INDUSTRIAL STRENGTH

MISSION-CRITICAL
INTERCONNECT SOLUTIONS

Glenair®

Glenair
SIGNATURE SERIES

Industrial-Strength Interconnect Solutions

Harsh-Environment, High-Power and Signal, Bayonet-Lock Connectors for Military Vehicles, Nuclear Energy, Rail, and Industrial Applications

JANUARY 2025

Glenair
SIGNATURE SERIES

MIL•STAR™
HIGH–PERFORMANCE HOOKUP WIRE AND CABLE

turboflex®
THE ULTRA FLEXIBLE RUGGED POWER CABLE

In-house manufactured hookup wire for signal applications and power cabling for high-current / high-voltage applications

Industrial-Strength Interconnect Solutions

Harsh-Environment, High-Power and Signal, Bayonet-Lock Connectors for Military Vehicles, Nuclear Energy, Rail, and Industrial Applications

HIGH-PERFORMANCE REVERSE-BAYONET

Super ITS - 921
High-Temp, High-Ampacity Power

Super ITS - MB Seacrow and IGE MB Seacrow
Marine Bronze Power and Signal

Super ITS - RG RadGrip
Molded Coupling Nut Connectors

Series 928 Quarter-Turn
Head-to-Ballast
HMI Lighting Connectors

HIGH-SPEED, HIGH DATA-RATE SOLUTIONS

Super ITS - ITH Octobyte
High-Speed Quadraxial and Octaxial

Super ITS - IFO B Fiber Optic
Singlemode and Multimode Connectors

Super ITS SuperSeal
Rugged Field RJ45 and USB 2.0 Connectors

NUCLEAR-GRADE QUICK-DISCONNECT

SuperNG Double Peripheral Seal
Quick-Disconnect Next-Generation Class 1E Containment Area Connectors

ITS - NG Class 1E Containment Zone
Retrofit Application Connectors

Mighty Mouse NG Ultraminiature High-Pressure Quick-Connect for New Plant Class 1E Containment Area Applications

INDUSTRY-STANDARD M5015 / VG95234 TYPE AND OTHER RAIL INDUSTRY INTERCONNECTS

Series ITS and FR-ITS (Fire-Resistant) Reverse-Bayonet

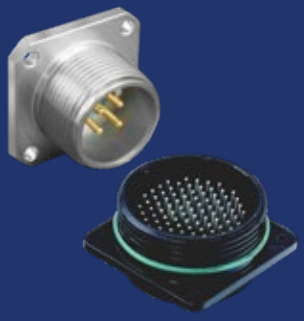
Series ITH Rigid Insert

Series ITK High-Temp Firewall: Stainless Steel / Ceramic Insert

VG95234 Reverse-Bayonet and VG96929 Single-Pole (Glenair Series IGE)

VG95328 Bayonet-Lock IAW MIL-C-26482: Glenair BLQ Series IPT and IPT-SE

Bayonet-Lock MIL-DTL-26482 Series 2



Threaded Coupling Series Connectors: IT and ITZ

European Rail Connectors (ERTMS) and other Railcar and Trackside Solutions

HIGH-CURRENT, HIGH-VOLTAGE

ITS 901 Reverse Bayonet Multi-Pole High Voltage with Integrated Switch

ITS 901 Multi-Pole High Voltage with Wing-Lock Mechanism

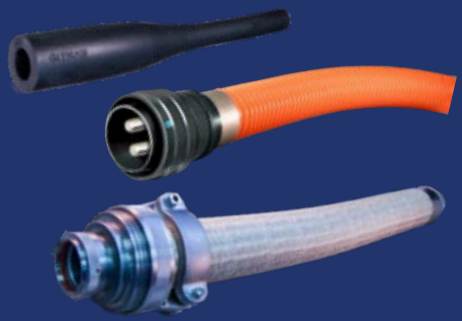
ITS 500 Reverse Bayonet Single-Pole High Voltage Jumper Connectors

UJ Series Medium- and High-Power Connector and Cable Joints

IRT Series Multipole High-Voltage Traction Motor Connectors

ITS-Ex ATEx-qualified Explosion-Proof Threaded Coupling Connector Series

WIRE PROTECTION SOLUTIONS



Shrink boots, conduit systems, and cable shielding

MIL•STAR™

GS22759 HOOKUP WIRE

MIL-STAR High-Performance Hookup Wire and Cable Glenair has branded its GS22759 high-temperature aerospace-grade wire, and GS27500 multi-conductor cables for aerospace applications, under the MIL-STAR brand. These discrete wires and cables are built in accordance with SAE specifications with a "GS" leadoff in place of both the base specification and the part number for individual slash sheets.

MIL-STAR is a high-performance, better-than-QPL discrete wire and cable specification unique to Glenair. The brand covers both protected (inside-the-box) hookup wire, high-durability open-loom wiring, and multi-conductor shielded and jacketed M27500-type cable.

M22759 single-ended hook-up wires are the industry standard for inside-the-box mil-aero environments and are optimized for size, weight, high-temperature resistance, and low flame propagation. The hundred-plus variants of AS22759 are organized by conductor material and plating, insulation type, wire gage, and single- or dual-wall.

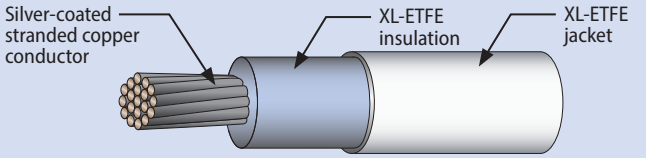
MIL-STAR™ 22759 OPEN WIRE LOOM AND (PROTECTED) HOOKUP WIRES

AS22759 high-temp single-conductor 600V military and aerospace-grade wire, standard and crosslinked, lightweight single-wall and rugged dual-wall configurations.

CROSSLINKED (XL) ETFE SAMPLES

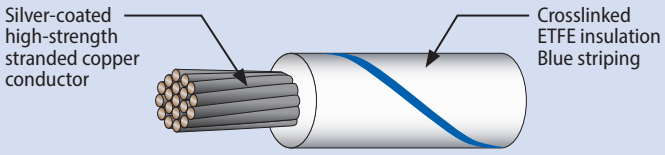
GS22759-43-22-9

- Silver-coated copper core, std. weight dual wall XL-ETFE insulation/jacket. High-temp, radiation- and fire-resistant.



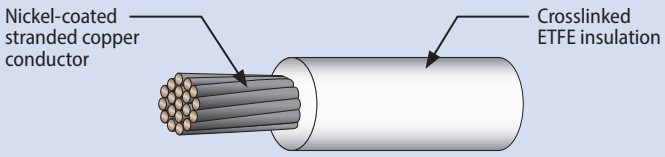
GS22759-33-24-96

- Silver-coated copper core with XL-ETFE insulation (blue striping). High-temp, low flammability.



GS22759-45-12-9 (Light weight)

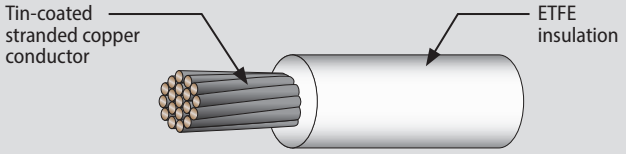
- Nickel coated copper core with XL-ETFE insulation. High-temp (200°C), fire and chemical resistant.



CONVENTIONAL FLUOROPOLYMER SAMPLES

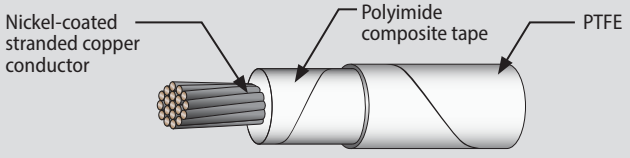
GS22759-16-8-9

- Tin-coated copper core with extruded ETFE insulation. Radiation-resistant and temperature tolerant to 150°C.



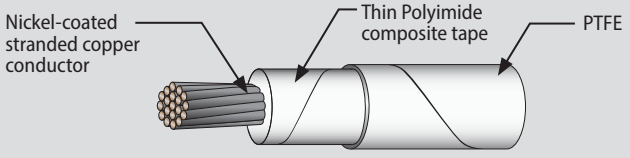
GS22759-87-20-9 (Standard weight)

- Nickel-coated copper, PTFE/Polyimide tape-wrapped. High-temp (260°C), fire and chemical-resistant, low smoke.



GS22759-92-20-9 (Light weight)

- Nickel-coated copper, PTFE/thin-wall Polyimide tape-wrapped. High-temp (260°C), fire and chemical-resistant, low smoke.



MIL-STAR™

Hookup Wire for Harness Assemblies

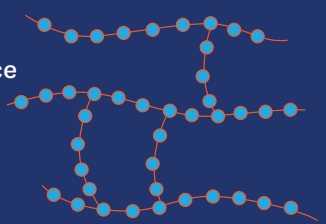
Better-than-QPL performance • QPL-grade batch testing and documentation

MIL-STAR™ Order Number	Conductor	Plating	Insulation	Insulation Weight	Available Wire Sizes	Temperature Rating
SAE AS22759/16-19, ETFE						
GS22759-16	Copper	Tin	ETFE	Medium	24, 22, 20, 18, 16, 14, 12, 10, 8	150°C
GS22759-17	High-Strength Copper Alloy	Silver	ETFE	Medium	26, 24, 22, 20	150°C
GS22759-18	Copper	Tin	ETFE	Light	24, 22, 20, 18, 16, 14, 12, 10	150°C
GS22759-19	High-Strength Copper Alloy	Silver	ETFE	Light	26, 24, 22, 20	150°C
SAE AS22759/32-35, XL-ETFE						
GS22759-32	Copper	Tin	XL-ETFE	Light	30, 28, 26, 24, 22, 20, 18, 16, 14, 12	150°C
GS22759-33	High-Strength Copper Alloy	Silver	XL-ETFE	Light	30, 28, 26, 24, 22, 20	200°C
GS22759-34	Copper	Tin	XL-ETFE	Normal (Dual Wall)	24, 22, 20, 18, 16, 14, 12, 10, 8	150°C
GS22759-35	High-Strength Copper Alloy	Silver	XL-ETFE	Normal (Dual Wall)	26, 24, 22, 20	200°C
SAE AS22759/41-46, XL-ETFE						
GS22759-41	Copper	Nickel	XL-ETFE	Normal (Dual Wall)	26, 24, 22, 20, 18, 16, 14, 12, 10, 8	200°C
GS22759-42	High-Strength Copper Alloy	Nickel	XL-ETFE	Normal (Dual Wall)	26, 24, 22, 20	200°C
GS22759-43	Copper	Silver	XL-ETFE	Normal (Dual Wall)	26, 24, 22, 20, 18, 16, 14, 12, 10, 8	200°C
GS22759-44	Copper	Silver	XL-ETFE	Light	28, 26, 24, 22, 20, 18, 16, 14, 12	200°C
GS22759-45	Copper	Nickel	XL-ETFE	Light	28, 26, 24, 22, 20, 18, 16, 14, 12	200°C
GS22759-46	High-Strength Copper Alloy	Nickel	XL-ETFE	Light	28, 26, 24, 22, 20	200°C

CROSS-LINKED ETFE INSULATION

Cross-linked insulation (XL) and standard insulation are two types of dielectric materials used in wire and cable manufacturing. Cross-linking provides the following advantages:

- **Improved thermal stability**
- **Chemical / solvent resistance**
- **Increased mechanical strength**
- **Laser-markable**
- **Longer service life**



RED PLAGUE MITIGATION

Mod Code 1304B
RED PLAGUE MITIGATION

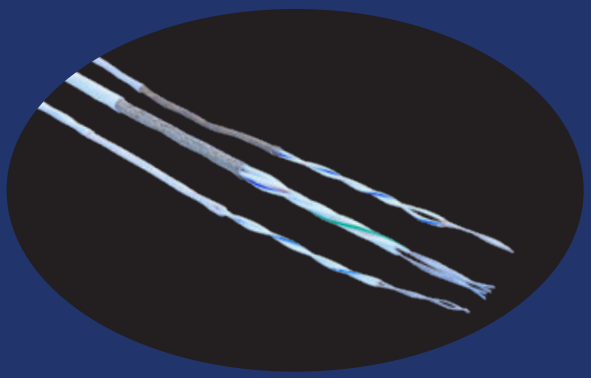
Glenair MIL-STAR™ high-temperature hookup wire and cable may be supplied in special 80 microinch silver-plated copper Mod Code configurations (1304A or 1304B) to combat Red Plague corrosion, a pernicious form of copper oxidation that results in the formation of red cuprous oxide (Cu_2O) and black cupric oxide (CuO). Red Plague corrosion can continue indefinitely, consuming conductor material and causing electrical system failures.

MIL-STAR™

GS27500 MULTI-CONDUCTOR CABLE

Glenair MIL-STAR multi-conductor 27500 type cables are built from in-house manufactured GS22759 hookup wire, available with industry qualification as well as Glenair GS signature part numbering. GS27500 constructions for shielded and unshielded cable are:

Made and tested IAW ANSI/NEMA WC 27500
1-15 22759 primary hook-up wires
Insulation types including crosslinked ETFE
Industry-standard and Glenair signature shielding materials
Standard and signature jacket compounds

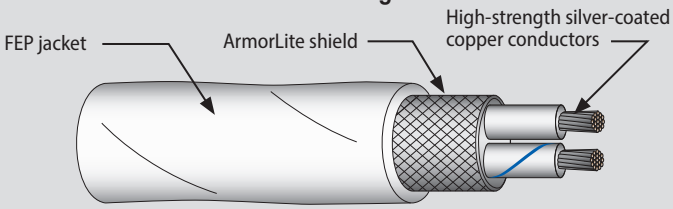


MIL-STAR™ 27500 MULTI-CONDUCTOR CABLES

ANSI/NEMA WC 27500 and Glenair signature multi-conductor cables. Each series supports M22759-16 thru -46 wire types with wire count, gauge, shield, and jacket options as allowed.

968-001-24SC2AR09

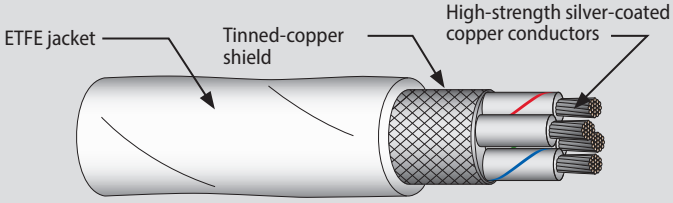
- 27500 type with ArmorLite or AmberStrand lightweight microfilament braided shielding



MIL-STAR GS27500 cables may be specified with signature braided shielding including ArmorLite, ArmorLite CF, and AmberStrand. The ability to supply 27500 type cable in accordance with the ANSI/NEMA standard but optimized for SWaP with lighter weight ArmorLite and AmberStrand shielding is a unique Glenair-only capability.

GS27500-22TF4T14

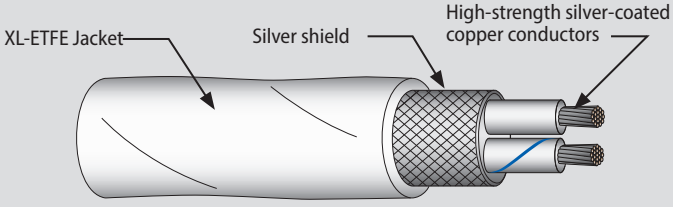
- 27500 type with GS22759-17 wire (silver-plated high-strength copper wire, ETFE insulation) and TC shielding.



This configuration of multi-conductor GS27500 cable is built with GS22759 dash 17 inner wires: silver-plated high-strength copper wire with ETFE insulation. The cable is equipped with an overall tinned-copper EMI/RFI shield and standard fluoropolymer ETFE outer jacket. The superior mechanical properties of high-strength conductors contribute to the overall safety, reliability, and mechanical strength of the cable.

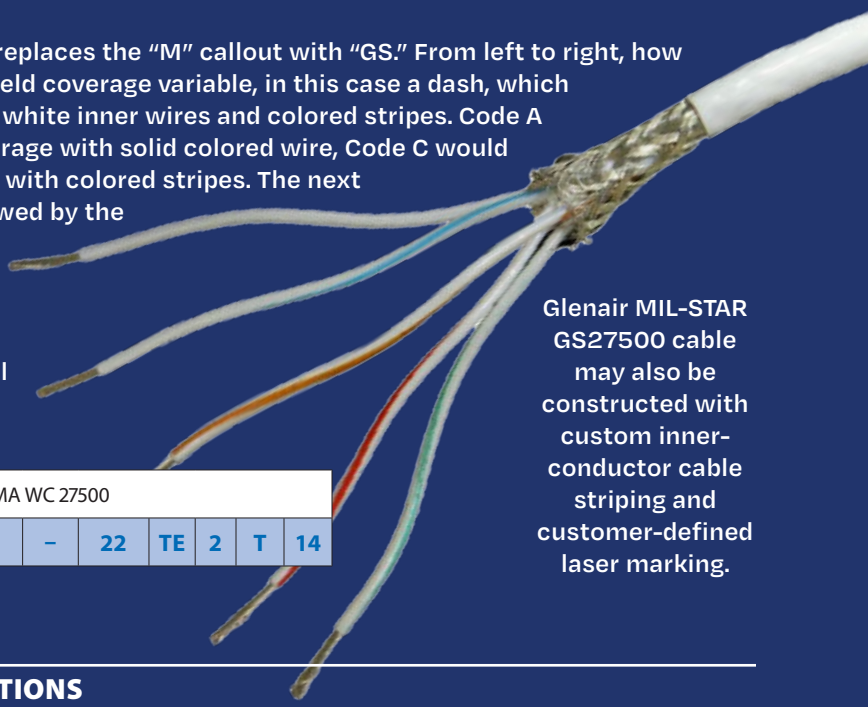
GS27500-24SC2S23

- 27500 type with GS22759-33 wire (silver-plated high-strength copper wire, XL-ETFE insulation) and silver shielding.



This cross-linked configuration of multi-conductor GS27500 cable is built with GS22759 type dash 33 inner wires: silver-plated high-strength copper wire with cross-linked XL-ETFE insulation. Cable is equipped with an overall silver-plated EMI/RFI shield and cross-linked XL-ETFE outer jacket. This multi-conductor 27500 type cable delivers far superior thermal stability, enhanced chemical resistance, mechanical strength, and electrical properties compared to non-crosslinked versions.

MIL-STAR GS27500 cable part numbering replaces the "M" callout with "GS." From left to right, how to order variables begin with the color code and shield coverage variable, in this case a dash, which indicates default 85% overall shield coverage, with white inner wires and colored stripes. Code A used in this position would denote 85% shield coverage with solid colored wire, Code C would denote 90% shield coverage with white inner wires with colored stripes. The next variable, 22 in our example, is conductor size, followed by the base wire specification (TE) indicating GS22759-16 wire is to be used in this cable buildup. Final variables include the number of inner wire conductors (2), type of overall shielding (T, for Tinned Copper), and finally jacketing material (14, indicating extruded ETFE in white).



Glenair MIL-STAR GS27500 cable may also be constructed with custom inner-conductor cable striping and customer-defined laser marking.

Multi-conductor M27500 type IAW ANSI/NEMA WC 27500							
MIL-STAR Cable Sample Part Number	GS27500	–	22	TE	2	T	14

BETTER-THAN-QPL MIL-STAR SHIELDING OPTIONS

Glenair signature braided cable shield solutions include single and double layers of metal-clad composite microfilament AmberStrand®, microfilament nickel-clad stainless steel ArmorLite™, and ArmorLite™ CF corrosion-resistant.

MIL-STAR GS27500 SHIELDING OPTIONS		
Single Shield Code	Double Shield Code	Shield Description
AM	AS	AmberStrand®, Round
AR	AL	ArmorLite™, Round
AC	AF	ArmorLite™ CF, Round
U	U	Unshielded

ARMORLITE™

AmberStrand®

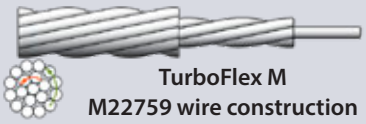
turboflex®

THE ULTRA FLEXIBLE RUGGED POWER CABLE

TurboFlex is an ultra-flexible and rugged power cable solution – ideal for high-voltage electrical distribution and propulsion applications such as battery plant-to-inverter-to-electric motor cables for eVTOL aircraft. Constructed from rope-lay configuration copper or aluminum wire and jacketed with signature Duralectric insulation, TurboFlex cables are optimized for use in an ecosystem of Glenair signature contact and connector technologies. Turnkey connectorized or lugged cable assemblies – fully tested and ready for immediate use – provide reliable high-temperature tolerant performance up to 4500 VAC.

◀ Duralectric™ is the high-performance TurboFlex® jacketing material. Different compounding formulas are optimized for weight savings, radiation resistance, ultra low temperatures, conductivity, and immersion in chemical or caustic fuels. Available in a broad range of colors including safety orange.

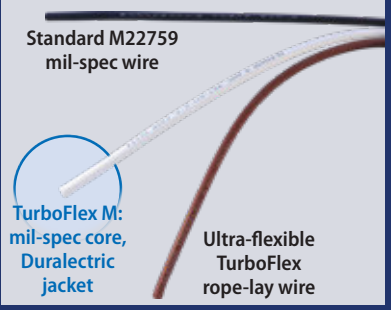
STANDARD TURBOFLEX R VS. TURBOFLEX M



TurboFlex M
M22759 wire construction

TurboFlex rope-lay
wire construction

TurboFlex cables are jacketed with Duralectric insulation, which contributes significantly to the flexibility of the product. Available wire cores include rope-lay (standard) for maximum flexibility, and M22759 wire (TurboFlex M) with the flight-heritage of a mil-spec core and a slightly larger bend radius, but far superior flexibility compared to standard M22759 wire.



SERIES 96

TurboFlex ultra-flexible power distribution cable

Technical overview

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.

ABOUT TURBOFLEX WITH DURALECTRIC™ D JACKETING

Duralectric™ D is a Glenair Signature elastomeric material used in wire insulation, cable and conduit jacketing, overmolding, and shrink boots. Glenair TurboFlex high-flexibility power distribution cables are supplied with Duralectric jacketing in different wall thicknesses, as well as "tell-tale" dual-layering.

TurboFlex core conductors are available in three aerospace-grade material and temperature configurations:

-T = Tin/Copper (-60° – 150°C),

-S = Silver/Copper (-60° – 200°C)

-N = Nickel/Copper (-60° – 260°C)

A signature configuration of TurboFlex is available with high-temperature shielding and lightweight aluminum conductors.

DURALECTRIC™ D PHYSICAL PROPERTIES

Property	Typical Result	Test Method
Hardness, Shore A	60	ASTM D2240
Tensile Strength, psi	1100	ASTM D412
Elongation, %	500	ASTM D412
Tear Strength, Die B, ppi	150	ASTM D624
Low Temperature Impact at -65°C	Pass/No Cracks	ASTM D2137
Accelerated UV/Sunlight Resistance, 53 yr. Equiv. Exposure	Pass/Excellent	IEC 60068-2-5
Ozone Resistance	Pass/No Cracks	ASTM D1149
Zero Halogen	Pass	IEC 754-1

DURALECTRIC™ D ELECTRICAL PROPERTIES

Property	Typical Result	Test Method
Dielectric Strength, kV/mm	19	ASTM D419
Comparative Tracking Index, VAC	> 600	ASTM D3638

GENERAL DURALECTRIC D PERFORMANCE SUMMARY

- Service Temperature Range: -65°C to 260°C
- Fire Resistant and Low Smoke-Zero Halogen (LSZH)
- RoHS materials
- Resistant to common aerospace, military and industrial fluids
- UV resistant

DURALECTRIC™ D FIRE RESISTANCE PROPERTIES

Property	Typical Result
Flammability	
Oxygen Index, %	45
FAR 25.853, 12 Second Vertical	Pass
FAR 25.853, 60 Degree	Pass
FAR 27.1365 b,c	Pass
BSS7230 Method F2	Pass
IEC60614-1	Pass
EN60695-2-12, 850°C Glow-Wire	Pass
UL1685 FT4/IEEE1202	Pass
Smoke Density	
BSS7238	Pass
NES 711	Pass
EN 60695-2-11	Pass
UL1685 FT4/IEEE1202	Pass
Combustion Toxicity	
BSS7239	Pass
NES 713	Pass
SMP800 C	Pass

921™ SERIES

SUPER ITS

HIGH AMPACITY

Super ITS - 921

Ultra high-performance reverse-bayonet power connectors

Reverse-bayonet derivatives of M5015 / VG95234 threaded connectors have long been preferred for their rapid mating and rugged resistance to vibration and shock in harsh-environment applications. The Glenair Super ITS - 921 is an ultra high-performance version of the reverse-bayonet M5015 / VG95234 power connector, designed for high-ampacity applications where low insertion force LouverBand type contacts, mechanical contact retention, broad temperature tolerance, reduced size, and superior connector and wire sealing are required.

Super ITS - 921 is an extremely durable and environmentally sealed connector, designed with its own set of high-density contact insert arrangements. Unlike conventional 5015-type connectors designed for industrial and rail applications, the Super ITS - 921 offers uncompromised electrical, mechanical, and environmental performance features such as precision-machined aluminum alloy or stainless steel shells with 2000 mating cycle lifespan, rigid thermoplastic two-piece insulators, and machined, highly conductive copper alloy LouverBand contacts. Super ITS - 921 delivers contact and wire support from #16 to 2/0 and 1 mmq – 70 mmq respectively. With ampacity up to 350 amps, and a max working voltage of 2450 VCC / 1750 VCA, this power distribution connector is fully tooled and available for immediate application.

- **Super ITS-921 is a high-density reverse-bayonet connector with reduced size compared to standard M5015**
- **Low insertion force, high-ampacity front-release LouverBand contacts**
- **Rigid thermoplastic insulator with internal contact retention clips**
- **Precision-machined aluminum, stainless steel or marine bronze shells with polarization keys**
- **Interfacial and individual wire sealing for IP67 performance**
- **Broad operating temperature range: -65° to +180°C**
- **2000-cycle reduced insertion-force mating**

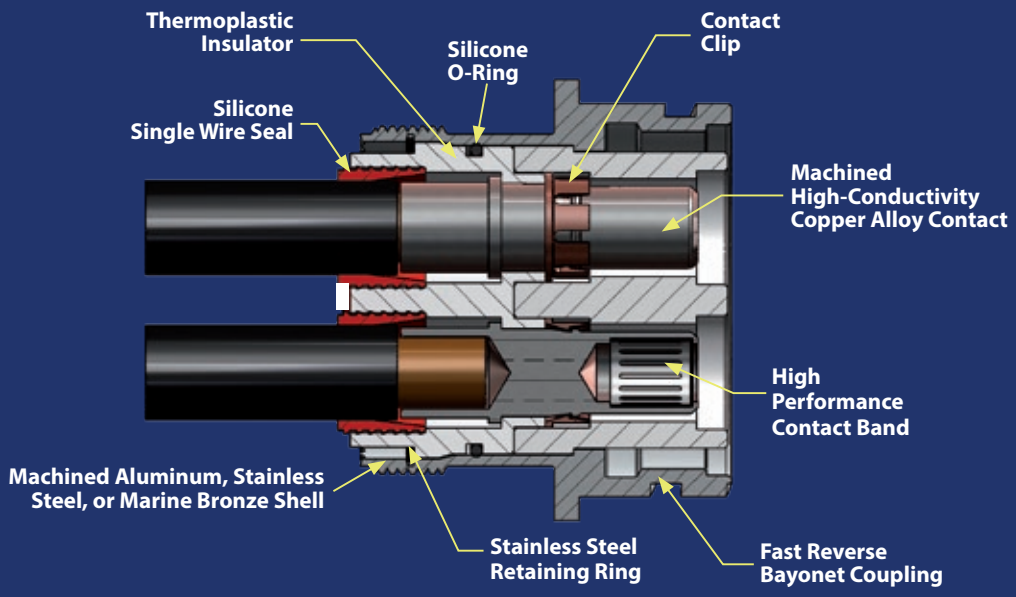
ADVANCED PERFORMANCE

Super ITS-921 Reverse-Bayonet Rigid Insert, High-Ampacity Connectors

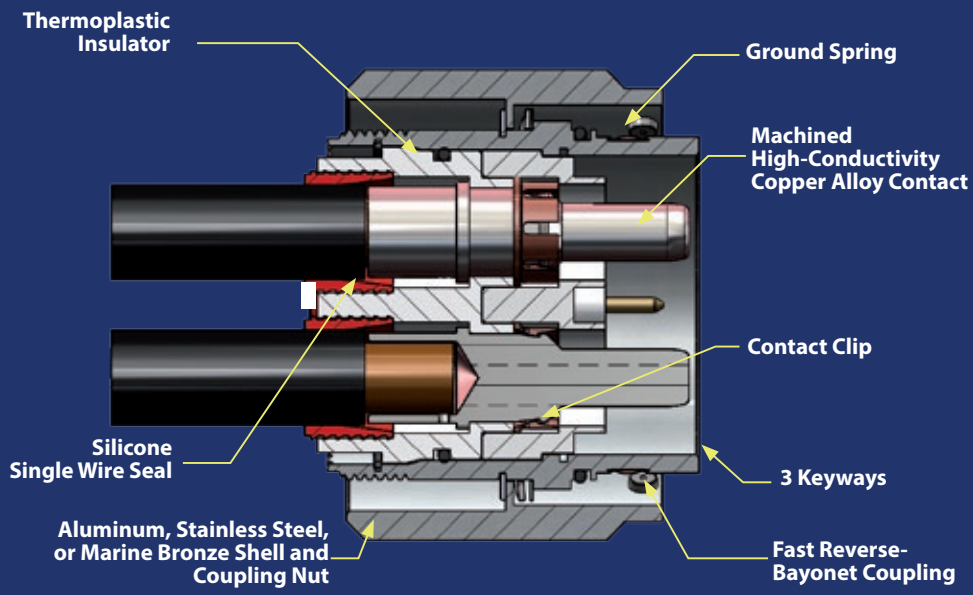
Features and Benefits

The Super ITS - 921 Connector Series is a high ampacity, harsh environment connector capable of meeting the demanding requirements of power applications utilizing the latest generation of high-temperature power cables. Compared to legacy 5015 solutions, Super ITS - 921 offers better durability, better wire and connector interface sealing, integrated crimp contact retention clips, thermoplastic insulators, precision-machined shells, and more.

RECEPTACLE



PLUG



- Fast, easy connector mating with reverse- bayonet coupling
- 3 polarizing keys
- Higher-density insert arrangements for reduced size and weight
- LouverBand Size 0, 4 and 8 socket contacts for high ampacity and longer life
- Crimp front-release high-conductivity copper contacts
- Individual wire seals
- -65° C to +180° C operating temperature range
- Size 8, 4 and 1/0 power contact sizes
- Size 16 and 12 signal contact size
- Precision-machined plug bodies and receptacle shells

REVERSE-BAYONET

Super ITS-MB Seacrow™ Connectors

For amphibious vechicle, geo-marine, and other harsh-environment applications

Super ITS - MB Seacrow reverse bayonet marine bronze series connectors are compliant with MIL-DTL-5015, using the same power and signal insert arrangements but with reverse-bayonet coupling and precision-machined marine bronze construction. These ultra-harsh environment connectors are ideally suited for above-deck navy shipboard applications where repeated exposure to seawater and salt spray can quickly degrade effectiveness of connector finishes leading to corrosion and possible failure.

Super-ITS MB Seacrow connectors exceed VG95234 standards for both sealing and durability. Over 200 MIL-STD-1651A standard and combo insert arrangements are available in 9 shell sizes, fully tooled and ready for immediate shipment. A wide selection of backshell options including cable shield termination for EMI/RFI applications and cable sealing backshells for conduit termination are also available. IP67 protection standard with IP68 available on request.

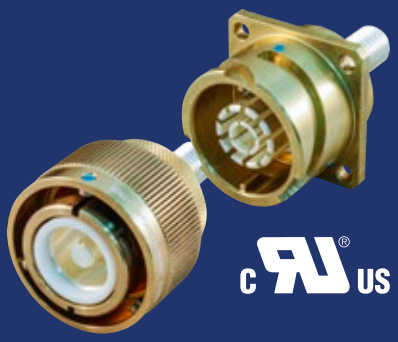
- **Precision-machined marine bronze alloy for superior corrosion resistance and reliable mating in seawater and other harsh environments**
- **Ideal for shipboard and other harsh geo-marine applications**
- **IP67 environmental sealing in mated condition; IP68 versions available**
- **Super ITS - MB Seacrow connectors accomodate wires from 26 AWG square to 4/0 AWG**
- **Over 200 power and signal arrangements IAW MIL-DTL-5015 / VG95234**
- **Precision-machined for outstanding mating performance and durability**

REVERSE-BAYONET

Super ITS - MB and IGE - MB Seacrow

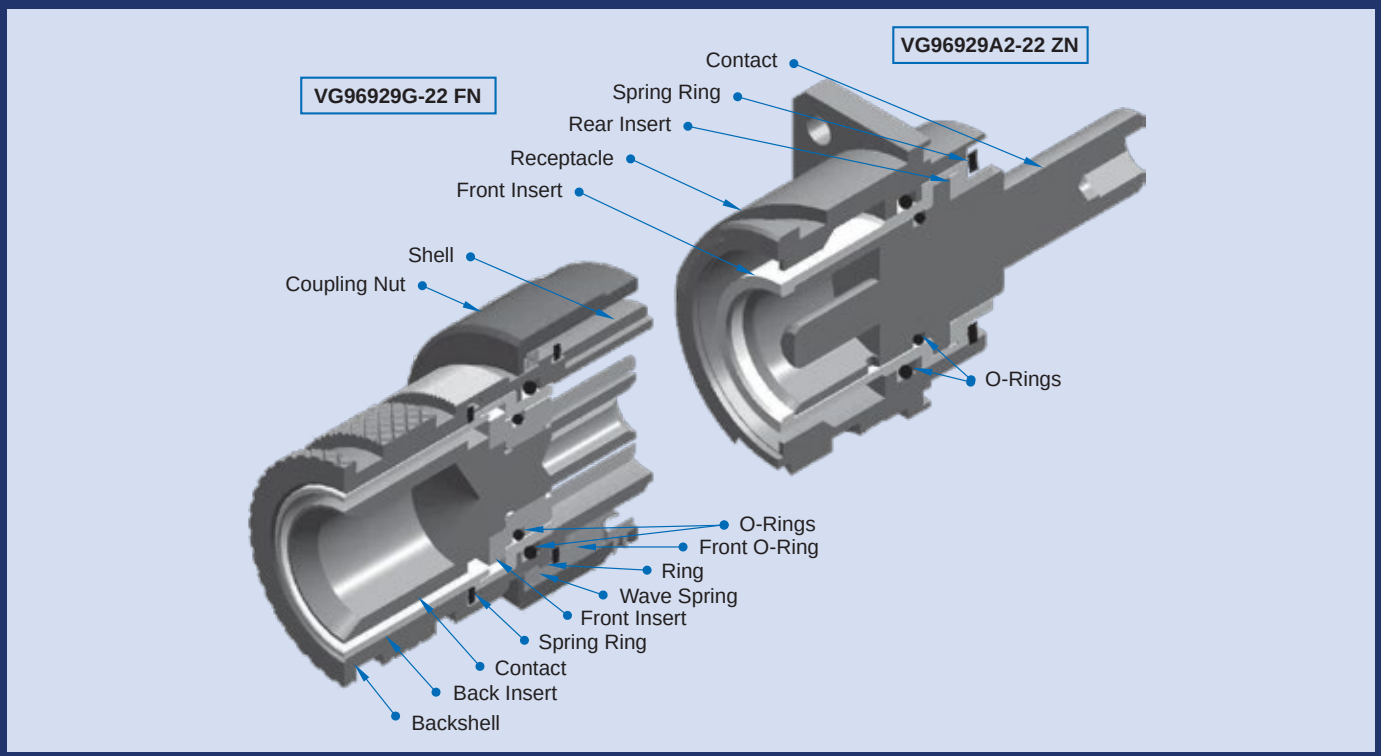
Harsh-environment, precision-machined marine bronze connectors

Low- to medium-voltage single-pole power connector versions



Super ITS - IGE marine bronze Seacrow™ connectors achieve high-performance working current and peak current, making them ideal for engines, power supplies, and power distribution boxes. Seacrow 5015-type reverse-bayonet connectors are qualified to VG96929 standards. Several backshells available in either straight or 90° elbows for convenient cable routing, IP67 standard, IP68 available.

- **Precision-machined marine bronze alloy for superior corrosion resistance in seawater and other harsh environments**
- **Chemical-resistant Viton® gaskets and O-rings**
- **Single-pole high-power VG96929 qualified**
- **IP67 environmental sealing in mated condition; IP68 available**
- **High power, single pole connectors accommodating cables from 25 mm square to 240 mm square**
- **Keyed polarization**
- **Rugged reverse-bayonet mating**



RADGRIP™

Glenair®

REVERSE-BAYONET

Super ITS - RG RadGrip Rubber-Covered Plug Connectors

For improved user ergonomics and ease-of-use

Glenair Super ITS-RG Series connector plugs with RadGrip™ rubber coupling nut covers are ideal for harsh environmental field applications such as geophysical exploration in arctic conditions. Super ITS-RG RadGrip™ connectors feature wide, easy-to-grip castellations as well as a raised thumb tab. Built for maximum durability and mechanical protection of plug coupling nuts, Super ITS-RG RadGrip™ is the perfect solution for protection against abusive handling and other forms of mechanical damage. In addition, RadGrip™ facilitates rapid mating and demating of connectors, even when surfaces are slick with oil, dust, water, and other fluids. The highly durable rubber compound may be specified in seven different colors for improved connector and cable identification and management.

Colors available: Black, Yellow, Red, Blue, Light Green, Orange, and Grey.

Super ITS-RG RadGrip™ material specifications

IAW UNI-CEI 11170 - AFNOR NF-F 16101 - BSS 7239 - ASTME - 162, ASTM E-662 RadGrip™ covers adhere easily to aluminum alloy, stainless steel, and marine bronze.

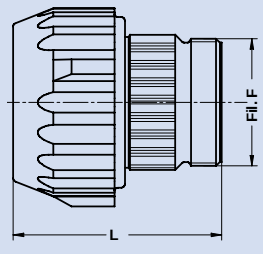
- **Fast, easy, reverse-bayonet coupling: 1/4 Turn**
- **IP67 rated (mated condition)**
- **Compatible with all Series ITS 5015 Type connectors**
- **High shock and vibration resistance**
- **200 plus insert arrangements available with contact sizes from #20 to #4/0**
- **Audible and visual coupling indicators**
- **Colored materials facilitate connector and cable identification and/or connector phases**

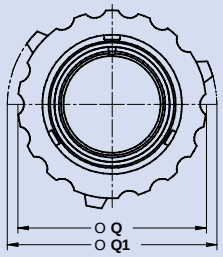
REVERSE-BAYONET

Super ITS - RG RadGrip™ Rubber Overmolded Plug Connectors

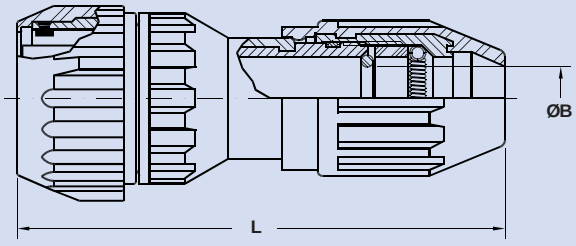
Product Selection Guide

AVAILABLE RADGRIP-EQUIPPED SUPER ITS CONFIGURATIONS

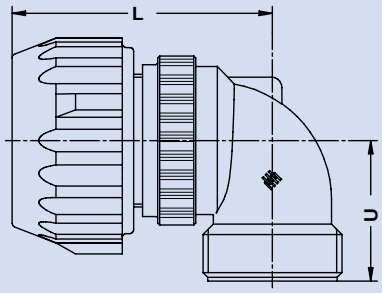


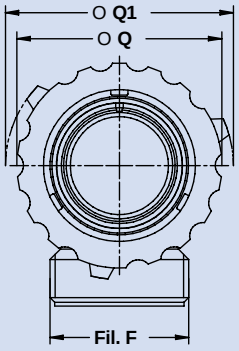


ITS-RGG (06) Straight Plug

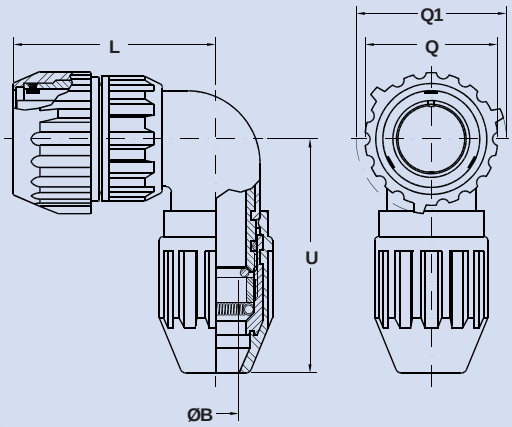


ITS-RRG (06) Straight Plug with EMI/RFI Cable Sealing Backshell

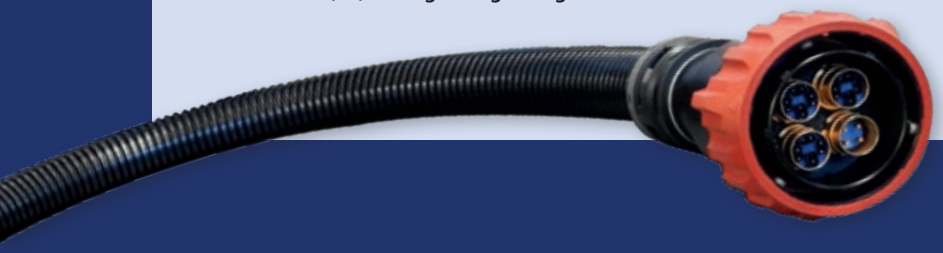




ITS-RGG (08) 90° Right-Angle Plug



ITS-RRG (08) 90° Right-Angle Plug with EMI/RFI Cable Sealing Backshell



Turnkey Super ITS-RG RadGrip cable assemblies available. Example shown equipped with high-speed Octobyte contacts and high-temperature wire-protection conduit.

SUPER ITS-RG RADGRIP™ REINFORCED RUBBER COUPLING NUT CONNECTORS

Super ITS-RG (Basic Black)

Super ITS-RG (Yellow)

Super ITS-RG (Fiber Optic Blue)

Super ITS-RG (Safety Red)

SERIES 928 HMI

Quarter-Turn Bayonet Connectors

Interconnects for head-to-ballast HMI lighting

Theatrical lighting demands reliable, built-to-last connectors and cables. Glenair Series 928 quarter-turn bayonet connectors meet demanding European "VG" standards for performance, durability, and ruggedness. Available in all standard lighting industry configurations, these connectors feature electrocoated aluminum housings, neoprene inserts, and machined copper alloy contacts.

- **Nine industry-standard contact arrangements for use on Arri, DeSisti, Cinemills, Filmgear, Mole-Richardson and other HMI lighting solutions**
- **Rugged shells and couplings resist handling damage**
- **Fluted and/or rubber-coated coupling nuts facilitate easy mate and demate**

SERIES 928 HMI CONNECTOR SELECTION GUIDE

HMI Line Receptacle

HMI Panel Receptacle

HMI Line Plug, Heavy-Duty Coupling Ring

HMI Line Plug, RadGrip Coupling Ring

HMI Panel Plug

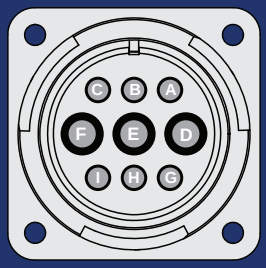
SERIES 928

HMI Lighting Connectors

Available industry-standard insert arrangements

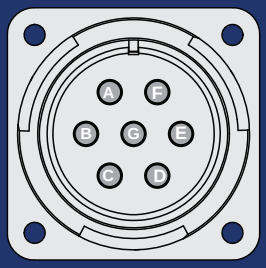
14S-07

Interchangeable, intermateable with Veam 14SA7
(7) size #16 contacts
This connector is used on:
Arri 200W
Mole-Richardson 200W and 800W
K5600 Jokerbug 200W, 400W, and 800W.



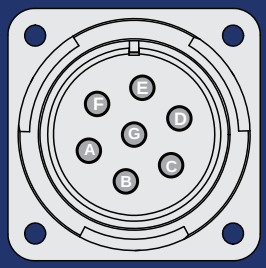
24-11

(3) size #8 contacts, (6) #12 contacts
This connector is used on:
DeSisti 4KW (blue)



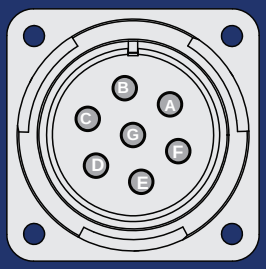
24-2

(7) size #12 contacts
This connector is used on:
Arri 2.5 KW, 4KW
DeSisti 2.5KW (red)
Cinemills 2.5KW, 4KW
Filmgear 2.5KW, 4KW
Mole-Richardson 2.5KW, 4KW



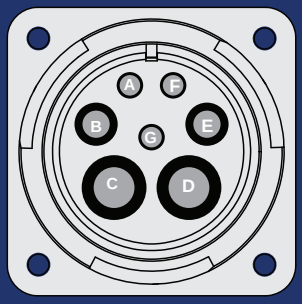
24-2W

(7) size #12 contacts
This connector is used on:
Arri 575W, 1200W, 1800W
DeSisti 1200W (yellow)
Cinemills 575W, 1200W, 1800W
Filmgear 575W, 1200W
Mole-Richardson 1200W



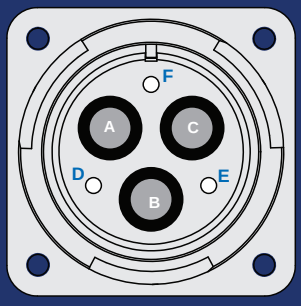
24-2Z

(7) size #12 contacts
This connector is used on:
DeSisti 575W (green)



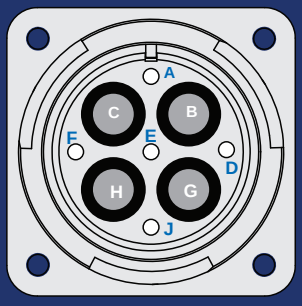
28-10

(3) #12 contacts, (2) #8 contacts, (2) #4 contacts
This connector is used on:
Cinemills 12KW, 18KW, 24KW
Filmgear 24KW
Mole-Richardson 12KW, 18KW, 24KW



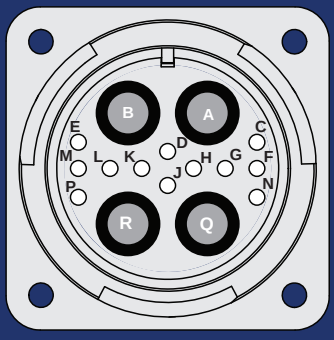
28-22

(3) #16 contacts, (3) #4 contacts
This connector is used on:
Arri 6KW, 9KW
Filmgear 6KW



28-09

(5) #16 contacts, (4) #4 contacts
This connector is used on:
Arri 12KW, 18KW
Filmgear 12KW, 18KW



32-68

(12) #16 contacts, (4) #4 contacts
This connector is used on:
DeSisti 6KW (white), 12KW (pink), 18KW (orange)
Mole-Richardson 6KW

Mating face of socket connector. Pin connector identification is reversed.

ETHERNET-READY

Super ITS-ITH Octobyte

The faster ruggedized 4/8 pole interconnect system for Ethernet data applications

Glenair series ITH connectors with Ethernet-ready Octobyte™ contacts are available for harsh-environment mass transit applications that depend on sealed environmental (IP67) connector performance. Octobyte contacts, packaged in ruggedized ITH reverse-bayonet connectors, deliver both dedicated Ethernet datalink as well as mixed serial databus and power for high-speed data applications.

Octobyte™ contacts are vibration resistant and designed to work with Ethernet cables from CAT 5 to CAT 7A, MVB-WTB, and RG58 Coax. Reverse-bayonet ITH series connectors with Octobyte™ contacts are easy and fast to assemble and deliver reliable locking performance in severe vibration and shock applications.

Tested for compliance IAW EN50173-1 standards for CAT5E and CAT7.
Proven performance in numerous rail applications (consult factory for references).

- **For harsh-environment transit, industrial, or marine/ subsea applications**
- **RF Coax applications (RG58 and RG59U cables)**
- **High-speed interconnect solution for audio, video, and digital displays**
- **Qualified for use in safety systems, sensors, detection devices, and control panels**
- **Tested in accordance with:**
  ISO F0 STP: CAT 7A
  EN50173-1 F600-STP: CAT 7
  EN50173-1 D STP: CAT 5E

RUGGED REVERSE-BAYONET

Super ITS-ITH Octobyte™ High-Speed Ethernet Connectors

OCTOBYTE CONTACTS FOR ETHERNET CAT 5 · CAT 6 · CAT 7 · COAX · MVB-WBT

How To Order Octobyte contacts								
Sample Part Number	**Q**	**0**	**8**	**P**	**-A**	**B1**	**-XXX**	**-7A**
Product Series	Octobyte contacts							
Contact Size	**0** = contact size 0							
Number of Contacts	**8** = 8 poles **4** = 4 poles **CX** = Coax							
Contact Gender	**P** = Male **S** = Female							
Cable O.D. Range/ Coax Cable Type	**A** = O.D. 6–7 **B** = O.D. 7–8 **C** = O.D. 8–9 **RG58** = 50 Ohm **RG59U** = 75 Ohm [Coax only]							
Plating	**B1** = gold plating							
Alternative Color (Cat 7A only)	**G14** = Black **G14GN** = Green **G14GY** = Grey **G14R** = Red **G14Y** = Yellow **Omit** for standard							
Ethernet	**7A** = Cat 7A **AD** = Ethernet MVB - WBT Contacts **Omit** for Cat 5							

CAT 5 · CAT 5E · CAT 6 · CAT 6A

RG58

CAT 6A · CAT 7 · CAT 7A

MVB - WTB

SERIES ITH REVERSE BAYONET-LOCK CONNECTORS FOR OCTOBYTE CONTACTS

Rugged environmental performance – the perfect Octobyte packaging solution

Dozens of contact arrangements available including hybrid Octobyte, power, and signal.

- **Rugged MIL-DTL-5015 type design with fast reverse bayonet coupling**
- **Rigid dielectric inserts with contact retention clips**
- **Positive lock technology provides reliable vibration and shock resistance**
- **Proven performance in even the most rugged applications**
- **Conforms to the European VG 95234 standard, French (NFF 61030) and British (BS 6853) electrical standards and EEC compliance directives**
- **Threaded coupling version available, contact factory for ordering information**

Ethernet-ready Octobyte solutions for rail and transit applications are available as discrete contacts, packaged in rugged reverse-bayonet ITH series connectors, or as turnkey inside-the-box or environmental cable assemblies, tested and ready for immediate use.

Available flop-lid protective cover.

RadGrip rubber-covered coupling nuts available in a wide range of colors including safety red.

RUGGED REVERSE-BAYONET

Super ITS - IFO B Fiber Optic Connectors

High-speed, high data rate fiber optic connectors for harsh environmental conditions

Glenair Super ITS - IFO B connectors meet the need for high-speed, multi-gigabit data transmission in rugged harsh environments such as armored combat support vehicles, communications shelters and bunkers, military aircraft, harsh wayside rail applications, and more. These optical fiber-equipped interconnects far outstrip the data carrying capacity and speed of conventional copper wire systems. Super ITS - IFO B interconnects pack orders of magnitude more data with almost instantaneous delivery to the user and are immune to all forms of electromagnetic interference.

Glenair Super ITS - IFO B fiber optic connectors are available with 2, 4, 6, or 12 termini configurations. Termini accommodate 9/125 (Singlemode), 50/125 and 62/125 (Multimode) optical fibers with a maximum 1.4dB insertion loss. Backshells and adapters are engineered to minimize bend radius and provide strain relief with design improvements such as integral wire sealing grommets and retractable conduit fittings. Fiber optic cleaning and inspection toolkits as well as fiber optic termination training and certification are also available.

- **EMI and spark/arc immunity for high-reliability settings**
- **2, 4, 6, or 12 fiber optic termini configurations available**
- **Termini accommodate 9/125 (Singlemode), 50/125 and 62/125 (Multimode) optical fibers**
- **Turnkey high-speed fiber optic interconnect cables and harnesses available**
- **Environmentally sealed (IP67)**
- **UL94-V0 compliant fiber optic cable**
- **Integrated optical media alignment grommet**

RUGGED REVERSE-BAYONET

Super ITS-IFO B High-Speed High-Data Rate Fiber Optic Connectors

Product Selection Guide

Super ITS - IFO B Fiber Optic Connectors

2-Pole fiber optic, shell size 10SL connector with environmental sealing PHM or Strain Relief PHM backshell

Super ITS - IFO B Fiber Optic Connectors

4-Pole fiber optic, shell size 16S connector with environmental sealing strain relief backshell and Kevlar fiber retention

Super ITS - IFO B Fiber Optic Connectors

6-Pole fiber optic, shell size 24 connector with environmental sealing PG backshell for conduit termination or PGSW backshell with strain relief for use with jacketed cables

Super ITS - IFO B Fiber Optic Connectors

12-Pole fiber optic, shell size 32 fiber optic connector with environmental sealing PG backshell for conduit termination

SUPER ITS - RJ45 SUPERSEAL™

Ruggedized RJ45 MIL-DTL-5015 type reverse-bayonet field connectors for harsh-environment applications

IP67 open-face rated connectors with RJ45 jack, crimp contacts, solder cups, or PC tails

Glenair Super ITS RJ45 SuperSeal Cat 5e Ethernet connectors provide IP67 sealing in the un-mated condition and meet IP68 requirements in the mated condition. Rugged environmental VG95234 type / 5015-intermountable connector interface features quick reverse-bayonet coupling for fast reliable mating in hard-to-reach locations. In addition to reliable environmental sealing, Glenair Super ITS SuperSeal RJ45 solutions are designed for superior EMC performance and are supplied with the industry's broadest range of wire terminations including crimp, solder cup, and PC tail.

VG95234 type connector with sealed RJ45

- **Superior sealing—IP67 unmated—for complete system protection against water, sand and dust**
- **Highly durable RJ45 designs, including enhanced operating temperature, increased life-cycle, and rugged vibration and shock performance**
- **Shielded/grounded coupler designs for receptacle connectors**
- **Crimp, solder-cup, and PC tail, termination options**
- **RJ45 plug and/or jack interface options available in Cat 5e**
- **Intermateable with other RJ45 field-duty connectors**

REVERSE-BAYONET

Super ITS - RJ45 SuperSeal™ Ruggedized Cat 5e Ethernet Connectors

Product Selection Guide

Super ITS - RJ45 SuperSeal Ethernet Connectors
Connector overview and performance, material and finish, panel cutouts and modifications codes

Super ITS RJ45 SuperSeal 300
Super ITS 300: Rugged reverse-bayonet plugs and receptacles with easy plug-and-play cabling to commercial Cat 5e RJ45 cables.

Super ITS RJ45 SuperSeal 301
Super ITS 301: crimp contact connectors

Super ITS RJ45 SuperSeal 302
Super ITS 302: PC tail connectors

Super ITS RJ45 SuperSeal 303
Super ITS 303: solder cup connectors

Super ITS RJ45 SuperSeal 300H
Super ITS 300H: connector and ZL cable shield banding adapter with shrink boot groove

Super ITS RJ45 SuperSeal 300H
Super ITS 300H: connector pigtail assembly—with ZL banding adapter and shrink boot

Super ITS RJ45 SuperSeal 300H
Super ITS 300H: connector with M or PG style adapter for flexible conduit wire protection applications

Super ITS RJ45 SuperSeal 300H
Super ITS 300H: connector with cable-sealing backshell and optional cable shield termination

Super ITS RJ45 SuperSeal 330
Super ITS 330: feedthrough connector with RJ45 jack/jack mating interface

SUPER ITS - USB SUPERSEAL

Ruggedized USB Type A MIL-DTL-5015 reverse-bayonet field connectors for harsh-environment applications

IP67 open-face rated connectors for wire and printed circuit board terminations plus pigtail cable assemblies

Rugged reverse-bayonet connector with USB Type A commercial connector interface

Complete range of connector configurations including bulkhead feedthrus

Wide range of wire termination options (crimp contact version shown)

Features:

- **Superior sealing—IP68 mated, IP67 unmated—for complete protection against water, sand, and dust**
- **Highly durable USB 2.0 Type A-equipped designs, with enhanced operating temperature, increased life-cycle, and rugged vibration and shock performance**
- **Crimp, solder-cup, USB jack, and PC tail termination options**

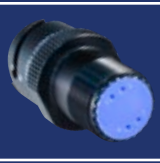
COMPATIBLE WITH USB 2.0 AND 1.1

Super ITS - USB Type A SuperSeal™ Rugged Field Connectors

Environmental, shielded, reverse-bayonet connectors

Super ITS - SuperSeal USB 2.0 Connectors
Connector overview and performance, material and finish, panel cutouts and modifications codes

ITS 340
USB 2.0 Type A connector with rear USB jack



ITS 345
USB 2.0 Type A connector with crimp contacts

ITS 342
USB 2.0 Type A connector with PC tails

ITS 343
USB 2.0 Type A Connector with Solder Cups

ITS 340H
USB 2.0 Type A connector with rear USB jack and adapter with shield termination platform and shrink boot grove

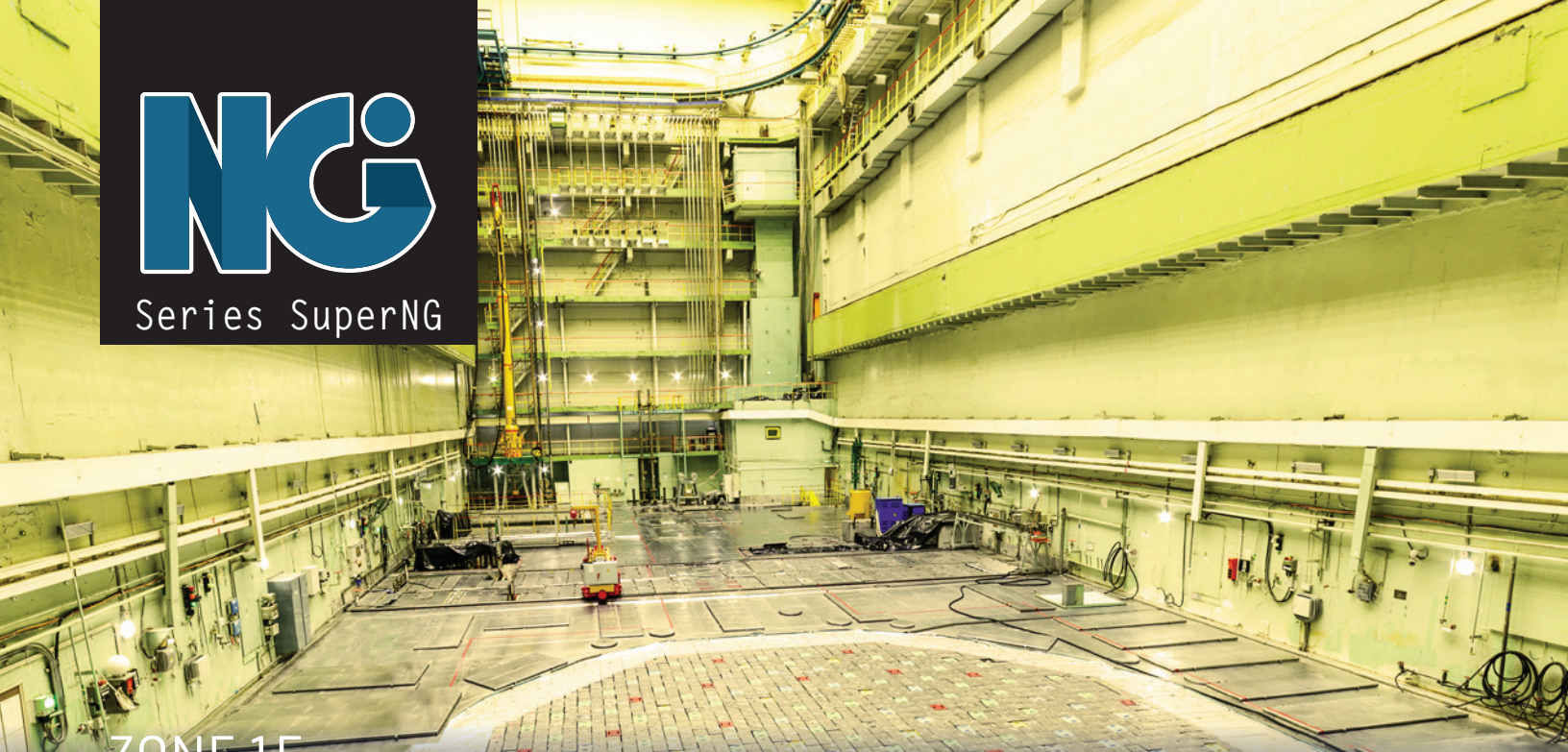
ITS 340H
USB 2.0 Type A connector with rear USB jack and EMI backshell with pre-installed Cat 5e cable and shrink boot; loose wire end is unterminated

ITS 340H
USB 2.0 Type A connector with rear USB jack and metric or PG thread backshell for conduit attachment

ITS 340H
USB 2.0 Type A connector with rear RJ45 jack and backshell with metallic cable gland with optional shielding and pigtails

ITS 370
USB 2.0 Type A feedthrough connector with RJ45 jacks on both sides for connectorized mating on both sides of a bulkhead

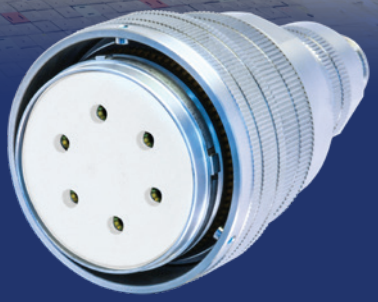
Series SuperNG



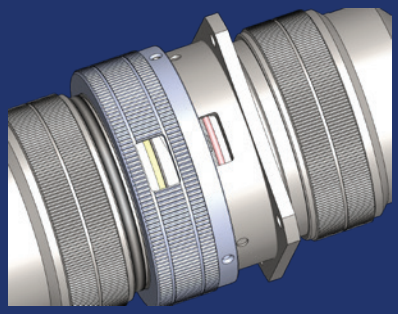
ZONE 1E

SuperNG

Double peripheral seal reverse-bayonet connectors designed to meet the latest, most stringent global Zone 1E qualification standards including those requiring long-term submersion



The Glenair SuperNG series is designed to exceed the most stringent Gen III zone 1E plant LOCA qualification criteria, including those requiring long-term submersion and a 60 year plus installed life. SuperNG quick connect connectors utilize potted machined stainless steel shells on both plug and receptacle, with triple keyways and a precise reverse-bayonet coupling system, designed to ensure simple and accurate mating alignment by double-gloved technicians during outage servicing. Precision-machined non-organic ceramic inserts guarantee lifetime contact alignment and maximum temperature and radiation resistance. Double peripheral seals are formulated from a Glenair signature EPDM material specifically designed for high radiation and high temperature zone 1E applications. SuperNG offers full EMC compliance to the most severe Gen III plant requirements.



Signature double O-ring peripheral seal

SuperNG connectors are available in a broad range of shell sizes and contact configurations with industry-standard NPT threads for device mounting of receptacles to pressure transducers, solenoids, and limit switches, as well as configurations for all other plant I&C and small to medium motor applications, including CRDM, DRPI, and fan RTDs and motors.

- **Machined / passivated stainless steel shells**
- **Stainless steel backshells for backpotting**
- **NPT threaded plugs and receptacles**
- **Radiation-resistant inserts, gaskets, seals, O-rings**
- **Standard signal, power, or thermocouple contacts**
- **Triple polarization keys and keyways**

NUCLEAR-GRADE QUICK-CONNECT CONNECTORS

Double Peripheral Seal Interconnect for Stringent Gen III Plant Containment Area Applications

SuperNG performance and applications

Glenair SuperNG connectors are optimized for containment area applications in modern Gen III nuclear plants that require performance to the industry's most severe requirements, including high radiation resistance, high-temperature tolerance, fluid/chemical resistance, and corrosion resistance. Non-organic ceramic inserts guarantee radiation and temperature resistance for a 60+ year installed life, and custom-formulated EPDM O-rings ensure maximum performance and long-term compression set resistance. All components are manufactured in-house under our 10CFR50 Appendix B audited nuclear quality program.

Test Phase	Qualification Parameter Levels
Functional Tests (repeated between test phases)	Insulation Resistance (500VDC) Contact Resistance (1 amp applied current) Dielectric Withstand Voltage (2200VAC/60 sec) Visual Inspection
Thermal Aging	Arrhenius Methodology for 60 Year Qualified Life O-Rings replaced at 10 years or each mating cycle QL includes Normal + Abnormal environment
Thermal Cycle Aging	100 Cycles 70°F to 175°F (2 hour dwell times) 15Cycles 70°F to 250°F (2 hour dwell times)
Connection Cycling	550 Connect/Disconnect Cycles unpowered
Radiation Aging and Accident Radiation	275 Mega-Rads (Gamma + Beta radiation) @ < 1.0 Mrads/hr
Vibration Aging	90 min/axis (X,Y,Z) @ 0.75g from 5 – 100 – 5 Hz
Seismic Qualification	IEEE 344 (RMF) & IEEE 382 (RIM) testing RMF: 5 OBE = 1 SSE, 1-100HZ, ZPA >12g RIM: Res Search, 2 OBE + 1SSE sine motion (IEEE382) Powered & Monitored for chatter/continuity & shorting >1 msec
Containment Pressure	75 psig air for 24 hours at 24°C Powered & Monitored for continuity and shorting
Accident Qualification	Steam Test with, Two Transients, RT to 435°F/75 psig in 20 sec Transient 1: RT to 325°F in <5 sec, Reach 435 in 20 sec, 2 hrs Transient 2: RT to 325°F in <5 sec, Reach 435 in 20 sec, Chemical Spray (pH max 11.0), 27 hours of spray, Once temp cools to 185°F, flood chamber with chem spray solution and leae test specimens submerged for 1 year. Powered and Monitored continuously for continuity and shorting

SuperNG mated pairs are available as qualified prewired and potted assemblies with customizable cable length on the field side, as well as length of individual conductors on the device side for specific application requirements.

GLENAIR SuperNG ZONE 1 INTERCONNECT APPLICATION SUPPORT

SuperNG is optimized for equipment applications in containment area Zone 1E including:

- **Valve control/monitoring**
- **Pressure transducers**
- **Control rod drive mechanisms**
- **Rod position indicators**
- **Pressure transmitters**
- **Solenoids**
- **Hydrogen detectors**
- **Fuel handling equipment**

Series ITS-NG

Series ITS-NG Reverse-Bayonet Coupling

Nuclear industry standard power and signal connectors for existing Gen II plant refurbishment

Glenair ITS-NG series connectors can be configured to meet Gen II LOCA requirements and are suitable for equipment retrofit and refurbishment applications to legacy plant containment area requirements. These industry-standard legacy reverse bayonet-lock connectors offer fast and reliable mating and unmating. Shells are available in stainless steel or aluminum in various finishes and platings, offering insert and O-ring material choices such as EPDM, silicone, PEEK, Epiall and others.

The Nuclear-Grade ITS series connector is a Glenair MIL-DTL-5015 reverse-bayonet connector, dimensionally and electrically compliant to MIL-DTL-5015 specifications, and offering the full array of contact plating and size options, and power and signal insert arrangements.

These connectors are available as commercial grade, or can be manufactured under our 10CFR50 Appendix B nuclear quality program.

Discrete connectors or turnkey cable assemblies

- **Fast connect / disconnect reverse-bayonet coupling**
- **Stainless steel or aluminum shells with various plating and finish options**
- **Chemical / radiation tolerant and moisture resistant inserts and O-rings**
- **Performance tested for advanced temperature, radiation, and seismic**
- **Ideally suited for I&C applications, valve control devices, sensors, and other electronic equipment in nuclear rest-of-plant and safety-related applications**

Reverse-Bayonet (5015 type) Interconnect for Rest-of-Plant and Legacy Containment Area Applications

GLENAIR SERIES ITS-NG APPLICATION NOTES

- Series ITS-NG connectors are based on the legacy MIL-DTL-5015 standard, with the same insert arrangements, shell dimensions, supported contacts, and electrical performance ratings—but with an improved reverse-bayonet coupling technology in place of the threaded interface used on standard MIL-DTL-5015.
- The ITS-NG family of connectors features improved O-ring sealing and other design enhancements for use in Gen II plant safety-related applications, as well as for use in rest-of-plant applications. For new interconnect applications in modern-day Gen III power plants, Glenair recommends the SuperNG or Mighty Mouse NG series.
- ITS-NG is an industry-standard legacy connector design, intermateable and intermountable with all other 5015-based reverse-bayonet connector series. ITS-NG is appropriate for retrofit and refurbishment applications, as the 3-point bayonet coupling mechanism reduces mating/unmating time, an important consideration in time-sensitive outage servicing. Positive locking of the three stainless steel pins provides audible, visual and tactile confirmation of full mating engagement for double-gloved technicians, as well as resistance to vibration and shock, preventing connector de-coupling in harsh device-mount applications such as steam-pipe mounting.
- Both plug and receptacle connector configurations are available with client-specified insert and O-ring materials, such as EPDM, silicone, Epiall, or PEEK.
- ITS-NG connectors may be supplied with backshells and accessories for IP-rated environmental sealing for high humidity and submersion applications.
- Glenair ITS-NG connectors are particularly well-suited for use in applications where electromagnetic compatibility is a requirement, as a complete range of EMI shield termination accessories is available for overall and individual wire shields.

CONTACT SPECIFICATIONS
Copper alloy with gold plating (standard)

Contact Size	Rated Current at 20 C	Rated Current at 80 C	Max. Contact resist.	Wire size
20	7.5 A	7.5 A	12.0 mΩ	20-26 AWG
18	10A	7.5 A	12.0 mΩ	18-26 AWG
16	22 A	13 A	6.0 mΩ	16-22 AWG
12	41 A	23 A	3.0 mΩ	12-14 AWG
8	73 A	46 A	1.0 mΩ	8-10 AWG
4	135 A	80 A	0.5 mΩ	4-6 AWG
0	245 A	150 A	0.3 mΩ	0-2 AWG
4/0	350 A	225 A	0.2 mΩ	4/0 AWG

SERVICE RATING
(Minimum Insulating resistance: ≥ 5 x 10^3 MΩ)

Class	Operating voltage VDC	Operating voltage Vac RMS	Test voltage Vac RMS
INST.	250 V	200 V	1000 V
A	700 V	500 V	2000 V
D	1250 V	900 V	2800 V
E	1750 V	1250 V	3500 V
B	2450 V	1750 V	4500 V
C	4200 V	3000 V	7000 V

Materials and Finishes	
Shells, Coupling Nuts	316 Stainless Steel, Passivated Aluminum—various platings and finishes available
Contacts	Copper alloy, Gold Plated or Silver Plated for larger contacts in higher-amperage applications
Hoods (Socket contacts)	Copper Alloy, Nickel-Plated
Pencil Clip (Socket contacts)	Stainless Steel
Wave Spring	Stainless Steel
Grounding Finger	Beryllium Copper

Mighty Mouse NG

Ultraminiature Mighty Mouse NG

High-performance small form-factor connectors designed to meet the latest global qualification requirements, including those requiring long-term submersion

- 3500 psi pressure rated
- Ultraminiature #23 contacts
- Size #20, #20HD, #16, #12, #8 signal, power, fiber optic and shielded contacts
- Discrete connectors and turnkey cable assemblies

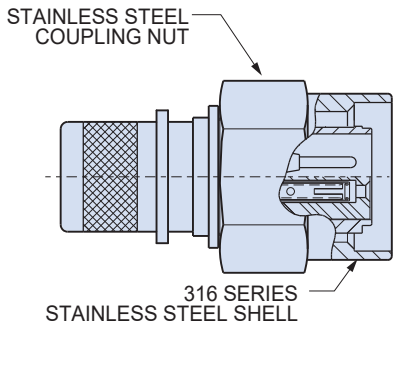
High density, small form-factor Mighty Mouse NG connectors are designed for use in the latest Gen III nuclear power plants . Series 802 Mighty Mouse NG connectors are built to meet severe nuclear industry application requirements, including long-term submersion, prolonged radiation, and 60-year installed life. The series is available in ten sizes from 1 to 130 contacts. These ultraminiature connectors (half the size and weight compared to standard nuclear-grade connectors) feature high-density inserts, 316 stainless steel shells and a piston O-ring. Gold–plated crimp contacts accept #12 to #30 AWG wire. Connectors can be purchased prewired and potted for fast in-plant installation.

Custom high-pressure glass sealed and bulkhead feed-thru versions available; consult factory.

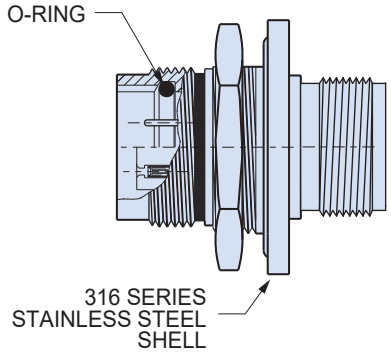
Ultraminiature High-Pressure Interconnect for Stringent Containment Area (Zone 1E) Applications

Mighty Mouse NG specifications

GLENAIR MIGHTY MOUSE NG DELIVERS HIGH-PRESSURE SEALING AND RUGGED DESIGN IN A MINIATURE PACKAGE



Mighty Mouse NG Plug



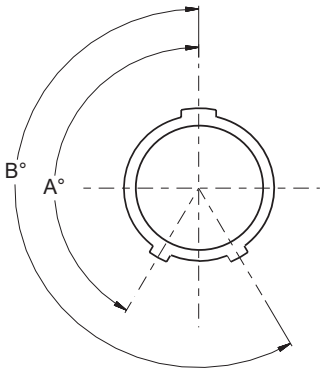
Mighty Mouse NG Receptacle

Stainless Steel
Available in ten sizes from 1 to 130 contacts, Series 802 connectors feature 316 stainless steel shells.

3500 psi
These connectors withstand up to 3500 PSI hydrostatic pressure in a mated condition. Potted versions withstand 1000 PSI open face pressure.

MIGHTY MOUSE NG SPECIFICATIONS AND PLUG KEY POSITIONS

Plug Key Positions



Key Position	Key Rotation	
	A°	B°
Normal (A)	150°	210°
B	75°	210°
C	95°	230°
D	140°	275°
E	75°	275°
F	9°	210°

Performance Specifications	
Current Rating	#23–5 A, #20–7.5 A, #16–13 A, #12–23 A
Dielectric Withstanding Voltage	#23–750 VAC, #20HD–1000VAC, #16 and #12–1800 VAC
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +175° C.
Hydrostatic Pressure	3500 PSI mated, 1000 PSI open face (hermetic)
Shock	300 g.
Vibration	37 g.
Durability	2000 mating cycles

Material and Finish	
Shells, Jam Nuts, Coupling Nuts	316 stainless steel
Contacts	Copper alloy, 50 µInch gold plated. Socket hood: stainless steel, passivated. Hermetic pin contacts: Nickel-Iron alloy per ASTM-F-30, 50 µInch gold plated.
Contact Retention Clip	Beryllium copper alloy

ITS POWER™

Multi-pole signal and power contact arrangements as well as single-pole (VG96929 / Glenair IGE Series) configurations

SR. ITS REVERSE-BAYONET

Rugged reverse-bayonet circular power and signal connectors for general-purpose rail and industrial applications

Environmental and mechanical protection of cables, conductors, and contacts is a critical requirement in rail and industrial applications especially when frequent mating and unmating is required, or when cables are routed through exposed intercar or undercar locations. To ensure rapid and accurate car linking and cabin reconfigurations, interconnects must be easy to couple and keyed to avoid mis-mating. Vibration, shock and connector decoupling problems are also common in rail applications, and require focused attention when selecting shell materials and mating technologies. As passenger and crew safety is paramount, interconnection systems must not compound flammability, smoke, or toxicity risks. Series ITS meets all of these requirements and more, and has demonstrated proven performance on virtually every rail industry sub-system.

- **Proven interconnect solution designed and built in accordance with MIL-DTL-5015**
- **Qualified to VG95234**
- **Hundreds of power and signal contact arrangements (crimp and solder)**
- **Reverse bayonet, quick-disconnect coupling technology**
- **Standard insert (Series ITS), flame-resistant insert (Series FRITS), rigid dielectric insert (Series ITH), and high-temperature ceramic stainless steel firewall (Series ITK)**

SERIES ITS (EXPLODED VIEW)

- Machined body and shell components
- Broad range of plating choices including innovative new Tin-Zinc formulas
- Silver- or gold-plated crimp and/or solder cup contacts
- Reverse-bayonet mating with stainless steel locking pins
- Environmentally sealed

REVERSE-BAYONET

Industry-Standard 5015-Type Power and Signal Connector Series

VG-qualified and Glenair Signature solutions

FR ITS SERIES

FR ITS is the fire-resistant ITS connector series, designed with flame, smoke, and toxicity-compliant insulating materials, FRITS is broadly utilized for environmental and non-environmental rail applications. More than 230 insert arrangements are available, from 1 to 150 contacts. FRITS connectors are RoHS-compliant, and IP67 environmentally sealed.

Available FRITS - STR backshells provide versatile locking of cables or wires into the connector, providing IP67 sealing and EMI/RFI termination.

FR-ITS STR backshell for EMI shielding and IP67 sealing

ITH SERIES

The ITH connector series is based on the MIL-C-5015 standard but with improved reverse bayonet coupling. Rigid inserts and crimp contacts provide better electrical insulation and reduced assembly time. The 3-point, positive-locking reverse bayonet coupling mechanism provides easier mating in awkward positions, reliable resistance to vibration and shock, and prevents de-coupling. ITH connectors conform to the VG95234 standard, French (NFF 61030) electrical standards, as well as EEC compliance directives for electromagnetic compatibility. EMI shield termination accessories are available for both overall as well as individual wire shields.

- Design IAW MIL-C-5015 and VG95234
- Temperature range -40°C to +100°C (conductive plating) or -55°C to +125°C (non-conductive plating)
- RoHS compliant
- Low fire hazard inserts, UL94V0 and NFF 16-102 compliant
- Halogen-free silicone rubber gaskets per NFF 16-102

ITK SERIES

Standard plug and receptacle

The high-temperature tolerant ITK series is a rugged reverse-bayonet mating connector that utilizes stainless steel connector shells and special high-temperature ceramic inserts. Compliant to EN 45545 standards, ITK connectors are capable of operation at +700°C for 15 minutes without electrical discontinuity.

ITK "piccolo" 2-pin plug and receptacle

- Ultra high-temperature tolerant ceramic inserts
- Stainless-steel construction
- EN 45545 compliant
- Operates at +700°C for 15 minutes, with no electrical discontinuity

SERIES IPT AND IPT SE

Rugged environmental bayonet connector series is resistant to vibration, shock, and environmental damage

Wide range of straight and 90° backshells available for ease of cable routing

Series IPT and IPT SE are industry-standard solder contact and crimp contact multipin circulars IAW MIL-DTL-26482. Designed for use in both military and industrial applications that depend on a quick-mating and demating bayonet connector with a broad available range of power and signal contact arrangement.

The Glenair Series IPT SE bayonet-lock connector is designed for all general and environmental applications that require a high-performance military-type cylindrical connector with support for crimp-removable contacts, standard wire gages, and tools. Qualified to VG95328, the bayonet mechanism provides fast and easy coupling, especially when the connector is situated in an awkward or hard-to-reach location.

Environmental protection to IP67 levels provides additional reliability and the flexibility to specify these rugged connectors in harsh applications such as in machine tools and factory automation. Supplied crimp contacts are gold-plated copper alloy. Inserts are made from high-insulation synthetic rubber, oil, and temperature resistant from -55° C to +125° C (polychloroprene) to +200° C (silicone). The IPT Series connector is similar in all regards, utilizing the same contact arrangements, but is supplied with solder contact wire termination.

The Series IPT SE Connector is interchangeable and intermateable with the wide range of industry-standard bayonet connectors designed around MIL-DTL-26482 Series I and/or qualified to VG 95328, including ITT Cannon KPT.

AVAILABLE CONFIGURATIONS

VG95328 Bayonet-Lock
IAW MIL-DTL-26482

Series IPT-SE crimp-contact
in accordance with MIL-DTL-26482

Series IPT solder contact
in accordance with MIL-DTL-26482

STANDARD BAYONET

Series IPT and IPT SE

Rugged, industry-standard multipin power and signal connectors

Glenair IPT and IPT SE series connectors offer rugged, high vibration performance and rapid mating for both high-performance and general duty signal connector applications. The products are environmentally sealed and can be equipped with EMI/RFI shield termination backshell accessories. IPT SE is qualified to VG 95328. Both product series are in accordance with MIL-DTL-26482 Series I.

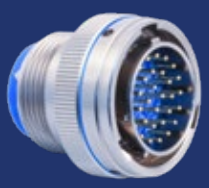
IPT-SE AND IPT PRODUCT FEATURES AND SPECIFICATIONS	
Feature	**Description**
Applications	Factory equipment, o-road vehicles, military vehicles, sensors, power generators, and other industrial applications.
Shell Construction	Aluminum shell bodies provide durable performance in a lightweight package.
Mating System	Three pin bayonet system, 1/2 turn to full mate.
Shell Surface Coatings	A range of conductive and non-conductive surface coatings including standard Cadmium finishes as well as RoHS compliant elecrostatic paint.
Environmental Sealing	Individual wire sealing grommets and optional environmental backshells provide moisture protection up to IP67.
Temperature Tolerance	F6, F7, F11, and G3 plated connectors are tested to -55°C to 125°C.
Contacts	High performance crimp contacts and retention clips (IPT SE) and general duty crimp and solder contacts (IPT).
Contact Plating	Copper alloy with gold plating.
Wire Gauge	Contacts support wire sizes #12 - #14 (Size 12), #16 - #20 gauge (Size 16) and #20 - #24 (size 20).
Insert Materials	Resilient high-insulation synthetic insert (polychloroprene or silicone). IPT SE version includes hard plastic retention clip retainer.
Insert Arrangements	IPT SE: 25 dierent power and signal insert arrangements, featuring 16 and 20 gauge contacts; 3 to 61 contacts. IPT: 39 dierent power and signal insert arrangements, featuring 12, 16 and 20 gauge contacts; 2 to 61 contacts.
EMI Shielding	Shield termination backshell accessories are available for all plug and receptacle congurations.
Shell Styles	Complete range of shell styles is available, including front and rear mount angle receptacles, jam-nut receptacles, bulkhead feedthrus, and straight and 90° plugs.
Polarization	5 keyway configuration with optional polarization.
Approvals	IPT SE is qualified to VG 95328. Both IPT and IPT SE meet all requirements of MIL-DTL-26482 Series I.
Intermateability	Intermateable with all industry standard bayonet connectors designed to MIL-DTL-26482 Series I and VG 95328 including Veam VPT, Amphenol PT, and ITT Cannon KPT.

MIL-DTL-26482 Series 2 Type

Rugged bayonet-coupling crimp-contact connectors

- For rugged military and industrial applications that require quick mate/demate three-point bayonet-lock coupling.
- Glenair 26482 Series 2-style connectors offer high-performance plating options unavailable in standard mil-spec parts including TZ Tin-Zinc, our recommended RoHS-material AMS2434 Type 2 qualified cadmium-compatible replacement, ZR black zinc-nickel, and Z1 passivated stainless steel.
- Complete range of tooled MIL-STD-1669 insert arrangements for size #20, #16, and #12 signal and power crimp, rear-release contacts. The Glenair solution offers three shell size 8 arrangements not available in the mil-spec version.
- Available integrated cable-shield banding porch option as well as PCB versions with rugged threaded standoffs for secure circuit board attachment.

Threaded connector accessory interface and wire sealing grommet standard. Glenair signature integrated band porch versions also available.



Plug connectors

Narrow-flange wall-mount receptacles

Wide-flange wall-mount receptacles

Cable-connecting receptacles

Jam-nut receptacles

BAYONET-LOCK

MIL-DTL-23482 Series 2

Glenair signature and QPL (pending)

COUPLING TORQUE		
Shell Size	Torque	
	Maximum engagement and disengagement	Minimum disengagement
8	8 (.904 N-m)	1 (.113 N-m)
10	10 (1.13 N-m)	1 (.113 N-m)
12	14 (1.58 N-m)	2 (.226 N-m)
14	17 (1.92 N-m)	4 (.452 N-m)
16	23 (2.60 N-m)	4 (.452 N-m)
18	26 (2.94 N-m)	4 (.452 N-m)
20	31 (3.50 N-m)	6 (.678 N-m)
22	38 (4.29 N-m)	7 (.791 N-m)
24	38 (4.29 N-m)	7 (.791 N-m)

DIELECTRIC WITHSTANDING VOLTAGE		
Altitude (ft.)	Minimum Test Voltages, AC (RMS)	
	Service Rating I	Service Rating II
Sea Level	1,500	2,300
50,000	500	750
70,000	375	500
110,000	200	200

WORKING VOLTAGE, AC, RMS		
Condition	Service Rating I	Service Rating II
Sea Level	600	1,000
70,000 ft.	600	450

MATERIAL AND FINISH OPTIONS

	Glenair code	Material	Finish	Finish Specification	Salt Spray Hrs.	Electrical Conductivity	Operating Temp. Range	RoHS Materials	Notes
Glenair COTS Code	AB	Marine Bronze	Unplated	AMS4640 alloy, unplated	1000	Conductive	-65° to +200°C	✓	Marine and geo-physical applications
	ME	Aluminum	Electroless Nickel	AMS-C-26074, Grade A; ASTM B733, SC 3	96	Conductive	-65° to +200°C	✓	Glenair's standard high-build electroless Nickel finish.
	NF	Aluminum	Cadmium, Olive Drab	AMS-QQ-P-416, Type II, Class 2, over electroless Nickel	500	Conductive	-65° to +175°C		Glenair's standard olive drab Cadmium finish.
	TZ	Aluminum	Tin-Zinc, Green-Gold	AMS2434, Type 2, over electroless Nickel	500	Conductive	-65° to +175°C	✓	Glenair's recommended Cadmium-compatible replacement.
	ZR	Aluminum	Zinc-Nickel, Black	ASTM B841, over electroless Nickel	500	Conductive	-65° to +175°C	✓	Glenair's standard black Zinc-Nickel finish.
	Z1	Stainless Steel	Passivate		48	Conductive	-55° to +200°C	✓	Passivated stainless steel

Consult Glenair for other material / finish options

MIL-SPEC CRIMP CONTACTS FOR GLENAIR SERIES 260-002 M26482 TYPE CONNECTORS

Glenair Series 260-002 MIL-DTL-26482 Series 2 type connectors are supplied with contacts (including spares), insertion / removal tool, and sealing plugs. Connectors may also be ordered without contacts. Additional contacts, insertion/removal tools, crimp tools, and positioners may be ordered using the part numbers on this page:

M39029/4-110
Size 20
pin contact

M39029/5-115
Size 20
socket contact

M39029/4-111
Size 16
pin contact

M39029/5-116
Size 16
socket contact

M39029/4-113
Size 12
pin contact

M39029/5-118
Size 12
socket contact

THREADED SERIES

Industrial-strength power and signal connector series with unique threaded coupling interfaces for special-purpose power and signal applications

Glenair ITS-Ex series encompasses both in-line cable plugs and receptacles as well as fixed bulkhead-mountable designs.

ITS-EX UL, ICEx, AND ATEX-QUALIFIED EXPLOSIVE ZONE CONNECTORS

ITS Ex™

Designed for safe operation in petrochemical refineries, oil & gas drilling platforms, and other explosion zone applications, the Glenair ITS-Ex series connector is optimized for life-of-system durability and reliability. Qualified by the globally-recognized IEC and IECEx standards bodies, the connector series is suitable for use in application areas where flammable gases and vapors are present as a normal condition of operation (group IIC) and with temperature classes T6 and T5, zones 1 and 2; and for applications where potentially flammable dust is present as a normal condition of operation (group IIIC) and with temperature classes T80°C and T95°C in zone 21 and 22. A full range of power and signal contacts, from size #16 to size #0 in over 40 insert arrangements are available to address all common voltage, wire size and connector service class ratings.

- **Utilizes all standard features of 5015 inserts, contacts, tools, etc.**
- **Grub nuts (set screw) to lock coupling nut**
- **Long plug barrels provide cooling zone**
- **Labyrinth gas exit port/ pathway augments cooling**
- **Accessory accommodation for potted glands**
- **Increased wall thickness**
- **Stainless steel and Marine Bronze available**

IT, ITZ, ITS-EX

Threaded-Coupling 5015-Type Special-Purpose Power and Signal Connectors

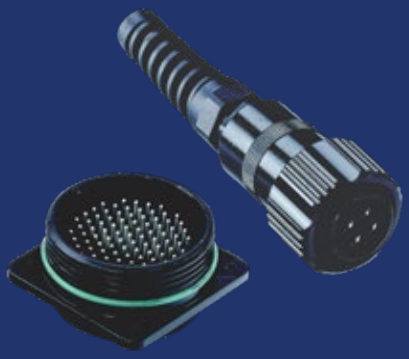
IT SERIES

Glenair's IT series threaded-coupling connectors are designed in accordance with the MIL-DTL-5015G specification and comply with all its requirements of performance, reliability and intermateability with connectors from other manufacturers that share the same material/plating characteristics and contact insert arrangements.

These rugged circular connectors, originally designed for military applications, are used widely in industrial applications where reliable environmental and mechanical performance is required.

A wide range of connector backshell accessories allows these connectors to be used in virtually any environment, while the high number of available contact arrangements cover every power and signal requirement commonly encountered in rail, industrial, robotic, and mining applications. Available in either crimp contact or solder cup termination with optional silver or gold contact plating as well as thermocouple contacts.

ITZ SERIES WITH RAPID-ADVANCE THREADED COUPLING



The ITZ connector series provides the same electrical characteristics as the IT and ITS families, but utilizes rapid-advance threaded coupling in place of bayonet coupling. Originally designed to be used on special amphibious military vehicles, the series evolved into a versatile railway and industrial connector, used where threaded coupling is desired. The ITZ connector series uses solder and crimp contacts in accordance with MIL-C-5015 and a trapezoidal threaded coupling system with rubber O-ring environmental seals.

- **Aluminum alloy construction with electrodeposited (cataphoresis) black coating (F6)**
- **Copper alloy contacts, silver plated**
- **Oil-resistant synthetic rubber insulators and O-rings**
- **Temperature tolerance -55° to +125°C**

RANGE OF APPLICATIONS FOR THREADED 5015-TYPE POWER AND SIGNAL CONNECTORS

- **Oil & gas extraction**
- **Oil refineries**
- **Gas pipelines and distribution**
- **Chemical processing plants**
- **Aircraft refuelling and hangars**
- **Transportation control panels**
- **Pharmaceuticals**
- **Sugar refineries**
- **Grain handling and storage**
- **Coal mining**

Available RadGrip coupling nut covers for ITS series connectors assist in mating threaded connectors in harsh weather applications.

IRIS CERTIFIED

International Railway Industry Standard Interconnect Solutions

- **Harsh-environment solutions in accordance with rolling stock, trackside, signaling, and infrastructure applications**
- **Single-pin power and multipin signal connectors with support for high-speed data, power, and RF**
- **Broad range of IRIS quality system certified solutions including the four series highlighted on this spread**

Glenair Italia (BLQ) qualifies annually for the European rail industry's highest quality certification standard. IRIS (International Railway Industry Standard) Certification complements the ISO 9001 quality standard and Glenair Worldwide Quality System by introducing rail-specific requirements.

IRIS certification seeks to avoid multiple business management system audits and enhance industry efficiency. The IRIS Certificate replaces individual management system evaluations by at least the four founders of this initiative (Alstom Transport, AnsaldoBreda, Siemens Transportation Systems, and Bombardier Transportation).

Companies seeking IRIS certification undergo extensive quality systems review and documentation, as well as auditing by a third-party examiner.

RUGGED RAIL APPLICATION

Power and Signal Connectors for mass transit applications

Micro-Switch · One Cable - Two Contacts · ERTMS

MICRO-SWITCH CONNECTOR

Receptacle connector with micro-switch sensing contact

The Glenair Micro-Switch connector is a rugged, reverse-bayonet connector for enhanced safety mating in rail applications. The connector is supplied with 3 #4/0 power contacts and a specially-designed sensing contact that allows current to flow only when the connector pair is fully mated.

- 3 #4/0 contacts and 1 sensing contact
- Thermoplastic resin insert (UL94 V0)
- IP67 environmental sealing
- Sensing contact is suitable for standard cavity
- 4 Amps current rating
- Operating Temp: -30°C to +75°C
- Solder lug termination

ONE CABLE - TWO CONTACTS

The "One Cable - Two Contacts" system is a rugged, RFI-shielded connector design that divides the source power in a 70 mmq cable into two contacts of 35 mmq each, enabling the plug connector to divide and deliver RFI shielded power via two separate cables. Designs for additional contact gages and power requirements are available. Mated pairs are sealed to IP67.

ERTMS INTERCONNECTION SYSTEM

Specially designed for utilization on the European Rail Traffic Management System, the ERTMS connector family offers plug connectors with integrated RFI shield termination backshells for complete electromagnetic compatibility when mated. Mated pairs offer IP67 environmental sealing.

"STINGER" SYSTEM

The Stinger System connector is equipped with integrated short circuit contacts which will cut power should the single-pole power circuit be unmated under load. The push-pull connector incorporates a fully insulated (rubber covered) coupling nut for additional user safety. Three backshell/rear fitting options accommodate conduit, PG gland, or rubber-covered backshell.

Signal and Lighting Systems

for Mass Transit

- Buttons
- Light Information Panels
- Communication Systems
- Operating Consoles
- LED Displays
- Signal Lights
- Touch Screen Monitors
- Test Equipment

LED LIGHTS AND LIGHT SIGNALING SYSTEMS

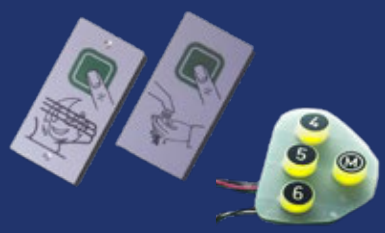
LED devices are designed to be installed in all compartments, from coaches to locomotives. Case and electronic components can be customized.

- Case: Aluminum
- Source: 18-36VDC
- Working Temperature: -25/+70°C
- Standards: EN50155; UNI CEI 11170

LIGHT BUTTONS

Circular and rectangular devices, timed or not, with writing in relief for blind persons. Pictographs and case can be customized. Programmable, with LED light source.

- Case: Aluminum
- Source: 18-36VDC
- Working Temperature: -25/+70°C
- Standards: EN50155; UNI CEI 11170



SPECIAL-USE BUTTONS

Circular and rectangular devices, timed or not, with writing in relief for blind persons. Pictographs and case can be customized. Programmable, with LED light source.

- Case: Aluminum
- Source: 18-36VDC
- Working Temperature: -25/+70°C
- Standards: EN50155; UNI CEI 11170

HIGH RELIABILITY

Signal and Lighting Systems

for mass transit

WARNING LED LIGHT PANELS

Panels are designed with LED lights. Number of lights, case and pictographs can be customized.

- Case: Aluminum
- Source: 18-36VDC
- Working Temperature: -25/+70°C
- Standards: EN50155; UNI CEI 11170

LED LIGHT INFORMATION PANELS

Number of lights, case, and pictographs can be customized.

- Case: Aluminum
- Source: 18-36VDC
- Working Temperature: -25/+70°C
- Standards: EN50155; UNI CEI 11170

INTERCOM SYSTEMS

Customizable intercom units designed as communication system between coaches and between coaches and locomotives.

- Case: Aluminum
- Painting: Epoxy paint
- Source: 18-36VDC
- Working Temperature: -25/+70°C
- Standards: EN50155; UNI CEI 11170

SIGNAL VDEVICES

Signaling units designed for heavy duty conditions, when long life and high reliability are required. LED light source. The Ground Signal Device is available with fixed lights.

- Ground Signal; Modular High Signal; Permissive and Directional Signals
- Case: Fiberglass, Black
- Source: 150VAC
- Working Temperature: -25/+80°C
- Mechanical Degree Protection: IP54
- Standards: EN50155; UNI CEI 11170

CONTROL PANELS

SENSORS

TEST EQUIPMENT

HIGH-CURRENT / HIGH-VOLTAGE

Rugged Connectors for Metro Traction Motor and Jumper Cable Applications

ITS 500 SERIES REVERSE BAYONET SINGLE-POLE HIGH VOLTAGE JUMPER CONNECTORS

Single-Pole Plug Connector with Castellated Coupling Nut

ITS 500 Series derives from the VG96929 Military Specification for Power Connectors. Suitable for harsh environmental conditions, ITS 500 accepts cable gauges AWG 3/0 to 444MCM (95-240 mmq), for current up to 750 Amps.

Special insulator drawing allows high working voltage, up to 3000 VCC.

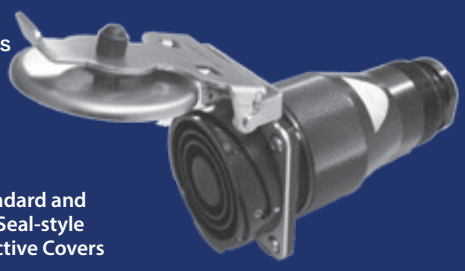
Suitable for jacketed cables, with or without conduit protection.

Receptacle with finger protection (load side).

ITS 500 meets the most important rail requirements and specifications:

- 500 Mating Cycles
- Salt Spray Test Corrosion: 500 hours
- Shock and vibration for under-car and car-to-car applications
- IP67 Sealing (Coupled Connectors)
- Fire Resistant and RoHS-compliant materials

Single-Pole Receptacle Connector



Standard and ProSeal-style Protective Covers

HIGH-CURRENT / HIGH-VOLTAGE

Power Connectors for Mass Transit Traction Motor Applications

Series UJ · Series ITS 901 · Series ITS 500

ITS 901 SERIES REVERSE BAYONET MULTI-POLE MEDIUM VOLTAGE JUMPER CONNECTORS

Reverse-Bayonet Panel-Mount Receptacle Connector

Wide range of available backshell accessories

ITS 901 Series is the extension of the ITS Reverse Bayonet connector family, for power cables over AWG 1/0. Suitable for harsh environmental conditions, 901 Series Connectors accept cable from AWG 4 to 262 MCM (35 - 120 mmq), for current up to 450 Amps. Working voltage is from 800 - 1000 VAC. Available for single wires and multipole jacketed cables, with cable clamp or conduit.

Male contacts offer Finger Test Protection, Load Side (receptacle or plug). Long bayonet ramps, three polarization keys, and rubber recovered coupling facilitate mating and unmating operations. Plug connectors are available with coupling nut castellations or with special wing lock mechanism to prevent accidental de-mating.

901 Series meet the most important rail requirements and specifications:

- Salt Spray Test Corrosion: 500 hours;
- 500 Mating Cycles;
- Shock and Vibration for Under-Car and Car-To-Car Applications;
- IP67 Sealing (Coupled Connectors);
- Fire Resistant and RoHS Compliant Materials.

Reverse-Bayonet Plug with Castellated Coupling Nut

Reverse-Bayonet Plug with RadGrip Coupling Nut

Reverse-Bayonet Plug with Wing-Lock Mechanism

UJ SERIES UNIPOLE POWER JOINT CONNECTOR SYSTEM

3-position configuration

2-position configuration

The Glenair UJ Power Joint system allows connection of medium and high power cables without the need for bulky junction boxes. The UJ Power Joint System offers the same environmental protection with substantial size and weight savings and better temperature tolerance than junction boxes.

Head-to-head size comparison: UJ connector vs. junction box

	UJ Series	Junction Box
Dimensions	Small	Regular / Big
Weight	Light	Heavy
Protective Varnish	No	Yes
Modularity	Yes	No
Environmental	Yes	Yes
Electrical Performance	Yes	Yes
Cost Reduction	Yes	No
Temperature Range	High	Standard

HIGH-CURRENT / HIGH-VOLTAGE

Multipole Traction Motor Connectors with IRIS Certification

High current/high voltage electrical connectors for traction motor, lighting, data communications, and more.

The interconnection of power transmission cables in traction motors is a critical application. Conventional systems may employ bulky and inefficiently-sealed junction boxes for cable interconnection. Glenair offers a number of different special-purpose designs for traction motors and other power requirements on transit cars. Features such as integral mounting, robust environmental sealing, screw and/or lever-action mating, as well as compliance to transit industry standards such as IRIS, FST, and RoHS make Glenair the natural design partner and supplier to the worldwide mass transit / rail industry. The following pages present an overview of our most popular power and signal connector series, principally manufactured, tested, and qualified in our Bologna, Italy, factory. Glenair delivers worldwide application engineering and support to the mass transit / rail industry with support teams located in every major market.

- **Innovative screw and lever mated power connectors for mass transit / rail applications**
- **Proven performance and qualification credentials in hundreds of installations**
- **IRIS International Railway Industry Standard certified (Rev. 02, May 2009)**

RUGGED

Power and Signal Connectors for mass transit applications

IRT Rectangular Multipole Connectors

SERIES IRT RECTANGULAR MULTIPOLE HIGH VOLTAGE TRACTION MOTOR CONNECTORS

Plug Connector

Receptacle Connector

The Glenair IRT series is a rectangular power connector for harsh environmental conditions.

Available with three, four, and six contacts, typical for traction motor applications.

Suitable for single cables AWG 4 – 373MCM (35 to 185 mmq).

Working voltage up to 3000 VCC.

Two mating systems offered:

- Screws, for light weight and reduced dimensions
- Lever system with secondary lock, easy-to-use in difficult positions.

The IRT Series is suitable for separated power cables, with or without shielding, ground body available with a copper plait.

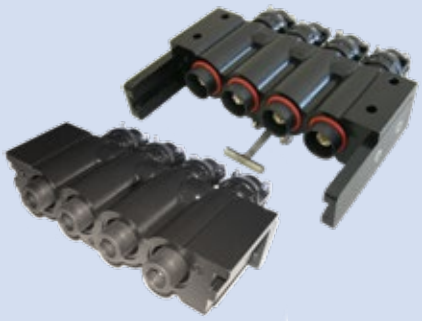
Available with three different cable back-end styles:

- Metallic gland
- Clamp with strain relief
- EMC shield and gland

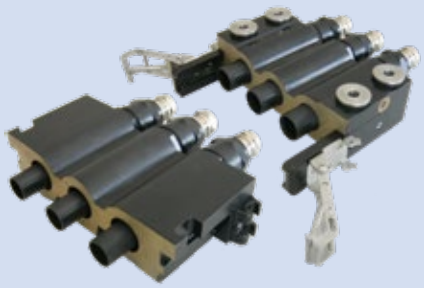
Series IRT Connector Selection Guide

Size 01
3 contacts, Screw Mating

Size 02
4 contacts, Screw Mating



Size 03
3 contacts, Lever Mating



Size 04
3 contacts, Double-Lever Mating

Size 05
4 contacts, Lever Mating

Size 06
6 contacts, Stacked, Lever Mating

Wire Protection Conduit Systems

Turnkey conduit assembly for a rugged charging application

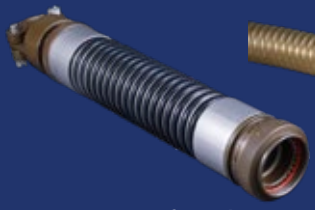
TURNKEY FACTORY-TERMINATED CONDUIT ASSEMBLIES

Complex multibranch fighter jet electrical wire conduit assembly

Lightweight, halogen-free rail industry wire conduit assembly

Crush-resistant commercial aerospace metal-core conduit assembly

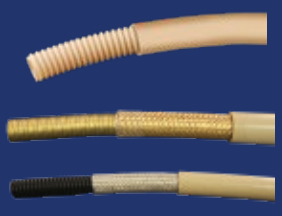
SPECIAL-PURPOSE CONDUIT MATERIALS AND CONFIGURATIONS



Spring-reinforced polymer-core assemblies

Halogen-free PEEK tubing

Special composite fiber optic backshells



Conduit and jacket color options including Desert Tan

Special processing including drain holes, ovalization, and split-entry

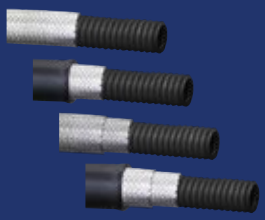
HARSH-ENVIRONMENT

Metal- and Polymer-Core Conduit Systems

High-temperature · crush-resistant · EMI/RFI shielded

LIGHTWEIGHT, SEALED/FLEXIBLE POLYMER-CORE ANNULAR CONDUIT WIRE PROTECTION SYSTEMS

Kynar, PVDF, and G-Flex Siltem materials



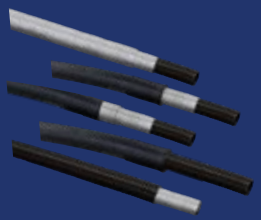
Braided shielding and jacketing options

Easy-to-install Guardian wire protection system

Sentry economical wire protection system

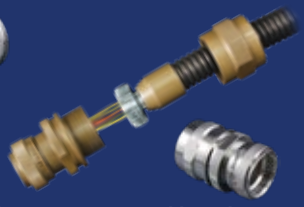
Non-wired factory-terminated assemblies

HIGH-TEMPERATURE, HIGH-STRENGTH HELICAL POLYMER-CORE WIRE PROTECTION SYSTEMS



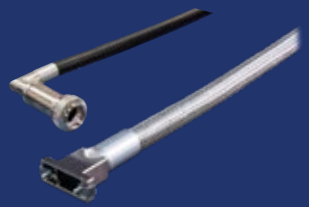
High-temperature, high-strength helical conduit

Easy-to-install Hat-Trick wire protection system



Internal braid wire protection system

AeroLite wire protection system



Non-wired factory-terminated assemblies

HEAVY-DUTY METAL-CORE CONDUIT WIRE PROTECTION SYSTEMS

Flexible, crush-proof EMI/RFI metal-core conduit

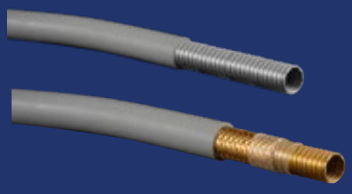
Low-profile RP Plus wire protection system

Heavy-duty metal and weight-saving composite systems

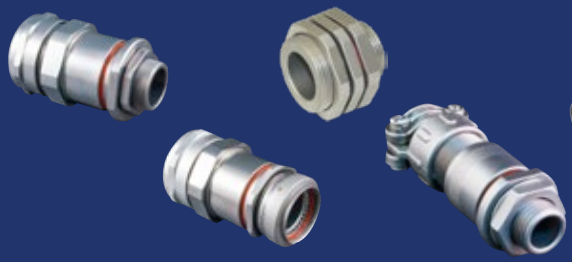
Legacy Mil-C-24758 wire protection system

Non-wired factory-terminated assemblies

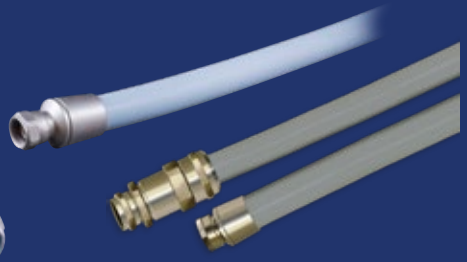
MIL-PRF-24758 SHIPBOARD CONDUIT WIRE PROTECTION SYSTEMS



Stainless steel and brass metal-core conduit with UV-resistant BlueJacket



Complete range of qualified MIL-PRF-24758 fittings



Non-wired factory-terminated assemblies

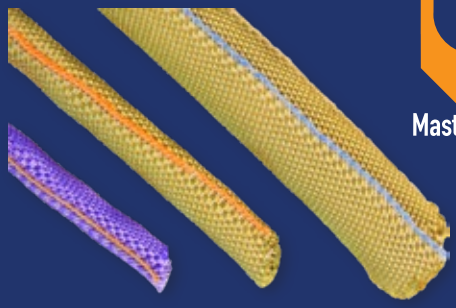
Braided Cable Shielding

Rugged harsh-environment interconnect assembly with high-temperature resistant overbraiding

EMI/RFI Shielding
INDUSTRY-STANDARD • METALLIC

The most innovative line of metallic, monofilament non-metallic, and microfilament composite and stainless steel braiding solutions for environmental, mechanical, and EMC shielding in the world. From high-temperature fiberglass tubular shielding for engine applications to ultra-lightweight EMI/RFI braided shielding for electrical wire interconnect grounding applications, Glenair offers the industry's most versatile range of solutions including innovative ArmorLite CF corrosion-free metallic micro braid.

FLEXIBLE, LIGHTWEIGHT WRAPAROUND EMI / RFI SHIELDING AND ABRASION PROTECTION

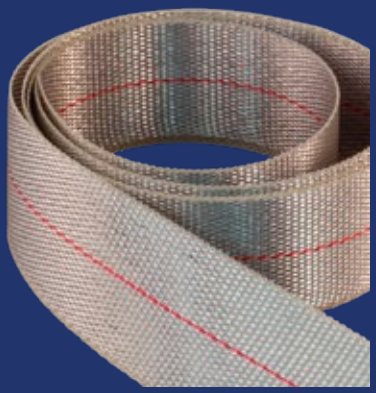


MasterWrap™ (Nomex®) for mechanical abrasion protection of EWIS wire bundle harnessing

MasterWrap™

MasterWrap™ flexible, field-installable/ repairable side-entry EMI/RFI shielding with ArmorLite™ technology

ARMORLITE™ MESH TAPE



For spot EMI/RFI shielding coverage and reinforcement of cable interstices

METALLIC AND NON-METALLIC

Braided Shielding

EMI screening · weight reduction · abrasion protection · spot repair

ARMORLITE™ AMBERSTRAND®

LIGHTWEIGHT ARMORLITE™ (STAINLESS STEEL) AND AMBERSTRAND® (COMPOSITE) SHIELDING

Tubular AmberStrand® and ArmorLite™ lightweight metal-clad microfilament EMI/RFI braided shielding

Shield sock backshells with lightweight ArmorLite™ or AmberStrand® microfilament EMI/RFI braid

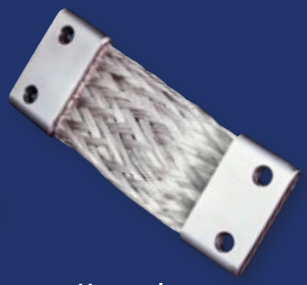
ArmorLite™

ArmorLite™ 75% / 25% blend

ArmorLite™ CF with enhanced corrosion resistance and temperature tolerance

ARMORLITE™ AND METALLIC BRAID GROUND STRAPS

Lightweight ArmorLite™ microfilament ground straps



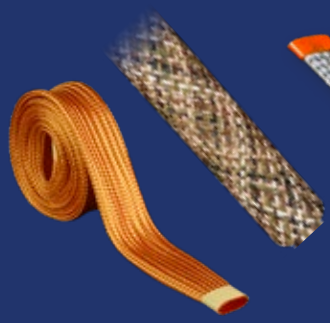
Heavy-duty metallic braid ground straps

MIL-DTL-24749 Type IV Qualified navy ground straps

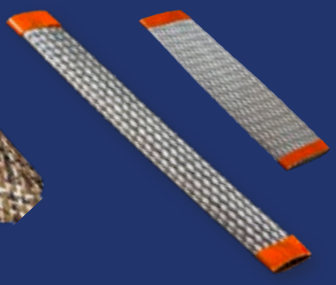
Round braid profile ground straps

INDUSTRY-STANDARD TUBULAR FABRIC AND METAL BRAID

Tubular fabric braid for mechanical and abrasion protection of electrical wire interconnect systems



Wide range of colored Nomex® for abrasion protection and wire identificaition



QQ-B-575B/A-A-59569 metallic braid for EMI shielding

High-temperature fiberglass braid for engine applications

DLA, Navy, and TACOM-Qualified environmental heat-shrink boots and molded shapes

For advanced abrasion protection, environmental sealing, splicing, and wire protection

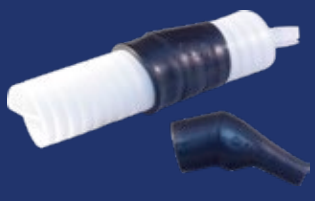
NAVSEA-Qualified
Heavy-Wall Boot
5617649

ALSO AVAILABLE: AUTOSHRINK COLD-SHRINK BOOTS

AUTOSHRINK™

Autoshrink D
UV-resistant / LSZH

Autoshrink F
Advanced fluid resistant



Autoshrink S
Subsea

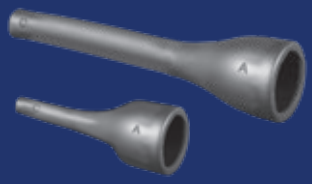
Autoshrink T
High-temperature-tolerant

Heat-Shrink and Autoshrink™ Boots and Molded Shapes

Abrasion protection · environmental sealing · splicing

COMPLETE RANGE OF ENVIRONMENTAL HEAT-SHRINK BOOTS AND MOLDED SHAPES

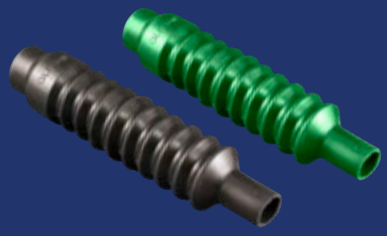
Standard lipped or lipless boots



Long tail and high-ratio configurations

90° and 45° angle boots

SuperFly, Mighty Mouse, and D-subminiature configurations



Convoluted accordion boots

Y, T, and multibranch transitions

Colored boots available

GLENAIR SERIES 77 "FULL NELSON" TACOM APPROVED SHRINK BOOTS

Description	Military Part Number	Glenair Part Number	Raychem Part Number	Hellermann Part Number
Heat Shrinkable Low Profile 3-Entry "Y" Transition	12273148-1**	770-009Y*05	381A301-**	492H412-*
	12273148-2**	770-009Y*06	381A302-**	492H413-*
	12273148-3**	770-009Y*07-01	381A303-*01	492H414-*01
	12273148-4**	770-009Y*08-01	381A304-*01	492H415-*01
	12273148-5**	770-009Y*07	381A303-**	—
Heat Shrinkable Low Profile 3-Entry "T" Transition	12273162-1**	770-012T*01	301A511-**	412H622-*
	12273162-2**	770-012T*02	301A512-**	412H623-*
	12273162-3**	770-012T*03	301A513-**	412H624-*
	12273162-4**	770-012T*04	301A514-**	412H625-*
Heat Shrinkable Low Profile 4-Entry 3:1 Transition	12273163-1**	770-014*09	462A421-**	573H532-*
	12273163-2**	770-014*10	462A422-**	573H533-*
	12273163-3**	770-014*11	462A423-**	573H534-*
	12273163-4**	770-014*12	462A424-**	573H535-*
Heat Shrinkable Adapter Shim Boot	12273164-1**	770-019SB*01	202E334-**	313E445-*
	12273164-2**	770-019SB*02	202E344-**	313E455-*
	12273164-3**	770-019SB*03	202E336-**	313E447-*
	12273164-4**	770-019SB*04	202E346-**	313E457-*
Heat Shrinkable Convoluted Strain Relief 2-Entry Boot	12273242-1**	770-022C*01	202C611-**	313C722-9
	12273242-2**	770-022C*02	202C621-**	313C732-9
	12273242-3**	770-022C*03	202C632-**	313C743-9
	12273242-4**	770-022C*04	202C642-**	313C753-9
	12273242-5**	770-022C*05	202C653-**	313C764-9
	12273242-6**	—	202G621-**	—
	12273242-7**	—	202G632-**	—
	12273242-8**	—	202C642-**	—
	12273242-9**	—	202C653-**	—

Description	Military Part Number	Glenair Part Number	Raychem Part Number	Hellermann Part Number
Heat Shrinkable Straight Lipped 2-Entry Long Tail Boot	12273147-1**	770-020S*02	202F211-**	313F322-*
	12273147-2**	770-020S*03	202F221-**	313F332-*
	12273147-3**	770-020S*04	202F232-**	313F343-*
	12273147-4**	770-020S*05	202F242-**	313F353-*
	12273147-5**	770-020S*06	202F253-**	313F364-*
	12273147-6**	770-020S*07	202F263-**	313F374-*
	12273147-7**	770-020S*08	202F274-**	313F385-*
Heat Shrinkable 90° Lipped 2-Entry Long Tail Boot	12273176-1**	770-021A*02	222F211-**	333F322-*
	12273176-2**	770-021A*03	222F221-**	333F332-*
	12273176-3**	770-021A*04	222F232-**	333F343-*
	12273176-4**	770-021A*05	222F242-**	333F353-*
	12273176-5**	770-021A*06	222F253-**	333F364-*
	12273176-6**	770-021A*07	222F263-**	333F374-*
	12273176-7**	770-021A*08	222F274-**	333F385-*

M85049/140 (straight), /141 (right-angle), and /142 (transitions)

GLENAIR ITALIA:

Manufacturing harsh-environment military, nuclear, and aerospace interconnect technologies for power, high-speed Ethernet, and hermetic seal applications.

HIGH-CAPACITY CNC MACHINING CENTERS

Allow Glenair BLQ to provide lightning-fast turnaround on small and custom orders as well as large production runs, all with superior surface finishes and better part quality.

ADVANCED CONNECTOR PLATING CAPABILITIES

Gold, nickel, and signature Cadmium-free Tin-Zinc plating performed in-house.

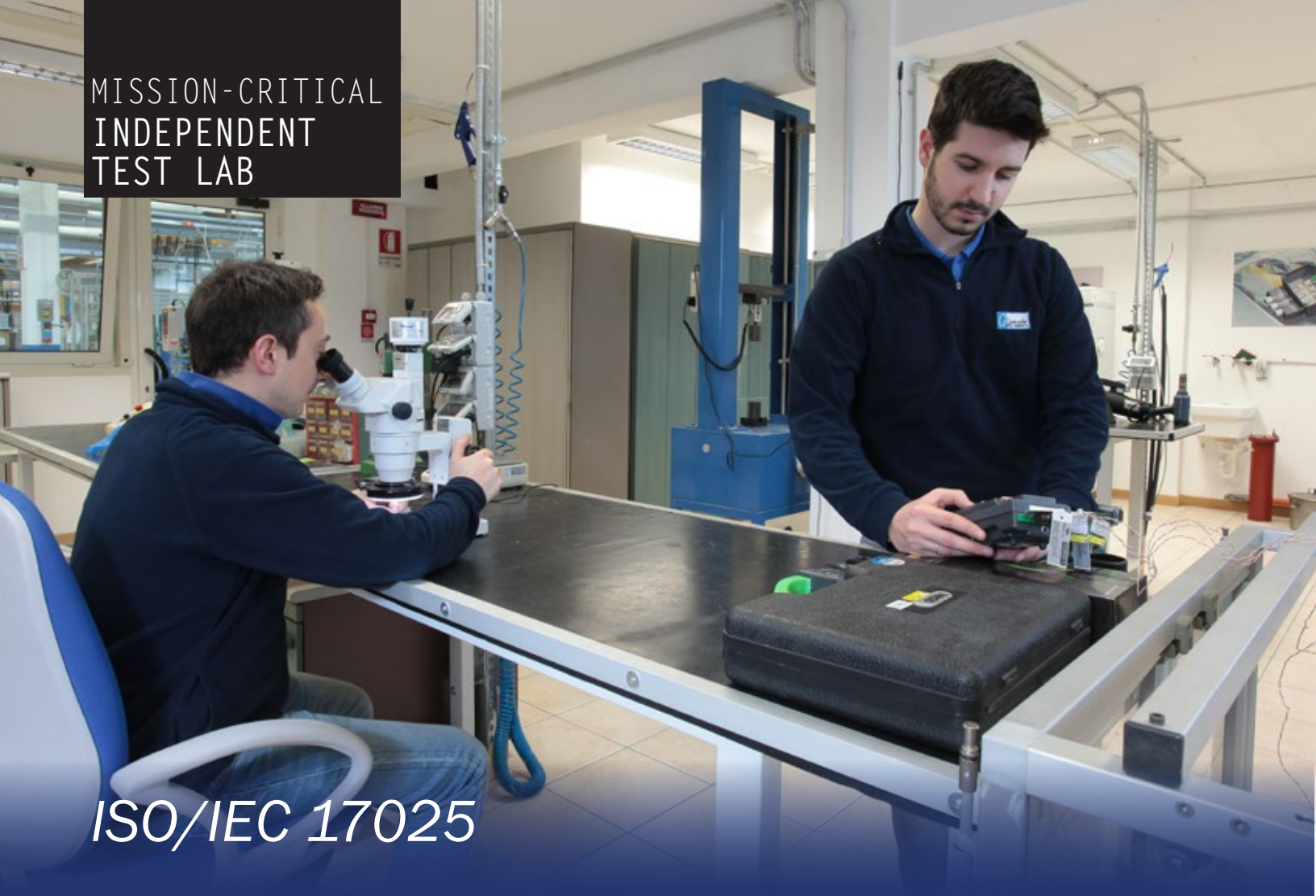
TOTAL VERTICAL INTEGRATION

Includes in-house rubber and thermoplastic injection molding.

ADVANCED HERMETIC-SEAL CONNECTOR FACILITY

Rugged reverse-bayonet hermetic connectors, unique feedthru configurations, glass-seal Micro-D rectangular designs.

MISSION-CRITICAL
INDEPENDENT
TEST LAB



ISO/IEC 17025

Environmental Test Laboratory

Fast and reliable IEC qualified assessment laboratory for electronic components (IECQ)

Environmental testing, consisting of the complete range of mechanical, electrical, and environmental stress factors that affect electronic equipment, cabling, and systems is now available from Glenair's IEC/IECQ certified testing laboratories. Test engineers and technicians follow qualified processes, and report generation protocols to deliver timely and professional environmental testing services. As an interconnect component manufacturer and wire and cable assembly supplier, Glenair is well-versed in all aspects of qualification testing including corrosion resistance, solvent resistance, electromagnetic compatibility, dielectric withstanding voltage, current rating, and so on.

Our test laboratories are equipped with current-generation equipment and are maintained in accordance with industry best practices and certification agency requirements. Perhaps most importantly, Glenair environmental test services are offered with accellerated lead times—from initial quoting to final test report delivery.

- **Mechanical / dynamic testing for fiber optic systems, electrical components, wiring harnesses**
- **Broad spectrum of electrical testing (resistance, current rating, EMC shielding and more)**
- **Heat, cold, and thermal shock testing**
- **Corrosion and solvent resistance testing**
- **Fast turnaround on quotes and testing services**
- **Decades of experience**

Mechanical / Dynamic Testing

BLQ ENV-TEST

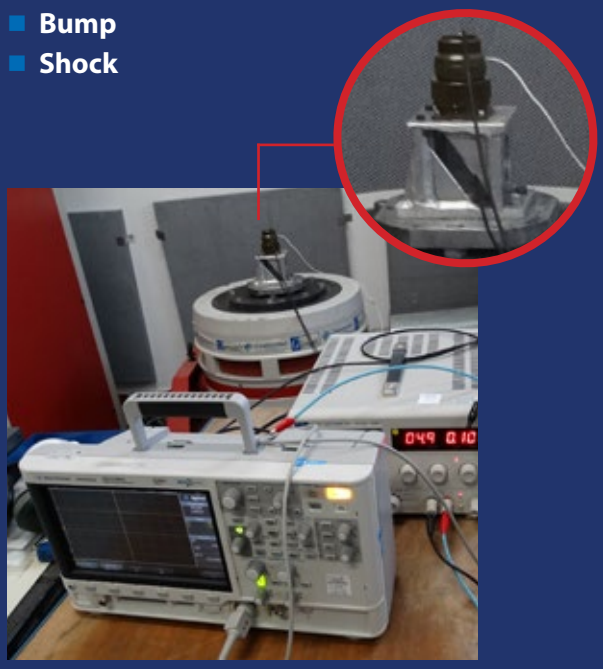
MECHANICAL / DYNAMIC TESTING

ELECTRICAL AND ELECTRONIC COMPONENTS / DEVICES TESTED
Electrical / Fibre Optic Connectors
Electro / Mechanical Devices
Wiring Harnesses
Switches
Aerospace Components and Equipment
Automotive Components and Equipment
Railway Components

Controlled vibration and **shock testing** ensures electrical and electronic components can withstand specified forms of dynamic stress encountered during operation and shipping.

Available Tests:

- **Vibration sine**
- **Vibration random**
- **Bump**
- **Shock**



VIBRATION-SINUSOIDAL (Ambient Temperature)	
Mechanical / Dynamic Tests	**Standard**
Freq. range 5 to 2000 Hz	BS EN/IEC 60068-2-6 EIA-364-28
Peak thrust 8,90kN	
Max pk/pk displacement 50mm	

VIBRATION-RANDOM (Ambient Temperature)	
Mechanical / Dynamic Tests	**Standard**
Freq. range 5 to 2000 Hz	BS EN/IEC 60068-2-64 EN 61373 EIA-364-28
Peak thrust 5,76kN	
Max pk/pk displacement 50mm	

SHOCK (Half sine, Sawtooth, and Trapezoidal waveforms)	
Mechanical / Dynamic Tests	**Applicable Specification**
Peak thrust: 17,36kN	BS EN/IEC 60068-2-27 EIA-364-27 EN 61373

BUMP (Half sine)	
Mechanical / Dynamic Tests	**Applicable Specification**
Severity: 20/40 gn	BS EN/IEC 60068-2-29:1993

DISCONTINUITY (During vibration)	
Mechanical / Dynamic Tests	**Standard**
1µs Electrical discontinuity	EIA-364-28

Electrical Testing

ELECTRICAL / EMC TESTING

ELECTRICAL	
EMC	**Specification Applicable**
Shielding effectiveness	BS EN / IEC 62153-4-7
Triaxial method	
9 kHz – 2,6 GHz	
Contact Resistance	**Specification Applicable**
DC Voltage	BS EN / IEC 60512-2-1 BS EN / IEC 60512-2-2 EIA-364-06
20 mΩ – 200 kΩ	
1μΩ	
Insulation Resistance	**Specification Applicable**
DC Voltage	BS EN / IEC 60512-2-1 BS EN / IEC 60512-2-2 EIA-364-06
1 – 1500 V	
100 Ω – 2000 TΩ	
Dielectric Withstanding Voltage	**Specification Applicable**
AC Voltage 50 Hz: 0 – 50 kV	BS EN / IEC 60512-3-1 EIA-364-21
Temperature Rise and Current De-Rating	**Specification Applicable**
DC Current: 0 – 2000 Ampere	BS EN / IEC 60512-5-1 BS EN / IEC 60512-5-2 EIA-634-70
Partial Discharge	**Specification Applicable**
Test Voltage: 0 – 50KVAC Max I. Leak: 60mA	IEC 60270:2000 BS EN 60270:2001
Test Voltage: 0 – 10KVAC Max I. Leak: 300mA	
PD event time resolution: < 2 ns	
PD resolution: 0,01 pC	
Minimum PD level: 3 pC	
PD level accuracy: ±2% calibrated PD value	
Center frequency 0 Hz ÷32 MHz	
Frequency domain bandwidth: 9kHz, 40kHz, 100kHz, 160KHz, 300kHz, 650kHz, 1MHz, 1.5MHz	

Electrical / EMC Testing services cover the complete range of performance requirements for interconnect cabling and electronic components. Glenair brings years of EMC design engineering experience into the testing process, ensuring equipment under test is always correctly fixtured and prepared for the most accurate results.

Available Tests:

- **Contact resistance**
- **Dielectric withstanding voltage (DWV)**
- **Current rating**
- **Insulation resistance**
- **EMC shielding**
- **Partial discharge**

Temperature/Humidity Testing

TEMPERATURE / HUMIDITY TESTING

CLIMATIC (High Humidity - Constant)	
Damp Heat Steady State	**Specification Applicable**
Temp. range: +10°C to +90°C	BS EN / IEC 60068-2-3 EIA-364-31
Humidity Range: 10 to 98% rh	
Chamber Size: 690mm × 600mm × 610mm 500mm × 610mm × 500mm	
BS EN / IEC	**Specification Applicable**
Temp. range: +10°C to +90°C	BS EN / IEC 60068-2-30 EIA-364-59
Humidity Range: 10 to 98% rh	
Chamber Size: 650mm × 500mm × 600mm 800mm × 600mm × 500mm	
Damp Dry Cold	**Specification Applicable**
Min. Temp.: -75°C	BS EN / IEC 60068-2-1 EIA-364-59
Max Chamber Size: 800mm × 600mm × 500mm	
CLIMATIC (High Temperature - Constant)	
Temperature - Dry Heat	**Specification Applicable**
Maximum Temp.: +300°C	BS EN / IEC 60068-2-2 EIA-364-17
Chamber Size: 500mm × 600mm × 600mm	
Thermal Shock	**Specification Applicable**
Temp. range: -60°C to +300°C	BS EN / IEC 60068-2-14
Manual (two-chambers method)	
Change of Temperature	**Specification Applicable**
Gradual in air	BS EN / IEC 60068-2-14
Maximum Temp.: +180°C	
Minimum Temp.: -75°C	
Maximum rate of change: -75°C to +180°C: 5°C/Min +180°C to +75°C: 2,5°C/Min	

SALT SPRAY / CORROSION TESTS

CORROSION	
Salt / SO_2 Spray (Fog)	**Specification Applicable**
Max chamber size: 500 Lt	BS EN / IEC 60068-2-11 EIA-364-26

Temperature and Humidity Testing is performed using industry-standard and IEC accepted practices of temperature cycling and humidity exposure. New and high-quality testing equipment ensures accurate results.

Available Tests:

- **Dry heat**
- **Dry cold**
- **Damp heat steady state**
- **Damp heat cyclic**
- **Thermal shock**

MISSION-CRITICAL

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