# Heatshrink

NorthAmerican
Product Guide

## Moulded Shapes

HellermannTyton

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## NOTE

IN LINE WITH CUSTOMER DEMAND AND IN ORDER TO IMPROVE SERVICE, HELLERMANNTYTON HAS NOW ESTABLISHED A RANGE OF STANDARD PRODUCTS. THESE PRODUCTS AND MATERIALS ARE SHOWN ON THE RELEVANT PRODUCT PAGES AND ARE INDICATED*.

PLEASE CONTACT YOUR LOCAL SALES PERSON FOR AVAILABILITY.

# SELECTION GUIDE FOR MOULDED SHAPES

HellermannTyton heatshrink moulded shapes are available in a variety of materials with a range of options. Using this guide you can select the optimum product to suit your application.

## 1. MATERIAL

Parts can be supplied in a wide variety of materials. The product data sheets reflect material availability for each specific part. Listed below is a summary of the material specifications.

To assist in your final selection, please refer to the full material specifications on pages 6-7.

### HELLERMANNTYTON MOULDED SHAPES: MATERIALS SELECTION GUIDE

| Material Reference | Description | Flame Retarded | Continuous Operating Temperature °C | Miniumum Shrink Temperature °C | Specifications | Characteristics | Typical Applications |
|---|---|---|---|---|---|---|---|
| B7 | Semi-rigid flame-retarded polyolefin | Yes | -55 to +135 | +135 | MIL-I-81765/1 TYPE 1 (DEF 59-97) BSG198 Pt 5 | Good physical & chemical resistance | Military & general high performance harnessing |
| G | Fluid resistant elastomer | Yes | -75 to +150 | +135 | VG95343Pt6 (DEF 59-97) BSG198 Pt 5 | Excellent resistance to fuels | Military & general high performance harnessing |
| J | Flexible Modified Polyolefin | Yes | -55 to +135 | +135 | MIL-I-81765/1 TYPE 2 (DEF 59-97) BSG198 Pt 5 | Flexible | Military & general high performance harnessing |
| H | Flexible limited fire hazard material | Yes | -55 to +105 | +135 | NAVSEA5617649 (DEF 59-97) BSG198 Pt 5 | Low smoke, halogen free | Ships, submarines & railways |
| B8 | Semi-rigid polyolefin | Yes | -55 to +100 | +135 | ESI-0911 | Good physical & reasonable multi outlet | Power/Utility breakout boots |
| L | Flexible modified Fluorocarbon | Yes | -55 to +200 | +175 | Conforms to MIL-I-81765/4 (DEF 59-97) BSG198 Pt 5 | Excellent phyisical & chemical resistance | Fuel tanks and jet engines |
| 9 | Flexible Modified Elastomer | Yes | -55 to +120 | +135 | SCX15112 | Good physical & chemical resistance | Military & general high performance harnessing |
| 8 | Flexible cross-linked modified fluoroelastomer blend | Yes | -55 to +150 | +135 | SCX15111 | Excellent physical & chemical resistance | Military high performance harnessing |
| 6 | Flexible Modified Polyolefin | Yes | -55 to +120 | +135 | SCX15112 | Flexible, good physical & chemical resistance | General harnessing applications |

N.B. The standard color is black but for other specialised requirements, such as red for armaments systems or blue for commercial applications, please consult your local sales person.

## 2. ADHESIVES

Moulded shapes can be ordered with the option of an adhesive lining. The options are:

- WM250 – Hot melt adhesive. Operating temperature range -50°C to +80°C
- W1 – WM250 adhesive applied to NAVSEA specification requirements
- W8 – High temperature hot melt adhesive. Operating temperature range -55°C to +120°C
- W24 – One part epoxy. Operating temperature range -75°C to +200°C
- W2- Spiral lined Hot melt adhesive. operating temperature range -50°C to+80°C

For further details on specifications and properties including epoxy adhesives, see page 8-9.

## 3. SPECIAL MODIFICATIONS

Fillerports and drainholes are also available where it is desired to inject sealant.

P= Filler ports for potting - 0.12 inch ø vent and 0.18 inch ø filler.

D= Drain holes 4 off - 0.12 inch ø at H end equally spaced 90° apart.

## 4. PRODUCT STYLE AND SIZE

Good working practice dictates that the shape should be selected so that when it is shrunk onto the component it is 20% larger than the fully recovered dimensions stated in the catalogue.

If you have any application not covered by our standard range, please refer to your local sales person.

### 6. ORDERING PROCEDURE

When ordering heatshrink shapes, it is necessary to give a complete part number to enable efficient processing of your order. Part numbers can be made up of the following typical components:-

154 - 42 - G - P - W8

- W8: Denotes the presence and type of adhesive.
- P: For filler ports, add suffix 'P' or 'D' for drain holes.
- G: Denotes material reference. L compuond shapes refere to factory when ordering
- 42: Denotes expansion and special details.
- 154: Denotes the exact shape.

# MATERIAL TESTS AND TYPICAL PROPERTIES

| MATERIAL REFERENCE | B7 | G | J | H |
|---|---|---|---|---|
| **DESCRIPTION** | Semi-rigid flame retarded polyolefin | Fluid resistant elastomer | Flexible modified polyolefin | Flexible limited fire hazard material |
| **MINIMUM SHRINK TEMP °C** | +135 | +135 | +135 | +135 |
| **TEMPERATURE RANGE °C** | -55 to +135 | -75 to +150 | -55 to +135 | -55 to +105 |
| **STANDARD COLOUR** | Black | Black | Black | Black |
| **UK DEF STAN 59-97 REF** | DA | DE | DB | DF |
| **RELEVANT SPECIFICATIONS** | Qualified to MIL-I-81765/1 Type 1 Semi-rigid Qualified to BSG198 Pt5 Issue 3 Type DA NAVSEA IA62 | Qualified to VG95343 Part 6 Qualified to BSG198 Pt5 Issue 3 Type DE | Qualified to MIL-I-81765/1 Type II Flexible Qualified to BSG198 Pt5 Issue 3 Type DB | Qualified to VG95 343 Pt29 Issue 3 Type DF Conforms to NAVSEA 5617649 |

**TYPICAL PROPERTIES**

| | | | | |
|---|---|---|---|---|
| TENSILE STRENGTH | 1885 psi | 2175 psi | 2030 psi | 1450 psi |
| ELONGATION | 500% | 580% | 610% | 450% |
| HEAT AGEING ELONGATION | 168 hours at +175°C 350% | 168 hours at +160°C 500% | 168 hours at +175°C 460% | 168 hours at +150°C 430% |
| HEAT SHOCK | 4 hours at +225°C No dripping, flowing or cracking | 4 hours at +215°C Tensile Strength: 2320 PSI; Elongation: 550% | 4 hours at +215°C No dripping, flowing or cracking | 4 hours at +215°C No dripping, flowing or cracking |
| LOW TEMPERATURE FLEXIBILITY | Test temperature: -55°C No cracking | Test temperature: -75°C No cracking | Test temperature: -55°C No cracking | Test temperature: -55°C No cracking |
| FLAMMABILITY | Self extinguishes within 0.60 inch | Self extinguishes within 0.60 inch | Self extinguishes within 0.60 inch | Self extinguishes within 0.60 inch |
| DIELECTRIC STRENGTH | 560V/mil | 560V/mil | 480V/mil | 480V/mil |
| WATER ABSORPTION | 0.1% | 0.1% | 0.13% | 0.2% |

**SOLVENT RESISTANCE**

| | | | | |
|---|---|---|---|---|
| SALINE | Excellent | Excellent | Excellent | Excellent |
| HYDRAULIC FLUID | Very Good | Very Good | Good | Good |
| LUBRICATING OIL | Very Good | Very Good | Good | Good |
| AVIATION FUEL | Good | Very Good | Fair | Fair |
| AUTOMOTIVE FUEL | Good | Very Good | Fair | Fair |
| DIESEL FUEL | Good | Very Good | Fair | Fair |
| DE-ICING FLUID | Excellent | Excellent | Very Good | Very Good |

**TEST METHODS:** Tensile strength: IEC 540
Elongation: IEC 540
Heat Ageing: IEC 540
Heat Shock: ASTM D2671
Low Temperature Flexibility: ASTM D2671 Method C
Flammability: ASTM D635
Dielectric Strength: ASTM D2671
Water Absorption: ASTM D570

| B8 | L | -9 | -8 | -6 |
|---|---|---|---|---|
| Semi-rigid polyolefin | Flexible modified fluorocarbon | Modified Elastomer | Flexible cross-linked modified fluoroelastomer blend | Flexible modified polyolefin |
| +135 | +175 | +135 | +135 | +135 |
| -55 to +100 | -55 to +200 | -55 to +120°C | -55 to +150 | -55 to +120°C |
| Black | Black | Black | Black | Black |
| - | DD | N/A | - | N/A |
| ESI 09-11 for UK Electricity Boards | Conforms to BSG 198 Pt5 Issue 3 Type DD Conforms to MIL-1-81765/4 | Qualified to SCX 15112 | Qualified to SCX15111 | Conforms to MIL-1-81765/1 Type 1+2 |

| | | | | |
|---|---|---|---|---|
| 2175 psi | 1700psi | 1700 psi | 3000 psi | 1700 psi |
| 500% | 300% | 500% | 450% | 500% |
| 168 hours at +175° 520% | 168 hours at +250°C 250% | 168 hours at +100°C 300% | 168 hours at +150° 350% | 168 hours at +100°C 300% |
| 4 hours at +225°C No dripping, flowing or cracking | 4 hours at +250°C No dripping, flowing or cracking | N/A | N/A | N/A |
| Test temperature: -55°C No cracking | Test temperature: -55°C No cracking | Test temperature: -60°C No cracking | Test temperature: -60°C No cracking | Test temperature: -60°C No cracking |
| Self extinguishes within 1 inch | Non-burning (Self extinguishes within 0.60 inch) | Self extinguishes within 0.60 inch | Self extinguishes within 0.60 inch | Self extinguishes within 0.60 inch |
| 440V/mil | 200V/mil | 600V/mil | 650V/mil | 600V/mil |
| 0.3% | 0.5% (24hrs at 23°C) | 0.15% | 0.15% | 0.15% |

| | | | | |
|---|---|---|---|---|
| Excellent | Very Good | Excellent | Excellent | Excellent |
| Good | Excellent | Good | Very Good | Good |
| Very Good | Excellent | Good | Very Good | Good |
| Fair | Excellent | Fair | Very Good | Fair |
| Fair | Excellent | Fair | Very Good | Fair |
| Fair | Excellent | Fair | Very Good | Fair |
| Very Good | Excellent | Very Good | Excellent | Very Good |

**ADDITIONAL PROPERTIES OF LIMITED FIRE HAZARD MATERIAL (H)**

| | |
|---|---|
| Toxicity Index: 1.9 | Test method: NES 713 |
| Smoke Index: 9.0 | Test method: NES 711 |
| Temperature Index: 250 | Test method: NES 715 |
| Oxygen Index: 31.4 | Test method: ISO 4589 |

# TYPICAL PROPERTIES AND TESTS FOR ADHESIVES COATED TO ELECTRONIC PARTS

| TYPE | WM250/W2-pre-applied | TSA-200<br>* Not pre-coated | -109 |
|---|---|---|---|
| **DESCRIPTION** | WM250/W2 is a hot melt adhesive which has an operating range of -50°C to +80°C.Product is Halogen free | Thermoset adhesive operating temperature -55°C+125°C | Reactive hot melt adhesive which has an operating temperature range of -55°C to +125°C |
| **RELEVANT SPECIFICATION** | Conforms to BSG 198 Pt5 | Conforms to BSG198 Pt5 | Conforms to Def.Stan 59-97 issue 3 Type S |
| **SOFTENING POINT** | +95°C | N/A | N/A |
| **CURE TIME** | N/A | 30 minutes at +150°C | 30 minutes at 150°C or 2hrs at 80°C |
| **PEEL STRENGTH** | XLPE/Metal 33lbs/inch<br>XLPE/XLPE 18lbs/inch | XLPE/Metal 35lbs/inch<br>XLPE/XLPE 25lbs/inch | XLPE / METAL 37lb/inch<br>XLPE / METAL 37lb/inch<br>PVC / PVC 14lb/inch |
| **DYNAMIC SHEAR**<br>**Backshell / boot / cable**<br>**Shell size 22** | 80lbs at +23°C | 120lbs at +23°C | 78lb at 23°C |
| **LAP SHEAR**<br>**Area - (1/2" x 1")** | XLPE/Metal 44lbs at +23°C | XLPE/Metal<br>55lbs 4hrs/+215°C | XLPE / METAL 56lb<br>XLPE / XLPE 60lb<br>PVC / PVC 15lb |
| **THERMAL SHOCK**<br>**Peel Strength** | N/A | XLPE/XLPE 22lbs/inch | N/A |
| **SOLVENT RESISTANCE** | Fair under splash conditions | Excellent | Excellent under splash conditions |
| **APPLICATION** | Good general purpose adhesive bonds to most materials | Excellent for fluid resistant applications | Reactive Hot melt adhesive that is primarily used with low profile shapes |

| W24 - Pre applied | W8 - Pre-applied / -450 | V9500<br>* Not pre-coated |
|---|---|---|
| W24 is a factory coated high performance epoxy adhesive. Operating temperature of -75°C to +200°C | W8 is a modified polyamide hot melt adhesive which has an operating temperature of -55°C to +120°C. Product is Halogen free | V9500 is a two part black epoxy adhesive which has an operating temperature of -75°C to +150°C. |
| Conforms to BSG 198 Pt5 Type Qualified to VG95343 Part 18 | Conforms BSG 198 Pt5 | Conforms BSG 198 Pt5 Qualified to VG95343 T15A 0001 |
| – | +105°C | – |
| 50% of bond strength achieved when cool to enable movement of Harnesses. Ultimate strength reached in 7 days | N/A | Product cures to a tack free condition in 24 hours at +25°C. Heating the assembly for 2 hours at +85°C will produce accelerated curing |
| XLPE/Metal 22lbs/inch<br>XLPE/XLPE 30lbs/inch | XLPE/XLPE 20lbs/inch | XLPE/XLPE 25lbs/inch |
| 330lb at +23°C | 77lbs at +23°C | 120lbs at +23°C |
| Al/Al 1540lb at 23°C<br>Al/Al 220lbs/inch | XLPE/Metal 40lbs at +23°C | Metal/Metal 1540lbs at +23°C |
| 4 hours at 215°C<br>XLPE/XLPE 22lbs/inch | N/A | 4 hours / +215°C<br>XLPE/XLPE 22lbs/inch |
| De-icing Fluid – Excellent<br>Petrol – Excellent<br>Lubricating Oil – Excellent<br>Hydraulic Fluid – Excellent | Fair under splash conditions | De-icing Fluid - Excellent<br>Gasoline - Excellent<br>Lubricating Oil - Excellent<br>Hydraulic Fluid - Excellent |
| Flexible epoxy adhesive. For fluid resistant and use in harsh environments and elevated temperatures. Excellent fluid resistance. performs well in harsh environments and at elevated temperatures | High temperature hot melt. Bonds well to polythene and metals. Compliments -H material | Excellent for fluid resistant applications |

HellermannTyton

# Low Profile Boots and Transitions

Moulded Shapes

# INTRODUCTION TO LOW PROFILE SHAPES

## HEAT-SHRINKABLE LOW PROFILE SHAPES U.S. MILITARY VEHICLE TACOM CROSS REFERENCE

| Description | Government Ordnance No. | Part No. | Government Ordnance No. | Part No. |
|---|---|---|---|---|
| Straight Boot | 12273147-120 | 313F322-9 | 12273147-130 | 313F322-8 |
| | 12273147-220 | 313F332-9 | 12273147-230 | 313F332-8 |
| | 12273147-320 | 313F343-9 | 12273147-330 | 313F343-8 |
| | 12273147-420 | 313F353-9 | 12273147-430 | 313F353-8 |
| | 12273147-520 | 313F364-9 | 12273147-530 | 313F364-8 |
| | 12273147-620 | 313F374-9 | 12273147-630 | 313F374-8 |
| | 12273147-720 | 313F385-9 | 12273147-730 | 313F385-8 |
| Right Angle Boot | 12273176-120 | 333F322-9 | 12273176-130 | 333F322-8 |
| | 12273176-220 | 333F332-9 | 12273176-230 | 333F332-8 |
| | 12273176-320 | 333F343-9 | 12273176-330 | 333F343-8 |
| | 12273176-420 | 333F353-9 | 12273176-430 | 333F353-8 |
| | 12273176-520 | 333F364-9 | 12273176-530 | 333F364-8 |
| | 12273176-620 | 333F374-9 | 12273176-630 | 333F374-8 |
| | 12273176-720 | 333F385-9 | 12273176-730 | 333F385-8 |
| Convolute Boot | 12273242-110 | 313C722-9 | 12273242-120 | 313C722-8 |
| | 12273242-210 | 313C732-9 | 12273242-220 | 313C732-8 |
| | 12273242-310 | 313C743-9 | 12273242-320 | 313C743-8 |
| | 12273242-410 | 313C753-9 | 12273242-420 | 313C753-8 |
| | 12273242-510 | 313C764-9 | 12273242-520 | 313C764-8 |
| | 1271867-610 | 313C774-9 | | |
| Transition “T” | 12273162-110 | 412H622-9 | 12273162-120 | 412H622-8 |
| | 12273162-210 | 412H623-9 | 12273162-220 | 412H623-8 |
| | 12273162-310 | 412H624-9 | 12273162-320 | 412H624-8 |
| | 12273162-410 | 412H625-9 | 12273162-420 | 412H625-8 |
| Transition “Y” | 12273148-110 | 492H412-9 | 12273148-120 | 492H412-8 |
| | 12273148-210 | 492H413-9 | 12273148-220 | 492H413-8 |
| | 12273148-310 | 492H414-9-01 | 12273148-320 | 492H414-8-01 |
| | 12273148-410 | 492H415-9-01 | 12273148-420 | 492H415-8-01 |
| Shim Boot | 12273164-110 | 313E445-9 | 12273164-120 | 313E445-8 |
| | 12273164-210 | 313E455-9 | 12273164-220 | 313E455-8 |
| | 12273164-310 | 313E447-9 | 12273164-320 | 313E447-8 |
| | 12273164-410 | 313E457-9 | 12273164-420 | 313E457-8 |
| Transition 3 to 1 | 12273163-110 | 573H532-9 | 12273163-120 | 573H532-8 |
| | 12273163-210 | 573H533-9 | 12273163-220 | 573H533-8 |
| | 12273163-310 | 573H534-9 | 12273163-320 | 573H534-8 |
| | 12273163-410 | 573H535-9 | 12273163-420 | 573H535-8 |

All crosses are accurate and true and based on revisions that were currently available, all references should be checked against latest revisions/drawings before ordering

# 313C722-774

## CONVOLUTED BOOT, LOW PROFILE WITH ADAPTER LIP

This style is used with a circular grooved adapter to provide strain relief and, if adhesive is used, environmental sealing.

The convoluted design provides the flexibility to accommodate different cable outlet angles.

**EXPANDED, AS SUPPLIED, PART**

**FULLY RECOVERED PART (AFTER HEATING)**

1. All dimensions are in inches – all angles in degrees.
2. Dimensions in table:
   X = Expanded (minimum);
   R = Recovered (maximum)
3. Colour: Black

| Part Number | H DIA | | J DIA | | P ±10% R | R MAX R | JO ±10% R | W MIN R | B NOM R | T ±0.03 R | S ±.03 R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MIN X | MAX R | MIN X | MAX R | | | | | | | |
| 313C722 | 0.56 | 0.27 | 0.44 | 0.19 | 4.75 | 0.83 | 0.69 | 0.060 | 2.46 | 0.05 | 0.06 |
| 313C732 | 0.88 | 0.46 | 0.70 | 0.32 | 5.25 | 1.05 | 0.78 | 0.060 | 2.67 | 0.05 | 0.06 |
| 313C743 | 1.34 | 0.69 | 1.06 | 0.50 | 5.75 | 1.29 | 0.88 | 0.060 | 2.89 | 0.05 | 0.07 |
| 313C753 | 1.74 | 0.88 | 1.44 | 0.69 | 6.25 | 1.49 | 1.00 | 0.060 | 3.08 | 0.05 | 0.07 |
| 313C764 | 2.12 | 1.10 | 1.80 | 0.88 | 6.75 | 1.69 | 1.12 | 0.060 | 3.26 | 0.08 | 0.07 |
| 313C774 | 3.04 | 1.60 | 2.15 | 0.90 | 9.30 | 2.45 | 1.38 | 0.060 | 5.45 | 0.08 | 0.08 |

### MATERIALS AVAILABLE

-6 Flexible modified Polyolefin
-8 Flexible cross-linked modified fluoroelastomer blend
*-9 Flexible modified Elastomer

### ADHESIVE OPTIONS

| Adhesive (Part Numbers) | Factory Applied | Description |
|---|---|---|
| TSA-200 | -200 | Thermoset 125°C |
| TTS-250 | -250 | Thermoplastic 80°C |
| TTS-450 | -450 | Thermoplastic 120°C |
| W24 | W24 | 1 Part Epoxy 200°C |

# 313E445-457

## SHIM BOOT, LOW PROFILE, NO ADAPTER LIP

### EXPANDED, AS SUPPLIED, PART

### FULLY RECOVERED PART (AFTER HEATING)

This part is normally used to build up, or shim a cable diameter to facilitate a better fit for components in a cable harness.

1. All dimensions are in inches – all angles in degrees.
2. Dimensions in table:
   X = Expanded (minimum);
   R = Recovered (maximum)
3. Colour: Black

| Part Number | H DIA | | J DIA | | P ±10% R | HO ±10% R | HW ±25% R | JW ±25% R | JO ±10% R |
|---|---|---|---|---|---|---|---|---|---|
| | MIN X | MAX R | MIN X | MAX R | | | | | |
| 313E445 | 0.50 | .50+.08/-.00 | 0.44 | 0.13 | 2.50 | 1.62 | 0.06 | 0.06 | 0.62 |
| 313E455 | 0.87 | .87+.14/-.00 | 0.44 | 0.13 | 2.10 | 1.10 | 0.09 | 0.06 | 0.62 |
| 313E447 | 0.82 | .50+.08/-.00 | 0.81 | 0.39 | 2.50 | 1.62 | 0.06 | 0.06 | 0.65 |
| 313E457 | 0.87 | .87+.14/-.00 | 0.81 | 0.39 | 2.10 | 1.10 | 0.09 | 0.06 | 0.55 |

## MATERIALS AVAILABLE

| | |
|---|---|
| -6 | Flexible modified Polyolefin |
| -8 | Flexible cross-linked modified fluoroelastomer blend |
| *-9 | Flexible modified Elastomer |

## ADHESIVE OPTIONS

| Adhesive (Part Numbers) | Factory Applied | Description |
|---|---|---|
| TSA-200 | -200 | Thermoset 125°C |
| TTS-250 | -250 | Thermoplastic 80°C |
| TTS-450 | -450 | Thermoplastic 120°C |
| W24 | W24 | 1 Part Epoxy 200°C |

# 313F322-396

## STRAIGHT BOOT, LOW PROFILE WITH ADAPTER LIP

This boot provides strain relief in applications with partially loaded connectors, resulting in small cable diameters requiring a high shrink ratio.

**EXPANDED, AS SUPPLIED, PART**

**FULLY RECOVERED PART (AFTER HEATING)**

1. All dimensions are in inches – all angles in degrees.
2. Dimensions in table:
   X = Expanded (minimum);
   R = Recovered (maximum)
3. Colour: Black

| Part Number | H DIA | | J DIA | | P ±10% R | R ±15% R | T ±0.03 R | JO ±10% R | HW +0.06 -0.03 R | JW ±0.03 R | S +0.06 -0.03 R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MIN X | MAX R | MIN X | MAX R | | | | | | | |
| 313F322 | 0.94 | 0.39 | 0.68 | 0.26 | 4.17 | 0.46 | 0.05 | 3.40 | 0.06 | 0.06 | 0.06 |
| 313F332 | 1.07 | 0.52 | 0.82 | 0.30 | 4.77 | 0.48 | 0.05 | 3.88 | 0.06 | 0.06 | 0.06 |
| 313F343 | 1.22 | 0.73 | 0.96 | 0.35 | 5.46 | 0.48 | 0.05 | 4.44 | 0.07 | 0.06 | 0.07 |
| 313F353 | 1.40 | 0.87 | 1.13 | 0.40 | 6.28 | 0.48 | 0.05 | 5.15 | 0.07 | 0.06 | 0.07 |
| 313F364 | 1.53 | 1.11 | 1.24 | 0.43 | 7.00 | 0.55 | 0.07 | 5.60 | 0.07 | 0.06 | 0.07 |
| 313F374 | 1.78 | 1.27 | 1.51 | 0.50 | 8.00 | 0.60 | 0.07 | 6.42 | 0.07 | 0.06 | 0.07 |
| 313F385 | 2.03 | 1.79 | 1.79 | 0.59 | 8.00 | 0.60 | 0.07 | 6.21 | 0.07 | 0.07 | 0.07 |
| 313F396 | 2.47 | 1.79 | 2.10 | 0.66 | 9.00 | 0.63 | 0.07 | 6.03 | 0.07 | 0.07 | 0.07 |

### MATERIALS AVAILABLE

-6 Flexible modified Polyolefin
-8 Flexible cross-linked modified fluoroelastomer blend
*-9 Flexible modified Elastomer

### ADHESIVE OPTIONS

| Adhesive (Part Numbers) | Factory Applied | Description |
|---|---|---|
| TSA-200 | -200 | Thermoset 125°C |
| TTS-250 | -250 | Thermoplastic 80°C |
| TTS-450 | -450 | Thermoplastic 120°C |
| W24 | W24 | 1 Part Epoxy 200°C |

# 333F322-385

## RIGHT ANGLE, BOOT 90°, LOW PROFILE WITH ADAPTER LIP

This boot provides connector cable strain relief in applications with partially loaded connectors resulting in small cable diameters requiring a high shrink ratio.

1. All dimensions are in inches – all angles in degrees.
2. Dimensions in table:
   X = Expanded (minimum);
   R = Recovered (maximum)
3. Colour: Black

**EXPANDED, AS SUPPLIED, PART**

**FULLY RECOVERED PART (AFTER HEATING)**

| Part Number | H DIA | | J DIA | | P ±10% R | R ±15% R | T ±0.03 R | JO ±10% R | HW +0.06 -0.03 R | JW ±0.03 R | S +0.06 -0.03 R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MIN X | MAX R | MIN X | MAX R | | | | | | | |
| 333F322 | 0.94 | 0.39 | 0.68 | 0.26 | 4.14 | 0.73 | 0.05 | 3.45 | 0.06 | 0.06 | 0.06 |
| 333F332 | 1.07 | 0.52 | 0.82 | 0.29 | 4.56 | 0.78 | 0.05 | 3.90 | 0.06 | 0.06 | 0.06 |
| 333F343 | 1.22 | 0.73 | 0.96 | 0.33 | 5.76 | 0.82 | 0.05 | 4.50 | 0.07 | 0.06 | 0.07 |
| 333F353 | 1.40 | 0.85 | 1.13 | 0.40 | 6.78 | 0.86 | 0.05 | 5.22 | 0.07 | 0.06 | 0.07 |
| 333F364 | 1.53 | 1.10 | 1.24 | 0.43 | 7.29 | 0.95 | 0.07 | 5.66 | 0.07 | 0.06 | 0.07 |
| 333F374 | 1.78 | 1.34 | 1.51 | 0.48 | 8.41 | 1.08 | 0.07 | 6.66 | 0.07 | 0.06 | 0.07 |
| 333F385 | 2.03 | 1.62 | 1.75 | 0.56 | 8.84 | 1.16 | 0.07 | 6.82 | 0.07 | 0.07 | 0.07 |

### MATERIALS AVAILABLE

| | |
|---|---|
| -6 | Flexible modified Polyolefin |
| -8 | Flexible cross-linked modified fluoroelastomer blend |
| *-9 | Flexible modified Elastomer |

### ADHESIVE OPTIONS

| Adhesive (Part Numbers) | Factory Applied | Description |
|---|---|---|
| TSA-200 | -200 | Thermoset 125°C |
| TTS-250 | -250 | Thermoplastic 80°C |
| TTS-450 | -450 | Thermoplastic 120°C |
| W24 | W24 | 1 Part Epoxy 200°C |

# 412H622-625

## TRANSITION, SIDE BREAKOUT, LOW PROFILE

### EXPANDED, AS SUPPLIED, PART

### FULLY RECOVERED PART (AFTER HEATING)

This style provides connector cable strain relief and is used in conjunction with a circular grooved adapter

1. All dimensions are in inches – all angles in degrees.
2. Dimensions in table:
   X = Expanded (minimum);
   R = Recovered (maximum)
3. Colour: Black

| Part Number | H DIA | | HO, JO & KO ±10% R | W NOM R | P NOM R | R & S NOM R | J & K DIA | |
|---|---|---|---|---|---|---|---|---|
| | MIN X | MAX R | | | | | MIN X | MAX R |
| 412H622 | 0.78 | 0.26 | 1.00 | 0.04 | 3.18 | 1.59 | 0.52 | 0.26 |
| 412H623 | 1.35 | 0.45 | 1.62 | 0.05 | 4.74 | 2.37 | 0.90 | 0.45 |
| 412H624 | 2.37 | 0.79 | 2.50 | 0.06 | 6.92 | 3.46 | 1.58 | 0.79 |
| 412H625 | 3.28 | 1.31 | 3.50 | 0.07 | 9.54 | 4.77 | 2.16 | 1.31 |

### MATERIALS AVAILABLE

-6 Flexible modified Polyolefin
-8 Flexible cross-linked modified fluoroelastomer blend
*-9 Flexible modified Elastomer

### ADHESIVE OPTIONS

| Adhesive (Part Numbers) | Factory Applied | Description |
|---|---|---|
| TSA-200 | -200 | Thermoset 125°C |
| TTS-250 | -250 | Thermoplastic 80°C |
| TTS-450 | -450 | Thermoplastic 120°C |
| W24 | W24 | 1 Part Epoxy 200°C |

# 492H412-415

## TRANSITION, 1 TO 2 CABLES, Y, LOW PROFILE

This style provides strain relief, sealing and mechanical protection on cable harness breakouts or transitions.

**EXPANDED, AS SUPPLIED, PART**

**FULLY RECOVERED PART (AFTER HEATING)**

1. All dimensions are in inches – all angles in degrees.
2. Dimensions in table:
   X = Expanded (minimum);
   R = Recovered (maximum)
3. Colour: Black

| Part Number | H DIA | | HO, JO & KO ±15% R | W NOM R | P, R & S NOM R | J & K DIA | |
|---|---|---|---|---|---|---|---|
| | MIN X | MAX R | | | | MIN X | MAX R |
| 492H412 | 0.78 | 0.26 | 1.00 | 0.04 | 1.60 | 0.52 | 0.26 |
| 492H413 | 1.35 | 0.45 | 1.62 | 0.05 | 2.48 | 0.90 | 0.45 |
| 492H414 | 2.37 | 0.79 | 2.50 | 0.06 | 3.73 | 1.58 | 0.79 |
| 492H415 | 3.28 | 1.31 | 3.50 | 0.07 | 5.27 | 2.16 | 1.31 |
| 492H414-01 | 2.37 | 0.79 | 1.25 | 0.06 | 2.48 | 1.58 | 0.79 |
| 492H415-01 | 3.28 | 1.31 | 1.96 | 0.07 | 3.73 | 2.16 | 1.31 |

### MATERIALS AVAILABLE

-6 Flexible modified Polyolefin
-8 Flexible cross-linked modified fluoroelastomer blend
*-9 Flexible modified Elastomer

### ADHESIVE OPTIONS

| Adhesive (Part Numbers) | Factory Applied | Description |
|---|---|---|
| TSA-200 | -200 | Thermoset 125°C |
| TTS-250 | -250 | Thermoplastic 80°C |
| TTS-450 | -450 | Thermoplastic 120°C |
| W24 | W24 | 1 Part Epoxy 200°C |

# 573H532-535

## TRANSITION, 1 TO 3 CABLES, LOW PROFILE

This style provides strain relief, sealing and mechanical protection on cable harness breakouts or transitions.

**EXPANDED, AS SUPPLIED, PART**

**FULLY RECOVERED PART (AFTER HEATING)**

1. All dimensions are in inches – all angles in degrees.
2. Dimensions in table:
   X = Expanded (minimum);
   R = Recovered (maximum)
3. Colour: Black

| Part Number | H DIA | | HO, JO, KO & LO ±15% R | P NOM R | R, S & T NOM R | W NOM R | J, K & L DIA | |
|---|---|---|---|---|---|---|---|---|
| | MIN X | MAX R | | | | | MIN X | MAX R |
| 573H532 | 0.78 | 0.26 | 1.00 | 3.38 | 1.69 | 0.04 | 0.52 | 0.26 |
| 573H533 | 1.35 | 0.45 | 1.62 | 5.34 | 2.67 | 0.05 | 0.81 | 0.45 |
| 573H534 | 2.37 | 0.79 | 2.50 | 8.16 | 4.08 | 0.06 | 1.42 | 0.79 |
| 573H535 | 3.93 | 1.31 | 3.50 | 11.60 | 5.80 | 0.07 | 2.16 | 1.31 |
| 573H534-01 | 2.37 | 0.79 | 1.09 | 5.34 | 2.67 | 0.06 | 1.42 | 0.79 |
| 573H535-01 | 3.93 | 1.31 | 1.79 | 8.16 | 4.08 | 0.07 | 2.16 | 1.31 |

### MATERIALS AVAILABLE

-6 Flexible modified Polyolefin
-8 Flexible cross-linked modified fluoroelastomer blend
*-9 Flexible modified Elastomer

### ADHESIVE OPTIONS

| Adhesive (Part Numbers) | Factory Applied | Description |
|---|---|---|
| TSA-200 | -200 | Thermoset 125°C |
| TTS-250 | -250 | Thermoplastic 80°C |
| TTS-450 | -450 | Thermoplastic 120°C |
| W24 | W24 | 1 Part Epoxy 200°C |

# Bulbous Boots and Transitions

# 150 SERIES

## BOTTLE SHAPES WITH RIB - VG STYLE

This style is used in conjunction with a circular grooved adaptor, providing strain relief and environmental sealing.

For VG shapes according to T07 add 'P' after Hellermann part number.

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | | Expanded (Min) | | | | Rec'd (Max) | | Recovered dimensions fully shrunk | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VG Part No. | Hellermann Part No. | H | H -H matl | J | J -H matl | H | J | P ±10% | R ±10% | S nom | T ±20% | HW ±20% | JW ±20% |
| VG 95343 T06 B001A | * 152-42 | 0.94 | 0.94 | 0.94 | 0.94 | 0.41 | 0.24 | 1.50 | 0.82 | 0.39 | 0.04 | 0.06 | 0.02 |
| VG 95343 T06 B 002A | * 153-42 | 0.98 | 0.98 | 0.35 | 0.35 | 0.55 | 0.14 | 2.17 | 1.10 | 0.63 | 0.04 | 0.07 | 0.02 |
| VG 95343 T06 B 003A | * 154-42 | 1.18 | 1.18 | 1.18 | 1.18 | 0.55 | 0.24 | 2.17 | 1.26 | 0.51 | 0.04 | 0.07 | 0.04 |
| VG 95343 T06 B 004A | * 155-42 | 1.22 | 1.22 | 1.22 | 1.22 | 0.71 | 0.28 | 2.64 | 1.38 | 0.71 | 0.04 | 0.07 | 0.04 |
| VG 95343 T06 B 005A | * 156-42 | 1.42 | 1.42 | 1.42 | 1.42 | 0.89 | 0.33 | 3.15 | 1.65 | 0.79 | 0.04 | 0.08 | 0.04 |
| VG 95343 T06 C 001A | * 157-43 | 1.69 | 1.69 | 1.69 | 1.69 | 1.10 | 0.39 | 3.90 | 2.36 | 0.79 | 0.07 | 0.09 | 0.04 |
| VG 95343 T06 C 002A | * 158-43 | 2.36 | 2.36 | 2.36 | 2.36 | 1.38 | 0.63 | 5.12 | 2.83 | 1.50 | 0.07 | 0.13 | 0.06 |
| VG 95343 T06 C 003A | * 159-43 | 2.60 | 2.60 | 2.60 | 2.60 | 1.77 | 0.67 | 6.73 | 3.54 | 1.97 | 0.08 | 0.15 | 0.08 |
| VG 95343 T06 C 004A | 160-43 | 3.23 | 3.19 | 3.23 | 3.19 | 2.28 | 1.06 | 8.39 | 4.45 | 2.44 | 0.08 | 0.15 | 0.15 |

**Non-standard products with reduced overall lengths**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VG 95343 T 06 A 001 A | 152-41 | 0.94 | 0.94 | 0.94 | 0.94 | 0.41 | 0.24 | 1.02 | 0.35 | 0.39 | 0.04 | 0.06 | 0.02 |
| VG 95343 T 06 A 002 A | 153-41 | 0.98 | 0.98 | 0.98 | 0.98 | 0.55 | 0.14 | 1.57 | 0.51 | 0.63 | 0.04 | 0.07 | 0.02 |
| VG 95343 T 06 A 003 A | 154-41 | 1.18 | 1.18 | 1.18 | 1.18 | 0.55 | 0.24 | 1.69 | 0.79 | 0.51 | 0.04 | 0.07 | 0.04 |
| VG 95343 T 06 A 004 A | 155-41 | 1.22 | 1.22 | 1.22 | 1.22 | 0.71 | 0.28 | 1.85 | 0.59 | 0.71 | 0.04 | 0.07 | 0.04 |
| VG 95343 T 06 A 005 A | 156-41 | 1.42 | 1.42 | 1.42 | 1.42 | 0.89 | 0.33 | 2.36 | 0.87 | 0.79 | 0.04 | 0.08 | 0.04 |
| VG 95343 T 06 A 006 A | 157-41 | 1.69 | 1.69 | 1.69 | 1.69 | 1.10 | 0.39 | 2.36 | 0.83 | 0.79 | 0.07 | 0.09 | 0.04 |
| VG 95343 T 06 B 006 A | 157-42 | 1.69 | 1.69 | 1.69 | 1.69 | 1.10 | 0.39 | 3.11 | 1.61 | 0.79 | 0.07 | 0.09 | 0.04 |
| VG 95343 T 06 A 007 A | 158-41 | 2.36 | 2.36 | 2.36 | 2.36 | 1.38 | 0.63 | 3.54 | 1.26 | 1.50 | 0.07 | 0.13 | 0.06 |
| VG 95343 T 06 B 007 A | 158-42 | 2.36 | 2.36 | 2.36 | 2.36 | 1.38 | 0.63 | 4.33 | 2.05 | 1.50 | 0.07 | 0.13 | 0.06 |
| VG 95343 T 06 A 008 A | 159-41 | 2.60 | 2.60 | 2.60 | 2.60 | 1.77 | 0.67 | 5.12 | 1.97 | 1.97 | 0.08 | 0.15 | 0.08 |
| VG 95343 T 06 B 008 A | 159-42 | 2.60 | 2.60 | 2.60 | 2.60 | 1.77 | 0.67 | 5.91 | 2.76 | 1.97 | 0.08 | 0.15 | 0.08 |
| VG 95343 T 06 A 009 A | 160-41 | 3.23 | 3.19 | 3.23 | 3.19 | 2.28 | 1.06 | 5.39 | 1.46 | 2.44 | 0.08 | 0.15 | 0.15 |
| VG 95343 T 06 B 009 A | 160-42 | 3.23 | 3.19 | 3.23 | 3.19 | 2.28 | 1.06 | 6.22 | 2.28 | 2.44 | 0.08 | 0.15 | 0.15 |

### MATERIALS AVAILABLE

| Reference | | Specification | Description |
|---|---|---|---|
| J | * | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | * | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | * | VG 95343 PART 6 | Fluid resistant elastomer |
| H | * | NAVSEA 5617649 | Flexible limited fire hazard material |

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| WM250 | General purpose hot melt +80°C |
| W8 | High performance hot melt +105°C |
| W24 | 1 Part Epoxy 200°C |

*Standard products and materials.

**For ordering procedure – refer to page 5**

# 100 SERIES
## BOTTLE SHAPES WITH RIB MIL STYLE

This style is used in conjunction with a circular grooved adaptor providing strain relief and environmental sealing.

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | | Expanded (Min) | | | | Rec'd (Max) | | Recovered dimensions fully shrunk | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MIL Spec No. | Hellermann Part No. | H | H -H matl | J | J -H matl | H | J | P ±10% | R ±10% | Jo ±10% | HW ±10% | JW ±10% | T ±10% |
| — | 1037-4 | 0.35 | N/A | 0.16 | N/A | 0.38 | 0.07 | 0.75 | 0.35 | 0.18 | 0.04 | 0.02 | 0.02 |
| — | 1030-4 | 0.47 | N/A | 0.24 | N/A | 0.38 | 0.08 | 0.75 | 0.31 | 0.18 | 0.04 | 0.02 | 0.02 |
| — | 1031-4 | 0.47 | N/A | 0.24 | N/A | 0.38 | 0.08 | 0.59 | 0.16 | 0.18 | 0.04 | 0.02 | 0.02 |
| — | 1009-1 | 0.35 | 0.35 | 0.16 | 0.16 | 0.22 | 0.13 | 1.06 | 0.55 | 0.29 | 0.04 | 0.02 | 0.04 |
| — | 113-4 | 0.42 | 0.42 | 0.18 | 0.18 | 0.31 | 0.08 | 1.00 | 0.57 | 0.18 | 0.05 | 0.05 | 0.04 |
| — | 104-4 | 0.65 | 0.65 | 0.65 | 0.65 | 0.31 | 0.15 | 1.00 | 0.56 | 0.27 | 0.05 | 0.05 | 0.04 |
| MS 3109-11- | * 105-4 | 0.92 | 0.92 | 0.92 | 0.92 | 0.41 | 0.22 | 1.50 | 0.90 | 0.40 | 0.06 | 0.06 | 0.04 |
| MS 3109-12- | 106-4 | 1.22 | N/A | 1.22 | N/A | 0.56 | 0.26 | 2.17 | 0.90 | 0.40 | 0.06 | 0.06 | 0.04 |
| MS 3109-13- | * 101-4 | 1.22 | 1.22 | 1.22 | 1.22 | 0.70 | 0.28 | 2.60 | 1.50 | 0.70 | 0.08 | 0.08 | 0.04 |
| MS 3109-14- | 102-4 | 1.42 | 1.42 | 1.42 | 1.42 | 0.88 | 0.33 | 3.15 | 1.70 | 0.70 | 0.07 | 0.07 | 0.04 |
| MS 3109-15- | * 103-4 | 1.68 | 1.68 | 1.68 | 1.68 | 1.11 | 0.39 | 3.90 | 2.50 | 0.86 | 0.08 | 0.08 | 0.07 |
| MS 3109-16 | * 107-4 | 2.04 | 2.04 | 2.04 | 2.04 | 1.38 | 0.62 | 4.90 | 2.60 | 1.60 | 0.12 | 0.12 | 0.07 |
| MS 3109-17 | 118-4 | 2.60 | 2.60 | 2.60 | 2.60 | 1.75 | 0.80 | 6.32 | 3.60 | 1.90 | 0.15 | 0.15 | 0.08 |
| MS 3109-18 | 119-4 | 3.40 | 3.40 | 3.40 | 3.40 | 2.25 | 1.05 | 8.25 | 4.65 | 2.40 | 0.18 | 0.18 | 0.08 |

### MATERIALS AVAILABLE

| Reference | | Specification | Description |
|---|---|---|---|
| J | * | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | * | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | | VG 95343 PART 6 | Fluid resistant elastomer |
| H | | NAVSEA 5617649 | Flexible limited fire hazard material |

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| WM250 | General purpose hot melt +80°C |
| W8 | High performance hot melt +105°C |
| W24 | 1 Part Epoxy 200°C |

*Standard products and material.

**For ordering procedure – refer to page 5**

# 100 SERIES
## BOTTLE SHAPES WITHOUT RIB

This style is used for cable strain relief and mechanical protection. Product can be installed on the connector rear thread or plain shaft.

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | Expanded (Min) | | | | Recovered (Max) | | Recovered dimensions fully shrunk | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Hellermann Part No. | H | H -H matl | J | J -H matl | H | J | P ±10% | R ±10% | Jo ±10% | W ±20% |
| * 104-1 | 0.65 | 0.65 | 0.65 | 0.65 | 0.31 | 0.15 | 1.00 | 0.56 | 0.27 | 0.05 |
| * 104-2 | 0.42 | 0.33 | 0.33 | 0.33 | 0.31 | 0.15 | 1.00 | 0.56 | 0.27 | 0.05 |
| * 105-1 | 0.92 | 0.92 | 0.92 | 0.92 | 0.41 | 0.22 | 1.50 | 0.90 | 0.40 | 0.06 |
| * 105-2 | 0.54 | 0.54 | 0.46 | 0.46 | 0.41 | 0.22 | 1.50 | 0.90 | 0.40 | 0.06 |
| * 106-1 | 1.22 | N/A | 1.22 | N/A | 0.56 | 0.26 | 2.18 | 1.04 | 0.65 | 0.07 |
| * 106-2 | 0.76 | 0.76 | 0.56 | 0.56 | 0.56 | 0.26 | 2.18 | 1.04 | 0.65 | 0.07 |
| * 101-1 | 1.22 | 1.22 | 1.22 | 1.22 | 0.70 | 0.28 | 2.60 | 1.50 | 0.70 | 0.07 |
| * 101-2 | 0.94 | 0.94 | 0.61 | 0.61 | 0.70 | 0.28 | 2.60 | 1.50 | 0.70 | 0.07 |
| * 102-1 | 1.42 | N/A | 1.42 | N/A | 0.88 | 0.33 | 2.90 | 1.70 | 0.70 | 0.07 |
| * 102-2 | 1.18 | 1.18 | 0.71 | 0.71 | 0.88 | 0.33 | 2.90 | 1.70 | 0.70 | 0.07 |
| * 103-1 | 1.68 | 1.68 | 1.68 | 1.68 | 1.11 | 0.39 | 3.76 | 2.13 | 0.94 | 0.08 |
| * 103-2 | 1.49 | 1.49 | 0.84 | 0.84 | 1.11 | 0.39 | 3.76 | 2.13 | 0.94 | 0.08 |
| * 107-1 | 2.04 | 2.04 | 2.04 | 2.04 | 1.38 | 0.62 | 4.90 | 2.60 | 1.60 | 0.12 |
| * 107-2 | 1.85 | 1.85 | 1.40 | 1.40 | 1.38 | 0.62 | 4.90 | 2.60 | 1.60 | 0.12 |
| 118-1 | 2.60 | 2.60 | 2.60 | 2.60 | 1.75 | 0.80 | 6.32 | 3.60 | 1.90 | 0.15 |
| 119-1 | 3.40 | 3.40 | 3.40 | 3.40 | 2.25 | 1.05 | 8.25 | 4.65 | 2.40 | 0.18 |
| 119-2 | 3.20 | 3.20 | 2.19 | 2.19 | 2.25 | 1.05 | 8.25 | 4.65 | 2.40 | 0.18 |

### MATERIALS AVAILABLE

| Reference | | Specification | Description |
|---|---|---|---|
| J | * | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | * | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | | VG 95343 PART 6 | Fluid resistant elastomer |
| H | | NAVSEA 5617649 | Flexible limited fire hazard material |

*Standard products and materials.

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| WM250 | General purpose hot melt +80°C |
| W8 | High performance hot melt +105°C |
| W24 | 1 Part Epoxy 200°C |

**For ordering procedure – refer to page 5**

# 100 SERIES
## BOTTLE SHAPES WITHOUT RIB (THICK WALL)

This style is used for cable strain relief and mechanical protection. Product can be installed on the connector rear thread or plain shaft.

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | Expanded (Min) | | | | Rec'd (Max) | | Recovered dimensions fully shrunk | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hellermann Part No. | H | H -H matl | J | J -H matl | H | J | P ±10% | R ±10% | Jo ±10% | HW ±20% | JW ±20% |
| * 113-1 | 0.42 | 0.42 | 0.18 | 0.18 | 0.31 | 0.08 | 1.00 | 0.57 | 0.18 | 0.05 | 0.04 |
| * 113-2 | 0.79 | 0.79 | 0.23 | 0.23 | 0.31 | 0.08 | 1.00 | 0.57 | 0.18 | 0.05 | 0.04 |
| 108-1 | 0.54 | 0.54 | 0.26 | 0.26 | 0.41 | 0.10 | 1.50 | 0.90 | 0.30 | 0.06 | 0.04 |
| 108-2 | 1.10 | 1.10 | 0.31 | 0.31 | 0.41 | 0.10 | 1.50 | 0.90 | 0.30 | 0.06 | 0.04 |
| 109-1 | 0.76 | 0.76 | 0.32 | 0.32 | 0.56 | 0.16 | 2.10 | 1.40 | 0.30 | 0.08 | 0.05 |
| 109-2 | 1.50 | 1.50 | 0.46 | 0.46 | 0.56 | 0.16 | 2.10 | 1.40 | 0.30 | 0.08 | 0.05 |
| 110-1 | 0.94 | 0.94 | 0.46 | 0.46 | 0.70 | 0.22 | 2.50 | 1.50 | 0.50 | 0.10 | 0.06 |
| 110-2 | 2.00 | 2.00 | 0.67 | 0.67 | 0.70 | 0.22 | 2.50 | 1.50 | 0.50 | 0.10 | 0.06 |
| 111-1 | 1.18 | 1.18 | 0.58 | 0.58 | 0.88 | 0.28 | 3.00 | 1.70 | 0.60 | 0.12 | 0.07 |
| 111-2 | 2.50 | 2.50 | 0.84 | 0.84 | 0.88 | 0.28 | 3.00 | 1.70 | 0.60 | 0.12 | 0.07 |
| 116-1 | 2.34 | 2.34 | 1.72 | 1.72 | 1.75 | 0.82 | 6.25 | 3.60 | 1.65 | 0.22 | 0.18 |

### MATERIALS AVAILABLE

| Reference | | Specification | Description |
|---|---|---|---|
| J | * | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | * | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | | VG 95343 PART 6 | Fluid resistant elastomer |
| H | | NAVSEA 5617649 | Flexible limited fire hazard material |

*Standard products and materials.

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| WM250 | General purpose hot melt +80°C |
| W8 | High performance hot melt +105°C |
| W24 | 1 Part Epoxy 200°C |

**For ordering procedure – refer to page 5**

# 120 SERIES

## BOTTLE SHAPES WITHOUT RIB

This style has a long tail providing extended strain relief for small diameter wires.

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | Expanded (Min) | | Recovered (Max) | | Recovered dimensions fully shrunk | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Hellermann Part No. | H | J | H | J | P1 ±10% | P2 ±10% | R ±10% | W ±20% | T |
| * 120-1 | 0.65 | 0.40 | 0.275 | 0.12 | — | 2.40 | 0.75 | 0.04 | — |
| * 120-2 | 0.80 | 0.40 | 0.275 | 0.12 | — | 2.40 | 0.75 | 0.04 | — |
| 120-3 | 0.65 | 0.42 | 0.275 | 0.12 | 1.50 | — | 0.95 | 0.051 | — |
| 120-41 | 0.65 | 0.42 | 0.275 | 0.12 | 1.50 | — | 0.95 | 0.051 | 0.40 |
| 120-42 | 0.65 | 0.42 | 0.275 | 0.12 | — | 2.40 | 0.95 | 0.051 | 0.40 |

**NOTE:** 120-41 and 42 are with end ribs

### MATERIALS AVAILABLE

| Reference | | Specification | Description |
|---|---|---|---|
| J | * | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | * | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | * | VG 95343 PART 6 | Fluid resistant elastomer |
| H | | NAVSEA 5617649 | Flexible limited fire hazard material |

*Standard products and materials.

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| WM250 | General purpose hot melt +80°C |
| W8 | High performance hot melt +105°C |
| W24 | 1 Part Epoxy 200°C |

**For ordering procedure – refer to page 5**

# 130 SERIES

## LONG OUTLET SHAPES LOW PROFILE VG/MIL STYLE WITH RIB

This style is low profile and lightweight. Typically used on airborne harnesses. The rib locates on circular backshell.

For VG shapes according to T07 add 'P' after Hellermann part number.

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | | Expanded (Min) | | Recovered (Max) | | Recovered dimensions fully shrunk | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| VG Part No. | Hellermann Part No. | H | J | H | J | P ±10% | R ±10% | T ±10% | HW ±20% | JW ±20% |
| VG 95343 T06 D001A | * 129-1 | 0.87 | 0.87 | 0.47 | 0.26 | 2.99 | 0.47 | 0.04 | 0.06 | 0.04 |
| VG 95343 T06 D002A | * 130-1 | 0.89 | 0.89 | 0.59 | 0.30 | 3.27 | 0.47 | 0.04 | 0.06 | 0.04 |
| VG 95343 T06 D003A | * 131-1 | 1.14 | 1.14 | 0.75 | 0.33 | 3.50 | 0.47 | 0.04 | 0.07 | 0.04 |
| VG 95343 T06 D004A | * 132-1 | 1.34 | 1.34 | 0.91 | 0.39 | 4.02 | 0.47 | 0.04 | 0.07 | 0.04 |
| VG 95343 T06 D005A | * 133-1 | 1.46 | 1.46 | 1.18 | 0.43 | 4.25 | 0.55 | 0.07 | 0.08 | 0.04 |
| VG 95343 T06 D006A | * 134-1 | 1.71 | 1.71 | 1.34 | 0.47 | 4.49 | 0.59 | 0.07 | 0.08 | 0.04 |
| VG 95343 T06 D007A | 135-1 | 1.97 | 1.97 | 1.61 | 0.57 | 4.65 | 0.59 | 0.07 | 0.09 | 0.06 |
| VG 95343 T06 D008A | 136-1 | 2.46 | 2.46 | 1.85 | 0.71 | 4.76 | 0.63 | 0.08 | 0.10 | 0.06 |
| VG 95343 T06 D009A | 138-1 | 2.72 | 2.72 | 2.36 | 0.79 | 5.00 | 0.63 | 0.08 | 0.10 | 0.06 |
| VG 95343 T06 D010A | 187-1 | 3.21 | 3.21 | 2.64 | 0.91 | 5.24 | 0.63 | 0.08 | 0.10 | 0.06 |
| MIL Spec. Part No. | | | | | | | | | | |
| MS3109-01 | * 129-4 | 0.88 | 0.88 | 0.45 | 0.25 | 4.17 | 0.46 | 0.04 | 0.06 | 0.04 |
| MS3109-02 | * 130-4 | 1.01 | 1.01 | 0.59 | 0.29 | 4.77 | 0.48 | 0.04 | 0.06 | 0.04 |
| MS3109-03 | * 131-4 | 1.16 | 1.16 | 0.74 | 0.33 | 5.46 | 0.48 | 0.04 | 0.07 | 0.04 |
| — | 132-2 | 1.34 | 1.34 | 0.90 | 0.38 | 1.38 | 0.48 | 0.04 | 0.07 | 0.04 |
| — | 132-3 | 1.34 | 1.34 | 0.82 | 0.35 | 2.36 | 0.48 | 0.04 | 0.07 | 0.04 |
| MS3109-04 | * 132-4 | 1.34 | 1.34 | 0.90 | 0.38 | 6.28 | 0.48 | 0.04 | 0.07 | 0.04 |
| — | 133-2 | 1.47 | 1.47 | 1.06 | 0.37 | 1.85 | 0.55 | 0.06 | 0.08 | 0.04 |
| — | 133-3 | 1.47 | 1.47 | 1.06 | 0.37 | 2.36 | 0.55 | 0.06 | 0.08 | 0.04 |
| MS3109-05 | * 133-4 | 1.47 | 1.47 | 1.16 | 0.41 | 7.00 | 0.55 | 0.06 | 0.08 | 0.04 |
| MS3109-06 | * 134-4 | 1.72 | 1.72 | 1.34 | 0.48 | 8.00 | 0.60 | 0.06 | 0.08 | 0.04 |
| — | 135-2 | 1.97 | 1.97 | 1.48 | 0.51 | 1.73 | 0.60 | 0.06 | 0.09 | 0.06 |
| MS3109-07 | 135-4 | 1.97 | 1.97 | 1.62 | 0.56 | 7.99 | 0.60 | 0.06 | 0.09 | 0.06 |
| — | 136-2 | 2.76 | 2.76 | 1.69 | 0.69 | 4.92 | 0.63 | 0.08 | 0.10 | 0.06 |
| MS3109-08 | 136-4 | 2.47 | 2.47 | 1.85 | 0.69 | 8.00 | 0.63 | 0.08 | 0.10 | 0.06 |
| MS3109-09 | 138-4 | 2.73 | 2.73 | 2.15 | 0.70 | 8.00 | 0.63 | 0.08 | 0.10 | 0.06 |
| MS3109-10 | 187-4 | 3.22 | 3.22 | 2.41 | 0.82 | 8.00 | 0.63 | 0.08 | 0.10 | 0.06 |

### MATERIALS AVAILABLE

| Reference | | Specification | Description |
|---|---|---|---|
| J | * | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | * | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | * | VG 95343 PART 6 | Fluid resistant elastomer |
| H | | NAVSEA 5617649 | Flexible limited fire hazard material |

*Standard products and materials.

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| WM250 | General purpose hot melt +80°C |
| W8 | High performance hot melt +105°C |
| W24 | 1 Part Epoxy 200°C |

**For ordering procedure – refer to page 5**

# 140 SERIES
## LONG OUTLET SHAPES WITHOUT RIB

This style is low profile, lightweight with extended strain relief.

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | Expanded (Min) | | Recovered (Max) | | Recovered dimensions fully shrunk | | |
|---|---|---|---|---|---|---|---|
| Hellermann Part No. | H | J | H | J | P ±10% | R ±10% | W ±20% |
| 146-1 | 0.79 | 0.79 | 0.57 | 0.21 | 5.00 | 0.62 | 0.08 |
| 146-2 | 0.88 | 0.40 | 0.57 | 0.21 | 5.00 | 0.62 | 0.08 |
| 148-1 | 1.20 | 1.20 | 0.71 | 0.31 | 5.75 | 0.62 | 0.09 |
| 148-2 | 1.20 | 0.60 | 0.71 | 0.31 | 5.75 | 0.62 | 0.09 |
| 149-1 | 1.62 | 1.62 | 0.86 | 0.40 | 6.38 | 0.88 | 0.09 |
| 150-1 | 2.05 | 2.05 | 1.22 | 0.50 | 7.06 | 0.88 | 0.10 |

### MATERIALS AVAILABLE

| Reference | Specification | Description |
|---|---|---|
| J | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | VG 95343 PART 6 | Fluid resistant elastomer |
| H | NAVSEA 5617649 | Flexible limited fire hazard material |

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| WM250 | General purpose hot melt +80°C |
| W8 | High performance hot melt +105°C |
| W24 | 1 Part Epoxy 200°C |

**For ordering procedure – refer to page 5**

# 160 SERIES

## BOTTLE SHAPES WITHOUT RIB

This style is a straight boot used for cable strain relief and environmental protection.

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | Expanded (Min) | | Recovered (Max) | | Recovered dimensions fully shrunk | | |
|---|---|---|---|---|---|---|---|
| Hellermann Part No. | H | J | H | J | P ±10% | R ±10% | W ±20% |
| 162-1 | 0.87 | 0.35 | 0.56 | 0.16 | 1.53 | 0.62 | 0.07 |
| 169-1 | 0.88 | 0.31 | 0.70 | 0.22 | 2.00 | 1.08 | 0.11 |
| 169-2 | 1.40 | 0.34 | 0.70 | 0.22 | 2.00 | 1.08 | 0.11 |

### MATERIALS AVAILABLE

| Reference | Specification | Description |
|---|---|---|
| J | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | VG 95343 PART 6 | Fluid resistant elastomer |
| H | NAVSEA 5617649 | Flexible limited fire hazard material |

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| WM250 | General purpose hot melt +80°C |
| W8 | High performance hot melt +105°C |
| W24 | 1 Part Epoxy 200°C |

**For ordering procedure – refer to page 5**

# 170 SERIES

## BOTTLE SHAPES WITH RIB-VG STYLE

This style provides cable strain relief in applications of partially loaded connectors, resulting in small cable diameters.

Dimensions apply to all materials unless otherwise indicated and are in inches

| | | Expanded (Min) | | Recovered (Max) | | Recovered dimensions fully shrunk | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VG Part No. | Hellermann Part No. | H | J | H | J | P ±10% | R ±10% | T ±10% | Jo ±10% | HW ±20% | JW ±20% |
| — | 1724-1 | 0.79 | 0.79 | 0.65 | 0.18 | 1.65 | 0.79 | 0.00 | 0.39 | 0.04 | 0.04 |
| — | 1738-1 | 0.79 | 0.79 | 0.65 | 0.18 | 1.26 | 0.39 | 0.00 | 0.87 | 0.04 | 0.04 |
| VG 95343 T06 D011A | * 176-1 | 0.76 | 0.25 | 0.51 | 0.08 | 2.37 | 0.46 | 0.04 | 1.48 | 0.06 | 0.04 |
| — | 176-2 | 0.76 | 0.25 | 0.51 | 0.08 | 1.18 | 0.46 | 0.04 | 0.29 | 0.06 | 0.04 |
| — | * 176-3 | 0.98 | 0.16 | 0.51 | 0.08 | 1.77 | 0.46 | 0.04 | 1.48 | 0.06 | 0.04 |
| — | 176-4 | 0.76 | 0.25 | 0.51 | 0.08 | 2.37 | 0.46 | 0.04 | 1.48 | 0.06 | 0.04 |
| VG 95343 T06 D012A | 177-1 | 1.03 | 0.30 | 0.75 | 0.10 | 2.92 | 0.48 | 0.04 | 1.77 | 0.07 | 0.04 |
| VG 95343 T06 D013A | 178-1 | 1.35 | 0.38 | 1.02 | 0.12 | 3.32 | 0.48 | 0.04 | 2.01 | 0.07 | 0.04 |
| VG 95343 T06 D014A | 179-1 | 1.72 | 0.45 | 1.34 | 0.14 | 3.92 | 0.48 | 0.07 | 2.36 | 0.07 | 0.04 |

**NOTE:** 1724 and 1738 are without end ribs.

### MATERIALS AVAILABLE

| Reference | | Specification | Description |
|---|---|---|---|
| J | * | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | * | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | * | VG 95343 PART 6 | Fluid resistant elastomer |
| H | | NAVSEA 5617649 | Flexible limited fire hazard material |

*Standard products and materials.

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| WM250 | General purpose hot melt +80°C |
| W8 | High performance hot melt +105°C |
| W24 | 1 Part Epoxy 200°C |

**For ordering procedure – refer to page 5**

# 190 SERIES
## BOTTLE SHAPES WITH EXTERNAL RIBS VG-STYLE

Developed specifically for small audio connectors. External Ribs improve grip.

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | | Expanded (Min) | | Recovered (Max) | | Recovered dimensions fully shrunk | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VG Part No. | Hellermann Part No. | H | J | H | J | P ±10% | R ±10% | S ±10% | T ±10% | X nom | HW ±20% | JW ±20% |
| VG 95343 T06 A010A | 199-4 | 0.69 | 0.28 | 0.55 | 0.17 | 2.76 | 1.38 | 0.79 | 0.04 | 0.06 | 0.07 | 0.02 |
| – | 199-6 | 0.73 | 0.73 | 0.55 | 0.17 | 2.76 | 1.38 | 0.79 | 0.04 | 0.06 | 0.07 | 0.02 |

### MATERIALS AVAILABLE

| Reference | | Specification | Description |
|---|---|---|---|
| J | | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | * | VG 95343 PART 6 | Fluid resistant elastomer |
| H | | NAVSEA 5617649 | Flexible limited fire hazard material |

*Standard material.

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| WM250 | General purpose hot melt +80°C |
| W8 | High performance hot melt +105°C |
| W24 | 1 Part Epoxy 200°C |

**For ordering procedure – refer to page 5**

# 200 SERIES

## 2-WAY OUTLET SHAPES LOW PROFILE

This style provides cable sealing strain relief and mechanical protection.

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | Expanded (Min) | | | Recovered (Max) | | | Rec'd dimensions fully shrunk | | |
|---|---|---|---|---|---|---|---|---|---|
| Hellermann Part No. | H | J | K | H | J | K | P ±10% | R ±10% | W ±20% |
| 201-1 | 0.75 | 0.55 | 0.55 | 0.37 | 0.25 | 0.25 | 2.00 | 1.20 | 0.06 |
| 201-3 | 1.00 | 0.55 | 0.55 | 0.37 | 0.25 | 0.25 | 2.00 | 1.20 | 0.06 |
| 202-1 | 0.75 | 0.30 | 0.30 | 0.37 | 0.15 | 0.15 | 2.00 | 1.20 | 0.06 |
| 202-2 | 0.79 | 0.49 | 0.49 | 0.37 | 0.15 | 0.15 | 2.00 | 1.20 | 0.06 |
| 202-3 | 0.96 | 0.63 | 0.63 | 0.37 | 0.15 | 0.15 | 2.00 | 1.20 | 0.06 |

### MATERIALS AVAILABLE

| Reference | Specification | Description |
|---|---|---|
| J | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | VG 95343 PART 6 | Fluid resistant elastomer |
| H | NAVSEA 5617649 | Flexible limited fire hazard material |

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| WM250 | General purpose hot melt +80°C |
| W8 | High performance hot melt +105°C |
| W24 | 1 Part Epoxy 200°C |

**For ordering procedure – refer to page 5**

# 200 SERIES

## 2-WAY OUTLET SHAPES - VG STYLE

This style provides cable sealing, strain relief and mechanical protection.

For VG shapes according to TO9 add 'P' after Hellermann part number.

Dimensions apply to all materials unless otherwise indicated and are in inches.

H Expanded is maximum width not diameter.

| | | Expanded (Min) | | | | Recovered (Max) | | Recovered dimensions fully shrunk | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VG Part No. | Hellermann Part No. | H | H -H Matl | J,K | J,K -H Matl | H | J,K | P ±10% | R ±10% | HW ±30% | JW, KW ±30% |
| | * 227-1 | 0.52 | 0.52 | 0.26 | 0.26 | 0.15 | 0.10 | 1.61 | 0.76 | 0.08 | 0.04 |
| VG 95343 T08 C001A | * 206-1 | 0.51 | 0.51 | 0.28 | 0.28 | 0.24 | 0.12 | 1.61 | 0.75 | 0.06 | 0.04 |
| | * 213-1 | 0.68 | 0.68 | 0.44 | 0.44 | 0.31 | 0.31 | 3.27 | 2.52 | 0.09 | 0.04 |
| | 213-2 | 1.57 | N/A | 1.25 | N/A | 0.31 | 0.31 | 3.27 | 2.52 | 0.09 | 0.09 |
| VG 95343 T08 C005A | 212-1 | 0.57 | 0.57 | 0.33 | 0.33 | 0.31 | 0.22 | 5.35 | 2.48 | 0.10 | 0.08 |
| VG 95343 T08 C002A | * 203-1 | 1.06 | 1.06 | 0.51 | 0.51 | 0.47 | 0.24 | 3.15 | 1.69 | 0.10 | 0.06 |
| VG 95343 T08 C003A | * 204-1 | 1.54 | 1.54 | 1.06 | 1.06 | 0.71 | 0.47 | 5.16 | 3.19 | 0.12 | 0.10 |

### MATERIALS AVAILABLE

| Reference | | Specification | Description |
|---|---|---|---|
| J | * | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | * | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | * | VG 95343 PART 6 | Fluid resistant elastomer |
| H | | NAVSEA 5617649 | Flexible limited fire hazard material |

*Standard products and materials.

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| WM250 | General purpose hot melt +80°C |
| W8 | High performance hot melt +105°C |
| W24 | 1 Part Epoxy 200°C |

**For ordering procedure – refer to page 5**

# 200 SERIES

## 2-WAY OUTLET SHAPES IN LINE

This style provides cable sealing strain relief and mechanical protection. Ideal for power and signal applications.

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | | Expanded (Min) | | | | Recovered (Max) | | Recovered dimensions fully shrunk | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NAVSEA REFERENCE | Hellermann Part No. | H | H -H Matl | J | J -H Matl | H | J | P ±10% | R ±10% | S (nom) | HW ±20% | W ±20% |
| — | 223-2 | 1.30 | 1.30 | 0.69 | 0.69 | 0.37 | 0.16 | 3.70 | 1.18 | 0.79 | 0.06 | 0.05 |
| IA62-1 | * 216-3 | 0.83 | 0.83 | 0.35 | 0.35 | 0.37 | 0.11 | 3.01 | 0.79 | 0.59 | 0.06 | 0.06 |
| IA62-2 | * 217-2 | 1.22 | 1.22 | 0.59 | 0.59 | 0.60 | 0.17 | 3.92 | 1.12 | 0.75 | 0.09 | 0.09 |
| IA62-3 | * 218-2 | 1.97 | 1.97 | 0.83 | 0.83 | 0.90 | 0.30 | 4.69 | 1.34 | 1.18 | 0.13 | 0.13 |
| — | 220-1 | 1.97 | 1.97 | 0.91 | 0.91 | 1.10 | 0.31 | 6.89 | 3.94 | 1.30 | 0.10 | 0.10 |
| IA62-4 | * 219-2 | 3.43 | 3.43 | 1.69 | 1.69 | 1.50 | 0.50 | 5.57 | 1.67 | 1.73 | 0.15 | 0.15 |
| — | 221-1 | 3.62 | 3.62 | 1.81 | 1.81 | 1.65 | 0.59 | 6.89 | 3.94 | 1.85 | 0.10 | 0.08 |

### MATERIALS AVAILABLE

| Reference | | Specification | Description |
|---|---|---|---|
| J | | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | * | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | | VG 95343 PART 6 | Fluid resistant elastomer |
| H | | NAVSEA 5617649 | Flexible limited fire hazard material |
| B8 | | | Semi-rigid polyolefin |

*Standard products and material.

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| W1 | Band lined WM250 |

**For ordering procedure – refer to page 5**

# 300 SERIES

## 3-WAY OUTLET SHAPES-VG STYLE

This style provides cable sealing strain relief and mechanical protection.

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | | Expanded (Min) | | Recovered (Max) | | Recovered dimensions fully shrunk | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| VG Part No. | Hellermann Part No. | H | J,K,L | H | J,K,L | P ±10% | R ±10% | T ±10% | HW ±20% | W ±20% |
| — | 334-1 | 0.52 | 0.26 | 0.15 | 0.10 | 1.82 | 1.00 | 0.80 | 0.08 | 0.04 |
| VG 95343 T08 D001A | * 306-1 | 0.51 | 0.26 | 0.26 | 0.14 | 1.81 | 0.98 | 0.83 | 0.06 | 0.04 |
| VG 95343 T08 D002A | * 304-1 | 1.06 | 0.51 | 0.53 | 0.28 | 3.66 | 1.97 | 1.69 | 0.10 | 0.06 |
| VG 95343 T08 D003A | * 310-1 | 1.52 | 0.75 | 0.75 | 0.39 | 5.31 | 2.91 | 2.44 | 0.12 | 0.08 |
| VG 95343 T08 D004A | 311-1 | 2.19 | 1.06 | 1.00 | 0.49 | 7.56 | 4.06 | 3.50 | 0.18 | 0.12 |

### MATERIALS AVAILABLE

| Reference | | Specification | Description |
|---|---|---|---|
| J | * | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | * | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | * | VG 95343 PART 6 | Fluid resistant elastomer |
| H | | NAVSEA 5617649 | Flexible limited fire hazard material |

*Standard products and materials.

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| WM250 | General purpose hot melt +80°C |
| W8 | High performance hot melt +105°C |
| W24 | 1 Part Epoxy 200°C |

**For ordering procedure – refer to page 5**

# 300 SERIES

## 3-WAY OUTLET SHAPES IN LINE

This style provides cable sealing strain relief and mechanical protection. Covers a wide range of cable diameters. Ideal for power and signal applications.

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | | Expanded (Min) | | Recovered (Max) | | Recovered dimensions fully shrunk | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NAVSEA REFERENCE | Hellermann Part No. | H | J | H | J | S (Nom) | P ±10% | R ±10% | HW ±20% | W ±20% |
| IA62-5 | * 318-2 | 0.98 | 0.35 | 0.36 | 0.12 | 0.63 | 3.01 | 0.79 | 0.10 | 0.10 |
| IA62-7 | * 339-2 | 1.50 | 0.65 | 0.50 | 0.16 | 1.02 | 4.47 | 2.46 | 0.11 | 0.11 |
| IA62-6 | * 319-2 | 1.22 | 0.59 | 0.69 | 0.18 | 0.91 | 3.68 | 1.12 | 0.11 | 0.11 |
| — | * 320-1 | 2.20 | 1.20 | 0.89 | 0.35 | 1.46 | 7.09 | 1.73 | 0.12 | 0.12 |
| IA62-8 | * 328-2 | 1.70 | 0.82 | 0.90 | 0.30 | 1.42 | 3.90 | 1.34 | 0.15 | 0.15 |
| — | 355-1 | 3.94 | 1.57 | 1.10 | 0.51 | N/A | 8.27 | 1.97 | 0.14 | 0.10 |
| — | 342-1 | | 1.57 | 1.38 | 0.69 | 2.17 | 9.06 | 1.77 | 0.16 | 0.14 |
| IA62-9 | * 330-2 | 2.40 | 1.25 | 1.40 | 0.50 | 1.85 | 5.69 | 1.79 | 0.15 | 0.15 |
| IA62-10 | * 340-2 | 3.20 | 1.40 | 2.00 | 0.75 | 2.56 | 5.69 | 1.79 | 0.18 | 0.18 |
| IA62-11 | * 341-2 | 4.92 | 2.00 | 2.32 | 1.00 | 2.95 | 11.14 | 2.80 | 0.15 | 0.15 |
| — | 323-1 | 4.72 | 2.36 | 2.36 | 0.98 | 3.35 | 11.81 | 3.54 | 0.16 | 0.12 |

### MATERIALS AVAILABLE

| Reference | | Specification | Description |
|---|---|---|---|
| J | | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | * | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | | VG 95343 PART 6 | Fluid resistant elastomer |
| H | | NAVSEA 5617649 | Flexible limited fire hazard material |
| B8 | | | Semi-rigid polyolefin |

*Standard products and material.

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| W1 | Band lined WM250 |

**For ordering procedure – refer to page 5**

# 400 SERIES
## 4-WAY OUTLET SHAPES-VG STYLE

This style provides cable sealing strain relief and mechanical protection.

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | | Expanded (Min) | | Recovered (Max) | | Recovered dimensions fully shrunk | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VG Part No. | Hellermann Part No. | H | J,K,L,N | H | J,K,L,N | P ±15% | T ±10% | S ±10% | R ±10% | HW ±30% | JW ±30% |
| VG 95343 T08E 002A | * 411-1 | 0.75 | 0.37 | 0.39 | 0.22 | 2.80 | 1.42 | 1.26 | 1.42 | 0.08 | 0.04 |
| VG 95343 T08E 004A | 403-1 | 1.06 | 0.51 | 0.51 | 0.28 | 4.02 | 1.93 | 1.77 | 2.05 | 0.10 | 0.06 |
| VG 95343 T08E 005A | * 413-1 | 1.52 | 0.75 | 0.75 | 0.39 | 5.91 | 2.95 | 2.56 | 2.83 | 0.07 | 0.04 |

### MATERIALS AVAILABLE

| Reference | | Specification | Description |
|---|---|---|---|
| J | * | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | * | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | * | VG 95343 PART 6 | Fluid resistant elastomer |
| H | | NAVSEA 5617649 | Flexible limited fire hazard material |

*Standard products and materials.

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| WM250 | General purpose hot melt +80°C |
| W8 | High performance hot melt +105°C |
| W24 | 1 Part Epoxy 200°C |

**For ordering procedure – refer to page 5**

# 400 SERIES

## 4-WAY OUTLET SHAPES IN LINE

This style provides cable sealing strain relief and mechanical protection. Ideal for power and signal applications.

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | | Expanded (Min) | | Recovered (Max) | | Recovered dimensions fully shrunk | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NAVSEA REFERENCE | Part No | H | J | H | J | P ±10% | R ±10% | S (nom) | HW ±20% | JW ±20% |
| — | 442-1 | 1.10 | 0.35 | 0.35 | 0.07 | 3.07 | 0.67 | 0.79 | 0.11 | 0.08 |
| IA62-12 | * 434-2 | 0.98 | 0.28 | 0.43 | 0.11 | 3.07 | 0.85 | 0.71 | 0.06 | 0.06 |
| — | 443-1 | 1.38 | 0.59 | 0.47 | 0.12 | 4.72 | 1.02 | 0.87 | 0.12 | 0.10 |
| — | 408-2 | 1.38 | 0.59 | 0.47 | 0.12 | 3.74 | 0.94 | 0.87 | 0.10 | 0.08 |
| IA62-13 | * 435-2 | 1.26 | 0.51 | 0.80 | 0.19 | 3.68 | 1.12 | 1.06 | 0.11 | 0.11 |
| — | 418-4 | 2.36 | 1.18 | 0.90 | 0.25 | 7.95 | 1.50 | 1.50 | 0.16 | 0.13 |
| | 436-2 | 1.77 | 0.79 | 0.98 | 0.28 | 3.90 | 1.34 | 1.54 | 0.18 | 0.18 |
| IA62-15 | * 437-2 | 2.36 | 1.00 | 1.00 | 0.35 | 9.45 | 1.89 | 1.69 | 0.18 | 0.18 |
| IA62-16 | * 438-2 | 2.64 | 1.20 | 1.40 | 0.53 | 5.57 | 1.67 | 2.13 | 0.18 | 0.18 |
| — | 444-1 | 3.10 | 1.50 | 1.40 | 0.49 | 9.45 | 2.17 | 2.00 | 0.13 | 0.13 |
| IA62-17 | * 439-2 | 5.25 | 1.35 | 3.00 | 0.55 | 10.02 | 3.35 | 3.26 | 0.13 | 0.16 |

### MATERIALS AVAILABLE

| Reference | Specification | Description |
|---|---|---|
| J | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | * MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | VG 95343 PART 6 | Fluid resistant elastomer |
| H | NAVSEA 5617649 | Flexible limited fire hazard material |
| B8 | | Semi-rigid polyolefin |

*Standard products and material.

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| W1 | Band lined WM250 |

**For ordering procedure – refer to page 5**

# 500 SERIES

## 5-WAY OUTLET SHAPE IN LINE

This style provides cable sealing, strain relief and mechanical protection. Ideal for power and signal applications.

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | | Expanded (Min) | | | Recovered (Max) | | | Recovered dimensions fully shrunk | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hellermann Part No. | H | H -H Matl | J | J -H Matl | H | J | S (Nom) | P ±10% | R ±10% | HW ±20% | JW ±20% |
| 508-1 | 2.36 | 2.36 | 1.18 | 0.89 | 0.96 | 0.30 | 1.89 | 7.09 | 1.18 | 0.14 | 0.12 |

### MATERIALS AVAILABLE

| Reference | | Specification | Description |
|---|---|---|---|
| J | * | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | * | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | | VG 95343 PART 6 | Fluid resistant elastomer |
| H | | NAVSEA 5617649 | Flexible limited fire hazard material |
| B8 | | | Semi-rigid polyolefin |

*Standard materials.

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| W1 | Band lined WM250 |

**For ordering procedure – refer to page 5**

# 600 SERIES
## 6-WAY OUTLET SHAPES IN LINE

This style provides cable sealing strain relief and mechanical protection. Ideal for power and signal cables.

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | | Expanded (Min) | | Recovered (Max) | | Recovered dimensions fully shrunk | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NAVSEA REFERENCE | Hellermann Part No. | H | J | H | J | S (nom) | P ±10% | R ±10% | HW ±20% | JW ±20% |
| — | 609-1 | 1.18 | 0.32 | 0.63 | 0.16 | 0.98 | 2.95 | 0.78 | 0.10 | 0.06 |
| IA62-18 | * 608-1 | 2.39 | 0.82 | 1.45 | 0.35 | 1.97 | 6.00 | 2.00 | 0.10 | 0.10 |

### MATERIALS AVAILABLE

| Reference | | Specification | Description |
|---|---|---|---|
| J | * | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | * | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | | VG 95343 PART 6 | Fluid resistant elastomer |
| H | | NAVSEA 5617649 | Flexible limited fire hazard material |
| B8 | | | Semi-rigid polyolefin |

*Standard products and material.

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| W1 | Band lined WM250 |

**For ordering procedure – refer to page 5**

# 1100 SERIES
## RIGHT-ANGLE SHAPES WITH RIB-VG STYLE

This style provides strain relief for harness systems when used in conjunction with a circular grooved adaptor.

For VG shapes according to T07 add 'P' after Hellermann part number.

Dimensions apply to all materials unless otherwise indicated and are in inches.

| Dimensions in inches | | Expanded (Min) | | Recovered (Max) | | Recovered dimensions fully shrunk | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VG Part No. | Hellermann Part No. | H | J | H | J | P ±10% | R ±10% | S ±10% | Jo ±10% | HW ±20% | JW ±20% | T ±10% |
| VG 95343 T06 E001A | * 1152-4 | 0.94 | 0.94 | 0.41 | 0.24 | 1.02 | 0.98 | 0.75 | 0.39 | 0.05 | 0.02 | 0.04 |
| VG 95343 T06 E002A | * 1154-4 | 1.18 | 1.18 | 0.61 | 0.24 | 1.26 | 1.06 | 0.79 | 0.47 | 0.06 | 0.03 | 0.04 |
| VG 95343 T06 E003A | * 1155-4 | 1.22 | 1.22 | 0.71 | 0.28 | 1.57 | 1.22 | 0.83 | 0.59 | 0.07 | 0.04 | 0.04 |
| VG 95343 T06 E004A | * 1156-4 | 1.42 | 1.42 | 0.89 | 0.33 | 1.81 | 1.50 | 1.02 | 0.59 | 0.07 | 0.04 | 0.04 |
| VG 95343 T06 E005A | * 1157-4 | 1.69 | 1.69 | 1.12 | 0.39 | 2.17 | 1.77 | 1.18 | 0.63 | 0.08 | 0.04 | 0.07 |
| VG 95343 T06 E006A | * 1158-4 | 2.36 | 2.36 | 1.38 | 0.63 | 3.15 | 2.13 | 1.38 | 1.18 | 0.13 | 0.06 | 0.07 |
| VG 95343 T06 E007A | * 1159-4 | 2.60 | 2.60 | 1.77 | 0.67 | 4.25 | 2.68 | 1.65 | 2.01 | 0.15 | 0.08 | 0.08 |
| VG 95343 T06 E008A | 1160-4 | 3.23 | 3.23 | 2.40 | 0.98 | 4.65 | 3.31 | 2.05 | 1.54 | 0.16 | 0.16 | 0.08 |

### MATERIALS AVAILABLE

| Reference | | Specification | Description |
|---|---|---|---|
| J | * | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | * | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | * | VG 95343 PART 6 | Fluid resistant elastomer |
| H | * | NAVSEA 5617649 | Flexible limited fire hazard material |

*Standard products and materials.

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| WM250 | General purpose hot melt +80°C |
| W8 | High performance hot melt +105°C |
| W24 | 1 Part Epoxy 200°C |

**For ordering procedure – refer to page 5**

# 1100 SERIES
## RIGHT ANGLE SHAPES THICK WALL WITHOUT RIB-VG STYLE

This style provides connector cable strain relief. Can be installed directly onto connector rear thread.

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | | Expanded (Min) | | Recovered (Max) | | Recovered dimensions fully shrunk | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VG Part No. | Hellermann Part No. | H | J | H | J | P ±10% | R ±10% | S ±10% | Jo ±10% | HW ±30% | JW ±30% |
| VG 95343 T06 J002A | 1112-1 | 0.53 | 0.26 | 0.41 | 0.14 | 1.26 | 0.91 | 0.67 | 0.30 | 0.06 | 0.04 |
| VG 95343 T06 J003A | 1113-1 | 0.75 | 0.31 | 0.57 | 0.18 | 1.54 | 1.02 | 0.75 | 0.31 | 0.10 | 0.04 |
| VG 95343 T06 J004A | 1114-1 | 0.93 | 0.45 | 0.71 | 0.22 | 2.01 | 1.30 | 0.87 | 0.37 | 0.12 | 0.04 |
| VG 95343 T06 J008A | 1118-1 | 2.34 | 1.73 | 1.77 | 0.83 | 5.24 | 2.87 | 1.77 | 1.57 | 0.28 | 0.20 |

### MATERIALS AVAILABLE

| Reference | Specification | Description |
|---|---|---|
| J | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | VG 95343 PART 6 | Fluid resistant elastomer |
| H | NAVSEA 5617649 | Flexible limited fire hazard material |

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| WM250 | General purpose hot melt +80°C |
| W8 | High performance hot melt +105°C |
| W24 | 1 Part Epoxy 200°C |

**For ordering procedure – refer to page 5**

# 1100 SERIES
## RIGHT-ANGLE SHAPES WITH RIB-MIL STYLE

This style provides strain relief for harness systems when used in conjunction with a circular grooved adaptor.

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | | Expanded (Min) | | Recovered (Max) | | Recovered dimensions fully shrunk | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MIL Spec No. | Hellermann Part No. | H | J | H | J | P ±10% | R ±10% | S ±10% | Jo ±10% | W ±20% | T ±20% |
| | 1181-4 | 0.47 | 0.24 | 0.38 | 0.08 | 0.75 | 0.51 | 0.41 | 0.24 | 0.04 | 0.02 |
| | * 1108-4 | 0.65 | 0.65 | 0.31 | 0.15 | 0.68 | 0.79 | 0.60 | 0.16 | 0.04 | 0.04 |
| MS3117-11 | * 1106-4 | 0.92 | 0.92 | 0.41 | 0.22 | 0.80 | 0.90 | 0.60 | 0.23 | 0.05 | 0.04 |
| MS3117-12 | * 1107-4 | 1.12 | 1.12 | 0.56 | 0.25 | 1.17 | 1.12 | 0.84 | 0.28 | 0.06 | 0.04 |
| MS3117-13 | * 1104-4 | 1.22 | 1.22 | 0.70 | 0.28 | 1.40 | 1.20 | 0.81 | 0.34 | 0.07 | 0.04 |
| MS3117-14 | * 1103-4 | 1.42 | 1.42 | 0.88 | 0.33 | 1.70 | 1.40 | 0.90 | 0.50 | 0.07 | 0.04 |
| MS3117-15 | * 1101-4 | 1.68 | 1.68 | 1.10 | 0.38 | 2.10 | 1.70 | 1.10 | 0.62 | 0.08 | 0.07 |
| MS3117-16 | 1105-4 | 2.04 | 2.04 | 1.38 | 0.62 | 3.10 | 2.10 | 1.30 | 1.20 | 0.13 | 0.07 |
| MS3117-17 | 1109-4 | 2.60 | 2.60 | 1.75 | 0.80 | 3.84 | 2.60 | 1.64 | 1.60 | 0.15 | 0.08 |

### MATERIALS AVAILABLE

| Reference | | Specification | Description |
|---|---|---|---|
| J | * | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | * | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | | VG 95343 PART 6 | Fluid resistant elastomer |
| H | | NAVSEA 5617649 | Flexible limited fire hazard material |

*Standard products and materials.

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| WM250 | General purpose hot melt +80°C |
| W8 | High performance hot melt +105°C |
| W24 | 1 Part Epoxy 200°C |

**For ordering procedure – refer to page 5**

# 1100 SERIES

## RIGHT-ANGLE SHAPES WITHOUT RIB

This style provides connector cable strain relief. Can be installed directly onto connector rear thread.

Dimensions apply to all materials unless otherwise indicated and are in inches

| | Expanded (Min) | | Recovered (Max) | | Recovered dimensions fully shrunk | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Hellermann Part No. | H | J | H | J | P ±10% | R ±10% | S ±10% | Jo ±10% | W ±10% |
| * 1108-1 | 0.65 | 0.65 | 0.31 | 0.15 | 0.68 | 0.79 | 0.60 | 0.16 | 0.04 |
| * 1108-2 | 0.42 | 0.33 | 0.31 | 0.15 | 0.68 | 0.79 | 0.60 | 0.16 | 0.04 |
| 1106-1 | 0.93 | 0.93 | 0.41 | 0.22 | 0.80 | 0.90 | 0.60 | 0.23 | 0.05 |
| 1106-2 | 0.54 | 0.46 | 0.41 | 0.22 | 0.80 | 0.90 | 0.60 | 0.23 | 0.05 |
| * 1107-1 | 1.12 | 1.12 | 0.56 | 0.25 | 0.84 | 0.84 | 0.73 | 0.28 | 0.06 |
| * 1107-2 | 0.76 | 0.56 | 0.56 | 0.25 | 0.84 | 0.84 | 0.73 | 0.28 | 0.06 |
| * 1104-1 | 0.95 | 0.62 | 0.70 | 0.28 | 1.40 | 1.20 | 0.81 | 0.34 | 0.07 |
| * 1104-2 | 1.25 | 1.25 | 0.70 | 0.28 | 1.40 | 1.20 | 0.81 | 0.34 | 0.07 |
| * 1103-1 | 1.50 | 1.50 | 0.88 | 0.33 | 1.70 | 1.40 | 0.90 | 0.50 | 0.07 |
| * 1103-2 | 1.20 | 0.75 | 0.88 | 0.33 | 1.70 | 1.40 | 0.90 | 0.50 | 0.07 |
| * 1101-1 | 1.70 | 1.70 | 1.10 | 0.38 | 2.18 | 1.70 | 1.10 | 0.62 | 0.08 |
| * 1101-2 | 1.50 | 0.90 | 1.10 | 0.38 | 2.18 | 1.70 | 1.10 | 0.62 | 0.08 |
| 1105-1 | 2.06 | 2.06 | 1.38 | 0.62 | 3.10 | 2.10 | 1.30 | 1.20 | 0.13 |
| 1105-2 | 1.85 | 1.40 | 1.38 | 0.62 | 3.10 | 2.10 | 1.30 | 1.20 | 0.13 |
| 1109-1 | 2.60 | 2.60 | 1.75 | 0.80 | 3.84 | 2.60 | 1.64 | 1.60 | 0.15 |
| 1109-2 | 2.34 | 1.72 | 1.75 | 0.80 | 3.84 | 2.60 | 1.64 | 1.60 | 0.15 |
| 1109-3 | 3.00 | 3.00 | 1.75 | 0.80 | 3.84 | 2.60 | 1.64 | 1.60 | 0.15 |

### MATERIALS AVAILABLE

| Reference | | Specification | Description |
|---|---|---|---|
| J | * | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | * | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | | VG 95343 PART 6 | Fluid resistant elastomer |
| H | | NAVSEA 5617649 | Flexible limited fire hazard material |

*Standard products and materials.

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| WM250 | General purpose hot melt +80°C |
| W8 | High performance hot melt +105°C |
| W24 | 1 Part Epoxy 200°C |

**For ordering procedure – refer to page 5**

# 1100 SERIES

## RIGHT-ANGLE LOW PROFILE SHAPES WITH RIB-VG/MIL STYLE

This style is typically used on airborne harnesses to achieve low profile , compact strain relief and mechanical protection.

VG shapes according to T07 add 'P' after Hellermann Part Number.

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | | Expanded (Min) | | Recovered (Max) | | Recovered dimensions fully shrunk | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| VG Part No. | Hellermann Part No. | H | J | H | J | P ±10% | R ±10% | T ±10% | HW ±20% | JW ±30% |
| VG 95343 T06 F001 | 1121-1 | 0.87 | 0.87 | 0.47 | 0.26 | 2.76 | 0.75 | 0.04 | 0.06 | 0.04 |
| VG 95343 T06 F002 | * 1122-1 | 1.00 | 1.00 | 0.59 | 0.30 | 3.11 | 0.79 | 0.04 | 0.06 | 0.04 |
| VG 95343 T06 F003 | * 1123-1 | 1.14 | 1.14 | 0.75 | 0.33 | 3.50 | 0.83 | 0.04 | 0.07 | 0.04 |
| VG 95343 T06 F004 | * 1124-1 | 1.34 | 1.34 | 0.91 | 0.39 | 4.02 | 0.87 | 0.04 | 0.07 | 0.04 |
| VG 95343 T06 F005 | * 1125-1 | 1.46 | 1.46 | 1.18 | 0.43 | 4.25 | 0.94 | 0.07 | 0.08 | 0.04 |
| VG 95343 T06 F006 | * 1126-1 | 1.71 | 1.71 | 1.34 | 0.47 | 4.76 | 1.06 | 0.07 | 0.08 | 0.04 |
| VG 95343 T06 F007 | 1127-1 | 1.97 | 1.97 | 1.63 | 0.57 | 5.20 | 1.18 | 0.07 | 0.09 | 0.06 |
| VG 95343 T06 F008 | 1128-1 | 2.46 | 2.46 | 1.85 | 0.71 | 5.24 | 1.30 | 0.08 | 0.10 | 0.06 |
| VG 95343 T06 F009 | 1129-1 | 2.72 | 2.72 | 2.36 | 0.79 | 5.39 | 1.40 | 0.08 | 0.10 | 0.06 |
| VG 95343 T06 F010 | 1141-1 | 3.23 | 3.23 | 2.64 | 0.91 | 5.51 | 1.77 | 0.08 | 0.10 | 0.06 |
| MIL Spec. No. | | | | | | | | | | |
| MS 3117-01- | 1121-4 | 0.88 | 0.88 | 0.41 | 0.23 | 4.14 | 0.73 | 0.04 | 0.06 | 0.04 |
| MS 3117-02- | * 1122-4 | 1.01 | 1.01 | 0.54 | 0.26 | 4.88 | 0.78 | 0.04 | 0.06 | 0.04 |
| MS 3117-03- | * 1123-4 | 1.16 | 1.16 | 0.68 | 0.30 | 5.76 | 0.82 | 0.04 | 0.07 | 0.04 |
| MS 3117-04- | * 1124-4 | 1.34 | 1.34 | 0.82 | 0.35 | 6.78 | 0.86 | 0.04 | 0.07 | 0.04 |
| MS 3117-05- | * 1125-4 | 1.47 | 1.47 | 1.06 | 0.37 | 7.29 | 0.96 | 0.07 | 0.08 | 0.04 |
| | 1125-2 | 1.62 | 1.62 | 1.06 | 0.37 | 3.23 | 0.96 | 0.07 | 0.08 | 0.04 |
| MS 3117-06 | * 1126-4 | 1.72 | 1.72 | 1.22 | 0.44 | 8.41 | 1.08 | 0.07 | 0.08 | 0.04 |
| MS 3117-07 | 1127-4 | 1.97 | 1.97 | 1.48 | 0.51 | 8.84 | 1.16 | 0.07 | 0.09 | 0.06 |
| | 1127-3 | 1.97 | 1.97 | 1.48 | 0.51 | 2.56 | 1.16 | 0.07 | 0.09 | 0.06 |
| MS 3117-08- | 1128-4 | 2.47 | 2.47 | 1.69 | 0.69 | 8.95 | 1.30 | 0.08 | 0.10 | 0.06 |
| MS 3117-09- | 1129-4 | 2.73 | 2.73 | 2.15 | 0.70 | 9.19 | 1.38 | 0.08 | 0.10 | 0.06 |

### MATERIALS AVAILABLE

| Reference | | Specification | Description |
|---|---|---|---|
| J | * | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | * | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | * | VG 95343 PART 6 | Fluid resistant elastomer |

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| WM250 | General purpose hot melt +80°C |
| W8 | High performance hot melt +105°C |
| W24 | 1 Part Epoxy 200°C |

*Standard products and materials.

**For ordering procedure – refer to page 5**

# 1100 SERIES

## RIGHT-ANGLE SHAPES
## LOW PROFILE HIGH RATIO
## WITH RIB-VG STYLE

This style provides connector cable strain relief. Used in applications of partially loaded connectors with small cable diameters.

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | | Expanded (Min) | | Recovered (Max) | | Recovered dimensions fully shrunk | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VG Part No. | Hellermann Part No. | H | J | H | J | P ±10% | R ±10% | Jo ±10% | T ±10% | HW ±20% | JW ±20% |
| VG 95343 T06 F011A | 1133-1 | 0.75 | 0.24 | 0.51 | 0.08 | 1.77 | 0.63 | 0.87 | 0.04 | 0.06 | 0.04 |
| | 1133-2 | 0.76 | 0.25 | 0.51 | 0.08 | 1.18 | 0.64 | 0.29 | 0.12 | 0.06 | 0.04 |
| VG 95343 T06 F012A | 1134-1 | 1.02 | 0.30 | 0.75 | 0.10 | 2.64 | 0.71 | 1.14 | 0.04 | 0.07 | 0.04 |
| VG 95343 T06 F013A | 1135-1 | 1.34 | 0.37 | 1.02 | 0.12 | 3.19 | 0.75 | 1.40 | 0.04 | 0.07 | 0.04 |
| | 1135-2 | 1.35 | 0.38 | 1.02 | 0.12 | 2.17 | 0.74 | 0.36 | 0.12 | 0.07 | 0.04 |
| VG 95343 T06 F014A | 1136-1 | 1.71 | 0.45 | 1.34 | 0.14 | 4.57 | 0.83 | 1.85 | 0.07 | 0.07 | 0.04 |

### MATERIALS AVAILABLE

| Reference | | Specification | Description |
|---|---|---|---|
| J | * | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | * | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | * | VG 95343 PART 6 | Fluid resistant elastomer |
| H | | NAVSEA 5617649 | Flexible limited fire hazard material |

*Standard material.

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| WM250 | General purpose hot melt +80°C |
| W8 | High performance hot melt +105°C |
| W24 | 1 Part Epoxy 200°C |

**For ordering procedure – refer to page 5**

# 1200 SERIES

## T SHAPES
## -VG STYLE

This style provides strain relief, sealing and mechanical protection on cable harnesses.

VG shapes according to T09 add 'P' after Hellermann part number

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | | Expanded (Min) | | | Recovered (Max) | | | Recovered dimensions fully shrunk | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VG Part No. | Hellermann Part No. | H | J | K | H | J | K | P ±10% | R ±10% | S ±10% | KW +20% | HW, JW +20% |
| VG 95343 T08 A009A | * 1206-1 | 0.26 | 0.26 | 0.26 | 0.12 | 0.12 | 0.12 | 1.17 | 0.58 | 0.58 | 0.04 | 0.04 |
| VG 95343 T08 A001A | * 1203-1 | 0.52 | 0.52 | 0.26 | 0.24 | 0.12 | 0.12 | 2.05 | 1.02 | 0.76 | 0.04 | 0.06 |
| VG 95343 T08 A010A | * 1202-1 | 0.52 | 0.52 | 0.52 | 0.24 | 0.24 | 0.24 | 2.31 | 1.15 | 1.15 | 0.06 | 0.06 |
| — | * 1205-1 | 0.70 | 0.67 | 0.30 | 0.35 | 0.35 | 0.15 | 2.00 | 1.00 | 1.00 | 0.04 | 0.06 |
| VG 95343 T08 A007A | 1201-1 | 0.70 | 0.70 | 0.40 | 0.35 | 0.35 | 0.20 | 1.87 | 0.93 | 0.93 | 0.04 | 0.06 |
| VG 95343 T08 A002A | * 1209-1 | 1.06 | 1.06 | 0.52 | 0.49 | 0.49 | 0.24 | 4.25 | 2.13 | 2.13 | 0.06 | 0.10 |
| VG 95343 T08 A011A | * 1207-1 | 1.06 | 1.06 | 1.06 | 0.49 | 0.49 | 0.49 | 4.73 | 2.20 | 2.20 | 0.10 | 0.10 |
| — | 1230-1 | 0.78 | 0.78 | 0.78 | 0.40 | 0.40 | 0.40 | 3.54 | 1.77 | 1.77 | 0.08 | 0.08 |
| — | 1221-1 | 0.98 | 0.98 | 0.98 | 0.39 | 0.39 | 0.39 | 4.21 | 2.10 | 2.10 | 0.08 | 0.08 |

### MATERIALS AVAILABLE

| Reference | | Specification | Description |
|---|---|---|---|
| J | * | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | * | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | * | VG 95343 PART 6 | Fluid resistant elastomer |
| H | | NAVSEA 5617649 | Flexible limited fire hazard material |

*Standard products and material.

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| WM250 | General purpose hot melt +80°C |
| W8 | High performance hot melt +105°C |
| W24 | 1 Part Epoxy 200°C |

**For ordering procedure – refer to page 5**

# 1200 SERIES

## OFF-SET T SHAPES

This style provides strain relief, sealing and mechanical protection on cable harness.

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | Expanded (Min) | | | Recovered (Max) | | | Recovered dimensions fully shrunk | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hellermann Part No. | H | J | K | H | J | K | P ±10% | R ±10% | S ±10% | HW ±20% | JW ±20% | KW ±20% |
| 1217-1 | 0.39 | 0.24 | 0.24 | 0.10 | 0.09 | 0.10 | 2.24 | 0.75 | 0.93 | 0.04 | 0.04 | 0.04 |
| 1222-1 | 1.22 | 0.71 | 0.98 | 0.60 | 0.35 | 0.59 | 3.62 | 2.05 | 1.77 | 0.09 | 0.09 | 0.09 |
| 1223-1 | 1.16 | 0.38 | 1.16 | 0.64 | 0.21 | 0.64 | 3.67 | 2.23 | 2.23 | 0.10 | 0.07 | 0.07 |

### MATERIALS AVAILABLE

| Reference | Specification | Description |
|---|---|---|
| J | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | VG 95343 PART 6 | Fluid resistant elastomer |
| H | NAVSEA 5617649 | Flexible limited fire hazard material |

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| WM250 | General purpose hot melt +80°C |
| W8 | High performance hot melt +105°C |
| W24 | 1 Part Epoxy 200°C |

**For ordering procedure – refer to page 5**

# 1200 SERIES

## OFF-SET
## T SHAPES-VG STYLE

This style provides strain relief, sealing and mechanical protection on cable harnesses.

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | | Expanded (Min) | | | Recovered (Max) | | | Recovered dimensions fully shrunk | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VG Part No. | Hellermann Part No. | H | J | K | H | J | K | P ±10% | R ±10% | S ±10% | HW ±20% | JW ±20% | KW ±20% |
| VG 95343 T08 A016A | * 1204-1 | 0.51 | 0.26 | 0.26 | 0.30 | 0.16 | 0.16 | 2.20 | 1.30 | 0.76 | 0.06 | 0.04 | 0.04 |
| VG 95343 T08 A017A | * 1216-1 | 1.30 | 0.65 | 0.65 | 0.51 | 0.26 | 0.26 | 3.82 | 2.13 | 1.52 | 0.10 | 0.06 | 0.06 |
| — | * 1226-1 | 1.20 | 0.70 | 0.70 | 0.60 | 0.35 | 0.35 | 3.20 | 1.87 | 1.50 | 0.09 | 0.05 | 0.05 |

### MATERIALS AVAILABLE

| Reference | | Specification | Description |
|---|---|---|---|
| J | * | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | * | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | * | VG 95343 PART 6 | Fluid resistant elastomer |
| H | | NAVSEA 5617649 | Flexible limited fire hazard material |

*Standard products and material.

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| WM250 | General purpose hot melt +80°C |
| W8 | High performance hot melt +105°C |
| W24 | 1 Part Epoxy 200°C |

**For ordering procedure – refer to page 5**

# 1300 SERIES

## 45° ANGLE
## T SHAPES - VG STYLE

This style provides strain relief, sealing and mechanical protection on cable harnesses.

VG shapes according to T09 add 'P' after Hellermann part number.

| Hellermann Part No. | Angle |
|---|---|
| 1301-1 | 45° |
| 1302-1 | 45° |
| 1303-1 | 45° |
| 1311-1 | 30° |

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | | Expanded (Min) | | | Recovered (Max) | | | Recovered dimensions fully shrunk | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VG Part No. | Hellermann Part No. | H | J | K | H | J | K | P ±10% | R ±10% | S ±10% | HW ±20% | JW ±20% | KW ±20% |
| VG 95343 T08 B001A | * 1301-1 | 0.51 | 0.51 | 0.28 | 0.28 | 0.28 | 0.14 | 1.97 | 0.91 | 0.91 | 0.06 | 0.06 | 0.04 |
| VG 95343 T08 B004A | * 1302-1 | 1.06 | 1.06 | 0.28 | 0.51 | 0.51 | 0.14 | 3.62 | 1.61 | 1.42 | 0.10 | 0.10 | 0.04 |
| VG 95343 T08 B002A | * 1303-1 | 1.06 | 1.06 | 0.51 | 0.55 | 0.55 | 0.30 | 5.71 | 2.76 | 2.13 | 0.10 | 0.10 | 0.06 |
| VG 95343 T08 B003A | * 1311-1 | 1.20 | 1.20 | 0.80 | 0.59 | 0.59 | 0.39 | 3.25 | 1.26 | 2.01 | 0.10 | 0.10 | 0.07 |

### MATERIALS AVAILABLE

| Reference | | Specification | Description |
|---|---|---|---|
| J | * | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | * | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | * | VG 95343 PART 6 | Fluid resistant elastomer |
| H | | NAVSEA 5617649 | Flexible limited fire hazard material |

*Standard products and material.

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| WM250 | General purpose hot melt +80°C |
| W8 | High performance hot melt +105°C |
| W24 | 1 Part Epoxy 200°C |

**For ordering procedure – refer to page 5**

# 1300 SERIES

## 45° ANGLE
## T SHAPE - VG STYLE

This style provides strain relief, sealing and mechanical protection on cable harness.

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | | Expanded (Min) | | | Recovered (Max) | | | Recovered dimensions fully shrunk | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VG Part No. | Hellermann Part No. | H | J | K | H | J | K | P ±10% | R ±10% | S ±10% | HW ±20% | JW ±20% | KW ±20% |
| VG 95343 T08 B010A | * 1306-1 | 0.51 | 0.26 | 0.26 | 0.24 | 0.12 | 0.12 | 1.77 | 0.91 | 0.83 | 0.06 | 0.04 | 0.04 |
| VG 95343 T08 B011A | * 1307-1 | 1.06 | 0.51 | 0.51 | 0.49 | 0.24 | 0.24 | 3.54 | 1.65 | 1.69 | 0.10 | 0.06 | 0.06 |

### MATERIALS AVAILABLE

| Reference | | Specification | Description |
|---|---|---|---|
| J | * | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | * | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | * | VG 95343 PART 6 | Fluid resistant elastomer |
| H | | NAVSEA 5617649 | Flexible limited fire hazard material |

*Standard products and material.

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| WM250 | General purpose hot melt +80°C |
| W8 | High performance hot melt +105°C |
| W24 | 1 Part Epoxy 200°C |

**For ordering procedure – refer to page 5**

# 1310 SERIES

## 30° ANGLE
## DOUBLE T SHAPE

This special style provides strain relief, sealing and mechanical protection on cable harness.

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | Expanded (Min) | | Recovered (Max) | | Recovered dimensions fully shrunk | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Hellermann Part No. | H, J | K, L | H, J | K, L | P ±10% | R ±10% | S ±10% | T ±10% | HW,JW ±20% | KW,LW ±20% |
| 1310-1 | 1.20 | 0.50 | 0.60 | 0.25 | 3.50 | 2.00 | 1.00 | 0.75 | 0.10 | 0.05 |

### MATERIALS AVAILABLE

| Reference | | Specification | Description |
|---|---|---|---|
| J | * | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | * | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | * | VG 95343 PART 6 | Fluid resistant elastomer |
| H | | NAVSEA 5617649 | Flexible limited fire hazard material |

*Standard material.

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| WM250 | General purpose hot melt +80°C |
| W8 | High performance hot melt +105°C |
| W24 | 1 Part Epoxy 200°C |

**For ordering procedure – refer to page 5**

# 1400 SERIES

## 90° ANGLE ELBOW SHAPES

This style provides cable strain relief and mechanical protection.

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | Expanded (Min) | | Recovered (Max) | | Recovered dimensions fully shrunk | | |
|---|---|---|---|---|---|---|---|
| Hellermann Part No. | H | J | H | J | P ± 10% | R ± 10% | W ± 20% |
| * 1401-1 | 1.25 | 1.25 | 0.62 | 0.62 | 3.50 | 2.00 | 0.09 |
| 1401-2 | 1.50 | 1.50 | 0.62 | 0.62 | 3.50 | 2.00 | 0.09 |
| * 1403-1 | 0.62 | 0.62 | 0.31 | 0.31 | 1.75 | 1.00 | 0.06 |
| 1405-1 | 0.98 | 0.98 | 0.31 | 0.31 | 1.18 | 0.59 | 0.06 |
| 1406-1 | 0.79 | 0.79 | 0.31 | 0.31 | 1.77 | 0.59 | 0.06 |
| * 1408-2 | 0.75 | 0.75 | 0.35 | 0.35 | 1.77 | 1.77 | 0.07 |

### MATERIALS AVAILABLE

| Reference | | Specification | Description |
|---|---|---|---|
| J | * | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | * | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | * | VG 95343 PART 6 | Fluid resistant elastomer |
| H | | NAVSEA 5617649 | Flexible limited fire hazard material |

*Standard products and material.

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| WM250 | General purpose hot melt +80°C |
| W8 | High performance hot melt +105°C |
| W24 | 1 Part Epoxy 200°C |

**For ordering procedure – refer to page 5**

# 1500 SERIES
## CONNECTOR COVER FOR MIN-D SERIES WITH TOP ENTRY

This style provides strain relief and mechanical protection.

Dimensions apply to all materials unless otherwise indicated and are in inches.

| WITH LIPS | Expanded (Min) | | | Recovered (Max) | | | Recovered dimensions fully shrunk | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Hellermann Part No. | H | J | K | H | J | K | P ±10% | R ±10% | W ±10% | Connector Size No. of Ways |
| 1505-1 | 0.80 | 0.42 | 0.31 | 0.80 | 0.42 | 0.16 | 1.30 | 0.75 | 0.04 | 9 |
| 1505-2 | 0.63 | 0.63 | 0.63 | 0.80 | 0.42 | 0.16 | 1.30 | 0.75 | 0.04 | 9 |
| 1505-7 | 0.80 | 0.59 | 0.47 | 0.80 | 0.42 | 0.16 | 1.89 | 0.75 | 0.04 | 9 |
| 1505-8 | 0.63 | 0.63 | 0.63 | 0.80 | 0.42 | 0.16 | 1.89 | 0.75 | 0.04 | 9 |
| 1506-1 | 1.11 | 0.42 | 0.40 | 1.11 | 0.42 | 0.21 | 1.53 | 0.87 | 0.04 | 15 |
| 1506-2 | 0.75 | 0.75 | 0.75 | 1.11 | 0.42 | 0.21 | 1.53 | 0.87 | 0.04 | 15 |
| 1506-5 | 1.46 | 0.42 | 0.40 | 1.11 | 0.42 | 0.21 | 1.53 | 0.87 | 0.04 | 15 |
| * 1507-1 | 1.66 | 0.42 | 0.55 | 1.66 | 0.42 | 0.32 | 1.77 | 1.00 | 0.04 | 25 |
| * 1507-2 | 1.15 | 1.15 | 1.15 | 1.66 | 0.42 | 0.32 | 1.77 | 1.00 | 0.04 | 25 |
| 1507-7 | 2.17 | 0.55 | 0.98 | 1.66 | 0.42 | 0.32 | 1.77 | 1.00 | 0.04 | 25 |
| 1501-1 | 2.30 | 0.42 | 0.68 | 2.31 | 0.42 | 0.34 | 2.10 | 1.12 | 0.04 | 37 |
| 1501-2 | 1.35 | 1.35 | 1.35 | 2.31 | 0.42 | 0.34 | 2.10 | 1.12 | 0.04 | 37 |
| 1502-1 | 1.48 | 1.48 | 1.48 | 2.28 | 0.54 | 0.41 | 2.40 | 1.25 | 0.04 | 50 |
| 1502-2 | 2.28 | 0.54 | 0.75 | 2.28 | 0.54 | 0.41 | 2.40 | 1.25 | 0.04 | 50 |
| **WITHOUT LIPS** | | | | | | | | | | |
| 1505-3 | 0.83 | 0.49 | 0.31 | 0.80 | 0.42 | 0.16 | 1.30 | 0.75 | 0.04 | 9 |
| * 1507-3 | 1.66 | 0.42 | 0.55 | 1.66 | 0.42 | 0.32 | 1.77 | 1.00 | 0.04 | 25 |
| 1501-3 | 2.35 | 0.49 | 0.68 | 2.31 | 0.42 | 0.34 | 2.10 | 1.12 | 0.04 | 37 |
| 1501-7 | 2.30 | 0.42 | 0.68 | 2.31 | 0.42 | 0.34 | 2.10 | 1.12 | 0.04 | 37 |
| 1502-3 | 2.26 | 0.54 | 0.75 | 2.28 | 0.54 | 0.41 | 2.40 | 1.25 | 0.04 | 50 |

### MATERIALS AVAILABLE

| Reference | | Specification | Description |
|---|---|---|---|
| J | * | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | * | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | * | VG 95343 PART 6 | Fluid resistant elastomer |
| H | | NAVSEA 5617649 | Flexible limited fire hazard material |

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| WM250 | General purpose hot melt +80°C |
| W8 | High performance hot melt +105°C |
| W24 | 1 Part Epoxy 200°C |

*Standard products and material.

**For ordering procedure – refer to page 5**

# 1600 SERIES
## END CAPS

This style has a conical end and is used for sealing cables.

End caps with the exception of 1612, 1618 and 1633 can be fitted with air valves for certain pressurized cable applications. Consult your master distributor for availability.

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | Exp'd (Min) | Recovered (Max) | | Recovered dimensions fully shrunk | | | |
|---|---|---|---|---|---|---|---|
| Hellermann Part No. | H | H | J | P ±10% | R ±10% | W ±20% | For Cable Diameters |
| * 1612-1 | 0.39 | 0.16 | 0.12 | 1.32 | 1.18 | 0.08 | 0.16-0.31 |
| 1618-1 | 0.55 | 0.24 | 0.20 | 2.18 | 1.97 | 0.09 | 0.24-0.43 |
| * 1613-1 | 0.79 | 0.30 | 0.26 | 2.18 | 1.97 | 0.09 | 0.31-0.63 |
| * 1614-1 | 1.57 | 0.59 | 0.41 | 3.54 | 3.15 | 0.12 | 0.60-1.26 |
| 1620-1 | 1.38 | 0.50 | 0.39 | 7.25 | 7.05 | 0.13 | 0.51-1.10 |
| * 1615-1 | 2.48 | 0.98 | 0.63 | 5.64 | 5.12 | 0.13 | 0.98-1.97 |
| * 1617-1 | 2.99 | 1.18 | 0.67 | 6.22 | 5.91 | 0.16 | 1.18-2.36 |
| * 1616-1 | 3.94 | 1.77 | 1.02 | 6.40 | 5.51 | 0.16 | 1.77-3.15 |
| 1609-1 | 4.72 | 2.36 | 0.67 | 5.91 | 5.24 | 0.16 | 60.0-96.0 |
| 1610-1 | 6.30 | 3.23 | 1.06 | 5.75 | 4.57 | 0.16 | 82.0-128 |

### MATERIALS AVAILABLE

| Reference | Specification | Description |
|---|---|---|
| J | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | VG 95343 PART 6 | Fluid resistant elastomer |
| B8 * | | Semi-rigid polyolefin |

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| W | General purpose hot melt +80°C |

*Standard products and material.

**For ordering procedure – refer to page 5**

# 1750 SERIES

## GSR - GRADUATED STRAIN RELIEF SHAPES

This style is ideally suited for shipboard and railway carriage cabling.

**Key Features:**

- Very robust
- Superior crush resistance
- Excellent strain relief
- Wall thickness varies with long thin tail allowing setting at varying angles through to 90°

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | | Expanded (Min) | | Recovered (Max) | | Recovered dimensions fully shrunk | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NAVSEA REFERENCE | Hellermann Part No. | H | J | H | J | P ±10% | R ±10% | S ±10% | T ±10% | HW ±20% | JW ±20% |
| 5617649-1 | 1751-1 | 1.00 | 1.00 | 0.65 | 0.33 | 6.02 | 1.20 | 1.89 | 0.06 | 0.16 | 0.06 |
| — | 1751-2 | 1.30 | 1.30 | 0.65 | 0.33 | 6.02 | 1.20 | 1.89 | 0.06 | 0.16 | 0.06 |
| 5617649-2 | 1752-1 | 1.30 | 1.30 | 0.80 | 0.43 | 6.02 | 1.20 | 1.89 | 0.06 | 0.16 | 0.06 |
| — | 1752-2 | 1.70 | 1.70 | 0.80 | 0.43 | 6.02 | 1.20 | 1.89 | 0.06 | 0.16 | 0.06 |
| 5617649-3 | 1753-1 | 1.70 | 1.70 | 0.90 | 0.56 | 6.90 | 1.50 | 1.89 | 0.06 | 0.16 | 0.08 |
| — | 1753-2 | 2.10 | 2.10 | 0.90 | 0.56 | 6.90 | 1.50 | 1.89 | 0.06 | 0.16 | 0.08 |
| 5617649-4 | 1754-1 | 2.10 | 2.10 | 1.10 | 0.70 | 6.90 | 1.50 | 1.89 | 0.06 | 0.16 | 0.08 |
| — | 1754-2 | 2.85 | 2.85 | 1.10 | 0.70 | 6.90 | 1.50 | 1.89 | 0.06 | 0.16 | 0.08 |
| 5617649-5 | 1755-1 | 2.85 | 2.85 | 1.45 | 0.95 | 7.24 | 1.61 | 2.01 | 0.06 | 0.20 | 0.10 |
| — | 1755-2 | 3.43 | 3.43 | 1.45 | 0.95 | 7.24 | 1.61 | 2.01 | 0.06 | 0.20 | 0.10 |

### MATERIALS AVAILABLE

| Reference | Specification | Description |
|---|---|---|
| J | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | VG 95343 PART 6 | Fluid resistant elastomer |
| H * | NAVSEA 5617649 | Flexible limited fire hazard material |

*Standard material.

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| WM250 | General purpose hot melt +80°C |
| W8 | High performance hot melt +105°C |
| W24 | 1 Part Epoxy 200°C |

**For ordering procedure – refer to page 5**

# 1800 SERIES
## ANGLE SHAPES WITH RIB
## 30°, 45° & 60°

This style provides strain relief, mechanical protection for harness systems when used in conjunction with a circular grooved adaptor.

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | | Expanded (Min) | | | | Rec'd (Max) | | Recovered dimensions fully shrunk | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angle Nominal | Hellermann Part No. | H | H -H Matl | J | J -H Matl | H | J | P ±10% | R ±10% | T ±10% | HW ±10% | JW ±20% |
| 45° | 1807-4 | 1.40 | 1.40 | 1.40 | 0.87 | 0.71 | 0.29 | 1.70 | 0.40 | 0.04 | 0.07 | 0.07 |
| 45° | 1805-4 | 1.57 | 1.57 | 1.57 | 0.83 | 0.74 | 0.28 | 1.10 | 0.43 | 0.04 | 0.06 | 0.06 |
| 45° | 1806-4 | 1.68 | 1.68 | 1.68 | 1.15 | 1.10 | 0.38 | 3.35 | 0.70 | 0.07 | 0.08 | 0.08 |
| 45° | 1821-42 | 0.79 | 0.79 | 0.79 | 0.47 | 0.56 | 0.16 | 0.95 | 0.39 | 0.04 | 0.09 | 0.07 |

### MATERIALS AVAILABLE

| Reference | | Specification | Description |
|---|---|---|---|
| J | * | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | * | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | * | VG 95343 PART 6 | Fluid resistant elastomer |
| H | | NAVSEA 5617649 | Flexible limited fire hazard material |

*Standard material.

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| WM250 | General purpose hot melt +80°C |
| W8 | High performance hot melt +105°C |
| W24 | 1 Part Epoxy 200°C |

**For ordering procedure – refer to page 5**

# 2000 SERIES
## RIGHT-ANGLE CROSS SHAPE

This style provides environmental sealing, mechanical protection, allowing wires to be routed in four 90° directions.

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | Expanded (Min) | | Rec'd (Max) | | Recovered dimensions fully shrunk | | | |
|---|---|---|---|---|---|---|---|---|
| Hellermann Part No. | H, J | K, L | H, J | K, L | P ±10% | R ±10% | S ±10% | W ±10% |
| 2003-1 | 0.76 | 0.52 | 0.38 | 0.24 | 1.50 | 1.50 | 0.87 | 0.04 |

### MATERIALS AVAILABLE

| Reference | | Specification | Description |
|---|---|---|---|
| J | | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | * | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | * | VG 95343 PART 6 | Fluid resistant elastomer |
| H | | NAVSEA 5617649 | Flexible limited fire hazard material |

*Standard material.

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| WM250 | General purpose hot melt +80°C |
| W8 | High performance hot melt +105°C |
| W24 | 1 Part Epoxy 200°C |

**For ordering procedure – refer to page 5**

# 1760, 1790, 1820 SERIES
## LOCATING BUSHES

This style provides location, cushioning shimming and protection on cable lengths.

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | Expanded (Min) | Rec'd (Max) | Recovered dimensions fully shrunk | | | | |
|---|---|---|---|---|---|---|---|
| Hellermann Part No. | H Min | H Max | P ±10% | R ±10% | U ±10% | V ±10% | Hw ±20% |
| 1793-3 | 1.26 | 0.37 | 1.38 | 1.00 | 0.12 | 0.18 | 0.060 |
| 1794-3 | 1.42 | 0.71 | 1.38 | 1.00 | 0.12 | 0.18 | 0.080 |
| 1795-3 | 1.58 | 0.50 | 1.38 | 1.00 | 0.12 | 0.18 | 0.080 |
| 1796-3 | 0.86 | 0.25 | 1.14 | 0.95 | 0.08 | 0.98 | 0.06 |

This style suits non round cable bundles

Dimensions apply to all materials unless otherwise indicated and are in inches.

| | Expanded (Min) | | Rec'd (Max) | | Recovered dimensions fully shrunk | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Hellermann Part No. | H Min | J Min | H Max | J Max | K ±10% | P Max | R ±10% | U ±10% | V ±10% |
| 1822-2 | 0.47 | 0.47 | 0.23 | 0.40 | 0.47 | 1.18 | 0.95 | 0.08 | 0.19 |
| 1823-3 | 0.63 | 0.63 | 0.30 | 0.48 | 0.55 | 1.26 | 0.95 | 0.098 | 0.16 |

### MATERIALS AVAILABLE

| Reference | | Specification | Description |
|---|---|---|---|
| J | | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | * | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | * | VG 95343 PART 6 | Fluid resistant elastomer |
| H | | NAVSEA 5617649 | Flexible limited fire hazard material |

*Standard material.

### ADHESIxVE COATING OPTIONS

| Reference | Description |
|---|---|
| WM250 | General purpose hot melt +80°C |
| W8 | High performance hot melt +105°C |
| W24 | 1 Part Epoxy 200°C |

**For ordering procedure – refer to page 5**

# 2100 SERIES
## CONNECTOR COVER FOR MIN D SERIES WITH 90° ENTRY

This style provides strain relief and mechanical protection.

Dimensions apply to all materials unless otherwise indicated and are in inches.

| WITH LIPS | Expanded (Min) | | | | | | Recovered (Max) | | | Recovered dimensions fully shrunk | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hellermann Part No. | H | H -H Matl | J | J -H Matl | K | K -H Matl | H | J | K | S ±10% | P ±10% | R ±10% | X ±10% | W ±20% | Connector size No. of ways |
| 2101-1 | 0.80 | 0.80 | 0.42 | 0.42 | 0.31 | 0.31 | 0.80 | 0.42 | 0.16 | 0.60 | 1.02 | 0.85 | 0.12 | 0.04 | 9 |
| 2101-2 | 0.63 | 0.48 | 0.63 | 0.48 | 0.63 | 0.48 | 0.80 | 0.42 | 0.16 | 0.60 | 1.02 | 0.85 | 0.12 | 0.04 | 9 |
| 2102-1 | 1.11 | 1.11 | 0.42 | 0.42 | 0.40 | 0.40 | 1.11 | 0.42 | 0.21 | 0.73 | 1.21 | 0.97 | 0.12 | 0.04 | 15 |
| 2102-2 | 0.75 | 0.63 | 0.75 | 0.63 | 0.75 | 0.63 | 1.11 | 0.42 | 0.21 | 0.73 | 1.21 | 0.97 | 0.12 | 0.04 | 15 |
| 2103-1 | 1.66 | 1.66 | 0.42 | 0.42 | 0.55 | 0.63 | 1.66 | 0.42 | 0.29 | 0.87 | 1.69 | 1.10 | 0.12 | 0.04 | 25 |
| 2103-2 | 1.15 | 0.87 | 1.15 | 0.87 | 1.15 | 0.87 | 1.66 | 0.42 | 0.29 | 0.87 | 1.69 | 1.10 | 0.12 | 0.04 | 25 |
| 2104-1 | 2.31 | 2.31 | 0.42 | 0.42 | 0.68 | 0.68 | 2.31 | 0.42 | 0.34 | 1.00 | 2.10 | 1.20 | 0.12 | 0.04 | 37 |
| 2105-1 | 2.28 | 2.28 | 0.54 | 0.54 | 0.75 | 0.75 | 2.28 | 0.54 | 0.42 | 1.00 | 2.20 | 1.27 | 0.12 | 0.04 | 50 |
| 2105-2 | 1.48 | 1.26 | 1.48 | 1.26 | 1.48 | 1.26 | 2.28 | 0.54 | 0.42 | 1.00 | 2.20 | 1.27 | 0.12 | 0.04 | 50 |

| WITHOUT LIPS | Expanded (Min) | | | | | | Recovered (Max) | | | Recovered dimensions fully shrunk | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2103-3 | 1.69 | 1.69 | 0.49 | 0.49 | 0.55 | 0.55 | 1.66 | 0.42 | 0.29 | 0.87 | 1.69 | 1.10 | 0.12 | 0.04 | 25 |
| 2105-3 | 2.26 | 2.26 | 0.60 | 0.60 | 0.75 | 0.75 | 2.28 | 0.54 | 0.42 | 1.00 | 2.20 | 1.27 | 0.12 | 0.04 | 50 |

### MATERIALS AVAILABLE

| Reference | Specification | Description |
|---|---|---|
| J | MIL-I-81765/TYPE II | Flexible modified polyolefin |
| B7 | MIL-I-81765/TYPE I | Semi-rigid flame retarded polyolefin |
| G | VG 95343 PART 6 | Fluid resistant elastomer |
| H | NAVSEA 5617649 | Flexible limited fire hazard material |

### ADHESIVE COATING OPTIONS

| Reference | Description |
|---|---|
| WM250 | General purpose hot melt +80°C |
| W8 | High performance hot melt +105°C |
| W24 | 1 Part Epoxy 200°C |

**For ordering procedure – refer to page 5**

# VG/MIL SPEC CROSS REFERENCE

Products listed below in VG Style or MIL Spec Style can be substituted with each other, to achieve similar fit and function.

| VG Parts | MIL Spec Parts |
|---|---|
| 152-42 | 105-4 |
| 153-42 | N/A |
| 154-42 | 106-4 |
| 155-42 | 101-4 |
| 156-42 | 102-4 |
| 157-43 | 103-4 |
| 158-43 | 107-4 |
| 159-43 | 118-4 |
| 1152-4 | 1106-4 |
| 1154-4 | 1107-4 |
| 1155-4 | 1104-4 |
| 1156-4 | 1103-4 |
| 1157-4 | 1101-4 |
| 1158-4 | 1105-4 |
| 1159-4 | 1109-4 |
| 129-1 | 129-4 |
| 130-1 | 130-4 |
| 131-1 | 131-4 |
| 132-1 | 132-4 |
| 133-1 | 133-4 |
| 134-1 | 134-4 |
| 135-1 | 135-4 |
| 136-1 | 136-4 |
| 138-1 | 138-4 |
| 187-1 | 187-4 |
| 1122-1 | 1122-4 |
| 1123-1 | 1123-4 |
| 1124-1 | 1124-4 |
| 1125-1 | 1125-4 |
| 1126-1 | 1126-4 |
| 1127-1 | 1127-4 |
| 1128-1 | 1128-4 |
| 1129-1 | 1129-4 |

Note:- These have a longer overall length than VG parts

# HOT MELT ADHESIVE TAPE

**Hot melt adhesive is available as tape and is designed to be used primarily in conjunction with heatshrinkable tubing and moulded shapes in order to provide sealant / adhesive action at the interface between the encapsulant and the substrate.**

The adhesive is a specially compounded blend of resins which melts below the shrinkage temperature of heat shrinkable polyolefin products (+135°C) and also bonds to the polyolefin surface and the wide variety of substrate surfaces to which it is applied, eg cable jackets, metal sheaths and connector back shells. HMT200A will maintain its adhesive sealant properties from -55° to +105°C.

**Method of application**

**Tape form HMT200A.** Nominal dimensions 1.00 inch wide, 0.01 inch thick, nominally 100ft per reel.

1. Substrate surfaces should be clean and free from grease and dirt. If necessary, wipe with a suitable solvent.
2. The substrate should be pre-warmed to reduce its effect as a heat sink.
3. The HMT200A tape should be wrapped once, under slight tension, around the warm substrate with a minimum overlap. When soft it can be pressed into position.
4. Heatshrink is then placed over the assembly and recovered by heating.
5. After the component has been recovered, heating must be continued to ensure that the tape has completely melted, thus ensuring correct bonding.
6. Any rearrangement of the assembly after the heat-shrinkable component has been positioned must be done whilst the sealant is still molten and the encapsulation is above 120°C. Once set, no stresses should be applied to the assembly until it has completely cooled.

Note:

1. Substrates with considerable heat sink characteristics should be pre-warmed. This type of assembly may require even longer post-shrinkage heating to ensure that the HMT200A tape has melted.

HMT200A is a hot melt adhesive tape which is designed for use with heatshrink tubing and mouldings. The adhesive tape flows when heated to provide a permanent air and water tight seal.

| Typical Properties | | TSA200TAPE | HMT200A |
|---|---|---|---|
| **Operating Temperature** | | -55°C to +125°C | -55°C to +105°C |
| **Softening Point** | | N/A | +110°C |
| **Peel Strength** | XLPE/Metal | 35lbs/inch | 33lbs/inch |
| | XLPE/XLPE | 25lbs/inch | 18lbs/inch |
| | PVC/PVC | 13lbs/inch | 13lbs/inch |
| **Lap Shear Strength** | XLPE/Metal | 60lbs | 55lbs |
| | XLPE/XLPE | 55lbs | 36lbs |
| **Shelf Life** | | 2 Years | 2 Years |
| **Colours:** | | Natural | Natural |

**Installation guide for TSA200 tape on request**

# V9500 EPOXY ADHESIVE

**Availability**

V9500 epoxy adhesive is available in two forms:

1) 1x duo Pak (50g), 5x mixing pots,5x mixing sticks, 5, emery papers order V9500 Epoxy adhesive kit.

2) 50gm twin plunger Duo Pak with mixing crucibles, emery cloth and spatulas. Order ref V9500 DP KIT.

**Hellermann Duo Pak is ideal for volume applications. Features include:**

- Accurate dispensing - no need for any weighing of components.
- No mixing is necessary when using the nozzle.
- Less adhesive waste.
- Unique end cap assures proper sealing for multiple uses.
- Contains 50gms equivalent to 5 x 10gm sachets.
- Positive locking of mixing nozzle.

V 9500 Nozzle New
V 9500 DUO PAK
V 9500 Applicator

**Shelf Life:**

The product should be stored in its original packaging at temperatures between +14°C – +26°C. Minimum shelf life of 18 months.

For applications of adhesive see the code of practice which is available from your master distributor.

Qualified to VG 95343 T15A0001.

**Part Numbers**

| | |
|---|---|
| **V9500 DUO PACK** | 50gm twin plunger Duo Pak |
| **V9500 NOZZLE NEW** | Nozzle for 50gm twin plunger |
| **V9500 APPLICATOR** | Applicator for V9500 DUO PAK |
| **V9500 DP Kit** | 50gm twin plunger Duo pak with mixing crucibles,emery cloth and spatulas |

# BOTTLE SHAPES FOR MIL CONNECTORS

## HELLERMANN SHAPES FOR USE WITH CIRCULAR MIL SPEC CONNECTORS MS 5015 AB/LITTON ETC.

| Connector Shell Size | O/Knurl Dia (inches) | Orientation | | Cable Dia (inches) | |
|---|---|---|---|---|---|
| | | Straight | 90° | Min | Max |
| *10 SL | 0.62 | 153-42 | *1152-4/1106-4 | *0.16 | 0.30 |
| 14 S | 0.76 | 154-42/106-4 | 1154-4/1107-4 | 0.28 | 0.42 |
| 16 S | 0.95 | 155-42/101-4 | 1155-4/1104-4 | 0.33 | 0.53 |
| 16 | 0.95 | 155-42/101-4 | 1155-4/1104-4 | 0.33 | 0.53 |
| 18 | 0.95 | 155-42/101-4 | 1155-4/1104-4 | 0.33 | 0.57 |
| 20 | 1.17 | 156-42/102-4 | 1156-4/1103-4 | 0.40 | 0.74 |
| 22 | 1.17 | 156-42/102-4 | 1156-4/1103-4 | 0.40 | 0.82 |
| 24 | 1.49 | 157-43/103-4 | 1157-4/1101-4 | 0.47 | 0.97 |
| 28 | 1.49 | 157-43/103-4 | 1157-4/1101-4 | 0.47 | 1.06 |
| 32 | 1.89 | 158-43/107-4 | 1158-4/1105-4 | 0.76 | 1.31 |
| 36 | 1.89 | 158-43/107-4 | 1158-4/1105-4 | 0.76 | 1.51 |
| * Note: Shell 10 SL for 90° moulded part min cable diameter 0.260 inches | | | | | |

## HELLERMANN SHAPES FOR USE WITH MIL-C-26482-I/II and 38999/SERIES I, II, III, IV

| Connector Shell Size | O/Knurl Dia (inches) | Orientation | | Cable Dia (inches) | |
|---|---|---|---|---|---|
| | | Straight | 90° | Min | Max |
| 8/9 | 0.51 | 152-42/105-4 | 1152-4/1106-4 | 0.28 | 0.27 |
| 10/11 | 0.60 | 152-42/105-4 | 1152-4/1106-4 | 0.28 | 0.40 |
| 10/12 | 0.60/0.75 | 153-42/NA | — | 0.16 | 0.40 |
| 12/13 | 0.75 | 154-42/106-4 | 1154-4/1107-4 | 0.28 | 0.53 |
| 14/15 | 0.82 | 155-42/101-4 | 1155-4/1104-4 | 0.33 | 0.64 |
| 16/17 | 0.94 | 155-42/101-4 | 1155-4/1104-4 | 0.33 | 0.76 |
| 18/19 | 1.02 | 156-42/102-4 | 1156-4/1103-4 | 0.40 | 0.86 |
| 20/21 | 1.20 | 156-42/102-4 | 1156-4/1103-4 | 0.40 | 0.98 |
| 22/23 | 1.34 | 157-43/103-4 | 1157-4/1101-4 | 0.47 | 1.12 |
| 24/25 | 1.42 | 157-43/103-4 | 1157-4/1101-4 | 0.47 | 1.22 |

# MIL SPEC SLASH SHEET CROSS REFERENCE BULBOUS SHAPES

| | MS3109 | | |
|---|---|---|---|
| 105-4-JL | –11AU | Bottle shapes<br>with rib<br>‘J’ or ‘B7’ Material<br>J=Red stripe<br>B7=White stripe<br>Optional drainholes (D) | |
| 105-4-B7L | –11BU | | |
| 106-4-JL | –12AU | | |
| 106-4-B7L | –12BU | | |
| 101-4-JL | –13AU | | |
| 101-4-B7L | –13BU | | |
| 102-4-JL | –14AU | | |
| 102-4-B7L | –14BU | | |
| 103-4-JL | –15AU | | |
| 103-4-B7L | –15BU | | |
| 107-4-JL | –16AU | | |
| 107-4-B7L | –16BU | | |
| 118-4-JL | –17AU | | |
| 118-4-B7L | –17BU | | |
| 129-4-JDL | –01AU | Low profile<br>long outlet<br>bottle shapes<br>with rib<br>‘J’ or ‘B7’ material<br>J=Red stripe<br>B7=White stripe<br>Supplied with<br>drainholes (D) | |
| 129-4-B7DL | –01BU | | |
| 130-4-JDL | –02AU | | |
| 130-4-B7DL | –02BU | | |
| 131-4-JDL | –03AU | | |
| 131-4-B7DL | –03BU | | |
| 132-4-JDL | –04AU | | |
| 132-4-B7DL | –04BU | | |
| 133-4-JDL | –05AU | | |
| 133-4-B7DL | –05BU | | |
| 134-4-JDL | –06AU | | |
| 134-4-B7DL | –06BU | | |
| 135-4-JDL | –07AU | | |
| 135-4-B7DL | –07BU | | |
| 136-4-JDL | –08AU | | |
| 136-4-B7DL | –08BU | | |
| 138-4-JDL | –09AU | | |
| 138-4-B7DL | –09BU | | |
| 187-4-JDL | –10AU | | |
| 187-4-B7DL | –10BU | | |
| | MS3117 | | |
| 1106-4-JL | –11AU | Right angle shapes<br>with rib<br>‘J’ or ‘B7’ material<br>J=Red stripe<br>B7=White stripe<br>Optional drainholes (D) | |
| 1106-4-B7L | –11BU | | |
| 1107-4-JL | –12AU | | |
| 1107-4-B7L | –12BU | | |
| 1104-4-JL | –13AU | | |
| 1104-4-B7L | –13BU | | |
| 1103-4-JL | –14AU | | |
| 1103-4-B7L | –14BU | | |
| 1101-4-JL | –15AU | | |
| 1101-4-B7L | –15BU | | |
| 1105-4-JL | –16AU | | |
| 1105-4-B7L | –16BU | | |
| 1109-4-JL | –17AU | | |
| 1109-4-B7L | –17BU | | |
| 1121-4-JDL | –01AU | Right angles shapes<br>Low profile with rib<br>‘J’ or ‘B7’ material<br>J=Red stripe<br>B7=White stripe<br>Supplied with<br>drainholes (D) | |
| 1121-4-B7DL | –01BU | | |
| 1122-4-JDL | –02AU | | |
| 1122-4-B7DL | –02BU | | |
| 1123-4-JDL | –03AU | | |
| 1123-4-B7DL | –03BU | | |
| 1124-4-JDL | –04AU | | |
| 1124-4-B7DL | –04BU | | |
| 1125-4-JDL | –05AU | | |
| 1125-4-B7DL | –05BU | | |
| 1126-4-JDL | –06AU | | |
| 1126-4-B7DL | –06BU | | |
| 1127-4-JDL | –07AU | | |
| 1127-4-B7DL | –07BU | | |
| 1128-4-JDL | –08AU | | |
| 1128-4-B7DL | –08BU | | |
| 1129-4-JDL | –09AU | | |
| 1129-4-B7DL | –09BU | | |

**NOTE:** L denotes the MIL Spec Stripes

# LIMITED FIRE HAZARD BOOT-BACKSHELL ASSEMBLIES

HSK assemblies provide an alternative solution to standard saddle clamps which can corrode over extended use. They provide strain relief and form an environmental seal. The spin coupler allows re-entry to the connector after many years of service.

HSK assembly kits are available in straight or 90°. They mate to connectors according to BS 9522, F0032 and VG 95-234, typically VEAM CIR, Amphenol Series 97, and ABB MS. For assemblies to suit other Mil Spec Connectors and materials, consult your master distributor.

**HSK – Straight**

| Part No. | Shell Size | J Min A | J Max B | P +/-10% | Cable Range Min | Cable Range Max |
|---|---|---|---|---|---|---|
| HSK1601 | 10SL | 0.43 | 0.23 | 2.72 | 0.24 | 0.31 |
| HSK1602 | 14S | 0.51 | 0.28 | 3.15 | 0.29 | 0.43 |
| HSK1603 | 16S | 0.59 | 0.33 | 3.70 | 0.35 | 0.51 |
| HSK1604 | 16 | 0.59 | 0.33 | 3.78 | 0.35 | 0.51 |
| HSK1605 | 18 | 0.67 | 0.33 | 3.70 | 0.35 | 0.63 |
| HSK1606 | 20 | 0.83 | 0.39 | 4.45 | 0.41 | 0.71 |
| HSK1607 | 22 | 0.91 | 0.39 | 4.45 | 0.41 | 0.83 |
| HSK1608 | 24 | 1.06 | 0.62 | 5.67 | 0.47 | 0.95 |
| HSK1609 | 28 | 1.30 | 0.62 | 5.75 | 0.47 | 1.06 |
| HSK1610 | 32 | 1.58 | 0.66 | 7.25 | 0.69 | 1.34 |
| HSK1611 | 36 | 1.69 | 0.66 | 7.25 | 0.69 | 1.50 |
| HSK1612 | 40 | 2.05 | 0.66 | 7.25 | 0.69 | 1.73 |

Dimensions apply to all materials unless otherwise indicated and are in inches.

**HSK – 90°**

| Part No. | Shell Size | J Min A | J Max B | L +/-10% B | P +/-10% B | Cable Range Min | Cable Range Max |
|---|---|---|---|---|---|---|---|
| HSK1613 | 10L | 0.43 | 0.23 | 1.62 | 1.26 | 0.24 | 0.31 |
| HSK1614 | 14S | 0.51 | 0.28 | 1.73 | 1.54 | 0.29 | 0.43 |
| HSK1615 | 6S | 0.59 | 0.33 | 2.05 | 1.81 | 0.35 | 0.51 |
| HSK1616 | 16 | 0.59 | 0.33 | 2.05 | 1.81 | 0.35 | 0.51 |
| HSK1617 | 18 | 0.67 | 0.33 | 2.05 | 1.81 | 0.35 | 0.63 |
| HSK1618 | 20 | 0.83 | 0.39 | 2.32 | 2.17 | 0.41 | 0.71 |
| HSK1619 | 22 | 0.91 | 0.39 | 2.32 | 2.17 | 0.41 | 0.83 |
| HSK1620 | 24 | 1.06 | 0.62 | 2.68 | 3.15 | 0.47 | 0.95 |
| HSK1621 | 28 | 1.30 | 0.62 | 2.76 | 3.15 | 0.47 | 1.06 |
| HSK1622 | 32 | 1.58 | 0.66 | 3.23 | 4.25 | 0.69 | 1.34 |
| HSK1623 | 36 | 1.69 | 0.66 | 3.23 | 4.25 | 0.69 | 1.50 |
| HSK1624 | 40 | 2.05 | 0.66 | 3.19 | 4.25 | 0.69 | 1.73 |

1. HSK assemblies meet the sealing requirements of VG95234.
2. HSK 1601-1624 use -H material.

# VG CROSS REFERENCE

| VG Part No. | HellermannTyton Part Number |
|---|---|
| VG 95343 T06 A001A | 152-41-G |
| VG 95343 T06 A002A | 153-41-G |
| VG 95343 T06 A003A | 154-41-G |
| VG 95343 T06 A004A | 155-41-G |
| VG 95343 T06 A005A | 156-41-G |
| VG 95343 T06 A006A | 157-41-G |
| VG 95343 T06 A007A | 158-41-G |
| VG 95343 T06 A008A | 159-41-G |
| VG 95343 T06 A009A | 160-41-G |
| VG 95343 T06 A010A | 199-4-G |
| VG 95343 T06 B001A | 152-42-G |
| VG 95343 T06 B002A | 153-42-G |
| VG 95343 T06 B003A | 154-42-G |
| VG 95343 T06 B004A | 155-42-G |
| VG 95343 T06 B005A | 156-42-G |
| VG 95343 T06 B006A | 157-42-G |
| VG 95343 T06 B007A | 158-42-G |
| VG 95343 T06 B008A | 159-42-G |
| VG 95343 T06 B009A | 160-42-G |
| VG 95343 T06 C001A | 157-43-G |
| VG 95343 T06 C002A | 158-43-G |
| VG 95343 T06 C003A | 159-43-G |
| VG 95343 T06 C004A | 160-43-G |
| VG 95343 T06 D001A | 129-1-G |
| VG 95343 T06 D002A | 130-1-G |
| VG 95343 T06 D003A | 131-1-G |
| VG 95343 T06 D004A | 132-1-G |
| VG 95343 T06 D005A | 133-1-G |
| VG 95343 T06 D006A | 134-1-G |
| VG 95343 T06 D007A | 135-1-G |
| VG 95343 T06 D008A | 136-1-G |
| VG 95343 T06 D009A | 138-1-G |
| VG 95343 T06 D010A | 187-1-G |
| VG 95343 T06 D011A | 176-1-G |
| VG 95343 T06 D012A | 177-1-G |
| VG 95343 T06 D013A | 178-1-G |
| VG 95343 T06 D 014A | 179-1-G |
| VG 95343 T06 E001A | 1152-4-G |
| VG 95343 T06 E002A | 1154-4-G |
| VG 95343 T06 E003A | 1155-4-G |
| VG 95343 T06 E004A | 1156-4-G |
| VG 95343 T06 E005A | 1157-4-G |
| VG 95343 T06 E006A | 1158-4-G |
| VG 95343 T06 E007A | 1159-4-G |
| VG 95343 T06 E008A | 1160-4-G |

| VG Part No. | HellermannTyton Part Number |
|---|---|
| VG 95343 T06 F001A | 1121-1-G |
| VG 95343 T06 F002A | 1122-1-G |
| VG 95343 T06 F003A | 1123-1-G |
| VG 95343 T06 F004A | 1124-1-G |
| VG 95343 T06 F005A | 1125-1-G |
| VG 95343 T06 F006A | 1126-1-G |
| VG 95343 T06 F007A | 1127-1-G |
| VG 95343 T06 F008A | 1128-1-G |
| VG 95343 T06 F009A | 1129-1-G |
| VG 95343 T06 F010A | 1141-1-G |
| VG 95343 T06 F011A | 1133-1-G |
| VG 95343 T06 F012A | 1134-1-G |
| VG 95343 T06 F013A | 1135-1-G |
| VG 95343 T06 F014A | 1136-1-G |
| VG 95343 T06 J002A | 1112-1-G |
| VG 95343 T06 J004A | 1114-1-G |
| VG 95343 T06 J006A | 1116-1-G |
| VG 95343 T06 J007A | 1117-1-G |
| VG 95343 T06 J008A | 1118-1-G |
| VG 95343 T07 A001A | 152-41-GP |
| VG 95343 T07 A002A | 153-41-GP |
| VG 95343 T07 A003A | 154-41-GP |
| VG 95343 T07 A004A | 155-41-GP |
| VG 95343 T07 A005A | 156-41-GP |
| VG 95343 T07 A006A | 157-41-GP |
| VG 95343 T07 A007A | 158-41-GP |
| VG 95343 T07 A008A | 159-41-GP |
| VG 95343 T07 A009A | 160-41-GP |
| VG 95343 T07 B001A | 152-42-GP |
| VG 95343 T07 B002A | 153-42-GP |
| VG 95343 T07 B003A | 154-42-GP |
| VG 95343 T07 B004A | 155-42-GP |
| VG 95343 T07 B005A | 156-42-GP |
| VG 95343 T07 B006A | 157-42-GP |
| VG 95343 T07 B007A | 158-42-GP |
| VG 95343 T07 B008A | 159-42-GP |
| VG 95343 T07 B009A | 160-42-GP |
| VG 95343 T07 C001A | 157-43-GP |
| VG 95343 T07 C002A | 158-43-GP |
| VG 95343 T07 C003A | 159-43-GP |
| VG 95343 T07 C004A | 160-43-GP |
| VG 95343 T07 F003A | 1123-4-GP |
| VG 95343 T07 F004A | 1124-4-GP |
| VG 95343 T07 F005A | 1125-4-GP |
| VG 95343 T07 F006A | 1126-4-GP |
| VG 95343 T07 F007A | 1127-4-GP |
| VG 95343 T07 F008A | 1128-4-GP |
| VG 95343 T07 F009A | 1129-4-GP |
| VG 95343 T07 F010A | 1141-4-GP |
| VG 95343 T08 A001A | 1203-1-G |

| VG Part No. | HellermannTyton Part Number |
|---|---|
| VG 95343 T07 D001A | 129-1-GP |
| VG 95343 T07 D002A | 130-1-GP |
| VG 95343 T07 D003A | 131-1-GP |
| VG 95343 T07 D004A | 132-1-GP |
| VG 95343 T07 D005A | 133-1-GP |
| VG 95343 T07 D006A | 134-1-GP |
| VG 95343 T07 D007A | 135-1-GP |
| VG 95343 T07 D008A | 136-1-GP |
| VG 95343 T07 D009A | 138-1-GP |
| VG 95343 T07 D010A | 187-1-GP |
| VG 95343 T07 E001A | 1152-4-GP |
| VG 95343 T07 E002A | 1154-4-GP |
| VG 95343 T07 E003A | 1155-4-GP |
| VG 95343 T07 E004A | 1156-4-GP |
| VG 95343 T07 E005A | 1157-4-GP |
| VG 95343 T07 E006A | 1158-4-GP |
| VG 95343 T07 E007A | 1159-4-GP |
| VG 95343 T07 E008A | 1160-4-GP |
| VG 95343 T07 F001A | 1121-4-GP |
| VG 95343 T07 F002A | 1122-4-GP |
| VG 95343 T08 A002A | 1209-1-G |
| VG 95343 T08 A004A | 1210-1-G |
| VG 95343 T08 A007A | 1201-1-G |
| VG 95343 T08 A009A | 1206-1-G |
| VG 95343 T08 A010A | 1202-1-G |
| VG 95343 T08 A011A | 1207-1-G |
| VG 95343 T08 A016A | 1204-1-G |
| VG 95343 T08 A017A | 1216-1-G |
| VG 95343 T08 B001A | 1301-1-G |
| VG 95343 T08 B002A | 1303-1-G |
| VG 95343 T08 B003A | 1311-1-G |
| VG 95343 T08 B004A | 1302-1-G |
| VG 95343 T08 B010A | 1306-1-G |
| VG 95343 T08 B011A | 1307-1-G |
| VG 95343 T08 C001A | 206-1-G |
| VG 95343 T08 C002A | 203-1-G |
| VG 95343 T08 C003A | 204-1-G |
| VG 95343 T08 C005A | 212-1-G |
| VG 95343 T08 D001A | 306-1-G |
| VG 95343 T08 D002A | 304-1-G |
| VG 95343 T08 D003A | 310-1-G |
| VG 95343 T08 D004A | 311-1-G |
| VG 95343 T08 E002A | 411-1-G |
| VG 95343 T08 E004A | 403-1-G |
| VG 95343 T08 E005A | 413-1-G |
| VG 95343 T09 A001A | 1203-1-GP |
| VG 95343 T09 A002A | 1209-1-GP |
| VG 95343 T09 B001A | 1301-1-GP |
| VG 95343 T09 B002A | 1303-1-GP |
| VG 95343 T09 B003A | 1311-1-GP |
| VG 95343 T09 C001A | 206-1-GP |
| VG 95343 T09 C002A | 203-1-GP |
| VG 95343 T09 C003A | 204-1-GP |
| VG 95343 T15 A0001 | V9500 |

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# NOTES

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