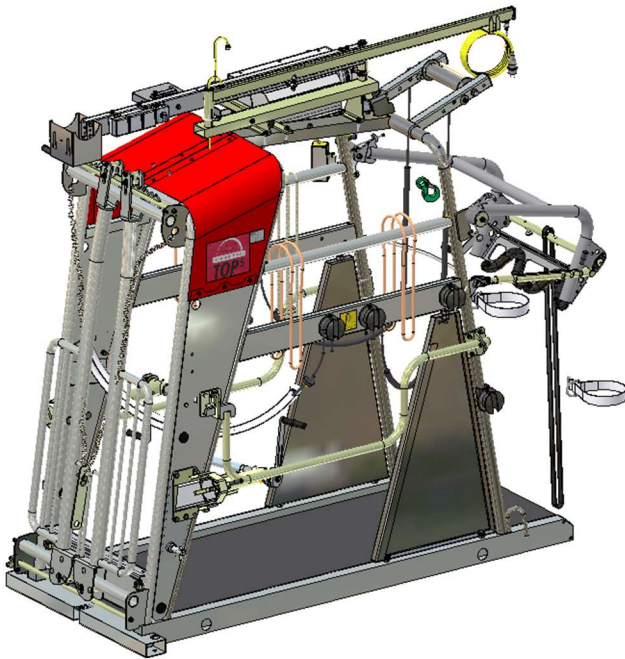


OPERATION AND MAINTENANCE MANUAL

LIST OF SPARE PARTS

TRANSFER DOCUMENT



Hoof trimming crush

TOP 5 - Basic
TOP 5 - Comfort
TOP 5 - Professional

*Please read carefully before initial commissioning!
Should be kept for future use!*

Status: 05/2025

Device number: _____

Purchase date: _____



TABLE OF CONTENTS

Table of contents.....	2
1. Introduction	3
1.1. About this product.....	3
1.2. Proper use	3
1.3. Selected examples of improper use.....	3
1.4. EU- Declaration of conformity	4
1.5. Warranty	4
1.6. Technical Data	4
1.7. Type label	5
1.8. Structure and scope of the operation manual	5
1.8.1. Structure	5
1.8.2. Target group	5
1.8.3. Changes to this operation manual	5
1.8.4. Storage of this operation manual	5
1.8.5. Spatial limits	5
1.8.6. Time limits	5
1.8.7. Workplaces operation	5
1.8.8. Explanation of the information and safety instructions.....	6
1.8.9. Pictograms in the operation manual and on the machine	6
2. Transportation	6
2.1. Attaching a hoof trimming crush to a traction engine	6
2.2. Transporting a hoof trimming crush using a traction engine	7
2.3. Removing a hoof trimming crush from a traction engine and setting it down	7
3. Commissioning / Operation.....	7
3.1. Device overview / main controls.....	7
3.2. Safety information before commissioning of the machine.....	8
3.3. Procedures for the commissioning of the hoof trimming crush	8
3.4. Transportation.....	9
3.5. Animal protection / natural motion sequences	10
4. Cleaning	10
5. Maintenance / Service / Repairs.....	10
5.1. Safety information	10
5.2. Electrical hazards.....	10
5.3. Maintenance and care	11
6. Spare parts.....	11
7. Recurring inspections.....	11
8. Scope of delivery / accessories	11

1. INTRODUCTION

1.1. ABOUT THIS PRODUCT

You have bought the Rosensteiner hoof trimming crush "Top 5", work equipment with pioneering technology for the trimming of animal hooves. The hoof trimming crush serves for periodic, expert and economic hoof trimming in a posture which is ergonomic, functional and fatigue-proof for the carer.

The hoof trimming crush is generally referred to as work equipment in this operation manual.

The work equipment and its fittings are in accordance with the state of the art at the time of placing on the market. However, residual risks exist. Insofar as possible, we have constructively reduced the risks to health which are associated with these hazards.

This document contains important information and serves as a guideline for safe operation inclusive of all activities which are necessary for operation, such as handling, maintenance or service. Through its observance you will be able to avoid dangers and to increase the lifetime of the work equipment. It is prohibited for the customer to change it.



The documentation of the individual subcontractors, and especially the information and details contained therein, is fully valid and are to be observed.

The manufacturer does not accept any liability for damages that arise from failure to comply with details and information contained in the manuals, or from improper usage.

We compiled the documentation with great care. However, it may contain minor deviations. Please inform us of these.

CAUTION



Unauthorized modifications (structural, functional or procedural) and the use of components and auxiliary components on the work equipment exclude the liability of the manufacturer.

WARNING



Intended alterations, changes to the work equipment described, require a further analysis of the dangers and an evaluation of the risks! Original spare parts and accessories are designed specially for this work equipment. We particularly emphasize that original parts and accessories which are neither specified nor supplied by us are also neither tested nor released by us. The fitting and/or usage of such products may negatively change or influence the given constructive characteristics of your work equipment. The manufacturer accepts no liability whatsoever for damage caused by the use of non-original parts and accessories.

1.2. PROPER USE

The hoof trimming crush Top 5 is intended solely for the trimming of animal hooves.

The hoof trimming crush is suitable for bovine animals from 400 kg to 900 kg maximum.

Any operation which deviates from "the intended use" is an improper use and therefore prohibited. This is also valid for components of this work equipment.

1.3. SELECTED EXAMPLES OF IMPROPER USE

- Any usage that deviates from the "intended use" or which goes beyond the defined scope of utilization.
- If the work equipment is not operated in compliance with the requirements of the safety and risk aspects and with full observance of the operation manual. This is also valid for malfunctions which arise as a result of defective, improper or unauthorized work on/with the work equipment.
- Each alteration, bypassing or shutting off of fittings on the work equipment which serve the proper functioning and the active and passive safety.
- If the operating work equipment is not in a technically proper condition.
- If faults that may affect safety are not rectified before use.
- Use of unreliable auxiliary equipment and tools

As a general principle, the manufacturer shall not be liable for damage resulting from improper use.

1.4. EU DECLARATION OF CONFORMITY

Manufacturer and responsible for documentation:

ROSENSTEINER

Landmaschinenbau GmbH

Hermesstraße 2b

A-4595 Waldneukirchen

Phone +43(0)7258/20 110

hereby declares that the machine described in the accompanying operation manual:

Type: **Top 5 Basic**
 Top 5 Comfort
 Top 5 Professional

Description: **Hoof trimming crush Top 5**

Brand: **Rosensteiner**

is in accordance with the provisions of Directive 2006/42 EG (for Machinery).



Steinbach, December 5th 20211

Andreas Rosensteiner, owner

1.5. WARRANTY

The company Rosensteiner Landmaschinenbau GesmbH assumes warranty under the following terms and conditions:

- 1) The warranty includes the function and quality of the device. The warranty does not cover wear and tear.
- 2) Time of warranty is 1 year from the day of delivery to the customer. All warranty claims received within the warranty period by the retailer or in the plant, Hermesstraße 2b, A-4595 Waldneukirchen, shall be processed.
- 3) Warranty claims must be submitted immediately to the retailer or manufacturer if defects appear in the material or in the workmanship during the warranty period.
- 4) The retailer must be shown the defective device or part. A subsequent repair or replacement may only take place in agreement with Rosensteiner. Expenses made without explicit consent will not be covered by the manufacturer. Defective parts are to be stored with the retailer as agreed upon, or sent to Rosensteiner. The customer must bring the device to the retailer free of carriage charges.
- 5) No warranty claims will be considered if the device is damaged or destroyed by force majeure. Note: Warranty claims will lapse in the case of damages as a result of improper handling, overload, attachment to oversized carrier vehicles or non-implemented maintenance and care!
- 6) Warranty claims shall only be processed when the contract of purchase, invoice or delivery note and the device number are submitted together with the device.
- 7) In fulfilling the warranty, the device will be repaired or exchanged for a functional equivalent.
- 8) Further claims, in particular damages and loss in any form whatsoever which are the result of device usage, are excluded.
- 9) If a replacement is made by us in accordance with this warranty, warranty claims against the retailer as the seller will be eliminated.

1.6. TECHNICAL DATA

Machine type	Hoof trimming crush Top 5
Dimensions	2400/1250/2005 (L/W/H)
Recommended animal size	400-900
Dead weight	395-480 kg
Attachment	Three point attachment
Surface	Galvanized

1.7. TYPE LABEL

The type label is placed on the left red cover plate and contains the type designation and the year of construction!



1.8. STRUCTURE AND SCOPE OF THE OPERATION MANUAL

1.8.1. Structure

This operation manual was created in accordance with the Directive 2014/35/EU and the resulting regulation MSV 2010, implemented in Austria. The operation manual in its present form will support you in getting to know the technical details of the machine, in operating the machine properly and safely, in maintaining it and in using it in the intended fields of application.

1.8.2. Target group

The operation manual is aimed at those people who are familiar with a traction engine, with the attachment of additional devices, with the transport of attachment devices using a traction engine, the commissioning and operation of these, and who possess the appropriate qualifications for their jobs and functions, i.e. those people who can evaluate the jobs and possible dangers because of their professional training, knowledge and experience.

Each person who is involved with work on the machine – e.g. operation, maintenance, transport – must:

- have read and understood this operation manual before working with the machine,
- observe the contained instructions and safety information.

1.8.3. Changes to this operation manual

The present operation manual describes the condition of the work equipment at the time of creation of the operation manual.

1.8.4. Storage of this operation manual

This operation manual must always be stored at the place of action of the work equipment and must be readily accessible for all people using the work equipment! If this operation manual gets lost, please request a replacement from your retailer. If you sell your machine, please remember to include the operation manual. It is a statutory component of your machine. You can also find the operation manual on our homepage www.rosensteiner.at.

1.8.5. Spatial limits

This machine is designed for mobile operation at different places of use.

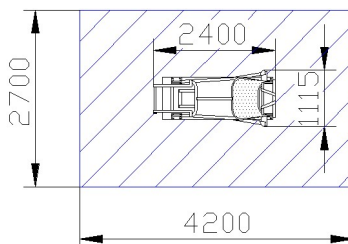
1.8.6. Time limits

Because of the stress on the work equipment, attention must be paid to the durability of the components used, with regards to reliability, breakdown susceptibility and their operating limits. The following phases of life are not dealt with in this operation manual:

- Manufacture and transport (to the customer / user)
- Maintenance work on the work equipment and its components in workshops
- Work which requires the competence of the operator (welding work, electrical work,...)

1.8.7. Workplaces operation

Recommended space requirement for Top 5



1.8.8. Explanation of the information and safety instructions

	Useful additional information in continuous text is marked with accompanying info button.
SIGNAL WORD	Type and source of danger and the accompanying risks!
	Possible consequences for people, machine parts, tools and work piece – residual risk! – Measures to avoid danger to life and limb and to reduce the residual risk.
SIGNAL WORD	Explanation
NOTE	Warns against a potentially dangerous situation in which the unit or something in its environment could be damaged.
CAUTION	Warns against a potentially dangerous situation which could lead to light bodily harm or damage to property.
WARNING	Warns against a potentially dangerous situation which could lead to severe bodily harm or death.
DANGER	Warns against an imminent danger which will lead to severe bodily harm or death.

1.8.9. Pictograms in the operation manual and on the machine

	Never enter the danger zone between the attachment and the machine!
	Danger of crushing!
	Read and observe the operation manual and safety information before commissioning the machine!
	Turn the motor off before repair, maintenance and cleaning work and pull out the plug!
	Keep sufficient distance from the electric high voltage line!
	Machine with wheel chocks before uncoupling or setting down!
	Avoid uneven surfaces and slopes where the device could slip, tip or fall over!
	Before maintenance and repair work, switch off the motor and remove the key!
	Beware of fluid escaping under high pressure. Please observe the information in the technical manual!

2. TRANSPORTATION

2.1. ATTACHING A HOOF TRIMMING CRUSH TO A TRACTION ENGINE

WARNING	In order to convey the hoof trimming crush with the tractor, it is fastened to the lower link support of the tractor hydraulics and to the upper link support of the tractor using a 3 point chain. Back the tractor up to the device and make sure that there is nobody in the danger zone between the tractor and the hoof trimming crush.
	To be observed while attaching:
	– Before attaching the hoof trimming crush, make sure that the tractor has enough frontal weight. – Never step between the tractor and the hoof trimming crush while coupling up, there is a danger of crushing. – Use suitable security bolts to mount the hoof trimming crush with the lower / upper link support and check that there is a tight fit in the suspension. – While operating the tractor hydraulics (upper link, lower link), ensure a secure position with sufficient distance from dangerous movements, under no circumstances stand on parts of the tractor (lower link,...) or on the hoof trimming crush. – Do not step between the hoof trimming crush and the tractor when the traction engine is running. – Check transportation position. The front leg holders must be swiveled to the inside and all safety cables must be tautly fastened in the bollard clamps.
	

2.2. TRANSPORTING A HOOF TRIMMING CRUSH USING A TRACTION ENGINE

WARNING



- Watch out for sufficient distance from the electric high voltage line during transport.
- When transporting the device on public roads, please observe the road traffic regulations of your country and affix the lights or warning signs to the device as prescribed by law.
- For day use, two warning lights must be affixed on the left and right rear of the hoof trimming crush in such a manner that the rear lighting of the hauler is not covered. For night use, a light rail with complete element illumination (lights left and right as on the hauler) must be affixed to the rear of the hoof trimming crush.



2.3. REMOVING A HOOF TRIMMING CRUSH FROM A TRACTION ENGINE AND SETTING IT DOWN

WARNING

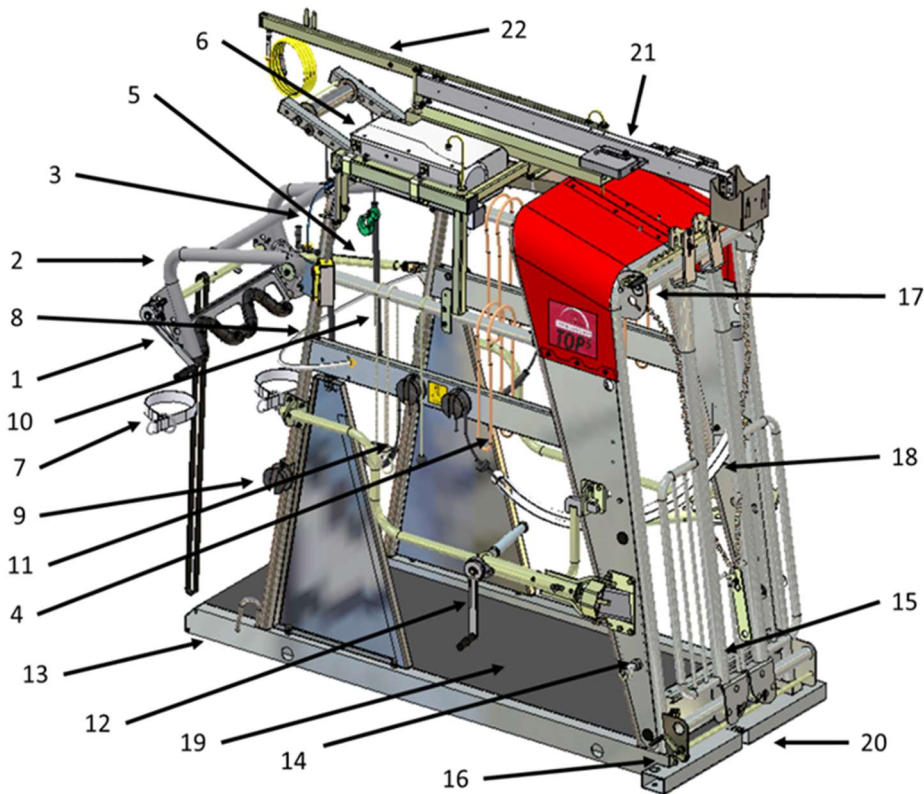
Proceed as follows for the set-down of the hoof trimming crush:



- Drive on to a level storage area.
- Secure the tractor against rolling (hand brake, brake wedge).
- Lower the hoof trimming crush. When setting down the hoof trimming crush, make sure that it is tip- and slip safe, especially when it is to be set down at an elevation on scales, pallets etc.
- Free the upper link chain first, then the lower link chain.

3. COMMISSIONING / OPERATION

3.1. DEVICE OVERVIEW / MAIN CONTROLS



Item	Designation	Item	Designation
01	Safety crank pressure rollers	02	Rear leg support
03	Cord winch head catching device	04	Foot holder belt
05	Locking pipe	06	Winch rear leg lift
07	Joint belt	08	Knee cord
09	Bollard clamp	10	Shank cord
11	Foot safety cord	12	Front leg winch
13	Base frame	14	Lower link bolt
15	Head catching bow	16	Release head catching device lower
17	Release head catching device upper	18	Chest belt
19	Rubber mat	20	Support bore, manual transport wheels
21	Service Arm	22	Electrical connection

Safety information before commissioning of the machine



- For the first commissioning you should be helped by a person who already has experience with the device and with the trimming of animal hooves.
- Do not carry out hoof trimming just after feeding!



- These operating instructions, including the appendices, must be read carefully and observed before commissioning and operating the work equipment.
- The device may only be operated by people who are familiar with the intended field of application and who are used to bovines.
- Before use, a general visual inspection of the hoof trimming crush must be carried out in case of possible changes.
- Check whether the hoof trimming crush is set down on level ground.
- Check of the hoof trimming crush for loose (especially screw connections) and hanging parts.
- Check of the hydraulic system for damages, especially the transmission lines / tubing.
- Check belts for wear and tear.
- Check the condition of all protection devices.
- Check screw connections and tighten if necessary.
- The device may only be operated with suitable protection measures against too high touch voltage. FI-switch 30mA trigger voltage.
- Visually inspect electrical equipment for damages.
- Check whether the electric inspection is within the year interval. (Yearly inspection of the electric installation by experts is required.)
- Use and check the pressure roller safety crank according to the instructions in the appendix.



- Inspect the workspace and make sure that no unauthorized person is in the workspace – pay special attention to children.



- Use personal protective equipment!

3.2. PROCEDURES FOR THE COMMISSIONING OF THE HOOF TRIMMING CRUSH

- i** Please see device picture(s) for the following numerations
- 1) Set up the hoof trimming crush in a level, easily accessible area with slip-resistant ground. Usage of the gangway for enclosed animals is recommended.
 - 2) All projecting parts in the crush must be swiveled out of the inner area or removed. If available (accessory), please lower the locker bar.
 - 3) The head catching device (17) is closed below and opened above.
Pay attention to the correct usage of the bollard clamp!
 - 4) Drive the animal into the hoof trimming crush, preferably using a gangway.
 - 5) Activate the head catching device using the cord winch provided (3). The animal should be positioned with its shoulders as close as possible to the neck frame. Check the secure fixing of the head.
 - 6) Place the knee cord (8) horizontally at the height of the knee joint, span moderately and mount it at the bollard clamp provided for this purpose.
 - 7) Attaching the retaining elements.
 - Secure the left rear leg, mount the safety cord at the bollard clamp provided for this purpose.
 - Attach the shank cord at the back left.
 - Tightly attach the chest belts with the pull through hooks diagonally between the front legs. Mount the cord in the bollard clamps.
 - Attach the shank cord at the back right.
- View: correctly attached knee and shank cord



Circle it around the animal 1x in a clockwise direction. All work must be performed from the side, never bend under the animal body, in front of or behind the animals feet.

- 8) Fastening a rear leg:
Fasten the leg with a joint belt above the ankle joint and lift it using the crank (6) to a working height. You can cut now using the Dutch method. (Freely suspended lower leg (photo 1 and photo 2))
When using disc grinders, the lower leg must be fastened additionally to the V-shape. To do this, you swing the hind leg retention bracket (2) to the required working height, attach the foot holder belt (4) (Photo 3) and pull the lower leg tightly to the V-shape. (Photo 4).





- 9) Fastening a front leg
Please note: Do not work on a front leg until the back leg on this side is secure.
- Attach the front leg belt between the hoof and the dew claw.
 - Swivel the front leg winch (13) inside until the middle of the shaft is behind the foot. Mount the cord on the winding bollard and turn it until the hoof is turning upwards.
 - Swivel the front leg winch (13) out until the hoof is outside the main frame and thus easily accessible.
 - Perform hoof trimming.
 - By turning the crank backwards, the cord is released and can be removed. Swivel the foot holder to the front.
- 10) All fastenings are released after hoof trimming. The catching device for the head as the last one.
11) Manually open the head catching device (17) fully above and below. Above using a hand lever (19) –
12) below using foot pedals (18) which release the lock.



3.3. TRANSPORTATION

Transportation with stable aisle wheels

To be used only for bringing the device into the final position before hoof trimming, not for general transport!

1 set of stable aisle wheels comprises:

- 2 pieces push-on wheels
- 1 piece elevator/steering axle



- Allow the ball of the elevator axle to fall in to the recess provided and lift it up.
Do not put hands or feet under the device – danger of crushing.
- Fit in the push-on wheels and turn the safety device.
- Put the device with the wheels back on the ground by pushing the elevator axle in the direction of the device.
Please note: The elevator axle develops a strong pull in the direction of the device as soon as the elevator axle is pushed over the midpoint. Hold the axle tightly and support yourself if necessary to avoid injuries.
- Place the elevator axle on the opposite side, lift it up and operate.



Transportation with a tractor three-point hitch

To be used for general transportation.

Fasten the lower link and mount the upper link chain. At least 2 chain links must hang down on the outside from the mounting eyelets.



Transportation with trailer loading

- Fit a second pair of push-on wheels.
- Choose a suitable car trailer.
e.g. loading space approx. 2x1.1m, 750kg axle, folding front wall, simple access ramp at the back wall, hand-operated cable winch (350kg) on stands.
- Mount the winch cable at the back recess for elevator axle.

- Pull the hoof trimming crush up with the cable winch (2 people also push the stand on to the trailer manually).
- Flip up the back wall and secure as necessary with suitable lashing strap.

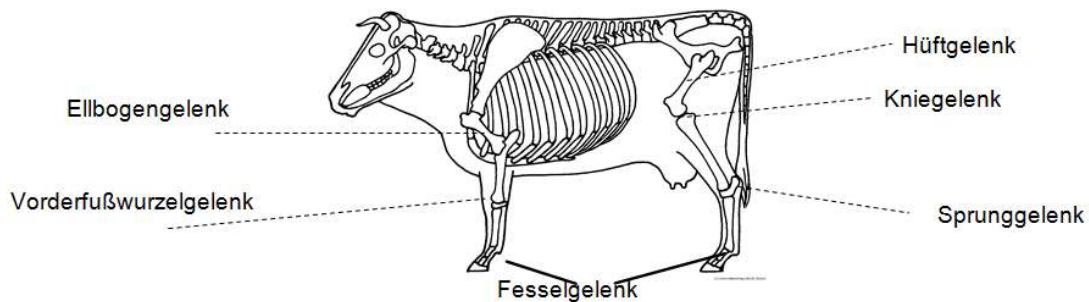


3.4. ANIMAL PROTECTION / NATURAL MOTION SEQUENCES

Make sure that no injuries or pain are inflicted to the bovine animal as a result of unnatural movements. This is especially valid during lifting of the legs and swiveling out of the front legs.

In order to make this easier for you, we have included an overview of the entire locomotive system in the operation manual. The most important positions were identified here (picture below).

The retaining elements chest belt and shank cord serve to secure the animal so that it cannot fall to the ground. On no account may the animal hang for a longer period of time in the belts/cords, because this could lead to paralysis with permanent consequences. If the animal gets hung up in the belt/cord, work must be stopped immediately and the animal returned to its feet using suitable measures. If the animal does not react, all leg fastenings must be released, the animal lowered to the ground and the head catching device must be opened.



4. CLEANING

- NOTE**
- Pay attention to the safety information in the safety data sheet for detergents / disinfectants,
 - remove cleaning waste water in accordance with regulations in the country of use.
-  
- Wear protective goggles.

5. MAINTENANCE / SERVICE / REPAIRS

5.1. SAFETY INFORMATION

- CAUTION**
- Service work may only be carried out by qualified and trained personnel or by the manufacturer himself.
 - Maintenance and service work may only be carried out when there is sufficient lighting present for the work to be carried out.
- WARNING**
- Maintenance work may only be carried out when fully set down.

5.2. ELECTRICAL HAZARDS

Contact with live parts.

Effects of electrical power on humans.

- DANGER**
- Compliance with the statutory regulations for installation, operation, service and inspection of electrical operating material.
 - Only allow skilled electricians to carry out work.
 - Skilled personnel must service damaged installations immediately!
 - Use of suitable plugs, couplings
 - Recurring inspections

- Ensure that the device is completely turned off and secured against restarting before opening the electrical device casing!

The service personnel must be acquainted with specialist standards and regulations.

5.3. MAINTENANCE AND CARE

The following measures increase the operational safety and lifetime of your device:



- All pressure points are to be greased regularly or after each cleaning with the high-pressure cleaner.
- Oil the pressure rollers safety crank (according to the instructions in the appendix).

6. SPARE PARTS

- Original parts are to be used to replace a component of the machine. Spare and wear parts for original components and accessories which are not supplied by the manufacturer of the machine are not tested and approved by the manufacturer.
- The fitting and/or usage of such products may change the given constructive characteristics of the machine and endanger its' safety.

NOTE



- The manufacturer accepts no liability whatsoever and the right to warranty will expire for damages or consequential damages caused by the use of non-original parts and accessories or the inappropriate fitting or replacement of original parts and accessories.
- Once the warranty terms have elapsed, we recommend the usage of original parts to ensure continuous performance of the machine. For warranty claims please contact your local sales and service partner.

7. RECURRING INSPECTIONS

- NOTE** – The electric installation of the machine is to be inspected yearly by an expert. The instructions in the documents in the appendix must also be followed.



8. SCOPE OF DELIVERY / ACCESSORIES

Standard equipment:

- Complete base frame, galvanized
- Rubber mat – hygienic, slip-resistant
- Complete head catching device
- Front leg winch left and right – swing-out
- Rear leg lift with a cable winch
- Lower leg bow at the rear with safety crank
- Retaining elements (chest belt, knee cord, shank cord)
- 3 point attachment + upper link chain
- Exit protection (removable without tools)
- Universal spray 1 can
- Operation manual, also on the internet

Art. No.	Type	Description
90 000B	Top 5 Basic	Standard
90 000C	Top 5 Comfort	Standard – Electrical rear leg lift
90 000P	Top 5 Professional	Standard – Electrical rear leg lift – Service arm with element illumination – Locker bar

Art. No.	Accessories
90 171	Manual transport wheels, elevation axle + 2 push-on wheels
90 176	Spare wheels for trailer load, with axle
90 605	Electrical rear leg lift original, 220V / 500kg
90 606	Electr. rear leg 500kg as retrofit kit with cable feed
90 604	Electr. rear leg 500kg as retrofit kit when service arm is present
90 710	Service arm without element illumination with cable feed, swiveling arm, with 2 flexholders and 3 sockets
90 720	Service arm with element illumination, cable feed, swiveling arm, 2 flexholders and 3 sockets, transformer 12V, 55W halogen bulbs
98 600	Locker bar, left and right
98 610	Turntable Flexit

Operating instructions, bidirectional – safety crank DS 250*

*The updated version of this document can be found at www.anlds.de.

This instruction manual is for safe usage of the bidirectional safety crank DS 250 as well as for certain inspections and simple maintenance. It applies to models with CRANK ARM (DSK) and CRANK HEAD CAP (DKK). Hereinafter the term „crank arm“ also refers to the head cap. Models with RATCHET CRANK ARM (DRK) have their own user guide. This instruction manual is complemented by a maintenance manual which is exclusively addressed to professionals.

Note:

Read the whole instruction manual carefully before using the crank or before you start working on the crank. Follow these instructions and do not perform any other activities on the crank besides the ones described.

Caution!

Pressure roller – safety crank DS250 is designed to be used for lifting or lowering in combination with appropriate lifting equipment. The crank must never be used to hold or lift the lifting equipment to which it is connected.

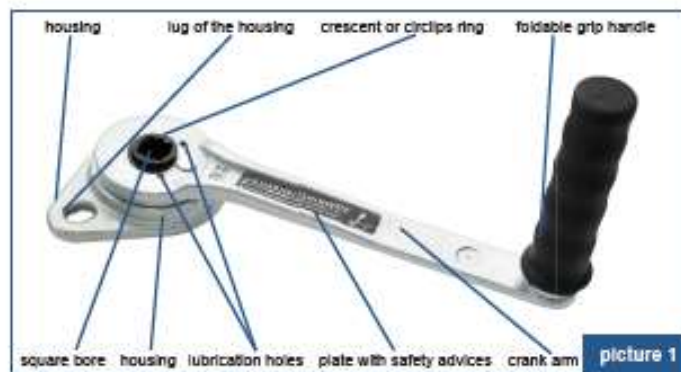
Keep clear of suspended loads!

Caution!

The crank should be checked regularly. Mechanical wear and corrosion can compromise the brake function. Therefore, Chapter 2, „Checking and Maintenance“, absolutely must be complied with. Noncompliance carries the risk of the brake failing, which could lead to serious or extremely severe accidents.

1. Functioning and operating

The crank is connected to the shaft load of the lifting equipment via the square shaft. It has to be secured against shifting on the shaft by suitable means. The lug of the housing must sit completely on the supporting bolt, but must not be clamped to it.



To raise or lower the load, rotate the handle in the appropriate direction. If a load is on the crank while the crankarm is not being turned, the integrated brake will be activated automatically by the load. Braking increases according to increasing load.

Note:

When lowering a heavy load, turn the handle slowly by gradually increasing the pressure on it until the crank arm starts to move. Then maintain this pressure.

Note:

Never allow the crank arm to bounce back. This can lead to the following: The bouncing-back crank arm will loosen the brake and the weight will slip down unintentionally.

Note:

Follow the instructions of the lifting device on which the crank is fitted.

Note:

The housing warms up as the load is being lowered! If, while working with excessive weight, the permissible operating temperature (Ch.5) is exceeded, stop using the crank and continue only when the housing has cooled down sufficiently.

2. Checking and maintenance

Caution!

In order to avoid injuries caused by the crank arm bouncing or by load-lowering, the crank must not be holding load before any checking or maintenance.

Different precautionary measures are necessary depending on the construction design on the lifting equipment on which the crank is assembled.

Therefore, lifting equipment instructions by the manufacturer are to be observed.

2.1 Check daily before using. Can the crank arm be moved easily?

First: Ensure that the safety crank is load free and put the crank arm in vertical down position as shown in picture 2. When using models with head cap, make sure that their rotation is not restrained by drive components that are bolted or connected to the head cap.

- The crank must be able to move easily back and forth in small range.
- The square shaft of the lifting device must not move when the crank arm moves.
- The range of movement must
 - be at least 5° (3 cm on the crank handle)
 - not exceed 20° (9 cm on the crank handle)

Caution – SEVERE DANGER!

- If the crank arm cannot move easily
 - OR
 - if the movement range becomes larger or smaller than indicated, the brake has been damaged or is inoperable!
- The crank must not be used under any circumstances and should be checked immediately by a qualified person.

At this point, it is likely that the crank arm will bounce back uncontrollably and that the load will fall. This can lead to serious/very serious injuries or even death in some cases.



2.2 Check in frequent intervals: crank inspection by a professional.

The appropriate inspection intervals can be found in Ch.5. Professionals should keep record of scheduled inspections and maintenance that are performed and document them in the inspection log-book of the lifting equipment.

→ **Note:**
This scheduled inspection does not replace the daily checking of the movement range by the operator (pic.2).

→ **Note:**
An immediate inspection *by a professional* should be performed if:
 – the crank arm bounces when the load is being lowered
 – the crank arm blocks during the rotation of a small load
 – the crank squeaks

3. Greasing and cleaning

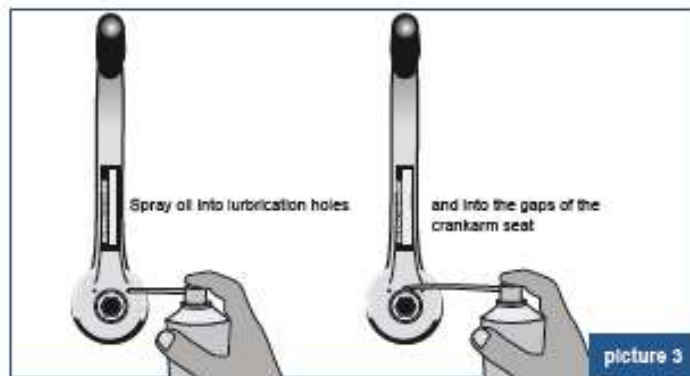
The crank is initially lubricated by the manufacturer with a long-term lubricant. The lubricant durability depends on the operating environment (weather conditions) and usage intensity. In most cases it is sufficient to lubricate the safety crank during the scheduled inspection intervals.

Caution!
If the crank is used with agricultural equipment, it has to be lubricated with oil for fine mechanics (WD40) often and frequently. Otherwise, the brake may fail because of worn-out lubricant. There is a danger of severe accidents.

Lubrication with the appropriate oil (Ch.5) can be performed by the operator. By doing this, deposits and contamination, as well as old lubricant, will be dissolved and washed out, and the rust protection refreshed.

→ **Note:**
Even a single lubrication with oil will destroy the longterm effect of the original lubricant. Once it is done, oil lubrication has to be repeated regularly in short intervals, especially if under the influence of bad weather or aggressive substances. Furthermore, oil lubrication decreases the ease of operation while working with heavy loads.

Lubrication with fine mechanics oil



- remove all weight from the crank
- put the crank in the vertical position up
- spray the oil generously into the 2 lubrication holes and into the narrow gap between the crank and the security ring.
- divide the oil evenly by crank arm rotation in both directions. Repeat.
- Use only lubricants mentioned in Ch.5!

Caution!
Lubrication with grease should generally be performed only by professionals while observing the maintenance guidelines. Lubrication performed by a non-expert could lead to brake failure. Severe danger of serious accidents.

Crank cleaning

Remove all loads from the crank.
Use a cloth for cleaning which, if needed, can be moisturised with soap suds or care oil.

→ **Note:**
While cleaning with high pressure cleaner, the crank will be full of water. Therefore, lubrication method has to be changed over to oil lubrication. After every cleaning process a thorough re-lubrication with oil should be done **IMMEDIATELY**.

Caution!
No degreasing agent, varnish or paint should be poured through the gap on the front and back side into the inner part of the crank. This could lead to brake failure.
Severe danger of serious accidents!

4. Operation in accordance with regulation

The bidirectional safety crank DS 250 is a hand crank with an integrated load-dependent brake that operates in both directions. It is designed for manual operation, as well as for controlled shaft stopping, with a predominantly static load, preferably from 0 to 50 Nm and low rotation speed. Since the brake responds fast and continuously, the crank is especially suitable for sudden loads or such that can change their direction of rotation. To ensure safe use of the safety crank, it is essential, that it is suitable for the lifting equipment it is mounted on, as well as observing regular maintenance and control intervals

Pressure roll – safety crank DS 250 is **not** suited for **fast turning** or for setting a weight or equipment into a rotational movement (e.g. swivel rig or swivel arm). Predominant dynamic load portions could cause the brake to block. Loads that swing periodically could lead to a slow lowering of the load. Motor-driven gear is not permitted. It is not built for uninterrupted usage!

Caution!
Not adequate for usage in explosion protection area or while handling explosive material.

5. Technical Data

Nominal load capacity: 70 Nm
 Equivalent at the handle (hand crank 250mm) 28 kg
 Safety coefficient by static load: >4
 Standard length of the crank arm: 250mm
 Standard hub connections: square shaft 14H11 oder 17H11
 Acceptable operating temperature: -20°C bis +90°C
 Crank durability: max. 15 years
 Product date characterisation: stamp on the crank arm W = 2012;
 X = 2013 A = 2016, B = 2017 ...

Intervals at which the crank has to be checked by professionals:

- **every 5 years:** if it is used and kept inside and if it is used occasionally (ca. 5x per week)
- **every 2 years:** if it is used and kept outside or if it is used frequently (more than 20x per week)
- **annually:** if it is used frequently outdoors or if it is frequently used with > 80% nominal load or if it is under constant influence of dirt or other aggressive substances (e.g. the device is installed outside on a vehicle, or agricultural machines)

Acceptable lubricants that can be applied by the operator:
 Fine mechanics and care oils – e.g. WD40 or Ballistol

Lubricants that are not acceptable:
 Greases, pastes and thick oils, oils with adhesives (chain oil), lubricants that contain MoS2

Responsible for the content: Jürgen Wittler

03. 07. 2014

Date

Signature