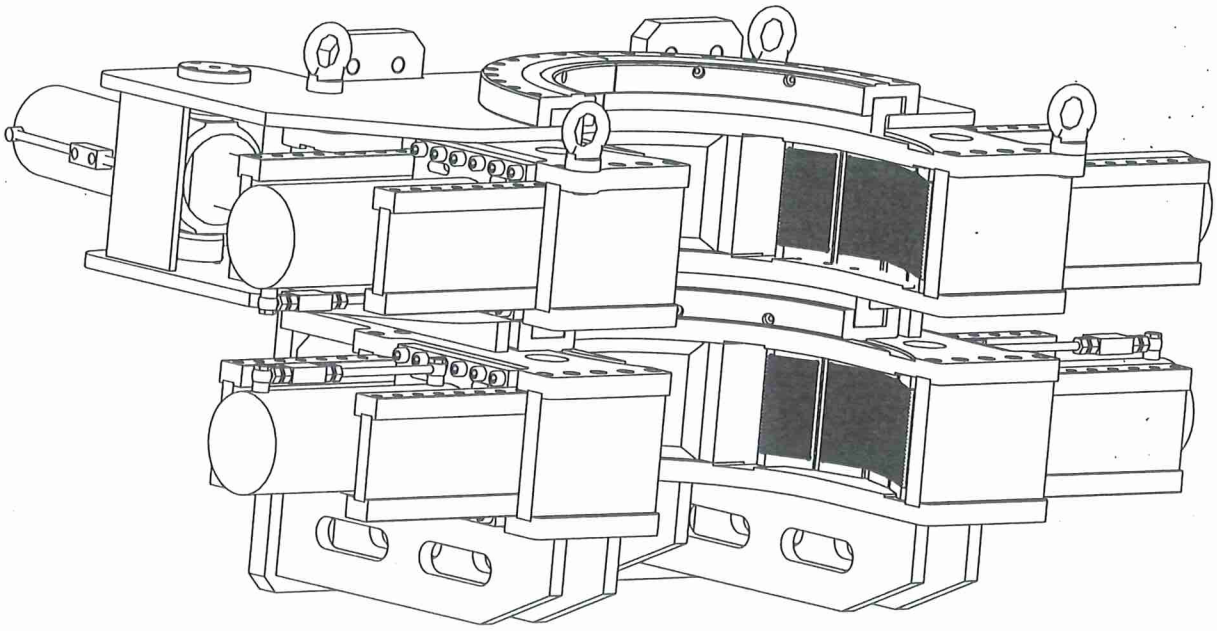
USE AND MAINTENANCE MANUAL FOR REVOLVING CLAMP



Model: **80 – 630**

Serial no.: **11-010**

Sgolastra & Giampaoli s.r.l.

Dear Customer,

Please read this instruction manual carefully before you begin using this revolving clamp. For the safety of all users, the revolving clamp parts must be kept in excellent working order.
This manual was compiled to illustrate the use and maintenance of the revolving clamp, and it is the user's duty and responsibility to keep to the instructions provided herein.

WARNING!

This manual was written for YOUR safety. Keep it in a safe place for easy reference. This device is intended only for the use for which it was conceived; any other use is understood to be inappropriate. The manufacturer denies all civil or criminal responsibility in the event of accidents due to any modifications made to the system, following delivery, and not performed by a specialised staff member, INSTRUCTED AND EXPERT, trained to use the same.

SGOLASTRA & GIAMPAOLI s.r.l.
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GUARANTEE CONDITIONS

SGOLASTRA & GIAMPAOLI s.r.l. guarantees its products for 6 months from the date of delivery.
The guarantee covers the replacement or repair free of charge - on the part of the Seller - of any parts found to be defective at their origin in terms of quality, design and processing.
The disassembly and assembly expenses and the cost of consumables are payable by the buyer.
The parts replaced remain the property of the Seller and must be sent back to its factory within 30 days of receipt of the new parts. If the parts are not returned by this time, the Seller will invoice the new part as normal.
SGOLASTRA & GIAMPAOLI s.r.l. reserves the right to request that the machinery or part of it be transferred, for repair, to its factory or to other workshops of its choice, and the related cost of transport remains payable by the buyer, who cannot object to the transfer back to the factory or claim any compensation whatsoever.
The guarantee is invalid if the agreed payment terms are not kept to, even one just one occasion; when the products are used in a way not conforming to the manufacturer's instructions; when the products are changed, repaired or disassembled even in part outside the factory workshops or those authorised by the seller; when faults or breakages are the result of natural wear and tear, of negligence, faulty use or the excess use of the revolving clamp itself.
An examination of the defects and the ascertainment of their causes will always be carried out by the Seller or by someone authorised by the same.
The cost of transport and any inspections by the Seller will be payable by the buyer.
The buyer cannot claim that the contract be terminated, or claim compensation for the damage or the extension of the guarantee for any delays or for any of the cases envisaged in the terms herein.

Table of contents

1 OVERVIEW

1.1 Scope of the manual

This manual contains everything required for the correct installation, adjustment, use and routine maintenance of the revolving clamp. The instructions herein are for the following piece of equipment:

MACHINE	80-630 revolving clamp
MANUFACTURER	Sgolastra & Giampaoli s.r.l.

For this reason, the user is kindly requested to:

- train all staff members in charge of using the revolving clamp;
- making this document readily available in the workplace;
- handing over this manual to any subsequent owners of the revolving clamp.

The manufacturer will not be held liable for any irregular use not envisaged in this manual.

Notes regarding the manual:

- The references made to the items represented in the photos are in between brackets and they indicate the number or the photo where they are shown (e.g. (1) or (fig. 1.1)
- This manual contain several danger signals to attract your attention to certain situations which could put the health of the operator at risk or cause serious damage to the revolving clamp:

	**WARNING!** **Indicates the danger of personal injuries or serious damage to the revolving clamp.**

	**CAUTION!** **Indicates the danger of damage to the revolving clamp.**

Note The photos are indicative. They may be different from the actual revolving clamp, without this jeopardising the reliability of the operations to perform.

1.2 User restrictions

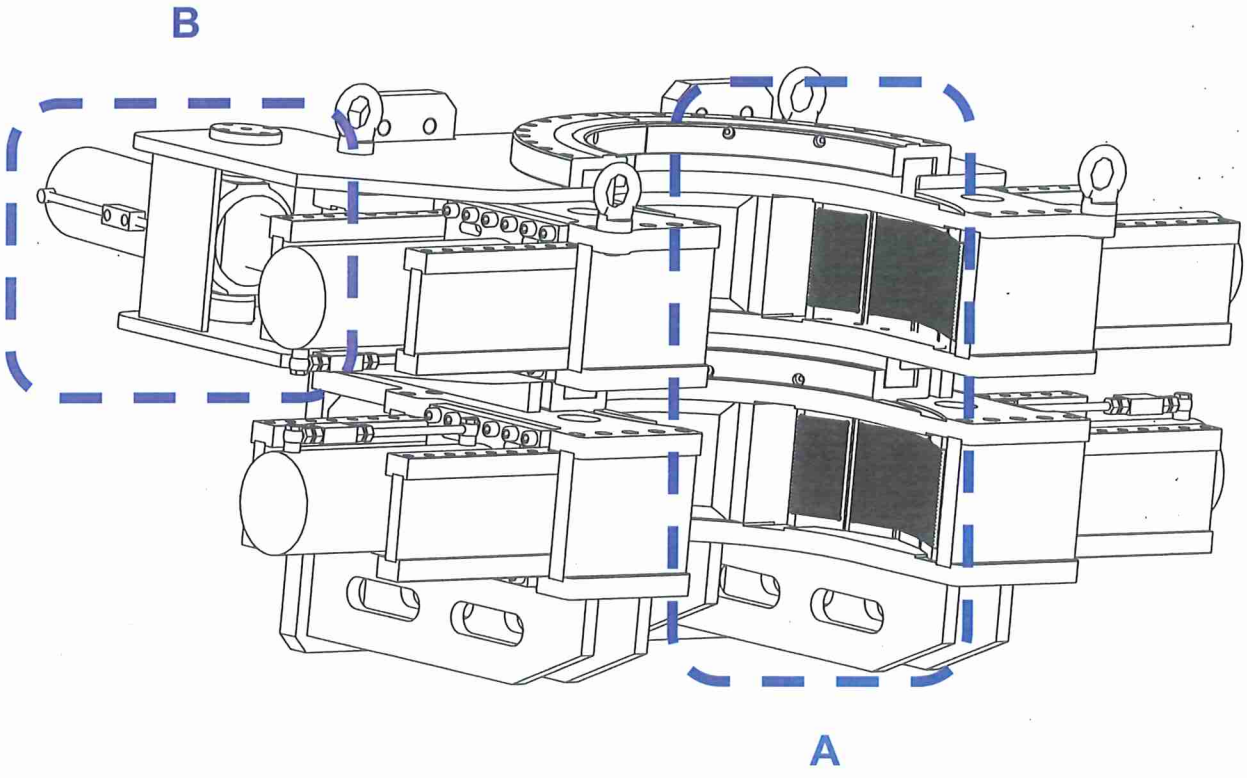
All the various phases of revolving clamp use (installation, adjustment, use, maintenance, decommissioning, etc.) must be performed by staff members with different professional profiles depending on the skills required to perform the function in question. Having specified this, the following definitions are given:

Normal person:	A person who cannot use the revolving clamp in any of the above-mentioned phases.
Instructed person:	A person who has read this manual carefully and abides by its criteria. Moreover, this person has been given appropriate instruction on the subject of revolving clamp use by his or her superior, on the subject of correct operation and the use of personal protection devices. Nonetheless, this person should not take maintenance measures of his or her own initiative without obtaining prior authorisation from his or her superior. It is envisaged that this person be shadowed by an expert member of staff for a certain period of time.
Expert person:	An instructed person who has the task of supervising the correct use of the revolving clamp with a little experience in high pressure hydraulic circuits.
Expert and qualified person:	Manufacturer's staff.

1.3 General features

The 60-460 revolving clamp is a device built using sturdy structural steel, suitable for unscrewing drilling rods with a diameter of between 80 and 630 mm. The technical characteristics and compatibility of the clamp with the various drill rigs on the market are indicated in paragraphs 1.5 and 3.2 respectively. Under standard conditions of efficiency of the device, the unscrewing torque of the rods reaches 29800 Kgm while the tightening torque is 50,150 kg. The revolving clamp is divided into two parts:

Part **A**:	Rod tightening unit
Part **B**:	Rod unscrewing unit



1.4 Pictograms

PICTOGRAMS FEATURED ON THE REVOLVING CLAMP

Graphic hint	Meaning	Position
	No access to unauthorised staff	See Fig. 1.1
	Danger of crushing	
	Compulsory use of protective gloves	
	Compulsory use of safety shoes	
	Compulsory use of dust mask	
	Compulsory use of protective goggles	
	Compulsory reading of use and maintenance manual	
	Lifting points with travelling crane or other type of crane	See fig. 2.2 pag.19 Lifting sling
	Lubrication points	See Fig. 1.1
	CE data plate	See Fig 1.1

Table 1.1

POSITION OF THE PICTOGRAMS FEATURED ON THE REVOLVING CLAMP

Note The front, rear, left and right sides of the revolving clamp are understood to be with the operator placed in front of the revolving clamp.

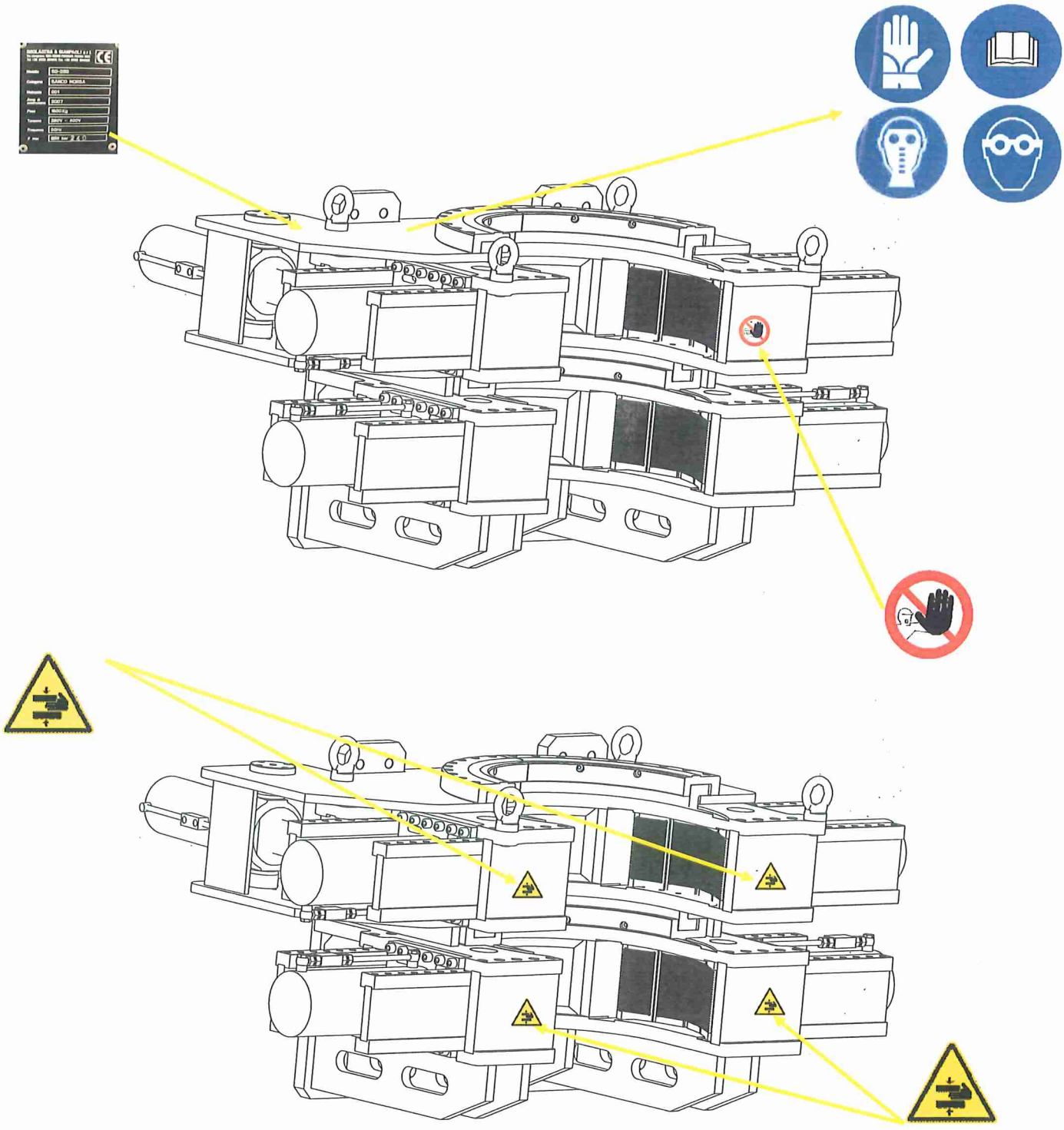


Fig. 1.1 - Pictograms

1.5 Contents of the supply

- One 80-630 revolving clamp

1.6 Technical data

The main technical characteristics of the revolving clamp are specified in the following table:

machine limits		*Available Data/Information*	
Foreseen use		Unscrewing drilling rods	
Reasonably foreseeable incorrect uses		Rods must not be blocked with just one clamp. Do not block parts that do not have a cylindrical shape	
Diameter of processable rods (min/max)		Drilling rods with Ø 80-630 mm	
Maximum Rotary Torque of the machine on which the clamp will be fitted		2400 Kgm	
Max revolving angle of swivel clamp		30°	
Max tightening torque		50150 kg	
Max unscrewing torque		29800 Kgm	
Total weight of revolving clamp		3585 kg	
Tightening torque of M 30 8.8 plate connection screws		1500 Nm	
Revolving clamp centre RCC (see paragraph 3.2)		600 mm	
Overall machine dimensions	Height	1035 mm	
	Width	2220 mm	
	Depth	1442 mm	
Services required by the machine	Hydraulic supply	Oil recommended for cylinders	Oil for hydraulic circuits
		Operating pressure	250 Bar
Materials and substances used in the revolving clamp		grease for the guides and oil in the hydraulic circuit	
Usage setting		Outdoor site	
Professionalism or experience required by operators		Reading the instruction manual, shadowing by expert staff	
Other information		*Available Data/Information*	
Directives, regulations, technical standards		98/37/EC	
Any special requirements related to the different stages of life of the revolving clamp		At the time of disposal, the revolving clamp must be demolished according to the applicable laws in force in the country of use	

Note the technical characteristics and descriptions herein are provided for indicative use only and may be changed by the manufacturer at any time and without the obligation to update this manual promptly.

1.7 CE data plate

The CE data plate indicates the following information. If you lose it, use this information and affix it to the device.

SGOLASTRA & GIAMPAOLI s.r.l. Via Marignano, 12/A -62018 POTENZA PICENA (MC) Phone +39 0733 884015 / Fax +39 0733 884020	CE
Model:	Revolving clamp
Range:	80-630
Serial no.:	11-010
Year of manufacture:	2011
Weight:	3585 kg
Nominal pressure:	250 bar

1.8 Main components of the revolving clamp

The main parts of the device (fig. 1.2) are:

Assembly	Description
Tightening unit	The unit consists of: **Top swivel blocking clamp** which allows the drilling rod to be unscrewed to revolve from 0 to 30 degrees **Bottom fixed blocking clamp** which only serves to block the rod in place. Both clamps comprise two **blocking units**
Unscrewing unit	Once the top blocking clamp has clamped the rod tightly, it can revolve inside the **cradle** engaging the **revolving cylinder.**

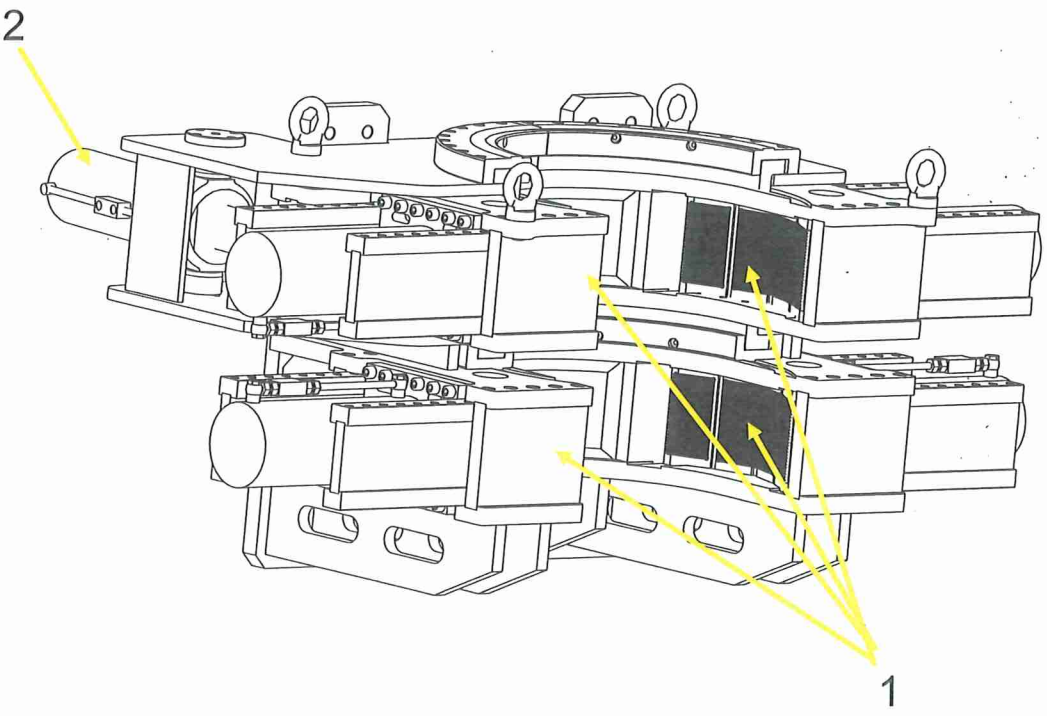


Fig. 1.2 – Main units of the Revolving clamp

1	Tightening unit	2	Unscrewing unit		

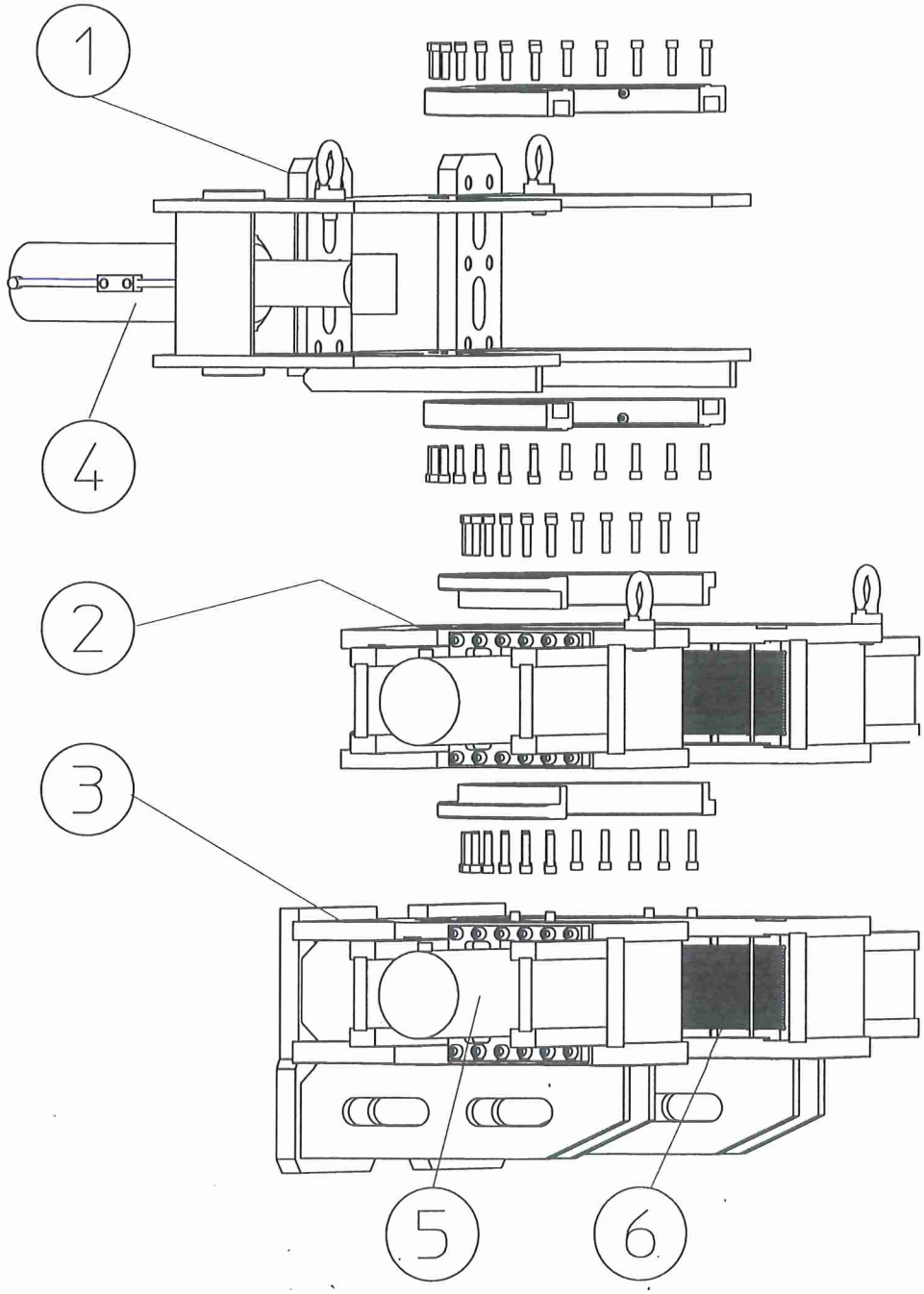


Fig. 1.3 - Components of the Revolving clamp

1	Cradle	2	Top swivel blocking clamp	3	Bottom fixed blocking clamp
4	Revolving cylinder	5	Blocking unit	6	Hardened inserts

1.9 Obligations and general recommendations

The revolving clamp must be considered potentially dangerous at all times: it could damage any part of the body caught inside it. The list of precautions must be taken both by operational staff as well as by maintenance staff. The user is obliged to observe all the instructions and provisions described herein.

For the correct operation of the device, please keep to the following general safety standards:

(1) Always wear suitable personal protection devices as specified by the company risk assessment and recommended in this manual;

(2) The workplace must be kept clean;

(3) Before embarking upon any maintenance work, switch off the hydraulic drill on which the clamp is fitted;

(4) Before pressurising the hydraulic system, make sure the clamp has been assembled correctly;

(5) Do not attempt to clean the revolving clamp or any of its parts when it is in use;

(6) Do not insert foreign bodies inside the revolving clamp;

(7) Always make sure no one else is anywhere near the clamps;

(8) No working on the revolving clamp in pairs.

2 TRANSPORTATION AND STORAGE

2.1 Storage conditions

Should the revolving clamp not be installed immediately, follow the instructions that follow: make sure the revolving clamp is indoors, on a flat surface; take the storage environment into account, and remember that the machine must be kept away from sources of heat and excess humidity; the unpainted parts should be coated with a thin layer of protective oil to avoid any oxidation.

The revolving clamp can be stored for approximately six months before commissioning, if the following precautions are taken:

- all the fittings envisaged for the revolving clamp connection pipes must be kept sealed;
- none of the components must be removed from the system;
- it must be stored in a dry place free of dust at an ambient temperature of between 0°C and 40°C.

After six months of storage, the lubricating and anti-oxidising properties of the fluid used for testing are no longer guaranteed.

2.2 Weight and dimensions

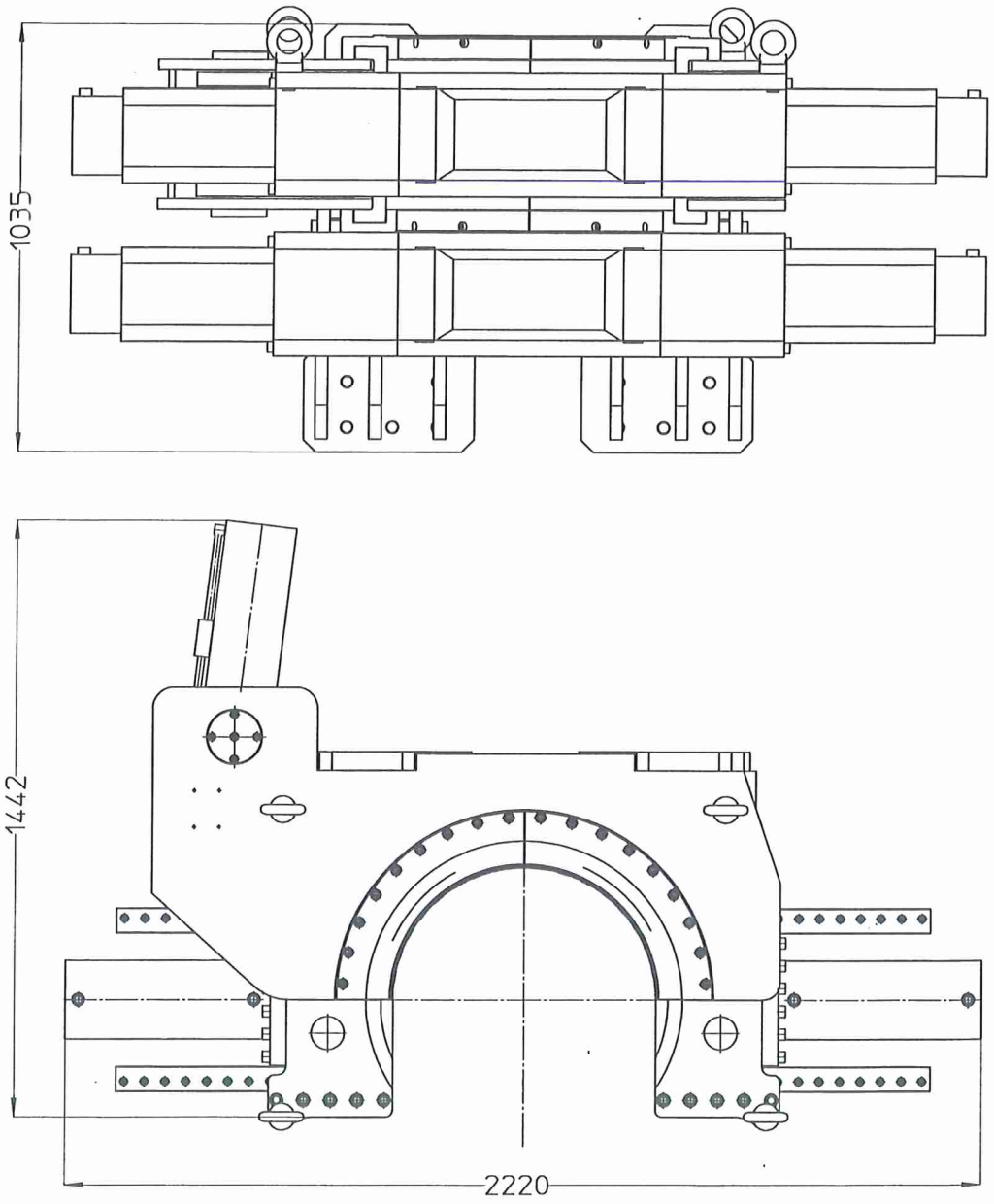


Fig. 2.1 - Clamp dimensions

Model	Height (mm)	Width (mm)	Depth (mm)	Weight (kg)
80-630	1035	2200	1442	3585

2.3 Lifting methods and transportation

2.3.1 Transportation

The revolving clamp must be transported by a vehicle suitable for the dimensions and weight of the clamp itself. Make sure the revolving clamp and its components are suitable anchored to the vehicle used for transportation.

WARNING!
The manufacturer will not be held liable for any damage to property or physical injury caused during transportation.

2.3.2 Lifting

The clamp was designed to be lifted with a crane with a suitable carrying capacity. The revolving clamp must be lifted using 2 belts of a suitable carrying capacity which are not provided with the clamp, at least 2,000 mm long (see fig.2.2)

WARNING!
We advise against using other types of lifting equipment.

WARNING!
Perform the lifting operations with all due precautions (e.g. make sure this is done by expert staff, do not stand underneath the load, etc.).

WARNING!
The manufacturer will not be held liable for any damage to property or physical injury caused during lifting.

WARNING!
The device must be kept horizontal when lifted. The belts used for the points of attachment must be at least 2,000 mm long.

WARNING!
The crane and the lifting belts must have a suitable carrying capacity for the device weight, which is 3585 kg. This value is also indicated on the CE data plate.

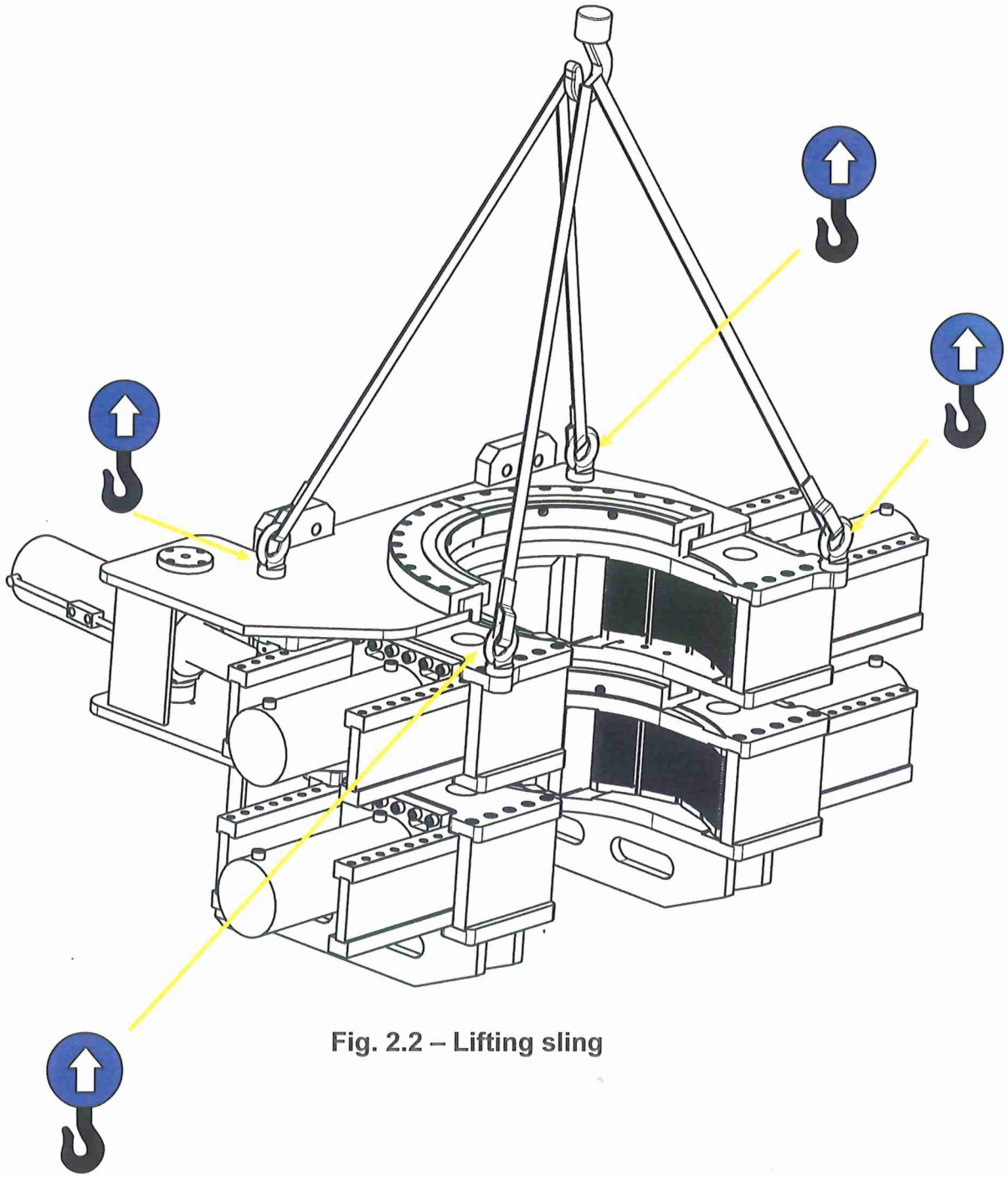


Fig. 2.2 – Lifting sling

3 REVOLVING CLAMP INSTALLATION

3.1 Packaging

Before proceeding with the next operations, check that the contents tally with the order and accompanying documents. The revolving clamp may be supplied packaged in cardboard, plastic and wood. When removing the packaging, take care not to damage parts of the revolving clamp.

CAUTION!
The packaging materials must be disposed of by the buyer in accordance with the applicable regulations in force in the country of use of the revolving clamp.

3.2 Compatibility check

Before fitting the device, check its mechanical and hydraulic compatibility with the machine on which it is to be installed.

3.2.1 Mechanical compatibility

Machine centre (MC):
distance between the Rotary axis and its connection plate (see Fig. 3.1)

Revolving clamp centre (RCC):
distance between the revolving clamp axis and its connection plate (see Fig. 3.1)

Make sure that:

1. The machine centre (MC) is the same as the revolving clamp centre RCC (600 mm).

MC = RCC

2. The holes on the machine connection plate must coincide with those on the revolving clamp indicated in fig. 3.3 of paragraph 3.3.1.

In the event that points 1 and 2 have not been checked, please provide Sgolastra & Giampaoli with the machine data in order to consider the installation of an adaptor plate together.

WARNING!
If MC < RCC, the device cannot be installed

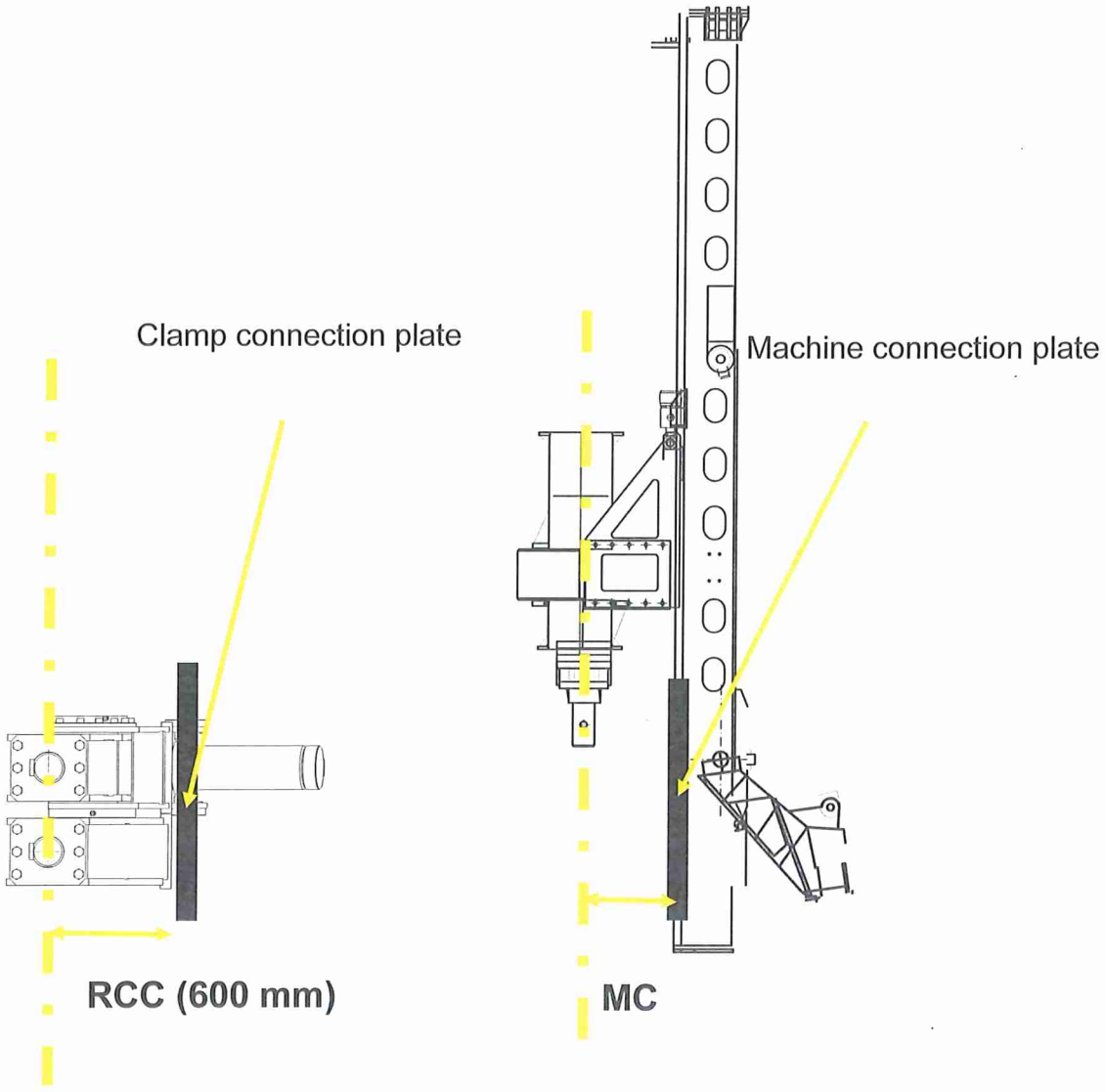


Fig. 3.1 - Machine centre MC and revolving clamp centre RCC

Note **The diagram of the machine is purely indicative and its sole purpose is to illustrate the meaning of the machine centre MC and revolving clamp centre RCC**

3.2.2 *Hydraulic compatibility*

To guarantee the performance levels and characteristics indicated in the technical data chart in paragraph 1.6 and for the safety of operators, check that the following conditions are observed on the machine/drill rig on which the revolving clamp will be fitted:

1. The machine/drill rig must be fitted with an auxiliary control unit with 3 levers to control:
   - The bottom fixed blocking clamp (opening and closing)
   - The top swivel blocking clamp (opening and closing)
   - The revolving cylinder (opening and closing)
2. The machine/drill rig must be designed to supply the blocking unit cylinders a maximum pressure of 250 bar
3. The machine/drill rig must be designed to interrupt and/or cut off the hydraulic supply to the clamp if need be
4. The machine/drill rig is equipped with a shut-off valve in the vicinity of the clamp to prevent a drop in pressure in the hydraulic circuit and the possible falling of the blocked items in the event of a breakdown (see also paragraph 3.3.2).
5. The control levers must operate as long as they are pushed or pulled and must be clearly identified. Envisage a filter before the distributor of the control levers.
6. The clamp opening and closing must be clearly indicated on the control levers using the symbols shown in 3.2
7. The auxiliary control unit must be placed at a safe distance from the danger zone A shown in fig. 4.3 during clamp use

	
clamp closing	clamp opening

Fig. 3.2 – Pictograms of clamp controls

3.2.3 *Rotary Compatibility*

The revolving clamp can only be used on machines/drill rigs with a max Rotary torque of less than:

2400 Kgm

3.3 Clamp assembly

3.3.1 Mechanical connection

The device must be fitted on the machine/drill rig, tightening the 32 M30 screws at a torque of 1500 Nm (cl. 8.8). Figure 3.3 illustrates the positions of the threaded slots in the revolving clamp connection plate.

To align the slots of the clamp connection plate with those of the machine/drill rig connection plate correctly, use suitable lifting equipment and observe the instructions provided in paragraph 2.3

WARNING!
The steps described in this paragraph must be performed before making the hydraulic connection described in paragraph 3.3.2

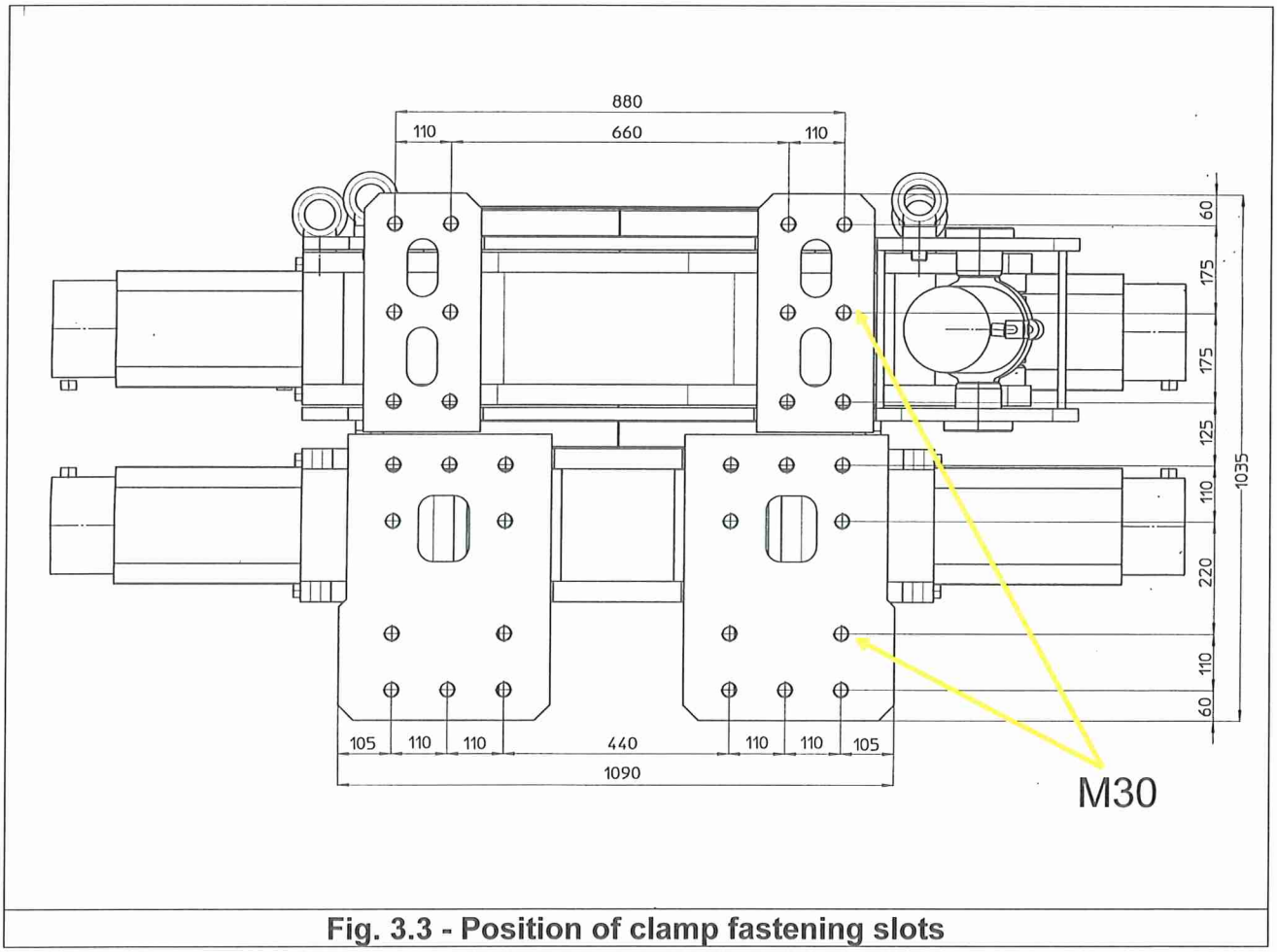


Fig. 3.3 - Position of clamp fastening slots

3.3.2 Hydraulic connections

Before connecting the hydraulic piping, immediately fit shut-off valves above the blocking cylinders. These valves should have the following characteristics:

TYPE	BRAND
VSG321.F25404 1/2"	CONTARINI LEOPOLDO Srl

The clamp must be connected to the piping from the auxiliary unit specified in paragraph 3.2.2. The piping required for the hydraulic connection must comply with the following requirements:

Blocking unit cylinders supply pipes	8 X R2AT 1/2" 330 Bar PIPES
Rotary cylinder supply pipes	2 X R2AT 3/8" 330 Bar PIPES

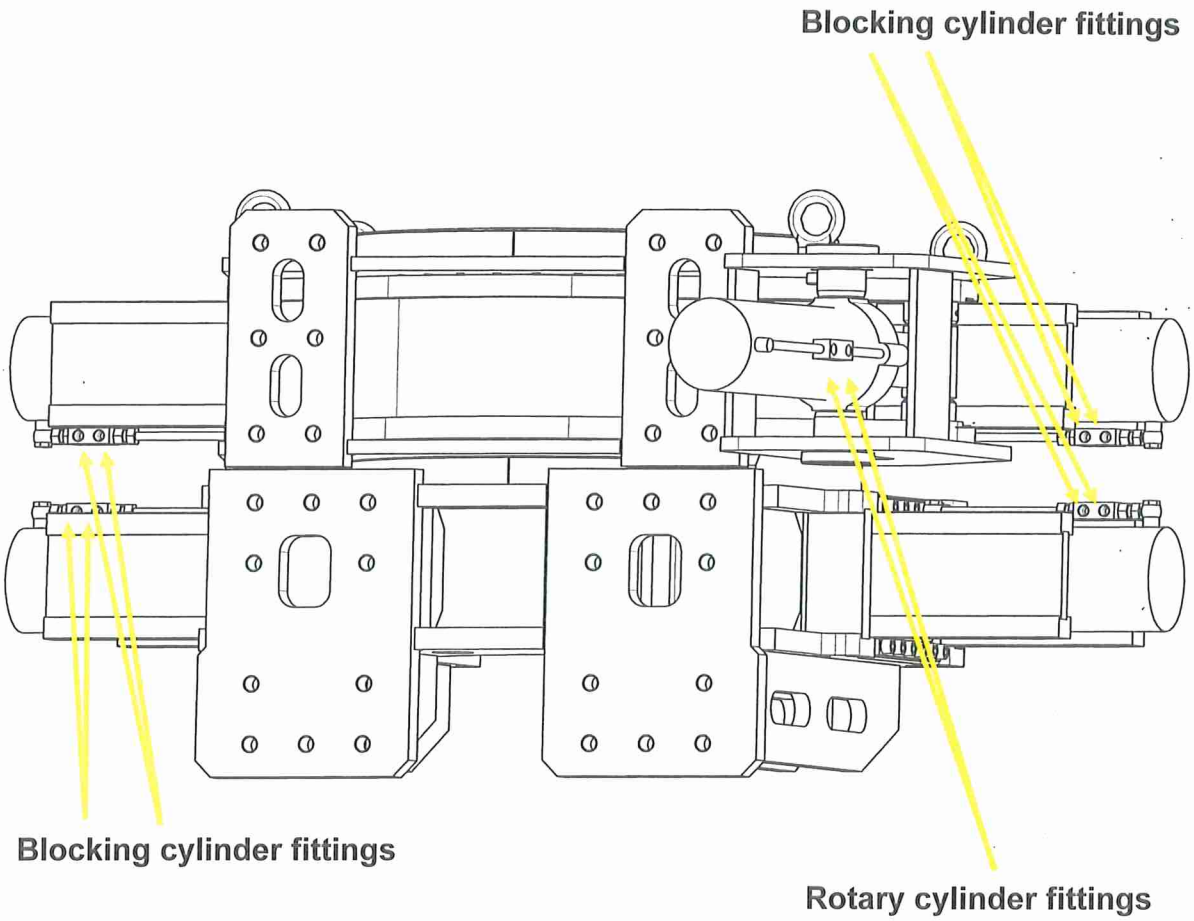


Fig. 3.4 - Position of hydraulic fittings

An indispensable condition for the guaranteed correct operation of the clamp is that the assembly is performed in conditions of maximum cleanliness. Once the piping has been connected, check that the control levers on the drill auxiliary unit operate the corresponding parts of the clamp. To check this, please follow the instructions provided in chapter 4. If the levers do not operate the corresponding parts of the clamp, repeat the installation of the pipes, taking care to shut off the hydraulic supply first and to observe the precautions specified in chapter 6.

WARNING!
The hydraulic connection must be performed by an expert. Observe the essential safety requirements for hydraulic transmission systems and their components (EN 982).

Once the piping is all connected, make sure that it is correctly strapped to prevent any pipe whipping and/or any oil leaks in the event of breakage.

WARNING!
Make sure the piping does not interfere with or get stuck in moving parts of the clamp.

WARNING!
The piping required for the hydraulic connection are not supplied with the revolving clamp

WARNING!
Top the machine immediately in the event of an oil leakage

3.3.3 *Replacement of hardened inserts*

The revolving clamp is supplied with 16 hardened inserts, each fitted onto the jaws of the blocking units with 2 retaining plugs. Replace them as follows:

WARNING!
Before performing this task, please read chapters 4 and 6.

1. Operate one of the two levers that control the clamp closing (see paragraph 3.2.2), pushing or pulling it just enough to release the blocking unit requiring replacement and shut off the hydraulic supply.
2. Using a suitable tool, knock the top and bottom roll pins off the insert requiring replacement (see fig. 3.5);
3. Remove the hardened insert from its seat

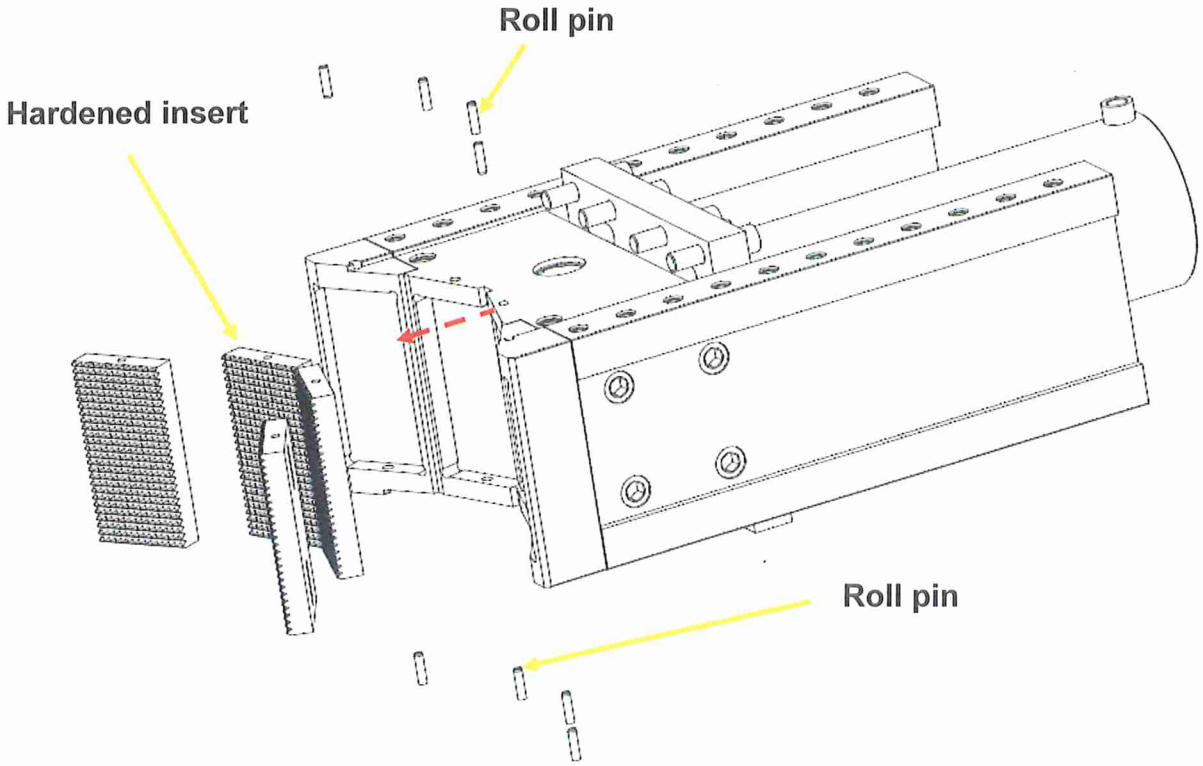


Fig. 3.5 - Replacement of hardened inserts

WARNING!
For the correct use of the hydraulic drill controls which operate the clamp, please refer to the relevant manual.

3.3.4 *Disassembling the external jaws*

Thanks to the eight removable external jaws (two on each blocking unit), the revolving clamp is designed to break out the following rod diameters:

External jaws not fitted	Rods with a diameter of between 80 and 420 mm
External jaws fitted	Rods with a diameter of between 425 and 630 mm

To disassemble the external jaws, proceed as follows:

WARNING!
Before performing this task, please read chapters 4 and 6.

1. Operate one of the two levers that control the jaw closing (see paragraph 3.2.2), pushing or pulling it just enough to release the blocking unit concerned by the disassembly of the external jaws and shut off the hydraulic supply.
2. Remove the Seeger ring
3. Pull out the pins and remove the jaws from their seat (see fig. 3.6)
4. Repeat this step on all the blocking units

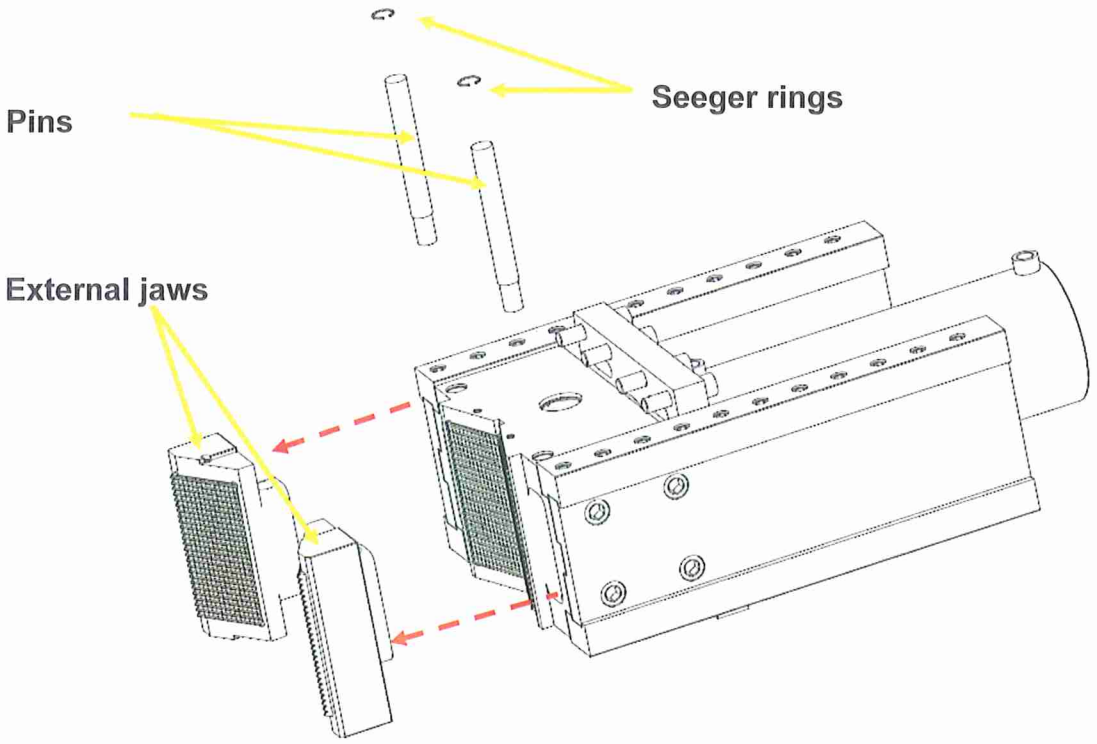


Fig. 3.6 - Disassembling the external jaws

WARNING!
For the correct use of the hydraulic drill controls which operate the clamp, please refer to the relevant manual.

WARNING!
Remember to disassemble all 8 external jaws when using rods with a diameter of between 80 and 420 mm

3.4 Space required to use the revolving clamp

A minimum amount of space must be arranged to avoid dangerous conditions for the operator. For the safe use of this machine, the above-mentioned amount of space is estimated indicatively as featuring the dimensions indicated in table3.1.

Clearance space between the Front and an obstacle:	**2,000 mm**
Clearance space between the Left Side and an obstacle:	**2,000 mm**
Clearance space between the Right Side and an obstacle:	**2,000 mm**

Table 3.1

4 REVOLVING CLAMP USE

4.1 Foreseen use

The revolving clamp is a piece of site equipment used for unscrewing drilling rods with a diameter of between 80 and 630 mm as described in paragraph 1.3 and with the technical specifications stated in paragraph 1.5. The device can only be used in conjunction with a hydraulic drill designed to guarantee the compatibility characteristics specified in paragraph 3.2.

WARNING!
Please refer to the relevant manual for the correct use of the hydraulic drill controls.

Once the revolving clamp has been correctly connected to the machine/hydraulic drill as described in paragraph 3.3, it should be used as follows (see also chapter 6 for commissioning):

1. **Operate the drill lever that controls the fixed blocking clamp: the bottom clamp tightens around the rod.**
2. **Operate the drill lever that controls the swivel blocking clamp: the top clamp tightens around the rod.**
3. **Operate the drill lever that controls the rotary unit: the rod is unscrewed as the top clamp rotates by 30 degrees inside the cradle.**

WARNING!
The revolving clamp only guarantees a max tightening torque of 50,150 kg if a blocking cylinder inlet pressure of 250 bar is guaranteed

WARNING!
Device use is only permitted according to the instructions given herein.

WARNING!
In the event of oil leakages, do not use the device and contact Sgolastra & Giampaoli s.r.l.

WARNING!
Use suitable protective gloves, safety shoes, goggles, a dust mask and/or any other Personal Protection Devices specified by the company risk assessment.

WARNING!
The drilling rod characteristics must be compatible with the force exercised by the clamp.

4.2 Foreseen abnormal use

Any use other than that specified in paragraph 4.1 is to be deemed abnormal.

No tampering with and/or processing and/or changing the mechanical parts of the device.

No tampering with and/or processing and/or changing the cylinder shut-off valves.

In the event of doubts regarding revolving clamp use, turn it off and consult this manual.

During revolving clamp use, do not insert foreign bodies inside the danger zone A (see para. 4.4)

4.3 Unpermitted use

The following uses are **NOT** permitted:

Standing within the range of action of the clamp during the tightening and unscrewing operations.

Using the device in explosive atmospheres.

Using the device on items other than those specified in the technical data chart in paragraph 1.6

Applying an operating pressure of more than 250 bar.

Blocking the rods with just one clamp.

During revolving clamp use, do not insert foreign bodies inside the danger zone A (see para. 4.4)

4.4 Residual risks

The risks of the clamp breaking were eliminated thanks to correct design planning. However, some residual risks linked to the operating cycle remain:

A) crushing due to the related movement of some components in the following zones:

1. between the fixed clamp and the rod;
2. between the swivel clamp and the rod;

B) pressurised fluid:

1. the blocking unit cylinders are fitted with a non-return valve and if they are left in the closed position they remain pressurised even after the supply unit has been switched off.

C) rod movement

1. The positioning and/or withdrawal of the rod between the clamps must be performed by expert staff familiar with the safety regulations concerning these operations.

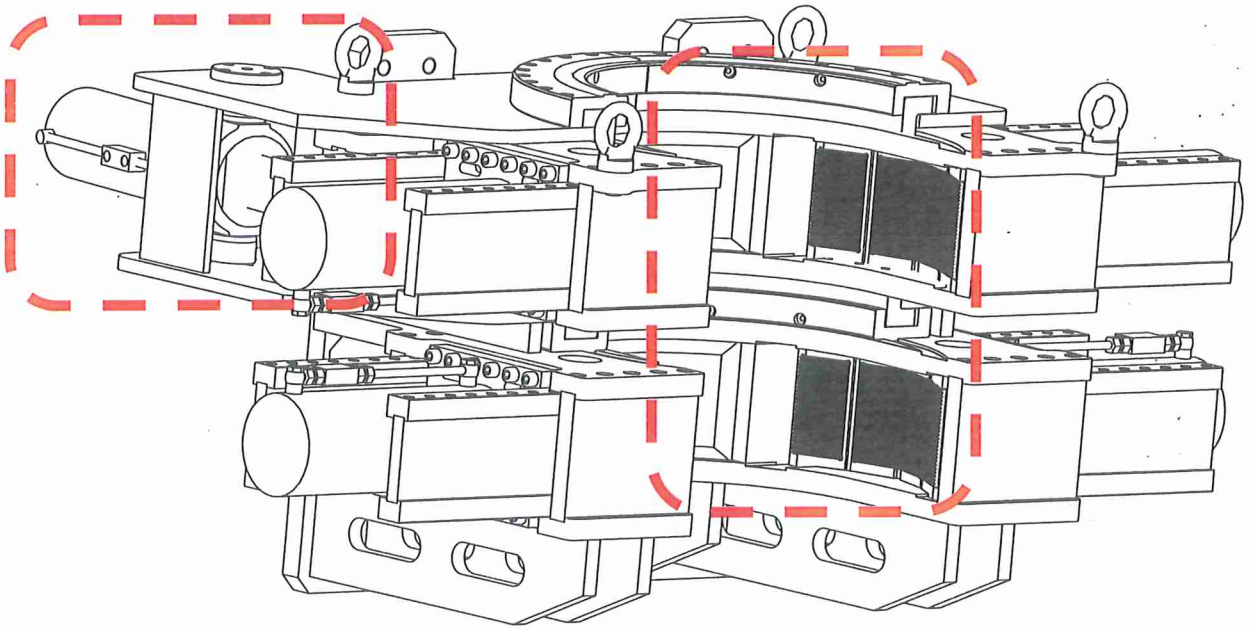


Fig 4.1 – Areas with residual risk of crushing

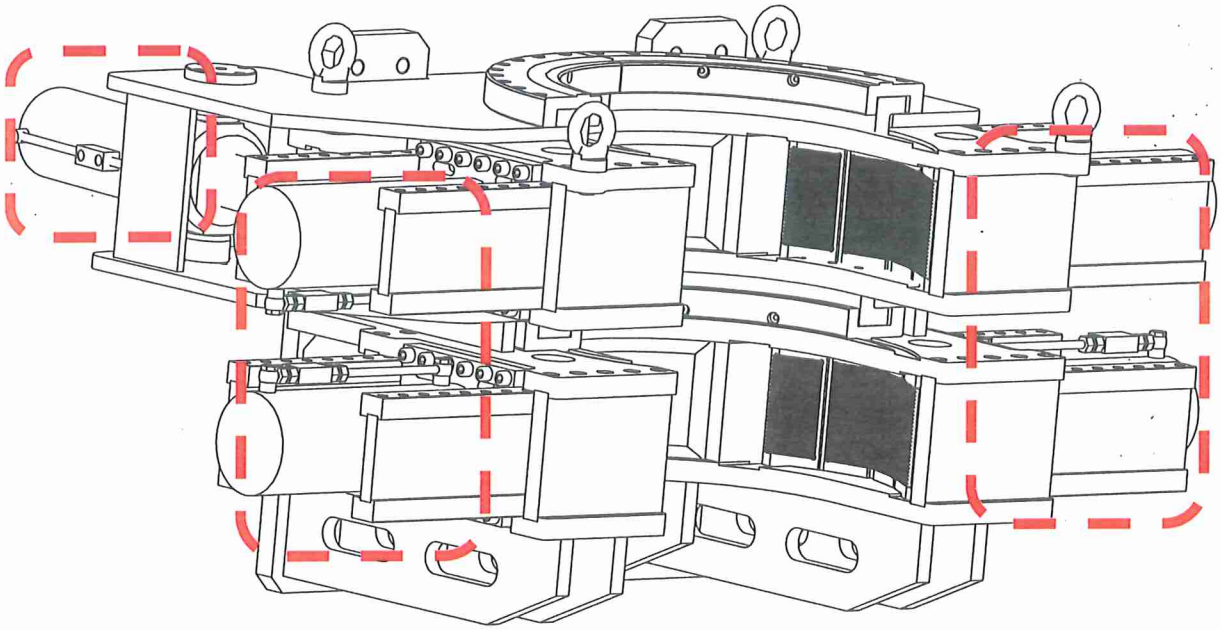


Fig 4.2 – Zones with residual risk of pressurised fluid

Note

We feel it is our duty to signal that zero risk for the operator is only achieved through the combined action of these devices with the training measures given to the staff of the company where the revolving clamp is installed. Without these barriers which we can define as **extrinsic**, which depend on the level of corporate organisation, it will not be possible ever to achieve a risk for the operator that can be considered as null.

4.5 Operator position

During clamp closing and rod unscrewing operations, the operator must stand in front of the control levers on the auxiliary unit of the hydraulic drill (see paragraph 3.2.2). Before operating the control levers, the operator should make sure no one is in zone A - indicated with a red dotted line in figure 4.3.

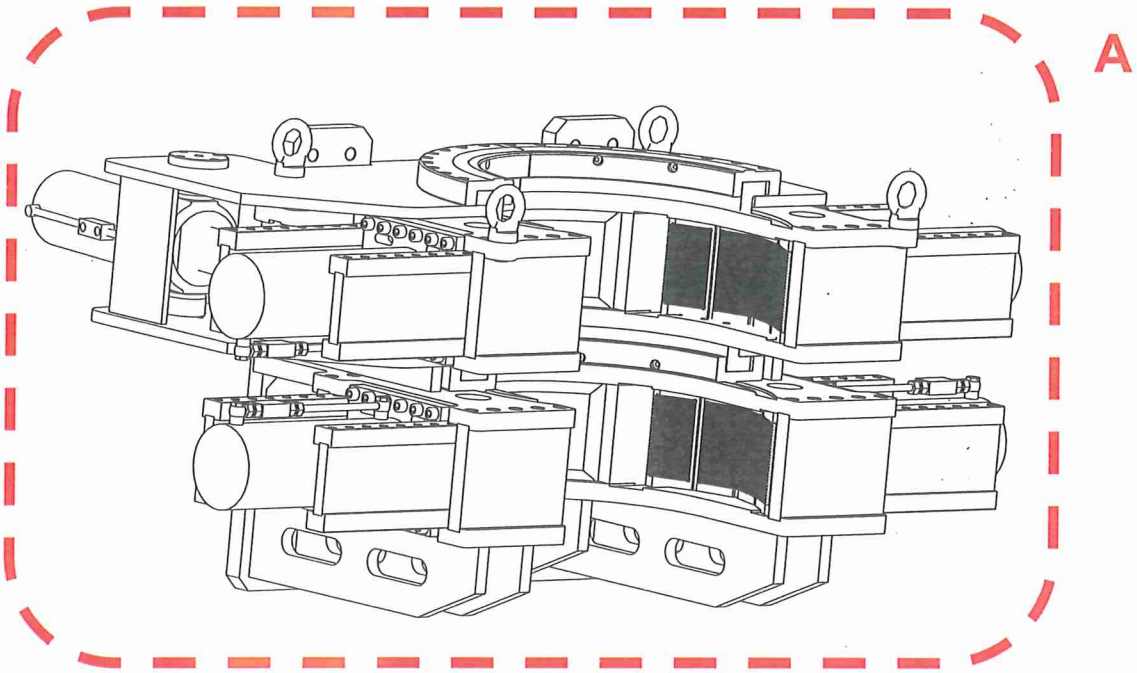


Fig 4.3

WARNING!
Access to the danger zone A must only be limited to the rod unloading operations and is only allowed for authorised staff with special qualifications. Standing within the range of action of the clamps during the tightening and unscrewing operations is not permitted.

WARNING!
Plan the workplace where the revolving clamp is to be positioned in such a way as to allow access to zone A to expert staff only. We recommend sectioning off zone A with a protective perimeter (not provided) to indicate no entry to unauthorised staff.

5 COMMISSIONING

5.1 Pre-operational checks

Before proceeding with commissioning, check that:

- the revolving clamp has been installed correctly in accordance with the instructions provided in chapter 3;
- no foreign object or person is left inside the revolving clamp danger zone A shown in fig. 4.3.

5.2 Revolving clamp use

Once all the operations required for installation have been performed, the revolving clamp is ready for commissioning. The revolving clamp must be used solely for unscrewing drilling rods

WARNING!
An INSTRUCTED PERSON can access this operating mode.

WARNING!
The first commissioning operation should be performed by an EXPERT PERSON who has read this manual.

WARNING!
Before operating the revolving clamp, check that there is no one near the clamps.

WARNING!
No working on the revolving clamp in pairs.

WARNING!
Do not operate the revolving clamp in the event of oil leaks.

WARNING!
Check the correct operation and positioning of all the guards before using the revolving clamp.

WARNING!
Before operating the revolving clamp, check that there are no foreign objects in the clamps which could be projected or which could block the operation of the moving parts.

WARNING!
Before operating the revolving clamp, make sure it has been assembled correctly

WARNING!
Do not tamper with the shut-off valves, otherwise the CE mark will be invalid, as will the manufacturer's guarantee and the safety of the device.

5.2.1 Unscrewing procedure

Check that the clamps are completely open and proceed with the following operations:

1. using the control levers, open both the clamps so as to remove any differences in travel between the blocking cylinder rods;
2. stand in front of the control levers and make sure no one is near the zone A shown in fig. 4.3;
3. tighten the rod with the lever that operates the **bottom fixed blocking clamp**

WARNING!
Make sure the rod to be unscrewed is tightened correctly in the fixed clamp

4. tighten the rod with the lever that operates the **top swivel blocking clamp**
5. unscrew the rod with the lever that operates the **rotary cylinder**
6. open the **top swivel blocking clamp**
7. return the swivel clamp to its original position using the lever that operates the **rotary cylinder**
8. repeat from step 4 to 7 until the rod is unscrewed
9. switch the drill off and complete the separation of the rod manually or with the aid of lifting equipment

CAUTION!
After three unscrewing operations, open the blocking cylinders COMPLETELY so as to rebalance the pressure in the hydraulic circuit.

WARNING!
The movement of the clamps during the rod tightening can lead to the crushing of the operator's hands if these are accidentally found to be between the clamps and the rod.

WARNING!
The clamp controls operate as long as the levers are pushed or pulled. As soon as they are released, the travel of the blocking cylinders stops immediately.

WARNING!
Access to the danger zone A shown in fig. 4.3 must only be limited to the rod loading and unloading operations and is only allowed for authorised staff with special qualifications. Standing within the range of action of the clamps during the tightening operation is not permitted.

WARNING!
The entire zone must be sectioned off with a protective perimeter not supplied with the revolving clamp to signal NO ENTRY TO UNAUTHORISED STAFF.

WARNING!
The positioning and/or withdrawal of the rod between the clamps must be performed by expert staff familiar with the safety regulations concerning these operations.

WARNING!
Do not insert foreign bodies between the part to be unscrewed and the clamps.

CAUTION!
Failure to reset the clamps could damage the rod to be unscrewed

6 MAINTENANCE

6.1 Warnings

Before embarking upon any maintenance work, assess the complexity of the working activity in order to make the correct choice of the staff members to perform the work (trained and expert staff, trained and instructed staff, normal people) and the related tasks.

WARNING!
Once the maintenance work is complete, always reposition any signs, guards and safety devices removed.

WARNING!
For maintenance work, use suitable protective gloves, safety shoes, a dust mask, goggles and/or any other Personal Protection Devices specified by the company risk assessment.

Perform the maintenance work in a well-lit place.

WARNING!
The revolving clamp is not fitted with its own light. Perform all maintenance work in a well-lit zone.

WARNING!
If parts of the body come into contact with the hydraulic oil, follow the instructions provided in the relevant safety data chart.

6.2 Revolving clamp isolation

Before performing any assembly, maintenance, replacement or repair work and when the revolving clamp is out of order:

Isolate the revolving clamp from its hydraulic supply

Put up a sign saying: MACHINE OUT OF ORDER.

6.3 Working on the revolving clamp

Work can be divided up into:

- preventive and routine maintenance - concerning all operations designed to keep the revolving clamp efficient and to restore its functionality. This type of work can be performed by an **instructed person**;
- extraordinary maintenance – concerning all operations - including unscheduled ones - due to faults, malfunctions or replacement of spare parts. This type of work can be performed by an **expert and qualified person**.

6.3.1 Routine maintenance

PREVENTIVE AND ROUTINE MAINTENANCE			
Work		Frequency (hours)	Method
Greasing	cradle (4 grease cups)	40	Apply type LIPLEX EP2 (VANGUARD) grease to the grease cups indicated in figure 6.1
	rotary cylinder pivots (2 grease cups)		
		40	Apply type LIPLEX EP2 (VANGUARD) grease directly onto the guides
Tightening of screws on the connection plate		300	Make sure the screws are tightened correctly as specified in para. 3.3.1.
Tightening of screws on the blocking units		300	Make sure the screws are tightened correctly.
Tightening of fittings		300	Visually check that there are no oil leaks and tighten them if necessary
Cleaning		After every work cycle	We recommend you clean the clamp thoroughly with water at the end of every work cycle
Hardened inserts		After every work cycle	Visually check the condition of the inserts, and replace them if necessary as specified in para. 3.3.3.
Signs		2000	Check that all the pictograms specified in chapter 1 are present and positioned correctly

Table 6.1

WARNING!
Routine and preventive maintenance operations must be performed by an instructed person.

Note The frequency of the maintenance work is set for a revolving clamp use of 8 hours a day under normal working conditions. If the machine use is different, the maintenance must be adapted accordingly.

6.3.2 *Extraordinary maintenance*

Description	Quantity	Frequency	Method
Blocking cylinder	4	/	See spare parts catalogue and contact Sgolastra & Giampaoli Srl
Rotary cylinder	1	/	
Replacement of hardened inserts	16	-	(see para. 3.3.3)

Table 6.2

WARNING!
The replacement of spare parts must be performed by expert and qualified staff.

WARNING!
Do not perform operations or work not envisaged in this manual.

6.4 Lubrication points

Some parts of the revolving clamp require greasing according to the frequency indicated in paragraph 6.3.1. Figure 6.1 shows the positions of the grease cups and guides requiring greasing.

1. CRADLE (4 grease cups) (see also the attached catalogue of spare parts TABLE A – FIFTH WHEELS)
2. ROTARY CYLINDER PIVOTS (3 grease cups) (see also the attached catalogue of spare parts TABLE D – part 16)

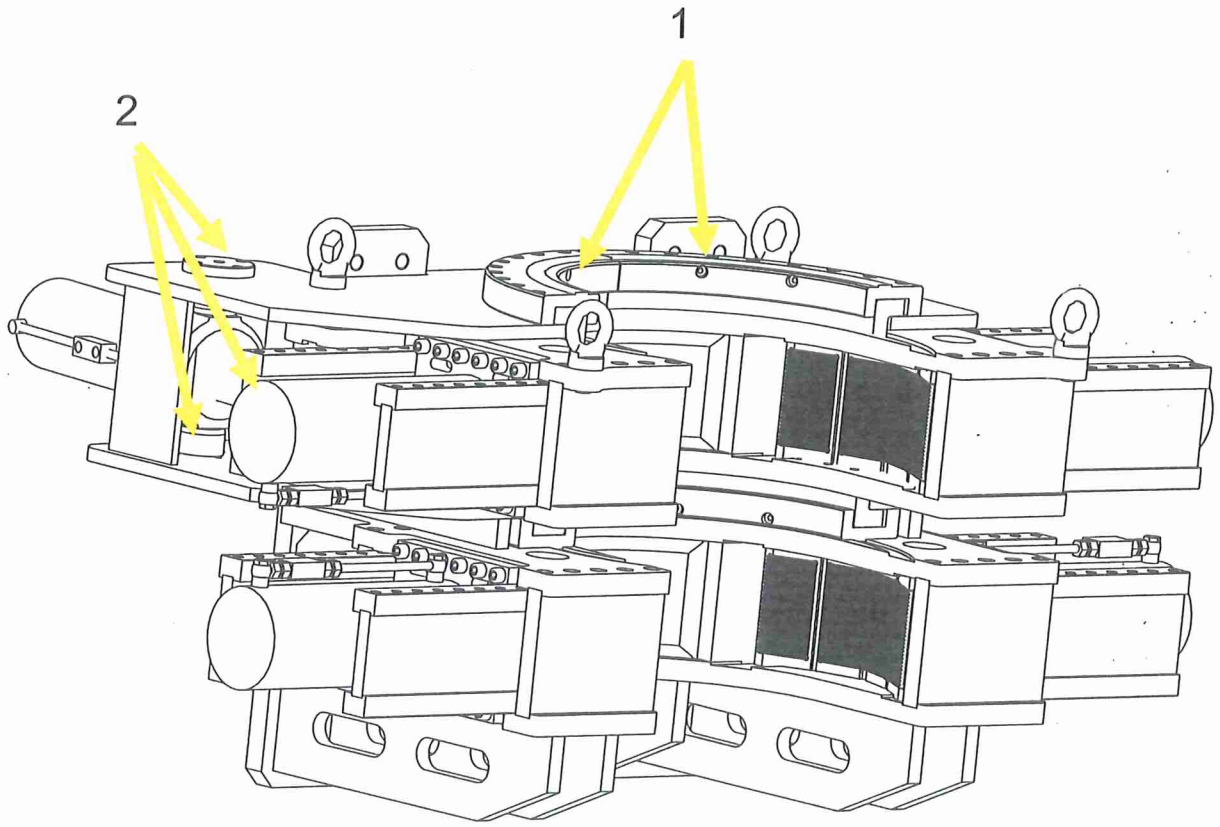


Fig. 6.1 – View of greasing points

6.5 Problems: causes and solutions

This chapter explains how to troubleshoot the most common problems encountered during revolving clamp use. Read this chapter when you come across an operating anomaly before calling for technical assistance. The solution of more complex problems will require an expert and qualified staff member.

Problems	Probable causes	Possible solutions
The drill control levers do not operate the corresponding parts	Incorrect piping connection	Repeat the piping connection correctly
Fluid leaking from piping or fittings	The pipes were not assembled correctly during clamp installation	Shut off the hydraulic supply to the revolving clamp and tighten and/or replace the pipe or fitting.
Air in the circuit	- Seal defect	- Replace the seals - Reposition the seal correctly
Insufficient pressure	- Seal defect - Leaks from valves	- Replace the seals - Reposition the seal correctly - Check any kinks in the pipes or excessive oil viscosity - Check the seal
Poor tightening and/or unscrewing torque	- Worn hardened inserts	- Replace hardened inserts
Excessive oil overheating	- Pressure too high	- Adjust to the correct pressure
Leaks from the seals	- Abrasives in the oil - Pressure too high - Oil temperature too high	- Replace cartridges and seals - Adjust to the correct pressure - Cool the oil and replace the seals
Possible leaks or valve blockages	- Shut-off valve leakage - Slide valves blocked due to dirt in the circuit	- Dismount and blow on it (replace if necessary) - Try to add filtering elements to the circuit, to achieve more powerful filtering (25 microns)

Table 6.5

7 DECOMMISIONING

7.1 Dismantling and disposal

When you decide to end the operating life of the revolving clamp, it can be scrapped. To do this, first perform the following operations:

- remove all hydraulic components;
- remove any hydraulic fluid present
- divide up and remove alloy parts or those made of metals other than steel.

Everything you remove should be collected and recycled appropriately, whereas the rest of the revolving clamp can be scrapped like any normal metal assembly.

WARNING!
The revolving clamp must be demolished according to the applicable laws in force in the country of use should more restrictive measures be in force there.

WARNING!
This operation must be performed by an expert person familiar with the disposal procedures.

CAUTION!
Hydraulic fluids are bound by special disposal regulations: it is absolutely forbidden to dispose of hydraulic fluids into the environment and so their disposal should be performed in compliance with the manufacturer's instructions and provisions and in observance of the applicable legal provisions in force.

8 MANUFACTURER'S DISCLOSURE

Please read this instruction manual carefully before you begin using this revolving clamp. For the safety of all users, the revolving clamp must be kept in excellent working order.
The purpose of this form is to certify that the machine installed works correctly, and that the revolving clamp was delivered with the use and maintenance manual and the operator takes responsibility to follow it.

WARNING!

This manual was written for YOUR safety. Keep it in a safe place for easy reference. This device is intended only for the use for which it was conceived; any other use is understood to be inappropriate. The manufacturer denies all civil or criminal responsibility in the event of accidents due to any modifications made to the system, following delivery, and not performed by a specialised staff member. The equipment must only be used by INSTRUCTED AND EXPERT staff members trained specifically in its use.

SIGNED COPY TO BE RETURNED AS QUICKLY AS POSSIBLE AFTER THE MACHINE HAS BEEN COMMISSIONED

NAME.....

MODEL.....

SERIAL NUMBER.....

YEAR OF MANUFACTURE.....

SIGNATURE.....

GUARANTEE CONDITIONS

The revolving clamp or the mechanical parts of the revolving clamp found to be defective at their origin are covered by the guarantee (see Contract Terms).
During the guarantee period, all disassembly or replacement of parts must be performed in the presence of **SGOLASTRA & GIAMPAOLI S.r.l.** specialised technical staff, otherwise the guarantee will be invalid.

Any damage incurred by the revolving clamp following use other than that agreed upon will not be covered by the guarantee.

9 ATTACHMENTS

- M80-630 EC DECLARATION OF CONFORMITY
- M80-630 TEST CERTIFICATE
- M80-630 CATALOGUE OF SPARE PARTS