

# TOUGHMATE™

## INDUSTRIAL CONNECTOR



(AI504 Rev D)

*Images are for illustration purposes only. Product supplied may differ slightly from that shown.*

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**HAWKE**  
International



**IMPORTANT NOTE**

IP rating is for the connector pair only and connection to the Besa Box, or enclosure, using a ToughMate Connector seal, or when a cap is fitted.

**INLINE CONNECTOR PLUG (CP)**

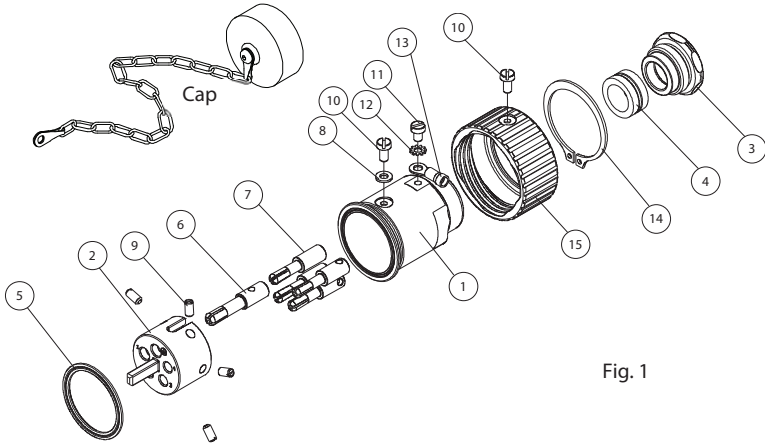


Fig. 1

Item	Description	Qty
1	Connector Body	1
2	Bulkhead Pin Insert	1
3	Compression Nut	1
4	Cable Seal	1
5	Front Comp Seal	1
6	Earth Pin	1
7	Power Pin	4
8	M4 Copper Washer	1
9	M4 x 8 Conductor Fixing Screw	5
10	M4 x 8 Slotted Cheese Head Screws	2
11	M4 x 6 Slotted Cheese Head Screws	1
12	Serrated Lock Washer	1
13	Ring Type Earth Lug	1
14	Retaining Rings	1
15	Engaging Nut	1
16	Cap (optional)	1

Once the connector plug has been unpacked, the insert must be removed to allow for assembly. Loosening the screw on the body of the connector as shown below in Fig. 2 until the insert is free to be removed from the connector. **Do not** fully remove the screw. Safely store insert until required.

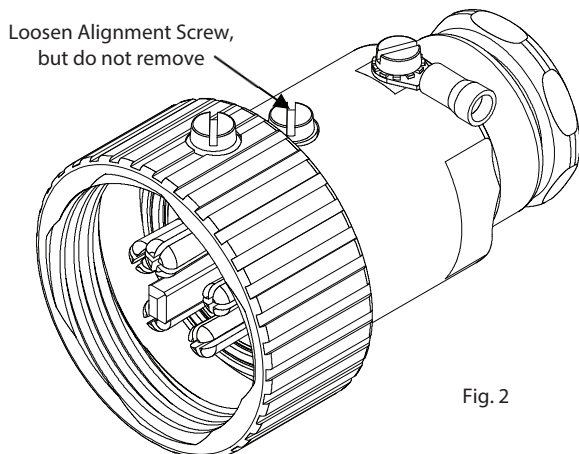


Fig. 2

2) Once the connector body is empty, ensuring the rear seal is uncompressed, slide the connector body down the cable.

Seal Range 11.0 to 14.3mm

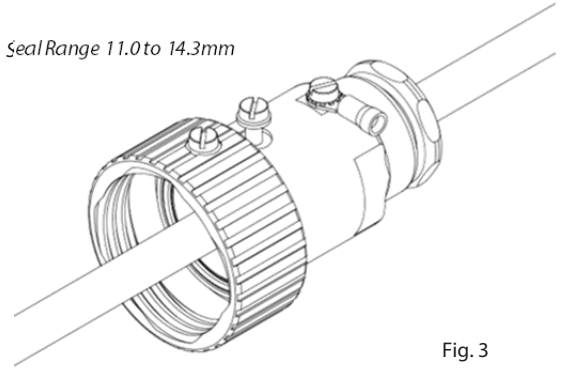


Fig. 3

3) Prepare the cable for termination by removing 20mm of the outer jacket, revealing the cores. Prepare the cores by removing 10mm of the insulation and twist to keep stranded conductor together.

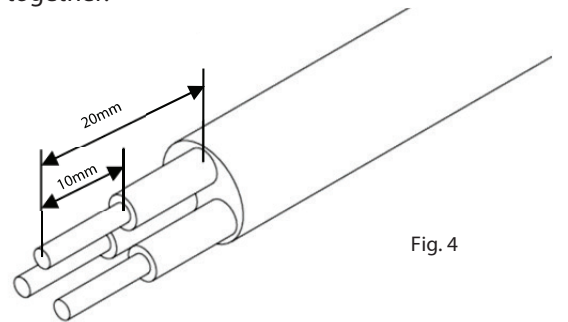


Fig. 4

4) Using a flat head terminal screwdriver, loosen the required terminal screw and engage the conductors in the contacts. **Do not** remove pins from insert.

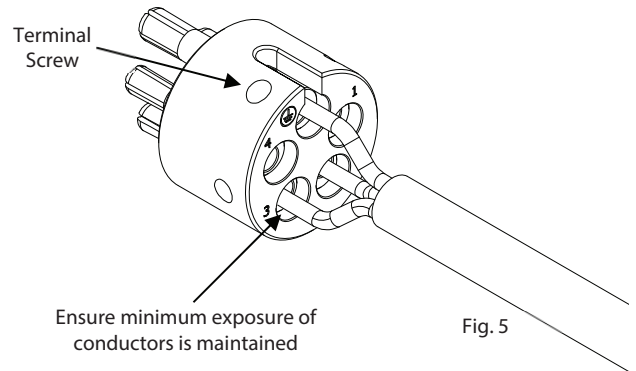


Fig. 5

- 5) Ensure the terminal screw makes contact with the conductor, tighten and repeat for other conductors.
- 6) The alignment screw on the connector body protrudes slightly within the connector housing and acts as a guide when lined up with the insert slot, ensuring the insert is correctly seated when replaced in the connector housing.

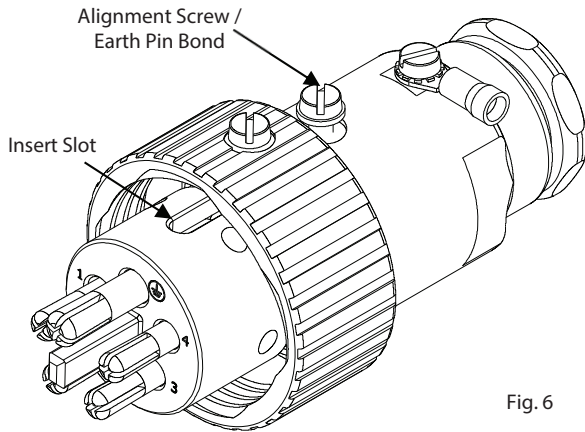


Fig. 6

- 7) Once the insert is flush with the internal mating face, tighten the insert screw on the connector body to secure the insert, in doing so picking up the earth pin connection.

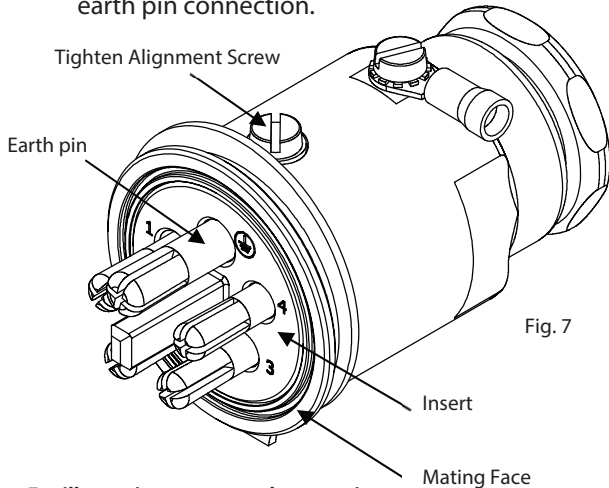


Fig. 7

*For illustration purposes, the engaging nut is not shown*

- 8) Using a 30mm A/F spanner, hold the connector body in place with a spanner / wrench to prevent rotation and tighten the rear compression nut using a wrench / spanner until seal contact with the outer sheath is made, then continue with one further turn to ensure the seal is maintained.

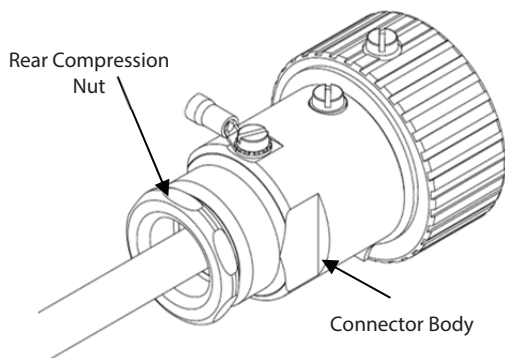


Fig. 8

- 9) Where necessary, ensure that the earth lug is attached to an appropriate earth point.

**SAFETY LOCKING FEATURE**  
 Once installation is complete, and before energising, ensure locking screw on the engaging nut is tightened.

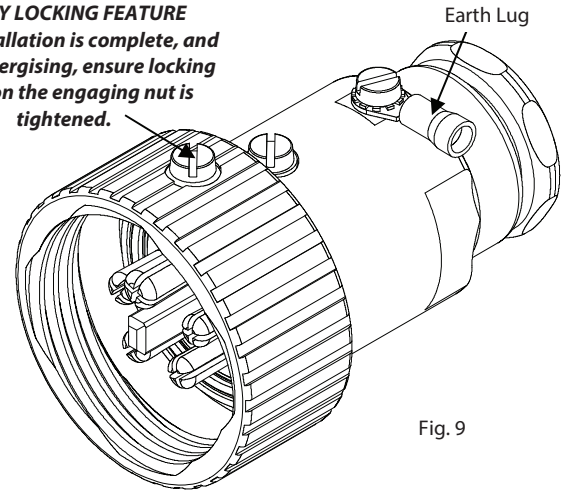


Fig. 9

**CONNECTOR RECEPTACLE (CR)**

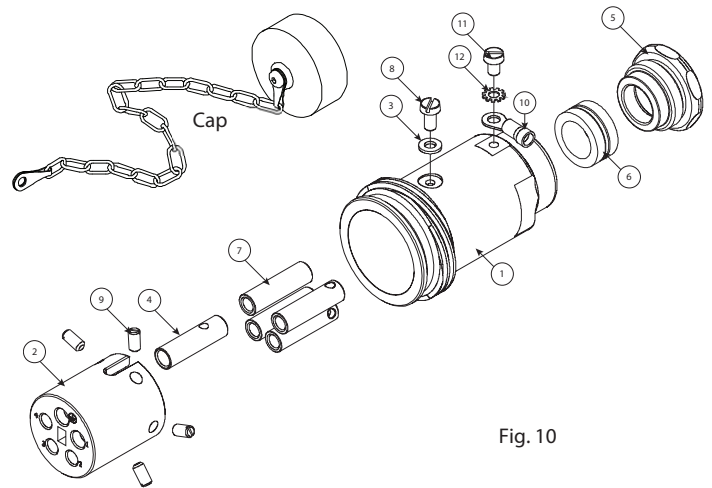


Fig. 10

Item	Description	Qty
1	Connector Body	1
2	Bulkhead Socket Insert	1
3	M4 Copper Washer	1
4	Earth Socket	1
5	Compression Nut	1
6	Cable Seal	1
7	Power Socket	4
8	M4 x 8 Slotted Cheese Head Screws	1
9	M4 x 8 Conductor Fixing Screw	5
10	Ring Type Earth Lug	1
11	M4 x 6 Slotted Cheese Head Screws	1
12	Serrated Lock Washer	1
13	Cap (optional)	1

- 10) Once the connector receptacle has been unpacked, the insert must be removed to allow for assembly. Loosening the screw on the body of the connector as shown below in Fig. 11 until the insert is free to be removed from the connector. **Do not** fully remove the screw. Safely store insert until required.

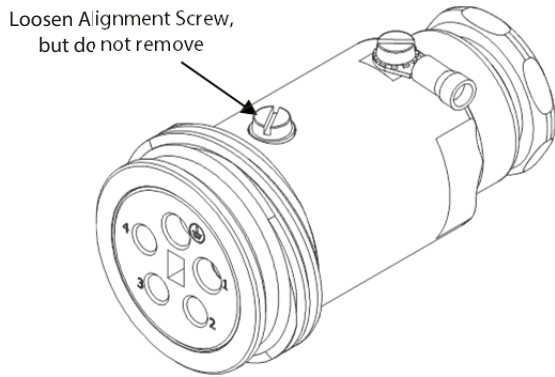


Fig. 11

- 11) Once the connector body is empty, ensuring the rear seal is uncompressed, slide the connector body down the cable.

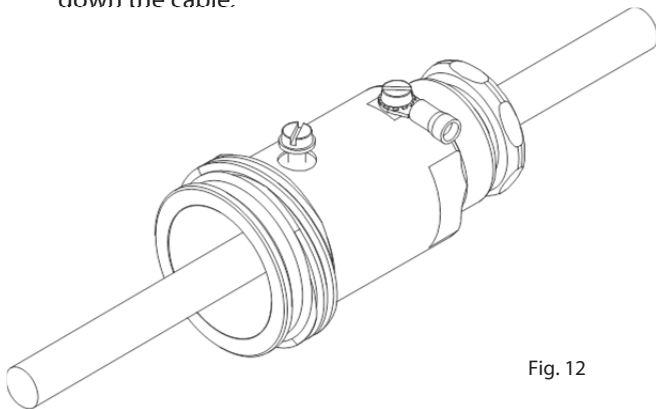


Fig. 12

- 12) Prepare the cable for termination by removing 20mm of the outer jacket, revealing the cores. Prepare the cores by removing 10mm of the insulation and twist to keep stranded conductor together.

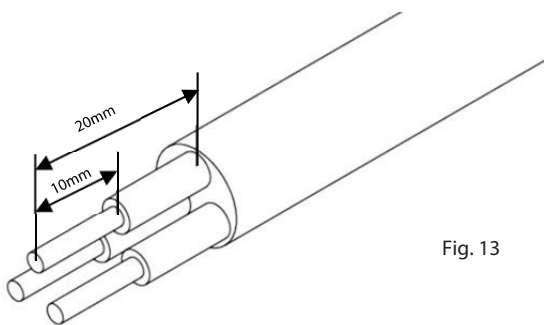


Fig. 13

- 13) Using a flat head terminal screwdriver, loosen the required terminal screw and engage the conductors in the contacts.

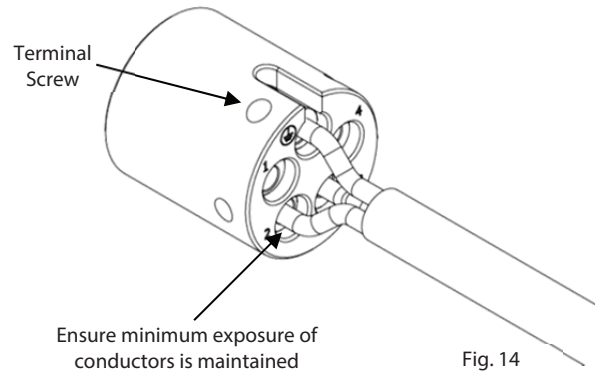


Fig. 14

- 14) Ensure the terminal screw makes contact with the conductor, tighten and repeat for other conductors.

- 15) The alignment screw on the connector body protrudes slightly within the connector housing and acts as a guide when lined up with the insert slot, ensuring the insert is correctly seated when replaced in the connector housing.

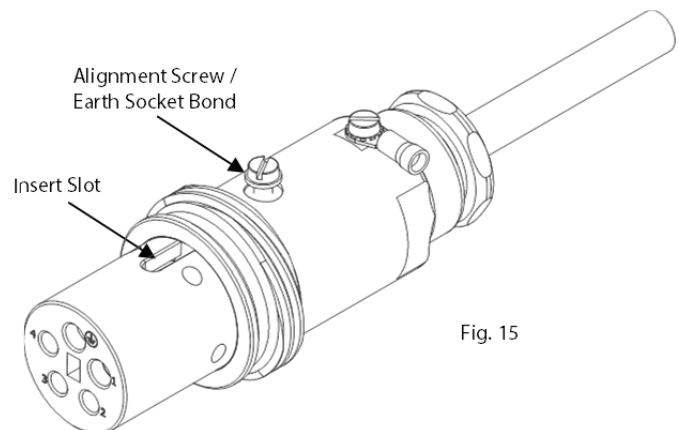


Fig. 15

- 16) Once the insert is flush with the internal mating face, tighten the alignment screw on the connector body to secure the insert.

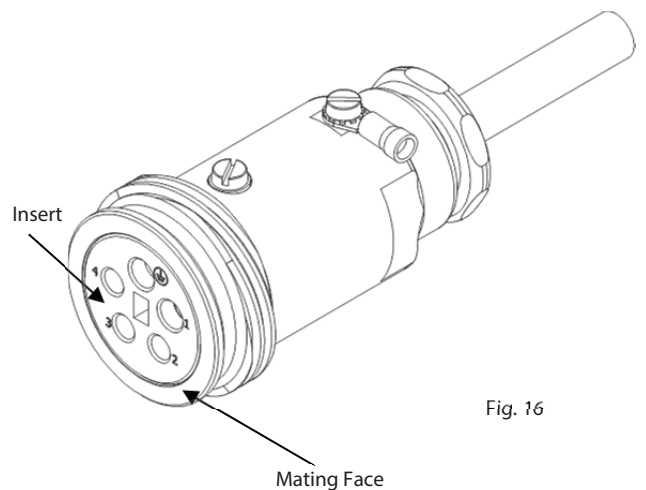
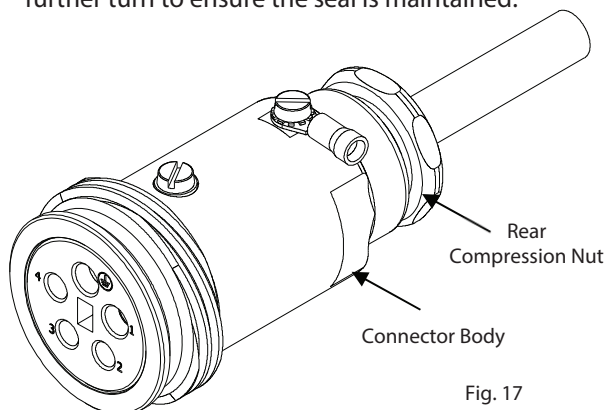
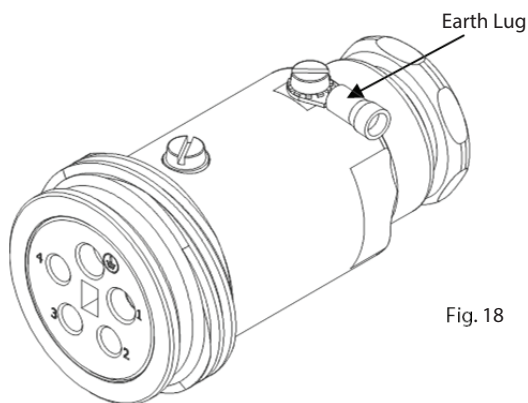


Fig. 16

- 17) Using a 30mm A/F spanner, hold the connector body in place with a spanner / wrench to prevent rotation and tighten the rear compression nut using a wrench / spanner until seal contact with the outer sheath is made, then continue with one further turn to ensure the seal is maintained.

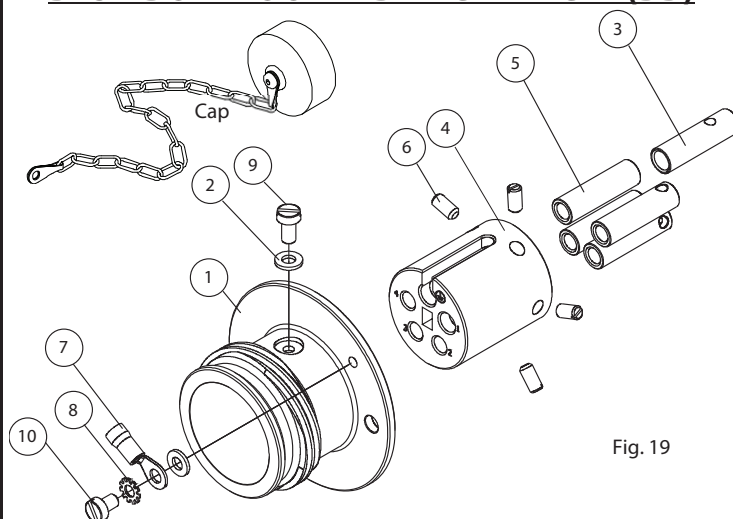


- 18) Where necessary, ensure that the earth lug is attached to an appropriate earth point.



- 19) If optional cap is supplied, ensure that the cap chain is attached and screw the cap to the connector for IP protection when not in use.  
**NB: No IP rating without cap installed.**

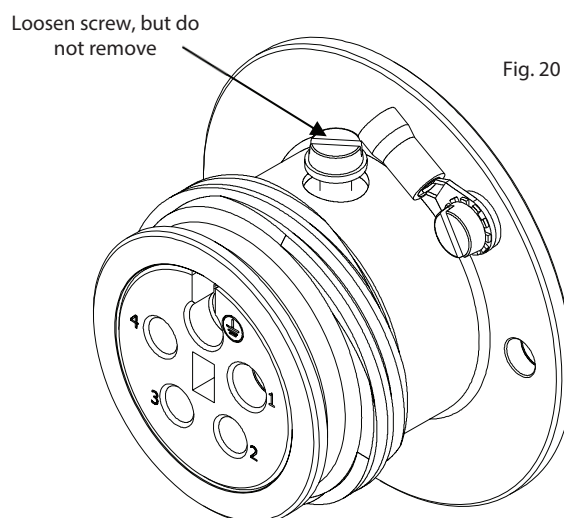
**BESA BOX MOUNTED RECEPTACLE (BB)**



Item	Description	Qty
1	BESA Flanged Bulkhead	1
2	M4 Copper Washer	2
3	Earth Socket	1
4	Connector Socket Insert	1
5	Power Socket	4
6	M4 x 8 Conductor Fixing Screw	5
7	Ring Type Earth Lug	1
8	Serrated Lock Washer	1
9	M4 x 8 Slotted Cheese Head Screws	1
10	M4 x 6 Slotted Cheese Head Screws	1
11	Cap (optional)	1

NB: IP Gasket supplied by customer.

- 20) Once the connector plug has been unpackaged the insert must be removed to allow for assembly. Loosening the screw on the body of the connector as shown in Fig.20 below until the insert is free to be removed from the connector. **Do not** fully remove the screw. Safely store insert until required.





- 21) Prepare the cable for termination by removing 20mm of the outer jacket revealing the cores. Prepare the cores by removing 10mm of insulation and twist to keep stranded conductors together. At this point ensure that the gasket is in place.

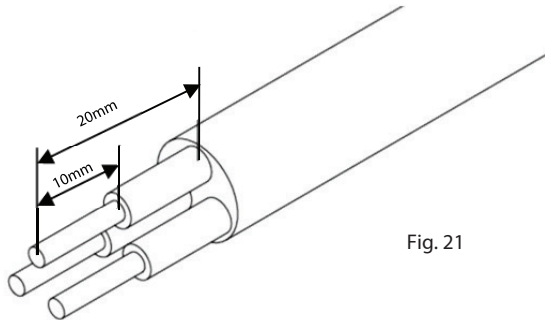
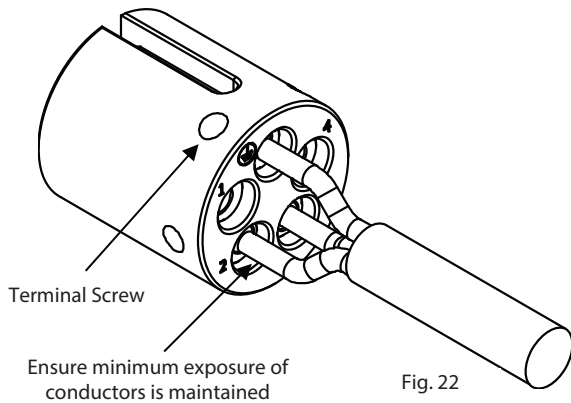
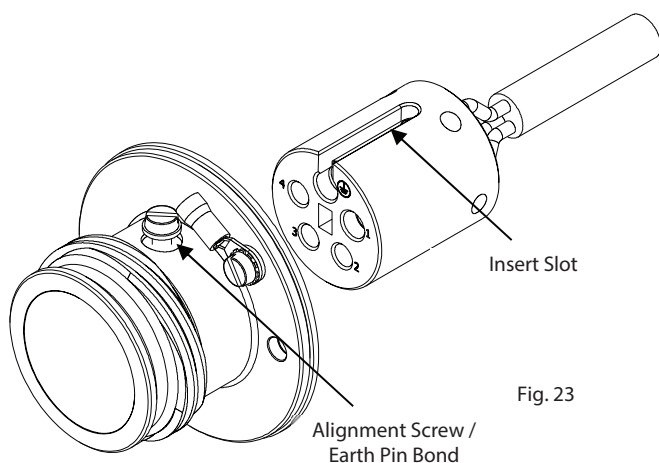


Fig. 21

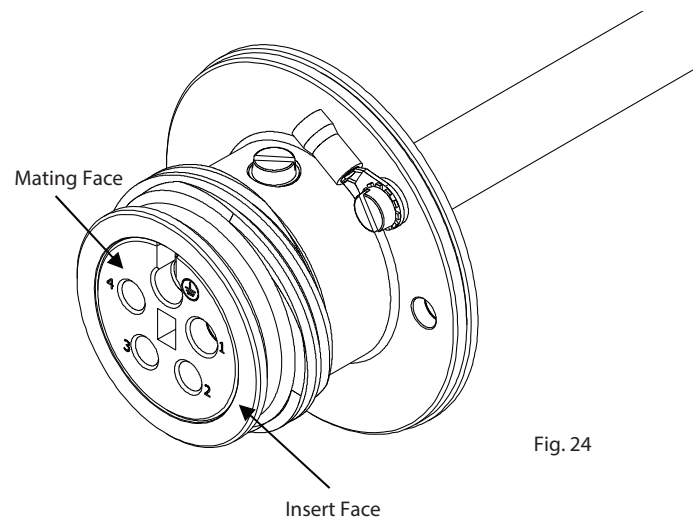
- 22) Using a flat head terminal screwdriver, loosen the required terminal screw and engage the conductors in the contacts. **Do not** remove pins from insert.



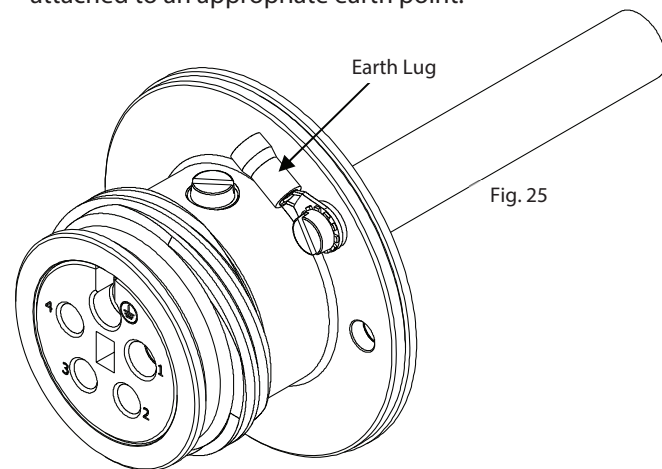
- 23) Ensure the terminal screw makes contact with the conductor, tighten and repeat for other conductors.
- 24) The alignment screw on the connector body protrudes slightly within the connector housing and acts as a guide when lined up with the insert slot, ensuring the insert is correctly seated when replaced in the connector housing.



- 25) Once flush with the mating face, tighten the alignment screw on the connector body to secure the insert, in doing so picking up the earth pin connection.



- 26) Ensuring the Besa gasket is in position, fit the Besa Box Receptacle to the Besa Box with the required screws.
- 27) If applicable, ensure that the cap chain and earth lug are attached and screw the cap to the mating face for IP protection.
- 28) Where necessary ensure that the earth lug is attached to an appropriate earth point.



**BULKHEAD RECEPTACLE (BR)**

**Note:** Prior to installation, ensure that earth lug is fitted between BR threaded entry and enclosure.

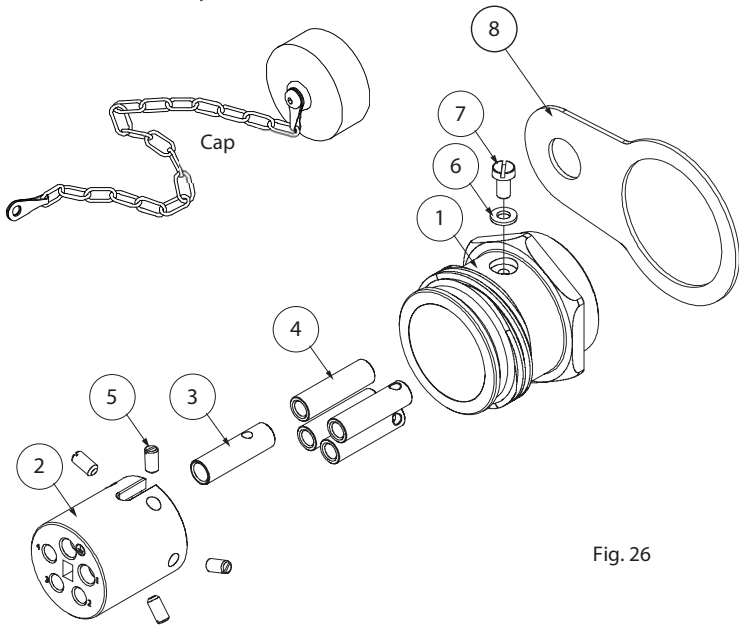


Fig. 26

Item	Description	Qty
1	M40 Bulkhead Entry	1
2	Socket Insert	1
3	Earth Socket	1
4	Power Socket	4
5	M4 x 8 Conductor Fixing Screw	5
6	M4 Copper Washer	1
7	M4 x 8 Slotted Cheese Head Screws	1
8	Earth Tag	1
9	Cap (optional)	1

NB: An M40 locknut may be required when fitting into a clearance hole along with appropriate sealing and locking device.

29) Once the connector plug has been unpackaged the insert must be removed to allow for assembly. Loosening the screw on the body of the connector as shown in Fig.27 below until the insert is free to be removed from the connector. **Do not** fully remove the screw. Safely store insert until required.

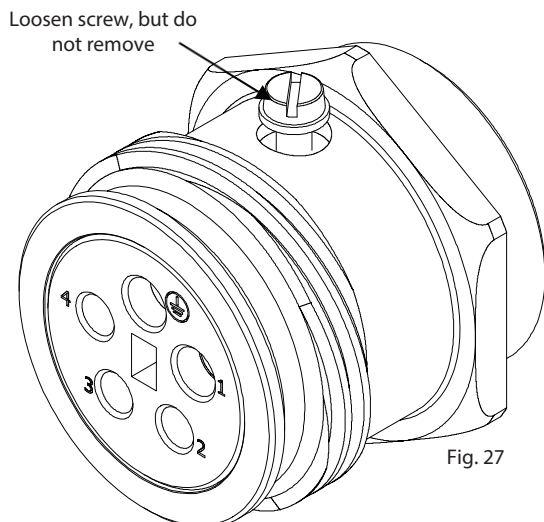


Fig. 27

- 30) Once the insert has been removed, screw the bulkhead receptacle to the enclosure with the cable protruding. If applicable, ensure the sealing washer and earth tag provided are in place.
- 31) Prepare the cable for termination by removing 20mm of the outer jacket revealing the cores. Prepare the cores by removing 10mm of the insulation and twist to keep stranded conductor together.

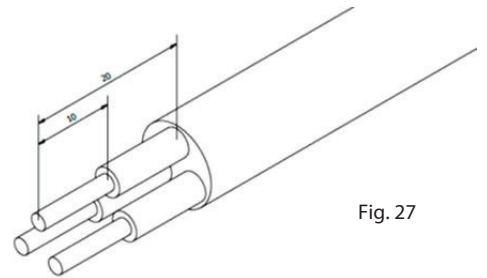


Fig. 27

32) Using a flat head terminal screwdriver, loosen the required terminal screw and engage the conductors in the contacts.

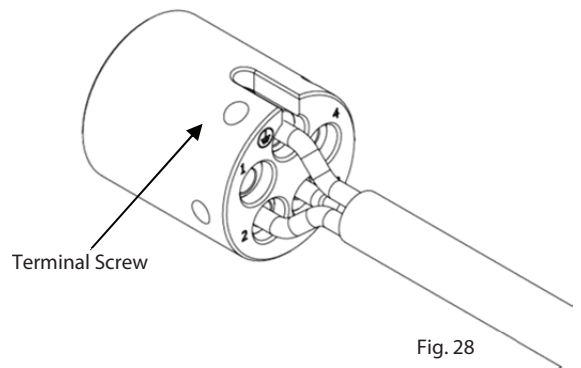


Fig. 28

- 33) Ensure the terminal screw makes contact with the conductor, tighten and repeat for other conductors.
- 34) The alignment screw on the connector body protrudes slightly within the connector housing and acts as a guide when lined up with the insert slot, ensuring the insert is correctly seated when replaced in the connector housing.

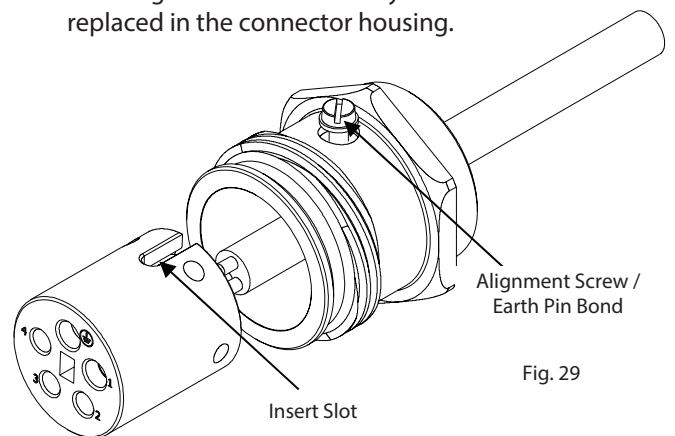


Fig. 29

- 35) Once flush with the mating face, tighten the alignment screw on the connector body to secure the insert.

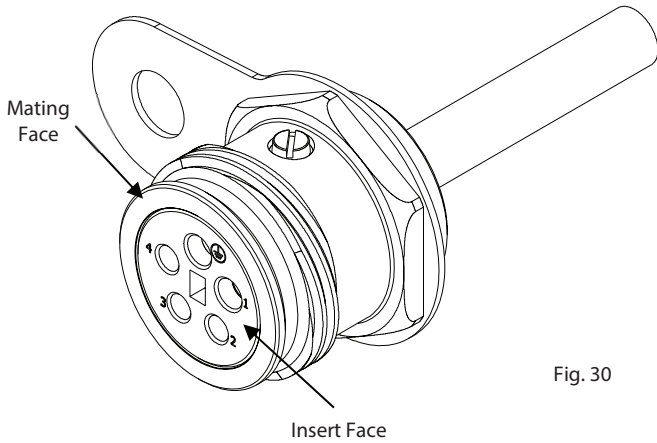


Fig. 30

- 36) If optional cap is supplied, ensure that the cap chain is attached and screw the cap to the mating face for IP protection when not in use.
- 37) Where necessary, ensure that the earth tag is attached to an appropriate earth point.

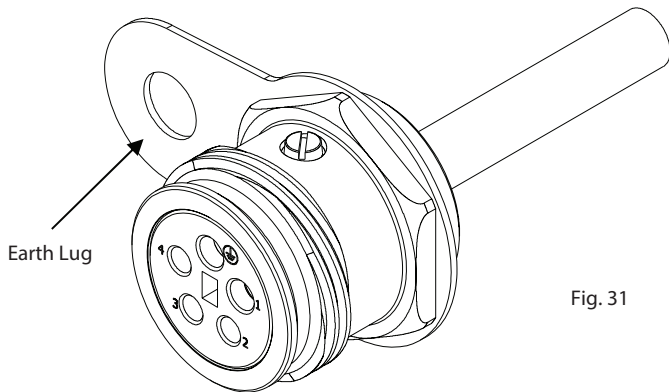


Fig. 31

**All connected equipment must maintain same levels of IP**

**EU Certificate of Conformity in accordance with  
European Directive 2014/35/EU  
Manufacturer: Hawke International  
Address: Oxford Street West, Ashton-under-Lyne, OL7 0NA,  
United Kingdom**

**Equipment: TOUGHMATE INDUSTRIAL CONNECTOR**

**On behalf of the above named company, I declare that, on the date the equipment accompanied by this declaration is placed on the market, the equipment conforms with all technical and regulatory requirements of the above listed directives.**

**Standards used: BS 61984:2009**

.....  
**A. Reid  
Technical Manager**