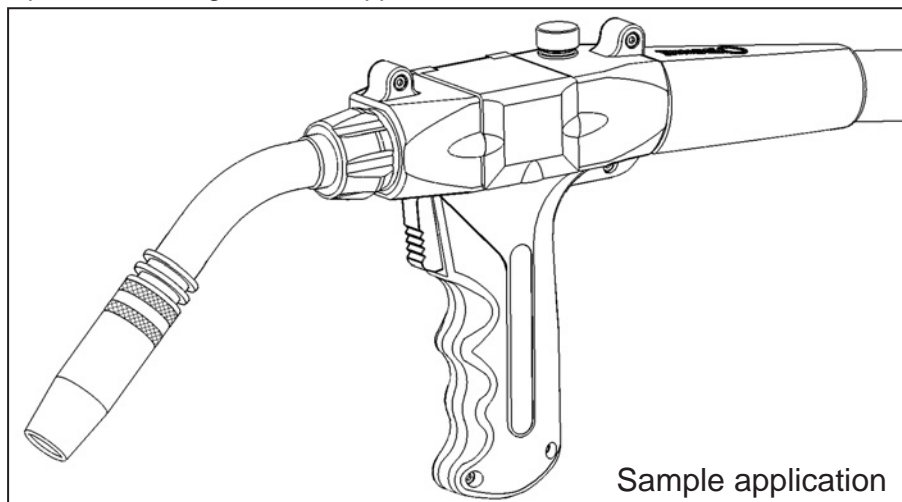




Operation manual

Keep in secure area for future reference!

Options according to area of application



MIG/MAG handheld torch set for manually welding with PUSH-PULL Wire Feeder

**DIX MPW 300
DIX MPZ 304**

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Make sure to read these operating instructions before startup to guarantee the safe handling of the **DINSE** product. The operating company must make these operating instructions available to the operator and make sure that the operator has read and understood them.

Keep the operating instructions in a safe place for future use. Leave a notice indicating the storage location readily visible at the work location.



These products meet the

- 2004/108/EG – EMC directive
- 2006/95/EG – Low-voltage directive
- IEC 60974-5 – Electric arc welding equipment (wire feeder devices)
- IEC 60974-7 – Arc welding equipment (welding torches)
- IEC 60974-10 – Arc welding equipment (Electromagnetic Compatibility EMC)



According to IEC 60974 this product may be used in environments with increased electrical hazard.

Technical Standards and Accident Prevention Regulations:

The following technical standards and accident prevention regulations must be observed when installing, operating and servicing the rotary interface.

- IEC 60974-4 – Arc welding equipment (Inspection and checks during operation)
- IEC 60974-9 – Arc welding equipment (Setup and operation)
- TRGS 528 – Technical rules on hazardous substances Welding tasks
- BGR 500 – Operating work equipment
- Chapter 2.26 – Welding, cutting and related processes
- BGV A3 – Electrical systems and equipment
- EN 175 – Personal protection - Devices for eye and face protection during welding and related processes

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1. Introduction



You have purchased a quality product from **DINSE Inc.**.
Thank you for your confidence in our products.

This product was manufactured under constant supervision during production. Each system is tested for proper functionality before and after assembly.

This product is a technically-sophisticated welding accessory made with precision-matched materials and manufactured on special high-grade machines.

In you have questions or concerns with regard to the product and/or its configuration, please contact us prior to putting this item into operation. Our application engineer will be glad to assist you.

DINSE Inc.

121 West Trade Street, Suite 2850
Charlotte, NC 28202 USA
Phone.:517 416 5294 • Fax.:888 896 4871:
sales@dinse-us.com
www.dinse-us.com

1. Introduction



1.1 EC-Declaration of conformity DIX MPW 300

EC declaration of conformity acc. to directive 2006/95/EC, annex III B (Original EC-declaration of conformity)



Herewith declares

the producer

Name, form of organization: Dinse, G.m.b.H.

Address: Tarpen 36
22419 Hamburg Germany

that the following appliance

General identification: Manual torch set with integrated wire feeder and exchangeable torch head.

Function: Supply additives during welding and soldering processes.

Model: DIX MPW 300-X (X is the length of the torch set)

equates to all relevant regulations of the above mentioned directive, including its time to change that statement valid.

The following harmonized standards were applied in full:

- IEC 60974-7

The following harmonized standards were applied partially:

- IEC 60974-10

Person who is authorized to compile the technical documentation:

Name: Michael Meinke

Address: Dinse G.m.b.H.
Tarpen 36
22419 Hamburg
Germany

Subscriber

Place of issue: Hamburg / Germany

Date of issue: 10.05.2011

Function of the subscriber at the company:

Managing director
Torsten Lischke

Technical design

Signature:



DINSE G.m.b.H. · Tarpen 36 · 22419 Hamburg · Tel: +49-(0)40-658 75-0 · Fax: -200 · E-Mail: info@dinse-gmbh.com · www.dinse-gmbh.com

SCHWEISSEN

WELDING

SCHWEISSEN

WELDING

SCHWEISSEN

1. Introduction



1.2 EC-Declaration of conformity DIX MPZ 304

EC declaration of conformity
acc. to directive 2006/95/EC, annex III B
(Original EC-declaration of conformity)

DINSE

Herewith declares
the producer

Name, form of organization: Dinse, G.m.b.H.
Address: Tarpen 36
22419 Hamburg Germany

that the following appliance

General identification: Manual torch set with integrated wire feeder.
Function: Supply additives during welding and soldering processes.
Model: DIX MPZ 304-X (X is the length of the torch set)

equates to all relevant regulations of the above mentioned directive, including its time to change that statement valid.

The following harmonized standards were applied in full:

- IEC 60974-7

The following harmonized standards were applied partially:

- IEC 60974-10

Person who is authorized to compile the technical documentation:


Name: Michael Meinke Address: Dinse G.m.b.H.
Tarpen 36
22419 Hamburg
Germany

Subscriber

Place of issue: Hamburg / Germany
Date of issue: 10.05.2011
Function of the subscriber at the company: Managing director
Name of the subscriber: Torsten Lischke

Signature:

Technical design

 DINSE G.m.b.H. · Tarpen 36 · 22419 Hamburg · Tel: +49-(0)40-658 75-0 · Fax: -200 · E-Mail: info@dinse-gmbh.com · www.dinse-gmbh.com

SCHWEISSEN WELDING SCHWEISSEN WELDING SCHWEISSEN

2. Safety



2.1 Symbols used in operating manual

All **DINSE** products are equipped with safety devices. They are manufactured using the latest technology and in accordance with approved safety regulations.











WARNING! Improper or unauthorized use carries the risk of:

- Causing harm to Operator's life and limb
- Causing harm to the product itself and/or other property
- Preventing efficient operation of the product




We are concerned about your safety!

The following symbols are used in this operating manual:

Hazard warnings and instructions

 Danger of electric shock	 Danger of excessive noise and sound-pressure levels
 Danger of hand injury	 Danger of blinding and electrical discharge
 Danger of fire	 Danger of explosion
 Danger of poisoning	 Danger of material damage or unsafe conditions
 Wear eye protection!	 Always unplug before opening!

Other symbols

 <i>Technical information and tips</i>	<ul style="list-style-type: none">• List
 Operator's Action is Required.	<ol style="list-style-type: none">1. Perform the necessary steps in the prescribed sequence for numbered items.2.
 Tighten the screw firmly to the prescribed torque	

2. Safety

2.2 Intended purpose

The only purpose of the torch set is to supply additives during welding and soldering processes.

In case of outdoor use, always provide appropriate protection against all inclement weather conditions (especially rain and frost)!

Depending on the particular model and available features, the torch set is suitable for welding the following materials:

- Unalloyed steels
- Low-alloy steels
- High-alloy steels
- Aluminium, magnesium, copper and nickel-based alloys
- Small to medium material thicknesses (MIG/MAG)
- Small to large material thicknesses (WIG)

The torch set employs the MIG, Mag oder WIG techniques, and is designed for a maximum open-circuit DC voltage of 113V (peak value).

ATTENTION: Prior to first use, always check to ensure the power supply to the torch complies with this specification!

► Prior to first use, check for compliance before using the equipment.



For safety reasons, DINSE Inc. does not permit, authorize, or recommend any third-party modifications or post-manufacturing alterations to the torch.

2. Safety

2.3 Safeguarding against potential hazards during regular usage

Attention: Always observe the accident prevention and safety regulations listed below. Failure to follow these reasonable safety measures can endanger your life!



WARNING!

Arc radiation can damage eyes and skin!

- Never look at an electric arc with your naked eye.
- Put on protective gear (e.g. welding gloves, goggles) before performing any welding tasks.
- Use a welder's helmet or shield with an appropriate light filter.



DANGER!

Electric shock can be lethal!

- Before performing any inspection or maintenance, disconnect the power plug and make sure the supply voltage cannot be turned on by anyone during inspection or maintenance!
- Welding torches and electrode holders should always be placed in an insulated holder when not in use.
- Do not use torch, ground, or supply cables that show any signs of damaged insulation.
- Damage should be repaired immediately by a qualified electrician!



WARNING!

Toxic welding fumes and gases pose a risk to health!

- Do not inhale welding fumes or gases.
- Regularly use and service a gas exhaustion system.
- When working in confined spaces, always wear a compressed-air respirator if no gas exhaustion system is present.
- Always allow sufficient fresh air for ventilation.



WARNING!

Wire fed out poses a risk of injury especially to hands and other body parts!

- Do not place your hands or other body parts near the contact tip while checking the wire feed!

Risk of injury to the hands due to rotating components in the torch bracket!

- The torch bracket in normal operation should always be used with its housing closed!

2. Safety



2.3 Safeguarding against potential hazards during regular usage



WARNING!

Eye injury may occur due to flying chips, wire electrode abrasion and weld spatters produced during blow-out of the torch set by means of compressed air!

- Always wear safety goggles or a visor.



WARNING!

Danger of fire from sparks!

- Never weld near flammable materials or liquids.
- Remove containers with combustible and explosive liquids from the work area.
- Avoid any formation of flames, e.g. through sparks or glowing parts.
- Always ensure that there are no sources of fire in the work area.
- Always keep a sufficient number of fire extinguishers available for emergencies.



DANGER!

Danger of explosion from sparks!

- Never weld near explosive materials or liquids.
- Remove containers with explosive liquids from the work area.
- Avoid any formation of flames, e.g. through sparks or glowing parts.



WARNING!

Danger of hearing loss by excessive noise and sound-pressure levels!

- Always wear hearing protection.

2. Safety

2.4 Authorized operators

The torch set must only be operated by individuals who have been trained by **DINSE Inc.** and who have read and understand the relevant safety instructions contained in this manual!

2.5 Limited Warranty

Seller guarantees Goods meet applicable standards only when used as directed under normal operation or service. This guarantee is effective for one (1) year from the date of shipment for the original Buyer and is not transferable.

Please refer to the complete warranty claim at www.dinse-us.com for further details and exceptions of the warranty.

Warranty claims can only be asserted given:

- Use for the intended purposes
- Proper operation
- **Use of original components and spare parts from DINSE Inc.**
- Observance of safety instructions

In the event your **DINSE** product needs repair, any repairs must be performed by either **DINSE** electricians or qualified electricians appointed by **DINSE Inc.!**

If you have a complaint about your **DINSE** product during the valid warranty term, do NOT make any modifications to the product. Please send the product “as-is” to **DINSE Inc.** immediately.



Unauthorized tampering, modifications, repairs, or changes to the DINSE product will result in lack of warranty coverage and will void any warranty claims, implied or otherwise, as well as any suitability or fitness for particular purposes claims by DINSE Inc.!

2. Safety



2.6 Packaging and dispatch

The torch set has been checked and carefully packed before shipment, however damages may occur during shipping and this product should be carefully inspected prior to use.

In case of damage, contact DINSE Inc. immediately and return the entire torch set at your expense to:

**TANDEM Global
Logistics Chicago**

830 Dillon Drive
Wood Dale, IL 60191 USA
Phone.:630 860 1703 • Fax.:630 860 1746:
tvdeijkhoff@tandemgloballogistics.com
www.tandemgloballogistics.com

IN THE EVENT YOUR DINSE TORCH SET NEEDS TO BE RETURNED:

1. Please be sure to carefully pack the torch set in a suitable container with sufficient packing material in order to avoid causing any damages during shipping.
2. Please include a note describing the problem(s) with sufficient detail. This will help our service department to determine the cause of the problem sooner, and can reduce the time it takes to repair the torch set.

2.7 Recycling/ Disposal



The welding torch set must not be disposed of in the household waste. Dispose of all parts of the welding torch set to prevent any damage to health and environment.

Some of the tandem system's materials can be reused. Reusing some parts of raw materials from used products is an important way of helping to protect the environment.

Contact your local authority in the event that you require information on local collection points.

3. Technical data and description of the appliance



3.1 Technical data

	Welding technique:	MIG/MAG-Welding and soldering
	Wire feed rate:	0 - 20 m/min
	Maximum welding current:	see table 1
	Maximum open-circuit voltage:	U ₀ = 113 V (peak value)
	Connection:	Compact plug with SAZ-Connection
	Weight:	approx. 2.8 kg to 8 kg (depends on the torch set its length)
<u>PUSH-PULL(PUSH)-Drive</u>	Motor mains voltage:	max. 42 VDC
	Motor current consumption:	max. 0.7 A
	Type of protection:	IP 23
	Noise level:	< 70 db(A)
	Dimension (L x W x H):	ca. 125 mm x 50 mm x 176 mm
	Ambient temperature	
	Operation	-10 °C to +40 °C (14 °F to 104 °F)
	Storage	-10 °C to +55 °C (14 °F to 131 °F)

Parameters for liquid-cooled robotic and automatic torch sets according to DIN EN 60974-7

Minimum water flow rate:	1,1 l/min (0.29 gal./min)
Pump pressure:	max. 6 bar (87psi) (impact pressure)
Maximum water temperature:	55 °C (131 °F)
Coolant:	De-mineralized (deionized) water

	Torch set	Load at 60% ED in A		Wire diameter (mm)
		Co ₂	Ar/Co ₂	
gas-cooled	DIX MPW 300*			
	DIX MWL 330**	300	270***	0,8 – 1,2
	DIX MWS 330**	300	270***	0,8 – 1,2
liquid-cooled		Load at 60% ED in A		
	DIX MPZ 304	500	450	0,8 – 1,6

* Separable torch set
 ** Torch heads for separable torch set DIX MPW 300
 *** Load at 40% ED in A

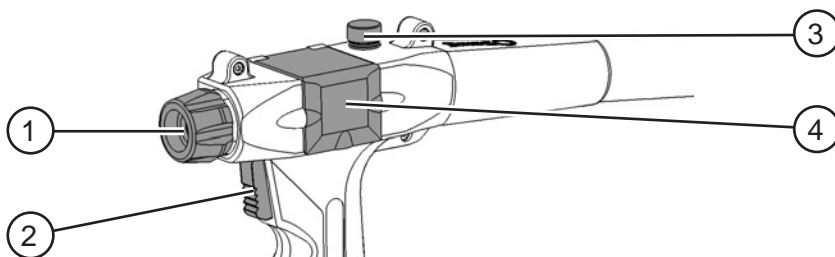
Table 1

3. Technical data and description of the appliance



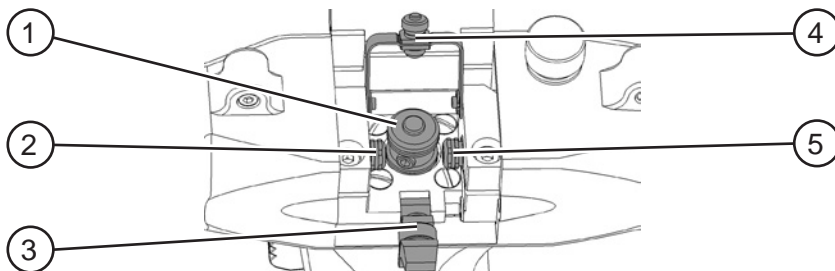
3.2 Description of the appliance

Exterior view



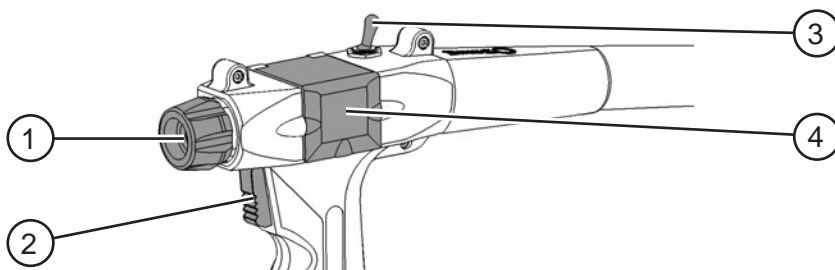
Pos.	Description
1	Clamp nut *
2	Push button – Welding
3	Potentiometer – Wire feeder speed
4	Housing flap

Interior view



Pos.	Description
1	Drive roll
2	Clamp sleeve – of the torch head
3	Pressure system
4	Stirrup lock
5	Clamp sleeve – of the supply hose

Optionally with switch instead of potentiometer



Pos.	Description
1	Clamp nut *
2	Push button – Welding
3	Switch – Schweißprogrammwahl
4	Housing flap

* The DIX MPZ 304 torch set has a fixed torch head, which means that the clamp nut is not required here.

The powerful drive for PUSH-PULL operation or PUSH-PUSH operation is directly integrated into the torch bracket and ensures constant wire feed even over long distances, especially in the case of thin and kink-susceptible wire electrodes. The wire feed rate can be set using the built-in potentiometer, depending on the current source and the wire feed.

For aluminium welding, use a drive roll with specially formed grooves in PUSH-PULL drive.

A capillary liner instead of a liner is recommended for use with wire electrodes made of aluminium and chromium-nickel.

According to the customer's specifications, the torch set can have either a gas-cooled or liquid-cooled design, and be configured with a lot of different torch heads. Also the torch head can be configured with many different gas nozzles and contact tips. The illustrations and notes provided herein represent both types of torch sets and as an example only one torch head type.

Please review the lists below for current details on the particular variations for your system, for example: compact-plug design, supply-line length, torch-head assembly, spare parts and wearing parts.

Various welding applications required in practice are covered by different designs of pistol head including special gas nozzles, contact tips and tip adapters.

For welding with low voltages (short arc welding) in constrained positions, a gas nozzle with a small inner diameter and a long contact-tip adapter should be used.

However, any welding operations at high power (spray arc) should be performed with a gas nozzle of a large inner diameter and a short tip adapter.

For aluminum welding, you must use drive rollers with specially formed grooves in the wire feed system.

5. Installation

5.1 Mounting

5.1.1 Tools and components The tools mentioned below are required for mounting the welding equipment:

- Spanner size 8
- Hexagon socket wrench size 2,5
- Side cutter

Depending on the selected contact tip:

- Special spanner DIX SSL 1/2
- Socket spanner DIX SSLA 1 / DIX SSLA 2 / DIX STLA 3 M8
- Socket spanner DIX SCS 300

Please refer to the DINSE product catalog for more information about the DINSE tools.



Use only tools that are grease-free and not worn.

Always observe relevant accident protection regulations at the assembly site.

Lay out the following components for mounting:

- Torch set z.B. DIX MPW 300-X
- Torch head* e.g. DIX MWS 330 45°
- Liner respectively capillary liner

* Does not apply to the DIX MPZ 304 - Torch set

5. Installation



5.1 Mounting

5.1.2 Mounting the torch head (only MPW 300)



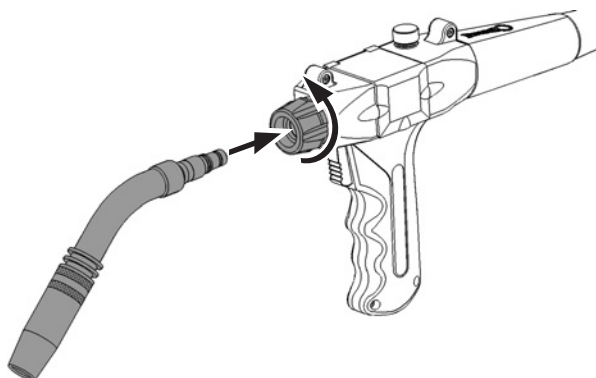
The DIX MPW 300 – torch set has removable torch heads and the torch heads can be positioned throughout 360°.
The DIX MPZ 304 – torch set has a fixed, built-in torch head and there is no need to install a torch head.



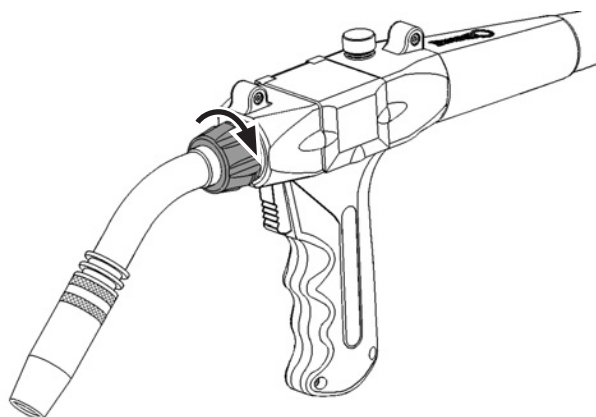
CAUTION!

Note the installation instructions for the special torch heads DIX MWS (L) 330/001 ° xx in Appendix B.

1. Loosen the clamp nut anti clockwise.
2. Connect the torch head to the PUSH-PULL-Pistol grip.



3. Screw the clamp nut clockwise until it is hand-tight.



5. Installation



5.1 Mounting

5.1.3 Insert the liner into the torch head



CAUTION!

A liner with too small an inside diameter restricts the wire transport. Too large an inside diameter may have a negative impact on the weld seam quality.

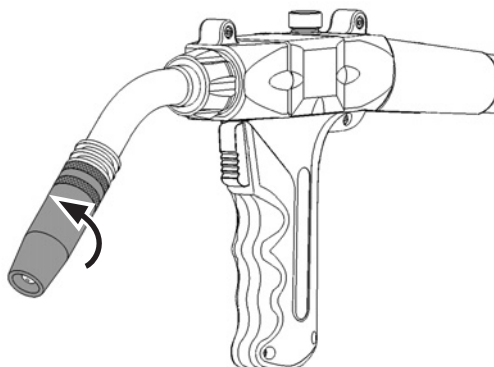
- Check the inside diameter of the liner and, if necessary, replace it with the correct liner.
- Refer to the spare and wear parts lists to choose the correct liner.



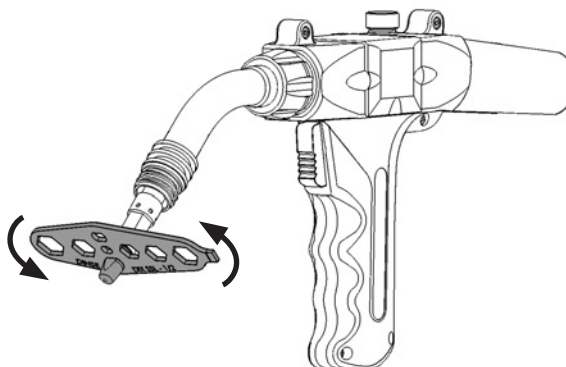
CAUTION!

If using a capillary liner (e.g. for aluminium welding) the distance sleeve DIX DSH 300 have to be mounted, see Appendix E.

1. Unscrew the gas nozzle from the torch head.



2. Using the special spanner DIX SSL 1/2 from **DINSE**, unscrew the contact tip from the torch head.



5. Installation

5.1 Mounting

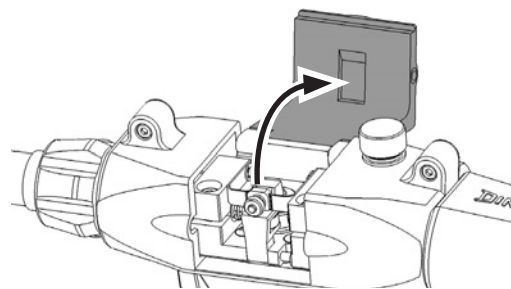


WARNING!

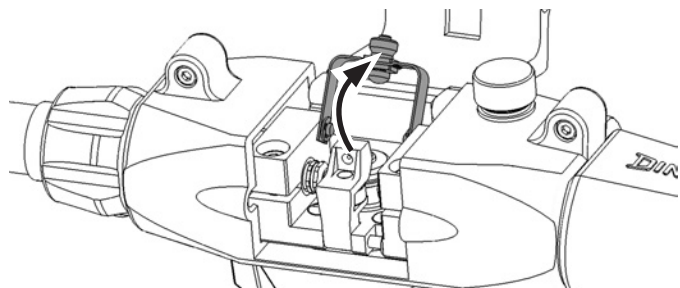
Risk of injury to the hands due to rotating components on the inside of the PUSH-PULL-Pistol grip!

- Never open the PUSH-PULL-Pistol grip during normal operation.
- Ensure that the welding device is not in operation and is not being put into operation by another person before you open the PUSH-PULL -Pistol grip.

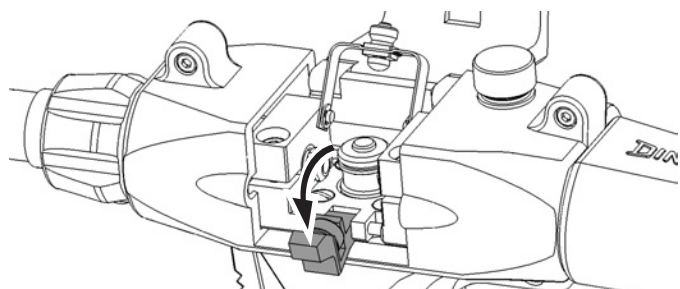
3. Open the cover of the PUSH-PULL-Pistol grip.



4. Fold the stirrup lock of the pressure system upwards.



5. Swivel the pressure system downwards.

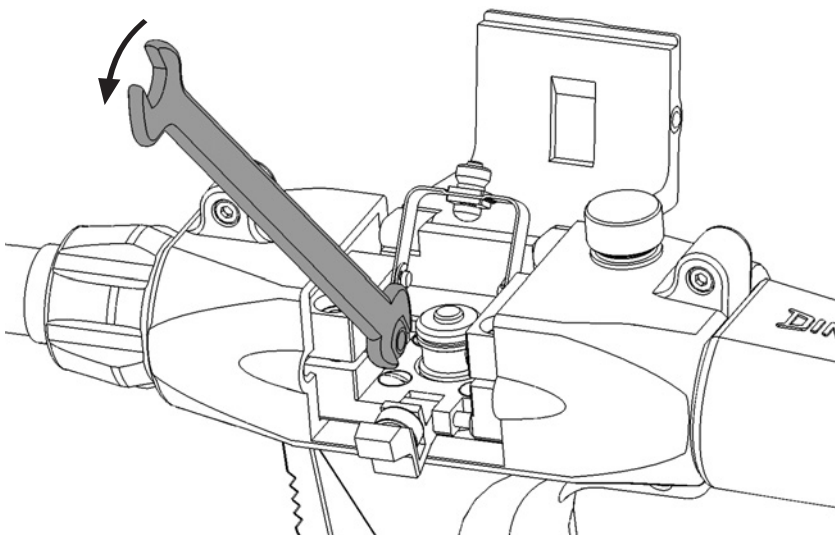


5. Installation

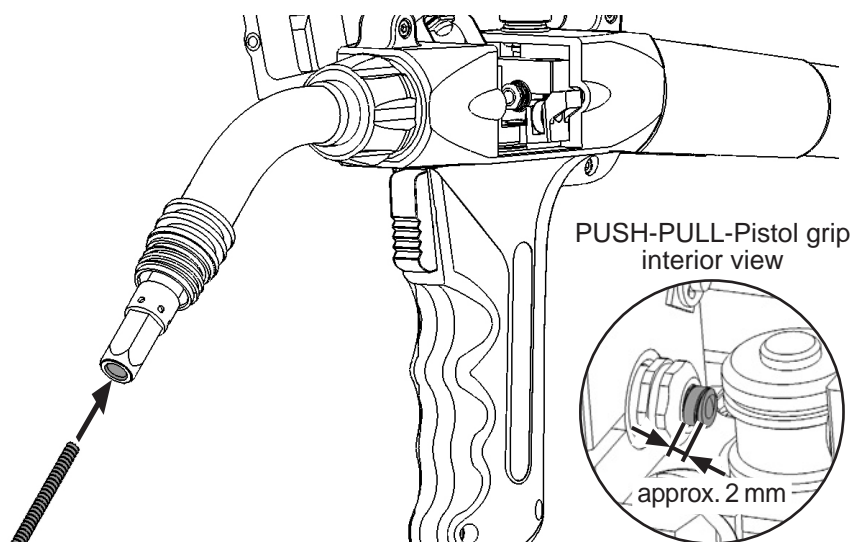


5.1 Mounting

6. Loosen the clamp sleeve around the torch head using an SW 8 wrench.



7. Insert the liner into the torch head until the wire guide helix protrudes approximately 2 mm from the clamp sleeve.



5. Installation



5.1 Mounting



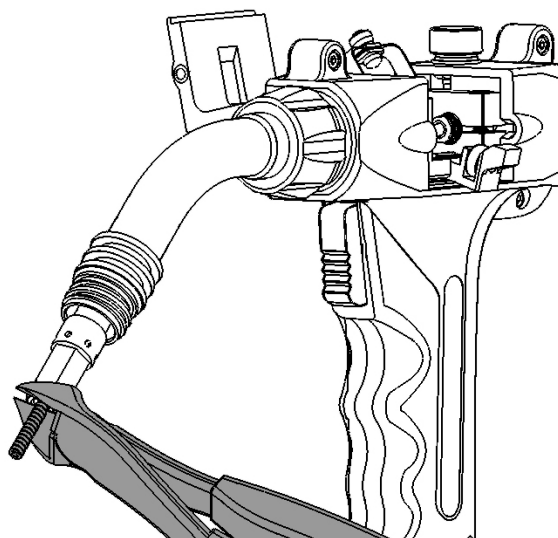
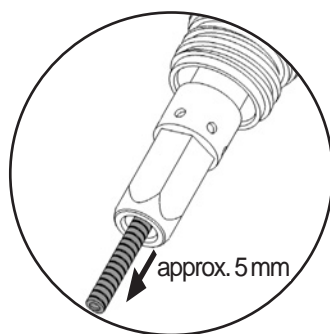
CAUTION!

Bur created during cutting may interfere with the wire transport.

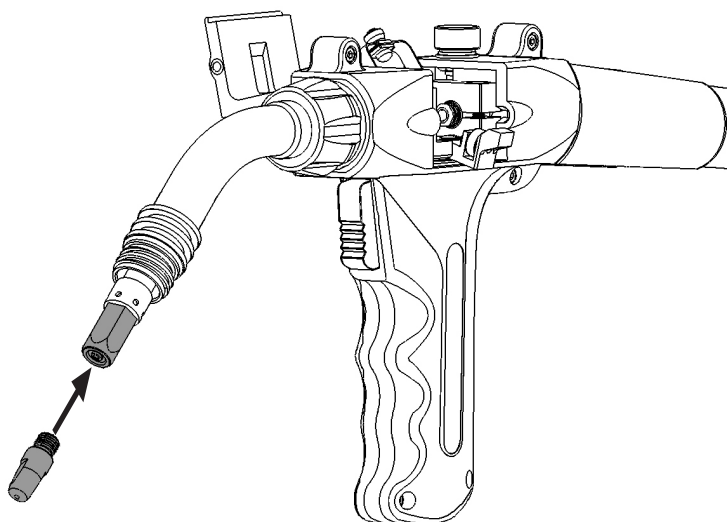
- Note the instructions for cutting liners in **Appendix D**.
- Check the end of the liner for bur after cutting and remove it if necessary.

8. Pull back the liner approx. 5 mm.

9. Cut the liner flush on the torch head using a wire cutter.



10. Screw the contact tip in by hand.

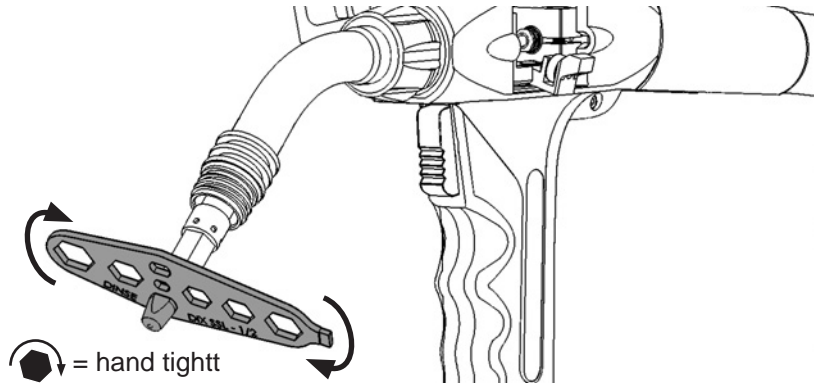


5. Installation



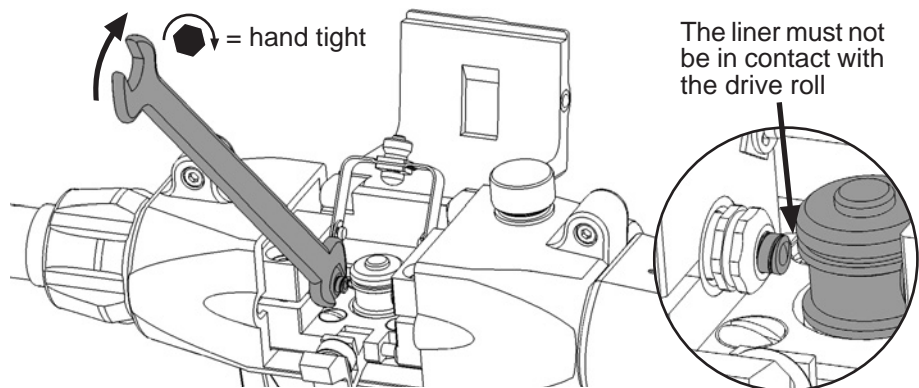
5.1 Mounting

11. Using the DIX SSL 1/2 special wrench from DINSE, tighten the contact tip firmly (hand tight).

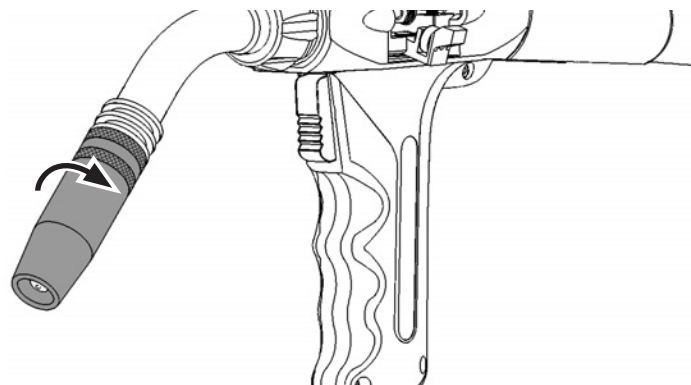


12. Check to see whether the liner is touching the drive roller. Shorten the liner if necessary.

13. Tighten the clamp sleeve using an SW 8 wrench (hand tight).



14. Screw the gas nozzle onto the torch head and tighten it (hand-tight).



5. Installation



5.1 Mounting

5.1.4 Insert the liner into the torch set



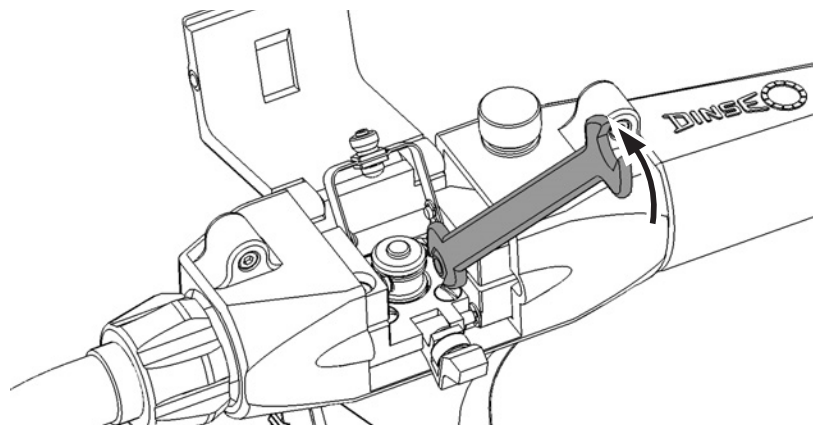
CAUTION!



Note the installation instructions for torch set with compact connector for OTC-Wire feeder in Appendix C.

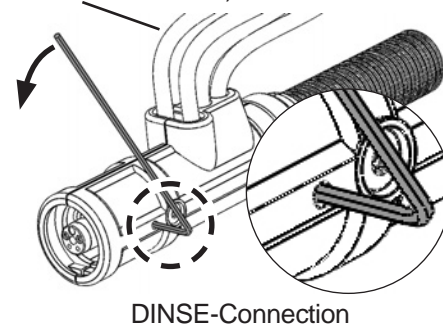
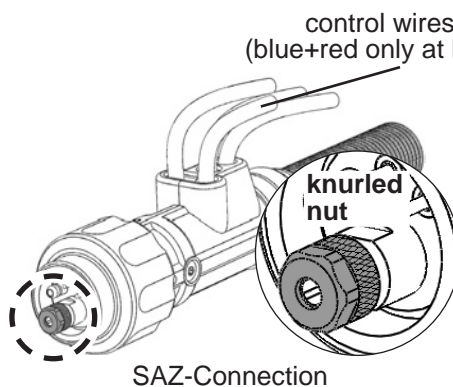
To facilitate inserting the liner into the torch set, we recommend that you design the welding fitting to be straight along its length.

1. Loosen the clamp sleeve around the supply hose using an SW 8 wrench.



2. **SAZ-CONNECTION**
Loosen the knurled nut on the compact plug.

- DINSE-CONNECTION**
Loosen the clamping screw using an SW 2.5 Allen wrench - on the compact plug.



5. Installation



5.1 Mounting



CAUTION!

A liner with too small an inside diameter restricts the wire transport. Too large an inside diameter may have a negative impact on the weld seam quality.

- Check the inside diameter of the liner and, if necessary, replace it with the correct liner.
- Refer to the spare and wear parts lists to choose the correct liner.



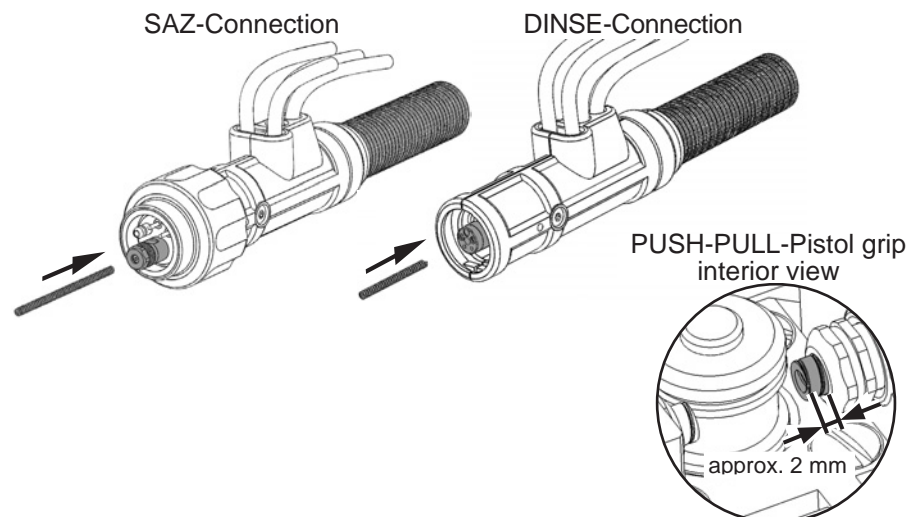
CAUTION!

A sharp bur at the tip of the liner may destroy the conduit hose.

- Take care when using liners cut to length by **DINSE Inc.** that you introduce them with the ground off end into the torch set.
- With liners that you have cut to size yourself, ensure that you first debur one end and introduce the liner with the deburred end into the torch set.
- Note the instructions for cutting liners in **Appendix D**.

3. Insert the liner on the compact plug into the torch set until the liner protrudes about 2 mm from the torch DIX SH 270 clamping sleeve in the PUSH-PULL-Pistol grip

The liner must not be in contact with the drive roller or the pressure system!

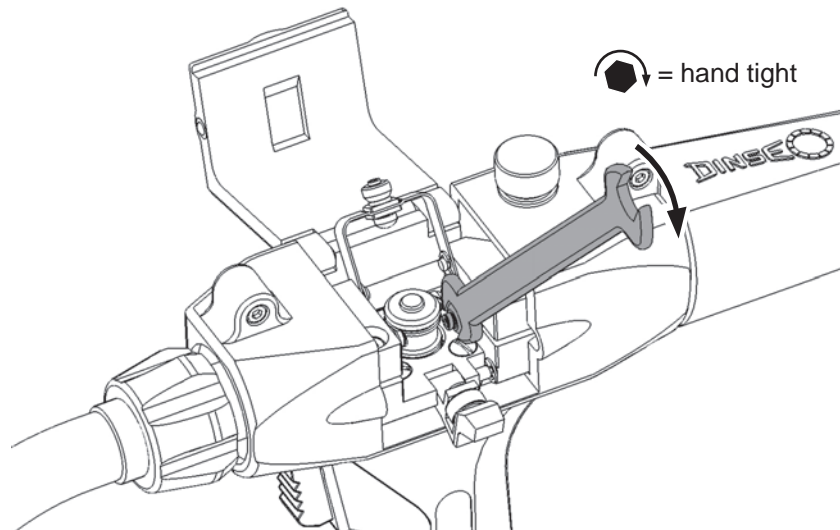


5. Installation



5.1 Mounting

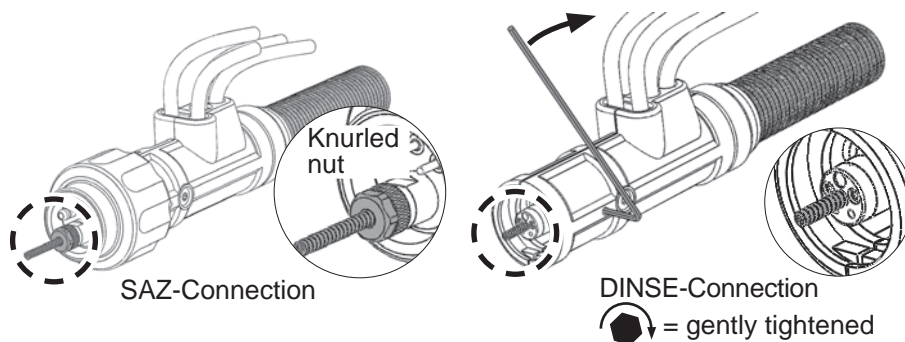
4. Tighten the clamp sleeve using an SW 8 wrench (hand tight).



If the clamp screw, which secures the liner is too tight, it will deform the liner and hamper the feeding of the wire.

- Tighten the clamp screw just enough to ensure that the liner cannot be pulled out and that it is not deformed.
- Using a piece of wire electrode with the diameter that is to be used, check the clearance of the liner..

5. Tighten the knurled nut respectively the clamp screw.



5. Installation



5.1 Mounting

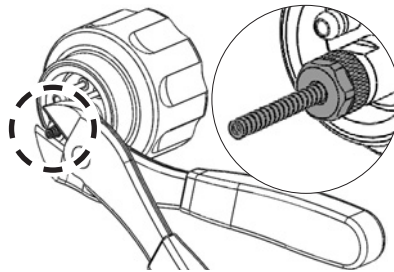


Bur created during cutting may interfere with the wire transport.

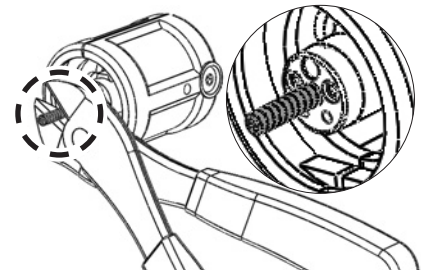
- ▶ Note the instructions for cutting liners in **Appendix D**.
- ▶ Check the end of the liner for bur after cutting and remove it if necessary.

6. Using a wire cutter, cut away the liner in front of the knurled nut or the plug insert.

The length depends on the distance to the drive roll of the wire feeder.



SAZ-Connection



Dinse-Connection

5. Installation



5.1 Mounting

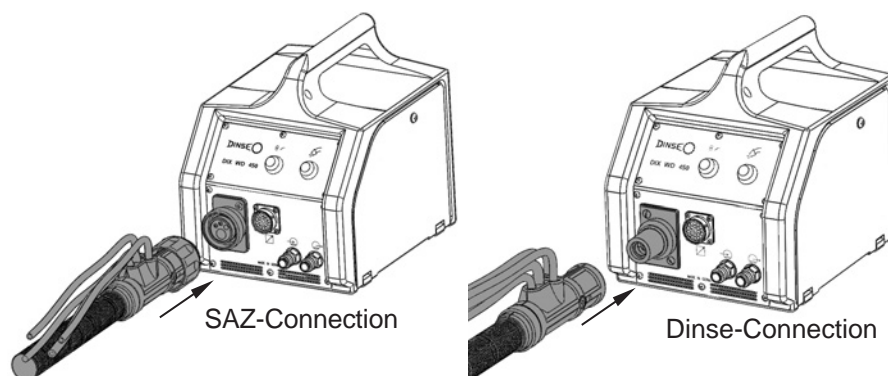
5.1.5 Connecting the torch set



If the connection is not firm enough, the compact plug or socket might get damaged and also affect the welding properties.

► Make sure that all connections result in good contact.

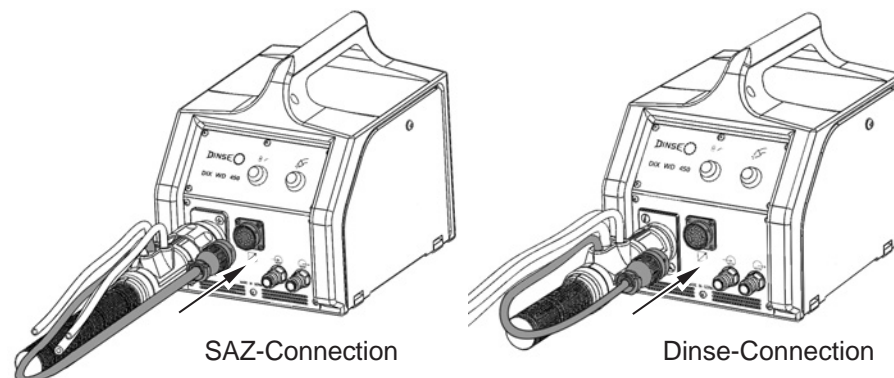
1. Insert the torch set's compact plug into the wire feeder's compact socket.
2. For SAZ-Connection, tighten the union nut, turning clockwise. For DINSE -Connection, turn the compact plug approx. 90° clockwise in order to arrest it.



3. Connect the control wires in order to the wiring plan as it's shown in Appendix A.

Optionally the control wire is fitted with a plug.

Then insert the control wire's plug into the wire feeder's socket and turn the union nut clockwise as it's shown in the picture below.



5. Installation



5.1 Mounting

5.1.6 Additional notes concerning liquid-cooled torch sets

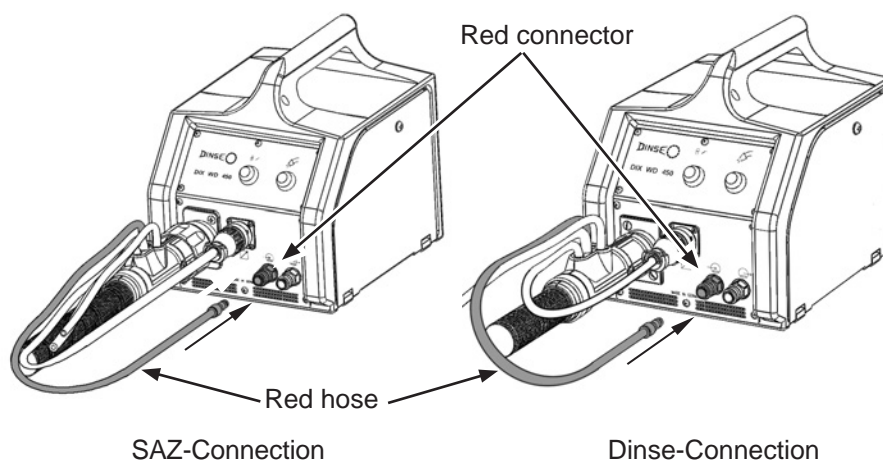


CAUTION!

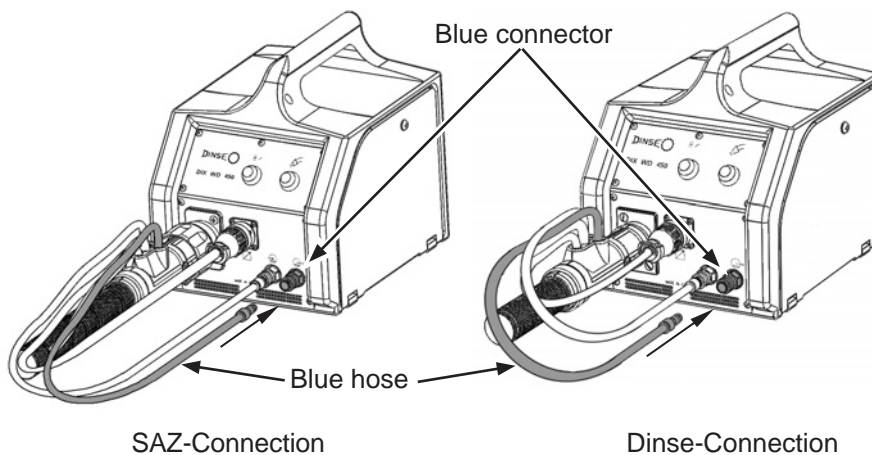
The cooling capacity can deteriorate.

► Make sure not to transpose the connections.

1. Attach the red hose to the red connector for the cooling system's return line.



2. Attach the blue hose to the blue connector for the cooling system's supply line.



5.2 Preparations for welding

Prior to welding, always review the following checklist:

- Have you selected the appropriate wearing parts for this torch set?
- Is the rated (welding) current at or above the maximum permitted level? Do you need to make any necessary corrections?
- Have you checked the Settings and preparations for the:
 - Power source
 - Wire feeder
 - Gas cylinder

Values are specified in the related operating manuals.



Always refer to relevant technical literature for hints and tips concerning the actual welding process such as work techniques, materials, and heat supply.

5. Installation



5.3 Threading the wire electrode



WARNING!

The wire electrode fed out can damage your eyes, hands and other body parts!

- Do not look into the contact tip, and do not hold your hand or other body parts in front of it when threading the wire electrode.



CAUTION!

A contact tip of an insufficient inner diameter will hinder the wire feed. An excessively large inner diameter can have an adverse effect on the quality of the welded joints.

- When changing the wire electrode diameter, always change the contact tip too.

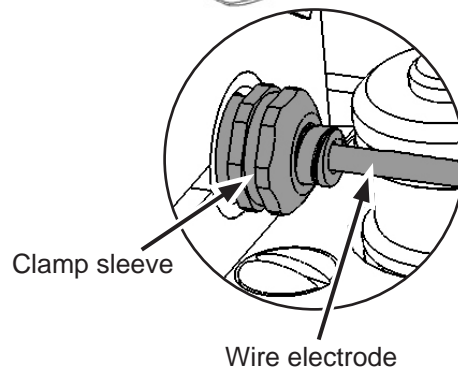
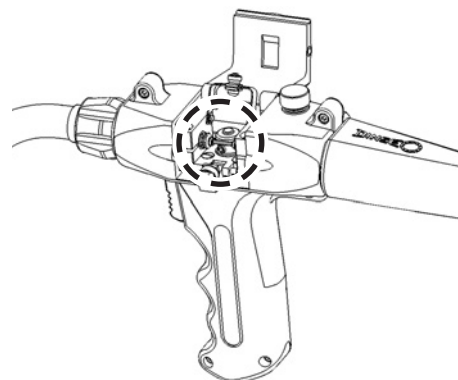
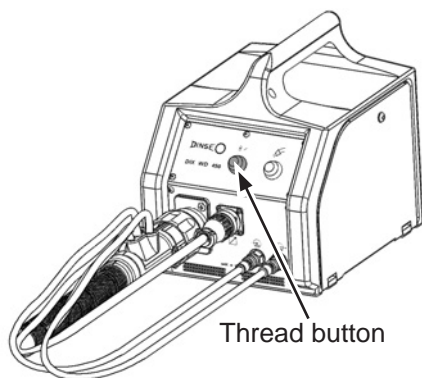


WARNING!

Risk of injury to the hands due to rotating components on the inside of the PUSH-PULL-Pistol grip!

- Never open the PUSH-PULL-Pistol grip during normal operation.
- Ensure that the welding device is not in operation and is not being put into operation by another person before you open the PUSH-PULL-Pistol grip.

1. Press and hold the thread button on the wire feed or on the welding torch set until the wire electrode has been inserted approx. 10 mm into the clamp sleeve of the torch head.

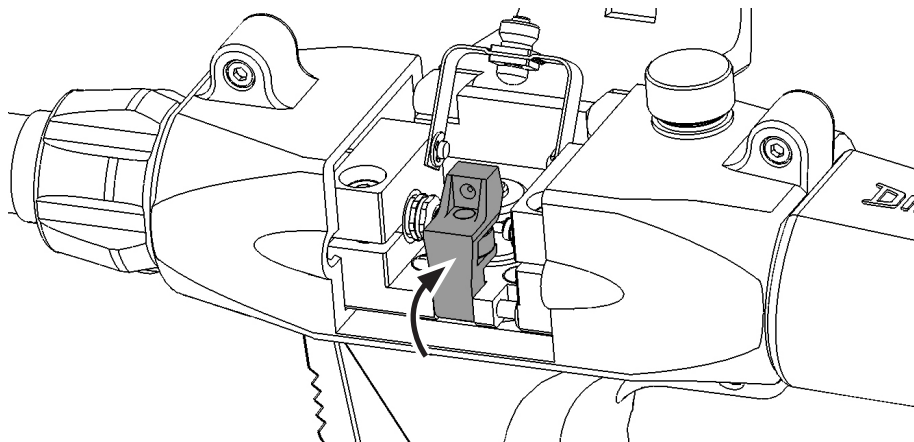


5. Installation



5.3 Threading the wire electrode

2. Swivel the pressure system upwards.



Before folding down the stirrup lock and closing the casing, you must set the contact pressure of the pressure system (see next step).

5. Installation



5.3 Threading the wire electrode

5.3.1 Setting the contact pressure of the pressure system

The contact pressure must be set so that the wire electrode is fed uniformly.

The wire electrode must not be bent or deformed.

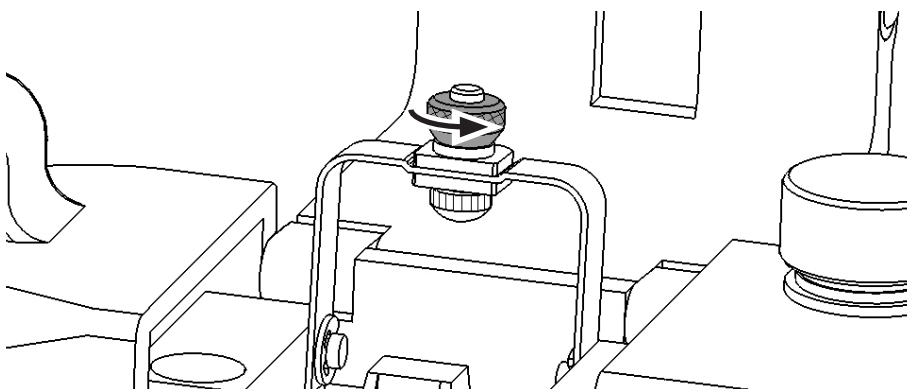


CAUTION!

A very high contact pressure results in increased wear to the drive roll.

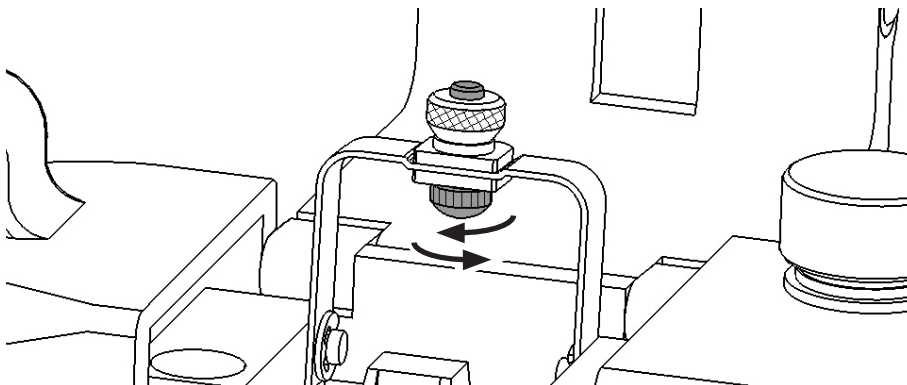
- Set the contact pressure correctly.
- If you operate the PUSH-PULL drive with a very high contact pressure, you must check the drive rolls at shorter intervals and replace them if necessary.

1. Fold the stirrup lock upwards if it is in the down position.
2. Loosen the lock nut so that you are able to set the contact pressure.



3. Turn the clamping screw on the stirrup in order to set the pressure to be applied.

↶ pressure increases
↷ pressure is reduced

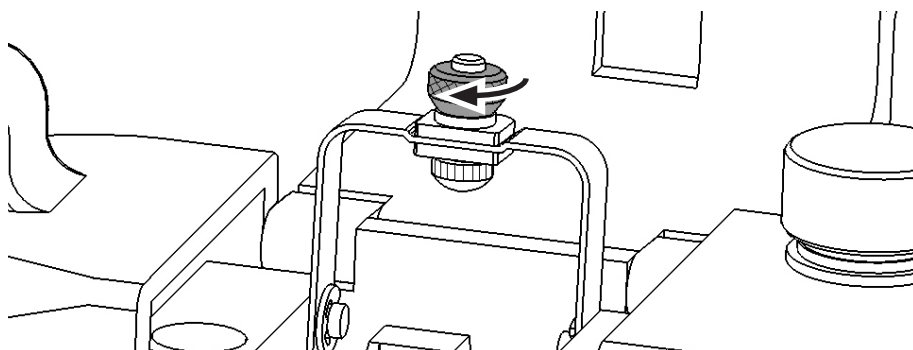


5. Installation

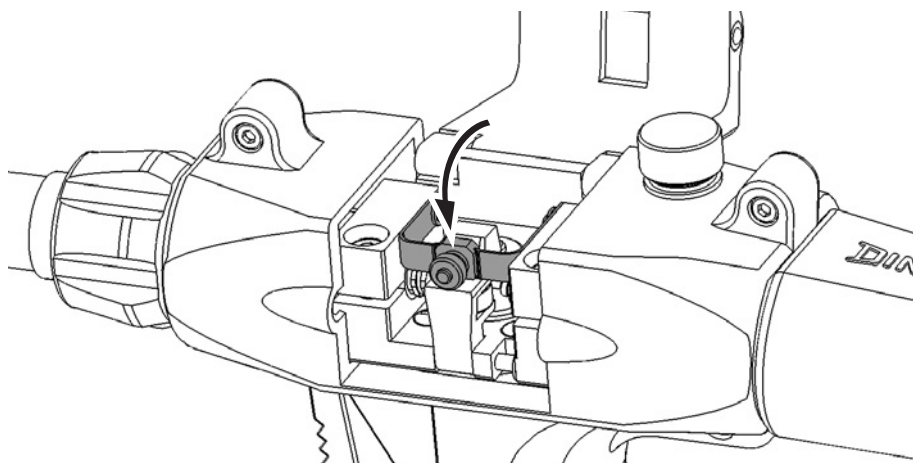


5.3 Threading the wire electrode

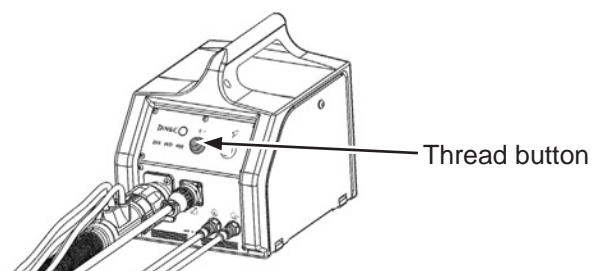
4. Screw the lock nut tight to fix the contact pressure that you have set and hold the clamp screw tight as you do so to prevent it from moving.



5. Fold the stirrup lock of the pressure system downwards until it locks into the pressure system with an audible click.



6. Press the thread button on the wire feed and check the wire feed in the PUSH-PULL drive.
The wire electrode must not bend or deform. Repeat steps 1 to 5 if necessary, to adjust the contact pressure.

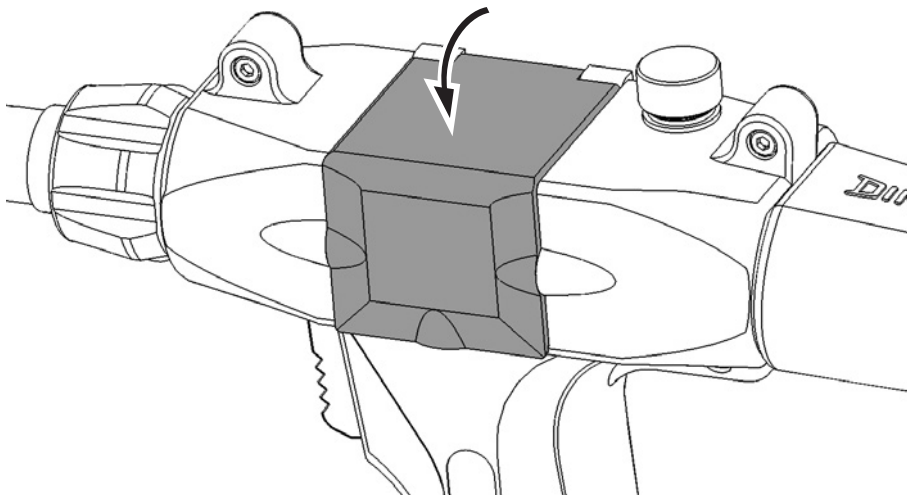


5. Installation



5.3 Threading the wire electrode

7. Close the cover of the PUSH-PULL-Pistol grip.



WARNING!

The wire electrode fed out can damage your eyes, hands and other body parts!

- Do not look into the contact tip or the cold-wire set (WIG welding torch), and do not hold your hand or other body parts in front of it when threading the wire electrode.

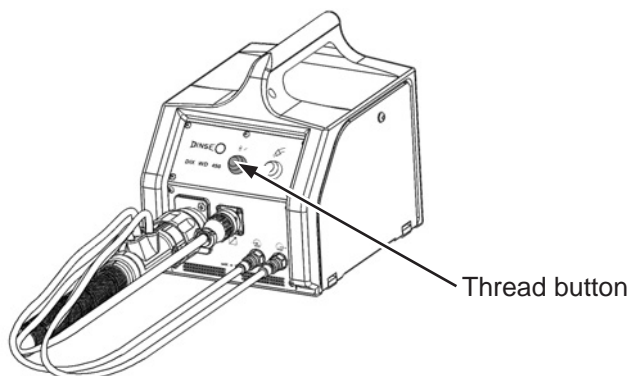


CAUTION!

A contact tip of an insufficient inner diameter will hinder the wire feed. An excessively large inner diameter can have an adverse effect on the quality of the welded joint.

- When changing the wire electrode diameter, always change the contact tip too.

8. Press and hold the thread button on the wire feed until the wire electrode emerges from the contact tip of the torch head.

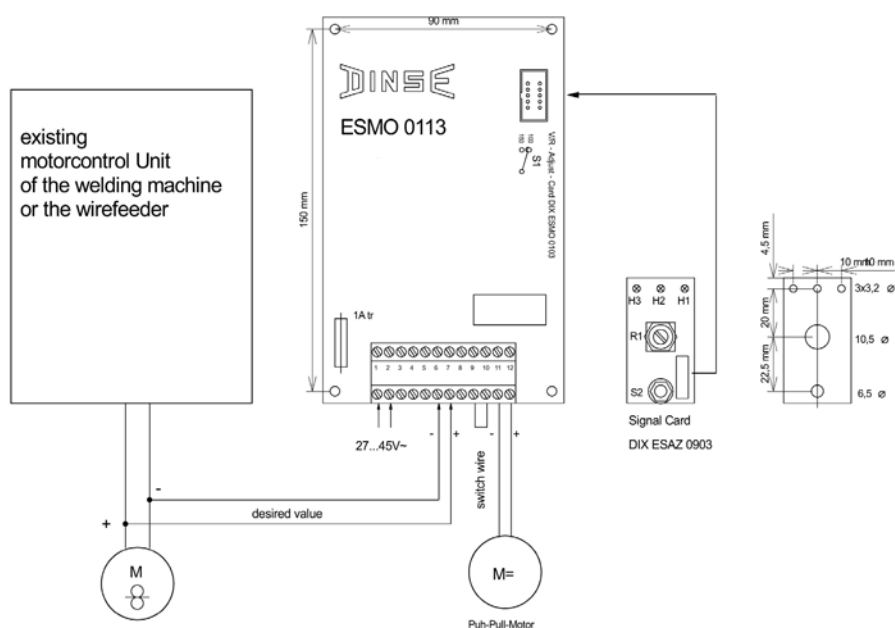


5. Installation



5.4 Installing and connecting the DIX ESMO 0113 motor card

1. Insert the DIX ESMO 0103 motor card into the wire feed.
2. Insert the DIX ESAZ 0903 display card into the front plate of the wire feed. Use the drilling template shown below for the drill-holes.
3. Connect the cards according to the wiring diagram shown below.



Terminal layout:

Terminal	Connection
1 and 2	Voltage supply 27 - 45 V _{Ac}
6 and 7	Control input 0 - 60 V _{Dc}
9 and 10	Bridge, can be replaced by a stop relay
11 and 12	Output 0 - 50 V _{Dc} , maximum 1,0 A



In the event of a target value reversal (wire withdrawal) there is also a reversal of the direction of rotation at the PUSH-PULL motor.

5. Installation



5.5 Adjustment of the front-drive PUSH-PULL

●
I
N
F
O

1. Open the cover on the electronics section of the wire feed.

For torch sets up to 8 m in length, the hookswitch (S1) must be set to 100 (default setting). For torch sets over 8 m in length, set the hookswitch (S1) to 150.

●
I
N
F
O

2. Allow the wire electrode to travel at a medium speed.

3. Press and hold the button (S2). The display activates.

The display responds with a 1 to 2 second delay, depending on the system.

If the right-hand red LED illuminates, the push-pull motor is too fast.

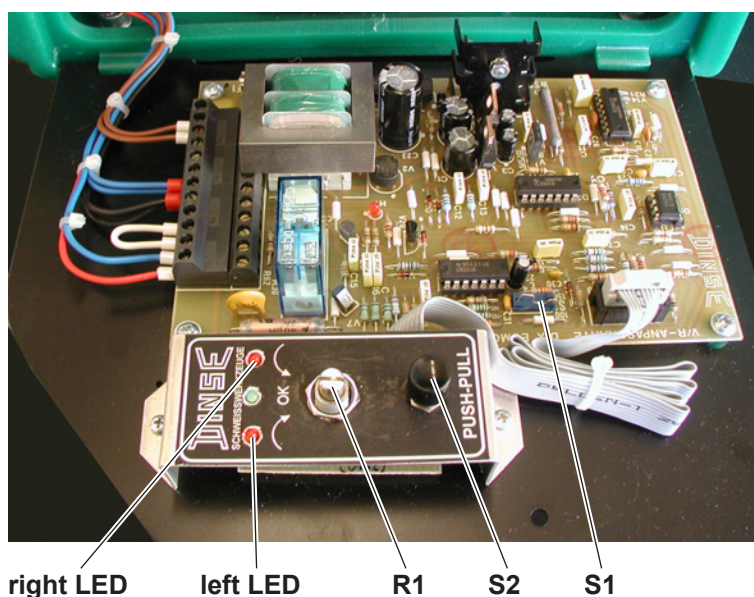
- Turn the potentiometer (R1) slowly leftward until the green LED comes on.

If the left-hand red LED illuminates, the push-pull motor is too slow.

- Turn the potentiometer (R1) slowly to the right until the green LED comes on.

The green LED indicates that the system is now ideally adjusted.

4. Close the cover on the electronics section of the wire feed.

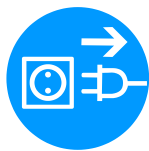


Due to our use of high-grade components, the torch set should require very little maintenance.

However, we recommend for you to conduct regular inspections of torch set to ensure continued functionality.

Individual checks and maintenance tasks should be performed at regular intervals, depending on the conditions under which the torch set is operated.

We recommended that each individual user create an individual maintenance schedule, to ensure proper recording of all regular and scheduled maintenance of the torch set.



Always unplug the torch set before starting any inspection or maintenance work!

- During maintenance, make sure that nobody switches on the voltage supply!
- Disconnect the compact plug and, if needed, the torch set's control-cable plug from the voltage supply!



WARNING!

Eye injury can occur due to flying chips, wire electrode abrasion, and weld spatters produced during blow-out of the torch set from compressed air!

- Always wear safety goggles or a visor while using this torch set.

To help ensure trouble-free functioning, the following inspections should be made at regular intervals:

- Conduct a general visual inspection of the torch set for signs of any damage or wear.
- Check all removable connectors to ensure they are properly seated.
- Remove any abraded wire (depending on wire quality and feed quantity) by blowing out the liner and conduit hose with compressed air (max. 6 bar).
- Replace the following items as needed:
 - Contact tip
 - Gas nozzle
 - Liner
 - Clamp nut
 - Gas diffuser
 - Gas nozzle insert
 - and all other relevant consumables



- To increase the life span of your torch set, do not subject the torch set to stressful conditions such as excessive bending.



*Only use original spare parts and components from **DINSE Inc.!***

Always observe the maintenance instructions for the wire feeder and other components, including the power source as well as the cooling and spool systems.

6. Maintenance instructions



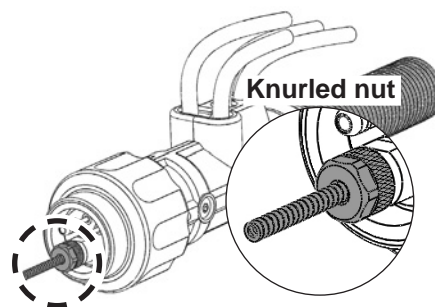
6.1 Changing the liner – Torch set



To facilitate replacing the wire guide helix, we recommend that you design the welding fitting to be straight along its length.

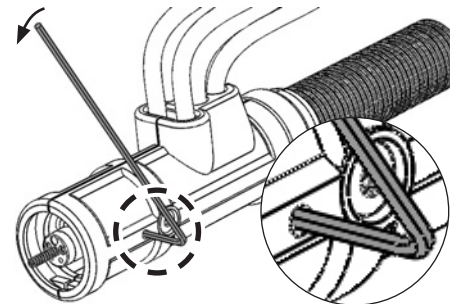
1. SAZ-CONNECTION

Loosen the knurled nut on the compact plug.



DINSE-CONNECTION

Loosen the clamping screw on using an SW 2.5 Allen wrench on the compact plug.

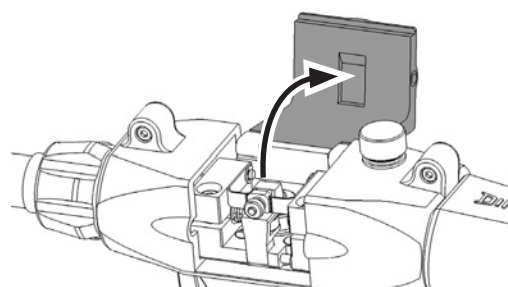


WARNING!

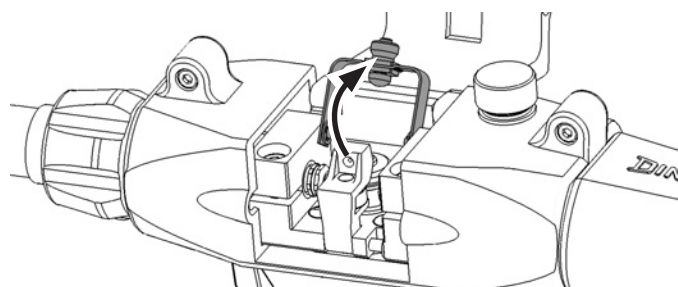
Risk of injury to the hands due to rotating components on the inside of the PUSH-PULL-Pistol grip!

- Never open the PUSH-PULL-Pistol grip during normal operation.
- Ensure that the welding device is not in operation and is not being put into operation by another person before you open the PUSH-PULL -Pistol grip.

2. Open the cover of the PUSH-PULL-Pistol grip.



3. Fold the stirrup lock of the pressure system upwards.

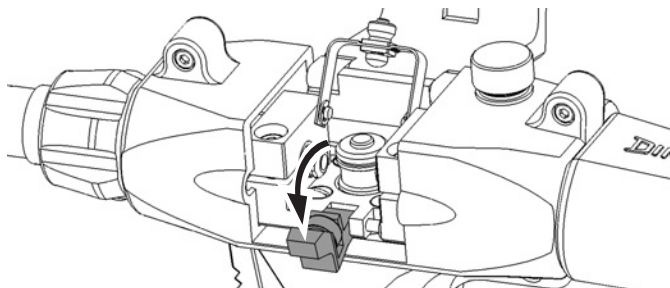


6. Maintenance instructions

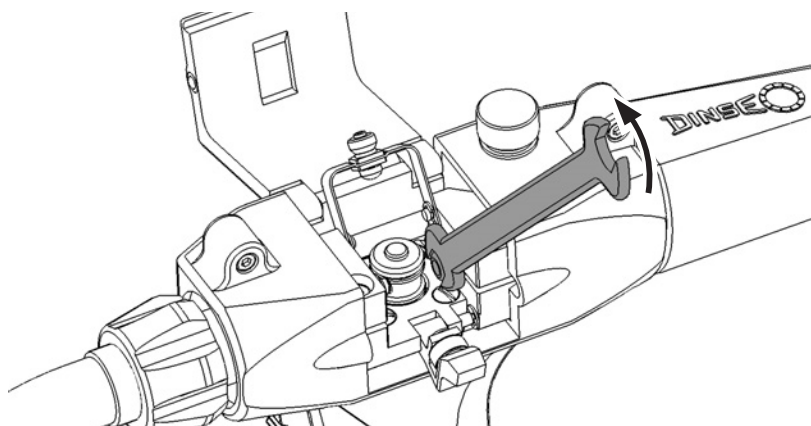


6.1 Changing the liner – Torch set

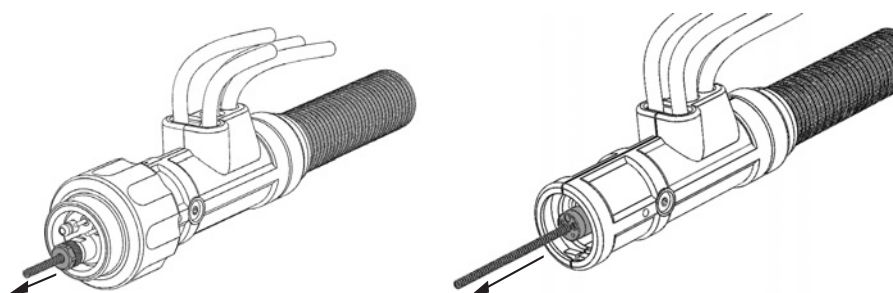
4. Swivel the pressure system downwards.



5. Loosen the clamp sleeve around the supply hose using an SW 8 wrench.



6. Pull out the old liner.



7. Install a new liner as described at section 5.1.4 titled "Inserting the liner into the welding torch set" beginning on Page 25.

6.2 Changing the liner – Torch head

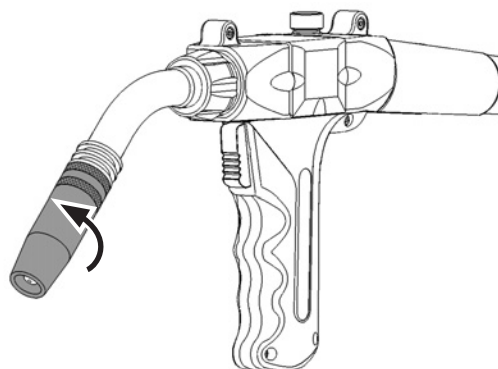


WARNING!

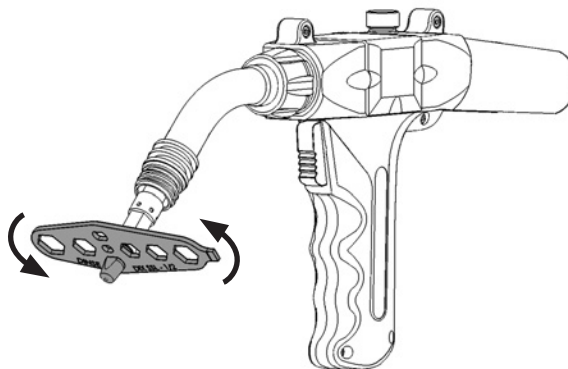
Risk of burns due to the hot surface of the torch head!

- Never touch the torch head with your bare hands immediately after welding.
- Allow the torch head to cool off completely before replacing the wearing parts of the torch head.

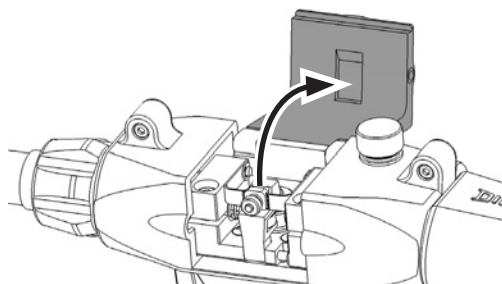
1. Unscrew the gas nozzle from the torch head.



2. Using the special spanner DIX SSL 1/2 from **DINSE**, unscrew the contact tip from the torch head.



3. Open the cover of the PUSH-PULL-Pistol grip.

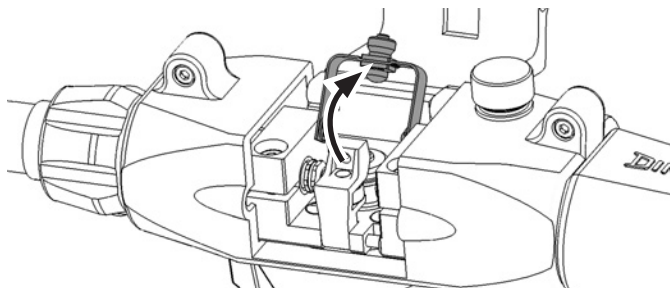


6. Maintenance instructions

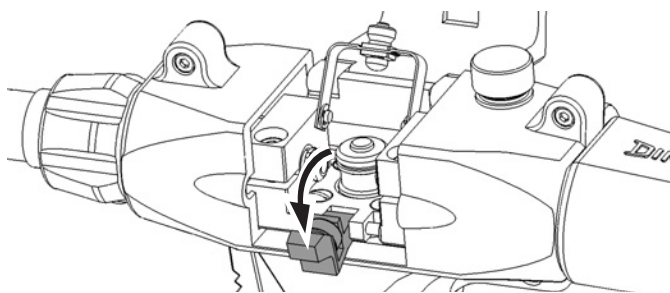


6.2 Changing the liner – Torch head

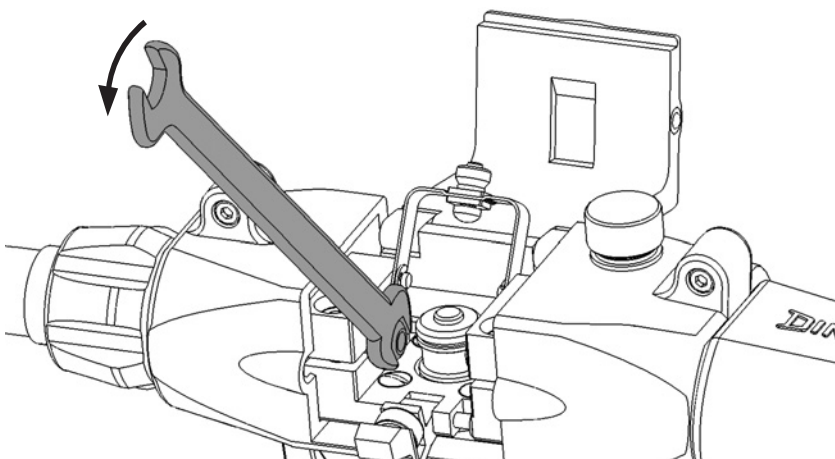
4. Fold the stirrup lock of the pressure system upwards.



5. Swivel the pressure system downwards.



6. Loosen the clamp sleeve around the torch head using an SW 8 wrench.



7. Pull out the old liner.
8. Install a new liner as described at section „5.1.3 Insert the liner into the torch head" beginning on Page 20.

6.3 Replacing the drive roll of the PUSH-PULL drive

6.3.1 Removing the drive roll

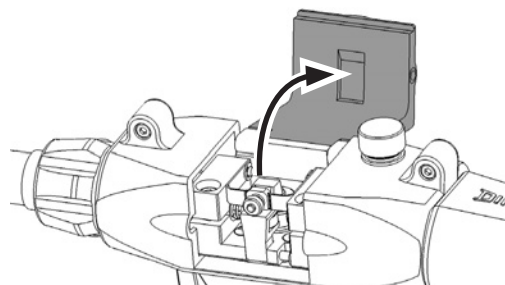


WARNING!

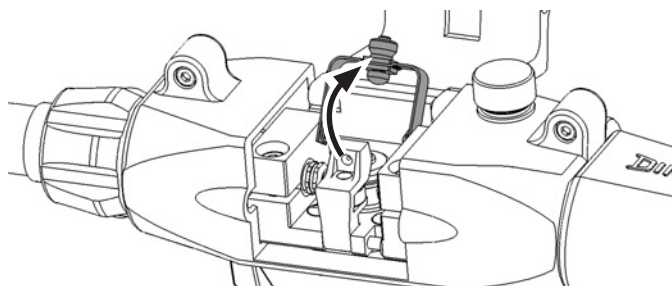
Risk of injury to the hands due to rotating components on the inside of the PUSH-PULL-Pistol grip!

- Never open the PUSH-PULL-Pistol grip during normal operation.
- Ensure that the welding device is not in operation and is not being put into operation by another person before you open the PUSH-PULL -Pistol grip.

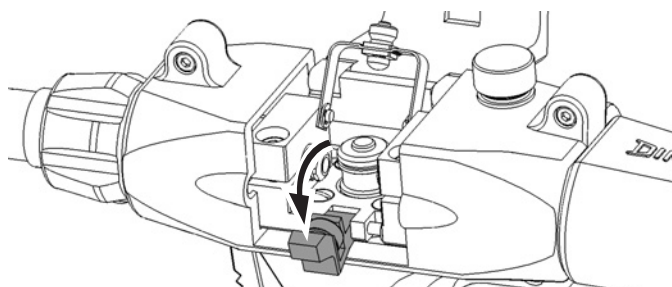
1. Open the cover of the PUSH-PULL-Pistol grip.



2. Fold the stirrup lock of the pressure system upwards.



3. Swivel the pressure system downwards.

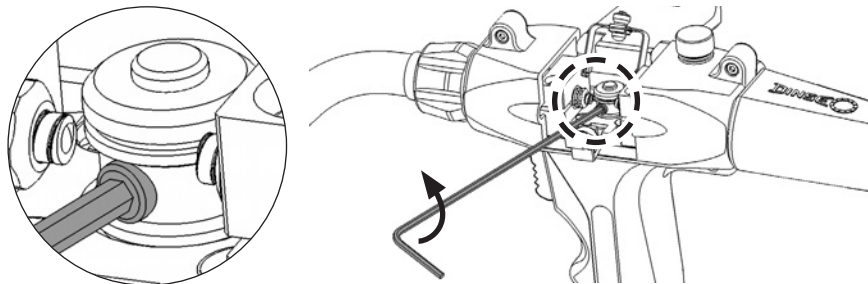


6. Maintenance instructions

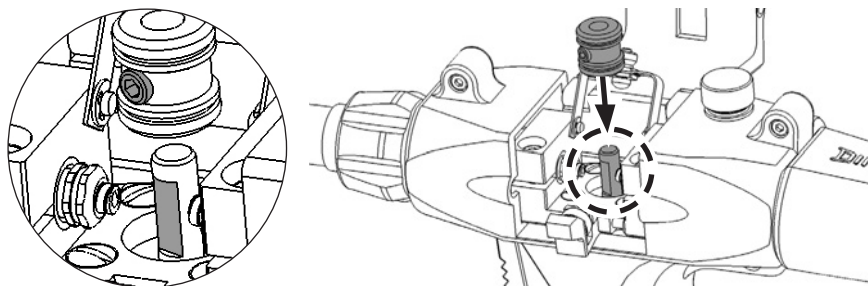


6.3 Replacing the drive roll of the PUSH-PULL drive

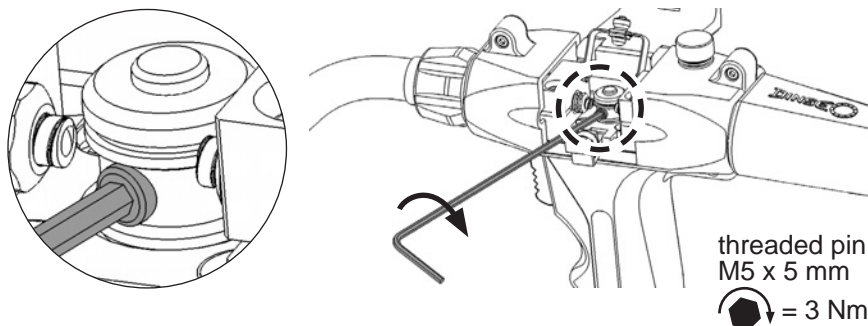
4. Remove the threaded pin using an SW 2.5 Allen screw key.
5. Remove the drive roller from the drive roller receptacle.



- 6.3.2 Mounting the drive roll
1. Place the new drive roller on the drive roller receptacle. Align the drive roller with the threaded pin on the end face of the drive axis.



2. Screw in the threaded pin using an SW 2.5 Allen screw key against the end face.
Tighten the threaded pin with 3 Nm.

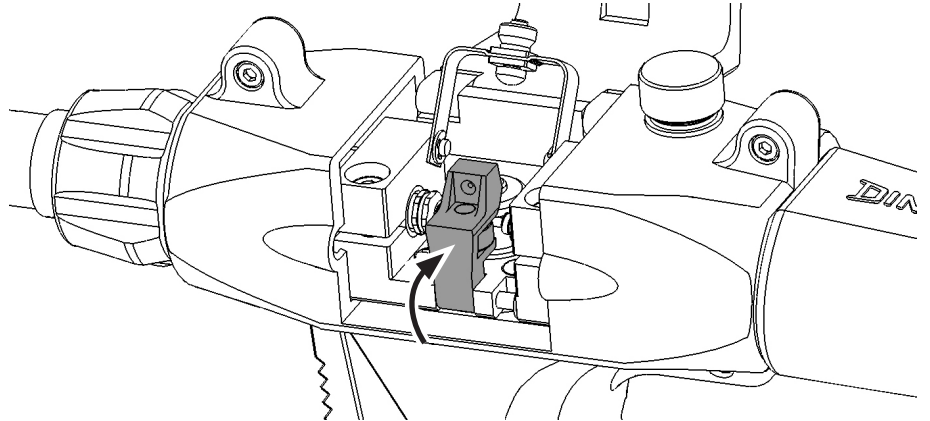


6. Maintenance instructions

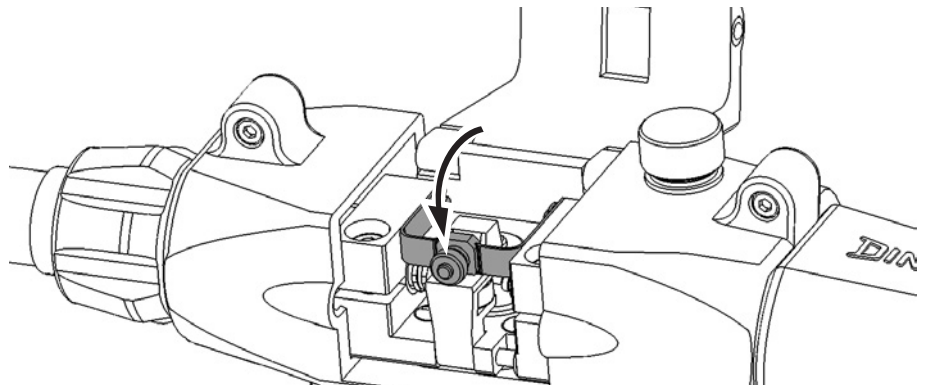


6.3 Replacing the drive roll of the PUSH-PULL drive

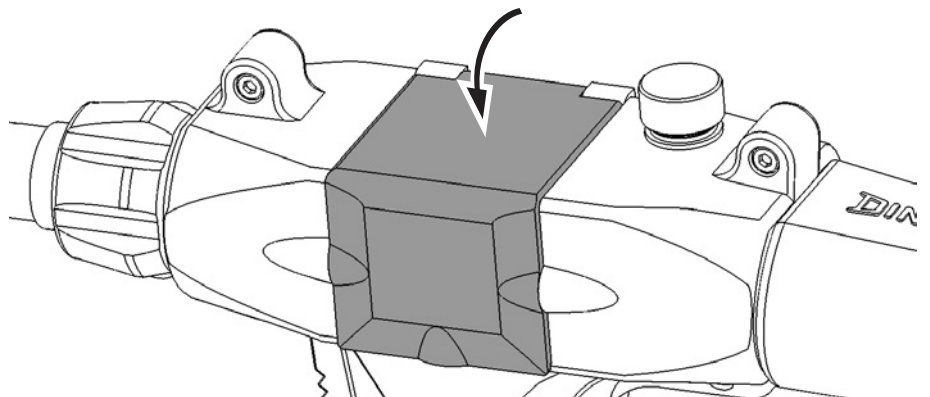
3. Swivel the pressure system upwards.



4. Fold the stirrup lock of the pressure system downwards until it locks into the pressure system with an audible click.



5. Close the cover of the PUSH-PULL-Pistol grip.



6. Maintenance instructions



6.4 Gas-cooled torch set

Cooling is achieved using an appropriate quantity of inert gas.

6.5 Liquid-cooled torch set

Thermodynamic equilibrium is attained between the torch set and the cooling system. The heat absorbed by the torch head (in accordance with the welding current) is transported by a coolant through the supply line and released again to a cooling apparatus.



CAUTION!

In case of malfunction, the temperature can rise to unpermitted levels. This can result in premature wear and damage to the torch set!

➤ Ensure sufficient cooling at all times.



CAUTION!

High pressure loads can damage the water connections, when the torch set or the torch head is changing. Water leaking into the wire guide can adversely affect the quality of the welded joints.

- Always shut off the cooling system when changing the torch set or the torch head.
- Always prevent coolant from entering the wire guide when changing torch sets.

The maximum permissible welding currents in Table 1 (refer to the technical data on page 15) are applicable under the following conditions:

- Direct coupling via the supply line to the cooling system
- Torch set length of 3 m
- An efficient cooling system with clean cooling fins and filters
- Ambient temperature of 20 °C (68 °F)

After changing torch sets, check the filling level of the cooling system and replenish the coolant if necessary. The coolant will naturally become dirty over the course of time, and it should be replaced at regular intervals.

6.6 Repairing torch sets



*Please note that repairs should generally be performed only by **DINSE Inc.** or qualified electricians appointed by **DINSE Inc.**!*

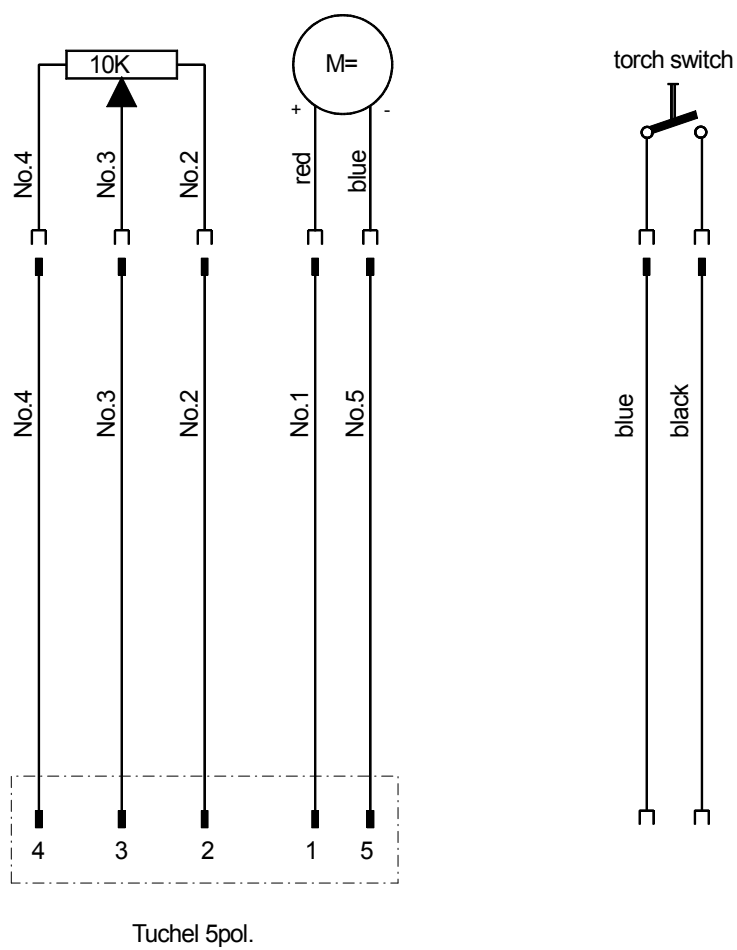
DINSE Inc. strives to ensure strict product control during and after production; however, in the event your torch set is not working properly, consult the list below for possible troubleshooting solutions.

Safety First! If the “Troubleshooting Suggestions” do not resolve your problem, please contact **DINSE Inc.** and do not attempt further action on your own.

Malfunction	Possible causes	Remedy
Wire is not fed or wire feed is jerky	Liner is blocked or damaged	Clean or replace the liner
	Contact tip's drill-hole is too small	Use a contact tip which matches the wire
	Liner's inner diameter is too small	Use a liner which matches the wire
	Wire diameter and drive roll are not adjusted to one another	Compare the wire diameter of the drive roll with the selected wire electrode; replace the drive roll if necessary
Liquid-cooled welding torch heats up excessively	Coolant hoses are not connected	Connect the coolant hoses to the wire feeder case
	Too little coolant	Replenish the coolant
	Leak in coolant cycle	Repair the leak and replenish the coolant
	Coolant is dirty	Replace the coolant
	Cooling hose is blocked	Remove the blockage in the cooling hose
Wire electrode is not threaded	Control line is disconnected	Connect the control line to the wire feeder

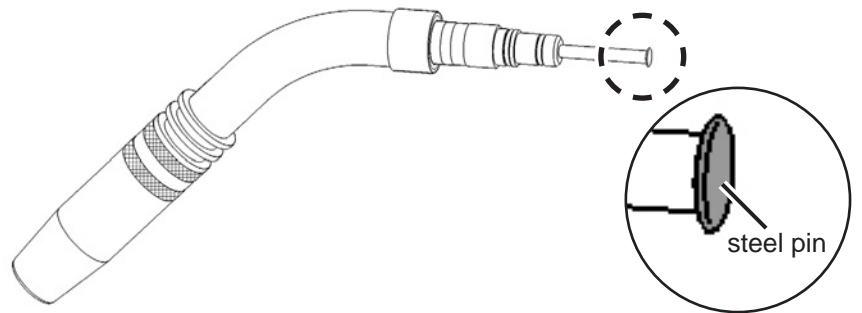
Wiring diagram

Wiring diagram for standard applications



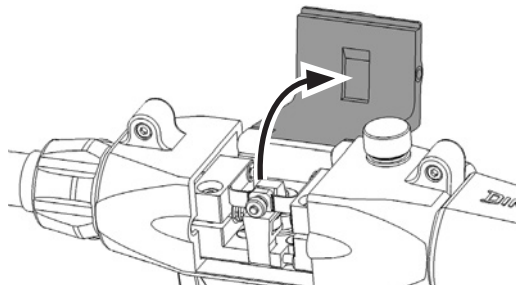
Mounting special torch heads DIX MWS (L) 330/001 ° xx

The MWS (L) 330/001 xx° torch heads have a wire guide consisting of a small copper tube, which is fixed in position in the torch head. This copper tube is prevented from bending by means of a steel pin. The steel pin must be removed before the torch head is assembled. It is not necessary to insert a liner or capillary liner into these torch heads

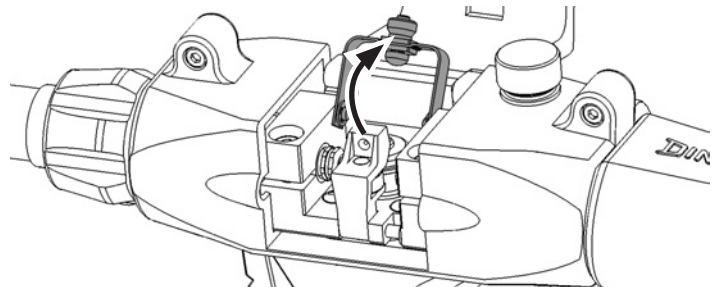


Assemble the special torch head as follows:

1. Open the cover of the PUSH-PULL-Pistol grip.

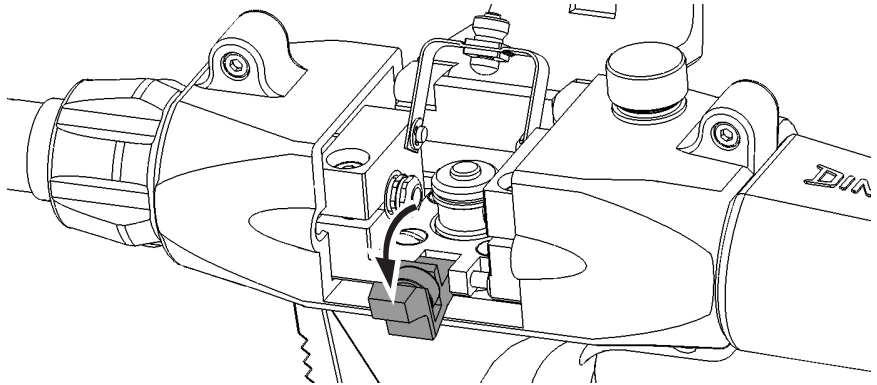


2. Fold the stirrup lock of the pressure system upwards.

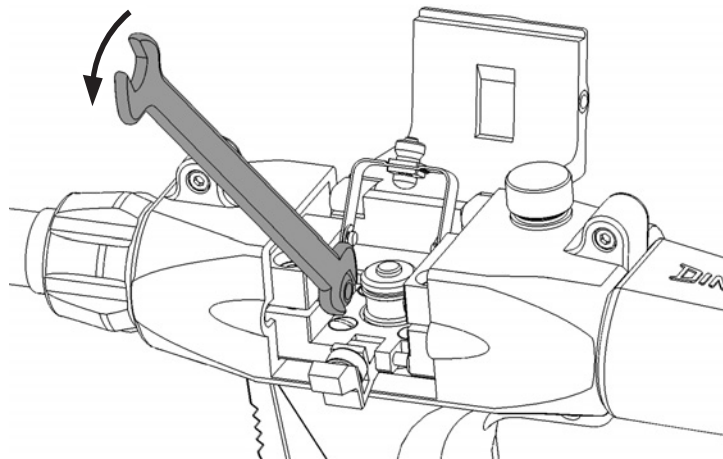


Mounting special torch heads DIX MWS (L) 330/001 ° xx

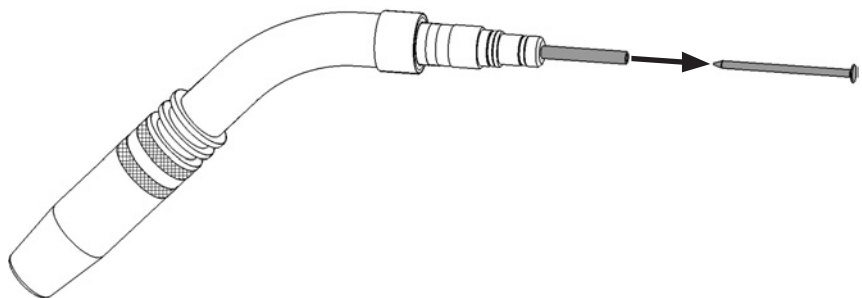
3. Swivel the pressure system downwards.



4. Loosen the clamp sleeve around the torch head using an SW 8 wrench.

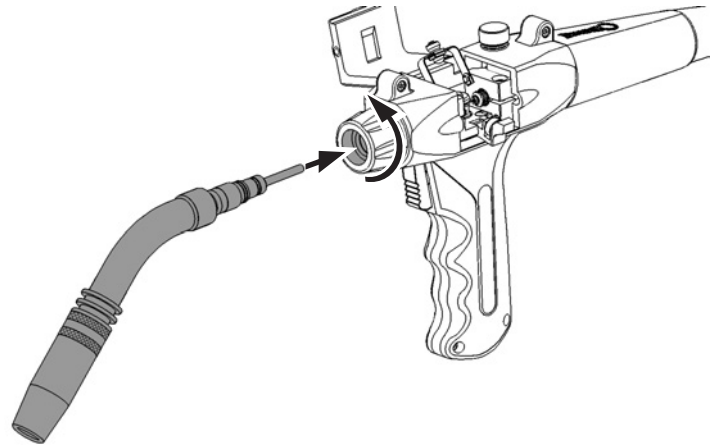


5. Pull the steel pin out of the wire guide tube.

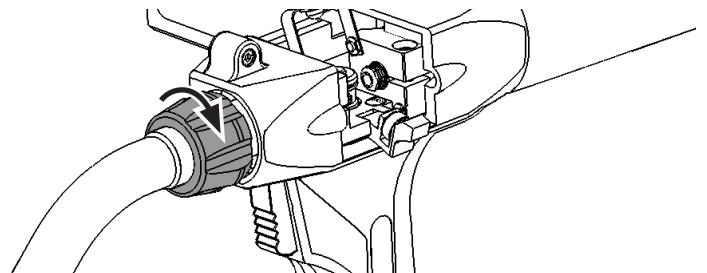


Mounting special torch heads DIX MWS (L) 330/001 ° xx

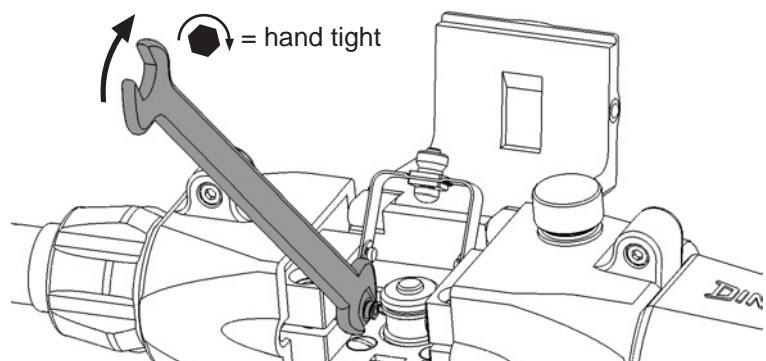
6. Loosen the clamp nut anti clockwise.
7. Connect the torch head to the PUSH-PULL-Pistol grip.



8. Screw the clamp nut clockwise until it is hand-tight.



9. Tighten the clamp sleeve using an SW 8 wrench (hand tight).



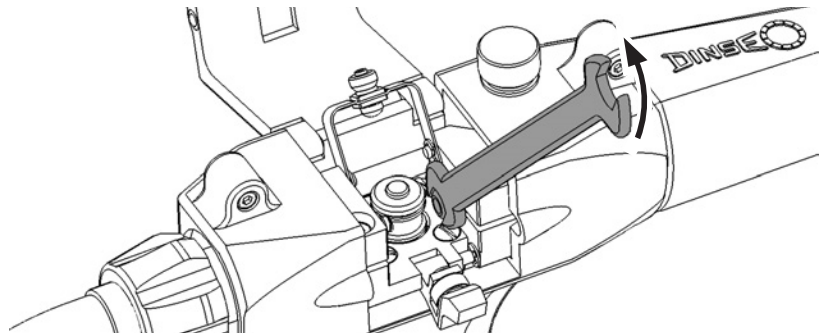
10. Now continue to assemble the torch set as described on page 25, starting from "5.1.4. Inserting the liner into the torch set".

Mounting torch set with compact connector for OTC-Wire feeder

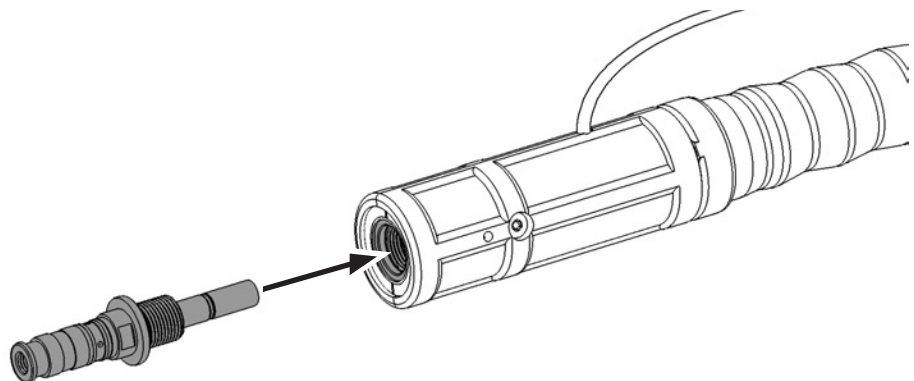
● I N F O

To facilitate replacing the wire guide helix, we recommend that you design the welding fitting to be straight along its length.

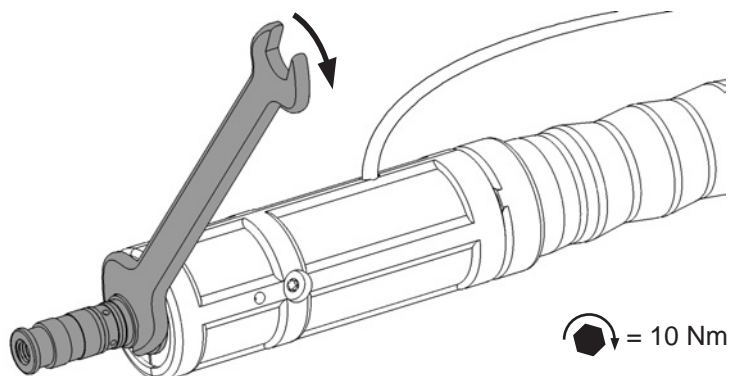
1. Loosen the clamp sleeve around the supply hose using an SW 8 wrench.



2. Screw the power pin into the compact plug.



3. Tighten the power pin to 10 Nm using a SW16 wrench.



Mounting torch set with compact connector for OTC-Wire feeder

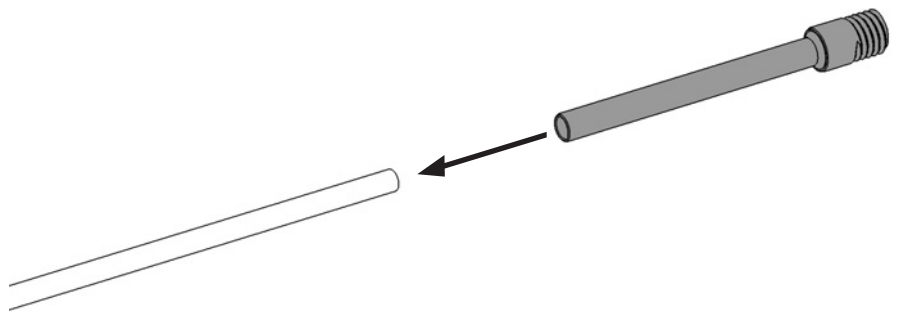


CAUTION!

A capillary liner with too small an inside diameter restricts the wire transport. Too large an inside diameter may have a negative impact on the weld seam quality.

- Check the inside diameter of the capillary liner and if necessary, replace it with the correct capillary liner.
- Refer to the spare parts and wear parts lists to choose the correct capillary liner.

4. Slide the wire guide sleeve on to the capillary liner.

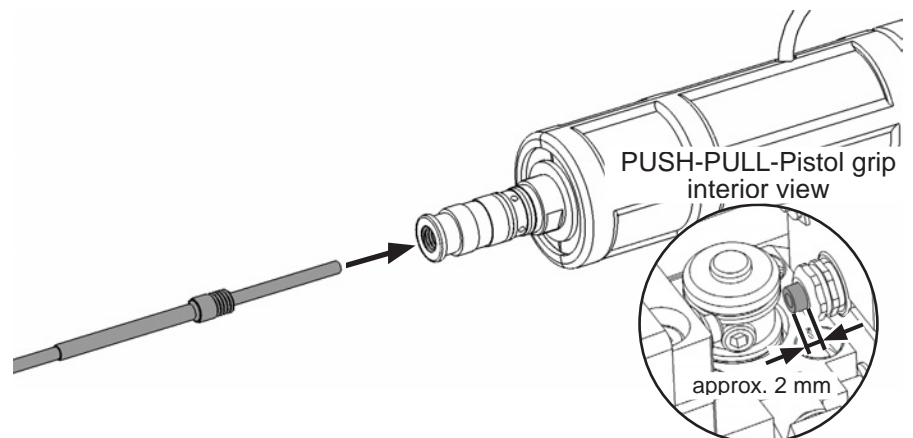


5. Feed the capillary liner on the power pin into the torch set until the capillary liner protrudes about 2 mm from the clamp sleeve in the PUSH-PULL pistol grip.



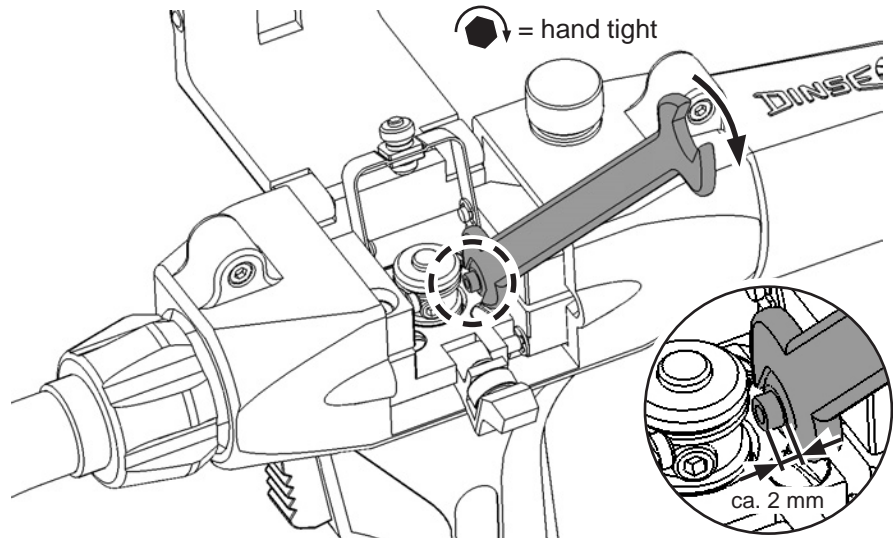
The capillary liner must not touch the drive roll or the pressure system!

To prevent the wire guide sleeve from bending, do not screw this into the power pin until the capillary liner is fully inserted into the torch set.

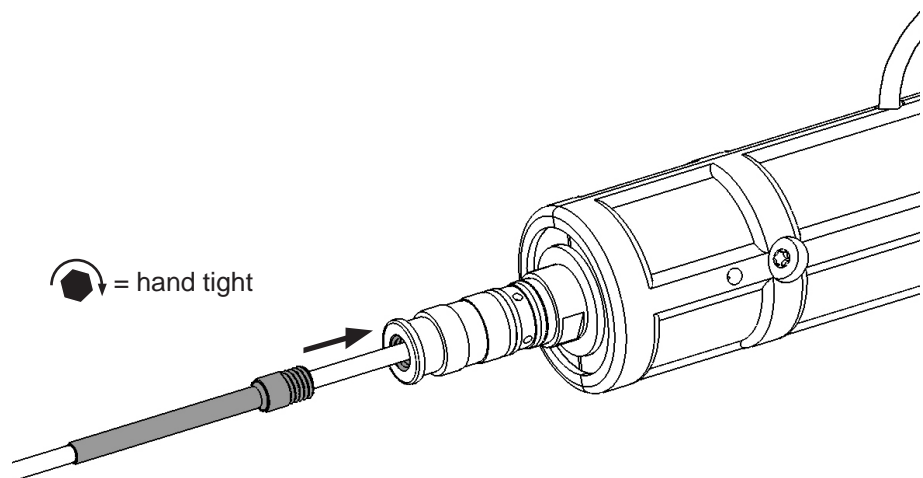


Mounting torch set with compact connector for OTC-Wire feeder

6. Tighten the clamp sleeve using an SW 8 wrench (hand tight).

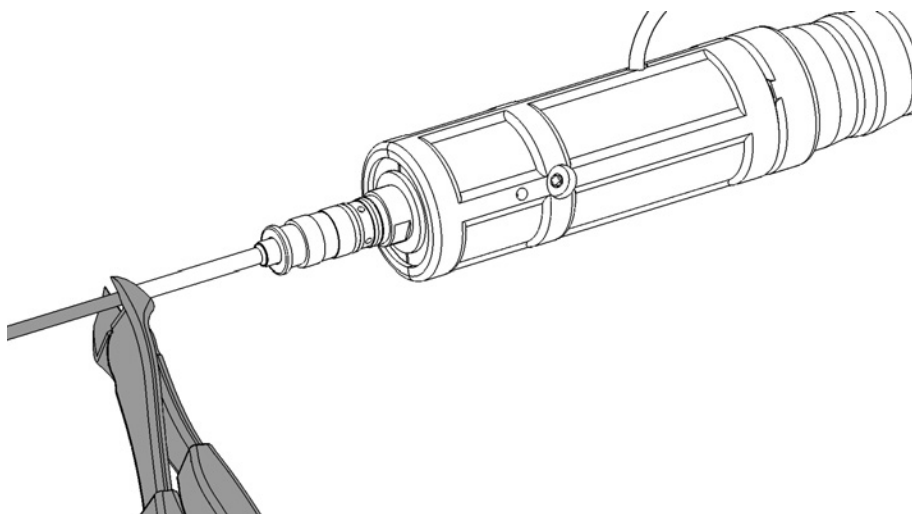


7. Screw the wire guide sleeve into the power pin by hand.

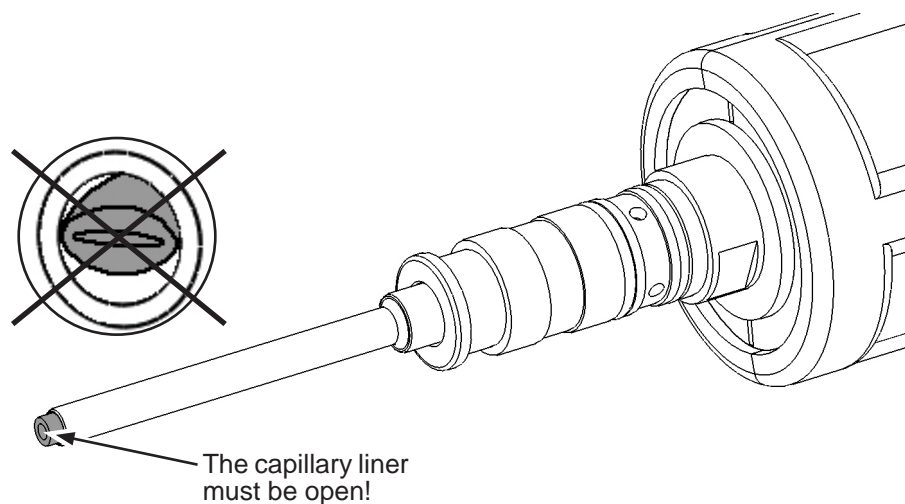


Mounting torch set with compact connector for OTC-Wire feeder

8. Cut off the capillary liner with a hose cutter approx. 2mm in front of the wire guide sleeve.

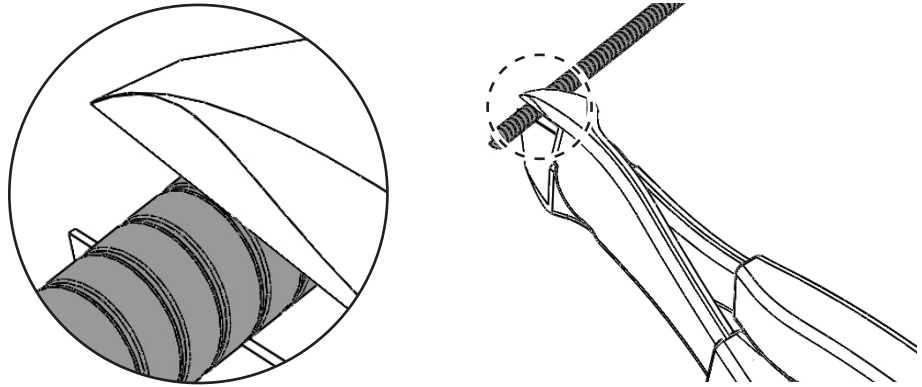


9. Check that the capillary liner is open after cutting it off.
The end must not be squeezed shut; if necessary, open the capillary liner with a piece of wire.

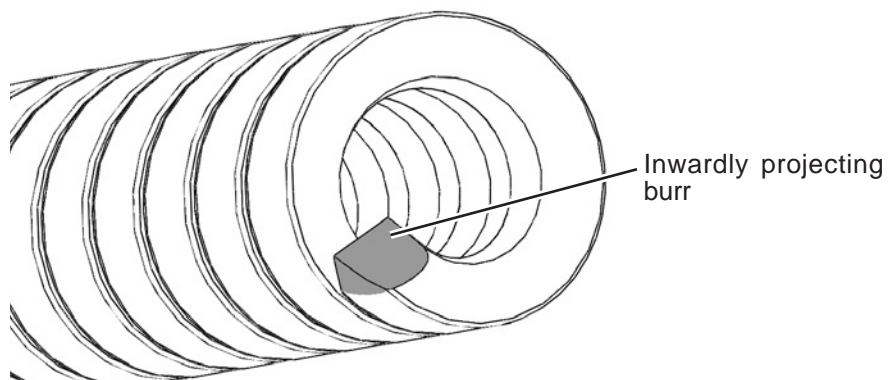


10. Attach the assembled torch set on to the OTC wire feeder with the help of the operating instructions for the latter.

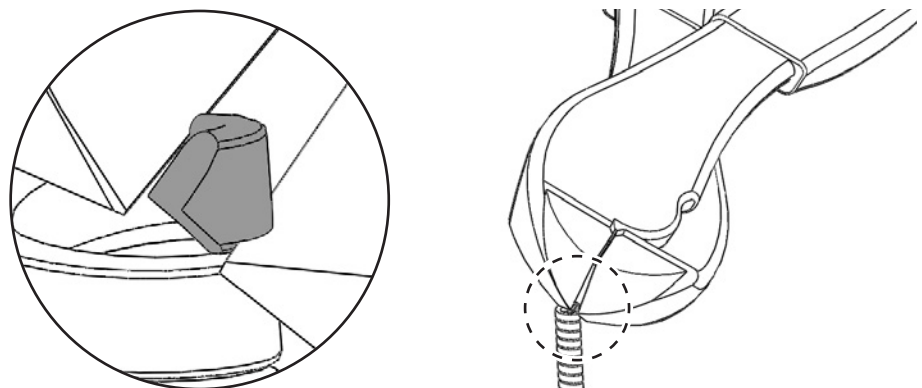
1. Put on the cutter into the groove to cut the liner.



2. Check the end of the liner for burrs, that are inwardly projecting and could blocking the liner aperture.



3. Put on the cutter in an angle of approx. 45° , to cut the burr.



Insert a capillary liner into the torch head

The capillary liner is made of plastic and come with specified temperature resistant. When welding, it can lead to very strong heat development, especially for aluminum welding. The capillary liner could melt and blocking the stickout of the wire, so we recommend to use the distance sleeve DIX DSH 300 when using a capillary liner.

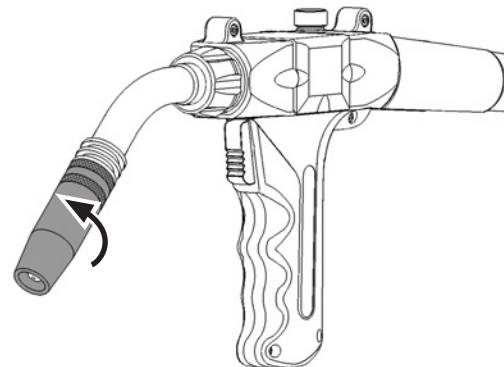


CAUTION!

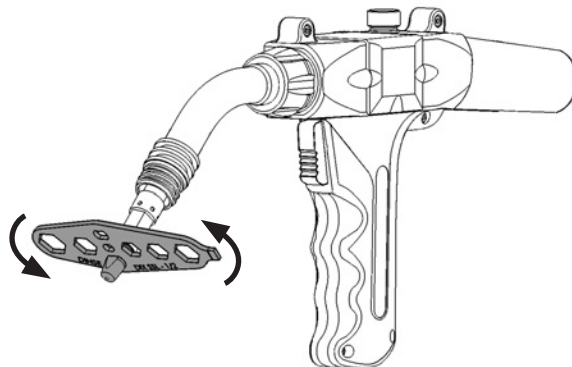
A capillary liner with too small an inside diameter restricts the wire transport. Too large an inside diameter may have a negative impact on the weld seam quality.

- Check the inside diameter of the capillary liner and if necessary, replace it with the correct capillary liner.
- Refer to the spare parts and wear parts lists to choose the correct capillary liner.

1. Unscrew the gas nozzle from the torch head.



2. Using the special spanner DIX SSL 1/2 from **DINSE**, unscrew the contact tip from the torch head.



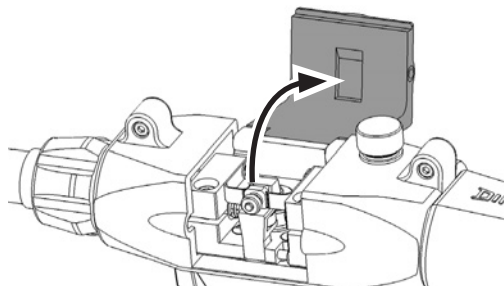
Insert a capillary liner into the torch head



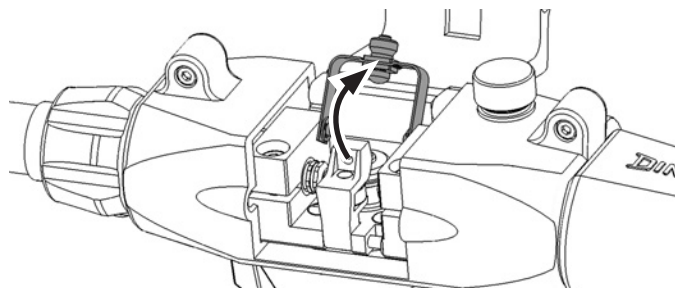
Risk of injury to the hands due to rotating components on the inside of the PUSH-PULL-Pistol grip!

- ▶ Never open the PUSH-PULL-Pistol grip during normal operation.
- ▶ Ensure that the welding device is not in operation and is not being put into operation by another person before you open the PUSH-PULL -Pistol grip.

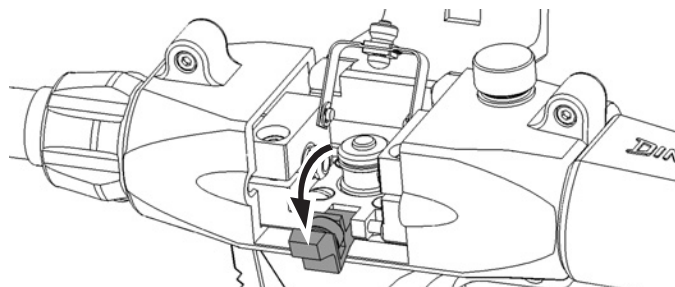
3. Open the cover of the PUSH-PULL-Pistol grip.



4. Fold the stirrup lock of the pressure system upwards.

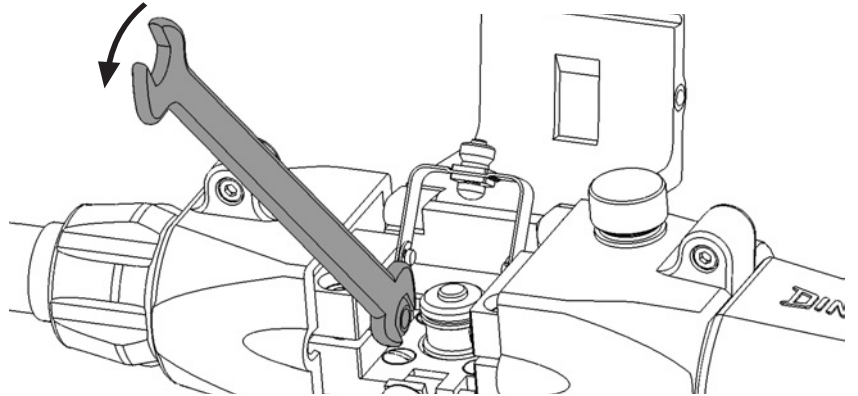


5. Swivel the pressure system downwards.

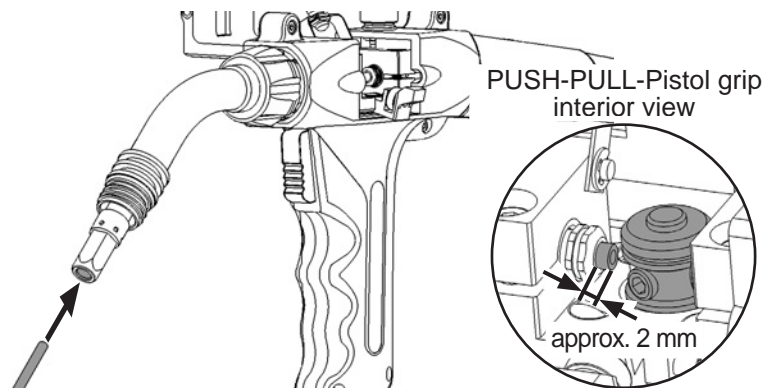


Insert a capillary liner into the torch head

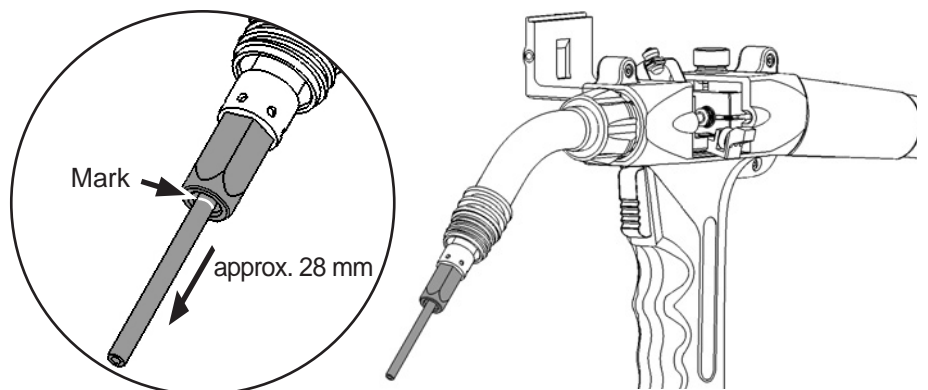
6. Loosen the clamp sleeve around the torch head using an SW 8 wrench.



7. Push the capillary liner into the torch head until it protrudes from the clamp sleeve by about 2 mm.

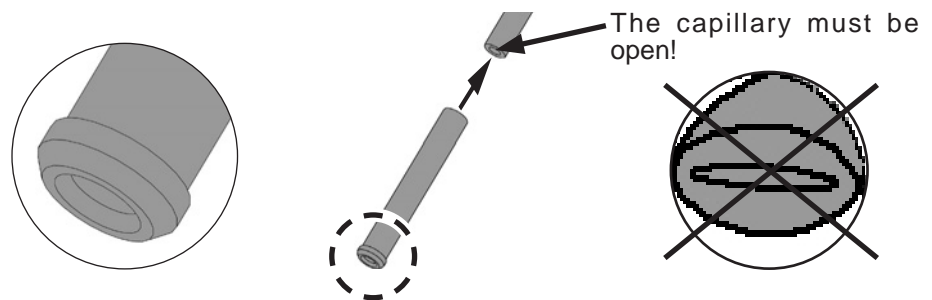


8. Pull back the capillary liner approx. 28 mm.
9. Mark the capillary liner flush with the torch head (e.g. with a pen).

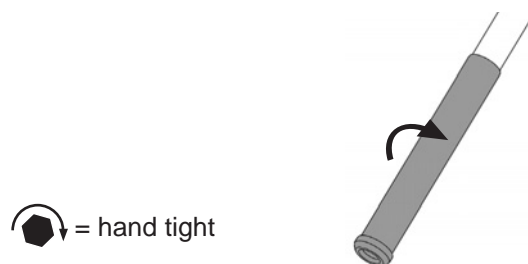


Insert a capillary liner into the torch head

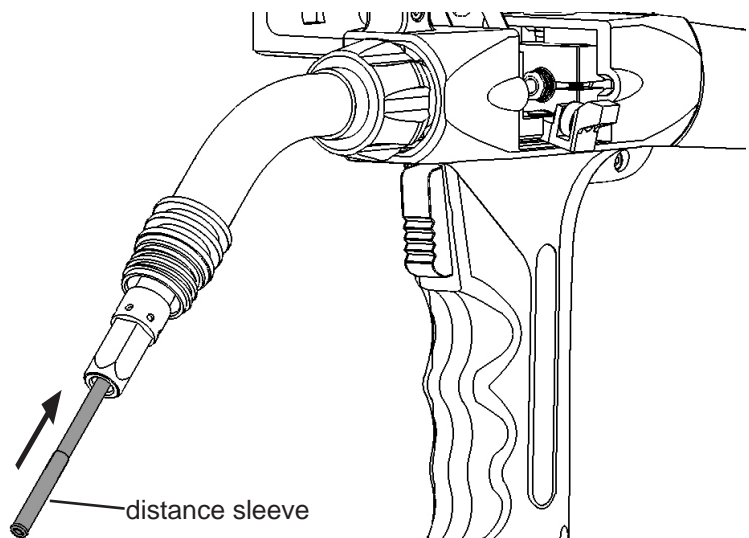
10. Pull the capillary liner out of the torch head and cut it off at the marking.
11. Check that the capillary liner is open after cutting it off.
The end must not be squeezed shut; if necessary, open the capillary liner with a piece of wire.
12. Push the distance sleeve on to the capillary liner.



13. Tighten the distance sleeve by hand to prevent it from slipping off the capillary liner (the distance sleeve has an internal thread).

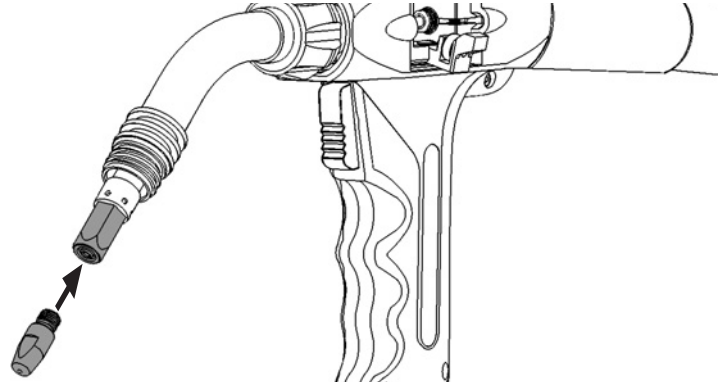


14. Guide the capillary liner into the torch head.

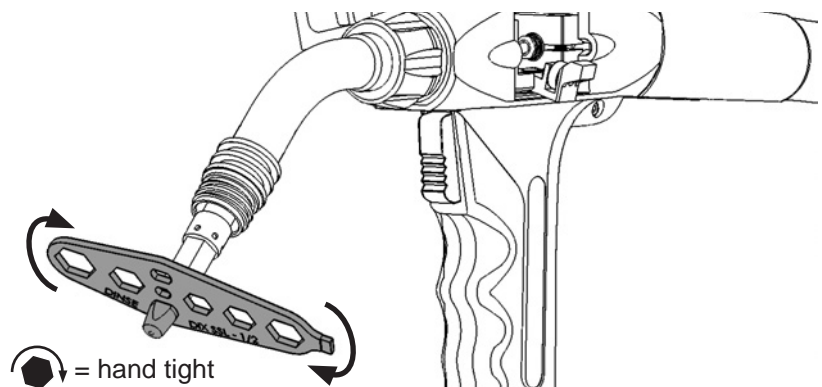


Insert a capillary liner into the torch head

15. Screw the contact tip in by hand.

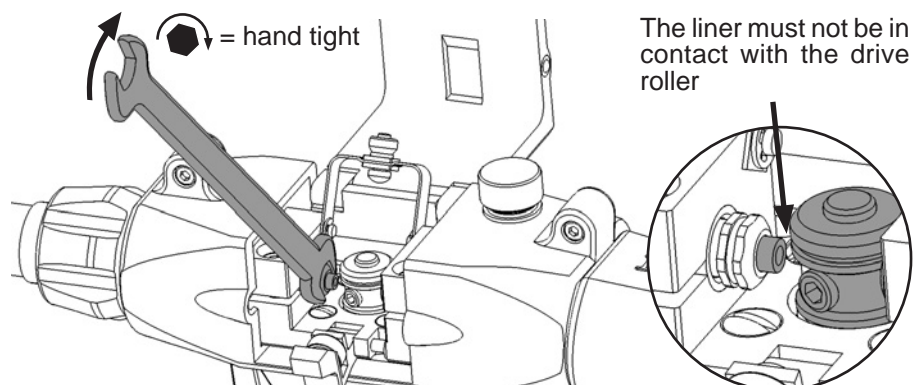


16. Screw the contact tip tight using the correct DINSE special tool (here e.g. DIX SSL 1/2).



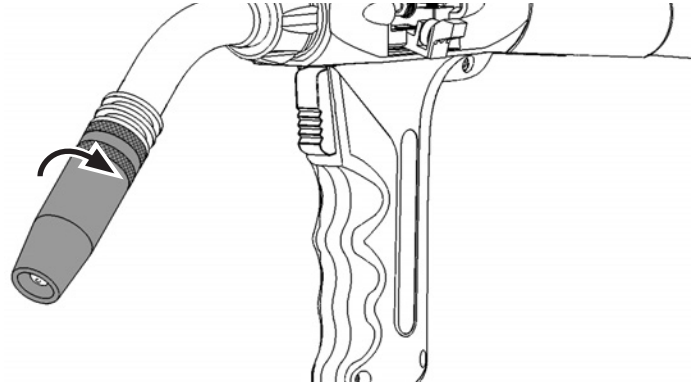
17. Check to see whether the liner is touching the drive roller. Shorten the liner if necessary.

18. Tighten the clamp sleeve using an SW 8 wrench (hand tight).



Insert a capillary liner into the torch head

19. Screw the gas nozzle hand-tight.



20. Now continue to assemble the torch set as described on page 25, starting from "5.1.4. Inserting the liner into the torch set".