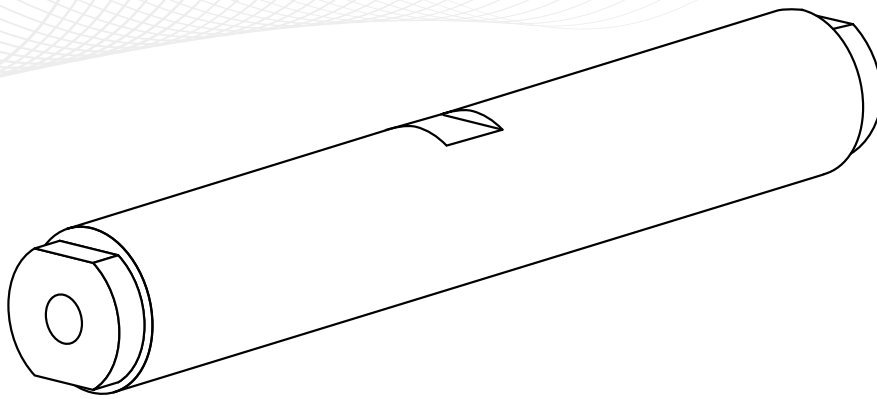


ASSEMBLY INSTRUCTIONS



Ex-CON 22/4 Si & 25/7

Cable joint Ex-Con for
ELK-AG-E & ELK-AG-N

CONTENTS

INTRODUCTION	4
EXPLOSION PROTECTION	4
STANDARDS	4
APPROVALS	4
MARKING	4
TECHNICAL DATA	4
Ex-CON 22/4 Si	4
Ex-CON 25/7	4
SPECIAL CONDITIONS	5
Mechanical characteristics	5
Suitable Heaters	5
Maximum operating temperatures	5
ASSEMBLING	5
Recommended tools	5
Contents of Kit	6
PREPARING HEATER	6
PREPARATION OF COLD LEAD	7
CONNECT HEATER / COLD LEAD	7
FINALISATION	8
SECTIONAL VIEW	8

IMPORTANT INFORMATIONEN

- RETAIN FOR LATER USE



For proper and safe use of the Ex-CON 22/4 Si & 25/7, please follow these instructions. Please keep these instructions in a safe place for future reference (e.g. in the system documentation).



You can find helpful downloads for this or other products under the following link:

<https://eltherm.com/downloads>



ATTENTION

Refers to a potentially dangerous situation. If it is not prevented, there is a risk of damage or malfunction.



DANGER

Refers to an extremely dangerous situation. If it is not prevented there is risk of death or at least a high risk of serious injuries.



NOTE

Important information and instructions for safe, effective and environmentally compatible usage.



WARNING

Refers to a dangerous situation. If it is not prevented there is risk of injury or at least a high risk of material damage.

Proviso

We reserve the right to make technical changes. Changes, errors or misprints shall not form the basis for any claim to compensation for damages. Comply with the applicable and currently valid standards and regulations for safety-related components and systems.

eltherm GmbH Ernst-Heinkel-Str. 6-10 57299 Burbach T.: +49 2736 4413-0 F.: +49 2736 4413-50 info@eltherm.com	Document: 8643050X811XX		Assembly instructions Ex-CON 22/4 Si & 25/7 (QAA-059) for ELK-AG-E & ELK-AG-N	
	Author:	Peter Schmidt	Datum:	28.02.2006
	Revision: 14	Julian Engel	Datum:	25.06.2026

INTRODUCTION

The Ex-Con 22/4 Si & 25/7 connection and jointing sets have been specially developed for use in potentially explosive atmospheres. The connection sleeve is used to connect single-core heaters (ELKM) in hazardous areas Zone 1 and 21. The rated voltage is 550V.

During development, the focus was on the highest level of safety, the simplest and safest installation, accuracy of fit and a wide temperature range corresponding to the area of application of the ELKM. These requirements were successfully realised by the eltherm® engineers during development and verified by a wide range of tests and confirmed by international certificates.

EXPLOSION PROTECTION

ATEX

- II 2G Ex eb IIC T6 ... T3 Gb
- II 2D Ex tb IIIC T85 °C ... T 200 °C Db

IECEX

- Ex eb IIC T3...T6 Gb
- Ex tb IIIC T85 °C ... T 200 °C Db

STANDARDS

- EN 60079-0:2018
- EN 60079-7:2015 + A1:2018
- EN 60079-31:2014

TECHNICAL DATA

Ex-CON 22/4 Si (suitable for ELKM-AG-E & -N)

Nominal Voltage	750 VAC (in System ELK-AG-4Ex with ELKM-AG-E) 550 VAC (in System ELK-AG-N 2.5 Ex ELKM-AG-N)
Nominal Current* ¹	in System ELK-AG-4Ex: max. 45 A in System ELK-AG-N 2.5 Ex: see Table 1
Ambient temperature	- 60 °C up to +200 °C
Housing material	Silicone
Dimensions	120 x 22 mm (L x Ø)
Permissible degree of mechanical load	4 Joule
Protection level	IP 65
Weight	approx. 0,112 kg
UV-resistance	Ex-Con 22/4 Si must be installed protected from light

Ex-CON 25/7 (suitable for ELKM-AG-N)

Nominal Voltage	550 VAC
Nominal Current* ¹	see Table 1
Ambient temperature	- 32 °C up to +200 °C
Housing material	PEEK
Dimensions	105 x 25 mm (L x Ø)
Permissible degree of mechanical load	7 Joule
Protection level	IP 65
Weight	approx. 0,1 kg
UV-resistance	Ex-Con 25/7 must be installed protected from light

*¹ max. 30 A/mm²

APPROVALS

ATEX

IBExU 04 ATEX 1005 X

IECEX

IECEX IBE 13.0012 X

MARKING

eltherm GmbH Burbach < **TYPE** > 550V / 20A / 45A

⊕ II 2G Ex eb IIC T6...T3 Gb

⊕ II 2D Ex tb IIIC T85 °C ... T 200 °C Db

IECEX IBE 13.0012 X IBExU04ATEX1005X

Warnung: Nicht unter Spannung öffnen!

Warning: Do not open while energized!

CE 0637

<Lot-No.: >

SPECIAL CONDITIONS

Mechanical characteristics

Ex-Con sleeves must be used in fixed installations only.

All system components must be installed in a location protected from UV-light (e.g. under thermal insulation). In case of Ex-Con 22/4 Si this also provides the necessary protection against mechanical stress. The IP protection class of the system is IP65.

There are no restrictions regarding the permissible thickness of the insulation materials. However, it should be noted that flexible (soft) materials must be compatible with the maximum temperature of the trace heater. For rigid materials, either a groove or an oversized inner diameter must be provided to accommodate the trace heater.

Suitable Heaters

The joint shall only be used for connection of single wire series heater and cold lead consisting of resistance wire, electric insulation plastic (fluoropolymer), protection braid and outer jacket (fluoropolymer)

- The trace heaters used must be type-tested in accordance with Directive 2014/34/EU; the specifications stated in the corresponding ATEX certificate must be observed.
- The following specifications apply to single-core trace heaters and cold leads:
 - a Ø min. 3,5 mm
 - b Ø max. 5,5 mm
 - c Cross section trace heater max. 1,5 mm², cross section cold lead min. 1,5 mm² ... max. 2,5 mm²
- The connection of two trace heaters shall only be made when the sum of both cross sections is bigger than 1.5 mm².

Maximum operating temperatures

The maximum operating temperature under power off conditions is $T_p=200^{\circ}\text{C}$. The surface temperature of the connected trace heater shall be limited in a suitable way, e.g. by choosing either a stabilized or a controlled design according to EN 60079-30-2.

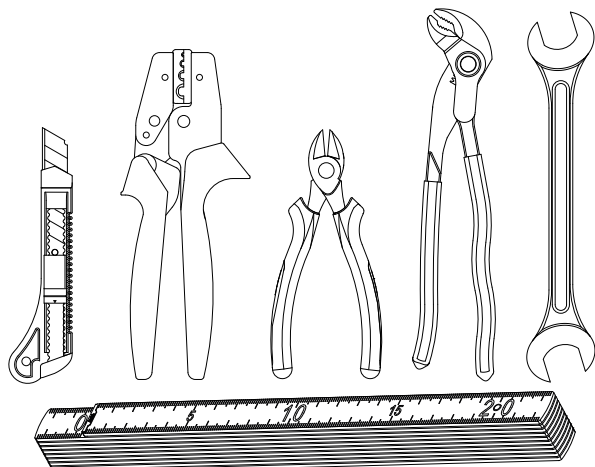
The maximum maintain temperature is 195°C (for Ex-Con 22/4 Si in system ELK-AG-4Ex with ELKM-AG-E) or as per Table 1 (for Ex-Con 22/4 Si and Ex-Con 25/7 in system ELK-AG-N-2.5 Ex with ELKM-AG-N):

Temperature Class	Max. Maintenance Temperature at currents up to		
	10A	15A	20A
T6	60°C	45°C	25°C
T5	75°C	60°C	40°C
T4	110°C	95°C	75°C
T3	170°C	155°C	135°C
Dust	Tx -10K	Tx -15K	Tx -20K

Table 1: max. currents in System ELK-AG-N 2.5 Ex

ASSEMBLING

Recommended tools



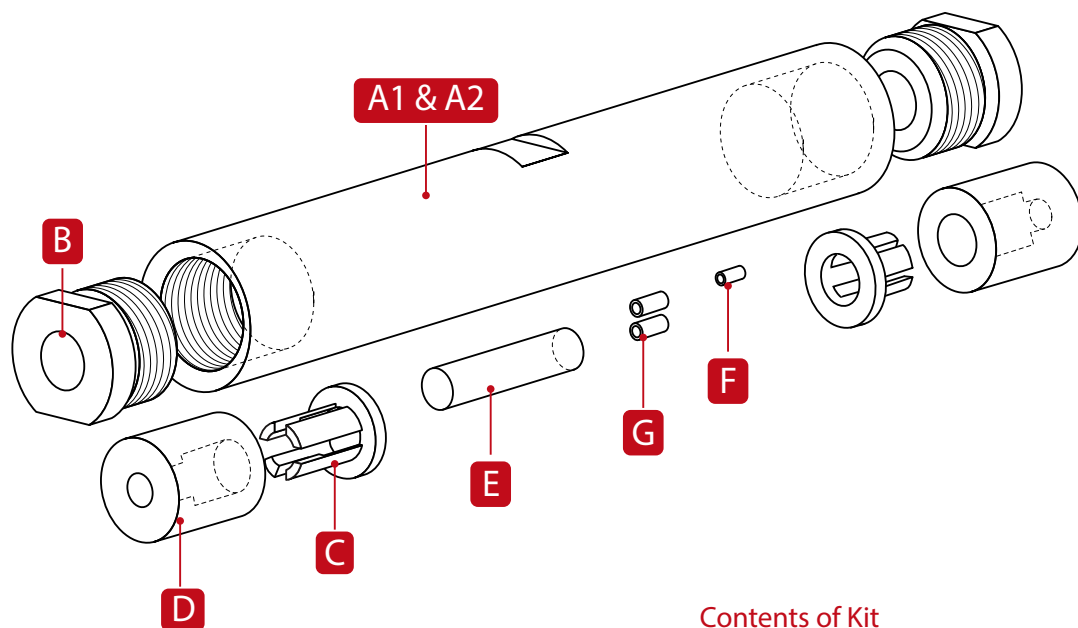
DANGER

Installation in potentially explosive atmospheres may only be carried out by persons trained in handling potentially explosive devices. Strict compliance with the relevant safety regulations in potentially explosive atmospheres is a prerequisite for the safety of persons, systems and devices.



ATTENTION

To ensure electrical safety, the lengths specified in the following installation steps must be strictly adhered to. Incomplete connection sets must be replaced with complete ones. If you have any queries, please contact eltherm.



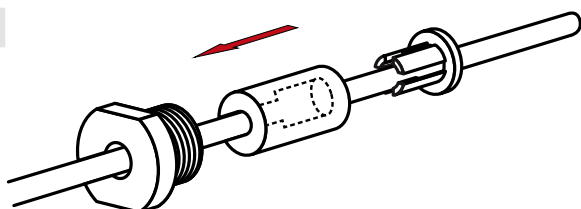
Contents of Kit

N°	Type	Quantity
A1	Sleeve Silicon, 22 x 110 mm (Ex-Con 22/4 Si)	1 Unit.
A2	Sleeve PEEK, 25 x 105 mm (Ex-Con 25/7)	1 Unit
B	Screw plug PEEK; M14 x 1,5; natur	2 Units
C	Strain relief für ELK-AG Ø max. 5,5 mm	2 Units
D	Gasket Silicon für ELK-AG Ø max. 5,5 mm	2 Units
E	PTFE-sleeve Ø 6,35/7,92 mm; l = 40 mm; natur	1 Unit
F	Crimp connector 3,2 x 0,4 x 9,0 mm; blank	2 Units*
G	Crimp connector 4,0 x 0,4 x 9,0 mm; blank	3 Units*

*1 piece as replacement

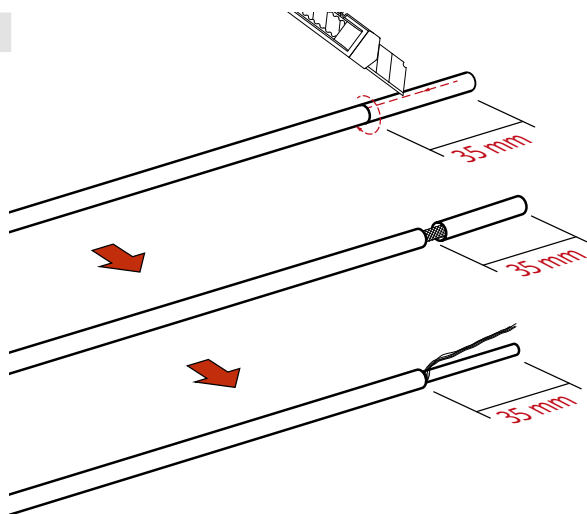
PREPARING HEATER (HE)

1.



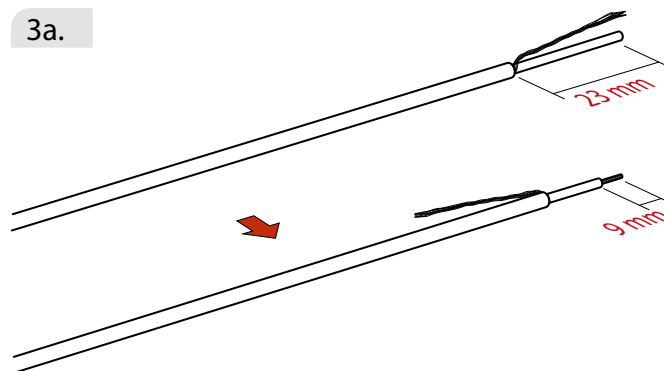
Push the screw plug (B), seal (D) and strain relief (C) onto the ends of the heater as shown.

2.



- Remove outer sheath to 35 mm
- Fan out protective braid with care, and twist

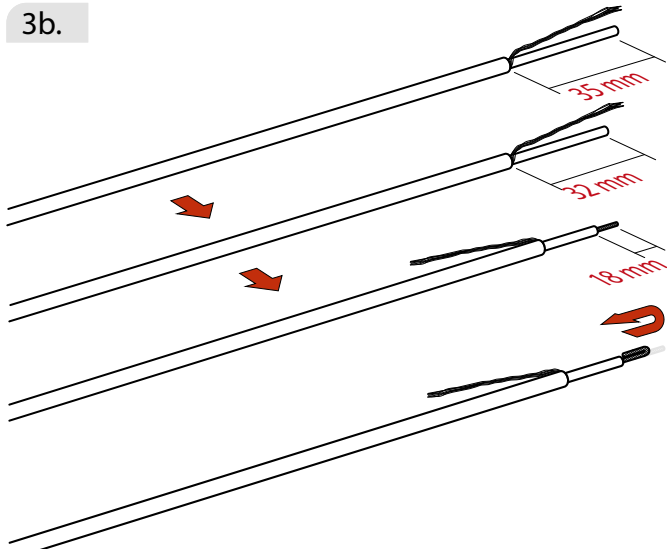
3a.



Trace heaters with conductor diameter ≥ 1 mm

- Shorten inside conductor to 23 mm
- Strip heater to 9 mm

3b.

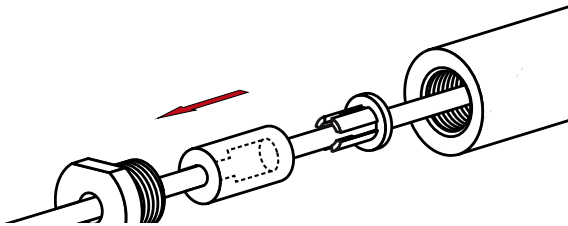


Trace heaters with conductor diameter < 1mm

- Shorten inside conductor to 32 mm
- Strip heater to a length of 18 mm
- Conductor bend over 180°

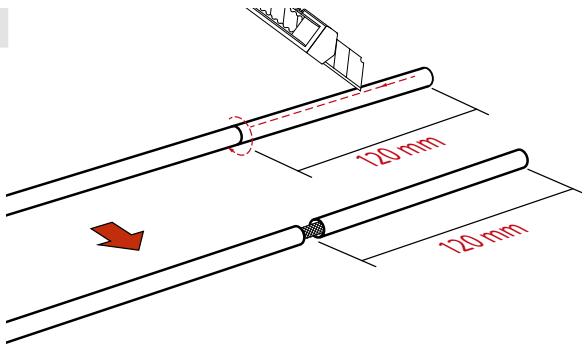
PREPARATION OF COLD LEAD (CL)

4.



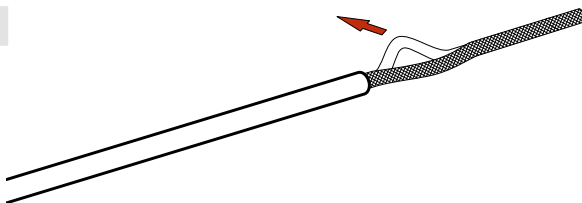
Push Screw plug (B), Gasket (D), Strain relief (C) and Sleeve (A..) onto the ends of the cold lead as shown.

5.



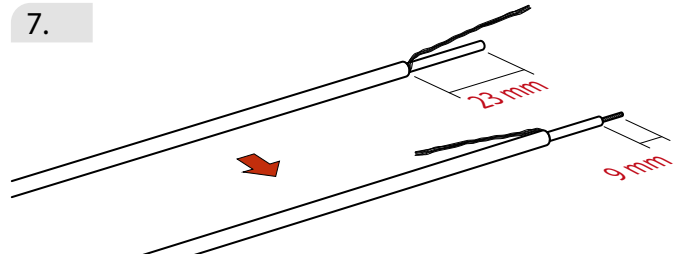
Remove outer sheath to 120 mm

6.



Fan out protective braid with care and pull out conductor carefully

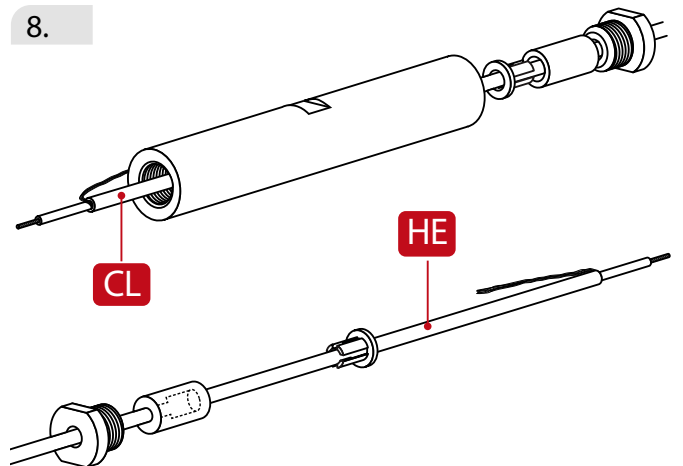
7.



- Shorten inside conductor to 23 mm
- Strip cold lead to a length of 9 mm

CONNECT HEATER (HE) / COLD LEAD (CL)

8.

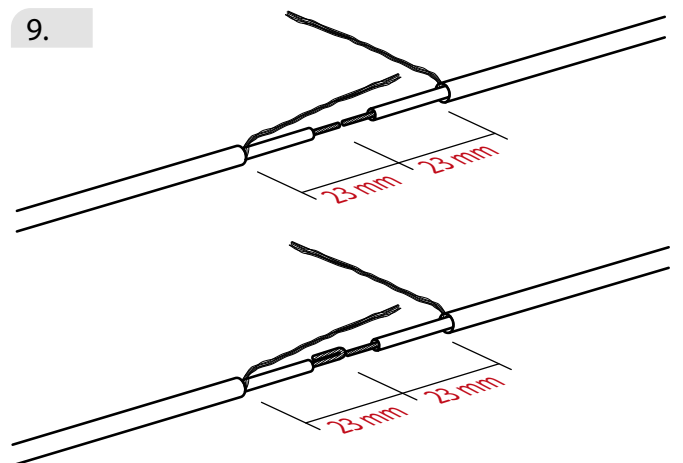


Check the preparatory work for completeness and correct arrangement

! ATTENTION

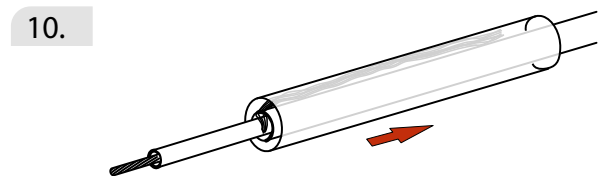
Sleeve (A...) must be on the cold lead (CL)!

9.



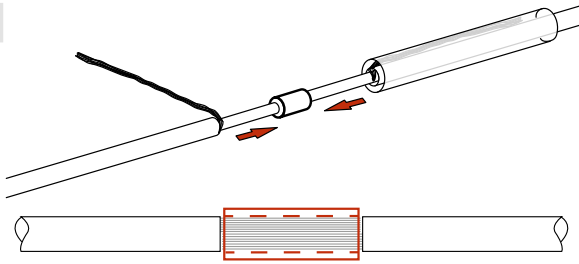
Check measurements

10.



Slide on the PTFE Sleeve (E)

11.

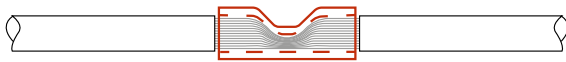


- Insert exposed conductors into crimp connector (F or G) completely. **ATTENTION** Only use crimp connector G when:

Line 1	Line 2
2,5 mm ²	2,5 mm ²
Ø ≥ 1,5 mm	2,5 mm ²
Ø ≥ 1,5 mm doubled*	Ø ≥ 1,5 mm

*s. step 3b

- Ensure that all wires are inside the crimp connector and inserted to the end of the crimp connector.
- Ensure that the heating conductors are connected in parallel.

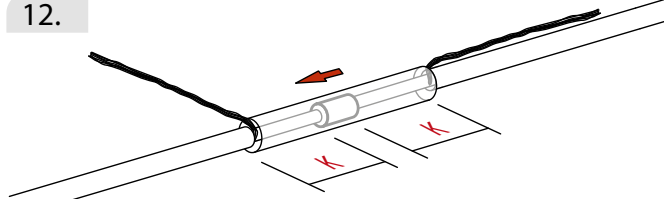


Press with tool suitable for crimps (e.g. Stocko WZ100 with insert E66 or equivalent) for

- Crimps Ø 3,2 mm (F) or
- Crimps Ø 4mm (G).

! ATTENTION
Only 1x centre crimp!

12.

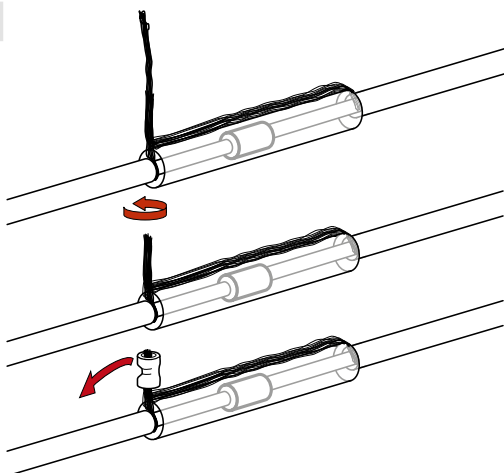


- Push the PTFE sleeve over the centre of the crimp connector

! ATTENTION

Check the creepage distance (K) - at least 10 mm required!

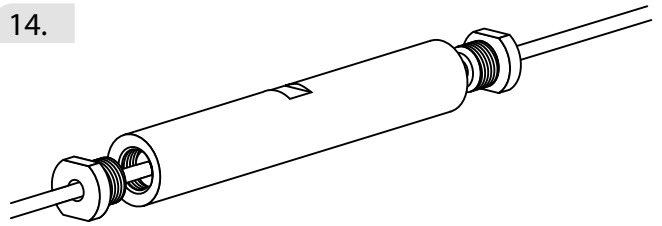
13.



- Lay the protective braid of the cold lead over the PTFE sleeve to the protective braid of the trace heater
- Twist both protective braid together and trim protruding protective braid
- Insert the twisted braid into the crimp connector Ø 4mm (G)
- Press connector (G) with tool suitable for crimps (e.g. Stocko WZ100 with insert E66 or equivalent) and fold onto the trace heater

FINALISATION

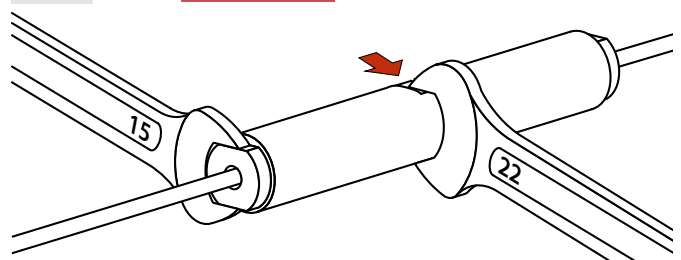
14.



- Centre the sleeve on the connection point
- Push the strain relief and gasket into the sleeve.

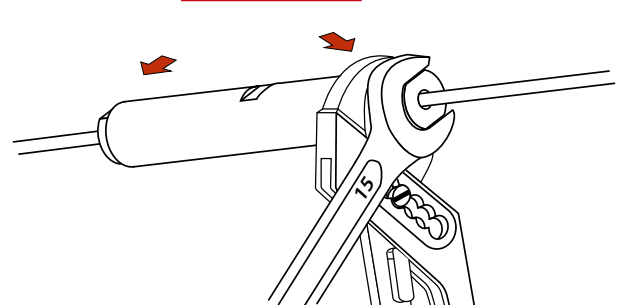
15.

Ex-CON 25/7



- Apply wrench size 15/22 like shown
- Tighten the screw plug until it stops in its end position or with minimum 5 Nm.

Ex-CON 22/4 Si



- Hold the end of the silicone sleeve firmly in your hand.
Alternatively: Carefully place water pump pliers on the end of the silicone sleeve.

! ATTENTION

Do not damage the silicone sleeve!

- Tighten the screw plug until it stops in its end position or with minimum 5 Nm.

16.

SECTIONAL VIEW

