

The widest range of
mission-critical interconnect
technologies in the world



**Navy Shipboard Interconnect and Wire
Protection Applications**

Glenair: US Navy Qualification Pedigree

30+ year NAVSEA supplier

- NAVSEA-approved topside composite junction boxes
- QPL MIL-DTL-28840 electrical connectors and accessories
- QPL MIL-PRF-28876 fiber optic interconnect systems
- MIL-PRF-24758A harsh-environment “Bluejacket” conduit and fittings
- MIL-DTL-24749 Type IV ground straps
- MT Nickel Teflon plating: RoHS-compliant finish of choice for inside-submarine application



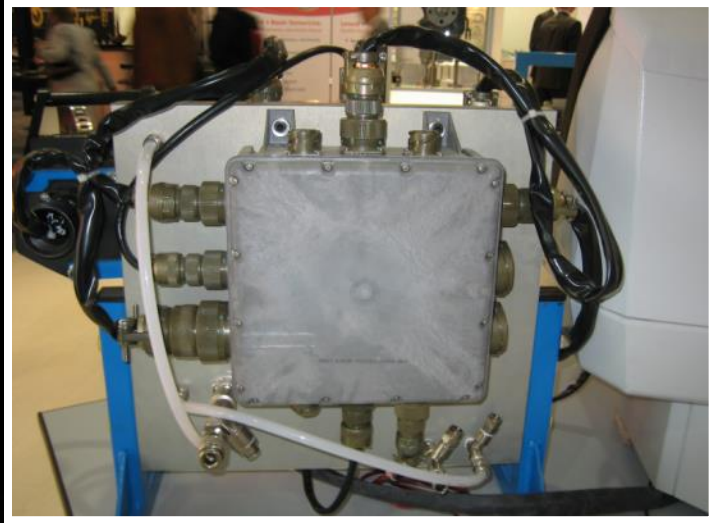


COST SAVER

Shielded composite junction boxes

Turnkey Interconnect Box Assemblies

Life-of-system corrosion protection



- Composite Junction Boxes are injection molded and designed to replace existing metal boxes which are prone to galvanic corrosion due to incompatible interconnect component parts and mounting hardware.

Shielded Composite Junction Boxes

NAVSEA approved

- Over a dozen different tooled sizes and shapes
- Durable, corrosion-free, high temperature composite thermoplastic
- Tested and qualified to U.S. Navy, UK MOD and hundreds of aircraft and marine applications

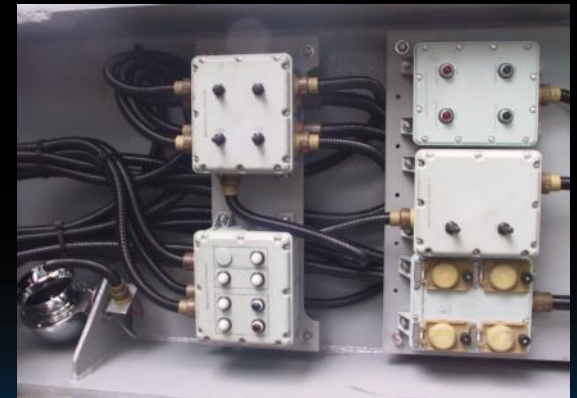


Broad range of sizes and shapes



Discrete components or turnkey wired and connectorized systems

Complex installations fully supported with feed-thru fittings and wire protection conduit



Shielded Composite Junction Boxes

NAVSEA sound/power control box

Series 316 stainless steel hardware provides long-term durability

Glass reinforced composite thermoplastic material is strong and durable and yet extremely lightweight.



Unlimited corrosion resistance compared to metal junction boxes reduces repair and maintenance costs.

IP67 rated seals and gaskets protect equipment from moisture and dust

◀ Example box shown: one of a series of NAVSEA-approved signal, switch, sound power, control boxes designed to eliminate corrosion damage and reduce maintenance cost on Navy ships

Glencair®



US NAVY QUALIFIED

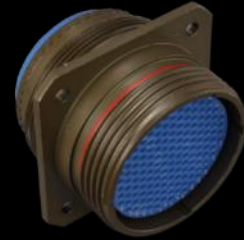
MIL-DTL-28840 connectors and accessories



MIL-DTL-28840 Connectors

The standard shipboard interconnect

- Medium-Density, Front-Release Crimp Contacts - 3 sizes accepting 20-28 AWG
- Qualified plug as well as box, wall, jam-nut mount and in-line receptacles
- Scoop-proof, keyed, threaded-coupling
- For use with Navy MIL-C-915 shipboard cable and MIL-W-16978 wire
- 11 to 33 shell size and 7 to 155 contacts
- Complete line of QPL'd backshell accessories
- Excellent environmental and EMI resistance
- Glenair is the only worldwide QPL supplier



High Performance MIL-DTL-28840 Type RJ-45 and USB



- IP67 sealing in unmated condition
- Crimp and poke termination
- Superior grounding





OCTOBYTE™

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



Octobyte™



High-speed Ethernet solution

- Ruggedized high-speed Ethernet connectivity suitable for shipboard and submarine applications





Glencair®



**QPL AND COMMERCIAL
MIL-PRF-28876 shipboard
fiber optic connection system**



MIL-DTL-28876 QPL Fiber Optics

- Size 16 pin-socket qualified M29504/14 and /15 front-release termini
- Singlemode and multimode low insertion loss



MIL-PRF-28876 QPL

Connector features

- Shell sizes 11, 13, 15 and 23 – up to 31 fibers
- Complete environmental sealing
- Qualified backshell options
- Salt spray: 500 hours

Termini features

- Ø2.00mm precision ceramic ferrule and alignment sleeve
- Traditional pin & socket
- Front release
- Integral retention clip and seal
- Optional crimp style strain relief
- High output force spring design
- Shock: MIL-S-901 (heavy hammer)



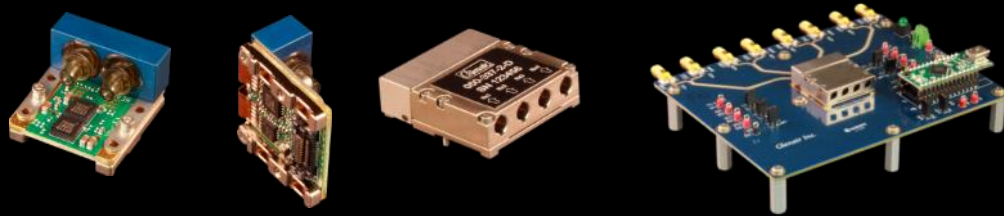
Glenair M28876 Connectors



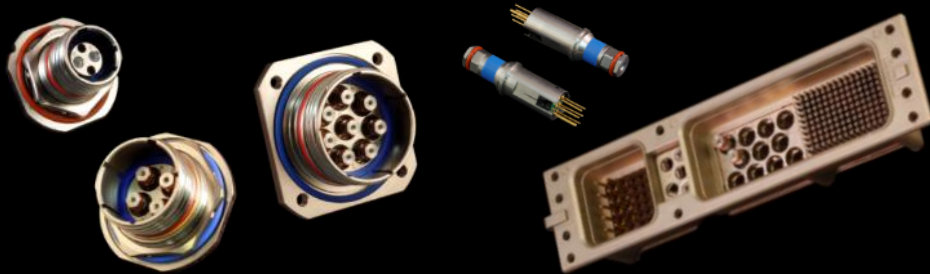
Glenair M29504/14 and /15 Termini

Overview of Glenair Photonics / Opto-Electronics

Inside the box:
Ruggedized
transceivers



At the box interface:
Photonic contacts
and connectors

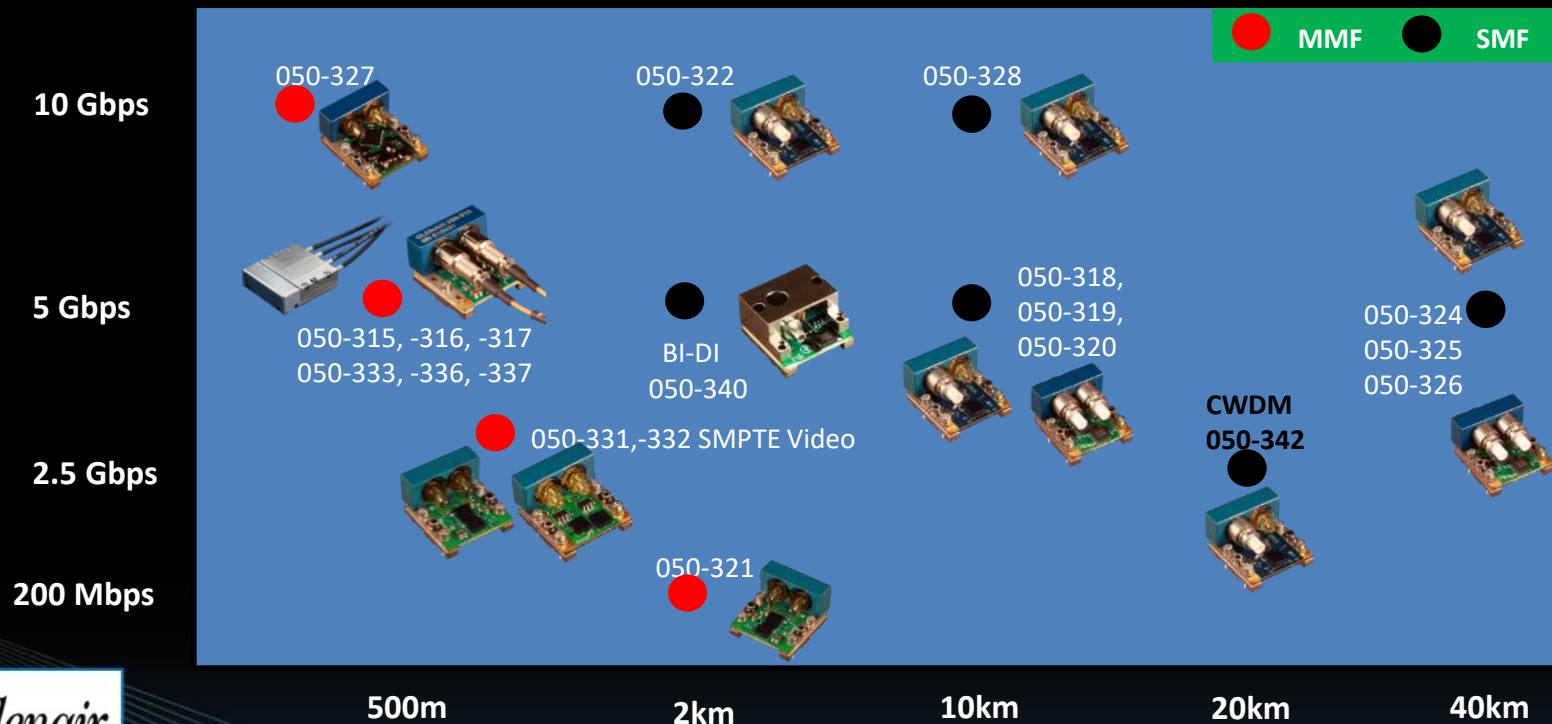


Outside the box:
Fiber-to-copper
media converters



Glenair PCB-Mount Transceivers: Available Now

Wide range of digital and video signal types supported



Industry-Standard Connector / Converter Packages with Glenair Opto-electronic Transmit / Receive Contacts



MIL-DTL-38999 Series III

ARINC 801

HiPer-D M24308
intermateable

Ethernet Media Converters (Copper-to-Fiber)



Small Form Factor
media converter



Lightning-strike
hardened media
converter



Small form-factor
inline media
converter



SERIES 75

Metal-core conduit systems

MIL-PRF-24758A Navy Approved “BlueJacket” Conduit System

Specialized harsh environment conduit system for US Navy applications

- Innovative fitting design provides superior sealing and ease-of-assembly
- Superior jacket materials resist damage and improve lifecycle maintenance



MIL-PRF-24578A

Navy Approved “BlueJacket” Conduit System

“Do it Once,
Do it Right”

“...Only rigid conduit and conduit systems that meet the performance requirements of MIL-PRF-24758A are approved for topside use in new ship construction, new installations, future repairs, modernization, conversion and overhaul...”

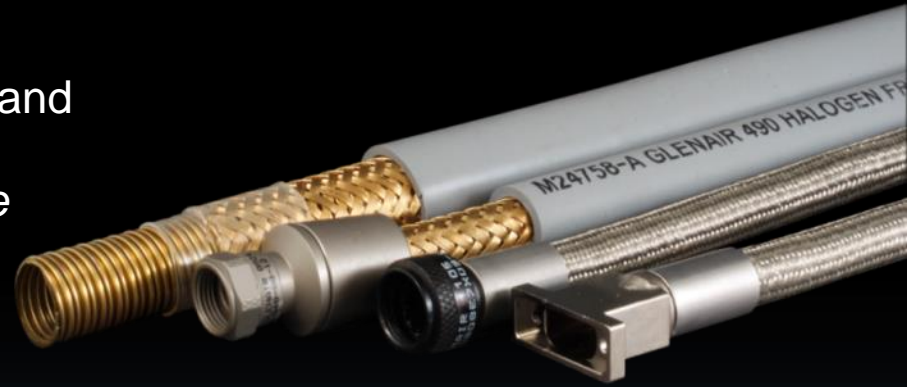
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FM COMMANDER'S OFFICE
WASHINGTON DC/USC

A cartoon illustration of a sailor in a yellow circle, wearing a cap and holding a wrench and a piece of conduit. The background of the advertisement shows a ship's deck with various conduit fittings and components.

MIL-PRF-24758A Navy Approved “BlueJacket” Conduit System

Ease of installation and repair, optimal EMI/EMP shielding

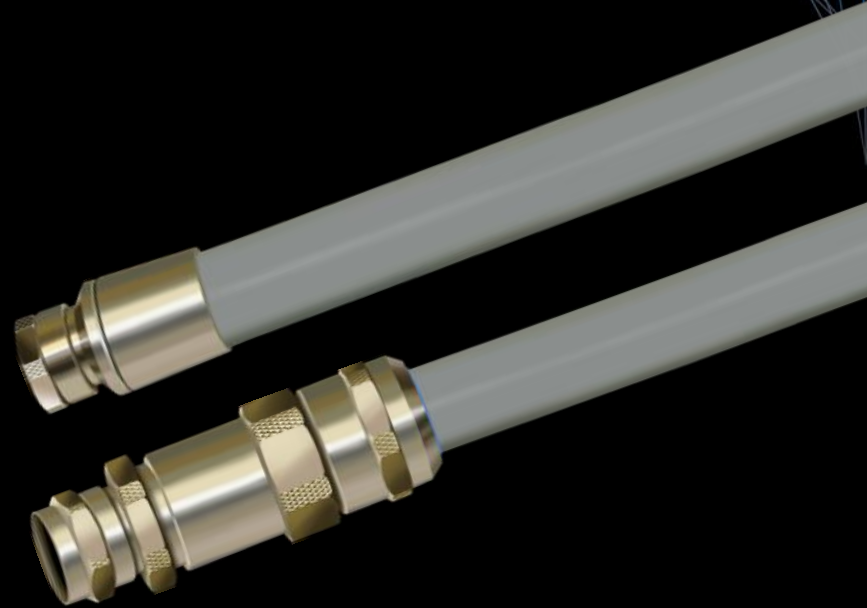
- Field and factory repairable
- On-site/premise ease of installation
- Prototyping and mock ups
- Expandability
- EMI/RFI shielding across all frequencies: H and E fields
- TEMPEST (*Transient Electromagnetic Pulse Emanation Standard*)
- Lightning strike and EMP



MIL-PRF-24758A Navy Approved “BlueJacket” Conduit System

Jacket properties

- Outstanding flexibility
- High heat resistance
- Superior abrasion, crush, and pull
- Environmental protection: gamma radiation, ozone, fluids, fungus, NBC (nuclear, biological, chemical)
- Non-flammable
- Low smoke and toxicity
- Halogen free



BacNav OFS



Outstanding repositionable backshell for harsh-environment applications

- Easy repositioning from straight, 45° and 90° cable-exit orientations
- Submersible performance without the need for shrink boots
- Durable, flexible EMI/ RFI and environmentally-sealed core with locking-pivot Swing-Arm™ frame
- Accommodates power, signal and fiber optic jacketed cables
- Reposition terminated cables with no impact on signal integrity or system performance
- Easy repeatable assembly process using standard tools



BacNav OFS

Benefits in installation, maintenance, and upgrades

- Easily route straight backshell, installer-configurable at point-of-use
- Eliminates costly production delays: no alternate angle backshell requisitions, no in-process rework/re-testing
- Simplified field repair
- Reduced upgrade costs
- Reduce costly service delays



Glencair®



MIL-DTL-24749 TYPE IV

Navy shipboard ground straps



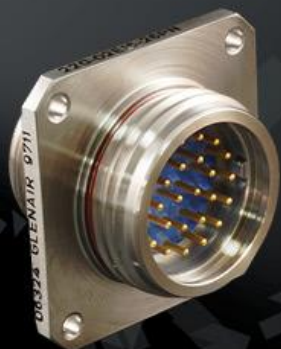
Harsh-Environment SST/Nickel Ground Straps

Glenair: the ONLY company US Navy qualified for MIL-DTL-24749 Rev. B Type IV

- Meets the rigorous specifications of MIL-DTL-24749 Rev. B
- Tested to survive 1000 hours salt spray
- Unique Stainless Steel/Nickel hybrid braid
- Available in six standard configurations, with nonstandard length/lug size configurations available



5000 PSI HARSH-ENVIRONMENT



**SERIES 22 GEO-MARINE®
ENVIRONMENTAL / HERMETIC**



The 5000 PSI Connector with Extreme Temperature and Corrosion Resistance



- Open-face pressure rated 1000 – 5000 PSI
- Marine Grade 316 stainless steel machined shells and Naval Bronze coupling rings
- High-pressure environmental and hermetically sealed receptacles for field applications
- Power and signal contact arrangements from 2 to 128 contacts
- Anti-vibration ratcheted coupling nuts with castellated knurling
- Available Viton® overmolded cable assemblies



Geo-Marine Product Selection Guide



Geo-Marine®

Series 22 Geo-Marine® Product Selection Guide



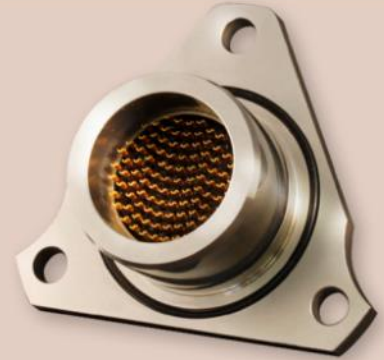
Geo-Marine®
Plug and Receptacle Connectors



Geo-Marine®
Bulkhead Feed-through
Assemblies



Geo-Marine® Adapters,
Backshells and Protective Covers



Special-Purpose
Geo-Marine® Connectors

ULTRAMINIATURE SUBSEA



**AQUA
MOUSE**

**SERIES 802 AQUAMOUSE
SUBSEA / HERMETIC**

Glenair

Series 80 AquaMouse

Miniaturized, Extreme-Duty, Submersible



- 3500 psi pressure rated
- High-temperature and corrosive chemical-resistant Viton® or Nitrile O-rings
- Ultraminiature #23 contacts
- Size #20, #20HD, #16, #12, #8 signal, power, fiber optic and shielded contacts
- Discrete connectors and turnkey cable assemblies



Series 80 AquaMouse

Connector configurations and classes



Plugs



Jam-nut
receptacles



Square-flange
receptacles



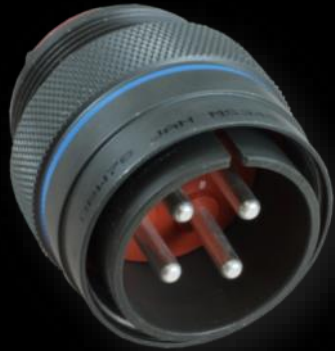
Hermetic
receptacles



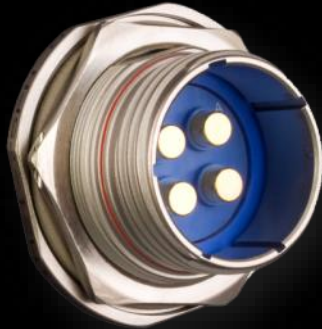
Hermetic
bulkhead feed-thru

Series 970 PowerTrip™

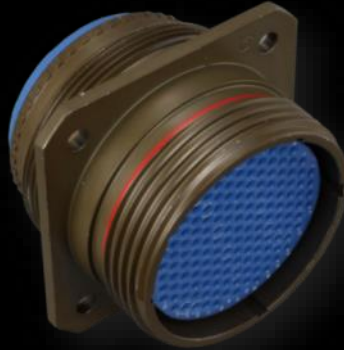
The ultimate marriage of “Trip 9” packaging and high-performance power



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MIL-DTL-5015

MIL-DTL-38999

MIL-DTL-28840

Power-Trip

Series 970 PowerTrip™

Next-generation power connector

- PowerTrip™ connectors fill the need for a military-grade harsh environment power connector with improved mechanical, environmental, and electrical performance in US Navy ships



Series 970 PowerTrip™

SPECIFICATIONS

Current Rating	Up to 400 A per contact
Dielectric Withstanding Voltage	2000 VAC
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Shock	300 G
Vibration	43 G at 175° per D38999
Shielding Effectiveness	65 dB minimum from 1GHz to 10GHz.
Durability	2000 mating cycles

MATERIALS AND FINISHES

Shells, Jam Nuts	Aluminum alloy, stainless steel or marine bronze
Contacts	High conductivity copper alloy, gold or silver-plated
Insulators	Glass-reinforced epoxy
Contact Retention Clip	Beryllium copper alloy
Seal, O-rings, Grommet	Fluorosilicone rubber
Spring	Nickel-plated beryllium copper

New Technology: SeaKing High-Density Subsea Connectors and Cable Assemblies



10K psi open face or mated, dual O-ring equipped high-pressure subsea connector

- Signal, power, RF and optical contact arrangements
- Innovative PBOF attachment and indexing
- Advanced durability, ease-of-use, and sealing performance



SeaKing Features

Retractable engaging nut retention ring for easy O-ring inspection/replacement



Replaceable O-rings facilitate fast and trouble-free field replacement



BCR showing keyway-assisted mating and polarization feature and wrench flats for reliable, secure attachment to pressure bulkheads

Overmold Delamination Ring

Wrench flats

Full-mate inspection port

Engaging Nut set screw (3 places)

Dual O-rings

Dual O-rings

Dual O-rings

SeaKing Flange Connector Receptacles feature a removable spoked body and indexable flange

Indexable flange

Disengage flange to rotate body for multiple clocking positions

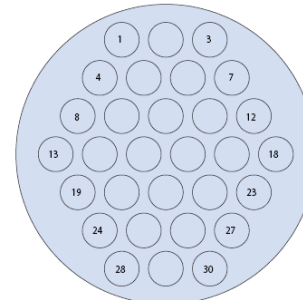
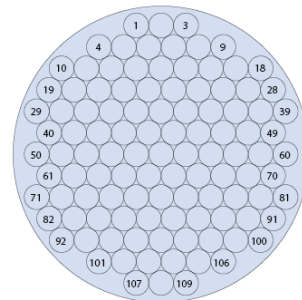
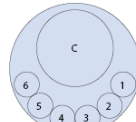
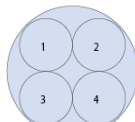
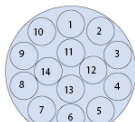
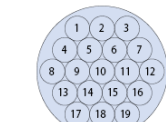
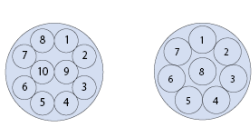
Available pressure-balanced oil filled (PBOF) back end for use with oil-filled cables

Series 70 SeaKing™ cable assemblies are available from the factory with special 10,000 psi overmolded cable-to-plug connector environmental sealing.

Revolutionary PBOF swivel assembly features kink-proof hose swivel, straight, 45° and 90° routing, and superfast assembly



Contact Arrangements: 7 Sizes and 17 Layouts



Size G
G-10
 10 Size #22
 Contacts

G-8
 8 Size #20
 Contacts

Size K
K-19
 19 Size #22
 Contacts

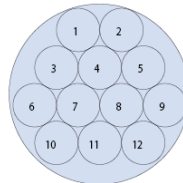
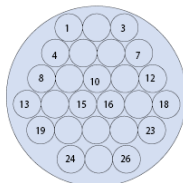
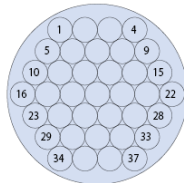
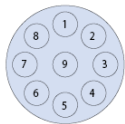
K-14
 14 Size #20
 Contacts

K-4
 4 Size #16
 Contacts

K-C6
 175 Ohm Coax,
 6 #22 Contacts

Size Q
Q-109
 109 Size #22
 Contacts

Q-30
 30 Size #16
 Contacts

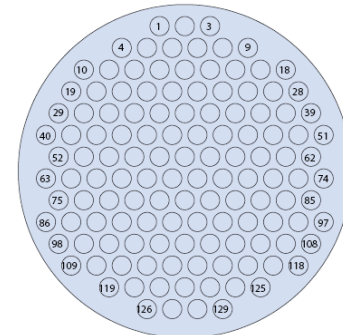
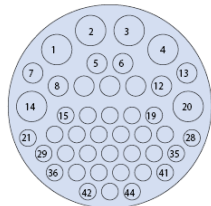
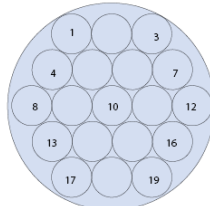
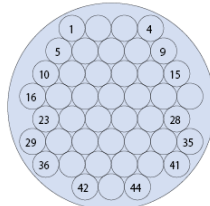
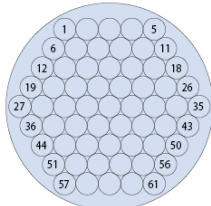


Size L
L-9
 9 Size #16
 Contacts

Size M
M-37
 37 Size #22
 Contacts

M-26
 26 Size #20
 Contacts

M-12
 12 Size #16
 Contacts



Size O
O-61
 61 Size #22
 Contacts

O-44
 44 Size #20
 Contacts

O-19
 19 Size #16
 Contacts

OX44
 44 Contacts
 6 #16 • 9 #20 • 29 #22

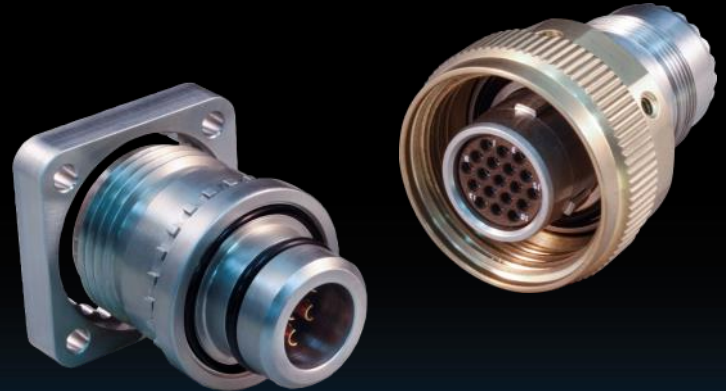
Size R
Q-129
 129 Size #22
 Contacts

SeaKing Strengths and Advantages



High availability, and generous engineering support

- 10ksi working pressure and 15ksi test pressure on all designs
- Glass-to-metal sealed receptacle inserts
- 500lb pull strength plug to receptacle
- Dual O-rings on all critical leak paths
- Solder cup contacts
- Plug shell is universal for overmolding and PBOF
- Wrench flats and knurl for easy mate and demate
- Metal-to-metal seating
- Polarized metal keyways
- Standard configurations in stock
- Intermountable to Minicon (not intermateable)
- Best in class compared to current market standards (Seacon Minicon, Birns Millenium, Impulse HD)



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