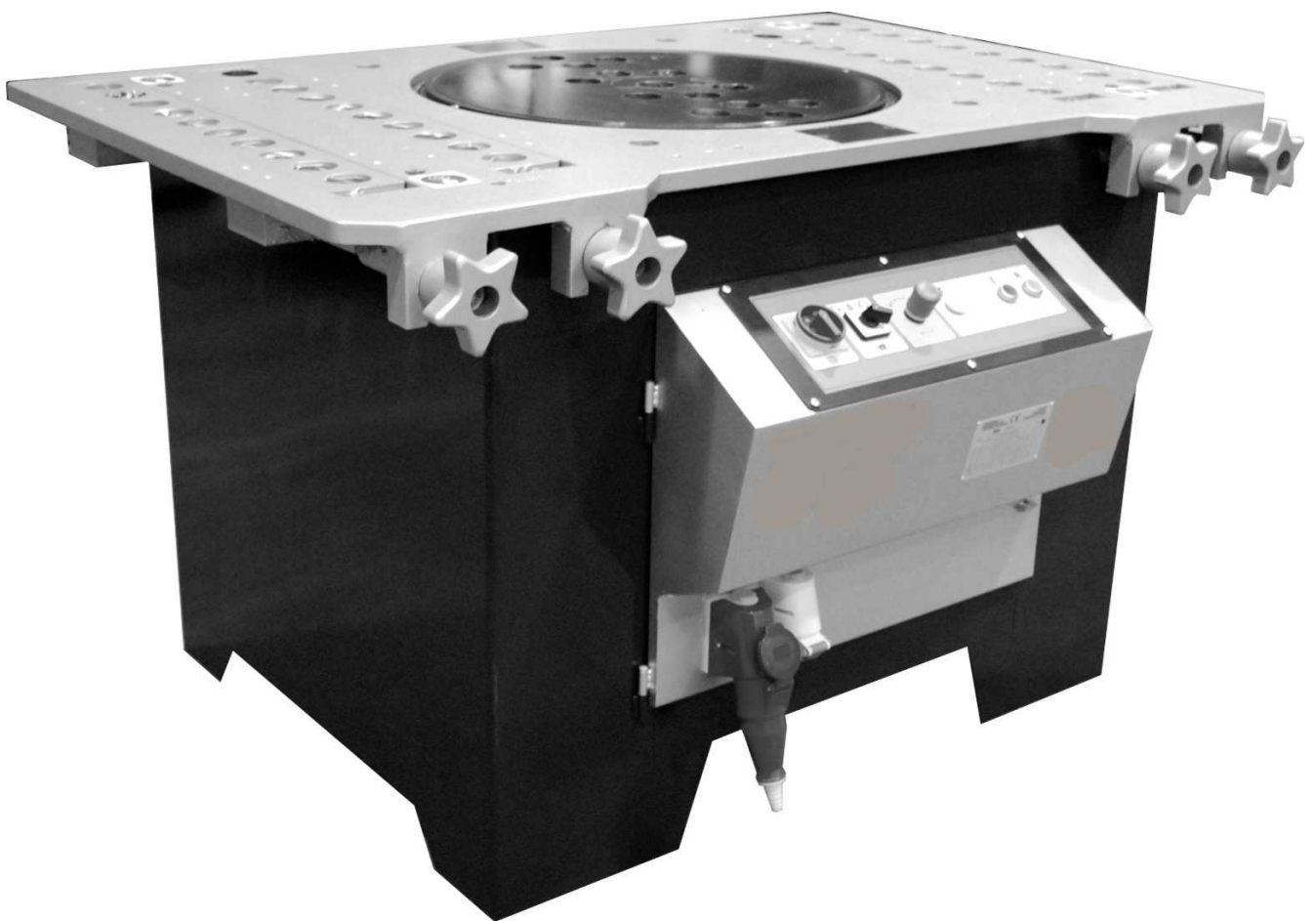


# User manual

## **P74 EVO** **BENDING MACHINE**




## DESCRIPTION

### Applications

The machine is designed to bend steel bars for uses in the concrete industry.

Table with specifications of the diameters of rod irons (in mm) machine is capable of bending.

The diameters are specified according to the hardness to the material (R) and the number of rod irons to be bent simultaneously.

∅ mm	R. 65 Kg/mm <sup>2</sup> 650 N/mm <sup>2</sup>				R. 85 Kg/mm <sup>2</sup> 850 N/mm <sup>2</sup>				R.p.m.	Motor	
	1	2	3	4	1	2	3	4			HP
<b>P74 Evo</b>	60	42	34	-	50	36	30	-	5	10	7,5

### Unsuitable applications

The machine is unsuitable for all uses not explicitly stated in *Applications*, in particular:

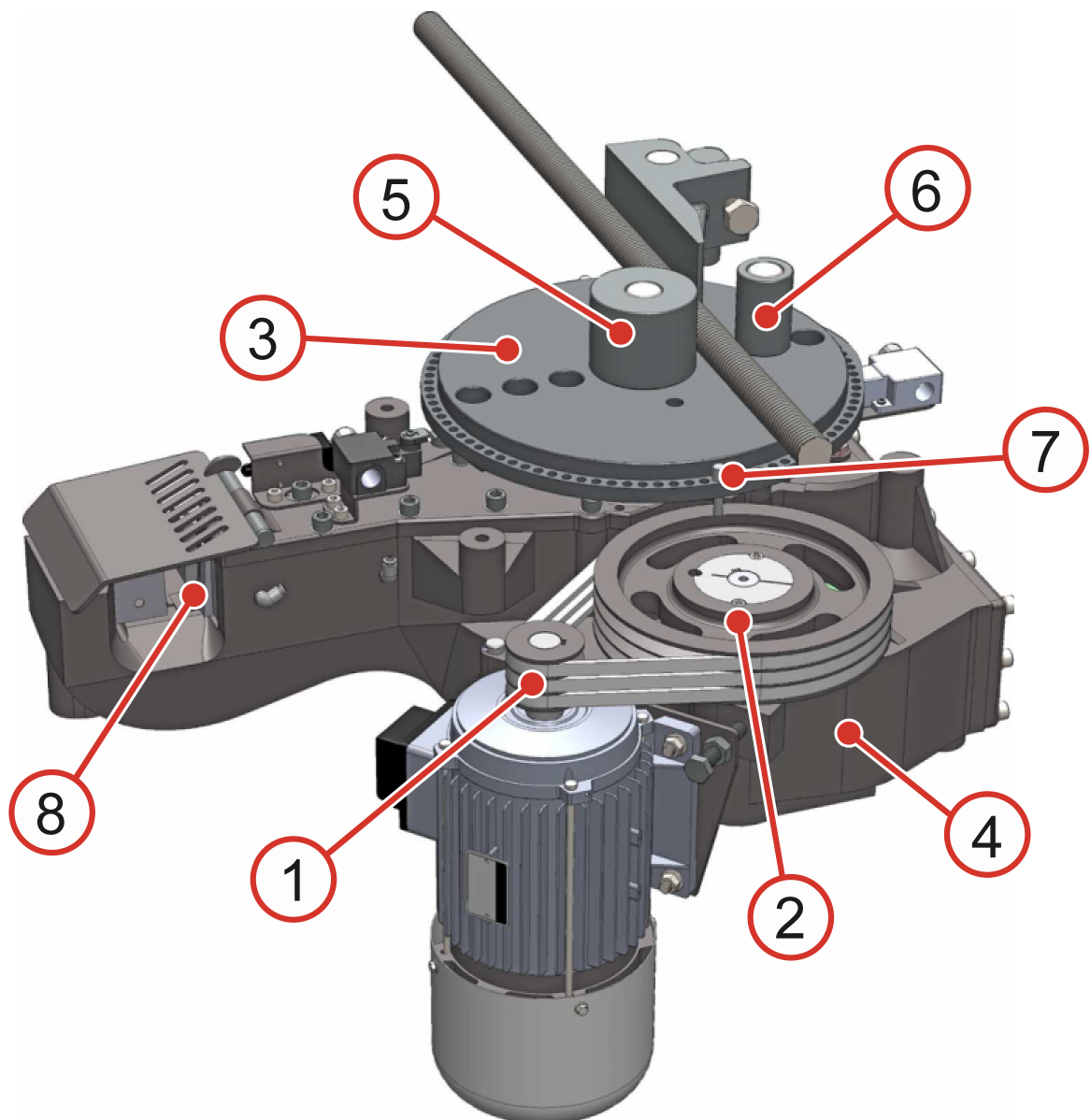
- Use of materials different from those specified.
- Use of materials with a diameter different from that specified.
- Use of the machine in an explosive environment.

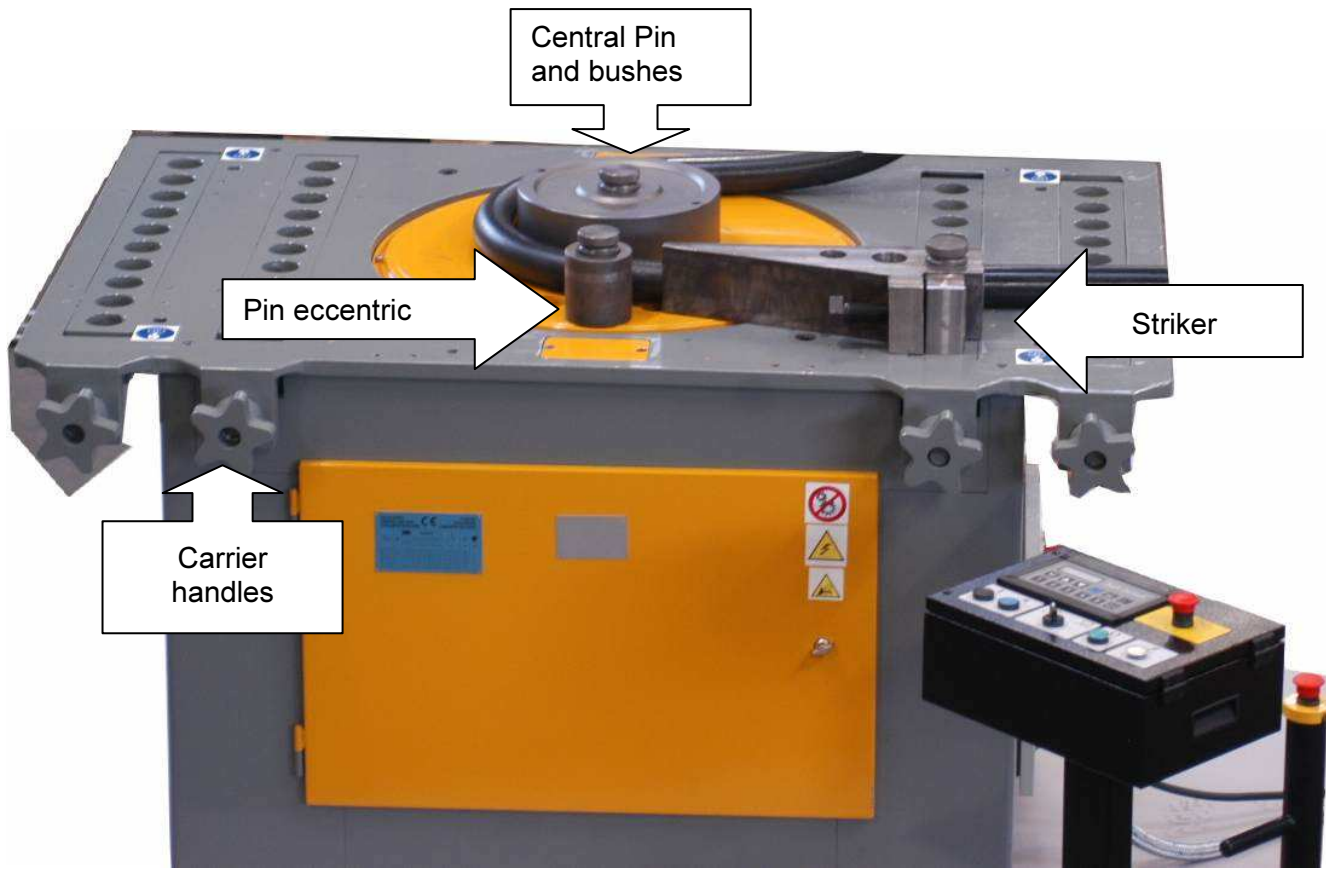


The model of the purchased machine, serial number and the year of manufacture are on the manufacturer's serial plate.

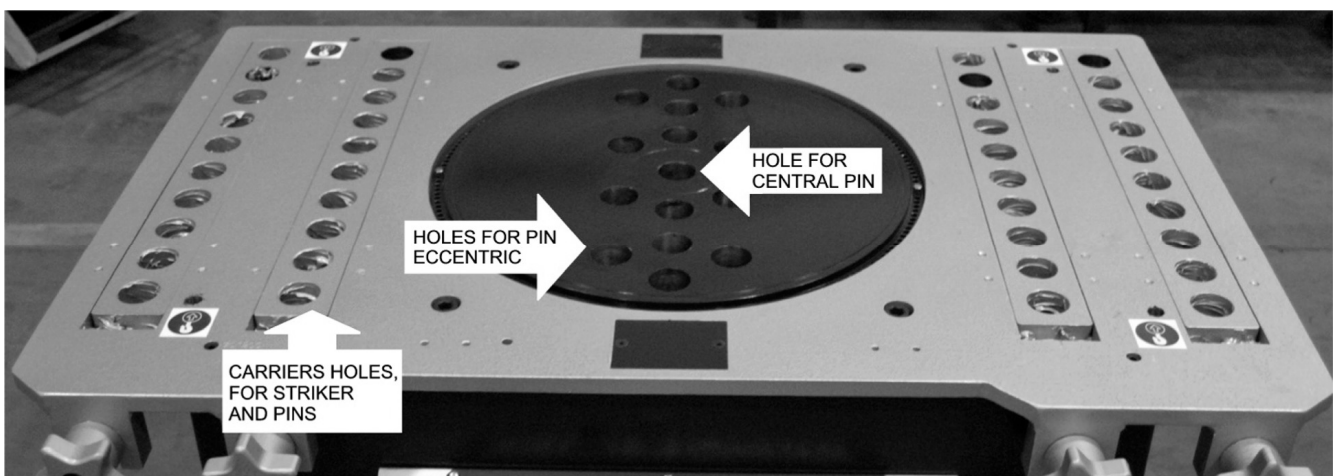
## Description and operating principle

- A self-braking electric motor rotates pulley 1.
- Pulley 1 provides rotation to pulley 2 via three belts.
- The pulley 2 transmits the movement to the central plate 3 by means of the reducer 4.
- Rotation of the central plate 3 bends the rod, via the action of the central pin 5 and movable pin 6 inserted in one of the housing holes.
- Various bushes can be mounted on the pins according to the type of rod iron to be bent.
- The outer part of the central plate 3 is provided with numerous holes for insertion of the plate rotation adjustment pegs 7.





(SEPARATELY CONTROL PANEL ONLY IN ANGLE CONTROL VERSION ↑ )



## SAFETY INFORMATION

### Safety features

- The structure of the frame prevents access to gears, belts and moving parts of the transmission. The access door to the internal compartment has a safety microswitch which stops the machine if it is opened.
- Continuously pressed safety controls (dead man) to allow the bending and cutting of rod irons:
  - a button on the control panel
  - a guarded pedal to prevent accidental operation.
 When a continuously pressed control is released, the bending action is stopped using an electromagnetic brake.
- The electromagnetic brake stops the motor and the moving parts as soon as the machine is stopped or the power to the motor is removed.
- Fuses and thermal relay for the electric motor.
- Two red emergency stop buttons.

### Operator safety



Use gloves to move rod irons to avoid abrasions and cuts caused by the material surface.



Use safety shoes to avoid injury to feet from falling heavy bars.

### Noise

Equivalent of continuous acoustic noise level : 75 dB (A).  
Average figure at a distance of 1 m from the machine.

### Precautions



Danger of crushing and cutting of fingers during bending!

### Precautions



- It is forbidden to reach the bending area with hands.
- Keep the rod iron in place using the striker, pins and bush supplied.
- Carry out work on the machine and maintenance only when the machine is off, with the power plug removed.



Danger of electric shock!



**Precautions**

- Protection from electric shock is based on correct connection to the protective earth: the electrical system which the machinery is to be connected to must conform to current legislation.
- The socket that the machine is connected to must be protected upstream by the installer with a residual current circuit breaker (operating threshold not more than 30mA).
- Do not use extensions.
- Ensure that cables between the mains plug and the machine are not in areas of movement and nevertheless, not damaged or trapped.
- Carry out work on the machine and maintenance only when the machine is off, with the power plug removed.

**TRANSPORT**

The machine is supplied on a wooden pallet covered in cellophane.



The machine must be protected from the elements.

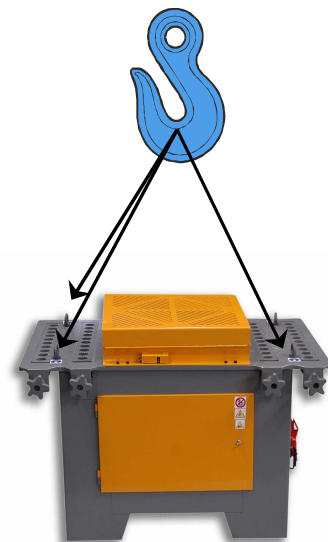
- The machine is supplied with 4 holes (M22) for eye bolts on the frame plate.
- Use ropes or chains of sufficient strength for the model to be lifted, using hooks in the holes or the eye bolts, depending on the version ordered.

Initially, only lift a few centimetres from the ground and ensure the machine is raised level with the ground and the load is balanced.



**Danger!** Remove the accessories from the drawer, to avoid them accidentally falling out and check it is closed when lifting.

Dimensions L x P x A (cm)	Weight kg
160 x 116 x 96	1600



## INSTALLATION

### Description of the supply

The following are supplied, in the drawer inside the machine:

1. N°1 striker,
2. N°1 square pin,
3. N°1 bracket bending pin,
4. N°5 three pins and various bushes,
5. N°3 Allen keys for maintenance,
6. User manual.

### Positioning

As well as the actual area required for the machine the following requirements must be satisfied:

- The electric power source must be near to the siting of the machine.
- The standing surface for the machine must be strong enough to support its weight and smooth and level to allow stable positioning.
- The environment must be well lit to allow safe use and maintenance of the machine.
- The area must be sufficient for the machine and the material which is to be loaded and processed. A distance of at least 1 m from a wall must be maintained to safely carry out normal operation and maintenance. It must always be possible to reach the control panel.
- Normal operating temperature:  $-5^{\circ}\text{C}$  to  $+40^{\circ}\text{C}$ .
- Relative humidity limits: 30% to 90% (at  $20^{\circ}\text{C}$ ).
- The area must be protected from the elements; in particular, rain and snow.

### Checking the electrical specification

The machine is supplied with the electrical system requested by the customer.

Always check the figures on the plate on the motor are compatible with the electrical system before connecting the power supply. The voltage (in Volts), the frequency (in Hz), the current (in A) or power (in kW) must correspond with the electrical power supply.

### Electrical connections

The power cable and power plug (32A, 400V) provide connection to a protective earth.



**Danger!** Electrical safety of the machine is based on correct connection to a protective earth.









For connection to the electrical system, use a cable with the following characteristics:

- With a plug of the correct type to fit the socket to be used.
- Of sufficient capacity (allow a minimum section of  $6\text{ mm}^2$  as conductor).
- Sufficiently isolated from the surrounding environment.

## USE

### Control panel

<p><b>Main switch</b></p>		<p>0: OFF I: ON</p>
<p><b>Motor rotation direction selector switch</b></p>		<p>The button on the control panel allows the user to select the direction of rotation of the central plate without having to alter the electrical connection. <b>The arrows on the button are for indication only because the actual direction of rotation depends on the electrical phase.</b></p>
<p><b>POWER</b></p>		<p>Voltage indicator.</p>
<p><b>START</b></p>		<p>Start button (only in Manual mode). Continuous pressure safety button: the button must be constantly pressed to allow the rotation action. The rotation stops immediately if the button is released. When the point of reversing the rotation is reached the return movement is automatic.</p>
<p><b>RETURN</b></p>		<p>The button controls the return of the central plate to the zero point of the rotation.</p>
<p><b>Emergency stop</b></p>		<p>Emergency stop: it stop all machine movements.</p>



## DIAGNOSTICS

Problem	Action
The voltage indicator does not light when the motor rotation direction selector switch is turned and the machine does not operate.	<ul style="list-style-type: none"> <li>• Check that the power plug is inserted.</li> <li>• Check that all the input phases are connected.</li> <li>• Check that the safety cut-out switch has not been activated.</li> </ul>
The voltage indicator is lit but the machine does not operate.	<ul style="list-style-type: none"> <li>• Check that none of the emergency stop buttons have been pressed.</li> <li>• Check that the door is closed.</li> <li>• Check that a phase has been selected.</li> <li>• Check that the safety cut-out switch has not been activated.</li> <li>• Check there is power to the site.</li> <li>• Check that the cables are connected to the terminal box, the plugs and sockets.</li> </ul>
The machine does not work when the start button or the pedal are pressed. The voltage and power supply indicators are lit.	Check if one of the micro switches may be faulty.
Lack of power when bending.	Check the tension of the belts. If they are slack, unscrew the motor retaining nuts slightly, tighten the belts using the tensioner provided and tighten the nuts.
The central plate turns but it does not return and stops when the reversing pin reaches the microswitch reverse point.	Check the reverse microswitch, the contacts may not be good or there is no voltage.
The central plate does not stop exactly at the zero point.	Adjust the air gap of the electromagnetic brake (see <i>Maintenance</i> ). Check the position of the stop limit switch.
Only for models with 230V single phase connection. Even with voltage, the machine has insufficient power.	If the voltage is less than 220V the machine will not work. A current regulator is advisable.
The machine leaks oil from the bottom of the reduction gear.	The oil seal for the pulley pinion is worn, remove the pulley and the flange. Replace the oil seal and re-fit using a thin layer of sealant.

## MAINTENANCE



Maintenance operations must be carried out by qualified personnel in accordance with all current legislation.



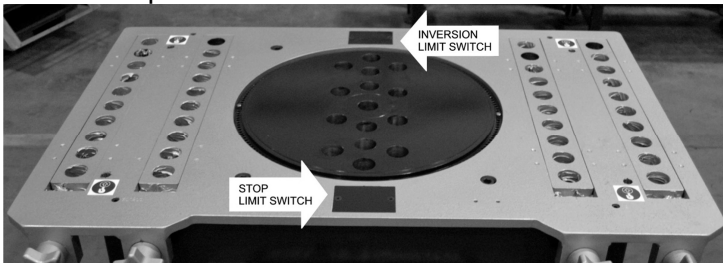
Electrocution risk !

Carry out work on the machine and maintenance only when the machine is off, with the power plug removed.



Switch off the machine and disconnect the power plug before changing a fuse or re-setting of the magneto-thermal safety plug.

### Maintenance guide

Frequency	Task
Daily	Keep work area clean.
40 hours	Only for version with shear unit: grease at the lubrication nipples situated on the connecting rod and on the plate closing the plate carrier slide.
200 hours	Clean the reduction gear (see paragraph <i>Cleaning</i> ).
200 hours	Verify and clean STOP and INVERSION limit switch. They are under blue plates. 
200 hours	Check the oil level in the reduction gear. If necessary, top up using the filler hole situated on the top face.
Every 2 years	Change the oil.

### Cleaning



**Danger!** Turn off the machine and unplug from the electrical supply.

- Unscrew the four screws fitted to the frame and the four screws on the box using the Allen keys supplied in the toolbox.
- Lift and move the frame plate.
- Remove the scale deposit on the reduction gear.
- Afterwards, replace the frame plate in the correct position using the eight screws.

**Oils**

Oil Litres	Type of oil:
25	viscosity cST 220 (at 40°C)



Do not release oil and grease into the environment. Dispose of by contacting the service authorised to deal with used oil.

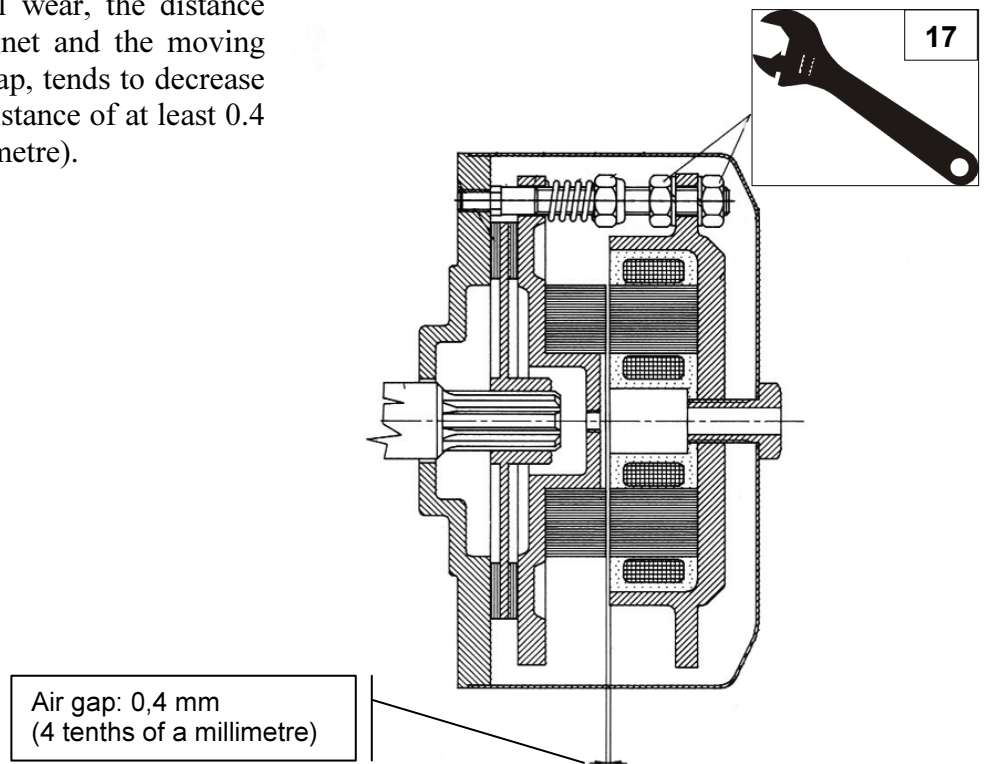
**Blade replacement**

The blade must be withdrawn in order for it to be dismantled and replaced:

- Lower the guard.
- Press the start button until the blade has returned fully and the fixing screws are accessible.
- Switch the machine off and remove the power plug before continuing.
- Using the Allen key supplied, unscrew the fixing screws and replace both the fixed blade and moving shear blade.
- Mount the two blades so the cutting edges correspond.

**Electromagnetic brake adjustment**

Due to friction material wear, the distance between the electromagnet and the moving retainer, called the air gap, tends to decrease over time. Adjust to a distance of at least 0.4 mm ( 4 tenths of a millimetre).



## Removal from service and recycling

When the technical and operating life of the machine is finished, the machine must be deactivated. Although removing it from service so it can no longer be used for what it was intended, it should still be possible to recycle the primary materials.

To safely deactivate the machine follow this procedure:

- Turn off the machine and remove the power plug.
- Cut the power plug from the cable.
- Empty the lubricating oil. Collect the oil from the drain plug under the machine in a suitable container.
- Remove the wheels. Follow the procedures given in *Transport* if the machine is to be moved.
- Dispose of the machine at an authorised refuse collection centre.



Do not release oil and grease into the environment. Dispose of by contacting the service authorised to deal with used oil.