



# Raychem Molded Parts

Visual Reference Guide

Seal, Protect, and Strain-Relieve  
with Heat-Shrinkable Molded Parts in  
a Range of Shapes and Materials to  
Help Withstand Harsh Environments

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## Visual Reference Guide

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With one of the largest varieties of heat-shrinkable molded parts available, the TE Connectivity (TE) Raychem brand offers both the components and system-level solutions for complete harnesses.

This visual guide provides photos of common configurations, both in their expanded and fully recovered forms. Because the photos do not indicate relative sizes, the individual product photos are followed by family shots to show the range of each family.

Heat-shrinkable molded parts are useful for a wide range of harnessing needs, including:

- **Connector sealing**
- **Cable strain relief**
- **Cable breakouts and transitions**
- **End caps**

### TE Components . . . TE Technology . . . TE Know-how . . .

AMP | AGASTAT | CII | HARTMAN | KILOVAC | MICRODOT | NANONICS | POLAMCO | Raychem | Rochester | DEUTSCH  
SEACON Phoenix | LL ROWE | Phoenix Optix | AFP | SEACON

Get your product to market faster with a smarter, better solution.



## Molding Expertise in Materials to Work for You

Expertise in crosslinked polymer chemistry allows TE to create unique formulations that go beyond off-the-shelf polymers to provide exceptional performance in heat-shrinkable tubing, molded parts, and wire insulation and jackets.

Crosslinking and specialized chemical formulations combine to provide demanding markets with reliable high-temperature and fluid-resistant products. Not only did TE's Raychem business pioneer crosslinking and invent heat-shrinkable tubing, we have continually innovated the technology, evolving it into new materials, new applications, and new levels of performance and quality.

### HAZARD MATCHED

- Different families meet a wide range of challenging environments
- Custom material formulation for enhanced performance

### SYSTEM MATCHED

- Molded parts, adhesives, tubing, and cable insulations and jackets— all designed to work together

### VERSATILE

- Wide range of shapes and sizes
- Custom features available
- With or without pre-applied adhesive

### HIGH PERFORMANCE

- High dielectric strength
- Mechanical robustness
- Superior chemical and fluid resistance
- Wide temperature ranges
- Excellent sealing

## Matched to Your Application Needs

TE's Raychem heat-shrinkable molded parts meet a wide range of harsh environmental conditions. Mechanically robust molded parts are easy to install and available in a variety of sizes and shapes.

We have leveraged our expertise in materials well suited to applications requiring:

- **Low and high-temperature environments**
- **Fluid resistance**
- **Flame resistance**
- **Mechanical abuse**
- **Environmental sealing**
- **Strain relief**
- **Transitions**





## A System-Level Approach to Harnessing

Engineered component systems of matched performance is the key to simplifying product choice for a variety of markets. From commercial applications to high-end demands in the aerospace industry, TE has a variety of material systems designed to survive the temperature and harsh environments required by the various markets.

### Systems

Components	System 10	System 20	System 25	System 30	System 100	System 200	System 300
Tubing	VERSAFIT	NTFR	DR-25	VPB	ZHTM	RW-200	RT555
Molded Part	-3,-4,-71	-51	-25, -25L	-50	-100	-12	-55
Adhesive	S1017, S1030	S1124, S1048	S1048, S1125	S1125, S1255-04	S1030, S1125	S1125, S1255-04	S1255-04
Precoat	/42, /180	/164, /86	/86, /225	—	/180	—	—



### INSTALITE Lightweight Molded Parts

INSTALITE boots are a lighter weight alternative of our -25 heat-shrink boots. Using our expertise in fluid-resistant, modified elastomers, we've created semi-rigid, abrasion-resistant boots that are up to 30% lighter than our standard -25 boots. INSTALITE boots offer the same balance of high-temperature fluid resistance and long-term heat resistance.



## Shaped to Your Needs

Also available is an extensive line of adapters and heat-shrinkable tubing to further integrate and strengthen harness assemblies.

Whatever your application, our molded parts almost always meet the performance characteristics you require.



### BULBOUS SHAPES

Raychem bulbous-shaped molded parts are VG approved and help provide rugged mechanical and environmental protection, meet numerous specifications, and have been used successfully in military wire and cable harnesses for more than 30 years.

Most connector strain relief boots come in two versions:

- **Lipped** A molded adapter lip locks into the groove on the backshell adapter. Lipped part numbers are identified with a "D" or "K."
- **Nonlipped** The boot may be installed directly on the rear of connector threads 12 mm or longer. Nonlipped part numbers are identified with an "A."

Many other optional features are available, such as molded ports and drain holes. For other modifications and custom shapes, please contact TE.



### MODIFICATIONS

Certain variations of the standard shapes, such as shorter leg lengths or specific overexpansions, are possible. Modifications must be requested prior to your order to determine feasibility.

### SPECIALS

Complete design, tooling, and production of custom molded shapes and special adaptations are also possible. Estimates are made upon request.



### HEAVY-DUTY CABLE BREAKOUTS

Heavy-duty breakouts provide mechanical strain relief and environmental sealing for power cables where the cable jacket is cut back and conductors broken out.

These boots are used widely in ship building and meet the requirements of the following:

- Lloyd's Register of Shipping
- Det Norske Veritas (DNV)
- American Bureau of Shipping (ABS)
- DOD-STD-2003
- MIL-I-81765/1A
- AS85049/142

### SLIM-LINE SHAPES

With their low profile, these flexible shapes conform to cables better and create less bulk at transition points and connectors than bulbous shapes. Slim-line shapes include straight and right-angle boots as well as transitions. A small family of parts can provide a wide variety of expansions (under expansion, over expansion, cutoff).

### MICROMOLDED SHAPES

With the continued miniaturization of electronic systems and connectors, our micromolded parts offer weight and size savings—and compatibility with today's miniature parts.

### CABLE END CAPS

Heat-shrinkable end caps provide a reliable method of sealing power cables, pipes, conduit, and other cylindrical objects to help protect against corrosion and moisture penetration.

### Rayaten EMI SHIELDED BOOTS

The Rayaten screen termination is a range of heat-shrinkable boots, transitions, and conductive adhesives that provide high levels of screening against electromagnetic radiation across a very wide frequency range.







Material ID	Material	Temperature Range	Shelf Life	TE Raychem Specification
<b>Ruggedized Materials</b>				
-3	Flame-retardant, semi-rigid polyolefin	-55°C to +135°C	5 years	RT-301
-4	Flame-retardant, flexible polyolefin	-55°C to +135°C	5 years	RT-1304
-12	Flexible, chemical-resistant fluoroelastomer	-55°C to +200°C	3 years	RT-1312
-25	Fluid resistant modified, semi-rigid elastomer	-75°C to +150°C	5 years	RW-2070
-25L	Light weight, flame-retardant, semi-rigid, elastomer	-75°C to 150°C	5 years	RW-3040
-71	Semi-rigid modified polyolefin	-55°C to 135°C	5 years	RT-1316
-100	Zerohal low-fire-hazard material	-30°C to +105°C	5 years	RW-2082
<b>Slim-Line Materials</b>				
-50	Fluid-resistant modified elastomer	-55°C to +150°C	15 months	RT-1313
-51	Chemical-resistant fluoroelastomer	-55°C to +135°C	15 months	RT-1321
-55	Flexible fluoropolymer	-65°C to +200°C	Unlimited	RT-1330
<b>Chemical, Biological, Radiation, Nuclear-Resistant Materials</b>				
-770	CBRN fluoropolymer	-55°C to +125°C	3 years	RT-770 Type II
-780	CBRN fluoropolymer	-55°C to +175°C	5 years	RT-780 Type II
-790	CBRN fluoropolymer	-55°C to +200°C	5 years	RT-790 Type II





## Adhesive/Sealant Product Characteristics Tables

Product Type	Precoat Designation	Type	Operating Temperature Range	Product Designation	Available Form/Packaging
<b>Thermosets</b>					
<b>S1006</b>		Epoxy/polyamide two-part paste	-55°C to 135°C [-67°F to 275°F]	S1006 Kit 1	Two 15-gram packs
				S1006 Kit 2	Four 7.5-gram packs
				S1006 Kit A	Ten 3-gram packs
<b>S1009</b>	—	Epoxy/polymercaptan two-part paste	-55°C to 135°C [-67°F to 275°F]	S1009 Kit A	Ten 3-gram packs
				S1009 Kit 8	50-ml dual syringe
<b>S1255-04</b>	—	One-part epoxy tape adhesive	-55°C to 200°C [-67°F to 392°F]	S1255-04	Tape [3/4 in. x .020 x 100 ft.]
<b>S1125</b>	—	Epoxy/polyamide two-part paste	-55°C to 150°C [-67°F to 302°F]	S1125 Kit 1	Five 10-gram packs
				S1125 Kit 2	Two 10-gram packs
				S1125 Kit 4	Five 10-gram packs
				S1125 Kit 5	One 10-gram pack
				S1125 Kit 8	50-ml dual syringe
<b>S1264</b>	—	Epoxy/polyamide two-part paste	-55°C to 150°C [-67°F to 302°F]	S1264 Kit 1	One 10-gram pack
				S1264 Kit 8	50-ml dual syringe
	/225	Precoated latent-curing epoxy/polyamide	-75°C to 150°C [-103°F to 302°F]	Precoat only on -25 molded parts	—
<b>Thermoplastics</b>					
<b>S1017</b>	/42	Hot-melt, polyamide	-20°C to 60°C * [-4°F to 140°F]	S1017	Tape [1 in. x .010 in. x 50 ft.]
<b>S1030</b>	/180	Hot-melt, polyolefin	-80°C to 80°C [-112°F to 176°F]	S1030	Tape [3/4 in. x .010 in. x 33 ft.]
<b>S1048</b>	/86	Hot-melt, high performance	-55°C to 120°C [-67°F to 248°F]	S1048	Tape [1 in. x .026 in. x 100 ft.]
<b>S1124</b>	/164	Hot-melt, elastomeric polymer	-55°C to 105°C [-67°F to 221°F]	S1124	Tape [3/4 in. x .018 in. x 10 ft.]
<b>S1297</b>	/97	Hot-melt, polyamide adhesive	-20°C to 90°C [-4°F to 194°F]	S1297	Tape [1 in. x .010 in. x 10 ft.]
<b>Sealants</b>					
<b>S1278</b>	—	Hot-melt grey butyl sealant	-40°C to 90°C [-40°F to 194°F]	S1278-01	Tape [1 in. x .062 in. x 25 ft.]
				S1278-02	Tape [3-3/4 in. x .125 in. x 10 ft.]
<b>S1305</b>	—	Hot-melt grey butyl sealant, FR	-40°C to 90°C [-40°F to 194°F]	S1305-01	Tape [1 in. x .062 in. x 25 ft.]

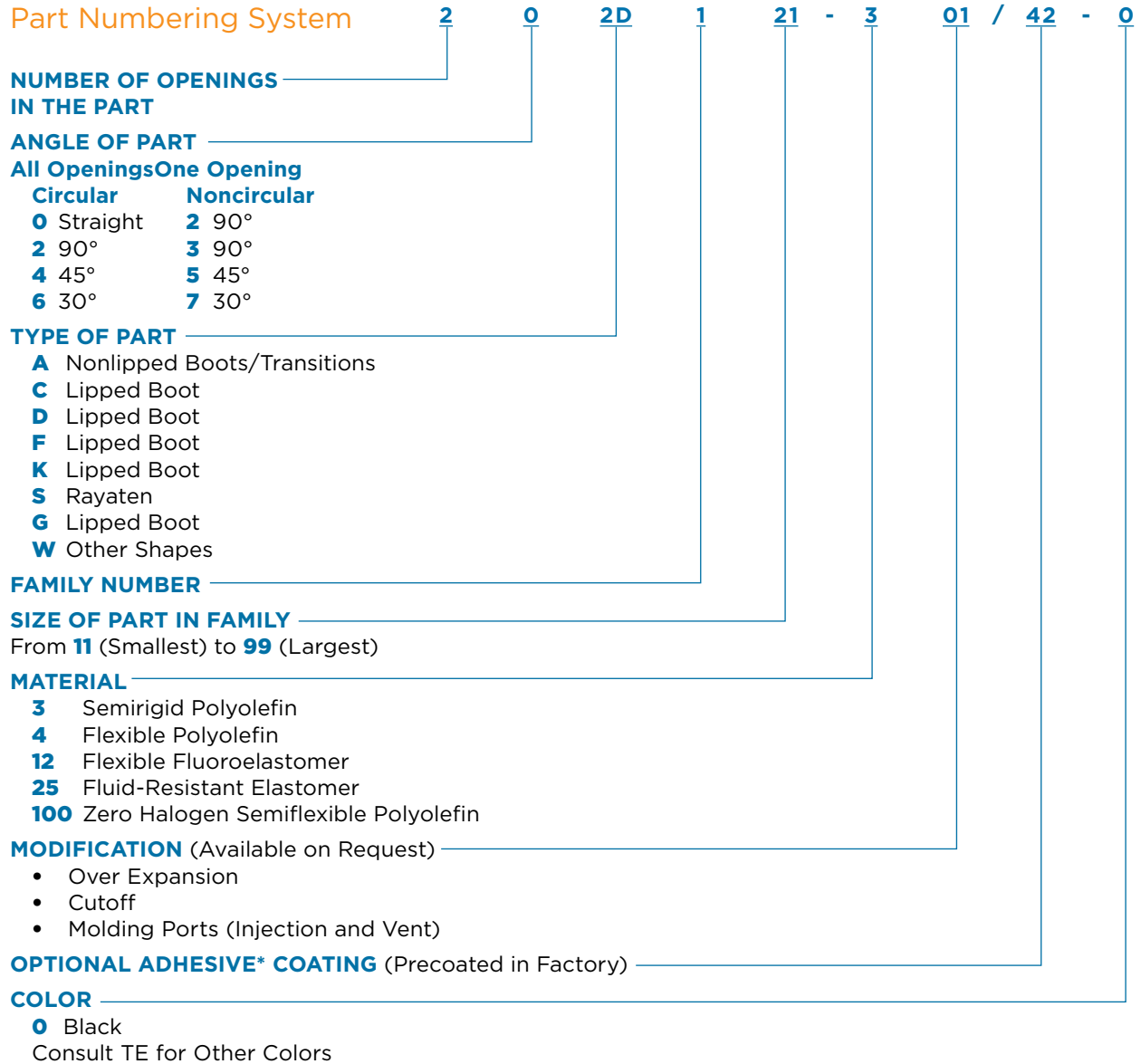
\*Passes cold bend at -40°C [-40°F] per RT-4204.

For full details on installation procedures and curing conditions, please refer to the applicable TE Code of Practice or installation document.





Part Numbering System





Visual Reference

**Lipped Boots**  
For Use with Adapters

As Supplied	Recovered	Part No.	As Supplied	Recovered	Part No.
		202D121 through 202D196			202D211 through 202D299
		202D921 through 202D963			202K121 through 202K185
		222B012 through 222B063			222B112 and 222B123
		222D121 through 222D196			222D211 through 222D299
		222D921 through 222D963			222K121 through 222K185
		242A312 and 242A322			

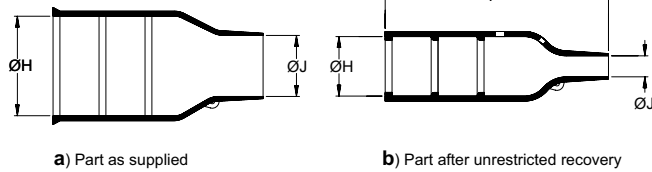


**Available in INSTALITE -25L Material**  
Many of the shapes shown above are available as INSTALITE lightweight boots. Consult TE.

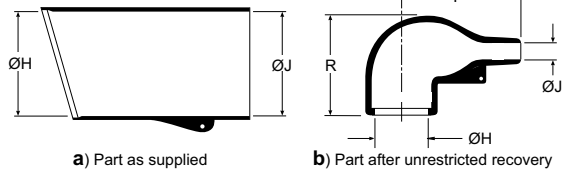


## Boot Selection Tables

### Straight Parts



### Right-Angle Parts



Dimensions relate to -3, -4, -25 compounds, unless otherwise noted.  
For expanded dimensions of -12 and -100 parts, please refer to latest TE drawing on TE.com

## Lipped Molded Parts

### 202K Bulbous Straight Parts: VG Style

Part No.	H		J		P ±10%
	Min.	Max.	Min.	Max.	b
	a	b	a	b	
202K121	24 [0.95]	10.4 [0.41]	24 [0.95]	5.6 [0.22]	38 [1.50]
202K132	30 [1.18]	14.2 [0.56]	30 [1.18]	5.9 [0.23]	55 [2.17]
202K142	31 [1.22]	18.0 [0.71]	31 [1.22]	7.1 [0.28]	67 [2.64]
202K153	36 [1.42]	22.4 [0.88]	36 [1.42]	8.4 [0.33]	80 [3.15]
202K163	43 [1.69]	28.2 [1.11]	43 [1.69]	9.9 [0.39]	99 [3.90]
202K174	60 [2.36]	35.1 [1.38]	60 [2.36]	15.7 [0.62]	130 [5.12]
202K185	66 [2.60]	44.5 [1.75]	66 [2.60]	16.8 [0.66]	170 [6.69]

### 222K Bulbous Right-Angle Parts: VG Style

Part No.	H		J		P ±10%	R ±10%
	Min.	Max.	Min.	Max.	b	b
	a	b	a	b		
222K121	24 [0.95]	10.4 [0.41]	24 [0.95]	5.6 [0.22]	25 [0.98]	25 [0.98]
222K132	30 [1.18]	14.2 [0.56]	30 [1.18]	5.9 [0.23]	32 [1.26]	27 [1.06]
222K142	31 [1.22]	18.0 [0.71]	31 [1.22]	7.1 [0.28]	39 [1.54]	31 [1.22]
222K153	36 [1.42]	22.4 [0.88]	36 [1.42]	8.4 [0.33]	46 [1.81]	38 [1.50]
222K163	43 [1.69]	28.2 [1.11]	43 [1.69]	9.9 [0.39]	55 [2.17]	45 [1.77]
222K174	60 [2.36]	35.1 [1.38]	60 [2.36]	15.7 [0.62]	80 [3.15]	54 [2.13]
222K185	66 [2.60]	44.5 [1.75]	66 [2.60]	16.8 [0.66]	108 [4.25]	68 [2.68]

## Nonlipped Molded Parts

### 202A Straight Parts

Part No.	H		J		P ±10%
	Min.	Max.	Min.	Max.	b
	a	b	a	b	
202A011	10.7 [0.42]	7.9 [0.31]	8.4 [0.33]	3.8 [0.15]	25.4 [1.00]
202A021	23.7 [0.54]	9.9 [0.39]	11.7 [0.46]	5.3 [0.21]	38.1 [1.50]
202A032	19.3 [0.76]	14.2 [0.56]	14.2 [0.56]	6.6 [0.26]	51.3 [2.02]
202A042	23.9 [0.94]	17.8 [0.70]	15.5 [0.61]	7.4 [0.29]	66.8 [2.63]
202A053	30.0 [1.18]	21.9 [0.86]	18.0 [0.71]	8.6 [0.34]	73.7 [2.90]
202A063	37.8 [1.49]	27.4 [1.08]	21.3 [0.84]	9.4 [0.37]	99.1 [3.90]
202A074	47.0 [1.85]	35.3 [1.39]	35.6 [1.40]	16.0 [0.63]	130.3 [5.13]
202A085	59.4 [2.34]	43.7 [1.72]	43.7 [1.72]	19.6 [0.77]	161.3 [6.35]
202A096	81.3 [3.20]	57.2 [2.25]	55.6 [2.19]	26.9 [1.06]	212.6 [8.37]