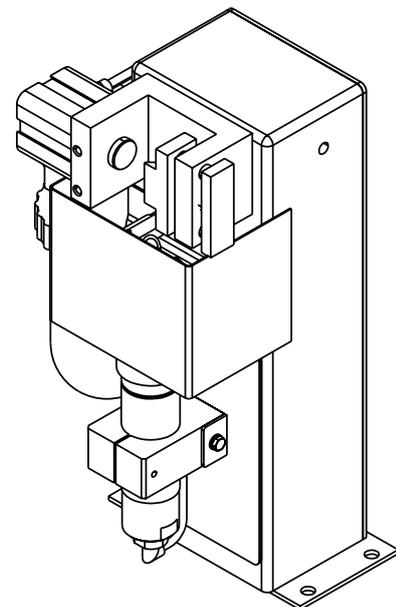


Operating Instructions

Robacta Reamer



EN | Operating Instructions



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Safety rules

Explanation of warnings and safety instructions

The warnings and safety instructions in these instructions are intended to protect people from possible injury and the product from damage.



DANGER!

Indicates an immediately dangerous situation

Serious injury or death will result if appropriate precautions are not taken.

- ▶ Action step to escape the situation



WARNING!

Indicates a potentially dangerous situation

Death or serious injury may result if appropriate precautions are not taken.

- ▶ Action step to escape the situation



CAUTION!

Indicates a potentially dangerous situation

Minor or moderate injury may result if appropriate precautions are not taken.

- ▶ Action step to escape the situation

NOTE!

Indicates impaired work results and/or damage to the device and components

The warnings and safety instructions are an integral part of these instructions and must always be observed to ensure the safe and proper use of the product.

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 cleaning device is to be used exclusively for the mechanical cleaning of Fronius robot welding torches in automated operation. Any other or additional use is deemed improper.

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 operation in industry and commercial use.

Environmental conditions

Operation or storage of the device outside the stipulated area will be deemed as not in accordance with the intended purpose.

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
- lifting device moving up/down
- 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 nozzles.

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 responsible manner in accordance with the EU Directive and national law. Used equipment must be returned to the distributor or through a local, authorised collection and disposal system. Correct disposal of the used device promotes sustainable recycling of resources and prevents negative effects on health and the environment.

Packaging materials

- Collect separately
 - Observe locally valid regulations
 - Compress the cardboard box to reduce volume
-

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.

Copyright

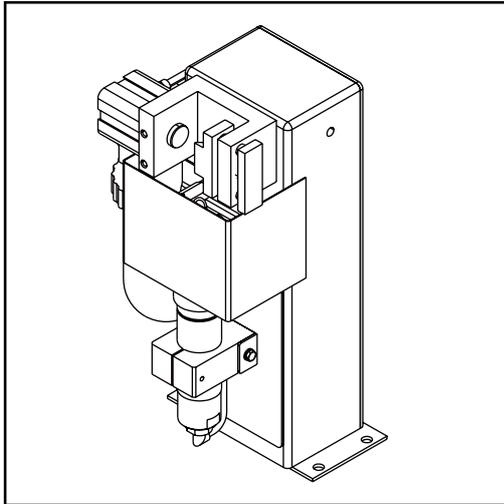
Copyright of these operating instructions remains with the manufacturer.

Text and illustrations were accurate at the time of printing, subject to change. We are grateful for suggestions for improvement and information regarding any discrepancies in the operating instructions.

General information

General

Principle



The Robacta Reamer is a welding torch cleaning device that is used for the automatic cleaning of MIG/MAG welding torches. This device can be relied upon to clean the interior and front of gas nozzles on torches of many different shapes, thereby significantly extending the service life of these wearing parts. With the Robacta Reamer, applying parting agent evenly prevents dirt from building up again.

Device concept

A lifting cylinder for the lifting device, as well as all pneumatic components, are located in the robust steel housing. On the outside are the cleaning motor and the clamping device for the gas nozzle on the welding torch. The parting agent container is attached to the outside of the steel housing.

The Robacta Reamer can optionally be fitted with a wire cutter. During the cleaning process, the wire electrode is shortened to a defined length for the next welding process.

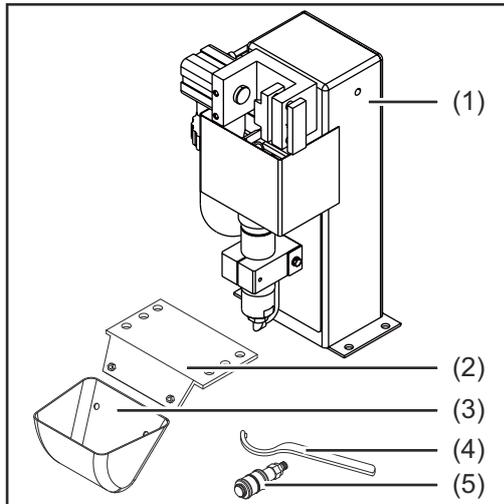
A stable fitting base is available for professional assembly of the device.

Application areas

The Robacta Reamer is intended exclusively for use in robot and other automated applications and can be used for processing steel and aluminium materials. The Robacta Reamer was designed for use in the automobile and component supply industry, equipment construction, chemical plant construction and machinery and rail vehicle manufacturing.

Scope of supply and options

Robacta Reamer scope of supply



NOTE!

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

- (1) Robacta Reamer cleaning device
- (2) Spatter tray retainer
- (3) Spatter tray
- (4) Tightening key for cleaning motor
- (5) Compressed air relief valve

not shown:

- (6) Standard I/O connecting plug (X1) without cable
- (7) Operating instructions
- (8) Filling funnel for parting agent
- (9) Fixings for assembling the cleaning device:
 - 4 screws
 - 4 washers
 - 4 lock washers
 - 4 nuts

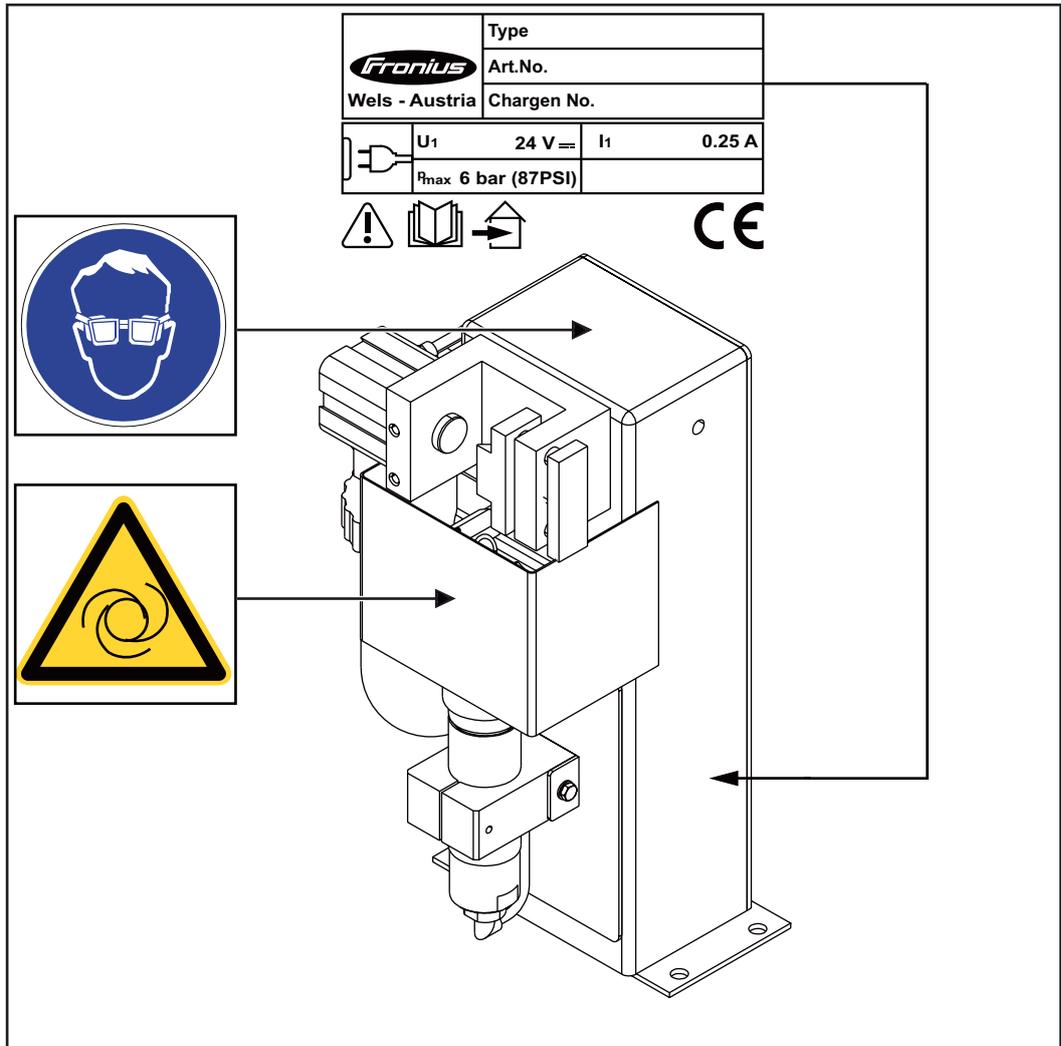
-
- Robacta Reamer options**
- Fitting base
 - Wire cutter

Warning notices on the device

Warning notices on the cleaning device

NOTE!

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 parts
- compressed air/parting agent mixture escaping from the parting agent spray nozzles
- flying parts (shavings, etc.)

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



Do not use the functions described here until you have thoroughly 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



Notice warning of automatic start-up of the device

Transport

- Transport means** The device is to be transported by the following means:
- On pallets using a counterbalanced lift truck
 - On pallets using a lift truck
 - Manually

 **WARNING!**

Danger from falling devices and objects.

This can result in serious injury and damage to property.

- ▶ Secure the device to prevent it from falling over while being transporting on a counterbalanced lift 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.

Controls, connections and mechanical components

Safety

Safety

Observe the following safety rules when using all functions described in the "Controls, connections and mechanical components" section.



WARNING!

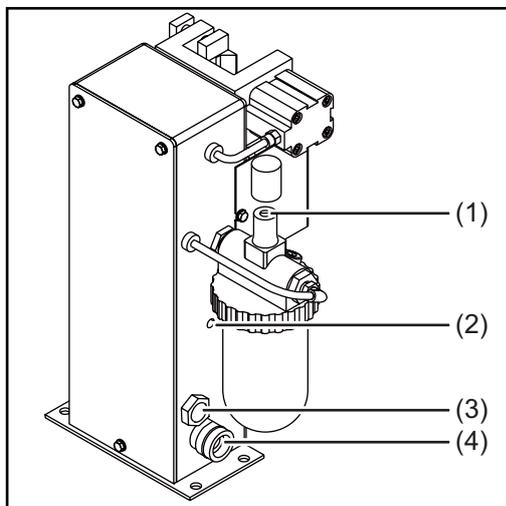
Danger from incorrect operation!

This can result in serious injury and damage to property.

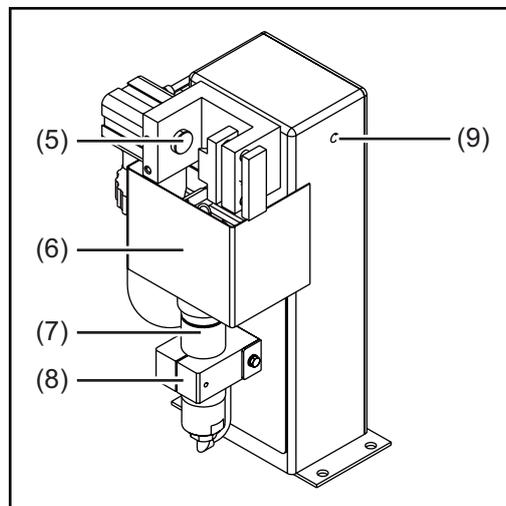
- ▶ The functions described must only be used by trained and qualified personnel.
- ▶ Do not use the functions described here until you have fully read and understood the following documents:
these Operating Instructions,
all the Operating Instructions for the system components, especially the safety rules

Robacta Reamer control elements, connections and mechanical components

Control elements, connections and mechanical components



Side view



Front view

-
- (1) Parting agent adjuster**
for setting the spray amount on the parting agent spray nozzles
-
- (2) "Cleaning" screw**
for manually checking the following functions:
- Cleaning motor ON/OFF
 - Supply of compressed air and parting agent to parting agent spray nozzles (compressed air/parting agent mixture is sprayed out of the parting agent spray nozzles)
 - Lifting device UP/DOWN
 - Gas nozzle clamping device extends/retracts
-
- (3) Compressed air connection**
for a dry compressed air supply at 6 bar (86.99 psi)
Thread identification compressed air connection: G 1/4"
-
- (4) Standard I/O connection (X1)**
for a 24 V DC supply



CAUTION!

Risk of damage to standard I/O connection (X1) supply due to overcurrent.
Secure supply against overcurrent with a 500 mA slow-blow fuse.

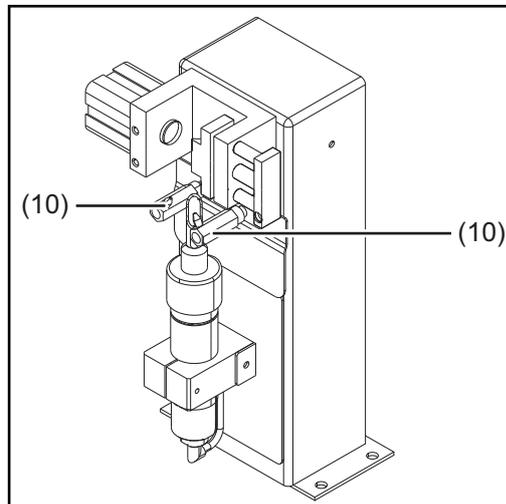
-
- (5) Gas nozzle clamping device**
Holds the gas nozzle in place during cleaning
-
- (6) Protective covering**
-
- (7) Cleaning motor**
Drives the cleaning cutter

(8) Lifting device

Lifts the cleaning motor and the cleaning cutter to the cleaning position ready to commence cleaning

(9) "Spray" button

Starts the spraying process. Bleeds the feed pipes after filling with parting agent



Front view

(10) Parting agent spray nozzles

Sprays the parting agent into the interior and onto the front of the gas nozzles using compressed air

Standard I/O connecting plug (X1) pin assignment for robot control

General

CAUTION!

Danger from overcurrent.

Damage to the standard I/O (X1) connection supply may result.

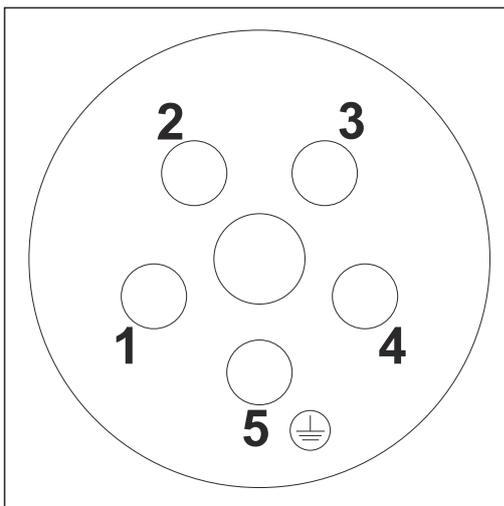
- ▶ Secure the power supply of the cleaning device against overcurrent with a 500 mA slow-blow fuse.

NOTE!

To avoid malfunction, keep the cable length between the cleaning device and robot control as short as possible.

The standard I/O (X1) connecting plug for connecting the cleaning device to the robot control is part of the scope of supply. The cable harness must be adapted to the connection technology on the robot control.

Standard I/O (X1) connecting plug pin assignment



1. Input - start cleaning
2. GND
3. + 24 V
4. Output - gas nozzle free
5. Earthing

(see circuit diagrams in appendix)

Standard I/O (X1) connecting plug pin assignment - cable-end view

Installation and commissioning

Safety

Safety

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



WARNING!

Incorrect operation or shoddy workmanship can cause serious injury or damage.

All activities described in these operating instructions may only be carried out by trained and qualified personnel. All functions described in these operating instructions may only be used by trained and qualified personnel. Do not carry out any of the work or use any of the functions described 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



WARNING!

Machines that start up automatically can cause serious injury and damage.

In addition to these operating instructions, the safety rules issued by the manufacturers of the robot and welding systems must also be observed. 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!

Risk of serious injury from:

- ▶ mechanically powered parts
- ▶ flying parts (shavings, etc.)
- ▶ compressed air/parting agent mixture escaping from the parting-agent injection nozzles
- ▶ Before performing work on the cleaning device or any connected system components:
 - ▶ disconnect the customer compressed air and power supplies from the cleaning device and the connected system components, and ensure that they remain disconnected until work is complete
 - ▶ ensure that the cleaning device is depressurised - please see the "Ensuring that the cleaning device is depressurised" section below for the relevant instructions



WARNING!

Whenever the cleaning device and connected system components are supplied with voltage and/or compressed air, a risk of serious injury exists from:

- ▶ rotating cleaning cutter
- ▶ lifting device 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 nozzles

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

- ▶ keep your body, especially your hands, face, hair, any objects and all clothing away from the cleaning cutter, lifting device, gas nozzle clamping device, wire cutter and parting-agent injection nozzles
- ▶ 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. Proceed as follows:

- 1** Take protective measures:
 - The cleaning cutter, lifting device, gas nozzle clamping device, wire cutter and parting-agent injection nozzles could start up. Therefore keep your body, especially your hands, face and hair, any objects and all clothing away from the parts 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 "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

Operators, maintenance personnel

WARNING!

Risk of machines starting automatically.

This can result in serious injury and damage to property.

- ▶ The device must only be operated by one person.
- ▶ Nobody may be in the working area of the device while it is in operation.
- ▶ The device must only be serviced or maintained by one person.
- ▶ Nobody else may be within the radius of the device while it is being worked on.

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 $\leq + 3 \text{ }^\circ\text{C}$
 - 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

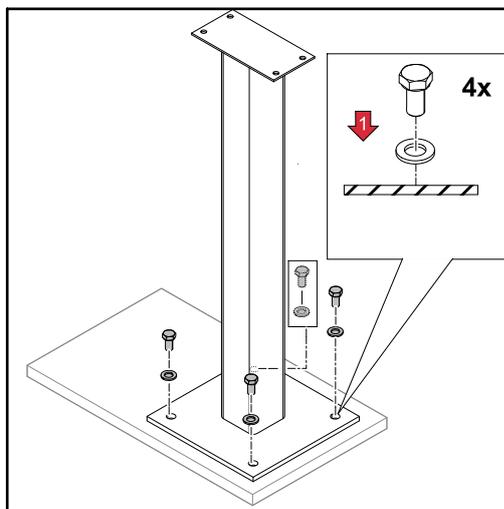
Screwing the cleaning device and installation stand to the underlying surface

WARNING!

Danger from machines falling or toppling over.

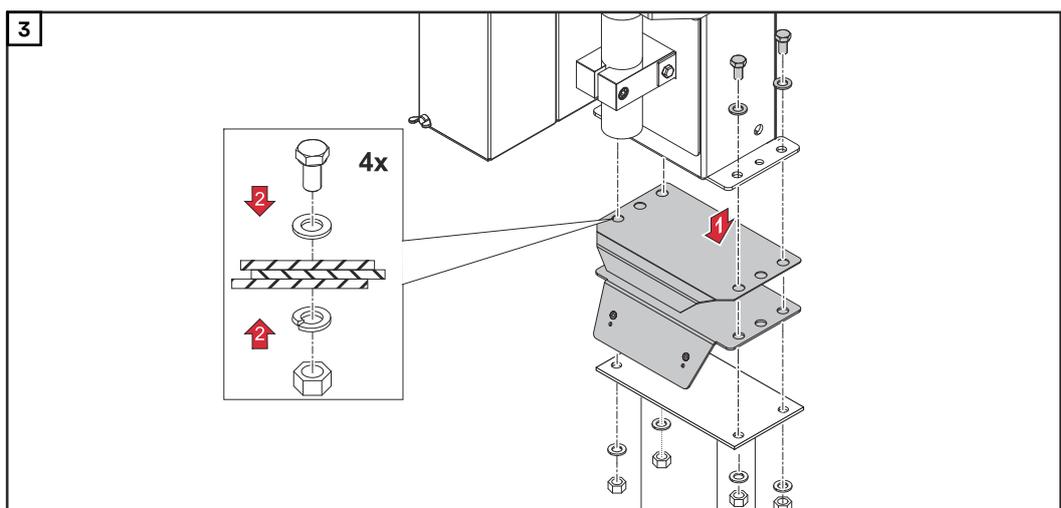
This can result in serious injury and damage to property.

- ▶ 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.

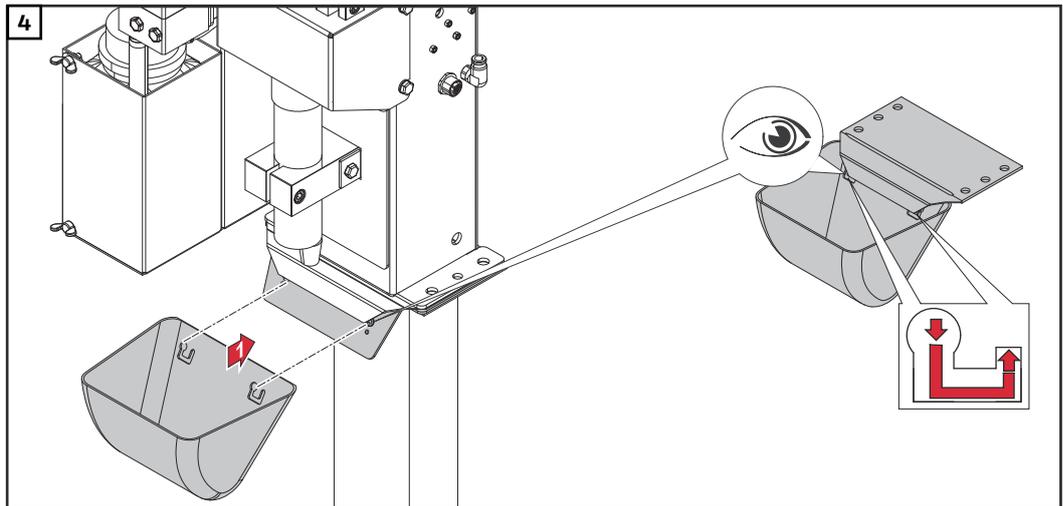


- 1** Place the optionally available installation stand on a level, firm and vibration-free surface (foundation)
 - Position the installation stand in such a way that the distance the robot has to travel to the cleaning device on the installation stand is as short as possible
- 2** Tightly screw the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

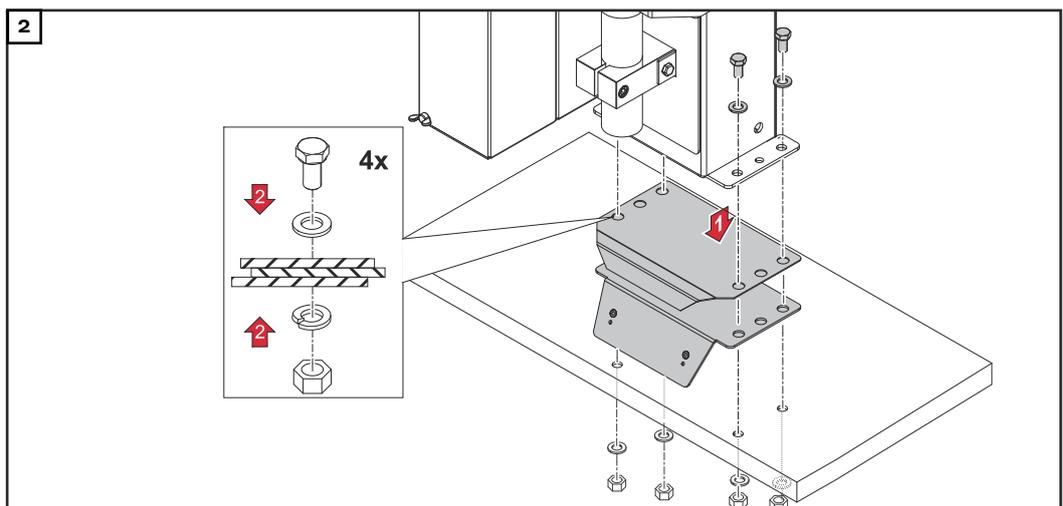
⚠ WARNING!

Danger from machines falling or toppling over.

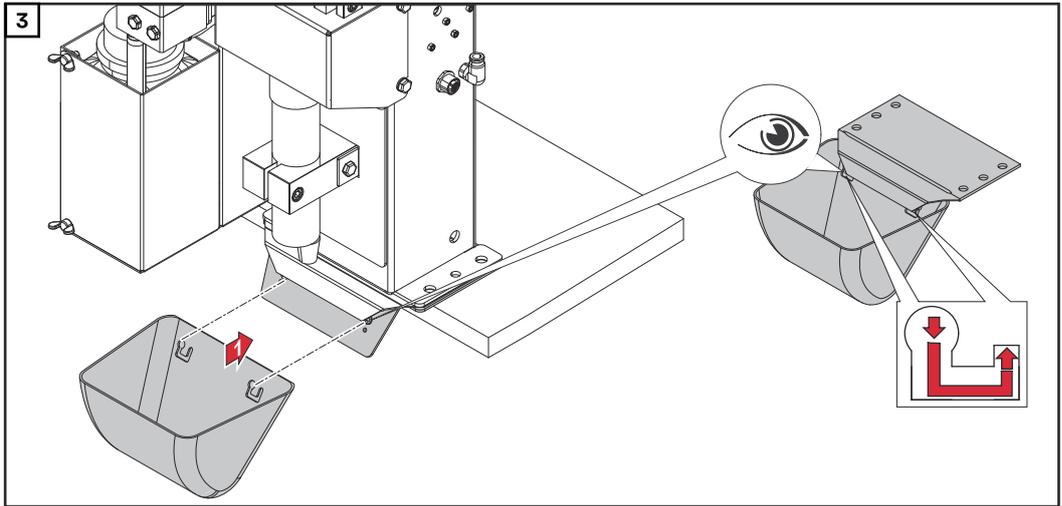
This can result in serious injury and damage to property.

- ▶ 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.



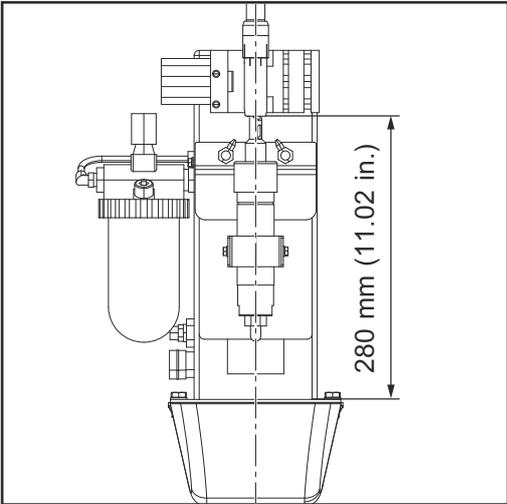
Place components on the underlying surface and secure



Attach the spatter tray retainer as shown

Torch cleaning position

**Welding torch
cleaning position**



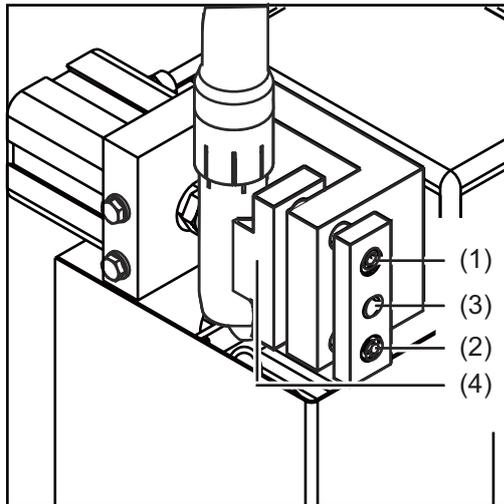
Adjust gas nozzle clamping device

Adjust gas nozzle clamping device

NOTE!

The gas nozzle clamping device must be adjusted so that no bearing pressure is transferred to the robot.

The gas nozzle must only be clamped onto the cylindrical surface.



- 1 Loosen 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 Allen screws on the guide bolts (1) and (2)

NOTE!

The gas nozzle must be clamped centrally over the cleaning motor.

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!

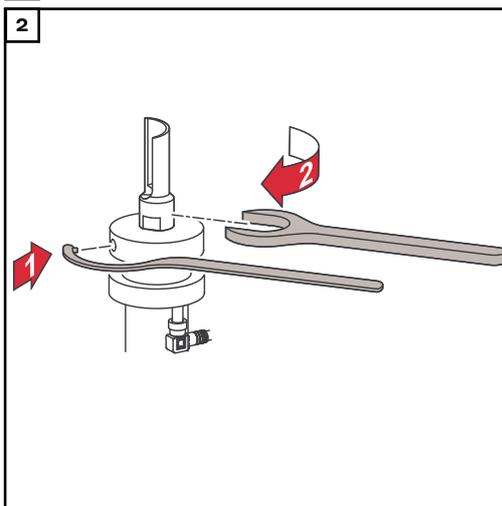
Danger from incompatible wearing parts.

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.froni-us.com/>

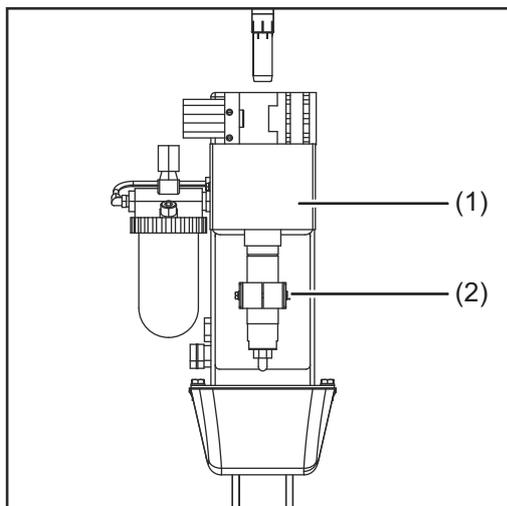
- 1 Remove the protective covering from the cleaning device



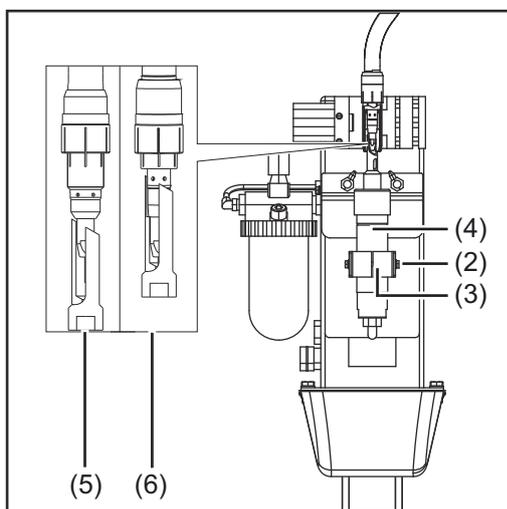
- 3 Fit the protective covering to the cleaning device in its original position

Adjusting the lifting device

Adjust lifting device



- 1 Remove protective covering (1)
- 2 Remove gas nozzle from torch neck
- 3 Ensure that the lifting device is in its lowest position
- 4 Undo screw (2) on the lifting device
- 5 Move the welding torch to the cleaning position



- 6 Push the lifting device (3) by hand into its highest position and hold in place
- 7 Manually push cleaning motor (4) and cleaning cutter to the cleaning position
 - see diagram (5) for welding torch and spatter guard
 - see diagram (6) for welding torch and insulating sleeve

NOTE!

The cleaning cutter must not touch any welding torch components.

- 8 Fix cleaning motor (4) in this position in the lifting device (3) - tighten screw (2) on the lifting device
- 9 Carry out function test on unfitted gas nozzle - push lifting device by hand to its highest position
 - The cleaning cutter must close around the contact tip without touching it. If the cleaning cutter touches welding torch components, adjust the lifting device
- 10 Fit gas nozzle to torch neck
- 11 Carry out function test with gas nozzle fitted - push lifting device by hand to its highest position
 - The cleaning cutter must be inserted into the gas nozzle gently, without touching it. If the cleaning cutter touches welding torch components, adjust the lifting device
- 12 Fit the protective covering to the cleaning device in its original position

Starting up the parting agent nebuliser

Starting up the parting agent nebuliser

NOTE!

Only use "Robacta Reamer" parting agent (item number 42,0411,8042) supplied by the manufacturer.

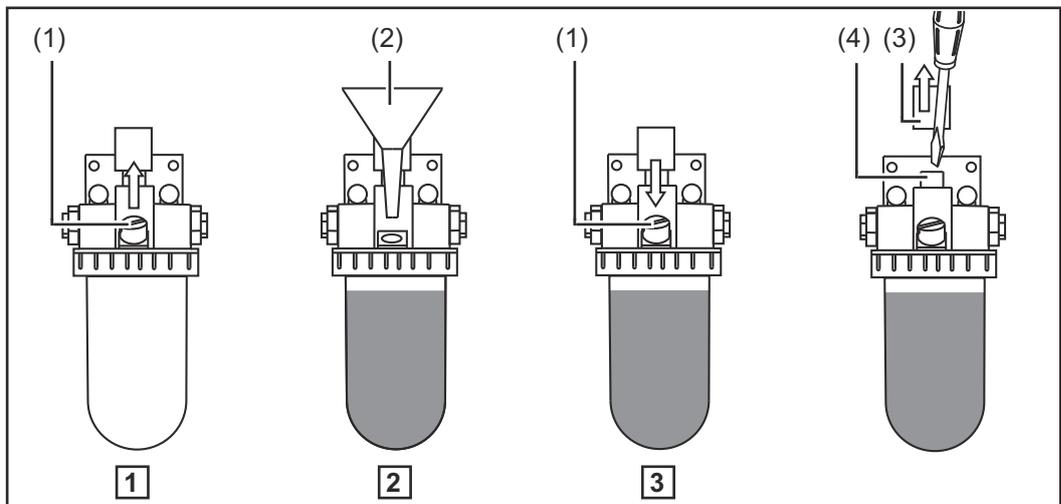
The composition of the manufacturer's parting agent is designed specifically for the cleaning device. If other manufacturers' products are used, trouble-free operation cannot be guaranteed.

- 1 Open the sealing plug (1)
- 2 Fill with "Robacta Reamer" parting agent using the filling funnel (2)
- 3 Close the sealing plug (1)

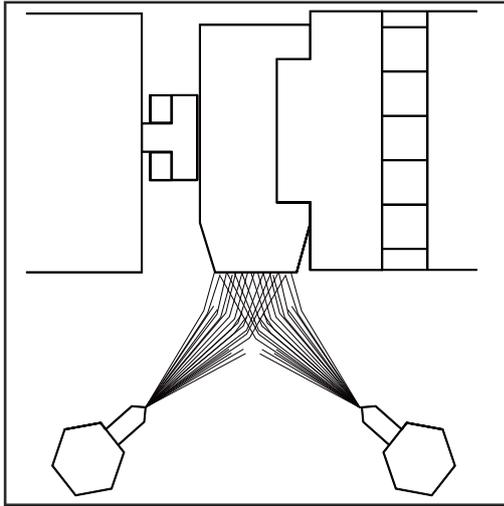
NOTE!

If the spray amount is not sufficient after starting up the cleaning device, increase it as required:

- ▶ by adjusting the spray time using the robot control - a spray time of around 0.7 seconds is recommended
- ▶ or by using the parting agent adjuster (4): remove the safety clamp (3) and use a screwdriver to set the parting agent adjuster (4) so that after spraying the welding torch interior is coated with a thin layer of parting agent (0.2-0.5 ml)



**Correct setting
of the parting
agent spray
nozzles**

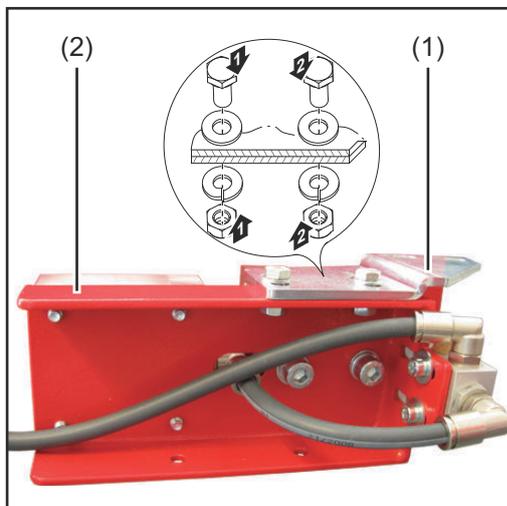


NOTE!

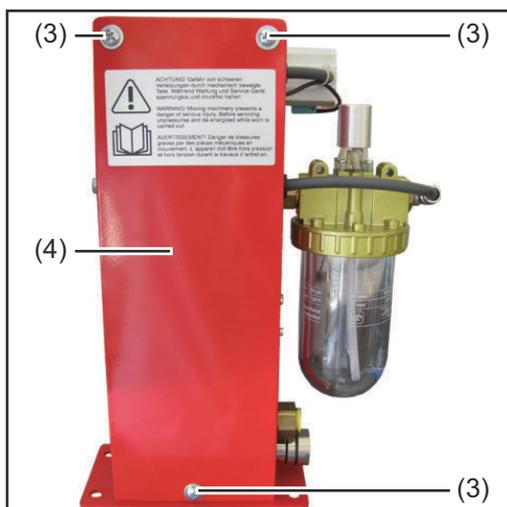
Both jets of parting agent must meet in front of the gas nozzle so that they both enter the nozzle.

Installing the mechanically controlled wire cutter (optional)

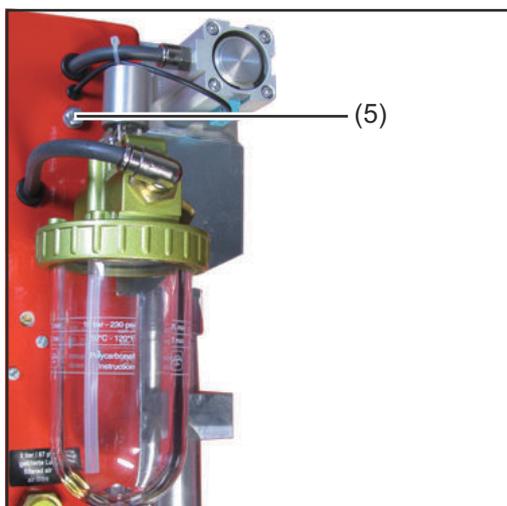
Installing the mechanically controlled wire cutter



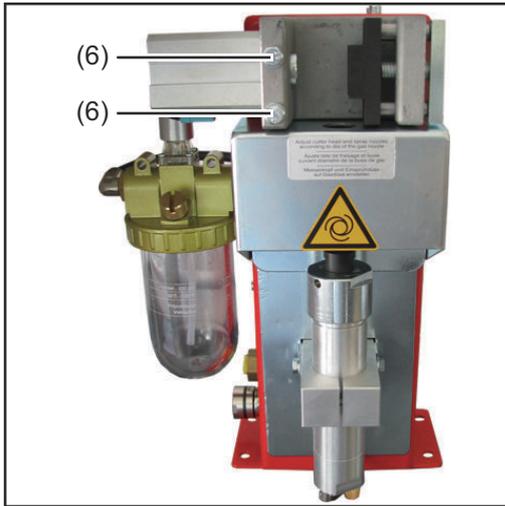
- 1 Position the mounting bracket (1) on the wire cutter (2) as illustrated and screw into place using the fixings provided as shown in the detailed diagram



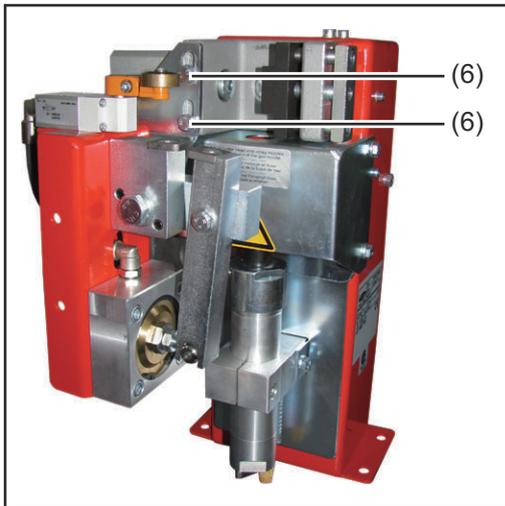
- 2 Undo 3 screws and washers (3)
- 3 Remove cleaning device housing cover (4)



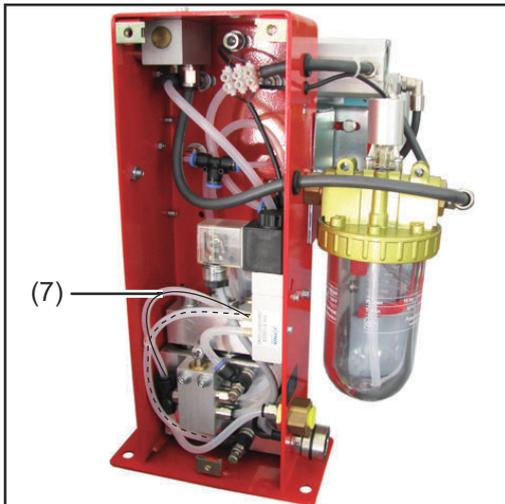
- 4 Remove screw (5)



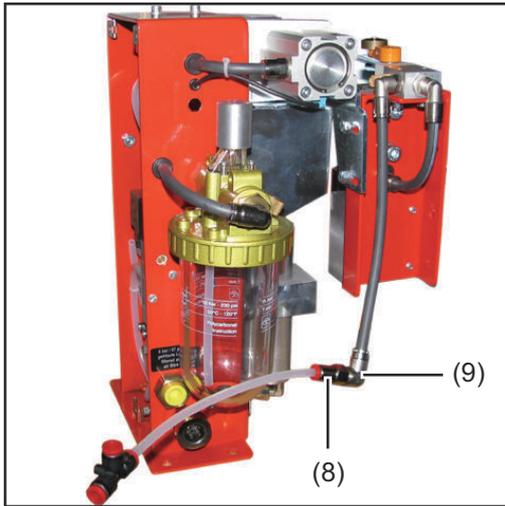
- 5** Undo screws and washers (6)
 - Keep the screws and washers for future use



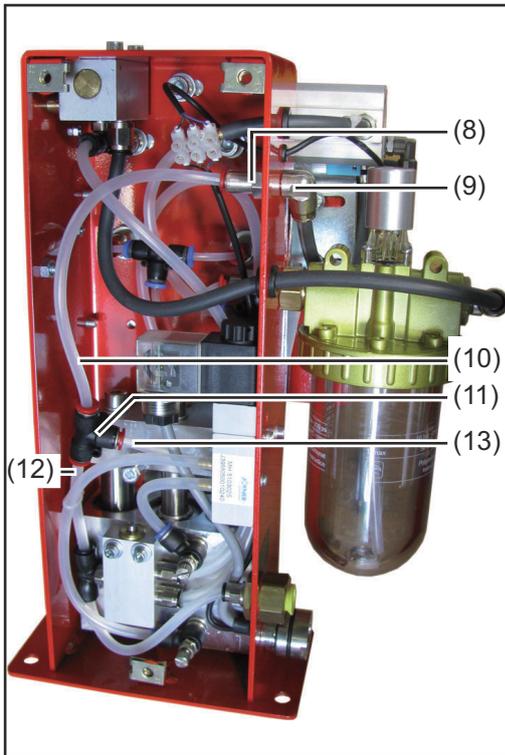
- 6** Screw the wire cutter to the cleaning device using the previously removed screws and washers (6)



- 7** Cut through the compressed air hose (7) in the interior of the cleaning device housing at the position shown



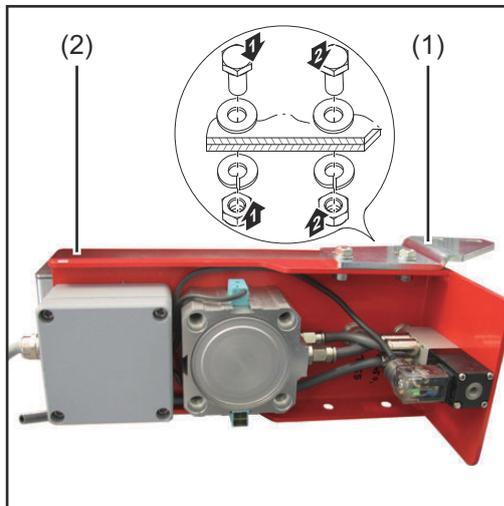
- 8** Detach compressed air connection (8) from compressed air connection (9)



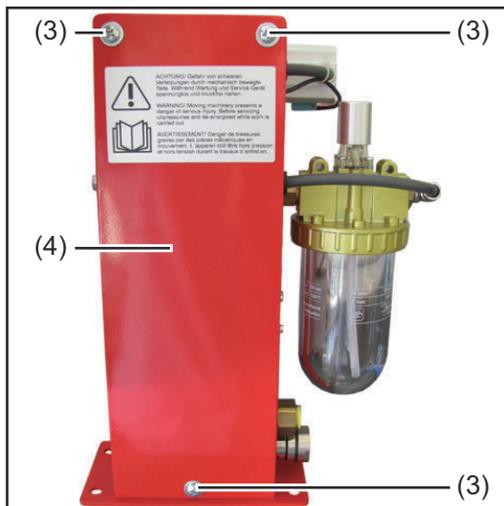
- 9** Attach the wire cutter compressed air connection (9) to the compressed air connection (8) on the cleaning device housing as shown
- 10** Insert the compressed air hose (10) firmly into the compressed air distributor (11)
- 11** Insert the two loose ends (12) and (13) of the previously cut compressed air hose firmly into the compressed air distributor (11) as shown
- 12** Fit the cleaning device housing cover (4) to the cleaning device in its original position

Installing the electrically controlled wire cutter (optional)

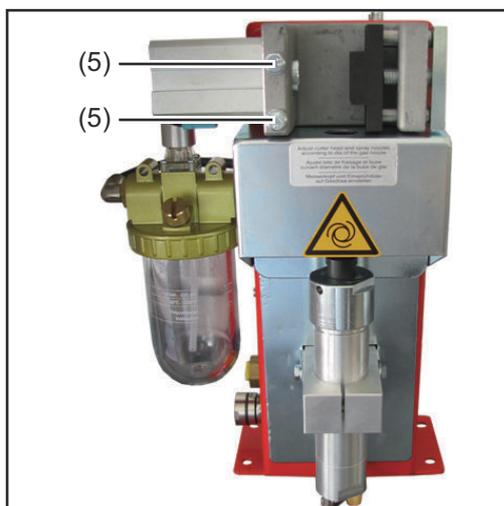
Installing the electrically controlled wire cutter



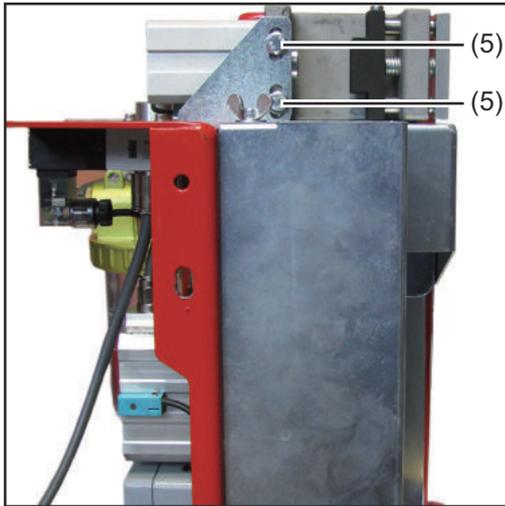
- 1 Position the mounting bracket (1) on the wire cutter (2) as illustrated and screw into place using the fixings provided as shown in the detailed diagram



- 2 Undo 3 screws and washers (3)
- 3 Remove cleaning device housing cover (4)



- 4 Undo screws and washers (5)
 - Keep the screws and washers for future use



- 5 Screw the wire cutter to the cleaning device using the previously removed screws and washers (5)
- 6 Fit the cleaning device housing cover (4) to the cleaning device in its original position

NOTE!

The wire cutter must be supplied with compressed air from an additional supply line.

NOTE!

The wire cutter electrical connection must be connected to the robot control.

Wire cutter function

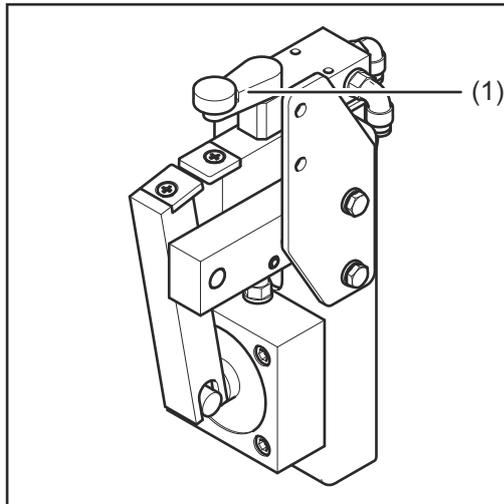
Maximum wire diameter

Wire electrodes with a diameter of up to 1.6 mm (0.063 in.) can be cut with an electrically or mechanically controlled wire cutter.

How the mechanically controlled wire cutter works

NOTE!

If you change over to a new welding torch, the mechanically controlled wire cutter must be reset!



If a torch body pushes the valve lever (1) to the side by more than 15° with the gas nozzle, the wire cutter is activated and the wire electrode is cut.

NOTE!

The wire electrode is cut while the torch body is moving.

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.

Installing the compressed air supply

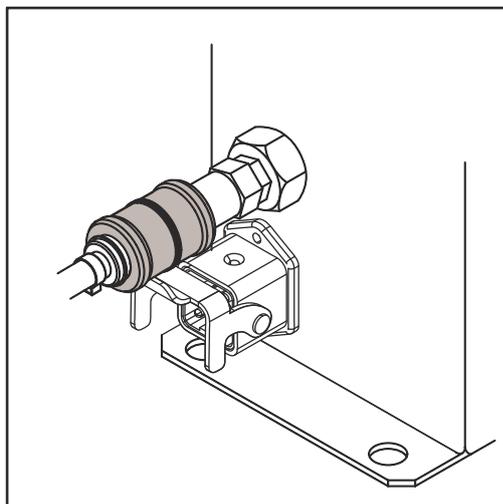
Establishing the compressed air supply for the cleaning device, function of the compressed air relief valve

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

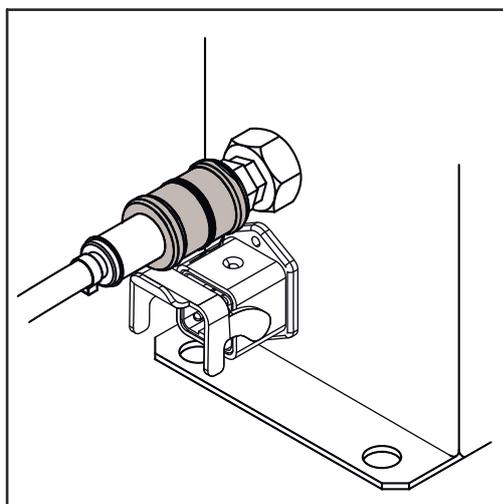
The compressed air supply to the cleaning device can be broken and re-established by moving the compressed air relief valve forwards and backwards - see description below.

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 cleaning device

Prerequisites for start-up	<p>The following requirements must be met before the cleaning device is started up:</p> <ul style="list-style-type: none">- If present, the cleaning device installation stand is bolted to underlying surface- Cleaning device is bolted to underlying surface- Gas nozzle clamping device is adjusted- Cleaning cutter is fitted- Lifting device has been adjusted- Parting agent nebuliser has been started up- Compressed air supply has been established- Cleaning device is connected to robot control- All covers are fitted and all safety devices are intact and in their proper place
-----------------------------------	---

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

Program sequence and signal waveform

Cleaning programme sequence

CAUTION!

Risk of damage.

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.

Start



Wire cutter option

Start from position C

- approx. 25 mm (0.98 in.) next to wire cutter
- Speed: high speed mode



Start from position D

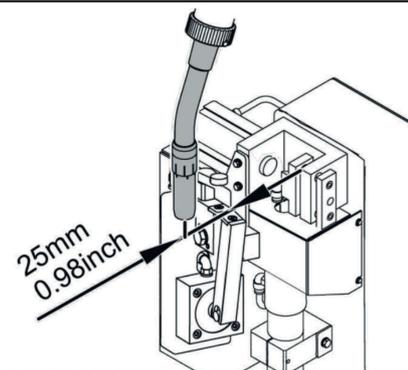
- approx. 25 mm (0.98 in.) Enter wire cutter
- Speed: 10 cm/s (236.22 ipm)



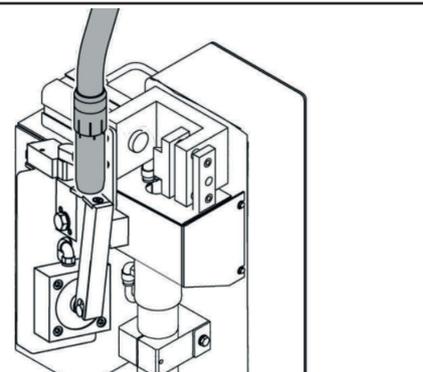
Wait 0.5 sec.



Pos. C



Pos. D



Start from position A
- approx. 50 mm (1.97 in.) above centre of cleaning motor
- Speed: high speed mode



Query output (Gas nozzle free output signal)
- Low or High



Query = High
(Gas nozzle free)



Start from position B (cleaning position)
- Enter gas nozzle clamping device
- Speed: 10 cm/s (236.22 ipm)



Set
- Blow compressed air through welding torch



Set
- Input "Begin cleaning"



Wait 3 sec.



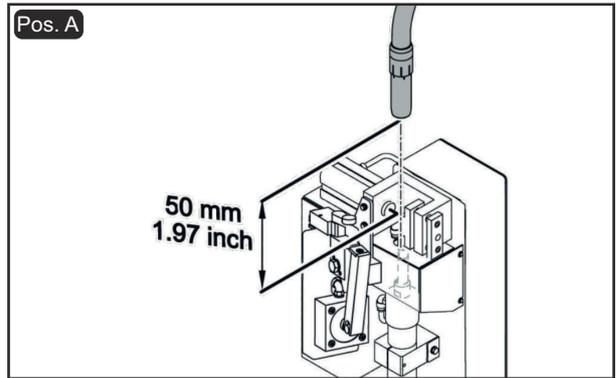
Reset
- Input "Begin cleaning"



Reset
- Blow compressed air through welding torch



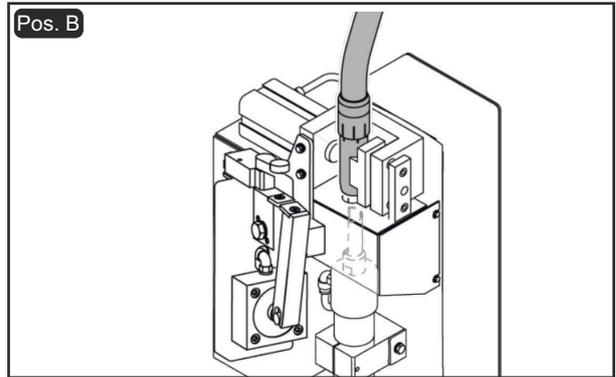
Wait 1.5 sec.

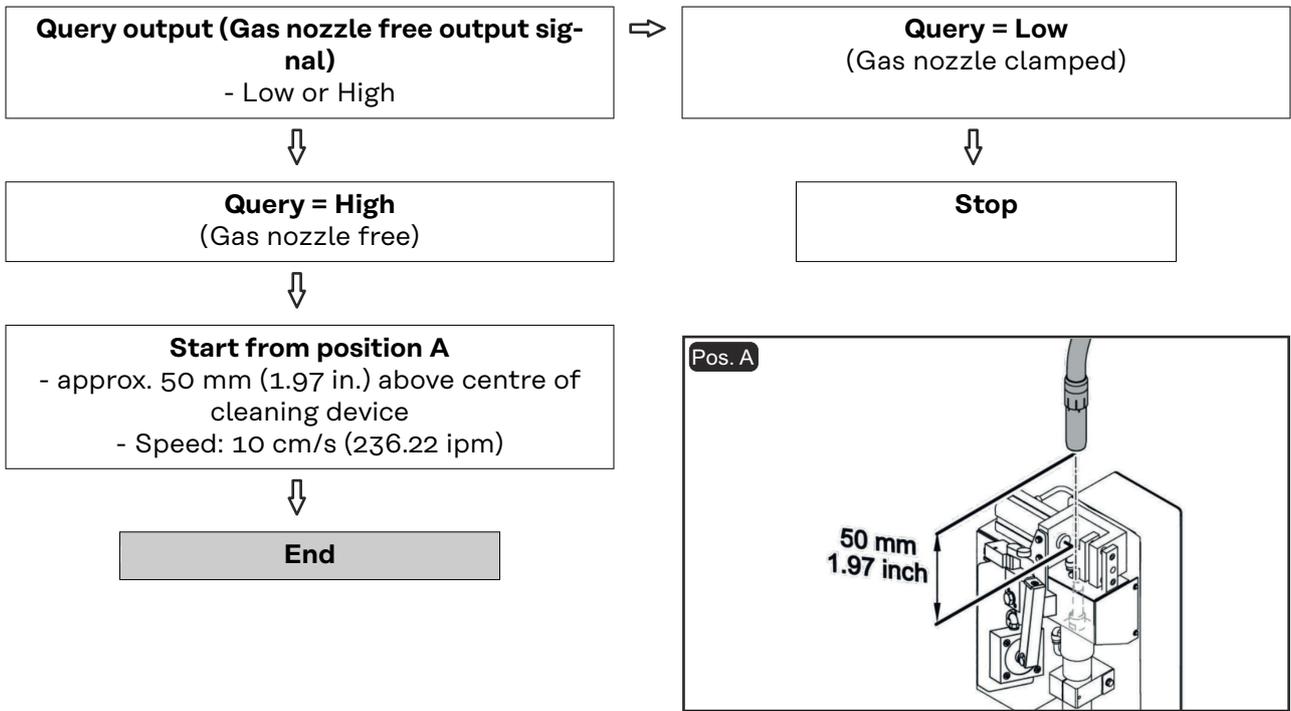


Query = Low
(Gas nozzle clamped)

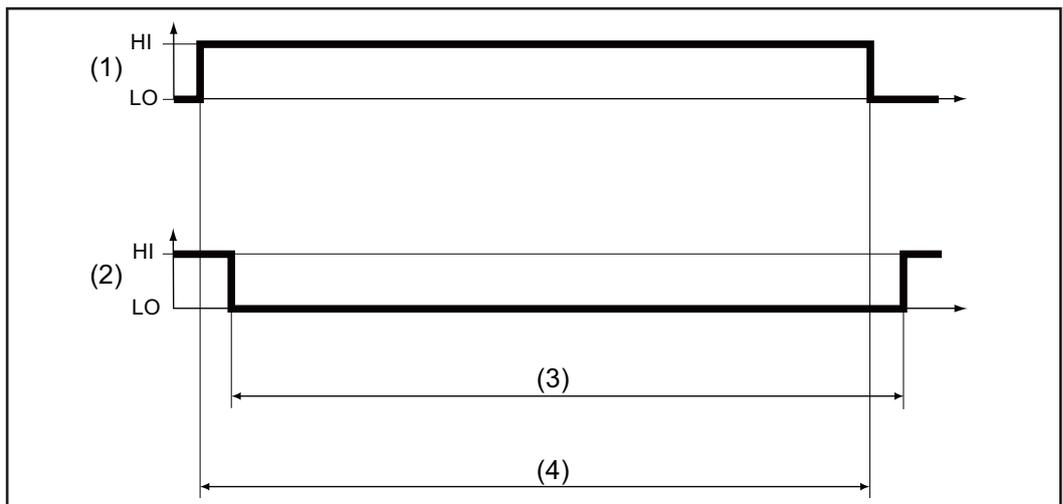


Stop





Signal waveform



No.	Meaning
(1)	Input "Begin cleaning"
(2)	Output "Gas nozzle free"
(3)	Gas nozzle free
(4)	Cleaning time: 3.0 - 5.0 seconds

Care, maintenance and disposal

Safety

Safety

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



WARNING!

Incorrect operation or shoddy workmanship can cause serious injury or damage.

All activities described in these operating instructions may only be carried out by trained and qualified personnel. All functions described in these operating instructions may only be used by trained and qualified personnel. Do not carry out any of the work or use any of the functions described 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



WARNING!

Machines that start up automatically can cause serious injury and damage.

In addition to these operating instructions, the safety rules issued by the manufacturers of the robot and welding systems must also be observed. 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!

Risk of serious injury from:

- ▶ mechanically powered parts
- ▶ flying parts (shavings, etc.)
- ▶ compressed air/parting agent mixture escaping from the parting-agent injection nozzles
- ▶ Before performing work on the cleaning device or any connected system components:
 - ▶ disconnect the customer compressed air and power supplies from the cleaning device and the connected system components, and ensure that they remain disconnected until work is complete
 - ▶ ensure that the cleaning device is depressurised - please see the "Ensuring that the cleaning device is depressurised" section below for the relevant instructions



WARNING!

Whenever the cleaning device and connected system components are supplied with voltage and/or compressed air, a risk of serious injury exists from:

- ▶ rotating cleaning cutter
- ▶ lifting device 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 nozzles

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

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



CAUTION!

A cleaning cutter that has become very hot through use can cause 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. Proceed as follows:

- 1** Take protective measures:
 - The cleaning cutter, lifting device, gas nozzle clamping device, wire cutter and parting-agent injection nozzles could start up. Therefore keep your body, especially your hands, face and hair, any objects and all clothing away from the parts 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 "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 the cleaning cutter for wear and replace if necessary
 - Empty the cleaning device spatter tray
 - If fitted, empty the wire cutter tray
 - Perform a general visual inspection on the device
-

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**
- Check parting agent container for signs of dirt
-

- 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

Safety

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

WARNING!

Incorrect operation or shoddy workmanship can cause serious injury or damage.

All activities described in these operating instructions may only be carried out by trained and qualified personnel. All functions described in these operating instructions may only be used by trained and qualified personnel. Do not carry out any of the work or use any of the functions described 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

WARNING!

Machines that start up automatically can cause serious injury and damage.

In addition to these operating instructions, the safety rules issued by the manufacturers of the robot and welding systems must also be observed. 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!

Risk of serious injury from:

- ▶ mechanically powered parts
- ▶ flying parts (shavings, etc.)
- ▶ compressed air/parting agent mixture escaping from the parting-agent injection nozzles
- ▶ Before performing work on the cleaning device or any connected system components:
- ▶ disconnect the customer compressed air and power supplies from the cleaning device and the connected system components, and ensure that they remain disconnected until work is complete
- ▶ ensure that the cleaning device is depressurised - please see the "Ensuring that the cleaning device is depressurised" section below for the relevant instructions



WARNING!

Whenever the cleaning device and connected system components are supplied with voltage and/or compressed air, a risk of serious injury exists from:

- ▶ rotating cleaning cutter
- ▶ lifting device 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 nozzles

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

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



CAUTION!

A cleaning cutter that has become very hot through use can cause severe burns.

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

Ensuring that the cleaning device is depressurised

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- 1** Take protective measures:
 - The cleaning cutter, lifting device, gas nozzle clamping device, wire cutter and parting-agent injection nozzles could start up. Therefore keep your body, especially your hands, face and hair, any objects and all clothing away from the parts 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 "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

Troubleshooting

Errors in program sequence

Parting agent does not spray

Parting agent container is full

Cause: Not enough spray

Remedy: Adjust spray amount

Cause: Parting agent spray nozzles are blocked

Remedy: Clean parting agent spray nozzles

If cleaning does not rectify problem, contact After-Sales Service - replace parting agent spray nozzles

Cause: No signal from robot

Remedy: Check connection to robot control

Welding torch is poorly cleaned or damaged

Cause: Lifting device not adjusted properly

Remedy: Adjust lifting device

Cause: Gas nozzle clamped in wrong position

Remedy: Adjust gas nozzle clamping device

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: Compressed air relief valve closed

Remedy: Open compressed air relief valve

Cause: No signal from robot

Remedy: Check connection to robot control

Cause: Faulty sealing in lifting cylinder

Remedy: Contact After-Sales Service - replace lifting cylinder

Cleaning motor does not work

Cause: Compressed air relief valve closed

Remedy: Open compressed air relief valve

Cause: No signal from robot

Remedy: Check connection to robot control

Cause: Mechanical fault on cleaning motor

Remedy: Contact After-Sales Service - replace cleaning motor

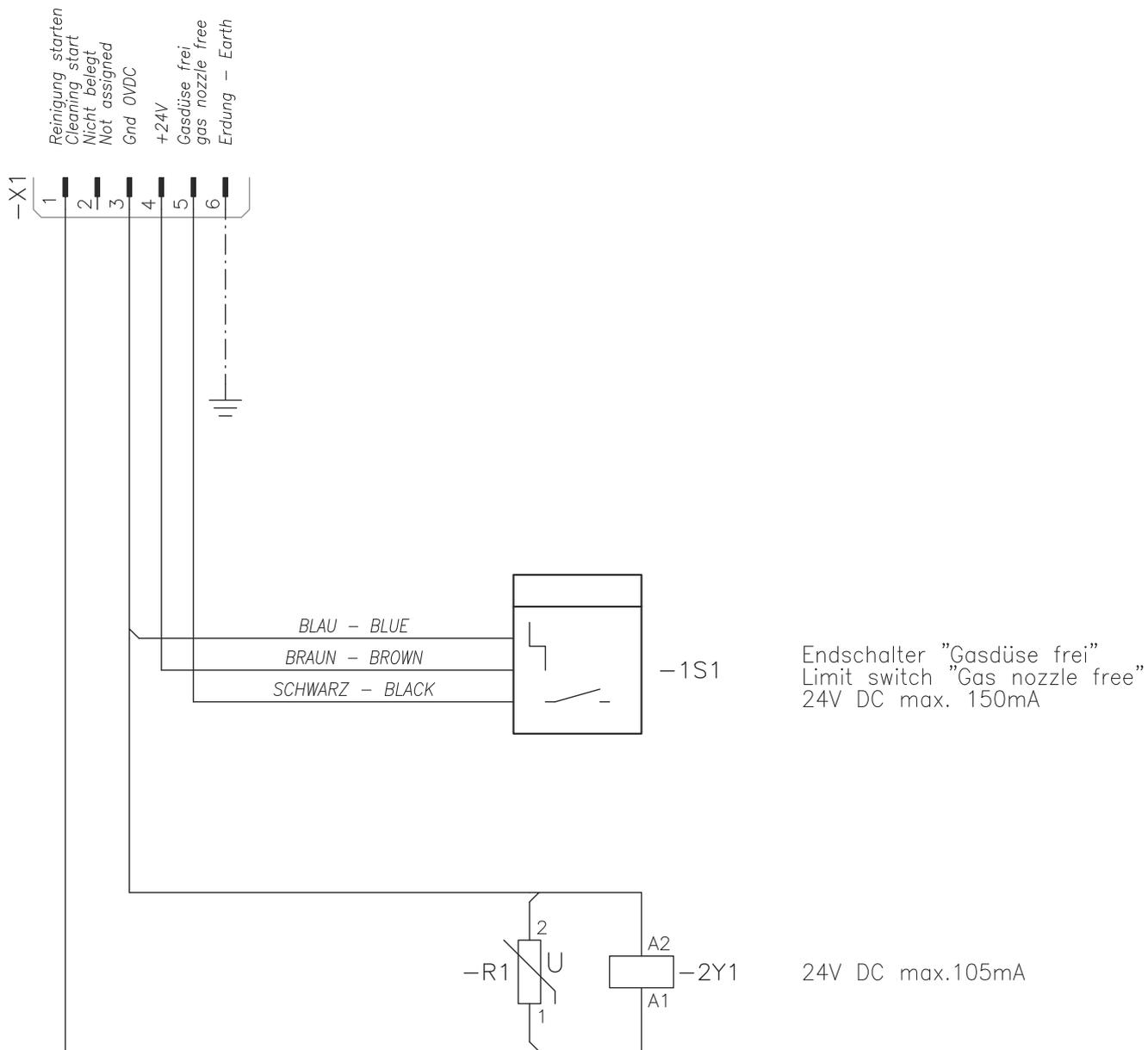
Technical data

Technical data

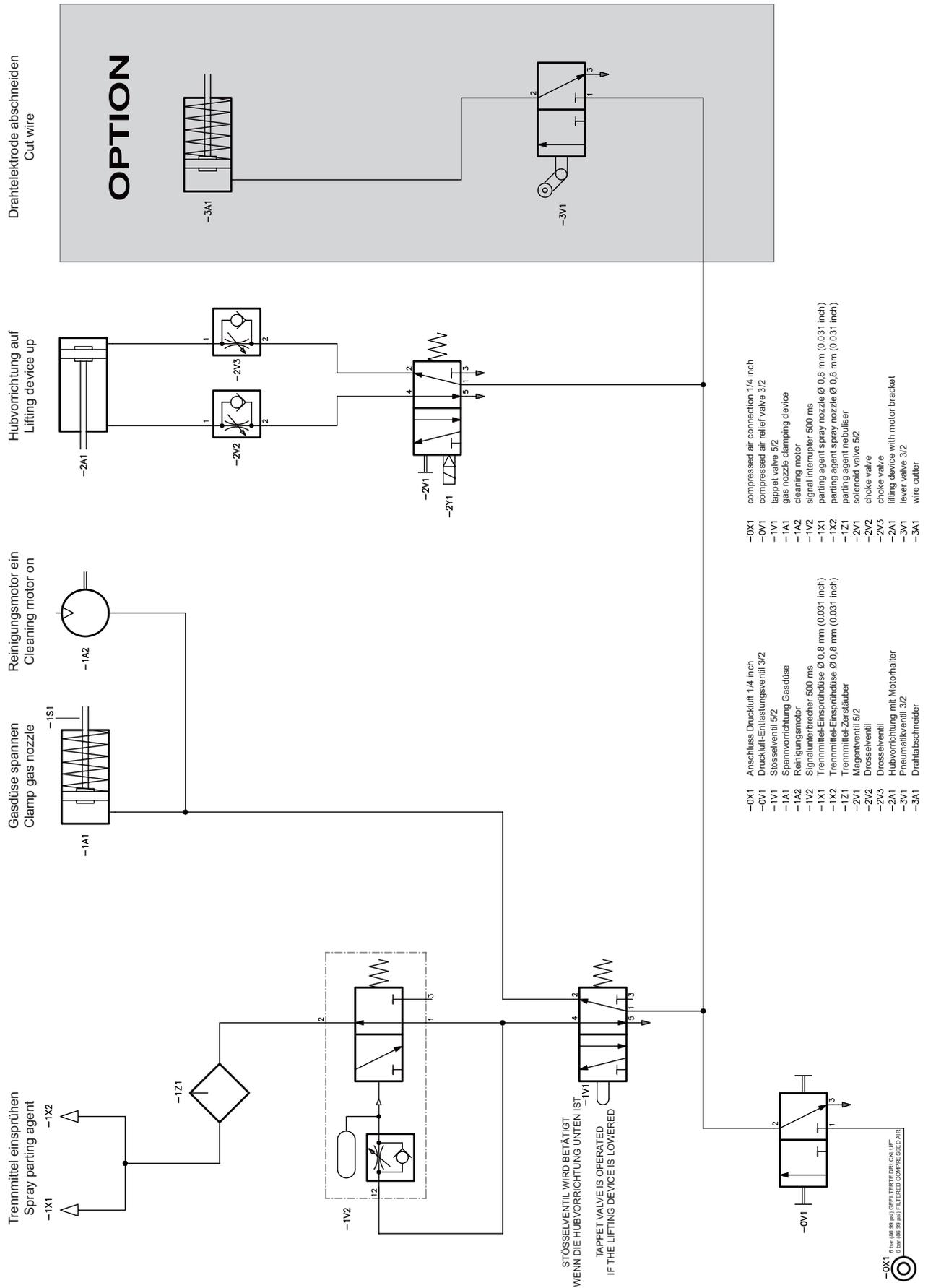
Robacta Reamer	Supply voltage	+ 24 V DC
	Nominal output	3.2 W
	Nominal pressure	6 bar 86.99 psi
	Air consumption	420 l/min 443.81 qt./min
	Thread identification compressed air connection	G ¼"
	Standard I/O (X1)	Input: + 24 V DC / max. 150 mA Output: + 24 V DC / max. 30 mA
	Cleaning time	3.0 - 5.0 s
	Total cycle time	4.0 - 7.5 s
	Parting agent container capacity	0.25 l .07 gal. (US)
	Degree of protection	IP 21
	Mark of conformity	CE, CSA
	Max. noise emission (LWA)	82 dB (A)
	Dimensions l x w x h	240 x 165 x 280 mm 9.45 x 6.50 x 11.02 in.
	Weight (without parting agent and optional wire cutter)	10 kg 22.05 lb.

Appendix

Circuit diagram Robacta Reamer



Robacta Reamer pneumatic diagram



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
Gasdüsenreinigungsgerät

Robacta Reamer
Gas nozzle cleaner

Robacta Reamer
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)

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CE 2016

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

DE German

Deutsch

EN English

English

FR French

Française



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At www.fronius.com/contact you will find the contact details
of all Fronius subsidiaries and Sales & Service Partners.