

# Power Cable Accessories

Material Overview  
Moulded Shapes



## Material Specifications

	B8	M1	K
Material	Polyolefin, Chemically cross linked (POX)	Polyolefin, Chemically cross linked (POX)	Polyolefin, Chemically cross linked (POX)
Description	General Purpose for 0.6/1kV systems	Anti-tracking for MV systems to 36kV	Conductive for MV systems to 36kV
Colour	Black (BK)	Red brown (BN)	Black (BK)
Minimum Shrink Temperature (Metric)	+135°C	+135°C	+135°C
Operating Temperature	-55°C to +70 °C	-40°C to +100°C	-40°C to +100°C
Dielectric Strength (metric)	15 kV/mm	15 kV/mm	25 ohm.cm
Resistivity	-	-	Semi rigid
Flexibility	Semi rigid	Semi rigid	ASTM D635
Flammability	ASTM D635	ASTM D635	0.1% at 25°C
Water Absorption	0.03% at 25°C	< 0.2% at 25°C	ESI 09/13
Specification	ESI 09/11Det Norske Veritas	ESI 09/13	



## Adhesives and mastics

B8 Material is coated with Hot Melt Adhesive (WM250) as standard, and is applied either as a spiral code W2, or smooth coat code W. Alternatively shapes are coated with Black Mastic code WM252.

M1 and K, are coated with Anti-track Mastic (Red), code WM253.

## Adhesives for moulded parts

The newly developed W24 epoxide resin adhesive can be used in the temperature range from  $-75^{\circ}\text{C}$  to  $+200^{\circ}\text{C}$ . The moulded parts are factory coated with W24 adhesive. In combination with the material G, i.e. as GW24, the adhesive has approval to VG 95343, Part 18 and Part 19.

The V9500 two-component adhesive with approval to VG 95343 Part 15 can be supplied in 50g cartridges for the practical P9500 dispensing guns (see page 3/43).

Lining with hot melt and epoxy adhesive for our range of materials on request. The LFH material H is lined with W21 (LFH) hot melt adhesive.



### Material Specifications

Description	G*	B7	H	L	-9
Material	Polyester elastomer cross-linked (PEEX)	Polyolefin, Chemically cross linked (POX)	Polyolefin, Cross-linked (POX)		
Colour	Black (BK)	Black (BK)	Black (BK)	Black (BK)	Black
Minimum Shrink Temperature (Metric)	$+135^{\circ}\text{C}$	$+135^{\circ}\text{C}$	$+135^{\circ}\text{C}$	$+135^{\circ}\text{C}$	$+100^{\circ}\text{C}$
Operating Temperature	$-75^{\circ}\text{C}$ to $+150^{\circ}\text{C}$	$-55^{\circ}\text{C}$ to $+135^{\circ}\text{C}$ , Intermittent $+225^{\circ}\text{C}$	$-55^{\circ}\text{C}$ to $+105^{\circ}\text{C}$	$-55^{\circ}\text{C}$ to $+200^{\circ}\text{C}$	$-55^{\circ}\text{C}$ to $+120^{\circ}\text{C}$
Dielectric Strength (metric)	14kV/mm according to ASTM D2671	16 kV/mm	15 kV/mm	9 kV/mm to ASTM D2671	20 kV/mm to ASTM D2671
Flexibility	Semi rigid	Semi rigid	Flexible	Flexible	Flexible
Flammability	VG 95343	ASTM D635	VG 95343	ASTM D635	ASTM D635
Specification	VG 95343 Part 6, 7, 8, 9 DEF STAN 59-97 / 3	MIL-I-81765/1 Type 1 DEF STAN 59-97 / 3	VG 95343 part 29, 30 NAVSEA 5617649 DEF STAN 59-97/3	DEF STAN 59-97/3 MIL-I-81765/4	SCX15112

\* Standard material



Order number system for **heat shrink products** according to VG approvals. VG approvals on request.



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- 313C722-774 Convolved Boot, Low Profile with Adapter Lip [3/44](#)
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- 412H622 to 625 Transition, Side Breakout, Low Profile [3/46](#)
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Adhesive Specifications

Description	WM250	W8	W21	W24
Material	Factory applied Hot melt adhesive	Hot melt adhesive	Modified polyimide hot melt adhesive	One part high performance epoxy
Application	Good general purpose adhesive	High temperature hot melt that compliments H material	High temperature hot melt adhesive	Specially modified to meet military cable and harness needs
Softening Point	95°C to ASTM E28	110°C to ASTM E28	120°C to ASTM E28	N/A
Operating Temperature	-50°C to +80°C	-55°C to +105°C	-55°C to +120°C	-70°C to +200°C
Peel strength	VG95343 Pt 14	VG95343 Pt 14	VG95343 Pt 14	VG95343 Pt 14
Water absorbtion at 25 °C	ASTM D570	ASTM D570	ASTM D570	ASTM D570
Solvent resistance	Fair under splash conditions	Fair under splash conditions	Very good under most especially saline conditions	Very good to excellent under most conditions
Specification	Def. Stan 59-97 issue 3	Def. Stan 59-97 issue 3	VG 95-343 part 29	VG 95-343 part 29 Def. Stan 59-97 issue 3

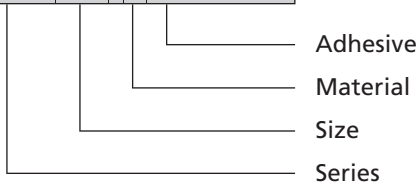


Data sheets are available for the full range of adhesives and materials.

Order Example

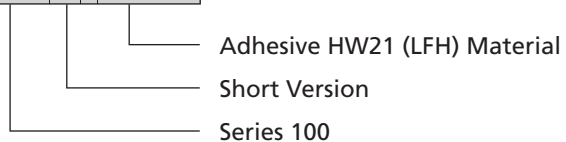
Type:

XXX(X) - X(X) - X XXX (XX)



Example:

152 - 41 - HW21



## Helashrink 100 Series

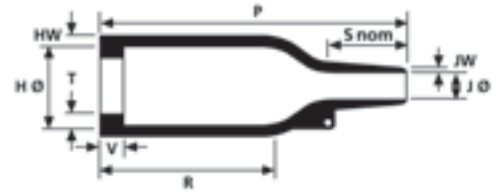
Straight plug-and-socket connector terminal casing. This style is used in conjunction with circular grooved adaptor, providing protection against environmental stresses. The inside lip has been designed to provide extra reinforced stress relief. Special fitting 199-4-G for audio plugs has external ribs for an improved grip.



Recovered 199-4-G , VG style shape for small audio connectors with external ribs for improved grip.



150 series boot recovered on to connector.



Technical Table

Code	H min a	H max b	J a	J b	P ± 10%	R ± 10%	S nom	HW ± 20%	JW ± 20%	V ± 10%	T ± 20%
113-1-G	10.7	7.9	4.6	2.0	25.4	14.5	–	1.3	1.0	–	1.0
113-4-G	10.7	7.9	4.6	2.0	25.4	14.5	4.6	1.3	1.0	3.0	1.0
152-41-G	24.0	10.5	24.0	6.0	26.0	9.0	10.0	1.6	0.5	3.0	1.0
152-42-G	24.0	10.5	24.0	6.0	38.0	21.0	10.0	1.6	0.5	3.0	1.0
153-41-G	25.0	14.0	9.0	3.5	40.0	13	16.0	1.8	0.5	3.0	1.0
153-42-G	25.0	14.0	9.0	3.5	55.0	28	16.0	1.8	0.5	3.0	1.0
154-41-G	30.0	14.0	30.0	6.0	43.0	20	1.0	1.8	1.0	3.0	1.0
154-42-G	30.0	14.0	30.0	6.0	55.0	32.0	13.0	1.8	1.0	3.0	1.0
155-41-G	31.0	18.0	31.0	7.0	47.0	15.0	18.0	1.8	1.0	3.0	1.0
155-42-G	31.0	10.5	31.0	7.0	67.0	35.0	18.0	1.8	1.0	3.0	1.0
156-41-G	36.0	22.5	36.0	8.5	60.0	22.0	20.0	2.0	1.0	3.0	1.0
156-42-G	36.0	22.5	36.0	8.5	80.0	42.0	20.0	2.0	1.0	3.0	1.0
157-41-G	43.0	28.0	43.0	10.0	60.0	21.0	20.0	2.2	1.0	3.0	1.7
157-42-G	43.0	28.0	43.0	10.0	79.0	41.0	20.0	2.2	1.0	3.0	1.7
157-43-G	43.0	28.0	43.0	10.0	99.0	61.0	20.0	2.2	1.0	3.0	1.7
158-41-G	60.0	35.0	60.0	16.0	90.0	32.0	38.0	3.2	1.5	3.0	1.7
158-42-G	60.0	35.0	60.0	16.0	110.0	52.0	38.0	3.2	1.5	3.0	1.7
158-43-G	60.0	35.0	60.0	16.0	130.0	72.0	38.0	3.2	1.5	3.0	1.7
159-41-G	66.0	45.0	66.0	17.0	130.0	50.0	50.0	3.8	2.0	3.0	2.0
159-42-G	66.0	45.0	66.0	17.0	150.0	70.0	50.0	3.8	2.0	3.0	2.0
159-43-G	66.0	45.0	66.0	17.0	171.0	90.0	50.0	3.8	2.0	3.0	2.0
160-41-G	82.0	58.0	82.0	27.0	137.0	37.0	62.0	3.8	3.8	3.0	2.0
160-42-G	82.0	58.0	82.0	27.0	158.0	58.0	62.0	3.8	3.8	3.0	2.0
160-43-G	82.0	58.0	82.0	27.0	213.0	113.0	62.0	3.8	3.8	3.0	2.0
199-4-G	17.5	14.0	7.0	4.3	70.0	35.0	20.0	1.8	0.5	1.5	1.0

All dimensions in mm. Subject to technical changes.

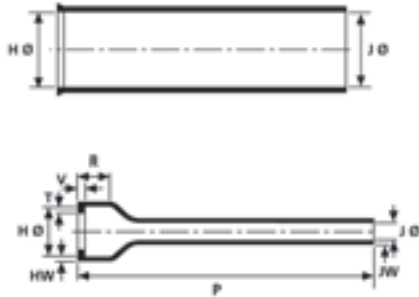
These moulded shapes are also available in various materials from our range, e.g. B7, H, L and J on request.

In addition, the moulded shapes can also be supplied with an inner coating from our range of hot-melt and epoxy adhesives, eg, W24, W1, W8 and WM250.

a As supplied  
b Recovered

## Helashrink 100 Series

Straight plug-and-socket connector terminal casing has protection against environmental stresses for circular plug connectors, according to VG. The inside lip is used for a reinforced stress relief.



135-1-G as supplied / fully recovered.

Technical Table

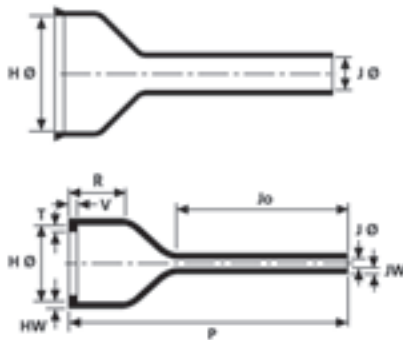
Code	H min a	H max b	J a	J b	P ± 10% = overall length	R ± 10%	HW ± 20%	JW ± 20%	V ± 10%	T ± 10%
129-1-G	22.0	12.0	22.0	6.5	76.0	12.0	1.1	1.1	3.0	1.0
130-1-G	22.5	15.0	22.5	7.5	83.0	12.0	1.5	1.1	3.0	1.0
131-1-G	29.0	19.0	29.0	8.5	89.0	12.0	1.1	1.1	3.0	1.0
132-1-G	34.0	23.0	34.0	10.0	102.0	12.0	1.1	1.1	3.0	1.0
133-1-G	37.0	30.0	37.0	11.0	108.0	14.0	2.0	1.1	3.0	1.7
134-1-G	43.5	34.0	43.5	12.0	114.0	15.0	2.0	1.1	3.0	1.7
135-1-G	50.0	41.0	50.0	14.5	118.0	15.0	2.3	1.4	3.0	1.7
136-1-G	62.5	47.0	62.5	18.0	121.0	16.0	2.5	1.4	3.0	2.0
138-1-G	69.0	60.0	69.0	20.0	127.0	16.0	2.5	1.4	3.0	2.0

All dimensions in mm. Subject to technical changes.

These moulded shapes are also available in various materials from our range, e.g. B7, H, L and J on request.

In addition, the moulded shapes can also be supplied with an inner coating from our range of hot-melt and epoxy adhesives e.g. W24, W1, W8 and WM250.

a As supplied  
b Recovered



177-1-G as supplied / fully recovered.

Technical Table

Code	H min a	H max b	J a	J b	P ± 10% = overall length	R ± 10%	HW ± 20%	JW ± 20%	V ± 10%	T ± 10%
176-1-G	19.3	13.0	6.3	2.1	60.2	11.7	1.5	1.1	3.0	1.0
177-1-G	26.1	19.1	7.6	2.6	74.2	12.2	1.8	1.1	3.0	1.0
178-1-G	34.2	26.0	9.6	3.1	84.3	12.2	1.8	1.1	3.0	1.0
179-1-G	43.6	34.1	11.4	3.6	99.6	12.2	1.8	1.1	3.0	1.7
187-1-G	81.5	67.0	81.5	23.0	133.0	16.0	2.5	1.4	3.0	2.0

All dimensions in mm. Subject to technical changes.

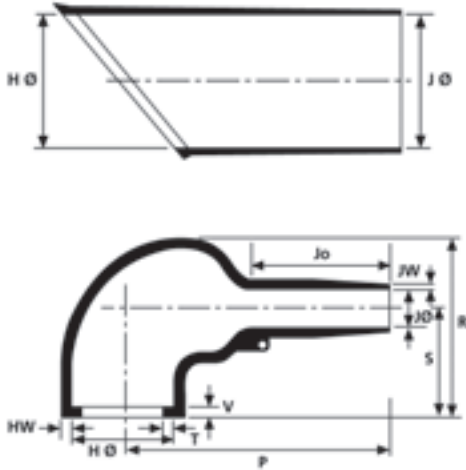
These moulded shapes are also available in various materials from our range e.g. B7, H, L and J on request.

In addition, the moulded shapes can also be supplied with an inner coating from our range of hot-melt and epoxy adhesives e.g. W24, W1, W8 and WM250.

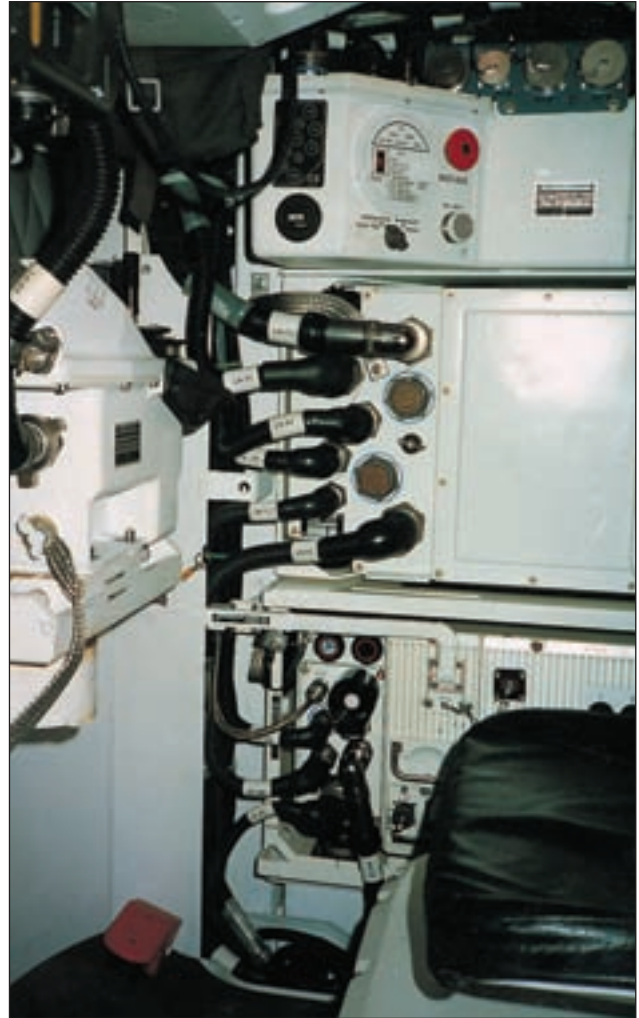
a As supplied  
b Recovered

## Helashrink 1100 Series

Right-angle, VG style shape with rib. This style provides connector cable strain relief and can be installed directly onto connector rear thread.



1152-4-G recovered on to a connector.



Space saving right-angle shapes used here in a military application.

Technical Table

Code	H min a	H max b	J a	J b	P ± 10%	R ± 10%	S ± 10%	JO ± 10%	HW ± 20%	JW ± 20%	V ± 10%	T ± 10%
1108-1-G	16.5	7.9	16.5	3.8	17.3	20.1	15.2	4.1	1.0	1.0	–	–
1108-4-G	16.5	7.9	16.5	3.8	17.3	20.1	15.2	4.1	1.0	1.0	3.0	1.0
1152-4-G	24.0	10.5	24.0	6.0	26.0	25.0	19.0	10.0	1.3	0.5	3.0	1.0
1154-4-G	30.0	14.5	30.0	6.0	32.0	27.0	20.0	12.0	1.5	0.8	3.0	1.0
1155-4-G	31.0	18.0	31.0	7.0	40.0	31.0	31.0	15.0	1.8	1.0	3.0	1.0
1155-4-G	36.0	22.5	36.0	8.5	46.0	38.0	26.0	15.0	1.8	1.0	3.0	1.0
1157-4-G	43.0	28.5	43.0	10.0	55.0	45.0	30.0	16.0	2.0	1.0	3.0	1.7
1158-4-G	60.0	35.0	60.0	16.0	80.0	54.0	35.0	30.0	3.3	1.5	3.0	1.7
1159-4-G	66.0	45.0	66.0	17.0	108.0	68.0	42.0	51.0	3.8	2.0	3.0	2.0
1160-4-G	82.0	61.0	82.0	25.0	118.0	84.0	52.0	39.0	4.0	4.0	3.0	2.0

All dimensions in mm. Subject to technical changes.

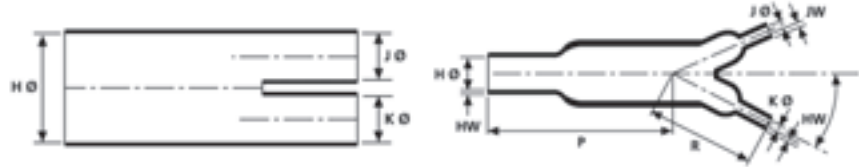
These moulded shapes are also available in various materials from our range e.g. B7, H, L and J on request. In addition, the moulded shapes can also be supplied with an inner coating from our range of hot-melt and epoxy adhesives e.g. W24, W1, W8 and WM250.

a As supplied  
b Recovered



### Helashrink 200 Series

Branching parts are used for easy, time-saving insulation of the branch point of a cable where it is split into single wires. Branching parts with hot-melt adhesive also serve to relieve the mechanical tension in cable harnesses.



Two-way outlet shape 203-1-G as supplied and recovered.

Technical Table								
Code	H min a	H max b	J/K a	J/K b	P ± 10% = overall length	R ± 10%	HW ± 30% b	JW/KW ± 30%
201-1-G	19.0	9.4	6.4	14.0	50.8	30.5	–	–
203-1-G	27.0	12.0	13.0	6.0	80.0	43.0	2.5	1.5
204-1-G	39.0	18.0	27.0	12.0	131.0	81.0	3.0	2.5
206-1-G	13.0	6.0	7.0	3.0	41.0	19.0	1.5	1.0
211-1-G	56.0	26.0	27.0	13.0	173.0	94.0	4.5	2.5
212-1-G	14.5	8.0	8.5	5.5	136.0	63.0	2.5	2.0
213-1-G	17.3	7.9	11.1	7.9	140.0	64.0	2.3	1.0

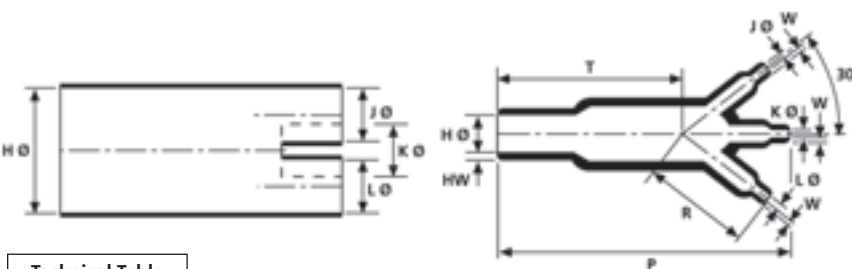
All dimensions in mm. Subject to technical changes.

These moulded shapes are also available in various materials from our range e.g. B7, H, L and J on request. In addition, the moulded shapes can also be supplied with an inner coating from our range hot-melt and epoxy adhesives e.g. W24, W1, W8 and WM250.

a As supplied  
b Recovered

### 300 Series Breakout Boots

Branching parts are used for easy, time-saving insulation of the branch point of a cable where it is split into single wires. Branching parts with hot-melt adhesive also serve to relieve the mechanical tension in cable harnesses.



304-1-G as supplied / fully recovered

Technical Table									
Code	H min a	H max b	J/K/L min	J/K/L max	P ± 10% = overall length	R ± 10%	HW ± 30% b	JW/KW ± 30%	JW/KW ± 30%
306-1-G	13.0	6.5	6.5	3.5	46.0	25.0	1.5	1.0	21.0
310-1-G	38.5	19.0	19.0	10.0	135.0	74.0	3.0	2.0	62.0
311-1-G	55.5	25.5	27.0	12.5	192.0	103.0	4.5	3.0	89.0

All dimensions in mm. Subject to technical changes.

These moulded shapes are also available in various materials from our range e.g. B7, H, L and J on request. In addition, the moulded shapes can also be supplied with an inner coating from our range of hot-melt and epoxy adhesives e.g. W24, W1, W8 and WM250.

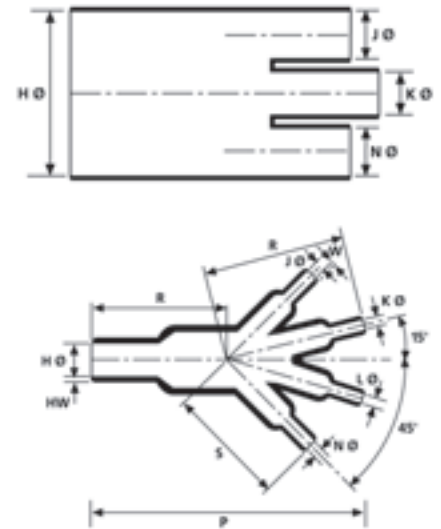
a As supplied  
b Recovered

## 400 Series Breakout Boots

Branching parts are used for easy, timesaving insulation of the branch point of a cable where it is split into single wires. Adhesive lined branching parts also serve to relieve the mechanical tension in cable harnesses.



403-1-G as supplied / recovered.



Technical Table

Code	H min a	H max b	J/K/L/ N a	J/K/L/ N b	R ± 10%	S ± 10%	T ± 10%	HW ± 30% b	JW ± 30%	P ± 15% = overall length
403-1-G	27.0	13.0	13.0	7.0	52.0	45.0	49.0	1.5	1.5	102.0
413-1-G	38.5	19.0	19.0	10.0	72.0	65.0	75.0	1.8	1.0	150.0

All dimensions in mm. Subject to technical changes.

These moulded shapes are also available in various materials from our range e.g. B7, H, L and J on request.

In addition, the moulded shapes can also be supplied with an inner coating from our range of hot-melt and epoxy adhesives e.g. W24, W1, W8 and WM250.

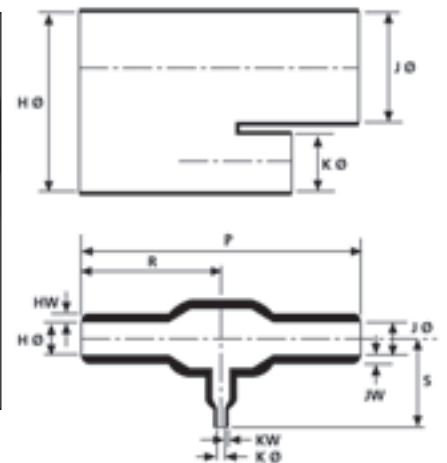
a As supplied  
b Recovered

## Helashrink 1200 Series

90° (right angled) transition parts (T-joints) are used for a simple time-saving insulation of the branch point of a cable, where it is split into single wires. Adhesive lined T-joints also serve to relieve the mechanical tension in cable harnesses.



Moulded shape 1202-1-G.



Technical Table

Code	H min a	H max b	J a	J b	K a	K b	P ± 10% = overall length	R ± 10%	S ± 10%	KW ± 20% b	HW ± 20%	JW ± 20%
1201-1-G	17.7	8.9	17.7	8.9	10.1	5.1	47.5	23.6	23.6	1.0	1.5	1.5
1203-1-G	13.2	6.0	13.2	6.0	6.5	3.0	52.0	26.0	19.3	1.0	1.5	1.5
1204-1-G	13.0	7.5	6.5	4.0	6.5	4.0	56.0	33.0	19.3	1.0	1.5	1.0
1205-1-G	17.7	8.9	17.1	8.9	7.6	3.8	50.8	25.4	25.4	1.0	1.5	1.5
1206-1-G	6.6	3.0	6.6	3.0	6.6	3.0	29.7	14.7	14.7	1.0	1.0	1.0
1207-1-G	26.9	12.4	26.9	12.4	26.9	12.4	120.1	55.9	55.9	2.5	2.5	2.5
1209-1-G	27.0	12.4	27.0	12.4	13.2	6.0	108.0	54.0	38.6	1.5	2.5	2.5
1216-1-G	33.0	13.0	16.5	6.5	16.5	6.5	97.0	54.0	38.5	1.5	2.5	1.5

All dimensions in mm. Subject to technical changes.

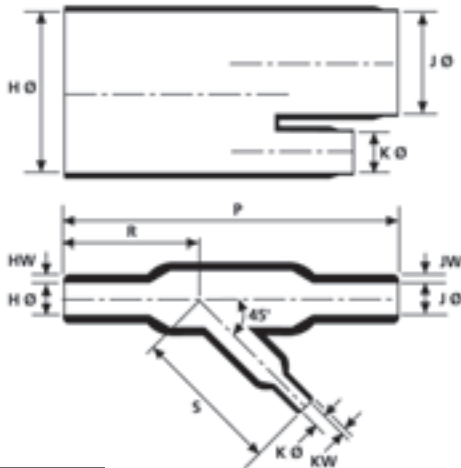
These moulded shapes are also available in various materials from our range e.g. B7, H, L and J on request.

In addition, the moulded shapes can also be supplied with an inner coating from our range of hot-melt and epoxy adhesives e.g. W24, W1, W8 and WM250.

a As supplied  
b Recovered

### Helashrink 1300 Series

45° transition parts (Y-joints) are used for a simple time saving insulation of the branch point of a cable where it is divided into single wires. Y-joints with hot-melt adhesive also serve to relieve the mechanical tension in cable harnesses.



Angled T shape 1303-1-G as supplied / recovered.

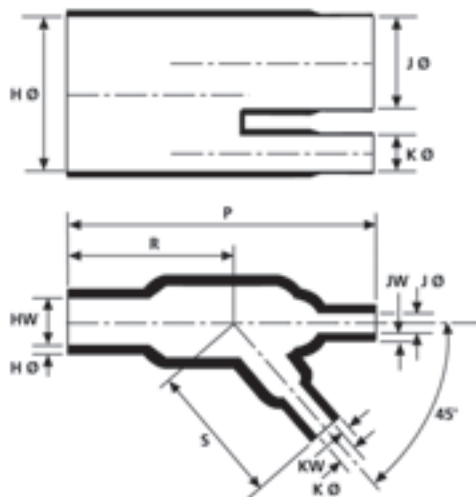
Technical Table

Code	H min a	H max b	J a	J b	K a	K b	P ± 10% = overall length	R ± 10%	S ± 10%	KW ± 20% b	HW ± 20%	JW ± 20%
1301-1-G	13.0	7.0	13.0	7.0	7.0	3.5	50.0	23.0	23.0	1.0	1.5	1.5
1302-1-G	27.0	13.0	27.0	13.0	7.0	3.5	92.0	41.0	36.0	1.0	2.5	2.5
1303-1-G	27.0	14.0	27.0	14.0	13.0	7.5	145.0	70.0	54.0	1.5	1.5	1.5
1311-1-G	30.4	15.0	30.4	15.0	20.3	10.0	82.6	32.0	51.0	1.8	2.5	2.5

All dimensions in mm. Subject to technical changes.

These moulded shapes are also available in various materials from our range e.g. B7, H, L and J on request. In addition, the moulded shapes can also be supplied with an inner coating from our range of hot-melt and epoxy adhesives e.g. W24, W1, W8 and WM250.

a As supplied  
b Recovered



Angled T shape 1306-1-G as supplied / recovered.

Technical Table

Code	H min a	H max b	J a	J b	K a	K b	P ± 10% = overall length	R ± 10%	S ± 10%	KW ± 20% b	HW ± 20%	JW ± 20%
1306-1-G	13.0	6.0	6.5	3.0	6.5	3.0	45.0	23.0	21.0	1.0	1.5	1.0

All dimensions in mm. Subject to technical changes.

These moulded shapes are also available in various materials from our range e.g. B7, H, L and J on request. In addition, the moulded shapes can also be supplied with an inner coating from our range of hot-melt and epoxy adhesives e.g. W24, W1, W8 and WM250.

a As supplied  
b Recovered

## Two Component Epoxy Resin Adhesive V9500

This high performance, VG-approved, two part epoxy adhesive has been developed to meet the military requirements associated with heat shrinkable components for wire and cable harnesses. It has a very good resistance against most solvents and fuels, even at elevated temperatures. The two-part epoxy adhesive is available in two different packages.

When heat is applied during the shrinking of the moulded shape the two part components react, which results in a high performance bond.



Two-component epoxy adhesive V9500



Please Note for Product Specific Approvals please refer to Appendix

### Material Data

RoHS	Material	Epoxy resins (EP)
	Colour	Black (BK)
	Curing Temperature °C	+135°C
	Curing Time	24 hours at +25°C, 2 hours at +85°C
	Operating Temperature	-75°C to +150°C
	Specification	VG 95343 T15 A0001



## V9500 Applicator Gun

The V9500 applicator gun allows for clean processing and individual metering. It is employed in conjunction with the cartridges (627-95001 or 627-95002) and the mixing nozzles.

The V9500 lockable cartridges contain 50 gms and are available with or without the processing set. The processing set consists of emery cloth, a small mixing bowl and a wooden spatula.

They can be re-used even after a lapse of several days occurs, because the closure prevents the adhesive from hardening.



The V9500 applicator gun guarantees the clean and precise coating of special fittings.

### Technical Table

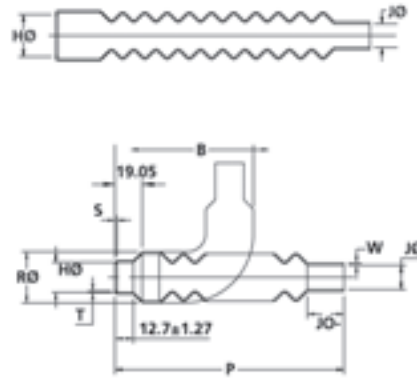
Code	Description
V9500 epoxy adhesive	Two-component adhesive incl. processing set
V9500 epoxy adhesive	Two-component adhesive
V9500 Applicator Gun	Dosing gun
V9500 Applicator Nozzle	Mixing nozzles

All dimensions in mm. Subject to technical changes.

### 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, excellent environmental sealing can be achieved.

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



313C722-774 series as supplied / recovered.

Technical Table

Code	H DIA min X	H DIA max R	J DIA min X	J DIA max R	P ± 10% R	R max R	JO ± 1.8	W min R	B nom R	T ± 0.5	S ± 0.5
313C722-9	14.2	6.9	11.1	4.8	120.6	21.1	17.3	1.5	62.4	1.27	1.5
313C732-9	22.4	11.7	17.7	8.1	133.3	26.5	19.8	1.5	67.8	1.27	1.5
313C743-9	34.0	17.5	26.9	12.7	146.0	32.7	22.3	1.5	73.4	1.27	1.8
313C753-9	44.2	22.3	36.5	17.5	158.7	37.8	25.4	1.5	78.2	1.27	1.8
313C764-9	53.8	27.9	45.7	22.3	171.4	42.9	28.4	1.5	82.8	2.03	1.8
313C774-9	77.2	40.6	54.6	22.8	236.2	62.2	35.4	1.5	138.4	2.03	2.03

All dimensions in mm. Subject to technical changes.

All angles in degrees.

Colour: Black

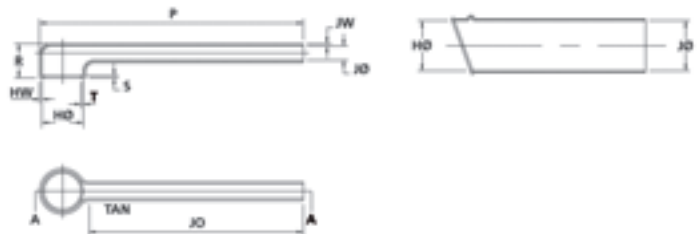
Dimensions in table:

X = Expanded (minimum)

R = Recovered (maximum)

### 333F322-385 Right Angle, Boot 90°, Low Profile with Adapter Lip

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



333F322-396 series as supplied / recovered.

Technical Table

Code	H DIA min X	H DIA max R	J DIA min X	J DIA max R	P ± 10% R	R ± 15%	T ± 0.8	JO ± 10% R	HW ± 1.5	JW ± 0.8	S ± 1.5
333F322-9	23.8	9.9	17.2	6.6	105.1	18.5	1.27	87.6	1.5	1.5	1.5
333F332-9	27.1	13.2	20.8	7.6	115.8	19.8	1.27	99.0	1.5	1.5	1.5
333F343-9	30.9	18.5	4.3	8.9	146.3	20.8	1.27	114.3	1.7	1.7	1.7
333F353-9	35.3	21.6	28.7	10.1	172.2	21.8	1.27	132.5	1.7	1.5	1.7
333F364-9	38.8	27.9	31.4	10.9	185.1	24.1	1.77	143.7	1.7	1.5	1.7
333F374-9	45.2	34.0	38.3	12.1	213.6	27.4	1.77	169.0	1.7	1.5	1.7
333F385-9	51.5	41.1	44.4	15.0	224.5	29.4	1.7	173.2	1.7	1.7	1.7

All dimensions in mm. Subject to technical changes.

All angles in degrees.

Colour: Black

Dimensions in table:

X = Expanded (minimum)

R = Recovered (maximum)

### 313E445-457, Shim Boot, Low Profile, No Adapter Lip.

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

Technical Table

Code	H DIA min X	H DIA max R	J DIA min X	J DIA max R		
313E445-9	12.7	12.7	11.1	3.3		
313E455-9	20.8	12.7	20.6	9.9		
313E447-9	22.1	22.1	11.1	3.3	P ±	JO ±
313E457-9	22.1	22.1	20.6	9.9	10% R	10% R

All dimensions in mm. Subject to technical changes.

All angles in degrees.

Colour: Black

Dimensions in table:

X = Expanded (minimum)

R = Recovered (maximum)

63.5

15.7

63.5

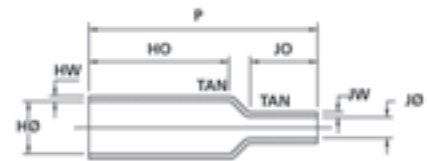
16.5

53.3

15.7

53.3

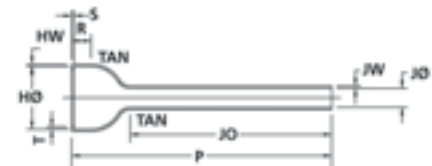
13.9



313E445-457 series as supplied / recovered.

### 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.



313F322-396 series as supplied / recovered

Technical Table

Code	H DIA min X	H DIA max R	J DIA min X	J DIA max R	P ±	R ±	T ±	JO ±	HW ±	JW ±	S ±
					10% R	15%	0.8	10% R	1.5	0.8	1.5
313F322-9	23.8	9.9	17.2	6.6	105.9	11.6	1.27	86.3	1.5	1.5	1.5
313F332-9	27.1	13.2	20.8	7.6	121.1	12.1	1.27	98.5	1.5	1.5	1.5
313F343-9	30.9	18.5	24.3	8.9	138.6	12.1	1.27	112.7	1.7	1.5	1.7
313F353-9	35.6	22.1	28.7	10.1	159.5	12.1	1.27	130.8	1.7	1.5	1.7
313F364-9	38.8	28.2	31.4	10.9	177.8	13.9	1.78	142.2	1.7	1.5	1.7
313F374-9	42.2	32.2	38.3	12.7	203.2	15.2	1.78	163.0	1.7	1.5	1.7
313F385-9	51.5	45.4	45.4	14.9	203.2	15.2	1.78	157.7	1.7	1.7	1.7
313F396-9	62.7	45.4	53.3	16.7	228.6	16.0	1.78	153.1	1.7	1.7	1.7

All dimensions in mm. Subject to technical changes.

All angles in degrees.

Colour: Black

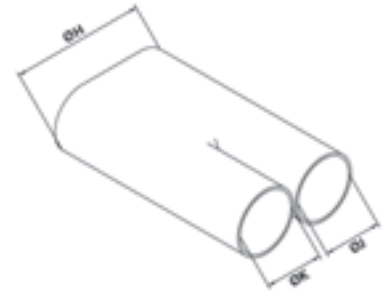
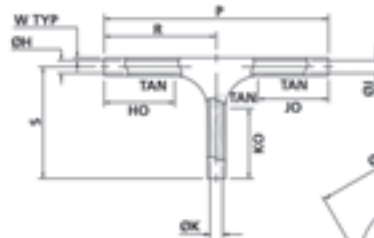
Dimensions in table:

X = Expanded (minimum)

R = Recovered (maximum)

### 412H622 to 625 Transition, Side Breakout, Low Profile.

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



412H622-625 as supplied / recovered.

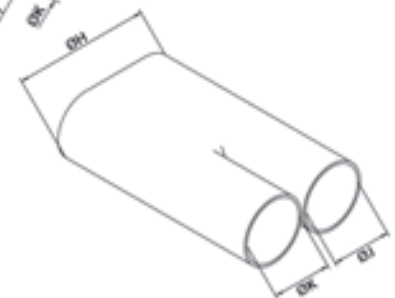
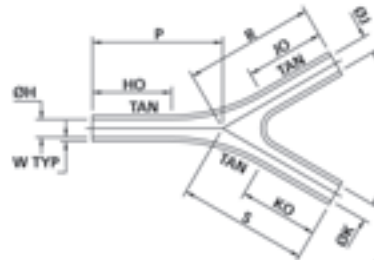
Technical Table

Code	H DIA min X	H DIA max R	J DIA min X	J DIA max R	HO, JO & KO ± 10% R	P nom R	W nom R	R&S nom R
412H622-9	19.8	6.6	13.2	6.6	25.4	80.7	1.01	40.3
412H623-9	34.2	11.4	22.8	6.6	41.1	120.3	1.27	60.1
412H624-9	60.1	20.0	40.1	20.0	63.5	175.7	1.5	87.8
412H625-9	83.3	33.2	54.8	33.2	88.9	242.3	1.7	121.1

All dimensions in mm. Subject to technical changes. All angles in degrees. Colour: Black  
Dimensions in table: X = Expanded (minimum) R = Recovered (maximum)

### 492H412 to 415 Transition 1 to 2 Cables, Y, Low Profile

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



492H412-415 series as supplied / recovered.

Technical Table

Code	H DIA min X	H DIA max R	HO, JO & KO ± 15% R	W nom R	P, R&S nom R	J & K DIA min X	J & K DIA max R
492H412-9	19.8	6.6	25.4	1.0	40.6	13.2	6.6
492H413-9	34.2	11.4	41.1	1.27	62.9	22.8	11.4
492H414-9	60.1	20.0	63.5	1.5	94.7	40.1	20.0
492H415-9	83.3	33.2	49.7	1.7	133.8	54.8	33.2
492H414-9-01	60.1	20.0	31.7	1.5	94.7	40.1	20.0
492H415-9-01	83.3	33.2	49.7	1.7	94.7	54.8	33.2

All dimensions in mm. Subject to technical changes. All angles in degrees. Colour: Black  
Dimensions in table: X = Expanded (minimum) R = Recovered (maximum)

### 573H532-535 Transition, 1 to 3 Cables, Low Profile

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

Technical Table

Code	H DIA min X	H DIA max R	HO, JO, KO & LO ± 3.8	P nom R	R, S&T nom R	W nom X	J,K & L DIA min X	J,K & L DIA max R	HO, JO, KO & LO ± 3.8
573H532-9	19.8	6.6	25.4	85.8	42.9	1.01	13.2	6.6	25.4
573H533-9	34.2	11.4	41.1	135.6	67.8	1.27	20.5	11.4	41.1
573H534-9	60.1	20.0	63.5	207.2	103.6	1.5	36.0	20.0	63.5
573H535-9	99.8	33.2	88.9	294.6	147.3	1.7	54.8	33.2	88.9
573H534-9-01	60.1	20.0	63.5	135.6	67.8	1.5	36.0	20.0	63.5
573H535-9-01	99.8	33.2	45.4	207.2	103.6	1.7	54.8	33.2	45.4

All dimensions in mm. Subject to technical changes.

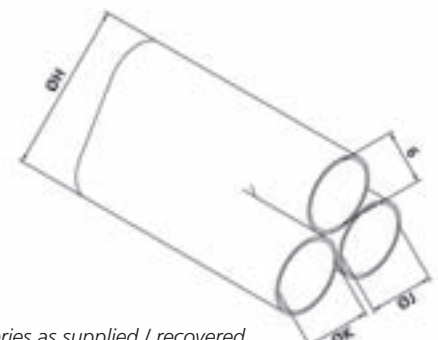
All angles in degrees.

Colour: Black

Dimensions in table:

X = Expanded (minimum)

R = Recovered (maximum)



573H532-535 series as supplied / recovered.