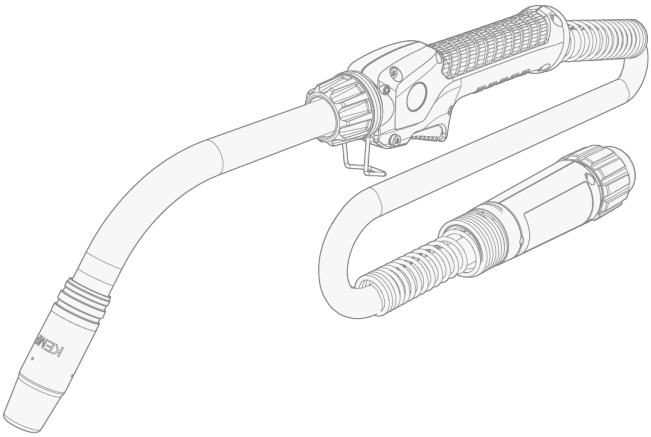
Flexlite GXP

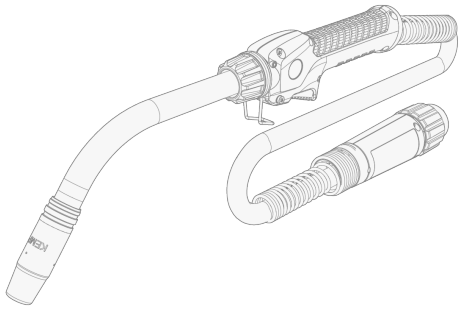


CONTENTS

1. GENERAL

These instructions describe the use of Kemppi's Flexlite GXP MIG welding torches for applications with high duty performance requirements. Flexlite GXP welding torches are designed for professional manual welding. Flexlite GXP range covers gas-cooled (G) models for MIG welding.

The neck of a Flexlite GXP Rotex welding torch is both rotatable and extendable.



Flexlite GXP models	
GXP403GRX35	GXP 403G Rotex 3.5M
GXP403GRX5	GXP 403G Rotex 5.0M
GXP503GRX35	GXP 503G Rotex 3.5M
GXP503GRX5	GXP 503G Rotex 5.0M

Important notes

Read the instructions through carefully.

Items in the manual that require particular attention in order to minimize damage and harm are indicated with the below symbols. Read these sections carefully and follow their instructions.

Note: Gives the user a useful piece of information.

Caution: Describes a situation that may result in damage to the equipment or system.

Warning: Describes a potentially dangerous situation. If not avoided, it will result in personal damage or fatal injury.

Other links

Kemppi symbols: Userdoc.

2. SAFETY

Welding is always classified as hot work, and welding equipment typically contains high-voltage circuits. If you are not familiar with welding and welding principles, it is recommended that you acquire welding training or professional guidance before commencing welding. The welding equipment mentioned in this manual is intended for professional use in an industrial environment.

For your own safety, and that of your working environment, pay particular attention to the safety instructions delivered with the equipment.

You can also access and download the safety instructions by using these links:

- Safety

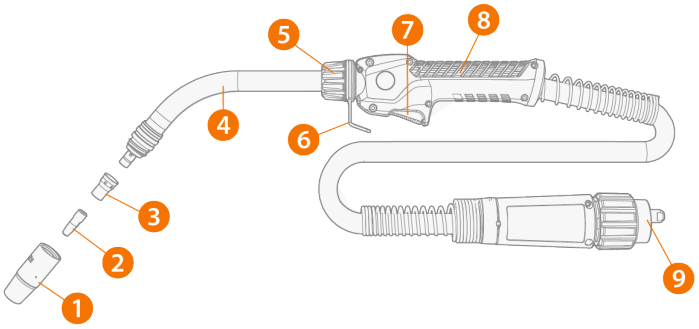
(https://kemp.cc/safety/general)

- Welding torches

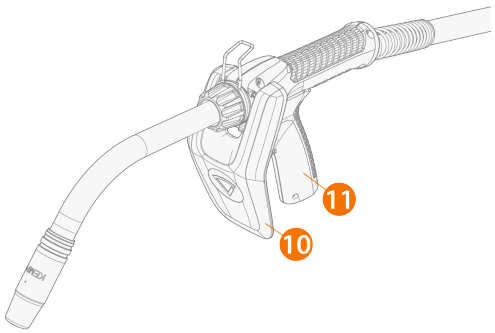
(https://kemp.cc/safety/torches)

3. ABOUT EQUIPMENT

The Flexlite GXP MIG welding torch equipment consists of:



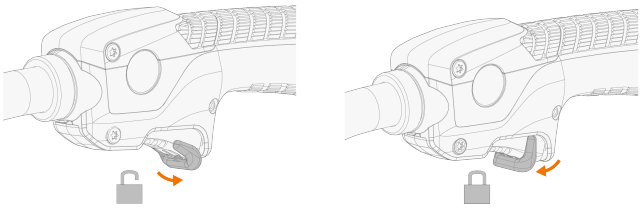
1. Gas nozzle
2. Contact tip
3. Contact tip adapter / gas diffuser
4. Welding torch neck
5. Welding torch neck locking ring
6. Welding torch hanger
7. Trigger switch
8. Welding torch handle
9. Welding torch cable with Euro connector



10. Additional heat protector (optional)
11. Additional gun handle

Other optional accessories

- Mechanical safety control switch to prevent accidental trigger action and ignitions (not compatible with the additional gun handle):



EQUIPMENT IDENTIFICATION

Quick Response (QR) code

Device-related information or a web link to such information may be found in the form of a QR code on the device. The code can be read, for example, with a mobile device camera and a QR code application.

4. INSTALLATION

Ensure that the welding equipment is not connected to the mains or that the welding torch is not connected to the welding machine until the installation is complete.

Protect the equipment from rain and direct sunshine.

Before installation and use

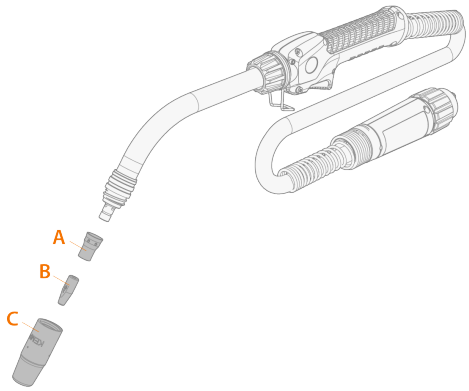
Ensure compliance with your local and national safety requirements regarding the installation and use of high voltage units.

Check the contents of the packages and make sure the parts are not damaged.

4.1 Assembling torch

For the correct components, refer to "Component selection" on page 29.

Tools needed:



1. Attach the contact tip adapter (A) and hand-tighten it firmly in place. It is important to tighten the adapter properly to enable a tight connection of the contact tip to the torch.
2. Attach the contact tip (B) and secure it with a spanner.
3. Attach the gas nozzle (C) and hand-tighten it firmly in place.
4. Ensure that the neck is also firmly in place. Hand-tighten the neck collar as needed.

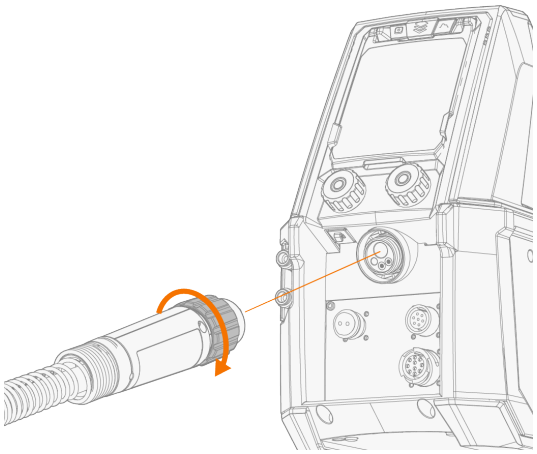
4.2 Connecting torch

Hand-tighten the torch connectors. Loose connectors may overheat, create contact disturbances, mechanical damage and water or gas leakage.

For connecting the torch (and applicable extension parts), refer also to your welding equipment's instructions.

If not already preinstalled, the wire liner must be installed before connecting the torch. Refer to "Replacing steel wire liner" on page 12 for instructions.

Connect the torch to your welding equipment. Secure the connector in place by turning the collar clockwise.



Refer to your welding equipment's operating instructions for more information on its connection features.

4.3 Installing and replacing wire liner

The Flexlite GXP welding torch cable packs are delivered with the wire liner preinstalled. Refer to this section when the wire liner needs to be replaced.

The wire liner is a consumable part, which needs to be changed if worn and when the filler wire material changes.

For replacing the steel wire liner, refer to "Replacing steel wire liner" on page 12.

For replacing the DL Chili wire liner, refer to "Replacing DL Chili wire liner" below.

If you change the filler wire to a different diameter or material, change also the feed rolls in the wire feed system accordingly.

The filler wire must be removed before the wire liner replacement. Always read the instructions delivered with the replacement wire liner as well.

4.3.1 Replacing DL Chili wire liner

Use the DL Chili wire liners designed specifically for the Flexlite GXP Rotex welding torches. Note that the load capacity is slightly reduced when DL Chili wire liner is used.

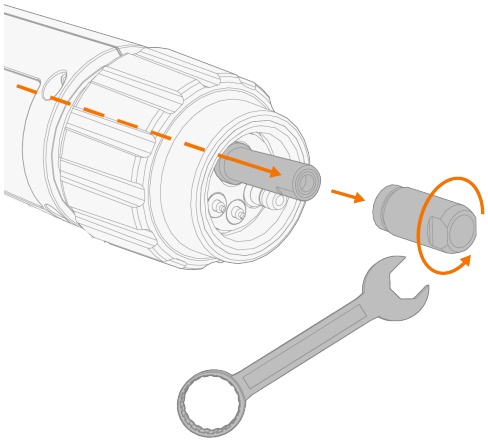
Tools needed:

Removing and inserting wire liner

The visual details may vary slightly between different welding torch models.

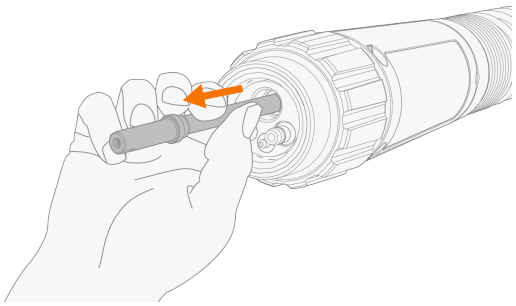
1. Straighten the welding torch cable.

2. At the wire feeder end of the cable, remove the wire liner's sleeve nut.



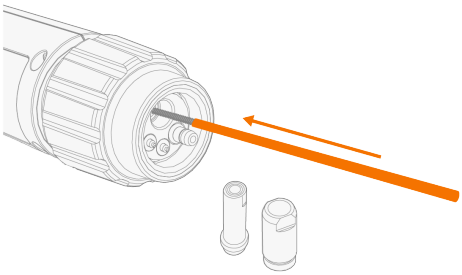
3. Remove the old wire liner from the cable hose.

If you still plan to use the same wire liner later, make sure not to damage the wire liner at this stage.

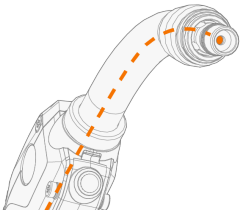


4. Feed the new wire liner into the cable hose until it stops at the torch neck end.

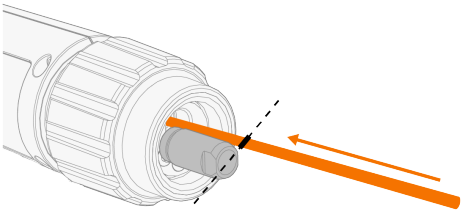
The DL Chili wire liner includes a metal spiral section at its front end. This metal spiral end goes in first.



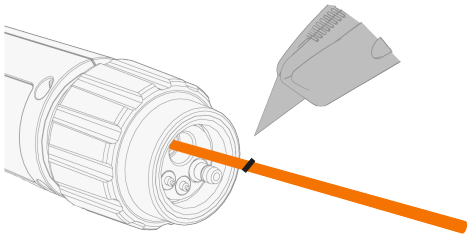
To ensure that the wire liner is in the correct position, temporarily remove the welding torch contact tip. For more information on the contact tip, refer to "About equipment" on page 5 and "Assembling torch" on page 8.



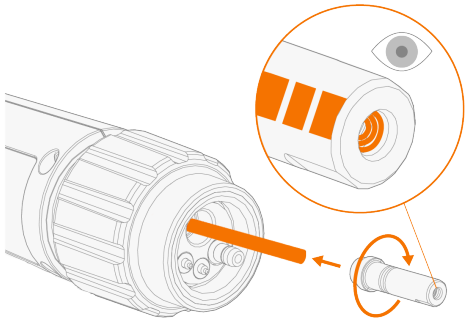
5. Insert the sleeve nut next to the wire liner for measure. (Do not install the sleeve nut in its actual position at this stage.)



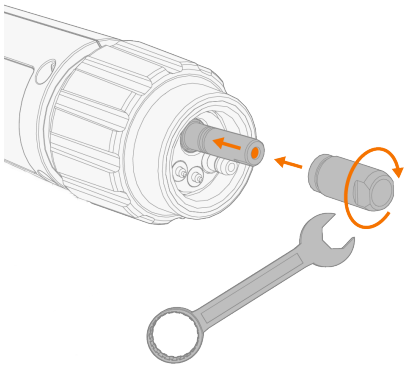
6. Using carpet knife, cut the wire liner flush with the sleeve nut end.



7. Insert the retainer cone onto the wire liner and push in place. Ensure that the wire liner goes all the way into the tip of the retainer cone.



8. Place the sleeve nut on the wire liner and secure it in place by tightening it to 5 Nm torque.



4.3.2 Replacing steel wire liner

Tools needed:

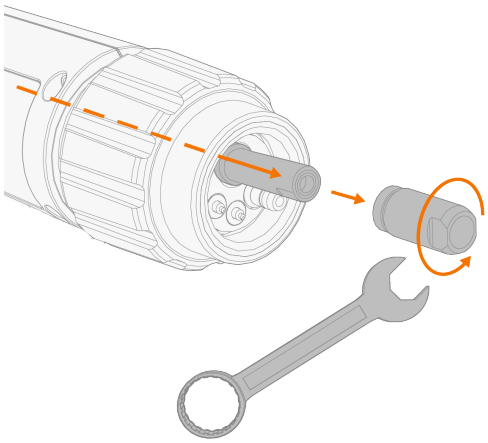


Removing and inserting wire liner

The visual details may vary slightly between different welding torch models.

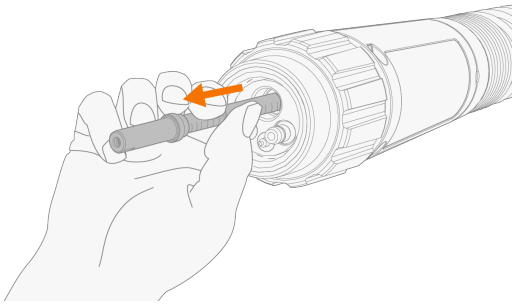
1. Straighten the welding torch cable.

2. At the wire feeder end of the cable, remove the wire liner's sleeve nut.



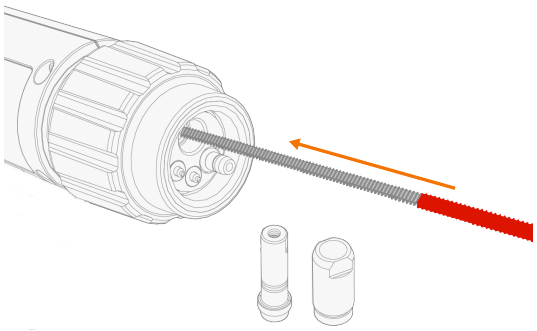
3. Remove the old wire liner from the cable hose.

⚠ *If you still plan to use the same wire liner later, make sure not to damage the wire liner at this stage.*

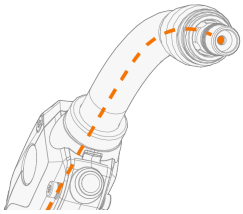


4. Feed the new wire liner into the cable hose until it stops at the torch neck end.

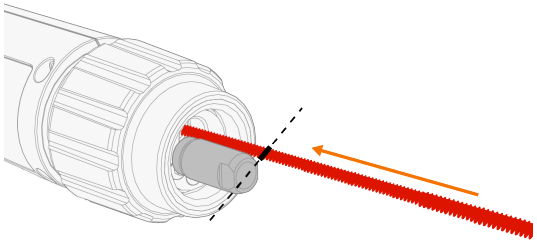
ⓘ *The standard steel wire liner includes a stripped steel spiral section (*) in the welding torch end. This longer stripped section goes in first.*



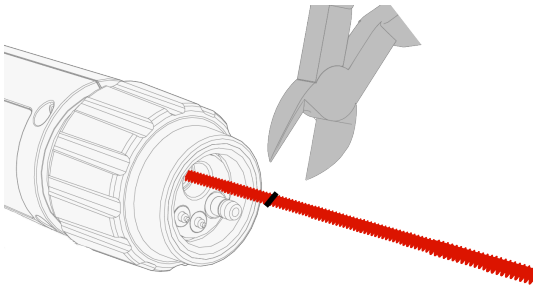
To ensure that the wire liner is in the correct position, temporarily remove the welding torch contact tip. For more information on the contact tip, refer to "About equipment" on page 5 and "Assembling torch" on page 8.



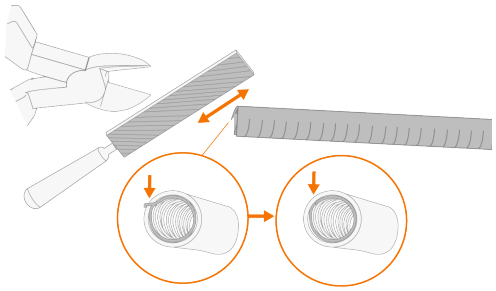
5. Insert the sleeve nut next to the wire liner for measure. (Do not install the sleeve nut in its actual position at this stage.)



6. Using side cutting pliers, cut the wire liner flush with sleeve nut end.

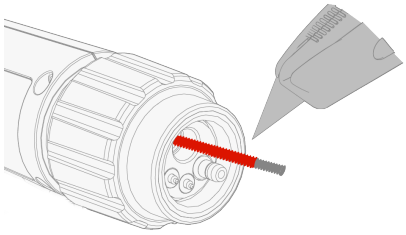


7. File the end of the wire liner.

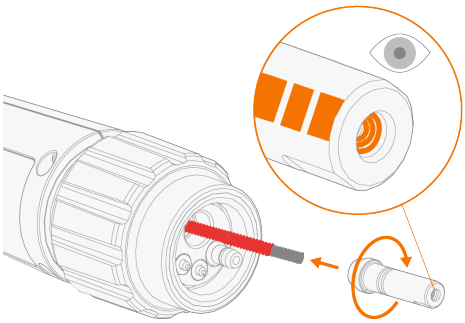


⚠ *Don't leave any rough, inward edges that could potentially damage the filler wire.*

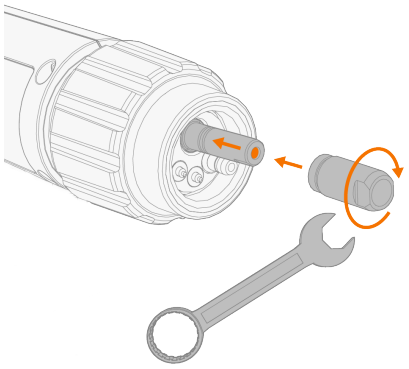
8. Strip the end of the wire liner for approximately 10...20 mm.



9. Insert the retainer cone onto the wire liner and push it in place. Ensure that the wire liner goes all the way into the tip of the retainer cone.



10. Place the sleeve nut on the wire liner and secure it in place by tightening it to 5 Nm torque.

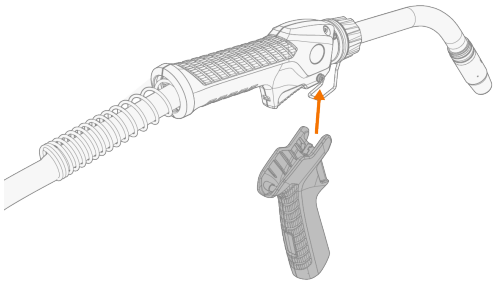


4.4 Installing additional gun handle and heat protector (optional)

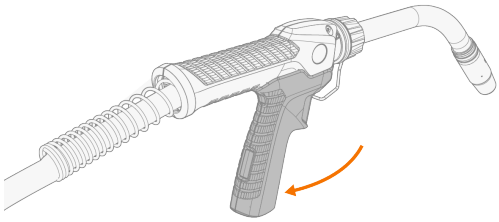
The additional gun handle and heat protector are available for all Flexlite GXP MIG welding torches.

Gun handle

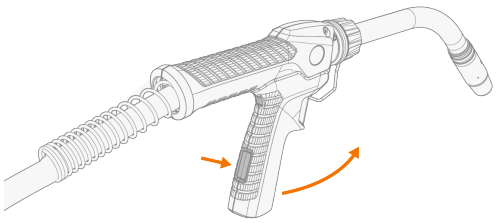
1. Keeping the bottom of the grip handle pointing forward, fit the inside grooves of the grip handle over the screws on the torch.



2. Pull the handle backward to lock it in position.

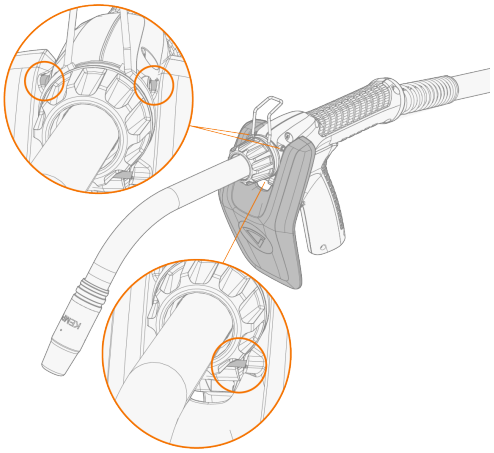


To remove the grip handle, press the unlock button in the grip handle rear:



Heat protector

1. Place the heat protector's top fixing heads into the screw ends on both sides of the welding torch body.
2. Push the bottom of the heat protector towards the handle so that the protector clicks in place.



5. OPERATION

Before using the equipment, ensure that all the necessary installation actions have been completed according to your equipment setup and instructions.

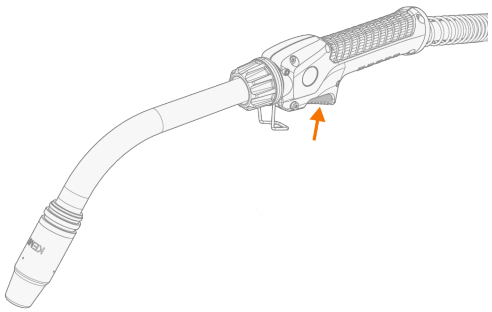
Welding is forbidden in places where there is an immediate fire or explosion hazard!

Welding fumes may cause injury. Take care to ensure sufficient ventilation during welding and wear respiratory protection!

Always check before use that interconnecting cable, shielding gas hose, earth return lead/clamp and mains cable are in serviceable condition. Ensure that the connectors are correctly fastened. Loose connectors can impair welding performance and damage connectors.

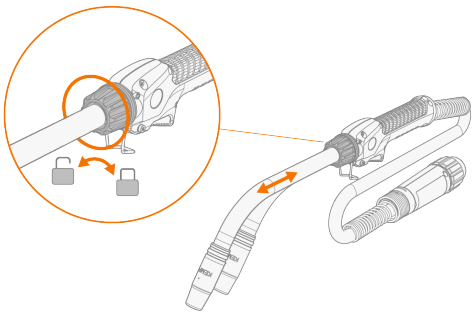
The exact function of the torch and trigger may vary depending on your welding machine settings (e.g. 2T, 4T or Minilog).

To start welding, press the trigger switch.



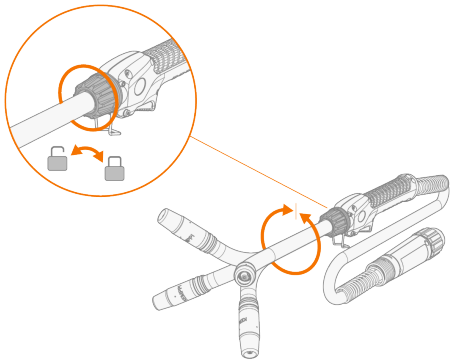
Neck adjustments

To adjust the length of the neck, release the locking collar by turning it counterclockwise and pull or push the neck. Once ready, secure the neck in place by turning the collar clockwise.



>> The neck length adjustment range is 70 mm.

To rotate the neck, release the locking collar by turning it counterclockwise and turn the neck. Once ready, secure the neck in place by turning the collar clockwise.



For more information on component selection and availability, refer to "Component selection" on page 29.

6. MAINTENANCE

When planning routine maintenance, consider the operating frequency of the welding equipment and the working environment.

Correct operation of the welding equipment and regular maintenance helps you avoid unnecessary downtime and equipment failure. Mainly due to the high temperatures, MIG welding torches require regular checks and maintenance. Periodically, check the cables set for damage and ensure connections are tightened correctly.

Daily maintenance

⚠ *Disconnect the power source from the mains power supply before handling electrical cables.*

- Check regularly that all the components are tightly fastened.
- Check that the current transfer surface on the Kemppi torch adapter is clean and unscratched, and the connector pins are straight and undamaged.
- Check the protective hose on the cable for damage.
- Check the O-rings in the welding torch gas connector for wear and damage.
- Remove any spatter gathered on the neck surface so that the adjustment mechanism can function properly.
- Clean dust from the liner with pressurized air every time you change the wire spool, or every day during heavy use.
- Check and remove any spatter build-up from the nozzle.
- When not using the torch, keep it in the welding torch holder on the wire feeder.

For repairs, contact your Kemppi dealer.

Periodic maintenance

⚠ *Only qualified service personnel are allowed to carry out periodic maintenance.*

Check the electrical connectors of the unit at least every six months. Clean oxidized parts and tighten loose connectors.

ⓘ *Use the correct tension torque when fastening loose parts.*

ⓘ *Do not use pressure washing devices.*

Service workshops

Kemppi Service Workshops complete the welding system maintenance according to the Kemppi service agreement.

The main aspects in the service workshop maintenance procedure are:

- Cleanup of the machine
- Maintenance of the welding tools
- Checkup of the connectors and switches
- Checkup of all electric connections
- Checkup of the power source mains cable and plug
- Repair of defective parts and replacement of defective components
- Maintenance test
- Test and calibration of operation and performance values when needed.

Find your closest service workshop at Kemppi website.

6.1 Troubleshooting

The problems and the possible causes listed are not definitive, but suggest some typical situations that may turn up during normal use of the welding system. For further information and assistance, contact your nearest Kemppi service workshop.

General:

The welding system does not power up

- Check that the mains cable is plugged in properly.
- Check that the mains switch of the power source is at the ON position.
- Check that the mains power distribution is on.
- Check the mains fuse and/or the circuit breaker.
- Check that the earth return cable is connected.

The welding system stops working

- The torch may have overheated. Wait for it to cool down.
- Check that none of the cables is loose.
- The wire feeder may have overheated. Wait for it to cool down and see that the welding current cable is properly attached.
- The power source may have overheated. Wait for it to cool down and see that the cooling fans work properly and the air flow is unobstructed.

Wire feeder:

The filler wire on the spool unravels

- Check that the spool locking cover is closed.

The wire feeder does not feed the filler wire

- Check that the filler wire has not run out.
- Check that the filler wire is properly routed through the feed rolls to the wire liner.
- Check that the pressure handle is properly closed.
- Check that the feed roll pressure is adjusted correctly for the filler wire.
- Blow compressed air through the wire liner to check that it is not blocked.

Welding torch:

The wire burns into the contact tip

- Make sure the size and type of the current tip and liner are suitable for the filler wire.
- Make sure the wire liner is clean.
- Make sure the wire liner does not make any steep loops.
- Check the motor current level. If the current is too high, there may be problems in the wire liner.
- Check the tightness of the feeding rolls. Too tight feeding rolls may affect soft filler wires, such as aluminum and flux-cored wires.

The torch overheats

- Make sure the torch neck is correctly connected to the handle.
- Make sure that the contact tip adapter is properly hand-tightened and the contact tip properly attached to it.
- Make sure that the welding parameters are within the range of the welding torch and the neck. The torch and the neck have separate limits for the maximum current; the lower one of these is the maximum current that can be used.

The torch neck overheats

- Make sure you are using original Kemppi consumable and spare parts. Incorrect spare part materials may cause the overheating of the neck.

The welding torch connector overheats

- Make sure the connector is properly connected to the wire feeder.
- Make sure the current transfer surface and the connector pins of the torch connector are clean and undamaged.

The torch vibrates too much during welding

- Check the tightness of the contact tip adapter and contact tip.
- Check the motor current.
- Check the wire liner (e.g. for dirt and to ensure that the wire liner has been cut properly).
- Check the filler wire. It must be straight and start coiling when it comes out from the contact tip. If not, check the tightness of the feeding rolls.
- Check the filler wire batch for any quality issues with the wire.

Weld quality:

Dirty and/or poor weld quality

- Check that the shielding gas has not run out.
- Check that the shielding gas flow is unobstructed.
- Check that the gas type is correct for the application.
- Check the polarity of the torch/electrode.
- Check that the welding procedure is correct for the application.

Varying welding performance

- Check that the wire feed mechanism is adjusted properly.
- Blow compressed air through the wire liner to check that it is not blocked.
- Check that the wire liner is correct for the selected wire size and type.
- Check the welding torch contact tip's size, type and wear.
- Check that the welding torch is not overheating.
- Check that the earth return clamp is properly attached to a clean surface of the workpiece.

High spatter volume

- Check the welding parameter values and welding procedure.
- Check the gas type and flow.
- Check the polarity of the torch/electrode.
- Check that the filler wire is correct for the current application.

6.2 Disposal

Do not dispose of any electrical equipment with normal waste!

In observance of WEEE Directive 2012/19/EU on waste of electrical and electronic equipment and European Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment, and their implementation in accordance with national law, electrical equipment that has reached the end of its life must be collected separately and taken to an appropriate environmentally responsible recycling facility. The owner of the equipment is obliged to deliver a decommissioned unit to a regional collection center, as per the instructions of local authorities or a Kemppi representative. By applying these European Directives you improve the environment and human health.

For more information:

7. TECHNICAL DATA

7.1 Technical data: Flexlite GXP 403G

Flexlite GXP 403G Rotex (3.5 m):

GXP 403G Rotex	
Feature	Value
Welding connection type	Euro
Type of cooling	Air
Contact tip	M10x1
Method of guidance	Manual
Load capacity 35% / Ar + 18% CO2	390 A
Load capacity 60% / Ar + 18% CO2	320 A
Load capacity test, filler wire material	Fe
Load capacity test, filler wire diameter	1.6 mm
Load capacity test, stick out length	22 mm
Load capacity test, gas flow	20 l/min
Filler wire diameter	0.8...1.6 mm
Filler wire diameter, Fe	0.8...1.6 mm
Filler wire diameter, Ss	0.8...1.6 mm
Filler wire diameter, Al	0.8...1.6 mm
Filler wire diameter, Fe-MC/FC	0.9...1.6 mm
Filler wire diameter, Ss-MC/FC	0.9...1.6 mm
Gun handle	Yes
Neck type	Rotex
Neck dimensions: length	214 mm
Neck dimensions: height	105 mm
Neck dimensions: angle	50 °
Remote control	No
Operating temperature range	-20...40 °C
Storage temperature range	-40...60 °C
Standards	IEC 60974-7

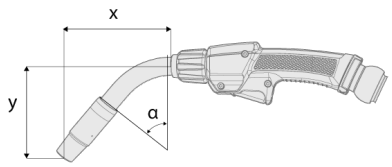
** With the extendable neck model, the neck length mentioned in the table is the maximum length, and the adjustment range is 70 mm.*

Flexlite GXP 403G Rotex (5 m):

GXP 403G Rotex	
Feature	**Value**
Welding connection type	Euro
Type of cooling	Air
Contact tip	M10x1
Method of guidance	Manual
Load capacity 35% / Ar + 18% CO2	390 A
Load capacity 60% / Ar + 18% CO2	320 A
Load capacity test, filler wire material	Fe
Load capacity test, filler wire diameter	1.6 mm
Load capacity test, stick out length	22 mm
Load capacity test, gas flow	20 l/min
Filler wire diameter	0.8...1.6 mm
Filler wire diameter, Fe	0.8...1.6 mm
Filler wire diameter, Ss	0.8...1.6 mm
Filler wire diameter, Al	0.8...1.6 mm
Filler wire diameter, Fe-MC/FC	0.9...1.6 mm
Filler wire diameter, Ss-MC/FC	0.9...1.6 mm
Gun handle	Yes
Neck type	Rotex
Neck dimensions: length	214 mm
Neck dimensions: height	105 mm
Neck dimensions: angle	50 °
Remote control	No
Operating temperature range	-20...40 °C
Storage temperature range	-40...60 °C
Standards	IEC 60974-7

** With the extendable neck model, the neck length mentioned in the table is the maximum length, and the adjustment range is 70 mm.*

Neck dimensions:



7.2 Technical data: Flexlite GXP 503G

Flexlite GXP 503G Rotex (3.5 m):

GXP 503G Rotex	
Feature	Value
Welding connection type	Euro
Type of cooling	Air
Contact tip	M10x1
Method of guidance	Manual
Load capacity 35% / Ar + 18% CO2	450 A
Load capacity 60% / Ar + 18% CO2	400 A
Load capacity test, filler wire material	Fe
Load capacity test, filler wire diameter	1.6 mm
Load capacity test, stick out length	22 mm
Load capacity test, gas flow	20 l/min
Filler wire diameter	0.8...1.6 mm
Filler wire diameter, Fe	0.8...1.6 mm
Filler wire diameter, Ss	0.8...1.6 mm
Filler wire diameter, Al	0.8...1.6 mm
Filler wire diameter, Fe-MC/FC	0.9...1.6 mm
Filler wire diameter, Ss-MC/FC	0.9...1.6 mm
Gun handle	Yes
Neck type	Rotex
Neck dimensions: length	214 mm
Neck dimensions: height	106 mm
Neck dimensions: angle	50 °
Remote control	No
Operating temperature range	-20...40 °C
Storage temperature range	-40...60 °C
Standards	IEC 60974-7

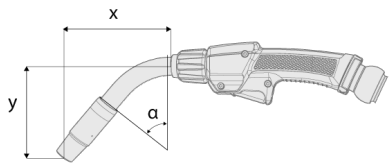
** With the extendable neck model, the neck length mentioned in the table is the maximum length, and the adjustment range is 70 mm.*

Flexlite GXP 503G Rotex (5 m):

GXP 503G Rotex	
Feature	**Value**
Welding connection type	Euro
Type of cooling	Air
Contact tip	M10x1
Method of guidance	Manual
Load capacity 35% / Ar + 18% CO2	450 A
Load capacity 60% / Ar + 18% CO2	400 A
Load capacity test, filler wire material	Fe
Load capacity test, filler wire diameter	1.6 mm
Load capacity test, stick out length	22 mm
Load capacity test, gas flow	20 l/min
Filler wire diameter	0.8...1.6 mm
Filler wire diameter, Fe	0.8...1.6 mm
Filler wire diameter, Ss	0.8...1.6 mm
Filler wire diameter, Al	0.8...1.6 mm
Filler wire diameter, Fe-MC/FC	0.9...1.6 mm
Filler wire diameter, Ss-MC/FC	0.9...1.6 mm
Gun handle	Yes
Neck type	Rotex
Neck dimensions: length	214 mm
Neck dimensions: height	106 mm
Neck dimensions: angle	50 °
Remote control	No
Operating temperature range	-20...40 °C
Storage temperature range	-40...60 °C
Standards	IEC 60974-7

** With the extendable neck model, the neck length mentioned in the table is the maximum length, and the adjustment range is 70 mm.*

Neck dimensions:



7.3 Component selection

The following table lists the Flexlite GXP gas nozzles and contact tips in the factory setup.

Model	Gas nozzle	Contact tip
GXP 403GRX	25/15 L59 (L2) 	1.2C1 L+, M10
GXP 503GRX	28/15 L62 (L2) 	1.2C1 L+, M10

Gas nozzle: **OD/D L**

The markings in the gas nozzle specification stand for: OD = outer diameter (at the widest point), D = diameter (inner diameter of the gas nozzle tip), L = length.

In the contact tip specification: L+ = Life+ contact tip with longer life time.

7.4 Other information

The newest PDF version of the operating manual, along with other related documentation (e.g., installation instructions and declarations of conformity), can be downloaded here: Userdoc / Flexlite GXP.

For Flexlite GXP ordering information and optional accessories, refer to Kemppi.com / Flexlite GXP.