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R03

OPERATING MANUAL

Robot Gun Mount

T1

KEMPPI

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1. ROBOT GUN MOUNT T1

This document provides product information for the Kemppi Robot Gun Mount T1 unit.

2. PREFACE

Congratulations on your purchase of this product. Used correctly, Kemppi products can significantly increase the productivity of your welding and provide many years of economical service.

This operation manual contains important information on the use, maintenance, and safety of your Kemppi product. The technical specifications of the equipment can be found in the chapter “Technical data” and at the end of this manual.

Please read the manual carefully before using the equipment for the first time. For your own safety and that of your work environment, pay particular attention to the safety instructions in the manual.

For more information on Kemppi products, contact Kemppi Oy, consult an authorized Kemppi dealer, or visit the Kemppi Web site: www.kemppi.com.

The specifications presented in this manual are subject to change without prior notice.

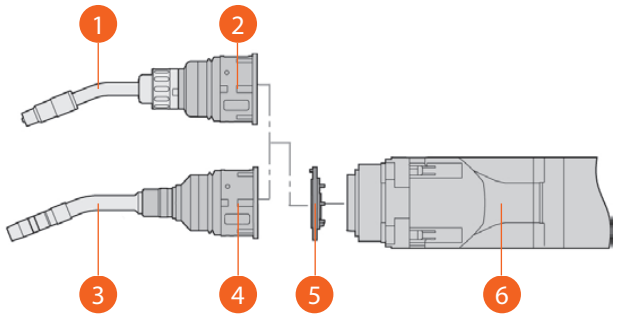
Disclaimer

While every effort has been made to ensure that the information contained in this guide is accurate and complete, no liability can be accepted for any errors or omissions. Kemppi reserves the right to change the specification of the product described, at any time, without prior notice. Do not copy, record, reproduce, or transmit the contents of this guide without prior permission from Kemppi.

3. IDENTIFICATION

Kemppi Robot Gun Mount T1 is used in industry and in the trade for connecting the gun neck to a robot equipped with central media guidance. It is available for gas-cooled guns (A7 MIG Gun 500-g) and liquid-cooled guns (A7 MIG Gun 500-w) by means of different adapter flanges. These instructions describe Kemppi Robot Gun Mount T1 only. The Kemppi robot mount must only be operated as supplied or equipped with authentic Kemppi spare parts.

Figure 1: Kemppi Robot Gun Mount T1



4. CE MARKING

This device fulfils the requirements of the following EU directives:

- The Machinery Directive, 2006/42/EC
- The EMC Directive, 2004/108/EC
- The RoHS Directive, 2011/65/EU

5. SAFETY

Read and follow the additional safety instructions enclosed.

5.1 Designated use

Robot Gun Mount T1 may be used only for the purpose described in these instructions, in the manner described. Follow the operation, maintenance, and servicing conditions whenever using the device.

Any other use is considered contrary to the intended use.

Unauthorized conversions or power-increasing modifications are not allowed.

The warranty does not cover wear parts and damage due to overloading or improper use.

5.2 Responsibilities of the user

- Keep the operating instructions within easy reach in the location of the device for reference, and include the operating instructions when handing over the product.
- Installation, operation, and maintenance work may only be carried out by qualified personnel. Qualified personnel are persons who, on account of their special training, knowledge, experience, and familiarity with the relevant standards, are able to assess the tasks assigned to them and identify possible dangers.
- Keep all other people out of the work area.
- Follow the accident prevention regulations of the relevant country.
- Ensure good lighting of the work area, and keep it clean.
- Observe the following standards and guidelines in particular:
  - 89/391/EEC: Directive on the introduction of measures to encourage improvements in the safety and health of workers at work
  - 2009/104/EC: Directive concerning the minimum safety and health requirements for the use of work equipment by workers at work
  - 2004/108/EC: Directive on the harmonization of the laws of the Member States relating to electromagnetic compatibility The occupational health and safety regulations of the country in question
  - Regulations on occupational safety and accident prevention

5.3 Personal protective equipment

To avoid danger to the user, using personal protective equipment (PPE) is recommended in these instructions.

PPE consists of the following:

- Protective clothing
- Safety goggles
- A class-P3 respiratory mask
- Gloves
- Safety shoes

5.4 Signs used in the documentation

Items in the manual that require particular attention, to minimize damage and personal injury, are indicated with a three-level notification and warning system. Read these sections carefully, and follow the instructions.

Note: These items give the user a useful piece of information.

Caution: A cautionary item describes a situation that may result in damage to the equipment or system.

Warning: Warnings describe a potentially dangerous situation. If not avoided, it will result in personal harm or fatal injury.

5.5 Warning and notice signs

The following warning and notice signs can be found on the product:

Read and observe the operating instructions!

These markings must always be legible. They must not be covered, obscured, painted over, or removed.

5.6 Emergency instructions

In the event of an emergency, immediately interrupt the following:

- The power supply
- The flow of compressed air

Further measures are described in the operating instructions or in the documentation of other peripheral devices.

5.7 Operation safety

Please study these operation safety instructions and respect them when installing, operating, and servicing the machine.

The welding arc and spatter

The welding arc harms unprotected eyes. Also be careful with reflecting flashes from the arc. The welding arc and spatter burn unprotected skin. Wear safety gloves and protective clothing.

Danger of fire or explosion

Pay attention to fire safety regulations. Remove flammable or explosive materials from the welding location. Always reserve sufficient fire-fighting equipment at the welding location. Be prepared for hazards in special welding jobs – for example, the danger of fire or explosion in welding of container-type work pieces.

Fire can break out from sparks even several hours after the welding is done!

Cables

Always check the cables before operating the equipment. Replace damaged cables without delay.

Damaged cables may cause injury or start a fire. Connection cables must not be compressed or come in contact with sharp edges or hot work pieces.

The welding power circuit

Isolate yourself by using proper protective clothing, and do not wear wet clothing. Never work on a wet surface or use damaged cables. Do not place the MIG gun or welding cables on the welding machine or on other electric equipment. Do not press the MIG gun's switch if the gun is not directed towards a work piece.

Welding fumes

Make sure that there is sufficient ventilation during welding. Take special safety precautions when welding metals that contain lead, cadmium, zinc, mercury, or beryllium.

5.8 Product safety

Hazards caused by improper use

If improperly used, the device can present risks to people and physical property.

- Use the device in line with its designated use only.
- Do not convert or modify the device to enhance its performance without appropriate authorization.

The device may only be used by qualified personnel.

- The product has been developed and manufactured in accordance with state-of-the-art technology and the recognized safety standards and regulations. These operating instructions warn you against unavoidable residual risks to users, third parties, devices, and other physical property.
  Disregarding these warnings may result in risks to human life and health, harm to the environment, or other physical damage.
- The product may only be operated in unmodified, technically perfect condition, within the limits described in these instructions.
- Always observe the limit values specified in the technical data. Overloads lead to destruction.
- Safety features of the device must never be disassembled, bridged, or otherwise bypassed.
- During welding work outdoors, use suitable protection against the weather conditions.
- Check the electrical device for any damage and for proper functioning in accordance with its designated use.
- Never expose the electrical device to rain, and avoid damp or wet environments.
- Protect yourself from electrical accidents by using insulating mats and wearing dry clothing.
- Never use the electrical device in areas subject to a risk of fire or explosion.
- Arc welding may cause damage to the eyes, skin, and hearing. When working with the device, always use the prescribed protective equipment.
- Metal vapors, especially from lead, cadmium, copper, and beryllium, are all hazardous to the health! Ensure the use of sufficient ventilation or extraction systems. Always ensure compliance with the legal limit values.
- Using clean water, rinse work pieces that have been degreased with chlorinated solvents, to prevent the risk of phosgene gas forming. Do not place degreasing baths containing chlorine in the vicinity of the welding area.
- Adhere to the general fire protection regulations, and remove flammable materials from the vicinity of the welding work area before starting work.
- Keep suitable fire-extinguishing equipment in the work area, ready for use.

6. TECHNICAL DATA

This chapter contains the technical data for the gun mount.

6.1 Ambient conditions

Table 1: Ambient conditions

Ambient temperature	25 °C to 55 °C
Transport and storage	-10 °C to 55 °C
Relative humidity	up to 70% at 20 °C

6.2 General data

Dimensions	Ø = 90 mm	L = 162 mm
Weight of the T1 robot mount (excluding gun)	1.6 kg	
Max. deflection, X, Y axis	10°	
Max. deflection, Z axis	4–8 mm	
Reset precision	± 0.1 mm	

6.3 The microswitch

Type of voltage	DC
Voltage rating	24 V peak value
Load	max. 100 mA

6.4 The spring

Triggering moment	9.6 Nm
Triggering force (at 400 mm distance)	24 N ± 2 N
Deflection travel	5.3 mm ± 1 mm

6.5 General data

The table below presents the general torch data in line with EN 60 974-7.

	A7 MIG Gun 500-g/500-w
Type of voltage	DC
Polarity of the electrodes	Usually positive
Wire types	Commercially available round welding wires
Type of use	Automatic
Voltage rating	Peak value of 141 V
Protection type of the machine-side connections	IP3X (EN 60 529)
Shielding gas (DIN EN439)	CO_2 or M21

6.6 Product-specific gun data

The following table applies to the entire Kemppi gun system, including gun neck, gun mount and cable assembly. The table below presents product-specific gun data in line with EN 60 974-7.

Type	*Type of cooling*	*Load (A)*		*ED (%)*	*Wire Ø (mm)*	*Gas flow (l/min)*
		CO_2	M21			
500-g	gas	340	320	100	0.8–1.6	10–30
500-w	liquid	340	340	100	0.8–1.6	approx. 20

The cable assembly length is determined on the basis of the robot brand and model.

The load data have been determined under standard conditions, at low to medium reflected heat, with free air circulation and an ambient temperature of about 28 °C. In use under more rigorous conditions, the load values must be reduced by 10–20%. Applications with the load 340 A at 100 % duty cycle require an engineered solution.

6.7 Abbreviations

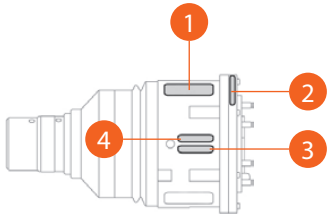
DC	Direct current
ED	Duty cycle
MIG	Metal inert gas
MAG	Metal active gas
MAC value	Maximum allowable concentration of harmful substances in the workplace
Voltage rating	Insulation resistance, electric strength, and protection class
TCP	Tool center point

6.8 The type plate

Robot Gun Mount T1 is identified by a sticker or a Kemppi logo. When contacting the service staff, please remember to check the production stamp near the Kemppi logo.

For pulse-arc use, the load values are reduced by up to 35%.

Figure 3: T1 type plate



1. Type of device
2. Flange serial number
3. Consecutive number
4. Production date

7. DELIVERY SCOPE

The delivery for a gas-cooled gun includes the following components:

- Kemppi Robot Gun Mount T1
- Operating instructions
- Screwdriver for hexagon-head screws, wrench size 2.5
- Sealing grease, silicone-free, 10 g can
- Certificate of conformity
- Cylinder-head screws, M4×10 (6 pcs.)

The delivery for a water-cooled gun includes the following components:

- Kemppi Robot Gun Mount T1
- Operating instructions
- Certificate of conformity
- Cylinder-head screws, M4×10 (6 pcs.)

For installation of the cable assembly for Robot Gun Mount T1, we recommend a pull-in tool. It is not included in the scope of delivery and must be ordered separately as an accessory.

The equipment parts and wear parts are ordered separately.

Order data and ID codes for the equipment parts and wear parts can be found in the current catalogue. Contact details for advice and for placing orders can be found online at www.kemppi.com.

8. TRANSPORT

The components are carefully checked and packed; however, damage may still occur during shipping.

Checking procedure on receipt of goods	Check that the shipment is correct by referring to the shipping note.
In case of damage	Check the package and components for damage (perform a visual inspection).
In the event of problems	If the goods have been damaged during transport, contact the last carrier immediately. Keep the packaging (for possible checks by the carrier).
Packaging for return of the goods	Use the original packaging and the original packaging material. If you have questions about the packaging and safety during shipment, please consult your supplier.

9. STORAGE

The physical conditions for storage in a closed room are -10 °C to 55 °C.

10. FUNCTIONAL DESCRIPTION

The Kemppi Robot Gun Mount T1 unit is used for accommodating the welding guns in the exact position needed. The mount is fastened to the robot with cylinder-head screws and a robot flange.

In order to cover the required performance ranges, there are two distinct mount versions available, the gas-cooled A7 MIG Gun 500-g and the water-cooled A7 MIG Gun 500-w.

The inserted spring acts with its holding force directly upon the triggering flange and fixes the switching axis, which is positioned by three pins, in zero position.

In the event of a collision, Kemppi Robot Gun Mount T1 can be deflected by 10° in X/Y direction and thereby, as a buffer, prevent damage to the gun, peripheral equipment, and robot.

The integrated microswitches represent an additional component in the subordinate safety circuit. In the event of a collision, the microswitches interrupt a circuit, which can, for example, shut down the drive units of the robot.

The signal flow for this operation is carried out through the control cable in the cable assembly.

11. ROBOT GUN MOUNT T1 INSTALLATION

Risk of injury due to unexpected start-up

For the entire duration of maintenance, servicing, unmounting, and repair work, the following instructions must be adhered to:

- Switch off the power supply.
- Cut off the compressed air supply.
- Pull the power plug.

Read the safety instructions in this manual and the separate safety instructions.

The system may only be installed by authorized personnel.

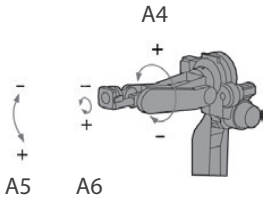
11.1 The maintenance position of the robot

Before Robot Gun Mount T1 and the cable assembly can be mounted, the robot must be placed in the maintenance position.

For the correct attachment of the robot mount and the cable assembly, set the 4th, 5th, and 6th axes of the robot thus:

- 4th axis = neutral position
- 5th axis = neutral position
- 6th axis = neutral position

Figure 4: The maintenance position of the robot

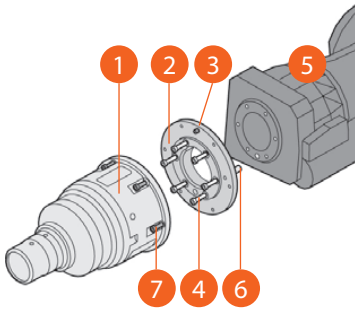


11.2 Fastening robot mount T1 to the robot

This section describes how to fasten robot mount T1 to the robot.

The parts of the system are depicted in the figure below.

Figure 5: Fastening robot mount T1 to the robot



1. Kemppi robot mount T1
2. Robot flange
3. Cylindrical pins, M6×10 (4 pcs.)
4. 6 cylinder screws, M4×14
5. Robot
6. Cylindrical pins, M6×12 (4 pcs.)
7. Cylinder screws, M4×10

For fastening robot mount T1 to the robot, a robot flange (2) is required. It must correspond to the hole pattern of the robot mount (1) and of the robot.

Proceed as follows:

1. Mount robot flange (2) on the robot (5), using six cylinder screws (4), with max. tightening torque M = 3.5 Nm.

Ensure correct positioning of the cylindrical pin (6). It specifies the reference position, relative to the robot.

2. Mount the robot mount (1) on the robot flange (2), using six cylinder screws (7), with max. tightening torque M = 3.5 Nm.

Ensure correct positioning of the cylindrical pin (3). It specifies the reference position, relative to the robot.

11.3 Mounting the corrugated hose clamp

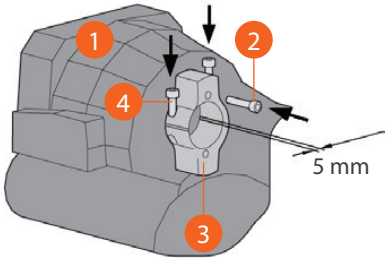
The corrugated hose clamp is mounted only with Motoman®, ABB®, Reis®, and OTC® robots.

11.3.1 Motoman® models

This section describes how to mount the corrugated hose clamp on Motoman® robots.

The parts of the system are depicted in the figure below.

Figure 6: Mounting the Motoman® corrugated hose clamp



1. Robot
2. Cylinder screw, M6
3. Corrugated hose clamp
4. 2 cylinder screws, M4

Proceed as follows:

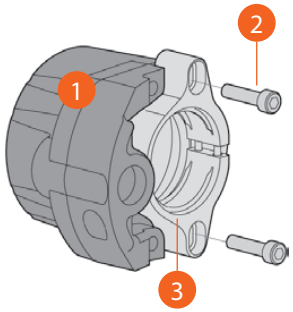
1. Fasten the corrugated hose clamp (3) to the robot (1) with a cylinder screw (2).
2. Unscrew the cylinder screws marked "4" such that a gap of approx. 5 mm is formed between the clamp halves.

11.3.2 ABB®, Reis®, and OTC® models

This section describes how to mount the corrugated hose clamp on ABB®, Reis®, and OTC® models.

The figure below refers to ABB® models.

Figure 7: Mounting the ABB®, Reis®, and OTC® corrugated hose clamp



1. Robot
2. Cylinder screws, M6×25
3. Corrugated hose clamp

Proceed as follows:

1. Fasten the corrugated hose clamp (2) loosely to the robot (1) with cylinder screws (2) in such a way that a gap of approx. 5 mm between the clamp halves is formed.

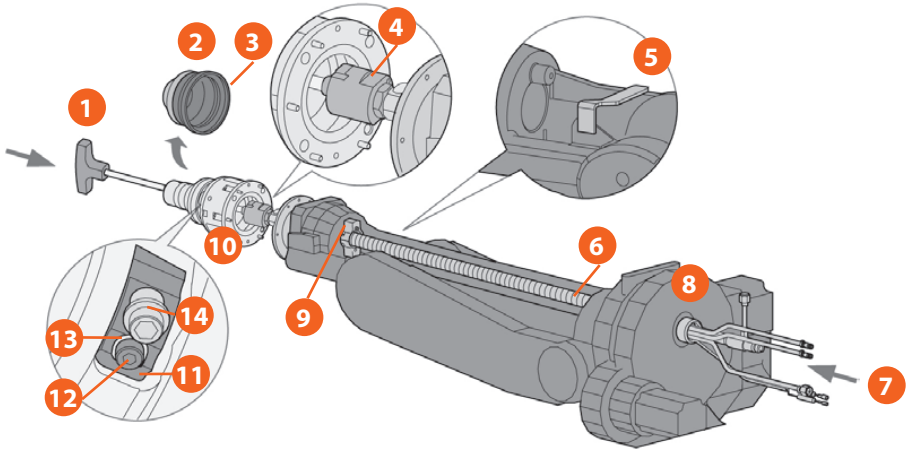
11.4 Mounting the hose assembly on the robot

This section describes how to mount the hose assembly on the robot.

When mounting liquid-cooled A7 MIG Gun 500-w and cable assemblies, make sure that the mounting bores for the water nipples and the O-rings are lubricated.

- When mounting liquid-cooled A7 MIG Gun 500-w and cable assemblies, make sure that the water nipples in the welding gun coupling for the A7 MIG Gun 500-w and cable assembly are inserted correctly into the cable assembly adapter. Observe the forced positioning.
- After mounting is complete, check for any leaks.
- When mounting liquid- and air-cooled cable assemblies, make sure that all lines (the control cable, water hoses, and gas / compressed air lines) are installed without torsion and with sufficient clearance.
- When mounting liquid-cooled A7 MIG Gun 500-w and cable assemblies, make sure that the mounting bores for the water nipples and the O-rings are lubricated.

Figure 8: Mounting the A7 MIG gun cable assembly



1. Pull-in tool
2. Threaded sleeve
3. Bellows
4. Cable assembly connection
5. Cable assembly guide
6. 2 cylinder screws, M4
7. Mounting direction of the cable assembly
8. Robot
9. Corrugated hose clamp
10. Robot mount T1
11. Welding gun coupling
12. Retaining screw
13. Washer
14. Fastening screw

Steps 1 to 10 refer to the specific versions of Kemppi's T1 robot mount, with robot axes A4, A5, and A6.

Proceed as follows:

1. Unscrew the threaded sleeve (2) and bellows (3).
2. Unscrew the fastening screw (14) from the welding gun coupling (11) until the screw head and washer (13) make contact.
3. Introduce the cable assembly (6) from behind, through the 4th axis of the robot (8).
   For mounting the pull-in tool, please observe the information in the appendix on page 22.
4. Insert the pull-in tool (1) through the robot mount (10) and the 5th axis of the robot (8).

5. Screw the pull-in tool (1) into the cable assembly connection (4) as far as it will go.
6. Pull the cable assembly through the 5th and 6th axes of the robot into the robot mount as far as it will go, using the pull-in tool.

Position the cable assembly connection (4) by means of the positioning pin and the groove of the welding torch coupling (11).

7. Secure the fastening screw (14), with max. tightening torque M = 7.5 Nm. Observe the forced positioning.

Only if the cable assembly connection (4) has been correctly inserted can it be attached with the fastening screw (14).

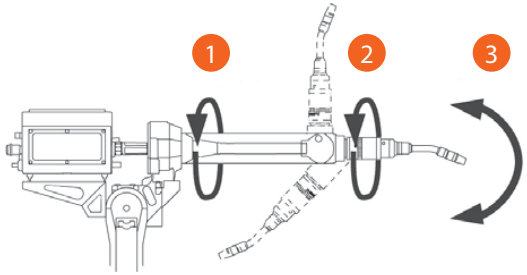
8. Unscrew the pull-in tool (1).
9. Slide the corrugated hose at the cable assembly (6) into the corrugated hose clamp (9) as far as it will go, and clamp with cylinder screws.

Press the corrugated hose into the corrugated hose clamp, and rotate it until it is rotating in the corrugated hose clamp.

10. Screw in the threaded sleeve (2) as far as it will go, and allow the bellows (3) to lock into place in the groove.
11. The position numbers in the directions below refer to the following figure, showing axis positions.
12. Attach the wire feeder (1) to the wire feeder mount (3).
13. Fasten the cable assembly (2) to the wire feeder (1) by using the connection provided for connection to the machine.
14. Mount the control line of the robot mount for the EMERGENCY STOP switch at the wire feed unit.
15. Unscrew the fastening screws at the wire feeder (1).

We recommend the following procedure for determining the optimal position of the wire feeder at extreme welding positions:

Figure 9: Movement allowance



1. A4 = torsion max. ± 155°
2. A5 = torsion max. +90° / -165°
3. A6 = torsion max. ± 200°

Torsion A4 plus A6 is max. ± 355°.

See also Section 11.1.

Please observe the operation instructions for the relevant wire feeder.

- The wire feeder can be adjusted horizontally by means of long holes; do not tighten them during the installation of the cable assembly. Swivel the robot on the 5th axis by +/- 90°. After that, carry out a torsional movement on the 6th axis by +/- 240°. This will precisely position the wire feeder.

16. Tighten fastening screws at the wire feeder (1).

11.5 Mounting the liner

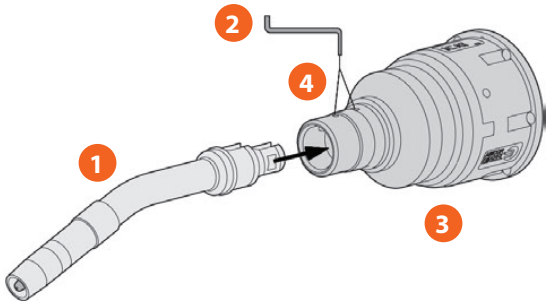
New liners have to be shortened to the actual length of the cable assembly.

- For handling the liners, please observe the enclosed wire guide liner mounting instructions.
- Strip 350 mm of the insulation sheathing of the liner from the front end after determining the correct length.

11.6 Attaching the A7 MIG G gun neck

This section describes how to attach the A7 MIG G gun neck.

Figure 10: Attaching the A7 MIG G gun neck



1. A7 MIG G gun neck
2. Hexagon wrench
3. Gun mount T1 G
4. Set screws (2 pcs.)

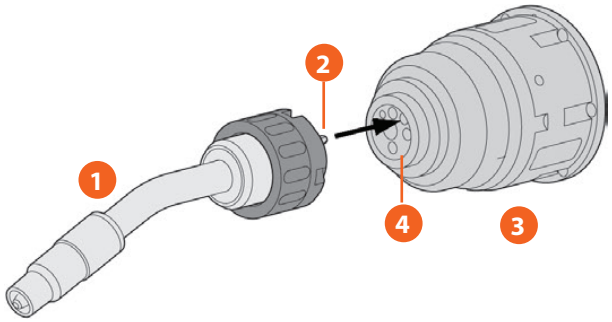
Proceed as follows:

1. Equip the A7 MIG G gun neck (1) with a tip adapter, contact tip, and gas nozzle.
2. Insert the A7 MIG G gun neck (1), via the guide grooves, into the robot mount (3) as far as it will go.
3. Tighten the set screws (4) with a hexagon wrench (2). Tightening torque M = 2.5 Nm.

11.7 Attaching the A7 MIG W gun neck

This section describes how to attach the A7 MIG W gun neck.

Figure 11: Attaching the A7 MIG W gun neck



1. A7 MIG W gun neck
2. Positioning pin
3. Robot mount T1
4. Retaining nut

Proceed as follows:

1. Equip the A7 MIG W gun neck (1) with a tip adapter, contact tip, and gas nozzle.
2. Introduce the positioning pin (2) into the marked bore. The A7 MIG W gun neck (1) can only be fastened in this position.
3. Screw down the A7 MIG W gun neck (1) with the retaining nut (4) on the robot mount (3).

After the gun has been used for several days, it may no longer be possible to disconnect it by hand. To disconnect the gun, use a suitable wrench. Do not use pliers to disconnect the gun.

12. OPERATION

The device may only be operated by qualified personnel.

Because the robot mount is integrated into the gun's welding process, the operation steps are performed after the relevant gun has been installed.

Please observe the operating instructions for the A7 MIG Gun 500-g or the A7 MIG Gun 500-w welding guns, as appropriate.

13. UNMOUNTING

Unmounting may only be carried out by specialist personnel. Please make sure that the shutdown procedures for all components mounted in the welding system are strictly observed before removal from operation begins.

Risk of injury due to unexpected start-up

For the entire duration of maintenance, servicing, unmounting, and repair work, the following instructions must be adhered to:

- Switch off the power supply.
- Cut off the compressed air supply.
- Pull the power plug.

Removal from operation depends on the type of welding gun. Please observe the operating instructions for the 7 MIG Gun 500-g or the A7 MIG Gun 500-w welding guns, as appropriate.

14. MAINTENANCE AND CLEANING

Scheduled maintenance and cleaning are prerequisites for a long service life and trouble-free operation.

Once a month, thoroughly clean the robot mount to remove all dirt and welding spatter.

Risk of injury due to unexpected start-up

For the entire duration of maintenance, servicing, unmounting, and repair work, the following instructions must be adhered to:

- Switch off the power supply.
- Cut off the compressed air supply.
- Pull the power plug.

Electric shock

Dangerous voltage can be produced because of defective cables.

- Check all live cables and connections for proper installation.
- Replace any parts that have suffered damage, deformation, or wear.

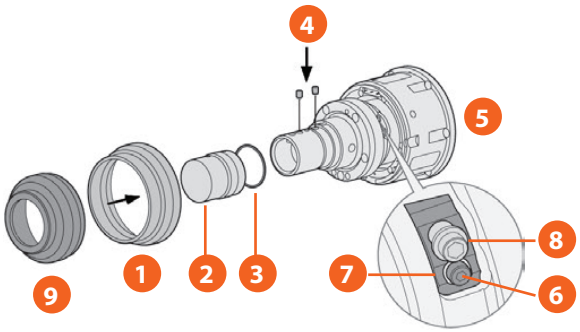
The maintenance intervals listed are recommended values and assume single-shift operation.

- Maintenance and cleaning work may only be carried out by qualified and trained specialists.
- Always wear your personal protective clothing when performing maintenance and cleaning work.
- When replacing the liquid-cooled A7 MIG Gun 500-w hose assemblies, make sure that any coolant residues are removed from the robot mount.
- The maintenance intervals listed are recommended values and assume single-shift operation.

14.1 Cleaning robot mount T1 with A7 MIG Gun 500-g

This section describes how to clean robot mount T1 with A7 MIG Gun 500-g.

Figure 12: Cleaning robot mount T1 with A7 MIG Gun 500-g



1. Bellows
2. Cover ring
3. O-ring, 28×1.5
4. 2 set screws
5. Robot mount T1
6. Screw
7. Washer
8. Fastening screw
9. Threaded sleeve

Risk of injury

Serious injuries can be caused by parts articulating rapidly.

When cleaning with compressed air, wear suitable protective clothing – in particular, safety goggles.

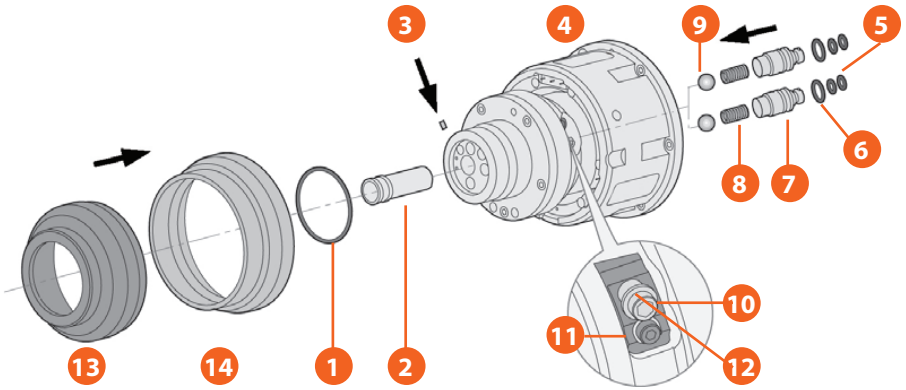
Proceed as follows:

1. Clean (5) with compressed air.
2. Unscrew the threaded sleeve (9), and pull it off, together with the bellows (1).
3. Turn the cover ring (2) to the right as far as it will go, and remove it.
4. Check the O-ring (3) for wear, and replace it if necessary.
5. Clean the bores of the set screws (4) with compressed air.
6. Check the set screws (4) for wear, and replace them if necessary.
7. Grease the O-ring (3) with sealing grease (included in the delivery).
8. Remove the screw (6), washer (7), and fastening screw (8), and clean them, as a single assembly, with compressed air.
9. Blow compressed air through the bores.
10. Attach the fastening screw (8) and washer (7), and then remove the screw labeled "6" again.
11. Mount the set screws (4), O-ring (3), cover ring (2), and threaded sleeves (9, then 1).

14.2 Cleaning robot mount T1 with A7 MIG Gun 500-w

This section describes how to clean robot mount T1 with A7 MIG Gun 500-w.

Figure 13: Cleaning robot mount T1 with A7 MIG Gun 500-w



1. O-ring, 36×2
2. Gas duct
3. Set screw
4. Robot mount T1
5. 4 O-rings, 3×1.5
6. 2 O-rings, 7×1.5
7. 2 compression sleeves
8. 2 compression springs
9. 2 balls
10. Screw
11. Washer
12. Fastening screw
13. Retaining ring
14. Bellows

Risk of injury

Serious injuries can be caused by parts articulating rapidly.

When cleaning with compressed air, wear suitable protective clothing – in particular, safety goggles.

Proceed as follows:

1. Pull off the retaining ring (13), together with the bellows (14).
2. Check the O-ring (1) for wear, and replace it if necessary. Before replacing, grease the O-rings (1) with sealing grease (included in the delivery).
3. Remove the screw (10), washer (11), and fastening screw (12), and clean them, as a single assembly, with compressed air.
4. Blow compressed air through the bores.
5. Remove the balls (9), compression springs (8), and compression sleeves (7); check them for damage; and replace them if necessary.
6. Clean robot mount T1 (4) with compressed air.
7. Grease the O-rings (6 and 5) with sealing grease (included in the delivery).
8. Mount the O-rings (6 and 5) on the compression sleeves (7).
9. Mount the balls (9), compression springs (8), and compression sleeves (7).
10. Detach the set screw (3) and gas duct (2), and check them. If necessary, replace them.
11. Reinstall the fastening screw (12), washer (11), and screw (10).
12. Attach the bellows (14) and retaining ring (13).

15. TROUBLESHOOTING

Risk of injury due to unexpected start-up

For the entire duration of maintenance, servicing, unmounting, and repair work, the following instructions must be adhered to:

- Switch off the power supply.
- Cut off the compressed air supply.
- Pull the power plug.

In the event of any doubts or problems, please contact your retailer or the manufacturer.

Please also consult the operating instructions for the other welding components, such as the power supply and air pressure line.

Problem	*Cause*	*Solution*
Emergency stop signal	Cable assembly connected incorrectly	See Section 11.4 • Change the feeding system positioning, if possible • Have it checked and replaced by qualified personnel
	Too little play of the cable assembly between feeder and robot mount	Unscrew cable assembly from feeder and reconnect it, free of torsion
	Control line, cable assembly, or board defective	
Cable assembly cannot be introduced into robot mount T1	No grease on the O-rings of the adapter	Lubricate the O-rings with grease
	No grease in the mounting bores of the liquid-cooled cable assembly adapter	Grease the bores
	The hose assembly adapter is not inserted correctly into the module (ensure correct alignment)	• Use the pull-in tool • Align guide groove
Hose assembly creates ripples in the robot axis	Cable assembly too long	Change the feeding system positioning, if possible
Inaccurate torch reset	Dirt deposits in the housing	Remove dirt deposits; clean the housing
	Robot mount damaged	Verification by qualified personnel
Gas loss	Liner diameter too large	Use a smaller liner
	Liner insufficiently stripped on the torch side	Strip liner 350 mm on the torch side

16. REMOVING THE MOUNT

This section describes how to remove robot mount T1.

Unmounting may only be carried out by specialist personnel. Please make sure that the shutdown procedures are strictly observed before the unmounting work begins. Ensure this also for the components integrated into the welding system.

Risk of injury due to unexpected start-up

For the entire duration of maintenance, servicing, unmounting, and repair work, the following instructions must be adhered to:

- Switch off the power supply.
- Cut off the compressed air supply.
- Pull the power plug.

See also Chapter 13.

Proceed as follows:

1. Disconnect the cable assembly (2) from the wire feeder (1). See Figure 9, in Section 11.4.
2. Unscrew the threaded sleeve (2) and bellows (3), and remove the fastening screw (14). See Figure 12, in Section 14.1.
3. Disconnect the gun neck, and remove it. See
   - Section 14.1
   - Section 14.2

16.1 Disposal

For disposal, the locally applicable regulations, laws, provisions, standards, and guidelines must be observed. For the welding torch system to be properly disposed of, it must be unmounted first.

16.2 Materials

This product consists for the most part of plastics, steel, and non-ferrous metals. Steel and non-ferrous metals can be melted down, so iron materials are almost infinitely recyclable. The plastic materials used are marked in preparation for appropriate sorting of the materials for later recycling.

16.3 Consumables

Oils, greases, and cleaning agents must not contaminate the ground or enter the sewer system. These materials must be stored, transported, and disposed of in suitable containers. Please observe the relevant local regulations and the disposal instructions on the safety data sheets supplied by the manufacturer of the consumables. Also, contaminated cleaning tools (brushes, rags, etc.) must be disposed of in accordance with the information provided by the manufacturer of the consumables.

16.4 Packaging

The shipping packaging has been reduced to a minimum. Packaging materials are always selected with attention to their recyclability.

17. CODES FOR ORDERING

Robot gun mount	*Product code*
Robot Gun Mount T1 W	SP600588
Robot Gun Mount T1 G	SP600589

Accessories	*Product code*
Pull-in tool	SP600602

The pull-in tool accessory serves for the correct mounting of cable assemblies. The O-rings at the rod of the pull-in tool indicate the mounting positions of cable assembly versions A7 MIG Gun 500-g and A7 MIG Gun 500-w. The pull-in tool must only be used for Robot Gun Mount T1.

To get the correct type of the adapter flange for the robot's 6th axis, please notify Kemppi about the robot manufacturer and model.

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