About Micro-D Backshells

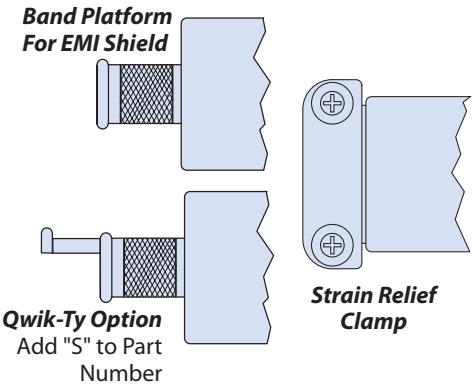
Micro-D EMI backshells are used to ground cable shields for electromagnetic compatibility, and to provide strain relief and mechanical protection of wire-to-connector terminations. These backshells are made out of aluminum alloy or composite thermoplastic. Electroless nickel is the most widely used finish. These backshells are compatible with industry-standard metal shell M83513 type connectors. The following application notes explain how to select the right type of backshell.

EMI Versus Non-EMI Backshells

Select EMI backshells if your cable has a braided shield or screen. The cable shield must be terminated to the backshell for electromagnetic compatiblity (EMC). Glenair recommends Band-Master ATS® Micro bands, supplied with the backshell or purchased separately for reliable shield termination.

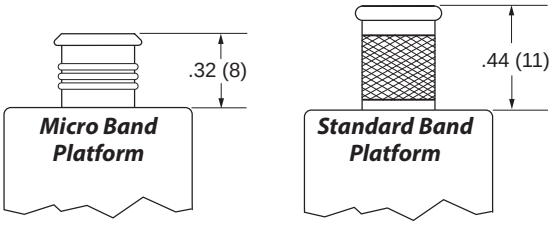
Select a strain relief backshell to prevent wire-to-connector terminations from inadvertent removal due to vibration, shock, or handling.

EMI backshells with Band-Master ATS® shield terminations do not normally require additional strain relief. Micro-D wires are typically potted in place, and the shield braid alone provides sufficient additional strain relief. Optional Qwik-Ty legs are available on a number of backshells for additional light-duty strain relief.



Standard Band Versus Micro Band

Most Micro-D EMI backshells feature low-profile band platforms designed for a narrow (.125" width) Micro Band. Some have a taller band platform which also accepts standard-width bands (.250" width).



One-Piece versus Split-Shell Backshells

Split-shell backshells allow for easy installation over already terminated wires. Some split backshells fit over the connector, eliminating the ferromagnetic clip component. Split-shell versions also can accommodate screw locks. One-piece backshells must be staged on the wire bundle prior to final wire-to-connector termination.

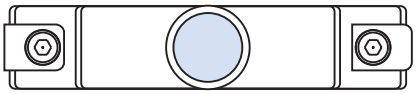
Jackscrews and Screwlocks

Jackscrews are fixed in position and are used to drive connectors together during mating. Screwlocks float and allow the connectors to be coupled manually before the screwlocks are engaged. Screwlocks allow faster mating, while jackscrews offer less risk of contact damage.

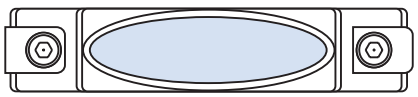
Elliptical Versus Circular Cable Entry

Choose elliptical backshells if the wire bundle diameter is too big to fit in a circular cable entry. Large Micro-D connectors (51 pins and up) usually exceed the limits of the round entries. Refer to the cable entry and wire bundle tables in this section to determine if an elliptical entry is necessary.

The actual size illustrations to the right show the difference between round and elliptical cable entries. The round entry cross-sectional area = π ($\frac{1}{2}$D)^2 = .11 In.^{2}. The formula for the area of an ellipse is π (Length)(Width) ÷ 4 = .36 In.^{2}



Round Cable Entry
100 Pin .375 Inch (9.5 mm) Diameter



Elliptical Cable Entry
100 Pin .360 by 1.29 Inch (9.1 X 32.8 mm)

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Dimensions in Inches (millimeters) are subject to change without notice.

Application Notes

Maximum Discrete Wire Bundle Diameters (See Note 1)					
No. Of Wires	Wire Gauge	M22759/11		M22759/33	
		Wire Bundle Diameter	Recommended Backshell Cable Entry Code	Wire Bundle Diameter	Recommended Backshell Cable Entry Code
9	#24	0.153 (3.90)	06	0.132 (3.40)	05
9	#26	0.136 (3.50)	05	0.115 (2.90)	05
9	#28	0.119 (3.00)	05	0.098 (2.50)	04
15	#24	0.197 (5.00)	08	0.171 (4.30)	06
15	#26	0.175 (4.40)	07	0.149 (3.80)	06
15	#28	0.153 (3.90)	06	0.127 (3.20)	05
21	#24	0.233 (5.90)	09	0.202 (5.10)	07
21	#26	0.207 (5.30)	08	0.176 (4.50)	07
21	#28	0.181 (4.60)	07	0.150 (3.80)	06
25	#24	0.254 (6.50)	*	0.220 (5.60)	08
25	#26	0.226 (5.70)	09	0.192 (4.90)	07
25	#28	0.198 (5.00)	08	0.164 (4.20)	06
31	#24	0.283 (7.20)	*	0.245 (6.20)	09
31	#26	0.252 (6.40)	09	0.214 (5.40)	08
31	#28	0.220 (5.60)	08	0.182 (4.60)	07
37	#24	0.309 (7.90)	*	0.268 (6.80)	*
37	#26	0.275 (7.00)	*	0.234 (5.90)	09
37	#28	0.241 (6.10)	09	0.199 (5.10)	08
51	#24	0.363 (9.20)	*	0.315 (8.00)	*
51	#26	0.323 (8.20)	*	0.274 (7. 0)	10
51	#28	0.282 (7.20)	*	0.234 (5.90)	09
100	#24	.509 (12.9)	*	0.441(11.2)	*
100	#26	.452 (11.5)	*	0.384 (9.80)	*
100	#28	.396 (10.1)	*	0.328 (8.30)	12

*Glenair recommends elliptical style backshell

NOTES:

1. This sizing chart is for discrete wire bundles of the type and gauge indicated. When using twisted pairs, or other wire types/configurations, refer to Glenair Circular Connector Backshells & Accessories catalog, page 8, "Calculating Wire Bundle Diameter." Glenair recommends 70% area fill (wire bundle area to entry port area), not to exceed 80% area fill on Micro-D Backshells.
2. When solder-cup Micro-D connectors and low-profile backshells (short in height) are used in conjunction, the transition angle from the outer pins to the centralized entry port becomes severe and can increase the susceptibility to damage. Glenair recommends elliptical shaped entries to minimize angles of contact that can occur with round cable entries.
3. Blending and deburring/smoothing of internal geometry may not produce "perfectly" smooth, rounded features, but has a proven history of success in precluding wire abrasion damage. For additional wire protection, wrap wire bundle with DuPont™ Kapton® tape in areas that may come into contact with cable entry transitions or other interior angles.
4. Glenair recommends that harness designs avoid excessive fill percentages and severe contact angles as previously described. For applications where these conditions must exist, consult our factory for appropriate additional design / workmanship solutions

Space-Grade Finish Options			
Finish Code	Description	Specification	Corresponding Connector Finish Code
M	Electroless Nickel	SAE-AMS-26074 Class 3	Code 2
XM	Electroless Nickel (Composite Only)	SAE-AMS-26074 Class 3	Code 2
Z2	Gold Plated	ASTM B488	Code 5
GME	Gold over Electroless Nickel	ESCC No. 3401 087 Para. 4.4.1	FR 172

Materials	
Shell, Saddle Clamps	Aluminum Alloy 6061 -T6 Per QQ-A-200, QQ-A-225 (Machined Components) Aluminum Alloy 6061-T6 Per QQ-A-591 (A380) (Die-Cast Components)
Clips, E-Rings	17-7PH Stainless Steel
Jackscrews, Washers, Jackposts	300 Series Stainless Steel, Passivated

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