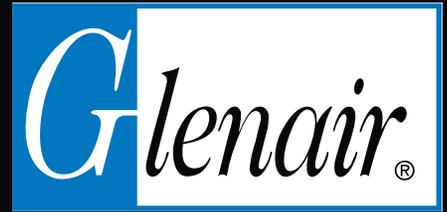


MISSION-CRITICAL
INTERCONNECT
SOLUTIONS



Glenair
SIGNATURE SERIES

Commercial Aerospace EWIS Technology

Signature Interconnect Solutions for Commercial Aircraft

Glenair
SIGNATURE SERIES

Commercial Aerospace EWIS Technology

Signature Interconnect Solutions for Commercial Aircraft



NEXT-GENERATION MICRO MINIATURE CONNECTORS



Series 806
Mil-Aero micro miniature



Series 791 and 792 Micro-Crimp
rack and panel



Series 20 SuperTwin
lightweight modular

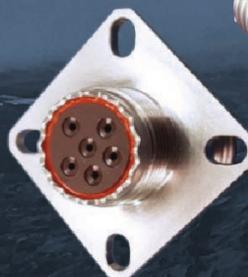
HARSH ENVIRONMENTAL AEROSPACE CONNECTORS



SuperNine "better than QPL"
MIL-DTL-38999 Series III



CODE RED
lightweight hermetic



ThermaRex HT
high-temperature connector

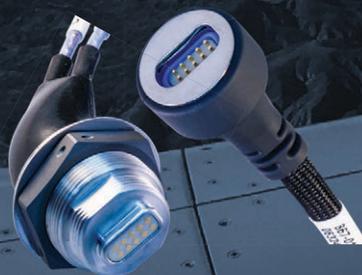


EMI filtered
pressure transducers

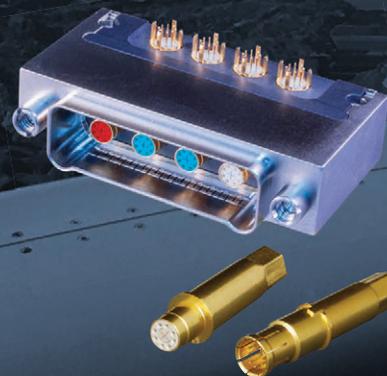
SPECIAL-PURPOSE AEROSPACE CONNECTORS AND CONTACTS



PowerLoad
power distribution connectors



GateLink Pro
high-speed data uplink connector



El Ochito
high-speed Ethernet and USB 3.0

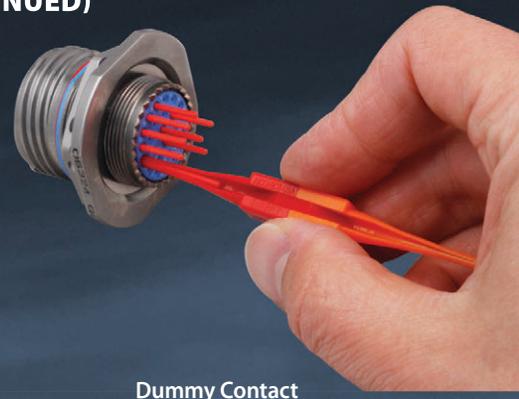
SPECIAL-PURPOSE AEROSPACE CONNECTORS AND CONTACTS (CONTINUED)



SuperFly Datalink



SpliceSaver time- and labor-saving wire splice replacement



Dummy Contact Sealing Plugs (DCSP)

ADVANCED-PERFORMANCE CONNECTOR ACCESSORIES AND WIRE MANAGEMENT SOLUTIONS



ProSeal spring-action protective covers



Swing-Arm and Swing-Arm FLEX strain reliefs



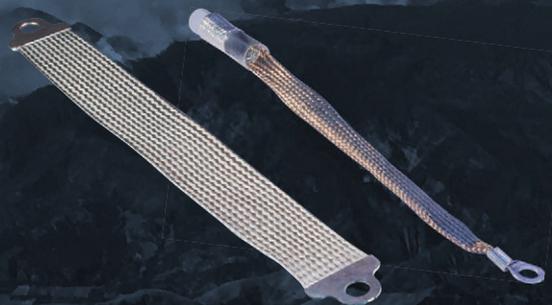
Autoshrink cold-action tubing and boots



TurboFlex ultra-flexible power cables



ArmorLite microfilament EMI/RFI shielding



Lightweight, flexible ground straps and HSTs



MasterWrap wraparound shielding now available in Nomex®



Problem-solving circular and rectangular connector accessories



Band-Master ATS® advanced shield termination system



Turnkey, lightweight polymer- and metal-core conduit wire protection systems

NEXT-GENERATION
MICRO
MINIATURE
CONNECTORS

SERIES
806
MIL-AERO

Advanced performance,
reduced size and weight
connector series IAW
MIL-DTL-38999



Series 806 offers significant size and weight savings while meeting key performance benchmarks for a broad range of applications such as commercial and military aerospace, robotics, transportation, and more. Designed for general use in harsh vibration, shock, and environmental settings—as well as high-altitude, unpressurized aircraft zones with aggressive voltage ratings and altitude immersion standards—the Series 806 Mil-Aero features numerous design innovations including durable mechanical insert retention, radial seals and triple-ripple grommet seals. Its reduced thread pitch and re-engineered ratchet prevent decoupling problems, particularly in small shell sizes, solving one of the major problems of shell size 9 and 11 MIL-DTL-38999 Series III connectors.

SAVE SIZE AND WEIGHT WITH SERIES 806 CONNECTORS

Series 806 Mil-Aero
Smallest Size
.500 In. Mating Threads
3 #20 Contacts or 7 #22
contacts



MIL-DTL-38999
Smallest Size
.625 In. Mating Threads
3 #20 Contacts or 6 #22
contacts

- Next-generation small form factor aerospace-grade circular connector
- Designed for harsh application environments such as aircraft, industrial robotics and more
- Upgraded environmental, electrical and mechanical performance
- Integrated anti-decoupling technology
- Higher density 20HD and 22HD contact arrangements
- Hermetic and filter versions
- +200°C temperature rating

Series 806 Mil-Aero Micro Miniature Circular Connectors



for harsh mil-aero applications IAW MIL-DTL-38999

SERIES 806 MIL-AERO: FEATURES / SPECIFICATIONS

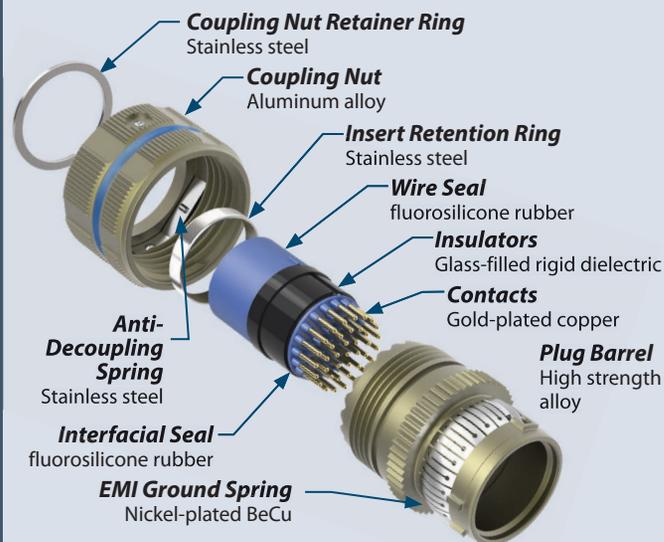
- High-density #20HD and #22HD arrangements for reduced size and weight
- Supported wire sizes:
#20HD contacts 20–24 AWG
#22HD contacts 22–28AWG
- Dielectric withstanding voltage
#20HD layouts: 1800 Vac
#22HD layouts: 1300 Vac
- Reduced pitch triple-start modified anti-decoupling stub ACME mating threads
- +200°C operating temperature
- “Triple ripple” wire sealing grommet (75,000 ft. rated)
- Snap in, rear release crimp contacts
- Metal contact retention clips
- Integral Nano-Band shield termination platform
- EMI shielding effectiveness per D38999M para. 4.5.28 (65 dB min. leakage attenuation @ 10GHz)
- 10,000 amp indirect lightning strike
- MIL-S-901 Grade A high impact shock

AVAILABLE LIGHTWEIGHT ALUMINUM “CODE RED” HERMETICS

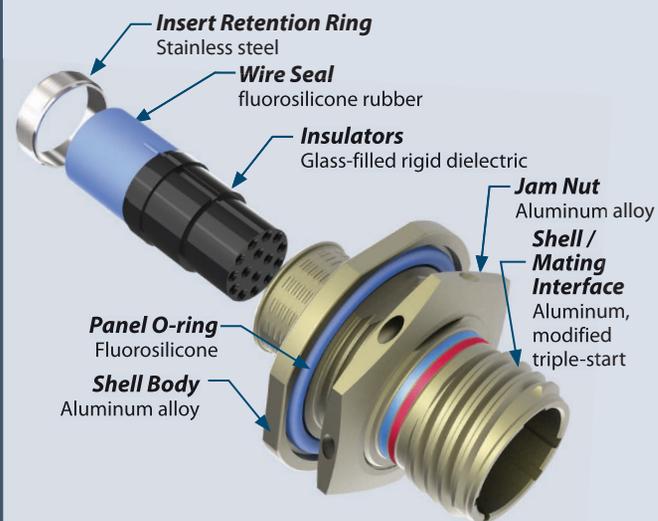
CODE RED is a lightweight encapsulant sealing and application process with 50% package-weight savings compared to glass-to-metal seal Kovar/stainless steel solutions. Non-outgassing CODE RED (IAW NASA/ESA) provides durable hermetic sealing with better than 1×10^{-7} leak rate performance. Gold-plated copper contacts deliver outstanding low-resistance current carrying capacity.



SERIES 806 MIL-AERO PLUG



SERIES 806 MIL-AERO RECEPTACLE



SMALLER AND LIGHTER WITH EQUAL D38999 PERFORMANCE?

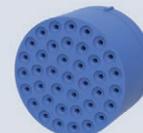
High-Density Layouts
Twice as many contacts in a smaller package



“Top Hat” Insulator
High voltage rating, foolproof alignment



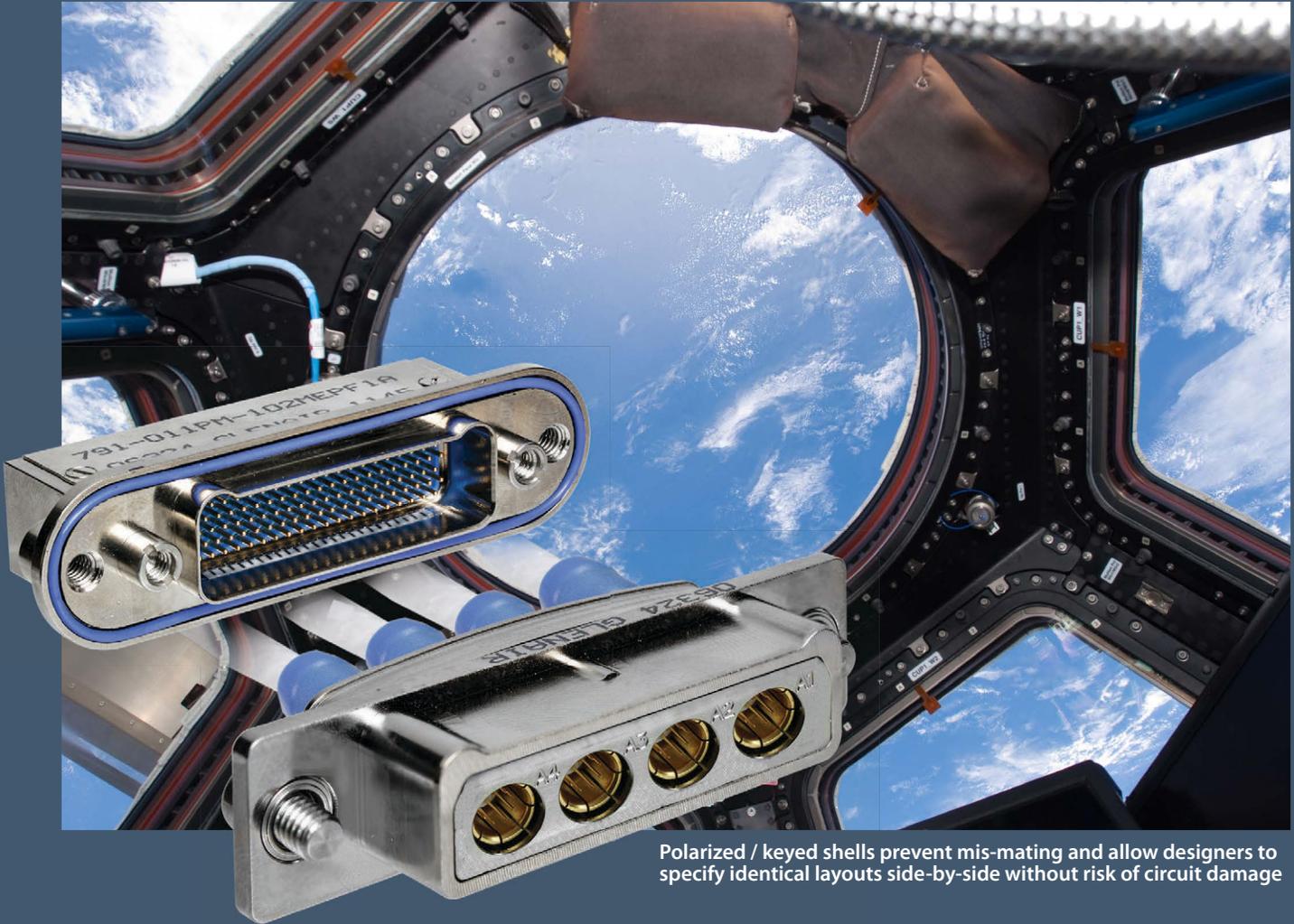
Triple Ripple Wire Seal
Reliable 75,000 ft. altitude immersion



NEXT-GENERATION
MICRO
MINIATURE
CONNECTORS



The next-generation ultraminiature rectangular connector for demanding aerospace applications



Polarized / keyed shells prevent mis-mating and allow designers to specify identical layouts side-by-side without risk of circuit damage

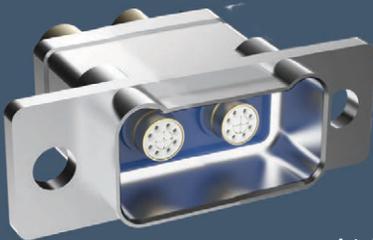
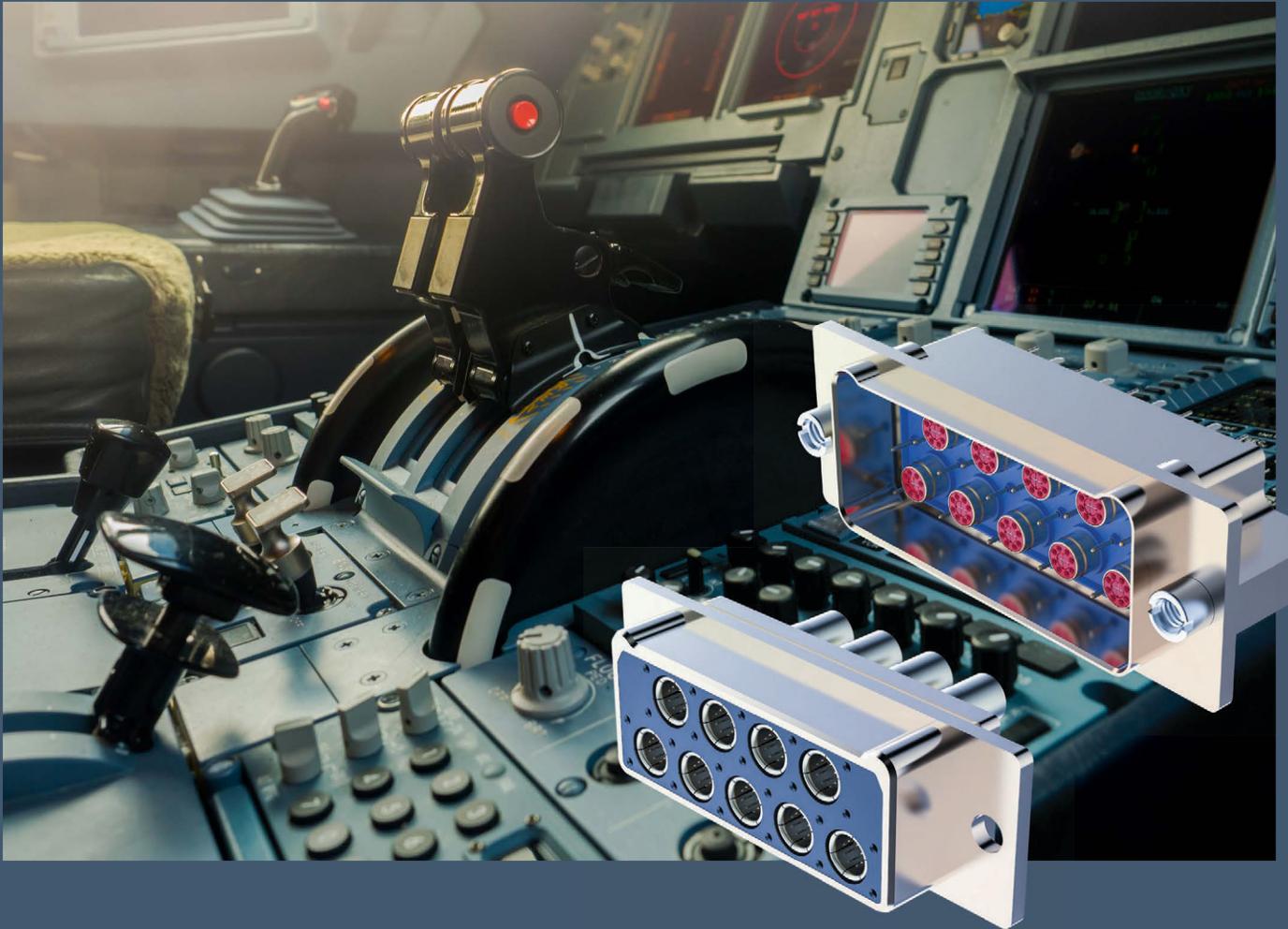
Sometimes the simplest ideas are the best ideas. The Series 791 is a simple idea. Let's create a brand new class of connector—the ultraminiature rectangular. Let's combine the versatility of the Series 790 Micro-D connector with the rugged features of our popular HiPer-D M24308 connector. Let's add a unique dual lobe shell and recess the pins to eliminate the possibility of scooping damage. Then let's add high speed datalink capability. Originally designed for NASA's Orion project, the Series 791, with all its special features, is well-suited for general aerospace use as well. The Series 791's small size and blind mate capability make it a perfect choice for LRU electronic modules. Other applications include radars, communication equipment, avionic systems, power distribution units, instrumentation, and other applications that require a smaller, higher performance interconnect in standard I/O or rack-and-panel configurations.



- Next-generation small form factor aerospace-grade rectangular connector
- Scoop-proof recessed pin contacts
- 37 arrangements, 12 shell sizes for the ultimate in versatility
- Rugged aluminum alloy dual-lobe shell
- Environmental
- EMI shielded
- Blind mating



The next-generation *high-speed* ultraminiature rectangular connector for demanding aerospace applications



The Series 792 connector brings high-speed datalink capability to the Glenair Series 79 rectangular connector family. Size 8 cavities accept standard Quadrax and El Ocho datalink contacts. The 792's small size and blind-mate capability makes it a perfect choice for radars, weapons systems, communications gear, satellites, exoatmospheric vehicles, avionics, and instrumentation. Board mount versions feature straight and right angle terminals.

The Series 792 is an aerospace-grade ultraminiature rectangular connector for high-speed datalinks including 10Gb Ethernet, USB 3.0, and HDMI. The Series 792 features precision-machined (not stamped!) aluminum alloy shells with dual lobes for robust polarization. The 100% scoop-proof interface protects contacts from damage. An integrated ground spring reduces susceptibility to electromagnetic interference. Hybrid layouts with discrete size #23 signal or power contacts add additional versatility.

- High-speed Ethernet, USB 3.0, HDMI
- Printed circuit board and cable connectors
- Scoop-proof interface
- 12 arrangements, 6 shell sizes for the ultimate in versatility
- Rugged aluminum alloy dual-lobe polarized shells
- Environmentally sealed
- Integrated EMI shielding and grounding
- Blind mating

NEXT-GENERATION
MICRO
MINIATURE
CONNECTORS

Super-Twin[®]

Lightweight Composite Modular Connectors



High-density drop-in replacements for legacy modular rectangular connectors save weight, space, and assembly time

The Glenair Series 20 Super-Twin™ lightweight modular connector is a drop-in replacement for legacy cable and panel connectors that no longer meet packaging requirements and performance specifications—especially for ease of assembly, electromagnetic compatibility and size, weight and power optimization.

The Glenair Series 20 Super-Twin™ can accommodate a broad range of contact sizes and types from #23 to #8 signal, Quadrax, El Ochito®, power, and fiber. Modular inserts offer fast and flexible assembly and repair. Peripheral and grommet seals provide outstanding environmental protection. Keyed inserts and shells provide versatile polarization and protection against mis-mating. The innovative clamshell and banding porch design brings modern, state-of-the-art connector capabilities to modular cable and panel applications. The lightweight connector is used in cable as well as panel/ avionics bay applications, and is designed to replace larger and heavier legacy connectors.

- For reduced size and weight cable and panel applications
- Flexible assembly and repair
- Environmentally sealed
- Meets highest performance requirements for rack-and-panel modular systems
- Replaces heavier and larger legacy connectors
- Series 200: modular inserts, composite shell, integral strain relief/backshell
- Series 201: separate backshell, crimp or PC tail, typically composite shells. Mates with Sr. 200



SERIES 20 SUPER-TWIN™ Lightweight composite connector for cable and rack-and-panel applications



SUPER-TWIN™ TECHNICAL OVERVIEW



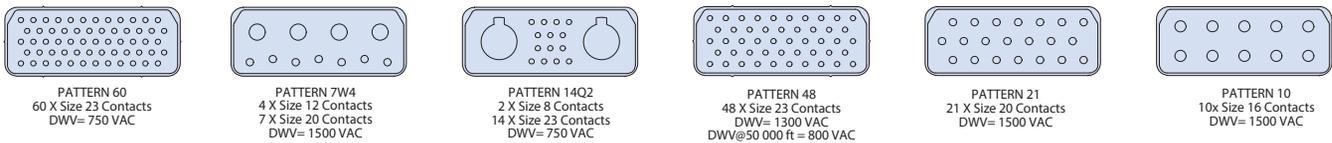
Weight Study, Typical Regional Jet Airframe

Series 20 Super-Twin™
Mated Pair: 67g
Weight/Plane: 7,661g
Legacy rectangular: aluminum
Mated Pair: 192g
Weight/Plane: 22,103g
Legacy rectangular: composite
Mated Pair: 141g
Weight/Plane: 16,123g

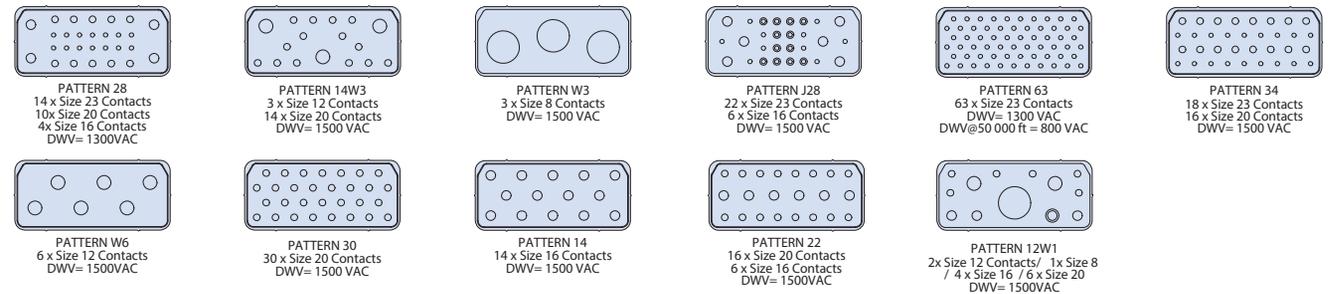
Summary:

Using Series 20 composite instead of legacy aluminum connector saves **14,442 grams (31.8 lbs)** per plane. Using Series 20 composite instead of legacy composite connector saves **8,482 grams (18.6 lbs)** per plane

SUPERTWIN™ SIZE 2 CONTACT ARRANGEMENTS



SUPERTWIN™ SIZE 3 CONTACT ARRANGEMENTS



Keyed, snap-in-place insert modules are currently available in seventeen tooled layouts, accommodating size #23, #20, #16, #12 and keyed size #8 contacts (for use with Quadrax or El Ochito™ contacts).



Modular inserts easily removed with available tool

Center jackscrew for secure connector-to-connector mating

HARSH
ENVIRONMENTAL
AEROSPACE
CONNECTORS

SuperNine®

The advanced-performance D38999
Series III style connector



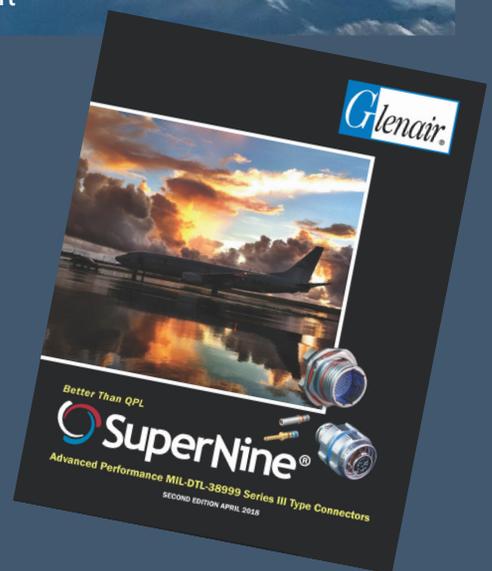
SuperNine plug and receptacle
with SpeedMaster datalink insert

Better than QPL? SuperNine® is the interconnect industry's most complete and advanced D38999 Series III type connector family. From IP-68 rated environmental-class connectors with improved durability and ease-of-use, to EMI/EMP filter connectors with innovative flange and PC tail termination configurations, SuperNine® offers military and commercial aerospace customers that have standardized on Series III technology the opportunity to improve interconnect system performance and resolve a wide range of persistent electrical, environmental, and mechanical performance problems—all with catalog (COTS) connector solutions backed by Glenair's high-availability business model.

SuperNine® offers improved durability, sealing, cost-of-ownership, ease of shield termination, a broader range of PC tail configurations, environmental and hermetic bulkhead feed-throughs, connector savers, off-the-shelf EMI/EMP filter connectors and more—all supported with Glenair's well-established reputation for service, support, and fast turnaround.



Glenair SuperNine® connectors in action: in this example, a pair of our advanced fiber optic interconnects cabled-up in a turnkey, environmentally sealed point-to-point jumper



Now available: the
interconnect industry's
most advanced and
comprehensive
MIL-DTL-38999 Series III
connector series

SERIES 23

SuperNine®

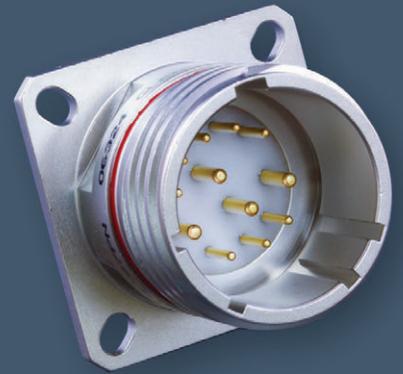
**MIL-DTL-38999 Series III Type
Advanced Performance Connectors**



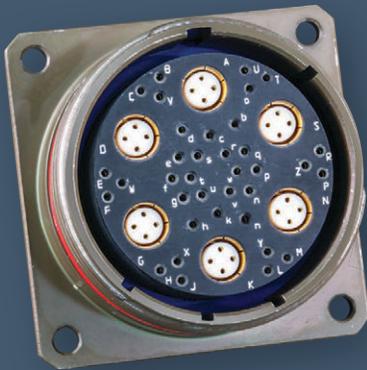
SuperNine® environmental class connectors



SuperNine® ruggedized RJ45 and USB connectors



SuperNine® glass and CODE RED hermetic connectors



SuperNine® high-speed PC tail connectors



SuperNine® emi/emp filter connectors



SuperNine® fiber optic connectors



SuperNine® parylene-compatible PC tail connectors



SuperNine® space-grade assisted separation force connectors



SuperNine® Sav-Con® connector savers and go-betweens

HARSH
ENVIRONMENTAL
AEROSPACE
CONNECTORS

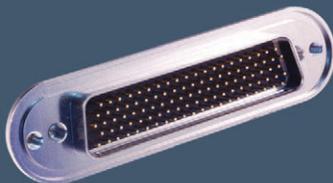
CODE RED

Lightweight, low-resistance hermetic sealing
with 1×10^{-7} leak-rate performance



Hermetically-sealed interconnects used in vacuum or high-altitude applications prevent moisture and other contaminants from damaging sensitive electronic equipment. Glass-to-metal hermetic sealing has been the gold standard in the aerospace and petrochemical industries for decades due to the strength and long-term durability of the materials used. But glass-to-metal seal hermetics come with a big price tag in both weight and electrical resistance. CODE RED is an innovative sealing encapsulant and application process invented by Glenair that provides durable hermetic sealing in a lightweight aluminum package. CODE RED allows for the use of gold-plated copper alloy contacts, significantly improving electrical performance. CODE RED hermetic connectors are available now in SuperNine® (D38999 Series III type metal and composite), Mighty Mouse, and M24308 D-Sub; and deliver reliable, life-of-system 1×10^{-7} max leak-rate hermetic sealing. Special non-magnetic (zero residual magnetism) versions are also available, consult factory.

- 1×10^{-7} hermetic sealing in a lightweight aluminum shell
- Low-resistance gold-plated copper contacts
- Passed full D38999/23 qualification testing
- Meets NASA outgassing and aerospace temperature/corrosion resistance standards
- Operating temperature -65°C to $+200^{\circ}\text{C}$
- Up to +50% weight savings
- Improved current carrying capacity and electrical resistance compared to Kovar/Inconel solutions



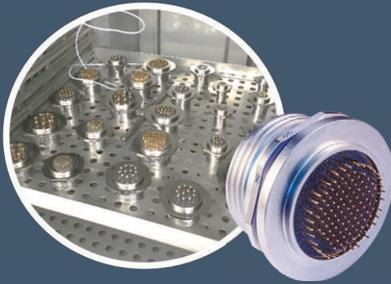
CODE RED: Available today in Mighty Mouse 806 Mil-Aero, M24308/9 D-Sub and D38999/23

Code Red Hermetic Connectors



Lightweight, low-resistance
 “Mission-Critical” hermetic sealing solution

CODE RED LIGHTWEIGHT HERMETIC CONNECTOR TESTING AND VALIDATION



Connectors utilizing CODE RED hermetic encapsulant sealing underwent a grueling qualification test and validation process to prove material durability and hermeticity. Validation testing including 100 cycles of thermal shock IAW EIA-364-32 Test Condition A -65°C to +200°C while maintaining hermeticity followed by 1000 hours of thermal aging at 200°C. Additional tests included:

- DWV, DWV at altitude
- IR, IR at temperature
- Highly Accelerated Life Testing (HALT)
- Insert and contact retention
- Mating durability
- Random vibration at temperature IAW MIL-DTL-38999
- Hermetic seal at 30 psi

The entire qualification test cycle was repeated successfully a second time with new parts to validate complete reliability.

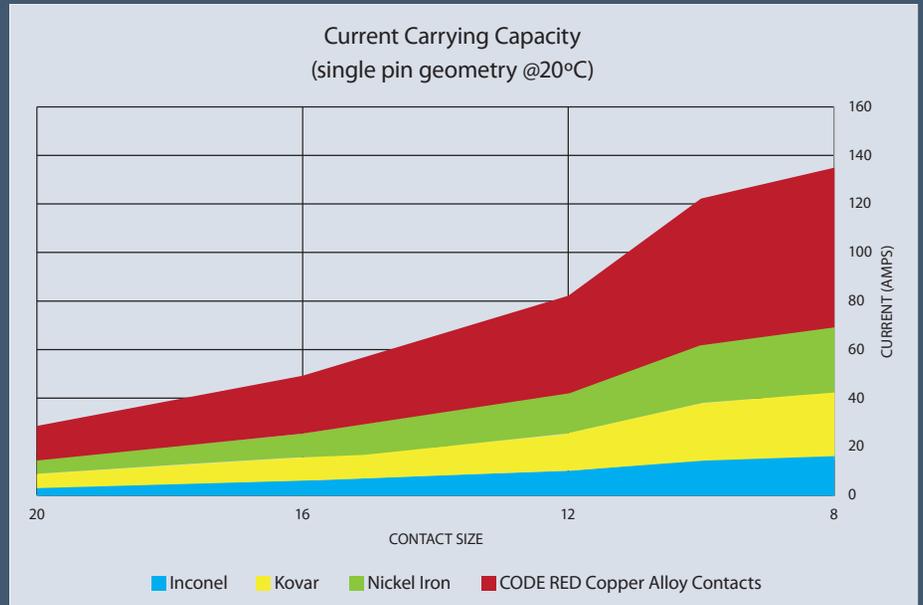
CODE RED USES PROVEN-PERFORMANCE CONNECTOR AND CONTACT MATERIALS

CODE RED Materials / Finish	
Sealing Adhesive	Proprietary Glenair compound
Contacts*	Gold-plated beryllium copper alloy per ASTM B 197 or equivalent
Insulator	Rigid plastic
Seals	Blended fluorosilicone/silicone elastomer
Receptacle Shell and Jam Nut*	Aluminum alloy 6061-T6 per ASTM B 221
Finish*	Electroless nickel per ASTM B 733

*zero residual magnetism materials also available

Graph illustrates Current Carrying Capacity of CODE RED copper alloy contacts compared to the Inconel, Kovar, and nickel iron contacts used in conventional glass-to-metal seal hermetics.

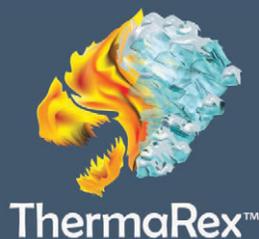
Percentage Weight Savings CODE RED vs. Glass-to-Metal MIL-DTL-38999 Sr. III	
Shell Size/Insert Arr.	Weight Reduction
9-35	52%
11-98	47%
13-35	47%
15-97	42%
19-32	40%
21-11	32%
23-21	28%
25-08	43%



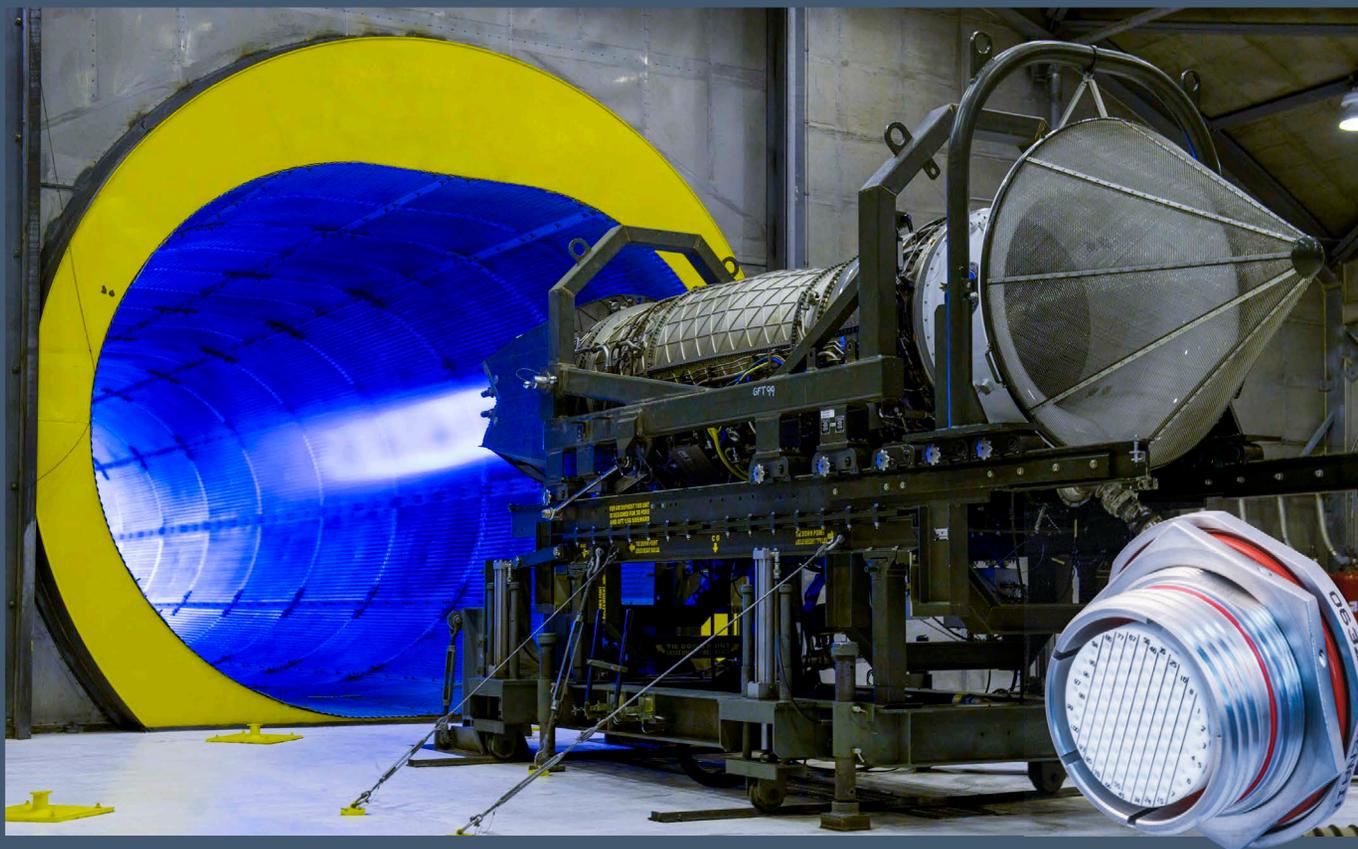
APPLICATION NOTES: CODE RED is a viable drop-in solution for conventional glass-to-metal seal hermetic connectors with the following exceptions:

1. Fuel Cells: Although CODE RED exhibits outstanding resistance to caustic chemicals and fuels, its use in fuel tanks/fuel cell applications is not recommended.
2. Cryogenics: CODE RED has been tested and qualified to -65°C IAW MIL-DTL-38999
3. Sustained High-Operating Temperatures: CODE RED has been tested and qualified to +200°C IAW MIL-DTL-38999
4. High Radiation: Exposure to no more than 6 Megarads of radiation
5. Deep Subsea: CODE RED is ideally suited for aerospace and downhole applications that do not exceed 3 BAR (50 psi) atmospheric pressure differential.
6. Space Life Support Systems: Requires additional qualification testing not yet performed by Glenair.

HARSH ENVIRONMENTAL AEROSPACE CONNECTORS



Cryogenic and high-temperature tolerant connectors, cables, and conduit systems



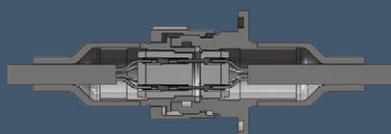
Sensor devices in aerospace engine applications are increasingly exposed to higher temperature operating environments. Environmental sensors in nuclear power reactors—an extremely high temperature and radiation-rich environment—are also exposed to temperature extremes well beyond the capabilities of conventional interconnect devices. Glenair ThermaRex interconnect solutions are designed to survive and excel in high continuous operating temperature application environments up to 600°C. The ThermaRex product family includes connectors, cables, and wire protection conduit systems.

300°C THERMAREX HT CONNECTOR



- Service rating up to 300°C
- Vibration-resistant threaded coupling
- High-temperature ceramic insulators and silicone seals
- Durable stainless steel construction
- Available in Mighty Mouse, SuperNine® D38999, or EN2997
- Utilizes Glenair Crown Ring contacts

600°C THERMAREX UHT CONNECTOR



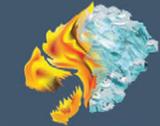
- 300°C to 600°C service range
- Vibration-resistant threaded coupling
- Specialized contacts, laser welds, and metal seals
- Utilizes ultra-high temperature-tolerant Mineral Insulated cable
- Ideal for nuclear and other extreme temperature applications

HIGH-TEMPERATURE TOLERANT ThermaRex Interconnect Solutions



Product showcase (in development)

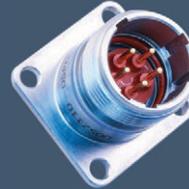
-150°C THERMAREX CRYO CONNECTOR



ThermaRex™
CRYO

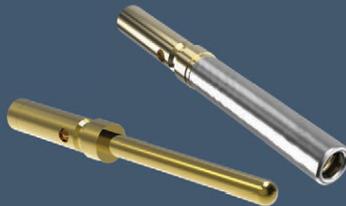
- Dynamic cryogenic connector
- Vibration at -150°C
- Ultra low-temperature Duraelectric K seals

THERMAREX HIGH-TEMPERATURE HERMETIC



- High-temperature sealing technology maintains 1×10^{-7} leak-rate performance at 300°C

CROWN RING CONTACTS



- Crimp removable contacts
- Suitable for use at 300°C or higher while maintaining low electrical resistance
- Stainless steel Crown Ring provides compression force on the socket
- Superior vibration resistance
- Higher current carrying capabilities, lower contact resistance

300°C THERMAREX WIRE



P/N 961-047 -
Single Wire

P/N 960-2371 -
Twisted, Shielded,
Jacketed Pair

- Special nickel-coated copper alloy conductors
- 300°C continuous service
- 24 to 8 AWG, 10 colors of insulation
- Single-wires plus jacketed, shielded, twisted pair available

300°C THERMAREX POLYMER-CORE CONDUIT



P/N 120-100,
Material Code R

- High-temperature-tolerant flexible polymer-core conduit
- All standard colors: Black, clear, orange, blue, yellow
- Qualification test report GT-17-261 available
- 300°C continuous service
- Available with high-temperature braid shield and/or jacket

300°C THERMAREX METAL-CORE CONDUIT



P/N 750-216,
Jacket Code R

- Flexible passivated stainless steel core conduit
- High-temperature-tolerant ThermaRex jacket
- .127" to .250" outer diameter sizes
- 300°C continuous service

ARMORLITE CF



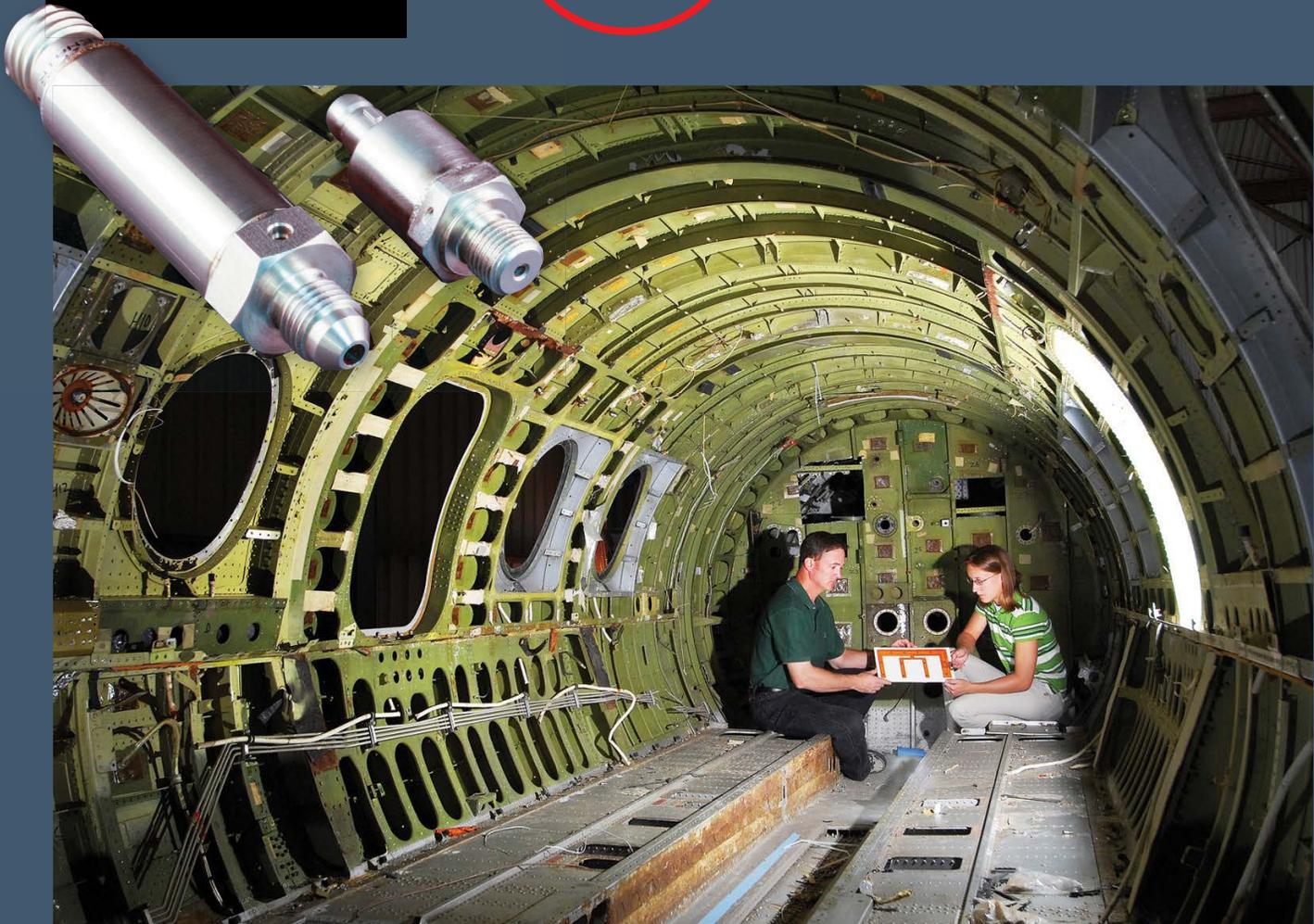
P/N 103-126

- Stainless steel over copper microfilament EMI shield
- High temperature -80°C to 300°C
- Corrosion / harsh environment resistant
- 1000 hour salt spray testing completed
- 70% reduced weight vs. standard braid
- Superb electrical resistance and shielding performance

HARSH
ENVIRONMENTAL
AEROSPACE
CONNECTORS



Reduced form-factor
EMI / RFI filter pressure
transducers



Glenair is the worldwide leader in the design and manufacture of ceramic planar-array filter connectors for the aerospace industry. Glenair pressure sensor transducers integrate our comprehensive in-house filter connector capability with thin film sensor technology for use in fuel systems, hydraulic systems, engine monitors, environmental systems, and other inline applications where accurate and reliable measurement of fluid pressure is a mission-critical requirement.

As a manufacturer of a broad range of military aerospace connectors—from our SuperNine® MIL-DTL-38999 type series to our micro miniature Mighty Mouse series—Glenair is uniquely positioned to supply both standard and lighter-weight, reduced form-factor connectorized transducers for the military and aerospace industries. Our complete in-house capability in connectors as well as thin film transducer technology enables Glenair to offer exceptionally fast turnaround on both made-to-order as well as standard catalog pressure transducers.

Glenair also offers transducers for the oil field industry including specialized devices for use in seismic exploration, wellhead pressure sensing and mud pulse telemetry. These intrinsically safe geophysical industry pressure sensors may be specified with a broad range of filtered interconnect types from MIL-DTL-5015, MIL-DTL-26482 and so on.

- Sealed, welded construction thin film packaging
- Stainless steel diaphragm suitable for all applications
- Extended operating temperature up to 150°C
- High reliability and accuracy $\pm 1\%$ F.S.
- Integral filter elements for EMI protection
- Ultra small form-factor—up to 20% shorter overall length compared to standard solutions
- Qualification per DO-160 pending

MINIATURIZED EMI/RFI Filter Pressure Transducers



For size and weight reduction
aerospace applications

QUALIFICATION TESTING



Glenair pressure transducers have been independently tested and certified per Glenair Qualification Test Plan QTP #367. Testing documentation available upon request.

Test	Per Standard	Result
Workmanship		PASS
Temperature and Altitude	DO-160G, Section 4, Category E2, High Temp = 150 deg C	PASS
Temperature Variation	DO-160G, Section 5, Category A	PASS
Operation Shocks and Crash Safety	DO-160G, Section 7, Category E, Aircraft Type 5, Test Type F	PASS
Vibration	DO-160G, Section 8, Category R, Fixed Wing, Zone 5, Curves E & E1	PASS
Humidity	DO-160G, Section 6, Category B	PASS
Baseline Functionality Testing	Conducted before and after every major test.	PASS

IN-HOUSE TRANSDUCER DESIGN AND DEVELOPMENT



Step 1 Precision-machining of pressure port and stainless steel diaphragm



Step 2 Integration of thin film electronics package



Step 3 Incorporation of housing and electrical EMI/RFI filter connector



Step 4 Laser welding of transducer unit for high-temperature sealed applications

Dramatic size and weight reduction in pressure transducers.
From left to right:

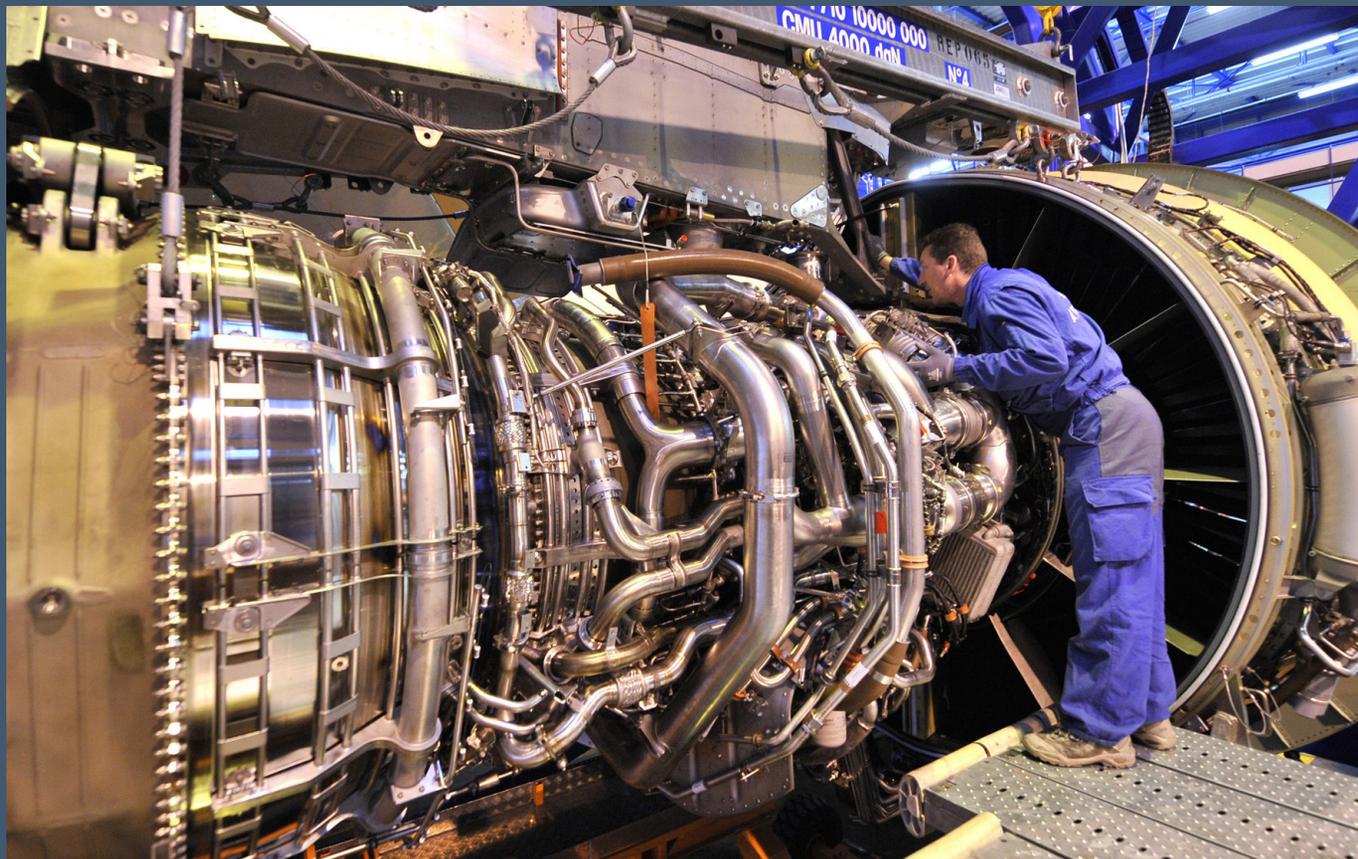
1. Typical inline transducer for general-duty industrial applications
2. Legacy MIL-DTL-38999 form factor transducer
3. Innovative reduced form-factor transducer with Glenair EMI/RFI SuperNine® filter connector
4. Series 80 Mighty Mouse locking push-pull transducer with additional size/weight reduction.



SPECIAL PURPOSE
AEROSPACE
CONNECTORS
AND CONTACTS



Backup and integrated
drive generator connectors
for power distribution
applications



PowerLoad™ is a high-vibration, high-temperature resistant connector series designed for high altitude aircraft power distribution applications. An innovative combination of low-resistance contacts and a one-piece composite thermoplastic insulator with aggressive contact cavity isolation results in a reliable high-current solution that optimizes wire-to-contact termination and weight reduction in power distribution cables. Designed for use in integrated drive generator and backup generator applications, PowerLoad is available in three- and six-contact layouts for both multiphase and high-frequency power systems. Removable wire-sealing grommet and wire separator allow for easy rear release of contacts and improved sealing of tape-wrapped wire.

- PowerLoad 28-6 layout connector is rated at 500 volt at 50,000 ft. with a current of 45 amps per contact with 3 phase power in parallel at high frequency
- Available configurations include a high-vibration self-locking coupling nut plug, panel-mount receptacle with stub-ACME mating threads, and bulkhead feed-thru for firewall applications
- Aluminum class connectors are rated to 200°C operating temperature; passivated stainless steel designs rated to 230°C



HIGH PERFORMANCE PowerLoad™ Series



Aircraft power distribution connectors

POWERLOAD™ AVAILABLE CONFIGURATIONS



Panel-mount receptacle with integrated wire sealing backshell



Cable plug with high-vibration coupler and ground spring



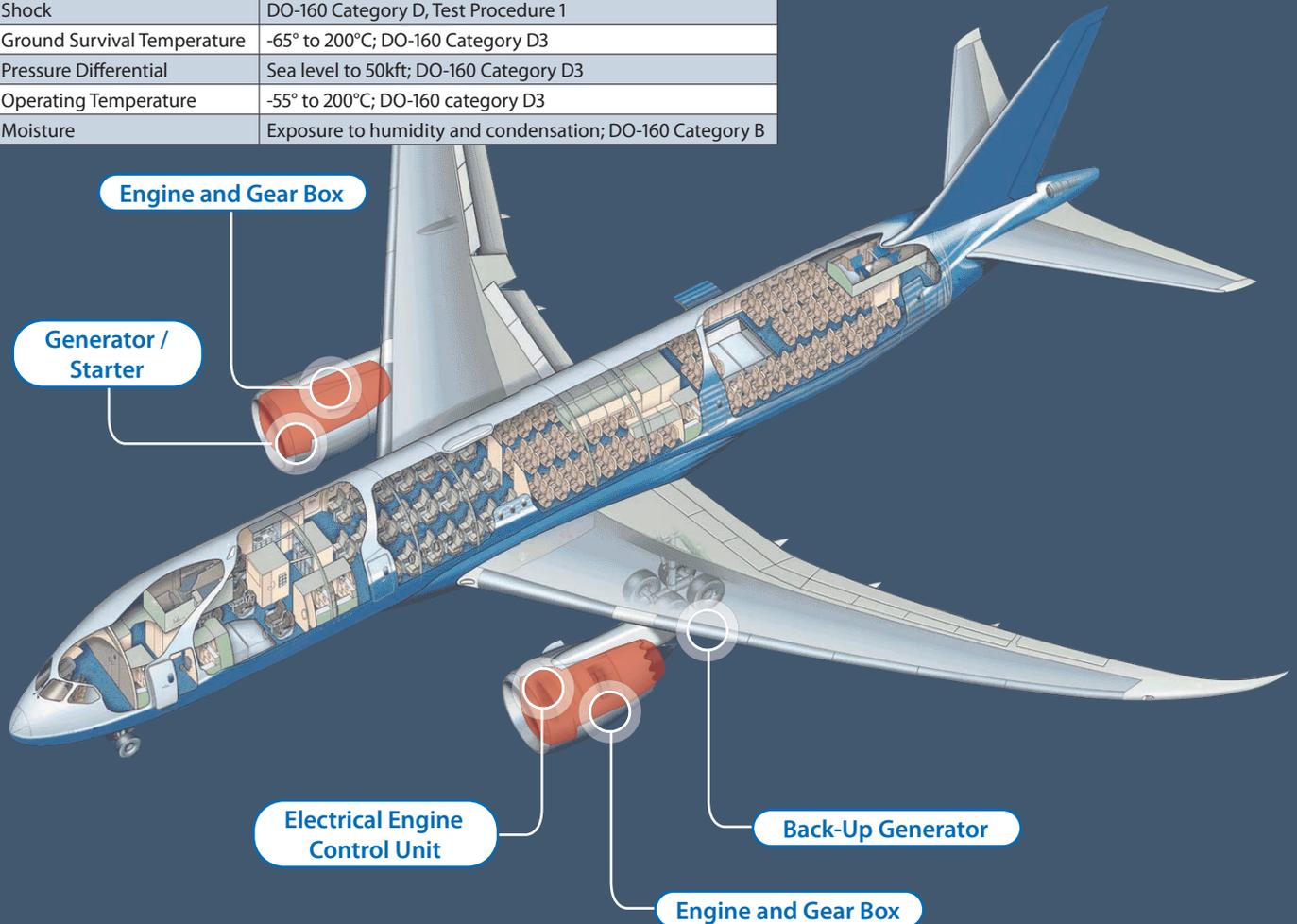
Bulkhead feed-thru for firewall applications

AVAILABLE INSERT ARRANGEMENTS

- Six size #8 contacts
- Three size #2 contacts
- Three size #1/0 contacts

PURPOSE-DESIGNED FOR AIRCRAFT ENGINE AND GEAR BOX ZONE

Aircraft Engine Zone 4 Performance Requirements	
Environmental Stress Factors	Applicable RTCA/DO-160 Requirements
Vibration	DO-160 Category S and H (Table 8-1)
Shock	DO-160 Category D, Test Procedure 1
Ground Survival Temperature	-65° to 200°C; DO-160 Category D3
Pressure Differential	Sea level to 50kft; DO-160 Category D3
Operating Temperature	-55° to 200°C; DO-160 category D3
Moisture	Exposure to humidity and condensation; DO-160 Category B



SPECIAL PURPOSE
AEROSPACE
CONNECTORS
AND CONTACTS

GateLink Pro™



GateLink Pro™
High-Speed Data
Uplink Connector



Environmentally-sealed breakaway design for high-speed data transfer between terminal gate and aircraft

Gateline Pro™ connectors are exactly designed to meet the needs of airport terminal-to-aircraft data uplinks. The IP68 sealed receptacle connector on the aircraft is designed for low profile environmental performance (available ProSeal™ protective cover adds additional environmental protection). Plug connectors are ruggedized for rough handling with pogo pin contacts and retention springs recessed deep into the plug to prevent damage. Designed for fast and reliable high-speed Ethernet data transfer up to 1Gb / second. Turnkey overmolded cable assemblies as well as discrete connectors and environmental shrink boots are available.



- Durable pogo pin contact system rated to tens of thousands mating cycles
- Sealed receptacle available with ProSeal spring-action protective cover
- Straight or right-angle AutoShrink wire protection boots or rugged overmolded plug assemblies for reliable environmental protection

IP68 SEALED GateLink Pro™



High-speed data uplink connector

GATELINK PRO APPLICATIONS AND SOLUTIONS

Wired datalink interconnect access to the aircraft from the airline terminal gate supports various information domains and data types including aircraft traffic control, airline information services, passenger entertainment, weather, and so on. Airline operating center applications (flight plans, schedules, advisories) are quickly and reliably uploaded to the aircraft during turnarounds at the gate. Mechanical and environmental damage to the datalink interface is a common problem solved by GateLink Pro.



Overmolded environmental plugs and hybrid GateLink Pro to RJ45 cable sets



IP68 sealed receptacle with integrated ProSeal™ protective cover and Autoshrink™ environmental sealing / strain relief boot.



Mated GateLink Pro™ plug and receptacle cordsets with shielded twisted pair cabling. Plug side features environmental overmolding, receptacles side utilizes strain relief boot

GATELINK PRO SPECIFICATIONS



Voltage rating	500 VAC
Current rating	5 amps
Contact resistance	20 milliohms maximum
Plug-to-receptacle ground resistance	<5 milliohm
Maximum wire size	#24 AWG
Insulation resistance	5000 megohms min.
Water immersion	MIL-STD-810 Method 512, one meter for one hour
Durability	2000 mating cycles
Corrosion resistance	1000 hours
Sine vibration	EIA-364-28 condition IV, 20g peak
Random vibration	EIA-364-28 condition V letter H, 29g rms
Shock	EIA-364-27 condition D, 300g peak
EMI shielding effectiveness	40 dB minimum to 10 GHz

GATELINK PRO AVAILABLE ACCESSORIES

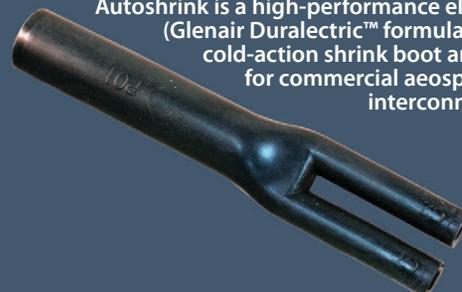
LEONARDO'S
PROSEAL
spring-action protective covers



Anti-vibration and shock spring-action solution •
Self-aligning environmental seals

AUTOSHRINK™

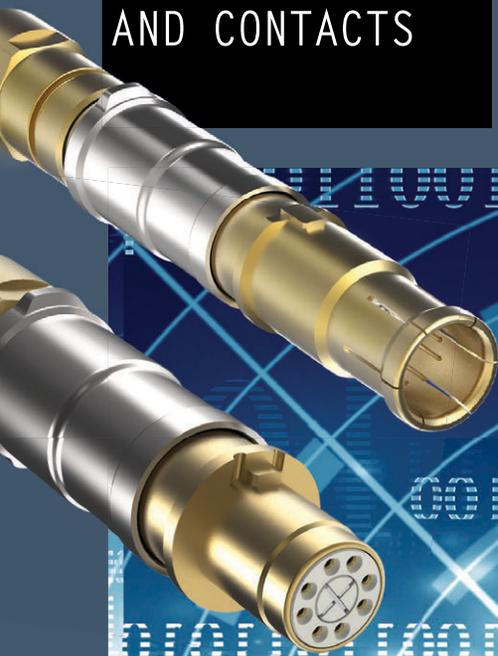
Autoshrink is a high-performance elastomeric material (Glenair Duralectric™ formula polymer GPS67) cold-action shrink boot and jacket solution for commercial aerospace electrical wire interconnect systems



SPECIAL PURPOSE
AEROSPACE
CONNECTORS
AND CONTACTS

El Ochito®

High-speed octaxial contacts for Ethernet, USB 3.0 and other multi-gigabit protocols



High speed, harsh environment El Ochito® octaxial contacts save size and weight. Suitable for aircraft avionics, weapons systems, satellites, radars, communications equipment and other aerospace/defense gear, El Ochito® contacts are optimized for drop-in use in all connector packages with keyed size #8 contact cavities, including MIL-DTL-38999, ARINC 600, Series 80 Mighty Mouse, Series 791 Micro-Crimp, and others.

- 10GbE, SuperSpeed USB, and multi-gigabit shielded pairs
- Universal drop-in for keyed size #8 connector cavities
- Data-pair isolation for optimal signal integrity
- Crimp or threaded shield termination contact types
- Snap-in, rear release
- Environmentally sealed
- Aerospace-grade cable assemblies
- 50% cable / contact reduction compared to Quadrax



El Ochito® White

10G Ethernet
1000BASE-T
10GBASE-T
10Gbps / 100 Ohms



El Ochito® Blue

SuperSpeed
USB 3.0
Aerospace-grade
5Gbps / 90 Ohms



El Ochito® Red

HDMI
SATA
DisplayPort
5Gbps / 100 Ohms

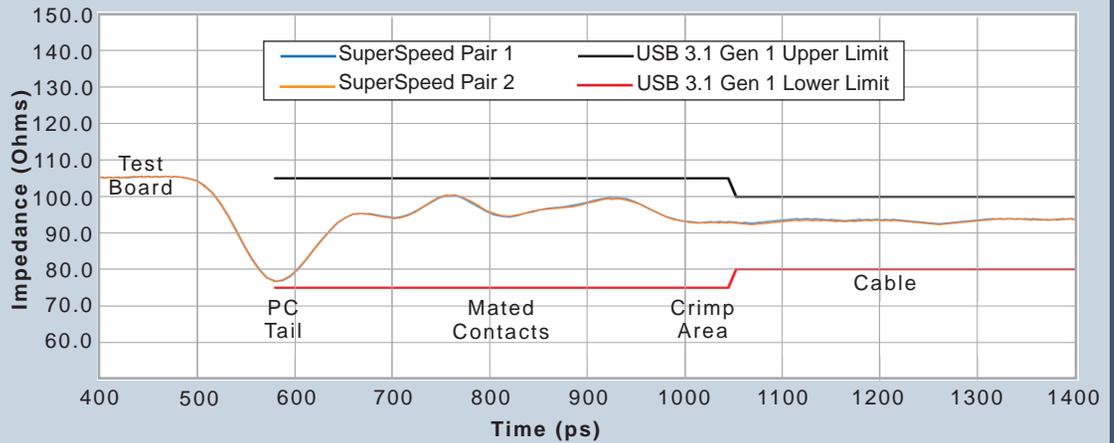
El Ochito®: The Ultimate Shielded High-Speed Data Contact



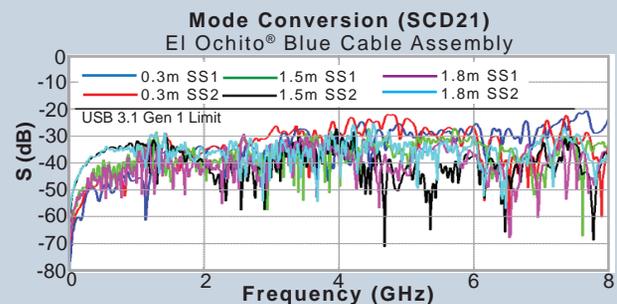
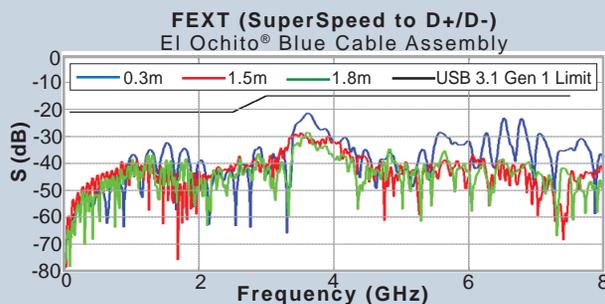
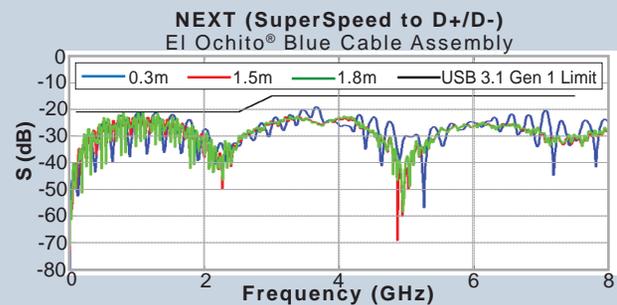
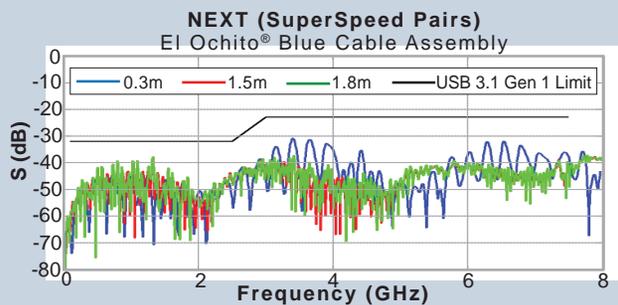
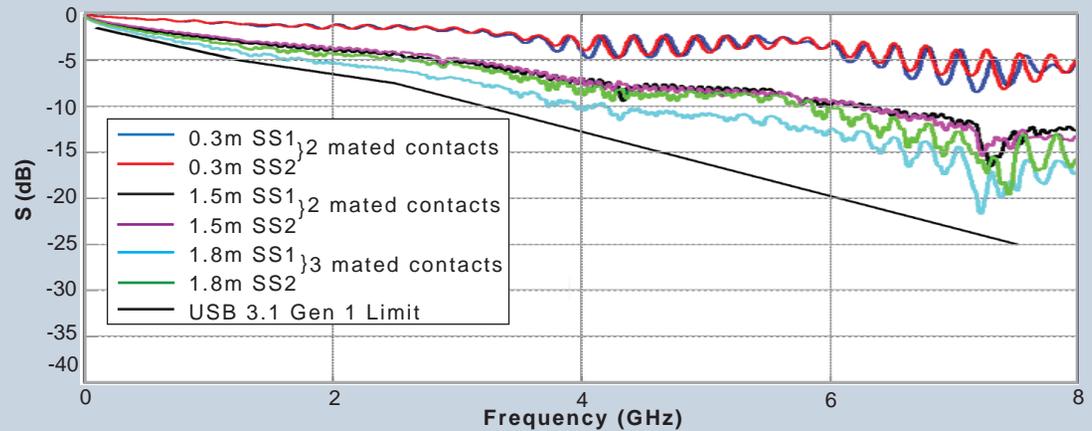
Now available for SuperSpeed USB 3.0 and HDMI

SuperSpeed USB 3.0 Compliance Testing for El Ochito® Blue

TDR Profile
50ps RT 20%-80%
El Ochito® Blue
PC tail contact to
Cable Assembly



De-Embedded Insertion Loss
El Ochito® Blue
Cable Assembly



SPECIAL PURPOSE
AEROSPACE
CONNECTORS
AND CONTACTS

SUPERFLY DATALINK



The Nano Miniature 10 Gigabit Ethernet and
SuperSpeed USB Connector for Harsh Environments



High speed, harsh environment SuperFly® Datalink connectors—optimized for 10Gb Ethernet and SuperSpeed USB protocols—save significant size and weight compared to Quadrax. Suitable for aircraft avionics, weapons systems, satellites, radars, communications equipment and other aerospace/defense gear, Octaxial SuperFly® Datalink connectors bring superior EMC shielding, environmental protection, and signal integrity to mission-critical mil-aero applications.

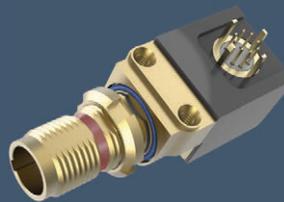
- Ultra-small size
- Shielded Octaxial contacts
- Up to 5 Gbps
- 10Gb Ethernet and SuperSpeed USB
- Environmentally protected
- Aerospace-grade performance



**SuperFly Datalink
White**
10G Ethernet



**SuperFly Datalink
Blue**
SuperSpeed USB



**Conformal-coating-
compliant panel
mount connectors**

Panel mount SuperFly Datalink receptacles feature straight or right angle printed circuit terminals. Watertight even when unmated, SuperFly Datalink jacks are epoxy-sealed and are compatible with conformal coatings.



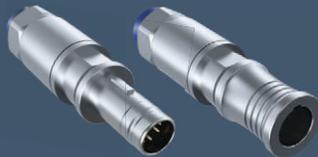
**PARYLENE
COMPATIBLE**

SERIES 882 SuperFly® Datalink



The high-speed nano miniature connector for harsh environments

CONNECTOR CONFIGURATIONS



Quick Disconnect



Threaded Coupling



Straight PC Tails



Right Angle PC Tails

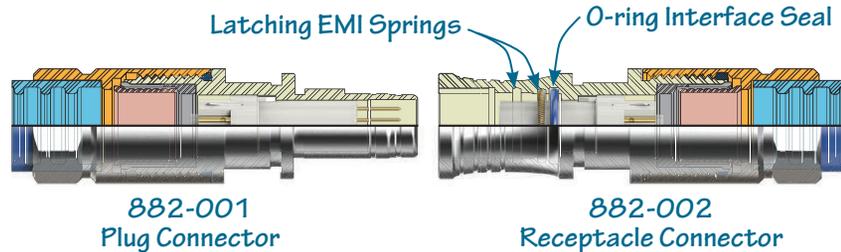
Quick-disconnect “push-pull” versions are ideal for tactical gear. Threaded-coupling versions are intended for aircraft and space-grade applications where secure mating is a requirement.

FLIGHT-GRADE SHIELDED WIRE AND CABLE

Aerospace-grade pre-wired cable assemblies, single-ended, point-to-point, and commercial USB / RJ45 jumpers available as easy-to-order catalog solutions. A range of SAE AS6070 qualified cables for SuperSpeed USB and 100 Ohm Cat 6A Ethernet also available for customer wire-to-connector termination.

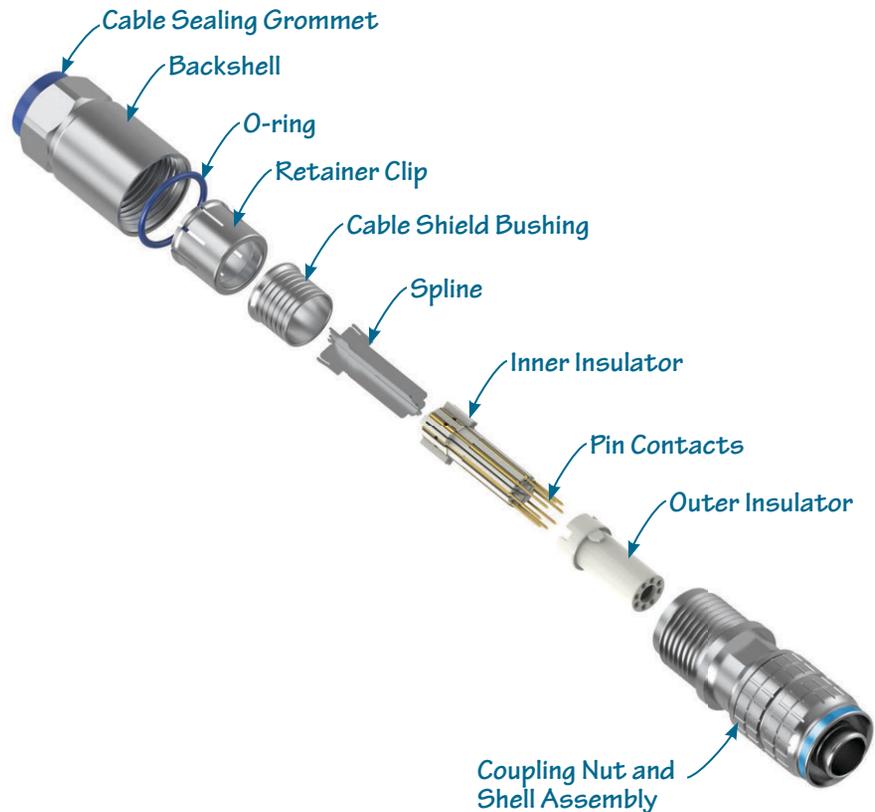


Push-Pull Quick-Disconnect



Push-pull SuperFly Datalink receptacle connectors feature two canted coil springs for secure mating and excellent EMI protection. A fluorosilicone O-ring provides watertight sealing when mated.

Cable Connector



Cable connectors feature gold-plated crimp contacts, precision insulators, integral backshell, sealing grommet and machined shells. Cable connectors are available as unassembled kits or ready-to-use factory-terminated cordsets.

SPECIAL PURPOSE
AEROSPACE
CONNECTORS
AND CONTACTS



Crimp wire termination
solution saves time and labor
over manual D0150 splicing



Glenair SpliceSaver™ reduces manual wire splice and terminal block operations

SpliceSaver™ is an innovative interconnect technology developed by Glenair for use in aircraft wiring operations that rely on heat shrink splicing of aircraft signal, sensor, and data transmission wiring. Single-piece SpliceSaver designs allow remote harness assembly facilities to pre-terminate each line with a crimp-and-poke contact. During aircraft wire harness installation, cabling is routed to interconnection points and the contact-equipped wires are quickly and easily installed into the lightweight single-piece SpliceSaver connector. Two-piece Spiralock® SpliceSaver designs enable the harness facility to terminate wires to the small form-factor, lightweight “connector” for subsequent mating on the aircraft. A special bussed version is also available. All SpliceSaver styles feature integrated banding platforms for the termination of EMI shielding utilizing qualified banding technology—one-piece design features three platforms for termination at both ends and in the center. Compared to legacy terminal blocks and wire splice technology, SpliceSaver offers faster, cleaner, and more reliable routing and termination of discrete wiring.



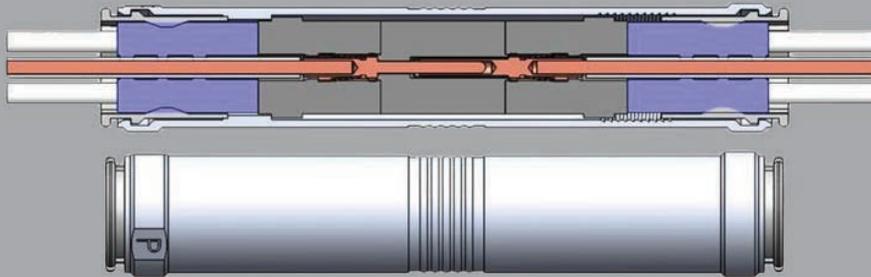
- Lightweight construction
- Conductive (plated) or non-conductive versions
- Crimp contact technology: front release/rear removal
- Three to nineteen circuits per unit
- Environmentally sealed
- Full-mate indicator
- Replaces labor-intensive terminal blocks and splices

TIME SAVING · LABOR SAVING · WEIGHT SAVING

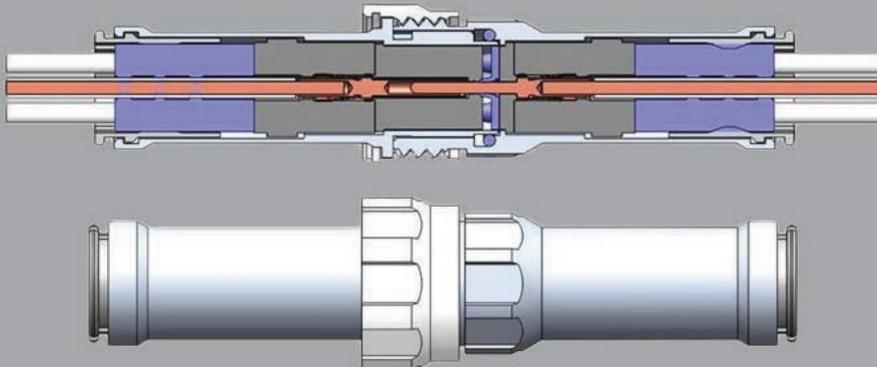
SpliceSaver™ Fast and reliable replacement for wire splice and terminal block technologies



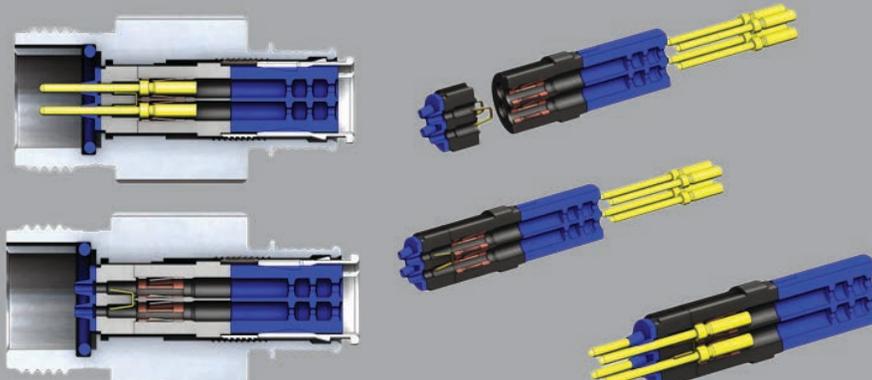
SPLICESAVER AVAILABLE CONFIGURATIONS—FEATURES AND SPECIFICATIONS



Single-Piece



Spirallock® Threaded



Bussed

- Triple ripple grommet wire seal for sealing at high altitude
- Machined contact utilizes mil-spec crimp tooling
- Contacts are removable allowing corrections to circuits during testing if required

SpliceSaver™ Specifications

Altitude immersion:
75,000 ft.

DWV rating at altitude:
>800 V

Dielectric Withstanding Voltage Ratings:
22AWG = 5 amps/contact
20AWG = 7.5 amps/contact

Material and finish options
(for compatibility with available EMI/RFI braid materials):
Cadmium-plated aluminum
Nickel-plated aluminum
Nickel-plated brass

SpliceSaver™ Weight Analysis

Receptacle connector:
1.6 grams including contacts and seals

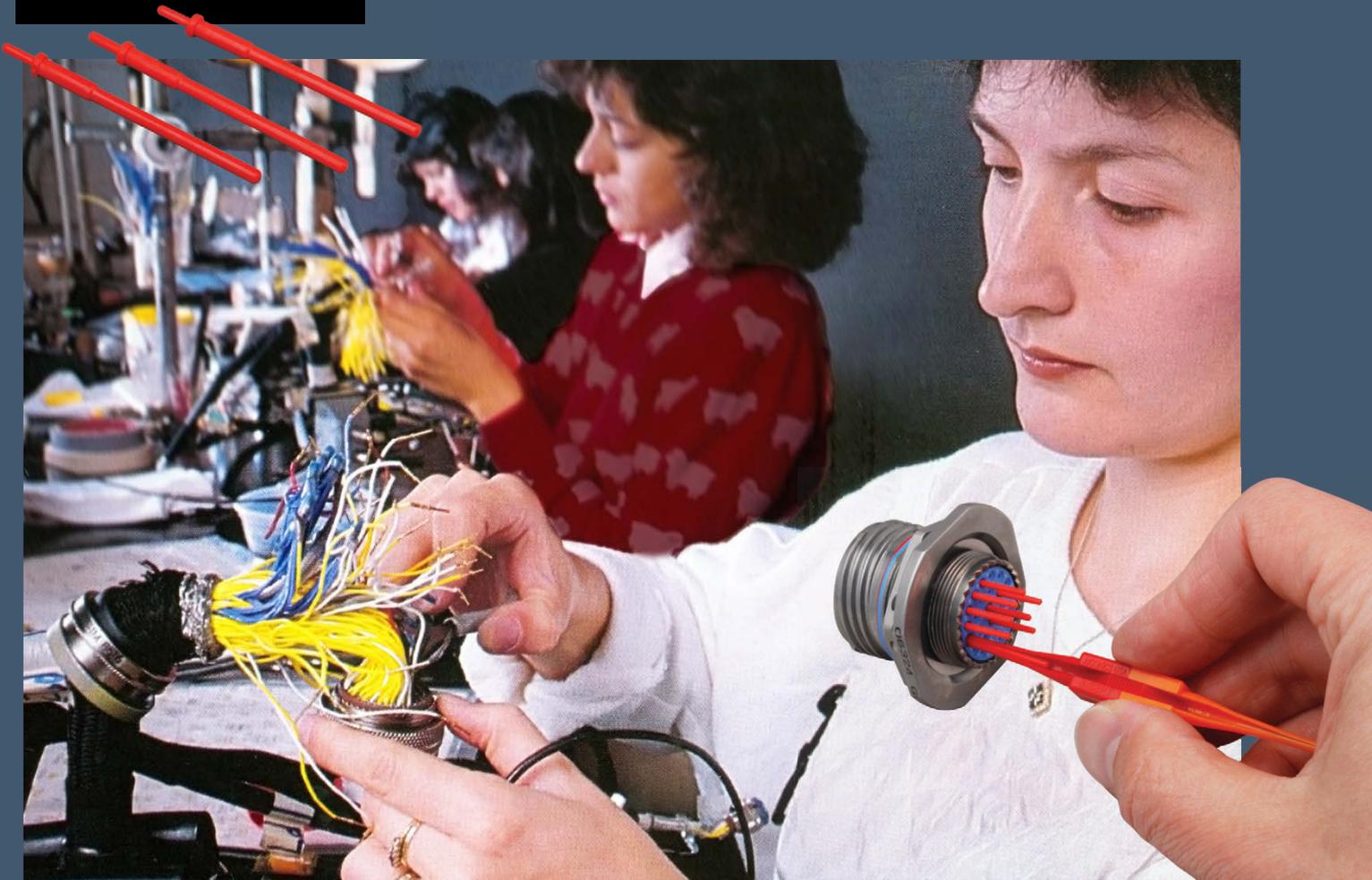
Plug connector:
1.66 grams including contacts and seals

Total connector mass:
5.66 grams (all contact locations installed)

Accessories: Add the variable mass of two or three nano bands trimmed to length of grooves in the split sleeve

SPECIAL PURPOSE
AEROSPACE
CONNECTORS
AND CONTACTS

Weight / Cost-Saving Dummy Contact Sealing Plugs (DCSP)



For reliable sealing of unused contact cavities—without the use of electrical contacts

The use of color-coded M27488 type plastic sealing plugs in unused contact cavities is a requirement in all environmental interconnect applications (IAW NA01-1A-505-1, WP 007 00 or 020 00). Conventional sealing plugs, combined with the connector grommet seal, provide reliable dust and moisture ingress protection. But common contact sealing plugs still require that a properly-sized electrical contact be first inserted into the cavity, followed by the plastic plug. Glenair innovative Dummy Contact Sealing Plugs (DCSP) eliminate the need to use expensive electrical contacts as part of the sealing regimen. Fast and easy-to-install, these longer form-factor Dummy Contact Sealing Plugs (DCSP) are a one-piece solution to contact cavity sealing that results in significant weight reduction, material cost reduction, and assembly labor. Available in Size #22 to Size #8, for connector series D38999, EN4165, Series 800 Mighty Mouse, EN4644 and ARINC 600, Glenair Dummy Contact Sealing Plugs reduce weight as much as 90% compared to conventional contact/sealing plug configurations.

- Powerful tool in Electrical Wire Interconnect System weight reduction
- Eliminates use of expensive electrical contacts for sealing-only applications
- Leverages connector contact clip for secure retention of the sealing plug—no FOD
- Easy-to-install single piece design
- Visible quality control / confirmation of cavity fill from back of connector
- EWIS compliant test report GT 15-106 available

WEIGHT / COST-SAVING

Dummy Contact Sealing Plugs (DCSP)

for reliable sealing of unused contact cavities



Connector Series / Size / Color Code / Part Number Selection							
Connector Series	Crimp Removable Contact Cavity Size						
	23	22	20	16	12	8	8 w/ Boot
D38999 Series I, III, IV	680-116-23	680-116-22	680-116-20	680-116-16	680-116-12	680-116-8	680-116-8B
D38999 Series II							
EN4165							
Series 800-805 Mighty Mouse							
EPX		680-116-22	680-117-20			680-117-8	680-117-8B
ARINC 600							
Series 806 Mighty Mouse Mil-Aero		680-120-22HD	680-120-20HD				



1. Insert Dummy Contacts into unused contact cavities.
 - A. Dummy Contacts may be installed using contact insertion tool, needle nose pliers or by hand (space permitting).
 - B. Isopropyl alcohol may be used to facilitate insertion of Dummy Contacts.
2. Push Dummy Contact into cavity until flange locks into contact retention clip.
3. Attempt to pull Dummy Contact from connector body to ensure full retention.

Important note: Size #22 Dummy Contacts In 38999 socket cavities

4. Dummy Contact shall only be inserted into cavity far enough to engage retention clip.
5. Pull Contact back for maximum tail exposure.

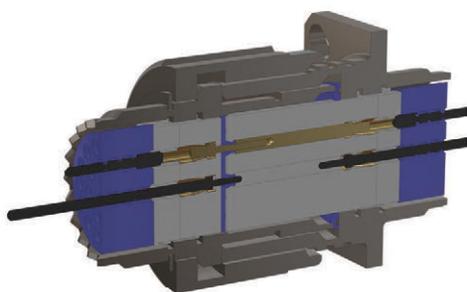
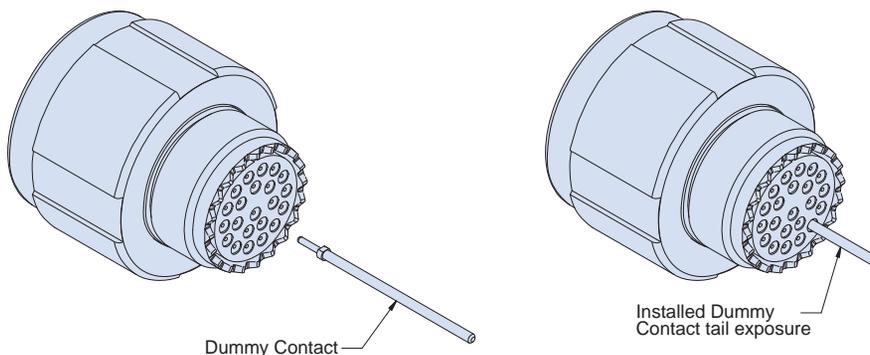
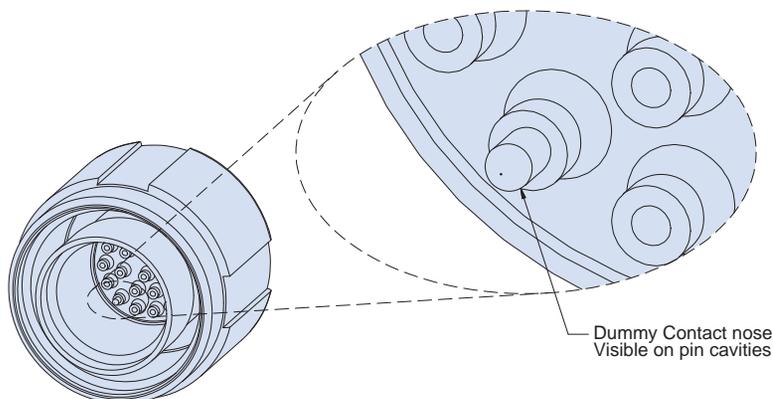


Illustration shows conventional sealing plug / contact configuration (top) and long form-factor Dummy Contact Sealing Plugs (bottom).



ADVANCED
PERFORMANCE
CONNECTOR
ACCESSORIES



IP67 and IP56 rated
for mission-critical
mil-aero applications



High-performance military and commercial interconnect applications employ protective covers to seal unmated receptacles from sand, dust, and moisture ingress, as well as other forms of environmental and mechanical damage. ProSeal protective covers are mounted directly to panels and electronic equipment housings to enhance the reliability and consistent use of connector covers. Spring-action equipped ProSeal covers are available for every military QPL and Glenair signature connector series, and are supplied in a broad range of designs to meet every application requirement.

- Anti-vibration and shock spring-action solution
- IP67 (dust / immersion) and IP56 (dust / water jet) ingress protected designs
- Self-aligning environmental seals
- Lock in open position or automatic closure
- Compatible with a broad range of military standard and commercial connectors including D38999 Series I, II, III, Mighty Mouse Series 801, 804, 805, and 806, MIL-DTL-24308 and more



IP67 AND IP56 RATED
ProSeal spring-action protective covers
for mission-critical mil-aero applications



ROBUST ENVIRONMENTAL SEALING



Self-aligning gimbal-action face seal



Anti-vibration and shock spring-action performance



Full environmental threaded / twist-lock seal

RUGGED MECHANICAL PERFORMANCE



Dual-action mechanism: cover locks in open position and holds tight in closed position



ProSeal cover shares connector mounting holes and hardware

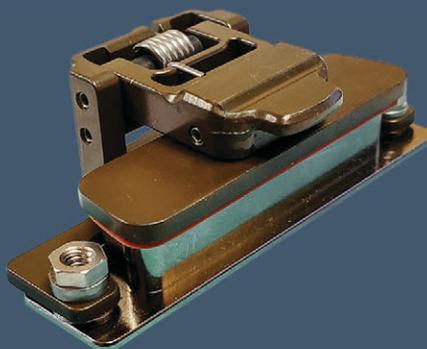


Jam nut and wall mount configurations available in all styles

VERSATILITY OF DESIGN



Suitable for all circular designs including commercial USB / RJ45 interfaces



Rectangular connector designs with convenient thumb tabs

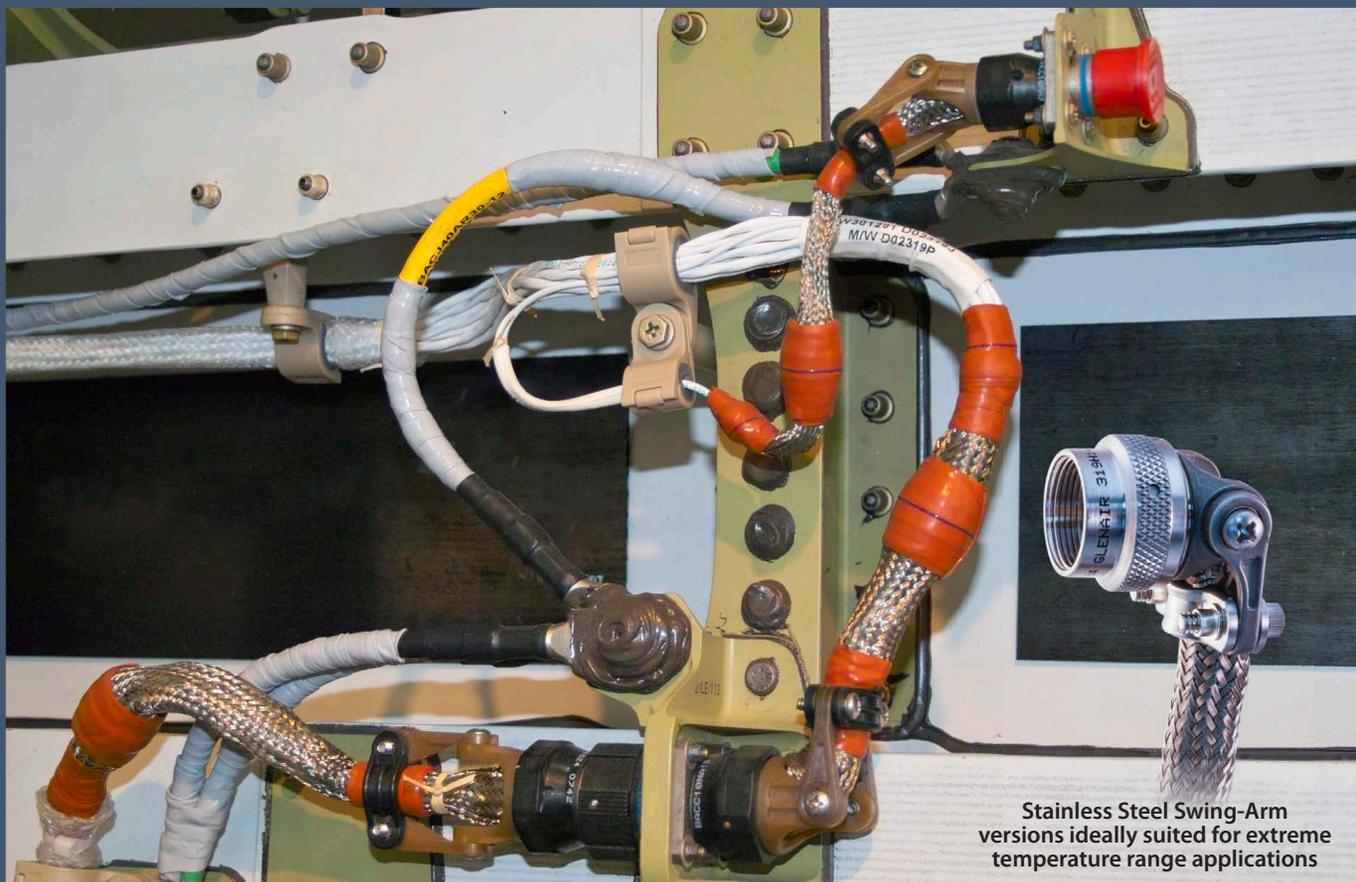


Low-profile non-locking designs for use with recessed quick-disconnect connectors

ADVANCED
PERFORMANCE
CONNECTOR
ACCESSORIES

SWING ARM®

3-in-1 lightweight composite or stainless steel backshell with optional drop-in braid termination follower



Stainless Steel Swing-Arm versions ideally suited for extreme temperature range applications

Glenair's composite Swing-Arm® strain relief backshell is a lightweight and corrosion-free cable clamp with cable shield termination options for a wide range of EWIS applications. This innovative backshell has become the standard shield termination device for weight reduction in military and commercial airframe applications. Made from temperature-tolerant composite thermoplastic, rugged Swing-Arm® backshells offer easy installation, long-term performance, and outstanding weight and SKU reduction. Performance tested to stringent AS85049 mechanical and electrical standards and available for all commonly-specified mil-standard and commercial cylindrical connectors including MIL-DTL-38999 and Glenair Series 806 Mil-Aero connectors.

Introducing Swing-Arm FLEX®, Glenair Next-Generation Composite Swing-Arm® Strain Relief

- Significant weight reduction: no saddle bars or hardware
- Rapid assembly: cable self-centers on bundle, little or no wrapping tape required
- Braid sock and drop-in band termination follower versions for EMI/RFI applications
- Internal conductive ground path



SWING ARM®
COMPOSITE THREE-IN-ONE BACKSHELL
FLEX

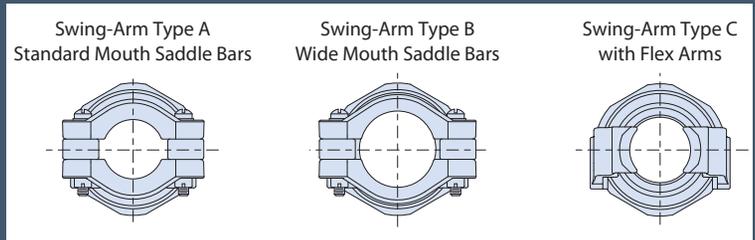
User-configurable straight, 45°, and 90° cable routing

Swing-Arm 3-in-1 lightweight composite or stainless steel strain-relief and EMI/RFI shield termination backshell



THREE STYLES OF SWING-ARM STRAIN RELIEF CLAMPS

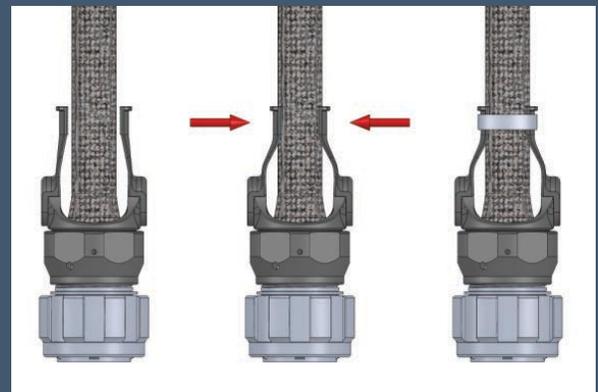
- Style A - standard mouth, rigid saddle bars
- Style B - wide mouth (for larger cable diameters), rigid saddle bars
- Style C Swing-Arm FLEX - no saddle bars, self-centering round cable strain relief



SWING-ARM VERSATILITY: FROM SIMPLE CABLE STRAIN RELIEF TO EMI/RFI SHIELD TERMINATION



Fast and reliable termination of individual wire and overall EMI cable shielding with industry-standard Band-Master ATS® tools and straps. New slim profile bands eliminate sharp strap cutoff for improved safety.



DROP-IN FOLLOWER FOR DIRECT TERMINATION OF OVERALL OR INDIVIDUAL WIRE SHIELDING

Two drop-in-follower designs, solid and slotted are available for all Swing-Arm styles (A, B, and C).



SWING-ARM AND SWING-ARM FLEX WITH OPTIONAL INTEGRATED SHIELD SOCK

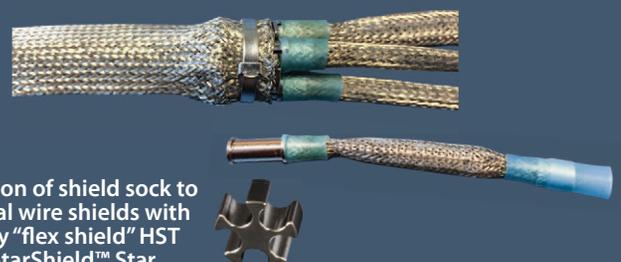
For fast and reliable EMI/RFI shield termination of individual wire and overall cable shielding



SWING-ARM SHIELD SOCK TERMINATION OPTIONS, STANDARD SPLIT RING OR STARSHIELD STAR



Termination of shield sock to cable shield with split support ring



Termination of shield sock to individual wire shields with auxiliary "flex shield" HST and StarShield™ Star

AUTOSHRIK™

Fast and easy cold-action shrink boot and tubing solutions



Designed for rugged weathering, UV and ozone-resistant performance, Glenair Autoshrink is the one-piece easy-action shrink boot and tubing solution. Quickly attach shrink boots, splice insulation, or repair Glenair Duraelectric formula jacketing. Straight, 45° and 90° angle lipped shrink boots lock into boot groove on adapters to keep out environmental debris. Universal design Autoshrink tubing delivers reliable and durable sealing as well as mechanical protection for cable-end terminations in harsh military and industrial applications. Built from Glenair Duraelectric formula material, Autoshrink is fully hydrophobic and resistant to caustic chemicals and solvents. Easy-action spiral hold-out and large cold shrink ratio makes for fast installation and durable, split-resistant performance.

- Straight, 45° and 90° angle-lipped shrink boots and shrink tubing
- Fast and easy installation
- Four high-performance material types
- Fire-resistance in all material types
- Reliable IP68 sealing
- 3000 VAC rated
- Multiple color options
- Service temperature range: -65°C to 300°C
- Ideal for repair of cables and conduit with Duraelectric jacketing
- Extreme UV / sunlight resistance
- Integrated ground strap versions available



Mil-Aero / Industrial fluid-resistant lipped shrink boots

Fast and easy repair of Duraelectric-jacketed cables

Utilize for termination of lugs on new installations

Cold-Action Shrink Boots and Tubing



Four material types for high UV plus LSZH, fluid resistance, temperature tolerance, and subsea use

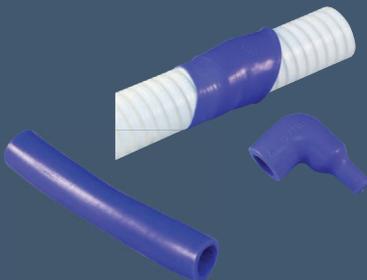
AUTOSHRINK D UV-RESISTANT / LSZH SHRINK BOOTS AND TUBING



Autoshrink D is a high-performance elastomeric material (Glenair Duraelectric™ formula polymer GPS67) cold-action shrink boot and jacket solution for general-purpose use in military and commercial aerospace electrical wire interconnect systems and other harsh wire protection, sealing, and repair applications.

- Service temperature range: -65°C to 225°C
- Fire resistant and Low smoke-zero halogen (LSZH)
- General-purpose resistance to common aerospace, military and industrial fluids
- Tubing available with integrated ArmorLite ground strap

AUTOSHRINK F ADVANCED FLUID RESISTANT SHRINK BOOTS AND TUBING



Autoshrink F is a high-performance elastomeric material (Glenair Duraelectric™ formula polymer GPS125) cold-action shrink boot and jacket solution for application-specific use in military and commercial aerospace electrical wire interconnect systems and other harsh wire protection, sealing, and repair applications. Autoshrink F is highly resistant to aircraft industry jet fuels, oils, solvents, and cleaners.

- Service temperature range: -65°C to 200°C
- Fire resistant and suitable for immersion in jet fuel, diesel, lubricants, and solvents

AUTOSHRINK S SUBSEA SHRINK BOOTS AND TUBING



Autoshrink T is a high-performance rubber material (Glenair ThermaRex formula GPS139) cold-action shrink boot and jacket solution for use in high-temperature applications in military and commercial aerospace electrical wire interconnect systems and other harsh-environment wire protection, sealing, and repair applications.

- Service temperature range: -65°C to 300°C
- Fire resistant and low smoke-zero halogen (LSZH)
- Resistant to common aerospace, military and industrial fluids

AUTOSHRINK T HIGH-TEMPERATURE-TOLERANT SHRINK BOOTS AND TUBING



Autoshrink S is a high-performance polymer material (Glenair Subsea formula GPS153) cold-action shrink boot and jacket solution for use in high-pressure applications such as underwater oil & gas industry electrical wire interconnect systems and other subsea harsh-environment wire protection, sealing, and repair applications.

- Service temperature range: -40°C to 100°C
- Low smoke-zero halogen (LSZH)
- Resistant to common industrial and environmental fluids

ADVANCED
PERFORMANCE
WIRE MANAGEMENT
SOLUTIONS



The ultra
flexible and
rugged power
cable solution



TurboFlex® power distribution cables are constructed from highly flexible conductors and high-performance insulation to produce cables ideally suited for applications where flexibility, durability, and weight reduction are required. Amazingly durable and flexible—especially in cold weather—the 16 AWG to 450 MCM TurboFlex cable features high strand count rope lay inner conductors made with tin-, nickel- and silver-plated copper. TurboFlex is jacketed with Glenair's unique Duraelectric™ compound that provides outstanding flexibility and resistance to environmental and chemical exposure. Duraelectric is also low smoke, zero halogen. Long life and performance are critical in power distribution applications. TurboFlex, with its flexible conductors and durable jacket delivers both.



Available in a broad
range of gages,
16 AWG to 450 MCM



Many sizes In-stock and available for
immediate, same-day shipment. No
minimums!



◀ Duraelectric™ is the high-performance TurboFlex® jacketing material perfectly suited for immersion, chemical or caustic fluid exposure, temperature extremes, UV radiation and more—available in a broad range of colors including safety orange

TurboFlex ultra-flexible power distribution cable



Environmental performance · voltage rating data
Duralectric™ jacketing specifications and colors

TURBOFLEX CABLE APPLICATION EXAMPLE



This multibranch TurboFlex power and data interconnect assembly for a ruggedized defense application demonstrates the remarkable flexibility and minimal bend radius of large form-factor (up to 450 MCM) TurboFlex cable. Example shown features UV- and chemical-resistant Duralectric jacketing in FED-STD 595C Safety Orange.



Ultra flexible rope lay construction
TurboFlex bend radius is 3X the outer diameter

Voltage Ratings			
P/N	Jacket Wall Thickness	AC Voltage Rating, RMS	DC Voltage Rating
961-004	.032"	2000	2800
961-003	.062"	3000	4200
961-002	.093"	3500	4900
961-001	.125"	4500	6300

Standard catalog product is available with either Tin/Copper, Silver/Copper, or Nickel/Copper conductors, with standard Duralectric™ jacketing in four wall thicknesses. Consult factory for special formula Duralectric™ K, F, and C configurations

TURBOFLEX® WITH DURALECTRIC™ JACKETING: ENVIRONMENTAL PERFORMANCE

Temperature rating: -60°C to 260°C
Halogen free per IEC 60614-1
Accelerated weathering and simulated solar radiation at ground level per IEC 60068-2-5; 56 Days exposure, suitable for greater than 50 years of service in direct sunlight
Flame resistant per IEC 60614-1
Flame resistant per UL 1685, section 12 (FT4/IEEE120), vertical-tray fire-propagation and smoke release test
Flame resistant per FAR 25.853 (A) amendment 25-116, appendix Fpart I (A) (1) (i), 60 second vertical burn test
Limiting oxygen index of 45 per ISO 4589-2:1999
Low smoke per NES 711, smoke density of 11.75
Smoke density class F1 per NF F 16-101 IAW DIN EN 60695-2-11:2011

Low smoke toxicity per NES 713, tested value of 1.9
Fungus rating of 0 per MIL-STD-810g method 508.5. Does not support fungal growth
ASTM D624, die B tear strength, 150 pounds per inch minimum on jacket material
Low outgassing per ASTM e595 after post curing, TML .06%, CVCM .006%, WVR .02%
Resistant to fluids per MIL-STD-810F, method 504 JP-8 per MIL-DTL-83133 (NATO type 34)
MIL-H-5606 hydraulic fluid
MIL-PRF-23699 lubricating oil
MIL-C-85570 cleaner
TT-I-735 Isopropyl alcohol
AMS 1432 potassium acetate deicing/anti-icing fluid
MIL-C-87252 coolant
Amerex AFF fire extinguishing foam

Jacketing Options		
Weatherproof, halogen free, flame resistant, functional to 260°C		
0	Black	Fed-Std-595C #17038
1	Desert Tan	Fed-Std-595C #33446
2	Red	Fed-Std-595C #11120
3	Orange	Fed-Std-595C #12300
4	Yellow	Fed-Std-595C #13591
5	Green	Fed-Std-595C #14193
6	Blue	Fed-Std-595C #15125
7	Violet	Fed-Std-595C #17142
8	Gray	Fed-Std-595C #26270
9	White	Fed-Std-595C #17875

Consult factory for other specific Fed Std colors

Abrasion Resistance	Good
Wear Resistance	Good
Flame Resistance	Excellent
Sunlight Resistance	Excellent
Flex Resistance	Excellent

ADVANCED
PERFORMANCE
WIRE MANAGEMENT
SOLUTIONS

ARMORLITE™

Microfilament nickel-clad expandable stainless steel EMI/RFI braided shielding



Save weight and total cost-of-ownership every time you fly! All-Up-Weight (AUW) has met its match: ArmorLite™ microfilament stainless steel braid saves significant weight compared to standard QQ-B-575/A-A-59569 EMI/RFI shielding, as well as competitor solutions such as 44 AWG NiCu. By way of comparison, 100 feet of 5/8 inch ArmorLite™ is more than four pounds lighter than standard shielding.

ArmorLite™ is an expandable, flexible, high-strength, conductive stainless steel microfilament braid material designed for use as EMI/RFI shielding in high-performance wire interconnect systems. ArmorLite™ is packaged in a wide range of formats including bulk expandable shielding, mesh tape, turnkey backshell shield sock assemblies, factory overbraiding, ground straps, HSTs, and more. ArmorLite™ offers superior temperature tolerance compared to other lightweight tubular braided shielding including microfilament composite technologies. New ArmorLite™ CF offers advanced



New enhanced corrosion resistance ArmorLite™ CF

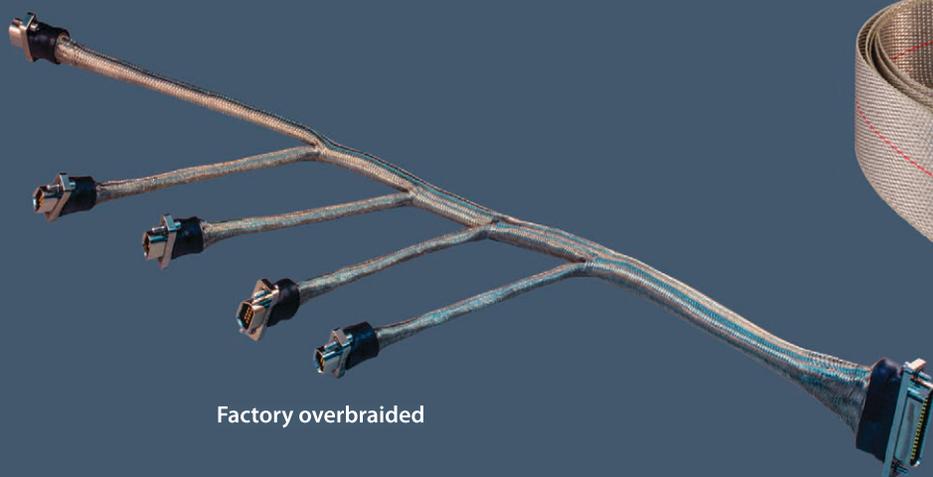
corrosion protection compared to all other shielding types with comparable electrical performance due to its innovative combination of conductive copper filament and stainless steel cladding.

- Ultra-lightweight EMI/RFI braided sleeving for high-temperature applications -80°C to +260°C
- Microfilament stainless steel: 70% lighter than NiCu A-A-59569/QQB575
- Outstanding EMI/RFI shielding and conductivity
- ArmorLite™ CF with enhanced corrosion protection now available
- Superior flexibility and “windowing” resistance: 90 to 95% optical coverage
- 70,000 psi (min.) tensile strength
- Best performing metallic braid during lightning tests (IAW ANSI/EIA-364-75-1997 Waveform 5B)

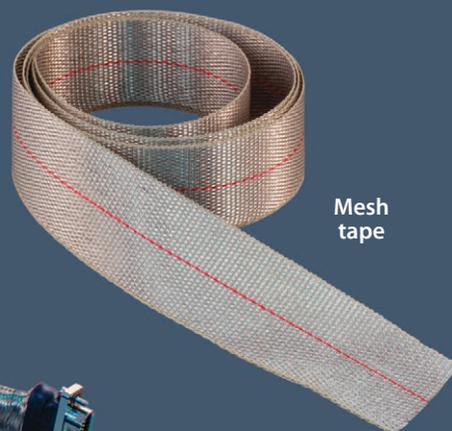
LIGHTWEIGHT, FLEXIBLE
ArmorLite™ Microfilament Braid
for EMI/RFI Shielding Applications



ARMORLITE™ SHIELDING SOLUTIONS AND PACKAGING



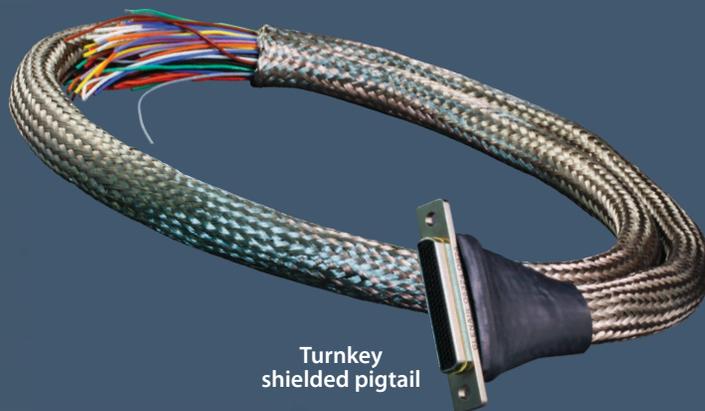
Factory overbraided



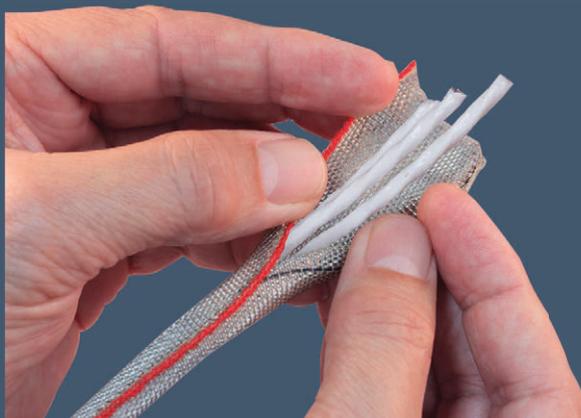
Mesh tape



Integrated shield sock



Turnkey shielded pigtail



MasterWrap



Bulk expandable shielding



Lightweight, flexible ground straps

Ground Straps for electrostatic discharge, lightning strike and power equipment grounding



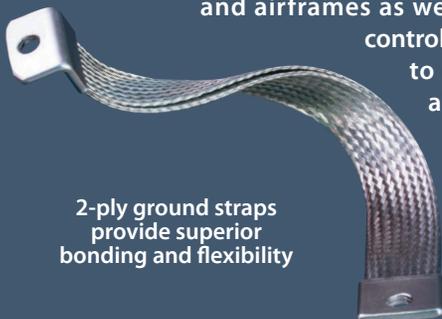
Lightweight microfilament ground strap with ArmorLite™ technology reduces aircraft all-up-weight

A single lightning strike can hit an aircraft with as much as 1,000,000 volts. Static electricity can charge an aircraft, particularly in cold and wet air, with enough electrical potential to result in a discharge that can ignite ground fueling equipment or fry avionics gear. Power generation systems (engines, alternators, starters, etc.) can also produce transient electrical current that can damage adjacent electronic systems.

Damage from these events is minimized and managed in aircraft through the use of electrical bonding. Flexible bonding straps are attached between equipment and airframes as well as between structural elements and flight control surfaces to conduct destructive electrical surges to ground or to bus bar components capable of absorbing significant amounts of transient voltage

Glenair has designed and supplies a broad range of braided and solid material ground straps to both commercial and military aerospace customers. Our ground straps are exactly designed with appropriate conductive and dissipative materials for each application.

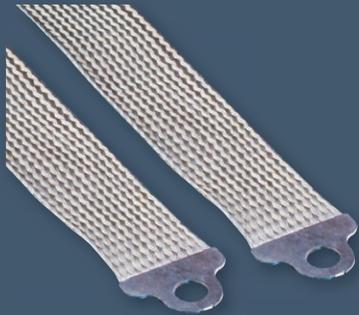
- Ultra-lightweight ground straps with highly conductive or dissipative performance
- Metal-clad microfilament braided solutions
- Significant contribution to weight reduction initiatives in commercial and military aircraft
- Heavy-duty variants for electrical potential grounding from engines, starters, and power units
- Fast turnaround on requests for unusual and build-to-print requirements



2-ply ground straps provide superior bonding and flexibility

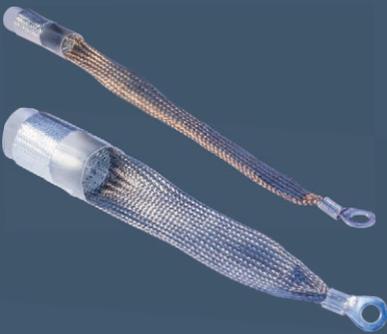


LIGHTWEIGHT ARMORLITE™ MICROFILAMENT GROUND STRAPS



- Ultra lightweight metal-clad stainless steel braid material
- Low-profile lug design and assembly
- Available in seven widths and any length
- Low electrical resistance and high temperature tolerance
- High conductivity-to-weight / material-cross-section ratio
- Corrosion resistant materials for life-of-system durability
- Bend cycle durability up to 250,000 cycles per EN4199-001

LARGE-DIAMETER, LIGHTWEIGHT ARMORLITE™ EWIS GROUNDING HSTs



- Oversized heat shrink termination sleeves for grounding of long-run overbraided EWIS harnesses
- Manufactured in-house by Glenair (made in America)
- Fabricated from lightweight, highly flexible ArmorLite™ microfilament EMI/RFI braid material
- Weight reduction up to 70% lighter compared to legacy NiCu A-A-59569 / QQB575 materials

GROUND PLANE ADAPTER PLATE FOR USE WITH COMPOSITE THERMOPLASTIC PANELS



- Resolves connector-to-panel grounding issues in composite fuselage aircraft
- Fabricated from highly conductive tinned beryllium copper IAW AMS 4530 or ASTM B194 and ASTM B545
- Available for all popular aerospace connectors with straight and 90° ground attachments

FAST TURNAROUND ON UNUSUAL/BUILD-TO-PRINT REQUESTS



Hybrid braid materials and customizable lug material options



Specialized lug configurations including integrated bonding hardware and angled lugs



Heavy-duty braid and lug configurations



Round cross-section braid



Harsh environment and chemical-resistant ground strap jacketing

ADVANCED
PERFORMANCE
WIRE MANAGEMENT
SOLUTIONS



MasterWrap™

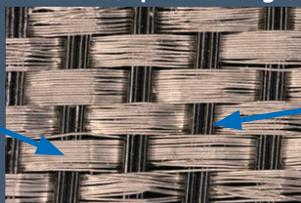
Flexible, lightweight wraparound
EMI/RFI shielding and abrasion
protection material



Tubular braided sleeving meets the broad range of EMC shielding and mechanical protection requirements of aircraft harness assemblies. But the need to apply shielding materials over already-installed aircraft wire and cable bundles requires new technology. Legacy self-wrapping cable braid has long been available for EMI/RFI applications and abrasion protection, albeit with poor performance due to its heavy weight, inflexibility, and “windowing,” which results in poor shielding performance.

MasterWrap™, a lightweight, easy-to-install, side-entry, self-wrapping shielding solution—available in conductive ArmorLite™ and now in abrasion-resistant Nomex®—solves these problems and more. MasterWrap™ is ideally suited for both long-run wire harness protection as well as spot coverage and maintenance of EWIS cable applications—all with outstanding weight reduction and ease-of-assembly. MasterWrap™ ArmorLite™ and MasterWrap™ Nomex® are qualified for use at major aircraft manufacturers for long cable runs, spot coverage, and repairs.

Material design provides uniform surface with limited interference to structures and clamps. Reduces kinking and windowing compared to full metal braid solutions for excellent shielding performance



Interwoven with high-temperature PEEK composite thermoplastic spring members ensure up to 95% optical / mechanical coverage

MASTERWRAP ARMORLITE

- Up to 70% weight reduction
- 500 hour salt spray corrosion resistance
- 50,000 cycle 90°–120° bend flex tested
- Temperature tolerant from -65°C to 200°C

MASTERWRAP NOMEX®

- Soft, abrasion resistant unbonded Nomex® yarn
- -60° to +240°C temperature range
- 90,000 PSI yield tensile strength
- Excellent chemical resistance; will not melt

NEW MASTERWRAP™ WITH NOMEX®

MasterWrap™ Nomex® flexible, lightweight wraparound abrasion / thermal protection



for spot mechanical coverage and repair of wire harnesses

MASTERWRAP (NOMEX®): DIMENSIONAL INFORMATION • HOW TO ORDER



How To Order			
Sample Part Number	103-095	-024	GY
Basic No.	MasterWrap™ (Nomex®) material		
Dash No.	See Table I		
Color option	W = White R = Red GN = Green GY = Gray TN = Desert Tan OR = Orange Omit = for standard Black		

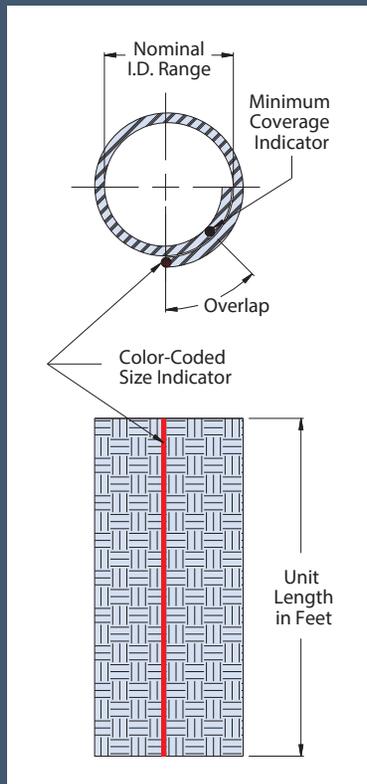
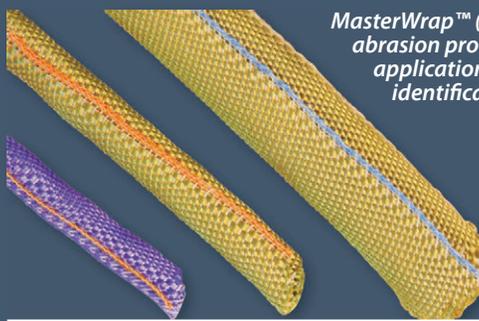


Table I								
Dash No	Nominal I.D. (Ref.)		Ref. Wire Bundle Range Nominal		Approx. Weight Grams/Ft.	Min. Pull Strength (lbs)	Size Indicator color code	Quantity feet/spool
	In.	mm	In.	mm				
004	.125	3.2	.093 .170	2.4 4.3	1.8	39	Black	50-500
008	.250	6.4	.170 .300	4.3 7.6	2.3	75	Brown	50-400
012	.375	9.5	.300 .406	7.6 10.3	3.2	94	Red	50-300
016	.500	12.7	.406 .520	10.3 13.2	3.7	116	Orange	50-250
020	.625	15.9	.520 .675	13.2 17.2	5.0	158	Yellow	50-200
024	.750	19.1	.675 .825	17.2 21.0	6.0	193	Green	50-100
032	1.000	25.4	.825 1.100	21.0 27.9	7.3	237	Blue	50-100
040	1.250	31.8	.938 1.312	23.8 38.3	10.0	TBD	Violet	50-75
048	1.500	38.1	1.187 1.590	30.1 40.4	11.0	TBD	Gray	50
064	2.000	50.8	1.812 2.090	33.0 53.1	12.2	TBD	White	50



MasterWrap™ (Nomex®) is the ideal solution for mechanical abrasion protection of wire bundle harnessing in aircraft applications. Available color selections allow for easy identification and labeling of wire circuitry.

NOTES

Product ordered in 1 foot increments, packaged in boxed spools. See Table I. Lengths of 1-49 feet will be packaged in individual polybags.

Materials:

Woven mesh - high temperature DuPont™ Nomex®; Monofilament - PEEK; Overlap tracer - high temperature DuPont™ Nomex® thread

DuPont™ and Nomex® are trademarks or registered trademarks of E.I. duPont de Nemours and Company.

ADVANCED
PERFORMANCE
WIRE MANAGEMENT
SOLUTIONS

Industry-leading backshell and accessory designs for weight reduction, reduced cost-of-ownership, and increased reliability



Innovative solutions to EWIS environmental sealing, wire management, strain relief, and EMC shield termination

Glenair is the go-to design partner for innovative solutions to electrical wire interconnect system problems in airframe applications. Our backshell and connector accessory design engineers are responsible for more problem-solving innovation in our industry than every other connector accessory supplier combined. Take our new CompAction connector accessory design (shown left on a Series 806 Mighty Mouse). The splined interface and unique compression grommet delivers guaranteed environmental sealing, even at high altitude, on difficult-to-seal asymmetrical twisted-pair wiring.

New CompAction environmental wire sealing backshell



GLENAIR: MASTERS OF THE BACKSHELL UNIVERSE

- High-performance circular connector accessories for every environmental, mechanical and electromagnetic shielding requirements
- Tens of thousands of innovative part numbers in inventory ready for same-day shipment
- Fast turnaround on made-to-order accessories, typically only two to three weeks
- Constant, relentless backshell innovation

NEW INNOVATIONS IN Connector Backshells and Accessories



Unique, problem-solving backshells and connector accessories for aerospace applications

HIGH-TEMP, LIGHTWEIGHT COMPOSITE THERMOPLASTIC ACCESSORIES



Split-shell and snap-lock banding backshells

Connector coupling ring safety sleeve for F/O applications

Piggyback boot Band-in-a-Can

Drop-in EMI/RFI shield termination configurations

PRESSURE BOUNDARY, FIREWALL, AND SPLIT-SHELL FEED-THRUS



Pressure boundary composite feed-thru

Firewall pressure boundary feed-thru

EMI/RFI split-shell metal feed-thru

- High-grade engineering thermoplastic or machined metal
- Six pressure-boundary feed-thru layouts with accommodation for 1 – 6 cables
- Split-shell jam nut versions with EMI/RFI shield termination porch
- O-ring sealed panel and box mounting interface

INNOVATIVE NEW EWIS TECHNOLOGIES 2020



Dummy stowage shorting plugs and receptacles

Self-locking protective covers

Advanced "Dogbone" terminal blocks and hoods

MIL-DTL-38999 SAV-CON® Connector saver go-between with Micro-D diagnostic test port

Environmental panel cut-out sealing plug assembly

Heat shrink boot / wire routing clamp assembly

ADVANCED
PERFORMANCE
WIRE MANAGEMENT
SOLUTIONS

Innovative Rectangular Backshells and Connector Accessories



Proven-performance backshells and accessories for rectangular connectors

Glenair offers more tested and tooled rectangular interconnect products—including the world's broadest range of rectangular backshells—than any other supplier in the industry. Simply put, from the smallest Micro-D subminiature to the largest ARINC 600, Glenair has an unparalleled range of solutions. Need something light and corrosion free? Glenair is the industry leader in tooled composite thermoplastic connector accessories.

- All forms of environmental, mechanical and EMC backshells
- Straight, 45° and 90° cable routing
- High-temp composite thermoplastic and metal shell versions
- To fit all current and legacy rectangular connectors
- Innovative split-shell versions for easy access to wire terminations
- Equally large range of protective covers and caps
- Thousands of part numbers in stock and ready for immediate shipment



QWIKSNAP™

Glenair has developed an extensive range of lightweight Split-Shell backshells that completely eliminate assembly hardware in rectangular backshells. The Glenair QwikSnap™ series utilizes innovative composite spring latch technology to reduce weight, FOD, and accelerate assembly.

The world's largest *tooled* selection

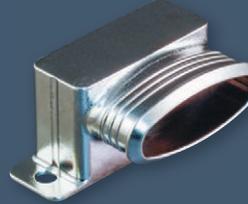
MICRO-D AND NANOMINIATURE BACKSHELLS AND CONNECTOR ACCESSORIES



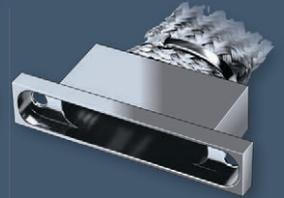
Composite Micro-D banding backshell



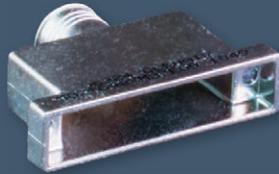
Plastic caps and covers for safe connector shipment and storage



Micro-D backshell with elliptical banding platform



Metal Micro-D banding backshell



Split-shell backshell



Environmental protective covers for Micro-D connectors



Conductive rubber covers

M24308 D-SUB SOLUTIONS: HIGH PERFORMANCE, RUGGEDIZED D-SUBMINIATURE PRODUCTS



Split-shell D-subminiature composite backshell



Split-shell M24308 composite backshell



Composite D-subminiature backshells



Flex-D Composite M24308 Backshell



M24308 EMI/RFI backshell

LARGER FORM FACTOR RECTANGULAR BACKSHELLS

EPX® and EPXB® are registered trademarks of Radiall



Composite EMI/RFI banding backshell for EPXB® connectors



Composite EN4165 fiber optic/electrical backshells



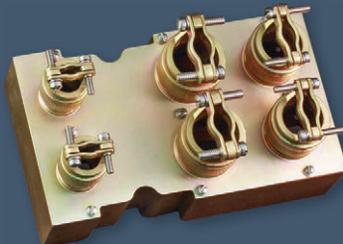
Backshells for EPX® series connectors



ARINC series backshells



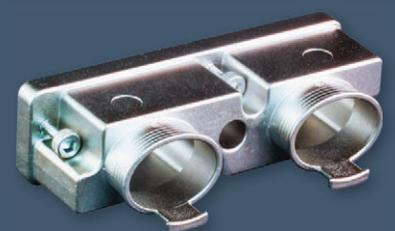
Composite airframe banding backshell



ARINC series backshell with individual wire bundle strain relief



MIL-C-81659

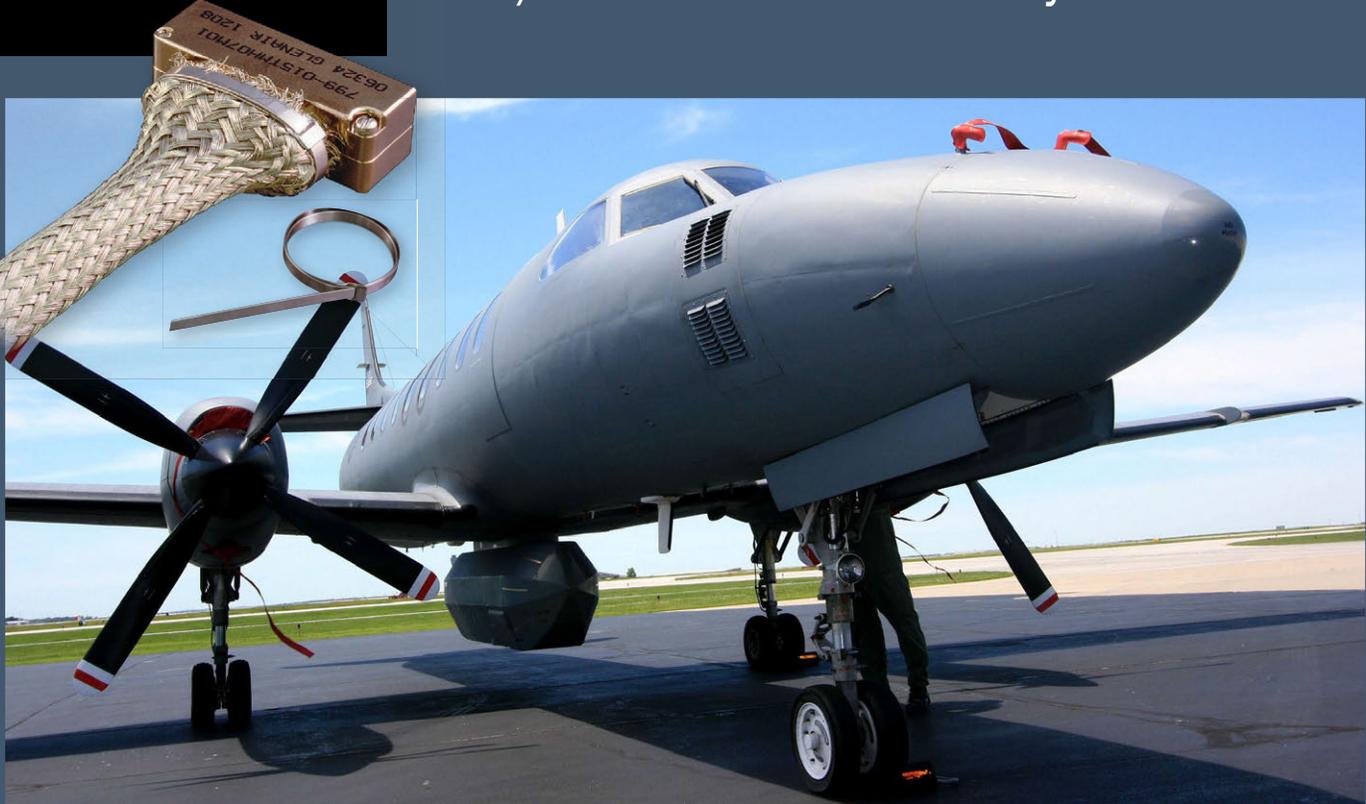


Special Quadrax connector backshell

ADVANCED
PERFORMANCE
WIRE MANAGEMENT
SOLUTIONS

Band-Master ATS®

EMI/RFI Shield Termination System



Quick, easy, cost-effective and highly reliable termination of braided metallic shielding or fabric braid to connectors and backshells

Band-Master ATS® is the advanced termination system for interconnect cable shielding. The unique low profile and smooth inside diameter of the one-piece type 304 austenitic stainless steel clamping band virtually eliminates RFI/EMI/EMP leakage paths. The lock maintains constant tension under extreme environmental conditions. Band-Master ATS® bands have passed severe shock, vibration and thermal cycle testing with negligible deterioration of shell conductivity and have been approved and added to the specifications for the world's largest aircraft manufacturers.

- Precision hand-held tools and termination bands—both from a single supplier
- Innovative Slim Standard and Nano bands reduce weight and improve safety (no buckle cuts)
- Clamp both small and large diameters easily and reliably

BAND-MASTER ATS® ADVANCED TERMINATION SYSTEM



Easy-to-use manual tools with built-in calibration counter



High-volume pneumatic tool for bench use



Save time and tool maintenance costs with the Glenair band tool calibration system

BAND-MASTER ATS® EMI/RFI Shield Termination System



The advanced termination system
for interconnect cable shielding

Band-Master ATS® Manual Tool Selection



601-100 Hand Tool for Standard Bands

The 601-100 Standard Band-Master ATS® Tool weighs 1.18 lbs., and is designed for standard .24" width clamping bands in a tension range from 100 to 180 lbs. Calibrate at 150 lbs. \pm 5 lbs. for most shield terminations. Tool and band should never be lubricated.



601-109 Hand Tool for Slim Standard Bands

The 601-109 Slim Standard Band-Master ATS® Tool weighs 1.2 lbs., and is designed for slim standard .24" width clamping bands in a tension range from 50 to 100 lbs. Calibrate at 100 lbs. \pm 5 lbs. for most shield terminations. Tool and band should never be lubricated.



NEW 601-122 Hand Tool for Micro Slim Bands

The 601-122 Micro Slim Band-Master ATS® Tool weighs 1.2 lbs., and is designed for micro slim .125" width clamping bands in a tension range from 50 to 100 lbs. Calibrate at 82 lbs. \pm 3 lbs. for most shield terminations. Tool and band should never be lubricated.
Consult factory for band weights and performance specifications.



601-101 Hand Tool for Micro Bands

The 601-101 Micro Band-Master ATS® Tool weighs 1.18 lbs., and is designed for micro .120" width clamping bands in a tension range from 50 to 85 lbs. Calibrate at 80 lbs \pm 5 lbs. for most shield terminations. Tool and band should never be lubricated.



601-108 Hand Tool for Nano Bands

The 601-108 Nano Band-Master ATS® Tool weighs 1.18 lbs., and is designed for nano .075" width clamping bands in a tension range from 20 to 50 lbs. Calibrate at 50 lbs. \pm 3 lbs. for most shield terminations. Tool and band should never be lubricated.

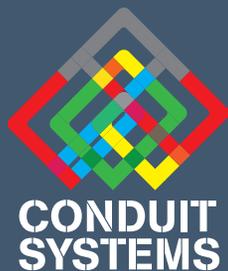


3 lengths and 3 widths of EMI braid termination bands plus new Slim Standard bands for size and weight savings—50% lighter and lower-profile than standard bands. Terminated "Slim" style bands have a tighter, smoother buckle with no sharp edge to injure assembly technicians. Plus, say goodbye to protective tape wrapping!

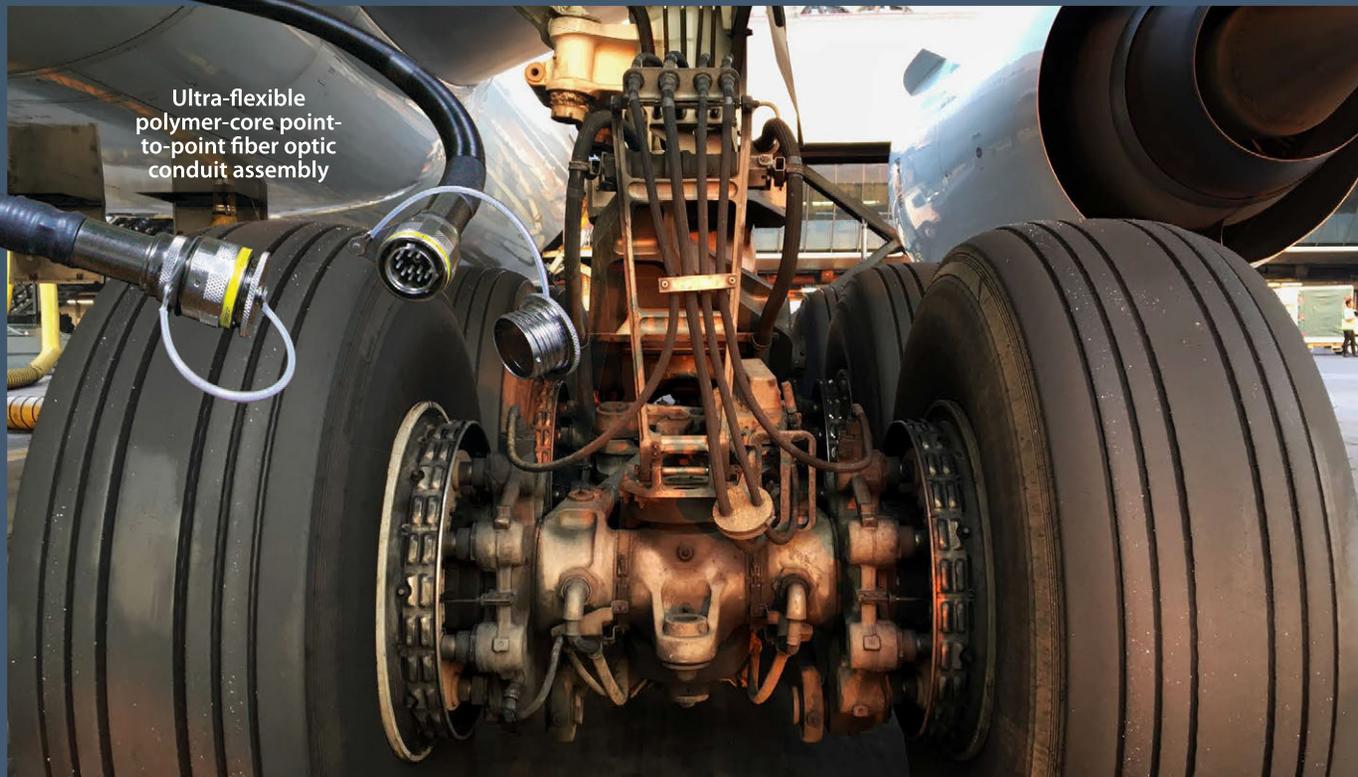
Band-Master ATS® Band Selection

Bands	Length		Part Number		Fits Diameter	
	in.	mm.	Flat	Pre-Coiled	in.	mm.
Short Standard Band	9.0	228.6	601-005	601-006	1.0	25.4
Medium Standard Band	14.0	355.6	601-040	601-041	1.8	47.8
Long Standard Band	18.0	457.2	601-049	601-050	2.5	63.5
Short Micro Band	5.0	127.0	601-024	601-025	0.5	12.7
Medium Micro Band	8.0	203.2	601-060	601-061	.88	22.4
Long Micro Band	14.0	355.6	601-064	601-065	1.8	47.8
Short Nano Band	6.0	152.4	601-500	601-501	.60	15.2
Medium Nano Band	9.0	228.6	601-504	601-505	.94	23.9
Long Nano Band	14.0	355.6	601-508	601-509	1.8	47.8
Short Slim Standard Band	9.0	228.6	601-570	601-571	1.0	25.4
Medium Slim Standard Band	14.25	362.0	601-572	601-573	1.8	47.8
Short Micro Slim Band	8.125	206.4	601-600	601-601	.88	22.4
Medium Micro Slim Band	14.25	362.0	601-602	601-603	1.8	47.8

TURNKEY CONDUIT ASSEMBLIES



Conduit components and wired assemblies with innovative polymer and metal-core wire protection materials



All of the metal-core conduit and polymer-core convoluted tubing systems we fabricate at Glenair may be wired and assembled at our factory with tamper-proof crimp ring or solder terminations according to customer requirements. Reduced size and weight factory terminated conduit assemblies offer the utmost in environmental ruggedness, reliability and durability. Certified factory assemblers and calibrated tooling guarantee reliable long-term performance. Glenair's expertise in wired conduit systems extends from simple point-to-point jumpers to complex multibranch assemblies as well as turnkey integrated systems and LRUs with flexible conduit interconnect cabling.

TURNKEY FACTORY-TERMINATED CONDUIT ASSEMBLIES



Complex multibranch aircraft electrical wire conduit assembly with high-temperature polymer-core conduit



Lightweight multibranch wire protection conduit assembly with high-temperature polymer-core convoluted tubing



Crush-resistant commercial aerospace metal-core conduit assembly

RUGGED

Conduit Wire Protection Systems



Flexible, impact resistant alternatives to lighter-duty jacketed cable assemblies

COMPLEX, MULTIBRANCH ASSEMBLIES WITH INNOVATIVE LIGHTWEIGHT POLYMER-CORE WIRE PROTECTION CONDUITS

Lightweight, halogen-free PEEK wire conduit assembly



Turnkey integrated box assembly and wired polymer-core interconnect system

PEEK, PFA, ETFE, Siltem polymer core and Glenair signature high-temperature polymer core conduit solutions and user-installable fittings



COMPLEX, MULTIBRANCH ASSEMBLIES WITH HEAVY-DUTY METAL-CORE CONDUIT AND OVERBRAIDING WIRE PROTECTION MATERIALS



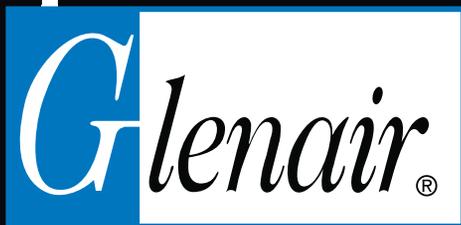
Turnkey wheel well impact-resistant metal-core conduit assembly



Metal-core conduit wire protection aircraft brake assembly



Brass, SST, or nickel-iron metal-core conduit material types with innovative microfilament and drawn filament braiding. Factory terminated or for use with user-installable fittings.



**MISSION-CRITICAL
INTERCONNECT
SOLUTIONS**

Glenair, Inc.

1211 Air Way • Glendale, California • 91201-2497

Telephone: 818-247-6000 • Fax: 818-500-9912 • sales@glenair.com

www.glenair.com

**Glenair Power
Products Group**

20 Sterling Drive
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06492

Telephone:
203-741-1115
Facsimile:
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