Glenair®

SERIES 927-072

ITS-Ex

IECEx/ATEx QUALIFIED HAZARDOUS ZONE CONNECTORS

IEC/EN 60079-0 • IEC/EN 60079-1 • IEC/EN 60079-31 • IEC/EN 60079-7 (PANEL MOUNT)

SERIES 927-072

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

Glenair is a qualified manufacturer of connectors for potential explosive zone use, built IAW IECEx/ATEx standards. The connectors may be used 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. The connector series design is optimized for fast and easy crimp-contact wire termination with ample wiring space in the cable housing and accessory hardware. Glenair Series ITS-Ex complies with the following standards:

- EN 60079-0 : 2012, "Explosive Atmospheres - Part 0: Equipment - General Requirements".
- EN 60079-1: 2014, "Explosive Atmospheres - Part 1: Equipment protection by flameproof enclosures 'd'".
- EN 60079-31: 2014, "Explosive Atmospheres - Part 31: Equipment Dust Ignition Protection by Enclosure 't'".
- IEC 60079-0: 2011, "Explosive Atmospheres - Part 0: Equipment - General Requirements".
- IEC 60079-1: 2014, "Explosive Atmospheres - Part 1: Equipment Protection by Flameproof Enclosures 'd'".
- IEC 60079-31: 2013, "Explosive Atmospheres - Part 31: Equipment Dust Ignition Protection by Enclosure 't'".
- For panel mount only: EN/IEC 60079-7: "Explosive Atmospheres -Part 7: Equipment protection by increased safety 'e'"

- **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 features**
- **Mechanical cable clamp, basket weave, and Ex d cable gland accessories**
- **IP68 water, vapor, moisture and dust protection in mated condition**

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ITS-Ex Hazardous Zone Connectors

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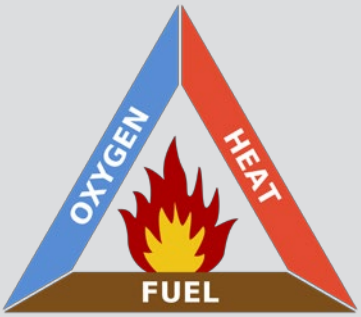
ITS-Ex Hazardous Zone Connectors

Zone and category designations

ATEx EXPLOSIVE ZONES AND CATEGORIES



Explosion Triangle

Purpose of explosion zone connectors and glands

Glenair Series 927-072 ITS-Ex Hazardous Zone Connectors prevent explosions by eliminating the heat component in the explosion triangle. This is accomplished by preventing an ignition source, such as a flame or spark, from migrating through the cable or connector into a defined hazardous zone such as might be found in a petrochemical refinery or land/offshore drilling system. Hazardous zones are defined by frequency of presence of explosive gas or dust.

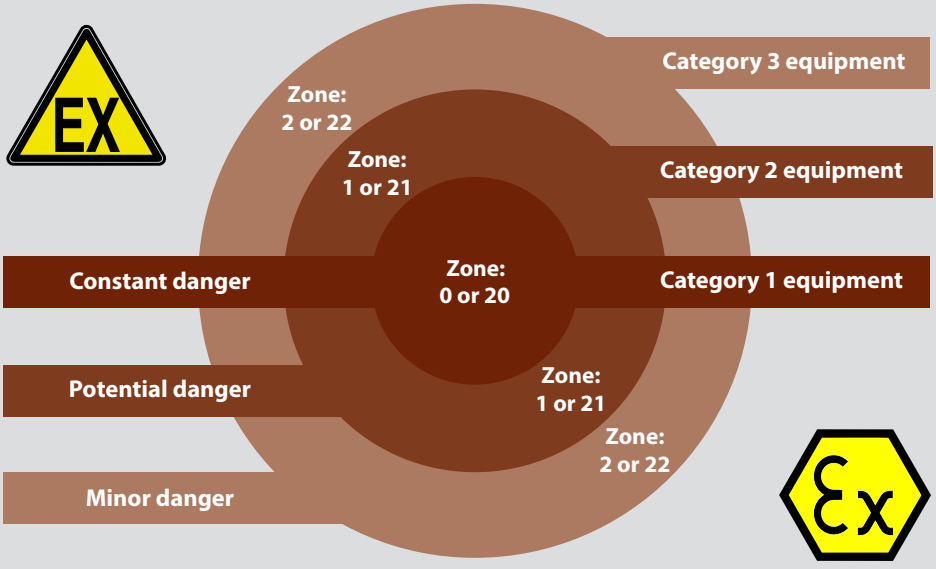
Hazardous Zone Fuel Types

- **Gas, vapor and mists : methane, butane, ethylene, hydrogen, acetylene**
- **Dust : aluminum, sulfur, zinc grain, coal, sugar, epoxy resin**

In the ATEx 1999/92/EC directive, hazardous areas are divided into three defined zones: 0, 1, and 2. These zones are designations used to describe the likelihood that explosive mixtures of fuel and oxygen exist during normal conditions of facility operation.

Zone 0 (20)	Zone 1 (21)	Zone 2 (22)
Area in which an explosive gas (dust) atmosphere is present continuously or for long periods or frequently.	Area in which an explosive gas (dust) atmosphere is likely to occur in normal operation occasionally.	Area in which an explosive gas (dust) atmosphere is likely to occur in normal operation but, if it does occur, will persist for a short period only.

Operator **Manufacturer**



Explosive area zone classifications are used by the operator to distinguish between explosive areas and their relative levels of risk. Operators use the triangular EX mark to indicate compliance with IECEx/ATEx requirements. Manufacturers however use different classifications to describe where their products may be used. The two systems generally conform in meaning but the words and symbols change.

Zone and category designations

Glenair Connectors 927-072 are qualified for Group IIA, IIB, IIC and for Group IIIA, IIIB, IIIC, Category 2 and Category 3.

Category 2	Category 3
Place where explosive atmosphere is likely to occur. Provides the protection level in case of failure of the connector/equipment.	Place where explosive atmosphere are unlikely to occur, or if they do occur not frequently and only for a short period of time. Provides the requisite level of protection during normal operation.

GROUP II is for explosive GASES

Group II	Gases
IIA	Acetone, ethyl alcohol, ammonia, gasoline, butane, hexane, ethanol, natural gas, methanol, propane
IIB	Acetaldehyde, propane, ethylene
IIC	Hydrogen, gas mixture containing more than 25% hydrogen, acetylene, carbon disulphide

GROUP III is for explosive DUST

Group III	Dust
IIIA	Fibers
IIIB	Non-conductive dust
IIIC	Conductive dust

TEMPERATURE CLASSES

Glenair Series 927-072 ITS-Ex Hazardous Zone Connectors are qualified IAW class T6 to class T1.
The temperature class identifies the hottest temperature that the equipment can reach.

Temperature Class	Permissible surface temperatures of the electrical equipment	Ignition temperature of the combustible gases
T1	450 °C	> 450 °C
T2	300 °C	300 - 450 °C
T3	200 °C	200 - 300 °C
T4	135 °C	135 - 200 °C
T5	100 °C	100 - 135 °C
T6	85 °C	85 - 100 °C

ITS-Ex Hazardous Zone Connectors

Zone and category designations

IEC AND ATEx

ATEx 94/9/EC directive classifies the equipment into categories 1,2,3 (Group II), based on protection level.
Standard EN/IEC 60079-0 introduces EPL (Equipment Protection Level).

ATEx Group II	EPL according to IEC/EN 60079-0	
	Gas	Dust
Category 1	Ga	Da
Category 2	Gb	Db
Category 3	Gc	Dc

The relation between the ATEx 1999/92/EC and the IEC is indicated below : in the Zone 0 you could mount an equipment Ga or 1G (according to 94/9/EC ATEx).

Atmosphere	Zone	EPL	ATEx Category
Gas	0	Ga	1G
	1	Gb or Ga	2G or 1G
	2	Gc or Gb or Ga	3G or 2G or 1G
Dust	20	Da	1D
	21	Db or Da	2D or 1D
	22	Dc or Db or Da	3D or 2D or 1D

RANGE OF APPLICATIONS

- **Automotive refuelling or petrol stations**
- **Oil & gas extraction**
- **Oil refineries**
- **Gas pipelines and distribution**
- **Chemical processing plants**
- **Aircraft refuelling and hangars**
- **Transportation**
- **Pharmaceuticals**
- **Food processing**
- **Metal surface grinding**
- **Sugar refineries**
- **Grain handling and storage**
- **Coal mining**

ITS-Ex Hazardous Zone Connectors

ITS-Ex Series labeling and materials

TECHNICAL OVERVIEW

Certified Uses:

- **With flammable gases and vapors with apparatus group IIC and with temperature classes T6 and T5 in zones 1 and 2**
- **With flammable dusts with apparatus group IIIC and with temperature classes T80°C and T95°C in zone 21 and 22**
- **The connectors are certified IP68 (tested at a depth of 10 meters for 30 minutes)**

The Glenair ITS-Ex Hazardous Zone series of connectors is comprised of metallic bodies and shells (aluminium alloy standard, optional materials avalaible) with resilient silicone rubber inserts IAW MIL-DTL-5015. Pin or socket crimp contacts are available, and male and female inserts are reversible. Cable plugs and receptacles are available to form in-line cable connections. A fixed flange mount receptacle is available for Ex d boxes and Ex e bulkhead use. Connectors are coupled with a trapezoidal double-start threaded nut retained by grub (set) screws, and form a cylindrical flamepath when mated. When disconnected, plugs and receptacles are mated to an attached protective safety cap (or blanking cap). Absence of cap voids the Ex certification. Mate plug and receptacle caps together when not in use to prevent thread damage. Both plug and receptacle cable configurations are equipped with back-end accessory threads for the attachment of mechanical cable clamps and wire mesh Kellums grip-style attachments (potting required). A third style of rear-end accessory, an industry-standard Ex-certified explosion-proof cable gland, is also available and supplied by Glenair. The Ex certified cable gland does not require potting by the customer to achieve Ex d certified performance.

ATEx / IECEx LABELS

All Glenair ITS-Ex connectors are supplied with a non-removable label containg the following information per ATEx and IECEx directives:

ATEx Marking

CE 2460 Ex

II 2 G Ex db IIC T6, T5 Gb
II 2 D Ex tb IIIC T80°C, T95°C Db IP68
-40ºC ≤ Tamb ≤ +40°C (T6, T80°C) or +55°C (T5, T95°C)

IECEx Marking

Ex db IIC T6, T5 Gb
Ex tb IIIC T80°C, T95°C Db IP68
-40ºC ≤ Tamb ≤ +40°C (T6, T80°C) or +55°C (T5, T95°C)

FOR PANEL MOUNT CONNECTORS ONLY:

ATEx Marking

CE 2460 Ex

II 2 G Ex de IIC T6, T5 Gb
II 2 D Ex tb IIIC T80°C, T95°C Db IP68
-40oC ≤ Tamb ≤ +40°C (T6, T80°C) or +55°C (T5, T95°C)

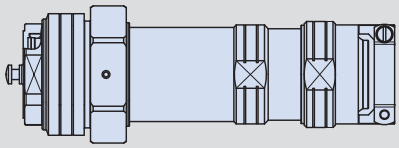
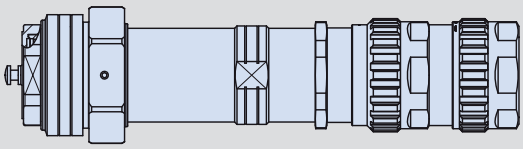
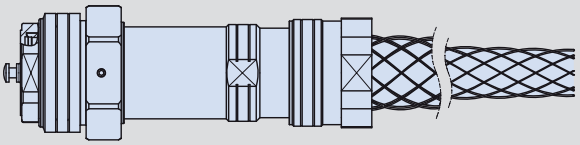
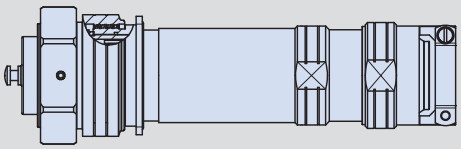
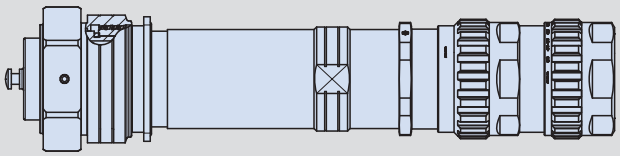
IECEx Marking

Ex de IIC T6, T5 Gb
Ex tb IIIC T80°C, T95°C Db IP68
-40oC ≤ Tamb ≤ +40°C (T6, T80°C) or +55°C (T5, T95°C)

Materials	
Item	**Material**
Hardware Body	Standard Base Material: aluminium alloy EN AW 6082-T6 UNI EN 573-3 (0.7÷1.3% Si, 0.6÷1.2% Mg, <0.2% Ti). All aluminium parts finished with a hard, scratch-resistant coating per MIL-A-8625, type III, class 2.
Insert	Silicone rubber
Cable Seal Glands	Silicone rubber
Grommet and Gasket	Silicone fire resistant rubber
O-Ring	Silicone MVQ / VMQ
Grub Screws (Set Screws)	UNI EN 10088-3, Alloy 316, stainless steel, passivated
Crimp Socket and Pin Contacts	Copper alloy ISO CuZn37Pb2/CuZn35Pb2 (OT61B/OT62A) for size AWG 20, 18, 16, 12 and 8 and copper alloy ISO CuTe for size 4,0 4/0. Both of them are silver plated as standard and gold plated as option.
Cement for potting	Bi-component epoxy resin (applied by the customer), flame retardant and thermally conductive, cure at room temperature for 24 hours.

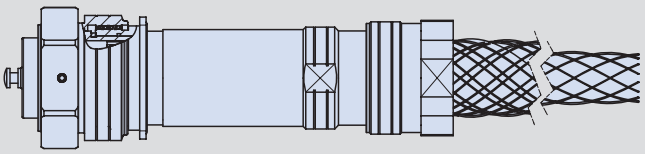
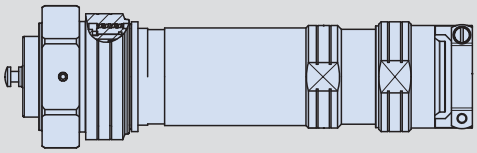
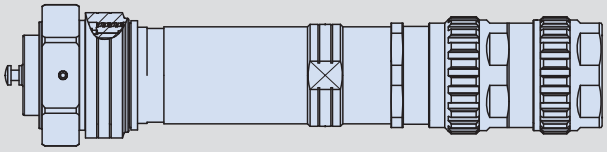
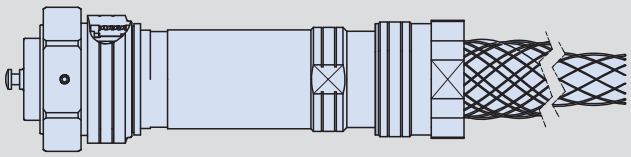
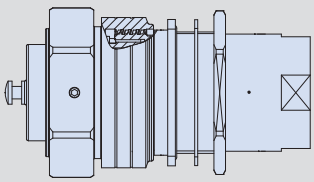
ITS-Ex Hazardous Zone Connectors

Connector configurations

Connectors Configurations	Base Part Number and Description
Cable Plug with Mechanical Clamp and Potting Well	**927-072-016-**
	**Plug with mechanical cable clamp and potting well:** 927-072-016 incorporates a potting well /cable adapter which must be filled with supplied 2-part epoxy for certified Ex d performance. Various cable entry sizes for popular armored and unarmored cable are supported. Protective safety cover included.
Cable Plug with Ex d Cable Gland	**927-072-026-**
	**Plug with "Ex d" certified cable gland** (potting is not required): 927-072-026 is supplied with an industry-standard Ex d certified cable gland, ready for immediate use. Various cable entry sizes for popular armored and unarmored cable are supported. Protective safety cover included.
Cable Plug with Basket Weave Cable Grip	**927-072-036-**
	**Plug with basket-weave cable grip and potting well:** 927-072-036 incorporates a potting well /cable adapter which must be filled with supplied 2-part epoxy for certified Ex d performance. Various cable entry sizes for popular armored and unarmored cable are supported. Protective safety cover included.
Fixed In-Line Receptacle with Mechanical Clamp	**927-072-012-**
	**Fixed in-line receptacle with mechanical cable clamp and potting well:** 927-072-012 incorporates a potting well /cable adapter which must be filled with supplied 2-part epoxy for certified Ex d performance. Various cable entry sizes for popular armored and unarmored cable are supported. Protective safety cover included.
Fixed In-Line Receptacle with Ex d Cable Gland	**927-072-022-**
	**Fixed in-line receptacle with "Ex d" certified cable gland** (potting is not required): 927-072-022 is supplied with an industry-standard Ex d certified cable gland, ready for immediate use. Various cable entry sizes for popular armored and unarmored cable are supported. Protective safety cover included.

ITS-Ex Hazardous Zone Connectors

Connector configurations

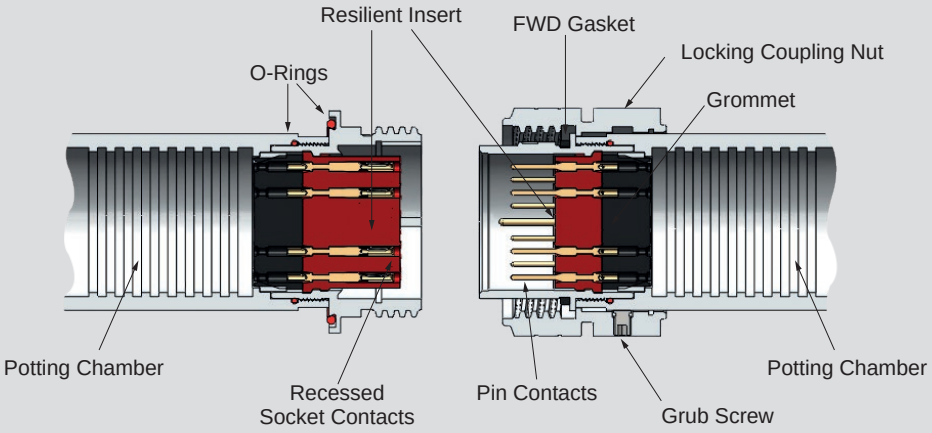
Connectors Configurations	Base Part Number and Description
Fixed In-Line Receptacle with Cable Grip	**927-072-032-**
	**Fixed in-line receptacle with basket-weave cable grip and potting well:** 927-072-032 incorporates a potting well/cable adapter which must be filled with supplied 2-part epoxy for certified Ex d performance. Various cable entry sizes for popular armored and unarmored cable are supported. Protective safety cover included.
In-Line Receptacle with Mechanical Cable Clamp	**927-072-011-**
	**In-Line receptacle with mechanical cable clamp and potting well:** 927-072-011 incorporates a potting well/cable adapter which must be filled with supplied 2-part epoxy for certified Ex d performance. Various cable entry sizes for popular armored and unarmored cable are supported. Protective safety cover included.
In-Line Receptacle with Ex d Cable Gland	**927-072-021-**
	**In-Line receptacle with "Ex d" certified cable gland** (potting is not required): 927-072-021 is supplied with an industry-standard Ex d certified cable gland, ready for immediate use. Various cable entry sizes for popular armored and unarmored cable are supported. Protective safety cover included.
In-Line Receptacle with Basket Weave Cable Grip	**927-072-031-**
	**Flange-mount receptacle with basket-weave cable grip and potting well:** 927-072-031 incorporates a potting well/cable adapter which must be filled with supplied 2-part epoxy for certified Ex d performance. Various cable entry sizes for popular armored and unarmored cable are supported. Protective safety cover included.
Panel-Mount Fixed Receptacle*	**927-072-003-**
	**Panel mount fixed receptacle with potting well:** 927-072-003 is designed for use in certified Ex d flame-proof enclosures. An auxiliary lock nut is supplied for blowout protection in Ex e increased safety enclosures. The receptacle incorporates a potting well which must be filled with supplied 2-part epoxy for certified Ex d performance. Protective safety cover included.

***Final IEC ATEx Ex d certification pending for this configuration only. Consult factory for status**

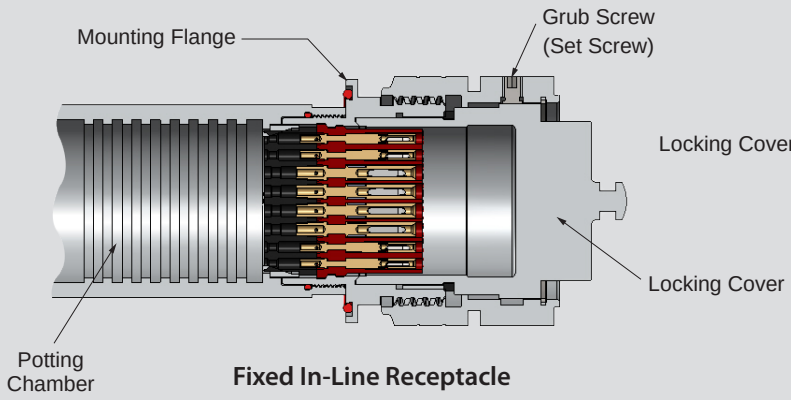
ITS-Ex Hazardous Zone Connectors

Cross-sectional and exploded views

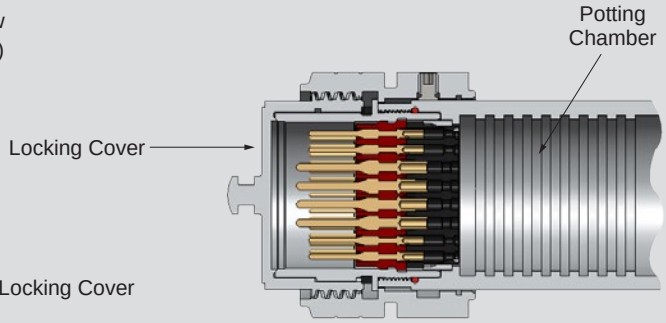
CROSS-SECTIONAL VIEWS



Receptale (left) and Plug (right) connector pair

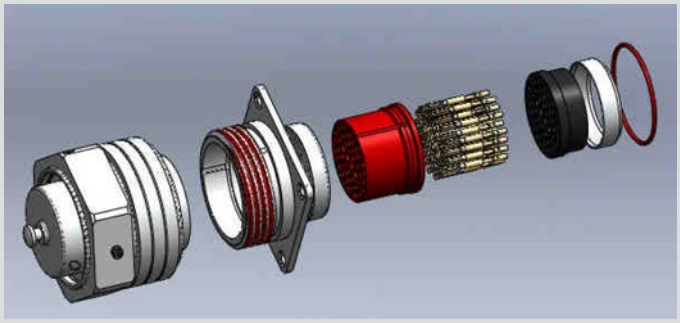


Fixed In-Line Receptacle with protective safety cover

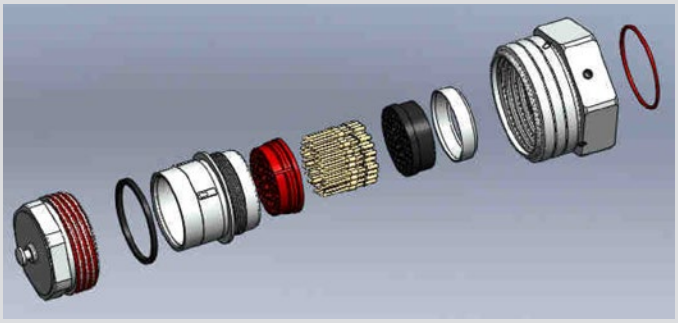


Plug with protective safety cover

EXPLODED VIEWS



Receptacle



Plug

SPECIAL CONDITIONS OF SAFE USE

The following conditions shall be met for safe use of Series ITS-Ex connectors.

1. Male and female connectors are considered completely mated when the plug coupling nut is fully advanced on the receptacle, and all grub screws are secured.

2. Use Loctite 242 or equivalent (medium strength threadlocker) at threaded joints between the following: plug shell and cable adapter (backshell); receptacle shell and cable adapter (backshell); cable adapter (backshell) and certified cable gland.

3. Never demate connector halves when energized or remove protective safety covers when an explosive gas or dust atmosphere is present.

4. When a connector half fitted with contact pins is not connected to an associated plug or receptacle, it shall not be energized, per IEC 60079-0, clause 20.2.

5. Use protective safety covers whenever connector halves are not mated, being careful to always advance and secure the grub screws. Flame-proof safety caps are a part of the certification, and their use is required to maintain independent flameproof worthiness of the connector halves.

6. When a connector half fitted with socket contacts is not mated to an associated plug or receptacle, it shall not be re-energized unless it is fitted with an flameproof protective safety cover.

7. Perform connector backpotting step according to Glenair instruction manual D500500000. Backpotting, or use of an Ex d certified cable gland is required for all Hazardous Zone rated equipment and shall be performed carefully and properly, using the 2-part epoxy compound supplied with each connector.

8. Always use suitable cable with a minimum rated operating temperature of 90°C when using rated current according to N.E.C. It is the responsibility of the operator to ensure selected cable is suitable for use in each specific application, including resistance to aggressive substances and caustic chemicals.

9. Always use suitable cable with a minimum rated operating temperature of 100°C when using rated current extrapolated from VG95234. It is the responsibility of the operator to ensure selected cable is suitable for use in each specific application, including resistance to aggressive substances and caustic chemicals.

10. It is not possible to connect to a battery without using a circuit breaker.

11. Series ITS-Ex connectors do not incorporate an external earth/ground. It is the responsibility of the user or installer to ensure adequate earth/ground continuity IAW Glenair instruction manual D500500000.

12. Do not remove Ex marking label and its lanyard from connector body or protective safety cover. For flange-mount receptacles mounted to a panel, attach label lanyard directly to a flange mounting hole. Label is required for identification of connector in a certified Ex d application.

13. For multi-pin connectors, calculate current load and temperature rise based on ambient temperature plus the aggregate total of the individual contacts in the insert. MIL-W-5088 specifications shall be used as reference on the subject in as much as pertinent cable de-rating data is included.

ITS-Ex Hazardous Zone Connectors

Cable application notes

CABLE CROSS-SECTION AND INTERNAL CONSTRUCTION

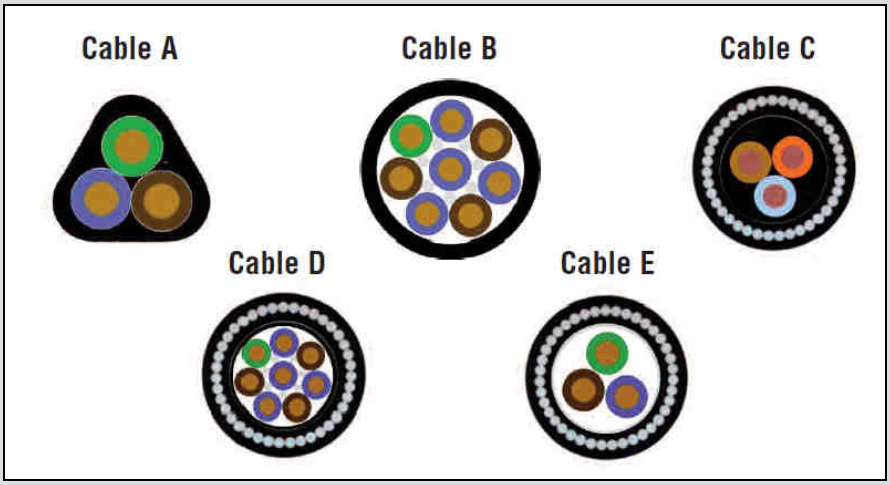
There are no IEC construction standards for the cables intended for use in flammable atmospheres, but minimum cable operating temperature shall be 90°C IAW NEC / 100°C VG95234. Gas-tight sealing of cabling for use in Ex d equipment enclosures depends heavily on cable shape and construction. Please see Glenair Instruction Manual D500500000 for complete information on cable selection, noting that any selected cable should:

1. Be substantially compact and circular (especially the part of the cable entering the enclosure),
2. Have an extruded bedding (without any gaps),
3. Only utilize fillers which are Non-Hygroscopic.

In this illustration, **Cable A** is not suitable due to its irregular shape (impossible for cylindrical sealing gasket to seal).

Cables B, D and E are not suitable due to the presence of internal voids in the cable construction (potential flame migration path between conductors).

Cable C is the only one of the five sample cables illustrated which could be selected (uniformly round with no internal voids or gaps in cable lay or consturcion).



GROUNDING

Glenair ITS-Ex connectors do not incorporate external grounding/earthing. It is the responsibility of the operator to effect earth continuity during the assembly process. Various methodologies, such as terminating a ground wire to a spare connector contact may be used for signal grounding and continuity. Electrical grounding of the cable armour system may be accomplished with the use of soldering, heat shrink, adhesive electrical tapes, or other methodologies to bond cable armoring to ground.

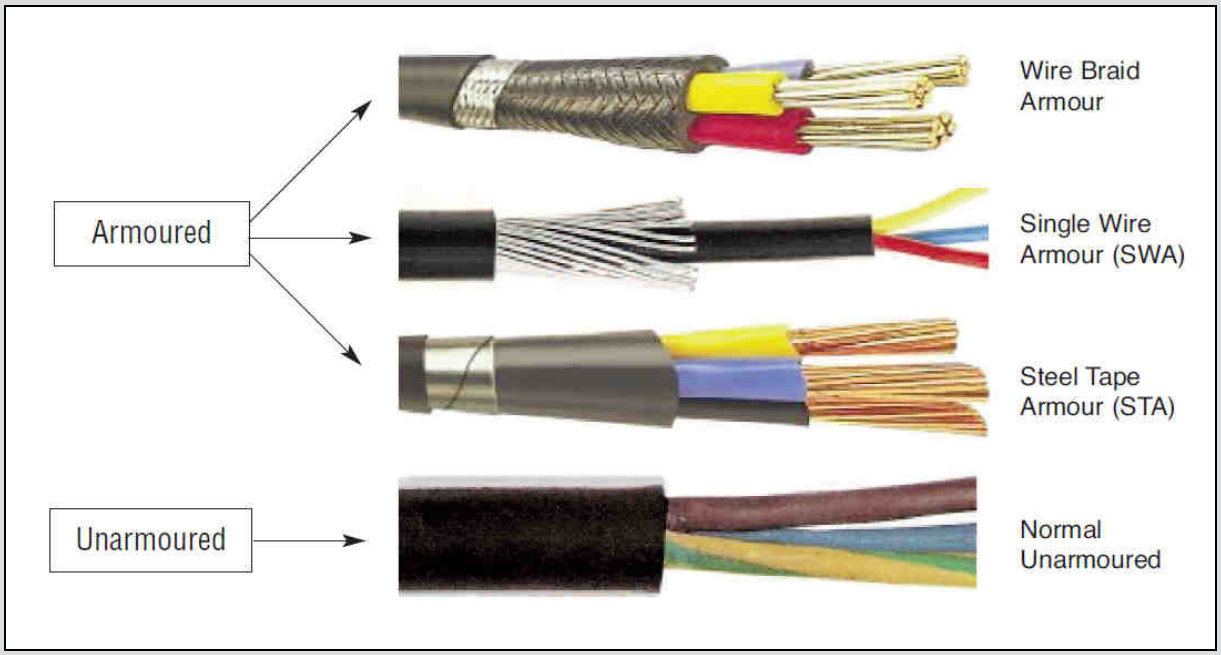
Glenair recommends that a small strip of outer jacket be cut away a reasonable distance from the entrance to the cable gland servicing the connector. A durable insulated conductor with a cross section not smaller than #14 AWG/4mm should then be bonded to the exposed armour. Protective tape, heat or cold shrink should be applied to protect and seal the bond point. The grounding conductor should be terminated at a fixed-panel receptacle. Periodic inspection of the ground attachment is recommended.

ARMORED AND UNARMORED CABLE SELECTION AND USE

It is the responsibility of the operator to select appropriate cables for use in hazardous Ex zones. Glenair recommends cables optimized for flexibility (IEC class 5 or higher / ICEA type H or higher) that incorporate flexible basket weave braided shielding when armoring is required (IEC 92-3 or IEEE455 or UL1309). Cables incorporating environmental jacketing, such as those in the following list should always be specified.

1. Halogen free ethylene-propylene elastomer or similar.
2. Halogen free cross-linked polyethylene or similar.
3. Halogen free thermoplastic polyolefin or similar.
4. Halogen free cross-linked polyolefin copolymer or similar.
5. Thermosetting neoprene or similar.

Glenair ITS-Ex cable glands, mechanical grips, and basket weave assemblies support cable diameter ranges from 52mm to 3mm, depending upon shell size. Some example of types of cable jacket and insulation cores materials are as follows (typical for marine, railway, onshore and offshore applications):



In this illustration, among the three armored types shown, Glenair recommends flexible Wire Braid Armor type cables. Single Wire Armor (SWA) and Steel Tape Armor (STA) cable types are not recommended. Standard unarmored cable is suitable for use in non-EMI/RFI applications and/or applications where risks of mechanical damage to cable conductors are minimal.

SERIES 927-072

ITS-Ex Hazardous Zone Connectors

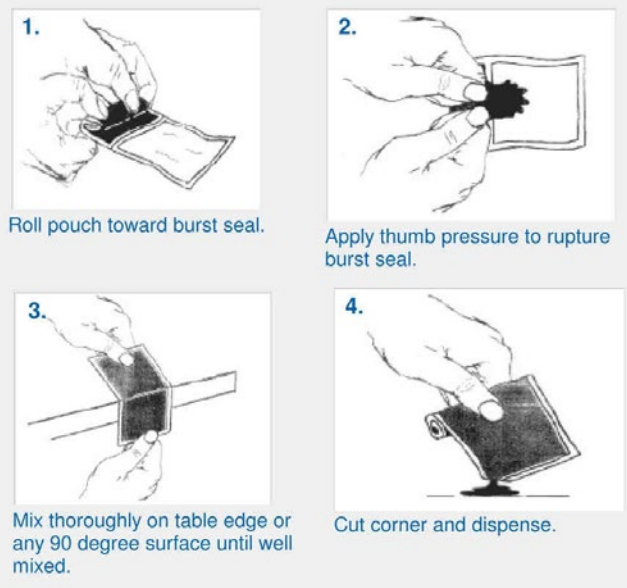
Potting materials and instructions

EPOXY RESIN POTTING MATERIAL

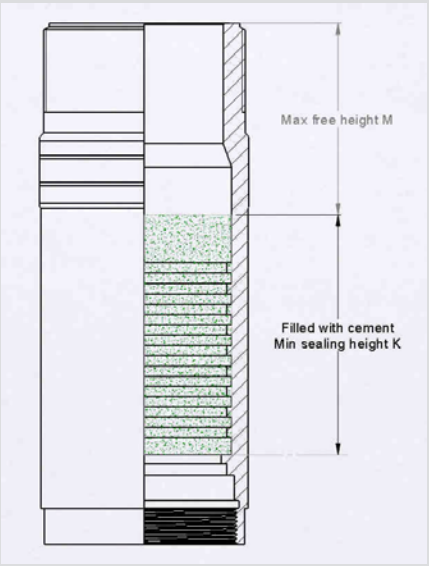
Glenair ITS-Ex series connectors equipped with an Ex barrier gland do not require potting. All other configurations, including mechanical cable clamp, basket weave backshell, and fixed flange receptacles must be potted for Ex certification. Connectors are supplied with a 2-part epoxy resin material for this purpose. This cement is both flame retardant and thermally conductive, fully cures at room temperature in 24 hours, and hardens after 4 hours. The material has a mix ratio by weight equal to 100 parts of resin to five parts of activation catalyst. The material is supplied in pre-measured burst packs. It is the operator's responsibility to evaluate whether any caustic chemicals or other aggressive substances present in the facility might damage the performance of the potting material.

MIXING INSTRUCTIONS

1. Check expiration date of potting material before proceeding
2. Wear appropriate eye protection
3. Connector and cable should be fully terminated and prepped for potting prior to material mixing
4. Follow all burst pack mixing instructions, note mixing time is approximately 5 minutes

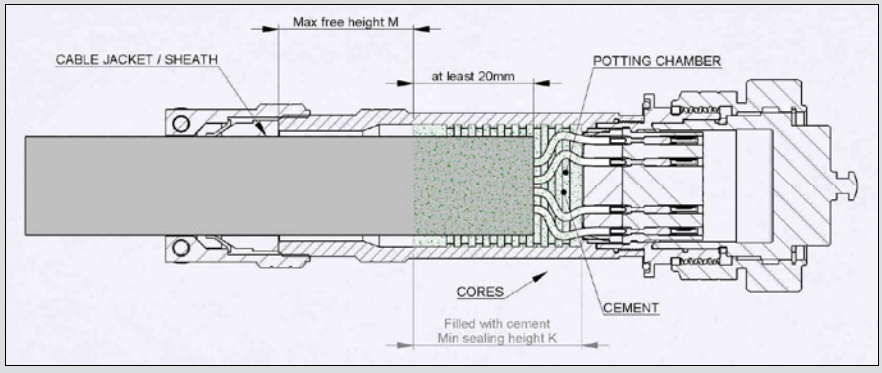


Fill Depth Illustration and Table



Shell Size	36	18	10SL
Min sealing height K [mm]	61	57	32
Max free height M [mm]	65	23	23

Illustration of Fill Depth in relation to Jacketed and Stripped Cable zones



Shell Size	36	18	10SL
Min sealing height K [mm]	61	57	32
Max free height M [mm]	65	23	23

ITS-Ex Hazardous Zone Connectors

Potting materials and instructions

POTTING CHAMBER TO CONNECTOR ASSEMBLY

See ITS-Ex instruction manual D500500000 for best practice recommendations on connector termination, wiring, and assembly. Prior to completing potting step, properly assemble mechanical cable clamps, basket weave backshells, and cable glands to ITS-Ex series connectors follow these instructions.

1. Mount receptacle connector or plug body in an appropriate fixture such as a vice with smooth face or soft jaws (see illustration, right).
2. Apply thread locking compound (Loctite 242 blue or equivalent) to all backshell-to-connector threads.
3. Hand-tighten backshell accessory to connector.
4. Use a strap wrench or correctly sized flat wrench to tighten accessory fitting to connector according to torque values referenced in instruction manual D500500000 (see illustration, right).

POTTING INSTRUCTIONS

1. Use only Glenair supplied 2-part epoxy resin for potting of ITS-Ex series connectors.
2. Fill potting chamber area behind wire terminations to the volume depths recommended in the illustrations and tables on opposite page. The goal is to fill as much of the potting area as required with material but to not inhibit the action and the performance of the cable sealing gland, follower, and clamp.
3. Glenair recommends when potting mated pairs of Series ITS-Ex connectors, always pot the connector with the female (socket) insert first. Once the socket side is set, backpot the male (pin) insert connector while mated with its corresponding pair. This will ensure correct axial alignment of the pin contacts in relation to socket contacts.
4. Throughout the potting process, the receptacle flange should be rigidly fixed in a vertical position as illustrated below. The fixture must be capable of holding the mated connector pair rigidly for a minimum of 4 hours at room temperature. The exiting conductor / cable should be fixed in line above the connector pair during the entire curing process.
5. Cut a corner of the cement burst pack and completely fill a needle-equipped syringe applicator
6. Fill the potting chamber to the recommended depth, being careful to fill progressively from the wire grommet end towards the mouth of the backshell. Cement volume usage is approximated in the table below.

Shell size	Approx. cement usage in a cable adapter
10SL	14.5 grams, about 0.50 ounces
18	62.5 grams, about 2.20 ounces
36	173 grams, about 6.10 ounces

ELECTRICAL PARAMETERS

Voltage Service Rating IAW MIL-DTL-5015 (Specifications Non-Circuit Breaking)			
Service Voltage Rating	Operating Voltage VDC [V]	Operating Voltage VAC RMS [V]	Test Voltage VAC RMS [V]
I	250	200	1000
A	700	500	2000
D	1250	900	2800
E	1750	1250	3500
B	2450	1750	4500
C	4200	3000	7000

Contact Max Current Rating IAW NEC and VG95234 (Specifications Non-Circuit Breaking)				
Contact Size AWG	Max Rated Current [A]		Max Contact Resistance [mΩ]	Wire Size AWG
	IAW N.E.C. (1) (2)	Extrapolated from VG95234 (1) (3)		
16 – 16s	16	20	6	16-18 AWG
12	30	32	3	12 AWG
8	50	60	1	8 AWG
4	90	120	0,5	4 AWG
0	155	220	0,3	0 AWG

(1) Apply derating per contact arrangement IAW MIL-W-5088L.
(2) Non-circuit breaking contacts rated current as per N.E.C. (National Electrical Code) based on arcing control. Use a cable of minimum rated temperature of 90°C.
(3) Values extrapolated from rated current chart of VG95234-1, at ambient temperature of 40°C. Use a cable of minimum rated temperature of 100°C.

Shell Size	Voltage Service Rating	Insert Arrangements	Contact Size AWG	Max Theoretical Rating Current per Shell Size (A)
10SL	A	2	16	48
18	I, A, D, B, C	17	16-12-8-4	210
36	I, A, D, C	24	20-18-16-12-8-4-0-4/0	1110

WARNING

- Use suitable cable with minimum rated continuous operating temperature of 90°C with N.E.C. maximum rated current.
- Use suitable cable with minimum rated continuous operating temperature of 100°C with VG95234 maximum rated current.

As to derating per insert arrangement, when multiple conductors are used, the load factor and temperature rise based on ambient and total insert temperature must be taken into account.
MIL-W-5088 specifications shall be used as reference for derating per insert arrangement.

Contact arrangements

CONTACT ARRANGEMENTS BY SHELL SIZE

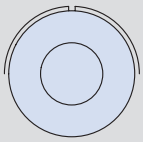
Shell Size	Contact Arrangement	Rating	Contact Number	Contact Size				
				0	4	8	12	16
10	10SL-3	A	3					3
	10SL-4	A	2					2
18	18-1	I	10					10
	18-3	D	2				2	
	18-4	D	4					4
	18-5	D	3				2	1
	18-6	D	1		1			
	18-06	A	6				4	2
	18-7	B	1			1		
	18-8	A	8				1	7
	18-9	I	7				2	5
	18-10	A	4				4	
	18-11	A	5				5	
	18-12	A	6					6
	18-13	A	4			1	3	
	18-19	A	10					10
	18-20	A	5					5
	18-22	D	3					3
	18-30 (18-20x110°)	A	5					5
36	36-3	D	6	3			3	
	36-4	A	3	3				
	36-5	A	4	4				
	36-6	A	6	2	4			
	36-7	A	47				7	40
	36-8	A	47				1	46
	36-9	A	31		1	2	14	14
	36-10	A	48					48
	36-14	D	16			5	5	6
	36-15	A	35					35
	36-18 (36-9x100°)	A	31		1	2	14	14
	36-22	D	22				22	
	36-35	A	36			4		32
	36-54=36-B39	A	39			8		31
	36-66	A	56				4	52
	36-74	A	44			1		43
	36-77	D	7		7			
	36-A7	A	7	3	2		2	
	36-A35	A	8	4				4
	36-A51	D	6	3	2			1
	36-B78	D	14			12		2
	36-D78	D	14			10		4

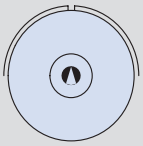
* Only Crimp Contact Version

ITS-Ex Hazardous Zone Connectors

Contact arrangements by number of contacts

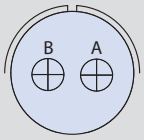
1 CONTACT





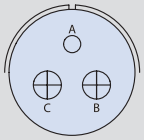
Arrangement	18-6	18-7
Contact Size	4	8
Service Rating	D	B

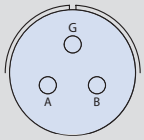
2 CONTACTS

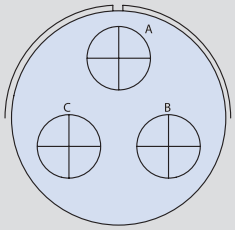


Arrangement	10SL-4	18-3
Contact Size	16	12
Service Rating	A	D

3 CONTACTS

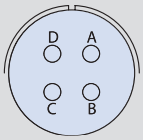


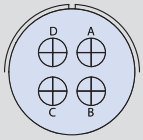


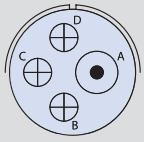


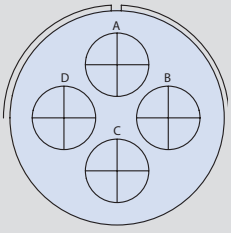
Arrangement	10SL-3	18-5	18-22	36-4
Contact Size	16	2/12, 1/16	16	0
Service Rating	A	D	D	A=D; B,C=A

4 CONTACTS









Arrangement	18-4	18-10	18-13	36-5
Contact Size	16	12	1/8, 3/12	0
Service Rating	D	A	A	A

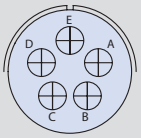
* Contact "D" : First - Mate - Last - Break Grounding Contact

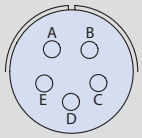
CONTACT LEGEND

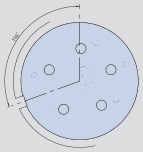
ITS-Ex Hazardous Zone Connectors

Contact arrangements by number of contacts

5 CONTACTS

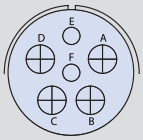


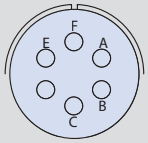


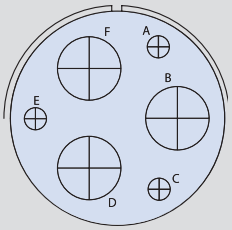


Arrangement	18-11	18-20	18-30 (18-20 x 110°)
Contact Size	12	16	16
Service Rating	A	A	A

6 CONTACTS

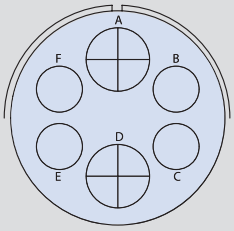


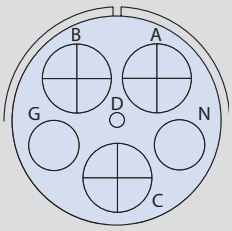




Arrangement	18-06	18-12	36-3
Contact Size	4/12, 2/16	16	3/0, 3/12
Service Rating	A	A	D

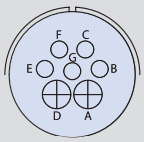
6 CONTACTS

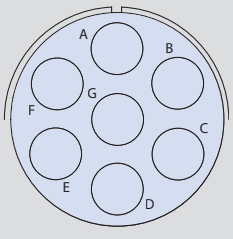


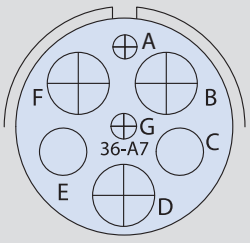


Arrangement	36-6	36A-51
Contact Size	2/0, 4/4	3/0, 2/4, 1/16
Service Rating	A	D

7 CONTACTS







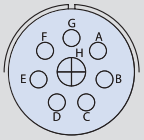
Arrangement	18-9	36-77	36-A7
Contact Size	2/12, 5/16	4	3/0, 2/4, 2/12
Service Rating	I	D	A

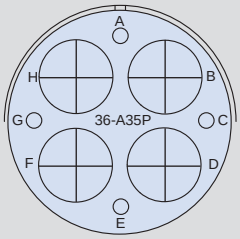
CONTACT LEGEND

ITS-Ex Hazardous Zone Connectors

Contact arrangements by number of contacts

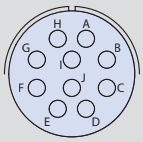
8 CONTACTS

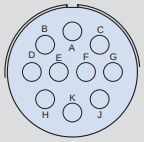




Arrangement	18-8	36-A35
Contact Size	1/12, 7/16	4/16, 4/0
Service Rating	A	A

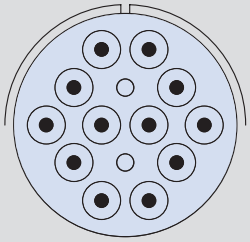
10 CONTACTS

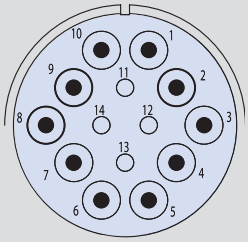




Arrangement	18-1	18-19
Contact Size	16	16
Service Rating	B,C,F,G = A; Bal=I	A

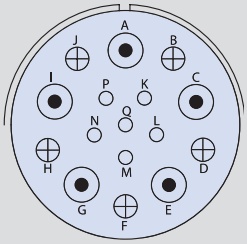
14 CONTACTS





Arrangement	36-B78	36-D78
Contact Size	12/8, 2/16	10/8, 4/16
Service Rating	D	D

16 CONTACTS



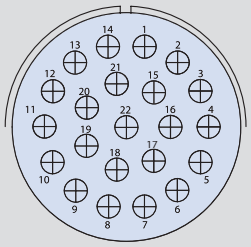
Arrangement	36-14
Contact Size	5/8, 5/12, 6/16
Service Rating	D

CONTACT LEGEND

ITS-Ex Hazardous Zone Connectors

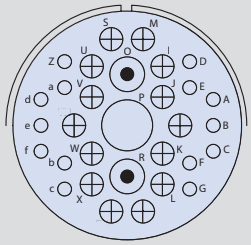
Contact arrangements by number of contacts

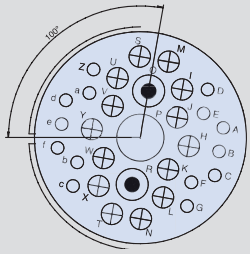
22 CONTACTS



Arrangement	36-22
Contact Size	12
Service Rating	D

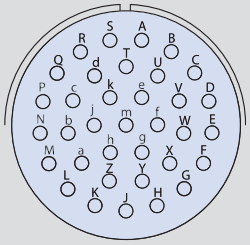
31 CONTACTS





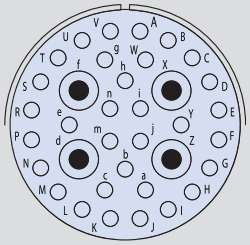
Arrangement	36-9	36-18 (36-9 x 100°)
Contact Size	1/4, 2/8, 14/12, 14/16	1/4, 2/8, 14/12, 14/16
Service Rating	A	A

35 CONTACTS



Arrangement	36-15
Contact Size	16
Service Rating	M=D; Bal=A

36 CONTACTS



Arrangement	36-35
Contact Size	4/8, 32/16
Service Rating	A

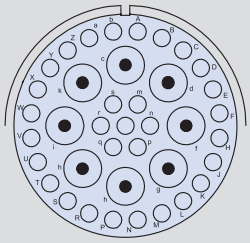
CONTACT LEGEND

20 · 18 · 16 · 12 · 8 · 4 · 0 · 4/0

ITS-Ex Hazardous Zone Connectors

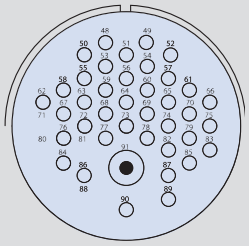
Contact arrangements by number of contacts

39 CONTACTS



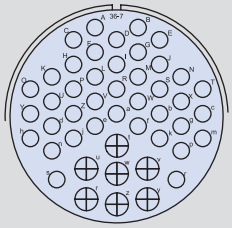
Arrangement	36-54 = 36-B39
Contact Size	8/8, 31/16
Service Rating	A

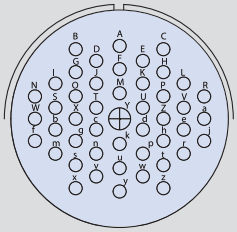
44 CONTACTS



Arrangement	36-74
Contact Size	1/8, 43/16
Service Rating	A

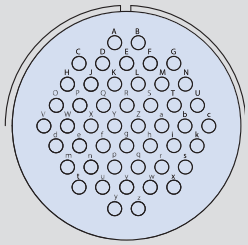
47 CONTACTS





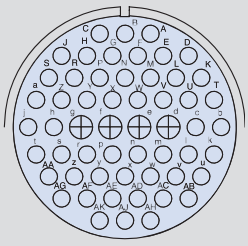
Arrangement	36-7	36-8
Contact Size	7/12, 40/16	1/12, 46/16
Service Rating	A	A

48 CONTACTS



Arrangement	36-10
Contact Size	16
Service Rating	A

56 CONTACTS



Arrangement	36-66
Contact Size	4/12, 52/16
Service Rating	A

CONTACT LEGEND

20 · 18 · 16 · 12 · 8 · 4 · 0 · 4/0

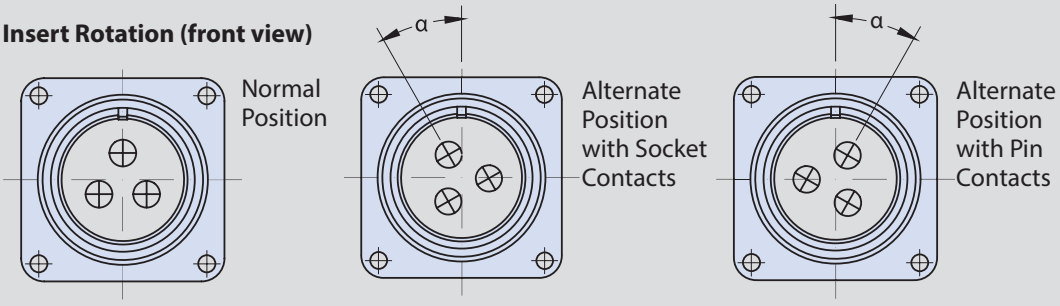
Polarization

INSERT ROTATION ALTERNATE POSITIONS

Arrangement	α ± 2°			
	W	X	Y	Z
10SL-3				
10SL-4				
18-1	70	145	215	290
18-3	35	110	250	325
18-4	35	110	250	325
18-5	80	110	250	280
18-6				
18-06	180			
18-7				
18-8	70			290
18-9	80	110	250	280
18-10		120	240	
18-11		170	265	
18-12	80			280
18-13	80	110	250	280
18-19		120	240	
18-20	90	180	270	
18-22	70	145	215	290
18-30				

Arrangement	α ± 2°			
	W	X	Y	Z
36-3	70	145	215	290
36-4	70	145	215	290
36-5		120	240	
36-6	35	110	250	325
36-7	80	110	250	280
36-8	80	110	250	280
36-9	80	125	235	280
36-10	80	125	235	280
36-14	90	180	270	
36-15	60	125	245	305
36-18				
36-22	80	110	250	280
36-35				
36-54 = 36-B39	67			
36-66	110	250	260	280
36-74				
36-77	45	90		
36-A7				
36-A35				
36-A51	45	135	225	315
36B-78	35	106	254	325
36D-78	35	106	254	325

Insert Rotation (front view)



SERIES ITS-Ex

Industrial-strength power and signal connector series qualified for use in hazardous zone interconnect applications

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.

Series ITS-Ex is designed for easy and repeatable termination of armored and unarmored cables built to IEEE 45, IEC, BS, DIN, and JIC standards. 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.

Special Ex design attributes of the series include an integral labyrinth flame path cooling zone, 2-part epoxy potting well, fixed in-line receptacles for attachment of cables to cable management brackets and trays, set screw (grub screw) secured protective safety covers, and durable life-of-system Ex marking labels.

APPLICATION AND INSTALLATION

- **Glenair assembly procedure D500500000 to be referenced for certified operator assembly**
- **Always use Loctite 242 or equivalent (medium strength threadlocker) on all threaded joints**
- **All set screws (grub screws) must be fully tightened during installation and operation**

SERIES 927-072

Series ITS-Ex Hazardous Zone Connectors

Product Selection Guide

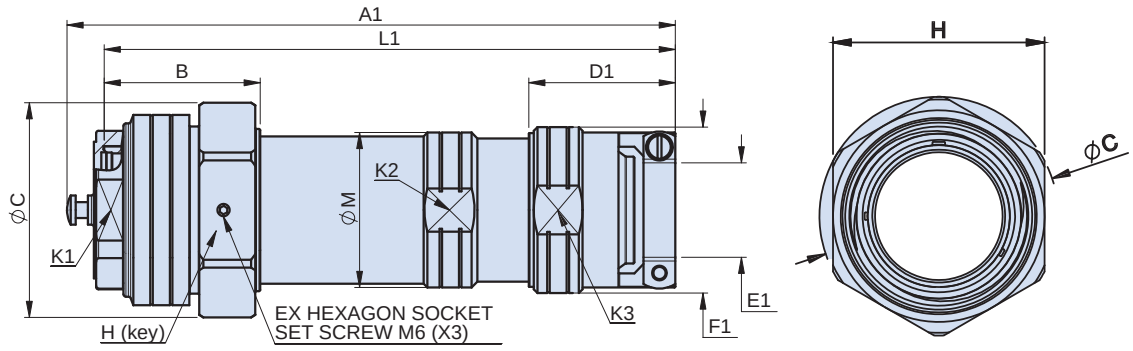
Hazardous Zone Cable Plug

with mechanical cable clamp

927-072-016 CABLE PLUG WITH ENVIRONMENTAL CABLE ADAPTER AND MECHANICAL CABLE CLAMP

How To Order							
Sample Part Number	**927-072**	**016**	**36-66**	**P1**	**F9**	**N**	**A**

Series	**927-072**
Style	**016** = Mechanical Cable Clamp
Shell Size - Insert Arrangement	See pages 17 – 22
Contact Type and Plating	**P** = Pin Contact, **S** = Socket Contact **1** = Silver Plated, **2** = Gold Plated
Shell Material and Finish	**F9** = Aluminium Alloy, Anodize Hardcoat
Alternate Key Position	**N** = Normal, **X**, **Y**, **Z**, **W** (See Table on page 23)
Cable Range	**A**, **B**, **C** (See Table next page)

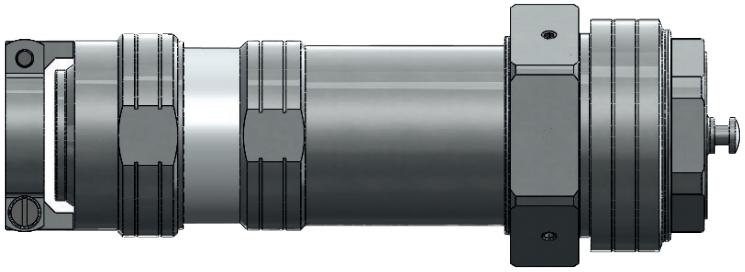


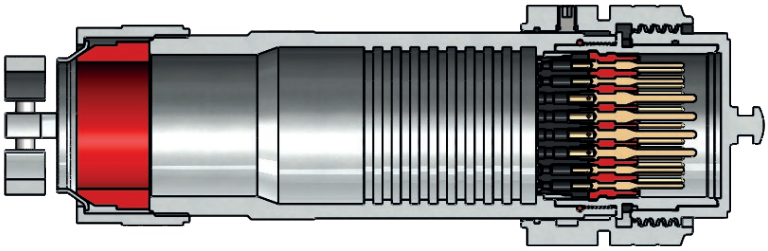
Dimensions												
Shell Size	A1	B	C	D1	E1		F1	H	K1	K2	K3	L1	M
					Min.	Max.							
10SL	146	56.0	46	40.7	4.50	11.12	28.0	41	24	22	27	132	25
18	185	63.9	59	45.2	9.60	23.80	21.5	52	34	36	41	170	38.2
36	250	63.9	88	60	23.40	41.25	68.0	78	60	61	63	235	63.5

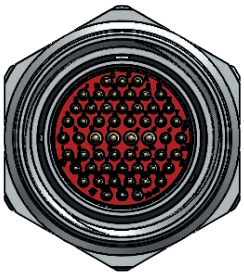
SERIES 927-072

Hazardous Zone Cable Plug

with mechanical cable clamp







Cable Range Dimensions for Mechanical Cable Clamp			
Shell Size	**Cable Range Designator**	**Cable Type**	**Cable Jacket Range [mm] (1)**
36	A	Unarmored cable	29,90 to 41,25
	B	Unarmored cable	23,40 to 35,00
18	A	Unarmored cable	15,50 to 23,80
	B	Unarmored cable	11,30 to 19,00
	C	Unarmored cable	9,60 to 15,87
10SL	A	Unarmored cable	5,84 to 11,12
	B	Unarmored cable	4,50 to 7,93

(1) It is advisable to use reduction sleeves for lower values of cable diameter within cable range.

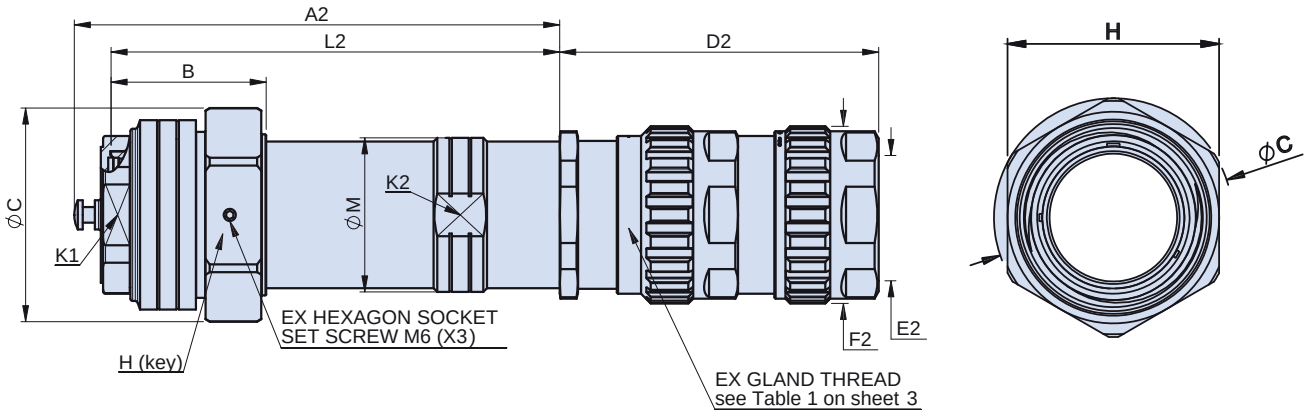
Hazardous Zone Cable Plug

with Ex cable gland

927-072-026 CABLE PLUG WITH ENVIRONMENTAL CABLE ADAPTER AND EX CABLE GLAND

How To Order							
Sample Part Number	**927-072**	**026**	**36-66**	**P1**	**F9**	**N**	**A**

Series	**927-072**
Style	**026** = Ex Cable Gland
Shell Size - Insert Arrangement	See pages 17 – 22
Contact Type and Plating	**P** = Pin Contact, **S** = Socket Contact **1** = Silver Plated, **2** = Gold Plated
Shell Material and Finish	**F9** = Aluminium Alloy, Anodize Hardcoat
Alternate Key Position	**N** = Normal, **X**, **Y**, **Z**, **W** (See Table on page 23)
Cable Range	**A**, **B**, **C** (See Table next page)



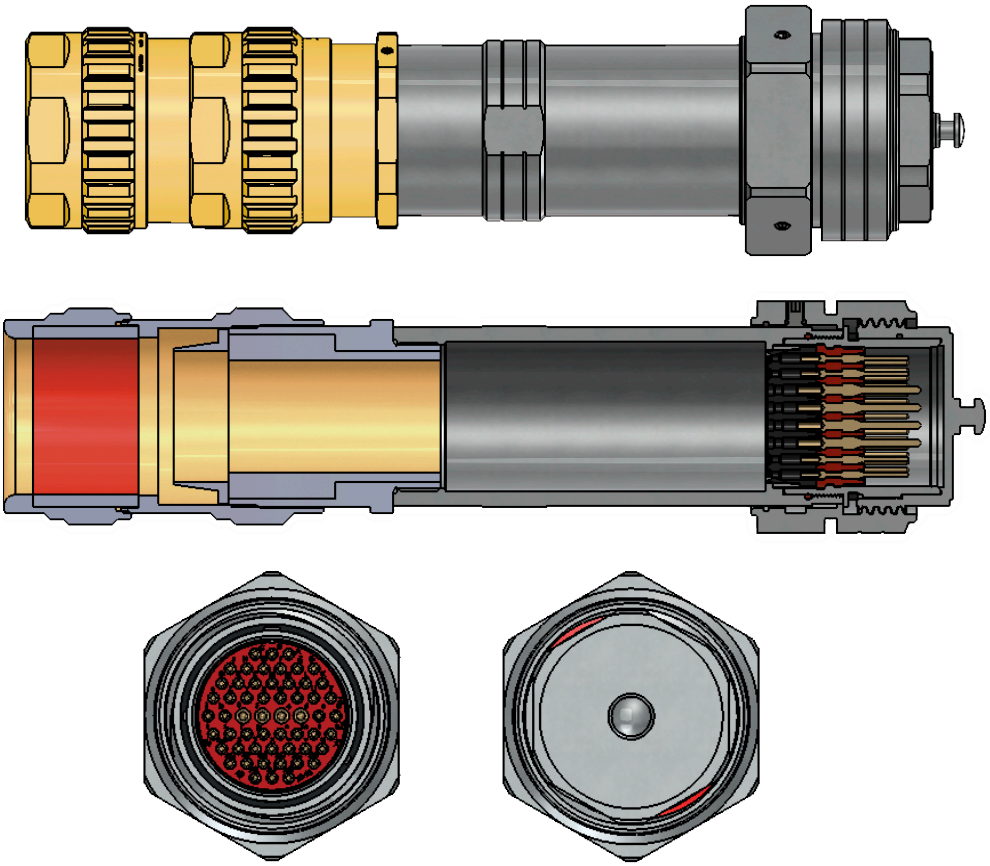
Dimensions													
Shell Size	A2	B	C	D2	E2		Ex Gland Thread	F2	H	K1	K2	L2	M
					Min.	Max.							
10SL	105	56.0	46	*	3.0	20.50	M20x1.5 M16x1.5	*	41	24	22	91	25
18	151	63.9	59	*	6.0	26.0	M25x1.5 M20x1.5	*	52	34	36	135	38.2
36	201	63.9	88	*	22.0	52.60	M50x1.5 M40x1.5	*	78	60	61	185	63.5

(*) Dimension varies according to Ex Cable Gland.

SERIES 927-072

Hazardous Zone Cable Plug

with Ex cable gland



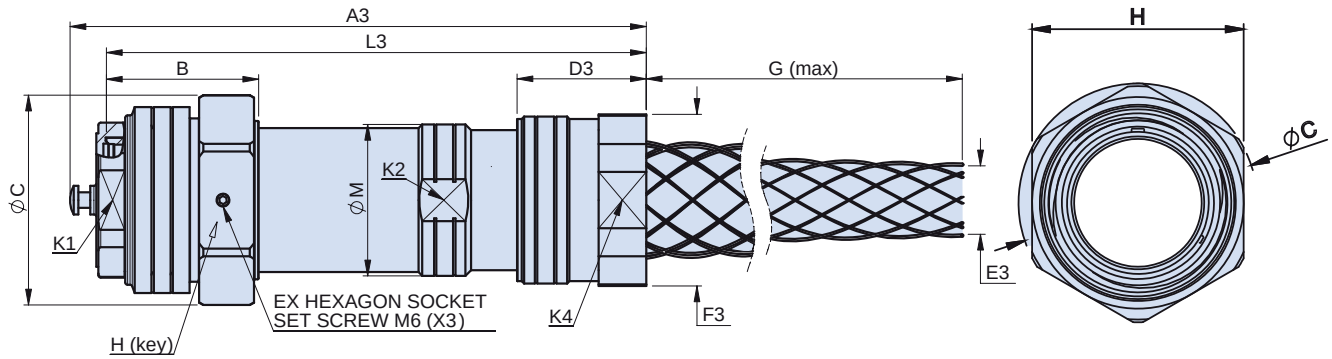
Cable Range Dimensions for Ex Cable Gland						
Shell Size	Cable Range Designator	Cable Type	Ex Gland Thread	Cable outer sheath range [mm]	Cable inner sheath range [mm]	Armor Range with Clamping Ring
36	A	Unarmored cable	M50x1.5	28 to 41		
	B	Unarmored cable	M40x1.5	22 to 33		
	A1	Armored Cable	M50x1.5	36 to 52,60	28,90 to 44,40	0 to 1,0 and 1,5 to 2,5
	B1	Armored Cable	M40x1.5	28 to 41	22 to 33	0 to 0,7 and 1,3 to 2,0
18	A	Unarmored cable	M25x1.5	12,50 to 20,50		
	B	Unarmored cable	M20x1.5	9 to 16		
	C	Unarmored cable	M20x1.5	6 to 12		
	A1	Armored Cable	M25x1.5	16,90 to 26	12,50 to 20,50	0 to 0,7 and 0,9 to 1,6
	B1	Armored Cable	M25x1.5	12,50 to 20,50	9 to 14	0 to 0,7 and 0,7 to 1,4
	C1	Armored Cable	M20x1.5	12,50 to 20,50	9 to 14	0 to 0,7 and 0,7 to 1,4
	D1	Armored Cable	M20x1.5	9 to 16	6 to 12	0 to 0,7 and 0,7 to 1,25
	E1	Armored Cable	M20x1.5	6 to 12	3 to 8,10	0 to 0,7 and 0,7 to 1,25
10SL	A	Unarmored cable	M20x1.5	9 to 16		
	B	Unarmored cable	M20x1.5	6 to 12		
	C	Unarmored cable	M16x1.5	6 to 12		
	A1	Armored Cable	M20x1.5	12,50 to 20,50	9 to 14	0 to 0,7 and 0,7 to 1,4
	B1	Armored Cable	M20x1.5	9 to 16	6 to 12	0 to 0,7 and 0,7 to 1,25
	C1	Armored Cable	M20x1.5	6 to 12	3 to 8,1	0 to 0,7 and 0,7 to 1,25
	D1	Armored Cable	M16x1.5	6 to 12	3 to 8,1	0 to 0,7 and 0,7 to 1,25

Hazardous Zone Cable Plug

with basket weave cable grip

927-072-036 CABLE PLUG WITH ENVIRONMENTAL CABLE ADAPTER AND BASKET WEAVE CABLE GRIP

How To Order							
Sample Part Number	**927-072**	**036**	**36-66**	**P1**	**F9**	**N**	**A**
Series	**927-072**						
Style	**036** = Basket Weave Cable Grip						
Shell Size - Insert Arrangement	See pages 17 – 22						
Contact Type and Plating	**P** = Pin Contact, **S** = Socket Contact **1** = Silver Plated, **2** = Gold Plated						
Shell Material and Finish	**F9** = Aluminium Alloy, Anodize Hardcoat						
Alternate Key Position	**N** = Normal, **X**, **Y**, **Z**, **W** (See Table on page 23)						
Cable Range	**A**, **B**, **C** (See Table next page)						



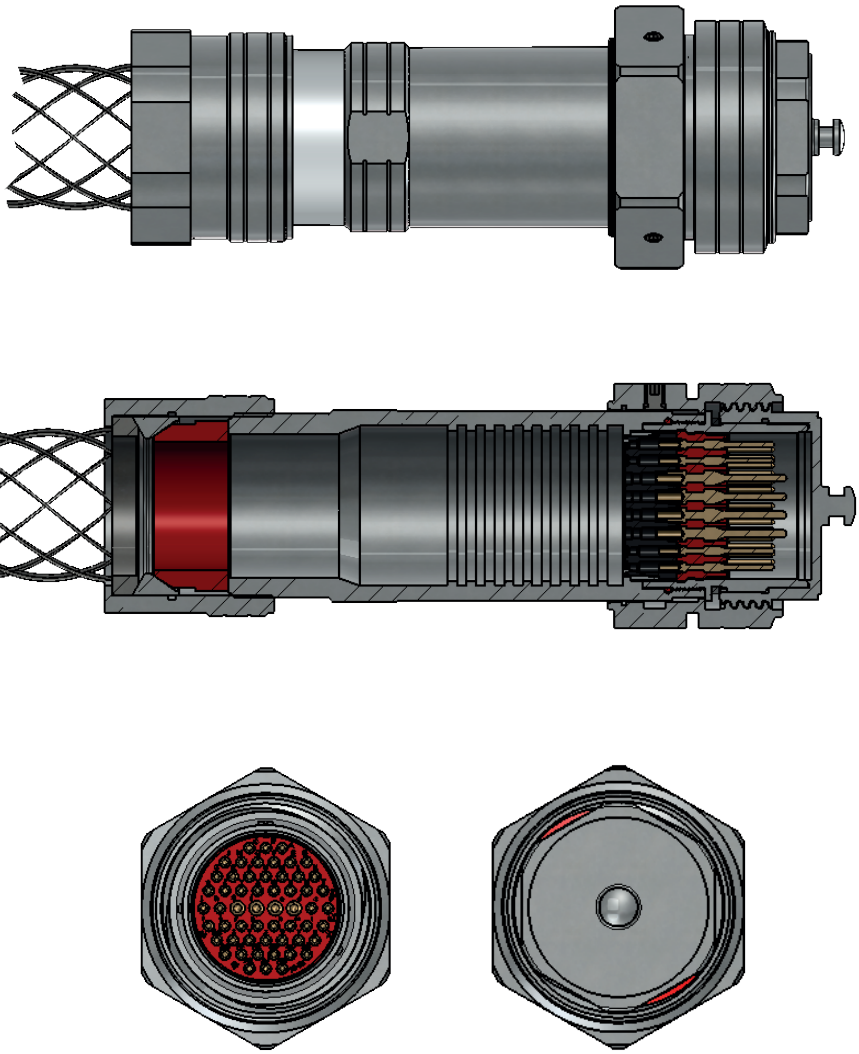
Dimensions													
Shell Size	A3	B	C	D3	E3		F3	G Max.	H	K1	K2	K4	L3	M
					Min.	Max.								
10SL		56.0	46						41	24	22			25
18	182	63.9	59	42.7	12.70	23.80	46.0	201**	52	34	36	42	177	38.2
36	242	63.9	88	52.4	25.60	41.25	72.0	315**	78	60	61	68	227	63.5

(**) Max overall dimension; dimension less than max one, depending on Basket Weave Cable Range.

SERIES 927-072

Hazardous Zone Cable Plug

with basket weave cable grip



Cable Range Dimensions for Basketweave Cable Grip			
Shell Size	**Cable Range Designator**	**Cable Type**	**Cable Jacket Range [mm] (1)**
36	A	Unarmored cable	39,40 to 41,25
	B	Unarmored cable	38,90 to 40,50
	C	Unarmored cable	34,50 to 38,50
	D	Unarmored cable	31,00 to 34,90
	E	Unarmored cable	29,40 to 33,30
	F	Unarmored cable	25,60 to 29,50 (1)
18	A	Unarmored cable	19,60 to 23,80
	B	Unarmored cable	18,00 to 22,20 (1)
	C	Unarmored cable	15,50 to 19,10
	D	Unarmored cable	12,70 to 15,87
	E	Unarmored cable	10,40 to 12,70 (1)
10SL	Not available		

(1) It is advisable to use reduction sleeves for lower values of cable diameter within cable range.

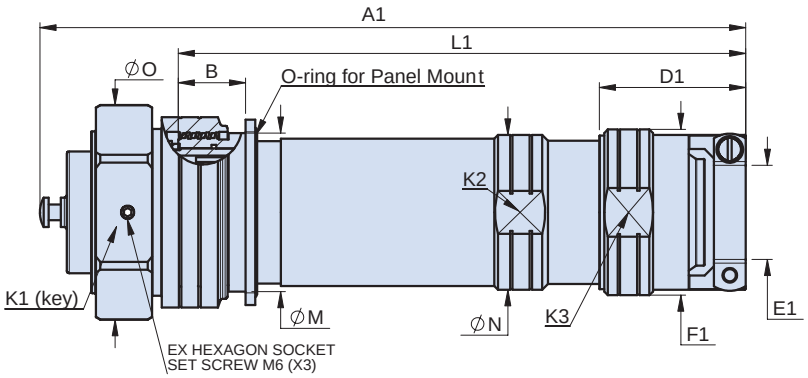
Hazardous Zone Fixed In-Line Receptacle

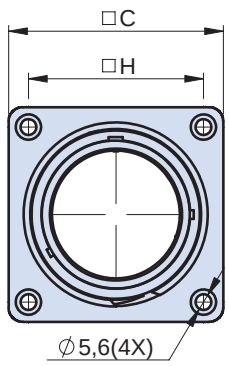
with mechanical cable clamp

927-072-012 FIXED IN-LINE RECEPTACLE WITH ENVIRONMENTAL CABLE ADAPTER AND MECHANICAL CABLE CLAMP

How To Order							
Sample Part Number	**927-072**	**012**	**36-66**	**P1**	**F9**	**N**	**A**

Series	**927-072**
Style	**012** = Mechanical Cable Clamp
Shell Size - Insert Arrangement	See pages 17 – 22
Contact Type and Plating	**P** = Pin Contact, **S** = Socket Contact **1** = Silver Plated, **2** = Gold Plated
Shell Material and Finish	**F9** = Aluminium Alloy, Anodize Hardcoat
Alternate Key Position	**N** = Normal, **X**, **Y**, **Z**, **W** (See Table on page 23)
Cable Range	**A**, **B**, **C** (See Table next page)



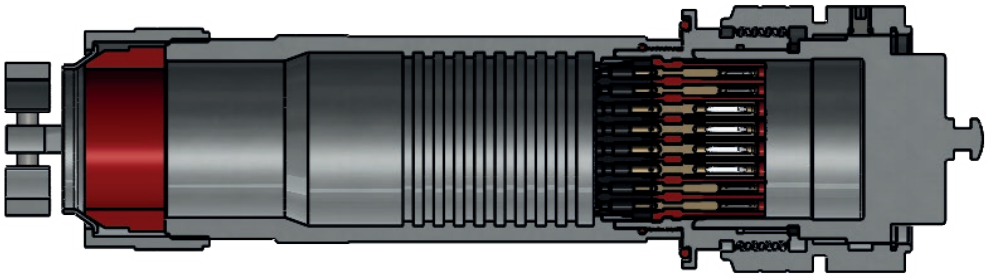


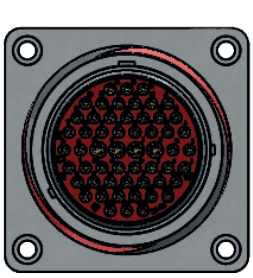
Dimensions															
Shell Size	A1	B	C	D1	E1		F1	H	K1	K2	K3	L1	M	N	O
					Min.	Max.									
10SL	179	24.7	45	40.7	4.50	11.12	28.0	33	41	22	27	130	26	25	46
18	225	27.6	57	45.2	9.60	23.80	21.5	42	52	36	41	170	38	38.2	59
36	290	27.6	76	60	23.40	41.25	68.0	62	78	61	63	233	65	63.5	88

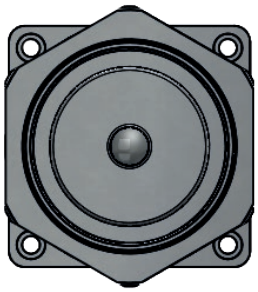
SERIES 927-072

Hazardous Zone Fixed In-Line Receptacle

with mechanical cable clamp







Cable Range Dimensions for Mechanical Cable Clamp			
Shell Size	**Cable Range Designator**	**Cable Type**	**Cable Jacket Range [mm] (1)**
36	A	Unarmored cable	29,90 to 41,25
	B	Unarmored cable	23,40 to 35,00
18	A	Unarmored cable	15,50 to 23,80
	B	Unarmored cable	11,30 to 19,00
	C	Unarmored cable	9,60 to 15,87
10SL	A	Unarmored cable	5,84 to 11,12
	B	Unarmored cable	4,50 to 7,93

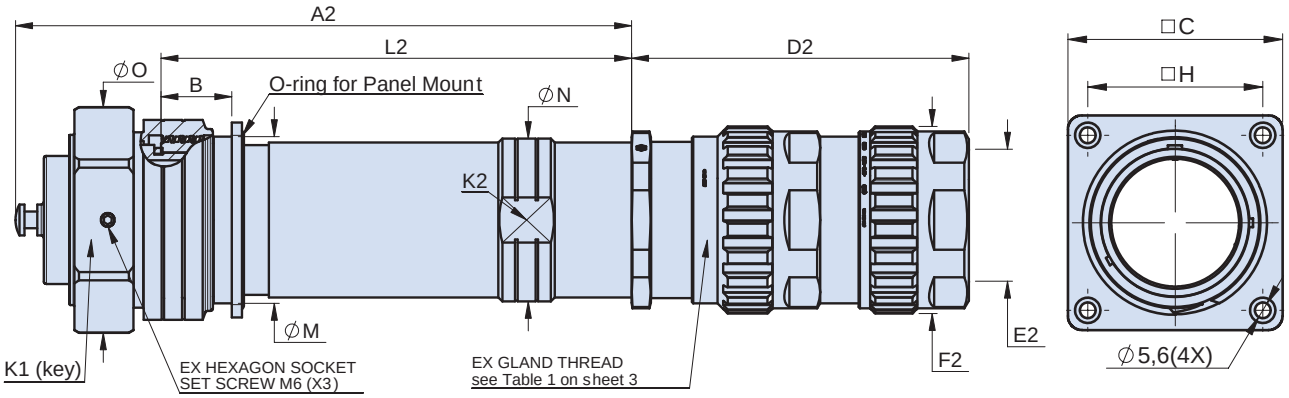
Hazardous Zone Fixed In-Line Receptacle

with Ex cable gland

927-072-022 FIXED IN-LINE RECEPTACLE WITH ENVIRONMENTAL CABLE ADAPTER AND EX CABLE GLAND

How To Order							
Sample Part Number	**927-072**	**022**	**36-66**	**P1**	**F9**	**N**	**A**

Series	**927-072**
Style	**022** = Ex Cable Gland
Shell Size - Insert Arrangement	See pages 17 – 22
Contact Type and Plating	**P** = Pin Contact, **S** = Socket Contact **1** = Silver Plated, **2** = Gold Plated
Shell Material and Finish	**F9** = Aluminium Alloy, Anodize Hardcoat
Alternate Key Position	**N** = Normal, **X**, **Y**, **Z**, **W** (See Table on page 23)
Cable Range	**A**, **B**, **C** (See Table next page)



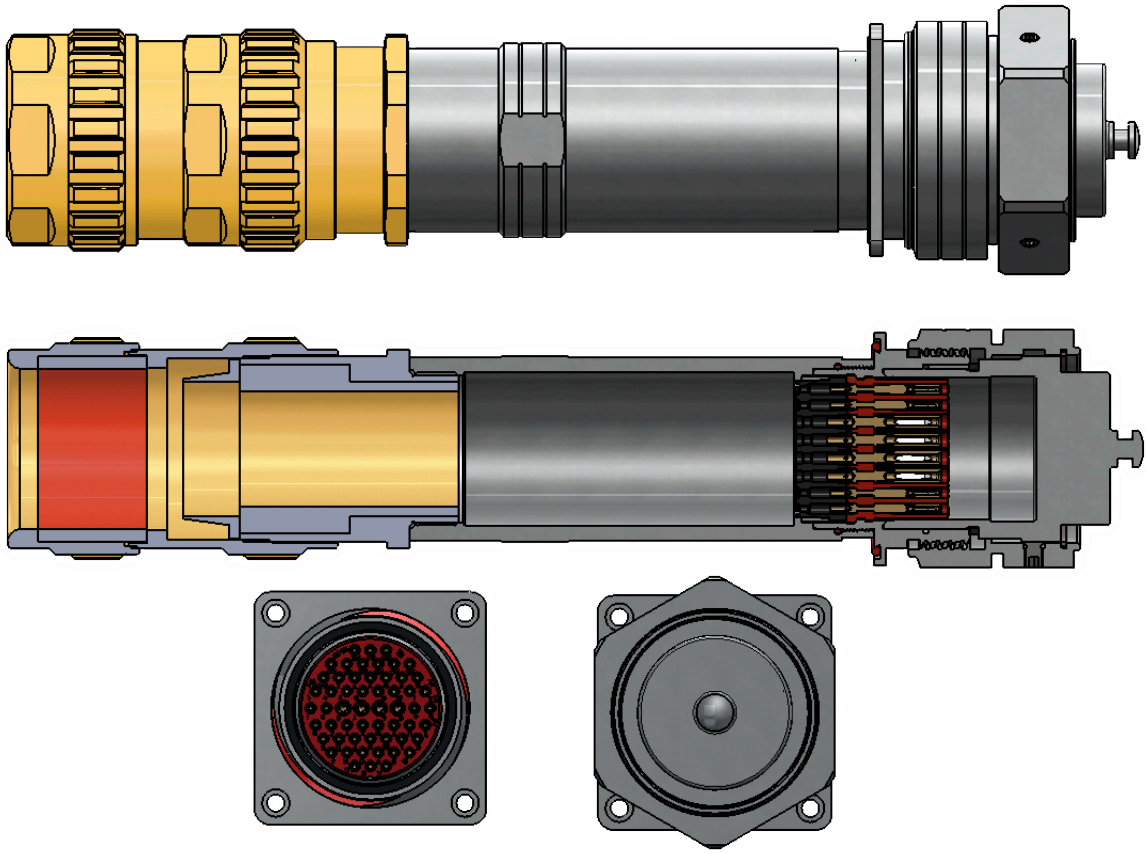
Dimensions															
Shell Size	A2	B	C	D2	E2		Ex Gland Thread	F2	H	K1	K2	L2	M	N	O
					Min.	Max.									
10SL	138	24.7	45	*	3.0	20.50	M20x1.5 M16x1.5	*	33	41	22	89	26	25	46
18	191	27.6	57	*	6.0	26.0	M25x1.5 M20x1.5	*	42	52	36	134	38	38,2	59
36	241	27.6	76	*	22.0	52.60	M50x1.5 M40x1.5	*	62	78	61	184	65	63,5	88

(*) Dimension varies according to Ex Cable Gland.

SERIES 927-072

Hazardous Zone Fixed In-Line Receptacle

with Ex cable gland



Cable Range Dimensions for Ex Cable Gland						
Shell Size	Cable Range Designator	Cable Type	Ex Gland Thread	Cable outer sheath range [mm]	Cable inner sheath range [mm]	Armor Range with Clamping Ring
36	A	Unarmored cable	M50x1.5	28 to 41		
	B	Unarmored cable	M40x1.5	22 to 33		
	A1	Armored Cable	M50x1.5	36 to 52,60	28,90 to 44,40	0 to 1,0 and 1,5 to 2,5
	B1	Armored Cable	M40x1.5	28 to 41	22 to 33	0 to 0,7 and 1,3 to 2,0
18	A	Unarmored cable	M25x1.5	12,50 to 20,50		
	B	Unarmored cable	M20x1.5	9 to 16		
	C	Unarmored cable	M20x1.5	6 to 12		
	A1	Armored Cable	M25x1.5	16,90 to 26	12,50 to 20,50	0 to 0,7 and 0,9 to 1,6
	B1	Armored Cable	M25x1.5	12,50 to 20,50	9 to 14	0 to 0,7 and 0,7 to 1,4
	C1	Armored Cable	M20x1.5	12,50 to 20,50	9 to 14	0 to 0,7 and 0,7 to 1,4
	D1	Armored Cable	M20x1.5	9 to 16	6 to 12	0 to 0,7 and 0,7 to 1,25
	E1	Armored Cable	M20x1.5	6 to 12	3 to 8,10	0 to 0,7 and 0,7 to 1,25
10SL	A	Unarmored cable	M20x1.5	9 to 16		
	B	Unarmored cable	M20x1.5	6 to 12		
	C	Unarmored cable	M16x1.5	6 to 12		
	A1	Armored Cable	M20x1.5	12,50 to 20,50	9 to 14	0 to 0,7 and 0,7 to 1,4
	B1	Armored Cable	M20x1.5	9 to 16	6 to 12	0 to 0,7 and 0,7 to 1,25
	C1	Armored Cable	M20x1.5	6 to 12	3 to 8,1	0 to 0,7 and 0,7 to 1,25
	D1	Armored Cable	M16x1.5	6 to 12	3 to 8,1	0 to 0,7 and 0,7 to 1,25

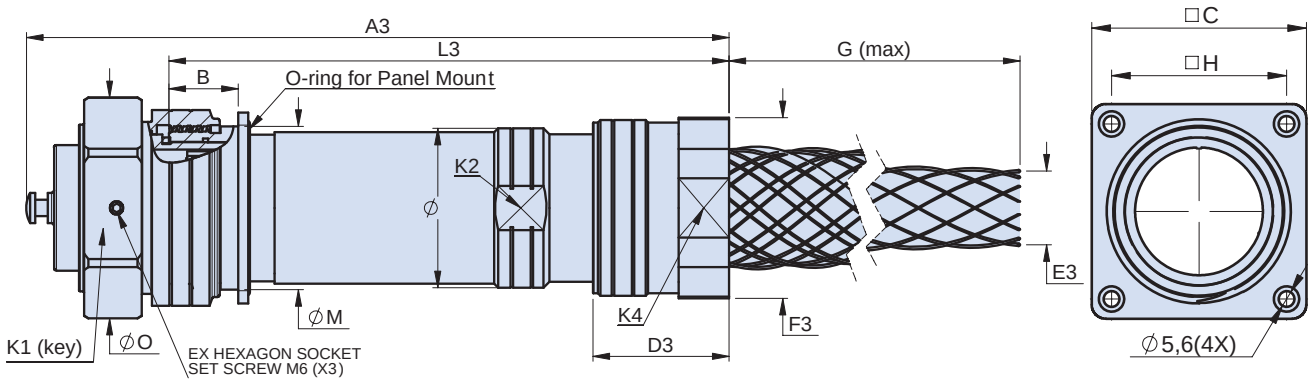
Hazardous Zone Fixed In-Line Receptacle

with basket weave cable grip

927-072-032 FIXED IN-LINE RECEPTACLE WITH ENVIRONMENTAL CABLE ADAPTER AND BASKET WEAVE CABLE GRIP

How To Order							
Sample Part Number	**927-072**	**032**	**36-66**	**P1**	**F9**	**N**	**A**

Series	**927-072**
Style	**032** = Basket Weave Cable Grip
Shell Size - Insert Arrangement	See pages 17 – 22
Contact Type and Plating	**P** = Pin Contact, **S** = Socket Contact **1** = Silver Plated, **2** = Gold Plated
Shell Material and Finish	**F9** = Aluminium Alloy, Anodize Hardcoat
Alternate Key Position	**N** = Normal, **X**, **Y**, **Z**, **W** (See Table on page 23)
Cable Range	**A**, **B**, **C** (See Table next page)



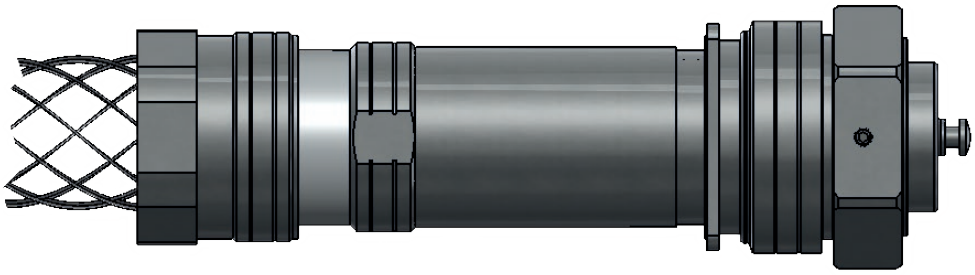
Dimensions															
Shell Size	A3	B	C	D3	E3		F3	G Max.	H	K1	K2	K4	L3	M	N	O
					Min.	Max.										
10SL		24.7	45						33	41	22			26	25.0	46
18	223	27.6	57	42.7	12.70	23.80	46.0	201**	42	52	36	42	166	38	38.2	59
36	280	27.6	76	52.4	25.60	41.25	72.0	315**	62	78	61	68	224	65	63.5	88

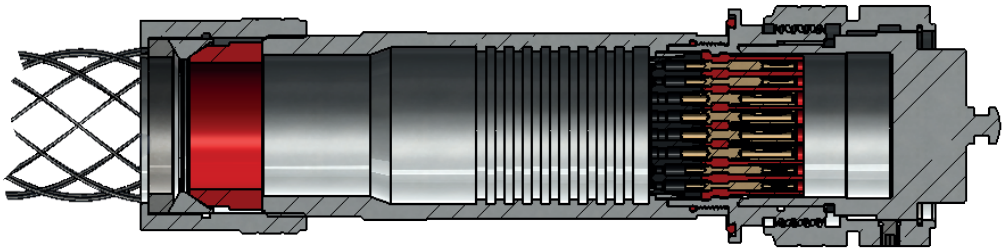
(**) Max overall dimension; dimension less than max one, depending on Basket Weave Cable Range.

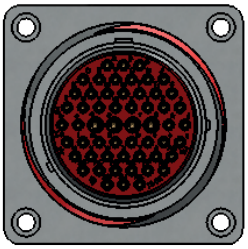
SERIES 927-072

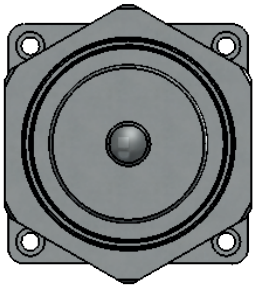
Hazardous Zone Fixed In-Line Receptacle

with basket weave cable grip









Cable Range Dimensions for Basketweave Cable Grip			
Shell Size	**Cable Range Designator**	**Cable Type**	**Cable Jacket Range [mm] (1)**
36	A	Unarmored cable	39,40 to 41,25
	B	Unarmored cable	38,90 to 40,50
	C	Unarmored cable	34,50 to 38,50
	D	Unarmored cable	31,00 to 34,90
	E	Unarmored cable	29,40 to 33,30
	F	Unarmored cable	25,60 to 29,50 (1)
18	A	Unarmored cable	19,60 to 23,80
	B	Unarmored cable	18,00 to 22,20 (1)
	C	Unarmored cable	15,50 to 19,10
	D	Unarmored cable	12,70 to 15,87
	E	Unarmored cable	10,40 to 12,70 (1)
10SL	Not available		

(1) It is advisable to use reduction sleeves for lower values of cable diameter within cable range.

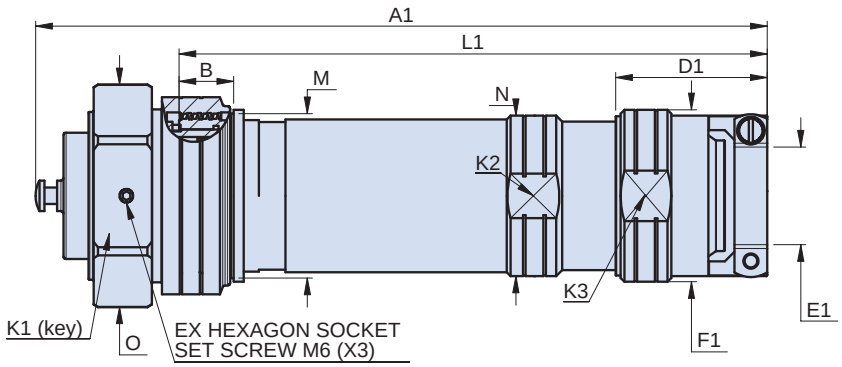
Hazardous Zone In-Line Receptacle

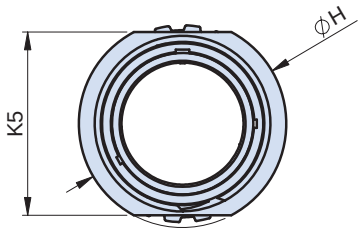
with mechanical cable clamp

927-072-011 IN-LINE RECEPTACLE WITH ENVIRONMENTAL CABLE ADAPTER AND MECHANICAL CABLE CLAMP

How To Order							
Sample Part Number	**927-072**	**011**	**36-66**	**P1**	**F9**	**N**	**A**

Series	**927-072**
Style	**011** = Mechanical Cable Clamp
Shell Size - Insert Arrangement	See pages 17 – 22
Contact Type and Plating	**P** = Pin Contact, **S** = Socket Contact **1** = Silver Plated, **2** = Gold Plated
Shell Material and Finish	**F9** = Aluminium Alloy, Anodize Hardcoat
Alternate Key Position	**N** = Normal, **X**, **Y**, **Z**, **W** (See Table on page 23)
Cable Range	**A**, **B**, **C** (See Table next page)



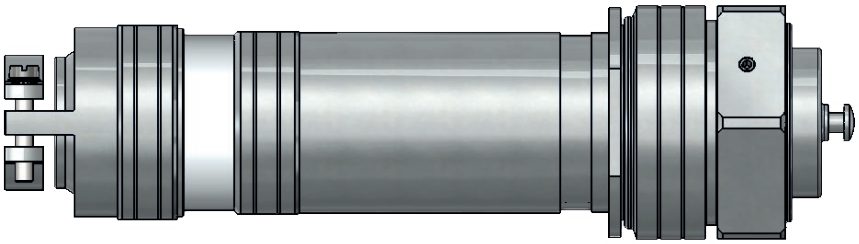


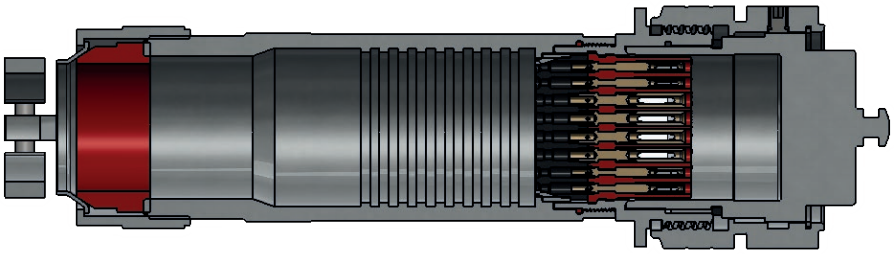
Dimensions																
7,761	A1	B	C	D1	E1		F1	H	K1	K2	K3	K5	L1	M	N	O
					Min.	Max.										
10SL	179	22.8	45	40.7	4.50	11.12	28.0	37	41	22	27	34	129.5	26	25	46
18	225	24.9	57	45.2	9.60	23.80	21.5	49.5	52	36	41	40	168	38	38.2	59
36	290	21.6	76	60	23.40	41.25	68.0	77	78	61	63	68	233	65	63.5	88

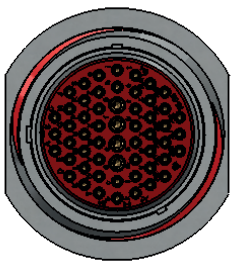
SERIES 927-072

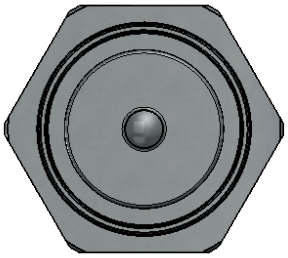
Hazardous Zone In-Line Receptacle

with mechanical cable clamp









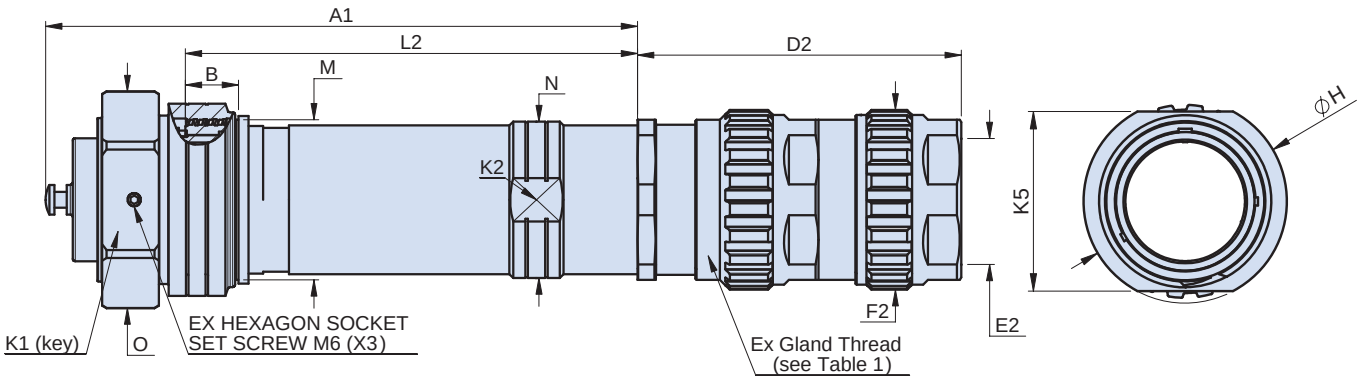
Cable Range Dimensions for Mechanical Cable Clamp			
Shell Size	**Cable Range Designator**	**Cable Type**	**Cable Jacket Range [mm]**
36	A	Unarmored cable	29,90 to 41,25
	B	Unarmored cable	23,40 to 35,00
18	A	Unarmored cable	15,50 to 23,80
	B	Unarmored cable	11,30 to 19,00
	C	Unarmored cable	9,60 to 15,87
10SL	A	Unarmored cable	5,84 to 11,12
	B	Unarmored cable	4,50 to 7,93

Hazardous Zone In-Line Receptacle

with Ex cable gland

927-072-021 IN-LINE RECEPTACLE WITH ENVIRONMENTAL CABLE ADAPTER AND EX CABLE GLAND

How To Order							
Sample Part Number	**927-072**	**021**	**36-66**	**P1**	**F9**	**N**	**A**
	927-072						
Style	**021** = Ex Cable Gland						
Shell Size - Insert Arrangement	See pages 17 – 22						
Contact Type and Plating	**P** = Pin Contact, **S** = Socket Contact **1** = Silver Plated, **2** = Gold Plated						
Shell Material and Finish	**F9** = Aluminium Alloy, Anodize Hardcoat						
Alternate Key Position	**N** = Normal, **X**, **Y**, **Z**, **W** (See Table on page 23)						
Cable Range	**A**, **B**, **C** (See Table next page)						



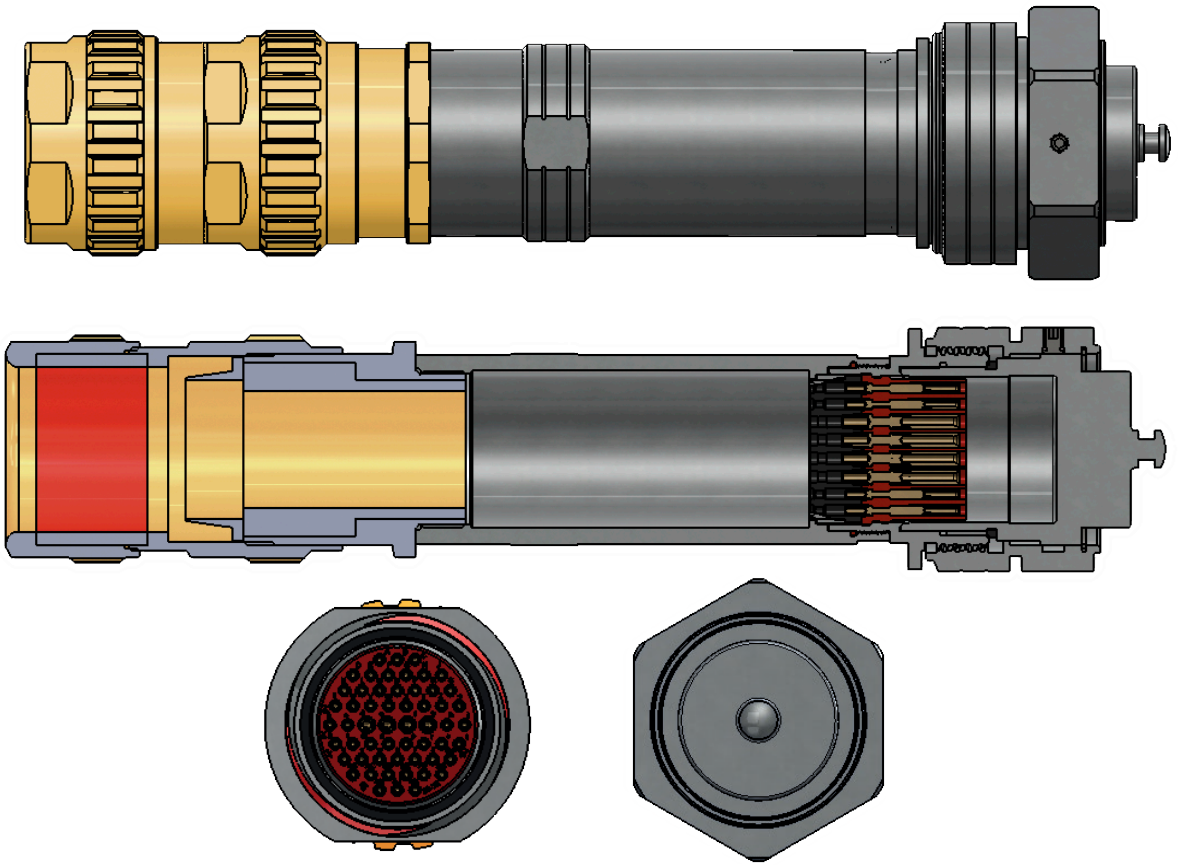
Dimensions															
Shell Size	A2	B	C	D2	E2		Ex Gland Thread	F2	H	K1	K2	K5	L2	M	N	O
					Min.	Max.										
10SL	138	22.8	45	*	3.0	20.50	M20x1.5 M16x1.5	*	37	41	22	34	88.3	26	25	46
18	190.5	24.9	57	*	6.0	26.0	M25x1.5 M20x1.5	*	49.5	52	36	40	134	38	38,2	59
36	241	21.6	76	*	22.0	52.60	M50x1.5 M40x1.5	*	77	78	61	68	184	65	63,5	88

(*) Dimension varies according to Ex Cable Gland.

SERIES 927-072

Hazardous Zone In-Line Receptacle

with Ex cable gland



Cable Range Dimensions for Ex Cable Gland						
Shell Size	Cable Range Designator	Cable Type	Ex Gland Thread	Cable outer sheath range [mm]	Cable inner sheath range [mm]	Armor Range with Clamping Ring
36	A	Unarmored cable	M50x1.5	28 to 41		
	B	Unarmored cable	M40x1.5	22 to 33		
	A1	Armored Cable	M50x1.5	36 to 52,60	28,90 to 44,40	0 to 1,0 and 1,5 to 2,5
	B1	Armored Cable	M40x1.5	28 to 41	22 to 33	0 to 0,7 and 1,3 to 2,0
18	A	Unarmored cable	M25x1.5	12,50 to 20,50		
	B	Unarmored cable	M20x1.5	9 to 16		
	C	Unarmored cable	M20x1.5	6 to 12		
	A1	Armored Cable	M25x1.5	16,90 to 26	12,50 to 20,50	0 to 0,7 and 0,9 to 1,6
	B1	Armored Cable	M25x1.5	12,50 to 20,50	9 to 14	0 to 0,7 and 0,7 to 1,4
	C1	Armored Cable	M20x1.5	12,50 to 20,50	9 to 14	0 to 0,7 and 0,7 to 1,4
	D1	Armored Cable	M20x1.5	9 to 16	6 to 12	0 to 0,7 and 0,7 to 1,25
	E1	Armored Cable	M20x1.5	6 to 12	3 to 8,10	0 to 0,7 and 0,7 to 1,25
10SL	A	Unarmored cable	M20x1.5	9 to 16		
	B	Unarmored cable	M20x1.5	6 to 12		
	C	Unarmored cable	M16x1.5	6 to 12		
	A1	Armored Cable	M20x1.5	12,50 to 20,50	9 to 14	0 to 0,7 and 0,7 to 1,4
	B1	Armored Cable	M20x1.5	9 to 16	6 to 12	0 to 0,7 and 0,7 to 1,25
	C1	Armored Cable	M20x1.5	6 to 12	3 to 8,1	0 to 0,7 and 0,7 to 1,25
	D1	Armored Cable	M16x1.5	6 to 12	3 to 8,1	0 to 0,7 and 0,7 to 1,25

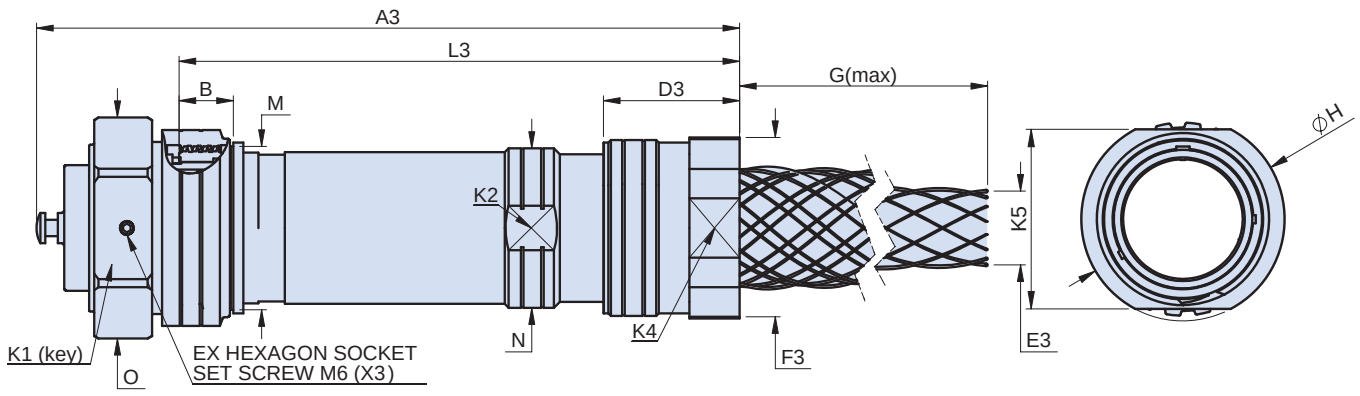
Hazardous Zone In-Line Receptacle

with basket weave cable grip

927-072-031 IN-LINE RECEPTACLE WITH ENVIRONMENTAL CABLE ADAPTER AND BASKET WEAVE CABLE GRIP

How To Order							
Sample Part Number	**927-072**	**031**	**36-66**	**P1**	**F9**	**N**	**A**

Series	**927-072**
Style	**031** = Basket Weave Cable Grip
Shell Size - Insert Arrangement	See pages 17 – 22
Contact Type and Plating	**P** = Pin Contact, **S** = Socket Contact **1** = Silver Plated, **2** = Gold Plated
Shell Material and Finish	**F9** = Aluminium Alloy, Anodize Hardcoat
Alternate Key Position	**N** = Normal, **X**, **Y**, **Z**, **W** (See Table on page 23)
Cable Range	**A**, **B**, **C** (See Table next page)



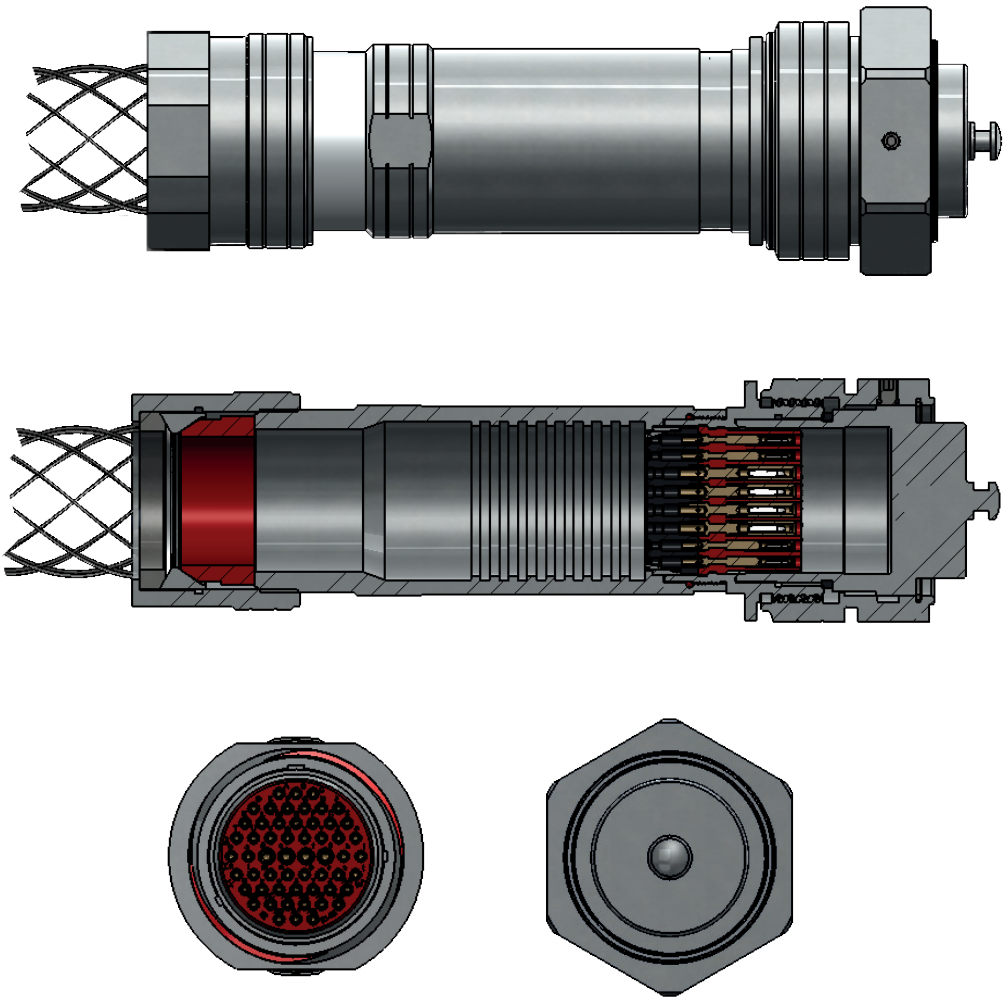
Dimensions																
Shell Size	A3	B	C	D3	E3		F3	G Max.	H	K1	K2	K4	K5	L3	M	N	O
					Min.	Max.											
10SL		22.8	45						37	41	22		34		26	25.0	46
18	223	24.9	57	42.7	12.70	23.80	46.0	201**	49.5	52	36	42	40	163.5	38	38.2	59
36	280	21.6	76	52.4	25.60	41.25	72.0	315**	77	78	61	68	68	223.2	65	63.5	88

(**) Max overall dimension; dimension less than max one, depending on Basket Weave Cable Range.

SERIES 927-072

Hazardous Zone In-Line Receptacle

with basket weave cable grip



Cable Range Dimensions for Basketweave Cable Grip			
Shell Size	**Cable Range Designator**	**Cable Type**	**Cable Jacket Range [mm] (1)**
36	A	Unarmored cable	39,40 to 41,25
	B	Unarmored cable	38,90 to 40,50
	C	Unarmored cable	34,50 to 38,50
	D	Unarmored cable	31,00 to 34,90
	E	Unarmored cable	29,40 to 33,30
	F	Unarmored cable	25,60 to 29,50 (1)
18	A	Unarmored cable	19,60 to 23,80
	B	Unarmored cable	18,00 to 22,20 (1)
	C	Unarmored cable	15,50 to 19,10
	D	Unarmored cable	12,70 to 15,87
	E	Unarmored cable	10,40 to 12,70 (1)
10SL	Not available		

(1) It is advisable to use reduction sleeves for lower values of cable diameter within cable range.

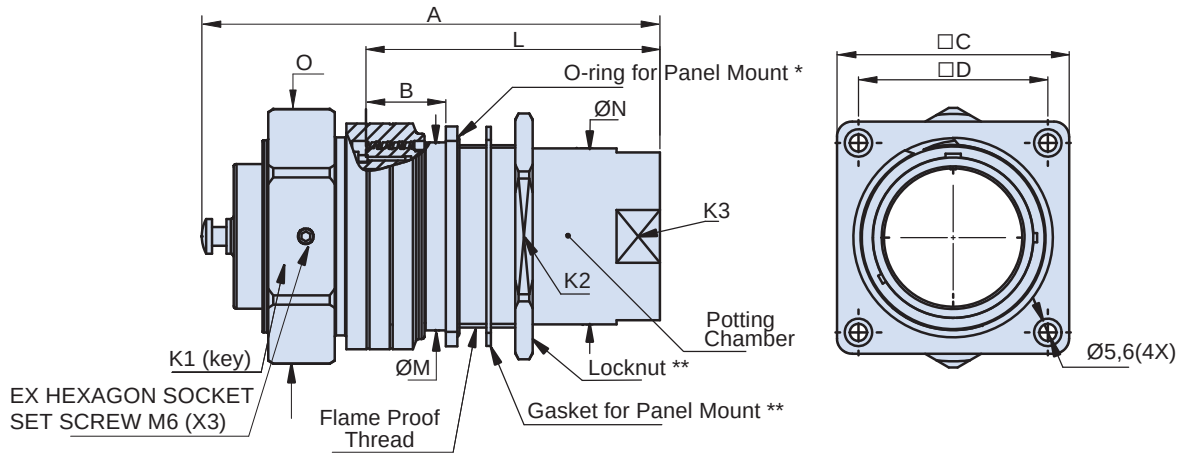
Hazardous Zone Panel-Mount Fixed Receptacle

with potting well and auxiliary lock nut

927-072-003 PANEL-MOUNT FIXED RECEPTACLE WITH POTTING WELL AND AUXILIARY LOCK NUT*

How To Order						
Sample Part Number	**927-072**	**003**	**36-66**	**P1**	**F9**	**N**
Series	**927-072**					
Style	**003** = Panel Mount Fixed Receptacle					
Shell Size - Insert Arrangement	See pages 17 – 22					
Contact Type and Plating	**P** = Pin Contact, **S** = Socket Contact **1** = Silver Plated, **2** = Gold Plated					
Shell Material and Finish	**F9** = Aluminium Alloy, Anodize Hardcoat					
Alternate Key Position	**N** = Normal, **X**, **Y**, **Z**, **W** (See Table on page 23)					

***Final IEC ATEx Ex d certification pending for this configuration only. Consult factory for status**



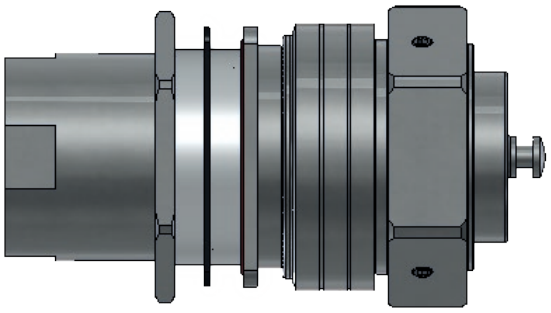
(*) For Mounting on Ex d enclosure: use only O-ring for Panel Mount.
(**)For Mounting on Ex e enclosure: use only Gesket for Panel Mount and Locknut.

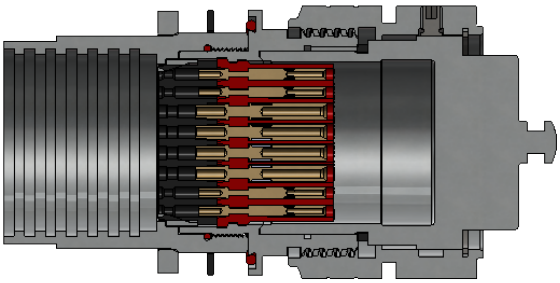
Dimensions													
Shell Size	A	B	C	D	K1	K2	K3	L	M	N	O	Flame Proof Thread	Min Full Thread Length
10SL	127.5	24.7	45	33	41	46	21	78	26	22	46	M25 x 1.5 6 g	19
18	158.5	27.6	57	42	52	56	32	102	38	35	59	M40 x 1.5 6 g	19
36	158.5	27.6	76	62	78	75	58	102	65	60.8	88	M63 x 1.5 6 g	19

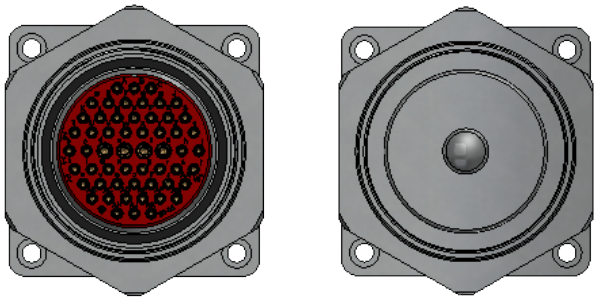
SERIES 927-072

Hazardous Zone Panel-Mount Fixed Receptacle

with potting well and auxiliary lock nut

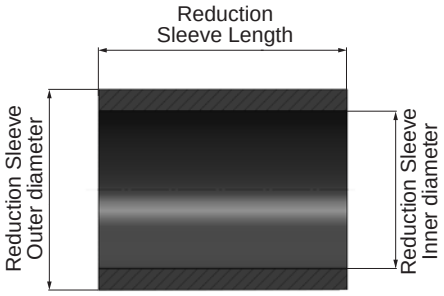




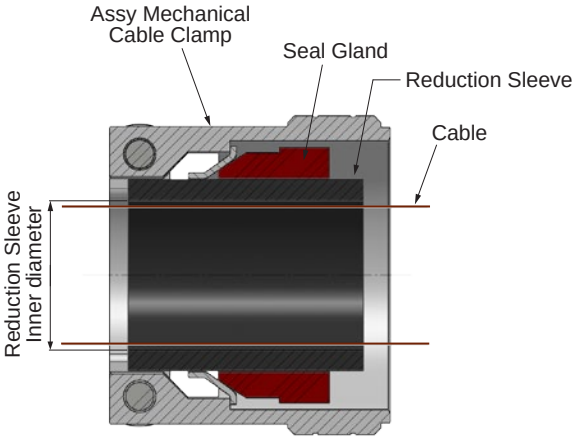


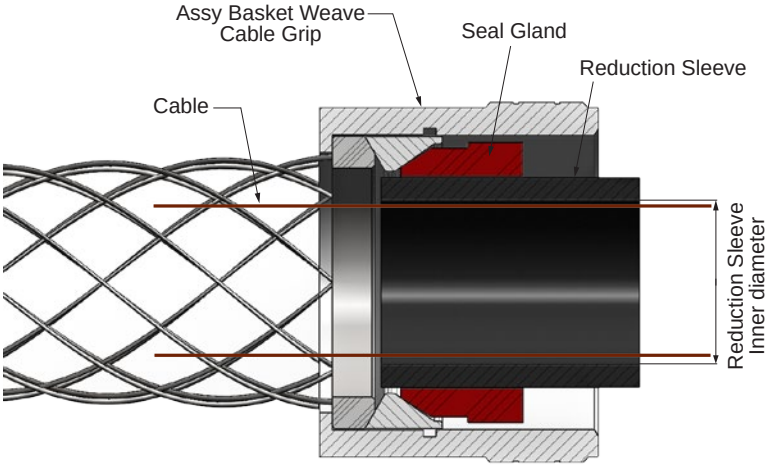
Cable Range Dimensions for Panel Mount		
Shell Size	**Cable Type**	**Cable Jacket Range [mm]**
36	Unarmoured cable	23,4 to 41,25
18	Unarmoured cable	9,6 to 20,4
10SL	Unarmoured cable	4,5 to 11,12

REDUCTION SLEEVES FOR CABLE

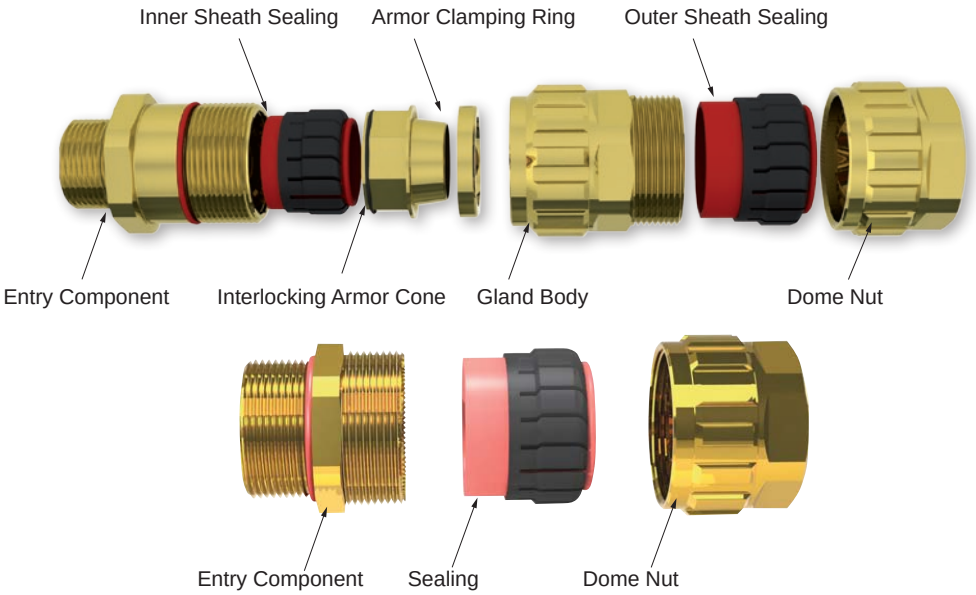


Reduction Sleeve for use with Mechanical Cable Clamp or Basketweave Cable Grip					
Shell Size	Sleeve P/N	Sleeve inner diameter [mm]	Sleeve outer diameter [mm]	Sleeve length [mm]	Use for cable range [mm]
36	D-3420-28A	31,80	40,60	50,20	29,90 to 32,00
	D-3420-24A	28,50	33,90	51,10	23,40 to 28,50
18	D-3420-16A	19,00	23,60	50,90	15,50 to 19,00
	D-3420-12A	13,74	18,50	50,90	11,30 to 13,74
	D-3420-10A	11,10	15,70	50,50	9,60 to 11,10
10SL	D-3420-6A	7,93	10,50	50,50	5,84 to 7,93
	D-3420-4A	5,56	7,63	50,50	4,50 to 5,56





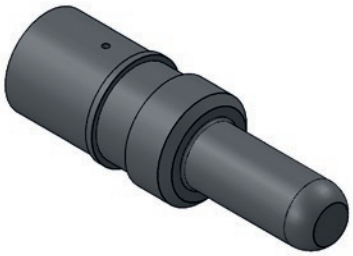
Ex CABLE GLAND ASSEMBLY, EXPLODED VIEW



PIN CRIMP CONTACTS

Series 927-072 contacts for size #16s through size #0 wire. Copper alloy with silver or gold plating, Terminate to wire with standard crimp tools.
Contacts are front-release. Use in series 927-072 connectors.

Pin contact with silver plating. For properties please consult table Materials on page 14 row Item Crimp Socket and Pin Contacts. Highly conductive silver plating is ideal for high current applications.
Pin contact with gold plating is used to improve protection from corrosive environments. For Electric properties, please consult table on page 14.



Pin Crimp Contacts Table			
Size [AWG]	Wire Size [AWG]	Finish	Pin Contact Part Number
16S*	18-16	Silver	D-20-40553
		Gold	D-21-40553
16	18-16	Silver	D-20-40557
		Gold	D-21-40557
12	12	Silver	D-20-40560
		Gold	D-21-40560
8	8	Silver	D-20-40792
4	4	Silver	D-20-113474-4P
0	0	Silver	D-20-113474-1P

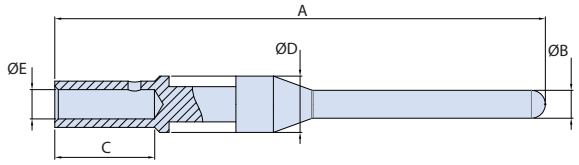
* S = short (see length contacts)

Pin Contact Current Ratings and Resistance			
Contact Size AWG	Max Rated Current [A]		Max Contact Resistance [mW]
	IAW N.E.C. (1)	IAW VG95234 (2)	
16 – 16s	16	20	6
12	30	32	3
8	50	60	1
4	90	120	0,5
0	155	220	0,3

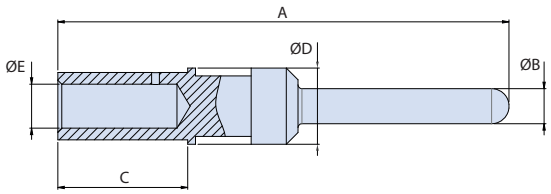
(1) Non-circuit breaking contacts rated current as per N.E.C. (National Electrical Code) based on arcing control. Use a cable of minimum rated temperature of 90°C.

(2) Values extrapolated from rated current chart of VG95234-1, at ambient temperature of 40°C.

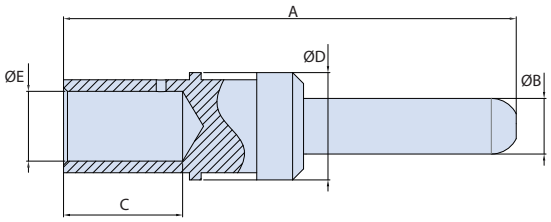
PIN CRIMP CONTACTS



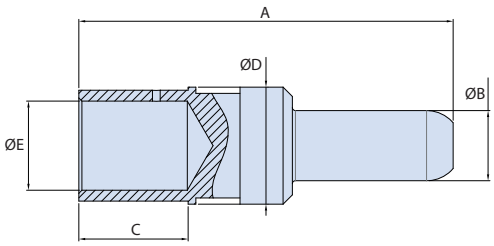
Part Number	Contact Size	A	ØB	C	ØD	ØE
D-10-40553	16S	31,25	1,57	7,45	3,1	1,7
D-10-40557	16	36,65	1,57	7,75	3,1	1,7
D-10-40560	12	41,85	2,38	8,5	4,8	2,5



Part Number	Contact Size	A	ØB	C	ØD	ØE
D-10-40792	8	46,2	3,59	13,3	7,8	4,5

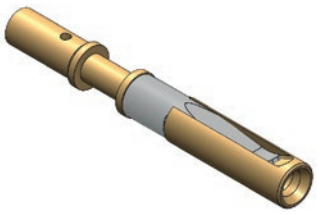


Part Number	Contact Size	A	ØB	C	ØD	ØE
D-10-113474-4P	4	46,4	5,7	12,9	11	7,15



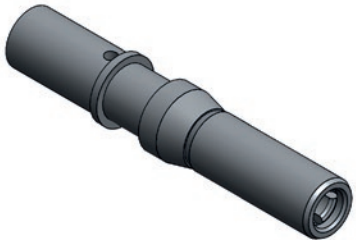
Part Number	Contact Size	A	ØB	C	ØD	ØE
D-10-113474-1P	0	48,3	9,05	14,1	15,1	11,5

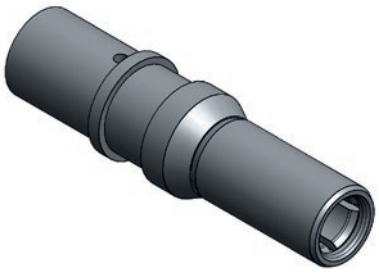
SOCKET CRIMP CONTACTS



Series 927-072 contacts for size #16s through size #0 wire. Copper alloy with silver or gold plating, Terminate to wire with standard crimp tools.
Contacts are front-release. Use in series 927-072 connectors.

Socket contact with silver plating. For properties please consult table Materials on page 14 row Item Crimp Socket and Pin Contacts. Highly conductive silver plating is ideal for high current applications.
Socket contact with gold plating is used to improve protection from corrosive environments. For Electric properties, please consult table on page 14.





Socket Crimp Contacts Table				
Size [AWG]	Wire Size [AWG]	Finish	Socket Contact Part Number	Contact type
16S*	18-16	Silver	D-20-40552	Spring clip
		Gold	D-21-40552	
16	18-16	Silver	D-20-40556	Spring clip
		Gold	D-21-40556	
12	12	Silver	D-20-40560	Spring clip
		Gold	D-21-40560	
8	8	Silver	D-21-40793	Hood
4	4	Silver	D-21-113474-4S-1	Hood
0	0	Silver	D-21-113474-1S	Hood

* S = short (see length contacts)

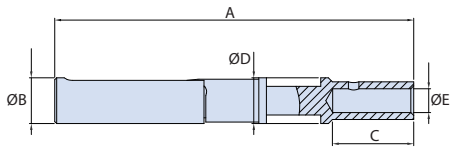
Other contact wire size on request.

Socket Contact Current Ratings and Resistance			
Contact Size AWG	Max Rated Current [A]		Max Contact Resistance [mW]
	IAW N.E.C. (1)	IAW VG95234 (2)	
16 – 16s	16	20	6
12	30	32	3
8	50	60	1
4	90	120	0,5
0	155	220	0,3

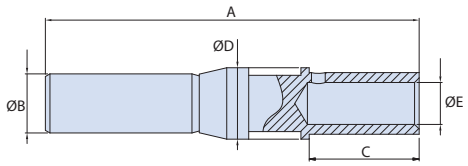
(1) Non-circuit breaking contacts rated current as per N.E.C. (National Electrical Code) based on arcing control. Use a cable of minimum rated temperature of 90°C.

(2) Values extrapolated from rated current chart of VG95234-1, at ambient temperature of 40°C.

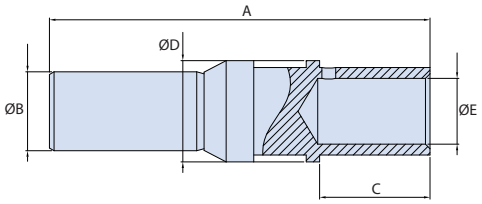
SOCKET CRIMP CONTACTS



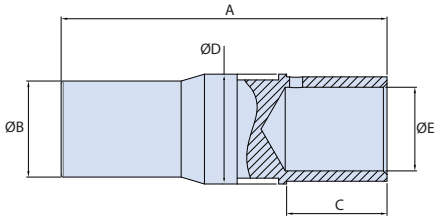
Part Number	Contact Size	A	ØB	C	ØD	ØE
D-10-40552	16S	26,7	3,2	7,5	3,2	1,7
D-10-40556	16	36,5	3,2	7,8	3,2	1,7
D-10-40560	12	37,65	4,8	8,5	4,8	2,5



Part Number	Contact Size	A	ØB	C	ØD	ØE
D-10-40793	8	40,8	6,45	12	7,8	4,58



Part Number	Contact Size	A	ØB	C	ØD	ØE
D-10-113474-4S-1	4	41,35	8,57	12	11	7,15

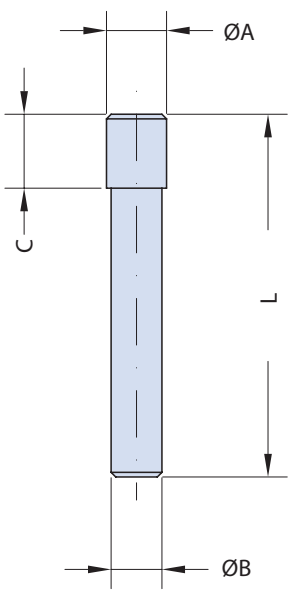


Part Number	Contact Size	A	ØB	C	ØD	ØE
D-10-113474-1S	0	44,8	13,2	13,8	15,1	11,5

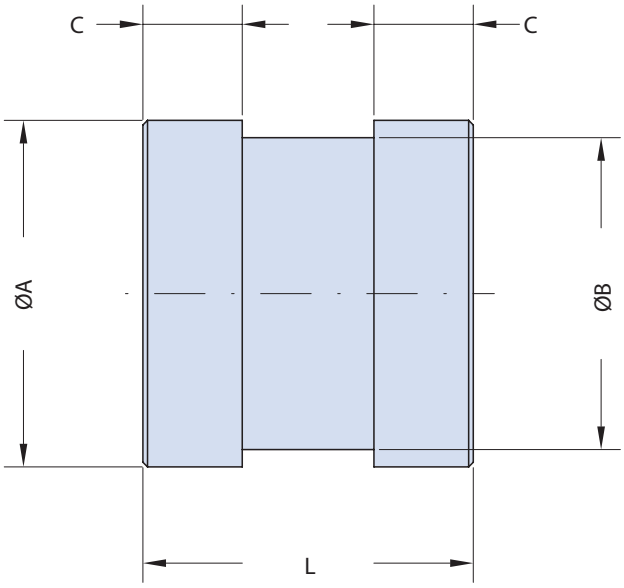
Wire hole sealing plug (contact insert)

WIRE HOLE PLUG FOR CONTACT INSERTS

Part Number	Contact Size	ØA	ØB	C	L	Color
D-10-305045-16	16S - 16	2.6	2.2	3.2	15.7	Blue
D-10-101033-13	12	4.6	3.7	3.2	11.9	Yellow
D-10-305045-8	8	7.6	6.4	3.1	11.8	White
D-10-305045-4	4	10.9	9.7	3.1	11.8	Green
D-10-305045-0	0	15.0	13.5	4.3	14.3	Black



D-10-305045-16



D-10-101033-13
D-10-305045-XX

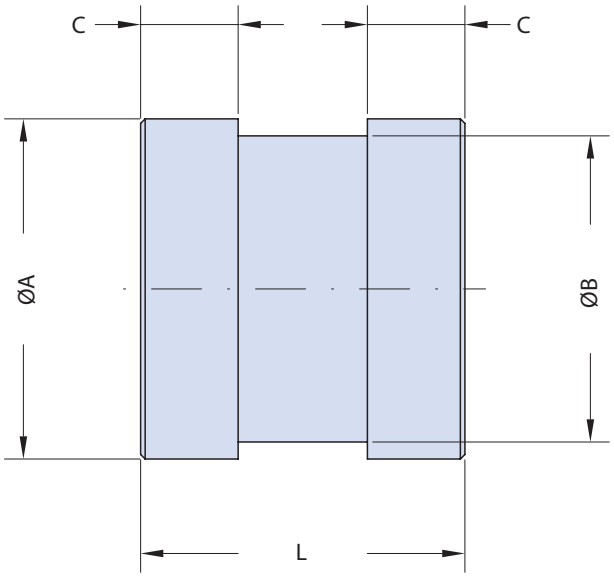
NOTES

Contact Hole Plug - Insert Version.
Used to fill an insert cavity in order to maintain the environmental seal when a cavity is without contact.

Wire hole sealing plug (sealing grommet)

WIRE HOLE PLUG FOR WIRE SEALING GROMMETS

Part Number	Contact Size	ØA	ØB	C	L	Color
D-10-101033-12	16S - 16	3.7	2.8	3.2	11.9	Blu / Blue
D-10-101033-13	12	4.6	3.7	3.2	11.9	Giallo / Yellow
D-10-101033-14	8	5.8	5.0	3.2	11.9	Bianco / White
D-10-101033-15	4	8.5	7.6	3.2	11.9	Verde / Green
D-10-101033-16	0	13.5	12.8	3.2	11.9	Nero / Black



D-10-101033-XX

NOTES

Contact Hole Plug - Grommet Version.
Used to fill a grommet cavity in order to maintain the environmental seal when a cavity is without contact.

MANUAL AND PNEUMATIC CRIMP TOOLS

Manual Crimp Tool

Contact Size	Wire Size	Manual Crimp Tool			Pneumatic Crimp Tool		
					Type A		
		Manual Tool	Turret	Universal Locator	Pneumatic Tool	Turret	Universal Locator
16s	16	M.105007	M.105009*	M.105012**	M.105002	M.105009*	M.105012**
16	16	M.105007	M.105009*	M.105012**	M.105002	M.105009*	M.105012**
12	12	M.105007	M.105009*	M.105012**	M.105002	M.105009*	M.105012**
8	8	/	/	/	/	/	/
4	4	/	/	/	/	/	/
0	0	/	/	/	/	/	/

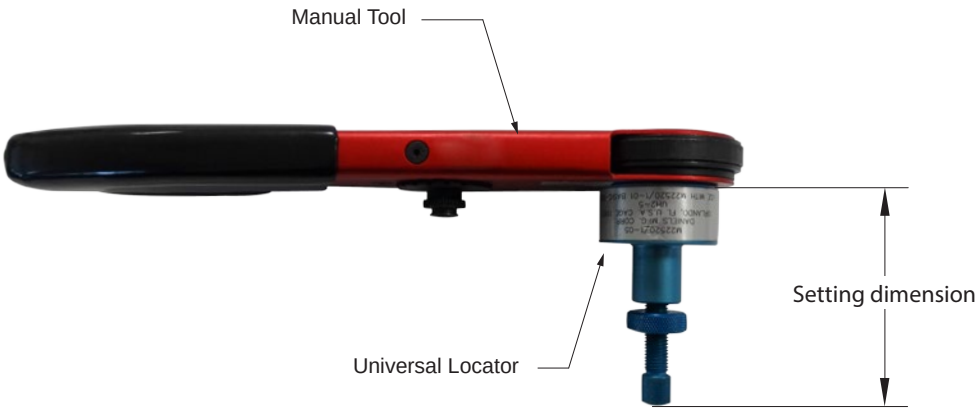
* Socket contact only
** Pin contact only

Turret

Universal Locator

Pneumatic Crimp Tool Type A

Turret for Pneumatic Crimp Tool Type A



Contact Size	Wire Size	Manual Crimp Tool		
		Manual Tool	Universal Locator	Setting dimension [mm]
16s	16	M.105007	M.105012	67.7
16	16	M.105007	M.105012	73.0
12	12	M.105007	M.105012	85.4

Contacts, Tools, and Accessories

Crimp tools for large contacts
Contact insertion and removal tools

HYDRAULIC AND PNEUMATIC CRIMP TOOLS

Hydraulic Crimp Tool

Contact Size	Wire Size	Hydraulic Crimp Tool		Pneumatic Crimp Tool			
				Type B			
		Hydraulic Tool	Die	Pneumatic Tool	Die	Locator Pin	Locator Socket
16s	16	/	/	/	/	/	/
16	16	/	/	/	/	/	/
12	12	/	/	/	/	/	/
8	8	M.112004	M.112005	M.112000	M.112001	M.112308	M.112309
4	4	M.112004	M.112006	M.112000	M.112002	M.112307	M.112311
0	0	M.112004	M.112010	M.112000	M.112003	M.112306	M.112313

* Socket contact only ** Pin contact only

Die for Oleodinamic Crimp Tool

Pneumatic Crimp Tool Type B

Die For Pneumatic Crimp Tool Type B

Locator for Pneumatic Crimp Tool Type B

INSERTION AND REMOVAL TOOLS

A

Contact Size	Insertion Tool	Figure	Removal Tool	Figure
16S	M.117083	A	M.118250	C
16	M.117083	A	M.118250	C
12	M.117082	A	M.118250	C
8	M.117344	B	M.118260	D
4	M.117347	B	M.118270	D
0	M.117348	B	M.118280	D

B

C

D

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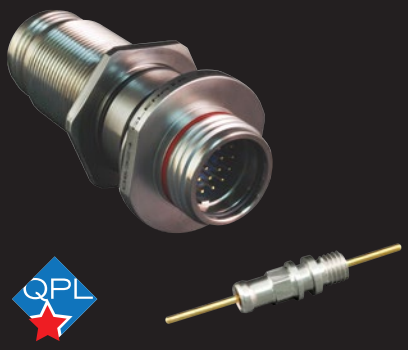

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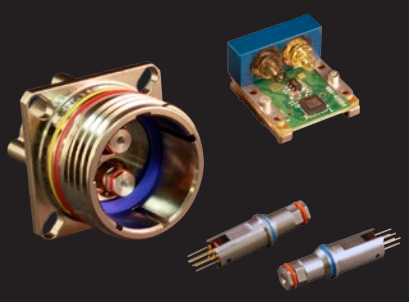

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Printed in U.S.A.

CAT-151