EDER
MASCHINENBAU GmbH

DE Spillwinde 1800, 1200, 400 – Bedienungsanleitung
EN Capstan winch 1800, 1200, 400 – Operating manual
FR Treuil à friction 1800, 1200, 400 – Mode d'emploi
ES Cabrestante de arrastre 1800, 1200, 400 – Manual de instrucciones
IT Verricello portatile 1800, 1200, 400 – Istruzioni per l'uso
ET Kepselvints 1800, 1200, 400 – Kasutusjuhend

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About this manual

Validity

This manual is applicable for the following capstan winch variants:

Machine	Type
Capstan winch 1800	Traction max. 1800/900 kg (two-speed)
Capstan winch 1200	Traction max. 1200 kg
Capstan winch 400	Traction max. 400 kg

It is aimed at specialists in the forestry sector, the fire brigade and the construction industry, as well as all private individuals with basic forestry knowledge.

The manual contains important information on the safe and proper transport, commissioning, operation, use and maintenance of capstan winches and also how to independently rectify simple faults.

Presentation of warnings

⚠ SIGNAL WORD

Nature and source of hazard!

Consequences

› Hazard avoidance

- The **warning sign** (warning triangle) indicates risks to life and limb.
- The **signal word** indicates the severity of the hazard.
- The section **"Nature and source of hazard"** indicates the nature or source of the hazard.
- The section **"Consequences"** describes the possible consequences of non-observance of the warning.
- The section **"Hazard avoidance"** indicates how the hazard can be avoided. It is essential that you implement these hazard avoidance measures!

The signal words have the following meanings:

Warning	Meaning
DANGER!	Indicates a hazard that certainly will lead to severe, even fatal injuries if not avoided.
WARNING!	Indicates a hazard that will possibly lead to severe, even fatal injuries if not avoided.
CAUTION!	Indicates a hazard that will lead to light to moderately severe injuries if not avoided.
ATTENTION!	Indicates possible material damage. The environment, material or the machine itself may be damaged if the hazard is not avoided.

Symbols in this manual

Symbol	Meaning
i	If this information is ignored, this can result in impairments to the operating process.
›	Required action: Describes actions that must be performed.

Safety instructions

The capstan winch has been manufactured in accordance with generally accepted good engineering practice. Nevertheless, there is a risk of personal injury and material damage if you do not observe the following basic safety instructions and the warnings before operating instructions in this manual.

- › Read this manual carefully and fully, before working with the capstan winch.
- › Keep the manual in a safe place so that it is in a legible condition.
- › Make sure that the manual is always available to all users.
- › Always ensure that this manual is passed on to third parties together with the capstan winch.

Intended use

The capstan winch is a machine that is exclusively suitable for pulling heavy loads over the ground. During this work, the performance limits of the machine must always be observed (see "Technical specifications" on page 94). The capstan winch is licensed for use in the following areas:

- in forestry,
  - to pull heavy loads in areas that are inaccessible to large machines,
  - to guarantee the winch-assisted felling of trees,
  - to erect cable crane systems,
- during rescue operations, to pull vehicles that are stuck or involved in an accident,
- for retrieving dead game,
- in construction work for pulling construction materials, cables or lines.

You must not use the capstan winch for climbing trees, height rescue or for pulling up suspended loads. The capstan winch is not designed for dynamic loads. The load must not drop jerkily in the pulling rope. The pulling rope between the load and the capstan winch must be taut at all times, or must only be slightly relieved of tension. It is prohibited to transport persons. The capstan winch is intended exclusively for operation by one person. Two or more persons must never operate a capstan winch.

Intended use also includes the complete reading and understanding of this manual and in particular of the chapter "Safety instructions" on page 55.

Improper use

Any improper use is prohibited. Improper use includes

- conversion or modification of the capstan winch,
- removing or modifying safety devices,
- any other use of the capstan winch apart from those uses described in the chapter "Intended use",
- using the capstan winch under operating conditions that depart from those specified in this manual.

Improper use of the machine voids all guarantee claims.

The manufacturer is not liable for damage to the machine or for personal injuries that result from improper use.

Qualification of personnel

The capstan winch may only be operated, maintained and serviced by persons who have been familiarised with the machine and the associated hazards by reading this manual.

Persons who commission, operate, use or service the capstan winch, or who independently rectify simple faults, must not be under the influence of alcohol, other drugs or medication which could impair their reactions. Furthermore, they must not be affected by fatigue.

Persons under the age of 18 must not be employed on the capstan winch. However, it is permissible to allow persons over 16 years of age to perform such work under the supervision of a qualified person where this is required to achieve a training objective.

You must observe these points

General safety instructions

- It is essential to follow the instructions in this manual to avoid hazards and material damage.
- Observe the relevant accident prevention regulations as well as the other generally accepted safety, occupational health and road traffic regulations.
- Only perform servicing, set-up, maintenance and cleaning work, as well as transport of the machine with the motor switched off and the tool at a standstill.
- Only operate the capstan winch with the protective equipment and safety devices fitted or intended by the manufacturer.
- Never leave the capstan winch unattended when in operation.
- Wear a hairnet to cover long hair when working with the capstan winch.
- Only use suitable tools for maintenance and set-up work.
- Set down the required tools so that they are immediately at hand.
- Make sure that the required tools do not get in your way.
- Before all pulling operations, always ensure that the capstan winch and the necessary tools are in faultless condition.

- Do not put the capstan winch into operation if the winch, the pulling rope and/or lifting tackle are damaged.
- Before all pulling operations, make sure that all nuts and screws are tightened.
- Never reach into the mechanism during operation.
- Do not open the gearbox; this will void the guarantee.
- With the capstan winch 1800, do not detach the capstan from the flange; this will void the guarantee.
- Always anchor the capstan winch such that it hangs freely, so that it can turn in the direction of the load.
- Switch off the motor before performing maintenance, servicing and cleaning work, and secure the capstan winch before switching on again.
- Only use the recommended accessories.
- Never use the capstan winch in enclosed rooms.
- Avoid all contact with toxic liquids, gases, mist, vapours and dust.
- Do not inhale any gases, mist, vapours, dust and/or exhaust fumes.

Safety instructions for fastening

- Only fasten the capstan winch at the fastening eye.
- **Never** anchor the capstan winch with a hook, shackle, chain or another metallic object.
- Only use textile fastening slings, e.g. a polyester round sling.
- Make sure that the pulling rope fulfils the requirements specified in the technical data and does not exhibit any damage.
- Make sure that the pulling rope and capstan drum do not come into contact with lubricant. Otherwise the rope may slip through during pulling operations. The maximum traction of the capstan winch is not guaranteed in this case.
- Anchor the capstan winch on a sufficiently load-bearing tree or another fixed object such that it can move freely. The anchor point must exhibit strength of at least double the capstan winch traction.

Safety instructions regarding the workplace

- Make sure that the working area around the capstan winch and the route for the pulling operations are safe.
- Make sure that you can see the entire working area when operating the capstan winch.
- Make sure that the danger zone is made safe with clear warning signs and barrier tape.
- Clear the ground next to the capstan winch of branches and other obstacles.
- Make sure that the required tools are within reach.
- Make sure that the working area is clear of wood scraps, obstacles and objects likely to cause tripping.
- Remove all obstacles from the working area before starting work.
- Make sure that adequate first aid equipment is available at the workplace.
- Only work in daylight.
- Only work under favourable weather conditions. It is prohibited to perform pulling operations in storms, with black ice, frozen ground and in high winds.
- Ensure that you have a level area with safe footing and with sufficient freedom of movement.
- Make sure that you are outside the danger zone before performing pulling operations.
- When working with the capstan winch, always observe the danger zone because it may not be possible to hear acoustic signals due to the noise of the machine and when wearing hearing protection.
- When operating the capstan winch, maintain a safe distance of at least 5 m from the capstan winch and rope.

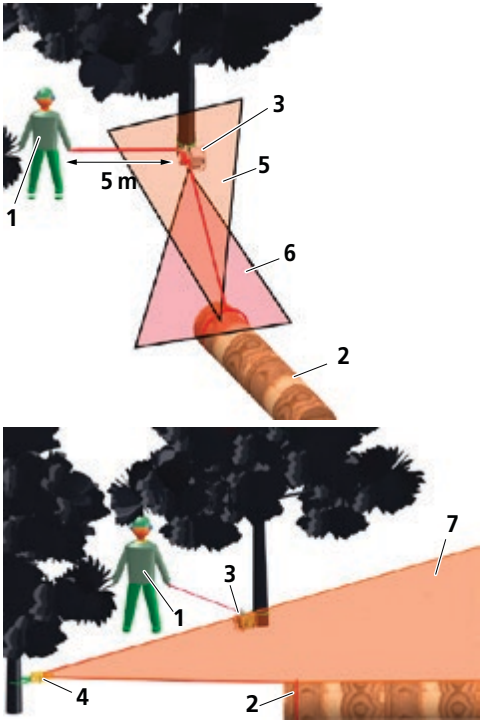

Fig. 1: Danger zones

1	Operator	**5**	Danger zone if the lifting tackle fails
2	Load	**6**	Danger zone if the winch rope fails
3	Capstan winch	**7**	Danger zone if the pulley fails
4	Pulley		

Behaviour in emergencies

If, for example, there is a direct risk of personal injuries or damage to the capstan winch due to malfunctions or hazardous situations:

› Put the capstan winch out of operation immediately and secure the load.

› Immediately leave the danger zone.

Safety devices

All protective equipment and safety devices must remain on the capstan winch and must never be rendered unserviceable. If protective equipment and safety devices are put out of operation, modified or changed, operating personnel may be injured or the capstan winch could be damaged.

Personal protective equipment

› Always wear the following personal protective equipment:

- Safety footwear
- Protective gloves
- Tight-fitting clothing
- Hard hat
- Eye protection or face protection
- Hearing protection

Design and function

Overview of the capstan winch 1800

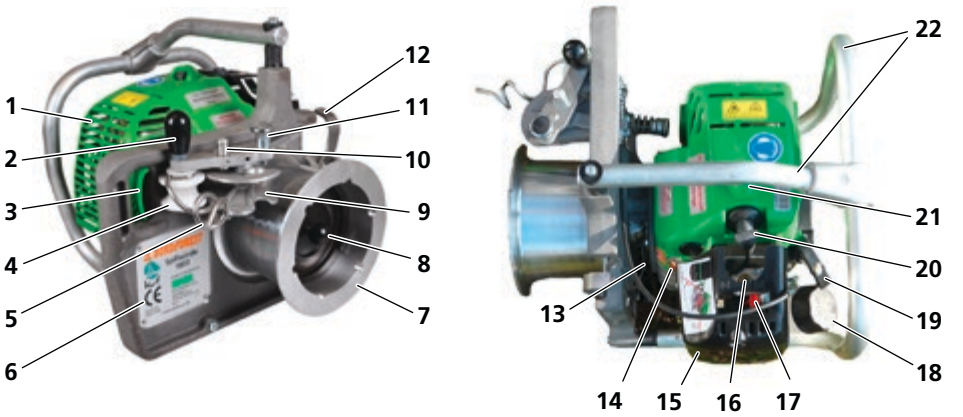

Fig. 2: Overview of the capstan winch 1800

1	Motor cover	**12**	Rope hook with rope deflector
2	Handle for rope locking mechanism	**13**	Gear lever
3	Fastening eye	**14**	On/off switch
4	Rope guide pulley	**15**	Air filter cover
5	Deflection hook	**16**	Primer/carburettor pump
6	Type plate	**17**	Choke lever
7	Capstan drum	**18**	Tank
8	Knob in the capstan drum for changing gear	**19**	Starter handle of the manually-operated turning gear
9	Rope clamp	**20**	Spark plug
10	Eccentric with half-throttle pin	**21**	Decompression button
11	Locking pin	**22**	Motor guard with carry handle and rubber buffer

Overview of the capstan winch 1200 and 400 with Active motor

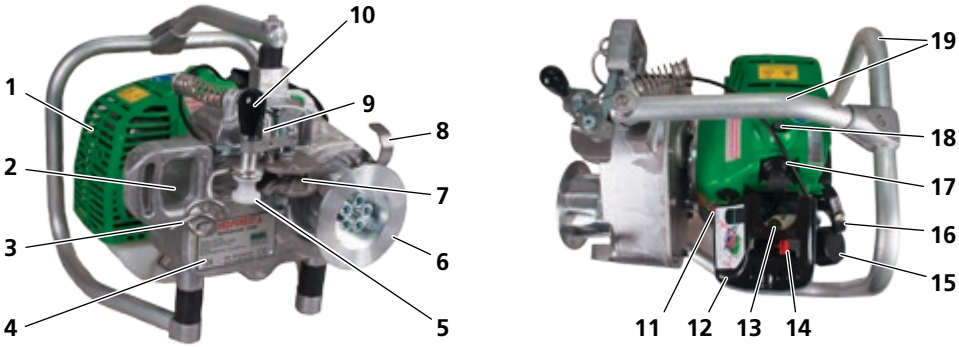

Fig. 3: Overview of the capstan winch 1200 and 400 with Active motor

1	Motor cover	**11**	On/off switch
2	Fastening eye	**12**	Air filter cover
3	Deflection hook	**13**	Primer/carburettor pump
4	Type plate	**14**	Choke lever
5	Rope guide pulley	**15**	Tank
6	Capstan drum	**16**	Starter handle of the manually-operated turning gear
7	Rope clamp	**17**	Spark plug
8	Rope hook with rope deflector	**18**	Decompression button
9	Eccentric with half-throttle pin	**19**	Motor guard with carry handle and rubber buffer
10	Handle for rope locking mechanism		

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Overview of the capstan winch 1200 and 400 with Kawasaki motor

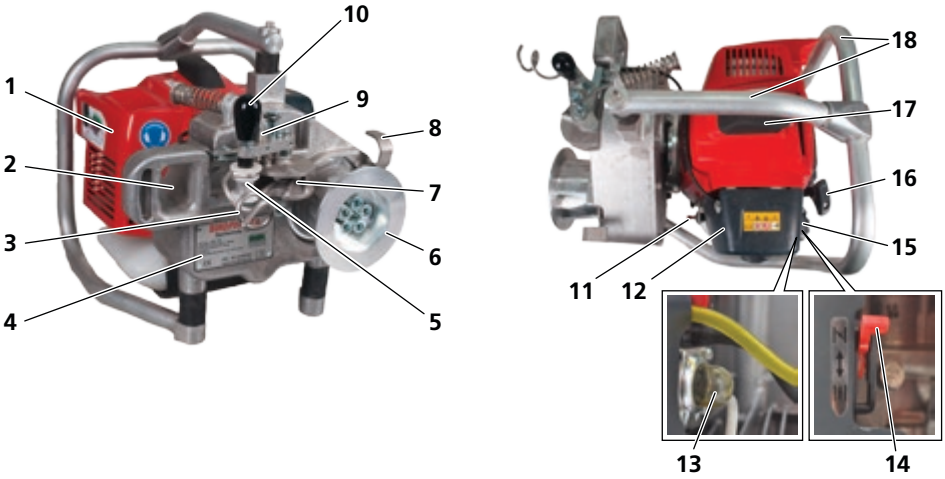

Fig. 4: Overview of the capstan winch 1200 and 400 with Kawasaki motor

1	Motor cover	**10**	Handle for rope locking mechanism
2	Fastening eye	**11**	On/off switch
3	Deflection hook	**12**	Air filter cover
4	Type plate	**13**	Primer/carburettor pump
5	Rope guide pulley	**14**	Choke lever
6	Capstan drum	**15**	Tank
7	Rope clamp	**16**	Starter handle of the manually-operated turning gear
8	Rope hook with rope deflector	**17**	Spark plug
9	Eccentric with half-throttle pin	**18**	Motor guard with carry handle and rubber buffer

Mode of operation

The capstan winch is a machine that is exclusively suitable for pulling heavy loads over the ground.

The capstan winch 1800 consists of an aluminium mounting plate with capstan drum. A 4-stage planetary gear with two speeds is integrated in the capstan drum of the capstan winch. The traction in first gear is max. 1800 kg and the rope speed is 12 m/min, and in second gear max. 900 kg and 24 m/min.

The capstan winch 1200 and 400 consists of an aluminium housing and capstan drum. In order to achieve better traction, the capstan drum of the capstan winch 1200 and 400 is ribbed. A spur gear is integrated in the aluminium housing of the capstan winch. The traction of the capstan winch 1200 is max. 1200 kg with a rope speed of 7.5 m/min. The traction of the capstan winch 400 is max. 400 kg and the rope speed is 20 m/min. The capstan winch is driven by a 2-stroke motor.

The capstan winch is equipped with a fastening eye, through which the capstan winch is secured to a sufficiently load-bearing counterweight, e.g. a tree, with a textile round sling. The fastening eye is only designed for textile fastening slings. The pulling rope is attached to the load and drawn into the capstan winch.

In order to minimise the risk of injury, the rope winch is controlled from outside the danger zone. The safe distance from the capstan winch is at least 5 m. Before starting the pulling operation, you must start the motor. If you pull the pulling rope by the free rope end, the control unit is moved and the capstan drum starts to turn. Through uniform pulling, the friction of the pulling rope on the capstan drum generates traction. The traction is dependent on the capstan winch model.

If you release the pulling rope, the capstan winch comes to a halt and the pulling rope is held on the capstan drum by friction. This prevents an undesired slipping back of the load. The load can be deliberately released at any time.

Wearing parts

Wearing parts such as nuts, springs, eccentrics and other mechanisms are excluded from guarantee claims.

› Consult your dealer if necessary.

Symbols on the capstan winch

Symbol	Description
	Read and comply with the safety instructions before commissioning!
	Do not inhale exhaust fumes!
	Attention! Flammable substances!
	Read and comply with the operating manual before commissioning!
	Use in enclosed rooms prohibited!
	Refuelling with a hot motor prohibited!
	Lifting loads prohibited!
	Wear hearing protection!
	Caution! Hot surface

Symbol	Description
Leave engine to idle for a few minutes before stopping.	Before switching off the motor, leave it to idle for a few minutes.
Before refuelling, wait 5 minutes with the engine stopped.	Before refuelling, wait 5 minutes with the motor switched off.
Warning! Change gears without load only and with motor turned off	Warning! Only switch without load and with the motor switched off
 	Type plate Contains the manufacturer's company name and the most important technical specifications.

Scope of delivery

Check that scope of delivery is complete

The capstan winch scope of delivery includes:

- one capstan winch
- an operating manual

Checking for transport damage

You can recognise visible transport damage through damaged packaging or scratched and deformed parts of the machine.

› Immediately note damage on the delivery note: both on the copy that you retain and on the delivery note that you must sign.

› Get the delivering party (driver) to countersign this note.

If the driver refuses to confirm the transport damage, it is better to completely refuse to accept the delivery and inform your dealer immediately. A retrospective claim without direct comment on the delivery note will not be recognised by the carrier or by the transport insurer.

If you suspect hidden transport damage:

› Report the hidden transport damage within two days at the latest, i.e. you must examine the delivered goods within this period. Reports of damage after this period are not usually accepted.

› In any event, note on the delivery notes: "The delivery is accepted subject to reservation because of suspected transport damage."

The insurers of carriers are often sceptical and refuse compensation payments. Therefore, try to clearly document the damage (with a photo, for example).

Transport to the workplace

ATTENTION

Danger due to leaking petrol mixture!

If the tank cap is not completely closed, the petrol mixture can leak out of the tank.

› Close the tank cap fully, in order to prevent an unnecessary loss of the petrol mixture during transport.

The capstan winch is very easily transported to the workplace:

› Carry the capstan winch by the transport handle or the motor guard.

Commissioning and operation

⚠ WARNING

Risk of injury when working on the capstan winch whilst the transmission is running!

The capstan drum can start to move when the transmission is running and cause serious injuries.

› Switch off the motor before performing all work on the capstan winch, and secure the capstan winch before switching on again.

Hearing damage due to noise!

Noise arising in the working area can cause serious hearing damage.

› Wear hearing protection during all work with a running motor.

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Filling the tank

⚠ WARNING

Risk of fire and explosion!

The petrol/oil mixture is highly flammable, explosive and can cause dangerous fires and serious injuries.

› Never smoke when filling the tank with the petrol mixture.

› Never smoke when operating the capstan winch.

› Make sure that the refuelling location is well ventilated and that no naked flames or sparks are nearby.

› Fill the tank at a distance of at least 3 m from the workplace.

Hearing damage due to noise!

Noise arising in the working area can cause serious hearing damage.

› Wear hearing protection during all work with a running motor.

⚠ CAUTION

Damage to health due to inhalation of the petrol mixture vapours!

The petrol/oil mixture contains toxic gases that cause serious chronic health damage.

› Do not inhale the petrol mixture vapours.

ATTENTION

Damage to the motor due to an unsuitable petrol mixture!

The motor can be damaged if it is operated with an unsuitable petrol mixture, or with a petrol mixture with a mixture ratio that is not permitted.

› Do not use pure petrol.

› Do not use a petrol mixture that has been stored for longer than two years.

› Use a lead-free petrol/oil mixture with a ratio of 50:1 (petrol: 50 parts, oil: 1 part).

Danger due to leaking petrol mixture!

Heat can cause the petrol mixture to expand. If the tank is filled to the brim, the petrol mixture can push through the tank cap and leak out of the tank.

› Fill the tank to no more than 3/4 of its capacity.

› Close the tank cap fully.

The capstan winch is equipped with a 2-stroke motor. The motor must not be operated with special fuel. We recommend the following petrol mixture:

Name	Article number
Lubimix 2T (5 litre canister)	16-093
Oest Oecomix 2T	available from a specialist dealer
Stihl Motomix	
Aspen 2T special fuel	

i If you wish to change the type of mixture, you must first run the tank empty until the motor switches off.

If you wish to fill the tank with the petrol mixture:

- Switch the motor off by pressing the on/off switch to "**0**".
- Leave the motor to cool down.

- Slowly unscrew the tank cap, so that any overpressure can release.
- Clean the filling opening on the tank, so that no dirt enters the tank and the petrol mixture.
- Shake the petrol mixture vigorously before every use.
- Fill the tank to no more than 3/4 of its capacity.
- To do so use a suitable tool, such as a funnel.
- Close the tank cap fully.
- Wipe up any spilled petrol mixture immediately.

Anchoring the capstan winch

ATTENTION

Damage to the capstan winch due to unsuitable fastening means!

If the capstan winch is anchored with unsuitable fastening means, it and your safety devices can be damaged.

- Never anchor the capstan winch with a hook, shackle, chain or another metallic object.
- Only use textile fastening slings, e.g. a polyester round sling WLL 2000 kg.
- Never anchor the capstan winch at the transport handle or motor guard.
- Only anchor the capstan winch at the fastening eye.

In order to establish force to counter the pulled load, you must anchor the capstan winch on a sufficiently load-bearing tree or another fixed object such that it can move freely.

You must fasten the capstan winch higher than the attachment point on the load. In this way you avoid the load pushing into the ground. Note that the anchor point strength must be at least twice the capstan winch traction and the capstan winch must be able to move freely.

In order to anchor the capstan winch:

- Pull the round sling through the fastening eye.
- Guide the round sling around the tree or another fixed object.
- Mutually connect the round sling with the load hook.

Fastening the load

It is permitted to pull the following loads with the capstan winch: vehicles that are stuck, trees, dead game, construction materials, cables or lines.

In order to fasten a load, observe the following instructions:

- Fasten the load with suitable lifting tackle to the free rope end.
- Observe the information on the type plate regarding the correct type of pulling rope.
- Only use the recommended accessories.
- Observe the performance limits of the machine and the pulling rope (see "Technical specifications" on page 94).

Fastening the pulley

⚠ WARNING

Risk of injury due to an unsuitable pulling rope!

If an unsuitable pulling rope is used for the pulley, the pulley or pulling rope may be damaged and serious injuries may result.

- Observe the minimum and maximum diameter of the pulling rope, both for the pulley and for the capstan winch.
- Observe the information on the type plate regarding the correct type of pulling rope.
- Before starting work, make sure that the danger zone is clear (see "Safety instructions regarding the workplace" on page 59).
- Only use the pulling rope if it is in faultless condition.

If it is necessary to double the traction of the capstan winch, you must use a pulley for the pulling operation. When using the pulley, make sure that the doubled capstan winch traction acts on the pulley.

i Use a suitable round sling to fasten the pulley.

In order to fasten the pulley:

- Guide the round sling around the tree.
- Feed the round sling through the pulley.
- Mutually connect the round sling with the load hook.

Drawing in the pulling rope

⚠ WARNING

Risk of injury due to an unsuitable pulling rope!

If an unsuitable pulling rope is used for the pulling operation, the pulling rope may tear and cause serious injuries.

- Observe the information on the type plate regarding the correct type of pulling rope.
- Observe the performance limits of the machine and the pulling rope (see "Technical specifications" on page 94).
- Only use the pulling rope if it is in faultless condition.

⚠ WARNING

Risk of crushing when winding on the pulling rope!

When winding the pulling rope on, you can crush your fingers and suffer serious injuries.

› Wind the pulling rope carefully around the capstan drum.

ATTENTION

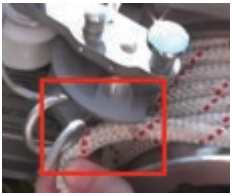
Damage to the mechanism if the pulling rope is incorrectly drawn in!

If the individual windings of the pulling rope are overlapping when drawn in, there is a risk that a knot will form in the pulling rope when the capstan winch starts running and the mechanical parts will be damaged.

› When drawing the pulling rope around the capstan drum, make sure that the pulling rope windings are not overlapping.

› Wind the free pulling rope end around the rope hook with rope deflector.

› Wind at least 5 rope windings around the capstan drum.



› Draw the pulling rope into the rope clamp cut-out, to prevent the pulling rope springing out of the guide.

› Draw the rope locking mechanism at the handle to the capstan drum, up to the stop.

› **Only capstan winch 1800:** Simultaneously draw the locking pin up and the rope locking mechanism further forwards.

› **Only capstan winch 1800:** Release the locking pin.

› Take the pulling rope out of the rope clamp cut-out.

› Wind the pulling rope around the entire rope clamp.

› **Only capstan winch 1800:** Draw the locking pin up again and guide the rope locking mechanism back again, so that the pulling rope lies around the white rope guide pulley.

› **Only capstan winch 1200 and 400:** Guide the rope locking mechanism back again, so that the pulling rope lies around the white rope guide pulley.

› Run the pulling rope around the deflection hook.

The pulling rope is correctly drawn in.

Changing gear (capstan winch 1800)

ATTENTION

Damage to the transmission due to incorrect operation of the gear lever!

If the gear is changed forcefully, this can cause significant damage to the transmission. It must be possible to move the gear lever easily.

› Never move the gear lever forcefully.

› If it is not possible to move the gear lever easily, move the gear lever back to its initial position behind the retaining collar. Repeat the gear change process.

Proceed as follows to change gear:

› Switch the motor off.

› Release the capstan winch tension.

› Hold the knob in the capstan drum firmly and slide the gear lever past the retaining collar to the centre at the same time, until resistance is tangible.

  The gear is coupled.

› Slowly turn the knob in the capstan drum anticlockwise, until resistance is tangible.

  When the teeth of the gear engage, you will hear a clicking noise.

› Slide the gear lever in the direction of the desired gear (to the first or second gear).

› Latch the gear lever behind the retaining collar.

If it is not possible to move the gear lever easily:

› Move the gear lever back to its initial position behind the retaining collar.

› Repeat the gear change process.

Starting the motor

⚠ WARNING

Damage to health due to inhalation of the exhaust fumes!

The running motor produces exhaust fumes that cause serious chronic health damage.

› Do not inhale the exhaust fumes.

Risk of injury if the starter handle is released!

If the starter handle is released suddenly, the pull-cord on the starter handle can cause injuries or damage to the starter.

› Grasp the starter handle firmly when starting up.

› Never touch the pull-cord of the starter when starting up.

› Make sure that you always have the starter handle with pull-cord under control, until the pull-cord has been safely wound into the starter housing.

ATTENTION

Damage to the transmission of the capstan winch 1800!

If the gear lever is not in the initial position when the motor is started, this can cause significant damage to the transmission.

› Before starting the motor, check that the gear is engaged and the gear lever is behind the retaining collar.

Damage to the motor!

Pulling loads with a cold motor can damage the motor.

› After starting, allow the motor to idle for a few minutes until warm before pulling any loads.

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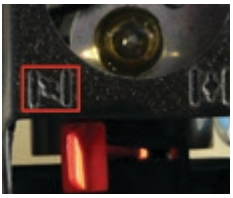
Starting the Active motor

In order to start the motor:

› Switch the on/off switch to the "**I**" position.

If the motor is still cold:



› Set the choke lever to the "|⟋|" position.

i If the motor has already been running and is warm, you do not require the choke function.

› Press the rubber dome of the primer approx. 1–2 times, to pump the petrol mixture into the carburettor. As soon as mixture is visible in the primer stop pumping, otherwise the motor will "flood".

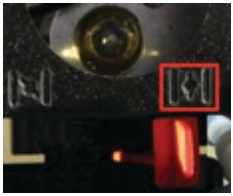
The petrol mixture is visible in the primer.

› Press the decompression button down.

The decompression button automatically springs back into its original position after first ignition.

› Vigorously pull the starter handle **one time** only!

i Only pull the starter handle once whilst the choke lever is in the "|⟋|" position. Otherwise there is a risk that the fuel will flood the cylinder and the motor will be more difficult to start. In this case, set the choke lever to the "|⟋|" position and repeat the start process. If the motor still fails to start, clean the spark plug and repeat the start process after approx. 20-30 min.



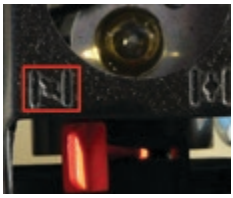
› Switch the choke lever to the "|⧫|" position.
› Vigorously pull the starter handle multiple times until the motor starts.

Starting the Kawasaki motor

In order to start the motor:

› Switch the on/off switch to the "**I**" position.

If the motor is still cold:



› Set the choke lever to the "closed" position.

i If the motor has already been running and is warm, you do not require the choke function.

› Press the rubber dome of the primer approx. 1–2 times, to pump the petrol mixture into the carburettor. As soon as mixture is visible in the primer stop pumping, otherwise the motor will "flood".

The petrol mixture is visible in the primer.

› Pull the starter handle until the motor starts.
› After starting, gradually move the choke lever to the "open" position.

If the motor starts briefly and then switches off again:

› Set the choke lever to the "open" position and pull on the starter handle again.

Starting the motor in the half-throttle position

If work is taking place in particularly cold weather or at altitudes with low air pressure, you can start the motor in the half-throttle position. If you are starting the motor in the half-throttle position, the capstan winch revs slightly when starting.

› Bring the rope locking mechanism into the half-throttle position and push the half-throttle pin down at the same time.

  The rope locking mechanism is latched in the half-throttle position. The half-throttle position is released again by drawing on the pulling rope. The half-throttle pin springs back into its original position.

› Start the motor as described in "Starting the motor" on page 77.

Pulling the load

⚠ WARNING

Risk of injury if safe distances are not maintained!

If safe distances are not maintained when operating the capstan winch, there is a risk of serious injuries.

› When operating the capstan winch, maintain a distance of at least 5 m from the capstan winch and pulling rope.

ATTENTION

Damage to the mechanism if the pulling rope is pulled too vigorously!

If you pull on the pulling rope particularly vigorously, this will increase the friction and therefore also the pulling rope wear. This results in a risk of damage to mechanical parts, such as the rope hook or locking mechanism.

› Never pull forcefully on the pulling rope.

› Make sure that the capstan winch is lined up precisely with the load.

ATTENTION

Damage to the pulling rope!

If the capstan slips, this can result in damage to the pulling rope.

› Stop the pulling operation and draw more rope windings around the rope drum.

› Only use original ropes that guarantee maximum traction.

Severe wear or damage to the centrifugal clutch!

If the capstan stops turning at full throttle, maximum traction has been reached.

› Do not increase the throttle; instead use more rope windings or a pulley.

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Prerequisite:

- You have fastened the load (see “Fastening the load” on page 72).
- You have drawn in the pulling rope (see “Drawing in the pulling rope” on page 73).
- You have started the motor (see “Starting the motor” on page 77).

› Tension the pulling rope.

› Draw the pulling rope by the free rope end to the stop point.

The locking mechanism is released and the pulling rope is free from the rope clamp. The throttle can be activated.

› Open the throttle by drawing further on the pulling rope.

The capstan drum starts to turn. Through uniform pulling, the friction of the rope on the capstan drum generates traction, which is dependent on the motor speed (see “Technical specifications” on page 94). If you release the pulling rope, the capstan winch comes to a halt and the pulling rope is held on the capstan drum by friction and the rope clamp.

i If the traction is insufficient, you can draw one to two further rope windings onto the capstan drum (see "Drawing in the pulling rope").

Slackening the load

When pulling objects over sloping terrain, there is no risk that the load could slip back because the pulling rope is held tight on the capstan drum when idling.

Due to the control function of the throttle lever, it is possible to position loads precisely, release the pulling rope tension and slacken the load.

To slacken the load:

› Draw the pulling rope out of the rope clamp.

› Carefully slacken the pulling rope.

Stopping the motor

Proceed as follows to stop the motor:

› Relieve the tension of the rope in your hands.

The throttle lever springs back into the idling position.

› Leave the motor to cool down whilst idling for a few seconds.

› Switch the on/off switch to the "**0**" position.

The motor stops.

Adjusting the motor speed whilst idling

If the motor is idling, the capstan drum does not move.

If the motor speed is too high when idling, you can adjust this. The motor speed when idling has been optimally set in the factory and it is not usually necessary to change this.

In order to reduce the motor speed whilst idling:

› Turn the set screw anticlockwise.

In order to increase the motor speed whilst idling:

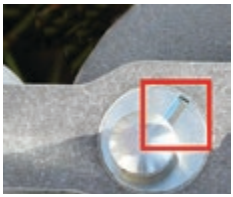
› Turn the set screw clockwise.

Adjusting the motor speed in the half-throttle position

If the motor speed is too high when in the half-throttle position, you can adjust this. The motor speed when in the half-throttle position has been optimally set in the factory and it is not usually necessary to change this.

In order to adjust the motor speed in the half-throttle position:

- Release the grub screw on the control lever.
- To do so use a suitable tool, such as an Allen key.



- In order to reduce the motor speed in the half-throttle position, turn the eccentric with half-throttle pin anticlockwise.
- In order to increase the motor speed in the half-throttle position, turn the eccentric with half-throttle pin clockwise.
- To do so use a suitable tool, such as a screwdriver.
- Retighten the grub screw on the control lever.

Cleaning and maintenance

⚠ WARNING

Risk of injury when working on the capstan winch whilst the transmission is running!

The capstan drum can start to move when the transmission is running and cause serious injuries.

› Switch off the motor before performing all work on the capstan winch, and secure the capstan winch before switching on again.

Risk of burns due to hot surfaces!

Combustion motors generate high heat. Contact with hot surfaces results in serious burns.

› Leave the motor to cool down.

› Wear protective gloves during all maintenance, servicing and cleaning work.

ATTENTION

Voided guarantee!

Improper use of the machine, unauthorised repairs and maintenance voids all guarantee claims.

› Only perform repairs and maintenance work as specified in this manual. All repairs and maintenance work that are not listed in the operating manual must be carried out by an authorised workshop.

› Contact your dealer or an authorised repair workshop.

i Only use technically faultless accessories and original spare parts. You can obtain further information on the accessories and spare parts on our website www.grube.de. Consult your dealer if necessary.

You must perform the following work if necessary:

› Check capstan winch for external damage and clean,

› Lubricate all moving parts if necessary,

› Check tank filter and replace,

› Clean the motor cover,

› Clean air filter sponge and replace,
› Clean pulling rope and replace,
› Check spark plug and replace.

Inspection

Each time before use, it is necessary to check the capstan winch and its parts for external damage.

› Check the capstan winch for external damage each time before use.

If you identify cracks or material deformations with sharp edges:

› Send the capstan winch to the dealer for inspection.

› Each time before use, make sure that all screws are tightened.

If the screws are loose:

› Tighten the loose screws with a suitable Allen key.

Cleaning the capstan winch

› Clean the capstan winch with a dry cloth.
› Do not use degreasing, corrosive or aggressive cleaning agents.
› Clean the capstan winch of wood residues and other dirt.

Lubricating moving parts

ATTENTION

Slipping of the pulling rope!

If the lubricant comes into contact with the pulling rope and/or capstan drum, the pulling rope may slip during the pulling operation. The maximum traction of the capstan winch is not guaranteed.

› Make sure that the pulling rope and/or capstan drum do not come into contact with lubricant.

It is important that all turning and sliding parts are correctly and adequately lubricated to ensure the correct function of the capstan winch and to make operation easier. The capstan winch transmission is lifetime lubricated. It is possible that the capstan winch may lose a little lubricant during the first hours of operation. The lubricant must first distribute through the transmission.

To ensure the faultless function of the capstan winch and maximum efficiency, we recommend using the lubricant "Brunox Lub & Cor".

› Lubricate all moving parts on the carburettor and rope locking mechanism with the recommended lubricant.

If excess lubricant leaks out:

› Wipe up the leaked lubricant.

Replacing the tank filter

The tank filter prevents solid particles from entering the petrol mixture. The tank filter is located in the tank. Check the condition of the tank filter monthly.

To replace the tank filter:

› Unscrew the tank cap.

› Carefully pull the tank filter out with a wire hook.

› If the tank filter is dirty, change it.

› Screw the tank cap tight again.

Cleaning the motor cover

ATTENTION

Damage to the motor!

If the motor cover is not cleaned correctly, this can result in damage to the motor.

› Do not clean the motor cover with fluid cleaning products or oiled paper.

› Clean the motor cover with a brush or compressed air.

ATTENTION

Voided guarantee!

Improper use of the machine, unauthorised repairs and maintenance voids all guarantee claims.

› Do not open the transmission.

In order to prevent the motor from overheating:

› Clean dust and dirt off the motor cover after every use.

› Do not clean the motor cover with fluid, degreasing, corrosive or aggressive cleaning products or with oiled paper.

› Clean the motor cover with a brush or compressed air.

Air filter sponge

The air filter sponge is located under the air filter cover. Check the condition of the air filter sponge at least once every working day.

Cleaning the air filter sponge

ATTENTION

Damage to the air filter sponge!

If the air filter sponge is not cleaned correctly, this can result in damage to the air filter sponge.

› Do not clean the air filter sponge with fluid cleaning products or oiled paper.

› Do not use any sharp tools or wire brushes.

› Only clean the air filter sponge with compressed air.

› Unscrew the air filter cover.

› To do so use a suitable tool, such as a Phillips screwdriver.

› Remove the air filter sponge.

› Only clean the air filter sponge with compressed air.

› Reinsert the clean air filter sponge.

› Retighten the screws.

Replacing the air filter sponge

If the air filter sponge is damaged or worn:

- Unscrew the air filter cover.
- To do so use a suitable tool, such as a Phillips screwdriver.
- Remove the damaged or worn air filter sponge.
- Insert the new air filter sponge.
- Retighten the screws.

Pulling rope

Cleaning the pulling rope

- Clean the pulling rope of wood residues and other dirt after every use.
- In case of heavier soiling, clean the pulling rope with clear water or with rope washing products available from retailers.
- Do not use corrosive or aggressive cleaning agents.
- After every use dry the pulling rope in air and stow it loose in a rope bag.

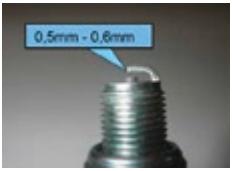
Replacing the pulling rope

- Replace a worn, damaged or torn pulling rope promptly.

Spark plug

The spark plug is in the top section of the capstan winch, next to the air filter cover.

Inspecting the spark plug



Inspect the spark plug at least every 50 operating hours. Be aware of the electrode spacing. The electrode spacing must be 0.5–0.6 mm.

In order to inspect the spark plug and electrode spacing:

› Take off the spark plug cap.
› Unscrew the spark plug.
› To do so use a suitable tool, such as a spark plug wrench.

If the spark plug is in good condition and the electrode spacing is correct:

› Screw the spark plug tight again with the spark plug wrench.
› Place the spark plug cap back on the spark plug.

If the spark plug is damaged or the electrodes are burned, charred or encrusted:

› Replace the spark plug (see "Replacing the spark plug" on page 89).

i Very heavy encrustation of the electrodes can be caused by incorrect carburettor setting, too much oil in the petrol mixture or poor quality oil in the petrol mixture.

Replacing the spark plug

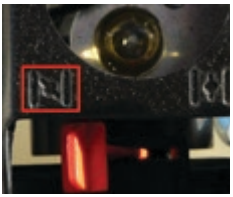
i Replace the spark plug after 100 operating hours or with heavy encrustation of the electrodes.

In order to replace the spark plug:

› Take off the spark plug cap.
› Unscrew the spark plug.
› To do so use a suitable tool, such as a spark plug wrench.
› Replace the spark plug with an original part.
› Only use spark plugs with the following designations:

Motor type	Name	Article no.
Active motor	MR 80	211103
Kawasaki motor	NGK BPMR8Y	220704

› Screw the spark plug tight again with the spark plug wrench.
› Place the spark plug cap back on the spark plug.



When the spark plug has been replaced:

› Set the choke lever to the "|◣|" position.

› Start the motor by pulling on the starter handle.

The motor starts.

› Once the motor has started, switch the choke lever to the "|◆|" position.

› Idle the motor to warm it up.

i If the motor has already been running and is warm, you do not require the choke function.

Decommissioning and disposal

If the machine is no longer operable and is ready for scrapping, you must deactivate and disassemble it, i.e. you must bring the machine into a condition whereby it can no longer be used for the purposes for which it was designed.

› During the scrapping process, note that the basic materials of the machine may be reused in the recycling process.

i The manufacturing company rejects all responsibility for any personal injury or material damage that is caused by the reuse of machine parts, where these are used for any purpose other than the original material purpose.

Proceed as follows to deactivate the capstan winch:

› Drain the petrol mixture from the tank and dispose of the petrol mixture in an environmentally friendly manner.

› Block all moving machine parts.

› Disassemble all rubber parts from the machine and take these to a designated collection point.

› Dismantle the machine into its individual parts and submit all components to controlled disposal points.

  After deactivating and blocking the moving parts, no further residual risk exists.

When disposing of the capstan winch or its components:

› Observe the nationally applicable regulations.

Storage

If you wish to temporarily store the capstan winch:

› Only store the capstan winch in enclosed rooms.

› Make sure the storage room is well ventilated and dry.

› Use the original packaging for the capstan winch. If you temporarily store the capstan winch in its original packaging, protect it from damage due to dirt, dust or moisture.

If you wish to store the capstan winch for a longer period of time:

› Drain the tank and leave the motor to run until no petrol mixture is left in the tank.

› Thoroughly clean the capstan winch (see "Cleaning and maintenance" on page 84).

› Lubricate the moving parts (see "Lubricating moving parts" on page 85).

› Remove the spark plug (see "Inspecting the spark plug" on page 88).

› Drip a few drops of two-stroke oil into the cylinder chamber. We recommend the following oils:

  • Castrol 2T

  • Oregon 011-1140

› In order to distribute the oil, vigorously pull the starter handle a few times.

› Screw the spark plug back in (see "Inspecting the spark plug" on page 88).

› Only store the capstan winch in enclosed rooms.

- Make sure the storage room is well ventilated and dry.
- Use the original packaging for the capstan winch. If you temporarily store the capstan winch in its original packaging, protect it from damage due to dirt, dust or moisture.

Faults

If you are not able to repair the capstan winch yourself, contact your dealer or an authorised repair workshop.

Before you contact your dealer, an authorised repair workshop or the manufacturer, please note the specifications and the machine number on the type plate. These details are required for rectifying the problem or ordering spares.

The possible faults, causes and remedies are listed in the table below.

The safety regulations must be observed for all cleaning, maintenance and repair work.

Fault	Cause	Remedy
Capstan winch does not start	Tank empty	Filling the tank
	On/off switch defective Manually-operated turning gear defective	Repair by repair workshop
	Spark plug damp	Inspecting the spark plug Replacing the spark plug
	Very heavy encrustation of the electrodes	Replacing the spark plug
	Incorrect carburettor setting	Adjusting the motor speed whilst idling Adjusting the motor speed in the half-throttle position
	Too much oil in the petrol mixture	Empty tank
	Poor quality petrol mixture	Empty tank
	Motor "flooded" during start-up	Clean spark plug and start again after approx. 20 min (see Page 77)
Capstan winch does not pull load	Rope slips – Incorrect pulling rope – Lubricant (oil, grease on the capstan drum)	Draw on more rope windings, see "Drawing in the pulling rope" Replacing the pulling rope Cleaning the pulling rope Cleaning the capstan winch
	Capstan drum blocked – Gear not engaged – Transmission defective	Changing gear (capstan winch 1800) Repair by repair workshop

Technical specifications

General specifications

Technical specifications	Capstan winch 1800	Capstan winch 1200	Capstan winch 400	Capstan winch 1200	Capstan winch 400
		with Active motor		with Kawasaki motor	
Weight [kg]	14 kg	13 kg	13 kg	13 kg	13 kg
Length [cm]	38.5	37	37	37	37
Width [cm]	36.5	33	33	33	33
Height [cm]	32.5	34	34	34	34
Transmission	2 speeds	1 speed	1 speed	1 speed	1 speed
Ratio	1:394 / 1:197	1:160	1:54	1:160	1:54
Traction [kg]	max. 1800 / 900	max. 1200	max. 400	max. 1200	max. 400
Speed [m/min]	max. 12 / 24	max. 14	max. 40	max. 10	max. 29

Motor

Technical specifications	Capstan winch 1800	Capstan winch 1200	Capstan winch 400	Capstan winch 1200	Capstan winch 400
		with Active motor		with Kawasaki motor	
Type	air-cooled 2-stroke motor				
Output [kW/PS]	3.3 / 4.5	3.3 / 4.5	3.3 / 4.5	2 /2.68	2 /2.68
Displacement [cm³]	62	62	62	53.2	53.2
Motor speed [rpm]	max. 10400	max. 10400	max. 10400	max. 8500	max. 8500
Carburettor	Diaphragm carburettor Walbro WYK 60 primer type				
Tank capacity [l]	1.1				
Clutch	Centrifugal clutch				
Throttle lever	With half-throttle position				
Noise level [dB(A)]	115				

Pulling rope

The pulling rope is not included in scope of delivery.

› Consult your dealer if necessary.

› When selecting the pulling rope, observe the technical specifications in the following table.

Technical specifications	Capstan winch 1800	Capstan winch 1200	Capstan winch 400	Capstan winch 1200	Capstan winch 400
		with Active motor		with Kawasaki motor	
Rope (accessory)	The maximum traction is dependent on the pulling rope and can only be attained with the original rope where applicable.				
Material	Synthetic rope				
Diameter [mm]	12-14	8-9.5	8-9.5	8-9.5	8-9.5
Length	Arbitrary				
Tensile strength [daN]	min. 5000	min. 2500	min. 2500	min. 2500	min. 2500

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Accessories and spare parts

Unsuitable accessories and spare parts can impair function and safety, and have the following consequences:

- Endangerment of persons
- Damage to the capstan winch
- Malfunctions of the capstan winch
- Failure of the capstan winch

› Only use technically faultless accessories and original spare parts.

i Only use technically faultless accessories and original spare parts. You can obtain further information on the accessories and spare parts on our website www.grube.de. Alternatively, please contact your dealer.

Service

Our Customer Service will be happy to help with your queries about the capstan winch. For information on service locations, services and local contacts visit the GRUBE homepage www.grube.de.

EC Declaration of Conformity

Eder Maschinenbau GmbH
Schweigerstrasse 6
DE 38302 Wolfenbüttel

Declaration of Conformity in accordance with the Machinery Directive 2006/42/EC

Phone: +49-5331-76046
Fax: +49-5531-76048
info@eder-maschinenbau.de

The manufacturer: EDER Maschinenbau GmbH, Schweigerstraße 6, 38302 Wolfenbüttel, herewith declares under its sole responsibility that the product

Eder Powerwinch 1800, Model PW 1800,
serial number starting from: PW18-002030

Eder Powerwinch 1200, Model PW 1200,
serial number starting from: PW18-001000

Eder Powerwinch 400, Model PW 400,
serial number starting from: PW18-001000

to which this declaration pertains, complies with the following standards and normative documents:

Directive 2006/42/EC
of the European Parliament and Council of Ministers of 17 May 2006 on Machines, amending Directive 95/16/EC (new edition)

Person authorised to produce the technical documents: Michael Pögel
– Eder Maschinenbau GmbH, Schweigerstraße 6, 38302 Wolfenbüttel, Germany –

Wolfenbüttel, 20/06/2016

Ulrich Schrader, Managing Director

Warranty

The statutory warranty period applies to the machine. The vendor must be immediately notified of defects which are demonstrably attributable to material or assembly errors. When making a warranty claim, proof of the purchase of the machine must be provided by submitting the invoice and the receipt. The warranty is excluded for parts if the defects are due to natural wear and tear, the effects of temperature and weather, as well as defects due to faulty connection, installation, operation, lubrication or force. Furthermore, no warranty is extended for damage caused by improper use of the machine, e.g. improper modifications or repair work carried out independently by the owner or third parties, and also in the case of deliberate overloading of the machine.

The manufacturer accepts no warranty claims for:

- Parts that are subject to natural wear and tear
- A failure to observe the operating manual and incorrect or deficient care
- The consequences of improper maintenance and servicing measures
- Damage due to improper handling and incorrect operation

Guarantee

The warranty period is 24 months for exclusively private use, 12 months from the date of delivery for commercial or professional use or rental. The above is without prejudice to the statutory warranty period. Guarantee claims must always be supported by the buyer by means of the original purchase document. A copy thereof is to be appended to the guarantee application. Buyer address and machine type must be clearly identifiable for professional or commercial use.

Defects occurring during the guarantee period due to faults in material or manufacture shall be remedied by repairs if they have arisen in spite of proper operation and maintenance of the machine.

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MASCHINENBAU GmbH

900012 Rev. 01

EDER Maschinenbau GmbH

Schweigerstraße 6 · 38302 Wolfenbüttel
Tel. +49-5331-76046 · Fax +49-5331-76048
Geschäftsführer: Dipl.-Ing. Ulrich Schrader
Amtsgericht Braunschweig HRB 201703 · USt-Id-Nr.: DE 198 730 867