

Name	CoWelder™ Basic
Product	Instruction manual
Version	B
Drawn up by:	Migatronic Automation

AUTOMATION
BY MIGATRONIC

CoWelder Basic

Instruction manual

Translated from original



Name CoWelder Basic
Model/type CWB
Function Collaborative welding robot

Keep this operating manual at the operator's workstation!



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1 Generel

This manual applies to the welding robot cell named "CoWelder Basic," produced by Migatronic. The primary components of the robot cell are a robot from Universal Robots and a Migatronic welding machine. The cell can be configured for MIG or TIG welding, but they can also be combined into a CoWelder Combi. The size of the optional table may vary. The images in this manual are for illustration purposes only and are not necessarily real-life representations. In all subsequent sections, the welding robot cell will be referred to as the machine.

If extensions have been purchased for the CoWelder, such as Track, Turntable, 360-degree rotation, 3-point handle, etc., the manual for these will be provided separately.

The user guide shall ensure proper installation, use, handling, and maintenance of the machine.

The user guide shall be kept at the operator's workplace and be easily accessible for operators and maintenance staff.

The employer (owner of the machine) is responsible for ensuring that operators and persons carrying out service, maintenance or repair of the machine read the user guide or, at the minimum, the sections relevant to their tasks. The employer shall also provide sufficient training of staff in operating the machine.

Operators and anyone who has to service, maintain, or repair the machine have a duty to search for information in the user manual on their own initiative.

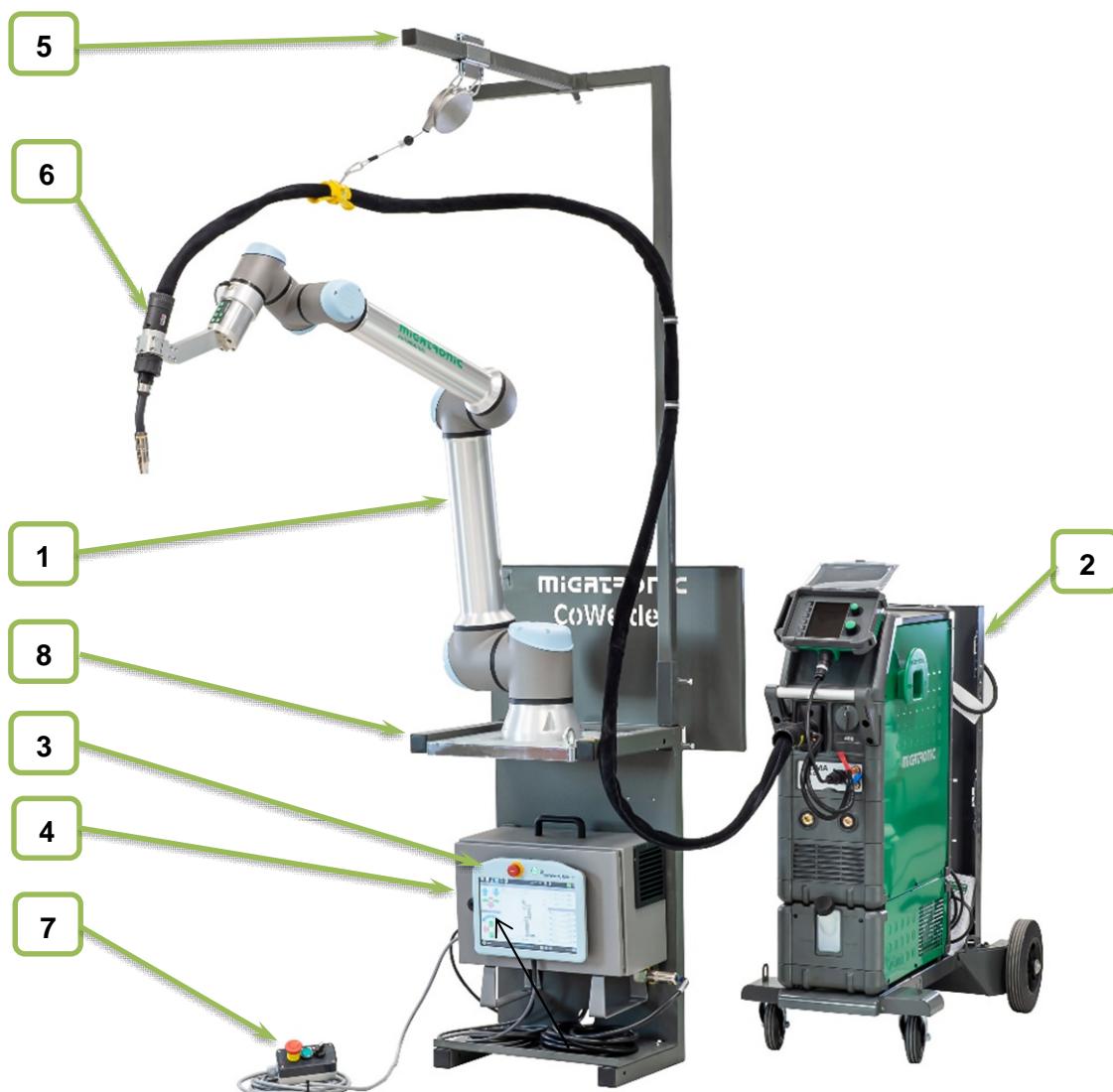
Operators are required to read any user guides and data sheets for additional or integral equipment supplied with the machine, such as robot and welding machine.

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1.1 Functional description

This chapter gives the operator a good overview of the machine's structure and function.

1.1.1 Machine overview CoWelder Basic for MIG



1. UR10E robot
2. Sigma Select 400 welding machine
3. Teach-Pendant
4. Robot control box
5. Gallows with balance suspension
6. Abirob kit with hose
7. Start box
8. Self- balancing rack

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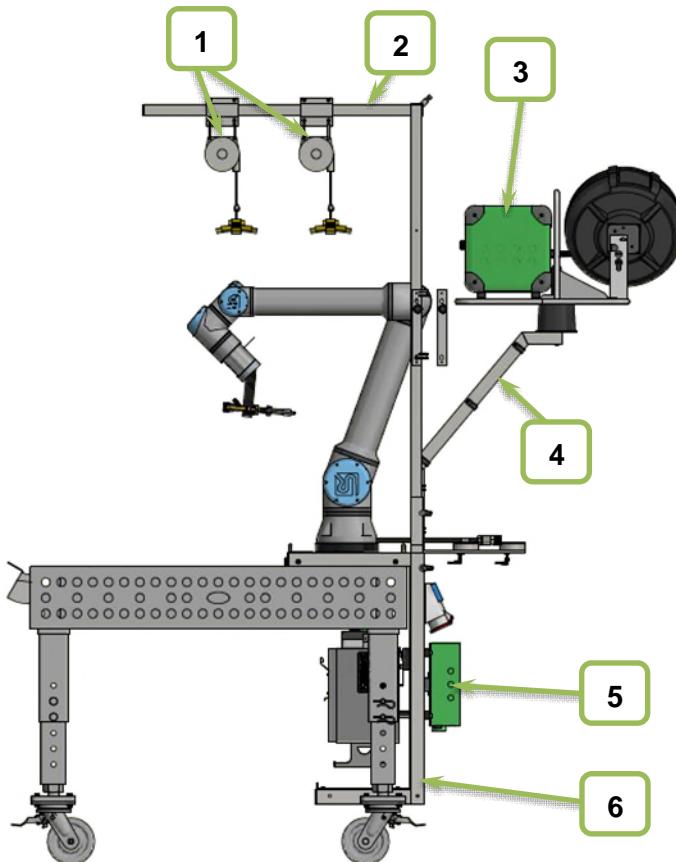
1.1.2 Machine overview CoWelder Basic for TIG



1. UR10E robot
2. PI350 welding machine
3. Teach-Pendant
4. Robot controller
5. Gallows with balance suspension
6. AD250 torch
7. Start box
8. CWF-Kit
9. Self-balancing rack

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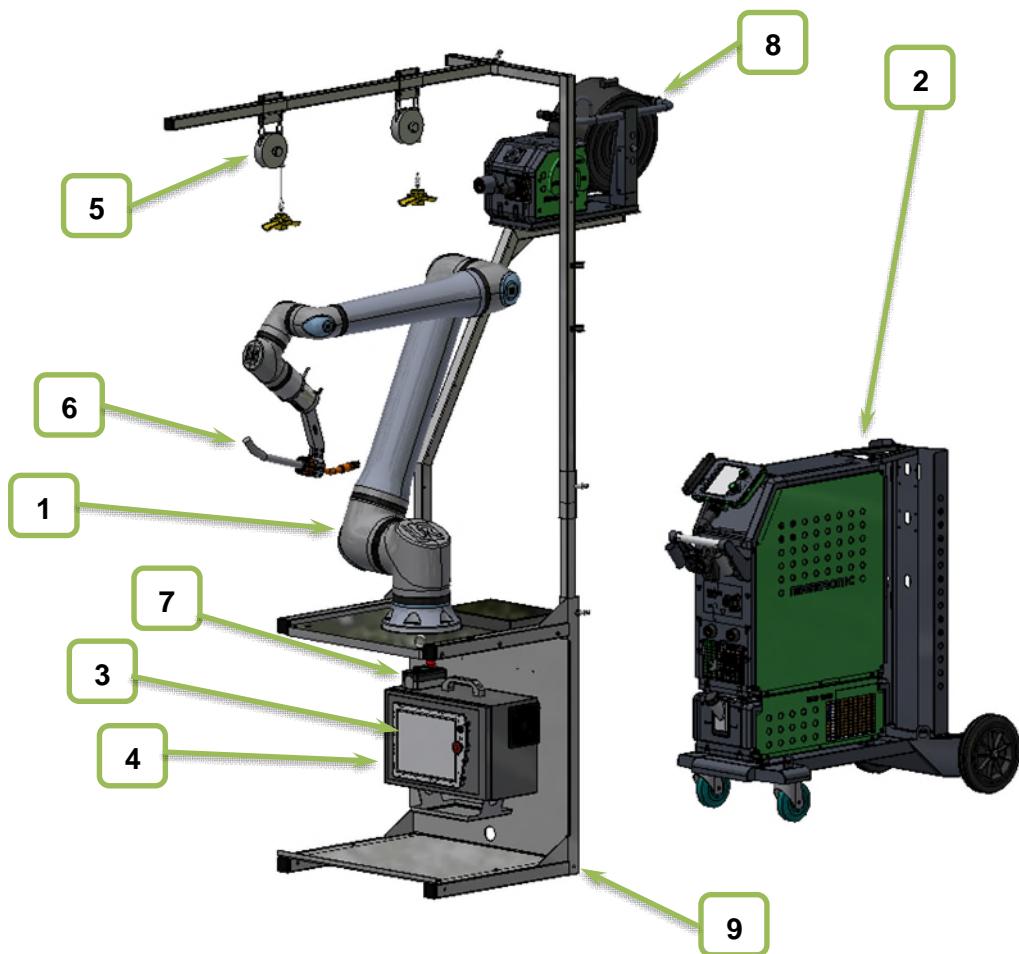
1.1.3 Machine overview CoWelder Basic Combi



1. 2 pcs. balance suspension
2. Gallows with balance suspension
3. CWF-kit
4. Arm for wirefeeder
5. Robot interface RCI2
6. Self-balancing rack

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1.1.4 Machine overview UR20 MIG/TIG



1. UR20 robot
2. PI350 / Sigma Select
3. Teach-Pendant
4. Robot controller
5. Balance suspension
6. MIG torch / TIG torch
7. Start box
8. CWF / MWF
9. Self-balancing rack

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1.1.5 Process description

The operator places workpieces on the welding table, programs the robot and can then press start and run automatic welding of workpieces.

When the workpiece is finished welding, the operator removes the workpiece. The operator can then repeat the welding process.

Welding programs are saved and retrieved as needed.

QR Code on the machine about CoWelder.

A label with a QR code is placed on the robot's lower arm. By using a smartphone camera or a QR code reader that can be installed on a smartphone, you can follow a link that leads to a video archive containing training on how to set up CoWelder, case stories and more.



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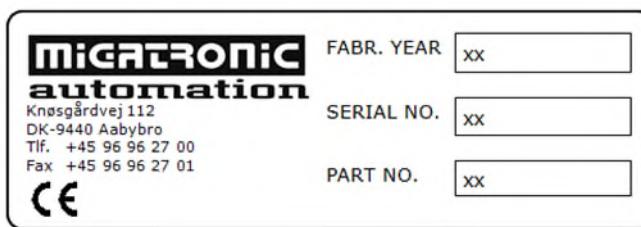
1.2 Machine data CoWelder Basic

Manufacturer: Migatronic Automation A/S
Knøsgårdvej 112
DK-9440 Aabybro

Machine name: CoWelder™ Basic

Model/type: CWB

Type plate:



1.2.1 Technical data

UR10E Robot on rack	Measurement Weight	750 x 600 x 2500 mm 125 kg
UR20 Robot on rack	Measurement Weight	950 x 800 x 2550 mm 175 kg
Svejsemaskine Sigma Select	Measurement Weight	700 x 260 x 735 mm 53 kg
Svejsemaskine PI350 AC/DC	Measurement Weight	980 x 545 x 1090mm 72 kg
Siegmund table S16	Measurement Weight	1500 x 1000 x 100 mm 281 kg
Siegmund table S16	Measurement Weight	2000 x 1000 x 100 mm 354 kg
Siegmund table S16	Measurement Weight	2400 x 1200 x 100 mm 503 kg
Siegmund table S16	Measurement Weight	3000 x 1500 x 100 mm 758 kg
Siegmund table S22	Measurement Weight	1500 x 1000 x 150 mm 420 kg
Siegmund table S22	Measurement Weight	2000 x 1000 x 150 mm 529 kg
Siegmund table S22	Measurement Weight	2400 x 1200 x 150 mm 740 kg
Siegmund table S22	Measurement Weight	3000 x 1500 x 150 mm 1097 kg
Siegmund table S28	Measurement Weight	1500 x 1000 x 200 mm 577 kg
Siegmund table S28	Measurement Weight	2000 x 1000 x 200 mm 730 kg
Siegmund table S28	Measurement Weight	2400 x 1200 x 200 mm 986 kg
Siegmund table S28	Measurement Weight	3000 x 1500 x 200 mm 1517 kg

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1.2.2 EC Declaration of Conformity

EC Declaration of Conformity of the Machinery
Directive 2006/42/EC



Manufacturer:

Migatronic Automation A/S
Knøsgaardvej 112
DK – 9440 Aabybro
+45 96 96 27 00

Authorised to compile the technical file:

CEO|
Migatronic Automation A/S
Knøsgaardvej 112
DK – 9440 Aabybro

Herewith declares, that

Commercial name:	CoWelder Basic
Model/type:	CWB
Item number:	XXXXXXXXXXXX
Function:	Automatic welding process

Is in conformity with the provisions of the Councils Directive 2006/42/EC and with
national implementing legislation.

and

Is in conformity with the provisions in 2014/30/EU – EMC.

Stated machine is produced according to following:

harmonized standards:

DS/EN ISO 12100

national technical standards and specifications:

Aabybro den 03.04.2023
Place/date

Kristian M. Medeen
Factory Manager

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2 Safety instructions

2.1 Intended use

The machine, consisting of a Universal Robots robot arm, with an attached welding torch, a Migatronic power source, a Siegmund welding table, a Migatronic Turntable, and security for it (if optional) and is designed for welding items, regardless of quantity and frequency.

The machine is designed as a collaborative welding robot that interacts with one operator and is only intended for manual loading of workpieces.

Cycle time depends on application and time of items.

Welding speed up to 6-9 mm/s.

Speed of the robot between welds up to 1000 mm/s.

Items are transported to and from the robot by the operator.

It is NOT permitted to use the machine for purposes other than the above.

Intended use also requires that:

- Operators have read this user guide prior to operating the machine.
- All instructions in the user manual are followed.
- All requirements for control and maintenance are complied with.
- Only original spare parts are used.

Only specially trained staff must carry out transport, commissioning, disposal, troubleshooting and repair.

All forms of use and operation must be carried out by trained personnel.

Maintenance and service on the electric system must only be carried out by specially trained staff or staff trained in carrying out service on electric equipment, or under the surveillance of specially authorised persons.

According to regulations, it is the owner's responsibility to supply the machine's welding area with high-efficient extraction. It is also the owner's responsibility to protect the operator and passers-by from UV radiation.

Welding fumes



Smoke and gases produced during welding are harmful to health. Ensure proper extraction so that harmful gases are removed effectively. Avoid breathing welding fumes and gases.

IMPORTANT



Use the machine in safe and perfect condition only!

IMPORTANT



We strongly recommend you to back up all programmes of robot and welding machine.

Migatronic Automation cannot be held responsible for any loss of data that may occur whatever the cause!

WARNING



It is the responsibility of the owner/user at all times to program and ensure the correct setting of the CoWelder's TCP (Tool Center Point). If the TCP is set incorrectly, the welding performance will not be as expected, and the functionality of the virtual safety setting is not guaranteed.

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WARNING

For safety reasons, the following maximum values must be set as low as possible in the robot.



Force: Max160N
Power: Max 80 W
Speed: Max 1000 mm/s
Momentum: 8kg m/s

2.2 Reasonably foreseeable Misuse

Any other use than described under "Intended use" or that goes beyond this is considered "Reasonably foreseeable misuse".

In the event of damage resulting from Misuse:

- It is solely the responsibility of the operator.
- The manufacturer assumes no responsibility.

When starting up the machine, make sure that there are no persons in the machine's working area.

At no time during operation must the operator manually break into any automatic function and attempt to manually push, remove, or otherwise handle objects.

During operation, applicable standards for noise, dust, and vibrations must be observed, and the permissible standard values must not be exceeded at any time.

The CoWelder must have sufficient free space around the robot to avoid collisions.

Working temperature:0-40°

Humidity: 10-80% RH (non-condensing)

Keep the working area clean and tidy.

Remove immediately any oil or liquid spillage.

It is not allowed to step or crawl on the machine.

Warning signs and signals shall be respected and may not be removed or covered. Replace at once any damaged or removed signs or signals.

WARNING

Do not use the machine under the following operating conditions:



- Explosive atmosphere
- Technical values exceeding specifications for normal operation

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2.3 Safety illustrations

2.3.1 Meaning of general illustrations

Pictogram	Signal word	Description
	HAZARD	Immediate hazard that may cause serious physical injury or death.
	WARNING	Possible hazardous situation that may cause serious physical injury or death.
	NOTE	Possible hazardous situation that may cause minor physical injury or damage to equipment.
	INFORMATION	Useful hints and information.
	IMPORTANT	Special behaviour or action required to ensure proper handling of the machine.

2.3.2 Signs on the machine



Risk of warm surfaces



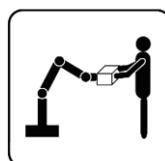
No entry for persons using pacemakers



Wear welding helmet



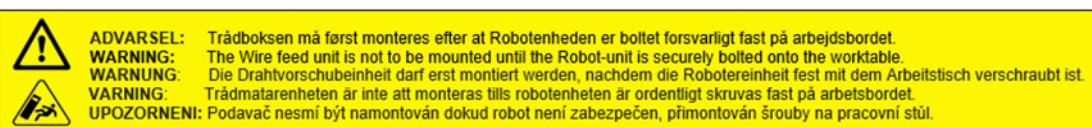
Wear welding glasses.



collaborative robot



Cell needs to be grounded.



This label is only mounted if there is a TIG welder attached

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2.3.3 Special Risks

In addition to risks that are already marked on the machine, there may be special risks that are important to take into account, a few examples are shown below.



Risk of electric voltage



Risk of warm surfaces



Wear safety footwear



No entry for persons using pacemakers



Wear welding helmet



Wear protective gloves

2.4 Restructure or modification of the machine

Arbitrary modifications or alterations voids the manufacturer's warranty and responsibility for damages resulting thereof. The manufacturer of the change takes over all responsibilities and obligations regarding compliance with Council Directive 2006/42 / EC - Machinery Directive.

2.5 Spare parts, Wearing parts, and Consumables

Use spare and wear parts from third-party manufacturers can pose a risk. Use only original parts or parts approved by the manufacturer.

The manufacturer accepts no responsibility for damage resulting from the use of spare and wear parts or consumables that are not original or approved by the manufacturer.

2.6 Risks involved in Operating the Machine

Operating the machine may involve a risk and affect:

- Operator's and other persons' lives and health
- The machine itself or other tangible assets.

Proper use of the machine depends on knowledge of this user guide.



IMPORTANT

The user guide shall be kept at the operator's workplace and be easily accessible for operators and maintenance staff.

Other special attention points:

- Compliance with accident prevention regulations.
- Compliance with safety, health, and environmental regulations.
- In case of malfunctions, stop operating the machine. Do not resume work until after repair.
- The person responsible for the machine must ensure that the required safety instructions are complete and kept at the workplace.

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2.7 Noise and vibrations

Prior to start-up of the machine check that its noise level complies with standards. The sound pressure level should not exceed 70 dB(A) near operating areas.

Reduce electromagnetic noise by keeping cables for positive and negative electrode closely together, preferably at floor level. Keep cable lengths to a minimum.

2.8 Responsibel for operation

2.8.1 Employer's Responsibilities

The employer is responsible for only allowing personnel to work with the machine who:

- Is familiar with the basic regulations for occupational safety and accident prevention,
- is trained in working with the machine,
- have read and understood this user manual.

The employer is also responsible for the machine operators using personal protective equipment in accordance with applicable requirements and regulations.

2.8.2 Operators' Responsibilities

All persons for whom it is intended that they must work with the machine are called operators.

Before starting work, operators are responsible for:

- that the basic regulations for occupational safety and accident prevention are complied with,
- that "Safety illustrations" and the specified safety notes in the user manual have been read and understand.

Please direct any unanswered questions to the manufacturer.

Operators' Qualifications

Operator Task	Specially instructed operators	Instructed operators	Specially trained operators (mechanic/electric)
Transport	X	--	--
Commissioning	X	--	--
Troubleshooting/Repair	X	--	X
Change of tools	--	X	--
Use	--	X	--
Maintenance	--	--	X
Disposal/Reuse	X	--	--

2.9 Residual Risks

The structure of the machine is based on advanced technology and approved safety regulations. Operators must receive training in risks and required precautions.

The following residual risks apply:

Warning: Risk of burns



Touching and using the welding torch may cause burns. Use of protective gloves and clothes is mandatory.

Warning: Injury caused by welding wire



Touching, using, and setting the welding wire may cause injury. Use of protective gloves, clothes and welding helmet/protective goggles is mandatory. Protective equipment must have suitable mechanical strength

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Warning: Welding fumes

Fumes and gases formed during welding are hazardous to health. Proper use of suitable extraction (supplied by the user) is mandatory during welding.



Warning: UV radiation

UV radiation may cause eye injuries or eye irritation. Use of welding helmet/protective goggles is mandatory. Surroundings (other operators, visitors etc.) must be shielded, using e.g., welding curtain according to DS/EN ISO 25980 (owner/operators' responsibility).



HAZARD:

Pay attention to residual energy in the machine's electric systems in case of power supply failure.



Warning: Weld spatter

Weld spatter may cause burns or eye injuries. Use of protective gloves, clothes and welding helmet/protective goggles is mandatory. Other operators, visitors etc. must be kept at a suitable distance from the robot or otherwise protected against weld spatter (owner/operator's responsibility).



HAZARD:

No entry to the machine's safety area when the machine is in operation.



HF ignition involve a risk of electric shock and a risk of interference/damage to electronic circuit. This only applies to TIG welding machines.

It is important that the robot and the welding machine have a correct and effective ground connection, and that the ground connection of the power source (Welding +) is connected to the workpiece.

Insufficient ground connection may cause interference or damage to electronic circuit, or damage to the electrical installation.



Danger:

It is forbidden and associated with a risk of death for people with pacemakers, metallic implants etc. to be near and around the machine.

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2.10 Personal safety

2.10.1 Protective Equipment

Operators must wear the following protective equipment:



SAFETY FOOTWEAR

Always wear safety footwear



PROTECTIVE GLOVES

Avoid burns. Use protective gloves for handling welding torch and welded workpieces!



SAFETY GLASSES

Use of safety glasses required



WELDING HELMET

The arc emits radiation, which is harmful to the human eye. Even short-term radiation may cause permanent injury. Use safety glasses in the welding helmet to protect the eyes against radiation from infrared, visible and ultra-violet light.

2.10.2 General Precautions



NOTE

Tie-up or cover long hair and do not wear ties, jewellery, and loose clothing.



WARNING

Protect passers-by against radiation, weld spatter and warm metal.

2.11 Emergency situations



Risk of open fire:

Keep the machine clean and do not leave flammable materials inside the machine.

Procedure in case of fire in the machine:

- Evacuate the area.
- Call the fire department.
- Disconnect power to the machine.
- Use Co2 carbon dioxide extinguisher to limit / extinguish the fire.



Warning

Avoid using water; it will destroy the electric system.

We recommend installing a Co2 carbon dioxide extinguisher nearby the machine.

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2.12 Safety and protective Equipment

Defective safety and protective equipment may cause hazardous situations, in which case

- The power supply to the machine must be switched off immediately
- the machine must be secured against restart
- the machine must be disconnected from the power supply



Important

Use the machine only when all protective equipment is present and in working condition!

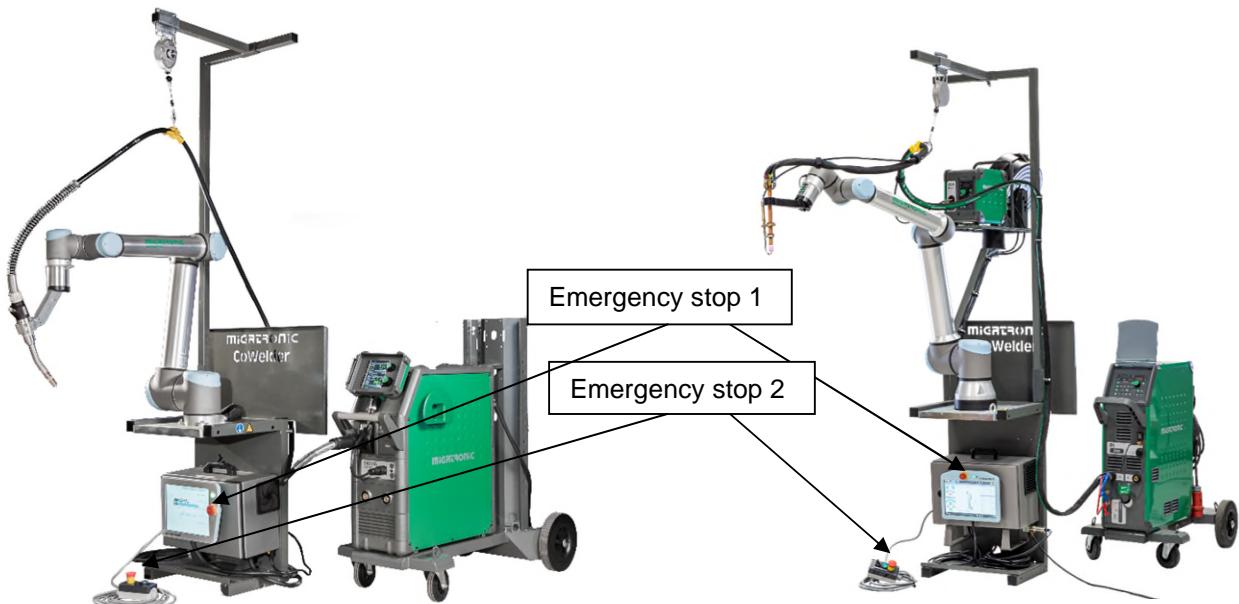
2.13 Location of safety Devices'

Safety on CoWelder Basic

Below is the location of emergency stops on CoWelder Basic MIG and TIG.

Emergency stop 1 and 2 disconnects:

- Robot
- Arc



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2.13.1 Information about safety Equipment

Emergency stop

Emergency stop button stops the entire machine and a reset is required to restart the machine.

2.14 Check of safety and Protective Equipment

All safety and protective equipment must be checked at regular intervals.

Security and protective Equipment	Control interval
Emergency stop	Monthly

2.15 Transport, handling and storage.

Make the machine ready for transport and secure all parts to ensure safe transport. Take precautionary measures. During lifting operations, attachment points must ensure balancing of the machine/machine parts. Attached equipment or parts not intended for lifting must not have lifting points.



WARNING

Protect your back and other parts of your body when lifting the equipment. Use correct lifting equipment. Observe all relevant lifting instructions.



WARNING

The machine may under no circumstances be transported or moved with mounted wire feed unit. **This only applies to TIG welding machines.**



Before transporting the UR10:
Turn on the robot using the Teach Pendant.

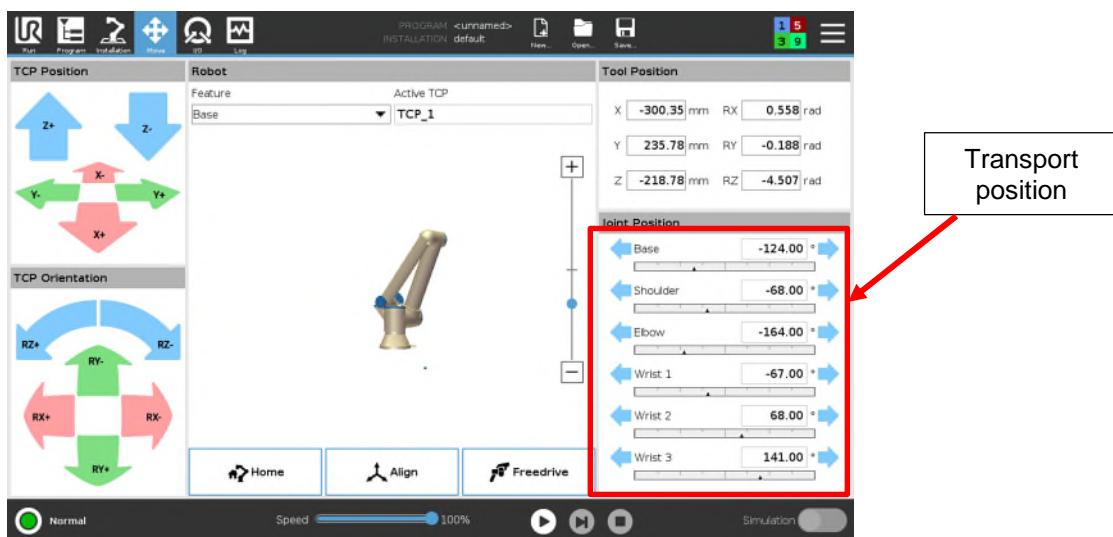
Before transporting the UR20:
Press one of the yellow buttons on the back of the Teach Pendant to turn on the robot. These two buttons are dead man's switches, so they have three positions. To activate them, you only need to press them halfway down.



Place foam or bubble wrap between the joints to protect the robot from transport damage. Fold the joints to a minimum and turn off the robot.

The image below shows the correctly set transport position.

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Prior to transport

Preparation:

- Identify the attachment points for lifting
- Make sure that the load is balanced.
- Remove any obstacles from the defined route of transport.
- Keep unauthorised persons away from the route of transport and place of assembly. Seal off the area, if necessary.

Means of transport

When transporting the machine, the following can be used:

- A travelling crane crab
- Lifting hooks
- A forklift truck

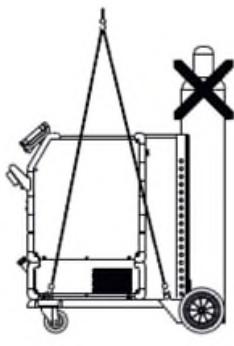
Transport the welding machine

When lifting the welding machine, the lifting points as shown in the figure must be used.

Do not lift the machine in the handle!

Do not lift the welding machine with mounted gas cylinder!

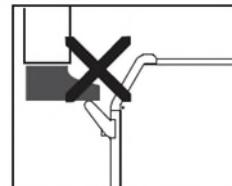
Sigma Select



PI350



Sigma Select/PI350 Do not step on the handle.



Transport of the robot

Transport the robot on a pallet. Lift the robot from the pallet by the hoist rings mounted on the self-balancing table mount.

Name	CoWelder™ Basic
Product	Instruction manual
Version	B
Drawn up by:	Migatronic Automation

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WARNING

The machine may under no circumstances be transported or moved with mounted wire feed unit. **This only applies to TIG welding machines.**



WARNING

Take care not to damage the robot during lifting.

- Lift the machine parts carefully.
- Place the machine slowly and carefully onto the welding table.

Name	CoWelder™ Basic
Product	Instruction manual
Version	B
Drawn up by:	Migatronic Automation

3 Setup and installation

3.1 General

Important



Help to protect the environment.

All the machines packaging can be recycled.

WARNING



To prevent stumble accidents or driving over cables, all supply cables must be secured.

Warning



To ensure error-free operation, the area for installation must be prepared so that the machine stands on a level and sustainable surface. Carefully fit all connections and check that they are properly secured.

3.2 Levelling

All machine stands must be level and must be adjusted to ensure that the machine foundation is stable.

3.3 Connection

3.3.1 Electricity

When powering up the board, the following conditions must be met:

- The board must be protected according to the National Electrical Code Standard, section 204-1 (EN 60204-1)
- The board must be connected to a suitable earth plug.
- The power for the board must be 1 X 230VAC+ N + PE.
- The frequency for the board must be 50/60 Hz.
- The fuse can be 10 A, at max.
- Short circuit level can be 6kA, at max.
- The power for the welding machine must be 3 X 400VAC+ PE.
- The fuse for the welding machine can be 35 A, at max.

3.3.2 Exhaust

HAZARD



The machine cannot be used before the work area has been provided with adequate ventilation.

Check that the ventilation is active before welding!

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Product	Instruction manual
Version	B
Drawn up by:	Migatronic Automation

4 Operating Instructions

Below are pictures of the operator's operating options.



Robot
teach/programming unit



Start box



Sigma Select control panel.
(MIG welding)



CWF Multi control
panel
(TIG welding)



PI 350 control panel
(TIG welding)

4.1 Use of Admin: Password

If the robot is to be updated with firmware, "Admin password" must be used. This is found on the inside of the door to the robot control box. In addition, the password is on the USB Stick that you received with the Cowelder.

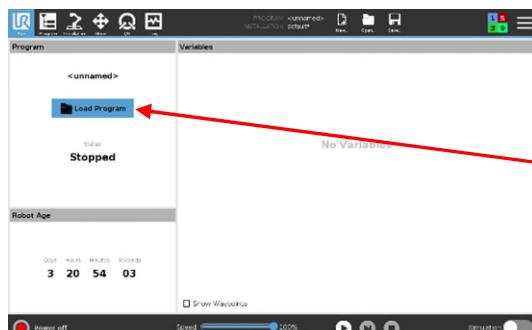


Name	CoWelder™ Basic
Product	Instruction manual
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Drawn up by:	Migatronic Automation

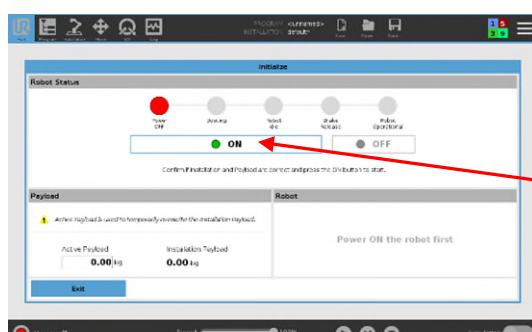
4.2 Setup and initialisation of robot



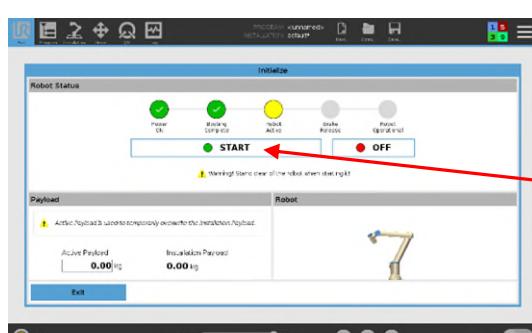
Turn the robot on with the Teach Pendant.



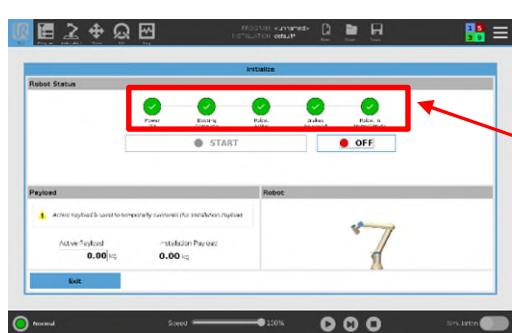
When the robot is ready, press [Load program]



Press *On*, wait -



And thereafter press [Start].



All markings are green. Now the robot is able to move.

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Use the Teach button to freely move the robot.
(On the UR20 robot, one of the yellow buttons must be held in the middle position).

4.3 Setup the TCP

For the sake of the safety system and correct operation of the robot's programming, it is necessary to set the TCP (Tool Center Point).

The TCP must be set before work begins, and if the position of the torch changes, the TCP must be set correctly again.

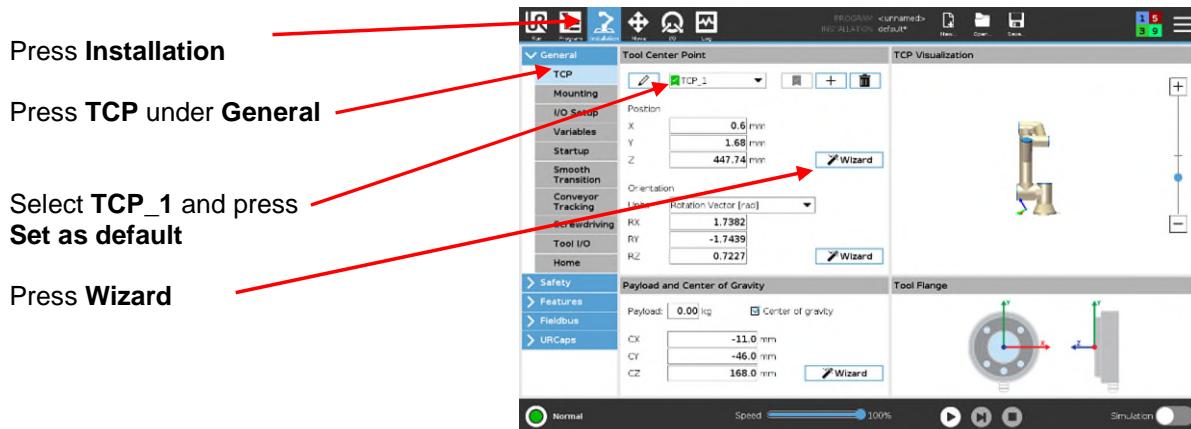
WARNING

It is the responsibility of the owner / user at all times to program and ensure correct setting of the CoWelder's TCP (Tool Center Point).



An incorrectly set TCP will adversely affect the welding performance and does not guarantee the functionality of the virtual safety setting.

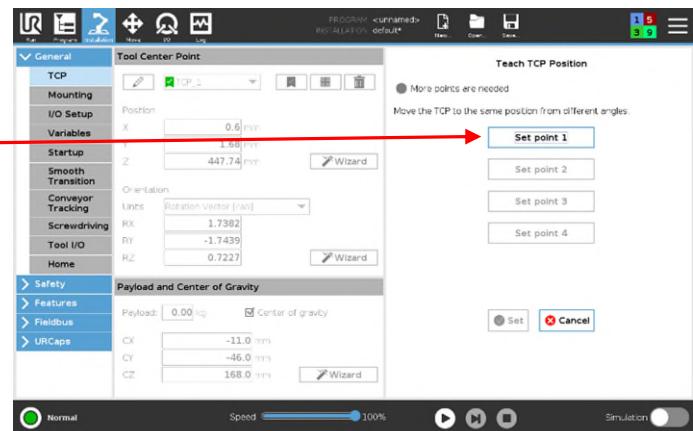
4.3.1 TCP Position



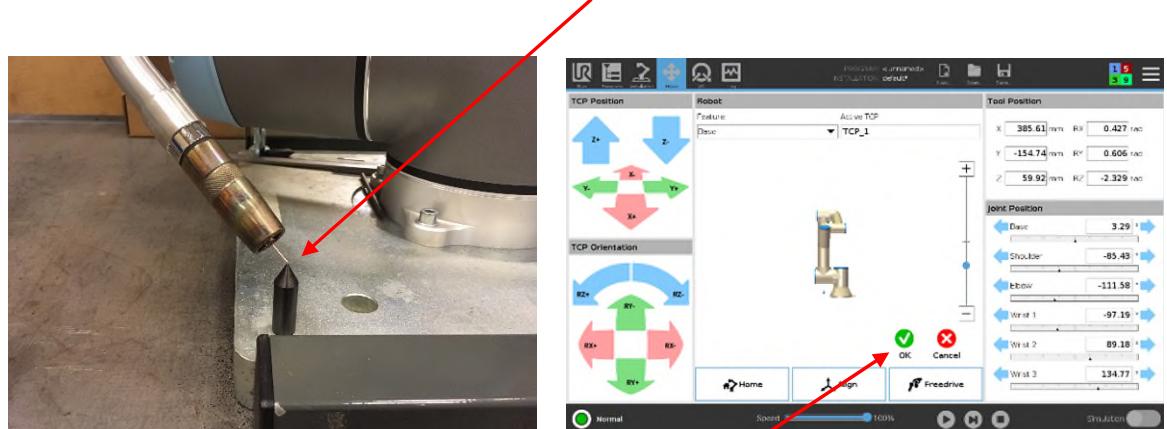
Name	CoWelder™ Basic
Product	Instruction manual
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Drawn up by:	Migatronic Automation

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Tryk på **Set point 1**
[SÆT PUNKT 1]

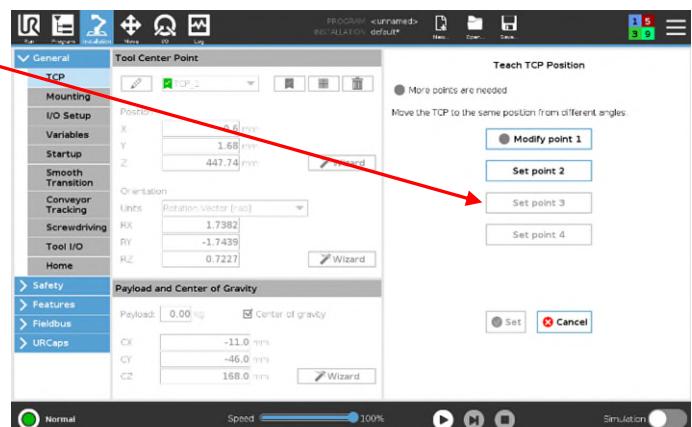


Use the *Freedrive button*, arrows or Teach button to point the tip of the wire precisely on a selected fixed point. See picture.



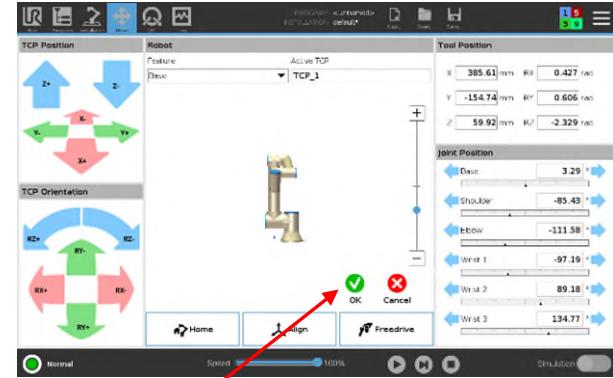
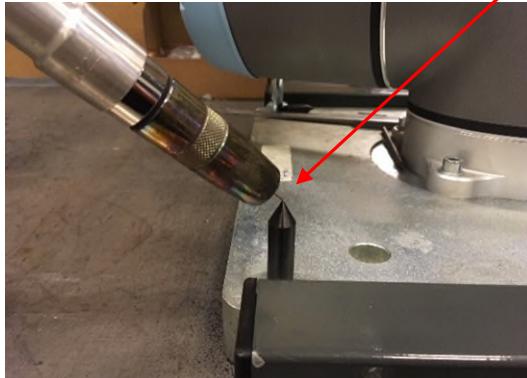
When the robot is pointed at the fixed point, then press **OK**

Press **Set point 2**



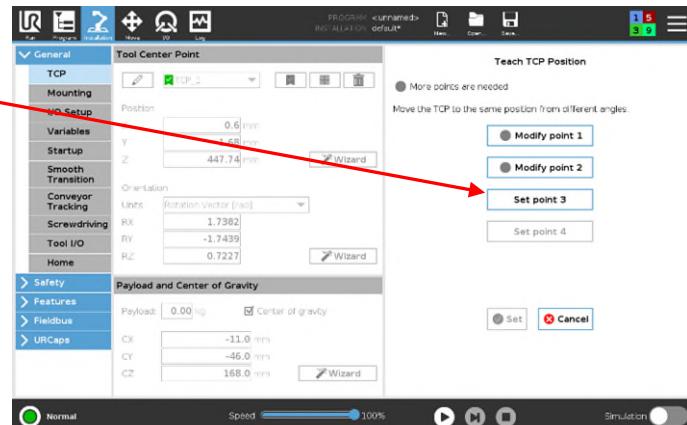
Name	CoWelder™ Basic
Product	Instruction manual
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Drawn up by:	Migatronic Automation

Use the *Freedrive button*, arrows or Teach button to point the tip of the wire precisely on a selected fixed point. See picture



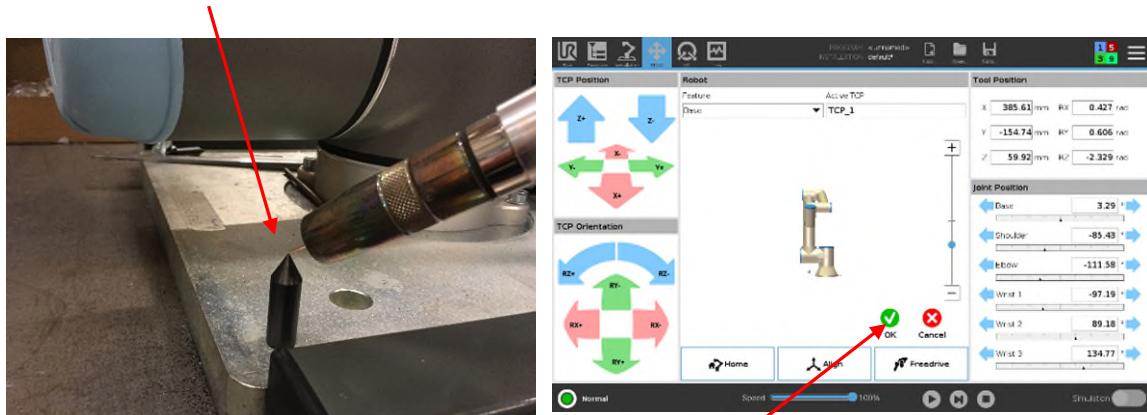
When the robot is pointed at the fixed point, then press **OK**

Press **Set point 3**

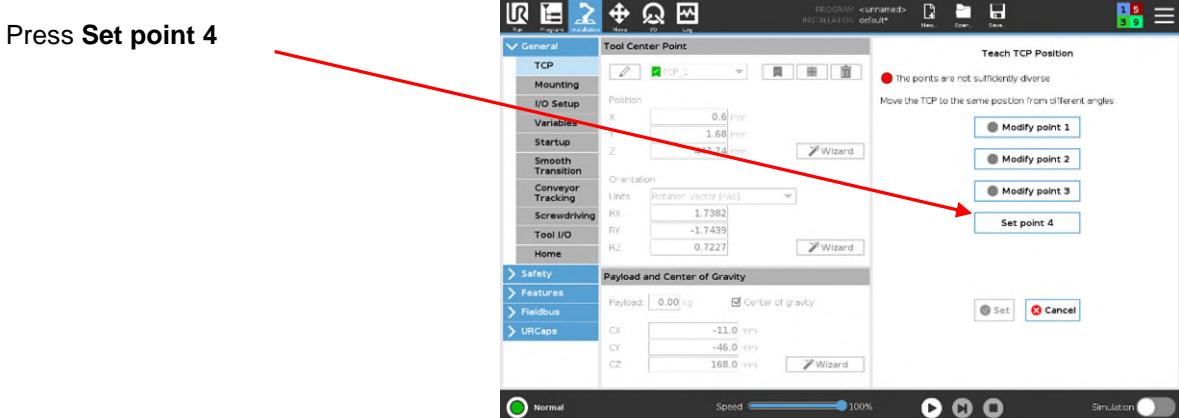


Name	CoWelder™ Basic
Product	Instruction manual
Version	B
Drawn up by:	Migatronic Automation

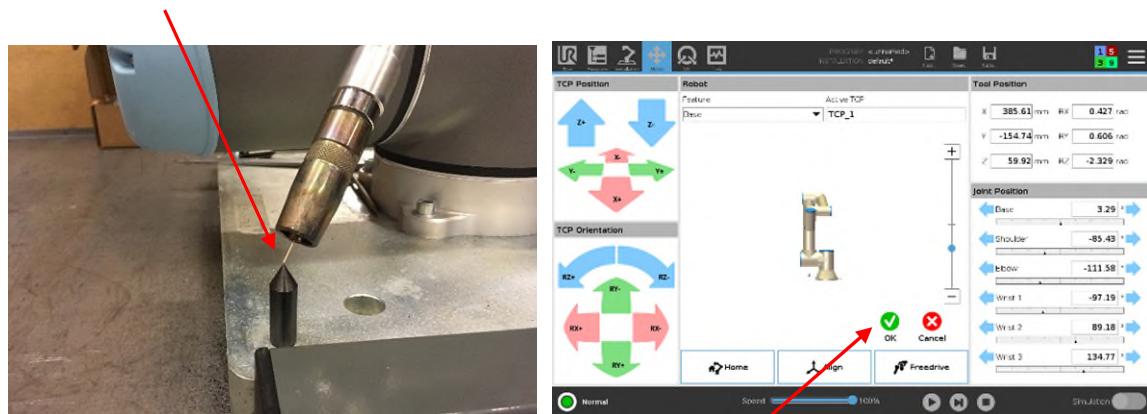
Use the *Freedrive button*, arrows or Teach button to point the tip of the wire precisely on a selected fixed point. See picture



When the robot is pointed at the fixed point, then press **OK**



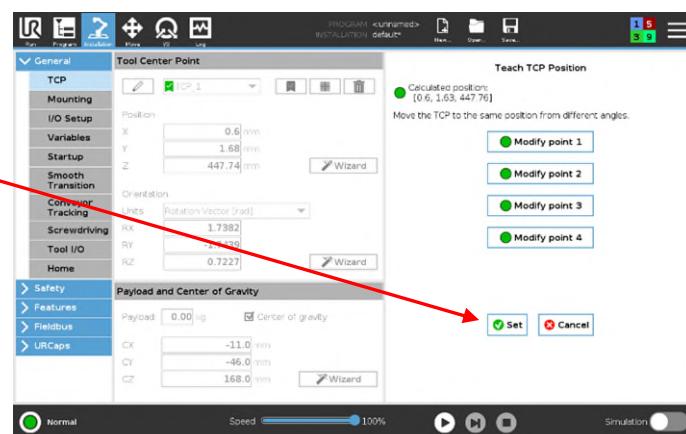
Use the *Freedrive button*, arrows or Teach button to point the tip of the wire precisely on a selected fixed point. See picture



When the robot is pointed at the fixed point, then press **OK**

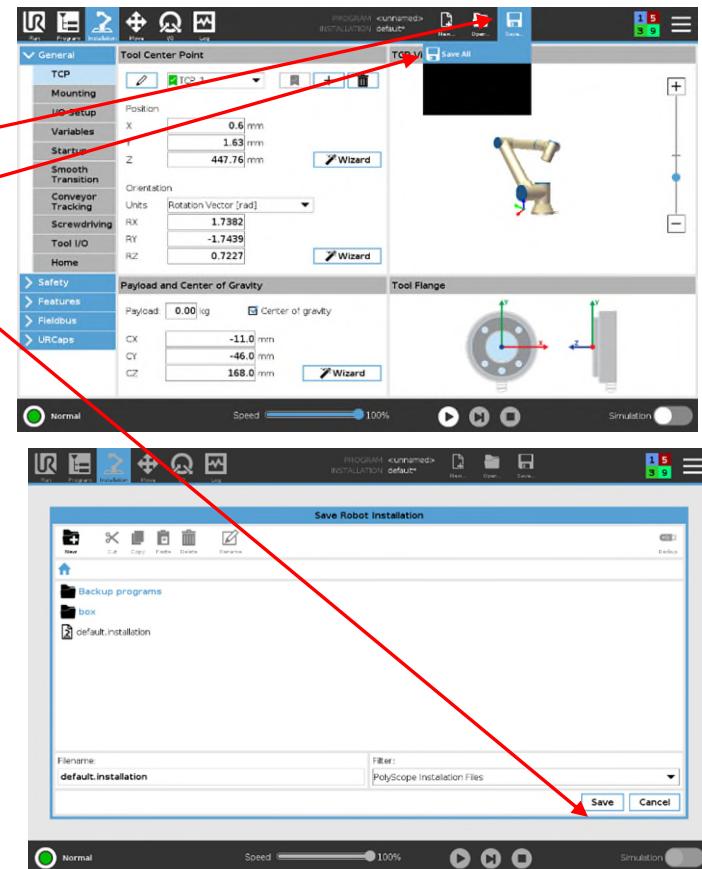
Name	CoWelder™ Basic
Product	Instruction manual
Version	B
Drawn up by:	Migatronic Automation

Press Set



Information: If you can't find the text, use the scroll bar to scroll down to the bottom.

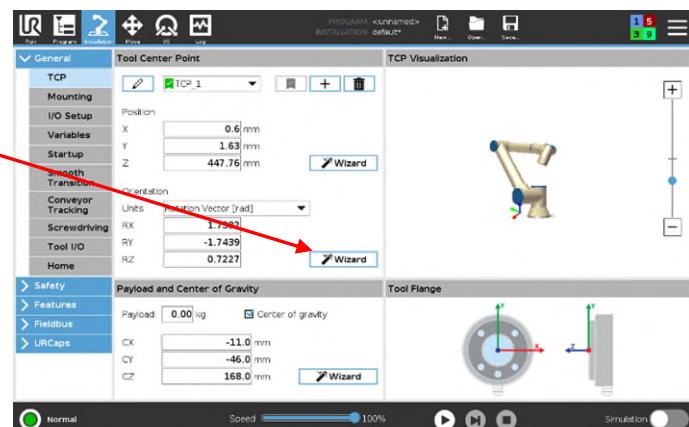
Press Save followed by Save All and then press Save



Name	CoWelder™ Basic
Product	Instruction manual
Version	B
Drawn up by:	Migatronic Automation

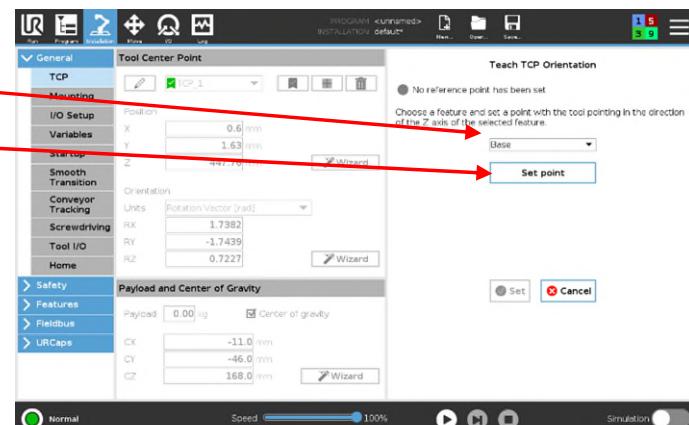
4.3.2 TCP orientation

Press Wizard



Select Base in the menu

Press Set point

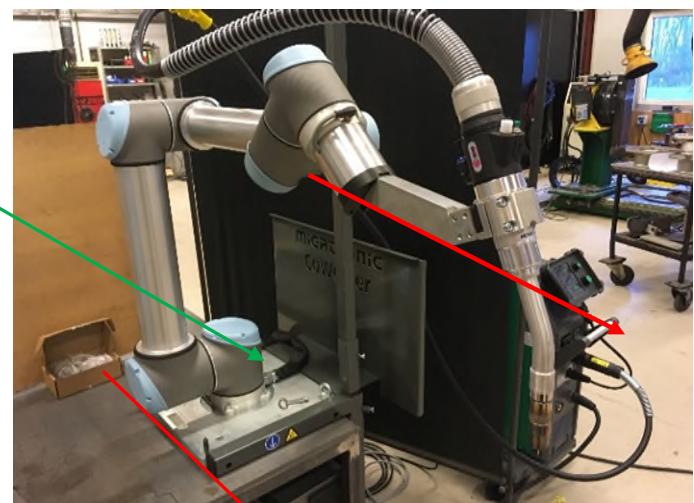


Robot connector

Move the robot approximately to the same position as shown on the picture

The following is important:

The torch mount should be parallel with the X-axis, this is illustrated on the picture with the two red lines

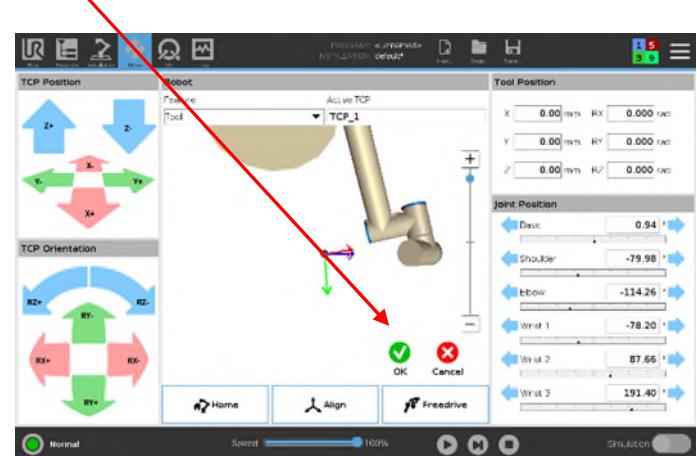


Name	CoWelder™ Basic
Product	Instruction manual
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Drawn up by:	Migatronic Automation

Check the alignment of the torch vertically. See pictures below (use a spirit level)
Move the robot in 4 and 5 axis until you have the same results as in the pictures.

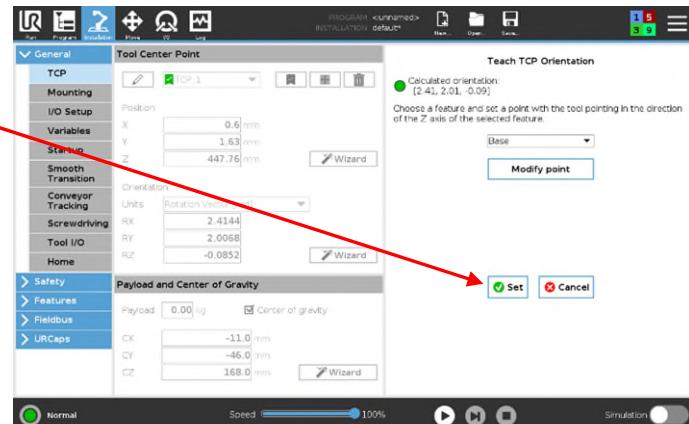


When the robot is placed correctly then press **OK**



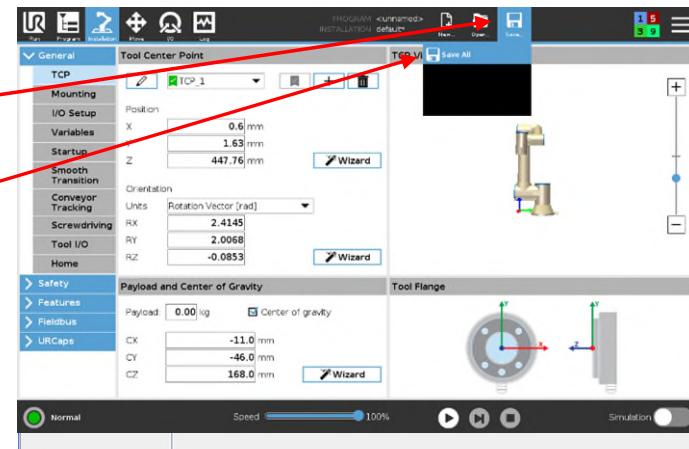
Name	CoWelder™ Basic
Product	Instruction manual
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Drawn up by:	Migatronic Automation

Press Set



Information: If you can't find the text, use the scrollbar, and pull it to the bottom.

Press Save followed by Save All



4.3.3 Test TCP Settings

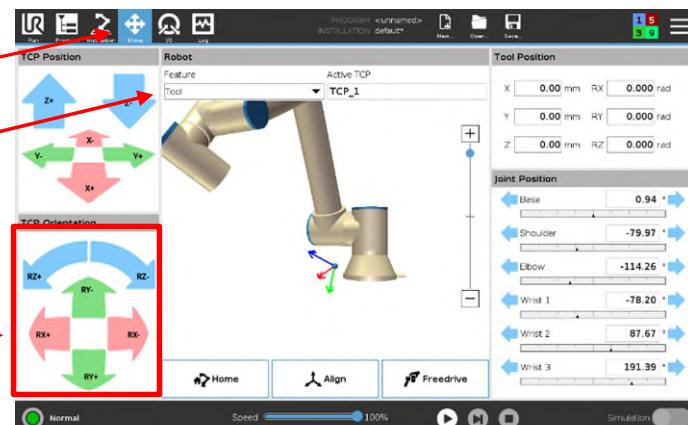
Restart the robot

Press Move

Select Tool

Move the robot manually, the tip of the wire must point to a fixed point

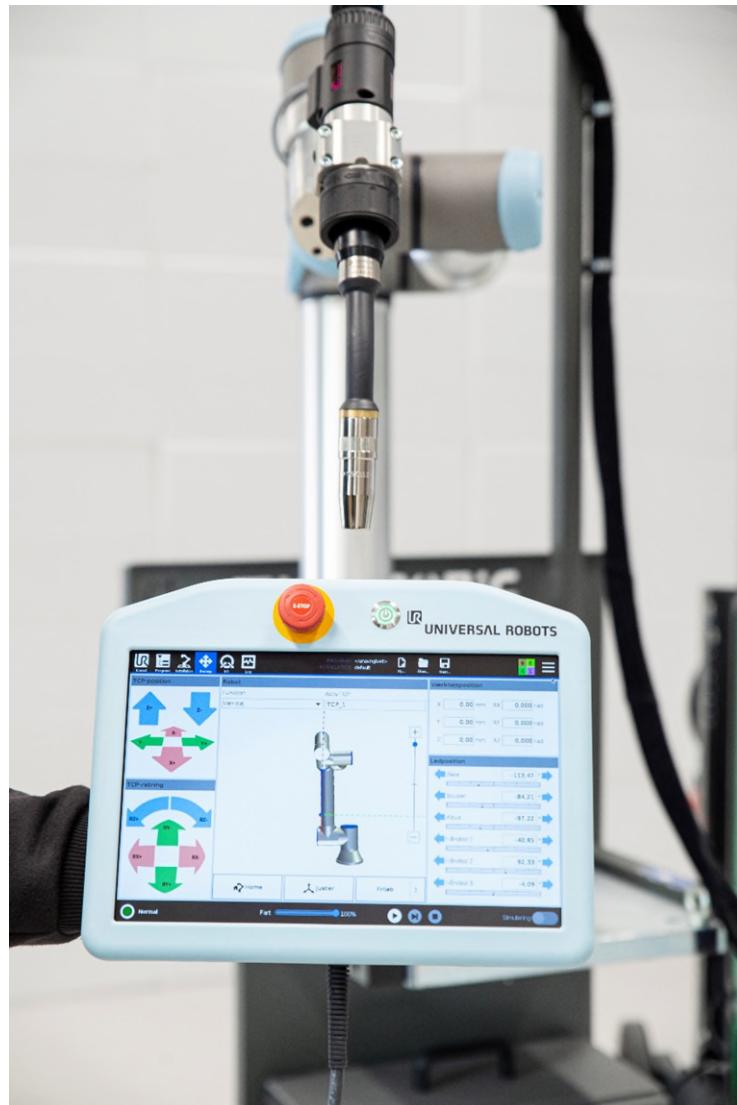
Now use these arrows to move the robot



If the settings in chapter 4.2.1 is done correctly, the tip of the wire should stay in the same position, but the robot will move.

If the tip of the wire moves more than 2 mm then you have to start from chapter 4.2.1 again!

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Place the robot and teach pendant as shown on the picture above
If the orientation in chapter 4.2.2 is done correctly, and **TOOL** is selected
Then the torch should move in the same direction as the arrows show on the screen



WARNING

If a different torch is mounted, the operator is always responsible for setting a new TCP to maintain safety.

Name	CoWelder™ Basic
Product	Instruction manual
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Drawn up by:	Migatronic Automation

4.4 MigaWeld (Basis Software)

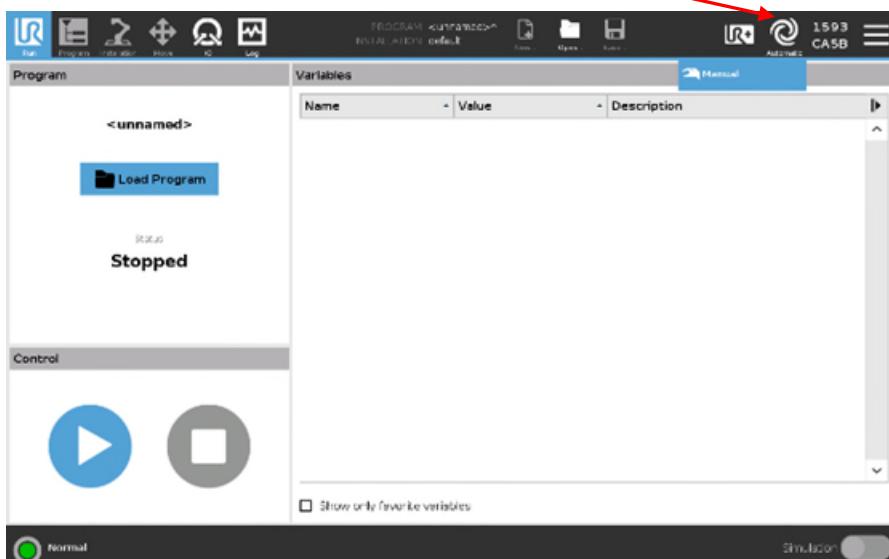


IMPORTANT

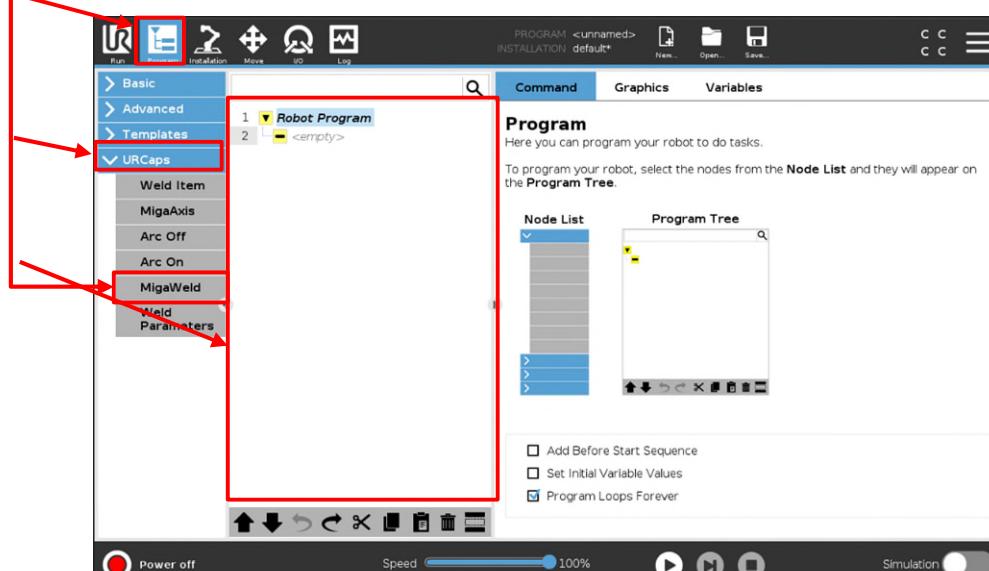
It is recommended to back up all programs on the Robot and welding machine.
Migatronic Automation cannot be held responsible for any data loss, regardless of the cause!

Only if UR20:

Before starting, ensure that the robot is set to manual mode.



Press the program tab, press URCaps. When you press MigaWeld an entire application tree is generated on the screen.

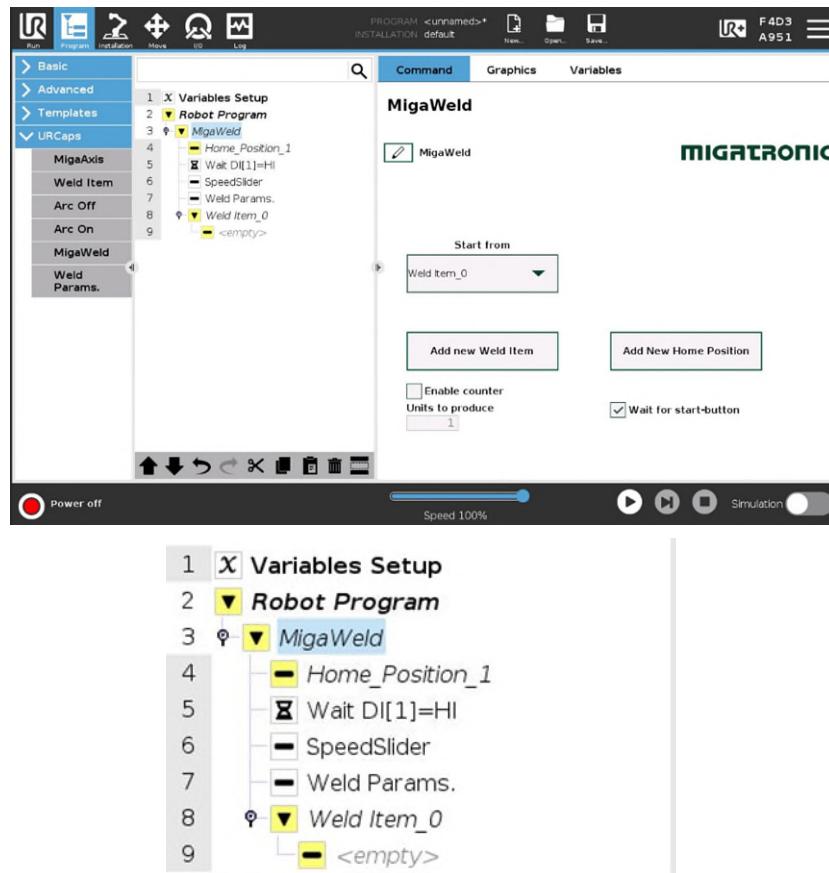


4.4.1 MigaWeld Program tree

When the URCap is inserted into the program tree, several program nodes are included. These are reviewed in the following section.

Name	CoWelder™ Basic
Product	Instruction manual
Version	B
Drawn up by:	Migatronic Automation

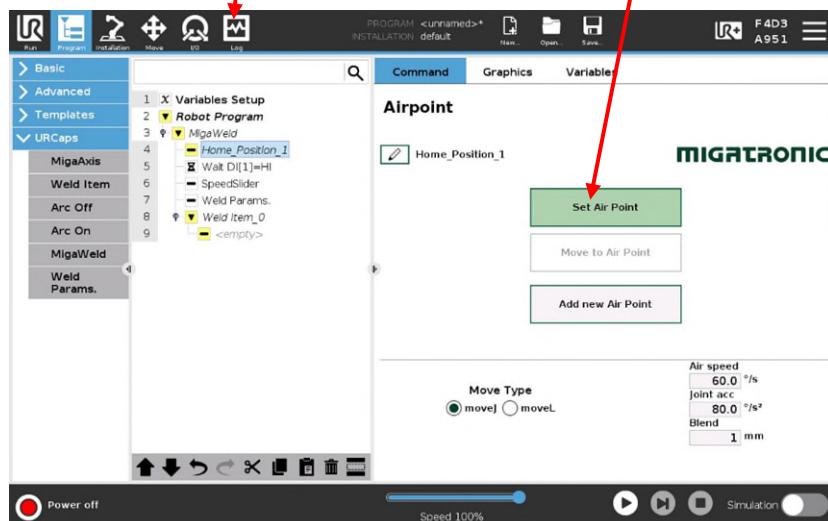
4.4.2 MigaWeld program features



Function	Description
Enable counter	The counter records each program run
Wait for start-button	Awaiting start from physical start button
Start from	Allows you to start the program from a desired welding workpiece
Add new Weld item	By pressing, a new weld item is added at the bottom of the program tree
Add new Home Position	A new home position node is added to the program tree

Name	CoWelder™ Basic
Product	Instruction manual
Version	B
Drawn up by:	Migatronic Automation

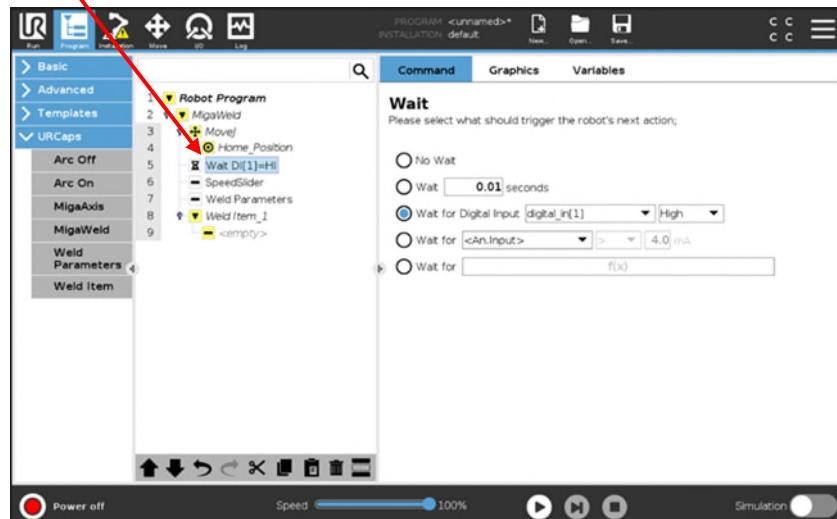
Select Home position [Home_position] and then Set Air Point [Set Air Point] and set the first air point on the Teach Pendant.



Function	Description
Move Type	Movement type, choose between joints or linear movement
Joint speed	Joint speed
Joint acc.	Joint acc.
Blend	Transition radius
Enable jump point	If the field is checked and "Start from" in the MigaWeld menu is set to this weld item, this function is activated. This function inserts an air point in the program before the first air point. this airpoint is only used if there is jumps in the program.
Set jump point	Set jump airpoint
Move to Airpoint	Move the robot to this point
Add new Airpoint	Add new Airpoint

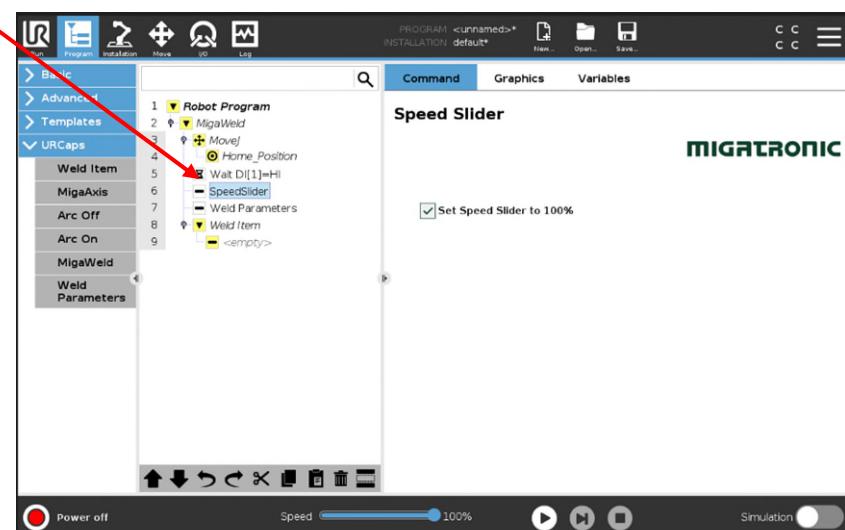
Name	CoWelder™ Basic
Product	Instruction manual
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Drawn up by:	Migatronic Automation

Select “Wait for Start Button”



Function	Description
Wait for Digital input	When the function is switched on in the MigaWeld tab, the robot waits for an active signal at this entry

Select speedslider

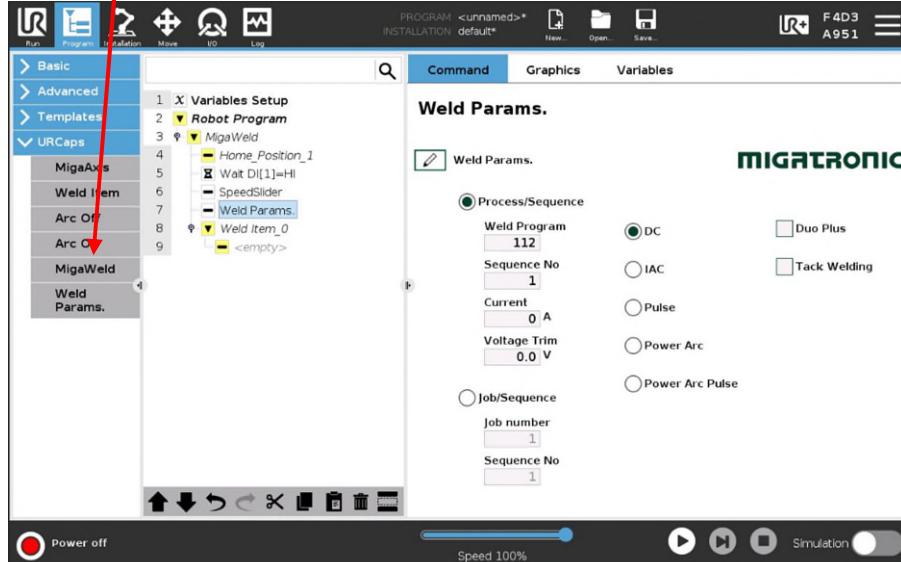


Function	Description
Set speed slider to 100%	When this function is switched on, the speed slider is always set to 100%. If the speedslider is not set to 100%, the desired speeds for the robot movements cannot be observed. Speed slider is set on the blue bar in the bottom of the picture.

Migatronic's welding machine is fully integrated in MigaWeld and can be operated from the robot's teach pendant. Regardless of which Migatronic power source your CoWelder is equipped with, you will be able to control all parameters of your welding machine directly from the teach pendant.

Name	CoWelder™ Basic
Product	Instruction manual
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Select WeldParameters (Only for MIG welding machines)



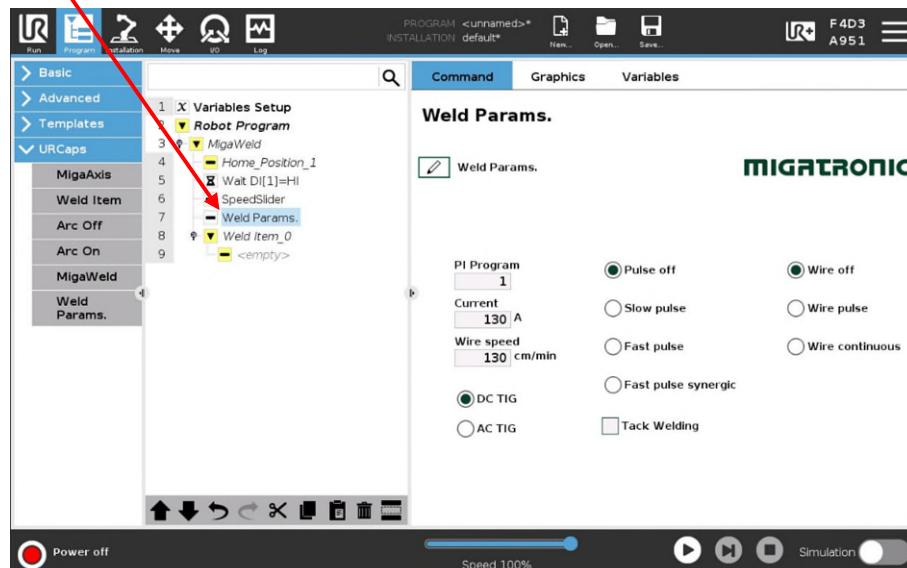
Function	Description
Job/sequence:	Job / Sequence call, the parameters are stored in the welding machine
Job number	Set job index number in the welding machine
Sequence No	Set sequence number in the welding machine
Process/Sequence:	Process / Sequence call, the parameters are stored in the robot
Weld program	Weld program number
Sequence No	Set sequence number in the welding machine
Current	Insert welding current into the welding machine
Voltage Trim	Insert trim volt in the welding machine
IAC	Process Selection Intelligent Arc Control
Puls	Process selection Pulse
Power Arc	Process Selection Power Arc
Duo plus	Process selection Duo Plus
Tack Welding	Process selection Tack welding
Power Arc Puls	Process Selection Power Arc Pulse

When changing parameters, a new weld parameter is inserted in the program tree where the change is desired.

You can change as often as you want, and you can also change parameters while the arc is on except for job changes and some process choices.

Name	CoWelder™ Basic
Product	Instruction manual
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Drawn up by:	Migatronic Automation

Select WeldParameters (Only for TIG welding machines)

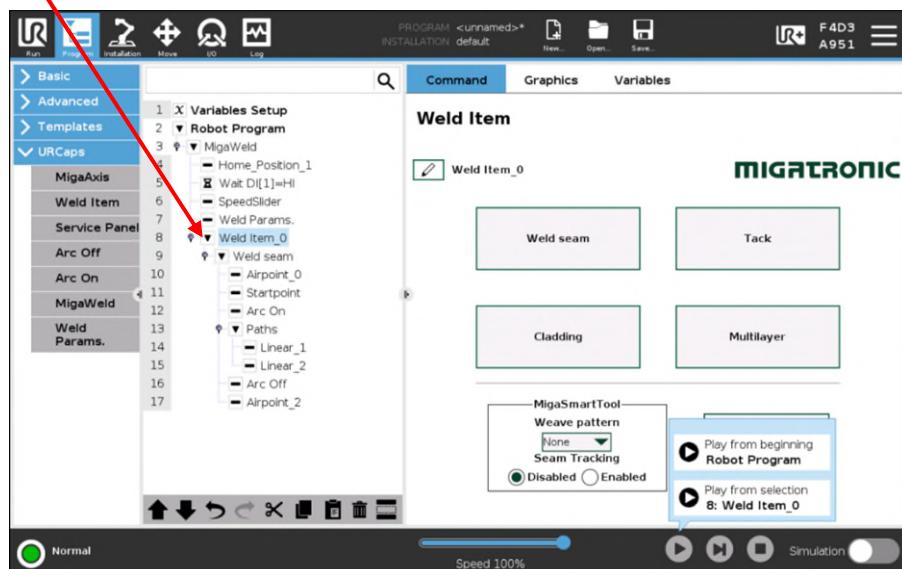


Function	Description
Pi Program	Set program number in the welding machine
Current	Set welding current in the welding machine
Wire speed	Set wire speed in the welding machine
Pulse Settings:	Set pulse selection for welding current in the welding machine
Pulse off	No pulse / constant current
Slow pulse	Slow pulse
Fast pulse	Fast pulse
Fast pulse synergic	Fast pulse synergic
Wire Settings:	Set pulse selection for welding wire in the welding machine
Wire off	No wire / wire is deselected
Wire pulse	Pulse on wire
Wire continuous	Wire continuous
Tack Welding	Process Selection tack welding
DC TIG	Process Selection DC TIG
AC TIG	Process Selection AC TIG

Name	CoWelder™ Basic
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Drawn up by:	Migatronic Automation

When changing parameters, a new weld parameter is inserted in the program tree where the change is desired

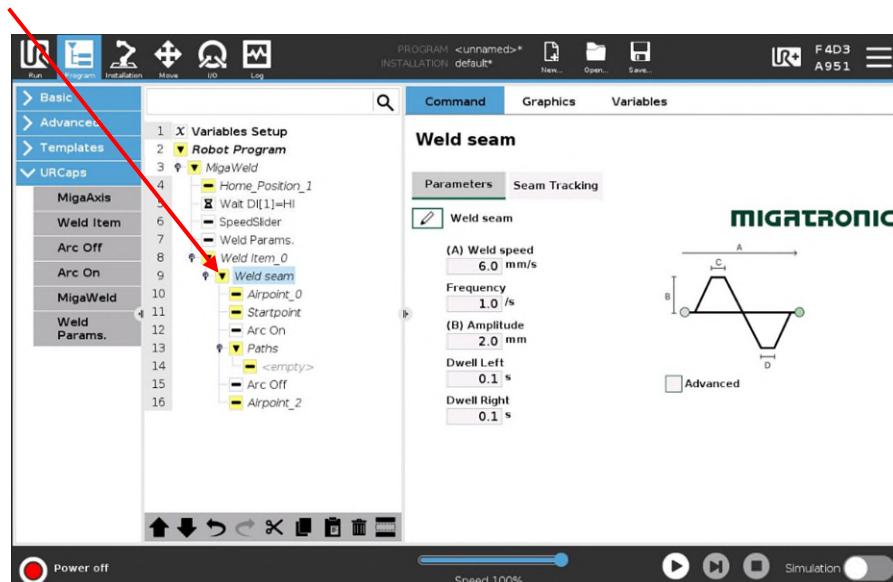
Select WeldItem



Function	Description
Weld seam	Inserts a welding seam into the program, welding seams consists of air points before and after welding, switching on the arc, switching off the arc and welding movements

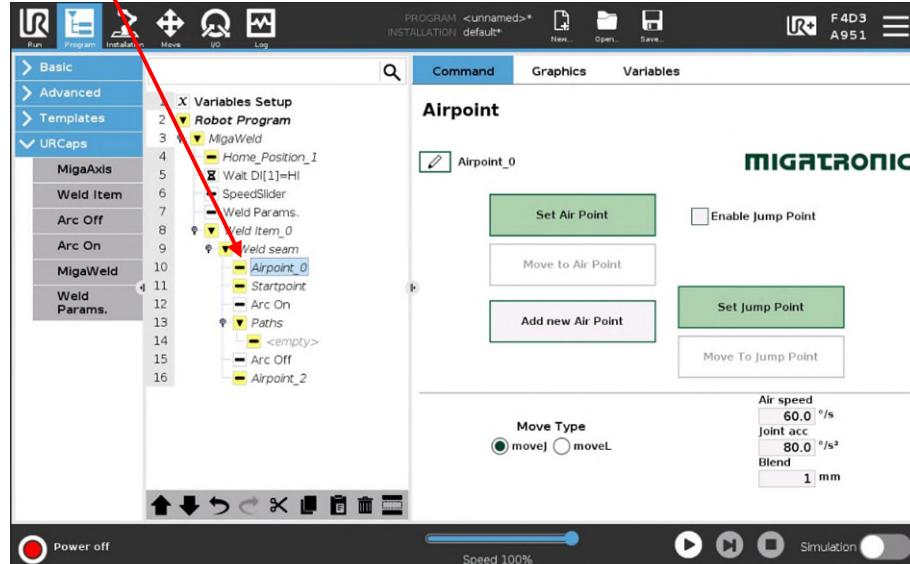
Name	CoWelder™ Basic
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Select Weld seam



Function	Description
Travel speed [Indicates the speed in mm/s
Frequency	Option, used only in weaving, see Miga Weave for description of functions
Amplitude	
Dwell left	
Dwell right	

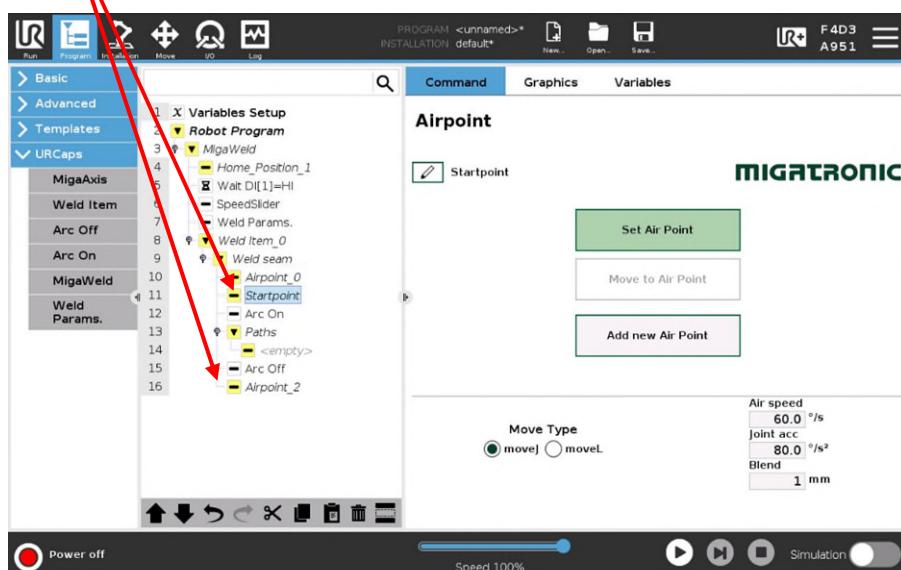
Select the first Airpoint in a Weld Item



Name	CoWelder™ Basic
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Function	Description
Move Type	Movement type, choose between joints or linear movement
Joint speed	Joint speed
Joint acc.	Joint acc.
Blend	Transition radius
Enable jump point	If the field is checked and "Start from" in the MigaWeld menu is set to this weld item, this function is activated. This function inserts an air point in the program before the first air point. this airpoint is only used if there is jumps in the program.
Set jump point	Set jump airpoint
Move to Airpoint	Move the robot to this point
Add new Airpoint	Add new Airpoint

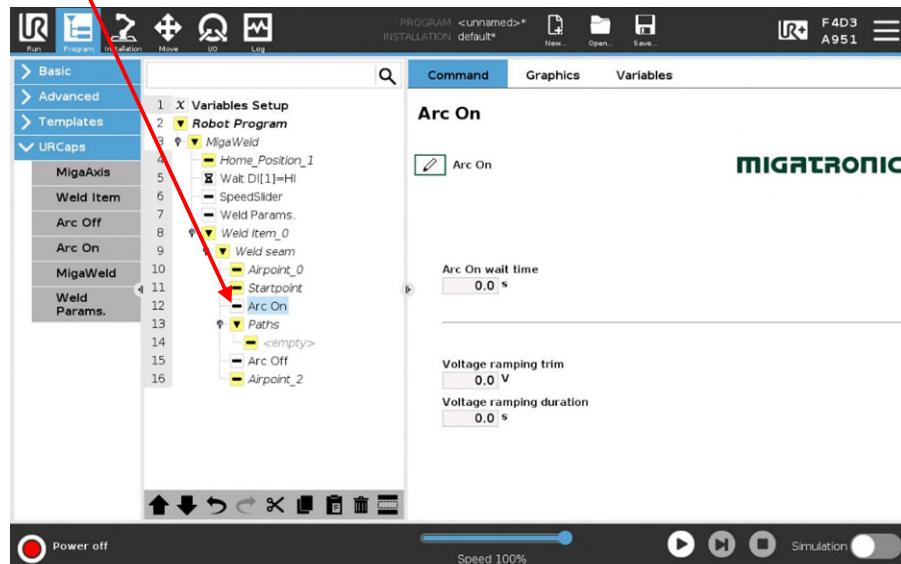
Select another Airpoint



Function	Description
Move Type	Movement type, choose between joints or linear movement
Joint speed	Joint speed
Joint acc.	Joint acceleration
Blend	Transition radius
Move to Airpoint	Move the robot to this point
Add new Airpoint	Add new Airpoint

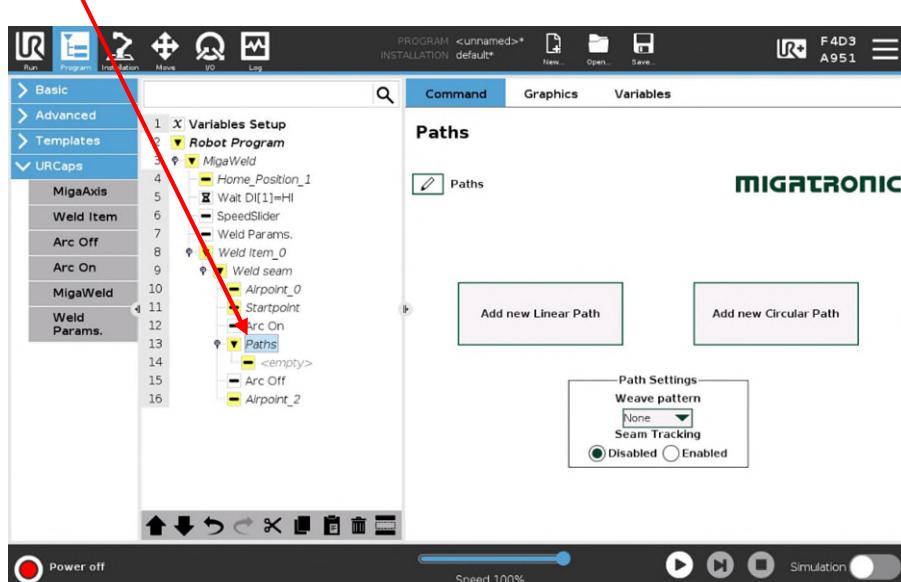
Name	CoWelder™ Basic
Product	Instruction manual
Version	B
Drawn up by:	Migatronic Automation

Select Arc On



Function	Description
Arc wait time	Waiting time between arc detected until the robot begins its movement
Voltage ramping trim (Only for MIG)	Trims the voltage when arc on for a limited time
Voltage ramping duration (Only for MIG)	The time the voltage trim is performed

Select Paths

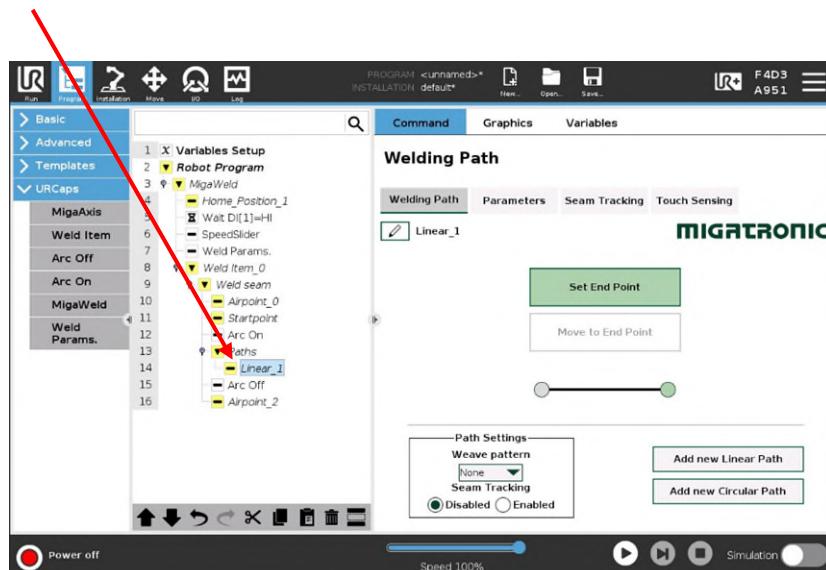


Function	Description
Add new linear path	Add new linear welding movement
Add new circular path	Add new circular welding movement
Weave pattern	Setting of weave pattern
Seam Tracking	Enabling/Disabling of Seam Tracking in the paths created

Name	CoWelder™ Basic
Product	Instruction manual
Version	B
Drawn up by:	Migatronic Automation

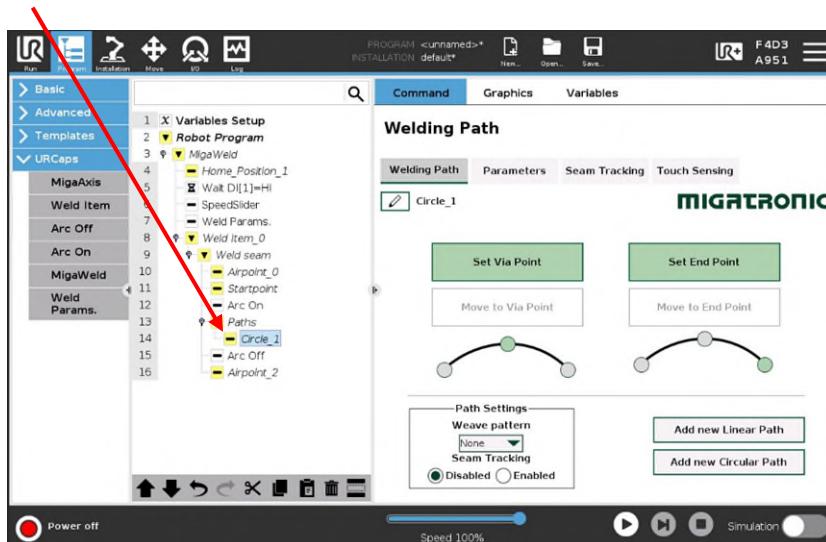
AUTOMATION
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Select Linear



Function	Description
Set End Point	Set the end point of the linear movement
Move to End Point	Move the robot to the end point
Add new linear path	Add new linear welding path
Add new circular path	Add new circular welding path
Weave pattern	Setting of weave pattern
Seam Tracking	Enabling/Disabling of Seam Tracking in the paths created

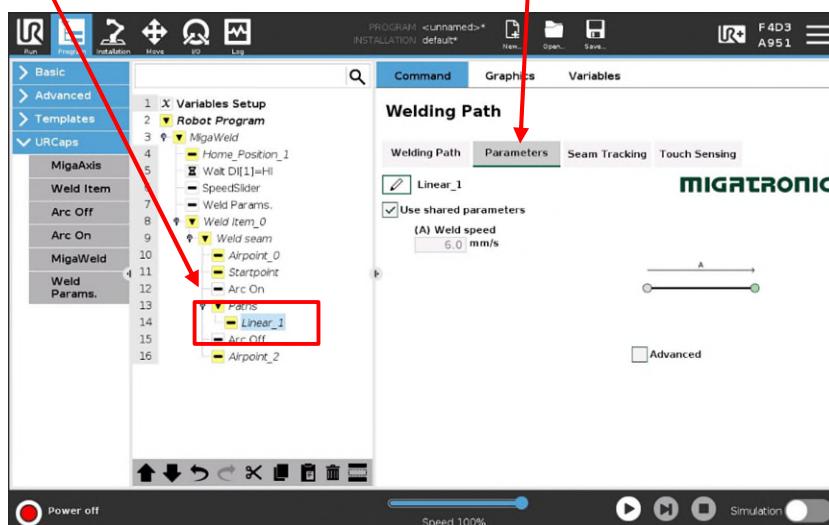
Select Circular



Function	Description
Set Via Point	Set via point on the circular movement
Move to Via Point	Move the robot to the via point
Set End Point	Set the end point of the circular movement
Move to End Point	Move the robot to the end point
Add new linear path	Add new linear welding path
Add new circular path	Add new circular welding path
Weave pattern	Setting of weave pattern
Seam Tracking	Enabling/Disabling of Seam Tracking in the paths created

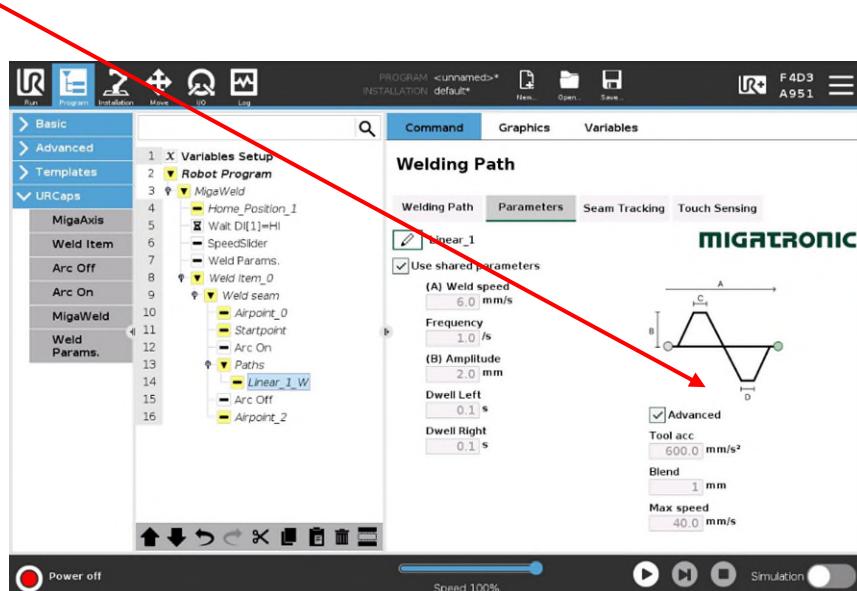
Name	CoWelder™ Basic
Product	Instruction manual
Version	B
Drawn up by:	Migatronic Automation

Select Linear or Circular, Select Parameters



Function	Description
Use shared parameters	If the box is checked, the default parameters for the weld item is used. If the field is not checked, you can manually set the desired parameters for each path.
Travel speed	Indicates the speed in mm/s

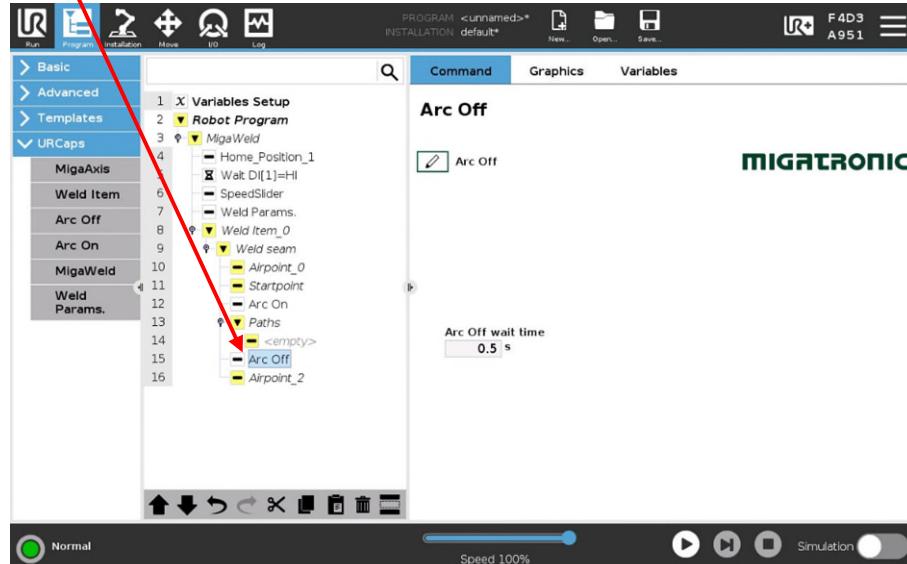
Select Advanced



Function	Description
Advanced	Advanced settings are only used to movements with pendling

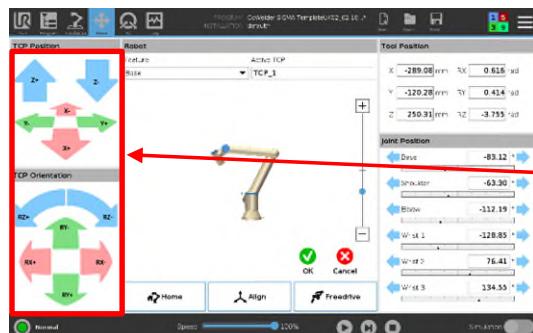
Name	CoWelder™ Basic
Product	Instruction manual
Version	B
Drawn up by:	Migatronic Automation

Select Arc Off



Function	Description
Arc off wait time	Waiting time between the arc is off and until the robot begins its movement

Fine-tuning of angle and position



Small adjustments in position and angle are made using the arrows on the screen.



Press [OK] after manual adjustment.

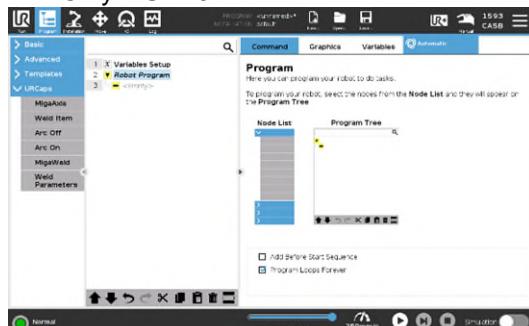
Name	CoWelder™ Basic
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Drawn up by:	Migatronic Automation

Test program

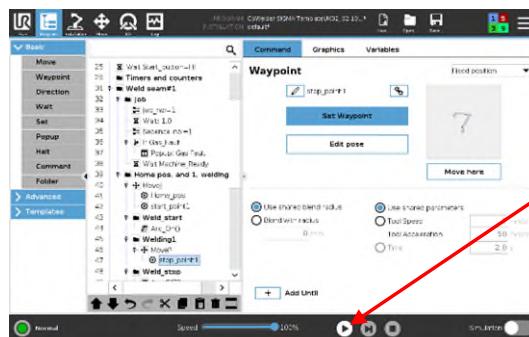


Test the program by setting the switch to the 'Welding Off' position, press the green start button, and the robot will now simulate the welding process.

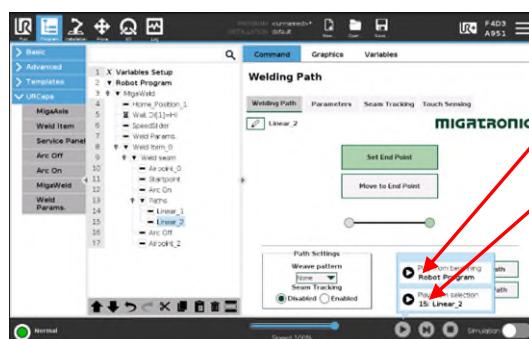
Only if UR20:



After programming is done, switch to **automatic mode** to simulate or run the program in manual mode by holding the dead man's switch during operation.



Press Play button.



Press Play from beginning
or
Press Play from selection



Turn the switch to "Welding on" position and push the green start button. When it lights up ...

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..the robot will weld.

Remember welding protection!

WELDING HELMET



The arc emits radiation that is harmful to the eyes. Even short-term exposure to these rays can cause permanent damage. The eyes must be protected from intense radiation from infrared, visible, and ultraviolet light with appropriate radiation protection glass in the welding helmet.

PROTECTIVE GLOVES

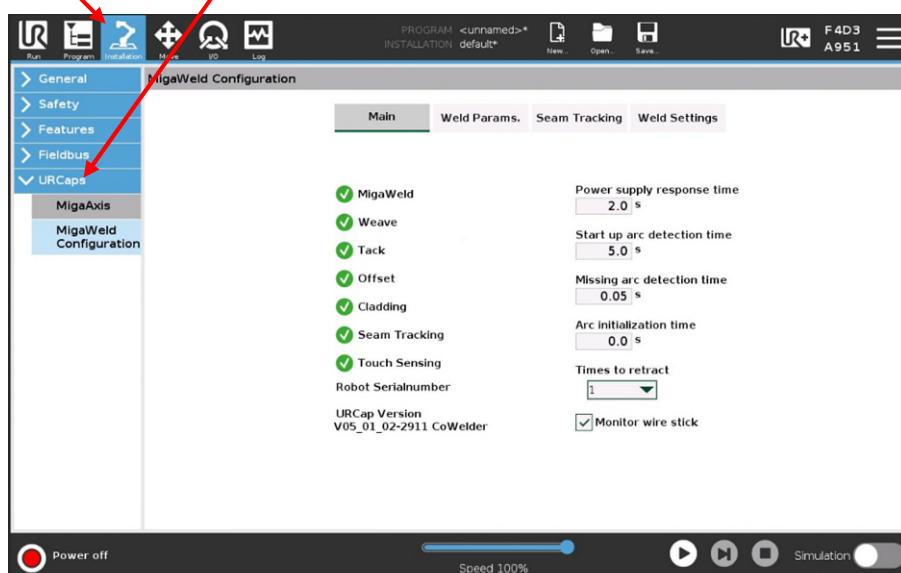


Avoid burns. Always use protective gloves when handling welded items!

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4.4.3 MigaWeld installation page

Open installation tab, select URCaps, this page shows the main settings.

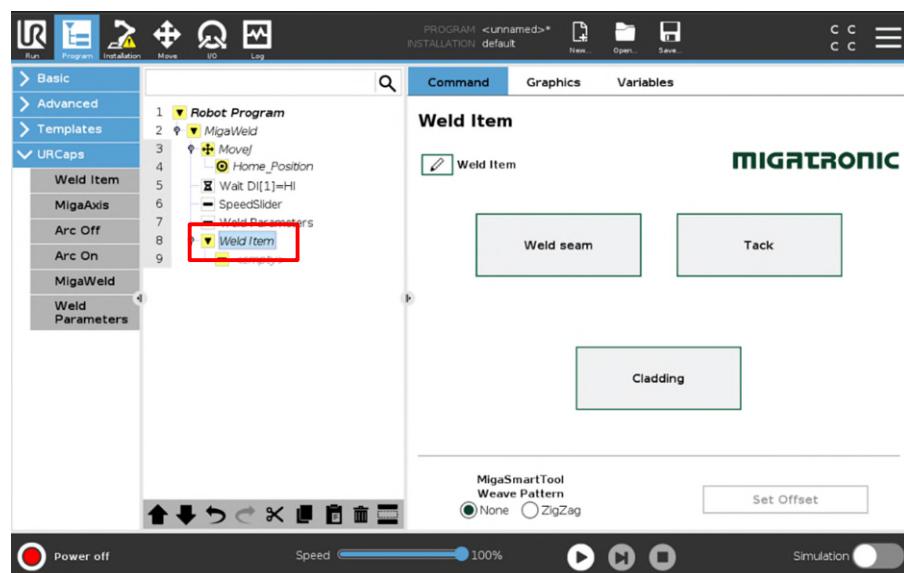


Function	Description
	The icon indicates that an error has occurred with the USB key. Try to take the key out and insert it again and press reload license. If the icon does not change, contact your nearest Migatronic dealer.
	This icon means that the USB key is inserted in the robot controller. The module is installed and is active on your robot.
Robot serial number	Indicates the serial number of the robot
URCap version	Indicates the different software versions of UR Cap's
Power supply response time	The robot stops after x number of seconds if it is having a signal from the power source. (At start)
Missing Arc detection time	How long in seconds to elapse between that the robot lose signal until it stops. (During operation)
Startup Arc detection time	Time to achieve arc and start welding. (At each welding start)
Numbers of retractions	Number of times wire feed is attempted.

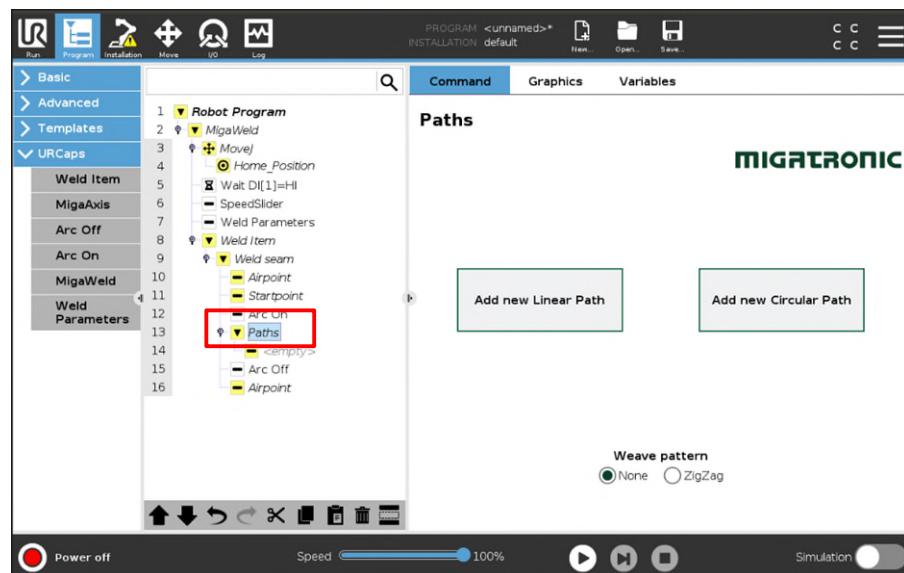
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4.5 Miga Smart Tool

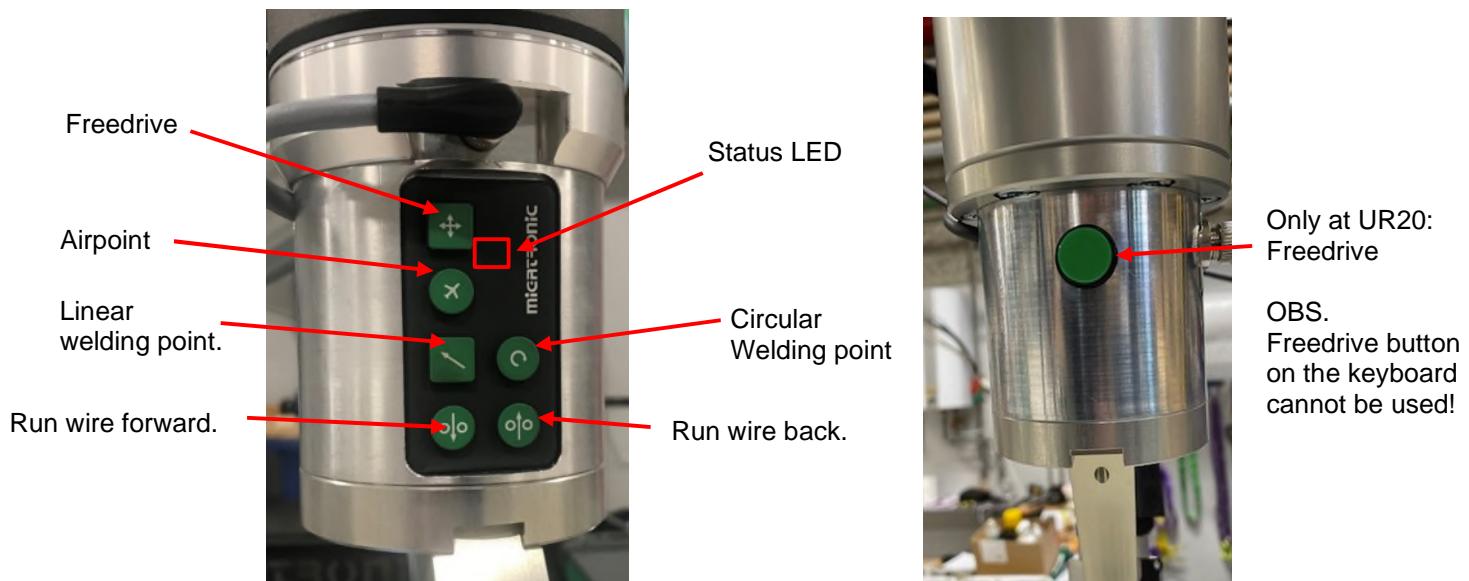
Select the WeldItem [Welding Item] menu. The Smart Tool is now active, and the robot can be programmed through this.



The Smart Tool can also be used in the Paths menu.



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Function	Description
Freedrive	The robot can be pulled / moved by pushing it with your hands
Airpoint (function 1)	Long press: Generates a new welding seam and inserts the first Airpoint of this weld seam.
Airpoint (Function 2)	Short press: Inserts a new Airpoint
Linear welding point	Generates a new welding point (as many can be made/ programmed as desired)
Circular welding point	First press: Generates the first point in a circular motion and the LED-light starts flashing quickly, this tells the user that the end point of the circular motion is ready to be programmed
Circular welding point	Second press: Generates the circular motion in the program tree, the LED flashes normal speed again (as many can be made/ programmed as desired)
Run wire forward	Run wire forward
Run wire back	Run wire back

Information



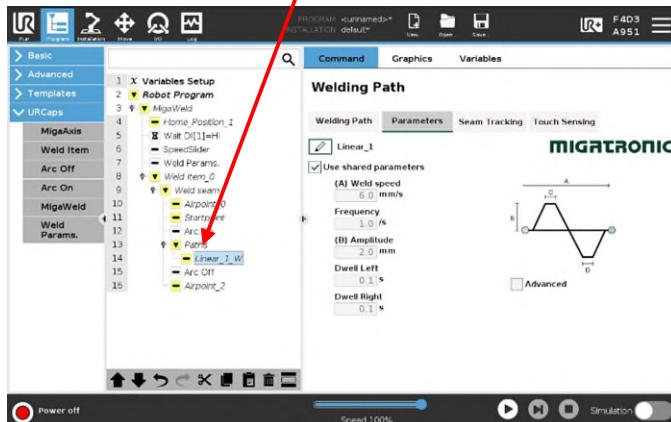
Switching from Airpoints to welding points automatically generates welding start
Switching from welding points to air points automatically generates welding stop

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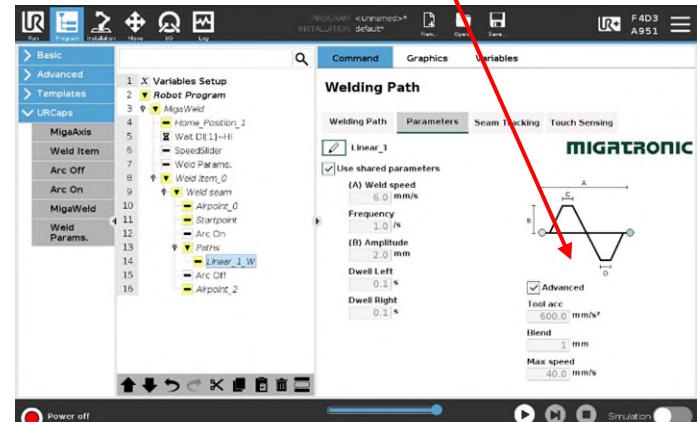
4.6 Weave (Optional)

Possibility to enable weave on one or multiple paths. Different weave options are available (ZigZag, Crescent, Circle)

Select Linear



Advanced setting



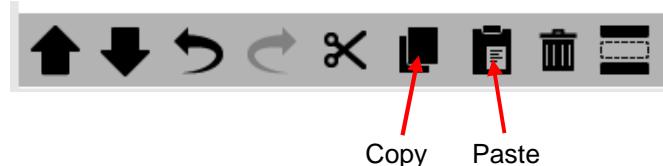
Function	Description
Use shared parameters	If the box is checked, you use the default parameters for the weld. If the field is not checked, you can manually set the desired parameters for each path.
Travel speed	Indicates the speed in mm/s
Frequency	Frequency is the number of periods per second (Hz)
Amplitude	Amplitude defines the height of the outer position in the respective pendulum period [mm]
Dwell left	Defines the time spent on top of the period on the left side [s]
Dwell right	Defines the time spent on top of the period on the right side [s]
Advanced	Menu page for the advanced settings
Tool acc.	Tool acceleration
Max speed	Maximum speed of movement
Blend	Transition radius

4.7 Offset (Optional)

Once all the points in a WeldItem are set, it is possible to offset the entire welditem. At the same time, it is possible to copy the entire item and subsequently offset the copied item.

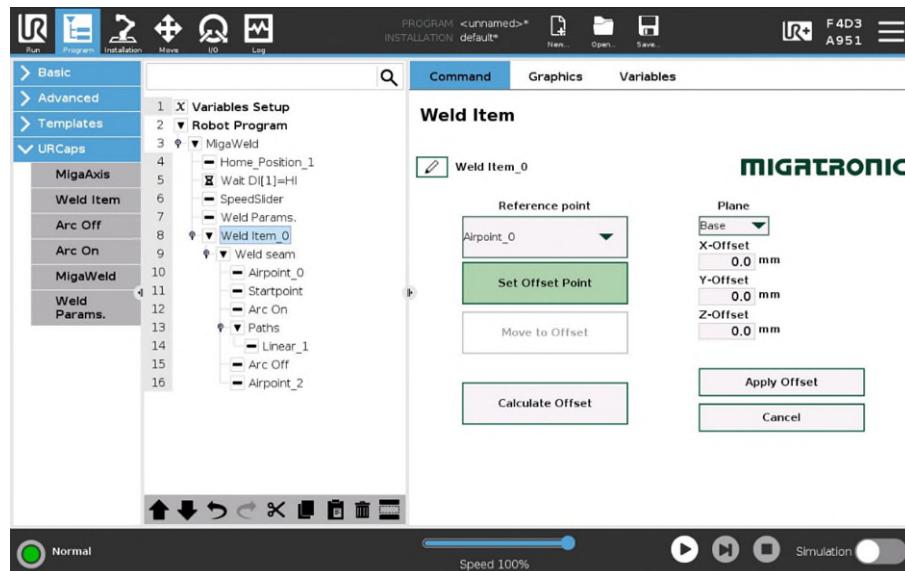
Highlight the welditem

To copy the welditem, use the program tree toolbar, press copy. Subsequently, you can press paste and a copy of the welditem you have selected will be created.



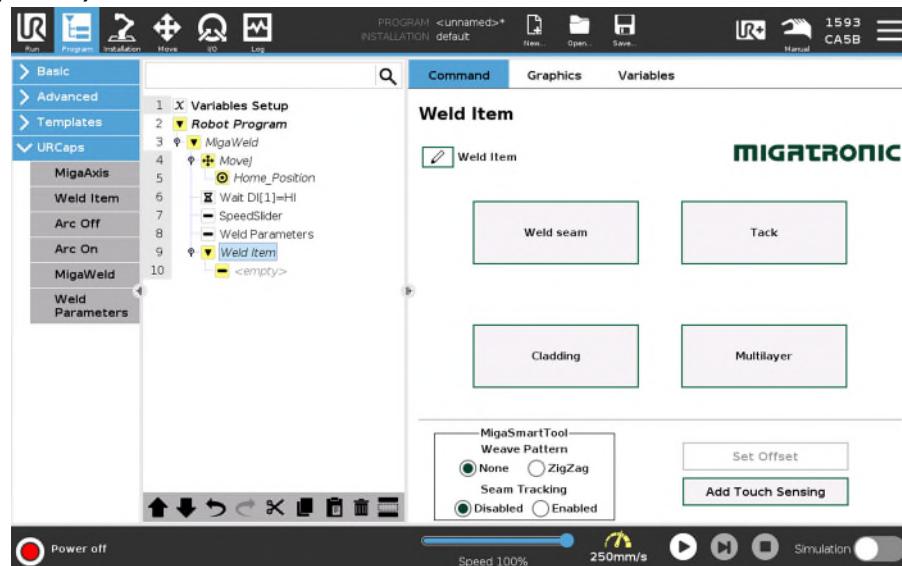
On the new welditem, there is also a button called offset. Press it to enter the offset settings. Here you now have two options for offsetting the item. Either by entering the offset of X, Y, Z, offset or by moving the robot to a point and offset relative to a reference point.

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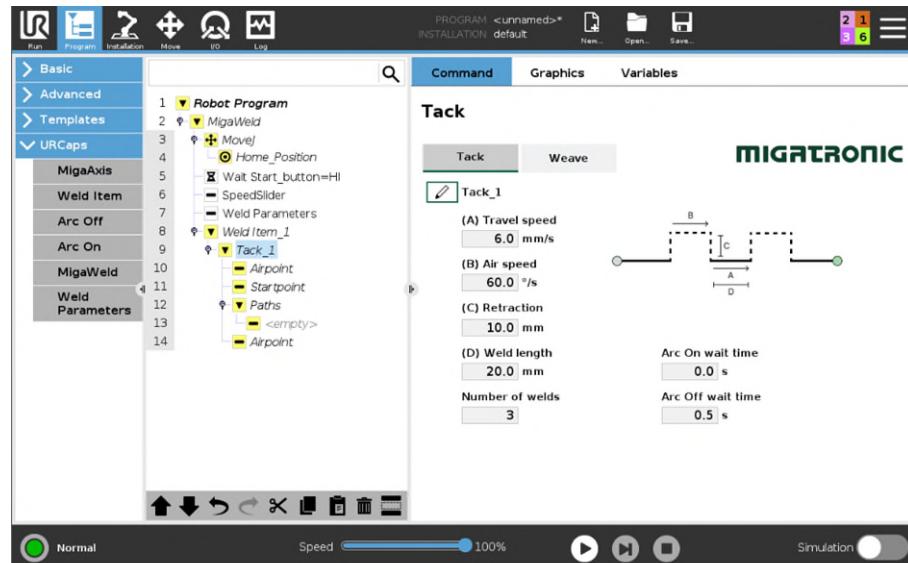


Function	Description
Set offset point	Set the point to which your topic should be transposed.
Plane	To use offset, you need to use the base as a plane. If you switch to another plane, it is only possible to shift in the X, Y, Z coordinates.
X, Y, Z	Transposes the subject in the X, Y, Z coordinates
Apply offset	By pressing Apply offset, you move the item based on the required parameters
Cancel	If you press Cancel, you will return to the welding workpiece node. "WeldItem"
Calculate Offset	Move the robot to the offset position and choose optimal reference point. When the point is set, click on calculate offset to have estimation of the X, Y, and Z offset given the set offset point. If appropriate, click Apply Offset to activate offset

4.8 Tack (Optional)



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Function	Description
Travel speed	Indicates the welding speed in mm/s
Air speed	Air speed in the required direction [° / s]
Retraction	The retraction of TCP from the workpiece [mm]
Weld length	Welding length [mm]
Number of welds	The number of welds between the start and end point of the pathway
Arc on wait time	Waiting time between the arc is detected until the robot starts to move
Arc off wait time	Waiting time between the arc is turned off until the robot starts to move

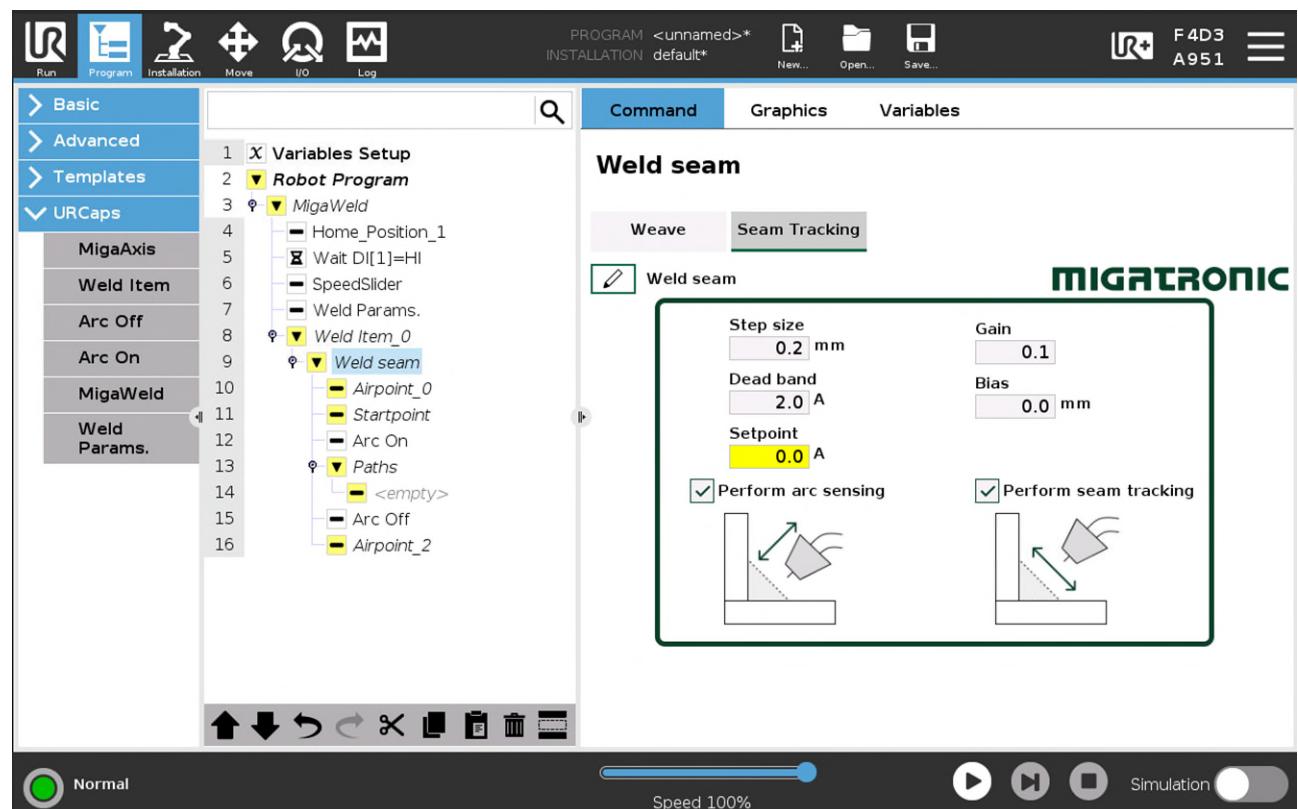
Name	CoWelder™ Basic
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Drawn up by:	Migatronic Automation

4.9 General Introduction for Seam Tracking:

Seam Tracking is the correction of the weld path, based measurement of current/voltage depending on if it is MIG or TIG. Current for MIG, and voltage for TIG. In general Seam Tracking can be split into two overall categories based on if it's for MIG or TIG. Through-Arc-Seam-Tracking (TAST) - MIG-based Seam Tracking. Automated-Voltage Control (AVC) - TIG-based Seam Tracking. The panels to access this function are similar. Only the notion of A/V change for the variables Deadband and Setpoint.

4.9.1 Guide for Seam Tracking TAST (MIG) Guide

Seam Tracking for MIG, can be split into Arc Sensing and Seam Tracking. Arc Sensing is the tracking in the in/out direction of the torch (Z-direction of the tool). Arc Sensing measures the Amperes and corrects accordingly. Seam Tracking is the change in the weave direction, for instance if workpiece do deviate. Here the sensitivity can be set by the Gain.



Step Size

Is the measure of how much the robot should move, if the deadband is exceeded.

Deadband:

How much the robot can deviate from the setpoint before correcting.

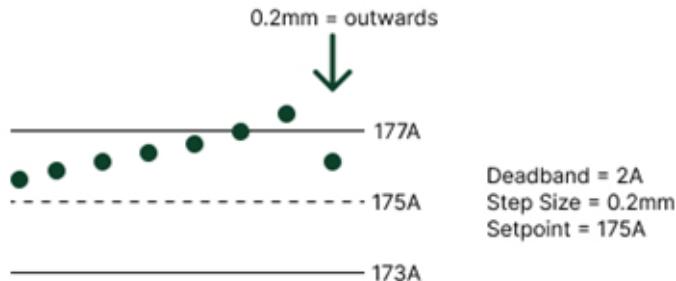
Setpoint:

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Is the reference value, where the robot should aim at achieving +- the deadband. This is found by first welding a reference weld and the measure what the exact value is. This exact value is then put into the Setpoint inputfield.

Arc Sensing Example:

An example of these values in relation can be seen below. Here the robot will move outwards as the Amps is increasing, meaning the robot is getting to close the workpiece.



Gain

Is the sensitivity for which the robot moves in the weave direction. The robots goal is to place the weld in the center of the bead. Gain goes from 0 – 1. A higher value gives a larger correction pr. cycle. If the robot does overcompensate and makes a snake-like movement then it is often a result of a too high Gain-value. On the other hand, when the robot does not correct accordingly then it should be the Gain-value to low.

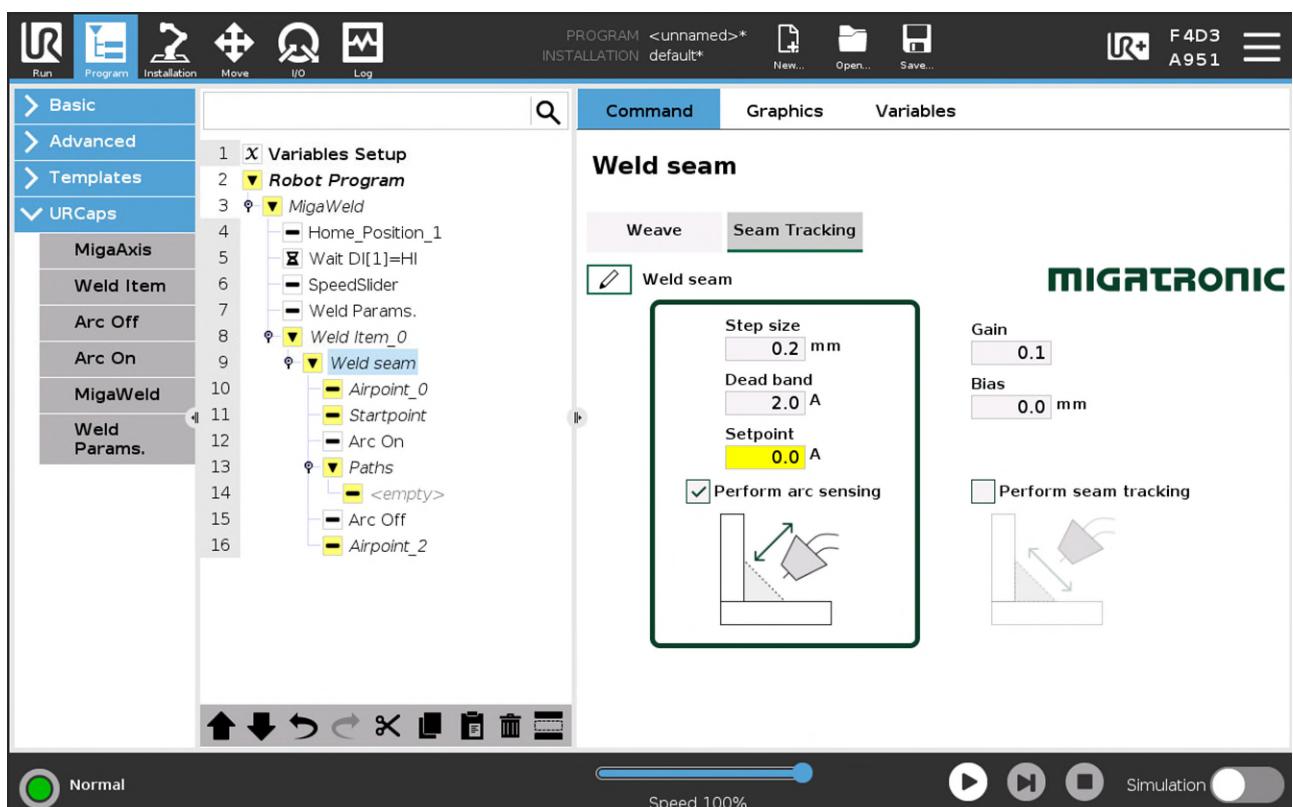
Bias

If the weld needs to be adjusted downward in the weave direction this can be done be adding a bias. Bias of 0.1mm means adjusting the weld 0.1mm downwards.

4.9.2 Guide for Seam Tracking AVC (TIG) Guide

For AVC only Arc Sensing is used, hence tracking in the in/out direction of the torch (Z-direction of the tool). Measures the voltage and corrects accordingly. This also means that Seam Tracking needs to be disabled in the panel, as shown below.

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Step Size

Is the measure of how much the robot should move, if the deadband is exceeded.

Deadband:

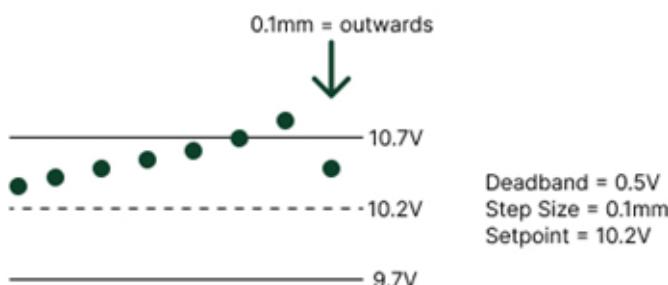
How much/little the robot can deviate from the setpoint before correcting.

Setpoint:

Is the reference value, where the robot should aim at achieving +- the deadband. This is found by first welding a reference weld and the measure what the exact value is. This exact value is then put into the Setpoint inputfield.

Arc Sensing Example:

An example of these values in relation can be seen below. Here the robot will move outwards as the Voltages is increasing, meaning the robot is getting to close the workpiece.



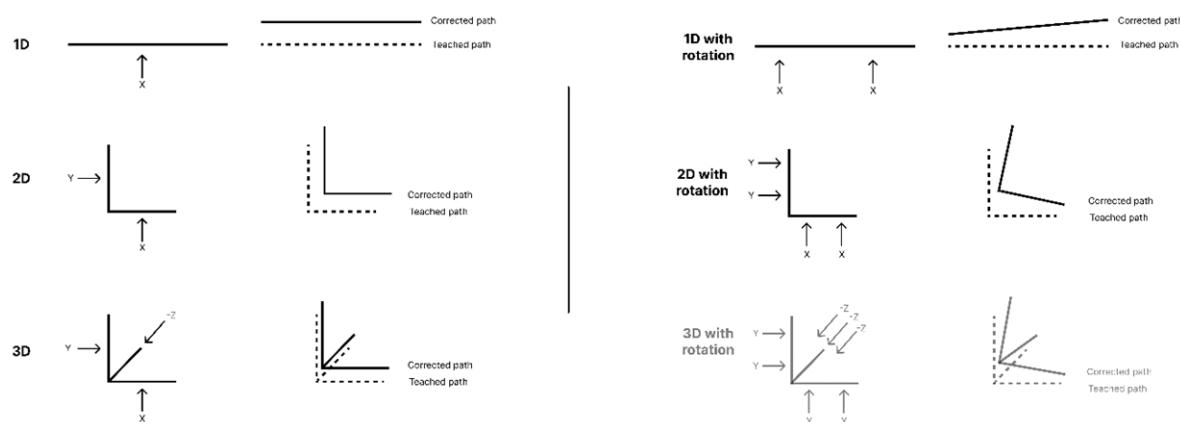
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Drawn up by:	Migatronic Automation

4.10 Guide For Touch Sensing

With Touch Sensing, the CoWelder adjusts the position of the torch before it starts welding by physically touching the workpiece.

A general concept of touch directions first needs to be outlined. In general, the level of complexity for touch sensing can be divided into different categories, depending on how many dimensions the user touch from.

- 1D represents touching from 1 axis (for instance X)
- 2D represents touching from 2 different axes (for instance: X and Y)
- 3D represents touching from 3 different axes (for instance: X, Y and Z)



Touching 1 time from each axis (either if it is 1D, 2D or 3D), only gives the position without rotation a possibility is also to touch multiple times from the same axis to know how much the workpiece is rotated. This is also referred to as 1D/2D/3D with rotation. It requires at least two touches from each side. As it is transparent in the picture (3D with rotation requires 7 touches, which is why it is not included in the Touch Sensing for the CoWelder). Meaning that the user only has the possibility to touch in the following categories:

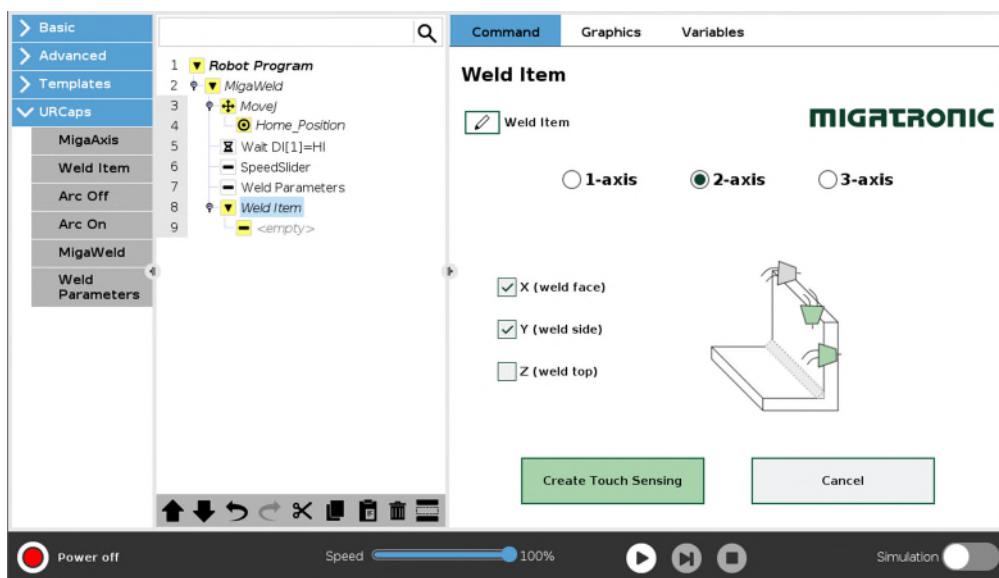
- 1D, 2D, 3D
- 1D with rotation, 2D with rotation

4.10.1 How to make a Touch Sensing Program

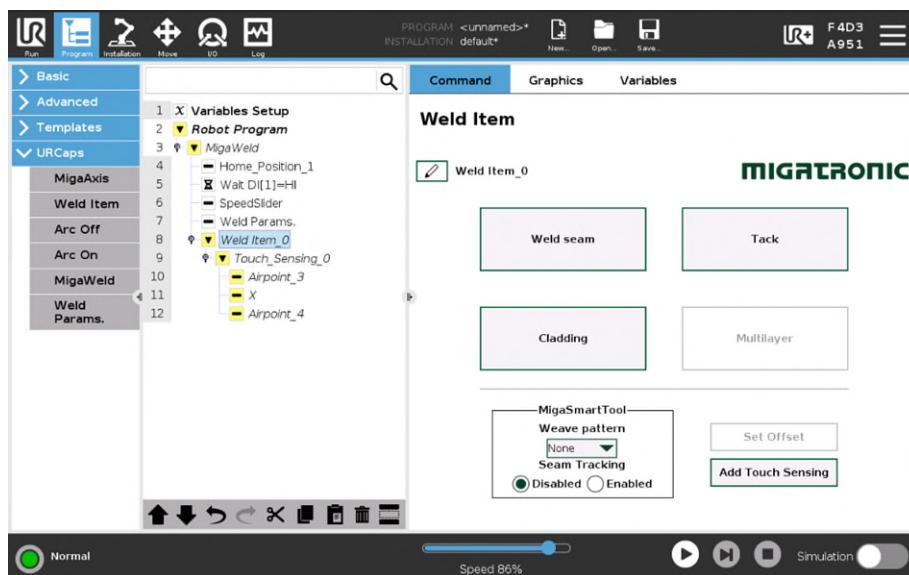
To insert a touch sensing node the user needs to access the "Weld Item" tab where it can be added (see below bottom right in the picture)

Choose the desired number of directions for touch. 1/2/3-axis describe number of directions the single touch node do hold. The picture of "green torches" dynamically change colour (green or grey) based on selection. When the desired axis is chosen, both 1/2/3 axis and X/Y/Z, press "Create Touch Sensing" to create such node.

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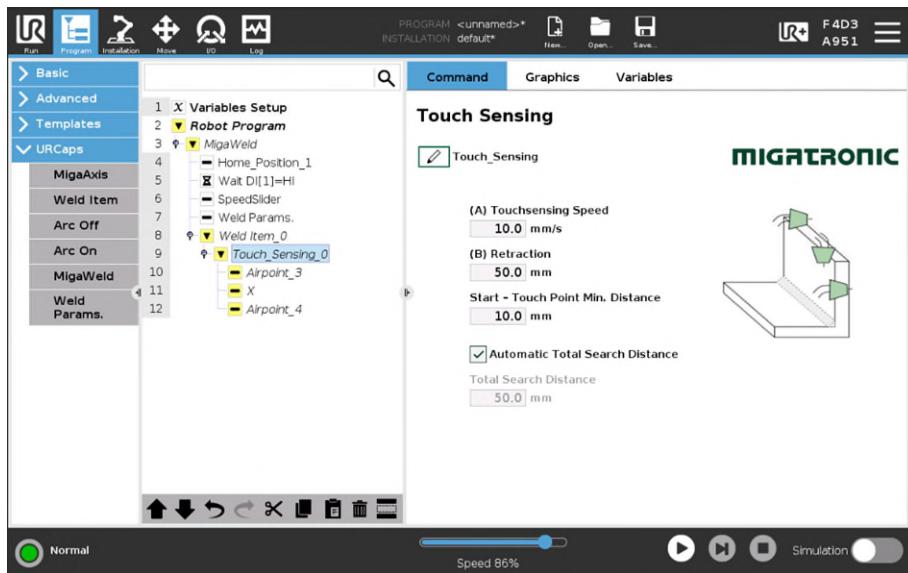
A Touch Sensing node is present in the program tree (see line 9 - 12 for example). For this example, a 1D, X Touch Sensing is chosen.



Navigating to the Touch Sensing page is the possibility to change the settings for the specific touch node.

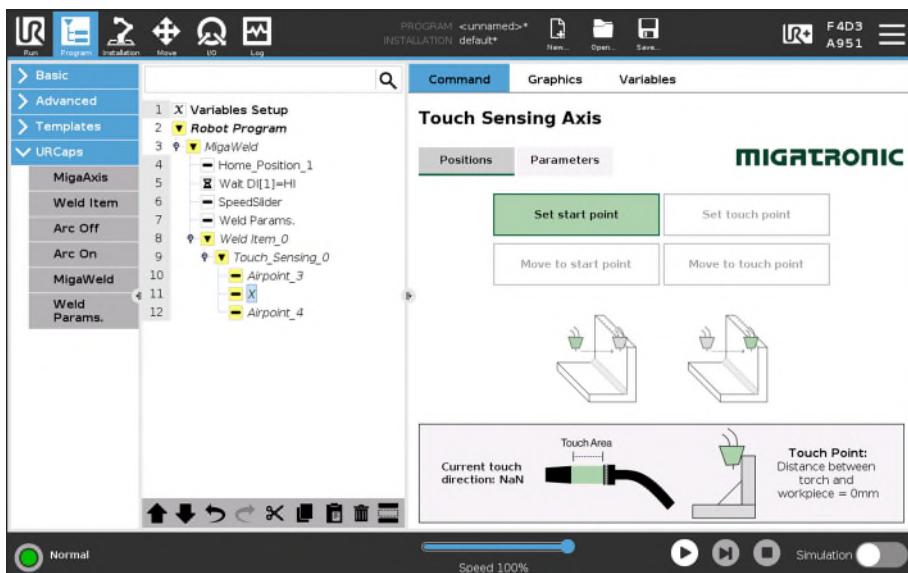
- Touch Sensing Speed: Speed in which the robot moves from Start Point to Touch Point
- Retraction: The distance the robot retracts after it hits the workpiece
- Start – Touch Point Min Distance: The minimum acceptable distance between the set start point and end point
- Automatic Total Search Distance: When selected the robot search distance is defined by the double distance between the set Start and Touch Point
- Total Search Distance: If “Automatic Total Search Distance” is not selected, a user defined search distance can be set.

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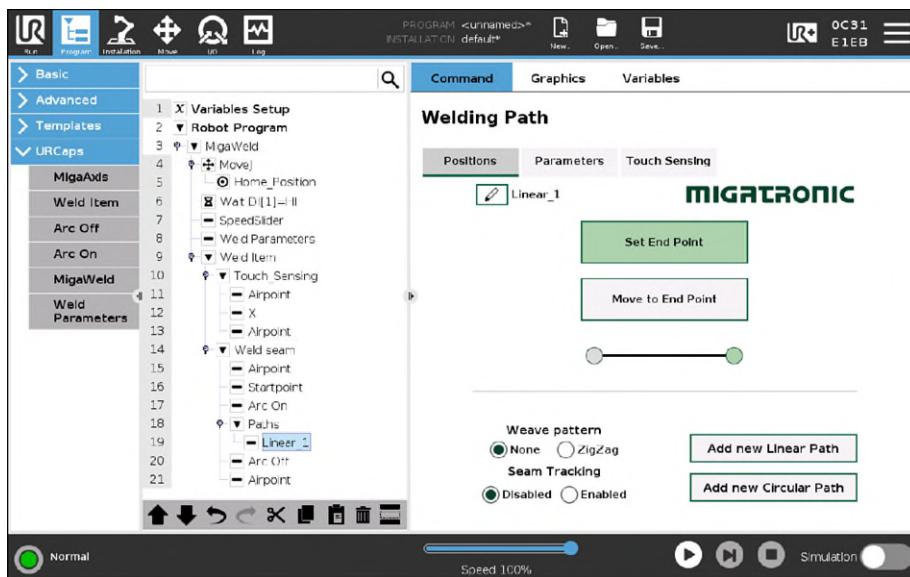
In the individual X, Y, and Z panel the touches needs to be setup. This is done by setting two points (Start and Touch Point). Individual parameters (touch speed, retract can also be set if navigating to "parameters". Otherwise, it will use the shared parameters from the Touch Sensing node.

- Start Point: The position where the robot start approaching
- Touch Point: The position where the work piece is located. When setting up the touch point is it important to ensure that there is no difference (0mm) between the torch and the workpiece itself, as this is used later on as the reference.

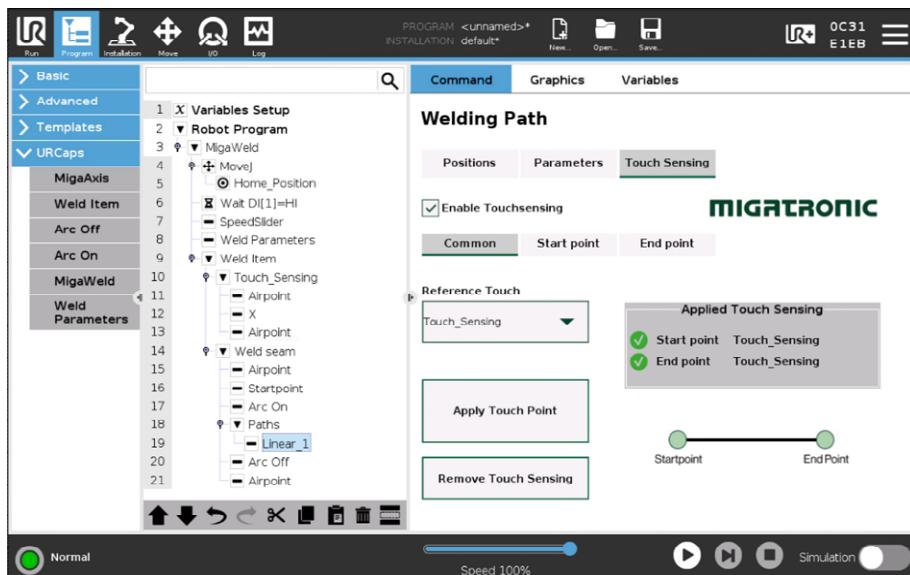


When the Touch Sensing node is setup, the user needs to apply the touch on the specific weld path (linear/circular). Navigating to the specific weld "Linear 1" in this example. Next tab on "Touch Sensing" in the top panel (Top-mid in the view)

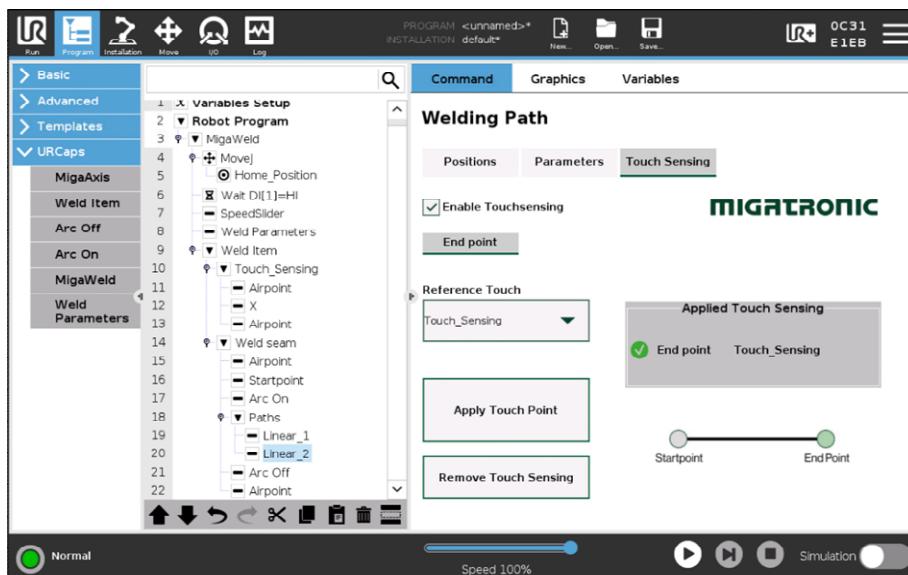
Name	CoWelder™ Basic
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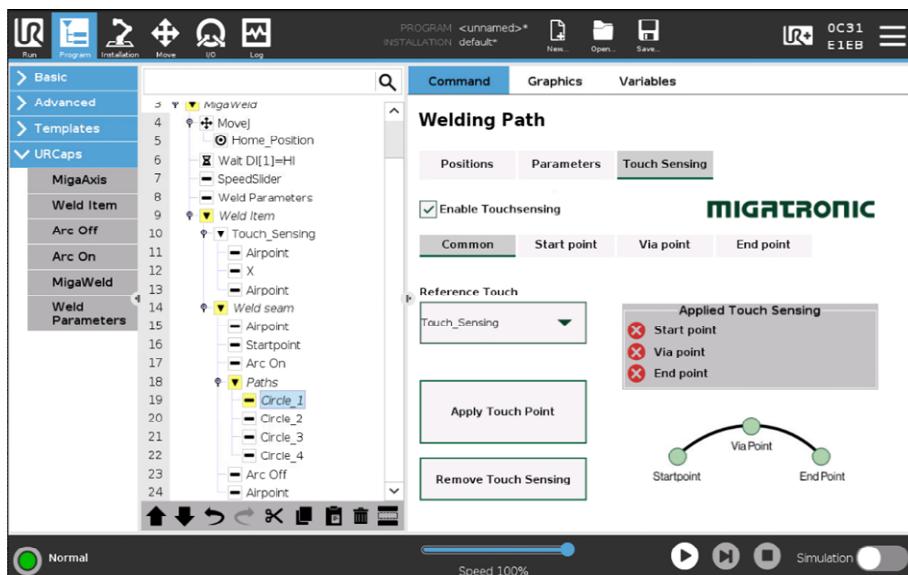
Click “Enable Touch Sensing” to access the screen. The touch can now be applied on the specific weld. Depending on the scenario you can either apply the touch on Start/End Point or both at ones (common). This only applies for the first linear path. Subsequently linear path will only include an End Point as the start point refers to the earlier point (see example below for both).



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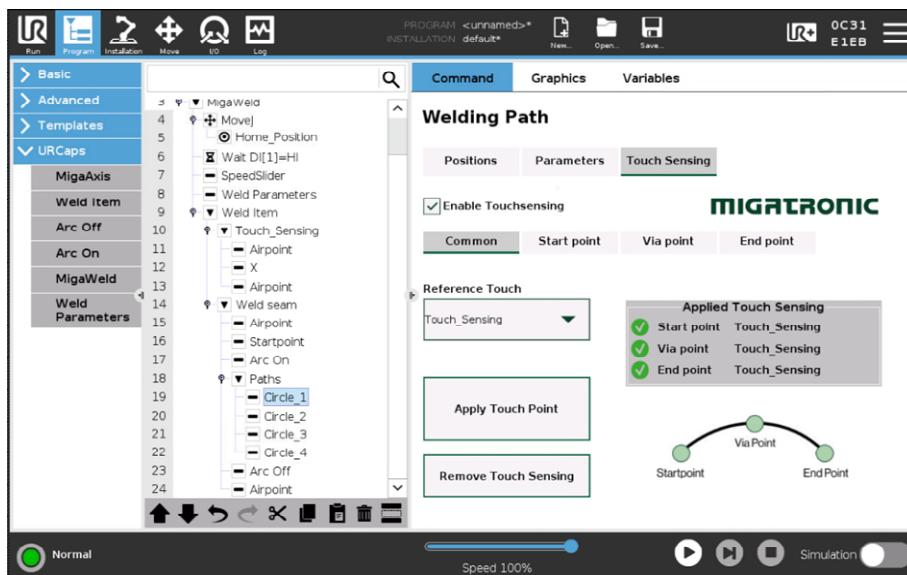


Same Concept goes for the Circle path. Navigate to desired Circle and go into go to Touch Sensing in the top panel and click Enable. For this example, a 360 circle is done (consisting of 4 Circle Paths in this example).



In this example a **1D without rotation** is performed meaning that this one touch is applied for every point in the Circle. To apply it go into each Circle_n and apply it. For the first it is applied for both the Start/Via/End Point for the following nodes it is only applied for the Via/End Point, as the Start Point is in the previous Circle Path. Do this for all Circle paths.

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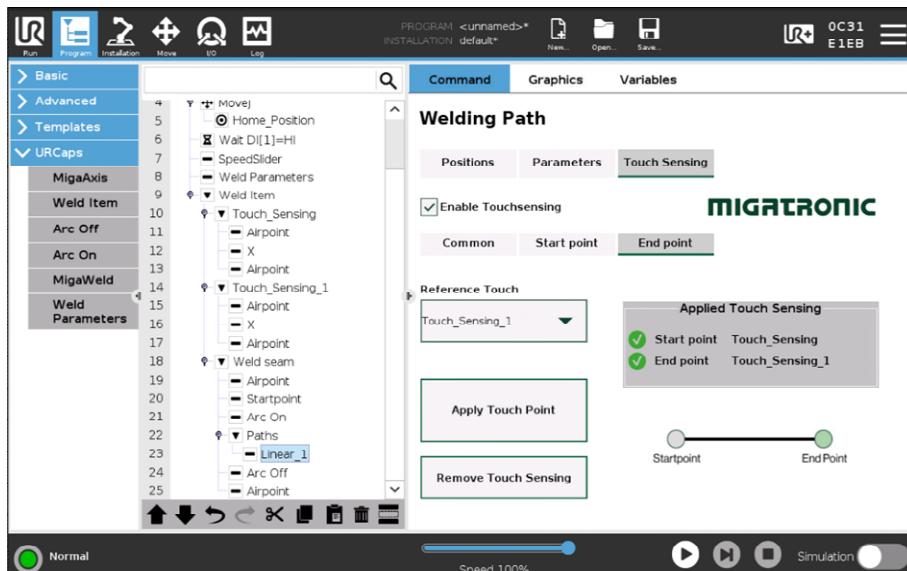


4.10.2 How to Setup A Touch 1D with Rotation

Where the other touches have been made for a 1D without rotation following example will take you through different touch examples.

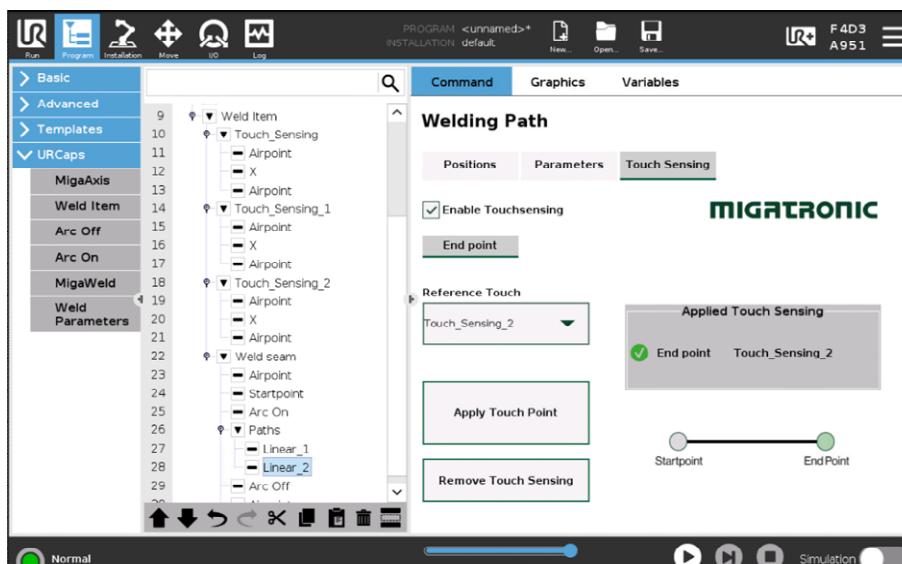
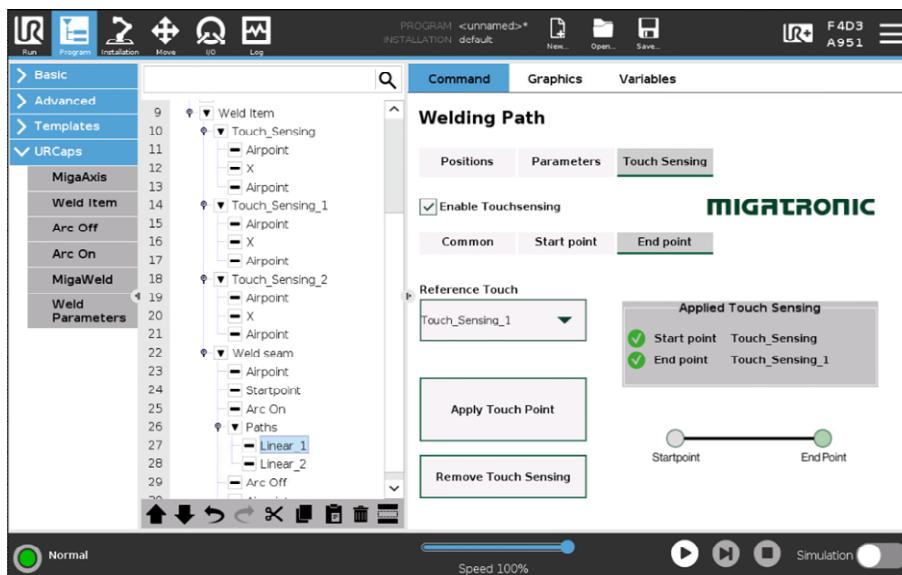
In this example a **1D with rotation** is made for a Linear Path. If rotations need to be accounted for each individual weld point needs to have its own associated touch. This is because the function does move points - not planes.

The first example is shown for a simple A - B weld consisting of 1 Linear path. Here a Touch node needs to be made for each point in the weld path. In this example as the "Touch_Sensing" Correspond to the Start Position it is added to this specific point, by navigating to the touch sensing panel (shown below) and press "Start Point" and then choose "Touch_Sensing" as the reference touch. Similar is done for the "Touch_Sensing_1" only that is applied for "End Point" as it corresponds to it.



Same example (1D with rotation), just with 2 Linear points. Similar process is needed as described above.

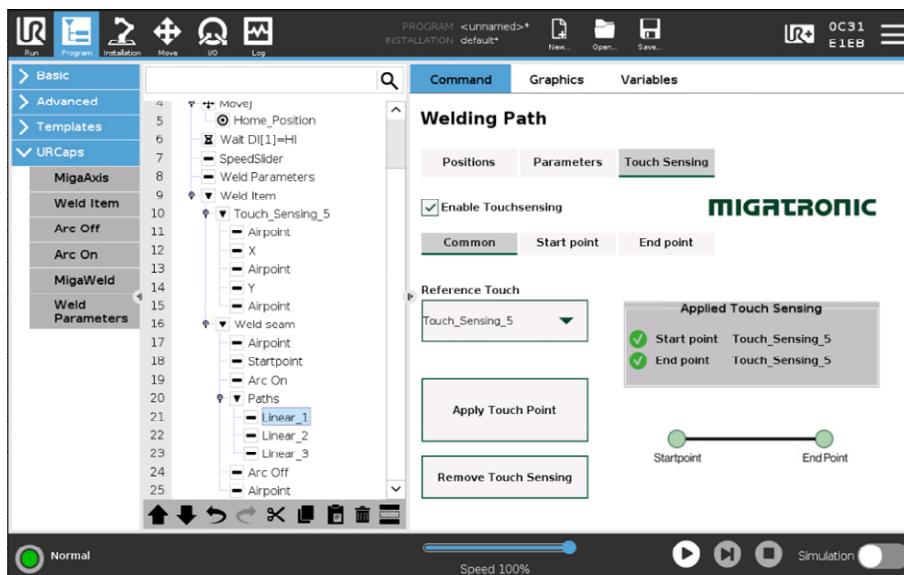
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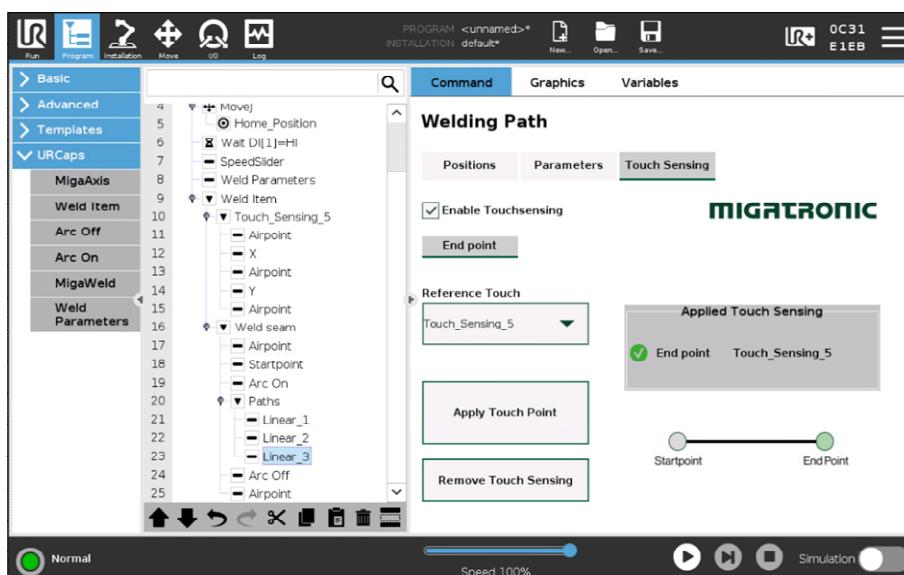
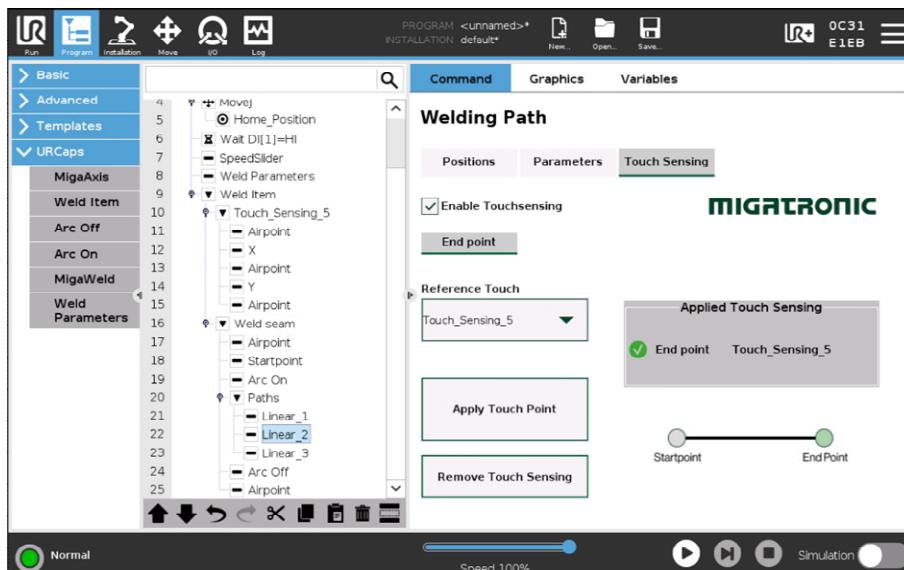
4.10.3 How to Setup A Touch 2D without Rotation

Here an example is shown for how to make a Touch Sensing program for **2D without rotation**. For this to be done one touch node including a 2-axis touch is made (here X, Y). As there is no rotation the "Touch_Sensing_5" is added to all weld points. For the first Linear_1, Touch_Sensing_5 is added to both Start/End Point by using the "Common" tab.

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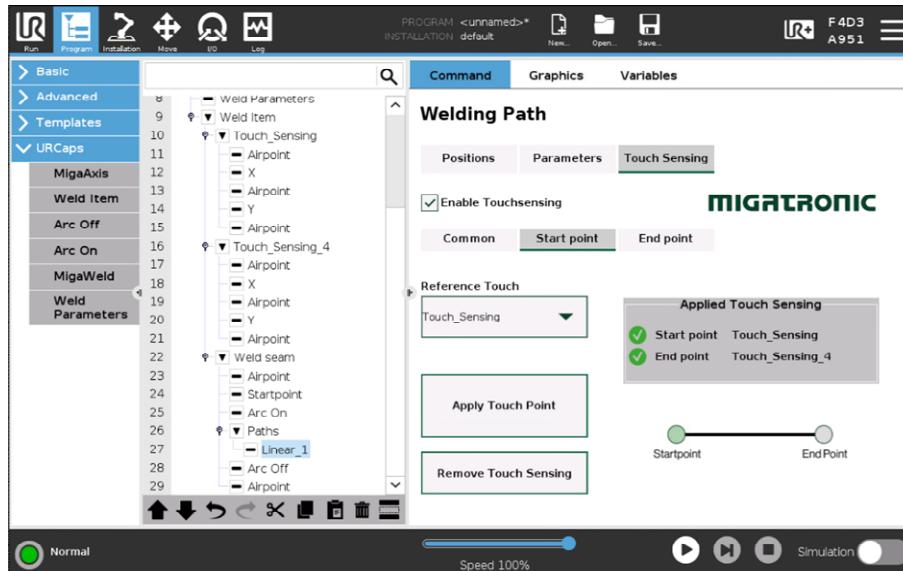
Next "Touch_Sensing_5" is added to Linear_2 and Linear_3 see below.



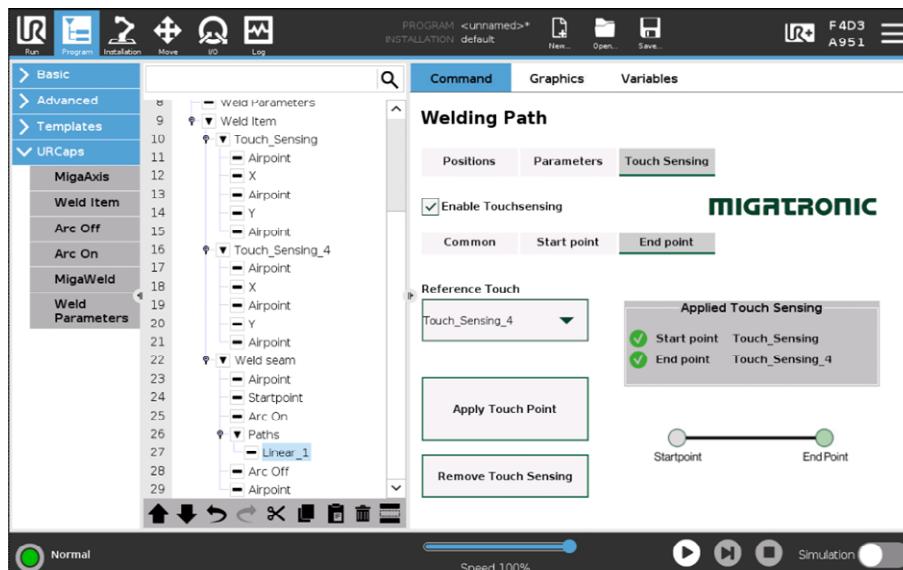
Name	CoWelder™ Basic
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4.10.4 How to Setup A Touch 2D with Rotation

Here an example is shown for how to make a Touch Sensing program for **2D with rotation**. For this to be done one touch node including 2-axis touch is made (here X, Y). As a rotation is seen, a touch node needs to be applied to each point. For the first Linear_1, Touch_Sensing is added to Start Point by using the “Start Point” tab.



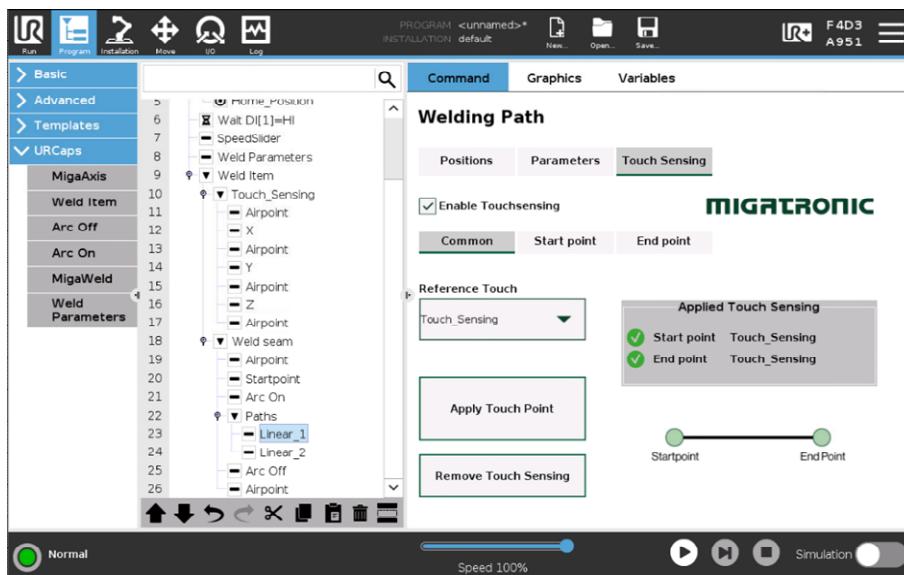
Next “Touch_Sensing_4” is added to Linear_1 End Point by using the “End Point” tab



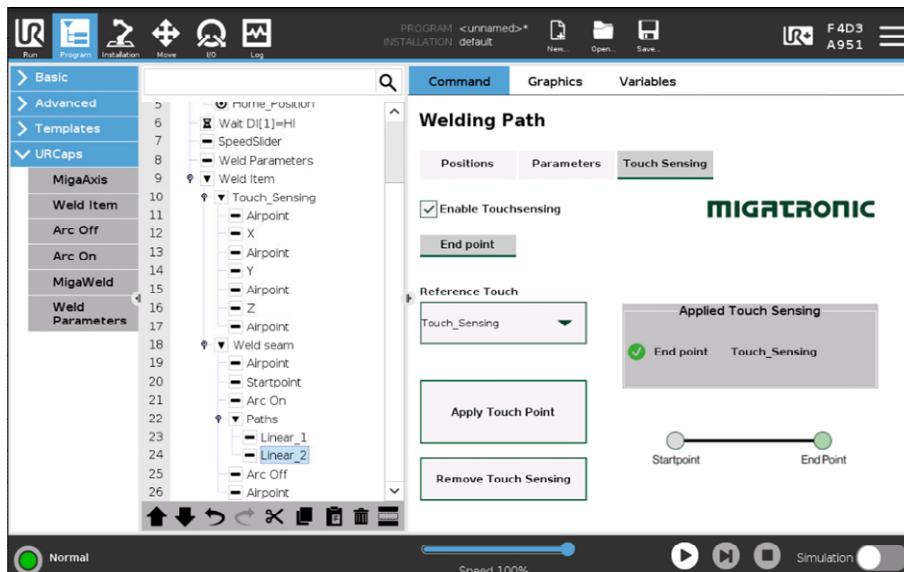
4.10.5 How to Setup A Touch 3D without Rotation

Here an example is shown for how to make a Touch Sensing program for **3D without rotation**. For this to be done one touch node including a 3-axis touch is made (here X, Y, Z). As there is no rotation the “Touch_Sensing” is added to all the weld points. For the first Linear_1, Touch_Sensing is added to both Start/End Point by using the “Common” tab.

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Next "Touch_Sensing" is added to Linear_2 see below.



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4.11 Delete/update Migatronic software on the CoWelder



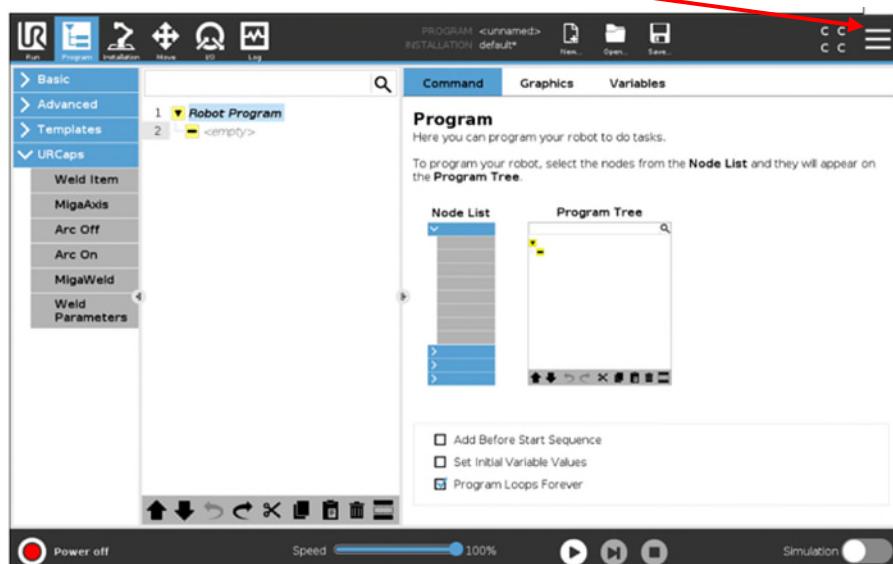
Important

URCaps can only be used from version 5.4 (e-series)

4.12 Update Robot software

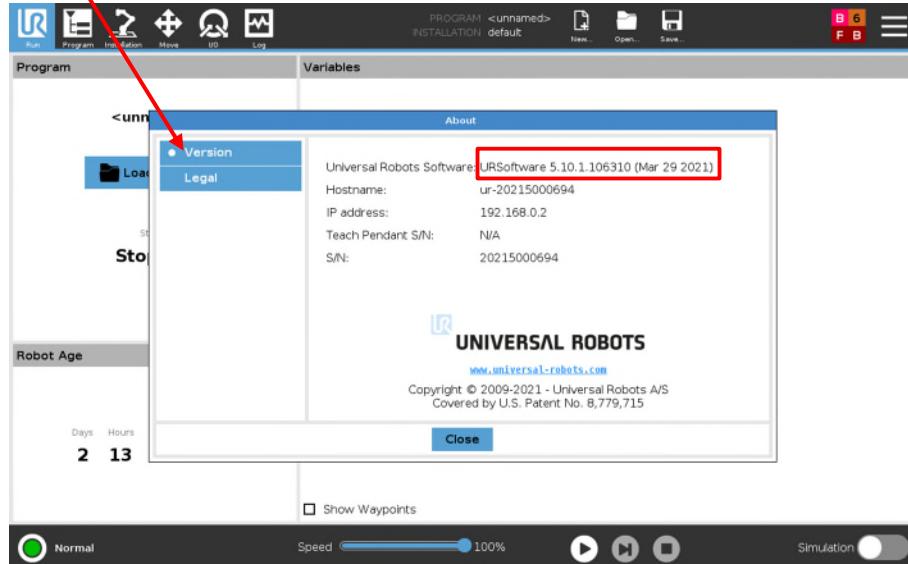
Turn on the robot; wait until the boot sequence has finished

Press “Hamburger menu” and select “About”



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Press “version”



To download the update, use the following link: <https://www.universal-robots.com/download/>

- Select robot type E-serie
- Select software, software update
- Select the software version
- Select control box type CB3, CB3.1 (only CB series)
- Follow the update guideline on the webpage and on the robot screen

Software updates before V 5.5.1 must be done in steps for minor releases i.e., 5.3, 5.4, 5.5 etc.
Software updates later than V 5.5.1 can be done directly (V 5.5.1 to V5.10 or 5.8 to 5.11)
It is important to initialize the robot between each update, because of joint firmware updates.



Important

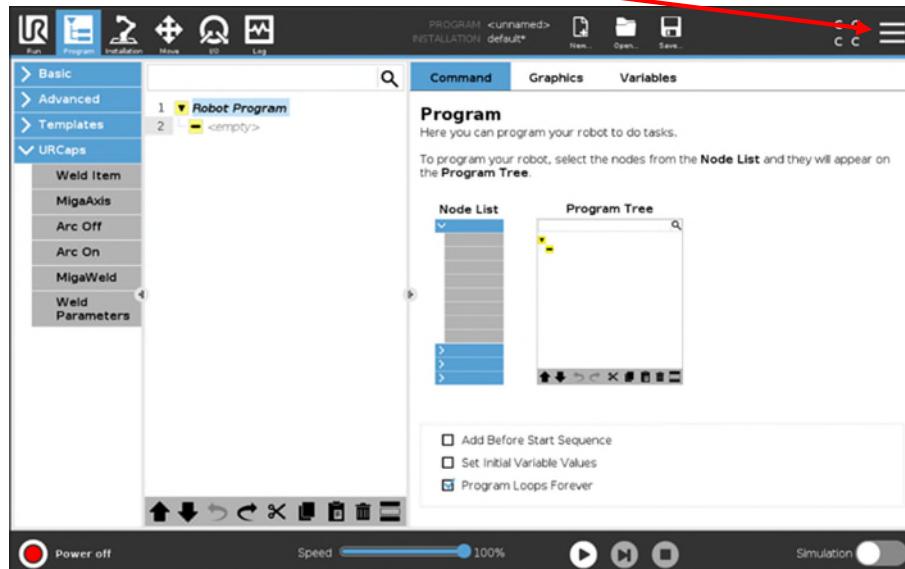
Remember to back up the robot before installing a new update (3 magic files)

Name	CoWelder™ Basic
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Drawn up by:	Migatronic Automation

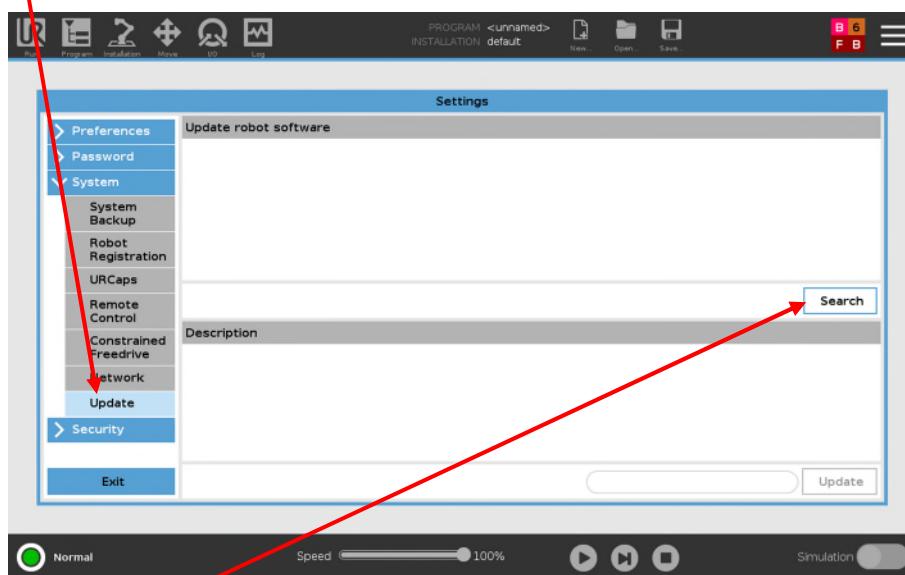
4.12.1 Update robot software

Download or find the 3 magic files on the supplied USB: urmagic_backup_programs, urmagic_configuration_files and urmagic_log_files, copy them to the same USB that contains the robot software.

Insert USB with robot software and back up files (magic files)
Press "Hamburger menu"



Press "Update"



Search for updates.
Follow the update guideline on the robot screen.

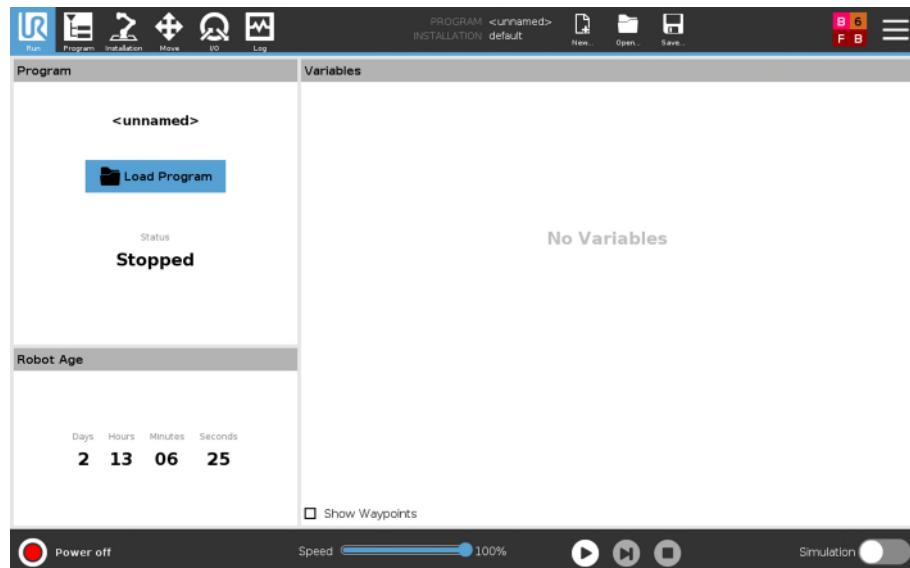
Reboot the robot.

The robot software is now updated.

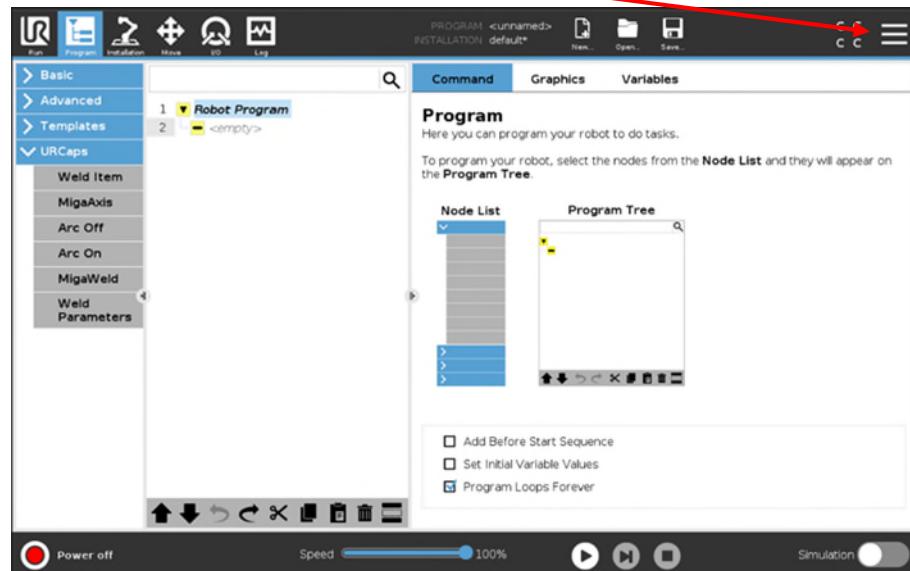
Name	CoWelder™ Basic
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Drawn up by:	Migatronic Automation

4.12.2 Delete MigaWeld software

Turn on the robot; wait until the boot sequence has finished

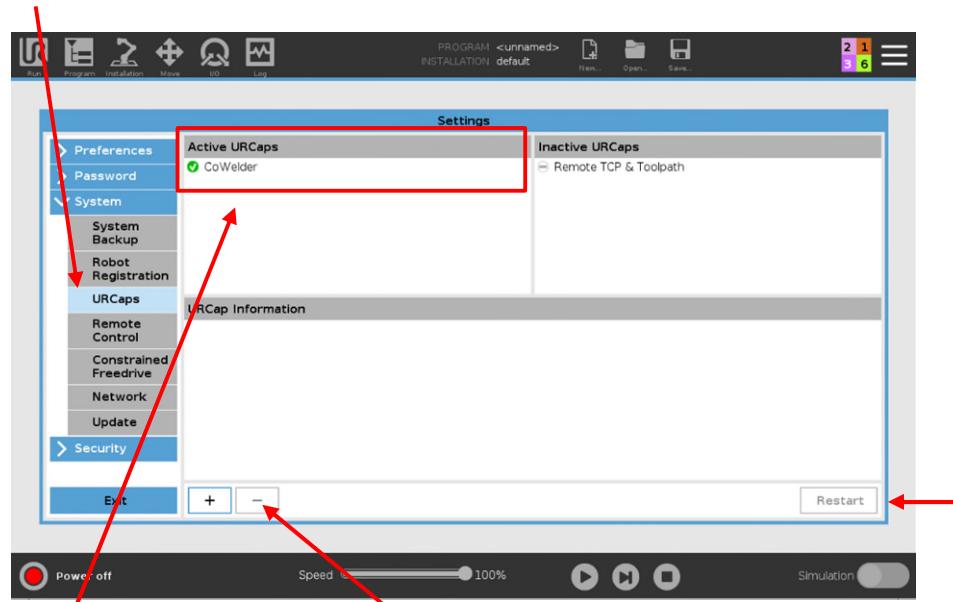


Press "Hamburger menu"



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Drawn up by:	Migatronic Automation

Select System, press URCaps



Mark the line in this box and press the "MINUS" button.

Press Restart

4.12.3 New MigaWeld software

- Contact Migatronic service, they can send an e-mail with new software
- When you have received a mail from Migatronic with a zip file attached
- Unzip this file
- Insert your USB key in the pc.
- Copy the files on the USB key to a folder on the pc (just for safety)
- Delete all the files from the USB key (do not delete hidden files)
- Copy your unzipped files to the USB key.

Name	Status	Date modified	Type	Size
cowelder-4.0.0.urcap	✓	08-11-2022 16:09	URCAP File	631 KB



Information

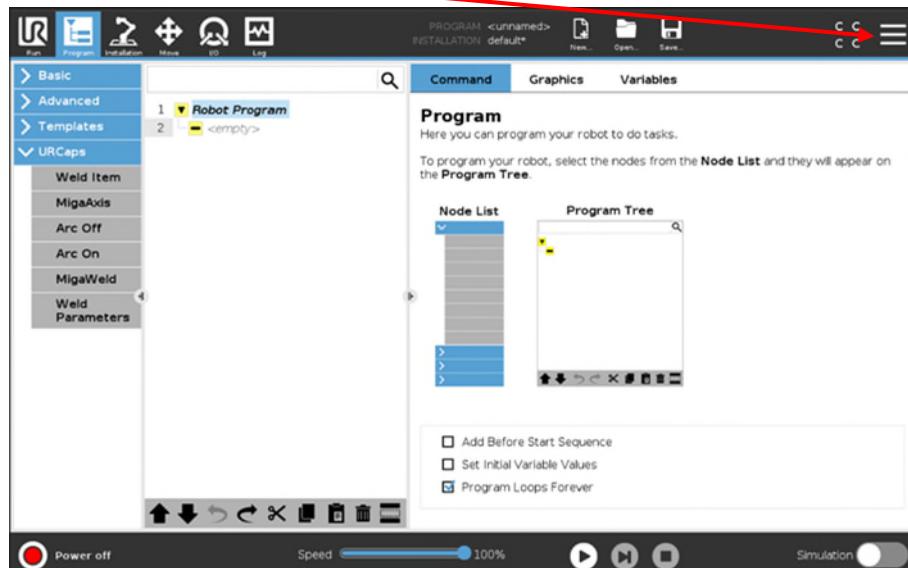
Later versions of URCaps may have fewer files to install.

Name	CoWelder™ Basic
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Drawn up by:	Migatronic Automation

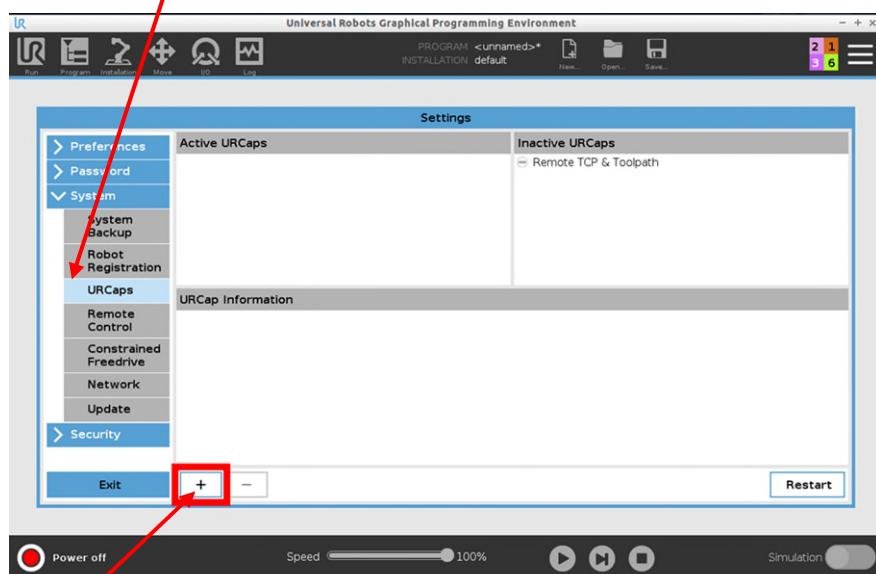
4.12.4 Reinstalling MigaWeld software on a CoWelder

Turn on the robot; wait until the boot sequence has finished.

Press “Hamburger menu”



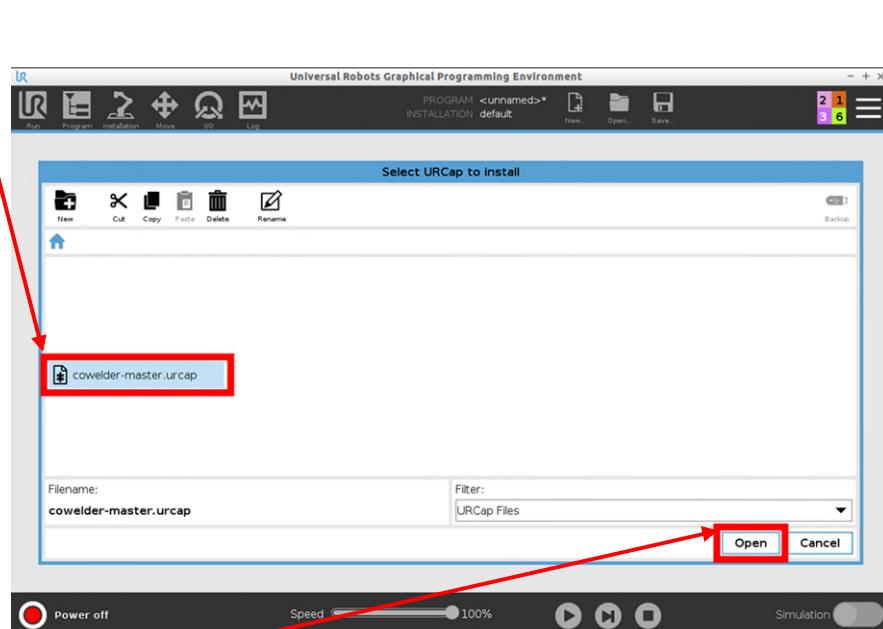
Select System, press URCaps



Press the + button.

Name	CoWelder™ Basic
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Drawn up by:	Migatronic Automation

Select USB disk directory
Highlight the first file

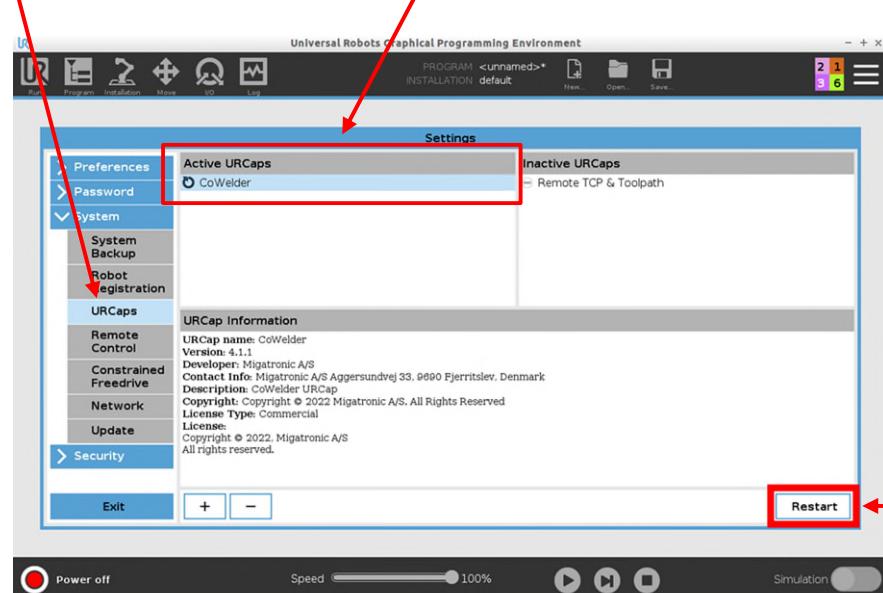


Press Open

Repeat the steps on this page until all files are installed.
Later versions of URCaps may have fewer files to install.

When all files are installed correctly, the contents of the window look like this.

Select System, press URCaps.



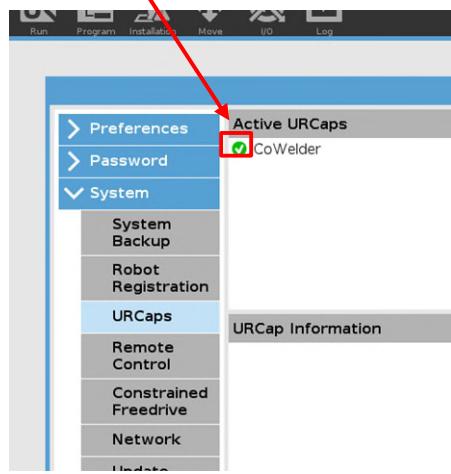
Press Restart.

Wait until the robot boot sequence has finished, go to the settings page again.

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The software is now updated.

Notice the green icon.



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Product	Instruction manual
Version	B
Drawn up by:	Migatronic Automation

5 Assembly and disassembly instruction

5.1 Assembly instruction

5.1.1 Unpacking the machine



NOTE

Help protect the environment.

All the machine's packaging can be recycled.

5.1.2 Assembly of the machine

During assembly, it must be ensured that the equipment is handled properly.

- The machine must be placed in such a way that assembly, maintenance, and repair can be carried out properly and without unwanted consequences.
- The welding table and fastening devices must be prepared so that the set-up is stable. The machine is only intended for placement on a flat and stable surface.
- All machine stands must be level and adjusted to ensure a stable foundation.

Important



There must be a minimum of 500 mm free space between the robot's operating area (welding table, robot arm, holding device and workpiece) and fixed building parts, constructions, supply systems, other machines, and equipment.



WARNING

Installation of the equipment may only be carried out by specially trained personnel.



WARNING

The wire feed unit must only be installed after the Robot Unit has been securely bolted to the worktable. **This only applies to TIG welding machines.**



HF ignition poses a risk of electric shock. Risk of disruption/destruction of electronic circuits: This only applies to TIG welding machines.

It is important that the robot and welding machine have a correct and effective ground connection, and that the ground connection of the power source (Welding +) is connected to the welding workpiece. Inadequate grounding or ground connection can cause disturbances or damage to electronic circuits, or damage to the electrical installation.

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Drawn up by:	Migatronic Automation

5.2 Installation of a MIG welding machine



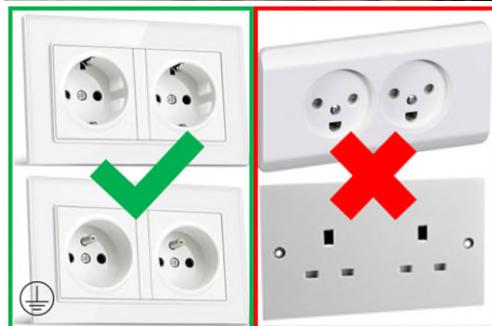
Use a crane or a forklift truck to lift the robot onto the welding table. Place the robot at the centre of the longitudinal side of the welding table to facilitate its working range!

Use approved lifting hooks in the eyebolts and make sure that they cannot damage the robot.

Secure the CoWelder to the welding table with 4 x M10 bolts and remove the eyebolts



Place the torch suspension in the desired position and fasten the bolts.



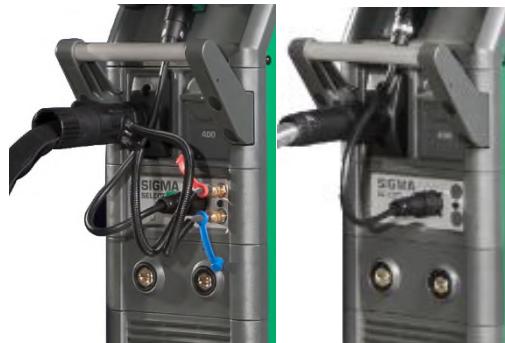
Connect the robot to the power supply.



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Turn on the robot on the Teach Pendant.



Connect the welding hose to the welding machine.



Connect the welding machine to the power supply.



Connect the gas hose to a gas supply according to the welding machine manual.



Connect the robot control box and welding machine using the cable with 2 12-pin connectors.

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Drawn up by:	Migatronic Automation



Switch on the welding machine, lead the wire through the liner and select welding program.



Remove the protective bubble wrap.



Lift and push the robot to start position.



Fasten the balance fixture to the welding hose.

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The balancer must be adjusted only just enough to lift the hose and not pull on the torch.



Place the start box and reset box (optional) in a safe working position, i.e., outside the robot's working area.



Connect ground cable to the welding machine.



Place the ground cable close to the workpiece. Mount the welding wire and select welding program according to the welding machine manual.

Note! Lacking / insufficient ground connection may disrupt the welding process and increase the risk of electric shock. There is also an increased risk of damage to the electric installation.

Warning: Welding fumes



Fumes and gases formed during welding are hazardous to health. Proper use of suitable extraction (supplied by the user) is mandatory during welding.

Name	CoWelder™ Basic
Product	Instruction manual
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Drawn up by:	Migatronic Automation

Warning: UV radiation



UV radiation may cause eye injuries or eye irritation. Use of welding helmet/protective goggles is mandatory. Surroundings (other operators, visitors etc.) must be shielded, using e.g., welding curtain according to DS/EN ISO 25980 (owner/operator's responsibility).

5.3 Installation of a TIG welding machine



WARNING

The Wire feed unit is not to be mounted until the Robot-unit is securely bolted onto the worktable.



HF ignition involve a risk of electric shock and a risk of interference/damage to electronic circuit.

It is important that the robot and the welding machine have a correct and effective ground connection, and that the ground connection of the power source (Welding +) is connected to the workpiece.

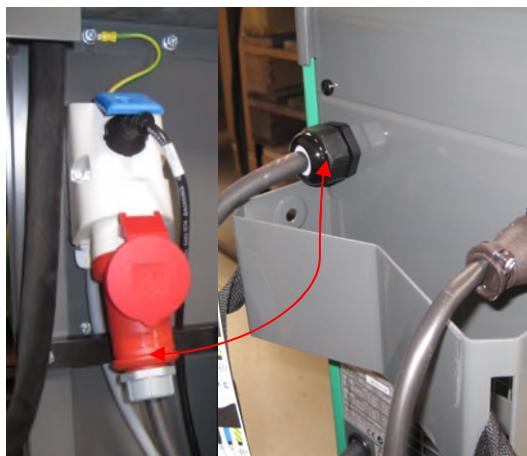
Insufficient ground connection may cause interference or damage to electronic circuit, or damage to the electrical installation.



Use a crane or a forklift truck to lift the robot onto the welding table. Place the robot at the centre of the longitudinal side of the welding table to facilitate its working range!

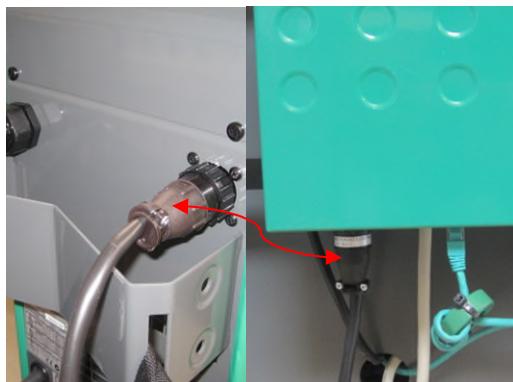
Use approved lifting hooks in the eyebolts and make sure that they cannot damage the robot.

Secure the CoWelder to the welding table with 4 x M10 bolts and remove the eyebolts



Connect CoWelder and welding machine using the cable.

Name	CoWelder™ Basic
Product	Instruction manual
Version	B
Drawn up by:	Migatronic Automation



Connect welding machine and robot interface using the cable.



Connect the welding hose to the welding machine.



Connect the machine to the power supply.



Connect the gas hose to a gas supply according to the welding machine manual.

Name	CoWelder™ Basic
Product	Instruction manual
Version	B
Drawn up by:	Migatronic Automation



Switch on the robot on the teach pendant.



Switch on the welding machine (lead the wire through the liner if fitted) and select welding program.



Remove the protective bubble wrap.



Lift and push the robot to start position.

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Product	Instruction manual
Version	B
Drawn up by:	Migatronic Automation



Fasten the balance fixture to the welding hose.



The balancer must be adjusted only just enough to lift the hose and not pull on the torch.



Place the start box and reset box (optional) in a safe working position, i.e., outside the robot's working area.



Connect the ground cable to the welding machine.

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Product	Instruction manual
Version	B
Drawn up by:	Migatronic Automation



Place the ground cable close to the workpiece. Mount the welding wire and select welding program according to the welding machine manual.

Note! Lacking / insufficient ground connection may disrupt the welding process and increase the risk of electric shock. There is also an increased risk of damage to the electric installation.

Warning: Welding fumes



Fumes and gases formed during welding are hazardous to health. Proper use of suitable extraction (supplied by the user) is mandatory during welding.

Warning: UV radiation



UV radiation may cause eye injuries or eye irritation. Use of welding helmet/protective goggles is mandatory. Surroundings (other operators, visitors etc.) must be shielded, using e.g., welding curtain according to DS/EN ISO 25980 (owner/operator's responsibility).

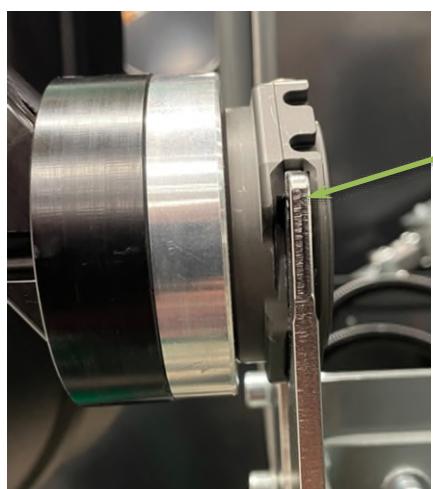
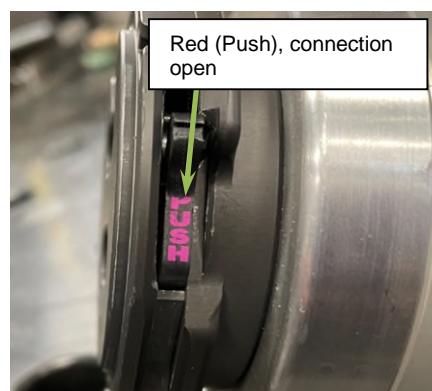
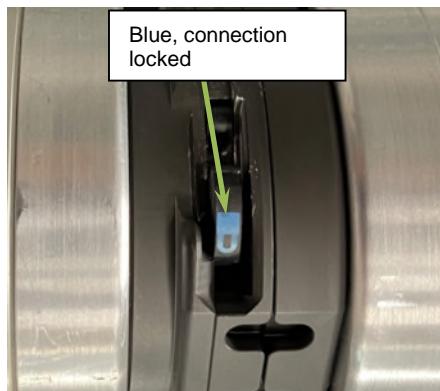
Name	CoWelder™ Basic
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Drawn up by:	Migatronic Automation

5.4 Switch from MIG to TIG torch on a CoWelder Combi or vice versa with Quick Release.

Quick Release on MIG/TIG torch mounted on Miga Smart Tool.

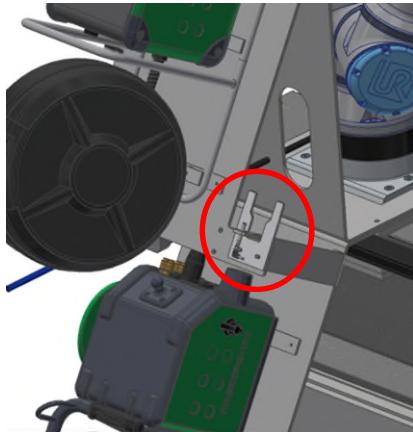


- Turn off the robot via the Teach Pendant.
- Remove the torch bracket that is NOT to be used (TIG, MIG) from the Miga Smart Tool using the 2 toggle buttons on the Quick Release.
- Remove the torch bracket that IS to be used (TIG, MIG) from the parking station.
- Mount the torch bracket that is not to be used on the parking station with the Quick Release, ensuring the toggle buttons are in the locked position (blue) before mounting.
- Mount the torch bracket that IS to be used on the Miga Smart Tool with the Quick Release, ensuring the toggle buttons are in the open position (red push). After mounting, set the toggle buttons to the locked position (blue).

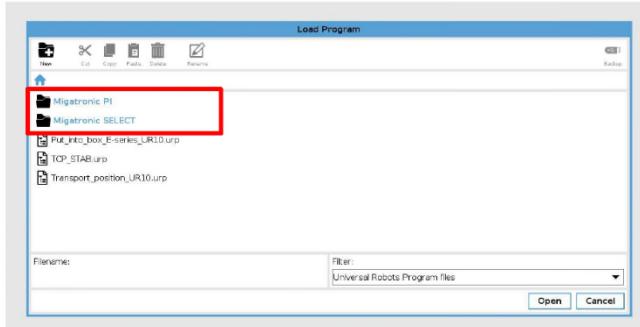


Burner bracket mounted on parking station. The toggle switches must be in the blue position before installation.

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Ensure that the MIG torch is in the parking station, the TIG torch is on the MIGA SMART TOOL, and the TIG welding hose is in the torch holder. It is essential that the MIG torch is in the parking station for the sensor to ensure the correct welding process.



- Turn on the robot again.
- **Do not initialise the robot.**
- Press open, select program.
- Choose Migatronic PI for TIG welding or Migatronic Select for MIG welding.
- Load a program from the selected folder.
- Initialise the robot.

Important



There is a sensor installed on the parking station that detects which torch is in the parking station. It is essential that the torch not in use is placed in the parking station to ensure automatic selection of the welding process.

5.5 Disassembly Instructions

When the equipment needs to be disassembled or disposed of, it must be ensured that all power supplies are disconnected and removed, and that the equipment is disassembled properly in accordance with the applicable regulations for the area.

- Any waste materials must be handled and disposed of in accordance with the applicable regulations.
- The equipment must be disassembled into parts that can be handled in an environmentally correct manner by trained personnel.

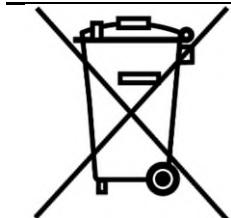
Contact the manufacturer in case of doubt about handling the parts.

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Product	Instruction manual
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Drawn up by:	Migatronic Automation

6 Information on environmental conditions

The equipment is expected to be installed in a normally dry environment suitable for industrial equipment.

The equipment is designed to be as minimally burdensome to the surrounding environment as possible.



Important

The WEEE Directive 2012/19/EU on waste electrical and electronic equipment applies to this product. When disposing of the product, use local, official collection points and ensure that all relevant regulations are followed.

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7 Cleaning and Maintenance



Important

Gas supply and power supply must be disconnected before cleaning and servicing!

7.1 Cleaning



NOTE:

Never use compressed air to clean the robot arm, as it can damage components.

7.1.1 Teach Panel

It may be necessary to clean the Teach screen. It is recommended to use a standard mild industrial cleaner without solvents or aggressive additives. Do not use abrasive materials to wipe down the screen.

7.1.2 Control Box

The control box has two filters, one on each side of the box.

1. Carefully remove the outer plastic frame by pulling where the red arrows are shown. The frame will tilt out.
2. Remove the filter to clean it. Clean with low-pressure air or replace the filters if necessary. Remember to clean each side.



7.1.3 Machine Components

Machine components are cleaned with a soft cloth moistened with water, isopropyl alcohol, 10% ethyl alcohol, or 10% naphtha.

7.1.4 Painted Surfaces

Painted surfaces are cleaned with a cloth moistened with alcohol.

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7.1.5 Aluminium Surfaces

Aluminum surfaces are cleaned with a cloth moistened with alcohol.

7.1.6 Other Components and Surfaces

Use a cloth dampened with soapy water – wipe dry with a dry cloth.

7.2 Maintenance

7.2.1 Repair and Maintenance

The operator is solely responsible for the consequences of using spare parts other than those originally recommended.

For repair and maintenance:

- it must be ensured that all power supply is disconnected and secured to prevent accidental startup.
- replacement parts must be identical to the original parts listed in the parts list.

Keep all machine parts in good maintenance condition and check them in accordance with usual workshop standards.

7.2.2 Necessary tools for performing service

Commonly used manual tools and special tools

7.2.3 Preventive maintenance



NOTE

Regular maintenance is important and provides:

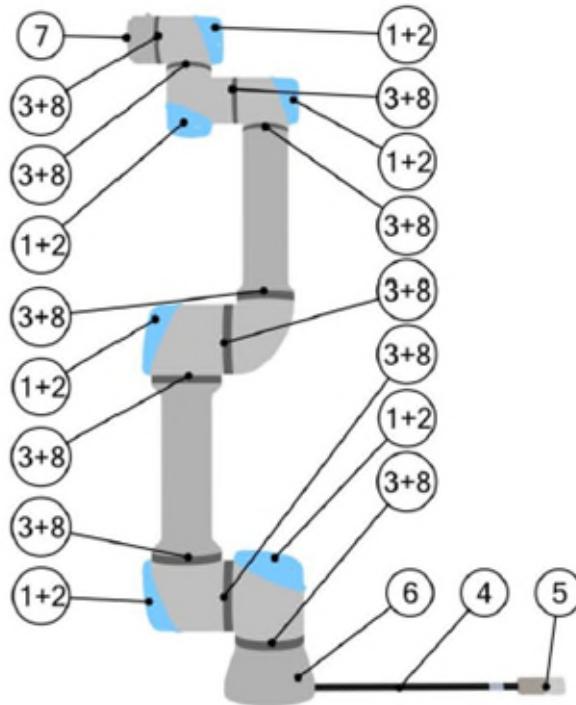
- Long lifespan for the equipment.
- Safety
- Operational reliability.

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7.2.3.1 Inspection plan for robot arm

Controls		Monthly	Twice a year
1	Blue lid*	V	X
2	Screws for blue lid	F	X
3	Sealing rings	V	X
4	Robot cable	V	X
5	Robot cable connection	V	X
6	Robot arm, mounting bolts*	F	X
7	Bolts for tool mounting *	F	X
8	Screws and bolts in assemblies *	F	X

V=Visuel inspection F=Functional inspection * = Must be checked in case of collision



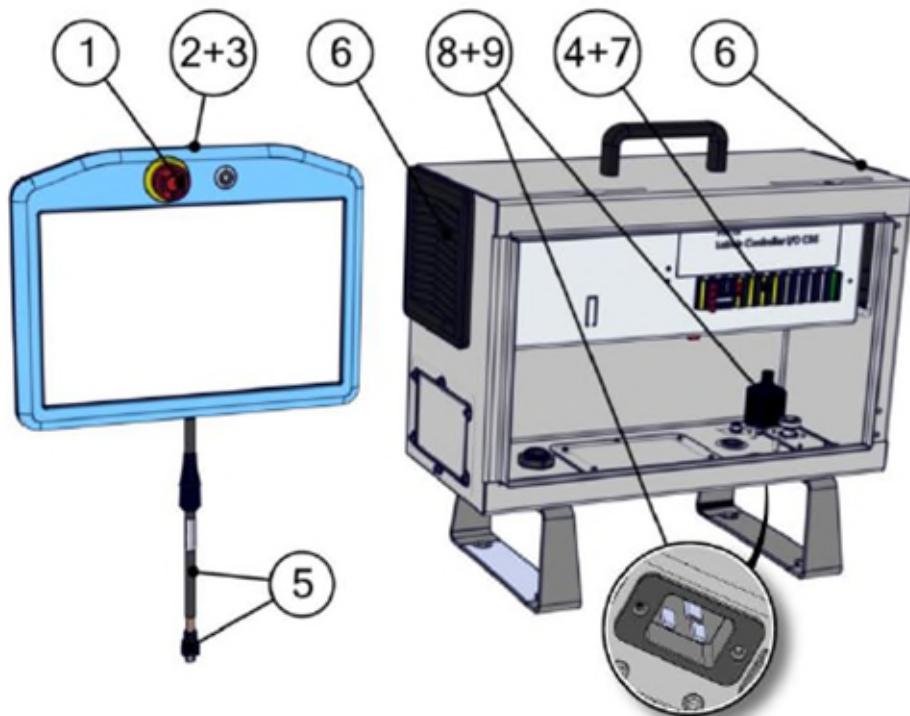
1. Move the robot arm to the HOME position, if possible.
2. Turn off and disconnect the power cable from the control box.
3. Inspect the cable between the control box and the robot arm for any damage.
4. Check that the robot arm's mounting bolts are properly tightened.
5. Check that the tool flange bolts are properly tightened.
6. Inspect the sealing rings for wear and damage. - Replace the sealing rings if they are worn or damaged.
7. Inspect the blue lids on all assemblies for cracks or damage. - Replace the blue lids if they are cracked or damaged.
8. Check if the screws for the blue lids are seated correctly and properly tightened.
 - Replace or tighten the screws if necessary.
 - Adjust the torque on the screws for the blue lids to 0.4 Nm ± 0,05Nm

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7.2.3.2 Inspection plan for control box and Teach pendant

Controls		Monthly	Tvice a year	Yearly
1	Emergency stop on the Teach pendant	F	X	
2	Backdrive mode	F	X	
3	Freedrive mode	F		X
4	Safety inputs and outputs (if connected)	F	X	
5	Teach-panel cable and plug.	V		X
6	Clean filters and control box.	F	X	
7	Terminals in control box.	F		X
8	Electrical grounding 1 Ω to the control box.	F		X
9	Main power to the control box.	F		X

V=Visual inspection F=Functional inspection



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7.3 Function test.

7.3.1 Test safety function.

Interval: Monthly.

1. Press emergency stop.
2. Observe that the robot stops and cuts power to the joints.
3. Turn the machine back on.



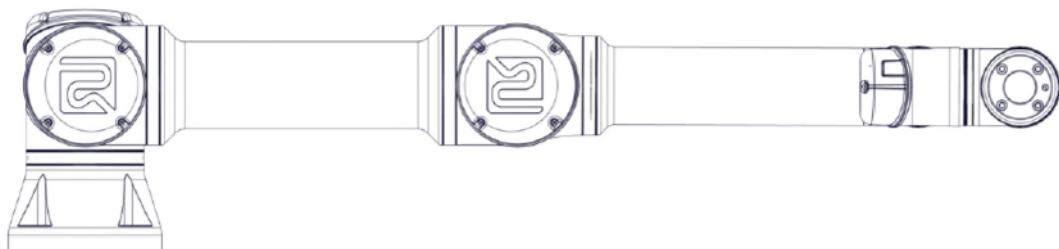
Important

Check the emergency stop separately. In case of failure, the machine must be stopped immediately and secured against restart.

7.3.2 Test Freedrive

Interval: Yearly

1. Remove tool or set TCP / payload / CoG according to tool specifications.
2. Monitor that the robot maintains its position.
3. Move the robot to a horizontal extended position and release it.
4. Check that the robot can maintain its position while the Freedrive button is activated.

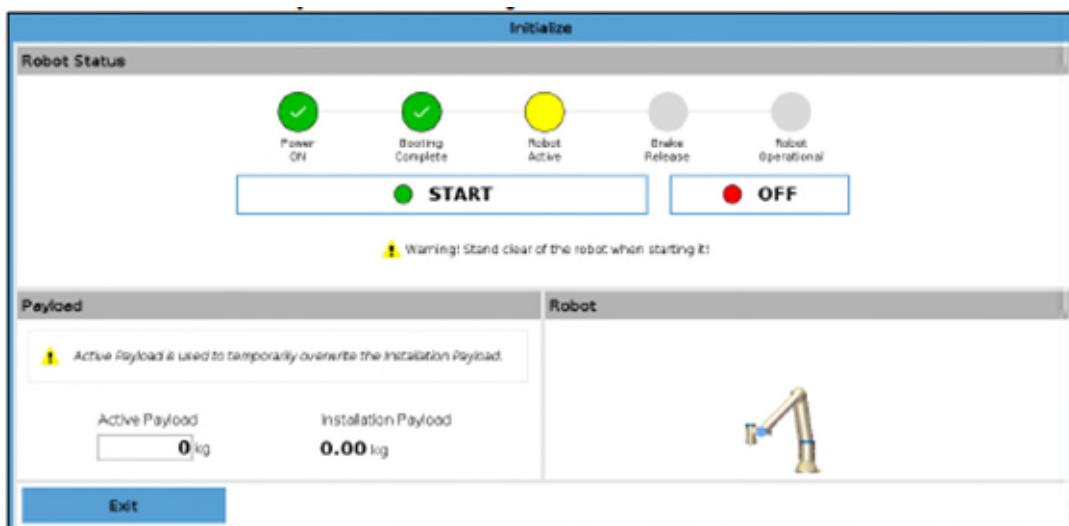


7.3.3 Test Backdrive Mode

Interval: Yearly

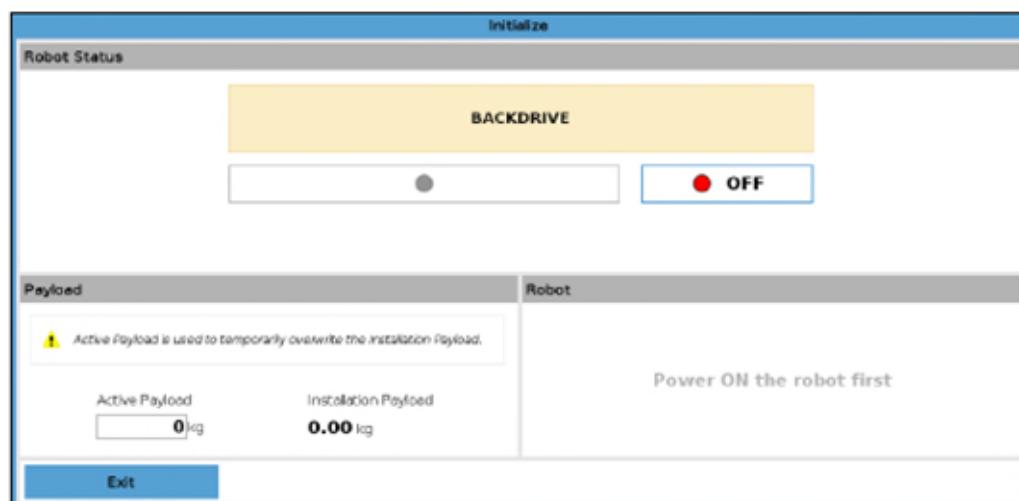
If the robot is close to colliding with something, you can use the Backdrive function to move the robot arm to a safe position before initialization.

1. Press ON to activate. Status changes to Robot Active.



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2. Press and hold Freedrive. Status changes to Backdrive.



3. Move the robot as in Freedrive mode. Joint brakes are released where necessary when the Freedrive button is activated.



Important

In Backdrive Mode the robot is “heavy” to move around
You must test Backdrive mode on all joints.

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7.3.4 Verify Safety settings

Interval: Yearly and in case of system breakdown

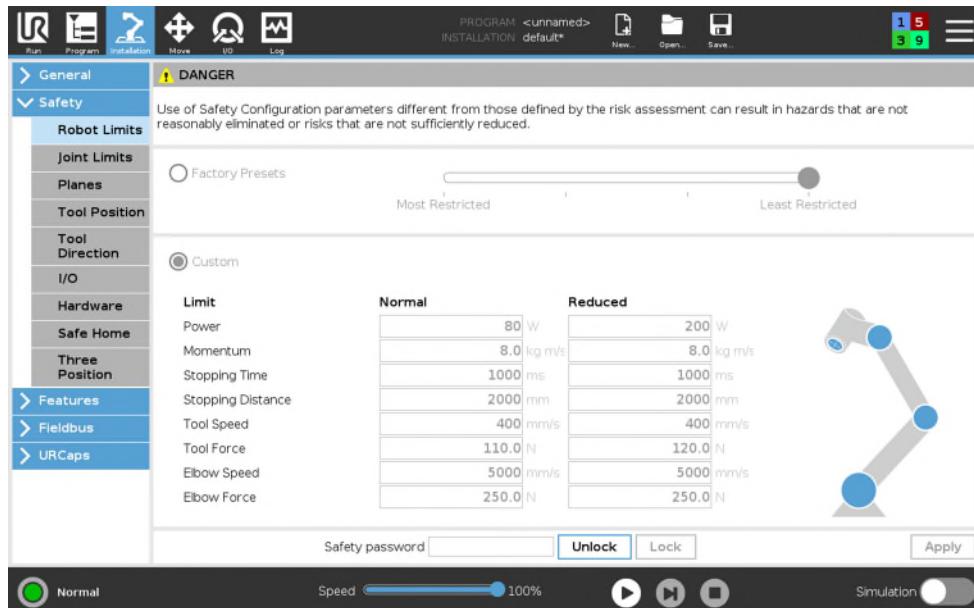
1. Open program (see illustration)
2. Verify that safety settings do not exceed permissible maximum values:

Force: Max 110N and 140N/cm²

Power: Max 80 W

Speed: Max 400 mm/s

Momentum: 8 kg m/s



7.4 Visual Inspection

Mandatory half-yearly visual inspection includes:

1. Disconnect the power cable from Control Box.
2. Check the Control Board terminals are properly inserted and do not have loose wires.
3. Check for any dirt/dust inside Control Box. Clean with ESD vacuum cleaner if needed.



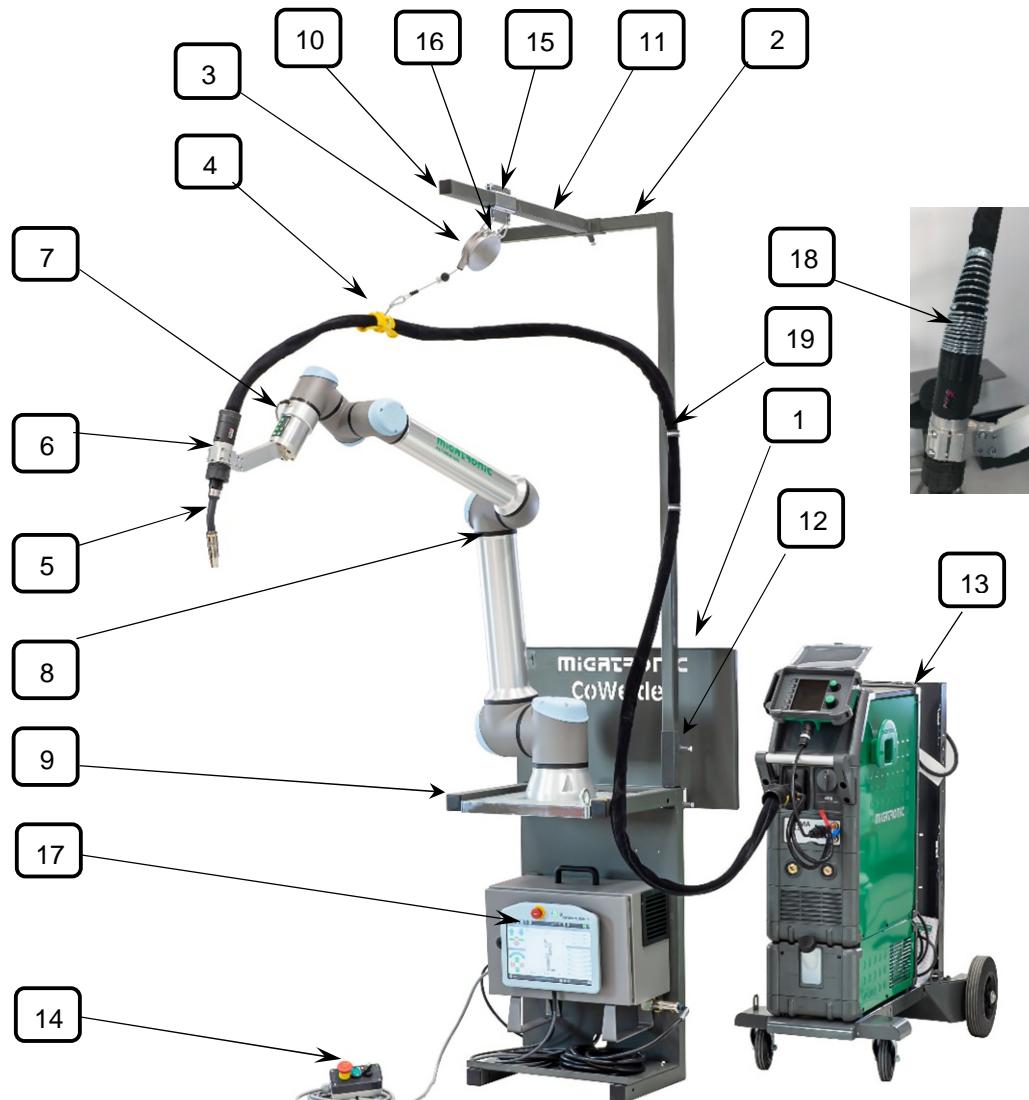
Note:

Never use compressed air to clean inside the Control Box as it can damage components.

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Drawn up by:	Migatronic Automation

8 Spare parts

8.1 Spare parts CoWelder MIG Welder



Pos	Description	Article No	Pos	Description	Article No
1	Plate w/logo	36072131	11	Arm	36072711
2	Gallows	36072127	12	Extension	36072712
3	Tecna Balancer 1-2 kg	78856132	13a	Sigma Select 400 W Synergic	79542018
4	Cibes yellow 17-25	45050503	13b	Sigma Select 400 W Pulse	79542020
5	Abirob W500 22gr kit with hose	36072505	13c	Sigma Select IAC 400 W Synergic	79542019
6	Fixed bracket RTM Smart Tool	36072501	14	Start box	36071909
7a	Are used on UR5E until S/N 20245501102 Are used on UR10E until S/N 20245202449 See also section 8.3	36074083	15	Steel part (x2)	36072128
7b	New smart tool Are used on UR5E from S/N 20245501103 Are used on UR10E from S/N 20245202450 See also section 8.3	36077912	16	Carabiner	43810010
8	UR 10E robot	36940110	17	Teach Pendant	36074191
9	Plug DPE 45-10-20	36071887	18	Cable support	36074075

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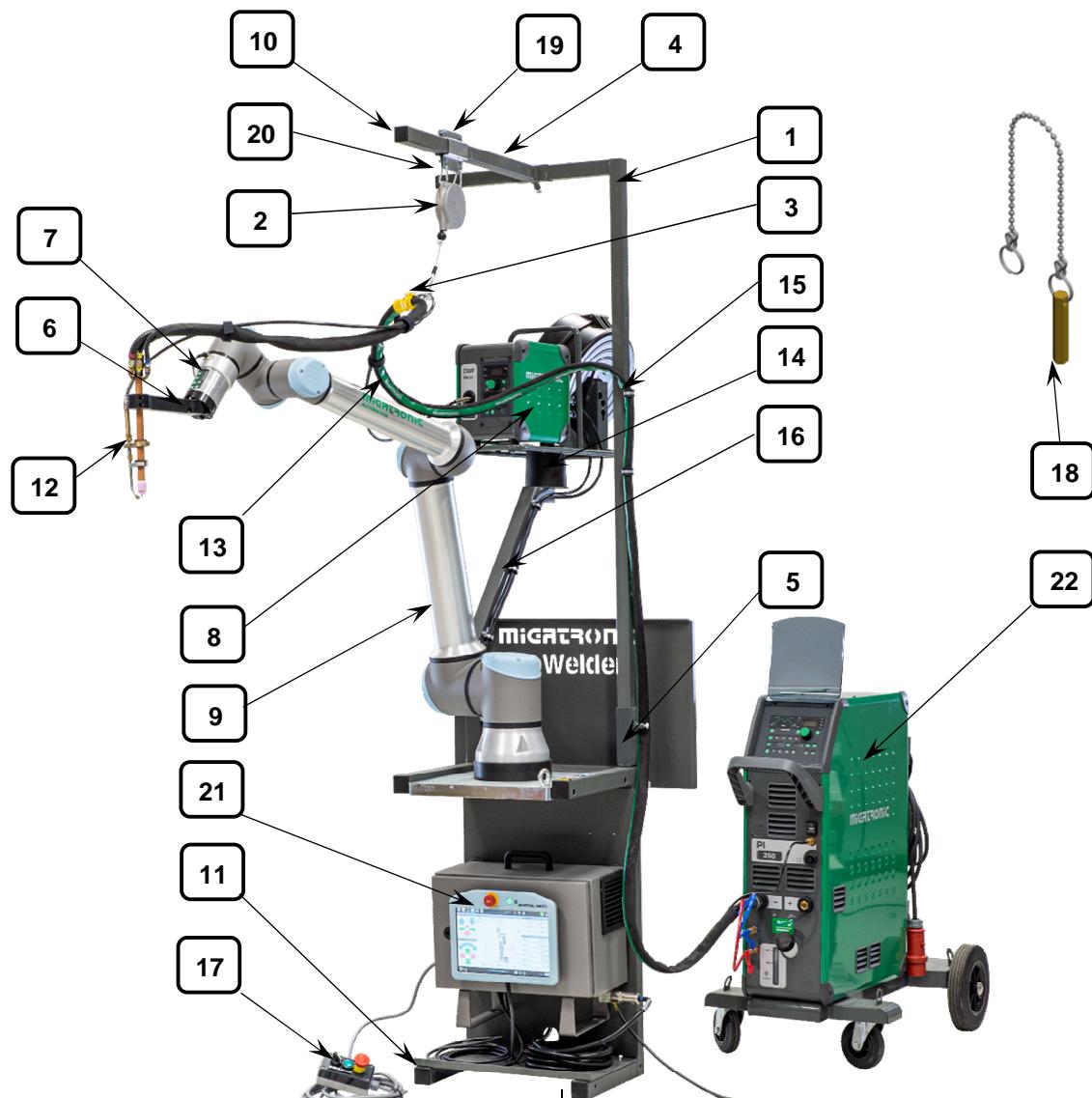
10 Plug DPE 35-10-20

36071889

19 Pipe Strap

0243716204

8.2 Spare parts CoWelder TIG Welder



Pos	Description	Article No	Pos.	Description	Article No
1	Gallows	36072127	11	Plug DPE 45-10-20	36071887
2	Tecna Balancer 1-2 kg	78856132	12	AD 250L Complete	80491260
3	Cibes yellow 17-25	45050503	13	Welding Hose	80371400
4	Arm	36072711	14	Supporting foot CWF	45050258
5	Extension	36072712	15	Pipe strap	0243716204
6	POM Base	36073222	16	Pipe strap	0243716202
7a	Smart Tool		17	Start box	36071909
	Are used on UR5E until S/N 20245501102	36074083	18	Calibration tool	36073087
	Are used on UR10E until S/N 20245202449				
7b	See also section 8.3				
	New smart tool				
	Are used on UR5E from S/N 20245501103	36077912			
	Are used on UR10E from S/N 20245202450				
	See also section 8.3				

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8 CWF	-	19 Steel part (x2)	36072128
9 UR10E robot	36940110	20 Carabiner	43810010
10 Plug DPE 35-10-20	36071889	21 Teach Pendant	36074191
11 Plug DPE 45-10-20	36071887	22 PI350 AC/DC	-

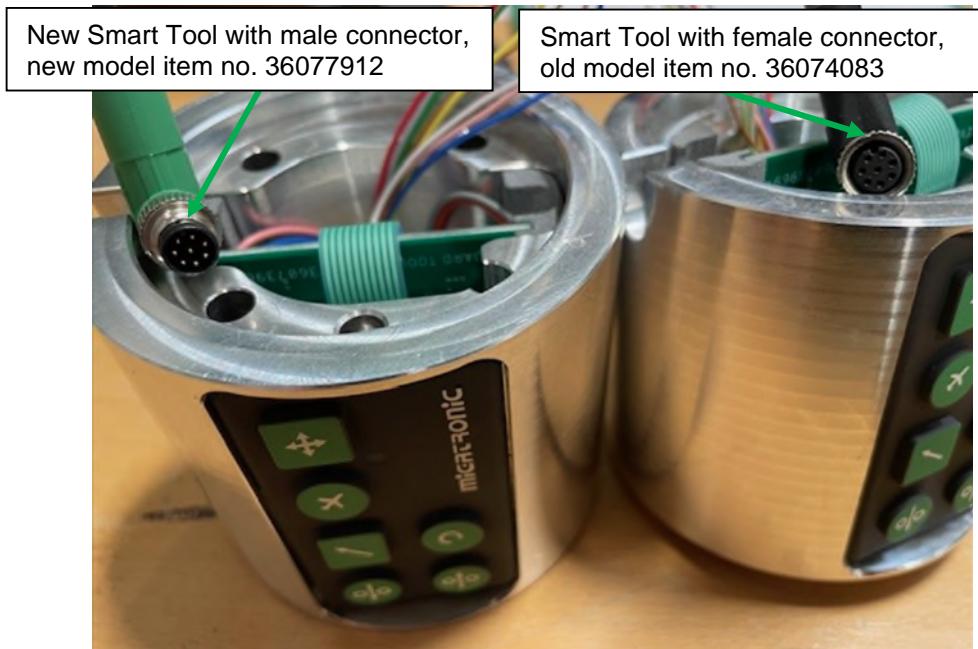
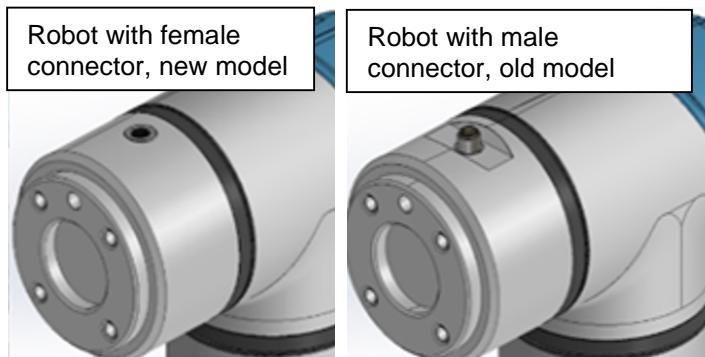
8.3 Explanation of Smart Tool/New Smart Tool on UR10E

In the spare parts lists 8.1 and 8.2 it says that the difference between new and old Smart Tool only has to do with the robot's S/N. However, this is not correct in cases where the robot has had the plug and the aluminium block where the Smart Tool goes on changed. So there may well be robots with an S/N that indicates a male connector that has been replaced with a female connector.

If a Smart Tool is to be purchased for the UR10E, always look at the connector on the robot.

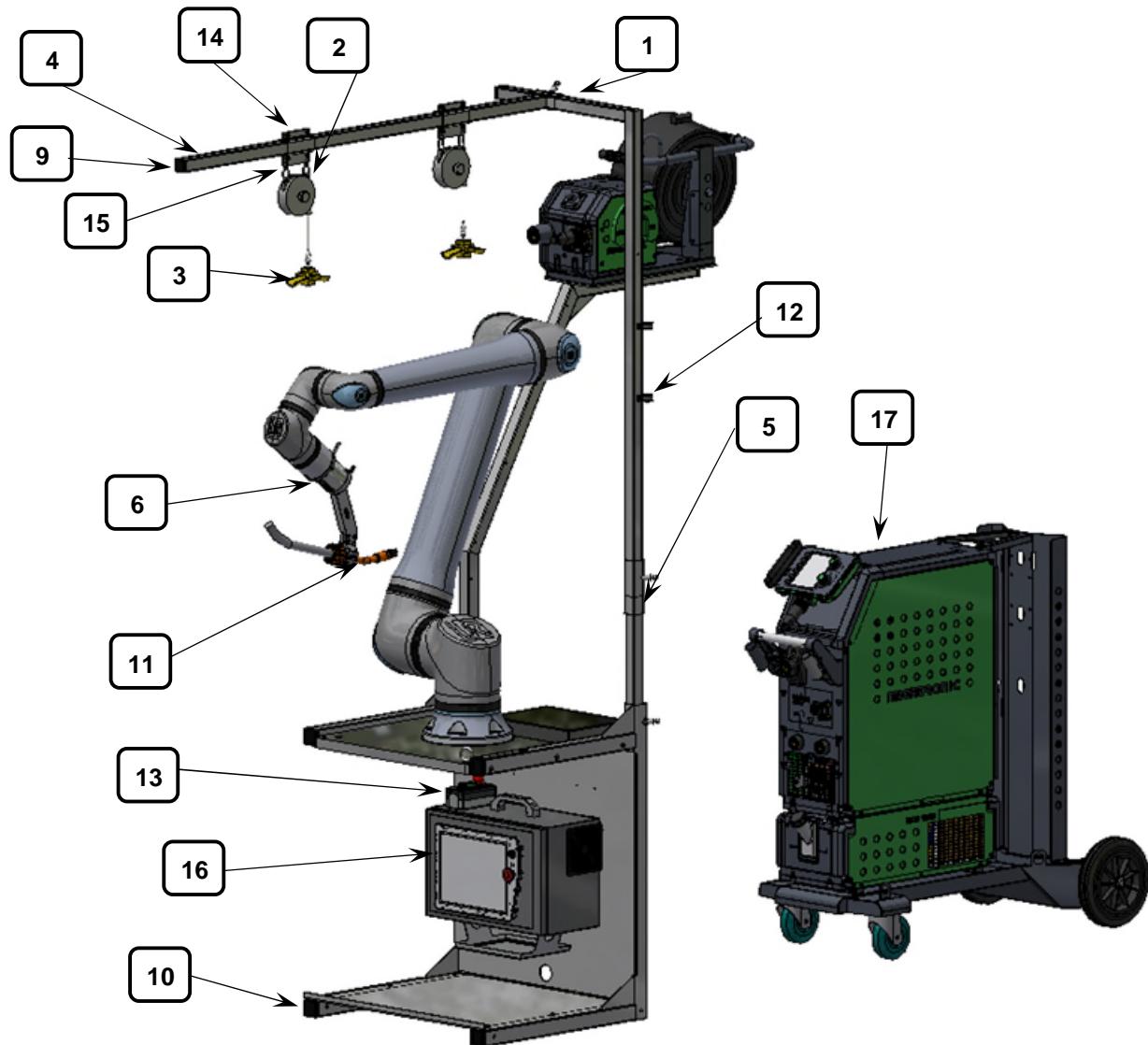
New Smart Tool with male connector that fits UR10E robot with female connector, Migatronic has item no. 36077912.

Smart Tool with female connector suitable for UR10E robot with male connector, Migatronic has item no. 36074083



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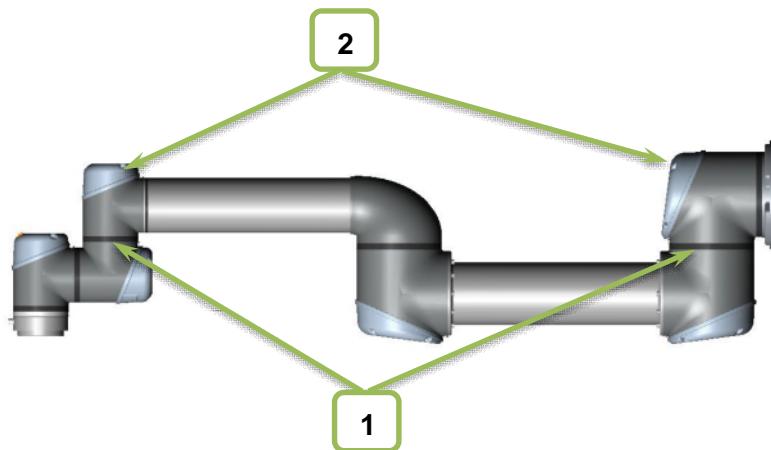
8.4 Spare parts CoWelder UR20 MIG



Pos	Description	Article No	Pos	Description	Article No
1	Gallows	36072127	12	Pipe strap	0243716204
2	Tecna Balancer 1-2 kg	78856132	13	Start box	36071909
3	Cibes yellow 17-25	45050503	14	Steel part (x2)	36072128
4	Arm	36077576	15	Carabiner	43810010
5	Extension	36072712	16	Teach Pendant	36074191
6	Miga Smart Tool UR20	36076004	17	Sigma Select	-
7	MWF	-			
8	UR20 robot	36070210			
9	Plug DPE 35-10-20	36071889			
10	Plug DPE 45-10-20	36071887			
11	Abirob W500 22gr with hose	36072505			

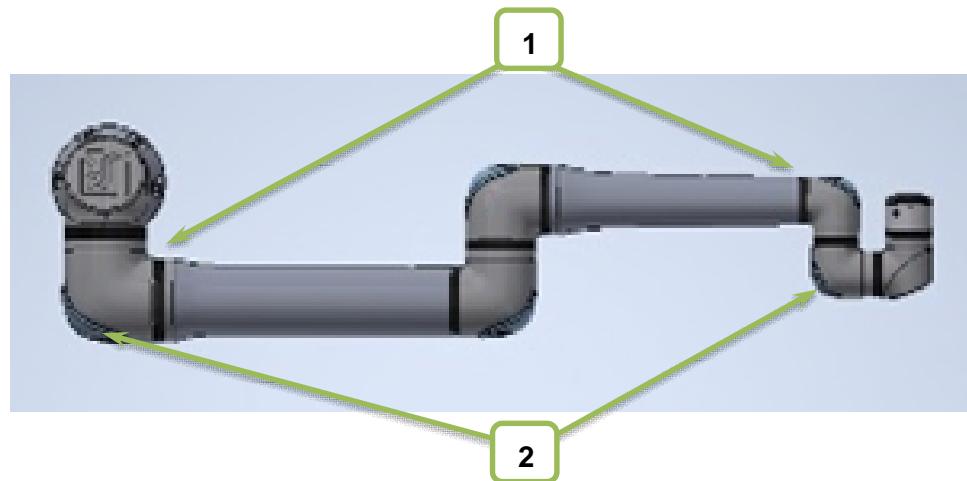
Name	CoWelder™ Basic
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8.5 Spare parts UR10E Robot



Pos	Description	Article No
1	Sealing ring set UR10E for Lids and joints	36073982
2	Lid set complete UR10+10E	36072246

8.6 Spare parts UR20 Robot

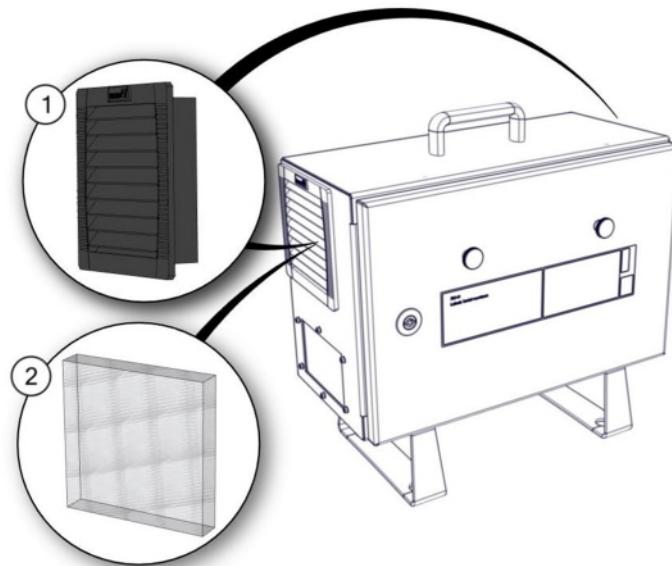


Pos	Description	Article No
1	Sealing ring set UR20 for Lids and joints	36076155
2	Lid set complete UR20	36076156

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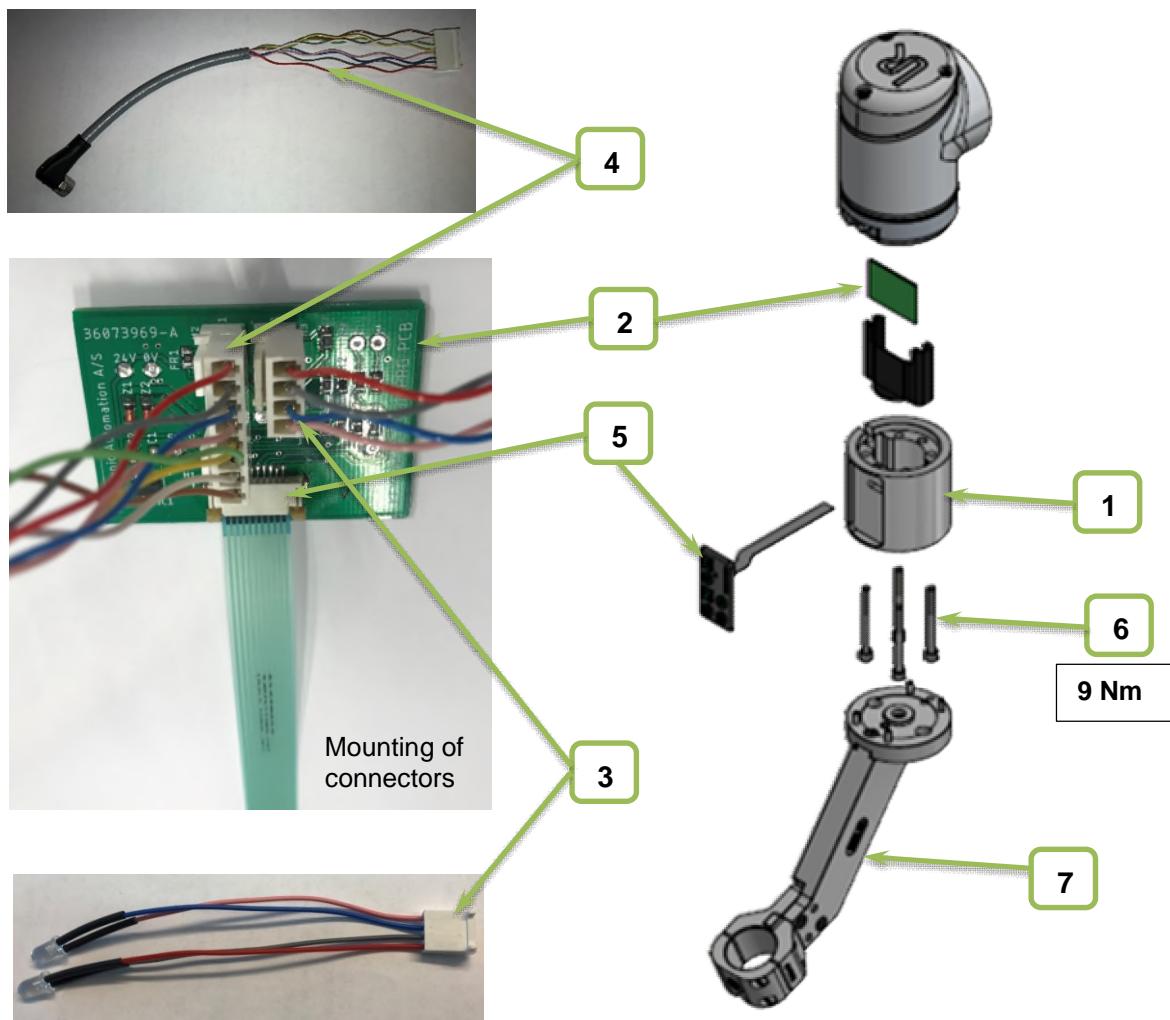
8.7 Fan Housing and filter for Control box



Pos	Description	Article No
1	Housing for control box	36073840
2	5 pcs. Filter sheets	36073838

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8.8 Miga Smart Tool UR5 / UR10

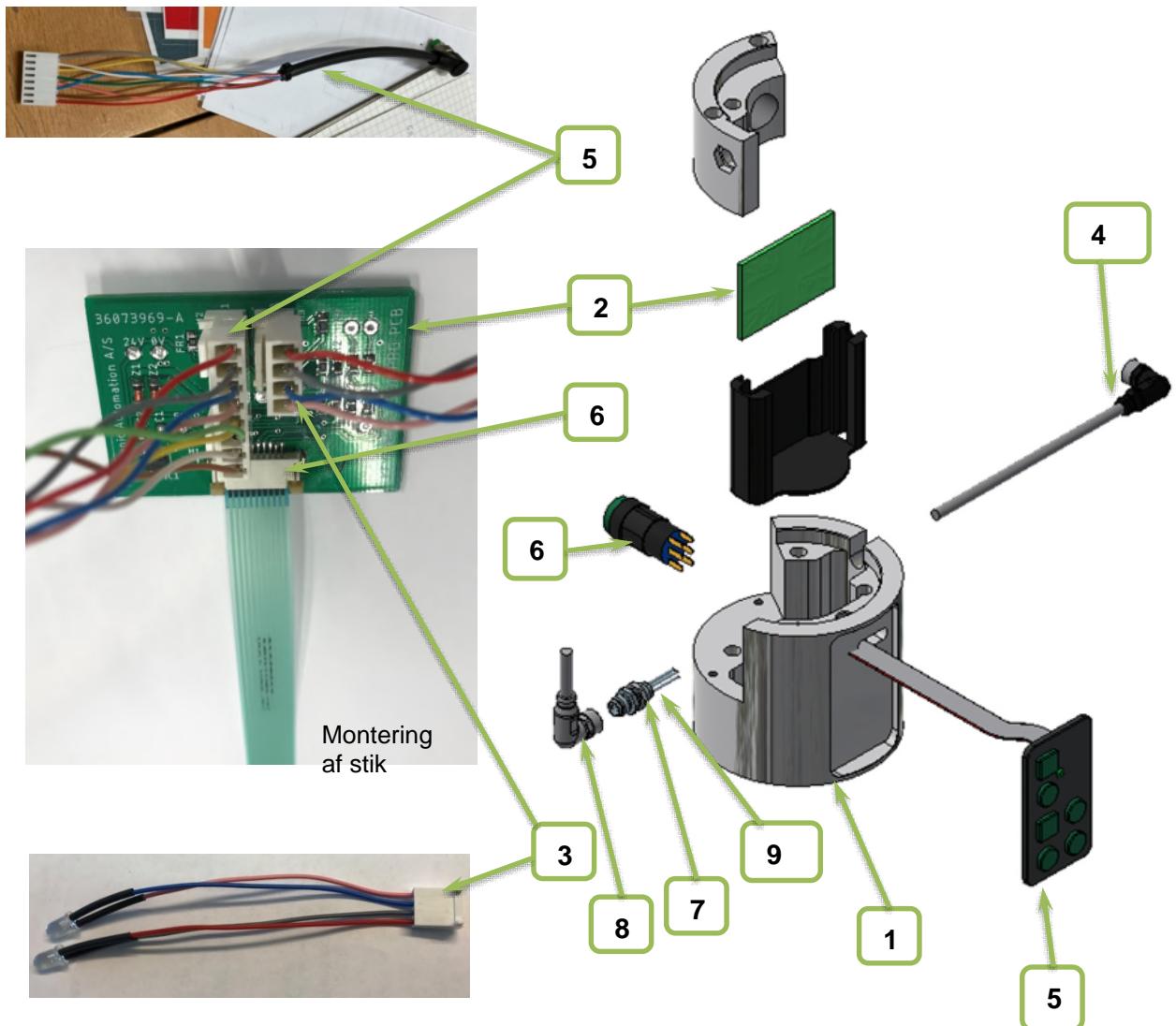


The LEDs are mounted in the Keyboard and Flange.

Pos	Description	Article No
1	Flange for UR robot	36073975
2	Tool PRG PCB	36073969
3	Tool LED Kit	36073970
	Tool Cable for Smart Tool	36074031
4	Tool Cable for New Smart Tool See page 97, 98, 99	36077913
5	Keyboard Tool PRG Buttons	36073968
6	Socket Head Cap Screw M6x60 9Nm	-
7	Torch holder	36072501

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8.9 Miga Smart Tool UR20



The LEDs are mounted in the Keyboard and Flange.

Pos	Description	Article No
1	Flange for Miga Smart Tool UR20	36076003
2	Tool PRG PCB	36073969
3	Tool LED Kit	36073970
4	Cowelder UR20Tool Cable for Keyboard	36077549
5	Keyboard Tool PRG Buttons	36073968
6	Freedrive button	36076109
7	Flange Connector M8 4-pole	36077346
8	Sensor cable M8 4x0,25	36077352
9	Nut M8x0,5 for Flange connector	36077548

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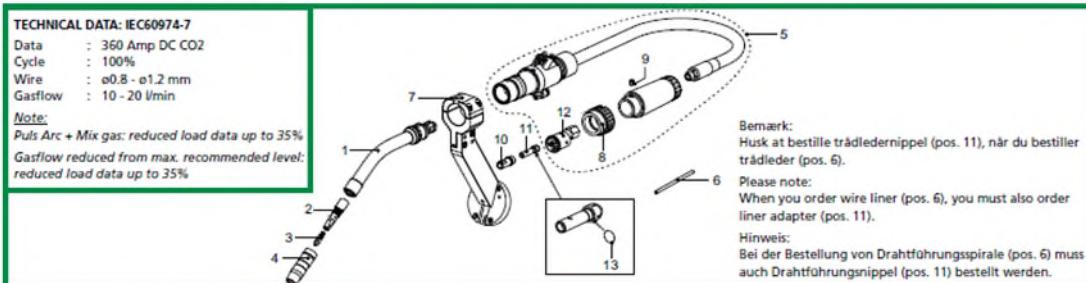
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8.10 Abirob A ECO 360 kit with hose



AB ROB A ECO 360

Reservedelslista / Spare parts list / Ersatzteilliste / Liste des pièces de rechange



Pos. No.	Varebetegnelse Warenbezeichnung	Description of goods Désignation des pièces
36072499	AB ROB A ECO 360 komplet. AB ROB A ECO 360 komplett	AB ROB A ECO 360 complete AB ROB A ECO 360 complet
1	36072500	Svanehals Brennerhals
2*	36072502	Dysetok M6, 63,4mm Düsenstock M6, 63,4mm
3*	80231020	Kontaktdyne ø1,0 M6x28mm, salv Stromduse ø1,0 M6x28mm, Silber
3	80130201	Kontaktdyne ø0,6 M6 ø8x28mm, E-Cu Stromduse ø0,6 M6 ø8x28mm, E-Cu
3	80130202	Kontaktdyne ø0,8 M6 ø8x28mm, E-Cu Stromduse ø0,8 M6 ø8x28mm, E-Cu
3	80130203	Kontaktdyne ø1,0 M6 ø8x28mm, E-Cu Stromduse ø1,0 M6 ø8x28mm, E-Cu
3	80130204	Kontaktdyne ø1,2 M6 ø8x28mm, E-Cu Stromduse ø1,2 M6 ø8x28mm, E-Cu
3	80131200	Kontaktdyne ø0,8 M6 ø8x28mm, CuCrZr Stromduse ø0,8 M6 ø8x28mm, CuCrZr
3	80131201	Kontaktdyne ø1,0 M6 ø8x28mm, CuCrZr Stromduse ø1,0 M6 ø8x28mm, CuCrZr
3	80131202	Kontaktdyne ø1,2 M6 ø8x28mm, CuCrZr Stromduse ø1,2 M6 ø8x28mm, CuCrZr
3	80131203	Kontaktdyne ø1,4 M6 ø8x28mm, CuCrZr Stromduse ø1,4 M6 ø8x28mm, CuCrZr
3	80131204	Kontaktdyne ø1,6 M6 ø8x28mm, CuCrZr Stromduse ø1,6 M6 ø8x28mm, CuCrZr
4*	36072503	Gasduse ø14 Gasdüse ø14
5	36072764	Slangemodul, komplet 3,5m Schlauchmodul, komplett 3,5m
6*	36072513 (+ B0100823)	Trådledder Fe 2,1x5,5x4400 Drahtführungsspirale Fe 2,1x5,5x4400
6	80160595	Trådledder Fe ø1,2xø5,7x4400mm til 0,6-0,8 tråd Drahtführungsspirale Fe ø1,2xø5,7x4400mm for 0,6-0,8 Draht
6	80160596	Trådledder Fe ø1,5xø5,7x4400mm til 0,8-1,0 tråd Drahtführungsspirale Fe ø1,5xø5,7x4400mm for 0,8-1,0 Draht
6	80160597	Trådledder Fe ø1,8xø5,7x4400mm til 1,2-1,6 tråd Drahtführungsspirale Fe ø1,8xø5,7x4400mm for 1,2-1,6 Draht
6	80160711 (+ B0100822)	Trådledder Alu til 0,8-1,0 tråd, 4,4m Drahtführungsspirale Alu for 0,8-1,0 Draht, 4,4m
6	80160713 (+ B0100822)	Trådledder Alu til 1,2-1,6 tråd, 4,4m Drahtführungsspirale Alu for 1,2-1,6 Draht, 4,4m
6	80160700 (+ B0100822)	Trådledder rustfri til 0,8-1,0 tråd, 4,4m Drahtführungsspirale rostfri for 0,8-1,0 Draht, 4,4m
6	80160707 (+ B0100822)	Trådledder rustfri til 1,2-1,6 tråd, 4,4m Drahtführungsspirale rostfri for 1,2-1,6 Draht, 4,4m
7	36072501	Bränderholder Brennerhalter
8	80200301	Motrik til ZA-tilslutning Mutter für Zentralanschluss
9	40110406	CHJ skru M4x6mm Zylinderkopfschraube M4x6mm
10	80100825	Motrik trådledder M14x1,0 Mutter Drahtführungsspirale M14x1,0
11	80100822	Trådledderadapter ø4 (til trådledder Alu/rustfri (pos. 6)) Drahtführungssadapter ø4 (für Drahtführungsspirale Alu/rostfrei (pos. 6))
11*	80100823	Trådledderadapter ø6 (til trådledder Fe (pos.6)) Drahtführungssadapter ø6 (für Drahtführungsspirale Fe (pos.6))
12	80100824	ZA-tilslutning Zentralanschluss
13	43570019	O-ring ø6,0-ø2,2mm O-Ring ø6,0-ø2,2mm
*		Sliddele monteret som standard Montiert als Standard

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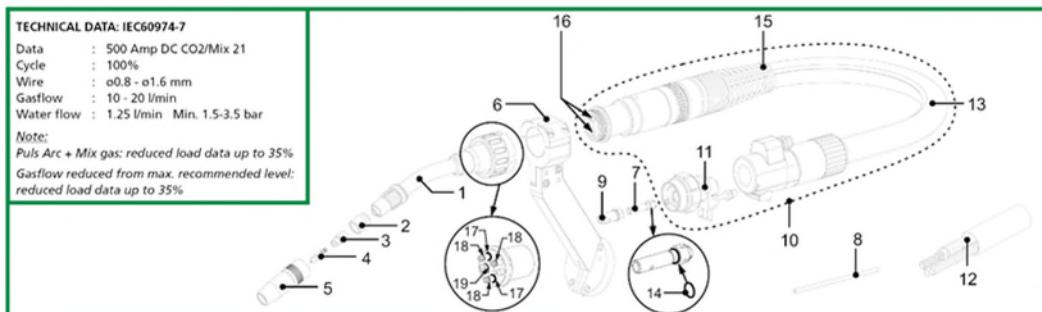
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8.11 Abirob W500 22/45gr kit



AB ROB W500

Reservedelsliste / Spare parts list / Ersatzteilliste / Liste des pièces de rechange



Pos. No.	Varebetegnelse Warenbezeichnung	Description of goods Désignation des pièces
1.1 36072867	Svanehals 0° Brennerhals 0°	Swan neck 0° Col de cygne 0°
1.2 80701340	Svanehals 0° +100 Brennerhals 0° +100	Swan neck 0° +100 Col de cygne 0° +100
1.3* 80701322	Svanehals 22° Brennerhals 22°	Swan neck 22° Col de cygne 22°
1.4 36074450	Svanehals 22° +100 Brennerhals 22° +100	Swan neck 22° +100 Col de cygne 22° +100
1.5 80701335	Svanehals 35° Brennerhals 35°	Swan neck 35° Col de cygne 35°
1.6 80701337	Svanehals 35° +100 Brennerhals 35° +100	Swan neck 35° +100 Col de cygne 35° +100
1.7 80701345	Svanehals 45° Brennerhals 45°	Swan neck 45° Col de cygne 45°
1.8 36071206	Svanehals 45° +100 Brennerhals 45° +100	Swan neck 45° +100 Col de cygne 45° +100
1.9 80701365	Svanehals 65° 5 +100 Brennerhals 65° 5 +100	Swan neck 65° 5 +100 Col de cygne 65° 5 +100
2* 80720210	Isolator, M18x1-21mm Isolator, M18x1-21mm	Insulator, M18x1-21mm Isolateur, M18x1-21mm
2 80700209	Isolator, høj temperatur Isolator, hohe Temperatur	Insulator, high temperature Isolateur, haute température
2■ 80700219	Isolator, PTFE 30%	Isolateur, PTFE 30%
2 80700199	Isolator, kort (L: 11,4mm) Isolator, kurz (L: 11,4mm)	Insulator, short (L: 11,4mm) Isolateur, court (L: 11,4mm)
3 36072511	Dysestok, M6, M10x1, 23mm Düsenstock, M6, M10x1, 23mm	Contact nozzle, M6, M10x1, 23mm Pièce intercalaire, M6, M10x1, 23mm
3* 80700220	Dysestok, M8, M10x1, 23mm Düsenstock, M8, M10x1, 23mm	Contact nozzle, M8, M10x1, 23mm Pièce intercalaire, M8, M10x1, 23mm
3 36071349	Dysestok, M8, M10x1, 23mm, Cu Düsenstock, M8, M10x1, 23mm, Cu	Contact nozzle, M8, M10x1, 23mm, Cu Pièce intercalaire, M8, M10x1, 23mm, Cu
4 80231019	Kontaktdyse ø,0.8 M6x28mm, solv Stromduse ø,0.8 M6x28mm, Silber	Contact tip ø,0.8 M6x28mm, silver Tube contact ø,0.8 M6x28mm, argent
4 80231020	Kontaktdyse ø,1,0 M6x28mm, solv Stromduse ø,1,0 M6x28mm, Silber	Contact tip ø,1,0 M6x28mm, silver Tube contact ø,1,0 M6x28mm, argent
4 36072512	Kontaktdyse ø,1,2 M6x28mm, solv Stromduse ø,1,2 M6x28mm, Silber	Contact tip ø,1,2 M6x28mm, silver Tube contact ø,1,2 M6x28mm, argent
4 36071526	Kontaktdyse ø,1,0 M8x30mm, solv Stromduse ø,1,0 M8x30mm, Silber	Contact tip ø,1,0 M8x30mm, silver Tube contact ø,1,0 M8x30mm, argent
4 36071101	Kontaktdyse ø,0,8 M8 ø10x30mm, E-Cu Stromduse ø,0,8 M8 ø10x30mm, E-Cu	Contact tip ø,0,8 M8 ø10x30mm, E-Cu Tube contact ø,0,8 M8 ø10x30mm, E-Cu
4 80231102	Kontaktdyse ø,1,0 M8 ø10x30mm, E-Cu Stromduse ø,1,0 M8 ø10x30mm, E-Cu	Contact tip ø,1,0 M8 ø10x30mm, E-Cu Tube contact ø,1,0 M8 ø10x30mm, E-Cu
4 80231103	Kontaktdyse ø,1,2 M8 ø10x30mm, E-Cu Stromduse ø,1,2 M8 ø10x30mm, E-Cu	Contact tip ø,1,2 M8 ø10x30mm, E-Cu Tube contact ø,1,2 M8 ø10x30mm, E-Cu
4 80231106	Kontaktdyse ø,1,4 M8 ø10x30mm, E-Cu Stromduse ø,1,4 M8 ø10x30mm, E-Cu	Contact tip ø,1,4 M8 ø10x30mm, E-Cu Tube contact ø,1,4 M8 ø10x30mm, E-Cu
4 80231104	Kontaktdyse ø,1,6 M8 ø10x30mm, E-Cu Stromduse ø,1,6 M8 ø10x30mm, E-Cu	Contact tip ø,1,6 M8 ø10x30mm, E-Cu Tube contact ø,1,6 M8 ø10x30mm, E-Cu
4 80231200	Kontaktdyse ø,0,8 M8 ø8x30mm, CuCrZr Stromduse ø,0,8 M8 ø8x30mm, CuCrZr	Contact tip ø,0,8 M8 ø8x30mm, CuCrZr Tube contact ø,0,8 M8 ø8x30mm, CuCrZr
4 80231201	Kontaktdyse ø,1,0 M8 ø8x30mm, CuCrZr Stromduse ø,1,0 M8 ø8x30mm, CuCrZr	Contact tip ø,1,0 M8 ø8x30mm, CuCrZr Tube contact ø,1,0 M8 ø8x30mm, CuCrZr
4* 80231202	Kontaktdyse ø,1,2 M8 ø8x30mm, CuCrZr Stromduse ø,1,2 M8 ø8x30mm, CuCrZr	Contact tip ø,1,2 M8 ø8x30mm, CuCrZr Tube contact ø,1,2 M8 ø8x30mm, CuCrZr
4 80231204	Kontaktdyse ø,1,4 M8 ø8x30mm, CuCrZr Stromduse ø,1,4 M8 ø8x30mm, CuCrZr	Contact tip ø,1,4 M8 ø8x30mm, CuCrZr Tube contact ø,1,4 M8 ø8x30mm, CuCrZr
4 80231203	Kontaktdyse ø,1,6 M8 ø8x30mm, CuCrZr Stromduse ø,1,6 M8 ø8x30mm, CuCrZr	Contact tip ø,1,6 M8 ø8x30mm, CuCrZr Tube contact ø,1,6 M8 ø8x30mm, CuCrZr

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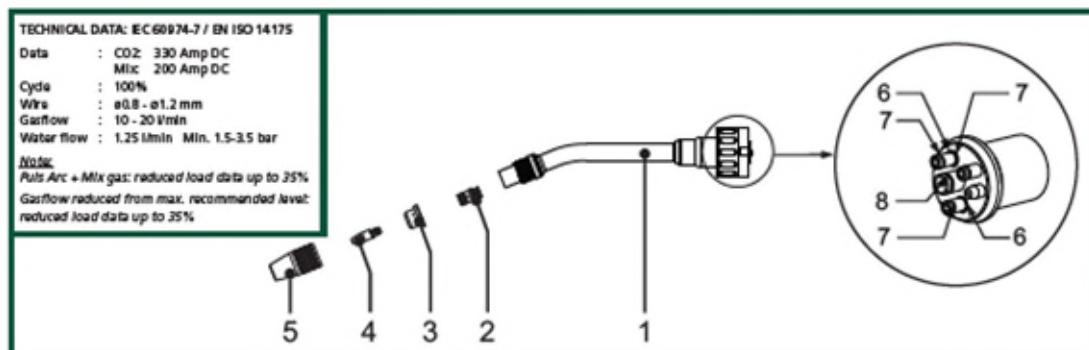
Pos. No.	Varebetegnelse Warenbezeichnung	Description of goods Désignation des pièces
4 80231205	Kontaktdyse ø0,8 M8 ø10x30mm, CuCrZr Stromduse ø0,8 M8 ø10x30mm, CuCrZr	Contact tip ø0,8 M8 ø10x30mm, CuCrZr Tube contact ø0,8 M8 ø10x30mm, CuCrZr
4 80231206	Kontaktdyse ø1,0 M8 ø10x30mm, CuCrZr Stromduse ø1,0 M8 ø10x30mm, CuCrZr	Contact tip ø1,0 M8 ø10x30mm, CuCrZr Tube contact ø1,0 M8 ø10x30mm, CuCrZr
4 80231207	Kontaktdyse ø1,2 M8 ø10x30mm, CuCrZr Stromduse ø1,2 M8 ø10x30mm, CuCrZr	Contact tip ø1,2 M8 ø10x30mm, CuCrZr Tube contact ø1,2 M8 ø10x30mm, CuCrZr
4 80231208	Kontaktdyse ø1,4 M8 ø10x30mm, CuCrZr Stromduse ø1,4 M8 ø10x30mm, CuCrZr	Contact tip ø1,4 M8 ø10x30mm, CuCrZr Tube contact ø1,4 M8 ø10x30mm, CuCrZr
4 80231209	Kontaktdyse ø1,6 M8 ø10x30mm, CuCrZr Stromduse ø1,6 M8 ø10x30mm, CuCrZr	Contact tip ø1,6 M8 ø10x30mm, CuCrZr Tube contact ø1,6 M8 ø10x30mm, CuCrZr
4■ 80231110	Kontaktdyse ø0,8 M8 ø8x35mm, CuCrZr Stromduse ø0,8 M8 ø8x35mm, CuCrZr	Contact tip ø0,8 M8 ø8x35mm, CuCrZr Tube contact ø0,8 M8 ø8x35mm, CuCrZr
4■ 80231111	Kontaktdyse ø1,0 M8 ø8x35mm, CuCrZr Stromduse ø1,0 M8 ø8x35mm, CuCrZr	Contact tip ø1,0 M8 ø8x35mm, CuCrZr Tube contact ø1,0 M8 ø8x35mm, CuCrZr
4■ 80231112	Kontaktdyse ø1,2 M8 ø8x35mm, CuCrZr Stromduse ø1,2 M8 ø8x35mm, CuCrZr	Contact tip ø1,2 M8 ø8x35mm, CuCrZr Tube contact ø1,2 M8 ø8x35mm, CuCrZr
4■ 80231113	Kontaktdyse ø1,6 M8 ø8x35mm, CuCrZr Stromduse ø1,6 M8 ø8x35mm, CuCrZr	Contact tip ø1,6 M8 ø8x35mm, CuCrZr Tube contact ø1,6 M8 ø8x35mm, CuCrZr
5 80240801	Gasdyse, konisk ø15,5; 72,5mm Gasdüse, konisch ø15,5; 72,5mm	Gas nozzle, conic ø15,5; 72,5mm Buse à gaz, conique ø15,5; 72,5mm
5* 36071525	Gasdyse, konisk ø15,5; 75,5mm Gasdüse, konisch ø15,5; 75,5mm	Gas nozzle, conic ø15,5; 75,5mm Buse à gaz, conique ø15,5; 75,5mm
5■ 80700208	Gasdyse, flaskeformet ø11; 87mm Gasdüse, flaschenförmig ø11; 87mm	Gas nozzle, bottle shaped ø11; 87mm Buse à gaz, en forme de bouteille ø11; 87mm
5 80700207	Gasdyse, flaskeformet ø13; 75,5mm Gasdüse, flaschenförmig ø13; 75,5mm	Gas nozzle, bottle shaped ø13; 75,5mm Buse à gaz, en forme de bouteille ø13; 75,5mm
5 80700195	Gasdyse, flaskeformet ø13; 77mm Gasdüse, flaschenförmig ø13; 77mm	Gas nozzle, bottle shaped ø13; 77mm Buse à gaz, en forme de bouteille ø13; 77mm
5■ 80700211	Gasdyse, flaskeformet ø15; 86mm Gasdüse, flaschenförmig ø15; 86mm	Gas nozzle, bottle shaped ø15; 86mm Buse à gaz, en forme de bouteille ø15; 86mm
5 36073891	Gasdyse, flaskeformet ø15,5; 72mm Gasdüse, flaschenförmig ø15,5; 72mm	Gas nozzle, bottle shaped ø15,5; 72mm Buse à gaz, en forme de bouteille ø15,5; 72mm
5 80700196	Gasdyse, flaskeformet ø15,5; 75,5mm Gasdüse, flaschenförmig ø15,5; 75,5mm	Gas nozzle, bottle shaped ø15,5; 75,5mm Buse à gaz, en forme de bouteille ø15,5; 75,5mm
5 36072062	Gasdyse, flaskeformet ø15,5; 77mm Gasdüse, flaschenförmig ø15,5; 77mm	Gas nozzle, bottle shaped ø15,5; 77mm Buse à gaz, en forme de bouteille ø15,5; 77mm
6 36072501	Braenderholder 22° Brennerhalter 22°	Torch body holder 22° porte-torche 22°
Note → 7 80100822	TrådlederadAPTER o4 (til trådleder Alu/rustfri (pos 8)) DrahtführungsadAPTER o4 (für Drahtführungsspirale Alu/rostfreier (pos 8))	Liner adapter ø4 (for liner Alu/stainless (pos 8)) Adaptateur guidage de fil ø4 (pour guidage de fil Alu/inoxydable)
Note → 7* 80100823	TrådlederadAPTER o6 (til trådleder Fe (pos.8)) DrahtführungsadAPTER o6 (für Drahtführungsspirale Fe (pos.8))	Liner adapter ø6 (for liner Fe (pos.8)) Adaptateur guidage de fil ø6 (pour guidage de fil Fe (pos.8))
8* 36072513 (+ 80100823)	Liner stål til Robo, sort ø2,1xø5,7x4400mm til 0,8-1,2 tråd Seele Stahl für Robo, schwarz ø2,1xø5,7x4400mm für 0,8-1,2 Draht	Liner steel for Robo, black ø2,1xø5,7x4400mm for 0,8-1,2 wire Gaine acier pour Robo, noir ø2,1xø5,7x4400mm pour fil 0,8-1,2
8 80160595	Liner stål til Robo, hvid ø2,1xø5,7x4400mm til 0,6-0,8 tråd Seele Stahl für Robo, weiß ø2,1xø5,7x4400mm für 0,6-0,8 Draht	Liner steel for Robo, white ø2,1xø5,7x4400mm for 0,6-0,8 wire Gaine acier pour Robo, blanc ø2,1xø5,7x4400mm pour fil 0,6-0,8
8 80160596	Liner stål til Robo, blå ø1,5xø5,7x4400mm til 0,8-1,0 tråd Seele Stahl für Robo, blau ø1,5xø5,7x4400mm für 0,8-1,0 Draht	Liner steel for Robo, blue ø1,5xø5,7x4400mm for 0,8-1,0 wire Gaine acier pour Robo, bleu ø1,5xø5,7x4400mm pour fil 0,8-1,0
8 80160597	Liner stål til Robo, rød ø1,8xø5,7x4400mm til 1,2-1,6 tråd Seele Stahl für Robo, rot ø1,8xø5,7x4400mm für 1,2-1,6 Draht	Liner steel for Robo, red ø1,8xø5,7x4400mm for 1,2-1,6 wire Gaine acier pour Robo, rouge ø1,8xø5,7x4400mm pour fil 1,2-1,6
8 80160711 (+ 80100822)	Trådleder Alu til 0,8-1,0 tråd, 4,4m Drahtführungsspirale Alu für 0,8-1,0 Draht, 4,4m	Wire liner Alu for 0,8-1,0 wire, 4,4m Guidage de fil Alu pour fil 0,8-1,0, 4,4m
8 80160713 (+ 80100822)	Trådleder Alu til 1,2-1,6 tråd, 4,4m Drahtführungsspirale Alu für 1,2-1,6 Draht, 4,4m	Wire liner Alu for 1,2-1,6 wire, 4,4m Guidage de fil Alu pour fil 1,2-1,6, 4,4m
8 80160700 (+ 80100822)	Trådleder rustfri til 0,8-1,0 tråd, 4,4m Drahtführungsspirale rostfri för 0,8-1,0 Draht, 4,4m	Wire liner stainless for 0,8-1,0 wire, 4,4m Guidage de fil inoxydable pour fil 0,8-1,0, 4,4m
8 80160707 (+ 80100822)	Trådleder rustfri til 1,2-1,6 tråd, 4,4m Drahtführungsspirale rostfri för 1,2-1,6 Draht, 4,4m	Wire liner stainless for 1,2-1,6 wire, 4,4m Guidage de fil inoxydable pour fil 1,2-1,6, 4,4m
8 80160594	Trådleder PA ø2,0xø4,7x4400mm til 1,0-1,6 tråd, varmebeskyttelse Führungsspirale PA ø2,0xø4,7x4400mm för 1,0-1,6 Draht, Hitzeschutz	Wire liner PA ø2,0xø4,7x4400mm for 1,0-1,6 wire, heat shielding Guidage de fil PA ø2,0xø4,7x4400mm pour fil 1,0-1,6 protection thermique
9 80100825	Motrik trådleder M14x1,0 Mutter Drahtführungsspirale M14x1,0	Nut liner M14x1,0 Ecrou guidage de fil M14x1,0
10 36072508	Slangemodul, komplet 4m Schlauchmodul, komplett 4m	Hose module, complete 4m Module de torche, complet 4m
11 80200350	ZA-tilslutning Zentralanschluss	ZA connection Fiche de raccordement central
12 80273035	Strom-vandkabel, 4m Strom-Wasserkabel 4m	Water current cable, 4m Câble pour courant d'eau 4m
13 80270028	Overtæk m/velcro, 4m Überzug mit Klettverschluss, 4m	Cover with velcro, 4m Protection avec fermeture du type velcro, 4m
14 43570019	O-ring ø6,0-ø2,2mm O-Ring ø6,0-ø2,2mm	O-ring ø6,0-ø2,2mm Joint torique ø6,0-ø2,2mm
15 36074075	Kabelaflastning Kabelentlastung	Cable relief Traversé de cable
16 80700300	Ventil til kabel Ventil für Kabel	Valve for cable Vanne pour câble
17 43570102	O-ring 6x1,5mm O-Ring 6x1,5mm	O-ring 6x1,5mm Joint torique 6x1,5mm
18 43570100	O-ring 4,16x1,07mm O-Ring 4,16x1,07mm	O-ring 4,16x1,07mm Joint torique 4,16x1,07mm
19 43570101	O-ring 10x1,5mm O-Ring 10x1,5mm	O-ring 10x1,5mm Joint torique 10x1,5mm
*	Sliddele monteret som standard Montiert als Standard	Fitted as standard equipment Équipements standards
■	Bruges sammen Werden zusammen verwendet	Used together À utiliser ensemble
Note:	Bestilles særskilt Muss separat bestellt werden	Must be ordered separately Commander séparément

Name	CoWelder™ Basic
Product	Instruction manual
Version	B
Drawn up by:	Migatronic Automation

8.12 Abirob W300 22/45gr kit

AB ROB W300

Reservedelsliste / Spare parts list / Ersatzteilliste / Liste des pièces de rechange



Pos.	No.	Varebetegnelse Warenbezeichnung	Description of goods Désignation des pièces
1.1	80701222	Svanehals 22° Brennerhals 22°	Swan neck 22° Col de cygne 22°
1.2	80701245	Svanehals 45° Brennerhals 45°	Swan neck 45° Col de cygne 45°
2	80700210	Dysestok M6, 19mm Düsenstock M6, 19mm	Contact nozzle M6, 19mm Pièce intercalaire M6, 19mm
3.1	80801210	Gasfordeler Gasverteiler	Gas diffuser Diffuseur gaz
3.2	36073958	Gasfordeler, keramisk (høj temperatur) Gasverteiler, keramisch (hohe Temperatur)	Gas diffuser, ceramic (high temperature) Diffuseur gaz céramique (haute température)
4.1	80131200	Kontaktdyse ø0,8 M6x28mm Stromduse ø0,8 M6x28mm	Contact tip ø0,8 M6x28mm Tube contact ø0,8 M6x28mm
4.2	80131201	Kontaktdyse ø1,0 M6x28mm Stromduse ø1,0 M6x28mm	Contact tip ø1,0 M6x28mm Tube contact ø1,0 M6x28mm
4.2	80131202	Kontaktdyse ø1,2 M6x28mm Stromduse ø1,2 M6x28mm	Contact tip ø1,2 M6x28mm Tube contact ø1,2 M6x28mm
4.3	80131203	Kontaktdyse ø1,4 M6x28mm Stromduse ø1,4 M6x28mm	Contact tip ø1,4 M6x28mm Tube contact ø1,4 M6x28mm
4.4	80231019	Kontaktdyse ø0,8 M6x28mm, svøl Stromduse ø0,8 M6x28mm, Silber	Contact tip ø0,8 M6x28mm, silver Tube contact ø0,8 M6x28mm, argent
4.5	80231020	Kontaktdyse ø1,0 M6x28mm, svøl Stromduse ø1,0 M6x28mm, Silber	Contact tip ø1,0 M6x28mm, silver Tube contact ø1,0 M6x28mm, argent
4.6	36072512	Kontaktdyse ø1,2 M6x28mm, svøl Stromduse ø1,2 M6x28mm, Silber	Contact tip ø1,2 M6x28mm, silver Tube contact ø1,2 M6x28mm, argent
5.1	36073782	Gasdyse, konisk ø25/ø13; 48,5mm (recess -1,0mm) Gasduse, konisch ø25/ø13; 48,5mm (recess -1,0mm)	Gas nozzle, conic ø25/ø13; 48,5mm (recess -1,0mm) Buse à gaz, conique ø25/ø13; 48,5mm (recess -1,0mm)
5.2	80240701	Gasdyse, konisk ø25/ø13; 44,5mm (stick-out +3,0mm) Gasduse, konisch ø25/ø13; 44,5mm (stick-out +3,0mm)	Gas nozzle, conic ø25/ø13; 44,5mm (stick-out +3,0mm) Buse à gaz, conique ø25/ø13; 44,5mm (stick-out +3,0mm)
5.3	80240702	Gasdyse, konisk ø25/ø15,5; 44,5mm (stick-out +3,0mm) Gasduse, konisch ø25/ø15,5; 44,5mm (stick-out +3,0mm)	Gas nozzle, conic ø25/ø15,5; 44,5mm (stick-out +3,0mm) Buse à gaz, conique ø25/ø15,5; 44,5mm (stick-out +3,0mm)
6	43570102	O-ring 6x1,5mm O-Ring 6x1,5mm	O-ring 6x1,5mm Joint torique 6x1,5mm
7	43570100	O-ring 4,16x1,07mm O-Ring 4,16x1,07mm	O-ring 4,16x1,07mm Joint torique 4,16x1,07mm
8	43570101	O-ring 10x1,5mm O-Ring 10x1,5mm	O-ring 10x1,5mm Joint torique 10x1,5mm

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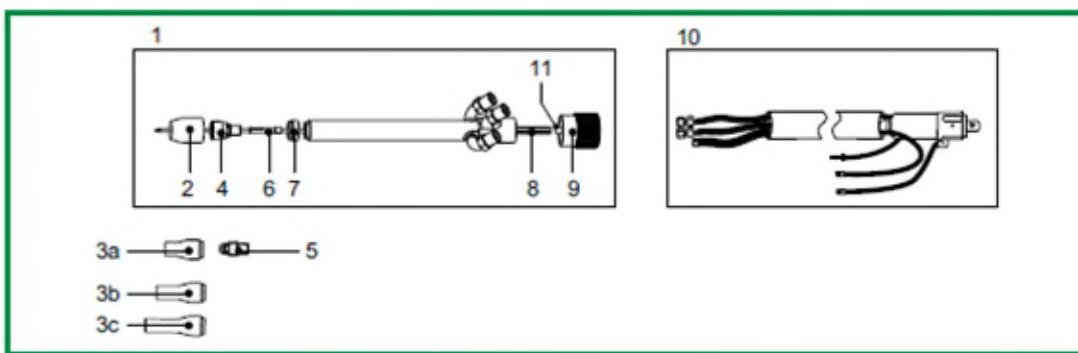
Name	CoWelder™ Basic
Product	Instruction manual
Version	B
Drawn up by:	Migatronic Automation

8.13 AD 250 TIG Torch



AD 250

Reservedelslista / Spare parts list / Ersatzteilliste / Liste des pièces de rechange



TECHNICAL DATA: IEC 60974-7

Class	: L
Cooling	: Water cooled
Electrode	: ø1.0 - ø3.2
Amp 100%	: AC 230 DC 325
Flow rate	: 60 l/h min.
Required flow pressure	: 1-2 bar
Liquid Inlet temp.	: Max. 40°
Recommended min. gasflow	: 9 l/min
Weight (4m)	: AD 250: 755 g / AD 250L: 845 g

Pos.	No.	Varebetegnelse Warenbezeichnung	Description of goods Désignation des pièces
1	80491250	AD 250 TIG svejsebrænder uden svejsestange AD 250 TIG Schweißbrunner ohne Schweißschlauch	AD 250 TIG welding torch without welding hose AD 250 TIG torche de soudage sans tuyau de soudage
2	80440210	Gasdyse til gaslinse #4 Gasdüse für Gaslinse #4	Gas nozzle for gas lens #4 Buse à gaz pour lentille à gaz #4
2	80440211	Gasdyse til gaslinse #5 Gasdüse für Gaslinse #5	Gas nozzle for gas lens #5 Buse à gaz pour lentille à gaz #5
2	80440212	Gasdyse til gaslinse #6 Gasdüse für Gaslinse #6	Gas nozzle for gas lens #6 Buse à gaz pour lentille à gaz #6
2*	80440213	Gasdyse til gaslinse #7 Gasdüse für Gaslinse #7	Gas nozzle for gas lens #7 Buse à gaz pour lentille à gaz #7
3a	80440201	Gasdyse #4 Gasdüse #4	Gas nozzle #4 Buse à gaz#4
3a	80440202	Gasdyse #5 Gasdüse #5	Gas nozzle #5 Buse à gaz#5
3a	80440203	Gasdyse #6 Gasdüse #6	Gas nozzle #6 Buse à gaz#6
3a	80440204	Gasdyse #7 Gasdüse #7	Gas nozzle #7 Buse à gaz#7
3a	80440205	Gasdyse #8 Gasdüse #8	Gas nozzle #8 Buse à gaz#8
3b	80440220	Gasdyse #3L 48mm Gasdüse #3L 48mm	Gas nozzle #3L 48mm Buse à gaz #3L 48mm
3b	80440221	Gasdyse #4L 48mm Gasdüse #4L 48mm	Gas nozzle #4L 48mm Buse à gaz #4L 48mm
3b	80440222	Gasdyse #5L 48mm Gasdüse #5L 48mm	Gas nozzle #5L 48mm Buse à gaz #5L 48mm
3b	80440223	Gasdyse #6L 48mm Gasdüse #6L 48mm	Gas nozzle #6L 48mm Buse à gaz #6L 48mm
3c	80440230	Gasdyse #3XL 64mm Gasdüse #3XL 64mm	Gas nozzle #3XL 64mm Buse à gaz #3XL 64mm
3c	80440231	Gasdyse #4XL 64mm Gasdüse #4XL 64mm	Gas nozzle #4XL 64mm Buse à gaz #4XL 64mm
3c	80440232	Gasdyse #5XL 64mm Gasdüse #5XL 64mm	Gas nozzle #5XL 64mm Buse à gaz #5XL 64mm
3c	80440233	Gasdyse #6XL 64mm Gasdüse #6XL 64mm	Gas nozzle #6XL 64mm Buse à gaz #6XL 64mm
4	80410214	Gaslinse ø1,0mm "One piece" Gaslinse ø1,0mm "One piece"	Gas lens ø1,0mm "One piece" Lentille à gaz ø1,0mm "One piece"
4	80410215	Gaslinse ø1,6mm "One piece" Gaslinse ø1,6mm "One piece"	Gas lens ø1,6mm "One piece" Lentille à gaz ø1,6mm "One piece"
4*	80410216	Gaslinse ø2,4mm "One piece" Gaslinse ø2,4mm "One piece"	Gas lens ø2,4mm "One piece" Lentille à gaz ø2,4mm "One piece"

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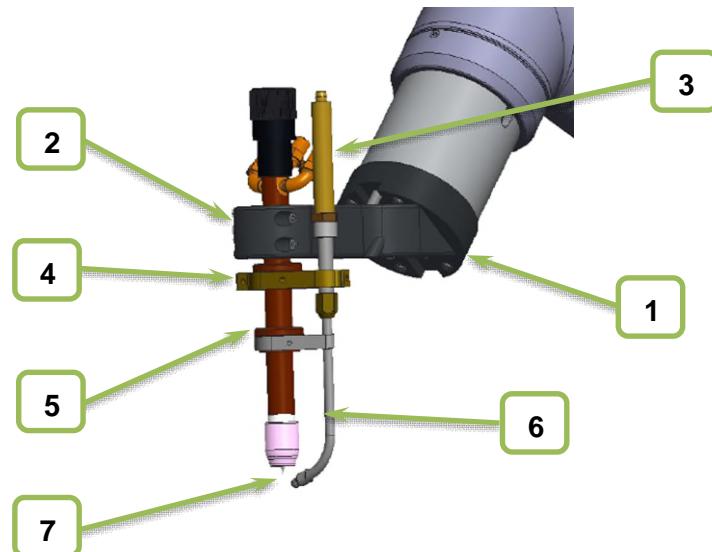
Name	CoWelder™ Basic
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Drawn up by:	Migatronic Automation



Pos.	No.	Varebetegnelse	Description of goods
5	80410201	Elektrodeholder ø1,0 Elektrodenhalter ø1,0	Electrode holder ø1,0 Porte-electrodes ø1,0
5	80410202	Elektrodeholder ø1,6 Elektrodenhalter ø1,6	Electrode holder ø1,6 Porte-electrodes ø1,6
5	80410203	Elektrodeholder ø2,4 Elektrodenhalter ø2,4	Electrode holder ø2,4 Porte-electrodes ø2,4
6	80430211	Elektrodetang ø1,0mm Elektrodezango ø1,0mm	Electrode tongs ø1,0mm Pinch electrodes ø1,0mm
6	80430212	Elektrodetang ø1,6mm Elektrodezango ø1,6mm	Electrode tongs ø1,6mm Pinch electrodes ø1,6mm
6*	80430213	Elektrodetang ø2,4mm Elektrodezango ø2,4mm	Electrode tongs ø2,4mm Pinch electrodes ø2,4mm
7	26152002	Isolator til gaslinse Isolator für Gaslinse	Insulator for gas lens Isolateur pour lentille à gaz
8	26321002	Messingrør Messingrohr	Brass pipe Tube en laiton
9	36071519	Fingenskru Rändelschraube	Milled screw Vis moleté
10.1	80371100	Slangemodul 1,0m Schlauchmodul 1,0m	Hose module 1,0m Module de tuyau 1,0m
10.2	80371150	Slangemodul 1,5m Schlauchmodul 1,5m	Hose module 1,5m Module de tuyau 1,5m
10.3	80371200	Slangemodul 2,0m Schlauchmodul 2,0m	Hose module 2,0m Module de tuyau 2,0m
10.4	80371250	Slangemodul 2,5m Schlauchmodul 2,5m	Hose module 2,5m Module de tuyau 2,5m
10.5	80371300	Slangemodul 3,0m Schlauchmodul 3,0m	Hose module 3,0m Module de tuyau 3,0m
10.6	80371350	Slangemodul 3,5m Schlauchmodul 3,5m	Hose module 3,5m Module de tuyau 3,5m
10.7	80371400	Slangemodul 4,0m Schlauchmodul 4,0m	Hose module 4,0m Module de tuyau 4,0m
10.8	80371450	Slangemodul 4,5m Schlauchmodul 4,5m	Hose module 4,5m Module de tuyau 4,5m
10.9	80371500	Slangemodul 5,0m Schlauchmodul 5,0m	Hose module 5,0m Module de tuyau 5,0m
10.10	80371550	Slangemodul 5,5m Schlauchmodul 5,5m	Hose module 5,5m Module de tuyau 5,5m
10.11	80371600	Slangemodul 6,0m Schlauchmodul 6,0m	Hose module 6,0m Module de tuyau 6,0m
10.12	80371650	Slangemodul 6,5m Schlauchmodul 6,5m	Hose module 6,5m Module de tuyau 6,5m
10.13	80371700	Slangemodul 7,0m Schlauchmodul 7,0m	Hose module 7,0m Module de tuyau 7,0m
10.14	80371750	Slangemodul 7,5m Schlauchmodul 7,5m	Hose module 7,5m Module de tuyau 7,5m
10.15	80371800	Slangemodul 8,0m Schlauchmodul 8,0m	Hose module 8,0m Module de tuyau 8,0m
11*	25421001	Omleber Umlaufmutter	Lock nut Ecrou de maintien
*		Siddelede monteret som standard Montiert als Standard	Fitted as standard equipment. Équipements standards

Name	CoWelder™ Basic
Product	Instruction manual
Version	B
Drawn up by:	Migatronic Automation

8.14 Connection for AD 250 TIG Torch



Pos	Description	Article No	Pos.	Description	Article No
1	Flange for UR Robot	36072504	6	Coldwire set DIX KD400	36072160
2	POM torch holder	36073222	7	Guide tip 1.0 mm	36072457
3	Brass extension	36072860	*7	Guide tip 0.8 mm (option)	36072061
4	Adjustable holder	36072840	*7	Guide tip 1.2 mm (option)	80130152
5	Insulation bush	36072839			

Name	CoWelder™ Basic
Product	Instruction manual
Version	B
Drawn up by:	Migatronic Automation

8.15 Start box



Pos.	Description	Article No
1	Emergency stop	36072178
2	Green flush illuminated pushbutton	36072179
3	Black selector switch head	36072909
4	Single contact block for head Ø22 1NC	36072175
5	Single contact block for head Ø22 1NO	36072174
6	Green light block for head Ø22 integral LED 24 V	36072176
7	Dark grey empty enclosure lid with light grey base – 3 cut-outs	36072173
8	Legend holder 30 x 40 mm	36072910
9	Arrow sign, automatic run	36072912
10	Sign for welding on/off	36072911

Name	CoWelder™ Basic
Product	Instruction manual
Version	B
Drawn up by:	Migatronic Automation



9 Version control

10 Migatronic Service Team

Our Service Team, a central part of our service concept, provides the best possible service throughout the service life of the equipment.

Our Service Team takes your orders for spare parts and services such as maintenance agreements including periodic check-ups, operators, and technicians training courses as well as consulting services in the field of automated welding.

Contact details

If you need spare parts or service assistance, you can always contact us at:

Customer center: +45 96 96 27 70

Service e-mail: masupport@migatronic.dk

Contact hours are Monday to Thursday from 7.30 till 16.00 (Friday 7.30 till 15.00)

If you need to contact us outside normal work hours, you are welcome to call our hotline +45 20 19 54 57 to schedule a service.

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