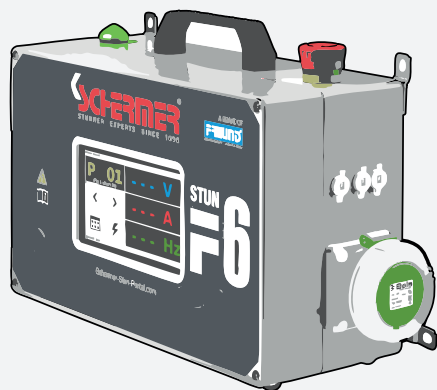
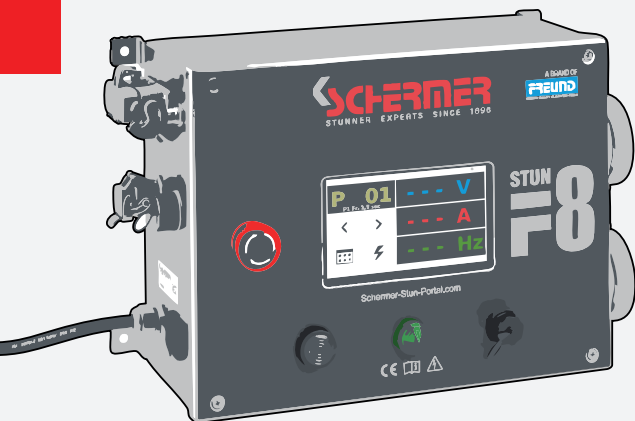
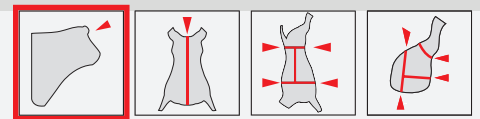


OPERATING MANUAL ELECTRIC STUNNERS

Translation of original manual



ELECTRIC STUNNERS

- STUN-F8
- STUN-F6

ACCESSOIRES

- STUN-HE-PP
- STUN-TONG-EPP3



Imprint

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KARL SCHERMER a brand of FREUND Maschinenfabrik GmbH & Co. KG, 07.2025

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Technical changes reserved

This operating manual was compiled with the greatest care. However if you notice incompleteness and/or mistakes, please inform us.

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1 About this Manual

The electric stunners and the accessory equipment are also referred to as machines in this operating manual.

This operating manual was prepared to enable you to work quickly and safely with your machine.

The operating manual is a component of the machine and contains important recommendations, instructions and information

- to enable safe and proper installation of the machine.
- to enable safe operation of the machine.
- to enable you to rectify simple faults yourself.
- for maintenance and cleaning.

Before you start operating the machine, read this entire operating manual thoroughly and carefully. It is imperative that you adhere to all written safety and warning information.

1.1 Target group

This operating manual is intended for operators of slaughtering facilities and the staff employed there, as well as for butchers and small businesses and their apprentices.

The operating manual is intended in particular for qualified personnel for assembly, installation, maintenance and servicing and for the cleaning staff.

The target group must have basic technical knowledge of how to handle the machine described herein.

1.2 Liability and warranty

All information and instructions regarding the operation and maintenance of the machine contained in this manual are provided to the best of our knowledge, taking into account our experience and know-how.

We will accept no liability for claims that extend beyond the scope of the warranty agreed in the main contract.

The original version of this operating manual was written in German. The translation was created with the best care and knowledge, but we assume no liability for translation errors. In case of doubt, the original German version always applies.

Exclusion of
liability

We assume no liability and warranty:

- for wearing parts.
- for damage that occurs during slaughtering.

Furthermore, we expressly point out that we do not assume any liability for damages attributable to the following causes:

- not observing the information provided in this operating manual at all or to the necessary extent

- non-intended use
- unsuitable or improper handling
- spare parts or parts are used which have not been approved by FREUND Maschinenfabrik GmbH & Co. KG
- changing functions or materials on the machine without prior approval
- operating the machine incorrectly or operation by unqualified personnel
- safety devices being removed or manipulated
- cleaning the machine incorrectly or unprofessionally
- chemical or mechanical overloads
- maintenance and repair work not being carried out according to instructions or maintenance intervals not being adhered to

Modifications and/or adjustments to the machine are possible in certain cases. In such cases, prior written approval must be obtained from FREUND Maschinenfabrik GmbH & Co. KG – subsequently referred to as FREUND Maschinenfabrik.

1.3 Other applicable documents

This operating manual only describes the electric stunners from the F series. Observe the operating manual for the stun tongs in addition to this operating manual.

1.4 Storing the operating manual

This operating manual is part of the machine and must be accessible at all times to the operating, maintenance and cleaning staff during the entire service life of the machine.

Therefore, always keep the operating manual near the machine's place of use.

1.5 Installation manuals and technical information



Purchasing a FREUND product gives you access to our online customer portal, FREUND Assistance (FA). FA will show you which spare parts are available for your product. You can send an order request directly to our sales team via FA. The requisite installation manuals for ensuring safe installation of your FREUND spare parts are also provided on the FA portal. You will also find the CE declarations for series machines on the FA portal.

The appendix to this operating manual and the FA portal contain technical information (TIN). TINs provide descriptions of the most important maintenance and operating steps for your machine.

1.6 Symbols and layout elements

1.6.1 Layout elements

- Enumerations
 - Individual, independent instruction step
Result arising from the instruction step
 - 1. Step-by-step sequences in a specific order
 - 2. The numbers indicate that the instruction steps follow each other
 - 3. *Result arising from the instruction steps*
- References to another chapter
-  Important additional information or special details regarding the use of the machine
-  Embedded warning note - shows type and source of the danger and the measure to avoid the danger

1.6.2 Safety signs

Warning signs



Warning of a danger point

Caution! At this point there is an increased danger to your safety.



Warning of dangerous electrical voltage

Danger to life from electric shocks to the body.



Warning of sharp-edged machine parts

Danger to the fingers and hands from cutting and striking.

Danger to limbs from cutting or severing and injuries to the body.



Warning of hand injuries

Danger to the hands and fingers from crushing due to the sinking or downward movements of machine parts.



Warning of substances harmful to health and irritants

The information on the packaging and containers must be observed. Keep separate from food.

Prohibition signs



General prohibition signs

This sign is only used in connection with an additional sign or text, which describes the prohibition in greater detail.



High-pressure cleaners forbidden

Do not use high-pressure cleaners to clean the machine.
Parts of the machine could be damaged.

Mandatory signs



Wear protective gloves

protect the hands against friction, abrasions, and cuts.



Wear safety spectacles

protect the eyes against flying parts, fragments and squirting liquids



Wear safety shoes or rubber boots

protect the feet against crushing, falling objects and guarantee secure support



Wear a protective apron

protects the body against humidity, blood and other fluids.



Pull out the power plug

disconnect the machine from the mains power supply before all servicing, maintenance and cleaning work.



Observe the assembly manual or spare parts lists

Further information can be found in the assembly manuals and spare parts lists.

1.6.3 Symbols



Restunning



Pneumatics



Killing



Head flow



Heart flow



Comply with the operating manual

Be sure to observe the information and notes in the operating manual.



Video/Video playlist

Link to the videos and video playlists.



Separate spare parts list available

There is a separate spare parts list for this spare part.



Assembly manual available

There is an extra assembly manual for this spare part. In the assembly manual, work steps and required tools are shown.



Available as a set

The symbol indicates an article in a set. In a set, multiple related spare parts are available together. A border clarifies which parts are included.



Tool set available

To install this spare part, a special tool is required which can be ordered from us.

2

Numbers in the grey field indicate the sequence of the steps



Lubrication

Information about the amount and properties of the lubricant can be found in the operating manual.



Do not lubricate



Glue

Parts must be glued; information about the type and properties of the glue can be found in the operating manual.



Cleaning

Instruction for an additional cleaning step



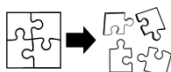
Power plug

Indicates connection of the machine to the power network.

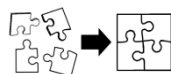


Releasing pressure

The machine must be depressurised prior to maintenance, servicing and cleaning.



Disassembly of the machine or assembly



Assembly of the machine or component

Indicates assembly of the machine following prior disassembly, Carry out steps in the reverse order

2 For your safety

This chapter describes the safety measures and safety devices. Before setting the machine into operation be sure you have read and understood the following safety information.

Safety instructions are intended to provide occupational safety and prevent accidents. Observe all the safety instructions provided here and at the beginning of each chapter.

Read the following chapter on safety and the safety instructions contained therein carefully before commissioning and using the machine.

2.1 Warnings

While you are using the machine, dangers may occur in certain situations or as a result of certain behaviours.

In this operating manual, warning information is given at the start of the respective chapter or life phase that involves danger of personal injury or property damage. They relate to all following actions of the chapter or life phase.

The precautions described must be observed to avoid the danger.

Structure of a
warning



Signal word!

Type and source of the imminent danger.

Possible consequences of the danger if the warning is disregarded.

➤ Instructions for averting the danger.

Signal word	Meaning
DANGER	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION	Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.
ATTENTION	Indicates a potentially hazardous situation which, if not avoided, could result in damage to the machine or the environment.

2.2 Obligations of the operator

	In accordance with the rules and regulations of the employers' liability insurance association relating to the safety and health when working for a business in the meat industry (BGR 229), the site operator may only allow insured persons who are 18 years old and are familiar with the equipment and the handling of the equipment to operate slaughter equipment. Young people over the age of 16 may be employed if this is required as part of their vocational training and if they have read and understood the safety regulations. Their safety must be ensured by a supervisor.
Risk assessment and protective measures	Before using work equipment, the operator must assess the risks that could occur (risk assessment) and derive necessary and suitable protective measures from this assessment. The presence of a CE marking on the work equipment does not release the operator from its obligation to carry out a risk assessment (German Regulation on Safety and Health - BetrSichV from 3 February 2015 Section 2 (3)(1)).
Operating instructions	Before employees use work equipment for the first time, the operator must provide them with written operating instructions for use of the work equipment in a form and language understandable to said employees and make them available in a suitable location (German Regulation on Safety and Health - BetrSichV 3 February 2015 Section 2 (12)(2)).
Operating staff	The site operator, as a higher level legal person, is responsible that the machine is used in accordance with its intended use and is responsible for training and for assigning authorized and qualified operating, maintenance and cleaning staff. The site operator is obliged to ensure that each employee is properly trained in the operation of the machine. Staff undergoing training may only work at the machine under the supervision of properly qualified staff.
Competent personnel	Only persons possessing the necessary knowledge and skills (expertise) may look after, restrain, stun, slaughter or kill animals. The site operator ensures that the activities within the framework of slaughtering are only carried out by persons possessing a relevant certificate of expertise.
Back-up equipment	The site operator shall ensure that during stunning operations appropriate back-up equipment is immediately available on the slaughtering point and is used in the case of failure of the stunning equipment initially used. The back-up method may differ from that first used.
Instruction of staff	The operator is obliged to instruct employees regularly and in light of certain events (e.g. if an accident has occurred) in safe work procedures and occupational safety and health. We recommend that the instruction and the content covered should be documented by the employee's signature.
Workplace	The workplace must comply with the national and regional hygiene and workplace regulations.

- Risk assessment** The site operator must inform operators of possible dangers, symptoms and preventative measures. Relevant occupational safety conditions have to be complied with.
- Cleaning** The operator must ensure that machine and working equipment can be cleaned easily and without any risk. The operator must provide suitable detergents and define suitable cleaning procedures.
- Safety of the machine** The site operator must ensure that the machine is only operated and used in perfect and functional condition.
The site operator must ensure that safety devices are regularly serviced and checked for proper function.
- Escape routes** The operator must ensure that sufficient escape routes are available for the staff and that these are clearly marked. The operator must ensure that escape routes are not obstructed and that their function is not impaired (e.g. that doors open towards the escape route).

2.3 Employee responsibilities

- Operating staff** The operating staff must be properly instructed and trained by the operator. Staff who have read and understood the safety information and have been properly familiarised themselves with the operation of the machine can be regarded as instructed.
Operating staff must be familiar with the operating manual and the applicable OHS and accident prevention regulations.
- Qualified personnel** A technical expert is a person who, due to technical training and experience, possesses sufficient skills and knowledge.
The technical expert must be familiar with the operating manual and the applicable OHS and accident prevention regulations, as well as the applicable animal welfare laws.
- Competent personnel** Competent personnel are such persons who, due to technical training and experience, possess sufficient skills and knowledge.
The technical expert must be familiar with the operating manual and the applicable OHS and accident prevention regulations as well as with the latest regulations of the protection of animals.
- Machine safety** Before starting any work, carefully check the machine for proper function in accordance with the intended use.
Do not set the machine into operation if it does not work correctly.
Switch off the machine immediately if it no longer works correctly and have it checked.
Have defective safety devices, switches or other defective machine parts repaired.
Notify the operator or his authorised representative of any changes to the machine which may affect your safety.

Safety at the workplace	Maintain a stable upright position and keep your balance. Avoid awkward postures. Keep your workplace clean and tidy. Untidy workplaces can cause accidents. Always wear the personal protective equipment provided. Keep children, young persons and untrained staff away from the machine.
Emergency procedures	In the case of an accident, administer first aid and call a doctor and emergency medical services. Notify the operator or his authorised representative of every accident.

2.4 Personal protective equipment

The staff must carry the customary personal protective equipment. The personal protective equipment is dependent on the respective field of work.

The personal protective equipment must be provided by the operator. For hygienic reasons, each employee gets his/her own personal protective equipment.

2.5 Inspection in accordance with the German Animal Protection Slaughter Regulation (TierSchIV)

For all electric stunners of the KARL SCHERMER brand, all relevant stunning and occupational safety parameters are checked prior to initial commissioning in accordance with the applicable German Animal Protection Slaughter Regulation (TierSchIV) and EC Regulation 1099/2009, the German Regulation on Safety and Health (BetrSichV), and accident prevention regulations.

An inspection sticker is attached to the machine. This indicates the date of the next inspection.

The inspection interval for electric stunners is one year and may only be carried out by specialist personnel authorised by FREUND.

2.6 Warranty seal



The device is provided with a warranty seal. This seal serves as proof of the integrity of the device and must not be removed or damaged.



Damage to or removal of the warranty seal voids any warranty claim.

- The seal serves to prove the integrity and prevents unauthorised interventions.
- Interventions by unauthorised persons can cause personal injury, property damage, malfunctions or safety risks.

- The device may only be opened and serviced by authorised specialist personnel.

2.7 Electrical safety in accordance with EN 60204-1

All our electrical machinery and equipment is tested for electrical safety prior to commissioning and following modification or repair in our factory by an electrically skilled person in accordance with the electrical engineering rules as per DIN VDE 0701-0702 / EN 60204-1. The inspection interval for machinery and equipment that is used in slaughtering and cutting plants is every six months.

2.8 Residual risks

The Electric Stunners F6/F8 was built according to the current state of the art before being placed on the market and complies with the basic safety and health requirements of the European Union.

The machine is operationally safe, assuming compliance with the operating manual, the company-specific instructions and the accident prevention regulations.

However, there are still dangers involved which cannot be eliminated by design measures. These include:

- danger to life from live machine parts in electrical stunning device
- danger of injury to fingers and hands.
- risk of injury from negligent handling of personal safety equipment while operating the device, during maintenance and repair work and during cleaning and disinfection
- danger of injury from compressed air/overpressure

It should also be noted that, despite all precautionary measures, residual risks may remain which are not evident.

You can minimise these residual risks by observing the safety instructions given at the beginning of the individual chapters and observing the instructions in the entire operating manual.

2.9 Intended use

The electric stunners of the KARL SCHERMER brand

- are intended for stunning and for killing livestock in stalls, restrainers, and individual traps.
- may only be operated with the designated safety devices, which must be fully functional.
- are used to transfer the stunning data to the FREUND web server using a LAN or WLAN connection (as per the recording obligation of the German Animal Protection Slaughter Regulation and EC Regulation No. 1099/2009).
- may only be connected on one electrode combination at any one time.
- may only be operated with KARL SCHERMER and FREUND brand accessory parts. Deviations from this must be agreed with the FREUND service department.

STUN-TONG-EPP3

- are intended for stunning pigs, sheep and goats in restrainers and individual traps.
- is operated in conjunction with the electric stunners.

The STUN-HE-PP

- is operated on a stunning cage, in conjunction with a stunner and stun tongs.
- After attachment, an enclosure is fitted to it to prevent interference with the paths travelled.

The interface control box

- controls the pneumatic components of the stun tongs/heart electrode.
- is operated in conjunction with the electric stunners from the F series.

The STUN-TONG-ES Steel

- is intended for stunning and for killing pigs, sheep, and goats in stalls.
- is operated in conjunction with the electric stunners.

Operating the machine within the limits of its intended use also involves:

- observing the safety instructions.
- proper execution of repair and maintenance work.
- regular cleaning of the machine.

Any other use is considered as contrary to the intended use and poses risks to the safety of operating staff.

Disclaimer of liability FREUND Maschinenfabrik does not accept liability for any damage resulting from improper use of the machine.

2.10 Improper use

Every use other than those described as → chapter *Intended use* is deemed to be non-intended and is thus inadmissible.

The operator is solely responsible for risks in the case of improper use. Consult the manufacturer in case of doubt.

The following are also deemed as improper use:

- the use of the machine to human beings.
- the use to tranquilize the animals prior to slaughter.
- the use of the machine without functional safety devices.
- the extension of the cables and connecting lines attached to the machine.

3 Technical Description

3.1 Minimum currents and stunning times

All KARL SCHERMER electric stunners are preset with the minimum current and the minimum stunning time for the respective animal species in accordance with the applicable Regulation (EC) No. 1099/2009.

Minimum current	Animal species	Minimum current
	Pigs	1.3 A*
	Sheep / goats	1.0 A*

* As per Regulation (EC) No 1099/2009

Country-specific legal regulations

The respective national regulations on the protection of animals apply at the time of slaughter/killing. If necessary, adjust the stunning parameters according to the animal protection provisions in your country.

3.2 Function description of electric stunning

A stunning system consists of an electric stunner and stun tongs.

For electric stunning or killing, the current must flow through the brain of the animal first or at least at the same time as it flows through the body. The minimum current must be reached in the first second and be maintained for a certain amount of time.

Requisite stunning parameters:

→ national legislation in your country

Body resistance:
animal The body resistance of the animal is continuously measured at short intervals and analysed based on the resistance measurement principle. If the measured value is within the preset range of up to 1400 ohms, the stunning voltage is adjusted automatically. This is to ensure that the nominal value of the stunning current is always reached.

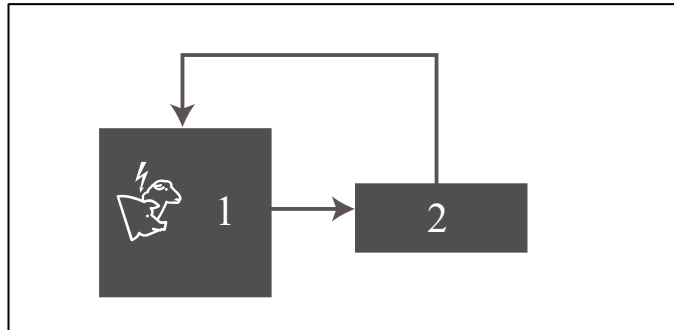
If the preset resistance is exceeded, the electric stunner switches off the stunning voltage as per the regulations.

Uncontrolled conditions and defects in the stunning circuit are indicated to the user by a fault lamp.

Data recording The data memory of the electric stunner records all relevant stunning data and the set stunning parameters.
If there is an active Internet connection, this data is transferred to the password-protected SCHERMER-STUN-Portal, where it can be evaluated.

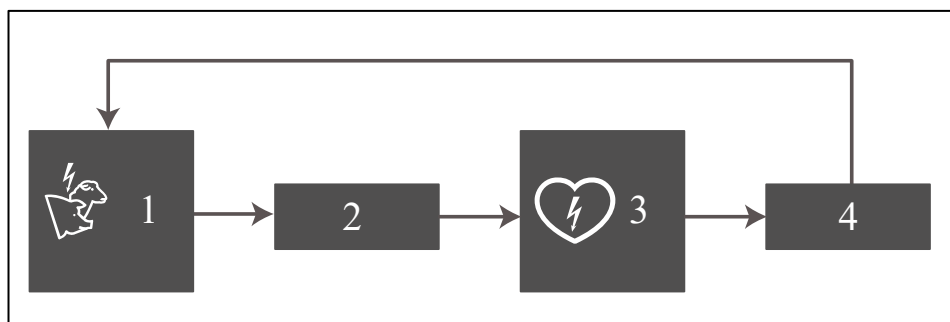
3.3 Stun phases

3.3.1 Head stunning



No	Phase	Parameter
1	Head stunning	HEAD Progression • Voltage (U, t0 – t19) • Current (I, t0 – t19) • Frequency (f, t0 – t19)
		HEAD Error • Rise time (ta) • Minimum current (Im) • Minimum current flow time (tm)
2	Minimum pause between the current head stunning and a new head stunning	Reposition time [minimum]

3.3.2 Head and Heart stunning



No	Phase	Parameter
1	Head stunning	HEAD Progression • Voltage (U, t0 – t19) • Current (I, t0 – t19) • Frequency (f, t0 – t19)

		HEAD Error • Rise time (ta) • Minimum current (Im) • Minimum current flow time (tm)
2/4	Minimum pause between head stunning or heart stunning. Heart stunning or a new stunning procedure involving head stunning does not start until this time has elapsed.	Reposition time [minimum]
2	Maximum pause between head stunning and the subsequent heart stunning. If this is exceeded, the device is ready to begin a new stunning procedure.	Reposition time [HEAD → HEART]
3	Heart stunning	HEART Progression • Voltage (U, t0 – t19) • Current (I, t0 – t19) • Frequency (f, t0 – t19)
		HEART Error • Rise time (ta) • Minimum current (Im) • Minimum current flow time (tm)

3.4 Stunning parameters

Parametrisation The electric stunner generates defined currents, voltages, and frequency curves through parametrisation during the stunning procedure.

The following table lists the stunning parameters setting ranges and increments.

	Parameter	Range	Increment
Head stunning phase	U (voltage) Voltage at time U_{tx}	50 – 500 V	5 V
	I (current) Current at time I_{tx}	0.05 – 3.5 A	0.01 A
	f (frequency) Frequency at time f_{tx}	25 – 1000 Hz	1 Hz
	tx (time)	0.1 – 60 s	0.01 s
Repositioning phase	Reposition time [minimum]	0.1 – 60 s	0.01 s
	Reposition time [HEAD → HEART] ¹	0.1 – 60 s	0.01 s
Heart stunning phase	U (voltage) Voltage at time U_{tx}	50 – 500 V	5 V
	I (current) Current at time I_{tx}	0.05 – 3.5 A	0.01 A
	f (frequency) Frequency at time f_{tx}	25 – 1000 Hz	1 Hz
	tx (time)	0.1 – 60 s	0.01 s

3.5 Stun program

The stun time and minimum current are preset in the stun programs for the respective animal species. The specifications correspond to the German Animal Welfare Slaughter Ordinance TierSchlV (EC) No. 1099/2009.

In general, the following applies to the animal protection provisions: If necessary, adjust the stunning parameters (e.g. minimum currents and stunning times) according to the legislation in your country.

When delivered, the electric stunners STUN-F6 and Stun-F8 have pre-set stunning programs.



- The availability of stunning programs is dependent on the agreements made with the sales department.
- Ex works, the device is equipped with the programs that correspond to the agreed scope of services.
- Not all available programs are included in every device configuration.

The operator decides which programs are activated on the device. To activate additional programs (subject to charge), please contact our sales department. The address and telephone number can be found in Imprint.

3.6 Electric stunner

The electric stunners from the STUN-F series of the KARL SCHERMER brand comply with the provisions of the applicable German Animal Protection Slaughter Regulation of 12 December 2012 (BGBl I p.2982) and EC Regulation 1099/2009.

- Selectable and configurable stun programs
 - Audible signal for minimum stunning time
 - Visual and acoustic signal if a stunning error occurs
 - High-contrast LED display
 - Internal memory stores up to 1,250,000 data sets for stunning procedures and all stunning and machine parameters
 - Communication interfaces (LAN, WLAN) for automatic data transfer to a password-protected web server
- USB interface
- for transferring stunning and configuration data to a USB flash drive
 - for connecting to an external keyboard
- Stun F8 only
- Connection for optimum operation of a signal tower (signal lamps)
 - Connection for optimum operation of a heart electrode
 - Control connection for pneumatic stun tongs and heart electrode
 - Signal output and inputs: Door contact safety loop, stunning start and end, water valve.

3.6.1 Functional elements STUN-F6

Frontal view

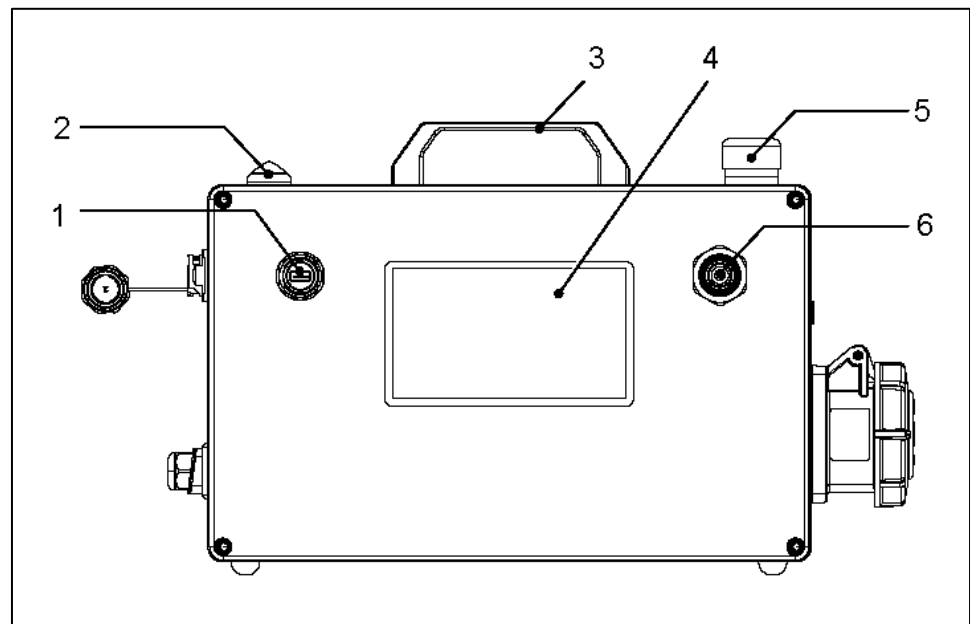


Fig. 3-1 Functional elements

Pos.	Description
1	USB port - is used for transferring data to a USB flash drive - is used for connecting an external keyboard
2	Optical signalling device (lamp) - lights up (with increasing/decreasing brightness) while the device starts up and performs a self-test - lights up continuously if the device is ready for use - flashes if there is an active stunning procedure - does not light up if the device is switched off or if the device is in standby mode - luminosity is adjustable
3	Carry handle
4	Touchscreen - is used to select the stun programs. - displays current data during the stunning procedure - is used to configure the parameters and to make general settings
5	Emergency stop switch
6	Acoustic signalling device (sound level: > 85 dB) - signals that head or heart stunning has been performed successfully - signals an error during the stunning procedure

Side views

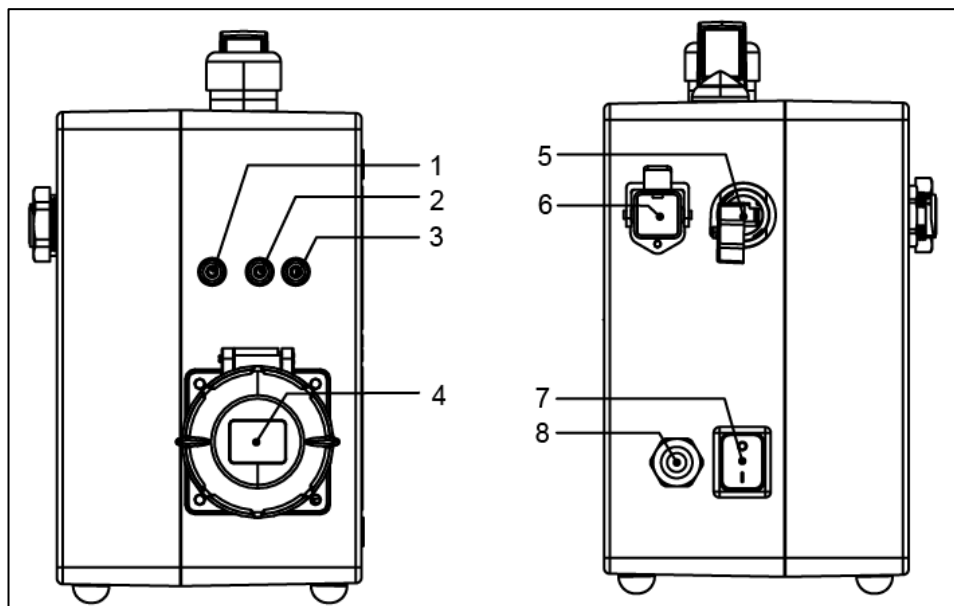


Fig. 3-2 Functional elements

Pos.	Description
1	Measuring socket 1 Voltage measurement in conjunction with measuring socket 2
2	Measuring socket 2 Voltage and current measurement
3	Measuring socket 3 Current measurement in conjunction with measuring socket 2
4	Connection for the stun tongs (head/heart stunning) Approved connector: CEE 3p+N+PE/16A/10h/IP67
5	RJ45 network connection (LAN network)
6	Signal light connection
7	On/Off switch
8	Connection for power supply

3.6.2 Functional elements STUN-F8

Frontal view

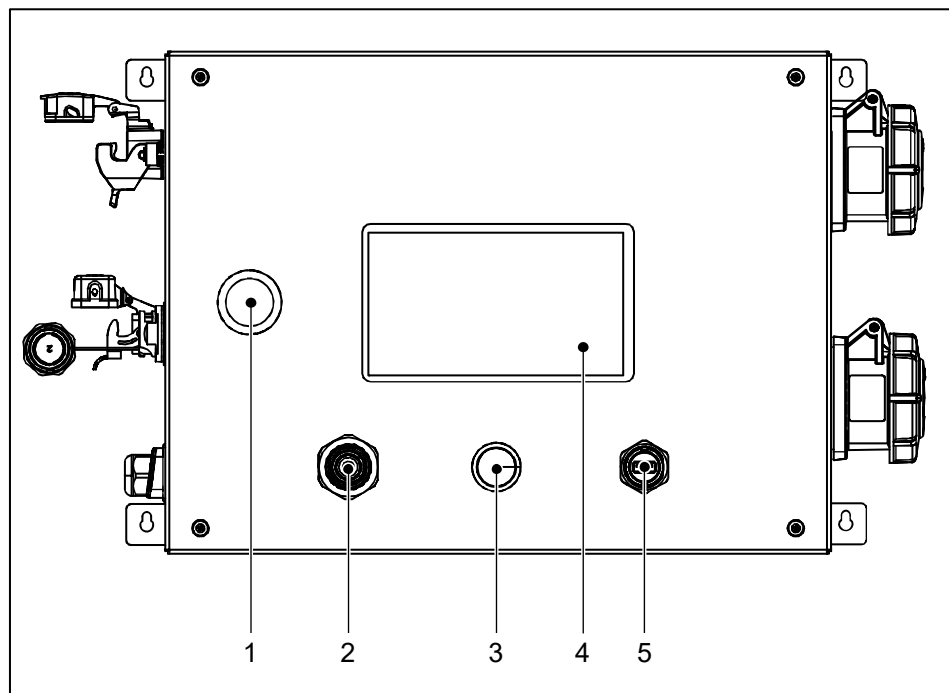


Fig. 3-3 Functional elements

Pos.	Description
1	Emergency stop switch
2	Acoustic signalling device (sound level: > 85 dB) - signals that head stunning and/or heart stunning has/have been performed successfully. - signals an error during the stunning procedure.
3	Optical signalling device (lamp) - lights up (with increasing/decreasing brightness) while the device starts up and performs a self-test. - lights up continuously if the device is ready for use. - flashes if there is an active stunning procedure. - does not light up if the device is switched off or if the device is in standby mode. - Luminosity is adjustable.
4	Touchscreen - is used to select the stun programs. - displays current data during the stunning procedure. - is used to configure the parameters and to make general settings.
5	USB port - is used for transferring data to a USB flash drive - is used for connecting an external keyboard

Rear view

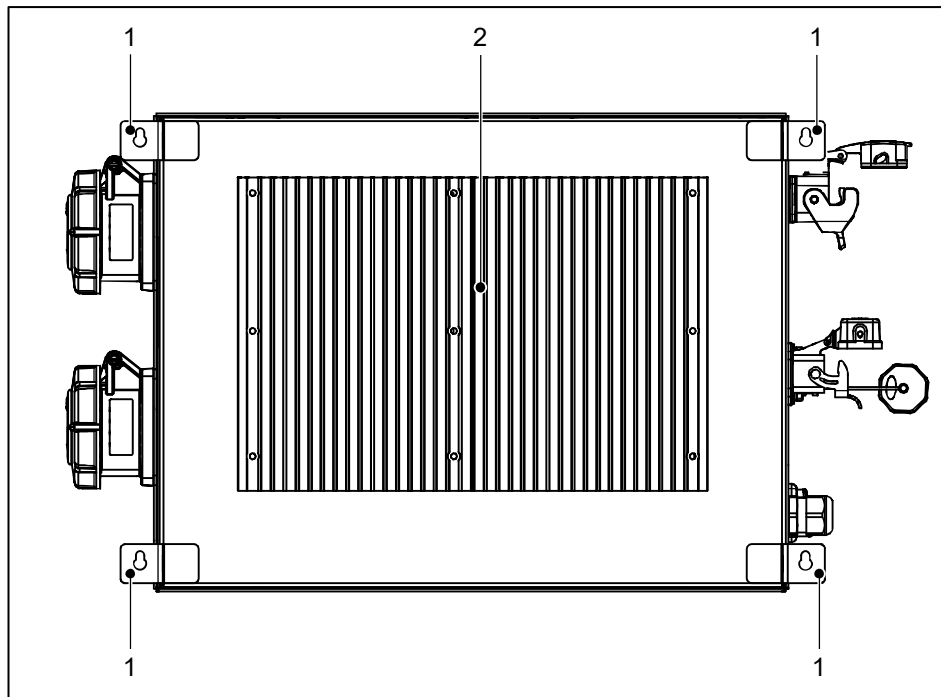


Fig. 3-4 Functional elements

Pos.	Description
1	Mounting bracket for wall installation
2	Heat sink for passive device cooling

Side views

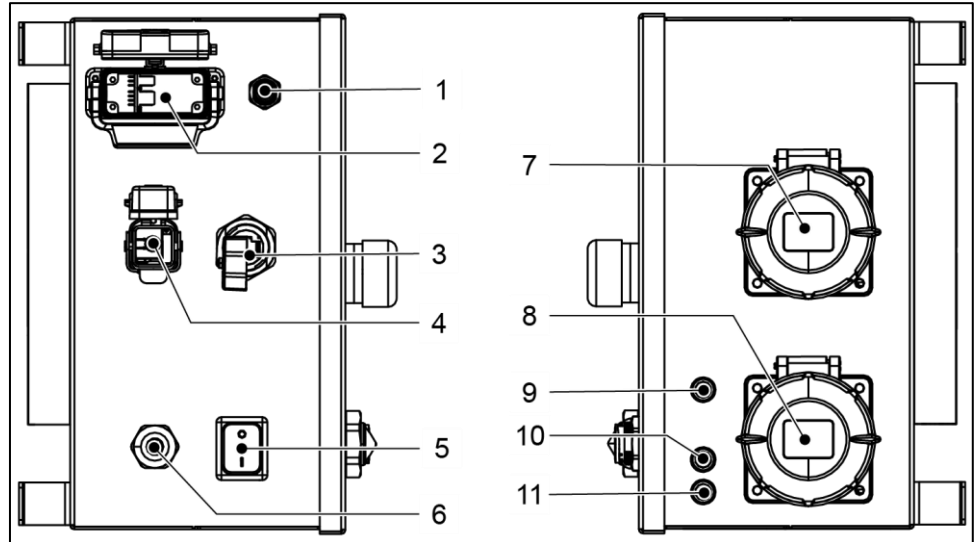


Fig. 3-5 Functional elements

Pos.	Description
1	CAN bus connection
2	Control connection (→chapter Control connection/connection assignment) • Interface box for controlling pneumatic valves
3	RJ45 network connection (LAN network)
4	Connection for optional signal tower (→chapter Control connection/connection assignment)
5	On/Off switch
6	Connection for the power supply
7	Connection for the stun tongs (head/heart stunning) Approved connector: CEE 3p+N+PE/16A/10h/IP67
8	Connection for heart electrode Approved connector: CEE 3p+N+PE/16A/10h/IP67
9	Measuring socket 1 Voltage and current measurement
10	Measuring socket 2 Voltage measurement in conjunction with measuring socket 1
11	Measuring socket 3 Current measurement in conjunction with measuring socket 1

3.7 Touchscreen/user interface

3.7.1 Main menu



Fig. 3-6 Menus in the main menu

Symbol	Description
	“Show information” menu The following information is displayed in this menu: • Firmware • Database interface (Data Handling App, DHA) • User interface (HMI) • Performance interface
	“Set time/date” menu The system time and the time zone can be set in this menu. The time zone needs to be set manually. The system time is synchronised automatically if connected to the Internet.
	“Connection settings” menu A WLAN connection can be configured in this menu (→ chapter <i>Connection settings</i>).
	“Change user” menu The user who is currently logged in can be changed in this menu (→ chapter <i>User login</i>).
	“User management” menu The user database can be edited in this menu (→ chapter <i>User management</i>).

Symbol	Description
	Conduct stunning current via external measuring connections This option must be selected if external measurements are to be performed by the Veterinary Office. Use separate heart electrode If activated, heart stunning takes place via a separate stunning outlet.

Symbol	Description
	“Device settings” menu Settings can be made in this menu. These settings apply to the electric stunner in general and apply equally to all stun programs. Language Specifies the language of the user interface. Acoustic signal duration Specifies how long successful stunning is signalled acoustically. (The intermittent signalling of faulty stunning lasts twice as long.) Signal lamp luminosity Indicates the intensity with which the signal lamp lights up. HEAD without resistance measurement If activated, head stunning begins immediately after extending the head electrode. HEART without resistance measurement If activated, heart stunning begins immediately after attaching the heart electrode. Limiting resistance Stunning current release: Indicates the resistance below which stunning starts Stunning current shutdown: Indicates the resistance above which stunning stops Conduct stunning current via external measuring connections This option must be selected if external measurements are to be performed by the Veterinary Office. Start stunning via external control system If activated, stunning is started via an external start signal, e.g. via a button on the stun tongs. Use separate heart electrode This option must be selected if heart stunning is to be performed with a heart electrode. Water pulse duration Indicates how long the water pulse will be activated if the water button is pressed. Pneumatic head electrode delay Indicates the minimum time that must elapse after pressing the button before a flow starts.
	“Stun programs” menu Stun programs can be viewed and configured in this menu (→ chapter <i>Stun program</i>).

For model F8

Symbol	Description
	“Diagnosis/actuator test” menu Current device data can be read out in this menu.
	“Deactivate measuring mode” menu The measuring mode can be determined in this menu (→ section <i>Measuring mode</i>).

3.7.2 User login

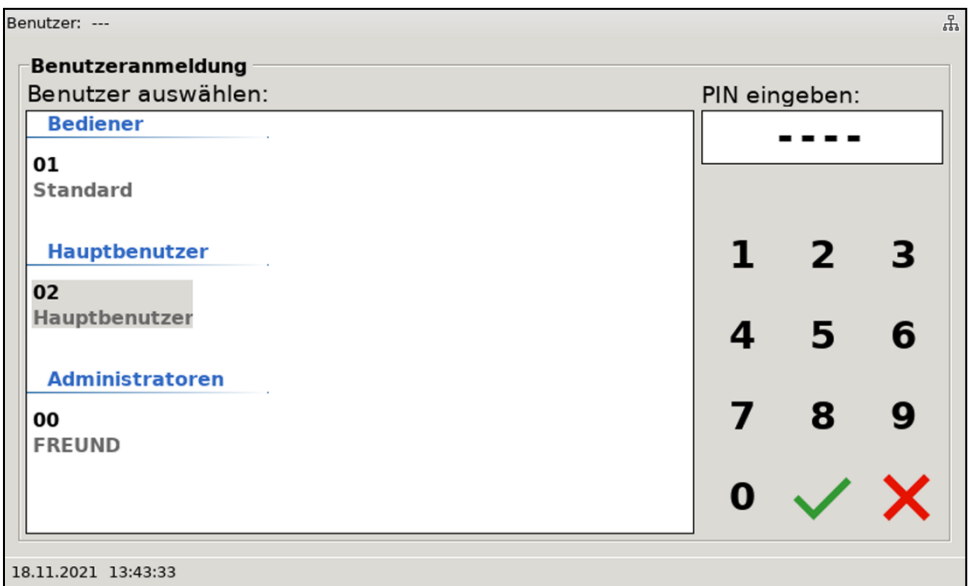


Fig. 3-7 Functional elements

Symbol	Description
	Confirms the selection of the user (user ID/PIN) and implements the login.
	Cancels the login.

After switching on the electric stunner, a self-test is performed, the user interface is loaded and the “User login” menu is displayed after approx. 30 seconds.

To be able to use the electric stunner for stunning, a user needs to be selected from the list of users and logged in by entering the relevant PIN.



If there is a user in the system with PIN “0000”, this user is logged in automatically without further prompting and no further user login prompt appears.

If this applies to multiple users, the user is selected primarily according to authorisation level (lowest authorisation) and secondarily according to user ID (lowest ID).

3.7.3 User management

Fig. 3-8 Functional elements

Symbol	Description
	Confirms the current settings in user management and saves the settings.
	Discards the current changes. Previous settings remain saved.

A new user is added by pressing the “New” button.

An existing user can be deleted by pressing the “Delete user” button. To avoid gaps in the user numbering, only the user with the highest ID can be deleted.

After connecting a USB keyboard, a user can be selected from the list and, following selection, the authorisation level, user name, and PIN can be changed.



To ensure access to the electric stunner, the user with ID “00” (administrator) cannot be deleted.

Authorisation levels

Operator The operator has the following authorisations:

- Select stun programs
- Carry out stunning

Main user The main user has the following authorisations:

- All authorisations of the operator
- Set connection parameters
- Edit user database (level: operator, main user)
- Set device parameters
- Set parameters of the stun programs

Administrator The administrator has the following authorisations:

- All authorisations of the main user
- Edit user database (except ID "00")
- Set limiting resistor
- Show diagnosis/actuator test

3.7.4 User interfaces - Stunning

Standby

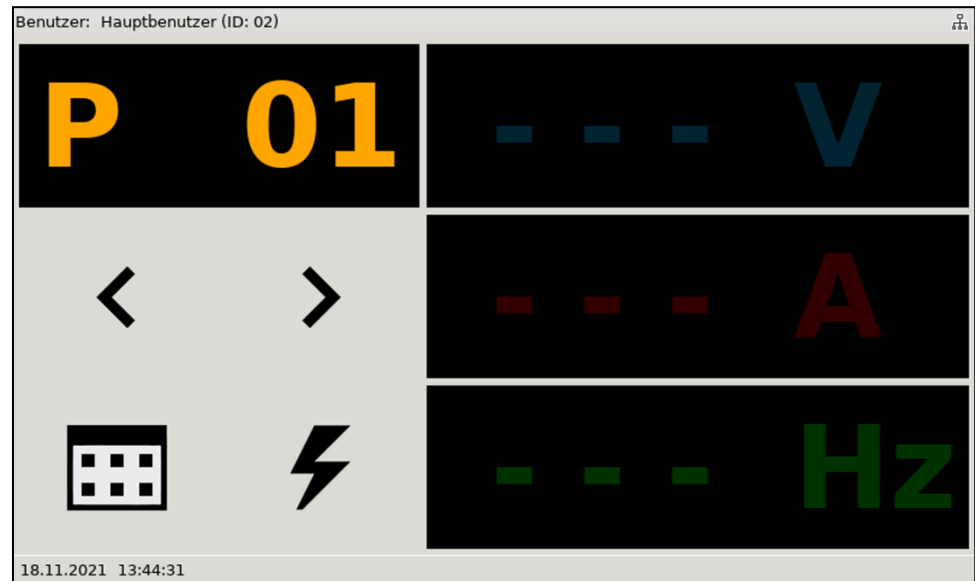


Fig. 3-9 Standby display

Symbol	Description
	Displays the program number for the selected stun program.
	Selects the saved and configured stun programs.
	Switches to the main menu.
	Activates the stunning mode.

The electric stunner is in standby mode after the user logs in. In this state, settings can be made and the stun program can be selected. The display area with the electrical values (voltage, current, frequency) is grayed out in standby mode.

Stunning mode/start of stunning and stunning sequence

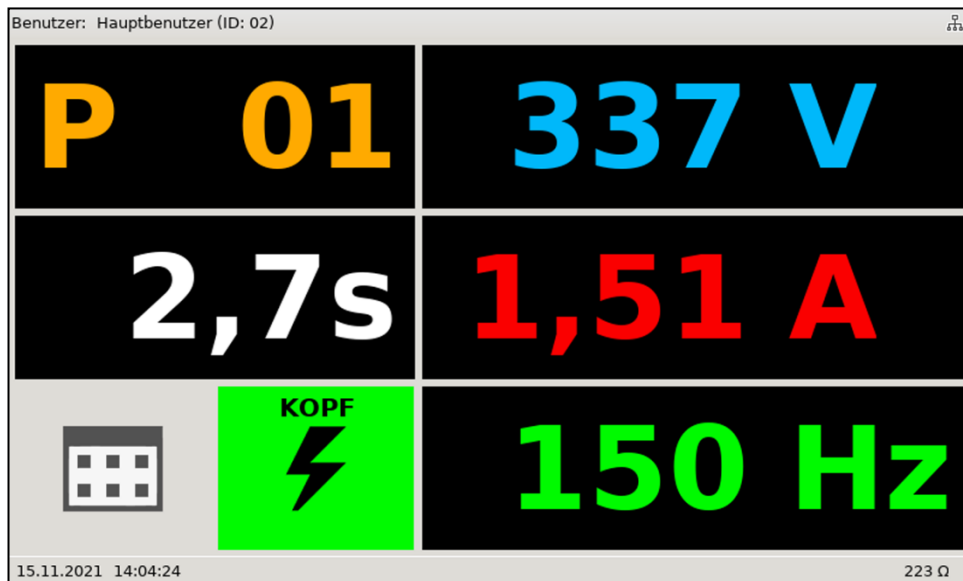


Fig. 3-10 Display Start of stunning and stunning sequence (example: head stunning)

Symbol	Description
	Displays the elapsed current flow time.
	Button is grayed-out: It is not possible to switch to the main menu during stunning.
	The button lights up green if stunning mode is active and during head/heart stunning. The word "Head [Kopf]" is displayed above the symbol during head stunning. The word "Heart [Herz]" is displayed above the symbol during heart stunning.
  	Displays the current electrical values (voltage, current, frequency) during head stunning and/or heart stunning.

After activating the stunning mode, the device is put into the stunning-ready standby state. A measuring voltage is applied to the stun tongs. This performs a continuous resistance measurement.

Head stunning As soon as the stun tongs make contact with the animal and the value drops below the parametrised limiting resistance, the stunner immediately starts the head stunning.

Heart stunning Heart stunning starts after repositioning the stun tongs and after falling below the parametrised limiting resistance.

Stunning mode/end of stunning

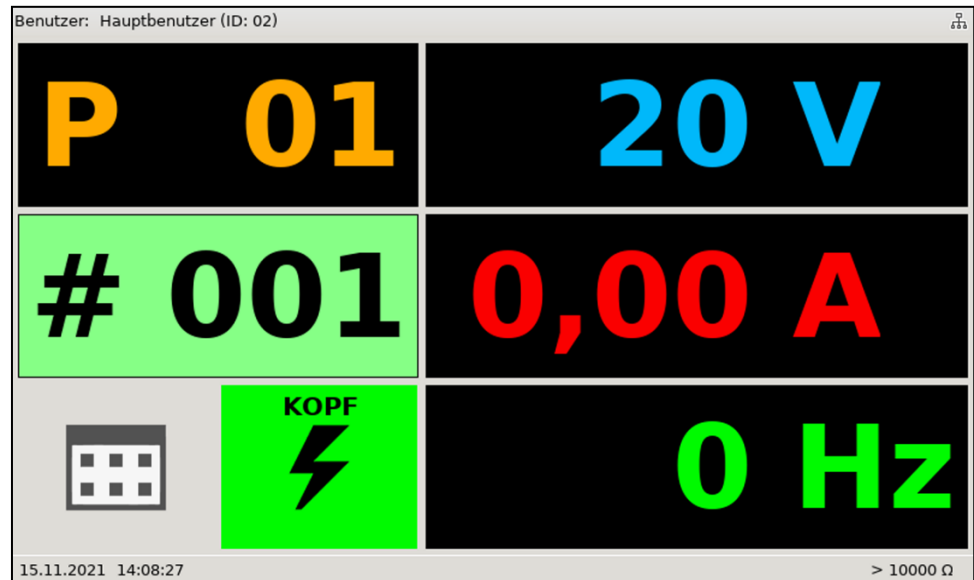


Fig. 3-11 Display End of stunning (example: head stunning)

Symbol	Description
# 001	After every stunning procedure (head stunning or head and heart stunning), the day counter displays the current counter reading.
# 001	If no errors occur during stunning, the display will have a green background. If an error occurs during the stunning procedure, the display will have a red background.

Head stunning If the programmed head stunning workflow is completed successfully or if errors occur in the workflow (e.g. loss of contact between the stun tongs and the animal), this is signalled acoustically and optically.

Heart stunning If the programmed heart stunning workflow is completed successfully or if errors occur in the workflow (e.g. loss of contact between the stun tongs and the animal), this is signalled acoustically and optically.

Measuring mode

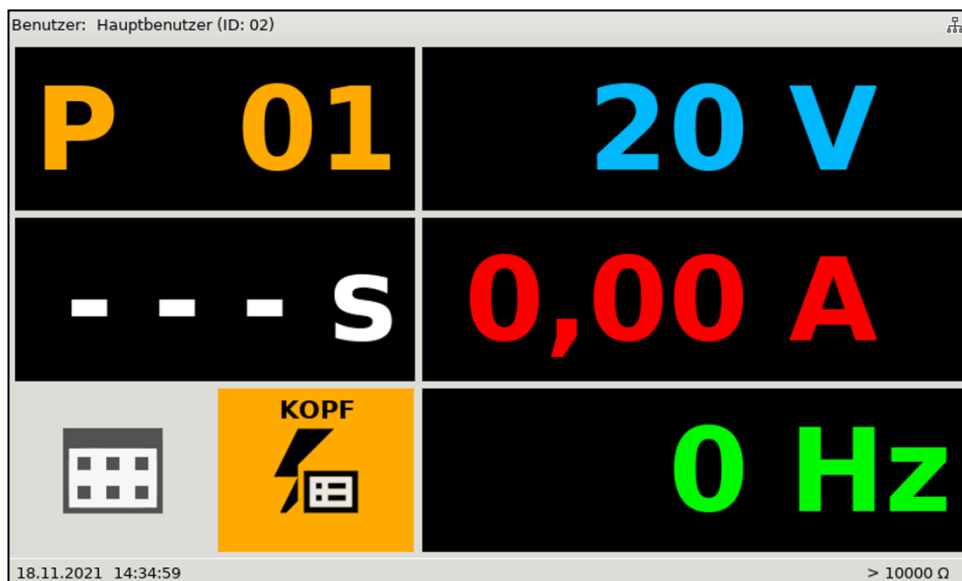


Fig. 3-12 Display Measuring mode

Symbol	Description
	Indicates the active measuring mode.

The measuring mode can be activated and deactivated via the main menu. To enable checking of the stunner's technical specifications, the stunning current is fed via the external measuring connections. To perform a measurement, it is necessary to perform a stunning procedure.

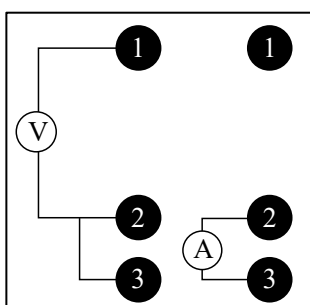


Fig. 3-13 Current and voltage measurement at measuring connections

Voltage measurement The voltage is measured between the green measuring connection (measuring socket 1) and the red measuring connections (measuring sockets 2 and 3).

Current measurement The current is measured between the two red measuring connections (measuring socket 2 and 3) using an ammeter or a cable bridge, to which a clip-on ammeter can be connected.

Stunning
procedures in
measuring mode

To enable performance of stunning procedures in measuring mode, it is imperative to establish a connection between the two red measuring connections (measuring socket 2 and 3). Otherwise it is not possible to start stunning when contact is made with the stun tongs.

EN

3.7.5 Stun program

Head and heart progression

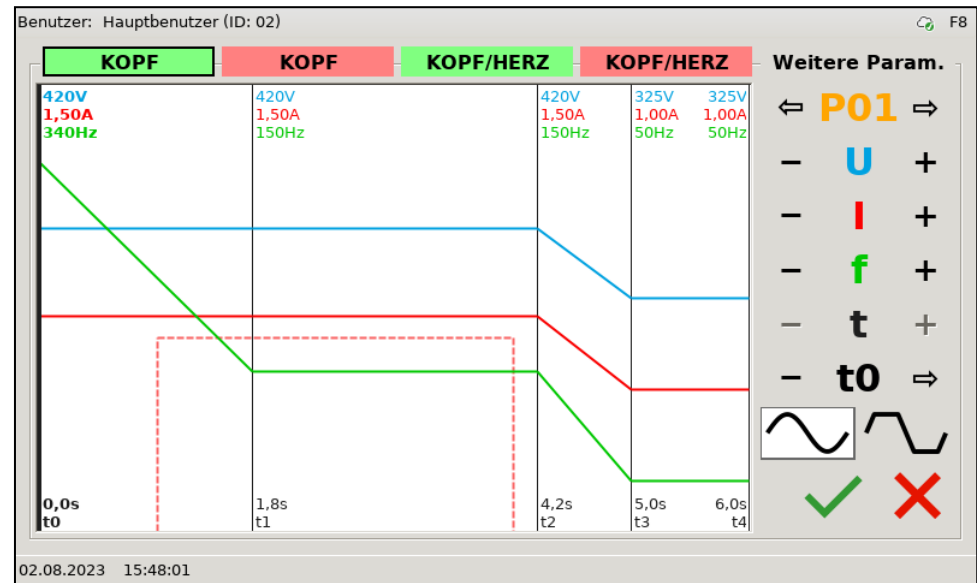
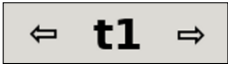


Fig. 3-14 Settings for head and heart progression (example: HEAD Progression)

Symbol	Description
	Selects the stun program to be configured.
	Voltage: setting for the setpoint (maximum value) for the selected interpolation node
	Current: setting for the setpoint (maximum value) for the selected interpolation node
	Frequency: setting for the setpoint for the selected interpolation node
	Adds an interpolation node. t1 – t9: It is possible to add up to 9 interpolation nodes and illustrate them in a diagram. Add interpolation node If the last interpolation node with the highest number is active, “+” can be used to add a further interpolation node. Remove interpolation node If the interpolation node t0 is active, “-” can be used to delete the interpolation node with the highest number.

Symbol	Description
	Selects the interpolation node for which the setpoints for voltage, current, and frequency are to be set.
	Sets the type of voltage output (sinusoidal or trapezoidal).
	Accepts the changes made for the programs in the internal memory.
	Discards the changes made for the programs.

The setpoints for voltage, current, and frequency are specified for each interpolation node. The setpoints are automatically interpolated linearly between the interpolation nodes. Here, voltage and current are both considered as the setpoint and maximum value - depending on which value is reached first during stuning. The time from the start of stuning is defined for each interpolation node from t1 onwards; the interpolation node t0 is always exactly at the start of the stuning process. The interpolation node that is currently active is shown in bold in the diagram. The values can be adapted for this node.

Head and heart error

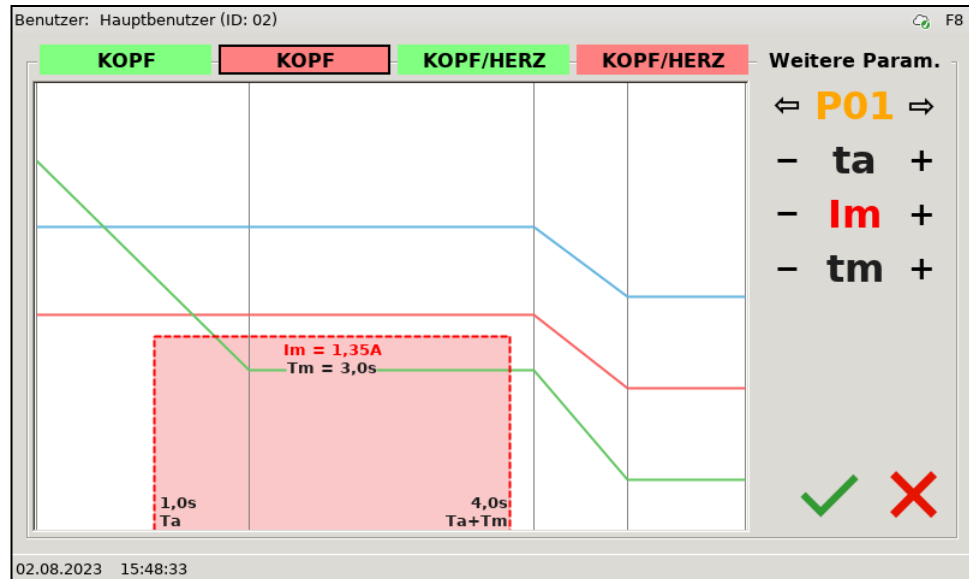


Fig. 3-15 Head and heart error settings (example: HEAD Error)

Symbol	Description
	Rise time: The minimum stuning current must be reached within the rise time. If it is not reached, a "rise error" is reported.

Symbol	Description
	Minimum current: The minimum stunning current must not fall below the setpoint during the stunning time. If the current falls below the setpoint, a "current error" is reported.
	Minimum stunning time: The minimum stunning time must be reached. If it is not reached, a "time error" is reported.

A rectangle is formed in the diagram on the basis of the three parameters "ta", "Im" and "tm". This rectangle is delimited by the rise time on the left, the minimum current at the top, and the minimum stunning time on the right. Stunning is successful if the actual current flow does not breach these limits. Error-free stunning will not be possible if the target current flow already passes through this rectangle.

Other parameters

Parameter	Description
Program can be selected	If activated, the program can be selected for stunning on the user interface.
Reposition time [minimum]	Minimum pause between end of head stunning and start of the next stunning procedure or heart stunning.
Carry out heart stunning	If activated, heart stunning is performed after head stunning.
Reposition time [HEAD → HEART]	Maximum pause between end of head stunning and start of the associated heart stunning
Heart stunning start time	Defines the automatic start of heart stunning after the start of head stunning, if the "heart stunning without limiting resistor" device parameter is active (only with activation for automatic electrodes and separate heart electrode outlet; hidden otherwise).
Program name	If a keyboard is connected, you can assign a name for the selected program here.
Set stunning progression separately	If activated, the view for the heart stunning is separated from the head stunning when creating the program.
	Copies the current program to a selectable program number.

3.7.6 Connection settings

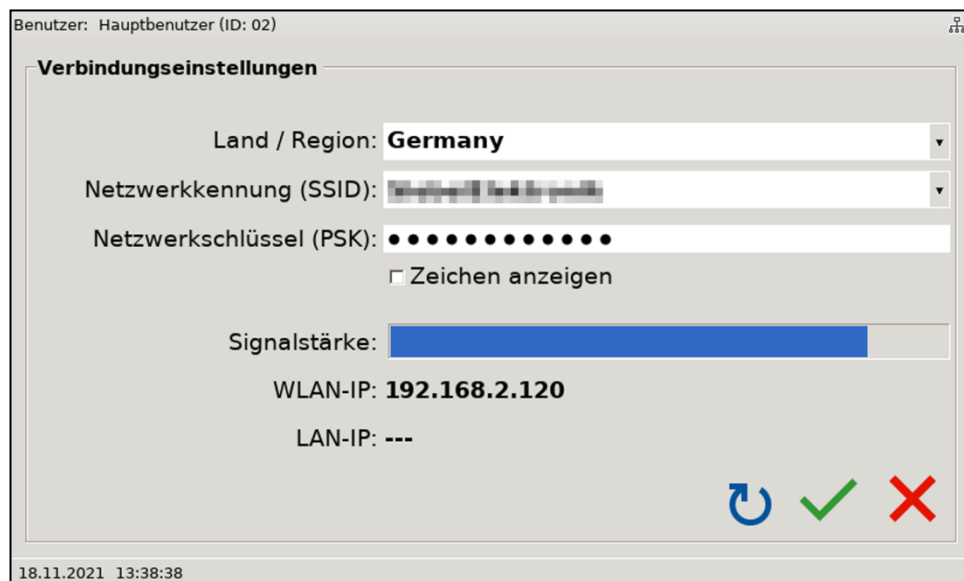


Fig. 3-16 Connection settings (WLAN, LAN)

Symbol	Description
	Performs the search for a WLAN network.
	Accepts the settings that were made and establishes the connection.
	Discards the settings that were made and closes the window.

After entering and confirming the data, the data is accepted and the connection is established. This can take a few seconds.



To enable assignment of an IP address, there must be a DHCP server present in the local network.

- WLAN-IP The current signal strength and the assigned IP address are displayed if a connection is established.
- LAN-IP The assigned IP address is displayed here if there is a connection to a network via the LAN port of the electric stunner.

3.7.7 Data recording

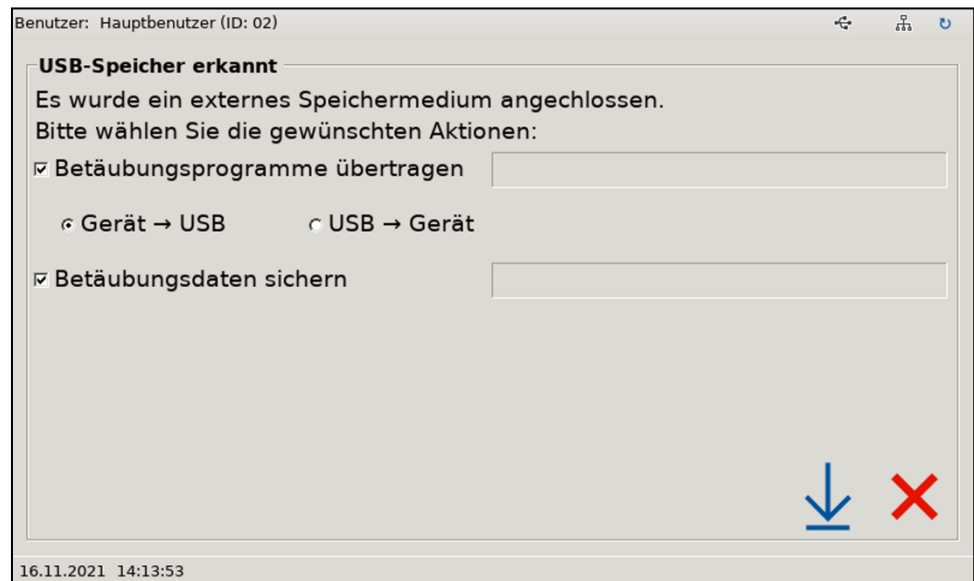


Fig. 3-17 Backup (Export/Import)

Symbol	Description
	Performs the backup of the data sets of the stunning procedures or performs the export/import of stun programs.
	Does not perform the backup or the export/import.
	Transfer stun programs Device → USB: Transfers the stun programs from the electric stunner to the USB flash drive. USB → Device: Transfers the stun programs from the USB flash drive to the electric stunner.
	Back up stunning data Backs up the data from the stunning procedures on the USB flash drive.



The “USB flash drive detected” menu is shown if a USB flash drive is connected to the electric stunner.

The electrical values are recorded every 100 ms for each stunning procedure. If the electric stunner is in standby mode, the data sets of the stunning procedures can be transferred to an external USB flash drive. The stun programs can be exported to a USB flash drive and be imported from a USB flash drive.

3.8 Rating plate

The rating plate is attached to the side wall of the housing on the exterior. The illustration below is an example of the rating plate:

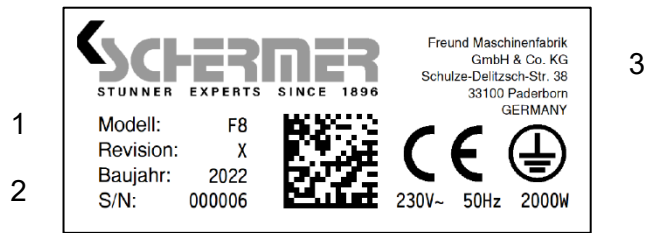


Fig. 3-18 Rating plate example

Element	Explanation
1	Machine type and designation
2	Year of construction and serial number
3	Company address

3.9 Stun tongs

- Features
- Combined spike plus middle-thorn electrodes
 - Electrode quick-change system

The table below provides an overview of the various uses of the stun tongs according to animal species and stunning method.

Stun tongs	Animal species			Stunning method	
STUN-TONG					
					
EPP3 (pneumatic)	•	•	-	•	-
ES-Steel	•	•	-	•	•

3.9.1 STUN-TONG-ES Steel: function elements

Function elements

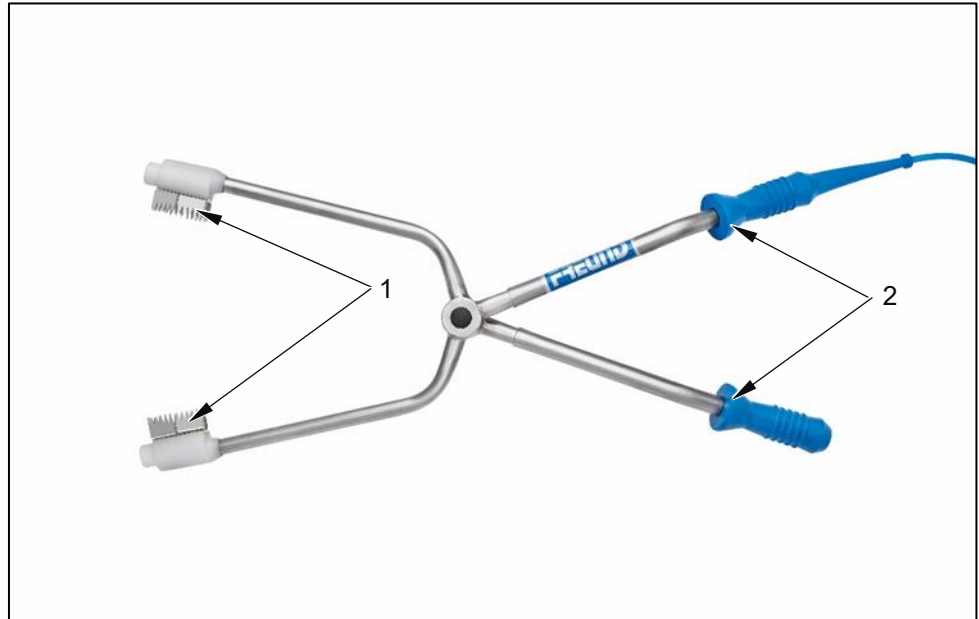


Fig. 3-19 STUN-TONG-ES Steel

Item	Description
1	Hexagonal electrodes for pigs
2	Ergonomically angled handle

3.9.2 Functional elements STUN-TONG-EPP3

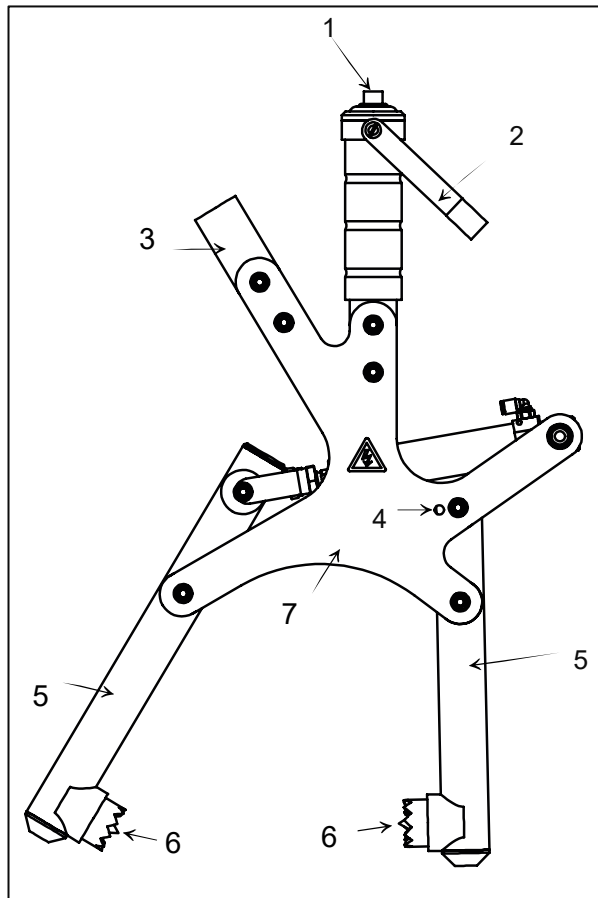


Fig. 3-20 STUN-TONG-EPP3

Pos.	Description
1	Pushbutton (triggers the stunning process)
2	Clip (for mounting the stun tongs in a balancer)
3	Connecting line (pneumatics, electrics)
4	Hole (used to adjust the side piece position)
5	Plastic side piece
6	Electrodes
7	Position of the serial number

The STUN-TONG-EPP3 can be set to two electrode distances. A conversion manual can be found in the appendix under the heading **TIN-014058**.

3.10 STUN-HE-PP

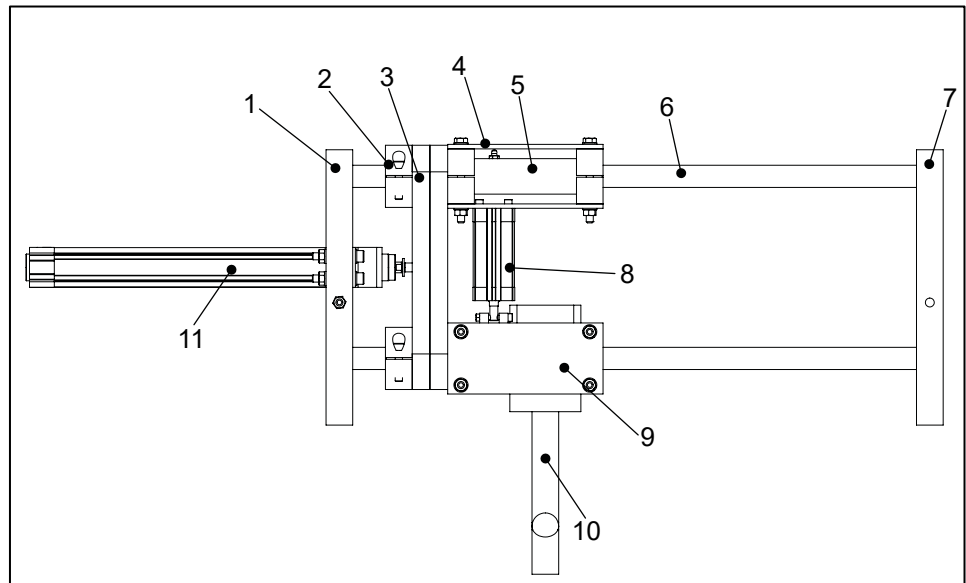


Fig. 3-21 Front view

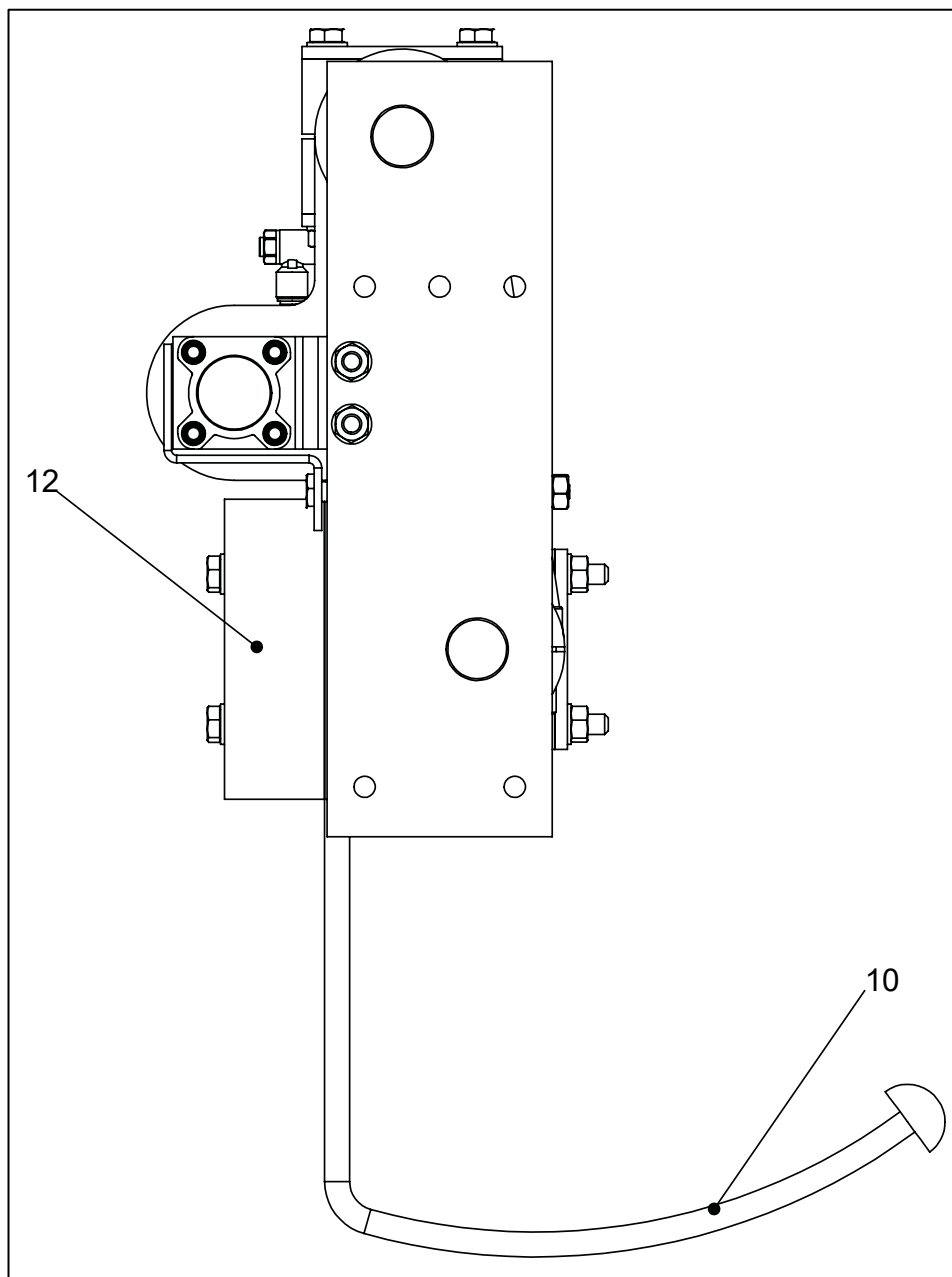


Fig. 3-22 Side view

Pos.	Designation
1	Holder for guide axle on left
2	Adjusting ring
3	Coupling element
4	Cover plate
5	Guide tube
6	Guide axle
7	Holder for guide axle on right

8	Swivel cylinder
9	Cover plate
10	Heart electrode
11	Linear cylinder
12	Mounting block for heart electrode

3.11 Interface control box

The interface control box is an extension to the STUN-F8 to control pneumatic components. It is available in two variants.

- All variants
 - The cylinder movement speeds can be adjusted.
 - There is the option of connecting stun tongs with an electric or pneumatic button.
- STUN-IF1-F8
 - This variant gives you the option of controlling pneumatic stun tongs.
- STUN-IF2-F8
 - This variant gives you the option of controlling pneumatic stun tongs, as well as up to 2 pneumatic cylinders on a heart electrode.



Unused connections on the interface are to be sealed with the caps/dummy plugs included in the delivery.

Connections
STUN-IF1-F8

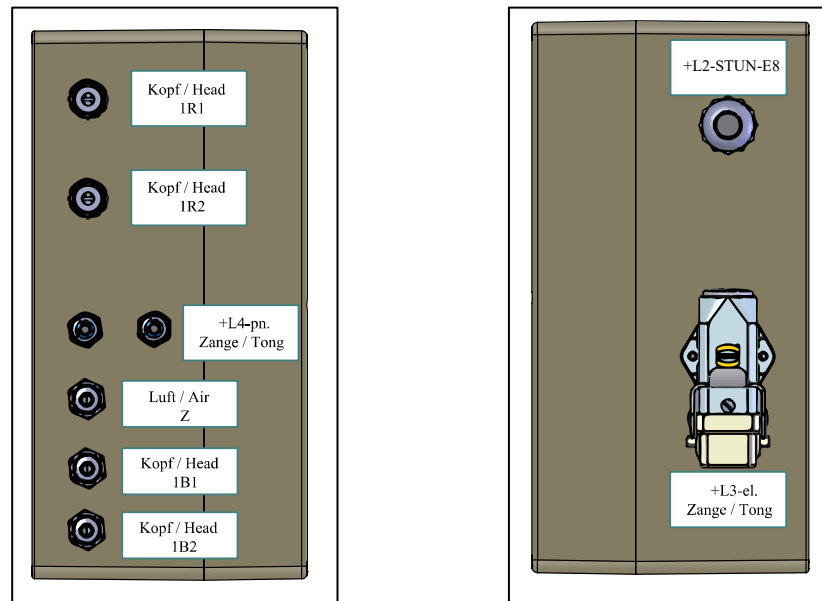


Fig. 3-23 Connections STUN-IF1-F8

Pos.	Description
1R1	Throttle for adjusting the movement speed of the stun tongs when closing
1R2	Throttle for adjusting the movement speed of the stun tongs when opening

Pos.	Description
Z	Central compressed air connection for the interface's compressed air supply. Compressed air hose Ø6 mm; operating pressure 6-8 bar
1B1	Compressed air connection: Opening the stun tongs Compressed air hose Ø6 mm
1B2	Compressed air connection: Closing the stun tongs Compressed air hose Ø6 mm
L2	Connection of the interface to STUN-F8
L3	Electric button connection option
L4	Pneumatic button connection option Compressed air hose Ø4 mm

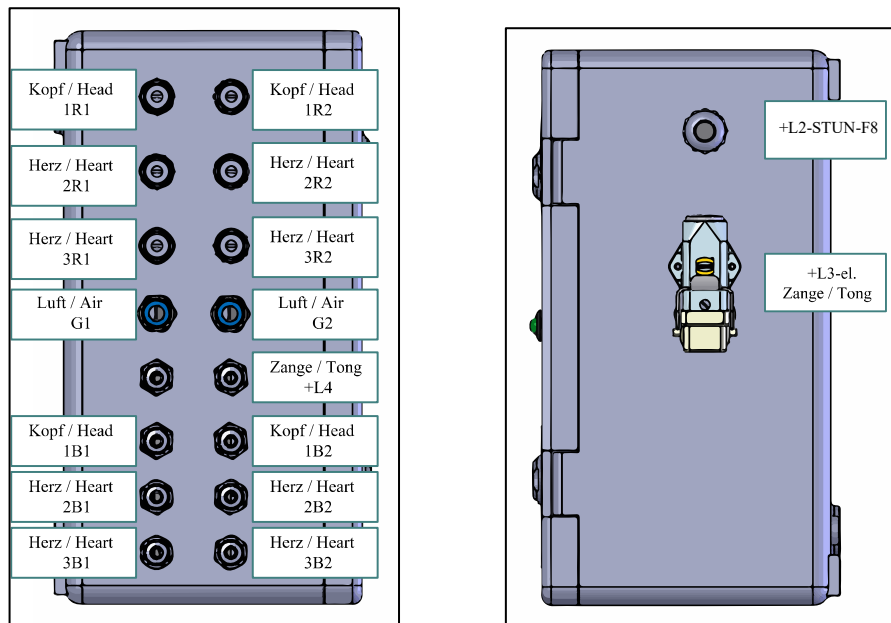
Connections
STUN-IF2-F8


Fig. 3-24 Connections STUN-IF2-F8

Pos.	Description
1R1	Throttle for adjusting the movement speed of the stun tongs when closing
1R2	Throttle for adjusting the movement speed of the stun tongs when opening
2R1	Throttle for adjusting the movement speed of the heart electrode when moving to stunning position
2R2	Throttle for adjusting the movement speed of the heart electrode when moving to starting position
3R1	Throttle for adjusting the movement speed of the heart electrode when moving to stunning position

Pos.	Description
3R2	Throttle for adjusting the movement speed of the heart electrode when moving to starting position
G1	Compressed air connection for pneumatic heart electrode (e.g. STUN-HE-PP) Compressed air hose Ø6 mm; operating pressure 4 bar
G2	Compressed air connection for pneumatic stun tongs (e.g. STUN-TONG-EPP3, F series) Compressed air hose Ø6 mm; operating pressure 8 bar
1B1	Compressed air connection: Opening the stun tongs Compressed air hose Ø6 mm
1B2	Compressed air connection: Closing the stun tongs Compressed air hose Ø6 mm
2B1	Compressed air connection: Moving the heart electrode to starting position Compressed air hose Ø6 mm
2B2	Compressed air connection: Moving the heart electrode to stunning position Compressed air hose Ø6 mm
3B1	Compressed air connection: Moving the heart electrode to starting position Compressed air hose Ø6 mm
3B2	Compressed air connection: Moving the heart electrode to stunning position Compressed air hose Ø6 mm
L2	Connection of the interface to STUN-F8
L3	Electric button connection option
L4	Pneumatic button connection option Compressed air hose Ø4 mm

4 Transport and storage

FREUND machines are designed for shipment by truck, rail, air or ship. Secure shipment is carried out in individual packaging or multi-packs.

Test run ex works The machine was tested prior to shipment. Such testing ensures that the machine corresponds to the specified data and is working properly. Despite all due care, it is possible that the machine could be damaged during transport. When unpacking the machine, please therefore check it for possible transport damage and document any such damage. Inform the transport company and Freund customer service immediately.

5 Installation and Commissioning

The electric stunning device, stun tong and accessory devices are installed and connected by the operator.

FREUND Maschinenfabrik accepts no liability for damage resulting from incorrect connection or improper handling.

5.1 Safety information



DANGER!

Live machine parts.

Danger to life.

- Before beginning any installation, maintenance or repair work, place the stun tongs on a non-conductive surface.
- Before beginning any installation, maintenance or repair work, disconnect the electric stunner from the mains.
- Secure the electric stunner to prevent it being switched on accidentally.
- Before beginning any installation, maintenance or repair work, disconnect the stun tongs from the electric stunner.
- Never connect more than one electrode combination to a stunner.



WARNING!

Risk of accident caused by insufficiently qualified personnel

Danger to Life and most severe injuries are possible.

- The machine may only be commissioned by instructed and authorized personnel.
- All works to live components may only be performed by approved electricians.



WARNING!

Sharp-edged electrodes.

Risk of cutting on sharp-edged electrodes.

- Wear protective gloves when performing any installation, maintenance or repair work.

5.2 Personal protective equipment



5.3 Installing and connecting the electric stunner

The signal and display elements of the electric stunner must be clearly visible to the operator and faults displayed must be identifiable immediately.



An installation manual can be found in the appendix under the heading **TIN-015102**.



Do **not** extend the original power cable attached to the electrodes. Longer power cables can lead to considerable deviations in the stunning currents, a poor stunning effect, and malfunctioning of the electric stunner.

- Mount the electric stunner at a height of at least 1.6 m.
To hang up the electric stunner, use the 4 mounting brackets located on the back of the electric stunner.
- When not in use, store the stun tongs in a suitable holding device at the same height.
- Connect the electric stunner to an effective equipotential bonding system (earthing).
- Route electric cables so that the slaughter animals cannot interfere with them.

5.4 Connecting the network cable to the electric stunner



To connect a network cable to the electric stunner, first fit the power plug with the plug connector protection supplied. The relevant manual can be found in the appendix under the heading **TIN-014845**.

5.5 Connecting the stun tongs

The connecting lines of the stun tongs are 5 m long, so that the electric stunner can be mounted out of reach of the slaughter animal.



Do **not** extend the power cable included in the delivery. Longer power cables can lead to considerable inaccuracies in the stunning currents, a poor stunning effect, and malfunctioning of the electric stunner.



Each electric stunner may only supply one electrode combination (DIN EN IEC 60335-2-87).

5.5.1 Installing the balancer (optional)

The balancer is used for balancing and counterbalancing the weight of the stun tongs attached to it.

1. Secure the balancer in accordance with the manufacturer's operating manual.
2. Attach the balancer to a higher rail above the workstation or to the ceiling with a rail system.



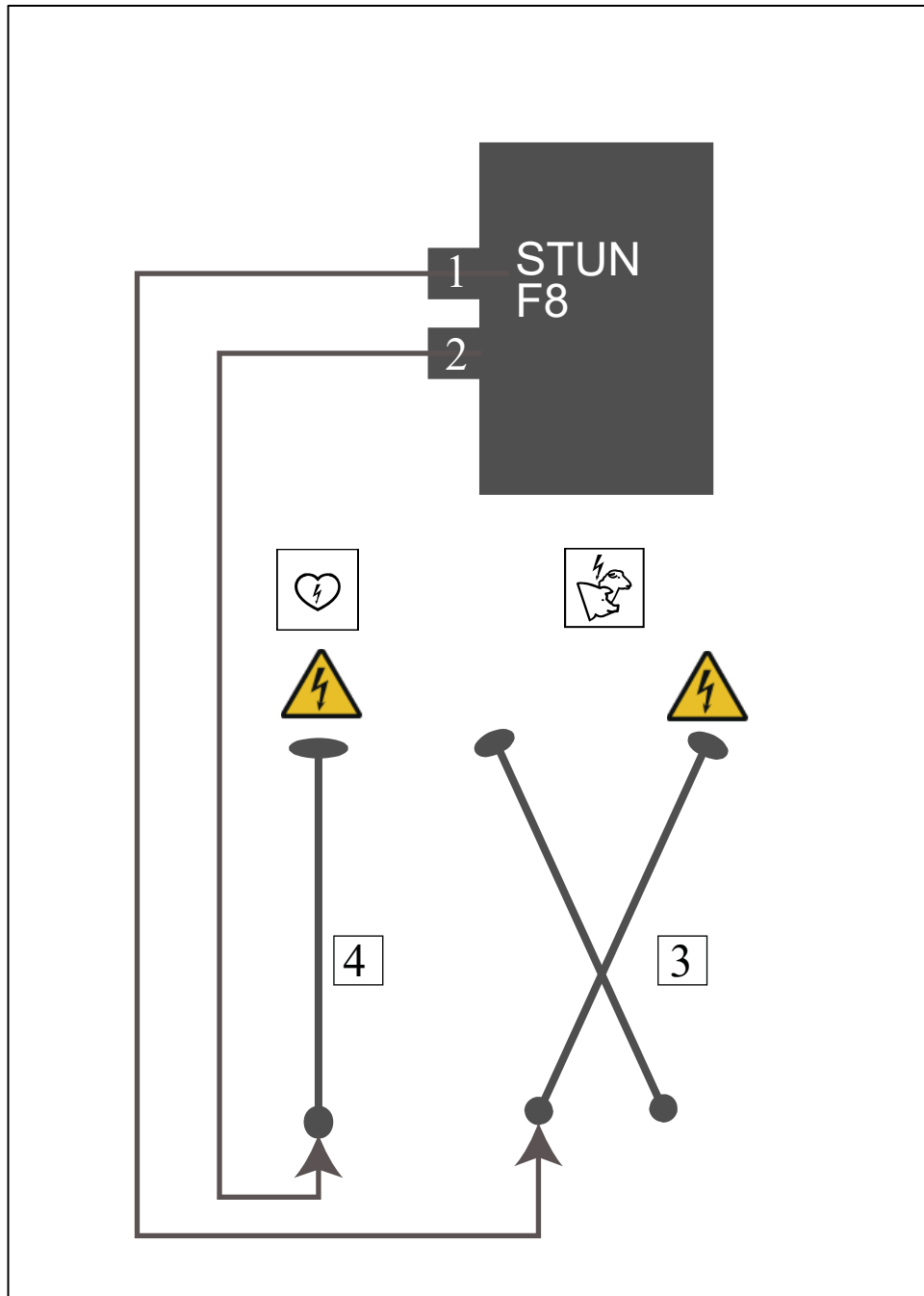
When an overhead track is used, the distance between the centre of the overhead track or the point where the carcass is suspended and the balancer suspension must be between 350 and 400 mm.

3. Attach the machine to the balancer. Clamp the spiral cable of the machine into the balancer holder.
4. Readjust the balancer if necessary. Observe the operating manual for the balancer when doing so.

5.5.2 Connecting the stun tongs

Connection
diagram
Stunning

The following illustration is a schematic representation of the connection for stun tongs **without** a pneumatic drive.



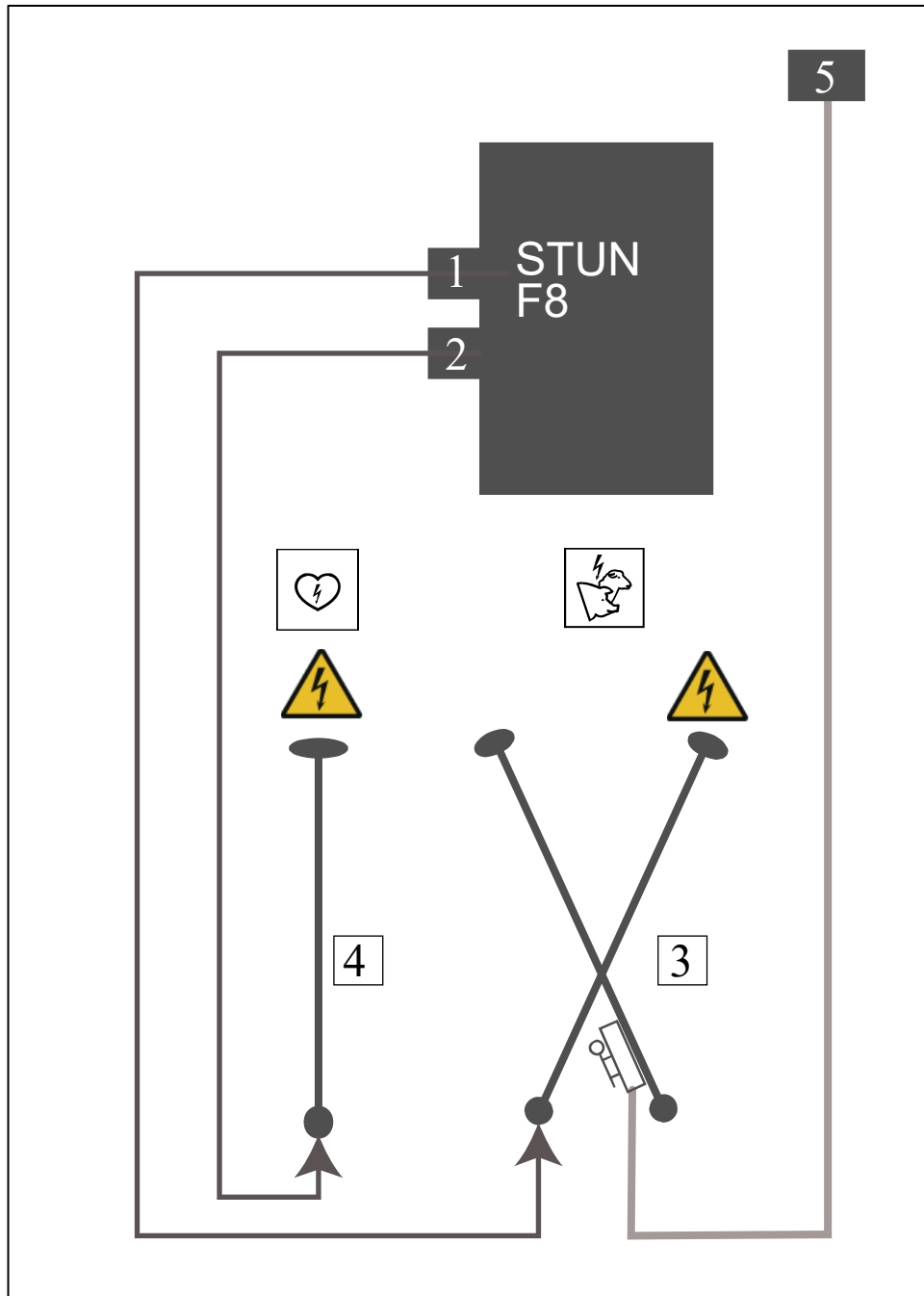
Pos.	Description
1	Connection, stun tongs
2	Connection, heart electrode
3	Stun tongs
4	Heart electrode (provided by the customer)

- Plug the stun tongs' connector into the connection socket on the electric stunner.
- For heart stunning with a heart electrode:
Plug the heart electrode's connector into the connection socket on the electric stunner.

5.5.3 Connecting the pneumatic stun tongs

Connection
diagram
Stunning

The following illustration is a schematic representation of the connection for the stun tongs **with** a pneumatic drive.



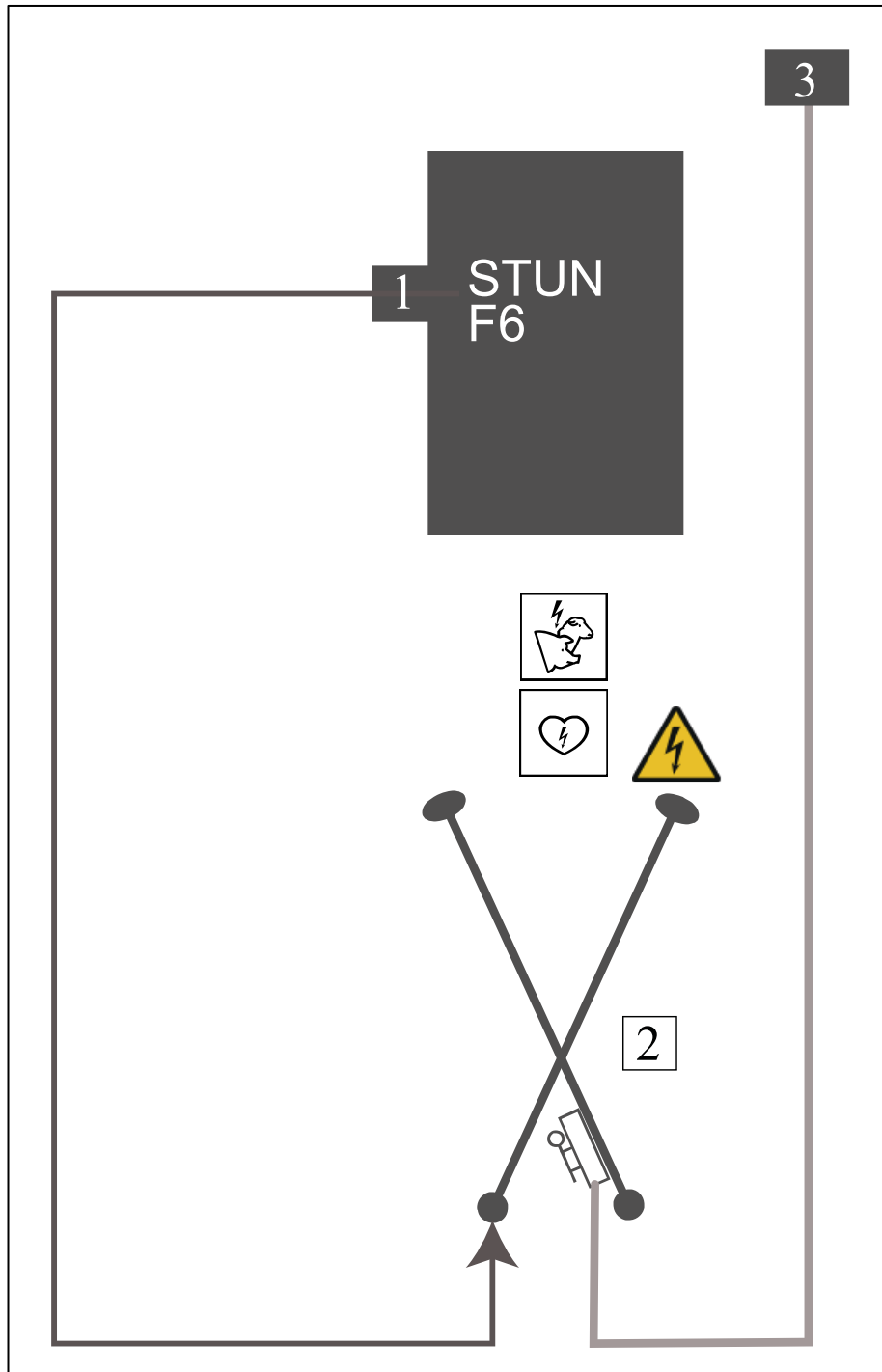
Pos.	Description
1	Connection, stun tongs
2	Connection, heart electrode
3	Pneumatic stun tongs
4	Heart electrode (provided by the customer)
5	Connection, compressed air supply at the installation site

1. Connect the pneumatic stun tongs to the compressed air supply or to a compressor with an output of 5 – 8 bar.
2. As necessary: Adjust the closing speed of the stun tongs.
3. Plug the stun tongs' connector into the connection socket on the electric stunner.
4. Attach the stun tongs to a balancer.
5. For heart stunning with a heart electrode:
Plug the heart electrode's connector into the connection socket on the electric stunner.

5.5.4 Connecting the pneumatic stun tongs to F6

Connection
diagram
Stunning

The following illustration is a schematic representation of the connection for the stun tongs **with** a pneumatic drive.



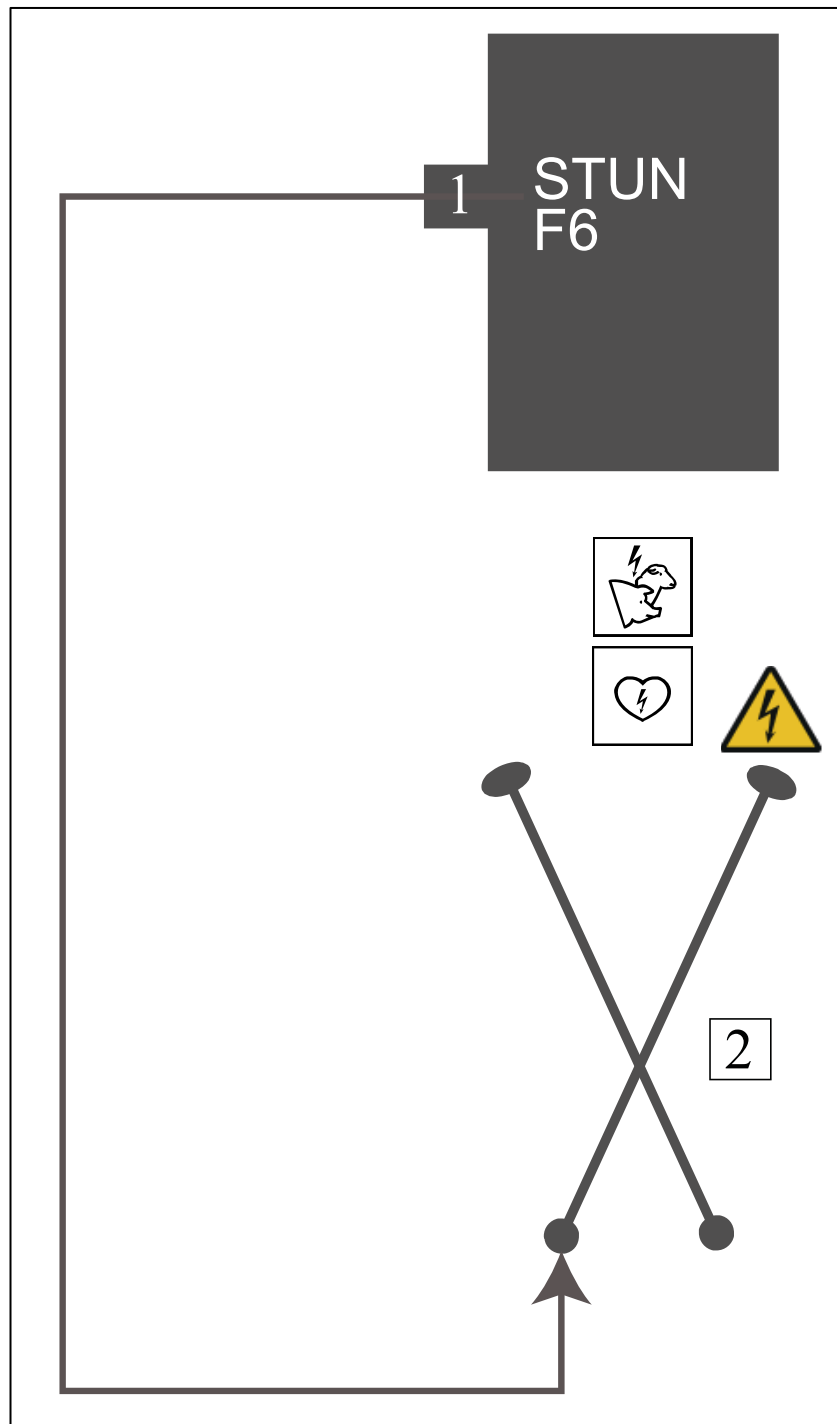
Pos.	Description
1	Connection, stun tongs
2	Pneumatic stun tongs
3	Connection, compressed air supply at the installation site

1. Connect the pneumatic stun tongs to the compressed air supply or to a compressor with an output of 5 – 8 bar.
2. As necessary: Adjust the closing speed of the stun tongs to the throttle check valves.
3. Plug the stun tongs' connector into the connection socket on the electric stunner.
4. Attach the stun tongs to a balancer.

5.5.5 Connecting the manual stun tongs to F6

Connection
 diagram
 Stunning

The following illustration is a schematic representation of the connection for the stun tongs **without** a pneumatic drive.



Pos.	Description
1	Connection, stun tongs
2	Stun tongs

5.6 STUN-TONG-EPP3

The STUN-TONG-EPP3 is operated on a balancer. The drive cable of the STUN-TONG-EPP3 must never be live while work is being carried out. To prevent damage to the drive cable due to tensile loads, strain relief must be implemented.



An example of a strain relief can be found in the appendix under the heading **TIN-015066**.

5.7 Connecting the STUN-HE-PP

The relevant manual can be found in the appendix under the heading **TIN-015849**.

5.8 Connecting the interface control box

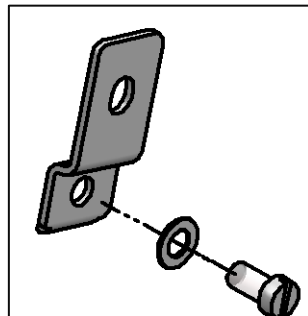


Fig. 5-1 Wall fastening set

The interface control box must be mounted next to the stunner. The stun tongs must be connected to the stunner and to the interface control box.



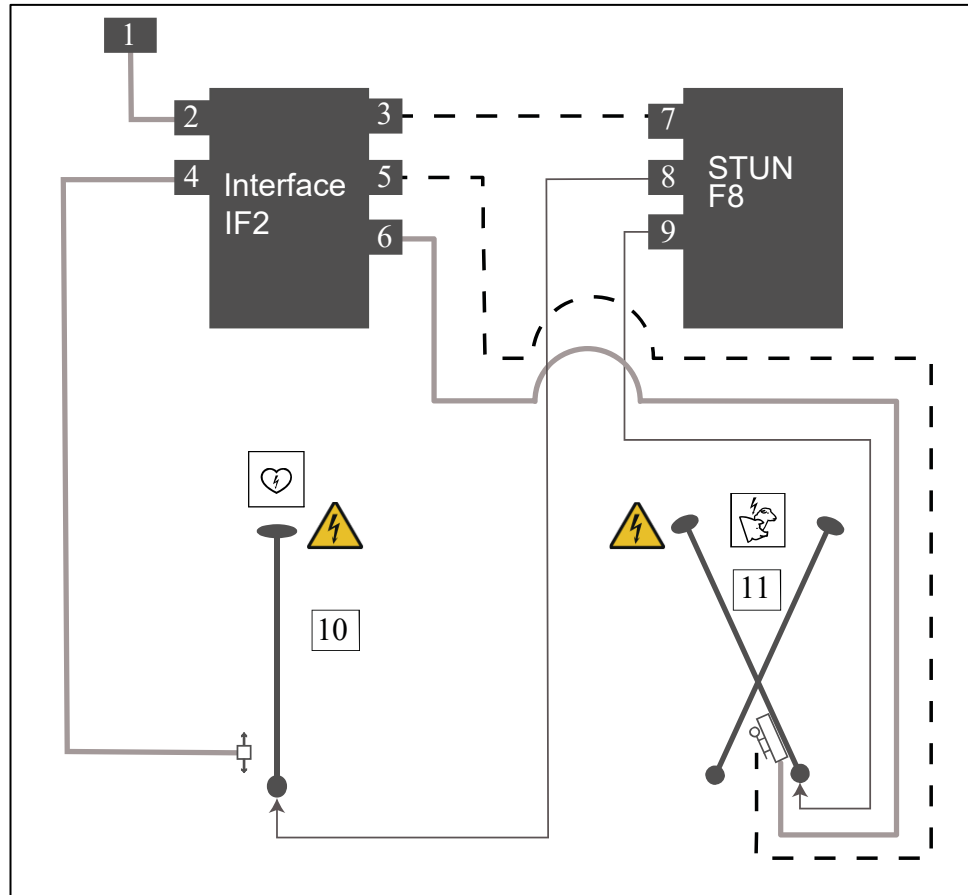
Mount the interface at a height of at least 1.6 m using our wall fastening set (Fig. 5-1). For mounting purposes, use the 4 mounting holes located on the back of the interface.



Route the control cables and compressed air hoses in such a way that they are out of reach of the slaughter animals.

Connection
diagram
1 cylinder design

Single moveable heart electrode: The following illustration is a schematic representation of the interface control box connection.

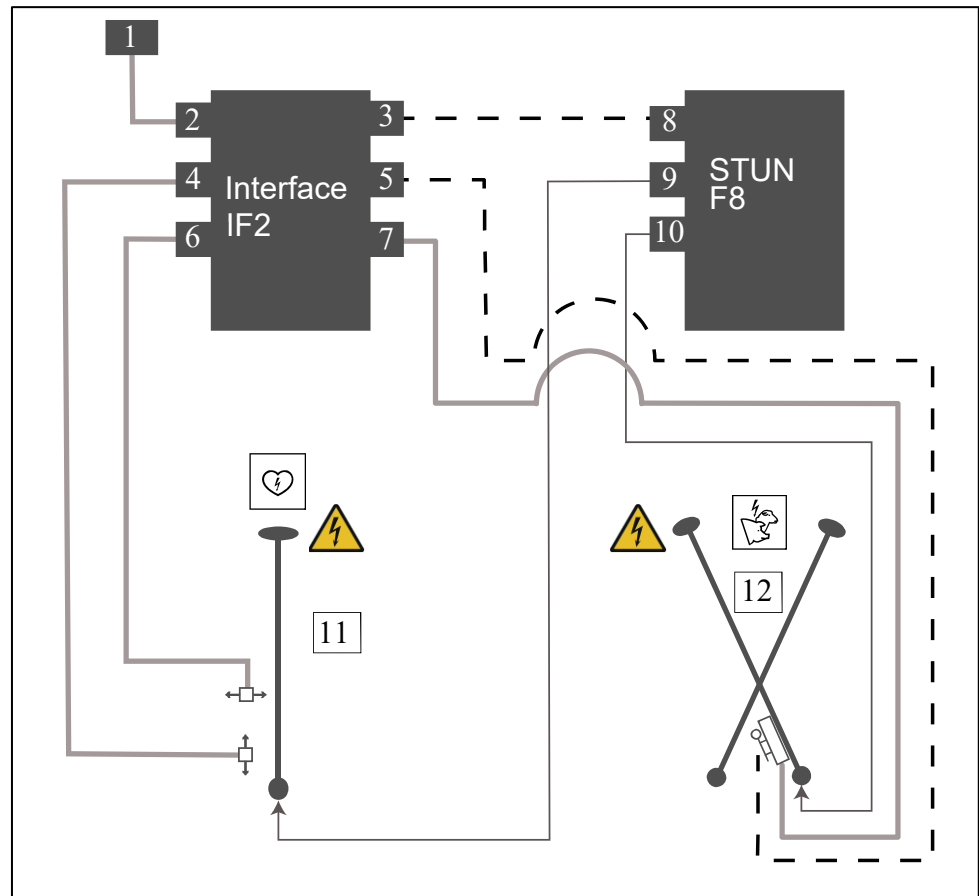


Pos.	Description
	Compressed air hose
	Power cable for stunning
	Control cable
1	Compressed air supply at the installation site
2	Compressed air supply: interface control box ► installation site
3	Control system: interface control box ► electric stunner STUN-F8
4	Compressed air connections (movement towards carcass): interface control box ► pneumatic cylinder (heart electrode)
5	Control system: interface control box ► pneumatic stun tongs
6	Compressed air supply: interface control box ► pneumatic stun tongs

Pos.	Description
7	Control system: STUN-F8 ► interface control box
8	Power cable: STUN-F8 ► heart electrode
9	Power cable: STUN-F8 ► pneumatic stun tongs
10	Moveable heart electrode (pneumatic cylinder)
11	Pneumatic stun tongs with controlled triggering

Connection
diagram
2 cylinder design

Dual moveable heart electrode: The following illustration is a schematic representation of the interface control box connection.



Pos.	Description
—	Compressed air hose
—	Power cable for stunning
---	Control cable
1	Compressed air supply at the installation site

Pos.	Description
2	Compressed air supply: interface control box ► installation site
3	Control system: interface control box ► electric stunner STUN-F8
4	Compressed air connections (movement towards carcass): interface control box ► pneumatic cylinder 1 (heart electrode)
5	Control system: interface control box ► pneumatic stun tongs
6	Compressed air connections (lateral movement): interface control box ► pneumatic cylinder 2 (heart electrode)
7	Compressed air supply: interface control box ► pneumatic stun tongs
8	Control system: STUN-F8 ► interface control box
9	Power cable: STUN-F8 ► heart electrode
10	Power cable: STUN-F8 ► pneumatic stun tongs
11	Moveable heart electrode
12	Pneumatic stun tongs with controlled triggering

6 Operation and Stunning

When operating stunning plants the relevant provisions of the trade association are to be observed. Moreover the provisions of the veterinary offices, the EU and the animal welfare apply.

The following stunning methods are available for selection:

- Head stunning
- Head and heart stunning
- Stunning in restrainers and in individual cages
- Killing

6.1 Safety information



WARNING!

Risk of accident caused by insufficiently qualified personnel.

Danger to Life and most severe injuries are possible.

- The machine may only be operated by instructed and authorized personnel.
- The machine may only be operated by personnel, who possessing the necessary knowledge and skills (expertise) to look after, restrain, stun, slaughter or kill animals.

6.2 Personal protective equipment



Use special electric rubber gloves according to EN 60903.

Only use foot protection with insulating soles, e.g. rubber boots.

6.3 Animal welfare

The harmonised laws of the EU and the German Animal Protection Slaughter Regulation (TierSchlV) require careful treatment that prevents pain, suffering or injury of the slaughter animals as the top priority.

- Avoid causing the slaughter animals any excitement, pain or suffering when driving, loading and stalling the animals.
Do not use electric stunners to herd animals.
- Avoid causing stress to the slaughter animals prior to stunning so that the level of excitement or injury is kept the absolute minimum.

- Only use electric animal drover with healthy and uninjured over one year old cattle and over four month old pigs.
- Moisten only the areas on the slaughter animals where the electrodes of the stun tongs are to be applied.
Use warm water (approx. 40 °C) if possible.
- Avoid pain and suffering by attempting to apply contact pressure in a manner conducive to the well-being of the animal.
- Stun the animals so that they are quickly and painlessly rendered unconscious and insensitive right up to the point of death.

6.4 Daily safety check

Before starting operation, check the E-stunning device and the stunning system diligently for flawless and intended functioning.

Only use faultless and fully functional machines.

Check the

- machine and all electrical connections and access lines for surface damages.
- functionality of the entire stunning system.
- function of the safety devices.
- electrodes to be properly fixed and rounded and burned tips.
- balancer and the balancer settings.

6.5 Carrying out stunning

Default stunning time The pre-set stunning time is a specification based on the current German Animal Protection Slaughter Regulation of 1 January 2013 (BGBl I S. 2982) and Regulation (EC) No. 1099/2009.

In other countries, the respective national regulations on the protection of animals apply at the time of slaughter or killing. Adapt the stunning time to the regulations in your country.

1. Connect the electric stunner to the power supply.
2. To transfer the stunning data to the FREUND web server: Establish the data connection between the electric stunner and your network.
The internal memory of the electric stunner has capacity for stunning data sets comprising approx. 1 million stunning procedures. If the memory is full, it is not possible to perform any further stunning procedures.
3. Connect the stun tongs to the electric stunner.
4. Switch on the device (standby mode, stunning mode: → chapter *User interfaces - Stunning*).

6.5.1 Carrying out head stunning (restrainer and individual stun trap)

Stunning on the head of the animal is carried out in a single step. The stunning effect lasts approximately 40 – 60 seconds.

When the electrodes are in contact with the skin of the animal, the stunning voltage is automatically triggered, as indicated by a signal lamp. The electric stunner's touchscreen shows the flowing current in amperes, voltage in volts, and frequency in hertz.

Contact positions
for pigs

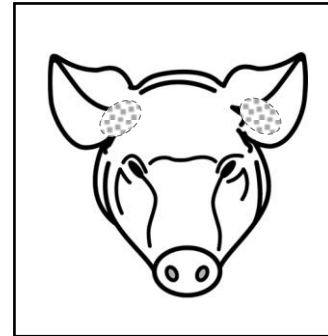


Fig. 6-1 Ideal electrode contact position (side and frontal view)

Contact positions
for sheep

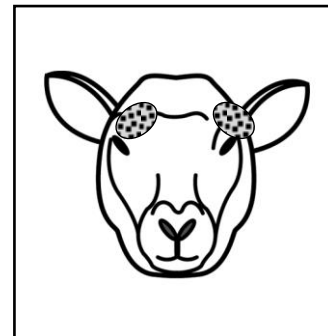


Fig. 6-2 Ideal electrode contact position (side and frontal view)

1. Apply the electrodes of the stun tongs on both sides of the animal's head.

Pig: preferably at the base of the ear or between eye and base of ear

Sheep: between eye and ear

This causes the current to flow through the brain along the shortest possible path.



Ensure you have a secure grip of the stun tongs. Changing your grip during stunning can cause bone fractures.

An optical and acoustic signal is emitted when the preset stunning time has elapsed.

The stunning procedure is now finished and the stunning current is switched off.

2. Open the stun tongs.

The electric stunner switches back to the start of the program.

3. Ensure quick draining of the blood after completion of stunning to ensure that the animal bleeds out immediately in a controlled manner.

Sheep:

- No later than 5 seconds.

Pigs:

- No later than 10 seconds* (ideally 5 seconds) if blood is drained in lying position.
- No later than 20 seconds* (ideally 10 to 15 seconds) if blood is drained in hanging position.

* Specifications as per TierSchlV (German Animal Protection Slaughter Regulation) of 01/01/2013

6.5.2 Carrying out head and heart stunning

Head and heart stunning is carried out in two steps.

Generally, this stunning method results in an optimum stunning effect and a better meat quality.

Head stunning
phase

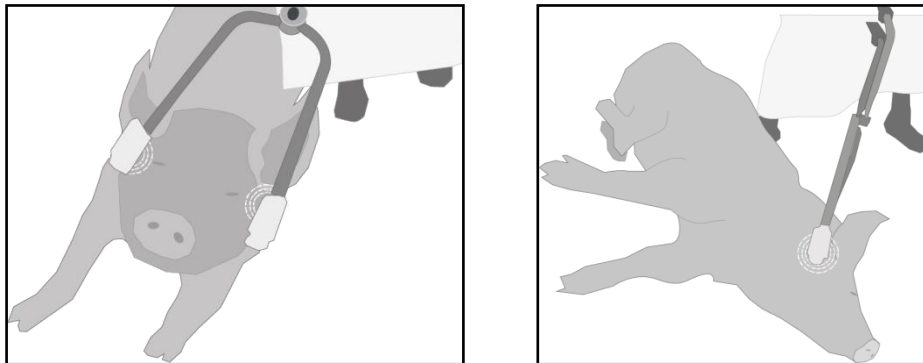


Fig. 6-3 Ideal electrode contact positions

1. Apply the electrodes of the stun tongs on both sides of the animal's head.

Pigs: preferably at the base of the ear or between eye and base of ear

This causes the current to flow through the brain along the shortest possible path.

Repositioning
phase

An optical and acoustic signal sounds if the preset head stunning time has elapsed. The machine automatically switches to the next program step.

The stun tongs must be repositioned within the set repositioning time as otherwise the stunning process is aborted and the stunning procedure will need to be repeated, starting once more with head stunning.

Heart stunning
phase

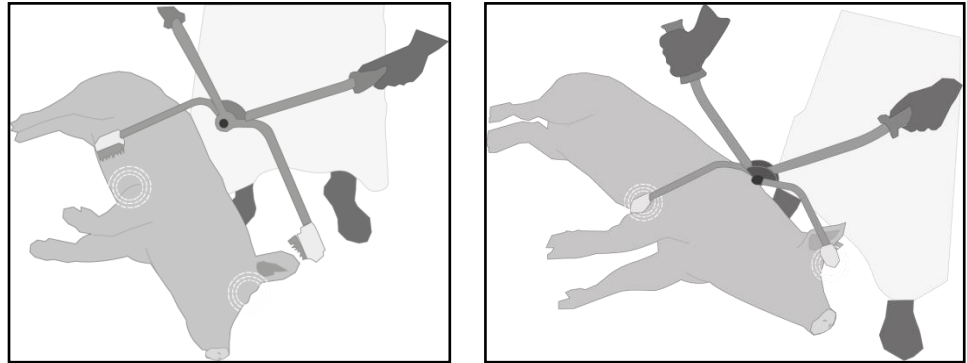


Fig. 6-4 Ideal electrode contact positions

2. Immediately apply the electrodes of the stun tongs to the heart and the base of the ear on the head of the animal lying on the ground:
 - 1 electrode on the heart,
 - 1 electrode on the head.

An optical and acoustic signal sounds when the preset stunning time has elapsed.

The stunning procedure is now finished and the stunning current is switched off.

3. Open the stun tongs.

The machine switches back to the start of the program.
4. Ensure quick draining of the blood after completion of the stunning to ensure proper slaughter.
 - No later than 10 seconds* (ideally 5 seconds) if blood is drained in lying position.
 - No later than 20 seconds* (ideally 10 to 15 seconds) if blood is drained in hanging position.

* Specifications as per TierSchlV (German Animal Protection Slaughter Regulation) of 01/01/2013

6.5.3 End of stunning

1. Press the 0/I switch.
2. Disconnect the machine from the power supply.
3. Clean the machine (→ chapter *Daily cleaning* on page 72).

6.6 Stunning error/signalling

001

A stunning error is indicated acoustically by an intermittent signal tone and optically by a stunning counter with a red background on the touchscreen.

6.6.1 Head stunning

Nature of the stunning error	Possible cause
Rise error	The device reports a rise error acoustically and optically if the set minimum current is not reached within the first few seconds. • The stunning procedure continues.
Current error	The device reports a current error acoustically and optically if the set minimum current falls below the set value during the minimum stunning time. • The stunning procedure continues.
Time error	The device reports a time error acoustically and optically if the stunning procedure is shorter than the parameter specification "head minimum time". The error occurs if contact is lost between the stun tongs and the animal. • The stun program is aborted and the device is ready for a new stunning procedure.

6.6.2 Heart stunning

Nature of the stunning error	Possible cause
Current error	The device reports a current error acoustically and optically if the set minimum current falls below the set value within the set target time. • The stunning procedure continues.
Time error	The device reports a time error acoustically and optically if the stunning procedure is shorter than the parameter specification "heart minimum time". The error occurs if contact is lost between the stun tongs and the animal. • The stun program is aborted and the device is ready for a new stunning procedure.

7 Cleaning and disinfection

Cleaning is performed to remove dirt from the machine. All surfaces must be visually clean after cleaning.



Always take note of the safety information in the product data sheets issued for the relevant cleaning agent or disinfectant.

7.1 Safety information



WARNING!

Live machine parts.

Danger to life and most severe injuries are possible.

- Before beginning any installation, maintenance and repair work, disconnect the machine from the power supply.
- Secure the machine against being inadvertently switched back on.



WARNING!

Risk of accident caused by insufficiently qualified personnel.

Danger to life and risk of very serious injuries.

- The machine may only be maintained, serviced, operated, and cleaned by qualified personnel.
- Maintenance work on live components may only be performed by trained electricians.



WARNING!

Highly irritant or corrosive detergents and disinfectants.

Breathing difficulties and other health damage is possible.

- Always take note of the hazardous substance symbols and the safety data sheets issued for the relevant detergent or disinfectants.
- Wear the personal protective equipment specified by the manufacturer of the detergents and disinfectants.

7.2 Personal protective equipment



7.3 Daily cleaning

The cleaning may only be done by hand with detergents and disinfectants approved for the food industry.



- Disconnect the stunning device from the power supply.
- Disconnect the connected stunn-tong from the stunning device.
- Do not use high-pressure cleaners.
- Avoid a direct jet of water on all electrical control panels and the housing.

7.4 Cleaning the Stun-tong

The cleaning may only be done by hand with detergents and disinfectants approved for the food industry.



1. Disconnect the electric stunning device from the power supply.
2. Disconnect the stun-tong from the electric stunning device.
3. Clean the dirty electrodes with a steel brush.

7.5 Cleaning the STUN-HE-PP

Cleaning may only be performed by hand using cleaning agents and disinfectants suitable for the food industry.



1. Disconnect the electric stunner from the power supply.
2. Disconnect the STUN-HE-PP from the electric stunner.
3. Clean dirty electrodes with a wire brush.

8 Maintenance and repairs

The electric stunner and devices must be inspected and serviced regularly in order to prolong the life of the electric stunning device as much as possible and to ensure minimal wear.

The workbench area must be clean and free from foreign matter for disassembly and maintenance.

Repairs and maintenance may be performed by qualified and authorised specialists only.

Warranty If errors or defects occur in the electric stunning device and devices within the statutory warranty period, please contact our sales department. The address and telephone number can be found at the top of the copyright page.

Only use original spare parts or replacement parts

recommended by FREUND Maschinenfabrik.

For maintenance and repairs, use only measuring instruments with protective insulation. The internal resistance of the connected measuring instrument must be at least 100 kOhm.

8.1 Safety information



DANGER!

Live machine parts.

Danger to life.

- Before beginning any installation, maintenance or repair work, place the stun tongs on a non-conductive surface.
- Before beginning any installation, maintenance or repair work, disconnect the electric stunner from the mains.
- Secure the electric stunner to prevent it being switched on accidentally.
- Before beginning any installation, maintenance or repair work, disconnect the stun tongs from the electric stunner.
- Never connect more than one electrode combination to a stunner.

**WARNING!****Risk of accident caused by insufficiently qualified personnel.**

Danger to life and risk of very serious injuries.

- The stun tong may only be connected to the electric stunning device by instructed and authorised personnel only. Only instructed and authorised personnel may commission and operate the stun tong.
- Maintenance work on live components must only be performed by trained electricians.

**WARNING!****Sharp-edged electrodes.**

Risk of cutting on sharp-edged electrodes.

- Wear protective gloves when performing any installation, maintenance or repair work.

8.2 Personal protective equipment



8.3 Electrical periodic inspection

The periodic inspections of portable electric machines and systems, which are used in slaughterhouses and cutting facilities, must be performed every six months in accordance with DIN VDE 0701-0702/EN 60204-1.

The electrical inspection must be performed by an electrician as defined by the Accident Prevention Regulation (UVV) Electrical installations and equipment or by a person trained in electrical engineering.

Service package
SDL-003-004

You may have the periodic inspection conducted at the FREUND Maschinenfabrik factory. FREUND Maschinenfabrik offers you service package SDL-003-004, which includes a complete inspection of the electrical system with inspection report and test report.

If you are interested in a periodic inspection at our factory or by a service technician at your site, please contact our sales department. The address and telephone number can be found in Imprint.

8.4 Electric stunning devices

8.4.1 Prescribed inspection of stunners

The respective national legal regulations pertaining to operational safety and accident prevention in your country apply.

Example: Federal Republic of Germany:

In accordance with the operational safety regulation and the accident prevention regulation, the operator of a slaughterhouse is obligated to inspect all electric stunners at least once each year for compliance with the requirements of the German Animal Protection Slaughter Regulation (TierSchlV).

The required annual inspection must be performed by an electrician as defined by the Accident Prevention Regulation (UVV) Electrical installations and equipment or by a person trained in electrical engineering.

Service FREUND Maschinenfabrik's service includes the complete inspection with inspection report and test sticker. In addition, we can provide you with a replacement machine for the duration of the inspection, at an extra charge.

If you are interested in having the inspection conducted, please contact our sales department. The address and telephone number can be found in Imprint.

8.4.2 Performing electrical test measurements

Regulation (EC) 1099/2009 on the protection of animals at the time of killing, Annex 1, paragraph 6.8 stipulates that electric stunning equipment must feature a mechanism that enables connection of an external device to indicate the stunning voltage and stunning current.

You require a multimeter and measuring cable for the current and voltage measurement.



Electrical measurements may only be performed by qualified personnel or by personnel who have received professional instruction.

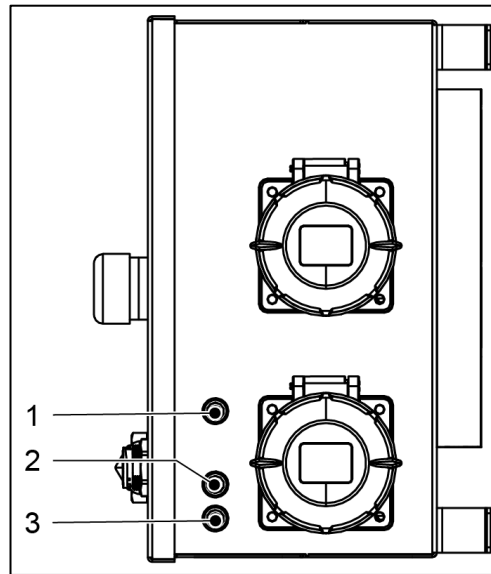


Fig. 8-1 Measuring sockets on the device

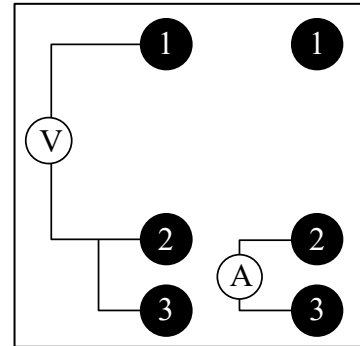


Fig. 8-2 Measuring instrument connection

Pos.	Description
1	Measuring socket 1 for voltage measurement
2	Measuring socket 2 for voltage measurement in conjunction with measuring socket 1
3	Measuring socket 3 for current measurement in conjunction with measuring socket 2

Measuring the stunning current

1. Set the measuring range on the multimeter to 10A/AC.
2. Plug the measuring cable connectors into measuring sockets 2 and 3 and into the relevant measuring sockets on the multimeter (see Fig. 8-2).
3. Perform the current measurement.

Measuring the stunning voltage

1. Set the measuring range on the multimeter to 600V/AC.
2. Plug the measuring cable connectors into measuring sockets 1 and 2 and into the relevant measuring sockets on the multimeter. Put a bridge in measuring sockets 2 and 3.
3. Perform the voltage measurement.

8.5 Stun tongs

Changing the electrodes

Dirty and burnt-out electrodes result in insufficient skin contact and no longer ensure optimal stunning.

You can recognize burned electrodes by the round electrode tips.

Replace worn and burnt-out electrodes of the stun tongs in good time to prevent downtimes.

Always replace both electrodes at the same time.



Information about replacing the electrodes can be found in the installation manual on the [FA](#) portal.

8.6 STUN-HE-PP

Greasing the heart electrode

The guide axles and bearings of the STUN-HE-PP must be lubricated regularly to ensure long-term functionality.

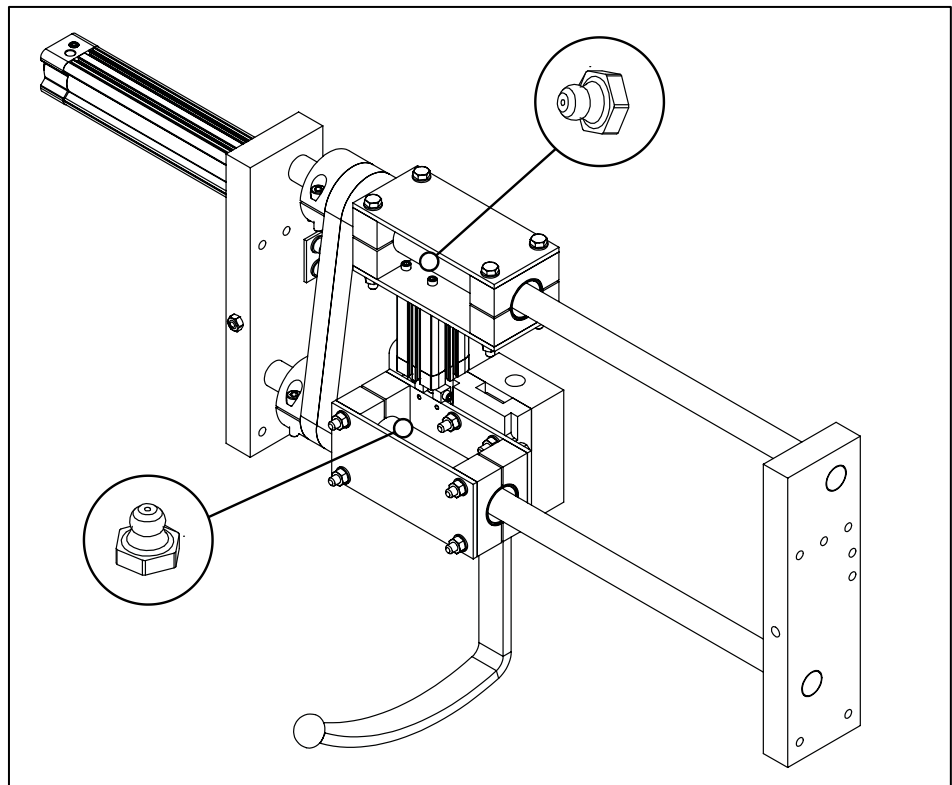


Fig. 8-3 Position of the grease fittings

8.7 Recommended lubricants



Ensure compliance with the general occupational safety rules when handling lubricants.

Information and notes on the lubricants can be found in the appendix under the heading **TIN-100-013**.

For the refilling and topping up of the machine we offer you the following lubricants:

Retail container	Part-No.
Grease gun	028-100-006

9 Troubleshooting

If malfunction or faults occur during the operation, you can look for possible causes and remedies in this chapter.

If you do not find the malfunction or fault of your machine in the following table, contact our sales staff. Please refer to the company information at the Imprint.

9.1 Safety information



DANGER!

Live machine parts.

Danger to life.

- Before beginning any installation, maintenance or repair work, place the stun tongs on a non-conductive surface.
- Before beginning any installation, maintenance or repair work, disconnect the electric stunner from the mains.
- Secure the electric stunner to prevent it being switched on accidentally.
- Before beginning any installation, maintenance or repair work, disconnect the stun tongs from the electric stunner.
- Never connect more than one electrode combination to a stunner.



WARNING!

Risk of accident caused by insufficiently qualified personnel.

Danger to life and risk of very serious injuries.

- The stun tong may only be connected to the electric stunning device by instructed and authorised personnel only. Only instructed and authorised personnel may commission and operate the stun tong.
- Maintenance work on live components must only be performed by trained electricians.



WARNING!

Sharp-edged electrodes.

Risk of cutting on sharp-edged electrodes.

- Wear protective gloves when performing any installation, maintenance or repair work.

9.2 Personal protective equipment



9.3 Overview of possible faults

9.3.1 STUN-F6 and F8 electric stunners

If technical faults occur, such faults are displayed as soon as the stunning mode is activated. Pending error messages can be acknowledged and reset as necessary.

If a non-critical fault (e.g. a temperature warning) occurs during stunning, the current stunning procedure is completed. The electric stunner then switches from stunning mode to standby mode.

If critical faults and hardware errors occur, stunning is aborted and the electric stunner immediately switches to standby mode.

If stunning mode is exited unexpectedly due to a fault, a slow intermittent signal tone will sound to indicate to the operator that no further stunning procedures can be performed.

Fault	Possible cause	Remedy
Illegible display when switched on.	Main module defective or display board defective.	Please contact our customer service. The address and telephone number can be found in Imprint/Imprint
Display flickers when switched on.		
Display does not light up.	Power supply interrupted.	Check the mains supply line for interruptions.

Error message in display 	Rise error: The minimum stunning current must be reached within the rise time. If it is not reached, a message "Rise error" is displayed.	Repeat the stunning procedure. The display automatically goes out during the next stunning procedure. The stunning error is also signalled acoustically.
	Current error: The minimum stunning current must remain constant during the minimum stunning time. If it does not remain constant, a "current error" is reported.	
	Time error: The minimum stunning time must be reached. If it is not reached, a "Time error" is reported.	

9.3.2 Stun tongs

Fault	Possible cause	Remedy
Current strength set is not reached. The stunning process does not start.	Electrodes are soiled.	Clean the electrodes using a wire brush.
	Electrodes are burnt through.	Change the electrodes. → Assembly manual in <u>FA</u> .
	Water ingress near the electrodes.	Disassemble the electrodes. Allow the water to drain. Leave the stun tongs to air until they are completely dry. Install the electrodes. → Assembly manual in <u>FA</u> .

9.3.3 STUN-HE-PP

Fault	Possible cause	Remedy
Current strength set is not reached	Dirty electrode	Clean the contact surface of the electrode using a wire brush.
	Faulty cable	Have the supply line checked by a qualified electrician.

	Insufficient animal contact	Check the compressed air supply and the guide mechanism.
Heart electrode does not move	No compressed air	Check the compressed air supply.
	Damaged guide mechanism	Spare parts lists can be found in the <u>FA</u> .
	Dirty guides	Clean the heart electrode thoroughly, then lubricate the guides on the grease fittings. See <i>Greasing the heart electrode</i> on page 77.

10 Disposal and Recycling

The machine must be disposed of in accordance with the pertinent national regulations.

More Information

For more information about our materials and their disposal please contact our sales staff.

Please refer to the company information in the imprint for the address and telephone numbers.

10.1 Disassembling and disposing of the machine



Old machines contain recoverable materials which you can return for recycling.

When disposing of the machine, make sure to observe local environmental regulations.

1. Disconnect all connections and supply lines from the machine.
2. Completely disassemble the machine.
3. Segregate all materials.
4. Dispose of waste oil and components and materials soiled with oil in accordance with the applicable environmental regulations.
5. Send the individual materials to the appropriate recycling or disposal facilities.
6. Send hazardous waste to a local hazardous waste site.

10.2 Disposing of packaging material



All packaging materials used by FREUND Maschinenfabrik are environmentally friendly and can be recycled.

You can safely dispose of the packaging materials through your local waste collection system or return them for recycling.

11 Technical Data

11.1 Electric stunners

Parameter	STUN-F8	STUN F6
Dimensions (H x W x D) [mm]	300x500x200	250x400x160
Operating voltage [V UC]	Variant 1: 115 Variant 2: 230	Variant 1: 115 Variant 2: 230
Frequency input [Hz]	1-phase 50-60	1-phase 50-60
Protection class	IP55	IP55
Protection class	1	2
Mean power [W] / efficiency [%]	1100 / > 90	500 / 80
Maximum output current [A], adaptable	3.5 (sine) 3.0 (trapezoid)	3.5 (sine) 3.0 (trapezoid)
Reaching of the setpoint for head/heart current [ms]	< 100	< 100
Maximum output voltage (VAC)	500 (sine) 600 (trapezoid)	400
Frequency output [Hz]	25-1000	25-1000
Weight [kg]	15.7	10
Ambient conditions:		
• Operating temperature range [°C]	0-45	0-45
• Humidity [%]	0-90, non condensing	0-90, non condensing

* Electric fuse in case of electrode short circuit, short circuit and/or a defect in the stunning circuit

11.1.1 Control connection/connection assignment

Connection	Signal	Description
1A	24V solenoid valve, head tongs	Cylinder, pneumatic tongs (24VDC) – Is HIGH as long as 12V are applied to 5C. If 12V are applied to 5C and the stunning procedure starts at the same time, this output is set to HIGH for the entire stunning procedure without the need for continued application of 12V to 5C.
1B	0V solenoid valve, head tongs	0V

Connection	Signal	Description
1C	12V output for potential-free inputs	Connection for “water” button and “pneumatic tongs” button.
2A	24V solenoid valve, heart electrode	Cylinder, heart electrode (24VDC): This is set to HIGH from the start of the stunning procedure to the end of heart stunning.
2B	0V solenoid valve, heart electrode	0V
2C	Potential-free contact	Short-circuited with 3C during active procedure: The procedure is active during head stunning, heart stunning, and during the repositioning time inbetween.
3A	24V DC	Stunning end pulse
3B	0V DC	Stunning end pulse
3C	Potential-free contact	Short-circuited with 2C during active procedure.
4A	24V solenoid valve, water	This is set to HIGH for the parametrised time when the “water” button is pressed.
4B	0V solenoid valve, water	0V
4C	“Water” button	“Water” button signal: Activates the water function (connection to 1C) via a positive edge (12VDC).
5A	12V emergency stop loop 1	Remote disconnection: Stops the stunning procedure (12VDC negative edge) with normally closed contact.
5B	12V emergency stop loop 2	12V/5A are applied during operation.
5C	“Pneumatic tongs” button	“Pneumatic tongs” button signal: Closes cylinder on positive edge (12VDC) for pneumatic tongs and enables the resistance measurement (connection to 1C).

11.1.2 Optional signal tower/signalling

Signal	Description
Green	The electric stunner is ready for the stunning procedure.
Flashing green	The stunning procedure starts and runs.
Yellow	A stunning error has occurred during heart stunning (rise error, time error, minimum current error). Lights up until the next stunning procedure starts.
Red	A stunning error has occurred during head stunning (time error, minimum current error). Lights up until the next stunning procedure starts.

Connection	Signal	Description
1	0V DC	Neutral
2	24V DC	Green signal lamp
3	24V DC	Yellow signal lamp
4	24V DC	Red signal lamp

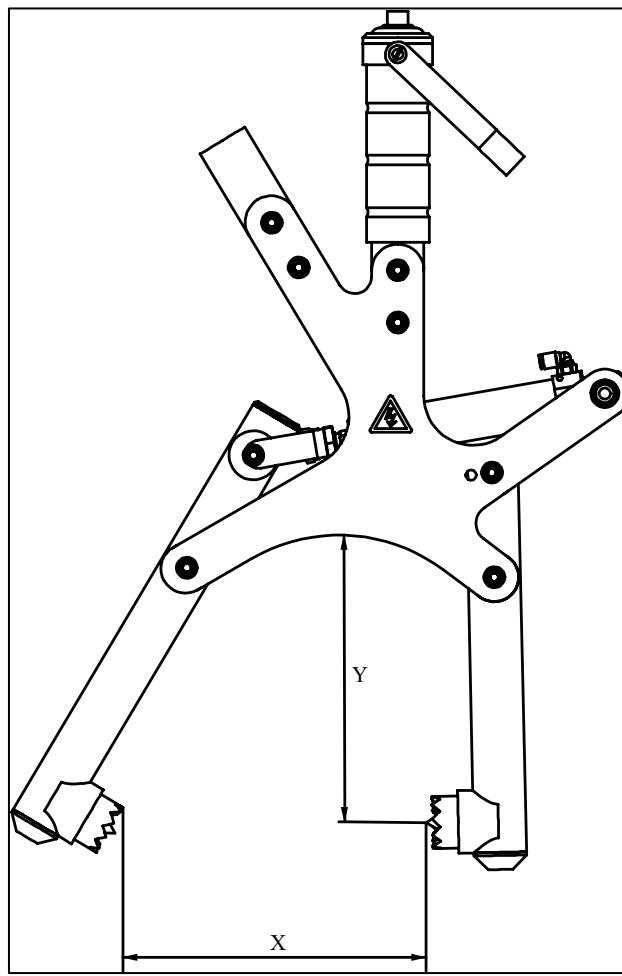
11.2 Interface control box

	Interface IF1	Interface IF2
Dimensions (H x W x D)	240 x 160 x 120 mm	310 x 255 x 160 mm
Weight (kg)	1.9	3.8
Temperature range Tu	0 – 40 °C	0 – 40 °C
Protection class	IP44	IP44

11.3 Stun-Tongs

11.3.1 STUN-TONG-EPP3

Dimensions

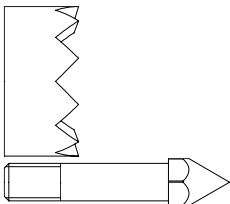


Weight [kg]	3.4	
Dimension X [mm] (closed)	70	90
Dimension X [mm] (open)	180	200
Dimension Y [mm]	185	

IP protection class	Protection class	IP44
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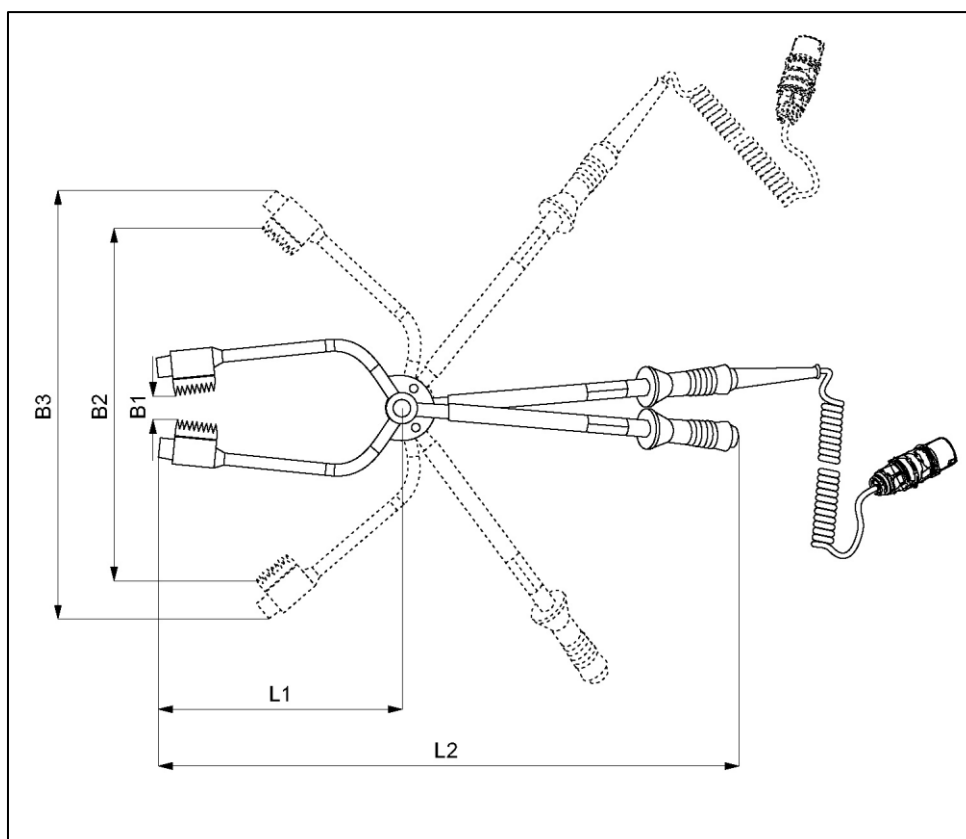
Compressed air	8 bar
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Optional accessories	Component	Part-No.
	Balancer F4-2.5	920-414-001

Electrodes	Electrode shape	Designation	Part-No.
		Electrode set for pigs	

11.3.2 STUN-TONG-ES Steel

Dimensions

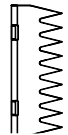
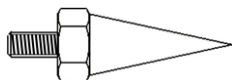


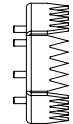
Weight [kg]	3.7
Dimension L1 [mm]	460
Dimension L2 [mm]	940
Dimension B1 [mm]	40
Dimension B2 [mm]	530
Dimension B3 [mm]	640

IP protection class

Protection class	IP65
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Optional accessory	Component	Part-No.
	Wall holder	164-010-001

Electrodes	Electrode shape	Designation	Part-No.
		Electrode set for pigs	077-000-006
		Spike electrode (electrode set for pigs)	077-000-009

Electrodes	Electrode shape	Designation	Part-No.
		Electrode hexagon set	077-000-006

EU-Declaration of Conformity

within the meaning of the Low Voltage Directive 2014/35/EU.

Manufacturer	FREUND Maschinenfabrik GmbH & Co. KG Greifswalder Str. 5 DE-33106 Paderborn
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Documentation Authorised Representative	FREUND Maschinenfabrik GmbH & Co. KG Greifswalder Str. 5 DE-33106 Paderborn
---	--

Hereby we declare that the machine,

Type	STUN-F8
------	----------------

Complies with all relevant provisions of the Low Voltage Directive 2014/35/EU.

The machine also complies with all relevant provisions of the following EC Directives:

(EU) 2014/30	EMC Electromagnetic compatibility
---------------------	--

The following harmonised standards (or parts of these standards) have been applied:

DIN EN 61000-6-4:2020-09	DIN EN 60529:2014-09
DIN EN 61000-6-2:2014-11	DIN EN 60335-2-87:2021-03

EU-Declaration of Conformity

within the meaning of the Low Voltage Directive 2014/35/EU.

Manufacturer	FREUND Maschinenfabrik GmbH & Co. KG Greifswalder Str. 5 DE-33106 Paderborn
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Documentation Authorised Representative	FREUND Maschinenfabrik GmbH & Co. KG Greifswalder Str. 5 DE-33106 Paderborn
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Hereby we declare that the machine,

Type	STUN-F6
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Complies with all relevant provisions of the Low Voltage Directive 2014/35/EU.

The machine also complies with all relevant provisions of the following EC Directives:

(EU) 2014/30	EMC Electromagnetic compatibility
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The following harmonised standards (or parts of these standards) have been applied:

DIN EN 61000-6-4:2020-09	DIN EN 60529:2014-09
DIN EN 61000-6-2:2014-11	DIN EN 60335-2-87:2021-03

EU-Declaration of Conformity

in the sense of the EC Machinery Directive 2006/42/EC, Annex II, No.1 A.

Manufacturer **FREUND Maschinenfabrik GmbH & Co. KG**
Greifswalder Str. 5
DE-33106 Paderborn

Documentation **FREUND Maschinenfabrik GmbH & Co. KG**
Authorised **Greifswalder Str. 5**
Representative **DE-33106 Paderborn**

Hereby we declare that the machine,

Type **STUN-TONG-EPP3**

complies with all relevant provisions of the EC Machinery Directive 2006/42/EC.

The following harmonised standards (or parts of these standards) have been applied:

DIN EN ISO 12100:2011-03	DIN EN 60204-1:2008
DIN EN ISO 11201:2010-10	DIN EN 60529:2014-09
DIN EN 13861:2012-01	DIN EN 60335-2-87:2021-03

Declaration of Incomplete Machinery

in the sense of the EC Machinery Directive 2006/42/EC, Annex II, No.1 A

Manufacturer **FREUND Maschinenfabrik GmbH & Co. KG**
Greifswalder Str. 5
DE-33106 Paderborn

Documentation **FREUND Maschinenfabrik GmbH & Co. KG**
Authorised **Greifswalder Str. 5**
Representative **DE-33106 Paderborn**

We hereby declare, as the manufacturer of the partly completed machinery and under our sole responsibility, that for the partly completed machinery,

Type/Function **STUN-HE-PP**

- the following essential health and safety requirements set out in Annex I to the above Directive are applied and complied with:
Articles 1.1.2, 1.1.3, 1.1.5, 1.3.2, 1.3.4, 1.3.7, 1.5.1, 1.7.1
- the special technical documents have been prepared in accordance with Annex VII B of the Machinery Directive.
- the specific documents relating to the partly completed machinery are transmitted to the national authorities upon reasoned request.
- the above-mentioned special documents can be requested from the above-mentioned authorised documentation representative.

The partly completed machinery must not be put into service until it has been established that the machinery into which the partly completed machinery is to be incorporated complies with the provisions of the Machinery Directive 2006/42/EC.

The following harmonised standards (or parts of these standards) have been applied:

DIN EN ISO12100:2011-03	Din EN 60529:2014-09
DIN EN 60204-1:2019-06	DIN EN ISO 11201:2010-10
DIN EN IEC 60335-2-87	

**TIN-100-013**

1/4

Hydrauliköl / Hydraulic oil

<u>VK Gebinde /</u> <u>Disposal dimensions</u>	<u>Teile Nr. / Item No</u>
5L Kanister / Canister	171-500-001
10L Kanister / Canister	171-500-002
20L Kanister / Canister	171-500-003
<u>Verwendung / Ability for</u>	<u>Füllmenge /</u> <u>Filling capacity</u>
HPP12	7 L

Hydrauliköl / Hydraulic oil

<u>VK Gebinde /</u> <u>Disposal dimensions</u>	<u>Teile Nr. / Item No</u>
1L Flasche / Bottle	047-004-004
5L Kanister / Canister	171-500-004
10L Kanister / Canister	171-500-005
20L Kanister / Canister	171-500-006
<u>Verwendung / Ability for</u>	<u>Füllmenge /</u> <u>Filling capacity</u>
Anschlusseinheit / Connecting kit	
K16-P4 , PNM , SD11	0,1 L
HPE 9	21 L
HPE 20	28L

TIN-011990 001

**TIN-100-013**

2/4

Getriebefett / Gearbox grease

<u>VK Gebinde /</u> <u>Disposal dimensions</u>	<u>Teile Nr. / Item No</u>
1 kg Dose / Box	171-500-010
<u>Verwendung / Ability for</u>	<u>Füllmenge /</u> <u>Filling capacity</u>
Getriebe / Gear K16	0,1 kg
Getriebe / Gear K18	0,1 kg
Getriebe / Gear K23, K28	0,1 kg
Getriebe / Gear K33	0,1 kg

Getriebeöl / Gearbox grease

<u>VK Gebinde /</u> <u>Disposal dimensions</u>	<u>Teile Nr. / Item No</u>
1L Flasche / Bottle	159-016-035
<u>Verwendung / Ability for</u>	<u>Füllmenge /</u> <u>Filling capacity</u>
Getriebe ZKM60, ZKM75	0,5 L


TIN-100-013


3/4

Vakuumpumpenöl / Vacuum pump oil

<u>VK Gebinde /</u> <u>Disposal dimensions</u>	<u>Teile Nr. / Item No</u>
1L Flasche / Bottle	171-500-015
5L Kanister / Canister	171-500-016
10L Kanister / Canister	171-500-017
<u>Verwendung / Ability for</u>	<u>Füllmenge /</u> <u>Filling capacity</u>
VP 020	0,5 L
VP 200	7 L
VP 300	7 L

Lebensmittelfett / Lubricating grease

<u>VK Gebinde /</u> <u>Disposal dimensions</u>	<u>Teile Nr. / Item No</u>
0,14 kg Fettpresse / Grease gun	151-001-067
1 kg Dose / Box	100-013-007
<u>Verwendung / Ability for</u>	<u>Füllmenge /</u> <u>Filling capacity</u>
Scheren / Shear	0,01 kg
Getriebe / gear SH/BBH	0,1 kg

Lebensmittelfett / Lubricating grease

<u>VK Gebinde /</u> <u>Disposal dimensions</u>	<u>Teile Nr. / Item No</u>
0,18 kg Fettpresse / Grease gun	028-100-006
<u>Verwendung / Ability for</u>	<u>Füllmenge /</u> <u>Filling capacity</u>
Trimmer Kopf / Trimmer Head	
Getriebe HSK-P3	

TIN-011990 001

**TIN-100-013**

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Schmierfett / Grease

<u>VK Gebinde /</u> <u>Disposal dimensions</u>	<u>Teile Nr. / Item No</u>
0,4 kg Kartusche / Cartridge	100-013-037
0,14 kg Fettpresse (ST)	151-002-039
0,14 kg Fettpresse (EDF, SD11)	047-004-002
<u>Verwendung / Ability for</u>	<u>Füllmenge /</u> <u>Filling capacity</u>
Getriebe / gear ST, SST, BBST	0,07 kg
EDF , SD11	0,03 kg

Schmierfett / Grease

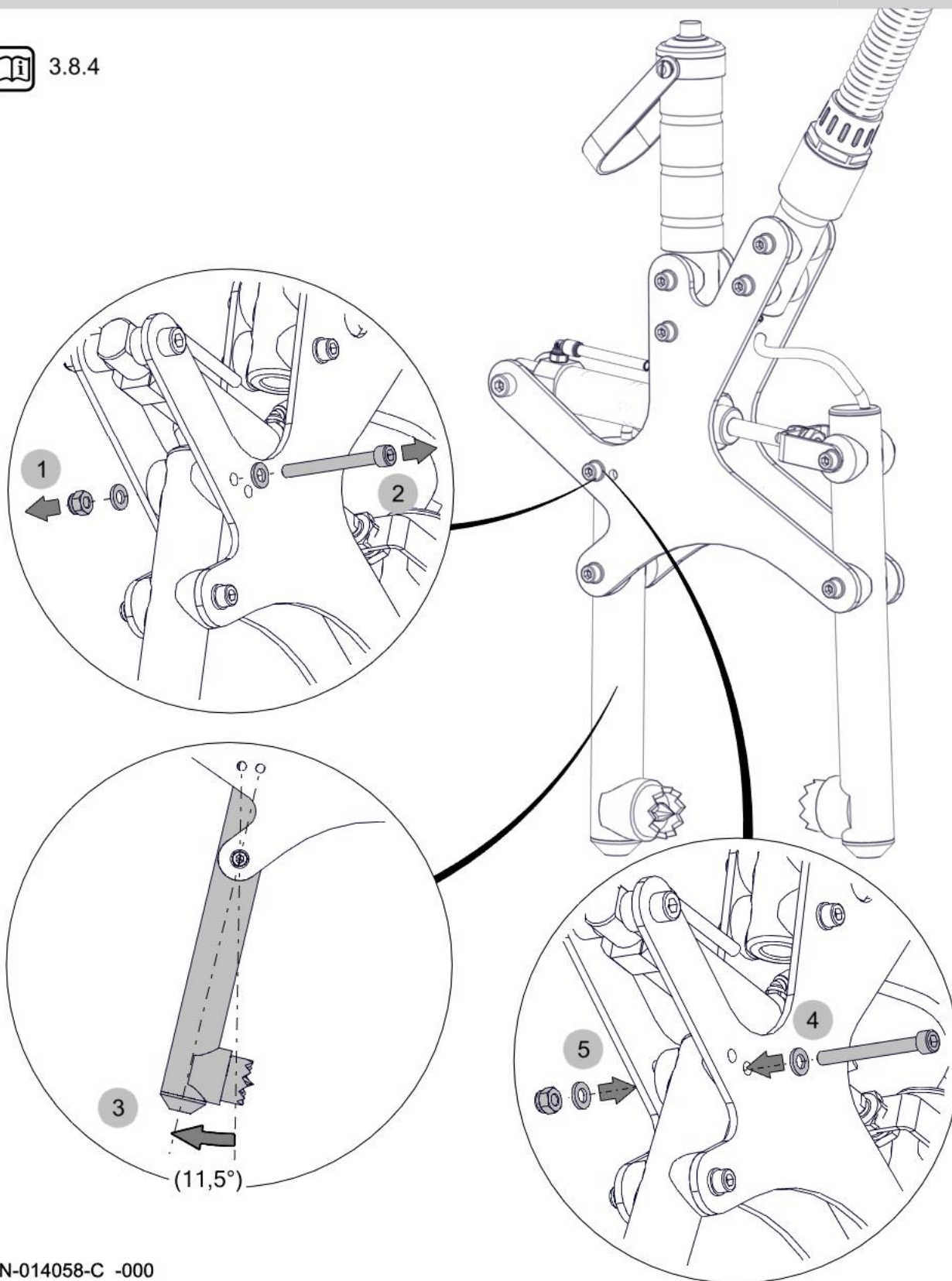
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1 kg Dose / Box	100-013-039
<u>Verwendung / Ability for</u>	<u>Füllmenge /</u> <u>Filling capacity</u>
Getriebe / Gear GM	0,1 kg
Getriebe / Gear ZKM25	0,1 kg
Getriebe / gear FK40	0,1 kg



TIN-014058



3.8.4

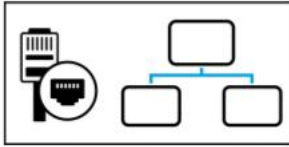


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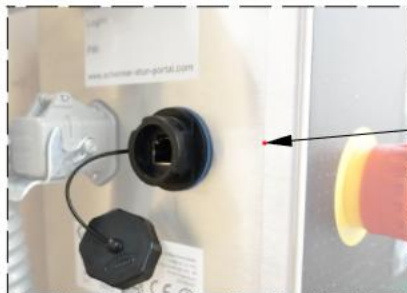
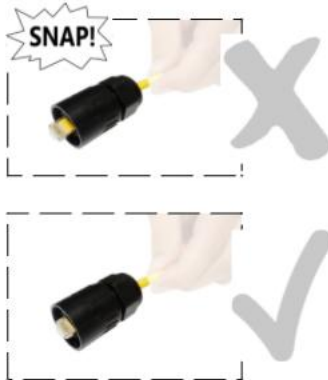
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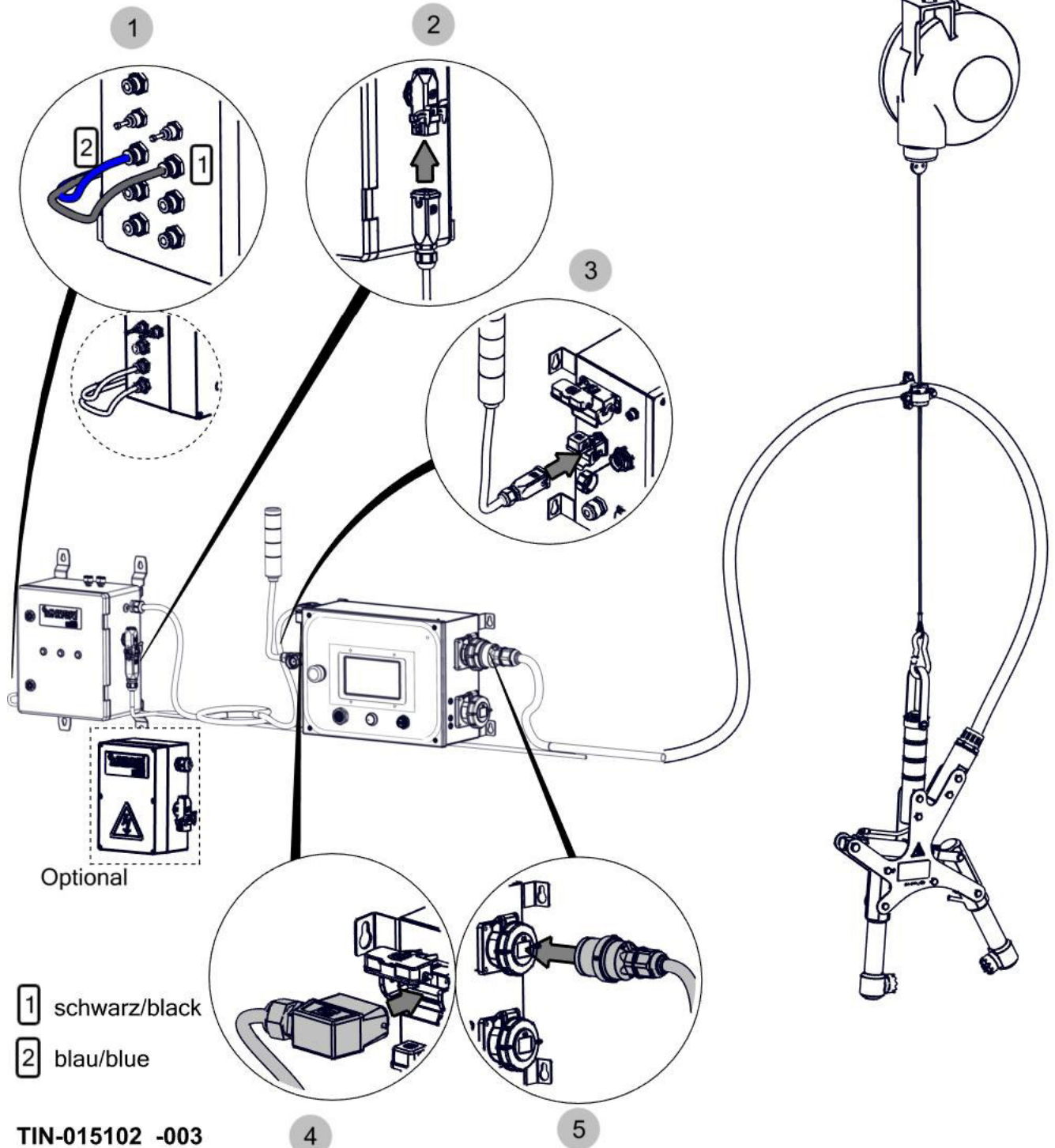
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TIN-015102 -003

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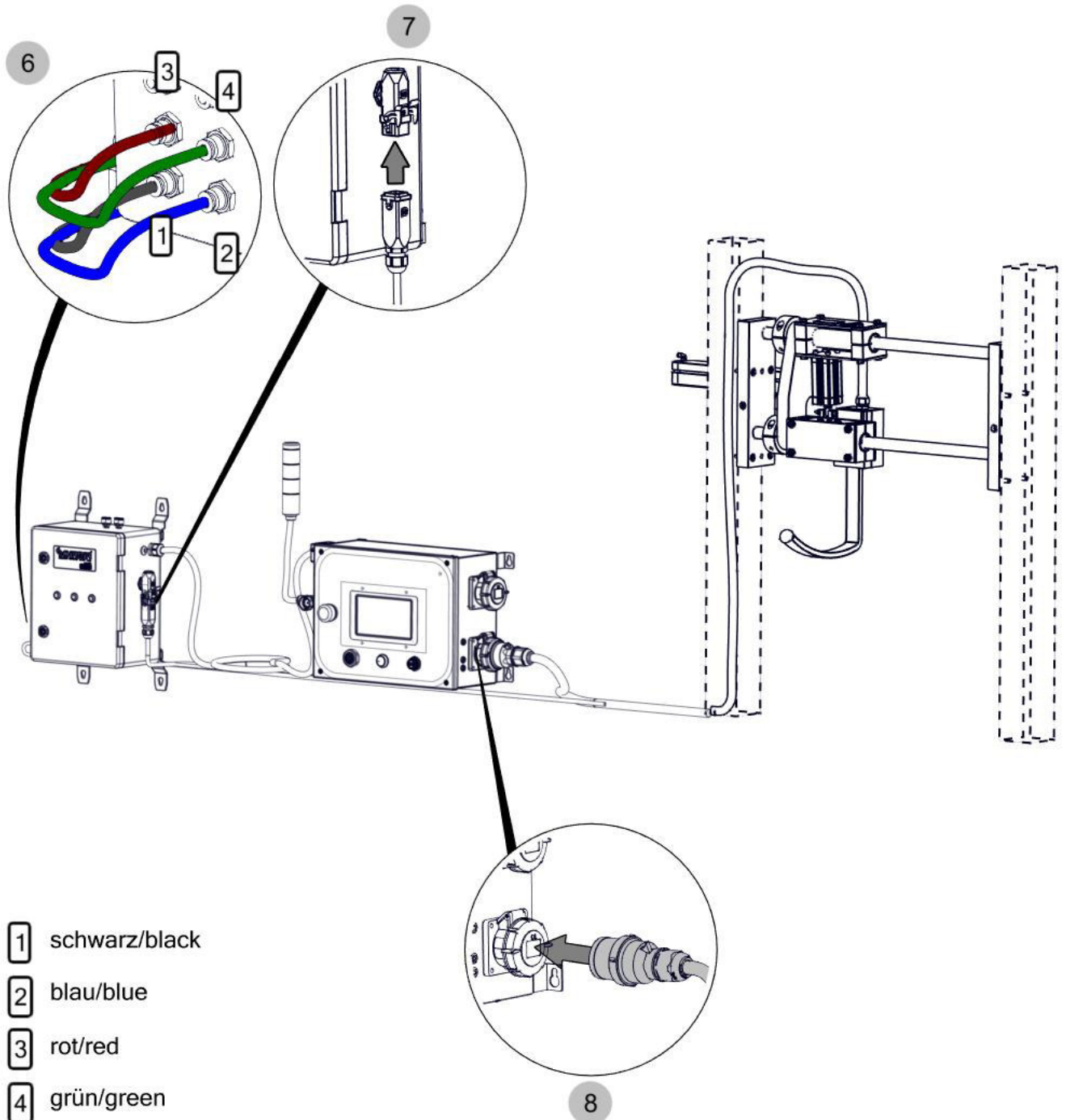
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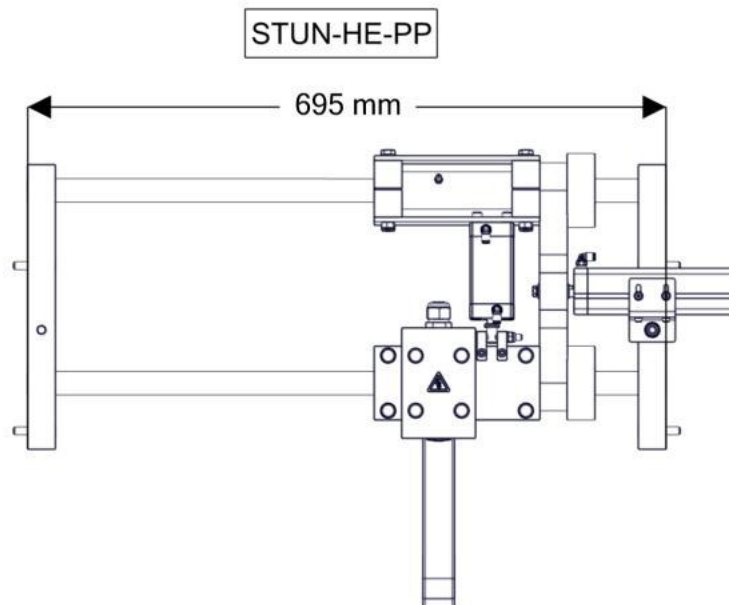
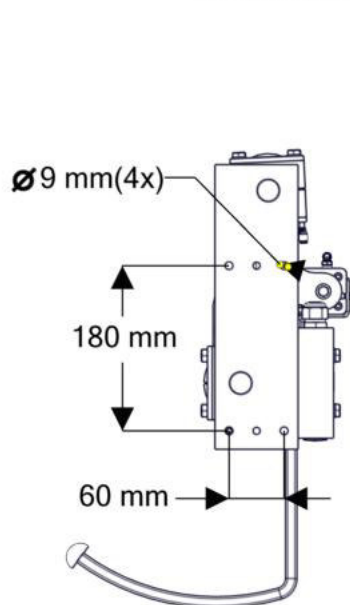
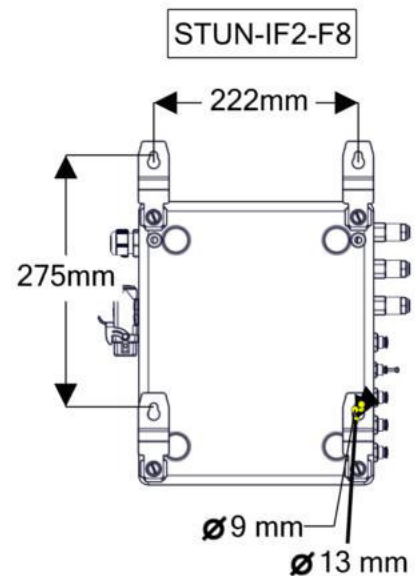
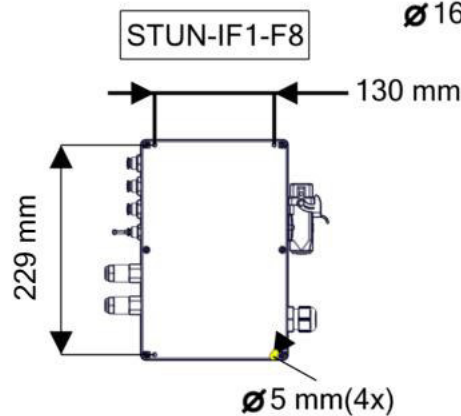
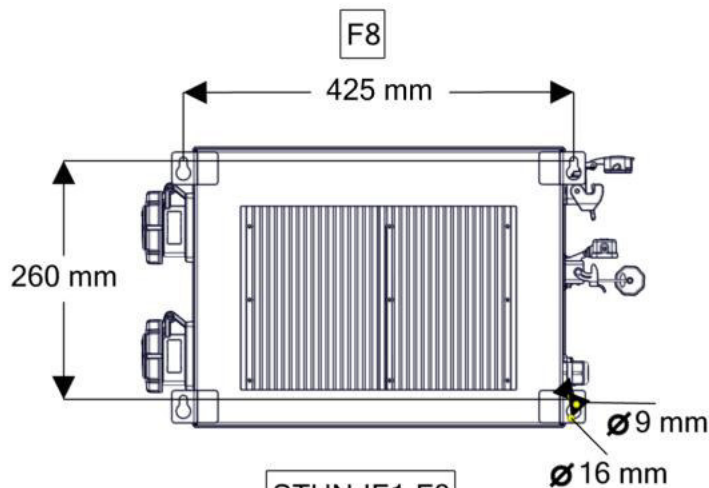
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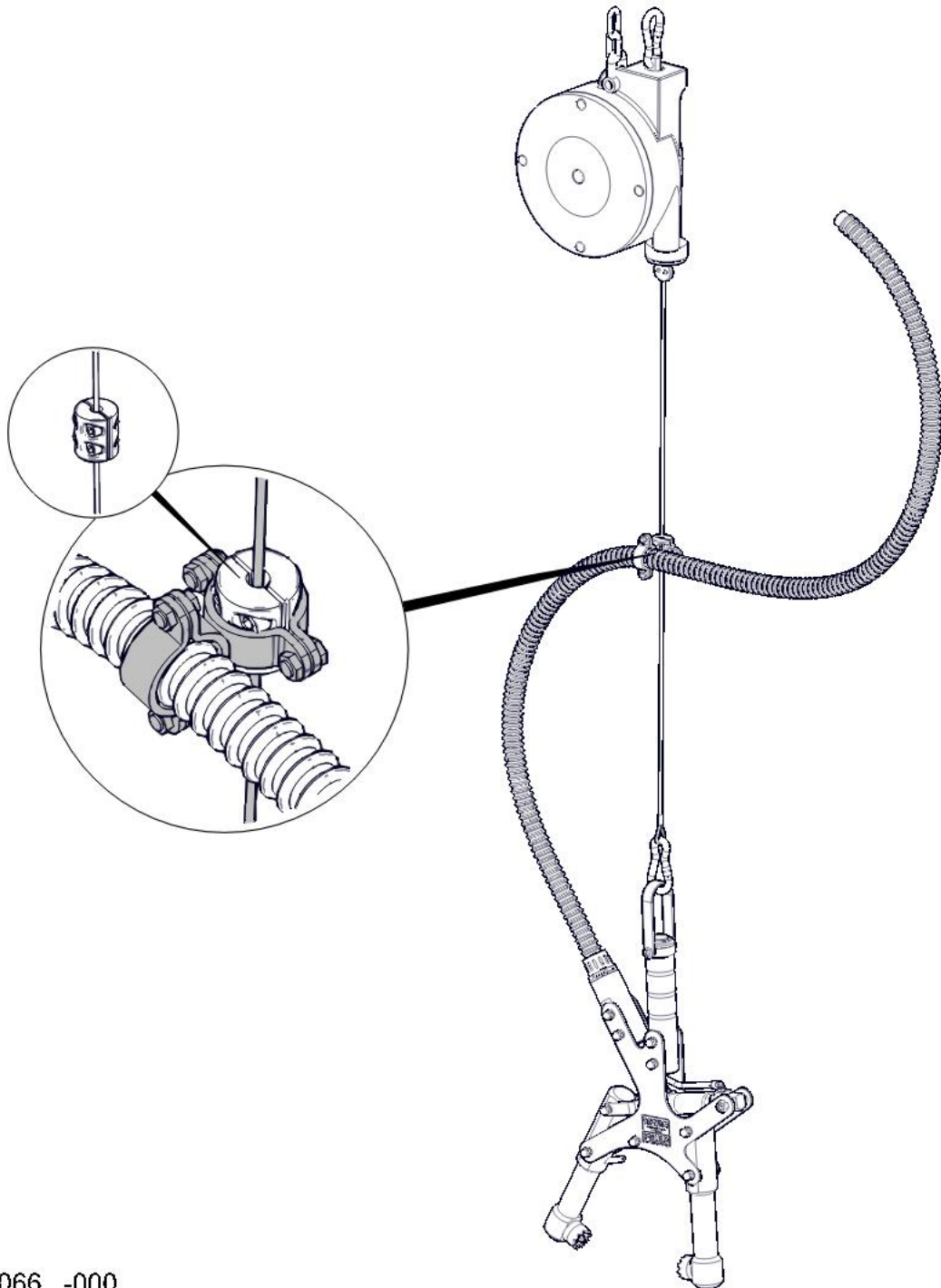
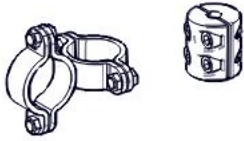
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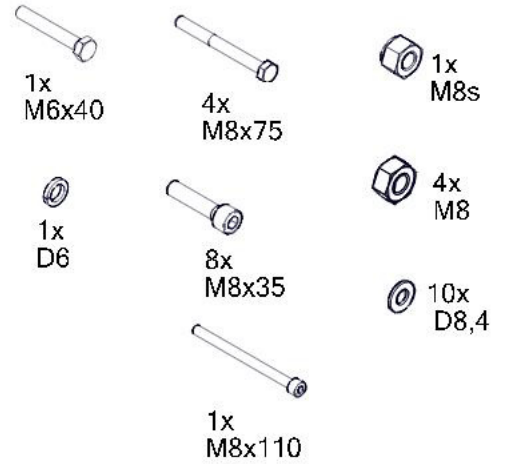
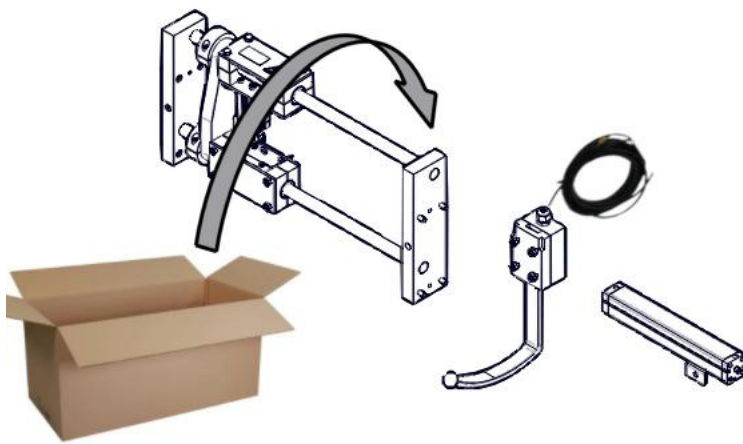


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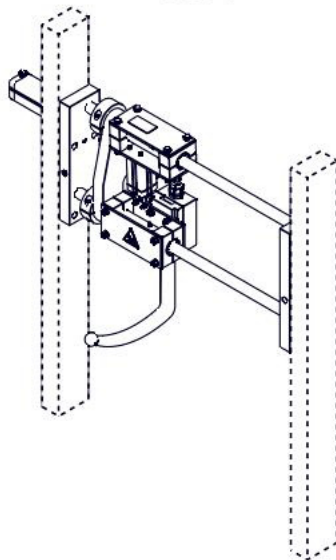


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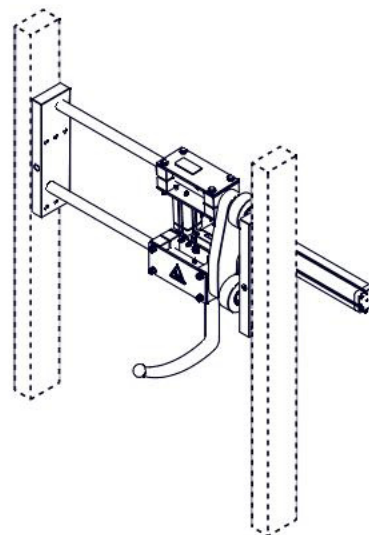
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Pos 1



Pos 2



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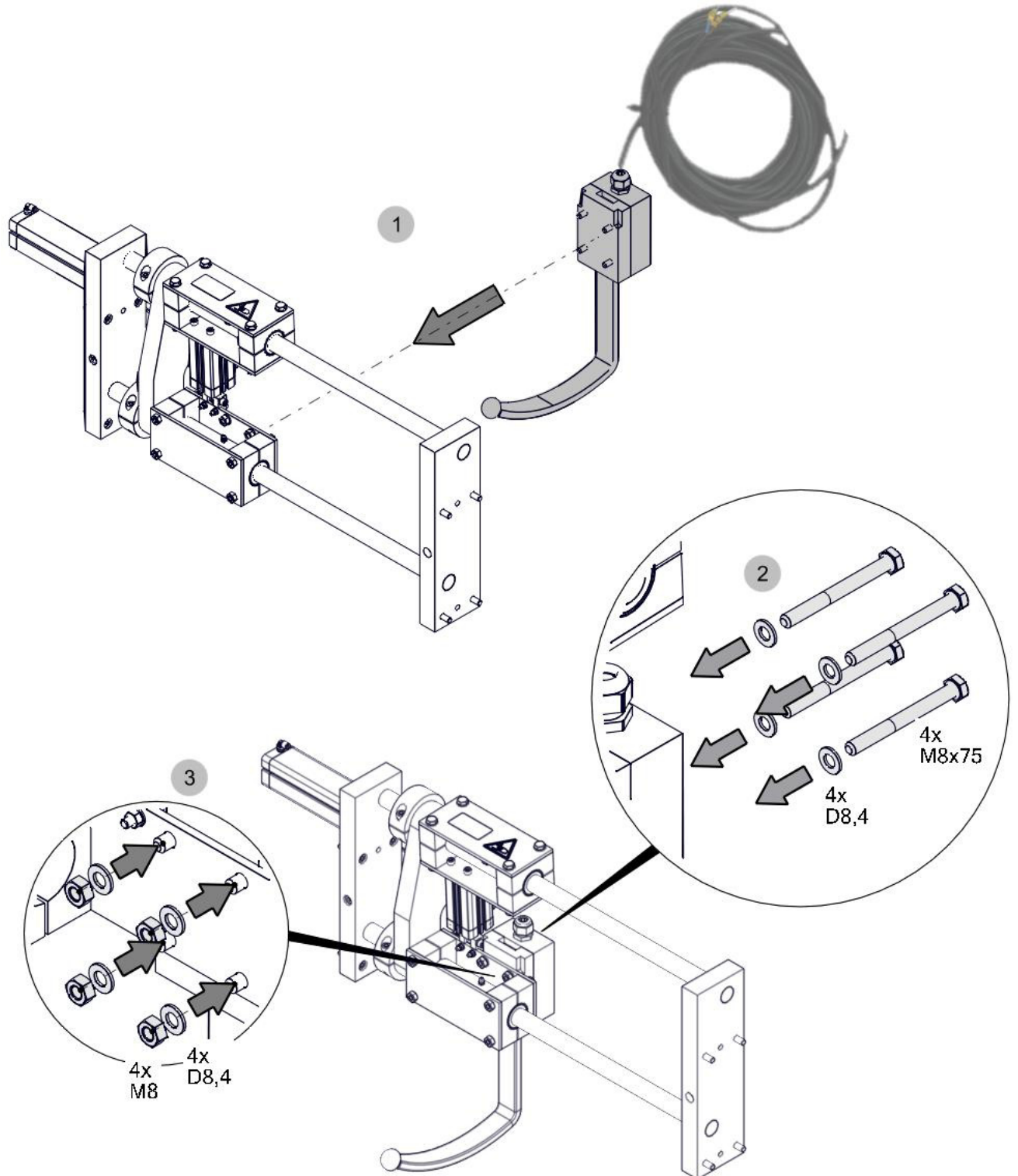
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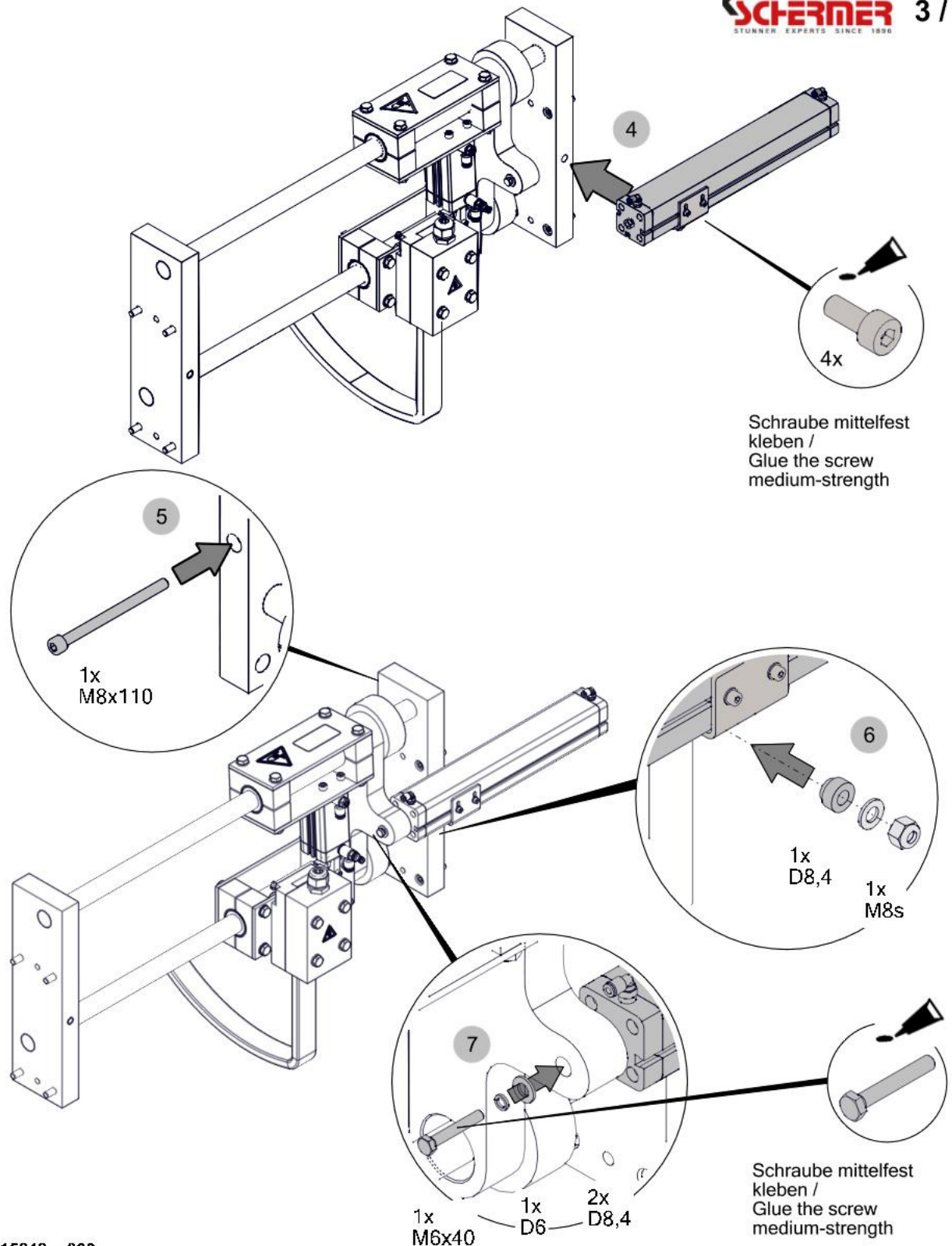
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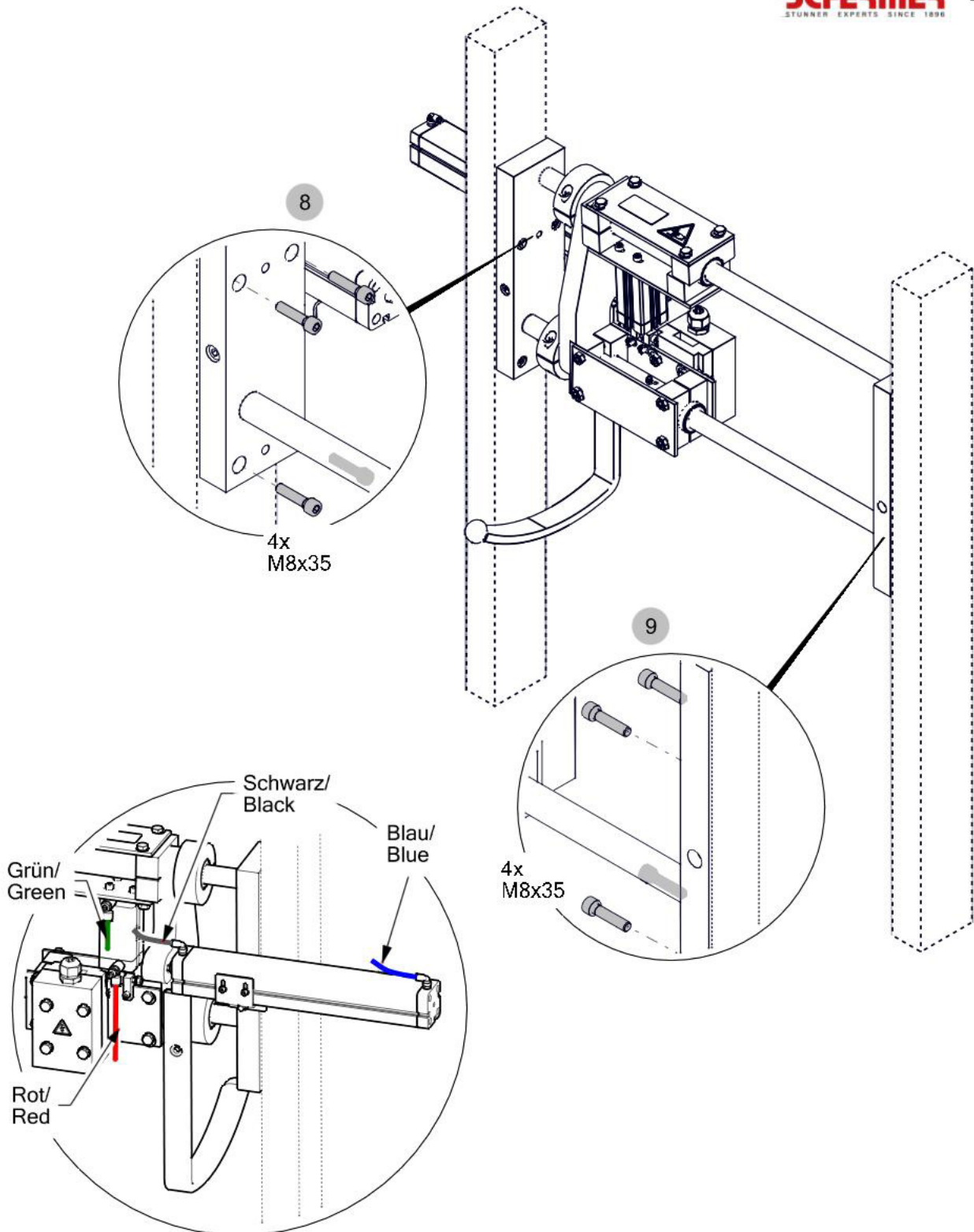
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