

Spearhead

HX 170-230-270 Cutterbars



Edition 1.0 - Feb 2015
Part No. 8999089

HANDBOOK & PARTS MANUAL

Spearhead MP Flail Head

IMPORTANT

VERIFICATION OF WARRANTY REGISTRATION



DEALER WARRANTY INFORMATION & REGISTRATION VERIFICATION

It is imperative that the selling dealer registers this machine with Spearhead Machinery Limited before delivery to the end user – failure to do so may affect the validity of the machine warranty.

To register machines go to the Spearhead Machinery Limited web site at www.spearheadmachinery.com, log onto 'Dealer Inside' and select the 'Machine Registration button' which can be found in the Service Section of the site. Confirm to the customer that the machine has been registered in the section below.

Should you experience any problems registering a machine in this manner please contact the Spearhead Service Department on 01789 491867.

Registration Verification

Dealer Name:	
Dealer Address:	
Customer Name:	
Date of Warranty Registration:/...../.....
Dealer Signature:	

NOTE TO CUSTOMER / OWNER

Please ensure that the above section has been completed and signed by the selling dealer to verify that your machine has been registered with Spearhead Machinery Limited.

IMPORTANT: During the initial 'bedding in' period of a new machine it is the customer's responsibility to regularly inspect all nuts, bolts and hose connections for tightness and re-tighten if required. New hydraulic connections occasionally weep small amounts of oil as the seals and joints settle in – where this occurs it can be cured by re-tightening the connection – refer to *torque settings chart below*. The tasks stated above should be performed on an hourly basis during the first day of work and at least daily thereafter as part of the machines general maintenance procedure.

CAUTION: DO NOT OVER TORQUE HYDRAULIC FITTINGS AND HOSES

TORQUE SETTINGS FOR HYDRAULIC FITTINGS

HYDRAULIC HOSE ENDS		
BSP	Setting	Metric
1/4"	18 Nm	19 mm
3/8"	31 Nm	22 mm
1/2"	49 Nm	27 mm
5/8"	60 Nm	30 mm
3/4"	80 Nm	32 mm
1"	125 Nm	41 mm
1.1/4"	190 Nm	50 mm
1.1/2"	250 Nm	55 mm
2"	420 Nm	70 mm

PORT ADAPTORS WITH BONDED SEALS		
BSP	Setting	Metric
1/4"	34 Nm	19 mm
3/8"	47 Nm	22 mm
1/2"	102 Nm	27 mm
5/8"	122 Nm	30 mm
3/4"	149 Nm	32 mm
1"	203 Nm	41 mm
1.1/4"	305 Nm	50 mm
1.1/2"	305 Nm	55 mm
2"	400 Nm	70 mm

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WARRANTY POLICY

WARRANTY REGISTRATION

All machines must be registered, by the selling dealer with Spearhead Machinery Ltd, before delivery to the end user. On receipt of the goods it is the buyer's responsibility to check that the Verification of Warranty Registration in the Operator's Manual has been completed by the selling dealer.

1. LIMITED WARRANTIES

- 1.01. All machines supplied by Spearhead Machinery Limited are warranted to be free from defects in material and workmanship from the date of sale to the original purchaser for a period of 12 months, unless a different period is specified.
- 1.02. All spare parts supplied by Spearhead Machinery Limited are warranted to be free from defects in material and workmanship from the date of sale to the original purchaser for a period of 6 months.
- 1.03. The manufacturer will replace or repair for the purchaser any part or parts found, upon examination at its factory, to be defective under normal use and service due to defects in material or workmanship. Returned parts must be complete and unexamined.
- 1.04. This warranty does not apply to any part of the goods, which has been subjected to improper or abnormal use, negligence, alteration, modification, fitment of non-genuine parts, accident damage, or damage resulting from contact with overhead power lines, damage caused by foreign objects (e.g. stones, iron, material other than vegetation), failure due to lack of maintenance, use of incorrect oil or lubricants, contamination of the oil, or which has served its normal life. This warranty does not apply to any expendable items such as blades, flails, bushes, belts, flap kits, skids, shields, guards, wear pads or pneumatic tyres.
- 1.05. Temporary repairs and consequential loss - i.e. oil, downtime and associated parts are specifically excluded from the warranty.
- 1.06. Warranty on hoses is limited to 12 months and does not include hoses which have suffered external damage. Only complete hoses may be returned under warranty, any which have been cut or repaired will be rejected.
- 1.07. Machines must be repaired immediately a problem arises. Continued use of the machine after a problem has occurred can result in further component failures, for which Spearhead Machinery Ltd cannot be held liable, and may have safety implications.
- 1.08. Except as provided herein, no employee, agent, dealer or other person is authorised to give any warranties of any nature on behalf of Spearhead Machinery Ltd.
- 1.09. For machine warranty periods in excess of 12 months the following additional exclusions shall apply:
 - 1.09.1. Hoses, external seals, exposed pipes and hydraulic tank breathers.
 - 1.09.2. Filters
 - 1.09.3. Rubber mountings
 - 1.09.4. External electric wiring.
 - 1.09.5. Labour and mileage costs.
- 1.10. All service work, particularly filter changes, must be carried out in accordance with the manufacturer's service schedule. Failure to comply will invalidate the warranty. In the event of a claim, proof of the service work being carried out may be required.

NB Warranty cover will be invalid if any non-genuine parts have been fitted or used. Use of non-genuine parts may seriously affect the machine's performance and safety. Spearhead Machinery Ltd cannot be held responsible for any failures or safety implications that arise due to the use of non-genuine parts.

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2. REMEDIES AND PROCEDURES

- 2.01. The warranty is not effective unless the Selling Dealer registers the machine, via the Spearhead Machinery web site and confirms the registration to the purchaser by completing the confirmation form in the operator's manual.
- 2.02. Any fault must be reported to an authorised Spearhead Machinery dealer as soon as it occurs. Continued use of a machine, after a fault has occurred, can result in further component failure for which Spearhead Machinery Ltd cannot be held liable.
- 2.03. Repairs should be undertaken within two days of the failure. Claims submitted for repairs undertaken more than 2 weeks after a failure has occurred, or 2 days after the parts were supplied will be rejected, unless the delay has been authorised by Spearhead Machinery Ltd.
- 2.04. All claims must be submitted, by an authorised Spearhead Machinery Service Dealer, within 30 days of the date of repair.
- 2.05. Following examination of the claim and parts the manufacturer will pay, at their discretion, for any valid claim the cost of any parts and an appropriate labour allowance if applicable.
- 2.06. The submission of a claim is not a guarantee of payment.
- 2.07. Any decision reached by Spearhead Machinery Ltd is final.

3. LIMITATION OF LIABILITY

- 3.01. The manufacturer disclaims any express (except as set forth herein) and implied warranties with respect to the goods including, but not limited to, merchantability and fitness for a particular purpose.
- 3.02. The manufacturer makes no warranty as to the design, capability, capacity or suitability for use of the goods.
- 3.03. Except as provided herein, the manufacturer shall have no liability or responsibility to the purchaser or any other person or entity with respect to any liability, loss, or damage caused or alleged to be caused directly or indirectly by the goods including, but not limited to, any indirect, special, consequential, or incidental damages resulting from the use or operation of the goods or any breach of this warranty. Notwithstanding the above limitations and warranties, the manufacturer's liability hereunder for damages incurred by the purchaser or others shall not exceed the price of the goods.
- 3.04. No action arising out of any claimed breach of this warranty or transactions under this warranty may be brought more than one (1) year after the cause of the action has occurred.

4. MISCELLANEOUS

- 4.01. The manufacturer may waive compliance with any of the terms of this limited warranty, but no waiver of any terms shall be deemed to be a waiver of any other term.
- 4.02. If any provision of this limited warranty shall violate any applicable law and is held to be unenforceable, then the invalidity of such provision shall not invalidate any other provisions herein.
- 4.03. Applicable law may provide rights and benefits to the purchaser in addition to those provided herein.

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CE Declaration of Conformity, Conforming to EU Machinery Directive 2006/42/EC

We, Spearhead Machinery Ltd, Green View, Salford Priors, Evesham,
Worcestershire, WR11 8SW hereby declare that:

Product

Product Code.....

Serial No.....

Type.....

Manufactured by: Alamo Manufacturing Services (UK) Limited, Station Road,
Salford Priors, Evesham, Worcestershire, WR11 8SW

Complies with the required provisions of the Machinery Directive 2006/42/EC.
The Machinery Directive is supported by the following harmonized standards:

- BS EN ISO 14121-1 (2007) Safety of Machinery – Risk Assessment, Part 1: Principles Part 2: Practical Guide and Examples of Methods.
- BS EN ISO 12100-1 (2010) Safety of Machinery – Part 1: Basic Terminology and Methodology Part 2: Technical Principles.
- BS EN 349 (1993) + A1 (2008) Safety of Machinery – Minimum Distances to avoid the Entrapment of Human Body Parts.
- BS EN 953 (1998) Safety of Machinery – Guards General Requirements for the Design and Construction of Fixed and Movable Guards.
- BS EN 982 (1996) + A1 (2008) Safety Requirements for Fluid Power Systems and their Components. Hydraulics.

The EC Declaration only applies if the machine stated above is used in
accordance with the operating instructions.

Signed



(On behalf of Spearhead Machinery Ltd)

Status

General Manager

Date

.....

EC Declaration of Conformity



EU Declaration of Conformity
Adapted EEC directive
EG Guideline 2006/42/EF, 89/392/EEC & 98/37/EC

We, GreenTec A/S, Merkurvej 25, 6000 Kolding, hereby declare that in terms of its design, method of construction and our execution thereof, the item of machinery described below complies with the basic health and safety regulations of the respective EU Directives.

Product: GreenTec HX 230
Product code: 9995230

Serial no: 5837262

Type: Hedgecutter



The EC Declaration only applies if the machine stated above is used in accordance with the operating instructions.

on behalf of
Date: 26.10.2014

Signature: 
John Christensen Sales Director

Spearhead MP Flail Head

Contents

Safety.....	8
Recommendations.....	10
Product Description.....	12
Specifications.....	12
Prior to Start-up.....	13
Mounting/Dismounting.....	14
Overhead Power Lines.....	15
Hydraulic Diagrams.....	17
Maintenance.....	18
Trouble Shooting.....	22
Noise Measurement.....	22
Supplier Details.....	23
Parts Book Contents.....	24

Spearhead MP Flail Head

Safety



Caution

Liquids under pressure. Please refer to the Technical Manual for information about service procedures.



Caution

Flying objects. Keep a safe distance from the machine when in use.



Caution

Keep a safe distance from the cutter knives when the machine is in use.
Never remove safety guards / guarded



Caution

Stay outside the swivel range of the tools.



Caution

Turn off the engine and remove the key before performing any maintenance or repair work on the machine.



Caution

Check that all bolts and nuts are tightened every 8 hours.



Caution

Read the User Manual prior to operating the machine. Follow all instructions and safety provisions when using the machine.

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This User Manual contains basic references to construction, operation and maintenance. Thus, this User Manual should be studied by and made available to the staff prior to start-up.

Never allow the HX 170 – 230 - 270 to be operated or maintained by individuals that are not familiar with this User Manual or the associated risks. The driver is responsible for and must monitor the staff. Should the staff not be sufficiently trained, such training must be provided. Furthermore, the driver must ensure that the staff knows and fully understands the contents of this User Manual.

Maintenance tasks that are not mentioned in this User Manual must be performed by authorized technicians only.

Failure to observe the safety signs may result in the following risks:

- ☞ Danger to people near non-secured work areas
- ☞ Failure of vital machine functions
- ☞ Failure of designated methods of maintenance or repair
- ☞ Danger to people in case of mechanical or chemical impact.
- ☞ Environmental hazards due to hydraulic oil spills

Never work in the vicinity of the machine unless it is completely stopped. The procedure mentioned in this User Manual to completely halt the machine must be followed. Maintenance work with a raised tool is allowed only when appropriate support elements have been applied. Use appropriate tools and work gloves when replacing spare parts. Oil and grease must be discarded properly and responsibly.

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Recommendations

Pay attention to the following risks

- You may get stuck when the machine is coupled or decoupled.
- The machine may fall over when the wing/wings is/are raised (*not all models*).
- You may get caught by the rotating shaft from the power take-off. (*not all models*)
- You may get hit or caught by moving parts such as knives, saw blades, driving shaft or wings.
- You may get hit by flying objects or machine parts in case of breakdowns.
- The machine may fall over when not in use (*not all models*).
- Sprays of oil under high pressure from damaged screw-joints or hydraulic hoses.
- Accidents from collisions with other machines or lost objects on the ground.
- Pay attention to the freely swinging knives when the wings are folded up. Crush hazard! (*not all models*)

Do's

- Ensure that the operator has read this Manual and has been trained in the use of the machine.
- Ensure that all guards are in place and that the tractor's windows are closed.
- We recommend using impact-proof guards on the tractor.
- Before leaving the driver's cab, ensure that the machine is resting on the ground, that its hydraulics is not pressurized and that the saw blades / knives have stopped rotating (*not all models*).
- Check that all guards are correct mounted and that the equipment is free from damaged or loose parts. Take extra care to ensure that all knives, flails and saw blades are present and free from cracks or other damage.
- Check the work area and remove any cords, poles, large stones or other dangerous objects prior to starting the work.
- Ensure that all warning signs are visible, present, undamaged and legible.
- Use ear protection when operating the machine from a non-soundproof cab or with the cab windows opened.
- Ensure that all tractor guards are undamaged and adequately fitted.
- Drive at speeds suited for the terrain and any other vehicles or obstacles.
- Ensure that the tractor complies with the manufacturer's minimum weight recommendations - use extra ballast if necessary.
- Check that all fittings, connectors and couplings are in good condition.
- Follow the manufacturer's instructions for coupling and decoupling the machine to/from the tractor.
- Always use knives that are recommended by the manufacturer and ensure that they are adequately fitted and undamaged.
- Ensure that all hydraulic tubes and hoses are correctly placed in order to avoiding rubbing, stretching, crushing or bending (*not all models*).
- Check that all knives, flails and saw blades have stopped rotating before folding the machine to its transport position (*not all models*).
- Disconnect the machine, stop the engine and remove the key before exiting the cab, notwithstanding the reason for exiting.
- Remove remaining plant debris and loose objects from the work area.
- Always secure the machine using the provided holders when it is not connected to the tractor (*not all models*).

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Don'ts

- Never operate the machine with people standing nearby due to the risk of debris or stones being thrown out in front of and behind the machine.
- Never operate the machine prior to having read and understood this Manual and familiarized yourself with the maneuvering handles.
- Never use a machine that is not properly maintained or which has missing or damaged guards.
- Never allow an inexperienced person to operate the machine without supervision.
- Never use or mount the machine on a tractor that does not comply with the manufacturer's specifications.
- Never use the machine if the hydraulic system appears damaged.
- Never attempt to locate a hydraulics leak using your hand; use a piece of cardboard instead.
- Never allow children to play on or near the machine.
- Never perform maintenance or adjustments without disengaging the hydraulics and power take-off, lowering the machine to ground, turning off the tractor's engine and activating the tractor's parking brake.
- Never leave the cab without removing the key from the ignition.
- Never operate the tractor or the maneuvering handles from any other position but the driver's seat.
- Never stop the engine while the power take-off is engaged.
- Never use the machine with missing knives, flails or saw blades.
- Never use the machine with string or steel wire caught around a rotor. If so, stop immediately. *(not all models)*
- Never drive with the wing up as this increases the risk of stones or plant debris being thrown towards the cab *(not all models)*.
- Never attempt to use the machine for any other purpose but the intended purpose.
- Never transport the machine with the hydraulics engaged.
- Never enter the work area (risk of injury to persons)
- Never activate the power take-off with the wings folded *(not all models)*
- Never exceed the specified oil flow.

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Product Description

The Hedge cutter primarily consists of a non-movable lower knife and a movable upper knife that both are made from Hardox steel and driven by an hydraulic ram. The double-effect cylinder is controlled by a reversing valve that is operated over a suspended bottom adjustment. The suspended bottom adjustments are directly connected to the ramrod, thereby allowing the smooth rotation of the cutting direction.

The basic tool is mounted using a mounting arm with high pressure hydraulic hoses

The knife guard may be mounted on the Hedge cutter using the extension spring.

Specifications

Hedge cutter for mounting on hydraulically driven Armmowers.

Consists of two Hardox cuttings edges that are hydraulically driven over a flow divider, two-way valve and hydraulic ram. The cutting edges are operated via external oil supply from the hydraulically driven vehicle.

The Hedge cutter may be fitted with an adapter to facilitate mounting on various vehicles.

The hydraulic system is completely covered.

Description	GreenTec HX 170 – 230 270
Operating width	1700 - 2300 - 2700mm
Oil level	45-85 L/min (integrated flow divider)
Operating pressure	200 bar
Hydraulic Mode	Soft turn control
Weight	190 – 220 - 250kg
Steel quality, cutting edge	Hardox
Work output	5 – 100mm branches
Stroke frequency	55-65 double strokes per minute
Work application	Vertically +/- 45 ⁰

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Prior to start-up of work

Setting of Working Posture

- Remove any transport protection and swing the arm into working posture.
- Start the tool with a low oil flow (low RPMs / low oil flow).
- Adjust the HX 170 - 230 – 270 to **vertical** hedge cutting and raise it to the working posture.

Starting the Tool

- Select low engine RPMs
- Ensure that the area around the tool is secured.
- **Warm start** – Start the tool.
- **Cold start** – Never start with max. oil flow. Allow the tool to run without too much load for about 15 min. to heat up the oil.
- Slowly increase the amount of oil until the relevant speed has been achieved.
- Never attempt to restart a loaded tool. Remove whatever is stuck before restarting the tool.

Stopping the Tool

- Reduce the engine RPM to fast idling. Stop the tool.
- Never quickly increase or reduce the amount of oil as this may damage the hydraulic system in the long term.
- Place the tool on the ground when taking a break.

Driving Instructions

We recommend that you drive slowly at first and pay attention to the terrain and whether the hedge is free from fencing wire, steel poles and other foreign objects.

Adjust the cutting angle to a position approx. 90 degrees relative to the branches. In case of large branches, adjust the cutting height to the center of the cutting opening.

Never drive too fast to allow clean cutting.
Low speeds = Nice cuts, nothing sticks out.
High speeds = Frayed cuts, twigs sticking out.

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Mounting / Dismounting

- Turn the arm system to a position next to the HX 170 – 230 - 270
- Mount the bolts or snap the Quickshift (optional) together
- Mount the hydraulic hoses
- Lift the tool free
- Dismount the knife guard
- Test the function. Count the strokes (optional) 55-65 double strokes per minute (45 - 85 L/min.)



Field of Application

The tool is designed for cutting hedges and branches with a max. diameter of 100mm without fraying the branches. Branches over 70mm in diameter should be cut individually.

Vertical cutting is allowed up to a 45 degree angle. Horizontal cutting is possible on hedges with a max. width of 1m and a branch thickness of max. 40mm. In case of larger branches, the cutting edges may stop and get stuck in the machine.

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Overhead Power Lines

It cannot be stressed enough the dangers involved when working in the vicinity of Overhead Power Lines (OHPLs). Some of our machines are capable of reach in excess of 8 metres (26'); they have the potential to well exceed, by possibly 3 metres (9' 9"), the lowest legal minimum height of 5.2 metres from the ground for 11,000 and 33,000 volt power lines.

Remember electrocution can occur without actually coming into contact with a power line as electricity can 'flashover' when machinery gets close to it.

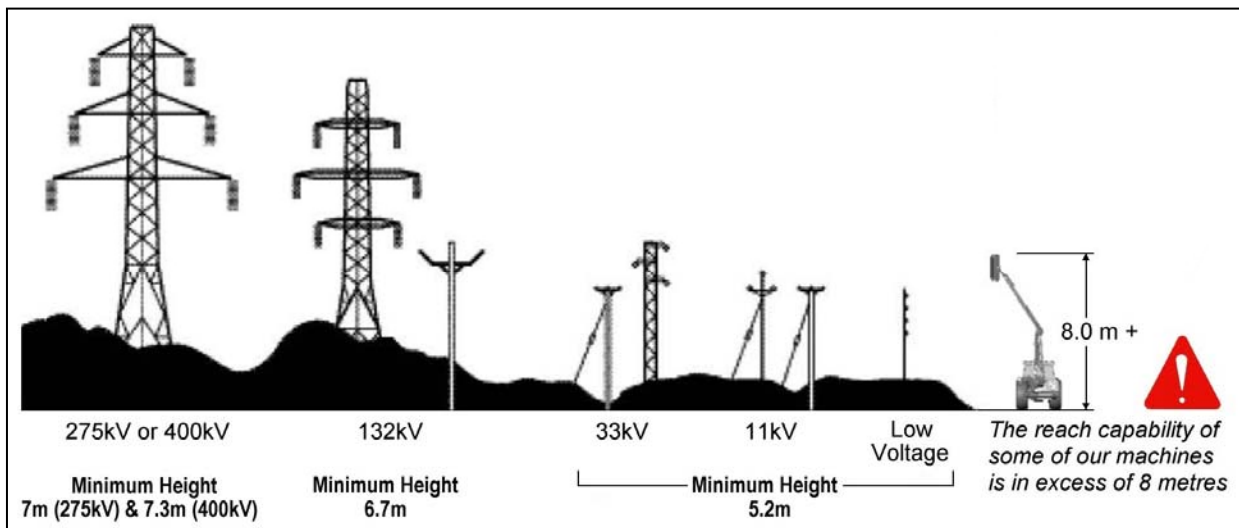


WARNING: All operators must read the following information and be aware of the risks and dangers involved when working in the vicinity of Overhead Power Lines (OHPLs).

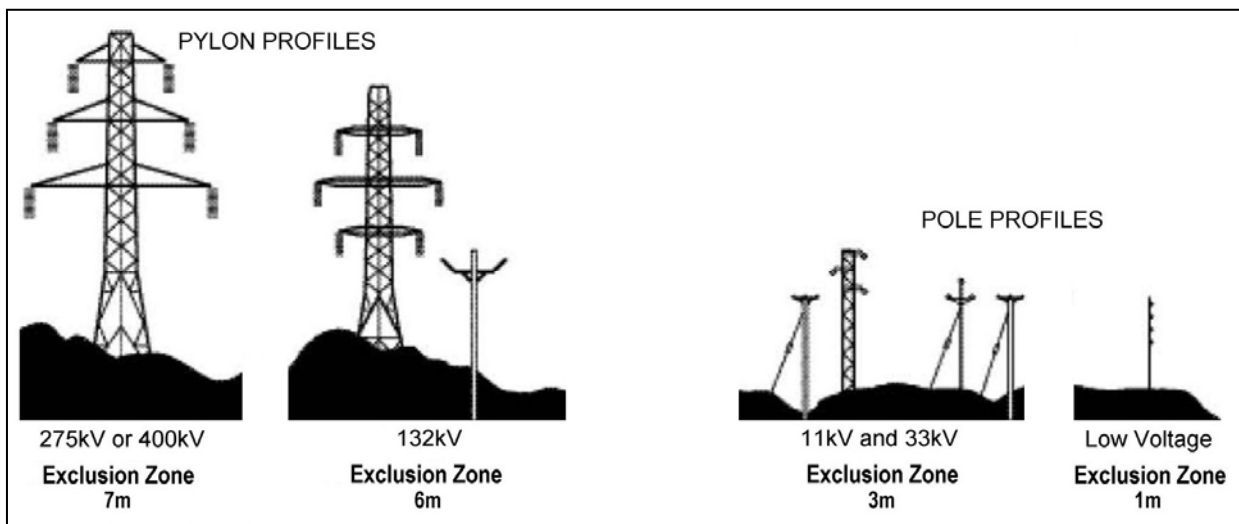
Wherever possible the safest option is always to avoid working in areas close to OHPLs. Where unavoidable, all operators must perform a risk assessment and implement a safe procedure and system of work – see following page for details.

All operators should perform a risk assessment before operating the machine within 10m horizontal distance of any OHPLs.

Minimum Heights for Overhead Power Lines

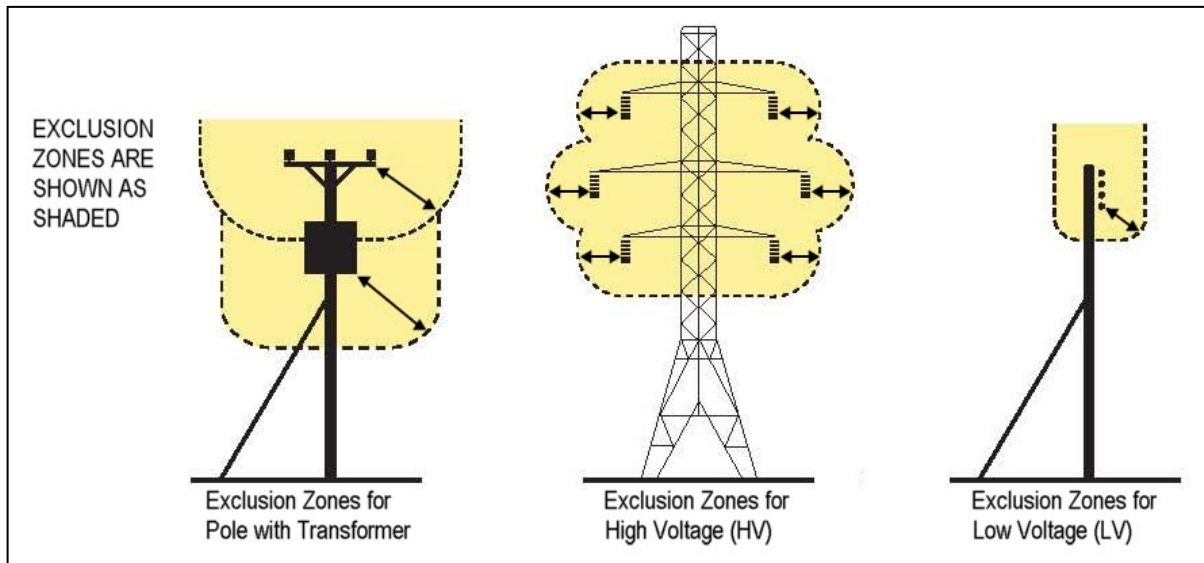


Absolute Minimum Exclusion Zones for Specific Overhead Power Lines



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Definitions of Exclusion Zones



Risk Assessment

Before starting to work near OHPLs you should always assess the risks. The following points should be observed;

Know the risks of contacting OHPLs and the risk of flashover.

Find out the maximum height and maximum vertical reach of your machine.

Find out the location and route of all Power Lines within the work area.

Find out the operating voltage of all Power Lines within the work area.

Contact the local Distribution Network Operator (DNO) who will be able to advise you on the operating voltage, safe minimum clearance distance for working and additional precautions required.

Never attempt operate the machine in an exclusion zones.

Always work with extreme caution and plan your work ahead to avoid high risk areas.

If doubt exists do not work in the area – never risk the safety of yourself or others.

Emergency Action for Accidents Involving Electricity

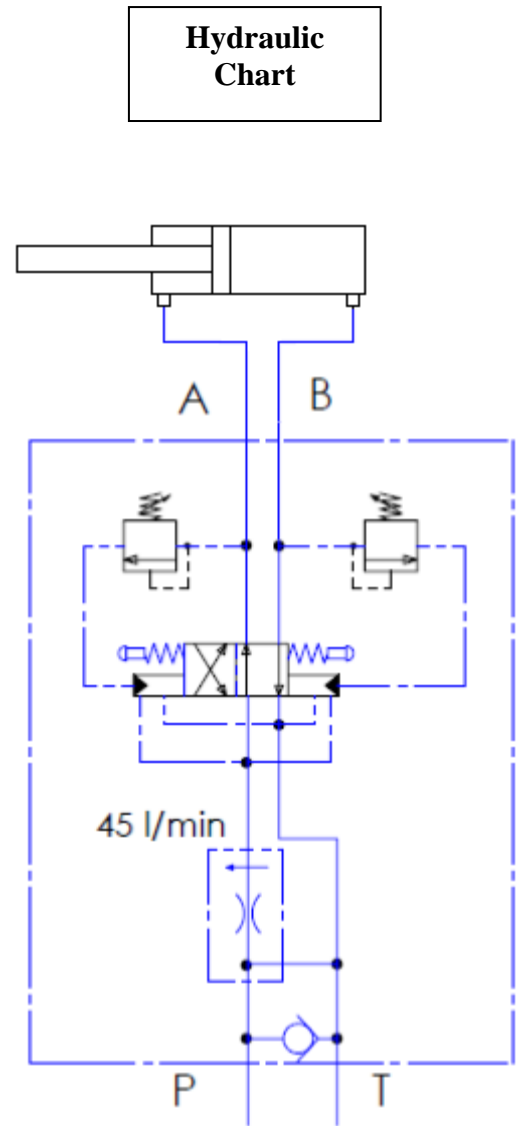
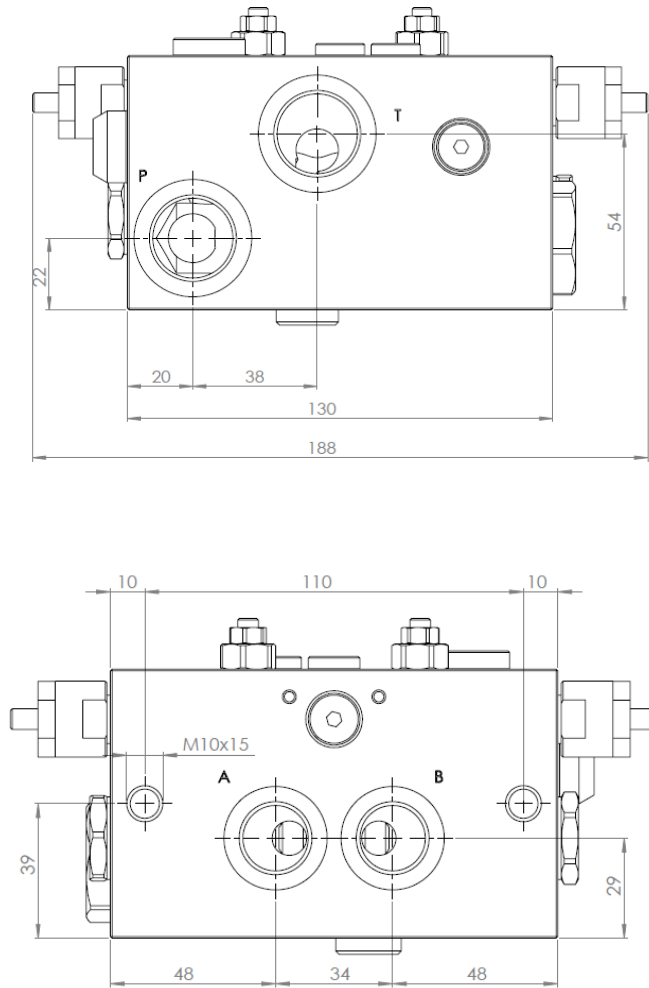
- Never touch an overhead line - even if it has been brought down by machinery, or has fallen. Never assume lines are dead.
- When a machine is in contact with an overhead line, electrocution is possible if anyone touches both the machine and the ground. Stay in the machine and lower any raised parts in contact or drive the machine out of the lines if you can.
- If you need to get out to summon help or because of fire, jump out as far as you can without touching any wires or the machine - keep upright and away.
- Get the electricity company to disconnect the supply. Even if the line appears dead, do not touch it - automatic switching may reconnect the power.

Further information and leaflets on this and other agricultural safety subjects are available on the 'Health & Safety Executive' website at the following address:

www.hse.gov.uk/pubns/agindex.htm

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Charts

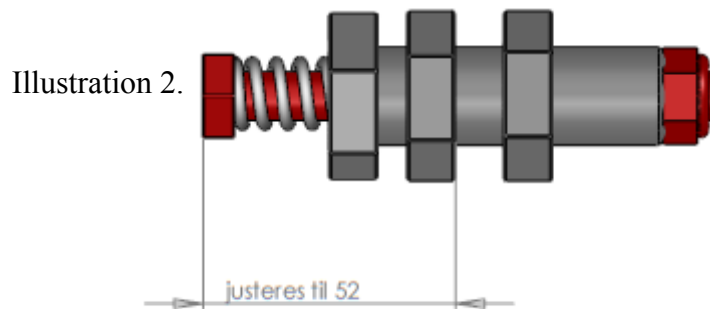


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Maintenance

Service Check / Re-tightening

- Re-tighten everything after 2 hours of operation. Pay special attention to hydraulics and cutting edges.
- Re-tighten everything after 10 hours of operation.
- Re-tighten / check all bolts every 8 hours.
- Dismount the hydraulic system protective cover and remove twigs and dirt from the housing.
- Following service, remount all shields, guards and protective plates.
- Check the spring stop bolt tension. Adjust to 52 mm. See Illustration 2.



Lubrication

Lubricate the machine every 8 operating hours. Use more lubrication when working in a particularly demanding environment.

Following cleaning:

Lubricate all machine parts and auxiliary equipment each time the machine has been cleaned.

Hydraulic Hoses

Carefully check the condition of all hoses regularly. Ensure that hoses are not rubbing against machine edges, bolts or similar.

Check the condition of all hydraulic hoses and fittings daily. Immediately correct any and all damaged or leaking parts. This is part of the daily maintenance routine and it is your responsibility to ensure that the machine will have a long service life.

Replace hoses with broken metal bands.

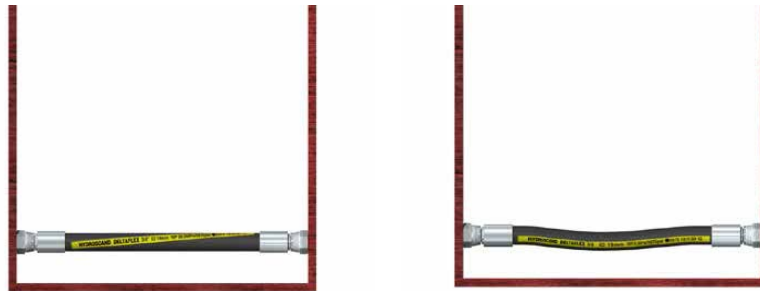
The hydraulic system uses a very high pressure. Always use original hoses. Ruptured hoses may be lethal.

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Avoid twisting the fittings when replacing a hose. Use two single-head wrenches to loosen and tighten hoses etc. Hoses will be impaired if they are twisted during installation. Pressure pulses in twisted hoses tend to stress the steel net of the hose. See Illustration 1.

Always ensure that protective hoses are in good condition. It is cheaper to replace a protective hose than to replace valuable hoses.

Illustration 1.



The warranty on the hoses covers only the replacement of hoses due to defective materials or manufacturing defects. The warranty does not cover the following:

1. Hoses that are damaged due to rubbing
2. Wear and tear
3. Hoses that have been cut or crushed during operation
4. Damage to threads due to excessive tightening

BSP (size)	Tightening torque	
1/4"	24 Nm	18 ibs/ft
3/8"	33 Nm	24 ibs/ft
1/2"	44 Nm	35 ibs/ft
3/4"	84 Nm	62 ibs/ft
1"	115 Nm	85 ibs/ft

Oil Supply

- Check the oil level in the tank every day prior to start-up.
- It is good practice to constantly check the oil level gauge as a ruptured oil hose may empty the tank in a few minutes.
- A pump or motor that runs out of oil will be damaged beyond repair.
- Change the oil if it appears contaminated (discolored).
- Oil replenishment precautions:
 - Carefully clean the area around the filler neck before removal.
 - Use a clean container when refilling the system.
 - Check the filter system regularly.
 - Never allow the oil level to fall below the liquid indicator.

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- Check daily that the hydraulic connections and fittings are in good condition. Immediately correct any and all defects or leaks. It is a part of the day-to-day maintenance that will reduce the expenses and extend the service life of the machine.
- Use two single-head wrenches for tightening fittings. Avoid excessive tightening. Change any and all fittings that keep leaking.

Table: Regular Maintenance

Service Hours	Service Points	Grease Drain	Check	Clean	Replace		
1 – 4 hours	Bolts are fully tightened				X		
	Valve block seals (change immediately in case of leakage)				X		(X)
	Check for leaking fittings and hoses				X		
	Grease and tighten Bolts and bushings		X		X		

Bolts and Bushings

All main turning points are fitted with replaceable bushings; change on signs of wear and tear. All bushing are delivered from GreenTec's spareparts warehouse.



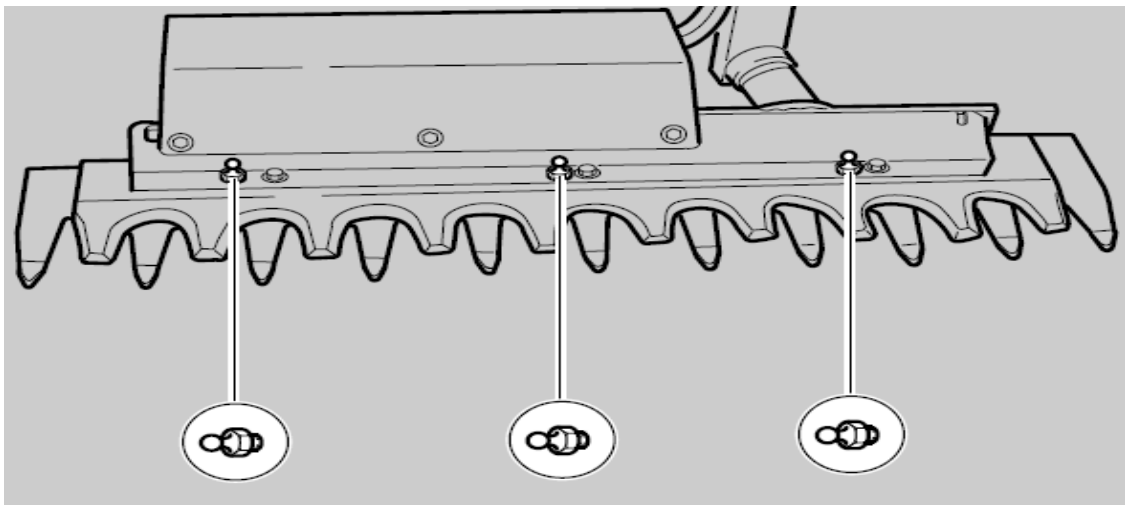
Caution!

Never use grease with molybdenum disulfide on nylon bushings or wear washers

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Storage

Carefully clean the machine before placing it in storage. Remove all traces of wood chips and dirt. Dirt attracts moisture and results in corrosion. Be careful. Never use high-pressure watercleaner close to the finish. Be very careful with steam cleaning. Rinse off all cleaning agents to prevent discoloration or damage to the finish. Grease all greasepoint until fresh grease emerges. The machine must be stored under covers or indoors to protect it from rain and sunlight. Place the machine on a level surface.



Caution!

Before attempting to repair, maintain or adjust the machine, check that the knife has stopped, the ignition key is removed, the PTO disengaged, the parking brake engaged and that the head rests safely on the ground.

Remember that regular maintenance greatly extends the service life of the machine.

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Troubleshooting

Problem	Cause	Solution
Knife is not moving	Too much oilflow	Check the oilflow
	Hoses not connected correctly	Switch the hoses
	The pump is off	Activate the pump
The knife locks after a stroke	Hoses not connected correctly	Switch the hoses
	Low pump pressure	Consult a specialist shop
Twigs have frayed ends	The knives are worn	Consult a specialist shop
		Surface-grinding of knife and bushings. Consult a specialist shop
	Knife bolts are loose	Tighten the bolts and grease well
	Too high forward speed	Adjust the speed
Knife runs too fast	Too much oilflow	Check the oilflow
	Too much oilflow	Mount the flow divider
Overheating	Incorrect tool speed	Test the speed of the tool
	Low oil level in tank	Check the oil level
	Wrong type of oil	Empty the tank, add correct type of oil
	Clotting near cutting knives	Remove branch, debris etc.

Noise Measurement

The following noise measurement was performed on the machine under normal operating conditions at GreenTec A/S using an Elma 1350B decibel meter, ICE 651 type II.

The equivalent A-weighted continuous sound pressure level is less than **85 dB (A)**.

The above measurements were taken 1 meter from the critical noise emitters of the equipment and 1.5 meters above the ground.

Spearhead MP Flail Head

Supplier Details and CE Marking

Company Name : GreenTec A/S
Address : Merkurvej 25
Zip code / Town : DK-6000 Kolding
Country : Denmark
Phone : +45 75 55 36 44
Fax : +45 75 55 42 43

CE Marking

Manufacturer : GreenTec A/S
Phone : +45 75 55 36 44
Fax : +45 75 55 42 43
Machine no. : HX 170-230 - 270
Date of delivery :
Year of delivery : 2014

Bans - Cautions - Regulations

Caution!

Always disconnected the cutter hydraulically for all types of maintenance work, repair work etc.

Caution!

Only authorized staff may perform service on the equipment

Regulation!

Read this Manual thoroughly before operating the machine.

Dismantling

Disconnect all connections.

To ensure optimal eco-friendly discarding, dismantle the machine and sort the parts into the following categories

Category:

Rubber or plastic parts
Technical components
Pure metal

Examples of parts:

Hoses, plastic components, etc.
Pumps, hydraulic hoses, etc.
Steelplates, profile tubes, gearboxes etc.

Discard the various parts according to the applicable national and European provisions

Spearhead MP Flail Head

Parts Book Contents

Ordering Your Parts.....	25
Overview – Main Parts.....	26
Ram.....	28
Two-way Valve.....	29
Cutting Knives.....	30
Transport Protection.....	31
Stickers.....	32

Spearhead MP Flail Head

Ordering Your Part's

When ordering parts please refer to your parts list to help your dealer with your order.

Part number and quantity
Description
Machine model number
Serial number of the machine
Delivery instructions (e.g. next day).

Delivery is normally via carrier direct to your dealer. Please check with your dealer for stock availability and arrangement of dispatch. Ensure you or your dealer has sufficient cover for parts requirement outside factory hours.

When ordering your seal kits please quote both codes stamped on the base of the cylinder.

Important Note

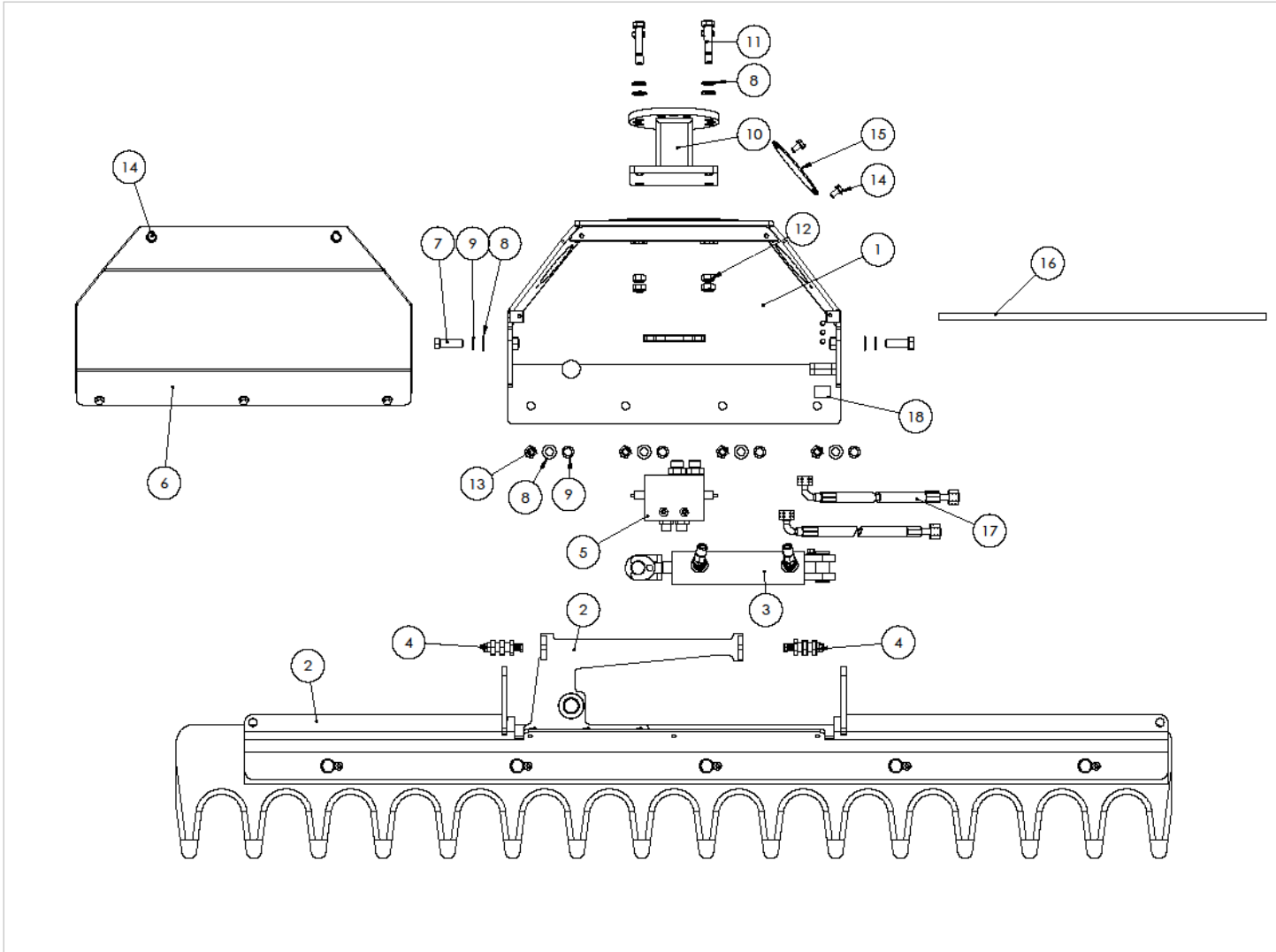
The information contained in this manual is correct at the time of publication. However, in the course of constant development, changes in specification are inevitable. Should you find the information given in this book different to the machine it relates to, please contact the "After Sales Department" for advice.

Key:

(LH) = Left hand
(RH) = Right hand

Spearhead MP Flail Head

Overview - Main Parts



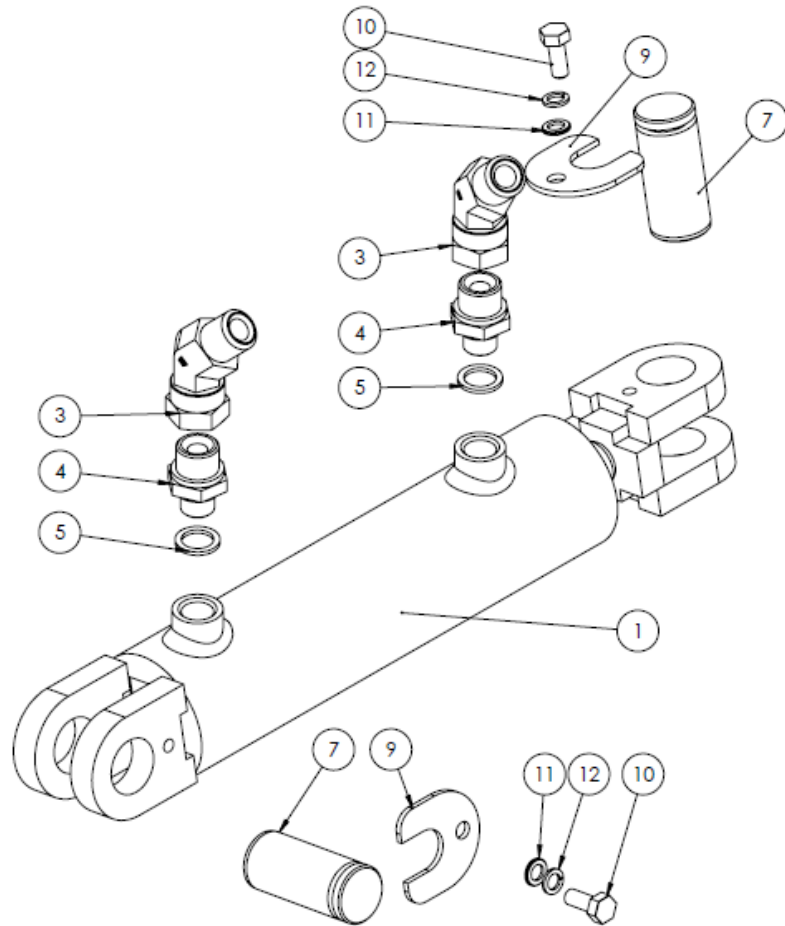
Spearhead MP Flail Head

Overview - Main Parts

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	8751501	Cylinder box	1
2	Complete cutting knife	See Cutting Knives, complete	1
3	Complete ram	See Ram	1
4	8752001	Replacement of complete spring	2
5	Complete two-way valve	See Two-way valve	1
6	8751502	Guard	1
7	933160502	Bolt M16x50	2
8	2770454	Facet washer M16	10
9	905016001	Spring washer M16	6
10	8751500	Adapter for Spearhead Twiga	1
11	2770423	Bolt M16x60	4
12	985162	Lock nut M16	4
13	933160302	Bolt M16x30	4
14	200104.0	Bolt M 10x20 Special	7
15	8751503	Cover	1
16	8751504	Rod	1
17	HX 230 hose set	See Two-way valve	1
18	8754001	Ram bush	1

Spearhead MP Flail Head

Ram

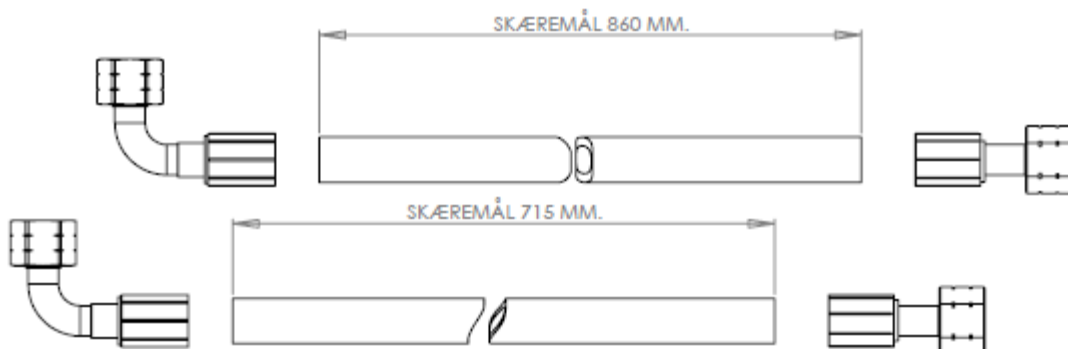
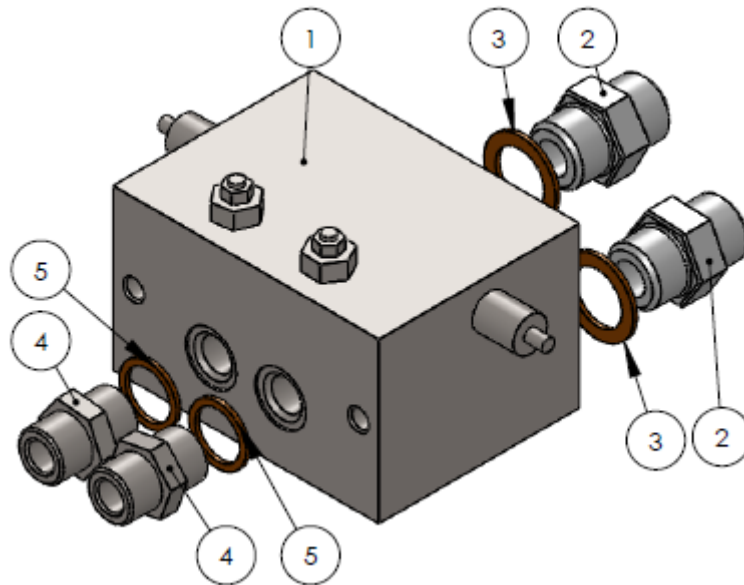


ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	8753002	Ram Ø60x150	1
* 2	8753003	Gasket set (not shown)	1
3	22BP08	Angle 90°	2
4	02BP0806	Adapter	2
5	PP45-C	Gasket	2
7	8751505	Bolt	2
9	8751506	Nut lock	2
10	931080202	Bolt M8x20	2
11	2770456	Facet washer M8	2
12	127B082	Lock washer M8	2

*= Part not shown / Teil nicht abgebildet

Spearhead MP Flail Head

Two-way Valve

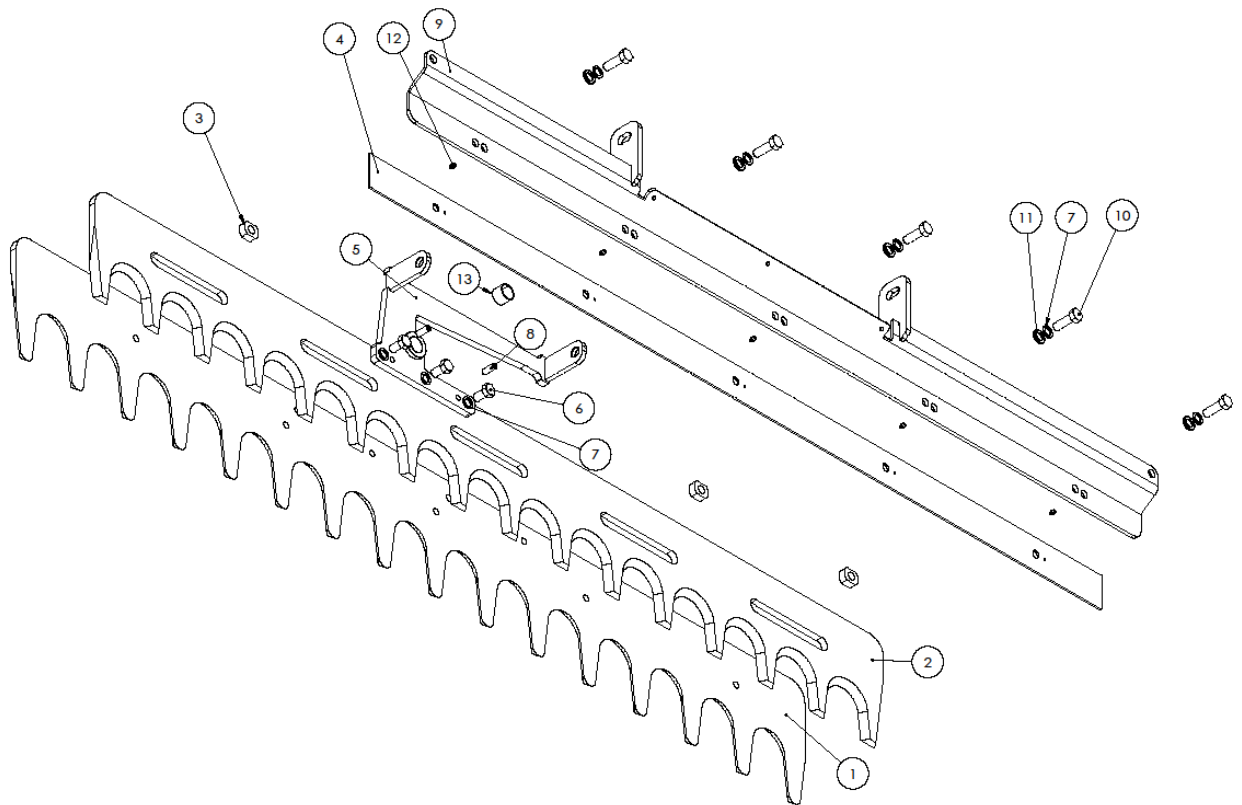


ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	8753001	Valve, complete	1
2	01BP12	Adapter 3/4"	2
3	PP45-F	Gasket 3/4"	2
4	01BP08	Adapter 1/2"	2
5	PP45-D	Gasket 1/2"	2
*	8753004	Pressure switch (side mount)	2
*	8753005	Relief valve (top mount)	2

***= Part not shown / Teil nicht abgebildet**

Spearhead MP Flail Head

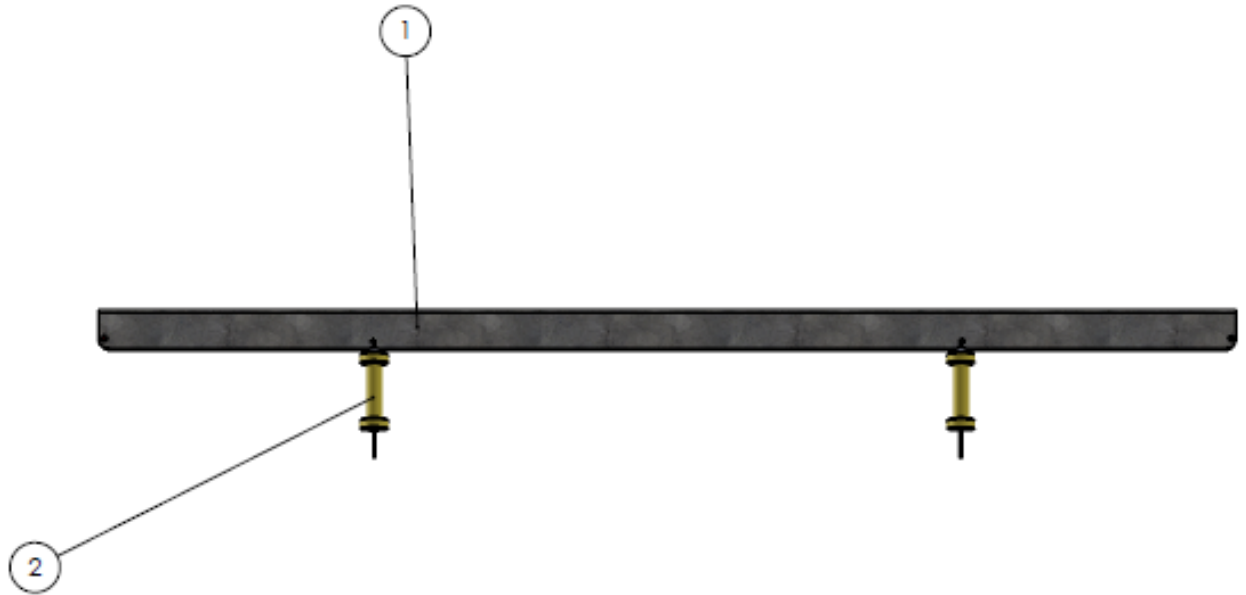
Cutting Knives



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	05-07-03-01 ver2	Cutting knife, lower	1
2	05-07-03-02 ver2	Cutting knife, upper	1
3	8751000	Wearing block	5
4	8754002 8754003 8754004	Slide bar, brass HX-170 Slide bar, brass HX-230 Slide bar, brass HX-270	1 1 1
5	Heel arm HX 230	Heel arm	1
6	933160302	Bolt M16x30	3
7	905016001	Spring washer M16	8
8	Ø12x30 tension pin	Tension pin Ø12x30	2
9	8751509 8751510 8751511	Support rail HX-170 Support rail HX-230 Support rail HX-270	1 1 1
10	933160502	Bolt M16x50	5
11	2770454	Facet washer M16	5
12	2770467	Grease-point	5
13	8754001	Bush	1

Spearhead MP Flail Head

Transport Protection



ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	8758002	Transport protection HX-170 cpl. incl. pos. 2	1
	8758003	Transport protection HX-230 kpl. incl. pos. 2	1
	8758004	Transport protection HX-270 kpl. incl. pos. 2	1
2	8758005	Handle for transport protection	2

Spearhead MP Flail Head

Stickers



50 x 24 mm



50 x 24 mm



50 x 24 mm



50 x 24 mm



50 x 24 mm



317 x 112 mm



710 x 135 mm

HX170 KITS

ITEM NO.	PART NO.	DESCRIPTION	QTY
1	HX170KITS	Transferssæt HX-170 (incl. pos. 1, 2, 3, 4, 5, 6 & 7)	1
	HX230KITS	Transferssæt HX-230 (incl. pos. 1, 2, 3, 4, 5, 6 & 7)	1
	HX270KITS	Transferssæt HX-270 (incl. pos. 1, 2, 3, 4, 5, 6 & 7)	1

Spearhead MP Flail Head

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