

Composite Thermoplastic Connectors and Accessories

Product Selection Guide and Technical Information: Intro Pages 2-36

A Circular and Rectangular Backshells and Accessories



A

B Protective Covers and Dummy Stowage Receptacles



B

C Convoluted Tubing Wire Protection Systems



C

D EMI/RFI Braided Shielding and Banding Split-Rings



D

E EMI/RFI Junction Boxes



E

F MIL-DTL-38999 Series III Type Environmental Connectors



F

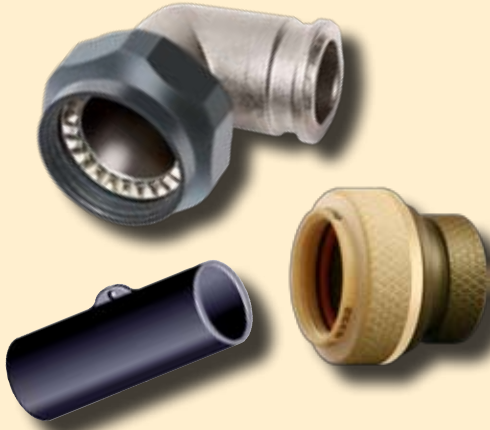
G Assembly Tools



G

Part Number Index: Inside Back Cover

310 - Shrink Boot/Overmold Adapter



Glenair composite shrink boot adapters are designed for use in open-wire bundle cable assemblies that require the splash-proof environmental protection and light-duty strain-relief provided by lipped-type shrink boots such as Glenair 770-001 heat moldable shrink boots. These simple adapters can also be used to accommodate overmolding compounds typically applied to fully-environmental, jacketed cables. The adapters are attached to standard circular connectors and can be plated to provide an EMC ground path. Our composite shrink-boot and overmold adapters are a perfect, light-weight choice for high-performance cable assemblies. The two styles are available for most circular connectors.

Description	Part Number	Page
Shrink Boot Adapter with Rotatable Coupling Nut ; Straight	310-045	A-2
Shrink Boot Adapter with Direct Coupling - Straight	310-017	A-4

311 - EMI/RFI Lamp Base Thread Backshell



A sleek, compact shield termination backshell assembly that utilizes a simple lamp-base thread device to capture conductive cable shielding; yielding both strain relief and EMI/RFI protection. Straight and 90° shell styles are available. This simple, light-weight backshell may optionally be equipped with a shrink-boot for a modicum of environmental protection.

Description	Part Number	Page
Lamp Base EMI/RFI Shield Termination Backshell - Straight and 90°	311-034	A-5
Lamp Base EMI/RFI Shield Termination Backshell with Shrink Boot Porch - Straight, 45° and 90°	311-019	A-6
Lamp Base EMI/RFI Environmental Adapter with Shrink Boot Porch and Direct Coupling - Straight	311-063	A-8

319 - EMI/RFI Shield Sock Assemblies



Glenair shield sock assemblies offer an alternative strain relief and shield termination solution for shielded, jacketed cable assemblies. Two basic styles are available; with fixed position or user-adjustable entry angles. Made from high-temperature composite thermoplastic, these rugged assemblies offer easy installation, long term durability, and outstanding weight and cost reduction. The products are equipped with reliable "click-style" self-locking rotatable coupling nuts. Available shielding includes standard metal braid as well as light-weight metal clad composite shielding. The shield sock's braid is terminated directly to the cables own braid with *BAND-IT*® bands and tools.

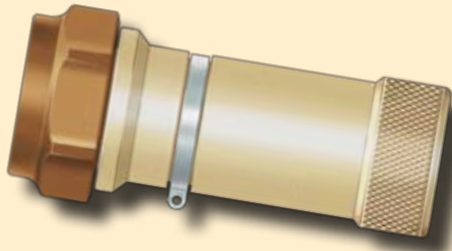
Description	Part Number	Page
Composite Thermoplastic Shield Sock Assembly Procedure		A-10
Swing Arm Backshell with Shield Sock and Self-Locking Rotatable Coupling - Adjustable to Straight, 45° and 90°	319-064	A-12
EMI/RFI Backshell with Shield Sock and Self-Locking Rotatable Coupling - Straight Only	319-120	A-14
EMI/RFI Banding Backshell Shield Sock with Shrink Boot Porch and Self Locking Rotatable Coupling - Straight, 45° and Ultra Low Profile 90°. Uses Micro Band to Attach Shield	319-134	A-16
EMI/RFI Shield Sock Strain Relief with Shrink Boot Porch and Self Locking Rotatable Coupling - Straight, 45° and 90°	319-136	A-18
Shield Sock Strain Relief with Self Locking Rotatable Coupling - Straight, 45° and 90°	319-137	A-22
"Wide Mouth" Swing Arm Strain Relief with Shield Sock and Self Locking Rotatable Coupling - Straight, 45° and 90°	319-138	A-24

320 - Extender Backshells

These simple composite backshells—when used with connectors with crimp and poke contact termination—provide extensions between the connector and strain relief, offering the convenience of additional space to accommodate service loops, re-terminations, diodes, resistors and other uses.



Description	Part Number	Page
Extender Backshell with Self-Locking Rotatable Coupling - Straight, 45° and 90°	327-060	A-26



347 - Shorting Cap Backshells

Composite Shorting Cap Backshells provide a complete enclosure for the rear of panel-mounted receptacle connectors, and are also adaptable to the fabrication of shorting plugs, special purpose test connectors, or installation of discrete components. Shorting cap backshells also provide an ideal enclosure for fiber optic loop backs used in circuit testing.

Description	Part Number	Page
Shorting Cap Backshell with Lanyard Attachment and Self Locking Rotatable Coupling	347-129	A-28

360 - Non-Environmental Backshells with Strain Relief

Glenair provides straight and angled composite backshells with strain reliefs—including standard cable clamps and Glenair's patented Qwik-Clamp—for light and general duty applications where environmental protection of cable-to-connector terminations is not required.



Description	Part Number	Page
Series 360 Non-Environmental Backshell Assembly Instructions		A-30
Non-Environmental Backshell with Self Locking Rotatable Coupling and Strain Relief - Straight and 90°	360-014	A-32
Non-Environmental Backshell with Self Locking Rotatable Coupling and Qwik-Clamp - Straight, 45° and 90°	360-015	A-34

370 - Environmental Backshell with Strain Relief

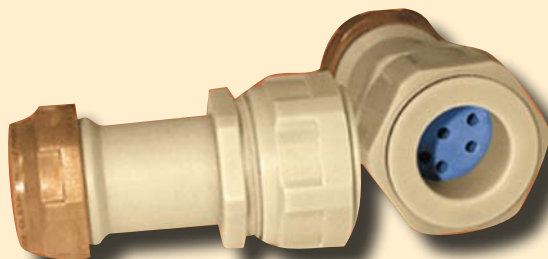


Glenair composite environmental backshells with strain-relief are perfectly suited for the broad range of interconnect cable applications that require reduced weight and serious corrosion protection. Glenair makes both straight and angled versions for all popular connector series and sizes. Two basic versions are available: a standard saddle-clamp version and our patented Qwik-Clamp.

Description	Part Number	Page
Series 370 Environmental Backshell Assembly Instructions		A-36
Cable Sealing and Environmental Backshell with Self Locking Rotatable Coupling and Strain Relief Clamp or Nut - Straight or 90°	370-016	A-38
Cable Sealing and Environmental Backshell with Self Locking Rotatable Coupling and Qwik-Clamp or Nut - Straight or 90°	370-017	A-40

377 - Fiber Optic Backshells

Glenair composite fiber optic backshells provide protection and alignment of individual optical fiber media in open-bundle and jacketed cable assemblies. Straight, and 90° angled fittings are available for added convenience in fiber cable routing. The 90° angled versions utilize a smooth, sweeping profile to eliminate micro-bending of fiber media.



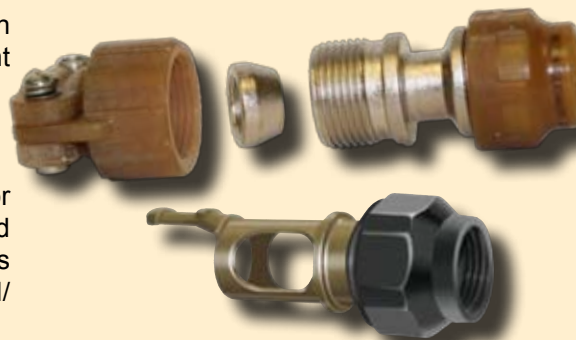
Description	Part Number	Page
Fiber Optic Strain Relief Backshell with Self Locking Rotatable Coupling and Fiber Alignment Grommet and Optional Banding adapter or Nut	377-040	A-42

380 - EMI/RFI Non-Environmental Backshells

Glenair's composite EMI/RFI Shield Termination Backshell family includes a range of reliable and convenient termination methods, including:

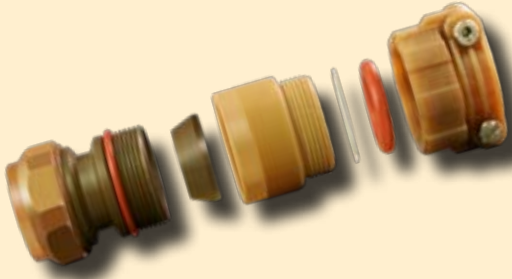
- Cone and Ring Style backshells, and
- Ultra lightweight "Knit Braid" designs

Each style offers a repairable termination method ideal for field service of damaged connector contacts in both jacketed and open-wire bundle cable assemblies. The 380 series is non-environmental. For cable sealing backshells with EMI/RFI shield termination see Series 390.



Description	Part Number	Page
Series 380 EMI/RFI Non-Env. Backshell Assembly Instructions (Type D)		A-44
Series 380 EMI/RFI Non-Env. Backshell Assembly Instructions (Type E)		A-56
Cone and Ring Style Shield Termination Backshell with Self Locking Coupling Nut and Strain Relief - Straight and 90°	380-099	A-46
Cone and Ring Style EMI/RFI Backshell with Self Locking Rotatable Coupling and Qwik-Clamp - Straight, 45° and 90°	380-100	A-48
Knit Braid Style EMI/RFI Shield Termination Backshell with Qwik-Ty and Rotatable Coupling	380-130	A-52
Knit Braid Style EMI/RFI Shield Termination Backshell with Clamp and Rotatable Coupling	380-131	A-53
Knit Braid Style EMI/RFI O-Ring Equipped Shield Termination Backshell with Shrink Boot Adapter and Rotatable Coupling	380-132	A-54
EMI/RFI Nickel Plated Copper Knit Braid Material	107-044	A-55
Multi Shield Cone and Ring Style EMI/RFI Shield Termination Backshell with Self Locking Rotatable Coupling and Strain Relief	387-083	A-58

390 - EMI/RFI Environmental Backshells



Glenair's composite Series 390 backshells utilize standard cone and ring style shield termination to deliver 360° shield/screen grounding with low DC resistance across the termination area. Cable sealing O-rings provide full-immersion protection to 6 ft. The lightweight, corrosion proof backshell is ideally suited to general duty use in both military and commercial interconnect cable applications. Glenair 390 series backshells are fully tooled for all popular connector series and sizes.

Description	Part Number	Page
Series 390 EMI/RFI Environmental Backshell Assembly Instructions		A-60
Environmental Cone and Ring Style EMI/RFI Shield Termination Backshell with Self Locking Rotatable Coupling and Strain Relief - Straight, 45° and 90°	390-052	A-62

440 - EMI/RFI Banding Backshells

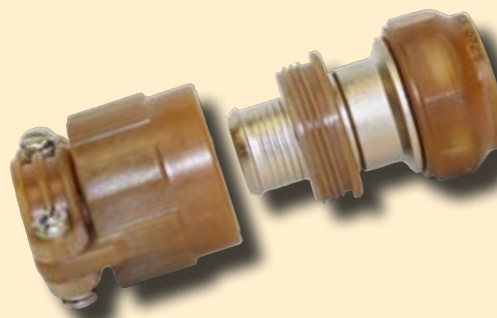


Banding is by far the most popular and reliable method of EMI shield termination used today in high-performance cable assemblies. Glenair supplies composite banding backshells in straight, 45° and 90° entry angles, with accommodation for either standard or lighter weight and duty micro *BAND-IT*® bands. Various configurations are available—all made from lightweight composite thermoplastic.

Description	Part Number	Page
Banding Backshell Assembly Instructions		A-66
Ultra Lightweight Banding Strain Relief with Rotatable Coupling	440-087	A-64
EMI/RFI Micro-Banding Backshell with Qwik-Ty Strain Relief, Shrink Boot Groove and Self Locking Rotatable Coupling - Straight, 45° and Ultra Low Profile 90°	440-143	A-68
EMI/RFI Micro-Banding Backshell with Shrink Boot Groove and Self Locking Rotatable Coupling - Straight, 45° and Ultra Low Profile 90°	440-144	A-70
EMI/RFI Banding Backshell with Shrink Boot Groove and Self Locking Rotatable Coupling - Standard Profile Straight, 45° and 90°	447-325	A-72
EMI/RFI Micro-Banding Backshell with Shrink Boot Groove and Self Locking Rotatable Coupling - Standard Profile Straight, 45° and 90°	447-326	A-74
EMI/RFI Banding Backshell with Qwik-Ty Strain Relief and Shrink Boot Groove - Standard Profile Straight and 90°	447-327	A-76
EMI/RFI Dual Banding Backshell with Self Locking Rotatable Coupling - Straight and 90°	447-331	A-84
EMI/RFI Banding Backshell with Strain Relief - Standard Profile Straight and 90°	447-711	A-87

447 - EMI/RFI Band-in-a-Can

The Glenair Series 447 Band-in-a-Can backshell combines the convenience of banding with the versatility of a standard saddle bar strain-relief. The 447 series is available in both single and dual banding porch designs, as well as an optional Qwik-Clamp strain-relief version. The Band-in-a-Can is a perfect solution for standard shielded and jacketed cable assemblies. The selectively plated product offers 360° shield grounding without the wear-and-tear problems usually associated with plated interconnect products.



Description	Part Number	Page
EMI/RFI Band-in-a-Can Backshell with Strain Relief Clamp - Standard Profile Straight and 90°	447-328	A-78
EMI/RFI Environmental Band-in-a-Can Backshell with Strain Relief Clamp or Qwik-Clamp – Standard Profile Straight and 90°	447-329	A-80
EMI/RFI Non-Environmental Band-in-a-Can Backshell with Qwik-Clamp and Self-Locking Rotatable Coupling – Standard Profile Straight and 90°	447-330	A-82
EMI/RFI Low Profile Micro Band-in-a-Can Backshell with Strain Relief Clamp	447-657	A-86

450 - Qwik-Ty Strain Reliefs

Glenair's Qwik-Ty® strain reliefs offer a unique method of providing strain relief to open wire bundles equipped with circular connectors. The Qwik-Ty® comes in straight, 45° and 90° configurations, and features a low profile, reduced weight and simple installation. Assembly with plastic tie straps or lacing tape is quick and secure.



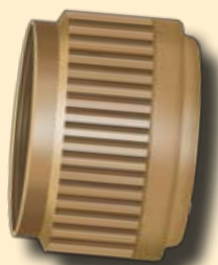
Description	Part Number	Page
Qwik-Ty Strain Relief with Self Locking Rotatable Coupling - Straight, 45° and Low Profile 90°	450-029	A-88
Qwik-Ty Strain Relief with Ground Lug and Self Locking Rotatable Coupling - Straight, 45° and Low Profile 90°	450-030	A-89
Ultra Lightweight Qwik-Ty Strain Relief with Free Rotating Coupling - Straight and Low Profile 90°	450-034	A-90

550 - EMI/RFI Rectangular Backshells

Glenair's line of rectangular backshells is the largest in the industry. The short list of composite thermoplastic versions shown here provide EMI protection for rectangular connectors used in harsh or severe operating environments. Our D-Subminiature and Micro-D versions are both available in top, side and 45° entry configurations, in a full range of conductive and non-conductive finishes.



Description	Part Number	Page
EMI/RFI Banding Backshell for MIL-DTL-83513 Micro-D Connectors - Top, 45° and Side Entry	507-088	A-92
EMI/RFI Banding Backshell for MIL-DTL-24308 D-Subminiature Connectors - Top, Side and End Entry	557-186	A-94



610 - "E" Nuts

"E" Nuts are typically used on the back of connectors with no EMI/RFI, environmental or strain-relief requirement. But since many OEMs require that all connectors be equipped with a backshell, the "E" nut fills the threads on the back of the connector and compresses the sealing grommet—all without the added bulk or weight of a standard backshell. Composite "E" Nuts are available in both plated and unplated designs for all popular connector series and sizes.

Description	Part Number	Page
"E" Nut Backshell	610-014	A-96



620 - Strain Relief Clamps

Glenair offers a comprehensive selection of composite strain reliefs for circular connectors. Straight, 45° and 90° styles are available to fit most common connector types. Saddle clamps tighten around the cable assembly to ensure it remains in place— even in the face of potentially damaging tugs or twists.

Description	Part Number	Page
Composite Saddle Clamp Assembly Procedure		A-20
Strain Relief Clamp with Self-Locking Rotatable Coupling - Straight, 45° and 90°	620-042	A-97
Swing Arm Strain Relief with Self Locking Rotatable Coupling Nut	627-122	A-98
Swing-Arm Strain Relief with Keyed Banding Insert	627-142	A-100

630 - Thru-Box, Panel and Bulkhead Fittings



Glenair manufactures a full-spectrum line of feed-through fittings for routing wire and cable into and out of switchgear and other types of junction boxes. The composite fittings in this section are ideal for thru-panel and bulkhead applications in harsh environmental settings.

Description	Part Number	Page
EMI/RFI Environmental Thru-Box, Panel and Bulkhead Banding Adapter - Front or Rear Mount	630-030	E-36
Universal Environmental Thru-Box, Panel and Bulkhead Universal Adapter	630-031	E-38
EMI/RFI Environmental Box Feedthru Cable / Conduit Adapter	637-094	E-40

770 - Shrink Boots

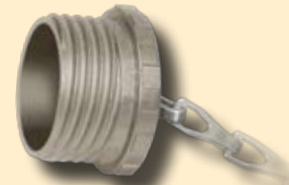
Glenair offers a standard range of adhesive and non-adhesive heat moldable shrink boots for use with our metal and composite backshells. Shrink boots provide strain relief and environmental protection in non-jacketed cable and/or conduit assemblies.



Description	Part Number	Page
Heat Moldable Shrink Boot - Straight and 90°	770-001	A-102

660 - Protective Covers and Stowage Receptacles

Protective covers are a critical component in interconnect systems where maintenance and test cycles can lead to damage of exposed connectors. Conductive and non-conductive plating options are available to match the conductivity and impedance requirements of the application and the connector.



Description	Part Number	Page
MIL-DTL-5015 Plug and Receptacle Covers	660-045 / 046	B-3
MIL-DTL-28840 Plug and Receptacle Covers	660-047 / 048	B-4
MIL-DTL-38999 Series III Plug and Receptacle Covers	660-049 / 050	B-5
Glenair Series 190-015 / 016 Plug and Receptacle Covers	660-077 / 078	B-6
MIL-DTL-83723 Series III Plug and Receptacle Covers	660-051 / 052	B-7
MIL-DTL-38999 Series III Dummy Stowage Receptacle	650-025	B-8
MIL-DTL-38999 Series III Receptacle Cover with Anti-Decoupling Device	667-117	B-9
MIL-DTL-5015 Receptacle Cover with Anti-Decoupling Device	667-118	B-10
MIL-DTL-38999 Series III Receptacle Cover with Anti-Rotation Device	667-079	B-11

740 - Convoluted Tubing Wire Protection Systems

Glenair's supplies a number of lightweight, flexible wire circuit protection solutions made from high-temperature polymer plastics. These polymer convoluted tubing products provide extremely rugged, lightweight enclosures for wiring systems deployed in harsh application environments. The crush-resistant materials offer exceptional flexibility and abrasion resistance, and can be combined with Glenair composite end-fittings, transition-fittings, EMI braiding and jacketing to meet almost any installation requirement. In addition to a complete range of DuPont™ Teflon® tubing types (PTFE, FEP, ETFE and so on), Glenair also offers a low-outgassing halogen-free polymer called PEEK that far out performs other plastic tubing formulas in its strength to weight ratio and has a V-O flammability rating down to 0.057 inches without the use of additives.



Description	Part Number	Page
Type A - Convoluted Tubing Only - Series 74 Convoluted Tubing	120-100	C-7
Type B - External Black Dacron® Braid - Series 74 Convoluted Tubing	120-103	C-8
Type C - External Shield and Jacket - Series 74 Convoluted Tubing	121-100	C-9
Type D - External Shield - Series 74 Convoluted Tubing	121-101	C-10
Type E - Two External Shields - Series 74 Convoluted Tubing	121-102	C-11
Type F - Jacket and Two External Shields - Series 74 Convoluted Tubing	121-103	C-12
Type G - External Jacket - Series 74 Convoluted Tubing	123-100	C-13
Fiber Optic Conduit Backshell Adapter with Self Locking Rotatable Coupling and Fiber Alignment Grommet	377-041	C-14
"T" Configuration Split Junction Fitting	710-318	C-16
"Y" Configuration Split Junction Fitting	710-319	C-17
Straight with 45° Branch Configuration Split Junction Fitting	710-320	C-18
Plus "+" Configuration Split Junction Fitting	710-321	C-19
Shrink Boot Conduit Fitting for Glenair Series 74 Helical Convoluted Tubing	712S269	C-20
Single EMI/RFI Shield Termination Conduit Fitting for Glenair Series 74 Helical Convoluted Tubing	712S270	C-21
Dual EMI/RFI Shield Termination Conduit Fitting for Glenair Series 74 Helical Convoluted Tubing	712S271	C-22
Straight, 45° and 90° Conduit Connector Adapter for Glenair Series 74 Helical Convoluted Tubing	712-419	C-24

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103 - EMI/RFI Braided Shielding and Banding Split-Rings

For many applications, the cable shield is the most important element in controlling EMI. Unfortunately, metal shielding—especially when applied in multiple layers—can be extremely heavy. The opportunity to provide conductive EMI shielding at a fraction of the weight of metal is the principal advantage of composite thermoplastic EMI/RFI shielding*. Glenair is the industry leader in the design and manufacture of these unique screening products, supplied both in 100% composite and hybrid metal/plastic configurations.

As is commonly used in conjunction with composite shield socks, the banding split ring is a useful accessory that protects wire conductors from damage in shield-to-shield terminations.

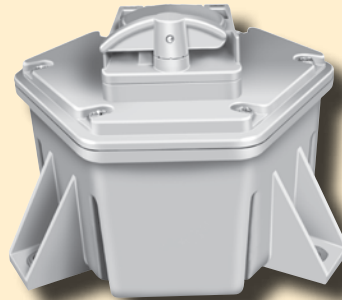
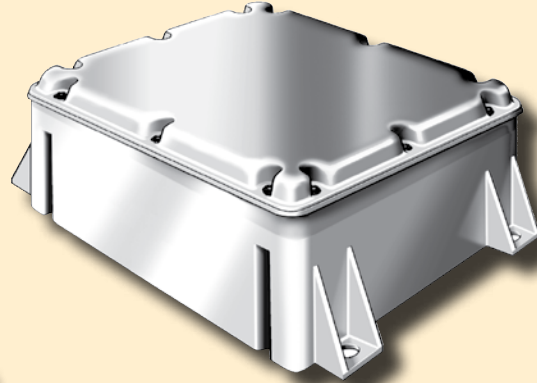


Description	Part Number	Page
Composite Light Weight Metal-Clad EMI/RFI Braided Shielding (100%)	103-026	D-2
75%/25% Blended Composite/Metal EMI/RFI Braided Shielding	103-027	D-3
PEEK Tubular Braid (Black) for Series 74 Convuluted Tubing	102-051	D-4
AS85049 Composite Banding Split-Ring	687-749	D-5

*Glenair's composite light weight metal-clad EMI/RFI braiding is made from AmberStrand®

140 - Composite EMI/RFI Junction Boxes

Glenair's lightweight/high-strength "CostSaver" Composite EMI/RFI Junction Boxes are ideally suited for use in harsh environments, where resistance to electromagnetic interference, corrosive fluids, high temperatures, shock and vibration are critical requirements. The boxes are designed to meet the shock and vibration requirements of MIL-S-901D and MIL-STD-167SHIPS. Box materials also meet stringent EMI/RFI/HIRF and indirect lightning strike performance specifications.



Description	Part Number	Page
Ultra-Miniature Junction Box	140-074	E-16
Mini Junction Box	140-100	E-18
Small Junction Box	140-101	E-20
Medium Junction Box	140-102	E-22
Large Junction Box	140-103	E-24
Small Low-Profile Box	140-104	E-26
Medium Low-Profile Junction Box	140-105	E-28
Small Three-Legged Junction Box	140-106	E-30
Jumbo Junction Box	140-107	E-32
8 Port Octagonal Junction Box	140-200	E-34
12 Port Rectangular Junction Box	140-203	E-35
Internal Mounting Plate for use with Rectangular Series Boxes	687-466	E-42
Round Internal Mounting Plate for use with 140-106 Box	687-305-22	E-43
Slotted Terminal Block Mounting Rail	687-467	E-44
Hole Cap Assembly	687-461	E-45

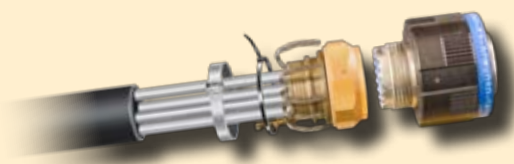
MIL-DTL-38999 Series III Type Environmental Connectors

Glenair's composite MIL-DTL-38999 Series III Type Environmental Connector Series is built to ensure robust, durable performance. Connector polarization keys and keyways are manufactured to extremely tight tolerances, facilitating reliable mating and minimizing mating cycle wear. Composite shell bodies offer reduced weight, excellent environmental performance and reliable resistance to vibration and shock. Resilient elastomer inserts and heat-treated beryllium copper contact retention clips provide trouble-free crimp contact insertion and removal. Insert arrangements are IAW MIL-STD-1560, or appropriate sub-sets depending on intended application. Consult factory for available insert arrangements.



Description	Part Number	Page
MIL-DTL-38999 Series III Type Wall Mount Receptacle	233-105-00, D0, T0	F-10
MIL-DTL-38999 Series III Type Jam Nut Receptacle	233-105-07	F-12
MIL-DTL-38999 Series III Type In-Line Receptacle	233-105-05	F-14
MIL-DTL-38999 Series III Type Plug	233-105-G6	F-16

Composite Connector Accessory Assembly Procedures



Glenair assembly procedures are provided for shield termination backshells and other complex assemblies. Below is a list of the assembly procedures in this book. Please consult factory for additional assistance.

Assembly Instructions	Page
Composite Thermoplastic Shield Sock Assembly Procedure	A-10
Series 360 Non-Environmental Backshell Assembly Instructions	A-30
Series 370 Environmental Backshell Assembly Instructions	A-36
Series 380 EMI/RFI Non-Env. Backshell Assembly Instructions (Type D)	A-44
Series 380 EMI/RFI Non-Env. Backshell Assembly Instructions (Type E)	A-56
Series 390 EMI/RFI Environmental Backshell Assembly Instructions	A-60
Banding Backshell Assembly Instructions	A-66
Composite Saddle Clamp Assembly Procedure	A-20
Composite Accessory-to-Connector Assembly Instructions	G-3
Band-It® Shield Termination Assembly Procedure	G-11

Tools and Tool Accessories

Glenair addresses interconnect system assembly requirements with a variety of military standard and specialized connector-to-backshell assembly tools, braided shielding banding tools and accessories. Our tool line for composite components includes backshell-to-connector assembly wrenches specifically designed to fit composite coupling nut dimensions.



Description	Part Number	Page
Soft Jaw Pliers	TG69	G-5
Aluminum Hex-Coupling Wrench for Composite Backshells	600-091	G-6
Stainless Steel Hex-Coupling Wrench for Composite Backshells	600-157	G-7
Backshell Assembly Strap Wrench with 3/8" Square Drive	TG70	G-8
Hand-Held Digital Torque Wrench with Dual 3/8" Drives	600-161	G-9
Bench Stand for 600-161 Digital Torque Wrench	600-162	
Large Broad Blade Utility Shears	600-164	G-10
Hand Banding Tool for Standard Bands	600-058	G-12
Hand Banding Tool for Micro Bands	600-061	
Standard Clamping Band	600-052	G-13
Standard Extended-Length Clamping Band	600-090	
Micro Clamping Band	600-057	
Micro Extended-Length Clamping Band	600-083	
Cut-Off Blade for Standard Hand Banding Tool	600-056	G-14
Cutter Knife for Standard Hand Banding Tool	600-062	
Cut-Off Blade for Micro Banding Tool	600-060	
Cutter Knife for Micro Banding Tool	600-082	G-15
Calibration Key for Standard and Micro Hand Banding Tools	600-055	
Tension Gauge for Standard Hand Banding Tools	600-072-1	
Tension Gauge for Micro Hand Banding Tools	600-086-1	