

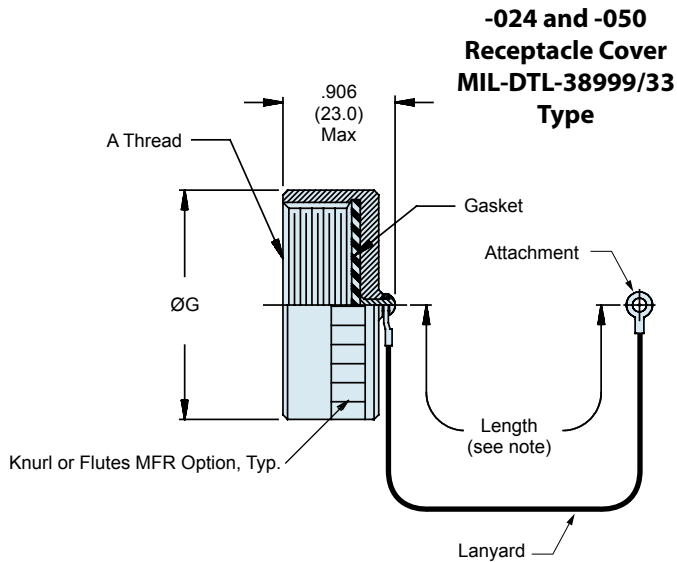
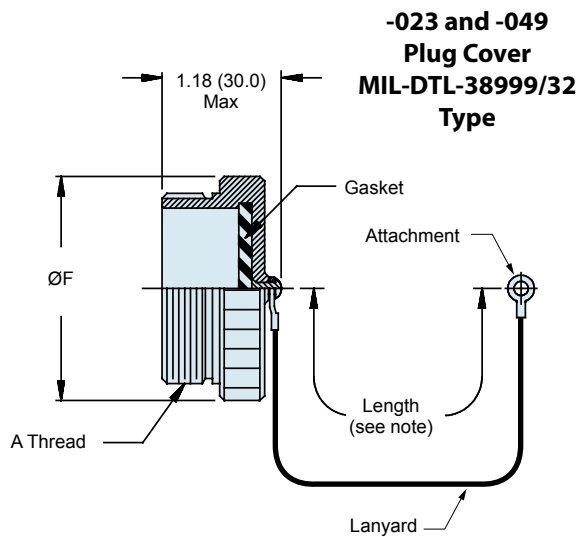
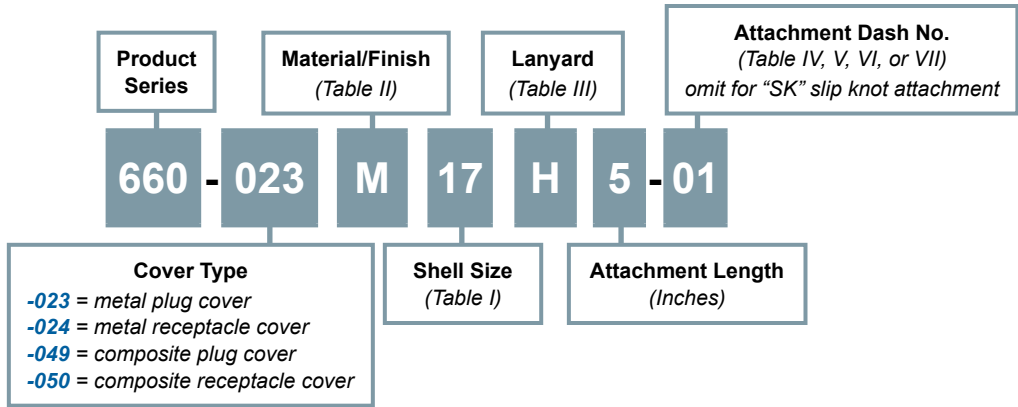


660-023 and -024 • 660-049 and -050
MIL-DTL-38999 Series III Type
Metal and Composite Protective Covers
Plug and Receptacle

MIL-DTL-38999 Series III Type metal and composite protective covers

B

How To Order



Material and Finish

Cover: See Table II • Gasket: Silicone • Hardware, Rivet: Stainless Steel/Passivate

Notes

Length tolerance for Sash Chain (S) is ± 1 link, for all other attachments ± .25.

660-023 and -024 • 660-049 and -050
MIL-DTL-38999 Series III Type
Metal and Composite Protective Covers
Plug and Receptacle



MIL-DTL-38999
Series III Type

B

Available Lanyard Types (shown with optional eyelet attachment, see table III for lanyard style)

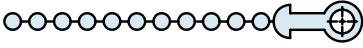
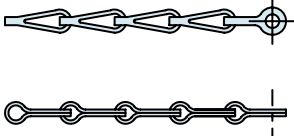

		
Bead Chain (Type D)	Sash Chain (Type S)	Rope (Types F, G, H, K, R, T, U)

Table I

Shell Size	A Thread	Ø F Max	Ø G Max
09	.6250 - 0.1P-0.3L-TS	0.906 (23.0)	.906 (23.0)
11	.7500 - 0.1P-0.3L-TS	1.024 (26.0)	1.102 (28.0)
13	.8750 - 0.1P-0.3L-TS	1.220 (31.0)	1.220 (31.0)
15	1.0000 - 0.1P-0.3L-TS	1.300 (33.0)	1.260 (32.0)
17	1.1875 - 0.1P-0.3L-TS	1.457 (37.0)	1.457 (37.0)
19	1.2500 - 0.1P-0.3L-TS	1.575 (40.0)	1.535 (39.0)
21	1.3750 - 0.1P-0.3L-TS	1.732 (44.0)	1.654 (42.0)
23	1.5000 - 0.1P-0.3L-TS	1.811 (46.0)	1.772 (45.0)
25	1.6250 - 0.1P-0.3L-TS	1.969 (50.0)	1.929 (49.0)

Table II: Material/Finish

Code	Material	Finish Description
C	Aluminum Alloy	Anodize, Black
G		Anodize, Hardcoat
M		Electroless Nickel
MT		Nickel-PTFE, Grey
NF		Cadmium, Olive Drab
ZN		Zinc-Nickel, Olive Drab
ZNU		Zinc-Nickel, Black
Z1	Stainless Steel	Passivate
ZL		Electrodeposited Nickel
XM	Composite	Electroless Nickel
XW		Cadmium, Olive Drab
XB		No Plating, Black

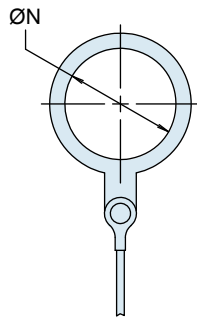
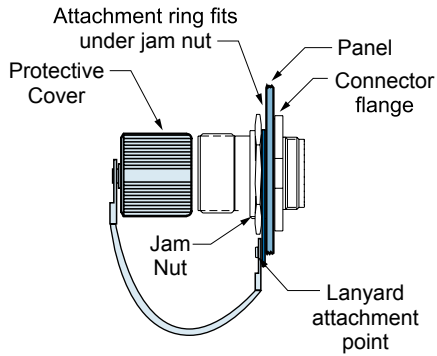
Refer to Appendix for material/finish details

Table III: Lanyard Codes

Code	Description
D	Bead Chain, CRES, Passivated
F	Wire Rope, Nylon Jacket
G	Nylon Rope, Black
H	Wire Rope, Teflon Jacket
K	Nylon Rope, Olive Drab
N	No Lanyard
R	Wire Rope, PVC Jacket
S	#8 Sash Chain, CRES, Passivated
SK	Nylon Rope (Black) w/Slip Knot
T	Wire Rope, No Jacket
U	Wire Rope, Polyurethane Jacket

B

Attaching a Cover to a Jam Nut Receptacle With a Solid Ring (Style A)



Solid Ring - Style A

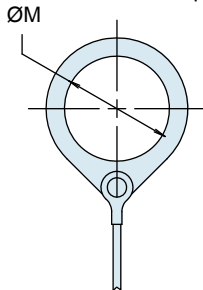
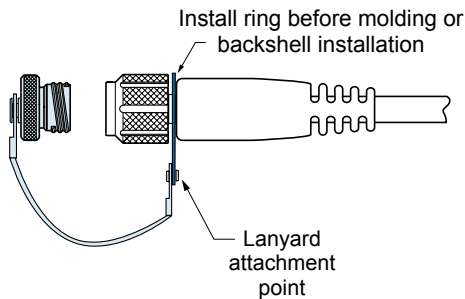
Table IV: Solid Ring Style A

Dash No.	Ø N ± .015	180-091 Shell Size
106	.896 (22.8)	11
107	1.016 (25.9)	13
108	1.141 (29.0)	15
109	1.266 (32.3)	17
110	1.391 (35.3)	19
111	1.521 (38.6)	21
112	1.641 (41.7)	23
113	1.766 (45.0)	25

Notes

Solid ring style A dash numbers and shell sizes shown are for Glenair 180-091 fiber optic connectors only. Consult factory for additional sizes.

Attaching a Cover to a Cable Assembly With a Solid Ring (Style B)



Solid Ring - Style B

Table V: Solid Ring Style B

Dash No.	Ø M ± .015	180-091 Shell Size
10	.593 (15.1)	11
12	.718 (18.2)	13
15	.890 (22.6)	15
17	1.015 (25.9)	17
19	1.140 (29.0)	19
21	1.265 (32.3)	21
22	1.343 (34.0)	23
24	1.484 (37.6)	25

Notes

Solid ring style B dash numbers and shell sizes shown are for Glenair 180-091 fiber optic connectors only. Consult factory for additional sizes.

660-023 and -024 • 660-049 and -050
 MIL-DTL-38999 Series III Type
 Metal and Composite Protective Covers
 Attachment Options



MIL-DTL-38999
 Series III Type

B

Attaching a Cover to a Cable Using a Split Ring or Slip Knot

Dash No.	Ø L ± .015	Dash No.	Ø L ± .015
50	.425 (10.8)	74	1.625 (41.4)
52	.485 (12.3)	76	1.750 (44.5)
54	.640 (16.3)	78	1.875 (47.8)
56	.750 (19.1)	80	1.980 (50.3)
58	.890 (22.6)	82	2.060 (52.3)
60	1.015 (25.9)	84	2.235 (56.9)
62	1.095 (27.9)	86	2.310 (58.7)
64	1.130 (28.7)	88	2.475 (63.0)
66	1.250 (31.8)	90	2.655 (67.6)
68	1.350 (34.3)	92	2.810 (71.4)
70	1.375 (35.1)	94	3.045 (77.5)
72	1.485 (37.8)		

Attaching a Receptacle Cover to a Panel With a Screw

Dash No.	Ø K ± .015	180-091 Shell Size
01	.140 (3.56)	
02	.182 (4.62)	
03	.191 (4.85)	
04	.197 (5.00)	
05	.167 (4.24)	
06	.125 (31.8)	11 thru 21
07	.218 (5.53)	
09	.156 (3.96)	23 thru 25
00	No Eyelet	



Reference Information Standard Materials and Finishes

TABLE II - STANDARD FINISHES

GLENAIR SYMBOL	M85049 SYMBOL REFERENCE ONLY	FINISH	SPECIFICATION(S)
A		Cadmium Plate, Bright	AMS-QQ-P-416, Type I, Class 2
B		Cadmium Plate, Olive Drab	AMS-QQ-P-416, Type II, Class 3
C*	A	Anodize, Black	AMS-A-8625, Type II, Class 2
G*		Hard Coat, Anodic	AMS-A-8625, Type III, Class 1
J		Iridite, Gold Over Cadmium Plate Over Electroless Nickel	MIL-C-5541, Class 3 AMS-QQ-P-416, Type II, Class 3 over AMS-C-26074, Class 4, Grade B
LF		Cadmium Plate, Bright Over Electroless Nickel	1000 Hour Corrosion Resistance
M	N	Electroless Nickel	AMS-C-26074, Class 4, Grade B
N		Cadmium Plate, Olive Drab Over Electroless Nickel	AMS-QQ-P-416, Type II, Class 3 over Electroless Nickel AMS-C-26074
NC		Zinc Cobalt, Dark Olive Drab	96 Hour Corrosion Resistance
NF	W	Cadmium Plate, Olive Drab Over Electroless Nickel	1000 Hour Corrosion Resistance
T		Cadmium Plate, Bright Over Electroless Nickel	AMS-QQ-P-416, Type I, Class 3 ASTMB 733-90, SC2, Type I, Class 5, MIL-C-26074***
U		Cadmium Plate, Black	AMS-QQ-P-416, Type II, Class 3
ZU**		Cadmium Plate, Black	AMS-QQ-P-416, Type II, Class 3
ZN		Zinc-Nickel Alloy, Olive Drab	ASTMB 841-91, Over Electroless Nickel 1000 Hour Salt Spray

* Anodize finish; not suitable for EMI Shielding or grounding applications.
** Applicable to corrosion resisting steel backshells and accessories. Consult factory for other available finishes.

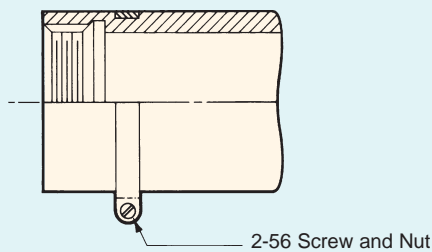
The following standard materials are used for the majority of Glenair backshells and connector accessories. However, backshell components are not limited to those items listed, but are representative of the elements used in Glenair's general accessory products. Contact Glenair for applicable specifications on items not listed below.

STANDARD MATERIALS - BACKSHELLS AND ACCESSORIES

COMPONENT	MATERIAL	SPECIFICATION
Machined components: such as backshell bodies, fabricated elbows, protective covers, rotatable couplers, dummy stowage receptacles, lock nuts, G-spring support rings, EMI ground rings, grommet followers, etc.	Aluminum	AMS-QQ-A-200 ASTMB221, 209
Die cast components: such as angular backshells, strain relief backshells, strain relief bodies, strain relief saddles, special EMI ground rings, etc.	Aluminum	QQ-A-591 ASTMB85, 26
Backshells or strain reliefs: available in optional corrosion resisting steel; and hardware: such as screws, washers, rivets, wire rope, sash chain, band straps, etc.	Corrosion Resisting Steel	ASTMA582 (300 Series) AMS-QQ-S-763
Elastomeric seals: such as O-rings, cable jacket seals, grommets, etc.	Silicone	ZZ-R-765, MIL-R-25988
Anti-friction and thrust washers	Teflon	TFE
Anti-rotation device	Corrosion Resistant Material	N/A

BODY STRAP

Glenair offers an optional stainless steel body strap for attaching protective covers as illustrated. To specify body strap, add suffix letter C to the end of the part number. For example 360AS001M1610M6C.



NOTES

On all length callouts, tolerance is $\pm .060$ unless otherwise specified.

Unless otherwise specified, the following other dimensional tolerances will apply:

- .xx = $\pm .03$ (0.8)
- .xxx = $\pm .015$ (0.4)
- Lengths = $\pm .060$ (1.52)
- Angles = $\pm 5^\circ$

Metric dimensions (mm) are indicated in parentheses

NOTE: For your convenience these tables have been reproduced inside the back cover fold-out.

Glenair Backshell and Accessory Material and Finish Options

Backshell and accessory base materials, plating options, specifications and codes

Code	Material	Finish	Finish Specification
A	Aluminum	Cadmium, No Chromate	SAE-AMS-QQ-P-416 Type I Class 3
AB	Marine Bronze	Unplated	
AL	Aluminum	AlumiPlate, Clear Chromate	MIL-DTL-83488, Class 2, Type II over electroless nickel
B	Aluminum	Cadmium, Olive Drab	SAE-AMS-QQ-P-416 Type II Class 3
C	Aluminum	Anodize, Black	AMS-A-8625 Type II Class 2
E	Aluminum	Chem Film	MIL-DTL-5541 Type 1 Class 3
G	Aluminum	Anodize, Hardcoat	AMS-A-8625 Type III, Class 1, .001" thick
J	Aluminum	Cadmium, Gold	SAE-AMS-QQ-P-416 Type II, Class 2 over electroless nickel
JF	Aluminum	Cadmium, Gold	SAE-AMS-QQ-P-416 Type II, Class 2 over electroless nickel
LF	Aluminum	Cadmium, Clear	SAE-AMS-QQ-P-416 Type II Class 2 over electroless nickel
M	Aluminum	Electroless Nickel	AMS-C-26074 Class 4 Grade B; ASTM-B-733, SC 2, Type IV
MT	Aluminum	Nickel-PTFE	GMF-002 Type II Class 1
N	Aluminum	Cadmium, Olive Drab	SAE-AMS-QQ-P-416 Type II Class 3 over electroless nickel
NC	Aluminum	Zinc-Cobalt, Olive Drab	ASTM B 840 Grade 6 Type D over electroless nickel
NF	Aluminum	Cadmium, Olive Drab	SAE-AMS-QQ-P-416 Type II Class 2 over electroless nickel
P	Stainless Steel	Electrodeposited Nickel	SAE-AMS-QQ-N-290 Class 1 Grade F
T	Aluminum	Cadmium, No Chromate	SAE-AMS-QQ-P-416 Type I Class 3
TP2	Titanium	Electrodeposited Nickel	SAE-AMS-QQ-N-290 Class 1 Grade F
U	Aluminum	Cadmium, Black	SAE-AMS-QQ-P-416 Type I Class 3
UC	Aluminum	Zinc-Cobalt, Black	ASTM B 840 Grade 6 Type D over electroless nickel
UCR	Aluminum	Zinc-Cobalt, Black	ASTM B 840 Grade 6 Type D over electroless nickel
UF	Aluminum	Cadmium, Black	SAE-AMS-QQ-P-416 Type II Class 2 over electroless nickel
XAL	Composite	AlumiPlate	MIL-DTL-86448, Class 2, Type II over electroless nickel
XB	Composite	Unplated Black	
XM	Composite	Electroless Nickel	AMS-C-26074
XMT	Composite	Nickel-PTFE	GMS-002 Class 2 Type II
XO	Composite	Unplated Light Brown	
XW	Composite	Cadmium, Olive Drab	SAE-AMS-QQ-P-416 Type II Class 3 over electroless nickel
XZN	Composite	Zinc-Nickel, Black	ASTM B841 Grade 5 over electroless nickel
Z1	Stainless Steel	Passivate	SAE-AMS-SAE-AMS-QQ-P-35 Type VI
Z2	Aluminum	Gold	MIL-DTL-45204 Class 1 over electroless nickel
ZC	Stainless Steel	Zinc-Cobalt, Black	ASTM-B840, Grade 6
ZCR	Stainless Steel	Zinc-Cobalt, Black	ASTM-B840, Grade 6
ZL	Stainless Steel	Electrodeposited Nickel	SAE-AMS-QQ-N-290 Class 1 Grade F
ZM	Stainless Steel	Electroless Nickel	AMS-C-26074 Class 1 Grade A
ZMT	Stainless Steel	Nickel-PTFE	GMF-002 Type II Class 3
ZN	Aluminum	Zinc-Nickel, Olive Drab	ASTM B841 Grade 5 over electroless nickel
ZNU	Aluminum	Zinc-Nickel, Black	ASTM B841 Grade 5 over electroless nickel
ZR	Aluminum	Zinc-Nickel, Black	ASTM B841 Grade 5 over electroless nickel
ZU	Stainless Steel	Cadmium, Black	SAE-AMS-QQ-P-416 Type II Class 3
ZW	Stainless Steel	Cadmium, Olive Drab	SAE-AMS-QQ-P-416 Type II Class 2 over electroless nickel

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