Underwater/Subsea Connectors and Cables

Deep Water • Topside • Downhole • Shallow Water
Glenair Marine / Subsea Connectors and Cables

High pressure, harsh environment underwater / topside

Subsea Deep Water
Topside / Shipboard
Downhole / HTHP
Subsea Shallow Water
10K PSI OPEN-FACE OR MATED

SEAKING™ SUBSEA CONNECTORS AND CABLES

SeaKing

Glenair®
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™ High-Density Subsea Connectors

- Retractable engaging nut retention ring for easy O-ring inspection/replacement
- Multiple PBOF backshell indexing points
- Replaceable O-rings facilitate fast and trouble-free field replacement
- Overmold delamination ring
- Accessory thread and overmold features
- Engaging nut set screw (3 places)
- Dual O-rings
- Full-mate inspection port
- Wrench flats
- Indexable flange
- Disengage flange to rotate body for multiple docking positions
- Available pressure-balanced oil filled (PBOF) back end for use with oil-filled cables
- BCR showing keyway-assisted mating and polarization feature and wrench flats for reliable, secure attachment to pressure bulkheads
- 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
# SeaKing™ High-Pressure Subsea Connectors

<table>
<thead>
<tr>
<th>SeaKing - How To Order</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sample Part Number</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product Series</th>
<th>700 = SeaKing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connector Style</td>
<td><code>-001</code> = Cable Connector Plug (CCP) Mates with 700-006 / 700-007</td>
</tr>
<tr>
<td>Shell Size-Contact Arrangement</td>
<td>See SeaKing Contact Arrangements table</td>
</tr>
<tr>
<td>Barrel Material</td>
<td>Z1 = 316 Stainless Steel TC = Titanium</td>
</tr>
<tr>
<td>Contact Style</td>
<td>S = Socket, CCP P = Pin, FCR and BCR</td>
</tr>
<tr>
<td>Alternate Key Position</td>
<td>A, B, C, N = Normal (See Alternate Key Positions table)</td>
</tr>
</tbody>
</table>

- **-001 CCP** Cable Connector Plug
- **-006 FCR** Flange Connector Receptacle
- **-007 BCR** Bulkhead Connector Receptacle
SeaKing™ High-Pressure Connectors: Features

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 knurls 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
SeaKing™ High-Pressure Subsea Connectors: High-Durability Materials

Plug (CCP)
- Body – 316SST or Titanium
- Coupling Nut – Aluminum Bronze
- Insert – Ultem 2100 (GRE = Glass Reinforced Epoxy)
- Contacts – Gold Plated Copper alloy
- O-Rings – Nitrile

Receptacle (FCR and BCR)
- Shell – 316SST, Inconel or Titanium
- Contacts – Inconel X750 / Gold Plated
- Insert – Inconel X750
- Insulator – Fused Vitreous Glass
- O-Rings – Nitrile
SeaKing™ High-Pressure Subsea Plug (CCP)

Dual-Use
- Attachable (user-terminatable)
- PBOF “Ready”
- Overmolded
  - ST and RA
  - PU and Neoprene
- PBOF
  - ST and RA
  - 360° rotation
SeaKing™ High-Pressure Subsea Flange Connector Receptacle (FCR)

- 360° indexable flange
- Universal flange option
- Custom flange option
- Dual O-rings or intermountable
SeaKing™ High-Pressure Subsea Bulkhead Connector Receptacle (BCR)

- Standard intermountable BCR threads to industry standard bulkhead drillings
- Extended shank available for thicker bulkhead construction
- Dual O-rings as standard
SeaKing™ High-Pressure Subsea PBOF Cable Attachment Accessories

- Straight, 45°, and 90° “full radius” routing
- Angle adjustment feature eliminates risk of oil leakage
- Corrosion-resistant
- Threaded couplers with safety set-screws for leak and decoupling protection
- No special tools required for assembly
- Compact PBOF compression fitting with 340° swivel action
SeaKing™ High-Pressure Subsea Connector Tools

- O-ring kits and lubrication grease
- Torque wrench adapters
- Plug nut
- Insert installation tool
- Spanner wrench
- Snap ring pliers
- Plug and receptacle pressure caps
- Replacement hex nuts and washers
Additional SeaKing™ High-Pressure Connector Series Offerings

Fiber Optic and High Voltage

- Fiber optic
  - 2 and 4 channel singlemode
  - Expanded beam
  - Hybrids

- High voltage
  - 3Kv
  - 5Kv
HIGH-PRESSURE 10K PSI

SUPERG55™ DRY-MATE ELECTRICAL CONNECTORS
SuperG55 Underwater Dry-Mate Electrical Connector: Enhanced Design Features

- Superior design compared to current industry standards
- Intermateable and interchangeable with available 55 series connectors
- Universal Cable Connector Plug (CCP) shell accepts overmolding and 360° rotatable PBOF Backshell
- Coupling nut inspection port for full-mate/interface seal visibility
- Longer shell allows coupling nut retraction for visual inspection of interfacial seal
- Circlip feature enables coupling nut removal from plug body
- Blue AFC 2101 PTFE Xylan-coated coupling nut
- Easy-access solder bucket contacts
- PEEK potting cap
- Laser marked part number
SuperG55 Underwater Dry-Mate Electrical Connectors: Plug and Receptacle Styles

1. Overmolded assemblies (whips)
2. Attachable connectors (user-terminatable)
3. PBOF (special backend and adapter)
# SuperG55 Underwater Dry-Mate Electrical Connectors

## SuperG55 CCP - How To Order

<table>
<thead>
<tr>
<th>Sample Part Number</th>
<th>G55</th>
<th>01</th>
<th>15</th>
<th>03</th>
<th>-0001</th>
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<tbody>
<tr>
<td><strong>Series</strong></td>
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<tr>
<td>SuperG55</td>
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<td>D1</td>
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<tr>
<td><strong>Connector Style</strong></td>
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<tr>
<td>15, 20, 24</td>
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</tr>
<tr>
<td><strong>Shell Size</strong></td>
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</tr>
<tr>
<td><strong>Number of Contacts</strong></td>
<td>See contact arrangements</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Cable Length</strong></td>
<td>in feet (0001 = 1 foot, 002 = 2 feet, etc.)</td>
<td></td>
<td></td>
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</tbody>
</table>
SuperG55 Underwater Dry-Mate Electrical Connectors: Contact Arrangements

- 1503
- 1508
- 2008
- 2013
- 2021
- 2412
SuperG5501 Cable Connector Plug: Overmolded Assembly or “Whip”

- Polyurethane or Neoprene overmolding
- Recessed female contacts, molded and sealed in place
SuperG55A1 Cable Connector Plug: Attachable (User-Terminatable)

- Molded/sealed insert with recessed female contacts
- Extended overmolding shell
- Straight or right angle
- Glenair PBOF adapter available
SuperG5501 Cable Connector Plug, Oil-Filled
SuperG55R1 Cable Connector Plug, Molded Body, Right Angle
SuperG5506 Flange Connector Receptacle (FCR)
SuperG5507 Bulkhead Connector Receptacle (BCR)
SuperG55 Underwater Dry-Mate Electrical Connectors: Materials

**Plug**
- Plug body 316 SST (standard) Titanium / PEEK options
- Coupling Nut 316 Stainless Steel / AFC 2101 PTFE Blue Xylan Coated
- Neoprene insert (Glenair proprietary recipe)
- Gold-plated contacts
- Nitrile O-ring

**Receptacle**
- Shell body 316 SST (standard) Titanium / PEEK options
- Gold-plated contacts
- Neoprene insert (Glenair proprietary recipe)
- Nitrile O-ring
SuperG55 Underwater Dry-Mate Electrical Connectors: Performance Specifications

- Pressure 10,000 psi mated and unmated
- Voltage rating
  - 600 VDC/440 VAC (Standard)
  - 3kVDC for new high power version
- Current (maximum)
  - 5 to 18 amps dependant on contact and cable conductor size
  - 50 Amps for new high power version
- Operating temperature -4°F to 194°F (-20°C to 90°C)
- Mating cycles 500
IECEx/ATEX QUALIFIED

ITS-Ex HAZARDOUS ZONE CONNECTORS

Glenair®
ITS-Ex Explosive Zone Connectors

ITS-Ex IEC/ATEx Qualified Hazardous/Explosive Zone Connectors

- Over 40 power and signal contact arrangements
- Full support for common armored and unarmored cable types
- MIL-DTL-5015 crimp-contact derivative solution
- Locking set screw-equipped coupling nut and protective safety covers
- Extended shell labyrinth cooling zone and potting chamber on all designs
- Mechanical cable clamp, basket weave, and Ex d cable gland accessories
- IP68 water, vapor, moisture and dust protection in mated condition
ITS-Ex Explosive Zone Connectors

Product selection: plug configurations

927-072-016
In-Line Plug with Mechanical Clamp

927-072-026
In-Line Plug with Ex d Cable Gland

927-072-036
In-Line Plug with Basket-Weave Cable Grip
ITS-Ex Explosive Zone Connectors

Product selection: fixed in-line receptacle configurations

- **927-072-012**
  Fixed In-Line Receptacle with Mechanical Clamp

- **927-072-022**
  Fixed In-Line Receptacle with Ex d Cable Gland

- **927-072-036**
  Fixed In-Line Receptacle with Basket-Weave Cable Grip
ITS-Ex Explosive Zone Connectors

Product selection: in-line and panel mount receptacle configurations

- **927-072-011**
  - In-Line Receptacle with Mechanical Clamp

- **927-072-021**
  - In-Line Receptacle with Ex d Cable Gland

- **927-072-031**
  - In-Line Receptacle with Basket-Weave Cable Grip

- **927-072-003**
  - Panel Mount Fixed Receptacle
ITS-Ex Explosive Zone Connectors

Connector accessories

Strain-Relief Clamp

Cable Sealing Gland

Basket Wire Mesh Grips
# ITS-Ex Explosive Zone Connectors

## How To Order

<table>
<thead>
<tr>
<th>927-072-Series</th>
<th>11 Style</th>
<th>10SL-3 Shell Size - Insert Arrangement</th>
<th>P1 Contact Type and Plating</th>
<th>F9 Shell Material and Finish</th>
<th>N Key Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>927-072</td>
<td>0X1</td>
<td>10SL 145</td>
<td>P1 Pin Contacts - Silver Plated</td>
<td>F9 Alumine, Anodize, Hardcoat</td>
<td>N Position 1</td>
</tr>
<tr>
<td>AEX\IEC Series</td>
<td>0X2</td>
<td>16 18 28 36</td>
<td>S1 Socket Contacts - Silver Plated</td>
<td>Z1 Stainless Steel, Passivate</td>
<td>X Position 2</td>
</tr>
<tr>
<td>003</td>
<td>Fixed Receptacle</td>
<td></td>
<td>P2 Pin Contacts - Gold Plated</td>
<td>AB Marine Bronze, unplated</td>
<td>Y Position 3</td>
</tr>
<tr>
<td>0X6</td>
<td>In Line Plug</td>
<td></td>
<td>S2 Socket Contacts - Gold Plated</td>
<td></td>
<td>W Position 4</td>
</tr>
</tbody>
</table>

### Key Positioning Options

<table>
<thead>
<tr>
<th>Key Position</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>Mechanical Cable Clamp</td>
</tr>
<tr>
<td>Position 1</td>
<td>Ex Cable Clamp</td>
</tr>
<tr>
<td>Position 2</td>
<td>Basketweave Cable Grip</td>
</tr>
</tbody>
</table>
ITS-Ex Explosive Zone Connectors: Available Contact Arrangements

10SL-4 10SL-3
18-6 18-7 18-3 18-5 18-22 18-4 18-10 18-13 18-11 18-20 18-06
18-12 18-8 18-1 18-19 18-30 18-9
36-4 36-5 36-3
36-6 36-A51 36-77 36-A7 36-A35 36-B78 36-D78
ITS-Ex Explosive Zone Connectors: Available Contact Arrangements
SeaCrow™ Harsh Environment Marine Bronze Connectors

Rugged Marine Bronze for harsh environments

- Marine bronze alloy for superior corrosion resistance in seawater and other harsh environments
- Ideal for shipboard and offshore drilling applications
- IP67 environmental sealing in mated condition; IP68 available
- Hundreds of available contact arrangements for both power and signal as well as hybrid applications
SeaCrow™ Harsh Environment Marine Bronze Connectors

- **ITS-MB**: ITS reverse-bayonet VG95234-compliant
- **IPT-MB**: IPT / 26482 high-density VG 95328-compliant
- **IGE-MB**: IGE reverse-bayonet single-pole VG96929- compliant
- **IT-MB**: IT Threaded 5015 MIL-DTL-5015-compliant
Duralectric™ Topside Jacketing / Overmolding

- Jacketing material for wire protection
- 10 years since MIL-PRF-24758 approval (Navy topside conduit)
- Resistant to:
  - Flame
  - High and low temps (-65°C to 225°C)
  - Repeated flexing
  - Broad range of fluids
  - Ozone
  - Long-term direct sunlight
  - Fungus
  - Dielectric breakdown
Applications for Duralectric™ Topside Jacketing / Overmolding

- Weather deck cables and conduit
- Completely sealed overmolded systems
- Wire insulation for TurboFlex™ power cable assemblies
- Jacketing on custom bulk cables extruded in long lengths
- Ground straps
- Autoshrink™ boots & tubing
WEIGHT-SAVING, CORROSION-FREE

COMPOSITE EMI/RFI JUNCTION BOXES
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

Discrete components or turnkey wired and connectorized systems

Broad range of sizes and shapes

Complex installations fully supported with feed-thru fittings and wire protection conduit
Shielded Composite Junction Boxes

Application example

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.
HIGH-TEMPERATURE MICRO-D

WELL-MASTER 260°
Well-Master 260°
High-temperature Micro-D

- +260°C operating temperature
- Angled mounting ears to fit in small diameter instruments
- High-reliability TwistPin contact system with special high-temperature alloy
- .050" pitch contact spacing for reduced size
- Pre-wired or PCB
- Meets performance requirements of MIL-DTL-83513
Well-Master 260°

Cable connector

- High-Temperature Wire
- Passivated SST Shell
- Space Saving, Angled Mounting Ears
- LCP Insulator
- High Temperature Tolerant TwistPin Contacts
- High Density .050” Contact Spacing
Well-Master 260°

PCB header

- Space Saving, Angled Mounting Ears
- Heat Resilient Nickel Alloy Socket Contacts with .050" High Density, Contact Spacing
- Stainless Steel Passivated Shell
- LCP Insulator
- .020" Diameter PC Terminals
Well-Master 260°

Connector configurations

- Pre-wired pin/plug or socket/receptacle connectors
- Back-to-back connectors
- Right-angle PCB connectors
SeaKing Downhole/HTHP

Penetrators and feed-thrus

Penetrator
Hermetic feed-thru
High-pressure hermetic and single-pin feed-thru
Geo-Marine®: The 5000 PSI Connector with Extreme Temperature and Corrosion Resistance

- Open-face pressure rated 100 – 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® Connector Anatomy

5000 PSI piston-sealed extreme environmental submersible

**Plug**
- Nickel-Aluminum-Bronze Coupling Ring
- Anti-Decoupling Device
- Flat Compression Seal
- Quick-Coupling Thread
- Closed Entry Hooded Socket Contacts
- Castellated and Knurled Coupling Ring
- Gold Plated Solder Pot Contacts

**Receptacle**
- Stainless Steel Shell
- Quick-Coupling Thread
- Piston O-ring
- 3-Key Shell Polarization
- Interfacial Seal on Pin Inserts
- Red Color Band as Visual Full-Mate Indicator
- Flange O-ring
- Standard Accessory Accommodation
- Stainless Steel Jam Nut and Washer
Geo-Marine® Connector Selection Guide

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
Geo-Marine® Contact Arrangements

Front Face of Pin Inserts Illustrated. Service Ratings Indicated in Parentheses.
Geo-Marine® Overmolded Cable Sealing and Packaging Capabilities

Essentially unlimited configuration range, all with optimal sealing

- Straight, 90° and 45° angular specifications
- Existing tooling for many common molding adapters and connectors
- Viton® and other harsh environment materials
ULTRAMINIATURE SUBSEA

SERIES 802 AQUAMOUSE
SUBSEA / HERMETIC

Glenair®
Series 80 AquaMouse Underwater Connector

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
Underwater Connector

Connector configurations and classes

Plugs
Jam-nut receptacles
Square-flange receptacles
Hermetic receptacles
Hermetic bulkhead feed-thru
Glenair Culture

One-of-a-Kind Service From a One-of-a-Kind Supplier

- Outstanding product availability: literally thousands of items in stock
- Liberal policies on NRE costs, samples, and RMA’s
- The industry’s best engineering and technical support team
- No dollar or quantity minimums on standard products
- Comprehensive product documentation and information access
- Ample, professionally-managed manufacturing capacity
- The size and scale to tackle every interconnect challenge
Underwater/Subsea Connectors and Cables

Deep Water • Topside • Downhole • Shallow Water

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