


STEP 1: Read manufacturer's assembly instructions before assembling connectors. Use assembly instructions to identify the various component parts and to check for any missing parts.

STEP 2: Cut cable jacket and sheathing squarely and to correct length, using only approved wire strippers. In preparing the individual wires for assembly, leave allowances in length for reaching the outermost circle of contact cavities in the conductors. The insulation should be cut progressively longer as it extends out from the center of the cable or harness to ensure sufficient length.

STEP 3: Follow cable stripping lengths  see page 298 for effective cable gland sealing. All conductors should be fit into contact wire wells correctly. A practice layout should be done.

STEP 4: Prior to starting termination of wires, it is essential to layout cables and harnesses in a specific order in accordance with the wiring diagram. Proper layout will eliminate the need for twisting and crossover of conductors. If the wiring layout is not correct, the termination operation will be difficult or even impossible and the chance of errors will increase. Cable and harness assemblies with a spiral layout must also be matched carefully to the correct contacts in both the male and female inserts.

STEP 5: Some cables will have a "basket weave" armor under the outer jacket (sheath) and over the inner jacket. Since many regulatory entities require that the armor be grounded at the source end, it is beneficial to ground the armor via a spare contact within the connector. Following the removal of a sufficient amount of outer jacket (see Table 1), an ample amount of armor can be clipped away, but not all. An adequate amount should remain so that a small cross-section conductor, short in length, can be woven into the remaining armor weave and either soldered or covered with mastic-impregnated heat shrink, creating an intimate bond to the armor. At the opposite end of the short piece of wire, a contact should be crimped and inserted into the insert.

STEP 6: Use only correctly-sized and provided Exd glands to ensure resistance to moisture and other contaminates.

STEP 7: Use only the proper crimping tools that have been set or calibrated with precision gauges.

STEP 8: Ensure that all contacts are the correct size before attempting to assemble in insert cavities. This is particularly important when both power and control contact types are used in the same connector.

STEP 9: Ensure that ground contacts are correctly located.

STEP 10: Seat all contacts properly so that they will not be damaged or become disengaged during connector mating operation.

STEP 11: Use only the proper insertion tools and ensure that they are aligned axially when pushing contact into their fully-seated position.

STEP 12: When the inserts have more cavities than the conductors, plug unused cavities with furnished contacts.

STEP 13: After all terminated contacts are inserted in their respective cavities and inspected, the cable adapter or insert clamp nut should be tightened with a wrench. This assembly operation should be done by placing the components in a vise with smooth-faced jaws, using a strap wrench.

STEP 14: When handling cables, use adequate support to prevent damage to the internal wires. Exd glands are intended for sealing purposes and should not be used as a cable grip.

STEP 15: If for any reason terminated conductors have to be removed from an insert because of an assembly error or change in circuitry, be sure to remove the cable gland or cable adapter first before extracting the contact and reinserting it.

STEP 16: If one of the connector poles is a ground wire, make sure that it is grounded properly before the connector actually is engaged.

STEP 17: When connectors with the same configuration are to be mounted closer together, different or alternate key arrangements should be used to prevent mismatching and possible damage to the electrical system.

STEP 18: Always inspect all parts of connector assembly operations before putting connector into operation.

STEP 19: Crimping and terminating of conductors to contacts must be done carefully. Make certain that all wire strands are fully bottomed in contact wells by checking through provided inspection hole.

STEP 20: Never attempt to straighten bent contacts. Straightening will not be done properly and the contact plating most likely will be marred. This will result in a high-resistance connection and will expose the base material to possible corrosion.

STEP 21: Potting of the connector where required should be the very last step prior to fastening the grommet and nut on the cable adapter. 'Ringing out' of the contacts with their mate should be done prior to potting.

STEP 22: It is recommended that all receptacles be potted while coupled to their mating connector.

STEP 23: Each assembly operator should also inspect. Worn, damaged, or defective tools should be reported immediately.

Assembly workmanship is a significant factor in the quality of terminating multiple-contact connectors. Quality cannot be "inspected" into connectors; it must be built-in during each assembly operation.

THE FOLLOWING INSTRUCTIONS APPLY TO EQUIPMENT COVERED BY CERTIFICATE NUMBER: SIRA 07ATEX1229X

The equipment may be used with flammable gases and vapors with apparatus group(s) IIA, IIB, & IIC and with temperature classes T6, T5, T4, T3, T2 & T1.

The equipment is only certified for use in ambient temperatures in the range -20°C to +40°C and should not be used outside this range.

THE PRODUCT COMPLIES WITH THE FOLLOWING STANDARDS:

EN 60079-0:2006	General requirements for electrical apparatus for explosive gas atmospheres
EN 60079-1:2007	Electrical apparatus for explosive gas atmospheres - Part 1: Flameproof enclosures "d" (Plus Cor 1) (IEC 60079-1:2003)
EN 60079-7:2003	Electrical apparatus for explosive gas atmospheres - Part 7: Increased safety "e" (IEC 60079-7:2001)
EN 61241-0:2006	General requirements for electrical apparatus for use in the presence of combustible dust
EN 61241-1:2004	Electrical apparatus for use in the presence of combustible dust. Protection by enclosures "tD"

Installation shall be carried out by suitably-trained personnel in accordance with the applicable code of practice e.g. EN 60079- 14. It is the end user's responsibility to ensure that the product, as specified and confirmed by the product label, is suitable for its intended application.

Inspection and maintenance of this equipment shall be carried out by suitably-trained personnel in accordance with the applicable code of practice e.g. EN 60079-17.

Repair of this equipment shall be carried out by suitably-trained personnel in accordance with the applicable code of practice e.g. EN 60079-19.

THE CERTIFICATION OF THIS EQUIPMENT RELIES UPON THE FOLLOWING MATERIALS USED IN ITS CONSTRUCTION:

Connector Material:	ASTM B211 or B221 6061-T6 Aluminum
O-ring Seal Material:	Buna Rubber w/ Durometer of 70 SHORE A
Potting Compound:	Resinlab #EP1056LV

If the equipment is likely to come into contact with aggressive substances, then it is the responsibility of the user to take suitable precautions that prevent it from being adversely affected, thus ensuring that the type of protection provided by the equipment is not compromised.

Aggressive substances: e.g. acidic liquids or gases that may attack metals or solvents that may affect polymeric materials. Suitable precautions: e.g. regular checks as part of routine inspections or establishing from the material's data sheets that it is resistant to specific chemicals.

SPECIAL CONDITIONS FOR SAFE USE:

The "X" suffix to the certificate number relates to the following special condition(s) for safe use:

1. The plugs and receptacles shall only be used with suitable, certified cable glands capable of a temperature range at their point of mounting of -20°C to 90.1°C.
2. Cables fitted to the plugs and receptacles shall be suitable for a continuous operating temperature of at least 90°C.
3. Plugs are not permitted to remain energized when not engaged to the receptacles, as per EN 60079-0; clause 20.2
4. The plugs and receptacles are not to be energized when fitted with the environmental blanking caps.
5. An explosion-proof receptacle cap must be fitted to the receptacles to be re-energized when they are not mated to a plug.
6. The connector does not incorporate an external earth facility. It is the responsibility of the user or installer to ensure adequate internal earth continuity by means of terminating ground wire to spare contact within the insert patterns for both plug and receptacles to allow for continuity.
7. The panel mount receptacles shall only be used where the temperature at the point of entry in service on the associated enclosure is between -20°C to +105°C.

CONTACT PREPARATION INSTRUCTIONS

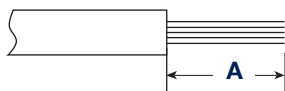
CRIMP TOOLS

M22520 series is recommended. See Tool Table on [page 292](#) for choice of turret head and selection setting according to contact size, part number and wire gauge size.



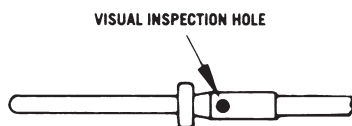
WIRE STRIPPING

Strip insulation from end of wire to be crimped. (See table for proper stripping dimensions.) Do not cut or damage wire strands.



WIRE SIZE	A
22, 22M, 22D	.125 (3.18)
20	.188 (4.77)
16	.188 (4.77)
12	.188 (4.77)
8 (power)	.470 (11.94)

CONTACT CRIMPING



STEP 1: Insert stripped wire into contact crimp pot. Wire must be visible through inspection hole.

STEP 2: Using correct crimp tool and locator, cycle the tool once to be sure the indentors are open. Insert contact and wire into locator. Squeeze tool handles firmly and completely to ensure a proper crimp. The tool will not release unless the crimp indentors in the tool head have been fully-actuated.

STEP 3: Release crimped contact and wire from tool. Ensure the wire is visible through inspection hole in contact.

All dimensions in inches (millimeters in parenthesis)

CONNECTOR ASSEMBLY


ASSEMBLING AN INLINE PLUG AND INLINE RECEPTACLE CONNECTORS

STEP 1: Slide the EX gland onto the cable about 12 inches, threaded-end last.

STEP 2: Slide the cable adapter onto the cable up to the EX gland, large-diameter first.

STEP 3: Slide the coupling nut onto the cable up to the cable adapter, grub screw end first.

STEP 4: Group all conductors according to size to facilitate orderly termination. Spiral layouts must also be matched carefully to the correct contacts in both the male and female inserts.

STEP 5: Working on one conductor at a time, strip the insulation off per the wire stripping length (See page 298) and terminate a contact to it, using a properly-adjusted crimp tool, following crimp instruction  (See page 298.) Repeat the process for each conductor.

STEP 6: Make sure the grub screws are fully-retracted, then slide the coupling nut up onto the plug shell until seated against its mating shoulder.

STEP 7: Thread the cable adapter onto the plug shell and hand-tighten.

STEP 8: Thread the EX gland onto the cable adapter and hand-tighten.

STEP 9: Using a strap wrench, fully tighten the cable adapter onto the plug shell.

STEP 10: Position the cable correctly. Using a hex wrench, tighten the EX gland. The seal must grip the outer jacket of the cable when the cable gland is tightened. Tighten back nut (or conduit receptor) to entry body. Ensure seal makes full contact with cable sheath. Tighten an extra 1½ turns (up to 2½ turns for minimum cable).

PREPARING A BULKHEAD RECEPTACLE CONNECTOR FOR ENCLOSURE MOUNTING

All receptacle shells have contact positioning inserts that are permanently installed by the factory.

STEP 1: Slide the bulkhead adapter up onto the cable or conductor group, knurled-end first.

STEP 2: Terminate each conductor with its proper contact.

STEP 3: Populate the insert with contacts by poking each of the wired contacts into its respective insert cavity, following an electrical schematic for the system being wired.

STEP 4: Slide the bulkhead adapter down the conductors and screw it onto the panel mount receptacle.

STEP 5: Use a strap wrench to tighten the bulkhead adapter until it is fully tightened to shoulder.

STEP 6: Referring to Amphe-EX potting instructions, stand the assembly vertically, conductors pointing up, and fill the adapter with cement to a level 1/16-inch below the top of the adapter. After curing, this assembly is now permanently cemented, non-separable and non-repairable, and can be mounted to the bulkhead.

STEP 7: It is best to fit the connector to the bulkhead at a time when the free end of the cable is not terminated to the electrical system. If this is not possible, then it is necessary to rotate the connector assembly counter-clockwise to wind the cable/conductors so that when the assembly is threaded into a bulkhead in the subsequent instruction, the cable/conductors regain their most natural lay once the connector is mounted to the bulkhead. (Rotations required to be determined by end-user).

STEP 8: Position the protective cover's lanyard tab over one of the mounting holes and screw a fastener through it. Apply the remaining fasteners to the other three holes with torque suitable for screw size used.

STEP 9: Install the protective cover and tighten fully.

STEP 10: Secure both grub screws to prevent unauthorized removal.

POTTING INSTRUCTIONS

All cable adapters other than ones suited for mating with an EX-certified gland must be filled with encapsulant (potted). The material certified for use in filling this connector line is Dexter-Hysol Product #ES4412.

The user or installer shall consider the performance of these materials with regard to attack by aggressive substances that may be present in the hazardous area.

This material is a two-component casting system with a 1:1 volumetric mix ratio. It has low exothermic qualities, peak at only 102°F during cure in two hours at 140°F. The product is available in premeasured "mix & dispense" packaging.

CONNECTOR ASSEMBLY

BULKHEAD ADAPTER

Bulkhead adapters should be filled to a maximum of 1/16-inch below the top of the adapter.

Care must be exercised so that the potting compound does not contaminate the bulkhead threads or spill onto the outer surfaces of the receptacle flange.

In preparation for potting, the receptacle is to be mated to its corresponding plug, so that all contacts are mated and in their optimal post-potted position.

When potting, the receptacle flange should be rigidly fixtured in a horizontal position. This fixture must be capable of holding the mated connector pair in that position for a minimum of two hours at room temperature.

The exiting conductor/cable should be fixtured inline above the connector pair during the entire curing process.

SIRA PRODUCT LABELING INFORMATION

Information below must be attached to connectors via a nonremovable label.

Amphenol Industrial Sidney NY 13838
USA Part Number, Size Ref Work Order Number; Date Code



0518

II 2 GD

EEx dIIC T6 / Ex tD A21 IP68 (Plug and Receptacles)
EEx de IIC T6 / Ex tD A21 IP68 (Panel mount receptacles filled with cement)
Sira 07ATEX1229X "max volts, max amp. Current rating per pin"
Do not separate when energized
Do not open when an explosive gas or dust atmosphere is present

MIXING/POTTING INSTRUCTIONS

1. CAUTION: Wear goggles or other eye protection during all operations.
2. The potting compound is premeasured in "burst bag" packaging. This packaging consists of a single plastic bag that is compartmentalized into two chambers, each containing one part of the two-part compound. The segregating feature is called a 'burst seal'.
3. Lay the bag on a flat surface. Using either end of the bag that is parallel to the burst seal, start coiling/rolling the bag so that the compound in that half of the bag is pushed up against the burst seal.
4. Squeeze and apply pressure to the rolled side of the bag so that the compound bursts through the burst seal and joins the compound on the other side of the bag. Unroll the bag.
5. Mix the entire contents by alternately squeezing the bag and working it across the edge of a table to fully move the entire contents back and forth between chambers. Work the material in this manner, continuously, for a minimum of four minutes.
6. Once mixed, squeeze all the contents away from one corner of the bag, fully clearing that corner of the bag of all compound.
7. Make a 3/16-inch pouring spout by snipping off the bag's cleared corner.
8. To minimize air entrapment, slowly pour the compound into the back end of the bulkhead adapter to a level shown in Figure Z.
9. Set the bag containing the remaining compound aside, so that it may cure. After cure, the bag may be disposed of safely with common consumer refuse. CAUTION: As the remaining compound cures, the bag will become hot.

HYSOL VOLUME PER BULKHEAD ADAPTER

SHELL SIZE	FILL LENGTH INSIDE ADAPTER (INCHES)	ADAPTER DIAMETER (INCHES)	INTERNAL VOLUME (IN ^ 2)	INTERNAL VOLUME (OUNCES)
9	1.064	0.652	0.355	0.197
13	1.064	0.927	0.718	0.398
15	1.064	0.927	0.718	0.398
17	1.064	1.242	1.289	0.714
19	1.064	1.242	1.289	0.714
21	1.064	1.242	1.289	0.714

Note: This is the maximum volume of cement needed without considering volume claimed by the conductors