

Hermetic Connectors

A Wide Range of Connector Families
with High Performance Glass-to-Metal
Sealing for Harsh Environments
and Differential Pressure Applications

Hermetic Connectors

APPLICATIONS

AEROSPACE

- Actuation
- Air Data Systems
- Bulkhead Feedthrough
- Fuel Utility Systems
- Hydraulic Systems

ENGINES

- FADEC
- Pressure Sensors
- Temperature Sensors
- Torque Sensors

MISSILES AND ORDNANCE

- Optical Systems
- Inertial Guidance
- Electronic Boxes

SEISMIC

- Land Seismic
- Cable Headers
- Hydrostreamers

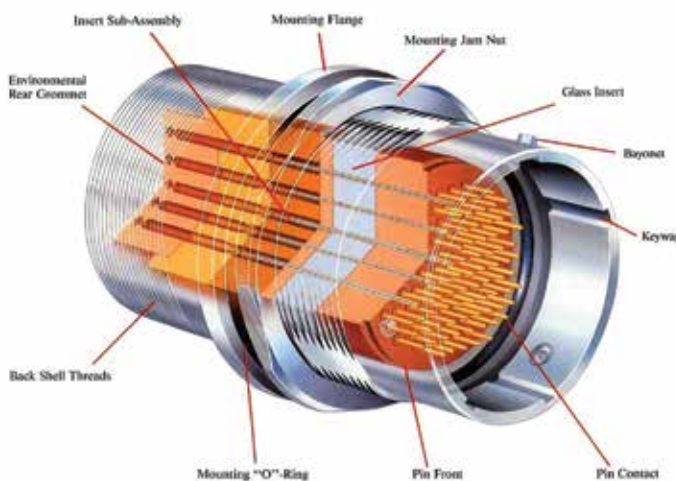
OFFSHORE

- Ships
- Subsea
- Deep Penetration Applications

Look to DEUTSCH hermetic connectors from TE Connectivity (TE) for reliable, air- and gas-tight connections. For applications ranging from submarines and satellites to aircraft and offshore exploration and production, DEUTSCH hermetic connectors are an excellent choice for harsh application environments. We have four decades of experience in producing glass-to-metal seals for applications where temperature, pressure and environmental considerations render standard connectors unusable.

Hermetic connectors are used to separate an inert atmosphere or vacuum on one side from wide-ranging high-pressure, high-temperature, or corrosive conditions on the other. They are also used to maintain a pressure differential between the two sections. In short, DEUTSCH hermetic connectors are designed to help provide a continuously gas-tight seal while withstanding:

- High pressures
- Extreme temperatures
- High vibration



Gas-Tight Glass-to-Metal Sealing

Standard sealing techniques—such as epoxy potting—are useful in many applications, but they do not provide the degree of near-perfect sealing that is offered by glass-to-metal hermetic seals. This is especially true of applications with high-pressure differentials. Glass is a durable, high-strength material that resists extreme changes in temperature or pressure.

Our glass-to-metal seals create a bond between shell, insulator, and contacts by fusing the glass insulator to the metal components. The bond can maintain a helium leak rate $<1 \times 10^{-7}$ He.atm.cm³/s at 14.7 psi. The hermetic bond provides enduring reliability, resists the cracking that would compromise the performance, and withstands a wide range of harsh conditions.



Compression vs. Matched Seals

DEUTSCH hermetic connectors are produced using both compression seals and matched seals.

In a matched seal, the metal and glass have similar coefficients of thermal expansion (CTE). This reduces stress on the glass from thermal expansion and contraction.

In a compression seal, the metal has a higher CTE than the glass. During the firing process to manufacture the connector, the metal expands more than the glass. As the glass and metal then cool, the metal contracts back onto the glass to form an extremely robust bond. Compression seals are used high-pressure applications.

Controlling Quality from Start to Finish

We design and manufacture all the components in our hermetic connectors. We start with high-grade materials—from stainless steel bar stock or exotic metals like titanium for shells, high-grade silica and binders for the glass, and a range of special alloys for contacts, and elastomers carefully matched to the application. An important consideration in material selection is the ability to withstand the high temperatures of the sealing process. All connectors are fully leak tested to ensure the integrity of the hermetic seal.

Materials

Standard materials for hermetic connectors include:

- **Shell: Stainless steel**
- **Insert: Glass**
- **Contacts: Nickel iron (52 Alloy)**

Other materials are used, depending on application requirements depending on special requirements for:

- **High current**
- **High voltages**
- **High pressures**
- **Extreme temperatures**
- **Severe corrosion conditions**

For example, contacts can be made from nickel iron, Alumel, Chromel, and copper-cored nickel iron. More recently, TE has offered weight-saving aluminum-shelled connectors with copper contacts.

TE Components . . . TE Technology . . . TE Know-how . . .

AMP | AGASTAT | CII | HARTMAN | KILOVAC | MICRODOT | NANONICS | POLAMCO | Raychem | Rochester | DEUTSCH
SEACON Phoenix | LL ROWE | Phoenix Optix | AFP | SEACON

Empower Engineers to Solve Problems, Moving the World Forward.





Weight-Saving Aluminum Hermetic Connectors

DEUTSCH aluminum hermetic connectors use an aluminum alloy shell to create connectors that are 60% lighter than stainless steel counterparts—two aluminum connectors weigh less than a single stainless steel equivalent.

- Up to 60% lighter
- Higher conductivity: up to 250 A
- Lower contact resistance: less than half that of nickel-iron contacts
- Wide temperature range: -85°C to +300°C



A Full Range of Hermetic Choices

DEUTSCH hermetic connectors are available in a variety of military and commercial styles. Options include a choice of:

Pin or socket contacts

Rear-release crimp termination to reduce costs by eliminating soldering processes and potting and by allowing use of standard crimp tools

Feedthroughs provide a single device that can be terminated on both sides

Hermetic assemblies with connectors pre-installed in a mounting fixture to reduce your manufacturing time and speed installation

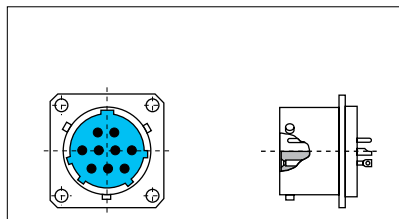
Custom connectors and configurations for applications not easily accommodated by standard offerings. Hermetic connectors lend themselves well to short production runs

Connector Standard	DEUTSCH Series	Styles	Shell		Contacts	
			Materials	Finishes	Material	Plating
MIL-DTL-38999 Series I	DJT	Weld Mount Solder Mount Square Flange Jam Nut	Cold Rolled Steel Stainless Steels Aluminum Titanium Kovar Inconel Monel	Tin Nickel Passivated Cadmium Olive Drab Space Grade	Nickel Iron Alumel/ Chromel Copper-Cored Nickel Iron	Hard Gold Soft Gold Tin Nickel None
MIL-DTL-38999 Series II	DJL					
MIL-DTL-38999 Series III	DTS					
MIL-DTL-38999 Series IV	DIV					
MIL-DTL-83723 Series III Bayonet	DL60					
MIL-DTL-83723 Series III Threaded	DBA30, DBC30					
MIL-DTL-26482 Series I	DTK, 22628					
MIL-DTL-26482 Series II	DBA50, DBC50					
MIL-DTL-26500	24264					
MIL-DTL-81703 Series I	DM5300					
MIL-DTL-81703 Series III	D817, DBC70					
MIL-DTL-81511	A815, B815					
MIL-DTL-5015	DF02, DH02					
MIL-DTL-24308	DSH					
EN3646	FDBA					
EN2997 / ESC10	983					

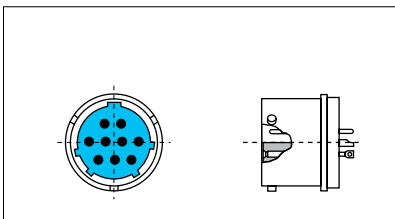


Connector Styles

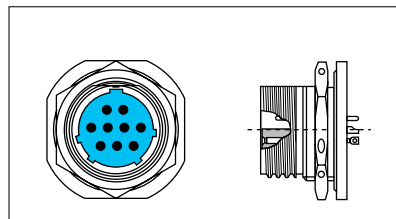
Square Flange Receptacle



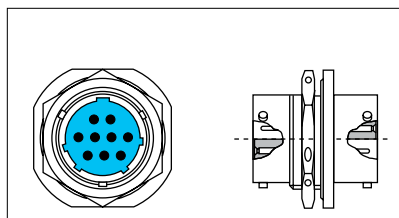
Weld Mount Receptacle



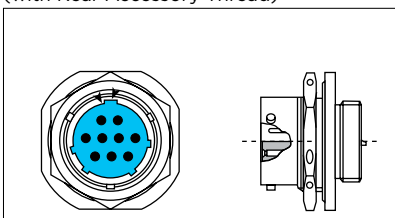
Jam Nut Receptacle



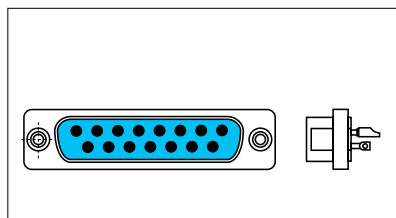
Connector Feedthrough



Jam Nut Receptacle (with Rear Accessory Thread)

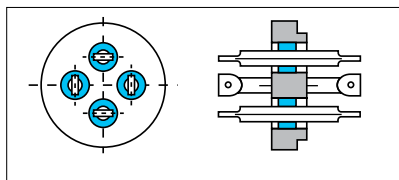


MIL-C-24308 D-Subminiature

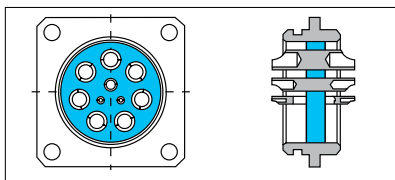


Feedthrough Styles

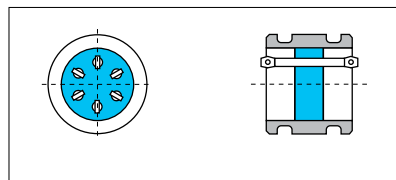
Weld Mount



Flange Mount



O-Ring Sealing



MIL-DTL-38999 Style Hermetic Receptacle Connectors

DEUTSCH Base Part No.	Mil Cross Type	Receptacle Mounting	Variations		
			Mil Classes	Mil Finishes	Contact Styles
Series I: Scoop-Proof Bayonet Coupling					
DJT10H	MS27469	Square Flange	H Space Grade Y Electropolished Stainless Steel	D Carbon Steel, Tin Finish E Passivated Stainless Steel	P Pin, Solder Cup
DJT14H	MS27470	Jam Nut			X Pin, Eyelet
DJT11H	MS27471	Solder Mount			C Pin, PCB Flex Feedthrough S Socket, Solder Cup Z Socket, Eyelet D Socket, PCB Flex Feedthrough
Series II: Non-Scoop-Proof, Bayonet Coupling, Low Silhouette					
DJL10H	MS27476	Square Flange	H Space Grade Y Electropolished Stainless Steel	D Carbon Steel, Tin Finish E Passivated Stainless Steel	P Pin, Solder Cup
DJL14H	MS27477	Jam Nut			X Pin, Eyelet
DJL11H	MS27478	Solder Mount			C Pin, PCB Flex Feedthrough S Socket, Solder Cup Z Socket, Eyelet D Socket, PCB Flex Feedthrough
Series III: Scoop-Proof, Triple Start, Self-Locking, Threaded Coupling					
DTS20	D38999/21	Square Flange	H Space Grade N Nickel-Plated Stainless Steel	—	P Pin, Solder Cup
DTS24	D38999/23	Jam Nut		—	X Pin, Eyelet
DTS21	D38999/25	Solder Mount	Y Electropolished Stainless Steel	—	C Pin, PCB Flex Feedthrough
DTS23	D38999/27	Weld Mount		—	S Socket, Solder Cup Z Socket, Eyelet D Socket, PCB Flex Feedthrough



MIL-DTL-38999 Style Hermetic Receptacle Connectors (continued)

DEUTSCH Base Part No.	Mil Cross Type	Receptacle Mounting	Variations		
			Mil Classes	Mil Finishes	Contact Styles*
Series IV: Scoop-Proof, Breech Coupling					
DIV43H	D38999/41	Square Flange	H Space Grade N Nickel-Plated Stainless Steel Y Electropolished Stainless Steel	—	P Pin, Solder Cup
DIV44H	D38999/43	Jam Nut		—	X Pin, Eyelet
DIV41H	D38999/45	Solder Mount		—	C Pin, PCB Flex Feedthrough S Socket, Solder Cup Z Socket, Eyelet D Socket, PCB Flex Feedthrough

MIL-DTL-83723 Series III Bayonet

DEUTSCH Base Part No.	Mil Cross Type	Receptacle Mounting	Variations	
			Shell Material and Finish	Contact Styles*
DL60H	M83723/79	Square Flange	Cold Rolled Steel Stainless Steel	Eyelet Solder Cup
DL61H	M83723/80	Solder Mount		
DL64H	M83723/81	Jam Nut		

MIL-DTL-83723 Series III Threaded

DEUTSCH Base Part No.	Mil Cross Type	Receptacle Mounting	Variations	
			Shell Materials	Contact Styles*
DBA30/DBC30	M83723/88	Square Flange	Cold Rolled Steel Stainless Steel	Eyelet Solder Cup
DBA34/DBC34	M83723/89	Jam Nut		
DBA33/DBC33	M83723/90	Solder Mount		

MIL-DTL-26482 Series I Receptacle Connectors

DEUTSCH Base Part No.	Mil Cross Type	Receptacle Mounting	Variations	
			Shell Materials	Contact Styles*
22628	MS3113H	Solder Mount	Tin-Plated Steel	Solder Cup
22630	MS3114H	Jam Nut		

MIL-DTL-26482 Series II Receptacle Connectors

DEUTSCH Base Part No.	Mil Cross Type	Receptacle Mounting	Variations	
			Shell Materials	Contact Styles*
DBC50H	MS3440H	Square Flange	Tin-Plated Steel	Solder Cup
DBC53H	MS3443H	Solder Flange		
DBC54H	MS3449H	Jam Nut		
DBA50H	MS3440H	Square Flange	Stainless Steel	Solder Cup
DBA53H	MS3443H	Solder Flange		
DBA54H	MS3449H	Jam Nut		

MIL-DTL-26500 Receptacle Connectors

DEUTSCH Base Part No.	Mil Cross Type	Receptacle Mounting	Variations		
			Coupling	Shell Materials	Contact Styles*
24264H	MS24264H	Square Flange	Bayonet Threaded	Tin-Plated Steel	Solder Cup
24265H	MS24265H	Jam Nut			
27034H	MS27034H	Solder Flange			

MIL-DTL-81703 Series I

DEUTSCH Base Part No.	Mil Cross Type	Receptacle Mounting	Variations	
			Shell Materials	Contact Styles*
DM5306	MS3132H	Square Flange	Cold Rolled Steel	Solder Cup Eyelet
DM5300	MS3134H	Solder Mount		



MIL-DTL-81703 Series III

DEUTSCH Base Part No.	Mil Cross Type	Receptacle Mounting	Variations	
			Shell Materials	Contact Styles*
D8170H	MS3466H	Square Flange	Cold Rolled Steel	Solder Cup Eyelet

MIL-DTL-81511

DEUTSCH Base Part No.	Mil Cross Type	Receptacle Mounting	Variations	
			Mil Classes	Contact Styles*
Series 3: Long Shell (100% Scoop Proof)				
A81511D	M81511/42D	Solder Mount	Cold Rolled Steel	Solder Cups
A81514D	M81511/44D	Jam Nut		
Series 4: Short Shell (50% Scoop Proof)				
B81511D	M81511/52D	Solder Mount	Cold Rolled Steel	Solder Cups
B81514D	M81511/54D	Jam Nut		

MIL-DTL-5015 Style Hermetic Receptacle Connectors

DEUTSCH Base Part No.	Mil Cross Type	Receptacle Mounting	Variations	
			Shell Materials	Contact Styles*
DF02	MS3142 Style	Square Flange	Tin-Plated Steel	1 Eyelet
DF02	MS3143 Style	Solder Mount		2 Solder Cup 3 Short Solder Cup

MIL-DTL-24308 Style Hermetic D-Subminiature Receptacle Connectors

DEUTSCH Base Part No.	Mil Cross Type	Receptacle Mounting	Variations		
			Shell Materials	Contact Styles*	Shell Materials
DSH0	MS24308/9 Style	Solder	Stainless Steel	Passivated Nickel	E Eyelet
DSH1	MS27308/9 Style	Solder with Lockpost	Cold Rolled Steel		C Solder Cup

EN3646 Receptacle Connectors

DEUTSCH Base Part No.	Mil Cross Type	Receptacle Mounting	Variations	
			Shell Materials	Contact Styles*
FDBA 50H	EN 3646 Y0	Square Flange	Passivated Stainless Steel	Eyelet Solder Cup
FDBA 53H	EN 3646 Y3	Solder Flange		
FDBA 54H	EN 3646 Y7	Jam Nut		
FDBA 58H	EN 3646 Y8	Large Square Flange		

EN2997 and ESC 10/11 Style Hermetic Receptacle Connectors

DEUTSCH Base Part No.	Mil Cross Type	Receptacle Mounting	Variations	
			Shell Materials	Contact Styles*
983-OY 983-OYE	EN2997Y0 EN2997YEO	Square Flange	Y Stainless Steel (200°C) YE Stainless Steel (260°C)	Solder Cup
983-Y7 983-YE7	EN2997Y7 EN2997YE7	Jam Nut		
983-Y1 983-YE1	EN2997Y1 EN2997YE1	Round Flange (Solder)		

LET'S CONNECT

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Consult TE for the latest dimensions and design specifications.

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