

Operating instructions

 Please read these operating instructions before operating the device.



ABW35

with SDG Generator

Translation of the original operating instructions (English)





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1 General information

1.1 Information on these operating instructions

Foreword	Thank you for purchasing this RINCO product. We are sure that it will provide you with maximum efficiency and the highest possible product quality.
Validity	These instructions describe how the ultrasonic welding machine ABW35 functions with SDG35-400/750 generators. The purpose of this manual is to provide both the purchaser and the user with all necessary information on how to handle, assemble, operate and maintain the device. With these operating instructions, you can be sure that you are operating the machine in the safest and most efficient way. The basic premise for safe operation is to observe all of the safety information and instructions listed in this document.
Requirements of the reader	Read through these operating instructions before unpacking and starting up the device and be sure to observe them at all times. The device is only to be used, serviced and started up by personnel who are familiar with the operating instructions as well as the applicable regulations regarding occupational health and safety and accident prevention.
Storage	The instructions form part of the machine and must therefore be kept in the direct vicinity of the equipment so that they are available to personnel at all times.
Applicable documents, regulations and provisions	In addition to these operating instructions, the machine is labelled with information that must also be observed. Information on technical changes to these instructions is attached. You are also required to observe the local accident prevention regulations for your area as well as the general applicable safety regulations for the area surrounding the machine.
Caveat	The information contained in this document is based on our current knowledge; however, this cannot be taken as an assurance that the products referred to will have certain properties or be suitable for certain purposes. Our general terms and conditions shall apply in this regard, and reference should also be made to these terms with regard to liability. The information in this document does not grant any intellectual property rights to the user, nor does it make any assurances with regard to a licence. This would require the appropriate separate agreements to be made. For certain applications, the suitability of the products can only be checked and confirmed by our specialists. The German version of this document shall take priority with regard to the accuracy and validity of the information contained within it.
Figures in this document	The figures shown within these instructions are intended as a general guide and illustrations may deviate from the actual design.
Loss of this document	If you should lose these operating instructions, request a replacement copy immediately. See the legal information section for contact details.



NOTE

RINCO ULTRASONICS AG will be very happy to resolve any areas of confusion or uncertainty either over the phone or in the form of training carried out by qualified personnel.

1.2 Explanation of symbols

Safety information

The safety information contained in these instructions is indicated in the form of symbols. The safety information is introduced by signal words that highlight the extent of the danger.

You must adhere to this safety information and work carefully to avoid accidents, personal injury and material damage.



DANGER

... indicates a situation that poses an imminent hazard, which will lead to death or serious injuries if it is not avoided.



WARNING

... indicates a situation that poses a potential hazard, which may lead to death or serious injuries.



CAUTION

... indicates a situation that poses a potential hazard, which may lead to minor injuries.

ATTENTION

... indicates a situation that poses a potential hazard, which may lead to material damage.

Tips and recommendations



NOTE

... offers useful tips and recommendations as well as information on how to operate the equipment smoothly and efficiently.

1.3 Exclusion of liability

Information in this document	The information and safety notices in these operating instructions have been compiled based on the applicable standards, directives and regulations, the state of the art and our many years of experience.
Delivery	The scope of delivery – i.e. the design of the machine – may vary from the descriptions and illustrations provided in this document as a result of optional order items, special models being manufactured, or the latest technical modifications. In addition to the agreed contractual obligations, the manufacturer's general terms and conditions of business and delivery are also applicable. These remain subject to the laws in force at the time of concluding the contract.
Technical modifications	The publication date of these operating instructions is valid. We reserve the right to make technical modifications to the machine within the scope of development to improve both the performance characteristics and safety.
Exclusion of liability for non-compliance	The manufacturer assumes no liability for damage or accidents arising from the following: ▪ Improper use of the machine ▪ Failure to observe the information and notices in these operating instructions ▪ Unqualified or unauthorised personnel working on or with the machine ▪ Installation of replacement parts manufactured by third parties ▪ Independent modifications without the written approval of the manufacturer ▪ Use of unauthorised equipment

1.4 Warranty provisions

Source

By supplying the machine, RINCO ULTRASONICS AG has entered into a warranty obligation in accordance with VSM (the Swiss Association of Machinery Manufacturers).

The conditions for fulfilling the contractually agreed warranty stipulations by RINCO ULTRASONICS include the following:

- The user must be familiar with the content of these operating instructions.
- The instructions and warnings contained within these operating instructions must be observed.
- Independent modifications or changes to parts of the device, the oscillator system or generator are not permitted.

Essential information

The manufacturer ultimately decides on the warranty claim once all defective parts have been returned or, if necessary, following a visit to the site.

Replacing defective parts does not increase the warranty period for the machine.

The warranty claim is invalidated by any modifications or significant repairs carried out by the operator or a third party without the written approval of the manufacturer.

1.5 Customer service and product monitoring

Customer service

The technical customer service team at RINCO ULTRASONICS AG will be happy to help you with any technical difficulties or welding issues that may arise. See the legal information section for contact details.

The customer service team will need the following information to deal with enquiries regarding your ultrasonic welding machine ABW35 and generator.

- A precise description of the technical fault of welding issue
- A device designation
- The exact type designation and device serial number
To find out where the type plates are located, see the chapter on **Labelling points** [► 30].



Fig. 1: Type plates

Product monitoring

We are constantly on the lookout for ways to improve our products, which is why we are particularly interested in finding out what our customers think about the machine.

We are always happy to receive information relating to problems with handling the machine, faults arising during machine operation, and any other errors you may encounter.

Always notify the manufacturer of any accidents or near misses.

Further development

The design and circuitry of this device are in a state of constant development and improvement to ensure that they always represent the latest state of the art.

2 Safety requirements

2.1 Introduction

This section provides an overview of all important safety aspects not only to provide optimal protection for personnel, but also to ensure safe and trouble-free operation.

Failure to observe the instructions and safety notices contained within this document can lead to serious danger.

This document only contains information relating to risks that have been established as part of a risk assessment. Risks arising through working conditions, the installation area and interfaces to third-party components must be identified and presented with the appropriate safety information.

2.2 Operator responsibility

Essential information	The machine operator is fundamentally responsible for the legal requirements with regard to occupational health and safety, as the machine is designed for use in the commercial sector. For this reason, you should also observe the applicable safety, accident prevention and environmental protection regulations for the area surrounding the machine in addition to the safety information provided in these operating instructions.
Risk assessment	The operator is aware of the applicable industrial safety regulations and carries out a risk assessment of any additional hazards that may arise through the particular working conditions in the area surrounding the machine.
Operating instructions	The operator issues, implements and documents a set of operating instructions based on the results of the workplace risk assessment. The operator is responsible for ensuring that these operating instructions correspond to the actual legal requirements for as long as the machine is in use, as well as for making any necessary changes.
Responsibility	The operator manages who is responsible for working on or with the machine and places someone in charge of operating the machine safely and coordinating all necessary tasks.
Flow of information	The operator ensures that any and all personnel operating on or with the machine have read and understood these operating instructions.
Personal protective equipment	The operator issues personnel with the necessary personal protective equipment. The operator must wear personal protective equipment and instruct others to do the same.
Safety requirements	If necessary, the operator ensures before startup that the machine into which the product is to be installed – or the machine that the product is a component of – meets the fundamental safety requirements and provisions of all relevant directives.
Proper working order	To ensure that the machine is always in proper working order, the operator ensures that the maintenance intervals specified in these operating instructions are observed. The operator also ensures that all necessary safety devices are correctly installed on the machine and carries out regular checks to make sure that they are complete and fully functional.

2.3 Personnel requirements

2.3.1 General personnel requirements

Only those who carry out their work reliably and whose reactions are not impaired – for example by drugs, alcohol or medication – are permitted as personnel.

When selecting personnel, you must observe the applicable occupational age regulations for the area surrounding the machine.

All transport, installation and setup activities must be completed by trained and qualified specialist personnel (in accordance with IEC 364, CENELEC HD 384, DIN VDE 0100, IEC Report 664 or DIN VDE 0110, as well as national accident prevention regulations).

In accordance with this fundamental safety information, trained and qualified specialist personnel shall refer to those responsible for installation, assembly, setup and operation of the product. Trained and qualified specialist personnel are also required to demonstrate that they have the appropriate qualifications for their field.

2.3.2 Qualifications



WARNING

Inadequate qualifications.

Danger of serious personal injury and material damage.

- Activities are only to be carried out by personnel with the appropriate qualifications.

These operating instructions list the following qualifications for the various areas of activity:

Trained personnel

Specialist personnel refers to those who have the specialist training, expertise and experience, as well as an understanding of the applicable standards and regulations, to be capable of carrying out the work assigned to them and detecting and avoiding potential dangers on their own.

Electricians

Electricians are those who have the specialist training, expertise and experience, as well as an understanding of the applicable standards and regulations, to be capable of carrying out work on electrical equipment and detecting and avoiding potential dangers on their own.

Electricians possess the necessary training for the field in which they are active and are aware of the relevant directives, standards and regulations.

2.3.3 Unauthorised personnel



WARNING

Unauthorised personnel who are not familiar with hazards in the workplace.

Danger of serious injury.

- Do not allow unauthorised personnel to enter the workplace.
- In case of doubt, speak to the personnel involved and ensure that they leave the workplace.
- Stop any work until the unauthorised personnel have left the workplace.

2.4 Personal protective equipment

Some tasks require personnel to wear personal protective equipment. Depending on the task at hand, it is compulsory for personnel to wear the appropriate personal protective equipment to minimise any risks to health. In addition to the personal protective equipment listed in these operating instructions, you should also be aware of the instructions displayed in the workplace.

You must wear the following items of personal protective equipment depending on the particular task that you are carrying out:

To prevent loss of hearing.

Hearing protection



Appropriate clothing for work



This refers to close-fitting clothing with minimal tear resistance, tight sleeves and no protruding details. Its purpose is essentially to reduce the risk of becoming trapped in moving machine parts. Do not wear any rings, chains or other types of jewellery.

Light respiratory protection



To protect the airways from dust and another fine particles.

Slip-resistant shoes



To protect against slipping.

Protective gloves



To protect the hands from rubbing, abrasions, cuts or more serious injuries, as well as from hot surfaces.

Safety glasses



To protect the eyes from flying objects.

The operator must wear personal protective equipment and instruct others to do the same.

2.5 Residual risks

The following section of these operating instructions lists the residual risks that have been established as part of a risk assessment.

To reduce health risks and avoid dangerous situations, be sure to read the safety information and instructions in the following chapters and observe all measures regarding how to avoid hazards.

2.5.1 Hazards posed by electrical energy



DANGER

Damage to insulation or individual components.
Contact with live parts.

Danger of death due to electric shock.

- If there is any damage to insulation, switch off the power supply immediately and arrange for it to be repaired.
- Before connecting the machine to the energy supply, compare the information in the “Technical data” with the mains data and only make the connection if they are the same.
- Work on the electrical system is only to be carried out by electricians.
- Never pull the generator drawer module out or slide it in while connected to the mains.

2.5.2 Mechanical hazards



WARNING

Rotating parts and/or parts with linear movement.

Danger of serious injury.

- Never reach into or handle moving parts during operation.
- Never open covers during operation.
- Be aware of the machine's shutdown delay: before opening the covers, make sure that the parts have stopped moving.
- If the machine is set up for automatic mode: the plant engineer must provide a safety barrier that has to be closed in order to activate the machine's stroke movement.

2.5.3 Hazards in the installation area

Insufficient lighting



WARNING

Insufficient lighting.
Lack of safety due to improper execution of tasks.

Danger of serious injury.

- Ensure that the workplace has adequate lighting.
(The operator must ensure that there is sufficient lighting for the workplaces in the area surrounding the machine in accordance with regional occupational health and safety regulations. The level of illuminance must be at least 300 lux in the immediate vicinity of the relevant workplace and, as far as possible, glare, reflections and shadows are to be avoided.)
- Have defective light fittings replaced immediately.

Sharp edges, corners and sharp materials.



WARNING

Edges, corners and sharp materials.

Danger of serious injury.

- Take extra care when working in the vicinity of sharp edges and corners and when handling sharp materials.
- In case of doubt, wear protective gloves.

Soiling and objects lying around



WARNING

Risk of slipping and tripping due to soiling and objects left lying around.

Danger of serious injury.

- Always keep the workplace clean.
- Remove or put away any objects that are no longer needed.
- Label any tripping hazards with black and yellow tape.

2.5.4 Pneumatic hazards



WARNING

Air escaping at high pressure from damaged pneumatic components.

Danger of serious injury, e.g. to the eyes.

- Do not change pressure settings so that they are above the maximum permissible values.
- If you suspect that any pneumatic components are damaged, stop the machine immediately and have it repaired.

2.6 Correct behaviour in the case of accidents and/or hazards

2.6.1 Preventative measures

- Make sure that you have sufficient first-aid equipment (first-aid boxes, blankets, etc.) and suitable fire extinguishers within easy access.
- Ensure that personnel are familiar with the internal emergency plan.

2.6.2 Measures in the case of accidents

- Switch off the main switch on the back of the generator.
- Seek medical advice.
- Administer first aid.

Smoke emissions, unusual noises, abnormal heat generation

- Switch off the main switch on the back of the generator.
- Notify the RINCO ULTRASONICS customer service team.

Electrical component fires

- Put out the fire with a suitable fire extinguisher.
- Notify the in-house and/or local fire department.
- Notify the RINCO ULTRASONICS customer service team.

2.7 Symbols/Pictograms

Illegible symbols/pictograms



WARNING

Failure to identify hazards due to illegible or missing symbols/pictograms.

Danger of serious injury.

- Ensure that all safety, warning and operating information is easily legible at all times.
- Replace any damaged/missing symbols and pictograms immediately.
- Never cover, block or remove symbols or pictograms.

In some cases, pictograms may be found on the machine. These relate to the immediate vicinity in which they are located and refer to hazards or necessary measures to be taken.

In addition to pictograms that refer to the necessary personal protective equipment (see the chapter on **Personal protective equipment** [► 13]), the following pictogram can also be found on the machine:

Beware of dangerous electrical voltage



This pictogram can be found on components that may be live and which therefore pose an electric shock hazard.

2.8 Intended use

The machine is designed exclusively for the uses described in this document and must not be used for any other purpose:

Proper use

- The ultrasonic welding machine ABW35 and its accessories are designed exclusively for welding and cutting appropriate materials. Ask your materials supplier about any potential hazards that may arise as a result of ultrasonic welding or cutting. For further information on suitable materials, please contact RINCO ULTRASONICS AG.
- The machine must only be operated in accordance with the operating and ambient conditions listed in the “Technical data” chapter.
- The machine must only be used in accordance with the requirements of the relevant local accident prevention regulations.
- Harmful vapours, material abrasion, high temperatures in materials and tools, and high levels of noise pollution may arise depending on the application and material in use. To eliminate the potential for personal injury, only operate the machine if it has the appropriate measures in place, for example covers, soundproof cabins and fire-extinguishing systems.
- The ultrasonic welding machine may only be handled and operated by one person at a time. Other personnel in the vicinity of the ultrasonic welding machine must remain at a safe distance from the device during operation to eliminate the potential for any dangerous situations.

The scope of intended use also includes adherence to all information in these instructions.

Any other use of this machine shall be considered improper and may lead to dangerous situations.

Improper use



WARNING

Improper use.

Danger of serious injury.

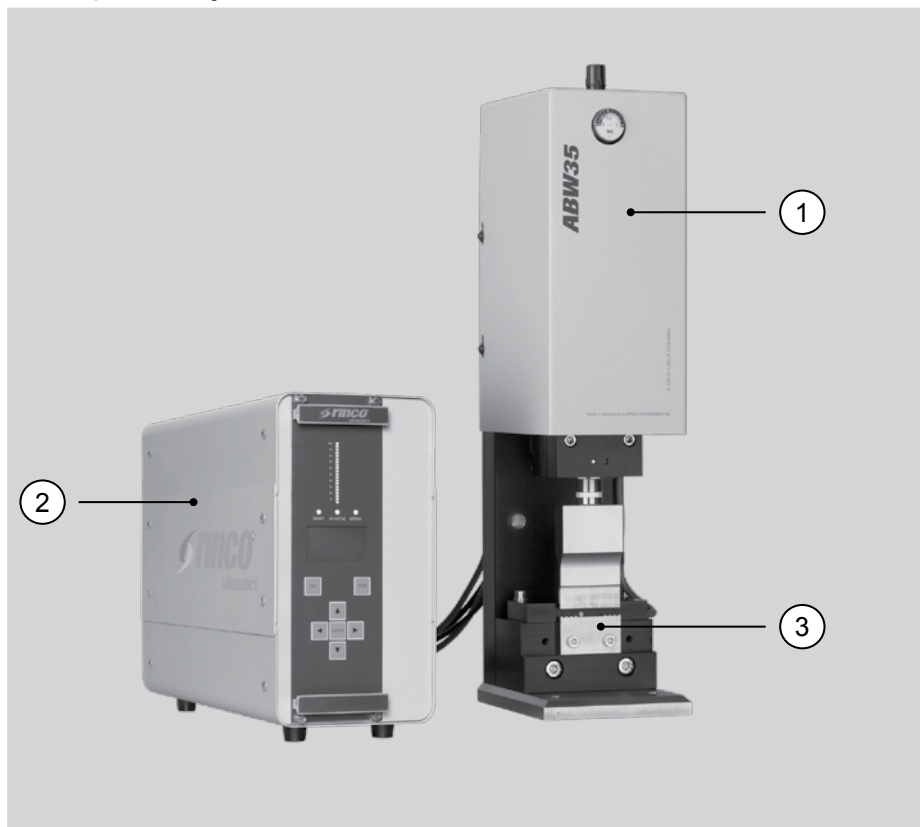
- Only operate the machine according to the values specified in the technical data.
- Do not operate the machine in potentially explosive atmospheres.

The manufacturer shall not be held liable for any and all damage incurred as a result of improper use.

3 Machine description

3.1 Overview/Modules

3.1.1 Complete system



Overview

Fig. 2: Complete system

Item no.	Description
1	Press
2	Generator/control unit
3	Anvil

Table 1: Press structure

3.1.2 Oscillator unit

3.1.2.1 Overview

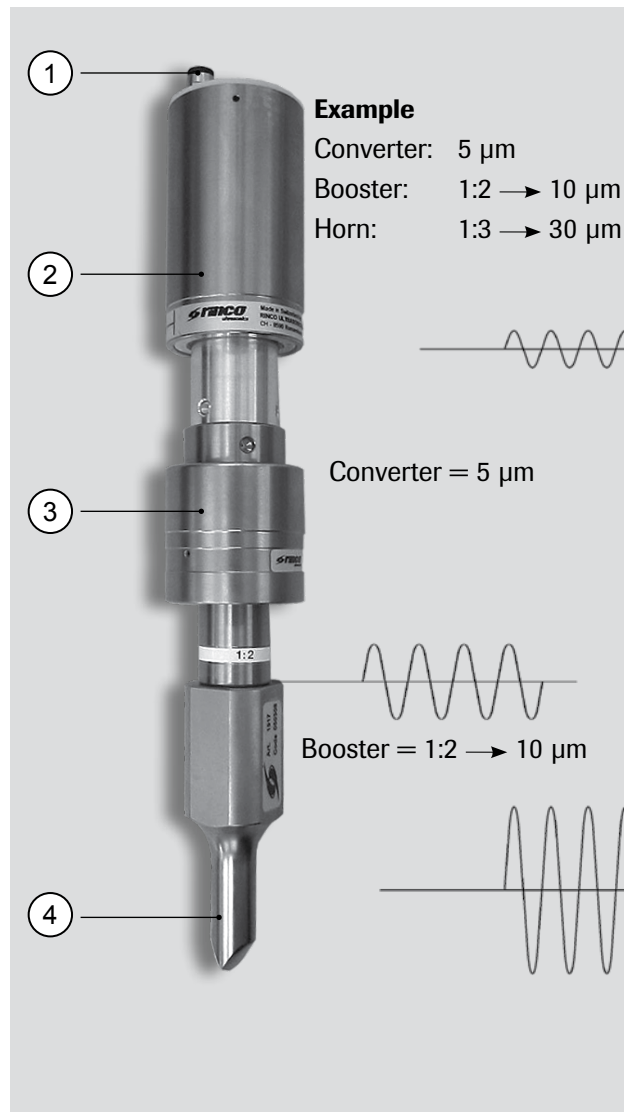


Fig. 3: Oscillator unit

Item no.	Description
1	Lemo 1 HF port
2	Converter
3	Booster
4	Horn

Table 2: Oscillator unit

ATTENTION

Overheating due to adverse environmental conditions.

Danger of damage to the oscillator unit.

- The surface temperature of the converter must not exceed 50°C. Use compressed air to cool the converter if required.

3.1.2.2 Amplitude amplification

You can amplify or attenuate the amplitude as required using various types of boosters and horns.

The individual elements are screwed together.

The tightening torque for 35 kHz systems is 15 - 25 Nm. We recommend using the RINCO tool wrench.

3.1.2.3 Booster

Booster

The following booster types are available for RINCO 35 kHz welding devices:

Booster	Colour	Material
1:1	green	titanium
1:1.5	yellow	titanium
1:2	white	titanium

Table 3: Booster

Connection threads

- On converter side: M8
- On horn side: M8

Clean the coupling surfaces before assembly and replace any that are damaged.

3.1.2.4 Horn

The horns must be set to 35 kHz and can be optimised to suit various areas of application.

RINCO ULTRASONICS AG will be happy to offer advice on the most suitable design to suit your needs.

3.2 Operating and display elements

3.2.1 Welding press

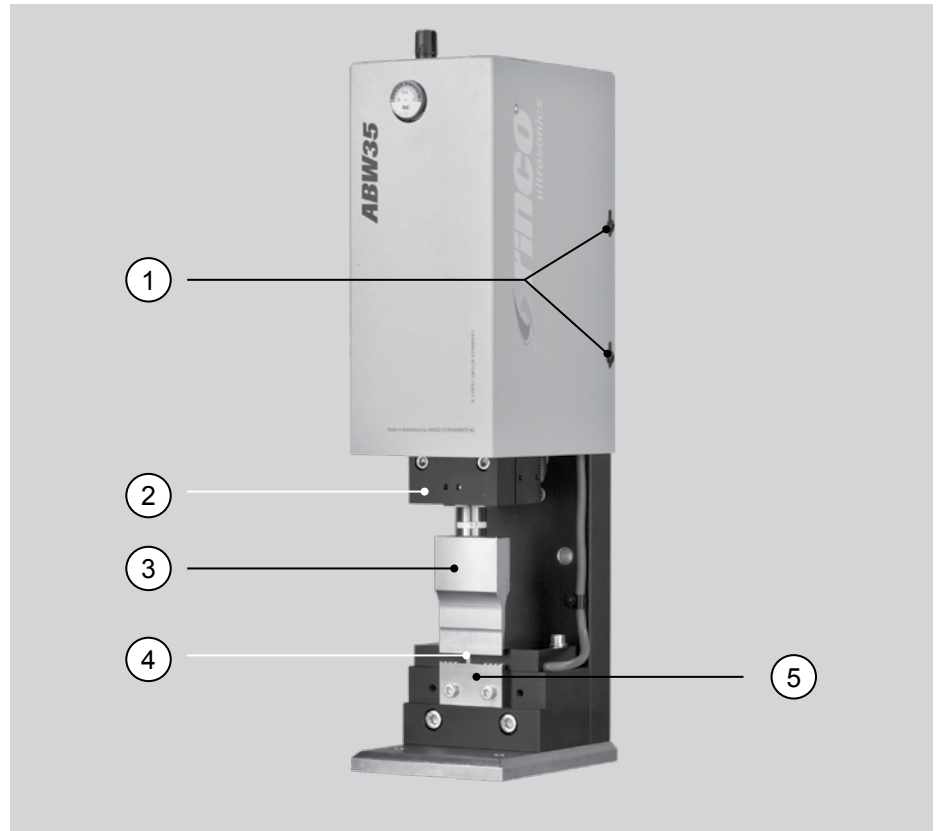


Fig. 4: Outer operating and control elements on the welding press

Item no.	Description
1	Actuator fixing screws
2	Converter housing
3	Horn/Horn face
4	Microswitch
5	Anvil

Table 4: Welding press

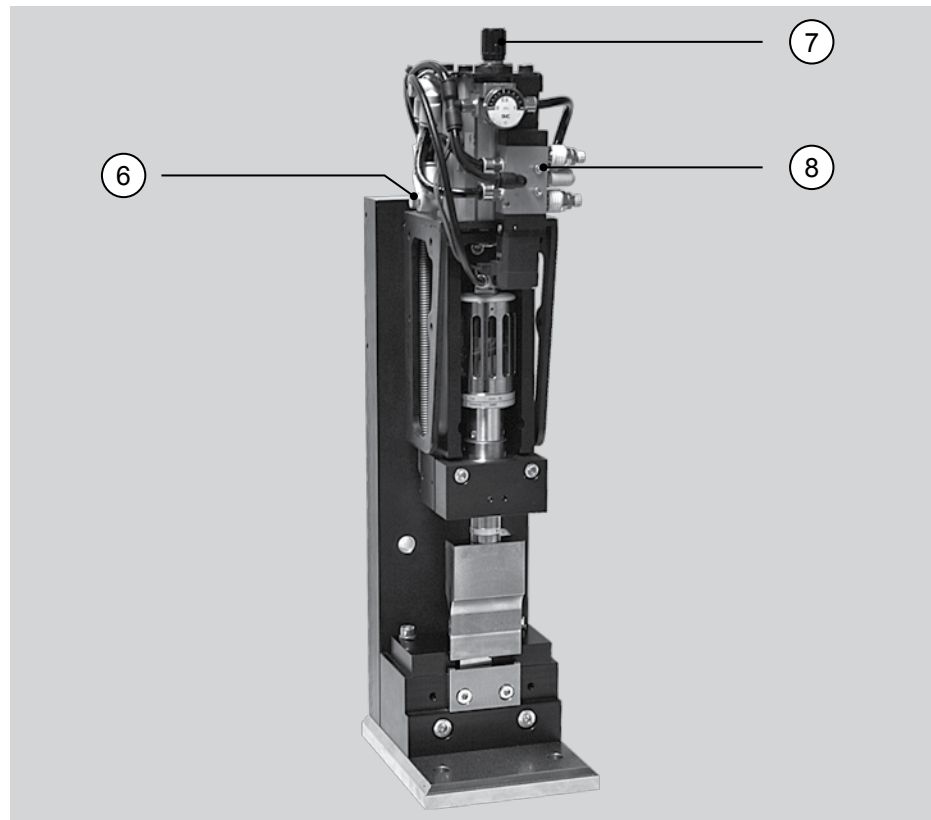


Fig. 5: Inner operating and control elements on the welding press

Item no.	Description
6	Stroke limiter
7	Pressure regulator
8	Throttle

Table 5: Welding press – part 2

3.2.1.1 Converter housing

The converter housing (2) contains the oscillator system and the electrical cables.

3.2.1.2 Horn

The horn (3) is the actual welding tool. It is set to the required resonance frequency by the manufacturer.

ATTENTION

Unauthorised horn modifications.

Horn damage.

Consequential damage to the oscillator system and generator.

- Do not make any adjustments to the horn.

3.2.1.3 Anvil

Use the fixing screws to centre and fix the anvil in place quickly.

3.2.1.4 Actuator fixing screws

The fixing screws (1) for the actuator provide the most accurate alignment of the anvil (5) as well as the alignment towards the horn face (3).

3.2.1.5 Microswitch

Pressing the microswitch (4) triggers the welding cycle.



WARNING

Manipulation of the safety equipment.

Danger of serious injury.

- Observe country-specific statutory safety regulations.
- The manufacturer disclaims any and all liability for personal injury or material damage arising due to failure to comply with these statutory regulations.

3.2.1.6 Pressure regulator DR

The pressure regulator keeps the air pressure constant at the top of the piston and is set to a height that depends on the size of the piece, the length of the weld joint and the material to be welded.

As a point of reference, a regulated pressure of approx. 1 bar can be set for a standard piece with a 2 mm x 10 mm weld joint.

3.2.1.7 Throttle VD

The throttle (8) has two functions:

- Reducing the speed of the machine stroke.
- Building up force over time once the horn comes into contact with the plastic component.

3.2.1.8 Stroke limiter

This screw sets the stroke limit to a safe distance of 6 mm.



WARNING

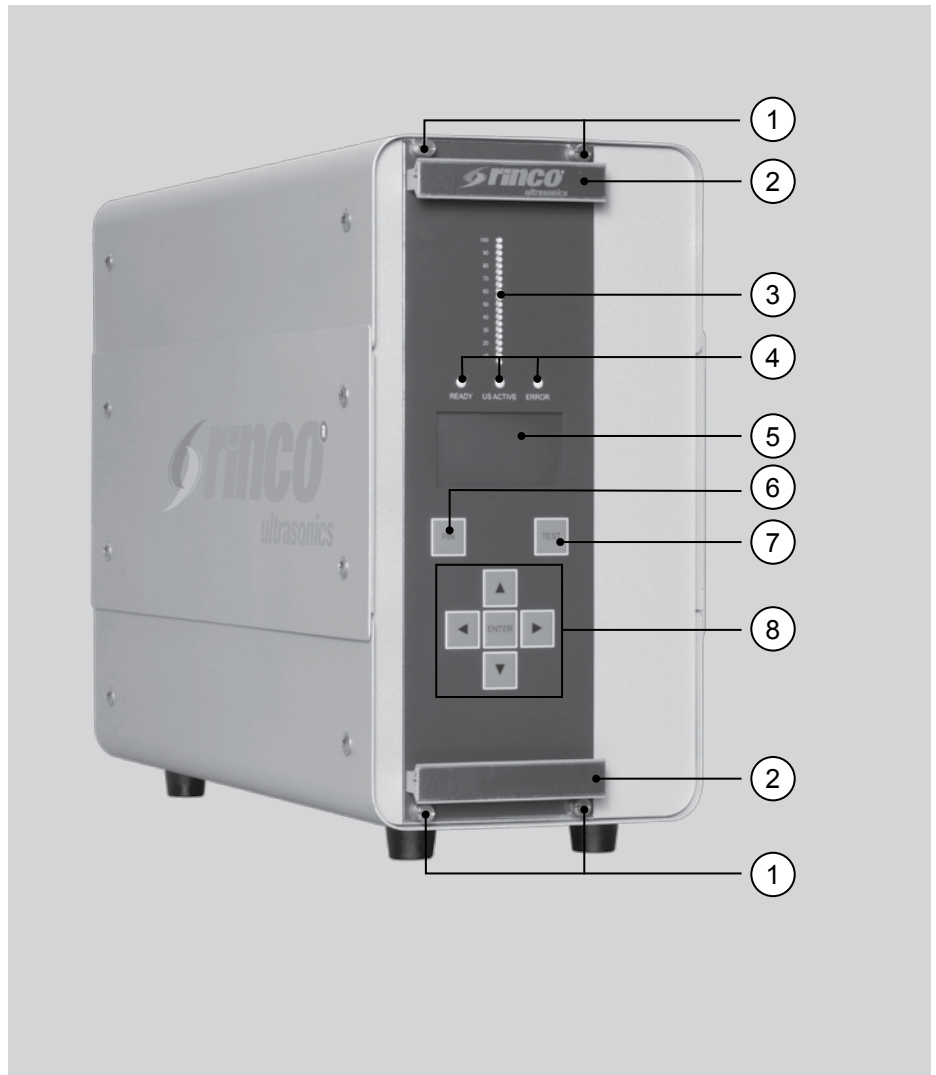
Manipulation of the safety equipment.

Danger of serious injury.

- The purpose of the stroke limiter is to prevent the operator from reaching into the operating area of the tool during the welding process.
- The manufacturer disclaims any and all liability for personal injury or material damage arising due to failure to comply with these regulations.

3.2.2 SDG generator

The program dialog appears on the display along with the process results.



Generator overview

Fig. 6: Generator overview

Item no.	Description
1	Fixing screws
2	Handles
3	Power bar
4	LEDs
5	LCD display
6	PIN key
7	TEST key
8	Keypad

Table 6: Control module AUI

3.2.2.1 Fixing screws (1)

The fixing screws (1) for the generator drawer module can be found above and below the handles (2) and must be locked into place before starting up the device.

3.2.2.2 Handles (2)

These handles (2) can be used to pull out the generator drawer module if required.

3.2.2.3 Power bar (3)

Power display

This indicates the power delivered during the welding process.



NOTE

The maximum power value for the previous welding process is indicated by an LED. The LED goes out when the next welding process is carried out or in the event of a fault.

3.2.2.4 LEDs (4)

LED1 READY

READY: Lights up when the generator is ready.

LED 2 US ACTIVE

US ACTIVE: Lights up when the ultrasound is activated.

LED 3 ERROR

ERROR: Lights up in the event of an error. The appropriate LED (1, 2 or 3) flashes on the power bar to indicate the type of error and simplify the diagnostic process.

3.2.2.5 PIN key (6)

Access code

For entering the appropriate access code.

3.2.2.6 TEST key (7)

The TEST key is used to activate the ultrasound for a maximum of 15 seconds.

3.2.2.7 Keypad (8)

Enter

For navigating within the menu to change predefined values.

Press ENTER to confirm parameter inputs.

3.2.2.8 LCD display (5)

The program dialog or measured values for the last ultrasonic welding process are listed numerically on the LCD display (5).



NOTE

The background lighting for the display is automatically deactivated 15 minutes after the last key press and is reactivated as soon as you press another key.

3.3 Connections

3.3.1 Electrical connection

The electrical connection can be found on the generator. Please see the chapter on **Electrical connection values and limit values** [▶ 60] for the precise connection values.

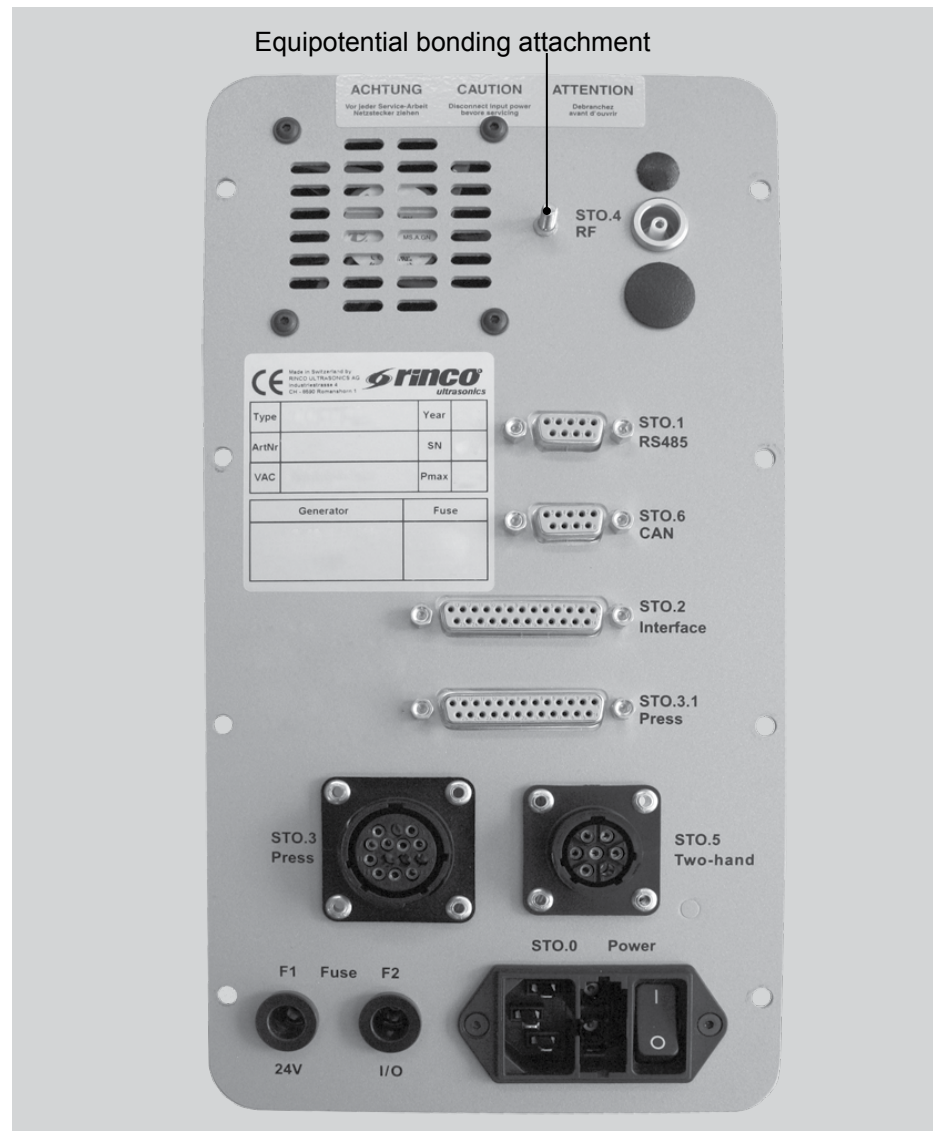


Fig. 7: Electrical connections on the generator

Item no.	Description
STO_0	Power supply
STO_1	RS485
STO_2	Interface (optional)
STO_3	Actuator (optional)
STO_3_1	ABW35 (optional)
STO_4	Converter connection
STO_5	Start
STO_6	CANopen

Table 7: Generator connections

ATTENTION

Only use earthed power supplies.

3.3.2 Compressed air supply

The compressed air supply can be found on the back of the welding press. Please see the chapter on **Pneumatic connection values** [60] for the precise connection values.

See the SDG operating instructions for information on the connector assignment.



Fig. 8: Compressed air supply

Compressed air

ATTENTION

Maximum compressed air supply of 7 bar: 105 psi

3.4 Labelling points

Type plates (A) and (B) ensure that the machine can be clearly identified.

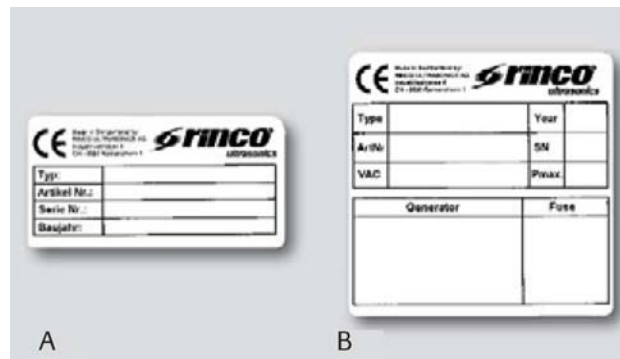


Fig. 9: Type plates

The type plates are located on the side of the press (A) and on the back of the generator (B).

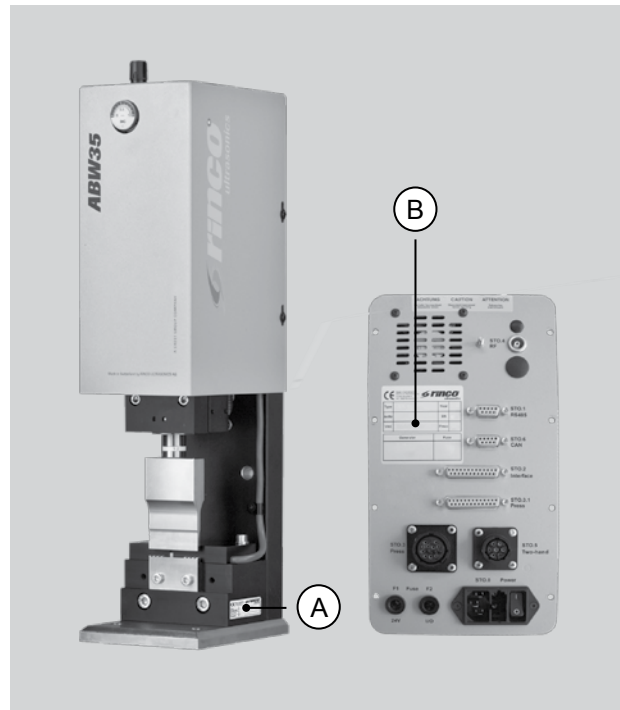


Fig. 10: Labelling points

4 Transport, packaging and storage

4.1 Safety information for transporting the equipment

Transport

Always transport the press and the generator separately.

You must be sure to observe the transport information on the packaging.

Personnel

• Only specially trained personnel are permitted to transport the equipment.

Personal protective equipment

The following personal protective equipment must be used for any kind of transportation activity:

- Safety boots
- Protective gloves

The operator must wear personal protective equipment and instruct others to do the same.

Suspended loads



WARNING

Parts falling or swinging uncontrollably.

Danger of serious injury or death.

- Observe the information regarding the intended suspension points.
- Do not suspend from protruding machine components or from eyelets for components that have been attached. Ensure that the suspension equipment is positioned securely.
- Only use approved lifting and suspension equipment with an adequate load-bearing capacity.
- Do not use ropes or belts that are frayed or worn.
- Do not position ropes or belts on sharp edges or corners, do not tie them in knots and do not twist them.

Tipping loads



WARNING

Tipping loads.

Danger of serious injury.

- Secure items for transport on pallets against tipping over.
- Only use lifting equipment that is fit for purpose.
- Only move loads under supervision.

Inappropriate transport

ATTENTION

Inappropriate transport.

Danger of serious material damage.

- Take care when unloading the packages on delivery and during in-house transportation and observe the symbols and information on the packaging.
- Only transport within the installation site.
- Only use the intended suspension points.
- Only remove the packaging once you are ready to assemble the components.

4.2 Delivery (packaging/packages)

Packaging

The purpose of the packaging is to protect the machine until it is ready to be assembled and is designed to protect it from transport damage, corrosion and other forms of wear. For this reason, do not damage the packaging and do not remove it until just before you are ready to assemble the components. The transport packaging is capable of withstanding normal levels of stress during transport by road, rail or air.

Storage for transport at a later date

We recommend keeping the packaging materials for future reuse.

Disposal of packaging materials

If you no longer need the packaging materials, dispose of them in line with the applicable statutory requirements and regulations for your area.

ATTENTION

Incorrect disposal.

Risk of environmental damage.

- Dispose of packaging materials in an environmentally friendly way.

4.3 Transporting packages via forklift or pallet jack

Transport conditions

The packages can be transported with a forklift or pallet jack in line with the following conditions:

- The forklift or pallet jack must be designed to support the weight of the packages.
- The forklift driver must have the appropriate authorisation.
- Ensure that the forks are suitably long (based on the dimensions of the packages) so that they can safely support the machine.

For more information, see the chapter on **Dimensions and weights** [► 58]

Lifting packages

Lift the packages as follows:

- Position the forks on the forklift or pallet truck underneath the appropriate contact points on the packages.
- Drive the forks far enough forward so that they protrude at the opposite end.
- Ensure that the packages cannot tip as a result of having an eccentric centre of gravity. Secure them if necessary.
- Lift the packages and start the transportation.

4.4 Transport inspection

On receipt of the goods, check to make sure that all parts correspond with the information on the packing list and that there are no visible signs of damage.

If there are any visible signs of external damage, please proceed as follows:

- Do not accept the delivery or only accept under reserve.
- Make a note of the damage on the transportation documents or on the carrier's delivery note.
- File a complaint.
- Keep the packaging as evidence.



NOTE

File a complaint regarding damage as soon as this is detected. Compensation claims can only be filed within the applicable period for complaints.

The transport company shall be held responsible for any transport-related damage. A thorough report describing the full extent of the damage must be submitted to the transport company and shall form the basis of the compensation claim.

If the goods supplied by us are damaged or lost, notify us immediately and provide a copy of the aforementioned report as confirmation. As soon as RINCO ULTRASONICS AG receives this information via freepost or CIF, the damaged goods will be replaced if necessary and the claim will be filed with the responsible transport insurance company.

4.5 Storage and extended downtime periods

Storing packages and machine components

Packages and machine components should be stored under the following conditions:

- Do not store outdoors.
- Store in a dry, dust-free place.
- Do not expose to aggressive media.
- Protect against sunlight.
- Avoid mechanical vibrations.
- Avoid extreme changes in temperature to prevent condensation from forming.



NOTE

In some cases, the packages may include storage information that goes beyond the requirements listed in these documents. You must adhere to this information as appropriate.

4.6 Pictograms on packages

The following pictograms provide important information on how to transport goods safely and may be attached to the packages. Please take note of any pictograms that may appear on your package.

The direction of the arrowheads indicates which side of the package is the top. They must always point upwards, to prevent any damage to the contents.

This way up



Keep dry



Keep the package dry.

Sling here



Only attach lifting equipment (chain sling, lifting belt) to the points indicated by this symbol.

Centre of gravity



This indicates the centre of gravity for the package. Be sure to observe the centre of gravity when lifting and transporting the package.

Weight of attached load



This indicates the weight of the package. Handle the package bearing this pictogram appropriately in line with its weight.

5 Assembly and startup

5.1 Safety information for the installation process

Be sure to handle the equipment appropriately and avoid excessive mechanical loads. Do not bend any components or change any insulation distances when transporting or handling the unit. Do not touch any electronic components or contacts. The ultrasonic welding machine ABW35 and SDG generator contain electrostatic-sensitive devices that can be easily damaged through improper handling. Be careful not to damage or destroy any electrical components as this may pose a health hazard.

Personnel

- Only specially trained personnel are permitted to install the equipment.
- Work on the electrical system is only to be carried out by electricians.
- The engineer setting up the equipment must exercise caution when handling the workpieces and machine parts.

Personal protective equipment

The following personal protective equipment must be used for any kind of installation activity:

- Safety helmet
- Safety boots
- Protective clothing
- Additional protective equipment in line with local accident prevention regulations

Electrical system



WARNING

Live components.
Uncontrolled movements by active electrical components.

Danger of death.

Danger of serious injury.

- Before starting to use the device, switch off the electrical supply and ensure it cannot be switched back on accidentally.

Mechanics



WARNING

When operating the sliding actuator carriage **WITHOUT** a hand wheel for height adjustment:
The sliding actuator carriage may accidentally drop down.

Crushing hazard.

- Hold the converter housing tightly before releasing the clamping lever.



WARNING

Removing protective covers before it is safe to do so.

Danger of serious injury.

- Only remove protective covers once the machine has been switched off (protective covers are screwed in place and can only be removed using appropriate tools).

Improper installation and startup

**WARNING**

Improper installation and startup.

Danger of serious injury.

Danger of serious material damage.

- Ensure that you have sufficient space to carry out the installation before starting work.
- Be careful around open components with sharp edges.
- Keep the installation area clean and tidy. Loose components and tools that are left lying around or on top of each other can cause accidents.
- Assemble components properly. Maintain the specified tightening torques for the screws.
- Before carrying out the installation, ensure that the machine does not show any signs of transport damage.
- Before carrying out the installation, ensure that all transport packaging and/or transport locks have been removed from the machine.
- If necessary, secure components against falling or tipping over.
- Machine connections can pose a tripping hazard. Be careful.

Pneumatics

**WARNING**

Air escaping at high pressure.

Danger of serious injury, e.g. to the eyes.

- Depressurise the machine before starting work on it (by ventilating with a manual shut-off valve on the maintenance unit).
- Do not change pressure settings so that they are above the maximum permissible values.

5.2 Requirements at the installation site

Inappropriate installation site

**WARNING**

Inappropriate installation site.

Danger of serious injury.

Danger of serious material damage.

- Ensure that all requirements at the installation site have been met.
- If it is not possible to meet the requirements at the installation site, contact the manufacturer. Allow the manufacturer to adapt the machine to suit your requirements and only perform setup once this is complete.

General environmental conditions

The ultrasonic welding machine ABW35 with SDG generator SDG is designed for use in standard, clean industrial environments. When setting up the machine, you must ensure that the following conditions are upheld for as long as the machine is in use:

- The ultrasonic welding machine ABW35 and the SDG generator must not be installed in locations where they are exposed to unfavourable ambient conditions. These include flammable, oily or hazardous vapours or dust, excessive moisture, extreme vibrations or extreme temperatures
- The permissible ambient temperature is maintained in accordance with the chapter on **Operating conditions** [► 62]. The welding machine must be installed in a way that prevents the maximum permissible temperature from ever being exceeded. The ambient temperature must be controlled. If the required temperature cannot be maintained, you must take appropriate measures (for cooling, etc.) and ensure that:
- The device is in a secure position – the workbench must be even
- The workplace is suitable for the dimensions and weights of the machine (see the chapter on **Dimensions and weights** [► 58])
- Adequate lighting is available
- Adequate ventilation is available
- There are no sources of heat – such as heaters or hot air outlets – in the direct vicinity of the equipment
- The equipment is not in direct sunlight

For further information, please contact RINCO ULTRASONICS AG directly.

Spatial requirements for operation and maintenance

To operate the machine safely and carry out maintenance and repair work, ensure that the following conditions are met:

- All machine parts are easily accessible and there is sufficient freedom of movement to carry out maintenance work and troubleshooting measures
- When setting up the machine, observe all regional or country-specific guidelines and regulations relating to public spaces and escape routes in the area surrounding the machine.

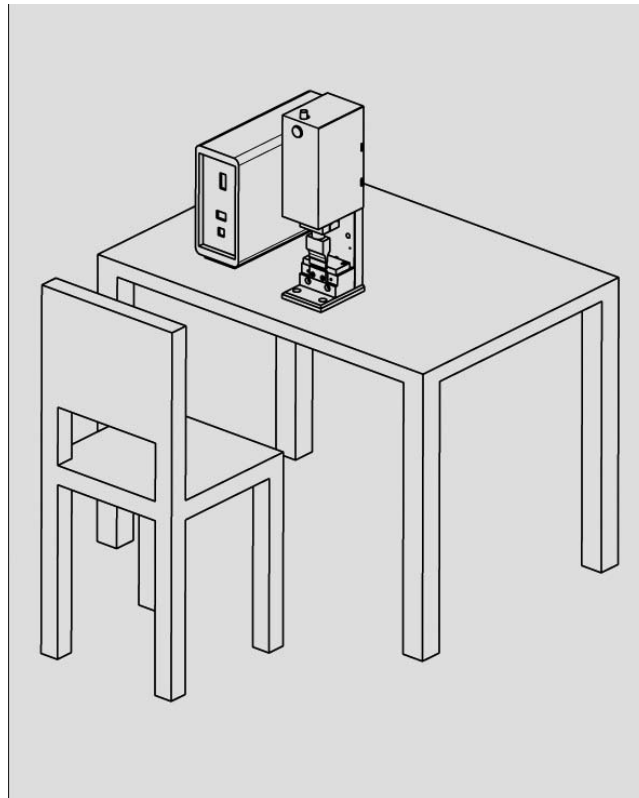
Workplace layout

The ultrasonic welding machine ABW35 is designed to be:

- Positioned on a table
- Installed on a table
- Installed on the wall

Four fixing screws are provided for the installation process.

The following descriptions of the workplace layout are provided as a suggestion and are based on the applicable international standards for industrial workplaces:



View of the workplace

Fig. 11: View of the workplace

5.3 Setting up the machine

Assembly

- Secure the workbench in position and screw the press on at the back.



NOTE

For further information, please contact RINCO ULTRASONICS AG.

5.4 Establishing connections

5.4.1 Establishing electrical connections

- Work on the electrical system is only to be carried out by electricians.
- When carrying out work on live SDG generators, you must observe the applicable national accident prevention regulations.
- Only use an earthed power supply. Never operate the SDG generator without a protective earth connection.
- The electrical installation must be carried out in accordance with applicable regulations (e.g. with cable cross-sections, fuses, PE connections, etc.).
- EMC directives (for shielding, earthing, filters and cables, etc.).



WARNING

Incorrect connection values.
Damage to insulation or individual components.
Contact with live parts.

Danger of death due to electric shock.

- If there is any damage to insulation, switch off the power supply immediately and arrange for it to be repaired.
- Before connecting the machine to the energy supply, compare the information in the “Technical data” with the mains data and only make the connection if they are the same.
- Work on the electrical system is only to be carried out by electricians.
- Never pull the generator drawer module out or slide it in while connected to the mains.

5.4.1.1 Protective earth connection

Never operate the SDG generator without a protective earth connection. There must always be a protective earth connection of min. 2.5 mm² from the SDG generator to each ultrasonic converter.

5.4.1.2 Equipotential bonding

All components in an ultrasonic system must be connected to the machine's equipotential bonding system. This connection can be established via a mounting panel – as for the SDG generator, for example – or via a cable of at least 6 mm².

5.4.1.3 Preparing the equipment for operation

- Insert connector plugs into the sockets on the generator (see figure below).

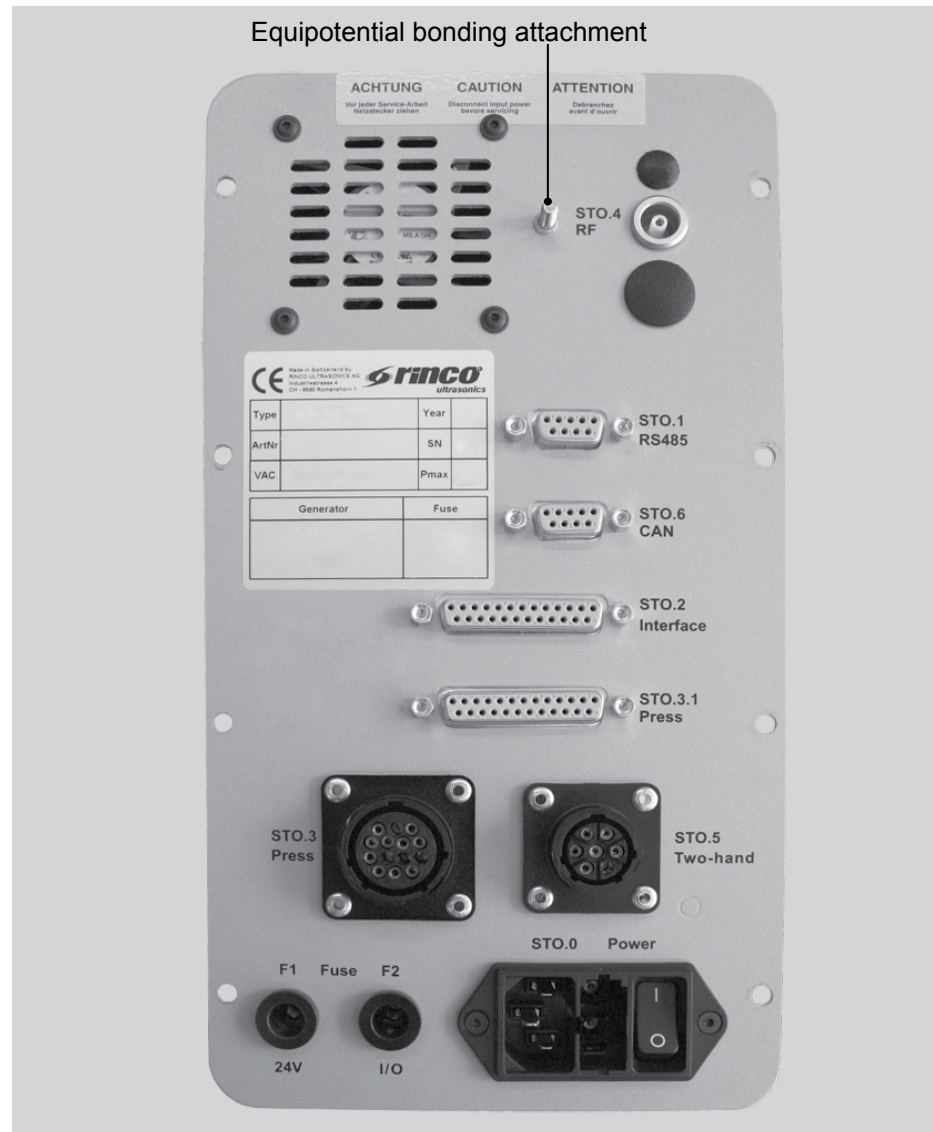


Fig. 12: Electrical connections on the generator

Item no.	Description
STO_0	Power supply
STO_1	RS485
STO_2	Interface (optional)
STO_3	Actuator (optional)
STO_3_1	ABW35 (optional)
STO_4	Converter connection
STO_5	Start
STO_6	CANopen

Table 8: Generator connections

ATTENTION

Only use earthed power supplies.

See the SDG generator operating instructions for information on the connector assignment.

5.4.2 Establishing the compressed air supply

Work on the pneumatic system is only to be carried out by pneumatic engineers.

- Ensure that the compressed air is dry and oil-free.
- Ensure that the inlet pressure is limited to 7 bar/ 105 psi.

6 Operation

6.1 Safety

Personnel

- The machine must only be operated by personnel who have received the appropriate training.
- The operator setting up the equipment must exercise caution when handling the workpieces and machine parts.

Personal protective equipment

Always wear protective clothing when operating the machine:

- Safety boots
- Additional protective equipment in line with accident prevention regulations for the area surrounding the machine

The operator must wear personal protective equipment and instruct others to do the same.

6.1.1 Hazards posed by electrical energy



DANGER

Damage to insulation or individual components.
Contact with live parts.

Danger of death due to electric shock.

- If there is any damage to insulation, switch off the power supply immediately and arrange for it to be repaired.
- Never pull the generator drawer module out or slide it in while connected to the mains.
- Never open the device during operation.

6.1.2 Hazards arising due to improper use



WARNING

Improper use.

Danger of serious injury.

- Carry out all steps in accordance with the information provided in these operating instructions.
- Before starting any work, make sure that all covers and safety equipment are installed and in good working order.
- Do not work in a way that could pose a risk to safety.
- Before switching on the device, make sure that no one could be injured by the device starting up.
- Only operate the device once all protective equipment and safety devices – e.g. detachable protective equipment, and soundproofing equipment – is available and fully functional.
- Keep the workplace clean and tidy. Loose components and tools that are left lying around or on top of each other can cause accidents.
- Only remove protective covers once the machine has been switched off (protective covers are screwed in place and can only be removed using appropriate tools).

6.1.3 Hazards arising due to vapours and dust emissions



WARNING

Vapours and dust emissions.

Fire hazard.

Explosion hazard.

Intoxication hazard.

Risk of damage to health.

- Do not use any naked flames when working on the machine.
- Do not smoke.
- Do not inhale any vapours.
- Ensure that there is an extraction unit is available.
- Wear a dust mask.
- If there are any harmful vapours or dust particles in the atmosphere, the operator must provide appropriate counter-measures – such as an extraction unit – for health and safety reasons. The operator must ask the materials supplier about any potential hazards.
- The operator must wear personal protective equipment and instruct others to do the same.

6.1.4 Hazards arising due to noise pollution



CAUTION

Noise pollution. Certain materials can cause the noise level to exceed 70 dB(A) during the welding process.

Risk of hearing damage.

If the noise level is over 70 dB(A):

- Wear ear protectors.
- Install a soundproof cover (optional).
- The operator may be required to measure the noise emissions in the area surrounding the machine and, if necessary, instruct people to wear ear protectors.
- The operator must wear personal protective equipment and instruct others to do the same.

**NOTE**

Limit values:

As far as is currently known, ultrasound does not cause any damage if the maximum level is below 140 dB and the average level – based on 8 hours/day – is below 110 dB (linear).

Noises within audible range shall be considered harmful to hearing if the energy equivalent continuous sound pressure level reaches $L_{eq} = 88 \text{ dB(A)}$ or more (based on a representative working period of 8 hours/day, up to a maximum of 2000 hours/year).

The threshold for noises considered harmful to hearing shall include energy equivalent continuous sound pressure levels from $L_{eq} 85$ to $L_{eq} 87 \text{ dB(A)}$ per day or week, along with impulse sound events with a peak value (L_{Peak}) over 140 dB(C).

For more measured values, see the “Sound measuring protocol in the RINCO supplements” no. 920-3903/1.95.

6.1.5 Hazards arising due to materials

**WARNING**

Materials and tools may become hot depending on the material being welded or cut.

Fire hazard.

- Provide a fire extinguisher if necessary.
- The user must obtain the specifications (safety data sheet) for every tool to be processed and check for any possible hazards that may arise when using ultrasound. The user is also responsible for disposing of surplus material properly.
- The operator must wear personal protective equipment and instruct others to do the same.

6.2 Setting up the equipment



WARNING

Electrical voltage.

Electric shock hazard.

- Before starting any work on the oscillator system, make sure that the supply voltage on the generator is switched off (Power OFF).

6.2.1 Installing the oscillator system

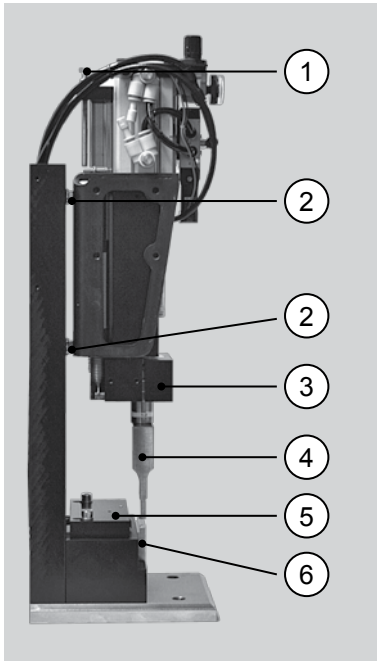


Fig. 13: Oscillator system 1/3

To install the oscillator system:

- Make sure that the generator is switched off (Power OFF).
 - Make sure that the pressure regulator is set to 0.
 - The oscillator system must be installed before the cover.
 - Screw in the horn (4) and use the supplied special key (A) and an open-ended spanner (SW 18 mm) or monkey wrench to secure it carefully to the oscillator system (4-5).
The tightening torque should be between 15 and 20 Nm.
- ⇒ The oscillator system is ready for operation.
- Open the cover plate (3) for the converter housing.
 - Insert the HF plug into the HF port (7) for the converter.
 - Insert the oscillator system into the converter housing from the front.
 - Close the cover plate (3) for the converter housing again and tighten the two screws with the Allen key (SW 6 mm). The oscillating equipment should still be able to rotate with little force.
 - Align the horn (4) so that it is parallel to the anvil (6), then tighten the screws on the cover plate (3) until they are relatively secure. Make sure that the gap between the converter housing and cover plate is even.

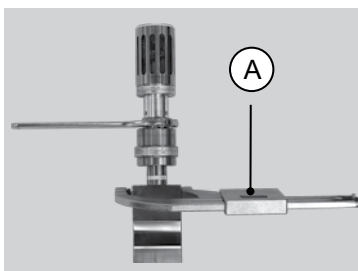


Fig. 14: Special key

ATTENTION

Damage to the microfilter.

Danger of material damage.

- Ensure that the horn is perfectly aligned to prevent damage to the microfilter (8).

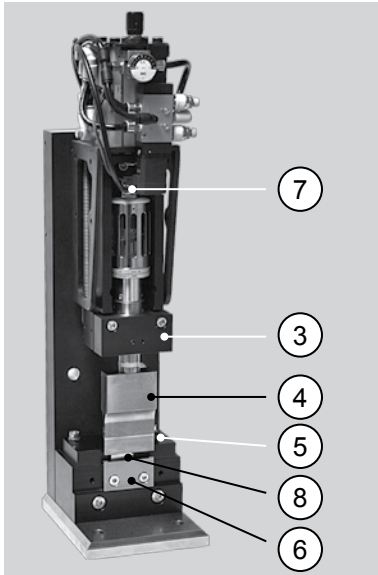


Fig. 15: Oscillator system 2/3

- Hold on to the actuator and loosen the 4 fixing screws (2) with a socket wrench (SW 10 mm). Slide the actuator as far up as it will go and fix in place with screws.
- Loosen the screws for the stop plate (5) and then slide it right to the back.
- Place an installation gauge onto the anvil (6).
- Loosen the screws (2) and carefully place the actuator onto the installation gauge. Press lightly and then tighten all 4 screws evenly. If the welding image becomes uneven during the welding process, you may need to check whether the horn and anvil are parallel and readjust them if necessary.
- Loosen the locknut for the stroke limiter (1) and rotate anti-clockwise until you can fit the horn (4). Clamp a 0.2 mm feeler gauge between the horn and anvil and turn the stroke limiter clockwise until you meet some resistance. Tighten the locknut. Check the air gap that forms as a result of this process, which should measure 0.2 mm.
- Set the stop plate (5) to the required welding distance (3 - 10 mm) and tighten the screws.

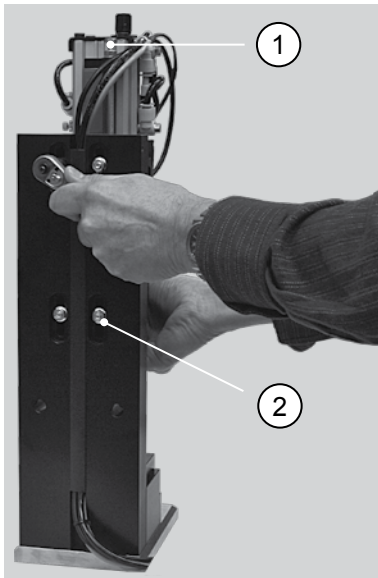


Fig. 16: Oscillator system 3/3

Item no.	Description
1	Locknut for the stroke limiter
2	Fixing screws
3	Cover plate
4	Horn
5	Stop plate
6	Anvil
7	HF port
8	Microfilter

Table 9: Oscillator system structure

6.3 Starting up the system

Functional description

Pressing the microswitch triggers the welding cycle. The actuator starts to move and the ultrasound starts up immediately. Once the preconfigured time has elapsed, the ultrasound stops. The actuator then moves back to its idle position after the preconfigured dwell time.

6.3.1 Pre-operational tasks

You must always perform the following tasks before using the machine.

- Make sure that all protective covers are properly fitted.
- Make sure that the machine does not show any signs of external damage.
- Make sure that electrical connections have not been damaged.
- Make sure that there are no people in hazardous areas and that nobody can reach into these areas.

6.3.2 Starting up the SDG generator

- To start up the generator, set the toggle switch on the back of the generator to “I”.

The results of the “system test” appear on the display.

6.3.2.1 Basic settings for the SDG generator

SDG generator parameters

The SDG oscillator includes various parameters that are required for the ultrasound process to function correctly. You can enter these directly using the keyboard or change them via the CANopen or RS485 interface.

		MIN Value	MAX Value	Standard Value
WELDING PARAMETER				
Welding time [ms]		5	9999	1000
Welding energy [Ws]		NominalPower / 1000	NominalPower * 10	NominalPower
Holding time [ms]		0	9999	100
Welding amplitude [%]		15	100	100
Limit				
	Energy [Ws]	NominalPower / 1000	NominalPower * 10	NominalPower
	Time [ms]	5	9999	1000
P Overcharge [W]		5	NominalPower * 1.2	NominalPower * 1.2
Power limit [W]		5	NominalPower * 1.2	NominalPower * 1.2
Power loss max. [%]		5	25	10
Afterpuls time [ms]		5	1000	100
Delay afterpuls [ms]		50	999	50
Afterwelding time [ms]		0	1000	0
Start frequency [Hz]		0	Nominal frequency + limit Max.	Nominal frequency
Turn-off delay [ms]		0	999	100
SYSTEM PARAMETER				
Measuring power loss		0	99	1
Soft start time [ms]		5	200	50
Start amplitude [%]		10	40	30
Frequency limit max. [Hz]		Nominal frequency + 50	Nominal frequency + 500	Nominal frequency + 500
Frequency limit min. [Hz]		Nominal frequency - 50	Nominal frequency - 500	Nominal frequency - 500
Soft stop limit [ms]		0	50	0
Slow control rate		1	20	1
Contrast		-3	3	0
Cable length [m]		1	20	3
	Possible settings	Default value		
WELDING PARAMETER				
	Time / Energy / Time and Energy / Time or Energy / Continuous / Contact switch off			
Welding mode				Time
Power loss measuring	before / after			before
SYSTEM PARAMETER				
Frequency reset	on / off			off
Start frequency	on / off			off
Power limit	on / off			off
Amplitude	internal / external			internal
Start mode	manual / automatic / impulse			automatic
Trigger	on / off / time / pretrigger			off
MV	on / off			on
Afterpuls	on / off			off
Error position	below / top			top
Reset	on / off			off
Start PV test	on / off			on
Language	de / en / fr / it / tr / scv / cs / zh *			en
Code	internal / external			internal

*German, English, French, Italian, Turkish, Swedish, Czech, Chinese

*German, English, French, Italian, Turkish, Swedish, Czech, Chinese

Table 10: Basic settings for the SDG generator

6.4 Switching off the machine

To switch off the machine:

- Make sure that the actuator has returned to the idle position.
- Set the toggle switch on the back of the SDG generator to “0”.

⇒ The machine switches off.

7 Maintenance

7.1 Safety information

Personnel

- Only specially trained personnel are permitted to carry out maintenance.
- Work on the electrical system is only to be carried out by electricians.
- The engineer carrying out the maintenance must exercise caution when handling the workpieces and machine parts.

Personal protective equipment

When carrying out any maintenance work, you must wear personal protective equipment in accordance with local accident prevention regulations.

The operator must wear personal protective equipment and instruct others to do the same.

Safety information



WARNING

Live components.
Uncontrolled movements by active electrical components.
Unauthorised restart.

Danger of death.

Danger of serious injury.

- Before starting to use the device, switch off the electrical supply and ensure it cannot be switched back on accidentally.



WARNING

Unauthorised restart.

Danger of serious injury.

- Before starting to use the device, switch off all electrical supplies and ensure they cannot be switched back on accidentally.



WARNING

Improper maintenance.

Danger of serious injury.

- Only specially trained personnel are permitted to carry out cleaning and maintenance.
- Ensure that you have sufficient space to carry out the installation before starting work.
- Keep the installation area clean and tidy. Loose components and tools that are left lying around or on top of each other can cause accidents.
- If any components have been removed, be sure to reassemble them correctly, reattach all fixing elements and maintain all tightening torques for screws.
- Observe the specified maintenance intervals.



WARNING

When operating the sliding actuator carriage **WITHOUT** a hand wheel for height adjustment:

The sliding actuator carriage may accidentally drop down.

Crushing hazard.

- Hold the converter housing tightly before releasing the clamping lever.



WARNING

Removing protective covers before it is safe to do so.

Danger of serious injury.

- Only remove protective covers once the machine has been switched off (protective covers are screwed in place and can only be removed using appropriate tools).



WARNING

Air escaping at high pressure.

Danger of serious injury, e.g. to the eyes.

- Depressurise the machine before starting work on it (by ventilating with a manual shut-off valve on the maintenance unit).
- Do not change pressure settings so that they are above the maximum permissible values.

7.2 Maintenance schedule

The following chapters of these operating instructions describe all necessary maintenance tasks along with the specified maintenance intervals required for optimal, safe and trouble-free operation of the machine.

These maintenance intervals have been set based on our many years of experience and knowledge. They can be shortened as required if any components are showing increased signs of wear or if faults start to occur more frequently.

If you have any questions relating to maintenance tasks or intervals, please contact the manufacturer (see legal information section for details).

7.2.1 Daily end-of-business maintenance tasks

Module	Task	Comments on execution
Machine and surrounding area	Cleaning	

Table 11: Daily end-of-business maintenance tasks

7.2.2 Biannual maintenance tasks

Module	Task	Comments on execution
Screws	Only remove protective covers once the machine has been switched off (protective covers are screwed in place and can only be removed using appropriate tools). Ensure that all of the machine's screw connections are tight enough and tighten if necessary.	

Table 12: Biannual maintenance tasks

7.3 Maintenance tasks

7.3.1 Cleaning the machine and the surrounding area

You should clean the machine and the surrounding area according to the following conditions:

- Activities are only to be carried out by personnel with the appropriate qualifications.
- Only carry out work on the oscillator system and converter housing when the supply voltage is switched off.
- Make sure that the compressed air supply is switched off (the manual shut-off valve is in a crosswise position, which relieves the residual pressure and therefore ventilates the machine).
- Avoid any contact between the HF port and the converter.
Do not connect any measuring devices to the converter's HF port.
Even once the generator has been switched off, the converter remains electrically charged.
- Do not use aggressive cleaning agents.
- Do not use any high-pressure cleaners.
- Do not get wet when cleaning. Make sure that moisture cannot reach the electronic components.

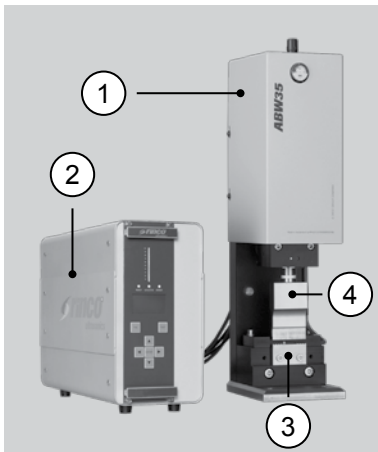


Fig. 17: Parts to be cleaned

You should clean the following components regularly:

- Press (1)
- Generator/Control unit (2)
- Anvil (3)
- Horn (4)

This promotes long-lasting, trouble-free operation of the ultrasonic welding machine.

Generator

Always keep the generator display clean. Only use cleaning agents that are specially designed for monitors.

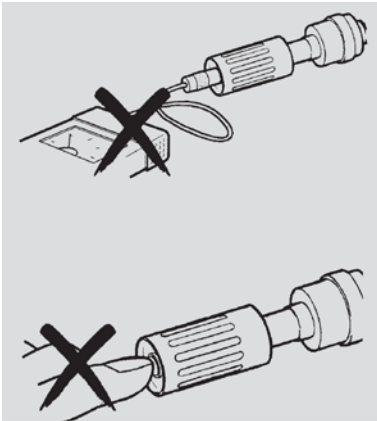


Fig. 18: Electric shock hazard in the oscillator system



DANGER

Capacitor remains charged after the machine has been disconnected from the mains.

Electric shock hazard.

- Only carry out work on the oscillator system and converter housing when the supply voltage is switched off.
- Avoid any contact between the HF port and the converter.
- Do not connect any measuring devices to the converter's HF port.

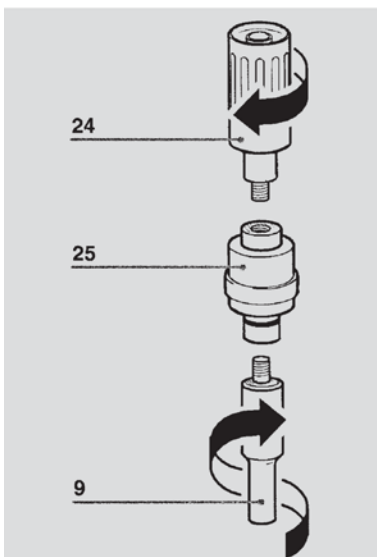


Fig. 19: Assembling the oscillator system

To clean the oscillator system:

- Unscrew the converter (24) and the horn (9) from the booster (25).
- Place a polishing cloth on a flat surface.
- Slide black areas on the booster (25) or horn (9) surfaces over the polishing cloth.
- Screw the converter (24) and the horn (9) to the booster (25) (with a tightening torque of 30 - 40 Nm).

7.4 Post-maintenance tasks

Once you have finished carrying out the maintenance tasks, perform the following steps before switching the machine back on:

- Ensure that all screw connections that have been loosened are suitably tight again.
- Check whether all protective measures and covers that have been removed are back in the appropriate places. Clean the workplace and remove any substances – such as liquids, raw materials, or similar – that may be in the way.
- Make sure to remove all tools, materials and other equipment that you have used from the workplace.
- Make sure that all machine safety equipment is in proper working order.

8 Disassembly and disposal

8.1 Safety

8.1.1 Personnel

- Only specially trained personnel are permitted to disassemble the equipment.
- Work on the electrical system is only to be carried out by electricians.

8.1.2 Personal protective equipment

You must wear the following personal protective equipment for all disassembly and disposal tasks:

- Protective equipment in line with local accident prevention regulations

The operator must wear personal protective equipment and instruct others to do the same.

8.1.3 Safety information



WARNING

Live components.
Uncontrolled movements by active electrical components.
Unauthorised restart.

Danger of death.
Danger of serious injury.

- Before starting to use the device, switch off the electrical supply and disconnect it from the mains.



WARNING

Stored residual energy:
- Electrically charged converter
- Residual pneumatic pressure

Danger of serious injury.

- Avoid touching the converter.
- Make sure that the manual shut-off valve is in a crosswise position.

ATTENTION

The condensate in the compressed-air maintenance unit must be disposed of with special/hazardous waste.

Environmental damage.

- Before disassembling/scraping the machine, drain the condensate – see **Draining the condensate** [<?>].

8.2 Pre-disassembly tasks

Before starting to disassemble the equipment:

- Set the main switch on the back of the SDG generator to “0” to switch off the power supply.
- Physically separate the entire energy supply from the machine.
- Make sure that the manual shut-off valve is in a crosswise position.
- Remove any remaining raw materials and dispose of these in an environmentally friendly way.

8.3 Disassembly

- Make sure that you have appropriate lifting equipment available.

The following personal protective equipment must be used as an absolute minimum for any kind of disassembly work:

- Safety glasses
- Safety boots
- Protective gloves

The operator must wear personal protective equipment and instruct others to do the same.

8.4 Disposal

- Dispose of the machine with other scrap metal.
- Dispose of the condensate with other special/hazardous waste.

9 Technical data

9.1 General information

Conformity:	CE
Protective measures against:	Short-circuits, overloads and excessive temperatures in the final stage
Leakage current:	> 10 mA against PE
Degree of housing protection:	IP20

9.2 Dimensions and weights

Press dimensions

Description	Value Specification
Length	156 mm
Width	120 mm
Height	492 mm

Table 13: Dimensions and weights

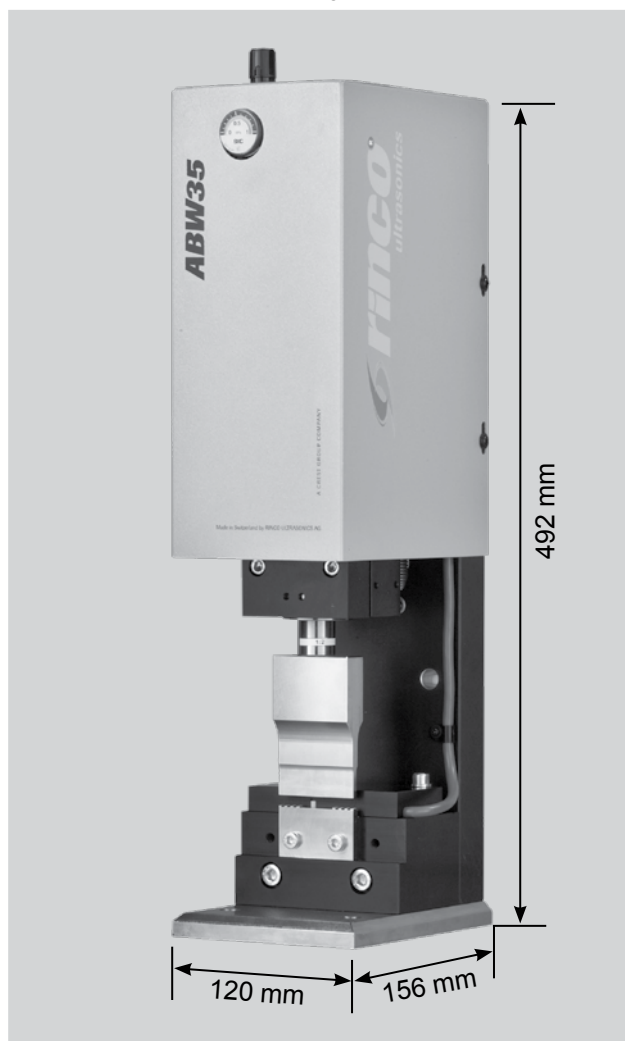


Fig. 20: Press dimensions

Generator dimensions

Description	Value Specification
Length	430 mm
Width	150 mm
Height	285 mm

Table 14: Generator dimensions

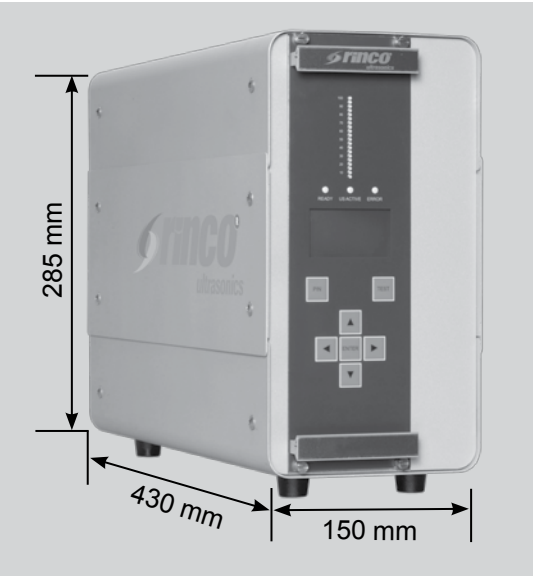


Fig. 21: SDG generator dimensions

Weights

Description	Value Specification
Press weight (without oscillator unit)	approx. kg 11.2
Generator weight	approx. 7 kg
Total weight	approx. 19 kg

Table 15: Weights

9.3 Electrical connection values and limit values

Type	HF power (peak) (1); (4)	HF power (pulse mode) (2); (4)	HF power (continuous mode) (3); (4)	Power supply		Standby (max.)
				Voltage/ Frequency	Power input (max.)	
SDG20-2000P-230	2400 W	1600 W	1000 W	L1/N PE 230 V +/- 10% 50/60 Hz	3800 VA	60 VA
SDG20-1500P-230	1800 W	1200 W	700 W		2600 VA	60 VA
SDG20-1000P-230	1200 W	1000 W	700 W		2200 VA	60 VA
SDG30-1000P-230	1200 W	1000 W	700 W		2000 VA	60 VA
SDG30-500P-230	600 W	500 W	400 W		1100 VA	60 VA
SDG35-4-900P-230	1080 W	700 W	500 W		2000 VA	60 VA
SDG35-750P-230	900 W	650 W	500 W		1700 VA	60 VA
SDG35-4-750P-230						
SDG35-400P-100	480 W	400 W	400 W		1100 VA	60 VA
SDG35-400P-230						
SDG35-4-400P-230						
SDG35-4-200P-230	240 W	200 W	200 W		510 VA	60 VA
SDG40-800P-230	960 W	700 W	500 W		1900 VA	60 VA
SDG40-400P-230	480 W	400 W	400 W		1100 VA	60 VA
SDG70-100P-230	120 W	100 W	100 W		320 VA	60 VA

Table 16: Electrical connection values and limit values

1. Peak power (in milliseconds)
2. Impulse mode 1 to 9 (e.g. 1 s ON, 9 s OFF)
3. At 100% amplitude
4. These values should not be taken as guaranteed reference values for the SDG generator. The values for an entire system can deviate from these significantly.

9.4 Pneumatic connection values

Description	Value	Specification
Pressure	7 bar	max.
Compressed air		Dry and oil-free
Connecting piece	1/4" internal thread	(10 mm pipe)

Table 17: Pneumatic connection values

9.5 Press

Description	Value Specification
Double-acting cylinder, diameter	40 mm
Max. tool stroke	6 mm
Force at 6 bar	745 N
Extension	66 mm
Precision ball track on the sliding actuator carriage	
Switch for the upper cylinder position	
Differential pressure sensor for triggering the ultrasound (trigger)	

Table 18: Technical data for the press

9.6 Generator/Control unit



Fig. 22: Generator front view

Description	Value Specification
Performance classes	400, 750 W
Connection	Single-phase mains connection
Supply voltage	230 V
Mains frequency	50/60 Hz
Interfaces	RS 485
Display	Performance bar and status LEDs, LCD display

Table 19: Technical data for the generator/control unit

The generator meets the requirements of the following generic standards for the industrial sector:

- EN 61000-6-4 EMC – Emission standard for industrial environments
- EN 61000-6-2 EMC – Immunity for industrial environments
- EN 55011 Class A/Group 1 – Radio-frequency disturbance characteristics
- Low Voltage Directive 2006/95/EC

9.6.1 Fuses

The SDG generator requires a supply voltage of 230 V AC 50/60 Hz. The 230 V AC voltage must have a maximum tolerance of +/- 10%.

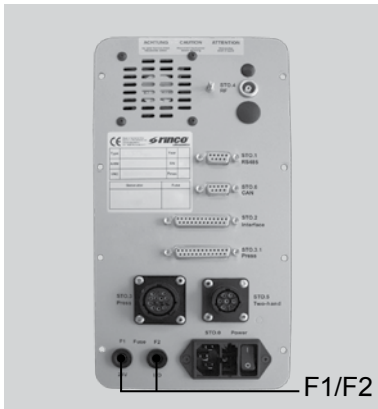


Fig. 23: Generator fuses in the installation area

Generator		SDG35-750P-230	SDG35-400P-230
Rear generator panel	F1 fuse 5x20 mm	800 mA	800 mA
	F2 fuse 5x20 mm	160 mA	160 mA
Power socket	F3 fuse 5x20 mm	6.3 A	4.0 A
	F4 fuse 5x20 mm	6.3 A	4.0 A
Generator drawer	Generator type	UGH35-750P230	UGH35-400P-230
	F1 fuse 6.3x32 mm	6.3 A	4.0 A
	F2 fuse 5x20 mm	400 mA	400 mA

Table 20: Technical data for the fuses

9.7 Ultrasound

Description	Value Specification
Operating frequency	35 kHz

Table 21: Technical data for the ultrasound

9.8 Operating conditions

Surrounding area

Description	Value Specification
Ambient temperature range Operation	+10 - +50 °C
Ambient temperature range Transport/storage	-20 - +70 °C
Relative humidity	20 - 90% Non-condensing
Installation altitude	0 - 1000 m above sea level

Table 22: Operating conditions

10 Replacement parts

When ordering replacement parts, always provide the following information:

- Machine type*¹
- Replacement part designation*²
- Replacement part item number*²
- Quantity
- Delivery address

*¹ See type plate; *² See replacement parts list

11 EC Declaration of Conformity for machines

(Machine Directive 2006/42/EC, Appendix II, Sub. A)

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E-mail: info@rincoultrasonics.com

Name of the person authorised to compile the technical documentation:

Name: Jürgen Baumert

We hereby declare that the:

Welding press ABW35

machine no.: see type plate

in "manual" mode:

1. Conforms to all relevant provisions of the:

EC Machinery Directive 2006/42/EC

2. Conforms to the relevant provisions of the following EC Directives:

Low Voltage Directive 2006/95/EC

EMC Directive 2004/108/EC

3. We also declare that the following harmonised European standards (or parts/clauses thereof) have been applied:

EN ISO 12100:2010

EN 60204-1:2006

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