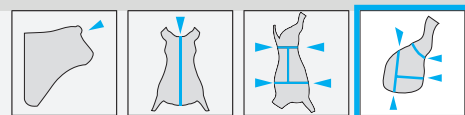


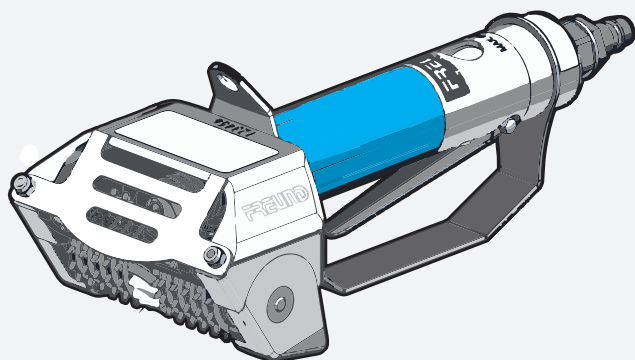
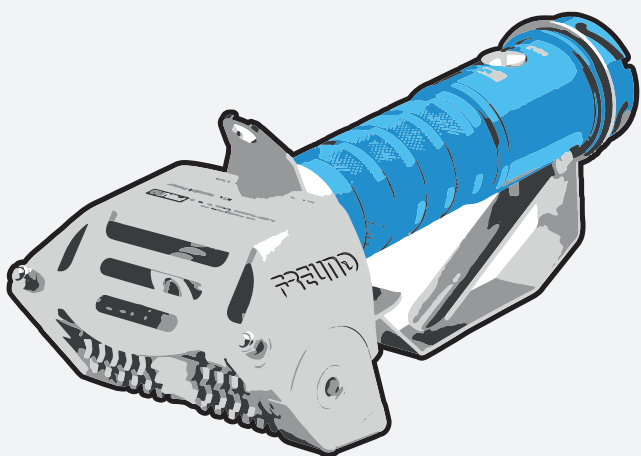
# OPERATING MANUAL HAND-SKINNER

Translation of original manual



## MODELS

- HSK8-P5
- HSK8-P3\_EVO2
- HSK8-P3





## Imprint

|              |                                                                                           |
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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.

## Contents

|          |                                                      |           |
|----------|------------------------------------------------------|-----------|
| <b>1</b> | <b>About this Manual .....</b>                       | <b>7</b>  |
| 1.1      | Target group .....                                   | 7         |
| 1.2      | Liability and warranty .....                         | 7         |
| 1.3      | Storing the operating manual .....                   | 8         |
| 1.4      | Installation manuals and technical information ..... | 8         |
| 1.5      | Warnings .....                                       | 9         |
| 1.6      | Symbols and layout elements .....                    | 9         |
| 1.6.1    | Layout elements .....                                | 9         |
| 1.6.2    | Safety signs .....                                   | 10        |
| 1.6.3    | Symbols .....                                        | 11        |
| <b>2</b> | <b>For your safety .....</b>                         | <b>12</b> |
| 2.1      | Obligations of the operator .....                    | 12        |
| 2.2      | Employee responsibilities .....                      | 13        |
| 2.3      | Personal protective equipment .....                  | 14        |
| 2.4      | Safety-related components .....                      | 14        |
| 2.4.1    | HSK8-P5/ HSK8-P3_evo2 .....                          | 14        |
| 2.4.2    | HSK8-P3 .....                                        | 14        |
| 2.5      | Residual risks .....                                 | 15        |
| 2.6      | Intended use .....                                   | 15        |
| 2.7      | Improper use .....                                   | 15        |
| <b>3</b> | <b>Technical Description .....</b>                   | <b>17</b> |
| 3.1      | HSK8-P5 .....                                        | 17        |
| 3.2      | HSK8-P3_evo2 .....                                   | 18        |
| 3.3      | HSK8-P3 .....                                        | 19        |
| 3.4      | Pneumatic motor P5 .....                             | 20        |
| 3.5      | Compressed-air motor P3_evo2 .....                   | 20        |
| 3.6      | Pneumatic motor P3 .....                             | 21        |
| 3.7      | Head piece .....                                     | 22        |
| 3.8      | Scraper .....                                        | 22        |
| 3.9      | Optional accessories .....                           | 23        |
| 3.10     | Operating materials .....                            | 23        |
| 3.10.1   | Compressed air .....                                 | 23        |
| 3.10.2   | Lubricants .....                                     | 23        |
| 3.11     | Scope of delivery .....                              | 24        |
| <b>4</b> | <b>Installation and Commissioning .....</b>          | <b>25</b> |

|          |                                                 |           |
|----------|-------------------------------------------------|-----------|
| 4.1      | Safety information .....                        | 25        |
| 4.2      | Personal protective equipment.....              | 25        |
| 4.3      | Service unit.....                               | 25        |
| 4.3.1    | Safety information .....                        | 25        |
| 4.3.2    | Setting the service unit.....                   | 27        |
| 4.3.3    | Maintenance and cleaning .....                  | 27        |
| 4.4      | Connecting the machine .....                    | 28        |
| 4.5      | Inserting the blade .....                       | 28        |
| <b>5</b> | <b>Operating .....</b>                          | <b>29</b> |
| 5.1      | Safety information .....                        | 29        |
| 5.2      | Personal protective equipment.....              | 29        |
| 5.3      | Daily safety inspection .....                   | 29        |
| 5.4      | Operating the machine.....                      | 30        |
| <b>6</b> | <b>Cleaning and Disinfection.....</b>           | <b>31</b> |
| 6.1      | Safety information .....                        | 31        |
| 6.2      | Personal protective equipment.....              | 32        |
| 6.3      | Carrying out cleaning and disinfection.....     | 32        |
| <b>7</b> | <b>Maintenance and Repair Work.....</b>         | <b>35</b> |
| 7.1      | Safety information .....                        | 35        |
| 7.2      | Personal protective equipment.....              | 35        |
| 7.3      | Recommended lubricants .....                    | 36        |
| 7.4      | Maintenance schedule .....                      | 36        |
| 7.5      | Hand-Skinner maintenance video .....            | 36        |
| 7.6      | Checking the compressed-air motor .....         | 37        |
| 7.7      | Service packages .....                          | 37        |
| <b>8</b> | <b>Troubleshooting .....</b>                    | <b>38</b> |
| 8.1      | Safety information .....                        | 38        |
| 8.2      | Personal protective equipment.....              | 38        |
| 8.3      | Overview of possible faults .....               | 39        |
| <b>9</b> | <b>Disposal and Recycling .....</b>             | <b>41</b> |
| 9.1      | Disassembling and disposing of the machine..... | 41        |
| 9.2      | Disposing of packaging material .....           | 41        |



# 1 About this Manual

The Hand-Skinners 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 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. |

## 1.6 Symbols and layout elements

### 1.6.1 Layout elements

- Enumerations

- Individual, independent instruction step

*Result arising from the instruction step*

1. Step-by-step sequences in a specific order
2. The numbers indicate that the instruction steps follow each other
3. *Result arising from the instruction steps*

*Result arising from the instruction steps*

- References to another chapter



Important additional information or special details regarding the use of the machine



Embedded warning note - shows type and source of the danger and the measure to avoid the danger

## 1.6.2 Safety signs

### Warning signs



#### **Warning of a danger point**

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



#### **Warning of 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 substances harmful to health and irritants**

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



#### **Warning about horizontal rotary movements**

Danger from unexpected machine impacts.

Danger to the fingers and hands from cutting or cutting off.

### 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.

### 1.6.3 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**



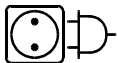
#### **Glue**

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



#### **Cleaning**

Instruction for an additional cleaning step



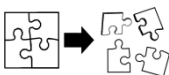
#### **Power plug**

Indicates connection of the machine to the power network.

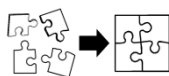


#### **Releasing pressure**

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 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 | <p>The site operator must ensure that the machine is only operated and used in perfect and functional condition.</p> <p>The site operator must ensure that safety devices are regularly serviced and checked for proper function.</p>                                         |

## 2.2 Employee responsibilities

|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating staff         | <p>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.</p> <p>Operating staff must be familiar with the operating manual and the applicable OHS and accident prevention regulations.</p>                                                                                                                        |
| Qualified personnel     | <p>A technical expert is a person who, due to technical training and experience, possesses sufficient skills and knowledge.</p> <p>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.</p>                                                                                                                                                                                                  |
| Safety at the workplace | <p>Maintain a stable upright position and keep your balance. Avoid awkward postures.</p> <p>Keep your workplace clean and tidy. Untidy workplaces can cause accidents.</p> <p>Always wear the personal protective equipment provided.</p> <p>Keep children, young persons and untrained staff away from the machine.</p>                                                                                                                                                                                           |
| Emergency procedures    | <p>In the case of an accident, administer first aid and call a doctor and emergency medical services.</p> <p>Notify the operator or his authorised representative of every accident.</p>                                                                                                                                                                                                                                                                                                                           |
| Machine safety          | <p>Before starting any work, carefully check the machine for proper function in accordance with the intended use.</p> <p>Do not set the machine into operation if it does not work correctly.</p> <p>Switch off the machine immediately if it no longer works correctly and have it checked.</p> <p>Have defective safety devices, switches or other defective machine parts repaired.</p> <p>Notify the operator or his authorised representative of any changes to the machine which may affect your safety.</p> |

## 2.3 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.

## 2.4 Safety-related components

The safety-related machine components described in this chapter must be installed and must not be modified.

Replace defective safety-related components immediately.

### 2.4.1 HSK8-P5/ HSK8-P3\_evo2

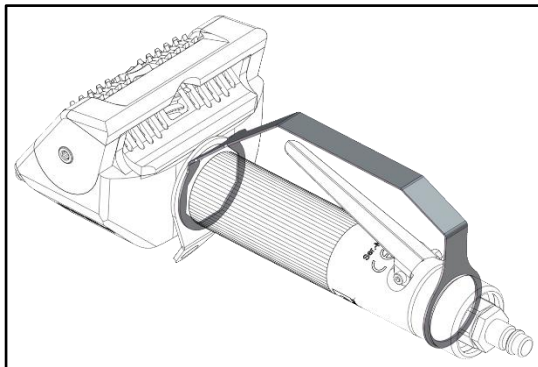


Fig. 2-1 Safety guard (highlighted in a dark colour)

The safety guard

- Prevents the machine being switched on unintentionally.

### 2.4.2 HSK8-P3

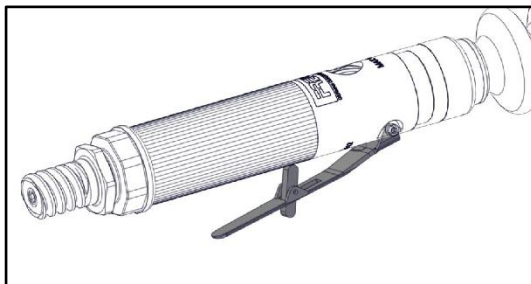


Fig. 2-2 Lever with lock highlighted in a dark colour

The lever with lock

- Prevents the machine being switched on unintentionally.

## 2.5 Residual risks

The Hand-Skinner 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:

- Cutting injuries from cutting tools
- Abrasions and bruises caused by the toothed roller
- 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 breakage or ejection of fragments of the cutting tool.
- danger of injury from flying pieces of meat and bone fragments
- danger of injury at hand, wrist and arm due to the vibration of the cutting head during operation

## 2.6 Intended use

FREUND-Hand-Skinner are intended for skinning, fat trimming, and removing rind from ham and other pieces of meat.

The pieces of meat must lie securely or be fixed in place. Holding pieces of meat in your hand is prohibited.

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.

## 2.7 Improper use

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

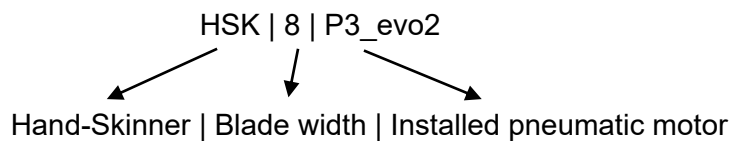
The operator is solely responsible for risks in the case of improper use. Consult the manufacturer in case of doubt.

The following are also deemed as improper use:

- the cutting and sawing of other materials such as wood, plastic or stone.
- the use of the machine in slaughter rooms.
- the use of the compressed air to clean clothing or persons.

### 3 Technical Description

Product code



#### 3.1 HSK8-P5

The Hand-Skinner HSK8-P5 consists of the pneumatic motor P5 and a head piece. Both parts are already pre-assembled.

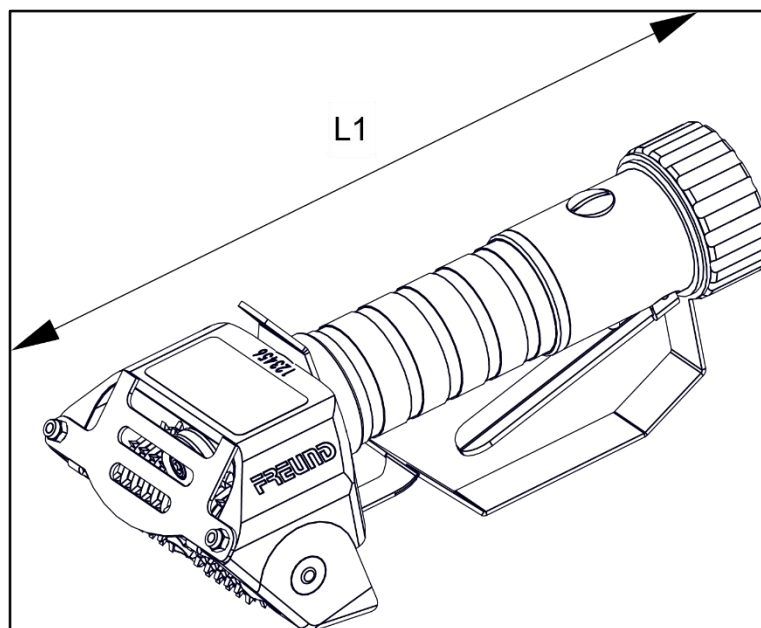


Fig. 3-1 Mounted Hand-Skinner HSK8-P5

|                |                               |             |
|----------------|-------------------------------|-------------|
| Technical data | Weight [kg]                   | 2           |
|                | Length L1 [mm]                | 250         |
|                | Vibration [m/s <sup>2</sup> ] | approx. 0.2 |
|                | Noise emission [dB (A)]       | 79          |

### 3.2 HSK8-P3\_evo2

The Hand-Skinner HSK8-P3\_evo2 consists of the pneumatic motor P3\_evo2 and a head piece. Both parts are already pre-assembled.

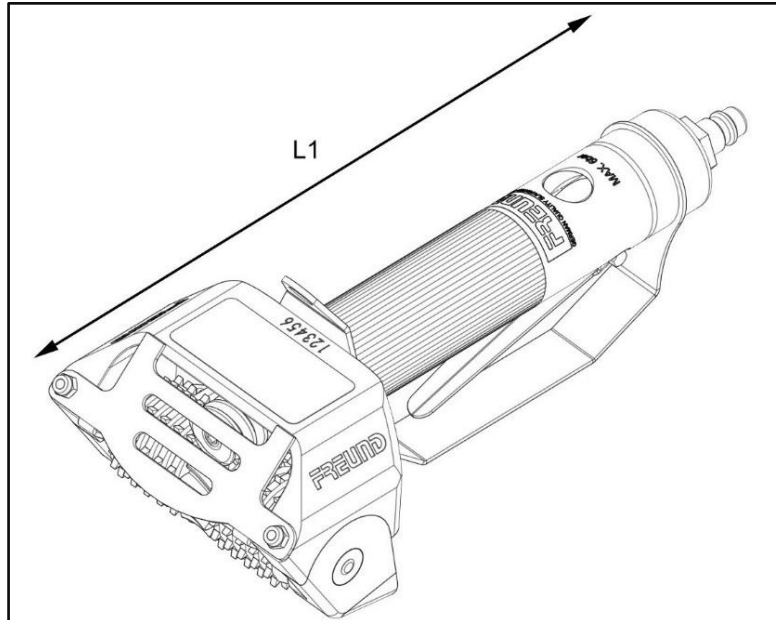


Fig. 3-2 Mounted Hand-Skinner HSK8-P3\_evo2

|                |                               |             |
|----------------|-------------------------------|-------------|
| Technical data | Weight [kg]                   | 1.6         |
|                | Length L1 [mm]                | 250         |
|                | Vibration [m/s <sup>2</sup> ] | approx. 0.2 |
|                | Noise emission [dB (A)]       | 80          |

### 3.3 HSK8-P3

The Hand-Skinner HSK8-P3 consists of the pneumatic motor P3 and a head piece. Both parts are already pre-assembled.

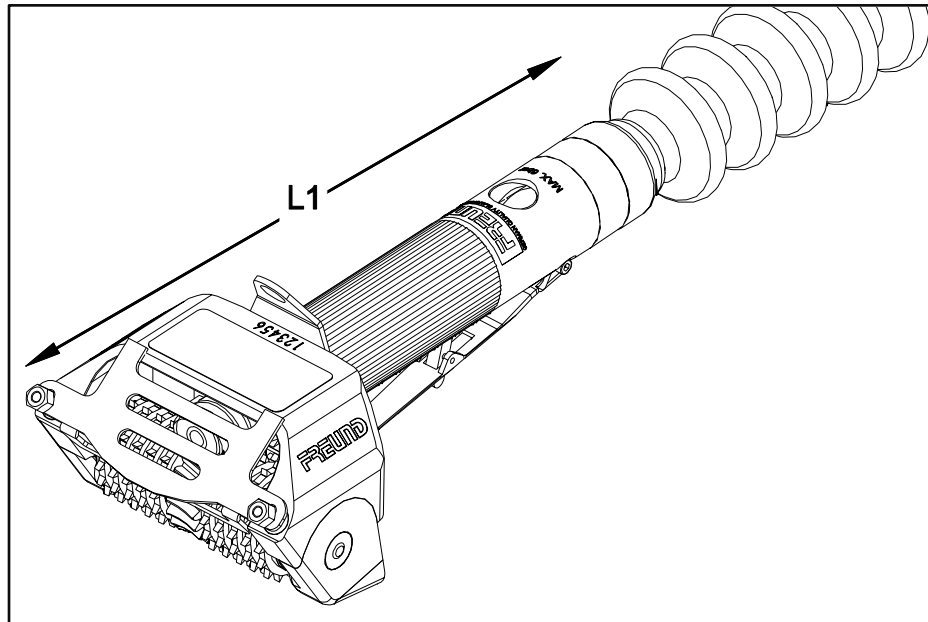


Fig. 3-3 Mounted Hand-Skinner HSK8-P3

|                |                               |             |
|----------------|-------------------------------|-------------|
| Technical data | Weight [kg]                   | 1.6         |
|                | Length L1 [mm]                | 250         |
|                | Length including hose [mm]    | 1,250       |
|                | Vibration [m/s <sup>2</sup> ] | approx. 0.2 |
|                | Noise emission [dB (A)]       | 80          |

### 3.4 Pneumatic motor P5

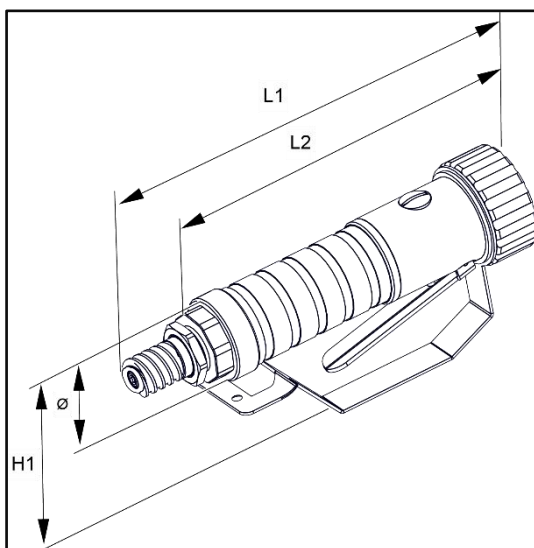


Fig. 3-4 Dimensions

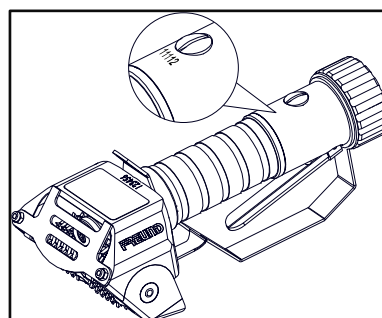


Fig. 3-5 5-digit serial number

Technical data

|                                                |    |                 |
|------------------------------------------------|----|-----------------|
| Drive type                                     |    | Pneumatic       |
| Weight [kg]                                    |    | 1.1             |
| Length [mm]                                    | L1 | 220             |
|                                                | L2 | 180             |
| Height H1 [mm]                                 |    | 90              |
| Diameter Ø [mm]                                |    | 45              |
| Power [kW]                                     |    | 0.66 (at 6 bar) |
| Operating pressure [bar]                       |    | 6-8             |
| Air consumption [l/min]                        |    | 800 (at 6 bar)  |
| Recommended interior Ø of air supply hose [mm] |    | min. 10         |

### 3.5 Compressed-air motor P3\_evo2

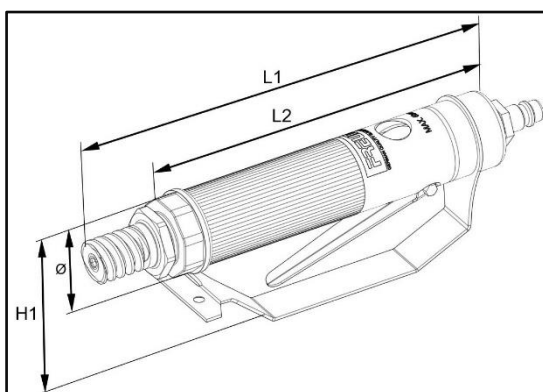


Fig. 3-6 Dimensions

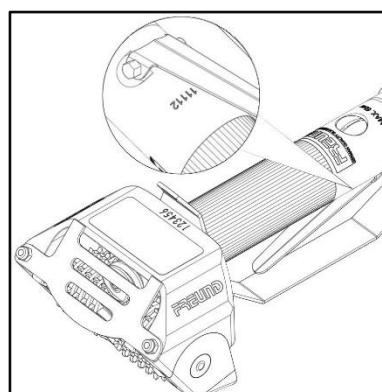


Fig. 3-7 5-digits serial number

|                |                                             |    |           |
|----------------|---------------------------------------------|----|-----------|
| Technical data | Drive type                                  |    | pneumatic |
|                | Weight [kg]                                 |    | 0,76      |
|                | Length [mm]                                 | L1 | 195       |
|                |                                             | L2 | 157       |
|                | Hight H [mm]                                |    | 62        |
|                | Diameter Ø [mm]                             |    | 40        |
|                | Motor rating [kW]                           |    | 0,32      |
|                | Operating pressure [bar]                    |    | 6         |
|                | Air consumption [l/min]                     |    | 420       |
|                | Recommended interior-Ø air supply hose [mm] |    | min. 9    |

### 3.6 Pneumatic motor P3

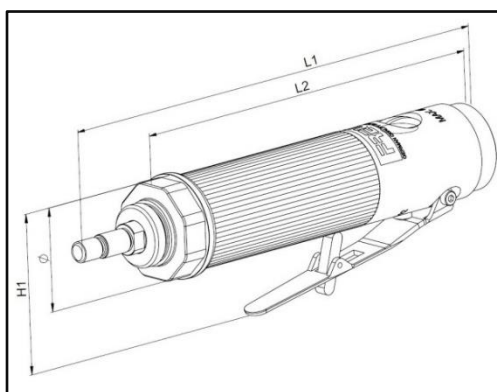


Fig. 3-8 Dimensions

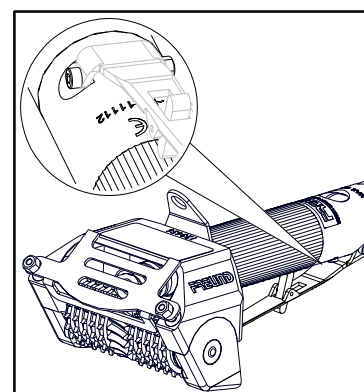


Fig. 3-9 5-digit serial number

|                |                                                |    |           |
|----------------|------------------------------------------------|----|-----------|
| Technical data | Drive type                                     |    | Pneumatic |
|                | Weight [kg]                                    |    | 0.76      |
|                | Length [mm]                                    | L1 | 195       |
|                |                                                | L2 | 157       |
|                | Height H1 [mm]                                 |    | 62        |
|                | Diameter Ø [mm]                                |    | 40        |
|                | Power [kW]                                     |    | 0.32      |
|                | Operating pressure [bar]                       |    | 6         |
|                | Air consumption [l/min]                        |    | 420       |
|                | Recommended interior Ø of air supply hose [mm] |    | min. 9    |

### 3.7 Head piece

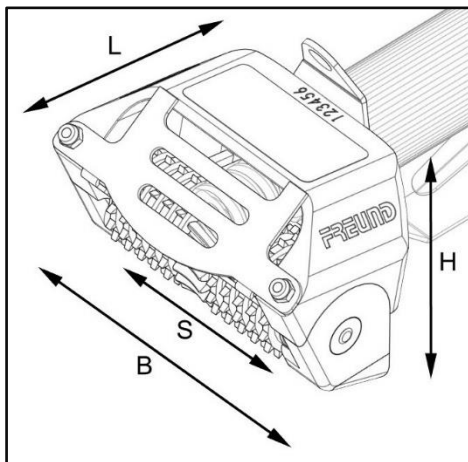


Fig. 3-10 Dimensions

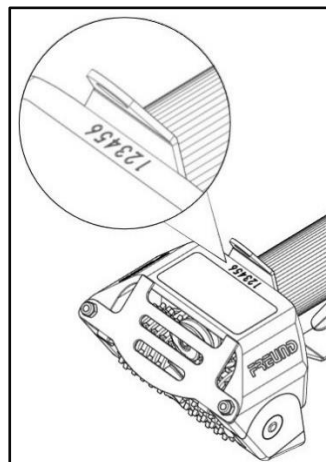


Fig. 3-11 6-digits serial number

|                |                      |             |
|----------------|----------------------|-------------|
| Technical data | Weight [kg]          | 0.84        |
|                | Length L [mm]        | 73          |
|                | Width W [mm]         | 112         |
|                | Height H [mm]        | 72          |
|                | Roller speed [rpm]   | 450         |
|                | Cutting width S [mm] | 76          |
|                | Cutting depth [mm]   | approx. 3.5 |

### 3.8 Scraper

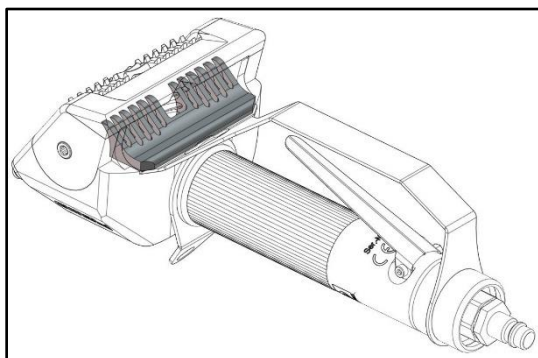


Fig. 3-12 Scraper highlighted in a dark colour



The scraper must always be installed when working with the machine. The catchment area is too large otherwise.

### 3.9 Optional accessories

|              |                                                          | Order No.   |
|--------------|----------------------------------------------------------|-------------|
| All variants | Balancer 4-2.5                                           | 920-414-001 |
|              | Disinfection pool DES-B01                                | 913-101-220 |
| P5           | Connecting kit                                           | 078-100-001 |
|              | Service unit including oil                               | 078-100-030 |
| P3_evo2      | Connecting kit including service unit, hose kit, and oil | 168-002-042 |
| P3           | Connecting kit including service unit, hose kit, and oil | 168-002-042 |

### 3.10 Operating materials

#### 3.10.1 Compressed air

The machine is operated using clean dry compressed air. The air quality must meet the requirements of DIN ISO 8573-1, quality class 3.

Minimum requirements

- Solid contamination up to a particle size of max. 5 µm
- Maximum particle concentration up to 5 mg/m<sup>3</sup>
- Maximum Water content up to 880 mg/m<sup>3</sup>
- Maximum oil concentration up to 1 mg/m<sup>3</sup>

#### 3.10.2 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.

### 3.11 Scope of delivery

|                                                                                            | Order No.   |
|--------------------------------------------------------------------------------------------|-------------|
| Hand-Skinner according to your configuration, consisting of pneumatic motor and blade head |             |
| Special key SW30 for assembling/disassembling the motor                                    | 180-001-037 |
| Hexagon screwdriver SW4 for assembling/disassembling the axle                              | 100-009-031 |
| Blue blade holder with 1 blade set containing 25 blades                                    | 180-001-032 |
| Red blade holder for used blades                                                           | 180-001-034 |

## 4 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.



The Handskinner is supplied fully assembled by FREUND Maschinenfabrik.

### 4.1 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 installed and commissioned 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.

### 4.2 Personal protective equipment



### 4.3 Service unit

#### 4.3.1 Safety information



#### **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.

**Warning!****The service unit is pressurised during operation!**

Opening the system when it is pressurised can damage the service unit and cause serious injuries.

- Ensure that the service unit is no longer pressurised before you change the filter.

**Caution!****Potential impairment of the compressed air system due to condensate!**

In the event of prolonged operation, the condensate could rise above the maximum level of the collection container and enter the compressed air system and, in doing so, damage it.

- Check the level of the collection container on a regular basis.
- Do not drain the condensate in an uncontrolled manner.

**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.

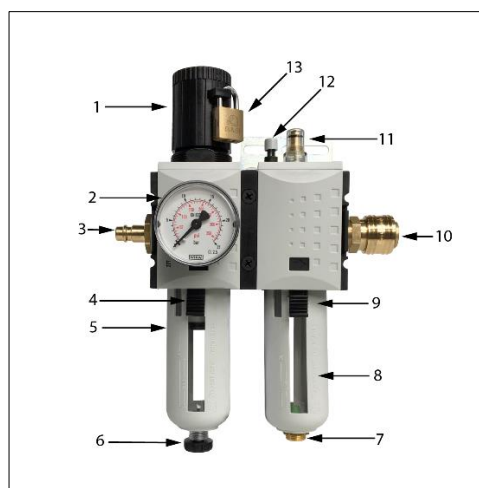


Fig. 4-1 Service unit

|    |                             |
|----|-----------------------------|
| 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                        |

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

### 4.3.2 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**.

### 4.3.3 Maintenance and cleaning



#### Warning!

##### System is pressurised

There is a risk of serious personal injuries and service unit damage.

- Ensure that the system is no longer pressurised before you perform maintenance jobs.



Check the service unit for cracks, fissures, deformation and other damage on a daily basis.

In the event of any damage, do not put the system into operation. Replace the damaged part.

Topping up the oil

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

Draining  
condensate

Check the level in the collection container on a regular basis and drain it.



#### Caution

##### Solvents and aggressive detergents

Solvents and aggressive detergents damage the polycarbonate container of the service unit.

- Do not use any solvents or aggressive detergents.



Clean polycarbonate components with a damp cloth only. To do so, use only water and a mild detergent without any chemical additives.

#### 4.4 Connecting the machine

The relevant manual can be found in the appendix.

| Motor   | Manual     |
|---------|------------|
| P5      | TIN-014375 |
| P3_evo2 | TIN-014541 |
| P3      | TIN-015099 |

#### 4.5 Inserting the blade

The relevant manual can be found in the appendix under the heading **TIN-013195**.



German  
Inserting the blade



English  
Inserting the blade

## 5 Operating



The hand piece is suitable for right- and left-handers.

### 5.1 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 maintained and cleaned by skilled personnel and personnel instructed by FREUND Maschinenfabrik.



#### **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



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

### 5.3 Daily safety inspection

Before starting work, carefully check the machine to ensure it is operating faultlessly and as intended. Only use technically sound and functioning machines.

Check:

- the machine for signs of visible damage and loose machine parts.
- the fit of moving parts. Ensure they do not block or show signs of damage.
- that the blade is securely seated in the blade housing.
- the compressed-air hose for kinks and damage.
- the settings of the service unit, → Chapter *Service unit*.

- 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.

## 5.4 Operating the machine

HSK8-P5 The HSK8-P5 is designed for use in high throughput plants. Depending on the application, the operating pressure can be increased from 6 bar to up to 8 bar.  
The performance data applies to 6 bar and changes with any increase in pressure.

All hand skimmers The relevant manual can be found in the appendix under the heading **TIN-013204**.



German  
[Hand skimmer operation](#)



English  
[Hand skimmer operation](#)

## 6 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.

### 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 maintained and cleaned by skilled personnel and personnel instructed by FREUND Maschinenfabrik.



#### **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.

## 6.2 Personal protective equipment



## 6.3 Carrying out cleaning and disinfection

- Only use detergents and disinfectants approved for the food industry.
- Always take note of the safety symbols and the safety and product data sheets issued for the relevant detergents or disinfectants.
- Store detergents and disinfectants separately or in a special room. Make absolute sure those detergents and disinfectants do not come in contact with food.

### **Notice!**

#### **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 of less  $\leq 6$  bar.
- Wear the personal protective equipment specified by the manufacturer of the detergent.
  - Only use cloths, brushes or other devices which are only used for cleaning.

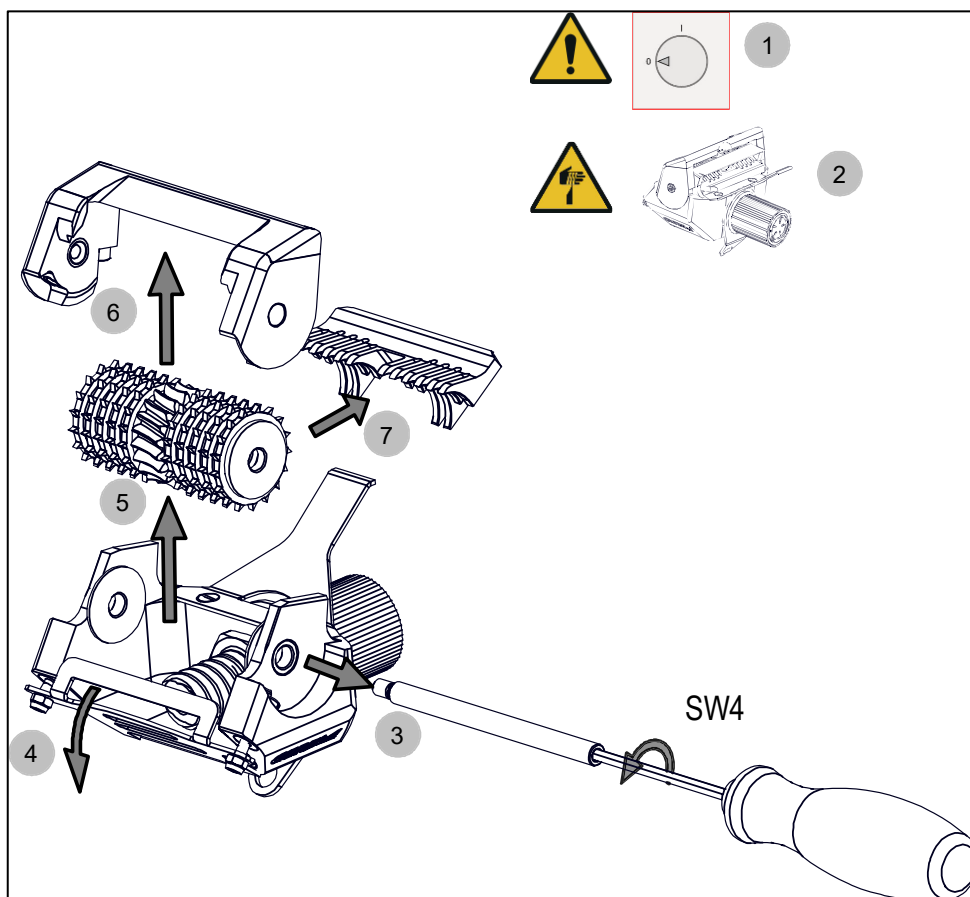


Fig. 6-1 Cleaning the machine

| 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<br>Low-pressure device, spray bottle                      |                                                      |
| Main cleaning                                                                       |                                                                                                                          |                                                      |
| Apply foam, allow to act for approx. 15 minutes                                     | 2 – 4% Somplex grease solvent<br>2 – 3% Ecolab P3-topax 19<br>2 – 3% Ecolab P3-topax 66<br>Ecolab P3-steril<br>Powerfoam | Spray bottle, brush, tub, clean damp cleaning cloths |

| Work steps                                                                                       | Detergents and disinfectants                                                                            | Auxiliary materials                                 |
|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|-----------------------------------------------------|
| Rinse                                                                                            | Drinking water, max. 60°C                                                                               | Low-pressure device, spray bottle                   |
| Check that machine is visibly clean                                                              |                                                                                                         |                                                     |
| Acid cleaning* <sup>1</sup> (instead of main cleaning)                                           |                                                                                                         |                                                     |
| Apply foam, allow to act for approx. 15 minutes                                                  | 3 – 6% P3-topax 56<br>3 P3-riskan,<br>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<br>Low-pressure device, spray bottle                                          |                                                     |
| Disinfection* <sup>2</sup>                                                                       |                                                                                                         |                                                     |
| Spray, apply foam<br>Allow to act as per product data sheet<br>Solution temperature approx. 15°C | 1 – 2% Ecolab P3-topax 99<br>0.5 – 2% Ecolab P3-topax 91<br>1% TEGOL 2000<br>1% TEGOL IMC<br>1% Somplex | Spray bottle, spray gun, clean damp cloth           |
| Final rinsing                                                                                    |                                                                                                         |                                                     |
|                                                                                                  | Drinking water, max. 60°C depending on fat melting temperature<br>Low-pressure device, spray bottle     |                                                     |
| Check                                                                                            |                                                                                                         |                                                     |
| that machine is visibly clean; repeat cleaning and/or disinfection if necessary                  |                                                                                                         |                                                     |
| 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                                                          |                                                                                                         |                                                     |

<sup>1</sup> 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.

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

## 7 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.

### 7.1 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 maintained and cleaned by skilled personnel and personnel instructed by FREUND Maschinenfabrik.



#### **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.

### 7.2 Personal protective equipment



### 7.3 Recommended lubricants



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

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

We can offer you the following lubricant container for re-greasing the machine:

| Retail container                                | Order No.   |
|-------------------------------------------------|-------------|
| Grease gun, filled                              | 028-100-006 |
| 1 kg can of food-grade fat                      | 100-013-007 |
| 1L bottle of hydraulic oil for the service unit | 047-004-004 |

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

### 7.4 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.

### 7.5 Hand-Skinner maintenance video



The following line contains a QR code that will redirect you to all available maintenance videos.



Before performing maintenance tasks, always note the safety information in the chapter entitled **Safety** For your safety.



German  
QR code for the available maintenance videos.



English  
QR code for the available maintenance videos

| Interval                          | Maintenance job                        | → Chapter                                                                                 |
|-----------------------------------|----------------------------------------|-------------------------------------------------------------------------------------------|
| Daily                             | Safety inspection before starting work | → Chapter <i>Daily safety inspection</i>                                                  |
|                                   | Check the service unit                 | → Chapter <i>Service unit:</i>                                                            |
| As necessary                      | Replace the blade                      | → Assembly manual in <u>FA</u> .                                                          |
| Approx. every 250 operating hours | Check the worm wheel                   | → Assembly manual in <u>FA</u> .                                                          |
|                                   | Check the toothed roller play          |                                                                                           |
| Approx. every 500 operating hours | Service the pneumatic motor.           | We recommend having maintenance performed by a FREUND Maschinenfabrik service technician. |

## 7.6 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.



German  
Maintenance of the motor



English  
Maintenance of the motor

## 7.7 Service packages

FREUND Maschinenfabrik offers various service packages, e.g. for inspection and maintenance of the pneumatic motor and the replacement of certain wear parts (e.g. bearings, vanes).

## 8 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.

### 8.1 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 maintained and cleaned by skilled personnel and personnel instructed by FREUND Maschinenfabrik.



#### **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 Overview of possible faults

| Fault                                  | Possible cause                                            | Remedy                                                                                                                                  |
|----------------------------------------|-----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Machine not running/stops during work. | No compressed air.                                        | Check whether the compressed air supply is fully open.                                                                                  |
|                                        |                                                           | Check that the service unit setting is correct → Chapter <i>Service unit</i> .<br>The machine is designed for an air pressure of 6 bar. |
|                                        | Compressed air hoses are faulty or incorrectly connected. | Check the compressed air lines and all connections.                                                                                     |
|                                        | Roller housing is soiled.                                 | Check the rollers' ease of movement.                                                                                                    |
|                                        |                                                           | Clean the machine, particularly the drive and rotating parts.                                                                           |
|                                        | Motor or gear unit parts are faulty.                      | Send the complete pneumatic motor to FREUND Maschinenfabrik for checking.                                                               |
| Machine has insufficient output.       | Motor or gear unit are faulty.                            | Send the complete pneumatic motor to FREUND Maschinenfabrik for checking.                                                               |
|                                        | Vanes worn.                                               |                                                                                                                                         |
|                                        | Roller housing is soiled.                                 | Check the rollers' ease of movement.                                                                                                    |
|                                        |                                                           | Clean the machine, particularly the drive and rotating parts.                                                                           |
|                                        | Air pressure is too low.                                  | Check whether the compressed air supply is fully open.                                                                                  |
|                                        |                                                           | Check the internal cross-section of the compressed air hose.                                                                            |
|                                        |                                                           | Check the length of the compressed air hose.<br>If supply lines are extended, the compressed air supply may not be sufficient.          |

| Fault                                                                                          | Possible cause                                     | Remedy                                                                                                                                            |
|------------------------------------------------------------------------------------------------|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Machine has insufficient output.                                                               | Air pressure is too low.                           | Check that the service unit setting is correct → Chapter <i>Service unit</i> on page 25.<br>The machine is designed for an air pressure of 6 bar. |
|                                                                                                | Silencer is soiled.                                | Rinse the silencer with clean water.<br>Replace the silencer if necessary → Assembly manual in <u>FA</u> .                                        |
| Lever is difficult to press or cannot be pressed at all.                                       | Valve spring fractured.                            | Replace the valve spring and/or the valve.                                                                                                        |
|                                                                                                | Valve is soiled and/or blocked.                    | Clean the valve.                                                                                                                                  |
| Machine gives poor cutting results or does not cut at all / Machine gets stuck in the product. | Blade is inserted the wrong way around.            | Insert the blade with the cutting edge facing forward.                                                                                            |
|                                                                                                | Blade is blunt.                                    | Replace the blade → Appendix.                                                                                                                     |
|                                                                                                | No blade inserted.                                 | Insert a blade → Appendix.                                                                                                                        |
|                                                                                                | The pitch angle is too steep.                      | Position the machine on the product horizontally → Appendix.                                                                                      |
| Significant worm wheel and scraper wear.                                                       | Bearing of the toothed roller and/or axle is worn. | Replace the worn parts → Assembly manual in <u>FA</u> .                                                                                           |
| Noises.                                                                                        | Gear unit is faulty or worn.                       | Send the complete pneumatic motor to FREUND Maschinenfabrik for checking.                                                                         |

## 9 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.

### 9.1 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.

### 9.2 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.

## EU-Declaration of Conformity

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

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

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

Hereby we declare that the machine,

**Type** **Hand-Skinner**

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:

|                       |                    |
|-----------------------|--------------------|
| <b>(EU) 1935/2004</b> | <b>Food Safety</b> |
| <b>(EU) 2020/1245</b> | <b>Food Safety</b> |

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

|                                 |                             |
|---------------------------------|-----------------------------|
| <b>DIN EN ISO 12100:2011-03</b> | <b>DIN EN 13732-3:2008</b>  |
| <b>DIN EN ISO 11201:2010-10</b> | <b>DIN EN 12984:2011-02</b> |

## Material Declaration of Conformity

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:

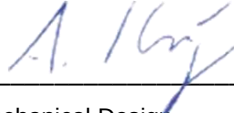
- **Regulation (EC) No. 1935/2004**  
We hereby declare that the product (machine type) listed below conforms to the requirements of Regulation (EC) No. 1935/2004, which states that materials and articles intended to come into contact with food must be designed and manufactured in such a way that, under 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: **Hand-Skinner**

| Machine parts             | Material designation | Comment     |
|---------------------------|----------------------|-------------|
| Blade                     | Stainless steel      |             |
| Gear roller               | Stainless steel      |             |
| Worm wheel                | Plastic              |             |
| Blade holder              | Stainless steel      |             |
| Side parts of the machine | Aluminium            | (Lead-free) |

Paderborn, 31.07.2025

  
Head of Mechanical Design



TIN-014526



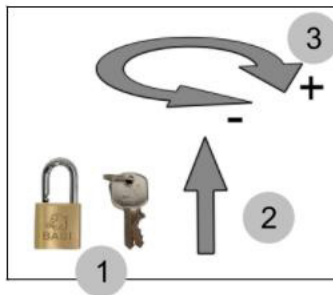
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1 / 1

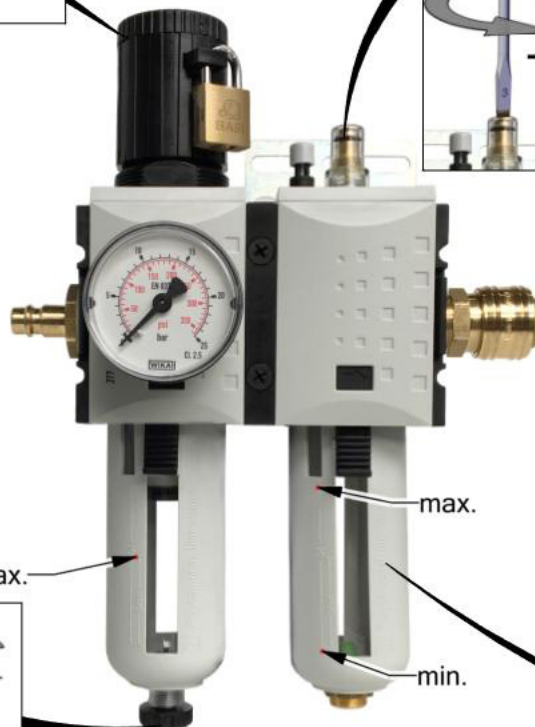


&lt; 16 bar

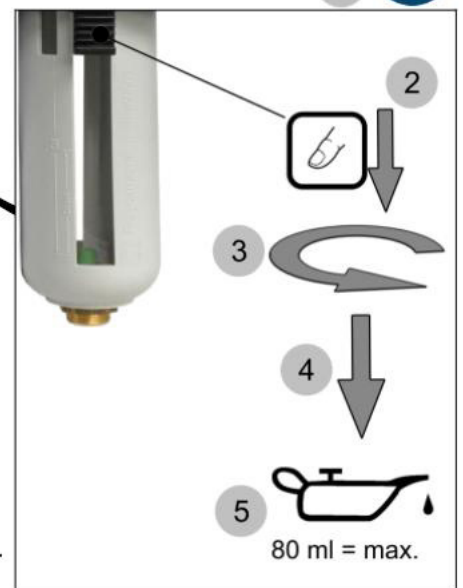


/min

|      | /min  |
|------|-------|
| PNM2 | 2     |
| P3   | 1     |
| P4   | 4     |
| P5   | 0,5   |
| SD11 | 1 - 2 |
| EDF  | 3     |

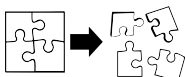
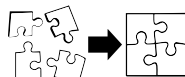


&lt; min. ⇒



TIN-014526 -000

047-004-004

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*
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**TIN-013195**



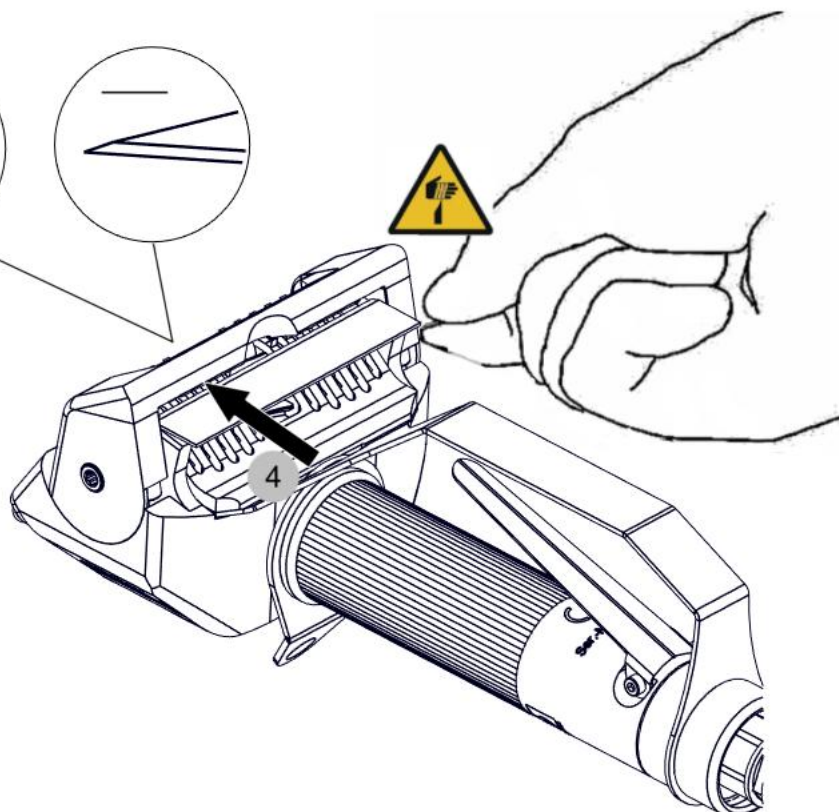
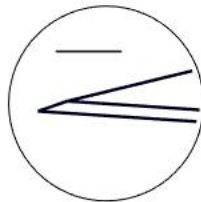
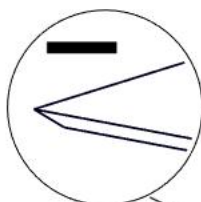
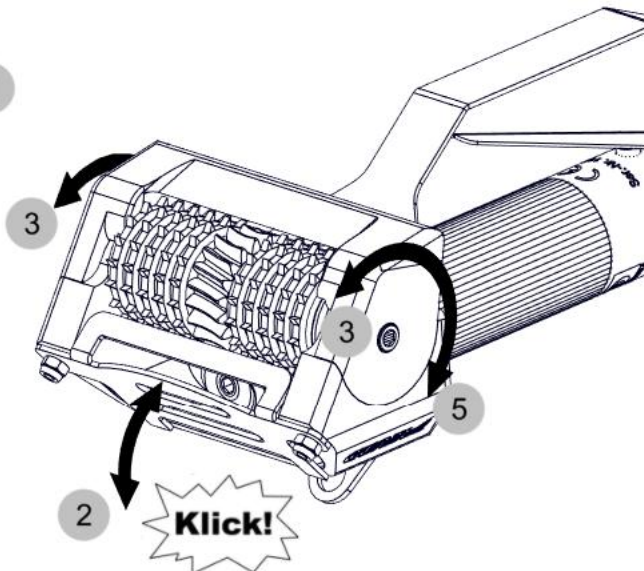
4.5



1 / 1

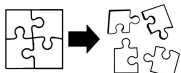


1



TIN-013195 -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*

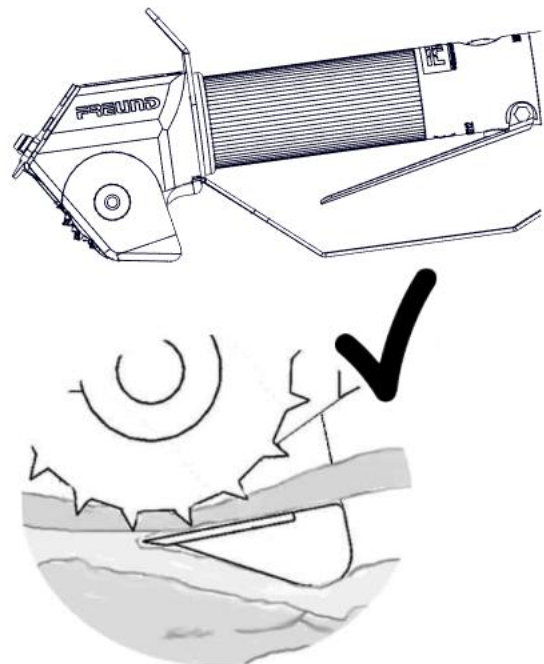
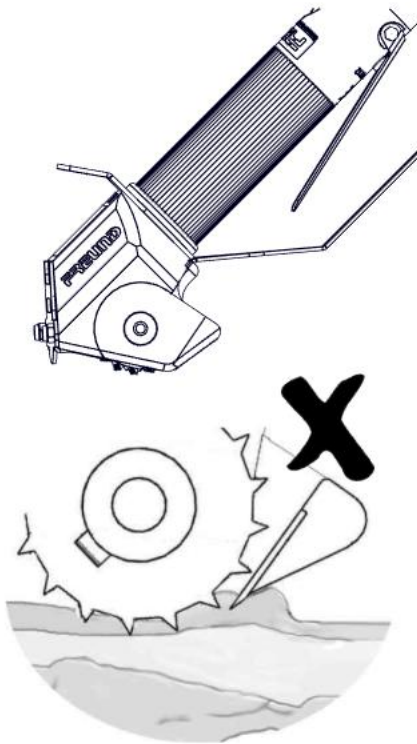
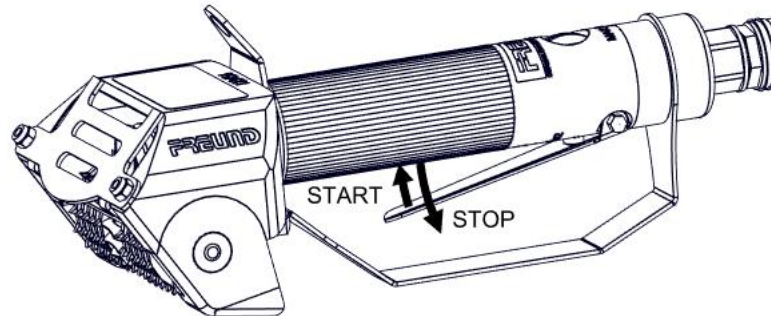


**TIN-013204**



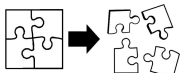
5.4

1 / 1



TIN-013204 -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*



7.6



180-001-037 (SW30)

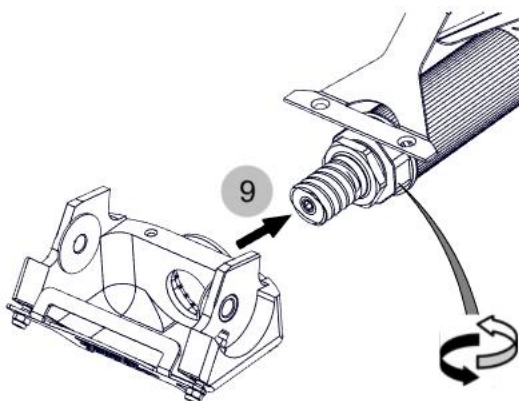
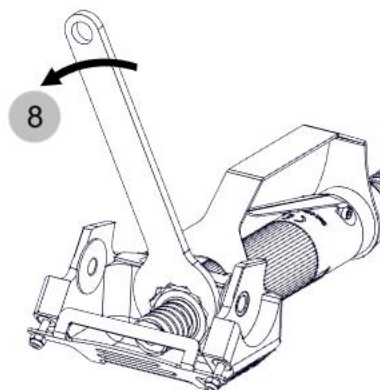
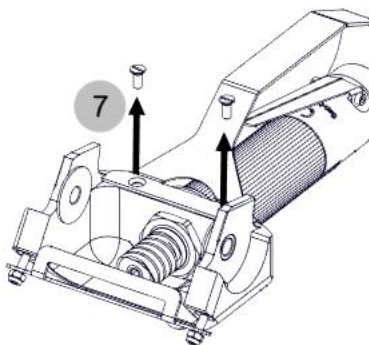
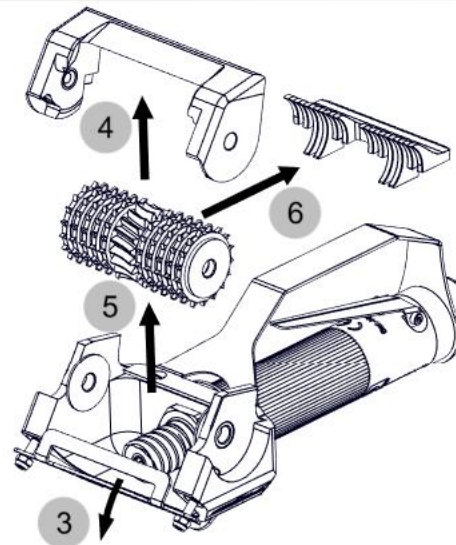
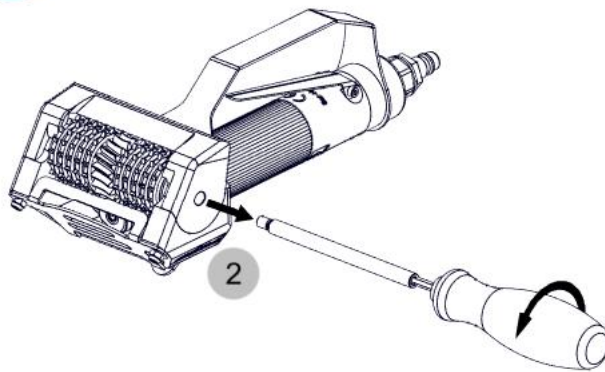


100-009-031 (SW4)

1 / 1



1



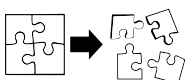
MTA-013269-C



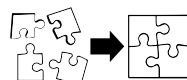
10-18 = (9 → 1)

TIN-013264 -000

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



Demontage  
Disassembly



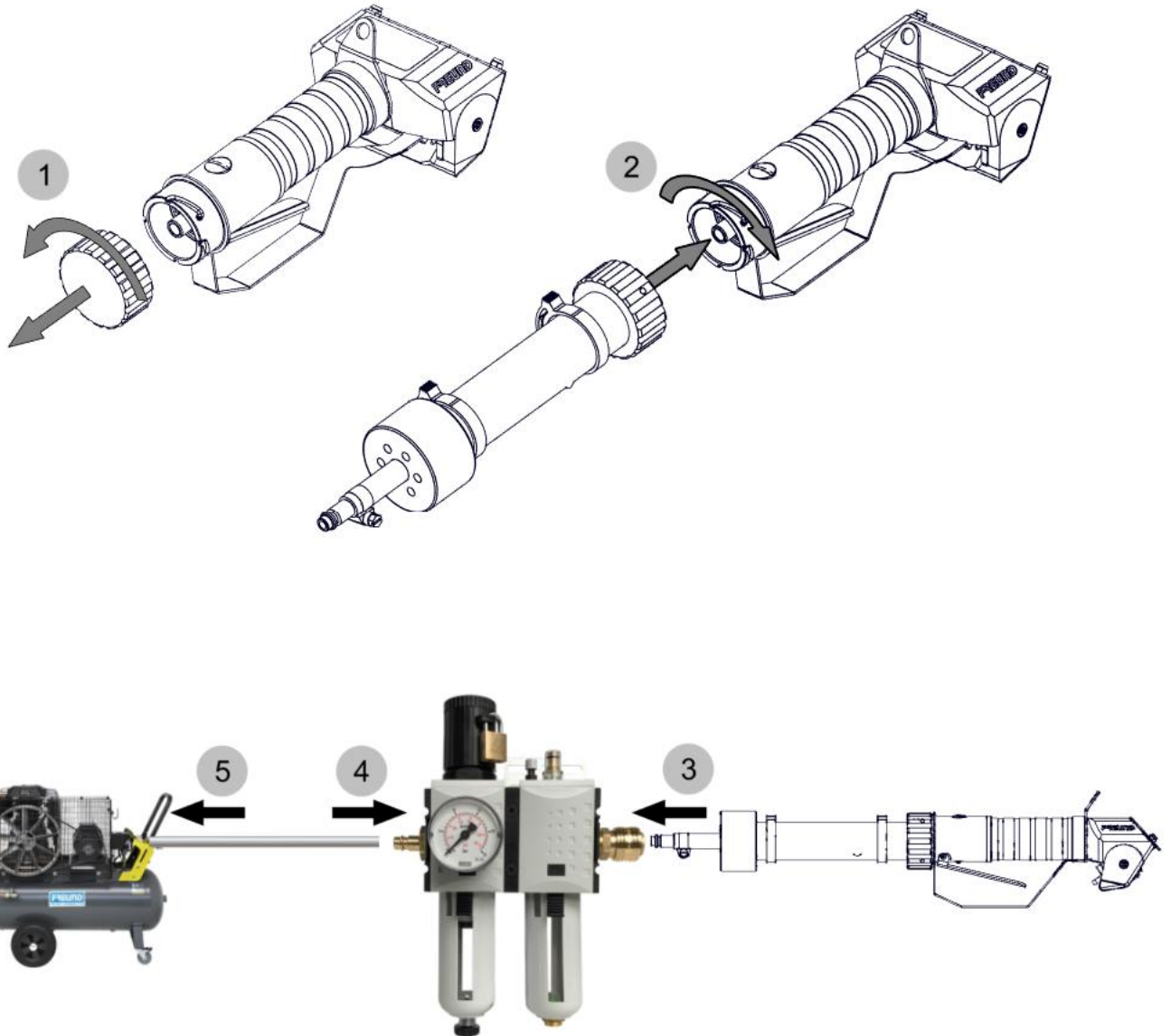
Montage  
Assembly



**TIN-014375**

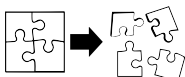
P5

1 / 1

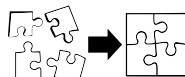


TIN-014375 -000

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*

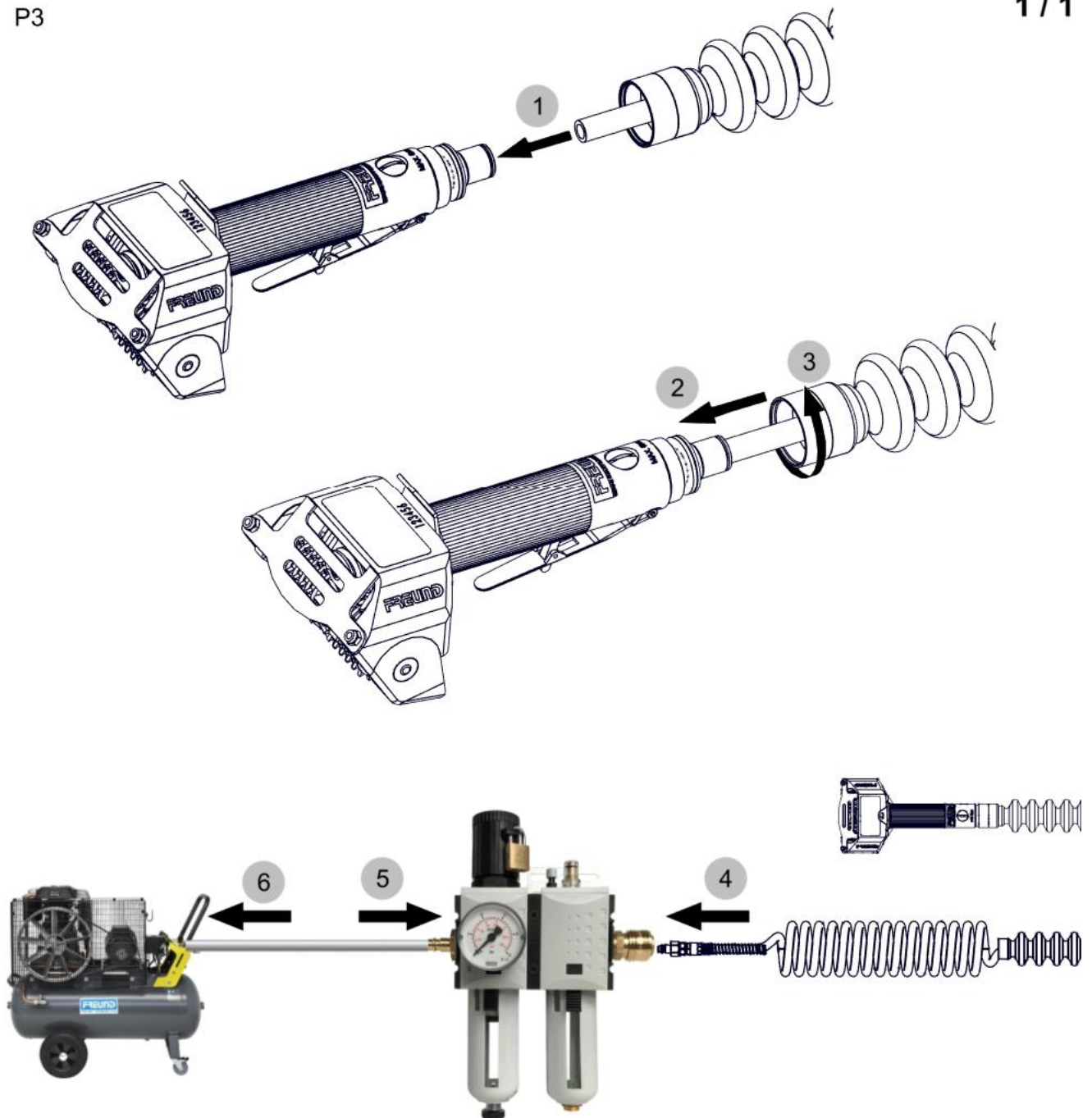
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**TIN-015099**

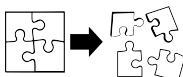
P3

1 / 1

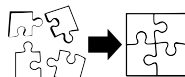


**TIN-015099 -000**

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*

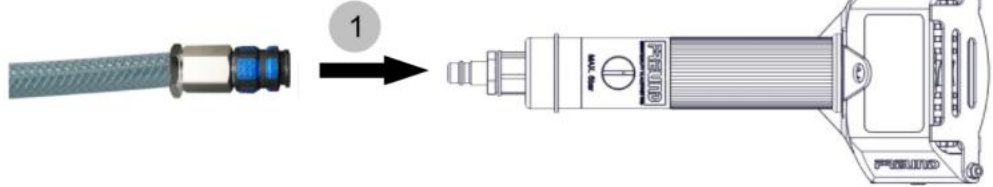
[www.freund-germany.com](http://www.freund-germany.com)



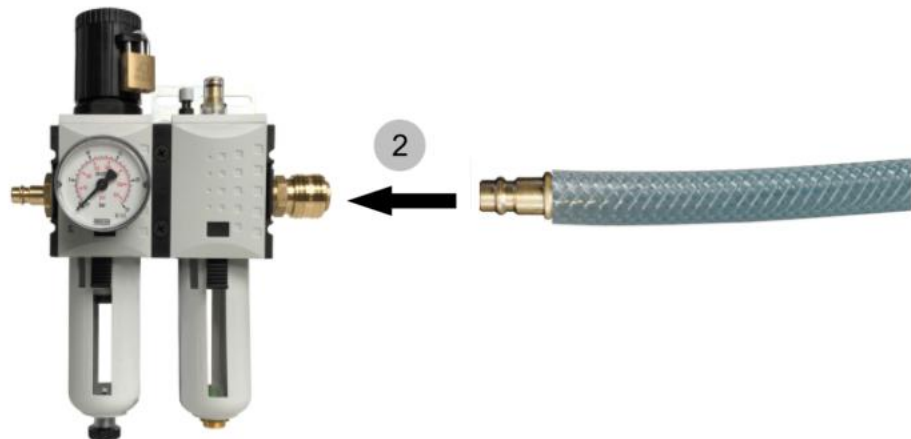
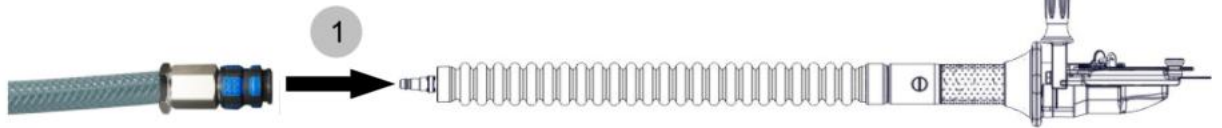
**TIN-014541**

**1 / 1**

P3\_evo2:

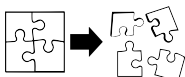


P4:

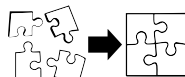


**TIN-014541 -000**

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*

[www.freund-germany.com](http://www.freund-germany.com)

**TIN-100-013****Hydrauliköl / Hydraulic oil (Esso Macrol 82)**

| 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)**

| 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)**

| 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)**

| 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)**

| 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)**

<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                       |

**Lebensmittelfett / Lubricating grease (Rivolta F.L.G. GT-2)**

<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         |
| Verwendung / Ability for         |                     |
| Trimmer                          |                     |
| Hand Skinner                     |                     |

**TIN-100-013****Schmierfett / Grease (OKS 475)**

| 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                      |

**Schmierfett / Grease (OKS 479)**

| 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                       |