

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"



OUR COMPANY



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 serve customers in over 100 countries around the world.
- Amphenol Socapex is part of the leading supplier of interconnect systems **Amphenol**.



1400+
employees



142 M€
Net Sales 2023
70% Export - 30% France



Thyez, **France**
Pune, **India**



Our expertise has no boundaries

Integrated Production in France & India

- 24 000 m² manufacturing capacity on 2 sites
- Design and manufacturing centers in France and India
- State-of-the-art manufacturing technology

Our markets



Defense



**Commercial
Aerospace**



Space



Industry



TECHNOLOGIES & INNOVATION

Engineering Laboratory



Product testing and qualification expertise in many fields:

- Environmental, mechanical, electrical, chemical, climatic skills
- RF and fiber optics expertise

High-Speed Expertise



Strong expertise in high-speed signals

- 3D EM simulation software & EM models
- Time Domain and frequency domain

Materials Expertise



Focus on materials expertise and manufacturing techniques to produce faster, smaller and stronger products

- Advanced technology research and development: polymers, metals, platings, resins ...
- Cutting edge characterizations of interconnects: Radio Frequency, partial discharges ...
- 3D CAD mechanical software, simulation & analysis

Eco-responsibility



Sustainable environment approach, with pro-active management of regulations (REACH / RoHS / Conflict minerals...)

- New materials development, plating, and suitable processes
- Recycling and rational resources consumption

Our workshops



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

Automation & Tooling : Tools for our different activities : molding, machining, assembly

Molding : Solid expertise in thermoplastic elastomer and thermoset molding

Machining : Manufacturing of cylindrical shells and rectangular shells

Screw Machining : Manufacturing of electrical contacts

Plating : Plating with cadmium, nickel, electroless nickel, silver, black zinc nickel, gold

Assembly : Connector and harness assembly (electrical & optical)

Our certifications

Product certifications : MIL-DTL38999, EN3645, EN3155, VG (VG95328, VG95319, VG96944, VG95218, VG96949)



Certified Management System



Certified Management System



Certified Management System



Certified Management System

Our memberships

Member of CMG (Connecting Manufacturing Group) Consortium

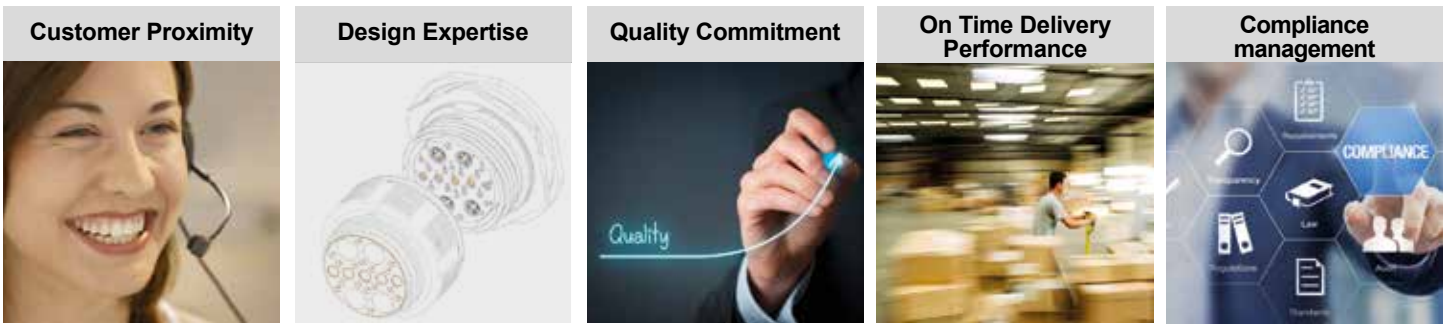


CUSTOMER EXPERIENCE



► 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



Buy our solutions

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

Field Sales Team :

- 10 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 Advisement & Multilingual Customer Service :**
- 20 people

Worldwide Distribution Network :

Our range of circular connectors, contacts, fiber optic connectors, PCB connectors and accessories are available thru our extensive distribution network.

It includes qualified distributors (QPL approved) for assembling MIL-DTL-38999 & derivatives and PT/451 (VG95328) connectors.



[Check our product inventory](#)



[Product Selectors & 3D Files](#)



NEW



OUR HISTORY

1947



- **Socapex creation** in Suresnes, France
- 1st 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

1973



- **New factory in Thyez** (74) France with 250 people, 13 000m²

1975



- Production of 38999 connectors

1986

Amphenol
Socapex

- **Amphenol** becomes primary shareholder

1995-96



- Expanded Beam connector CTOS launch
- Headquarters transferred to Thyez

2004



- RJ Field launch, "Award Electronica"

2005



- **New factory in Pune, India**

2010's



- LuxBeam™ and HDAS launch

2014-2017



- **New workshops :**
- Cable Assembly & Contact Manufacturing workshop

2019



- **Increased manufacturing capacity** with 2nd building in Pune, India

2022



- Harness in the box solution launch

Today & tomorrow



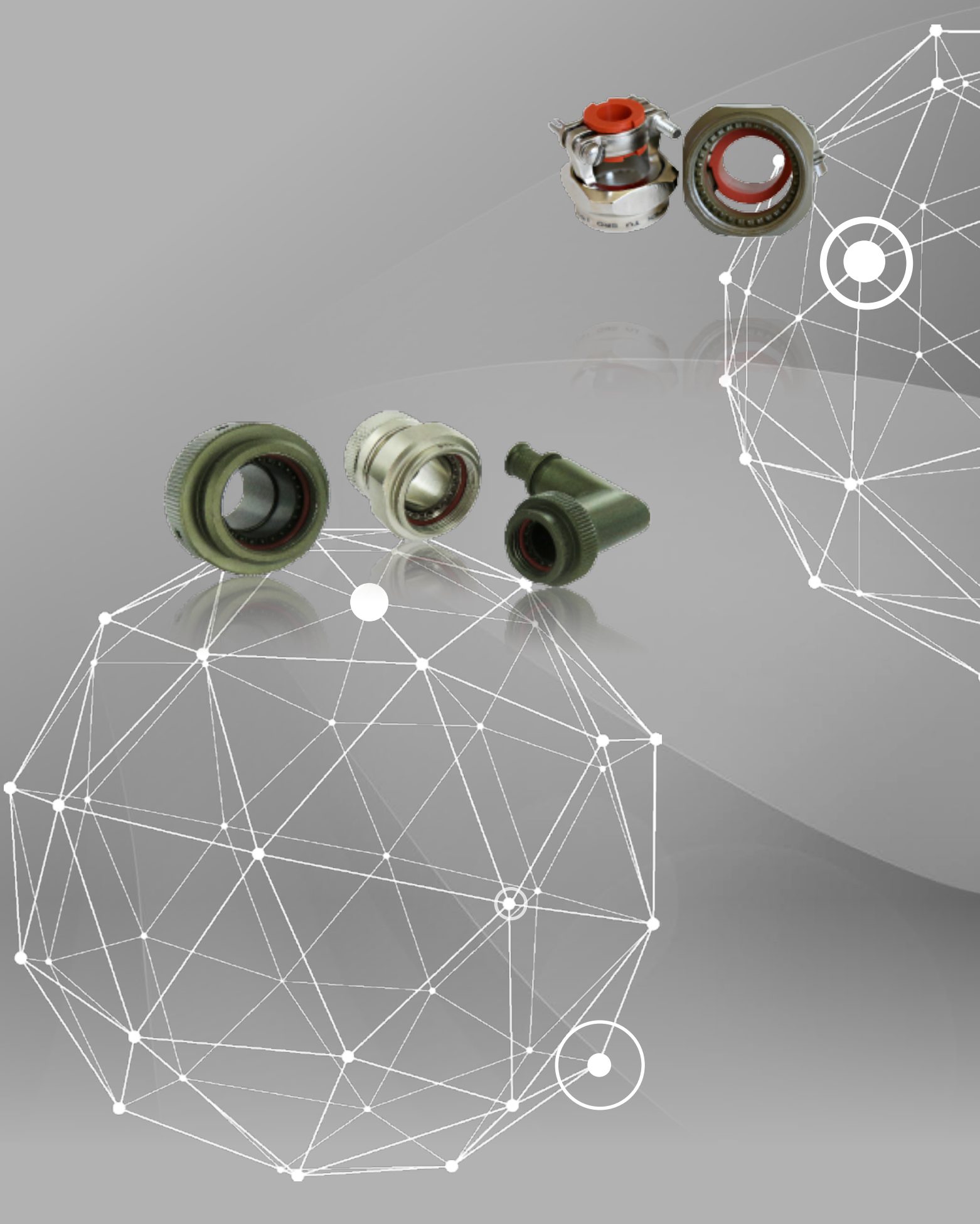
- **New technologies :**
- Investment in automation & technical expertise

- Amphenol SOCAPEX joins the "Convention des Entreprises pour le Climat".
- Our goal: **to accelerate our transition to a more sustainable operation.**

NOTES

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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
- Black zinc nickel plating
- For others, please consult us

- **9 shell sizes per model**

- **Straight or right angled versions**

- **Working temperature**

- From – 65°C to + 175°C with olive drab cadmium plating, green zinc cobalt plating and black zinc nickel plating
- From – 65°C to + 200°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.

BACKSHELLS SERIES SERVES VARIOUS MARKETS, INCLUDING:



Navy



Military Aerospace



Ground vehicle



C4ISR



Industrial

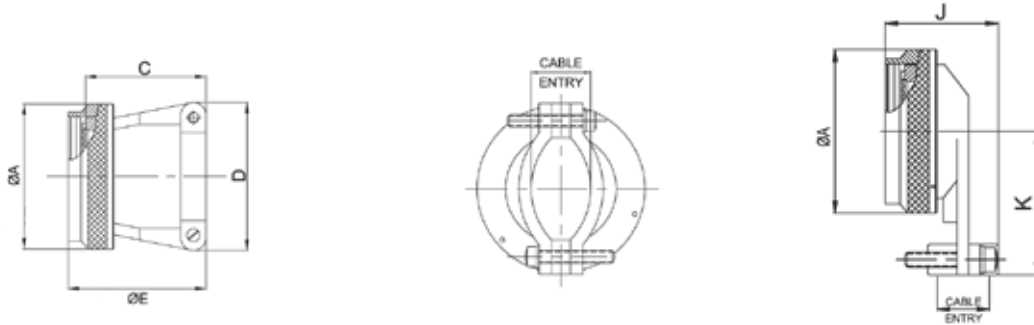
STRAIN RELIEFS

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 LJ (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 mm (in)		J mm (in)		K mm (in)
	Thread for M85049/49-2 UNEF-2B	Thread for M85049/38 Metric					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 M85049/49-2/38/39

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

Series	M85049/	49-2	12	W
Type of strain relief 49-2: for LJ (MIL-DTL-38999 Series I / HE308), JT (MIL-DTL-38999 Series II) and RNJ (HE308) connectors 38: for TV-CTV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors 39: 90° right angled for TV (MIL-DTL-38999 Series III) connectors				
Size of backshell 08-10-12-14-16-18-20-22-24 (remove 1 from your connector size) for LJ (MIL-DTL-38999 Series I / HE308) and RNJ (HE308) connectors 09-11-13-15-17-19-21-23-25 (same as connector size) for TV-CTV (MIL-DTL-38999 Series III), SC39 and RNJ LP connectors				
Finish W: olive-drab cadmium plating N: electroless nickel plating ✓				

How to order M85049/47

SAE-85049 designation – 90° angled backshells for LJ (MIL-DTL-38999 Series I / HE308) and RNJ (HE308)

Series	M85049/	47	W	12
Type of strain relief 47: 90° right angled for LJ (MIL-DTL-38999 Series I/HE308) connectors				
Finish W: olive drab cadmium plating N: electroless nickel plating ✓				
Backshell size 08-10-12-14-16-18-20-22-24 for LJ (MIL-DTL-38999 series I / HE308) and RNJ (HE308) connectors: remove 1 to your connector size				

✓ : RoHS compliant

STRAIN RELIEFS

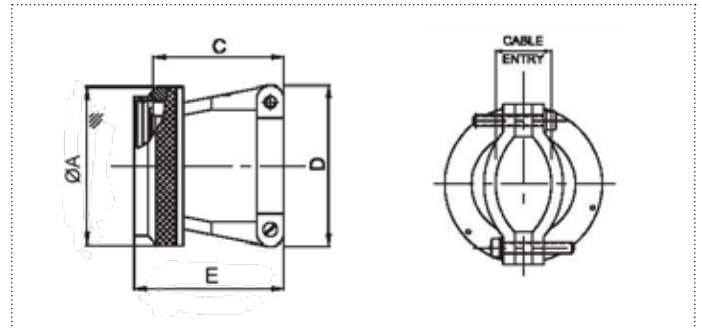
How to order

SAE-85049 designation - Backshells for LJT (MIL-DTL-38999 Series I/HE308)

Series	M85049/	47	W	12
Type of strain relief 47: 90° right angled for LJT (MIL-DTL-38999 Series I / HE308) connectors				
Finish W: olive-drab cadmium plating N: electroless nickel plating ✓				
Size of backshell 08-10-12-14-16-18-20-22-24 (remove 1 from your connector size) for LJT (MIL-DTL-38999 Series I / HE308)				

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)

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

✓ : RoHS compliant

BACKSHELLS FOR SHIELDING

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

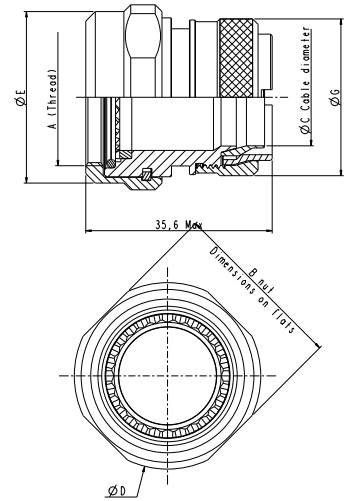


LJT NSA & TV NSA

LJT NSA (HE308-13) suitable for LJT (MIL-DTL-38999 Series I / HE308), RNJ (HE308).

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

Size	LJT A Thread UNEF-2B	TV A Thread Metric	B max mm (in)	Ø C max mm (in)	Ø D max mm (in)	Ø E max mm (in)	Ø G max mm (in)
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)

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

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

Series	HE308	13	15	7	M
Type of backshell					
13: screened clamping braid backshell 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					

How to order

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

Series	TV	NSA	11	014
Type of backshell				
NSA: screened clamping braid backshell accepting 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 ✓				

✓ : RoHS compliant

BACKSHELLS FOR SHIELDING

Assembly instructions for NSA 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.

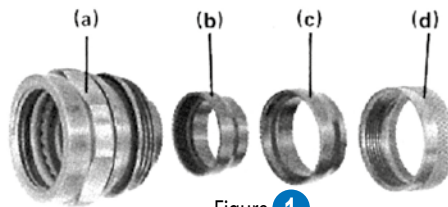


Figure 1



Figure 2

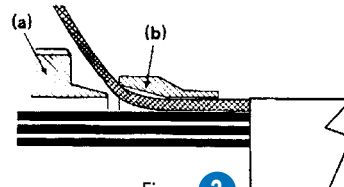


Figure 3

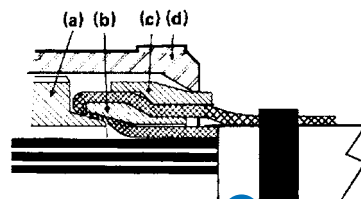


Figure 4

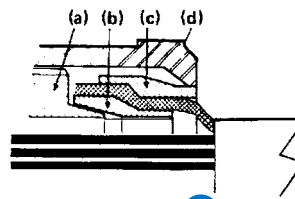


Figure 5

BAND BACKSHELLS FOR SHIELDING

These band backsells 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.

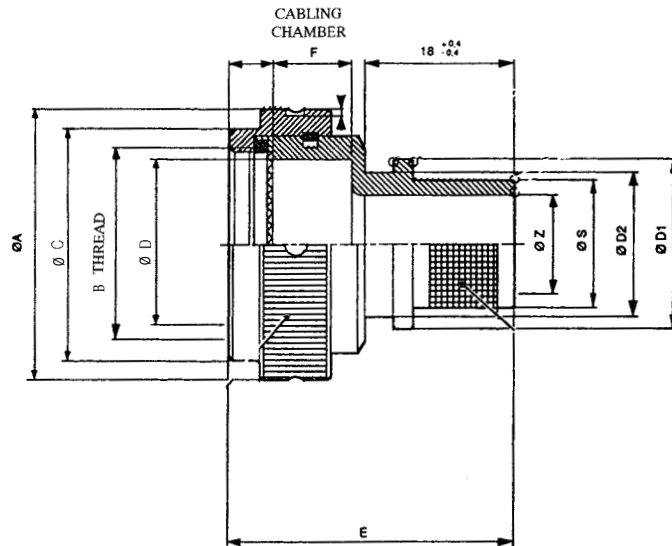
HE308-35 and TV35 backshells

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 29.



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)

BAND BACKSHELLS FOR SHIELDING

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

x
HE308-35o
HE308-35 &
TV35/TVB35△
TV35/TVB35

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 ✓						
033K: black zinc nickel plating ✓						
Blank for bronze version ✓						

✓: RoHS compliant

BAND BACKSHELLS FOR SHIELDING

SBC Backshells*

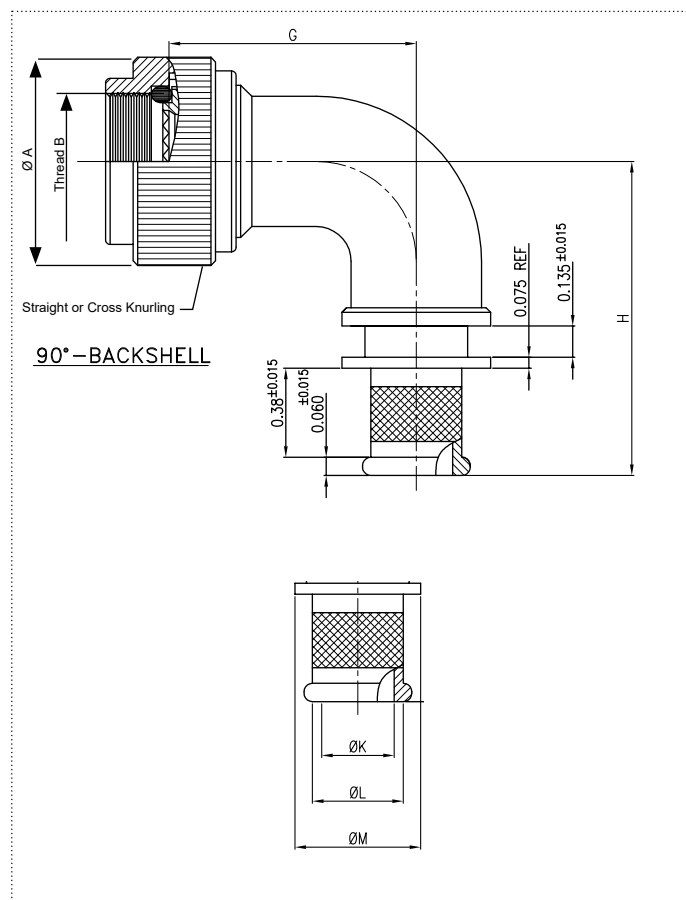
LJT SBC suitable for LJT (MIL-DTL-38999 Series I / HE308) and RNJ (HE308) connectors.

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

These right angled band backshells 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 29.

* This solution is NOT proposed on new designs

Size	LJT SBC only		TV SBC only	
	Ø A max mm (in)	B Thread UNE2B	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
Type of backshell	SBC: aluminium right angled band backshell accepting heat shrink moulded piece				
Size of backshell	09-11-13-15-17-19-21-23-25 (same as connector size)				
Rear side diameter	10-14-16-20-24-28-32-36				
Refer above - dimension Z					
Finish	014: olive-drab cadmium plating 023: electroless nickel plating ✓				

✓: RoHS compliant

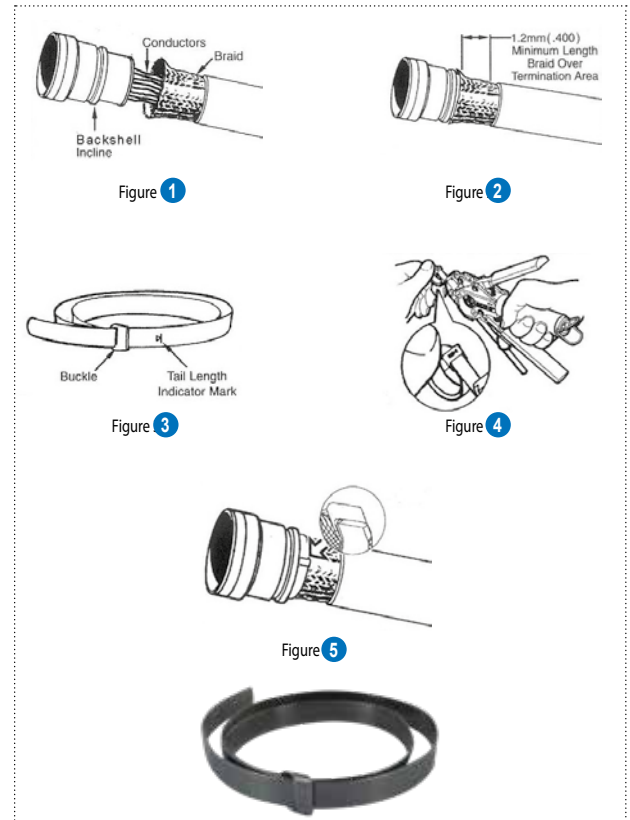
BAND BACKSHELLS FOR SHIELDING

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

Series	TV	SBC	11	14	014
Type of backshell					
SBC: aluminium right angled band backshell accepting heat shrink moulded piece					
Size of backshell 09-11-13-15-17-19-21-23-25 (same as connector size)					
Rear side diameter 10-14-16-20-24-28-32-36					
Refer previous page - dimension K					
Finish					
014: olive-drab cadmium plating					
023: electroless nickel plating ✓					
033K: black zinc nickel plating ✓					

Assembly instructions for HE308-35, TV35 and SBC backshells

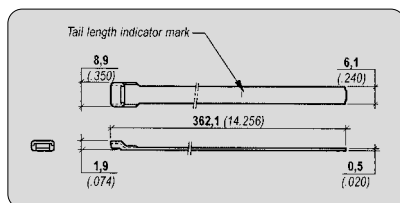
- 1 Prepare the cable for termination process (figure 1).
- 2 Screw the backshell at the rear of the connector.
- 3 Push the braid over the backshell to the incline point. Milk the braid as required to remove the slack and insure a snug fit around the shield termination area (figure 2).
- 4 Prepare the 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.



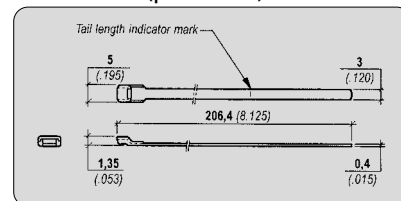
Tooling and accessories

Clamping bands

Standard band: **072952**



Micro band (precoiled): **895693**



Caution: Tools and bands should never be lubricated

✓: RoHS compliant

BAND BACKSHELLS FOR SHIELDING

M85049 band backshells

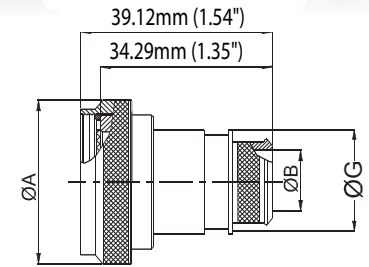
M85049/85 and M85049/87 suitable for LJT (MIL-DTL-38999 Series I / HE308), RNJ (HE308) connectors.

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

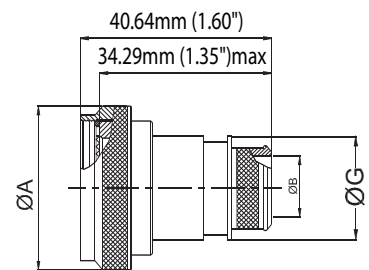
These straight band backshells provide a full 360° shield termination with a quick, easy and cost effective cabling process. For straight or right angled heat shrink moulded pieces, please refer to page 29.



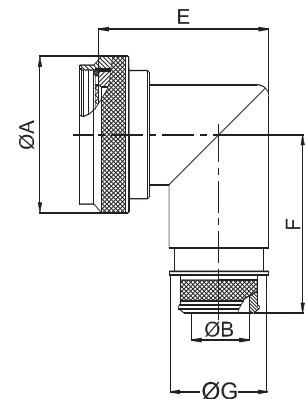
Size	Entry Size			Ø A max mm (in)	E max mm (in)	F max mm (in)		Ø G max mm (in)
	Coding		Ø B ₀₋₅ mm (in)			LJT	TV	
	for /85 only	for /88/87/90						
09	01	02	N/A	21.82 (0.859)	34.93 (1.375)	35.99 (1.417)	35.99 (1.417)	N/A
	02	03	6.60 (0.260)					14.22 (0.560)
11	01	02	N/A	25.04 (0.986)	36.50 (1.437)	37.59 (1.480)	37.59 (1.480)	N/A
	02	03	8.13 (0.320)					16.00 (0.630)
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)					19.05 (0.750)
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)					22.61 (0.890)
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)					24.13 (0.950)
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)					27.18 (1.070)
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)					28.07 (1.105)
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)					32.00 (1.260)
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)					33.53 (1.320)



M85049/85



M85049/88



M85049/87 & M85049/90

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

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

✓: RoHS compliant

CONNECTORS WITH INTEGRATED BACKSHELLS

All-in-one MIL-DTL-38999 Series III & I connectors provided with an integrated backshell



Description

Available on plugs and receptacles. Lightweight and low profile solutions offering EMI performance.

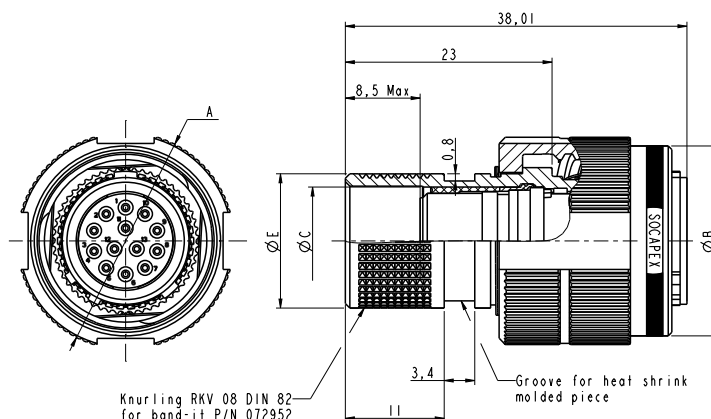
Main Features

- Suitable for MIL-DTL-38999 Series III and Series I connectors
- Available on plugs and receptacles
- All in one product : time saving during order and installation
- Total length saving : average -47% vs standard plug with TV35 backshell
- Average -50% lighter vs standard plug with TV35 backshell
- High EMI protection
- Braid clamping (metal Band-it)
- Available materials/plating:
 - Aluminum (Olive drab cadmium / Electroless ickel / Black zinc nickel / Tin zinc)
 - Bronze
 - Stainless steel

INTEGRATED BACKSHELL - TV STANDARD BAND-IT

Straight plug

TV06RW**F472
TV06TZ**F472
TVS06RF**F472
TV06ZN**F472
TVS06RB**F472
TVS06RK**F472K



Size	ØA Max	ØE 0 -0,2	ØB +0,2 0	ØC
09	21,8	12	18,4	8,74
11	25,0	15	21,1	11,99
13	29,4	18	25,4	14,88
15	32,5	22	28,7	18,06
17	35,7	25	32,2	21,23
19	38,5	28	34,9	23,93
21	41,7	31	38,1	27,1
23	44,9	34	41,1	30,28
25	48,0	37	44,3	33,45

✓: RoHS compliant

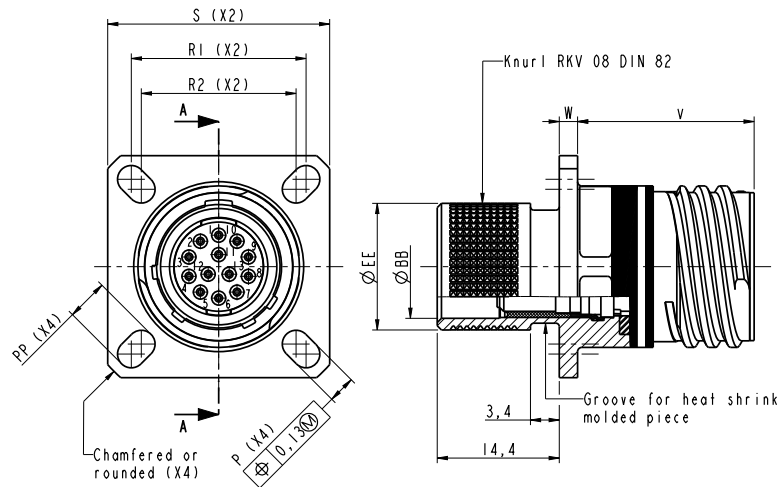
Please consult us for receptacles with integrated backshell



INTEGRATED BACKSHELL - TV STANDARD BAND-IT

Square flange wall mount receptacle

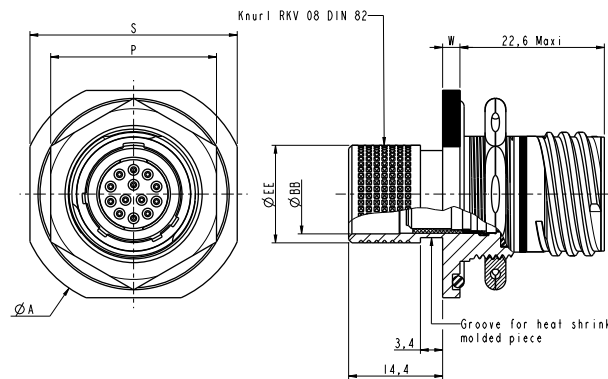
TVP00RW**F472
TVP00TZ**F472
TVPS00RF**F472
TVP00ZN**F472
TVPS00RB**F472
TVPS00RK**F472K



Size	S ± 0,3	R1	R2	PP ± 0,2	P ± 0,2	ØEE Max	ØBB	$\begin{matrix} 0 \\ V \\ -1,25 \end{matrix}$	W
09	23,8	18,26	15,09	5,49	3,25	12	9,0	20,83	2,1 - 2,5
11	26,2	20,62	18,26	4,93		15	12,2		
13	28,6	23,01	20,62	4,39		18	15,1		
15	31,0	24,61	23,01	4,39		22	18,3		
17	33,3	26,97	24,61	4,93		25	21,5		
19	36,5	29,36	26,97	4,93	3,91	28	24,2	20,07	2,1 - 3,2
21	39,7	31,75	29,36	6,15		31	27,3		
23	42,9	34,93	31,75	6,15		34	30,5		
25	46,0	38,10	34,93	6,15		37	33,7		

Jam nut receptacle

TV07RW**F472
TV07TZ**F472
TVS07RF**F472
TV07ZN**F472
TVS07RB**F472
TVS07RK**F472K

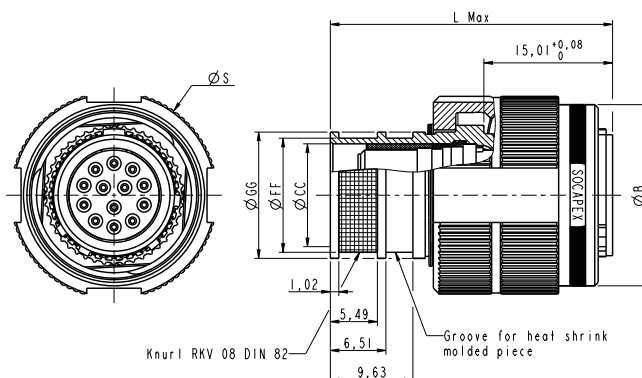


Size	S ± 0,4	ØA ± 0,3	ØBB	ØEE Max	P ± 0,4	$\begin{matrix} +0,9 \\ W \\ -0,1 \end{matrix}$
09	27,0	30,2	9,0	12,0	22,2	2,2
11	31,8	34,9	12,2	15,0	25,4	
13	34,9	38,1	15,1	18,0	30,2	
15	38,1	41,3	18,3	22,0	33,3	
17	41,3	44,5	21,5	25,0	36,5	
19	46,0	49,2	24,2	28,0	39,7	3,0
21	49,2	52,4	27,3	31,0	42,9	
23	52,4	55,6	30,5	34,0	46,0	
25	55,6	58,7	33,7	37,0	50,8	

INTEGRATED BACKSHELLS - TV MICRO BAND-IT

Straight plug

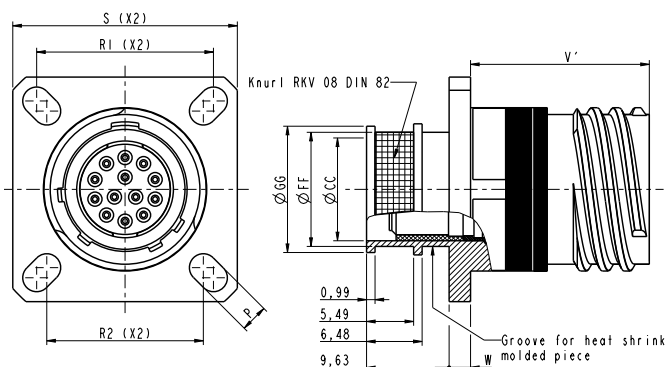
TV06RW**F472A
TV06TZ**F472A
TVS06RF**F472A
TV06ZN**F472A
TVS06RB**F472A



Size	Ø S Max	Ø B ^{+0,2} ₀	Ø CC	Ø FF ^{+0,13} ₀	Ø GG ⁰ _{-0,2}	L Max
09	21,8	18,4	8,74	10,57	12	32,95
11	25	21,1	11,99	13,26	15	
13	29,4	25,4	14,88	16,56	18	
15	32,5	28,7	18,06	20,57	22	33,1
17	35,7	32,2	21,23	23,57	25	
19	38,5	34,9	23,93	26,57	28	33,25
21	41,7	38,1	27,1	29,57	31	
23	44,9	41,1	30,28	32,56	34	
25	48	44,3	33,45	35,56	37	33,41

Square flange wall mount receptacle

TVP00RW**F472A
TVP00TZ**F472A
TVPS00RF**F472A
TV06ZN**F472A
TVPS00RB**F472A

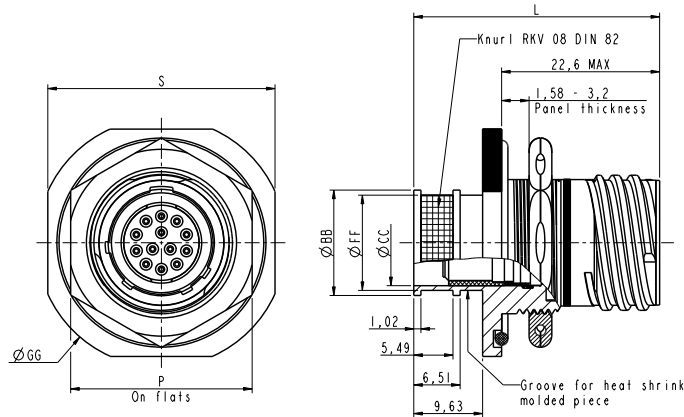


Size	S ± 0,3	Ø CC	Ø FF ^{+0,13} ₀	Ø GG ^{+0,08} _{-0,05}	P ± 0,2	R1	R2	V' Max	W Max
09	23,8	8,74	10,57	11,99	3,25	18,26	15,09	20,9	2,5
11	26,2	11,99	13,31	14,73		20,62	18,26		
13	28,6	14,88	16,56	17,98		23,01	20,62		
15	31	18,06	20,57	22		24,61	23,01		
17	33,3	21,23	23,57	24,99		26,97	24,61		
19	36,5	23,93	26,57	27,99	3,91	29,36	26,97	20,1	3,2
21	39,7	27,1	29,57	30,99		31,75	29,36		
23	42,9	30,28	32,56	33,99		34,93	31,75		
25	46	33,45	35,56	36,98		38,1	34,93		

INTEGRATED BACKSHELLS - TV MICRO BAND-IT

Jam nut receptacle

TV07RW**F472A
TV07TZ**F472A
TVS07RF**F472A
TV07ZN**F472A
TVS07RB**F472A



Size	S ± 0,4	GG ± 0,3	Ø CC	Ø FF ^{+0,13} ₀	Ø BB ^{+0,08} _{-0,05}	L Max	P ± 0,4
09	27	30,2	8,74	10,57	11,99	34,64	22,2
11	31,8	34,9	11,99	13,31	14,73		25,4
13	34,9	38,1	14,88	16,56	17,98		30,2
15	38,1	41,3	18,06	20,57	22		33,3
17	41,3	44,5	21,23	23,57	24,99	35,63	36,5
19	46	49,2	23,93	26,57	27,99		39,7
21	49,2	52,4	27,1	29,57	30,99		42,9
23	52,4	55,6	30,28	32,56	33,99		46
25	55,6	58,7	33,45	35,56	36,98		50,8

INTEGRATED BACKSHELL - HEATSHRINK MOULDED PIECES*

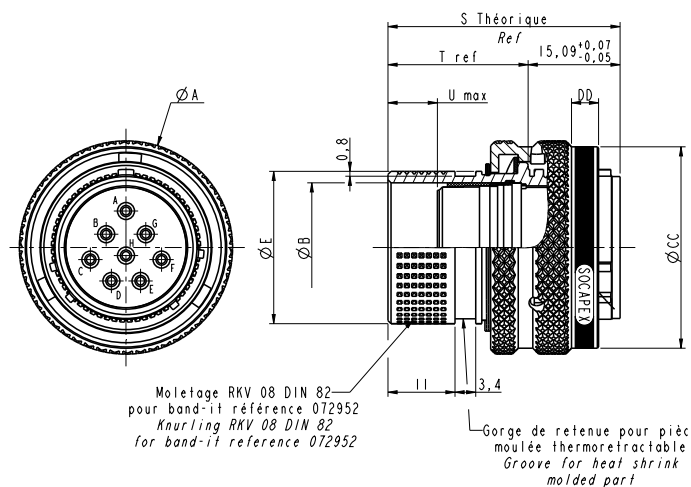
Size	Rear size Dia Ø (in mm)	Straight Raychem p/n	Right Angled Raychem p/n	Minimum Cable diameter
9	12	202K121	222K121	5.6
11	15	202K121	222K121	5.6
		202K132	222K132	5.9
13	18	202K121	222K121	5.6
		202K132	222K132	5.9
		202K142	222K142	7.1
15	22	202K132	222K132	5.9
		202K142	222K142	7.1
		202K132	222K132	8.4
17	25	202K142	222K142	7.1
		202K153	222K153	8.4
		202K142	222K142	7.1
19	28	202K153	222K153	8.4
		202K153	222K153	8.4
		202K163	222K163	9.9
21	31	202K153	222K153	8.4
		202K163	222K163	9.9
23	34	202K153	222K153	8.4
		202K163	222K163	9.9
25	37	202K153	222K153	8.4

* Please note that the Heat-Shrink Moulded Pieces are manufactured by Hellerman TYTON.

INTEGRATED BACKSHELL - LJT STANDARD BAND-IT

Straight plug

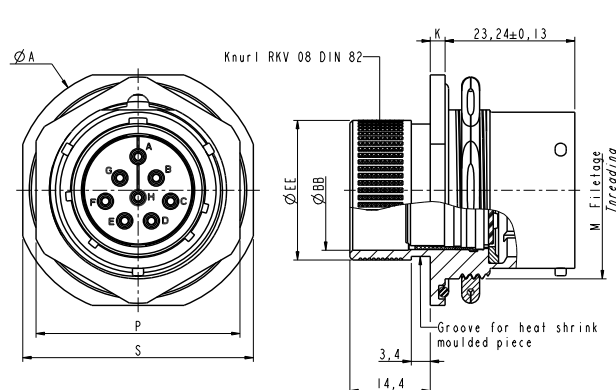
LJT06RT**014F472
LJT06RT**023F472
LJT06RT**033KF472



Size	Ø A Max	Ø B	Ø CC ^{+0,28} ₀	Ø DD ^{+1,14} _{-0,91}	Ø EE ⁰ _{-0,2}	S	T ref	U Max
09	21,82	8,74	19,81	4,06	12	38,09	23	8,5
11	24,99	11,99	22,99		15			
13	29,36	14,88	26,95		18			
15	32,54	18,06	30,12		22			
17	35,71	21,23	33,05		25			
19	38,51	23,93	36,12		26,95			
21	41,68	27,1	39,22		30,12			
23	43,86	30,28	42,34	4,06	33,3	40,09	25	10,5
25	48,03	33,45	45,54		36,47			

Jam nut receptacle

LJT07RT**014F472
LJT07RT**023F472
LJT07RT**033KF472



Size	S ± 0,41	Ø A ± 0,41	Ø K ^{+0,28} _{-0,25}	P ± 0,43	Ø BB	Ø EE Max	Threading Class 2A UNEF
09	26,97	30,18	2,77	22,23	9	12	6875-24
11	31,75	34,93		25,4	12,2	15	8125-20
13	34,93	38,1		30,18	15,1	18	1.0000-20
15	38,1	41,28		33,32	18,3	22	1.1250-18
17	41,28	44,45		36,53	21,5	25	1.2500-18
19	46,02	49,23		39,67	24,2	28	1.3750-18
21	49,23	52,37		42,88	27,3	31	1.5000-18
23	52,37	55,58	3,56	46,02	30,5	34	1.6250-18
25	55,58	58,72		50,8	33,7	37	1.7500-18

CONNECTORS WITH INTEGRATED BACKSHELLS

How to order

Integrated backshells for TV (MIL-DTL-38999 Series III) - Crimp contacts only

Series	TV	07	R	F	09-09	P	-	-	F472
TV: Metallic shell									
Shell type									
P00: Square flange receptacle: 175°C (O.D. cadmium, Black zinc nickel, Tin Zinc on aluminum)									
PS00: Square flange receptacle: 200°C (Electroless nickel on aluminum, Marine Bronze, Passivated Stainless Steel)									
07: Jam nut receptacle: 175°C (O.D. cadmium, Black zinc nickel, Tin Zinc on aluminum)									
S07: Jam nut receptacle: 200°C (Electroless nickel on aluminum, Marine Bronze, Passivated Stainless Steel)									
06: Straight plug: 175°C (O.D. cadmium, Black zinc nickel, Tin Zinc on aluminum)									
S06: Straight plug: 200°C (Electroless nickel on aluminum, Marine Bronze, Passivated Stainless Steel)									
Contact type									
R: Crimp contacts									
Omit for black zinc nickel and Tin Zinc plating									
Class									
W: Olive Drab Cadmium plated aluminum									
F: Electroless Nickel plated aluminum ✓									
ZN: Black Zinc Nickel plated aluminum ✓									
TZ: Tin Zinc plated aluminum ✓									
B: Marine Bronze ✓									
K: Passivated Stainless Steel ✓									
Shell size and Contact arrangement									
Please consult <i>catalog</i> MIL-DTL-38999 Series & Derivative see section "Insert Arrangements"									
Contact type									
P: Pin									
S: Socket									
Polarization									
Blank for normal or A, B, C, D, E. See <i>polarization system, catalog</i> MIL-DTL-38999 Series & Derivative : section "Insert Arrangements", sub-section "polarization"									
Contacts									
Omit for connectors delivered with contacts									
LC: Connector delivered without contacts									
Deviation									
F472 Integrated backshells for standard band (Not available in Stainless Steel)									
F472A Integrated backshells for micro-band (Not available in Stainless Steel)									
F472K Stainless Steel shell with Integrated backshell and Firewall insert									

Integrated backshells for LJT (MIL-DTL-38999 Series I) - Crimp contacts only

Series	LJT	06	RT	17-08	S	-	014	F472
Shell type								
06: Straight plug								
07: Jam nut receptacle								
Service class and contact style								
RT: Environmental, with accessory thread, crimp contacts								
Shell size and contact arrangement								
Please consult MIL-DTL-38999 Series & Derivatives see section "Insert Arrangements"								
Contact type								
P: Pin								
S: Socket								
Coding								
Blank for normal or A, B, C, D								
Finish								
014: Olive drap cadmium plated								
023: Electroless nickel plated ✓								
033K: Black zinc nickel plated ✓								
Deviation								
F472 Integrated backshells								

✓: RoHS compliant

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.

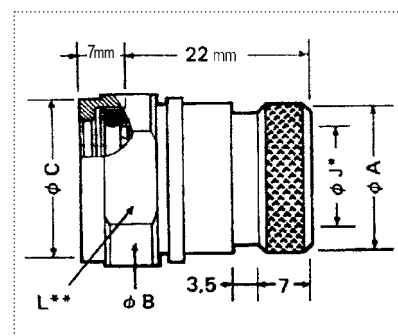
For straight and right angled heat shrink moulded pieces, please refer to page 29.



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

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 ✓				

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

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 ✓				

✓ : RoHS compliant

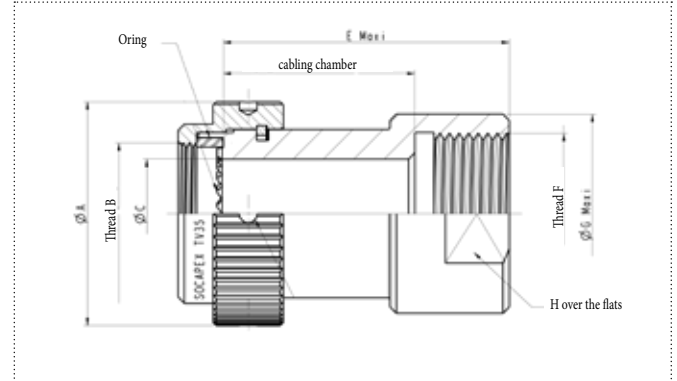
ADAPTERS FOR SEALING GLAND

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
F Thread metric	M16x1.5	M20x1.5	M25x1.5	M32x1.5	M40x1.5	M50x1.5
Ø G mm (in)	20.2 (0.795)	25.3 (0.996)	31.1 (1.224)	39.1 (1.539)	49.5 (1.949)	63.3 (2.492)
H mm (in)	18 (0.709)	22 (0.866)	27 (1.063)	34 (1.339)	43 (1.693)	55 (2.165)



				Cabling chamber										
				30	40	50	60	80	Rear side (Thread)					
Size	0 A mm (in)	B Thread metric	0 C mm (in)	E mm (in)					M16	M20	M25	M32	M40	M50
09	24.3 (0.957)	M12x1	7.71 (0.304)	45 (1.772)	55 (2.165)	65 (2.56)	75 (2.953)	95 (3.740)						
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)											
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

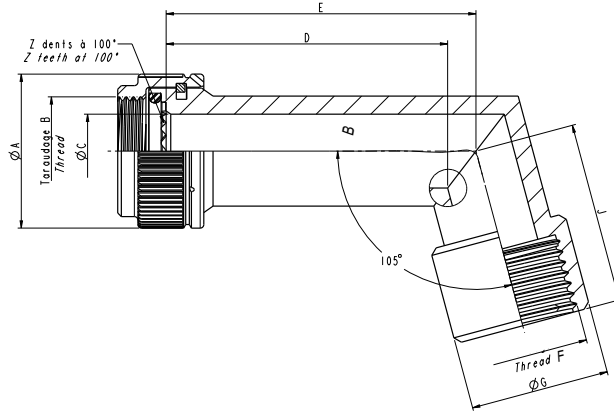
Series	TV	35	15	30	M20	023
35: aluminum						
B35: bronze ✓						
Size of backshell 09-11-13-15-17-19-21-23-25 (same as connector size)						
Cabling chamber 30-40-50-60-80 Refer above						
Rear side M16-M20-M25-M32-M40-M50 Refer above						
Finish						
014: olive-drab cadmium plating						
023: electroless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

✓ : RoHS compliant

ADAPTERS FOR SEALING GLAND

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
F Thread metric	M16x1.5-6H	M20x1.5-6H	M25x1.5-6H	M32x1.5-6H	M40x1.5-6H	M50x1.5-6H	M63x1.5-6H
Ø G mm (in)	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 60	54 (2.126) 74 (2.913)	38.50 (1.516)							
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

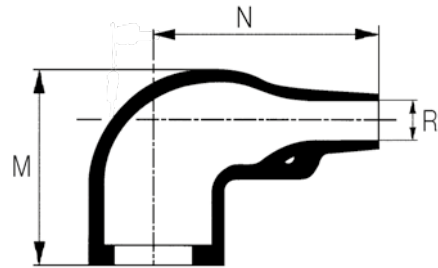
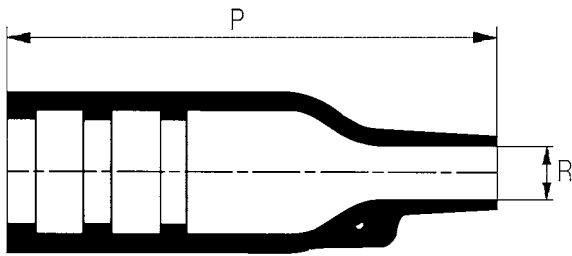
How to order

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

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

✓: RoHS compliant

HEAT-SHRINK MOULDED PIECES *



* Please note that the Heat-Shrink Moulded pieces are manufactured by Hellerman TYTON.

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)	24.00 (0.945)	6.00 (0.236)
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
15	NSA	-	804225	202K153-3	156-42-G	804235	222K152-3	1156-4-G
	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
17	NSA	-	804227	202K163-3	157-43-G	804237	222K163-3	1157-4-G
	NSD	-	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
	NSD	-	804225	202K153-3	156-42-G	804235	222K152-3	1156-4-G
	HE308-35, TV35, TVB35, SBC	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
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 all series: MIL-DTL-38999 III / EN3645 / TV-CTV / POWERSAFE / RNJLP / MIL-DTL-38999 II / HE308 / LJT / RNJ / MIL-DTL-38999 I / JT / SJT / VG96912

Accessory thread torque value (N.m) ± 0.565		
Series	TV / Metal MIL-DTL-38999 I, II, III / Metal EN3645 / Powersafe / RNJLP / HE308 / LJT / JT / SJT / VG96912	CTV / MIL-DTL-38999 III class M & J / EN3645 class M & J
Shell size	Heavy duty (All metal connectors only)	Metal medium & light duty (Composite connectors only)
08 / 09	8,475	5,650
10 / 11	11,300	5,650
12 / 13	15,820	5,650
14 / 15	16,950	5,650
16 / 17	16,950	5,650
18 / 19	16,950	5,650
20 / 21	19,775	11,300
22 / 23	19,775	11,300
24 / 25	19,775	11,300

According to the ABS2216 standard

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

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

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UNITED KINGDOM	Amphenol INVOTEC	Unit 1-3, Hedging Lane Industrial Estate, Dosthill - Tamworth, B77 5HH	+44 1827 263 000
UNITED KINGDOM	Amphenol IONIX SYSTEMS	Prospect House, Taylor Business Park, Risley, Warrington, WA3 6HP	+44 1 942 685 200
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USA	Amphenol NEXUS TECHNOLOGIES	50 Sunnyside Avenue - Stamford, CT 06902	+1 203 327 7300
USA	Amphenol PCD	72 Cherry Hill Drive - Beverly, MA. 01915	+1 978 624 3400
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