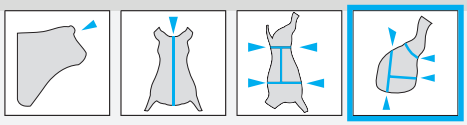
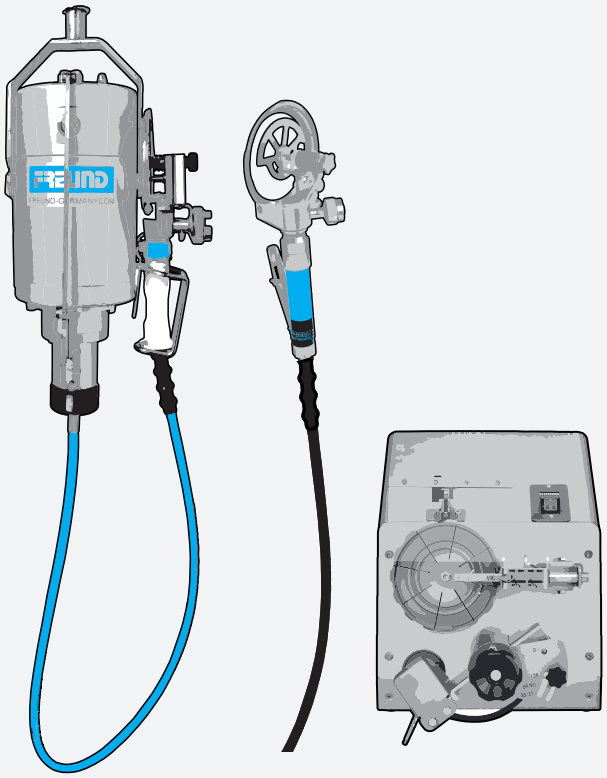
FREUND
GERMAN QUALITY SLAUGHTER-TOOLS

OPERATING MANUAL TRIMMER

OPERATING MANUAL

Translation of original manual





TRIMMER

- Trimmer EL2 35
- Trimmer EL2 52
- Trimmer EL2 69
- Trimmer EL2 90
- Trimmer EL2 128

PNEUMATIC MOTOR

- P2

ELECTRIC MOTOR

- TM-E6000_evo2
- TM-E6001_evo2

TRIMMER SHARPENING MACHINE

- TSM-E1

BA-001-EN_013 06.2026

Imprint

Home address	FREUND Maschinenfabrik GmbH &. Co. KG Greifswalder Straße 5 33106 Paderborn, GERMANY
Fon	+49 5251 1659-0
E-Mail	mail@freund.eu
Internet	www.freund-germany.com
Sales	+49 5251 1659-0 sales@freund.eu

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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 Trimmers and Trimmer motors are also referred to as machine 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 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.

1.4 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.

1.5 Symbols and layout elements

1.5.1 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

1.5.2 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 rotating cutting tools
Danger to limbs from cutting or severing.



Danger of entanglement of loose clothing, jewellery and long hair due to the rotational movement.



Warning of cutting tools running-on or restarting
Danger to limbs from cutting or severing.
Danger of entanglement of loose clothing, jewellery and long hair due to the rotational movement.



Warning of substances harmful to health and irritants
The information on the packaging and containers must be observed. Keep separate from food.

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 hearing protection
protect hearing during operation of the machine.



Wear safety shoes or rubber boots
protect the feet against crushing, falling objects and guarantee secure support.



Wear a hair net or use a blade guard
protect long hair against entanglement in the machine.



Wear a protective apron
protects the body against humidity, blood and other fluids.



Wear head protection
protect the head against injuries from contact with oscillating objects and machines and during work beneath suspended loads.



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

1.5.3 Symbols



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.

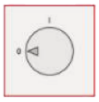
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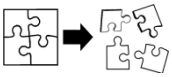
Cleaning
Instruction for an additional cleaning step



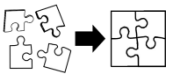
Power plug
Indicates connection of the machine to the power network.



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.

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.

Risk assessment

The site operator must inform operators of possible dangers, symptoms and preventative measures. Relevant occupational safety conditions have to be complied with.

Workplace

The workplace must comply with the national and regional hygiene and workplace regulations.

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).

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.

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.

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.

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.

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 Electrical safety

The electrical machinery and electrical equipment of FREUND Maschinenfabrik is tested for electrical safety prior to delivery and following modification or repair in our factory by a qualified electrician in accordance with the electrical engineering rules of the relevant standards and guidelines.

The inspection interval for equipment that is used in slaughtering and cutting plants is every six months.

2.6 Residual risks

The machineTrimmers and Trimmer motors 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:

- 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
- danger of burning on hot surfaces
- Danger of injury from breakage or ejection of fragments of the cutting tool.
- hearing damage from noise if noise emissions exceed 75 dB(A)
- danger to life from live machine parts
- Cutting injuries from cutting tools
- danger of injury from flying pieces of meat and bone fragments

2.7 Intended use

The TM-E6000_evo2 and TM-E6001_evo2 electric motor are intended to be operated solely with electrical trimmer.

The peumatic motor P2 is a complete machine and has the trimmer pneumatic as a tool (trimmer head).

FREUND trimmers are intended for

- meat cutting and meat recovery
- Bone trimming and trimming away fat from various types of meat
- Cutting and filleting fish

The trimmer sharpening machine TSM-E1

- is intended for grinding ring blades made of steel

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.

2.8 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 of the trimmer:

- the cutting of bones.
- the cutting and sawing of other materials such as wood, plastic or stone.

The following are also deemed as improper use of the trimmer sharpening machine TSM-E1:

- Grinding knives other than steel ring knives
- Operation outdoors
- Operation in explosive environment
- Use as a climbing aid
- Use in continuous operation

3 Technical description

Trimmer electric
The trimmer consists of the trimmer head piece, handle and drive cable.

Trimmer pneumatic
The pneumatic trimmer is the tool (trimmer head piece) for the pneumatic motor.

Trimmer
The trimmers' fields of application range from clean removal of spinal cord and carcass fat to meat recovery from bones, controlled fat trimming during cutting up to deboning chicken thighs and cutting razor-thin slices of salmon or other fish.

Trimmers are available in a variety of shapes and sizes. They are powered electrically or pneumatically.

The FREUND trimmers can be used with one hand and are suitable for left-handed and right-handed operators.

Trimmer sharpening machine TSM-E1
The trimmer sharpening machine TSM-E1 is a machine for sharpening ring knives. The ring knife must be removed from the trimmer head for this purpose.

3.1 Trimmer- head piece

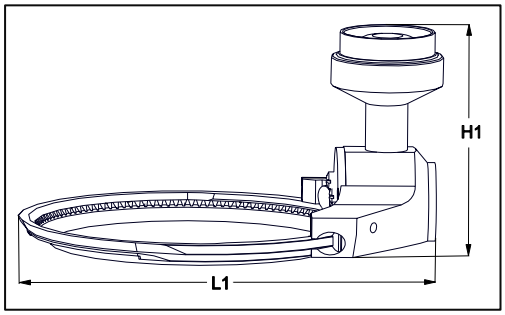


Fig.3-1 Side view

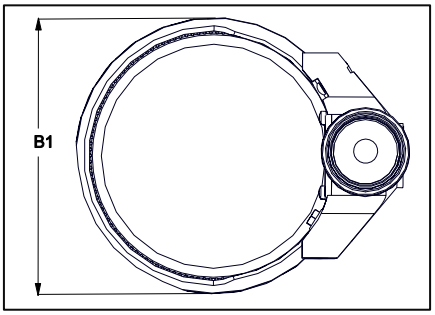


Fig.3-2 Bird's-eye view

Technical Data

	Trimmer head piece				
	35	52	69	90	128
Weight [kg]	0.13	0,13	0.18	0.34	0.57
Length L1 [mm]	73	90	108	124	165
Width B1 [mm]	45	55	74	96	137
Height H1 [mm]	74	75	73	86	84
Vibration [m/s²]	≤ 2,5				

Serial number

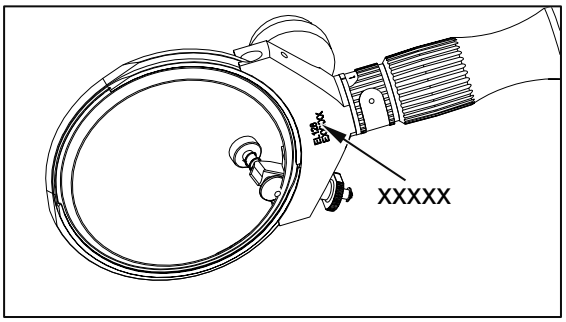
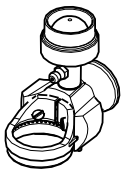
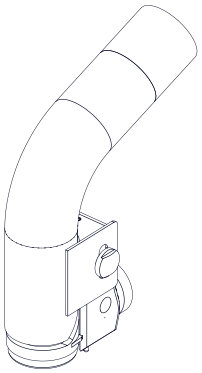
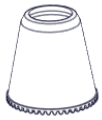
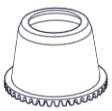
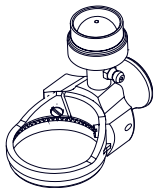
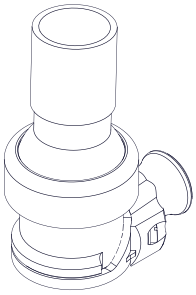
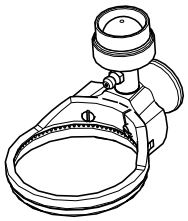
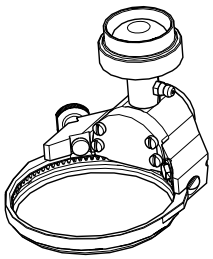
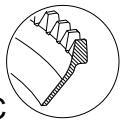
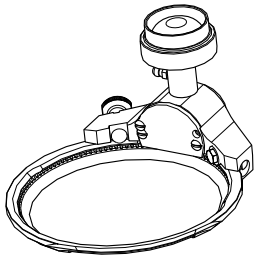
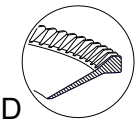


Fig. 3-3 5-digits serial number trimmer-head piece

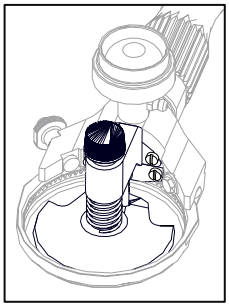
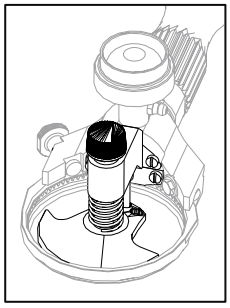
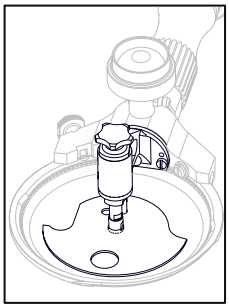
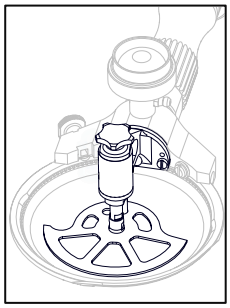
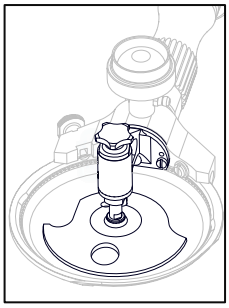
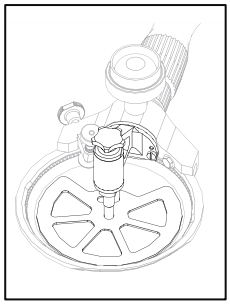
3.1.1 Ring blade selection and application

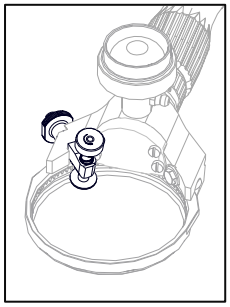
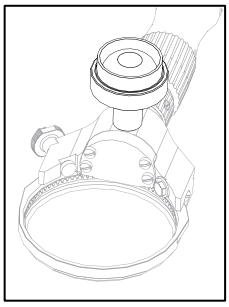
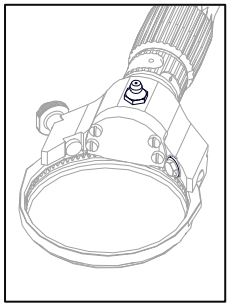
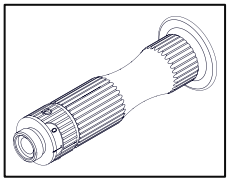
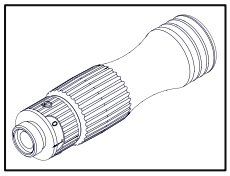
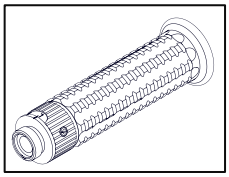
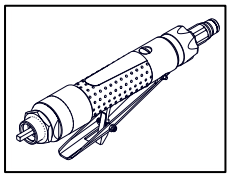
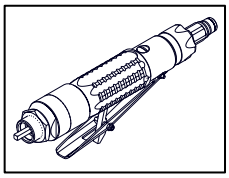
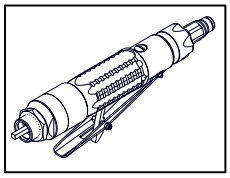
Size		Shape	Application
35		 A	Bone trimming Cutting away hepatic veins Removing eyes and blood vessels Deboning chicken thighs
		 B	Ribs from belly
	Variant with suction 	 A	Trim/vacuum suction tonsils in the head Trim/vacuum suction spinal hole Clean/vacuum suction carcasses Trim/vacuum suction cover fat Trim/vacuum suction auricles/eyes Clean/vacuum bones
		 B	Trim/vacuum suction chest fat Trim/vacuum suction spinal cord Trim/vacuum suction blood vessels Trim/vacuum suction leaf lard
		SCR16 	Remove spinal cord from pigs
		SCR19 	Remove spinal cord from cattle

Size		Shape	Application
52		 A	bone trimming cuting out chicken thighs head trimming cuting out stick wound
		 B	Trimming fat off warm hindquarters Trimming belly Trimming chicken breasts Cutting away turkey veins
	Variant with suction 	 A	Trim/vacuum suction spinal hole Trim/vacuum suction blood vessels
		 B	Trim/vacuum suction cover fat Trim/vacuum suction heart fat Trim/vacuum suction spinal cord Trim/vacuum suction blood vessels Trim/vacuum suction leaf lard Remove tendons in the shoulder
69		 A	Cutting out flat bones Removing fillets from pigs
		 B	Simple fat trimming Trimming fat off lamb and ham Meat recovery
90		 A	Removing fillets from sows
		 B	General and hard fat trimming Trimming belly fat off salmon
		 C	Trimming fat from cutlets Trimming away skin

Size		Shape	Application
128		 C 30°  C 45°	Trimming fat off warm meat Cutting gyros Cutting and filleting salmon Trimming fat off cutlets, trimming away skin
		 D	Trimming fat off hard and cold meat

3.1.2 Equipment

	Description		Description
	DCS depth control • Trimmer 90 and 128 • Application for thin slices • Cutting thin slices of salmon • with protein scraper for fish processing		DCF depth control • Trimmer 90 and 128 • Application for thick slices • Controlled fat trimming
	DC2-F-M depth control • Trimmer 128 • Application for thick slices • Controlled fat trimming		DC2-F-ML depth control • Trimmer 128 • Application for thick slices • Controlled fat trimming
	DC2-F-P depth control • Trimmer 128 • Application for thick slices • Controlled fat trimming		DC2-S depth control • Trimmer 128 • Application for thin slices • Controlled fat trimming

	Description		Description
	Steeling device • Trimmer 90 and 128 For quick and simple deburring during work after sharpening the ring blade		Grease cup • All sizes • Quick and easy lubricating of the slide bearings without having to put down the trimmer or interrupt work
	Grease fitting • All sizes • Automation • Quick and easy slide bearing lubrication		Handle D31 • All sizes Electric drive only (permanent drive/start-stop drive)
	Handle D38 • All sizes • Electric drive only (permanent drive/start-stop drive)		Handle D34 (standard equipment) • All sizes • Electric drive only (permanent drive/start-stop drive)
	Pneumatic motor P2 (standard equipment) • All sizes • pneumatic drive only		Pneumatic motor P2 D34 (optional) • All sizes • ergonomic • pneumatic drive only
	Pneumatic motor P2 D34 knurled (optional) • All sizes • improved ergonomics, adhesion properties and grip • pneumatic drive only		

3.2 Electric trimmer

The TM-E6000_evo2 and TM-E6001_evo2 electric motors are intended to be operated solely with electrical trimmer.

There are two drive variants, the permanent drive and the start-stop drive.

The driveline is available in lengths of 1.5 m and 2.1 m.

3.2.1 Electric drive motor TM_E6000_evo2 / TM-E6001_evo2

Technical data

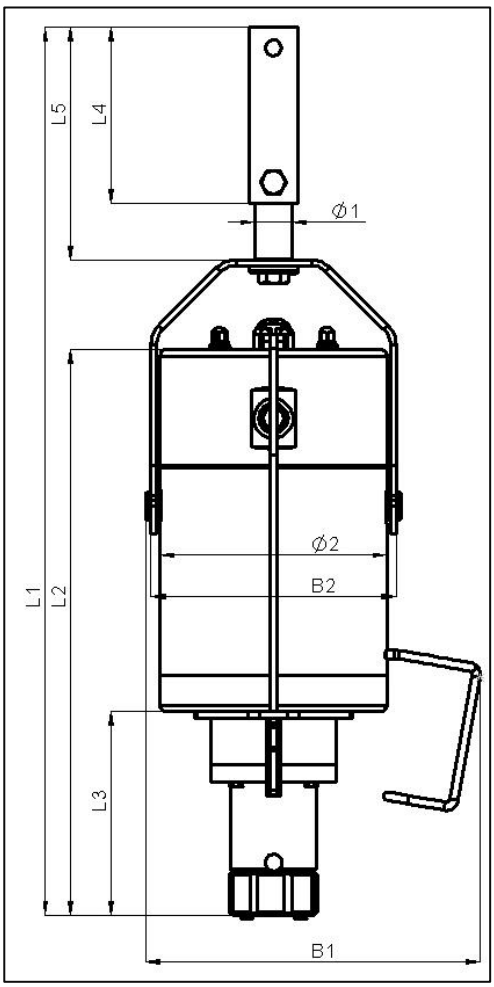


Fig. 3-4 Motor TM-E6000 / TM-E6001

Length [mm]	L1	628	
	L2	400	
	L3	144	
	L4	125	
	L5	165	
Width [mm]	B1	236	
	B2	173	
	Ø1	26	
	Ø2	160	
Weight [kg]		16.5	
Power [kW]		0.55	
Speed [rpm]		2500 – 6000*	
Frequency [Hz]		50 / 60	
Voltage [V]		230	115
Rated current [A]		2,5	5,0
Protection [A]		16	
Operation mode		S6	
Protection class		IP 65	

* Pre-set to 4500 rpm

Serial number

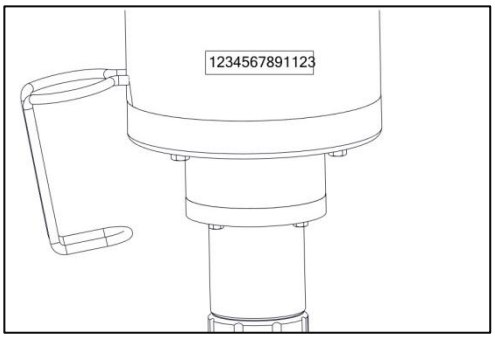


Fig. 3-5 13- digits serial number TM-E6000 / TM-E6001

3.2.2 Trimmer with permanent drive

The trimmer with permanent drive is switched on and off using a rotary switch on the electric drive motor.

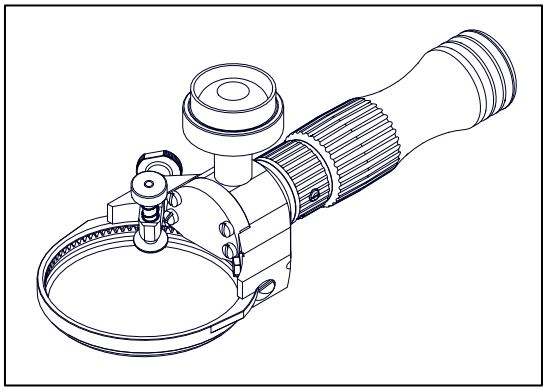


Fig. 3-1 Electric trimmer with permanent drive

3.2.3 Trimmer with start-stop system

The trimmer with start-stop system features a lock integrated into the handle which can be released using the control lever.

This allows the transmission of power from the motor to the ring blade to be interrupted without the motor having to be stopped.

The flex shaft needs to be re-engaged in the trimmer handpiece after every stop.

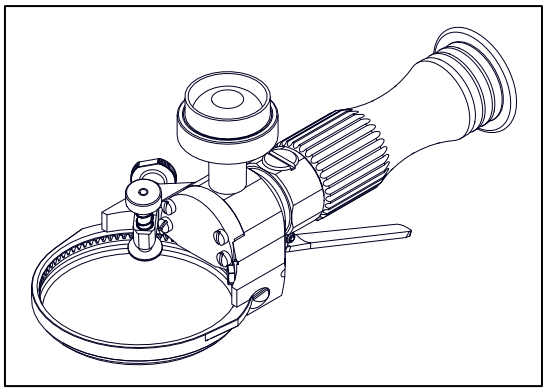


Fig. 3-2 Electric trimmer with start-stop system

3.3 Pneumatic trimmer

The pneumatic trimmer is the tool (trimmer head) for the pneumatic motor.

The pneumatic trimmer allows the operator to start and stop the ring blade easily using a valve lever on the compressed-air motor.

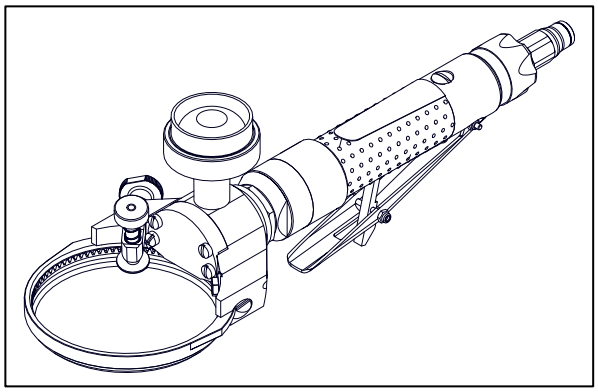


Fig. 3-3 Pneumatic trimmer

3.3.1 P2 compressed-air motor

The FREUND pneumatic motor P2 is low-maintenance and suitable for all handpieces with a diameter of the ring blade of 35-128 mm.

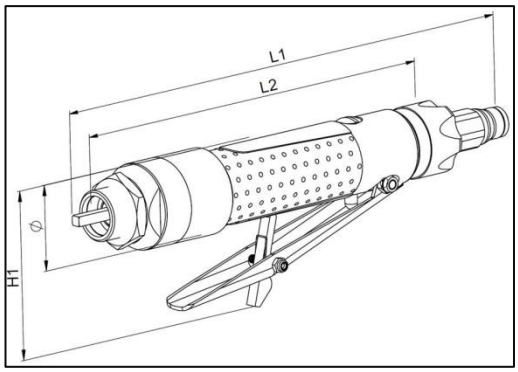


Fig. 3-4 Dimensions of P2 compressed-air motor

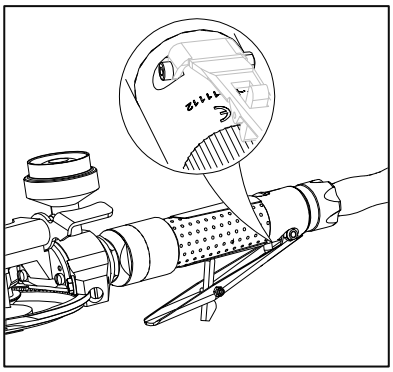


Fig. 3-5 6-digits serial number

Technical data

Length [mm]	L1	226
	L2	174
Height H1 [mm]		69
Diameter Ø [mm]		35
Weight [kg]		0.650
Power [kW]		0.24
Speed [rpm]		4,300
Torque Mlast [Nm]		0,8
Torque Mmax [Nm]		1,5
A-weighted sound power level [db(A)] (measurement method according to DIN EN ISO 15744)		≤ 85
Compressed air pressure [bar]		6
Intake litres [l/min]		400
Connection ["]		¼

3.3.2 Connection set and service unit

Connecting set

A FREUND connection set consists of a service unit, the associated connecting kit and oil.



Abb. 3-6 Connection set

Service unit

The service unit adds atomised oil to the air used to lubricate tools and machines operated by compressed air.

The service unit is ready for connection upon delivery.

The maximum input pressure must not exceed 16 bar.

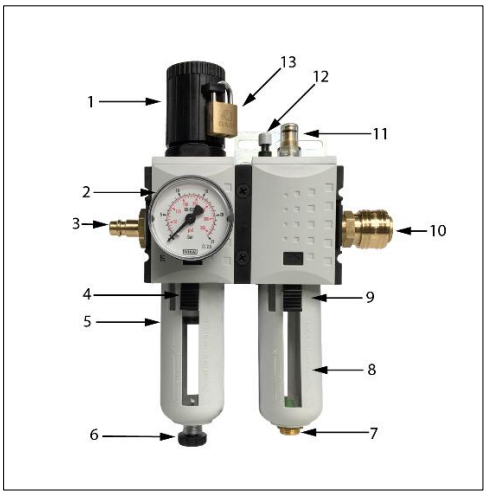


Fig. 3-7 Service unit

1	Handwheel
2	Manometer
3	Compressed air input
4	Collection container lock
5	Collection container
6	Oil drain plug
7	Oil filling hose connection
8	Oiler
9	Oiler lock
10	Compressed air output
11	Drop quantity setting
12	Oil filling button
13	Lock

3.4 Optional accessories

		Part-No.
Sharpening tools	Sharpening steel L = 175	028-E94295
	Sharpening steel L = 120	028-E35241B
	Sharpening steel L = 60	028-E35242
	Sharpening steel	028-E93129
	Sharpening stone semi-circular	028-E52021
	Sharpening stone square	028-E94342
Disinfection	Disinfection-basin DES-B02	913-101-230

3.5 Trimmer sharpening machine TSM-E1

3.5.1 Overview of the machine

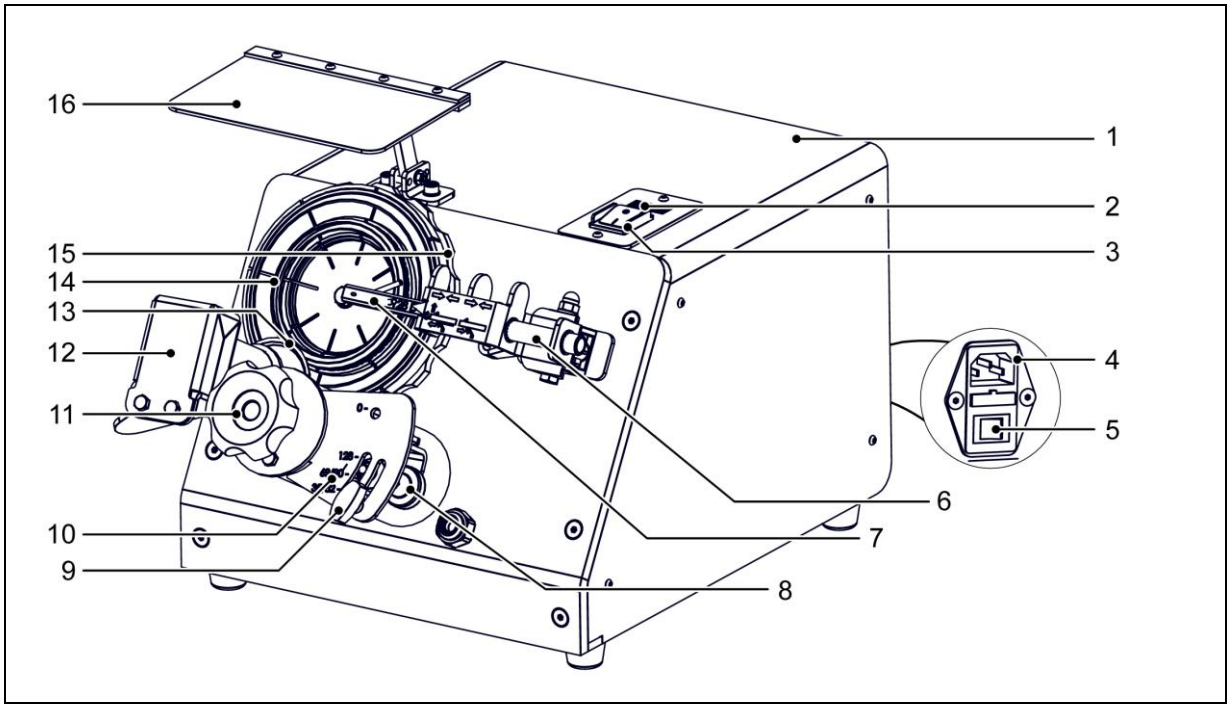


Fig. 3-8 View of TSM E1

No.	Designation	No.	Designation
1	Housing cover	9	Knob
2	Load display	10	Size scale
3	On/off switch	11	Height adjustment
4	Mains connection	12	Grinding disc motor
5	Mains switch	13	Grinding disc
6	Scraper holder	14	Clamping disc
7	Scraper	15	Support disk

No.	Designation	No.	Designation
8	Swivel locking mechanism	16	Safety disc

3.5.2 Technical data

Dimensions (W/H/D) [mm]:	285 x 297 (455) x 500
Weight (kg):	16
Revolutions/min:	100 / 8,000
Power pack output [W]:	150
Operating voltage [V]:	90–264
Rated current [A]:	1.30 / 0.65
Current frequency:	50 / 60
Noise emission:	≤ 70 dB

3.6 Operating materials

3.6.1 Compressed air

The compressed-air motor requires pure, dehumidified compressed air.

The air quality must meet the requirements specified in DIN ISO 8573-1, quality grade 3 - 4.

Minimum requirements

- Solid contaminants up to a particle size of max. 15 µm
- Maximum particle concentration up to 5 mg/m³
- Water content 9.4 g/m³ at +10°C
  Water content 5.6 g/m³ at +2°C
- Maximum oil concentration up to 1 – 5 mg/m³

3.6.2 Lubricants

The disturbance-free functioning and the efficiency of the machine depend significantly on the quality of the lubricants used.

Information and instructions relating to lubricants can be found in the appendix under the heading **TIN-100-013.**

The H1 designation has been established as an international standard for food grade lubricants.

FREUND Maschinenfabrik uses lubricants that comply with the FDA-H1 standard on all machines where accidental contact between the lubricants and the animal carcass is possible.

Safety data sheet

Please refer to the safety data sheets for further information. You can find the safety data sheets in the FA.

Lubricating grease

The lubricating grease recommended by FREUND is based on highly refined paraffin oil and is tasteless and odourless. It is physiologically safe and is conforming to NSF-H1.

Maintanance oil spray: FREUND-maintanance oil spray contains of resin-free and acid-free medical white mineral oil. It reduces friction and wear, suppresses squeaking noise, protects against corrosion, and dissolves dirt and rust. It is physiologically safe and conforming to NSF-H1.

Hydraulic oil: The hydraulic oil recommended by FREUND is a low-viscosity, highly refined medical white mineral oil. It is physiologically harmless and is certified as per FDA H1.

3.7 Scope of delivery

3.7.1 Scope of delivery Trimmer

- Filled grease gun
- Circlip pliers with trimmer 35, 52 and 69

3.7.2 Scope of delivery Trimmer sharpening machine

- Trimmer sharpening machine
- Main connection cable

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.

4.1 Unpacking the machine

Recycling and disposal

The original packaging of the machine is made of recyclable material and can be given to the system for collecting recyclables.

For details about recycling and disposal of the package refer to the → chapter *Disposal and Recycling* on page 52.

- ➢ Remove all packing materials and dispose of it properly and in an environmentally sound manner.
- ➢ Remove any accumulated condensate.
- ➢ Check the machine for transport damage.
- ➢ Watch the machine during the first hours of operation to check whether any malfunctions occur.

4.2 Storing the machine

To store the machine safely, be sure to observe the following notes:

- ➢ Only store the machine in dry and frost-free rooms.
- ➢ When storing the machine for a longer period, make sure it is dry.
- ➢ Store the machine so that damage to the machine is excluded.
- ➢ Protect the machine against corrosion.

5 Installation and Commissioning

The installation and connection of the machine is made by the operator.

For damages, which result from this, the manufacturer FREUND Maschinenfabrik, is not liable.

5.1 Safety information



DANGER!

Live machine parts.

Danger to life.

- Before starting any installation, cleaning, maintenance and repair work, disconnect the electric drive motor from the power supply.
- If possible, disconnect the trimmer from the electric drive motor.
- Trimmer sharpening machine: Disconnect the machine from the power supply.
- Trimmer sharpening machine: Do not clean the machine with water



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 machine parts.

Cutting hazard.

- Never put your hands near moving machine parts.
- Keep your hands away from the cutting tools.
- Always wear protective gloves for your own safety.

5.2 Personal protective equipment



EN

5.3 Electric trimmer

5.3.1 Connecting the electric motor

The electric motor is not designed for mobile use and must be permanently installed.

The trimmer motor must be positioned to the right of the operator for right-handed operation and to the left of the operator for left-handed operation.

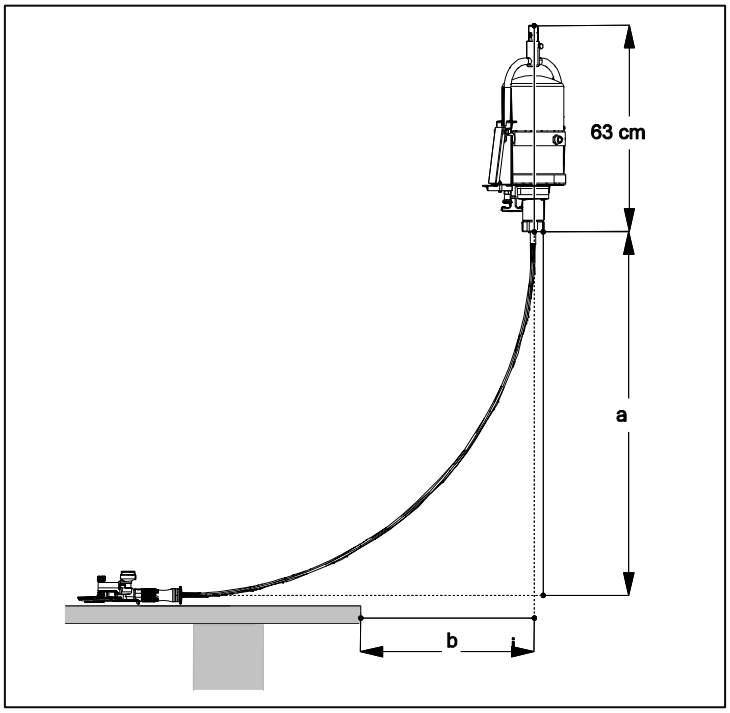


Fig. 5-1 Placement dimensions of electric motor

Length of drive cable	a [mm]	b [mm]
1.5 m	approx. 1016	approx. 406
2.1 m	approx. 1516	approx. 1000

TM-E6000_evo2
TM-E6001_evo2

The relevant manual can be found in the appendix under the heading **TIN-012990**.

5.4 Pneumatic trimmer

The pneumatic trimmer is supplied fully assembled by FREUND Maschinenfabrik.

5.4.1 Connecting trimmer to compressed air supply



Caution!

Danger in the event of incorrect installation and incorrect direction of flow!

An incorrect direction of flow or incorrect installation can cause material damage.

- ➢ Pay attention to the direction of flow.
- ➢ Install the service unit in a vertical position only.

The relevant manual can be found in the appendix under the heading **TIN-015098**.

5.4.2 Setting the service unit



Caution!

Overload due to excessive pressure

Premature wear of the pneumatic motor.

- ➢ The working pressure and drop quantity of the oiler must be set by the operator on an individual basis.
- ➢ Use a padlock to secure the working pressure setting.

The relevant manual can be found in the appendix under the heading **TIN-014526.**

6 Operation

The trimmer is suitable for right- and left-handers.

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.



WARNING!

Sharp-edged machine parts.

Cutting hazard.

- Never put your hands near moving machine parts.
- Keep your hands away from the cutting tools.
- Always wear protective gloves for your own safety.



WARNING!

Rotating saw blades and blades.

Risk of being caught and drawn in due to wearing loose clothing, long hair and jewellery.

- Wear only close-fitting clothes.
- Do not wear jewellery while working.
- Protect long hair with a hair net.

6.2 Personal protective equipment



Additionally protect the hand not holding the machine with a stab-proof protective glove with gauntlet. The gauntlet must protect the entire arm.

6.3 Daily safety inspection

All machines

Before starting work, carefully check the machine for flawless and intended operation.

Only use faultless and fully functional machines.

- ➢ Never use a machine with defective safety devices, switches or other defective machine parts.
- ➢ Have defective safety devices, switches or other parts repaired, and notify your employer.

Check

- ➢ the machine for signs of visible damage and loose machine parts.
- ➢ the fit of moving parts. Ensure they do not stick or show signs of damage.

All trimmers

- ➢ the ring blade. It must be held securely in the blade housing.

Trimmer sharpening machine

Check

- ➢ all electrical connections and connecting cables for external damage.
- ➢ the grinding wheel for wear and damage.

6.4 Greasing the handpieces during work

Trimmer-Kopf 35, 52, 69, 90, 128

The relevant manual can be found in the appendix under the heading **TIN-011854**.

6.5 Adjusting depth control (only trimmer 90 and 128

Trimmer 90, 128

The relevant manual can be found in the appendix under the heading **TIN-012994**.

6.6 Electric trimmer

6.6.1 Daily safety check

Check

- ➢ the ring blade. It must be held securely in the blade housing.
- ➢ the electric motor’s connection cable for visible damage.
- ➢ the flex shaft and flex shaft casing for kinks and damage.

6.6.2 Operating the trimmer with permanent drive

The relevant manual can be found in the apendix under the heading **TIN-012995**.

6.6.3 Operating the trimmer with start-stop system BAC-007403-C/BAC-00011



WARNING!

The ring blade will start rotating immediately when the flex shaft is connected.

Cutting hazard.

- ➢ Do not hold the trimmer by the ring blade when assembling the flex shaft.
- ➢ Wear cut-proof protective gloves.

The relevant manual can be found in the appendix under the heading **TIN-012996**.

6.7 Pneumatic trimmer

6.7.1 Daily safety check

Check

- ➢ the ring blade. It must be held securely in the blade housing.
- ➢ the compressed-air line for visible damage.
- ➢ the compressed-air hose for kinks and damage.
- ➢ the service unit's settings, see → chapter Setting the service unit on page 32.

6.7.2 Operating the trimmer

The relevant manual can be found in the appendix under the heading **TIN-012997**.

6.8 Cleaning and disinfecting trimmers between work steps

The trimmer should be cleaned and disinfected after every work step wherever possible.

Disinfect the machine regularly using the FREUND disinfection-basin DES-B02 (Part-No. 913-101-230).

1. Fill the disinfection basin up to top level of the standpipe.
   The heating time depends on the temperature of the fresh water (about 30 min. at 20°C).
2. Submerge the trimmer with rotating ring blade in the disinfection basin.
3. Open the fresh water valve so far that all meat-particles as well as all other contaminations will be washed away by the standpipe.

6.9 Trimmer sharpening machine TSM-E1

6.9.1 Clamping the ring blade

Before you clamp the ring blade in place, make sure that:

- The machine is switched off.
- The grinding disc motor is swivelled down.
- The scraper is folded to the side.
- The safety disc is folded up.
- The correct clamping disc is installed:
  028-EL2-027 for ring blades 128, 90 and 69
  028-EL2-152 for ring blades 35, 52 and 69

The relevant manual can be found in the appendix under the heading **TIN-011739**.

6.9.2 Changing the clamping disc

The relevant manual can be found in the appendix under the heading **TIN-015685.**

6.9.3 Aligning the grinding disc

The relevant manual can be found in the appendix under the heading **TIN-011740**.

6.9.4 Sharpening the ring blade



CAUTION!

The ring blade may jump out of the clamping disc.
Cutting hazard.

➢ Wear cut-proof protective gloves.
➢ Only move the scraper gently against the ring blade.

The relevant manual can be found in the appendix under the heading **TIN-011743**.

7 Cleaning and Disinfection

Cleaning is carried out in order to remove dirt, meat and fat particles from the machine.

For hygienic reasons, the machine must be thoroughly cleaned at least daily after each shift, and in between in case of heavy soiling. All surfaces must be visually clean after cleaning.

Thorough cleaning is a prerequisite for the subsequent disinfection to be effective.

Always take note of the safety instructions in the product data sheets issued for the relevant detergents or disinfectants.

7.1 Safety information



DANGER!

Live machine parts.

Danger to life.

- Before starting any installation, cleaning, maintenance and repair work, disconnect the electric drive motor from the power supply.
- If possible, disconnect the trimmer from the electric drive motor.
- Trimmer sharpening machine: Disconnect the machine from the power supply.
- Trimmer sharpening machine: Do not clean the machine with water



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 and cleaned by qualified personnel.
- Maintenance work on live components may only be performed by trained electricians.



WARNING!

Sharp-edged machine parts.

Cutting hazard.

- Never put your hands near moving machine parts.
- Keep your hands away from the cutting tools.
- Always wear protective gloves for your own safety.



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 Cleaning and disinfecting the trimmer

- ➢ Only use detergents and disinfectants approved for the food industry.
- ➢ Pay attention to the marking as well as the safety and product data sheets for the detergents and disinfectants used.
- ➢ Store detergents and disinfectants in a separate location or in a special room.

  It is imperative that you prevent direct contact between detergents/disinfectants and food.

Caution!

Damage due to high water pressure.

High water pressures will cause damage to seals and machine parts.

- ➢ Do not use high-pressure cleaners.
- ➢ Only work at water pressures ≤ 6 bar.

- ➢ Always wear the personal protective equipment specified by the detergent/disinfectant manufacturers.
- ➢ Only use cloths, brushes or other devices which are only used for cleaning.

Work steps	Detergents and disinfectants	Auxiliary materials
		
Rough cleaning		
Removing product residue	Drinking water	Plastic scraper, brush
Removing small parts and assembly parts	Drinking water	Plastic scraper, brush; dishwasher if necessary
Intermediate rinsing		
	Drinking water, max. 60°C depending on fat melting temperature Low-pressure device, spray bottle	
Main cleaning		
Apply foam, allow to act for approx. 15 minutes	2 – 4% Somplex grease solvent 2 – 3% Ecolab P3-topax 19 2 – 3% Ecolab P3-topax 66 Ecolab P3-steril Powerfoam	Spray bottle, brush, tub, clean damp cleaning cloths
Rinse	Drinking water, max. 60°C	Low-pressure device, spray bottle
Check that machine is visibly clean		
Acid cleaning*[1] (instead of main cleaning)		
Apply foam, allow to act for approx. 15 minutes	3 – 6% P3-topax 56 3 P3-riskan, Somplex foam, acidic	Spray bottle, brush for removing limescale deposits
Rinse	Drinking water at 50 – 60°C	Low-pressure device, water hose
Check that machine is visibly clean		
Intermediate rinsing		
	Drinking water, max. 60°C Low-pressure device, spray bottle	
Disinfection*[2]		
Spray, apply foam Allow to act as per product data sheet Solution temperature approx. 15°C	1 – 2% Ecolab P3-topax 99 0.5 – 2% Ecolab P3-topax 91 1% TEGOL 2000 1% TEGOL IMC 1% Somplex	Spray bottle, spray gun, clean damp cloth
Final rinsing		
	Drinking water, max. 60°C depending on fat melting temperature Low-pressure device, spray bottle	
Check		
that machine is visibly clean; repeat cleaning and/or disinfection if necessary		

Work steps	Detergents and disinfectants	Auxiliary materials
Drying		
Rub dry or allow to dry in ambient air; allow disassembled parts to dry individually if possible		
Care		
Apply	Preservative oil, food grade oil	Spray bottle, clean cleaning cloth
Assembly		
Personnel must wash and disinfect hands		

* 1 For materials sensitive to acids such as POM, PMMA (acrylates) and cast materials, we recommend limiting acid cleaning to around 1x every 2 to 6 weeks.

* 2 The surfaces should, after cleaning and disinfection, simply be dried and protected from oxidation by a suitable preservative film.

7.4 Cleaning the trimmer sharpening machine



DANGER!

Live machine parts.

Danger to life.

➢ Do not clean the machine with water.

➢ Use only a dry cloth or a brush to clean the trimmer sharpening machine.

8 Maintenance and Repair Work

To ensure a long service life and low wear, the machine must be regularly checked and maintained.

The work area on the workbench must be clean and free from foreign material for all maintenance or dismantling work.

Repair and maintenance must only be carried out by skilled and authorized qualified personnel.

Warranty

If faults or defects are detected on the machine during the legal warranty period, contact our sales staff. Please refer to the company information at the imprint for address and telephone numbers.

Only use original spare parts or spare parts recommended by FREUND Maschinenfabrik.

8.1 Safety information



DANGER!

Live machine parts.

Danger to life.

- ➢ Before starting any installation, cleaning, maintenance and repair work, disconnect the electric drive motor from the power supply.
- ➢ If possible, disconnect the trimmer from the electric drive motor.
- ➢ Trimmer sharpening machine: Disconnect the machine from the power supply.
- ➢ Trimmer sharpening machine: Do not clean the machine with water



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 and cleaned by qualified personnel.
- ➢ Maintenance work on live components may only be performed by trained electricians.



WARNING!

Sharp-edged machine parts.

Cutting hazard.

- ➢ Never put your hands near moving machine parts.
- ➢ Keep your hands away from the cutting tools.
- ➢ Always wear protective gloves for your own safety.

8.2 Personal protective equipment



8.3 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
	1-kg box	100-013-007
Service unit	1-l oil bottle	047-004-004

8.4 Maintenance schedule

Some maintenance tasks must be performed at regular intervals.

The table below provides an overview of the maintenance tasks to be performed, together with the maintenance interval. If necessary, adapt the maintenance intervals to your operating conditions.

Further manuals for repair and assembly tasks are available from FREUND Assistance.

8.4.1 All trimmer

Interval	Maintenance job	→ chapter
During work	Sharpening the ring blade by whetting	
	Filling the grease cup	→ chapter *Greasing the handpieces during work* on page 34
Daily	Visual inspection before starting any work	→ chapter *Daily safety inspection* on page 34
	Sharpening the ring blade	→chapter *Sharpening the ring blade* on page 43
If required	Replacing the ring blade	→ chapter *Changing the ring blade* on page 44

8.4.2 Electric trimmer

Interval	Maintenance job	→ chapter
Weekly	Cleaning and greasing the flex shaft casing and the flex shaft	→ chapter *Greasing the flex shaft* on page 45
Motor TM-E6000 / TM-E6001:		
Every 6 month	Periodic inspection on electrical appliances acc. to VDE 0701/0702/EN60204-1	→ chapter *Periodic inspection of electrical equipment* on page 45

8.4.3 Pneumatic trimmer

Interval	Maintenance job	→ chapter
Daily	Checking the service unit	→ chapter *Checking the service unit* on page 46
Approx. every 500 operating hours	Service the pneumatic motor.	We recommend having maintenance performed by a FREUND Maschinenfabrik service technician.

8.4.4 Trimmer sharpening machine TSM-E1

Interval	Maintenance job	→ Chapter
If required	Replace the grinding disc	→ Chapter *Cleaning the grinding di* on page 43
	Replace the scraper pins	→ Chapter *Replacing the scraper pins* on page 46
	Replace the drive belt	→ Chapter *Replacing the drive belt* on page 46
	Cleaning the grinding disc	→ Chapter *Cleaning the* **grinding disc** on page 46

8.5 Sharpening the ring blade

Sharpen your blades with the trimmer sharpening machine → Chapter *Trimmer sharpening machine TSM-E1* on page 36.

It is essential that you remove the swarf every time the blade is sharpened.

8.5.1 Trimmer 90 and 128 (ring blade shapes B, C and D)



WARNING!

Sharp-edged machine parts.

Danger of cutting

➢ Wear protective gloves for your safety.

The relevant manual can be found in the appendix under the heading **TIN-012998**.

8.5.2 Trimmer 35, 52 and 69 (ring blade shape A and B)



WARNING!

Sharp-edged machine parts.

Danger of cutting

➢ Wear protective gloves for your safety.

The relevant manual can be found in the appendix under the heading **TIN-012999**.

8.6 Changing the ring blade

8.6.1 Trimmer 90 and 128

You can find he corresponding installation manual in the spare parts list under the heading **MTA-013002**.

8.6.2 Trimmer 35, 52 and 69

You can find he corresponding installation manual in the spare parts list under the heading **MTA-013003**.

8.7 Measuring ring blade play



WARNING!

Sharp-edged machine parts.

Danger of cutting.

➢ Wear protective gloves for your safety.



WARNING!

Blocking ring blade.

Risk of injuriy because of blocking ring knife!

➢ Do not tighten the adjusting screw too much.

Check the ring knife clearance every time you change the ring knife. The ring knife clearance should not be greater than 0.5 mm.

The ring knife clearance can be adjusted on the following trimmers: Trimmer 90, 128.

The ring blade clearance cannot be adjusted on the following trimmers: Trimmer 35, 52, 69.

The relevant manual for trimmers 90, 128 can be found in the appendix under the heading **TIN-013000**.

8.8 Electric trimmer

8.8.1 Periodic inspection of electrical equipment

Periodic inspections of non-stationary electrical machinery and equipment that is used in slaughtering and cutting plants must be carried out at intervals of six months in accordance with EN 60204-1.

The electrical test must be carried out by an electrically skilled person in the sense of the accident prevention regulation “Electrical installations and equipment” or by an electrically instructed person.

Service package SDL-003-004

We at FREUND Maschinenfabrik would like to give you the option to arrange for the next periodic inspection of your machinery or equipment to be carried out at our factory. We offer the service package SDL-003-004 including a complete inspection of the electrical system with inspection report and test sticker.

If you are interested in arranging for a periodic inspection at our factory or by a service technician on-site, please contact our sales departement. Please refer to the company information in the imprint for address and telephone numbers.

8.8.2 Greasing the flex shaft

Check the flex shaft casing and the flex shaft for kinks, cracks and deformation.

When pulling out the flex shaft, make sure not to kink or deform it. Damage to the flex shaft can increase wear.

Grease the flexible shaft with food grade grease during assembly into the shaft hose. As an alternative we recommend the chain lubricating oil F.L.88N from Rivolta.

The relevant manual can be found in the appendix under the heading **TIN-013004.**

8.9 Pneumatic trimmer

8.9.1 Checking the service unit

Information on setting values and volumes can be found in the → chapter *Setting the service unit* on page 32.

- ➢ Top up the oil tank up to MAX mark.
- ➢ Check the drip setting.
- ➢ Empty the water separator.

8.9.2 Checking the compressed-air motor

Approx. every 500 operating hours

We also recommend that the pneumatic motor be left unopened for liability reasons. We recommend having maintenance performed by a FREUND Maschinenfabrik service technician.

FREUND Maschinenfabrik will not accept any liability for damage resulting from repairs not carried out by manufacturer.

Service package SDL-003-051

FREUND Maschinenfabrik offers the service package SDL-003-051 including the inspection and maintenance of the compressed-air motor and the change of certain consumable parts (bearing, lamellae).

Maintenance kit

If you wish to repair the compressed air motor yourself, order the maintenance kit for motor P2 (Part-No. 068-002-012E) from our sales department.

The maintenance kit includes the necessary tools and provide a detailed, step-by-step description for all working steps.

8.10 Trimmer sharpening machine TSM-E1

8.10.1 Replacing the grinding disc

The relevant installation manual can be found in the spare parts list under the heading **MTA-011765-C**.

8.10.2 Replacing the scraper pins

The relevant installation manual can be found in the spare parts list under the heading **MTA-011766-C**.

8.10.3 Replacing the drive belt

Over time, the drive belt can elongate or harden. Check the drive belt at regular intervals and replace it as soon as the driving force falls or the rotation becomes irregular.

The relevant installation manual can be found in the spare parts list under the heading **MTA-011767-C**.

8.10.4 Cleaning the grinding disc

The relevant manual can be found in the appendix under the heading **TIN-015171.**

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 starting any installation, cleaning, maintenance and repair work, disconnect the electric drive motor from the power supply.
- ➢ If possible, disconnect the trimmer from the electric drive motor.
- ➢ Trimmer sharpening machine: Disconnect the machine from the power supply.
- ➢ Trimmer sharpening machine: Do not clean the machine with water



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 and cleaned by qualified personnel.
- ➢ Maintenance work on live components may only be performed by trained electricians.



WARNING!

Sharp-edged machine parts.

Cutting hazard.

- ➢ Never put your hands near moving machine parts.
- ➢ Keep your hands away from the cutting tools.
- ➢ Always wear protective gloves for your own safety.

9.2 Personal protective equipment



9.3 Overview of possible faults

9.3.1 All trimmer

Störung	Possible cause	Remedy
Vibrations in the handpiece, uneven running.	Wrong adjusted ring blade housing.	Adjust the ring blade housing correctly.
	Unbalanced ring blade.	Replace the ring blade.
	Dirty ring blade/ring blade housing.	Clean the ring blade or the ring blade housing.
	Worn out of ring blade housing.	Replace the ring blade housing.
	Wrong mounted of ring blade housing.	Mount ring blade housing so that the adjustment screw fits correctly into the gap in the ring blade housing. Adjust the ring blade housing correctly.
	Missing or replaced washer by an untempered one.	Put original FREUND washer under the pinion gear.
Hot ring blade housing.	Too tight adjusted ring blade housing.	Adjust the ring blade housing correctly.
	Too much grease.	Avoid pushing the grease cup too often. Remove the excess grease and clean the ring blade housing.
	Dirty ring blade/ring blade housing.	Clean the ring blade and/or ring blade housing.
Ring blade is cutting worse.	Wrong sharpening.	Sharpen the ring blade.
	Wrong usage of the steeling device.	Only use the steeling device for taking the grid off the ring blade.

9.3.2 Electric trimmer

Fault	Possible cause	Remedy
Trimmer does not run / stops during operation.	Electric motor is dead	Check whether supply cable is connected.
		Check the supply cables for disruption or damages.
		Check main fuse.
	Cable connections are loose or defective.	Check the cable connections.
		Check the flex shaft casing.

Fault	Possible cause	Remedy
	Inside damaged flex shaft casing.	Replace the flex shaft and the flex shaft casing in a pair.
Unusual noises on the electric motor.	Excessive bearing clearance and/or bearing defective.	Check bearings.
	Fastening balls loose.	Check the tightness of bolts and nuts, if necessary tighten.
On-/Off-Switch shines blue, but motor doesn't run.	Power failure during operation.	1. Switch off motor. 2. Wait until blue light has gone (duration approx. 5 seconds). 3. Switch on motor again.
	On-/Off-Switch was pushed in front of the connection to the power supply.	
Motor is running, but no transmission to the handpiece.	Worn out of safety pin in the drive shaft.	Send the motor for maintenance to the manufacturer as there are special tools needed.
High wear of flex shaft and flex shaft casings.	Wrong position of the electric motor.	Request the given dimensions in → chapter *Connecting the electric motor* on page 31. Avoid all small arches, angles and/or buckling in the flex shaft casing.
High wear of flex shaft and flex shaft casings.	Too high workload on the handpiece.	Sharpen the ring blade.
	Inside damaged flex shaft casing.	Replace the flex shaft and the flex shaft casing in a pair.
Handpiece spins/rotates on the flex shaft casing.	Too tight adjusted ring blade housing.	Adjust the ring blade housing correctly.
	Too long flex shaft or too short flex shaft casing.	Replace the flex shaft or the flex shaft casing.
Nylon cap melts, wears out too fast.	Too long flex shaft or too short flex shaft casing.	Replace flex shaft and flex shaft casing. Check whether the end of the flex shaft is in the tolerance of 20 – 26 mm.
	Pinion gear touches cap.	Clean pinion gear and slide bearing.

9.3.3 Pneumatic trimmer

Fault	Possible cause	Remedy
Trimmer does not run / stops during work.	No or too low compressed air.	Check whether the compressed air supply is fully open.
		Check the compressed air motor.
		Check the correct settings of the service unit → chapter *Setting the service unit* on page 32. The machine is designed for a pressure up to maximum 6 bar.
		Check the length of the air supply hose. The length of the air supply hose is 5 m and should not be extended.
	Air supply hoses are not connected or are defective.	Check the compressed air lines and connections.
		Replace defective air supply hoses.
	Compressed air motor P2 is defective.	Contact FREUND Maschinenfabrik.
	On use with compressor: Compressor is not switched on.	Switch on the compressor.
	Compressor is defective.	Contact the manufacturer of the compressor.
Trimmer does not operate.	Valve O-ring does not close properly.	Terminate work and send the machine to FREUND Maschinenfabrik for inspection.

9.3.4 Trimmer sharpening machine TSM-E1

Fault	Possible cause	Remedy
Burr on the cutting edge despite proper scraping	Wrong scraper pin set	Set the correct scraper pin
	Scraper pin notched	Replace the scraper pin → Chapter *Replacing the scraper pins* on page 46
	Spring on scraper holder insufficiently preloaded	Preload the spring tighter
Clamping disc not turning	The drive belt has stretched too much	Replace the drive belt or preload it tighter → Chapter *Replacing the drive belt* on page 46

Fault	Possible cause	Remedy
	The screw in the centre of the clamping disc has not been tightened	Tighten the screw hand-tight
Grinding disc feed not working	The locking ring on the spindle is not seated in the intended groove	Replace the locking ring
Blades are irregular or slightly oval after grinding	The screw for clamping the blade into the clamping disc was over-tightened	Tighten the screw hand-tight only
Blades running unevenly and the blade surfaces are ground unevenly	The blade is not placed correctly on the contact surface	Place the blade evenly on the contact surface
	The support disc is not in contact with the contact surface of the drive shaft	Turn and tighten the support disc in front of the drive shaft

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.

TIN-100-013

Hydrauliköl / Hydraulic oil Esso Marcol 82 (100-013-029)

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

Hydrauliköl / Hydraulic oil Nevastane AW46 (100-013-026)

VK Gebinde / Disposal dimensions	Teile Nr. / Item No
1 l Flasche / Bottle	047-004-004
5 l Kanister / Canister	171-500-004
10 l Kanister / Canister	171-500-005
20 l Kanister / Canister	171-500-006
Verwendung / Ability for	Füllmenge / Filling capacity
K16-P4, PNM, SD11	0,1 l
HPE9	21 l
HPE20	28 l

Getriebefett / Gearbox grease Kajo GLP o F (100-013-001)

VK Gebinde / Disposal dimensions	Teile Nr. / Item No
1 kg Dose / Box	171-500-010
Verwendung / Ability for	Füllmenge / Filling capacity
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

TIN-100-013

Getriebefett / Gearbox grease MOBIL Glygoyle 30 (100-013-048)

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

Vakuumpumpenöl / Vacuum pump oil MOBIL Rarus 427 (100-013-032)

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

Lebensmittelfett / Lubricating grease Rivolta F.L.G. 4-2 (100-013-036)
https://info.nsf.org/USDA/letters/125886.pdf

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

Lebensmittelfett / Lubricating grease Rivolta F.L.G. GT-2 (100-013-057)
https://info.nsf.org/USDA/letters/140657.pdf

VK Gebinde / Disposal dimensions	Teile Nr. / Item No
0,18 kg Fettpresse / Grease gun	028-100-006
1 kg Dose / Box	100-013-058
Verwendung / Ability for	
Trimmer	
Hand Skinner	

TIN-100-013

Schmierfett / Grease OKS 475 (100-013-038)

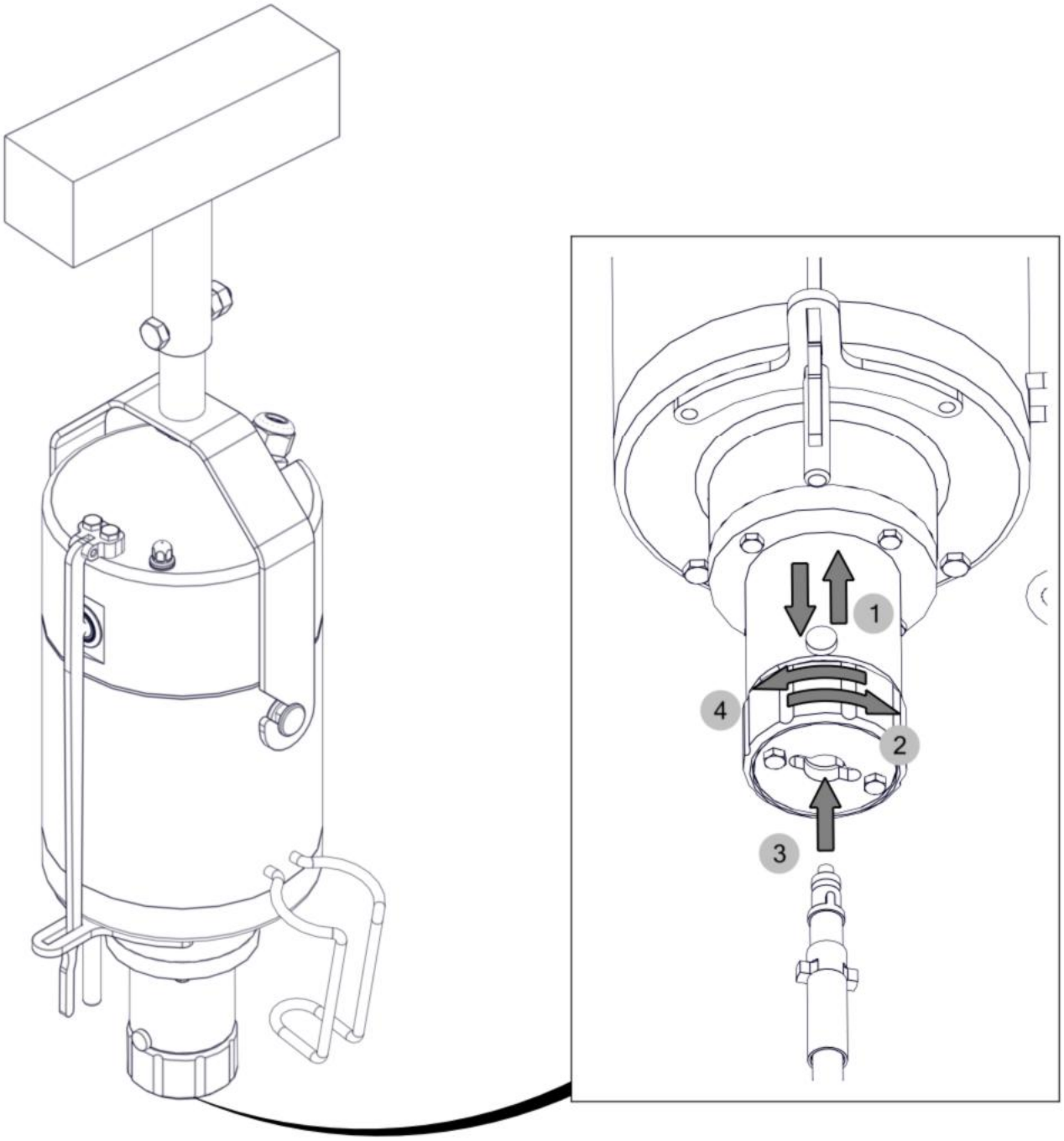
VK Gebinde / Disposal dimensions	Teile Nr. / Item No
0,4 kg Kartusche / Cartridge	100-013-037
0,14 kg Fettpresse ST / Grease Gun ST	151-002-039
0,14 kg Fettpresse EDF, SD11 / Grease Gun (EDF, SD11)	047-004-002
Verwendung / Ability for	Füllmenge / Filling capacity
Getriebe / Gear ST, SST, BBST	0,07 kg
EDF, SD11	0,03 kg
STUN-HE-M, STUN-HE-PP	

Schmierfett / Grease OKS 479 (100-013-039)

VK Gebinde / Disposal dimensions	Teile Nr. / Item No
1 kg Dose / Box	100-013-039
Verwendung / Ability for	Füllmenge / Filling capacity
Getriebe / Gear GM	0,1 kg
Getriebe / Gear ZKM25	0,1 kg
Getriebe / Gear FK40	0,1 kg

TIN-012990

TM E6000_evo2



TIN-012990 -001

Erklärung der Symbole siehe Betriebsanleitung Kap.1 / *Explanations of symbols see operating manual chp. 1*

Demontage
Disassembly

Montage
Assembly

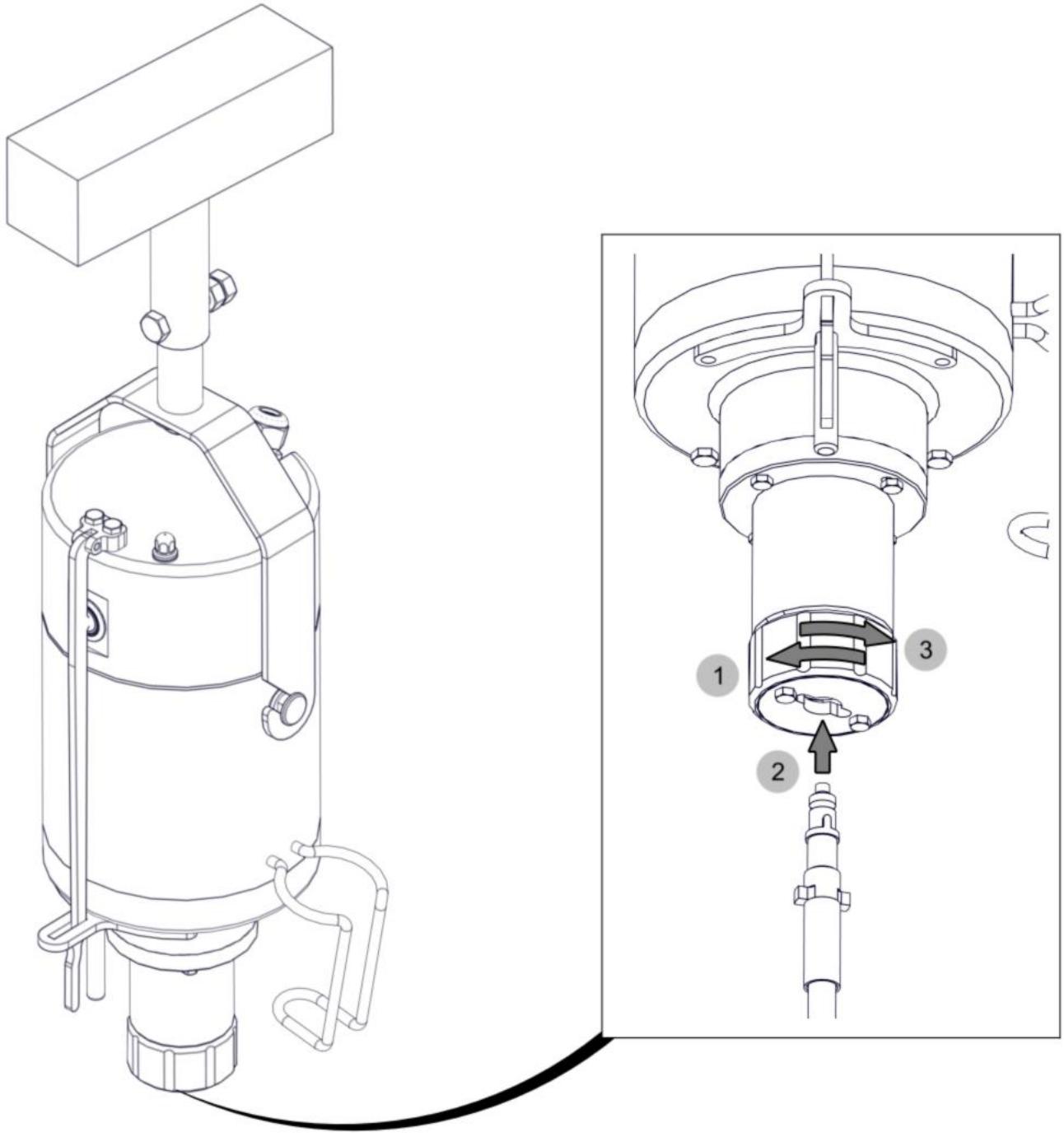
Betriebsanleitung beachten
Pay attention to operating manual

Montageanleitung
Assembly instructions

Werkzeugsatz
Toolkit

TIN-012990

TM E6001_evo2



TIN-012990 -001

Erklärung der Symbole siehe Betriebsanleitung Kap.1 / *Explanations of symbols see operating manual chp. 1*

Demontage
Disassembly

Montage
Assembly

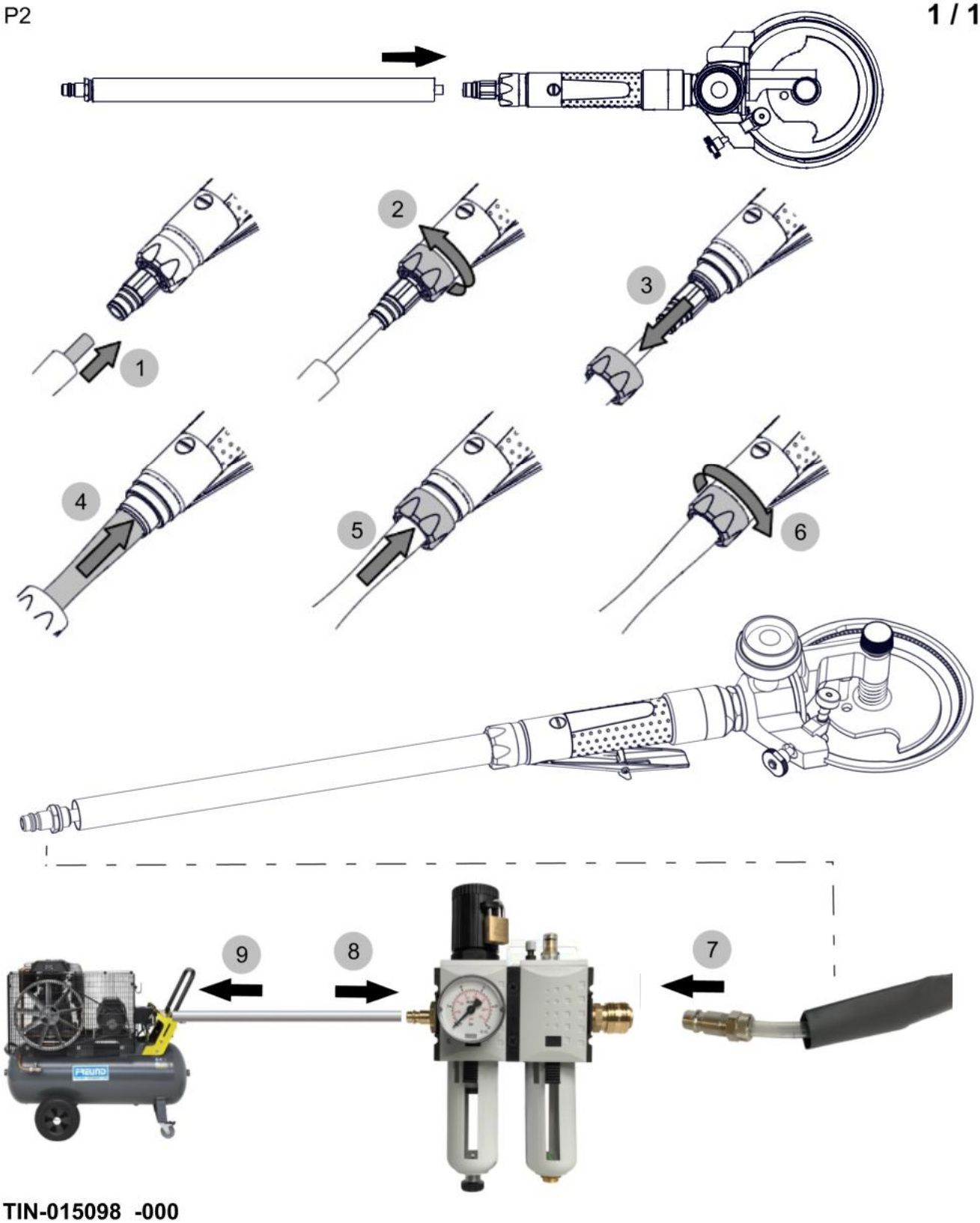
Betriebsanleitung beachten
Pay attention to operating manual

Montageanleitung
Assembly instructions

Werkzeugsatz
Toolkit

TIN-015098

P2



TIN-015098 -000

Erklärung der Symbole siehe Betriebsanleitung Kap.1 / *Explanations of symbols see operating manual chp. 1*

Demontage *Disassembly*

Montage *Assembly*

Betriebsanleitung beachten *Pay attention to operating manual*

Montageanleitung *Assembly instructions*

Werkzeugsatz *Toolkit*

TIN-014526

1 / 1

/min

/min

	/min
P2	2
P3	1
P4	4
P5	0,5
P6	2
SD11	1 - 2
EDF	3

< 16 bar

3
+
-
2
1

< min.

1
2
3
4
5
80 ml = max.

max.
> max.
min.

047-004-004

TIN-014526 -001

Erklärung der Symbole siehe Betriebsanleitung Kap.1 / *Explanations of symbols see operating manual chp. 1*

Demontage *Disassembly*

Montage *Assembly*

Betriebsanleitung beachten *Pay attention to operating manual*

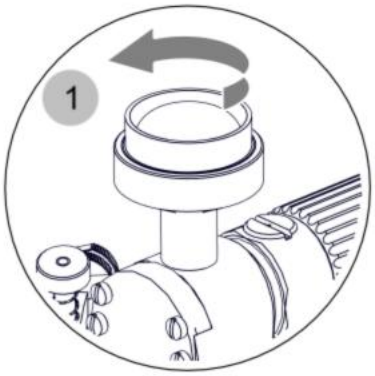
Montageanleitung *Assembly instructions*

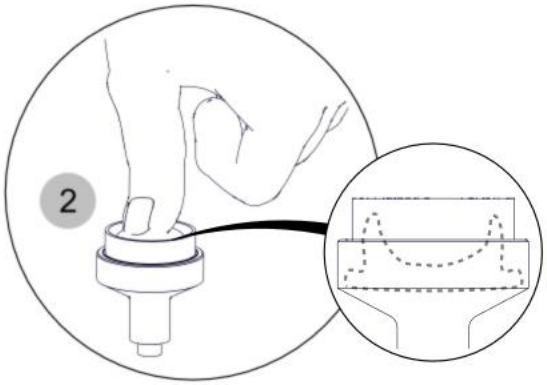
Werkzeugsatz *Toolkit*

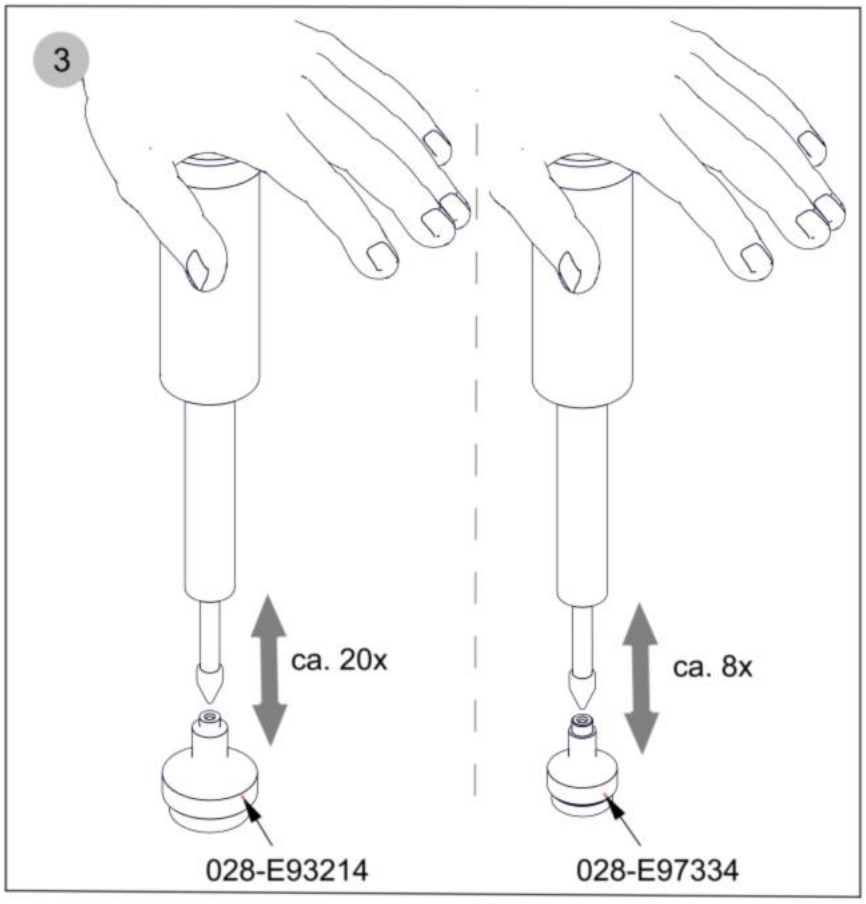
TIN-011854













TIN-011854 -003

Erklärung der Symbole siehe Betriebsanleitung Kap.1 / *Explanations of symbols see operating manual chp. 1*

Demontage
Disassembly

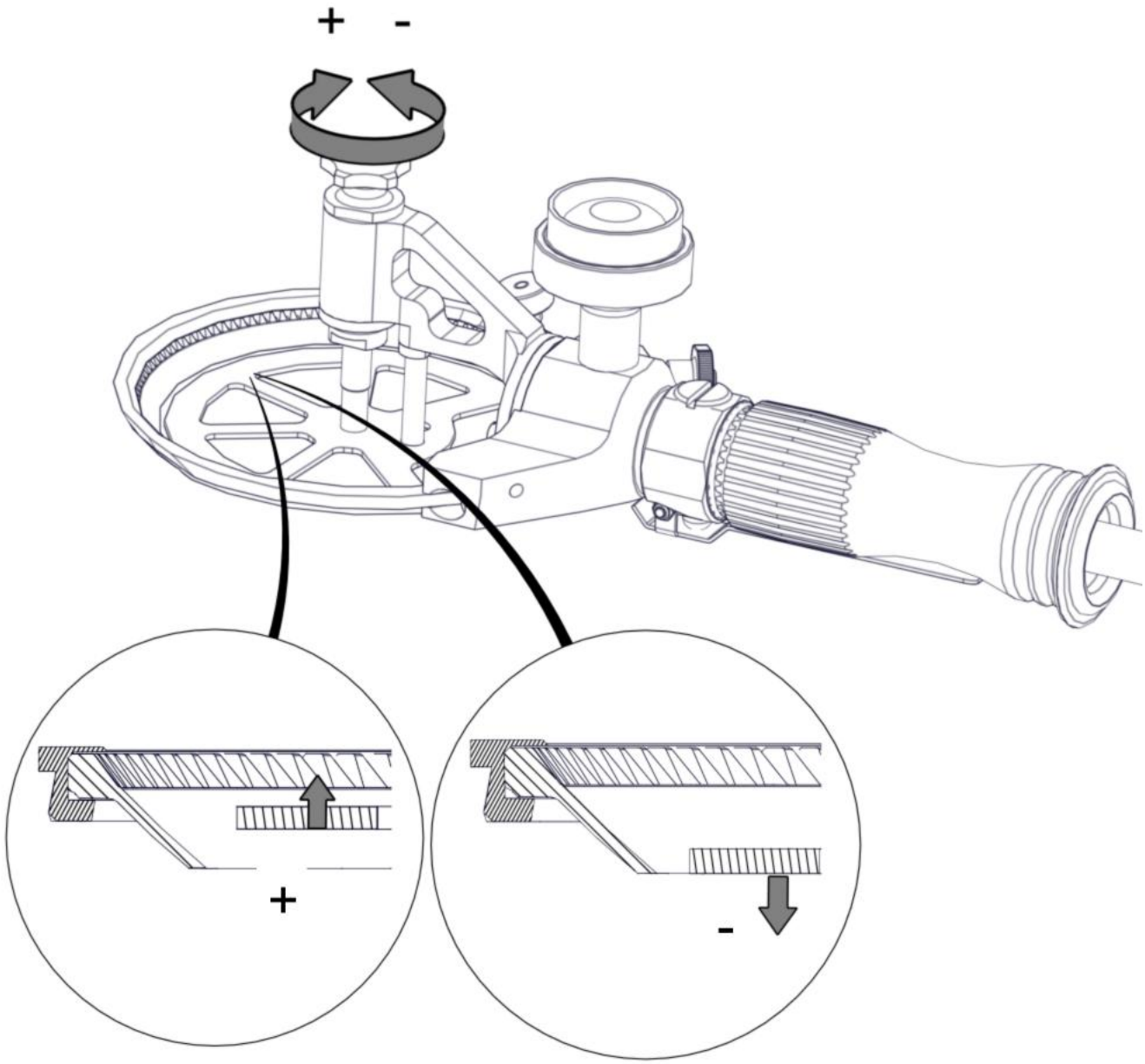
Montage
Assembly

Betriebsanleitung beachten
Pay attention to operating manual

Montageanleitung
Assembly instructions

Werkzeugsatz
Toolkit

TIN-012994



TIN-012994-C -001

Erklärung der Symbole siehe Betriebsanleitung Kap.1 / *Explanations of symbols see operating manual chp. 1*

Demontage
Disassembly

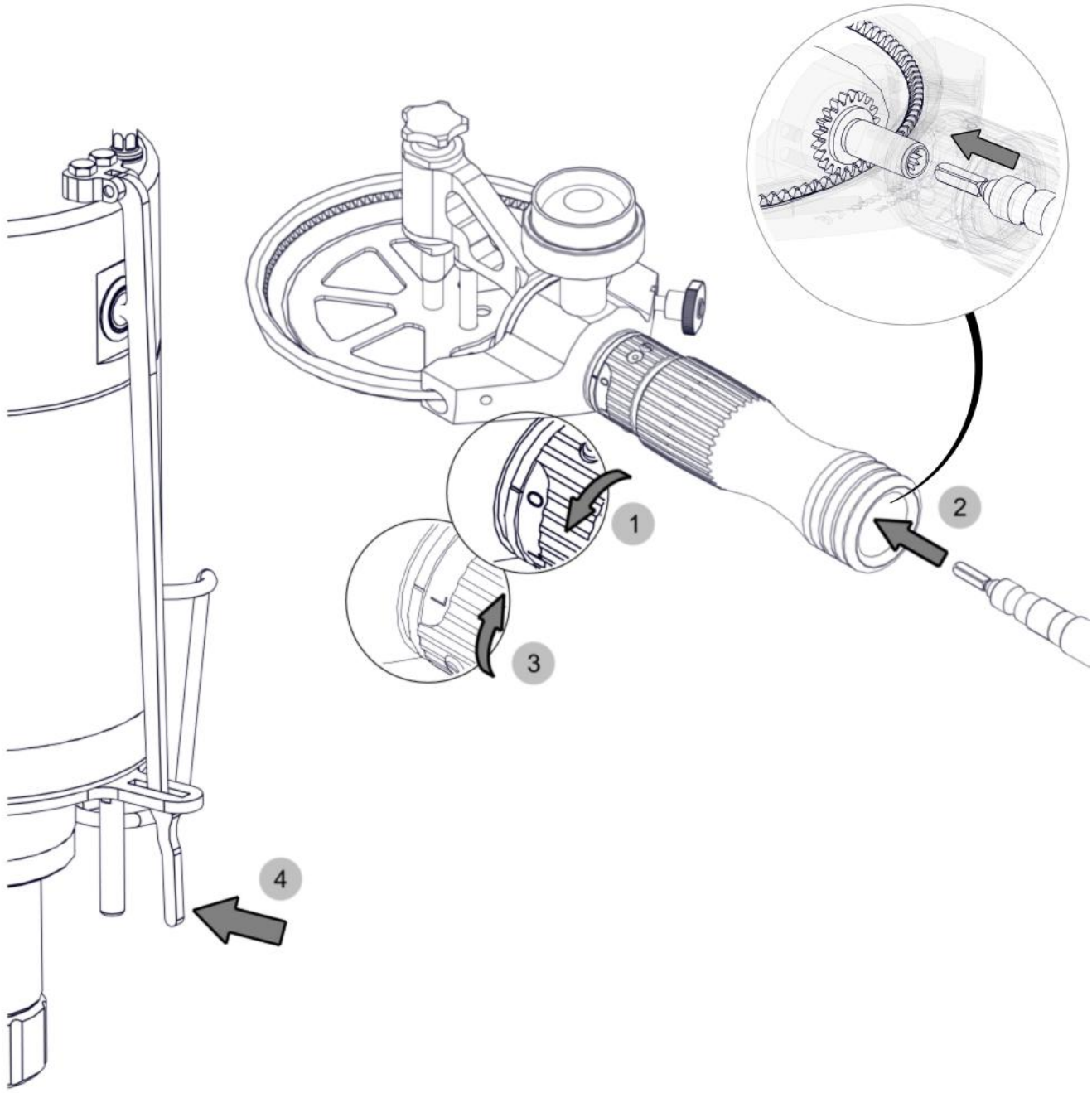
Montage
Assembly

Betriebsanleitung beachten
Pay attention to operating manual

Montageanleitung
Assembly instructions

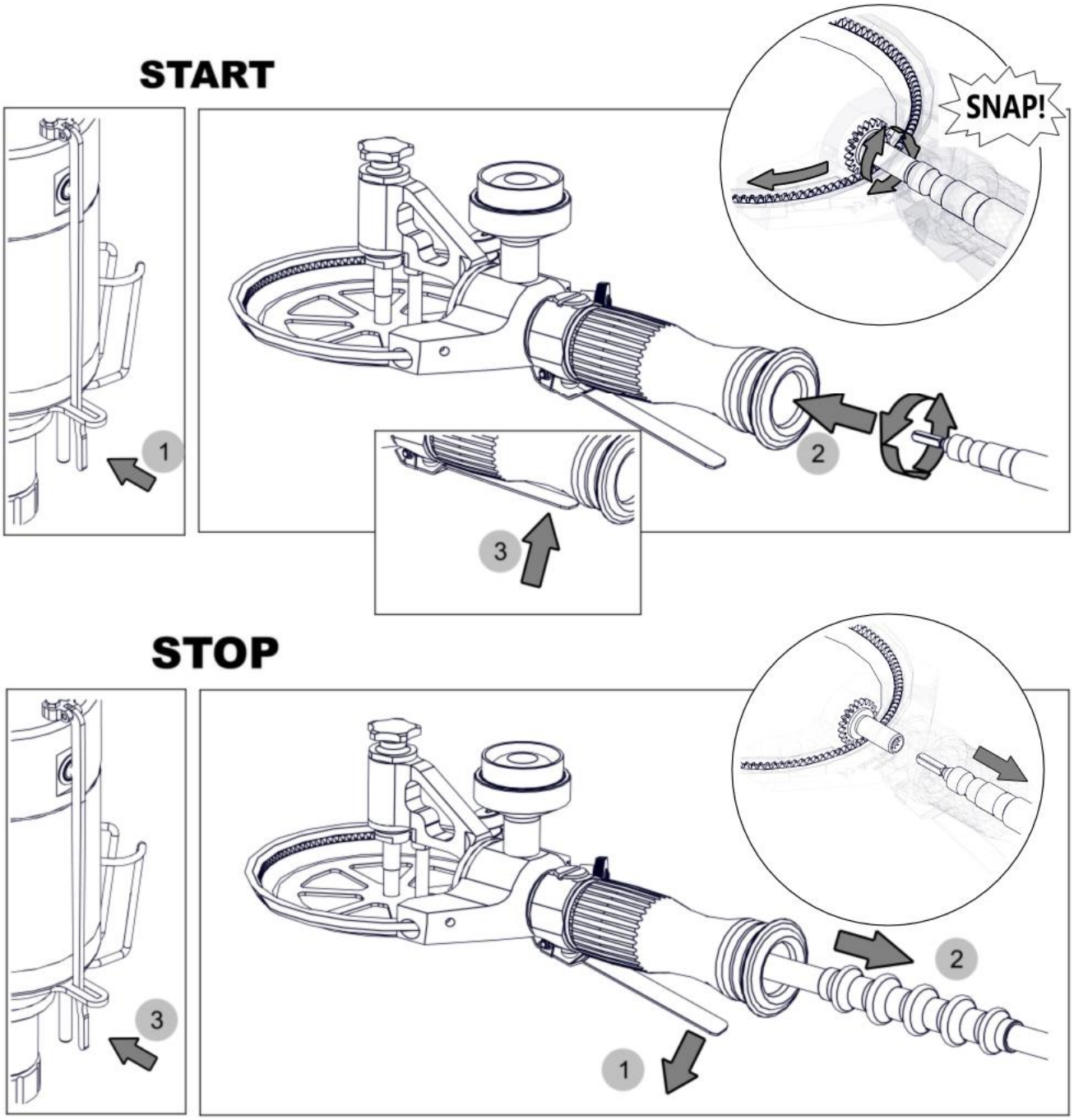
Werkzeugsatz
Toolkit

TIN-012995



TIN-012995 -001

TIN-012996



TIN-012996-C -001

Erklärung der Symbole siehe Betriebsanleitung Kap.1 / *Explanations of symbols see operating manual chp. 1*

Demontage
Disassembly

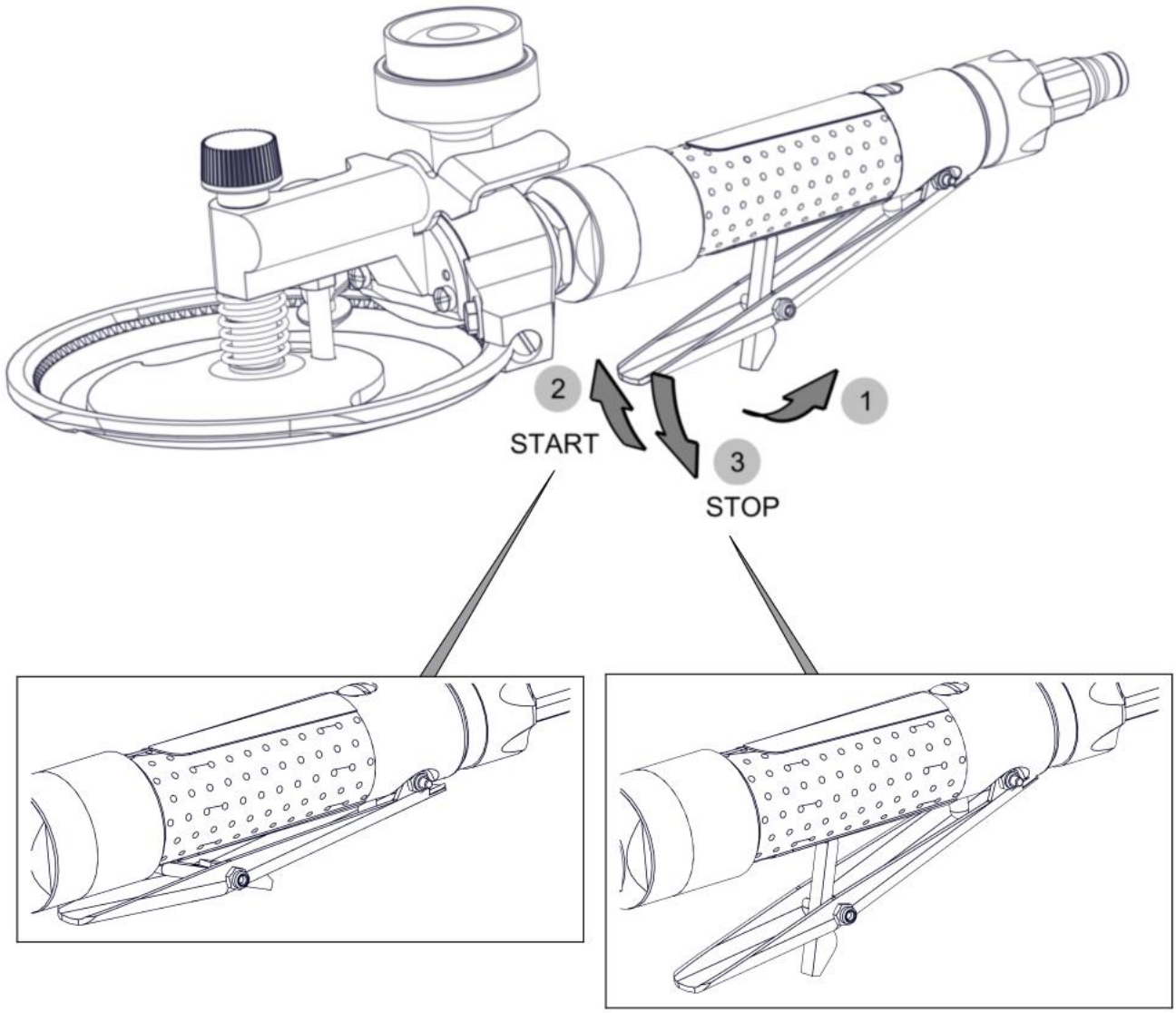
Montage
Assembly

Betriebsanleitung beachten
Pay attention to operating manual

Montageanleitung
Assembly instructions

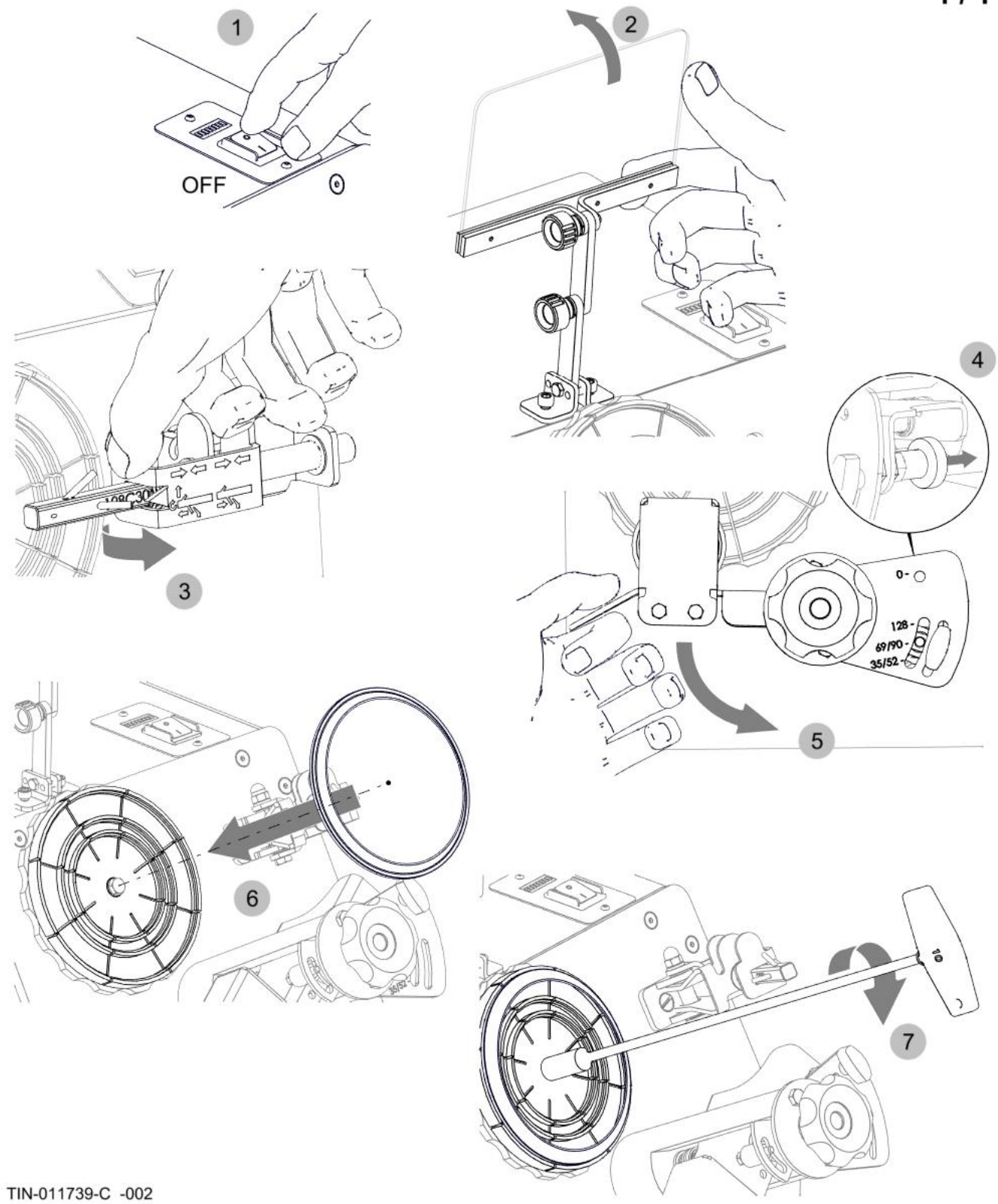
Werkzeugsatz
Toolkit

TIN-012997



TIN-012997 -001

TIN-011739



TIN-011739-C -002

Erklärung der Symbole siehe Betriebsanleitung Kap.1 / *Explanations of symbols see operating manual chp. 1*

Demontage
Disassembly

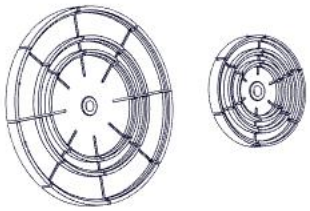
Montage
Assembly

Betriebsanleitung beachten
Pay attention to operating manual

Montageanleitung
Assembly instructions

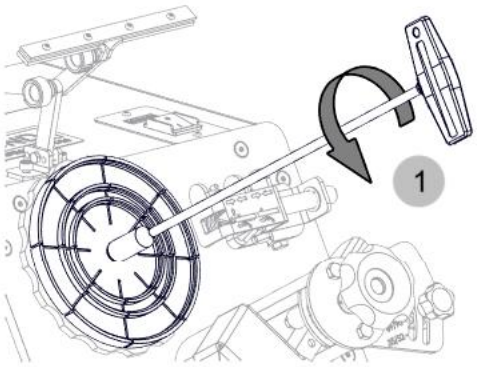
Werkzeugsatz
Toolkit

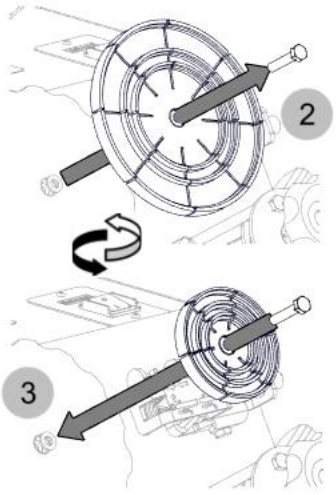
1-2 **TIN-015685** 3-4

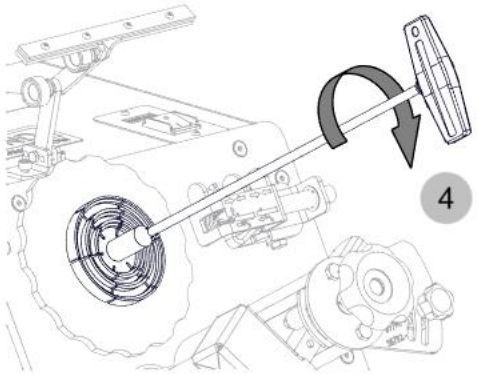




028-EL2-027	**028-EL2-152**
128/ 90/ 69	69/ 52/ 35







TIN-015685 -000

Erklärung der Symbole siehe Betriebsanleitung Kap.1 / *Explanations of symbols see operating manual chp. 1*

Demontage *Disassembly*

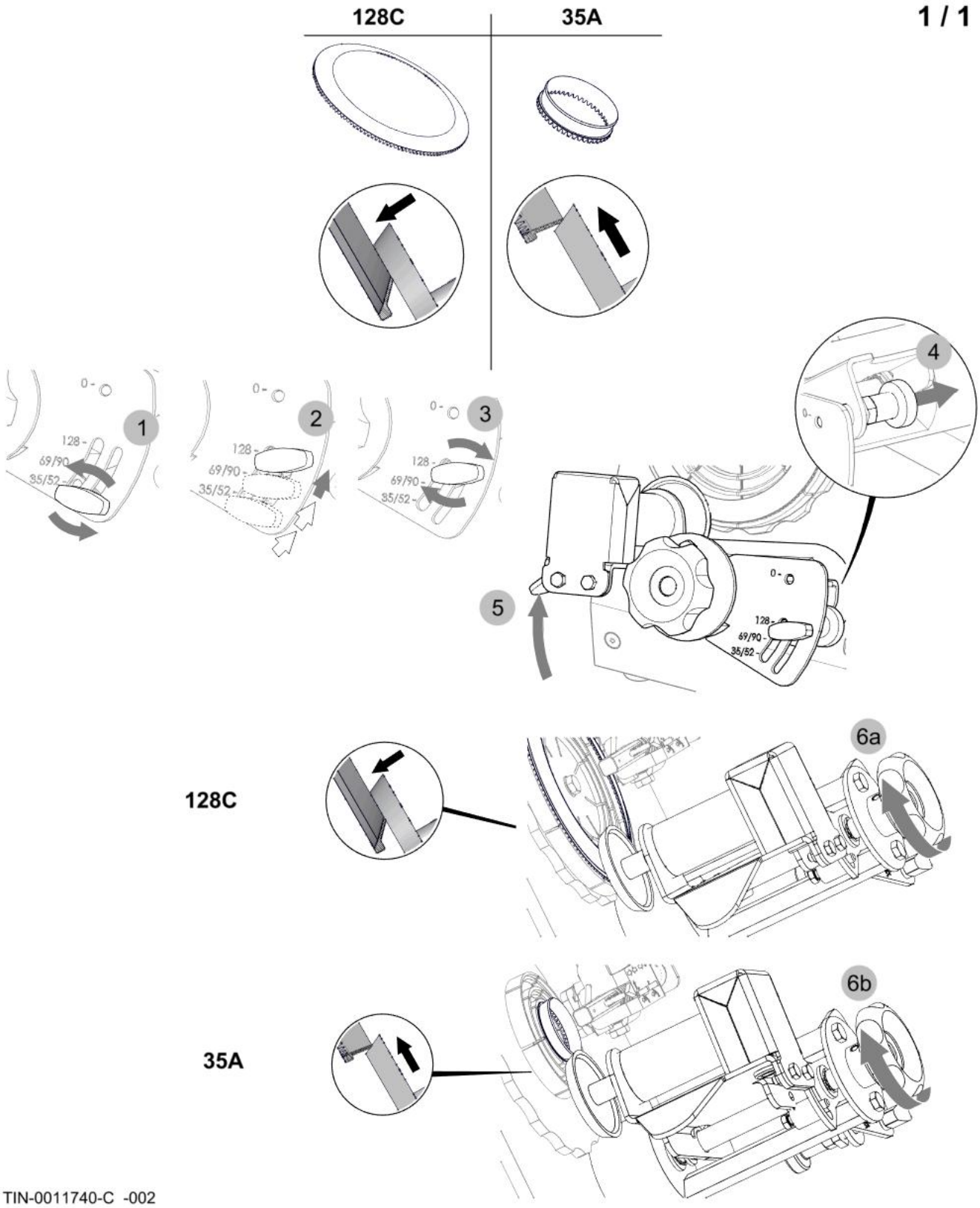
Montage *Assembly*

Betriebsanleitung beachten *Pay attention to operating manual*

Montageanleitung *Assembly instructions*

Werkzeugsatz *Toolkit*

TIN-011740



TIN-0011740-C -002

Erklärung der Symbole siehe Betriebsanleitung Kap.1 / *Explanations of symbols see operating manual chp. 1*

Demontage
Disassembly

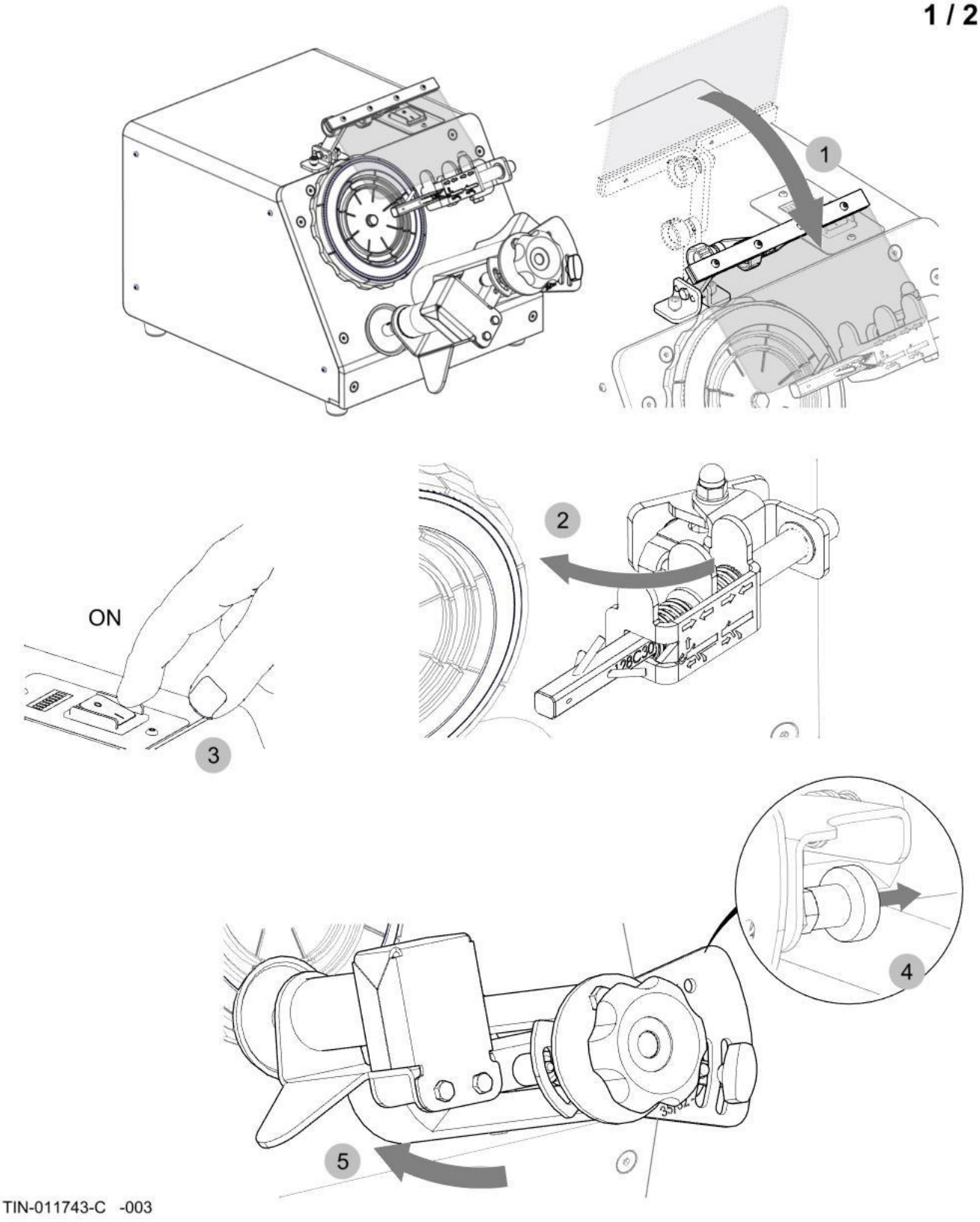
Montage
Assembly

Betriebsanleitung beachten
Pay attention to operating manual

Montageanleitung
Assembly instructions

Werkzeugsatz
Toolkit

TIN-011743



TIN-011743-C -003

Erklärung der Symbole siehe Betriebsanleitung Kap.1 / *Explanations of symbols see operating manual chp. 1*

Demontage
Disassembly

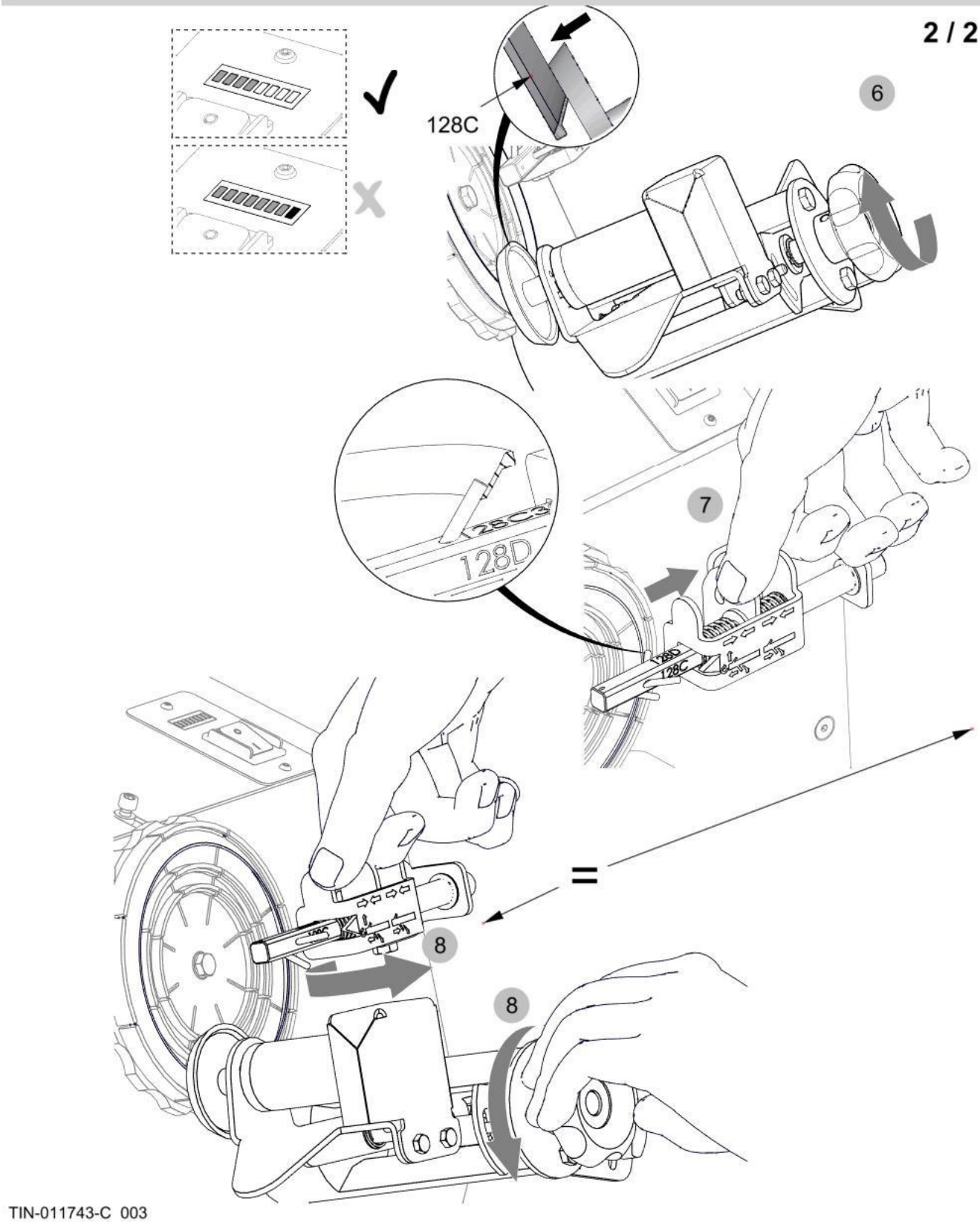
Montage
Assembly

Betriebsanleitung beachten
Pay attention to operating manual

Montageanleitung
Assembly instructions

Werkzeugsatz
Toolkit

TIN-011743



TIN-011743-C 003

Erklärung der Symbole siehe Betriebsanleitung Kap.1 / *Explanations of symbols see operating manual chp. 1*

Demontage
Disassembly

Montage
Assembly

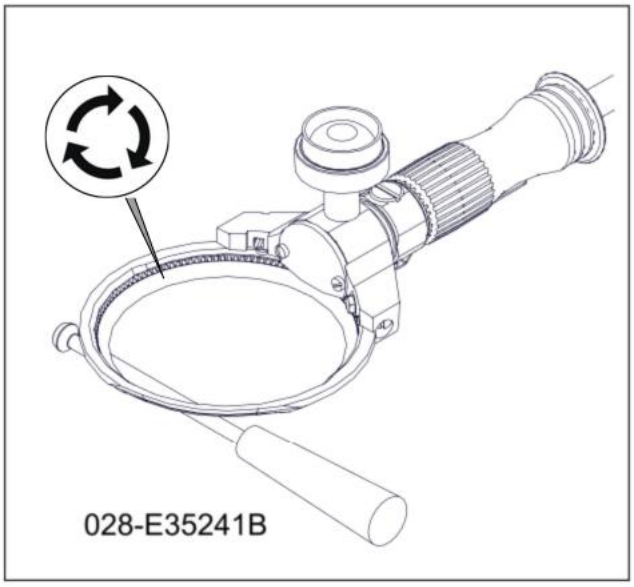
Betriebsanleitung beachten
Pay attention to operating manual

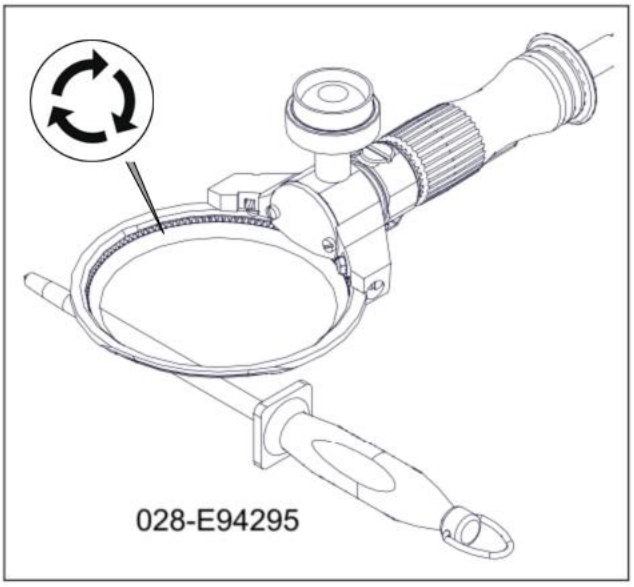
Montageanleitung
Assembly instructions

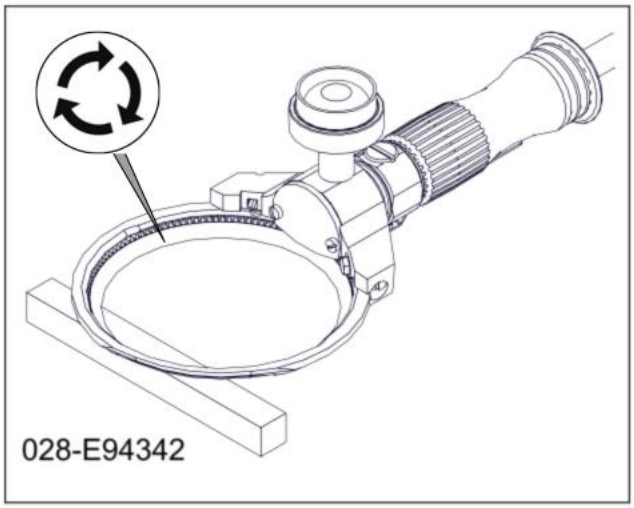
Werkzeugsatz
Toolkit

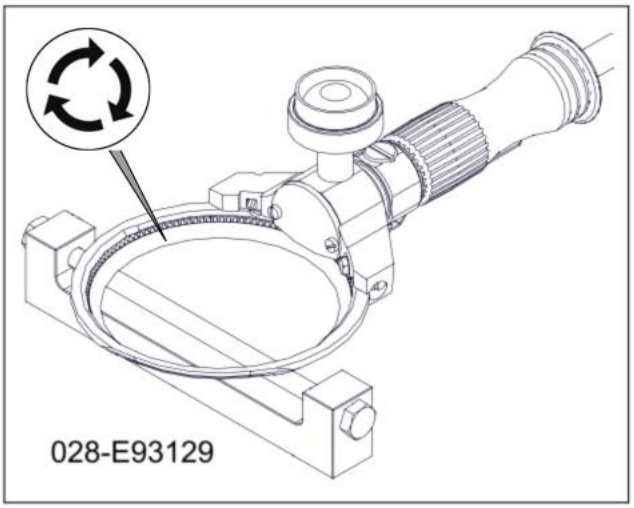
TIN-012998

Gr.: 128; 90







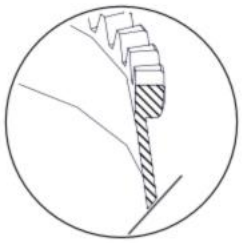


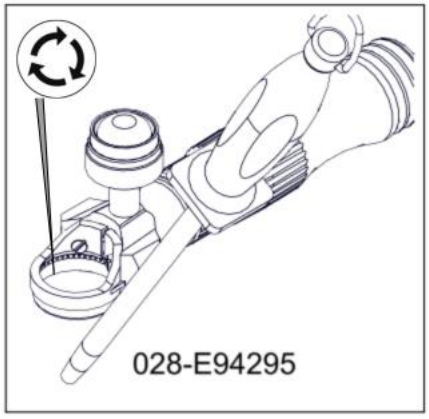
TIN-012998 -002

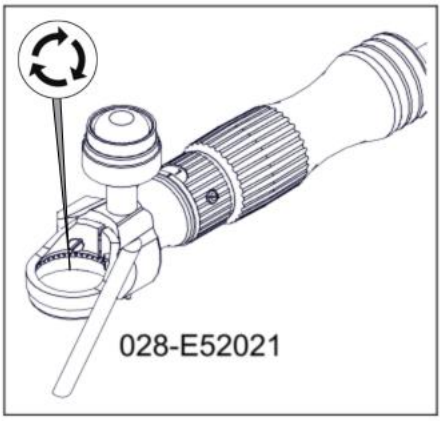
TIN-012999

Gr.: 35; 52; 69

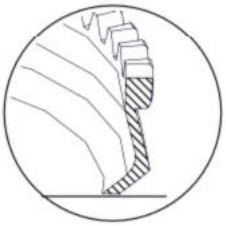
A

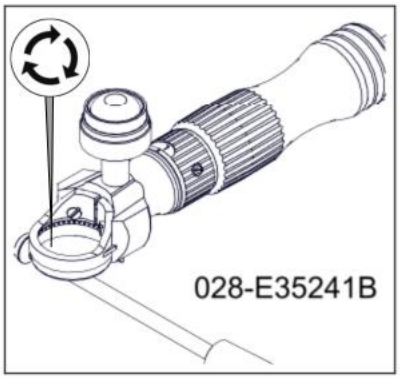


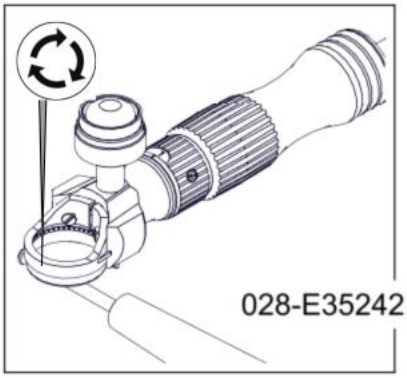


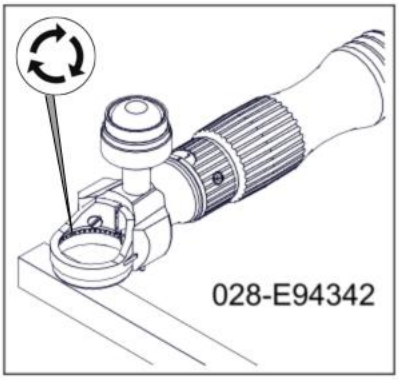


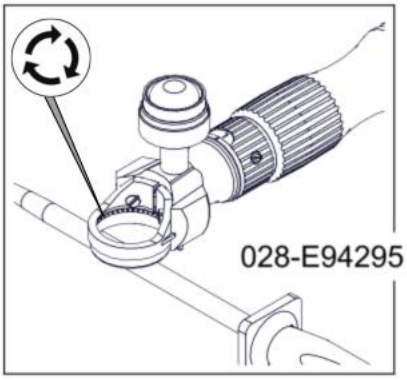
B

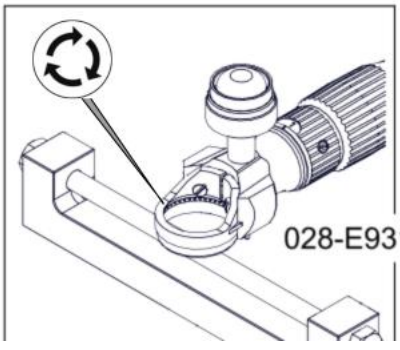






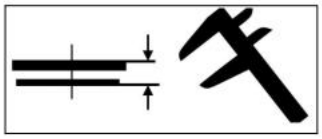


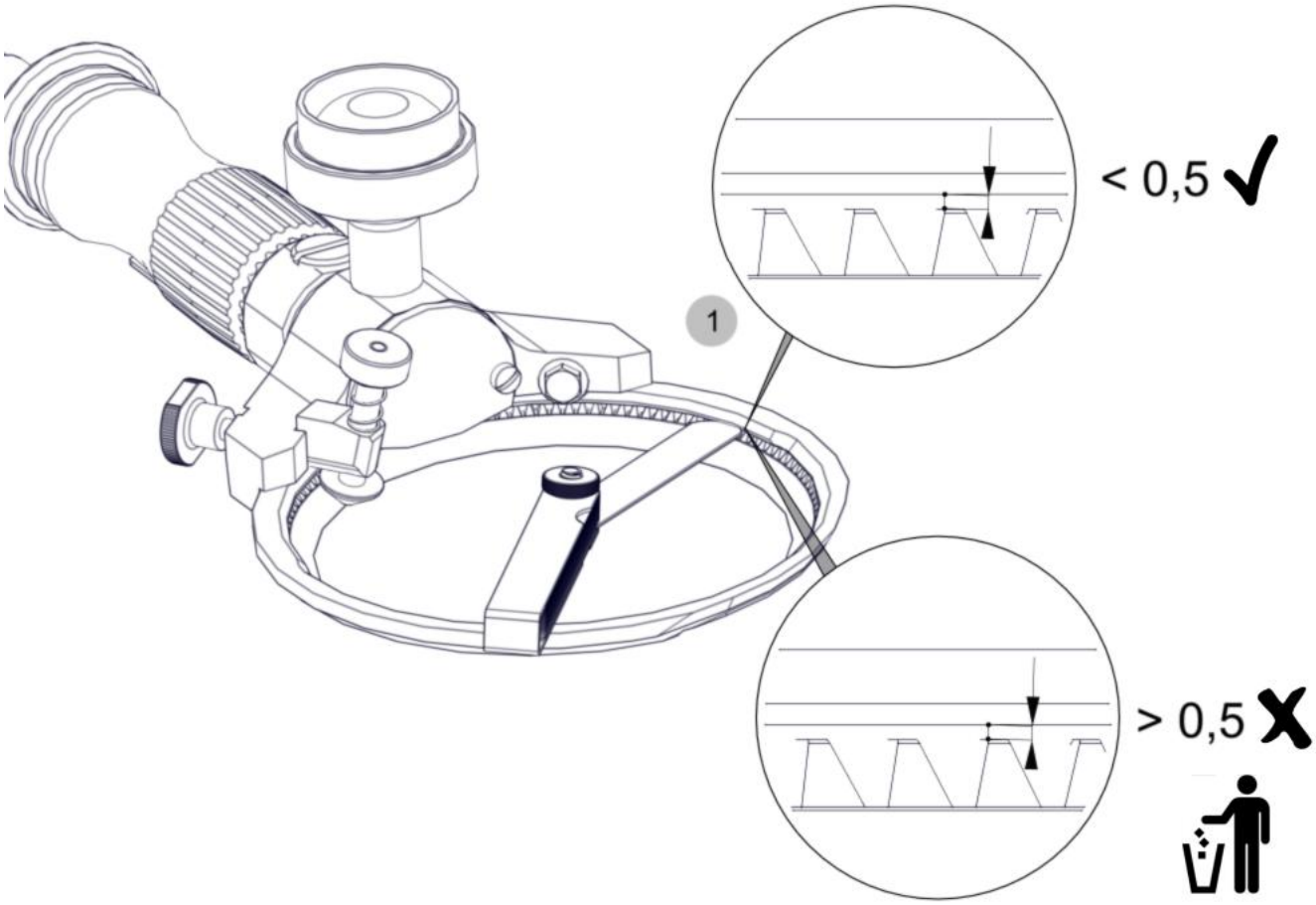




TIN-012999 -002

TIN-013000





TIN-013000 -002

Erklärung der Symbole siehe Betriebsanleitung Kap.1 / *Explanations of symbols see operating manual chp. 1*

Demontage
Disassembly

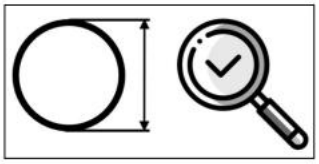
Montage
Assembly

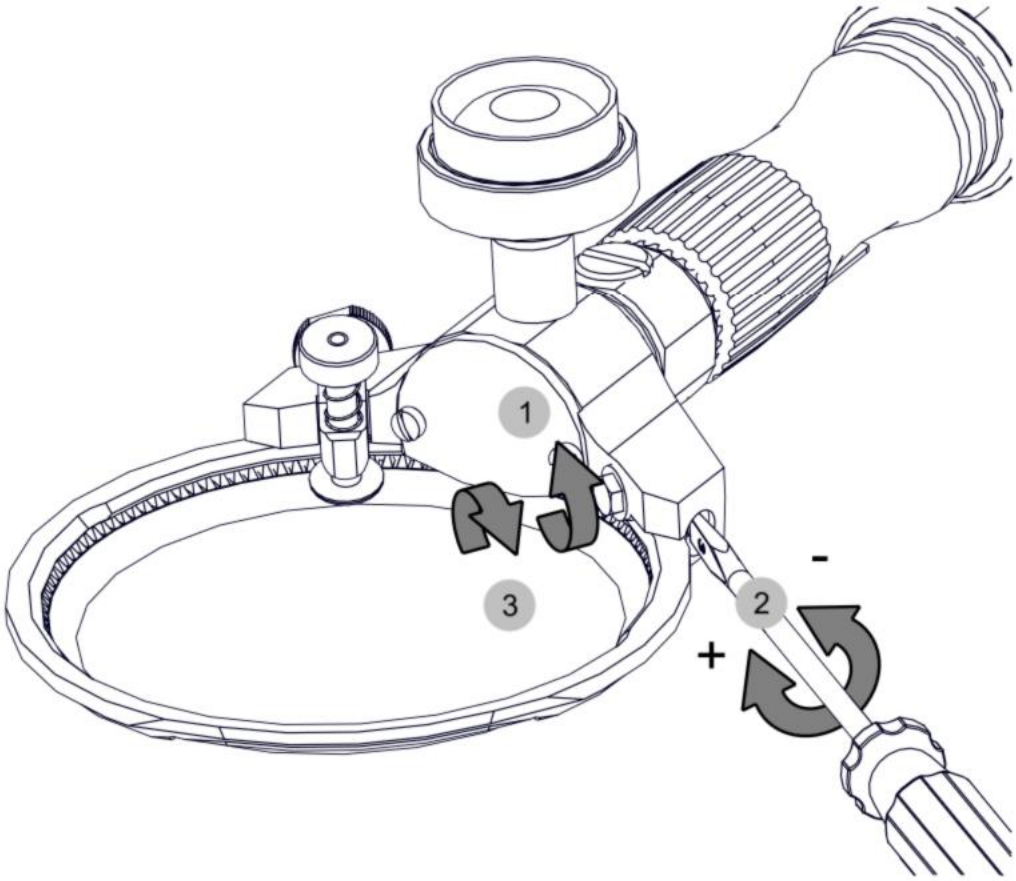
Betriebsanleitung beachten
Pay attention to operating manual

Montageanleitung
Assembly instructions

Werkzeugsatz
Toolkit

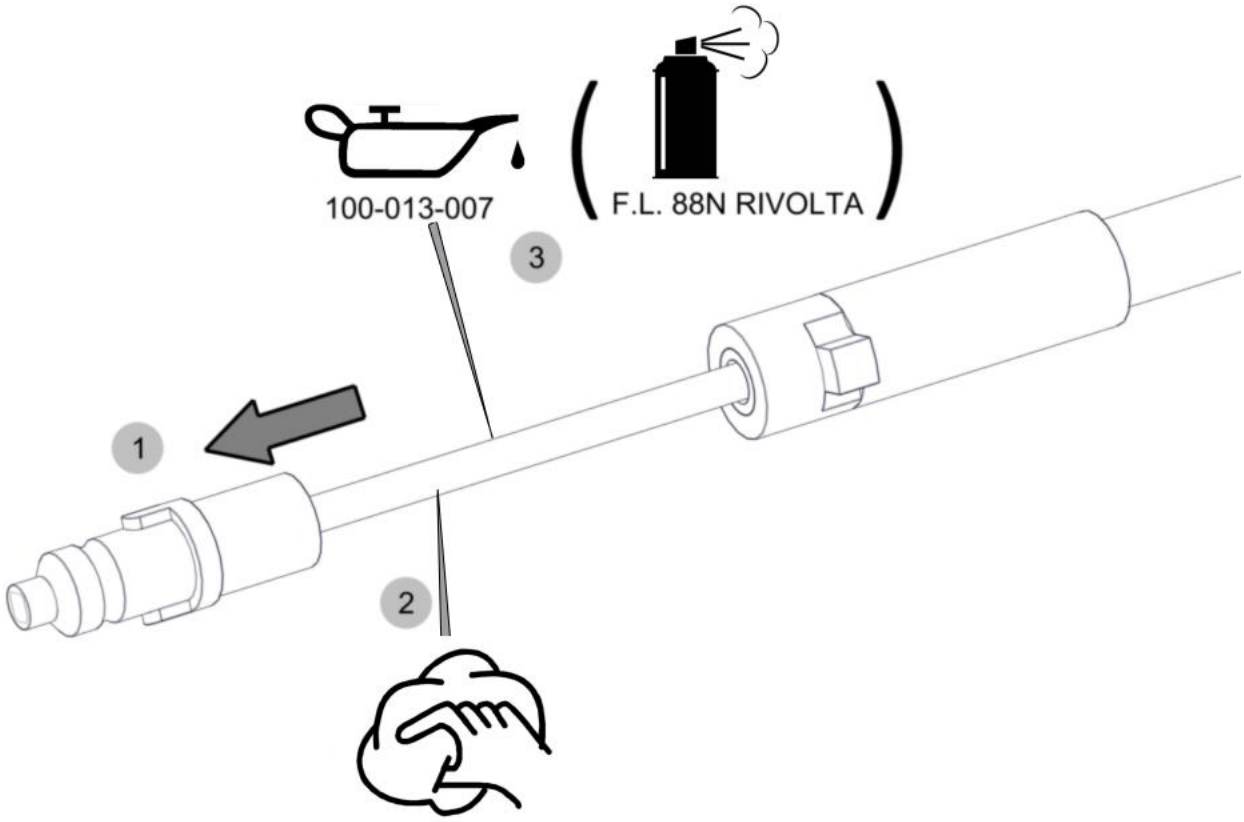
TIN-013000





TIN-013000 -002

TIN-013004



TIN-013004 -002

Erklärung der Symbole siehe Betriebsanleitung Kap.1 / *Explanations of symbols see operating manual chp. 1*

Demontage
Disassembly

Montage
Assembly

Betriebsanleitung beachten
Pay attention to operating manual

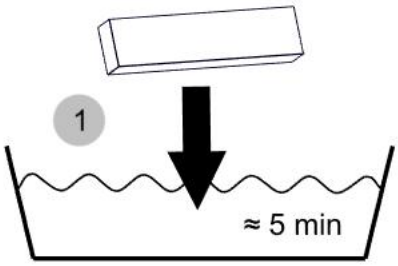
Montageanleitung
Assembly instructions

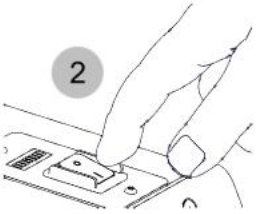
Werkzeugsatz
Toolkit

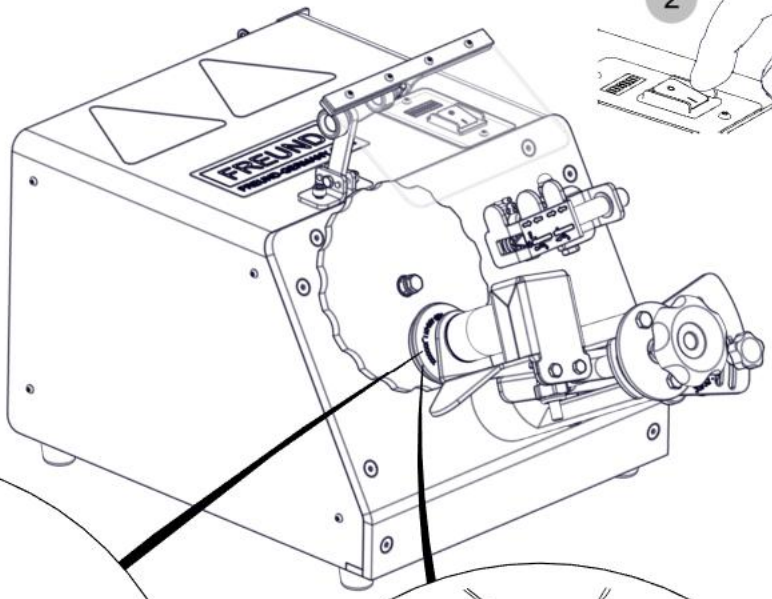
TIN-015171



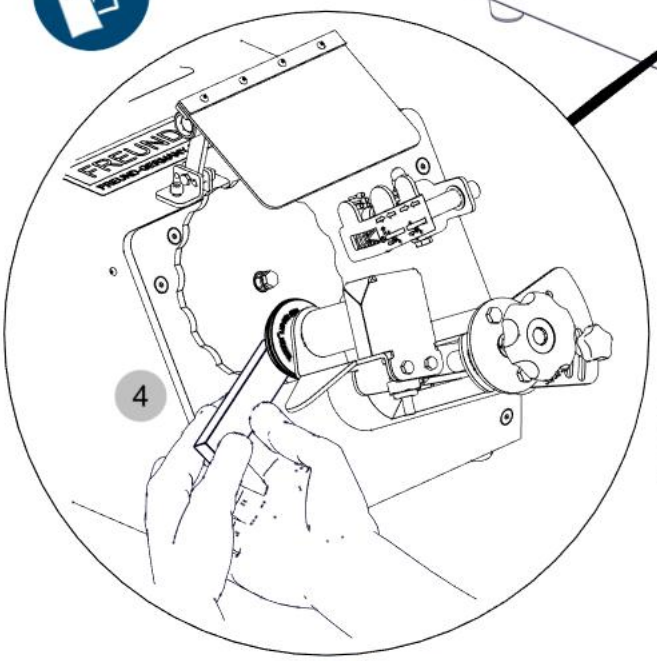


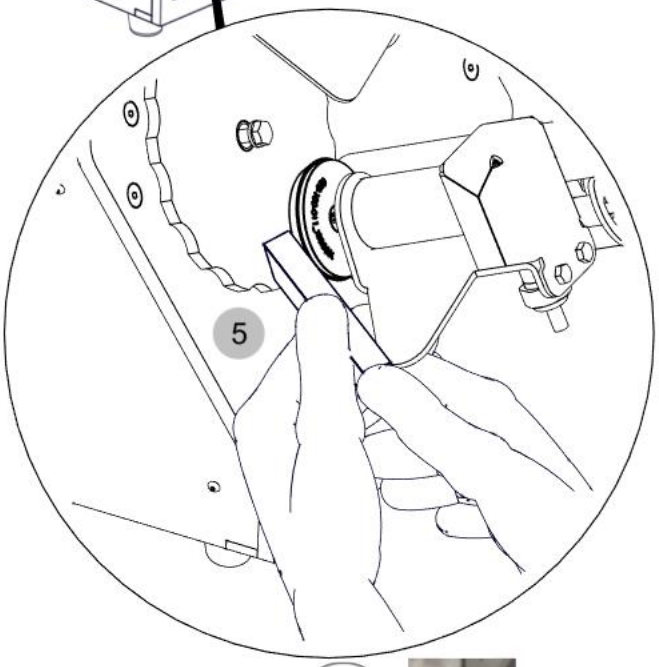












2 x 3



1 x 3



TIN-015171 -000

Erklärung der Symbole siehe Betriebsanleitung Kap.1 / *Explanations of symbols see operating manual chp. 1*

Demontage
Disassembly

Montage
Assembly

Betriebsanleitung beachten
Pay attention to operating manual

Montageanleitung
Assembly instructions

Werkzeugsatz
Toolkit

Material Declaration of Conformity

GERMAN QUALITY SLAUGHTER-TOOLS

Manufacturer	**FREUND Maschinenfabrik GmbH & Co. KG** **Greifswalder Str. 5** **DE-33106 Paderborn**
Authorised representative	**Andreas Kröger** **Leiter mechanische Konstruktion**
Email	**mail@freund.eu**

FREUND Maschinenfabrik GmbH & Co. KG hereby confirms that the articles and their materials that come into contact with food when used as intended conform with the following general requirements:

- **Regulation (EC) No. 1935/2004**
  We hereby declare that the product (machine type) listed below conforms to the requirements of Regulation (EC) No. 1935/2004, which states that materials and articles intended to come into contact with food must be designed and manufactured in such a way that, under normal or foreseeable conditions of use, such materials and articles do not release any constituents into food that could endanger human health or alter the composition of the food.
- **Regulation (EU) 10/2011**
  The above product has been manufactured in accordance with Regulation (EU) No. 10/2011 on plastic materials and articles intended to come into contact with food.
- **Regulation (EC) No. 2023/2006**
  The product has been manufactured in accordance with the requirements of Regulation (EU) No. 2023/2006 on good manufacturing practice for materials and articles intended to come into contact with food. This Regulation ensures that materials and articles intended to come into contact with food are manufactured under conditions that ensure their proper quality and conformity. Such materials and articles are manufactured under strict hygienic conditions to ensure product safety and satisfy food safety requirements.

This applies to the following machine types and their spare parts:

Machine type: **Trimmer-evo2**

Machine parts	Material designation	Comment
Frame	Aluminium	anodized
Blade housing	Stainless steel	
Knife	Stainless steel	hardened
Corrugated hose, Protective hose	Plastic	
Quick release	Stainless spring steel	
Screws	Stainless steel	
Cover	Stainless spring steel	
Hose adapter	Stainless spring steel/ Stainless steel	

Material Declaration of Conformity

Machine parts	Material designation	Comment
Depth control	Plastic/ Stainless spring steel/ Stainless steel	
Sprocket	Stainless steel	
Puller	Plastic/ Stainless steel	

Paderborn, 19.08.2025

Head of Mechanical Design

EU-Declaration of Conformity

GERMAN QUALITY SLAUGHTER-TOOLS

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

Hereby we declare that the machine

Type **P2**

Sample

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

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

(EU) 1935/2004	**Food Saftey**
(EU) 2020/1245	**Food Saftey**

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

DIN EN ISO 12100:2011-03	**DIN EN 13732-3:2008**
DIN EN ISO 11201:2010-10	**DIN EN 12984:2011-02**
DIN EN 13861:2012-01	**DIN EN 11148-12:2012**

EU-Declaration of Conformity

GERMAN QUALITY SLAUGHTER-TOOLS

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

Hereby we declare that the machine,

Type **TM-E6000; TM-E6001**

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 ISO 13732-1:2008**
DIN EN 60529:2014-09	**DIN EN 60204-1:2008**
DIN EN 12984:2011-02	

sample

EU-Declaration of Conformity

GERMAN QUALITY SLAUGHTER-TOOLS

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

Hereby we declare that the machine.

Type **TSM-E1**

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 60204-1:2018	**DIN EN ISO 12100-2011-03**

Sample