

Safety and operating instructions

Hydraulic demolition cutter

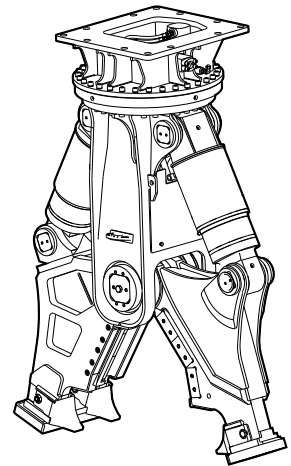


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1 Introduction

Epiroc is a leading productivity partner for the mining, infrastructure and natural resources industries. With cutting-edge technology, Epiroc develops and produces innovative drill rigs, rock excavation and construction equipment, and provides world-class service and consumables.

The company was founded in Stockholm, Sweden, and has passionate people supporting and collaborating with customers in more than 150 countries.

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1.1 About these Safety and Operating Instructions

The aim of these Instructions is to familiarise you with the safe and effective operation of the hydraulic attachment. You will also find instructions for regular maintenance activities for the hydraulic attachment in this document.



Please read these Instructions carefully prior to the first attachment and use of the hydraulic attachment.

The hydraulic demolition cutter CC 3700 with universal jaws is abbreviated in these Instructions to CC 3700 U, hydraulic demolition cutter CC 3700 with steel-cutting jaws to CC 3700 S.



The different designation of the texts means as follows:

▶	Action step in a safety instruction
♦	Action step
1. 2.	Established operation process
A B C	Explanation of the elements of a drawing
• • •	Listing

Symbols used in illustrations have the following meanings:

	permitted operation
	prohibited operation

2 Safety instructions

	This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.
	Read these Safety and operating instructions and specifically all safety instructions before using the hydraulic attachment. This will: <ul style="list-style-type: none"> • prevent the risk of injuries and fatal accidents for yourself and others, • protect the environment against environmental damage. • protect the hydraulic attachment and other property against material damage,

Follow all instructions in these Safety and operating instructions.

Store these Safety and operating instructions in the document compartment of the carrier cab.

Anyone

- transporting,
- installing or removing,
- operating,
- maintaining,
- repairing,
- storing or
- disposing of

the hydraulic attachment must have read and understood these Safety and operating instructions.

These Safety and operating instructions belong to the hydraulic attachment. Keep it for the life of the product. Ensure, if applicable, that any received amendment is incorporated in the instructions. Hand over the Safety and operating instructions if ever you lend, rent out or sell the hydraulic attachment.

All safety regulations listed in this manual comply with the laws and regulations of the European Union. Also observe the additional national/regional regulations.

Hydraulic attachment operation outside the European Union is subject to the laws and regulations valid in the country of use. Please observe any other, more stringent regional regulations and legislation.

Read the carrier manufacturer's Safety and operating Instructions before attaching the hydraulic attachment to the carrier and operating it. Observe all instructions.

2.1 Signal words

The signal words Danger, Warning, Caution, and Notice are used as follows in these Safety and operating instructions:

DANGER	indicates a hazardous situation which, if not avoided, will result in death or serious injury.
WARNING	indicates a hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION	indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE	The signal word NOTICE is used to address practices related to possible property damage but not related to personal injury.

2.2 Qualification

Transporting the hydraulic attachment is only permitted if carried out by people who:

- are authorised to operate a crane or a forklift truck according to the applicable national provisions,
- know all the relevant national/regional safety provisions and accident prevention rules,
- have read and understood the safety and transport chapter of these Safety and operating instructions.

Installing, maintaining, storing and disposing of the hydraulic attachment are only permitted if carried out by people who:

- know all the relevant national/regional safety provisions and accident prevention rules,
- have read and understood these Safety and operating instructions.

Welding of the hydraulic attachment is only permitted if carried out by qualified welders who:

- have been trained to operate MIG welding equipment according to the national regulations,
- know all the relevant national/regional safety provisions and accident prevention rules,
- have read and understood these Safety and operating instructions.

Operating the hydraulic attachment is only permitted if carried out by qualified carrier drivers. Carrier drivers are qualified if they:

- have been trained to operate a carrier according to the national regulations,
- know all the relevant national/regional safety provisions and accident prevention rules,
- have read and understood these Safety and operating instructions.

Testing the hydraulic installation is only permitted if carried out by professionals. Professionals are people who are authorised to approve a hydraulic installation for operation according to the national regulations.

Repairing the hydraulic attachment is only permitted if carried out by professionals trained by Construction Tools GmbH. These professionals must have read and understood these Safety and operating instructions. Otherwise the operational safety of the hydraulic attachment is not guaranteed.

2.3 Intended use

Only attach the hydraulic demolition cutter to a hydraulic carrier of a suitable load-bearing capacity. Read the carrier manufacturer's Safety and Operating Instructions before attaching the hydraulic demolition cutter to the carrier and operating it. Observe all instructions.

Only use the hydraulic jaw function of the equipment for the following work:

U version (Universal)

- light to medium-duty demolition
- heavy-duty industrial demolition (heavily reinforced concrete)
- cutting profiled steel (general construction steels)
- subsequent reduction
- material separation

S version (Steel cutting)

- demolition of steel construction buildings (general construction steels)
- subsequent reduction
- material separation

Intended use also implies observing all instructions in these Safety and Operating Instructions.

2.4 Use other than intended

Never use the hydraulic demolition cutter

- to cut steel plate and sheet metal This damages the hydraulic demolition cutter.
- as tank shears
- to cut high-quality steel grades, tensile strength > 370 N/mm², such as railway rails, tram rails and spring steel This may damage the hydraulic demolition cutter. Rails which break during the cutting process may be flung away and can cause serious injury if people are hit by them.
- to cut reinforcements with a tensile strength > 500 N/mm² This may damage the hydraulic demolition cutter.
- to cut wire rope This may damage the hydraulic demolition cutter. Wire ropes that are under tension can spring away during the cutting process. This can lead to serious injury if the ropes strike a person.
- to pull/tear at girders, braces and walls. This damages the hydraulic demolition cutter and adapter plate. The carrier may lose stability. It can topple over and cause injuries.
- to hit or chop This destroys the hydraulic demolition cutter.
- as a crow bar This destroys the hydraulic demolition cutter.

- to push debris This destroys the hydraulic demolition cutter.
- to move the carrier supported by the hydraulic demolition cutter This severely damages the hydraulic demolition cutter.
- to lift or transport loads This damages the hydraulic demolition cutter.
- under water This destroys the hydraulic demolition cutter and may damage the whole hydraulic installation.
- in explosion-hazard environments Explosions cause serious injury or death.

2.5 Protective equipment

Personal protective equipment must comply with the applicable health and safety regulations.

Always wear the following personal protective equipment:

- protective helmet
- safety glasses with side protectors
- protective gloves
- protective shoes
- warning vest

2.6 Carrier, precautions

▲ WARNING Falling carrier

If the load-bearing capacity of the carrier used is insufficient, the carrier will not be stable. It can topple over and cause injuries and damage.

Using a carrier whose load-bearing capacity is too high will greatly burden the hydraulic attachment causing it to wear faster.

- ▶ Only attach the hydraulic attachment to a hydraulic carrier of a suitable load-bearing capacity.
- ▶ The carrier must remain stable at all times.
- ▶ Read the carrier manufacturer's Safety and operating Instructions before attaching the hydraulic attachment to the carrier and operating it. Observe all instructions.

2.7 Transport, precautions

▲ WARNING Risk of death due to suspended loads

When lifting loads these can swing out and fall. This can result in serious injuries or even death.

- ▶ Never stand underneath or in the swinging range of suspended loads.
- ▶ Only move loads under supervision.
- ▶ Only use approved lifting equipment and lifting gear with sufficient load bearing capacity.
- ▶ Do not use worn lifting gear (ropes, belts, chains, shackles etc.).
- ▶ Do not place lifting gear such as ropes and belts on sharp edges or corners, do not knot these or twist them.
- ▶ When leaving the workplace, set down the load.

▲ WARNING Injury due to swivelling load

When transporting the load by crane it can swivel and cause severe injuries and considerable damage to property.

- ▶ Ensure that no personnel, objects or obstacles are located in the swivel range of the load.

2.8 Hydraulic installation, precautions

▲ WARNING Hydraulic pressure too high

If the hydraulic pressure is too high, the parts of the hydraulic attachment will be exposed to excessively high loads. Parts can break loose or burst causing serious injuries.

- ▶ Lay the drain line of the pressure relief valve directly in the tank to ensure the safe functioning of the pressure relief valve!
- ▶ The pressure relief valve must be set at the maximum static pressure.
- ▶ The pressure relief valve setting must be checked to ensure that the maximum static pressure (see chapter **Technical specifications**) of the hydraulic installation is not exceeded at any time. Attach a lead seal to the pressure relief valve.
- ▶ Prior to their first use, the safety facilities on the hydraulic installation must be checked by a professional/authorised monitoring body for their quality (CE mark etc.), suitability and proper functioning.
- ▶ If any significant changes are made to the hydraulic installation, a new acceptance inspection is to be carried out in accordance with the relevant national safety provisions.

▲ WARNING Hot hydraulic oil squirting out

The hydraulic system is under high pressure. Hydraulic lines may spring a leak or burst. Hydraulic oil squirting out can lead to serious injury.

- ▶ When attaching the hydraulic attachment do not lay any hydraulic lines through the carrier's cab.
- ▶ Only use hydraulic lines which comply with the following quality requirements:
 - For the function open and close
 - Hydraulic hoses with 4 reinforcement steel wires according to DIN EN 856 4SH,
 - Hydraulic pipes, seamless cold-drawn steel pipes according to DIN EN 10305
 - For the function turn
 - Hydraulic hoses with 2 steel plaitings according to DIN EN 853 2SN,
 - Hydraulic pipes, seamless cold-drawn steel pipes according to DIN EN 10305.

2.9 Media/consumables, precautions

▲ WARNING Hot hydraulic oil under high pressure

Hydraulic oil will squirt out under high pressure if there is a leakage. The jet of oil might penetrate people's skin and cause permanent damage. Hot hydraulic oil can cause burns.

- ▶ Never use your hands to find leaks.
- ▶ Always keep your face away from a possible leak.
- ▶ If hydraulic oil has penetrated your skin consult a doctor immediately.

▲ WARNING Hydraulic oil spills

Spilt hydraulic oil can make a floor slippery. If people slip they can be injured. Hydraulic oil is environmentally harmful and must not penetrate the ground or enter the water table or water supplies.

- ▶ Make sure not to spill any hydraulic oil.
- ▶ Immediately clean the floor if you have spilt hydraulic oil.
- ▶ Observe all safety and environmental protection provisions when handling hydraulic oil.

▲ WARNING Skin infections/diseases due to oil and grease

Hydraulic oil and grease can cause rashes (or even eczema) if they come into contact with the skin.

- ▶ Avoid all skin contact with hydraulic oil and grease.
- ▶ Use a suitable skin protection product.
- ▶ Always wear safety gloves when working with hydraulic oil or grease.
- ▶ Immediately clean any skin that has been contaminated by oil or grease with water and soap.

2.10 Explosion and fire, precautions

▲ DANGER Explosion and fire

Explosions cause serious injury or death. Explosives being cut by the hydraulic demolition cutter may lead to an explosion.

- ▶ Never operate the hydraulic demolition cutter in the direct vicinity of explosives.
- ▶ Make sure that no explosives are hidden in the concrete.
- ▶ Check gas line position plans of the complete construction area.

▲ DANGER Explosion and fire

Operating the hydraulic demolition cutter may create sparks which ignite highly flammable gases. This may lead to fire or an explosion.

- ▶ Never work in an environment with highly flammable substances.
- ▶ Make sure that there are no hidden sources of gas in the work area.
- ▶ Check gas line position plans of the complete construction area.

▲ DANGER Explosion and fire

Dust-rich air can form an explosive atmosphere which may ignite when operating the hydraulic demolition cutter. This may lead to fire or an explosion.

- ▶ Never operate the hydraulic demolition cutter in an explosion-hazard atmosphere.
- ▶ Always provide sufficient ventilation when working in buildings or in a confined area.

2.11 Electrical shock, precautions

▲ DANGER Electrical shock

Any contact of the hydraulic attachment with electric circuits or other sources of electricity will lead to an electric shock, resulting in serious injury or death. The hydraulic attachment is not electrically insulated.

- ▶ Never work in the vicinity of electric circuits or other sources of electricity.
- ▶ Make sure that there are no hidden circuits in the work area.
- ▶ Check wiring diagrams.

2.12 Falling stones, precautions

▲ WARNING Fragments flying around

Fragments of material which come loose while operating the hydraulic attachment may be flung away and can cause serious injury if people are hit by them. Small objects falling from a great height can also cause serious damage.

During hydraulic attachment operation the danger zone is considerably greater than during the excavation operation due to fragments of stone and pieces of steel flying around, and for this reason the danger zone must, depending on the type of material to be worked on, be enlarged correspondingly, or secured in a suitable manner through corresponding measures.

- ▶ Secure the danger zone.
- ▶ Stop the hydraulic attachment immediately if anyone enters the danger zone.
- ▶ Close the windscreen and the side windows of the driver's cab.

2.13 Emissions, precautions

▲ **WARNING Lung disease**

Dust may be generated when operating the hydraulic attachment. If dust from rocks or silica dust, produced when operating the hydraulic attachment on rocks, concrete, asphalt or other such materials, is inhaled this may lead to silicosis (dust lungs, a severe lung disease). Silicosis is a chronic disease which may lead cancer and death.

- ▶ Wear a suitable breathing mask.

2.14 Handling machines, precautions

▲ **WARNING Narcotics, alcohol and drugs**

Narcotics, alcohol and medicinal drugs make their users less alert and affect their ability to concentrate. Negligence and incorrectly assessing a situation can result in serious injury or death.

- ▶ Never work on or with the hydraulic attachment when under the influence of narcotics, alcohol or drugs which affect your alertness.
- ▶ Never allow other people who are under the influence of narcotics, alcohol or drugs which affect their alertness to work on or with the hydraulic attachment.

2.15 Changes to the hydraulic attachment, precautions

▲ **WARNING Changes to the hydraulic attachment**

Changes to the hydraulic attachment or the adapter plate may lead to serious injury.

- ▶ Never carry out any changes to the hydraulic attachment or the adapter plate.
- ▶ Only use original parts or accessories approved by Epiroc.
- ▶ Modifications that entail new hazards may require a new procedure for assessing conformity.

2.16 Environmental pollution, precautions

NOTICE Environmental pollution due to hydraulic oil

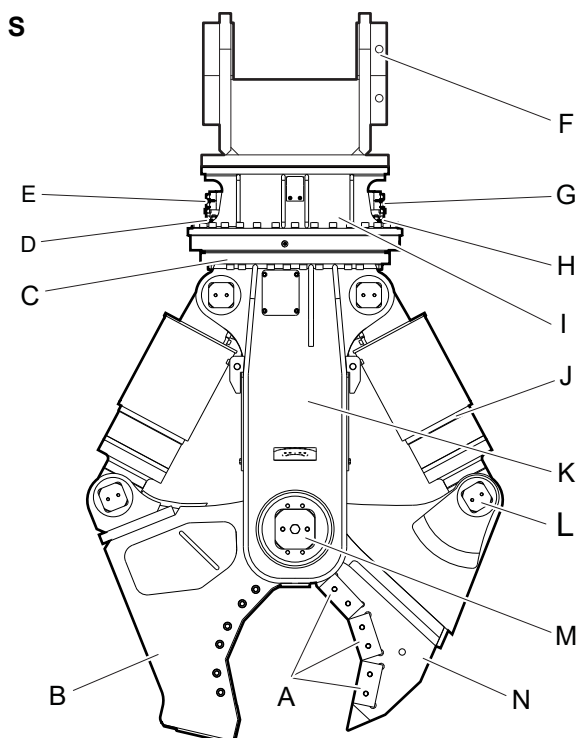
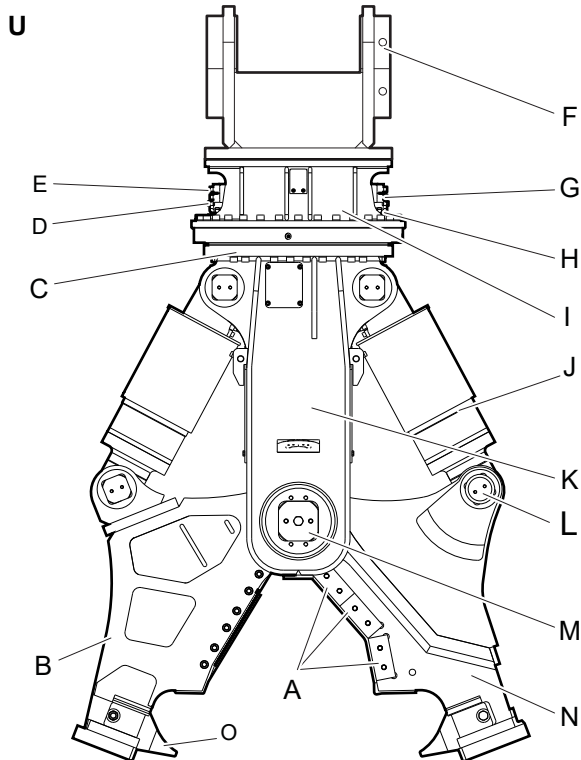
Hydraulic oil is permanently environmentally harmful. Escaped hydraulic oil will lead to groundwater and soil contamination. Organisms may die.

- ▶ Collect any hydraulic oil which escapes to avoid environmental pollution. For minor volumes use an absorbing medium (in case of an emergency use soil). In case of major leakages contain the hydraulic oil. It must not drain off and penetrate the ground or enter the water table or water supplies.
- ▶ Collect contaminated absorbing medium or soil in a watertight box/container and close it tight.
- ▶ Contact an authorized waste management company.
- ▶ Dispose of all contaminated material in accordance with the applicable environmental regulations.

3 Overview

3.1 Equipment description

The illustration gives an overview of the main parts and components of the hydraulic attachment. Actual details may differ.



- A. Cutter blades
- B. Cutter jaw (double)
- C. Four-point bearing
- D. Connection function »Turn«
- E. Connection »A« function »Open«
- F. Adapter plate (not supplied with the hydraulic demolition cutter)
- G. Connection »B« function »Close«
- H. Connection function »Turn«
- I. Upper part
- J. Hydraulic cylinder
- K. Housing
- L. Cylinder pin
- M. Main bearing pin
- N. Cutter jaw (single)
- O. Tip of tooth

3.2 Function

The operation of a hydraulic demolition cutter is described in a simplified version below:

Closing the hydraulic demolition cutter

The carrier driver operates the cutter valve, via a switch on the floor or via a joystick in the carrier, for the function »Close«. Line »B« is connected to the rapid movement valve. The rapid movement valve feeds oil to the hydraulic cylinders. The hydraulic cylinders extend their piston rods in fast traverse. The cutter jaws grip the debris. Once the debris has generated a force in the cutter jaw, the rapid movement valve switches to power movement. The hydraulic cylinders extend their piston rods in power movement. The debris is cut/broken. The piston rods reach their end position.

Opening hydraulic demolition cutter

The carrier driver operates the cutter valve, via a switch on the floor or via a joystick in the carrier, for the function »Open«. Oil is fed to the hydraulic cylinders via line »A«. The piston rods retract. The cutter jaws open.

Hydraulically turning the hydraulic demolition cutter

The carrier driver activates the carrier function »Turn«. Oil is fed to the hydraulic motor. The hydraulic motor, located in the upper part of the hydraulic demolition cutter, causes the lower part of the hydraulic demolition cutter to turn (cutter casing, cutter jaws, hydraulic cylinder). To achieve endless turning of the lower part of the hydraulic demolition cutter, there is a rotary transmission between the upper part and cutter casing. The oil flows for the functions »Open« and »Close« are transmitted through the rotary transmission.

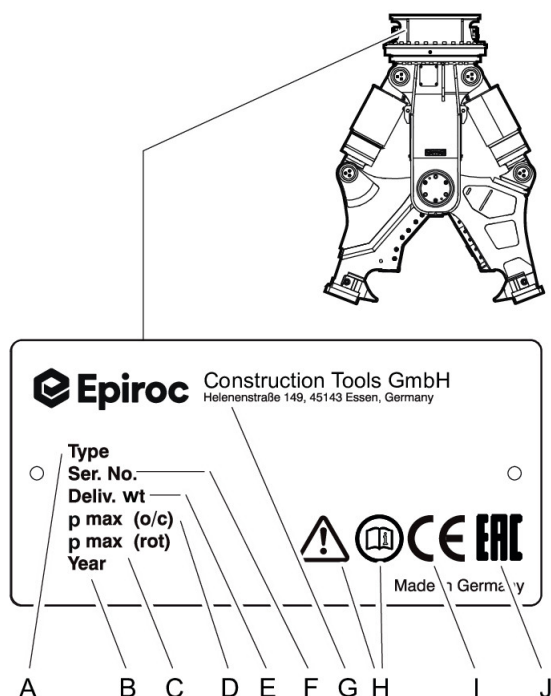
3.3 Signs / labels

▲ WARNING Missing warnings

The name plate and the labels on the hydraulic attachment contain important information about the hydraulic attachment and for personal safety. A missing warning can lead to overlooking or misinterpretation of possible risks and cause personal hazards. The signs and labels must always be clearly legible.

- Immediately replace any defective name plates and labels.
- Use the spare parts list to order new name plates and labels.

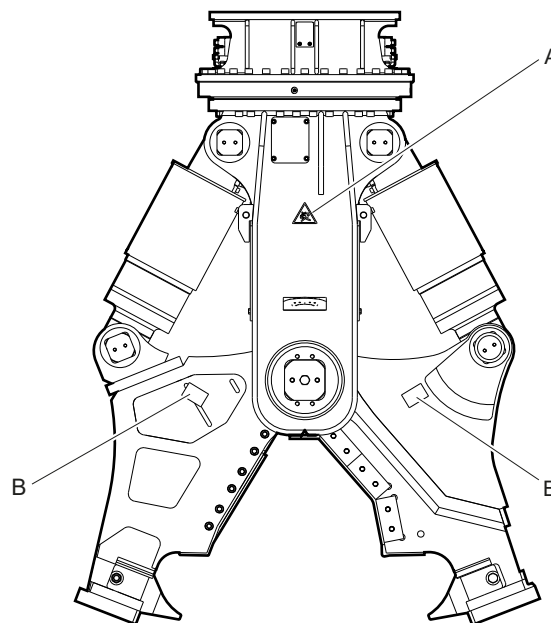
3.3.1 Name plate



- A. Model
- B. Year of construction of hydraulic attachment
- C. Max. permissible operating pressure »Turn«
- D. Max. permissible operating pressure »Open / Close«
- E. Weight of hydraulic attachment
- F. Serial number
- G. Name and address of manufacturer
- H. The warning symbol and the book symbol indicate that the Safety and Operating Instructions must be read prior to use of the hydraulic tool and in particular the chapter on Safety.

- I. The CE symbol indicates that the hydraulic attachment was produced in conformity with the CE. You can find further information about this in the enclosed EC Declaration of Conformity.
- J. The EAC symbol means that the machine is EAC approved.

3.3.2 Labels



- A. Danger zone
- B. Tightening torque

Danger zone



No persons should be within the danger zone. Fragments of material which come loose while operating the hydraulic attachment may be flung away and can cause serious injury if people are hit by them. Small objects falling from a great height can also cause serious damage.

Tightening torque



The label states the tightening torque depending on the screw size.

3.4 Applications

U version (universal)

Field	Type of application
Demolition work	Light to medium-duty building demolition, heavy-duty industrial demolition (heavily reinforced concrete)
	Cutting profiled steel (general construction steels)
	Subsequent reduction
	Material separation

S version (steel cutting)

Field	Type of application
Demolition work	Demolition of steel construction buildings (general construction steels)
	Subsequent reduction
	Material separation

3.5 Guarantee

The guarantee or product liability will be invalidated by the following:

- Use other than intended
- Maintenance work not being carried out or being carried out incorrectly
- The use of incorrect consumables
- The use of non-approved parts
- Damage due to wear
- Damage due to improper storage
- Changes not carried out by or in consultation with the manufacturer

3.6 Removing the packaging

- Remove all the packaging material.
- Dispose of it in accordance with the applicable provisions.
- Check that the delivery is complete.
- Check the delivery for visual damage.
- If any defects are found, consult the Epiroc Customer Center / dealer in your area.

3.7 Scope of delivery

The hydraulic demolition cutter is delivered complete with:

- Hydraulic demolition cutter
- Safety and Operating Instructions
- Spare parts list
- EC Declaration of Conformity

Accessories as ordered:

- Hoses

Special accessories as ordered:

- e.g. adapter plate with Allen screws and pairs of lock washers
- e.g. base plate to construct an adapter plate with Allen screws and pairs of lock washers
- e.g. bump key to tighten the Allen screws of the adapter plate
- e.g. hydraulic fittings for the carrier
- e.g. bolt cage to disassemble the main bearing pin when changing a cutter jaw pair

4 Transport

▲ WARNING Hoist tipping over / hydraulic attachment falling

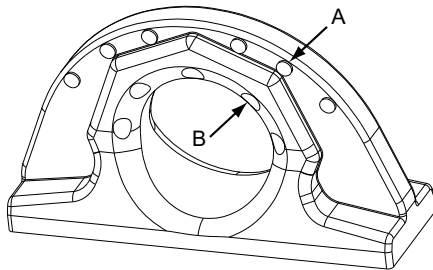
The hydraulic attachment is heavy. The hoist/lifting equipment and/or hydraulic attachment tipping over or falling may cause serious injury and material damage.

- ▶ Only transport the hydraulic attachment with lifting equipment with the right load-bearing capacity for the weight of the hydraulic attachment.
- ▶ Only lift and secure the hydraulic attachment with lifting gear (ropes, chains, shackles etc.) with the right load-bearing capacity for the weight to be lifted.
- ▶ Make sure that there is nobody near or under the suspended hydraulic attachment.

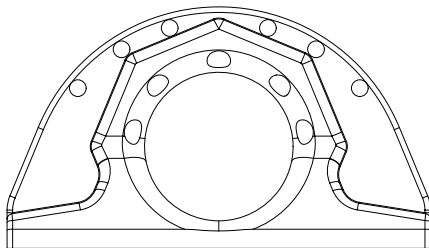
▲ WARNING Hydraulic attachment falling

The lifting eye may fail and cause the hydraulic attachment to fall. This may cause serious injury and material damage.

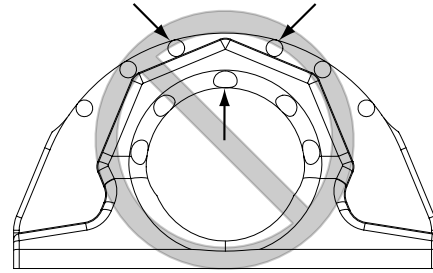
- ▶ Check the lifting eye before you lift the hydraulic attachment. Never lift the hydraulic attachment with the lifting eye if:
 - the checkpoints (A) are worn and not protruding anymore or the checkpoints (B) are worn and not recessed anymore.



- the material is worn up to the checkpoints (A, B).



- Use permitted



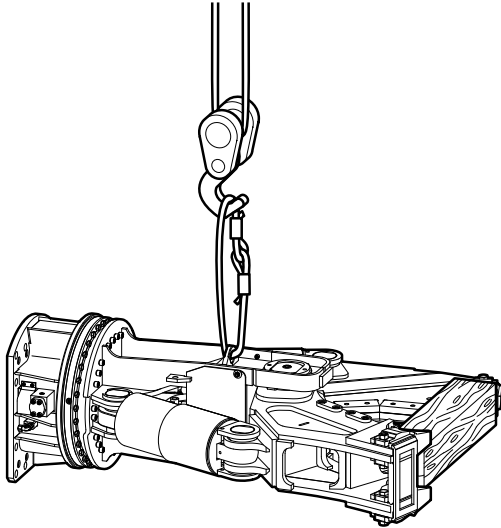
Use

- prohibited
 - the lifting eye is bent.
 - you detect cracks in the lifting eye or the weld seam.
- ▶ Contact the Epiroc Customer Center / Dealer in your area if the lifting eye is worn in any way.
- Transport the hydraulic demolition cutter with the cutter jaws open.

There is less oil in the hydraulic demolition cutter if the hydraulic demolition cutter is transported with open cutter jaws. In the event of a leak, less oil is lost and the environmental damage is lower.
- Open the hydraulic demolition cutter before transporting it.
- If the hydraulic demolition cutter is transported using a crane, secure the cutter jaws with a square timber to keep them open.
- If the hydraulic demolition cutter is transported with a forklift truck or lorry, secure the cutter jaws to the pallet with suitable strapping to keep them open.

4.1 Transport using a crane

- Secure the hydraulic attachment with ropes or chains as shown in the following illustration.



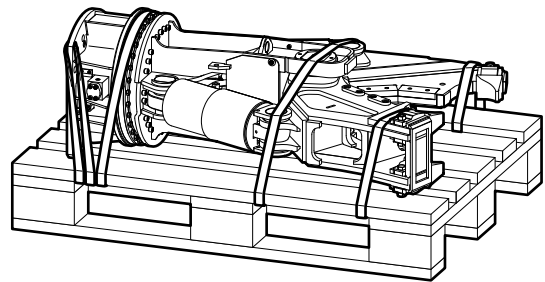
- Slowly lift the hydraulic attachment.
- Place the hydraulic attachment on a pallet.

4.2 Transport using a forklift truck

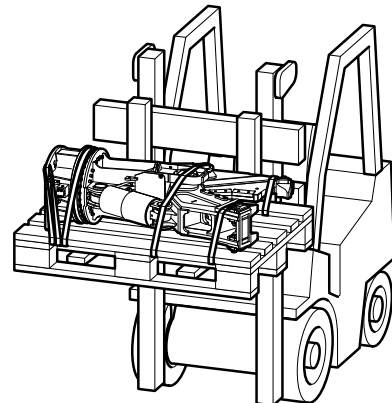
▲ WARNING Hydraulic attachment tipping over

The hydraulic attachment tipping off the fork of the forklift truck or the pallet may cause serious injury.

- ▶ Place the hydraulic attachment on a pallet.
- ▶ Strap the hydraulic attachment to the pallet using suitable strapping, as shown in the illustration below.
- ▶ Move the fork of the forklift truck under the pallet so that the centre of gravity is between the prongs.



- Move the fork of the forklift truck under the pallet so that the hydraulic attachment cannot tip over.



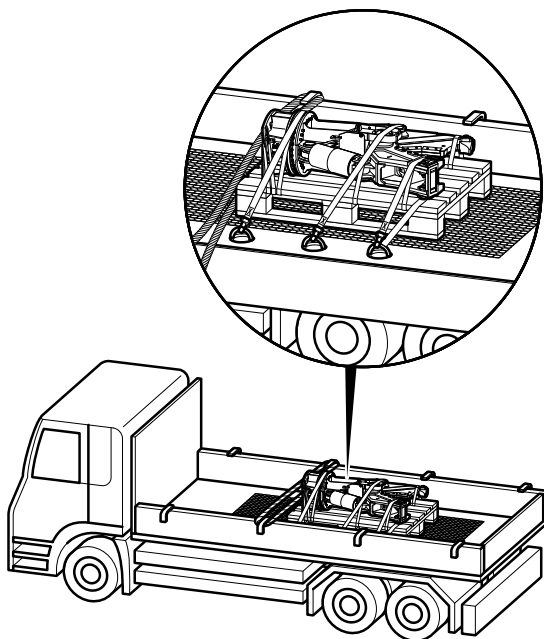
- Slowly lift the pallet with the hydraulic attachment.
- Transport the pallet with the hydraulic attachment to the location provided for.

4.3 Transport using a truck

▲ **WARNING Hydraulic attachment tipping over / slipping**

The hydraulic attachment slipping or tipping over and falling from the loading area of a lorry may cause serious injury.

- ▶ Place the hydraulic attachment on a pallet.
- ▶ Strap the hydraulic attachment to the pallet using suitable strapping (see illustration in chapter **Transport using a forklift truck**).
- ▶ Place the pallet with the hydraulic attachment on an anti-slip mat.
- ▶ Secure the hydraulic attachment to the loading area with ropes or chains; use any available transport lugs.
- Secure the hydraulic attachment on the pallet and the loading surface as shown in the following illustration.
- Observe all the applicable national/regional regulations on securing loads.



5 Installation

▲ WARNING Hot hydraulic oil squirting out

The hydraulic system is under high pressure. If hydraulic connections come loose or are disconnected, hydraulic oil will squirt out under high pressure. Hydraulic oil squirting out can lead to serious injury.

- Depressurise the hydraulic system before connecting or disconnecting the hydraulic circuits of the hydraulic attachment (see chapter **Depressurising the hydraulic system**).

NOTICE Environmental damage due to hydraulic oil

Hydraulic oil is environmentally harmful and must not penetrate the ground or enter the water table or water supplies.

- Collect any hydraulic oil which escapes.
- Dispose of it in accordance with the applicable environmental regulations.

5.1 Media/consumables

The following consumables are used when operating the hydraulic attachment:

5.1.1 Mineral hydraulic oil

All hydraulic oil brands prescribed by the carrier manufacturer are also suitable for use when operating the hydraulic attachment.

However, the oil should comply with viscosity class HLP 32 or higher.

In summer and in hot climates, oils of viscosity class HLP 68 or higher should be used.

In all other respects the regulations of the carrier manufacturer are to be taken into consideration.

Optimum viscosity range	= 30 - 60 cSt
Max. start viscosity	= 2000 cSt
Max. oil temperature	= 80 °C

Special conditions apply to using the hydraulic attachment at low temperatures (see chapter **Low ambient temperature**).

- Check the oil filter!

An oil filter must be integrated in the tank line of the hydraulic system. The maximum mesh width allowed for the oil filter is 50 microns; it must have a magnetic separator.

5.1.2 Non-mineral hydraulic oil

NOTICE Mixed hydraulic oil

Never mix mineral and non-mineral hydraulic oils! Even small traces of mineral oil mixed in with non-mineral oil can result in damage to both the hydraulic attachment and the carrier. Non-mineral oil loses its biodegradability.

- Only use one type of hydraulic oil.

If you are using non-mineral oil it is imperative that the name of the oil in use be indicated when returning the hydraulic attachment for repair.

In order to protect the environment or on technical grounds, hydraulic oils are currently being used which are not classified as HLP mineral oils.

Before using hydraulic oils of this kind it is imperative to ask the carrier manufacturer whether operations with such fluids are possible.

Our hydraulic attachments are basically designed for use with mineral oils. Consult the Epiroc Customer Center / Dealer in your area before using other hydraulic oils approved by the carrier manufacturer. Following initial assembly and after any workshop repairs, our hydraulic attachments are subjected to a test run on a test bed powered by **mineral oil**.

5.1.3 Grease

- When handling oils and greases observe the safety instructions that apply to these products.

Media /consumables	Part number
Cutter grease	3363 0949 14
Parker O-Lube	

5.2 Manufacturing the adapter plate

Construction Tools GmbH also supplies base plates to manufacture adapter plates alternatively to the adapter plates supplied.

NOTICE Adapter plate cracking

The adapter plate may crack if it is not designed for the high load.

- Take not only the weight of the hydraulic attachment but also the crowd force of the carrier, possible vibration etc. into account when dimensioning the adapter plate.
- Ensure that the design conforms to the state of the art.
- Have the web plates welded to the adapter plate base plate by a qualified welding specialist.

The base plate is made of the material EN10025-S355 J2G3.

- Have the web plates designed and manufactured or procure web plates to fit your carrier.
- Ensure that the web plates are welded to the base plate side marked "TOP".

The adapter plate must not strike in any position during operation of the hydraulic attachment.

Construction Tools GmbH does not design, manufacture or sell web plates for adapter plates.

5.3 Installing the adapter plate

NOTICE The adapter plate can come loose

The adapter plate can come loose if the fastening screws are not designed for local high loads.

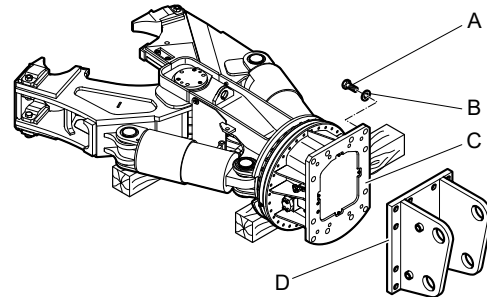
- Only use the Allen screws of strength category 8.8 and the pairs of lock washers included in the delivery to attach the adapter plate or the base plate.
- Place the hydraulic demolition cutter on timber support blocks within the range of the carrier. The data plate is upwards. It is at the upper part of the hydraulic demolition cutter.
- Apply anti-seize compound to the Allen screw threads (A) before inserting them.

The contact faces of the screw head and the lock washers (B) must not be lubricated.

▲ WARNING Hands and fingers being cut off or hurt

Bores and surfaces can act like a pair of scissors and cut off or hurt parts of your body.

- Never use your fingers to check bores or fitting surfaces.
- Align the adapter plate (D) to the upper part (C) of the hydraulic demolition cutter as shown.



- Fit a pair of lock washers (B) onto every screw.
- Tighten the Allen screws (A) with an Allen key.
- Tighten the Allen screws (A) with the required tightening torque.

Type	Key size	Tightening torque
CC 1600	22 mm (0.89 in.)	1500 Nm (1106 ft lbs)
CC 2300	22 mm (0.89 in.)	1500 Nm (1106 ft lbs)
CC 3100	22 mm (0.89 in.)	1500 Nm (1106 ft lbs)
CC 3700	27 mm (1.06 in.)	2300 Nm (1696 ft lbs)

5.4 Attaching the hydraulic attachment to the carrier

5.4.1 Mechanical mounting aspects

You need an assistant to attach the hydraulic attachment to the carrier.

- Agree on hand signals with your assistant, to enable him to help you place the carrier in the proper position to attach the hydraulic attachment.
- Lower the stick of the carrier into the holder provided on the adapter plate.

▲ WARNING Injury by impacts

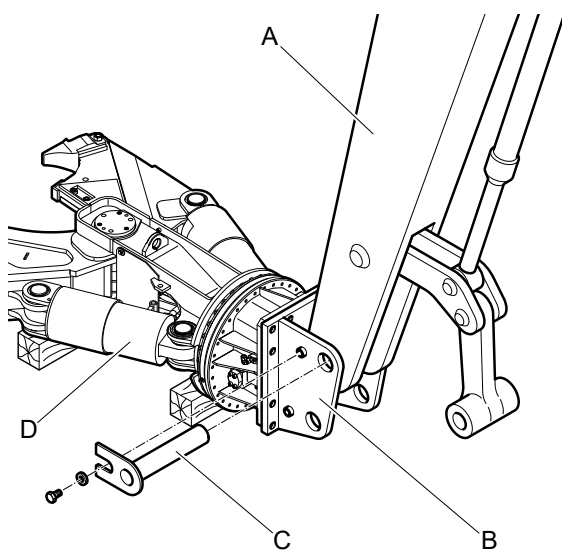
A sudden movement of the carrier may cause your assistant to be hit and injured by the boom or the hydraulic attachment.

- ▶ Only move the boom very slowly and in a controlled manner while an assistant is within the danger zone.
- ▶ Always keep sight of your assistant.

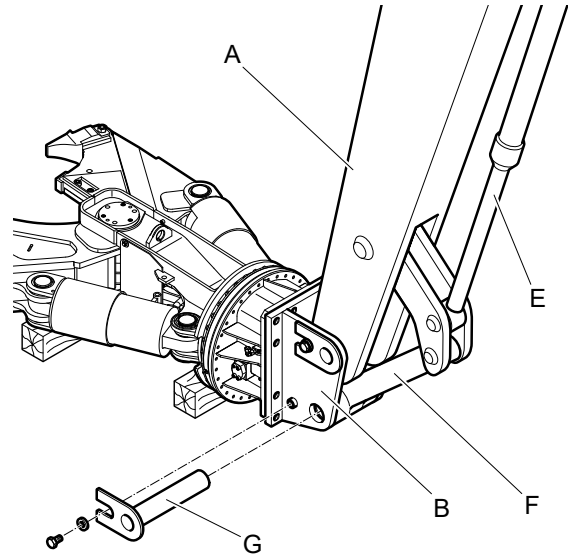
▲ WARNING Hands and fingers being cut off or hurt

Bores and surfaces can act like a pair of scissors and cut off or hurt parts of your body.

- ▶ Never use your fingers to check bores or fitting surfaces.
- Let your assistant instruct you until the bores in the adapter plate (B) and in the stick (A) are properly aligned.
- Install the stick bolt (C) and lock it.



- Lift the hydraulic attachment (D).



- Extend the bucket cylinder (E) until the bore in the linkage (F) aligns with the bore in the adapter plate (B).
- Install the linkage bolt (G) and lock it.
- Carefully move the bucket cylinder (E) into both end positions.

The adapter plate must not be stopped by the mechanical stops in either position. Consult the Epiroc Customer Center / Dealer in your area if the adapter plate is stopped by a mechanical stop.

5.4.2 Making the hydraulic connections

NOTICE Faulty hydraulic installation

The carrier must have a suitable hydraulic installation to operate the hydraulic attachment. Improperly installed lines and incorrectly rated sizes may cause the oil to heat up and the hydraulic attachment to be damaged.

- ▶ Only use hydraulic lines of the rated sizes as instructed (see chapter **Technical Specifications**).
- ▶ Check the rated size of the hydraulic lines on existing hydraulic installations! All supply and return lines for the hydraulic oil must have a sufficient inside diameter and wall thickness.
- ▶ Route all hydraulic hoses in a torsion-free manner.
- Switch off the carrier.
- Depressurise the hydraulic system according to the manufacturer's safety and operating instructions for the carrier.
- Close all shut-off valves in the installation at the boom, if no quick couplings are used.

NOTICE Damage to hydraulic parts

Polluted hydraulic lines and connections may enable sand, fragments of material and dirt to penetrate the hydraulic attachment and damage the hydraulic parts.

- Clean the hydraulic lines and connections prior to connecting the hydraulic lines.
- Have dirty hydraulic lines rinsed through by a specialist company.
- Clean dirty hydraulic line connections with a suitable grease-dissolving universal cleaner.
- Observe the cleaner manufacturer's information on safety and use.

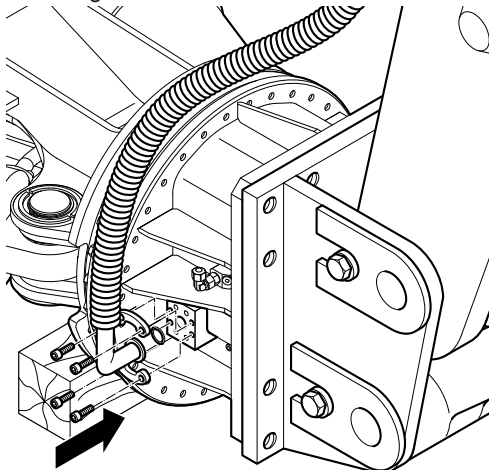
Connecting hydraulic hoses for the functions

»Open / Close«

- Remove the blank flange from the connections »A« and »B« at the upper part of the hydraulic attachment and keep them in a safe place.

The connection of function »Open« is marked with an »A«, the connection of function »Close« with a »B« at the edge of the connecting plate of the upper part.

- Check that the connections on the hydraulic attachment and on the hoses are not damaged.
- Change any damaged connections.
- Grease the flange O-rings with Parker O-Lube and insert them.
- Position hose flange for connection »A«.
- Fix the flange halves on both sides of the flange with the fixing screws.
- Position other hose flange for connection »B«.
- Fix the flange halves on both sides of the flange with the fixing screws.



When both input lines have the same operating pressures,

- connect the two hoses at the boom in a torsion-free manner.

If the two input lines have different operating pressures,

- connect the hose connected to connection »B« to the input line which has the higher operating pressure in a torsion-free manner.
- Connect the hose connected to connection »A« to the input line which has the lower operating pressure in a torsion-free manner.

▲ WARNING Hydraulic hose flailing about

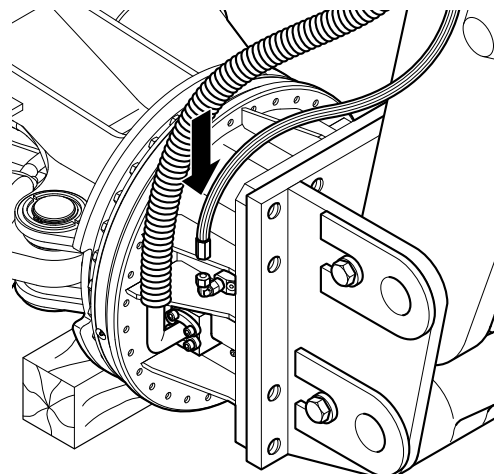
Pressurised hydraulic hoses will flail about if a bolted connection comes loose or becomes loosened. A hydraulic hose flailing about may cause serious injuries.

- Tighten the fastening screws with the right tightening torque.

Tightening torque (see chapter **Bolt connections / Tightening torques**).

Connecting hydraulic hoses for the function »Turn«

- Remove the cap nuts and plugs from the »Turn« connections and save them for future use.
- Check that the connections on the hydraulic attachment and on the hoses are not damaged.
- Replace damaged connections.
- Fix the hoses to the connection for function »Turn«.



- Connect both hoses for the function »Turn« at the boom in a torsion-free manner.

▲ WARNING Hydraulic hose flailing about

Pressurised hydraulic hoses will flail about if a bolted connection comes loose or becomes loosened. A hydraulic hose flailing about may cause serious injuries.

- ▶ Tighten the fastening screws with the right tightening torque.

Tightening torque (see chapter **Bolt connections / Tightening torques**).

5.5 Removing the hydraulic attachment from the carrier

- Place the hydraulic attachment on timber support blocks.

5.5.1 Dismantling the hydraulic connections

▲ WARNING Unexpected movement

Sudden movements of the carrier may cause serious injury.

- ▶ Secure the carrier such that it cannot move unexpectedly.
- ▶ Observe the carrier manufacturer's instructions.

▲ WARNING Hydraulic hose flailing about

Pressurised hydraulic hoses will flail about when bolted connections have come loose or have been loosened. A hydraulic hose flailing about may cause serious injuries.

- ▶ Depressurise the hydraulic system before disconnecting a hydraulic hose (see chapter **Depressurising the hydraulic system**).

▲ WARNING Hot parts

The hydraulic cylinder, hoses, pipes and fittings become very hot during operation. Touching them may lead to burns.

- ▶ Never touch hot parts.
- ▶ If you have to carry out activities where you have to touch the parts, wait for them to cool down first.
- Close all shut-off valves in the installation at the boom if no quick couplings are used.
- Disconnect the hose lines to and from the hydraulic attachment at the boom side.
- Close off all open hose ends.

5.5.2 Mechanical disassembly

- You need an assistant to remove the hydraulic attachment.
- Agree on hand signals with your assistant, to enable him to help you move the boom.

▲ WARNING Injury by impacts

A sudden movement of the carrier may cause your assistant to be hit and injured by the boom or the hydraulic attachment.

- ▶ Only move the boom very slowly and in a controlled manner while an assistant is within the danger zone.
- ▶ Always keep sight of your assistant.

▲ WARNING Metal chips shooting off

When hammering out bolts, chips may shoot off and cause serious eye injuries.

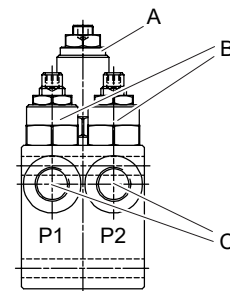
- ▶ Wear safety glasses when hammering out the bolts.
- Remove the bolt locks from the stick and linkage bolts.
- Drive out the linkage bolt with a steel arbor and a hammer.
- Switch on the carrier.
- Retract the bucket cylinder.
- Drive out the stick bolt with a steel arbor and a hammer.
- Move the carrier stick out of the adapter plate.

5.6 Removing the adapter plate

- Loosen the fastening screws of the adapter plate.
- Lift the adapter plate with a suitable lifting equipment and put it down on timber support blocks.
- Save the fastening screws and the pairs of lock washers for future use.

5.7 Valve block

The valve block is located in the upper part of the hydraulic attachment (rotating). It comprises a pressure relief valve and two throttle valves. The pressure relief valve setting for the function »Turn« is fixed at 170 bar (2500 psi). The throttle valves are set so that an oil flow of a maximum 50 l/min (13.2 gal/min) and speed 20 rpm is not exceeded. The throttle valve values setting may not be changed.



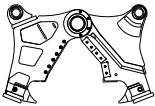
- A. Pressure relief valve
- B. Throttle valve
- C. Connections pressure, turn hydraulic attachment right/left

5.8 Cutter jaws

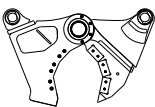
5.8.1 Selecting the correct jaw variant

The standard available jaw variants are shown. The two variants (layout of the cutter blades and tips of tooth) have been developed for different applications. Please consult the following table for recommended uses.

U version (universal jaws)

	<p>Suitable for universal use</p> <p>Light- to medium-duty demolition</p> <p>Heavy-duty industrial demolition (heavily reinforced concrete)</p> <p>Cutting profiled steel (general construction steels)</p> <p>Subsequent reduction Material separation</p>
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S version (steel cutting jaws)

	<p>Universal use, cutting steel</p> <p>Demolition of steel construction buildings (general construction steels)</p> <p>Subsequent reduction Material separation</p>
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5.8.2 Changing cutter jaw pair

The following special equipment is required to change the cutter jaw pair:

- Assembly rack to hold the cutter jaw pair.
- Bolt cage to remove the main bearing pin and parts to lock the hydraulic cylinders.

The special equipment is not included in the hydraulic demolition cutter scope of supply. It must be purchased separately.

▲ WARNING Unexpected movement

Sudden movements of the carrier may cause serious injury.

- ▶ Secure the carrier to prevent any unexpected movements prior to assembly or dismantling work on the hydraulic demolition cutter.
- ▶ Observe the carrier manufacturer's instructions.

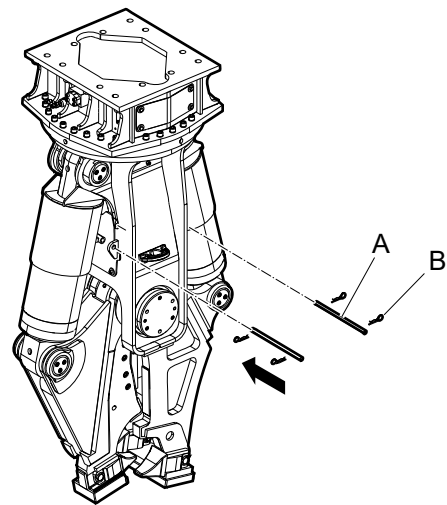
▲ WARNING Cutter jaw pair tipping

The cutter jaw pair is heavy. The cutter jaw pair tipping over may lead to serious injury.

- ▶ Change the cutter jaw pair on a horizontal, even and firm base.
- ▶ Secure the cutter jaw pair on the assembly rack to prevent it falling over.

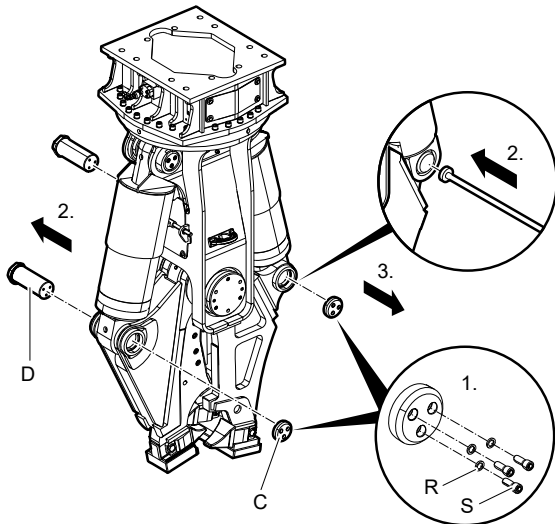
Removing the cutter jaw pair

- Ensure that the hydraulic demolition cutter is mechanically and hydraulically attached to the carrier.
- Ensure that the cutter jaws are connected by two half rings on each cutter jaw pair.
- Place the assembly rack with the cutter jaw pair to be fitted within the range of the carrier.
- Switch the carrier on.
- Lift the hydraulic demolition cutter.
- Close the cutter jaw of the hydraulic demolition cutter. The hydraulic cylinders extend.
- Let the hydraulic demolition cutter hang vertically on the carrier, do not place it on the ground.
- Secure the carrier such that it cannot move unexpectedly.
- Lock the hydraulic cylinders using the two lock pins (A) delivered with the bolt cage.
- Lock the lock pins (A) on both sides with the spring retaining pins (B) delivered with the bolt cage.

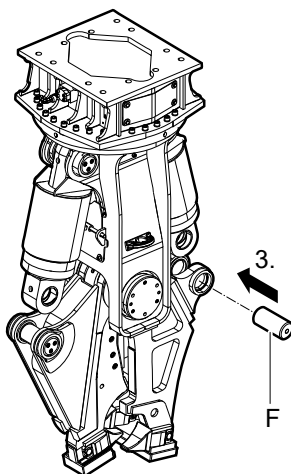
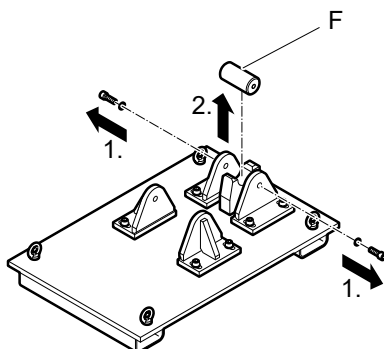


The piston rod sheaths are now prevented from slipping out.

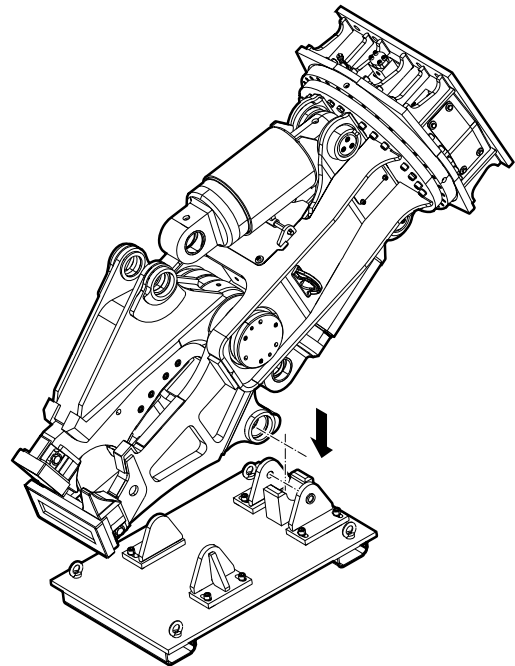
- Disassemble the Allen screws (S) and pairs of lock washers (R).
- Remove the covers (C).
- Remove the cylinder pins (D).



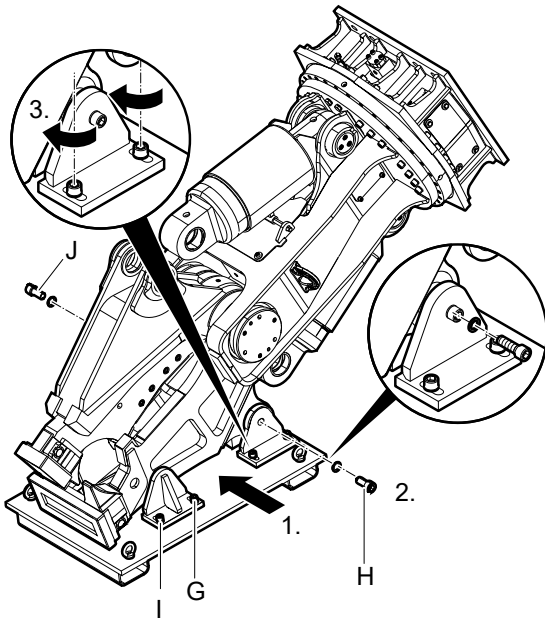
- Retract the hydraulic cylinder.
- Disassemble the bolts (F) from the empty assembly rack.
- Push the bolts (F) in the cylinder pin bearing of the cutter jaw (double).



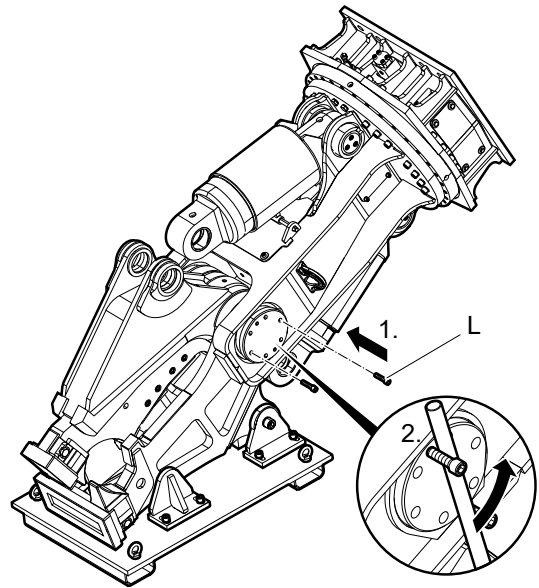
- Place the hydraulic demolition cutter with the broad back of the cutter jaw (double) on the assembly rack so that the pin lies in the semi-shell of the assembly rack.



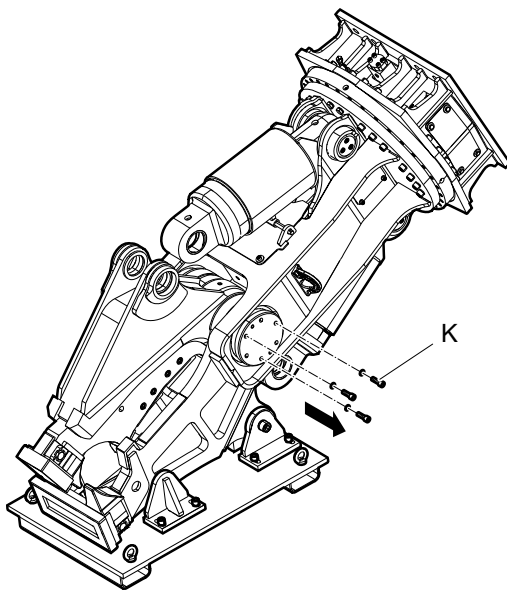
- Secure the carrier such that it cannot move unexpectedly.
- Push the two holders (G) on one side of the assembly rack on the cutter jaw until they contact the cutter jaw (double).
- Secure the bolt by fitting the Allen screw (H).
- Secure the holders by fitting the Allen screws (I).
- Push the two holders on the other side of the assembly rack until they contact the cutter jaw (double).
- Secure the pin by fitting the Allen screw (J).
- Secure the holders by fitting the Allen screws.
- Tighten all Allen screws with the tightening torque required (see chapter **Bolted connections/Tightening torques**).



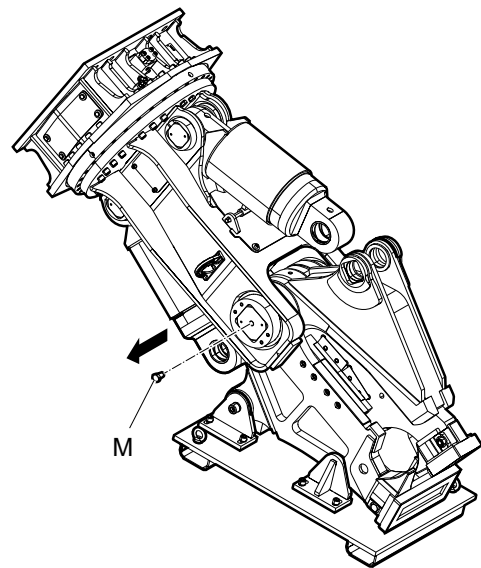
- Disassemble the Allen screws (K) from the cover.



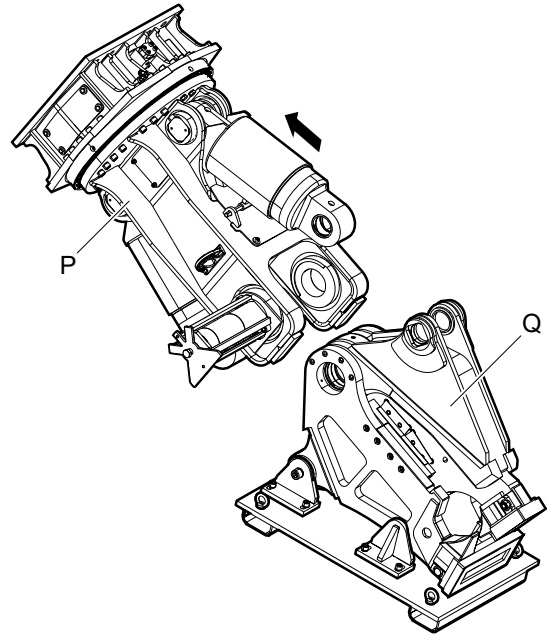
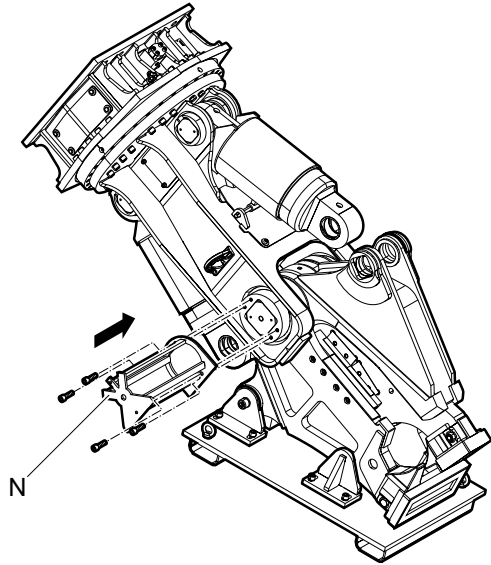
- Remove the hexagon head screw (M) located in the middle of the main bearing pin.



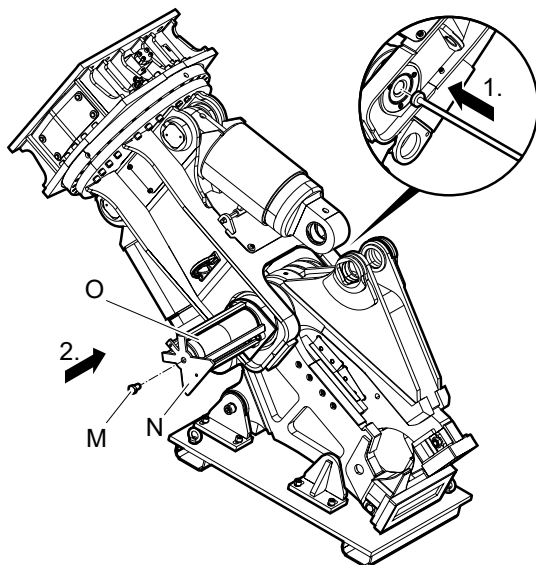
- Screw the two Allen screws (L) into the cover.
- Unscrew the cover using a rod or pipe.



- Attach the bolt cage (N).



- Drive the main bearing pin (O) out with a copper mandrel until it stops at the bolt cage (N).
- Fix the main bearing pin (O) with the hexagon head screw (M) to the bolt cage (N).



The main bearing pin is thus secured against inadvertently slipping in.

- Move the cutter casing (P) diagonally upwards.
The removed cutter jaw pair (Q) remains secured on the assembly rack.

Fitting the cutter jaw pair

An assistant is required to attach the cutter jaw pair.

- Agree on hand signals with your assistant, to enable him to help you place the carrier in the proper position.
- Position the cutter casing fitted diagonally to the cutter jaw pair fitted which is secured on the assembly rack.

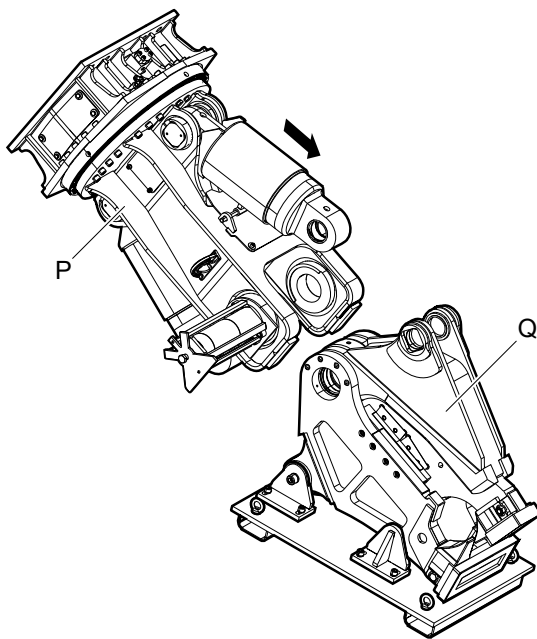
▲ **WARNING** Hands and fingers being cut off or hurt

Bores and surfaces can act like a pair of scissors and cut off or injure parts of your body.

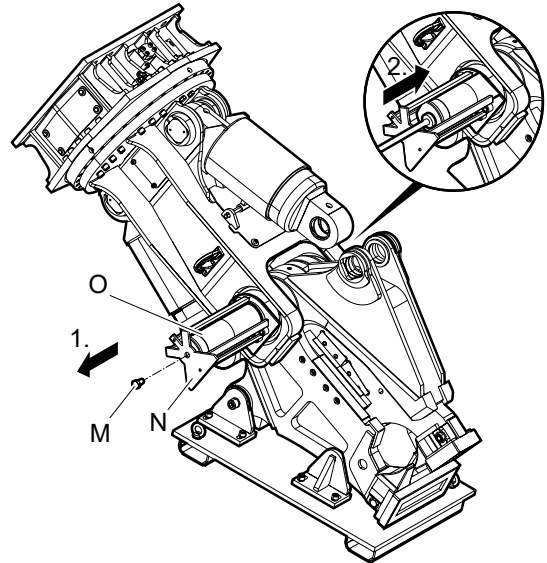
- Never use your hands or fingers to check bores or fitting surfaces.

The cutter casing is guided by the cutter jaw pair.

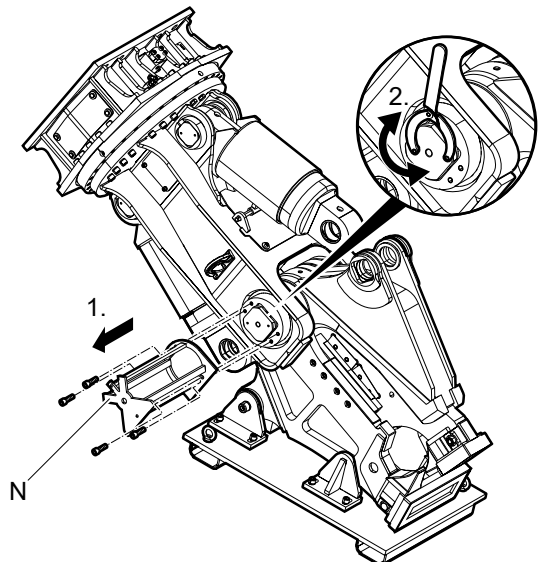
- Let an assistant guide you.
- Move the cutter casing (P) so that the drilled holes in the cutter casing are flush with those of the cutter jaw pair (Q).



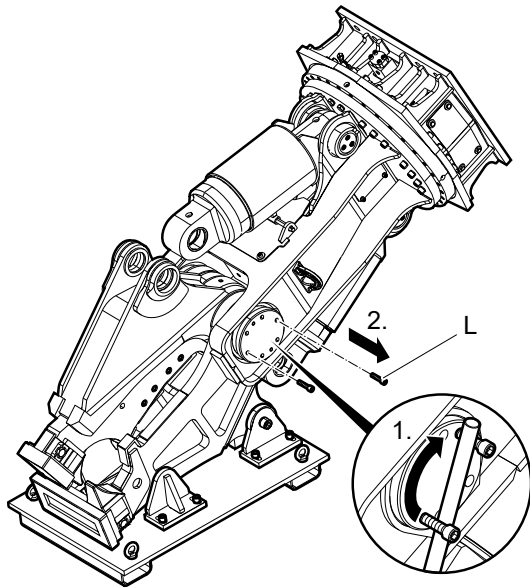
- Secure the carrier such that it cannot move unexpectedly.
- Remove the hexagon head screw (M) from the bolt cage (N) which fixes the main bearing pin (O).
- Fit the main bearing pin (O).



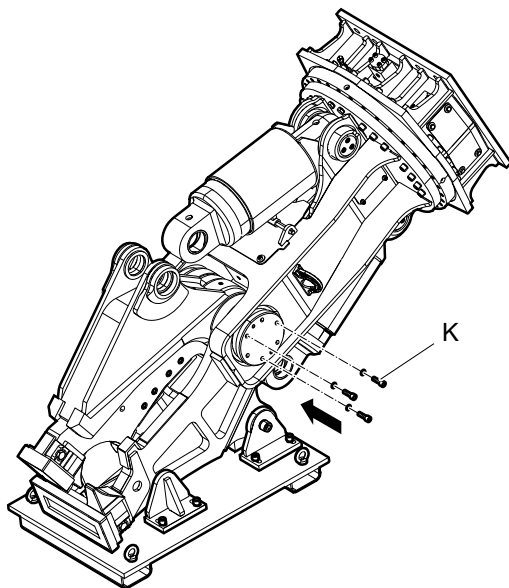
- Disassemble the bolt cage (N).



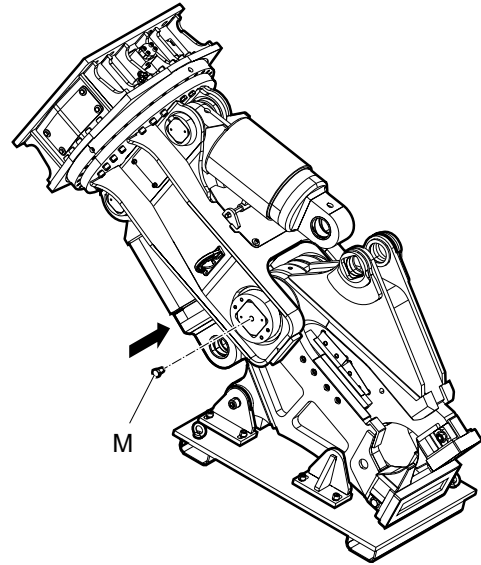
- Use a face spanner to adjust the main bearing pin.
- Screw the cover onto the main bearing pin.
- Tighten the cover handtight using a rod or pipe.
- Disassemble the two Allen screws (L) and keep them safe.



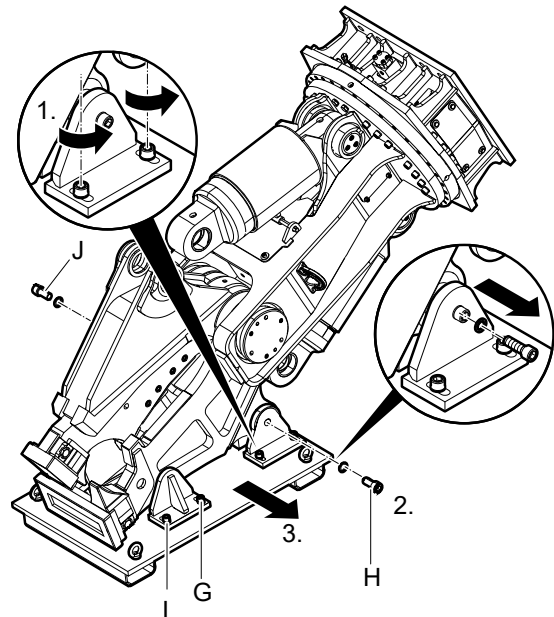
- Secure the cover by fitting the Allen screws (K).
- Tighten the Allen screws (K) with the tightening torque required (see chapter **Bolt connections/ Tightening torques**).



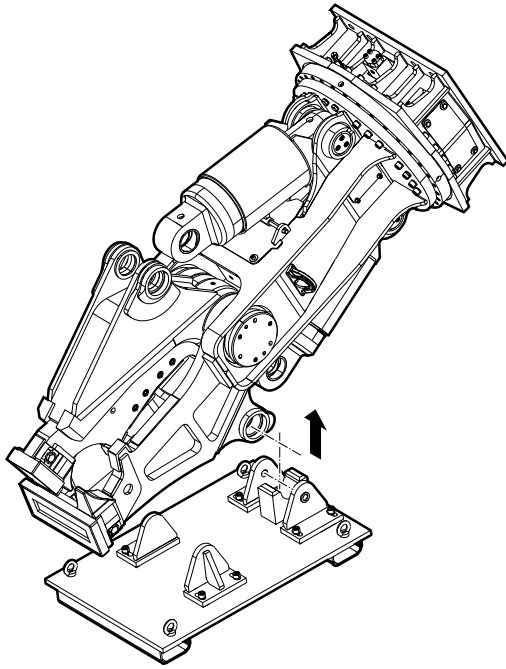
- Fit the hexagon head screw (M), which prevented the main bearing pin slipping in, in the middle of the main bearing pin.



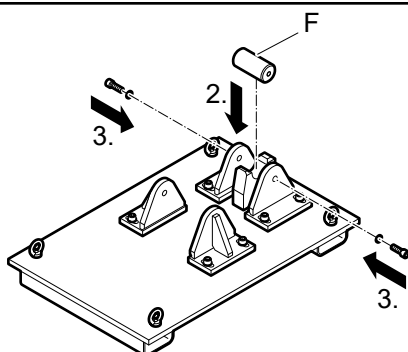
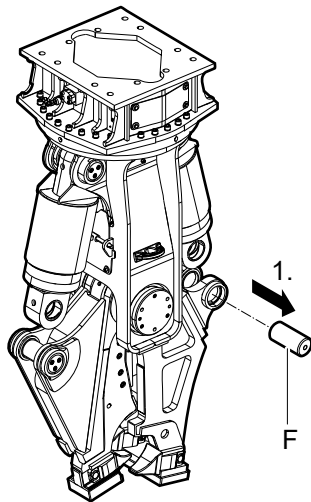
- Loosen all Allen screws (I) at the holders (G) of the assembly rack.
- Disassemble the Allen screws (H,J) from the pin of the assembly rack.
- Pull the holders apart.



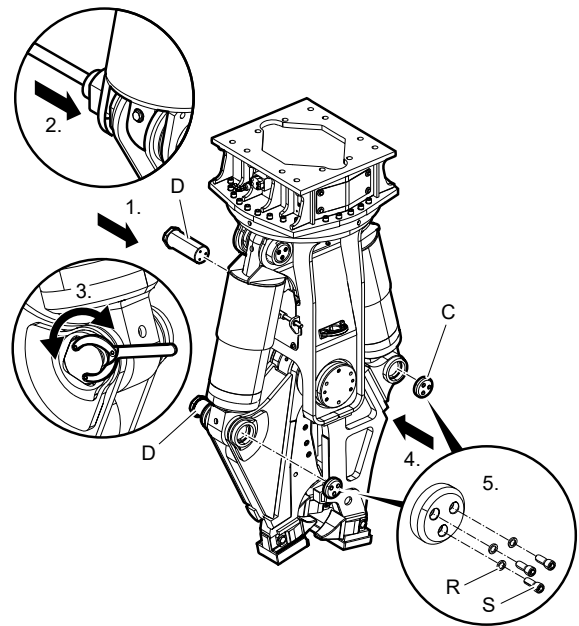
- Lift the hydraulic demolition cutter.



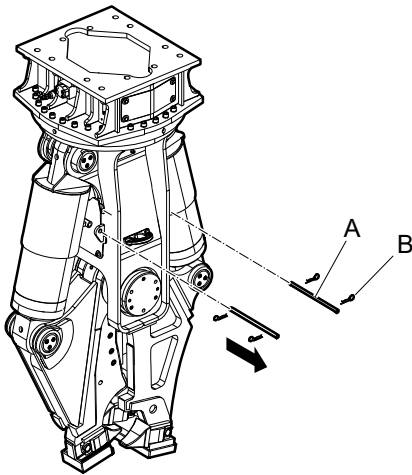
- Pull the bolts (F) out of the cylinder pin bearing of the cutter jaw (double).
- Fit the bolts (F) in the assembly rack semi-shell and tighten all the Allen screws of the empty assembly rack to prevent loss of parts.



- Let the hydraulic demolition cutter hang vertically on the carrier, do not place it on the ground.
- Extend the hydraulic cylinders.
- Secure the carrier such that it cannot move unexpectedly.
- Align the drilled holes for the cylinder pins (D).
- Fit the cylinder pins (D).
- Use a face spanner to adjust the cylinder pins.
- Fit the covers (C).
- Fit a pair of lock washers (R) onto every Allen screw (S).
- Secure the covers (C) by fitting the Allen screws (S).
- Tighten all Allen screws (S) to the tightening torque required (see chapter **Bolted connections/Tightening torques**).



- Remove the spring retainer pins (B) from the lock pins (A).
- Remove the lock pins (A) which fix the hydraulic cylinders.



- Lubricate the hydraulic demolition cutter (see chapter **Lubrication**).
- Store the disassembled cutter jaw pair safely (see chapter **Storage**).

6 Operation

▲ **WARNING Hot hydraulic oil squirting out**

The hydraulic system is under high pressure. If hydraulic connections come loose, hydraulic oil will squirt out under high pressure. Hydraulic oil squirting out can lead to serious injury.

- ▶ Immediately switch off the hydraulic attachment and the carrier if you detect any leaks in the hydraulic circuits.
- ▶ Depressurise the hydraulic system (see chapter **Depressurising the hydraulic system**).
- ▶ Repair any leaks before operating the hydraulic attachment again.

▲ **WARNING Hot parts**

The hydraulic cylinder, hoses, pipes and fittings become very hot during operation. Touching them may lead to burns.

- ▶ Never touch hot parts.
- ▶ If you have to carry out activities where you have to touch the parts, wait for them to cool down first.

NOTICE Environmental damage due to hydraulic oil

Hydraulic oil is environmentally harmful and must not penetrate the ground or enter the water table or water supplies.

- ▶ Collect any hydraulic oil which escapes.
- ▶ Dispose of it in accordance with the applicable environmental regulations.

NOTICE Hydraulic oil too hot

The temperature of the hydraulic oil must not exceed 80 °C (176 °F). Higher temperature will damage the seals of the hydraulic parts.

- ▶ Monitor the oil temperature.
- ▶ Shut off the hydraulic attachment and the carrier if you measure an increased temperature in the tank.
- ▶ Check the hydraulic installation and the pressure relief valve.

6.1 Preparations before starting

▲ **WARNING Falling carrier**

A carrier falling or tipping over due to the surface not being level may cause serious injury and material damage.

- ▶ Always observe great care when moving the carrier.
- ▶ Do not use the hydraulic attachment until the carrier is positioned stably.

▲ **WARNING Fragments flying around**

Fragments of material which come loose while operating the hydraulic attachment may be flung away and can cause serious injury if people are hit by them. Small objects falling from a great height can also cause serious damage.

During hydraulic attachment operation the danger zone is considerably greater than during the excavation operation due to fragments of stone and pieces of steel flying around, and for this reason the danger zone must, depending on the type of material to be worked on, be enlarged correspondingly, or secured in a suitable manner through corresponding measures.

- ▶ Secure the danger zone.
- ▶ Stop the hydraulic attachment immediately if anyone enters the danger zone.
- ▶ Close the windscreen and the side windows of the driver's cab.
- Before starting the hydraulic demolition cutter, ensure that
 - the hydraulic demolition cutter is complete,
 - the hydraulic demolition cutter and adapter plate do not have any cracks,
 - the blade clearance is within tolerance
 - and none of the hydraulic line connections leak.

The preparations required prior to starting the hydraulic demolition cutter depend on the ambient temperature:

- Ambient temperature below 0 °C (32 °F) (see chapter **Low ambient temperature**).
- Ambient temperature above 30 °C (86 °F) (see chapter **High ambient temperature**).

The oil temperature in the hydraulic demolition cutter must be between 0 °C (32 °F) and +80 °C (176 °F) during operation.

The full capacity of the hydraulic demolition cutter can be achieved when the oil temperature is approx. 60 °C (140 °F).

- Make sure that there are no people in the danger zone.

- Start the carrier as instructed by the carrier manufacturer.
- Let the carrier warm up until the operating temperature prescribed by the carrier manufacturer has been reached.
- Put the carrier in its working position.

6.2 Switching the hydraulic attachment on and off

After properly attaching the hydraulic attachment to the carrier, the hydraulic attachment can be operated using the carrier's hydraulic system. All functions for normal carrier operation remain intact.

The hydraulic attachment is switched on and off using electrical and hydraulic signals. If you have any questions about electric/hydraulic commands, consult the carrier manufacturer and/or the Epiroc Customer Center / Dealer in your area.

- Switch the hydraulic attachment on and off, as described in the carrier's operating instructions.
- When leaving the driver's cab, set the safety switch/lever for the electrical/hydraulic attachment installation to the "OFF" position.

Carry out the above actions to prevent any unintended start-up of the hydraulic attachment.

6.3 Functional test

Always carry out a functional test before putting the hydraulic attachment into use. Check that all hydraulic lines and connections are tight and that the hydraulic attachment works without any problem.

- Prepare the hydraulic attachment so that you can start using it (see chapter **Preparations before to starting**).
- Lift the hydraulic attachment with the carrier boom function so that it hangs vertically.
- Close and open the cutter jaws.
- Turn the hydraulic attachment via the connected carrier function »**Turn**« left and right.
- Observe the hydraulic lines and whether the hydraulic attachment works properly.
- Switch the hydraulic attachment off immediately if oil leaks from the hydraulic lines or other malfunctions occur.
- Depressurise the hydraulic system (see chapter **Depressurising the hydraulic system**).
- Only take the hydraulic attachment back into operation once all leaks or malfunctions have been remedied.

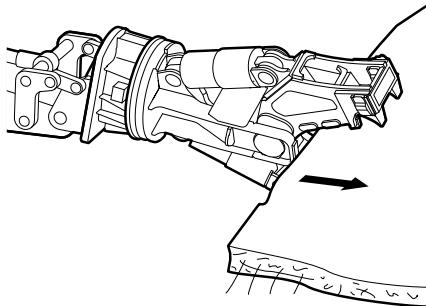
6.4 Correct operation

6.4.1 Demolishing concrete ceilings or walls

- Encompass the concrete ceilings and walls as far as possible with the hydraulic demolition cutter.

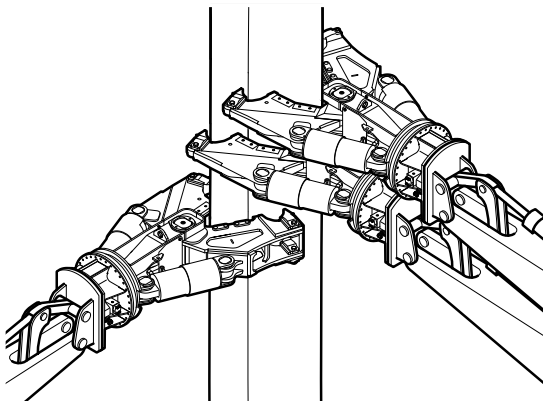
In high reinforced concrete structures

- First break the concrete with the tip of tooth area.
- Then cut the reinforcements with the cutter blades.



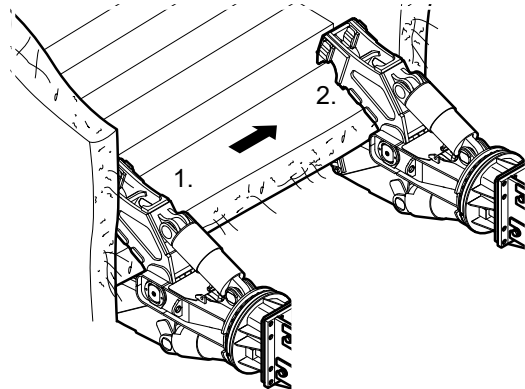
6.4.2 Working position

- Change the working position in good time.
- Start demolition from the narrow sides.



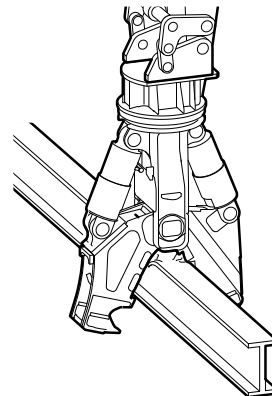
6.4.3 Nipping out concrete elements

- Nip concrete elements off at both sides.



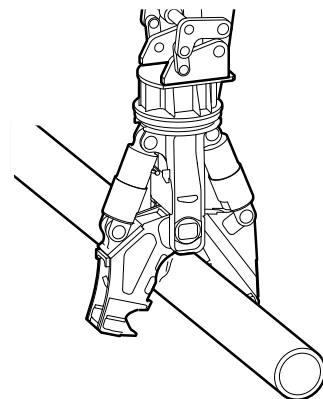
6.4.4 Cutting profiled steel

- Position the hydraulic demolition cutter so that the blades encompass the profiled construction steel.



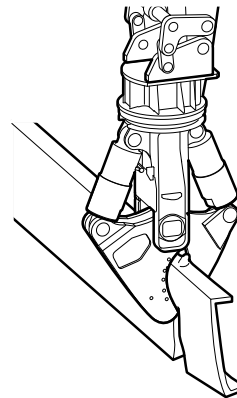
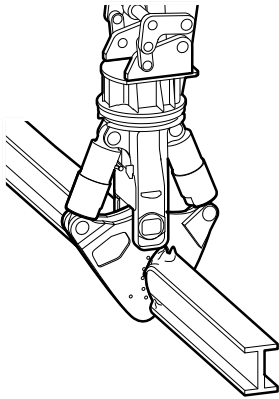
6.4.5 Cutting pipe

- Position the hydraulic demolition cutter so that the blades encompass the pipe.



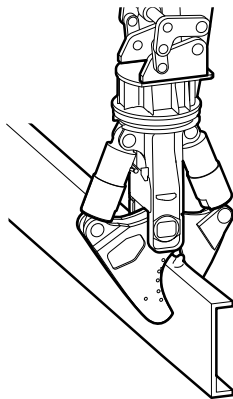
6.4.6 Cutting profiled construction steel, pipe

- Position the hydraulic demolition cutter so that the blades encompass the profiled construction steel or pipe.



6.4.7 Cutting wide profiled construction steel

- First cut one half of the profiled construction steel.
The tip of the cutter jaw penetrates the web plate.



- Turn the profiled construction steel or re-position the hydraulic demolition cutter.
- Cut the other half of the profiled construction steel.

6.4.8 High ambient temperature

- Only use hydraulic oils of sufficient viscosity.

In summer and in tropical climates, the minimum requirement is a hydraulic oil of type HLP 68.

6.4.9 Low ambient temperature

Ambient temperature below -20 °C (-4 °F):

You must heat up the hydraulic attachment and the carrier when working in ambient temperatures of below -20 °C (-4 °F).

Preferably park the carrier and the hydraulic attachment in a heated, sheltered space while not using it.

NOTICE Hydraulic oil too cold

Operating the hydraulic attachment while hydraulic oil is still cold will damage the seals of the hydraulic parts.

- ▶ Do not operate the hydraulic attachment until the temperature of the hydraulic oil is at least 0 °C (32 °F).
- Start the carrier as instructed by the carrier manufacturer.
- Let the carrier warm up until the operating temperature required by the manufacturer has been reached.
- Lift the hydraulic attachment using the boom function so that it hangs vertically.
- Close, open and turn the hydraulic attachment during the carrier warming-up phase.

NOTICE Damage to hydraulic parts

Hot hydraulic oil causes damage to subcooled hydraulic attachments.

- ▶ Do not fill the hydraulic system with hot hydraulic oil.

The temperature of the hydraulic oil of the carrier must be at least 0 °C (32 °F).

- Start the hydraulic tool, once the temperature has reached 0 °C (32 °F).
- During operations, leave the carrier engine and pumps running even during breaks.

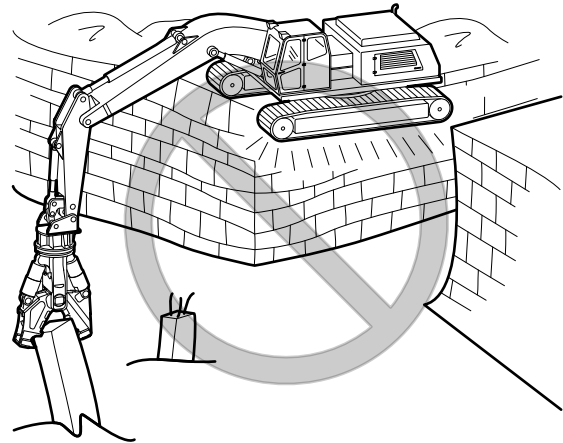
6.5 Prohibited operation

6.5.1 Unsafe base

▲ WARNING Danger of tipping

The carrier can topple over and cause injuries and damage.

- ▶ Only work with the hydraulic attachment when the carrier is on a safe base.

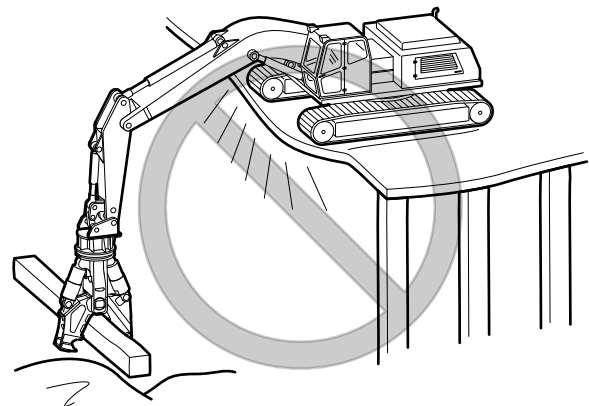


6.5.2 Non-load bearing suspended ceilings

▲ WARNING Danger of collapse

The carrier can collapse and cause injuries and damage.

- ▶ Only work with the hydraulic attachment when the carrier is on a load-bearing suspended ceiling.

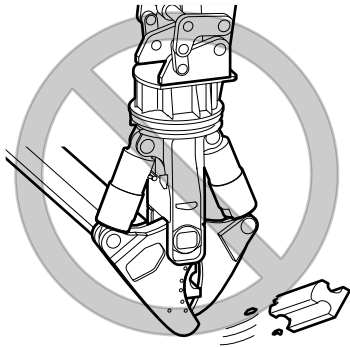


6.5.3 Cutting rails

▲ WARNING Flying rail fragments

Rails which break during the cutting process may be flung away and can cause serious injury if people are hit by them.

- ▶ Never cut railway and profiled rails.

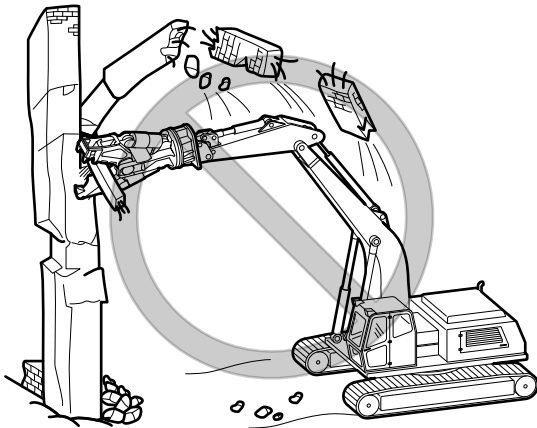


6.5.4 Working position

▲ WARNING Falling debris

Large pieces of debris falling may cause injury and damage.

- ▶ Never start demolishing pillars, supports and walls from below or the middle.

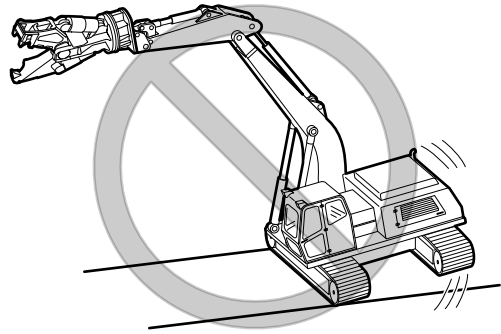


6.5.5 Use over the chain

▲ WARNING Danger of tipping

The carrier can topple over and cause injuries and damage.

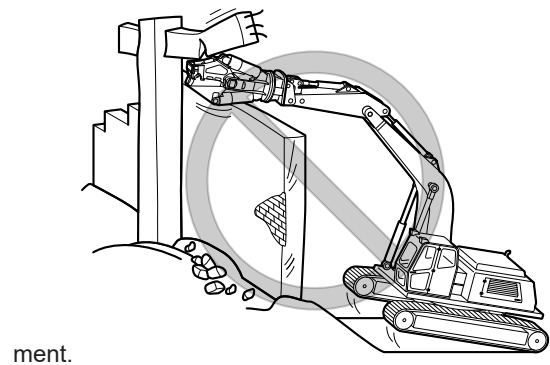
- ▶ Never work with full delivery sideways in the direction of movement.



6.5.6 Levering

- Never use the hydraulic attachment for crowbar-type applications.

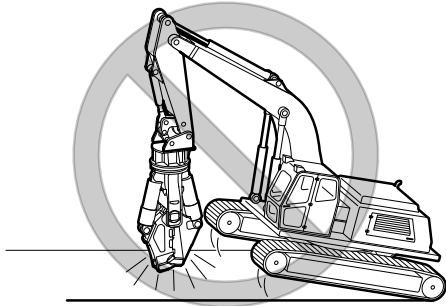
This would seriously damage the hydraulic attachment.



6.5.7 Moving the carrier

- Never relocate the carrier sideways by placing the hydraulic attachment on the ground to lift the carrier.

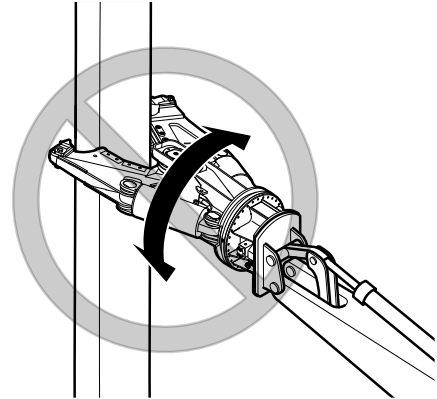
This would seriously damage the hydraulic attachment.



6.5.9 Turning the hydraulic attachment

- Never turn the hydraulic attachment during breaking/cutting.

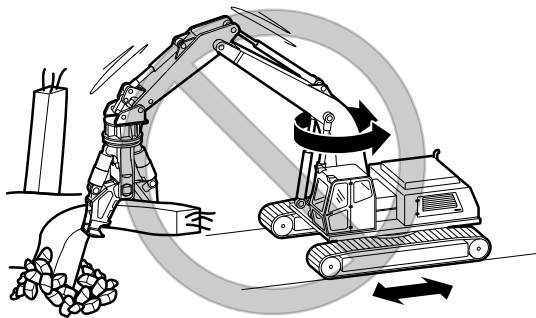
This would seriously damage the hydraulic attachment.



6.5.8 Moving the boom

- Never move the boom or the carrier during breaking/cutting.

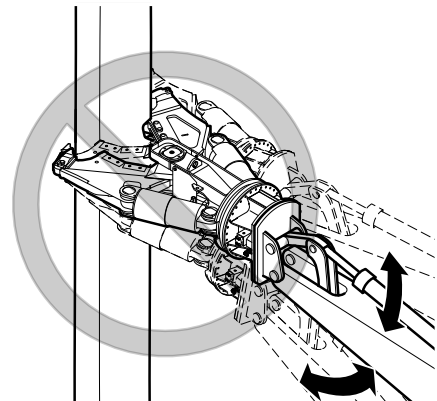
This would seriously damage the hydraulic attachment.



6.5.10 Extending the bucket cylinder

- Never extend the bucket cylinder during breaking/cutting.

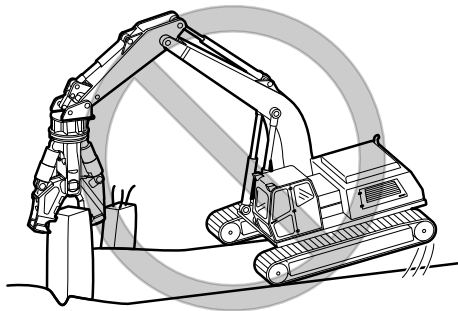
This bending action would destroy the hydraulic attachment.



6.5.11 Pulling

- Never pull at girders, supports or walls with the hydraulic attachment.

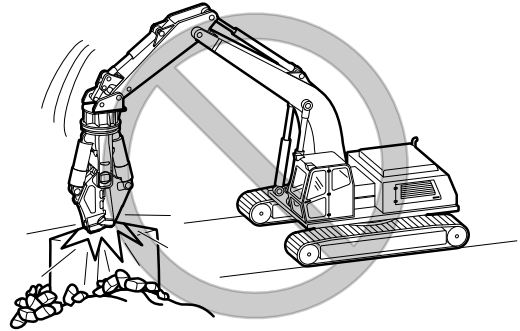
This would damage the hydraulic attachment and the adapter plate. The carrier may lose stability. It can topple over and cause injuries.



6.5.13 Impacting/chopping

- Do not use the hydraulic attachment to impact or chop to destroy material.

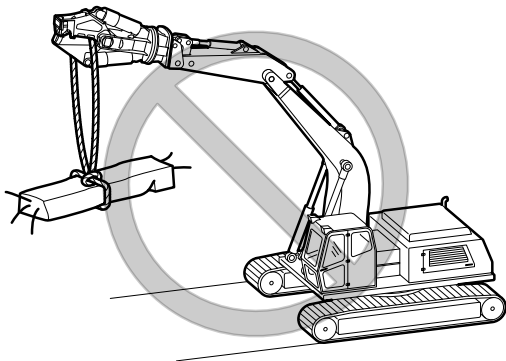
This would seriously damage the hydraulic attachment.



6.5.12 Lifting/Transporting

- Never use the hydraulic attachment to lift or transport loads.

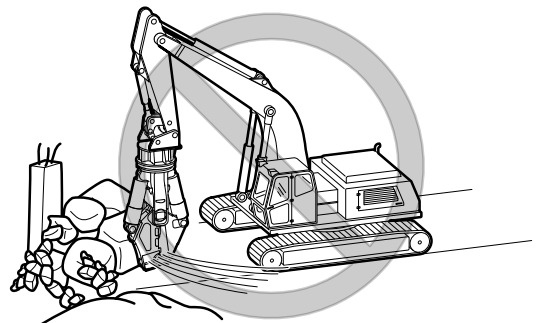
The hydraulic attachment was not constructed to lift or transport loads. This would damage the hydraulic attachment.



6.5.14 Moving objects

- Never use the hydraulic attachment to move debris.

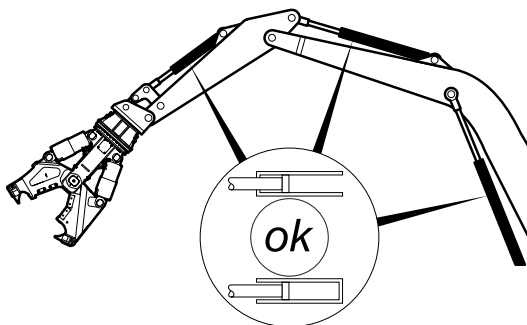
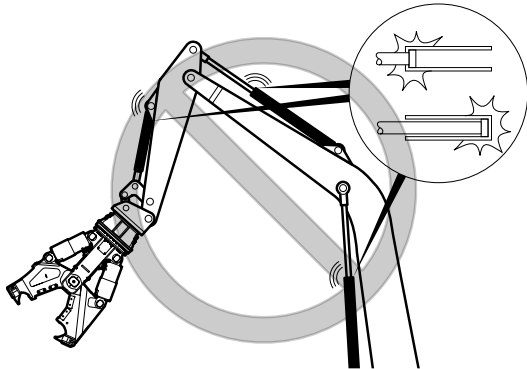
This would damage the hydraulic attachment.



6.5.15 Cylinder end positions

- Reposition the carrier to avoid working with the cylinder in its end positions.

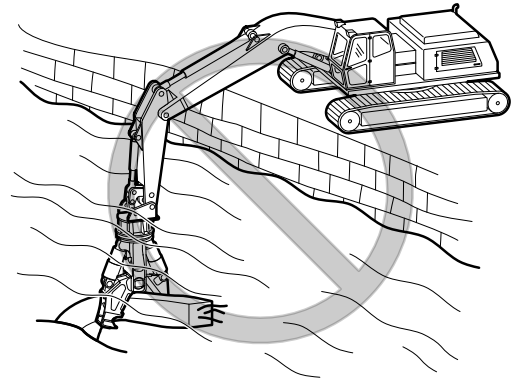
Avoid operating the hydraulic attachment when the carrier stick and bucket cylinder are in one of their end positions. These end positions have damping facilities; the hydraulic cylinder may be damaged by prolonged use while in its end positions.



6.5.16 Use under water

- Never use the hydraulic attachment under water.

This would seriously damage the hydraulic attachment and may damage the whole hydraulic installation.



6.5.17 Cutting high-grade steels

- Only cut profiled steel with a tensile strength $< 370 \text{ N/mm}^2$.
- Only cut reinforcement with a tensile strength $< 500 \text{ N/mm}^2$.

Cutting high-grade steels with a tensile strength $> 370 \text{ N/mm}^2$, such as railway rails, tram rails and spring steel may cause damage to the hydraulic demolition cutter.

Cutting reinforcement with a tensile strength $> 500 \text{ N/mm}^2$ may cause damage to the hydraulic demolition cutter.

7 Maintenance

The maintenance activities are carried out by the carrier driver.

▲ **WARNING Hot hydraulic oil squirting out**

The hydraulic system is under high pressure. If hydraulic connections come loose, hydraulic oil will squirt out under high pressure. Hydraulic oil squirting out can lead to serious injury.

- ▶ Immediately switch off the hydraulic attachment and the carrier if you detect any leaks in the hydraulic circuits.
- ▶ Depressurise the hydraulic system (see chapter **Depressurising the hydraulic system**).
- ▶ Repair any leaks before operating the hydraulic attachment again.

▲ **WARNING Hot hydraulic oil squirting out**

The hydraulic system is under high pressure. Hydraulic oil escaping out can lead to serious injury.

- ▶ Immediately switch off the hydraulic attachment and the carrier if you detect any leaks in the hydraulic circuits.
- ▶ Do not inspect for possible leaks with your fingers or other parts of the body, but use a piece of cardboard instead, holding it up to the suspected leakage site.
- ▶ Examine the cardboard for traces of liquid.
- ▶ Depressurise the hydraulic system (see chapter **Depressurising the hydraulic system**).
- ▶ Repair any leaks before operating the hydraulic attachment again.

▲ **WARNING Hot parts**

The hydraulic cylinder, hoses, pipes and fittings become very hot during operation. Touching them may lead to burns.

- ▶ Never touch hot parts.
- ▶ If you have to carry out activities where you have to touch the parts, wait for them to cool down first.

▲ **WARNING Accidental start**

If the hydraulic attachment is started by accident this may lead to serious injury.

- ▶ Follow the instructions in the Operating Instructions of the carrier to prevent the hydraulic attachment starting by accident.

▲ **WARNING Unexpected movement**

Sudden movements of the carrier may cause serious injury.

- ▶ Secure the carrier such that it cannot move unexpectedly.
- ▶ Observe the carrier manufacturer's instructions.

NOTICE Environmental damage due to hydraulic oil

Hydraulic oil is environmentally harmful and must not penetrate the ground or enter the water table or water supplies.

- ▶ Collect any hydraulic oil which escapes.
- ▶ Dispose of it in accordance with the applicable environmental regulations.

7.1 Maintenance schedule

prior to shift	<p>Check the hydraulic demolition cutter and adapter plate for cracks.</p> <p>Check hydraulic lines for leaks and damage.</p> <p>Check the pipe clamp receiver on the carrier.</p> <p>Check cutter jaws, cutter blade and tips of tooth for wear; if necessary have cutter jaws refaced, turn or replace cutter blades, replace tips of tooth.</p> <p>Check bolted connection on tip of tooth (visual check), if necessary tighten or replace.</p> <p>Check fixing bolts at the cutter blades (visual check), if necessary tighten or replace.</p> <p>Check cutter blade clearance, adjust if necessary.</p> <p>Lubricate cylinder pin bearings at all cutter cylinder lubrication nipples.</p> <p>Lubricate main bolt bearing at all cutter jaw lubrication nipples.</p>
daily	Check the bolted connections at the adapter plate and tighten as required.
weekly	<p>Check the bolted connections at the hydraulic lines and tighten as required.</p> <p>Check the bolted connections at the four point bearing and tighten as required.</p>
monthly	Lubricate four point bearing.
after the first 50 operating hours	Change hydraulic oil filter cartridge.
every 500 operating hours	Check oil filter cartridge, replace if necessary.
if necessary	<p>Replace bent and damaged pipes.</p> <p>Replace damaged hoses.</p> <p>Check wear at the adapter plate bolts.</p>

7.2 Depressurising the hydraulic system

Even when you have switched off the carrier, a considerable residual pressure can still be present in the hydraulic system.

A residual pressure can still be present in the hydraulic attachment even after you have disconnected the quick-release couplings or closed the shut-off valves.

The hydraulic attachment can only be depressurised using the hydraulic system of the carrier, by allowing hydraulic oil to drain to the tank via the return connection.

Depending on the type of hydraulic attachment, the internal leaks, the oil temperature, the type of hydraulic oil and the design of the hydraulic installation of the carrier, the time required to relieve the pressure can vary.

Observe the following steps in order to depressurise the hydraulic attachment:

1. Ensure that the hydraulic oil in the hydraulic attachment and in the carrier has a temperature of at least 0 °C. If necessary, pre-heat it to at least 0 °C.
2. The hydraulic attachment must be connected to the hydraulic system of the carrier device, i.e. the hydraulic hoses must be connected up and the respective shut-off valves in the supply pipe and in the connection to the tank must be opened.
3. Open the cutter jaws completely.
4. Place the hydraulic attachment horizontal on the ground.
5. Close the cutter jaws briefly, just enough to see a movement of the cutter jaws.
6. Depressurise the hydraulic system according to the manufacturer's safety and operating instructions for the carrier.
7. You must wait at least another 30 minutes until the pressure has been relieved through leakages.
8. Measure the pressure with a suitable gage at both measurement connections at the hydraulic attachment.
9. If residual pressure is still present, wait until the pressure has been completely relieved.
10. When you have made sure that no more pressure is present in the hydraulic system, you must disconnect the hydraulic connection to the carrier. Close the

shut-off valves or disconnect the quick-release couplings, so that no hydraulic oil can flow back from the carrier.

7.3 Cleaning

NOTICE Environmental damage due to polluted water

Hydraulic oil and cutter grease are environmentally harmful and must not penetrate the ground or enter the water table or water supplies.

- Collect the water used for cleaning if it has been contaminated by hydraulic oil and cutter grease.
- Dispose of the water in accordance with the applicable regulations to avoid environmental hazards.

7.3.1 Preparations

Hydraulic demolition cutter attached:

- Place the hydraulic demolition cutter on the opened cutter jaws.
All parts are thus accessible for cleaning.
- Secure the carrier such that it cannot move unexpectedly.

Hydraulic demolition cutter not attached:

- Plug up all hydraulic ports.

7.3.2 Procedure

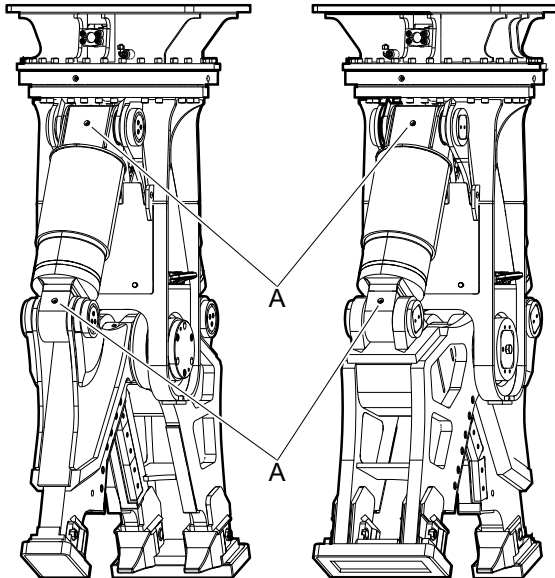
- Use a pressure cleaner to remove dirt from the hydraulic attachment.

7.4 Lubrication

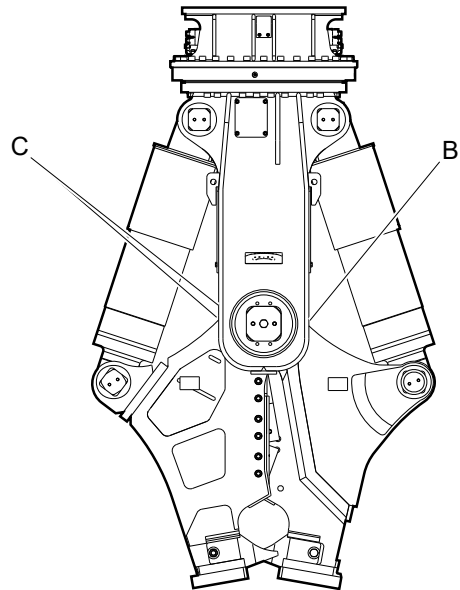
7.4.1 Lubricate bolts

Lubrication interval: prior to every shift.

- Close the hydraulic demolition cutter.
- Place the hydraulic demolition cutter vertically on the closed cutter jaws.
- Secure the carrier so that it cannot move unexpectedly.
- Only use cutter grease for lubrication.
- Place the grease gun on the lubrication nipples of the cylinder eyes (A).
- Inject 4 to 6 strokes of cutter grease per lubrication nipple.



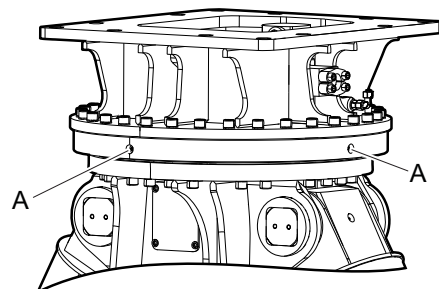
- Place the grease gun on the lubrication nipples of the cutter jaw (single) (B).
- Inject 4 to 6 strokes of cutter grease per lubrication nipple.
- Place the grease gun on the lubrication nipples of the cutter jaw (double) (C).
- Inject 4 to 6 strokes of cutter grease per lubrication nipple.



7.4.2 Lubricating the four point bearing

Lubrication interval: once a month.

- Place the hydraulic demolition cutter vertically on the cutter jaws.
- Secure the carrier such that it cannot move unexpectedly.
- Only use cutter grease for lubrication.
- Place the grease gun on the lubrication nipple (A) of the four point bearing.
- Inject 4 to 6 strokes of cutter grease per lubrication nipple.



7.5 Checking the hydraulic demolition cutter and adapter plate for cracks

- Secure the carrier such that it cannot move unexpectedly.
- Check all the hydraulic demolition cutter and adapter plate load-bearing parts and welds for cracks prior to every shift.
- Ensure repair or refinishing in good time to prevent greater damage.

7.6 Checking hydraulic demolition cutter for wear

- Secure the carrier such that it cannot move unexpectedly.

▲ **WARNING** Parts of the body or whole bodies may be sheared or crushed

Cutter jaws may close unexpectedly and shear or crush parts of the body or whole bodies.

- ▶ Ensure that there is nobody between the cutter jaws.
- Secure the carrier such that it cannot move unexpectedly.
- Prior to starting work, check cutter jaws, cutter blade and tips of tooth for wear.
- Replace cutter blades and tips of tooth in good time to prevent greater damage (see Chapter **Turning or changing cutter blades and Changing tip of tooth**).

NOTICE Damage to blade seat of cutter jaw

Working without cutter blades causes serious damage to the blade seat on the cutter jaw.

- ▶ Replace the missing cutter blades immediately (see Chapter **Turning or changing cutter blades**).

NOTICE Damage to tip of tooth holder and cutter jaw

Working without tips of teeth causes serious damage to the tip of tooth holder and the cutter jaws.

- ▶ Replace the missing tips of teeth immediately (see Chapter **Changing tips of tooth**).

7.7 Checking hydraulic lines

- Secure the carrier such that it cannot move unexpectedly.
- Perform a visual inspection of all lines (pipes and hoses) from the pump to the hydraulic attachment and back to the tank, before starting work.
- Tighten loose bolted connections and hose clamps to the torque required (see Chapter **Bolted connections / tightening torques**).
- Replace damaged pipes and/or hoses.

7.8 Checking bolted connections

- Secure the carrier such that it cannot move unexpectedly.
- Check all bolted connections regularly for tight fit (see Chapter **Bolted connections / Tightening torques**).
- Tighten loose bolted connections and hose clamps to the torque required (see Chapter **Bolted connections / Tightening torques**).

7.9 Checking the adapter plate bolts for wear

- Carry out this visual check whenever the hydraulic attachment has been removed from the carrier.
- Check the adapter plate bolts for excessive wear such as cracks, pitting or severe erosion.
- Rework or replace worn bolts.

7.10 Checking and cleaning the hydraulic oil filter of the carrier

An oil filter must be integrated in the return circuit of the hydraulic system. The maximum mesh width allowed for the oil filter is 50 microns; it must have a magnetic separator.

- Secure the carrier such that it cannot move unexpectedly.
- Change the oil filter cartridge after the first 50 operating hours.
- Check the oil filter **every** 500 operating hours and replace if it is necessary.

7.11 Turning or changing the cutter blades

- Turn the cutter blade if the cutting edge is worn and the contact face is undamaged.
- Change the cutter blade if the contact face is damaged or if the cutter blade shows any other damage.
- Use new, original fixing bolts when you attach new cutter blades.

7.11.1 Removing the cutter blades

- Open the cutter jaws completely.
- Place the hydraulic demolition cutter horizontal on the ground.

▲ **WARNING** Parts of the body or whole bodies may be sheared or crushed

Cutter jaws may close unexpectedly and shear or crush parts of the body or whole bodies.

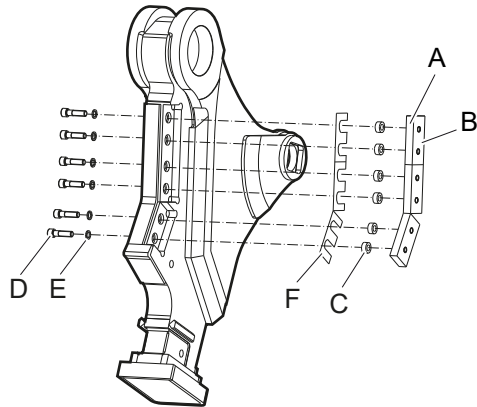
- ▶ Ensure that there is nobody between the cutter jaws.
- Perform work while outside the open cutter jaws, not between them.
- Disconnect the hydraulic supply to the hydraulic demolition cutter by shutting the shut-off valves of the lines »Open« (Connection »A«) and »Close« (Connection »B«) at the boom.
- Secure the carrier such that it cannot move unexpectedly.
- Loosen the Allen screws (D) with an Allen key.
- Unscrew the Allen screws (D) a few turns.

▲ **WARNING** Metal chips shooting off

The cutter blades are made of hardened steel. When removing the cutter blades with a hammer, chips may shoot off and cause serious eye injuries.

- ▶ Wear safety glasses when hammering out the cutter blades.
- ▶ A copper mandrel must be used for hammering.
- Drive the cutter blade (B) out by hitting a copper mandrel on the heads of the Allen screws (D).
- Screw the Allen screws (D) out completely and remove the pair of lock washers (E).
- Lever the cutter blade (B) out of the blade seat using a screw driver or thin chisel.

- Remove the shims (F).
- Remove the lock rings (C) with pliers.
- Check the blade seat of the cutter jaw and the lock rings (C).



7.11.2 Checking the blade seat

The blade seat should not have any severe damage since this means the support of the cutter blade (B) is not ensured. Damage to the blade seat may lead to fracture of the cutter blade (B).

- Have the damaged blade seat welded by a qualified welder and then returned to its original form using mechanical finishing.

7.11.3 Checking cutter blades

If you turn the cutter blade (B), the surfaces contacting the blade seat should not have any major unevenness. Unevenness causes damage to the blade seat.

- Change the cutter blade (B) if the contact surface (A) is damaged or if the cutter blade (B) has other damage.
- Turn the cutter blade (B) if the cutting edge is worn and the contact surface is undamaged.
- Replace damaged Allen screws (D), pairs of lock washers (E) and lock rings (C).

7.11.4 Fitting cutter blades

If the inspection of the blade seat does not show any defects or if it has been reworked, fitting of the cutter blade (B) can begin.

- Clean the blade seat.
- Fit the lock rings (C).
- Insert the cutter blade (B).
- Place one pair of lock washers (E) on each Allen screw (D).
- Tighten the Allen screws (D) to the torque required (see chapter **Bolt connections / Tightening torques**).
- Turn the hydraulic demolition cutter to the other side to turn or change the other cutter blade. Thus you can avoid being between the open cutter jaws.
- Open the shut-off valves of the lines »Open« (Connection »A«) and »Close« (Connection »B«) at the boom.
- Lift the hydraulic demolition cutter using the carrier.
- Turn the hydraulic demolition cutter 180°.
- Place the hydraulic demolition cutter horizontal on the ground.
- Work through all the steps as previously described in this chapter and observe the safety instructions.

7.12 Changing the tip of the tooth

7.12.1 Removing the tip of the tooth

- Open the cutter jaws completely.
- Place the hydraulic demolition cutter horizontal on the ground.

▲ WARNING Parts of the body or whole bodies may be sheared or crushed

Cutter jaws may close unexpectedly and shear or crush parts of the body or whole bodies.

- ▶ Ensure that there is nobody between the cutter jaws.
- Perform work while outside the open cutter jaws, not between them.
- Disconnect the hydraulic supply to the hydraulic demolition cutter by shutting the shut-off valves of the lines »Open« (Connection »A«) and »Close« (Connection »B«) at the boom.
- Secure the carrier such that it cannot move unexpectedly.
- Hold the hexagon head screw (D) with a box spanner to stop it turning.
- Loosen the hexagon nut (A) with socket wrench and ratchet.
- Remove the hexagon head screw (D).
- Have any deformed hexagon nuts (A) brazed off by a qualified welder.

▲ WARNING Metal chips shooting off

The tips of the tooth are made of hardened steel. When removing the tips of the tooth with a hammer, chips may shoot off and cause serious eye injuries.

- ▶ Wear safety glasses when hammering out the tips of the tooth.
- Hammer the tip of the tooth (B) out of the guide (C).

7.12.2 Removing the tip of the tooth

- Open the cutter jaws completely.
- Place the hydraulic demolition cutter horizontal on the ground.

▲ WARNING Parts of the body or whole bodies may be sheared or crushed

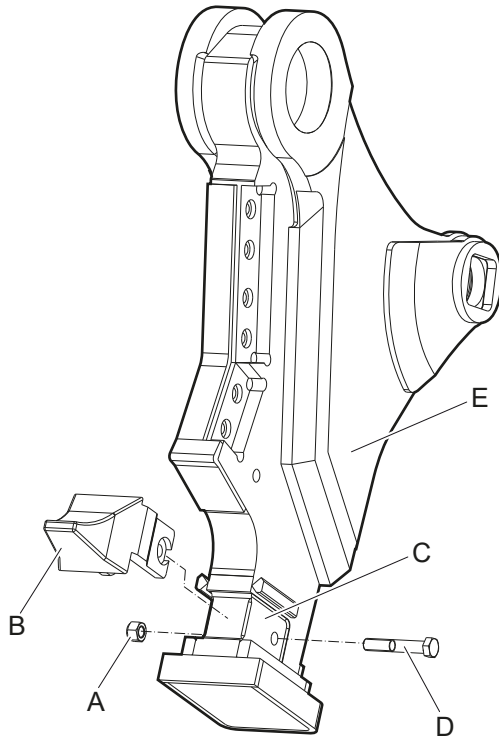
Cutter jaws may close unexpectedly and shear or crush parts of the body or whole bodies.

- ▶ Ensure that there is nobody between the cutter jaws.
- Perform work while outside the open cutter jaws, not between them.
- Disconnect the hydraulic supply to the hydraulic demolition cutter by shutting the shut-off valves of the lines »Open« (Connection »A«) and »Close« (Connection »B«) at the boom.
- Secure the carrier such that it cannot move unexpectedly.
- Hold the hexagon head screw (D) with a box spanner to stop it turning.
- Loosen the hexagon nut (A) with socket wrench and ratchet.
- Remove the hexagon head screw (D).
- Have any deformed hexagon nuts (A) brazed off by a qualified welder.

▲ WARNING Metal chips shooting off

The tips of the tooth are made of hardened steel. When removing the tips of the tooth with a hammer, chips may shoot off and cause serious eye injuries.

- ▶ Wear safety glasses when hammering out the tips of the tooth.
- Hammer the tip of the tooth (B) out of the guide (C).



- Tighten the hexagon nut (A) with the torque required (see chapter **Bolt connections/Tightening torques**).

The hydraulic demolition cutter must be placed on the other side to change the second tip of tooth (double cutter jaw).

- Open the shut-off valves of the lines »Open« (Connection »A«) and »Close« (Connection »B«) at the boom.
- Lift the hydraulic demolition cutter using the carrier.
- Turn the hydraulic demolition cutter 180°.
- Place the hydraulic demolition cutter horizontal on the ground.
- Work through all the steps as previously described in this chapter and observe the safety instructions.

7.12.3 Checking tip of tooth guide

The guide (C) of the tip of the tooth (B) may not be knocked out or damaged. The fixing screw (D) may break and the tip of the tooth may fall out (B).

- Have a damaged tip of tooth guide (C) welded by a qualified welder and then returned to its original form using mechanical finishing.

7.12.4 Fitting tip of tooth

If the inspection of the tip of tooth guide (C) does not show any defects or if it has been reworked, fitting of the tip of tooth (B) can begin.

- Clean the tip of tooth guide (C).
- Place the tip of tooth (B) at the guide (C) on the cutter jaw (E).
- Hammer the tip of tooth (B) in until the drilled holes for the hexagon head screw (D) are flush.
- Push the hexagon head screw (D) through the free drilled hole.
- Screw the hexagon nut (A) on.
- Hold the hexagon screw (D) with a box spanner to stop it turning.

7.13 Checking and correcting the blade clearance

- Secure the carrier to prevent any unexpected movements prior to measuring or correcting the blade clearance.

7.13.1 Checking the blade clearance

- Open the cutter jaws completely.

▲ WARNING Parts of the body or whole bodies may be sheared or crushed

Cutter jaws may close unexpectedly and shear or crush parts of the body or whole bodies.

- ▶ Ensure that there is nobody between the cutter jaws.
- Perform work while outside the open cutter jaws, not between them.
- Close the cutter jaws until the first pair of cutter blades overlaps.
- Secure the carrier to prevent any unexpected movements.
- Measure the blade clearance with a feeler gauge (leaf gauge).
- The blade clearance must be corrected if it is greater than 2 mm (0.08 in.).
- Close the cutter jaws further until the second pair of blades overlaps.
- Secure the carrier to prevent any unexpected movements.
- Measure the blade clearance with a feeler gauge (leaf gauge).
- The blade clearance must be corrected if it is greater than 2 mm (0.08 in.).
- Check all further pairs of cutter blades also in this way.

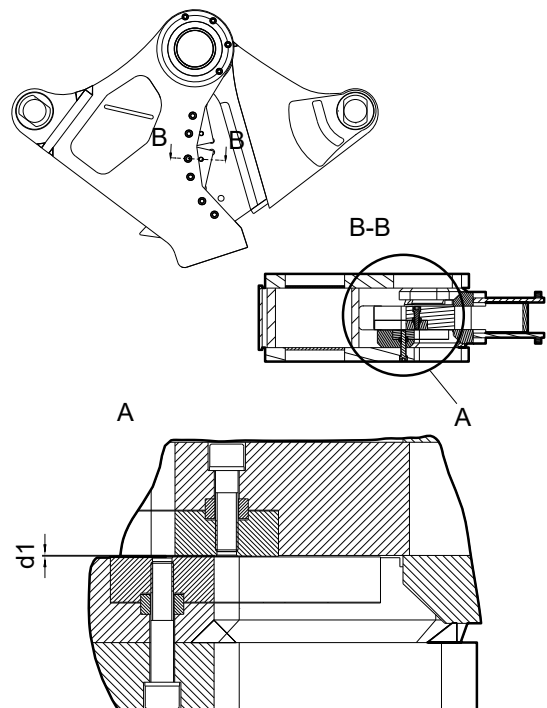
7.13.2 Correcting the blade clearance

Shims are required to correct the blade clearance. These are not included in the hydraulic demolition cutter scope of delivery. They must be purchased separately. The order number can be seen in the list of spare parts.

▲ WARNING Metal fragments expelled at high velocity

The cutter blades are made of hardened steel. If the cutter blade pairs come in contact with each other when the cutter jaws close, fragments may be expelled as projectiles and cause serious injuries and damage property.

- ▶ Wear safety glasses when making adjustments to the blade clearance.
- ▶ Only shim the blade pairs so there is minimum blade clearance when the cutter jaws close.
- Always underlay overlapping pairs of blades with shims evenly. The blade protrusion »d1« at the cutter jaw (single) and (double) must be the same.



- Open the cutter jaws completely.

▲ WARNING Parts of the body or whole bodies may be sheared or crushed

Cutter jaws may close unexpectedly and shear or crush parts of the body or whole bodies.

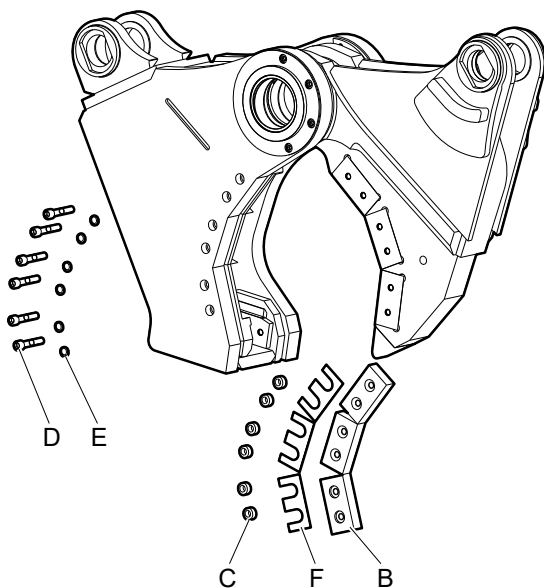
- ▶ Ensure that there is nobody between the cutter jaws.
- Perform work while outside the open cutter jaws, not between them.
- Disconnect the hydraulic supply to the hydraulic demolition cutter by shutting the shut-off valves of the lines »Open« (Connection »A«) and »Close« (Connection »B«) at the boom.
- Secure the carrier such that it cannot move unexpectedly.

- Loosen the Allen screws (D) with an Allen key.
- Unscrew the Allen screws (D) a few turns.
- Repeat this procedure until the blade clearance is less than 0.2 mm (0.008 in.).

⚠ WARNING Metal chips shooting off

The cutter blades are made of hardened steel. When removing the cutter blades with a hammer, chips may shoot off and cause serious eye injuries.

- ▶ Wear safety glasses when hammering out the cutter blades.
- ▶ A copper mandrel must be used for hammering.
- Drive the cutter blade (B) out by hitting a copper mandrel on the heads of the Allen screws (D).
- Screw the Allen screws (D) out completely and remove the pairs of lock washers (E).
- Lever the cutter blade (B) out of the blade seat using a screw driver or thin chisel.
- Remove the lock rings (C) using pliers.
- Push shims (F) between cutter blade (B) and blade seat.
- Fit the lock rings (C).
- Fit the cutter blade (B).
- Place one pair of lock washers (E) on each Allen screw (D).
- Tighten the Allen screws (D) to the torque required (see chapter **Bold connections / Tightening torques**).



- Re-check the blade clearance (see chapter **Correcting the blade clearance**).

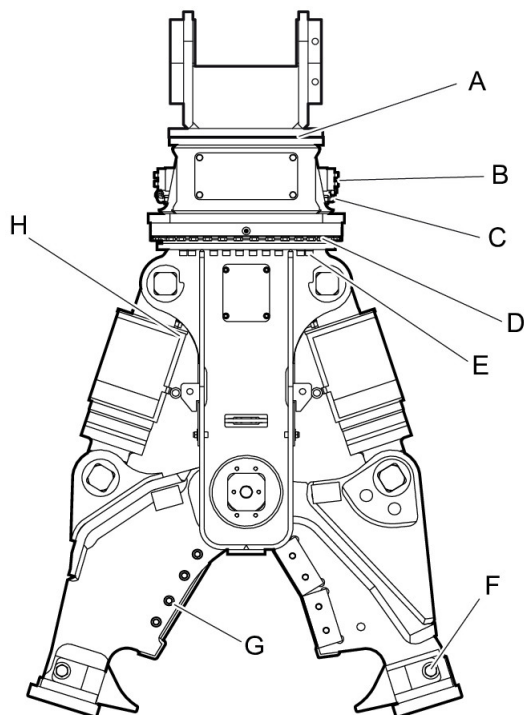
7.14 Bolt connections / Tightening torques CC 1600

The bolt connections of hydraulic demolition cutters are subjected to very high loads.

- Tighten any loose connections without exceeding the recommended tightening torques.

Connection point		Interval	Type of spanner / size	Tightening torque
Adapter plate* (fixing bolts)	A	daily	Allen key / 22 mm (0.89 in.)	1500 Nm (1106 ft lbs)
Hydraulic connection »Open / Close« (Allen screws of flange halves)	B	weekly	Allen key / 10 mm (0.39 in.)	75 + 10 Nm (55 + 7 ft lbs)
Hydraulic connection »Turn«	C	weekly	Open-ended wrench / 24 mm (0.95 in.)	70 + 10 Nm (52 + 7 ft lbs)
Four point bearing	D	weekly	Allen key / 14 mm (0.55 in.)	255 + 30 Nm (188 + 22 ft lbs)
Four point bearing	E	weekly	Open-ended wrench / 24 mm (0.95 in.)	255 + 30 Nm (188 + 22 ft lbs)
Tip of tooth	F	prior to shift	Box wrench / 36 mm (1.42 in.)	920 + 30 Nm (679 + 22 ft lbs)
Cutter blades	G	prior to shift	Allen key / 17 mm (0.67 in.)	530 + 30 Nm (391 + 22 ft lbs)
Hydraulic connection cylinder (Allen screws of flange halves)	H	in case of a repair	Allen key / 8 mm (0.32 in.)	44 + 5 Nm (32 + 4 ft lbs)
Assembly rack for changing cutter jaw pair (holders) (bolt)	-	on changing cutter jaw pair	Allen key / 17 mm (0.67 in.) Allen key / 22 mm (0.87 in.)	390 Nm (288 ft lbs) 1300 + 50 Nm (959 + 37 ft lbs)

* Treat the threads of the Allen screws with Anti-seize prior to screwing them in. The contact face of the screw head and the lock washers must not be lubricated.



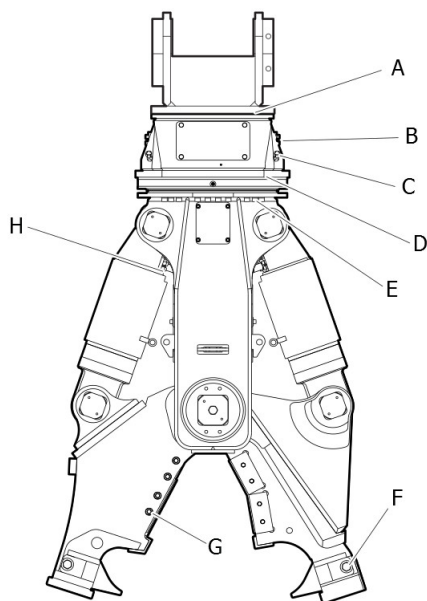
7.15 Bolt connections / Tightening torques CC 2300

The bolt connections of hydraulic demolition cutters are subjected to very high loads.

- Tighten any loose connections without exceeding the recommended tightening torques.

Connection point		Interval	Type of spanner / size	Tightening torque
Adapter plate* (fixing bolts)	A	daily	Allen key / 22 mm (0.89 in.)	1500 Nm (1106 ft lbs)
Hydraulic connection »Open / Close« (Allen screws of flange halves)	B	weekly	Allen key / 10 mm (0.39 in.)	75 + 10 Nm (55 + 7 ft lbs)
Hydraulic connection »Turn«	C	weekly	Open-ended wrench / 24 mm (0.95 in.)	70 + 10 Nm (52 + 7 ft lbs)
Four point bearing	D	weekly	Open-ended wrench / 24 mm (0.95 in.)	255 + 30 Nm (188 + 22 ft lbs)
Four point bearing	E	weekly	Allen key / 14 mm (0.55 in.) Open-ended wrench / 24 mm (0.95 in.)	255 + 30 Nm (188 + 22 ft lbs)
Tip of tooth	F	prior to shift	Box wrench / 36 mm (1.42 in.)	920 + 30 Nm (679 + 22 ft lbs)
Cutter blades	G	prior to shift	Allen key / 17 mm (0.67 in.)	530 + 30 Nm (391 + 22 ft lbs)
Hydraulic connection cylinder (Allen screws of flange halves)	H	in case of a repair	Allen key / 8 mm (0.32 in.)	44 + 5 Nm (32 + 4 ft lbs)
Assembly rack for changing cutter jaw pair (holders) (bolt)	-	on changing cutter jaw pair	Allen key / 17 mm (0.67 in.) Allen key / 22 mm (0.87 in.)	390 Nm (288 ft lbs) 1300 + 50 Nm (959 + 37 ft lbs)

* Treat the threads of the Allen screws with Anti-seize prior to screwing them in. The contact face of the screw head and the lock washers must not be lubricated.



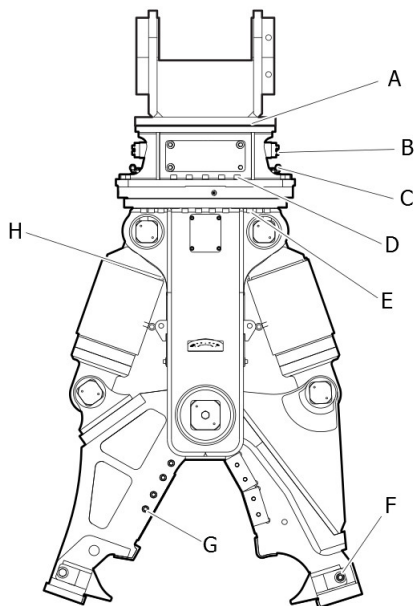
7.16 Bolt connections / Tightening torques CC 3100

The bolt connections of hydraulic demolition cutters are subjected to very high loads.

- Tighten any loose connections without exceeding the recommended tightening torques.

Connection point		Interval	Type of spanner / size	Tightening torque
Adapter plate* (fixing bolts)	A	daily	Allen key / 22 mm (0.89 in.)	1500 Nm (1106 ft lbs)
Hydraulic connection »Open / Close« (Allen screws of flange halves)	B	weekly	Allen key / 10 mm (0.39 in.)	75 + 10 Nm (55 + 7 ft lbs)
Hydraulic connection »Turn«	C	weekly	Open-ended wrench / 24 mm (0.95 in.)	70 + 10 Nm (52 + 7 ft lbs)
Four point bearing	D	weekly	Allen key / 17 mm (0.67 in.)	530 + 30 Nm (391 + 22 ft lbs)
Four point bearing	E	weekly	Allen key / 17 mm (0.67 in.) Open-ended wrench / 30 mm (1.81 in.)	530 + 30 Nm (391 + 22 ft lbs)
Tip of tooth	F	prior to shift	Box wrench / 36 mm (1.42 in.)	920 + 30 Nm (679 + 22 ft lbs)
Cutter blades	G	prior to shift	Allen key / 17 mm (0.67 in.)	530 + 30 Nm (391 + 22 ft lbs)
Hydraulic connection cylinder (Allen screws of flange halves)	H	in case of a repair	Allen key / 8 mm (0.32 in.)	44 + 5 Nm (32 + 4 ft lbs)
Assembly rack for changing cutter jaw pair (holders) (bolt)	-	on changing cutter jaw pair	Allen key / 17 mm (0.67 in.) Allen key / 22 mm (0.87 in.)	390 Nm (288 ft lbs) 1300 + 50 Nm (959 + 37 ft lbs)

* Treat the threads of the Allen screws with Anti-seize prior to screwing them in. The contact face of the screw head and the lock washers must not be lubricated.



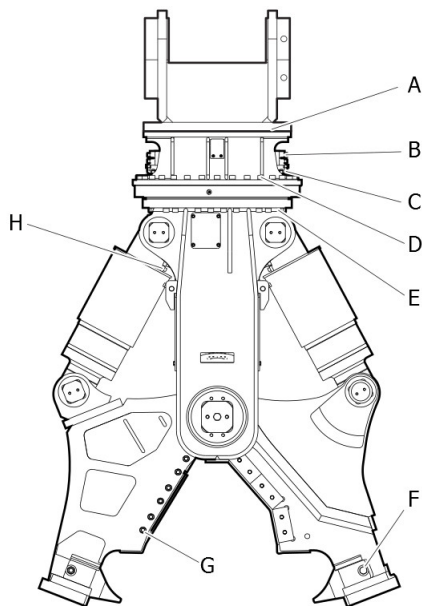
7.17 Bolt connections / Tightening torques CC 3700

The bolt connections of hydraulic demolition cutters are subjected to very high loads.

- Tighten any loose connections without exceeding the recommended tightening torques.

Connection point		Interval	Type of spanner / size	Tightening torque
Adapter plate* (fixing bolts)	A	daily	Allen key / 27 mm (1.06 in.)	2300 Nm (1696 ft lbs)
Hydraulic connection »Open / Close« (Allen screws of flange halves)	B	weekly	Allen key / 12 mm (0.47 in.)	170 + 15 Nm (125 + 11 ft lbs)
Hydraulic connection »Turn«	C	weekly	Open-ended wrench / 24 mm (0.95 in.)	70 + 10 Nm (52 + 7 ft lbs)
Four point bearing	D	weekly	Allen key / 17 mm (0.67 in.)	530 + 30 Nm (391 + 22 ft lbs)
Four point bearing	E	weekly	Allen key / 17 mm (0.67 in.)	530 + 30 Nm (391 + 22 ft lbs)
Tip of tooth	F	prior to shift	Box wrench / 36 mm (1.42 in.)	920 + 30 Nm (679 + 22 ft lbs)
Cutter blades	G	prior to shift	Allen key / 17 mm (0.67 in.)	530 + 30 Nm (391 + 22 ft lbs)
Hydraulic connection cylinder (Allen screws of flange halves)	H	in case of a repair	Allen key / 10 mm (0.39 in.)	45 + 5 Nm (33 + 4 ft lbs)
Assembly rack for changing cutter jaw pair (holders) (bolt)	-	on changing cutter jaw pair	Allen key / 17 mm (0.67 in.) Allen key / 22 mm (0.87 in.)	390 Nm (288 ft lbs) 1300 + 50 Nm (959 + 37 ft lbs)

* Treat the threads of the Allen screws with Anti-seize prior to screwing them in. The contact face of the screw head and the lock washers must not be lubricated.



8 Troubleshooting

8.1 Hydraulic demolition cutter does not work

Cause	Remedy	By
Shut-off valve in line A and/or B closed	Check and open shut-off valve	Carrier driver
Defective couplings blocking lines A and B	Check coupling halves and replace defective coupling halves	Workshop
Oil level in tank too low	Top up oil	Carrier driver
Faults in the electrical system of the hydraulic demolition cutter installation	Check electrical system of hydraulic demolition cutter installation and remedy defects	Workshop
Rocker switch defective	Check the rocker switch and replace	Workshop
Magnet on switch-on valve damaged	Replace the magnet	Workshop

8.2 Shearing capacity too low

Cause	Remedy	By
Lines A and B swapped Only different pressure settings of lines A and B of existing installation permit hydraulic hammer operation.	Check connection of lines A and B and connect lines A and B correctly (see chapter Hydraulic connection)	Carrier driver
Operating pressure too low	Check pump output and pressure relief valve and correct operating pressure	Epiroc Customer Center / Dealer in your area

8.3 Hydraulic demolition cutter does not cut

Cause	Remedy	By
Blades worn or broken	Check blades and turn or replace (see chapter Turning or changing cutter blades)	Workshop
Excessive blade clearance	Check blade clearance and re-adjust (see chapter Checking and correcting the blade clearance)	Workshop

8.4 The hydraulic demolition cutter cannot be rotated

Cause	Remedy	By
Rotation motor / gear unit / rotary transmission defective	Check rotation motor / gear unit / rotary transmission and replace defective parts	Epiroc Customer Center / Dealer in your area

8.5 Operating temperature too high

Cause	Remedy	By
Oil level in tank too low	Check oil level and top up oil	Carrier driver or workshop
Carrier pump delivery too high; a constant volume of oil is squirted out of the pressure relief valve	Check and correct motor speed of carrier Drive the pump	Epiroc Customer Center / Dealer in your area
Pressure relief valve defective or valve with poor characteristics	Fit new type-tested pressure relief cartridges or a more precise pressure-limiting valve	Workshop or Epiroc Customer Center / Dealer in your area

8.6 Oil leaks from hydraulic ports

Cause	Remedy	By
Flange halves and/or cap nuts are loose	Check and tighten flange halves and/or cap nuts (see chapter Bolt connections/Tightening torques)	Carrier driver

8.7 Oil leak at parts of the hydraulic demolition cutter installation (bolted connections, hoses etc.)

Cause	Remedy	By
Bolted connections are loose; flange connections at valve are loose	Check and tighten bolted connections; replace defective parts if necessary (see chapter Bolt connections/Tightening torques) Check hydraulic demolition cutter installation, replace damaged parts Use only original parts (see chapter Bolt connections/Tightening torques)	Carrier driver or workshop

8.8 Insufficient lubrication

Cause	Remedy	By
Intervals between lubrication too long	Check lubrication and lubricate (see chapter Lubrication)	Carrier driver

8.9 Automatic closing of cutter jaws

Cause	Remedy	By
Rapid movement valve defective	Check and replace rapid movement valve	Workshop or Epiroc Customer Center / Dealer in your region

8.10 Automatic turning of hydraulic demolition cutter

Cause	Remedy	By
Internal leaks in hydraulic system	Check and repair the hydraulic system	Workshop
Pressure relief valve defective	Fit new pressure limiting cartridge	Epiroc Customer Center / Dealer in your area

9 Repair

▲ **WARNING Hydraulic system under high pressure**

Carrying out repairs on the pressurised hydraulic attachment may lead to serious injury. Connections may come loose unexpectedly, parts may move suddenly and hydraulic oil may squirt out.

- ▶ Depressurise the hydraulic system before carrying out repairs to the hydraulic attachment or the carrier (see chapter **Depressurising the hydraulic system**).
- For technical support contact the Epiroc Customer Center / Dealer in your area.

9.1 Sending in the hydraulic attachment for repairs

NOTICE Mixed hydraulic oil

Never mix mineral and non-mineral hydraulic oils! Even small traces of mineral oil mixed in with non-mineral oil can result in damage to both the hydraulic attachment and the carrier. Non-mineral oil loses its biodegradability.

- ▶ Only use one type of hydraulic oil.
- Always specify which hydraulic oil has been used when sending in the hydraulic attachment to have it repaired.

9.2 Welding

- Only commission qualified welding specialists to perform welding; specialists are people who:

- have been trained to operate MIG welding equipment according to the national regulations,
- know all the relevant national/regional safety and accident prevention regulations and
- who are familiar with and understand these Safety and Operating Instructions.

▲ **WARNING Hot hydraulic oil squirting out**

The hydraulic system is under high pressure. If hydraulic connections come loose or are disconnected, hydraulic oil will squirt out under high pressure. Hydraulic lines may spring a leak or burst. Hydraulic oil squirting out can lead to serious injury.

- ▶ Depressurise the hydraulic system before carrying out repairs to the hydraulic attachment or the carrier (see chapter **Depressurising the hydraulic system**).
- ▶ Depressurise the hydraulic system according to the manufacturer's safety and operating instructions for the carrier.

▲ **WARNING Hot parts**

The hydraulic cylinder, hoses, pipes and fittings become very hot during operation. Touching them may lead to burns.

- ▶ Never touch hot parts.
- ▶ If you have to carry out activities where you have to touch the parts, wait for them to cool down first.

NOTICE Environmental damage due to hydraulic oil

Hydraulic oil is environmentally harmful and must not penetrate the ground or enter the water table or water supplies.

- ▶ Collect any hydraulic oil which escapes.
- ▶ Dispose of it in accordance with the applicable environmental regulations.

9.3 Hard facing the cutter jaws

- Depressurise the hydraulic system (see chapter **Depressurising the hydraulic system**).
- Remove the cutter jaws (see chapter **Changing cutter jaw pair**).
- Remove the tips of teeth (see chapter **Changing the tip of the tooth**).
- Remove the cutter blades (see chapter **Turning or changing the cutter blades**).
- Check which sections of the cutter jaws are to be hard faced.

NOTICE Damage due to hard facing with lack of buffer layer

- ▶ Hard facing directly onto the cutter jaw base material may cause the cutter jaw to crack.
- ▶ Weld the buffer layer on first before hard facing.
- Observe the following welding regulations to achieve optimum reworking.

Welding hard facing of following cutter jaws:

- U version, cutter jaw (single)
- U version, cutter jaw (double)

Welding regulations

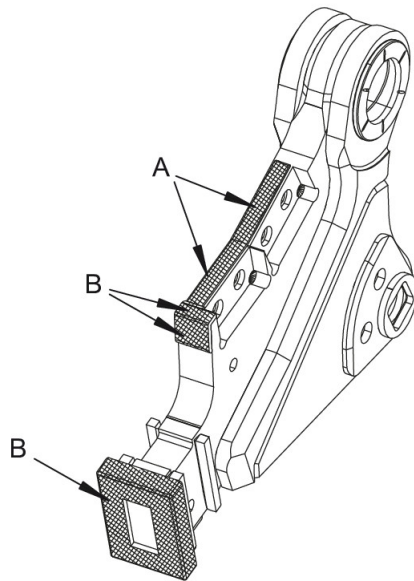
Preheating temperature to buffer layer	Maximum 150 - 180 °C (302 - 356 °F)
Welding filler for buffer layer	DCMS-IG DIN EN ISO 21952 G Cr-Mo1Si, material 1.7339
Inert gas	DIN EN ISO 14175-M 21
Intermediate layer temperature	Maximum 160 °C (320 °F)
Preheating temperature for hard facing welding	Maximum 100 °C (212 °F)
Intermediate layer temperature	Maximum 200 °C (392 °F)
Welding filler for hard facing	DIN 8555/MSG-1-GZ-60 Dura EA-600-SG
Inert gas	DIN EN ISO 14175-M 21
Cooling	Under cover

- S version, cutter jaw (single)
- S version, cutter jaw (double)

Welding regulations

Preheating temperature to buffer layer	150 - 180 °C (302 - 356 °F)
Welding filler for buffer layer	DCMS-IG DIN EN ISO 21952 G Cr-Mo1Si, material 1.7339
Inert gas	DIN EN ISO 14175-M 21
Intermediate layer temperature	Maximum 160 °C (320 °F)
Preheating temperature for hard facing welding	Maximum 100 °C (212 °F)
Intermediate layer temperature	Maximum 200 °C (392 °F)
Welding filler for hard facing	DIN EN ISO 14343 G 13/4 CN 13/4 - IG
Inert gas	DIN EN ISO 14175-M 21

CC 1600 U, cutter jaw (single)



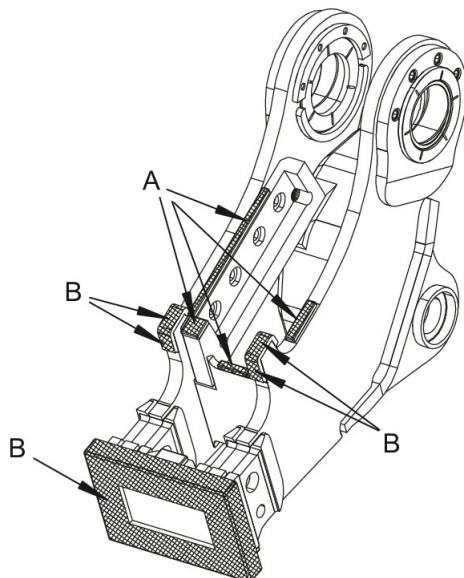
- A. 1-layer EA-600-SG
- B. 3-layer EA-600-SG

CAUTION

Welding lines for hard facing only in this direction.

1. Front
2. Circular

CC 1600 U, cutter jaw (double)



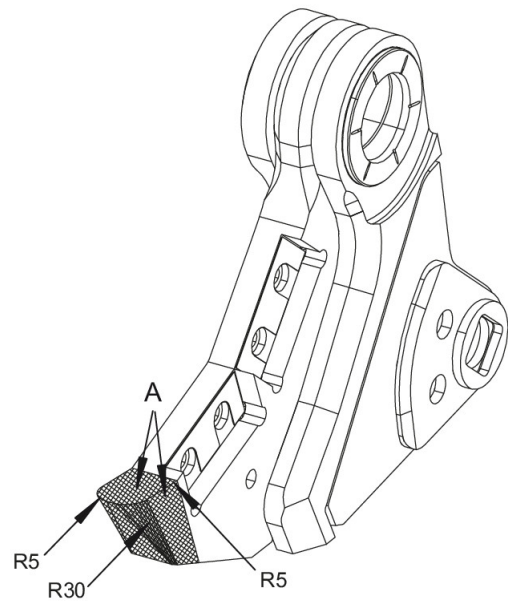
- A. 1-layer EA-600-SG
- B. 3-layer EA-600-SG

CAUTION

Welding lines for hard facing only in this direction.

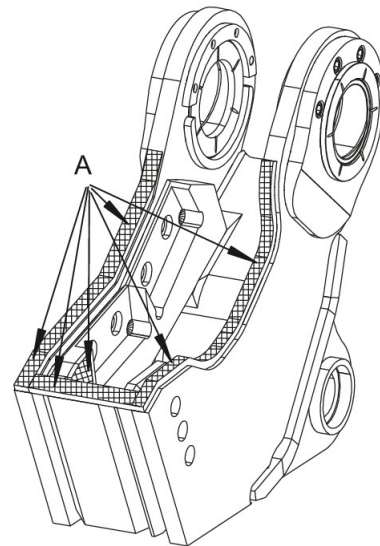
1. Front
2. Circular

CC 1600 S, cutter jaw (single)



- A. 1-layer hard facing CN 13/4-IG

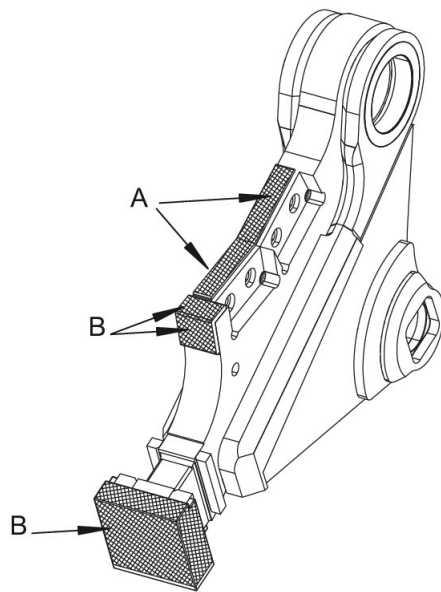
CC 1600 S, cutter jaw (double)



- A. 2-layer hard facing, lengthwise weld beats

- Fit the cutter blades (see chapter **Turning or changing the cutter blades**).
- Fit the tips of the tooth (see chapter **Changing the tip of the tooth**).
- Fit the cutter jaws (see chapter **Changing the cutter jaw pair**).

CC 2300 U, cutter jaw (single)



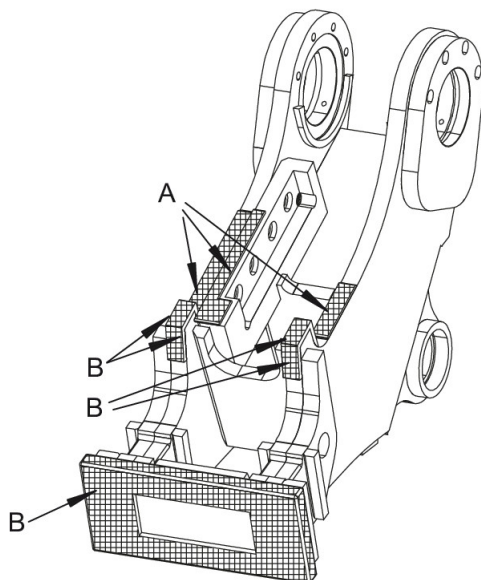
- A. 1-layer EA-600-SG
- B. 3-layer EA-600-SG

CAUTION

Welding lines for hard facing only in this direction.

1. Front
2. Circular

CC 2300 U, cutter jaw (double)



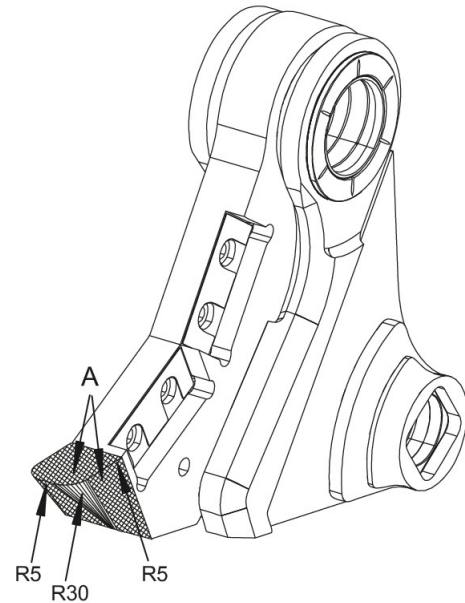
- A. 1-layer EA-600-SG
- B. 3-layer EA-600-SG

CAUTION

Welding lines for hard facing only in this direction.

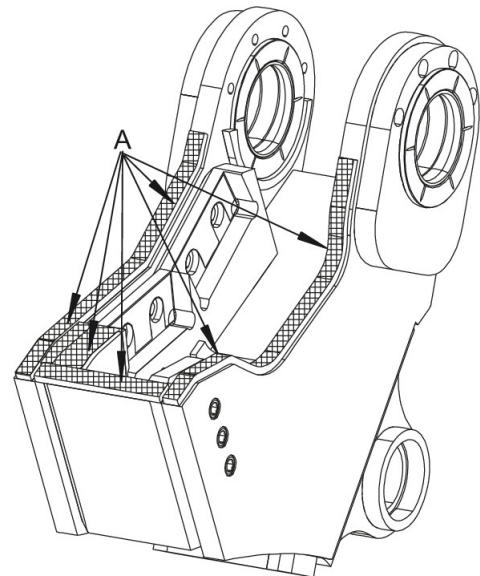
1. Front
2. Circular

CC 2300 S, cutter jaw (single)



- A. 1-layer hard facing CN 13/4-IG

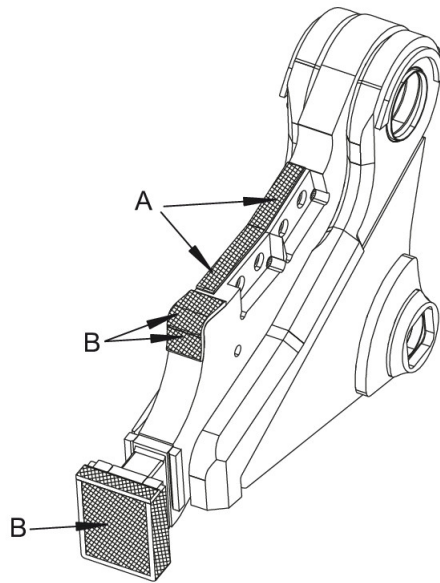
CC 2300 S, cutter jaw (double)



- A. 2-layer hard facing, lengthwise weld beats

- Fit the cutter blades (see chapter **Turning or changing the cutter blades**).
- Fit the tips of the tooth (see chapter **Changing the tip of the tooth**).
- Fit the cutter jaws (see chapter **Changing the cutter jaw pair**).

CC 3100 U, cutter jaw (single)



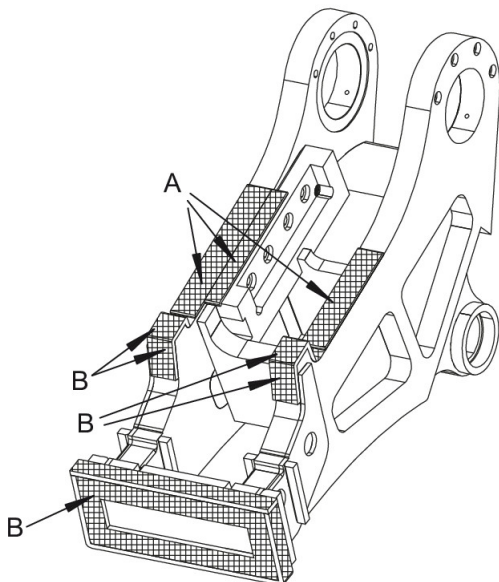
- A. 1-layer EA-600-SG
- B. 3-layer EA-600-SG

CAUTION

Welding lines for hard facing only in this direction.

1. Front
2. Circular

CC 3100 U, cutter jaw (double)



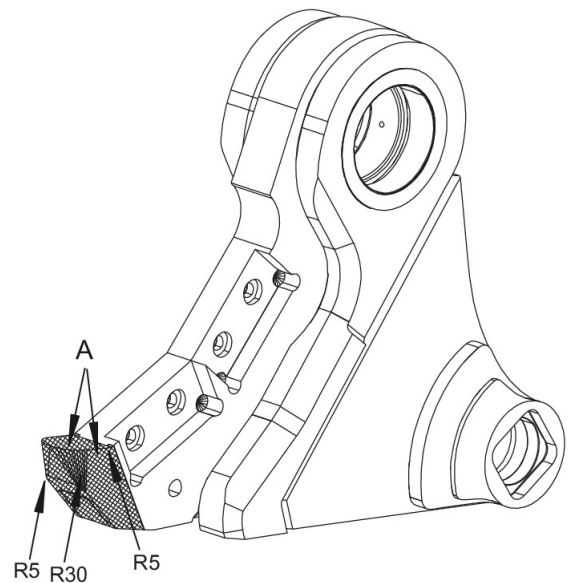
- A. 1-layer EA-600-SG
- B. 3-layer EA-600-SG

CAUTION

Welding lines for hard facing only in this direction.

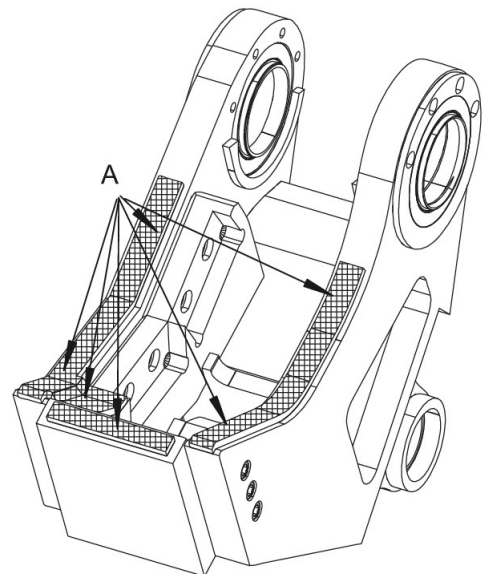
1. Front
2. Circular

CC 3100 S, cutter jaw (single)



- A. 1-layer hard facing CN 13/4-IG

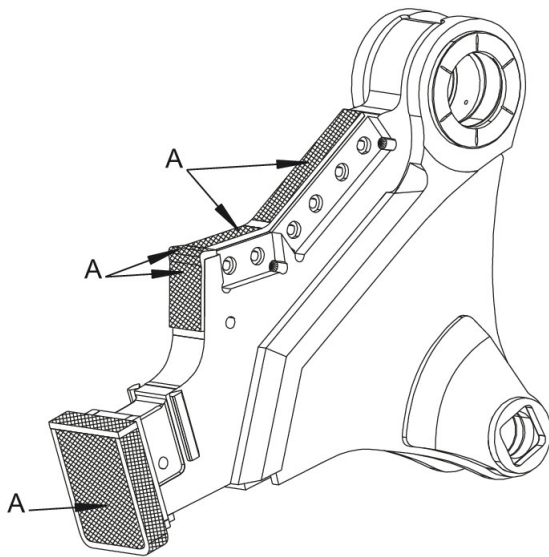
CC 3100 S, cutter jaw (double)



- A. 2-layer hard facing, lengthwise weld beats

- Fit the cutter blades (see chapter **Turning or changing the cutter blades**).
- Fit the tips of the tooth (see chapter **Changing the tip of the tooth**).
- Fit the cutter jaws (see chapter **Changing the cutter jaw pair**).

CC 3700 U, cutter jaw (single)



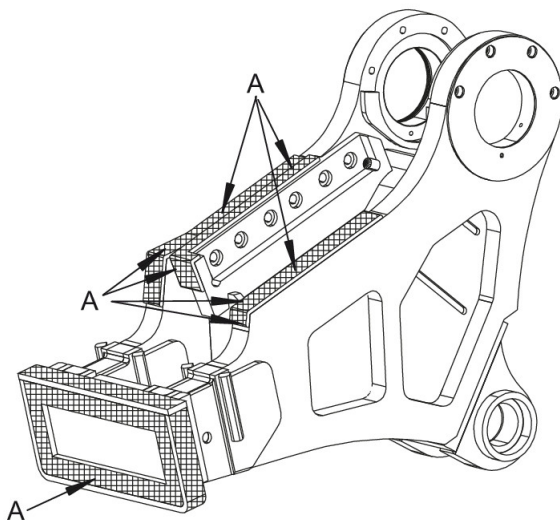
A. 3-layer EA-600-SG

CAUTION

Welding lines for hard facing only in this direction.

1. Front
2. Circular

CC 3700 U, cutter jaw (double)



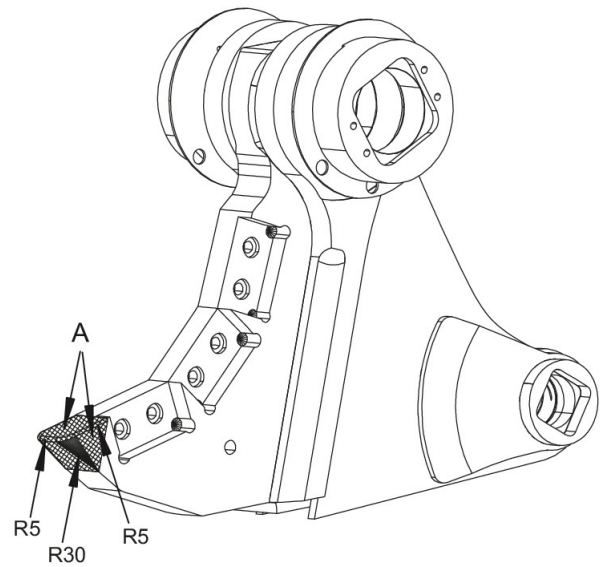
A. 3-layer EA-600-SG

CAUTION

Welding lines for hard facing only in this direction.

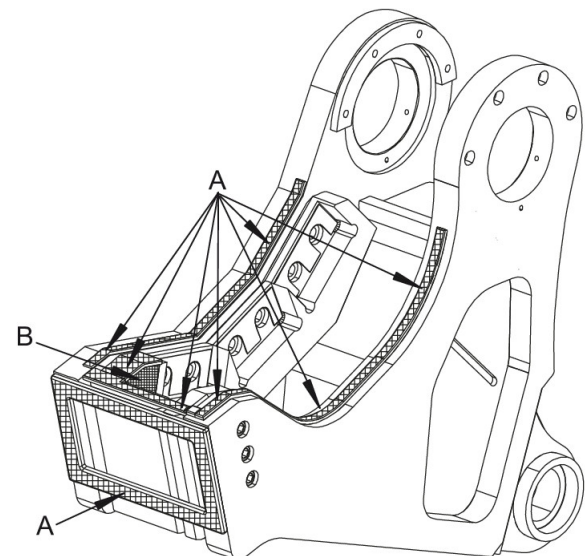
1. Front
2. Circular

CC 3700 S, cutter jaw (single)



A. 3-layer hard facing CN 13/4-IG

CC 3700 S, cutter jaw (double)



A. 2-layer hard facing, lengthwise weld beats

B. 3-layer hard facing

- Fit the cutter blades (see chapter **Turning or changing the cutter blades**).
- Fit the tips of the tooth (see chapter **Changing the tip of the tooth**).
- Fit the cutter jaws (see chapter **Changing the cutter jaw pair**).

10 Storage

10.1 Hydraulic demolition cutter

▲ WARNING Falling hydraulic demolition cutter

The hydraulic demolition cutter is heavy. If it topples over where it is stored, it may cause injury.

- ▶ Store the hydraulic demolition cutter horizontal on squared timbers or a pallet on a horizontal base.

The following procedure applies to storage:

- Open the cutter jaws.
There is less oil in the hydraulic demolition cutter if the cutter jaws are open. In the event of a leak, less oil is lost and the environmental damage is lower.
- Remove the hydraulic demolition cutter from the carrier (see chapter **Removing the hydraulic attachment from the carrier**).
- Store the hydraulic demolition cutter in a dry, well-ventilated room.
- If storage is only possible outdoors, then the hydraulic demolition cutter is to be protected from the weather with plastic film or tarpaulins.
- Store the hydraulic demolition cutter horizontal on squared timbers or a pallet on a horizontal base.

10.2 Cutter jaws removed

▲ WARNING Removed cutter jaws falling

The cutter jaw pair is heavy. If it topples over where it is stored, it may cause injury.

- ▶ Secure the cutter jaw pair on the assembly rack to prevent it falling over.

The following procedure applies to storage:

- Store the cutter jaw pair in a dry, properly ventilated room.
- If you can only store the cutter jaw pair in the open air, protect it against the weather with plastic film or tarpaulins.
- Store the cutter jaw pair secured on the assembly rack on a horizontal base.

10.3 Grease cartridges

▲ WARNING Fire and harmful vapors

Cutter grease can burn and cause serious fire. Harmful vapors are generated when cutter grease is burnt.

- ▶ Never store grease cartridges near fire-propagating or self-igniting substances.
- ▶ Do not expose the grease cartridges to direct sunlight.
- Store the grease cartridges in a cool, properly ventilated room.

11 Disposal

NOTICE Environmental damage due to consumables

Hydraulic oil and cutter grease are environmentally harmful and must not penetrate the ground or enter the water table or water supplies.

- ▶ Collect any such consumables which may escape.
- ▶ Dispose of them in accordance with the applicable environmental regulations.

- Completely emptied grease cartridges can be recycled.

11.1 Hydraulic demolition cutter

- Remove the hydraulic demolition cutter from the carrier (see chapter **Removing the hydraulic attachment from the carrier**).
- Remove the adapter plate (see chapter **Removing the adapter plate**).
- Remove the hydraulic hoses from the hydraulic demolition cutter.
- Clean the hydraulic demolition cutter (see chapter **Cleaning**).
- Dispose of the hydraulic demolition cutter in line with all applicable regulations or consult an authorised and specialised recycling company.

11.2 Hydraulic hoses

- Drain the hydraulic oil from the hydraulic hoses and collect it.
- Dispose of the hydraulic hoses in accordance with the applicable regulations to avoid environmental hazards.

11.3 Hydraulic oil

- Collect any hydraulic oil that escapes.
- Dispose of it in accordance with the applicable environmental regulations.

11.4 Cutter grease and grease cartridges

- Dispose of cutter grease and not completely emptied grease cartridges in accordance with the applicable regulations.

12 Technical specifications

Type	CC 1600 U	CC 1600 S
Carrier weight class ¹	13 - 23 t (28650 - 50700 lbs)	13 - 23 t (28650 - 50700 lbs)
Service weight ²	1600 kg (3530 lbs)	1540 kg (3400 lbs)
Weight without adapter	1425 kg (3140 lbs)	1340 kg (2950 lbs)
Dimensions		
Length	1862 mm (73 in.)	1786 mm (70 in.)
Width	1377 mm (54 in.)	1114 mm (44 in.)
Depth	616 mm (24 in.)	616 mm (24 in.)
Width single jaw	150 mm (6 in.)	70 mm (3 in.)
Width double jaw	330 mm (13 in.)	230 mm (9 in.)
Jaw opening / max.	700 mm (28 in.)	380 mm (15 in.)
Jaw depth	490 mm (19 in.)	385 mm (15 in.)
Blade length	350 mm (14 in.)	380 mm (15 in.)
Force		
Cutting force - upper blades	197 t (217 tn. sh.)	197 t (217 tn. sh.)
Cutting force - jaw tip	-	61 t (67 tn. sh.)
Crushing force - jaw tip	57 t (63 tn. sh.)	-
Operating pressure		
Open / Close	350 bar (5100 psi)	350 bar (5100 psi)
Turn	max. 170 bar (max. 2500 psi)	max. 170 bar (max. 2500 psi)
Oil flow		
Open / Close	150 - 250 l/min (39.6 - 66.1 gal/min)	150 - 250 l/min (39.6 - 66.1 gal/min)
Turn	35 - 50 l/min (9.3 - 13.2 gal/min)	35 - 50 l/min (9.3 - 13.2 gal/min)
Cycle ³		
Closing	1.3 s	1.3 s
Opening	1.3 s	1.3 s
Hydraulic connections		
Open / Close	SAE 1" 6000 PSI	SAE 1" 6000 PSI
Turn	M 20 x 1.5	M 20 x 1.5
Hose lines (inside diameter)		
Open / Close	min. 25 mm (min. 1 in.)	min. 25 mm (min. 1 in.)
Turn	min. 8 mm (min. 0.3 in.)	min. 8 mm (min. 0.3 in.)
Pipework (diameter and wall thickness)		
Open / Close	30 x 4 mm (1.18 x 0.16 in.)	30 x 4 mm (1.18 x 0.16 in.)
Turn	12 x 1.5 mm (0.47 x 0.06 in.)	12 x 1.5 mm (0.47 x 0.06 in.)
Hole pattern	MB 1200 - MB 1700	MB 1200 - MB 1700

¹ Weight apply to standard carriers only. Any variations must be agreed with Epiroc and / or the carrier manufacturer.

² hydraulic demolition cutter including adapter plate of medium size. Please note that the working weight can be considerably higher, depending on the adapter plate.

³ with maximal oil flow

Type	CC 2300 U	CC 2300 S
Carrier weight class ¹	20 - 30 t (44000 - 66000 lbs)	20 - 30 t (44000 - 66000 lbs)
Service weight ²	2300 kg (5100 lbs)	2100 kg (4600 lbs)
Weight without adapter	2150 kg (4770 lbs)	1950 kg (4300 lbs)
Dimensions		
Length	2159 mm (85 in.)	1983 mm (78 in.)
Width	1408 mm (55 in.)	1248 mm (49 in.)
Depth	700 mm (28 in.)	700 mm (28 in.)
Width single jaw	184 mm (7 in.)	82 mm (3 in.)
Width double jaw	466 mm (18 in.)	282 mm (11 in.)
Jaw opening / max.	750 mm (30 in.)	415 mm (16 in.)
Jaw depth	660 mm (26 in.)	485 mm (19 in.)
Blade length	350 mm (14 in.)	380 mm (15 in.)
Force		
Cutting force - upper blades	257 t (283 tn. sh.)	294 t (324 tn. sh.)
Cutting force - jaw tip	-	87 t (96 tn. sh.)
Crushing force - jaw tip	70 t (77 tn. sh.)	-
Operating pressure		
Open / Close	350 bar (5100 psi)	350 bar (5100 psi)
Turn	max. 170 bar (max. 2500 psi)	max. 170 bar (max. 2500 psi)
Oil flow		
Open / Close	150 - 250 l/min (39.6 - 66.1 gal/min)	150 - 250 l/min (39.6 - 66.1 gal/min)
Turn	35 - 50 l/min (9.3 - 13.2 gal/min)	35 - 50 l/min (9.3 - 13.2 gal/min)
Cycle ³		
Closing	1.6 s	1.6 s
Opening	1.7 s	1.7 s
Hydraulic connections		
Open / Close	SAE 1" 6000 PSI	SAE 1" 6000 PSI
Turn	M 20 x 1.5	M 20 x 1.5
Hose lines (inside diameter)		
Open / Close	min. 25 mm (min. 1 in.)	min. 25 mm (min. 1 in.)
Turn	min. 8 mm (min. 0.3 in.)	min. 8 mm (min. 0.3 in.)
Pipework (diameter and wall thickness)		
Open / Close	30 x 4 mm (1.18 x 0.16 in.)	30 x 4 mm (1.18 x 0.16 in.)
Turn	12 x 1.5 mm (0.47 x 0.06 in.)	12 x 1.5 mm (0.47 x 0.06 in.)
Hole pattern	MB 1200 - MB 1700	MB 1200 - MB 1700

¹ Weight apply to standard carriers only. Any variations must be agreed with Epiroc and / or the carrier manufacturer.

² hydraulic demolition cutter including adapter plate of medium size. Please note that the working weight can be considerably higher, depending on the adapter plate.

³ with maximal oil flow

Type	CC 3100 U	CC 3100 S	CC 3100 P
Carrier weight class ¹	25 - 40 t (55000 - 88000 lbs)		
Service weight ²	3100 kg (6800 lbs)	2850 kg (6300 lbs)	3450 kg (7610 lbs)
Weight without adapter	2880 kg (6350 lbs)	2635 kg (5810 lbs)	3250 kg (7165 lbs)
Dimensions			
Length	2341 mm (92 in.)	2059 mm (81 in.)	2265 mm (89 in.)
Width	1547 mm (61 in.)	1316 mm (52 in.)	1560 mm (61 in.)
Depth	870 mm (34 in.)	870 mm (34 in.)	630 mm (25 in.)
Width single jaw	174 mm (7 in.)	80 mm (3 in.)	420 mm (1 in.)
Width double jaw	480 mm (19 in.)	356 mm (14 in.)	630 mm (25 in.)
Jaw opening / max.	870 mm (34 in.)	400 mm (16 in.)	840 mm (33 in.)
Jaw depth	700 mm (28 in.)	465 mm (18 in.)	630 mm (25 in.)
Blade length	350 mm (14 in.)	380 mm (15 in.)	140 mm (5.5 in.)
Force			
Cutting force - upper blades	430 t (474 tn. sh.)	430 t (474 tn. sh.)	220 t (243 tn. sh.)
Cutting force - jaw tip	-	145 t (160 tn. sh.)	-
Crushing force - jaw tip	104 t (115 tn. sh.)	-	110 t (121 tn. sh.)
Operating pressure	350 bar (5100 psi)		
Open / Close	max. 170 bar (max. 2500 psi)		
Turn			
Oil flow	150 - 250 l/min (39.6 - 66.1 gal/min)		
Open / Close	35 - 50 l/min (9.3 - 13.2 gal/min)		
Turn			
Cycle ³			
Closing	2.9 s		
Opening	3.1 s		
Hydraulic connections	SAE 1" 6000 PSI		
Open / Close	M 20 x 1.5		
Turn			
Hose lines (inside diameter)			
Open / Close	min. 25 mm (min. 1 in.)		
Turn	min. 8 mm (min. 0.3 in.)		
Pipework (diameter and wall thickness)			
Open / Close	30 x 4 mm (1.18 x 0.16 in.)		
Turn	12 x 1.5 mm (0.47 x 0.06 in.)		
Hole pattern	HB 2000 - HB 2500		

¹ Weight apply to standard carriers only. Any variations must be agreed with Epiroc and / or the carrier manufacturer.

² hydraulic demolition cutter including adapter plate of medium size. Please note that the working weight can be considerably higher, depending on the adapter plate.

³ with maximal oil flow

Type	CC 3700 U	CC 3700 S
Carrier weight class ¹	30 - 50 t (66000 - 110000 lbs)	30 - 50 t (66000 - 110000 lbs)
Service weight ²	3700 kg (8200 lbs)	3400 kg (7500 lbs)
Weight without adapter	3400 kg (7500 lbs)	3110 kg (3860 lbs)
Dimensions		
Length	2420 mm (95 in.)	2320 mm (91 in.)
Width	1725 mm (68 in.)	1700 mm (67 in.)
Depth	850 mm (33 in.)	850 mm (33 in.)
Width single jaw	170 mm (7 in.)	100 mm (4 in.)
Width double jaw	475 mm (19 in.)	375 mm (15 in.)
Jaw opening / max.	1000 mm (39 in.)	440 mm (17 in.)
Jaw depth	765 mm (30 in.)	625 mm (25 in.)
Blade length	525 mm (21 in.)	525 mm (21 in.)
Force		
Cutting force - upper blades	510 t (562 tn. sh.)	510 t (562 tn. sh.)
Cutting force - jaw tip	-	147 t (162 tn. sh.)
Crushing force - jaw tip	126 t (139 tn. sh.)	-
Operating pressure		
Open / Close	350 bar (5100 psi)	350 bar (5100 psi)
Turn	max. 170 bar (max. 2500 psi)	max. 170 bar (max. 2500 psi)
Oil flow		
Open / Close	220 - 350 l/min (58.1 - 92.5 gal/min)	220 - 350 l/min (58.1 - 92.5 gal/min)
Turn	35 - 50 l/min (9.3 - 13.2 gal/min)	35 - 50 l/min (9.3 - 13.2 gal/min)
Cycle ³		
Closing	2.8 s	2.8 s
Opening	3.0 s	3.0 s
Hydraulic connections		
Open / Close	SAE 1 1/4" 6000 PSI	SAE 1 1/4" 6000 PSI
Turn	M 20 x 1.5	M 20 x 1.5
Hose lines (inside diameter)		
Open / Close	min. 32 mm (min. 1.3 in.)	min. 32 mm (min. 1.3 in.)
Turn	min. 8 mm (min. 0.3 in.)	min. 8 mm (min. 0.3 in.)
Pipework (diameter and wall thickness)		
Open / Close	38 x 5 mm (1.50 x 0.2 in.)	38 x 5 mm (1.50 x 0.2 in.)
Turn	12 x 1.5 mm (0.47 x 0.06 in.)	12 x 1.5 mm (0.47 x 0.06 in.)
Hole pattern	HB 3100 - HB 4700	HB 3100 - HB 4700

¹ Weight apply to standard carriers only. Any variations must be agreed with Epiroc and / or the carrier manufacturer.

² hydraulic demolition cutter including adapter plate of medium size. Please note that the working weight can be considerably higher, depending on the adapter plate.

³ with maximal oil flow

13 EC Declaration of Conformity (EC Directive 2006/42/EC)

We, Construction Tools GmbH, hereby declare that the machines listed below conform to the provisions of EC Directive 2006/42/EC (Machinery Directive), and the harmonised standards mentioned below.

Hydraulic demolition cutter	Part number
CC 1600 U	3363 1226 66
CC 1600 S	3363 1226 68
CC 2300 U	3363 1209 90
CC 2300 S	3363 1216 15
CC 3100 U	3363 1204 00
CC 3100 S	3363 1213 22
CC 3700 U	3363 1195 00
CC 3700 S	3363 1195 01

Following harmonised standards were applied:

- EN ISO 12100

Technical Documentation authorised representative:

Stephan Schröer
 Construction Tools GmbH
 45143 Essen
 Germany

General Manager:

Reiner Koch

Manufacturer:

Construction Tools GmbH
 45143 Essen
 Germany

Place and date:

Essen, 2019-01-22

13.1 CC 3100 P

We, Construction Tools GmbH, hereby declare that the machines listed below conform to the provisions of EC Directive 2006/42/EC (Machinery Directive), and the harmonised standards mentioned below.

Hydraulic demolition cutter	Part number
CC 3100 P	3363 1226 45

Following harmonised standards were applied:

- EN ISO 12100

Technical Documentation authorised representative:

Stephan Schröer

Construction Tools GmbH

45143 Essen

Germany

General Manager:

Reiner Koch

Manufacturer:

Construction Tools GmbH

45143 Essen

Germany

Place and date:

Essen, 2019-03-21

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