

5773

7/2012

PLATES BENDING ROLL MACHINE

MANUAL

Machine Type: 3100 x 6 MM

Machine Serial No: 1205004

Date Of Manufacture: 2012 .5

Bending machines are designed and manufactured to comply with ANSI B11.12.1996 standards. The employer of the operator is responsible for providing and insuring the usage of point of operation guards and/or properly applied and adjusted point of operation devices as required to meet OSHA, state and local safety requirements.

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GENERAL INFORMATION

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INFORMATION ON MANUAL

This manual contains the safety precautions, the installation, running and maintenance

instructions as well as the chapter referring to the technical assistance including the spare part list and the electric and hydraulic diagrams. Possible modifications to improve the running of the machine may not be included in this book. Read and keep this manual within reach.

A T T E N T I O N

In case of resale of the machine, same must be delivered with this manual and all relevant enclosures.

SAFETY

In the safety chapter the basic precautions are listed. Furthermore all information concerning the wording and location of the warning plates, applied to the machine, are given. Before starting up of the machine or accomplishing the lubrication, maintenance or repairing operations, read the precautions listed in the safety chapter.

INSTALLATION

In this chapter the assembling of the machine components and the operations to be accomplished before starting up, are given. Furthermore the user will also find all details concerning transportation.

OPERATION

The operator who has knowledge of this machine, may refer to this chapter for the operation. This chapter gives all information concerning the indicators, switches and machine operation.

The pictures will help the operator to start, run and stop the machine correctly. The operation procedures described in this manual are the basic ones. The ability in running the machine will develop as the operator will get more used to the machine and its operation.

MAINTENANCE

This chapter will guide the user in taking a good care of the machine.

SPARE PARTS, HYDRAULIC AND ELECTRIC DIAGRAMS

(Necessary for the technical assistance)

This chapter will allow, with the help of drawings of the parts, the machine is consisting of, and of lists, to find the part of the machine to be replaced and its corresponding code to order the new part.

The chapter referring to the electric parts indicates the position of the electric parts of the machine and supplies the electric diagrams.

The machine will be supplied in two separate parts:

A: MACHINE

B: CONTROL PANEL

ATTENTION

THE CUSTOMER MUST CHECK THAT MACHINE DURING TRANSPORTATION HAS NOT SUFFERED STRUCTURE DAMAGES WHICH MAY COMPROMISE ITS OPERATION AND/OR SAFETY.

IN ORDER TO AVOID DAMAGES TO THE MACHINE STRUCTURE DURING TRANSPORTATION, RECOMMEND ITS PACKING IN A WOODEN CRATE.

GUARANTEE

Before leaving the factory all machines are checked and tested carefully. The machine installation is at customer's charge and its use must be strictly done in compliance

with the instructions given in this manual.

Any material and equipment for tests will be at buyer's charge.

GUARANTEE CONDITIONS AND LIMITATIONS

A: We have fixed for each model the maximum performance assuring the good running and long life of the machine, we guarantee the machine and labor, provided same are used in compliance with the instructions given in this manual. In case the machine will be used above their performance, even if occasionally, the guarantee will be no more valid.

B: The user has the right, in the suppliers judgment, to the replacement or repairing at no charge of those parts which would come out to be defective during the guarantee period. Any other form of guarantee and indemnity for direct or indirect damages are excluded.

C: The shipping costs for the defective parts to be repaired or replaced are at buyer's charge and we must have at disposal the time necessary for repairing or replacing these parts.

D: In case of technical assistance during the guarantee period from our technical staff, the buyer must ensure, if required, the necessary help.

E: In case the claim should come out to be unjustified, all expenses connected to the repairing and /or replacement of the parts will be charged to the buyer.

F: The guarantee does not cover defects and faults due to: natural wear, causes beyond control, bad installation, improper use of the machine, non-observance from the operator of the instructions for use and maintenance contained in the manual.

G:The guarantee will automatically stop should devices, accessories or parts be used and/or modifications be done, which have not been supplied by us or which have not been recommended or approved in writing by us and should be ascertained that during the guarantee period the number of the machine has been removed or changed.

TECHNICAL INSTRUCTIONS

— WORLING LENGTH	mm	1580
— MAX BENDING THICKNESS (FOR SHEETS WITH $K_r 40\text{kg/mm}^2$)	mm	6.5
— ROLLS DIAMETER	mm	170

— TOTAL LENGTH	mm	3600
— TOTAL WIDTH	mm	900
— TOTAL HEIGHT	mm	1150
— WORLING LEVEL	mm	900
— POWER OF THE MAIN ENGINE	KW	4
— POWER OF THE ENGINE FOR THE NENDING ROLL RAISING	KW	1.5
— WORKING SPEED	m/min	4,5
— SPEED OF THE BENDING ROLL RAISING	m/min	0,15
— FEEDING VOLTAGE	Volt.	220/3PH/60HZ
— WEIGHT	Kg.	1900

SAFETY CHAPIER

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SAFETY PLATES AND SYMBOLS

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IMPORTANT INFORMATION ON SAFETY

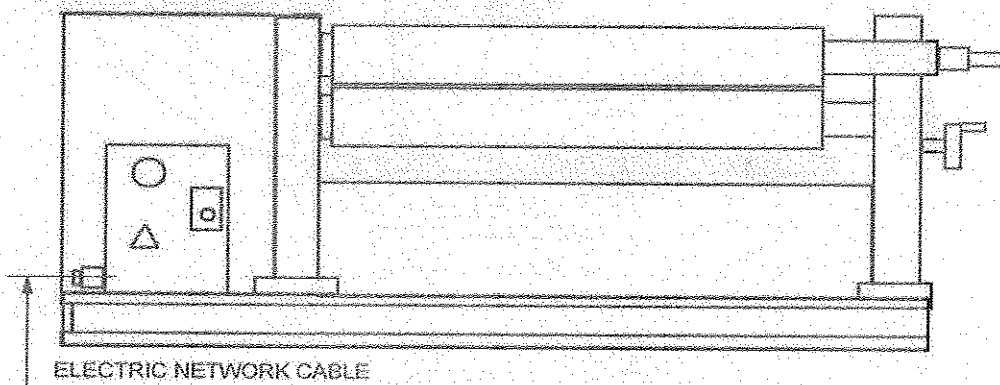
The major part of the accidents, occurring during the operating, the maintenance and repairing of the machine, is due to the non-observance of the regulations and basic precautions concerning safety. Often an accident can be avoided, if the potential dangerous situations are identified before this occurs.

The operator must be careful about the possible potential dangers and he must be trained and have the competence and the necessary tools to attend to these duties

ATTENTION

Before connecting the machine to the electric network check if the voltage corresponds to the one indicated on the identification tag of the machine and in the declaration of conformity.

The installation of the machine and its connection with the electric network must be performed by a qualified electrician.



The connection with the electric network will be performed as follows :

A: Open the control panel located on the machine by means of the key supplied with the machine, first positioning the general switch on “ O” (otherwise the panel will not open) .

B: Connect the electrical feed cable with the L1–L2–L3 terminals on the control panel

C: Connect the electrical feed cable GROUND TO THE GREEN/YELLOW/TERMINAL

ON THE CONTROL PANEL. The machine must be connected\ is ground thought the buildings main electrical network. The grounding cables must be as short as possible

and of cross-section no less than of the buss bar of the grounding of the entire system

D: Before supplying voltage to the machine check the following point:

–the electrical connectors have been inserted correctly;

–the connection of the supply cables and of the grounding cable the insulation and the voltage;

–Voltage:

the electrical equipment is designed to work between 0.9 and 1.1 times the rated voltage of the machine

frequency:

the electrical equipment is designed to work between 0.9 and 1.1 times the rated voltage of the machine.

Harmonic distortion:

Sensitivity to harmonic distortion is negligible

Asymmetry of the three-phase supply power

It must not exceed 200% of their efficiency:

Voltage pulses:

The peak values should not exceed 200% of their efficiency:

Voltage lacks:

Voltage lacks should not exceed 20%

E: Close the control panel located on the machine and position the main switer on “1”

F: Check if the shiftings between the direction indicated on the control panel and the real roll shifting correspond.(The raising and lowering of the bending roll must correspond to the arrow direction indicated on the control panel)

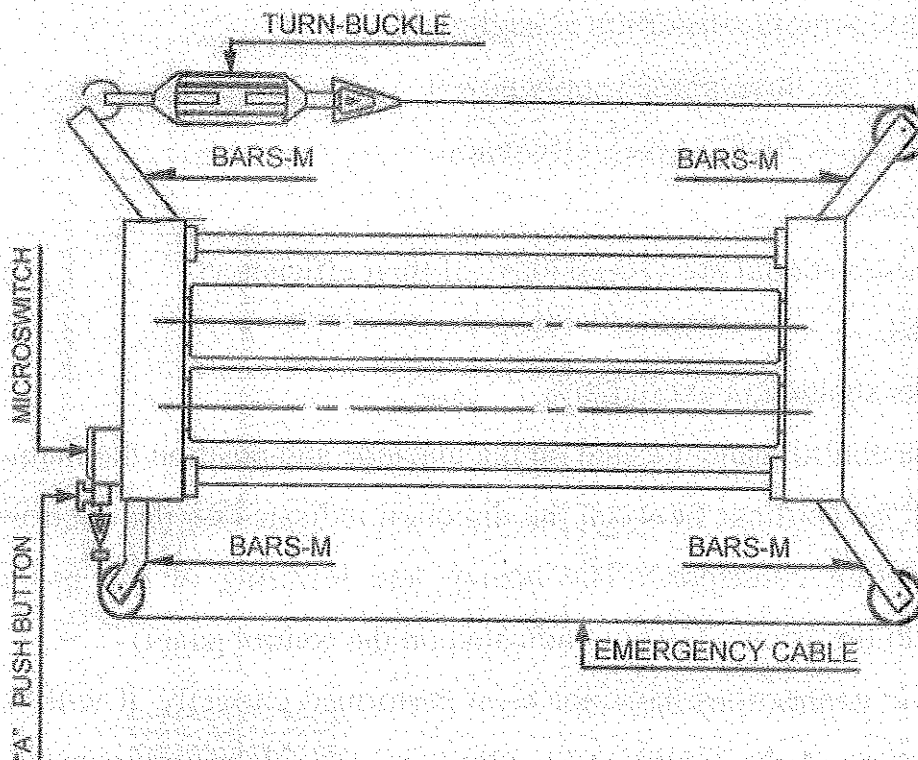
If the electric connections have not been performed correctly, it will be necessary to invert one phase of the feeding cable otherwise the safety limit switch, located at the end of the bending roll, will be cut out with serious damages to the roll raising system.

ASSEMBLING OF THE EMERGENCY CABLE

Due to transportation requirements the safety device by means of a cable will be supplied disassembled.

It will be, therefore, necessary to assemble it.

- A) Screw up the four "M" bars to the side supports of the machine.
- B) Set the safety cable on the three sides of the machine.
- C) Pull the safety cable acting on the turn-buckle until the adjusting slider of the release limit switch will reach an intermediate position between "full closed" and "full opened".



RELEASE LIMIT SWITCH

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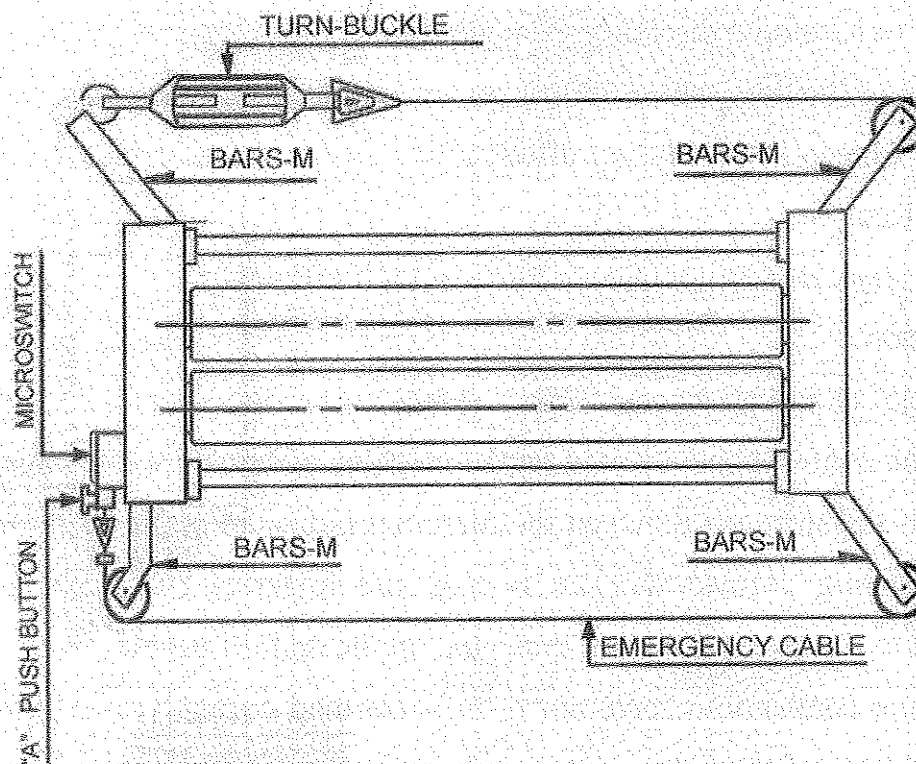
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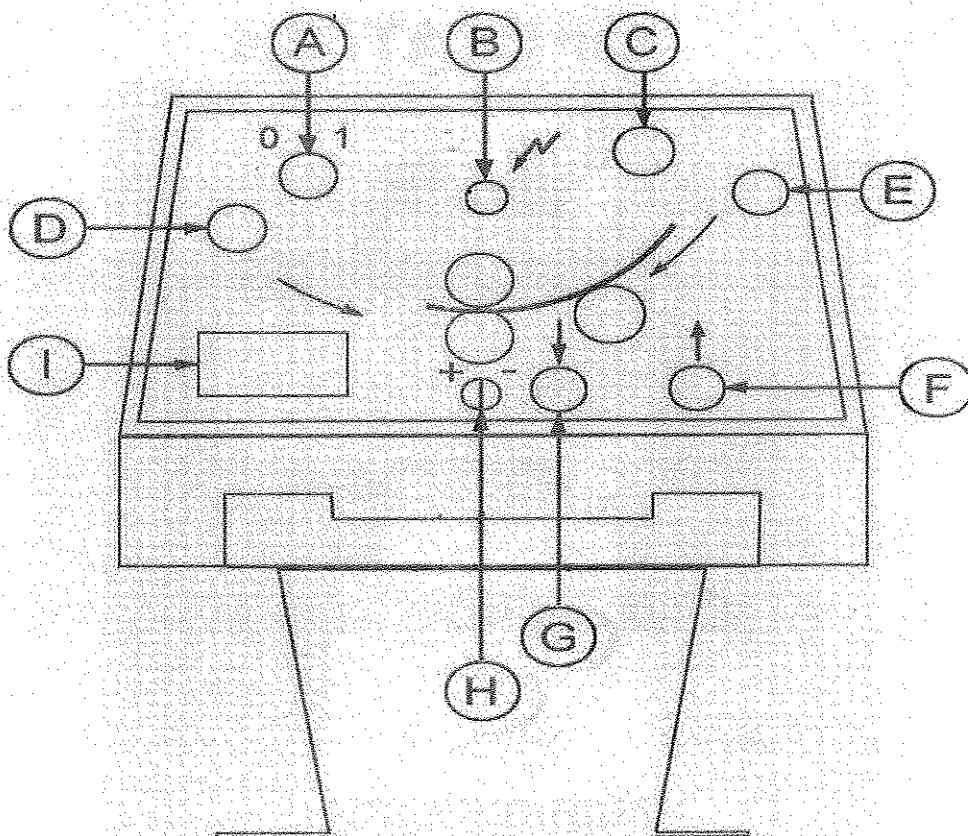
RELEASE LIMIT SWITCH

It has been provided with 3 positions:

1. FULL CLOSED–The machine will not run.
2. FULL OPENED – The machine will not run.

Press push–button “A” for resetting.

3. INTERMEDIATE POSITION – The machine will run.



A – Key switch

B –Warning light

C –Emergency

D –Roll notation push button

E –Roll notation push button

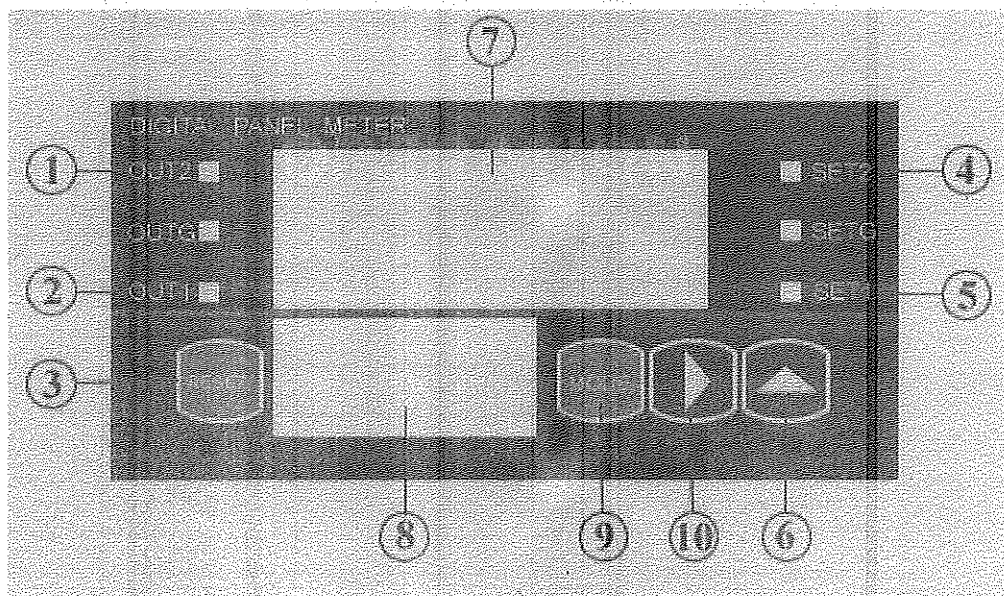
F –Roll raising push button

G –Roll lowering push button

H –Push button for lower roller raising and lowering

I –Digital display

OPERATION



- | | |
|--------------------------------|---|
| ①Over Upper Limit Instruction | ⑥Numerical Addition /Setting Value Changing |
| ②Over Lower Limit Instruction | ⑦Display Measured Value |
| ③Reset Button | ⑧Display Setting or Measured Value |
| ④Upper Limit Value Instruction | ⑨System Enter Key (3S Enter) |
| ⑤Lower Limit Value Instruction | ⑩Figure Right-shift Key |

Comparison Out-put

1. Upper Limit Comparison Out-put (HI)

Measured Value \geq upper limit setting value . Upper Limit Out-put. Panel OUT 2 lights;

Measured Value \leq the difference between the upper limit setting value and return difference value. the upper limit output resetting

2. Lower Limit Comparison Output (LO)

Measured Value \leq lower Limit Setting Value. Lower limit output. Panel OUT1 lights;

Measured Value \geq the sum of lower limit setting value and return difference value. lower limit output resetting. Panel OUT1 light goes out.

3. Normal operation output (GO)


When all does not conform to the upper limit or the lower limit output condition, Go outputs, Panel OUTG lights.

*The output way of one section output type appliance is the upper limit output.


(Specially assigns to be an exception).


*When establishes the start delay time, after on the electricity, arrives the delay time, the measuring appliance only then can carry on the comparison output.

Lock Function

 Cancel I Locking

 Lock Parameter Setting. Can be checked no amendment

 Lock Setting Value Alteration Can be checked no amendment




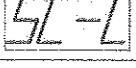

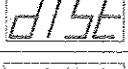

 Lock all the Setting Function Can be checked no amendment





* Remove Locking Function Before Setting Value Revising

* Terminal Connection Figure


* Routine Relay Out-put and Single Signal Input Figure



Setting Parameter

Item	Display	Function	Remark
		Choose PV/PH/VH Display	
		Set Output Return Difference Value	0~999
		Set Maximum in Display Value	-999~9999
		Set Minimum in Display Value	-999~9999
		Set Dot Position	
		Set Display cycle	0.1~4.9S
		Set Delayed Time	0.1~9.9S

	Set Entirely Measuring Range Correction Value	0.800~1.200
	Set Zero Point Correction Value	-99~+99
	Transuding Output Highest Display Value	0001~9999
	Transuding Output Initial Value	0.00~9.99


1. The establishment of setting value of the comparison output

Press  , the setting value minimum place glimmers unceasingly, indicate that enter setting value changing procedure.

Press  move scintillation place; Press  change scintillation place numerical value;


Press  or  , withdraw


2. The established method of two-segment output setting value



Press  , changing the setting value of the upper limit or lower limit

SET1 lights indicate that the current display is lower limit setting value.


SET2 lights indicate that the current display is upper limit setting value.

Press  , change the setting value into the current display.

Press  , the setting value minimum place glimmers unceasingly, indicate that enter setting value changing procedure.

Press  , move scintillation place; Press  change scintillation place numerical value;

Press  or  , withdraw

*For the instrument which has peak value or valley value keep, press  , enter set changing procedure.

RST is peak or valley value zero clearing key.

*Cancel lock function can be resettled.

DESCRIPTION

The engine gives motion to rolls 1 and 2 through a reduction gear and a chain.

The lower roll can be raised by.

By using a hand wheel.

The bending roll 3 can be raised are connected together by means of an electric engine which controls 2 worm - reduction gears.

these two worm reduction - gears are connected together by means of a fixed joint and a half - toothed joint.

You can tilt roll 3 by disengaging the half - toothed joint and by handling the hand

wheel in this way it is possible to obtain conical pieces.

After the rotation of 45° of the guide lever, the upper roll 2 can be taken away from the right shoulder to allow the cylinder dxttraction.

All operations concerning the movements of rolls 1 and 2, the raising or lowering of the bending roll 3, can be obtained by pushing the buttons of the electric control desk.

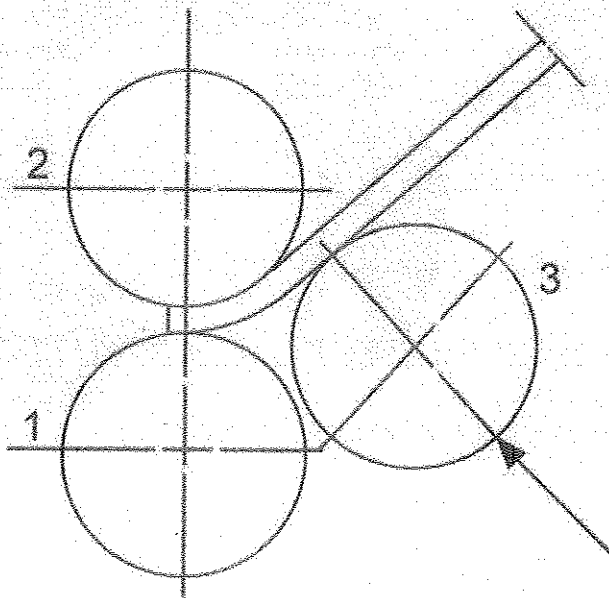
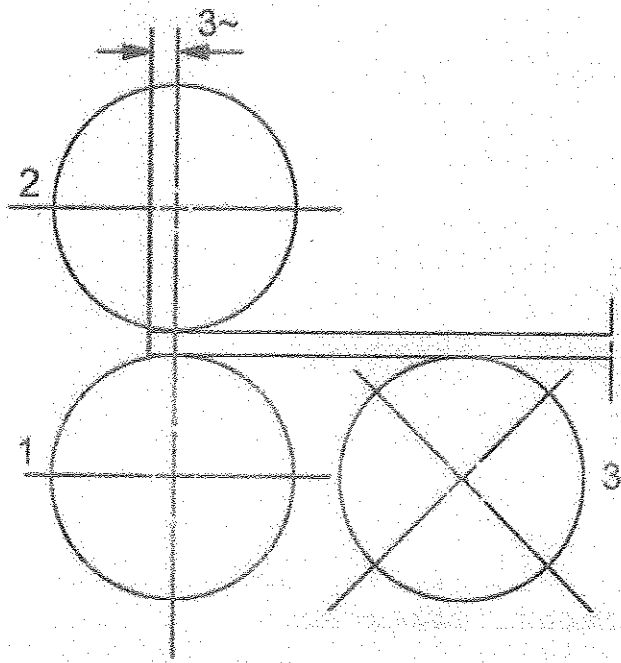
Our machine is provided with a safety device which is always able to stop immediately both rolls 1 and 2.

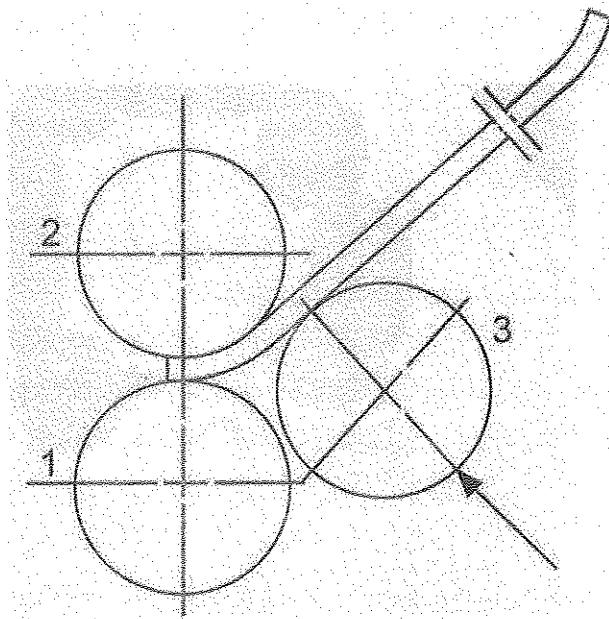
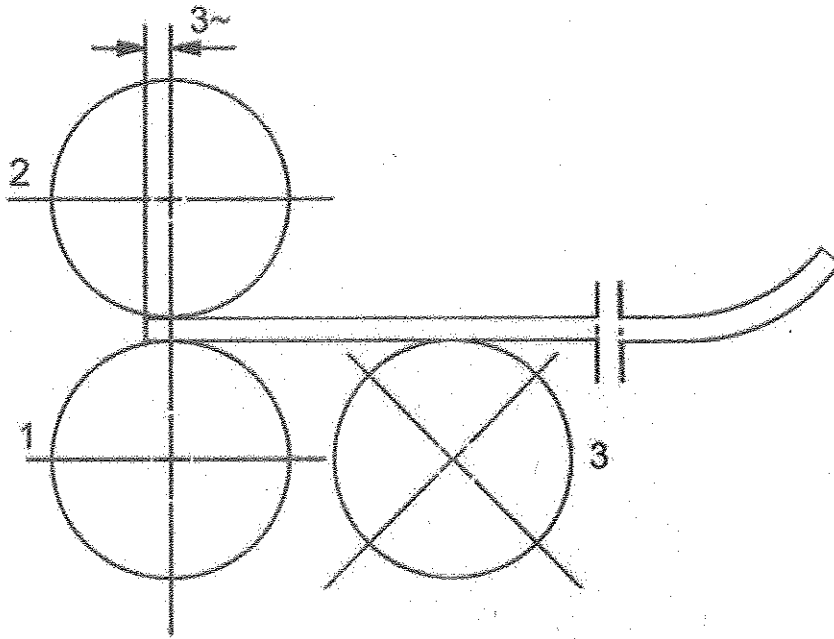
The roll bending of a plate is effectued in 3 phases:

- A) The roll bending of the first piece of plate (Front Prebending).
- B) Plate overturning and roll bending of the last piece of plate (End Prebending)
- C) Roll bending and formation of the cylinder.

A) FUONT PREBENDING

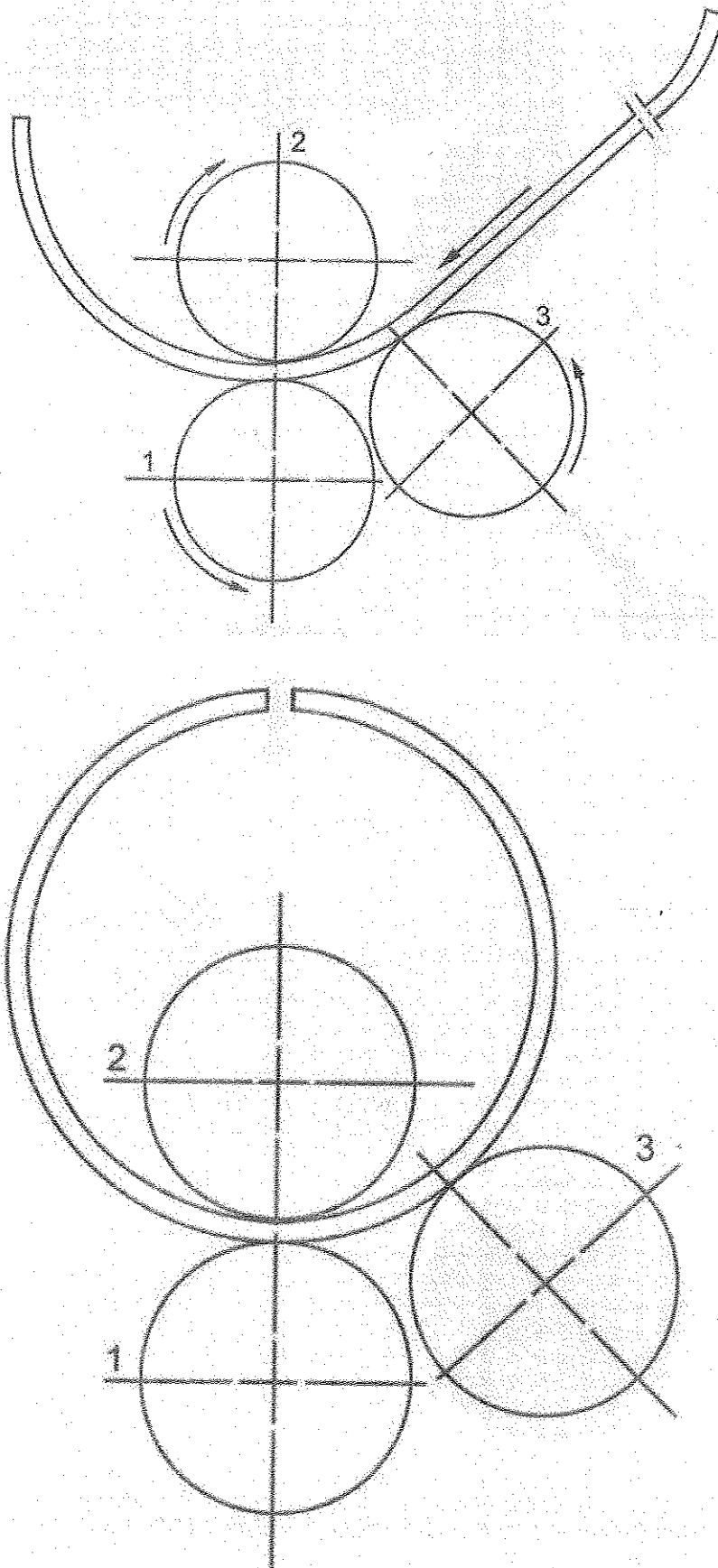
- 1) Push the main button, lower bending roll 3 by pushing the suitable button.
- 2) Lower the lower cylinder 1 by means of the hand wheel.
- 3) Place the plate on lower rolls and positionate it as indicated in Fig. 1 .
- 4) Lift the bending roll 3 as indicated in Fig. 2 .





C) ROLL-BENDING AND FORMATION OF THE CYLINDER

Move ahead the plate as in Fig. 5, to obtain the complete cylinder Fig. 6.

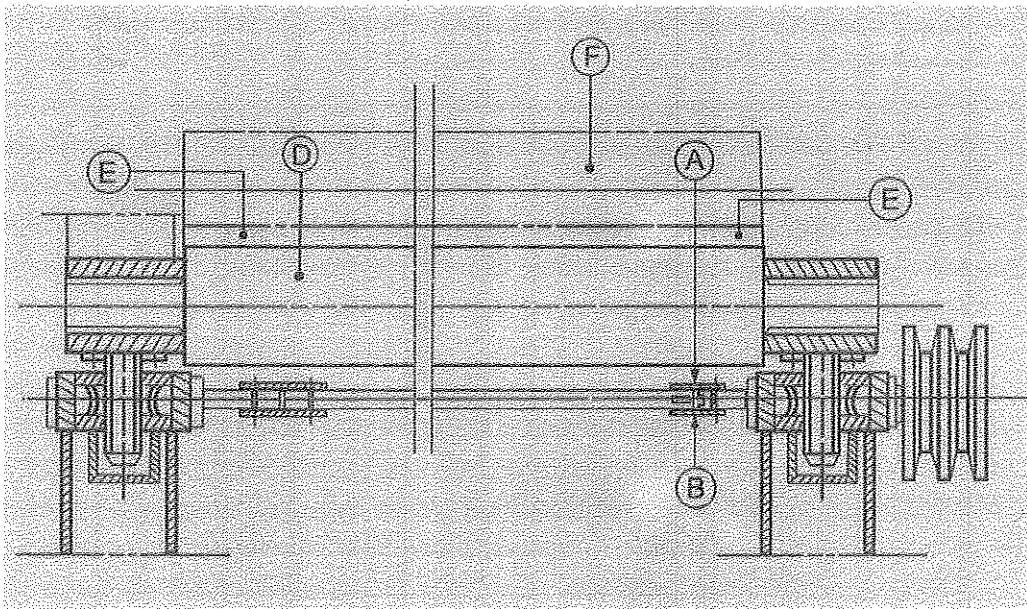


Due to the high friction forces which are developing during the conical bending

CONICAL BENDING

Due to the high friction forces which are developing during the conical bending because of the plate sliding on the rollers, the capacity of the machine must be reduced of 50% (referred to the bending thickness). The conical bending is obtained with the conical bending attachment applied to the right machine shoulder and with the inclination of the side (bending) and bottom rollers as much as necessary.

The inclination of the bending roller must be performed as follows: (see dwg. Below)



1. Loose "A" screw.
2. Disconnect "B" semi coupling.
3. Start motor for bending roller raising.

