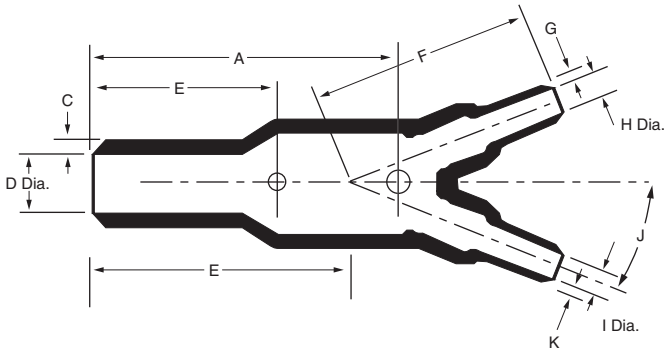
* Electro-Adapter, Inc., 20640Nordhoff St., Chatsworth, CA 91311.
Standard Plating is cadmium (olive drab) per QQ-P-416, Type II. Class 3.
To specify electroless nickel plating per MIL-C26074, Class 3 or 4, Grade B, change last two digits of part number to 54.

CHO-SHRINK Polyolefin "T" Transition



Chomerics Part Number*	Nominal Dimensions, inches (mm in parentheses)										
	A	B Dia.		C		D	E Dia.		F	G Dia.	
	Recovered (±10%)	Supplied (min)	Recovered (max)	Supplied (±10°)	Recovered (±5°)	Recovered (±10%)	Supplied (min)	Recovered (max)	Recovered (±20%)	Supplied (min)	Recovered (max)
71-04-7209-XXXX	1.17 (29.72)	.26 (7.37)	.14 (3.56)	30	90	.58 (14.73)	.26 (7.37)	.14 (3.56)	.04 (1.02)	.26 (7.37)	.14 (3.56)
71-04-7208-XXXX	2.31 (58.67)	.52 (13.21)	.27 (6.86)	30	90	1.16 (29.46)	.52 (13.21)	.27 (6.86)	.06 (1.52)	.52 (13.21)	.27 (6.86)
71-04-7206-XXXX	4.73 (120.14)	1.06 (26.92)	.53 (13.46)	30	90	2.36 (59.94)	1.06 (26.92)	.53 (13.46)	.09 (2.29)	1.06 (26.92)	.53 (13.46)
71-04-7210-XXXX	9.70 (246.38)	2.19 (55.63)	1.19 (30.23)	30	90	4.85 (123.19)	2.19 (55.63)	1.19 (30.23)	.12 (3.05)	2.19 (55.63)	1.19 (30.23)

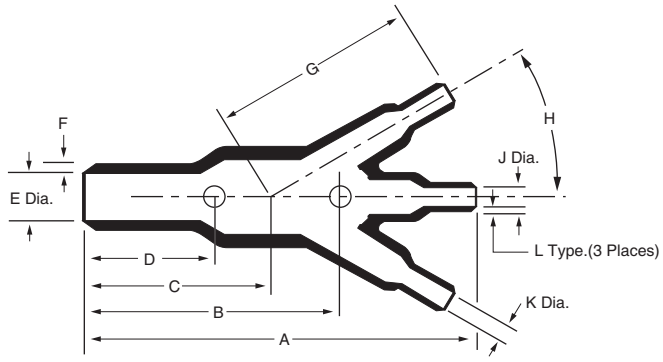
CHO-SHRINK polyolefin "Y" Transition



Chomerics Part Number*	Nominal Dimensions, inches (mm in parentheses)											
	A	B	C	D Dia.		E	F	G&K	H&I Dia.		J	
	Recovered (±10%)	Recovered (±10%)	Recovered (±20%)	Supplied (min)	Recovered (max)	Recovered (±10%)	Recovered (±10%)	Recovered (±20%)	Supplied (min)	Recovered (max)	Supplied (±10°)	Recovered (±5°)
71-04-7223-XXXX	.94 (23.88)	0.51 (12.95)	.06 (1.52)	.52 (13.21)	.24 (6.10)	.88 (22.35)	.76 (19.30)	.04 (1.02)	.26 (6.60)	.13 (3.30)	10	22½
71-04-7201-XXXX	2.10 (53.34)	1.30 (33.02)	.10 (2.54)	1.06 (26.92)	.49 (12.45)	1.50 (38.10)	1.70 (43.18)	.06 (1.52)	.52 (13.21)	.24 (6.10)	10	22½
71-04-7220-XXXX	3.10 (78.74)	2.20 (55.88)	.12 (3.05)	1.52 (38.61)	.71 (18.03)	2.58 (66.53)	3.10 (78.74)	.10 (2.54)	1.06 (26.92)	.49 (12.45)	10	22½
71-04-7218-XXXX	4.10 (104.14)	2.80 (71.12)	.18 (4.57)	2.19 (55.63)	1.02 (25.91)	3.35 (85.09)	3.70 (93.98)	.10 (2.54)	1.06 (26.92)	.50 (12.70)	10	22½

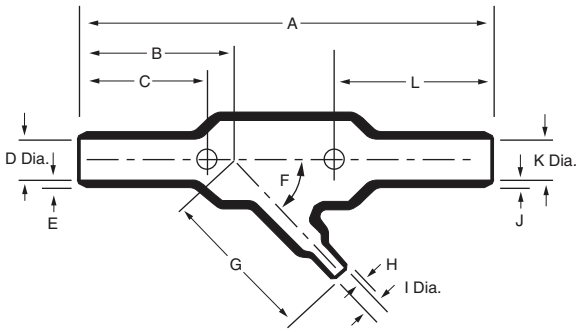
NOTE: Contact Chomerics for alternate configurations.
*XXXX will indicate adhesive/sealant option: if desired, last four digits shall be 1000; if not desired specify 0000.
Allow 0.020" (0.51 mm) nominal adhesive thickness on the "Supplied" and "Recovered" diameters.

CHO-SHRINK Polyolefin One to Three Cable Transition



Chomerics Part Number*	Nominal Dimensions, inches (mm in parentheses)												
	A	B	C	D	E		F	G	H		I, J, K		L
	Recovered (±10%)	Recovered (±10%)	Recovered (±10%)	Recovered (±10%)	Supplied (min)	Recovered (max)	Recovered (±20%)	Recovered (±10%)	Supplied (±10°)	Recovered (±5°)	Supplied (min)	Recovered (max)	Recovered (±20%)
71-04-7243-XXXX	1.82 (46.23)	1.20 (30.48)	.82 (20.83)	.62 (15.75)	.52 (13.21)	.26 (6.60)	.06 (1.52)	1.00 (25.40)	10	30	.26 (6.60)	.14 (3.56)	.04 (1.02)
71-04-7244-XXXX	3.67 (93.22)	2.25 (57.15)	1.69 (42.93)	1.30 (33.02)	1.06 (26.92)	.52 (13.21)	.10 (2.54)	1.98 (50.29)	10	30	.52 (13.21)	.27 (6.86)	.06 (1.52)
71-04-7252-XXXX	5.32 (135.13)	3.50 (88.90)	2.42 (61.47)	1.80 (45.72)	1.52 (38.61)	.74 (18.80)	.12 (3.05)	2.90 (73.66)	10	30	.76 (19.30)	.38 (9.65)	.07 (1.78)
71-04-7255-XXXX	7.56 (192.02)	4.80 (121.92)	3.50 (88.90)	2.80 (71.12)	2.19 (55.63)	1.00 (25.40)	.18 (4.57)	4.06 (103.12)	10	30	1.06 (26.92)	.49 (12.45)	.12 (3.05)

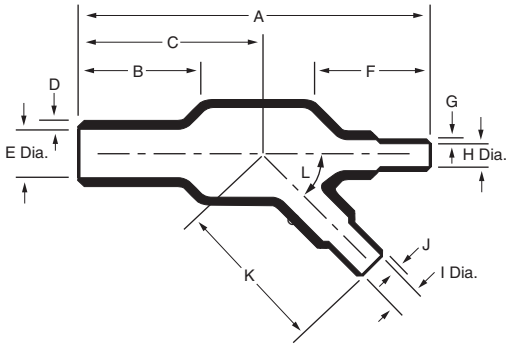
CHO-SHRINK 45° Polyolefin Transition



Chomerics Part Number*	Nominal Dimensions, inches (mm in parentheses)											
	A	B	C	D&K Dia.		E&J	F	G	H	I Dia.		L
	Recovered (±10%)	Recovered (±10%)	Recovered (±10%)	Supplied (min)	Recovered (max)	Recovered (±20%)	Recovered (±5°)	Recovered (±10%)	Recovered (±10%)	Supplied (min)	Recovered (max)	Recovered (±10%)
71-04-7230-XXXX	1.94 (49.28)	0.9 (22.86)	0.77 (19.56)	0.52 (13.21)	0.27 (6.86)	0.06 (1.52)	45	.92 (23.37)	.04 (1.02)	.269 (6.60)	.14 (3.56)	.77 (19.56)
71-04-7231-XXXX	3.64 (92.46)	1.62 (41.15)	1.25 (31.75)	1.06 (26.92)	.50 (12.70)	.10 (2.54)	45	1.41 (35.81)	.04 (1.02)	.26 (6.60)	.14 (3.56)	1.56 (39.62)
71-04-7202-XXXX	5.70 (144.78)	2.75 (69.85)	2.00 (50.80)	1.06 (26.92)	.54 (13.72)	.10 (2.54)	45	2.11 (53.59)	.06 (1.52)	.52 (13.21)	.29 (7.37)	2.00 (50.80)
71-04-7232-XXXX	7.28 (184.91)	3.28 (83.31)	2.50 (63.50)	2.19 (55.63)	1.06 (26.92)	.18 (4.57)	45	2.83 (71.88)	.06 (1.52)	.52 (13.21)	.27 (6.86)	2.50 (63.50)
71-04-7233-XXXX	8.01 (203.45)	3.76 (95.50)	2.60 (66.04)	2.19 (55.63)	1.06 (26.92)	.18 (4.57)	45	3.66 (92.96)	.10 (2.54)	1.06 (26.92)	.54 (13.72)	2.60 (66.04)

NOTE: Contact Chomerics for alternate configurations.
*XXXX will indicate adhesive/sealant option: if desired, last four digits shall be 1000; if not desired specify 0000.
Allow 0.020" (0.51 mm) nominal adhesive thickness on the "Supplied" and "Recovered" diameters.

CHO-SHRINK 45° Polyolefin Transition



Chomerics Part Number*	Nominal Dimensions, inches (mm in parentheses)												
	A	B	C	D	E Dia.		F	G&J	H&I		K	L	
	Recovered (±10%)	Recovered (±10%)	Recovered (±10%)	Recovered (±20%)	Supplied (min)	Recovered (max)	Recovered (±10%)	Recovered (±20%)	Supplied (min)	Recovered (max)	Recovered (±10%)	Supplied (±10°)	Recovered (±5°)
71-04-7234-XXXX	1.76 (44.70)	.70 (17.78)	.90 (22.86)	.06 (1.52)	.52 (13.21)	.24 (6.10)	.60 (15.24)	.04 (1.02)	.26 (6.60)	.12 (3.05)	.84 (21.34)	15	45
71-04-7226-XXXX	3.54 (89.92)	1.25 (31.75)	1.66 (42.16)	.10 (2.54)	1.06 (26.92)	.49 (12.45)	1.22 (30.99)	.06 (1.52)	.52 (13.21)	.24 (6.10)	1.68 (42.67)	15	45
71-04-7235-XXXX	7.21 (183.13)	2.80 (71.12)	3.76 (95.50)	.18 (4.57)	2.19 (55.63)	1.00 (25.40)	2.60 (66.04)	.10 (2.54)	1.06 (26.92)	.49 (12.45)	3.40 (86.36)	15	45

NOTE: Contact Chomerics for alternate configurations.
*XXXX will indicate adhesive/sealant option: if desired, last four digits shall be 1000; if not desired specify 0000.
Allow 0.020" (0.51 mm) nominal adhesive thickness on the "Supplied" and "Recovered" diameters.

CHO-SHRINK Glossary

Boot	A thick wall, molded heat shrinkable polyolefin part, with a conductive inside coating, that fits over a connector. Supplied with or without conductive hot-melt adhesive for mechanical stability and environmental sealing.
Splice	A short length of heat shrinkable polyolefin tubing with a conductive coating on the outside only. Primarily used to connect two inside coated pieces together for maintaining electrical continuity.
Transition	A thick wall, molded heat shrinkable polyolefin part, with a conductive inside coating, used at points where the cable branches (common transitions are "T" and "Y").
Tubing	A thin wall heat shrinkable polyolefin jacket with a conductive coating on the inside or outside surface (or both).

Other Cable Shielding Products Available from Chomerics

CHO-SORB®	EMI absorbers are ferrite cores which absorb emitted energy from data and power cables without affecting data transmission.
CHO-FOIL®	Shielding tape is a low cost metal foil backed with a highly conductive adhesive which provides EMI attenuation when wrapped around cables.
CHO-FAB™	Shielding tape is a low cost conductively coated fabric which provides EMI attenuation when wrapped around cables.
ZIP-EX -2®	Zippered cable shielding is a zippered or Velcro closure Ferrex® wire mesh and heavy-duty vinyl product for a shielded cable assembly suitable for wire bundles.
CHO-JAC®	Flat cable shield is an aluminum or copper foil with polyester dielectric cover for indoor flat cable shielding
SHIELD WRAP™	Knitted wire mesh tape wraps easily over cables and harnesses to reduce corona discharge in addition to providing EMI shielding.
Cable Grommets	Molded conductive elastomer components in lieu of connectors for cable shield grounding termination at enclosure walls
Connector Gaskets	Molded elastomers, screen mesh with impregnated elastomer, oriented wire in elastomer, conductive fabric over foam and conductive foam, die-cut bulkhead mount connector gaskets
Waveguide Gaskets	Molded conductive elastomers or mesh screen impregnated with conducive elastomer for standard waveguide flange gaskets

Parker - Chomerics - Who we are!

Parker Chomerics is a total solutions company built on core competencies in material science and process technology, serving as the basis for:

- **Product development**
- **Custom engineered solutions**
- **Integrated electronics housings and displays**
- **Supply chain management**

This material science and process technology is applied into many fields including EMI Shielding, Thermal Management, Optical Display Products, Engineered Plastics and Metal based Assemblies

Chomerics Worldwide

Corporate Facilities

To Place an Order Please Contact a Customer Service Representative at the Following Locations

North America
Division Headquarters
Woburn, MA
Phone +1 781-935-4850
Fax +781-933-4318
chomailbox@parker.com

Europe
High Wycombe, UK
Phone +44 1494 455400
Fax +44 14944 55466
chomerics_europe@parker.com

Saint Ouen l'Aumône, France
Phone +33 1343 23900
Fax +33 1343 25800

Asia Pacific
Shanghai PRC
Phone +86 21 2899 5000
Fax +86 21 2899 5146
chomerics_ap@parker.com

Shenzhen
Phone +86 755 8974 8558
Fax +86 755 8974 8560
chomerics_ap@parker.com

Shah Alam, Selangor, Malaysia
Phone +603 5510 9188
Fax +603 5512 6988
chomerics_ap@parker.com

Chennai India
Phone +91 44 4391 0702
chomerics_ap@parker.com

Manufacturing Facilities

Woburn, MA; Hudson, NH; Cranford, NJ ; Millville, NJ; Fairport, NY; Monterrey, Mexico; Grantham, UK; Shanghai; Sadska, Czech Republic; Shenzhen; PRC; Chennai, India.

www.chomerics.com
www.parker.com/chomerics

CHOMERICS®, CHO-SHRINK®, CHO-SORB®, CHO-FOIL®, CHO-FAB™, ZIP-EX-2®, CHO-JAC®, and SHIELD WRAP™ are registered trademarks of Parker Hannifin Corporation. © 2014-2015

TB 1065 EN July 2015

Parker | Chomerics

ENGINEERING YOUR SUCCESS.