

CHO-SHRINK® Heat Shrinkable Shielding



CHO-SHRINK Conductive Heat Shrinkable Shielding

CHO-SHRINK tubing is a heat shrinkable polyolefin tubing which provides effective EMI shielding for cables, connectors and cable/connector terminations. CHO-SHRINK offers significant weight savings over conventional metal braid shielding, and can be applied easily with standard shrink tubing heating devices.

The main feature of CHO-SHRINK tubing is Chomerics' unique conductive coating, which is applied to the surface of the tubing and which remains flexible, uniform and intact even after maximum shrinking. The coating, a silver-based system, can be applied to the inside or outside surfaces, or both. Standard CHO-SHRINK tubing is conductive on the inside only.

Standard (stocked) lengths are 4 feet (1.22 m). For longer lengths, CHO-SHRINK sections may be "spliced" together using short pieces of outside-coated tubing to maintain electrical continuity from one length to the next.

Other CHO-SHRINK products include thin-wall sleeves and molded boots, transitions and breakouts.

Ordering Procedure

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

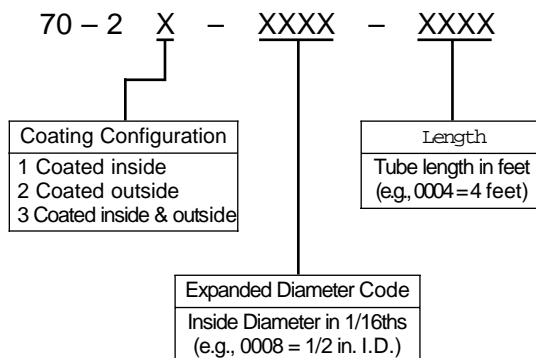
For complete information request Technical Bulletin 24.

Table 1

AVAILABLE STANDARD DIAMETERS AND WALL THICKNESSES			
Expanded Inside Diameter inches (mm)	Expanded Inside Diameter Code*	Recovered Wall Thickness inches (mm)	
1/8 (3.18)**	0002	0.020 (0.51)	
3/16 (4.76)**	0003	0.020 (0.51)	
1/4 (6.35)	0004	0.025 (0.63)	
3/8 (9.53)	0006	0.025 (0.63)	
1/2 (12.7)	0008	0.025 (0.63)	
3/4 (19.05)	0012	0.030 (0.76)	
1 (25.4)	0016	0.035 (0.89)	
1-1/2 (38.1)	0024	0.040 (1.02)	

* See ordering information. ** Two-foot maximum length.

*** Four-foot maximum length. For custom sizes contact Chomerics



Example: 70-21-0016-0004 is 4 feet of 1 in. dia. tubing coated inside.

Table 2

TYPICAL PROPERTIES	
Operating Temperature	- 66° to 275°F (- 54° to 135°C)
Shrink Temperature	250°F (121°C) (min.) 375°F (191°C) (max.)
Dielectric Strength*	
Tubing - per ASTM D876	500 V/mil
Boots - per ASTM D876	200 V/mil
Shrink Ratio	60-85%
Tensile Strength**	1500 psi (10.34 MPa)

* Recovered base material. ** After 100% recovery.

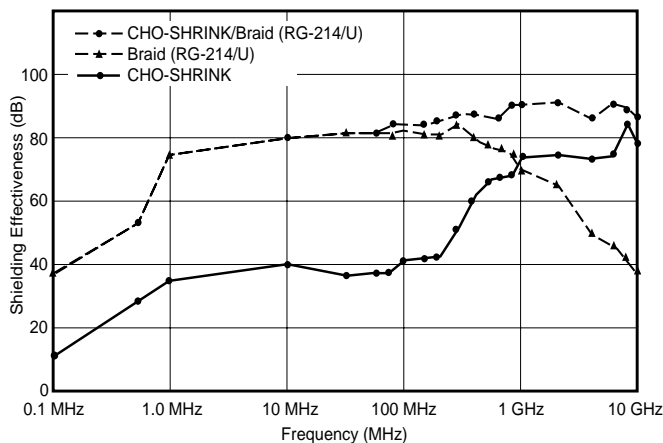


Figure 1 Shielding Effectiveness of CHO-SHRINK Compared to Wire Braid

Connector Boots and Cable Transitions

CHO-SHRINK connector boots provide EMI shielding, shield grounding and strain relief at connector backshell terminations. Chomerics' unique conductive coating applied to the inside surface assures an average of 60-80 dB of attenuation at 1 GHz.

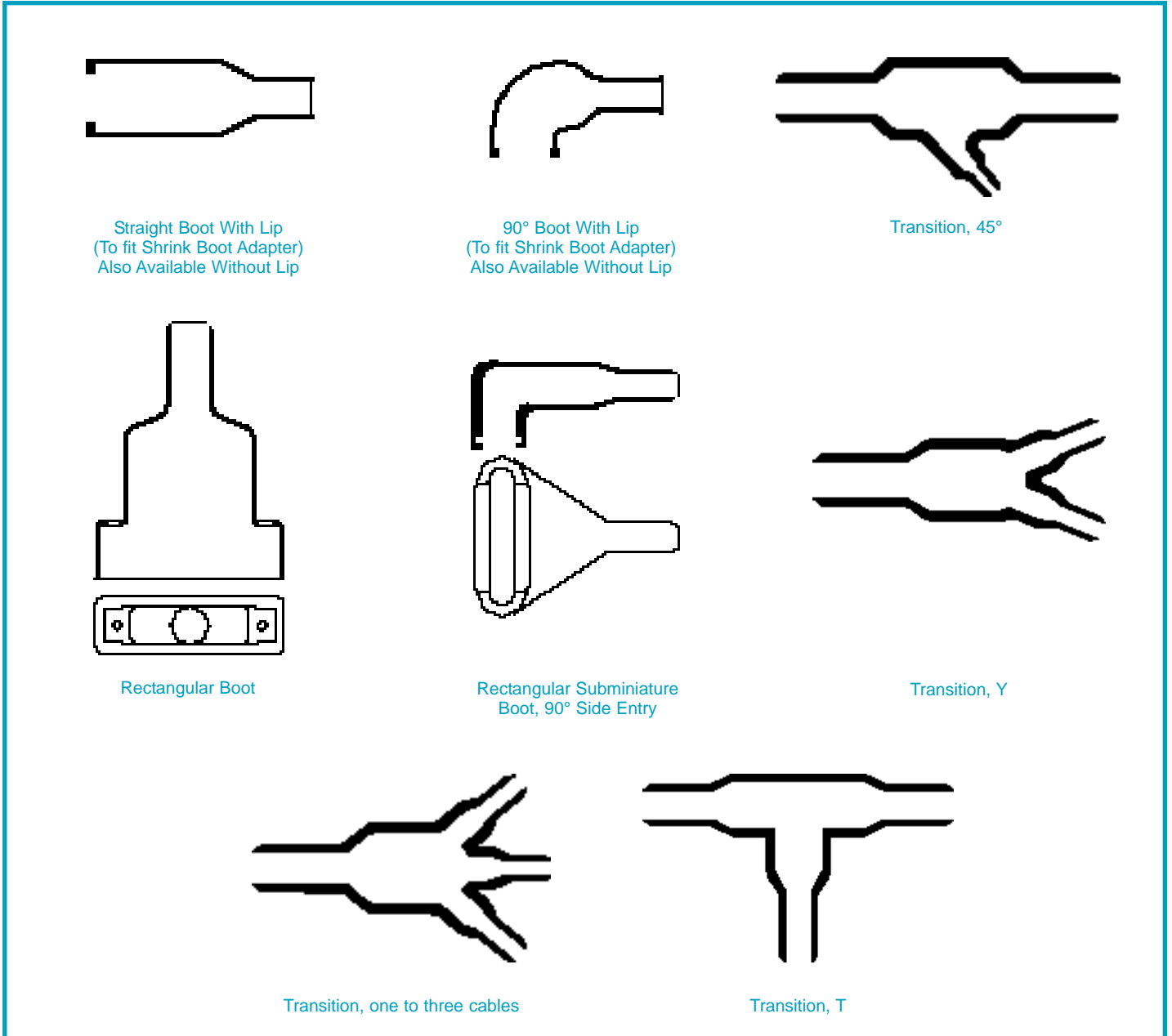
CHO-SHRINK boots shrink to a wide range of cable diameters (shrink

ratio is 4:1), and offer a 40-65% weight savings compared to metal EMI adapters. They are supplied with an optional conductive hot-melt adhesive/sealant applied to each end. For optimum mechanical strength, CHO-SHRINK lipped boots should be shrunk over shrink boot adapters which provide a knurled and grooved surface.

CHO-SHRINK polyolefin cable transitions are available in a variety

of shapes and sizes to provide shielding continuity for customized cable assemblies and harnesses.

Typical CHO-SHRINK boots and transitions are shown below. Request Technical Bulletin 24 for part number and dimensional information on these standard parts. Consult Chomerics' Applications Engineering Department for assistance in specifying and ordering specialized parts.



continued

TIPS 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

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

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

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

Figure 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.

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

Figure 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.

Figure 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.*

Figure 8 - If CHO-SEAL conductive grommets are to be used to terminate individual wire shields:

- Strip outer jacket off each wire and cut shield away leaving 1/4"-3/8" of shield exposed.
- Comb exposed shield back over jacket.

- Insert wires into grommet so that exposed shields are securely located in center of grommet.

Figure 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).*

Figure 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.

Figure 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.

