Original instructions

ENG 9/25

OPERATOR'S MANUAL

OMRSS05R,RSS08R,RSS11R,RSS15R,RSS23R,RSS34R,RSS45R,RSS58R,RSS80RENG.925

SCRAP SHEAR

RAMMER RSS05R, RSS08R, RSS11R, RSS15R, RSS23R, RSS34R, RSS45R, RSS58R, RSS80R

OPERATION

1. INTRODUCTION

1.1 THIS MANUAL

This manual is arranged to give you a good understanding of the product and its safe operation. It also contains maintenance information and technical specifications. Read this manual from front to back before installing, operating or maintaining the product for the first time.

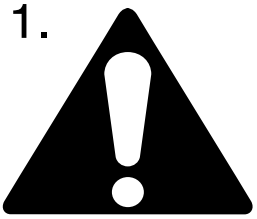
In this manual, the units of measurement are metric. For example, weights are given in kilograms (kg). In some cases, another unit follows in parenthesis (). For example 28 litres (7.4 US gal).

The specifications and designs presented in this manual are subject to change without prior notice.

SYMBOLS USED IN THIS MANUAL

This symbol identifies important safety messages within this manual. Carefully read the message that follows. Failure to understand and obey this safety warning could result in injury to you or others, and could also cause damage to product. See illustration 1.

1.



R010127

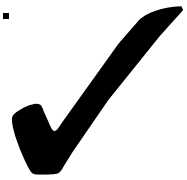
This symbol identifies prohibited action or hazardous location. Failure to understand and obey this safety warning could result in injury to you or others, and could also cause damage to product. See illustration 2.

2.

R010128

This symbol identifies correct and recommended action. See illustration 3.

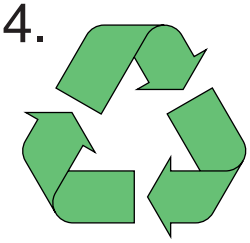
3.



R010126

This symbol identifies environmental and recycling matter. See illustration 4.

4.



R010265

1.2 IMPORTANT SAFETY INFORMATION

Basic safety precautions are outlined in the "Safety" section of this manual and in the instructions where hazards exist. These warnings are identified by a warning symbol.

To use the product correctly, you must also be a competent operator of the carrier. Do not use or install it if you cannot use the carrier. The product is a powerful tool. Used without proper care, it can cause damage.

Do not rush when you are learning to use the product. Take your time and most importantly, take it safely. Do not guess. If there is anything you do not understand, ask your local dealer.

Improper operation, lubrication or maintenance of this product can be dangerous and could result in injury.

Do not operate this product until you read and understand the instructions in this manual.

Do not perform any lubrication and maintenance on this product until you read and understand the instructions in this manual.

1.3 WARRANTY

The customer is provided with a separate warranty, where the export warranty terms are explained. Always check that this warranty is provided with the product. If not, contact your local dealer immediately.

WARRANTY REGISTRATION CARD

A warranty registration card is filled out after the installation inspection by the dealer and a copy of it is sent to the manufacturer. This card is very important because no warranty claims are handled without it. Make sure that you get a copy of it after the installation inspection and that it is correctly filled out.

INSTALLATION INSPECTION

An installation inspection must be carried out after the product has been installed on the carrier. During the installation inspection, certain specifications (operating pressure, oil flow, etc.) are checked so that they are within given limits. See “Product specifications” on page 78.

1.4 SPARE PART ORDERS

When you need spare parts or some information concerning maintenance to your product, please contact your local dealer. Quick deliveries are ensured by exact orders.

Required information:

- Name of customer, contact person
- Order number (when available)
- Delivery address
- Mode of delivery (air mail, etc.)
- Required delivery date
- Invoicing address
- Model and serial number of product
- Name, number and required amount of spare parts

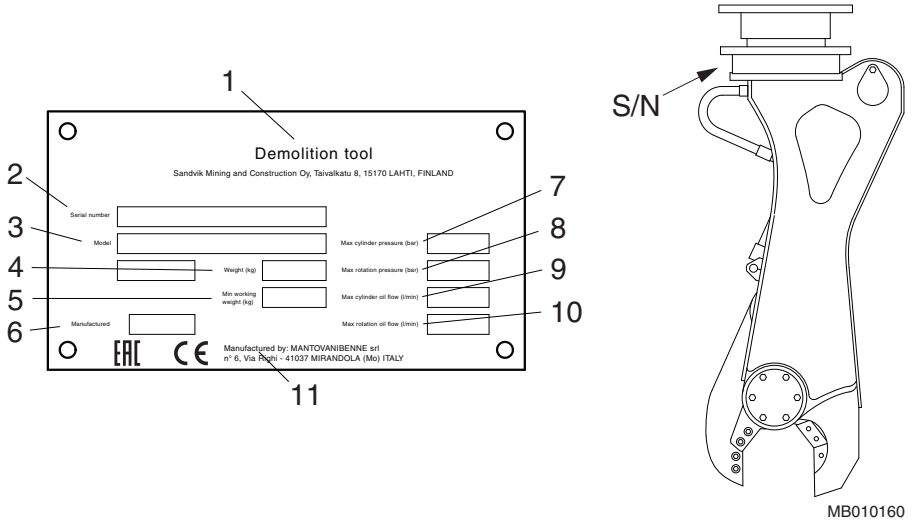
2. MACHINE NUMBERS

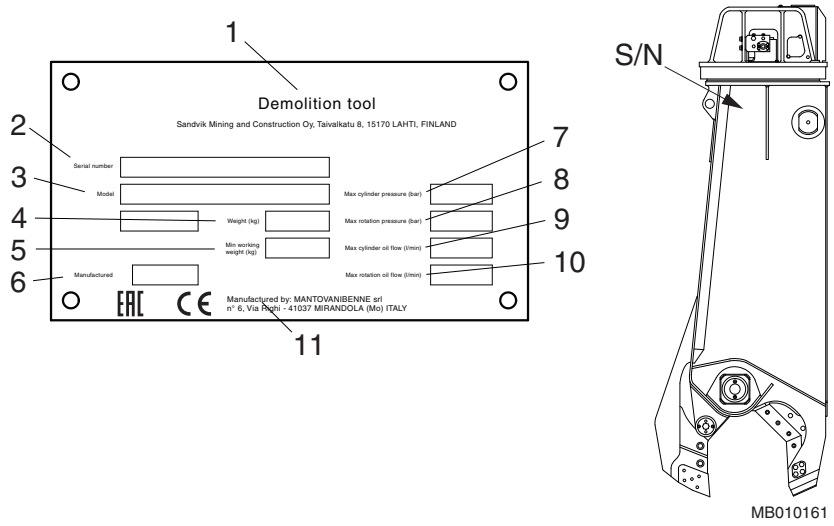
2.1 PRODUCT IDENTIFICATION

The product serial number is stamped on the product body. The model and serial number are also located on the product identification plate.

It is important to make correct reference to the serial number of the product when making repairs or ordering spare parts. Identification of the serial number is the only proper means of maintaining and identifying parts for a specific product.

See the following figure for the location of the serial number on your product model.





CONTENT OF THE PRODUCT IDENTIFICATION PLATE

1	Demolition tool
2	Serial number
3	Model
4	Weight (kg)
5	Min working weight (kg)
6	Manufactured
7	Max cylinder pressure (bar)
8	Max rotation pressure (bar)
9	Max cylinder oil flow (l/min)
10	Max rotation oil flow (l/min)
11	Manufactured by

3. PRODUCT INTRODUCTION

3.1 OVERVIEW

The product is a hydraulically operated scrap shear. It can be used on any carrier which meets the necessary hydraulic and mechanical installation requirements.

3.2 REMOVAL FROM PACKAGE

Remove all the steel belts from the package. Open the package and remove all plastics covering the product. Recycle all package materials (steel, plastic, wood) properly.

Check that the product is in good condition and that there is no visible damage. Check that all ordered parts and accessories have been enclosed with the product. Some options may be provided by your local dealer, such as installation kits, including hoses and mounting bracket.

3.3 LIFTING INSTRUCTIONS

Use a hoist when lifting components which weigh 23 kg (50 lb) or more, to avoid back injury. Make sure all chains, hooks, slings, etc., are in good condition and are in the correct capacity. Make sure hooks are positioned correctly. Do not side load the lifting eye during a lifting operation.

PROVIDED LIFTING POINTS

The lifting points located on the product frame are to be used solely to lift or handle the product itself. The lifting capacity calculation is based on the product's working weight, including an average sized mounting bracket.

Warning! To avoid falling objects, do not use the product to lift other products. The lifting points located on the product frame are to be used solely to lift or handle the product itself.

The maximum allowed total weight is shown on the product's identification plate and specification page. See “Product specifications” on page 78. If the weight exceeds the maximum allowed total weight shown on the identification plate and specification page, you will have to use other lifting points/methods than originally provided on the product.

The other threaded holes on the product are intended for handling single parts only. You must not lift the entire assembly by using these threaded holes. For handling the parts, see product workshop documentation for suitable lifting methods and lifting adapters.

LIFTING EYE SCREWS

If lifting eye screws are used, lifting eye screws must be completely tightened. The lifting eye can be loaded only if the screw is properly tightened to the frame.

Failure to properly tighten the screw before allowing load pressure on the lifting eye may cause lifting eye to break and free fall of the product.

If you use mechanical tools for tightening, make sure not to overstrain the shank. Before lifting, make sure that the rope and/or hook is stretched.

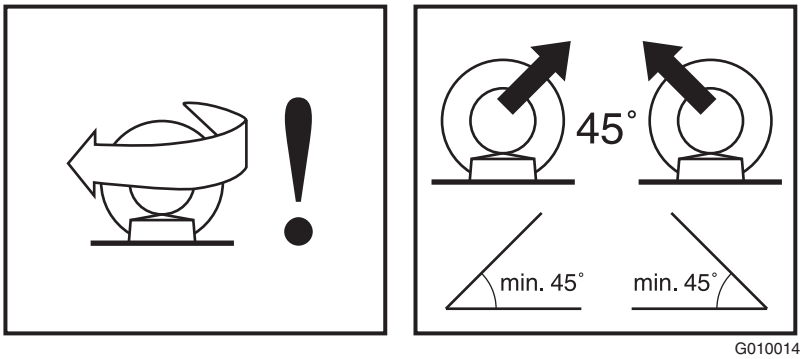
When two lifting points are used, the lifting capacity depends on the angle of the lifting chains. The angle should not be less than 45°, as shown in the illustration. When the lifting eye screws are tightened, both rings should be aligned.

The loading capacity calculation applies to temperatures between -10 °C (14 °F) and 40 °C (104 °F).

Before reuse of lifting eye screws, make sure there are no surface flaws (for example pits, voids, folds and seams, deformation of the ring, missing or broken threads, rust, etc.).

The local, national safety standards for machines and lifting-tackles must always be strictly observed.

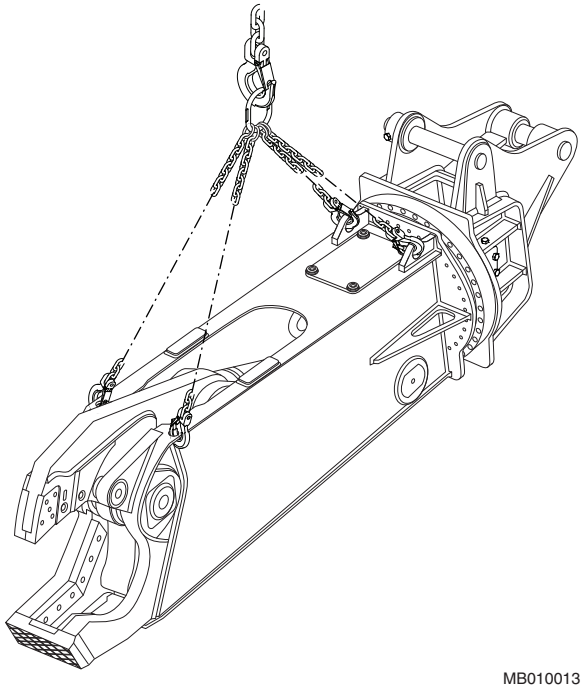
Note: The lifting eye must always be removed from the product and replaced with a screw before operation.



G010014

Lifting devices must safely carry the working weight of the product. See “Product specifications” on page 78.

Place a chain or sling as shown in the illustration to lift the product.



MB010013

Note: The lifting eye screws must always be removed from the product and replaced with a screw before operation.

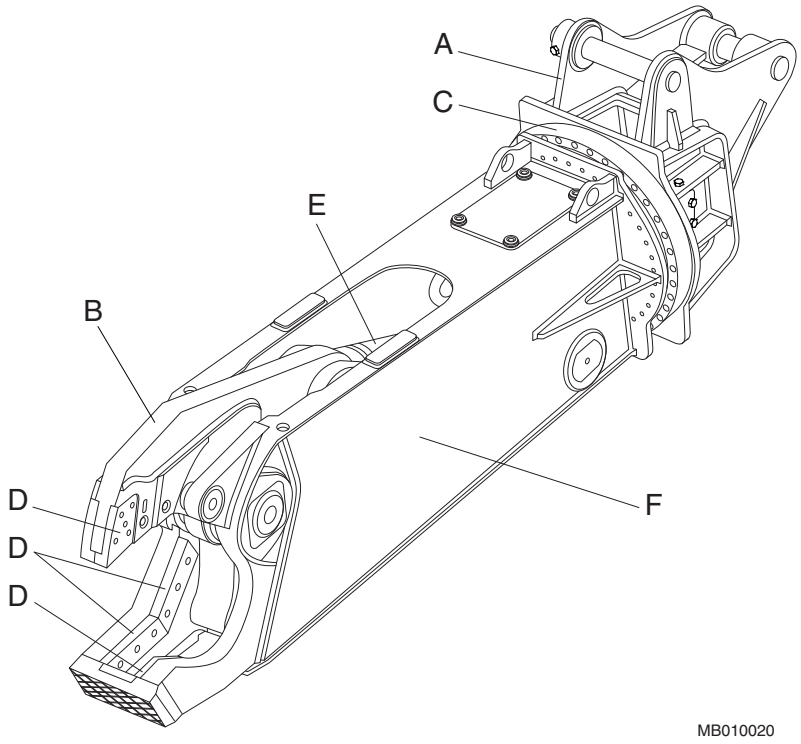
SAFETY INSTRUCTIONS FOR LIFTING

Below are some common safety instructions concerning lifting operations. In addition to this, the local, national standards for machines and lifting-tackles must always be strictly observed. Please note that the list below is not all inclusive, you must always ensure the procedure you choose is safe for you and others.

- Do not lift the load over people. No one must be under the hoisted load.
- Do not lift people and never ride the hoisted load.
- Keep people clear from the lift area.
- Avoid side pull of the load. Make sure you take up the slack slowly. Start and stop carefully.
- Lift the load a few centimeters and verify it before proceeding. Make sure the load is well balanced. Check for any loose items.
- Never leave the suspended load unattended. Maintain load control at all times.
- Never lift the load over the rated capacity (see the product's operating weight from the specification page).
- Inspect all lifting product before use. Do not use twisted or damaged lifting product. Protect lifting product from sharp corners.
- Obey all local safety instructions.

3.4 MAIN PARTS

The main parts of the scrap shear are shown below.



A. Mounting bracket

B. Jaw

C. Thrust bearing

D. Cutting blades

E. Cylinder

F. Frame

4. SAFETY AND ENVIRONMENTAL INSTRUCTIONS

4.1 SAFETY IN GENERAL

All mechanical products can be hazardous if operated without due care or correct maintenance. Most accidents involving machine operation and maintenance are caused by failure to observe basic safety rules or precautions. An accident can often be avoided by recognizing potentially hazardous situations before an accident occurs.

Because it is impossible to anticipate every possible circumstance that might involve a potential hazard, the warnings in this guide and on the product are not all inclusive. If a procedure, tool, working method or operating technique not specifically recommended by manufacturer is used, you must satisfy yourself that it is safe for you and others. You should also ensure that the product will not be damaged or made unsafe by the method of operation or maintenance procedures you choose.

Safety is not just a matter of responding to the warnings. All the time you are working with your product you must pay attention to what hazards there might be and how to avoid them. Do not work with the product until you are sure that you can control it. Do not start any job until you are sure that you and those around you will be safe.

Warning! Read the following warning messages carefully. They tell you of different hazards and how to avoid them. If proper precautions are not taken, you or others could be seriously injured.

4.2 SAFETY INSTRUCTIONS

MANUALS

Study this manual before installing, operating or maintaining the product. If there is anything you do not understand, ask your employer or your local dealer to explain it. Keep this manual clean and in good condition.

The related safety label on the product and the text on the label are shown below.

"IGNORING INSTRUCTIONS HAZARD

Faulty handling practice could cause death or serious injury.

Read and follow the instructions in the operator's manual."

R010348

CARE AND ALERTNESS

All the time you are working with the product, take care and stay alert. Always be alert for hazards. The possibility of a serious or even fatal accident is increased when you are intoxicated.

CLOTHING

You can be injured if you do not wear proper clothing. Loose clothing can get caught in the machinery. Wear protective clothing to suit the job.

Examples are: a safety helmet, safety shoes, safety glasses, well-fitting overalls, ear-protectors and industrial gloves. Keep cuffs fastened. Do not wear a necktie or scarf. Keep long hair restrained.

PRACTICE

You and others can be killed or injured if you perform unfamiliar operations without practicing them first. Practice away from the job site, in a clear area.

Keep other people away. Do not perform new operations until you are sure you can do them safely.

REGULATIONS AND LAWS

Obey all laws, work site and local regulations which affect you and your product.

COMMUNICATIONS

Bad communications can cause accidents. Keep people around you informed of what you will be doing. If you will be working with other people, make sure they understand any hand signals you will be using.

Worksites can be noisy. Do not rely on spoken commands.

WORKSITE

Worksites can be hazardous. Inspect the site before working on it.

Check for potholes, weak ground, hidden rocks, etc. Check for utilities (electric cables, gas and water pipes, etc.). Mark the positions of cables and pipes.

Poor visibility can cause accidents and damage. Make sure that visibility and lighting in the working area are adequate.

Worksites can be noisy. Wear ear protection to prevent personal injury.

BANKS AND TRENCHES

Banked material and trenches can collapse. Do not work too close to banks and trenches where there is a danger of collapse.

SAFETY BARRIERS

Unguarded product in public places can be dangerous. Place barriers around machinery to keep people away.

AIRBORNE POLLUTANTS

The related safety label on the product and the text on the label are shown below.

"DUST HAZARD

Breathing dust will cause death or severe injury.

Always wear approved respirator."

R010349

Airborne pollutants are microscopic particles, which will damage your health when inhaled. Aiborne pollutants on construction sites can be for example silica dust, oil fumes or diesel exhaust particles, visible or invisible. Especially in demolition sites, there may be other dangerous substances, such as asbestos, lead paints or other chemical substances.

The effect of airborne pollutants may be immediate if the substance is poisonous. The main danger with airborne pollutants comes from long term exposure, where particles are inhaled but not removed from the lungs. The disease is called silicosis, asbestosis or other, and will result in death or serious injury.

To protect yourself from airborne pollutants, always keep excavator doors and windows closed during operation. Excavators with pressurized cabins should be utilized in product operation. Proper maintenance of fresh air filters of the excavator is essential. Where pressurized cabins are not available, proper respirators must be utilized.

Stop working when bystanders are in the area of airborne pollutants and make sure they have proper respirators. Respirators are as important for bystanders as hard hats.

Respirators for both operator and bystanders must be approved by the respirator manufacturer for the application in question. It is essential that the respirators protect from the tiny dust particles which cause silicosis and which may cause other serious lung diseases. Do not use the product until you are sure the respirators are working properly. This means each respirator must be checked to make sure that it is clean, that its filter has been changed, and to otherwise make sure the respirator will protect in the way it is meant to.

Always make sure dust has been cleaned off your boots and clothes when you leave your shift. The smallest particles of dust are the most harmful. They may be so fine that you cannot see them. Remember, you MUST protect yourself and bystanders from the danger of breathing or inhaling dust.

Always follow local laws and regulations for airborne pollutants in the working environment.

FLYING DEMOLITION DEBRIS

The safety label on the product is shown below:

"FLYING OBJECTS HAZARD

Fragments fly up to 40 m (130 ft) and could cause death or serious injury.

Stop operation when a person enters hazard zone.

Wear approved personal protective equipment."

R010350

Protect yourself and your surroundings from flying debris. Do not operate the product or carrier with people around it.

The European standard EN 474-1 on safety of earth-moving machinery requires that adequate operator's protection, such as bullet proof glass, mesh guard or an equivalent protection is used.

Keep the cabin windows and doors closed during operation. Window bars are recommended to protect the windows from flying debris.

CRUSHING HAZARD

The safety label on the product is shown below:

"CRUSHING HAZARD

Contact with moving parts or material could cause death or severe injury.

Keep yourself and bystanders out of hazard zone."

G010031

COLLAPSING CONCRETE FRAMES

Protect yourself and your surroundings from collapsing concrete frames. Do not operate the product or carrier with people around it.

PRODUCT LIMITS

Operating the product beyond its design limits can cause damage. It can also be dangerous. See “Product specifications” on page 78.

Do not try to upgrade the product's performance by unapproved modifications.

HYDRAULIC FLUID

Fine jets of hydraulic fluid at high pressure can penetrate the skin. Do not use your fingers to check for hydraulic fluid leaks. Do not put your face close to suspected leaks. Hold a piece of cardboard close to suspected leaks and then inspect the cardboard for signs of hydraulic fluid. If hydraulic fluid penetrates your skin, seek medical help immediately.

Hot hydraulic fluid can cause severe injuries.

HYDRAULIC HOSES AND FITTINGS

Ensure all hydraulic components will withstand maximum pressure and mechanical stresses caused by operation of the product. Consult your local dealer for instructions.

FIRE HAZARD

Most hydraulic fluids are flammable and might ignite when contacting hot surface. Avoid spilling hydraulic fluid to hot surfaces.

Working with the product on certain materials can cause sparks and hot splinters to get loose. These can ignite flammable materials around working area.

Ensure that adequate extinguisher is available.

HYDRAULIC PRESSURE

Hydraulic fluid at system pressure can injure you. Before disconnecting or connecting hydraulic hoses, stop the carrier engine and operate the controls to release pressure trapped in the hoses. During operation, keep people away from the hydraulic hoses.

There might be pressurized oil trapped inside the product even if it is disconnected from the carrier. Be aware of possible unexpected movements of the product while maintaining product.

LIFTING EQUIPMENT

You can be injured if you use faulty lifting equipment. Make sure that lifting equipment is in good condition. Make sure that the lifting tackle complies with all local regulations and is suitable for the job. Make sure that the lifting equipment is strong enough for the job and you know how to use it.

Do not use this product or any of its parts for lifting. See “Lifting instructions” on page 11. Contact your carrier dealer to find out how to lift with your carrier.

SPARE PARTS

Use only genuine spare parts. Use only genuine cutting blades with scrap shears. The use of other spare part or cutting blade brands may damage the product.

PRODUCT CONDITION

Defective product can injure you or others. Do not operate product which is defective or has missing parts.

Make sure the maintenance procedures in this manual are completed before using the product.

REPAIRS AND MAINTENANCE

Do not try to do repairs or any other maintenance work you do not understand.

MODIFICATIONS AND WELDING

Non-approved modifications can cause injury and damage. Contact your local dealer for advice before modifying the product. Before welding on the product while it is installed on the carrier, consult your carrier dealer for precautions in welding.

METAL SPLINTERS

You can be injured by flying splinters when driving metal pins in and out. Use soft-faced hammer or drifts to remove and fit metal pins, such as pivot pins. Always wear safety glasses.

LABELS ON THE PRODUCT

Safety labels communicate the following four things:

- The severity level of the risk (that is signal word "DANGER" or "WARNING").
- The nature of the hazard (such as high pressure, dust, etc.).
- The consequence of interaction with the hazard.
- How to avoid the hazard.

You must ALWAYS follow the instructions in the safety messages, the messages in the product safety labels and the instructions set forth in the manuals to avoid death or severe injury!

Keep the safety labels clean and visible at all times. Check the condition of safety labels daily. Safety labels and instructions which have disappeared, been damaged, painted over, come loose, or do not meet the legibility requirements for safe viewing distance must be replaced before operating the product.

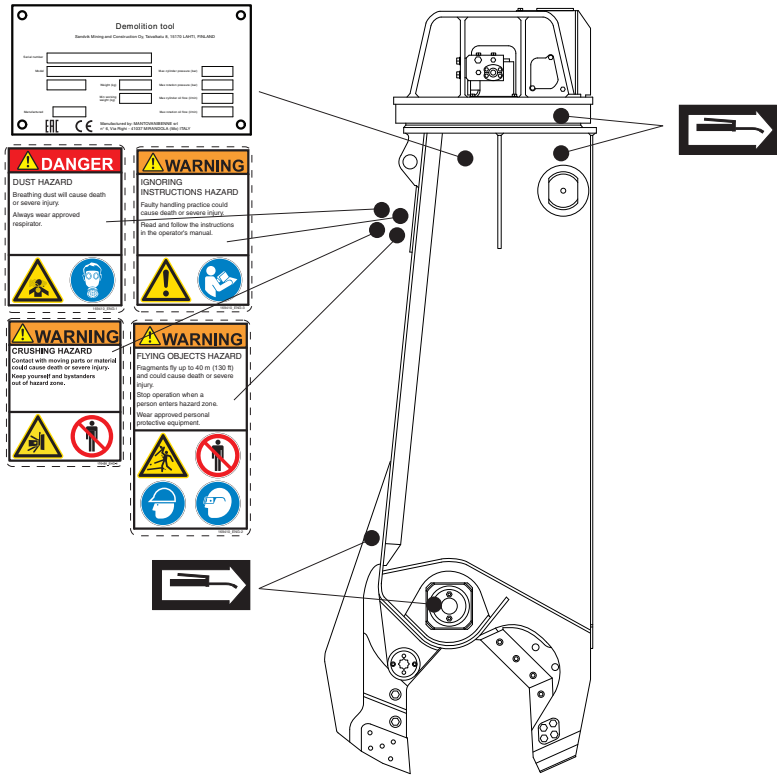
If a safety label is attached to a part that is replaced, install a new safety label on the replacement part. If this manual is available in your language, then the safety labels should be available in the same language.

There are several specific safety labels on this product. Please become familiarized with all safety labels. The location of the safety labels is shown in the illustration below.

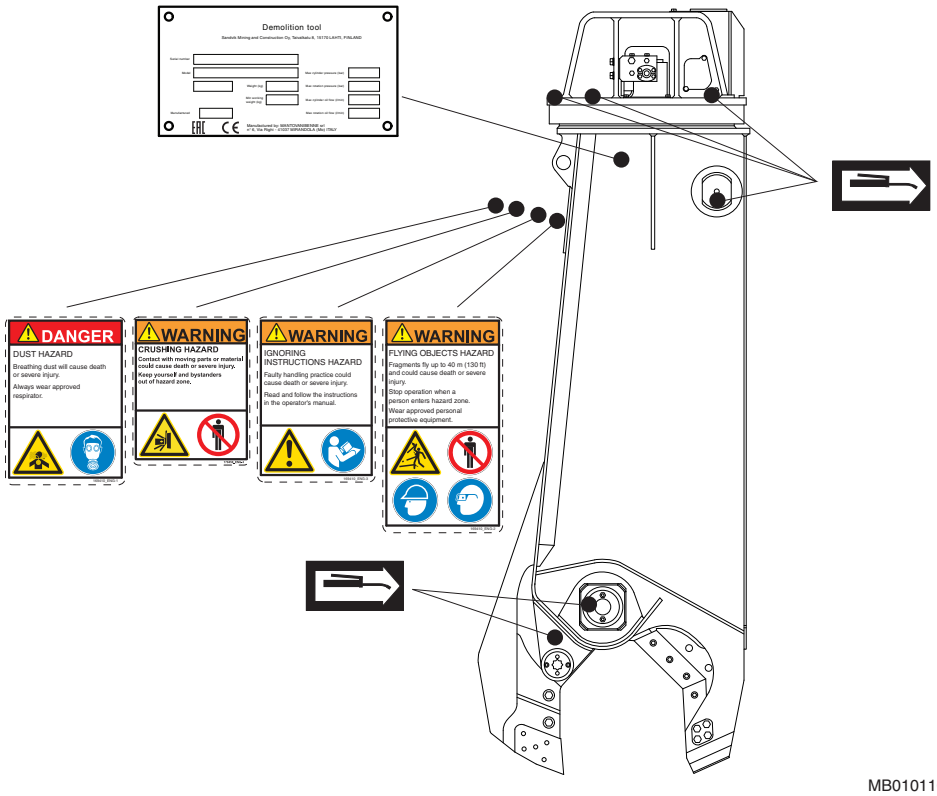
When you clean the safety labels, use a cloth, water and soap. Do not use solvent, gasoline or other harsh chemicals to clean the safety labels.

Solvents, gasoline or harsh chemicals could loosen the adhesive that secures the safety labels. Loose adhesive will allow the safety label to fall.

RSS08R



RSS15R



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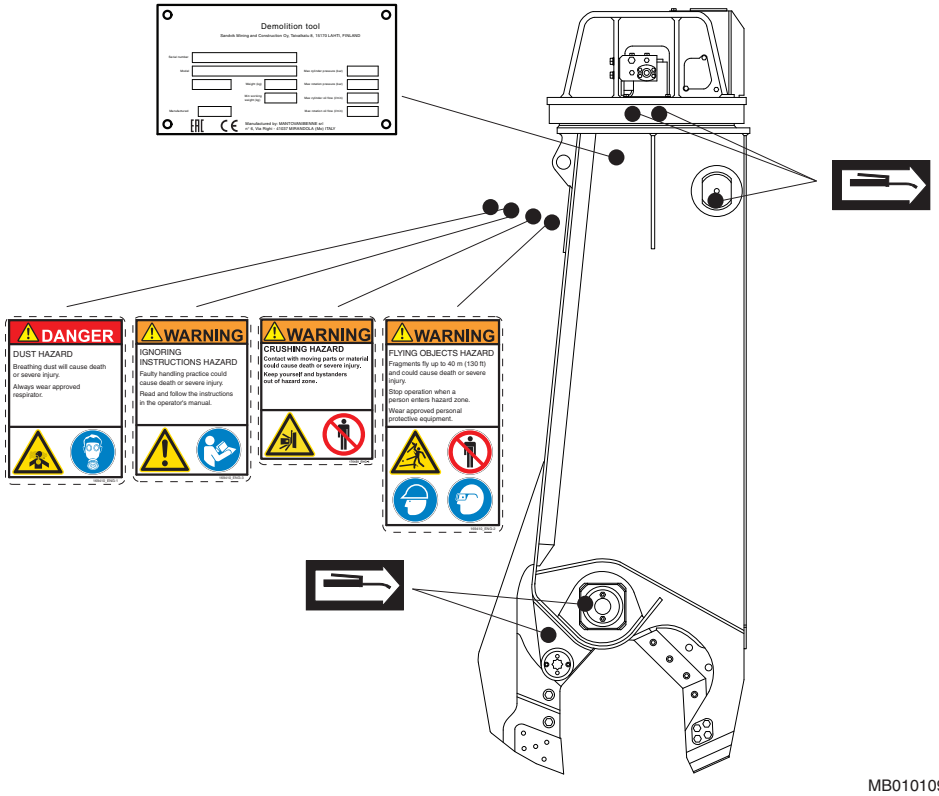
RSS23R



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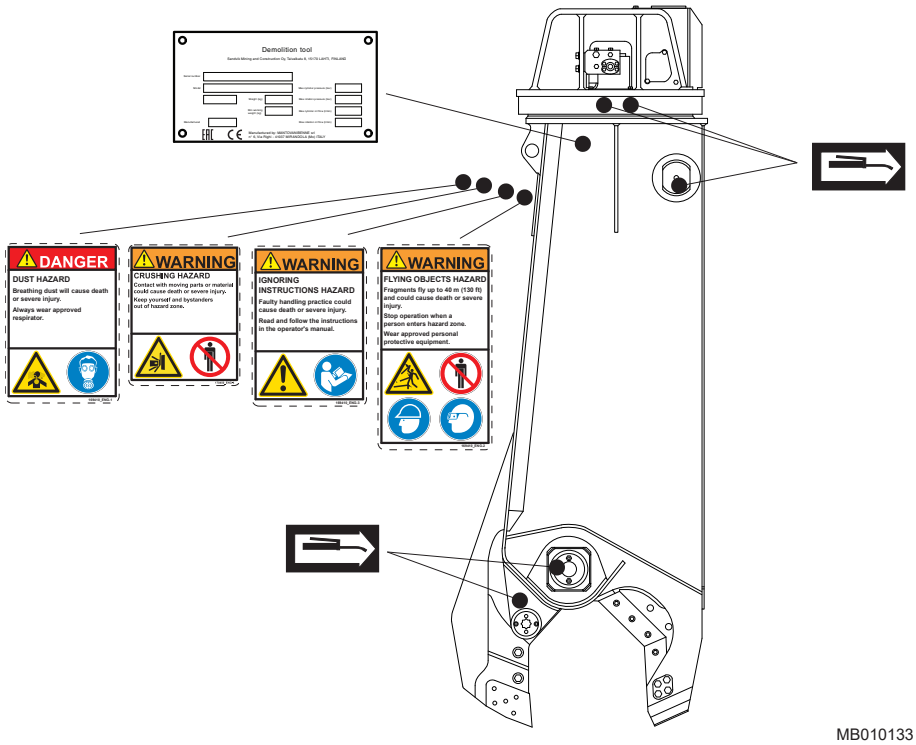
RSS34R



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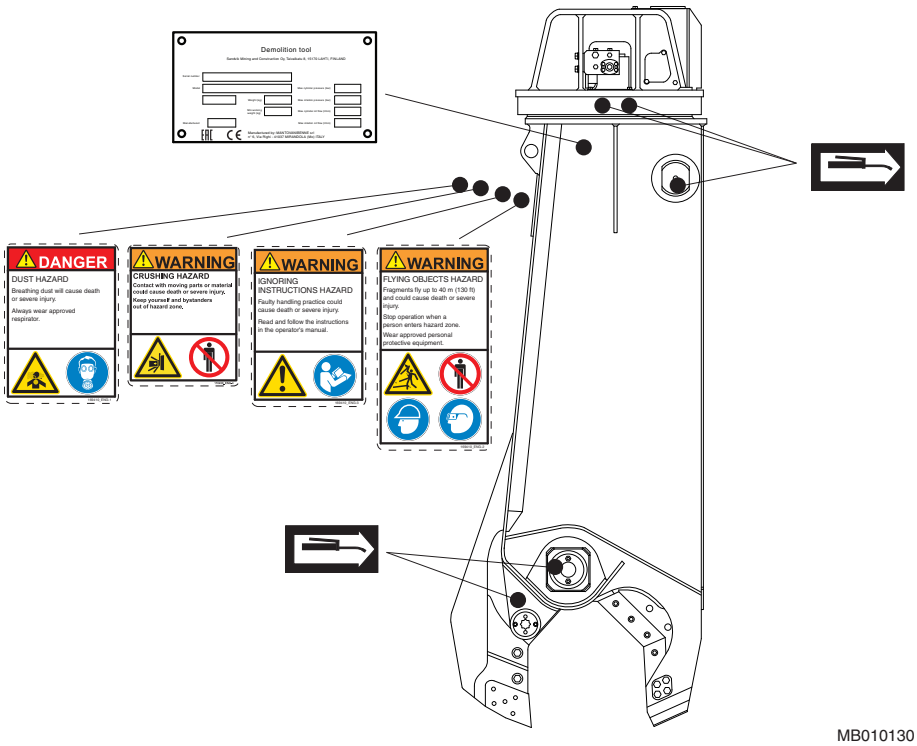
RSS45R



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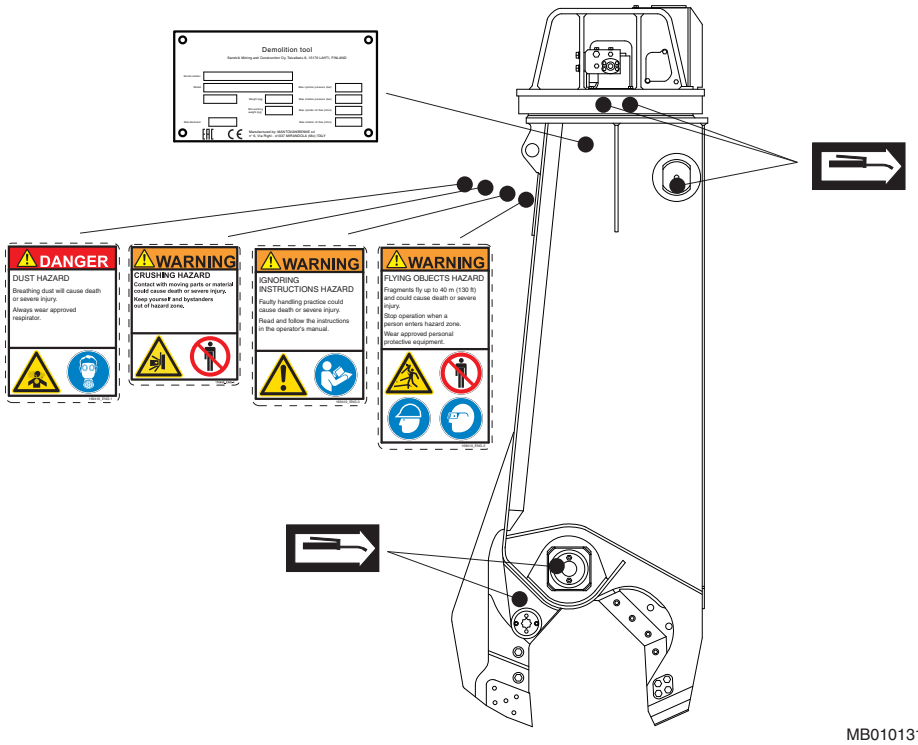
RSS58R



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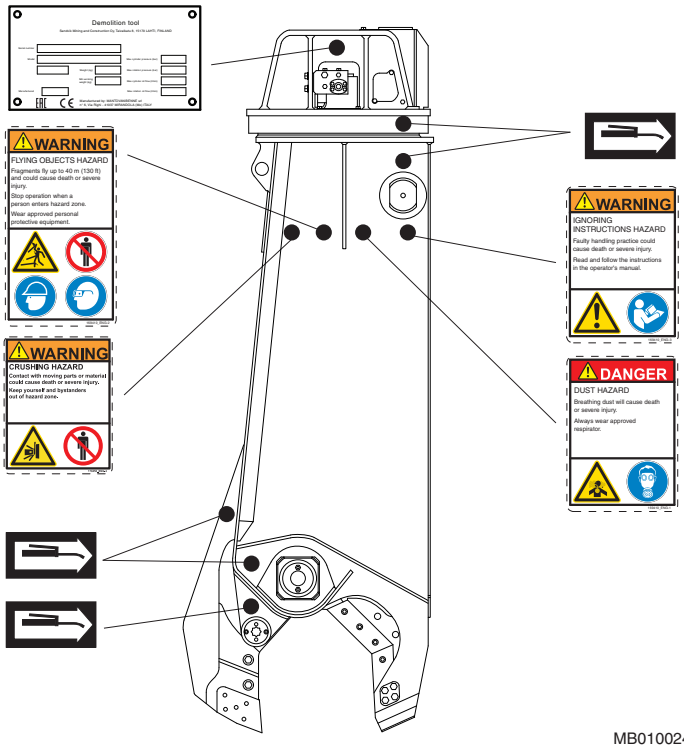
RSS05R, RSS11R, RSS80R



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4.3 ENVIRONMENTAL PROTECTION AND RECYCLING POLICY

Rammer products support the recycling of materials to help customers achieve their environmental objectives. During manufacturing all necessary precautions are taken to make sure that no harm is done to the environment.

Every effort is made to foresee and minimize the risks that might be associated with the operation and maintenance of Rammer products, and which could pose danger to humans or the environment. We support customers in their efforts to consider the environmental protection in their everyday work.

When working with a Rammer product please follow these guidelines:

- Dispose of packaging materials properly. Wood and plastic can be burned or recycled. Deliver the steel belts to metal recycling center.
- Protect the environment from oil spills.

  In case of hydraulic oil leaks, the product should be serviced immediately.

  Follow the product's greasing instructions and avoid excessive greasing.

  Be careful when handling, storing and transporting oils.

  Dispose of empty oil or grease containers appropriately.

  Consult local authorities for detailed instructions.
- All metal parts of the product can be recycled by delivering them to an authorized scrap metal collection facility.
- Comply with local waste classification rules when disposing of used rubber or plastic parts (wear plates, seals).

Consult with your local dealer for more information.

5. OPERATION

5.1 OPERATING INSTRUCTIONS

RECOMMENDED USE

The scrap shear is designed for use in cutting steel sections and scraps with maximum efficiency to prepare them for the furnace or for transport. For more information, contact your local dealer.

OPERATING CONDITIONS

Principles of installation

Almost all carriers meeting the mechanical and hydraulic requirements of the product can be used. See “Product specifications” on page 78. The product is installed on the carrier in much the same way as installing a bucket or other attachment. A flange-mounted product also requires a separate mounting bracket.

The product is connected to a carrier's hydraulic circuit with an installation kit. If the carrier is already fitted with an installation kit, the installation requires only suitable hoses and fittings. For product installation, secondary relief valves in the bucket cylinder circuit and the carrier auxiliary circuit are needed. If the carrier does not have a suitable kit to run attachments, one must be built. This may require a more complex installation, including new piping and additional valves such as a flow control valve or pressure relief valve.

Suitable kits can be ordered from the manufacturer or their local dealers, carrier manufacturers and their dealers, or third party suppliers.

Note: In models equipped with a system to prevent rotation of the product, remember to unlock the system before starting operation. See “Mounting and dismounting the product” on page 36.

Hydraulic oil

In general, the hydraulic oil originally intended for the carrier can be used with this product. See “Requirements for hydraulic oil” on page 50.

Operating temperature

The operating temperature is -20 °C (-4 °F) to 80 °C (176 °F). If you must work in a temperature lower than -20 °C (-4 °F), the product must be preheated before any operation can begin. Start the operation with low hydraulic flow.

Note: The temperature of the hydraulic oil must be monitored. Ensure that oil grade and monitored oil temperature together guarantee correct oil viscosity. See “Requirements for hydraulic oil” on page 50.

PRINCIPLES OF OPERATION

The operation of the product is based on a static force produced by the hydraulic cylinder of the product. To increase the product's working life, pay particular attention to correct working methods.

Cutting is performed with cutting blades at the rear of the jaws. The cutting blades can be reversed.

JAWS, TEETH AND CUTTING BLADES

Jaws

The jaws are operated by the hydraulic cylinder. One jaw is fixed and the other, equipped with breaking teeth, is moving. Crushing is performed using the crushing teeth of the jaws.

Cutting blades

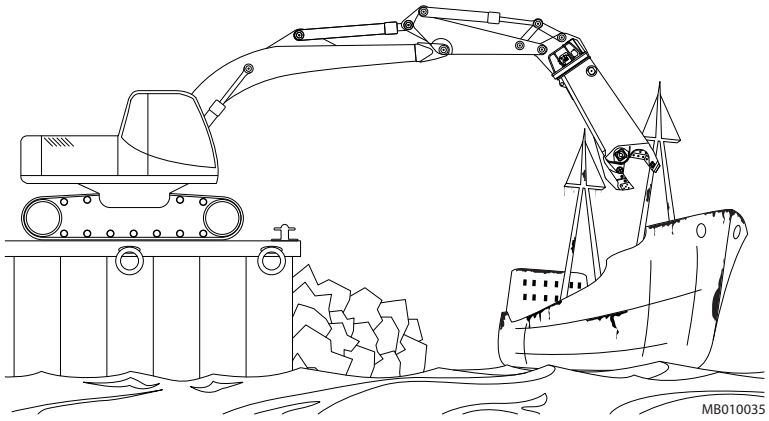
The cutting blades are fastened with screws. You can turn them to use unused cutting edges or replace them with new cutting blades. See “Turning and changing cutting blades” on page 60.

5.2 DAILY OPERATION

Warning! Protect yourself and your surroundings from flying debris and collapsing concrete frames. Do not operate the product or carrier with people around it.

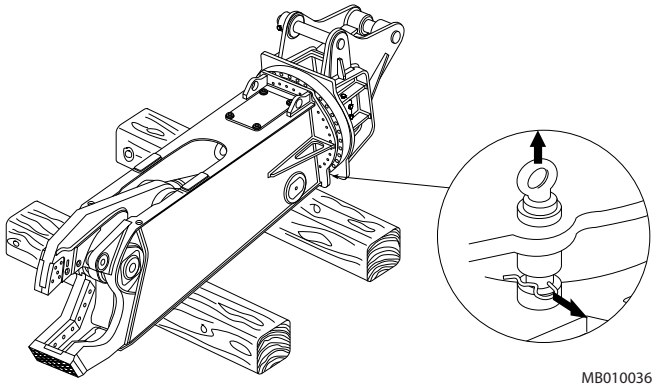
The product, as a standard assembly, must not be used under water. It must be adapted for underwater applications. Contact your local dealer for more information on underwater use.

After operating the product under water or in environments close to the sea, carefully wash the product. Subsequently disassemble the hinges and carefully clean the pins and bushings to remove all traces of oxidation. Lastly, grease the disassembled parts.

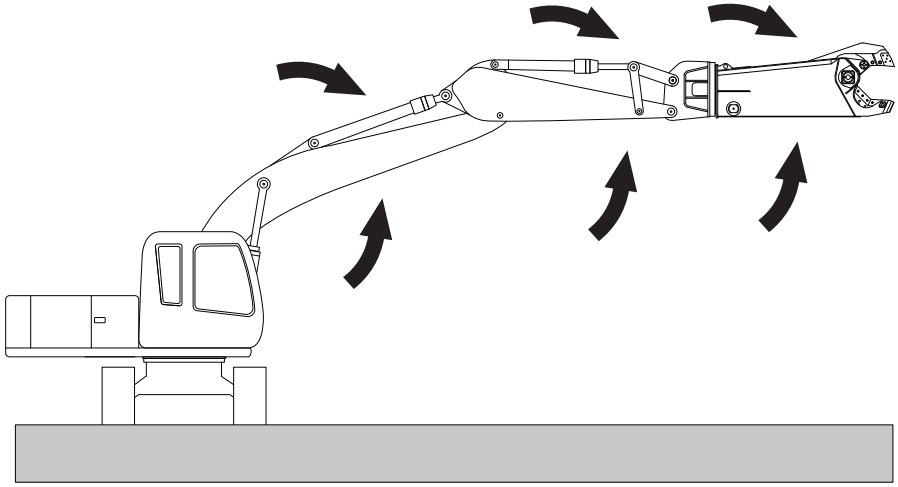

MB010035

In models equipped with a rotation prevention system, remember to unlock the system before starting operation.

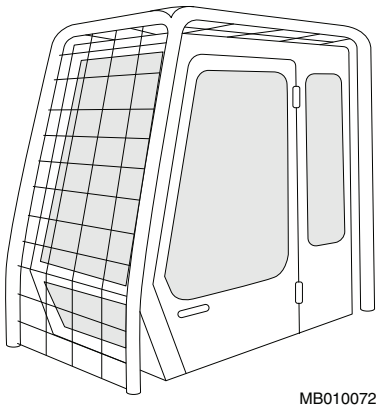
Remove the cotter pin and take out the locking pin.


MB010036

- Prepare the carrier for normal excavation work. Move the carrier to the required position. Set the drive to neutral.
- Set the engine speed to the recommended engine RPM.
- NOTICE! Carefully operate the carrier controls to place the product and boom into the working position. Quick and careless boom movements can result in damage to the product.


MB010071

- Use a safety screen to protect the operator from flying debris. Keep the cabin windows and doors closed during operation.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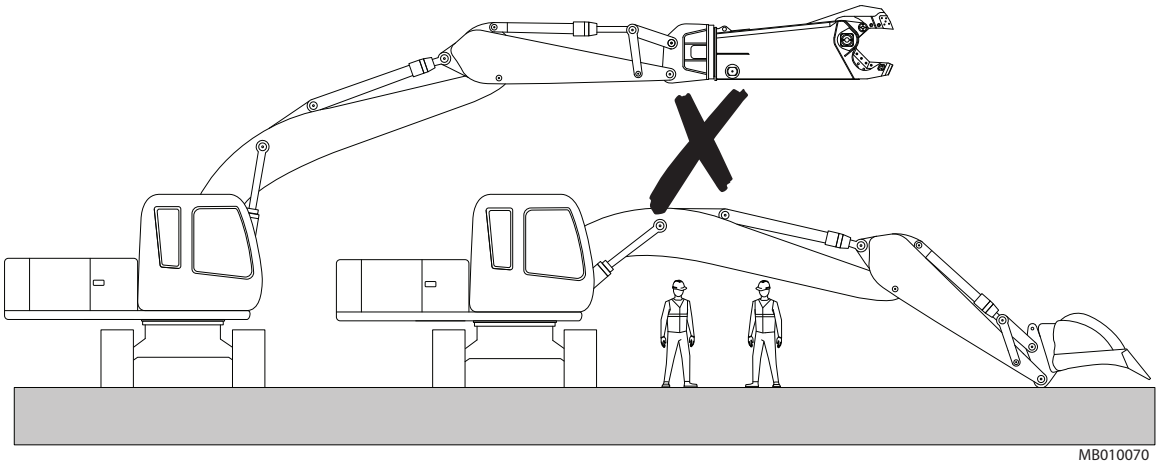
- Do not move or cut material over people, the excavator cab, or other operating machines.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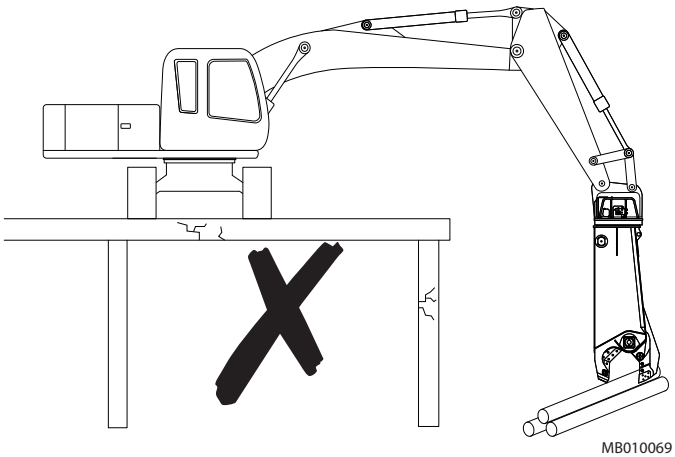
- To avoid a dangerous fall, ensure that the structure your carrier is on is strong enough to support it.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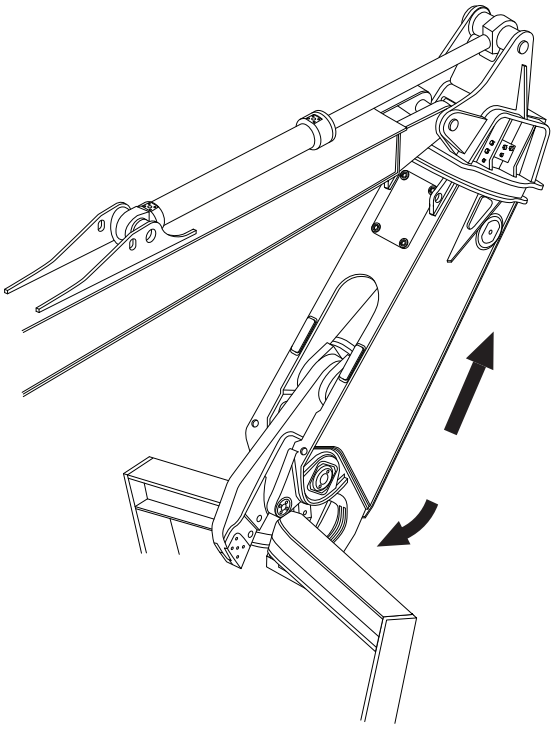
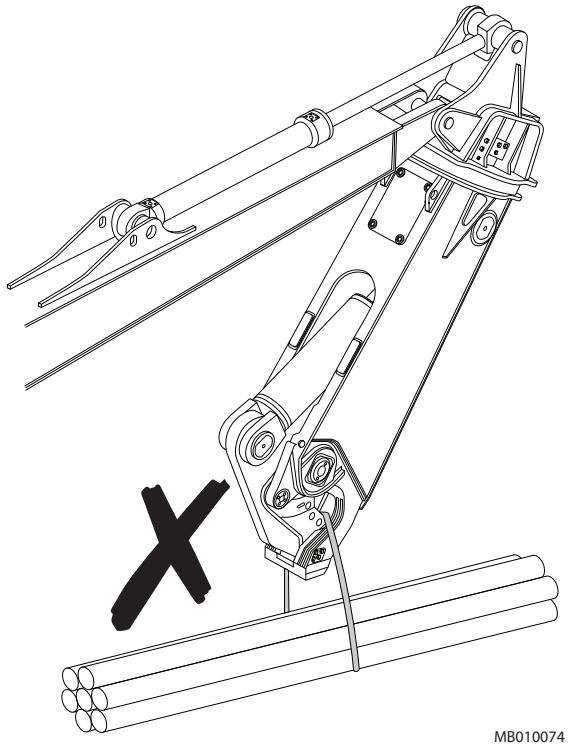
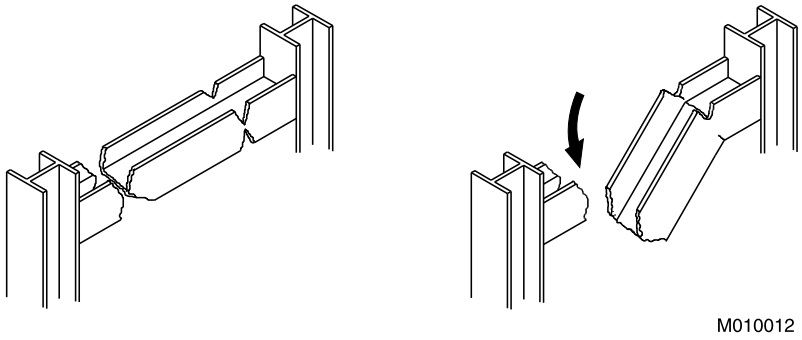
- Do not operate excavator hydraulic cylinders when the jaws are closed. Bending the object up and down when the jaws are pressed on it may cause excessive wearing of teeth and cutting blades.


MB010073

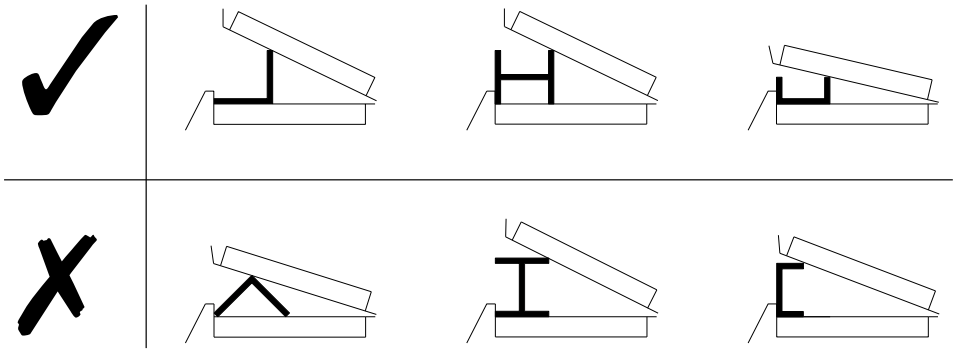
- Do not use the product for lifting. Lifting eyes on the product are for storage and maintenance purposes only.



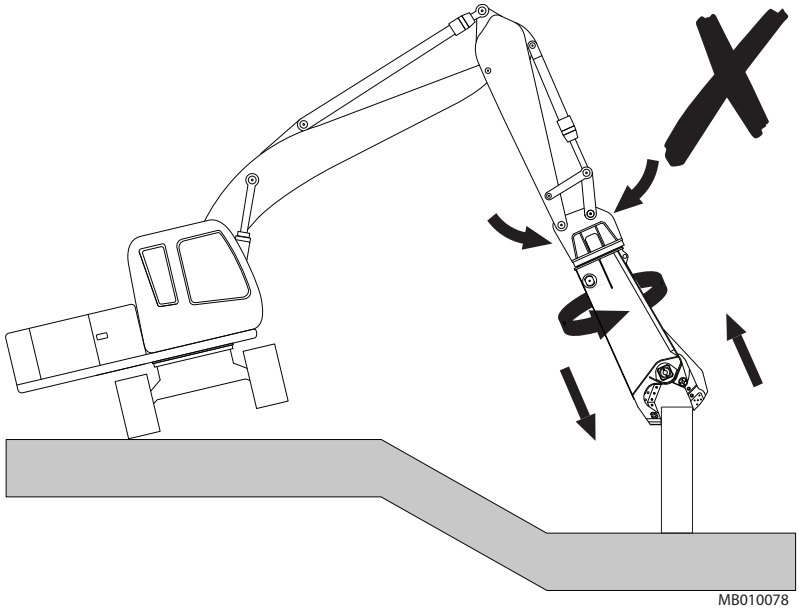
- When cutting horizontal steel frames, concentrate the shearing action at the proper working angle. Cut through at one point on the frame. Cut partially through at another point. Then, bend the framework down with the product and make the final cut.



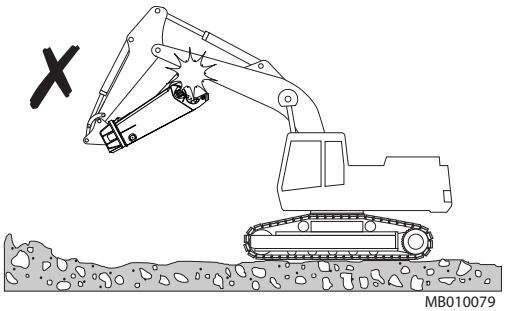
- Place steel frames properly between the cutting blades, as shown in the illustration. Note: If the cutting object does not fit into the product mouth, first press it between the jaws to flatten it and then perform the final cutting with the cutting blades.


M010013

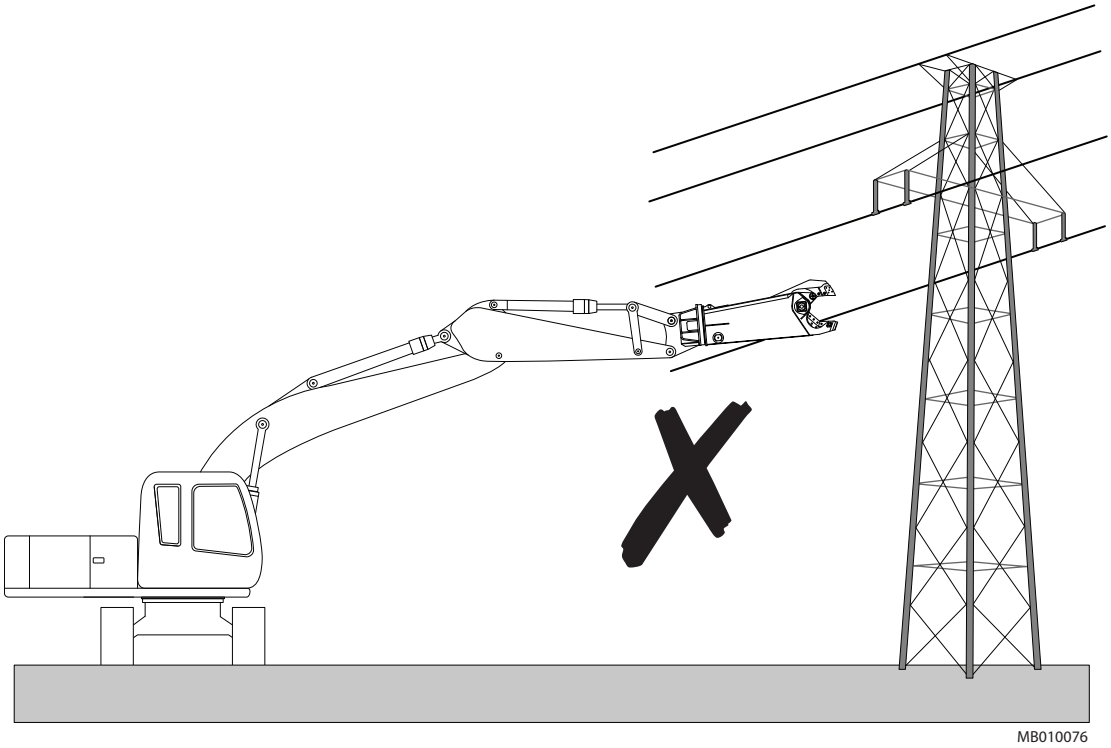
- Do not use the product to move the excavator.


MB010078

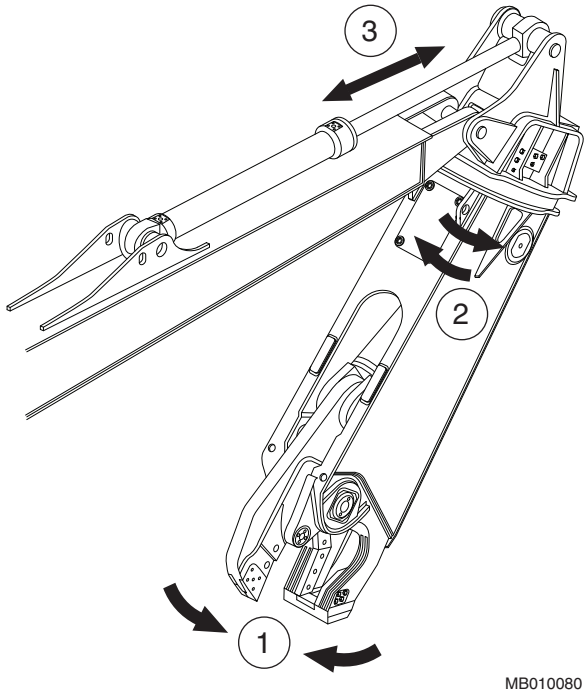
- When operating the product, make sure that it does not make contact with the carrier boom or hydraulic lines.


MB010079

- Stay more than 10 meters (33 feet) away from live, overhead electric cables with any part of the machine.



- When carrying out demolition work, position the product by means of hydraulic rotation (2), in such a way as to ensure that always have the correct angle of penetration (1). Use just the force of the cylinder for demolishing, without trying to tear at the material with the excavator arm (3). If necessary, re-position the product.



- The bearings must be well greased during operation. Make regular inspections during operation. If no grease is visible, the bearings require more frequent greasing. If bearings are covered with excessive grease, they require less frequent greasing. See “Inspection and maintenance by the operator” on page 57.

5.3 MOUNTING AND DISMOUNTING THE PRODUCT

REMOVAL FROM CARRIER

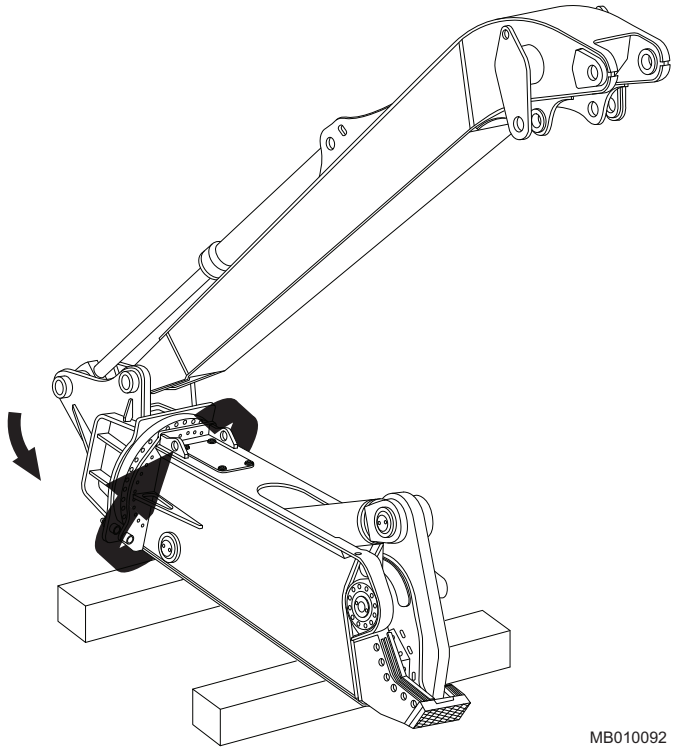
Warning! The product must be secured from falling over when disconnecting it from the carrier. Only use a skilled operator to position the carrier for the removal!

Warning! Hydraulic pressure inside the product must always be released before opening hose connections!

Warning! Hot hydraulic fluid can cause severe injuries!

Warning! The thrust bearing must be locked to prevent the product from rotating during maintenance or transportation.

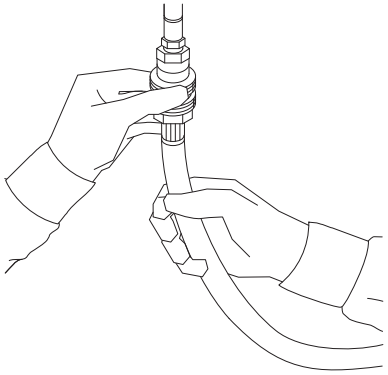
1. Position the product horizontally on the floor.



2. Stop the carrier engine. Operate the boom and product controls to release pressure trapped inside hoses.

3. Close the product shut-off valve. If quick couplers are used, disconnection automatically closes product lines. If the line includes ball valves, make sure that they are closed.

4. Disconnect the hoses. Protect the environment from oil spills. Plug the hoses.



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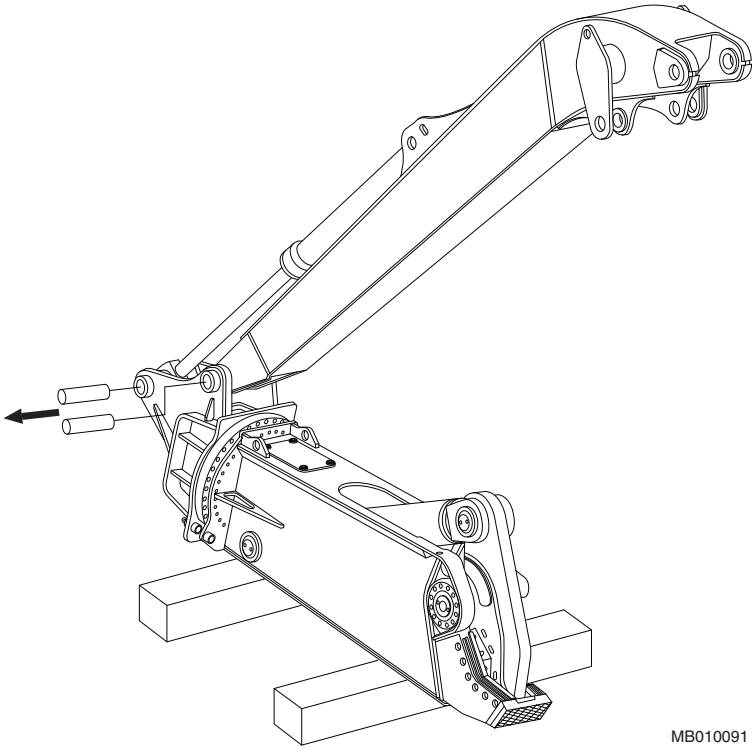
5. Remove the mounting bracket pins and other parts.



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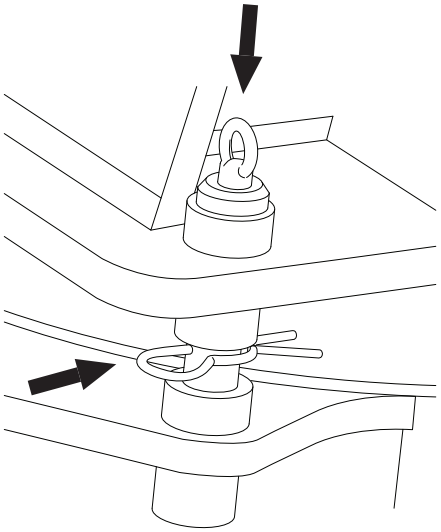
6. Install the locking pins and cotter pins.

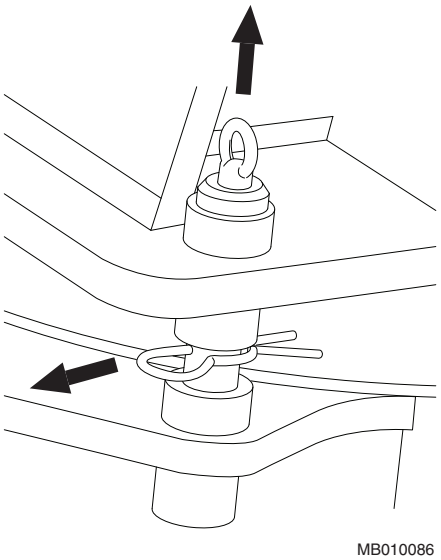


7. Move the carrier aside, if needed.

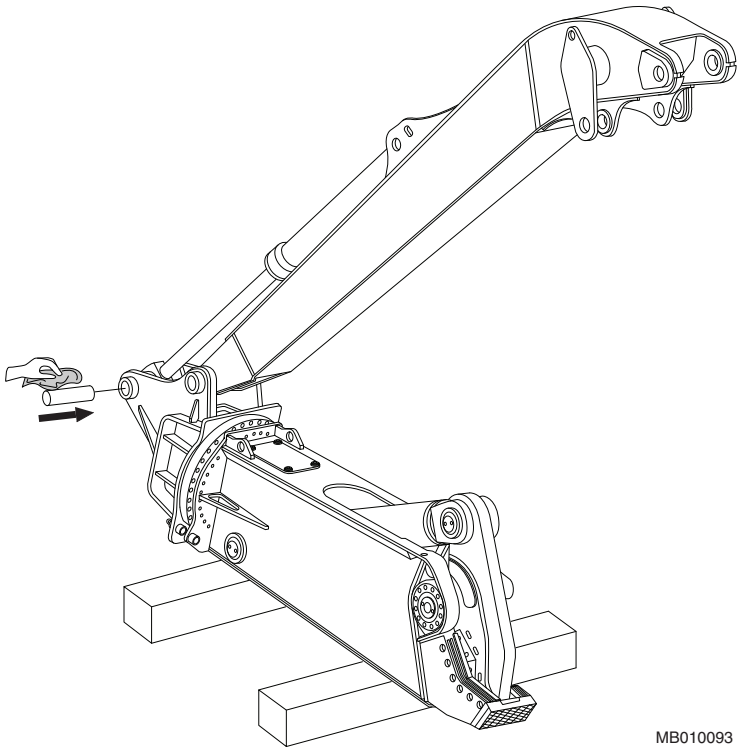
INSTALLATION ON THE CARRIER

Warning! The residual air in the hoses must always be removed before operation!

1. Remove the cotter pins and take out the locking pins.



2. Install the product in the same manner as mounting a bucket. Install bucket pins.



3. Connect the hoses. An installation inspection must be carried out after the product has been mounted on the carrier. During installation inspection, certain specifications (operating pressure, oil flow, etc.) are checked so that they are within given limits. See “Product specifications” on page 78.

4. Open the ball valves.

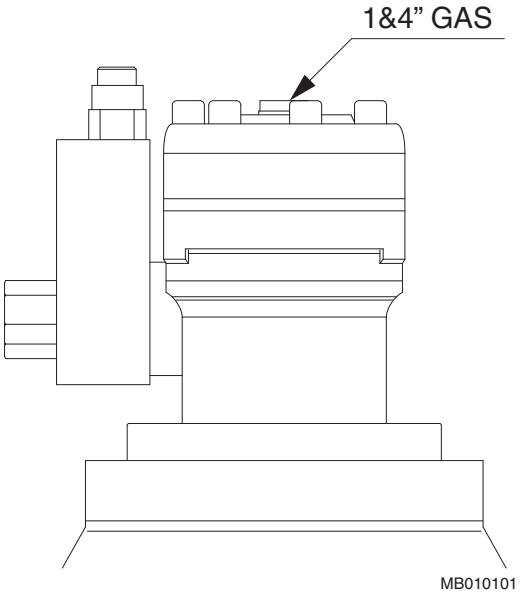
5. Remove the air from the hoses by carefully operating the crusher cylinder. Open and close the empty jaws several times.

Note:

- If the lines going to the opening and closing connection have two different pressure values, connect the line with the highest pressure (which should not exceed the max. value) to the connection fitting jaw closing and the lower pressure line to the connection fitting jaw opening, in order to have the maximum clamping force.
- Remove the cap from the fitting of the hydraulic hoses connecting the excavator and the crusher.
- Make sure that the hose fittings are perfectly clean and dust-free, and attach them to the machine by tightening the screws or the fittings.

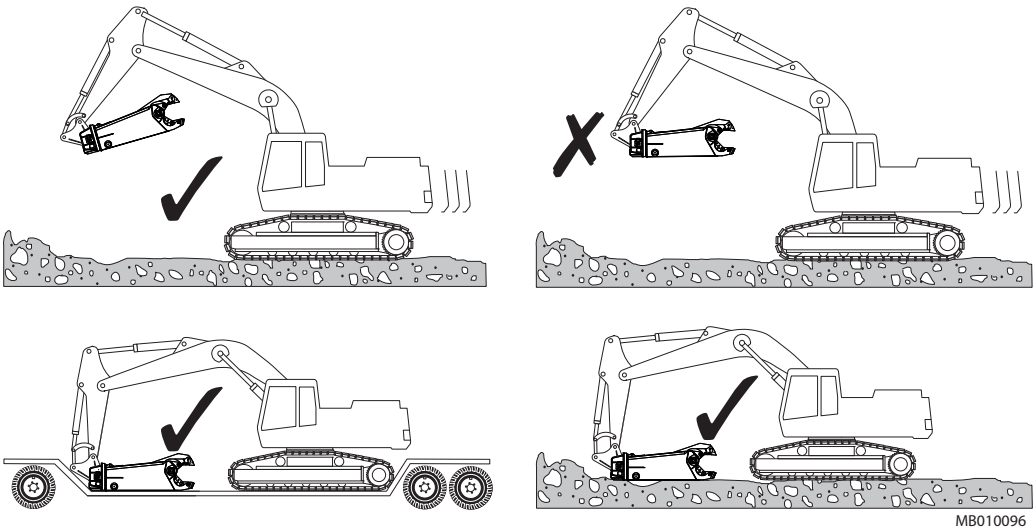
Note:

- The hydraulic rotation motor can operate with the drainage outlet plugged if, during activation, the back-pressure on the drainage branch during operation is not greater than 15 bar (218 psi).
- At first installation, check the backpressure value on the return branch of the rotation system, activating the hydraulic rotation in both directions.
- If the measured back pressure is greater than 15 bar (218 psi), connect a drainage line that connects the drainage attachment of the motor to the tank.
- The drainage attachment of the motor, normally plugged, is located on the bottom of the motor (see illustration).



5.4 MOVEMENT

The transportation and parking positions are shown below. When moving the carrier, ensure that the product is not too close to the carrier.



5.5 SPECIAL CONDITIONS OF USE

The product may require modifications, special operating techniques, increased maintenance or special wear items if it is used in conditions that differ from normal breaking or demolition work. Special conditions of use are:

- Underwater operations
- Operations in extremely low or high temperatures
- Use of special hydraulic fluids
- Operations with special carrier
- Other special conditions

In case of special conditions of use, contact your local dealer for instructions.

The product as a standard assembly, must not be used under water. Contact your local dealer for more information on underwater use.

5.6 STORAGE

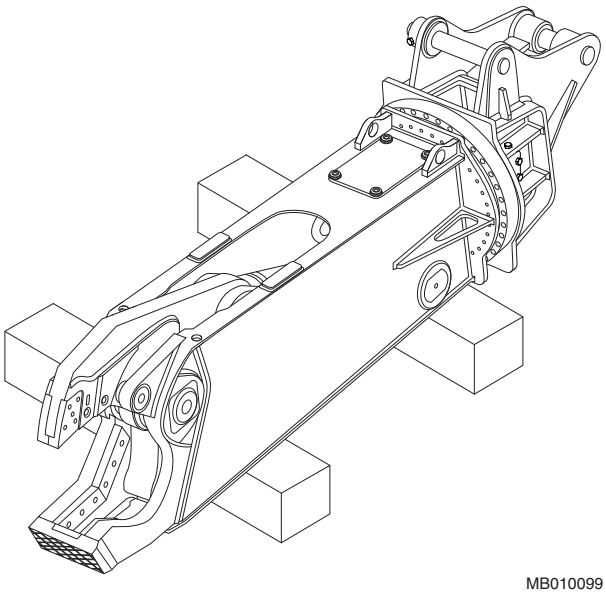
LONG TERM STORAGE

Observe the following points when the product is stored. This way, the vital parts of the product are protected from rust and the product is ready to be used whenever necessary.

1. Make sure your storage area is dry.

2. To avoid damaging the cylinder rod, operate the cylinder to the shortest position by leaving the jaws open.

3. Insert blocks under the product to keep it off the ground. If the product is stored outside, cover it to prevent rusting.



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4. Apply grease to all product parts. Protect the mounting bracket, pin holes, cutting blades and pivot ends with an anticorrosive agent.

5. Seal connections with clean plugs to prevent oil leakage and dirt from getting into the couplings.

6. Make sure the product cannot fall over.

LUBRICATION

1. GREASING

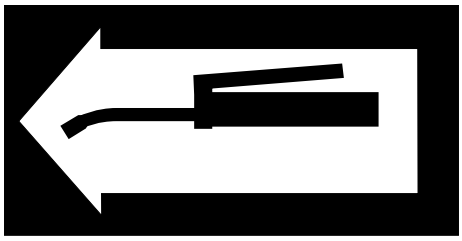
1.1 RECOMMENDED GREASES

Item	Recommended greases	Greasing interval
Pins and bushings		every 8 hours
Thrust bearing		every 40...80 hours
	Additives: molybdenum disulfide	
	Minimum working temperature below lowest ambient temperature	
	Penetration 0 ... 2 (NLGI)	
	No reaction with hydraulic oils	
	Water resistant	
	Good adhesion with steel	

1.2 GREASING POINTS

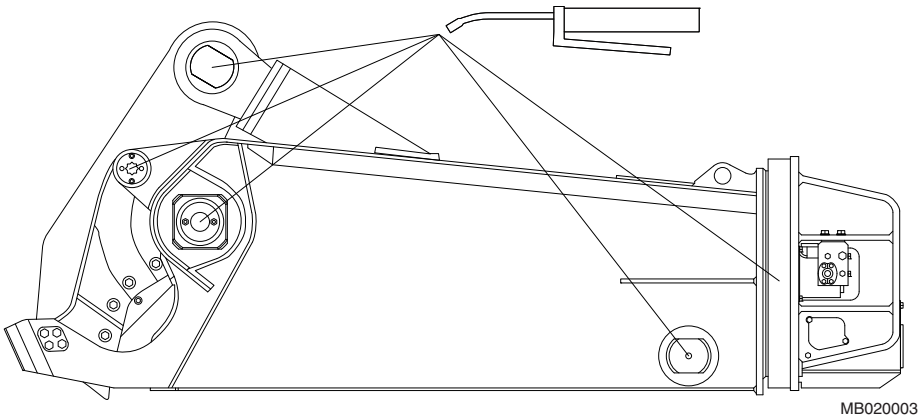
Follow the product's greasing instructions and avoid excessive greasing. Dispose of empty grease containers appropriately.

The greasing points of the product are marked with the following sticker.



R020002

The greasing points of the product are shown below.

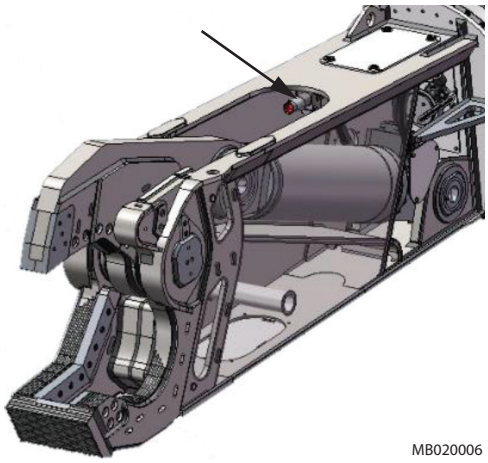


MB020003

1.3 AUTOMATIC GREASING (ONLY IN RSS80R-MODEL)

Follow the product's greasing instructions and avoid excessive greasing. Dispose of empty grease containers appropriately.

The product is equipped with an automatic greasing device.



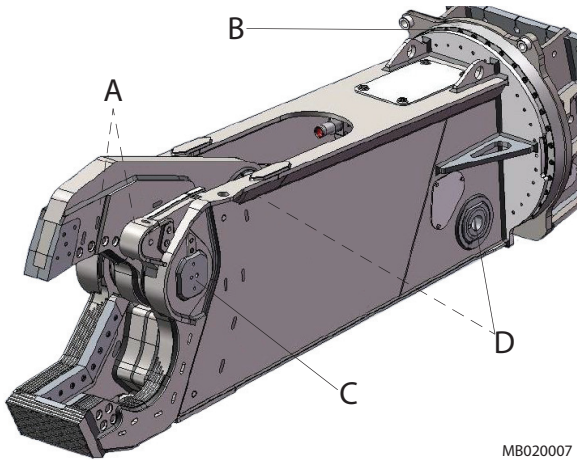
MB020006

The system pumps grease to the connected points each time the jaws closing button is activated.

NOTE! If automatic lubrication is not in use or damaged, product must be lubricated manually.

Do not remove the grease cartridge unnecessarily. Always keep the grease cartridge in the greasing device to prevent dirt from entering the greasing device.

The greasing points of the product are shown below.



MB020007

A. Guide plates

B. Slewing ring

C. Central pin

D. Cylinder pins

GREASE TYPES

Synthetic grease for normal working conditions		
Typical properties	**Method**	**Typical value**
NLGI consistency grade		2
Colour		Grey
Nature of the soap		Lithium
Maximum usable temperature, °C		-20 to 160
Dropping point, °C	ASTM D-566	over 180
Base oil viscosity	ASTM D-445	over 460
Flash point. C.O.C., °C	ASTM D-92	over 200
Freezing point, °C	ASTM D-97	-24
Four-ball wear -test, 1200 rpm, -75 °C, 40 kg, 1 hour, mm	ASTM D-2266	0.5
Oil separation, 30 hours at 100 °C,%	ASTM D-972	under 4
Four-ball method welding, Kg	ASTM D-2783	over 200
Rust protection tests	ASTM D-1743	pass
Corrosiveness to copper, 3 hours at 100 °C	ASTM D-130	1a
Resistance in humidity cabinet, hours	ASTM D-1748	under 120

Anti-oxydation water resistant grease for marine environment operations		
Typical properties	**Method**	**Typical value**
NLGI consistency grade		2
Colour		White
Nature of the soap		Aluminium complex
Maximum usable temperature, °C		-20 to 210
Worked penetration, 60 double strokes, dmm	ASTM D-217	260
Worked penetration, 100 000 double strokes, dmm	ASTM D-217	290
Dropping point, °C	ASTM D-566	over 260
Base oil viscosity at 40 °C (°C), ISO VG	ASTM D-445	over 680
Flammability. C.O.C., °C	ASTM D-92	over 210
Pour point, °C	ASTM D-97	-28
Four-ball wear -test, 1200 rpm, -75 °C, 40 kg, 1 hour, mm	ASTM D-2266	0.6
Oil separation, 30 hours at 100 °C,%	ASTM D-972	under 4
Four-ball method welding, Kg	ASTM D-2783	250
Rust protection tests	ASTM D-1743	pass
Oxidation, 500 psi, loss, hours	ASTM D-942	9.5
Corrosiveness to copper, 3 hours at 100 °C	ASTM D-130	1a
Resistance in humidity cabinet, hours	ASTM D-1748	over 700

GREASE FLOW ADJUSTMENT

The automatic lubrication pump is pre-set from the factory to 50%.

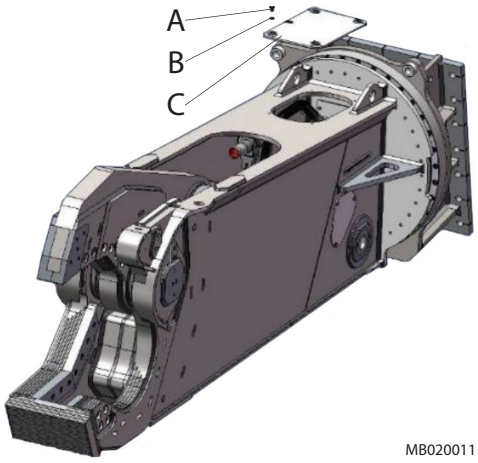
The ideal consumption on normal conditions is a one grease cartridge on every 8 to 10 effective working hours.

In case of special working conditions (underwater operations, hot and dry environments, particularly heavy tasks) there may be need to increase the grease flow.

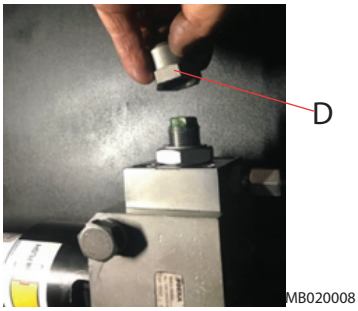
NOTE! Prevent air to enter into the circuit during the maintenance of the lubrication system.

NOTE! If the product is not in use for long period the grease may to solidify and occluded the lubrication circuit.

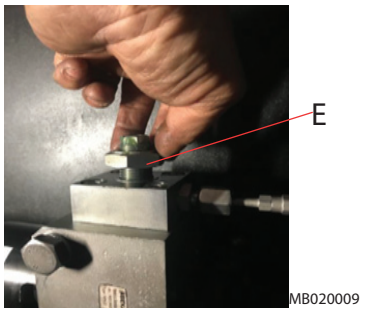
1. Remove the screws (A) and washers (B).



2. Remove the cover (C).
3. Remove the adjustment screw cap (D).



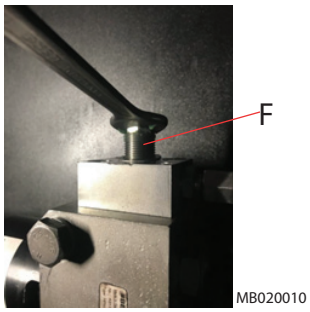
4. Loosen or remove the locking nut (E).



5. Adjust the flow by turning the adjustment screw (F).

   Turning clockwise the flow increases. Turning counter-clockwise flow decreases.

   One rotation of the adjustment screw equals to 0,15 cm3



2. CARRIER HYDRAULIC OIL

2.1 REQUIREMENTS FOR HYDRAULIC OIL

GENERAL REQUIREMENTS

In general, the hydraulic oil originally intended for the carrier can be used with this product. However, since working with the product heats the oil more than with the usual excavation work, the temperature of the oil must be monitored.

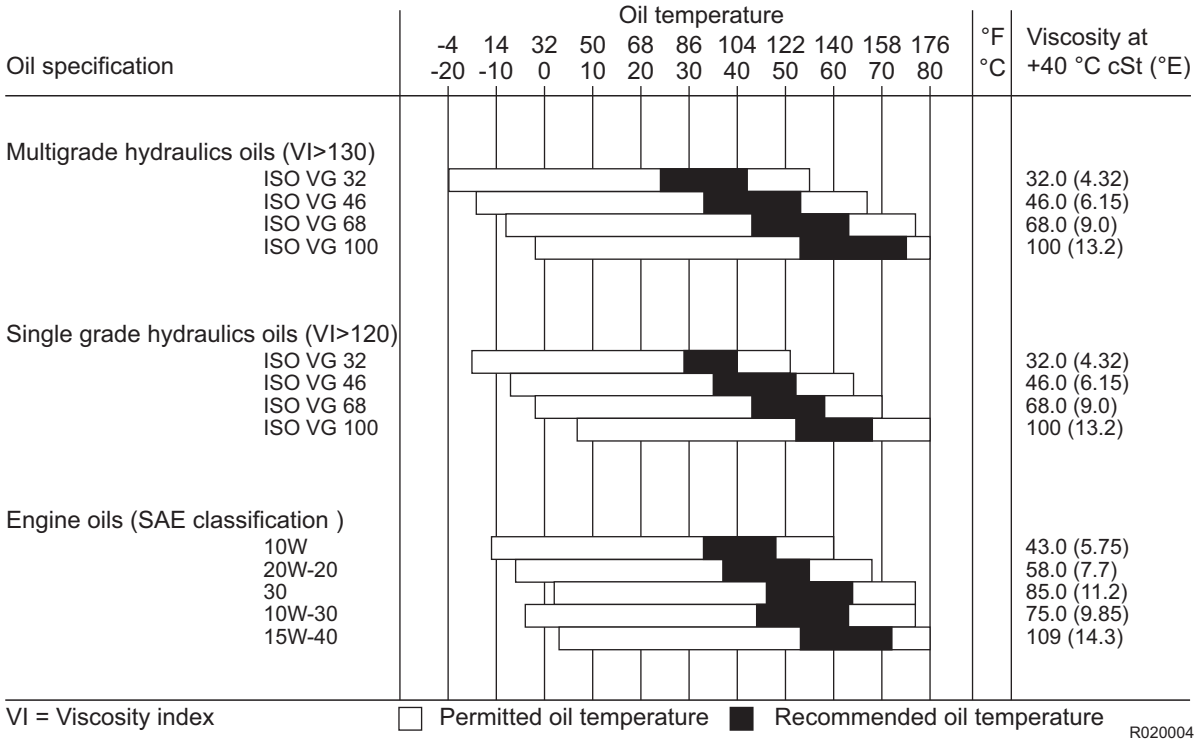
If the temperature of the hydraulic oil exceeds 80 °C (176 °F), an auxiliary oil cooler is needed. The oil viscosity must be between 1000-20 cSt while the product is being used.

When the product is used continuously, the temperature of the hydraulic oil normalizes at a certain level depending on conditions and on the carrier. The temperature in the tank must not exceed the maximum allowed.

The product must not be started if the ambient temperature is below freezing and the oil is very thick. The machine must be moved to bring the oil temperature above 0 °C (32 °F) before working can start (viscosity 1000 cSt or 131 °E).

OIL SPECIFICATIONS

The table below shows hydraulic oils recommended for product use. The most suitable oil is selected in such a way that the temperature of the hydraulic oil in continuous use is in the ideal area on the chart and the hydraulic system is used to best advantage.



Problems due to incorrect hydraulic oil viscosity in the product:

Oil too thick

- Difficult start up
- Stiff operation
- Danger of cavitation
- Sticky valves
- Filter bypass opens, impurities in the oil are not removed

Oil too thin

- Efficiency losses (internal leaks)
- Damage to gaskets and seals, leaks
- Accelerated wearing of parts, because of decreased lubrication efficiency
- Danger of cavitation

Note: We strongly recommend the use of different hydraulic oils in the summer and in the winter if there is an average temperature difference of more than 35 °C (95 °F). The correct hydraulic oil viscosity is thus ensured.

SPECIAL OILS

In some cases, special oils (for example biological oils and nonflammable oils) can be used with the product. Observe the following aspects when considering the use of special oils:

- The viscosity range in the special oil must be in the given range (1000-20 cSt).
- The lubrication properties must be sufficient.
- The corrosion resistance properties must be good enough.

Note: Although a special oil could be used in the carrier, always check its suitability with the product. Contact the oil manufacturer or your local dealer for more information about special oils.

2.2 OIL COOLER

The carrier hydraulic system must be able to maintain a temperature within an acceptable level during the product operation. This is because:

1. Seals, wipers, membranes and other parts manufactured from the corresponding materials can normally stand temperatures up to 80 °C (176 °F).

2. The higher the temperature is, the less viscous the oil gets, thus losing its capability to lubricate.

A standard carrier, with a proper product circuit, meets the requirements of the necessary cooling capacity. If the oil temperature tends to be too high during product operation, the following must be checked:

- The product circuit pressure relief valve should not be opened unnecessarily.
- The product circuit pressure drops must be reasonable; that is, less than 20 bar (290 psi) in the hydraulic line.
- There should be no internal leakages in product or carrier hydraulic pumps, valves, cylinders, motors, etc.

If all of the above-mentioned items are in order, and the temperature of the hydraulic oil still tends to be too high, extra cooling capacity is needed. Contact the carrier manufacturer or your local dealer for details.

2.3 OIL FILTER

The purpose of the oil filter is to remove impurities from the hydraulic oil. Air and water are also impurities in oil. Not all impurities can be seen with the naked eye.

Impurities enter the hydraulic system:

- During hydraulic oil changes and refilling.
- When components are repaired or serviced.
- When the product is being installed on the carrier.
- Because of component wear.

Normally the existing, main oil filters of the carrier are used as attachment circuit return line filters. Contact the carrier manufacturer or your local dealer concerning instructions for the filter change intervals.

To work well with the product, the carrier oil filter must fulfill the following specifications:

- The oil filter must allow maximum particle size of 25 microns (0.025 mm).
- The oil filter material must be man-made fibre cloth or very fine gauge metallic mesh to withstand pressure fluctuations.
- The oil filter must have a nominal flow capacity of at least twice the product's maximum flow.

In general, oil companies guarantee new oils to have a maximum particle size of 40 microns. Therefore, filter the oil when filling the tank.

The damage caused by hydraulic oil impurities in the carrier and attachment circuits include:

Shortened working life of pumps and other components

- Rapid wear of parts.
- Cavitation.
- Wear of cylinder and gaskets.

Reduced attachment efficiency

- Accelerated wear of moving parts and seals.
- Oil leakages.

Shortened working life and reduced lubricating capability of oil

- Overheated oil.
- Deteriorated oil quality.
- Electrochemical changes in hydraulic oil.

Malfunction of valves

- Binding spools.
- Rapid wear of parts.
- Blocking of small holes.

Note: Component damage is only a symptom. The trouble itself will not be cured by removing the symptom. After any component damage due to impurities in the oil, the entire hydraulic system must be cleaned. Dismantle, clean and reassemble the product and change the hydraulic oil.

MAINTENANCE

1. ROUTINE MAINTENANCE

1.1 OVERVIEW

This product is a precision-made hydraulic machine. Therefore, great care and cleanliness should be taken when handling any of the hydraulic components. Dirt is the worst enemy in hydraulic systems.

Handle the parts carefully and remember to cover any cleaned and dried parts with a clean, lint-free cloth. Do not use anything other than purpose-designed materials for cleaning hydraulic parts. Never use water, paint thinners or carbon tetrachloride.

Components, gaskets and seals in the hydraulic system should be oiled with clean hydraulic oil before assembly.

Remember to grease the product parts regularly, according to the instructions in this manual. See “Inspection and maintenance by the operator” on page 57.

Prior to maintenance or inspection, operate all the control levers to their fully extended stroke. This will release pressure within the hydraulic piping and prevent unexpected movement of the jaw and loss of oil through the hydraulic lines.

Close the jaws during maintenance or inspection. If you must leave the jaws open, remember to block the jaws to prevent them from closing.

1.2 INSPECTION AND MAINTENANCE BY THE OPERATOR

Note: The times given refer to the carrier hours with the product installed.

EVERY EIGHT HOURS

Grease shafts and pins. See “Greasing points” on page 45.

DAILY MAINTENANCE

1. Check the hydraulic hoses and hose connections. Tighten if necessary.
2. Check the cutting blades and their clearance. Tighten bolts or replace the cutting blades, if necessary. See “Turning and changing cutting blades” on page 60.
3. Check the jaws and teeth for wear. Hardface or replace, if necessary. See “Hardfacing the jaw” on page 64.
4. Check the grease nipples.
5. Check the clearance of the regulator. See “Adjusting regulator clearance recovery” on page 65. See “Adjusting regulator lateral guides” on page 67.
6. Check the clearance of the pins. See “Adjusting regulator lateral guides” on page 67.

WEEKLY MAINTENANCE

1. Check the main body for wear.
2. Check the pins and bushings for wear.
3. Check the cylinder rod, seals and connection points for wear. Tighten if necessary.
4. Observe hydraulic oil temperature for all lines and connections.
5. Check that the product works smoothly by operating the jaws.
6. Tighten connections, if necessary.

EVERY 40...80 HOURS

Grease the thrust bearing. Adapt the greasing interval and amount of grease to working conditions. See “Inspection and maintenance by the operator” on page 57.

AFTER FIRST 150 HOURS

Change the oil in the rotation units after the first 150 working hours. See “Changing oil in the rotation unit (Models with gearbox)” on page 72.

EVERY 2000 HOURS OR ONCE A YEAR

After the first 150 hours oil change, change the oil in the rotation unit every 2000 operating hours, or at least once a year. See “Changing oil in the rotation unit (Models with gearbox)” on page 72.

1.3 INSPECTION AND MAINTENANCE BY THE DEALER

Note: The times given refer to carrier hours with the product installed.

INITIAL 50 HOUR INSPECTION

It is recommended that your local dealer perform the first inspection after 50 to 100 operating hours. Contact your local dealer for more information about the initial 50-hour inspection.

EVERY 600 HOURS OR ONCE A YEAR

The 600-hour/yearly service is performed by your local dealer. It is recommended every 600 operating hours or once a year, whichever comes first. Neglecting the 600-hour/yearly service can cause severe damage to the product.

Your local dealer will reseal the product and replace safety decals as needed. Contact your local dealer for more information about 600-hour/yearly servicing.

During this service, you should also perform the following tasks:

- Check all hydraulic connections.
- Check that the hydraulic hoses do not rub against anything in any boom/stick position.

1.4 MAINTENANCE INTERVALS IN SPECIAL APPLICATIONS

The service interval is considerably shorter with special applications such as underwater use. See “Special conditions of use” on page 41. In special applications, consult your local dealer for the correct service intervals.

The product, as a standard assembly, must not be used under water. It must be adapted for underwater applications. Contact your local dealer for more information on underwater use.

1.5 OTHER MAINTENANCE PROCEDURES

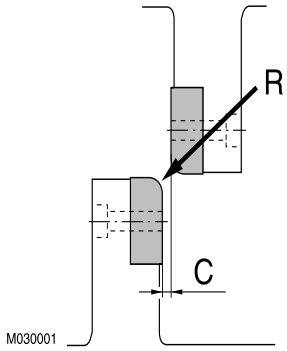
WASHING THE PRODUCT

When working with product and removing it from the carrier, dirt (mud, rock powder, etc.) can become attached to it. Wash the outside of the product with a steam washer before sending it to the workshop. Otherwise dirt can cause difficulties in disassembly and assembly.

CAUTION! Plug the pressure and return line before washing the product. Otherwise, dirt could get in it and cause damage to the components.

2. TURNING AND CHANGING CUTTING BLADES

WEAR LIMITS, ADJUSTMENTS AND TORQUES FOR CUTTING BLADES



Item	Adjustment
Cutting blade clearance (C)	0.2...0.5 mm (0.01...0.02 in)
Wear plates clearance	1.5 mm (0.06 in)

Screw	Tightening torque, grade 8.8	Tightening torque, grade 10.9	Tightening torque, grade 12.9
M8	25 Nm (18 lbf ft)	35 Nm (26 lbf ft)	42 Nm (31 lbf ft)
M10	50 Nm (37 lbf ft)	70 Nm (52 lbf ft)	85 Nm (63 lbf ft)
M12	85 Nm (63 lbf ft)	120 Nm (89 lbf ft)	145 Nm (107 lbf ft)
M14	135 Nm (100 lbf ft)	190 Nm (140 lbf ft)	230 Nm (170 lbf ft)
M16	210 Nm (155 lbf ft)	295 Nm (218 lbf ft)	355 Nm (262 lbf ft)
M18	290 Nm (214 lbf ft)	410 Nm (302 lbf ft)	490 Nm (361 lbf ft)
M20	410 Nm (302 lbf ft)	575 Nm (424 lbf ft)	690 Nm (509 lbf ft)
M22	550 Nm (406 lbf ft)	780 Nm (575 lbf ft)	930 Nm (686 lbf ft)
M24	710 Nm (524 lbf ft)	995 Nm (734 lbf ft)	1240 Nm (915 lbf ft)
M27	1050 Nm (774 lbf ft)	1450 Nm (1069 lbf ft)	1750 Nm (1291 lbf ft)
M30	1420 Nm (1047 lbf ft)	2000 Nm (1475 lbf ft)	2350 Nm (1733 lbf ft)

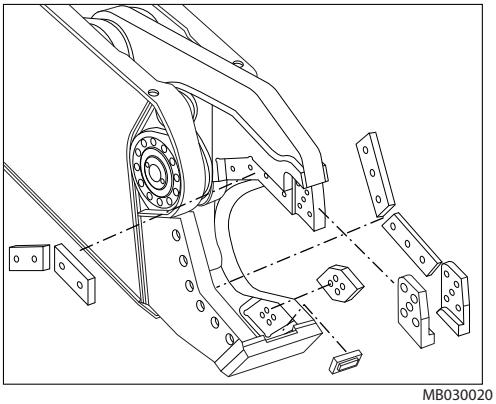
TURNING AND CHANGING CUTTING BLADES

Warning! Prior to maintenance or inspection, operate all the control levers to their fully extended stroke. This will release pressure within the hydraulic piping and prevent unexpected movement of the jaw and loss of oil through the hydraulic lines.

Warning! Support the jaw to prevent it from closing unexpectedly during maintenance.

Used cutting blades can be recycled. Contact your dealer for more information about local regulations of recycling.

- We recommend rotating the blades every 100-200 hours of work to ensure uniform wear of the cutting edges.
- Once you have rotated or replaced the blades, it is necessary to control the play between the cutting edges of the lower jaw and those of the upper jaw. This distance must be between 0.3 mm (0.01 in) and 0.5 mm (0.02 in) in order to prevent the material, especially if it is thin, from getting caught between the blades.
- If the blades are not rotated regularly (every 100-200 hours), uneven wear can develop, which makes it impossible to shim the cutting edges correctly.
- The blades should be rotated, on average, every 100-200 hours of work, depending on the material being cut.
- Remove and rotate the blades where possible, using one of the 4 cutting edges (some blades cannot be rotated, others can be rotated up to 4 times).


MB030020

1. Position the product on level ground.
2. Support the jaw.
3. Make sure the carrier's transmission is in neutral and the parking brake is engaged.
4. Stop the carrier engine.

5. Clean the cutting blades and the base.

6. Lower the upper jaw until just before the front blade engage the corresponding blade of the fixed lower jaw. Measure the distance with a gauge.

7. Continue lowering the moving shank until the entire front blade has engaged the corresponding fixed blade. Measure the clearance between the blades with a thickness gauge in the rearmost part of the blade.

8. Continue to lower the shank, repeating the procedure for the rear blades.

9. If the measured clearance exceeds the recommended value of 0.3 mm (0.01 in)...0.5 mm (0.02 in), insert an appropriate number of shims behind the blades to restore the correct clearance between the blades.

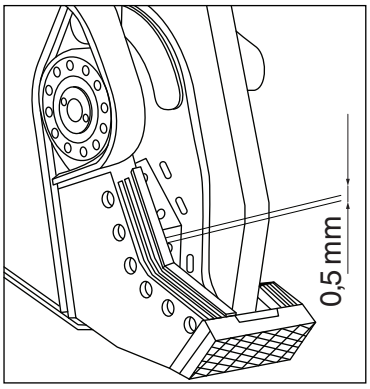
NOTICE! It is recommended to keep the less worn blades in the upper jaw and to shim only in the lower jaw. Do not exceed 3.5 mm (0.14 in) thickness; instead, replace the worn blade.

- To add thickness, open the shear completely, loosen the screws holding the blades, and insert the shims between the blade and its housing.

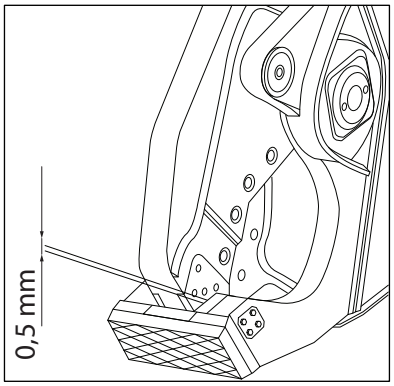
  WARNING! Use external constraints to prevent the mobile body from closing accidentally.

- Tighten the screws to the specified torque.
- Close the shear slowly and recheck that the clearance is correct.

10. After any rotate of the blades, always use a gauge to check that the relative clearance between the primary and secondary blade of the moving body and the respective blades of the fixed body does not exceed 0,5 mm (0.02 in).



11. With a gauge, check that the relative distance between the upper wear plate and the lower one is 1.5 mm (0.06 in).



MB030022

3. HARDFACING THE JAW

WELDING TOOLS

Item	Welding tool
Repair of parent	MIG-wire, DIN 8559: SG 2
	Welding rod, DIN 1913: E 51 53 B 10
Hardfacing	MIG-wire, DIN 8555: SG 6 - 60
	Welding rod, DIN 8555: E 6 - 55

HARDFACING CRUSHER JAW

Welding must occur in a workshop with proper welding tools. If you must weld the product when it is on the carrier, consult your carrier dealer for precautions during welding.

Warning! Support the jaw to prevent it from closing unexpectedly during maintenance.

1. Position the product on level ground.

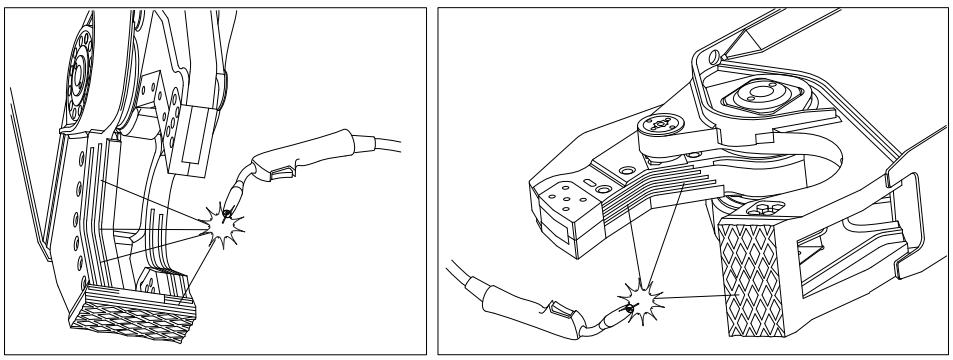
2. Support the jaw.

3. Carefully remove the worn part by carbon arc gouging or by gas cutting at the base. Note: Connect an earth cable to the part to be repaired.

4. Repair the parent by filling it with a welding rod and finish the surface by grinding.

5. Preheat hardfacing area to 150 °C... (302 °F)200 °C (392 °F).

6. Perform the hardfacing. The weld bead must be at least 10 mm (0.39 in) away from the cutting edge. The hardfacing area of the product is shown in the illustration below.



MB030018

4. ADJUSTING REGULATOR CLEARANCE RECOVERY

TORQUES FOR SCREWS

Screw	Tightening torque, grade 8.8	Tightening torque, grade 10.9	Tightening torque, grade 12.9
M8	25 Nm (18 lbf ft)	35 Nm (26 lbf ft)	42 Nm (31 lbf ft)
M10	50 Nm (37 lbf ft)	70 Nm (52 lbf ft)	85 Nm (63 lbf ft)
M12	85 Nm (63 lbf ft)	120 Nm (89 lbf ft)	145 Nm (107 lbf ft)
M14	135 Nm (100 lbf ft)	190 Nm (140 lbf ft)	230 Nm (170 lbf ft)
M16	210 Nm (155 lbf ft)	295 Nm (218 lbf ft)	355 Nm (262 lbf ft)
M18	290 Nm (214 lbf ft)	410 Nm (302 lbf ft)	490 Nm (361 lbf ft)
M20	410 Nm (302 lbf ft)	575 Nm (424 lbf ft)	690 Nm (509 lbf ft)
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M24	710 Nm (524 lbf ft)	995 Nm (734 lbf ft)	1240 Nm (915 lbf ft)
M27	1050 Nm (774 lbf ft)	1450 Nm (1069 lbf ft)	1750 Nm (1291 lbf ft)
M30	1420 Nm (1047 lbf ft)	2000 Nm (1475 lbf ft)	2350 Nm (1733 lbf ft)

ADJUSTING A CLEARANCE

The product is equipped with a regulator device to maintain the clearance of the moving shank hinge in the main body. At the first assembly, the dealer makes the correct adjustments of the device. Afterwards, it is the customer's responsibility to periodically check the device and adjust the clearance as needed.

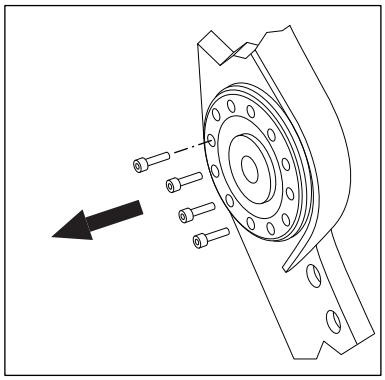
The first adjustment must be performed after 50 operating hours. Afterwards, adjust whenever there is play in the shank.

Warning! Prior to maintenance or inspection, operate all the control levers to their fully extended stroke. This will release pressure within the hydraulic piping and prevent unexpected movement of the jaw and loss of oil through the hydraulic lines.

Warning! Support the jaw to prevent it from closing unexpectedly during maintenance.

1. Position the product on level ground.
2. Support the jaw.
3. Make sure the carrier's transmission is in neutral and the parking brake is engaged.

4. To make an adjustment, remove the screws on the hinge pivot ring nut.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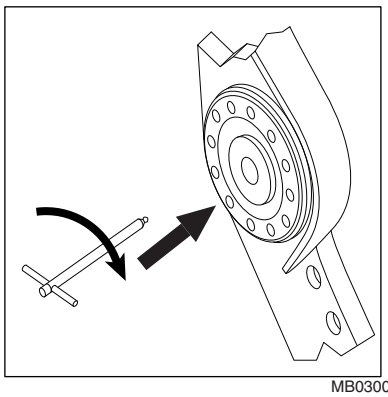
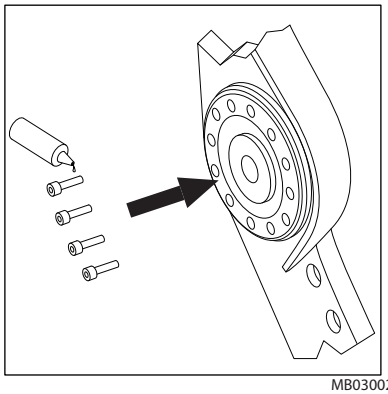
5. After removing all of the screws that block the central pivot ring nut, operate the adjustment screws that determine the feed to the play recovery flange. The flange should be resting against the moving shank, without causing exceeding friction and should not be over tightened.


MB03002

6. Apply Locking fluid to the screws locking the adjusting screws. Fasten the adjusting screws with the screws at the required torque. NOTICE! Locking fluid ensures a greater seal.


MB030025

5. ADJUSTING REGULATOR LATERAL GUIDES

TORQUES FOR SCREWS

Screw	Tightening torque, grade 8.8	Tightening torque, grade 10.9	Tightening torque, grade 12.9
M8	25 Nm (18 lbf ft)	35 Nm (26 lbf ft)	42 Nm (31 lbf ft)
M10	50 Nm (37 lbf ft)	70 Nm (52 lbf ft)	85 Nm (63 lbf ft)
M12	85 Nm (63 lbf ft)	120 Nm (89 lbf ft)	145 Nm (107 lbf ft)
M14	135 Nm (100 lbf ft)	190 Nm (140 lbf ft)	230 Nm (170 lbf ft)
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M24	710 Nm (524 lbf ft)	995 Nm (734 lbf ft)	1240 Nm (915 lbf ft)
M27	1050 Nm (774 lbf ft)	1450 Nm (1069 lbf ft)	1750 Nm (1291 lbf ft)
M30	1420 Nm (1047 lbf ft)	2000 Nm (1475 lbf ft)	2350 Nm (1733 lbf ft)

ADJUSTING THE REGULATOR LATERAL GUIDES

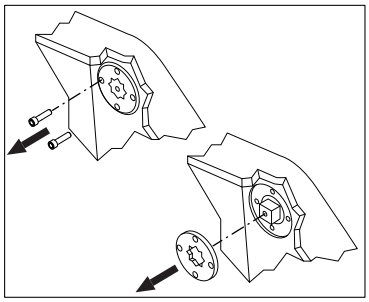
The product is equipped with a regulator device for the lateral guide of the moving shank that prevents lateral sliding during operation. You must periodically check that the regulator is functioning correctly and adjust it as needed.

Prior to maintenance or inspection, operate all the control levers to their fully extended stroke. This will release pressure within the hydraulic piping and prevent unexpected movement of the jaw and loss of oil through the hydraulic lines.

Warning! Support the jaw to prevent it from closing unexpectedly during maintenance.

1. Position the product on level ground.
2. Support the jaw.
3. Make sure the carrier's transmission is in neutral and the parking brake is engaged.

4. Remove the screws and unscrew the ring nut holding the regulator plug.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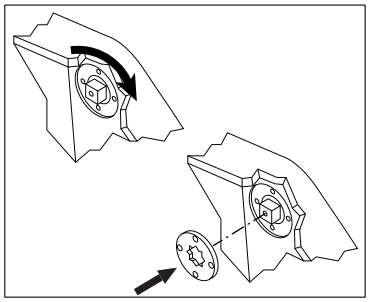
5. After removing the ring nut from the regulator plug, turn the regulator which determines the feed to the play recovery guide. Move the guide forward until it comes in contact with the shank. Put the ring nut back in place.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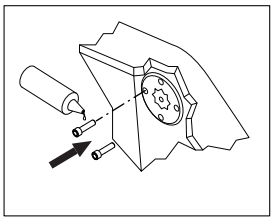
6. Apply locking fluid to the screws for the ring nut. Fasten the ring nut with the screws at the required torque. NOTICE! Locking fluid ensures a greater seal.


MB030028

6. REPLACING LATERAL GUIDE BUSHING

TORQUES FOR SCREWS

Screw	Tightening torque, grade 8.8	Tightening torque, grade 10.9	Tightening torque, grade 12.9
M8	25 Nm (18 lbf ft)	35 Nm (26 lbf ft)	42 Nm (31 lbf ft)
M10	50 Nm (37 lbf ft)	70 Nm (52 lbf ft)	85 Nm (63 lbf ft)
M12	85 Nm (63 lbf ft)	120 Nm (89 lbf ft)	145 Nm (107 lbf ft)
M14	135 Nm (100 lbf ft)	190 Nm (140 lbf ft)	230 Nm (170 lbf ft)
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M30	1420 Nm (1047 lbf ft)	2000 Nm (1475 lbf ft)	2350 Nm (1733 lbf ft)

REPLACING LATERAL GUIDE BUSHING

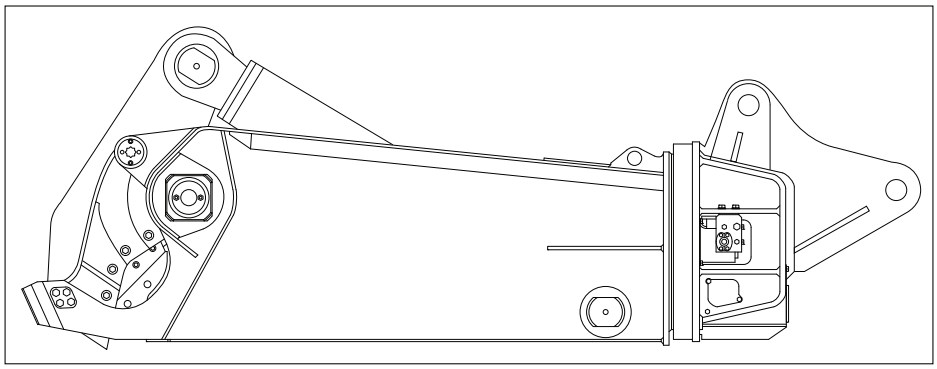
Prior to maintenance or inspection, operate all the control levers to their fully extended stroke. This will release pressure within the hydraulic piping and prevent unexpected movement of the jaw and loss of oil through the hydraulic lines.

Warning! Support the jaw to prevent it from closing unexpectedly during maintenance.

The lateral guide regulator is subject to wear during operation. The buffer has a bushing that you must replace whenever it is worn.

1. Position the product on level ground.
2. Support the jaw.
3. Make sure the carrier's transmission is in neutral and the parking brake is engaged.

4. Lower the moving shank fully on the stationary jaw.



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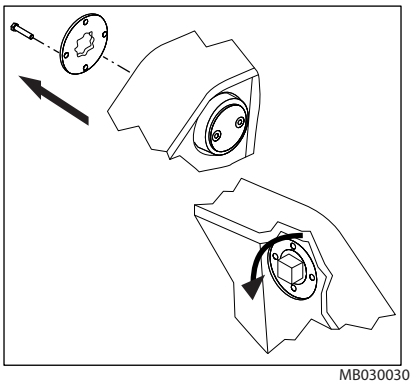
5. Unscrew the screws and remove the ring nut. Then unscrew the buffer and remove it from the surface in contact with the mobile shank.



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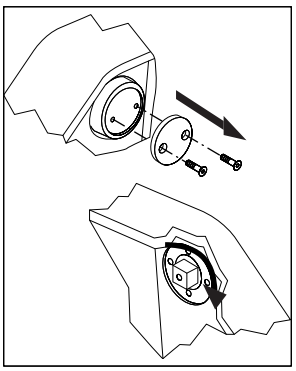
6. Unscrew the screws holding the bushing to the buffer and replace it. Return the buffer, making contact with the mobile shank.



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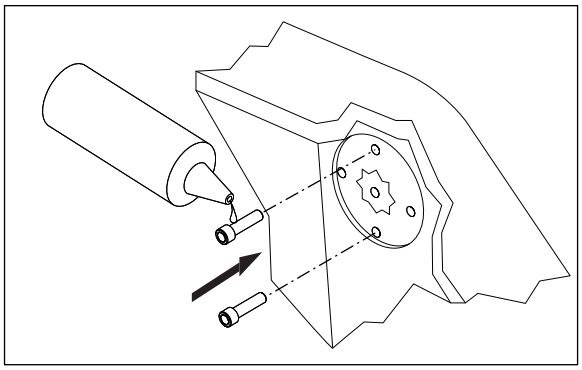
7. Apply locking fluid to the screws for the ring nut. Fasten the ring nut with the screws at the required torque. NOTICE! Locking fluid ensures a greater seal.



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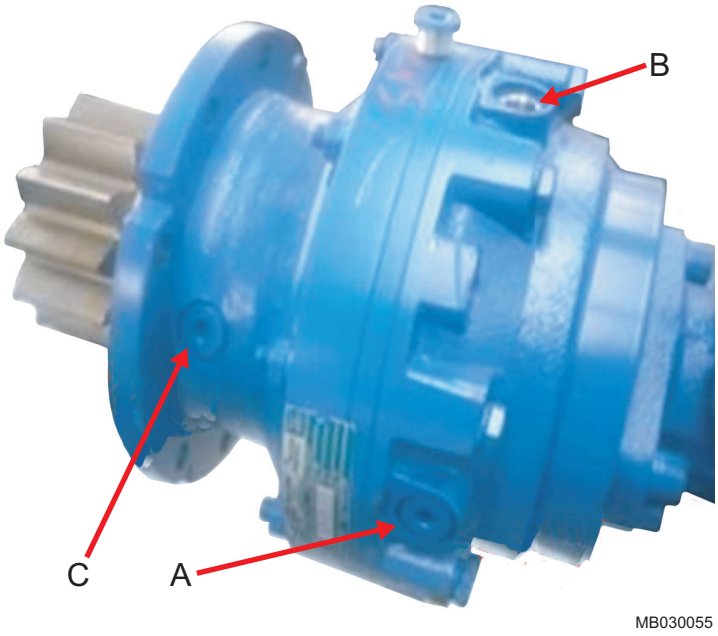
7. CHANGING OIL IN THE ROTATION UNIT (MODELS WITH GEARBOX)

DESCRIPTION



Item
Drain plug (A)
Filler cap (B)
Level plug (C)

Oil viscosity
90W-140

CHANGING OIL IN THE ROTATION UNIT

Warning! Support the jaw to prevent it from closing unexpectedly during maintenance.

The oil must be changed after the first 150 working hours. Afterwards, it must be changed every 2000 operating hours or at least once a year.

Change the oil while the rotation unit is hot. Wash the internal parts with the proper liquids before introducing the new oil.

Avoid mixing oils of different viscosity or of different brands. Do not mix mineral oils with synthetic oils.

After start-up, check the lubricant level periodically and top it up whenever necessary.

During continuous operation, the temperature of the lubricant must not exceed 80 °C (176 °F). Whenever this value is in danger of being exceeded, forcibly cool the oil.

NOTICE! Change the oil while the rotation unit is hot.

NOTICE! Some models have maintenance free motor. Check the motor type you have and check the motor manual or contact the manufacturer for more information.

1. Position the product on level ground. The rotation unit and product must be in an upright position.

2. Support the jaws.

3. Unscrew the filler cap (B) and the drain plug (A).

4. Completely empty oil in the rotation unit.

5. Replace the drain plug (A).

6. Remove the level plug (C).

7. Fill the rotation unit with new oil using the filler cap until the oil begins to overflow from the level plug (C).

8. Replace the filler cap (B) and the level plug (C).

8. TROUBLESHOOTING

8.1 PRODUCT DOES NOT CRUSH

WORN JAW

Perform new hardfacing. See “Hardfacing the jaw” on page 64.

DROP IN HYDRAULIC PRESSURE ON BASE MACHINE

Adjust pressure. See “Product specifications” on page 78.

OIL LEAKAGE WITHIN CYLINDER

The product must be serviced in an authorized Rammer service shop.

8.2 PRODUCT DOES NOT CUT

WORN CUTTING BLADES

Turn over the cutting blades and adjust. If necessary, change the cutting blades. See “Turning and changing cutting blades” on page 60.

CUTTING BLADE DOES NOT FIT PROPERLY ONTO THE CUTTER BASE

Refit and tighten with bolts. See “Turning and changing cutting blades” on page 60.

INCORRECT CLEARANCE BETWEEN THE BLADES AND BASE

Check the clearance and adjust. See “Turning and changing cutting blades” on page 60.

DROP IN HYDRAULIC PRESSURE ON BASE MACHINE

Adjust pressure. See “Product specifications” on page 78.

OIL LEAKAGE WITHIN CYLINDER

The product must be serviced in an authorized Rammer service shop.

8.3 JAW DOES NOT MOVE

MALFUNCTION IN CARRIER HYDRAULIC SYSTEM
Check the operation of the auxiliary circuit.

BALL VALVES MAY BE CLOSED
Open the ball valves.

JAW MAY BE BLOCKED
Remove obstacles.

OIL LEAKAGE WITHIN CYLINDER
The product must be serviced in an authorized Rammer service shop.

CYLINDER ROD IS BENT
The product must be serviced in an authorized Rammer service shop.

8.4 EXCESSIVE MOVING

WORN PINS AND BUSHINGS
The product must be serviced in an authorized Rammer service shop.

8.5 OIL LEAKAGE

OIL LEAKAGE AT HOSE END
Check the hose end and tighten.

OIL LEAKAGE AT SWIVEL JOINT
The product must be serviced in an authorized Rammer service shop.

CYLINDER SEALS ARE DAMAGED
The product must be serviced in an authorized Rammer service shop.

8.6 PRODUCT DOES NOT ROTATE

ROTATION IS LOCKED
Open the rotation lock. See “Mounting and dismounting the product” on page 36.

8.7 FURTHER ASSISTANCE

CONTACT YOUR DEALER

If you need further assistance, have the following information ready when calling your dealer:

- Model and serial number
- Working hours and service history
- Carrier model
- Installation: Oil flow, operating pressure and return line pressure if known
- Application
- Has the product operated normally before

SPECIFICATIONS

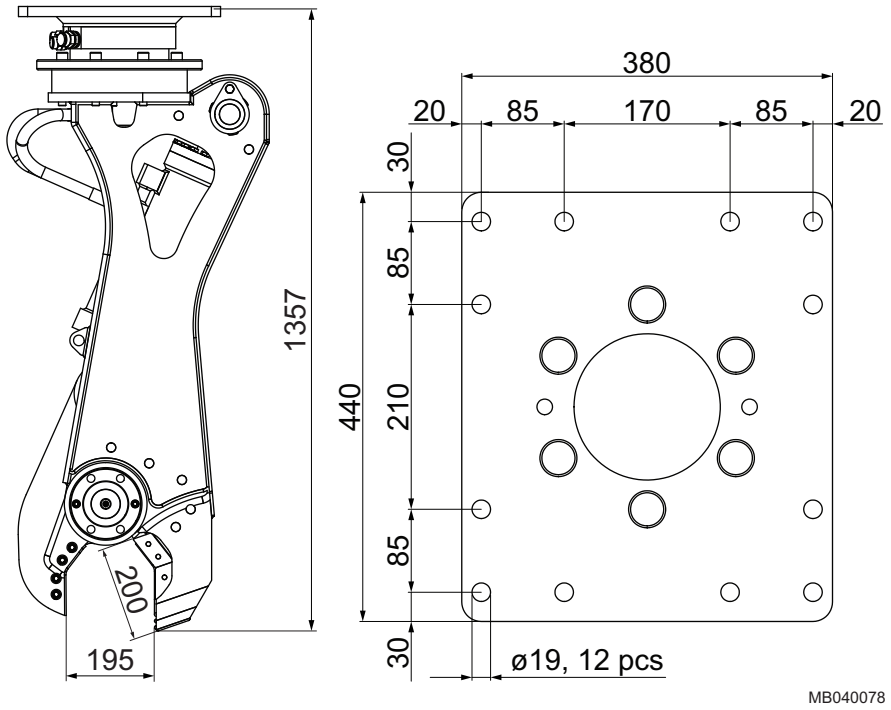
1. PRODUCT SPECIFICATIONS

1.1 TECHNICAL SPECIFICATIONS RSS05R

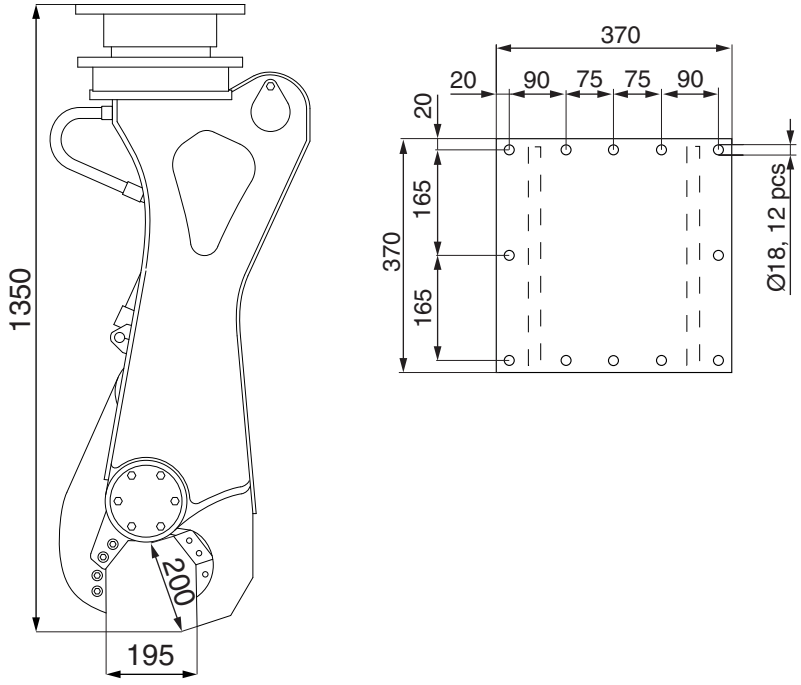
Item	Specification
Minimum working weight[1] (boom mounting)	380 kg (840 lb)
Minimum working weight[2] (stick mounting)	410 kg (900 lb)
Weight	340 kg (750 lb)
Max. jaw opening	195 mm (7.68 in)
Max. cutting force	524 kN (117800 lbf)
Cutting force at upper tips	357 kN (80257 lbf)
Operating pressure	200...250 bar (2900...3625 psi)
Oil flow	60...100 l/min (15.9...26.4 gal/min)
Hose connections	3/4" GAS
Operating pressure, rotation	190...200 bar (2755...2900 psi)
Oil flow, rotation	10...15 l/min (2.6...4.0 gal/min)
Connections, rotation	1/2" GAS
Max. diameter to be cut	30 mm (1.18 in)
Jaw closing time at max oil flow	2.4 s
Jaw opening time at max oil flow	1.8 s
No. of cycles per minute at max oil flow	14.3 cycles/min
Optimum oil temperature	40...60 °C (104...140 °F)
Allowed oil temperature range	-20...80 °C (-4...176 °F)
Optimum oil viscosity at operating temperature	30...60 cSt
Allowed oil viscosity range	20...1000 cSt
Carrier weight[3] (boom mounting)	5...7 t (11000...15400 lb)
Carrier weight[4] (stick mounting)	2...4 t (4400...8800 lb)

1. Weight of unit with applicable jaws and standard bracket
2. Weight of unit with applicable jaws and standard bracket
3. Check carrier's lifting capacity from carrier manufacturer
4. Check carrier's lifting capacity from carrier manufacturer

1.2 MAIN DIMENSIONS RAMMER BOLT PATTERN



1.3 MAIN DIMENSIONS ORIGINAL

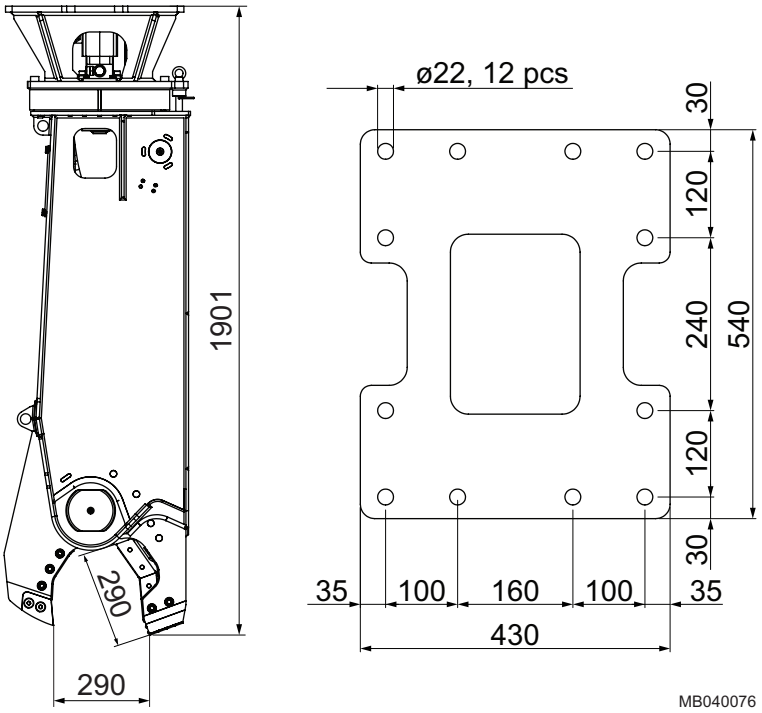


1.4 TECHNICAL SPECIFICATIONS RSS08R

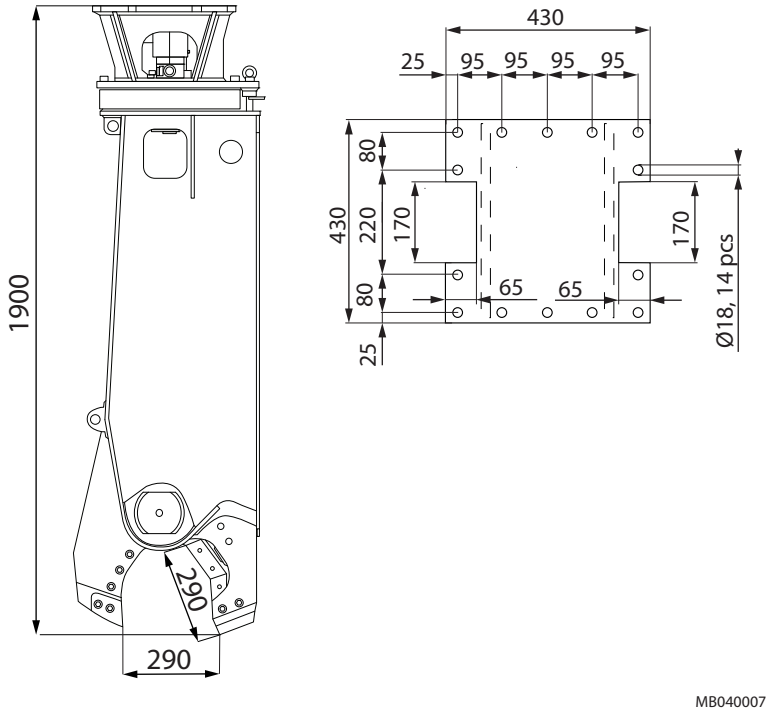
Item	Specification
Minimum working weight[1] (boom mounting)	660 kg (1460 lb)
Minimum working weight[2] (stick mounting)	670 kg (1480 lb)
Weight	600 kg (1320 lb)
Max. jaw opening	290 mm (11.42 in)
Max. cutting force	700 kN (157366 lbf)
Cutting force at upper tips	458 kN (102962 lbf)
Operating pressure	250...300 bar (3625...4350 psi)
Oil flow	80...100 l/min (21.1...26.4 gal/min)
Hose connections	1/2" GAS
Operating pressure, rotation	90...100 bar (1305...1450 psi)
Oil flow, rotation	15...20 l/min (4.0...5.3 gal/min)
Connections, rotation	1/2" GAS
Max. diameter to be cut	40 mm (1.57 in)
Jaw closing time at max oil flow	3.5 s
Jaw opening time at max oil flow	1.9 s
No. of cycles per minute at max oil flow	11 cycles/min
Optimum oil temperature	40...60 °C (104...140 °F)
Allowed oil temperature range	-20...80 °C (-4...176 °F)
Optimum oil viscosity at operating temperature	30...60 cSt
Allowed oil viscosity range	20...1000 cSt
Carrier weight[3] (boom mounting)	7...10 t (15400...22000 lb)
Carrier weight[4] (stick mounting)	4...6 t (8800...13200 lb)

1. Weight of unit with applicable jaws and standard bracket
2. Weight of unit with applicable jaws and standard bracket
3. Check carrier's lifting capacity from carrier manufacturer
4. Check carrier's lifting capacity from carrier manufacturer

1.5 MAIN DIMENSIONS RAMMER BOLT PATTERN



1.6 MAIN DIMENSIONS ORIGINAL

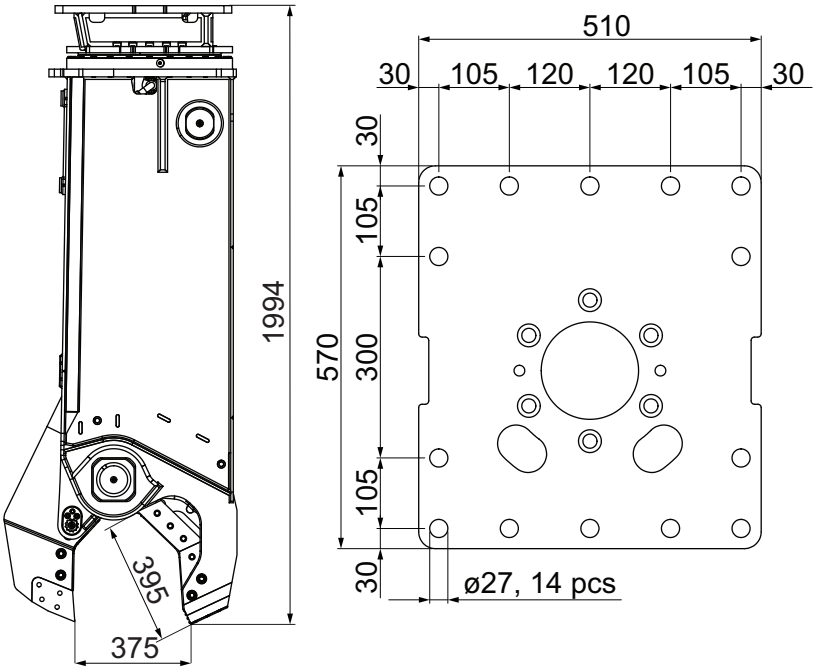


1.7 TECHNICAL SPECIFICATIONS RSS11R

Item	Specification
Minimum working weight[1] (boom mounting)	1140 kg (2510 lb)
Minimum working weight[2] (stick mounting)	1250 kg (2760 lb)
Weight	1000 kg (2200 lb)
Max. jaw opening	375 mm (14.76 in)
Max. cutting force	1018 kN (228856 lbf)
Cutting force at upper tips	546 kN (122746 lbf)
Operating pressure	250...300 bar (3625...4350 psi)
Oil flow	90...110 l/min (23.8...29.1 gal/min)
Hose connections	3/4" GAS
Operating pressure, rotation	190...200 bar (2755...2900 psi)
Oil flow, rotation	10...15 l/min (2.6...4.0 gal/min)
Connections, rotation	1/2" GAS
Max. diameter to be cut	55 mm (2.17 in)
Jaw closing time at max oil flow	2.4 s
Jaw opening time at max oil flow	3.0 s
No. of cycles per minute at max oil flow	11.2 cycles/min
Optimum oil temperature	40...60 °C (104...140 °F)
Allowed oil temperature range	-20...80 °C (-4...176 °F)
Optimum oil viscosity at operating temperature	30...60 cSt
Allowed oil viscosity range	20...1000 cSt
Carrier weight[3] (boom mounting)	11...13 t (24300...28700 lb)
Carrier weight[4] (stick mounting)	7...10 t (15400...22000 lb)

1. Weight of unit with applicable jaws and standard bracket
2. Weight of unit with applicable jaws and standard bracket
3. Check carrier's lifting capacity from carrier manufacturer
4. Check carrier's lifting capacity from carrier manufacturer

1.8 MAIN DIMENSIONS RAMMER BOLT PATTERN



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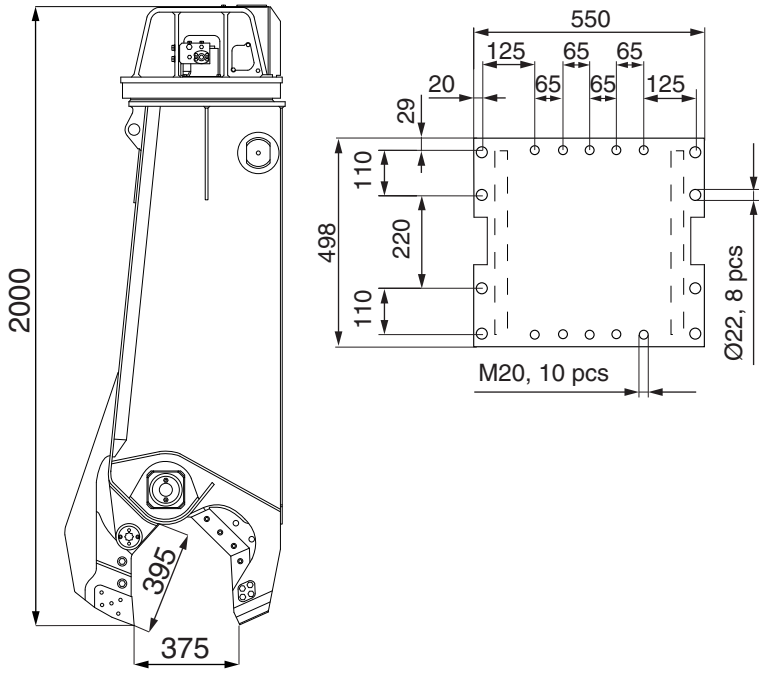
1.9 MAIN DIMENSIONS ORIGINAL



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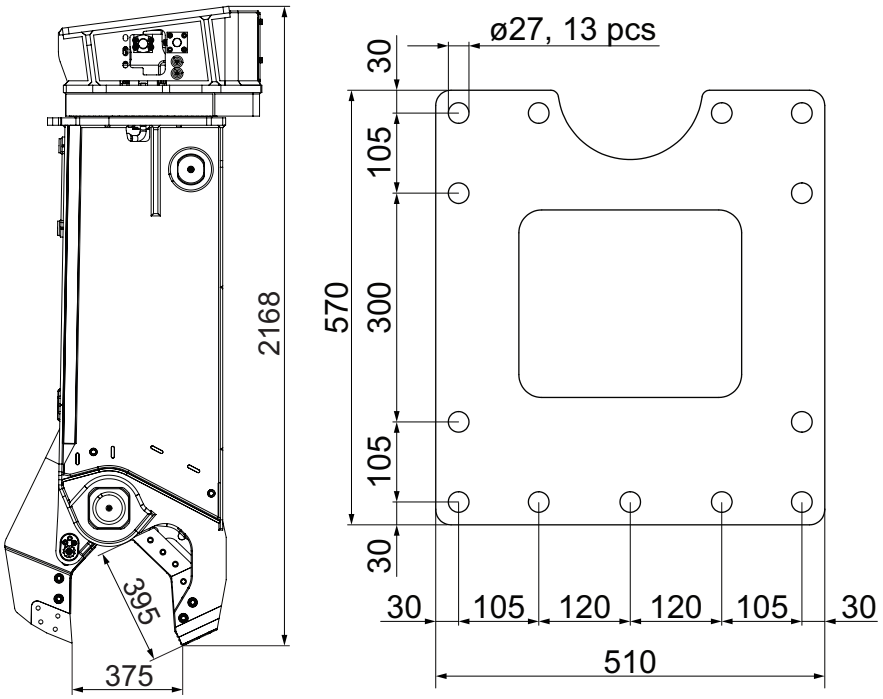
1.10 TECHNICAL SPECIFICATIONS RSS15R

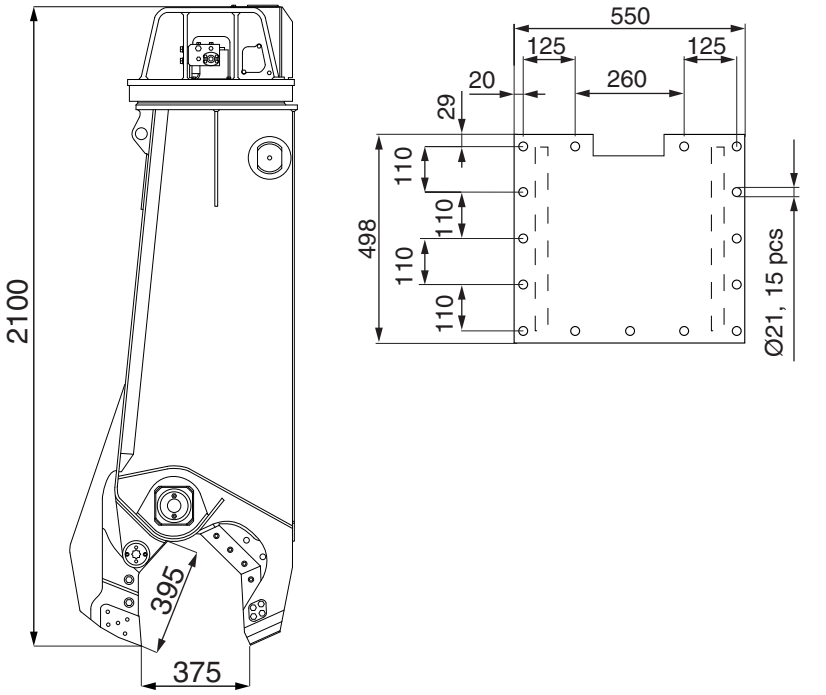
Item	Specification
Minimum working weight[1] (boom mounting)	1250 kg (2760 lb)
Minimum working weight[2] (stick mounting)	1360 kg (3000 lb)
Weight	1110 kg (2450 lb)
Max. jaw opening	375 mm (14.76 in)
Max. cutting force	1018 kN (228856 lbf)
Cutting force at upper tips	546 kN (122746 lbf)
Operating pressure	250...300 bar (3625...4350 psi)
Oil flow	90...110 l/min (23.8...29.1 gal/min)
Hose connections	SAE 6000 psi 3/4"
Operating pressure, rotation	90...100 bar (1305...1450 psi)
Oil flow, rotation	30...40 l/min (7.9...10.6 gal/min)
Connections, rotation	1/2" GAS
Max. diameter to be cut	55 mm (2.17 in)
Jaw closing time at max oil flow	2.4 s
Jaw opening time at max oil flow	3.0 s
No. of cycles per minute at max oil flow	11.2 cycles/min
Optimum oil temperature	40...60 °C (104...140 °F)
Allowed oil temperature range	-20...80 °C (-4...176 °F)
Optimum oil viscosity at operating temperature	30...60 cSt
Allowed oil viscosity range	20...1000 cSt
Carrier weight[3] (boom mounting)	13...17 t (28700...37500 lb)
Carrier weight[4] (stick mounting)	8...12 t (17600...26500 lb)

1. Weight of unit with applicable jaws and standard bracket
2. Weight of unit with applicable jaws and standard bracket
3. Check carrier's lifting capacity from carrier manufacturer
4. Check carrier's lifting capacity from carrier manufacturer

1.11 MAIN DIMENSIONS RAMMER BOLT PATTERN



1.12 MAIN DIMENSIONS ORIGINAL

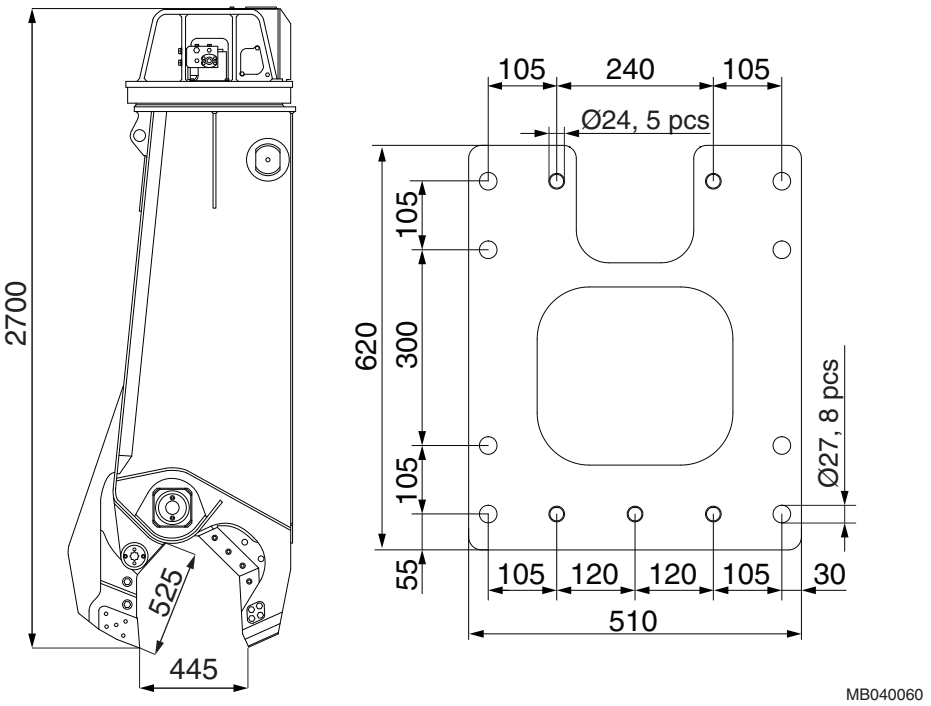


1.13 TECHNICAL SPECIFICATIONS RSS23R

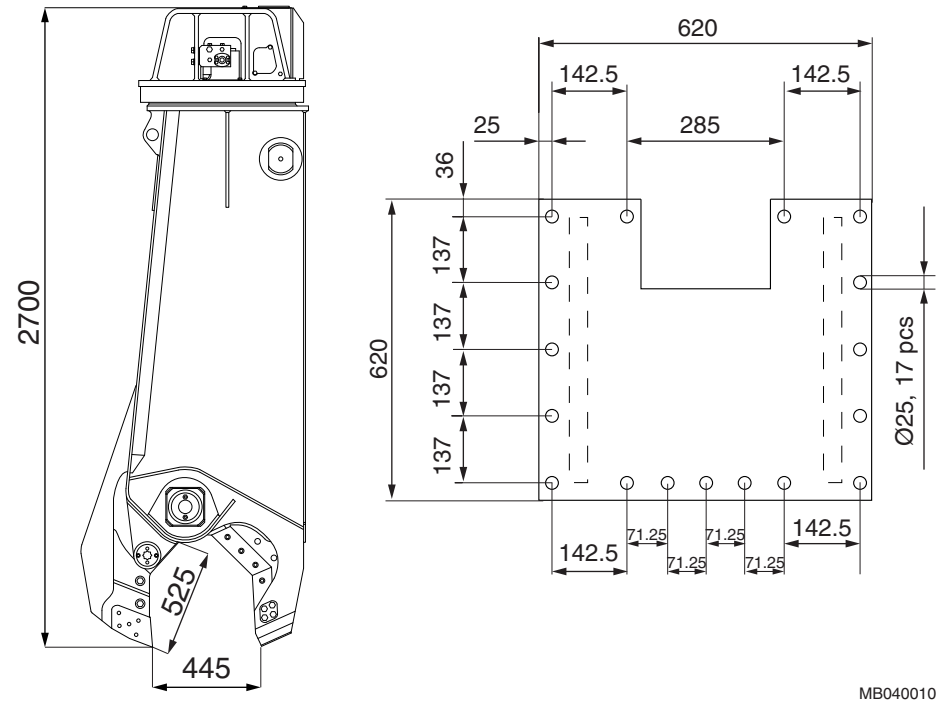
Item	Specification
Minimum working weight[1] (boom mounting)	2100 kg (4630 lb)
Minimum working weight[2] (stick mounting)	2300 kg (5070 lb)
Weight	1950 kg (4300 lb)
Max. jaw opening	445 mm (17.52 in)
Max. cutting force	1445 kN (324849 lbf)
Cutting force at upper tips	745 kN (167483 lbf)
Operating pressure	320...350 bar (4640...5075 psi)
Oil flow	150...200 l/min (39.6...52.8 gal/min)
Hose connections	SAE 6000 psi 1"
Operating pressure, rotation	130...150 bar (1885...2175 psi)
Oil flow, rotation	30...40 l/min (7.9...10.6 gal/min)
Connections, rotation	1/2" GAS
Max. diameter to be cut	65 mm (2.56 in)
Jaw closing time at max oil flow	1.9 s
Jaw opening time at max oil flow	2.6 s
No. of cycles per minute at max oil flow	13.5 cycles/min
Optimum oil temperature	40...60 °C (104...140 °F)
Allowed oil temperature range	-20...80 °C (-4...176 °F)
Optimum oil viscosity at operating temperature	30...60 cSt
Allowed oil viscosity range	20...1000 cSt
Carrier weight[3] (boom mounting)	18...25 t (39700...55100 lb)
Carrier weight[4] (stick mounting)	14...18 t (30900...39700 lb)

1. Weight of unit with applicable jaws and standard bracket
2. Weight of unit with applicable jaws and standard bracket
3. Check carrier's lifting capacity from carrier manufacturer
4. Check carrier's lifting capacity from carrier manufacturer

1.14 MAIN DIMENSIONS RAMMER BOLT PATTERN



1.15 MAIN DIMENSIONS ORIGINAL

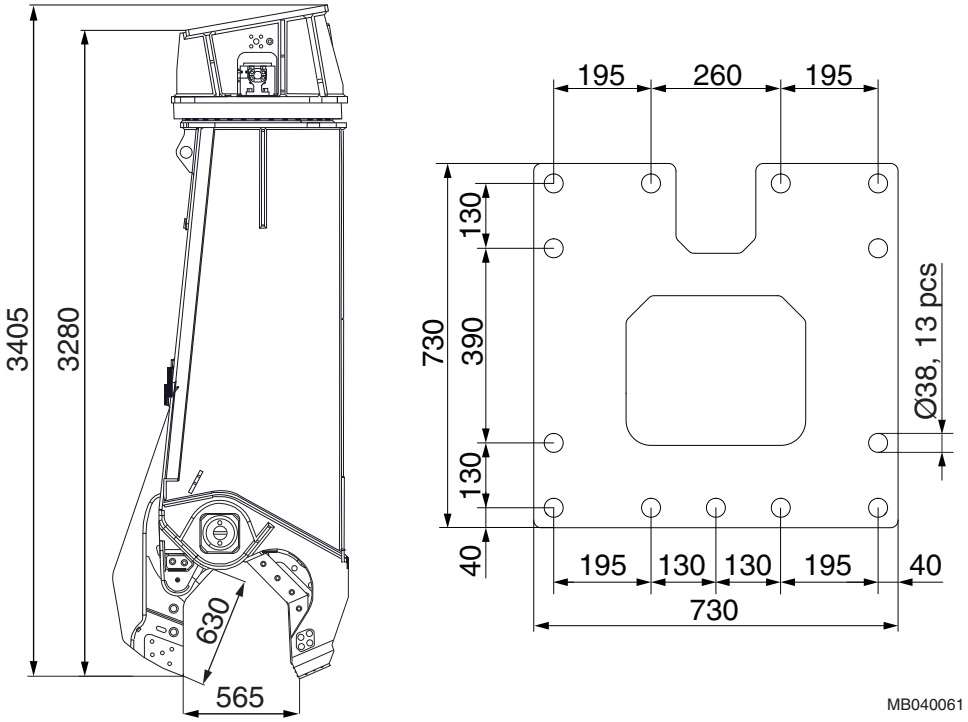


1.16 TECHNICAL SPECIFICATIONS RSS34R

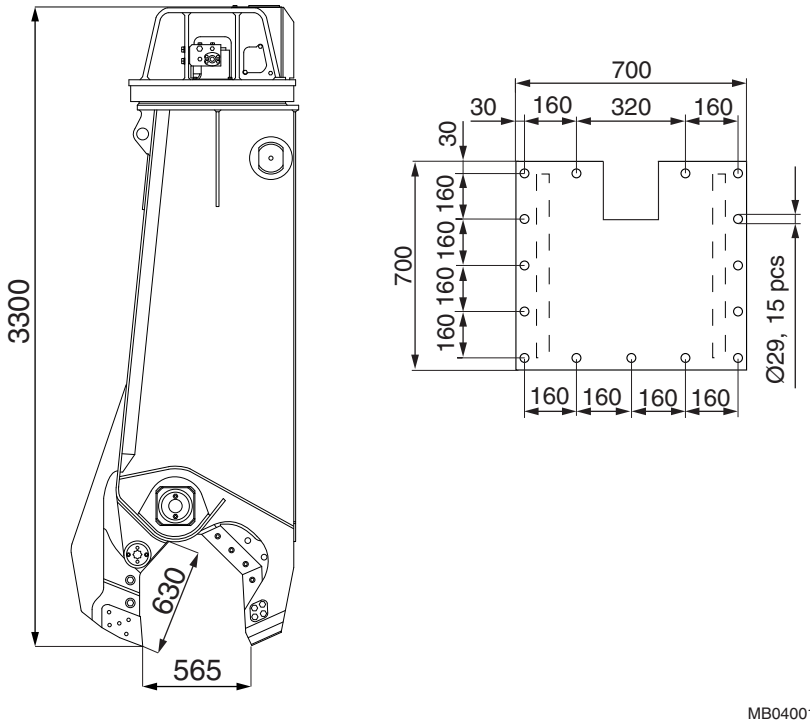
Item	Specification
Minimum working weight[1] (boom mounting)	3300 kg (7280 lb)
Minimum working weight[2] (stick mounting)	3450 kg (7610 lb)
Weight	3050 kg (6720 lb)
Max. jaw opening	565 mm (22.24 in)
Max. cutting force	2099 kN (471874 lbf)
Cutting force at upper tips	1107 kN (248864 lbf)
Operating pressure	320...350 bar (4640...5075 psi)
Oil flow	200...250 l/min (52.8...66.0 gal/min)
Hose connections	SAE 6000 psi 1"
Operating pressure, rotation	100...115 bar (1450...1670 psi)
Oil flow, rotation	30...40 l/min (7.9...10.6 gal/min)
Connections, rotation	1/2" GAS
Max. diameter to be cut	85 mm (3.35 in)
Jaw closing time at max oil flow	2.5 s
Jaw opening time at max oil flow	4.3 s
No. of cycles per minute at max oil flow	8.8 cycles/min
Optimum oil temperature	40...60 °C (104...140 °F)
Allowed oil temperature range	-20...80 °C (-4...176 °F)
Optimum oil viscosity at operating temperature	30...60 cSt
Allowed oil viscosity range	20...1000 cSt
Carrier weight[3] (boom mounting)	30...40 t (66100...88200 lb)
Carrier weight[4] (stick mounting)	20...28 t (44100...61700 lb)

1. Weight of unit with applicable jaws and standard bracket
2. Weight of unit with applicable jaws and standard bracket
3. Check carrier's lifting capacity from carrier manufacturer
4. Check carrier's lifting capacity from carrier manufacturer

1.17 MAIN DIMENSIONS RAMMER BOLT PATTERN



1.18 MAIN DIMENSIONS ORIGINAL

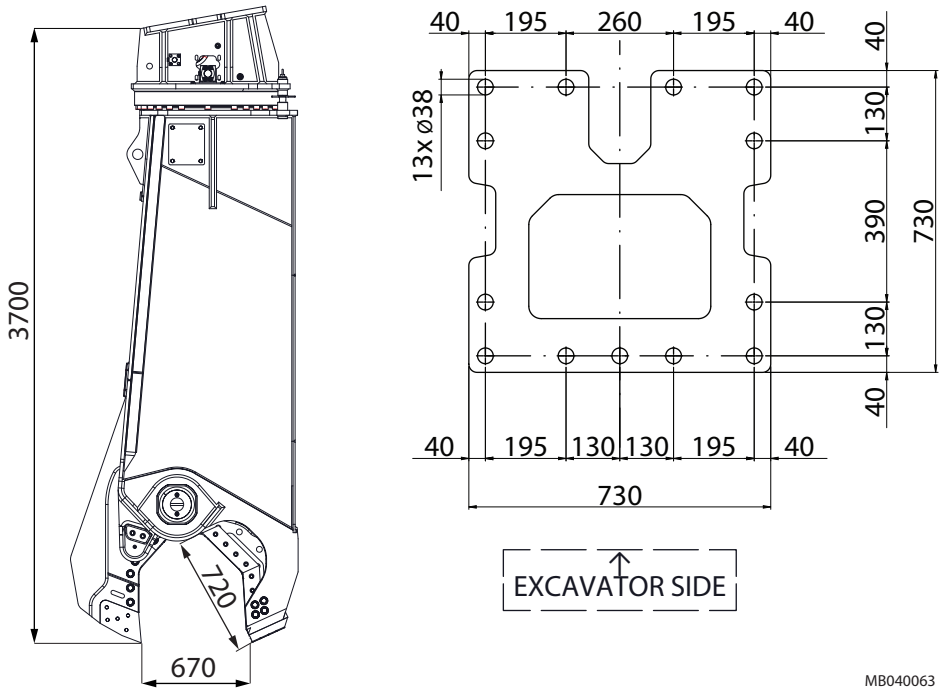


1.19 TECHNICAL SPECIFICATIONS RSS45R

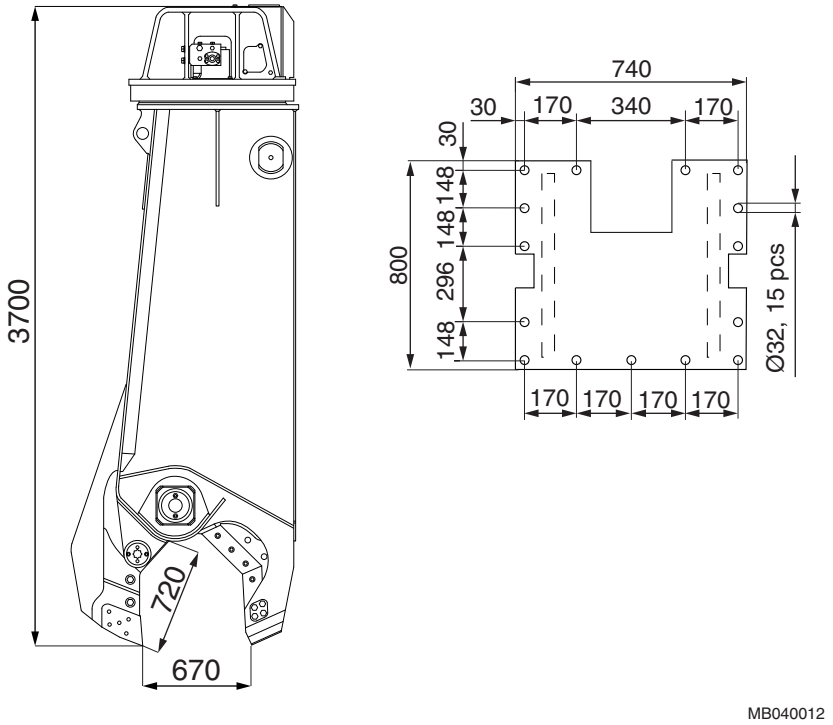
Item	Specification
Minimum working weight[1] (boom mounting)	4900 kg (10800 lb)
Minimum working weight[2] (stick mounting)	5250 kg (11570 lb)
Weight	4550 kg (10030 lb)
Max. jaw opening	670 mm (26.38 in)
Max. cutting force	2875 kN (646326 lbf)
Cutting force at upper tips	1514 kN (340361 lbf)
Operating pressure	320...350 bar (4640...5075 psi)
Oil flow	250...300 l/min (66.0...79.3 gal/min)
Hose connections	SAE 6000 psi 1 1/4"
Operating pressure, rotation	100...115 bar (1450...1670 psi)
Oil flow, rotation	30...40 l/min (7.9...10.6 gal/min)
Connections, rotation	1/2" GAS
Max. diameter to be cut	100 mm (3.94 in)
Jaw closing time at max oil flow	4.0 s
Jaw opening time at max oil flow	5.0 s
No. of cycles per minute at max oil flow	6.7 cycles/min
Optimum oil temperature	40...60 °C (104...140 °F)
Allowed oil temperature range	-20...80 °C (-4...176 °F)
Optimum oil viscosity at operating temperature	30...60 cSt
Allowed oil viscosity range	20...1000 cSt
Carrier weight[3] (boom mounting)	45...55 t (99200...121300 lb)
Carrier weight[4] (stick mounting)	28...35 t (61700...77200 lb)

1. Weight of unit with applicable jaws and standard bracket
2. Weight of unit with applicable jaws and standard bracket
3. Check carrier's lifting capacity from carrier manufacturer
4. Check carrier's lifting capacity from carrier manufacturer

1.20 MAIN DIMENSIONS RAMMER BOLT PATTERN



1.21 MAIN DIMENSIONS ORIGINAL

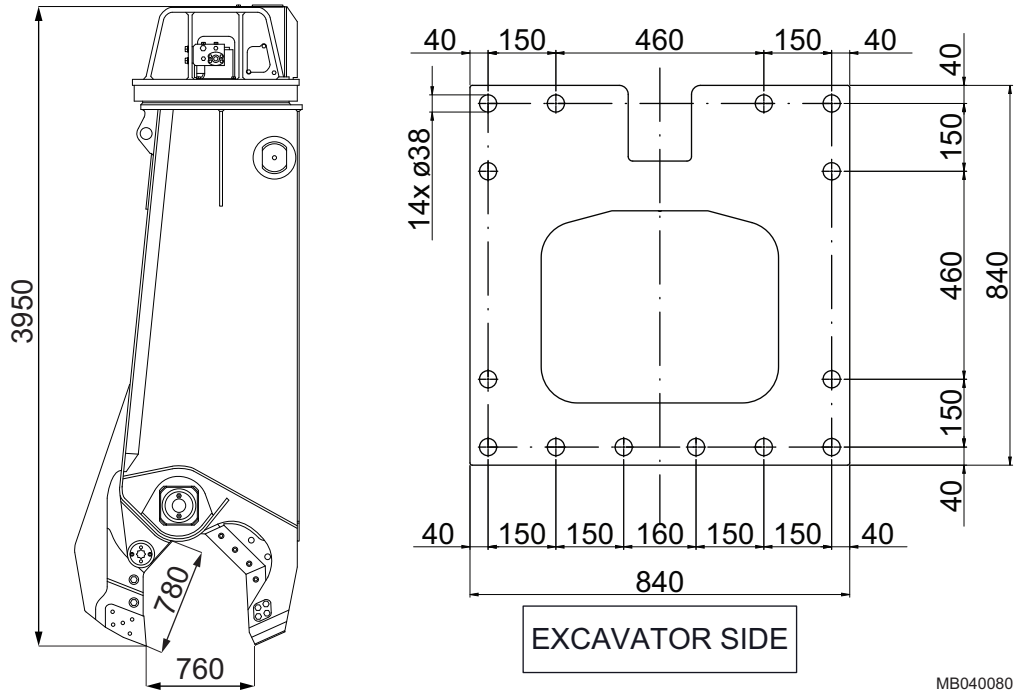


1.22 TECHNICAL SPECIFICATIONS RSS58R

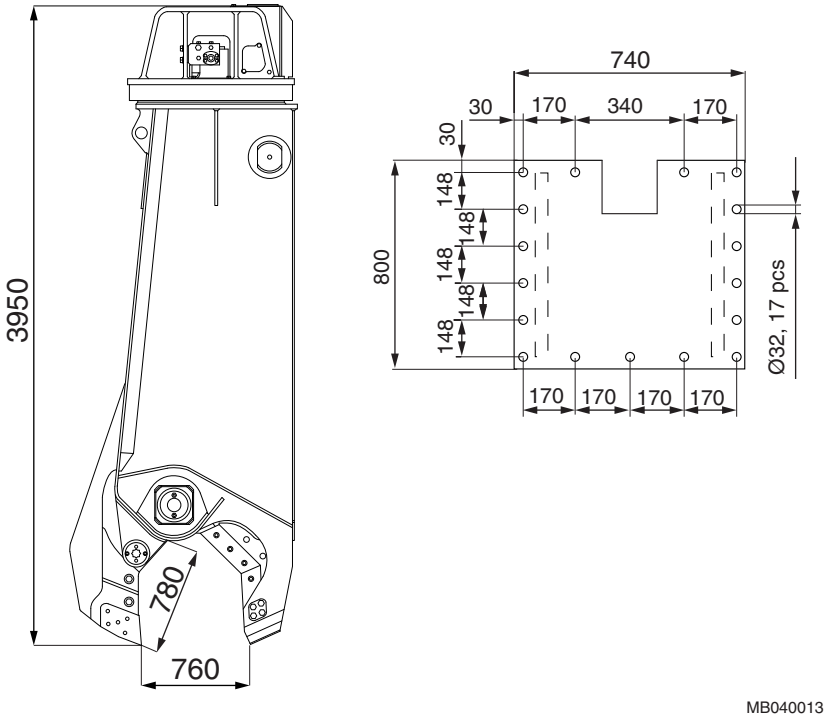
Item	Specification
Minimum working weight[1] (boom mounting)	6000 kg (13230 lb)
Minimum working weight[2] (stick mounting)	6300 kg (13890 lb)
Weight	5600 kg (12350 lb)
Max. jaw opening	760 mm (29.92 in)
Max. cutting force	3475 kN (781211 lbf)
Cutting force at upper tips	1848 kN (415447 lbf)
Operating pressure	320...350 bar (4640...5075 psi)
Oil flow	275...375 l/min (72.6...99.1 gal/min)
Hose connections	SAE 6000 psi 1 1/4"
Operating pressure, rotation	100...115 bar (1450...1670 psi)
Oil flow, rotation	30...40 l/min (7.9...10.6 gal/min)
Connections, rotation	1/2" GAS
Max. diameter to be cut	110 mm (4.33 in)
Jaw closing time at max oil flow	4.3 s
Jaw opening time at max oil flow	5.3 s
No. of cycles per minute at max oil flow	6.2 cycles/min
Optimum oil temperature	40...60 °C (104...140 °F)
Allowed oil temperature range	-20...80 °C (-4...176 °F)
Optimum oil viscosity at operating temperature	30...60 cSt
Allowed oil viscosity range	20...1000 cSt
Carrier weight[3] (boom mounting)	55...70 t (121300...154300 lb)
Carrier weight[4] (stick mounting)	35...45 t (77200...99200 lb)

1. Weight of unit with applicable jaws and standard bracket
2. Weight of unit with applicable jaws and standard bracket
3. Check carrier's lifting capacity from carrier manufacturer
4. Check carrier's lifting capacity from carrier manufacturer

1.23 MAIN DIMENSIONS RAMMER BOLT PATTERN



1.24 MAIN DIMENSIONS ORIGINAL

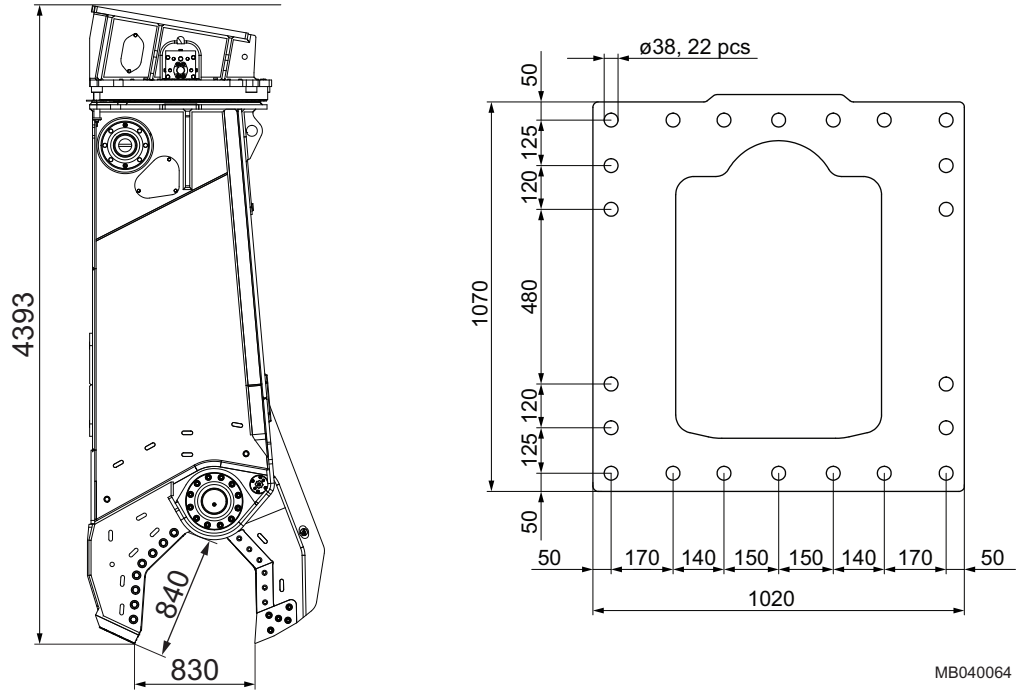


1.25 TECHNICAL SPECIFICATIONS RSS80R

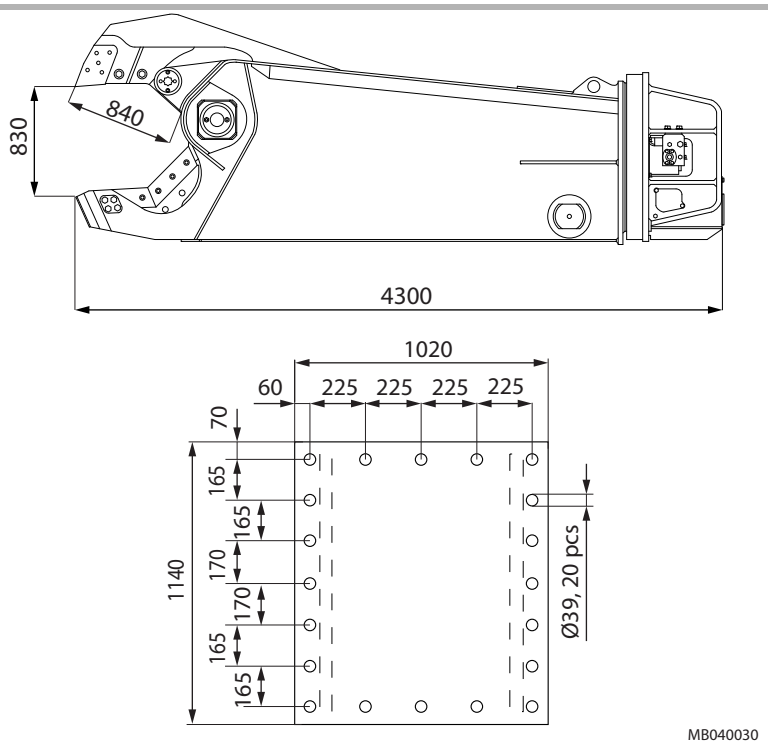
Item	Specification
Minimum working weight[1] (boom mounting)	8600 kg (18960 lb)
Minimum working weight[2] (stick mounting)	8750 kg (19290 lb)
Weight	7800 kg (17200 lb)
Max. jaw opening	830 mm (32.68 in)
Max. cutting force	3991 kN (897212 lbf)
Cutting force at upper tips	2142 kN (481541 lbf)
Operating pressure	320...350 bar (4640...5075 psi)
Oil flow	500...600 l/min (132.1...158.5 gal/min)
Hose connections	SAE 6000 psi 1 1/2"
Operating pressure, rotation	140...150 bar (2030...2175 psi)
Oil flow, rotation	50...60 l/min (13.2...15.9 gal/min)
Connections, rotation	1/2" GAS
Max. diameter to be cut	130 mm (5.12 in)
Jaw closing time at max oil flow	2.4 s
Jaw opening time at max oil flow	4.2 s
No. of cycles per minute at max oil flow	9 cycles/min
Optimum oil temperature	40...60 °C (104...140 °F)
Allowed oil temperature range	-20...80 °C (-4...176 °F)
Optimum oil viscosity at operating temperature	30...60 cSt
Allowed oil viscosity range	20...1000 cSt
Carrier weight[3] (boom mounting)	75...85 t (165300...187400 lb)
Carrier weight[4] (stick mounting)	45...60 t (99200...132300 lb)

1. Weight of unit with applicable jaws and standard bracket
2. Weight of unit with applicable jaws and standard bracket
3. Check carrier's lifting capacity from carrier manufacturer
4. Check carrier's lifting capacity from carrier manufacturer

1.26 MAIN DIMENSIONS RAMMER BOLT PATTERN



1.27 MAIN DIMENSIONS ORIGINAL



2. COMPLIANCE

2.1 EU DECLARATION OF CONFORMITY

EU DECLARATION OF CONFORMITY

Manufacturer: MANTOVANIBENNE S.R.L.

Address: VIA RIGHI, 6 41037 MIRANDOLA (MO), ITALY

Declares under our sole responsibility that the interchangeable product:

Rammer scrap shear

Model: RSS05S

Model: RSS08S

Model: RSS11S

Model: RSS15S

Model: RSS23S

Model: RSS34S

Model: RSS45S

Model: RSS58S

Model: RSS80S

Model	Serial number	Reference number
RSS05R	SS05RA	
RSS08R	SS08RA	
RSS11R	SS11RA	
RSS15R	SS15RA	
RSS23R	SS23RA	
RSS34R	SS34RA	
RSS45R	SS45RA	
RSS58R	SS58RA	
RSS80R	SS80RA	

Place of issue: Mirandola, Italy

Date of issue: dd.mm.yyyy

to which this declaration relates, conforms to the Basic Safety and Health Requirements of Directive 2006/42/EC.

Harmonized standards applied: EN474-1; EN474-5; EN12100-1; EN12100-2

Other standards applied: ISO 10567/92; ISO 7451/83; SAE J1097; DIN 15019; DIN 24086

Name and position of issuer: N.N

Signature of issuer: N.N

Issuer of technical dossier: M.M Via A. Righi, 6 41037 Mirandola (MO) Italy

Original

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9-36-14175-42-52-364