

Wire and Cable

Heat-shrink Tubing

Non-shrink Tubing

Braided Sleeving

Screening Braids

## **Moulded Parts**

Terminals and Splices

Wire and Cable Markers

Accessories

Connectors

Backshells

Bonding Leads

Metal Braids

Relays and Contactors

Switches and Grips

Adhesives and Tapes

Application Equipment

Added Value Services

# Moulded Parts

## INTRODUCTION

### Heat Shrinkable Boots Transitions and End Caps Glands and Feedthroughs

Based on heat-shrink technology, moulded parts and shapes are available in a vast range of configurations, sizes and materials, from miniature lightweight and space saving straight boots through to large multi-way harness transitions.

Moulded parts can be used to seal and protect harnessing breakouts and terminations from environmental hazards, as well as providing strain relief. Material selection enables full integration and compatibility with other harness components, producing electrical systems that can be used under the most extreme environmental conditions.

### Boots

Ideal for providing a high performance environmental seal and mechanical protection between the cable or wire and the connector or connector adaptor.

### InstaLite Boots

Offering up to 30% weight savings over similar standard boots, see 202K121 and 222K121 pages in this section. Please note that this range is being expanded, so please contact us for the latest information.

### Transitions / Breakouts

Ideal replacement for tapes, mould-in-place epoxies and grease. These moulded parts can be used for cable breakouts, transitions and terminations.

### End Caps

Provide optimum waterproofing and environmental protection for sealing cable ends in underwater, underground, or outdoor applications.



### Glands and Feedthroughs

Moulded heat shrinkable non screened bulkhead feedthroughs 207Wxxx and CESx available in various configurations for environmentally sealed enclosures.

Also available are a range of screened and non-screened one piece heat shrinkable feedthroughs TCFS and TCFR

### Features & Benefits















- Mechanical protection
- Chemical resistance
- Electrical insulation
- Electrical screening
- Fluid and solvent resistance
- Moisture protection
- Strain relief
- Flame-retardant, low smoke
- Extreme temperature performance
- Aesthetic enhancement
- Fast & efficient installation
- Wide range of materials
- Pre-installed adhesives
- Modification options

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# Moulded Parts

## Selection Guide Overview

Part number and visual identifier  
Product Type

1	BOOTS		
2	Application	Family Description	Typical Shapes
3	Non-lipped Boots	202A111 to 196 Straight 222A111 to 196 Right Angle	 
4	Lipped Boots	202K121 to 185 Straight 222K121 to 185 Right Angle	 
5	Screened Lipped Boots	202S121 to 174 Straight 222S121 to 174 Right Angle	 
6	Screened Lipped Boots	202S121 to 174 Straight 222S121 to 174 Right Angle	 
7	Lipped boots, extended tail	202D921 to 963 Straight 222D921 to 963 Right Angle	 
8	Lipped boots, extended tail	202D921 to 963 Straight 222D921 to 963 Right Angle	 
9	Lipped boots, extended tail	202D921 to 963 Straight 222D921 to 963 Right Angle	 

## MICRO MOULDED Family







10	Micro Moulded Lipped Boots	202A111-xx-G07 204W221 203W301-xx-G02 204W221-xx-G03 204W511-12 or -25	
11		222A111-xx-G07 224W221 223W601-xx 224221-xx-G03 224W511-12 or -25	
12	Micro Moulded Lipped Boots	222A111-xx-G07 224W221 223W601-xx 224221-xx-G03 224W511-12 or -25	
13	Micro Moulded Lipped Boots	222A111-xx-G07 224W221 223W601-xx 224221-xx-G03 224W511-12 or -25	
14	Micro Moulded Lipped Boots	222A111-xx-G07 224W221 223W601-xx 224221-xx-G03 224W511-12 or -25	

Shown here are our more popular products, for further information on the extensive range of moulded parts and shapes available, or for assistance with your specific requirements, please contact us.

A range of heat guns and adhesives are also available for installing moulded parts and shapes, please refer to the relevant sections in this catalogue.

Moulded parts and shapes material performance characteristics can be found later in this section.

TRANSITIONS

Application	Family Description	Typical Shapes
'T' Transitions	301A011 to 048 322A112 to 158	
45° Transitions	342A012 to 058 342A112 to 138	
30° Transitions	362A014 to 114	
'Y' Transitions	382A012 to 046	
1:3 Transitions	462A011 to 060	
1:4 Transitions	562A011 to 067	

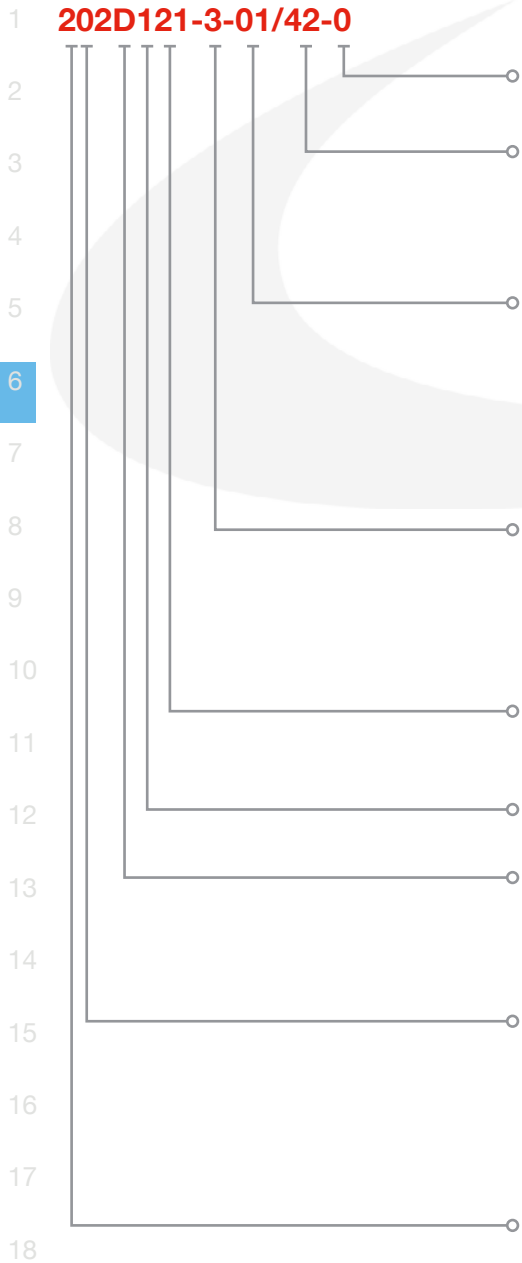
End Caps

Application	Family Description	Typical Shapes
PD and TC End caps	Polyolefin heat shrink Single and dual wall	
End caps	101A011 to 094 SSC-1 to -7	

# Moulded Parts

## Part Numbering System

Building your part number



### Part Numbering example

- Colour:**  
0 Black
- Adhesive Coating (Optional):**  
/42 General purpose hot melt adhesive  
/86 High performance hot melt adhesive  
/180 Low fire hazard hot melt adhesive  
/225 Pre-coated curing adhesive
- Modification (Optional):**  
-00 Potting ports  
-01 One lip removed  
-02 Two lips removed  
-11 One lip removed with potting ports  
-21 Two lips removed with potting ports  
-G Special constructions / modifications  
Note: Removal of lips will reduce length of boot
- Material:**  
-3 Semi-rigid polyolefin  
-4 Flexible polyolefin  
-12 Fluoro-elastomer  
-25 Fluid resistant elastomer  
-100 Low fire hazard
- Size of Part in Family:**  
-11 Smallest through to...  
-99 Largest part
- Family Member:**
- Type of Part**  
-A Non lipped  
-C Lipped boot  
-D Lipped boot  
-G Lipped boot  
-K Lipped boots  
-S Screened  
-W,P Other shapes
- Angle of Part**  
Circular  
-0 Straight  
-2 90°  
-4 45°  
-6 30°  
Non circular  
-0 Straight  
-3 90°  
-5 45°  
-7 30°
- Number of Openings in the part**



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

In addition to the products reviewed in this  
catalogue on the following pages, there is an  
extensive range of complimentary shapes and  
materials also available outlined below, for  
further details please contact us.

- Uniboats
- Rectangular Boots
- Slimline

Moulded Parts

202A111 to 196

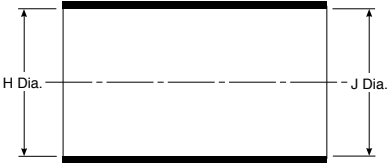
Non-Lipped  
Straight, boot

Mechanical protection and strain relief. As the part does not have a lip it can be installed directly onto the connector accessory thread.

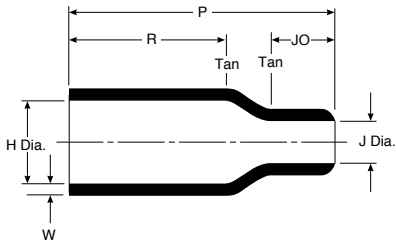
Ordering Information

- Standard colour Black.
- Please specify the product name, size, material, coating and any modifications required, as per Part Numbering System earlier in this section.
- Adhesive lining is optional. If added the entry dimension diameter will be reduced by 1.5mm.
- Moulded parts are individually packaged.
- Dimensions apply to all available materials unless otherwise stated.

As supplied



After Recovery



Product Dimensions Selection Table

Dimension	Dimensions as Supplied				Dimensions After Recovery						
	H	J	H	J	P ±10%	R ±10%	JO ±10%	W ±20%	Weight		
Material	3, 4, 25	12, 100	3, 4, 25	12, 100							
Part Number											
202A111	16.5	16.5	16.5	11.9	7.9	3.8	25.0	14.0	6.0	1.3	1.0g
202A121	24.3	22.6	24.6	17.8	9.9	5.3	38.0	22.0	9.0	1.5	3.0g
202A132	28.4	26.2	28.4	20.3	14.2	6.6	51.0	28.0	13.0	1.8	3.6g
202A142	31.0	31.0	31.0	25.4	17.8	7.4	67.0	36.0	18.0	1.8	6.4g
202A153	36.1	36.1	36.1	26.2	21.9	8.6	74.0	41.0	16.0	1.8	11.3g
202A163	42.7	42.7	42.7	27.2	27.4	9.4	99.0	63.0	18.0	2.0	18.0g
202A174	51.8	48.3	51.8	48.3	35.3	16.0	130.0	65.0	42.0	3.3	45.0g
202A185	66.0	66.0	66.0	54.1	43.7	19.6	161.3	90.2	47.8	3.81	-
202A196	86.4	86.4	86.4	71.4	57.2	26.9	212.6	113.0	62.2	4.06	-

All dimensions in mm unless otherwise stated. Weight is based on polyolefin part  
Injection and potting ports also available see part number system earlier in this section

Materials Available

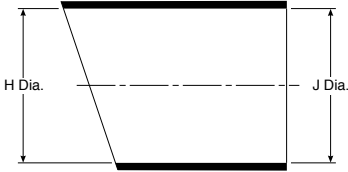
Material	Material Description
-3	Semi-rigid polyolefin
-4	Flexible polyolefin
-12	Fluoro-elastomer
-25	Fluid resistant elastomer
-100	Polyolefin, Zerohal

Environmental Adhesives Available

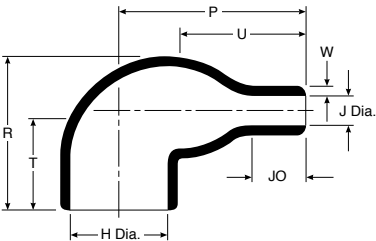
Optional Pre-coat	Optional User Applied
/42 or /86	S-1017 or S-1048
/42 or /86	S-1017 or S-1048
N/A	S-1255-04
/42 or /86 or /225	S-1017 or S-1048 or S-1125
/86 or /180	S-1048 or S-1030



As supplied



After Recovery



Mechanical protection and strain relief. As the part does not have a lip it can be installed directly onto the connector accessory thread.

Ordering Information

- Standard colour Black.
- Please specify the product name, size, material, coating and any modifications required, as per Part Number System earlier in this section.
- Adhesive coating is optional. If added the entry dimension diameter will be reduced by 1.5mm.
- Moulded parts are individually packaged.
- Dimensions apply to all available materials unless otherwise stated.

Product Dimensions Selection Table

Dimension	Dimensions as Supplied				Dimensions After Recovery								Weight
	H	J			H	J	P ±10%	R ±10%	T ±10%	U ±10%	JO ±10%	W ±10%	
Material	All	3, 4, 25	100	12									
Part Number													
222A111	17.8	17.8	10.9	9.9	7.9	3.8	17.3	20.1	-	11.4	4.3	1.02	0.9g
222A121	24.9	24.9	16.0	18.0	10.2	5.3	21.3	22.6	-	14.7	5.8	1.27	1.4g
222A132	30.0	30.0	21.1	20.6	14.2	6.4	26.9	26.7	19.1	17.8	7.1	1.52	2.9g
222A142	32.5	32.5	22.9	22.9	17.3	6.9	36.6	30.5	19.1	24.9	10.2	1.78	5.4g
222A152	36.1	36.1	27.4	26.4	21.8	8.4	43.7	35.1	19.1	30.0	12.7	1.78	7.7g
222A163	43.9	43.9	28.4	27.4	27.4	9.4	53.6	43.9	19.1	34.0	17.3	2.03	13.0g
222A174	53.1	53.1	48.3	46.7	33.8	15.0	75.7	52.8	25.4	53.2	32.0	3.30	31.0g
222A185	67.6	67.6	58.4	54.4	44.2	20.3	97.5	66.0	25.4	71.1	40.6	3.81	-
222A196	87.6	87.6	68.8	63.0	55.4	23.4	128.0	79.2	25.4	87.6	56.4	4.57	-

All dimensions in mm unless otherwise stated. Weight is based on polyolefin part  
Injection and potting ports also available see part number system earlier in this section

Materials Available

Material	Material Description
-3	Semi-rigid polyolefin
-4	Flexible polyolefin
-12	Fluoro-elastomer
-25	Fluid resistant elastomer
-100	Polyolefin, Zerohal

Environmental Adhesives Available

Optional Pre-coat	Optional User Applied
/42 or /86	S-1017 or S-1048
/42 or /86	S-1017 or S-1048
N/A	S-1255-04
/42 or /86 or /225	S-1017 or S-1048 or S-1125
/86 or /180	S-1048 or S-1030

Moulded Parts

202K111 to 185

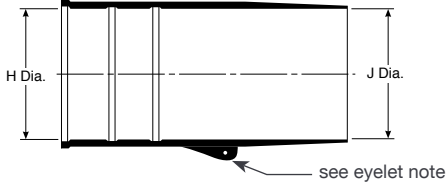
Lipped  
Straight, boot

Mechanical protection and strain relief.  
Part includes a lip or lips as required, can  
be installed onto circular adaptors of the  
appropriate shell size.

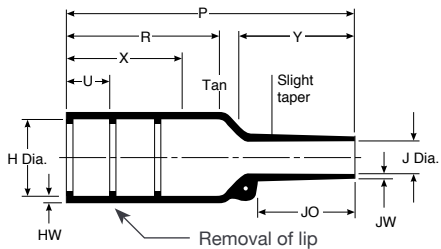
Ordering Information

- Please specify the product name, size, material, coating and any modifications required, as per Part Number System earlier in this section.
- Adhesive coating is optional. If added the entry dimension diameter will be reduced by 1.5mm.
- -12 material is supplied without eyelet, if required add CS-1863 to part number
- If eyelet clip (000W212) is required with potting ports then add CS-1858 to part number

As supplied



After Recovery



Product Dimensions Selection Table

	Dimensions as Supplied				Dimensions After Recovery								Nom. Weight
Dimension	H	J			H	J	P ±10%	R ±10%	U ±10%	JO ±10%	HW ±10%	JW min	
Material		3, 4, 25	12	100									
Part Number													
202K111	17.0	17.0	13.0	14.0	6.9	3.0	39.0	24.0	n/a	10.8	1.3	0.7	1.3g
202K121	24.0	24.0	13.0	14.0	10.4	5.6	38.0	21.0	12.0	8.5	1.9	0.41	2.4g
202K132	30.0	30.0	14.0	15.0	14.2	5.9	55.0	32.0	12.0	11.5	1.8	0.81	4.8g
202K142	31.0	31.0	16.0	18.0	18.0	7.1	67.0	35.0	20.0	17.0	1.8	0.81	9.9g
202K153	36.0	36.0	19.0	21.0	22.4	8.4	80.0	42.0	20.0	19.5	2.0	0.81	12.0g
202K163	43.0	43.0	22.0	25.0	28.2	9.9	99.0	61.0	20.0	21.0	2.2	0.81	20.0g
202K174	60.0	60.0	35.0	39.0	35.1	15.7	130.0	72.0	20.0	39.0	3.3	1.02	44.5g
202K185	66.0	66.0	38.0	42.0	44.5	16.8	170.0	90.0	20.0	51.5	3.8	1.63	-

All dimensions in mm unless otherwise stated. Weight is based on polyolefin part. Injection and potting ports also available see part number system earlier in this section.  
202K111 only available with single lip and without eyelet. 202K121 thru 202K153 supplied with two lips only.  
Removal of lip(s) will reduce length of the boot, see part numbering page.

Materials Available

Material	Material Description
-3	Semi-rigid polyolefin
-4	Flexible polyolefin
-12	Fluoro-elastomer
-25	Fluid resistant elastomer
-100	Polyolefin, Zerohal

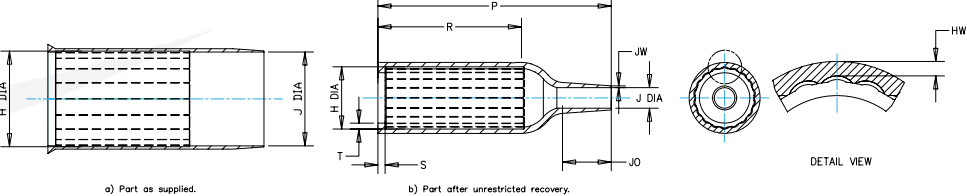
Environmental Adhesives Available

Optional Pre-coat	Optional User Applied
/42 or /86	S-1017 or S-1048
/42 or /86	S-1017 or S-1048
N/A	S-1255-04
/42 or /86 or /225	S-1017 or S-1048 or S-1125
/86 or /180	S-1048 or S-1030

up to 28% LIGHTER

INSTALITE moulded boots advanced materials science drives weight savings and reduces installation time, with high-performance heat shrink shape memory boots.

Straight Boot



InstaLite Product Dimensions Selection Table

	Dim. Supplied		Dimensions After Recovery						Avg. Weight Saving
Dimension	H	J	H	J	P ±10%	R ±10%	HW ±20%	JW min	
Part Number									
202K121-25L	24.0	24.0	10.4	5.6	38.0	21.0	1.3	0.9	20%
202K132-25L	30.0	30.0	14.2	5.9	55.0	32.0	1.3	1.0	20%
202K142-25L	31.0	31.0	18.0	7.1	67.0	35.0	1.2	1.0	20%
202K153-25L	36.0	36.0	22.4	8.4	80.0	42.0	1.5	1.0	23%
202K163-25L	43.0	43.0	28.2	9.9	99.0	61.0	2.0	1.2	28%
202K174-25L	60.0	60.0	35.1	15.7	130.0	72.0	2.3	1.5	22%
202K185-25L	66.0	66.0	44.5	16.8	170.0	90.0	1.8	2.0	21%

All dimensions in mm unless otherwise stated.

INSTALITE boots are a lighter weight alternative to our standard -25 heat shrink boots. Utilising fluid-resistant modified elastomers, the Instalite boots offer semi-rigid, abrasion resistant boots that are up to 28% lighter than standard -25 boots.

The boots offer the same balance of high temperature fluid resistance and long term heat resistance as the standard modified elastomer boots.

Environmental Adhesives Available

Optional Pre-coat	Optional User Applied
/225	S-1125

Moulded Parts

222K121 to 185

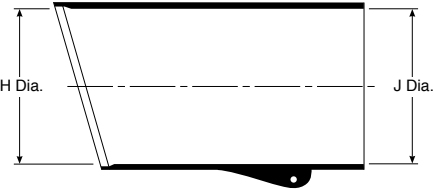
Lipped  
Right Angle 90°, boot

Mechanical protection and strain relief.  
Part includes a lip or lips as required, can  
be installed onto circular adaptors of the  
appropriate shell size.

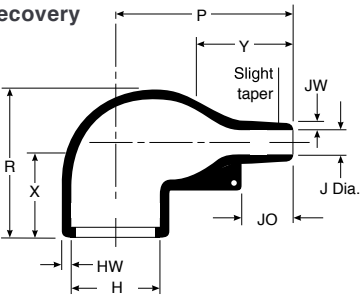
Ordering Information

- Please specify the product name, size, material, coating and any modifications required, as per Part Number System earlier in this section.
- Adhesive coating is optional. If added the entry dimension diameter will be reduced by 1.5mm.
- Dimensions apply to all available materials unless otherwise stated.
- If eyelet clip (000W212) is required with part then add CS-1858 to part number.

As supplied



After Recovery



Product Dimensions Selection Table

Dimension	Dimensions as Supplied				Dimensions After Recovery								Weight
	H		J		H	J	P ±10%	R ±10%	JO ±10%	HW ±10%	JW ±10%		
Material	3, 4, 12, 25	100	3, 4, 25	12, 100									
Part Number													
222K121	24.0	24.0	24.0	14.0	10.4	5.6	25.0	25.0	8.5	1.3	0.5	1.7g	
222K132	30.0	30.0	30.0	15.0	14.2	5.9	32.0	27.0	8.5	1.5	0.8	3.4g	
222K142	31.0	31.0	31.0	18.0	18.0	7.1	39.0	31.0	15.0	1.8	1.0	5.8g	
222K152	36.0	36.0	36.0	21.0	22.4	8.4	46.0	38.0	16.0	1.8	1.0	9.0g	
222K163	43.0	43.0	43.0	25.0	28.2	9.9	55.0	45.0	17.5	2.0	1.0	14.2g	
222K174	60.0	52.0	60.0	39.0	35.1	15.7	80.0	54.0	32.0	3.3	1.8	36.7g	
222K185	66.0	66.0	66.0	42.0	44.5	16.8	108.0	68.0	48.0	3.8	2.0	-	

All dimension in mm unless otherwise stated. Weight is based on polyolefin part  
Injection and potting ports also available see part number system earlier in this section

Materials Available

Material	Material Description
-3	Semi-rigid polyolefin
-4	Flexible polyolefin
-12	Fluoro-elastomer
-25	Fluid resistant elastomer
-100	Polyolefin, Zerohal

Environmental Adhesives Available

Optional Pre-coat	Optional User Applied
/42 or /86	S-1017 or S-1048
/42 or /86	S-1017 or S-1048
N/A	S-1255-04
/42 or /86 or /225	S-1017 or S-1048 or S-1125
/86 or /180	S-1048 or S-1030

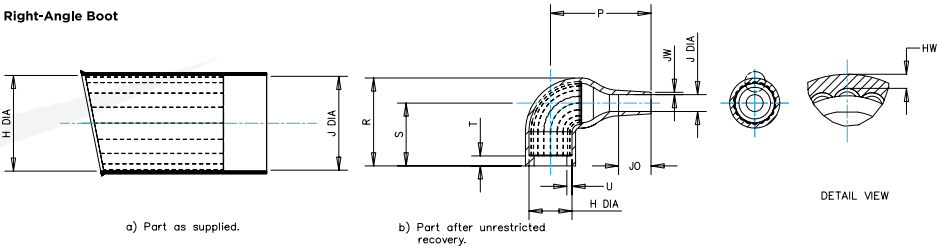
222K111-25L to 185-25L

InstaLite Lipped  
Right Angle 90°, boot

up to 30% LIGHTER

INSTALITE moulded boots advanced materials science drives weight savings and reduces installation time, with high-performance heat shrink shape memory boots.

Right-Angle Boot



InstaLite Product Dimensions Selection Table

	Dim. Supplied		Dimensions After Recovery							Avg. Weight Saving
Dimension	H	J	H	J	P ±10%	R ±10%	S ±10%	HW ±20%	JW min	
Part Number										
202K121-25L	24.0	24.0	10.4	5.6	25.0	25.0	19.0	1.3	0.9	30%
202K132-25L	30.0	30.0	14.2	5.9	32.0	27.0	20.0	1.3	1.0	26%
202K142-25L	31.0	31.0	18.0	7.1	39.0	31.0	21.0	1.2	1.0	21%
202K153-25L	36.0	36.0	22.4	8.4	46.0	38.0	26.0	1.5	1.0	26%
202K163-25L	43.0	43.0	28.2	9.9	55.0	45.0	30.0	2.0	1.2	21%
202K174-25L	60.0	60.0	35.1	15.7	80.0	54.0	35.0	2.3	1.5	23%
202K185-25L	66.0	66.0	44.5	16.8	108.0	68.0	42.0	1.8	2.0	25%

All dimensions in mm unless otherwise stated.

INSTALITE boots are a lighter weight alternative to our standard -25 heat shrink boots. Utilising fluid-resistant modified elastomers, the Instalite boots offer semi-rigid, abrasion resistant boots that are up to 30% lighter than standard -25 boots.

The boots offer the same balance of high temperature fluid resistance and long term heat resistance as the standard modified elastomer boots.

Environmental Adhesives Available

Optional Pre-coat	Optional User Applied
/225	S-1125

Moulded Parts

202S121 to 174

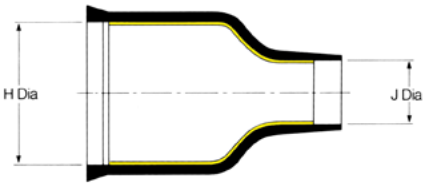
Lipped  
Straight, Rayaten® Screened boot

Ideally suited for harness applications where high levels of screening are required between the cable and connector.

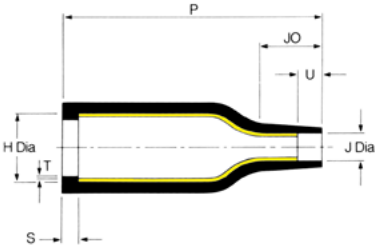
Ordering Information

- Standard colour Black.
- Size selection please refer to table below.
- When ordering specify the product name, size, material and modifications required, as per Part Number System.
- Moulded parts are individually packaged.
- Dimensions apply to all available materials unless otherwise stated.

As supplied



After Recovery



Product Dimensions Selection Table

	Dimensions as Supplied				Dimensions After Recovery								
Dimension	H		J		H	J	P ±10%	R ±10%	S ±10%	T ±10%	U ±10%	JO ±10%	Weight
Material	3, 25	100	3, 25	100									
Part Number													
202S121	20.0	14.0	11.0	10.0	10.4	5.0	45.0	17.0	3.0	1.0	10.0	15.0	4.0g
202S132	24.0	20.0	15.0	12.0	14.2	6.0	60.0	28.0	3.0	1.0	10.0	17.0	7.2g
202S142	31.0	26.0	18.0	14.0	18.0	7.2	72.0	32.0	3.0	1.0	10.0	20.0	10.6g
202S152	36.0	32.0	22.0	20.0	22.4	8.5	85.0	31.0	3.0	1.0	15.0	25.0	15.8g
202S163	43.0	38.0	26.0	24.0	28.2	10.0	110.0	50.0	3.0	1.3	20.0	30.0	27.5g
202S174	47.0	41.0	36.0	32.0	35.1	15.8	135.0	70.0	3.0	1.3	20.0	30.0	70.3g

All dimensions in mm unless otherwise stated. Weight is based on polyolefin part

Materials Available

Material	Material Description
-3C previously 3S	Semi-rigid polyolefin
-25C previously 25S	Fluid resistant elastomer
-100C previously 100S	Zerohal

Environmental Adhesives Available

Optional Pre-coat	Optional User Applied
/42 or /86	S-1017 or S-1048
/42 or /86	S-1017 or S-1048 or S-1125
/86 or /180	S-1048 or S-1030

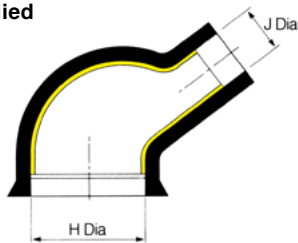
Electrically Conductive Adhesive

The recommended conductive adhesive to be used with screened moulded parts is S-1184 (ordered separately) and can be found in the Adhesives and Tapes section of this catalogue. Installation code of Practice guide is available on request.

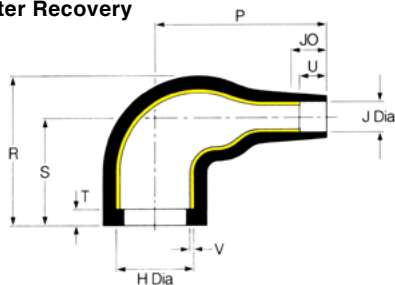
Environmental Sealing Adhesives

A choice of environmental sealing adhesives are available as either a pre-coat or user applied adhesive, see table above. For more information on materials and adhesives, please refer to relevant sections of this catalogue.

As supplied



After Recovery



Ideally suited for harness applications where high levels of screening are required between the cable and connector.

Ordering Information

- Standard colour Black.
- Size selection please refer to table below.
- When ordering specify the product name, size, material and modifications required, as per Part Number System.
- Moulded parts are individually packaged.
- Dimensions apply to all available materials unless otherwise stated.

Product Dimensions Selection Table

	Dimensions as Supplied				Dimensions After Recovery								
Dimension	H		J		H	J	P ±10%	R ±10%	S ±10%	T ±10%	U ±10%	JO ±10%	Weight
Material	3, 25	100	3, 25	100									
Part Number													
222S121	20.0	14.0	11.0	10.0	10.4	5.0	30.0	25.0	19.0	3.0	10.0	15.0	4.0g
222S132	24.0	20.0	15.0	12.0	14.2	6.0	38.0	28.0	20.0	3.0	10.0	17.0	4.7g
222S142	31.0	26.0	18.0	14.0	18.0	7.2	42.0	31.0	21.0	3.0	10.0	18.0	9.2g
222S152	36.0	32.0	22.0	20.0	22.4	8.5	51.0	38.0	26.0	3.0	12.0	20.0	15.1g
222S163	43.0	38.0	26.0	24.0	28.2	10.0	67.0	45.0	30.0	3.0	20.0	28.0	27.6g
222S174	47.0	41.0	36.0	32.0	35.1	15.8	80.0	54.0	36.0	3.0	20.0	31.0	41.0g

All dimensions in mm unless otherwise stated. Weight is based on polyolefin part

Materials Available

Material	Material Description
-3C previously 3S	Semi-rigid polyolefin
-25C previously 25S	Fluid resistant elastomer
-100C previously 100S	Zerohal

Electrically Conductive Adhesive

The recommended conductive adhesive to be used with screened moulded parts is S-1184 (ordered separately) and can be found in the Adhesives and Tapes section of this catalogue. Installation code of Practice guide is available on request.

Environmental Adhesives Available

Optional Pre-coat	Optional User Applied
/42 or /86	S-1017 or S-1048
/42 or /86	S-1017 or S-1048 or S-1125
/86 or /180	S-1048 or S-1030

Environmental Sealing Adhesives

A choice of environmental sealing adhesives are available as either a pre-coat or user applied adhesive, see table above. For more information on materials and adhesives, please refer to relevant sections of this catalogue.

Moulded Parts

202D921 to 963

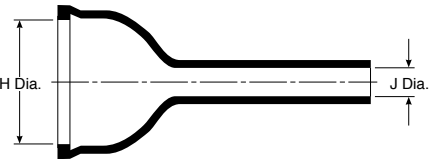
Lipped  
Straight, long tail boot

Mechanical protection and cable connector strain relief. Ideal for applications where only a small number of contacts are utilised, resulting in the need for a high ratio boot to match the connector to cable diameter.

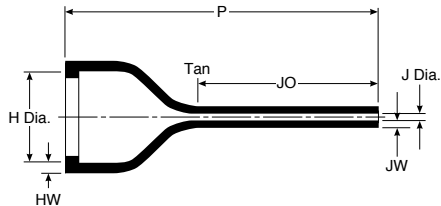
Ordering Information

- Please specify the product name, size, material, coating and any modifications required, as per Part Number System earlier in this section.
- Adhesive coating is optional. If added the entry dimensions will be reduced by 1.5mm.
- Moulded parts are individually packaged.
- Dimensions apply to all available materials unless otherwise stated.

As supplied



After Recovery



Product Dimensions Selection Table

Dimension	Dimensions as Supplied			Dimensions After Recovery						Weight
	H	J		H	J	P ±10%	JO ±10%	HW ±10%	JW ±20%	
Material	All	3, 4, 25	12, 100							
Part Number										
202D921	19.3	6.3	4.5	13.0	2.1	60.2	37.6	1.52	1.14	1.9g
202D932	26.1	7.6	5.5	19.1	2.6	74.2	45.0	1.78	1.14	3.7g
202D953	34.2	9.6	6.6	26.0	3.1	84.3	51.1	1.78	1.14	6.4g
202D963	43.6	11.4	7.8	34.1	3.6	99.6	57.7	1.78	1.14	13.0g

All dimensions in mm unless otherwise stated. Weight is based on polyolefin part  
Injection and potting ports also available see part number system earlier in this section

Materials Available

Material	Material Description
-3	Semi-rigid polyolefin
-4	Flexible polyolefin
-12	Fluoro-elastomer
-25	Fluid resistant elastomer
-100	Polyolefin, Zerohal

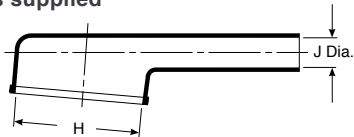
Environmental Adhesives Available

Optional Pre-coat	Optional User Applied
/42 or /86	S-1017 or S-1048
/42 or /86	S-1017 or S-1048
N/A	S-1255-04
/42 or /86 or /225	S-1017 or S-1048 or S-1125
/86 or /180	S-1048 or S-1030

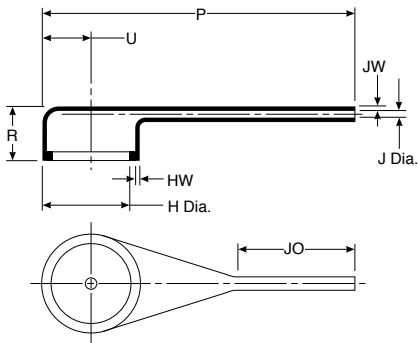
For more information on materials and adhesives, please refer to relevant sections of this catalogue.



As supplied



After Recovery



Mechanical protection and cable connector strain relief. Ideal for applications where only a small number of contacts are utilised, resulting in the need for a high ratio boot to match the connector to cable diameter.

Ordering Information

- Please specify the product name, size, material, coating and any modifications required, as per Part Number System earlier in this section.
- Adhesive coating is optional. If added the entry dimensions will be reduced by 1.5mm.
- Moulded parts are individually packaged.
- Dimensions apply to all available materials unless otherwise stated.

Product Dimensions Selection Table

Dimension	Dimensions as Supplied			Dimensions After Recovery								Weight
	H	J		H	J	P ±10%	R ±10%	U ±10%	JO ±10%	HW ±10%	JW ±10%	
Material	All	3, 4, 25	12, 100									
Part Number												
222D921	19.3	6.3	4.5	13.0	2.1	44.5	16.3	5.6	21.8	1.52	1.14	1.9G
222D932	26.1	7.6	5.6	19.1	2.6	67.3	18.0	8.4	29.2	1.78	1.14	3.7G
222D953	34.2	9.6	6.6	26.0	3.0	81.3	18.8	11.4	36.3	1.78	1.14	6.4G
222D963	43.6	11.4	7.8	34.1	3.6	115.6	21.3	15.5	47.0	1.78	1.14	13.0G

All dimensions in mm unless otherwise stated. Weight is based on polyolefin part  
Injection and potting ports also available see part number system earlier in this section

Materials Available

Material	Material Description
-3	Semi-rigid polyolefin
-4	Flexible polyolefin
-12	Fluoro-elastomer
-25	Fluid resistant elastomer
-100	Polyolefin, Zerohal

Environmental Adhesives Available

Optional Pre-coat	Optional User Applied
/42 or /86	S-1017 or S-1048
/42 or /86	S-1017 or S-1048
N/A	S-1255-04
/42 or /86 or /225	S-1017 or S-1048 or S-1125
/86 or /180	S-1048 or S-1030

For more information on materials and adhesives, please refer to relevant sections of this catalogue.

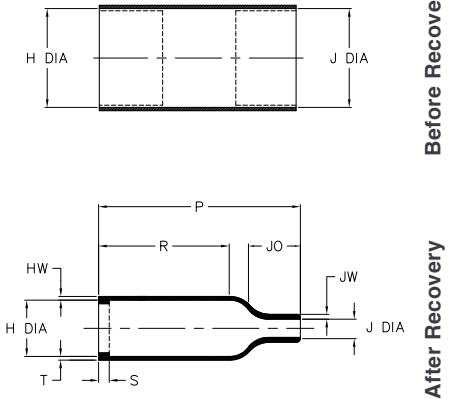
# Moulded Parts

## Micro Moulded Boots

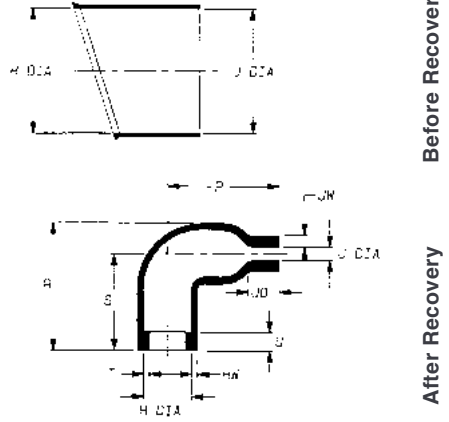
Lipped  
Straight and Right Angle 90° boots



### 202A111-xx-G07



### 222A111-xx-G07



### Product Dimensions Selection Table

Dimensions as Supplied			Dimensions After Recovery								
Dimension	H	J	H	J	P ±10%	R ±10%	S ±10%	T ±20%	JO ±20%	JW ±20%	HW ±20%
Material	25,12*										
Part Number											
202A111-xx-G07	17	17	7.9	2.2	25	14	3.0	1.0	6.0	1.7	1.0
222A111-xx-G07	18	18	7.9	2.2	17	20	15.5	1.7	5.0	1.7	1.0

Note \* Please check dimensions for -12 material as may differ, as supplied dimensions may be slightly reduced due to the nature of the material. After recovery sizes are not affected.  
All dimensions in millimetres unless otherwise stated.

### Materials Available

Material	Material Description
-12	Fluoro-elastomer
-25	Fluid resistant elastomer

### Environmental Adhesives Available

Optional Pre-coat	Optional User Applied
/225	S-1255-04
/225	S-1017 or S-1048 or S-1125

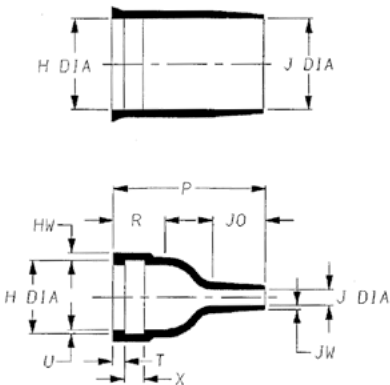
For more information on materials and adhesives, please refer to relevant sections of this catalogue.

Micro Moulded Boots

Lipped  
Straight and Right Angle 90° boots



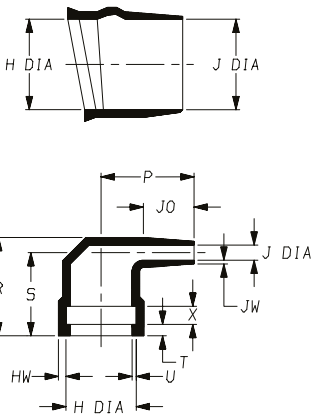
204W221-xx



Before Recovery

After Recovery

224W221-xx



Before Recovery

After Recovery

Product Dimensions Selection Table

Dimensions as Supplied				Dimensions After Recovery									
Dimension	H	J	H	J	P ±10%	R ±10%	S ±10%	T ±10%	U ±10%	X ±10%	JO ±10%	HW ±20%	JW ±20%
Material	25,12*												
Part Number													
204W221-xx	11	11	9.3	2.1	19	6.5	-	1.5	0.55	2.4	6.6	1.0	0.5
224W221-xx	11	11	9.3	2.1	12.3	13	11	1.5	0.55	2.4	6.6	1.0	0.5

Note \* Please check dimensions for -12 material as may differ, as supplied dimensions may be slightly reduced due to the nature of the material. After recovery sizes are not affected.  
All dimensions in millimetres unless otherwise stated.

Materials Available

Material	Material Description
-12	Fluoro-elastomer
-25	Fluid resistant elastomer

Environmental Adhesives Available

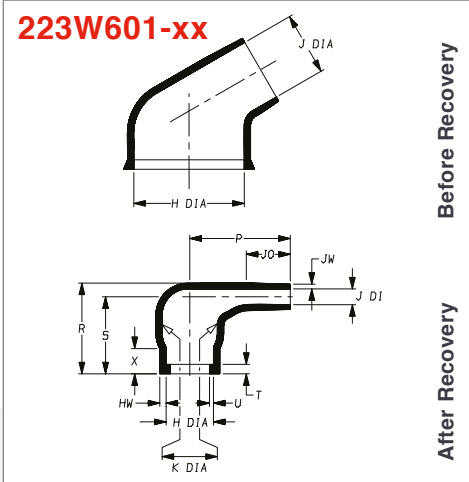
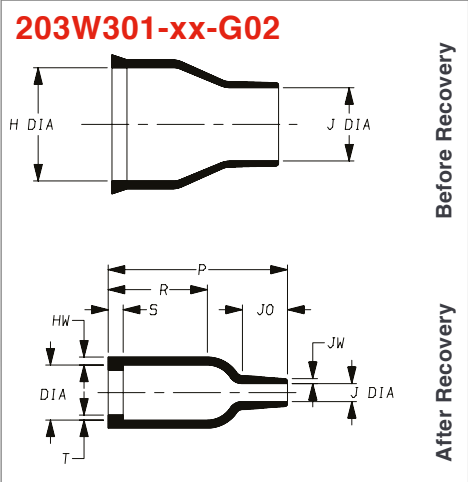
Optional Pre-coat	Optional User Applied
/225	S-1255-04
/225	S-1017 or S-1048 or S-1125

For more information on materials and adhesives, please refer to relevant sections of this catalogue.

# Moulded Parts

## Micro Moulded Boots

Lipped  
Straight and Right Angle 90° boots



Product Dimensions Selection Table

Dimensions as Supplied			Dimensions After Recovery											
Dimension	H	J	H	J	K	P ±10%	R ±10%	S ±10%	T ±10%	U ±10%	JO ±10%	HW ±20%	JW ±20%	X ±20%
Material	25, 12*													
Part Number														
203W301-xx-G02	10	6.0	5.8	2.2	-	19	11	1.5	0.5	-	4.5	0.8	0.5	-
223W601-xx	10	6.0	6.3	2.0	7.4	12.5	11.5	9.8	1.2	0.5	6.0	1.0	0.6	3.2

Note \* Please check dimensions for -12 material as may differ, as supplied dimensions may be slightly reduced due to the nature of the material. After recovery sizes are not affected.  
All dimensions in millimetres unless otherwise stated.

### Materials Available

Material	Material Description
-12	Fluoro-elastomer
-25	Fluid resistant elastomer

### Environmental Adhesives Available

Optional Pre-coat	Optional User Applied
/225	S-1255-04
/225	S-1017 or S-1048 or S-1125

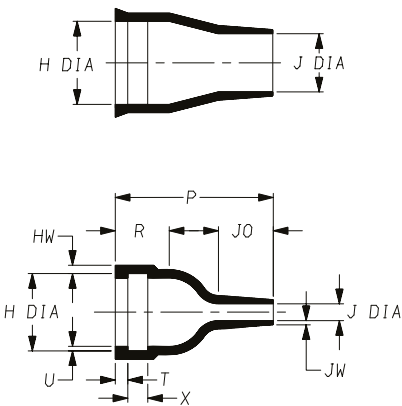
For more information on materials and adhesives, please refer to relevant sections of this catalogue.

Micro Moulded Boots

Lipped  
Straight and Right Angle 90° boots



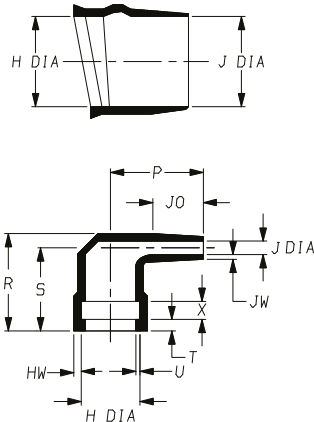
204W221-xx-G03



Before Recovery

After Recovery

224W221-xx-G03



Before Recovery

After Recovery

Product Dimensions Selection Table

Dimensions as Supplied			Dimensions After Recovery										
Dimension	H	J	H	J	P ±10%	R ±10%	S ±10%	T ±10%	U ±10%	X ±10%	JO ±10%	HW ±20%	JW ±20%
Material	25,12*												
Part Number													
204W221-xx-G03	11	11	7.8	1.9	19	6.5		1.5	0.55	2.4	6.6	1.1	0.5
224W221-xx-G03	11	11	7.8	1.9	12.3	13	11	1.5	0.55	2.4	6.6	1.0	0.6

Note \* Please check dimensions for -12 material as may differ, as supplied dimensions may be slightly reduced due to the nature of the material. After recovery sizes are not affected.  
All dimensions in millimetres unless otherwise stated.

Materials Available

Material	Material Description
-12	Fluoro-elastomer
-25	Fluid resistant elastomer

Environmental Adhesives Available

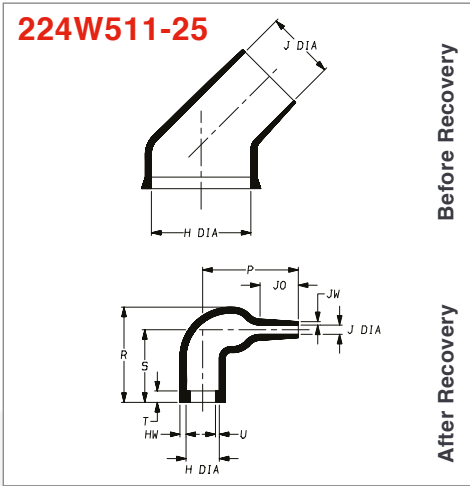
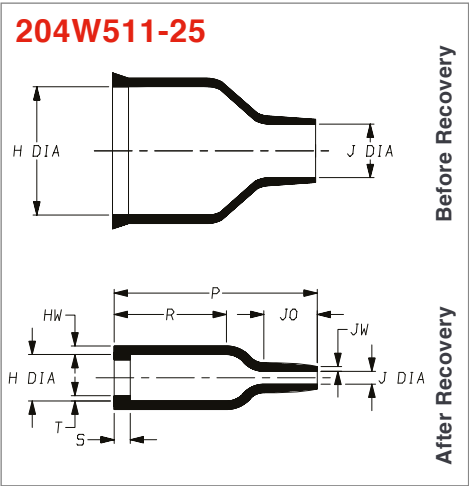
Optional Pre-coat	Optional User Applied
/225	S-1255-04
/225	S-1017 or S-1048 or S-1125

For more information on materials and adhesives, please refer to relevant sections of this catalogue.

Moulded Parts

Micro Moulded Boots

Lipped  
Straight and Right Angle 90° boots



Product Dimensions Selection Table

Dimensions as Supplied			Dimensions After Recovery									
Dimension	H	J	H	J	P ±10%	R ±10%	S ±10%	T ±20%	U ±20%	JO ±20%	HW ±20%	JW ±20%
Material	25											
Part Number												
204W511-25	24	16	9.2	2.8	38	21	3.0	1.0	-	10	1.6	0.9
224W511-25	24	16	9.2	2.8	25	25	19	3.0	1.0	10	1.6	0.9

As supplied dimensions may be slightly reduced due to the nature of the material. After recovery sizes are not affected.  
All dimensions in millimetres unless otherwise stated.

Materials Available

Material	Material Description
-25	Fluid resistant elastomer

Environmental Adhesives Available

Optional Pre-coat	Optional User Applied
/225	S-1017 or S-1048 or S-1125

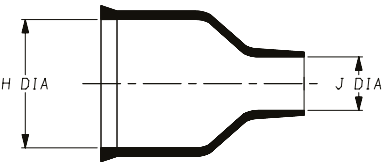
For more information on materials and adhesives, please refer to relevant sections of this catalogue.

Micro Moulded Boots

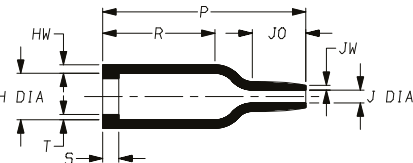
Lipped  
Straight and Right Angle 90° boots



204W511-12

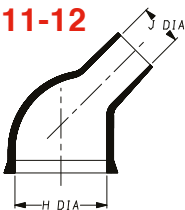


Before Recovery

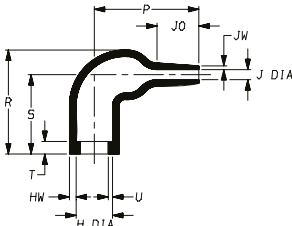


After Recovery

224W511-12



Before Recovery



After Recovery

Product Dimensions Selection Table

Dimensions as Supplied			Dimensions After Recovery									
Dimension	H	J	H	J	P ±10%	R ±10%	S ±10%	T ±20%	U ±20%	JO ±20%	HW ±20%	JW ±20%
Material	12											
Part Number												
204W511-12	22	8.0	9.3	2.8	38	21	3.0	1.0	-	10	1.6	0.9
224W511-12	19	8.0	9.3	2.8	25	25	19	3.0	1.0	10	1.6	0.9

As supplied dimensions may be slightly reduced due to the nature of the material. After recovery sizes are not affected.  
All dimensions in millimetres unless otherwise stated.

Materials Available

Material	Material Description
-12	Fluoro-elastomer

Environmental Adhesives Available

Optional Pre-coat	Optional User Applied
/225	S-1255-04

For more information on materials and adhesives, please refer to relevant sections of this catalogue.

Moulded Parts

301A011 to 048

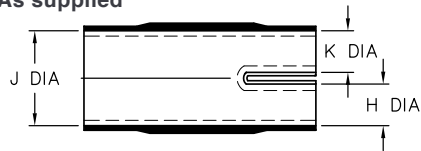
Transitions  
'T' Transition, heat shrink boots

Used for mechanical protection and cable strain relief. Ideal for cable harness applications where cable branches and breakouts are required.

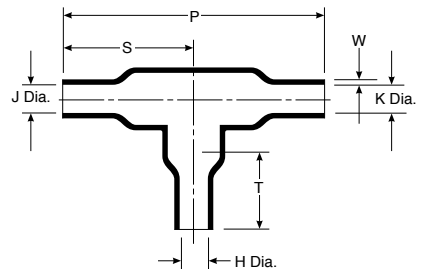
Ordering Information

- Standard colour Black.
- Size selection please refer to table below.
- Packaged individually
- Please specify the product name, size, material, coating and any modifications required, as per Part Number System earlier in this section.
- Adhesive coating is optional. If added the entry dimensions will be reduced by 1.5mm.

As supplied



After Recovery



Product Dimensions Selection Table

Dimensions as Supplied			Dimensions After Recovery					
Dimension	J Nom.	H, K	H, J, K	P ±10%	S ±10%	T ±10%	W ±30%	Weight
Part Number								
301A011	12.0	6.6	3.6	29.7	15.1	-	1.0	0.9g
301A022	24.0	13.2	6.9	58.7	29.5	17.5	1.5	4.1g
301A034	48.0	26.9	13.5	120.1	60.2	35.6	2.3	31.3g
301A048	100.0	55.6	30.2	246.4	123.2	70.9	3.0	253.1g

All dimensions are in mm unless otherwise stated. Weight is based on polyolefin part  
Optional 'Injection' (S) and 'Vent' (T) ports indicated above, see part number system earlier in this section.

Materials Available

Material	Material Description
-3	Semi-rigid polyolefin
-4	Flexible polyolefin
-12	Fluoro-elastomer
-25	Fluid resistant elastomer
-100	Polyolefin, Zerohal

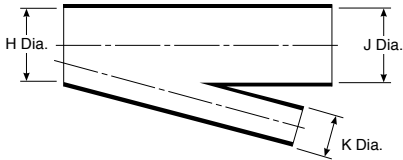
Environmental Adhesives Available

Optional Pre-coat	Optional User Applied
/42 or /86	S-1017 or S-1048
/42 or /86	S-1017 or S-1048
N/A	S-1255-04
/42 or /86 or /225	S-1017 or S-1048 or S-1125
/86 or /180	S-1048 or S-1030

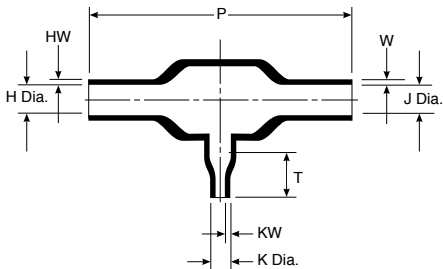
For more information on materials and adhesives, please refer to relevant sections of this catalogue.



As supplied



After Recovery



Used for mechanical protection and cable strain relief. Ideal for cable harness applications where cable branches and breakouts are required.

Ordering Information

- Standard colour Black.
- Size selection please refer to table below.
- Packaged individually
- Please specify the product name, size, material, coating and any modifications required, as per Part Number System earlier in this section.
- Adhesive coating is optional. If added the entry dimensions will be reduced by 1.5mm.

Product Dimensions Selection Table

Dimensions as Supplied			Dimensions After Recovery							
Dimension	H, J	K	H, J	K	P ±10%	T ±10%	U ±10%	HW & JW ±20%	KW ±20%	Weight
Part Number										
322A112	13.2	6.6	6.9	3.6	49.3	19.6	19.6	1.52	1.02	2.7g
322A123	26.9	6.6	12.7	3.6	92.5	31.8	39.6	2.54	1.02	15.0g
322A134	26.9	13.2	13.7	6.1	144.8	50.8	50.8	2.54	1.52	20.9g
322A148	55.6	13.2	26.9	6.9	184.9	63.5	63.5	4.57	1.52	115g
322A158	55.6	26.9	26.9	13.7	203.5	66.0	66.0	4.57	2.54	164g

All dimensions in mm unless otherwise stated. Weight is based on polyolefin part  
Optional 'Injection' (S) and 'Vent' (T) ports indicated above, see part number system earlier in this section.

Materials Available

Material	Material Description
-3	Semi-rigid polyolefin
-4	Flexible polyolefin
-12	Fluoro-elastomer
-25	Fluid resistant elastomer
-100	Polyolefin, Zerohal

Environmental Adhesives Available

Optional Pre-coat	Optional User Applied
/42 or /86	S-1017 or S-1048
/42 or /86	S-1017 or S-1048
N/A	S-1255-04
/42 or /86 or /225	S-1017 or S-1048 or S-1125
/86 or /180	S-1048 or S-1030

For more information on materials and adhesives, please refer to relevant sections of this catalogue.

Moulded Parts

342A012 to 058

Transitions

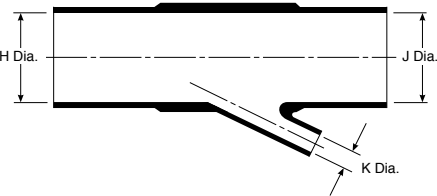
45° Transition, heat shrink boots

Used for mechanical protection and cable strain relief. Ideal for cable harness applications where cable branches and breakouts are required.

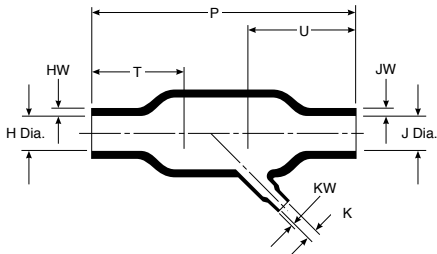
Ordering Information

- Standard colour Black.
- Size selection please refer to table below.
- Packaged individually
- Please specify the product name, size, material, coating and any modifications required, as per Part Number System earlier in this section.
- Adhesive coating is optional. If added the entry dimensions will be reduced by 1.5mm.

As supplied



After Recovery



Product Dimensions Selection Table

Dimensions as Supplied			Dimensions After Recovery							
Dimension	H, J	K	H, J	K	P ±10%	T ±10%	U ±10%	HW & JW ±20%	KW ±20%	Weight
Part Number										
342A012	13.2	6.6	6.9	3.6	49.3	19.6	19.6	1.52	1.02	2.6g
342A024	26.9	6.6	12.7	3.6	92.5	31.8	39.6	2.54	1.02	16.1g
342A034	26.9	13.2	13.7	6.1	144.8	50.8	50.8	2.54	1.52	25.0g
342A048	55.6	13.2	26.9	6.9	184.9	63.5	63.5	4.57	1.52	124g
342A058	55.6	26.9	26.9	13.7	203.7	66.0	66.0	4.57	2.54	138g

All dimensions in mm unless otherwise stated. Weight is based on polyolefin part  
Optional 'Injection' (S) and 'Vent' (T) ports indicated above, see part number system earlier in this section.

Materials Available

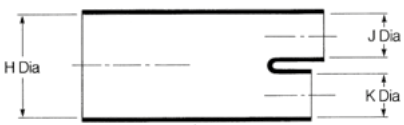
Material	Material Description
-3	Semi-rigid polyolefin
-4	Flexible polyolefin
-12	Fluoro-elastomer
-25	Fluid resistant elastomer
-100	Polyolefin, Zerohal

Environmental Adhesives Available

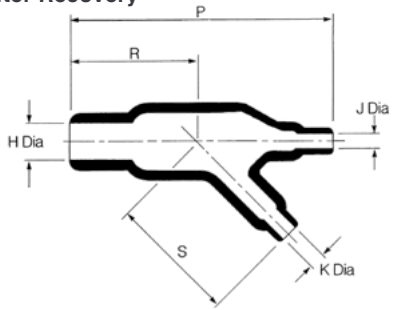
Optional Pre-coat	Optional User Applied
/42 or /86	S-1017 or S-1048
/42 or /86	S-1017 or S-1048
N/A	S-1255-04
/42 or /86 or /225	S-1017 or S-1048 or S-1125
/86 or /180	S-1048 or S-1030

For more information on materials and adhesives, please refer to relevant sections of this catalogue.

As supplied



After Recovery



Used for mechanical protection and cable strain relief. Ideal for cable harness applications where cable branches and breakouts are required.

Ordering Information

- Standard colour Black.
- Size selection please refer to table below.
- Packaged individually
- Please specify the product name, size, material, coating and any modifications required, as per Part Number System earlier in this section.
- Adhesive coating is optional. If added the entry dimensions will be reduced by 1.5mm.

Product Dimensions Selection Table

Dimensions as Supplied			Dimensions After Recovery					
Dimension	H	J, K	H	J,K	P ±10%	R ±10%	S ±10%	Weight
Part Number								
342A112	13.2	6.6	6.1	3.0	45.0	23.0	21.0	2.3g
342A124	26.9	13.2	12.4	6.1	90.0	42.0	43.0	15.9g
342A138	55.6	26.9	25.4	12.4	183.0	96.0	86.0	122g

All dimensions in mm unless otherwise stated. Weight is based on polyolefin part  
Optional 'Injection' (S) and 'Vent' (T) ports indicated above, see part number system earlier in this section.

Materials Available

Material	Material Description
-3	Semi-rigid polyolefin
-4	Flexible polyolefin
-12	Fluoro-elastomer
-25	Fluid resistant elastomer
-100	Polyolefin, Zerohal

Environmental Adhesives Available

Optional Pre-coat	Optional User Applied
/42 or /86	S-1017 or S-1048
/42 or /86	S-1017 or S-1048
N/A	S-1255-04
/42 or /86 or /225	S-1017 or S-1048 or S-1125
/86 or /180	S-1048 or S-1030

For more information on materials and adhesives, please refer to relevant sections of this catalogue.

# Moulded Parts

## 362A014 to 114

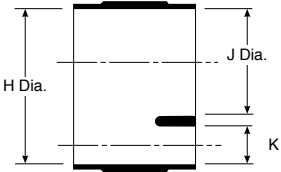
Transitions  
30° Transition, heat shrink boots

Used for mechanical protection and cable strain relief. Ideal for cable harness applications where cable branches and breakouts are required.

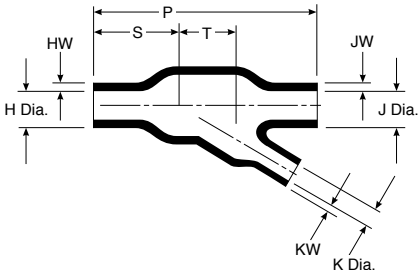
### Ordering Information

- Standard colour Black.
- Size selection please refer to table below.
- Packaged individually
- Please specify the product name, size, material, coating and any modifications required, as per Part Number System earlier in this section.
- Adhesive coating is optional. If added the entry dimensions will be reduced by 1.5mm.

### As supplied



### After Recovery



### Product Dimensions Selection Table

Dimensions as Supplied			Dimensions After Recovery							
Dimension	H, J	K	H, J	K	P ±10%	S ±10%	T ±10%	HW & JW ±20%	KW ±20%	Weight
Part Number										
362A014	30.5	20.3	15.7	10.7	82.6	31.8	21.1	2.54	1.78	20.4g
362A024	35.6	15.2	18.3	8.6	63.5	19.1	22.4	2.54	1.52	13.3g
362A114	35.6	10.2	18.8	5.3	61.0	19.1	21.3	2.79	1.52	13.2g

All dimensions in mm unless otherwise stated. Weight is based on polyolefin part  
Optional 'Injection' (S) and 'Vent' (T) ports indicated above, see part number system earlier in this section.

### Materials Available

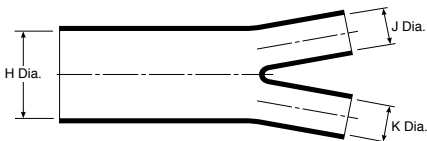
Material	Material Description
-3	Semi-rigid polyolefin
-4	Flexible polyolefin
-12	Fluoro-elastomer
-25	Fluid resistant elastomer
-100	Polyolefin, Zerohal

### Environmental Adhesives Available

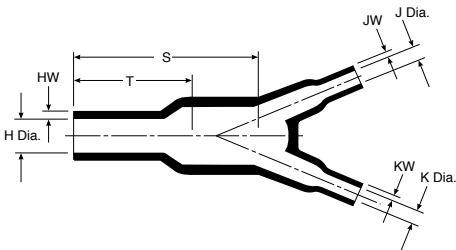
Optional Pre-coat	Optional User Applied
/42 or /86	S-1017 or S-1048
/42 or /86	S-1017 or S-1048
N/A	S-1255-04
/42 or /86 or /225	S-1017 or S-1048 or S-1125
/86 or /180	S-1048 or S-1030

For more information on materials and adhesives, please refer to relevant sections of this catalogue.

As supplied



After Recovery



Used for mechanical protection and cable strain relief. Ideal for cable harness applications where balanced cable branches and breakouts are required.

Ordering Information

- Standard colour Black.
- Size selection please refer to table below.
- Packaged individually
- Please specify the product name, size, material, coating and any modifications required, as per Part Number System earlier in this section.
- Adhesive coating is optional. If added the entry dimensions will be reduced by 1.5mm.

Product Dimensions Selection Table

Dimensions as Supplied			Dimensions After Recovery						
Dimension	H	J, K	H	J,K	S ±10%	T ±10%	HW ±20%	JW & KW ±20%	Weight
Part Number									
382A012	13.2	6.6	6.1	3.3	23.9	15.5	1.52	1.02	1.7g
382A023	26.9	13.2	12.4	6.1	53.3	33.0	2.54	1.52	13.6g
382A034	38.6	26.9	18.0	12.4	78.7	55.9	3.05	2.54	55.5g
382A046	55.6	26.9	25.9	12.7	111.8	71.1	4.57	2.54	93.4g

All dimensions in mm unless otherwise stated. Weight is based on polyolefin part  
Optional 'Injection' (S) and 'Vent' (T) ports indicated above, see part number system earlier in this section.

Materials Available

Material	Material Description
-3	Semi-rigid polyolefin
-4	Flexible polyolefin
-12	Fluoro-elastomer
-25	Fluid resistant elastomer
-100	Polyolefin, Zerohal

Environmental Adhesives Available

Optional Pre-coat	Optional User Applied
/42 or /86	S-1017 or S-1048
/42 or /86	S-1017 or S-1048
N/A	S-1255-04
/42 or /86 or /225	S-1017 or S-1048 or S-1125
/86 or /180	S-1048 or S-1030

For more information on materials and adhesives, please refer to relevant sections of this catalogue.

# Moulded Parts

## 462A011 to 060

### Transitions

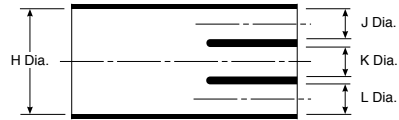
#### 1 to 3 Transition, heat shrink boots

Used for mechanical protection and cable strain relief. Ideal for cable harness applications where multiple cable branches are required.

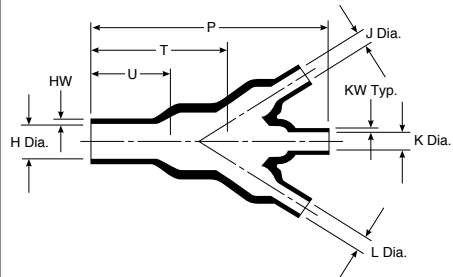
#### Ordering Information

- Standard colour Black.
- Size selection please refer to table below.
- Packaged individually
- Please specify the product name, size, material, coating and any modifications required, as per Part Number System earlier in this section.
- Adhesive coating is optional. If added the entry dimensions will be reduced by 1.5mm.

#### As supplied



#### After Recovery



#### Product Dimensions Selection Table

Dimensions as Supplied				Dimensions After Recovery						
Dimension	H	J, K, L	H	J, K, L	P ±10%	T ±10%	U ±10%	HW ±20%	KW ±10%	Weight
Part Number										
462A011	13.2	6.6	6.6	3.6	46.2	30.5	15.7	1.52	1.02	2.3g
462A023	26.9	13.2	13.2	6.9	93.2	57.2	33.0	2.54	1.52	16.2g
462A034	38.6	19.3	18.8	9.7	135.1	88.9	45.7	3.05	1.78	38.3g
462A046	55.6	26.9	25.4	12.4	192.0	121.9	71.1	4.57	3.05	143g
462A060	91.4	45.7	54.6	27.4	390.4	254.0	127.0	7.11	4.57	862g

All dimension in mm unless otherwise stated. Weight is based on polyolefin part  
Optional 'Injection' (S) and 'Vent' (T) ports indicated above, see part number system earlier in this section.

#### Materials Available

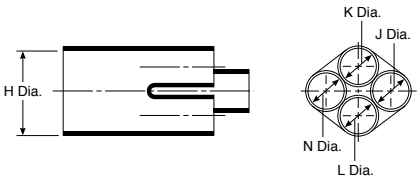
Material	Material Description
-3	Semi-rigid polyolefin
-4	Flexible polyolefin
-12	Fluoro-elastomer
-25	Fluid resistant elastomer
-100	Polyolefin, Zerohal

#### Environmental Adhesives Available

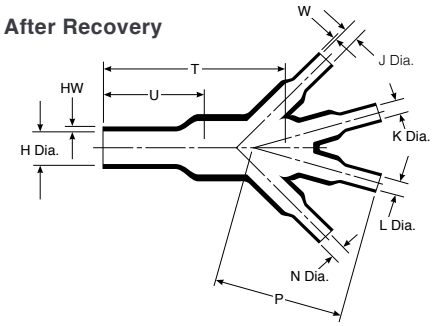
Optional Pre-coat	Optional User Applied
/42 or /86	S-1017 or S-1048
/42 or /86	S-1017 or S-1048
N/A	S-1255-04
/42 or /86 or /225	S-1017 or S-1048 or S-1125
/86 or /180	S-1048 or S-1030

For more information on materials and adhesives, please refer to relevant sections of this catalogue.

As supplied



After Recovery



Used for mechanical protection and cable strain relief. Ideal for cable harness applications where multiple cable branches are required.

Ordering Information

- Standard colour Black.
- Size selection please refer to table below.
- Packaged individually
- Please specify the product name, size, material, coating and any modifications required, as per Part Number System earlier in this section.
- Adhesive coating is optional. If added the entry dimensions will be reduced by 1.5mm.

Product Dimensions Selection Table

Dimensions as Supplied			Dimensions After Recovery							
Dimension	H	J, K, L, N	H	J, K, L, N	P ±10%	T ±10%	U ±10%	HW ±20%	W ±20%	Weight
Part Number										
562A011	13.2	6.6	6.9	3.4	24.1	43.9	18.0	1.52	1.02	3.6g
562A022	19.3	9.4	9.7	5.3	35.6	43.2	23.1	1.78	1.02	6.2g
562A032	19.3	13.2	9.7	6.9	49.3	50.5	25.4	1.78	1.52	13.6g
562A043	26.9	13.2	13.0	6.9	49.3	65.8	33.5	2.54	1.52	18.6g
562A054	38.6	19.3	18.5	9.7	71.9	95.3	46.5	3.05	1.78	54.4g
562A067	55.6	26.9	26.7	13.0	101.6	135.1	65.5	4.57	2.54	150g

All dimensions in mm unless otherwise stated. Weight is based on polyolefin part  
Optional 'Injection' (S) and 'Vent' (T) ports indicated above, see part number system earlier in this section.

Materials Available

Material	Material Description
-3	Semi-rigid polyolefin
-4	Flexible polyolefin
-12	Fluoro-elastomer
-25	Fluid resistant elastomer
-100	Polyolefin, Zerohal

Environmental Adhesives Available

Optional Pre-coat	Optional User Applied
/42 or /86	S-1017 or S-1048
/42 or /86	S-1017 or S-1048
N/A	S-1255-04
/42 or /86 or /225	S-1017 or S-1048 or S-1125
/86 or /180	S-1048 or S-1030

For more information on materials and adhesives, please refer to relevant sections of this catalogue.

Moulded Parts

PD Caps

Polyolefin  
Encapsulant lined, semi-rigid

Inexpensive way to encapsulate crimped electrical connections. Encapsulant lining melts and flows to fill surface irregularities of the substrate. These vibration proof caps are used to insulate and terminate dead-end electrical cables, fixtures, connectors and other electrical components.

Features & Benefits

- Rapid and simple installation
- Splash and moisture resistant

Operating Temperature

- From -55°C to +110°C

Installation

- Minimum shrink temperature +125°C
- Minimum full recovery +135°C

Specifications & Approvals

- UL E85381 600v, 125°C



Length Supplied		Inside Diameter		Wall Thickness	Part Number
Nominal Overall	Minimum Open Barrel	Maximum Supplied	Maximum Recovered	Nominal Recovered	
25.4	12.7	3.18	0.58	1.22	PD-CAP-1/8-0
25.4	15.2	4.75	1.52	1.57	PD-CAP-3/16-0
28.4	15.2	6.35	2.03	1.98	PD-CAP-1/4-0
31.8	18.3	9.53	2.29	2.08	PD-CAP-3/8-0
38.1	21.6	12.7	2.29	2.54	PD-CAP-1/2-0

Wall thickness will be less if tubing recovery is restricted during shrinkage.  
All dimensions in millimetres unless otherwise stated.

As Supplied



Fully Recovered



**Part Number Example; PD-CAP-1/4-0** 6.35mm inside diameter, Black end cap.

Ordering Information

Standard colours:

0=Black

Size selection:

The largest size that will recover snugly over the component(s).



TC Caps

Polyolefin

Flame retardant

2.5:1  
shrink



RoHS  
compliant

Widely used for wire terminations because of their light weight, small size and durability. Vibration-proof caps are used to insulate and terminate dead-end electrical cables, fixtures, connectors and other electrical equipment.

Features & Benefits

- 2.5:1 Shrink ratio
- Flame retardant
- Rapid and simple installation

Operating Temperature

- From -55°C to +135°C

Specifications & Approvals

- UL E85381 600v, 125°C

Installation

- Minimum shrink temperature +110°C
- Minimum full recovery +135°C

Length Supplied		Inside Diameter		Wall Thickness	Part Number
Nominal Overall	Minimum Open Barrel	Maximum Supplied	Maximum Recovered	Nominal Recovered	
19.1	10.2	1.6	0.8	0.51	TC-CAPS-4001-9
25.4	14.0	3.2	1.3	0.64	TC-CAPS-4003-2
28.6	14.0	6.4	2.5	0.69	TC-CAPS-4005-8

Wall thickness will be less if tubing recovery is restricted during shrinkage.

All dimensions in millimetres unless otherwise stated.

Part Number Example; TC-CAPS-4003-2    25.4mm inside diameter, Red end cap.

Ordering Information

Standard colour:

9=White, 2=Red, 8=Grey. One colour per size only, as per table

Size selection:

The largest size that will recover snugly over the component(s).

# Moulded Parts

## 101A011 to 094

End Caps - Standard Wall  
Heat shrinkable

Provide optimum water-proofing and environmental protection for underwater, underground, or outdoor applications. Highly resistant to moisture, fungus and weathering. Used for protecting cable and pipes, or capping unused outlets in transitions, providing an environmental seal when used with adhesive.

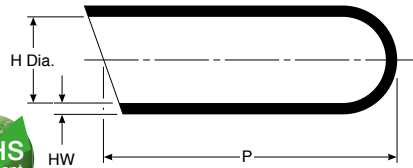
### Ordering Information

- Size selection please refer to table below.
- When ordering specify the product name, size, material, coating, as per Part Number System.
- Adhesive coating is optional. If added the entry dimensions will be reduced by 1.5mm.

### As supplied



### After Recovery



### Product Dimensions Selection Table

Dimensions as Supplied		Dimensions After Recovery		
Dimension	H	H	P Nom.	HW $\pm 20\%$
Part Number				
101A011	5.1	2.00	22.90	1.02
101A021	7.40	3.30	25.40	1.27
101A031	10.20	4.80	30.50	1.52
101A041	15.20	6.40	40.60	1.78
101A062	25.40	11.40	68.80	2.29
101A083	50.80	22.90	101.60	2.79
101A094	83.80	38.10	114.30	3.05

All dimensions in mm unless otherwise stated

### Materials Available

Material	Material Description
-3	Semi-rigid polyolefin
-4	Flexible polyolefin
-12	Fluoro-elastomer
-25	Fluid resistant elastomer
-100	Polyolefin, Zerohal

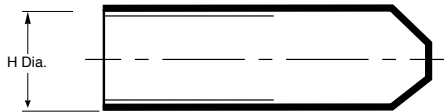
### Environmental Adhesives Available

Optional Pre-coat	Optional User Applied
/42 or /86	S-1017 or S-1048
/42 or /86	S-1017 or S-1048
N/A	S-1255-04
/42 or /86 or /225	S-1017 or S-1048 or S-1125
/86 or /180	S-1048 or S-1030

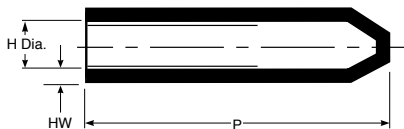
For more information on materials and adhesives, please refer to relevant sections of this catalogue.

SSC-1 to 7  
End Caps - Thick Wall  
Heat shrinkable

As supplied



After Recovery



These SSC heat shrinkable end caps are made from a thermally stabilised modified polyolefin, which makes them highly resistant to moisture, fungus and weathering

- Electrical insulation to 1000 V
- Temperature rating -40°C to 85°C
- Minimum shrink temperature 121°C

Ordering Information

- Standard colour Black.
- Size selection please refer to table below.
- Packaged individually

Other styles and derivatives are available to special order, please contact for details.

Product Dimensions Selection Table

Dimensions as Supplied		Dimensions After Recovery		
Dimension	H	H	P Nom.	HW ±20%
Part Number				
SSC-1-xx	10.00	4.00	33.50	2.00
SSC-2-xx	20.00	7.50	55.30	2.30
SSC-3-xx	35.00	15.00	89.90	3.00
SSC-4-xx	55.00	25.00	143.20	3.30
SSC-5-xx	75.00	32.00	150.10	3.30
SSC-6-xx	100.00	45.00	162.50	4.00
SSC-7-xx	120.00	70.00	145.00	3.80

All dimensions in mm unless otherwise stated

xx - Ordering Information

** Material	Material Description
XU	Sealing end cap, uncoated
X	Sealing end cap, with adhesive (standard)
XTV	Sealing end cap, with adhesive, plus c/w pressure valve

For more information on materials and adhesives, please refer to relevant sections of this catalogue.

# Moulded Parts

## 207W213 to 256

Non-screened  
Bulkhead Feedthrough

Feedthroughs provide an effective pressure seal when used with cables passing from pressurised to non-pressurised areas. Also provide excellent strain relief and bulkhead abrasion protection.

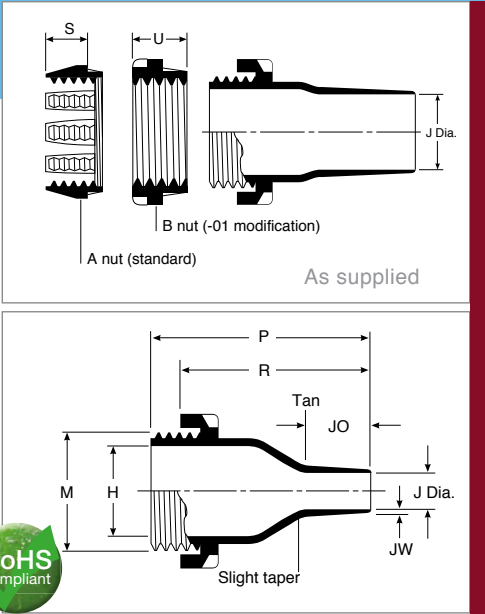
### Ordering Information

- Standard colour Black (0).
- Packaged individually
- When ordering specify the product name, size, material, coating and modifications required, as per Part Number System.
- Adhesive coating is optional. If added the entry diameter will be reduced by nominal 1.5mm.

Part number example

207W234-25-01/86-0

Fluid resistant elastomer feedthrough (-25), with nut 'B' modification (-01), hot melt thermoplastic adhesive (/86) and colour black.



### Product Dimensions Selection Table

Dimensions as Supplied			Dimensions After Recovery								Weight
Dimension	H	J	H	J	M Thread	P ±10%	R ±10%	S ±20%	U ±10%	JO ±10%	
Part Number											
207W213	13.2	6.6	6.6	3.6	46.2	30.5	15.7	1.52	1.02	1.02	2.3g
207W223	26.9	13.2	13.2	6.9	93.2	57.2	33.0	2.54	1.52	1.52	16.2g
207W234	38.6	19.3	18.8	9.7	135.1	88.9	45.7	3.05	1.78	1.78	38.3g
207W245	55.6	26.9	25.4	12.4	192.0	121.9	71.1	4.57	3.05	3.05	143g
207W256	91.4	45.7	54.6	27.4	390.4	254.0	127.0	7.11	4.57	4.57	862g

All dimensions in mm unless otherwise stated. Weight is based on polyolefin part

### Materials and Sealants Available

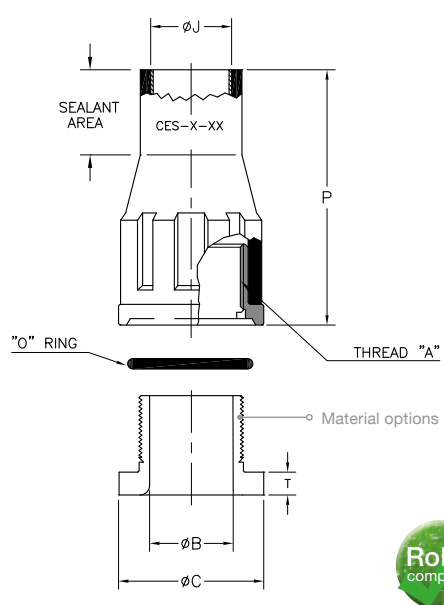
Material reference & description		Adhesive
-3	Semi-rigid polyolefin	/42 or /86
-4	Flexible polyolefin	/42 or /86
-25	Fluid resistant elastomer	/86 or /225
-100	Polyolefin, Zerohal	/86 or /180

- /42 Hot melt polyamide thermoplastic (60°C)
- /180 Hot melt polyolefin (80°C)
- /86 Hot melt thermoplastic (120°C)
- /225 Curing epoxy/polyamide (+150°C)

For user applied adhesives please contact us

CES 1 to 5

Non-screened  
Bulkhead Feedthrough



Other styles and derivatives, including multi leg variants and single piece male thread glands, are also available to special order, please contact us for details.

Cable Entry Seals provide a watertight, fume tight seal where cables enter connection boxes, bulkheads or enclosures. Threaded single part assembly CES glands are also available.

- SAE-AS81765/1 Type 1
- Temperature rating -55°C to 90°C
- Minimum shrink temperature 121°C

Ordering Information

- Standard colour Black.
- Size selection please refer to table below.
- Packaged individually

Part number example

CES-3

Standard black nylon cable entry seal, with nose internal (J) diameter 30.48mm supplied and 12.7mm fully recovered.

CES-3-SS

Stainless steel cable entry seal version of CES-3 above

Product Dimensions Selection Table

Dimensions as Supplied		Dimensions After Recovery						
Dimension	J	J	"A Thread"	B ±0.5	C Ref.	P Ref.	T Ref.	Max Panel Thickness
Part Number								
CES-1-xx	12.7	4.07	1"-12 UNF	19.05	35.56	62.23	5.34	6.35
CES-2-xx	19.05	6.35	1"-12 UNF	19.05	35.56	62.23	5.34	6.35
CES-3-xx	30.48	12.7	1 3/8"-12 UNF	27.94	48.26	90.17	7.88	9.65
CES-4-xx	40.64	19.05	2"-8 UN	39.62	68.58	97.79	7.88	12.70
CES-5-xx	70.48	35.06	3 3/8"-8 UN	73.66	104.14	190.50	7.88	19.05

All dimensions in mm unless otherwise stated.

xx - Screw Gland Materials Available

Material	Material Description
Leave Blank	Standard black nylon material, omit the last two X's in the part number
AL	Aluminium 6061-T6 with finish of hard anodize per MIL-A-8652F, Type III, Class 2, Dyed black
SS	Stainless Steel type 316, with finish of passivate per ASTM-A967

# Moulded Parts

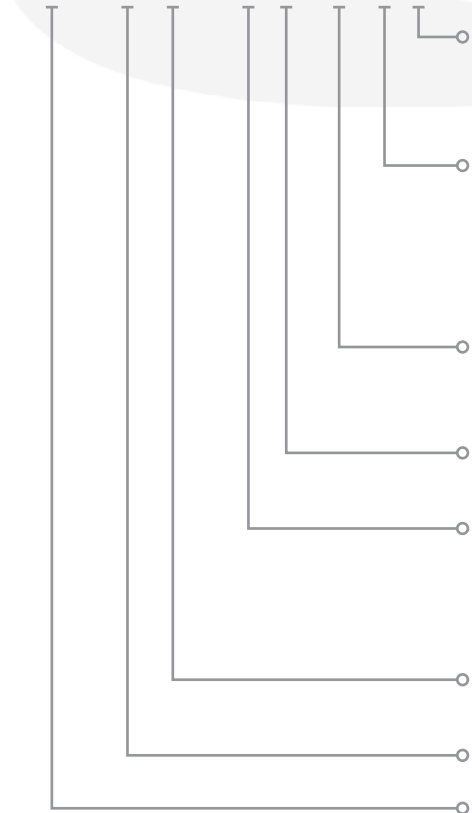
## TCFS and TCFR

Screened and Non-screened  
Bulkhead Feedthrough

- 1
- 2
- 3
- 4
- 5
- Provides environmental sealing and screen continuity where a cable passes through a bulkhead.
- The assembly consists of a specifically designed locknut and O-ring seal, onto the rear of which is pre-installed a heat-shrinkable moulded part.
- Feedthrough installation is simply effected by tightening the locknut on the rear of the bulkhead, which compresses the O-ring and ensures that a knife-edge provides electrical contact between the assembly and bulkhead.

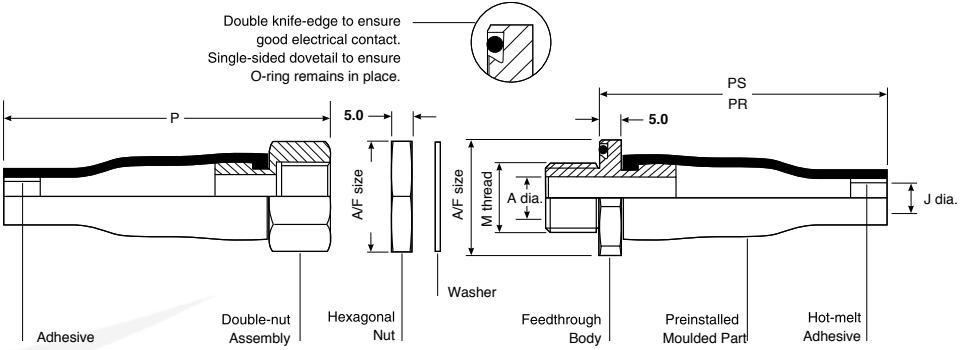


### TCFS 12 62C - 0 20 100 A H



### Part Numbering example

- ADHESIVE SYSTEM**
- E Epoxy (please contact us)
  - H S1030 hot melt
  - W S1048 hot melt
- MOULDED PART TYPE**
- A Straight unscreened
  - B 90° unscreened
  - C Straight screened
  - D 45° screened
  - E 90° screened (16 to 36 only)
- MOULDED PART MATERIAL**
- 25 Semi-rigid elastomer, or 25S if screened
  - 100 Low fire hazard, or 100S if screened
- THREAD LENGTH**
- 20 Standard length (mm)
- ASSEMBLY MODIFICATION CODE**
- 0 Standard assembly
  - 1 Double sided assembly
  - 2 Same as 1 but with potting ports
  - 3 locknut
- MATERIAL and FINISH**
- See table opposite
- SIZE** - See product dimensions table
- PART**
- TCFR Full length moulded part
  - TCFS Shortened moulded part (straight only)



Product Dimensions

Feedthrough Size		J Diameter		M Thread	A Dia.	A/F		P ±10%			Hole Size
Short	Standard	Sup.	Rec.		Max.	Body	Nut	P	PS	PR	
TCFS-12	TCFR-12	6.5	5.0	M12 x 1.5	7.5	24	17	52	50	43	13.0
TCFS-16	TCFR-16	8.5	6.0	M16 x 1.5	10.2	29	22	57	65	48	17.0
TCFS-20	TCFR-20	10.5	7.2	M20 x 1.5	14.0	34	27	61	77	52	21.0
TCFS-24	TCFR-24	16.5	8.5	M24 x 1.5	19.2	38	30	74	90	65	25.0
TCFS-30	TCFR-30	20.5	10.0	M30 x 1.5	24.2	48	36	73	115	64	31.0
TCFS-36	TCFR-36	28.5	15.8	M36 x 1.5	30.2	52	41	104	140	95	37.0
-	TCFR-48	35.5	n/a	M48 x 1.5	40.2	67	55	144	110	135	50.0

PR dimension for shorter TCFR Series | Dimensions in millimetres unless otherwise stated.

S1030 Polyolefin Hot-Melt Adhesive

Operating temperature range -80°C to +80°C  
Bonding temperature 120°C  
Excellent water blocking and low temperature

S1048 High Performance Hot-Melt Adhesive

Operating temperature range -55°C to +120°C  
Bonding temperature 160°C  
Good solvent resistance but requires higher temperature to achieve bonding

Screened Versions

Screened versions provide shielding levels better than 80 dB at 100 MHz.

Material and Finish

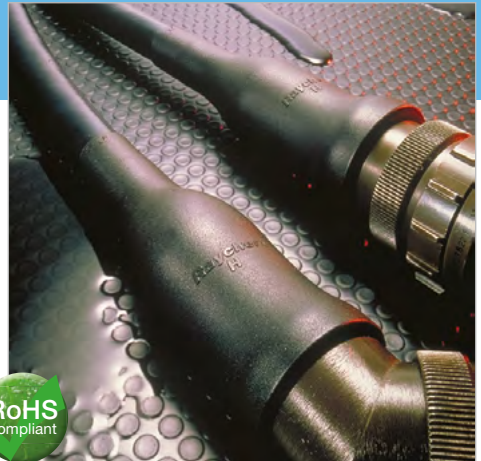
Ref	Description
01W	Nickel aluminium bronze, shotblast
19B	Aluminium alloy - plated cadmium, olive drab, over electroless nickel
19C	Aluminium alloy - plated electroless nickel
62C	Stainless steel - plated electroless nickel

# Moulded Parts

## Material Selection

Moulded parts and shapes can be manufactured in a wide range of materials, allowing engineers and material specifiers to design electrical harness systems with optimum performance characteristics for any given application. Outlined below are the standard materials available for most moulded parts covered in this section, additional technical details are covered in more detail on the following pages.

Additional specialist materials are also available with details on request. For more information please contact us.



### -3 Semi-rigid Polyolefin

A general purpose, heat-shrinkable semi-rigid and flame retardant polyolefin moulding compound.

- Operating temperature -55°C to 135°C
- Flame retardant
- Good resistance to fluid and heat
- UL224, E85381 & SAE-AS81765/1 Type I

### -4 Flexible Polyolefin

A general purpose, heat-shrinkable flexible and flame retardant polyolefin moulding compound.

- Operating temperature -55°C to 135°C
- Flame retardant
- Good resistance to fluid and heat
- UL 224, E85381 & SAE-AS81765/1 Type II

### -12 Modified Fluoro-elastomer

A high temperature, heat-shrinkable, flexible, flame-retarded, fluoro-elastomeric moulding compound.

- Operating temperature -55°C to 200°C
- Excellent long term fuel immersion resistance
- Fluid resistant and flexible
- Flame retardant

### -25 Fluid Resistant Elastomer

A heat-shrinkable, fluid and temperature resistant, elastomeric moulding compound, designed to offer excellent performance in harsh environments.

- Operating temperature -75°C to 150°C
- Chemical and abrasion resistant
- Excellent high temperature fluid resistance
- Flame retardant

### -100 Low Fire Hazard Material

A heat-shrinkable, semi-flexible, low-fire hazard moulding compound designed to offer excellent fire safety characteristics combined with low smoke and low acid gas emission.

- Operating temperature -30°C to 105°C
- Low smoke as defined BS G 198 part 5
- Low-toxicity index as defined by NES 713
- High-temperature index defined by ISO 4589-3
- Flame retardant





Designed for use in general harnessing applications where toughness is required and systems are occasionally exposed to fluids or heat. The adhesive-lined parts provide excellent sealing and strain relief at connector-cable terminations and transitions. A wide range of shapes are available in this material. The standard colour is black.

Operating Temperature

- From -55°C to 135°C

Installation

- Minimum shrink temperature 125°C
- Recommended shrink temperature 150°C

Specifications & Approvals

- UL-224, File E85381
- SAE-AS81765/1, Type I
- Def. Stan. 59-97 Issue 3 Type DA (Europe)
- BS-G-198-5-DA (Europe)

Product Characteristics, -3 material

		Specification Requirements	Test Method
Physical	Tensile strength	10.5 MPa (min)	ISO 37; ASTM D 412
	Ultimate elongation	250% (min)	ISO 37; ASTM D 412
	2% secant modulus	80 - 160 MPa	ASTM D 882
	Specific gravity	1.4 (max)	ISO 1183; ASTM D 792
Thermal	Heat aging for 168 hrs @ 175°C	Ultimate elongation 150% (min)	ISO 188, ISO 37
	Heat shock for 4 hrs @ 225°C	No dripping, cracking or flowing	ASTM D 2671
	Low temperature flex @ -55°C	No cracking during mandrel bend	RK-6703, CL 2.7: RT-301
	Flammability	Self-extinguishing	RK-6703, CL 2.8: ASTM D 635
Electrical	Electric strength	8 MV/m (min)	IEC 243
Water absorption	-	0.5% (max)	ISO 62
Fluid resistance	Aviation fuel F40	Tensile strength 8.5 MPa (min) Ultimate elongation 200% (min)	ISO 1817 and ISO 37 after immersion for 24 hrs @ 23°C
	Lubricating oil O-149	Tensile strength 8.5 MPa (min) Ultimate elongation 200% (min)	ISO 1817 and ISO 37 after immersion for 24 hrs @ 23°C
	Phosphate ester hydraulic fluid (DTD 900/4881 A)	Tensile strength 8.5 MPa (min) Ultimate elongation 200% (min)	ISO 1817 and ISO 37 after immersion for 24 hrs @ 23°C

# Moulded Parts

## -4 Moulded Part Material Flexible Polyolefin

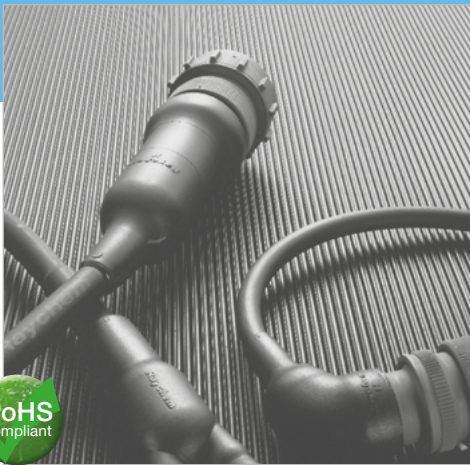
Designed for use in general harnessing applications where toughness is required and systems are occasionally exposed to fluids or heat. The adhesive-lined parts provide excellent sealing and strain relief at connector-cable terminations and transitions. A wide range of shapes are available in this material. The standard colour is black.

### Operating Temperature

- From -55°C to 135°C

### Installation

- Minimum shrink temperature 105°C
- Recommended shrink temperature 150°C

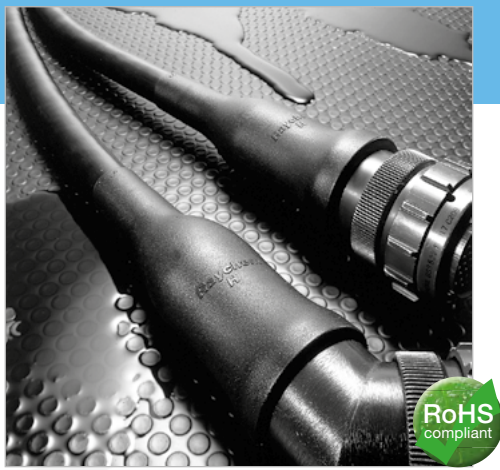


### Specifications & Approvals

- UL-224, File E85381
- SAE-AS81765/1, Type II
- SAE-AS85049/ 140, 141, 142

### Product Characteristics, -4 material

		Specification Requirements	Test Method
Physical	Tensile strength	1800 psi (min)	ASTM D 412
	Ultimate elongation	400% (min)	ASTM D 412
	Specific gravity	1.3 (max)	ASTM D 792
Thermal	Heat aging for 168 hrs @ 175°C	Ultimate elongation 300% (min)	RT 1304 Sec 4.3.3
	Heat shock for 4 hrs @ 225°C	No dripping, cracking or flowing	RT 1304 Sec 4.3.3
	Low temperature flex @ -55°C	No cracking during mandrel bend	RT 1304 Sec 4.3.3
	Flammability	Average flame time: 120 s (max)	ASTM D 635
Electrical	Dielectric strength	350 V/mil (min)	ASTM D 149
Water absorption	-	0.3% (max)	ASTM D 570
Fluid resistance	JP-4 fuel, aviation gasoline, water, hydraulic fluid	Tensile strength 8.5 MPa psi (min) Ultimate elongation 200% (min)	RT-1304 Sec 4.3.3



Moulded parts and shapes with fluoroelastomers are designed to be used in conjunction with tubing made from fluoroelastomers or multi-conductor cable jackets and a suitable adhesive. This system provides excellent resistance to elevated temperatures and continuous fuel immersion. Available in a wide range of configurations, The standard colour is black.

Operating Temperature

- From -55°C to 200°C

Installation

- Minimum shrink temperature 175°C
- Recommended shrink temperature 220°C

Specifications & Approvals

- Def. Stan. 59-97 Issue 3 Type DD (Europe)
- BS-G-198-5-DD-P (Europe)
- SAE-AS81765/4
- SAE-AS85049/ 140, 141, 142

Product Characteristics, -12 material

		Specification Requirements	Test Method
Physical	Tensile strength	12.4 MPa (min)	ISO 37
	Ultimate elongation	300% (min)	ISO 37
	2% secant modulus	70 MPa (max)	ASTM D 882
	Specific gravity	1.95 (max)	ISO 1183
Thermal	Heat aging for 168 hrs @ 250°C	Ultimate elongation 250% (min)	ISO 188, ISO 37
	Heat shock for 4 hrs @ 300°C	No dripping, cracking or flowing	ASTM D 2671
	Low temperature flex @ -55°C	No cracking during mandrel bend	ASTM D 2671
	Flammability	30 s (max)	ASTM D 635
Electrical	Electric strength	8 MV/m (min)	IEC 243
Water absorption	-	0.5% (max)	ISO 62
Fluid resistance	Aviation fuel F40	Tensile strength 11 MPa (min) Ultimate elongation 200% (min)	ISO 1817 after immersion for 24 hrs @ 23°C
	Lubricating oil O-149	Tensile strength 11 MPa (min) Ultimate elongation 200% (min)	ISO 1817 after immersion for 24 hrs @ 23°C
	Hydraulic fluid H515	Tensile strength 11 MPa (min) Ultimate elongation 200% (min)	ISO 1817 after immersion for 24 hrs @ 23°C

# Moulded Parts

## -25 and -25L

Moulded Part Material  
Fluid resistant modified Elastomer



Designed to be used in conjunction with components such as DR-25 tubing and S1125 adhesive. Being specifically formulated and designed to provide optimum high-temperature fluid resistance and long term heat resistance. This unique balance of properties makes -25 parts particularly suitable for sealing and strain relief at connector-cable terminations and cable to cable transitions on defence vehicle cables and harnesses. The standard colour is black.

### Operating Temperature

- From -75°C to 150°C

### Installation

- Minimum shrink temperature 135°C
- Recommended shrink temperature 150°C

### Specifications & Approvals

- VG95343 Parts 6, 7, 8 and 9 (Europe)
- Def Stan 59-97, Issue 3, Type DE (Europe)
- BSG-198-5-DE-P
- SAE-AS85049/ 140, 141, 142

### Product Characteristics, -25 Material

		Specification Requirements	Test Method
Physical	Tensile strength	15 MPa (min)	ASTM D 412
	Ultimate elongation	350% (min)	ASTM D 412
	Specific gravity	1.5 (max)	ASTM D 792
Thermal	Heat aging for 168 hrs @ 150°C	Ultimate elongation 300% (min)	ASTM D 412
	Heat shock for 4 hrs @ 225°C	No dripping, cracking or flowing	ASTM D 2671
	Low temperature flex @ -70°C	No cracking during mandrel bend	ASTM D 2671
	Flammability	120 s (max)	ASTM D 635
Electrical	Electric strength	8 MV/m (min)	ASTM D 149
Fluid resistance	Aviation fuel JP-4 (MIL-T-5624)	Tensile strength 12 MPa (min) Ultimate elongation 300% (min)	ASTM D 412 after immersion for 24 hrs @ 25°C
	Hydraulic fluid (MIL-H-6083)	Tensile strength 12 MPa (min) Ultimate elongation 300% (min)	ASTM D 412 after immersion for 24 hrs @ 25°C
	Diesel fuel (VV-F-800 No.2)	Tensile strength 12 MPa (min) Ultimate elongation 300% (min)	ASTM D 412 after immersion for 24 hrs @ 50°C
	Automotive gasoline (MIL-G-3056)	Tensile strength 12 MPa (min) Ultimate elongation 300% (min)	ASTM D 412 after immersion for 24 hrs @ 25°C



Designed for use with Zerohal cable and tubing for applications where hazard reduction in the event of fire is crucial. The material exhibits excellent fire safety characteristics plus low-smoke and low emission while retaining good mechanical and fluid resistant properties. Parts with adhesive lining provide location, sealing and strain relief of cable connector terminations and cable to cable transitions on harnesses used where there is a need to lower the risk. The standard colour is black.

Operating Temperature

- From -30°C to 105°C

Installation

- Minimum shrink temperature 120°C
- Recommended shrink temperature 150°C

Specifications & Approvals

- Def. Stan 59-97, Issue 3, Type DF (Europe)
- BSG 198 Part 5 Type DF (Europe)
- BR1326 listed Class C
- VG95343 Part 29 & 30

Product Characteristics, -100 material

		Specification Requirements	Test Method
Physical	Tensile strength	8 MPa (min)	ISO 37
	Ultimate elongation	200% (min)	ISO 37
	2% secant modulus	130 MPa (max)	ASTM D 882
	Specific gravity	1.5 (max)	ISO 1183
Thermal	Heat aging for 168 hrs @ 150°C	Ultimate elongation 150% (min)	ISO 188, ISO 37
	Heat shock for 4 hrs @ 225°C	No dripping, cracking or flowing	ASTM D 2671
	Low temperature flex @ -30°C	No cracking during mandrel bend	ASTM D 2671
Fire Safety Properties	Limiting oxygen index	29 min.	ISO 4589-2
	Temperature index	250°C (min)	ISO 4589-3
	Flammability	100 s (max.)	ASTM D 635
	Smoke index	20 (max.)	BSG 198 Part 5
	Toxicity index	5 )max.) per 100g	NES 713
Electrical	Electric strength	15 MV/m (min)	IEC 243
Water absorption	-	0.75% (max.) @ 23°C 3.5% (max.) @ 70°C	ISO 62
Fluid resistance	ISO 1817 Gasoline fuel	Tensile strength 5 MPa (min) Ultimate elongation 150% (min)	ISO 1817 and ISO 37 after immersion for 24 hrs @ 23°C
	Lubricating oil O-149	Tensile strength 5 MPa (min) Ultimate elongation 150% (min)	ISO 1817 and ISO 37 after immersion for 24 hrs @ 50°C
	Hydraulic fluid H515	Tensile strength 5 MPa (min) Ultimate elongation 150% (min)	ISO 1817 and ISO 37 after immersion for 24 hrs @ 23°C

