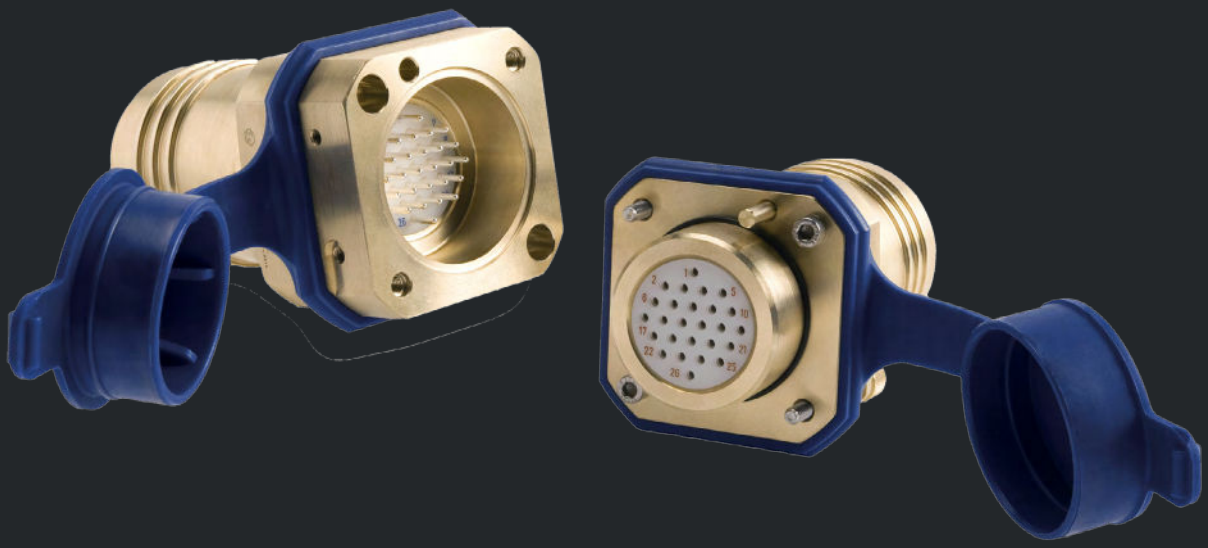
TROLEX



TX3704-5 CONNECTORS

Ex d/e Connectors

USER MANUAL

CE Ex IECEx

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1. PRODUCT OVERVIEW



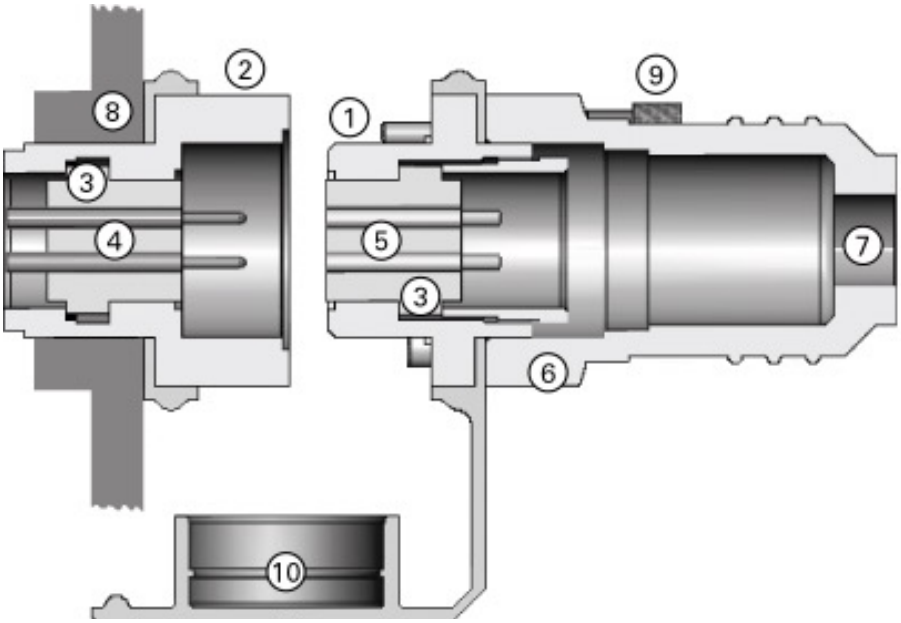
TX370x Ex d/e Connectors

Multi-pin connector in two shell sizes:

TX3704	Accommodates 4, 10 and 14 contact ways
TX3705	Accommodates 26 and 37 contact ways

- The socket section may be mounted on to an Ex d enclosure or fitted on to a suitable cable
- The plug section may be fitted on to a suitable cable
- The contacts are suitable for solder or crimp connections
- Standard Ex d cable glands are utilised - not included unless specified
- Brass or Stainless Steel - Group I and II - versions available
- Supplied with flexible ingress protecting cover caps
- Ex d blanking covers may be supplied where specified
- Some versions supplied with short pin for pilot circuit tripping

1.1 Operating features



1. Machined metal plug unit with engagement plug forming the flame path
2. Machined metal socket unit with engagement receptacle forming the flame path
3. High grade co-polymer contact insert carrying slide-in contact pins and tubes
4. Silver plated contact pins suitable for solder or crimp connections
5. Silver plated contact tubes with longitudinal multi-contact springs for high reliability and low insertion force, providing exceptionally low contact resistance
6. Machined metal cover shell for terminating the incoming cable utilising standard Ex d cable glands of choice
7. Choice of cable gland entry thread to specification
8. Ex d or Ex e enclosure with basic socket unit fitted or cable line-connector
9. Two large, hand operated, mating screws to quickly unite the connector with complete security
10. Extremely tough moulded urethane weather caps permanently attached and ready to hand, incorporating shock fenders and IP67 captive ingress seals

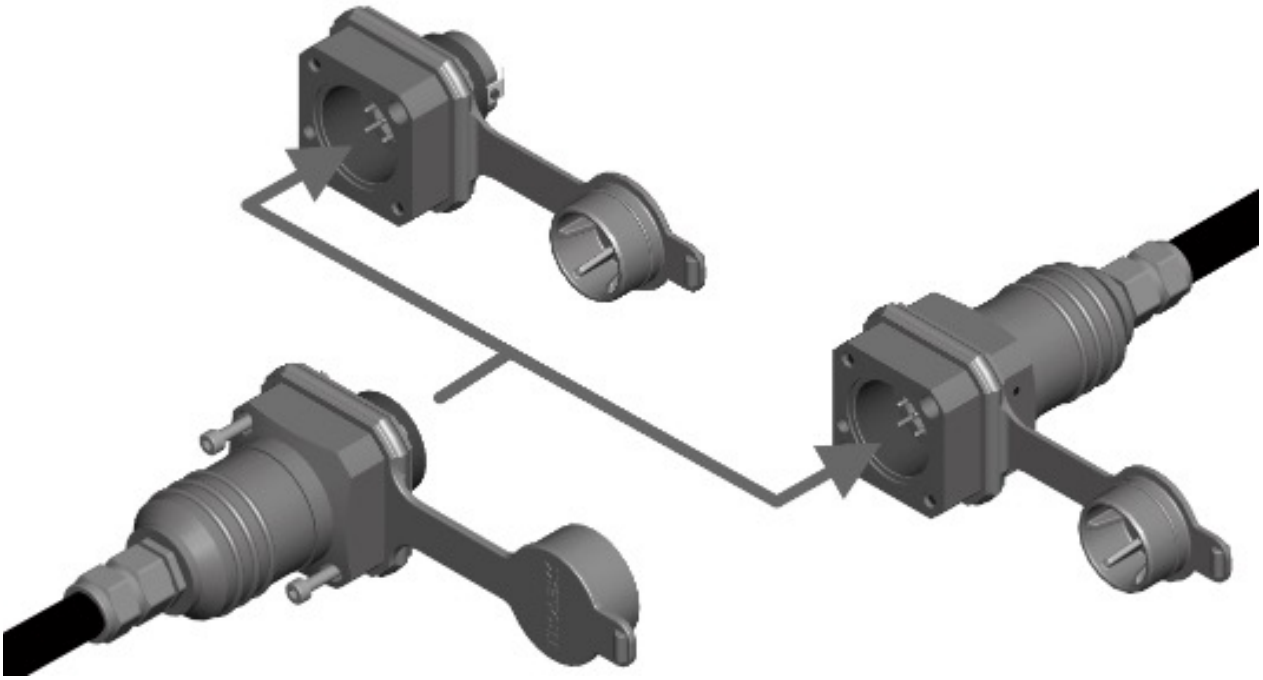
1.2 Application

High integrity, multi path, robust, explosion proof connector, designed for extra heavy duty and critical applications in Group I and Group II hazardous areas.

Rapid and convenient connect/disconnect of control circuits and power circuits for electrical equipment installation.

Mining, tunnelling, offshore oil and gas platforms, petrochemical plants, process plants, storage areas and pump stations.

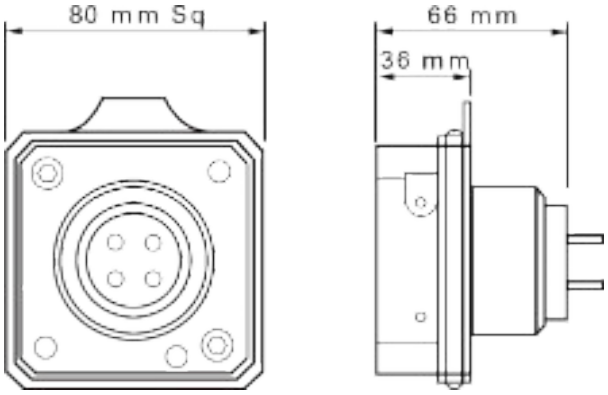
Component acceptance certification for ATEX and IECEx.



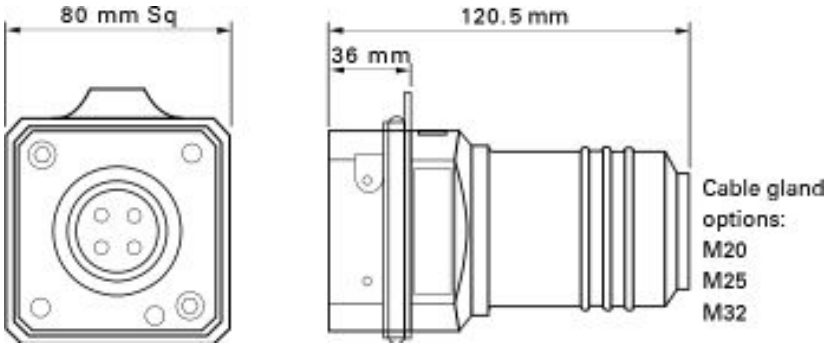
1.3 Dimensions

1.3.1 TX3704 dimensions

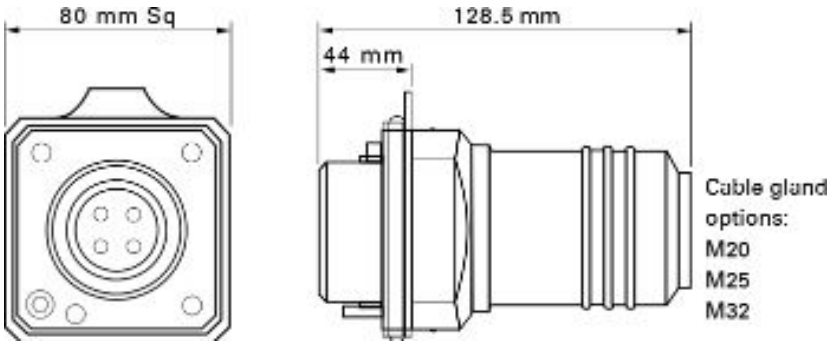
TX3704 Socket (for fitting an Ex d enclosure)



TX3704 Socket with Cover Shell

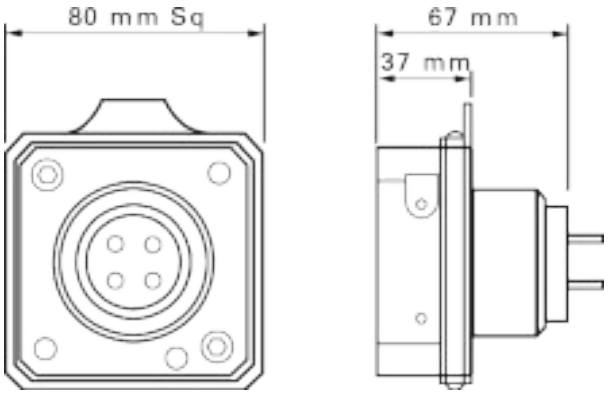


TX3704 Plug with Cover Shell

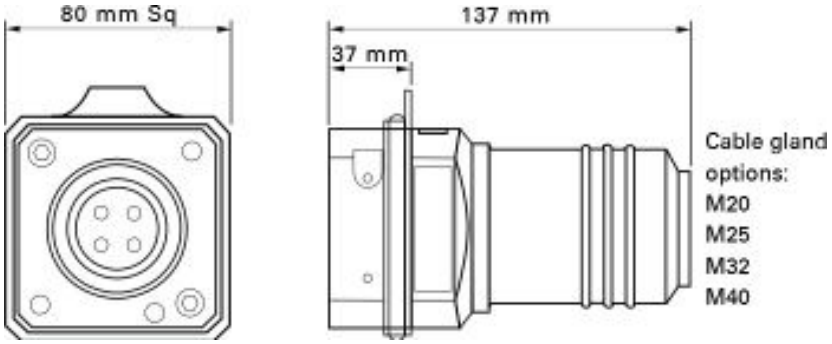


1.3.2 TX3705 dimensions

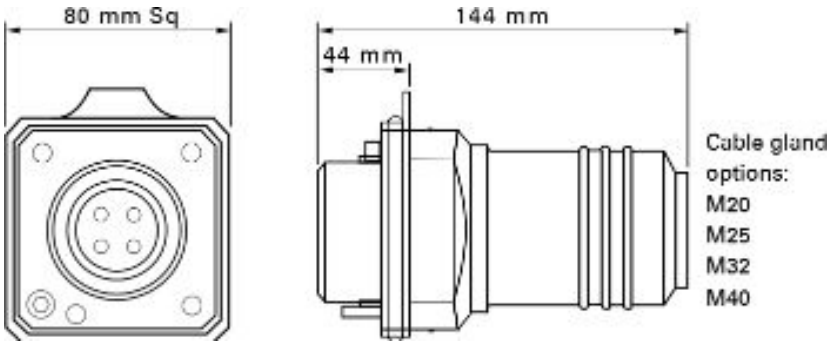
TX3705 Socket (for fitting an Ex d enclosure)



TX3705 Socket with Cover Shell

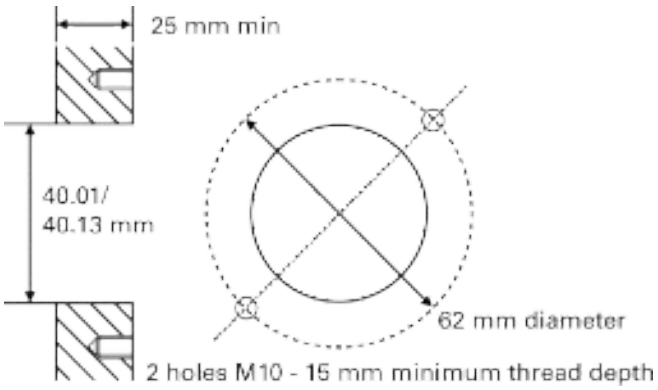


TX3705 Plug with Cover Shell

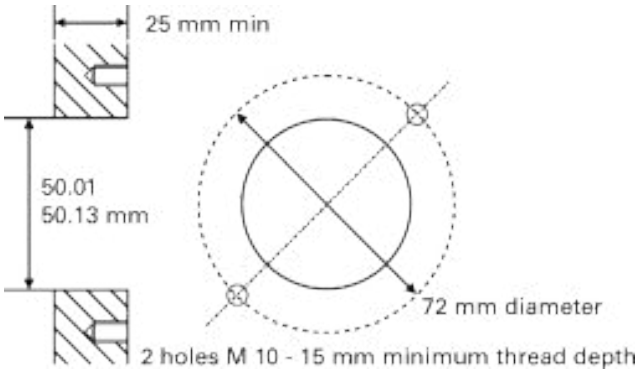


1.4 Socket installation dimensions

1.4.1 TX3704 Socket installation dimensions

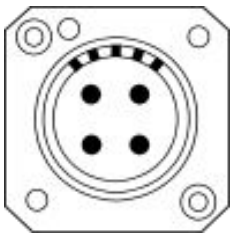
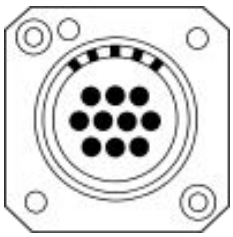
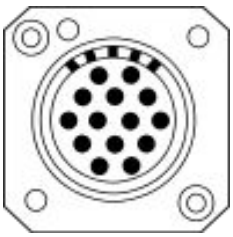


1.4.2 TX3705 Socket installation dimensions



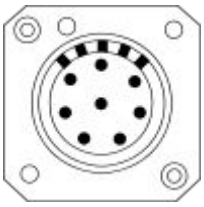
1.5 Technical information

1.5.1 TX3704 Technical information

	4 contacts	10 contacts	14 contacts
			
Max. current per pin	25 A	25 A	20 A
Max. total current	100 A	100 A	100 A
Contact resistance	400 µ ohms	400 µ ohms	400 µ ohms
Contact diameter	2.3 mm	2.3 mm	2.0 mm
Maximum conductor size	2.5 mm^2	2.5 mm^2	2.0 mm^2
Maximum insulation diameter	3.5 mm	3.5 mm	3.0 mm
Maximum voltage	240 V ac / 300 V dc		
Test voltage	2000 V		
Termination	The contacts are suitable for both solder or 8-point crimp termination		
Contact material	Silver plated brass		
Contact insulator	Acetal co-polymer		
Ingress protection	Dust and waterproof to IP67		
Ambient temperature range	-20 °C to +55 °C at T6 classification		
Certification	Group I + II: ATEX + IECEx See Certification and Conformity for full certification details		

Note: An early-break short pin may be fitted for pilot circuit isolation purposes. The short pin can be fitted in any location according to preference.

1.5.2 TX3705 Technical information

	26 contacts	37 contacts
		
Max. current per pin	20 A	20 A
Max. total current	100 A	100 A
Contact resistance	400 µ ohms	400 µ ohms
Contact diameter	2.0 mm	2.0 mm
Maximum conductor size	3.0 mm^2	3.0 mm^2
Maximum insulation diameter	3.0 mm	3.0 mm
Maximum voltage	240 V ac / 300 V dc	
Test voltage	2000 V	
Termination	The contacts are suitable for both solder or 8-point crimp termination	
Contact material	Silver plated brass	
Contact insulator	Acetal co-polymer	
Ingress protection	Dust and waterproof to IP67	
Ambient temperature range	-20 °C to +55 °C at T6 classification	
Certification	Group I + II: ATEX + IECEx See Certification and Conformity for full certification details	

Note: An early-break short pin may be fitted for pilot circuit isolation purposes. The short pin can be fitted in any location according to preference.

2. CERTIFICATION AND CONFORMITY

ATEX

ATEX certification for use in underground mines and surface industry with explosive gas atmospheres in European Union.

Complies with the following EU Directives
ATEX Directive 2014/34/EU
RoHS Directive 2011/65/EU

IECEx (International)

IECEx (International) certification for use in underground mines and surface industry with explosive gas atmospheres.

Standards
IEC 60079-0:2011 Edition 6.0
IEC 60079-1:2014 Edition 7.0

IECEx (Australia)

IECEx (Australia) certification for use in underground mines and surface industry with explosive gas atmospheres. For use in Australia (including Queensland) and New Zealand.

Standards
IEC 60079-0:2007 Edition 5
IEC 60079-1:2007 Edition 6

Equipment / Product code	Ex Certificate number	Ex Certification code
TX3704.SS TX3704.S TX3704.PS TX3704.BS TX3704.BP	Baseefa 10ATEX0049U IECEx BAS 10.0016U IECEx TSA 11.0012U	M2 Ex db I Mb II 2G Ex db IIB Gb
TX3704 Connector (.SS+.PS) (.S+.PS)	Baseefa 10ATEX0050X IECEx BAS 10.0017X IECEx TSA 11.0013X	I M2 Ex db I Mb II 2G Ex db IIB T6 Gb Ta = -20 ˚C to +55 ˚C
TX3705.SS TX3705.S TX3705.PS TX3705.BS TX3705.BP	Baseefa 10ATEX0051U IECEx BAS 10.0018U IECEx TSA 11.0014U	I M2 Ex db I Mb II 2G Ex db IIB Gb
TX3705 Connector (.SS+.PS) (.S+.PS)	Baseefa 10ATEX0052X IECEx BAS 10.0019X IECEx TSA 11.0015X	I M2 Ex db I Mb II 2G Ex db IIB T6 Gb Ta = -20 ˚C to +55 ˚C

The following Special Conditions of Safe Use and Specific Conditions of Use apply to the **Baseefa 10ATEX0050X, IECEx BAS 10.0017X, IECEx TSA 11.0013X, Baseefa 10ATEX0052X, IECEx BAS 10.0019X and IECEx TSA 11.0015X certificates**:

1. The maximum flamepath gaps shall not exceed 0.2 mm, as on the drawings referred to in **GB/BAS/ExTR10.0028/00** (drawing P3705-20).

2. The ambient temperature range is -20 °C to +55 °C.

Installation of equipment

The installation of the product must only be carried out by competent personnel. Each installation needs to be considered with reference to the local safety regulations and authorities. Refer to the following standards for additional guidance:

- IEC/EN 60079-14
- IEC/EN 60079-25

Refer to the Certification Section of this user manual and to the relevant certificates for any installation parameters and special conditions of safe use.

Commissioning/verification tests prior to first use

Prior to commissioning and first use, the product shall be inspected for any visible damages and integrity of the enclosure. Never use the product that has damaged housing in hazardous locations.

Maintenance

The maintenance of the product must only be carried out by competent personnel. Maintenance shall be considered with reference to the local safety regulations and authorities. Refer to the following standards for additional guidance:

- IEC/EN 60079-17

It is recommended to periodically check the condition of the product.

The product shall only be serviced and repaired by Trolex Ltd or a local Trolex service agent approved by Trolex Ltd in order to maintain the explosion protection of the product.

3. FITTING AND INSTALLATION

3.1 Precautions

Ensure that the current and voltage parameters of the electrical circuits are within the limitations specified.



Ensure that all weather seals are present.

The cable gland used with the connector must be an approved Ex d type which is suitably certified for the equipment, the cable and designed for use with single wire armoured cable.

The multi-core cable must be a type approved for the conditions of use.



The sealing faces and flame paths will have been treated with a protective film of grease during manufacture. Renew if necessary before assembly.

Ensure that all body screws and mating screws are in place and are fully engaged before switching on the supply.

Always electrically isolate all electrical circuits to the connector before disconnecting.

Fit weatherproof cover caps to disengaged connectors to protect the flame paths and to prevent the ingress of debris and moisture into the contact insert.

Do not disengage the connector by pulling the cable as this may damage the fitting of the cable in the cable gland.



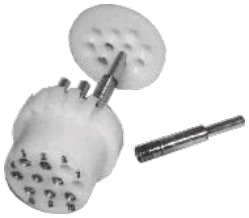
A connector with a damaged flame path is an explosion risk and should be removed from service immediately. Damaged flame paths cannot be repaired.



An Ex d blanking cover must be fitted to the open face of a disengaged connector if it is necessary to re-energise any of the circuits passing through that connector.

3.2 Tools and equipment

- M8 hex key
- Soldering iron OR 8-Point Crimping Tool: DMC FT8
- Suitable approved Ex cable glands



3.3 General assembly and definitions

Easy removable contact inserts for solder or crimp connection.

Contact inserts are matched pairs, carrying pins and tubes respectively. The contact numbers are printed in red and blue on corresponding pairs to avoid confusion when making-off the connectors. Blue in the socket unit and Red in the plug unit.



It is recommended that pins are fitted into socket units.

This will provide physical protection to the pins when the connector is disengaged.

3.3.1 Internal earth bonding

If the installation requires the connector to be separately earthed, then an earth bonding conductor can be crimped into the locking ring using the crimp connector provided.



3.3.2 Ex d integrity of the Socket unit

The socket unit maintains the Ex d integrity of the enclosure to which it is fitted even when disengaged, as long as a socket blank is fitted to the socket and there is no voltage present on the exposed contacts.



3.4 Fitting and wiring a Socket unit to an existing Ex Housing

3.4.1 Soldered connections

1. Prepare a cut out in the housing for mounting the socket unit.
2. If required, lightly lubricate the flamepaths, sealing faces and body screws using a suitable non-hardening grease.
3. Insert the socket unit into the prepared aperture.
4. Make sure that the moulded weather seal is fitted in place which also incorporates the weather cap.
5. Secure the assembly into the housing using the two M5 socket head screws provided.



6. On the rear of the socket unit unscrew the knurled clamping ring that holds the contact insert in place and remove the complete contact insert.



7. Prepare the connecting wires by stripping the end insulation by approximately 6 mm.



8. Feed the connecting wires through the clamping ring.



Note: Make sure that the clamping ring is the correct way round.

CONTINUED »

9. The contact insert divides into two parts. Separate the two parts and feed the wires individually through the holes in the top part of the insert, taking care to relate the wire numbers to the contact numbers if applicable. Make sure that the large diameter is facing the end of the cores.



10. Solder the wires into the recess at the end of each contact.

11. Refit the contact insert into the socket body and secure it using the knurled clamping ring.



Note: If preferred, the contacts can be removed from the insert to make soldering easier. Follow the instructions in the procedure for making Crimped Connections.

Note: Do not allow any solder to collect on the outer diameter of the contact as this will effectively increase its diameter and make it difficult to push back into the insert.

3.4.2 Crimped connections

1. Prepare a cut out in the housing for mounting the socket unit.

2. If required, lightly lubricate the flamepaths, sealing faces and body screws using a suitable non-hardening grease.

3. Insert the socket unit into the prepared aperture.

4. Make sure that the moulded weather seal is fitted in place which also incorporates the weather cap.

5. Secure the assembly into the housing using the two M5 socket head screws provided.



CONTINUED ››

6. On the rear of the socket unit unscrew the knurled clamping ring that holds the contact insert in place and remove the complete contact insert.



7. Prepare the connecting wires by stripping the end insulation by approximately 6 mm.



8. Feed the connecting wires through the clamping ring.



Note: Make sure that the clamping ring is the correct way round and there are no crossovers.

9. The contact insert divides into two parts. Separate the two parts and feed the wires individually through the holes in the top part of the insert, taking care to relate the wire numbers to the contact numbers if applicable. Make sure that the large diameter is facing the end of the cores.



Note: Ensure all wires are running parallel with no crossover.

10. Remove each contact from the bottom half of the contact insert, crimp the appropriate wire into the recess at the end of the contact.



11. Refit each contact into the corresponding hole in the bottom half of the contact insert.
12. Close the two halves of the contact insert together.
13. Refit the contact insert into the socket body and secure it using the knurled clamping ring.



3.5 Ingress protection

The contact insert divides into two parts. Separate the two parts and feed the wires individually through the holes in the top part of the insert, taking care to relate the wire numbers to the contact numbers if applicable. Make sure that the large diameter is facing the end of the cores.



When fitting a TX3704 or TX3705 socket unit to an existing enclosure it is important to ensure that the method chosen will maintain a minimum standard of ingress protection.

- Fit the face seal provided
- Threaded fixing holes must be blind where possible. If through holes are used, apply a thread sealant or place a resilient sealing washer under the heads of the fixing screws
- The IP54 rating of the two fastening holes shall be maintained in accordance with IEC/EN 60079-14

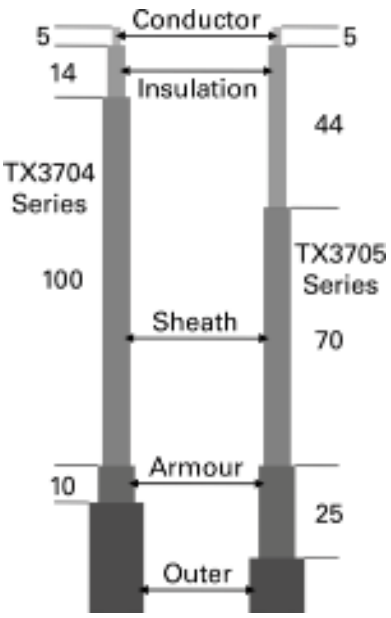
3.6 Fitting a Socket unit as a Line Connector

3.6.1 Adding a Cover Shell to a Socket unit

A line connector is created by adding a cover shell and a suitable cable gland to the back of a basic socket unit.



This can be used as an in-line coupler or as a cable-line connection to a corresponding socket unit.



1. Prepare the cable in accordance with the diagram.
2. Make off the cable into the cable gland in the normal way, making sure that the cable armour is firmly clamped and that the outer seal is in place and fully compressed.

Note: Check the cable and cable gland approval and sustainability.

CONTINUED »»

3. Remove the cover shell from the connector and fit the cable gland into the tapped entry, feeding the cable cores through the cover shell.



Note: Make sure that the cable gland sealing ring is in place.

4. Make the cable core connections to the contact insert in the same way as described for the Socket Unit (soldered or crimped).



5. Replace the cover shell rotating it half a turn as it closes, to help the cable cores to coil inside the cover shell. Fit and tighten the cover shell securing screws.

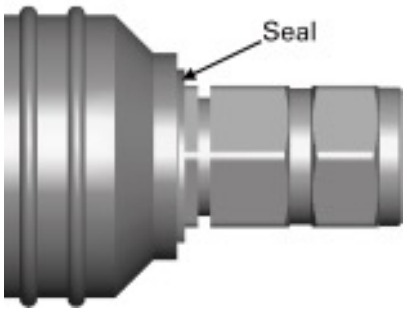


Note: Is the weather seal fitted?

3.6.2 Ingress protection

The connector body itself has been tested to IP67.

Ingress protection capability is also affected by the choice of cable gland and the effectiveness of its installation to the cover shell of the connector.



3.6.3 Mating

1. Align the alignment pin with the corresponding hole;
2. Mate the plug unit and socket unit together;



3. Tighten the two securing screws by fully using the hex key provided.



Note: Is the weather seal fitted?

3.6.4 External earth bonding

For external earth bonding use the external earthing facilities and crimp connectors provided.

3.7 Coding positions



Up to five coding position options are available to prevent incorrect mating of adjacent connectors.

The contact inserts have five coding slots angularly distributed around the top half of the insert retaining flange to engage with a corresponding coding pin.

The contact insert can be rotated in the housing to any of five positions to prevent prohibited mating.

Note: Use the contact reference numbers as a guide to indicate which coding slot is being used when viewed from each side of a connector pair.

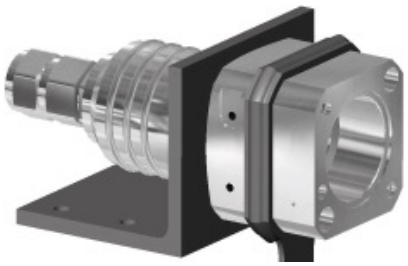
3.8 Ex d Blanking Covers



Machined Ex d weatherproof cover caps must be fitted to disengaged plugs or sockets to maintain Ex d integrity when it is necessary to re-apply electrical power to the system.

3.9 Mounting Bracket

Use a mounting bracket to anchor line-connected pairs of plugs and sockets to support trailing cable systems.



3.10 Installing Type 2S Machine Cable to a TX3705 26 Way Plug or Socket

1. Using a Surefit GWPMEX4A cable gland, fit the extendedtail, skid washer, serving seal and gland body over the machine cable.

   Tighten the cable gland loosely but do not fully tighten at this stage.

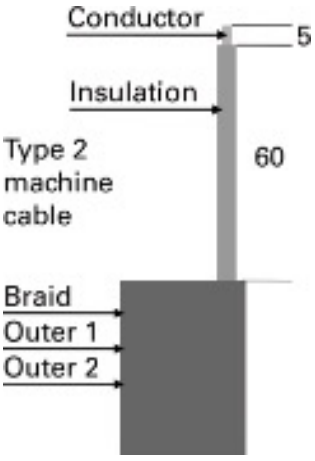


2. Feed the machine cable through the cover shell.
3. Feed the machine cable through the clamping ring.



Note: Make sure that the clamping ring is the correct way round.

4. Prepare the Type 2S machine cable. Strip 65 mm of the two outer layers from the machine cable end to expose the 24 cores.
5. Strip 65 mm of braid from each of the 24 individual cores.
6. Strip 5 mm of insulation from the end of each of the 24 cores to expose the conductor.

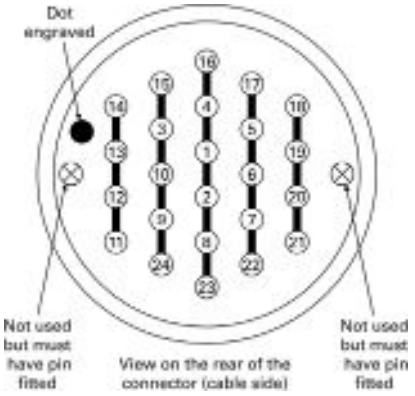


7. The contact insert divides into two parts, separate the two parts.

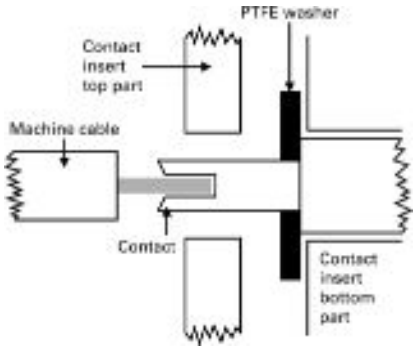


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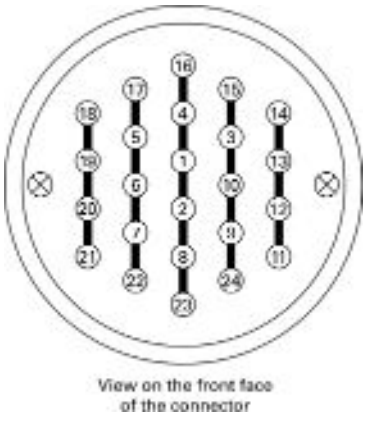
8. With reference to the diagram, insert each numbered core through the appropriate hole in the top part of the contact insert.
9. On the bottom part of the contact insert ensure a PTFE washer is fitted over the back end of each contact.
10. Make the cable core connections to the contact insert in the same way as described for the socket unit (soldered or crimped).



11. With reference to the diagram, refit each contact into the corresponding hole in the bottom half of the contact insert.
12. Close the two halves of the contact insert together.
13. Refit the contact insert into the plug or socket body and secure it using the knurled clamping ring.



14. Fit the cover shell to the plug or socket body.
15. Make off the cable gland and tighten until secure.



4. MAINTENANCE

4.1 Introduction

To keep your TX3704 or TX3705 connectors in the best possible condition and minimise downtime, Trolex strongly recommends that you check the condition of the connectors every six months.



Keep records of the maintenance carried out.

The planned preventative maintenance for the TX3704 or TX3705 Connectors are listed below:

1. Check the flame paths for damage. Damaged flame paths cannot be repaired. Return the connector to Trolex or your local Trolex agent for repair.



2. Check that the body screws and mating screws are fully engaged.

> **Note:** Use the contact reference numbers as a guide to indicate which coding slot is being used when viewed from each side of a connector pair.



3. Check for bent or worn pins and tubes in the contact insert.
4. Check for the presence of moisture and remove any debris that may have accumulated inside.
5. Replenish the lubrication of the flame paths and sealing faces using a suitable non-hardening grease.
6. Check the integrity of the cable connection into the cable gland and ensure that the gland is tight in its thread.
7. Check that all weather seals are present and in good condition.



8. Check for any damage or corrosion on any part of the connector housing.
9. Repair or rectify the connector as necessary.
10. After the completion of all maintenance, update the maintenance records.

4.2 Support

If you need technical support to operate this product, or would like detail of our after sales technical support packages, please contact our local Trolex service agent or **support@trolex.com**.

4.3 Disposal

Part of the ethos of Trolex is sustainable design. Ex d Connectors contain materials that can be recovered, recycled and reused. At the end of its useful life ensure that the Ex d Connector is recycled in accordance with local laws and bylaws for the geographic area where it is located. The end of its useful life is to be determined by the owner/ operator of the equipment and not Trolex.

Ensure that the Ex d Connector is recycled by licenced waste contractors with the appropriate licences for handling metallic waste in the geographic area where the Ex d Connector is located.

Note: Consult your local Trolex service agent or the Trolex Technical Services (**support@trolex.com**) if you require assistance with disposal.

4.4 Maintenance records

Implement a planned preventative maintenance process and keep good maintenance records.

Consult your local Trolex service agent or the Trolex Technical Services (**support@trolex.com**) for help in implementing a planned preventative maintenance process.

DISCLAIMER

The information provided in this document contains general descriptions and technical characteristics of the performance of the product. It is not intended as a substitute for and is not to be used for determining suitability or reliability of this product for specific user applications. It is the duty of any user or installer to perform the appropriate and complete risk assessment, evaluation and testing of the products with respect to the specific application or use. Trolex shall not be responsible or liable for misuse of the information contained herein. When instruments are used for applications with technical safety requirements, the relevant instructions must be followed.
All pertinent state, regional, and local safety regulations must be observed when installing and using this instrument. For reasons of safety and to help ensure compliance with documented system data, only Trolex or its affiliates should perform repairs to components.

Trolex Ltd. reserves the right to revise and update this documentation from time to time without obligation to provide notification of such revision or change. Revised documentation may be obtainable from Trolex.

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A	2026	General updates

At Trolex, we save lives.

We believe that no person should risk their life to earn a living.

Our aim is to become the world's leading name in health and safety technology, through pioneering products that provide real-world benefits to our customers, whenever workers operate in hazardous environments.

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