



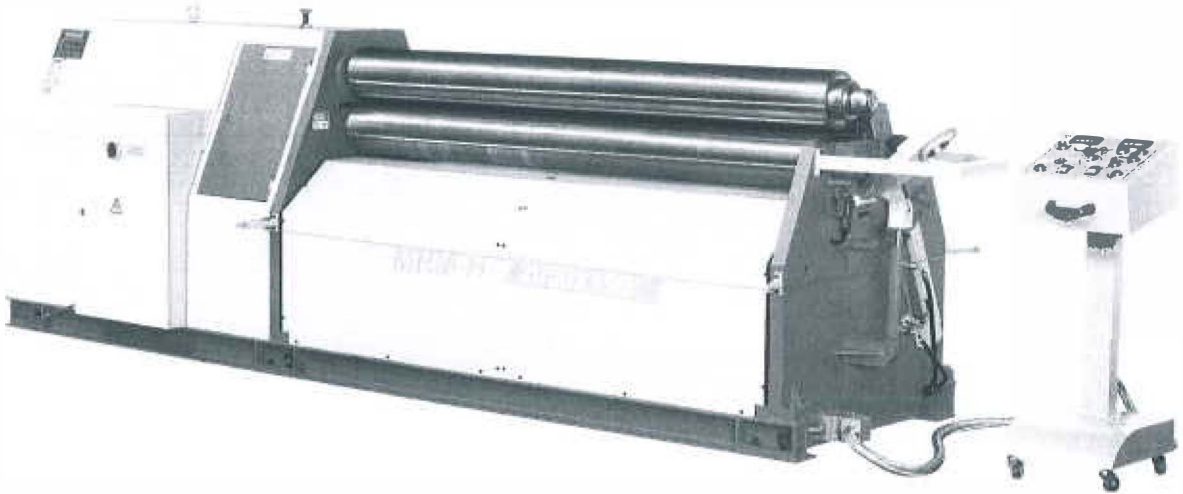
sahinler



USER'S MANUAL

MODEL MRM-H

PLATE BENDING MACHINE



İzmir Yolu 22.km Mümin Gencoğlu Cad. 16285 BURSA / TURKEY

Tel: +90-2244-700158 (6 lines pbx) Fax: +90-224-4700770

Web: www.sahinlermetal.com Email: info@sahinlermetal.com

Spare parts & service: service@sahinlermetal.com



EC DECLARATION OF CONFORMITY

MANUFACTURER : ŞAHİNLER METAL MAKİNA ENDÜSTRİ A.Ş.
ADDRESS : İzmir Yolu 22. Km Mümin Gençoğlu Caddesi 16285
Bursa – TÜRKİYE
Name and address of the person : FERHAN ŞAHİN
authorized to compile the technical file : İzmir Yolu 22. Km Mümin Gençoğlu Caddesi 16285
Bursa – TÜRKİYE

The undersigned Company certifies under its sole responsibility that the item of equipment specified below satisfies the requirements of the Machinery Directive 2006/42/EC which is apply to it.

The item of equipment identified below has been subject to internal manufacturing checks with monitoring of the final assessment by ŞAHİNLER

PRODUCT : HYDRAULIC ASSYMETRICAL 3 ROLLS PLATE BENDING MACHINES
MODEL / TYPE : MRM-H 2550x190
SERIAL NO : 225109

DIRECTIVES

MACHINERY DIRECTIVE 2006/42/EC
LOW VOLTAGE DIRECTIVE 2006/95/EC
ELECTROMAGNETIC COMPATIBILITY DIRECTIVE 2004/108/EC

Regulations Applied acc. to HARMONIZE STANDARDS

EN ISO 13857–1: 2006, EN 982:1996, EN ISO 14121–1: 2007, EN ISO 12100–1:2003
EN ISO 12100–2:2003, EN 954:1996 EN 60204–1: 2006

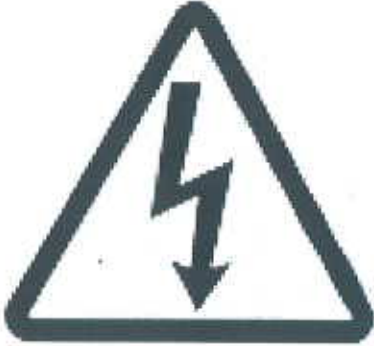
Place and date of issue : Bursa 02/04/2012

Name and position of authorized person : Ferhan ŞAHİN
General Manager

Signature of authorized person :

ŞAHİNLER
METAL MAKİNA ENDÜSTRİ A.Ş.
İzmir Yolu 22. Km Mümin Gençoğlu Cd.
16285 Nilüfer - BURSA

LABELS



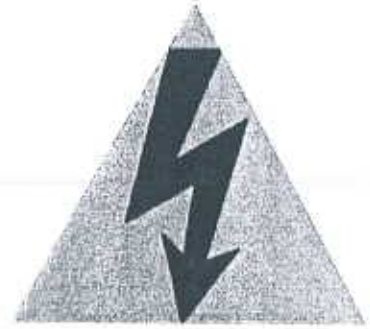
DANGER OF ELECTRIC



EMERGENCY STOP



GROUNDING SYSTEM



WORKING VOLTAGE



DANGER

CONTENTS

Page

<i>Inverse electric protection</i>	1
<i>General Notes</i>	2 - 3
<i>General Warranty Terms</i>	4
<i>Transport and Lifting</i>	5
<i>Technical Properties</i>	6
<i>Foundation Plan</i>	7
<i>Main Dimensions</i>	8
<i>Attention</i>	9
<i>Adjustment Parallelism</i>	10
<i>Operating Instruction</i>	11 - 12
<i>Safety Directives</i>	13 - 18
<i>Bending Operation</i>	19 - 21
<i>Maintenance</i>	22 - 26
<i>Hydraulic Parts List and Schema</i>	27 - 28
<i>Main Parts Schema</i>	29 - 30
<i>Machine Part List</i>	31
<i>Conical bending formula</i>	32
<i>Electrical Schemes</i>	33 - 39
<i>Electrical Parts List</i>	40
<i>Digital Readouts</i>	

INVERSE ELECTRIC PROTECTION

SIEMENS 3UG3511 1BQ50



Yellow - OK

If the electrical connection of the machine is wrong the phase protection device activates and cuts off any electric supply to protect the hydraulic pumps from inverse rotating and burning out. Only when its connected correct the relay light will light up and the machine will operate.

GENERAL NOTES

1. Introduction

Thank you for choosing a Şahinler Sheet / Metal Working Machine. We are proud to have you in our long list of satisfied customers all over the world.

This User's Manual is absolutely for your safety and is essential for the machine to have a long production life. As long as you keep up with our Manual you will be able to run your machine smoothly and safely. Keep in mind that the machine is designed absolutely to perform maximum safety and for efficient working.

In this Manual you can find instructions and information about:

- Correct installations of the machine
- Description of the functional parts of the machine
- Set-up and start-up adjustments
- Correct standard and scheduled maintenance
- Simple safety regulations and accident prevention.

Therefore, as far as the user's safety is concerned, in this handbook the possible risks connected with machine operation are pointed out as follows:



Attention: Showing the risks of accident, if instructions are not followed.



Warning: Showing the probable damages to the machine or equipment, if the instructions are not strictly followed.



Note: It gives useful information.

It is certainly necessary that the operator should read and understand all the **Attention, Warning, Note** specified in this Manual before starting with operation of the machine and before any lubrication or maintenance intervention

On all steps of installation, operation and maintenance safety must be your first concern for the protection of yourself, other users and the service of the machine. In case of any failure please first refer to this Manual, and then if a solution cannot be found contact first of all the distributor where you purchased our product. Do not forget to refer to the drawings and the numbers for any spare part needed or to define any problem. Make sure you have the serial number and production year of the machine.

Our technical staff will make their best to help you in the most convenient way.

2. Transport

As soon as you receive the machine, check for any visible transport damages. Should there be any visible damages; report it straight away to the transporter company and of course Şahinler Metal Mak. End. A.Ş. or your supplier.

Remove any protective crates around the machine and read the instructions on related chapters of this Manual carefully to set up the machine. If the machine is damaged while transport, **immediately take some photographs for insurance claims.**

Take precautions while loading / unloading or moving the machine to avoid any injuries. Refer also to related chapter of this Manual for the best way of handling the machine.

3. Electrical Information

All necessary connection procedure can be found on this Manual. Do not try to connect the machine before reading these procedures and fully understanding the drawings. For any unclear matters get in touch with Şahinler Metal Mak. End. A.Ş. or any of the Şahinler distributors. Have the machine connected by a qualified electric technician. For, as we made clear in the "general conditions of guarantee", under no circumstances installing mistakes, including electrical connection mistake, can not be covered by guarantee agreement. Always turn off power before making any connections or disconnecting the machine.

4. Maintenance

Your machine is designed and produced to work efficiently and smoothly. To achieve this you should also take care while operating the machine. Regard Maintenance sections to have the longest life from your machine. Try and use original spare parts where necessary and most importantly do not overload the machine or do not make any unauthorized modifications.

5. Safety

Take all precautions possible to avoid any personal injury while using the machine. Keep in mind to protect the third party people around the machine. Refer to safety directives.

GENERAL WARRANTY TERMS

- Your machine is covered by manufacturer's guarantee for a period of 12 months from the date of purchase against manufacture defects. The warranty period does not exceed 18 months from the date of delivery from the manufacturer's factory.
- Warranty covers only manufacture defective parts and / or components that are reported as "defective" by a Sahinler Technician or the Agent Technician and must be reported to Sahinler in writing by fax or email.
- The manufacturer is responsible for the supply of free of charge spares only and cannot be held responsible for loss of work.
- Shipping and customs fees for the spare part must be paid by the end-user.
- If a technician travel is necessary Sahinler will not charge for labor and workmanship costs but the customer must pay traveling and accommodation charges.
- A Warranty claim does not relieve the Customer from payment obligations.
- The Customer can not ask or demand any reimbursement of damage nor the Customer will have the right to extend or delay payment obligations nor the cancellation of order and the refunding of damages as the guarantee is given for the defective parts of the machine and not for the job.



Note: All warranty claims must be applied with the Model, Serial Number and the Manufacture Year of the machine.

TRANSPORT AND LIFTING OF THE MACHINE

Use necessary cranes and lift as shown. Please take extra care during lifting and moving. If necessary consult with specialized companies for lifting.



Attention : Customer, take delivery of machine, when necessary of transport that's check to damages of machine, you will effect safety or machine is functional.



Note : Şahinler Metal Mak. End. A.Ş , when necessary of transport , machine shouldn't happen for damage to purpose wood foots

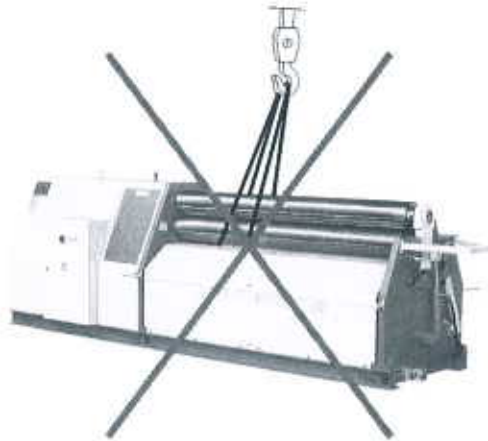
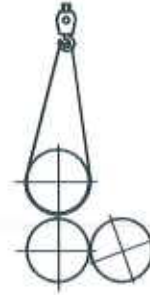
When necessary of machine, firstly of all make to come together rolls.

APPROX MACHINE WEIGHT ;

MRM-H 2050 x 190 2950 Kg.

MRM-H 2550 x 190 3400 Kg.

MRM-H 3050 x 190 3800 Kg.



OPENING THE PACKAGE

If any visible damage exist on the machine when you receive the machine immediately informs the dealer or manufacturer. Also never forget to state the visible damage on transport documents.

The packing material is completely safe and do not consist any environmentally dangerous articles. However they must be kept out reach of children as some nylon products in packing may cause suffocation if used as a toy etc.

TECHNICAL PROPERTIES

The MRM-H Model Motorized and Manual Four Rolls Benders have these specifications:

Model		2550 x 190
Without pre-bending	mm	5
Pre-bending	mm	6
Without pre-bending		
Top roll diameter	Ø mm	190
Diameter	Ø mm	285
Motor power	Kw	4+1.5
Piston power	Tone	10
Machine dimension	mm.	4100x980x1250
Useful length	mm	2500
Weight	Kg	3400

TECHNICAL SPECIFICATIONS AND STANDARD EQUIPMENTS

- This machine is particularly suitable for medium plate for the production of ferrules in automatic cycle without CNC system, varying radiuses part or without axis interpolation
- Bottom pinching roll with hydraulic positioning
- Two lateral rolls with double pinch pyramid action. (Bottom pinching and lateral rolls with balancing system to guarantee perfect parallelism and high quality production)
- Top roll is powered by electrical motor and

Note : Machine dimensions are approximate

- planetary gearbox. Bottom roll powered with cardan joint system.
- Movement of the lateral rolls is carried out by means of pistons
- Digital displays are provided for locating setting of roll positions
- Hydraulic drop end for ease of cylinder removal
- All control operations are conveniently located on an independent control console
- Steel welded heavy frame construction, thermally stress relieved
- Induction hardened rolls are of high tensile carbon steel forging, heat treated and submitted to non destructive structure controls
- Conical Bending Device
- For special requirements they can be supplied with surface grinding
- **Hydraulic elements :** Motor and pump group, pressure valves, solenoid valves, oil display and etc. Bosch, Rexroth or Parker elements used
- **Emergency system :** Safety string barrier around the machine and machine and emergency push button
- **Electricity equipments :** Siemens or Telemecanique
- Built according to EC Safety Directives. (CE-Mark)
- Users manual book

SPECIAL FEATURES

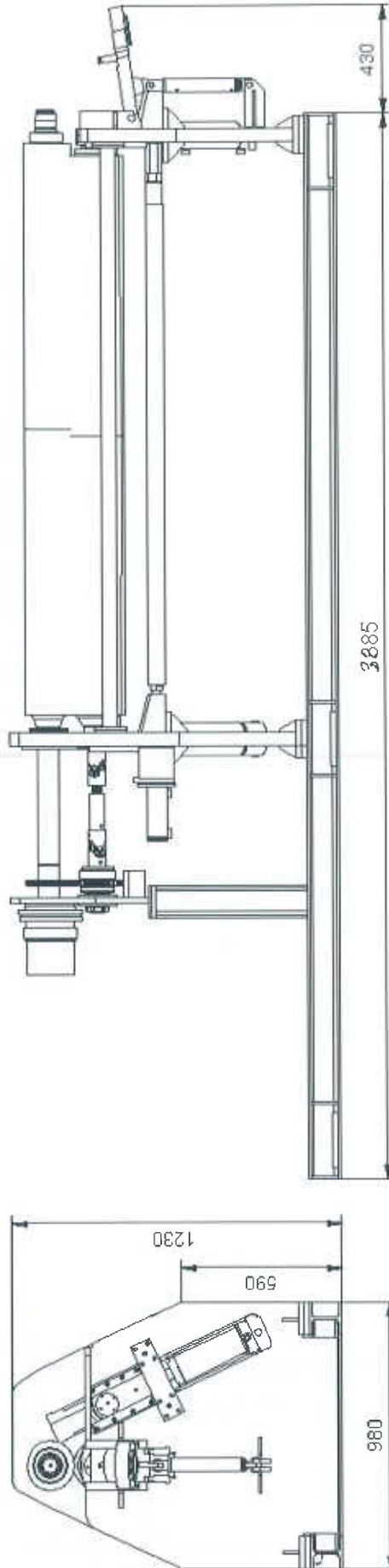
- Hydraulic crane
- Hydraulic lateral supports
- NC controls
- Hydraulic plate ejector
- Feeding system and material handling other accessories according to customer needs
- Interchangeable top roll

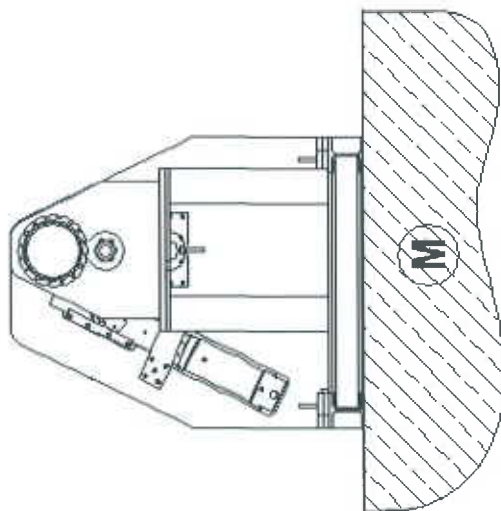


Warning: Do not feed profiles having a higher thickness than specified for the capacity of the machine. Do not feed more than one piece at a time. Do not use the machine for any other job the one for which it has been designed.

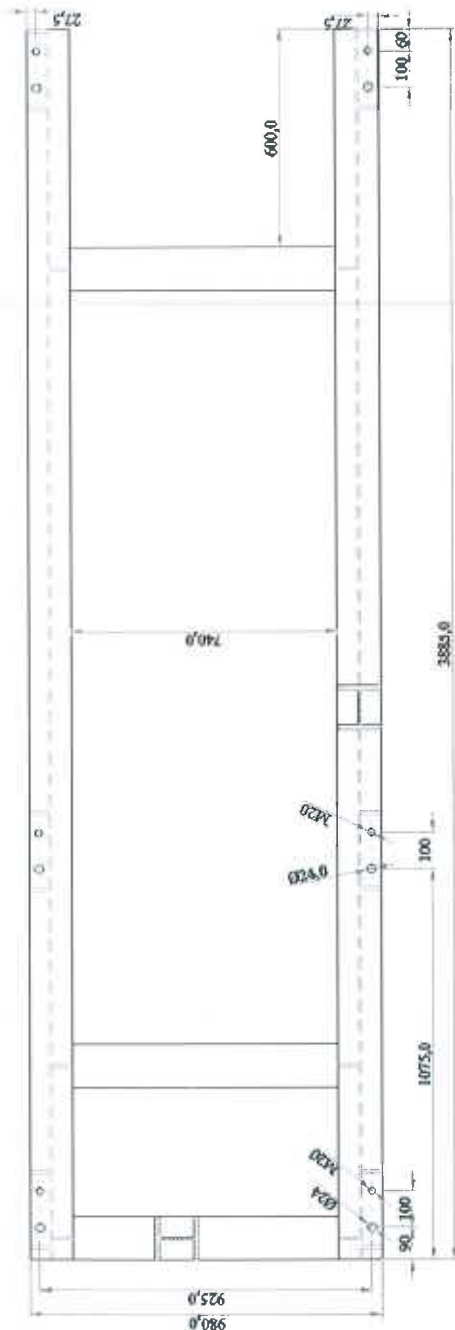


MAIN DIMENSION OF MACHINE



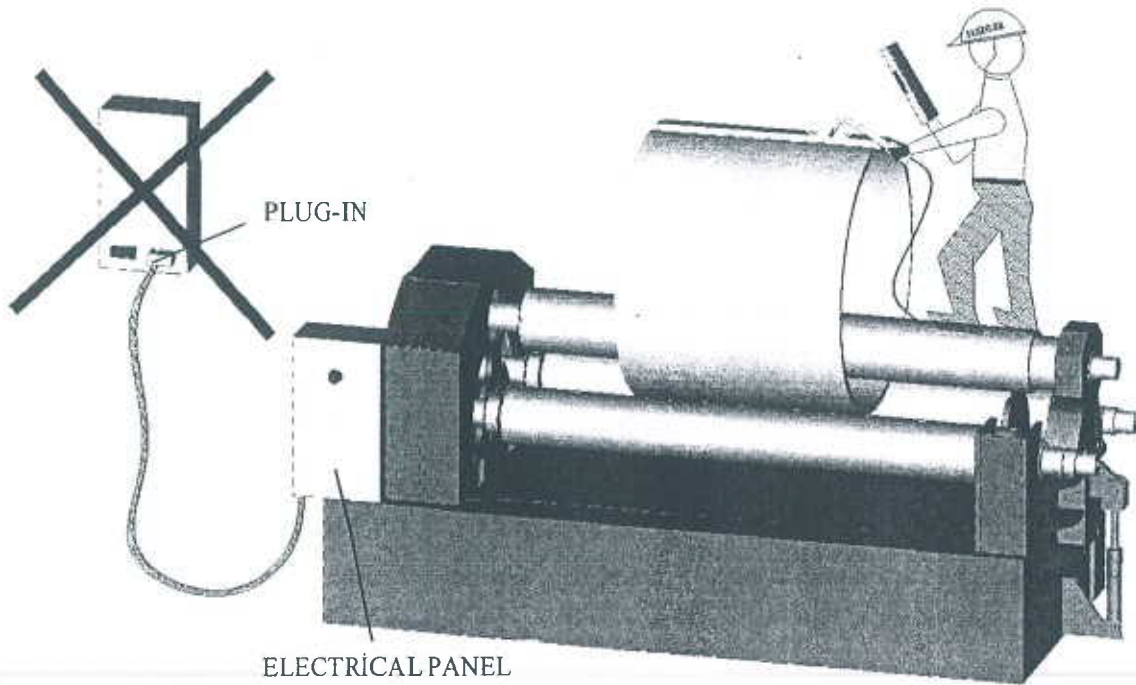


BETON ZEMIN
CONCRETE MASONRY
ZEMEN BODEN

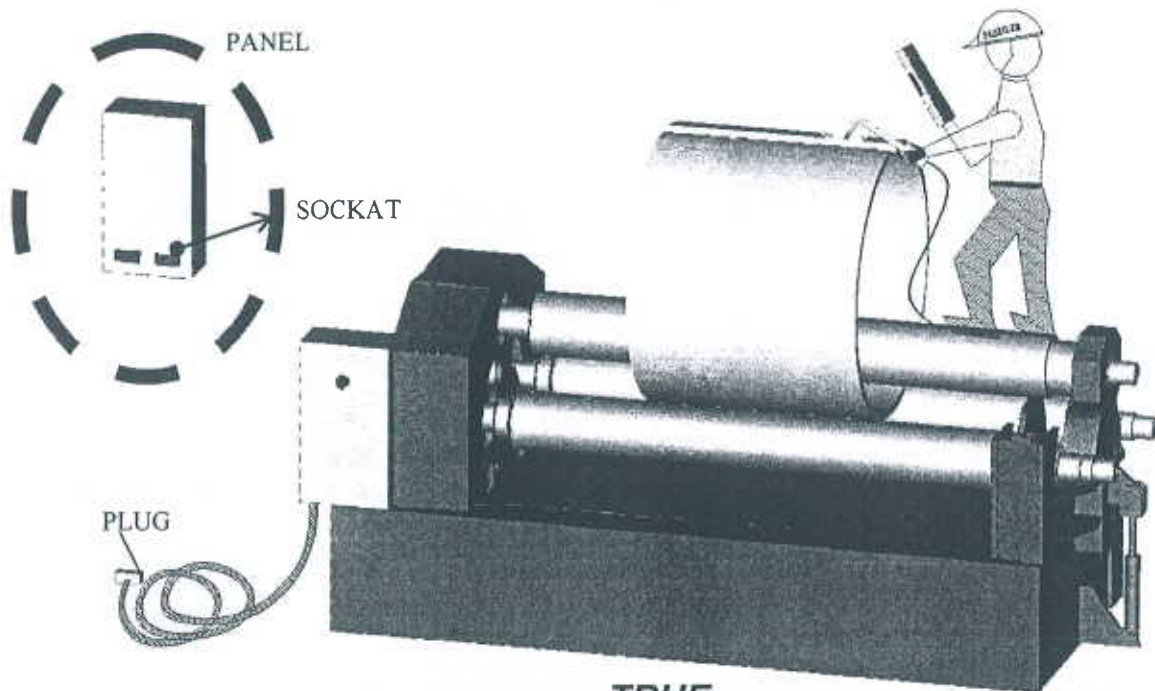


Y DETAYI
Y DETAY

ATTENTION : You must **remove the plug from plug – in** before welding operation



WRONG



TRUE

EXPLANATION OF FOUNDATION PLAN

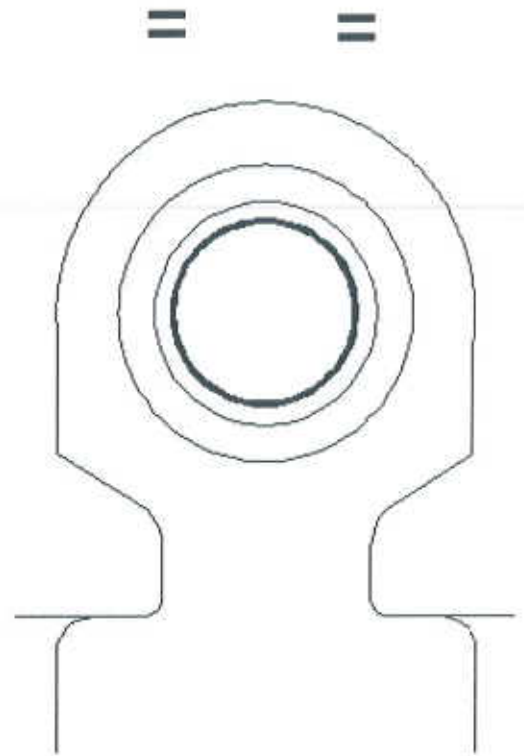
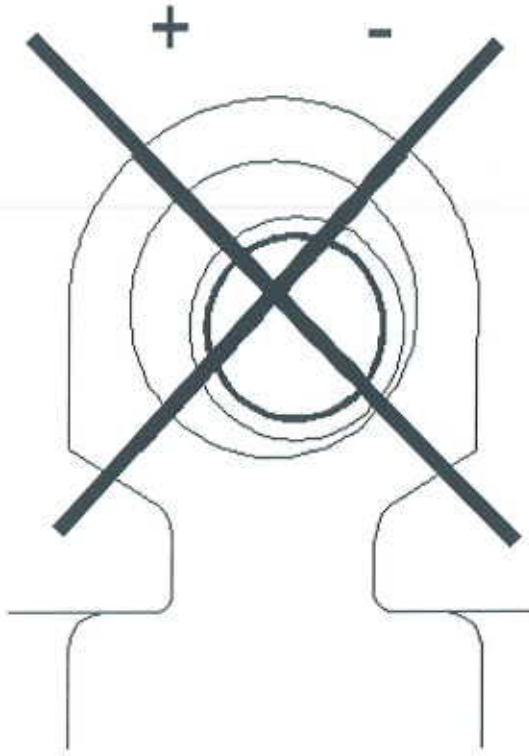
On attached pages you can find foundation plan of the machine. For operation the machine must be placed in a pit as shown and must be bolted to the ground. For bolting refer to front page.

After placing the machine make sure all areas of the machine is flat and check parallelism of the machine periodically by a water gauge.



ADJUSTMENT FOR PARALLELISM

Before proceeding to the bending operation in the machine, open the bracket on the front part and verify if the upper roll enters the bracket in a symmetrical manner. If there is any deviation, first of all adjust such deviation through the balancing bolts under the machine and then start to work.



OPERATING INSTRUCTIONS

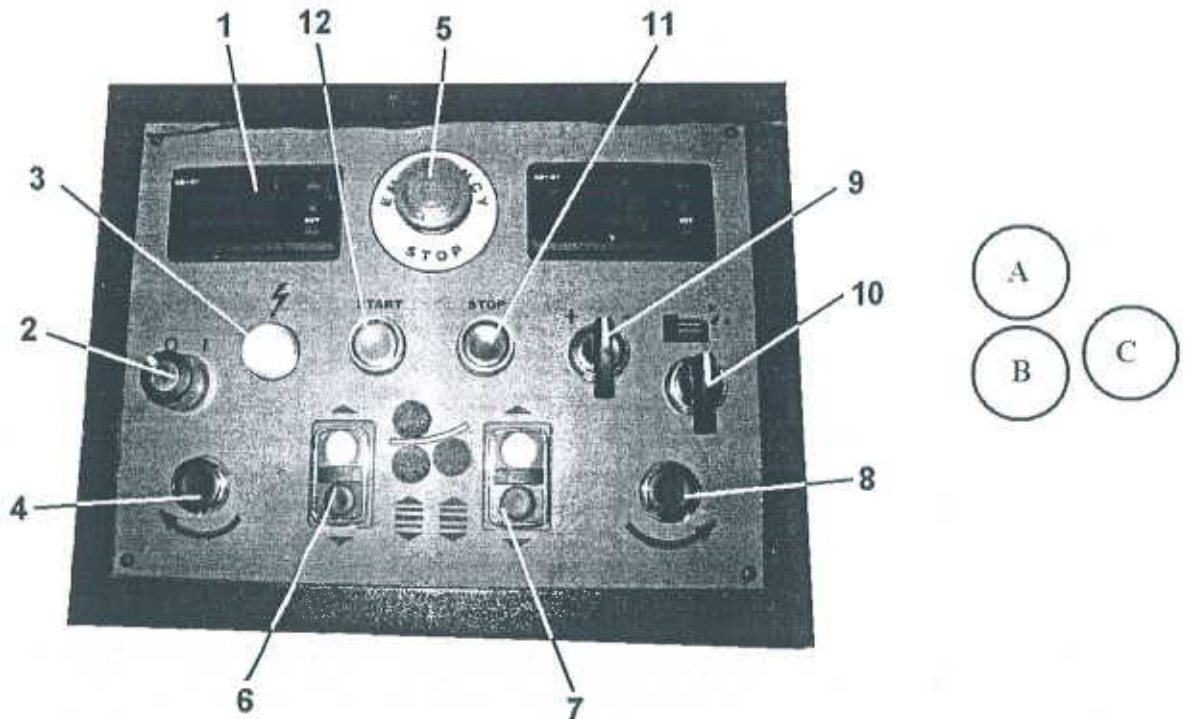
First Start-Up

- Your machine is equipped with a phase sequencer. If the electric connection is wrong the machine will not start up. Reverse the main electric cables and try again.
- When you see the Power On Indicator press the Start Button. The motor should start up and after a few seconds you should hear the machine running
- Test the movements of the machine by pressing rotation and piston buttons

Normal Operation

Before starting to operate the machine, when you must to read electric panel's explanation. Description of electric panel as shown back page. A diagram of the Operator's Panel is given below. Each button is explained with a brief description.

1. Digital Display for Roll B
2. Power On Key Switch - Safety Key Switch. When the machine is not in use please remove the key to avoid unauthorized operation Start button
3. Power on indicator - When on this indicates the machine Main Power Switch is on and ready to start
4. Left rotation button
5. Emergency Stop
6. Roll "B" Parallel up and down button
7. Roll "C" Parallel up and down button
8. Right rotation button
9. Roll "C" Tilting - This lifts only the bracket side of Roll "C" for conical bending
10. Bracket Open / Close - To open and close the drop and arm
11. Stop - To stop machine activity and main motor before switching off the machine and Thermal Overload warning lamp - In case where the main motor is overheated this indicator lights and the motor stops to avoid burning of the motor
12. Start Button - To start to hydraulic pump and all functions and hidraulic motor on lamp



EMERGENCY STOP

The machine has one Emergency Stop (5) and Emergency Stop wire around the machine. To restart after an emergency stop:

- Release the Emergency Stop Button (5) or Switch on the Emergency Wire (instructions on Safety Section)
- Push Start Button (12)

THERMAL OVERLOAD OR OIL TEMPERATURE

If the Thermal Overload Indicator (19) is on it means the motor is disabled by the system to protect it from burning. The motor is overheated due to a problem (overloading – excess pressure due to hydraulic malfunction etc.) and must cool down before restarting. Do not restart the motor at least 10 minutes. Let it cool down and try to find the problem.

If Oil Temperature Indicator (18) is on it means the oil in the system is overheated. The problem could be with the system. Do not restart the machine until the problem is solved.

ELECTRIC PANEL OF THE MACHINE

Bottom Rolls are equipped with Digital Displays. They show the actual position of the rolls.

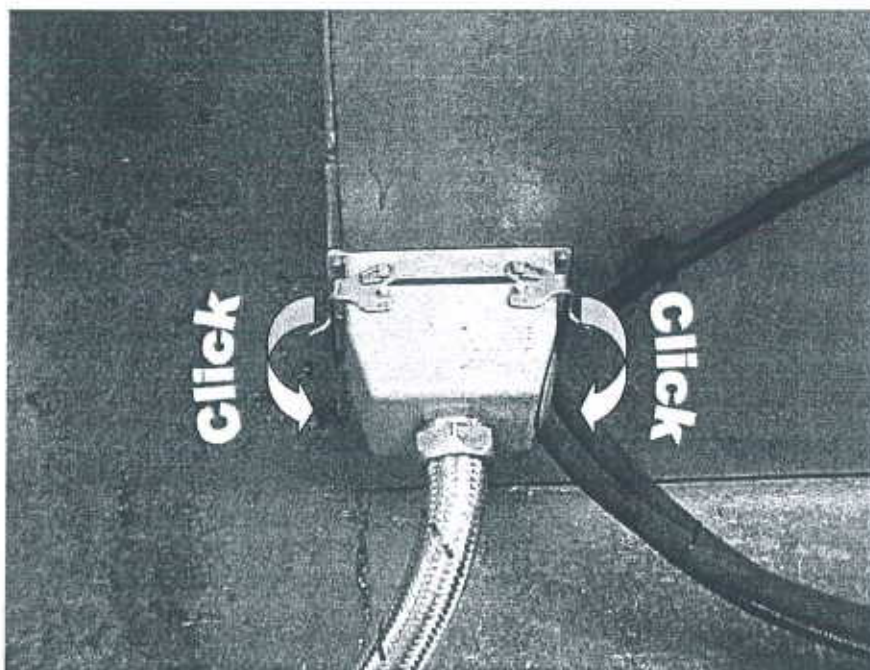
DIGITAL DISPLAYS

Bottom Rolls are equipped with Digital Displays. They show the actual position of the rolls.

INSTALLATION FIGURE

Connection of operation plug to machine;

Please bring the plug near the machine and connect like as shown below.





SAFETY DIRECTIVES

The ŞAHİNLER A.Ş. three-roll plate bending machine is supplied with necessary guards to protect from injuries by worm-type gearbox and other gears. The only other area which needs to be carefully monitored during use is the rotational area of the rolls.

Also abuses and misuses risk the following:

- Serious injury of the user
- Serious damage to the machine

All persons who are in of the machine should carefully read and fully understand this manual for the benefit themselves.

This is for your safety !

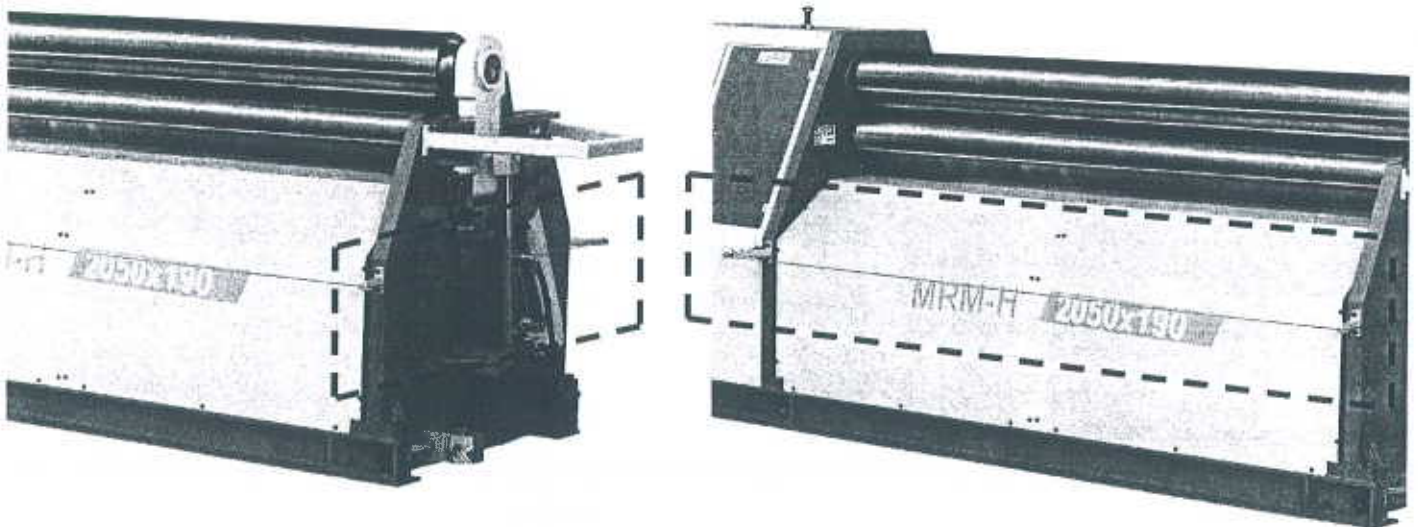


Attention:

- Never try to bend very hard or fragile material on the machine (e.g. hard steel, glass)
- Any modification on the machine without written confirmation from the manufacturer is strictly forbidden as such changes in the machine can cause unintended damages and injuries.
- All orders and advises in this machine should be strictly obeyed for a safe working environment.

DANGER ZONES

The below shown danger zones must be kept clear during operation



NOISE: The noise of the machine is about 75 Db.

WORKING AREA OF THE MACHINE

EXPLANATION FOR OPERATOR

Operator under age of 16 years to operate the machine is strictly forbidden (EC-Directive). The operator of the machine should carefully read this manual and understand the danger he might be in if he misuses or abuses the machine. If any part of this manual is unreadable or illegible please contact to the dealer and manufacturer

The owner of the machine should be responsible for operating the machine with qualified personnel.

PERSONAL PROTECTION

Gloves and safety glasses and safety cap are recommended during operator.



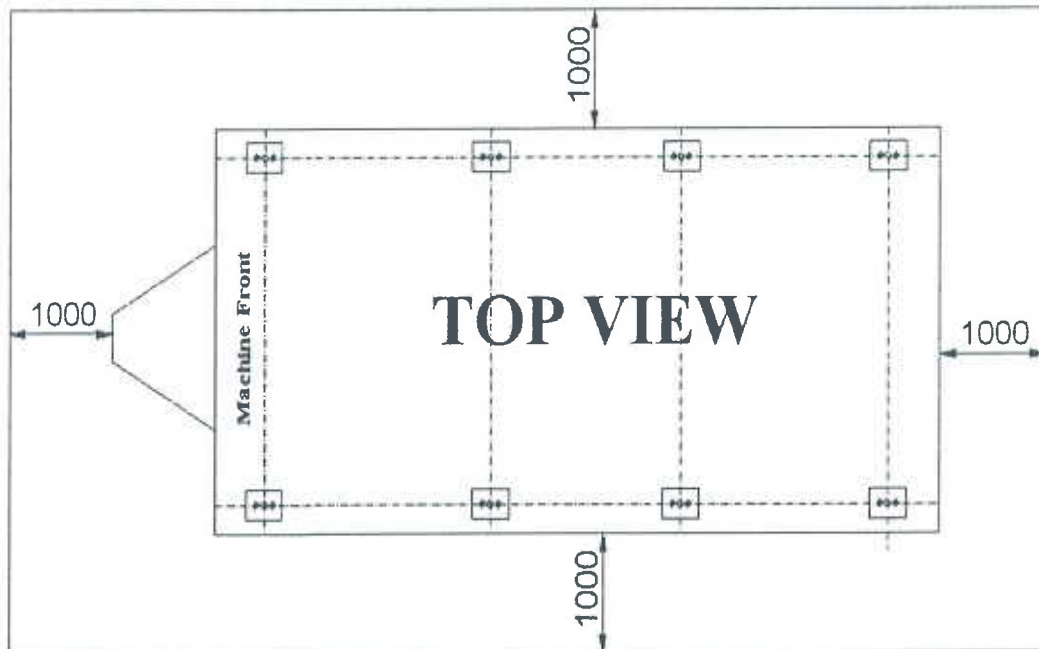
Attention:

- No material should be fed if the machine is running.
- All emergency stop must be easily accessible.
- The user must be careful for third persons entering the operation area of the machine.



Note : If any labels are lost or unreadable contact the manufacturer for new supplies.

The below shown danger zones must be kept clear during operation.



SAFETY AND ACCIDENT PREVENTION INSTRUCTIONS

General Safety Instructions

Following instructions are meant for the operator of the machine and it is the End-User's responsibility to make sure the operator reads and understands the following and the User's Manual for safe operation.

- Read the User's manual before operating the machine.
- Never touch rotating or moving parts.
- Always inform electric faults to electric technicians.
- Keep your working dress or long hair or necklace etc away from rotating parts.
- Make sure you know the position of Emergency Stop Buttons on the machine.
- Switch off the machine when **NOT** working.
- Work with necessary safety clothes if necessary (safety shoes, glasses , earplugs etc).
- Control the Safety features before working and ensure they are working properly.
- See and understand Safety Labels on the machine.
- Perform periodic maintenance.
- **DO NOT** overload the machine.
- If you see abnormal behavior of the machine, stop the machine and inform your supervisor immediately.
- Be careful of other people around the machine during operation.
- Never modify electric unit.
- Never remove any mechanic or electronic safety features from the machine.
- Be extremely careful during transport or re-placement of the machine and follow transport instructions in the manual to safely handle the machine.



Attention: Before the first use of the machine always check this list carefully for a safe start.

1. Check the emergency stop button on the command panel
2. Make sure that the security wire around the machine is free
3. Check for visible oil leak
4. Control of the buttons on the command panel

EXPLANATION FOR SAFETY SWITCH

The machine has been equipped with a security switch and wire for the operators safety. When the safety wire is pushed it pulls the below shown ring, this acts as an emergency stop and stops all machine activity.

To restart, pull the blue knob (shown by ① in fig.1) while pulling the safety wire when engaged. You should see green (shown by ② in fig.2) line under the blue knob. Now you can restart the machine from the control panel.

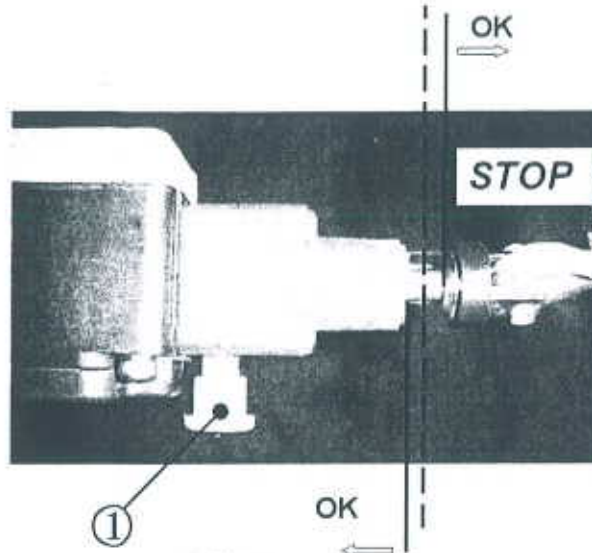
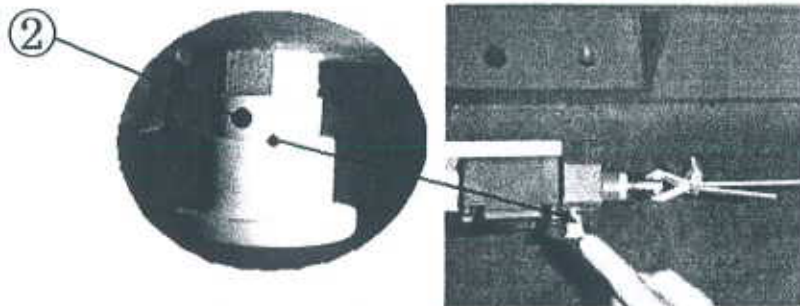


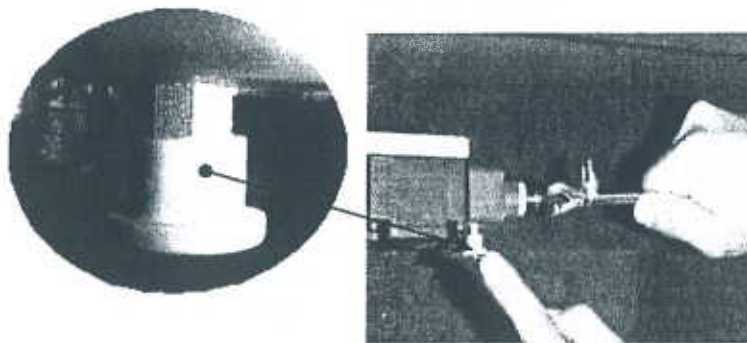
Figure 1

Safety switch's on and off positions as given below.



Switch on position

Figure 2



Switch off position

Figure 3



The safety wire comes unassembled for packing reasons and must be assembled by the customer as shown above to completely surround the machine

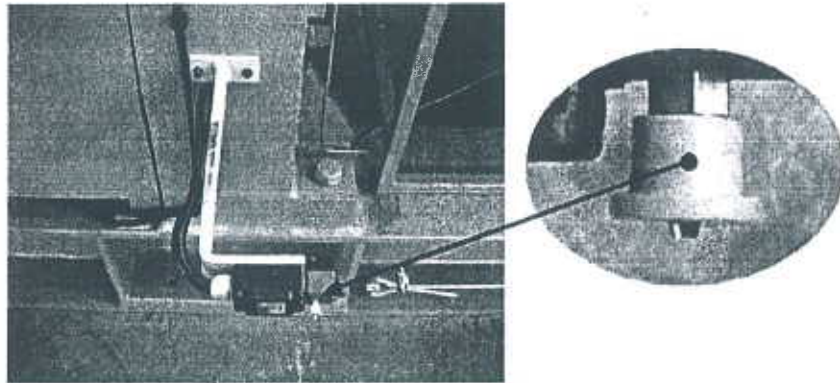


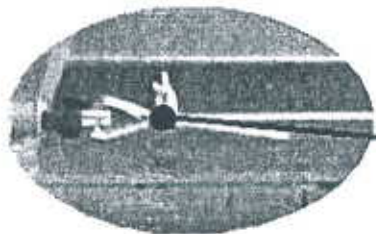
Figure 4



Attention:

The safety wire is an important safety measure and must never be removed while the machine is setup. It should be only removed for transport purposes.

While assembling it is important to fit the wire to the safety switch lock securely as shown below.



Correct

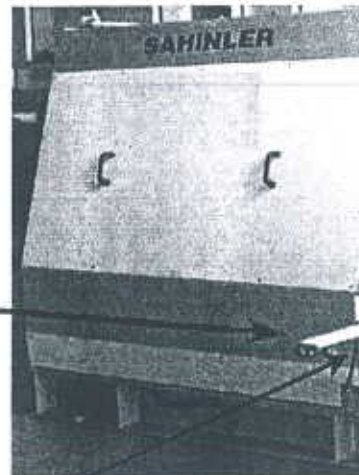


Figure 5

Safety wire around the machine



IMPORTANT POINTS

- The machine must be used by qualified and technical personnel at all times.
- All modifications and changes on the machine without the written confirmation of manufacturer is forbidden and if such a case occurs all responsibilities of the manufacturer will be out of consideration.
- Any such modification is also breach of CE directives
- The machine can be stored and used in closed areas however beware not to put it near any explosive, flammable or in any dangerous articles.
- In case any use of non-original spares or accessories and in case of injuries then, the manufacturer will not responsible of such claims.
- Beware of third persons entering the operation area of the machine.
- Beware of any obstacles entering the operation area of the machine.
- In long term stand-by's turn the main button to position 0 (zero)

IMPORTANT SAFETY NOTICE



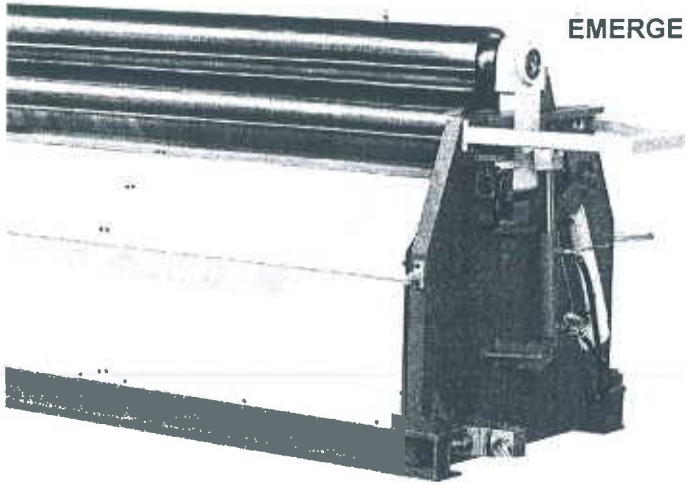
Attention :

if for any reason emergency button is used during opening and closing of the drop end arm, it will stop instantly. (1)

After the emergency button is released you must use the start button to restart the machine.

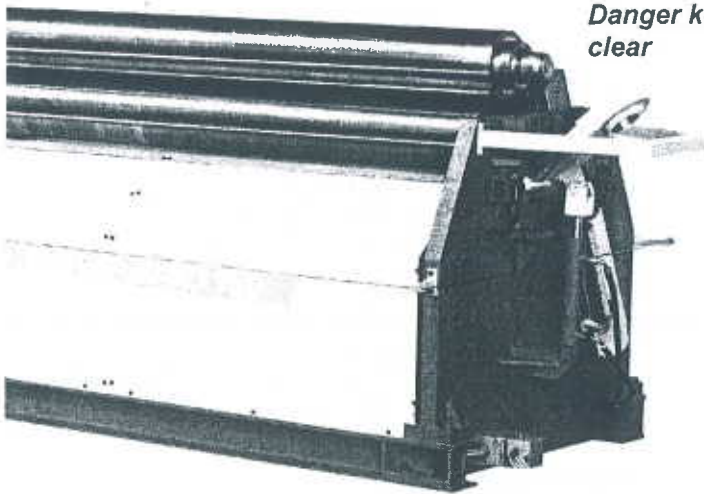
AT THIS POINT THE DROP END ARM WILL CONTINUE AND FINISH OPENING OR CLOSING CYCLE. MAKE SURE THIS AREA IS CLEAR BEFORE RESTARTING (5)

.(1) Emergency stop pushed



EMERGENCY STOP

(2) Emergency stop released
Reset pushed
Start pushed



Danger keep clear

BENDING OPERATIONS

3 ROLL BENDING PRINCIPLES

Because of the heavy materials involved in bending, it must be done by qualified personnel who have experience on such machines. Each step of the bending and pre-bending or conical bending must be done very carefully. Remember that you can always make the radius tighter by bending a little more but once you bend it too much there is no way of turning back.



Note: Before operating the machine, be sure that this manual is thoroughly read and understood by the personnel who will directly operate the machine and others concerned with it.

PRE-BENDING OPERATION

Pre-bending is the operation where the edges of the material is bent to the same radius of the end radius. This is used to get best results in full circle bending (i.e. pipe making)or in operations where there must not be any flat edges. According to the final radius to make the finished material very good.

The pre-bending process is also different compared to 3 roll bending machines. The following steps must be taken to make a pre-bending.

Before operation:

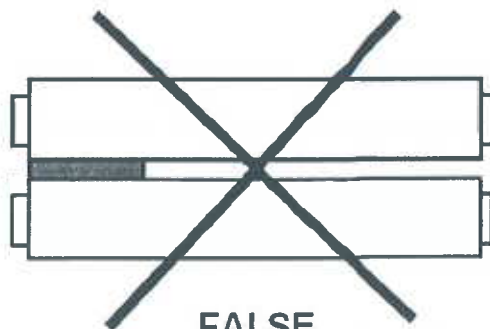
1. Clean the material and the rolls from dust, or grease
2. Make sure there are no chips or flame cutting left-over on the edges of the material
3. Keep in mind that if the material is cut by flame that side will be harder than the other side
4. Check the surface of the material carefully make sure its flat
5. It's a good idea to have template of the required radius when making a bend. To make a template cut a hard cardboard or carton piece with the necessary radius
6. Always work in the center of the rolls as shown below.



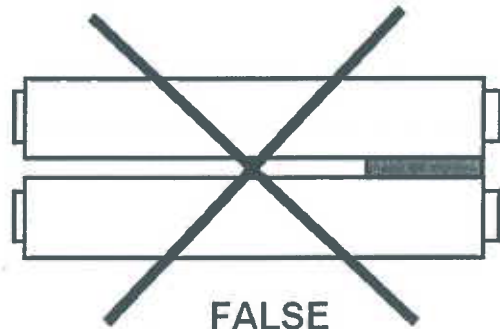
TRUE



TRUE



FALSE



FALSE

Sheet Bending Position

Figure 1

Top roll and lower roll in a flat position.

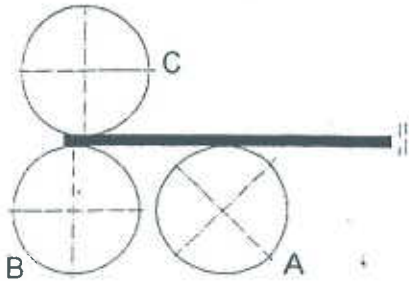


Figure 1

Figure 3

Reverse the sheet and place for second pre-bending.

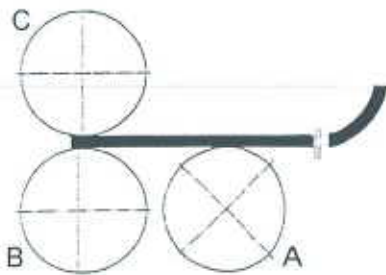


Figure 3

Figure 5

Roll until required diameter is achieved.

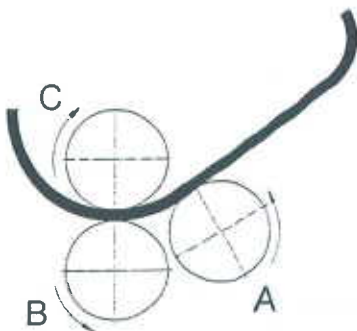


Figure 5

Figure 2

Move the back roll up to complete the pre-bending

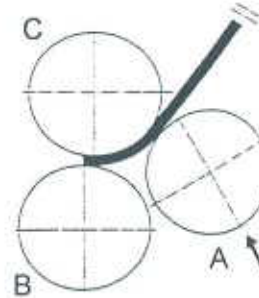


Figure 2

Figure 4

Move the back roll up to complete Pre-bending

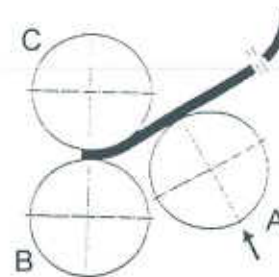


Figure 4

Figure 6

The finish operation shown as below figure 6

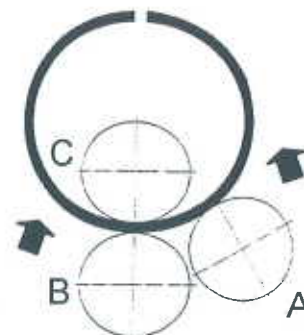


Figure 6



Note: That the material will progressively harden with each pass.



Note: If you are working with stainless steel it is important to finish the job in a few passes. Because the work hardens and it progressively harden after each pass.

CONICAL BENDING

To make the conic bending operation in the machine, the down roll must oblique position. Please follow these instructions step by step.

- Down roll must be bottom position
- At behind the machine, near the roll there must be a cover in it, please takeoff this cover.
- Roll must be oblique position
- Opening roll must be oblique position too to make this roll must be up position
- To adjust this roll please take off the connections under the cover and it must be get into oblique position (like down rollers)
- Now two rolls are oblique position and machine is ready for conic bending

Please replace the sheet this ready (for conic bending) machine and replace the conic support bars behind the sheet now you can make conical bending.



Attention : Be sure to clean any oil or grease put on the rolls before operation. If don't work lubrication or lubrication deficiency we don't responsible for lubrication deficiency or don't work damages at last.



Note: When bending conical the overall max. thickness capacity decreases by 25 %



Note: When cone bending, the thickness and width capacities of the machine are reduced. Check with the distributor or manufacturer for your requirements.

MAINTENANCE

PERIODIC CONTROLS

Control all the bolts of the machine and the reducers periodically at least once a month as shown

The following should be verified after the first 2 weeks or 100 working hours:

Hydraulic system filters, any eventual oil leakage, bolts on the reducer.

The following should be verified each week or every 50 working hours:

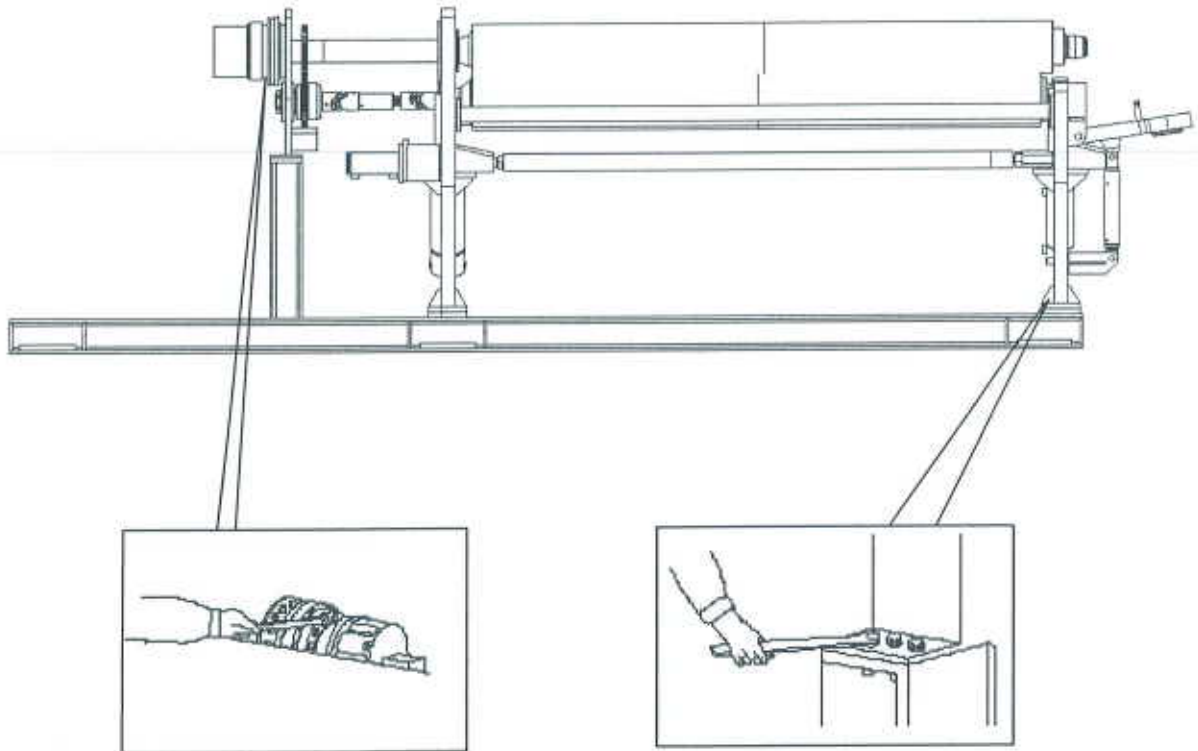
Check the hydraulic reducer oil.
Observe if there is any lack of quantity

The following should be verified each month or every 500 working hours:

Clean the absorption filter and check it.

The following should be verified each year or every 2000 working hours:

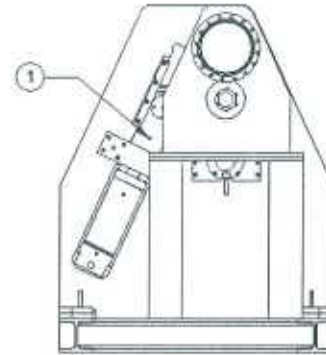
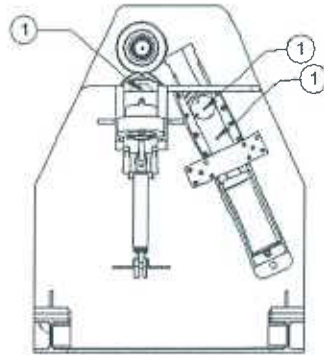
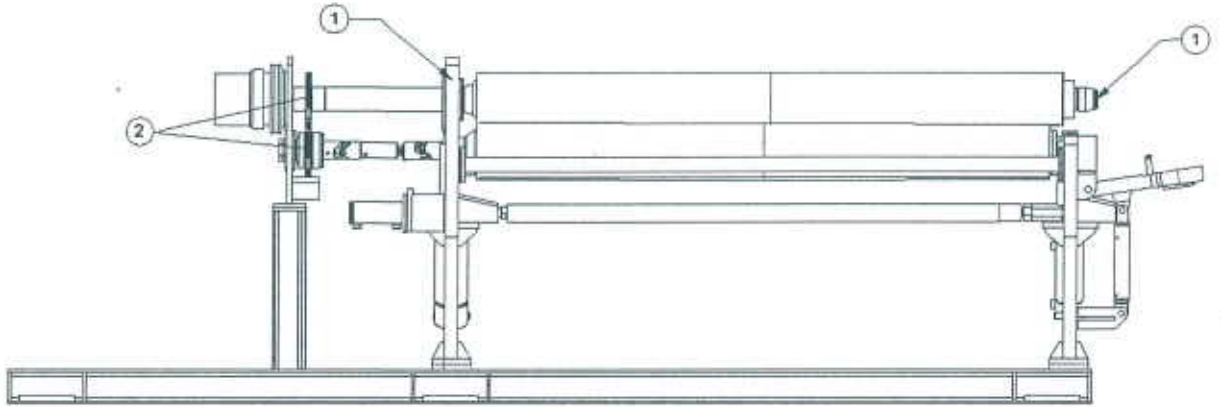
Replace the oil filter or reducer oil.



Perform periodic maintenance as follows:

Lubrication of Bushings:

- The bushings shown as (1) on the drawing are lubricated by the Lubrication System. However they must be greased manually once every two weeks by hand also.
- The bushings shown as (2) on the drawing must be greased manually once a month



NUMBER	PERIOD	WHAT TO DO
1- Moving Parts	Once a month	Oil
2- Housing and Gearbox	Twice a year	Grease



Note : Please dispose of used oil properly with oil companies. Don't throw away used mineral oil.

HYDRAULIC MAINTENANCE

Generally we recommend the use of shell Tellus Nr.46 and BP Energol Nr.46 for hydraulic systems

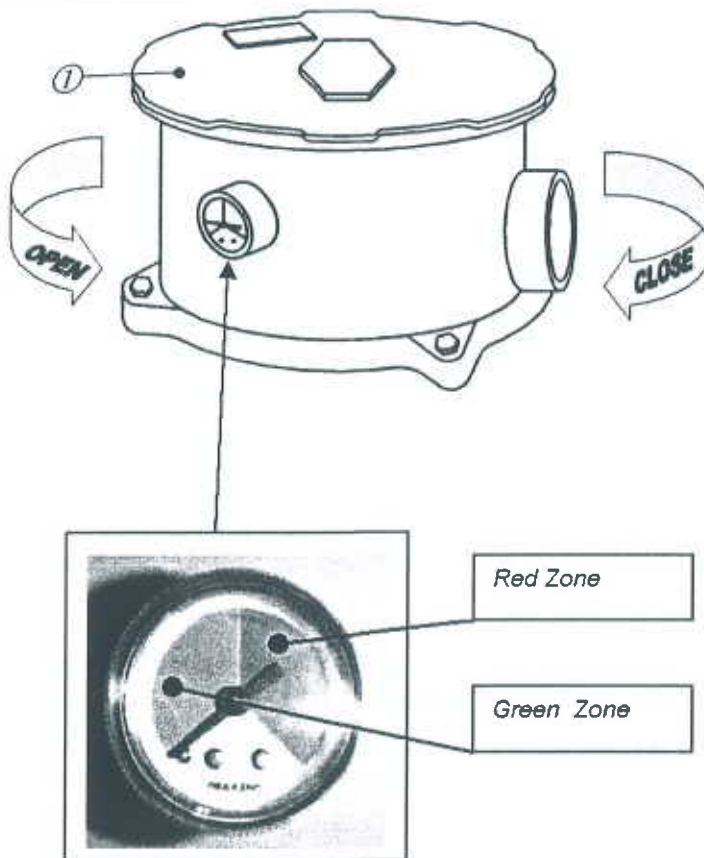
We recommend to change hydraulic oil once every two years.

Comparative hydraulic oil chart

Brand	Work temperature > 20 °C	Work temperature < 20 °C
Agip	OSO 46	OSO 32
BP	Energol HLP 46	Energol HLP 32
Castrol	Hyspin AWS 46	Hyspin AWS 32
Elf	Elfona 46	Olna 32
Esso	Nuto H 46	Nuto H 32
Fina	Hydran 46	Hydran 32
Ip	Hydrus 46	Hydrus 32
Mobil	DTE 25	
Q8	Haydn 46	Haydn 32
Shell	Tellus 46	Tellus 32
Texeco	Rando HD 46	Rando HD 32
Total	Azolla ZS 46	Azolla ZS 32

PERIODICALLY CONTROL THE FILTER

Check to return Filter



Cleaning the return filters according to the instructions

To change the filter

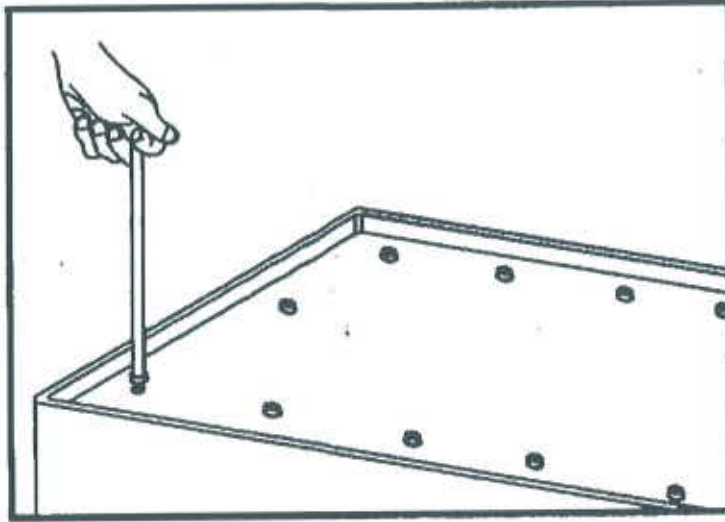
1. Open the cover (Nr.1) by turning it to counter-clockwise
2. Change the filter element
3. Close the cover by turning it to clockwise



Attention: Filter must be changed, when filter's pointer got red zone. Also, you had better check filter frequently.

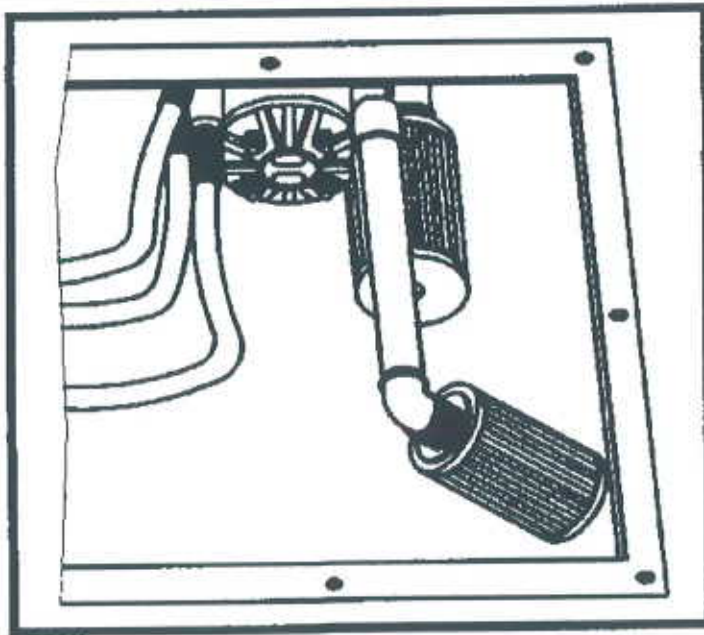
Check to Suction Filter (Inside)

Below we explain step by step to change the suction filter



Open the hydraulic tank cover.

Step 1



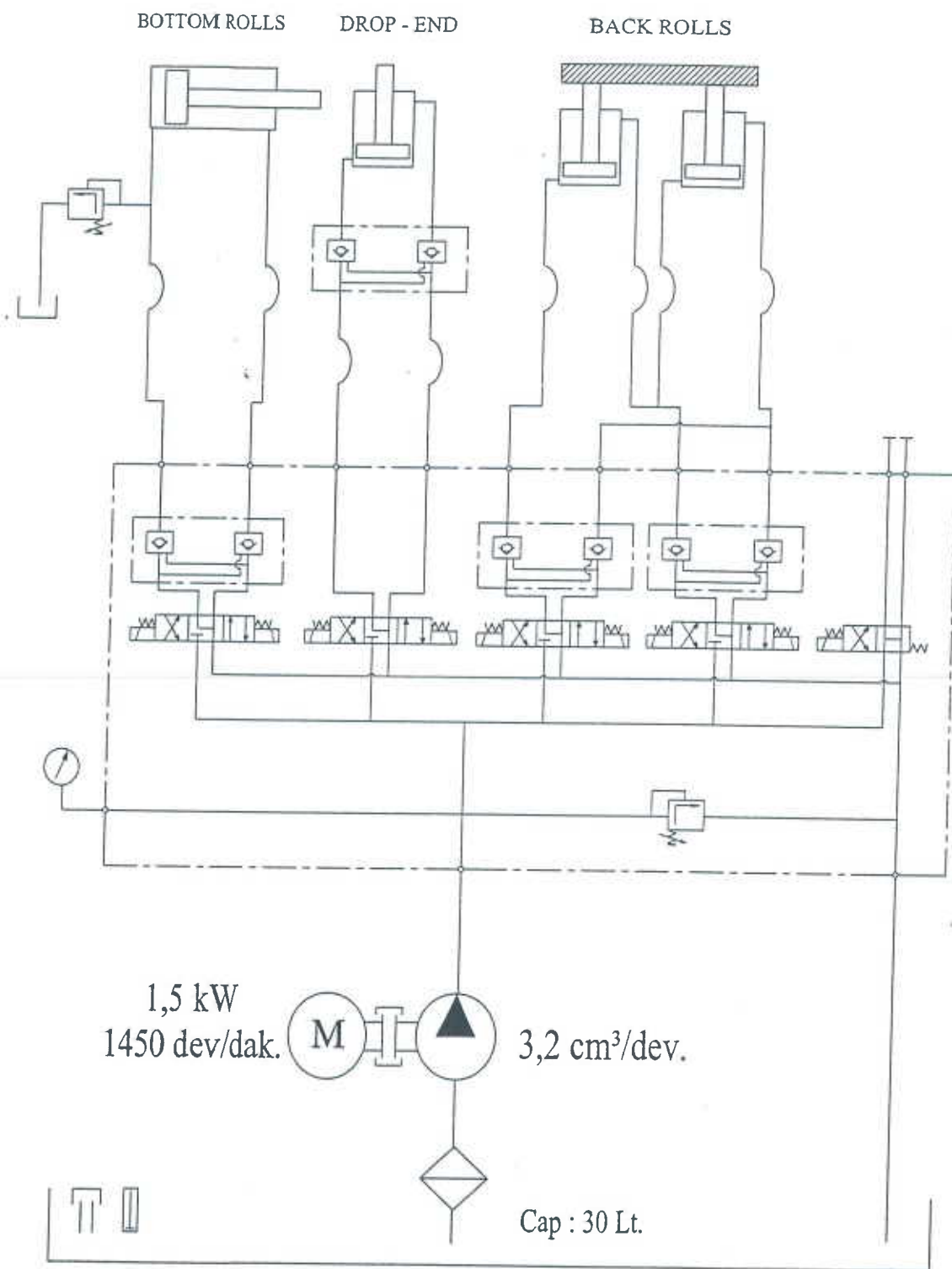
Replace the suction filter.

Step 2

MOTOR VOLTAGE - CURRENT CABLE VALUES

KW HP	220-240 V (50Hz/60Hz)				380-400 V (50Hz/60Hz)				415 V (50Hz/60Hz)				440 V (50Hz/60Hz)				575 V (50Hz/60Hz)			
	 A	 A	q mm²	 A	 A	q mm²	 A	 A	q mm²	 A	 A	q mm²	 A	 A	q mm²	 A	 A	q mm²	 A	 A
3 4	16	11,5	1,5	10	7	1,5	10	6,5	1,5	10	6	1,5	10	6	1,5	3,5	3,5	1,5		
4 5,5	25	14,5	1,5	16	8,5	1,5	16	8	1,5	16	8	1,5	16	10	1,5	5	5	1,5		
5,5 7,5	25	20	2,5	16	11,5	1,5	16	11	1,5	16	10	1,5	16	10	1,5	8	8	1,5		
7,5 10	32	27	6	25	15,5	2,5	25	14	2,5	25	14	2,5	20	14	2,5	10	10	1,5		
11 15	50	39	10	32	22	4	32	21	4	32	20	4	32	20	4	16,5	16,5	2,5		
15 20	63	52	16	40	30	6	40	28	6	40	26,5	6	32	24	6	20,5	20,5	4		
18,5 25	80	64	16	50	37	10	50	35	10	50	33	10	40	40	10	21	21	4		
22 30	80	75	25	63	44	10	50	40	10	50	39	10	50	40	10	26	26	6		
30 40	125	103	35	80	60	16	63	55	16	63	51,5	16	63	50	16	32	32	10		
37 50	150	126	50	100	72	25	80	66	25	80	64	25	80	63	25	50	50	16		
55 75	200	182	95	125	105	35	125	100	35	125	90	35	100	80	35	70	70	25		

HYDRAULIC PLAN



A

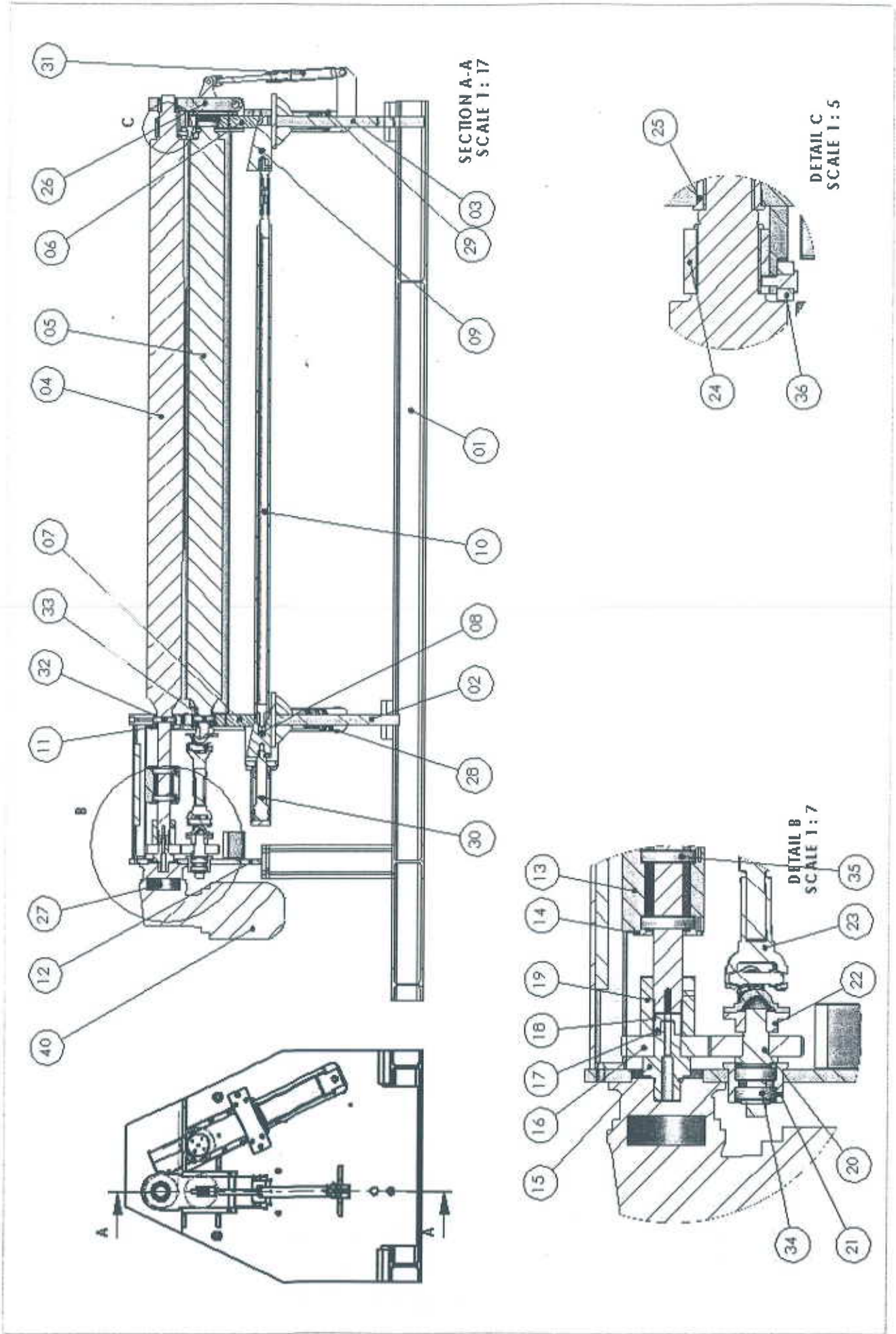
B

C

A - TOP ROLLS
B - BOTTOM ROLLS
C - BACK ROLLS

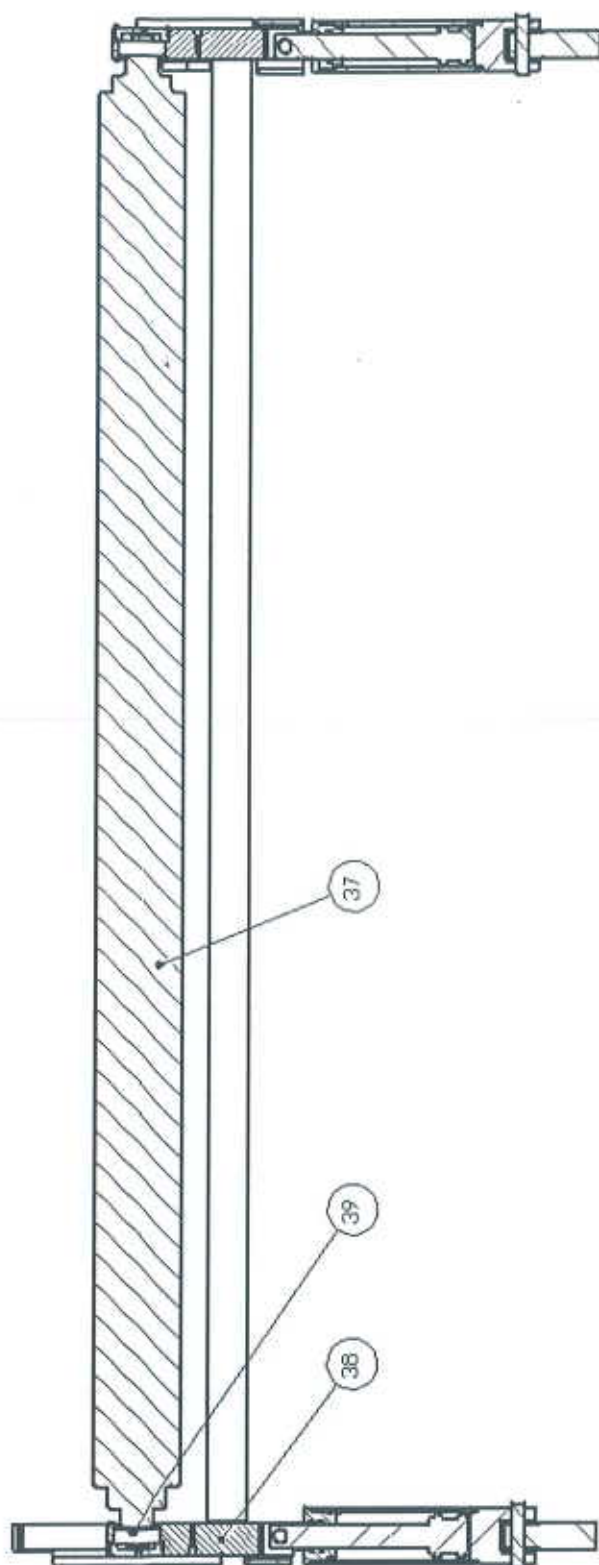
MRM-H HYDRAULIC PART LIST				
NO	DECLARATION	CODE	UNIT	PRODUCER
1	YAĞ TANKI / HYDRAULIC TANK	TANK 120 LT.	1	ŞAHİNLER
2	YAĞ SEVİYE GÖSTERGESİ / LEVEL POWER SWITCH	FSK 254	1	HYDAC
3	YAĞ DOLDURMA KAPAĞI / OIL TANK CAP	FT8-C40/1	1	FILTREC
4	TERMOSTAT / THERMOSTAT	NT-177-DO TS5 (30°-90°)	1	TEKOSA
5	DİŞLİ POMPA / GEAR PUMP	24 lt + 6 lt	1	SALAMI
6	ELEKTRİK MOTORU / ELECTRIC MOTOR	7,5 KW / 1400 dev/dk	1	WAT
7	ELASTİK KAPLIN / COUPLING	DK42	1	HASEL
8	MANOMETRE / MANOMETER	0-400BAR-Ø63	2	PAKKENS
9	BASINÇ KONTROL VALFİ / PRESSURE CONTROL VALVE	MCD6-SP/51N	2	DUPLOMATIC
10	YÖN VALFİ NG6 / DIRECTION VALVE	DS3-S4/11N-K1	1	DUPLOMATIC
11	YÖN VALFİ NG6 / DIRECTION VALVE	DS3-S1/11N-K1	1	DUPLOMATIC
12	TEK BOBİN YÖN VALFİ / SINGLE COIL DIRECTION VALVE	DS3-SA2/10N	1	DUPLOMATIC
13	YÖN VALFİ / DIRECTION VALVE	DS3-S3/10N	6	DUPLOMATIC
14	İKİZ KİLİTLEME VALFİ / TWIN LOCK VALVE	MVPP-D/50	5	DUPLOMATIC
15	HAT TIPI İKİZ KİLİTLEME VALFİ / LINE TYPE TWIN LOCK VALVE	VBPD138	1	OLEOSTAR
16	HİDROLİK ÜNİTE / HYDRAULIC UNIT		1	ŞAHİNLER
17	HİDROLİK ÜNİTE / HYDRAULIC UNIT		1	ŞAHİNLER
18	BASINÇ KONTROL VALFİ / PRESSURE CONTROL VALVE	DBDH6K-1X/3,5	1	
19	GERİ DÖNÜŞ FİLTRESİ / BACK RETURN FILTER	TEF 120	1	INTERNORMEN

GENERAL PARTS OF THE MACHINE



GENERAL PARTS OF THE MACHINE

LATERAL ROLL





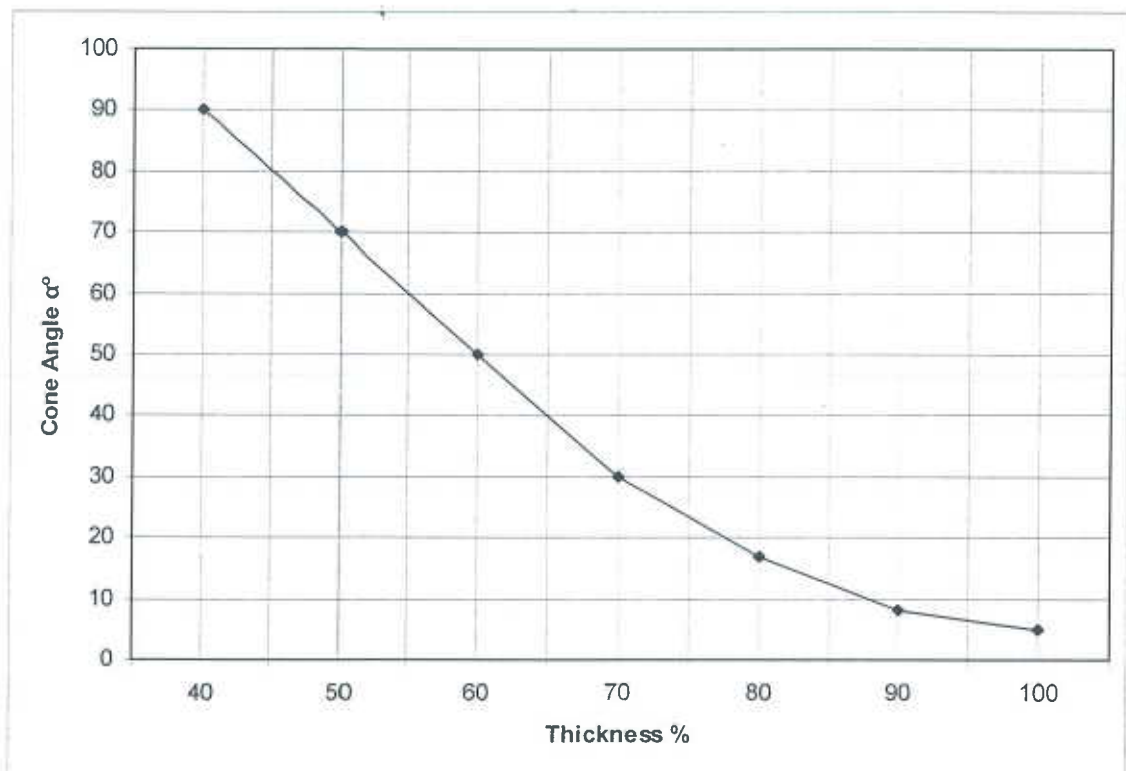
PARTS LIST

Assembly No	Part Identification	Assembly No	Part Identification
1	Frame	31	Drop End Piston
2	Left Side Main Frame	32	Top Roll Bearing
3	Right Side Main Frame	33	Bottom Roll Bearing
4	Top Roll	34	Driving Shaft Bearing
5	Bottom Roll	35	Top Roll Support Bearing
6	Right Side Bottom Bearing	36	Conical Bending Part Bearing
7	Left Side Bottom Bearing	37	Lateral Roll
8	Left Side Wedge	38	Lateral Roll Bushing
9	Right Side Wedge	39	Lateral Roll Bearing
10	Pipe	40	Motor
11	Bearing Flange		Digital Read-Out
12	Planetary Reducter Part		Encoder
13	Top Roll Support Bushing		
14	Top Roll Bushing Flange		
15	Planetary Reducter Shaft		
16	Driving Gear		
17	Top Roll Movement Coupling		
18	Coupling Ring		
19	Coupling Ring		
20	Driving Shaft		
21	Driving Shaft Bushing		
22	Flange		
23	Cardan Join		
24	Conical Bending Part Bushing		
25	Drop End Bushing		
26	Drop End		
27	Planetary Reducter		
28	Left Side Main Frame Lateral Roll Piston		
29	Right Side Main Frame Lateral Roll Piston		
30	Bottom Roll Piston		

PLATE BENDING ROLL

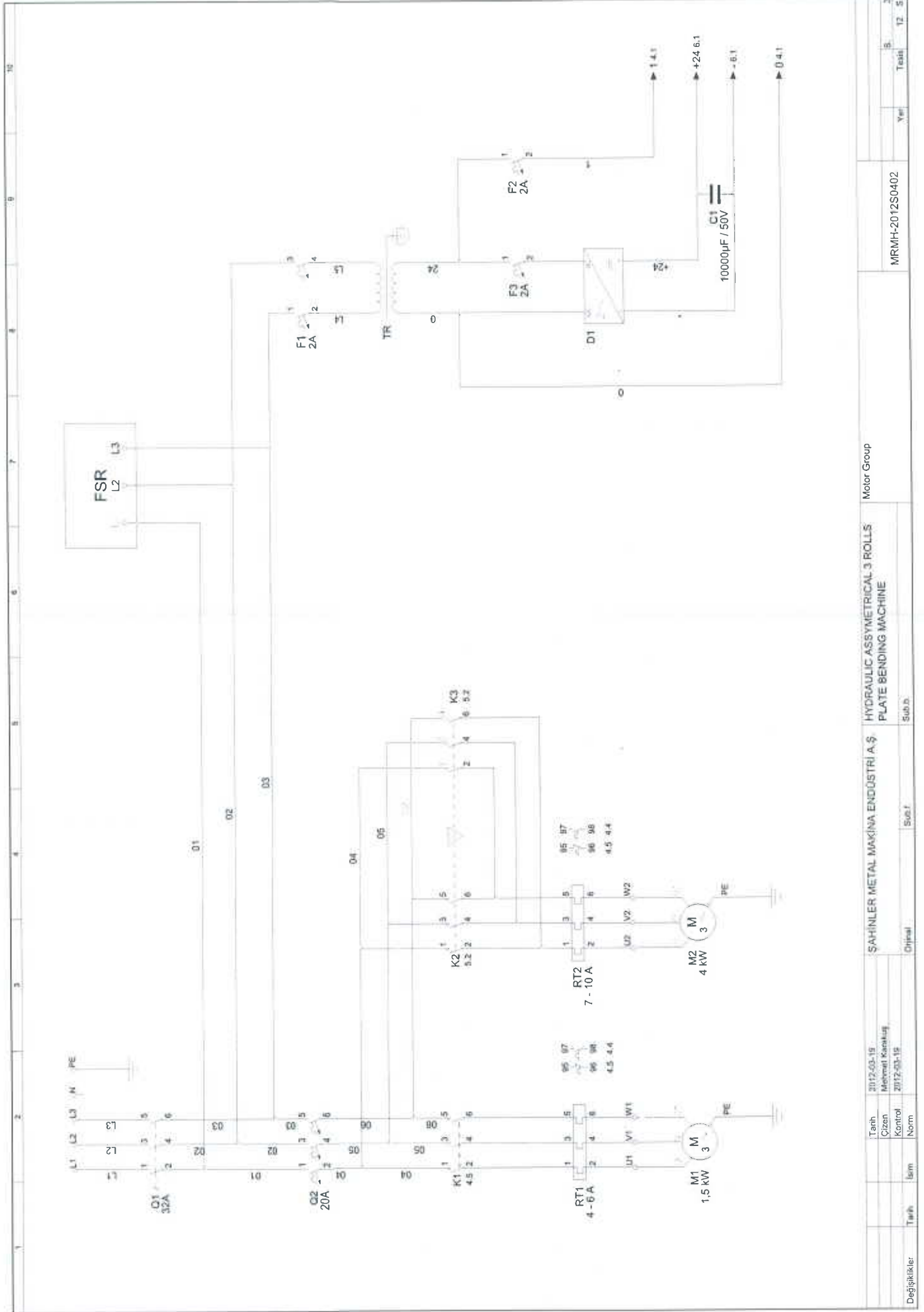
For All 4R and 3R HS and HSS Models

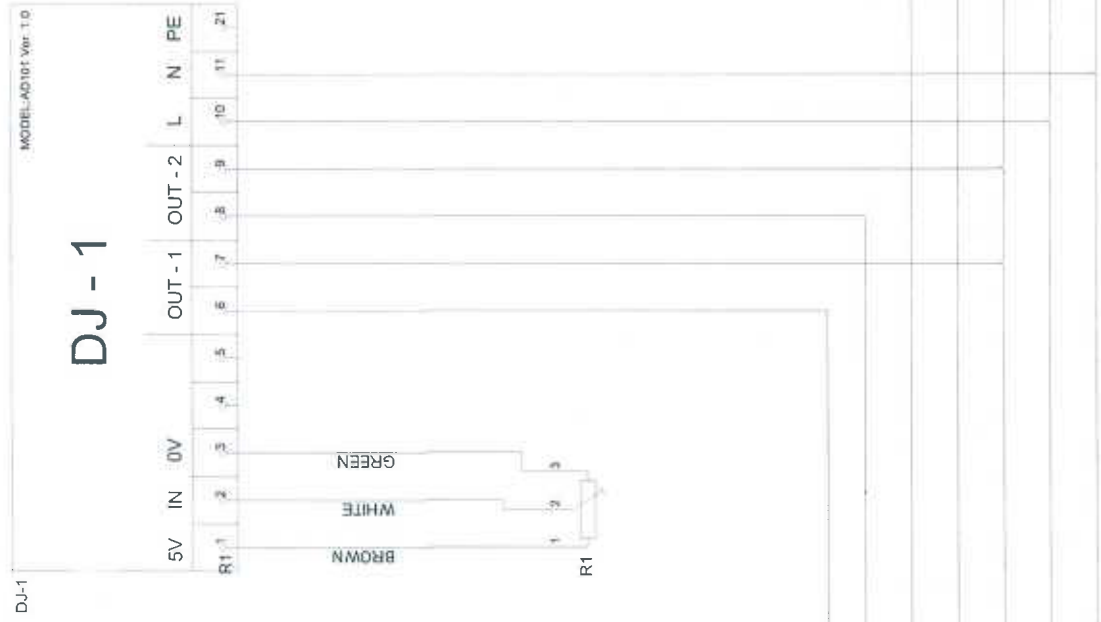
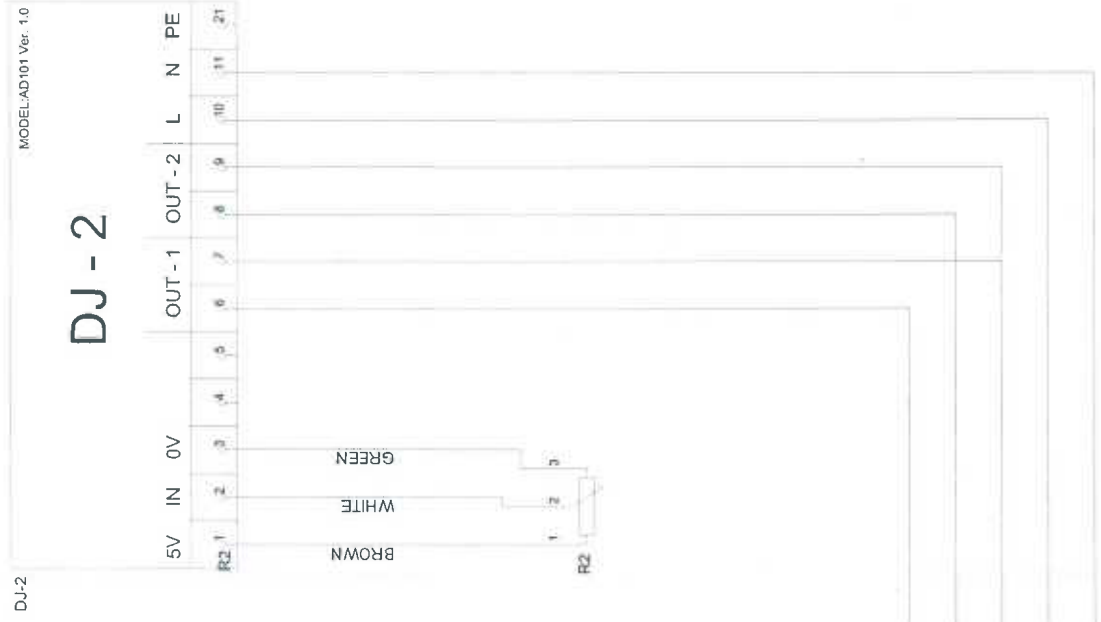
Conical Bending Capacity
Compared With The
cilindrical ferrule.



The plate Length is not influential.
To bend shorter cone doesn't
allow to increase the thickness.

[illegible]





1	2	3	4	5	6	7	8	9	10
1	1	17	17	17					
0	2	18	18	18					
3	3	19	19	19					
4	4	20	20	20					
5	5	21	21	21					
6	6	22	22	22					
7	7	23	23	23					
	8	24	24	24					
	9	25	25	25					
	10	26	26	26					
11	11	27	27	27					BROWN-DJ1
12	12	28	28	28					WHITE-DJ1
13	13	29	29	29					GREEN-DJ1
14	14	30	30	30					BROWN-DJ2
15	15	31	31	31					WHITE-DJ2
16	16	32	32	32					GREEN-DJ2
Değişiklikler		Tarih	Tarih	2012-03-18	ŞAHİNLER METAL MAKİNA ENDÜSTRİ A.Ş.				
		Çizen	Çizen	Mehmet Karakuy	HYDRAULIC ASSYMETRICAL 3 ROLLS				
		Revizyon	Revizyon	2012-03-19	PLATE BENDING MACHINE				
		İşin	İşin	Sub 1	Sub 2				
				Original	Connector Print				
					MRMH-2012S0402				
					Year	Task	5	12	5

ELECTRICAL PARTS LIST - 1

CODE	EXPLANATION	ORDER NUMBER	MANUFACTURER
Q1	MAIN SWITCH	KG32B 1203 / 100 VE	KRAUS - MAIER
Q2	AUTOMATIC FUSE	A9G2A320	SCHNEIDER
F1	TRANSFORMER INPUT FUSE	A9F7A202	SCHNEIDER
F2	TRANSFORMER OUTPUT FUSE	A9F7A102	SCHNEIDER
F3	TRANSFORMER OUTPUT FUSE	A9F7A102	SCHNEIDER
TR	TRANSFORMER (+150/-15230/400440 // 0/24V 200VA)		ETA / ISTAN
K1	MOTOR 1 CONTACTORS	LC1 - D09 B7	SCHNEIDER
K2 - K3	MOTOR 2 CONTACTORS	LC1 - D12 B7	SCHNEIDER
RT1	M1 MOTOR PROTECTION OVERLOAD THERMAL RELAY	LRO - 10	SCHNEIDER
RT2	M2 MOTOR PROTECTION OVERLOAD THERMAL RELAY	LRO - 14	SCHNEIDER
1K1 - 1K2	VALVE CONTROL CONTACTOR	CA2 KN22 B7	SCHNEIDER
2K1 ... 2K4	VALVE CONTROL CONTACTOR	CA2 KN22 B7	SCHNEIDER
3K1 - 3K2	VALVE CONTROL CONTACTOR	CA2 KN22 B7	SCHNEIDER
D1	DIODE	KBPC 35 / 10	KLEMSAN
S0	EMERGENCY STOP	XB4-B5542	SCHNEIDER
S1	POWER SWITCH	XB4-BG21	SCHNEIDER
H1	POWER ON LAMP	XB4-BV81	SCHNEIDER
S2 - H2	START BUTTON AND LAMP	XB4-BW3585	SCHNEIDER
S3 - H3	STOP BUTTON AND OVERLOAD LAMP	XB4-BW3485	SCHNEIDER
S4	LEFT ROTATION CONTROL BUTTON	XB4-BA21	SCHNEIDER
S5	RIGHT ROTATION CONTROL BUTTON	XB4-BA21	SCHNEIDER
S6 - S7	CENTRAL ROLL UP & DOWN CONTROL BUTTON	(XB4 - BA7120) + (ZB4 - BZ101)	SCHNEIDER
S8 - S9	SIDE ROLL UP & DOWN CONTROL BUTTON	(XB4 - BA7120) + (ZB4 - BZ101)	SCHNEIDER
S10	SIDE ROLL INCREASE & DECREASE CONTROL BUTTON	XB4 - BU53	SCHNEIDER
S11	BRACKET OPEN & CLOSE CONTROL BUTTON	XB4 - BU53	SCHNEIDER

Tarih	2012-03-20
Gözetim	Mehmet Karakaymakçı
Kontrol	2012-03-20
Tarih	Son.
Dışarıdan	Yeni
Özellikler	Subj.:
	Subj.:
	MRMH-2012S0402
	Vari:
	Tarih:
	12

ELECTRICAL PARTS LIST - 2

[illegible]

Tarih	2012-04-02	SAYILIR METAL MAKINA ENDUSTRI A.Ş.	HYDRAULIC ASYMMETRICAL 3 ROLLS PLATE BENDING MACHINE	Electrical / Part List : 2	MRH-2012S0402	01
Çizen	Mehmet Kocakug					02
Kontrol	2012-04-02					03
Tarih	İmza	Diyadin	Sub.İ.	Sub.İ.		04
Döğüşkililer	İmza					05

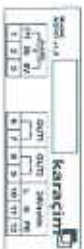
AD101 [v1.0]

Position Controller w. Analog feedback



- Analog / Potentiometer input
- 2 relay outputs
- 4806 mm DIN case / Output: 4806 mm DIN case / Output: 4806 mm DIN case
- 2 relay outputs, Programmable (3A, NC)

CONNECTIONS



Pin	Description	Signal
1	4806 mm DIN case / Output: 4806 mm DIN case	0-2.5 V
2	4806 mm DIN case / Output: 4806 mm DIN case	0-2.5 V
3	4806 mm DIN case / Output: 4806 mm DIN case	0-2.5 V
4	4806 mm DIN case / Output: 4806 mm DIN case	0-2.5 V
5	4806 mm DIN case / Output: 4806 mm DIN case	0-2.5 V
6	4806 mm DIN case / Output: 4806 mm DIN case	0-2.5 V
7	4806 mm DIN case / Output: 4806 mm DIN case	0-2.5 V
8	4806 mm DIN case / Output: 4806 mm DIN case	0-2.5 V
9	4806 mm DIN case / Output: 4806 mm DIN case	0-2.5 V
10	4806 mm DIN case / Output: 4806 mm DIN case	0-2.5 V
11	4806 mm DIN case / Output: 4806 mm DIN case	0-2.5 V
12	4806 mm DIN case / Output: 4806 mm DIN case	0-2.5 V

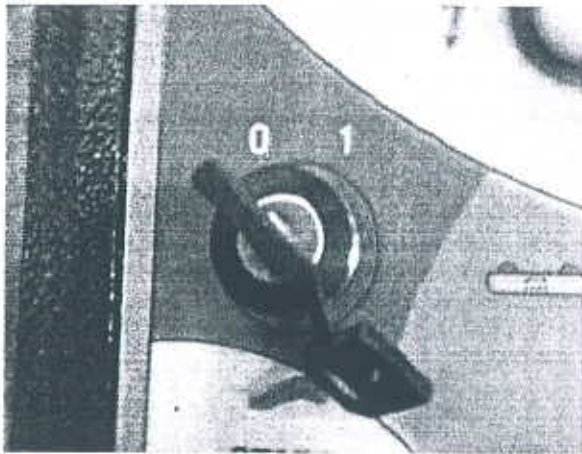
PANEL CUT-OUT



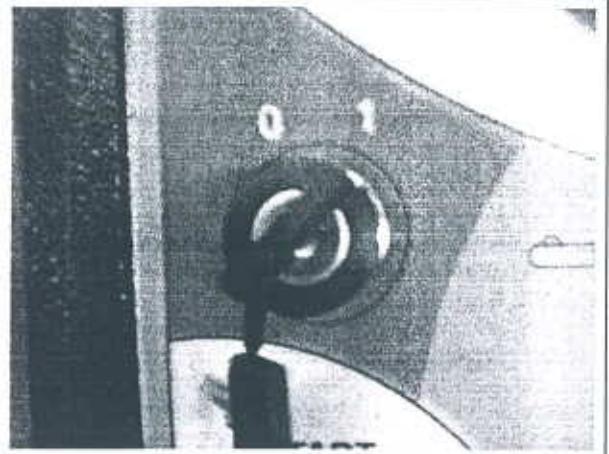
PARAMETERS

No.	Name	Description	Value	Unit
1	SET	Set	0.0	
2	OUT1	Output 1	0.0	
3	OUT2	Output 2	0.0	
4	OUT3	Output 3	0.0	
5	OUT4	Output 4	0.0	
6	OUT5	Output 5	0.0	
7	OUT6	Output 6	0.0	
8	OUT7	Output 7	0.0	
9	OUT8	Output 8	0.0	
10	OUT9	Output 9	0.0	
11	OUT10	Output 10	0.0	
12	OUT11	Output 11	0.0	
13	OUT12	Output 12	0.0	
14	OUT13	Output 13	0.0	
15	OUT14	Output 14	0.0	
16	OUT15	Output 15	0.0	
17	OUT16	Output 16	0.0	
18	OUT17	Output 17	0.0	
19	OUT18	Output 18	0.0	
20	OUT19	Output 19	0.0	
21	OUT20	Output 20	0.0	
22	OUT21	Output 21	0.0	
23	OUT22	Output 22	0.0	
24	OUT23	Output 23	0.0	
25	OUT24	Output 24	0.0	
26	OUT25	Output 25	0.0	
27	OUT26	Output 26	0.0	
28	OUT27	Output 27	0.0	
29	OUT28	Output 28	0.0	
30	OUT29	Output 29	0.0	
31	OUT30	Output 30	0.0	
32	OUT31	Output 31	0.0	
33	OUT32	Output 32	0.0	
34	OUT33	Output 33	0.0	
35	OUT34	Output 34	0.0	
36	OUT35	Output 35	0.0	
37	OUT36	Output 36	0.0	
38	OUT37	Output 37	0.0	
39	OUT38	Output 38	0.0	
40	OUT39	Output 39	0.0	
41	OUT40	Output 40	0.0	
42	OUT41	Output 41	0.0	
43	OUT42	Output 42	0.0	
44	OUT43	Output 43	0.0	
45	OUT44	Output 44	0.0	
46	OUT45	Output 45	0.0	
47	OUT46	Output 46	0.0	
48	OUT47	Output 47	0.0	
49	OUT48	Output 48	0.0	
50	OUT49	Output 49	0.0	
51	OUT50	Output 50	0.0	
52	OUT51	Output 51	0.0	
53	OUT52	Output 52	0.0	
54	OUT53	Output 53	0.0	
55	OUT54	Output 54	0.0	
56	OUT55	Output 55	0.0	
57	OUT56	Output 56	0.0	
58	OUT57	Output 57	0.0	
59	OUT58	Output 58	0.0	
60	OUT59	Output 59	0.0	
61	OUT60	Output 60	0.0	
62	OUT61	Output 61	0.0	
63	OUT62	Output 62	0.0	
64	OUT63	Output 63	0.0	
65	OUT64	Output 64	0.0	
66	OUT65	Output 65	0.0	
67	OUT66	Output 66	0.0	
68	OUT67	Output 67	0.0	
69	OUT68	Output 68	0.0	
70	OUT69	Output 69	0.0	
71	OUT70	Output 70	0.0	
72	OUT71	Output 71	0.0	
73	OUT72	Output 72	0.0	
74	OUT73	Output 73	0.0	
75	OUT74	Output 74	0.0	
76	OUT75	Output 75	0.0	
77	OUT76	Output 76	0.0	
78	OUT77	Output 77	0.0	
79	OUT78	Output 78	0.0	
80	OUT79	Output 79	0.0	
81	OUT80	Output 80	0.0	
82	OUT81	Output 81	0.0	
83	OUT82	Output 82	0.0	
84	OUT83	Output 83	0.0	
85	OUT84	Output 84	0.0	
86	OUT85	Output 85	0.0	
87	OUT86	Output 86	0.0	
88	OUT87	Output 87	0.0	
89	OUT88	Output 88	0.0	
90	OUT89	Output 89	0.0	
91	OUT90	Output 90	0.0	
92	OUT91	Output 91	0.0	
93	OUT92	Output 92	0.0	
94	OUT93	Output 93	0.0	
95	OUT94	Output 94	0.0	
96	OUT95	Output 95	0.0	
97	OUT96	Output 96	0.0	
98	OUT97	Output 97	0.0	
99	OUT98	Output 98	0.0	
100	OUT99	Output 99	0.0	
101	OUT100	Output 100	0.0	
102	OUT101	Output 101	0.0	
103	OUT102	Output 102	0.0	
104	OUT103	Output 103	0.0	
105	OUT104	Output 104	0.0	
106	OUT105	Output 105	0.0	
107	OUT106	Output 106	0.0	
108	OUT107	Output 107	0.0	
109	OUT108	Output 108	0.0	
110	OUT109	Output 109	0.0	
111	OUT110	Output 110	0.0	
112	OUT111	Output 111	0.0	
113	OUT112	Output 112	0.0	
114	OUT113	Output 113	0.0	
115	OUT114	Output 114	0.0	
116	OUT115	Output 115	0.0	
117	OUT116	Output 116	0.0	
118	OUT117	Output 117	0.0	
119	OUT118	Output 118	0.0	
120	OUT119	Output 119	0.0	
121	OUT120	Output 120	0.0	
122	OUT121	Output 121	0.0	
123	OUT122	Output 122	0.0	
124	OUT123	Output 123	0.0	
125	OUT124	Output 124	0.0	
126	OUT125	Output 125	0.0	
127	OUT126	Output 126	0.0	
128	OUT127	Output 127	0.0	
129	OUT128	Output 128	0.0	
130	OUT129	Output 129	0.0	
131	OUT130	Output 130	0.0	
132	OUT131	Output 131	0.0	
133	OUT132	Output 132	0.0	
134	OUT133	Output 133	0.0	
135	OUT134	Output 134	0.0	
136	OUT135	Output 135	0.0	
137	OUT136	Output 136	0.0	
138	OUT137	Output 137	0.0	
139	OUT138	Output 138	0.0	
140	OUT139	Output 139	0.0	
141	OUT140	Output 140	0.0	
142	OUT141	Output 141	0.0	
143	OUT142	Output 142	0.0	
144	OUT143	Output 143	0.0	
145	OUT144	Output 144	0.0	
146	OUT145	Output 145	0.0	
147	OUT146	Output 146	0.0	
148	OUT147	Output 147	0.0	
149	OUT148	Output 148	0.0	
150	OUT149	Output 149	0.0	
151	OUT150	Output 150	0.0	
152	OUT151	Output 151	0.0	
153	OUT152	Output 152	0.0	
154	OUT153	Output 153	0.0	
155	OUT154	Output 154	0.0	
156	OUT155	Output 155	0.0	
157	OUT156	Output 156	0.0	
158	OUT157	Output 157	0.0	
159	OUT158	Output 158	0.0	
160	OUT159	Output 159	0.0	
161	OUT160	Output 160	0.0	
162	OUT161	Output 161	0.0	
163	OUT162	Output 162	0.0	
164	OUT163	Output 163	0.0	
165	OUT164	Output 164	0.0	
166	OUT165	Output 165	0.0	
167	OUT166	Output 166	0.0	
168	OUT167	Output 167	0.0	
169	OUT168	Output 168	0.0	
170	OUT169	Output 169	0.0	
171	OUT170	Output 170	0.0	
172	OUT171	Output 171	0.0	
173	OUT172	Output 172	0.0	
174	OUT173	Output 173	0.0	
175	OUT174	Output 174	0.0	
176	OUT175	Output 175	0.0	
177	OUT176	Output 176	0.0	
178	OUT177	Output 177	0.0	
179	OUT178	Output 178	0.0	
180	OUT179	Output 179	0.0	
181	OUT180	Output 180	0.0	
182	OUT181	Output 181	0.0	
183	OUT182	Output 182	0.0	
184	OUT183	Output 183	0.0	
185	OUT184	Output 184	0.0	
186	OUT185	Output 185	0.0	
187	OUT186	Output 186	0.0	
188	OUT187	Output 187	0.0	
189	OUT188	Output 188	0.0	
190	OUT189	Output 189	0.0	
191	OUT190	Output 190	0.0	
192	OUT191	Output 191	0.0	
193	OUT192	Output 192	0.0	
194	OUT193	Output 193	0.0	
195	OUT194	Output 194	0.0	
196	OUT195	Output 195	0.0	
197	OUT196	Output 196	0.0	
198	OUT197	Output 197	0.0	
199	OUT198	Output 198	0.0	
200	OUT199	Output 199	0.0	
201	OUT200	Output 200	0.0	
202	OUT201	Output 201	0.0	
203	OUT202	Output 202	0.0	
204	OUT203	Output 203	0.0	
205	OUT204	Output 204	0.0	
206	OUT205	Output 205	0.0	
207	OUT206	Output 206	0.0	
208	OUT207	Output 207	0.0	
209	OUT208	Output 208	0.0	
210	OUT209	Output 209	0.0	
211	OUT210	Output 210	0.0	
212	OUT211	Output 211	0.0	
213	OUT212	Output 212	0.0	
214	OUT213	Output 213	0.0	
215	OUT214	Output 214	0.0	
216	OUT215	Output 215	0.0	
217	OUT216	Output 216	0.0	
218	OUT217	Output 217	0.0	
219	OUT218	Output 218	0.0	
220	OUT219	Output 219	0.0	
221	OUT220	Output 220	0.0	
222	OUT221	Output 221	0.0	
223	OUT222	Output 222	0.0	
224	OUT223	Output 223	0.0	
225	OUT224	Output 224	0.0	
226	OUT225	Output 225	0.0	
227	OUT226	Output 226	0.0	
228	OUT227	Output 227	0.0	
229	OUT228	Output 228	0.0	
230	OUT229	Output 229	0.0	
231	OUT230	Output 230	0.0	
232	OUT231	Output 231	0.0	
233	OUT232	Output 232	0.0	
234	OUT233	Output 233	0.0	
235	OUT234	Output 234	0.0	
236	OUT235	Output 235	0.0	
237	OUT236	Output 236	0.0	
238	OUT237	Output 237	0.0	
239	OUT238	Output 238	0.0	
240	OUT239	Output 239	0.0	
241	OUT240	Output 240	0.0	
242	OUT241	Output 241	0.0	
243	OUT242	Output 242	0.0	
244	OUT243	Output 243	0.0	
245	OUT244	Output 244	0.0	
246	OUT245	Output 245	0.0	
247	OUT246	Output 246	0.0	
248	OUT247	Output 247	0.0	
249	OUT248	Output 248	0.0	
250	OUT249	Output 249	0.0	
251	OUT250	Output 250	0.0	
252	OUT251	Output 251	0.0	
253	OUT252	Output 252	0.0	
254	OUT253	Output 253	0.0	
255	OUT254	Output 254	0.0	
256	OUT255	Output 255	0.0	
257	OUT256	Output 256	0.0	
258	OUT257	Output 257	0.0	
259	OUT258	Output 258	0.0	
260	OUT259	Output 259	0.0	
261	OUT260	Output 260	0.0	
262	OUT261	Output 261	0.0	
263	OUT262	Output 262	0.0	
264	OUT263	Output 263	0.0	
265	OUT264	Output 264	0.0	
266	OUT265	Output 265	0.0	
267	OUT266	Output 266	0.0	
268	OUT267	Output 267	0.0	
269	OUT268	Output 268	0.0	
270	OUT269	Output 269	0.0	
271	OUT270	Output 270	0.0	
272	OUT271	Output 271	0.0	
273	OUT272	Output 272	0.0	
274	OUT273	Output 273	0.0	
275	OUT274	Output 274	0.0	
276	OUT275	Output 275	0.0	
277	OUT276	Output 276	0.0	
278	OUT277	Output 277	0.0	
279	OUT278	Output 278	0.0	
280	OUT279	Output 279	0.0	
281	OUT280	Output 280	0.0	
282	OUT281	Output 281	0.0	
283	OUT282	Output 282	0.0	
284	OUT283	Output 283	0.0	
285	OUT284	Output 284	0.0	
286	OUT285	Output 285	0.0	
287	OUT286	Output 286	0.0	
288	OUT287	Output 287	0.0	
289	OUT288	Output 288	0.0	
290	OUT289	Output 289	0.0	
291	OUT290	Output 290	0.0	
292	OUT291	Output 291	0.0	
293	OUT292	Output 292	0.0	
294	OUT293	Output 293	0.0	
295	OUT294	Output 294	0.0	

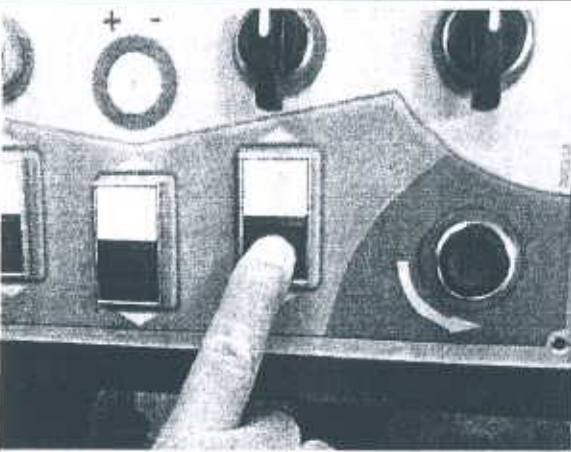
CALIBRATION _ AD101



01 - CLOSE THE MACHINE



02 - OPEN THE MACHINE



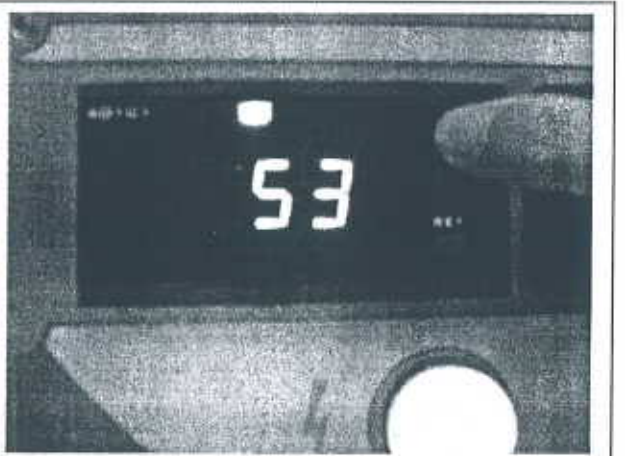
03 - TAKE DOWN THE ROLL
TO MIN LEVEL (THE ROLL
WHICH YOU MAKE THE DIGITAL
SETTINGS)



04 - THEN PRESS THE " UP "
BOTTON



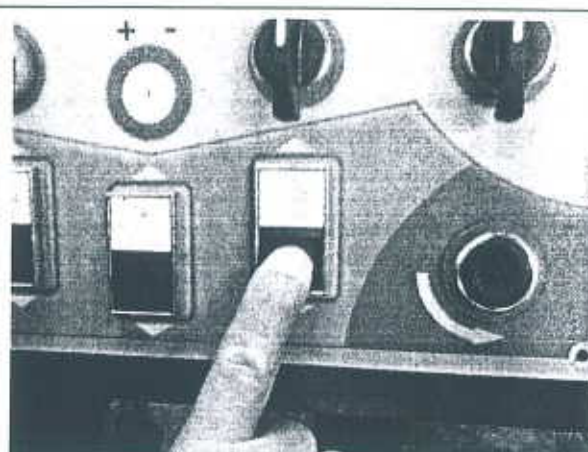
05 - FOR ENTERING THE
PASSWORD USE UP&DOWN
BUTTONS



06 - WRITE "53"



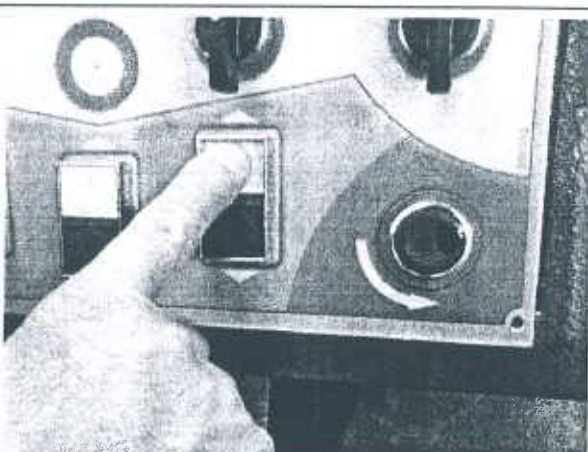
07 - PRESS " SET " BUTTON ON THE SCREEN YOU WILL SEE " CAL-1 "



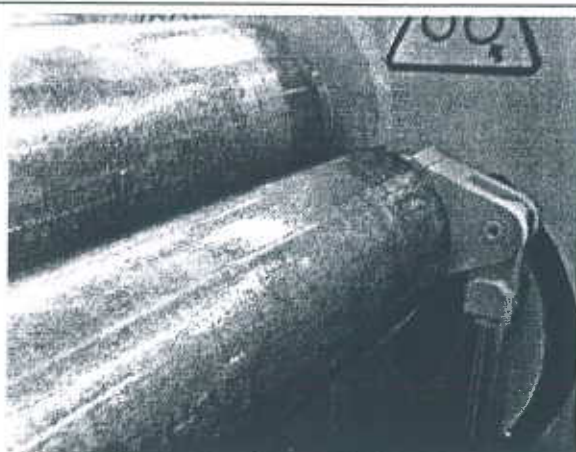
08 - CHECK AGAIN THAT ROLL IS IN THE LOWER MOST



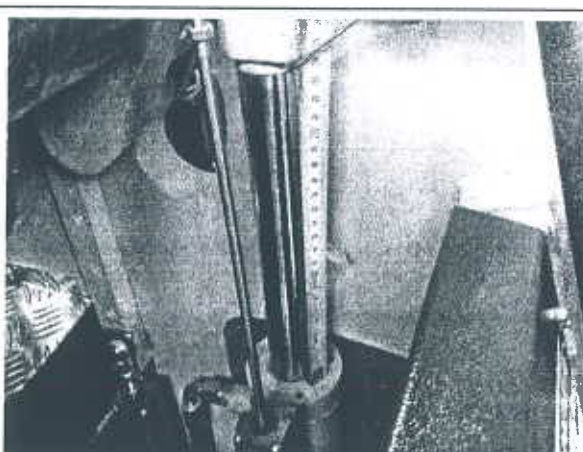
09 - PRESS " SET " BUTTON SCREEN YOU WILL SEE " CAL-2 "



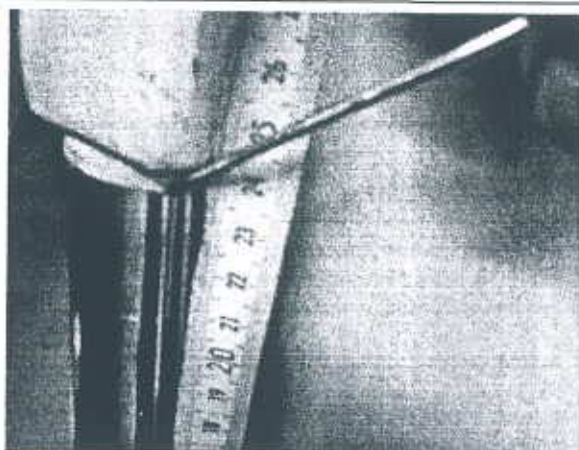
10 - CHECK THAT THE ROLL IS ON THE MAX LEVEL



11 - CHECK THAT THE ROLL IS ON THE MAX LEVEL



12 - CALCULATE THE PISTONS MAX mm LEVEL



13 - CALCULATE IT FROM THE
WHITE COLOURED PLACE



14 - ENTER THE VALUE THAT YOU
MEASURE ex IF YOU MEASURE 235
mm THEN ENTER 235 ON DIGITAL



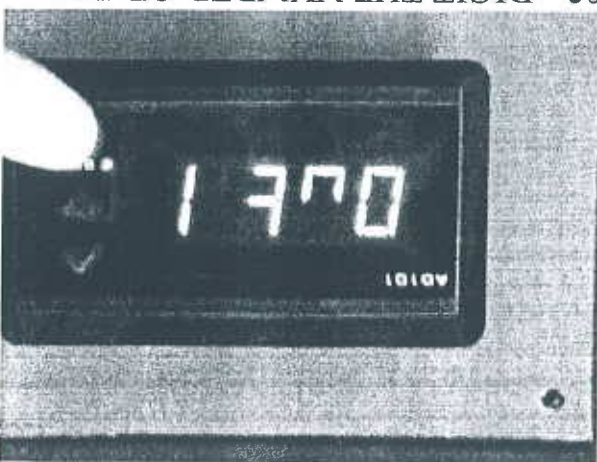
15 - PRESS "SET" BUTTON

PRE SETTING

01 - PRESS "SET" YOU WILL SEE
OUT 1



02 - DIGIT THE NUMBER OF THE
POSITION : EXAMPLE 100



03 - IF YOU NEED ANOTHER
POSITION PRESS AGAIN "SET"
TILL YOU SEE OUT 2



04 - DIGIT THE NUMBER OF THE
POSITION : EXAMPLE 20



05 - IMPORTANT : OUT 2 MUST BE
ALWAYS LESS THEN OUT 1

