

Operating instructions

 Please read these operating instructions before operating the device.



Ultrasonic hand units

35 kHz

HC35-5 with Ecoline generator

HG35-4 with Ecoline generator

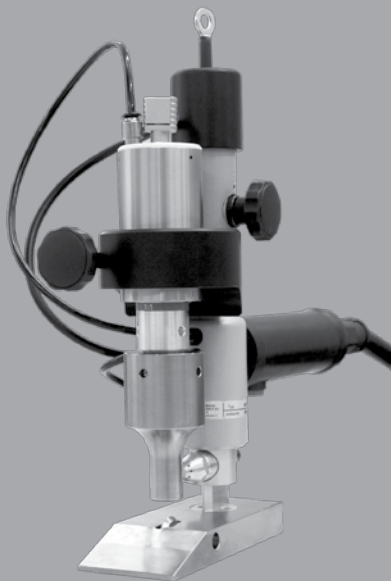
HT35-3 with Ecoline generator

HW35-4 with Ecoline generator





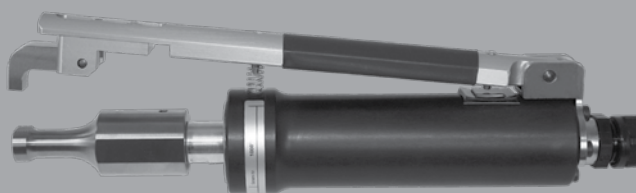
Ecoline generator



HC35-5



HW35-4



HT35-3



HG35-4

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1 General information

1.1 Information on these operating instructions

Validity	These operating instructions describe the following hand units: • HC35-5 • HG35-4 • HT35-3 • HW35-4 in operation with the Ecoline generator.
Purpose	These operating instructions provide the reader with all necessary information on how to handle, assemble, operate and maintain the device. The basic premise for safe operation is to observe all of the safety and warning information in this document and to follow all of the instructions it contains.
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 by personnel who are familiar with the operating instructions as well as the applicable regulations regarding occupational health and safety and accident prevention.
Storage	These operating instructions must be kept in the direct vicinity of the device so that they are available to personnel at all times.
Applicable documents, regulations and provisions	In addition to these operating instructions, the following shall apply: • The safety signs and labels on the device • Information provided by the manufacturer downstream in the light of technical modifications • Local accident prevention regulations and generally applicable safety regulations for the area in which the device is being used
Caveat	For certain applications, the suitability of the products must be checked and confirmed by specialists at RINCO ULTRASONICS AG. The figures shown within these instructions are intended as a general guide and may deviate from the actual design.
Loss of this document	If you should lose these operating instructions, request a replacement copy immediately.



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

1.2.1 Warnings

Warnings appear immediately before a hazardous action and are highlighted to draw the attention of the reader.

Warnings are introduced by signal words that express the extent of the danger.



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.

1.2.2 Tips and recommendations



NOTE

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

2 Safety

2.1 Introduction

The operating instructions are part of the device.

Their entire content is relevant to safety.

The basic premise for safe operation is to observe all of the safety and warning information in this document and to follow all of the instructions it contains.

Non-compliance can give rise to significant hazards, the result of which may be death or serious injury and material damage.

2.2 Intended use

The ultrasonic hand unit and its accessories are designed exclusively for welding and cutting suitable materials.



NOTE

Please direct questions about suitable materials and hazards that might be encountered during ultrasonic welding and cutting to materials suppliers and RINCO ULTRASONICS AG.

- Follow the operating instructions.
- Ensure compliance with operating and environmental conditions, see chapter **Technical data** [▶ 65].
- Do not operate the device in potentially explosive atmospheres.
- Ensure compliance with local accident prevention regulations.
- Keep the device in perfect working order.
- Use only genuine spare parts and accessories.
- The written approval of RINCO ULTRASONICS AG must be obtained before making any modifications to the device.
- 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.
Suitable protective devices must be used; examples of these include covers, soundproof cabins and fire-extinguishing systems.
- Only one person must be permitted to use the device at any one time.
Other persons present in the production space must keep a safe distance away from the device.

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



NOTE

Any and all damage resulting from improper use shall be excluded from the warranty and liability provided by RINCO ULTRASONICS AG.

2.3 Requirements of personnel

2.3.1 Minimum requirements to be met by qualified personnel

Improper use of the device can result in serious personal injury.

To prevent accidents, anyone working with the device must meet the following minimum requirements:

- They must be physically capable of controlling the device
- Their reactions must not be impaired, e.g. by drugs, alcohol or medication
- They must meet local age requirements for this specific occupation
- They must be capable of completing the tasks assigned to them safely as outlined in these operating instructions
- They must understand how the device works in the context of their duties and must be able to recognise and avoid hazards when working

2.3.2 Qualifications of qualified personnel

Qualified personnel

Only qualified personnel who have been trained by RINCO ULTRASONICS AG are permitted to use the device.

- Qualified personnel are capable of completing the tasks assigned to them safely and recognising and avoiding potential hazards.
- Qualified personnel are familiar with the standards and regulations that apply to their work.

Qualified electricians

All work on the device's electrical equipment carries with it the risk of electric shock which may result in death or serious personal injury.

Only qualified electricians are permitted to carry out work on electrical equipment.

- Qualified electricians have been trained specifically in the installation and operation of electrotechnical equipment and have relevant practical experience.
- Qualified electricians are capable of completing the tasks assigned to them safely and recognising and avoiding potential hazards.
- Qualified electricians are familiar with the guidelines, standards and regulations that apply to their work.
- Qualified electricians 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 recognising and avoiding potential hazards independently.

2.4 Personal protective equipment

Personal protective equipment provides protection against risks to health posed by certain activities in the workplace.

The following mandatory signs in the operating instructions and on the device indicate the type of personal protective equipment to be worn:



Hearing protection

Protects hearing against permanent damage, e.g. hearing loss, ringing in the ears, deafness.



Light respiratory protection

Protects the airways against damage caused by dust and other fine particles.



Safety boots

Non-slip soles provide protection against slipping and falling over and its consequences, e.g. bruises and broken bones.



Protective gloves

Protect the hands against rubbing, abrasions, stab wounds and cuts as well as from scalding and burning on hot surfaces.



Safety glasses

Protect the eyes against damage caused by flying parts and fragments, e.g. complete or partial loss of eyesight.

2.5 Safety signs on the device

Safety signs on the device relate to the immediate vicinity in which they are located.

The pictograms on the safety signs refer to hazards or measures to be taken.

This warning sign is attached to live parts. It warns of dangerous electrical voltage.

Direct contact with live parts can cause death or serious personal injury (see chapter **Electrical hazards (electric shock)** [► 12])



Beware of dangerous electrical voltage

Mandatory signs indicate what personal protective equipment needs to be worn (see chapter **Personal protective equipment** [► 11])

If safety signs are covered, missing or illegible, the resulting hazards may lead to death or serious personal injury.

- Safety signs and operating information on the device must be clearly legible at all times.
- Damaged or missing safety signs must be replaced immediately.
- Do not cover, block or remove safety signs.

2.6 Electrical hazards (electric shock)

The electrical components and other live parts of the device are under dangerous electrical voltage.

Damaged insulation, damaged parts or direct contact with live parts can cause death or serious personal injury.

- Only qualified electricians are permitted to carry out work on electrical equipment.
- Before starting work on electrical equipment, shut down the power supply and ensure that it cannot be switched back on accidentally.
- In the event of damage to insulation or parts, shut down the power supply immediately and have the insulation or parts repaired.
- Observe the warning about dangerous electrical voltage at the device (see chapter **Safety signs on the device** [► 12])

2.7 Machine parts and materials with sharp edges

Horns and materials with sharp edges pose a risk of serious injury due to cuts, stab wounds and abrasions.

- Wear protective gloves.

2.8 Dirt and tripping hazards

Dirty floors are a slip hazard and leaving objects lying around poses a tripping hazard. Such hazards can lead to serious injuries (bruises or broken bones) as a result of falling.

- The workplace must be kept clean and tidy.

2.9 Unauthorised presence in the workplace

Accidents resulting from unauthorised presence in the workplace expose both the unauthorised persons and others to a risk of serious injury.

- Do not allow unauthorised persons to enter the workplace.
- If there are unauthorised persons in the workplace, instruct them to leave.
- Do not resume work until the unauthorised persons have left the workplace.

3 Machine description

3.1 Overview/Modules

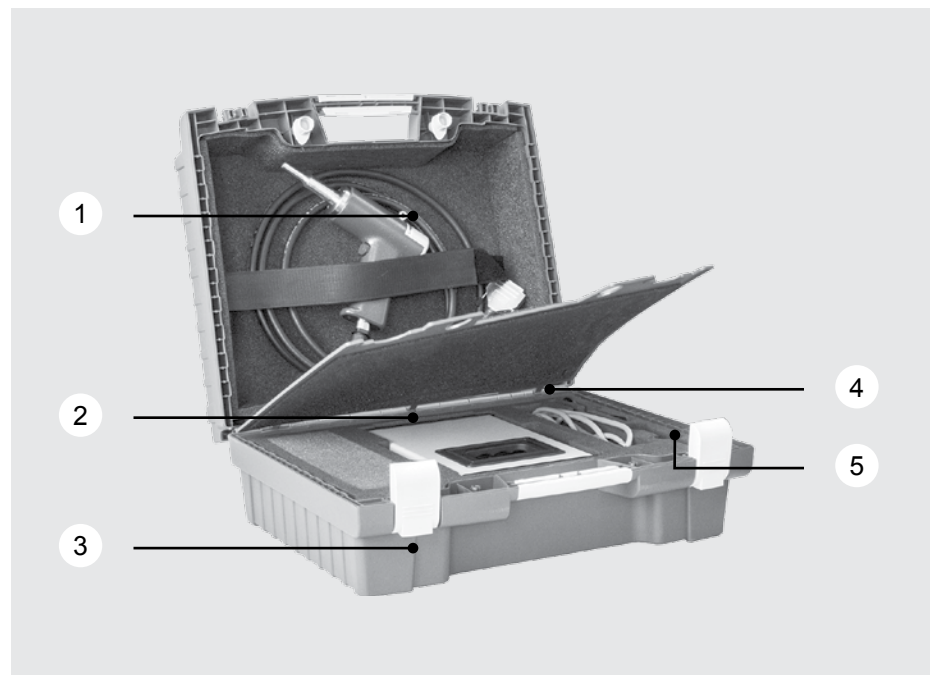


Fig. 1: Hand unit, generator and accessories

Item no.	Description
1	HC35-5 / HG35-4 / HT 35-3 / HW35-4 ultrasonic hand cutters
2	Ecoline generator
3	Carrying case
4	Power cable
5	Set-up tool

Tab. 1: Hand cutter, generator and accessories

3.2 HC35-5 ultrasonic hand cutter

3.2.1 Overview

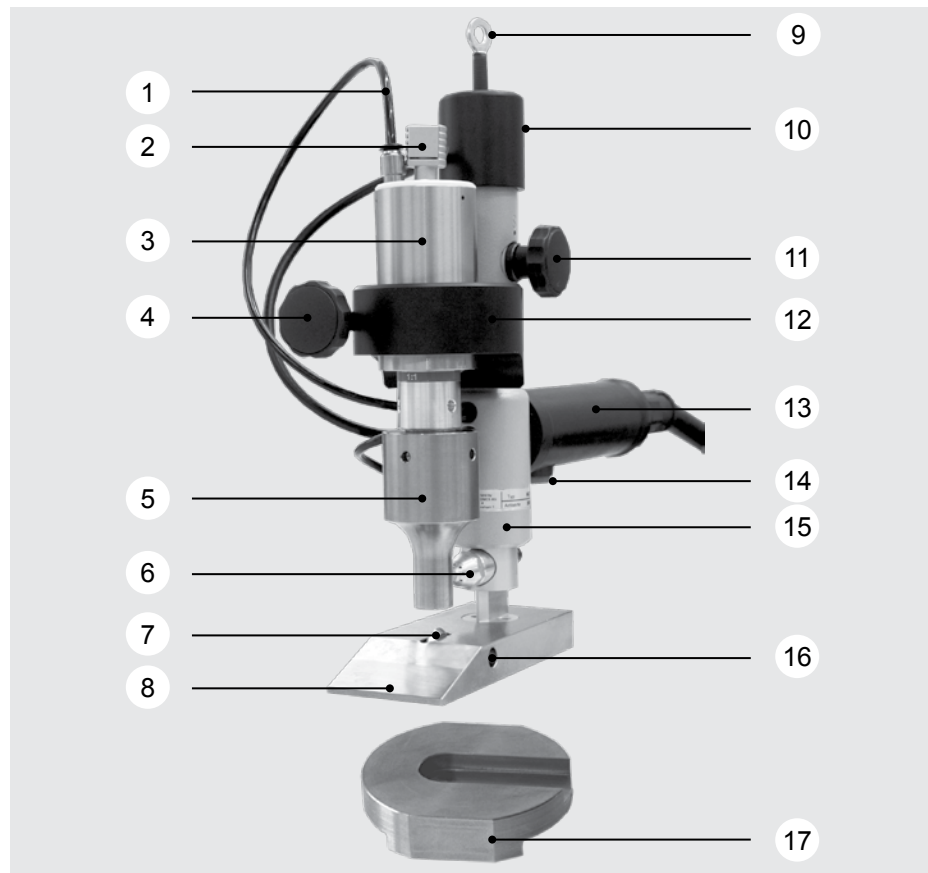


Fig. 2: HC35-5 ultrasonic hand cutter with air cooling and booster

Item no.	Description
1	Air cooling for converter/transducer
2	HF cable
3	Converter
4	Clamping screw on converter mount
5	Horn
6	Air cooling for horn
7	Cutting wheel
8	Cutting base
9	Mounting lug
10	Force adjusting screw
11	Positioning lever
12	Converter mount
13	Handle
14	Trigger button
15	Connecting rod
16	Clamping screw for cutting wheel
17	Positioning gauge

Tab. 2: HC35-5 ultrasonic hand cutter

3.2.2 Air cooling for converter/transducer (1)

ATTENTION

Inadequate air cooling of the converter/transducer.

Damage to the converter/transducer.

The Ecoline generator has a compressed air supply to cool the converter/transducer. If the converter/transducer needs to be cooled with compressed air, the operator must make sure that cooling is adequate and in perfect working order at all times.

3.2.3 Horn (5)

The horn 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.



WARNING

Improper use.

Danger of serious injury!

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

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.

3.2.4 Air cooling for horn (6)

ATTENTION

Inadequate cooling of the horn.

Horn damage!

The Ecoline generator has a compressed air supply to cool the horn. If the horn needs to be cooled with compressed air, the operator must make sure that cooling is adequate and in perfect working order at all times.

3.2.5 Cutting wheel (7)

The cutting wheel is used to cut and seal textiles at the same time, with sealing being achieved through the use of ultrasound.

3.2.6 Mounting lug (9)

The hand unit can be attached to a spring balancer apparatus via the mounting lug.

3.2.7 Force adjusting screw (10)

The pre-load force is set with this screw.

3.2.8 Positioning lever (11)

Used to position the hand unit e.g. after a tool change. (See chapter **Setting up the HC35-5** [► 44])

3.2.9 Trigger button (14)

Button to activate ultrasound.



WARNING

Non-compliance with safety regulations.

Danger of serious injury!

- Do not touch the horn when ultrasound is active.

3.2.10 Clamping screw for cutting wheel (16)

The clamping screw is used to tighten or loosen the cutting wheel. (See chapter **Setting up the HC35-5** [► 44])

3.2.11 Positioning gauge (17)

Used to position the oscillator unit.

3.3 HG35-4 ultrasonic hand welding unit

3.3.1 Overview

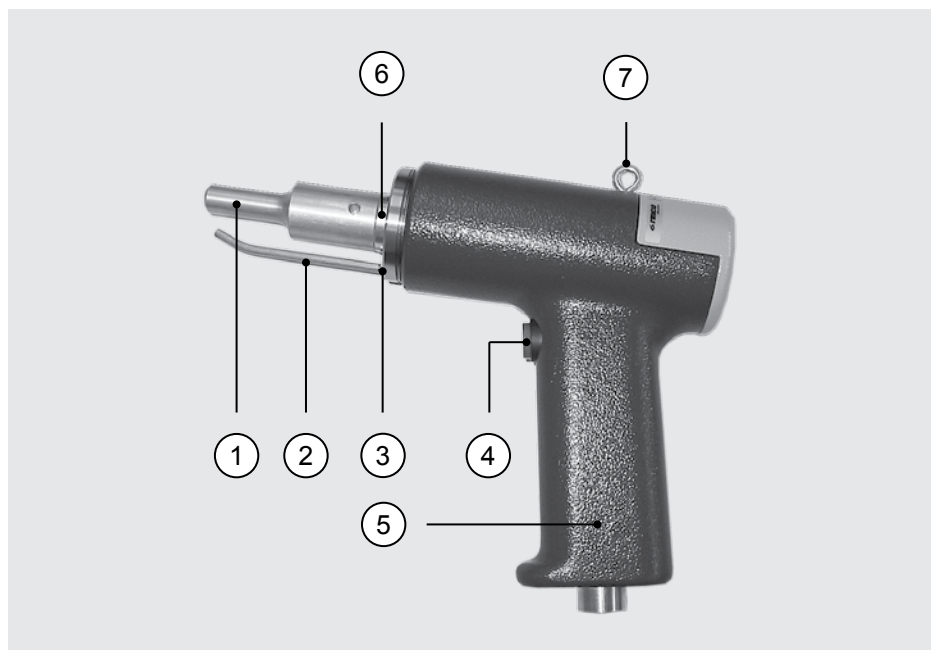


Fig. 3: HG35-4 ultrasonic hand welding unit with air cooling

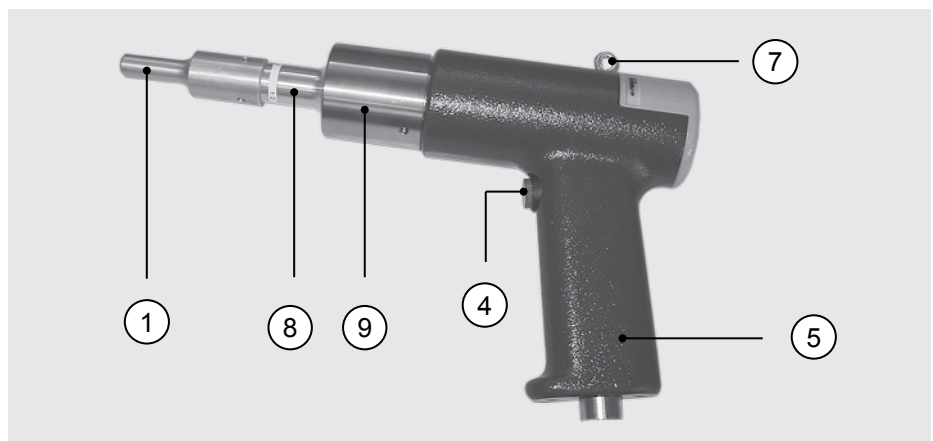


Fig. 4: HG35-4 ultrasonic hand welding unit with booster

Item no.	Description
1	Horn
2	Air cooling for horn
3	Converter screw fitting
4	Trigger button
5	Handle
6	Converter
7	Mounting lug
8	Booster
9	Converter screw fitting and booster support

Tab. 3: HG35-4 ultrasonic hand welding unit



Fig. 5: HG35-4 ultrasonic hand unit, back

Item no.	Description
10	3-colour LED

Tab. 4: HG35-4 ultrasonic hand welding unit, back

3.3.2 Horn (1)

The horn 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.



WARNING

Improper use.

Danger of serious injury!

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

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.

3.3.3 Air cooling for horn (2)

ATTENTION

Inadequate cooling of the horn.

Horn damage!

The Ecoline generator has a compressed air supply to cool the horn. If the horn needs to be cooled with compressed air, the operator must make sure that cooling is adequate and in perfect working order at all times.

3.3.4 Converter screw fitting (3)

Used to release the converter. (See chapter **Setting up the HG35-4** [► 48])

3.3.5 Trigger button (4)

Button to activate ultrasound.



WARNING

Non-compliance with safety regulations.

Danger of serious injury!

- Do not touch the horn when ultrasound is active.

3.3.6 Mounting lug (7)

The hand unit can be attached to a spring balancer apparatus via the mounting lug.

3.3.7 Booster (8)

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

Booster	Colour	Material
1:1	green	Aluminium
1:1.5	yellow	Aluminium
1:2	white	Titanium

Tab. 5: Booster

Connection threads

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

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

3.3.8 3-colour LED (10)

LED colour	Meaning
Green	READY - the device is ready
Yellow	ACTIVE - ultrasound activated
Red	ERROR - an error has occurred

Tab. 6: Description of the LEDs

3.3.9 Amplitude amplification

You can amplify or attenuate the amplitude as required using various types of booster and horn.

The individual elements are screwed together.

The tightening torque for 35 kHz systems is 15 - 20 Nm. We recommend using the RINCO tool wrench.

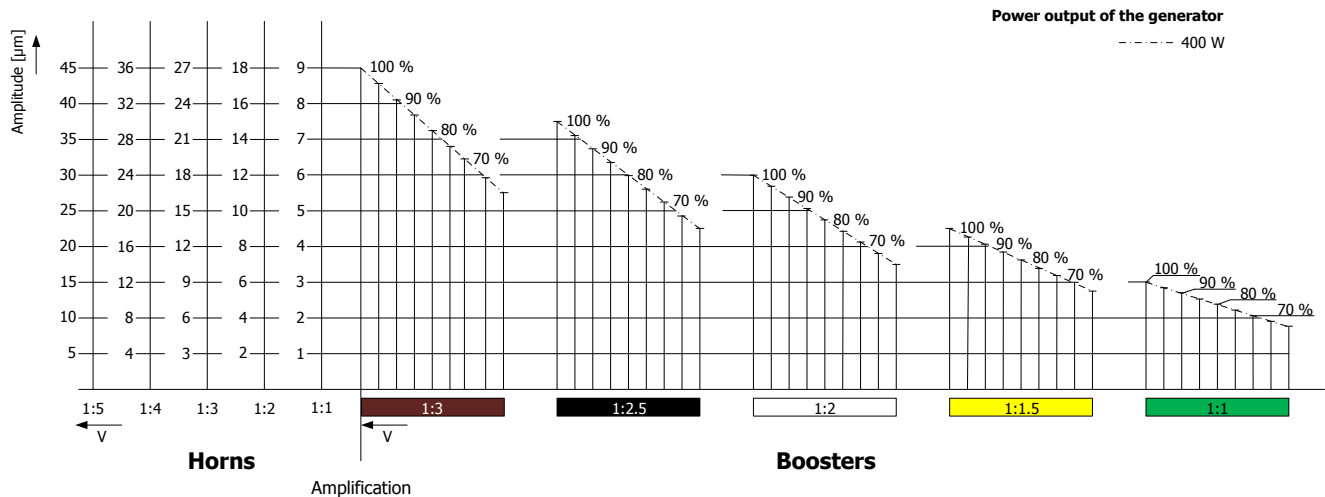


Fig. 6: Amplitude diagram for 35 kHz generators

3.4 HT35-3 ultrasonic hand tacker

3.4.1 Overview

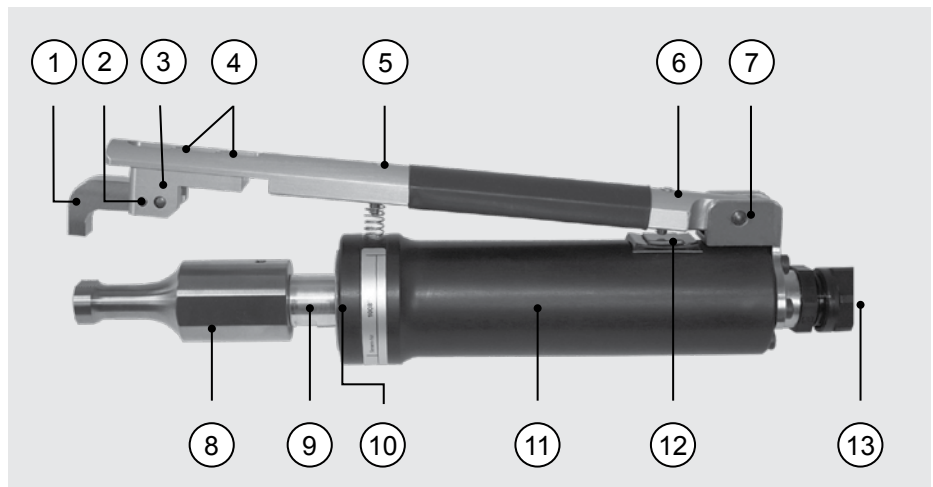


Fig. 7: HT35-3 ultrasonic hand tacker

Item no.	Description
1	Anvil (customer-specific)
2	Clamping screw for anvil
3	Mount
4	Clamping screw for mount
5	Adjusting screw for end stop (self-locking)
6	Adjusting screw for trigger point (self-locking)
7	Adjusting screw for jaw opening (self-locking)
8	Horn (customer-specific)
9	Transducer
10	Clamping ring for transducer
11	Housing
12	Trigger button
13	Mounting lug

Tab. 7: HT35-3 ultrasonic hand tacker

3.4.2 Clamping screw for anvil (2)

This clamping screw is used to tighten or loosen the anvil.

3.4.3 Adjusting screw for end stop (5)

Used to adjust the end stop.

3.4.4 Adjusting screw for trigger point (6)

Turn this screw to adjust the trigger point for ultrasound.

3.4.5 Adjusting screw for jaw opening (7)

Turn this screw to make the jaw opening bigger or smaller.

3.4.6 Horn (8)

The horn 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.



WARNING

Improper use.

Danger of serious injury!

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

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.

3.4.7 Transducer (9)

Only RINCO service personnel are permitted to replace the transducer.

3.4.8 Release button (12)

Button to activate ultrasound.



WARNING

Non-compliance with safety regulations.

Danger of serious injury!

- Do not touch the horn when ultrasound is active.

3.4.9 Mounting lug (13)

The hand unit can be attached to a spring balancer apparatus via the mounting lug.

3.4.10 Amplitude amplification

You can amplify or attenuate the amplitude as required using various types of booster and horn.

The individual elements are screwed together.

The tightening torque for 35 kHz systems is 15 - 20 Nm. We recommend using the RINCO tool wrench.

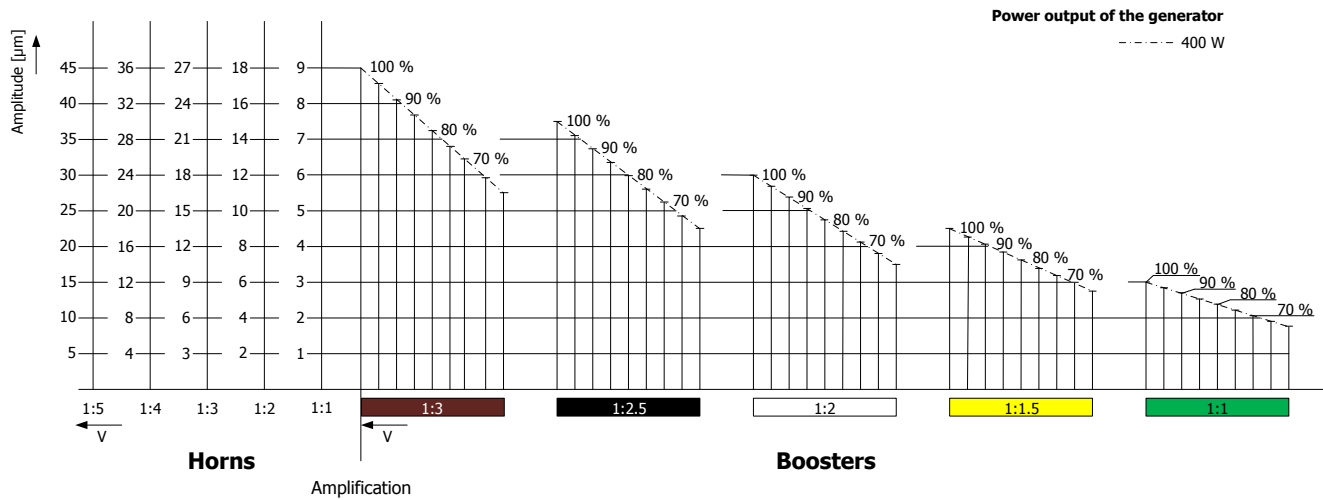


Fig. 8: Amplitude diagram for 35 kHz generators

3.5 HW35-4 ultrasonic hand welding unit

3.5.1 Overview

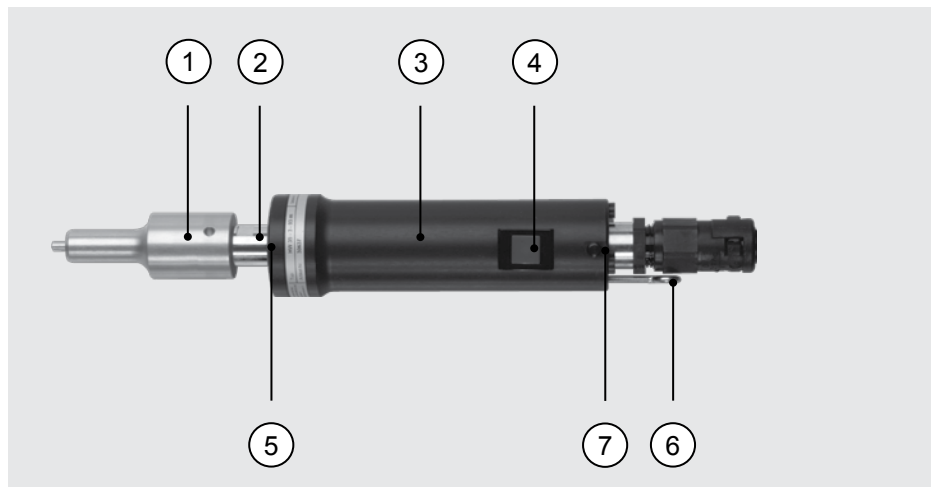


Fig. 9: HW35-4 ultrasonic hand welding unit

Item no.	Description
1	Horn (customer-specific)
2	Transducer
3	Housing
4	Trigger button
5	Clamping ring for transducer
6	Mounting lug
7	Status LED

Tab. 8: HW35-4 ultrasonic hand welding unit

3.5.2 Horn (1)

The horn 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.



WARNING

Improper use.

Danger of serious injury!

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

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.

3.5.3 Transducer (2)

Only RINCO service personnel are permitted to replace the transducer.

3.5.4 Trigger button (4)

Button to activate ultrasound.



WARNING

Non-compliance with safety regulations.

Danger of serious injury!

- Do not touch the horn when ultrasound is active.

3.5.5 Mounting lug (6)

The hand unit can be attached to a spring balancer apparatus via the mounting lug.

3.5.6 3-colour LED (10)

LED colour	Meaning
Green	READY - the device is ready
Yellow	ACTIVE - ultrasound activated
Red	ERROR - an error has occurred

Tab. 9: Description of the LEDs

3.5.7 Amplitude amplification

You can amplify or attenuate the amplitude as required using various types of booster and horn.

The individual elements are screwed together.

The tightening torque for 35 kHz systems is 15 - 20 Nm. We recommend using the RINCO tool wrench.

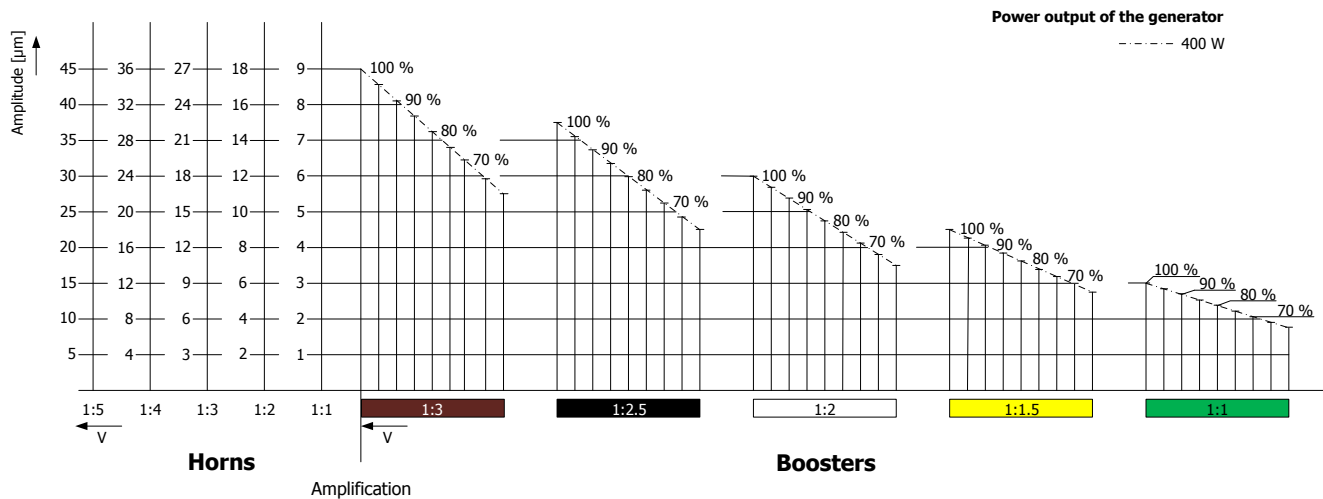


Fig. 10: Amplitude diagram for 35 kHz generators

3.6 Ecoline generator

3.6.1 Overview

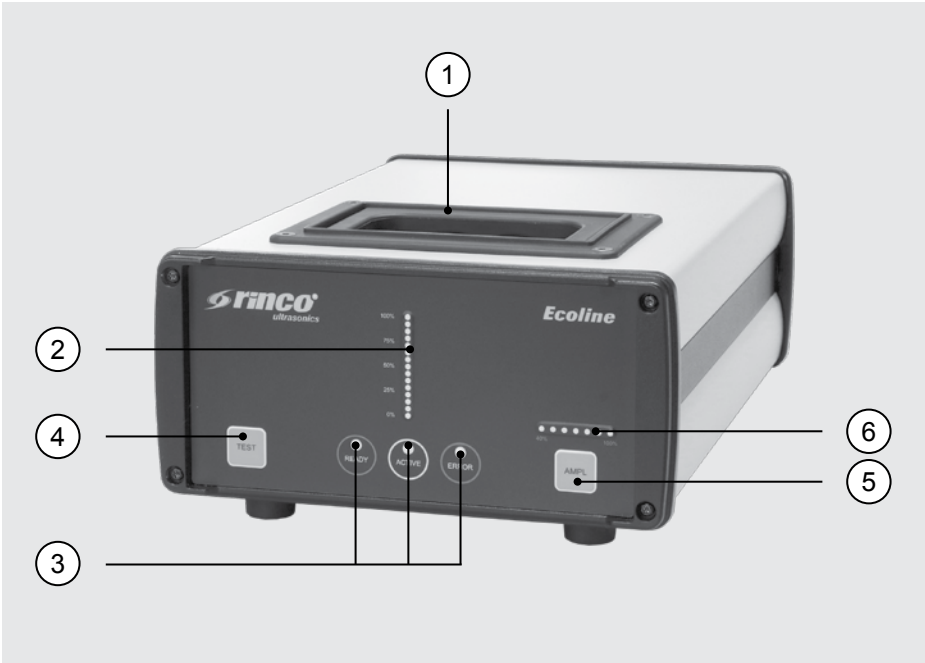


Fig. 11: Overview of Ecoline generator

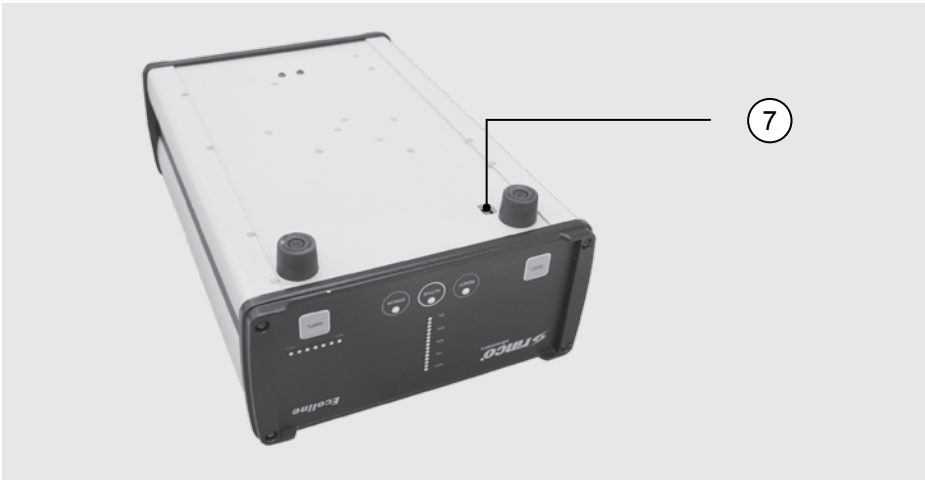


Fig. 12: Overview of generator base

Item no.	Description
1	Folding handle
2	Power bar
3	Status LEDs
4	TEST button
5	AMPLITUDE button
6	Amplitude indicator
7	DIP switch

Tab. 10: Ecoline generator

3.6.2 Folding handle (1)

The folding handle provides a safe and ergonomic means of carrying the generator.

3.6.3 Power bar (2)

Generator overview

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.

3.6.4 LEDs to indicate the operating status (3)

LED colour	Meaning
Green	READY - the device is ready
Yellow	ACTIVE - ultrasound activated
Red	ERROR - an error has occurred

Tab. 11: Description of the LEDs

3.6.5 TEST button (4)

The ultrasound test identifies the optimum starting frequency for an ultrasonic welding process.

Press the TEST key to activate ultrasound for 250 milliseconds. The test is always performed with 60% amplitude.

3.6.6 AMPLITUDE button (5)

The amplitude can be set in increments of 10% from 40% to 100%.

3.6.7 Amplitude indicator (6)

The current amplitude setting is displayed.

3.6.8 DIP switch (7)

The cable length can be set with the DIP switch. Chapter **Setting the cable length (DIP switch)** [► 55] describes how to do this.

The device is delivered with the cable set to the correct length.

3.7 Connections

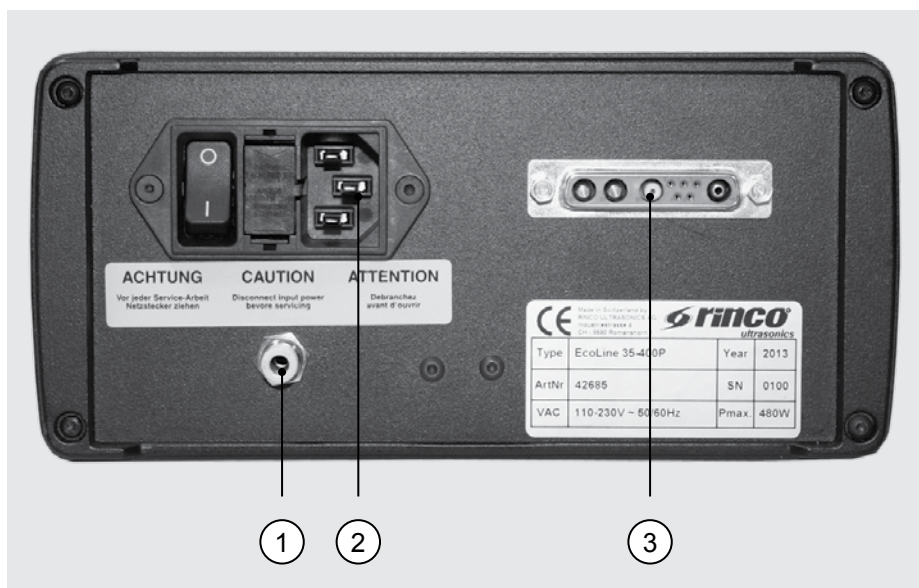


Fig. 13: Electrical connections on the generator

Item no.	Description
1	Compressed air supply
2	Power supply
3	Hand unit connection

Tab. 12: Generator connections

3.7.1 Power connection (2)

The electrical connection can be found on the generator. The specific connection values are listed in chapter **Electrical connection values and limit values** [► 68].

ATTENTION

- Only use earthed power supplies.

3.7.2 Compressed air supply (1)

The compressed air supply can be found on the back of the generator. The specific connection values are listed in chapter **Pneumatic connection values for the generator** [► 68].

ATTENTION

Maximum compressed air supply of 2 bar: 29 psi

3.8 Type plates

Type plates A and B ensure that the device can be clearly identified.



Fig. 14: Type plates

3.8.1 HC35-5

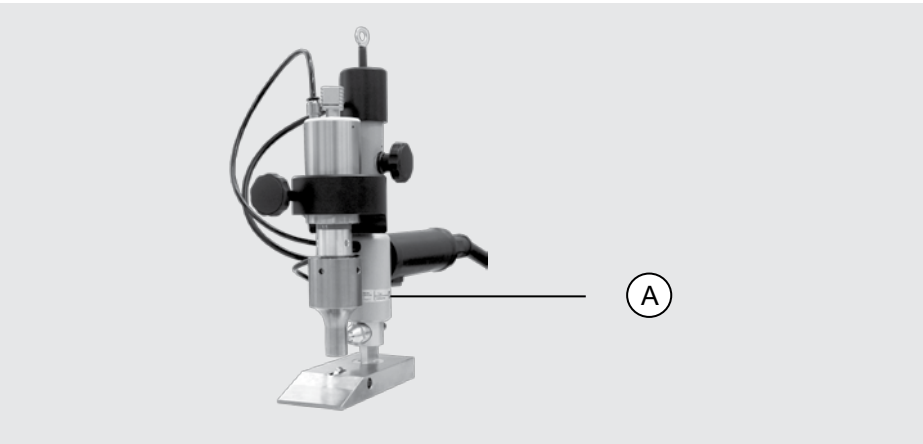


Fig. 15: Labelling point HC35-5

3.8.2 HG35-4

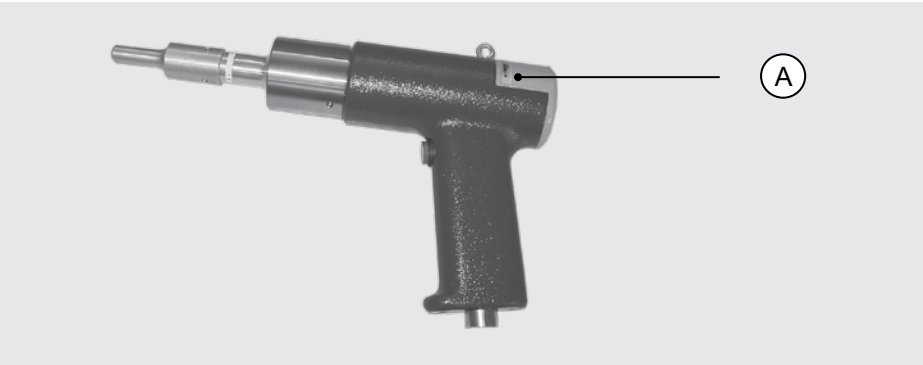


Fig. 16: Labelling point HG35-4

3.8.3 HT35-3

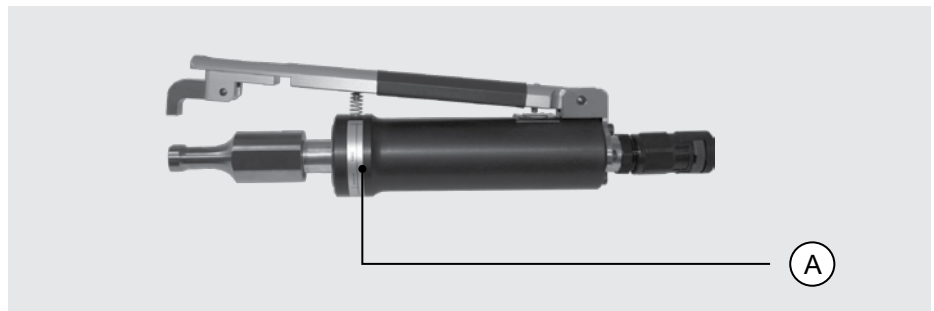


Fig. 17: Labelling point HT35-3

3.8.4 HW35-4



Fig. 18: Labelling point HW35-4

3.8.5 Ecoline generator

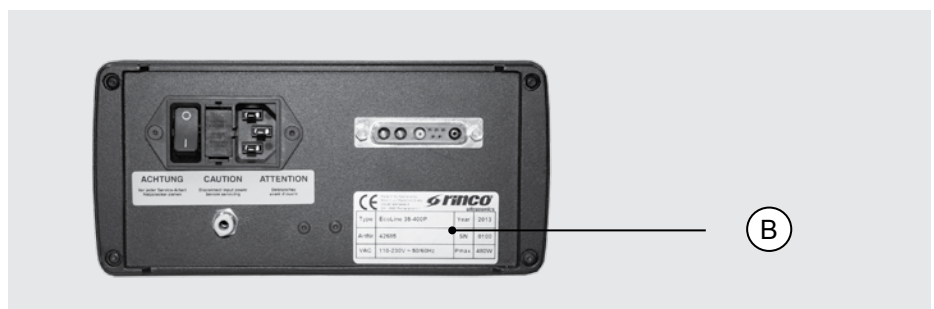


Fig. 19: Labelling point Ecoline generator

4 Transport, packaging and storage

4.1 Safety

Improper transportation of the device can result in personal injury or material damage.

- Only specially trained personnel are permitted to transport the equipment.
- Follow the instructions for transport on the packages.
- Do not remove the packaging until shortly before assembly.

The following personal protective equipment must be used at all times:

- Safety boots

4.2 Instructions for transport on the packages

The following pictograms on the packages provide additional information on how to transport goods safely:



This way up

If the arrows are pointing up, the package is the right way up for installation. Packages must always be transported the right way up.



Keep dry

Keep packages dry.



Attachment point

Indicates attachment points for lifting equipment.

Lifting equipment must be attached only at the points indicated by this symbol.



Centre of gravity

Indicates the centre of gravity of packages.

Be sure to observe the centre of gravity when lifting and transporting packages.



Weight of attached load

Indicates the weight of a package.

Approved lifting and suspension equipment with sufficient load-bearing capacity must be used at all times.

4.3 Checking the scope of delivery

Check the scope of delivery against the packing list for completeness and damage in transit.

If a package has been damaged in transit, 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 damage that occurs in transit. 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 are damaged or lost, notify us immediately and provide a copy of the aforementioned report as confirmation. If delivery was made by RINCO ULTRASONICS AG carriage paid or CIF, the damaged goods will be replaced if applicable and the claim will be filed with the responsible transport insurance company.

4.4 Storage and extended downtime periods

Storage conditions for packages or device components

- Store indoors.
- Store in a dry, dust-free location.
- Do not expose to aggressive media.
- Do not expose to direct sunlight and UV light.
- Avoid mechanical vibrations.
- Prevent condensation by avoiding exposure to significant fluctuations in temperature.



NOTE

Follow the instructions for transport on the packages.

5 Assembly and start-up

5.1 Safety

Improper assembly and start-up can result in serious personal injury.

- Only specially trained personnel are permitted to assemble and start up the equipment.
- Only qualified electricians are permitted to carry out work on electrical equipment.
- Do not expose parts to excess mechanical stress.
- The workplace must be kept clean and tidy.

The following personal protective equipment must be used at all times:

- Safety boots
- Appropriate clothing for work
- Additional protective equipment in line with local accident prevention regulations

5.2 Requirements at the installation site



WARNING

Inappropriate installation site.

Danger of serious injury!

Danger of material damage!

- All of the requirements at the installation site must be met for the entire service life of the device.
- If it is not possible to meet the requirements at the installation site, contact RINCO ULTRASONICS AG. Have the machine adapted to suit local conditions by the manufacturer and do not commence installation until these adaptations have been made.

- Normally clean industrial environment
- The workplace is able to accommodate the size and weight of the devices (see chapter **Dimensions and weights** [► 65])
- Unobstructed access to all machine parts for operation, maintenance and troubleshooting
- Adequate lighting and ventilation
- Controlled ambient temperature and humidity inside the specified areas (see chapter **Operating conditions** [► 69])
- No heat sources in the direct vicinity, e.g. heaters or hot air outlets
- No direct sunlight
- If necessary, equipment for cooling and vibration damping
- If necessary, equipment to provide protection against flammable, explosive, oily or toxic fumes and dust emissions

5.3 Installing the device



WARNING

Improper assembly and start-up.

Danger of serious injury!

Danger of material damage!

- Secure parts to protect against tipping and falling down.
- Assemble parts properly. Observe the tightening torques for screws.

- Check the devices for damage in transit.
- Remove transport locks and packaging and keep for future reuse.
- Dispose of packaging materials that are no longer needed in an environment-friendly manner compliant with local regulations governing waste disposal.
- Level and secure the workbench.

The ultrasonic generator is designed for:

- Positioning on a table

The ultrasonic hand unit is designed for:

- Positioning on a table
- Hanging from an assembly table

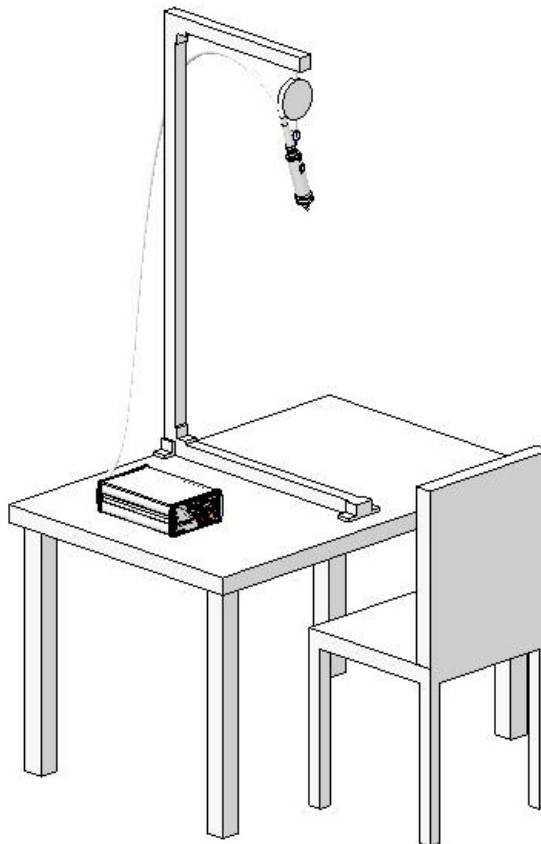


Fig. 20: Setting up the machine

The Ecoline generator is supplied inside a case complete with hand unit, power supply cable, tool and horn.

- The case is the right way up for opening with the RINCO logo at the top. To open the case, fold up and release the two locking catches. Once the catches have been released, you can open the lid.



Fig. 21: Opening the Ecoline case

Item no.	Description
1	Locking catches

Tab. 13: Opening the Ecoline case

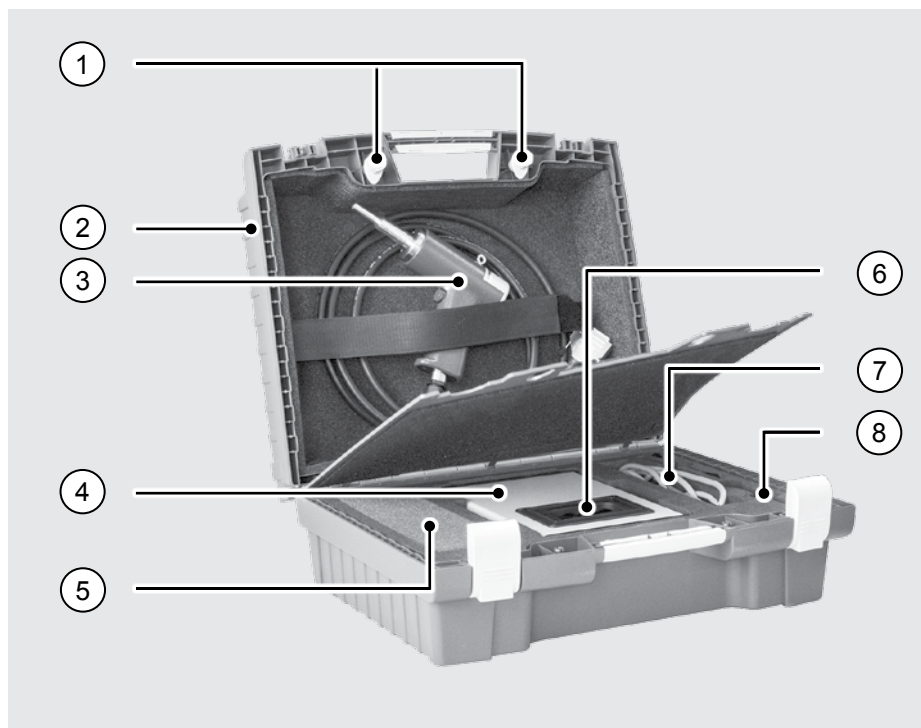


Fig. 22: Ecoline case open

Item no.	Description
1	Release screw for intermediate layer
2	Lid
3	Hand unit with connecting cable
4	Ecoline generator
5	Compartment for horn(s)
6	Handle for Ecoline generator
7	Power supply cable
8	Set-up tool

Tab. 14: Ecoline case open

- Take the Ecoline generator, the hand unit with the connecting cable connected and the power supply cable out of the case and set them down on the table.
- Take hold of the Ecoline generator by the handle and remove it from its compartment.

**NOTE**

For further information, please contact RINCO ULTRASONICS AG.

5.4 Establishing the electrical connections



WARNING

Improper electrical installation.
Live parts.

Danger of death due to electric shock!

- Only qualified electricians are permitted to carry out work on electrical equipment.
- The electrical installation must be carried out in accordance with applicable regulations, e.g. cable cross-sections, fuses, PE connection.
- EMC directives must be complied with, e.g. shielding, earthing, filters, cables.
- Before connecting the machine to the power supply: Compare the connection values for the machine with the mains supply data and only make the connection if they are the same (see chapter **Technical data** [▶ 65]).
- Only use earthed power supplies.



WARNING

Uncontrolled movements of active electrical parts.
Live parts.

Danger of death due to electric shock!

Danger of serious injury!

- Before starting work on electrical equipment, shut down the power supply and ensure that it cannot be switched back on accidentally.



DANGER

Damaged insulation or damaged parts.
Contact with live parts.

Danger of death due to electric shock!

- Shut down the power supply immediately and have the insulation or parts repaired.



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.
- Put all protective covers back in place before switching the machine back on again.

ATTENTION

Electrostatically sensitive parts

Danger of material damage!

- Do not touch electronic parts.

5.4.1 Establishing the electrical connections

The connections for the power supply cable, the hand unit and the compressed air supply for cooling the horn and the converter/transducer are located on the back of the Ecoline generator. This is also where you will find the main switch for the Ecoline generator.

- Make sure that the main switch on the back is set to "0".
- Plug the hand unit (D-Sub connector) into connection X1 (3). Screw the two fixing screws on the D-Sub connector tight
- Connect the power supply to the Ecoline generator (2).
- If cooling is required, plug the compressed air line (Ø 4 mm) directly into plug connection X2 (1).

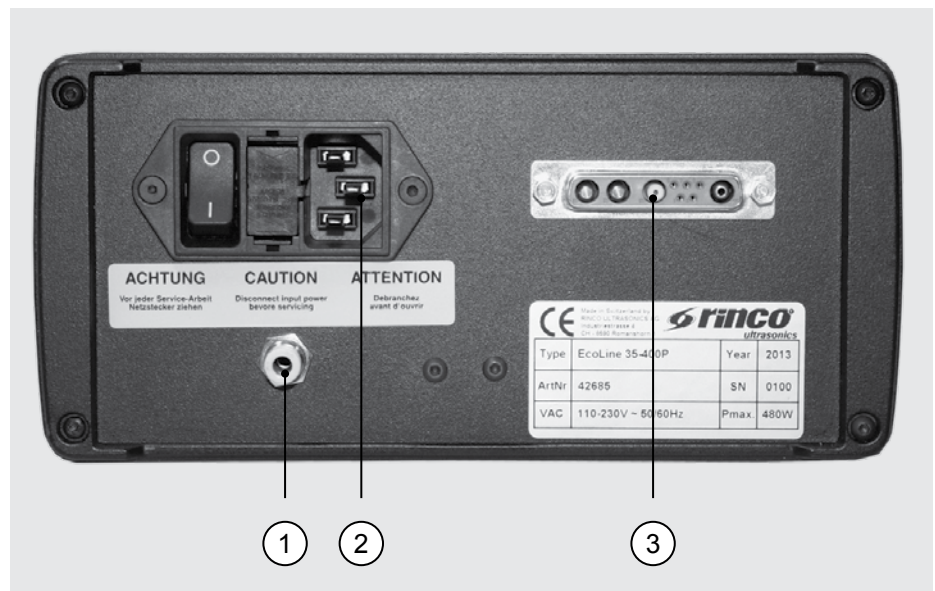


Fig. 23: Electrical connections on the generator

Item no.	Description
1	Compressed air supply X2
2	Connection X3 for power supply cable
3	Connection X1: D-Sub connector for hand unit

Tab. 15: Generator connections

5.4.2 Compressed air supply

Work on devices with a compressed air supply 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 2 bar / 29 psi.



NOTE

To ensure that the compressed air is dry and oil-free and the inlet pressure has been set correctly, we recommend purchasing an optional maintenance unit from RINCO ULTRASONICS AG.

6 Operation

6.1 Safety

- Only qualified personnel who have undergone relevant training are permitted to operate the device.
- The workplace must be kept clean and tidy.

The following personal protective equipment must be used at all times:

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

6.1.1 Electrical hazards (electric shock)

The electrical components and other live parts of the device are under dangerous electrical voltage.

Damaged insulation, damaged parts or direct contact with live parts can cause death or serious personal injury.

- Only qualified electricians are permitted to carry out work on electrical equipment.
- Keep the device closed during operation.
- In the event of damage to insulation or parts, shut down the power supply immediately and have the insulation or parts repaired.
- Observe the warning about dangerous electrical voltage at the device (see chapter **Safety signs on the device** [12])

6.1.2 Hazards arising due to improper operation

Improper operation of the device can result in serious personal injury.

- Follow the operating instructions.
- Do not work in a way that could pose a risk to safety.
- Only operate the device if it is in perfect working order. Report damage immediately and arrange for it to be repaired.
- Do not use the device if protective devices and safety covers are missing or defective.
- Before starting work, make sure that starting up the device will not put anyone at risk.

6.1.3 Hazards arising due to fumes and dust emissions

Flammable, explosive, oily or toxic fumes and dust emissions may be produced as a result of ultrasonic welding or cutting.

Fire, explosions, poisoning or damage to the airways can cause death or serious personal injury.

- Do not smoke. No naked flames.
- Wear light respiratory protection.
- Do not inhale fumes.
- Switch on the additional fan unit, if there is one.

6.1.4 Hazards arising due to noise pollution

Certain materials can cause the noise level to exceed 70 dB(A) during the welding process. This can lead to permanent hearing damage, e.g. hearing loss, ringing in the ears, deafness.

- Wear ear protectors.



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).

In the case of a 35 kHz application, the system integrator must either make it a mandatory requirement for the operator to wear ear protectors by sticking a mandatory sign on the machine or protect personnel against prevailing noise emissions by using a soundproof cabin.

Noises within audible range shall be considered harmful to hearing if the energy equivalent continuous sound pressure level reaches $L_{eq} = 88$ 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 $L_{eq} 87$ dB(A) per day or week, along with impulse sound events with a peak value (L_{Peak}) over 140 dB(C).

6.1.5 Hazards arising due to materials

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

Fire can cause death or serious personal injury.

- Check the material specifications (the safety data sheet, for example) for fire hazards.
- Suitable fire-fighting equipment must be available in the vicinity of the area in which work is being carried out.
- Dispose of leftover materials in an appropriate manner.

6.2 Setting up and calibrating hand units



WARNING

Electrical voltage.

Danger of death due to electric shock!

- Shut down the power supply to the generator before carrying out any set-up work on the oscillator system.

All RINCO ULTRASONICS AG systems are usually supplied set up and can be put into operation immediately once the individual components have been connected.

The following section describes how to reset and calibrate hand units or replace tools.

6.2.1 Before starting set-up work

Before starting work on the devices, you must always:

- Make sure that the power supply on the generator is switched off (Power 0).
- Unplug the hand unit from the generator.



WARNING

Electrical voltage.

Electric shock hazard!

- Before starting any work on the hand unit, make sure that the power supply on the generator is switched off (Power 0).
- Before unplugging the hand unit from the generator, make sure that the power supply on the generator is switched off (Power 0).

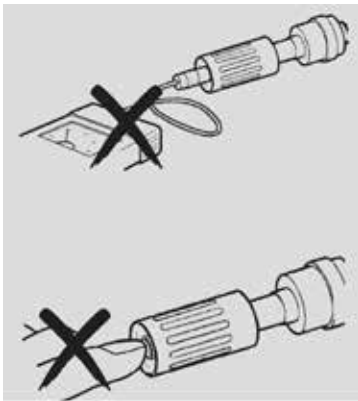


Fig. 24: Electric shock hazard in the oscillator system



DANGER

Capacitor remains charged even after the device has been disconnected from the mains.

Electric shock hazard!

- Only carry out work on the oscillator system and converter housing when the mains supply is switched off.
- Avoid contact with the hand unit connection.
- Do not connect any measuring devices to the port on the hand unit.

6.2.2 Setting up the HC35-5

How to set up the oscillator unit:

- Make sure that the power supply on the generator is switched off (Power 0).
- Unplug the hand unit from the generator.
- Set the positioning lever (1) to position S.
- Place the positioning aid (2) on the cutting base. Insert the assembled oscillator unit (3) into the hand unit and allow it to rest on the positioning aid. For a cutting horn, make sure that the cutting edge is pointing towards the connecting rod. Turn the clamping screw to fix the unit in place (4).
- Plug in the HF cable (5) and connect the compressed air cable (6).
- Adjust the positioning lever (1) to move the oscillator system to position C ready to start work.
- Turn the force adjusting screw (7) to set the required spring force. Use the marks on the scale to help you. Try various settings until you find the best one.

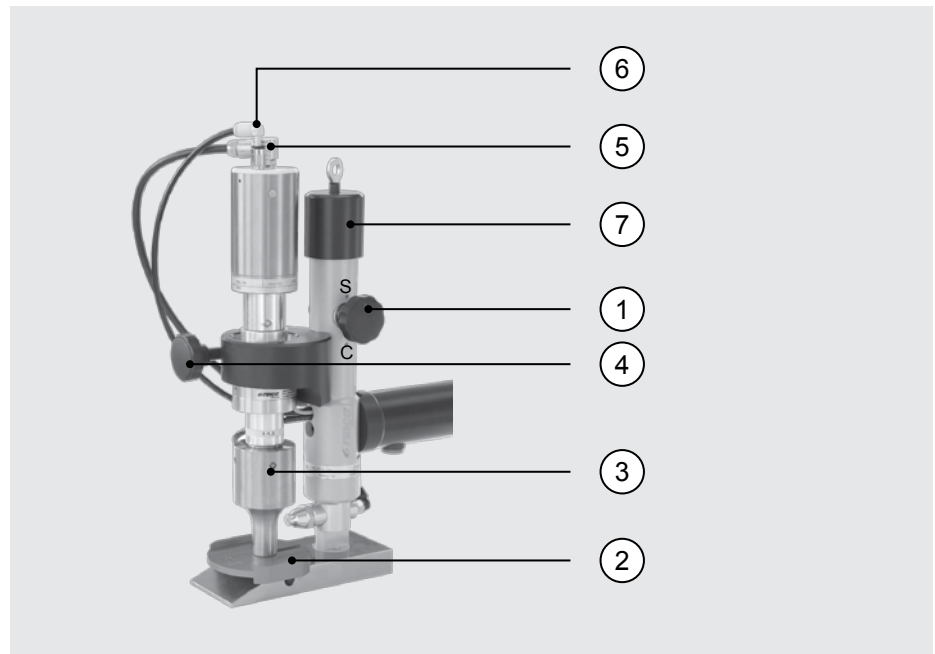


Fig. 25: Setting up the HC35-5



NOTE

Make this setting to avoid possible noise emissions.



NOTE

The horn cannot be turned on its own; turn the entire oscillator unit as described above.

6.2.2.1 Changing the horn on the HC35-5

You need the following tools to change a horn:

- Open-ended spanner
- Hook spanner

To change the horn:

- Make sure that the generator is switched off (Power 0).
- Unplug the hand unit from the generator.
- Unplug the HF cable (1) and unscrew the clamping screw (2).
- Remove the oscillator unit.
- Use the open-ended spanner (A, accessories) and the hook spanner (B, accessories) to separate the horn (4) from the converter (3).
- Clean the contact surfaces (5) with a clean cloth prior to assembly.

⇒ If there is evidence of serration on either of the two surfaces, please contact your RINCO service centre.

ATTENTION

Horn damage

Danger of material damage!

- Never remove the horn under tension.

ATTENTION

Damage to the horn and the converter

Danger of material damage!

- Never tension the parts in a vice or similar tensioning device.

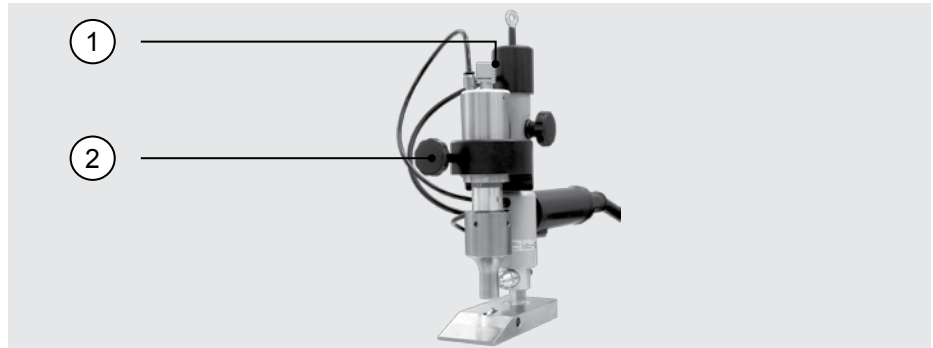


Fig. 26: Changing the horn 1/3

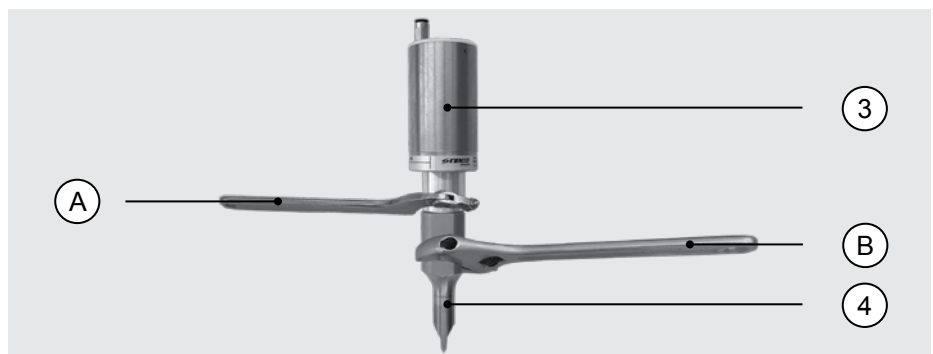


Fig. 27: Changing the horn 2/3

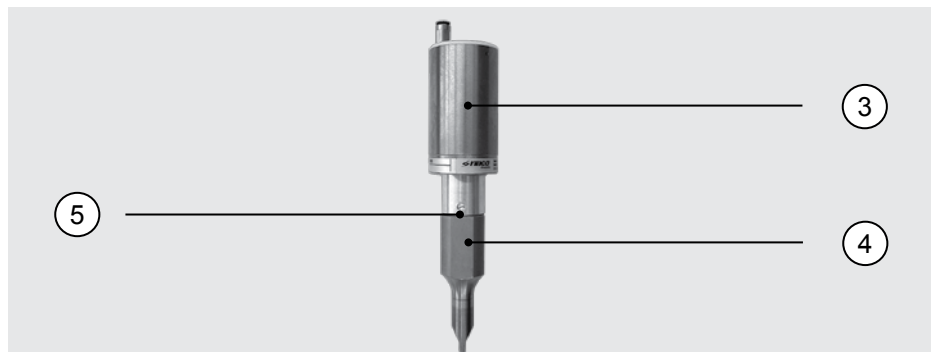


Fig. 28: Changing the horn 3/3

- After cleaning, use the open-ended spanner (A, accessories) and the hook spanner (B, accessories) to carefully screw the horn (4) and the converter (3) tight again.
- The tightening torque should be between 15 and 20 Nm

6.2.2.2 Changing the cutting wheel on the HC35-5

You need the following tools to change a horn:

- Set of Allen keys
- Make sure that the generator is switched off (Power 0).
- Unplug the hand unit from the generator.
- Use the yellow Allen key to unscrew the Allen screw marked yellow (2).

- You must fully unscrew the screw in order to be able to remove the wheel.
- Insert the new wheel and tighten the Allen screw (2) again.
- If necessary, the converter mount can be moved up and down by unscrewing the two Allen screws (1) on the back.

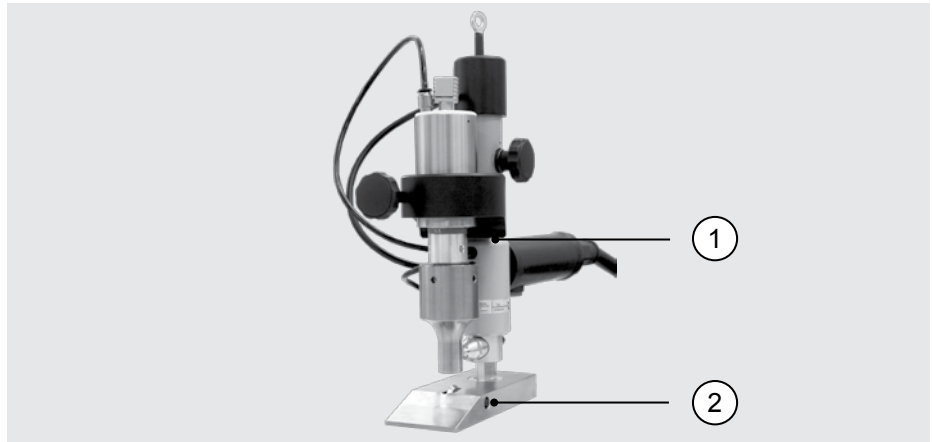


Fig. 29: Changing the cutting wheel



NOTE

If the cutting wheel should become blunt due to repeated use, you can turn the sharp side that has not been used to the top.

6.2.3 Setting up the HG35-4

6.2.3.1 Changing the horn on the HG35-4

You need the following tools to change a horn:

- Open-ended spanner
- Hook spanner

To change the horn:

- Make sure that the generator is switched off (Power 0).
 - Unplug the hand unit from the generator.
 - Use the hook spanner (A, accessories) and the open-ended spanner (B, accessories) to separate the horn (2) from the converter (3).
 - Clean the contact surfaces (4) with a clean cloth prior to assembly.
- ⇒ If there is evidence of serration on either of the two surfaces, please contact your RINCO service centre.

ATTENTION

Damage to the horn and the converter

Danger of material damage!

- Never tension the parts in a vice or similar tensioning device.

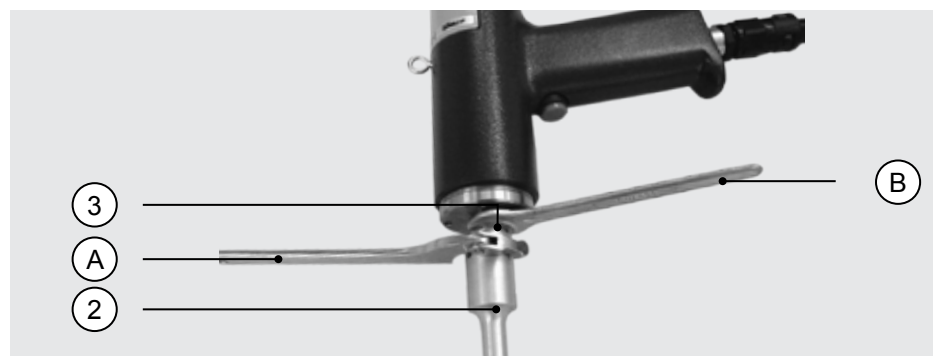


Fig. 30: Changing the horn

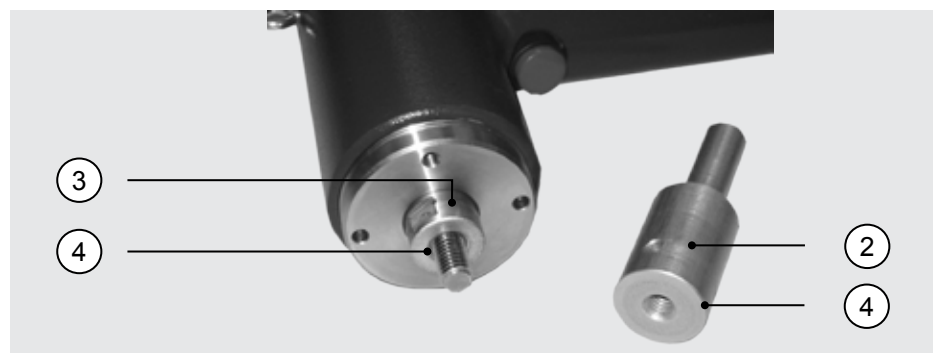


Fig. 31: Contact surfaces

- After cleaning, use the hook spanner (A, accessories) and the open-ended spanner (B, accessories) to carefully screw the horn and the converter tight again.
- The tightening torque should be between 15 and 20 Nm.

6.2.4 Setting up the HT35-3

6.2.4.1 Turning the horn on the HT35-3

You need the following tools to turn a horn with multiple welding surfaces:

- Face pin wrench

To turn the horn:

- Make sure that the power supply to the generator is switched off (Power 0).
- Unplug the hand unit from the generator.
- Use the face pin wrench (A, option) to loosen the transducer lock ring (1) (turning anticlockwise) until the transducer can easily be turned.
- Turn the horn (2) to the required position.
- Carefully tighten the transducer lock ring (1) with the face pin wrench (A, option).
- The tightening torque should be between 15 and 20 Nm.

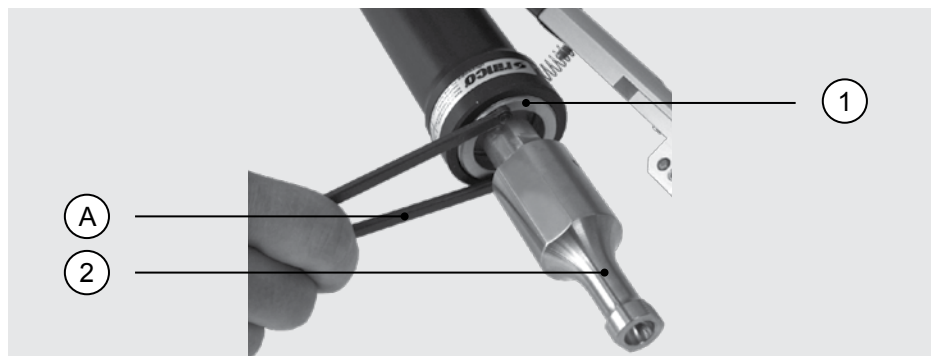


Fig. 32: Turning the horn HT35-3

6.2.4.2 Changing the horn on the HT35-3

You need the following tools to change a horn:

- Open-ended spanner
- Hook spanner

To change the horn:

- Make sure that the generator is switched off (Power 0).
 - Unplug the hand unit from the generator.
 - Use the open-ended spanner (A, accessories) and the hook spanner (B, accessories) to separate the horn (1) from the transducer (2).
 - Clean the contact surfaces (3) with a clean cloth prior to assembly.
- ⇒ If there is evidence of serration on either of the two surfaces, please contact your RINCO service centre.

ATTENTION

Damage to the horn and the converter

Danger of material damage!

- Never tension the parts in a vice or similar tensioning device.

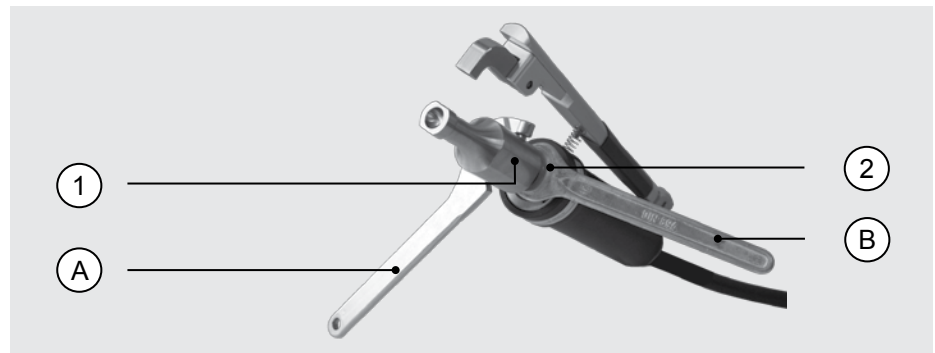


Fig. 33: Changing the horn on the HT35-3



Fig. 34: Contact surfaces

- After cleaning, use the open-ended spanner (A, accessories) and the hook spanner (B, accessories) to carefully screw the horn and the converter tight again.
- The tightening torque should be between 15 and 20 Nm.

6.2.4.3 Calibrating the HT35-3

After changing a horn or turning a horn with multiple welding surfaces, the device must be recalibrated.

You need the following tools to calibrate a device:

- Face pin wrench
- Set of Allen keys
- Feeler gauge 0.2 mm

To calibrate the ultrasonic hand unit:

- Make sure that the generator is switched off (Power 0).
- Unplug the hand unit from the generator.
- Use the face pin wrench (C, option) to loosen the transducer lock ring (11) until the transducer (10) can be turned.
- Use the Allen key to unscrew the anvil clamping screw (2) until the anvil (1) can be moved freely up and down.
- Use the Allen key to unscrew the clamping screws on the mount (4) and, if necessary, move the mount (3) until the anvil (1) lines up with the welding surface of the horn (9). Tighten the clamping screws on the mount (4) again.
- Use the Allen key to turn back the adjusting screw for the end stop (5) until the anvil (1) is touching the horn (9).
- Use the Allen key to turn back the adjusting screw for the trigger point (6) until there is no longer any contact with the trigger button (13).
- Place the 0.2 mm feeler gauge (B) between the horn (9) and the anvil (1) and move together. Turn the transducer (10) until the welding surface of the horn (9) and the anvil (1) are aligned.
- Tighten the clamping screw for the anvil (2).
- Carefully tighten the transducer lock ring (11) with the face pin wrench (A, accessories).
- Adjust the adjusting screw for the end stop (5) so that when moved together, the feeler gauge (B) can be pulled out by applying a little force.
- Turn the adjusting screw for the jaw opening (7) with the Allen key to set the required opening angle.
- Turn the adjusting screw for the trigger point (6) with the Allen key to set the starting point for the ultrasound.

ATTENTION

Do not turn the screw too far in as this may damage the button.

- Now complete a test weld. The welding image should be uniform. If you are not happy with the result, modify the parameters and recalibrate the hand unit.

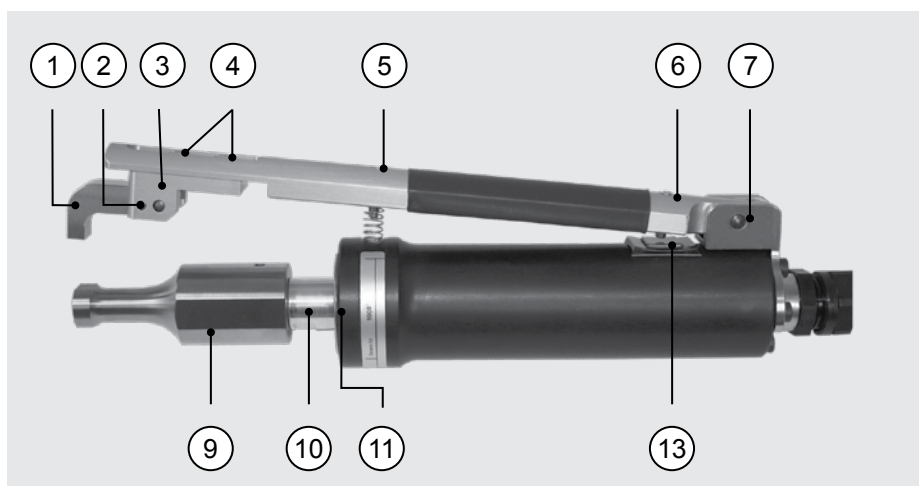


Fig. 35: HT35-3 calibration 1/3

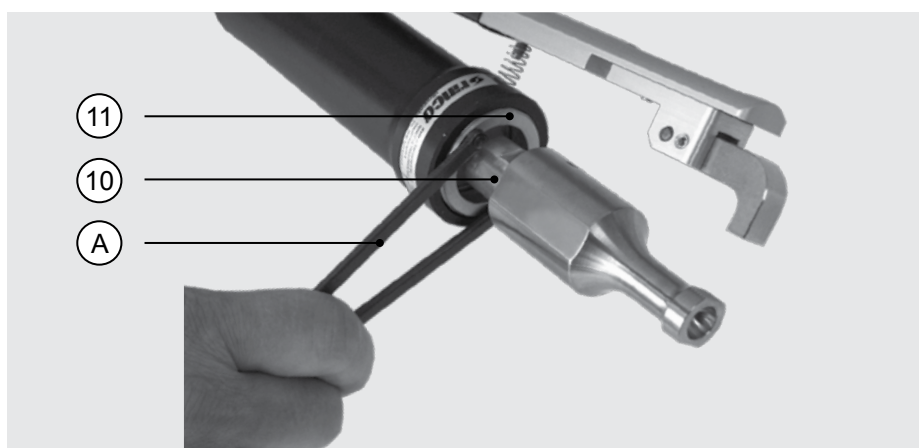


Fig. 36: HT35-3 calibration 2/3

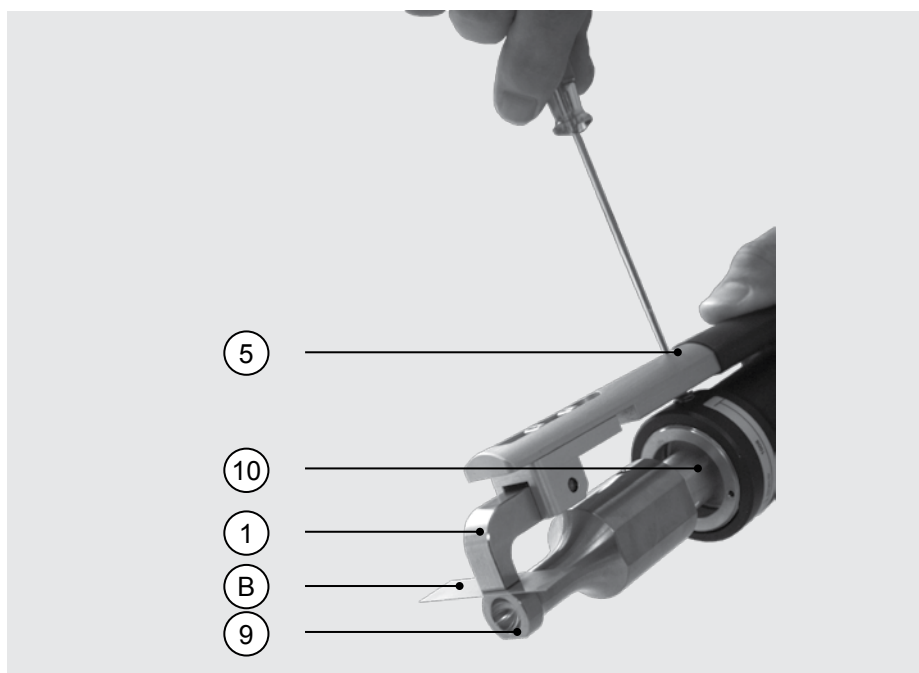


Fig. 37: HT35-3 calibration 3/3

6.2.5 Setting up the HW35-4

6.2.5.1 Changing the horn on the HW35-4

You need the following tools to change a horn:

- Open-ended spanner
- Hook spanner

To change the horn:

- Make sure that the generator is switched off (Power 0).
- Unplug the hand unit from the generator.
- Use the open-ended spanner (B, accessories) and the hook spanner (A, accessories) to separate the horn (2) from the transducer (3).
- Clean the contact surfaces (4) with a clean cloth prior to assembly.
- Screw on and tighten the horn (2).

The tightening torque should be between 15 and 20 Nm.

⇒ If there is evidence of serration on either of the two surfaces, please contact your RINCO service centre.

ATTENTION

Damage to the horn and the converter

Danger of material damage!

- Never tension the parts in a vice or similar tensioning device.

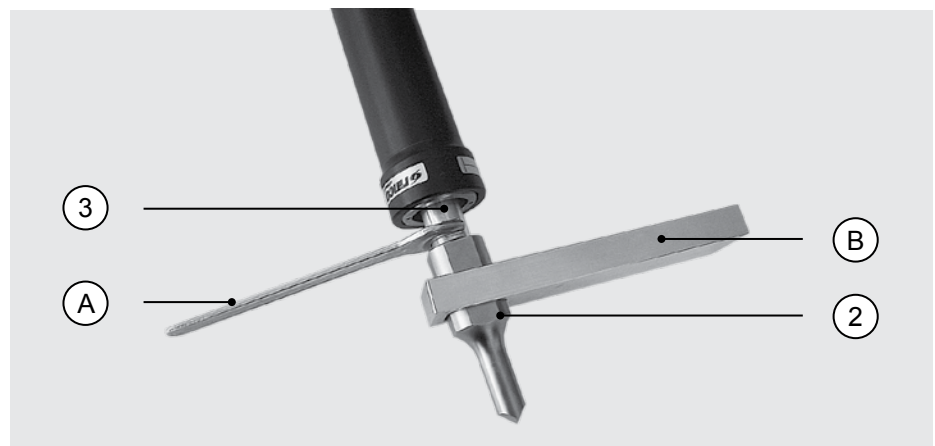


Fig. 38: Changing the horn on the HW35-4



Fig. 39: Cleaning the contact surfaces on the HW35-4

6.3 Starting up the system

All RINCO ULTRASONICS AG systems are usually supplied pre-configured and can be put into operation immediately once the individual components have been connected.

6.3.1 Pre-operational tasks

You must always perform the following tasks before using the device:

- Make sure that all protective covers are properly fitted
- Make sure that the device is not showing 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 access these areas

6.3.2 Setting the cable length (DIP switch)

The cable length for the hand unit can be set by inserting a small screwdriver into the DIP switches on the underside of the generator.



Fig. 40: Cleaning the contact surfaces on the HW35-4

S1	S2	S3	S4	Cable length
0	0	0	0	3 m
1	0	0	0	5 m
0	1	0	0	7 m
0	0	1	0	11 m
0	0	0	1	15 m

Tab. 16: DIP switch

6.3.3 Switching on the Ecoline generator



WARNING

Improper use.

Danger of serious injury!

- Follow the operating instructions.
- Do not work in a way that could pose a risk to safety.
- Only operate the machine if it is in perfect working order. Report damage immediately and arrange for it to be repaired.
- Do not use the machine if protective devices and safety covers are missing or defective.
- Before starting work, make sure that starting up the machine will not put anyone at risk.

- Set the toggle switch on the back of the generator to “I”.

⇒ The green “READY” LED starts to light up.

⇒ The device is now ready for operation.



NOTE

The amplitude is factory-set to a value of 100%. After the generator has been used for the first time, the most recent value is always saved.

6.3.4 Triggering welding



WARNING

Protective devices not in working order.

Danger of serious injury!

- Keep protective devices in perfect working order.
- Check the function of protective devices regularly.

- Press the trigger button on the ultrasonic hand unit.

If the result is satisfactory, no further action needs to be taken. The settings from the most recent welding operation are saved automatically. LEDs on the power bar indicate the current operating power.

If the result is not satisfactory, you may need to modify the amplitude.



NOTE

Press the test button to test the ultrasound. The ultrasound remains switched on for as long as the button is pressed.



WARNING

Electrical voltage.

Electric shock hazard!

- Do not take hold of the horn whilst the ultrasound is active.

6.4 Switching off

- Set the toggle switch on the back of the Ecoline generator to “0”.
⇒ The device shuts down.

7 Maintenance

7.1 Safety

- Only specially trained personnel are permitted to carry out maintenance work on the equipment.
- Only qualified electricians are permitted to carry out work on electrical equipment.

The following personal protective equipment must be used at all times:

- Protective equipment in line with local accident prevention regulations

7.2 Maintenance schedule

The maintenance intervals have been set based on many years of experience and knowledge. They should be shortened if any parts are showing increased signs of wear or if faults start to occur more frequently.



NOTE

If you have any questions relating to maintenance tasks or intervals, please contact RINCO ULTRASONICS AG.

7.2.1 Maintenance tasks to be carried out at the end of every working day

Module	Task	Comments on execution
Machine and surrounding area	Cleaning.	

Tab. 17: Maintenance tasks to be carried out at the end of every working day

7.2.2 Biannual maintenance tasks

Module	Task	Comments on execution
EMERGENCY STOP button	Check that this is functioning correctly.	
Check screws	Only remove protective covers once the device has been switched off (protective covers are screwed in place and can only be removed using appropriate tools). Check and tighten all of the screw connections on the device.	
Check and clean contact surfaces	Clean the contact surfaces of the horn, cutting wheel and converter as described in chapters - Changing the horn on the HC35-5 [▶ 45] - Changing the cutting wheel on the HC35-5 [▶ 46] - Changing the horn on the HG35-4 [▶ 48] - Changing the horn on the HT35-3 [▶ 49] - Changing the horn on the HW35-4 [▶ 53] and check the tools for wear.	

Tab. 18: Biannual maintenance tasks

7.3 Maintenance tasks

7.3.1 Cleaning the device and the surrounding area



WARNING

Live parts.
Uncontrolled movements of active electrical parts.
Unauthorised restart.

Danger of death!

Danger of serious injury!

- Before starting work, switch off the power supply and ensure it cannot be switched back on accidentally.



WARNING

Improper maintenance.

Danger of serious injury!

- Assemble the parts you removed properly.
- Maintain the specified tightening torques for the screws.
- Follow the maintenance schedule.



WARNING

Removing protective covers before it is safe to do so.

Danger of serious injury!

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



WARNING

Unauthorised contact with connection.

Danger of serious injury!

- Do not connect any measuring devices to the port on the hand unit.
- Even once the generator has been switched off, the converter remains electrically charged.

- All work must be carried out by specialist personnel with the appropriate qualifications.
- Do not use aggressive cleaning agents.
- Do not use high-pressure cleaners.
- Only dry cleaning methods should be used.
- Keep moisture away from electronic components.
- Disconnect the compressed air supply.

You should clean the following components regularly:

- Handle (1)
- Horn (2)
- Converter (3)
- Booster (4)
- Generator (5),

This promotes long-lasting, trouble-free operation of the device.

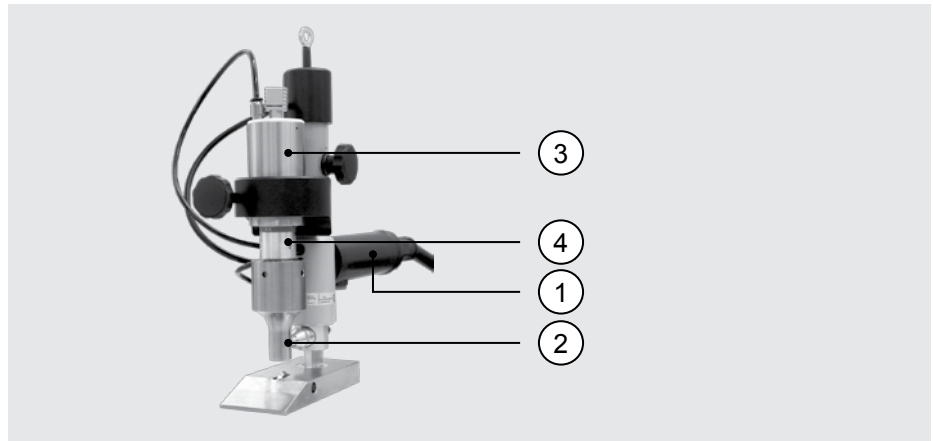


Fig. 41: Parts to be cleaned on the HC35-5

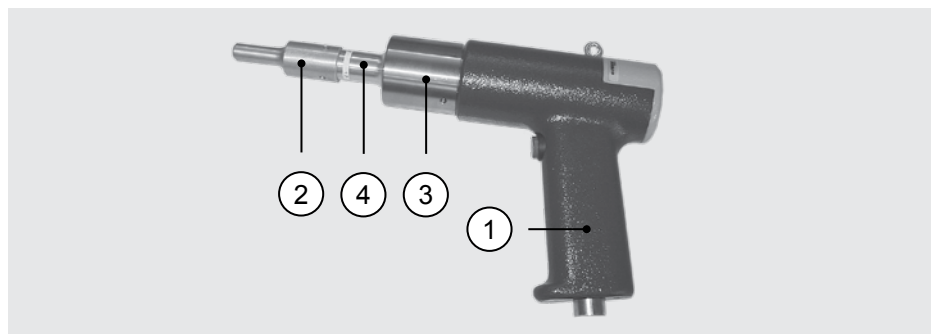


Fig. 42: Parts to be cleaned on the HG35-4

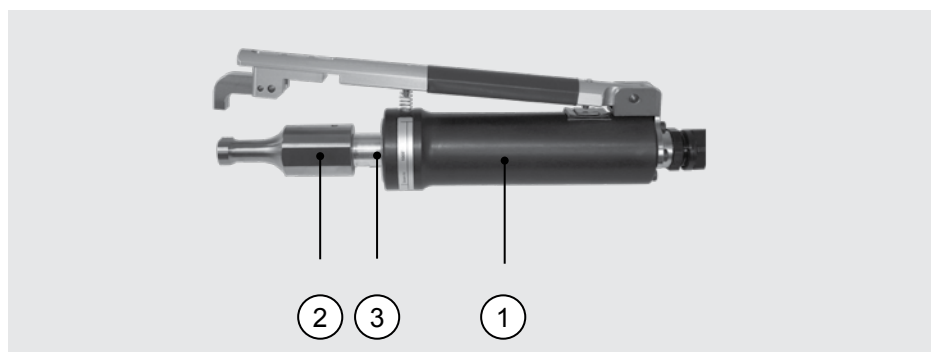


Fig. 43: Parts to be cleaned on the HT35-3

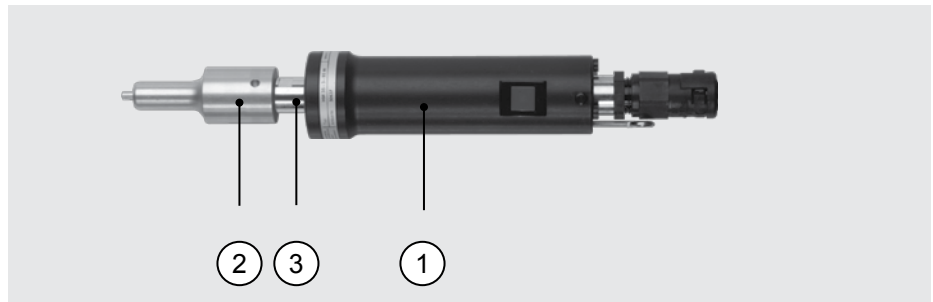


Fig. 44: Parts to be cleaned on the HW35-4



Fig. 45: Ecoline generator

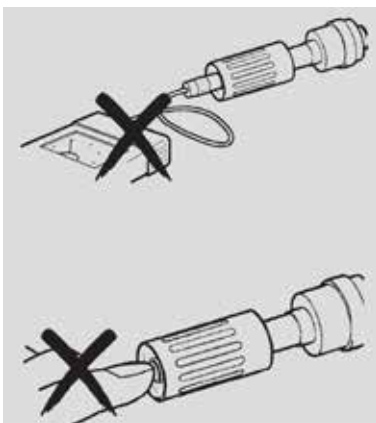


Fig. 46: Oscillator system danger of death due to electric shock



DANGER

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

Danger of death due to electric shock!

- Only carry out maintenance work on the oscillator system and converter housing when the power supply 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.

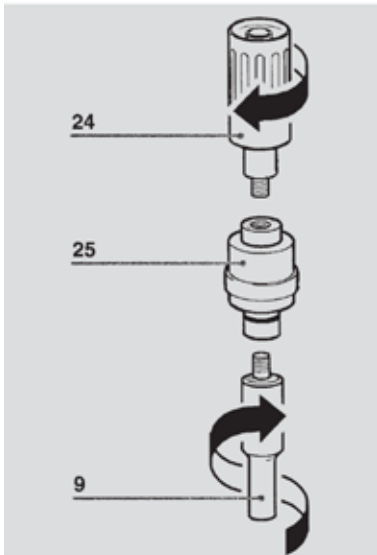


Fig. 47: Assembling the oscillator system

- 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 to 40 Nm).

7.4 Post-maintenance tasks

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

- Check that all screw connections that were loosened have been screwed back tight.
- Check that all protective devices and covers that were removed are back in the appropriate places. Clean the workplace and remove any substances – such as liquids, raw materials, or similar – that may have been left behind.
- Make sure that all tools, materials and other equipment that you have used have been removed from the workplace.
- Make sure that all device safety equipment is in proper working order.

8 Disassembly and disposal

8.1 Safety

- Only specially trained personnel are permitted to disassemble the equipment.
- Only qualified electricians are permitted to carry out work on electrical equipment.
- Use suitable lifting gear.
- Wear protective equipment in line with local accident prevention regulations

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

- Safety glasses
- Safety boots
- Protective gloves



WARNING

Live parts.
Uncontrolled movements of active electrical parts.
Unauthorised restart.

Danger of death!

Danger of serious injury!

- Before starting work, switch off the electrical supply and disconnect it from the mains.



WARNING

Electrically charged converter

Danger of serious injury!

- Avoid touching the converter.

8.2 Disassembly

- Switch off the Ecoline generator.
- Physically separate the entire energy supply from the device.
- Disconnect the compressed air supply and remove the compressed air lines.
- Remove any remaining raw materials and dispose of these in an environmentally friendly way.

8.3 Disposal

- Dispose of the device in an environmentally friendly way in line with local accident prevention regulations.

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 protection of housing	IP20

9.2 Dimensions and weights

9.2.1 Dimensions of the HC35-5

Dimensions of the HC35-5

Description	Value	Unit
Length	191	mm
Width	50	mm
Height without mounting lug	238	mm

Tab. 19: Dimensions of the HC35-5

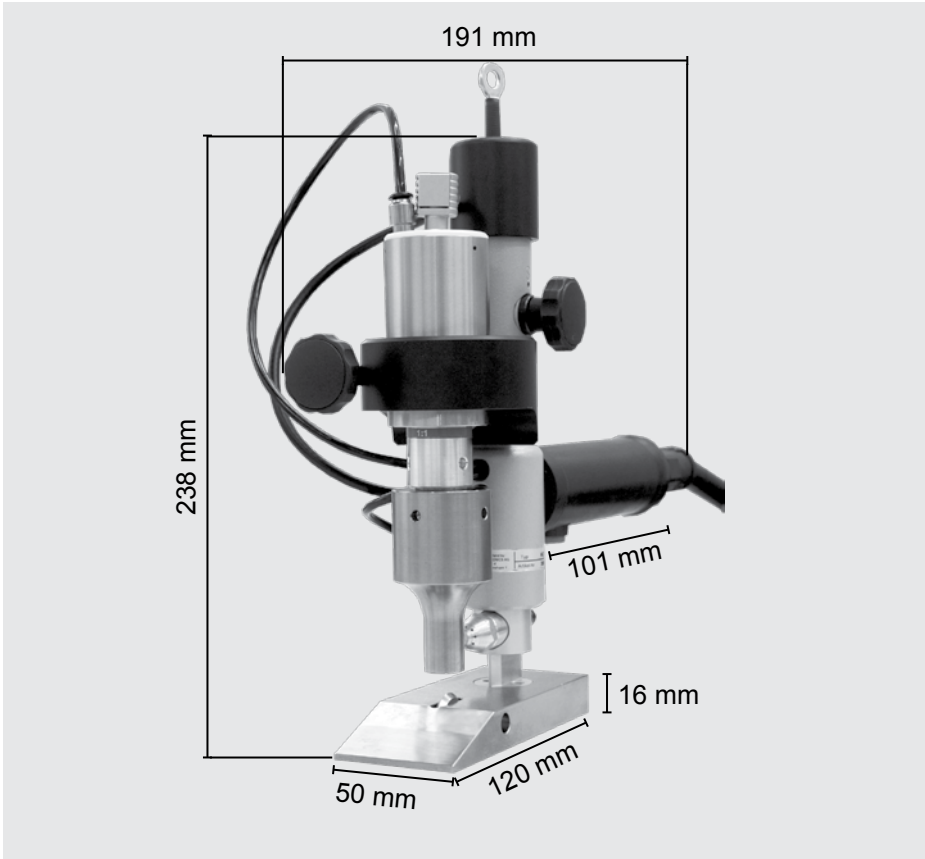


Fig. 48: Dimensions of the HC35-5

9.2.2 Dimensions of the HG35-4

Dimensions of the HG35-4

Description	Value	Unit
Length	149	mm
Width	48	mm
Height without mounting lug	166	mm

Tab. 20: Dimensions of the HG35-4

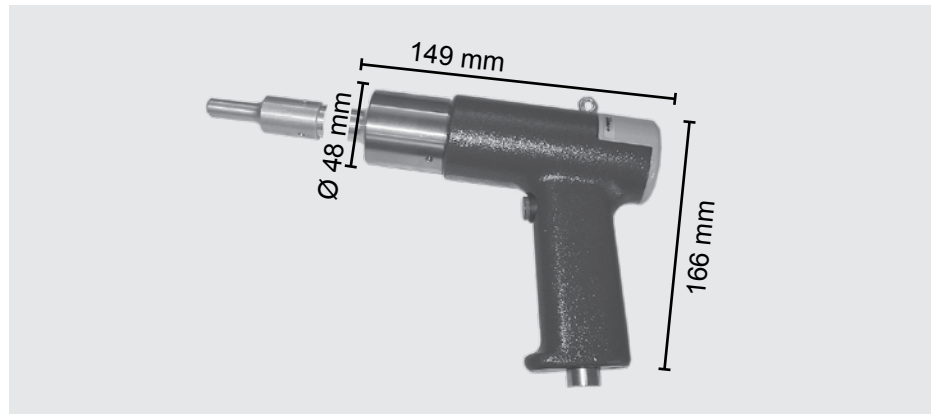


Fig. 49: Dimensions of the HG35-4

9.2.3 Dimensions of the HT35-3

Dimensions of the HT35-3

Description	Value	Unit
Length	223	mm
Width Ø	approx. 43	mm
Height	approx. 50	mm

Tab. 21: Dimensions of the HT35-3

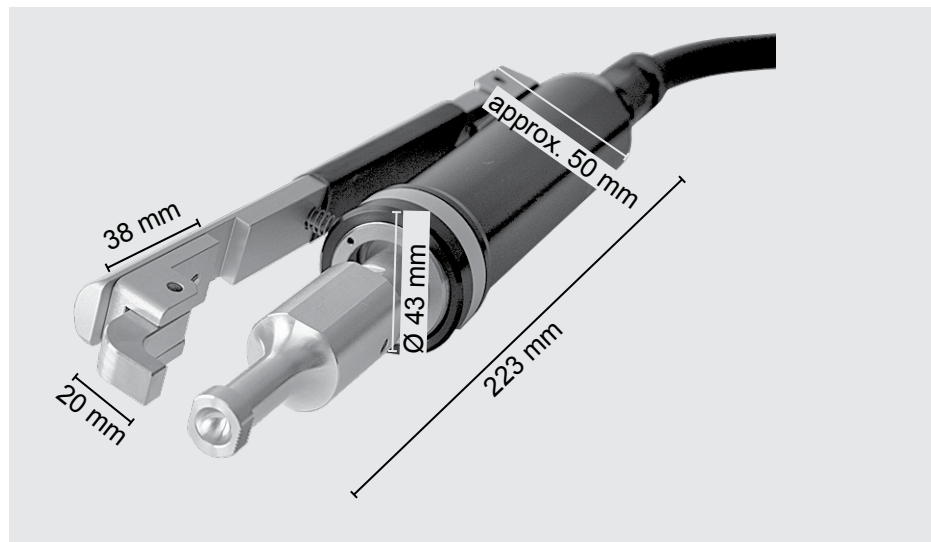


Fig. 50: Dimensions of the HT35-3

9.2.4 Dimensions of the HW35-4

Dimensions of the HW35-4

Description	Value	Unit
Length	162	mm
Width	approx. 45	mm

Tab. 22: Dimensions of the HW35-4



Fig. 51: Dimensions of the HW35-4

9.2.5 Dimensions of the Ecoline generator

Dimensions of the Ecoline generator

Description	Value	Unit
Length	282	mm
Width	191	mm
Height	102	mm

Tab. 23: Dimensions of the Ecoline generator



Fig. 52: Dimensions of the Ecoline generator

Weights

Description	Value	Unit
Weight of the HC35-5	approx. 1.6	kg
Weight of the HG35-4	approx. 0.7	kg
Weight of the HT35-3	approx. 0.7	kg
Weight of the HW35-4	approx. 0.7	kg
Weight of the Ecoline generator	approx. 3.4	kg

Tab. 24: Weights

9.3 Electrical connection values and limit values

Description		Value	Specification
Type		ECOLINE35-400P-100-230	
HF power (peak) (1); (4)		480	W
HF power (pulse mode) (2); (4)		400	W
HF power (continuous mode) (3); (4)		200	W
Power supply	Voltage	L1/N PE +/- 10%	/ 110 - 230 V
	Frequency	+/- 2%	/ 50/60 Hz
	Input power	1100	VA
	max.		
Standby max.		48	VA

Tab. 25: Electrical connection values and limit values

1. Maximum 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 Ecoline generator. The values for an entire system can deviate from these significantly.

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

9.4 Pneumatic connection values for the generator

Description	Value	Specification
Pressure		max. 2 bar (+/- 1%)
Compressed air		Dry and oil-free
Connecting piece		4 mm line

Tab. 26: Pneumatic connection values

9.5 Fuses



Fig. 53: Generator fuses in the installation area

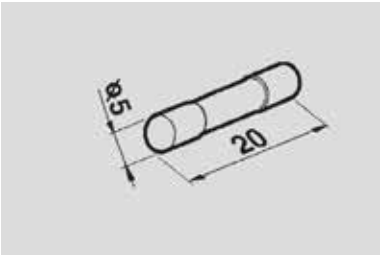


Fig. 54: Generator fuse dimensions

Generator	Fuse F1 5x20mm	Fuse F2 5x20mm
ECOLINE35-400P-110-230	6.3 A/T	6.3 A/T

Tab. 27: Technical data for generator fuses

9.6 Ultrasound

Description	Value	Unit
Operating frequency	35	kHz

Tab. 28: Technical data for the ultrasound

9.7 Operating conditions

Description	Value	Unit
Ambient temperature for operation	+10 to +50	°C
Ambient temperature for transport/storage	-20 to +70	°C
Relative humidity	20 to 90 non-con- densing	%
Installation altitude	0 to 2000	m above sea level

Tab. 29: Operating conditions

10 Replacement parts

Replacement parts can be requested from in-house sales or directly from the designated sales team at RINCO ULTRASONICS AG.

Contact details: RINCO ULTRASONICS AG
Industriestrasse 4
8590 Romanshorn
Switzerland
Tel.: +41 (0)71 466 41 00
Fax: +41 (0)71 466 41 01
e-mail: info@rincoultrasonics.com
Web: www.rincoultrasonics.com

When placing orders for replacement parts, please always quote:

- The recipient's address
- The quantity you require

along with the following data about the device (which appears on the type plate, see chapter **Type plates** [► 31]):

- Machine type
- Part number of the machine / device
- Serial number of the machine / device

11 EC Declaration of Conformity

11.1 EC Declaration of Conformity for the Ecoline-HC35

(Directive 2014/35/EU, Appendix II A)

The manufacturer: Rinco Ultrasonics AG, Industriestrasse 4, 8590 Romanshorn hereby declares that the 35 kHz ultrasound generator together with the 35 kHz hand cutter:

Description: 35 kHz ultrasound generator with 35 kHz hand cutter
Function: Suitable for manual cutting of textiles and non-woven materials
Model: Ecoline generator with HC35-5
Type: 35 kHz

Trade name: Ecoline-HC35

meets the fundamental health and safety requirements of the Machinery Directive 2014/35/EU Appendix I.

The machine also meets the requirements of the following EC Directives:

EMC Directive 2014/30/EU

The following harmonised standards have been applied:

EN ISO 12100: 2010; EN 60204-1: 2006; EN 61000-6-2: 2005; EN 61000-6-4: 2007

Authorised representative for the compilation of the technical documentation:

Jürgen Baumert, Head of R&D

Technical documentation can be provided in electronic format in response to requests from national bodies.

Romanshorn, 26.01.2015

Rinco Ultrasonics AG
Industriestrasse 4
8590 Romanshorn



Patamia Serge
Managing Director



Jürgen Baumert
Head of R&D

11.2 EC Declaration of Conformity for the Ecoline-HG35

(Directive 2014/35/EU, Appendix II A)

The manufacturer: Rinco Ultrasonics AG, Industriestrasse 4, 8590 Romanshorn hereby declares that the 35 kHz ultrasound generator together with the 35 kHz hand gun:

Description: 35 kHz ultrasound generator with 35 kHz hand gun
Function: Suitable for manual welding of thermoplastic parts
Model: Ecoline generator with HG35-4
Type: 35 kHz

Trade name: Ecoline-HG35

meets the fundamental health and safety requirements of the Machinery Directive 2014/35/EU Appendix I.

The machine also meets the requirements of the following EC Directives:
EMC Directive 2014/30/EU

The following harmonised standards have been applied:
EN ISO 12100: 2010; EN 60204-1: 2006; EN 61000-6-2: 2005; EN 61000-6-4: 2007

Authorised representative for the compilation of the technical documentation:
Jürgen Baumert, Head of R&D

Technical documentation can be provided in electronic format in response to requests from national bodies.

Romanshorn, 26.01.2015

Rinco Ultrasonics AG
Industriestrasse 4
8590 Romanshorn



Patamia Serge
Managing Director



Jürgen Baumert
Head of R&D

11.3 EC Declaration of Conformity for the Ecoline-HT35

(Directive 2014/35/EU, Appendix II A)

The manufacturer: Rinco Ultrasonics AG, Industriestrasse 4, 8590 Romanshorn hereby declares that the 35 kHz ultrasound generator together with the 35 kHz hand tacker:

Description: 35 kHz ultrasound generator with 35 kHz hand tacker
Function: Suitable for manual welding of textiles and non-woven materials
Model: Ecoline generator with HT35-3
Type: 35 kHz

Trade name: Ecoline-HT35

meets the fundamental health and safety requirements of the Machinery Directive 2014/35/EU Appendix I.

The machine also meets the requirements of the following EC Directives:
EMC Directive 2014/30/EU

The following harmonised standards have been applied:
EN ISO 12100: 2010; EN 60204-1: 2006; EN 61000-6-2: 2005; EN 61000-6-4: 2007

Authorised representative for the compilation of the technical documentation:
Jürgen Baumert, Head of R&D

Technical documentation can be provided in electronic format in response to requests from national bodies.

Romanshorn, 26.01.2015

Rinco Ultrasonics AG
Industriestrasse 4
8590 Romanshorn



Patamia Serge
Managing Director



Jürgen Baumert
Head of R&D

11.4 EC Declaration of Conformity for the Ecoline-HW35

(Directive 2014/35/EU, Appendix II A)

The manufacturer: Rinco Ultrasonics AG, Industriestrasse 4, 8590 Romanshorn hereby declares that the 35 kHz ultrasound generator together with the 35 kHz hand welder:

Description: 35 kHz ultrasound generator with 35 kHz hand welder
Function: Suitable for manual welding of thermoplastic parts
Model: Ecoline generator with HW35-4
Type: 35 kHz

Trade name: Ecoline-HW35

meets the fundamental health and safety requirements of the Machinery Directive 2014/35/EU Appendix I.

The machine also meets the requirements of the following EC Directives:
EMC Directive 2014/30/EU

The following harmonised standards have been applied:
EN ISO 12100: 2010; EN 60204-1: 2006; EN 61000-6-2: 2005; EN 61000-6-4: 2007

Authorised representative for the compilation of the technical documentation:
Jürgen Baumert, Head of R&D

Technical documentation can be provided in electronic format in response to requests from national bodies.

Romanshorn, 26.01.2015

Rinco Ultrasonics AG
Industriestrasse 4
8590 Romanshorn



Patamia Serge
Managing Director



Jürgen Baumert
Head of R&D

12 Declaration of Incorporation for the Ecoline generator

(Directive 2006/42/EC, Appendix II B)

The manufacturer: Rinco Ultrasonics AG, Industriestrasse 4, 8590 Romanshorn hereby declares that the ultrasound generator:

Description:	Ultrasound generator
Function:	Suitable for manual cutting and welding of textiles and non-woven materials and for manual welding of thermoplastic parts
Model:	Ecoline
Type:	35 kHz
Trade name:	Ecoline generator

meets the fundamental health and safety requirements of the Machinery Directive 2014/30/EC Appendix I.

The machine also meets the requirements of the following EC Directives:

EMC Directive 2014/30/EU

The following harmonised standards have been applied:

EN ISO 12100: 2010; EN 60204-1: 2006; EN 61000-6-2: 2005; EN 61000-6-4: 2007

Authorised representative for the compilation of the technical documentation:

Jürgen Baumert, Head of R&D

Technical documentation can be provided in electronic format in response to requests from national bodies.

When incomplete, the machine may only be put into operation if it has been established, if applicable, that the machine or system in which the incomplete machine is to be installed meets the requirements of the Machinery Directive 2006/42/EC and the EC Declaration of Conformity has been issued in accordance with Appendix II A.

Romanshorn, 01.04.2015

Rinco Ultrasonics AG
Industriestrasse 4
8590 Romanshorn



Patamia Serge
Managing Director



Jürgen Baumert
Head of R&D

13 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 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 hand unit (A) and the Ecoline generator (B):

- A precise description of the technical fault or welding issue
- Device designation
- The exact type designation and device serial number.
To find out where the type plates are located, see chapter **Type plates** [▶ 31].

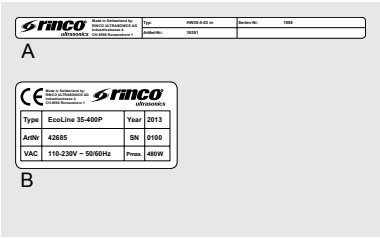


Fig. 55: Type plates

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.

14 Warranty terms and conditions

Warranty terms and conditions

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

The conditions for the fulfilment of 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 the 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.

15 Exclusion of liability

Delivery

The scope of delivery – i.e. the design of the device – 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 device 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 device
- Failure to observe the information and notices in these operating instructions
- Unqualified or unauthorised personnel working on or with the device
- Installation of replacement parts manufactured by third parties
- Independent modifications without the written approval of the manufacturer
- Use of unauthorised equipment

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