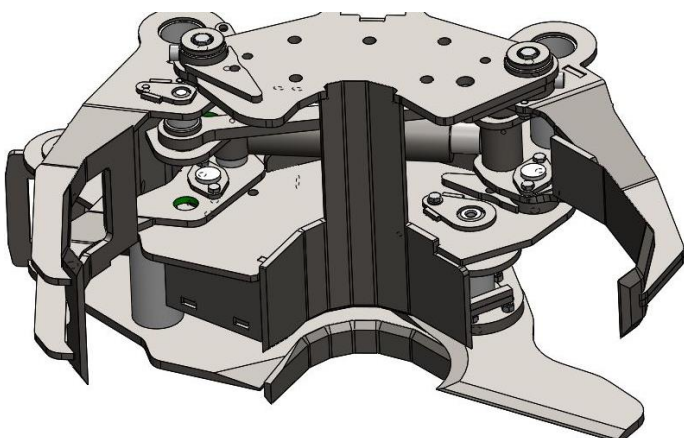


Energy Gripper FGR 230 Energy Gripper FGR 300



English translation of the original operating instructions
Copyright by Binderberger GmbH



**Carefully read these operating instructions
before starting up the machine!**

These operating instructions are valid for:

Type	Article number
Energy gripper 230	HFGRR230
Energy gripper 300	HFGRR300

Version of this operating manual: FGR 1.0

Release date: 2016-03

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1 Declaration of EC Conformity

We hereby declare that this machine, in all its available technical versions, complies with the regulations of Machine Directive 2006/42/EG and with all directly connected standards.

The safety instructions and operating instructions delivered here are valid for this machine.

This machine may not be changed technically. Any change that has not been coordinated with us will make this declaration invalid.

It is forbidden to operate the machine without the belonging protecting devices, because it will no longer comply with the EC directives and because it will lead to a higher risk of injury.

Name and address of the person authorized to compose the technical documentation:

St. Georgen am Fillmannsbach, 2015

Karl Binderberger

CEO / Geschäftsführer

Binderberger Maschinenbau GmbH

Fillmannsbach 9



AT-5144 St. Georgen am Fillmannsbach



2 Safety instructions


2.1 Meaning of symbols and hints

Please observe the meaning of the symbols and hints illustrated hereafter. They are classified according to danger levels and comply with ISO 3864-2.









 DANGER	
	<p><i>Points to an immediately threatening danger. Disregarding this information may lead to death or most severe injuries (invalidity).</i></p>

 WARNING	
	<p><i>Points to a possible danger situation. Disregarding this information may lead to death or most severe injuries (invalidity).</i></p>

 ATTENTION	
	<p><i>Points to a possible danger situation. Disregarding this information may lead to damage or small / medium injuries.</i></p>

HINT	
	<p><i>Points to general information, useful operating instructions and handling recommendations, which however do not influence the safety and health of the personnel.</i></p>

2.2 Meaning of icons

	<p><i>Carefully read the operating instructions before starting up the machine!</i></p>
	<p><i>Always wear ear protection and eye protection during operation!</i></p>
	<p><i>Always wear steel-toed safety shoes during operation!</i></p>
	<p><i>The machine may be operated by a single person only!</i></p>
	<p><i>Trip hazard</i></p>
	<p><i>Danger of injury from slipping</i></p>
	<p><i>Beware of hot materials!</i></p>
	<p><i>Machine must be installed vertically</i></p>
	<p><i>Use a grease pump for lubrication</i></p>

2.3 General safety instructions

This machine may only be operated by persons who have been trained, instructed and authorized. These persons must be familiar with the operating instructions and must act accordingly. The competences of the operating personnel must be determined clearly.

Apprentice personnel may only start working with the machine while being supervised by an experienced person. The completion of successful instruction must be confirmed in writing.

2.4 Proper use

The energy grippers have been designed exclusively for use in forestry business: pinching off and loading small trees.

Any use beyond this purpose is not permitted. In case of any personal injuries and damages resulting from improper use, the responsibility lies with the operator of the machine, not with the producer!

Proper use also includes reading this operating manual and adhering to all information contained here, especially adhering to the safety instructions. Proper use also includes the execution of all inspection and maintenance tasks within the prescribed time intervals.

2.5 Required operator qualification

Operating this machine does not require special knowledge from the fields of machine engineering or electric engineering. The operator must however be at least **18 years** old. Before his first use of the machine, the owner of the machine must train and instruct him accordingly. For working with the machine, protecting shoes and tightly fitting clothes are required.

If the operator wants to execute maintenance and repair work, he must have the required technical knowledge.

2.6 Technical modifications to the machine

For safety reasons, the operator is not authorized to carry out technical modifications to the machine. This is also true for welding work on supporting parts. All planned technical changes must be authorized beforehand in writing by manufacturer Binderberger GmbH.

Only use original spare parts / original wear parts / original accessory parts – these parts have been designed especially for the machine. Using parts from other sources will not guarantee that they have been designed and manufactured according to the occurring stress and the required safety level.

Parts and optional equipment which have not been delivered by us also have no approval from our side for use with the machine.

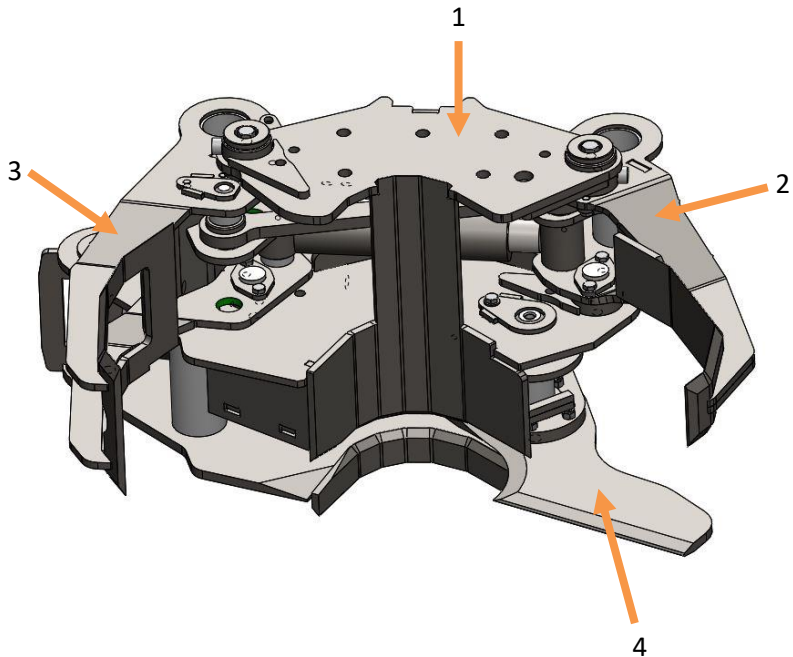
3 Description of the machine

3.1 Operating mode

The energy gripper is driven with hydraulic power, supplied either by an excavator or a crane. The gripper arms clasp the tree tightly; then the knife cuts the tree underneath the gripper.

The energy gripper may only be operated, maintained and repaired by persons who are familiar with it and which have been instructed about the dangers.

3.2 Overview



3.3 Technical details

Item no.	Description
1	Basic frame
2	Small gripper
3	Wide gripper
4	Knife



3.4 Technical data

Type	FGR 230	FGR 300
Hard wood max. Ø	200 mm	250 mm
Soft wood max. Ø	250 mm	300 mm
Weight	230 kg	300 kg
Max. operating pressure	190 - 240 bar	180 – 240 bar
Oil circulation	40 - 80 l/min	80 - 160 l/min
Max. gripper aperture	820 mm	820 mm

*.....listed dimensions and weights are approximate values

4 Transporting the machine

4.1 Safety instructions concerning transport

 WARNING	
	<p style="text-align: center;"><u>Danger of injury during transport!</u></p> <ul style="list-style-type: none">• Make sure that no persons stay within the danger zone and that a sufficient safety distance is kept at all times!• If the machine is transported in a slanting position, lubricants may escape! Direct skin contact will cause chemical burns!• Pending loads may fall down and thus cause danger to life – never stay underneath pending loads!• Always use suitable lifting equipment when loading the machine!• The machine may only be lifted using the designed suspension points!

4.2 Transporting the gripper when installed on a crane



After you have felled and deposited the last tree, shut the arms of the energy gripper. Make sure that the knife has been retracted, and that the energy gripper is in a horizontal position, then place the energy gripper on the resting spot on the tractor vehicle.

4.3 Transporting the gripper when installed on an excavator


After you have felled and deposited the last tree, shut the arms of the energy gripper. Make sure that the knife has been retracted, and that the energy gripper is in a horizontal position, then place the energy gripper on the ground or on the excavator's transport trailer.

5 Installing the machine

5.1 Safety instructions concerning machine installation

 WARNING	
	<p style="text-align: center;"><u><i>Danger of injury from improper installation of the machine!</i></u></p> <ul style="list-style-type: none">• <i>Always check the machine for transport damage before installing it!</i>• <i>The machine must be placed on even and solid ground!</i>• <i>Make sure that no persons can be endangered by installing the machine!</i>• <i>When installing machine connections, cables, hoses and pipes, make sure not to create any tripping points!</i>• <i>The machine may only be operated while in immaculate condition!</i>

5.2 Duties before starting operation

HINT	
	<p style="text-align: center;"><u><i>Before starting operation you must execute these steps:</i></u></p> <ul style="list-style-type: none">• <i>Check all safety devices for proper functioning!</i>• <i>Before every new start of operation you must check all hoses, couplings, bolts and screw connections for tight fit.</i>• <i>In case of ambient temperatures below 0° C / 32° F let the machine run for some 10 minutes in idle operation, without material.</i>

5.3 How to install the energy gripper

Before you start the installation, make sure that the energy gripper will remain in upright position during the complete installation. The space required by the machine framework and the crane / excavator is all the space you need for installation.

Important sequence of steps: always connect the return hose first, then the pressure / supply hose!

When connecting with a double-acting control unit, be aware that there is always pressure present which may cause damage to the control block.

Never execute any function at the control block (intentionally or inadvertently), before at least the return hose has been connected to the crane / excavator. Disregarding this rule may cause significant damage to the control block.

5.3.1 Installation on a crane

Six fastening bolts must be used to attach the gripper FGR 230 / 300 to the flange rotator, or to attach the FGR with an adaptor to a stub rotator. Make sure that the fastening is sufficient.

To operate the gripper, the knife and the tilting function, 2 hoses are required: The pressure / supply hose and the return hose.

For the optional collecting grabber, another 2 hoses (again pressure/supply and return) are required.

The hydraulic hoses must be coupled exactly in this way:

Both hoses coming from the rotator are connected directly to the valve block of the energy gripper.

When using the collecting grabber, two additional hoses must be installed between the valve block of the basic machine (crane / excavator), alongside the lifting arm, and connected to the cylinder of the collecting grabber.

5.3.2 Installation on an excavator

Nine fastening bolts must be used to attach the gripper FGR 230 / 300 to the tool holder of the excavator. Make sure that the fastening is sufficient.

To operate the gripper, the knife and the tilting function, 2 hoses are required: The pressure / supply hose and the return hose.



For the optional collecting grabber, another 2 hoses (again pressure/supply and return) are required.

Both hydraulic hoses from the excavator must be coupled directly to the valve block of the energy gripper.



When using the collecting grabber, two additional hoses must be installed between the valve block of the excavator, alongside the lifting arm, and connected to the cylinder of the collecting grabber.

6 Operation



6.1 Safety instructions concerning operation

 DANGER	
	<p><u>Danger of injury from getting caught or dragged in by moving machine components!</u></p> <ul style="list-style-type: none">• Always keep a sufficient safety distance towards moving machine components!• Pending loads may fall down and thus cause danger to life – never stay underneath pending loads!


 WARNING	
	<p><u>Danger of injury during operation!</u></p> <ul style="list-style-type: none">• No other persons are allowed within the danger zone – a sufficient safety distance must be kept at all times!

 ATTENTION	
	<p><u>Stumbling / tripping on objects lying about!</u></p> <ul style="list-style-type: none">• Remove all objects that are not part of the machine from its vicinity.

 ATTENTION	
	<p><u>Danger of injury from missing personal protecting equipment!</u></p> <ul style="list-style-type: none">• <i>Always wear eye protection, ear protection, protecting gloves and steel-toed safety shoes!</i>

 ATTENTION	
	<p><u>Danger of injury during operation!</u></p> <ul style="list-style-type: none">• <i>The machine must be operated by a single person only!</i>• <i>Make sure that no further persons stay within the machine area!</i>

6.2 Important instructions concerning operation

HINT	
	<ul style="list-style-type: none">• <i>The operator always has to take care that no unauthorized persons stay within the working area of the machine.</i>• <i>Get information about the proper measures in case of malfunctions before you start up the machine.</i>• <i>Execute all tasks listed in chapter “Duties before starting operation” before you start up the machine.</i>• <i>After turning the machine off always execute the tasks listed in the next chapter “Machine shutdown”.</i>• <i>Before the operator leaves the machine unattended, he must turn it off and secure it against inadvertent restart.</i>

6.3 Operating the energy gripper on a crane

Position the energy gripper with open grabbers onto a tree. Close the grabbers, until the tree is clasped by the machine. Now the knife cuts the tree horizontally underneath the grabbers. The cut tree is still being held by the grabbers and may be moved vertically.

If you increase the grabbing power, the tilting device will tilt the tree, so you can move it in slanted or in horizontal position.

Never raise a felled tree from horizontal position to vertical position again using the tilting device!

Once the tree is in horizontal position, it may be cut into shorter pieces, e.g. in order to produce fire wood.

6.4 Operating the energy gripper on an excavator

Position the energy gripper with open grabbers onto a tree. Close the grabbers, until the tree is clasped by the machine. Now the knife cuts the tree horizontally underneath the grabbers. The cut tree is still being held by the grabbers and may be moved vertically.

Use the excavator functions to deposit the tree in horizontal position.

6.5 Loading wood with the energy gripper on a crane

Turn the energy gripper into horizontal position. Close both shutoff valves in order to deactivate the tilting function and the cutting function of the knife.

Now you may use the energy gripper like a normal loading gripper.

6.6 Loading wood with the energy gripper on an excavator

Turn the energy gripper into horizontal position. Close the shutoff valve in order to deactivate the cutting function of the knife.

Now you may use the energy gripper like a normal loading gripper.

6.7 Working with the collecting grabber (optional equipment)

Open the grippers of the energy gripper and retract the knife. Open the grippers of the collecting grabber as well.

Position the open energy gripper onto a tree. First close the collecting grabber, then close the grippers. Now you cut the tree with the knife.

The cut part of the tree is held by the grippers and by the grabber and may be moved vertically.

Open the grippers and position them onto the next tree. Now close the grippers – both trees are fastened by the grippers.







Open the grabber of the collector, then close it again: Both trees are held by the gripper and by the grabber.

Now you cut the second tree with the knife.

You may repeat this process until the collecting grabber is full, then dispose all the cut trees together.

7 Machine shutdown

7.1 Safety instructions concerning shutdown

 DANGER	
	<p><u>Danger of injury from getting caught or dragged in by moving machine components!</u></p> <ul style="list-style-type: none">• After turning the machine OFF wait until all moving components have come to a standstill!• Keep a sufficient safety distance from the moving machine components!
 WARNING	
	<p><u>Danger of injury during shutdown!</u></p> <ul style="list-style-type: none">• The operator always has to take care that no unauthorized persons stay within the working area of the machine and that a sufficient safety distance from the moving machine components is kept!• Pending loads may fall down and thus cause danger to life – never stay underneath pending loads!
 WARNING	
	<p><u>Danger of injury from machine start by unauthorized persons!</u></p> <ul style="list-style-type: none">• After shutdown secure the machine against unauthorized restart!

7.2 Shutting down the energy gripper on a crane

After you have felled and deposited the last tree, shut the arms of the energy gripper. Make sure that the knife has been retracted, and that the energy gripper is in a horizontal position, then place the energy gripper on the resting spot on the tractor vehicle.

Turn the drive (hydraulic pump) of the tractor vehicle OFF.

7.3 Shutting down the energy gripper on an excavator



After you have felled and deposited the last tree, shut the arms of the energy gripper. Make sure that the knife has been retracted, and that the energy gripper is in a horizontal position, then place the energy gripper on the ground or on the excavator's transport trailer.



Turn the drive (hydraulic pump) of the excavator OFF.



8 Repair

8.1 Safety instructions concerning repair


 DANGER	
	<p><u>Danger of severe injury by starting the drive during repair work!</u></p> <ul style="list-style-type: none">• Turn the machine OFF!• Secure the machine against restart!

 ATTENTION	
	<p><u>Danger of slipping because of oil residue during maintenance work (oil exchange)!</u></p> <ul style="list-style-type: none">• Use a suitable collecting bin.• Remove spilled oil immediately.

 ATTENTION	
	<p><u>Danger of injury: Scalding on hot machine components and media!</u></p> <ul style="list-style-type: none">• Before starting any repair work let the machine cool down to ambient temperature.

 ATTENTION	
	<p><u>Danger of chemical burns from contact with lubricants!</u></p> <ul style="list-style-type: none">• <i>Avoid skin and eye contact!</i>• <i>Use proper protecting equipment (protecting gloves, eye protection).</i>

8.2 Important instructions concerning repair

<h1>HINT</h1>	
	<ul style="list-style-type: none">• <i>Immediately replace all faulty machine parts.</i>• <i>Use original spare parts only.</i>• <i>Make sure that suitable collecting bins are available for any groundwater endangering media (oils, cooling agents).</i>• <i>Use the specified operating media only.</i>• <i>Self-securing bolts and nuts must always be replaced.</i>• <i>All operating media which cannot be reused must be disposed according to the valid environmental regulations.</i>• <i>Severe damage to the machine can result when installing wrong spare parts or wear parts.</i>• <i>Welding work causes fire hazard. Always have a fire extinguisher at hand.</i>• <i>Improperly installed cables may cause cable meltdown and cable fire.</i>• <i>Never release the machine for operation without all safety installations provided by the manufacturer available.</i>• <i>It is strictly forbidden to remove safety instructions and safety installations from the machine.</i>• <i>If an information label on the machine is no longer legible you must replace it.</i>• <i>Always observe the warning instructions attached to the machine. They help avoiding danger situations.</i>• <i>Do not execute repair work if you do not possess the required qualification.</i>

8.3 Instructions concerning work on hydraulic equipment

Work on the electrical equipment of the machine may on principle be executed by skilled technicians for hydraulic systems only.

- Before starting any work on hydraulic systems, relieve the pressure from the hydraulic system and all its components.
- Make sure that suitable collecting bins are available for any groundwater endangering media (oils, cooling agents).







8.4 Duties before ending the repair work



After the repair steps have been executed and before machine restart, these tasks must be observed:

- Verify whether all bolt connections loosened before have been retightened properly.
- Verify whether all protecting devices, covers, container lids etc. have been installed properly again.
- Make sure that all used tools, materials and further equipment has been removed from the working area again.
- Clean the working area and remove / clean up any spilled liquids and similar materials.
- Make sure that all safety devices of the machine are in perfect operating status again.
- Verify the function of all safety devices. Never release the machine for operation as long as any safety device is not functioning properly.
- Reinstall and fasten all safety devices you have removed before.
- Clean up all remaining tools, parts and operating materials.
- Execute a test operation run with a functional control of all repaired components.
- As long as you have not finished the repair work, you must secure the machine against inadvertent restart.
- The use of open flames and smoking is prohibited.

9 Maintenance

9.1 Safety instructions concerning maintenance

 DANGER	
	<p><u>Danger of severe injury by starting the drive during maintenance work!</u></p> <ul style="list-style-type: none">• Turn the machine OFF!• Secure the machine against restart!
 ATTENTION	
	<p><u>Danger of slipping because of oil residue during maintenance work (oil exchange)!</u></p> <ul style="list-style-type: none">• Use a suitable collecting bin.• Remove spilled oil immediately.
 ATTENTION	
	<p><u>Danger of injury: Scalding on hot machine components and media!</u></p> <ul style="list-style-type: none">• Before starting any repair work let the machine cool down to ambient temperature.• Keep easily flammable materials away from hot surfaces!

 ATTENTION	
	<p><u>Danger of chemical burns from contact with lubricants!</u></p> <ul style="list-style-type: none">• Avoid skin and eye contact!• Use proper protecting equipment (protecting gloves, eye protection)!

9.2 Cleaning

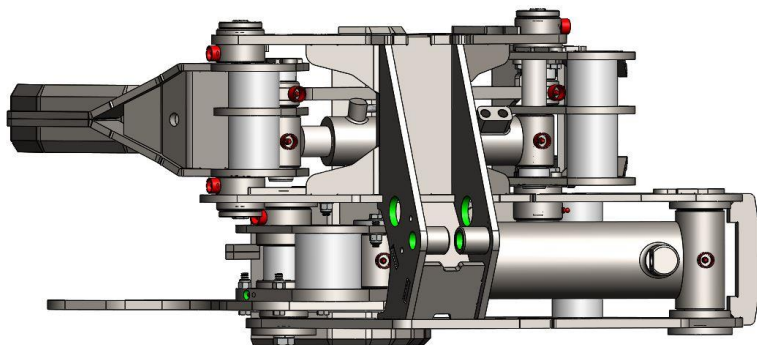
Remove all dirt and residue from the machine after every operation run and before maintenance work!

9.3 Regreasing the energy gripper

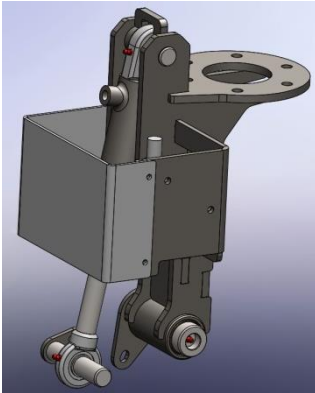
All lubrication spots must be regreased every 8 operating hours.

Lubrication spots (marked in RED in the illustration below):

- At the bearing bushes of every hydraulic cylinder
- At the knife holder and at the bearing of the knife holder
- At the bearing spots of the grippers
- At the parallel rod



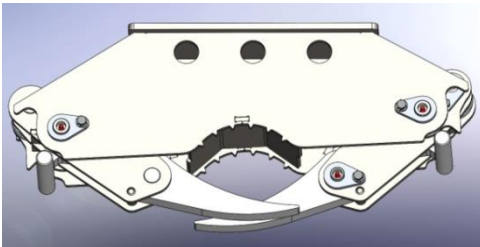
9.4 Regreasing the tilting unit



All lubrication spots (marked in RED in the illustration on the left) must be regreased every 8 operating hours.

If your energy gripper has an assembly for crane mounting, you must regrease the tilting bolt as well as the joint eyelets of the tilting cylinder.

9.5 Regreasing the collecting grabber



All lubrication spots must be regreased every 8 operating hours.

Three lubrication spots (marked in RED in the illustration on the left) are situated on the top side and on the bottom side of the collecting grabber. Two more lubrication spots are at the back side at the joint eyelets of the cylinder.

9.6 Replacing the hydraulic hoses

All hydraulic hoses must be replaced every 5 years.

If a hydraulic hose shows evident damage, it must be replaced immediately, because otherwise it may cause severe injuries and grave damage!


10 Breakdown management

10.1 Safety instructions concerning breakdowns

In order to avoid machine damage or life-threatening injuries during repair works on the machine, these aspects are to be observed:

 DANGER	
	<p><u>Danger of severe injury by starting the drive in case of a breakdown!</u></p> <ul style="list-style-type: none">• Turn the machine OFF!• Secure the machine against restart!

 ATTENTION	
	<p><u>Danger of injury: Scalding at hot machine components and media!</u></p> <ul style="list-style-type: none">• Before starting any troubleshooting work let the machine cool down to ambient temperature!

 ATTENTION	
	<p><u>Danger of chemical burns from contact with lubricants!</u></p> <ul style="list-style-type: none">• Avoid skin and eye contact!• Use proper protecting equipment (protecting gloves, eye protection)!

11 Guarantee, warranty

Terms of guarantee 950601:

Manufacturer Binderberger Maschinenbau GmbH extends its warranty to a period of 2 years for parts which do not perform properly because of material deficiencies or faulty manufacturing.

Components we have purchased before, like tyres, axles and valves, are subject to a one-year warranty issued by our suppliers.

The warranty period comes into effect on the day of delivery to the buyer.

The warranty does not cover faults and breakdowns which were caused by normal wear, carelessness, faulty operation or faulty assembly. Hydraulic hoses and hydraulic couplings are exempt from warranty.

Costs arising during warranty processing, like disassembly work and shipping expenses, will not be reimbursed. Warranty is granted under the condition that the warranty claim has been declared directly to manufacturer Binderberger GmbH. Faults must be remedied according to a joint consultation between buyer, authorized dealer and manufacturer Binderberger GmbH.

If the manufacturer considers it appropriate, the device or the concerned device components must be sent in to the manufacturer for warranty measures. These data must be included with the shipment: Type of the device, serial number, date of delivery, name and address of the owner.

Warranty becomes void if the machine differs from the original model, e.g. because of technical alteration, change of settings, additional attachments or integration of parts which have not been delivered by the manufacturer. Furthermore, our terms of delivery NL92 apply.

12 Proper reaction in case of accidents

Take care of a periodic information update concerning the available facilities and means for First Aid.

In case of an accident including injured persons, damage to machines or to buildings / structures you must first provide initial treatment for the injured person, then inform the person in charge as soon as possible.

To alarm the proper ambulance emergency resources, you must pass information about the severity of personal injuries and of damage.

In case of a disaster (fire) leave the machine immediately.

Dealer's stamp:

Type label:



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