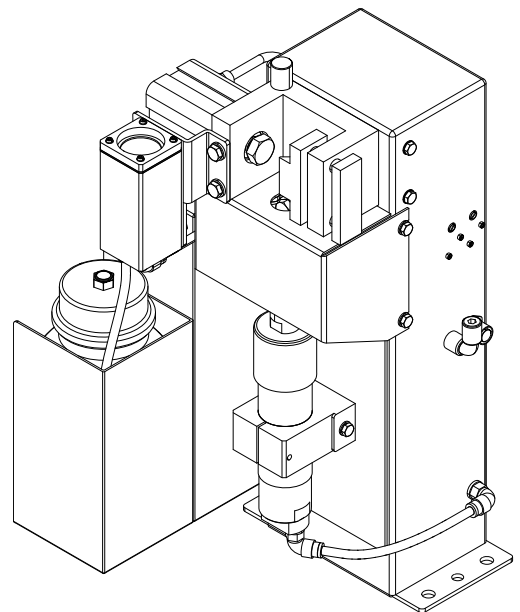


# Operating Instructions

**Robacta Reamer V 70 Han12P**



**EN** | Operating Instructions





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# Safety rules

## General

The device is manufactured using state-of-the-art technology and according to recognised safety standards. If used incorrectly or misused, however, it can cause:

- injury or death to the operator or a third party,
- damage to the device and other material assets belonging to the operating company,
- inefficient operation of the device.

---

All persons involved in commissioning, operating, maintaining and servicing the device must:

- be suitably qualified,
- have sufficient knowledge of automated welding, and
- read and carefully follow these operating instructions as well as the operating instructions for all system components.

---

The operating instructions must always be at hand wherever the device is being used. In addition to the operating instructions, attention must also be paid to any generally applicable and local regulations regarding accident prevention and environmental protection.

---

All safety and danger notices on the device

- must be in a legible state,
- must not be damaged,
- must not be removed,
- must not be covered, pasted or painted over.

---

For the location of the safety and danger notices on the device, refer to the section headed "General" in the operating instructions for the device.

Before commissioning the device, rectify any faults that could compromise safety.

**This is for your personal safety!**

## Proper use

The device is to be used exclusively for its intended purpose.

---

The device is intended solely for the mechanical cleaning of Fronius robot welding torches in automatic mode.

Any use above and beyond this purpose is deemed improper. The manufacturer shall not be held liable for any damage arising from such usage.

---

Proper use includes:

- carefully reading these operating instructions
- following all the instructions and safety rules in these operating instructions
- performing all stipulated inspection and maintenance work

---

The device is designed for use in industry and the workshop. The manufacturer accepts no responsibility for any damage caused through use in a domestic setting.

---

The manufacturer likewise accepts no liability for inadequate or incorrect results.

## Environmental conditions

---

Operation or storage of the device outside the stipulated area will be deemed as not in accordance with the intended purpose. The manufacturer shall not be held liable for any damage arising from such usage.

Ambient temperature range:

- during operation: 0 °C to + 40 °C (32 °F to 104 °F)
  - during transport and storage: -25 °C to +55 °C (-13 °F to 131 °F)
- 

Relative humidity:

- up to 50 % at 40 °C (104 °F)
  - up to 90 % at 20 °C (68 °F)
- 

Keep ambient air free from dust, acids, corrosive gases and substances, etc.

---

Can be used at altitudes of up to 2000 m (6500 ft)

---

---

### **Obligations of the operator**

The operator must only allow persons to work with the device who:

- are familiar with the fundamental instructions regarding safety at work and accident prevention and have been instructed in how to use the device
  - have read and understood these operating instructions, especially the section "safety rules", and have confirmed as much with their signatures
  - are trained to produce the required results.
- 

Checks must be carried out at regular intervals to ensure that operators are working in a safety-conscious manner.

---

### **Obligations of personnel**

Before using the device, all persons instructed to do so undertake:

- to observe the basic instructions regarding safety at work and accident prevention
  - to read these operating instructions, especially the "Safety rules" section and sign to confirm that they have understood them and will follow them.
- 

Before leaving the workplace, ensure that people or property cannot come to any harm in your absence.

---

### **Specific hazards**

Stay out of the working area of the robot.

The device must be incorporated into a higher-level safety system within a secured area.

---

If this area has to be accessed when setup and maintenance work is carried out, make sure that

- the entire system is switched off for the duration of the work in this area
  - and that it is prevented from starting up accidentally, e.g. as the result of a control fault.
- 

If untrained operators have access to the device, its compressed air supply must be disconnected for the duration of work in accordance with "Performance Level d" of the ISO 13849-1 standard.

---

In addition to these Operating Instructions, the safety rules issued by the robot manufacturer must also be observed.

---

Keep your body, especially your hands, face, hair, clothing and all tools away from moving parts, such as:

- rotating cleaning cutter
  - upwards/downwards travelling cleaning motor
  - extending/retracting gas nozzle clamping device
  - wire cutter
-

Do not touch cleaning cutters immediately after use - risk of burns. Observe the special safety rules in the Operating Instructions for handling cleaning cutters.

Protect hands, face and eyes against flying parts (shavings, etc.) and compressed air/parting agent mixture escaping from the parting-agent injection nozzle.

Covers may only be opened/removed for the duration of any maintenance, installation or repair work.

During operation

- Ensure that all covers are closed and fitted properly
- Keep all covers closed

### Protecting yourself and others

Anyone working with the device exposes themselves to numerous risks. In addition to these Operating Instructions, the safety rules of the manufacturer of the entire welding system must also be observed.

Keep all persons, especially children, out of the working area while any devices are in operation or welding is in progress. If, however, there are people in the vicinity:

- Make them aware of all the dangers and health risks (crushing from mechanically-powered parts, injury from cleaning cutter, flying shavings and similar matter, escaping compressed air/parting agent mixture, flying sparks, dazzling by arc, inhaling of harmful welding fumes, noise, possible danger from mains or welding current, etc.)
- Provide suitable protective equipment
- Alternatively, erect suitable safety screens/curtains

### EMC Device Classifications

Devices in emission class A:

- Are only designed for use in industrial settings
- Can cause line-bound and radiated interference in other areas

Devices in emission class B:

- Satisfy the emissions criteria for residential and industrial areas. This is also true for residential areas in which the energy is supplied from the public low-voltage mains.

EMC device classification as per the rating plate or technical data.

### EMC measures

In certain cases, even though a device complies with the standard limit values for emissions, it may affect the application area for which it was designed (e.g. when there is sensitive equipment at the same location, or if the site where the device is installed is close to either radio or television receivers).

If this is the case, then the operator is obliged to take appropriate action to rectify the situation.

Check for possible problems, and check and evaluate neighbouring devices' resistance to interference according to national and international requirements:

- Safety devices
- Power, signal and data transfer lines
- IT and telecommunications devices
- Measuring and calibrating devices

Supporting measures for avoidance of EMC problems:

1. Mains supply
  - If electromagnetic interference arises despite correct mains connection, additional measures are necessary (e.g. use a suitable line filter).
2. Control lines
  - must be kept as short as possible
  - must run close together (to avoid EMF problems)
  - must be kept well apart from other leads
3. Equipotential bonding
4. Shield, if necessary
  - Shield off other nearby devices
  - Shield off entire welding installation

---

### **EMF measures**

Electromagnetic fields may pose as yet unknown risks to health:

- Effects on the health of persons in the vicinity, e.g. those with pacemakers and hearing aids
- Individuals with pacemakers must seek advice from their doctor before approaching the device or any welding that is in progress
- For safety reasons, maintain as large a distance as possible between the welding power-leads and the head/torso of the welder
- Do not carry welding power-leads and hosepacks over the shoulders or wind them around any part of the body

---

### **Safety measures at the installation location and during transport**

A device toppling over could easily kill someone. Place the device horizontally on a level, firm and solid surface and anchor it securely to prevent it toppling over.

---

Special regulations apply in rooms at risk of fire or explosion

- Observe relevant national and international regulations.

---

Use internal directives and checks to ensure that the workplace environment is always clean and clearly laid out.

---

When transporting the device, observe the relevant national and local guidelines and accident prevention regulations. This applies especially to guidelines regarding the risks arising during transport.

---

After transporting the device, it must be visually inspected for damage before commissioning. Any damage must be repaired by trained service technicians before commissioning the device.

---

### **Safety measures in normal operation**

Only operate the device if all safety devices are fully functional. If the safety devices are not fully functional, there is a risk of

- injury or death to the operator or a third party,
- damage to the device and other material assets belonging to the operator,
- inefficient operation of the device.

---

Any safety devices that are not functioning properly must be repaired before switching on the device.

---

Never bypass or disable safety devices.

---

Before switching on the device, ensure that no one is likely to be endangered.

---

Check the device at least once a week for obvious damage and proper functioning of safety devices.

---



- Only use suitable original parting agent from the manufacturer.
  - Observe the information on the parting agent safety data sheet when handling parting agent. The parting agent safety data sheet may be obtained from your service centre or downloaded from the manufacturer's website.
  - Do not mix the manufacturer's parting agent with other parting agents.
  - If damage results from using a different parting agent, the manufacturer accepts no liability. In addition, no warranty claims will be entertained.
  - Used parting agent must be disposed of properly in accordance with the relevant national and international regulations.
- 

### **Commissioning, maintenance and repair**

It is impossible to guarantee that bought-in parts are designed and manufactured to meet the demands made of them, or that they satisfy safety requirements.

- Use only original spare and wearing parts (also applies to standard parts).
  - Do not carry out any modifications, alterations, etc. to the device without the manufacturer's consent.
  - Components that are not in perfect condition must be replaced immediately.
  - When ordering, please give the exact designation and part number as shown in the spare parts list, as well as the serial number of your device.
- 

The housing screws provide the ground conductor connection for earthing the housing parts.

Only use original housing screws in the correct number and tightened to the specified torque.

---

### **Safety inspection**

The manufacturer recommends that a safety inspection of the device is performed at least once every 12 months.

---

A safety inspection should be carried out by a qualified electrician

- after any changes are made
  - after any additional parts are installed, or after any conversions
  - after repair, care and maintenance has been carried out
  - at least every twelve months.
- 

For safety inspections, follow the appropriate national and international standards and directives.

---

Further details on safety inspection and calibration can be obtained from your service centre. They will provide you on request with any documents you may require.

---

### **Disposal**

Waste electrical and electronic equipment must be collected separately and recycled in an environmentally-friendly way, in accordance with the European Directive and national legislation. Used equipment must be returned to the distributor or disposed of via an approved local collection and disposal facility. Correct disposal of used equipment promotes the sustainable recycling of material resources. Failing to dispose of used equipment correctly can lead to adverse health and/or environmental impacts.

#### **Packaging materials**

Separate collection according to material. Check your local authority regulations. Crush containers to reduce size.

---

**Safety symbols**

Devices with the CE mark satisfy the essential requirements of the applicable directives (e.g. low-voltage and electromagnetic compatibility directives, machinery directive).

Devices with the CSA test mark satisfy the requirements of the relevant standards in Canada and the USA.

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**Copyright**

Copyright of these operating instructions remains with the manufacturer.

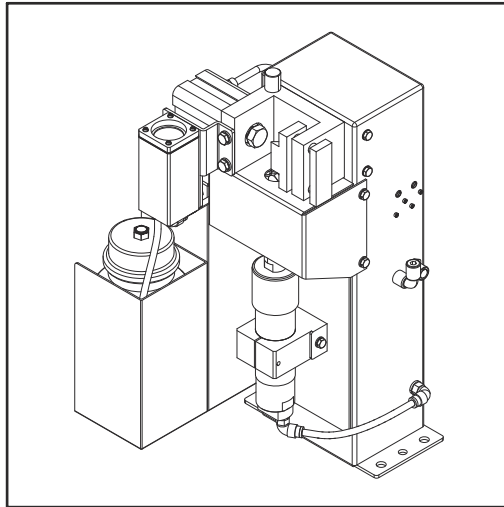
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The text and illustrations are all technically correct at the time of printing. We reserve the right to make changes. The contents of the operating instructions shall not provide the basis for any claims whatsoever on the part of the purchaser. If you have any suggestions for improvement, or can point out any mistakes that you have found in the instructions, we will be most grateful for your comments.

# General



## Principle



The cleaning device is used to automatically clean MIG/MAG welding torches. This cleaning device allows you to thoroughly clean the inside and front of the gas nozzle on a wide range of welding torch shapes. The result is a significant increase in the service life of wearing parts. At the same time, evenly applying parting agent prevents the build-up of dirt.

## Functionality of the cleaning device

- The gas nozzle clamping device on the front of the cleaning device holds the gas nozzle in place during cleaning
- A cleaning cutter is used to clean the nozzle
- After the cleaning process, a parting agent is applied to the inside and front of the gas nozzle through the parting-agent injection nozzle

## Application areas

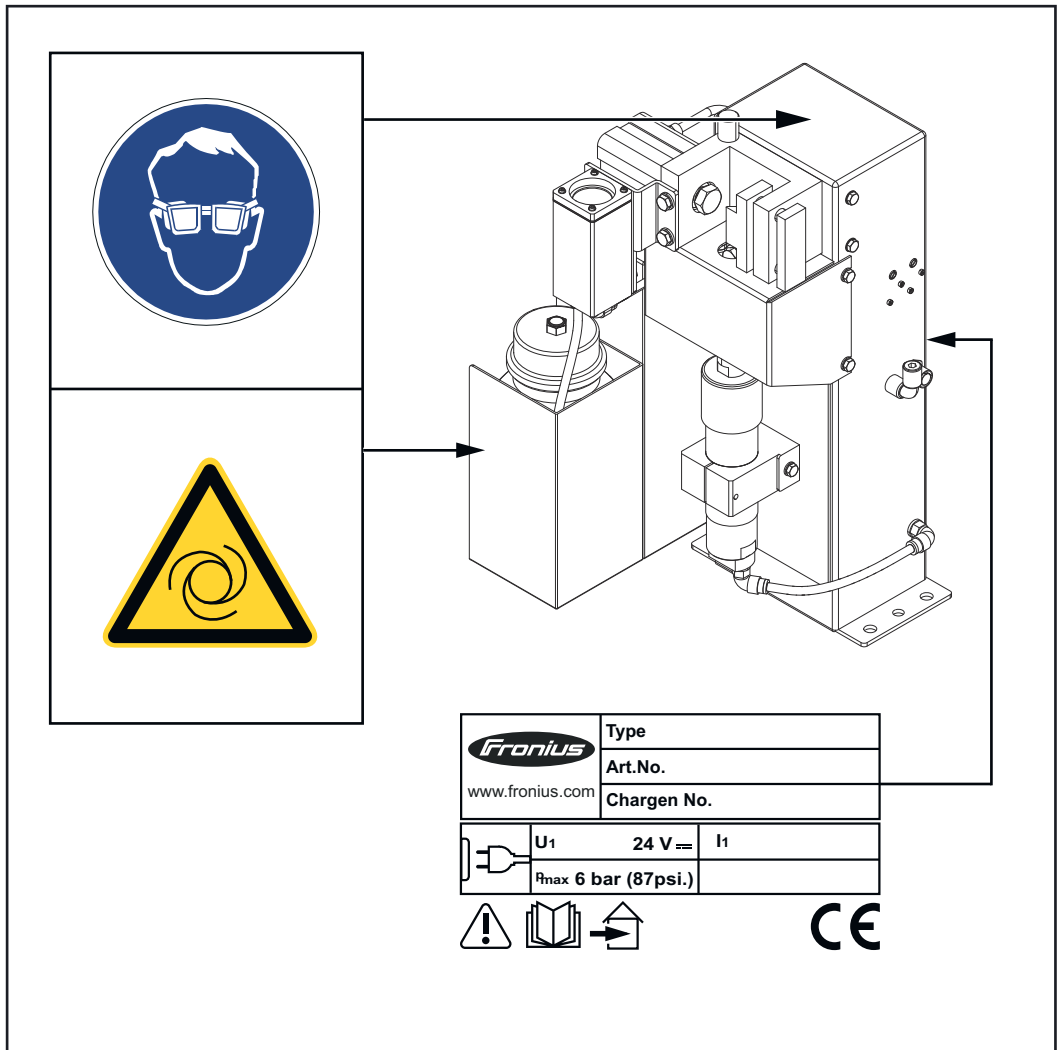
The cleaning device is exclusively intended for use in robot and other automated applications, and can be used for a wide range of materials.

The main application areas are:

- Automotive and component supply industry
- Equipment construction
- Chemical plant construction
- Machine and tracked vehicle manufacturing
- Construction machinery and special vehicles

## Warning notices on the cleaning device

The cleaning device is fitted with warning notices and a rating plate. The warning notices and rating plate must not be removed or painted over.



Warning notices on the cleaning device



**WARNING!** Risk of serious injury from:

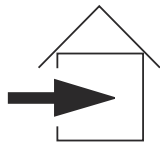
- Mechanically powered components
- Compressed air/parting agent mixture escaping from the parting-agent injection nozzle
- Flying parts (shavings, etc.)

Keep the device free from current and pressure during maintenance and servicing.



Do not use the functions described here until you have fully read and understood the following documents:

- These Operating Instructions
- All the Operating Instructions for the system components, especially the safety rules



For indoor use only



Wear eye protection



Warning of automatic start-up of the device

# Transport

---

## Transport devices

The device is to be transported by the following devices:

- On pallets using a forklift truck
- On pallets using a lift truck
- Manual



### **WARNING!**

#### **Danger from machines and objects falling.**

This can result in serious injury and damage to property.

- ▶ Secure the device to prevent it from falling over when transporting on a forklift truck or lift truck.
  - ▶ Avoid sudden changes in direction, braking or acceleration.
- 

## Transport notices on the packaging



### **CAUTION!**

#### **Danger due to improper transport.**

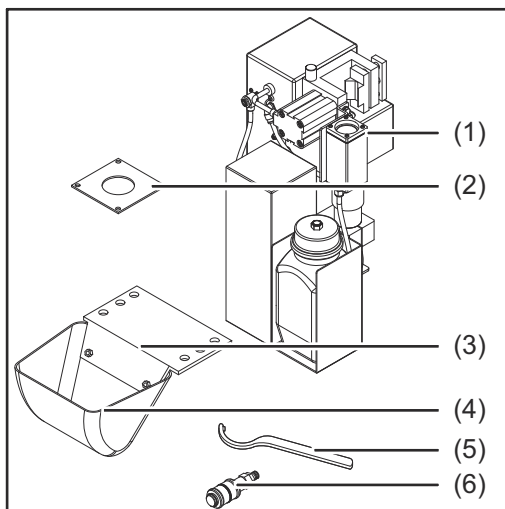
This can result in damage to property.

- ▶ Observe the transport notices on the device packaging.
-



# Scope of supply and options

## Scope of supply



- (1) Robacta Reamer V 70 Han12P cleaning device
- (2) Leather seal for the parting agent spray device
- (3) Spatter tray retainer
- (4) Spatter tray
- (5) Tightening key for cleaning motor
- (6) Compressed air relief valve

Included in scope of supply, but not shown:

- Harting Han12P connecting plug (X1) without cable
- Operating instructions
- Fixings for assembling the cleaning device:
  - 4 screws
  - 4 washers
  - 4 lock washers
  - 4 nuts

The "Robacta Reamer" parting agent (item number 42,0411,8042) and the cleaning cutter are not included in the scope of supply.

## Available options

The following options are available for the cleaning device:

- Installation stand
- Wire cutter
- Fill-level control sensor



# **Controls, connections and mechanical components**



## Safety

Observe the following safety rules for all work described in the "Control elements, connections and mechanical components" section.



### **WARNING!**

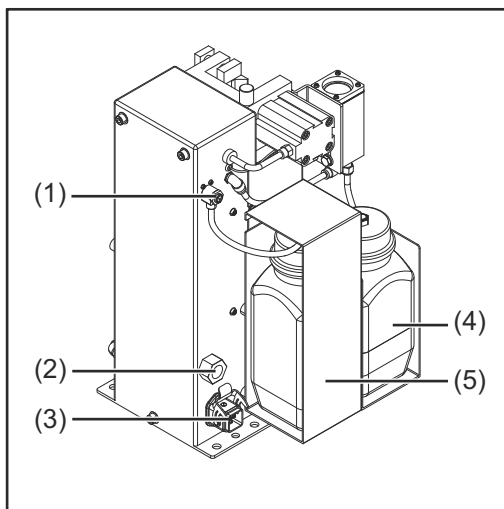
#### **Danger due to incorrect operation and incorrectly performed work.**

This can result in serious injury and damage to property.

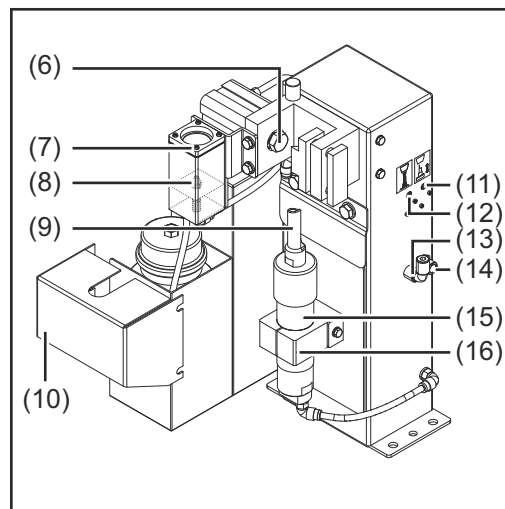
- ▶ All the work and functions described in this document must only be carried out by trained and qualified personnel.
  - ▶ Read and understand this document.
  - ▶ Read and understand all the Operating Instructions for the system components, especially the safety rules.
-

# Controls, connections and mechanical components

## Control elements, connections and mechanical components



Side view



Front view

No.	Function
(1)	<b>Parting agent adjuster</b> For adjusting the amount of parting agent sprayed inside the gas nozzle
(2)	<b>Compressed air connection</b> For a dry compressed air supply at 6 bar (86.99 psi) Thread identification compressed air connection: G ¼ "
(3)	<b>Harting Han12P connection socket (X1)</b> For a + 24 V DC supply
<b>⚠ CAUTION!</b>	
<b>Danger from overcurrent.</b> Damage to the Harting Han12P (X1) connection supply may result. ► Secure supply against overcurrent with a 500 mA slow-blow fuse.	
(4)	<b>Parting agent spatter tray</b>
(5)	<b>Parting agent container</b>
(6)	<b>Gas nozzle clamping device</b> holds the gas nozzle in place during cleaning
(7)	<b>Parting agent spray device</b> Includes the parting-agent injection nozzle Ensures that the parting agent is only applied to the inside and front of the gas nozzle
(8)	<b>Parting-agent injection nozzle</b> Applies the parting agent to the inside and front of the gas nozzle
(9)	<b>Cleaning cutter</b>
(10)	<b>Protective covering</b>

---

**(11) "Start cleaning" screw**

Manually checks the following:

- Function of the gas nozzle clamping device (clamping device piston extends)
  - The insertion depth of the cleaning cutter in the gas nozzle (lifting device moves the cleaning motor upwards)
  - Function of the cleaning motor (cleaning motor starts)
- 

**(12) "Spray in parting agent" screw**

For manually checking the spray device (compressed air or compressed air/parting agent mixture is sprayed out of the parting-agent injection nozzle)

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**(13) Compressed air connection for the wire cutter option**

---

**(14) Electrical connection for the wire cutter option**

---

**(15) Cleaning motor**

Drives the cleaning cutter

---

**(16) Lifting device**

Lifts the cleaning motor and the cleaning cutter when cleaning the inside of the gas nozzle

---

# Harting Han12P connecting plug (X1) pin assignment for robot control

## General

**⚠ CAUTION!**

**Danger from overcurrent.**

Damage to the Harting Han12P (X1) connection supply may result.

- ▶ Secure supply against overcurrent with a 500 mA slow-blow fuse.

**⚠ CAUTION!**

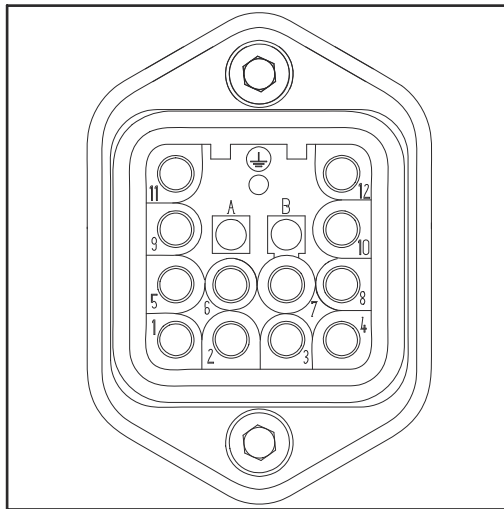
**Danger due to long control line.**

Interference in signal transmission may result.

- ▶ Keep the control line between the robot control and the cleaning device as short as possible.

The Harting Han12P connecting plug (X1) for connecting the cleaning device to the robot control is included in the scope of supply. The cable harness must be adapted to the connection technology on the robot control.

## Harting Han12P connecting plug (X1) pin assignment



Harting Han12P connecting plug (X1) pin assignment - cable-end view

### Input and output signals:

1. Start cleaning input signal (clamp gas nozzle, cleaning motor on, cleaning motor off)
2. Spray in parting agent input signal
3. GND
4. + 24 V DC
5. Gas nozzle free output signal
6. Cleaning motor UP output signal
7. Not assigned
8. Not assigned
9. Not assigned
10. Not assigned
11. Not assigned
12. Cut wire electrode input signal

(see Circuit Diagrams in appendix)



# **Installation and commissioning**



## Safety

Observe the following safety rules for all work described in the "Installation and start-up" section.

### **WARNING!**

#### **Danger due to incorrect operation and incorrectly performed work.**

This can result in serious injury and damage to property.

- ▶ All the work and functions described in this document must only be carried out by trained and qualified personnel.
- ▶ Read and understand this document.
- ▶ Read and understand all the Operating Instructions for the system components, especially the safety rules.

### **WARNING!**

#### **Risk of machines starting automatically.**

This can result in serious injury and damage to property.

- ▶ In addition to these Operating Instructions, also observe the safety rules issued by the manufacturer of the robot and welding system. For your personal safety, ensure that all protective measures have been taken and will remain in place while you are in the working area of the robot.

### **WARNING!**

#### **Danger from mechanically powered parts, flying parts (shavings, etc.), compressed air/parting agent mixture escaping from the parting-agent injection nozzle.**

This can result in serious injury and damage to property.

- ▶ Before carrying out any work, disconnect the customer's compressed air and power supplies from the cleaning device and the connected system components, and ensure that they remain disconnected until work is complete.
- ▶ Before carrying out any work, make sure that the cleaning device is depressurised - for the necessary steps, see the following section [Ensuring that the cleaning device is depressurised](#) from page 28.

### **WARNING!**

#### **Whenever the cleaning device is supplied with voltage and/or compressed air, a risk of serious injury exists from: rotating cleaning cutter, cleaning motor moving up/down, extending/retracting gas nozzle clamping device, activated wire cutter, flying parts (shavings, etc.), compressed air/parting agent mixture escaping from the parting-agent injection nozzle.**

This can result in serious injury and damage to property.

If work has to be performed on the cleaning device while it is being supplied with voltage and/or compressed air, take the following protective measures:

- ▶ Keep your body, especially your hands, face, hair, any objects and all clothing away from the cleaning cutter, cleaning motor, lifting device, gas nozzle clamping device, wire cutter and parting-agent injection nozzle.
- ▶ Wear ear protection!
- ▶ Wear protective goggles with side protection.

---

**Ensuring that the cleaning device is depressurised**

Attempt to briefly activate the cleaning device without any compressed air supply to check whether the cleaning device is depressurised. To do this, proceed as follows:

- 1** Take protective measures:
  - The cleaning cutter, lifting device, gas nozzle clamping device, wire cutter and parting-agent injection nozzle could start up. It is therefore important that you keep your body, especially your hands, face and hair, any objects and all clothing away from the components referred to above
  - Wear ear protection
  - Wear protective goggles with side protection
- 2** Ensure that the cleaning device has been disconnected from the compressed air supply
- 3** Briefly turn the "Start cleaning" screw on the cleaning device 90° to the right, then turn it straight back to its original position
  - If the cleaning device does not respond to the turning of the screw, the cleaning device is depressurised
  - If the cleaning device responds to the turning of the screw, the cleaning device is still connected to a compressed air supply.  
If this is the case, you must disconnect the cleaning device from the compressed air supply and check again that the cleaning device is depressurised before starting work

# Before commissioning

## Proper use

The cleaning device is to be used exclusively for cleaning Fronius robot welding torches, especially the gas nozzle and its interior, in automatic mode and within the scope of the technical data. Any use above and beyond this purpose is deemed improper. The manufacturer shall not be held liable for any damage arising from such usage.

Proper use includes:

- carefully reading these operating instructions
- following all the instructions and safety rules in these operating instructions
- performing all stipulated inspection and maintenance work

## Operators, maintenance personnel

### **WARNING!**

#### **Risk of machines starting automatically.**

This can result in serious injury and damage to property.

- ▶ The device must only be used by 1 person at a time. It is also necessary to ensure that no one else is within the working area of the device when the device is being used.
- ▶ The device must only be serviced by 1 person at a time. It is also necessary to ensure that no one else is within the working area of the device when the device is being serviced.

## Setup regulations

The cleaning device is tested to protection class IP 21, meaning:

- Protection against penetration by solid foreign bodies with diameters > 12.5 mm (0.49 in.)
- No protection against the ingress of water

The device must not be set up and operated outdoors. The built in electrical parts must be protected from direct wetting.

### **WARNING!**

#### **Danger from machines falling or toppling over.**

This can result in serious injury and damage to property.

- ▶ Always secure the cleaning device to the underlying surface.

## Compressed air supply specifications

To ensure that the cleaning device functions correctly, the following compressed air supply specifications must be met:

- Establish compressed air supply using a pressure limiter and compressed air filter
- Provide compressed air quality conforming to ISO 8573-1:2001, class 7 4 3, instrument air
  - Solid particle concentration  $\leq 10 \text{ mg/m}^3$
  - Vapour pressure dew point  $\leq + 3^\circ\text{C}$
  - Oil concentration  $\leq 1 \text{ mg/m}^3$

---

**Measures for the safe operation of the device with untrained personnel**

If untrained operators have access to the device, its compressed air supply must be disconnected for the duration of work in accordance with 'Performance Level d' of the ISO 13849-1 standard.

To ensure that the compressed air supply is interrupted as required, MS6-SV pressure build-up and pressure relief valves from FESTO are recommended.

# Screwing the cleaning device to the underlying surface

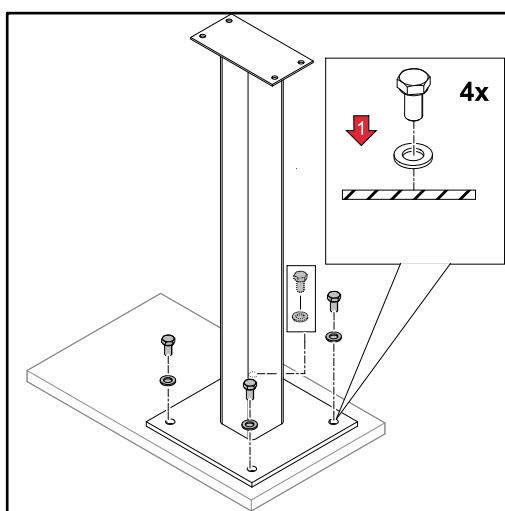
## Screwing the cleaning device and installation stand to the underlying surface

### **WARNING!**

#### **Danger from machines falling or toppling over.**

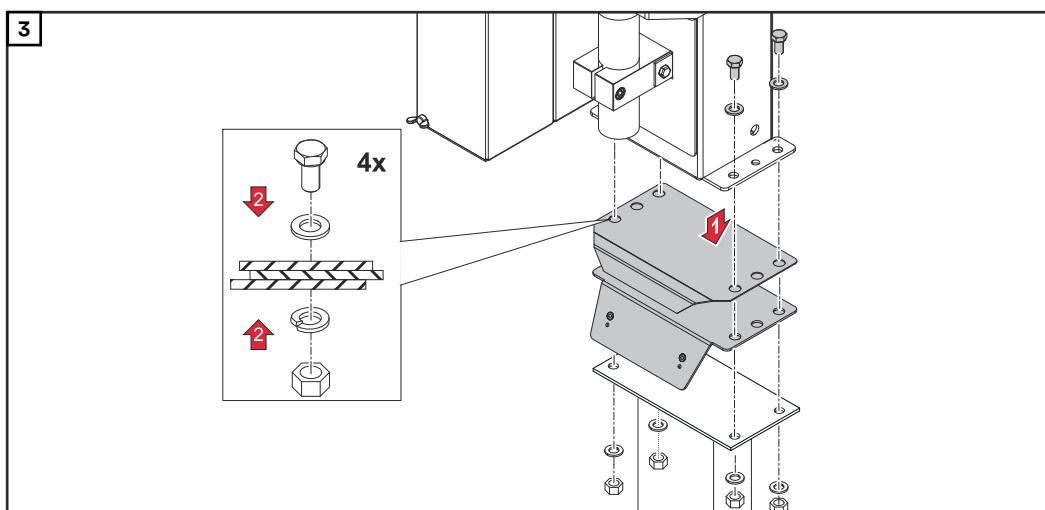
This can result in serious injury and damage to property.

- ▶ Always secure the installation stand to the underlying surface.
- ▶ The screws for fastening the installation stand are not included in the scope of supply of the installation stand. The installer is responsible for selecting the right type of screws or bolts.
- ▶ Always secure the cleaning device to the installation stand.

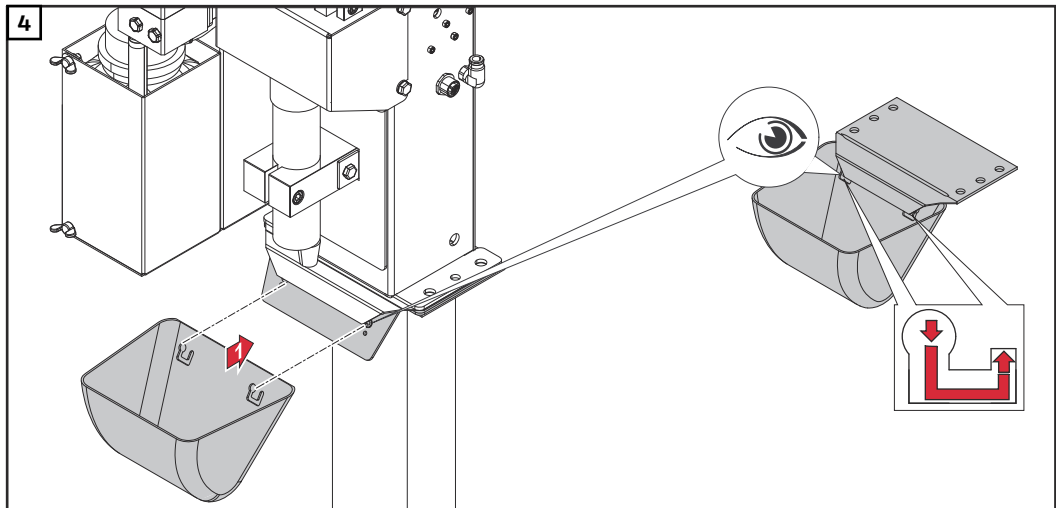


- 1** Place the optionally available installation stand on a level, firm and vibration-free surface (foundation)
  - Position the installation stand in such a way that the distance the robot has to travel to the cleaning device on the installation stand is as short as possible
- 2** Tightly screw the installation stand to the surface (foundation) using the selected mounting materials

Screw on the cleaning device and the spatter tray retainer using the fixings supplied with the cleaning device.



Place components on the installation stand and secure



Attach the spatter tray retainer as shown

### Screwing the cleaning device to the underlying surface

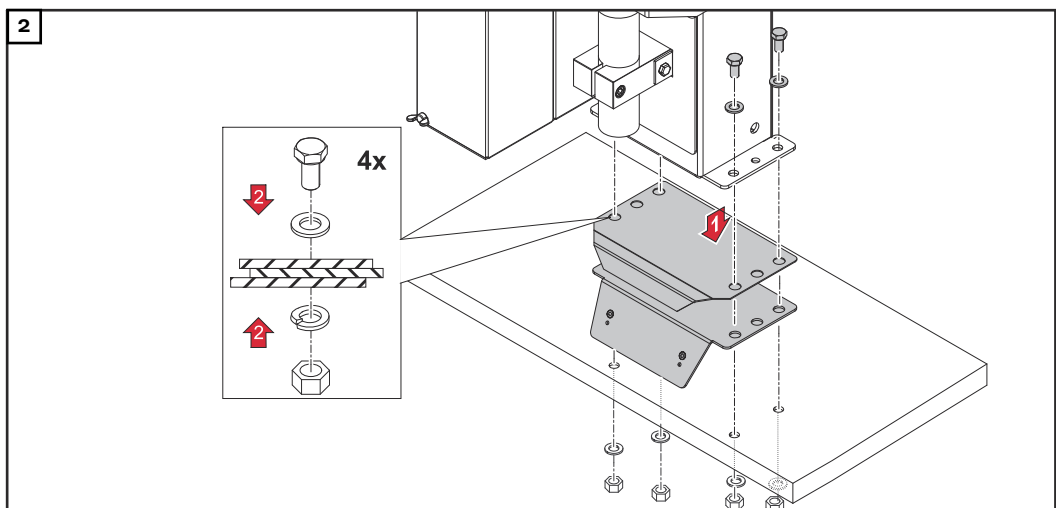
#### **WARNING!**

#### **Danger from machines falling or toppling over.**

This can result in serious injury and damage to property.

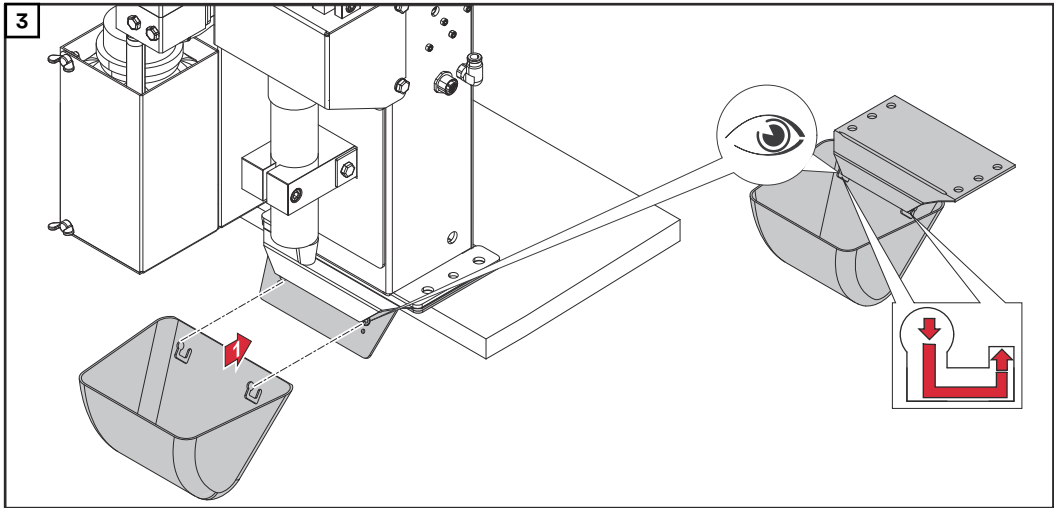
- ▶ Always secure the cleaning device to the underlying surface.
- ▶ If the underlying surface thickness is less than 5 mm (0.197 in.), use the fixings supplied with the cleaning device for fastening.
- ▶ If the underlying surface thickness is greater than 5 mm (0.197 in.), do not use the fixings supplied for fastening. In this situation the installer is responsible for selecting the right type of fixing.

- 1 Place the cleaning device and the spatter tray retainer on a level, firm and vibration-free surface (foundation).
  - Position the cleaning device in such a way that the distance the robot has to travel to the cleaning position is as short as possible.



Place components on the underlying surface and secure

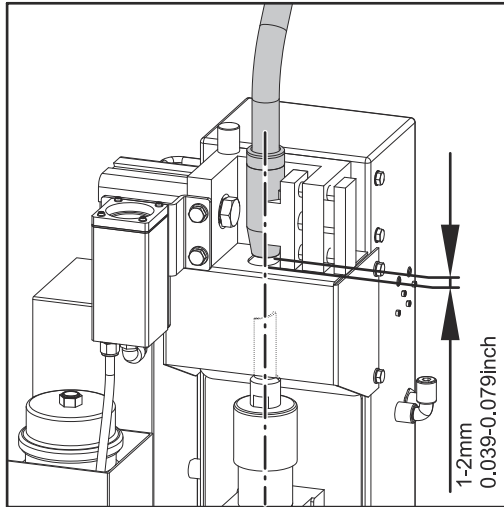




Attach the spatter tray retainer as shown

# Torch cleaning position

## Welding torch cleaning position



The welding torch (gas nozzle) must be located centrally above the cleaning motor / cleaning cutter, at a distance of 1-2 mm (0.039 - 0.079 inch) to the protective cover

# Adjust gas nozzle clamping device

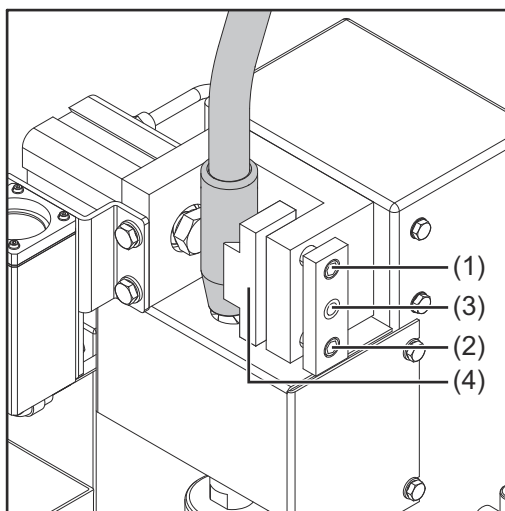
## Adjusting the gas nozzle clamping device

### CAUTION!

#### **Danger due to incorrectly adjusted gas nozzle clamping device.**

This may result in damage to the welding torch.

- ▶ Adjust the gas nozzle clamping device in such a way that no reaction forces can be transferred to the robot.
- ▶ The gas nozzle must only be clamped onto the cylindrical surface.
- ▶ Only clamp the gas nozzle centrally above the cleaning motor.



- 1** Loosen the Allen screws on the guide bolts (1) and (2)
- 2** Move the welding torch to the cleaning position
  - centrally with respect to the cleaning motor
- 3** Using the adjusting screw (3), position the clamping device (4) so that the clamping device is touching the gas nozzle
- 4** Tighten the Allen screws on the guide bolts (1) and (2)

# Fitting the cleaning cutter

## Fitting the cleaning cutter

**⚠ CAUTION!**

**Danger due to cleaning cutter that has become very hot through use.**

This can result in severe burns.

- ▶ Before handling cleaning cutters, allow cleaning cutter to cool to room temperature (+25 °C, +77 °F).

**⚠ CAUTION!**

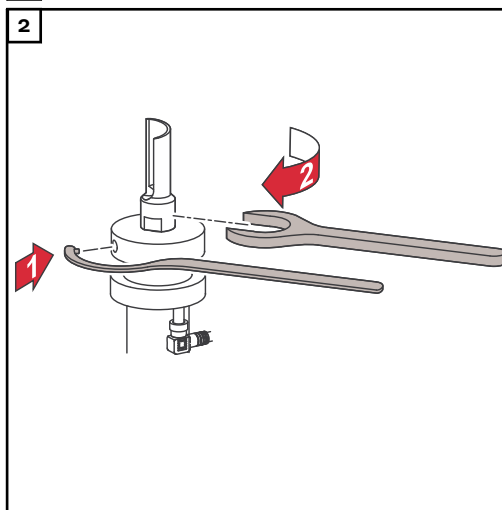
**Danger from incompatible wearing parts.**

This can result in damage to property and malfunctions.

- ▶ Only use the device manufacturer's contact tips, gas nozzles and cleaning cutters. No liability is accepted for damage caused by the use of contact tips, gas nozzles or cleaning cutters from third-party manufacturers.

The cleaning cutter is not part of the scope of suppl.. Consult the manufacturer's spare parts list for the appropriate cleaning cutter: <https://spareparts.fronius.com/>

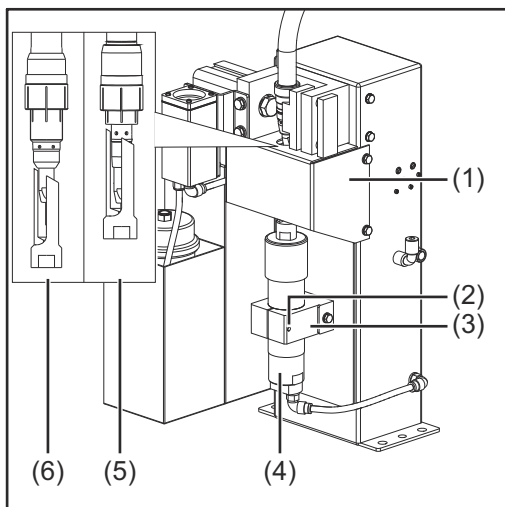
- 1 Remove the protective covering from the cleaning device



- 3 Fit the protective covering to the cleaning device in its original position

# Adjusting the position of the cleaning motor

## Adjusting the position of the cleaning motor



- 1** Remove the protective covering (1)
- 2** Remove the gas nozzle from the torch body
- 3** Loosen the screw (2) on the lifting device
- 4** Ensure that the lifting device (3) is in its lowest lift position
- 5** Move the welding torch to the cleaning position (approx. 1 - 2 mm / 0.039 - 0.079 in. above the protective covering, centrally with respect to the cleaning motor)
- 6** Manually push the lifting device (3) into its highest lift position and hold in place
- 7** Manually push cleaning motor (4) and cleaning cutter to the cleaning position
  - Ensure that the cleaning cutter does not touch any welding torch components
  - See diagram (5) for welding torch with insulating sleeve
  - See diagram (6) for welding torch with spatter guard
- 8** Fix the cleaning motor (4) in this position in the lifting device (3) - tighten the screw (2) on the lifting device
- 9** Complete a function test without the gas nozzle fitted: move the cleaning motor manually to the uppermost position
  - The cleaning cutter must close around the contact tip without touching it. If the cleaning cutter touches the welding torch components, readjust the position of the cleaning motor
- 10** Fit the gas nozzle to the torch body
- 11** Complete a function test with the gas nozzle fitted: move the cleaning motor manually to the uppermost position
  - The cleaning cutter must be inserted into the gas nozzle gently, without touching it. If the cleaning cutter touches the welding torch components, readjust the position of the cleaning motor
- 12** Fit the protective covering to the cleaning device in its original position

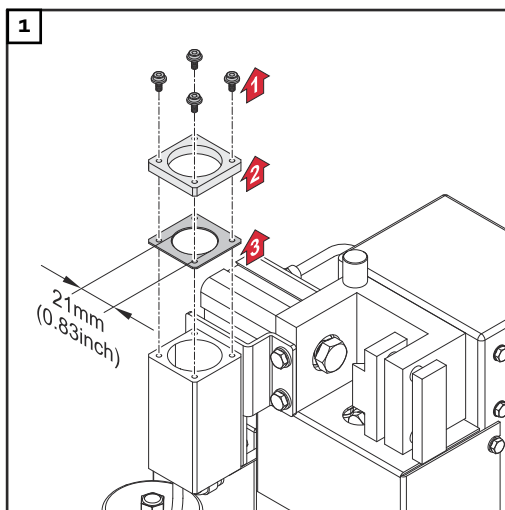
# Configuring the spray device

## Configuring the spray device

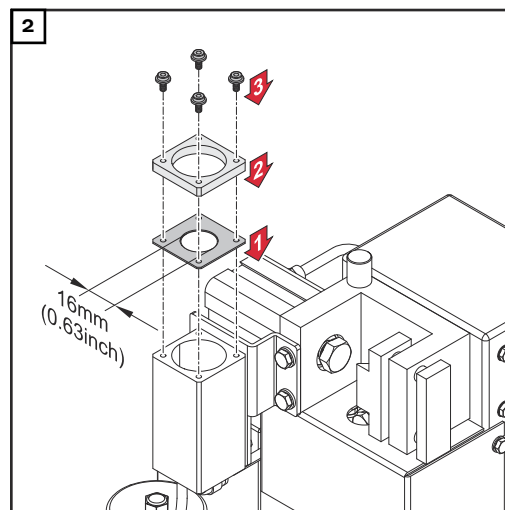
If the opening on the standard leather seal is too large for the gas nozzle used, fit the second leather seal included in the scope of supply as shown below.

The available leather seals can be found in the Spare Parts List: <https://spare-parts.fronius.com/>

Replace leather seal:



Remove existing leather seal



Fit leather seal with smaller diameter

# Installing the electrically controlled wire cutter (optional)

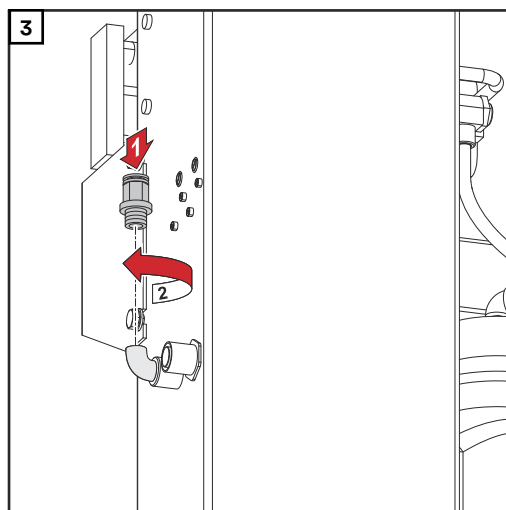
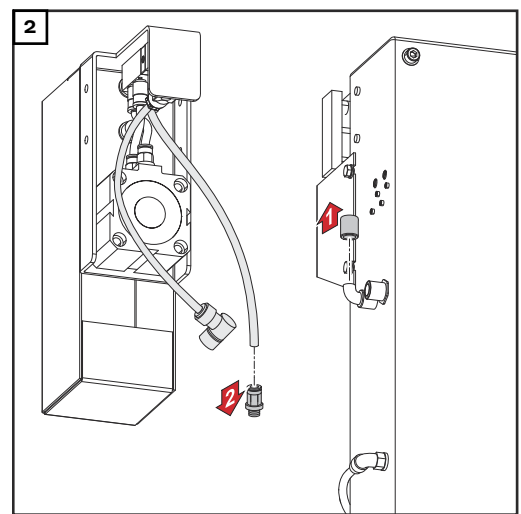
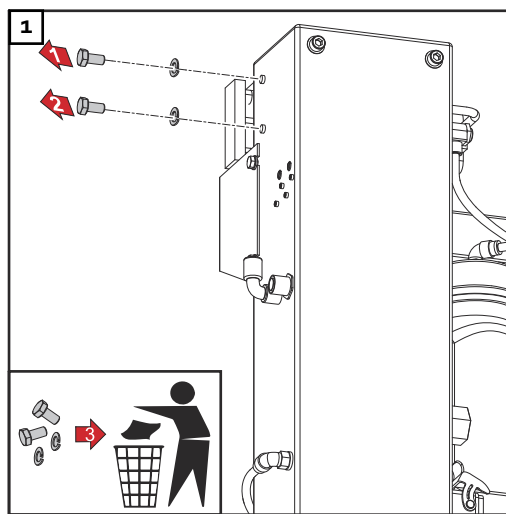
**How the electrically-controlled wire cutter works**

The electrically-controlled wire cutter opens and closes when there is an active signal from the robot control.

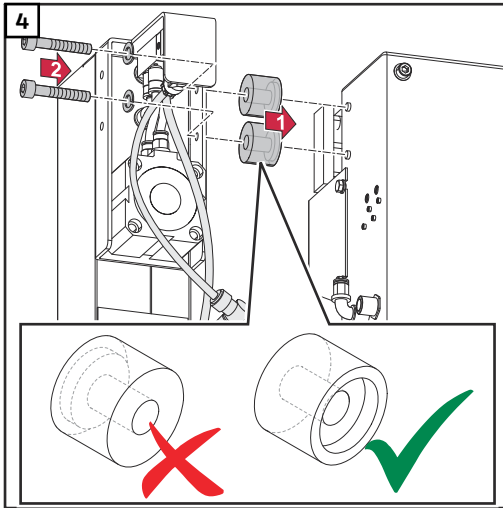
**Maximum wire diameter**

Wire electrodes with a diameter of up to 1.6 mm (0.063 in.) can be cut by the wire cutter.

**Installing the electrically controlled wire cutter**

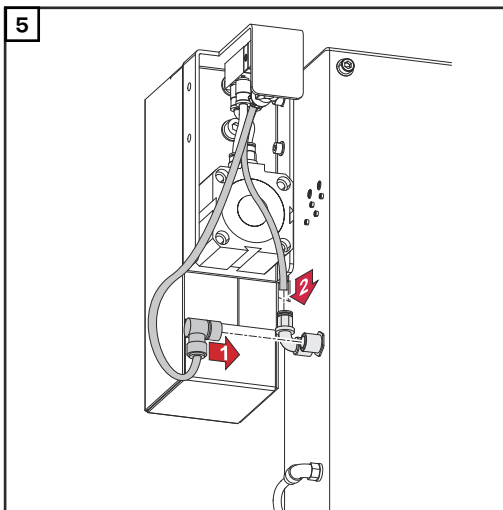


Use the adapter previously removed from the wire cutter.



Use the fixings supplied with the wire cutter.

Ensure that the recesses in the spacers face the cleaning device.



The wire cutter is controlled electrically by the robot control.



# To establish the compressed air supply:

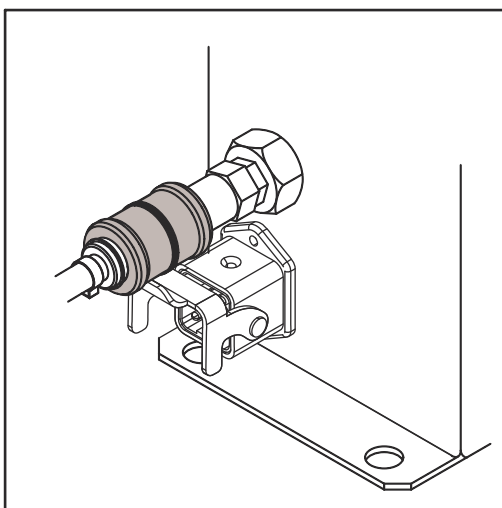
## Establishing the compressed air supply for the cleaning device, function of the compressed air relief valve

To establish the compressed air supply:

- 1 Depressurise the compressed air supply line of the cleaning device and ensure that it remains depressurised for the duration of the following work on the device
- 2 Screw the supplied compressed air relief valve into the compressed air connection on the cleaning device
- 3 Connect the compressed air supply line to the compressed air relief valve

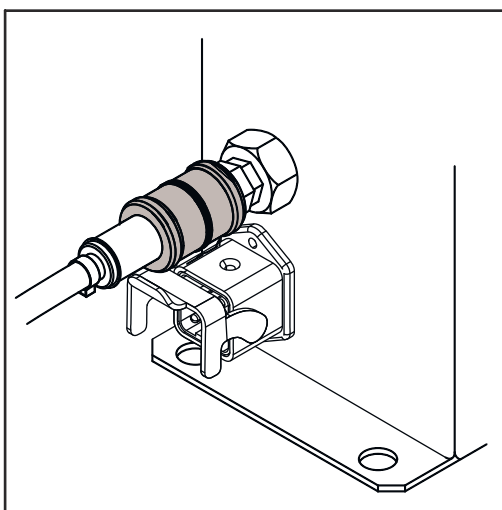
The compressed air supply to the cleaning device can be broken and re-established by moving the compressed air relief valve forwards and backwards - see description below.

The diagram below shows the compressed air relief valve in the closed position = no compressed air supply to the device:



*Compressed air relief valve closed*

The diagram below shows the compressed air relief valve in the open position = compressed air is being supplied to the device:

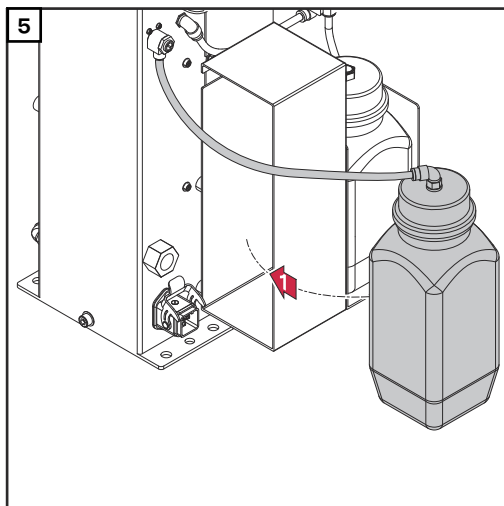
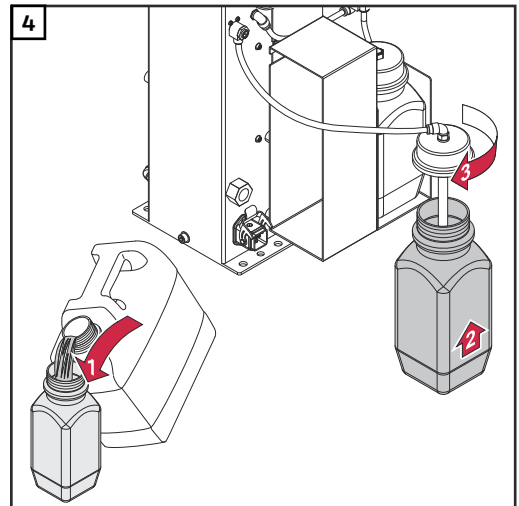
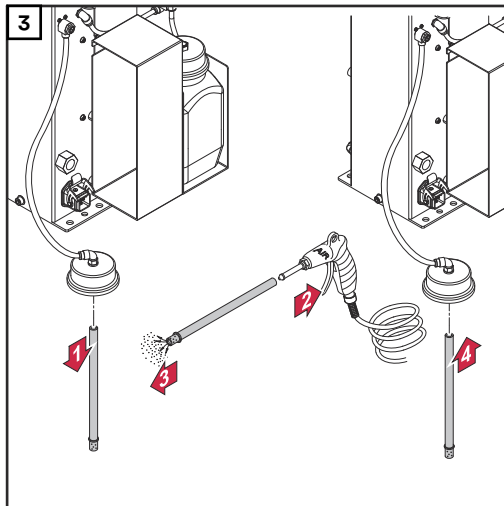
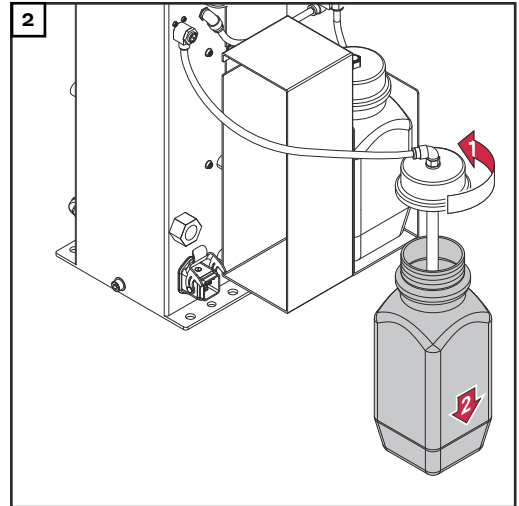
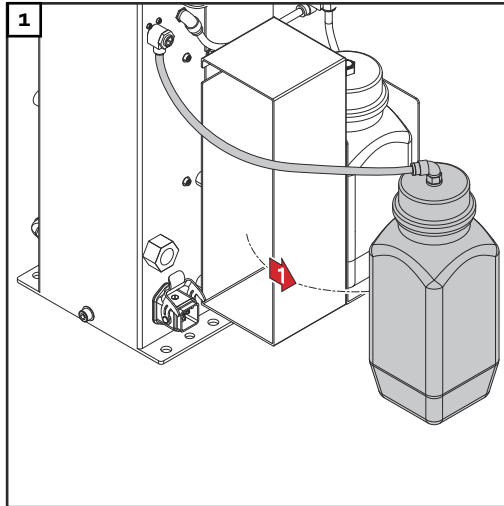


*Compressed air relief valve open*

# Starting up the parting agent nebuliser

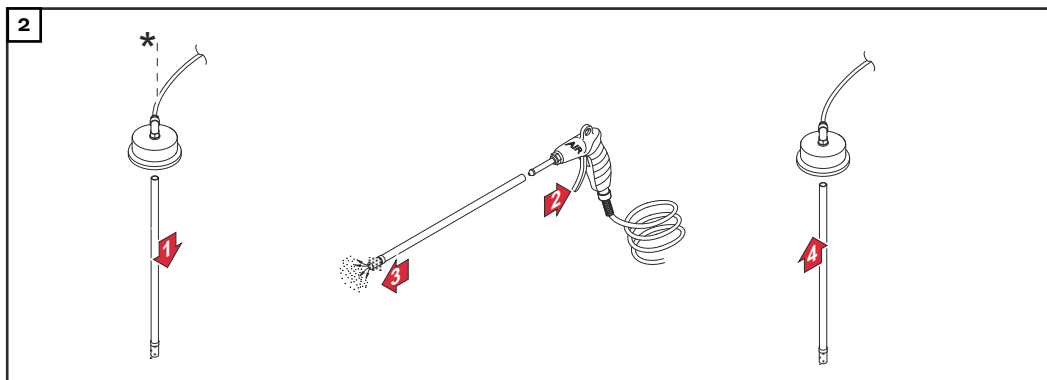
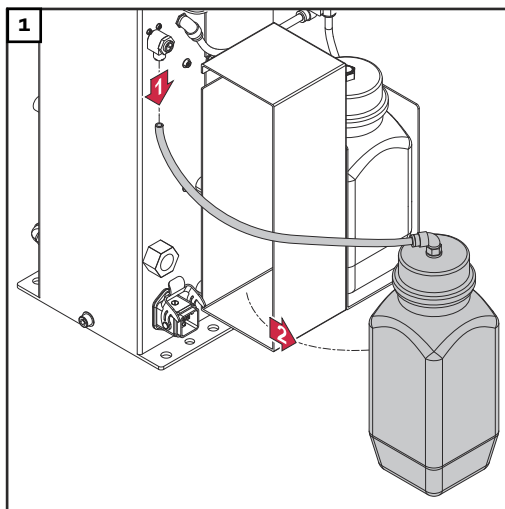
## Filling the parting agent container (1 litre) and connecting it to the cleaning device

Only use "Robacta Reamer" parting agent (item number 42,0411,8042) supplied by the manufacturer. The composition of this parting agent is designed specifically for the cleaning device. If other manufacturers' products are used, trouble-free operation cannot be guaranteed.

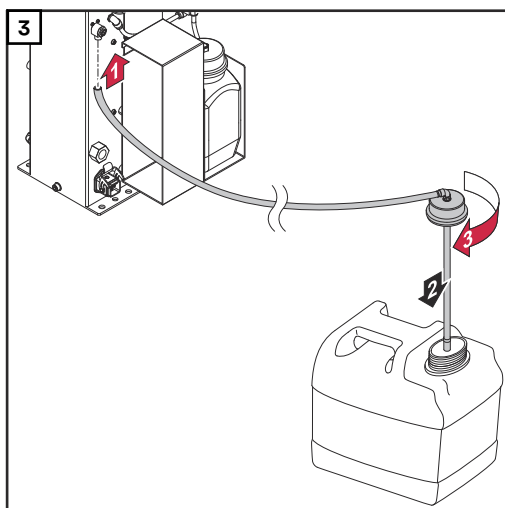


### Connecting the parting agent container (10 litres) to the cleaning device

Only use "Robacta Reamer" parting agent (item number 42,0411,8042) supplied by the manufacturer. The composition of this parting agent is designed specifically for the cleaning device. If other manufacturers' products are used, trouble-free operation cannot be guaranteed.



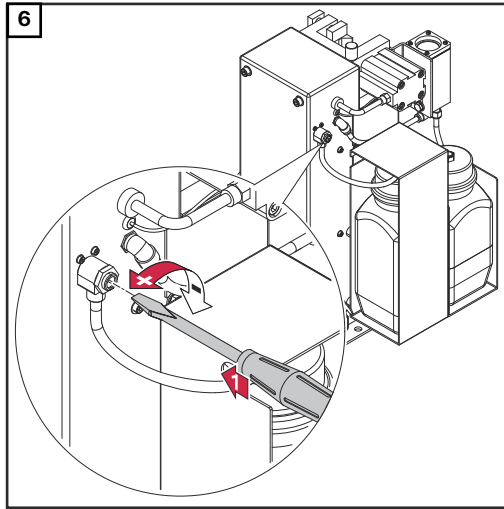
\* Option (long parting agent hose)



### Adjusting the parting agent nebuliser spray amount

- 1 Move the welding torch to the cleaning position
- 2 Establish a compressed air supply to the cleaning device
- 3 Connect the cleaning device to the robot control
- 4 Start the spraying process using the robot control and check that sufficient spray is being applied

- 5 If the spray amount is not sufficient, increase it as required
- by adjusting the spray time using the robot control - a spray time of ~ 0.7 seconds is recommended
  - or by using the parting agent adjuster - see figure below



*Finely adjusting the spray amount on parting agent adjuster*

# Manually checking the cleaning device functions

## Safety

### **WARNING!**

For the following tasks, the cleaning device must be supplied with compressed air. This results in danger from the rotating cleaning cutter, cleaning motor moving up/down, gas nozzle clamping device moving out/in, flying parts (chips, etc.), compressed air/parting agent mixture escaping from the parting-agent injection nozzle.

This can result in serious injury and damage to property.

- ▶ Keep your body, especially your hands, face, hair, any objects and all clothing away from the cleaning cutter, cleaning motor, lifting device, gas nozzle clamping device, wire cutter and parting-agent injection nozzle..
- ▶ Wear ear protection!
- ▶ Wear protective goggles with side protection.

## Manually checking the cleaning device functions

### **NOTE!**

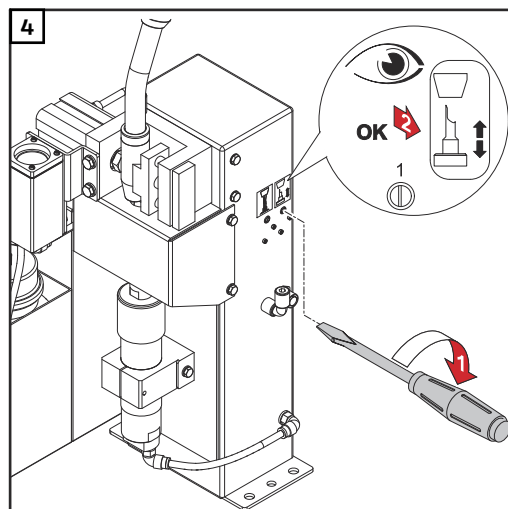
When the slot for the "Start cleaning" and "Spray in parting agent" screws is positioned horizontally, the respective function is deactivated.

- 1 Move the welding torch to the cleaning position
- 2 Disconnect the cleaning device from the robot control
- 3 Establish a compressed air supply to the cleaning device

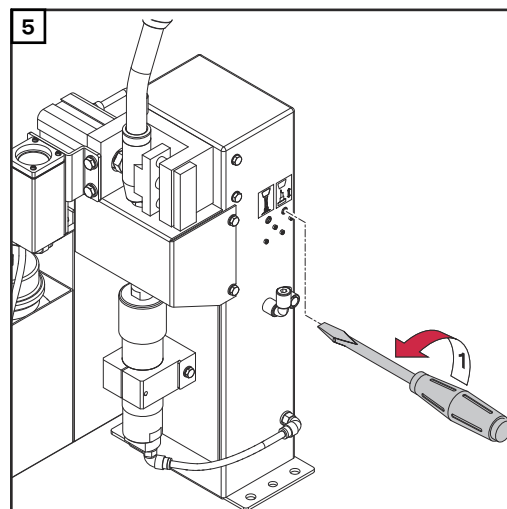
### **Start cleaning function**

The following must be checked when the function is being performed:

- Function of the gas nozzle clamping device (clamping device piston extends)
- The insertion depth of the cleaning cutter in the gas nozzle (lifting device moves the cleaning motor upwards)
- Function of the cleaning motor (cleaning motor starts)



Start cleaning

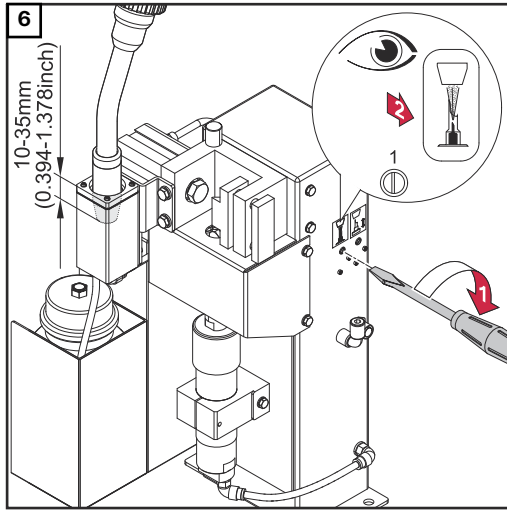


Deactivating the function

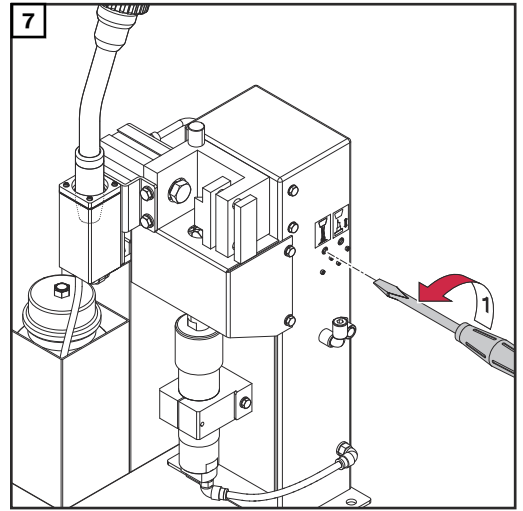
### **Spray in parting agent function**

The following must be checked once the function has been performed:

- whether the gas nozzle is coated with a sufficient layer of parting agent



*Spraying in parting agent*



*Deactivating the function*

# Starting up the cleaning device

---

<b>Prerequisites for start-up</b>	<p>The following requirements must be met before starting up the cleaning device:</p> <ul style="list-style-type: none"><li>- If present, the cleaning device installation stand is screwed to the underlying surface</li><li>- The cleaning device is screwed to the underlying surface</li><li>- Gas nozzle clamping device is adjusted</li><li>- Cleaning cutter is fitted</li><li>- Position of the cleaning motor has been set</li><li>- If present, the wire cutter has been installed</li><li>- Parting agent nebuliser has been started up</li><li>- Compressed air supply has been established</li><li>- Functions have been checked manually</li><li>- Cleaning device is connected to the robot control</li><li>- All coverings are fitted and all safety devices are intact and in their proper place</li></ul>
-----------------------------------	---

---

<b>Start-up</b>	<p>The cleaning device starts up when there is an active signal from the robot control.</p>
-----------------	---

# Cleaning programme

---

## Safety

### CAUTION!

#### **Danger due to improper installation and commissioning.**

This can result in damage to property.

- ▶ The cleaning device's functions must be manually checked before starting automatic operation.
  - ▶ Do not start in automated mode until the cleaning device has been properly installed and started up.
- 

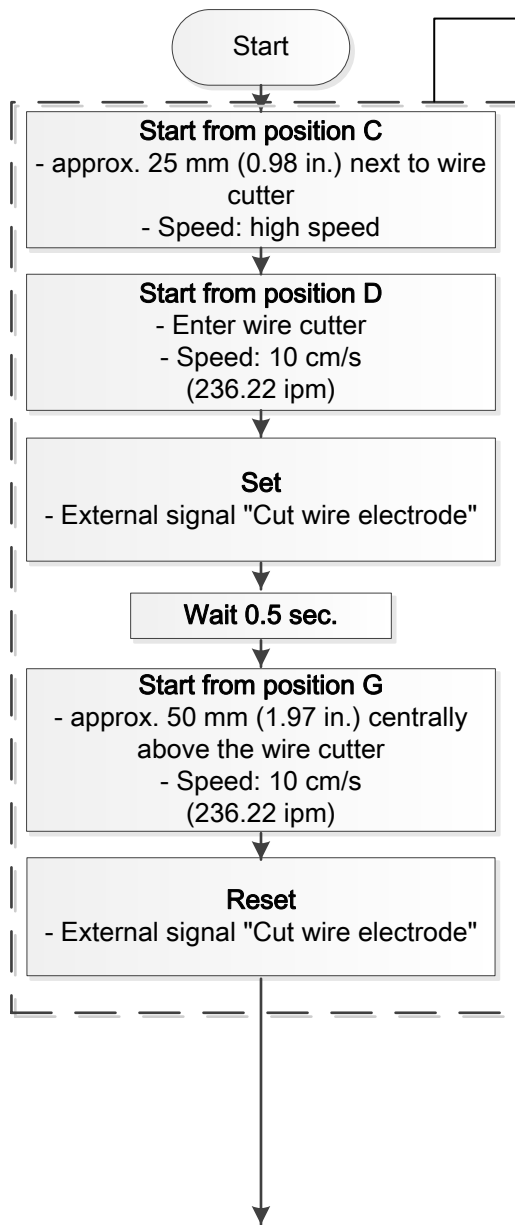
### NOTE!

#### **Not coating the interior of the welding torch may result in permanent soiling of the torch when welding begins.**

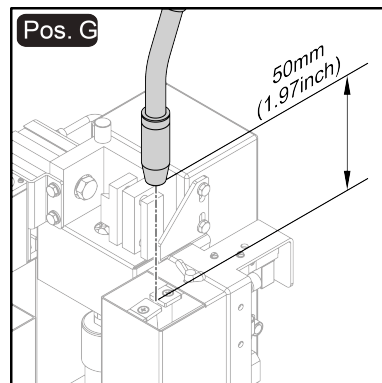
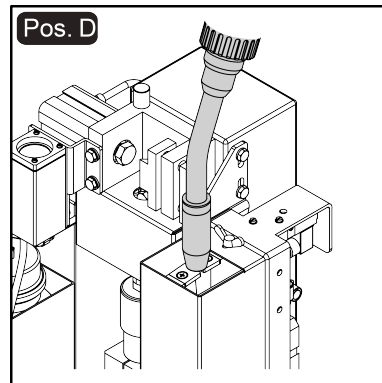
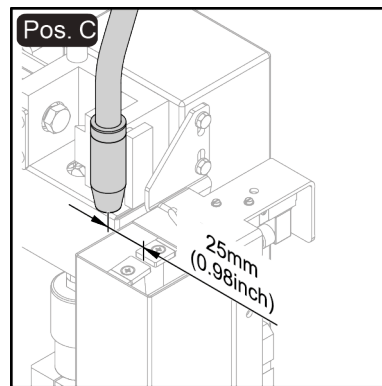
- ▶ Always wet the interior of the welding torch with the manufacturer's parting agent before starting automatic operation.
-

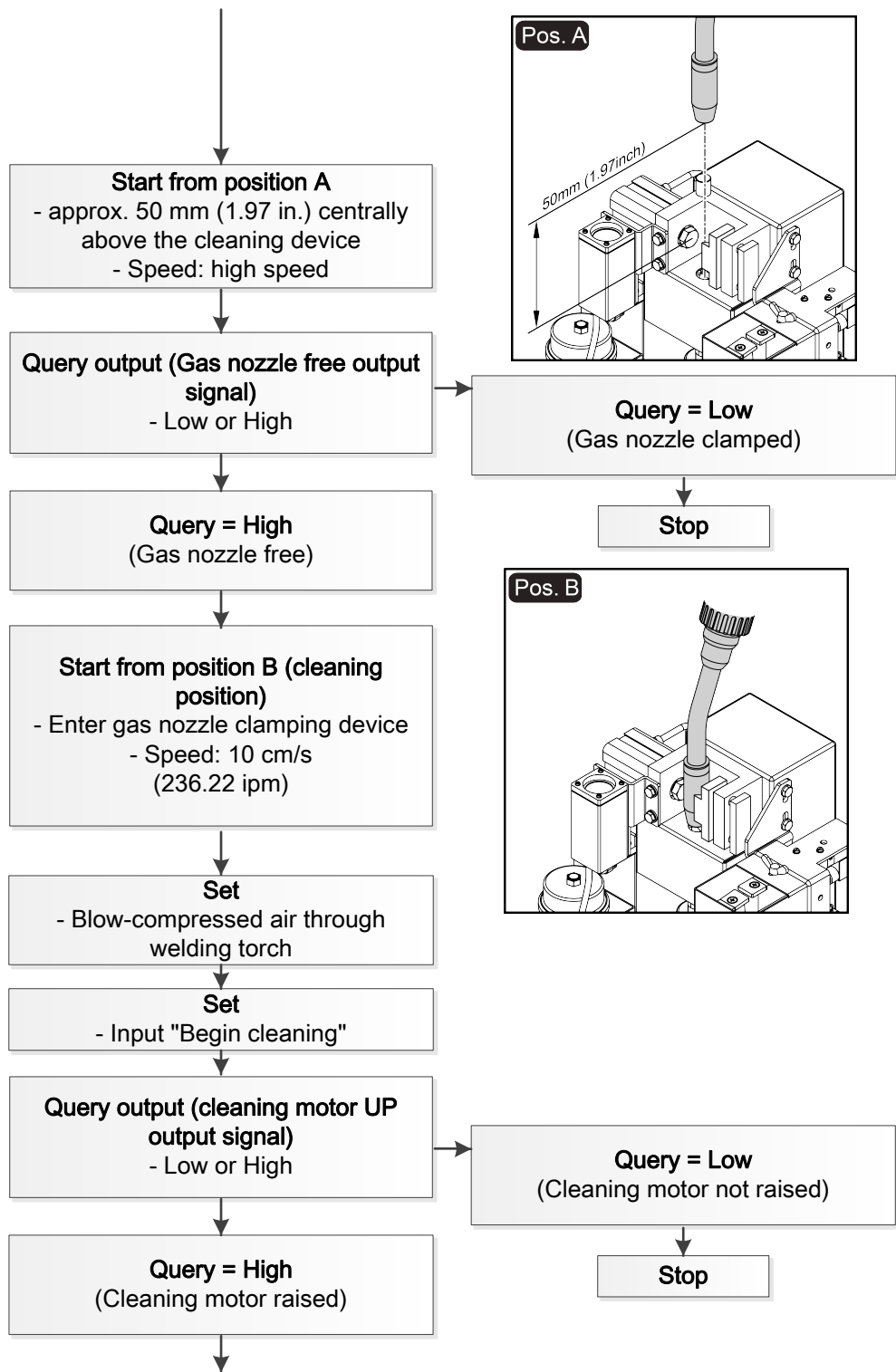


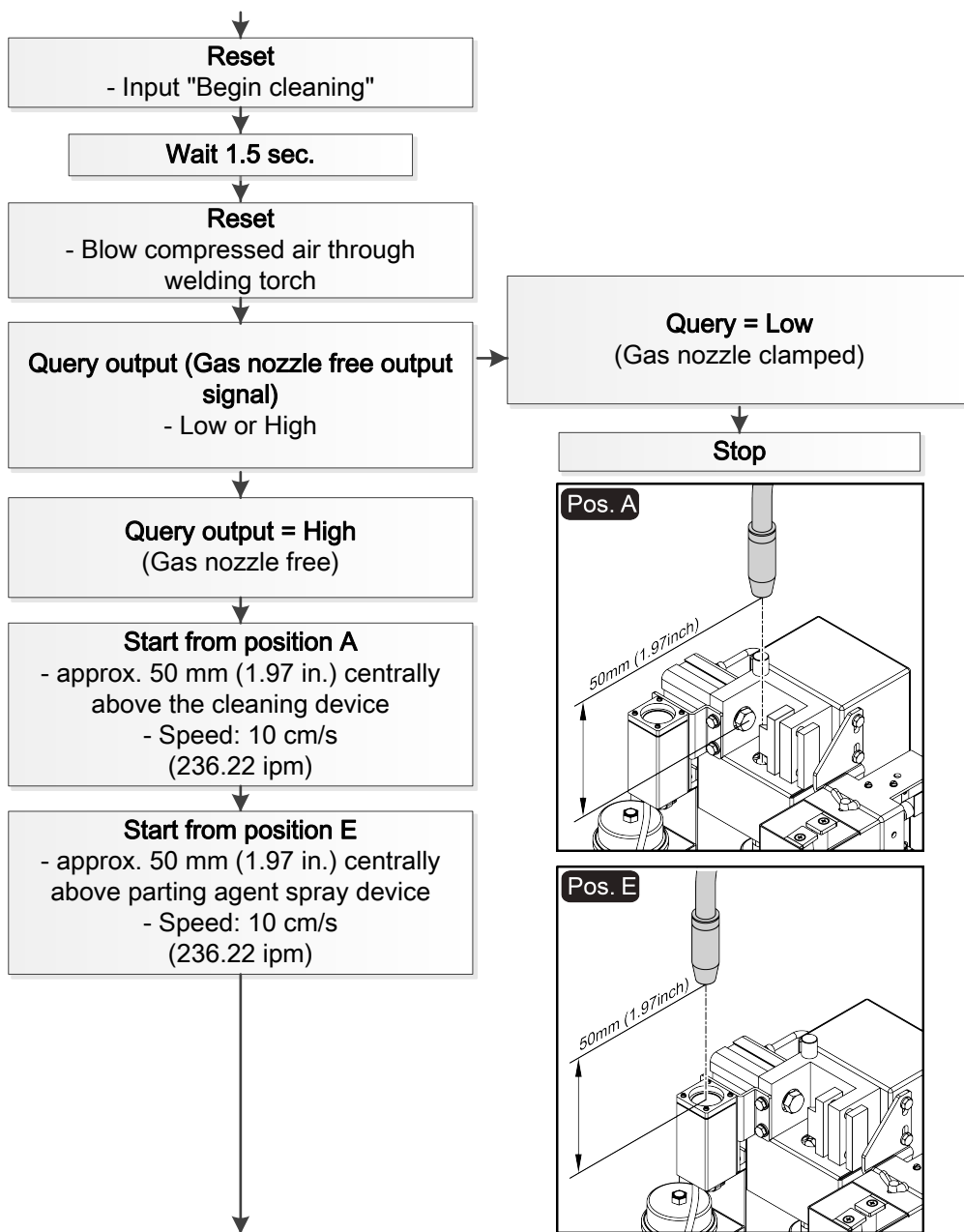
**Cleaning program sequence**

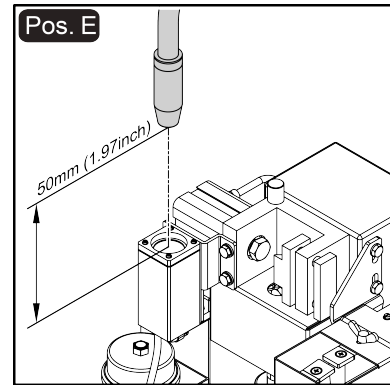
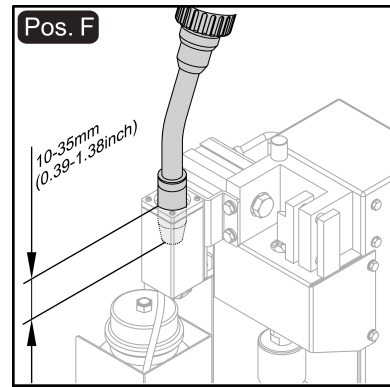
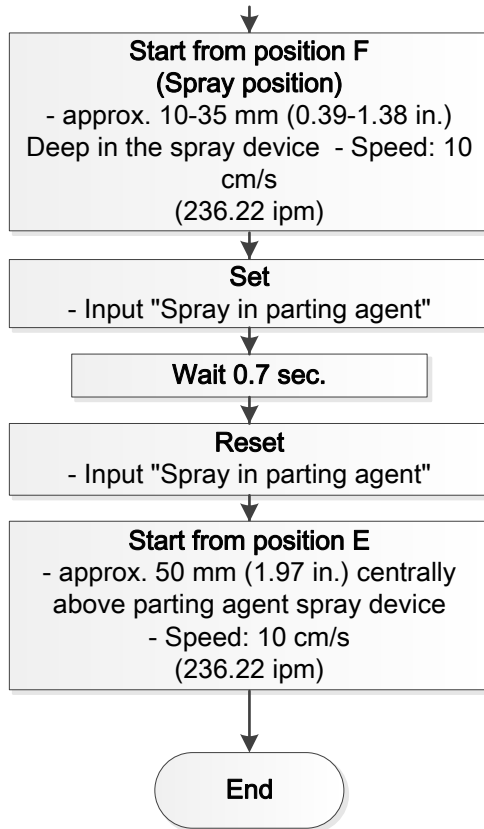


**Wire cutter option**





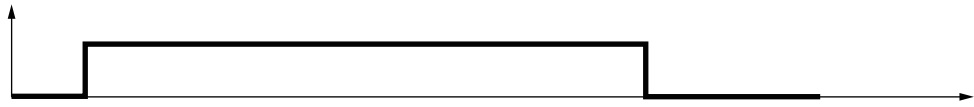




# Signal waveform for cleaning

## Signal inputs

Start cleaning signal:



Spray in parting agent signal:



## Signal outputs

Gas nozzle free signal:



Cleaning motor up signal:



## Signal waveform optional wire cutter (input)

Cut wire electrode input signal:





# **Care, maintenance and disposal**





## Safety

Observe the following safety rules for all work described in the "Care, maintenance and disposal" section.

### **WARNING!**

#### **Danger due to incorrect operation and incorrectly performed work.**

This can result in serious injury and damage to property.

- ▶ All the work and functions described in this document must only be carried out by trained and qualified personnel.
- ▶ Read and understand this document.
- ▶ Read and understand all the Operating Instructions for the system components, especially the safety rules.

### **WARNING!**

#### **Risk of machines starting automatically.**

This can result in serious injury and damage to property.

- ▶ In addition to these Operating Instructions, also observe the safety rules issued by the manufacturer of the robot and welding system. For your personal safety, ensure that all protective measures have been taken and will remain in place while you are in the working area of the robot.

### **WARNING!**

#### **Danger from mechanically powered parts, flying parts (shavings, etc.), compressed air/parting agent mixture escaping from the parting-agent injection nozzle.**

This can result in serious injury and damage to property.

- ▶ Before carrying out any work, disconnect the customer's compressed air and power supplies from the cleaning device and the connected system components, and ensure that they remain disconnected until work is complete.
- ▶ Before carrying out any work, make sure that the cleaning device is depressurised - for the necessary steps, see the following section [Ensuring that the cleaning device is depressurised](#) from page 58.

### **WARNING!**

#### **Whenever the cleaning device is supplied with voltage and/or compressed air, a risk of serious injury exists from: rotating cleaning cutter, cleaning motor moving up/down, extending/retracting gas nozzle clamping device, activated wire cutter, flying parts (shavings, etc.), compressed air/parting agent mixture escaping from the parting-agent injection nozzle.**

This can result in serious injury and damage to property.

If work has to be performed on the cleaning device while it is being supplied with voltage and/or compressed air, take the following protective measures:

- ▶ Keep your body, especially your hands, face, hair, any objects and all clothing away from the cleaning cutter, cleaning motor, lifting device, gas nozzle clamping device, wire cutter and parting-agent injection nozzle.
- ▶ Wear ear protection!
- ▶ Wear protective goggles with side protection.



## CAUTION!

### **Danger due to cleaning cutter that has become very hot through use.**

This can result in severe burns.

- ▶ Before handling cleaning cutters, allow cleaning cutter to cool to room temperature (+25 °C, +77 °F).

### **Ensuring that the cleaning device is depressurised**

Attempt to briefly activate the cleaning device without any compressed air supply to check whether the cleaning device is depressurised. To do this, proceed as follows:

- 1** Take protective measures:
  - The cleaning cutter, lifting device, gas nozzle clamping device, wire cutter and parting-agent injection nozzle could start up. It is therefore important that you keep your body, especially your hands, face and hair, any objects and all clothing away from the components referred to above
  - Wear ear protection
  - Wear protective goggles with side protection
- 2** Ensure that the cleaning device has been disconnected from the compressed air supply
- 3** Briefly turn the "Start cleaning" screw on the cleaning device 90° to the right, then turn it straight back to its original position
  - If the cleaning device does not respond to the turning of the screw, the cleaning device is depressurised
  - If the cleaning device responds to the turning of the screw, the cleaning device is still connected to a compressed air supply.  
If this is the case, you must disconnect the cleaning device from the compressed air supply and check again that the cleaning device is depressurised before starting work

# Care, maintenance and disposal

**General** The cleaning device generally needs no maintenance. However, to keep the cleaning device in good working condition for years to come, several points on care and maintenance must be observed.

**Before each start-up**

- Check fill level in parting agent container and top up if necessary
- Check fill level in parting agent spatter tray and empty if necessary
- Check cleaning cutter for wear and replace if necessary
- Empty the cleaning device spatter tray
- If fitted, empty the wire cutter tray
- Carry out a general visual inspection of the cleaning device and make sure that any damage is repaired immediately (before start-up)

## Daily

 **CAUTION!**

**Danger from cleaning agents containing solvents.**

This can result in damage to property.

► Only use solvent-free cleaning products on the cleaning device.

**1** Remove parting agent deposits and dirt from device

## Weekly

 **CAUTION!**

**Danger from cleaning agents containing solvents.**

This can result in damage to property.

► Only use solvent-free cleaning products on the parting agent container.

**1** Check the parting agent container for soiling and clean if necessary

**2** Blow through suction filter in parting agent container using compressed air from the inside outwards through the suction hose (for more detailed information see section [Starting up the parting agent nebuliser](#) from page [42](#))

## Every 6 months

**1** Open the device and check the pneumatic valves for

- Leaks
- The secure seating of all screws
- The secure seating of all screw joints on the pneumatic valves

## As necessary

Open the device and

**1** Clean inside of device using dry reduced compressed air

**2** Lightly oil the lifting device cylinder guides

**3** Restore the original condition of the device

---

**Disposal**

Dispose of in accordance with the applicable national and local regulations.

# Troubleshooting



## Safety

Observe the following safety rules for all work described in the "Troubleshooting" section.

### **WARNING!**

#### **Danger due to incorrect operation and incorrectly performed work.**

This can result in serious injury and damage to property.

- ▶ All the work and functions described in this document must only be carried out by trained and qualified personnel.
- ▶ Read and understand this document.
- ▶ Read and understand all the Operating Instructions for the system components, especially the safety rules.

### **WARNING!**

#### **Risk of machines starting automatically.**

This can result in serious injury and damage to property.

- ▶ In addition to these Operating Instructions, also observe the safety rules issued by the manufacturer of the robot and welding system. For your personal safety, ensure that all protective measures have been taken and will remain in place while you are in the working area of the robot.

### **WARNING!**

#### **Danger from mechanically powered parts, flying parts (shavings, etc.), compressed air/parting agent mixture escaping from the parting-agent injection nozzle.**

This can result in serious injury and damage to property.

- ▶ Before carrying out any work, disconnect the customer's compressed air and power supplies from the cleaning device and the connected system components, and ensure that they remain disconnected until work is complete.
- ▶ Before carrying out any work, make sure that the cleaning device is depressurised - for the necessary steps, see the following section [Ensuring that the cleaning device is depressurised](#) from page 64.

### **WARNING!**

#### **Whenever the cleaning device is supplied with voltage and/or compressed air, a risk of serious injury exists from: rotating cleaning cutter, cleaning motor moving up/down, extending/retracting gas nozzle clamping device, activated wire cutter, flying parts (shavings, etc.), compressed air/parting agent mixture escaping from the parting-agent injection nozzle.**

This can result in serious injury and damage to property.

If work has to be performed on the cleaning device while it is being supplied with voltage and/or compressed air, take the following protective measures:

- ▶ Keep your body, especially your hands, face, hair, any objects and all clothing away from the cleaning cutter, cleaning motor, lifting device, gas nozzle clamping device, wire cutter and parting-agent injection nozzle.
- ▶ Wear ear protection!
- ▶ Wear protective goggles with side protection.



## CAUTION!

### **Danger due to cleaning cutter that has become very hot through use.**

This can result in severe burns.

- ▶ Before handling cleaning cutters, allow cleaning cutter to cool to room temperature (+25 °C, +77 °F).

### **Ensuring that the cleaning device is depressurised**

Attempt to briefly activate the cleaning device without any compressed air supply to check whether the cleaning device is depressurised. To do this, proceed as follows:

- 1** Take protective measures:
  - The cleaning cutter, lifting device, gas nozzle clamping device, wire cutter and parting-agent injection nozzle could start up. It is therefore important that you keep your body, especially your hands, face and hair, any objects and all clothing away from the components referred to above
  - Wear ear protection
  - Wear protective goggles with side protection
- 2** Ensure that the cleaning device has been disconnected from the compressed air supply
- 3** Briefly turn the "Start cleaning" screw on the cleaning device 90° to the right, then turn it straight back to its original position
  - If the cleaning device does not respond to the turning of the screw, the cleaning device is depressurised
  - If the cleaning device responds to the turning of the screw, the cleaning device is still connected to a compressed air supply.  
If this is the case, you must disconnect the cleaning device from the compressed air supply and check again that the cleaning device is depressurised before starting work



## Errors in program sequence

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### The parting agent does not spray

Parting agent container is full

Cause: Not enough spray

Remedy: Adjust spray time

Cause: Parting agent hose suction filter in the parting agent container is soiled

Remedy: Clean the suction filter of the parting agent hose with compressed air (for more detailed information, see section [Starting up the parting agent nebuliser](#) from page [42](#))

Cause: No signal from robot

Remedy: Check robot program

Cause: Parting-agent injection nozzle blocked

Remedy: Clean parting-agent injection nozzle  
Contact After-Sales Service (arrange for parting-agent injection nozzle to be replaced)

Cause: Vacuum pump faulty

Remedy: Contact After-Sales Service (arrange for vacuum pump to be replaced)

Cause: Mechanical fault on solenoid valve

Remedy: Contact After-Sales Service (arrange for solenoid valve to be replaced)

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### Welding torch is poorly cleaned or damaged

Cause: Position of the cleaning motor has been set incorrectly

Remedy: Set the position of the cleaning motor correctly - see section [Adjusting the position of the cleaning motor](#) from page [37](#)

Cause: Gas nozzle clamped in wrong position

Remedy: Adjust the gas nozzle clamping device - see section [Adjusting the gas nozzle clamping device](#) from page [35](#)

Cause: Cleaning cutter not suited to welding torch shape

Remedy: Fit the correct cleaning cutter

Cause: Cleaning cutter is worn

Remedy: Replace cleaning cutter

---

**Lifting device is not moving up or down**

Cause: No compressed air supply

Remedy: Establish a compressed air supply

Cause: No signal from robot

Remedy: Check robot program

Cause: Mechanical fault on solenoid valve

Remedy: Contact After-Sales Service (arrange for solenoid valve to be replaced)

Cause: Choke valve not adjustable, or faulty

Remedy: Contact After-Sales Service (arrange for choke valve to be replaced)

Cause: Faulty sealing in lifting cylinder

Remedy: Contact After-Sales Service (arrange for lifting cylinder to be replaced)

---

**Cleaning motor does not work**

Cause: No compressed air supply

Remedy: Establish a compressed air supply

Cause: No signal from robot

Remedy: Check robot program

Cause: Mechanical fault on cleaning motor

Remedy: Contact After-Sales Service (arrange for cleaning motor to be replaced)

Cause: Mechanical fault on solenoid valve

Remedy: Contact After-Sales Service (arrange for solenoid valve to be replaced)

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# Technical data



# Technical data

## Robacta Reamer V 70 Han12P

Supply voltage	+ 24 V DC
Nominal output	2.4 W
Nominal pressure	6 bar 86.99 psi
Air consumption	420 l/min 443.81 qt./min
Thread identification compressed air connection	G ¼"
Standard I/O (X1)	Input: + 24 V DC/ max. 100 mA Output: + 24 V DC / max. 30 mA
Cleaning time	4.5 - 6.5 s
Total cycle time	5.0 - 9.0 s
Parting agent container capacity	1 l 0.26 gal. (US)
Degree of protection	IP 21
Mark of conformity	CE, CSA
Safety symbols	S
'Performance Level'	c
Max. noise emission (LWA)	82 dB (A)
Dimensions l x w x h	255 x 245 x 390 mm 10.04 x 9.84 x 15.35 in.
Weight (without parting agent and optional wire cutter)	10.5 kg 23.15 lb.

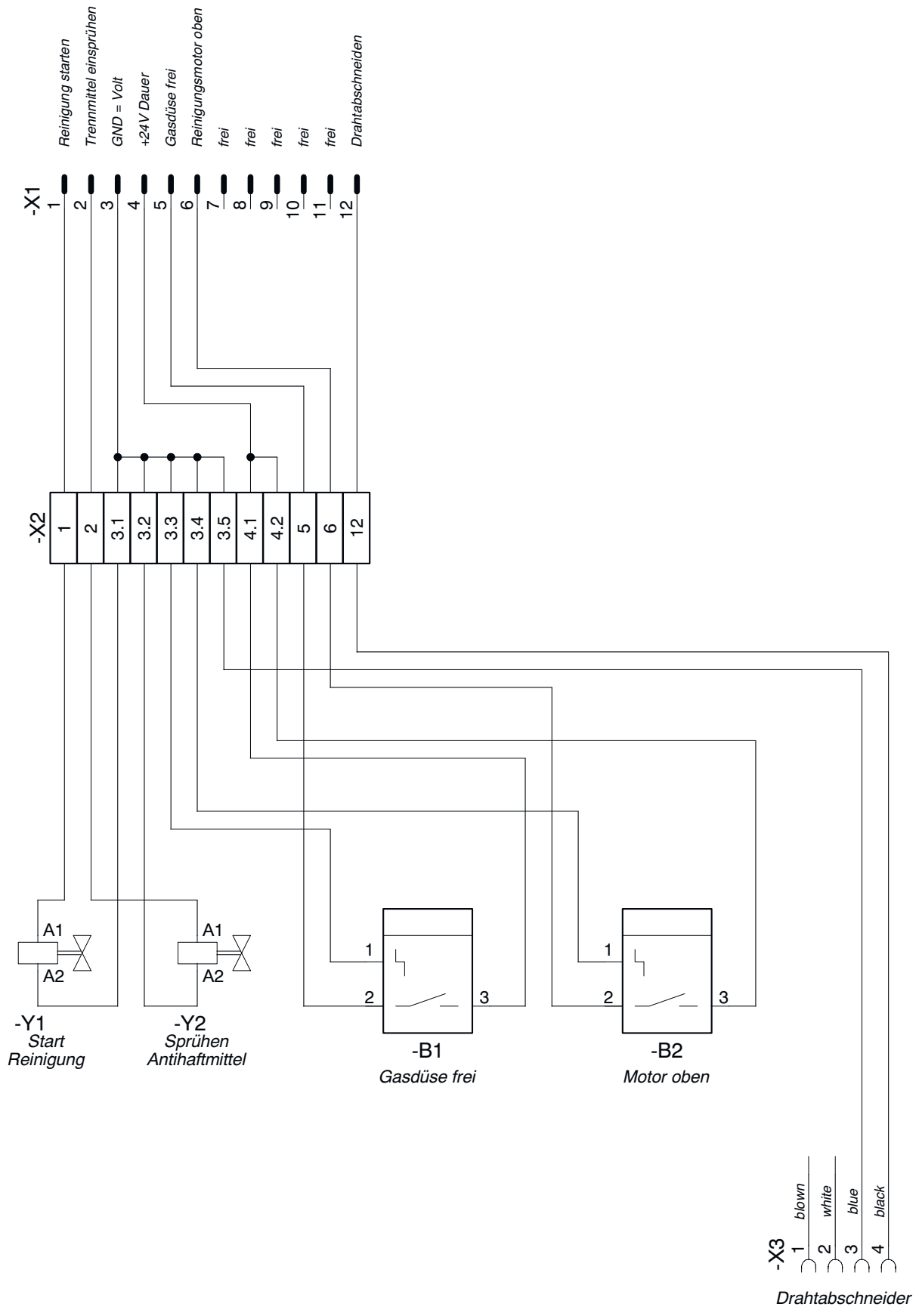


# Appendix

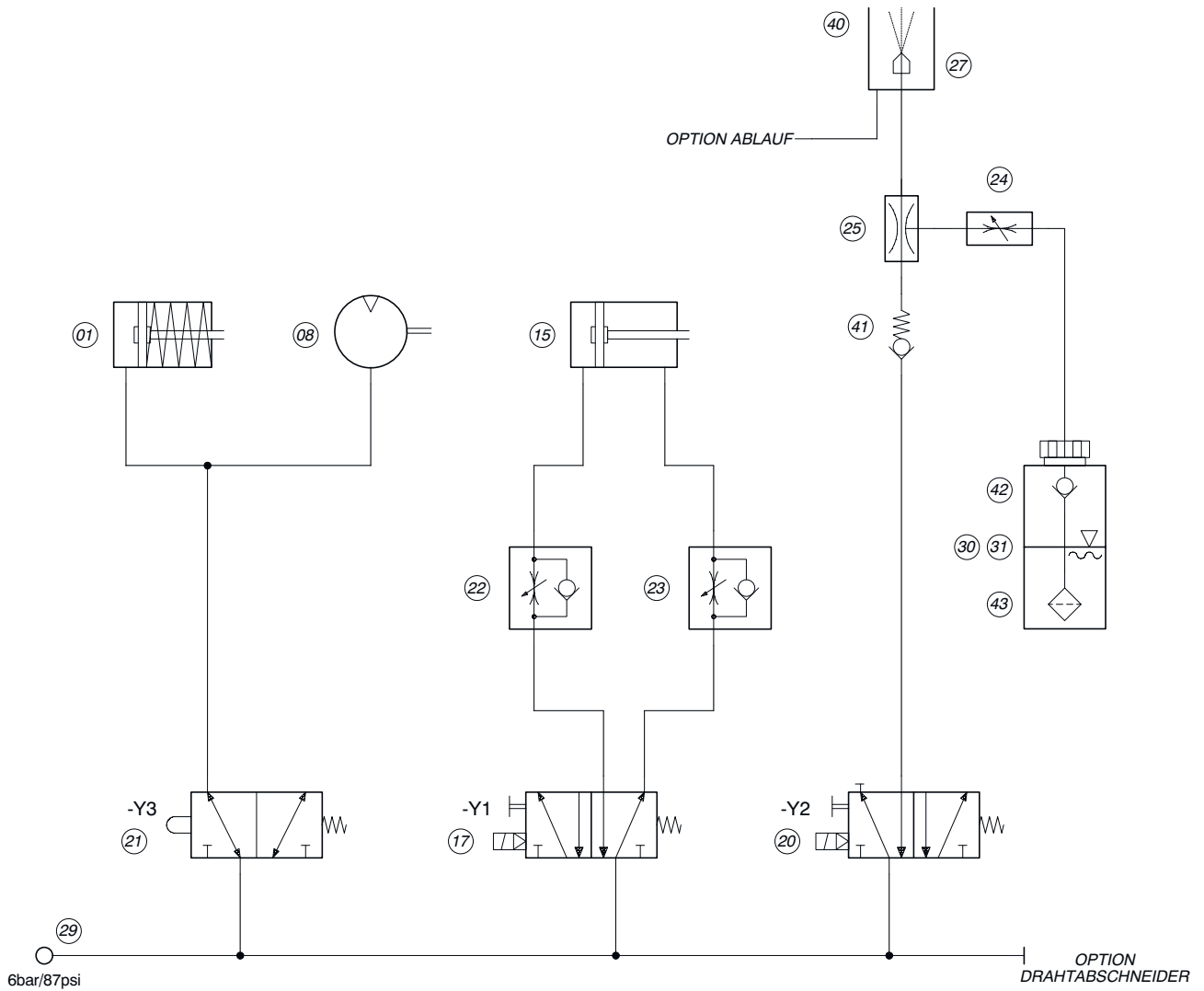




# Robacta Reamer V 70 Han12P Circuit Diagram



# Robacta Reamer V 70 Han12P pneumatic diagram



- 01 - Spannzylinder
- 08 - Pneumatikmotor
- 15 - Schiebereinheit
- 17 - Magnetventil -Y1 Motor auf/ab
- 20 - Magnetventil -Y2 Einsprühen
- 21 - Stößelventil -Y3
- 22 - Drosselrückschlagventil
- 23 - Drosselrückschlagventil
- 24 - Drosselventil
- 25 - Venturidüse mit Rückschlagventil
- 27 - Einsprühdüse
- 29 - Luftanschluss
- 30 - Kunststoffflasche für Antihafmittel
- 31 - Kunststoffflasche für Antihafmittel
- 40 - Aluminiumzylinder
- 41 - Rückschlagventil mit Feder
- 42 - Rückschlagventil ohne Feder
- 43 - Filter Ansaugung

# Declaration of conformity



## EU-KONFORMITÄTSERKLÄRUNG 2016 EU-DECLARATION OF CONFORMITY 2016 DÉCLARATION UE DE CONFORMITÉ, 2016

Wels-Thalheim, 2016-07-07

Die Firma

Manufacturer

La compagnie

### FRONIUS INTERNATIONAL GMBH

Froniusstraße 1, A-4643 Pettenbach

erklärt in alleiniger Verantwortung,  
dass folgendes Produkt:

Hereby certifies on its sole  
responsibility that the following  
product:

se déclare seule responsable du fait  
que le produit suivant:

Robacta Reamer V70 Han12P  
Gasdüsenreinigungsgerät

Robacta Reamer V70 Han12P  
Gas nozzle cleaner

Robacta Reamer V70 Han12P  
Appareil de nettoyage de buses gaz

auf das sich diese Erklärung  
bezieht, mit folgenden Richtlinien  
bzw. Normen übereinstimmt:

which is explicitly referred to by this  
Declaration meet the following  
directives and standard(s):

qui est l'objet de la présente  
déclaration correspondent aux  
suivantes directives et normes:

Richtlinie 2014/30/EU  
Elektromag. Verträglichkeit

Directive 2014/30/EU  
Electromag. compatibility

Directive 2014/30/UE  
Électromag. Compatibilité

Richtlinie 2006/42/EG  
Maschinenrichtlinie

Directive 2006/42/EC  
Machinery Directive

Directive 2006/42/CE  
Directive aux machines

Europäische Normen inklusive  
zutreffende Änderungen  
EN ISO 12100:2010  
EN 61000-6-2:2005+AC:2005  
EN 61000-6-4:2007+A1:2011

European Standards including  
relevant amendments  
EN ISO 12100:2010  
EN 61000-6-2:2005+AC:2005  
EN 61000-6-4:2007+A1:2011

Normes européennes avec  
amendements correspondants  
EN ISO 12100:2010  
EN 61000-6-2:2005+AC:2005  
EN 61000-6-4:2007+A1:2011

Die oben genannte Firma hält  
Dokumentationen als Nachweis der  
Erfüllung der Sicherheitsziele und  
die wesentlichen Schutzanforder-  
ungen zur Einsicht bereit.

Documentation evidencing  
conformity with the requirements of  
the Directives is kept available for  
inspection at the above  
Manufacturer.

En tant que preuve de la satisfaction  
des demandes de sécurité la  
documentation peut être consultée  
chez la compagnie susmentionnée.

Dokumentationsverantwortlicher:  
(technische Dokumentation)

person responsible for documents:  
(technical documents)

responsable documentation:  
(technique documentation)

Ing. Josef Feichtinger  
Günter Fronius Straße 1  
A - 4600 Wels-Thalheim

Ing. Josef Feichtinger  
Günter Fronius Straße 1  
A - 4600 Wels-Thalheim

Ing. Josef Feichtinger  
Günter Fronius Straße 1  
A - 4600 Wels-Thalheim

2016

ppa. Mag.Ing.H.Hackl  
Member of Board  
Chief Technology Officer



**Fronius International GmbH**

Froniusstraße 1  
4643 Pettenbach  
Austria  
contact@fronius.com  
www.fronius.com

Under [www.fronius.com/contact](http://www.fronius.com/contact) you will find the addresses of all Fronius Sales & Service Partners and locations.