

I.T.S. by Tecnodue

ST 1200

Operating Manual

This manual includes technical information only.

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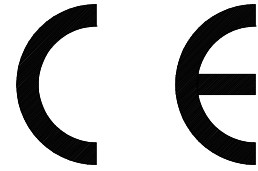
ST 1200

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

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SAFETY RULES

(To be read carefully and apply while utilizing the ST 1200)

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' 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 400 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. **Before opening the case wait at least for 3 minutes after unplugging the machine.**

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 MAXIMUN 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
Ital Trade Services S.r.l. declines all responsibilities if are not followed totally**

Description

The ST 1200 is designed and fabricated in order to cut pipes in different kind of thermoplastic materials such as: PP, PE, PVC, and PVDF from diameter 500 mm till 1200 mm

The cutting angle could be changed from 30,0° by means of turning the pipe holder to the left , and 68,0° by means of turning the pipe holder to the right.

The special designed hydraulic clamp hold safety the pipe.

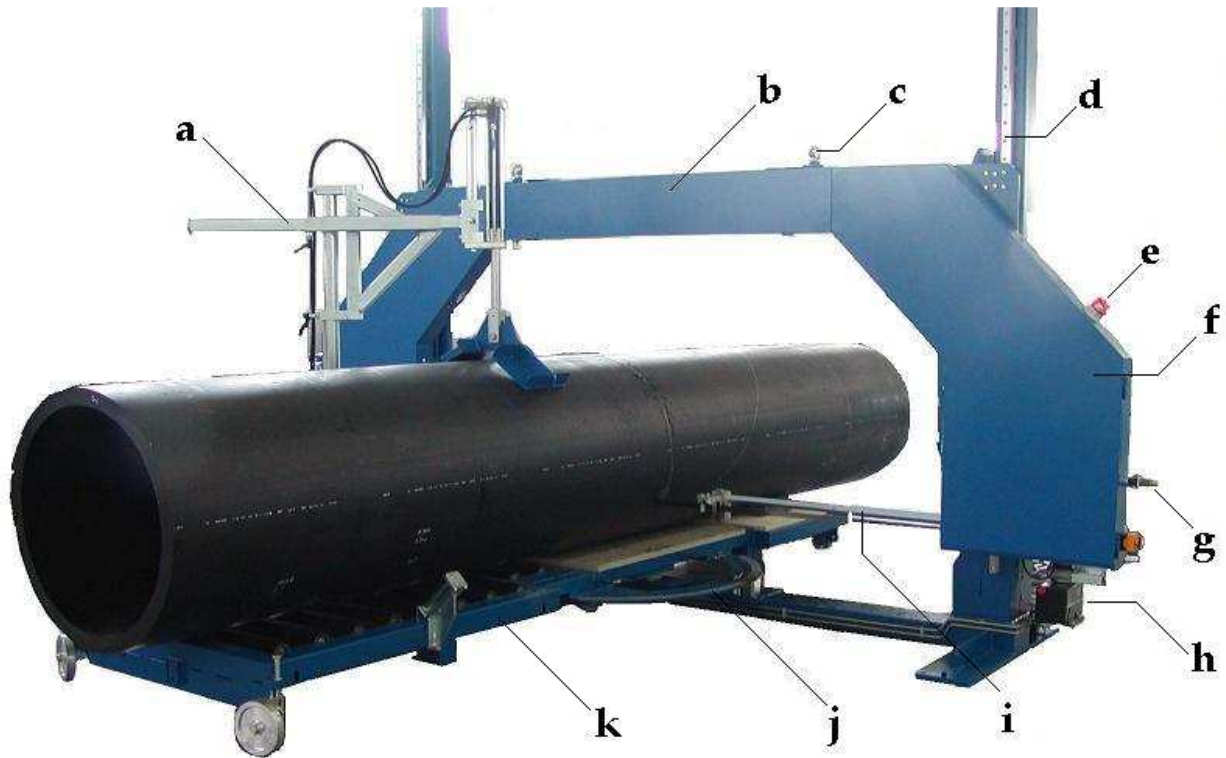


Figure 1. ST1200 components description

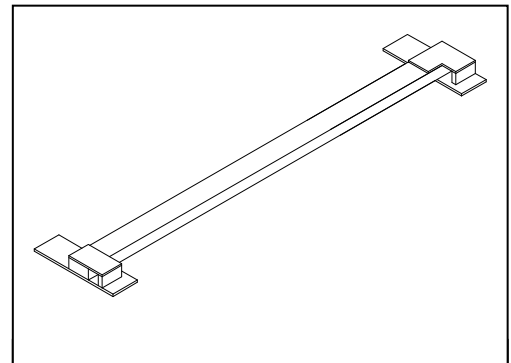
- a. Pipe clamp
- b. Arch
- c. Lifting hook to be used during the arch assembly on the machine
- d. Arch guide
- e. Warning lamp
- f. Blade protecting carter
- g. Saw blade stretch adjustment nut
- h. Hydraulic unit
- i. Blade's sliding guide
- j. Adjusting angle cut system
- k. Pipe's roller

Electric Data	
Voltage	400 V (3ph+1 N.+1Ground)
Frequency	50 Hz
Total Power Installed	5 KW 11A IP 54
Saw Blade Engine (2800 rpm)	IP 55 4,00 KW
Hydraulic Unit	IP 55 0,75 KW
Hydraulic & Pneumatic Data	
Pump's Capacity	6,1 l/min
Hydraulic Oil	ISO 46
Oil Tank	6 l
Pneumatic pressure requirement	20 bar
Mechanical data	
Saw Blade Transmission System	Reducing Gear 1/7
Saw Blade Maximum Speed	900 m/min
Arch down stroke speed range	0-3000mm/min
Maximum Cutting Left Angle	30,0°
Maximum Cutting Right Angle	68,0°
Total saw blade length	11700-11850 mm
	Z 10 for hard material and small wall thickness
	Z 6 for medium wall thickness
	Z 4 for big wall thickness
	height 32 mm
Dimensions & Weight	
Machine	5,10 x 5,20x 3,50 m , 2590 Kg

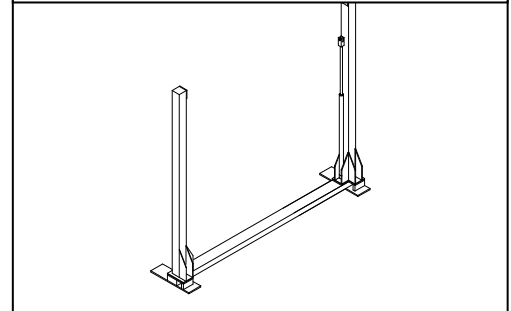
a. Machine's installation

In order to avoid any problems and to achieve the best performances from the machine we strongly suggest to check the surface where the machine will be located. Check that the ground is solid (concrete floors or other hard material floor are strongly suggested), otherwise take care to reinforce the points of contact with the footholds of the machine. Check that the soil has a good flatness and follow the installation procedures:

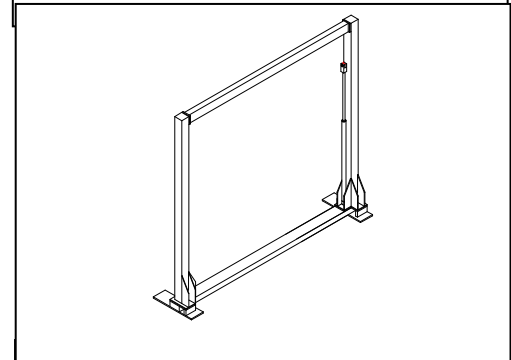
1. Position on a plane surface the central foot of the machine



2. Assemble the columns

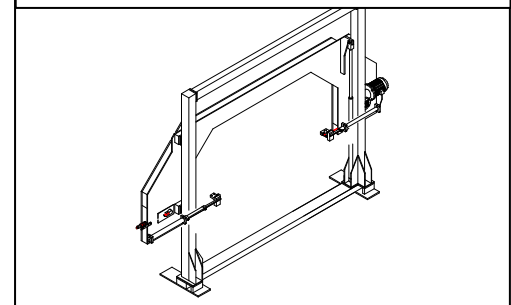


3. Assemble the crosspiece



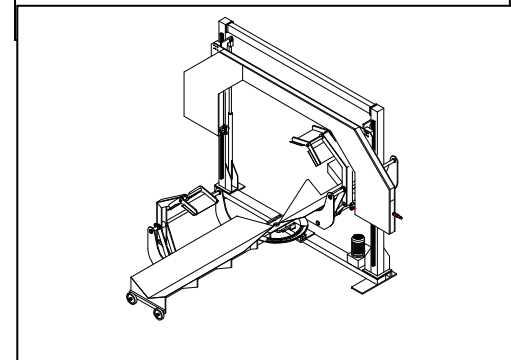
4. Assemble the arch

Place two spacers under the arch extremity to maintain a perfect parallelism of the arch with the ground.



5. Assemble the pipe's roller

Check that roller is in a flat position, you can act on the appropriate regulations you can adjust the flatness

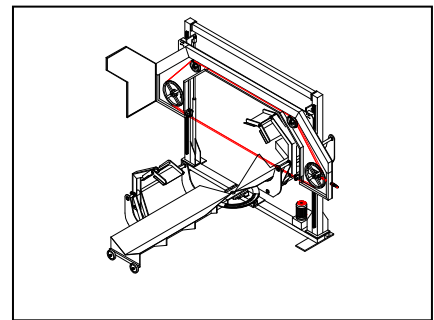


6. Connect the hydraulic hoses of the machine to the couplers under the handwheel adjusting the arch down stroke

Warning: concerning the above steps, the screw must be not too tighten in view to let the settlement of the various components of the machine

7. Connect the cable to the power supply, taking care that the two black wires and the brown one are the phases, the blue wires is the Neutral and the yellow – green is the ground (Warning: the differential switch **connected to the power supply main switch could grant a sensitivity of 300Ma**)
8. Connect the power supply cable keeping care that the two black wires and the brown wire are the phases and the yellow green wire is the ground
9. Switch on the machine by means of acting the main switch
10. Push the Reset push button
11. Push the Reset button
12. By acting on the selectors "Clamp locked" and "Clamp unlocked" , if the engine turn but the clamp is not moving it's necessary invert the two phases on the control board power cable in order to change the engine rotation
13. By acting on the selectors "Arch Up Stroke" lift the saw arch
14. After making different movement with the arch in view to settle the machine, tighten all the screws
15. Mount the blade

Unwind the blade (using protecting gloves, keeping care to avoid any contact with sharp side of the blade) remove the protecting plates of the arch and position the blade respecting the direction indicated by the stickers. Apply the correct tension to the idler pulley. Manually rotate the main pulley for at least 20 revolutions checking the tension and that the blade is inside the guide



After checking that there is any person close to the machine, start the engine of the blade at the minimum speed and check that the blade is running properly.

To better understand this operation check out the chapter e – Blade replacement.

Execute some complete movements with the locking clamp to flush out the air.

The installation of the saw machine 0214 0191 will be done by our technicians. Therefore the instructions contained in this manual must to be considered as approximate instructions.

b. Controls description

All the controls are located on the control panel

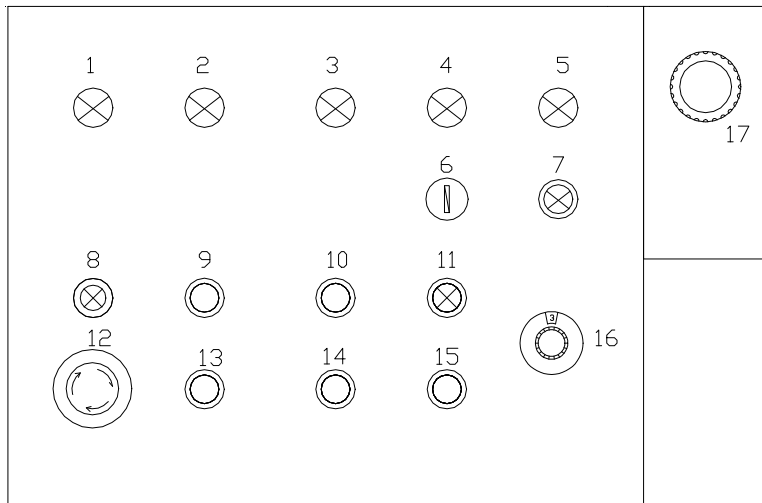


Figure 2. Control panel

- | | |
|--|--|
| 1. White light | line light |
| 2. Yellow light | Blade engine overheating light |
| 3. Yellow light | Hydraulic unit engine overheating light |
| 4. Green light | Broken or slack blade light |
| 5. Green light | Blade case door open light |
| 6. Key selector | To select the different sawing mode |
| 7. The blue Light Push Button | Safety switches on (Once pushed does not permit the unsafe start of the saw blade) |
| 8. The White light push button | This button resets the machine |
| 9. The Blue Push Button | this button locks the clamp |
| 10. The Blue Push Button | this button controlling the arch up stroke |
| 11. The Green Light Push Button | this button starts the saw blade |
| 12. The Emergency Push Button | this button stops the machine |
| 13. The Black Push Button | this button unlocks the clamp |
| 14. The Black Push Button | this button controlling the arch down stroke |
| 15. The Red Push Button | this button stops the saw blade |
| 16. Wheel | Controlling the blade rotation speed |
| 17. Wheel | Controlling the arch down stroke speed |

c. Machine's operation

01. Turn the pipe's roller to the required cutting angle (for more details go to page 17)
02. Block the pipe holder by tightening the locking bolt (for more details go to page 13)
03. Insert the pipe into the pipe holder.
04. Block the clamp by pushing the relative push button
05. Adjust the blade's sliding guide, please be sure that only the blade track used for the cut is outside the blade's protection (for more details go to page 17)
06. **Please carefully check that any person is outside the working perimeter of the machine.**
07. By acting on the sliding potentiometer adjust the blade rotation speed. This speed depends on the pipe to be cut.
08. By acting on the wheel adjust the arch down stroke to the minimum.
09. Push the black button for the arch down stroke. The arch will down stroke until when the blade will be at few centimetres to the upper part of the pipe.
10. Push the blue light button for a safety start of the saw blade. For 5 seconds the machine gave out an acoustic and light warning to advice that a new cutting cycle is starting.
11. Push the green light button to start the saw blade

Warning: It could happen that during this phase the arch up strikes for a little while before going down. This is due to the state of the engine.

12. Adjust the down stroke speed by acting on the wheel (no.16)
13. Once reached the limit stop of the arch the machine automatically stops the saw blade rotation
14. Remove the cut pipe
15. Push the blue light button to completely lift the saw arch. Please kindly note that If you do not remove the left pipe from the pipe holder, the photoelectric cells will stop the arch few centimetres above the pipe.

Some suggestions

- Keep the blade guides close the external profile of the pipe: this will assure a longer life to the blade because you will avoid a strong torsion.
- Keep the clamp in the correspondence of the axis of the pipe.
- Keep the moveable trolley and auxiliary side rail close to the cutting area

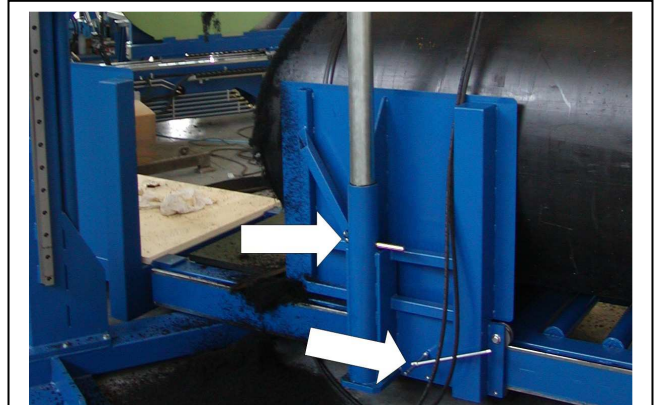
With some cutting angle the trolleys, side rail and blade guide, could collide one against other. Therefore, during the preparation of the cut, kindly check that on the blade there is any component of the machine.

d. Adjustments

1. Rollers

Rollers are bench equipped with rollers that let the pipe slide.

The picture shows the moveable trolley. The arrows indicate the pin to remove the clamp set and the screw locking the trolley movement.



With the machine is supplied an auxiliary roller, that can be placed on different positions. This additional roller is useful to avoid accidental fall of the pipe on the right side of the machine.



There is a moveable side rail in view to contain the cut pipe.

The screw, indicated by the arrow, locks the side rail.

Note: it is always suggested, for each type of cut and type of pipe, to use the side rail. The pipe must always lean on side rail you can achieve this goal by using the clamp.



The front and back part of the trolley are equipped with a self-levelling system to compensate possible height differences of the floor.

The adjustment must be done by the brass nut shown by the arrow only during the installation procedure.



2. Clamp pressure adjustment

Working with different pipe diameter and pipe material it could be necessary to adjust clamp locking pressure. To adjust this pressure by pushing the blue button no. 9 (see page 8) act on the wheel marked as **b** in the picture on the left. You can read the pressure on the pressure gauge **a**. On the pressure gauge **c** you can check the working pressure of the hydraulic unit.

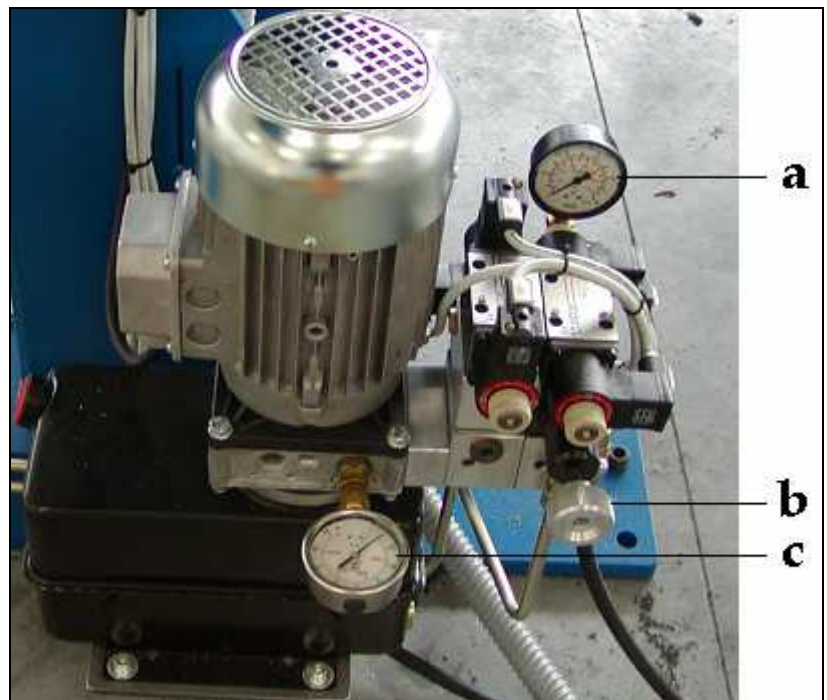


Figure 3. Hydraulic unit

3. Clamp position adjustment

You can adjust the horizontal position of the pipe's clamp by slacking on the handwheel **a** to translate the position of the clamp and on the handwheel **b** to rotate the clamp. Once achieved the correct position of the clamp close again the handwheels

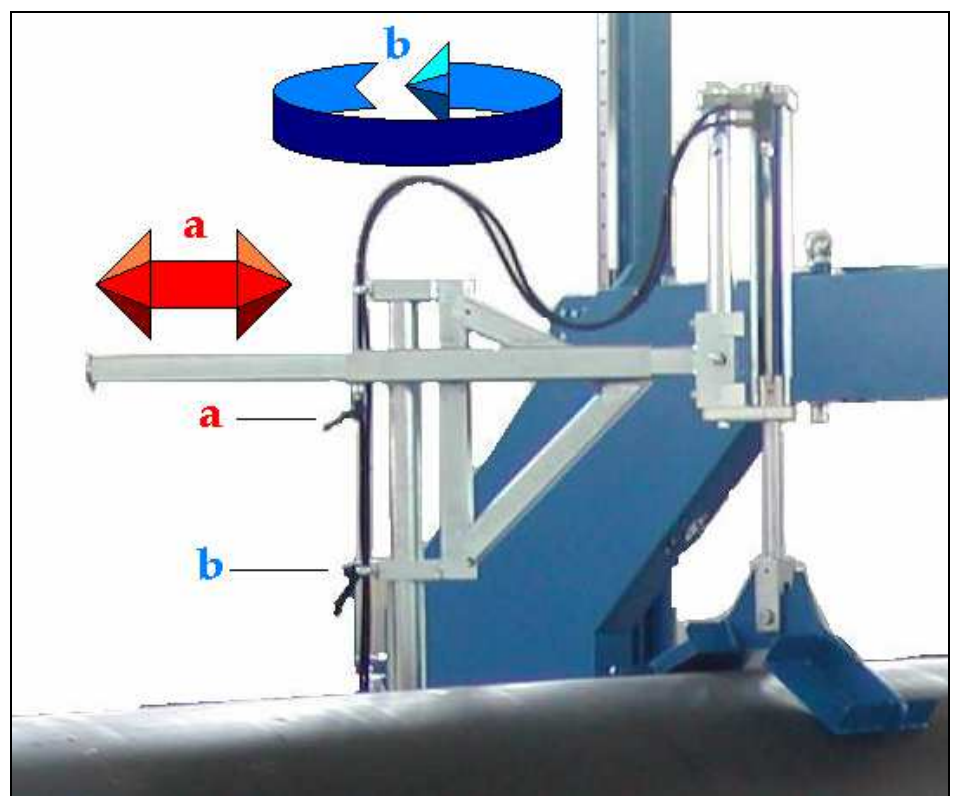


Figure 4. Adjusting the pipe's clamp

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The pipe's clamp must work in two different positions accordingly with the OD of the pipe to be cut

You must fix the cylinder of the pipe's clamp in the hole A to cut pipes in the range 500-800mm

You must fix the cylinder of the pipe's clamp in the hole B to cut pipes in the range 800-1200mm

In the Figure 5 you can see the holes **a** and **b** to be used to fix the cylinder

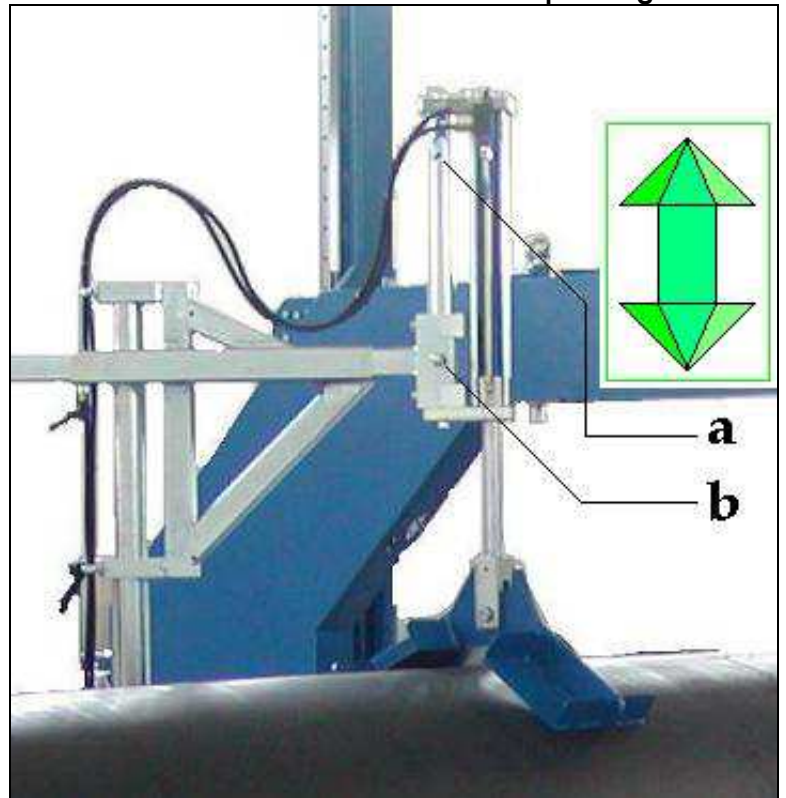


Figure 5. Holes a and b to fix the cylinder

To change configuration of the pipe's clamp cylinder follow this procedure:

Support the pipe's clamp by using a piece of pipe as shown in figure 6



Figure 6 .Supporting the pipe's clamps

Remove the split pin (see figure 7)



Figure 7. Removing the split pin

Remove the pin blocking the cylinder's sliding (see figure 8). Now the cylinder is free to slide (as per figure 5)

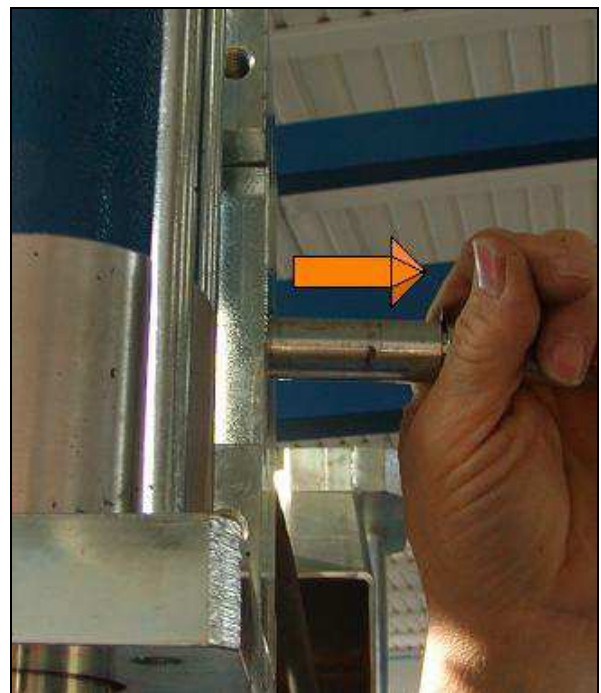


Figure 8. Removing the pin

If you need help to move the pipe's clamp simply push the button no. 9 for locking the clamp. The cylinder stem will be moved down and centring the hole **b** will be easier.

4. 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 **A**. You can read the stretch value on the scale **B**

The machine is supplied with an alloy blade and you must adjust the stretch blade between 250 and 300 kgs. Please ask to your supplier the right stretch to apply to the purchased blades!

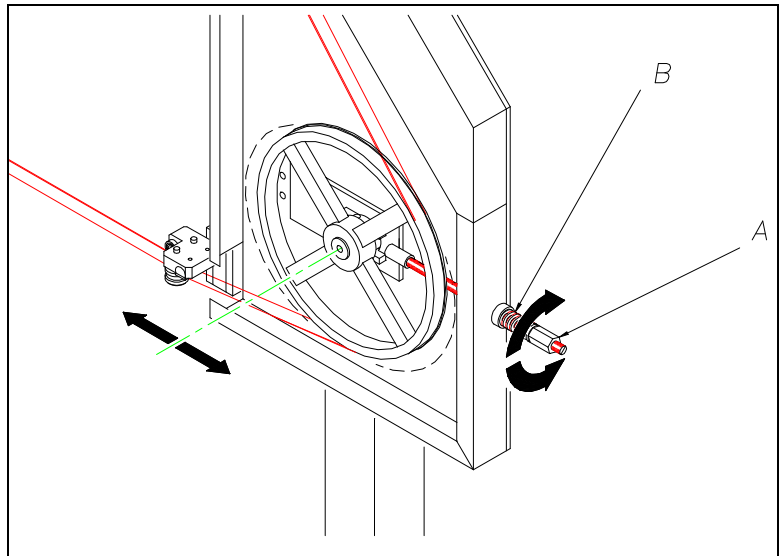


Figure 9. Nut regulating the blade stretch

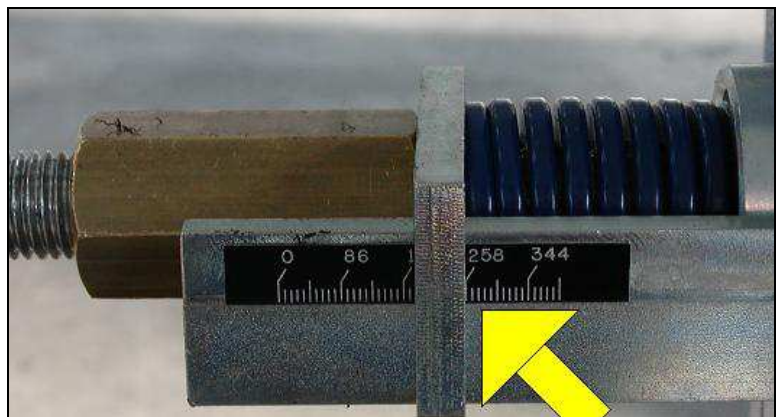
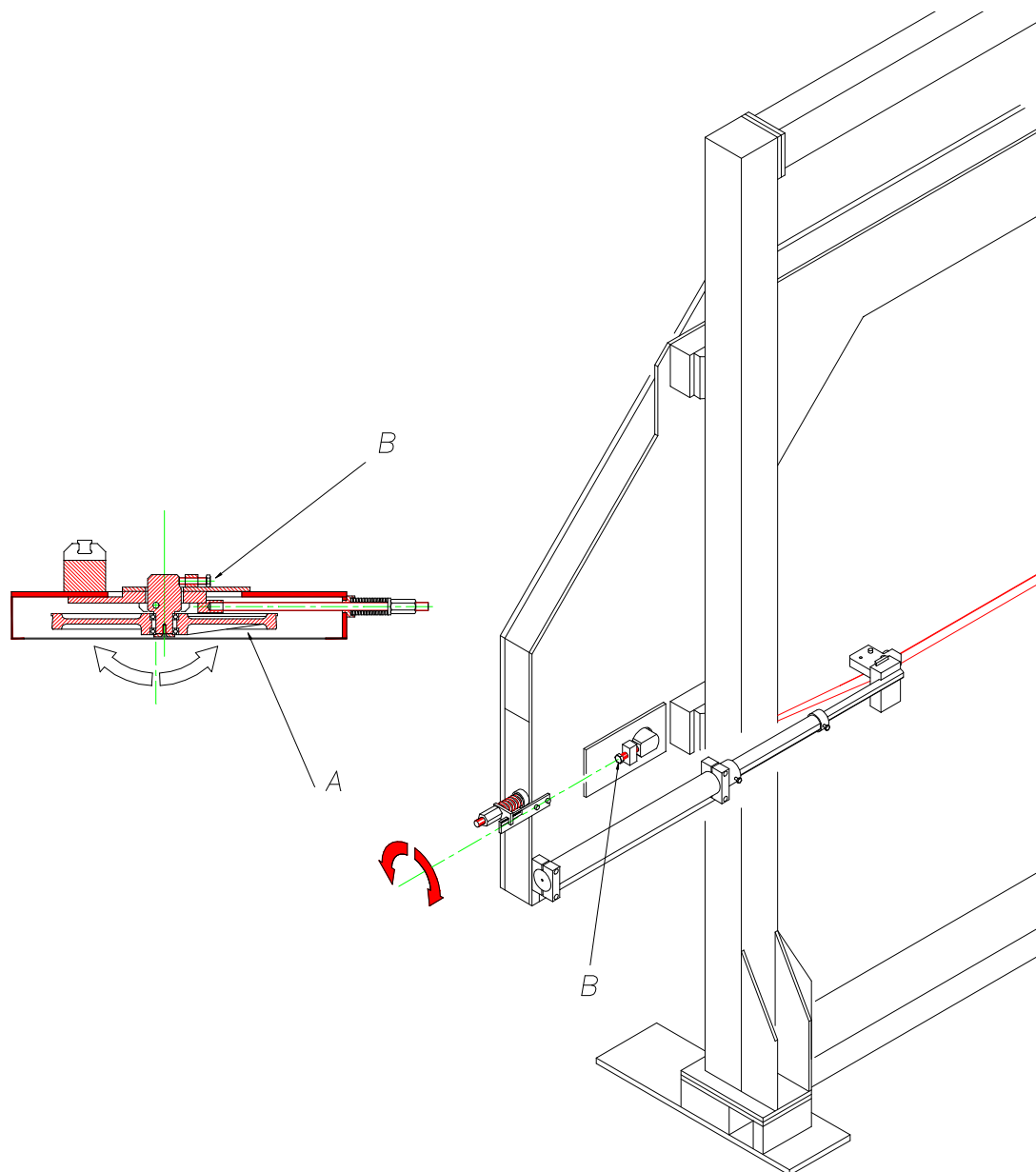


Figure 10. Scale with blade stretch values in kgs

Manually rotate the main pulley for at least 20 revolutions checking the tension and that the blade is inside the guide.

Close the protecting plates and after checking that there is any person close to the machine, start the engine of the blade at the minimum speed and check that the blade is running properly.

5. Pulley adjustment



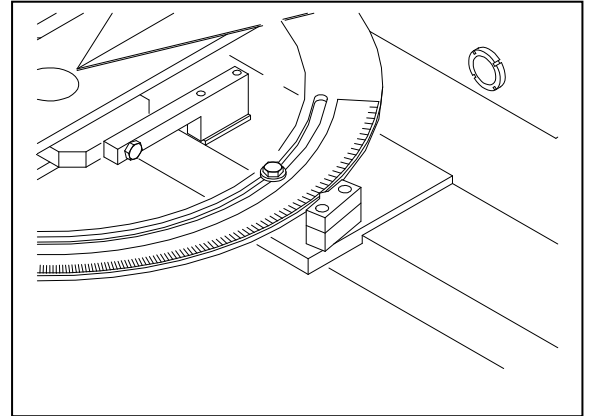
To adjust the idler pulley **A** act on the screw **B**. This operation is useful to avoid the coming out of the blade from the housing. HOWEVER IS STRONGLY DISCOURAGED TO PROCEED WITH THIS KIND OF ADJUSTMENT, due to the fact that is operation must be carried out during the test by our technicians.

6. Adjusting angle cut

The cutting angle could be changed from $30,0^\circ$ by means of turning the pipe holder to the left, and $68,0^\circ$ by means of turning the pipe holder to the right.

To adjust the cutting angle follows the points here below:

- 1) Release the bolt on the graduated scale
- 2) Turn the pipe holder to the desired position
- 3) Tighten the bolt on the graduated scale



7. Blade's Guide and blade protection 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, therefore the operator to adjust should act on the screws **A** and **B** by loosen and tighten them.

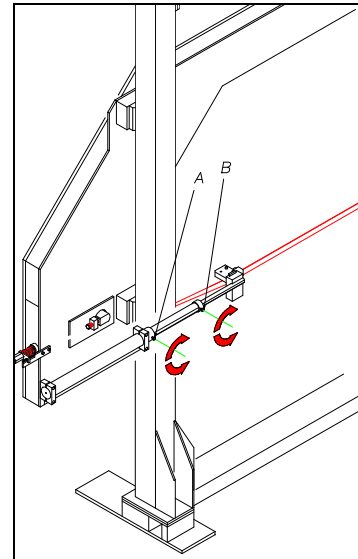
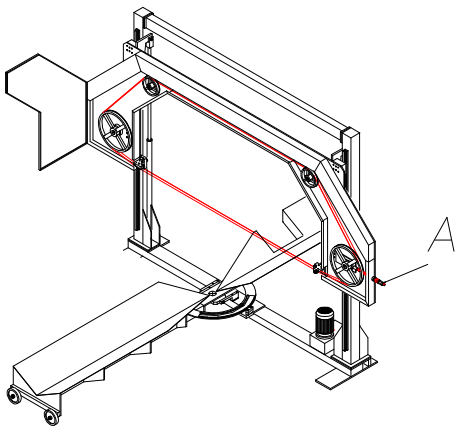


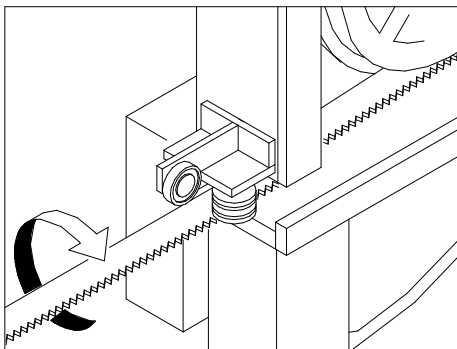
Figure 11. The blade's guide

e. Blade Replacement

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

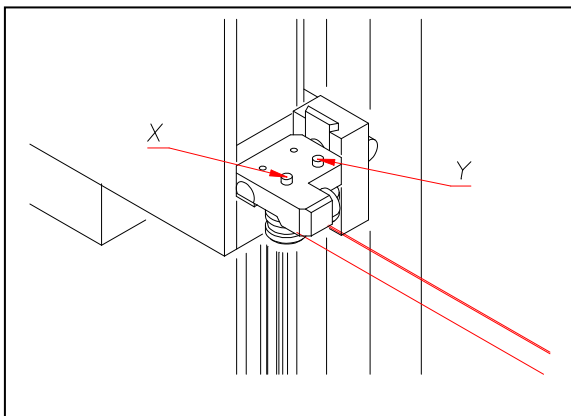


Disconnect the machine from the power supply
 Open the protecting plates
 Remove the old blade by loosening the stretch adjusting nut **A** and pull out the blade from the housings
 Mount the blade into the pulleys respecting the sense indicated by stickers. Use appropriate garments and gloves.



Rotate the blade and insert it into the blade housing (check that the broken and slack blade led is switched off)
 Close the protecting plates.

Important!
During this operation you must wear protective gloves.



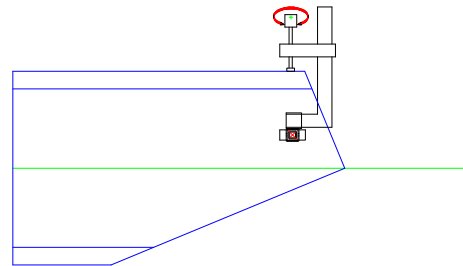
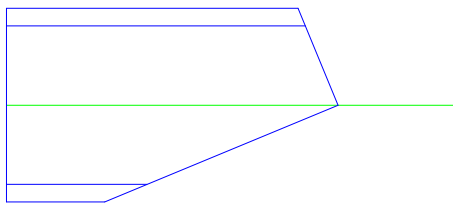
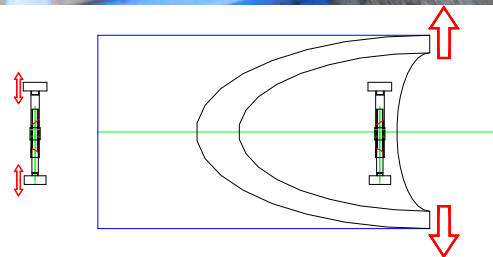
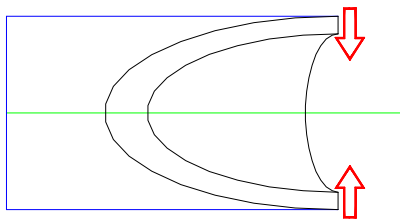
The blade's guides are supplied with two small wheels to keep the blade in the correct cutting position. One of the wheels (see X on drawing) is mounted on an eccentric screw to adjust the beam of the blade.

Every time you change the blade is better to slack the screw and after tighten it again to reduce or eliminate the beam.

g. Tools to ease the cutting procedure

The machine is supplied with two tools (see picture and drawings) to reduce the pipe deformation during the cutting procedure. Both tools can be adjusted to different diameters and cutting conditions.

Warning: After placing the tools, double check that the blade will not interfere with the blade run inside the pipe.



h. Maintenance

BASIC MACHINE - ROLLERS

It's strongly suggested to keep always the machine clean with particular care of the cylinder's stems and sliding bars .

Keep attention while insert pipes on the rollers avoiding to damage the machine's slide bars.

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

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Check weekly the wearing state of the blade and controlling if there are cracks at the base of the teeth

Monthly, open the protecting plates and remove the shavings.

Grease the trolley of the idler pulley when necessary.

HYDRAULIC UNIT

Check periodically the oil level. If the oil level is under 5 cm from the upper edge of the tank, add oil by using oil type: EESSO NUTO H 68, MOBIL DTE 26, SHELL TELLUS 68, AGIP OSO 460, ISO 46.

Keep the hydraulic unit clean.

CONTROL BOARD

Clean the control board only with detergents for electric/electronics components

Keep always clean the electrical part of the machine by using compressed air in order to blow away dust and dirt. Keep care to gently blow, to avoid any damage to the devices.

Each six months clean the filters of the fans.

GENERAL CONTROL

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

Warning: Do not use water to clean the machine!!!

i. Troubleshooting and relative solutions

BASIC MACHINE - ROLLERS

a) The machine does not move in a linear way

Check the oil level

b) Oil leakage from the cylinders

Consult the **Customer Service Dept.** verify if it's necessary to replace the cylinders or just the gasket.

If you need to change the power supply cable, use only cable type H07RN-F
 In advance to achieve any reparation or maintenance operation you must unplug the machine.
 In advance to open the control panel wait at least 3 minutes after unplugging the machine. The terminals could be under tension for a small period after switching off the machine.

HYDRAULIC UNIT

a) The engine does not start

- Check that the hydraulic unit engine is switched on

- The engine is broken, it is necessary to replace it.

b) The hydraulic unit does not increase the pressure

- Check the oil level, in case add oil to the oil tank

- Check if there are some leakage on hydraulic circuit

c) The pressure gauge must be replaced

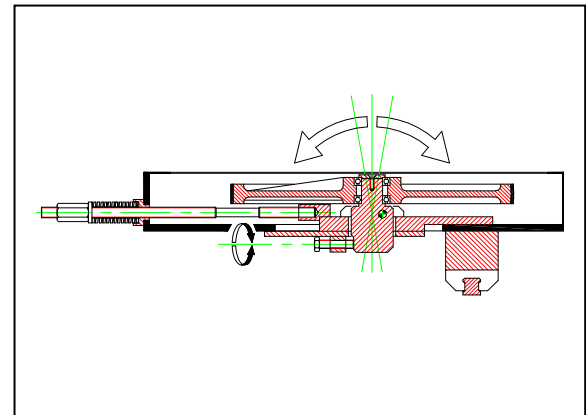
After bringing down the pressure to 0, remove the old pressure gauge by unscrewing the fittings with the pressure gauge locked. Mount the new pressure gauge

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a) The blade comes out from the guides

- Check the pulley adjustment

If necessary proceed with adjustment of the pulley



This manual has been printed on February 2014