XCENTRIC RIPPER MINING SERIES

INSTRUCTIONS MANUAL

XCENTRIC RIPPER INTERNATIONAL, S.L. / GRADO CERO SISTEMAS, S.L.U.

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INTRODUCTION

The ripper is a demolition tool developed with the latest advances in demolition systems in mind. It meets the highest standards. It was patented by Xcentric Ripper International/Grado Cero Sistemas, S.L.U., a trailblazer in the industry. Through its design, outstanding performance has been achieved, allowing more efficient work.

Made completely of wear-resistant steel, this attachment device is maintenance free, less noisy than other excavation tools, can be used under water without loss of performance, and adapted to countless work sites. The ripper is ideal for tunnel construction, working on walls and ceilings, and for other jobs. Thanks to its uncomplicated mechanical design, which has no pricey components and no impact or friction areas, high operating safety is guaranteed.

This instruction manual must be read and understood to ensure that the ripper is correctly used and provides peak performance and a long life. You will also find important advice on correct handling of the attachment device, so that you can make maximum use of your ripper's technical advantages.

The contents of this manual are the "Original Instructions".

Revision:	00	29-05-2017	Cod. 01-17
	01	01-12-2017	Cod. 02-17
	02	11-07-2018	Cod. 01-18
	03	13-11-2018	Cod. 02-18
	04	08-05-2019	Cod. 01-19

CONTENTS

WARRANTY

Warranty conditions

From the date of delivery, the ripper carries a warranty of **two years or 3.000 operating hours** (whichever comes first). For this, the following conditions must be fulfilled:

1) The warranty duration applies to operation in a single daily shift of eight hours. If the duration of daily operation is above the given value, the warranty period shortens proportionally.
2) Depending on the case, specific warranty conditions must be established for special uses.
3) Within the warranty period, Xcentric Ripper International/Grado Cero Sistemas, S.L.U. replaces free of charge all components whose damage or failure Xcentric Ripper International/Grado Cero Sistemas, S.L.U. acknowledges as being due to defects in material or design.
4) If the installation guidelines for the ripper are not observed, the attachment device's operational safety can be considerably affected. This will result in Xcentric Ripper International/Grado Cero Sistemas, S.L.U. rejecting any sort of warranty claim.
5) Replacement of a component during the warranty period does not cause an extension of the total warranty period for the unit.
6) For all warranty claims, contact Xcentric Ripper International/Grado Cero Sistemas, S.L.U. with the serial number found in the data on the model plate.
7) An Xcentric Ripper warranty claim form must be submitted to Xcentric Ripper International/Grado Cero Sistemas, S.L.U. within seven days from the date of repair. Photographs or video of the failed parts are to be sent with the claim form and a copy of the sales invoice of the ripper from the dealer to the end user. This allows Xcentric Ripper International/Grado Cero Sistemas, S.L.U. to decide whether or not the affected parts are eligible for warranty.
8) Parts that have been replaced free of charge are the property of Xcentric Ripper International/Grado Cero Sistemas, S.L.U. and must be retained by the dealer for a period of one year for possible inspection by a representative of Xcentric Ripper International/Grado Cero Sistemas, S.L.U.
9) During the warranty period, transport costs and installation costs of the replacement parts are born by Xcentric Ripper International/Grado Cero Sistemas, S.L.U. Any import duties incurred in the supply of the replacement parts will also be born by Xcentric Ripper International/Grado Cero Sistemas, S.L.U. A copy of the invoice for the import duties must be sent to Xcentric Ripper International/Grado Cero Sistemas, S.L.U. before reimbursement can be made.
10) The warranty does not apply to parts whose wear, damage or breakages have been caused by faulty operation and/or faulty maintenance of the ripper.
11) The warranty does not apply to parts subject to consumption or wear.
12) Only original equipment parts from Xcentric Ripper International/Grado Cero Sistemas, S.L.U. can be used. Infringement automatically voids this warranty.
13) All modifications to the device that are made without the prior approval of Xcentric Ripper International result in automatic forfeiture of the warranty.
14) During the warranty period, no work can be done to the ripper without the prior consent of Xcentric Ripper International/Grado Cero Sistemas, S.L.U.

 # NOTICE

The tooth and pin are not subject to warranty.

Acceptance inspection

When taking delivery of the ripper, the receiver must perform an acceptance inspection. If there is any damage, the transport driver and the transport company must be informed. Furthermore, it is necessary to inform the manufacturer, *Xcentric Ripper International/Grado Cero Sistemas S.L.U.*, and the ripper dealer.

The following documents are delivered with the ripper:

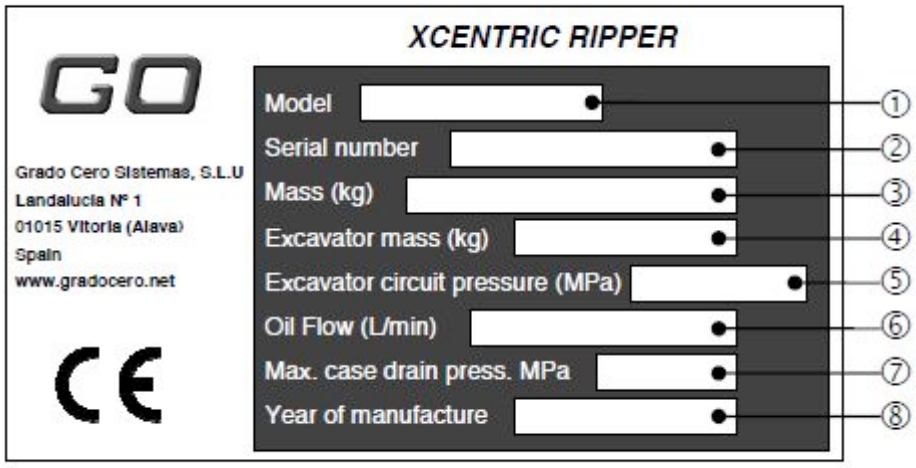
- Instruction manual
- List of replacement parts
- Warranty registration form
- EC declaration of conformity

Within 30 days after installation of the ripper, the warranty registration must be completely filled out and sent to *Xcentric Ripper International/Grado Cero Sistemas S.L.U.* Not sending it back means loss of the warranty.

Xcentric Ripper International/Grado Cero Sistemas, S.L.U reserves the right to change or expand the contents of this manual.

Model and CE plate

The model and CE plate is on the ripper housing.
This plate contains the following data (examples in the illustration):



1) Model
2) Serial number
3) Ripper mass
4) Excavator mass
5) Excavator circuit relief pressure
6) Oil flow
7) Maximum case drain pressure
8) Year of manufacture

EC DECLARATION OF CONFORMITY

We, Xcentric Ripper International/Grado Cero Sistemas, S.L.U., declare that the Ripper of the indicated make and model fulfils the conditions according to EC Machinery Directive 2006/42/EC and Pressure Equipment Directive 97/23/EC.

Make:……...XCENTRIC RIPPER
Accessory:……RIPPER
Model:……
Serial No:……..
Year of Manufacture:……..
Sound power level:…….95 dB(A)

The following harmonised standards are applied:
EN ISO 12100 – Safety of machinery
EN ISO 4413 – Hydraulic transmission

SCOPE AND LIMITATIONS OF THIS EC DECLARATION

This EC declaration covers the Ripper when it is mounted on the machine for which it is designed. In addition, the use of the Ripper must be that anticipated in work for the breakage of materials. It must not be used as a crane for handling loads or for inappropriate work.

Any modification made to this assembly or to any of its components, without express authorisation in writing from XCENTRIC RIPPER INTERNATIONAL/GRADO CERO SISTEMAS, S.L.U., invalidates this EC certification and, therefore, the use in service of the Ripper.

Authorised technical file representative:
Javier Aracama
Xcentric Ripper International/Grado Cero Sistemas, S.L.U
Arriurdina, 15
01015 Vitoria-Gasteiz (Alava), Spain.

Manufacturer:
Grado Cero Sistemas, S.L.U
Arriurdina, 15
01015 Vitoria-Gasteiz (Alava), Spain.

Place and date of issue:…….... Vitoria
Authorised by:……....Javier Aracama
Signature:

File: Original for the CUSTOMER

XCENTRIC RIPPER INTERNATIONAL, S.L.
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www.gradocero.net
www.xcentricripper.com

Warranty registration form

Model:..... Serial number:..... Delivery date...../...../.....

Customer details

* Name: .....
* Address: .....
City: ..... Country:.....
Installation date: ...../...../..... Excavator model:.....
Hour meter: .....
(* If possible)

Installation details

Preset pressure relief valve:		MPa / psi
Preset oil flow:	L/min / US gal/min	at..... MPa / psi
Working return back pressure:		MPa / psi
Working drain back pressure:		MPa / psi

(Mark with x)

Have you made the presetting by using the compulsory flowmeter? Yes ☐ No ☐

Pre-operation details

	Yes	No
Was the end user given instructions in the safety and operation of the ripper?:	☐	☐
Was the end user given instructions in the maintenance and service of the ripper?:	☐	☐
Did the end user receive a Parts List?:	☐	☐
Did the end user receive an Instruction Manual?:	☐	☐

(Mark with x)

End user

Date: ...../...../.....

Signature end user:

Dealer

Installed by:
Trained by:

Signature dealer:

This form must be returned to Xcentric Ripper International/Grado Cero Sistemas within 30 days of the installation date. Send to → warranty@xrint.es

Original: End user First copy: Xcentric Ripper International Second copy: Dealer

SERVICE MEMO

:: SAFETY

SAFETY INFORMATION AND PRECAUTIONS

Safety information

Before beginning work with or on the ripper, it is obligatory to read and understand this manual. The manufacturer assumes no legal liability for improper operation.

Xcentric Ripper International/Grado Cero Sistemas, S.L.U. assumes no liability if the owner of the ripper, without the prior written consent of *Xcentric Ripper International/Grado Cero Sistemas, S.L.U.*, undertakes any modifications to the device or uses it in violation of the instructions in this manual. In both cases, the warranty is void.

Place this manual or a copy of it in the excavator's operator cab, so that it is always on hand as a reference for questions and problems. Observe all local laws and regulations applicable to the use and operation of your work equipment.

Because there are various models of the ripper, it is possible that some illustrations in this manual will not correspond to your attachment device. These illustrations are merely to be taken as examples.

The activities described in the following sections require no special skills; personnel performing them must merely be familiar with the handling of the device.

This instruction manual must be read and understood to ensure that the ripper is correctly used and provides peak performance and a long life. You will also find important advice on correct handling of the attachment device, so that you can make maximum use of your ripper's technical advantages.

If the manual is lost or damaged order a new one from your local Xcentric Ripper International distributor.

Observe all relevant safety standards and use your device accordingly.

DANGER

Never stand under the ripper.

If the ripper is disconnected from the machine, use special caution during handling. There is a danger of tilting.

When the ripper is operating, there is a danger of flying particles and fragments.

In areas where there is a risk of explosion, use of the ripper is absolutely prohibited.

WARNING

Use ear protection.

Beware of hot surfaces.

General safety instructions

Always give special attention to operating the equipment safely. Important points that must be heeded are mentioned below:

- Observe all applicable standards for personal safety and fire protection. Perform the activities described in the manual only while using proper personal protection gear: safety boots, safety glasses, suitable gloves and ear protection.
- There is a tipping hazard if the ripper is removed from the excavator during loading and transport. Always set the ripper on a firm, even, horizontal surface that can bear the weight to the support points.
- There is a crushing hazard when handling, transporting, installing and removing the ripper. Maintain an appropriate safety distance.
- Make sure that the ripper is correctly mounted and fastened on the excavator.
- Defective or worn components must always be replaced with new original replacement parts.
- Use of defective, worn, deformed or corroded components, etc., is prohibited.
- While the excavator's engine is running, do not perform activities such as maintenance, inspection, cleaning and repair.
- Do not use any defective tools (hammers, wrenches, etc.), as these could lead to accidents.
- Always stay at least 20 metres away from the ripper's work area when it is in use; flying particles and fragments pose a hazard.
- Before opening the hydraulic connections, take all necessary safety precautions. Wear both safety glasses and safety gloves, because the connections may be under pressure, even if the excavator's engine is shut off.
- Avoid, long, excessive or repeated skin contact with the oil.
    - · Protect your skin with appropriate safety gear and safety gloves.
    - · Clean skin areas that come into contact with the oil:
        - Wash thoroughly with soap and water.
        - A nail brush is effective here.
        - Special hand cleaners make cleaning soiled hands easier.
        - Do not use petrol, thinners or solvents.
    - · After washing, protect your hands with moisturizing cream.
- Some of the ripper's components get quite hot during operation, especially the tooth and the fixing pin. This increases the risk of burns.
- Check the hydraulic hoses to the maximum permissible pressure and for correct connection and fastening.
- Excess pressure poses an explosion hazard in the pressure accumulator. Always follow the instructions in this manual.
- Always use great caution when moving around the demolition area, especially when the surface is wet.

• Wear ear protection while the ripper is operating.

Correct and incorrect use of the ripper

Correct use

The ripper is designed for tearing, breaking apart and demolishing stone, concrete, asphalt, etc. It can perform both horizontal and vertical demolition.

It can also be used for moving away the demolition material, thus leaving behind a clean work area.

It can be used as support for moving the excavator, which is then supported **only on the ripper impact arm**, and never on the ripper housing, because the structure permits that it be done only that way.

Incorrect use

Any application for which the ripper was not designed is considered incorrect use.

When using the ripper, never exceed its limit values.

All actions that violate legal rules for personal safety and fire protection are considered improper use. Demolition work must be performed only if the tooth is in perfect condition.

To use the ripper correctly, carefully read the section on its operation. Never use the ripper housing as a support when moving the excavator.

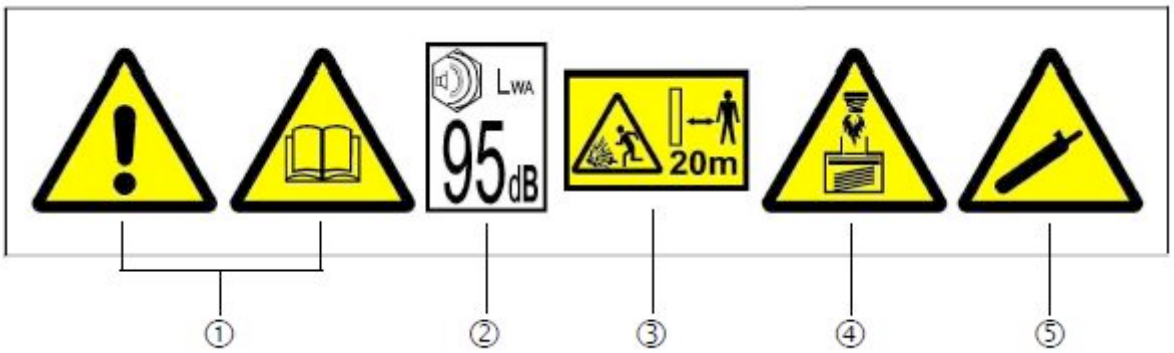
The ripper housing must never be used for moving or displacing demolition materials.

Never use the ripper on excavators that are larger than those for which it is designed. This could damage its structure, mechanics or the pressure accumulator.

Never use the ripper on excavators that are smaller than those for which it is designed. Read the excavator manufacturer's documentation to be sure that it can be operated with the ripper's weight.

Safety instruction sticker

On the ripper, there is a sticker with safety instructions and notes on safety precautions. If the sticker becomes damaged or soiled, a new sticker is available from the dealer or manufacturer. It is located on the upper part of the ripper housing.



1. jWARNING! Read this instruction manual thoroughly. It is obligatory that all information be understood.
2. Noise level: 95 dB(A). Use ear protection.
3. During operation, maintain at least a 20 m safety distance from the ripper. Beware of flying fragments.
4. ATTENTION! Contains compressed air.
5. DANGER! High pressure system.

Work, inspection and safety areas

Working area

The ripper can only be controlled from the excavator's operator cab. Always remain outside the working area.

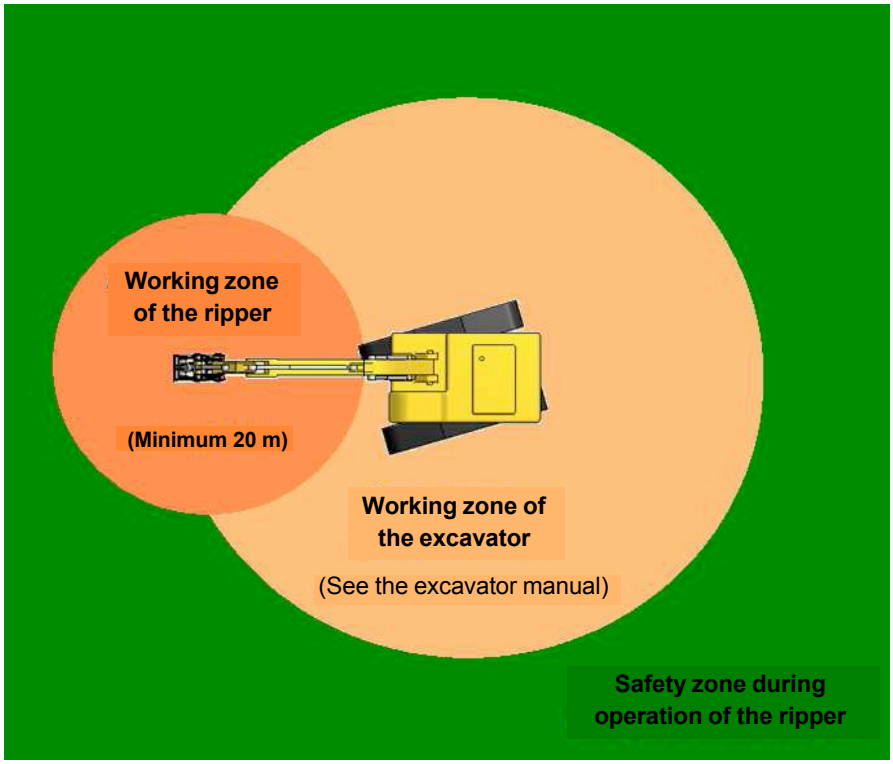
Safety zone

When the ripper is operating, maintain at least a 20 m safety distance. When working in high places, the work area expands in relation to the height.

Danger zone during excavator operation

This includes all distances closer than the safety distance mentioned above.

For work in high places, a rollover protection structure and/or protection structure (ROPS/FOPS) may be required.



Danger zone during maintenance, cleaning, etc. (excavator stopped)

The area under the ripper, when it is still connected to the excavator.

The area in the immediate vicinity of the excavator when it is disconnected from the ripper, because there is a tilting hazard. Always set the ripper on a firm, even, horizontal surface that can bear the weight at the support points.

Some of the ripper's surfaces and components may be very hot after use, especially the tooth, the pin and the ripper impact arm. Therefore take protective measures to prevent burning.

Maintenance area

- The entire ripper impact arm, including the housing and tooth.
- The ripper housing: Hydraulic block, support element and pivot arms.
- The hydraulic hoses.
- The pneumatic pressure accumulator.
- Fastening the ripper to the machine. The ripper produces vibrations that can loosen or move the bolts or quick-connect coupling, if the machine is equipped with one. Make a regular visual check of that area. Sudden, unintentional or accidental release of the attachment device poses a crushing hazard. Keep the quick-connect coupling system in perfect operating condition, and find out from the manufacturer if the coupling is capable of supporting the ripper.

Hazards

The continuous movement that the pivot arms cause in the ripper can throw pieces, fragments or particles around.

During operation, the machine operator must make sure that no danger is posed to people or materials that are within the safety zone around the machine.

Use personal protective gear.

Hydraulic components

Broken or leaky hydraulic hoses pose a hazard.

Use extra caution when handing all hydraulic connections. Make sure that the machine's engine is stopped and that there is no hydraulic pressure within the system.

Pneumatic components

There is compressed air inside the pneumatic pressure accumulator. Therefore it must be handled with extreme caution and in observance of the specific instructions in this manual (see page 79).

Never exceed 5 bar of pressure in the accumulator, when the ripper is in resting position.

Prolonged contact with hydraulic oil

Prolonged or repeated skin contact with any kind of hydraulic oil leads to loss of fat content in the skin. That can lead to dryness, irritation or skin inflammations. Hydraulic oil also contains dangerous substances that can cause skin cancer. If the basic safety and hygiene standards are observed during work, handling hydraulic oil should not cause health problems.

Hot surfaces and hot hydraulic oil

Be aware that the hydraulic circuit can get very hot.

Afterwards, some of the ripper's components get very hot. There is a slight burn risk.

Risk of hearing loss

It is mandatory to wear ear protection.

Generated vibrations

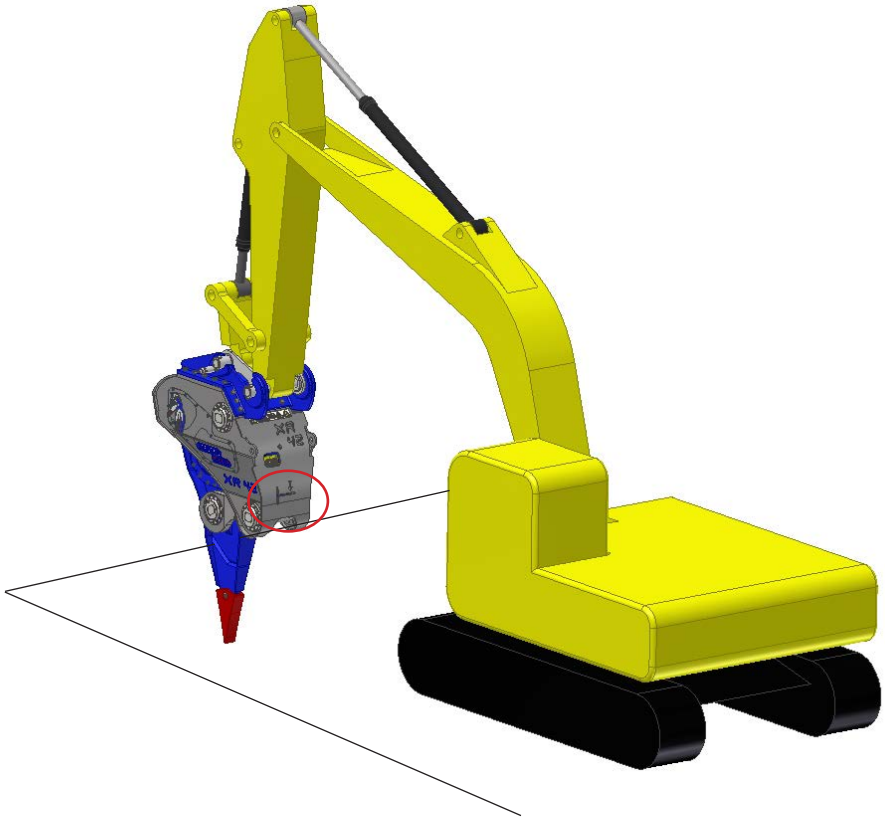
During operation, the ripper can transfer strong vibrations to the subsurface. Secure yourself against unintentional falls and prevent any damage to construction, plumbing, cables, etc.

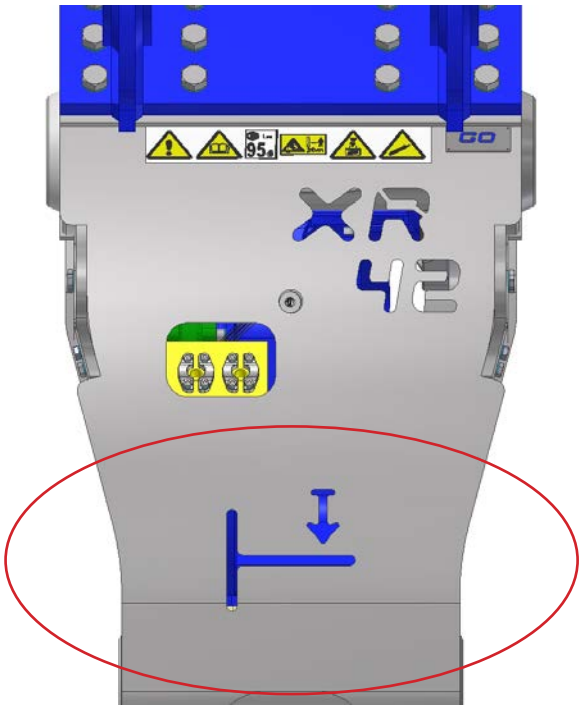
Crushing hazard

Be especially cautious when installing, removing and handling the ripper, to prevent it from tipping or falling over.

Under no circumstances should you reach through the opening of the ripper's lower stop, because, as the illustration shows, any unexpected movement by the ripper can cause a crushing hazard.

Let others know the safety precautions and consistently follow the instructions described in this manual for replacing the lower spring stop. Not following the instructions can result in an increased risk of crushing.





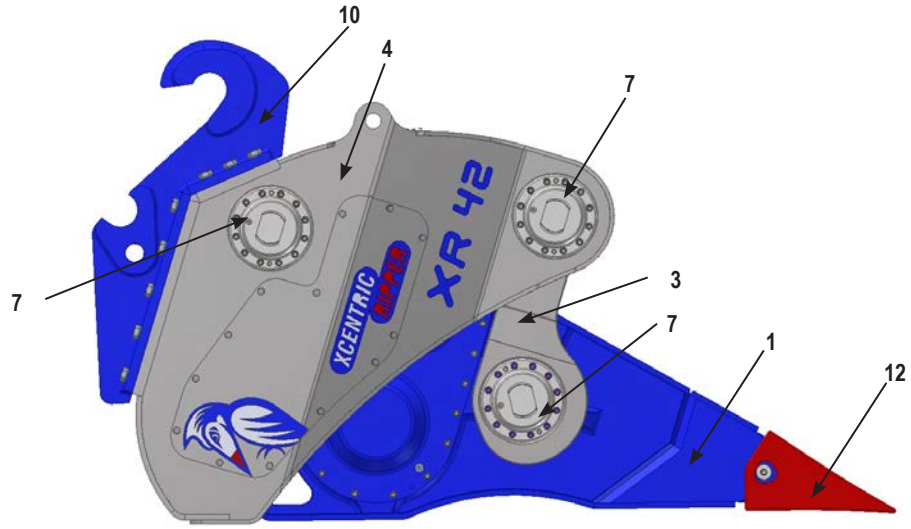
Crushing hazard!

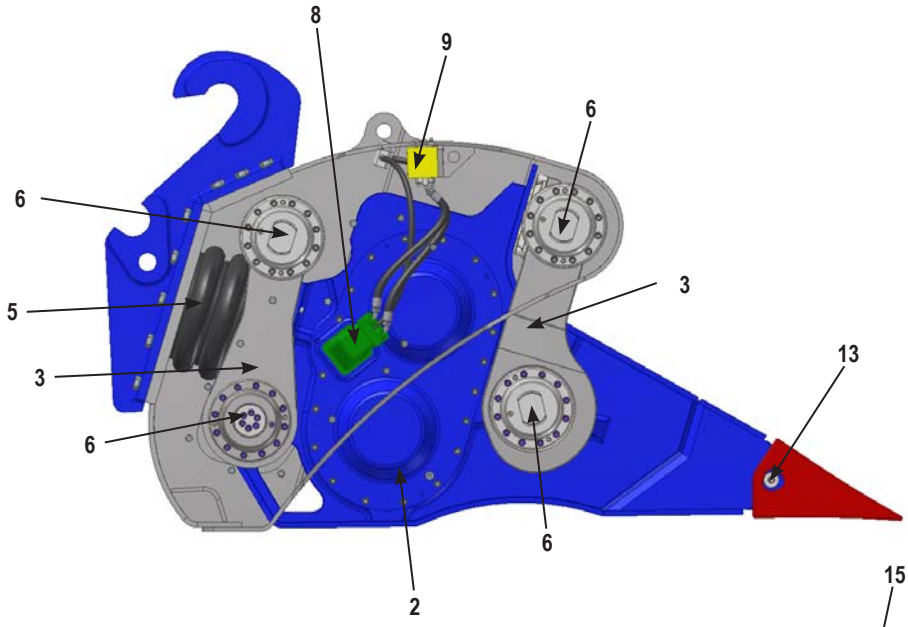
SERVICE MEMO

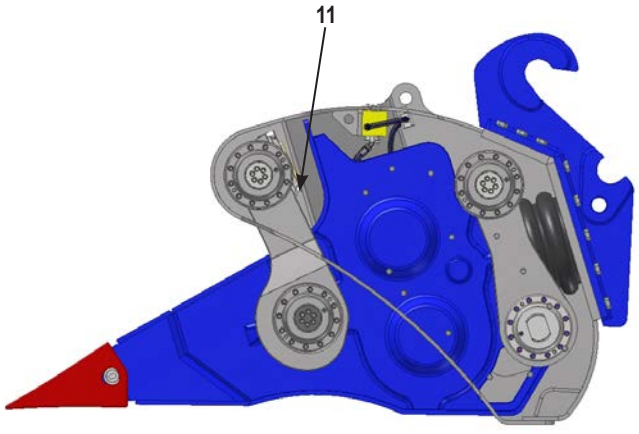
:: OPERATION

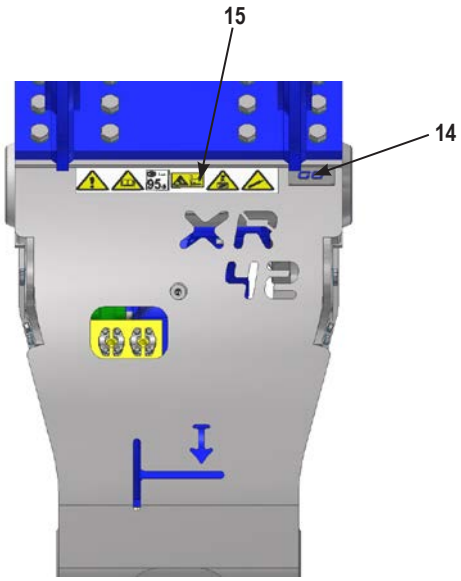
NAME OF COMPONENTS AND SPECIFICATIONS

Name of components









1) Ripper impact arm

The ripper impact arm is a basic component that takes kinetic energy from the pivot arms and creates the striking motions needed for demolition

2) Eccentric gear housing

This housing contains the eccentric gears that create the ripper impact arm's striking motions and are synchronized in the housing.

3) Upper and lower pivot arms

They guide the ripper impact arm on its work path.

4) Ripper housing

This holds the unit made up of the ripper impact arm, pivot arms and pressure accumulator and has a threaded base plate for fastening the top bracket to the ripper.

5) Pressure accumulator

This is a pneumatic bag that directs the ripper impact arm's striking power to the tooth.

6) Pivot arm pins

They guide the pivot arms, the ripper housing and the ripper impact arm.

7) Pivot arm pin covers

These fasten the pivot arms to the ripper impact arm and to the ripper housing.

8) Hydraulic motor

An axial piston motor that sets the pivot arms moving.

9) Control block

A hydraulic system that starts and stops the hydraulic motor and controls it.

10) Top bracket

A component bolted to the ripper housing for attachment to the excavator.

11) Lower stop

An elastomeric part to cushion the ripper impact arm at the lower stop.

12) Tooth

A tool for striking the material to be demolished.

13) Pin

A component for fastening the tooth to the ripper impact arm.

14) Model plate

Contains information on the model, production date, serial number, etc.

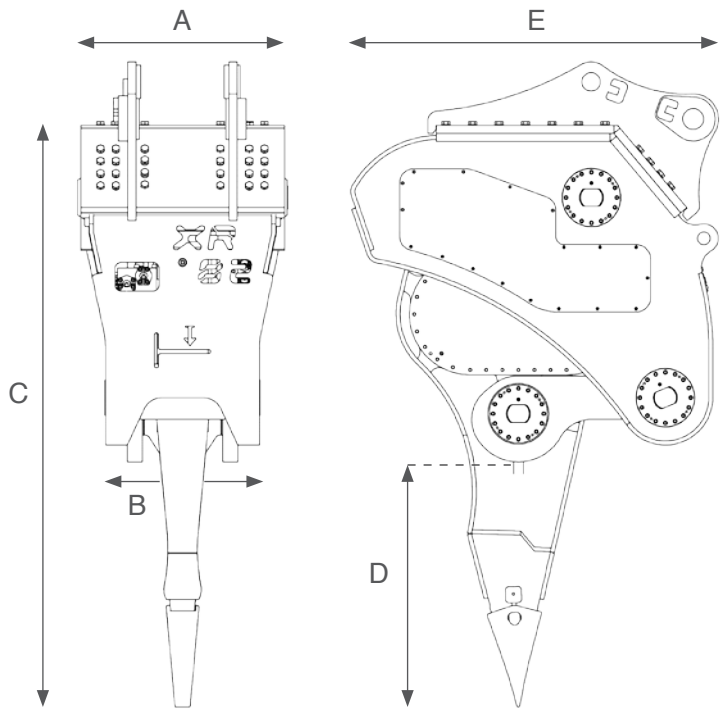
15) Safety instruction sticker

Safety instructions and precautions.

Standard specifications

TECHNICAL SPECIFICATIONS		XR22	XR32	XR42	XR52
Excavator weight	Tons	18 - 23	24 - 32	32 - 40	40 - 55
Ripper operating weight	kg	2.500	3.700	4.200	4.900
Hydraulic working pressure	MPa	16	24	24	28
Hydraulic oil flow	L/min	160	190	210	270
Frecuency	1/min	900	1.100	1.100	1.100

TECHNICAL SPECIFICATIONS		XR62	XR82	XR122
Excavator weight	Tons	-	70 - 90	100 - 140
Ripper operating weight	kg	-	10.000	15.000
Hydraulic working pressure	MPa	-	30	30
Hydraulic oil flow	L/min	-	420	500
Frecuency	1/min	-	700	600



	XR22	XR32	XR42	XR52	XR62	XR82	XR122
A	830	775	860	960	-	1.270	1.270
B	780	635	630	630	-	960	1.080
C	2.243	2.715	2.865	3.000	-	3.575	4.150
D	1.000	1.160	1.215	1.315	-	1.530	1.780
E	1.600	1.660	1.715	1.830	-	2.300	2.600

* Dimensions in millimeters.

SERVICE MEMO

TOP BRACKET DIMENSIONS

When installing an Xcentric Ripper on a base machine such as a hydraulic excavator, backhoe loader, etc. a top bracket will be required to connect the ripper to the base machine. This can be ordered from Xcentric Ripper International/Grado Cero Sistemas S.L.U. at the time the Xcentric Ripper is ordered. Details of the type and model of the base machine will be required and if the base machine is equipped with a quick coupler, details of the manufacturer and model number will also be required.

If a top bracket is not ordered or if the Xcentric Ripper is to be mounted on a different base machine than the previous installation a top bracket will have to be ordered separately from Xcentric Ripper International/Grado Cero Sistemas S.L.U. or manufactured locally. To ensure that this will be correctly manufactured, if it is to be made locally, manufacturing dimensions, bolt hole mounting pattern and dimensions, mounting bolt dimensions and bolt tightening torques, are given for each model in the drawings on pages 30 to 36.

IMPORTANT

When manufacturing a top bracket to mount an Xcentric Ripper on an excavator it is very important to follow the guidelines listed below:

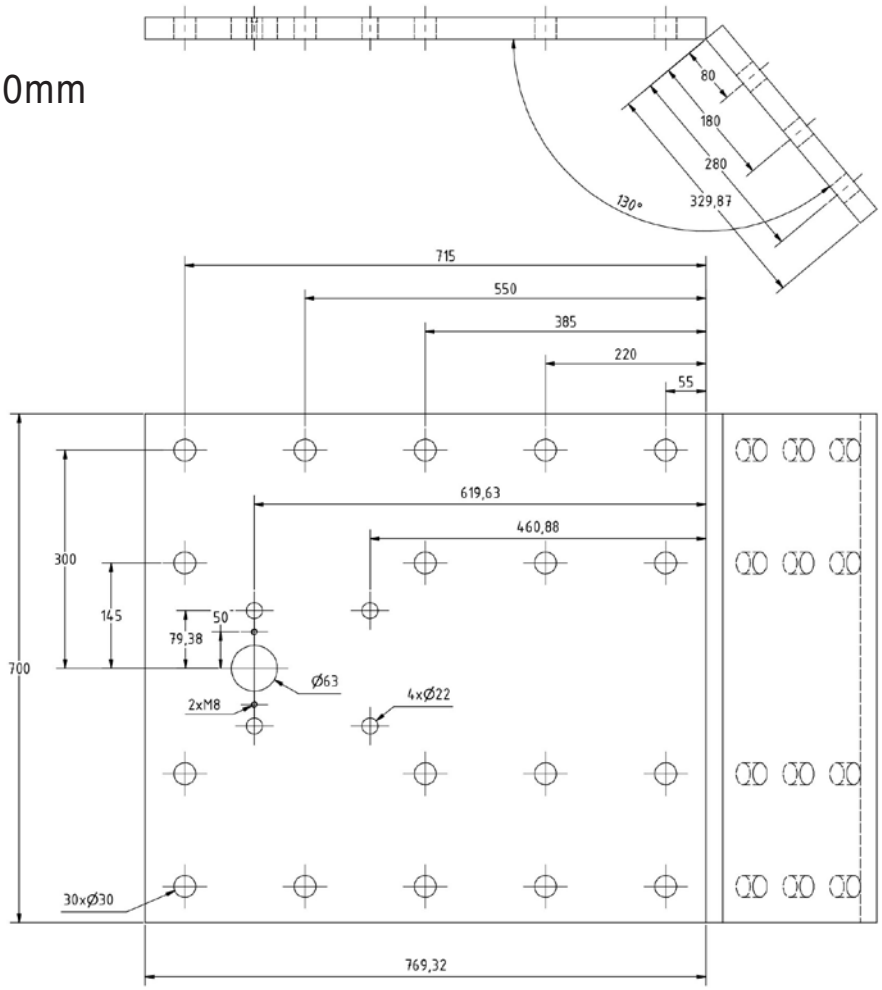
1. **Cut the plates for the top bracket to the dimensions given in the following drawings.**
2. **For the XR 32 to XR 122 weld the two plates together maintaining the exact angle between the two plates as given in the drawings.**
3. **Weld on to the top plate the mounting ears required to mount the Xcentric Ripper on the specific excavator to be used for this ripper.**
4. **After the above operations have been carried out the surface of the top bracket plates which will be in contact with the Xcentric Ripper must be milled perfectly flat across the whole of both of the surfaces.**
5. **Drill the required mounting bolt holes to the dimensions given in the drawings.**

It is not allowed to use a top bracket where the mounting surfaces have not been milled flat.

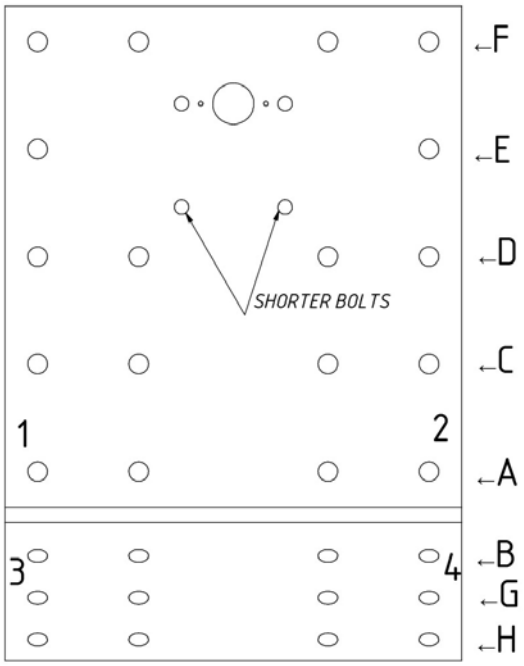
If a top bracket is used that has not been milled flat the Xcentric Ripper frame will be subjected to stresses and tensions that can result in the pivot pin bearings failing.

XR22 top bracket mounting dimensions

THICKNESS 30mm



XR22 mounting bolt tightening sequence and torque

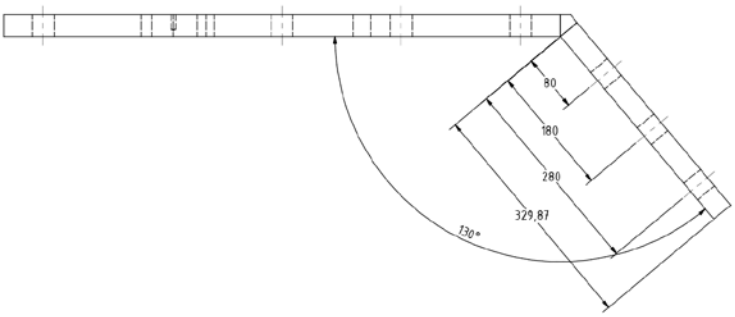


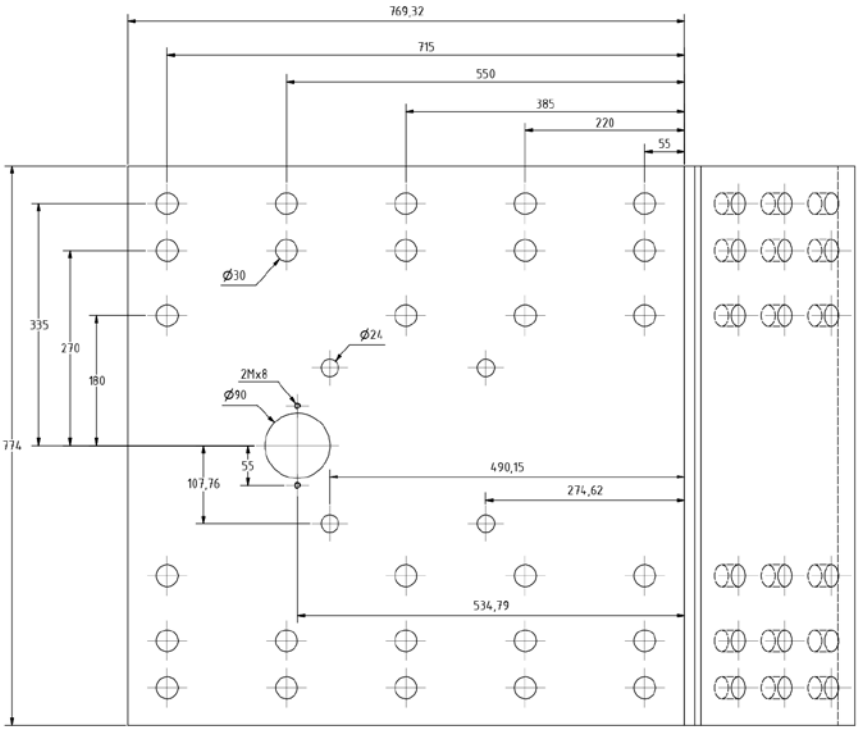
Mounting bolt tightening sequence
1-2-3-4-A-B-C-D-E-F-G-H

Minimum number of holes	30
Screws dimensions	M27 x 65
Short screws	M27 x 60
Torque	1050 Nm

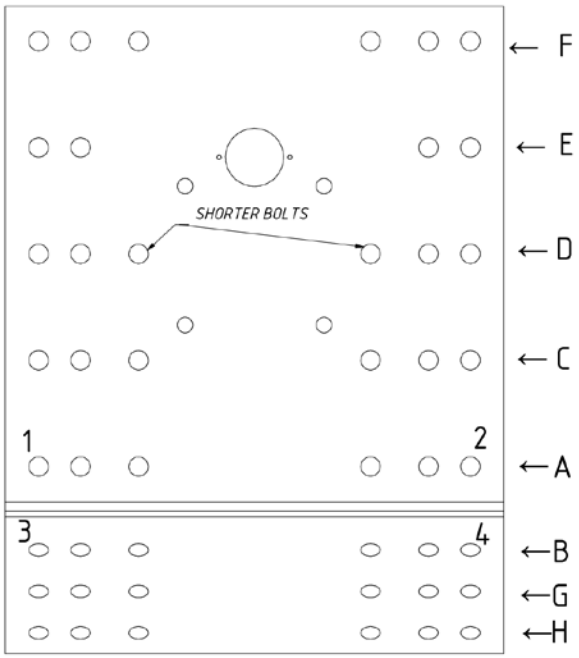
XR32 top bracket mounting dimensions

THICKNESS 30mm





XR32 mounting bolt tightening sequence and torque

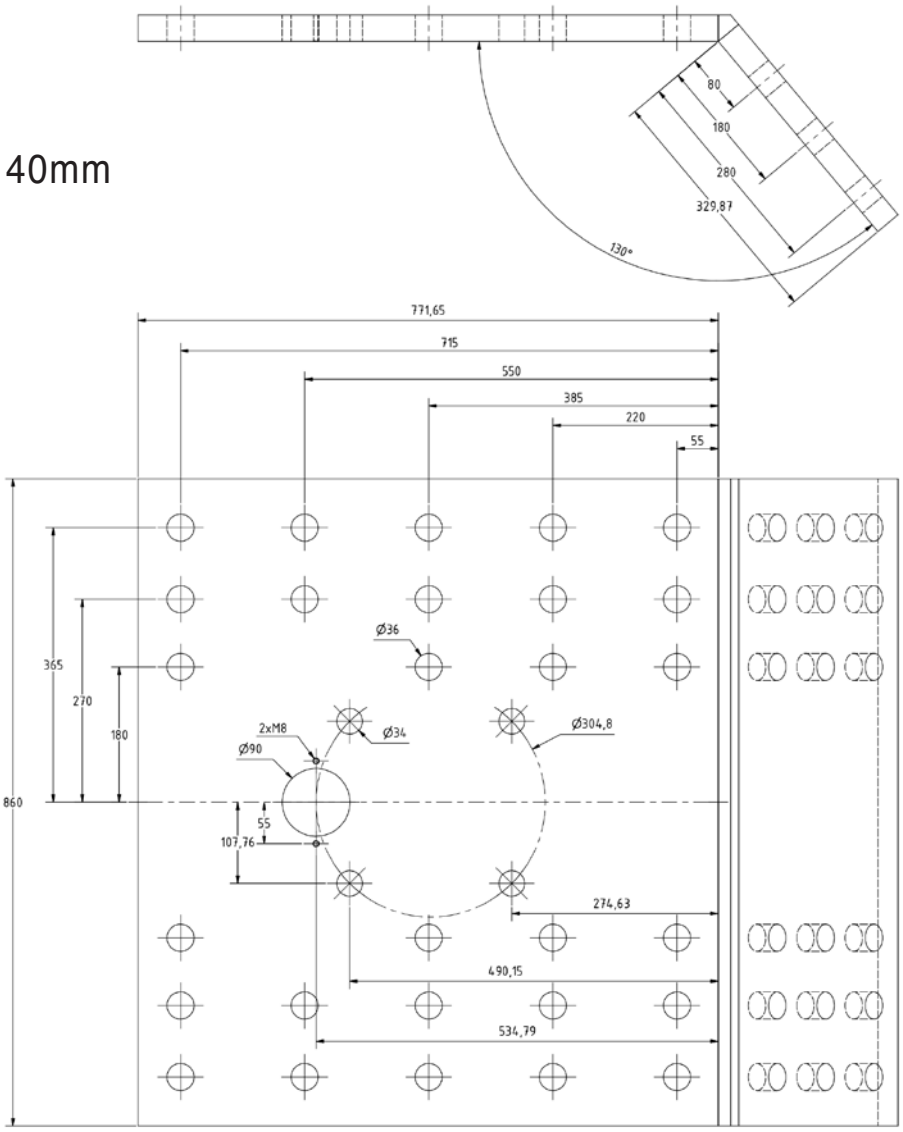


Mounting bolt tightening sequence 1-2-3-4-A-B-C-D-E-F-G-H

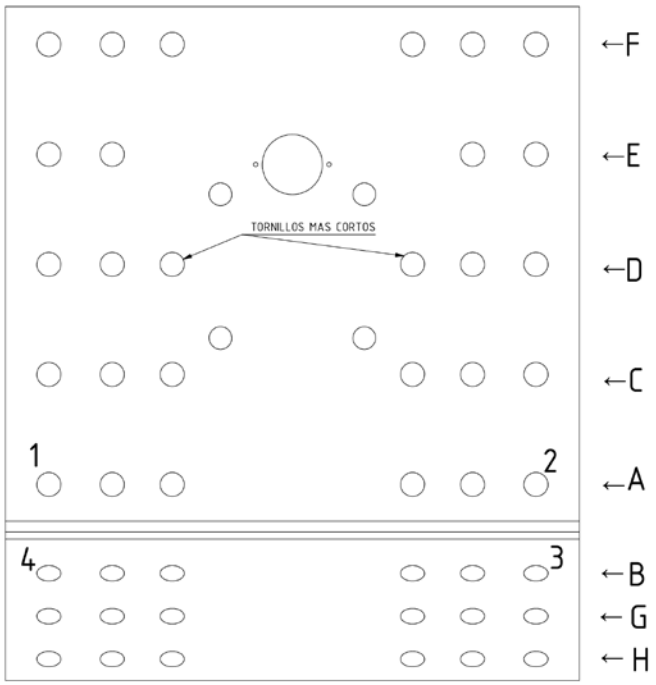
Minimum number of holes	30
Screws dimensions	M27 x 65
Short screws	M27 x 60
Torque	1050 Nm

XR42 top bracket mounting dimensions

THICKNESS 40mm



XR42 mounting bolt tightening sequence and torque

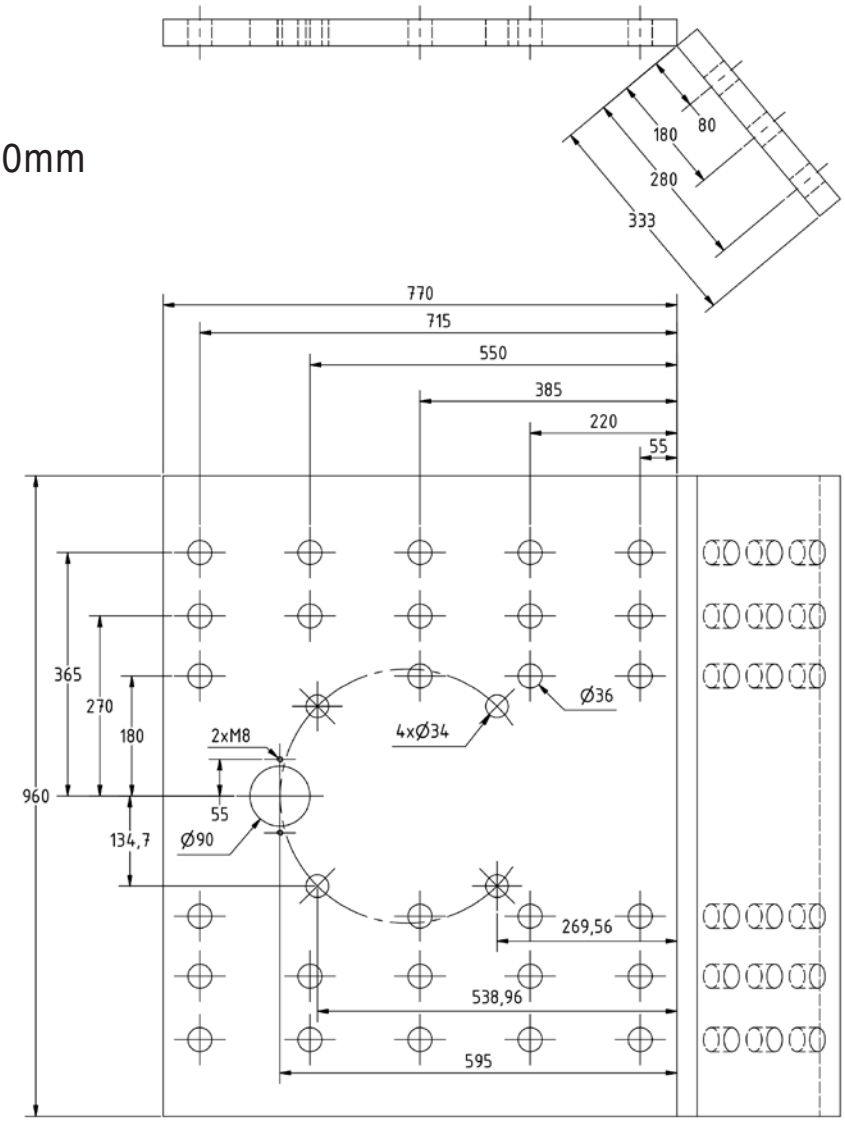


Mounting bolt tightening sequence
1-2-3-4-A-B-C-D-E-F-G-H

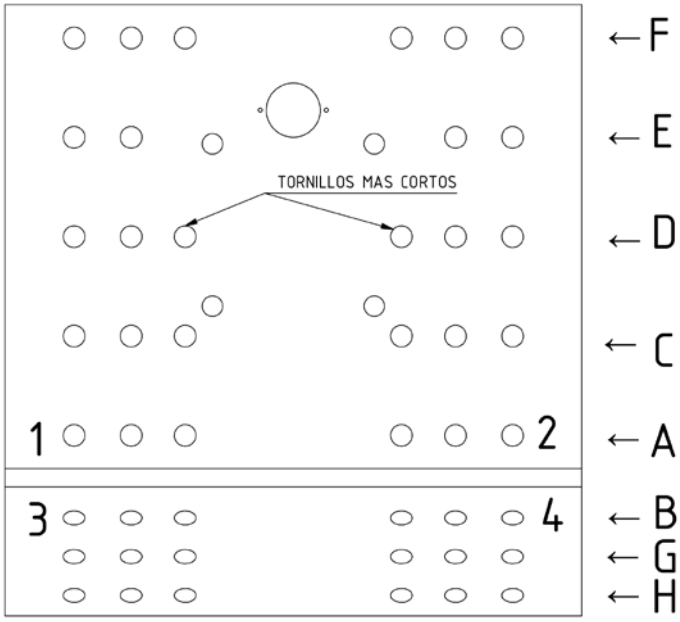
Minimum number of holes	30
Screws dimensions	M30 x 90
Short screws	M30 x 80
Torque	1420 Nm

XR52 top bracket mounting dimensions

THICKNESS 40mm



XR52 mounting bolt tightening sequence and torque



Mounting bolt tightening sequence
1-2-3-4-A-B-C-D-E-F-G-H

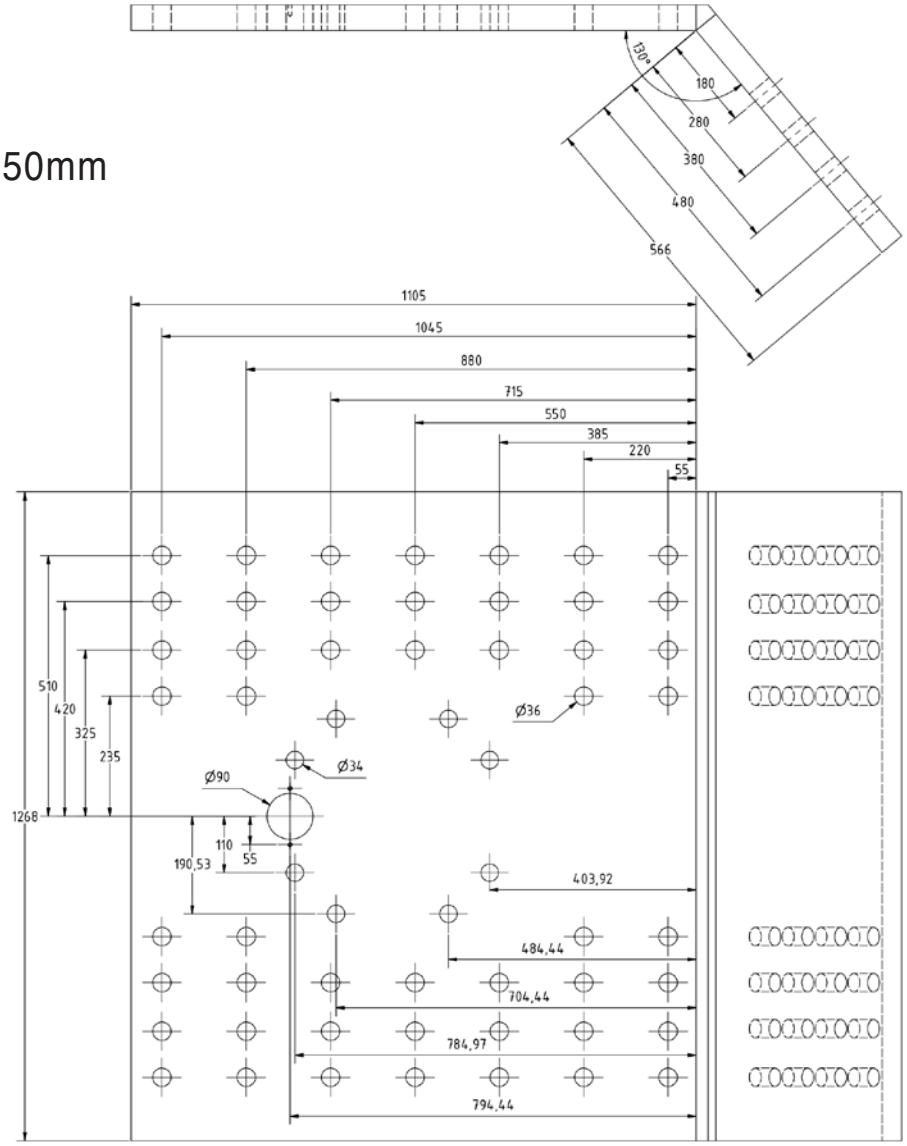
Minimum number of holes	30
Screws dimensions	M30 x 90
Short screws	M30 x 80
Torque	1420 Nm

XR62 top bracket mounting dimensions

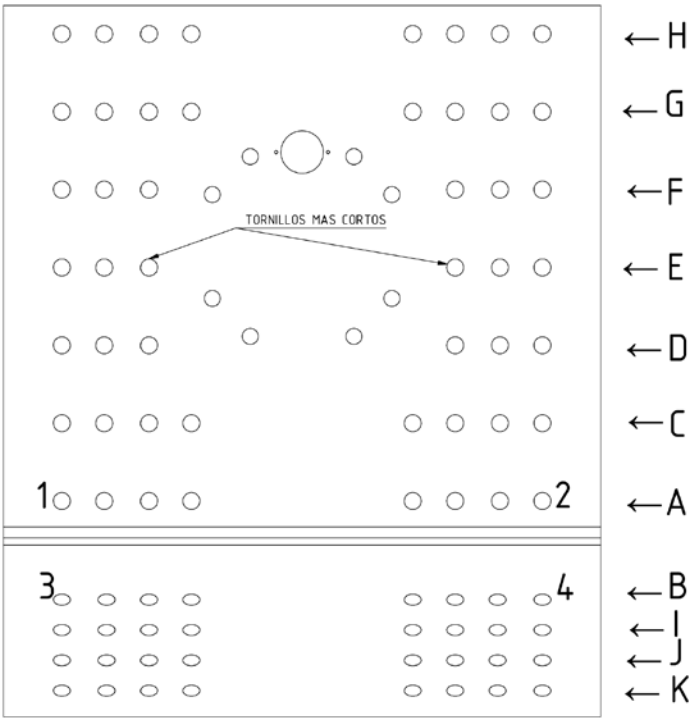
XR62 mounting bolt tightening sequence and torque

XR82 top bracket mounting dimensions

THICKNESS 50mm



XR82 mounting bolt tightening sequence and torque

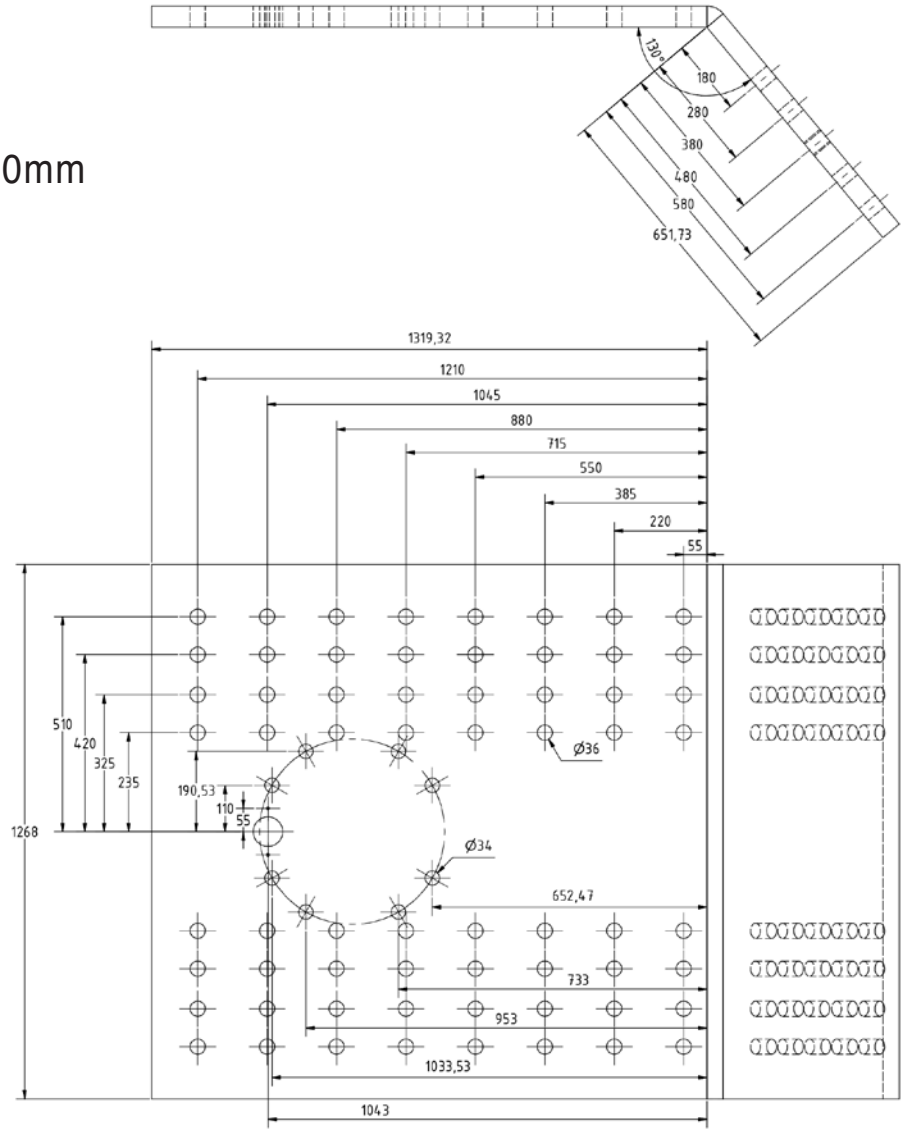


Mounting bolt tightening sequence
1-2-3-4-A-B-C-D-E-F-G-H-I-J-K

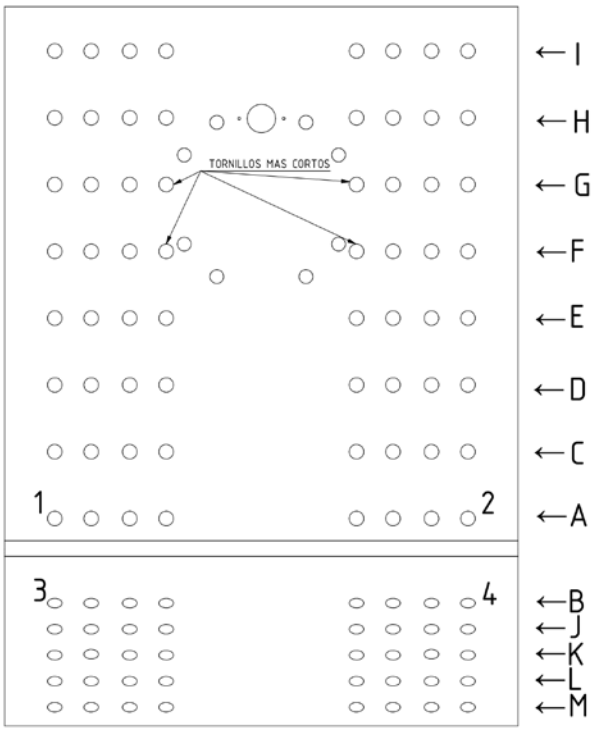
Minimum number of holes	60
Screws dimensions	M30 x 100
Short screws	M30 x 90
Torque	1420 Nm

XR122 top bracket mounting dimensions

ESPESOR 50mm



XR122 mounting bolt tightening sequence and torque



Mounting bolt tightening sequence
A-B-C-D-E-F-G-H-I-J-K-L-M

Minimum number of holes	78
Screws dimensions	M30 x 100
Short screws	M30 x 90
Torque	1420 Nm

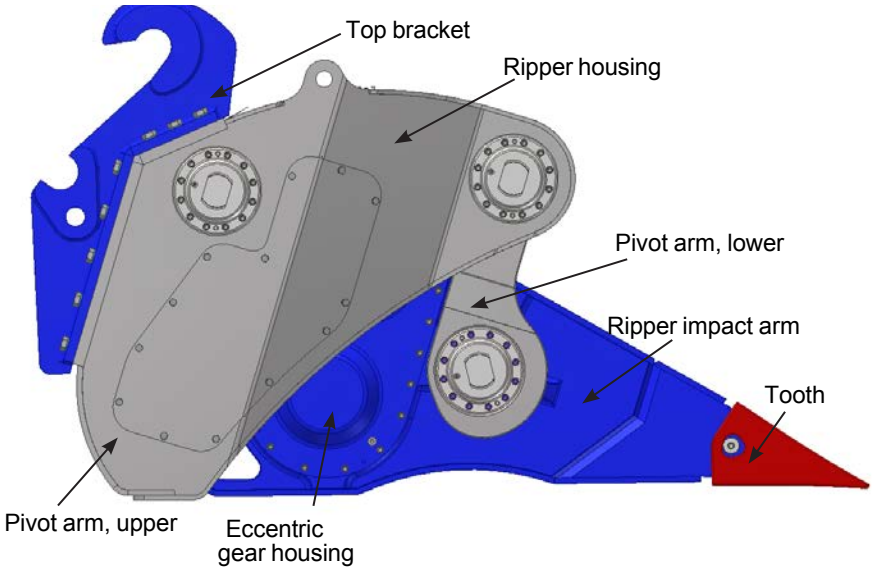
TECHNICAL CHARACTERISTICS

General description

The ripper is an excavator attachment device for demolition work, such as tearing down and breaking apart stone, concrete and asphalt, etc. It has been patented by *Xcentric Ripper International/Grado Cero Sistemas S.L.U.* and is made completely of wear-resistant steel.

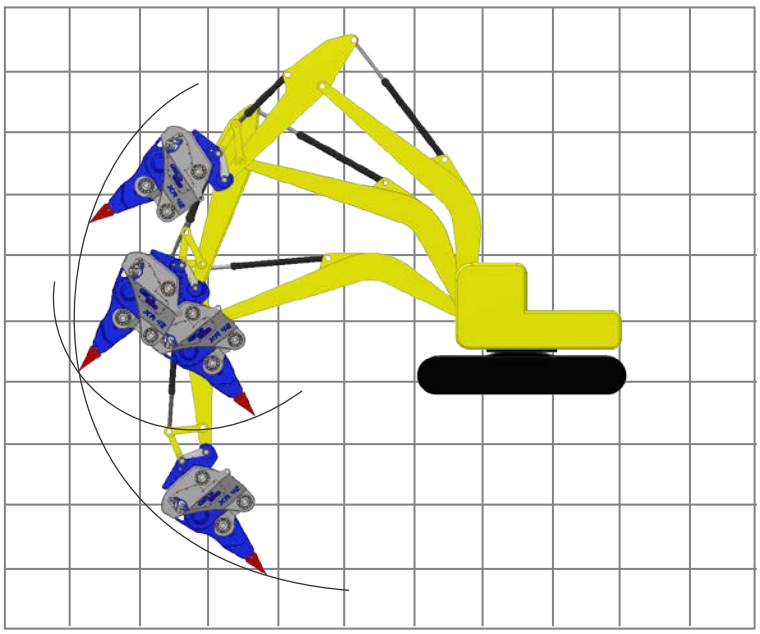
Hydraulics provide this demolition device with the power to tear and break materials more easily. Because of its strong penetrating power, the ripper is specially designed for high productivity.

The ripper consists of the following components:



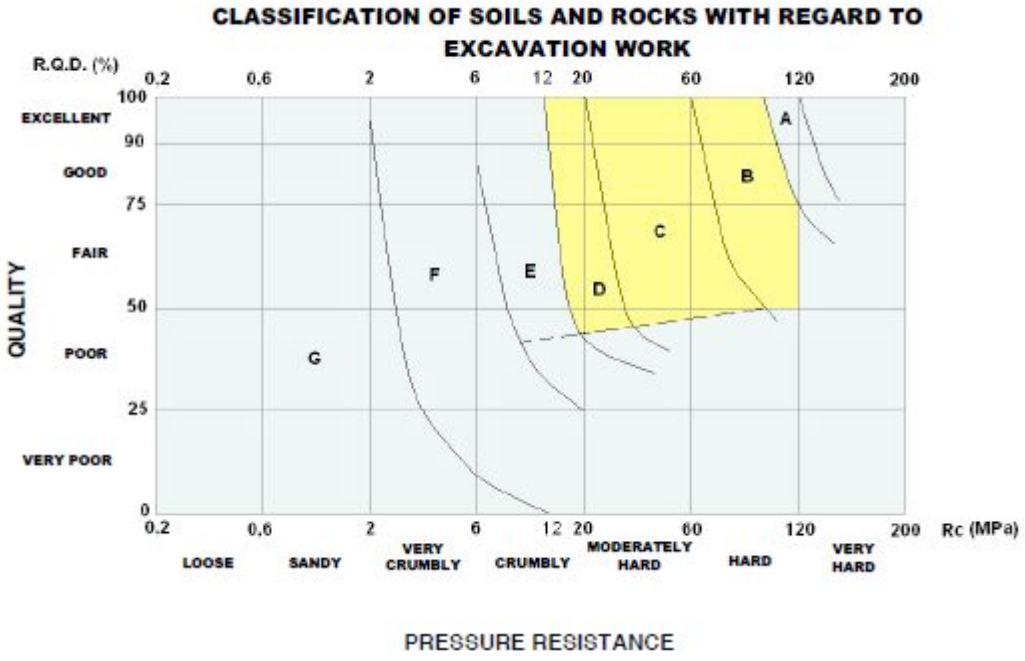
Working area

The ripper can work in any position. This characteristic makes the ripper ideal for tunnel construction, working on walls and ceilings, and for other similar jobs.

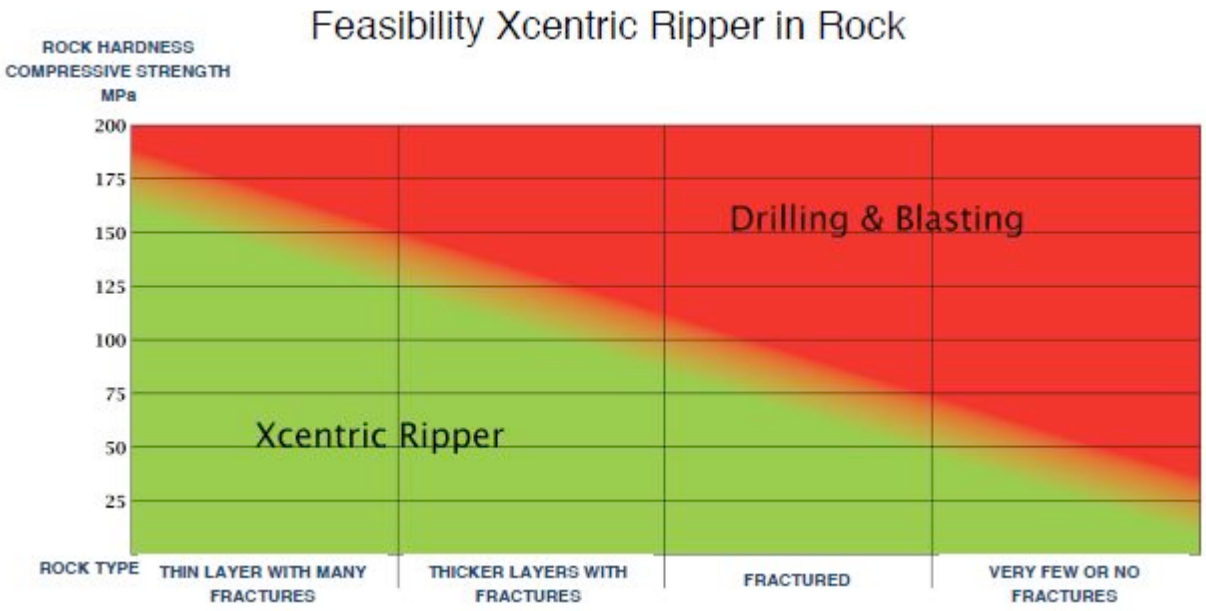


Scope of use

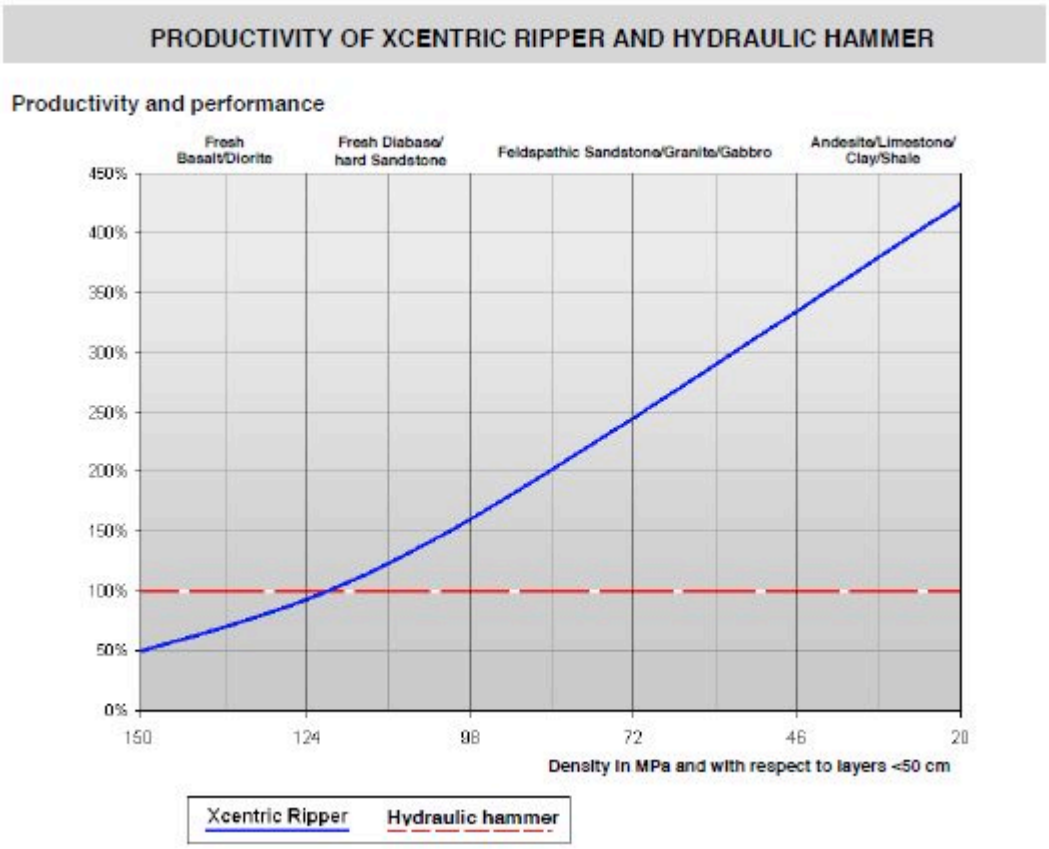
The RQD value (Rock Quality Designation), which relates to the quality and pressure resistance (RC) of rock, gives rise to the following classification.



	HYDRAULIC HAMMER	XCENTRIC RIPPER	BULLDOZER RIPPER	CONVENTIONAL RIPPER	CRUSHER BUCKET
A	SUITABLE	NOT SUITABLE	NOT SUITABLE	NOT SUITABLE	NOT SUITABLE
B	SUITABLE	SUITABLE	NOT SUITABLE	NOT SUITABLE	NOT SUITABLE
C	SUITABLE	SUITABLE	NOT SUITABLE	NOT SUITABLE	NOT SUITABLE
D	SUITABLE	SUITABLE	NOT SUITABLE	NOT SUITABLE	NOT SUITABLE
E	SUITABLE	SUITABLE	SUITABLE	SUITABLE	NOT SUITABLE
F	SUITABLE	SUITABLE	SUITABLE	SUITABLE	NOT SUITABLE
G	SUITABLE	SUITABLE	SUITABLE	SUITABLE	SUITABLE



Production and performance



Use under water

Without any special adjustments or modifications, the ripper is also safe and suitable for use under water, in fresh and salt water, with no loss of performance.

Low noise pollution

The noise level created by the ripper rises in proportion to the solidity of the area to be worked.

When it is used on plaster or marl, the ripper's sound production is negligible. During use on hard material such as limestone, the noise level rises considerably, but it still remains 10 dB below that of a hydraulic hammer.

No daily maintenance needed

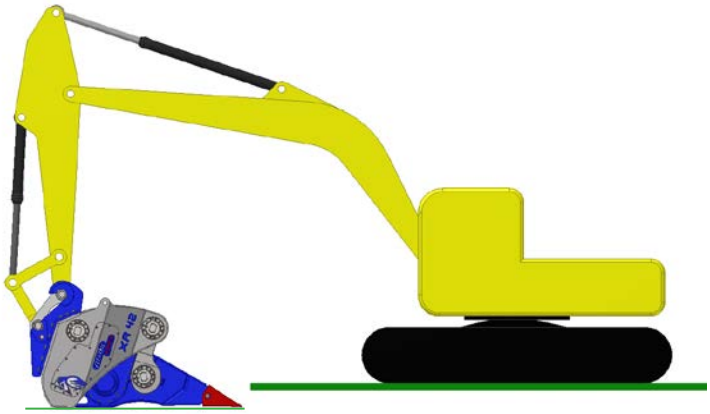
Because of the ripper's mechanical design, neither daily maintenance nor lubrication is necessary. Only the maintenance intervals in this manual need to be observed.

INSTALLING AND REMOVING THE RIPPER

Installation on the excavator

Check to see that the top bracket and the excavator arm fit together. Position the ripper according to the illustration.

Install the ripper only on an even surface with the elements to be connected standing across from each other and the ripper impact arm's tooth pointing in the direction of the excavator.



Additional adapters or mounting brackets must not be welded to the ripper. This will void both the warranty and the EC declaration of conformity.

Hydraulic circuit adjustment and hose connections

Before installing the hoses between the ripper and the excavator the hydraulic circuit pressures and flow must be set as follows:

1. Install pressure gauges at the end of the pressure and return lines on the excavator arm.

2. Make sure that the excavator circuit is in the "single-acting" position (**hammer mode**). The ripper's return line must be connected directly to the hydraulic tank, without passing through the excavator valve block or oil cooler.

3. Ensure that the shut-off valves at the end of the pressure and return lines on the excavator arm are in the closed position.

4. Start the engine and raise the hydraulic oil temperature to a minimum of 40°C.

5. Operate the ripper control valve with the engine running at full r.p.m. and read the pressure on the gauge on the pressure line. This pressure is the excavator circuit relief valve setting and should be set at the pressure for your specific model of ripper as listed in the following table:

XR 22 - 20 MPa (200 bar)	XR 32 - 24 MPa (240 bar)	XR 42 - 24 MPa (240 bar)
XR 52 - 28 MPa (280 bar)	XR 62 - ... MPa (... bar)	XR 82 - 28 MPa (280 bar)
XR 122 - 30 MPa (280 bar)		

WARNING

The above relief valve pressure settings must never be exceeded. Operating a ripper with excessive pressure can possibly lead to serious damage to the hydraulic motor and control valve block cartridge elements.

6. Stop the engine. Remove the plugs (or caps) from the shut-off valves and install a flow meter. Open the shut-off valves.

7. Start the engine, run the engine at full r.p.m. and check the oil flow through the circuit. The maximum flows are as follows:

XR 22 - 160 l/min at 16 MPa **XR 32** - 190 l/min at 21 MPa **XR 42** - 210 l/min at 21 MPa

XR 52 - 270 l/min at 23 MPa **XR 62** - ... l/min at ... MPa **XR 82** - 420 l/min at 24 MPa

XR 122 - 500 l/min at 28 MPa

8. After ensuring the oil flow is correct, stop the engine, close the shut-off valves and remove the flow meter and hoses.

9. A total of three hoses must be connected from the ripper to the excavator. The first two hoses, pressure and return, must be designed for a continuous pressure of at least 300 bars and withstand additional pressure peaks. We recommend the use of a 4SH hose for the pressure hose, and a 2-wire hose for the return hose. The connections to the ripper must be of the type SAE 6000 ¾" for the model XR42, SAE 6000 1¼" for the model XR52 and SAE 6000 1½" for the model XR82. The case drain line hose should be a single wire hose with a ½" hose connection for the models XR42 and XR52, and ¾" for the model XR82. It is recommended that the hoses be sealed with appropriate accessories (available for purchase) when the ripper is not operating.

CAUTION

The hydraulic hoses are not delivered with the ripper. Do not use hydraulic quick-connect couplings on the hoses as these can reduce the ripper's performance and damage the hydraulic motor. Make sure that the bends in the hydraulic hoses in all ripper positions exceed the minimum radius specified by the manufacturer and that the hoses have no contact with other components.

10. Connect the hydraulic hoses between the excavator and the ripper. The hydraulic hoses are connected as follows:

- Remove the plugs.
- Before connecting the hoses, make sure that the connections and hoses are clean.
- Fit the oil hoses to the connections on the ripper and the shut-off valves on the excavator arm.
- Connect the case drain line to the ripper and to a connection either on a filter just before the hydraulic tank or directly to the tank.
- Check the position of the pressure and return hoses. Installing the hoses on the wrong connections can damage the ripper.

CAUTION

To avoid or reduce damage to the hydraulic motor or its seals, Xcentric Ripper International/Grado Cero Sistemas, S.L.U. advise to always install the case drain line from the case drain line connection on the ripper directly to the hydraulic tank or filter just before the hydraulic tank. Under no circumstances is the case drain line to be connected to other case drain lines on the excavator as this can lead to excessive back pressure in the ripper case drain line.

11. Install a pressure gauge in the case drain line.

12. Open the hose shut-off valves on the excavator arm. Start with the return line (normally on the right side of the excavator arm but this can differ on some makes of excavators so check which side is the return side before opening the shut off valve) and then open the pressure line.

13. Start the excavator engine.

14. Lift the ripper off the ground, idle or run the engine at a low RPM and press the ripper's pedal for about 2 minutes to let the air out of the hydraulic system and at the same time check the system for leaks. If leaks occur, seal them right away.

15. Bring the ripper into the vertical position and support the tooth on the ground. Activate the excavator arm until the tracks or wheels lift off the ground.

16. Raise the engine to maximum r.p.m and operate the ripper. Check the pressure in the return line. The pressure must never exceed 0.6 MPa (6 bar) for all ripper models.

17. Check the case drain line pressure with the ripper operating. This pressure should never exceed 0.4 MPa (4 bar).

18. Stop operating the ripper.

19. Again check the case drain line pressure. This should be at zero. If there is a pressure this is caused by pressure coming back from the excavator circuit. The cause of this has to be found and rectified (check to see if the case drain line is connected to other case drain lines from elements on the excavator such as the swing motor or travel motors, if so the case drain line must be connected directly to the tank or filter just before the tank).

20. If the case drain pressure is correct lift the ripper up and set it in the rest position. Then stop the engine.

21. Remove the pressure gauges fitted in the pressure, return and case drain lines.

Excavator hydraulics

Check to make sure that the quality of the hydraulic oil and the excavator's filter comply with the manufacturer's specified requirements.

(ISO 4406 purity class 20/18/13).

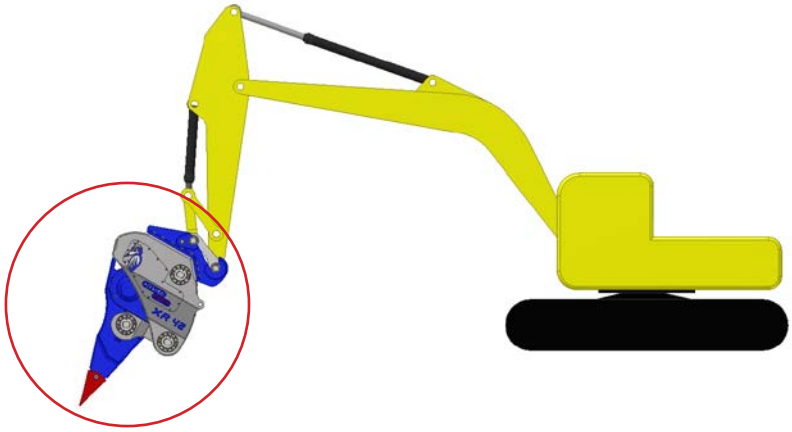
Start-up and first use

Start-up and first operation of the ripper are always performed by a technician authorized by *Xcentric Ripper International/Grado Cero Sistemas, S.L.U.*

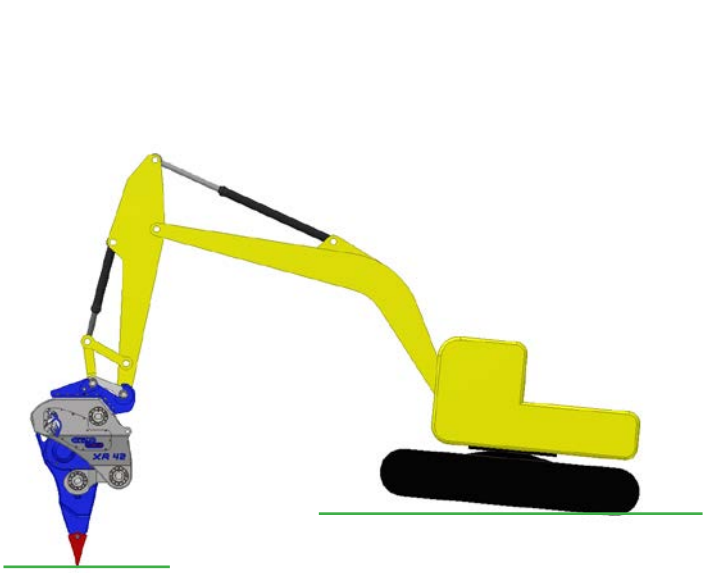
After all of the previously described tasks have been performed, the ripper is put into operation as follows:

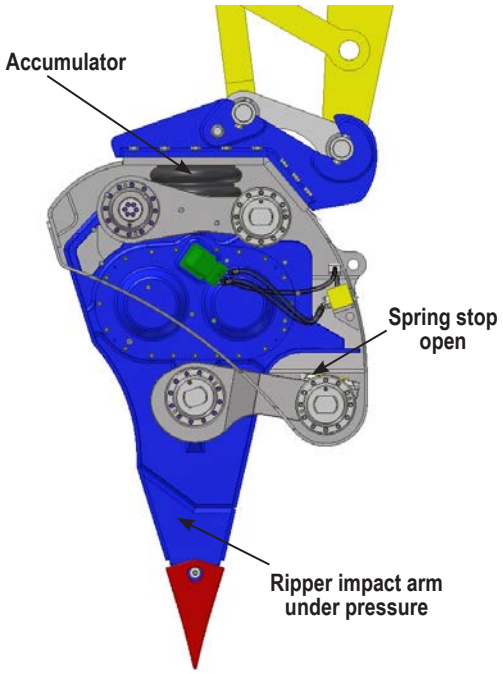
- Move the ripper into all possible positions, while bringing the excavator's cylinders into the two extreme positions to make sure that there is no collision between the ripper and parts of the excavator. Pay special attention to the opening process.

  Also pay special attention to the closing movement, especially because some excavators have a specific arm and boom configuration with which the tooth can hit the arm, cylinders or cab.



- Bring the ripper into the vertical position and support the tooth on the ground. Activate the excavator arm until the tracks or wheels lift off the ground, in order to check the pressure in the ripper's pressure accumulator. If necessary, raise or lower the pressure (see pages 79 to 81).





- After all of the listed tests and adjustments have been performed, the ripper is ready to use.

Removing the ripper

Remove the ripper as follows:

- Close the shut off valve on the pressure line.
- Close the shut off valve on the return line.
- Disconnect all hydraulic hoses.
- Attach the appropriate sealing plugs on the ripper hoses as well as on the pipes on the excavator arm.
- Position the ripper on a horizontal surface to prevent tipping over and to ease subsequent removal.
- Remove the ripper.

*** NOTICE**

When detaching the ripper from the excavator, close the hydraulic hoses and connections with plugs to prevent oil from dripping out and dirt from getting into the hydraulic system.

OPERATION

Instructions for using the ripper

Even though the ripper requires no daily maintenance, for a long life it still must be kept clean and shock free. Before starting work with the ripper, a daily visual inspection must be made.

Precautions when operating the ripper

The ripper is for use in ripping hard ground, concrete and fractured rock, **it is not to be used in ripping hard rock with no cracks or fractures.**

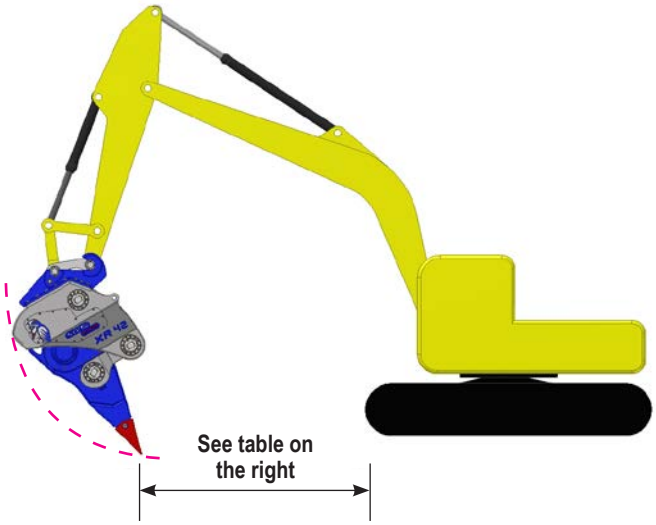
When ripping if there is no tear away of any material after fifteen seconds stop the operation and reposition the ripper about 30 cm away or closer to the edge of the material being ripped. This will avoid unnecessary heating of the ripper tooth. Excessive heat in the tooth will result in cracking of the tooth and reduced hardness of the tooth resulting in accelerated wear of the tooth.

If the tooth becomes stuck in the material whilst ripping **do not lever the ripper to try to free the tooth**. This will result in the tip of the tooth breaking. To free the tooth lift the ripper vertically without levering.

Handling the ripper

The best way to learn to handle the ripper is to operate it. Here you will find some tips to make your first attempts easier.

It is worth repeating that, although the ripper is used for similar purposes to those of a demolition hammer, its operation is completely different. The optimal excavation distance from the machine to the tip of the ripper is listed in the following table. The machine must stand as stable as possible on the ground. For excavation work, the machine's tracks should be directed as precisely as possible in line with the excavator arm in order to achieve the greatest possible stability and not to damage the tracks.



Excavator size (tons)	Distance (in meters)
9 - 10	2.5 - 3.5
11 - 16	3 - 4.5
18 - 20	4 - 5
21 - 26	4 - 5.5
27 - 30	4.5 - 6
31 - 40	5.5 - 6.5
41 - 50	6 - 7
60 - 75	6 - 7
75 - 100	6.5 - 7.5
100 - 120	7 - 8

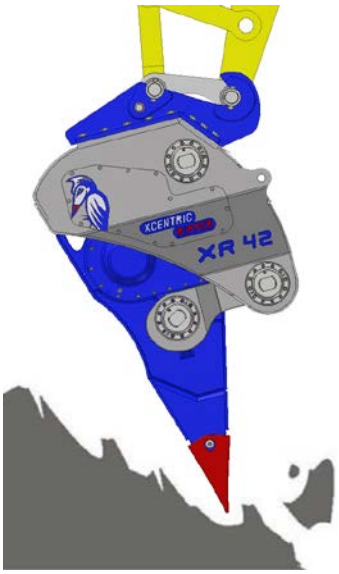
To begin excavation, support the tooth firmly on the material so that the ripper impact arm is compressed. In so doing, make sure that the lower stop is always open. Let the ripper pound appropriately into the material. The best result is to work vertically or just a little inside vertical. Swing the arm to the machine and activate the bucket cylinder or press "close bucket" to ease breakage of the material and pull it away from the face. It is decisive that the ripper impact arm remains compressed throughout the entire process, as long as the material is breaking off. Also pay attention to the route of the contact vein for optimal performance. Try to maintain a vertical bank face of 3 to 5 meters from the top to the lowest point of excavation. This will give the best result and the highest production.

The ripper can only strike if it is properly supported, because otherwise it cannot work correctly and high impacts are transferred to the excavator.

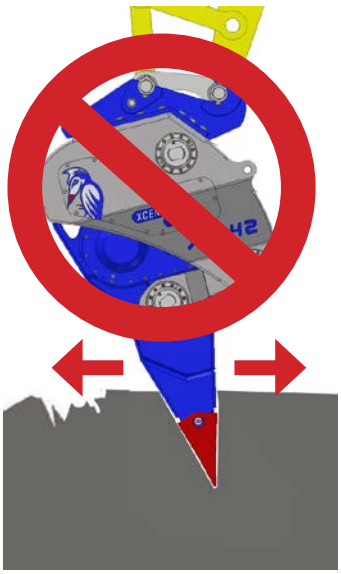
The work area must be kept absolutely clean, so that you can see where to set the ripper. Therefore it is advisable to haul away the excavated material constantly.

Make sure that the ripper impact arm does not lie on the ground and is not supported on the rear part, which would result in weak or no impact.

The excavation process must continually follow the rock layer. If the material doesn't break after 15 seconds reposition the tooth point about 30 cm from the previous impact point or nearer to the edge of the material. By doing this you will have faster production and avoid fast and unnecessary wear (or melting) of the tooth point. This means that in hard or very hard areas, the excavation edge must be set short.



If the tooth gets stuck in the material **never** try to lever it out. This type of wrong operation will result in the tooth tip cracking and breaking. Always lift the ripper straight up to release the tooth from the material. (See page 76)



Never forget to stop the oil flow to the ripper before it is lifted from the ground. Not doing so will lead to a very loud noise (idle striking) and excessive vibration going to the excavator arm.

Incorrect use of the ripper

Incorrect use of the ripper can lead to excessive stress and damage to ripper components. The main component that receives most of the excessive stresses is the ripper housing. The incorrect usage of the ripper includes the following;

Idle blows: This is caused by operating the ripper without the ripper impact arm being compressed during operation. Idle blows are indicated by a sharp increase in the noise from the ripper, from the smooth sound of the gear train and motor, to a very loud rattling sound caused by the vibrations generated in the ripper being transmitted back to the ripper housing and from there to the excavator arm and boom. The ripper must be kept compressed during the whole ripping operation.

Excavator relief pressure too high: The hydraulic components of the ripper are designed to work with a certain maximum flow and pressure. If these limits are not set correctly in the excavator circuit these components are subjected to excessive stresses (up to 35% more) which, during operation, are transmitted to the ripper housing and its components causing possible deformation and cracking in the components. Always ensure that the maximum flow and pressure for your ripper model are set to the specifications as listed on page 27 of this manual.

The hydraulic excavator is too large: If the excavator, on which the ripper is mounted, is larger than allowed the ripper top bracket, ripper housing and ripper impact arm will be subject to excessive loads for which they are not designed. This will lead to possible deformation of these components but definitely, over a period of time, to cracks in the ripper housing and the top bracket. **Never** exceed the maximum excavator size given in the specifications on page 27.

The rock being excavated is too hard: If the hardness of the rock being excavated is above the capabilities of the ripper this will mean that the power and vibrations generated by the ripper will not flow into the rock and break it away but will be transmitted back into the ripper housing and then to the excavator arm and boom.

Incorrectly manufactured top bracket: If the top bracket being used on the ripper was not supplied by Xcentric Ripper International the top bracket must be manufactured to the dimensions as given on pages 30 to 36. The angle between the two mounting faces must be 100% correct and the mounting faces of the bracket must be machined flat to conform to the mounting surfaces of the ripper. If they do not conform to the ripper this will lead to cracks developing in the welding of the ripper housing and top bracket. If these cracks are not rewelded in time this will lead to the cracks developing into the steel parts of these components resulting in a possible catastrophic failure of one or both of the components.

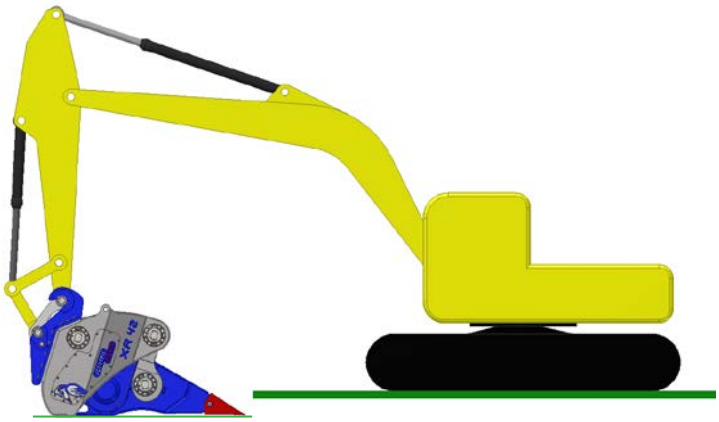
If distortion is found in any of the ripper components contact your distributor for inspection and corrective action. If cracks are found in the ripper housing or top bracket these should be rewelded on site without the need to call the distributor for assistance (see page 82).

Types of cracks

Below are some instances of cracks in the ripper housing (due to incorrect use).

Work interruption

When interrupting work, place the ripper on the ripper impact arm in a horizontal position. Make the recommended visual inspection. Keep in mind that there are areas that are very hot, such as the tooth.



WARNING

After operation, the ripper's tooth and pin can be very hot and pose a burn hazard. Do not touch these parts until they have cooled down.

Cleaning

Clean the ripper after operation. Avoid directing the high-pressure water jet from a short distance at the hydraulic hoses, seals, stickers, pressure accumulator and other components, as this may damage them.

TRANSPORT

WARNING

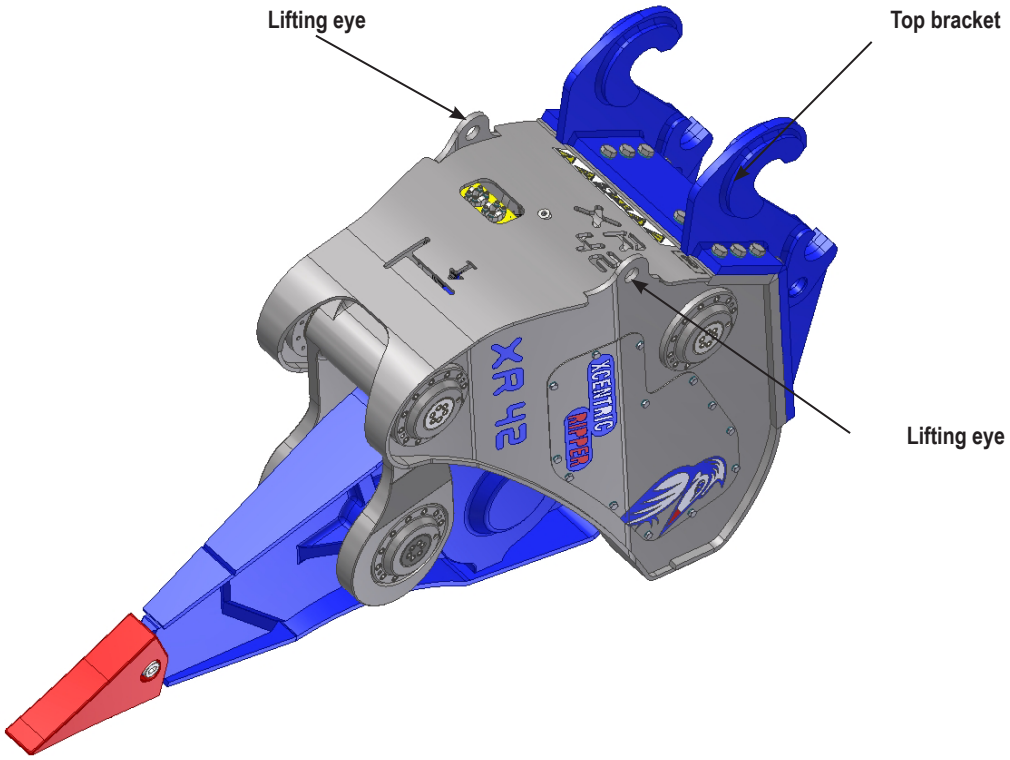
Due to its characteristics, there is a tipping hazard if the ripper is uncoupled during loading and transport. Always set the ripper on a firm, even, horizontal surface that can bear the weight to the support points.

Lifting

• Check the lifting elements to be inserted for their maximum allowable load. Because of the sharp- edged metal sheets, use of a chain or padded strap is recommended.

• The ripper can be transported both vertically and horizontally.

• For lifting, use the lifting eyes, which are provided for this purpose, because the centre of gravity is in the upper part of the ripper.



Transport with the excavator

The ripper can be transported while attached to an excavator if the weight and dimensions of the machine and attachment device are considered and applicable regulations are observed. The ripper can be transported both vertically and horizontally.

LONG TERM STORAGE

Before long-term storage:

- Carefully clean and lubricate the ripper.
- Remove rust and paint vulnerable areas.
- Cover all unprotected metal surfaces with a rust inhibitor.
- If possible, store the ripper in a warm, dry place.

Storage conditions:

- Temperature: -40°C/+80°C (NOTE! Operating temperature varies from these values.)
- Relative air humidity: below 60%

*** NOTICE**

For restarting the ripper, it is recommended that the instructions above be followed.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSES	SOLUTION
Low impact from the ripper impact arm.	The machine does not accelerate properly or transfers little power to the ripper.	Accelerate to a suitable RPM.
	The operating pressure is below the recommended value.	Check the operating pressure at the ripper connection.
	Too much oil in the eccentric gear housing due to a defective motor seal.	Check the return pressure and replace the motor. Completely drain the oil from the housing and refill with the recommended amount.
	Low pressure in the pressure accumulator.	Check for leaks and then recharge to the recommended pressure.
Does not strike.	Shut off valves closed.	Open the valves.
	Ripper is connected wrongly.	Check the connections.
	Motor malfunction	Replace.
	No pressure at the ripper's outlet.	Correctly program the machine outlet.
	Eccentric gear housing malfunction.	Contact a service technician.
Low ripper productivity	Tooth is blunt.	Replace.
	Excess hydraulic oil in the eccentric gear housing.	Drain the oil and fill it to the prescribed level.
Strange sound during operation.	Eccentric gear housing malfunction.	Contact a service technician.
Transmission oil leak in the seals.	Soil or wear on the valve seat surfaces. O-ring damaged.	Fill up the oil and notify a service technician.
Leak at the pins.	Over pressure in the pivot arm housing caused by vibration in the ripper	Fill up the grease and clean away the grease around the leaking sealing joint.
Leak in the pressure accumulator.	Tear in the membrane or a leak in the load valve.	Replace the pressure accumulator or valve.
Leak in the eccentric gear housing.	Defective motor seal ring or damaged seal.	Stop immediately. Contact a service technician.
Leak in the hydraulic motor.	Screws or union nuts loose.	Retighten.
Loud noise at the front stop.	Spring stop is worn.	Replace.
Cracks in the welding of the ripper housing and top bracket	Incorrect use of the ripper	Re-weld cracks (see page 82)

:: MAINTENANCE

MAINTENANCE, INSPECTION AND REPAIR

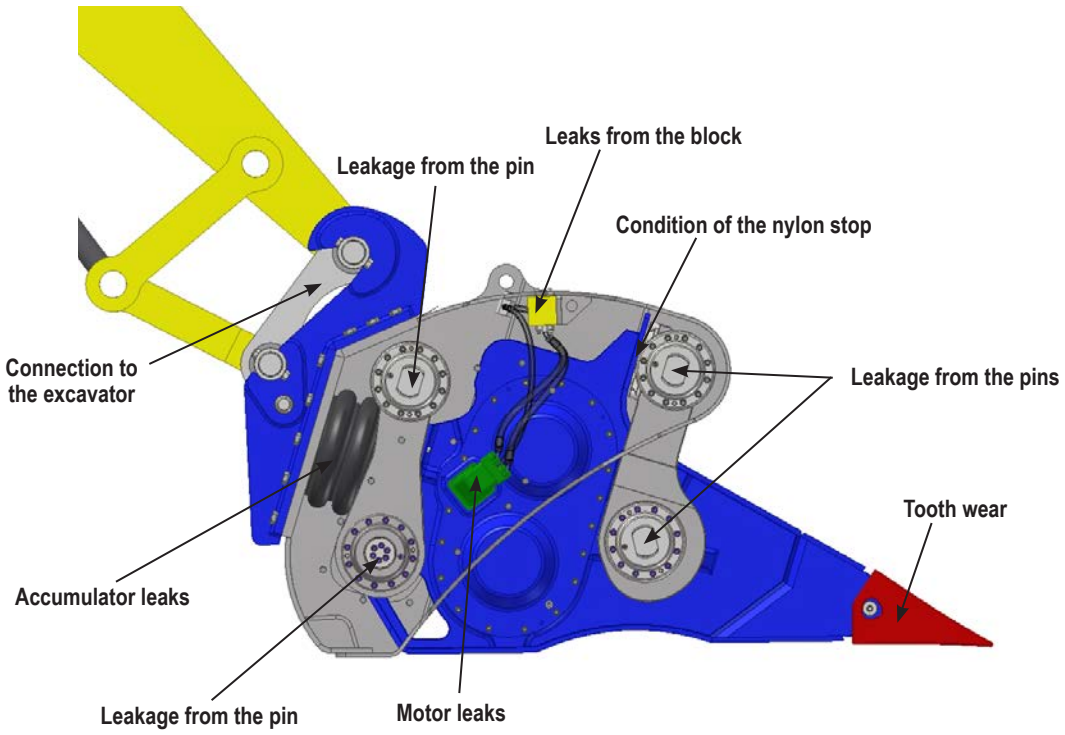
Periodical inspection and repair

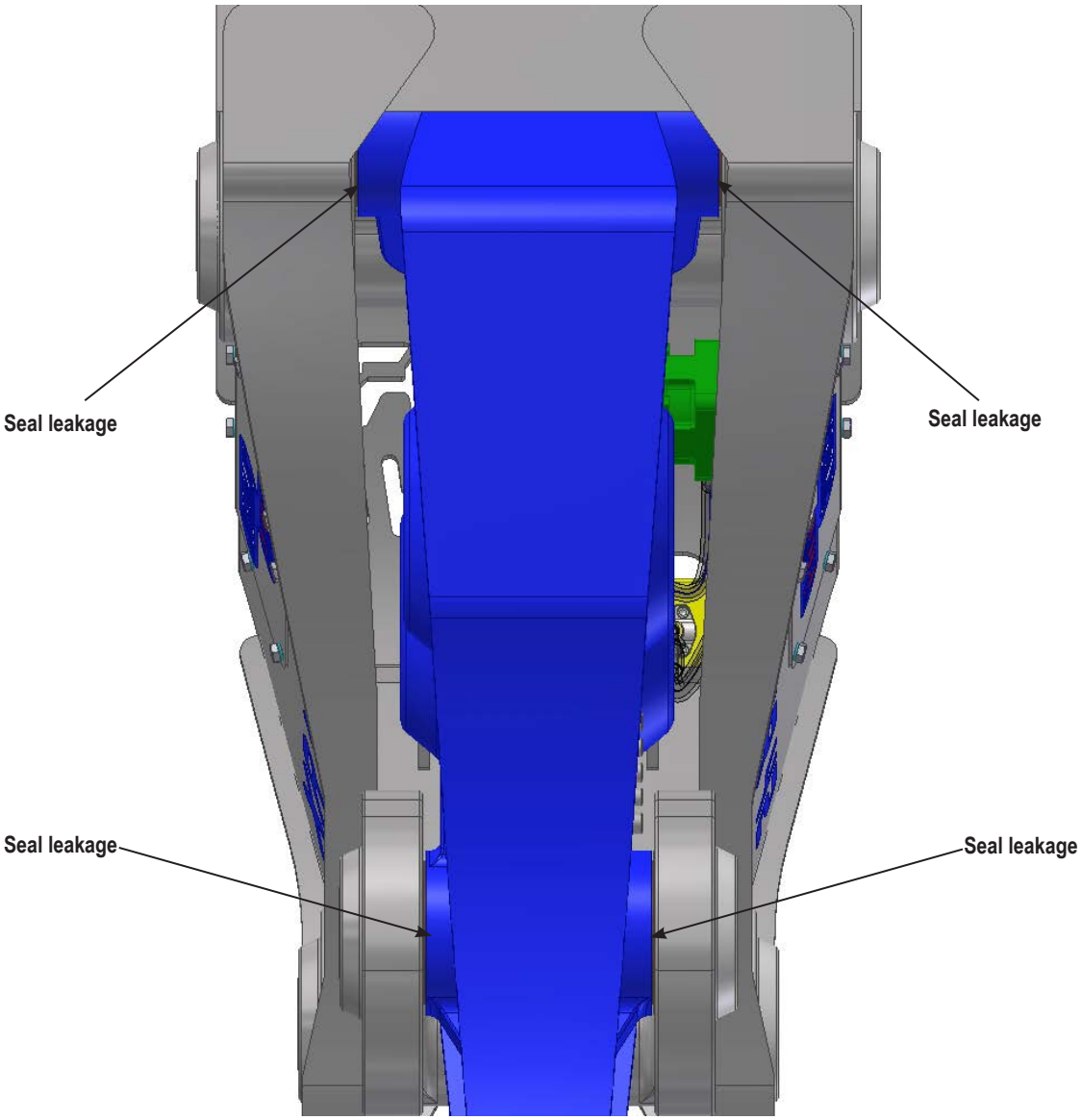
Daily inspection

Before starting work with the ripper, a daily visual inspection must be made for the following:

- Possible oil leaks:
  - + Hydraulic motor
  - + Control block
  - + Eccentric gear housing
- Possible lubricating grease leaks:
  - + Pivot arms
  - + Seals
- Condition of hoses (abrasion, wear or kinks).
- Wear to the tooth and mounting pin.
- Condition of the pressure accumulator (leaks, tears, membrane distortion).
- Tightness of the screws and bolts.
- Possible deformations and cracking.
- General condition of the ripper.
- Attachment between the ripper and the excavator.
- Condition of the lubricant filler plugs.

The following illustrations are for simple location of the points.




Seal leakage
Seal leakage
Seal leakage
Seal leakage

The complete check can be done in just a few minutes. If you detect one of the problems mentioned above, take appropriate measures to resolve it. This saves time and money.

POSSIBLE CAUSES	
PROBLEM	**PROCEDURE**
Leaks Hydraulic motor Control block Pressure accumulator Seals Pins Hydraulic hoses Eccentric gear housing	 Locate and remove. Check if it is a leak from a seal joint. If it is from a seal joint remove the block and rectify the leak. Contact a service technician. Fill up the lubricating grease and clean the surfaces. Fill up the lubricating grease and clean the surfaces. Replace as quickly as possible. Contact a service technician.
Tooth wear	Replace with original equipment tooth.
The play between the tooth and ripper impact arm	Replace with an original equipment part and check the tooth holder on the ripper impact arm.
Damage to the pin	Replace with an original equipment pin and check the tooth holder on the ripper impact arm.
Tightness of screws and bolts Missing Loosening	 Replace according to list of replacement parts. Retighten.
Distortion	Contact a service technician.
Cracking	Re-weld (see pages 46 and 82)
General condition of the ripper	Keep the ripper clean and in good condition.
Anchoring of ripper to excavator	Remove play. Contact a service technician.
Spring stop, front	Replace, if necessary.
Missing stickers	Attach a new, appropriate sticker.

If the lubricant plugs appear to be damaged, replace them as quickly as possible.

Negligence of these problems can void the warranty.

Maintenance plan

The working hours mentioned below are those of the excavator. These are maximum values for normal operation under normal working conditions. If there is a defect that is not shown in the chart, contact a service technician.

Check the connection of the ripper to the excavator.	8 h.					
Check the hydraulic circuit for leaks (hoses, motor, control block).	8 h.					
Make sure that the seals do not leak lubricating grease.	8 h.					
Make sure that the pins do not leak lubricating grease.	8 h.					
Make sure that the ripper impact arm housing does not leak oil.	8 h.					
Check the ripper housing for distortion and breakage.	8 h.					
Check the top bracket for distortion and breakage.	8 h.					
Check the safety instruction stickers.	8 h.					
Check the pressure accumulator for leaks, distortion and cracks.	8 h.					
Check the condition of the tooth and its pin.	8 h.					
Check the condition of the front spring stop.		40 h.				
Check the condition of the tooth holder on the ripper impact arm.		40 h.				
Change the hydraulic oil in the eccentric gear housing. (1) (2) (3)			50 h.	250 h.		
Check the attachment device for rust.					500 h.	
On the four pivot arm lubrication chambers, check the level of the lubricating grease as prescribed. (1)						1.000 hours or one year

1) If the lubricant sealing plugs appear to be damaged, replace them as soon as possible.

2) Observe the fill levels given in this manual. Too much hydraulic oil in the eccentric gear housing causes severe loss of performance in the ripper.

3) The eccentric gear housing oil **must** be changed after the first 50 hours of operation and then every 250 hours.

LUBRICANTS AND HYDRAULIC SYSTEM

Hydraulic oil

The motor manufacturer recommends using high-quality, mineral-based or bio-based premium hydraulic oil with additives to prevent wear, oxidation and blistering, as well as for increasing pressure resistance.

Below are the strict values provided by the hydraulic motor manufacturer. These values refer to hydraulic oil based on premium mineral oil or bio-based oil.
Temperature range of permissible oil: -20ºC/+80ºC (depending on the oil used).
Permissible oil viscosity: 25 cSt–150 cSt.
Ideal oil viscosity: 40 cSt–60 cSt.
The mineral-based hydraulic oil must be selected in such a way that the viscosity precisely corresponds to the ideal viscosity values under normal operating conditions. If the oil viscosity is below permissible values, it will shorten the life of the motor.

Mineral oil:

OIL TEMPERATURE	VALUE ISO	REPSOL	ESSO	SHELL	MOBIL	CEPSA	BP
20-40ºC	32	Telex E32	NUTO H32	TELLUS 37	DTE 24	Hydraulic HM32	HLP32
40-50ºC	46	Telex E46	NUTO H46	TELLUS 46	DTE 25	Hydraulic HM46	HLP46
50-60ºC	68	Telex E68	NUTO H68	TELLUS 68	DTE 26	Hydraulic HM68	HLP68
60-70ºC	100	Telex E100	NUTO H100	TELLUS 100	DTE 26	Hydraulic HM100	HLP100

The bio-based hydraulic oil must be selected in such a way that the viscosity precisely corresponds to the ideal viscosity values under normal operating conditions. If the oil viscosity is below permissible values, it will shorten the life of the motor.

Bio oil:

OIL TEMPERATURE	VALUE ISO	CASTROL	CEPSA	COGELSA	MOBIL	PANOLIN	REPSOL	SHELL
20-40ºC	32	Biobar 32	Bio oil HM-S 32		EAL Hydraulic oil 32			
40-50ºC	46	Biobar 46	Bio oil HM-S 46	Ultrapress BIO-46	EAL Hydraulic oil 46	HLP Synth	Bio Telex 46	Naturelle Fluid HF-E 46
50-60ºC	68	Biobar 68	Bio oil HM-S 68				Bio Telex 68	
60-70ºC	100							

The excavator's hydraulic oil must be changed according to the manufacturer's instructions.

Oil filter on the excavator

The hydraulic motor's manufacturer recommends using filters with a fineness of at least 20 µm, but it is preferable to use 10 µm filters to ensure trouble-free operation. The filter type and position are shown in the excavator's manual. Replace the hydraulic filter after the first 50 operating hours and then with every oil change.

Eccentric gear housing lubricant

The housing contains ISO-VG46 hydraulic oil. This oil **must** be changed for the first time after 50 operating hours, and then every 250 hours.

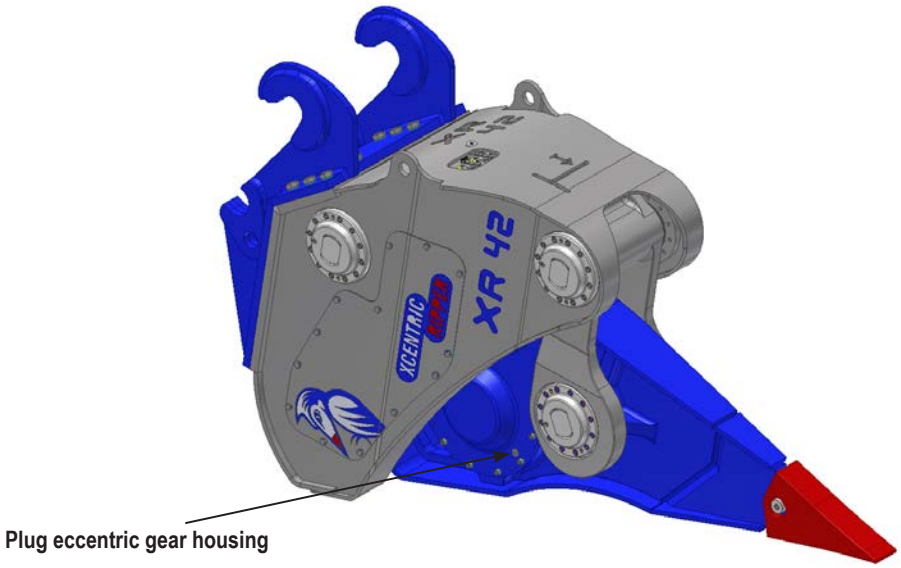
OIL TEMPERATURE	VALUE ISO	REPSOL	ESSO	SHELL	MOBIL	CEPSA	BP
40-50ºC	46	Telex E46	NUTO H46	TELLUS 46	DTE 25	Hydraulic HM46	HLP46

Oil quantities:

XR22	XR32	XR42	XR52	XR62	XR82	XR122
2 Liters	2,5 Liters	3 Liters	4 Liters	... Liters	7 Liters	11 Liters

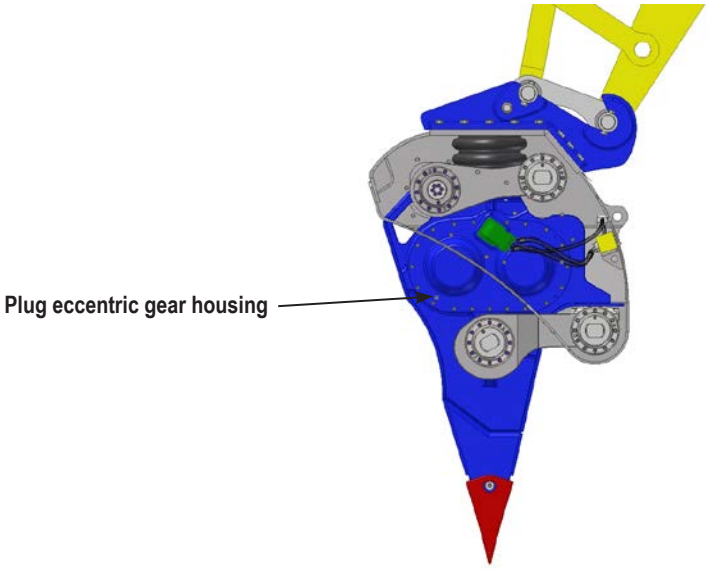
Oil change eccentric gear housing

To change the oil, turn the ripper until the drain plug is at the bottom of the housing.



Loosen the plug slightly and let the remaining pressure built up in the housing reduce before you completely remove the plug. Then remove the plug and let the oil drain into a receptacle for later recycling. Let the oil drain completely.

Turn the ripper until the plug is at half height.



Fill the oil to the quantity shown in the manual for your particular ripper model. Put the plug back in and tighten it. If the plug is damaged, it must be replaced with a new plug. Always be sure that the plug's plastic seal is in perfect condition.
If metal particles are found in the removed oil, notify your authorized service technician, so that he can determine whether bearings need to be replaced or if it is just a matter of cleaning the eccentric gear housing.

Pivot arm lubricant

Use fluid grease thickened with lithium soap as per the following specifications. It is recommended that you check the grease level every 1,000 operating hours or once per year.

	UNIT	TEST METHOD	VALUE
Colour		Visual	Light Brown
NLGI Consistency			0
Soap type			Lithium
Base oil (type)			Mineral
Base oil viscosity @ 40°C cSt		IP 71/ASTM-D445	160
Worked Penetration, 60 strokes @ 25°C	0,1 mm	IP 50/ASTM-D217	370
Dropping Point	°C	IP 322/ASTM-D566	180
DIN Classification	DIN 51825	KP0K-20	

Available mineral greases

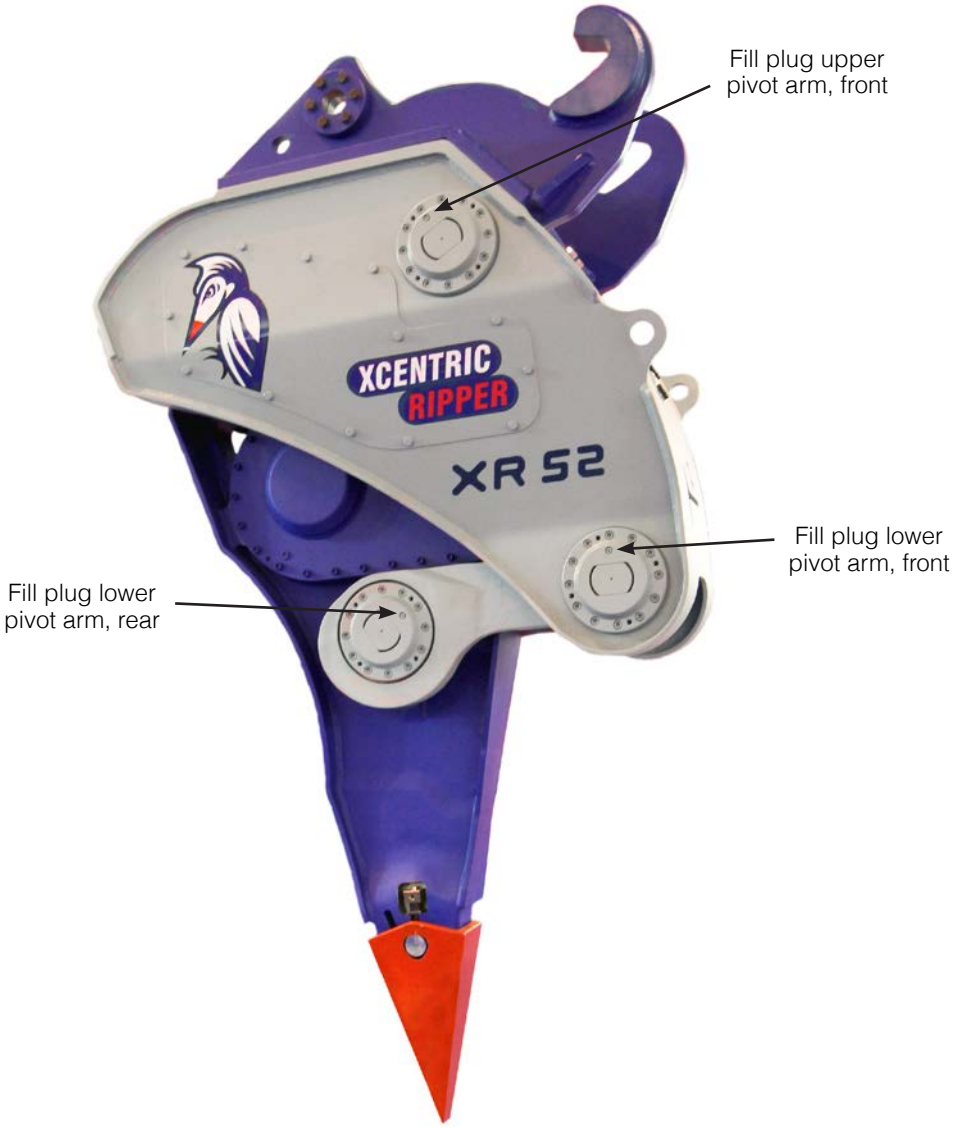
Manufacturer	Name of grease	Manufacturer	Name of grease
Agip	Agip Grease MU EP 0	Repsol	Grasa Litica EP 0
BP	Energrease LS-EP 0	Shell	Alvania EP 0
Cepsa	Arga EP Especial 0	Total/Fina	Marson EPL Grease 0
Chevron Texaco	Delo Heavy Duty EP 0		

Available biodegradable greases

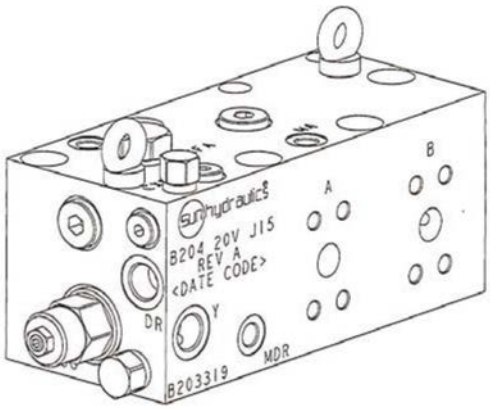
Manufacturer	Name of grease
Cargo Oil	Bio Natur 0
Cogelsa	Gelsa Bio 0
Envirosys	Bio-W
Neste	Multigrade BIO EPG

Filling the pivot arm lubricant

Position the ripper so that all four filler plugs on both sides of the ripper (a total of eight plugs) can be removed to fill the chambers with grease. Ensure that there is no dust or dirt around the plugs before they are removed. Using a grease gun fill the pivot arm chambers with grease until grease comes out of the plug hole on the opposite side of the pivot pin. After all chambers have been filled replace all eight plugs.



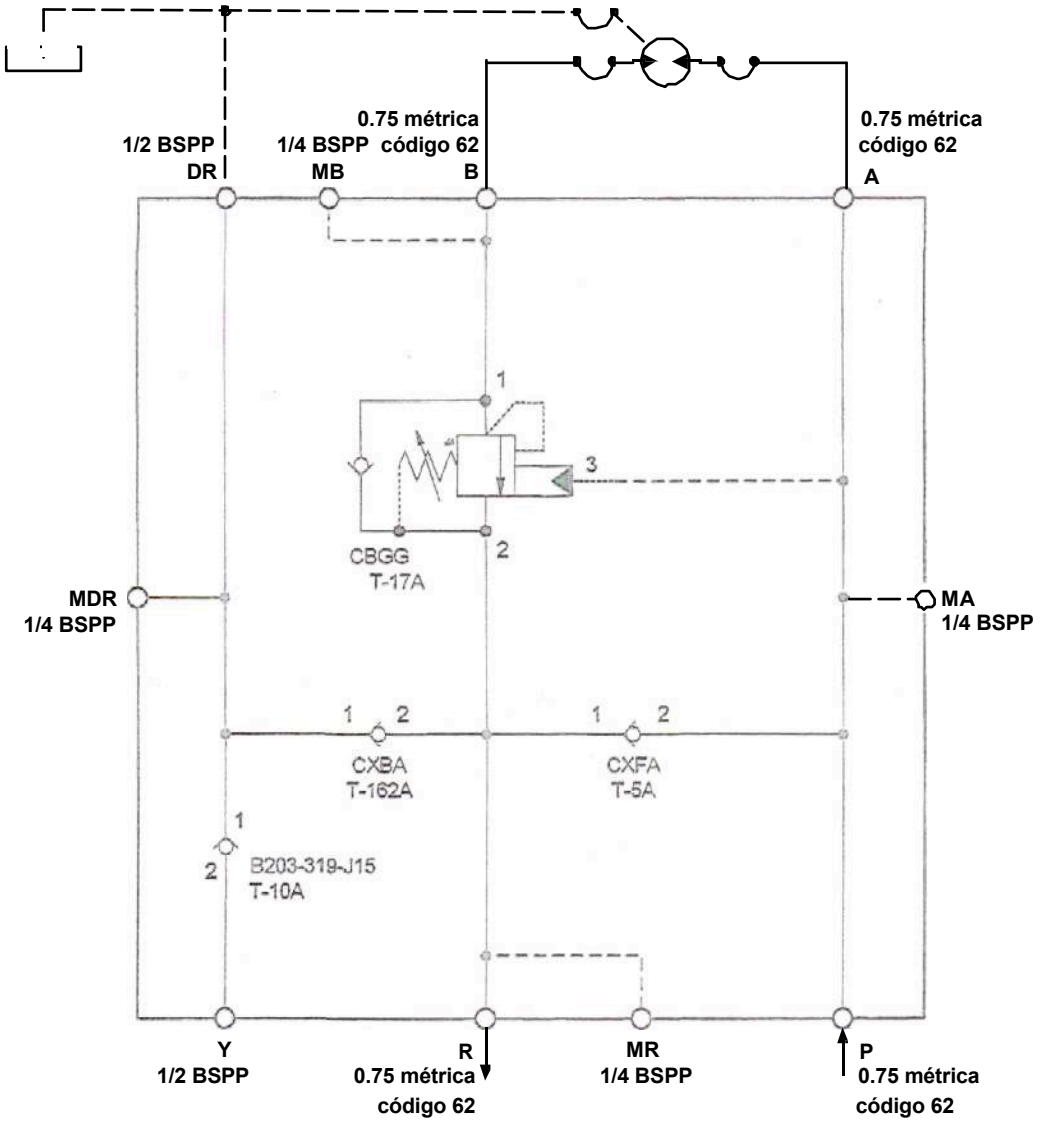
Control valve block



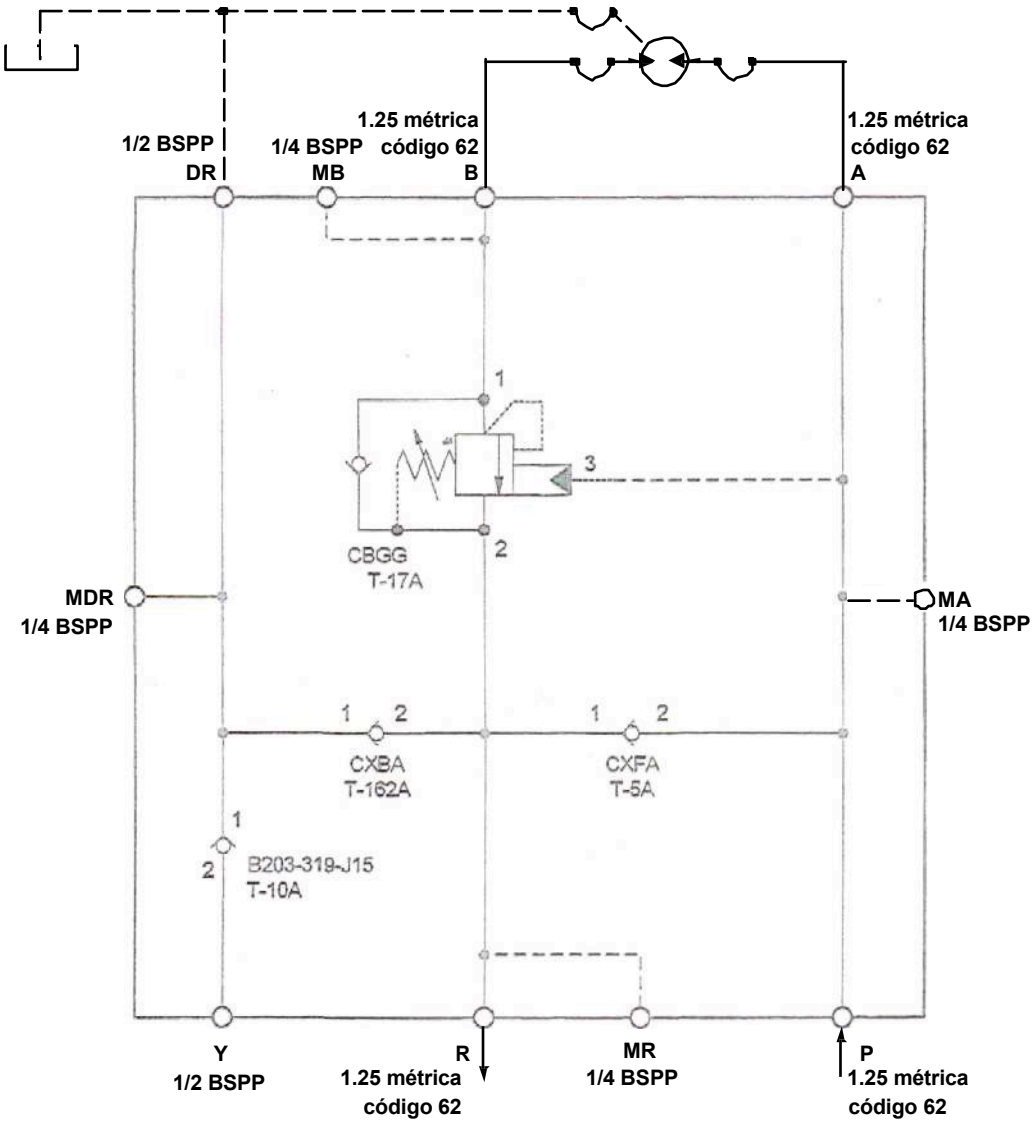
Do not manipulate with any setting of the valve block, it will not get higher performance and will generate fault in the hydraulic motor.

Control valve block schematic drawings

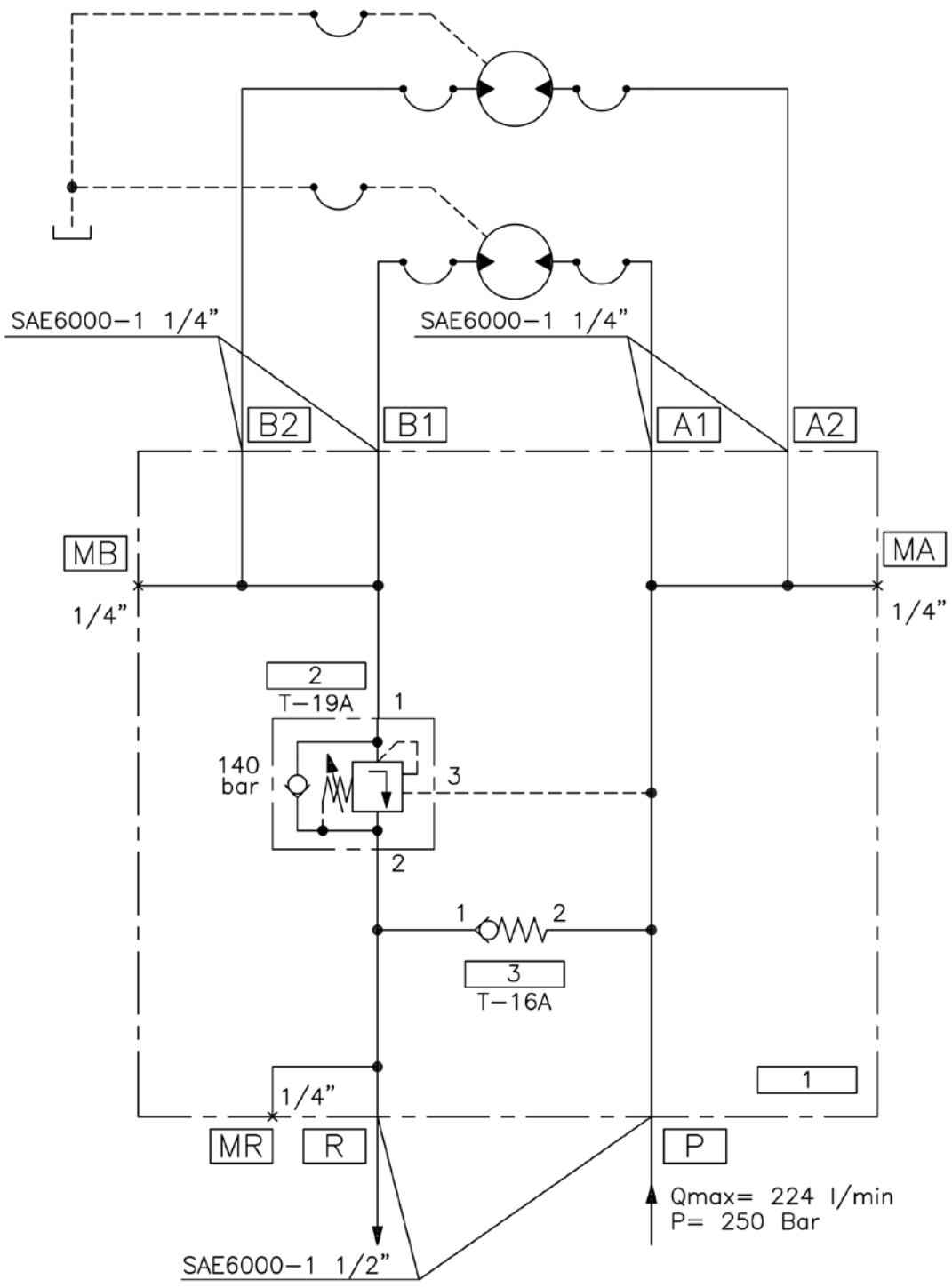
XR22 - XR32 - XR42



XR52


1/2 BSPP
DR
1/4 BSPP
MB
1.25 métrica
código 62
B
1.25 métrica
código 62
A
1
3
2
CBGG
T-17A
MDR
1/4 BSPP
MA
1/4 BSPP
1
2
CXBA
T-162A
1
2
CXFA
T-5A
1
2
B203-319-J15
T-10A
Y
1/2 BSPP
R
1.25 métrica
código 62
MR
1/4 BSPP
P
1.25 métrica
código 62

XR62 - XR82 - XR122



TOOTH REPLACEMENT

Removing the tooth

CAUTION

You must wear personal safety equipment when replacing the tooth. These include glasses, safety boots and gloves.

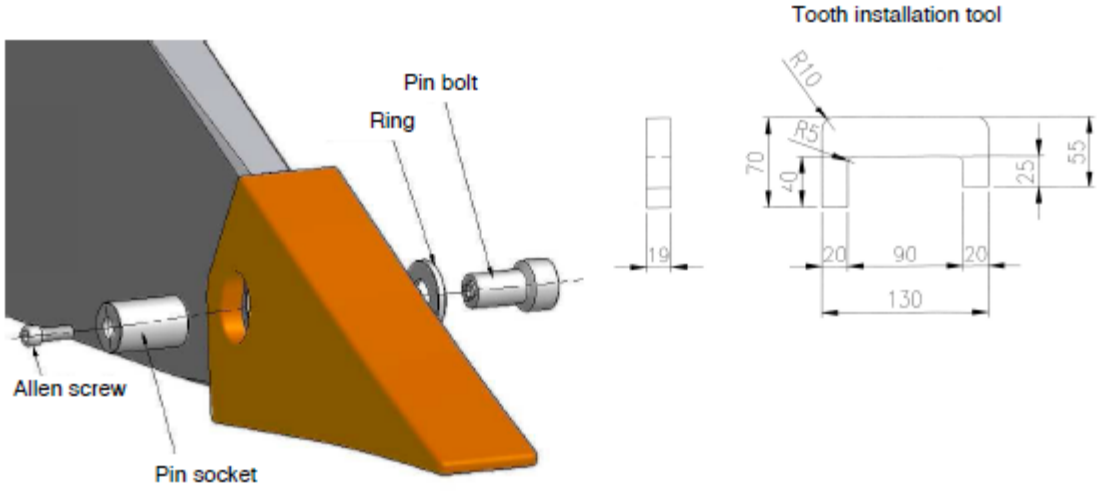
After operation, the ripper's tooth and pin can be very hot. They pose a burn hazard.

*** NOTICE**
Use only original equipment parts for the tooth.

XR42

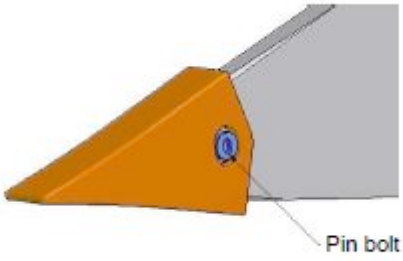
*** NOTICE**

Xcentric Ripper International/Grado Cero Sistemas S.L.U. **provides a special wrench forreplacing the tooth, which is set on the head of the pin bolt like a small drill drift.**

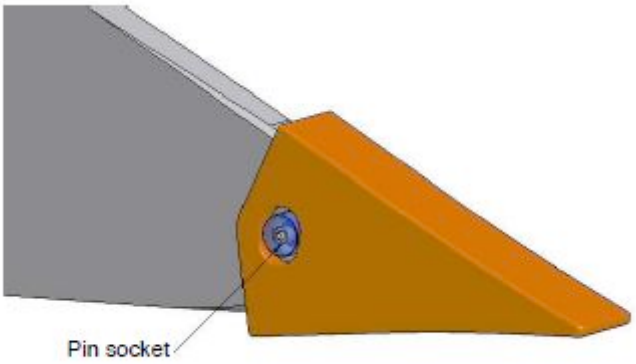


PROCEDURE

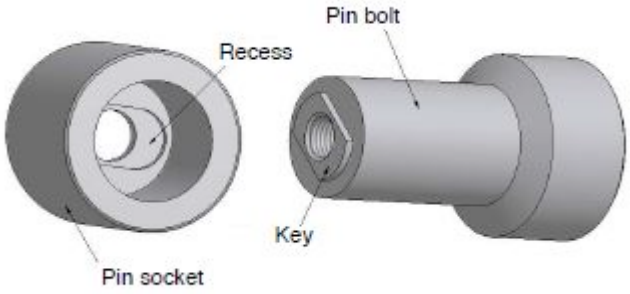
1. Insert the special wrench into the pin bolt.



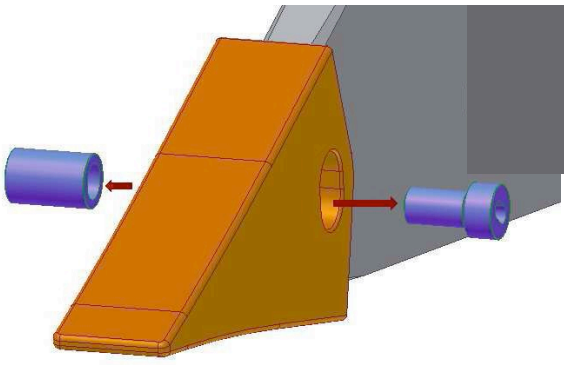
2. Remove the screw in the pin socket with an Allen wrench.



3. As shown on the corresponding interior view, the pin bolt and socket join into one another in a specific position. It can therefore be difficult to separate them. Insert a drift through the hole of the screw in the socket and hit it until the pin bolt can be pulled out.



4. Pull out the pin socket

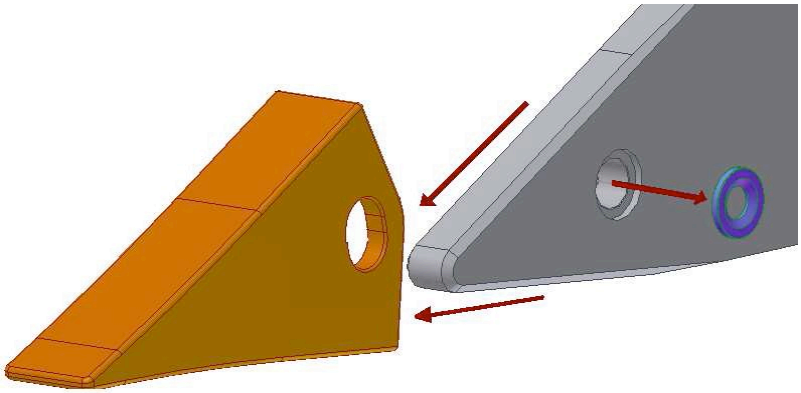


5. Remove the tooth

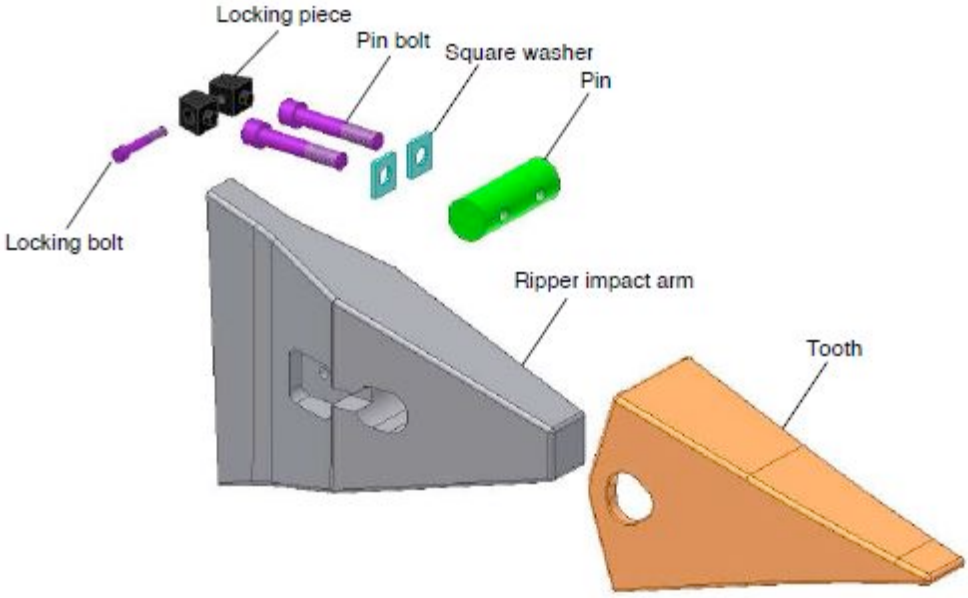
CAUTION

It may happen that the tooth is hard to remove. In that case, strike with a hammer and punch on its end until it can be pulled off. (Never hit the tooth directly with a hammer as this will damage the tooth and pieces of steel may fly off from the tooth which can cause serious injury to persons near to the ripper.)

6. Remove the ring from its receiving hole in the tooth holder.

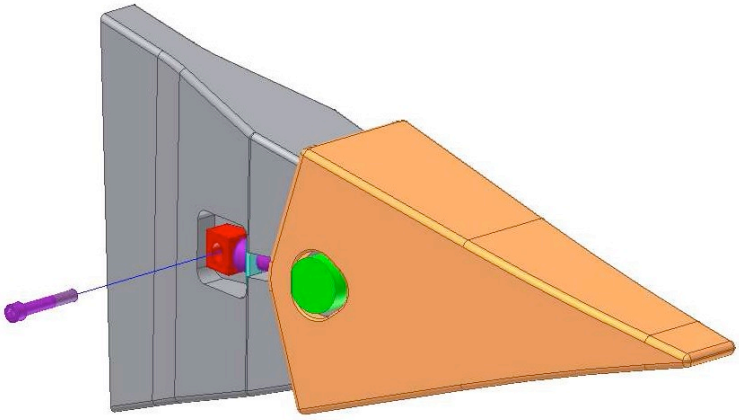


XR52 - XR82 - XR122:

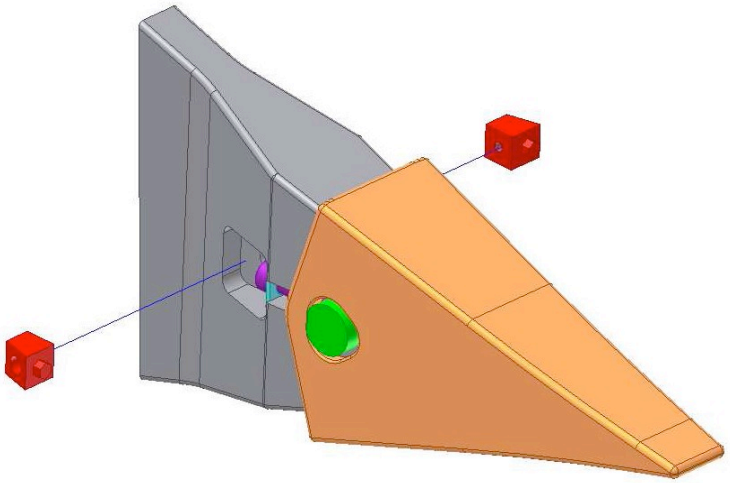


PROCEDURE

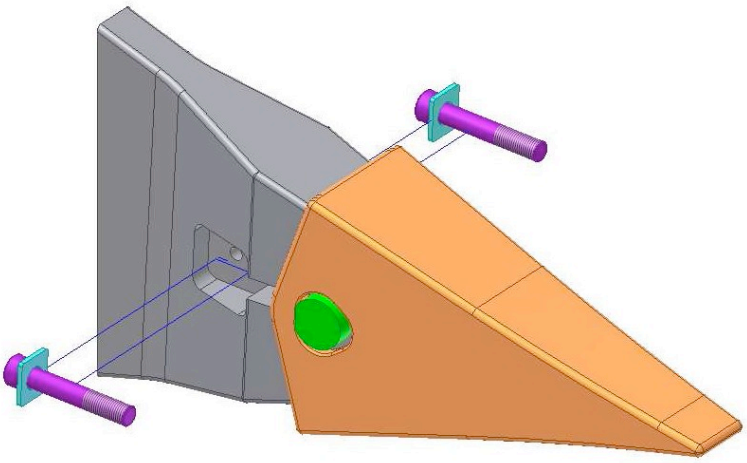
1. Remove the locking bolt.



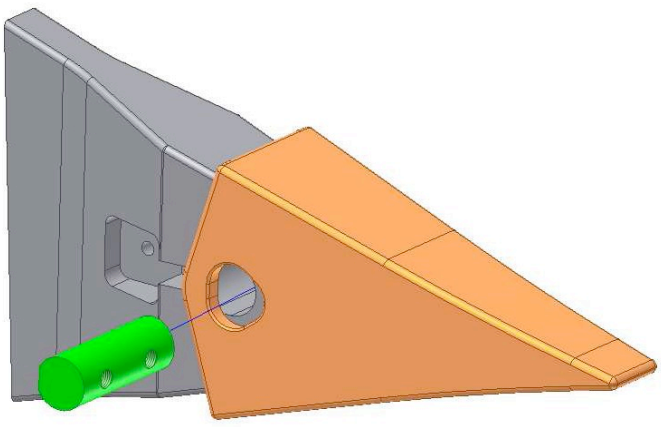
2. Remove the locking pieces.



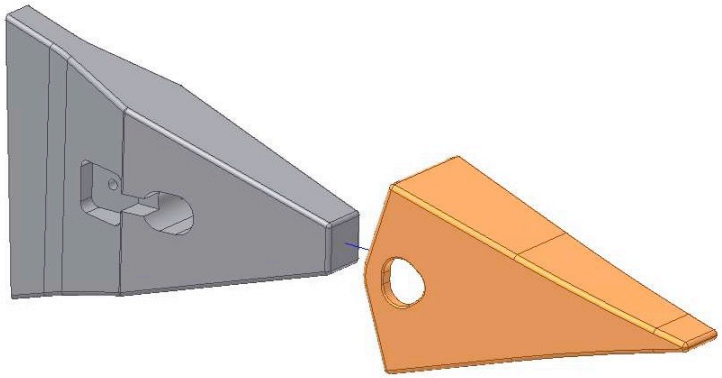
3. Unscrew and remove the pin bolts compete with the square washers.



4. Remove the pin.



5. Remove the tooth.

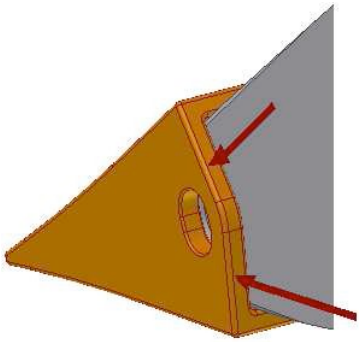


CAUTION

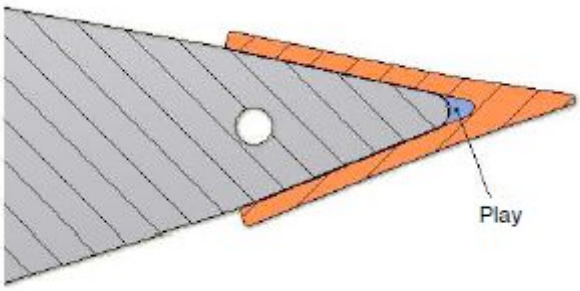
It may happen that the tooth is hard to remove. In that case, strike with a hammer and punch on its ends until it can be pulled off. (Never hit the tooth directly with a hammer as this will damage the tooth and pieces of steel may fly off from the tooth which can cause serious injury to persons near to the ripper.)

Problems when removing the tooth
All models:

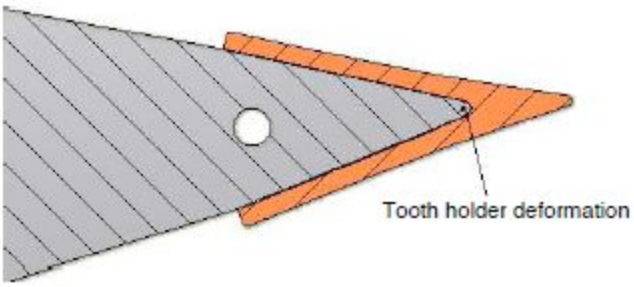
It may happen that the tooth is hard to remove. In that case, strike with a hammer and punch on its ends until it can be pulled off. (**Never hit the tooth directly with a hammer as this will damage the tooth**)



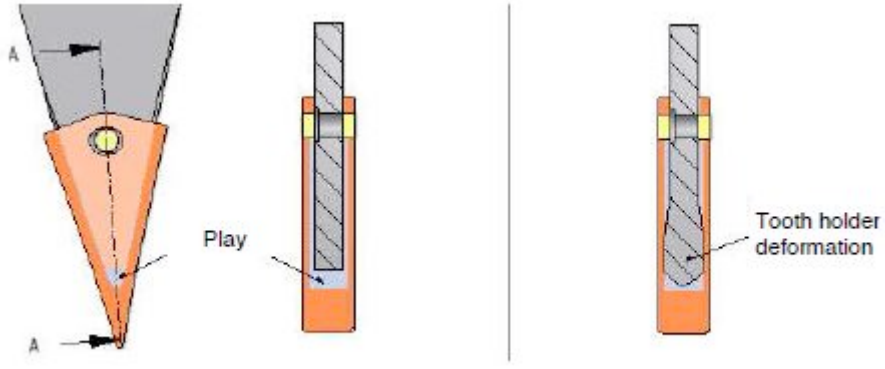
The problem is that the tooth supplied by *Xcentric Ripper International/Grado Cero Sistemas S.L.U.* is made of cast steel, and therefore, when it is installed onto the tooth holder there can be a certain amount of play, as can be seen in the illustration.



With hard stone, the ripper tends to accelerate and thus create a lot of force, which heats up the tooth considerably. This distorts the tip of the tooth holder, which takes on the inner shape of the tooth.



The following illustration shows the process with a cutaway from a different perspective:

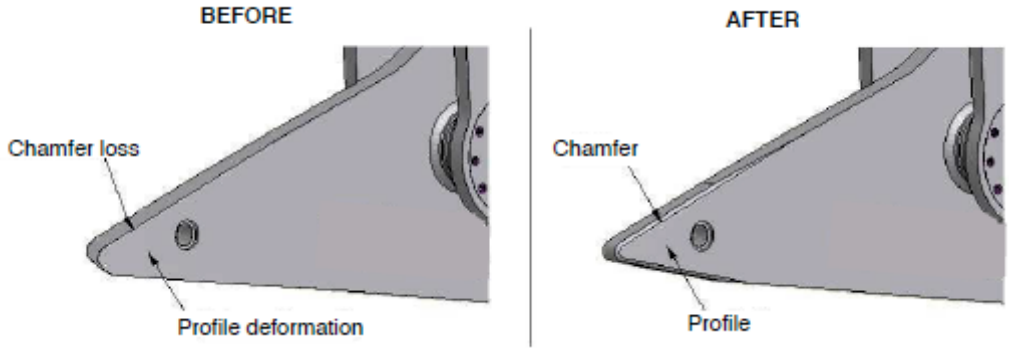


*** NOTICE**

Distortion of the tip of the tooth holder is a sign of wear from operation of the ripper, and therefore its repair and maintenance do not come under the attachment device's warranty.

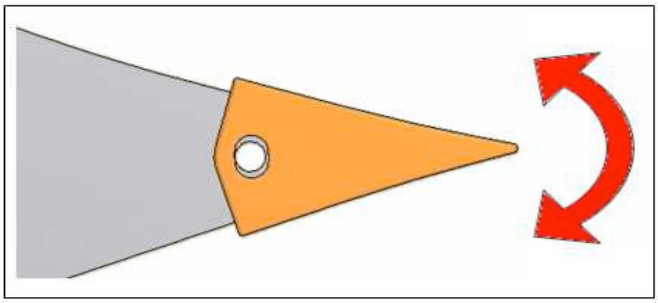
SOLUTION

If the tooth has been removed, check the tooth holder for deformation. Chamfer the tooth holder with a grinding machine and rebuild the tooth holder to its original shape by reworking the profile. Fit a new tooth.

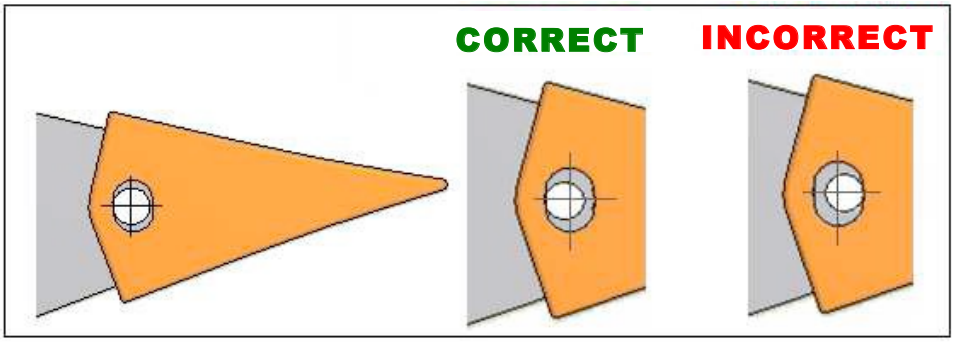


Checking the fit of the tooth on the tooth holder All models:

If the tooth has been removed, check both the condition of the pin opening in the tooth holder and the fit of the tooth on the tooth holder. When installing a new tooth, make sure that the tooth rocks only minimally on the tooth holder. Afterward, if the tooth is on the tooth holder on the stop, make sure that the hole in the tooth is placed over the opening for the pin and that there is some play in the front area.



If the pin in the tooth receiving hole is lying toward the front part of the hole, this is a sign that the tooth holder is worn. Working under these circumstances is not recommended, because it can bend the pin.

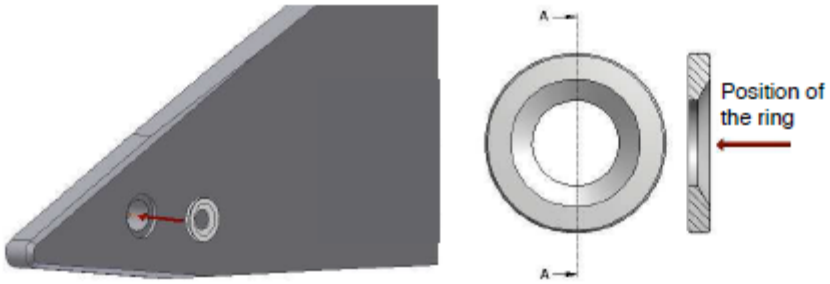


If installation of the tooth is incorrect, the tip of the tooth holder must be repaired. Contact your authorized service department.

Installing the tooth

XR32 – XR42:

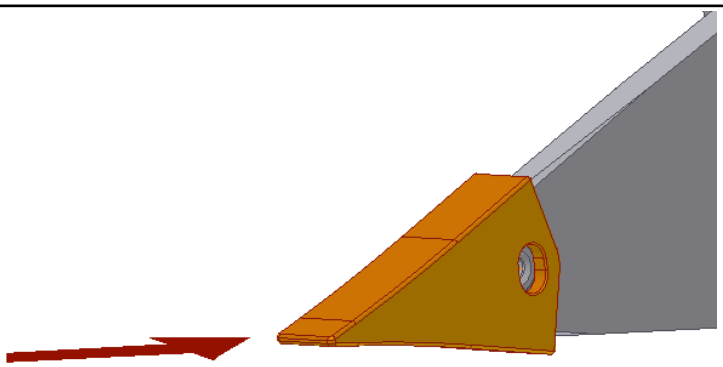
1. Place the ring in the corresponding receiving hole in the tooth holder.



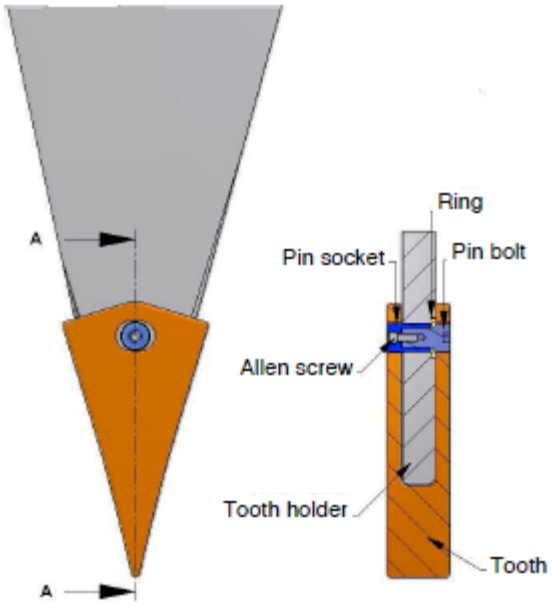
2. Position the tooth correctly on the tooth holder.

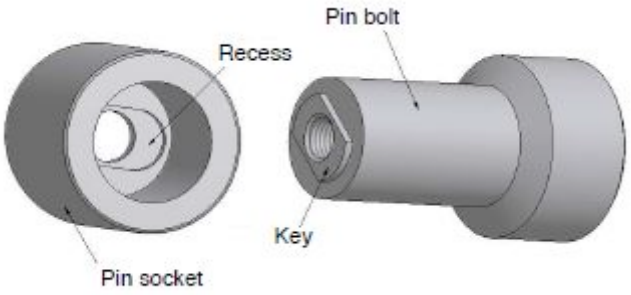
CAUTION

The tooth from Xcentric Ripper International/Grado Cero Sistemas S.L.U. is made of wear- resistant steel and minimal play can occur when it is placed on the ripper impact arm.



3. Install the pin bolt and pin socket. Due to their inner shaping, the two parts can join in only one way. Turn both components until the indentation and the adjusting key fit correctly into one another.

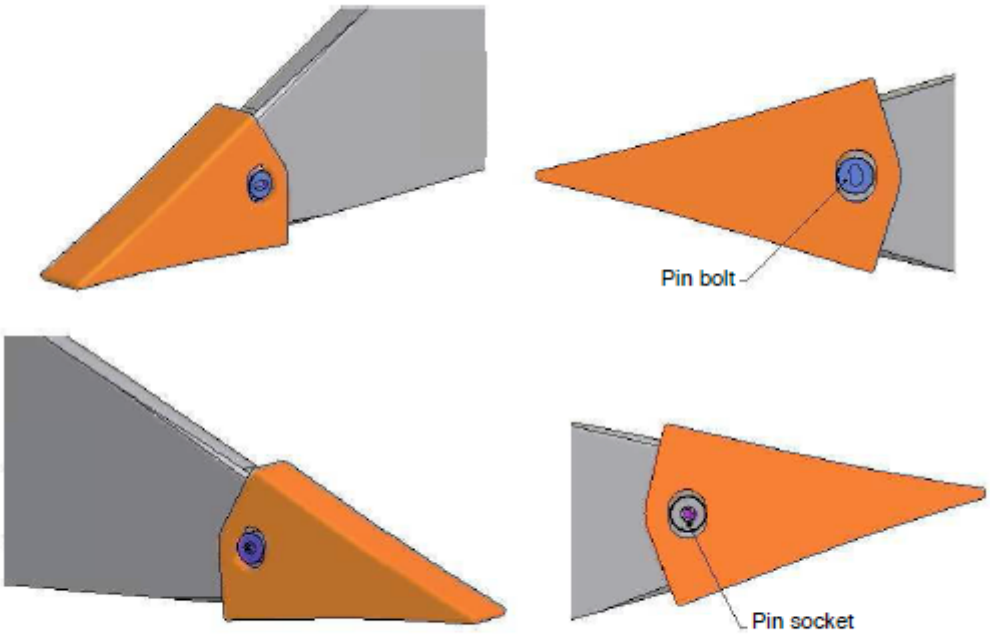




4. Install the screw and Nord-Lock disc washer in the pin using an Allen wrench for the screw and the special wrench from Xcentric Ripper International/Grado Cero Sistemas, S.L.U. for the head of the pin bolt.

WARNING

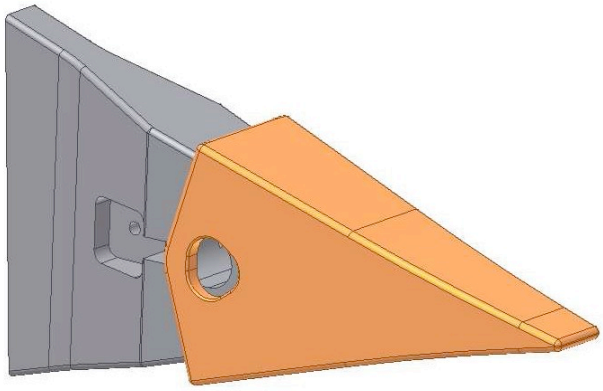
Pay special attention when tightening the Allen screw against the Nord-Lock washer to ensure that the pin bolt does not turn against the pin socket by holding the pin bolt with the special tool. If the pin bolt turns against the pin socket the key on the pin bolt will move out of the recess in the pin socket. If you do not realise this has happened, as you tighten the Allen screw the key is tightened against the pin socket without being in the recess. As soon as the ripper starts to work the pin bolt will start to turn against the pin socket until the key on the pin bolt falls into the recess which will result in the all the components of the pin assembly being loose against each other. If it is not immediately retightened correctly the pin will be damaged leading to the tooth being loose on the impact arm damaging both the tooth and the impact arm.



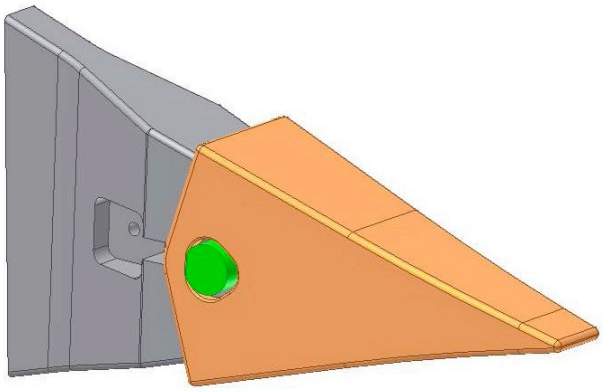
Final position of the tooth

XR52 – XR82 – XR122:

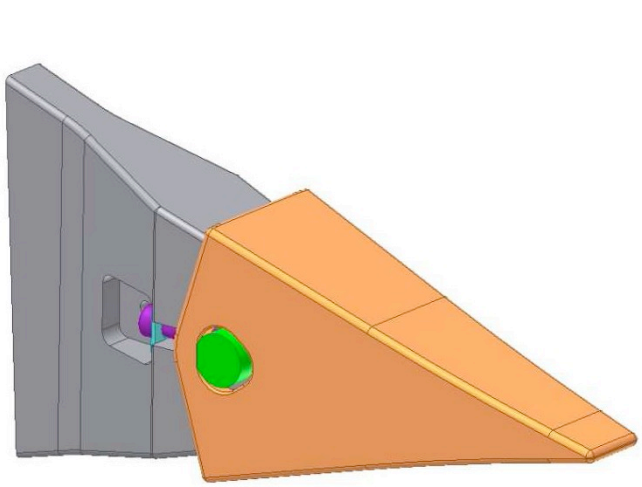
1. Install the tooth.

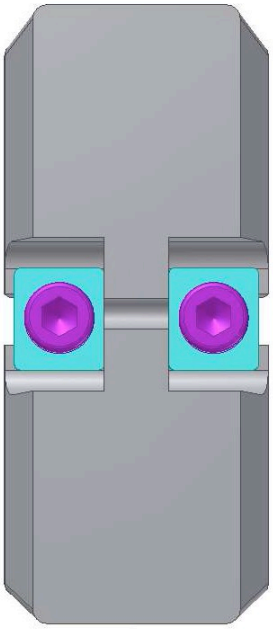


2. Insert the pin.

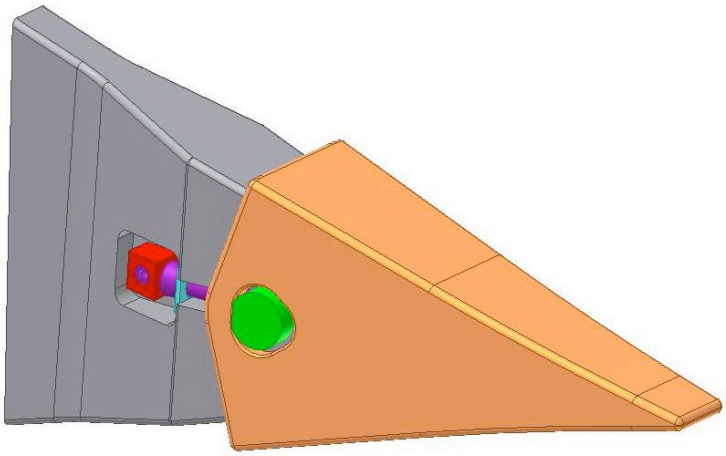


3. Install and tighten the pin bolts completely ensuring that the square washers are parallel to the face of the locking piece support.



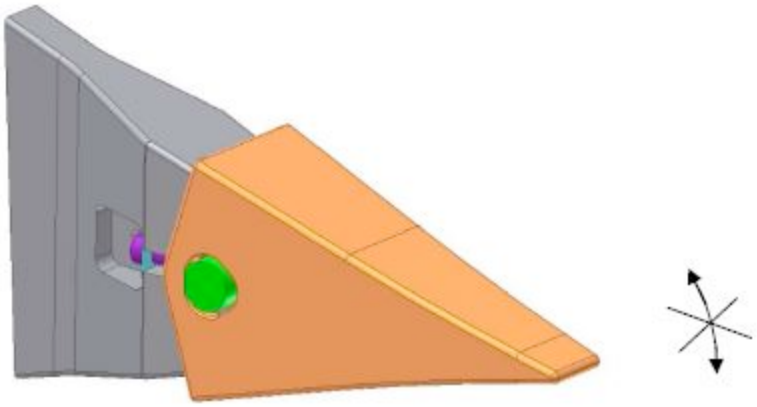


4. Install the locking pieces on the pin bolts and washers ensuring they are correctly installed and then install and completely tighten the locking bolt.



WARNING

After the first 5 to 10 minutes of work it is necessary to retighten the pin bolts. Repeat this operation until the fit between the tooth and the tip of the tooth holder is completely snug. This process is necessary to ensure a longer life time of the tip of the tooth holder and to stop cracks developing in the tooth.



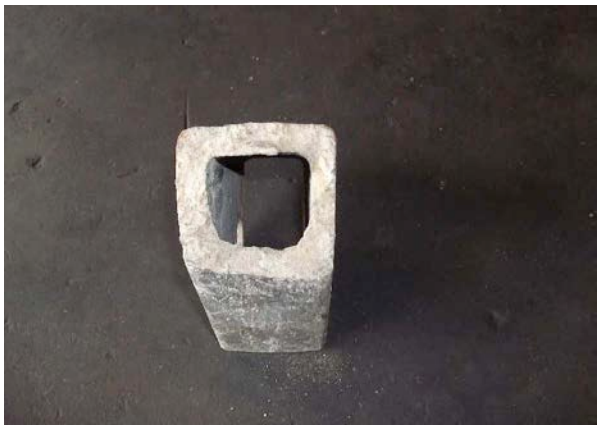
* **NOTICE**

Keep clean and lightly greased for assembly.

Tooth failure

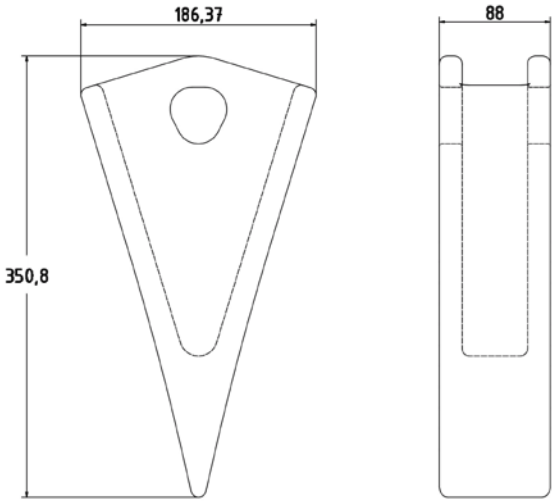
One problem that can arise, due to incorrect operation of the ripper, is when a ripper impact arm and tooth become stuck in the material being broken. If the operator tries to lever the ripper loose from the material by moving the excavator arm and boom forwards and backwards this creates a massive levering force on the tip of the tooth for which it is not designed. This will cause the tooth to crack and eventually to tooth failure as shown in the following pictures.

In the event of a ripper becoming stuck in the material lift the ripper directly upwards without any levering movement to the ripper.



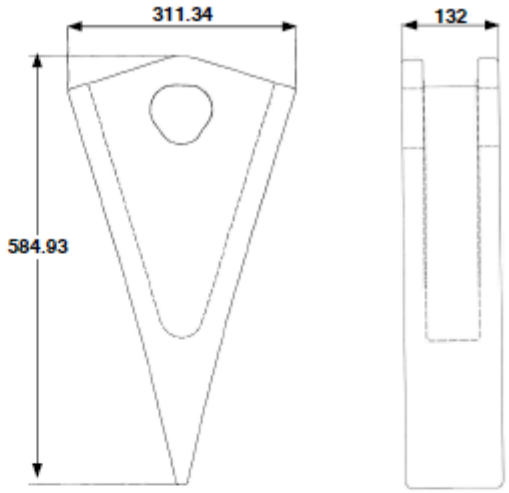
The above failures are caused by incorrect operation and are not considered for a warranty claim.

Teeth dimensions and weights



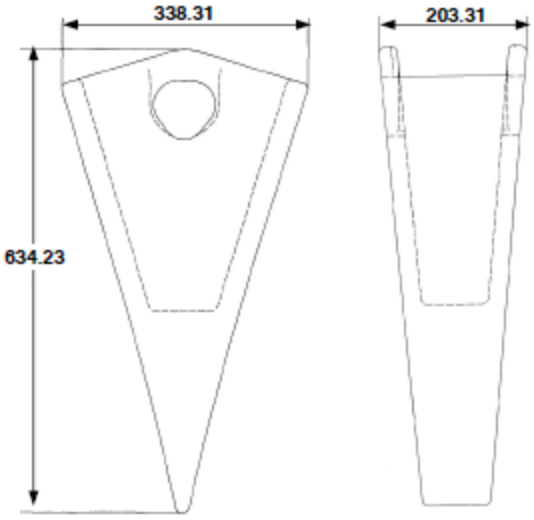
Weight 13.9 kg

XR22



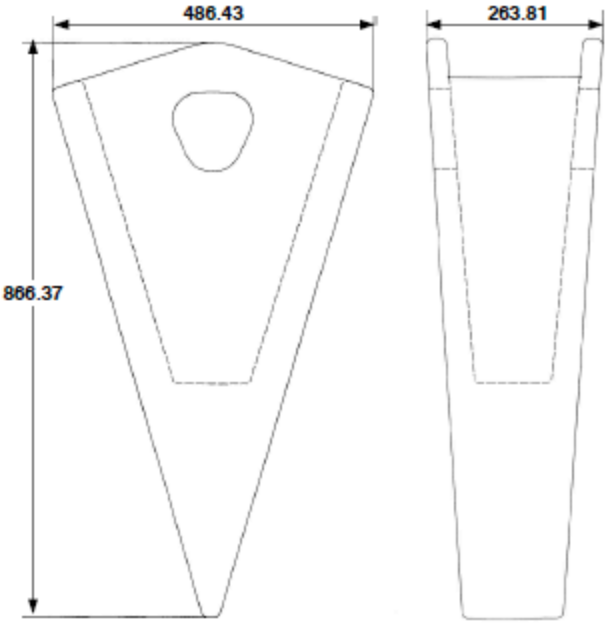
Weight 59.39 kg.

XR32 / XR42



Weight 71.7 kg.

XR52 / XR82

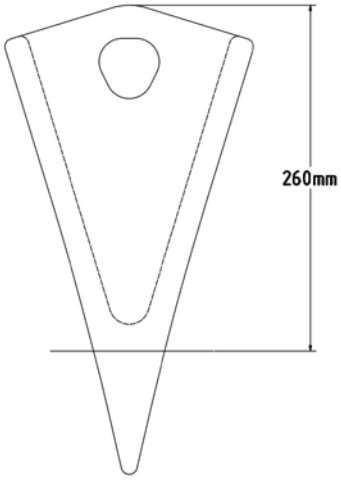


Weight 215.62 kg.

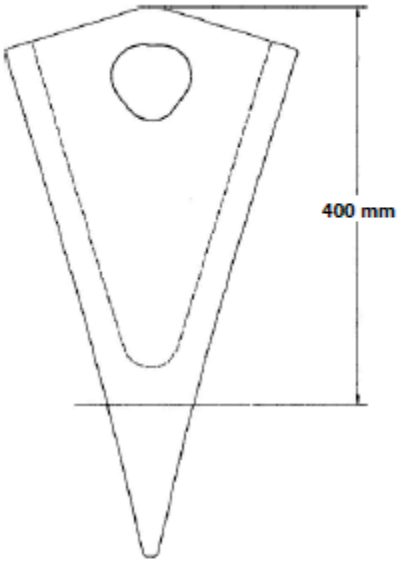
XR122

Teeth Wear limits

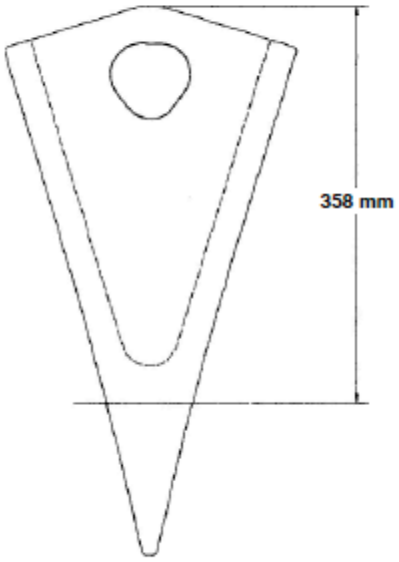
Below are the teeth wear limits which should never be exceeded. If these wear limits are not followed the tooth will wear to the point where the end of the tooth holder on the ripper impact arm will be damaged, necessitating replacement of the tooth holder.



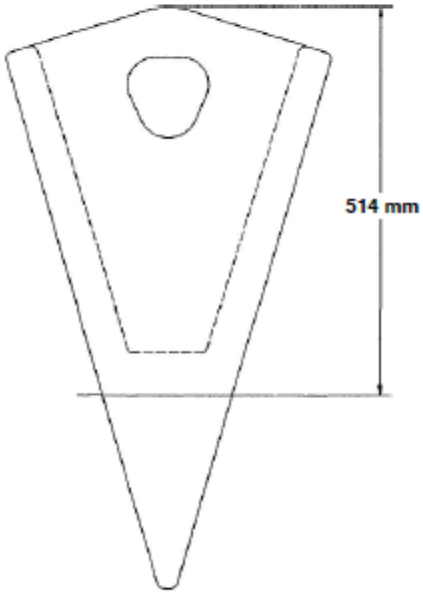
XR22



XR32 / XR42



XR52 / XR82



XR122

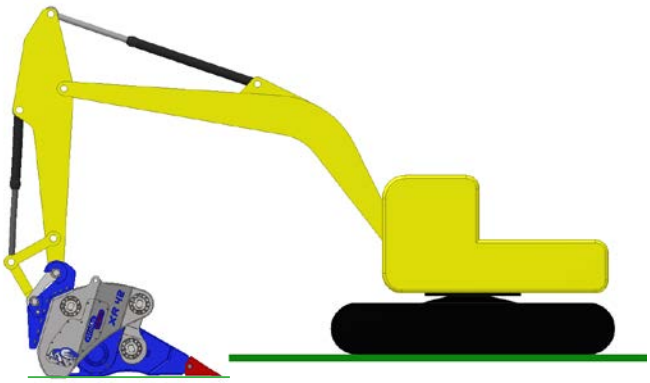
PRESSURE ACCUMULATOR

Caring for the pressure accumulator

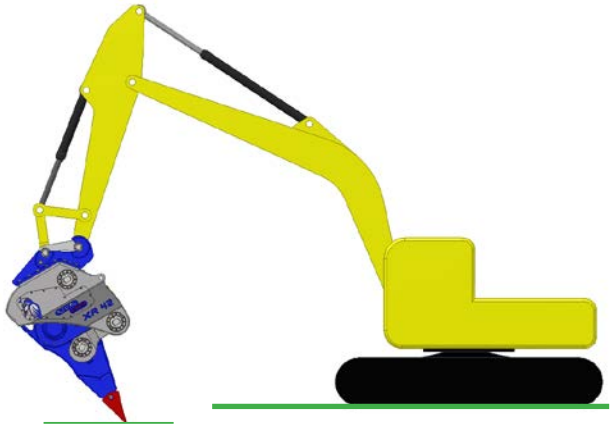
- Replace the pressure accumulator if it is defective, if it has cracks or if the membrane is perforated or distorted.
- Clean it only with water.

Important: Rest position — working position

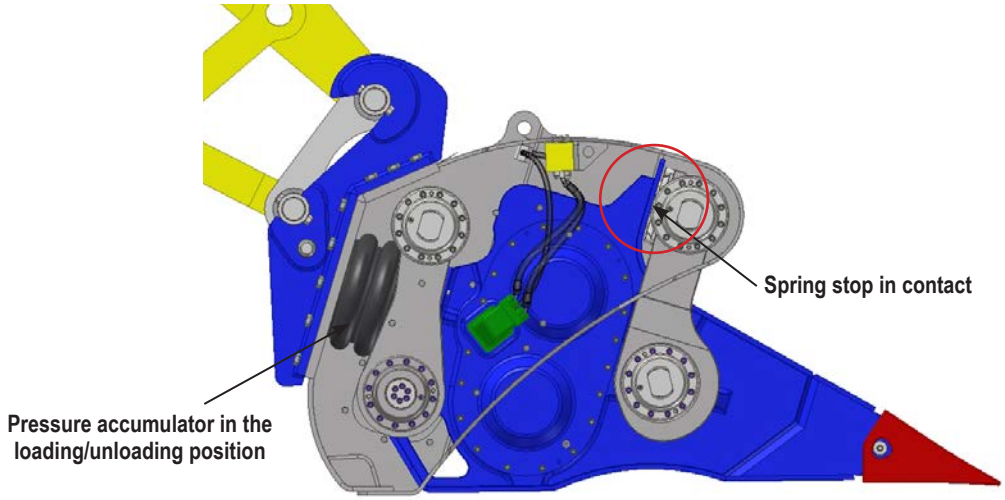
The pressure accumulator changes its pressure depending on the condition: Rest position or working position.
Rest position



Working position



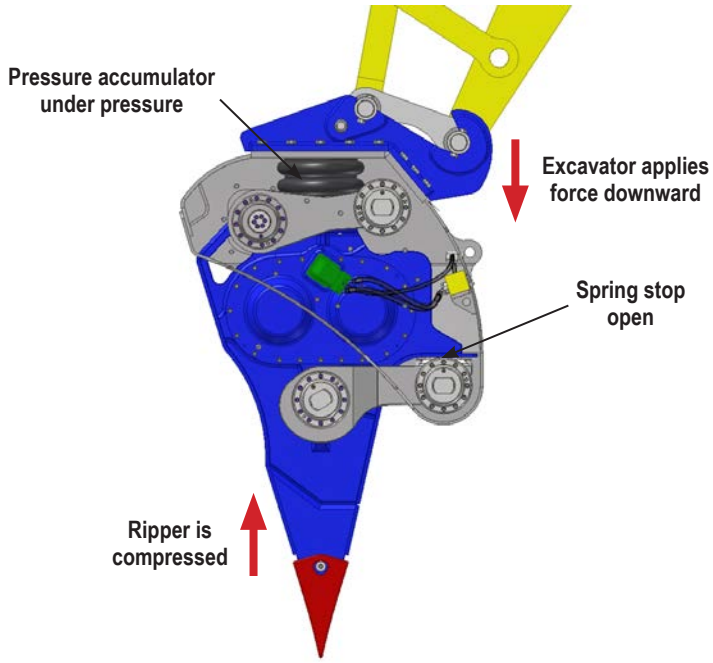
- Rest position: The ripper is swivelled in and supported lengthwise on the ripper impact arm.



WARNING

The pressure setting will always be done with the ripper in resting position. Never exceed 5 bar pressure in resting position.

• Working position: The ripper is supported in such a way that the ripper impact arm is pressed into the ripper housing.



WARNING

In the working position the pressure accumulator must never be worked upon. Here the pressure increases considerably. The pressure accumulator may explode.

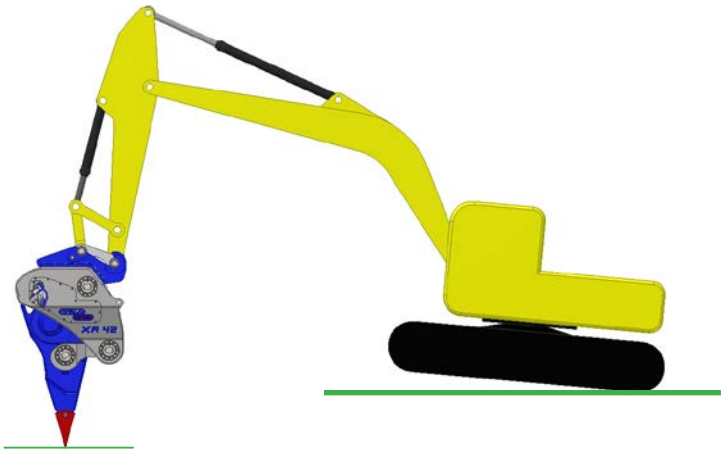
Setting the pressure

Always adjust the pressure in the rest position when the ripper is swivelled in. The pressure accumulator's pressure changes depending on the excavator model on which the ripper is installed. The more powerful it is, the more pressure the pressure accumulator needs. This setting is made using a rough calculation.

1. First the pressure accumulator is charged with air to 5 bars.

2. Now bring the ripper to the ground in the vertical position, while the excavator's arm also is in the vertical position.

3. Press the ripper into the subsurface until the excavator tracks or wheels at the front of the excavator are raised from the ground.



4. In this position (Fig. 1), without activating the ripper, the yellow mark must be seen through the **head of the arrow** in the adjustment window (Fig. 2). But when the ripper is **working**, the yellow line should be seen through the **horizontal** adjustment window (Fig. 3).

- PRESSURE VERIFICATION POSITION -

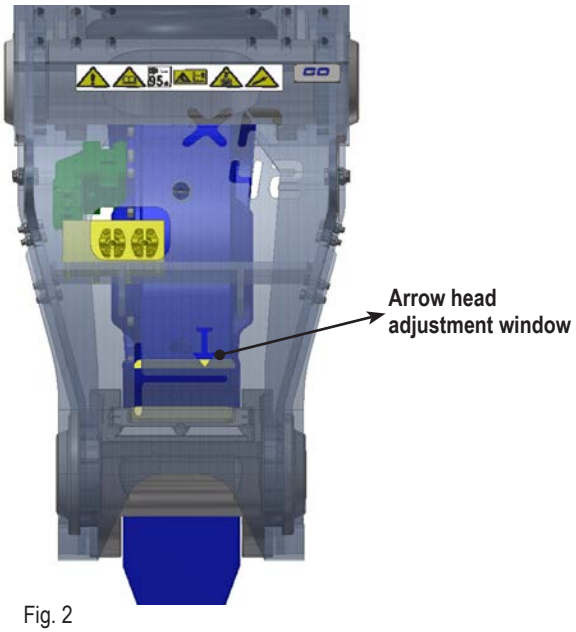


Fig. 2

- POSITION AT WORK -

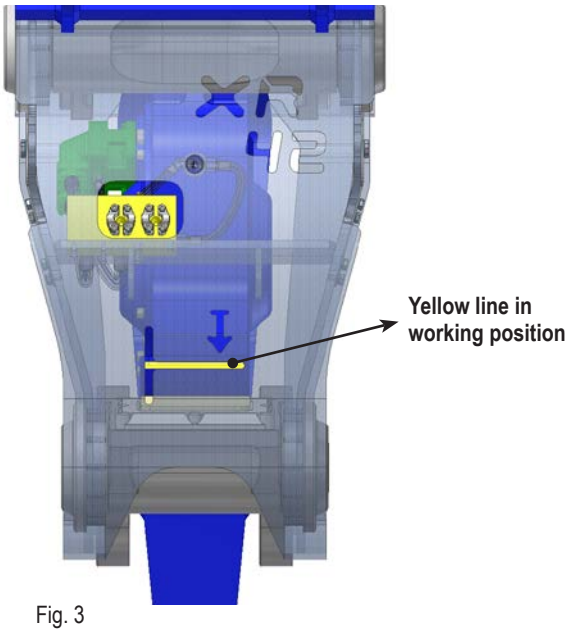


Fig. 3

5. **Make this adjustment**, inflating or deflating the accumulator, always **in rest position** without touching the ground with the ripper arm.
6. If the working height is regulated, check the tightness of the valves and put on their protective cover.
This adjustment does not need to be checked, unless you have determined that the large opening on the spring stop has changed. Keep in mind that the power with which the excavator presses the ripper changes according to the position of the excavator arm. Therefore be aware that the opening on the spring stop is smaller if the ripper is farther from the cab than when it is moving closer to the cab.
Charging and discharging of the accumulator must always be done with an officially approved manometer.

WARNING

If the pressure accumulator is being replaced, it must always be completely pressure-free.
The valve must never be struck or unscrewed when the pressure accumulator is under pressure. Make absolutely sure in this case as there is a danger of the valve being blown out.

WELDING INFORMATION

Ripper housing weld cracks

In the event of cracks appearing in any of the welds of the ripper housing due to excessive forces being applied to the ripper, repairs can be made in the field without the intervention of the dealer as follows:

1. Clean any foreign material or oils from the crack before welding. This is most important as the presence of foreign material or oil will severely affect the weld quality.
2. Grind out the crack from the weld to remove impurities such as rust, black scale, dirt etc.
3. With ambient temperatures of 5° C or less pre-heating to 20° C - 30° C is required.
4. Weld the repair joint using a solid welding wire (for MAG welding equipment) conforming to EN ISO 14341-A G46 4 M 3Si1 or AWS A5.28 ER70S-6.
5. Maintain a pre-heating temperature of 200° C during welding and post heat the weld to the same temperature. This will avoid cracks in the weld.

Ripper impact arm tooth holder replacement

1. Put the ripper on a wooden block and remove the old tooth.
2. Lay the ripper on its side and position the new tooth holder exactly in the correct position. Mark the ripper impact arm along the edge of the new tooth holder to show where the old tooth holder has to be cut off.
3. Support the old tooth holder and cut it off along the marked line precisely. Remove the old tooth holder.
4. Grind off the edge, where the old tooth holder was removed from, at 45° then turn the ripper over 180° on the other side and grind this edge off to 45°.
5. Prepare a support for the new tooth holder and position the new tooth holder exactly. Clamp the new tooth holder to the support ensuring the tooth holder is positioned correctly and it is completely flat in relation to the ripper impact arm.
6. Prepare the area for welding. Pre-heat both sides of the weld area to 200°C.
7. Weld both sides of the weld area using MAG welding wire conforming to EN ISO 14341-A G46 4 M 3Si1 or AWS A5.18 ER70S-6.
8. After welding post-heat to 200°C, this will avoid cracking within the weld.
9. When the impact arm and tooth holder have cooled down grind the weld completely flat on both sides.
10. Fit a new tooth.

BOLT TIGHTENING TORQUES

MAX. TIGHTENING TORQUE FOR BOLTS STEEL QUALITY 12.9

Bolt diameter x Thread pitch mm	Torque	
	Nm	Lbs. Ft.
M8 x 1.25	35	26
M10 x 1.5	68	50
M12 x 1.75	117	86
M14 x 2	280	207
M16 x 2	290	214
M18 x 2.5	400	295
M20 x 2.5	560	413
M22 x 2.5	767	566
M24 x 3	970	715
M27 x 3	1420	1047
M30 x 3.5	1935	1427
M36 x 4	3370	2486

The above bolt torques are for dry bolts. If the threads are lubricated before assembly reduce the torque setting by 10%.

- MANUAL REVISION INDEX -

Revision	Date	Code	Description
00	29-05-2017	01-17	First instructions manual
01	01-12-2017	02-17	Add information about new models: XR32, XR122
02	11-07-2018	01-18	Update information about XR122 and accumulator pressure setting
03	13-11-2018	02-18	Add information about new model XR22
04	08-05-2019	01-19	Screw quality change Add measure “E” in technical specifications

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