

## Backshells

For LJT, RNJ, RNJ LP, TV-CTV, SC39 and SJT Connectors  
For MIL-DTL-38999 Series I, II, III, EN3645 and VG96912 Connectors



For AS85049 Backshells,  
please consult our complete  
catalog "Amphenol Backshell"



## ABOUT AMPHENOL SOCAPEX



### Proven excellence in interconnect solutions

Since 1947, Amphenol Socapex has prescribed, designed and manufactured reliable and innovative interconnection solutions for harsh environments, specializing in standard and customized electrical and fiber optic connectors, contacts, accessories and cabling solutions. Located in the Mont Blanc region of France and Pune in India, Amphenol Socapex has a presence in over 100 countries around the world. Amphenol Socapex is part of the international Amphenol Corporation.



**600+** employees



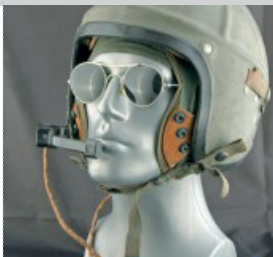
Net Sales 2017: **65.3 M€**  
64% Export - 36% France



Two facilities :  
**Thyez** (France), **Pune** (India)

### Our history

**1947**



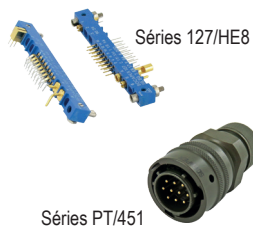
- Socapex creation in Suresnes, France
- 1<sup>st</sup> radio connector

**1956-57**



- Manufacturing unit in Cluses (74), France
- Thomson-CSF becomes primary shareholder

**Early 1960's**



- 1st board level connectors: HE8
- 1st "licence Bendix" manufactured connectors
- SL Series launch

**1973**



- New factory 13 000 m<sup>2</sup> in Thyez (74) France with 250 people

**1975**



- Production of 38999 connectors

### Today and tomorrow ...



#### New technologies:

Advanced Materials (composite)

High-speed signals

Rugged Ethernet

Fiber optics

ROHS solutions

Miniaturization

Power

INTERNATIONAL EXPERTISE



Our expertise has no boundaries

Integrated Production in France & India

- 11 000 m<sup>2</sup> manufacturing capacity on 2 sites
- Design centers in France and India
- State-of-the-art manufacturing technology



Our markets



Military

Communication Systems - Radios - C4ISR / Ground vehicles - Vetronics / Marine / Missiles



Aviation

Commercial & military / Avionics / Engines / Landing gear / Actuators



Industrial

Oil & Gas / Railways / Stage lighting

1986



- Amphenol becomes primary shareholder

1995-96



- Expanded Beam connector CTOS launch  
- Headquarters transferred to Thyez

2004



- RJ Field launch, "Award Electronica"

2005



- Opening of manufacturing site in Pune, India

2010's



- LuxBeam™ and HDAS launch

Today and tomorrow ...



Sustainable development:

Recycling  
Waste Management

Respect for nature and the environment

Optimization of natural resources

Goodwill

PRODUCING FASTER, SMALLER, STRONGER CONNECTORS...



Technologies & innovation

<p><b>Technological Center</b></p>	<p><b>High-Speed Expertise</b></p>	<p><b>Materials Expertise</b></p>	<p><b>Eco-responsibility</b></p>
<p><b>Engineering Laboratory for product testing and qualification, product expertise and metrology</b></p> <ul style="list-style-type: none"> <li>- Mechanical and electrical skills</li> <li>- RF and fiber optics expertise</li> </ul>	<p><b>Strong expertise in high-speed signals</b></p> <ul style="list-style-type: none"> <li>- 3D EM simulation software &amp; EM models</li> <li>- Time Domain and frequency domain (VNA 20GHz, TDR and eye diagram)</li> </ul>	<p><b>Focus on materials expertise and manufacturing techniques to produce faster, smaller and stronger products</b></p> <ul style="list-style-type: none"> <li>- 3D CAD mechanical software, simulation &amp; analysis</li> <li>- Disruptive metal alloys, additive manufacturing</li> </ul>	<p><b>Sustainable environment approach, with pro-active management of regulations (REACH / RoHS / Conflict minerals...)</b></p> <ul style="list-style-type: none"> <li>- New materials development, plating, and suitable processes</li> <li>- Recycling and rational resources consumption</li> </ul>

Our workshops

Our workshops located in France & India provide consistent quality adapted to your volume requirements.

- Molding** : Solid expertise in thermoplastic elastomer and thermoset molding
- Machining** : Manufacturing of cylindrical shells from 10 to 90 mm in diameter and rectangular shells
- Screw Machining** : Cylindrical production parts up to 10 mm in diameter
- Plating** : Plating with cadmium, nickel, electroless nickel, silver, black zinc nickel, gold
- Assembly** : Sub-assembly, harnessing, cabling, bonding and marking for small & large volumes

Our certifications

<p>ISO 9001 2008 Thyez &amp; Pune Certified Management System Quality</p>	<p>EN 9100 2009 Thyez &amp; Pune Certified Management System Aeronautical market</p>	<p>AQAP 2110 Edition 3 Thyez Certified Management System NATO</p>	<p>ISO 14001 2004 Thyez Certified Management System Environment</p>
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Product certifications : MIL-DTL38999, EN3645, EN3155, VG

Our memberships


Member of CMG (Connecting Manufacturing Group) Consortium

DELIVERING GREAT CUSTOMER EXPERIENCE



► We have a strong reputation for helping customers solve their toughest challenges. This approach of serving your needs is ingrained in our company – from our sales team to our product development engineers.

A partner you can trust

<p>Customer Proximity</p>	<p>Design Expertise</p>	<p>Quality Commitment</p>	<p>On Time Delivery Performance</p>

Buy our solutions

You can access our solutions through our global network of sales offices or through our distributors.

Field Sales Team :

- 12 in France
- 15 in Europe
- 100+ in North America and rest of the world.
- 5 Business Development Managers supporting local sales force Europe, North America and the rest of the world

Technical Support & Multilingual Customer Service :

- 14 people

Worldwide Distribution Network :

Including qualified distributors (QPL approved) for assembling : MIL-DTL-38999, PT/451/VG95328 & Fiber Optics connectors



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## GENERAL CHARACTERISTICS

### MAIN FEATURES

- **Shell material**
  - Aluminium alloy
  - Marine bronze
  - For composite, please consult us
- **Finish**
  - Olive drab cadmium plating
  - Electroless nickel plating
  - Green zinc cobalt plating
  - Black zinc nickel plating
  - For others, please consult us
- **9 shell sizes per model**
- **Straight or right angled versions**
- **Working temperature**
  - From  $-65^{\circ}\text{C}$  to  $+175^{\circ}\text{C}$  with olive drab cadmium plating, green zinc cobalt plating and black zinc nickel plating
  - From  $-65^{\circ}\text{C}$  to  $+200^{\circ}\text{C}$  with electroless nickel plating

For specific backshells for marine applications and 217 backshells, please consult us.

### DESCRIPTION

You will find hereafter Amphenol Socapex backshells for LJT (MIL-DTL-38999 Series I / HE308), RNJ (HE308), RNJ LP, TV-CTV (MIL-DTL-38999 Series III), SC39 and SJT (VG96912) connectors. These rear accessories enhance the performance capabilities of the connectors for both general duty and severe environment applications.

Different technologies are used in order to ensure the following functions:

- **EMI shielding**
- **cable retention**
- **sealing**

This large choice of rear accessories provides you with the right solution for your connector/backshell interconnection.

### APPLICATIONS

Military and aeronautic applications: battlefields, ground vehicles, aircrafts.

Advanced industrial applications with specific climatic, mechanical or electrical requirements.



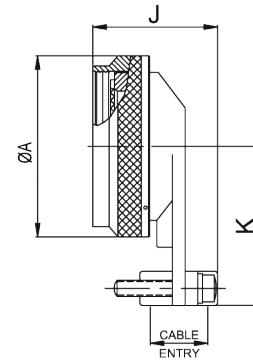
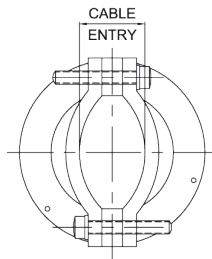
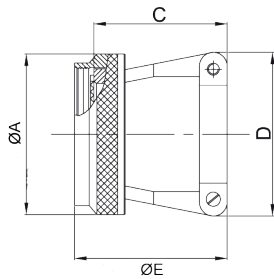
STRAIN RELIEFS

These backshells ensure a mechanical retention of the cable.

LJT/TV STRAIN RELIEFS

**M85049/49-2 strain relief and M85049/47** (90° angled versions) suitable for LJT (MIL-DTL-38999 Series I / HE308) and RNJ (HE308) connectors.

**M85049/38 strain relief and M85049/39** (90° angled versions) suitable for TV-CTV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors.



Size	LJT	TV	Ø A max mm (in)	C max mm (in)	D max mm (in)	E max mm (in)	Cable Entry		J		K mm (in)
	Thread for M85049/49-2 UNEF-2B	Thread for M85049/38 Metric					mm (in)		mm (in)		
							min	max	for M85049/47	for M85049/39	
09	.4375-28	M12 x 1.0 - 6H	19.05 (0.75)	23.11 (0.91)	21.59 (0.85)	27.94 (1.10)	2.49 (0.10)	5.94 (0.23)	35.05 (1.38)	33.27 (1.31)	25.40 (1.00)
11	.5625-24	M15 x 1.0 - 6H	21.59 (0.85)	23.11 (0.91)	22.86 (0.90)	27.94 (1.10)	3.89 (0.15)	5.94 (0.23)	35.05 (1.38)	33.27 (1.31)	27.94 (1.10)
13	.6875-24	M18 x 1.0 - 6H	25.40 (1.00)	25.65 (1.01)	27.94 (1.10)	30.48 (1.20)	4.83 (0.19)	8.33 (0.33)	37.08 (1.46)	38.35 (1.51)	27.94 (1.10)
15	.8125-20	M22 x 1.0 - 6H	27.94 (1.10)	26.92 (1.06)	29.21 (1.15)	31.75 (1.25)	6.60 (0.26)	11.61 (0.46)	41.4 (1.63)	39.37 (1.55)	31.75 (1.25)
17	.9375-20	M25 x 1.0 - 6H	31.75 (1.25)	29.46 (1.16)	33.02 (1.30)	34.44 (1.36)	7.19 (0.28)	15.60 (0.61)	45.72 (1.80)	43.43 (1.71)	33.02 (1.30)
19	1.0625-18	M28 x 1.0 - 6H	35.56 (1.40)	35.81 (1.41)	38.10 (1.50)	40.64 (1.60)	8.26 (0.33)	16.10 (0.63)	46.23 (1.82)	45.97 (1.81)	34.29 (1.35)
21	1.1875-18	M31 x 1.0 - 6H	38.10 (1.50)	38.35 (1.51)	40.64 (1.60)	43.21 (1.70)	8.71 (0.34)	17.73 (0.70)	48.26 (1.90)	49.53 (1.95)	40.64 (1.60)
23	1.3125-18	M34 x 1.0 - 6H	41.91 (1.65)	42.16 (1.66)	43.18 (1.70)	46.99 (1.85)	9.68 (0.38)	20.90 (0.82)	51.82 (2.04)	53.34 (2.10)	44.45 (1.75)
25	1.4375-18	M37 x 1.0 - 6H	44.45 (1.75)	44.70 (1.76)	45.72 (1.80)	49.56 (1.95)	10.62 (0.42)	21.67 (0.85)	54.61 (2.15)	56.13 (2.21)	46.99 (1.85)

HOW TO ORDER

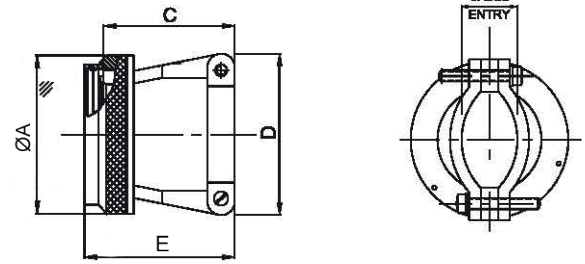
SAE-85049 designation - Backshells for LJT (MIL-DTL-38999 Series I/HE308) and TV/CTV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors

Series	M85049/	49-2	12	W
<b>Type of strain relief</b>				
<b>49-2:</b>				
<b>47:</b>				
<b>38:</b>				
<b>39:</b>				
<b>Size of backshell</b>				
<b>08-10-12-14-16-18-20-22-24</b>				
<b>09-11-13-15-17-19-21-23-25</b>				
<b>Finish</b>				
<b>W:</b>				
<b>N:</b>				



**SJT STRAIN RELIEFS**

SJT strain reliefs suitable for SJT (VG 96912) connectors.



Size*	ØA max mm (in)	C max mm (in)	D max mm (in)	E max mm (in)	Cable entry mm (in)		Thread for SJT00 & SJT06	Thread for SJT07
					min	max		
08	19.05 (0.750)	23.11 (0.910)	21.59 (0.850)	27.94 (1.100)	2.49 (0.098)	5.94 (0.234)	.4375-28	.5625-24
10	21.59 (0.850)	23.11 (0.910)	22.86 (0.900)	27.94 (1.100)	3.89 (0.153)	5.94 (0.234)	.5625-24	.6875-24
12	25.40 (1.000)	25.65 (1.010)	27.94 (1.100)	30.48 (1.200)	4.83 (0.190)	8.33 (0.328)	.6875-24	.8125-20
14	27.94 (1.100)	26.92 (1.060)	29.21 (1.150)	31.75 (1.250)	6.60 (0.260)	11.61 (0.457)	.8125-20	.9375-20
16	31.75 (1.250)	29.46 (1.160)	33.02 (1.300)	34.44 (1.356)	7.19 (0.283)	15.60 (0.614)	.9375-20	1.0625-18
18	35.56 (1.400)	35.81 (1.410)	38.10 (1.500)	40.64 (1.600)	8.26 (0.325)	16.10 (0.634)	1.0625-18	1.1875-18
20	38.10 (1.500)	38.35 (1.510)	40.64 (1.600)	43.21 (1.701)	8.71 (0.343)	17.73 (0.698)	1.1875-18	1.3125-18
22	41.91 (1.650)	42.16 (1.660)	43.18 (1.700)	46.99 (1.850)	9.68 (0.381)	20.90 (0.823)	1.3125-18	1.4375-18
24	44.45 (1.750)	44.70 (1.760)	45.72 (1.800)	49.56 (1.951)	10.62 (0.418)	21.67 (0.853)	1.4375-18	1.4375-18

\*For SJT00 & SJT06, 08-10-12-14-16-18-20-22-24

For SJT07, add 2 to your connectors size i.e. for 8 size connector use size 10 backshell

**HOW TO ORDER**

Amphenol designation - Backshells for SJT (VG96912)

<b>Series</b>	<b>BS1</b>	<b>SR</b>	<b>M</b>	<b>12</b>	<b>99</b>	<b>9</b>	<b>X</b>	<b>W</b>
<b>Type of backshell</b>								
<b>SR:</b> straight cable clamp with spin coupling								
<b>Connector group</b>								
<b>M:</b> SJT								
<b>Size of backshell 08-10-12-14-16-18-20-22-24</b> (same as connector size)								
<b>Entry size</b>								
<b>99:</b> standard								
<b>Length</b>								
<b>9:</b> standard								
<b>Constant</b>								
<b>X</b>								
<b>Finish</b>								
<b>W:</b> olive-drab cadmium plating								
<b>N:</b> electroless nickel plating								

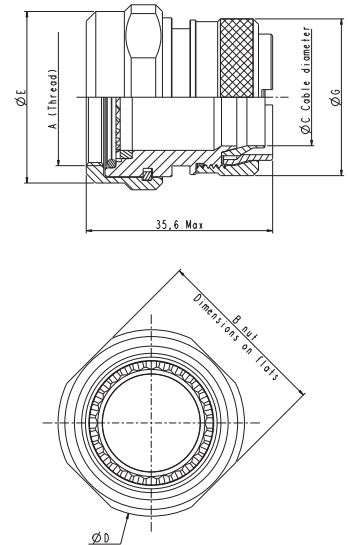
BACKSHELLS FOR SHIELDING

NSA and SA backsells ensure the shielding by clamping the braid with a screwing system. The free inner ring avoids twisting of the braid during screwing.

LJT NSA & TV NSA

**LJT NSA (HE308-13)** suitable for LJT (MIL-DTL-38999 Series I / HE308), RNJ (HE308) and SJT (VG96912) connectors.  
**TV NSA** suitable for TV-CTV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors.

Size	LJT	TV	B max mm (in)	Ø C max mm (in)	Ø D max mm (in)	Ø E max mm (in)	Ø G max mm (in)
	A Thread UNEF-2B	A Thread Metric					
09	.4375-28	M12 x 1.0 - 6H	17 (0.669)	6.9 (0.272)	19.1 (0.752)	15.2 (0.598)	16.5 (0.650)
11	.5625-24	M15 x 1.0 - 6H	21 (0.827)	9.6 (0.378)	23.1 (0.909)	18.2 (0.717)	19.4 (0.764)
13	.6875-24	M18 x 1.0 - 6H	26 (1.024)	12.7 (0.500)	28.1 (1.106)	21.2 (0.835)	22.6 (0.890)
15	.8125-20	M22 x 1.0 - 6H	29 (1.142)	14.8 (0.583)	31.1 (1.224)	25.1 (0.988)	25.8 (1.016)
17	.9375-20	M25 x 1.0 - 6H	32 (1.260)	17.9 (0.705)	34.1 (1.343)	28.1 (1.106)	29.0 (1.142)
19	1.0625-18	M28 x 1.0 - 6H	36 (1.417)	19.9 (0.784)	38.1 (1.500)	31.1 (1.224)	32.0 (1.260)
21	1.1875-18	M31 x 1.0 - 6H	39 (1.535)	23.1 (0.909)	41.1 (1.618)	34.1 (1.343)	35.2 (1.386)
23	1.3125-18	M34 x 1.0 - 6H	42 (1.654)	26.2 (1.032)	44.1 (1.736)	36.9 (1.453)	38.4 (1.512)
25	1.4375-18	M37 x 1.0 - 6H	45 (1.772)	28.8 (1.134)	49.1 (1.933)	39.9 (1.571)	41.5 (1.634)



HOW TO ORDER

Amphenol designation - Backshells for LJT (MIL-DTL-38999 Series I / HE308), RNJ (HE308)

HE 308 military designation - Backshells for HE308 (LJT / MIL-DTL-38999 Series I / RNJ) connectors

<b>Series</b>	LJT NSA 11 014
<b>Type of backshell</b>	NSA: screened clamping braid backshell accepting heat shrink moulded piece
<b>Size of backshell</b>	09-11-13-15-17-19-21-23-25 for LJT connectors: same as connector size
<b>Finish</b>	014: olive-drab cadmium plating 023: electroless nickel plating 024: green zinc cobalt plating 033K: black zinc nickel plating

<b>Series</b>	HE308 13 15 7 M
<b>Type of backshell</b>	13: screened clamping braid backshell heat shrink moulded piece
<b>Size of backshell</b>	09-11-13-15-17-19-21-23-25 (same as connector size)
<b>Finish</b>	07: olive-drab cadmium plating 06: electroless nickel plating
<b>Military standard</b>	

Amphenol designation – Backshells for TV-CTV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors

<b>Series</b>	TV NSA 11 014
<b>Type of backshell</b>	NSA: screened clamping braid backshell accepting heat shrink moulded piece
<b>Size of backshell</b>	09-11-13-15-17-19-21-23-25 (same as connector size)
<b>Finish</b>	014: olive-drab cadmium plating 023: electroless nickel plating 024: green zinc cobalt plating 033K: black zinc nickel plating

## ASSEMBLY INSTRUCTIONS FOR NSA AND SA BACKSHELLS

1. Prepare the cable for termination process and slide onto the cable the items in the order shown on figure 1.
2. Screw the backshell at the rear of the connector. The best performance in time of the system « connector + rear accessory » consists in applying the torque value to screw then to unscrew, to apply the torque value to screw a second time, then to unscrew and finally to screw the torque value a third time.
3. Fold back the braid on the outer jacket and fix it (figure 2)
4. Install the braid as shown on figures 3 and 4: Release the braid and cover the backshell (a) and the connector's shell. Slide the first ring (b) over the braid. Fold back the braid on the ring (b) and slide the second ring (c) over the braid and the first ring (b). Screw the last ring (d) at the rear of the backshell. If necessary, fix the extra braid on the outer jacket of the cable. If this installation (double folding of the braid) is not possible, refer to figure 5: Slide the first ring (b). Release the braid and cover the backshell (a) and the connector's shell. Cut the braid as shown. Slide the second ring (c) over the braid and the first ring (b). Screw the last ring at the rear of the backshell.
5. Install the heat-shrink moulded piece.

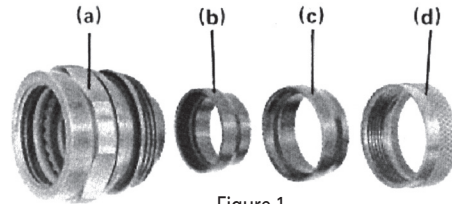


Figure 1



Figure 2

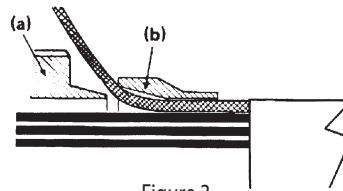


Figure 3

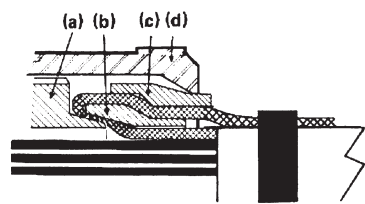


Figure 4

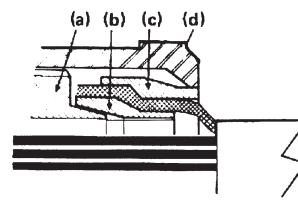


Figure 5

# BAND BACKSHELLS FOR SHIELDING

These band backsHELLS provide a full 360° shield termination. They are available with different cabling chamber lengths and exit diameters. The use of replaceable bands facilitates future maintenance or reparability. Sealing is ensured by straight or right angled heat shrink moulded piece at the rear of backsHELL.

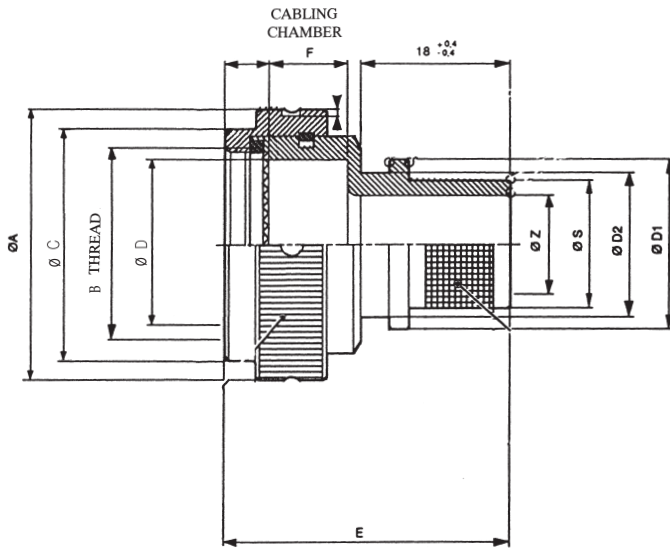
## HE308-35 AND TV35 BACKSHELLS

**HE308-35** suitable for LJT (MIL-DTL-38999 Series I / HE308), RNJ (HE308) connectors.

**TV35** suitable for TV-CTV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors.

**TVB35** suitable for TV bronze connectors.

These straight band backsHELLS provide a full 360° shield termination with a quick, easy and cost effective cabling process. For straight or right angled heat shrink moulded pieces, please refer to page 22.



Size	HE308-35				TV35/TVB35			
	Ø A max mm (in)	B Thread UNEF-2B	Ø C mm (in)	Ø D mm (in)	Ø A max mm (in)	B Thread Metric	Ø C mm (in)	Ø D mm (in)
09	21.40 (0.843)	0.4375-28	15.20 (0.598)	7.80 (0.307)	24.30 (0.957)	M12 x 1.0-6H	18.00 (0.709)	7.80 (0.307)
11	24.30 (0.957)	0.5625-24	18.40 (0.724)	10.80 (0.425)	27.40 (1.079)	M15 x 1.0-6H	21.00 (0.827)	10.99 (0.433)
13	27.40 (1.079)	0.6875-24	21.60 (0.850)	13.10 (0.516)	31.80 (1.252)	M18 x 1.0-6H	25.00 (0.984)	13.80 (0.543)
15	31.80 (1.252)	0.8125-20	24.80 (0.976)	16.30 (0.642)	35.00 (1.378)	M22 x 1.0-6H	28.00 (1.102)	16.30 (0.642)
17	35.00 (1.378)	0.9375-20	28.00 (1.102)	19.50 (0.768)	38.10 (1.500)	M25 x 1.0-6H	30.80 (1.213)	20.10 (0.791)
19	38.10 (1.500)	1.0625-18	31.00 (1.220)	21.70 (0.854)	41.20 (1.622)	M28 x 1.0-6H	34.10 (1.343)	22.93 (0.903)
21	41.20 (1.622)	1.1875-18	34.20 (1.347)	24.90 (0.980)	44.30 (1.744)	M31 x 1.0-6H	36.90 (1.453)	26.00 (1.024)
23	44.30 (1.744)	1.3125-18	37.40 (1.472)	28.10 (1.106)	47.20 (1.858)	M34 x 1.0-6H	39.80 (1.567)	29.28 (1.153)
25	47.20 (1.858)	1.4375-18	40.60 (1.599)	31.20 (1.228)	50.00 (1.969)	M37 x 1.0-6H	43.00 (1.693)	32.45 (1.278)

Size	E max mm	Cabling chamber length F <sup>+0.1</sup> mm	Z rear side diameter coding										
			06	08	10	12	14	16	20	24	28	32	36
09	36	10		o	x	o	x	x					
11	36	10		x	x	o	o	x	x				
	41	15	x	x	x	x							
	46	20				x							
	56	30						x	x				
	66	40				x	x						
13	36	10		x	x	o	x	o	x				
	56	30				△		o					
15	36	10		x	x	o	o	x	o	x			
	41	15		x	x	x	x	x					
	56	30							o				
17	36	10				o	o	o	x	o			
	41	20					x	x					
	51	25				o	x						
	56	30						x		o			
19	36	10		x				o		o	x		
	56	30						x		o			
21	36	10					x	x	o	x	o	x	
	46	20					x		△	x			
	51	25					x						
	56	30							△		o		
23	36	10						x		o	x	o	
	56	30								o		o	
25	36	10						x			o		o
	56	30								o			o

x  
HE308-35

o  
HE308-35 & TV35/TVB35

△  
TV35/TVB35

Z rear side diameter	06	08	10	12	14	16	20	24	28	32	36
Ø Z	4.8 (0.189)	6.30 (0.248)	7.90 (0.313)	9.40 (0.370)	11.00 (0.433)	12.60 (0.496)	15.80 (0.622)	19.00 (0.748)	22.10 (0.870)	25.30 (0.996)	28.60 (1.126)
Ø S min/max	7.80/7.9 (0.307/0.311)	9.40/9.50 (0.370/0.374)	11.1/11.2 (0.437/0.440)	12.60/12.70 (0.496/0.500)	14.10/14.30 (0.555/0.563)	15.70/15.90 (0.618/0.626)	18.90/19.10 (0.744/0.752)	22.00/22.20 (0.866/0.874)	25.20/25.40 (0.992/1)	28.40/28.60 (1.118/1.126)	31.50/31.80 (1.240/1.252)
Ø D1 ±0.1	12.40 (0.488)	14.00 (0.551)	17.10 (0.673)	17.10 (0.673)	18.70 (0.736)	20.30 (0.799)	23.50 (0.925)	26.70 (1.051)	29.80 (1.173)	33.00 (1.299)	36.20 (1.425)
Ø D2 ±0.1	9.80 (0.386)	11.40 (0.449)	14.50 (0.571)	14.50 (0.571)	16.10 (0.634)	17.70 (0.697)	20.90 (0.823)	23.10 (0.909)	26.20 (1.032)	29.40 (1.158)	32.60 (1.284)

## HOW TO ORDER

HE 308 military designation - Backshells for HE 308 (LJT/ MIL-DTL-38999 Series I / RNJ) connectors

**Series** HE308 -35 -11 -10 -12 -7 M

**Type of backshell**  
**35:** band backshell accepting heat shrink moulded piece

**Size of backshell** 09-11-13-15-17-19-21-23-25 (same as connector size)

**Cabling chamber length** 10-15-20-25-30-40  
*Refer above - dimension F*

**Rear side diameter** 06-08-10-12-14-16-20-24-28-32-36  
*Refer above - dimension Z*

**Finish**  
**7:** olive-drab cadmium plating  
**6:** electroless nickel plating  
**033K:** black zinc nickel plating

**Military standard** (only for olive-drab cadmium and electroless nickel versions)

Amphenol designation – Backshells for TV-CTV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors

**Series** TV 35 11 10 12 014

**Type of backshell**  
**35:** aluminium straight band backshell accepting heat shrink moulded piece  
**B35:** bronze straight band backshell accepting heat shrink moulded piece

**Size of backshell** 09-11-13-15-17-19-21-23-25 (same as connector size)

**Cabling chamber length** 10-20-25-30  
*Refer above - dimension F*

**Rear side diameter** 06-08-10-12-14-16-20-24-28-32-36  
*Refer above - dimension Z*

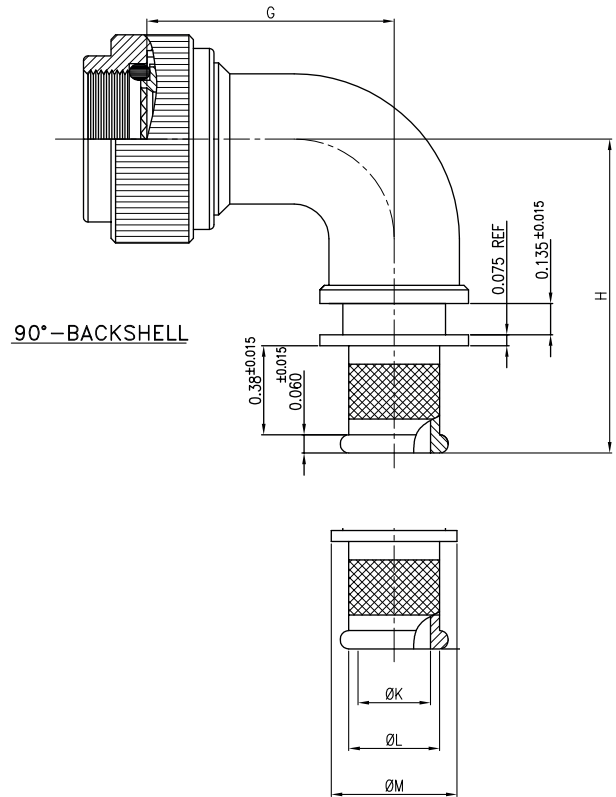
**Finish**  
**014:** olive-drab cadmium plating  
**023:** electroless nickel plating  
**024:** green zinc cobalt plating  
**033K:** black zinc nickel plating  
 Blank for bronze version

**SBC BACKSHELLS**

**LJT SBC** suitable for LJT (MIL-DTL-38999 Series I / HE308) and RNJ (HE308) connectors.

**TV SBC** suitable for TV-CTV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors.

These right angled band backsells provide a full 360° shield termination with a quick, easy and cost effective cabling process. For right angled heat shrink moulded pieces, please refer to page 22.



Size	LJT SBC only		TV SBC only	
	Ø A max mm (in)	B Thread UNEF-2B	Ø A max mm (in)	B Thread Metric
09	19.10 (0.752)	0.4375-28	19.10 (0.752)	M12 x 1.0-6H
11	21.59 (0.850)	0.5625-24	21.59 (0.850)	M15 x 1.0-6H
13	25.40 (1.000)	0.6875-24	25.40 (1.000)	M18 x 1.0-6H
15	29.18 (1.149)	0.8125-20	29.18 (1.149)	M22 x 1.0-6H
17	31.78 (1.251)	0.9375-20	31.78 (1.251)	M25 x 1.0-6H
19	35.59 (1.401)	1.0625-18	35.59 (1.401)	M28 x 1.0-6H
21	39.29 (1.547)	1.1875-18	39.29 (1.547)	M31 x 1.0-6H
23	41.88 (1.649)	1.3125-18	41.88 (1.649)	M34 x 1.0-6H
25	44.48 (1.751)	1.4375-18	44.48 (1.751)	M37 x 1.0-6H

Size	G max mm (in)	K rear side diameter		H max mm (in)	Ø L ± 0.015" mm (in)	Ø M ± 0.015" mm (in)
		Coding 1/32 of Inch	Dimension mm (in)			
09	28.58 (1.125)	10	7.92 (0.312)	33.91 (1.335)	11.13 (0.438)	12.70 (0.500)
11	31.75 (1.250)	14	11.13 (0.438)	37.08 (1.460)	14.27 (0.562)	15.85 (0.624)
13	34.93 (1.375)	16	12.70 (0.500)	40.26 (1.585)	15.88 (0.625)	17.45 (0.687)
15	38.10 (1.500)	20	15.88 (0.625)	43.43 (1.710)	19.05 (0.75)	20.62 (0.812)
17	41.28 (1.625)	24	19.05 (0.750)	46.61 (1.835)	22.23 (0.875)	23.80 (0.937)
19	44.45 (1.750)	24	19.05 (0.750)	49.78 (1.960)	22.23 (0.875)	23.80 (0.937)
21	47.63 (1.875)	28	22.23 (0.875)	42.96 (2.085)	25.40 (1.000)	26.97 (1.062)
23	50.80 (2.000)	32	25.40 (1.000)	56.13 (2.210)	28.58 (1.125)	30.15 (1.187)
25	53.98 (2.125)	36	28.58 (1.125)	59.31 (2.335)	31.75 (1.250)	33.32 (1.312)

**HOW TO ORDER**

Amphenol designation – Backshells for LJT (LJT/ MIL-DTL-38999 Series I / HE308/ RNJ) connectors

Series	LJT	SBC	11	14	014
<b>Type of backshell</b>					
<b>SBC:</b> aluminium right angled band backshell accepting heat shrink moulded piece					
<b>Size of backshell</b> 09-11-13-15-17-19-21-23-25 (same as connector size)					
<b>Rear side diameter</b> 10-14-16-20-24-28-32-36					
<i>Refer above - dimension Z</i>					
<b>Finish</b>					
<b>014:</b> olive-drab cadmium plating					
<b>023:</b> electroless nickel plating					

Amphenol designation – Backshells for TV-CTV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors

Series	TV	SBC	11	14	014
<b>Type of backshell</b>	SBC: aluminium right angled band backshell accepting heat shrink moulded piece				
<b>Size of backshell</b>	09-11-13-15-17-19-21-23-25 (same as connector size)				
<b>Rear side diameter</b>	10-14-16-20-24-28-32-36				
<i>Refer p12 - dimension Z</i>					
<b>Finish</b>	014: olive-drab cadmium plating 023: electroless nickel plating				

## ASSEMBLY INSTRUCTIONS FOR HE308-35, TV35 AND SBC BACKSHELLS

1. Prepare the cable for termination process (figure 1).
2. Screw the backshell at the rear of the connector.
3. Push the braid over the backshell to the incline point. Milk the braid as required to remove the slack and insure a snug fit around the shield termination area (figure 2).
4. Prepare the band: Roll the band through the buckle slot twice (the band must be double-coiled). Pull on the band until the mark is within approximately 6.4 mm (.250 in) of the buckle slot (figure 3). The band may be tightened further if desired.
5. Squeeze the gripper release lever of the banding tool and insert the band into the front end opening of the tool as shown on figure 4 (the circular portion of looped band must always face downward).
6. Aligning the band and the tool with the shield termination area, squeeze the black pull-up handle repeatedly using short strokes until it locks against the tool body (this indicates the band is compressed to the tool precalibrated tension).
7. Complete the clamping process by squeezing the grey cut-off handle.
8. Remove the excess band from the tool.
9. Inspect shield termination (figure 5). If the alignment of the band and the shield is unsatisfactory, tension on the band can be relaxed by pushing on the slotted release lever on the top of the tool. Make adjustments as necessary and squeeze again the black pull-up handle.

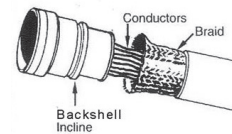


Figure 1

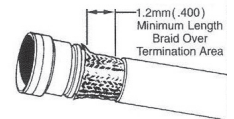


Figure 2

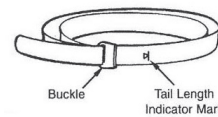


Figure 3

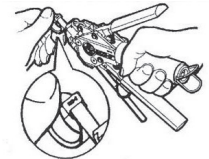


Figure 4

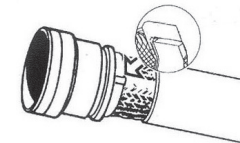


Figure 5



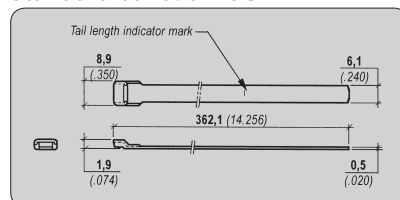
## TOOLING AND ACCESSORIES

### Coupling tool

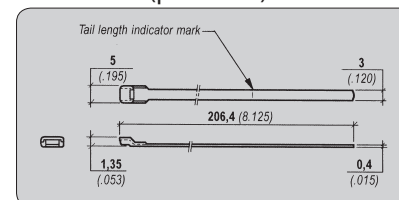
Coupling wrench for HE308-35 and TV(B) 35 backshells: **116.50** (Facom p/n)

### Clamping bands

Standard band: **072952**



Micro band (precoiled): **895693**



### Hand banding tools

Banding tool for standard band: **809952**

Caution: Tools and bands should never be lubricated

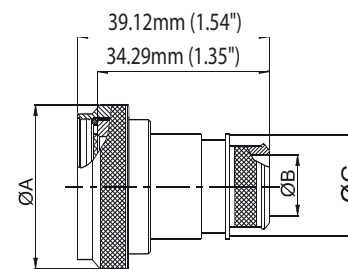
Banding tool for micro band: **809985**

## M85049 BAND BACKSHELLS

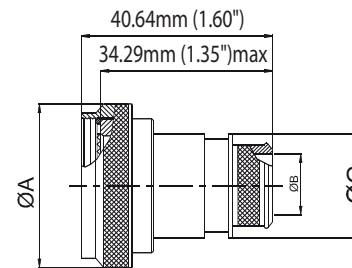
**M85049/85 and M85049/87** suitable for LJT (MIL-DTL-38999 Series I / HE308), RNJ (HE308) connectors.

**M85049/88 and M85049/90** suitable for TV/CTV (MIL-DTL-38999 Series III), SC39 and RNJLP connectors.

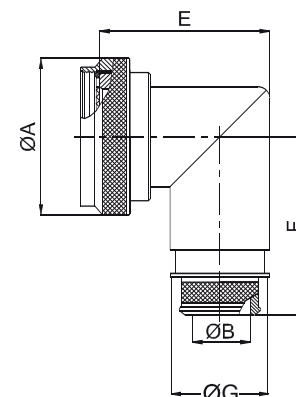
These straight band backsells provide a full 360° shield termination with a quick, easy and cost effective cabling process. For straight or right angled heat shrink moulded pieces, please refer to page 22.



M85049/85



M85049/88



M85049/87 & M85049/90

Size	Entry Size		Ø B <sup>0</sup> <sub>-0.5</sub> mm (in)	Ø A max mm (in)	E max mm (in)	F max mm (in)		Ø G max mm (in)
	Coding					LJT	TV	
	for /85 only	for /88/87/90						
09	01	02	N/A	21.82 (0.859)	34.93 (1.375)	35.99 (1.417)	35.99 (1.417)	N/A
	02	03	6.60 (0.260)					
11	01	02	N/A	25.04 (0.986)	36.50 (1.437)	37.59 (1.480)	37.59 (1.480)	N/A
	02	03	8.13 (0.320)					
13	01	02	8.13 (0.320)	29.36 (1.156)	39.67 (1.562)	39.45 (1.553)	39.45 (1.553)	16.00 (0.630)
	02	03	11.43 (0.450)					
15	01	02	11.43 (0.450)	32.54 (1.281)	42.85 (1.687)	41.00 (1.614)	41.00 (1.614)	19.05 (0.750)
	02	03	14.48 (0.570)					
17	01	02	12.95 (0.510)	35.71 (1.406)	44.45 (1.750)	42.62 (1.678)	42.62 (1.678)	20.83 (0.820)
	02	03	16.26 (0.640)					
19	01	02	16.26 (0.640)	38.51 (1.516)	47.63 (1.875)	44.02 (1.733)	45.03 (1.773)	24.13 (0.950)
	02	03	19.30 (0.760)					
21	01	02	16.26 (0.640)	41.68 (1.641)	49.23 (1.938)	45.62 (1.796)	45.62 (1.796)	24.13 (0.950)
	02	03	20.83 (0.820)					
23	01	02	17.78 (0.700)	44.86 (1.766)	52.37 (2.062)	47.22 (1.859)	47.22 (1.859)	25.99 (1.023)
	02	03	24.13 (0.950)					
25	01	02	19.30 (0.760)	48.03 (1.891)	53.98 (2.125)	48.74 (1.919)	48.74 (1.919)	27.18 (1.070)
	02	03	25.65 (1.010)					

## HOW TO ORDER

SAE-85049 designation - Backshell for LJT (MIL-DTL-38999 Series I / HE308) or TV/CTV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors

<b>Series</b>	<b>M85049/</b>	<b>85</b>	<b>09</b>	<b>W</b>	<b>02</b>
<b>Type of backshell</b>					
<i>LJT/HE308:</i>					
<b>85:</b> straight					
<b>87:</b> 90° right angle					
<i>TV:</i>					
<b>88:</b> straight					
<b>90:</b> 90° right angle					
<b>Size of backshell</b>					
<b>08-10-12-14-16-18-20-22-24</b> for LJT (MIL-DTL-38999 Series I / HE308) and RNJ (HE308) connectors: remove 1 to your connector size					
<b>09-11-13-15-17-19-21-23-25</b> (same as connector size) for TV-CTV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors					
<b>Finish</b>					
<b>W:</b> olive-drab cadmium plating					
<b>N:</b> electroless nickel plating					
<b>Entry size 01-02-03</b>					



# CONNECTORS WITH INTEGRATED BACKSHELLS

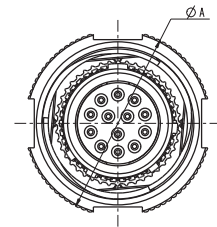
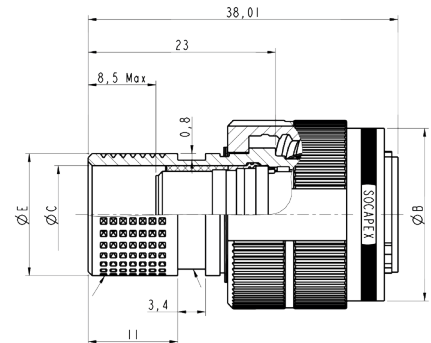
Available on plugs and receptacles, these 2 in 1 connectors/band backsells provide a high EMI protection with a quick, easy and cost effective cabling process. They are low profile, with enhance sealing level and allow the use of macro and micro bands, as well as straight or right angled heat shrink moulded pieces. The design of the shells make them compatible with over moulding process.



## INTEGRATED BACKSHELLS FOR TV

Suitable for TV (MIL-DTL-38999 Series III) connectors.

Size	Ø A max mm (in)	Ø B max <sup>+0.2</sup> <sub>0</sub> mm (in)	Ø C mm (in)	Ø E max <sup>-0.2</sup> mm (in)
09	21.8 (0.858)	18.4 (0.724)	8.74 (0.344)	12 (0.472)
11	25.0 (0.984)	21.1 (0.831)	11.99 (0.472)	15 (0.591)
13	29.4 (1.157)	25.4 (1.000)	14.88 (0.586)	18 (0.709)
15	32.5 (1.280)	28.7 (1.130)	18.06 (0.711)	22 (0.866)
17	35.7 (1.406)	32.2 (1.268)	21.23 (0.836)	25 (0.984)
19	38.5 (1.516)	34.9 (1.374)	23.93 (0.942)	28 (1.102)
21	41.7 (1.642)	38.1 (1.500)	27.10 (1.067)	31 (1.220)
23	44.9 (1.768)	41.1 (1.618)	30.28 (1.192)	34 (1.339)
25	48.0 (1.890)	44.3 (1.744)	33.45 (1.317)	37 (1.457)



## HOW TO ORDER

Amphenol designation - Integrated backshell for TV (MIL-DTL-38999 Series III)

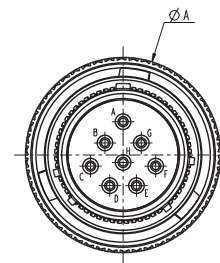
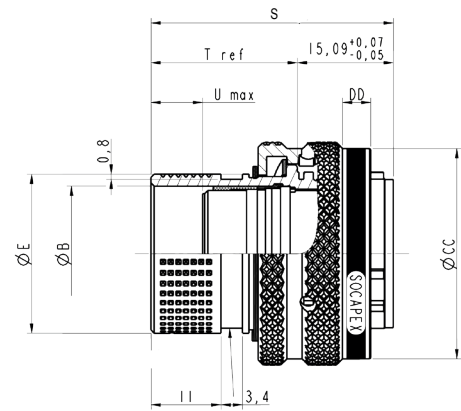
Series	TV	06	RW	11-35	P	A	F472
<b>Shell type</b> straight plug: 175°C: <b>06</b> straight plug: 200°C: <b>S06</b>							
<b>Shell material and finish</b> <i>Aluminium</i> <b>RW:</b> olive drab cadmium plated 175°C <b>RF:</b> electroless nickel plated 200°C <b>ZN:</b> black zinc nickel plated 175°C <b>RZ:</b> green zinc cobalt plated 175°C <i>Please consult for bronze and stainless steel versions</i>							
<b>Shell size and contact arrangement</b> See MIL-DTL 38999 Series III catalogue pages 8 to 11							
<b>Contact type</b> <b>P:</b> pin <b>S:</b> socket							
<b>Polarisation</b> blank for normal or A, B, C, D, E							
<b>Deviation</b> <b>F472:</b> connectors with integrated backshell							

Please consult us for receptacles with integrated backshell

**INTEGRATED BACKSHELLS FOR LJT**

Suitable for LJT (MIL-DTL-38999 Series I / HE308).

Size	Ø A max mm (in)	Ø B mm (in)	Ø CC <sup>+0.28</sup> mm (in)	DD <sup>+1.14</sup> mm (in)	Ø E <sup>-0.2</sup> mm (in)	S mm (in)	T ref mm (in)	U max mm (in)
09	21.82 (0.859)	8.74 (0.344)	19.81 (0.780)	4.06 (0.160)	12 (0.472)	38.09 (1.500)	23 (0.906)	8.5 (0.335)
11	24.99 (0.984)	11.99 (0.472)	22.99 (0.905)		15 (0.591)			
13	29.36 (1.156)	14.88 (0.586)	26.95 (1.061)		18 (0.709)			
15	32.54 (1.281)	18.06 (0.711)	30.12 (1.186)		22 (0.866)			
17	35.71 (1.406)	21.23 (0.836)	33.05 (1.301)		25 (0.984)			
19	38.51 (1.516)	23.93 (0.942)	36.12 (1.422)		26.95 (1.061)			
21	41.68 (1.651)	27.10 (1.067)	39.22 (1.544)		30.12 (1.186)			
23	43.86 (1.727)	30.28 (1.192)	42.34 (1.667)		33.30 (1.311)			
25	48.03 (1.891)	33.45 (1.317)	45.54 (1.793)		36.47 (1.436)			



**HOW TO ORDER**

Amphenol designation - Integrated backshell for LJT (MIL-DTL-38999 Series I/HE308)

<b>Series</b>	LJT	06	RT	11-35	P	A	014	F472
<b>Shell type</b>	06: straight plug							
<b>Service class and contact style</b>	RT: environmental, crimp contacts							
<b>Shell size and contact arrangement</b>	see MIL-DTL 38999 Series I catalogue pages 7 to 9							
<b>Contact type</b>	P: pin S: socket							
<b>Polarisation</b>	blank for normal or A, B, C, D							
<b>Shell finish</b>	014: olive drab cadmium plating 023: electroless nickel plating 033K: black zinc nickel plating							
<b>Deviation</b>	F472: connectors with integrated backshell							

Please consult for receptacles with integrated backshell

ADAPTERS FOR HEAT SHRINK MOULDED PIECES

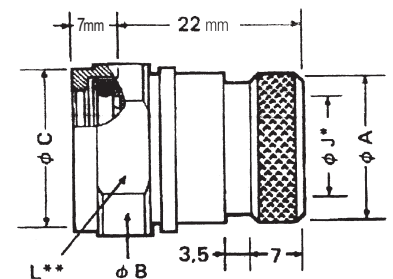
NSD BACKSHELLS

**LJT NSD (HE308-14)** suitable for LJT (MIL-DTL-38999 Series I / HE308) and RNJ (HE308) connectors.

**TV NSD** suitable for TV-CTV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors. These backshells ensure the sealing and the mechanical retention of the cable. For straight and right angled heat shrink moulded pieces, please refer to page 22.



Size	Ø A mm (in)	Ø B ±0.2 mm (in)	Ø C max mm (in)	Ø J* min mm (in)	L** max mm (in)
9	12.60 (0.496)	20.00 (0.787)	16.00 (0.630)	7.80 (0.307)	16.80 (0.661)
11	16.40 (0.646)	23.00 (0.906)	19.00 (0.748)	10.80 (0.425)	20.80 (0.819)
13	20.00 (0.787)	26.00 (1.024)	22.00 (0.866)	13.10 (0.516)	22.80 (0.898)
15	22.00 (0.866)	29.00 (1.142)	25.10 (0.988)	16.30 (0.642)	25.80 (1.016)
17	24.60 (0.969)	32.00 (1.260)	28.30 (1.114)	19.00 (0.748)	28.80 (1.134)
19	27.50 (1.083)	35.00 (1.378)	31.30 (1.232)	21.70 (0.854)	31.80 (1.252)
21	31.90 (1.256)	39.00 (1.536)	34.50 (1.358)	24.90 (0.980)	35.80 (1.409)
23	35.00 (1.378)	42.00 (1.654)	37.70 (1.484)	28.10 (1.106)	38.80 (1.528)
25	38.80 (1.528)	45.00 (1.772)	40.80 (1.606)	31.20 (1.228)	41.80 (1.646)



\* max permissible cable outside diameter  
\*\* dimension over the flats (4 flats)

HOW TO ORDER

Amphenol designation - Backshell for LJT (MIL-DTL-38999 Series I/HE308), RNJ (HE308) connectors

HE 308 military designation - Backshells for HE308 (LJT / MIL-DTL-38999 Series I / RNJ) connectors

**Series** LJT NSD 11 014

**Type of backshell**  
NSD: backshell for heat shrink moulded piece

**Size of backshell** 09-11-13-15-17-19-21-23-25  
(same as connector size)

**Finish**  
014: olive-drab cadmium plating  
023: electroless nickel plating  
033K: black zinc nickel plating

**Series** HE308 14 15 7 M

**Type of backshell**  
NSD: backshell for heat shrink moulded piece

**Size of backshell** 09-11-13-15-17-19-21-23-25  
(same as connector size)

**Finish**  
07: olive-drab cadmium plating  
06: electroless nickel plating

**Military standard**

Amphenol designation - Backshell for TV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors

**Series** TV NSD 11 014

**Type of backshell**  
NSD: backshell for heat shrink moulded piece

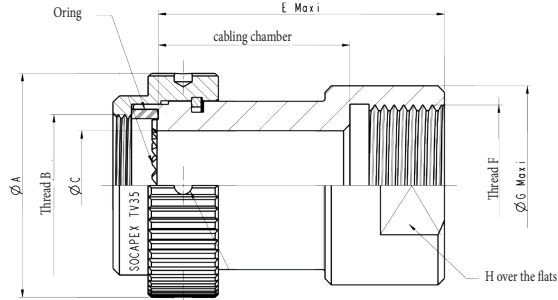
**Size of backshell** 09-11-13-15-17-19-21-23-25 (same as connector size)

**Finish**  
014: olive-drab cadmium plating  
023: electroless nickel plating  
033K: black zinc nickel plating

ADAPTERS FOR SEALING GLAND

METRIC SEALING GLAND STRAIGHT VERSION

TV35M suitable for TV-CTV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors. These backshells ensure the adaptation on metric sealing gland.



Rear side	M16	M20	M25	M32	M40	M50
<b>F Thread metric</b>	M16x1.5	M20x1.5	M25x1.5	M32x1.5	M40x1.5	M50x1.5
<b>Ø G mm (in)</b>	19.6 (0.772)	25.3 (0.996)	31.1 (1.224)	39.1 (1.539)	49.5 (1.949)	63.3 (2.492)
<b>H mm (in)</b>	18 (0.709)	22 (0.866)	27 (1.063)	34 (1.339)	43 (1.693)	55 (2.165)

Size	Ø A mm (in)	B Thread metric	Ø C mm (in)	Cabling chamber					Rear side (Thread)						
				30	40	50	60	80	M16	M20	M25	M32	M40	M50	
09	24.3 (0.957)	M12x1	7.71 (0.304)												
11	27.4 (1.079)	M15x1	10.96 (0.431)												
13	31.8 (1.252)	M18x1	13.85 (0.545)												
15	35 (1.378)	M22x1	17.03 (0.670)												
17	38.1 (1.500)	M25x1	20.20 (0.795)	45 (1.772)	55 (2.165)	65 (2.56)	75 (2.953)	95 (3.740)							
19	41.2 (1.622)	M28x1	22.90 (0.902)												
21	44.3 (1.744)	M31x1	26.07 (1.026)												
23	47.2 (1.858)	M34x1	29.25 (1.152)												
25	50 (1.969)	M37x1	32.42 (1.276)												

For other configurations, please consult us

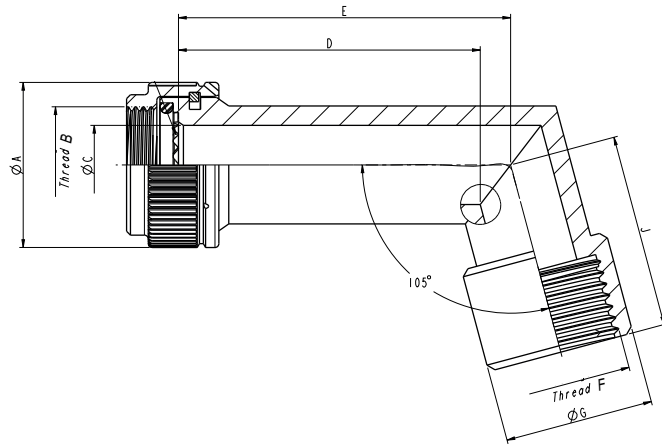
HOW TO ORDER

Amphenol designation - Backshell for TV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors

Series	TV	35	15	30	M20	023
<b>35:</b> aluminum						
<b>B35:</b> bronze						
<b>Size of backshell</b> 09-11-13-15-17-19-21-23-25 (same as connector size)						
<b>Cabling chamber</b> 30-40-50-60-80 Refer above						
<b>Rear side</b> M16-M20-M25-M32-M40-M50 Refer above						
<b>Finish</b>						
<b>014:</b> olive-drab cadmium plating						
<b>023:</b> electroless nickel plating						
<b>033K:</b> black zinc nickel plating						
Blank for bronze version						

# METRIC SEALING GLAND 105° ANGLED VERSION

**TV105M** suitable for TV-CTV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors. These backshells ensure the adaptation on metric sealing gland.



Rear side	M16	M20	M25	M32	M40	M50	M63
<b>F Thread metric</b>	M16x1.5-6H	M20x1.5-6H	M25x1.5-6H	M32x1.5-6H	M40x1.5-6H	M50x1.5-6H	M63x1.5-6H
<b>Ø G mm (in)</b>	20 (0.787)	24 (0.945)	29 (1.142)	36 (1.417)	44 (1.732)	54 (2.126)	67 (2.638)

Size	Ø A max mm (in)	B Thread metric	Ø C min mm (in)	Cabling chamber D mm (in)	E max mm (in)	J max mm (in)	Rear side (Thread)							
							M16	M20	M25	M32	M40	M50	M63	
11	25.04 (0.986)	M15x1-6H	9.90 (0.390)	35	42.5 (1.673)	35 (1.378)								
13	29.36 (1.156)	M18x1-6H	12.80 (0.504)	40	48.25 (1.900)	35 (1.378)								
15	32.54 (1.281)	M22x1-6H	16.00 (0.630)	50	60.50 (2.382)	35 (1.378)								
17	35.71 (1.406)	M25x1-6H	19.20 (0.756)	55	66.60 (2.622)	36.50 (1.437)								
19	38.51 (1.516)	M28x1-6H	21.40 (0.843)	55	67.80 (2.669)	37 (1.457)								
21	41.68 (1.641)	M31x1-6H	24.60 (0.969)	40	54 (2.126)	38.50 (1.516)								
				60	74 (2.913)	40 (1.575)								
23	44.86 (1.766)	M34x1-6H	27.70 (1.091)	60	74.75 (2.943)	40 (1.575)								
25	48.03 (1.891)	M37x1-6H	30.90 (1.217)	75	91.50 (3.602)	40 (1.575)								

For other configurations, please consult us

## HOW TO ORDER

Amphenol designation - Backshell for TV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors.

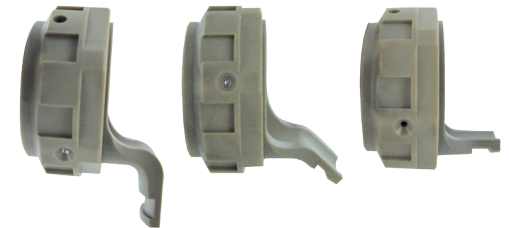
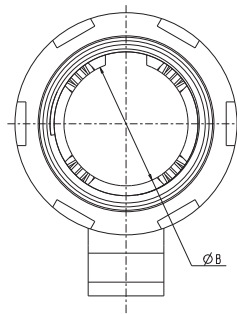
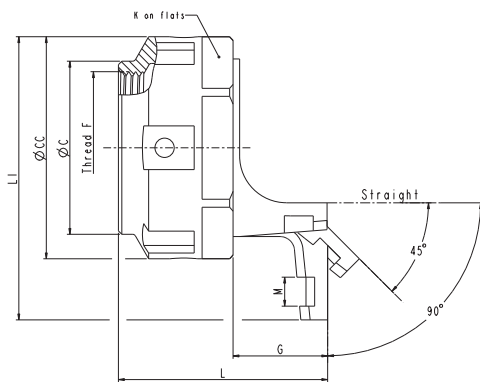
<b>Series</b>	<b>TV</b>	<b>105</b>	<b>15</b>	<b>50</b>	<b>M20</b>	<b>023</b>
<b>105:</b> aluminum						
<b>B105:</b> bronze						
<b>Size of backshell</b>	<b>09-11-13-15-17-19-21-23-25</b> (same as connector size)					
<b>Cabling chamber</b>	<b>35-40-50-55-60-75</b>					
	Refer above - dimension D					
<b>Rear side</b>	<b>M16-M20-M25-M32-M40-M50-M63</b>					
	Refer above					
<b>Finish</b>						
<b>014:</b> olive-drab cadmium plating						
<b>023:</b> electroless nickel plating						
<b>033K:</b> black zinc nickel plating						
Blank for bronze version						

# COMPOSITE BACKSHELLS

## CTV35/ABS2216

**CTV35/ABS2216** suitable for TV/CTV (MIL-DTL-38999 Series III/EN3645) connectors:

- Light weight solution
- Quick and easy installation
- Handling temperature from -65°C to 200°C
- Anti-decoupling system to withstand shocks and vibrations in harsh environment



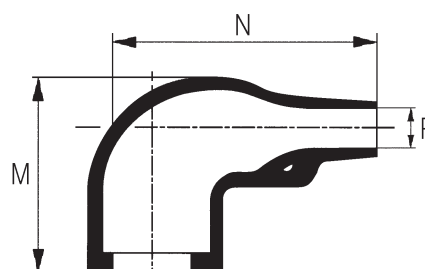
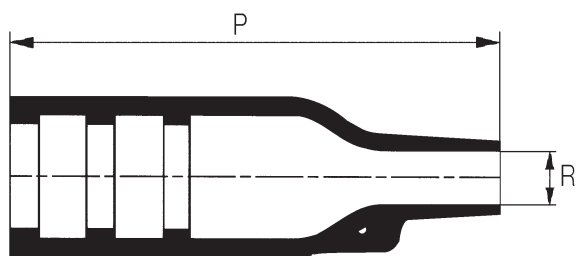
Size	ØB <sup>0-0.1</sup> mm (in)	ØC Max mm (in)	ØCC max mm (in)	Thread F	G max mm (in)			K <sup>0-0.2</sup> mm (in)	L max mm (in)			L I Max mm (in)			M <sup>+0.2</sup> mm (in)
					droit	45°	90°		droit	45°	90°	droit	45°	90°	
09	8.47 (0.333)	15.24 (0.600)	21.79 (0.858)	M12x1.0+6H R0.100	16 (0.630)	21 (0.827)	17 (0.669)	19.05 (0.750)	40 (1.575)	37 (1.457)	32.5 (1.280)	21.76 (0.858)	26 (1.024)	/	3.2 (0.126)
11	12.07 (0.475)	18.21 (0.717)	24.99 (0.984)	M15x1.0-6H R0.100			15 (0.591)	22.23 (0.875)				24.99 (0.984)	30 (1.181)	40 (1.575)	3.2 (0.126)
13	14.96 (0.714)	21.18 (0.834)	29.39 (1.157)	M18x1.0-6H R0.100			15 (0.591)	25.4 (1.000)				29.39 (1.157)	33 (1.299)	40 (1.575)	4.2 (0.165)
15	18.14 (0.714)	25.14 (0.990)	32.46 (1.279)	M22x1.0-6H R0.100			15 (0.591)	28.58 (1.125)				32.49 (1.279)	36 (1.417)	50 (1.969)	4.2 (0.165)
17	21.21 (0.835)	28.12 (1.107)	35.71 (1.406)	M25x1.0-6H R0.100			15 (0.591)	31.75 (1.250)				35.71 (1.406)	39 (1.535)	50 (1.969)	4.2 (0.165)
19	24 (0.945)	31.09 (1.224)	38.5 (1.516)	M28x1.0-6H R0.100			15 (0.591)	34.93 (1.375)				38.5 (1.516)	42 (1.654)	50 (1.969)	4.2 (0.165)
21	27.08 (1.066)	34.06 (1.341)	41.7 (1.642)	M31x1.0-6H R0.100			15 (0.591)	38.1 (1.500)				41.7 (1.642)	45 (1.772)	60 (2.362)	4.2 (0.165)
23	30.35 (1.195)	36.9 (1.453)	44.91 (1.768)	M34x1.0-6H R0.100			15 (0.591)	41.28 (1.625)				44.91 (1.768)	48 (1.890)	60 (2.362)	5.4 (0.213)

## HOW TO ORDER

Amphenol and ABS designation - Backshells for TV/CTV (MIL-DTL-38999 Series III / EN3645) connectors

<b>Series</b>	<b>ABS2216 or CTV35</b>	<b>A</b>	<b>11</b>	<b>W</b>
<b>Type of backshell</b>				
<b>A:</b> straight backshell				
<b>B:</b> 45° backshell				
<b>C:</b> 90° backshell				
<b>Size of backshell</b> 09-11-13-15-17-19-21-23-25 (same as connector size)				
<b>EMI protection</b>				
<b>W:</b> EMI shielding backshell (delivered with 200 mm metallic braid)				
<b>P:</b> non-EMI shielding backshell				

HEAT-SHRINK MOULDED PIECES



Heat-shrink moulded piece p/n		M max mm (in)	N ±10% mm (in)	P ±10% mm (in)	Ø R mm (in)	
Straight	Right angled	After total heating			Before heating (max)	After heating (min cable Ø)
		804221	804231	25.40 (1.000)	25.00 (0.984)	38.40 (1.512)
804222	804232	27.20 (1.071)	32.00 (1.260)	54.90 (2.161)	30.00 (1.181)	6.00 (0.236)
804223	804233	30.50 (1.201)	39.40 (1.551)	66.80 (2.630)	31.00 (1.220)	7.10 (0.280)
804225	804235	38.00 (1.496)	46.00 (1.811)	80.00 (3.150)	36.00 (1.417)	8.50 (0.335)
804227	804237	45.00 (1.772)	55.00 (2.165)	99.10 (3.902)	43.00 (1.693)	10.00 (0.394)
804229	804239	54.00 (2.126)	80.00 (3.150)	130.00 (5.118)	60.00 (2.362)	16.00 (0.630)

Standard heat-shrink moulded pieces (semi-rigid polyolefin – without any adhesive)

Size	Backshell type	Rear size coding	Straight			Right angled		
			Amphenol Socapex p/n	Raychem p/n	Hellerman p/n	Amphenol Socapex p/n	Raychem p/n	Hellerman p/n
9	NSA, NSD	-	804221	202K121-3	152-42-G	804231	222K121-3	1152-4-G
	HE308-35, TV35, TVB35, SBC	08	804221	202K121-3	152-42-G	804231	222K121-3	1152-4-G
11	NSA, NSD	-	804222	202K132-3	154-42-G	804232	222K132-3	1154-4-G
	HE308-35, TV35, TVB35, SBC	12	804222	202K132-3	154-42-G	804232	222K132-3	1154-4-G
13	NSA, NSD	-	804223	202K142-3	155-42-G	804233	222K142-3	1155-4-G
	HE308-35, TV35, TVB35, SBC	12	804222	202K132-3	154-42-G	804232	222K132-3	1154-4-G
		16	804223	202K142-3	155-42-G	804233	222K142-3	1155-4-G
		-	804225	202K153-3	156-42-G	804235	222K152-3	1156-4-G
15	NSD	-	804223	202K142-3	155-42-G	804233	222K142-3	1155-4-G
	HE308-35, TV35, TVB35, SBC	14	804222	202K132-3	154-42-G	804232	222K132-3	1154-4-G
		20	804225	202K153-3	156-42-G	804235	222K152-3	1156-4-G
		-	804227	202K163-3	157-43-G	804237	222K163-3	1157-4-G
17	NSA	-	804225	202K153-3	156-42-G	804235	222K152-3	1156-4-G
	HE308-35, TV35, TVB35, SBC	12	804222	202K132-3	154-42-G	804232	222K132-3	1154-4-G
		16	804223	202K142-3	155-42-G	804233	222K142-3	1155-4-G
		24	804225	202K153-3	156-42-G	804235	222K152-3	1156-4-G
19	NSA	-	804227	202K163-3	157-43-G	804237	222K163-3	1157-4-G
	HE308-35, TV35, TVB35, SBC	16	804225	202K153-3	156-42-G	804235	222K152-3	1156-4-G
		24	804223	202K142-3	155-42-G	804233	222K142-3	1155-4-G
		-	804225	202K153-3	156-42-G	804235	222K152-3	1156-4-G
21	NSA, NSD	-	804227	202K163-3	157-43-G	804237	222K163-3	1157-4-G
	HE308-35, TV35, TVB35, SBC	14	804222	202K132-3	154-42-G	804232	222K132-3	1154-4-G
		20	804225	202K153-3	156-42-G	804235	222K152-3	1156-4-G
		28	804227	202K163-3	157-43-G	804237	222K163-3	1157-4-G
23	NSA, NSD	-	804229	202K174-3	158-43-G	804239	222K174-3	1158-4-G
	HE308-35, TV35, TVB35, SBC	24	804225	202K153-3	156-42-G	804235	222K152-3	1156-4-G
		32	804227	202K163-3	157-43-G	804237	222K163-3	1157-4-G
25	NSA, NSD	-	804229	202K174-3	158-43-G	804239	222K174-3	1158-4-G
	HE308-35, TV35, TVB35, SBC	28	804227	202K163-3	157-43-G	804237	222K163-3	1157-4-G
		36	804229	202K174-3	158-43-G	804239	222K174-3	1158-4-G

## TORQUES VALUES FOR REAR ACCESSORIES

### According to the SAE-85049 standard

For LJT / RNJ / HE308 / MIL-DTL-38999 I connectors		For TV-CTV / MIL-DTL-38999 III / EN3645 connectors			For SJT / VG96912 connectors	
Shell size	Torque value (N.m) $\pm 0.5$	Shell size	Metal torque value (N.m) $\pm 0.5$	Composite torque value (N.m) $\pm 0.5$	Shell size	Torque value (N.m) $\pm 0.5$
09	4.5	09	6.8	4.5	08	4.5
11	4.5	11	9.0	4.5	10	4.5
13	4.5	13	12.6	4.5	12	4.5
15	4.5	15	13.6	4.5	14	4.5
17	4.5	17	13.6	4.5	16	4.5
19	4.5	19	13.6	4.5	18	4.5
21	9.0	21	15.8	9.0	20	9.0
23	9.0	23	15.8	9.0	22	9.0
25	9.0	25	15.8	9.0	24	9.0

### According to the ABS2216 standard

For TV-CTV / MIL-DTL-38999 III / EN3645 connectors	
Shell size	Torque value (N.m)
09	2.75 ( $\pm 0.25$ )
11	2.75 ( $\pm 0.25$ )
13	3 ( $\pm 0.5$ )
15	5 ( $\pm 0.5$ )
17	5 ( $\pm 0.5$ )
19	5 ( $\pm 0.5$ )
21	7 ( $\pm 0.5$ )
23	7 ( $\pm 0.5$ )
25	7 ( $\pm 0.5$ )

The rear accessory installation procedure may change from one equipment manufacturer to another in terms of coupling torques to apply.

The use of Loctite shall be required or excluded.

For Aluminum alloy rear accessory, if the use of Loctite is excluded, the best performance in time of the system « connector + rear accessory » consists in applying the torque value to screw then to unscrew, to apply the torque value to screw a second time, then to unscrew and finally to screw the torque value a third time.

## CROSS REFERENCES

The cross references below are given as information only.  
The designs of the backshells are not strictly equivalent.

Amphenol P/N	NFC UTE 93422 / HE308 P/N	SAE-85049 P/N
LJT NSA xx 014	HE308 13 xx 7M	
LJT NSA xx 023	HE308 13 xx 6M	
LJT NSD xx 014	HE308 14 xx 7M	M85049/62-xx W
LJT NSD xx 023	HE308 14 xx 6M	M85049/62-XX N
LJTSBC xx xx 014		M85049/87-xx W xx
LJTSBC xx xx 023		M85049/87-xx N xx
HE308-35-xx-xx-xx-7M	HE308-35-xx-xx-xx-7M	M85049/85-xx W xx
HE308-35-xx-xx-xx-6M	HE308-35-xx-xx-xx-6M	M85049/85-xx N xx
TV 35 xx xx xx 014		M85049/88-xx W xx
TV 35 xx xx xx 023		M85049/88-xx N xx
TVSBC xx xx 014		M85049/90-xx W xx
TVSBC xx xx 023		M85049/90-xx N xx





**NOTES**

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## ABOUT AMPHENOL

Founded in 1932, **Amphenol** is one of the largest manufacturers of interconnect products in the world. The company designs, manufactures, and markets electrical, electronic, and fiber optic connectors, interconnect systems, and coaxial and specialty cables.

**Amphenol** has a diversified presence as a leader in high growth areas of the interconnect industry and provides solutions for customers in the automotive, broadband, industrial, information technology and data communications, military and aerospace, mobile devices, and mobile networks markets.

More info on [www.amphenol.com](http://www.amphenol.com)

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ENABLING THE ELECTRONICS REVOLUTION

**Amphenol Military & Aerospace Operations (AMAO)** has the largest and broadest selection of interconnect products in the military and aerospace markets.

More info on [www.amphenolmao.com](http://www.amphenolmao.com)

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MILITARY & AEROSPACE

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