

I.T.S. by Tecnodue

ST 630

Operating Manual

I.T.S. Ital Trade Services S.r.l.

Via Scarsellini 77
16149 – Genova , Italy

Tel: +39-0106423396
Fax: +39-0106423513
E Mail info@its-tecnodue.com
Web www.its-tecnodue.com

This manual includes technical information only.

I.T.S. Ital Trade Services srl has the right to make any modifications without any notice

SAFETY RULES

(To be read carefully and apply while utilizing the ST 630)

Due to the specific use, this machine cannot be supplied with all kind of fix and removable protections suitable to avoid any risk of accident.

The machine, therefore, must be utilized, adjusted and keep in the perfect functioning conditions by skill operators.

Warning - Rules – Obligations

The use of machines composed by electrical components and movable parts, it's always a potential danger. In order to avoid any kind of accident caused by electrical or mechanical sources it's strongly suggested to read and follow carefully the following safety rules before operating the machine.

TRANSPORT

-. Machine, Keep the maximum care while moving and it's compulsory to utilize Mechanical aids.

All the accessories supplied with the machine must be moved with the maximum care and it's compulsory to utilize mechanical aids.

ELECTRIC CONNECTIONS

The machine is operated by 220 Volts therefore be sure that the power supply plug is supplied with the safety devices according to the standard requirements , also check that the power supply is on the range of maximum 10% of the machine's nominal tension.

Check regularly the cables and the plug and in case substitute by qualified personnel.

Before carry out a reparation or maintenance all the plugs must with plug out from the power supply

ENVIRONMENTAL CONDITIONS

The working area must be clean and duly lighted.

It's very dangerous to utilize the machine in case of rain or in wheat conditions or even close to flammable liquids.

CLOTHES

Keep the maximum care while utilizing the machine, it's strongly suggested to use suitable gloves.

Avoid long clothes and avoid bracelets, necklaces that might be hooked into the machine.

CORRECT MACHINE'S OPERATION

Remember to check and read carefully the operating manual before utilizing the machine and the accessories.

KEEP ALWAYS THE MAXIMUM ATTENTION

Be careful to the blades, it's strongly suggested to use suitable gloves.

During the cutting operation it's forbidden to take out the shavings

Avoid utilizing the machine after drinking or drugs use

Take care that all the people around the machine are at safety distance

ACOUSTIC POLLUTION

The acoustic pollution of the drill engine is less than 85 dB (value measured at 1 meter distance from the operator)

Due to some particular cases such as too much pressure during the facing the noise should be increased, therefore it's suggested to utilize acoustic protections.

IMPORTANT !!!!

Keep the maximum care reading and following the above Warning - Rules - Obligations

The Itat Trade Services S.r.l. declines all responsibilities if are not followed totally

ST 630

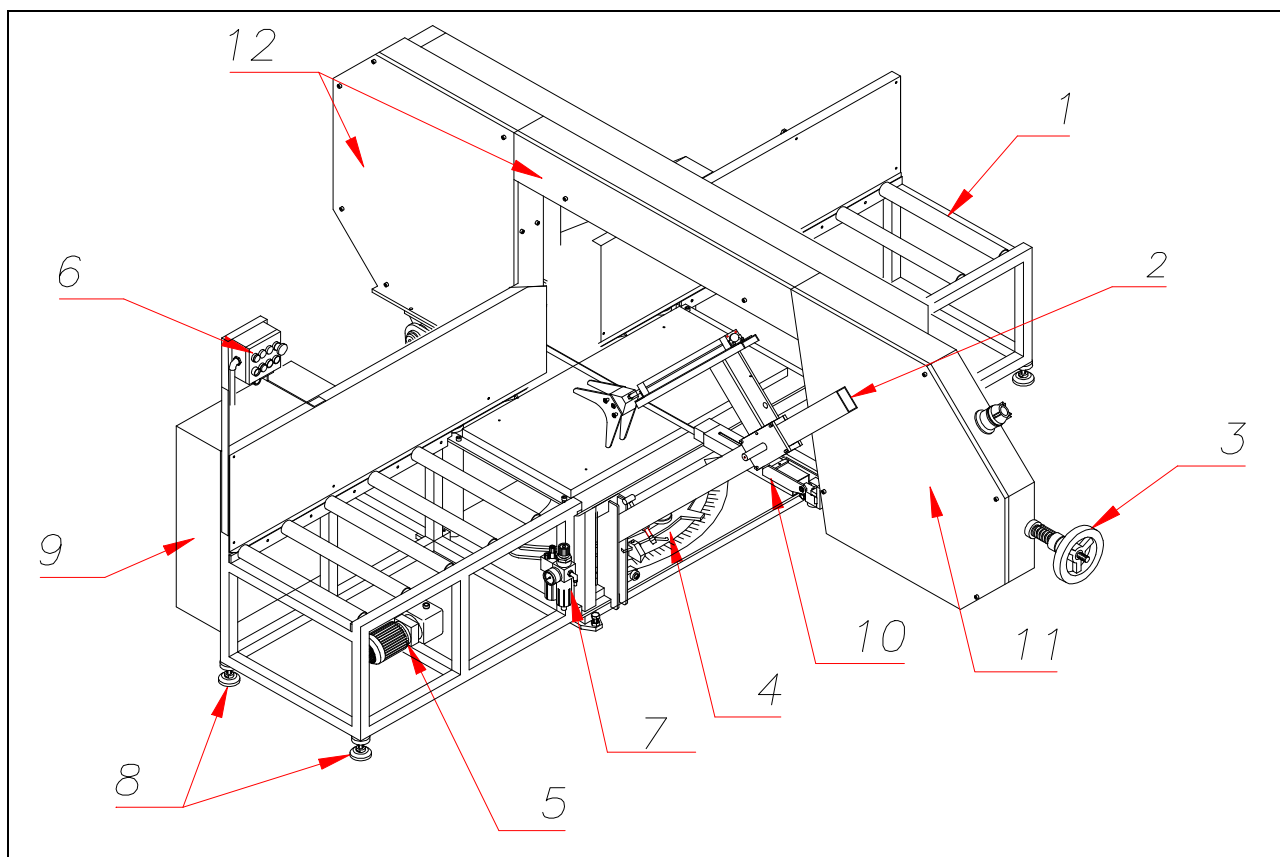
Workshop hydraulic operated saw machine suitable for PE,PP,PVDF and other thermoplastic pipes

Description

The ST630 is designed and fabricated in order to cut pipes in different kind of thermoplastic materials such as: PP, PE, PVC, PVDF from outside diameter 250mm to 630mm.

The cutting angle could be changed from 22,5° by means of turning the arch to the left, and 67,5° by means of turning the arch to the right.

The special designed pneumatic clamps hold safely the pipe.



1. Pipe roller
2. Pipe clamps
3. Saw blade stretch adjustment nut
4. Adjusting angle cut lever
5. Hydraulic unit
6. Control board
7. Air connection
8. Level feet
9. Electric box
10. Blade protection
11. Left carter
12. Right carter

Electric Data	
Voltage	220 V (3phases+Ground)
Frequency	60 Hz
Total Power Installed	2,7 KW 6,0 A IP 54
Saw Blade Engine	IP 55 2,20 KW 1450 rpm
Hydraulic Unit	IP 55 0,55 KW
Hydraulic & Pneumatic Data	
Pump's Capacity	1,2 l/min (1000 rpm) 0.32 US gal/min (1000 rpm)
Hydraulic Oil	ISO 46
Oil Tank	1,5 l – 0.4 US gal
Pneumatic pressure requirement	6 bars
Mechanical data	
Saw Blade Transmission System	Reducing Gear
Saw Blade Maximum Speed	320 m/min – 350 yd/min
Maximum Cutting Left Angle	22,5°
Maximum Cutting Right Angle	67,5°
Total saw blade length	Maximum 6900mm Minimum 6800mm Maximum 7yd & 1.6 ft Minimum 7yd & 1.3 ft Z 10 for hard material and small wall thickness Z 6 for medium wall thickness Z 2 for big wall thickness height from 25 to 27mm – 1 inch to 1 1/16 inch
Dimensions & Weight	
Machine	3,8 x 3,3 x 3,00m, 1.015 Kg. 4 yd x 3yd & 2 ft x 3 yd & 1 ft, 2,23.70

a. Machine's installation

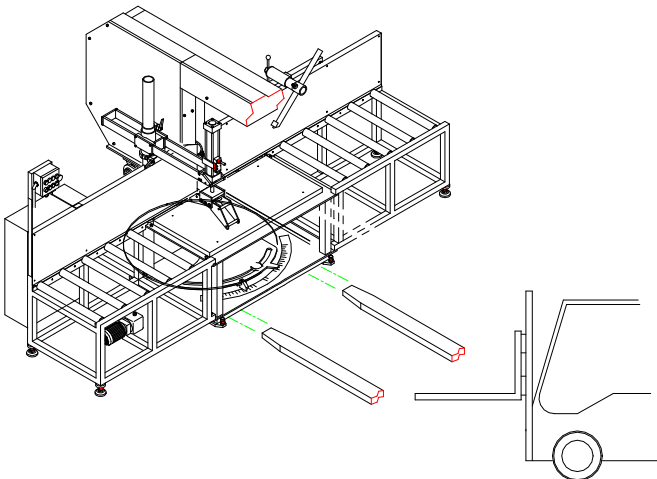
In order to avoid any problems and to achieve the best performances from the machine we strongly suggest you to follow the installation procedures:

1. Remove the packaging
2. Position the saw into a flat surface
3. Lift the machine only by using ropes and the fork extensions as shown in figures below.
4. Connect the machine's cable to the plug located into the electric box
5. Connect the two hydraulic hoses to the hydraulic unit by means of using the supplied quick couplings
6. Connect the cable to the power supply ,taking care that the black, blue wires and the brown are the phases and the yellow – green is the ground
7. Switch on the machine by means of acting the main switch
8. Double check the emergency push button located into the electric box and on the machine
9. Push the Reset push button
10. By acting on the selectors "Arch Up Stroke" and "Arch Down Stroke", if the engine turn but the arch is not moving it's necessary invert the two phases on the control board power cable in order to change the engine rotation

Important !

Avoid made the first test by acting of blade start button. In case the engine should rotate in wrong way the blade will be out from the pulleys and might be happen that the blade and pulleys will be damaged.

11. Connect the compressed air to the adaptor socket



b. Controls description

All the controls are located on the control board

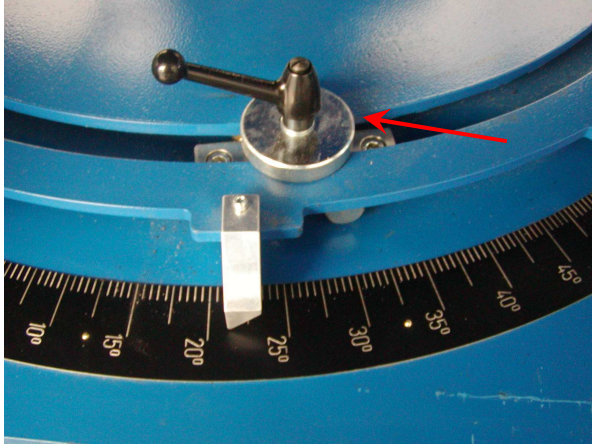
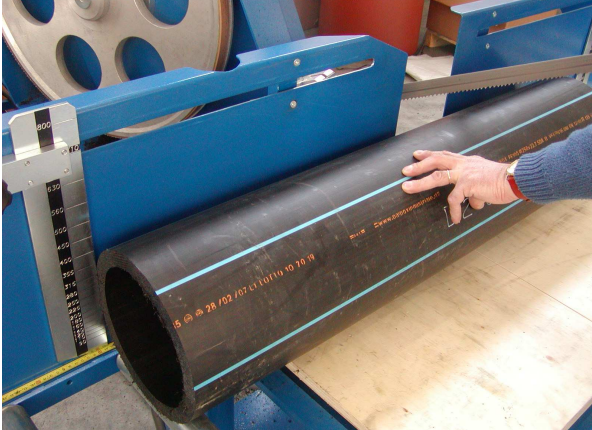
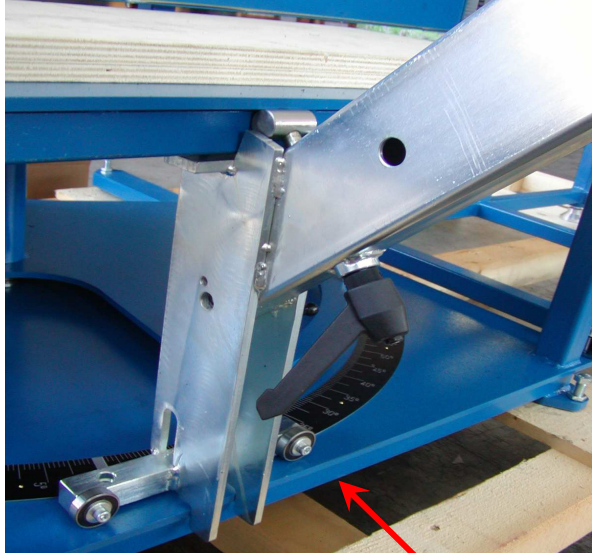


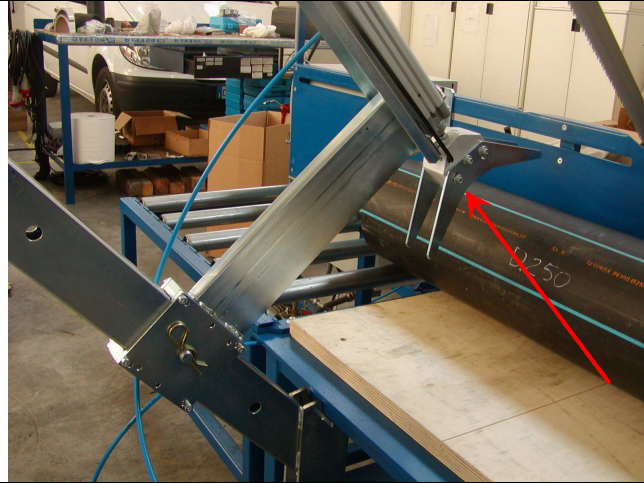
- | | |
|--|---|
| <ol style="list-style-type: none"> 1. The White Light Push Button 2. The Orange Light 3. The Green Light 4. The Emergency Push Button 5. The Green Light Push Button 6. The Red Push Button 7. The Blue Push Button 8. The Black Push Button 9. Hand wheel | <p>this button reset the machine</p> <p>showing the hydraulic engine overload and the saw blade engine overload</p> <p>showing that the saw blade is broken or too loosen , or the blade protection carter open</p> <p>this button stop the machine</p> <p>this button start the saw blade</p> <p>this button stop the saw blade</p> <p>this button controlling the arch upstroke</p> <p>this button controlling the arch down stroke</p> <p>controlling the arch down stroke speed</p> |
|--|---|

c. Machine's operation

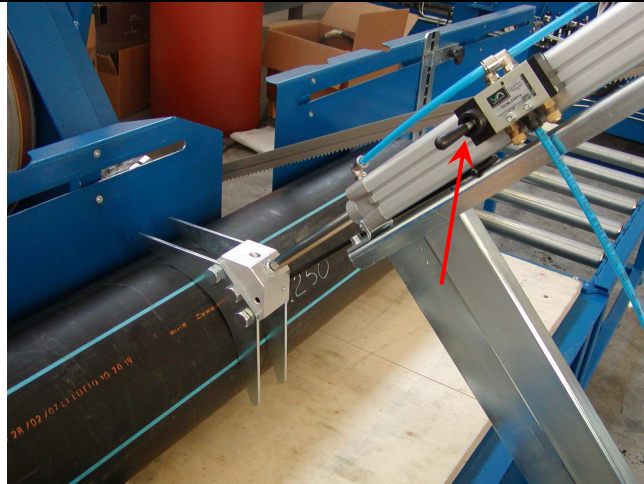
01. Insert the pipe into the rollers stand and fix as per procedure described in chapter c.2
02. Move the arch by acting with the maximum care in the cutting position taking care to stop it at 10 cm from the upper surface of the pipe by acting on the black button for the down stroke of the arch.
03. Adjust the blade's guide
04. Push the green light button to start the blade rotation
05. Move the arch down by acting on the appropriate button (black)
06. By acting on the appropriate handwheel adjust the arch down stroke speed
07. The machine automatically stops the blade rotation as the arch reach the down stroke
08. Remove the cut piece
09. Lift the arch by keep on pushing the blue button

c.2 How to use the clamp for pipe – cutting with different angles for building bends with different radius

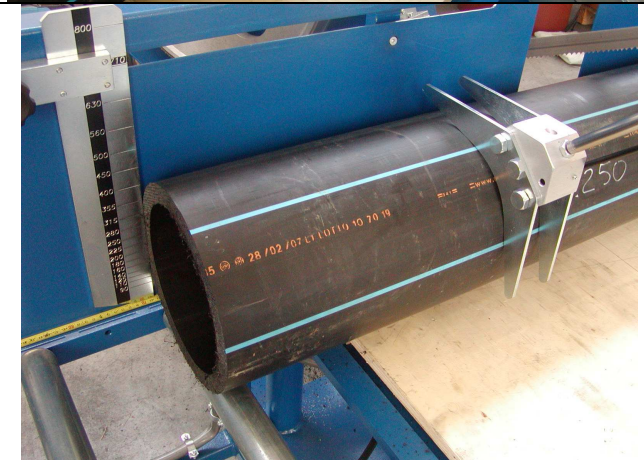
	<ol style="list-style-type: none"> 1. To set the cutting angle act on the lever shown in the picture 2. Select the cutting angle by turning the lower circle Once reached the desired angle on the scale fix again the lever.
	<ol style="list-style-type: none"> 2) Place the pipe on the left pipe roller
	<ol style="list-style-type: none"> 3) Check if the support of the pipe clamp is properly fixed by acting on the fixing lever shown in the picture



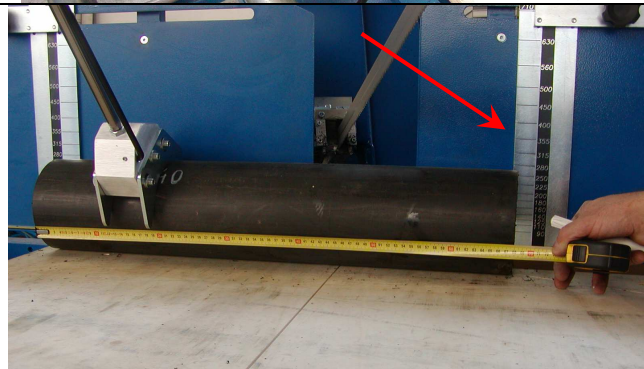
4) Depending on the pipe diameter adjust the arm height by inserting the pivot (with split pin) in the appropriate hole. Together with the machine we have supplied two different kinds of brackets. The smallest one must be used with pipe with a maximum outside diameter up to 200mm



5) By acting on this lever you will move forward/backward the bracket

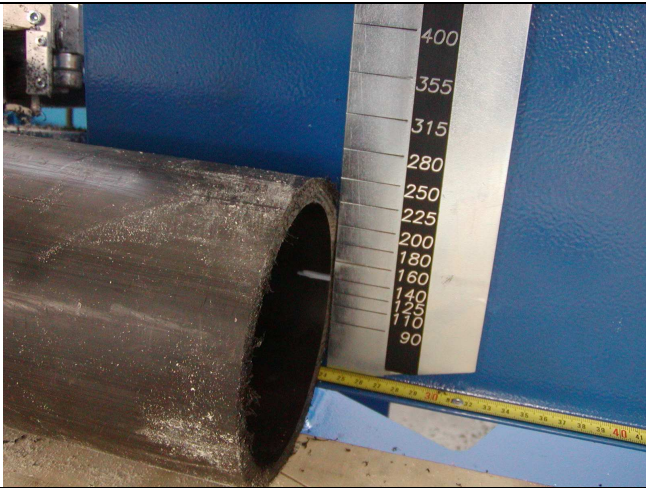


6) If you cut the pipe with a 0° angle, place the pipe accordingly with the length of the segments that you need. On the left and right pipe roller you will find metric indexes that can help you in this operation (please consider the blade position is the starting position = 0).



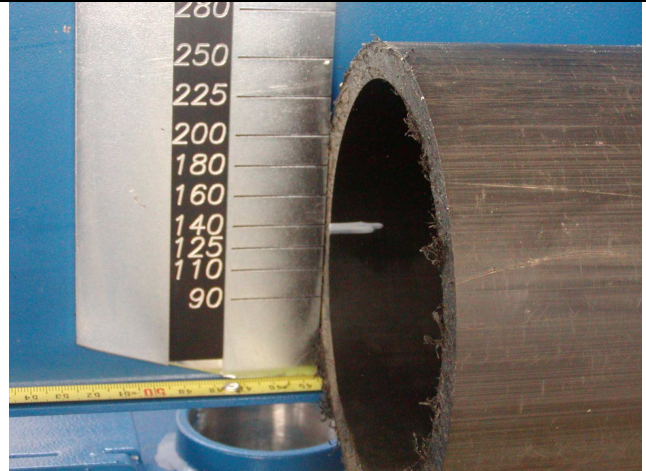
7) In case you want to prepare a bend 45° consider (schema A):

- Position the arch to right at $22,5^\circ$
- Calculate the total length of pipe required to obtain three pieces composing the bend (R+S+R).
- Position the left stopper to a distance (from the rotating axis) corresponding to the length of the smallest segment composing the bend (R). Place the pipe against the stopper and clamp it.
- Place the right stopper against the pipe

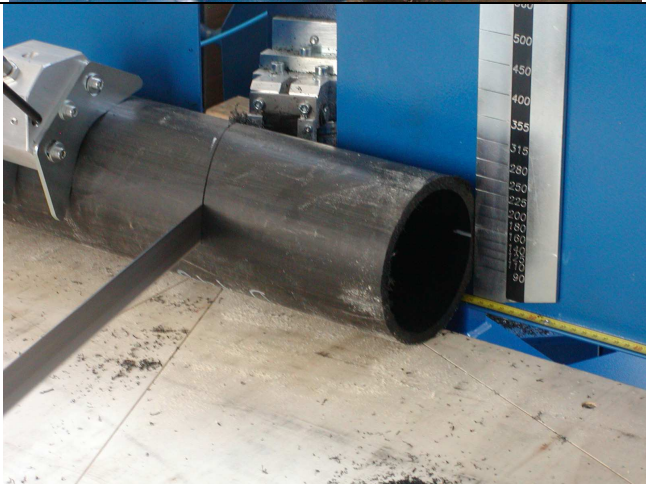


8) By using the vertical index of the right stopper, mark a line in the inner part of pipe corresponding to the outside diameter of pipe.

Execute the first cut with the arch turned right 22,5°



9) Place the cut pipe with the inner mark against the left stopper, taking care that the inner mark of pipe will correspond to the correct diameter

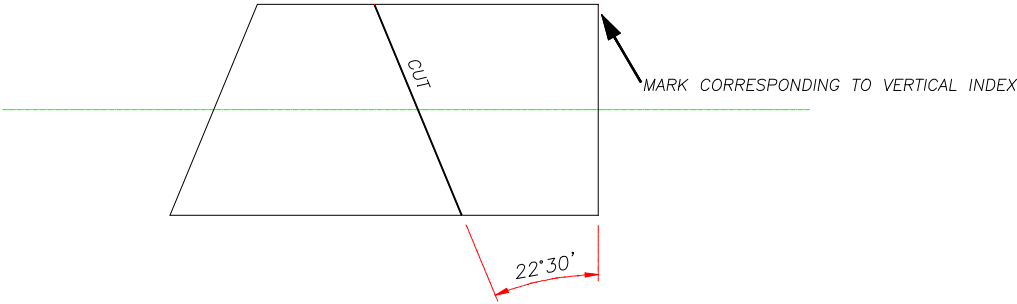
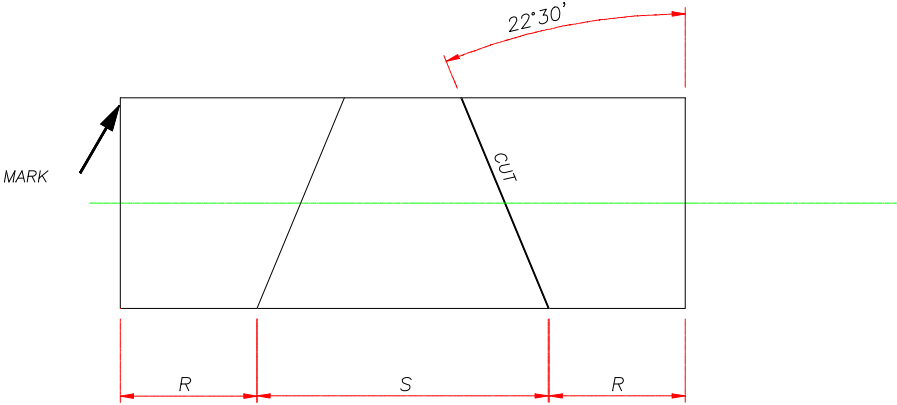
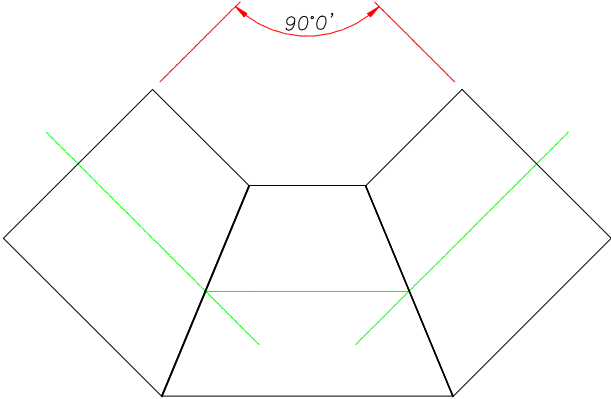


10) Clamp the pipe and execute the second cut

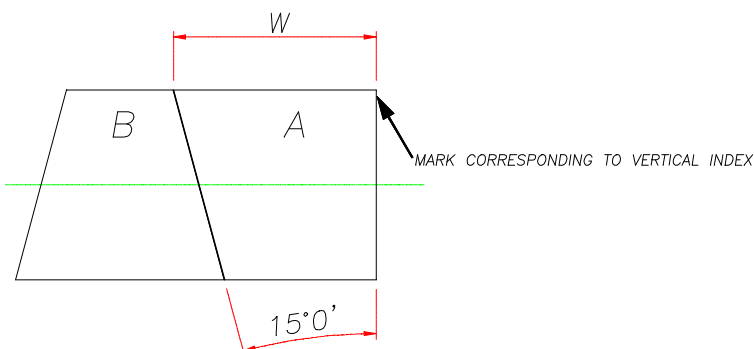
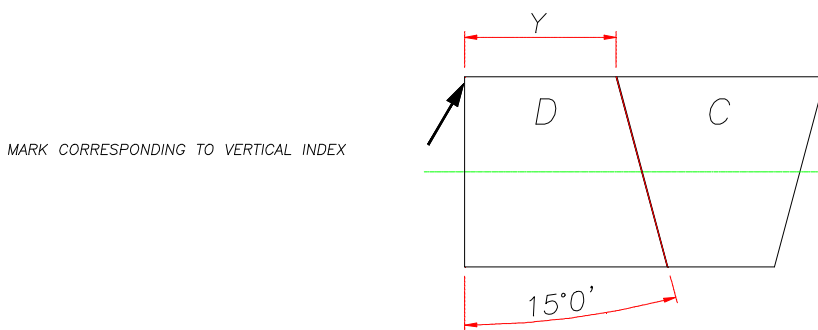
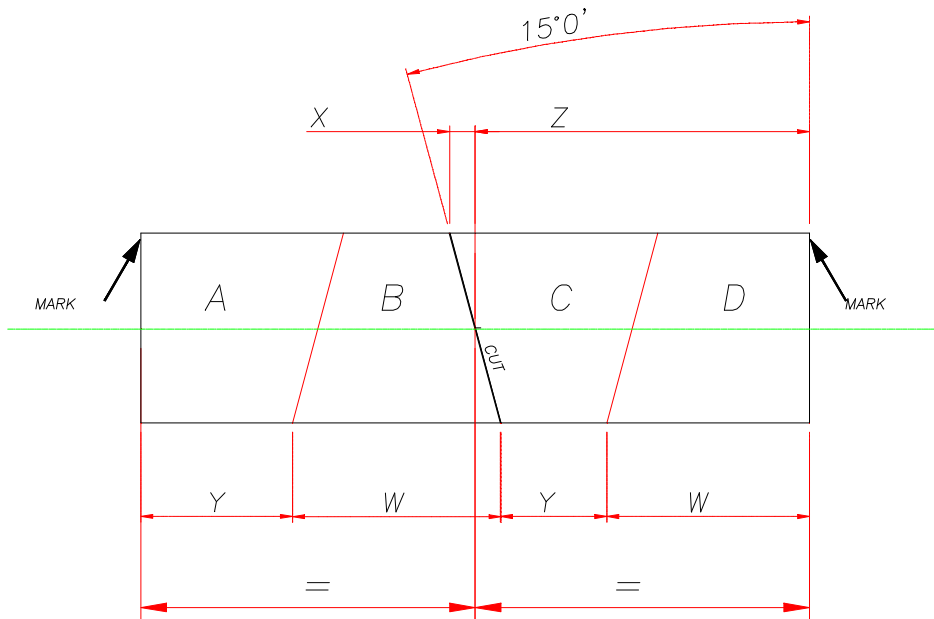
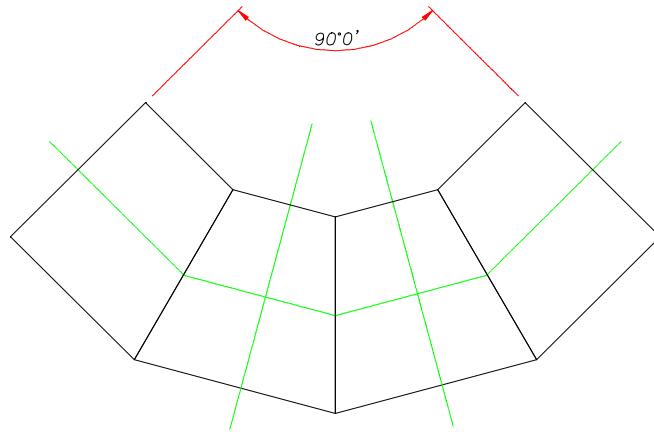
7) In case you want to prepare a bend 45° consider (schema B):

- a) Position the arch to right at 15°
- b) Calculate the total length of pipe required to obtain four pieces composing the bend (Y+W+Y+W).
- c) Position the pipe as per SCHEMA B in view to cut pipe in two even segments (Y+W)
- d) Clamp the
- e) Mark the inner part of pipe's ends and proceed as described with three segment bends

SCHEMA A: CUT PIPE TO OBTAIN A 90° BEND COMPOSED BY THREE SEGMENTS



SCHEMA B: CUT PIPE TO OBTAIN A 90° BEND COMPOSED BY FOUR SEGMENTS



d. Machine's adjustment

1. Arch Down Stroke Speed Adjustment

the arch down stroke speed can be regulated by means of operating the hand wheel (see the photo) according to the wall thickness and the type of material to be cut.

A high arch down stroke speed might be caused the blade broken, or the deformation of the pipe.



2. Saw Blade Stretch Adjustment

In order to stretch the saw blade it's necessary to act on the nut located on the left side of the arch (see photo).

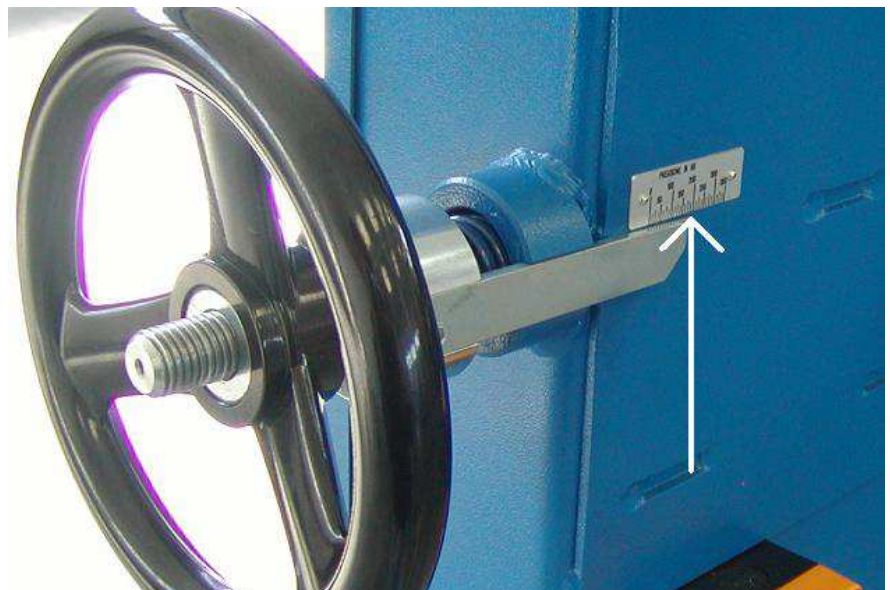
The blade stretch must be set up between:

180 and 250 Kg. Standard Blades (carbon steel – the factory set up this kind of wheel at 200kg.)

250 and 300 Kg. Alloyed steel Blades

250 and 350 Kg. Bi-metallic Blades

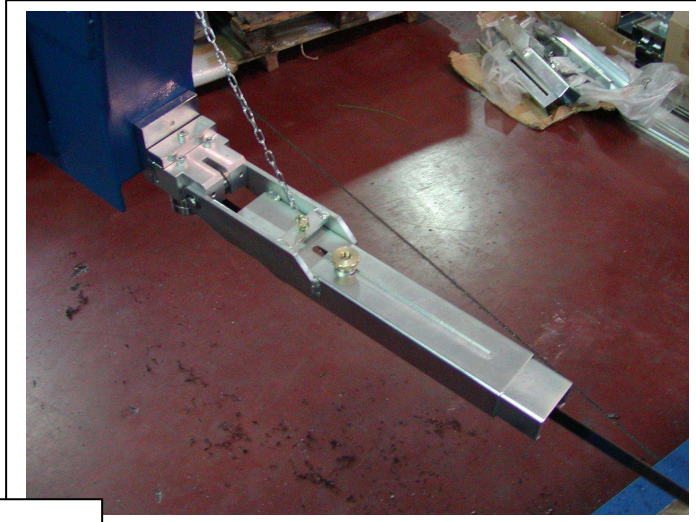
(value are indicated into index label as shown by the white arrow)



3. Blade's Guide Adjustment

In order to maintain the saw blade into the correct position during the cutting, it's necessary that the blade's guide is adjusted according to the pipe's diameter to be cut (blade the minimum required length), therefore the operator to adjust should:

- Enlighten the lever
- Adjust the blade's guide by sliding forward or backward according to the pipe's diameter. (see picture)
- Block the lever



Blade's guide sliding

4. Blade Replacement

In order to replace the blade, the following operations must be carry out:

- Disconnect the machine from the power supply
- Open the carters
- Remove the old blade by means of releasing the stretch regulating nut and pull out the blade from the housings
- Mount the blade into the pulleys
- Rotate the blade and insert it into the blade housing
- In case of different wall thickness of the blade, adjust the housing marked with the letter caps R bearing as per fig. 6
- Adjust the blade stretch
- Close the carters
- If the safety green light is light on, verify that the saw blade is too loosen and/or the carter open

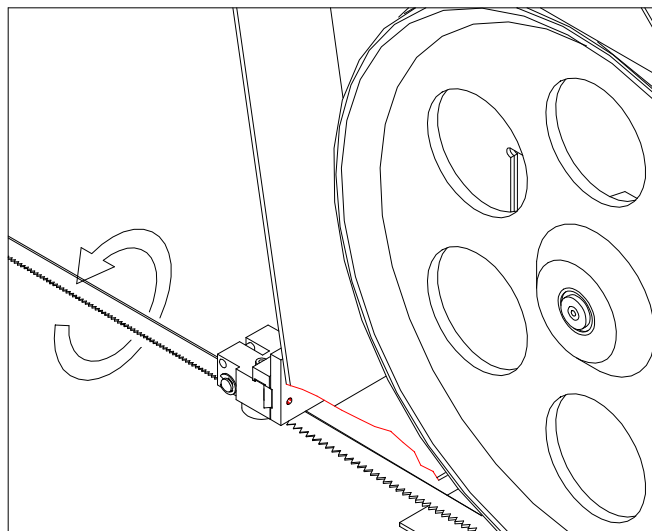
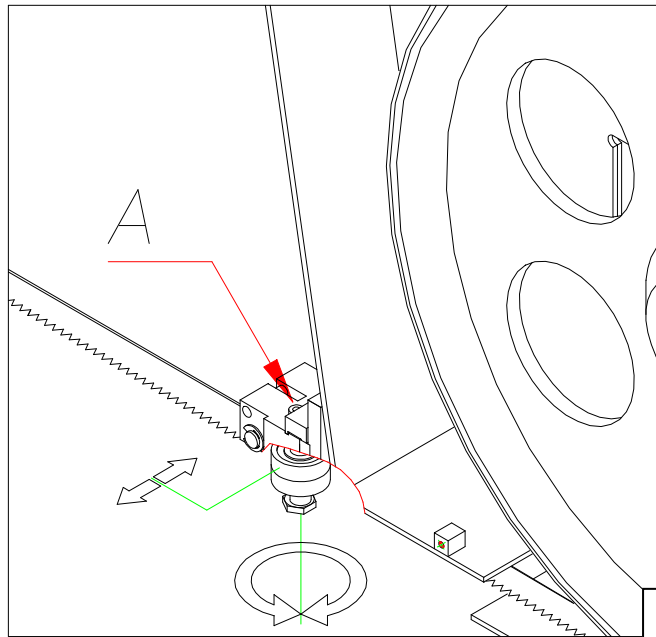


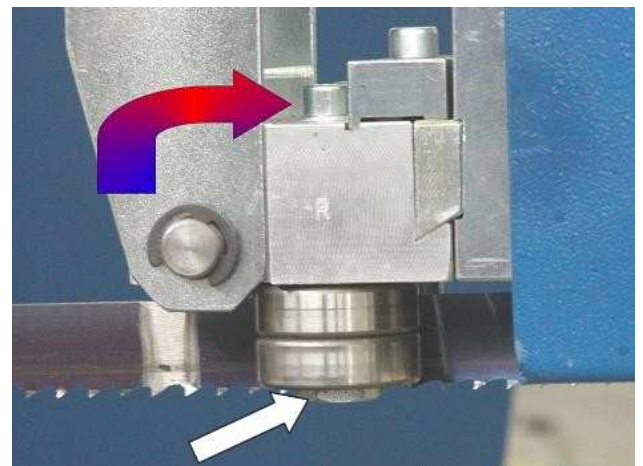
fig. 5 Blade replacement

**fig. 6 Housing bearing Adjustment**

Warning: In order to preserve the longevity of blade we suggest slacking the stretch on the blade at the end of working time.

5. Adjusting the bearings

Please check if the blade is adhering to the bearings. To adjust this parameter, please slack the screw (upper arrow) shown in Figure and turn the pivot (lower arrow) in the required position. Once adjusted the position tight again the fixing screw.

**Bearings adjustment**

6. Blocking Clamp pressure regulation

If necessary the blocking clamp's pressure could be modified .

By acting on the pressure regulator it's possible to modify the clamping force during the cutting operation.

The pressure should be adjusted between 5 and 6 bars as indicated on the pressure gauge.

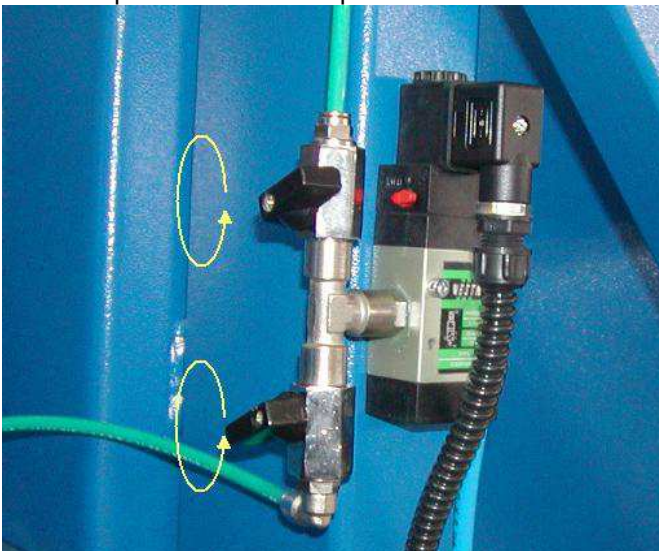


7. Cleaning and cooling the blade

Too cool and clean the blade during the cutting operation there are two nozzles. In picture below is shown the green hose conveying the air to the blade.



The air flow starts automatically when you start the blade. The machine will stop automatically the blow as soon as the blade will be stopped at the end of the cut. Take care that the two valves controlling the air flow shown in picture below are open!



8. Adjusting the inclination of the main pulley

In view to avoid the exit of the blade from its housing you can adjust the inclination of the main pulley by acting on the screw shown in the figure 10. Please carefully check the space between the border of the pulley and the blade is at least 2-3mm as shown in the figure 11. If this space is lesser than 2mm the blade could break

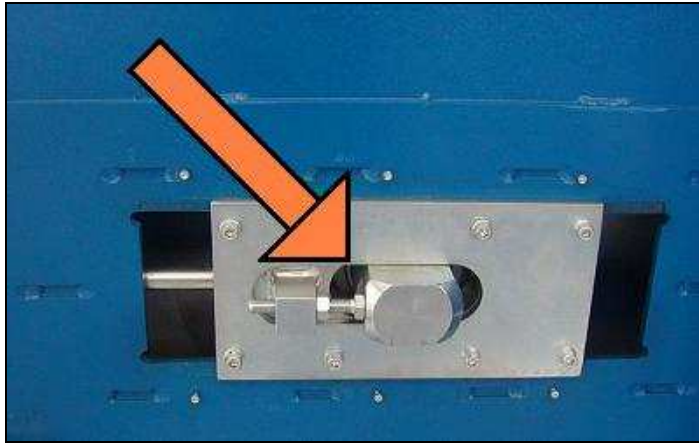


fig. 10 Main pulley adjusting screw

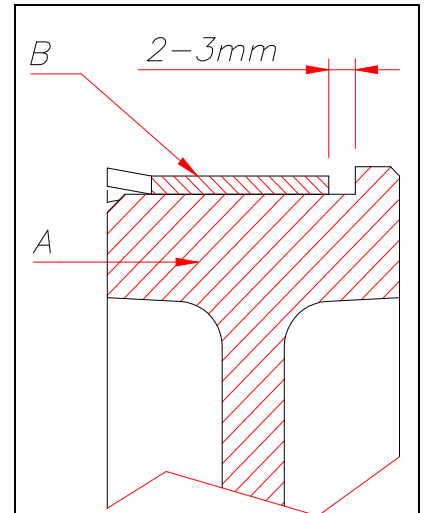


fig. 11 Blade position on the pulley

To clarify how the main pulley inclination could be adjusted you can check the figure 12. The adjusting screw has been fixed by a nut.

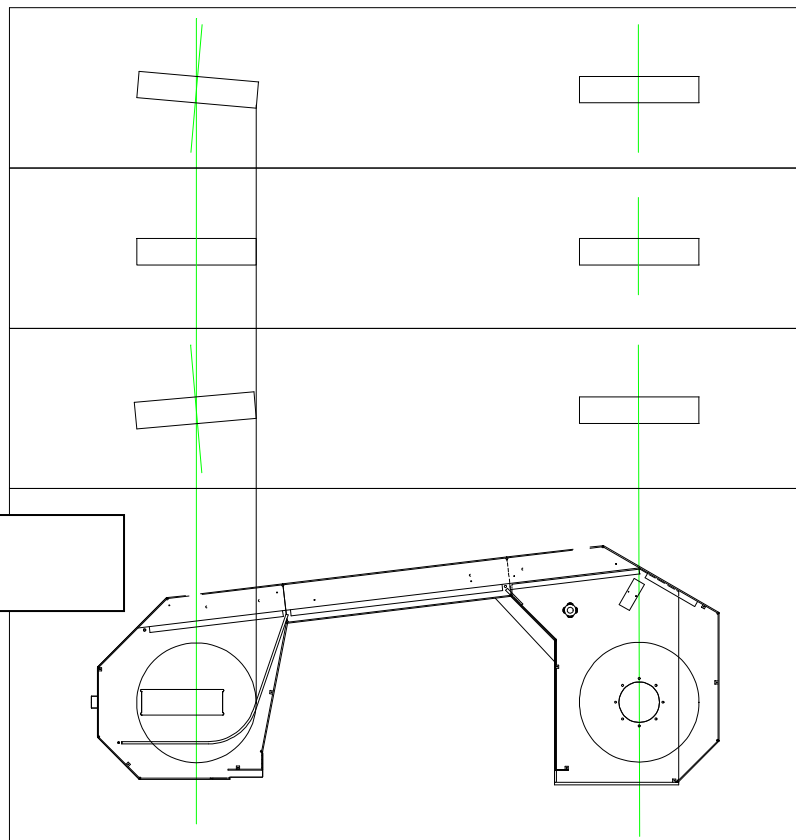


fig. 12 Different main pulley inclination

e. Maintenance

BASIC MACHINE

Keep always clean the machine by using compressed air in order to remove material shavings

HYDRAULIC UNIT

Check periodically the oil level and in case add by using oil type: ISO 46.

Check the oil level of the lubricating system or the pneumatic circuit.

Keep the hydraulic unit clean

GENERAL CONTROL

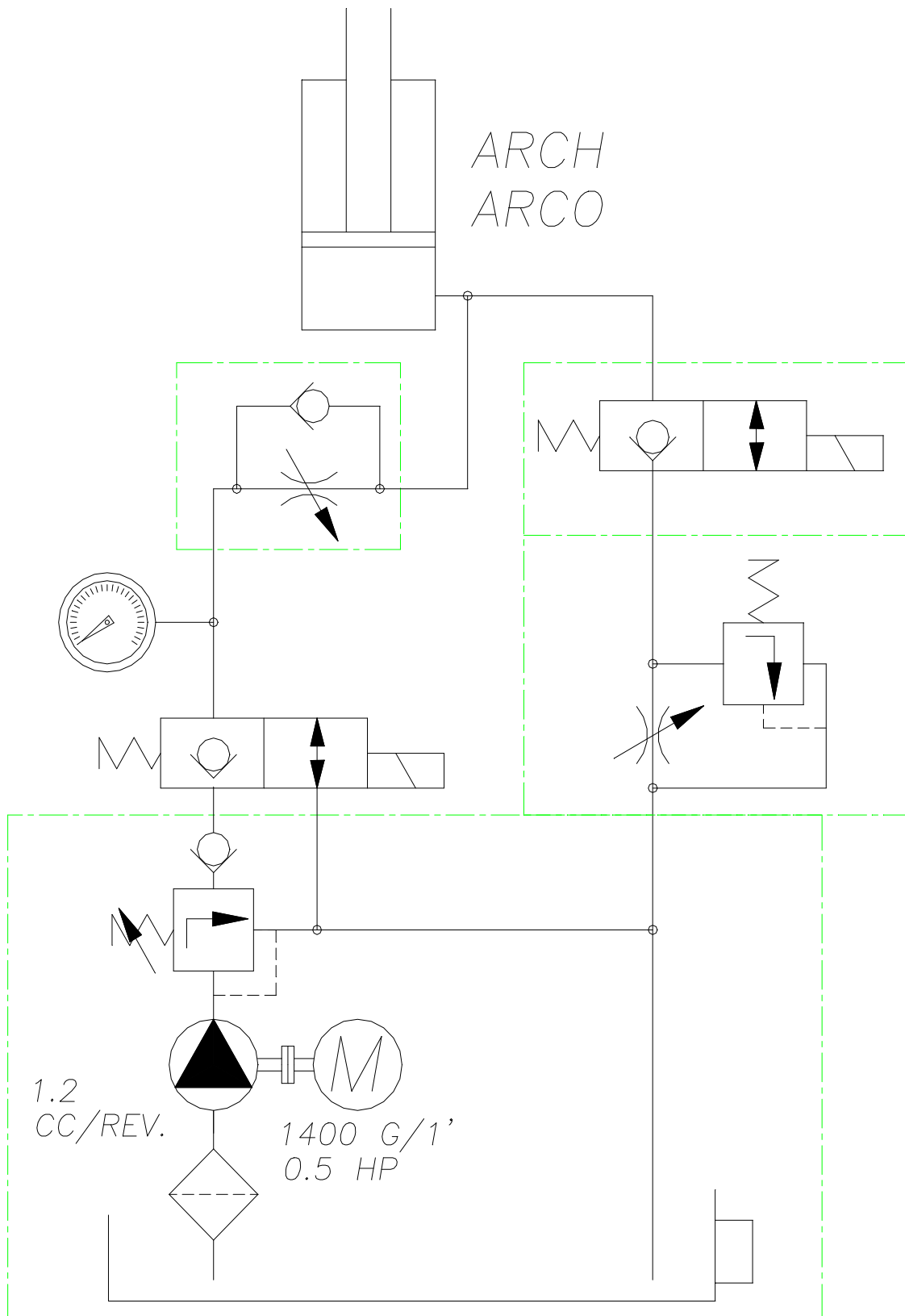
In case something will happen on the machine or in one component, kindly contact our technical assistance department.

However we strongly suggest carrying on a complete general control of the machine every two years

f. Troubleshooting

- The machine does not switch on
 - Verify the thermal switch inside the control board (**D1**)
 - Open the electric box and verify the fuses **2Q1** and **2Q2**
- The orange lamp showing the engine overload is on
 - It's necessary to open the electric box and reset the relative relay **Q1**and/or **Q2**
- The green lamp showing the safety features is on
 - Check if the carter are properly closed
 - Check if the blade is correctly stretch
- The machine is switch on , but the arch is not moving
 - Open the electric box and verify the fuses **5Q1**

Hydraulic Plan



HYDRAULIC DRAWINGS
ST 630/2004

This manual has been printed on March 2014