



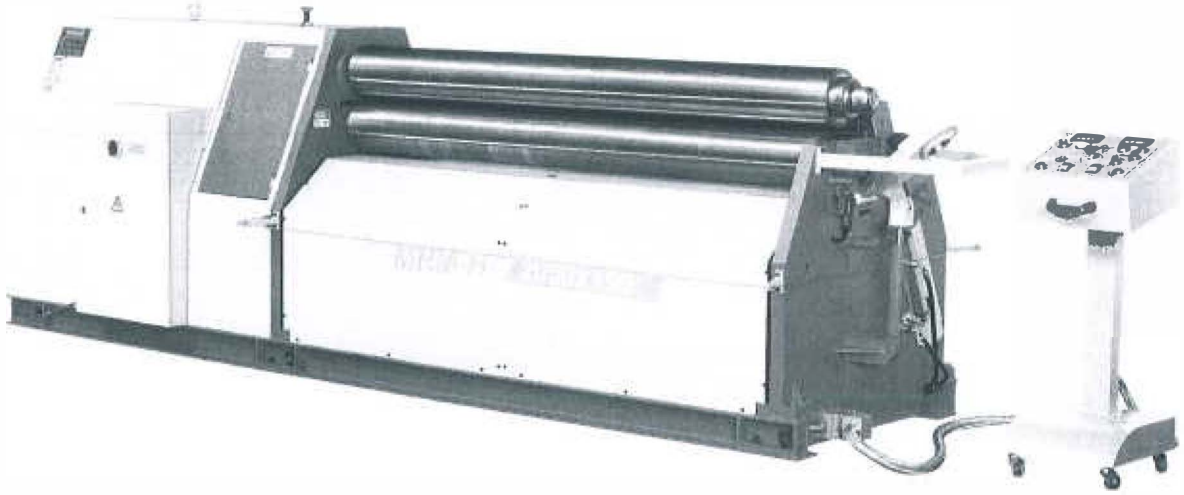
sahinler
MOTOR MÜHÜRLEME MAKİNELERİ



USER'S MANUAL

MODEL MRM-H

PLATE BENDING MACHINE



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Şahinler[®]
METAL MAKİNA ENDÜSTRİ A.Ş.



EC DECLARATION OF CONFORMITY

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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 2550 x 190
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
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Signature of authorized person :

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LABELS



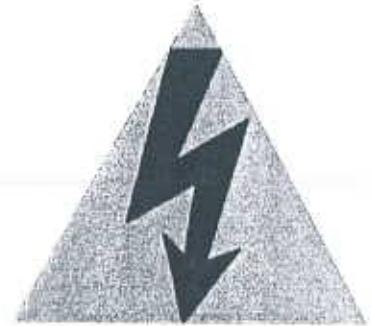
DANGER OF ELECTRIC



EMERGENCY STOP



GROUNDING SYSTEM



WORKING VOLTAGE



DANGER



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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

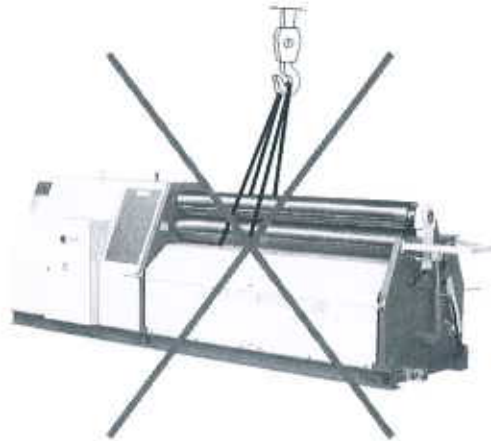
When necessary of machine, firstly of all make to come together rolls.

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

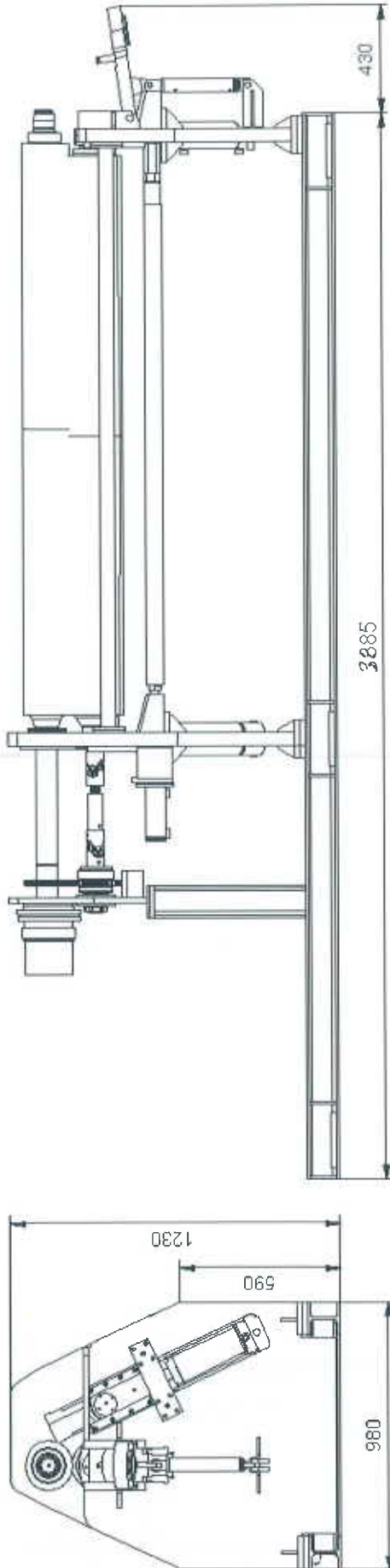
SPECIAL FEATURES

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

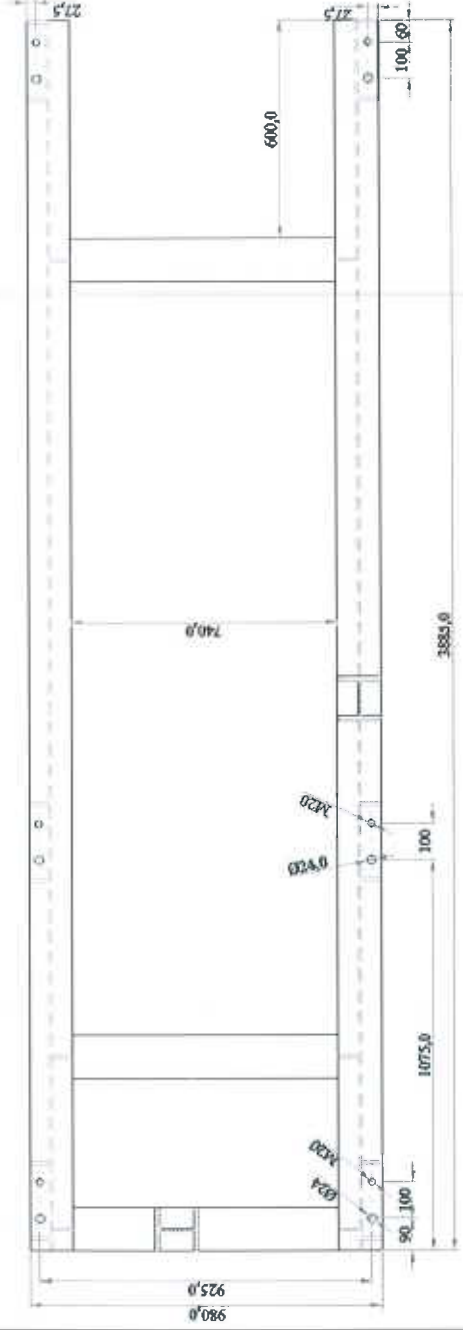
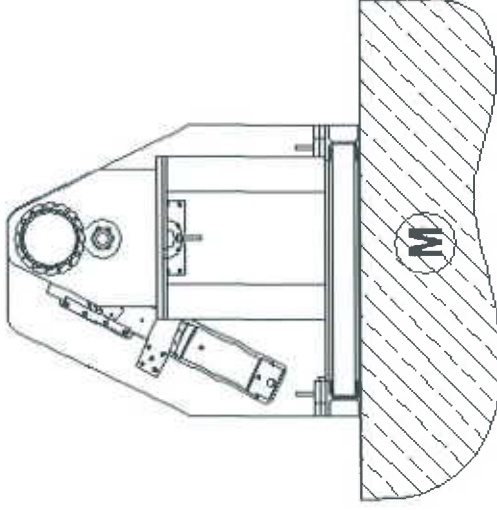
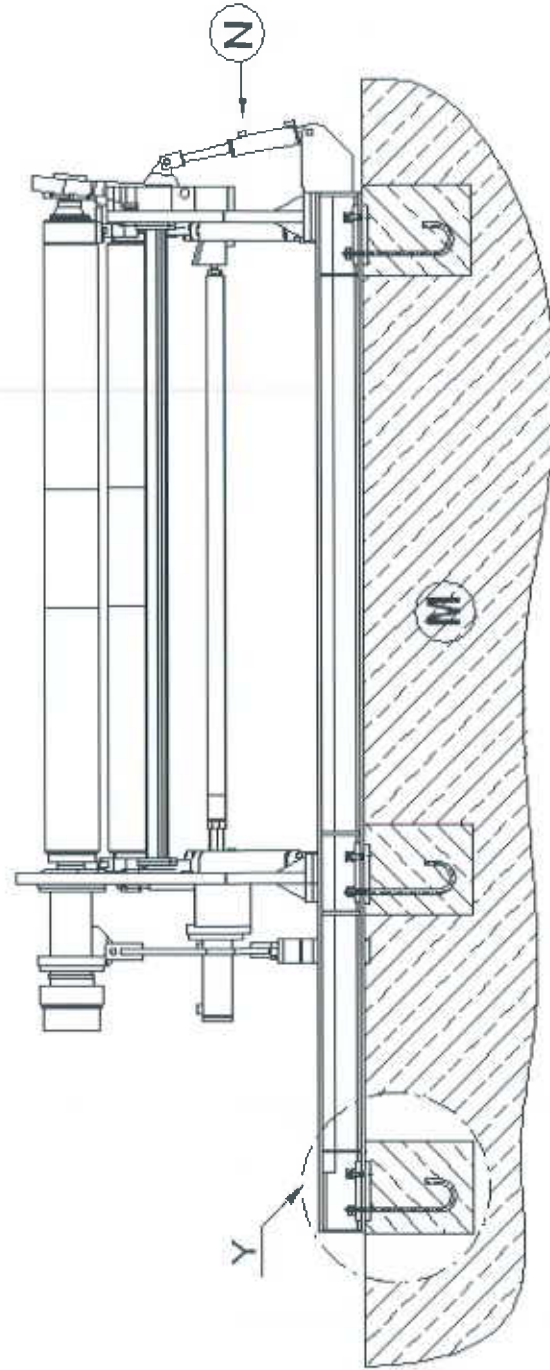


Warning: Do not feed profiles having a higher thickness than specified for the capacity of the machine. Do not feed more than one piece at a time. Do not use the machine for any other job the one for which it has been designed.

MAIN DIMENSION OF MACHINE

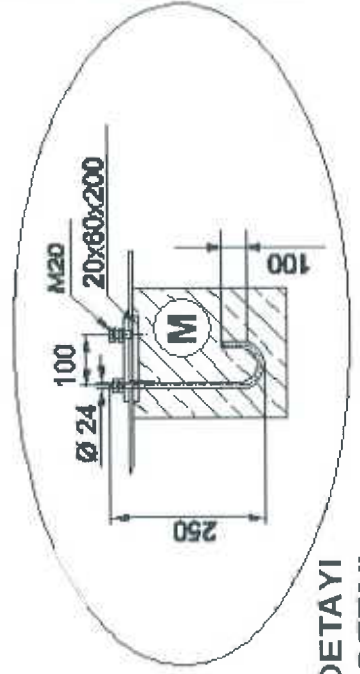


MRM-H 190 FOUNDATION PLAN



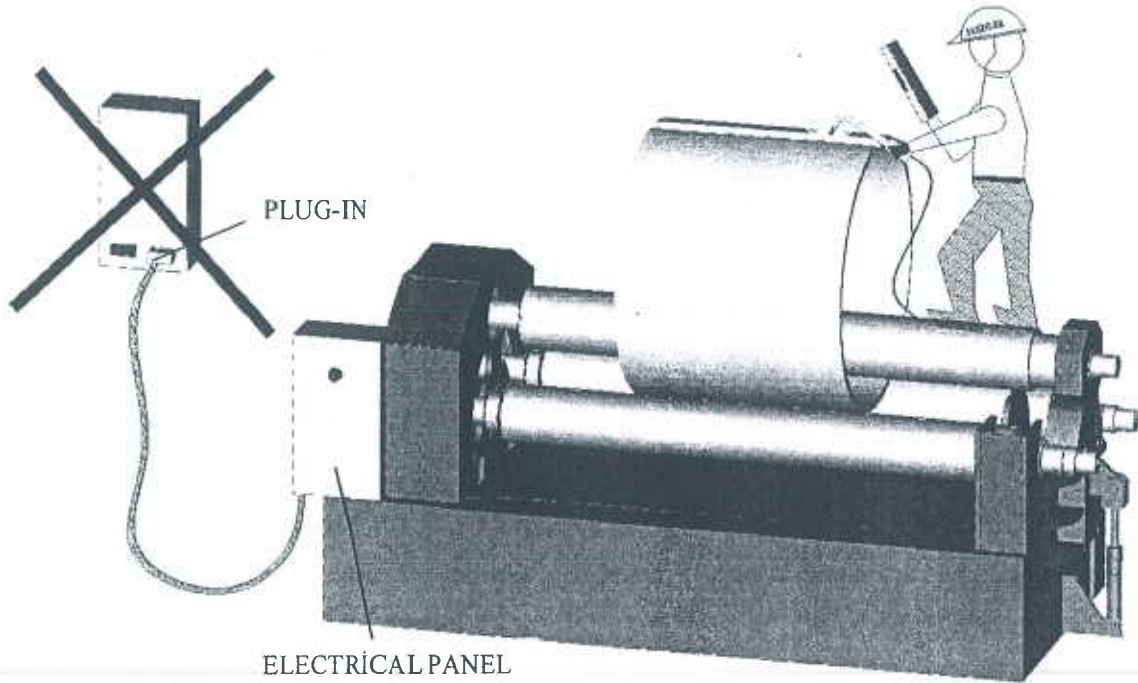
M BETON ZEMİN
 CONCRETE MASONRY
 ZEMEN BODEN

N AÇILIR YATAK
 DROP-END
 KLAPPELAGER

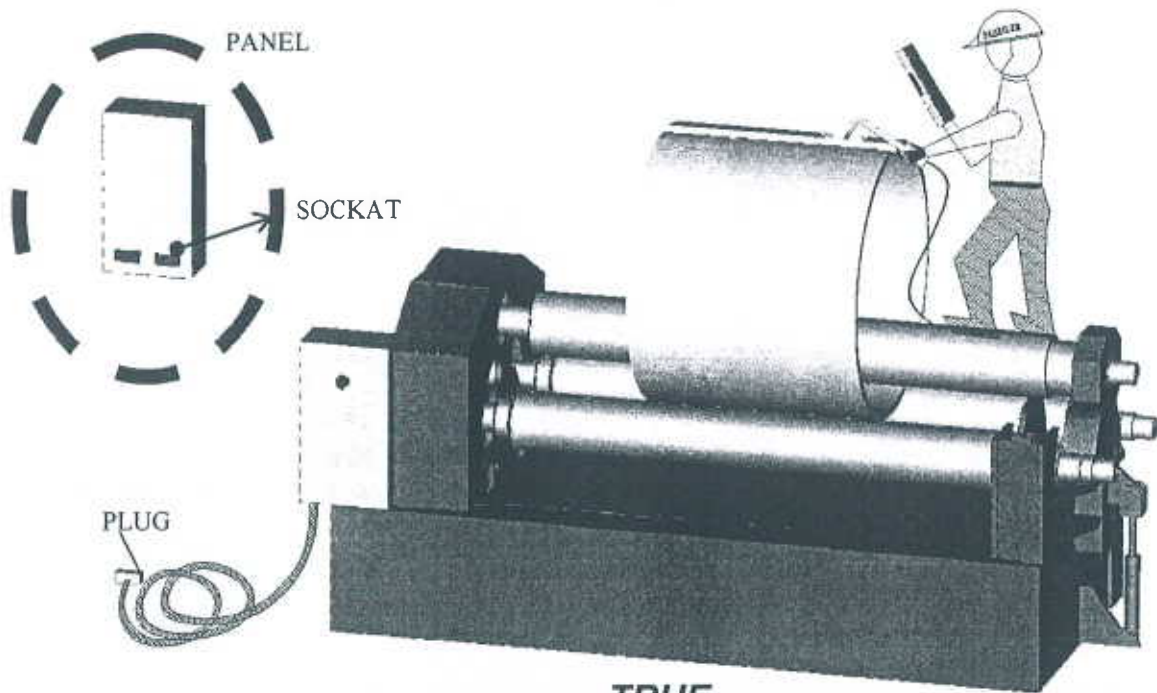


Y DETAYI
Y DETAIL

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



WRONG



TRUE

EXPLANATION OF FOUNDATION PLAN

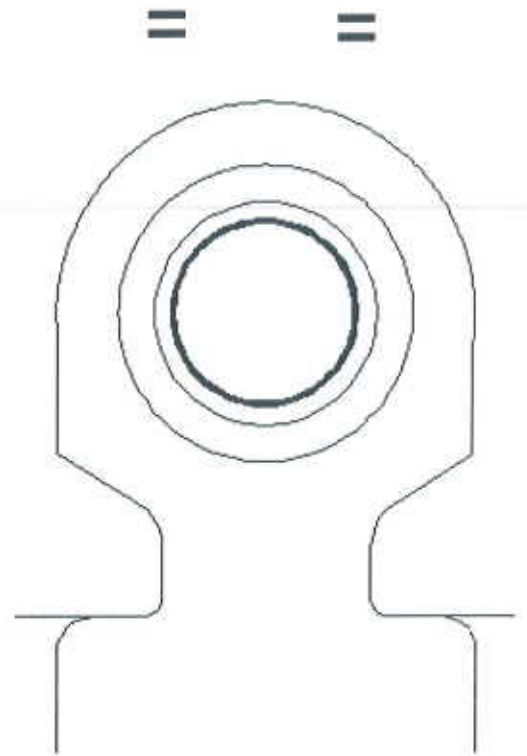
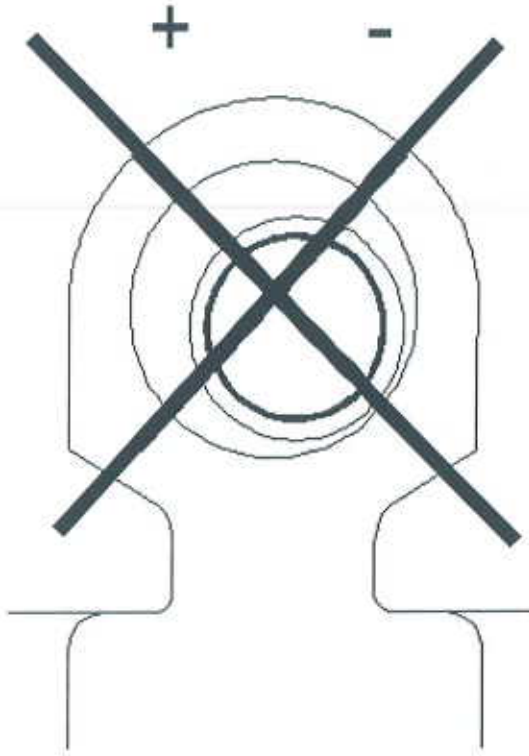
On attached pages you can find foundation plan of the machine. For operation the machine must be placed in a pit as shown and must be bolted to the ground. For bolting refer to front page.

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

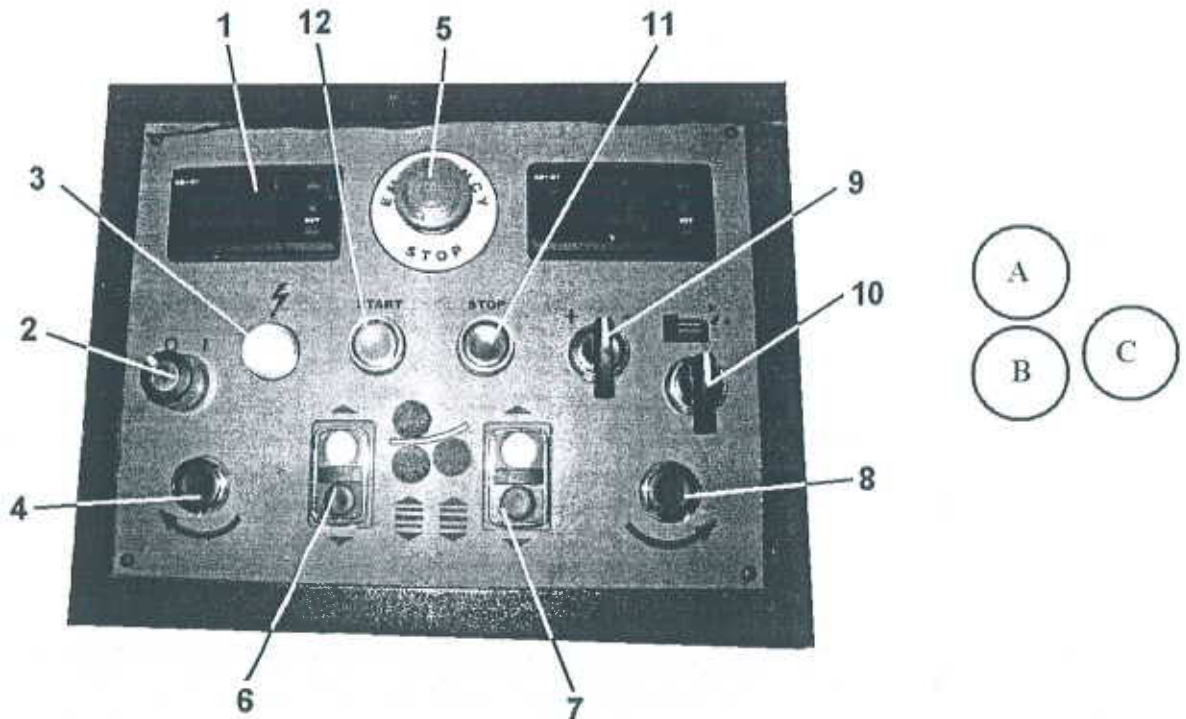
First Start-Up

- 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.

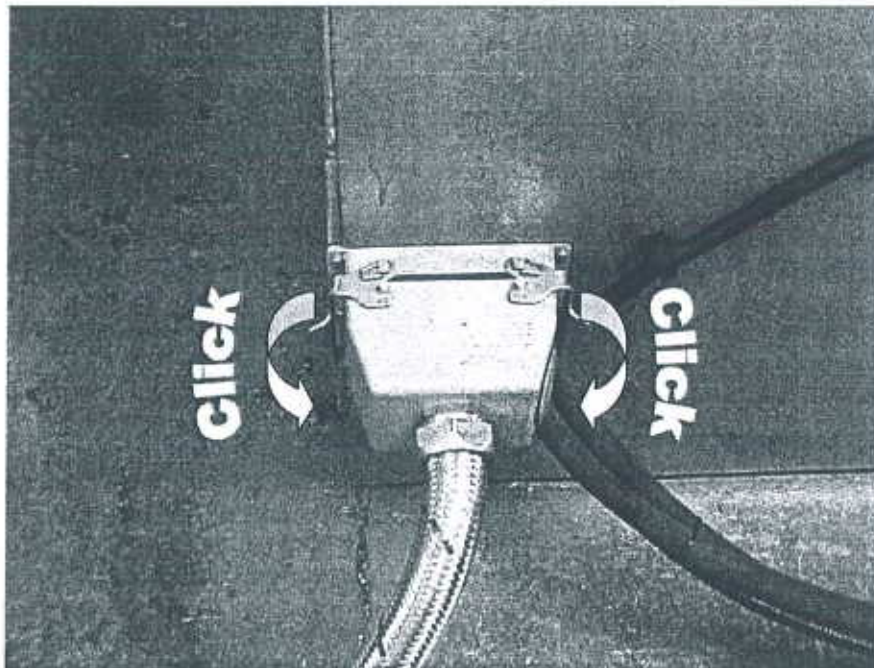
DIGITAL DISPLAYS

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 ŞAHINLER 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 is in of the machine should carefully read and fully understand this manual for the of benefit themselves.

This is for your safety !

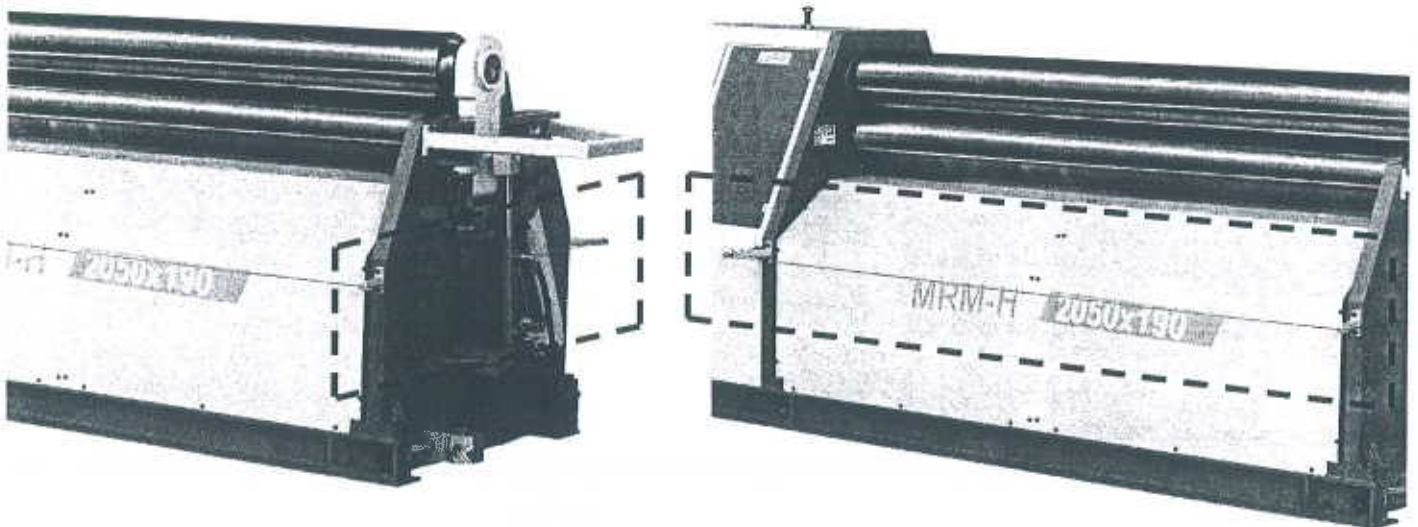


Attention:

- 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.



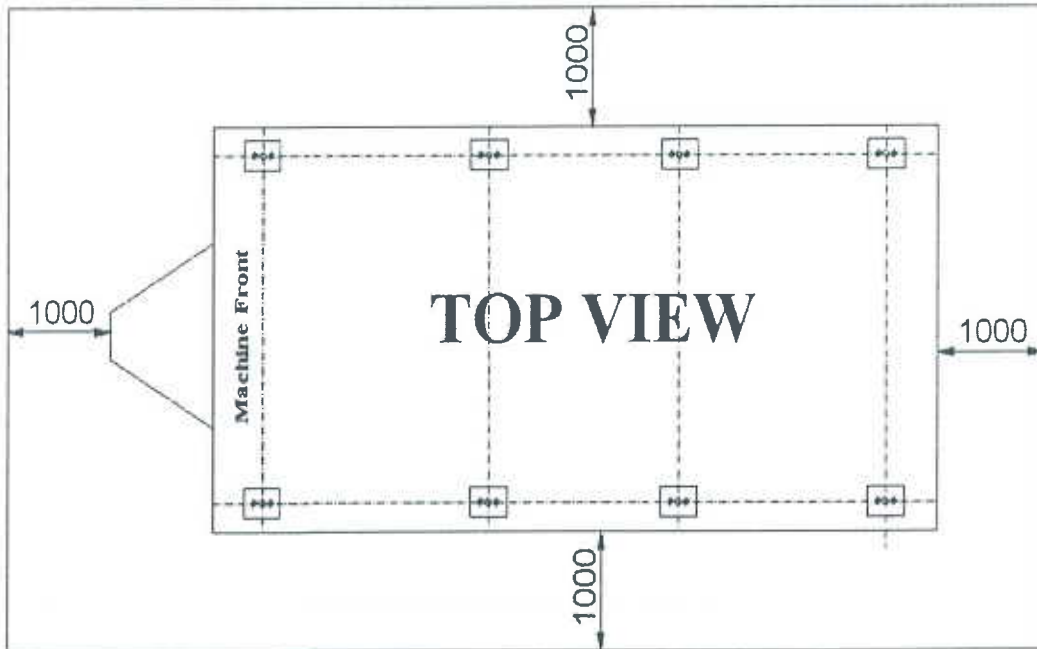
Attention:

- 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 safety 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 a green (shown by ② in fig.2) line under the blue knob. Now you can restart the machine from the control panel.

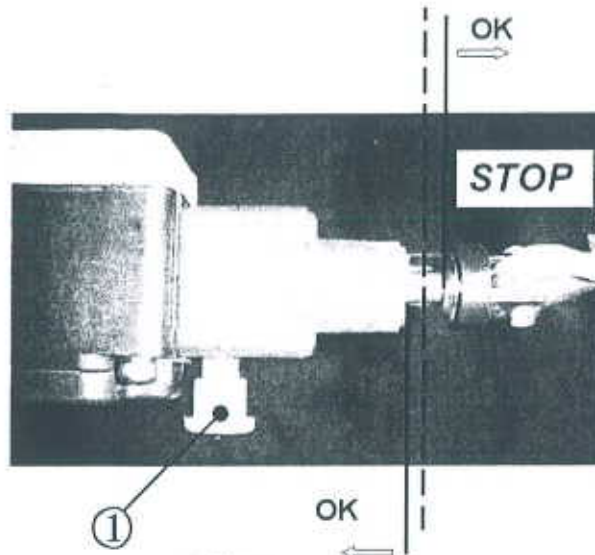
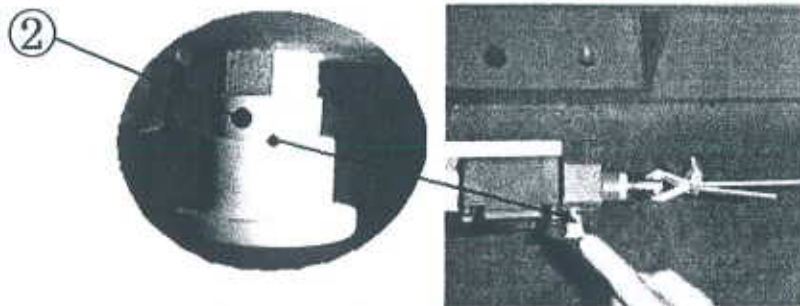


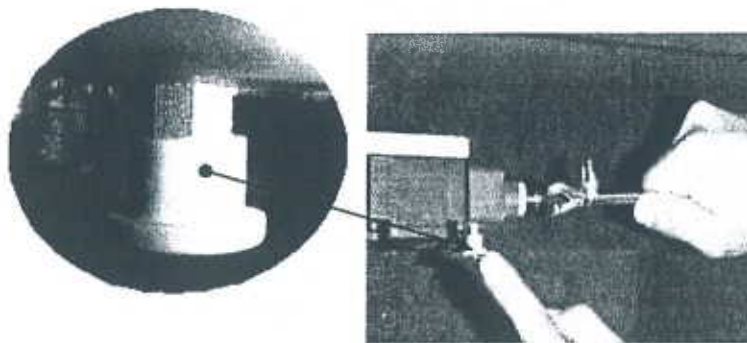
Figure 1

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

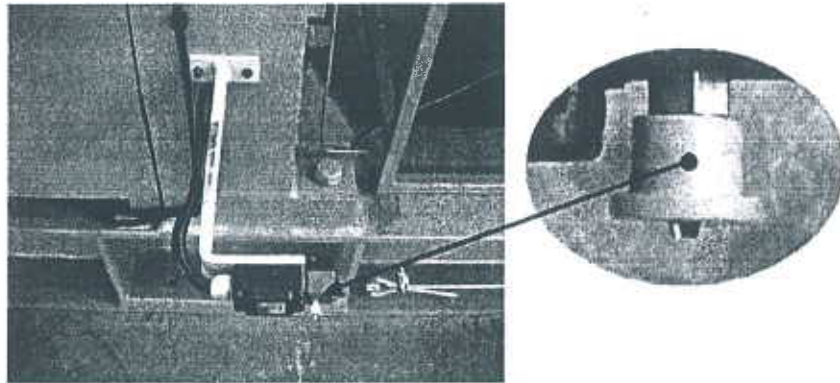


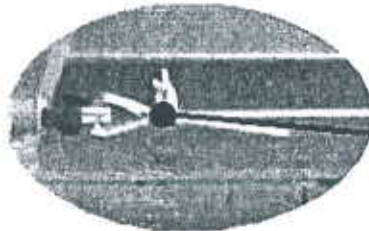
Figure 4



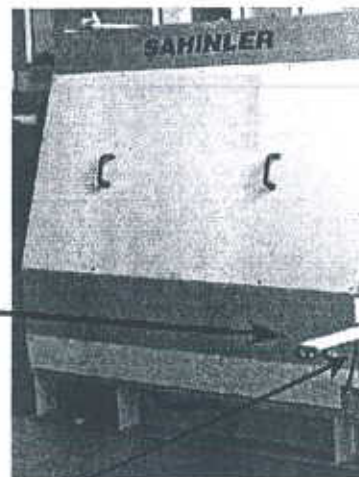
Attention:

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



Safety wire around the machine

Figure 5

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



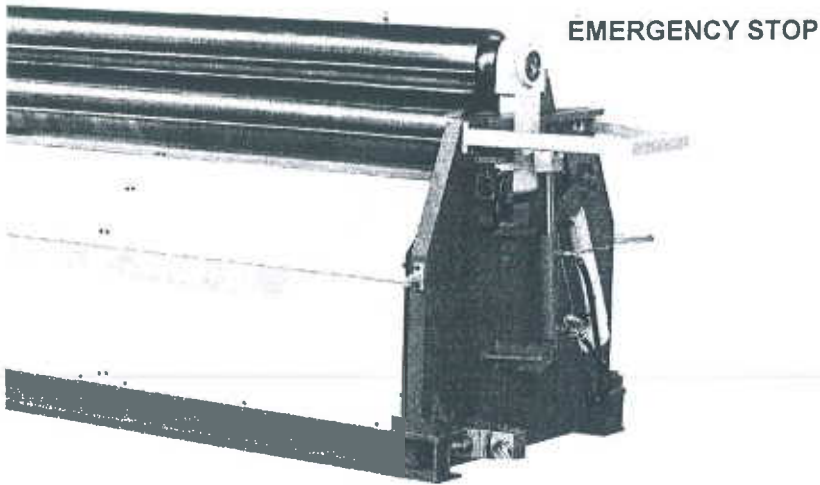
Attention :

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

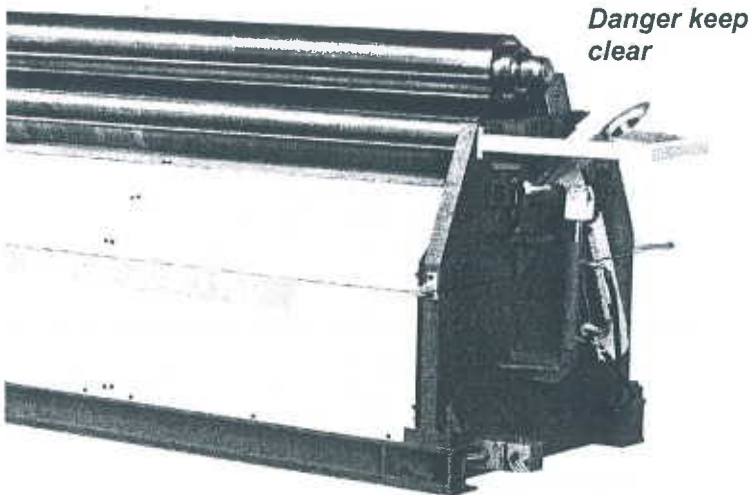
After the emergency button is released you must use the start button to restart the machine.

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



(2) Emergency stop released
Reset pushed
Start pushed



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:

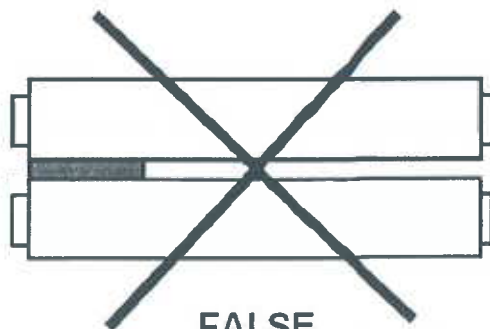
1. Clean the material and the rolls from dust, or grease
2. Make sure there are no chips or flame cutting left-over on the edges of the material
3. Keep in mind that if the material is cut by flame that side will be harder than the other side
4. Check the surface of the material carefully make sure its 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.



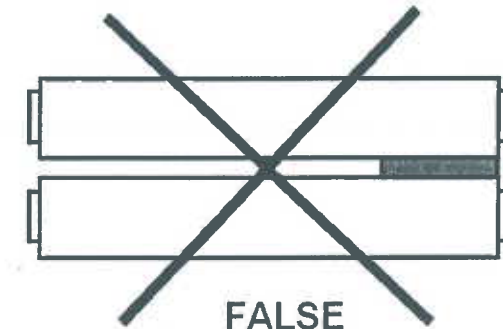
TRUE



TRUE



FALSE



FALSE

Sheet Bending Position

Figure 1

Top roll and lower roll in a flat position.

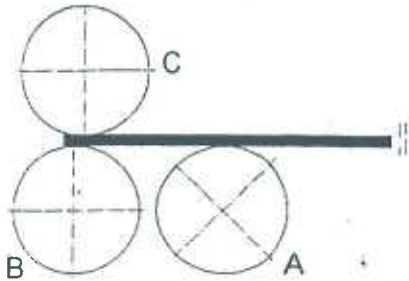


Figure 1

Figure 3

Reverse the sheet and place for second pre-bending.

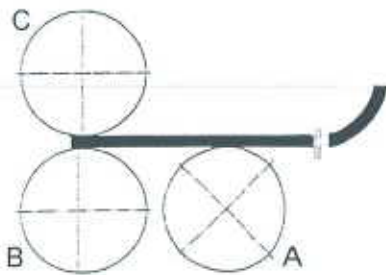


Figure 3

Figure 5

Roll until required diameter is achieved.

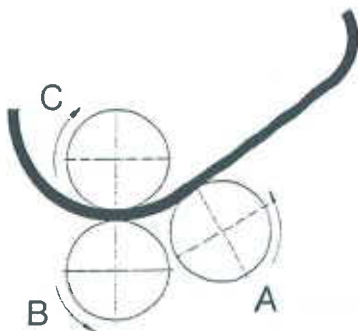


Figure 5

Figure 2

Move the back roll up to complete the pre-bending

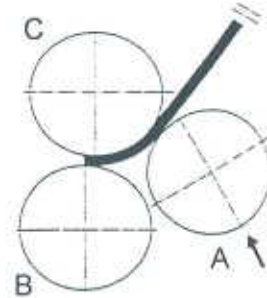


Figure 2

Figure 4

Move the back roll up to complete Pre-bending

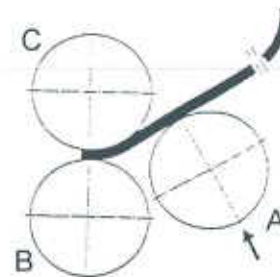


Figure 4

Figure 6

The finish operation shown as below figure 6

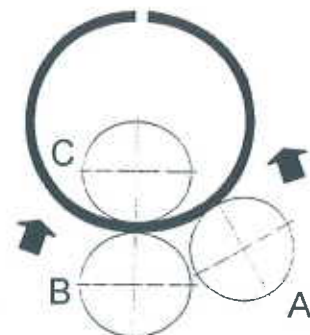


Figure 6





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:

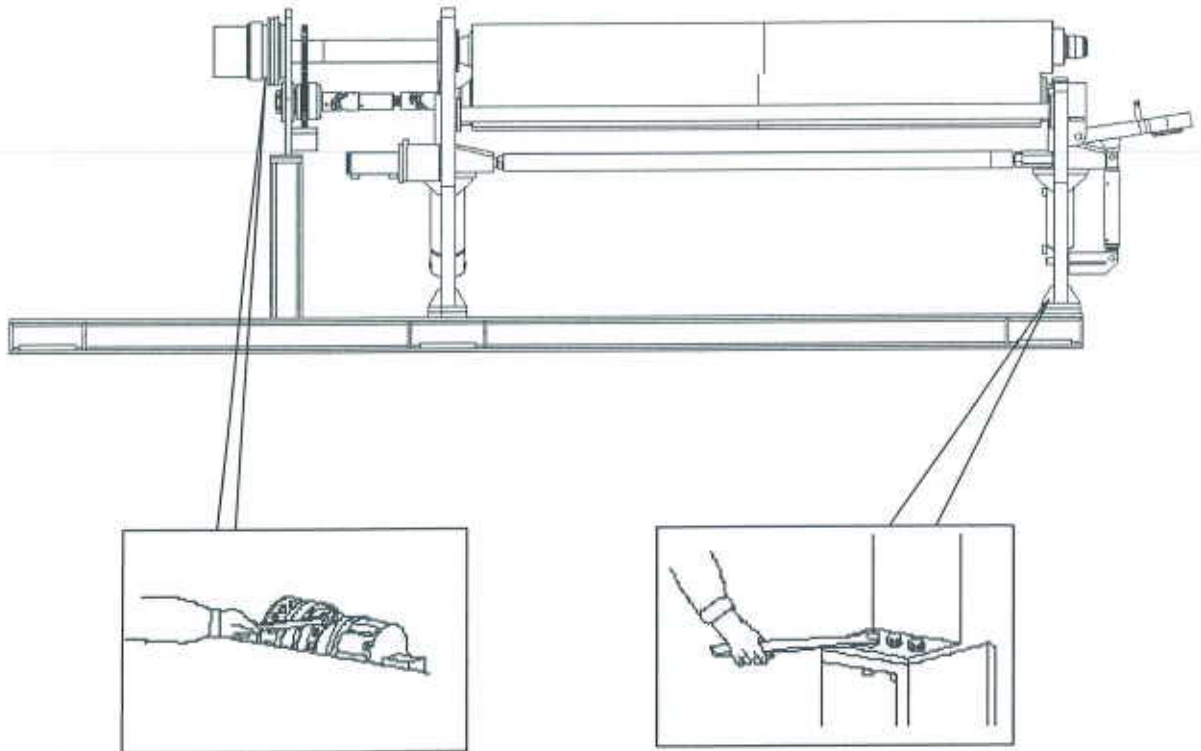
Check the hydraulic reducer oil.
Observe if there is any lack of quantity

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:

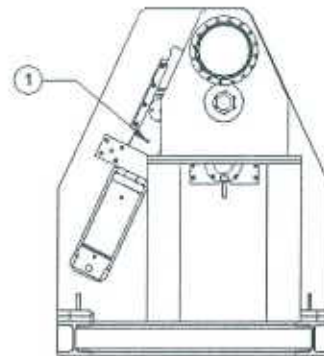
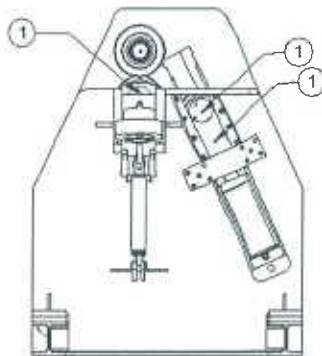
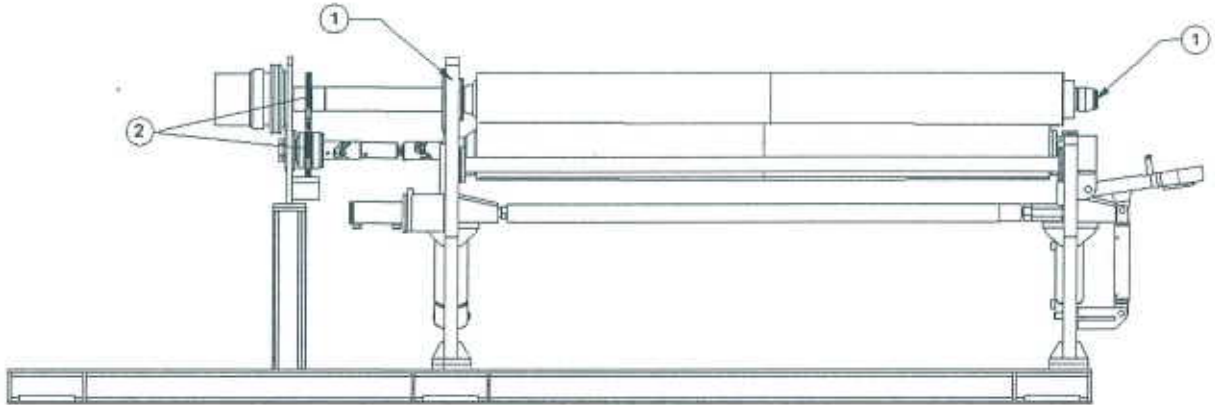
Replace the oil filter or reducer oil.



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

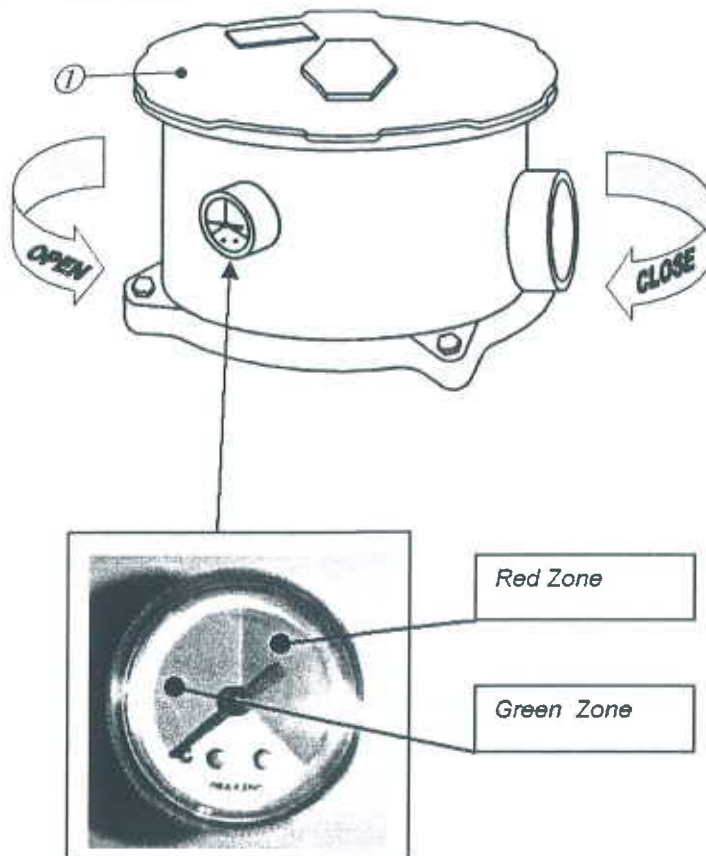
We recommend to change hydraulic oil once every two years.

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

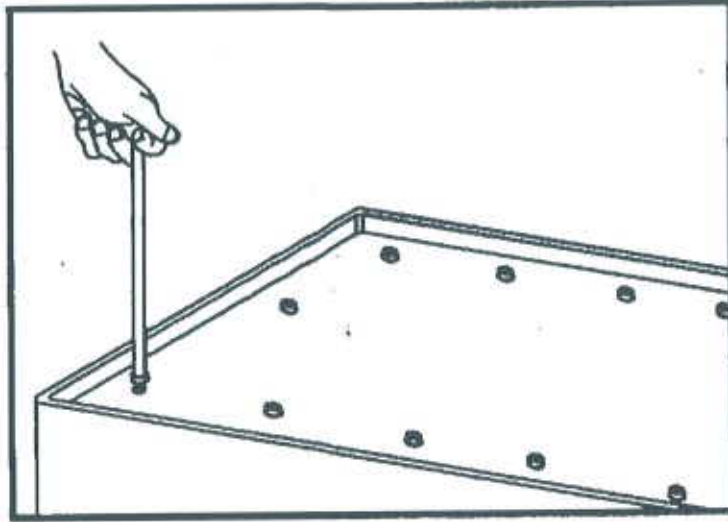
1. Open the cover (Nr.1) by turning it to counter-clockwise
2. Change the filter element
3. Close the cover by turning it to clockwise



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

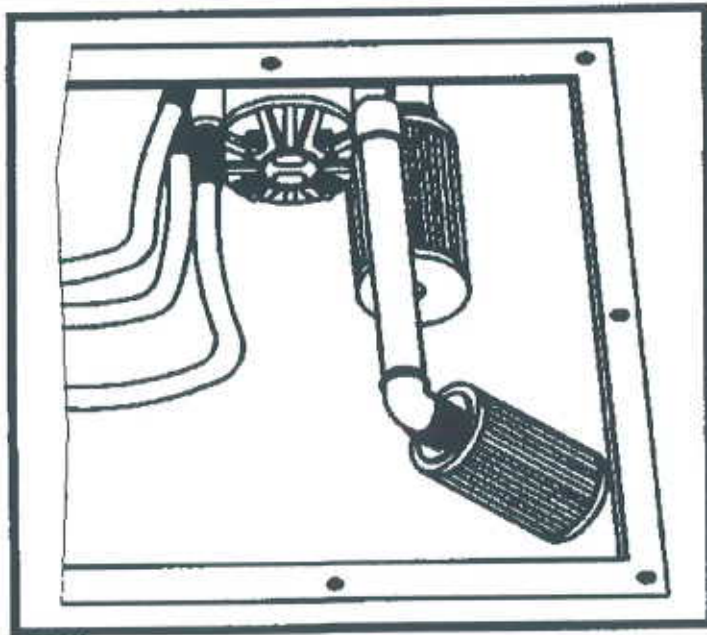
Check to Suction Filter (Inside)

Below we explain step by step to change the suction filter



Open the hydraulic tank cover.











Step 1



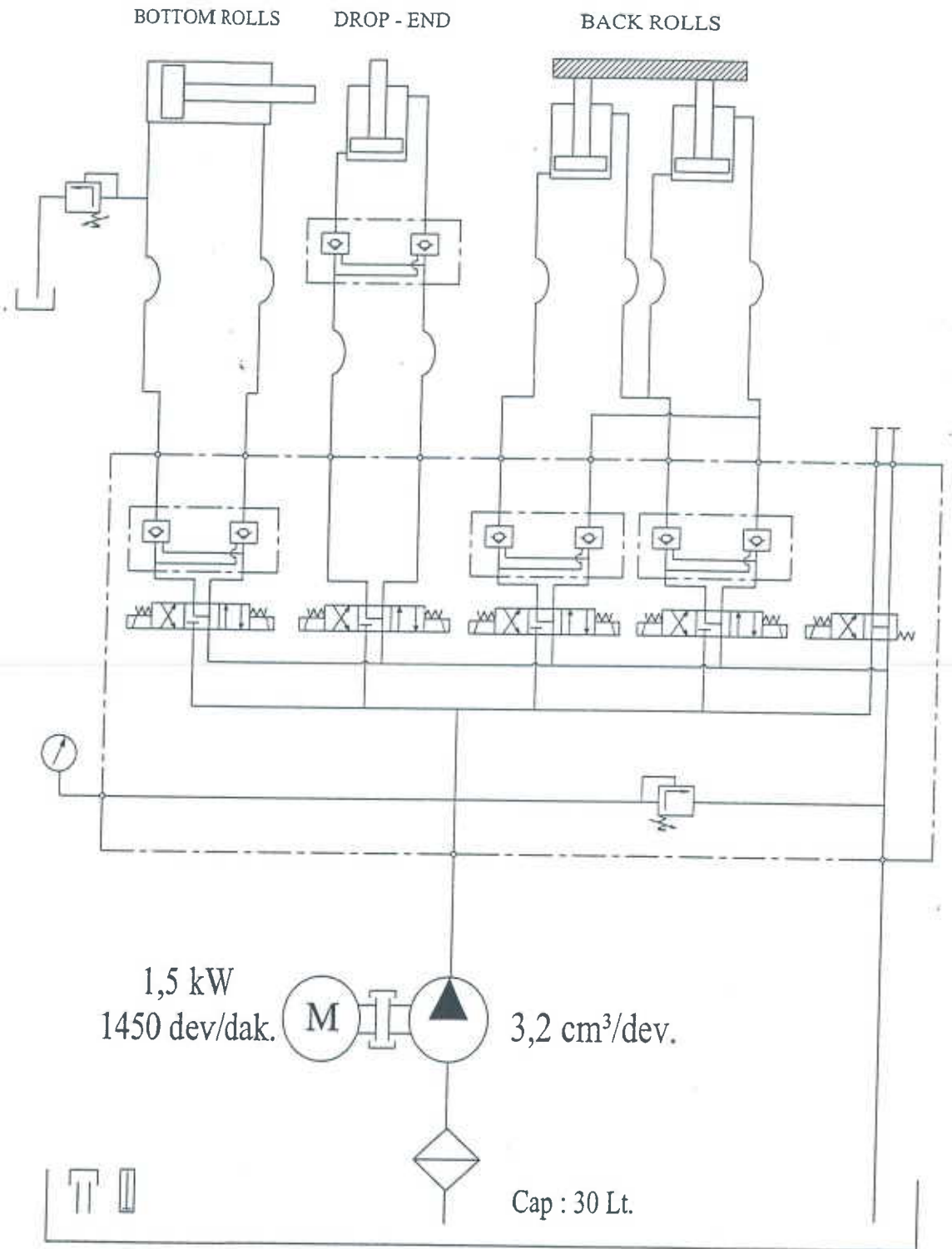
Replace the suction filter.

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 mm ²	 A	 A	q mm ²	 A	 A	q mm ²	 A	 A	q mm ²	 A	 A	q mm ²
3 4	16	11,5	1,5	10	7	1,5	10	6,5	1,5	10	6	1,5	6	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	10	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	8	1,5
7,5 10	32	27	6	25	15,5	2,5	25	14	2,5	20	14	2,5	16	10	1,5
11 15	50	39	10	32	22	4	32	21	4	32	20	4	25	16,5	2,5
15 20	63	52	16	40	30	6	40	28	6	32	26,5	6	24	20,5	4
18,5 25	80	64	16	50	37	10	50	35	10	40	33	10	40	21	4
22 30	80	75	25	63	44	10	50	40	10	50	39	10	40	26	6
30 40	125	103	35	80	60	16	63	55	16	63	51,5	16	50	32	10
37 50	150	126	50	100	72	25	80	66	25	80	64	25	63	50	16
55 75	200	182	95	125	105	35	125	100	35	100	90	35	80	70	25

HYDRAULIC PLAN



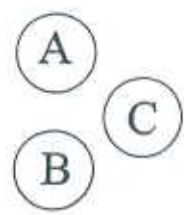
1,5 kW
1450 dev/dak.



3,2 cm³/dev.



Cap : 30 Lt.

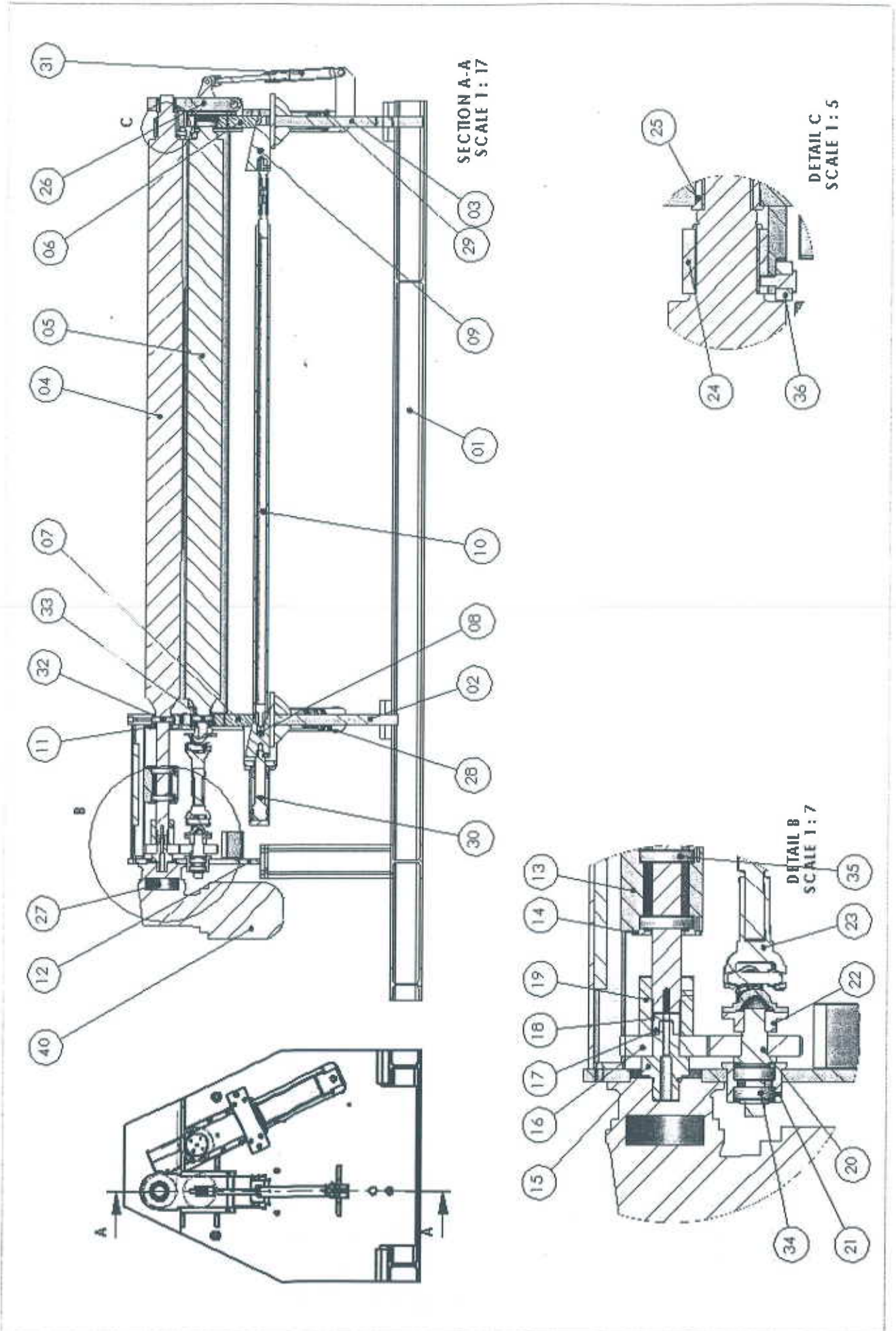


A - TOP ROLLS
B - BOTTOM ROLLS
C - BACK ROLLS

MRM-H HYDRAULIC PART LIST

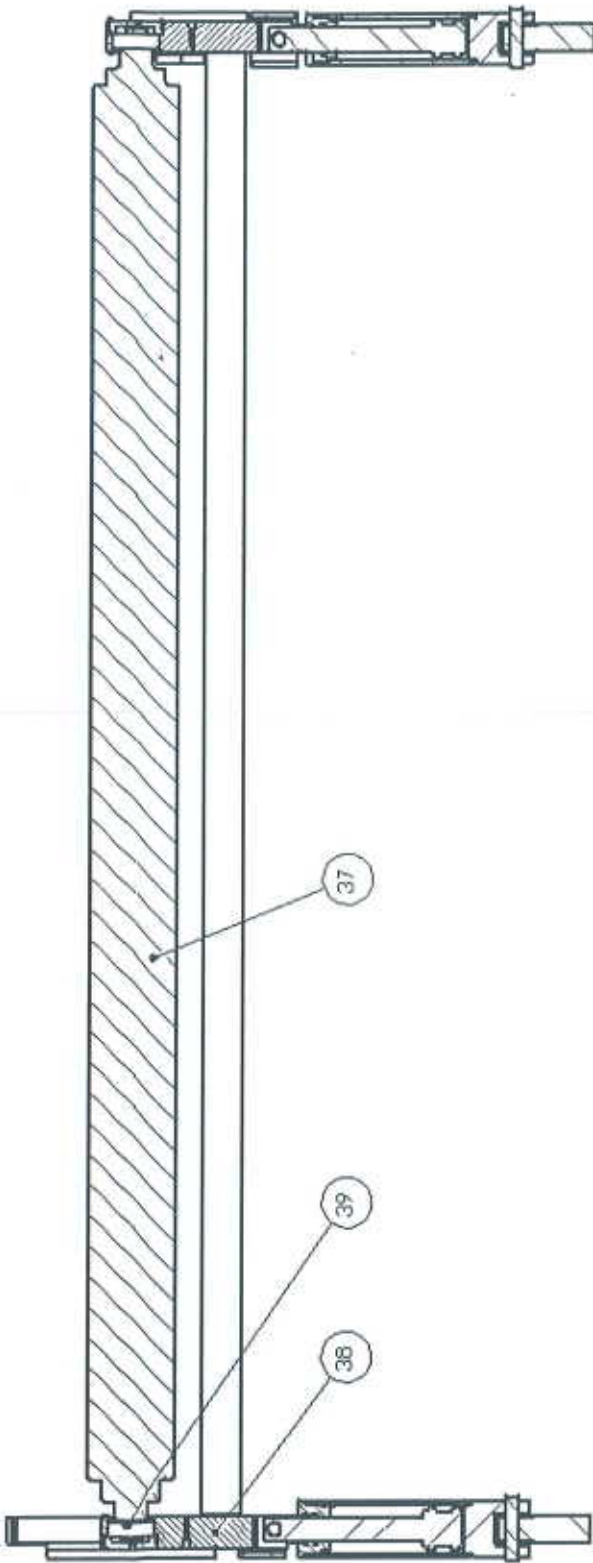
NO	DECLARATION	CODE	UNIT	PRODUCER
1	YAĞ TANKI / HYDRAULIC TANK	TANK 120 LT.	1	ŞAHİNLER
2	YAĞ SEVİYE GÖSTERGESİ / LEVEL POWER SWITCH	FSK 254	1	HYDAC
3	YAĞ DOLDURMA KAPAĞI / OIL TANK CAP	FT8-C40/1	1	FILTREC
4	TERMOSTAT / THERMOSTAT	NT-177-DO TS5 (30°-90°)	1	TEKOSA
5	DİŞLİ POMPA / GEAR PUMP	24 lt + 6 lt	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



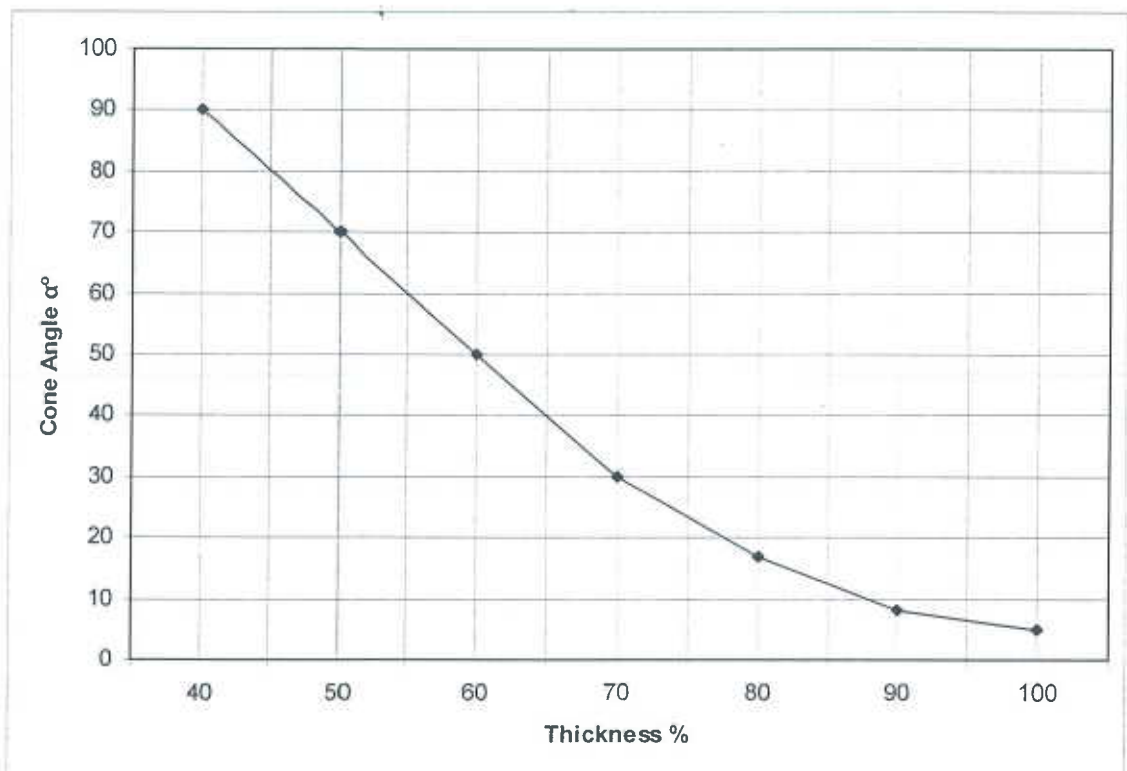
PARTS LIST

<i>Assembly No</i>	<i>Part Identification</i>	<i>Assembly No</i>	<i>Part Identification</i>
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
 cylindrical ferrule.



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



ŞAHİNLER
METAL MAKİNA ENDÜSTRİ A.Ş.

ŞAHİNLER METAL MAKİNA ENDÜSTRİ A.Ş.

İzmir Yolu 22. km. Mürin Gençoğlu Caddesi
16285 BURSA / TÜRKİYE
Tel.: (+90 224)470 01 58 (PBX - 6 Hat/Line)
Fax.: (+90 224)470 07 70 - 470 09 05
www.sahinlermetal.com email: info@sahinlermetal.com

Müşteri :
Tesis tanımı :
Çizim numarası :
Komisyon :

HYDRAULIC ASSYMETRICAL 3 ROLLS
PLATE BENDING MACHINE
MRMH-2012S0402

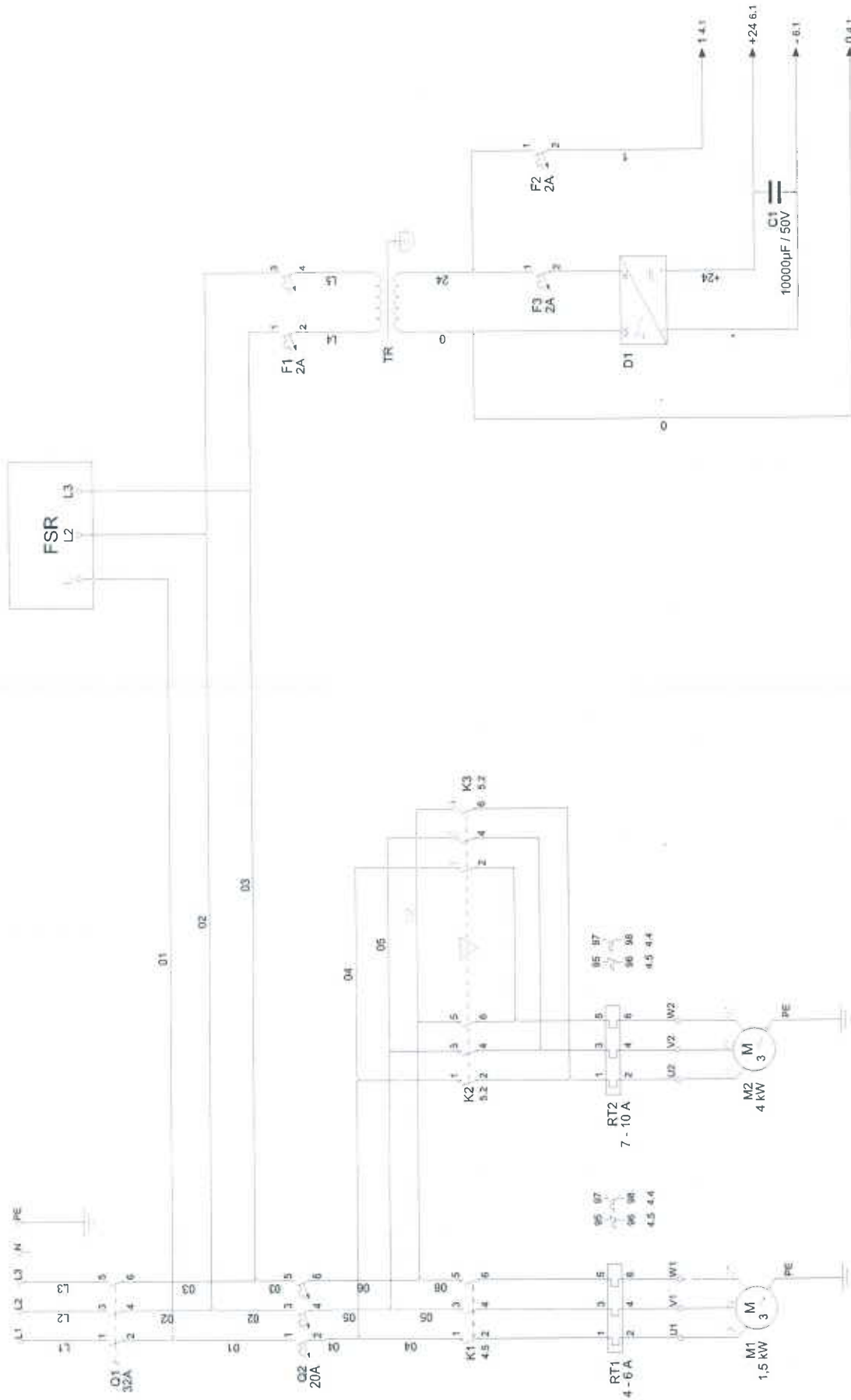
Üretici şirket : Şahinler Metal Makina Endüstri A.Ş.

Dosya ismi :
Proje ismi :
Marka :
Tip :
Kurulum :
Proje yöneticisi :

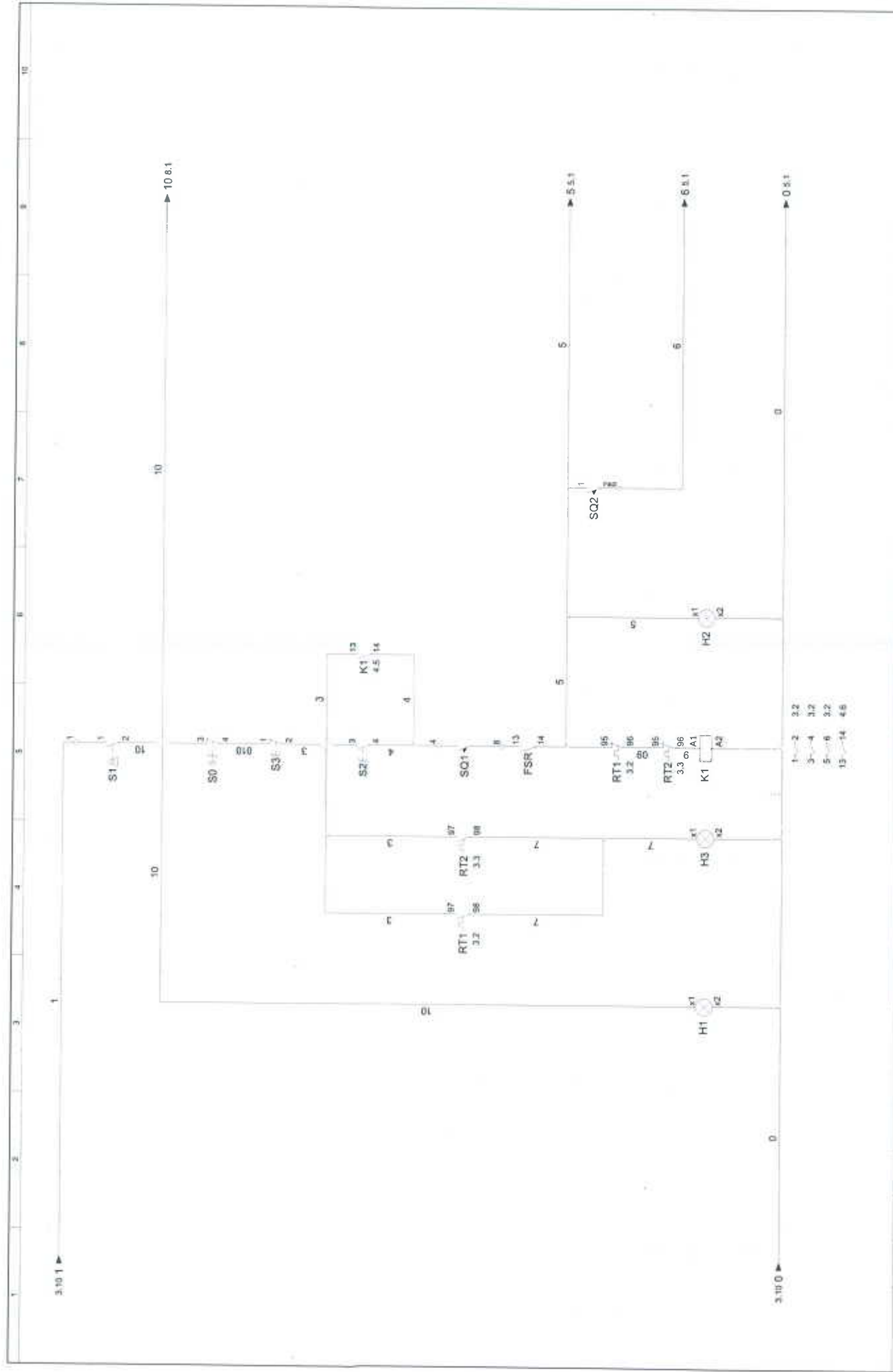
ŞAHİNLER

Oluşturma tarihi : 30.03.2012 Sorumlu : Mehmet Karakuş En yüksek sayfa : 12
Durum : 02.04.2012 Sorumlu : Necati Altan Toplam sayfa : 12

Tarih	İsmin	Değişiklikler	Tarih	İsmin	Değişiklikler
2012/04/02	Mehmet Karakuş		2012/04/02	Mehmet Karakuş	
2012/04/02			2012/04/02		
ŞAHİNLER METAL MAKİNA ENDÜSTRİ A.Ş.			HYDRAULIC ASSYMETRICAL 3 ROLLS		
Düzenli			PLATE BENDING MACHINE		
Sahif.			Bölü.		
Title Page / Cover Sheet			MRMH-2012S0402		
			Sayfa		
			Toplam		
			12		



Değişiklikler:	Tarih	İşlem	Original	Sub.İ	Sub.D.	Motor Group	MRMH-2012S0402	Yer	S.	12	5
	Tarih	İşlem									
	Tarih	2012-03-19				SAHINLER METAL MAKİNA ENDÜSTRİ A.Ş.					
	Çizen	Mehmet Korkmaz				HYDRAULIC ASSYMETRICAL 3 ROLLS					
	Kontrol	2012-03-19				PLATE BENDING MACHINE					



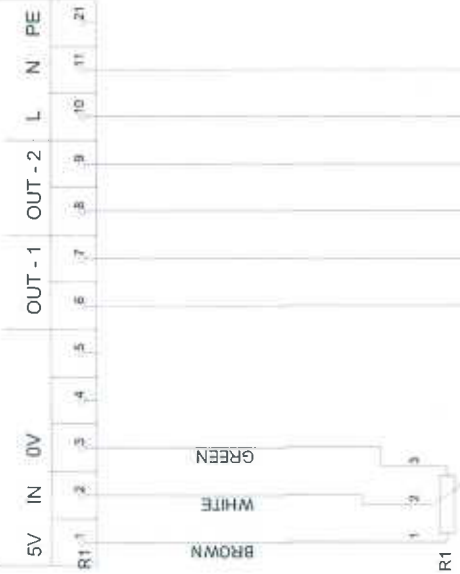
Defisikiller	Tarih	İsim	Dijital	Sub.1	Sub.0	Control Group - 1	MRMH-2012S0402	Ver	5	4
	Tarih	İsim	Dijital	Sub.1	Sub.0	Control Group - 1	MRMH-2012S0402	Ver	5	4
	Tarih	İsim	Dijital	Sub.1	Sub.0	Control Group - 1	MRMH-2012S0402	Ver	5	4
	Tarih	İsim	Dijital	Sub.1	Sub.0	Control Group - 1	MRMH-2012S0402	Ver	5	4
	Tarih	İsim	Dijital	Sub.1	Sub.0	Control Group - 1	MRMH-2012S0402	Ver	5	4

ŞAHİNLER METAL MAKİNA ENDÜSTRİ A.Ş.
 HYDRAULIC ASSYMETRICAL 3 ROLLS
 PLATE BENDING MACHINE

2012-03-19
 Mehmet Karakuş
 2012-03-19

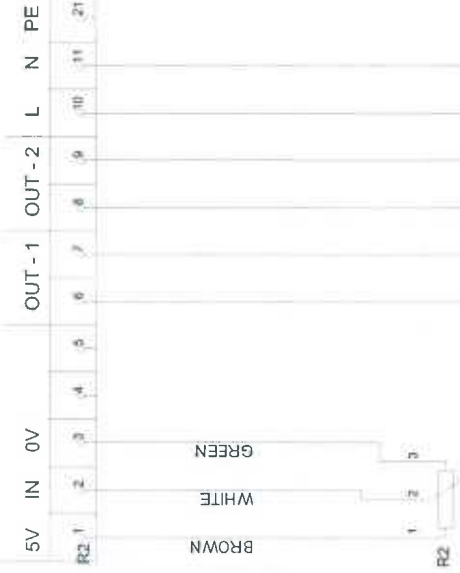
DJ-1 MODEL AD101 Ver. 1.0

DJ - 1



DJ-2 MODEL AD101 Ver. 1.0

DJ - 2

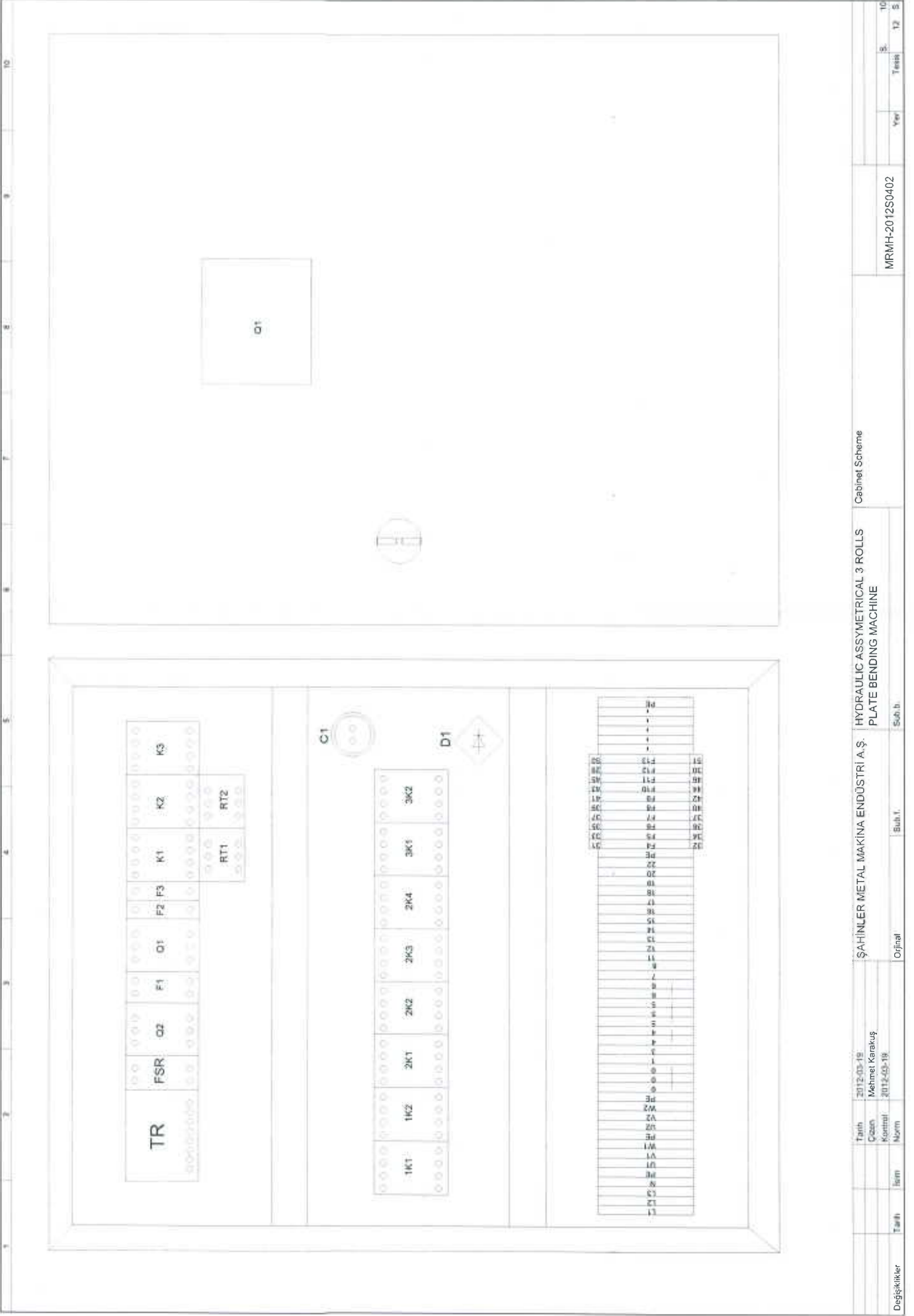


- 5.1.113
- 5.1.114
- 5.1.115
- 5.1.116
- 5.10.5
- 4.9.10
- 5.10.0

Tarih	İşlem	Değişiklikler
2012.03.19	Çaun Mehmet Karakuş	
2012.03.19	Kontrol	
ŞAHİNLER METAL MAKİNA ENDÜSTRİ A.Ş.	Sub.1	Sub.b.
HYDRAULIC ASSYMETRICAL 3 ROLLS PLATE BENDING MACHINE	Orjinal	Orjinal
Digital Group		
MRMH-2012S0402		
Yeti	Yerli	S.
Tarih	12	B.

1	2	3	4	5	6	7	8	9	10
1	1	17	17						
0	2	18	18						
3	3	19	19						
4	4	20	20						
5	5	21	21						
6	6	22	22						
7	7	23	23						
	8	24	24						
	9	25	25						
	10	26	26						
11	11	27	27			BROWN-DJ1			
12	12	28	28			WHITE-DJ1			
13	13	29	29			GREEN-DJ1			
14	14	30	30			BROWN-DJ2			
15	15	31	31			WHITE-DJ2			
16	16	32	32			GREEN-DJ2			

Değişiklikler	Tarih	İsme	Tarih	2012-03-19	Çizen	Mehmet Karakul	2012-03-19	Norm	ŞAHİNLER METAL MAKİNA ENDÜSTRİ A.Ş.	HYDRAULIC ASSYMETRICAL 3 ROLLS PLATE BENDING MACHINE	Sub B.	Connector Part	MRMH-2012S0402	Year	12	12
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Değişiklikler	Tarih	2012-03-19	ŞAHİNLER METAL MAKİNA ENDÜSTRİ A.Ş.	HYDRAULIC ASSYMETRICAL 3 ROLLS PLATE BENDING MACHINE	Cabinet Scheme	MRMH-2012S0402	Yer	S.	10
	Çizen	Mehmet Karakuş							
	Tarih	2012-03-18							
	İsmin	Norm							
	Sub.t.	Sub.t.							

ELECTRICAL PARTS LIST - 1

CODE	EXPLANATION	ORDER NUMBER	MANUFACTURER
D1	MAIN SWITCH	KG32B T313 / 10 VE	KRAUS - NAIMER
O2	AUTOMATIC FUSE	AGK3A320	SCHNEIDER
F1	TRANSFORMER INPUT FUSE	AGF7A202	SCHNEIDER
F2	TRANSFORMER OUTPUT FUSE	AGF7A102	SCHNEIDER
F3	TRANSFORMER OUTPUT FUSE	AGF7A102	SCHNEIDER
T8	TRANSFORMER (+150/-19230/400/440 // 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	LRD - 10	SCHNEIDER
RT2	M2 MOTOR PROTECTION OVERLOAD THERMAL RELAY	LRD - 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	KBR3 35 / 10	KLEMSAN
S9	EMERGENCY STOP	XB4-BSS42	SCHNEIDER
S1	POWER SWITCH	XB4-BG21	SCHNEIDER
H1	POWER ON LAMP	XB4-BV81	SCHNEIDER
S2 - H2	START BUTTON AND LAMP	XB4-BW3385	SCHNEIDER
S3 - H3	STOP BUTON 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

ELECTRICAL PARTS LIST - 2

CODE	EXPLANATION	ORDER NUMBER	MANUFACTURER
S01	SAFETY WIRE	LE1K23HUM112	EMAS
S02	LIMIT SWITCH	XCKP112IP16	SCHNEIDER
F4 F14	VALVE FUSE	ASR 2 S	KELEMSAN
D1	DIGITAL INDICATORS FOR ROLL MOVEMENTS	AD 101	ISITAN
C1	CAPACITOR	10000µF / 50V	ISITAN
	ENCODER FOR SIDE ROLL	LPM 200 C 10K	OPKON
	ENCODER FOR CENTRAL ROLL	LPM 50 C 5K	OPKON
	32 POLES SOCKET FEMALE	4030810705	MIETE ENERJI
	32 POLES SOCKET MALE	403050706	MIETE ENERJI

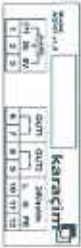
AD101 M1.01

Position Controller w. Analog feedback

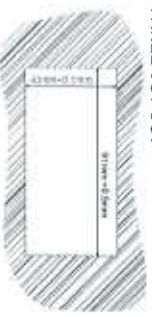


- Analog / Potentiometer input
- 480mm DIN case / Output: 80mm with connector /
- 2 relay outputs, Programmable (3A, NC)

CONNECTIONS



Pin	DESCRIPTION	POTENTIAL
1	24VDC Output (NOT supply)	REL. 24VDC
2	0V	0-2.5V
3	0V	0V
4	0V	0V
5	0V	0V
6	0V	0V
7	Output Relay 1	NO, N/C
8	Output Relay 2	NO, N/C
9	0V	0V
10	0V	0V
11	0V	0V
12	0V	0V
13	Relay Output	NO, N/C



PANEL CUT-OUT

PARAMETERS

No.	Name	Description	Value	Unit
1	DIR	Direction	1	0
2	DIR	Direction	1	0
3	DIR	Direction	1	0
4	DIR	Direction	1	0
5	DIR	Direction	1	0
6	DIR	Direction	1	0
7	DIR	Direction	1	0
8	DIR	Direction	1	0
9	DIR	Direction	1	0
10	DIR	Direction	1	0
11	DIR	Direction	1	0
12	DIR	Direction	1	0
13	DIR	Direction	1	0
14	DIR	Direction	1	0
15	DIR	Direction	1	0
16	DIR	Direction	1	0
17	DIR	Direction	1	0
18	DIR	Direction	1	0
19	DIR	Direction	1	0
20	DIR	Direction	1	0
21	DIR	Direction	1	0
22	DIR	Direction	1	0
23	DIR	Direction	1	0
24	DIR	Direction	1	0
25	DIR	Direction	1	0
26	DIR	Direction	1	0
27	DIR	Direction	1	0
28	DIR	Direction	1	0
29	DIR	Direction	1	0
30	DIR	Direction	1	0
31	DIR	Direction	1	0
32	DIR	Direction	1	0
33	DIR	Direction	1	0

HOW TO SET

- Press **SET**, read "CALZ" on display.
- Enter "Set 1" value using **▲/▼** press **SET**.
- Read "CALZ" on display.
- Enter "Set 2" value using **▲/▼** press **SET**.

RESET

Press **▼** 5 sec., read "RST" on display, then display shows RESET value (P1, 9)

CALIBRATION

- Press **▲** 5 sec., read "CALZ" on display (P1, 1)
- Bring the machine to start position, enter the position value by **▲/▼**, then press **SET**.
- Press **SET**, read "CALZ" on display.
- Bring the machine to end position, enter this position value by **▲/▼**, then press **SET**.

Notes:
 If admin password is not given, password is needed to enter calibration.
Notes:
 This calibration is done by 2-point method. The joints should not be end points, else it is considered for good calibration.
 Make 2 before the calibration (at 2 (over point)) must be entered.

EX-FACTORY

Switch-off the controller. Press and keep pressing **SET** and switch-on the controller. When "PSET" is read, ex-factory values are loaded.

IF PASSWORD IS FORGOTTEN

Press and keep pressing **▼** and switch-on the controller, read "PASS" on the display, then password is not asked temporarily, old password is still existent.

CHANGING THE PARAMETER

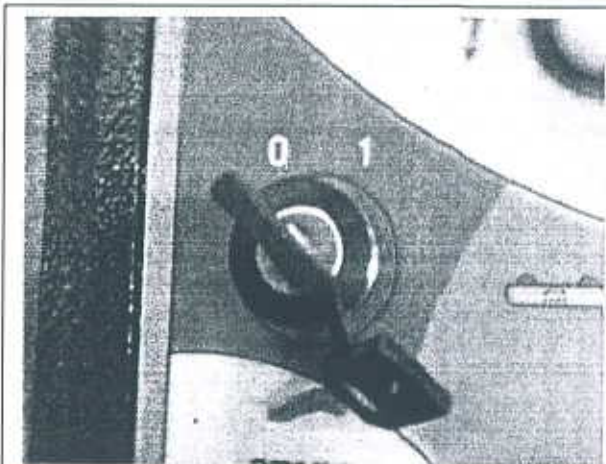
- Press **SET**, "Pr" is read on the display (app. 0000).
- Use **▲/▼** to select parameter no.
- Press **SET**, read the value of parameter selected.
- Use **▲/▼** to enter the new parameter value.
- Press **SET**, for the next parameter.
- To change the parameters, follow the steps starting from step 2.
- To exit, select "turn" using **▲/▼** then press **SET**.

Notes:
 If admin password is not zero, password is asked to enter parameters.

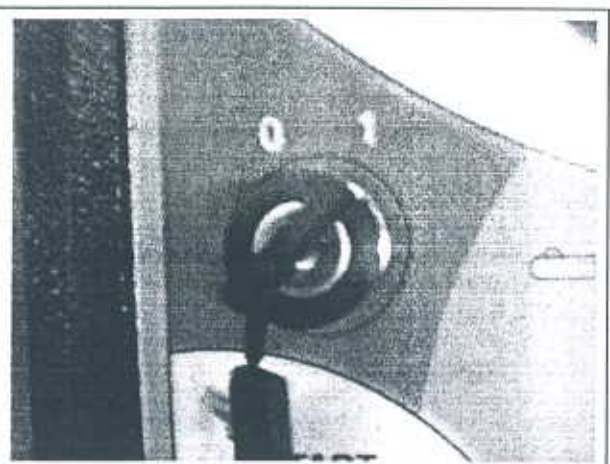
P-01 0
 P-02 1
 P-03 7
 P-04 5
 P-05 0
 P-06 0
 P-07 0
 P-08 0
 P-09 0
 P-10 0
 P-11 0
 P-12 3000
 P-13 20
 P-14 0
 P-15 53
P-UN 53

P-01 Motor speed
P-02 Pr 0-31 Number of gears
P-03 Motor speed (1-1) Output speed
P-04 Motor speed (1-1) Output speed
P-05 Pr 0-255 Motor speed 4.5 and 7
P-06 Pr 184 (0-50) If 0 used in output power 4.5 and 7
P-07 Pr 184 (0-50) If 0 used in output power 4.5 and 7
P-08 Pr 184 (0-50) If 0 used in output power 4.5 and 7
P-09 Pr 184 (0-50) If 0 used in output power 4.5 and 7
P-10 Pr 184 (0-50) If 0 used in output power 4.5 and 7
P-11 Pr 184 (0-50) If 0 used in output power 4.5 and 7
P-12 Pr 184 (0-50) If 0 used in output power 4.5 and 7
P-13 Pr 184 (0-50) If 0 used in output power 4.5 and 7
P-14 Pr 184 (0-50) If 0 used in output power 4.5 and 7
P-15 Pr 184 (0-50) If 0 used in output power 4.5 and 7

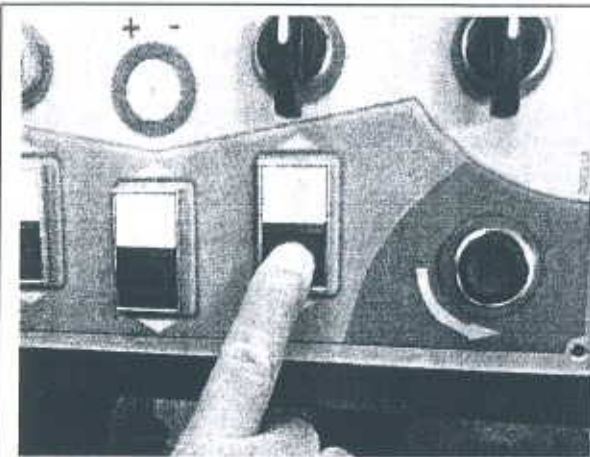
CALIBRATION _ AD101



01 - CLOSE THE MACHINE



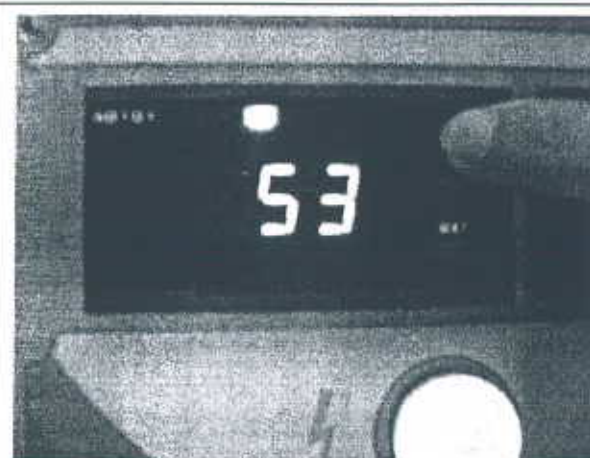
02 - OPEN THE MACHINE



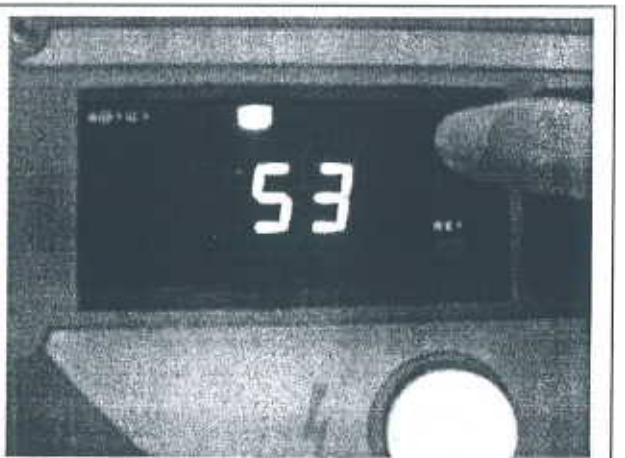
03 - TAKE DOWN THE ROLL
TO MIN LEVEL (THE ROLL
WHICH YOU MAKE THE DIGITAL
SETTINGS)



04 - THEN PRESS THE " UP "
BOTTON



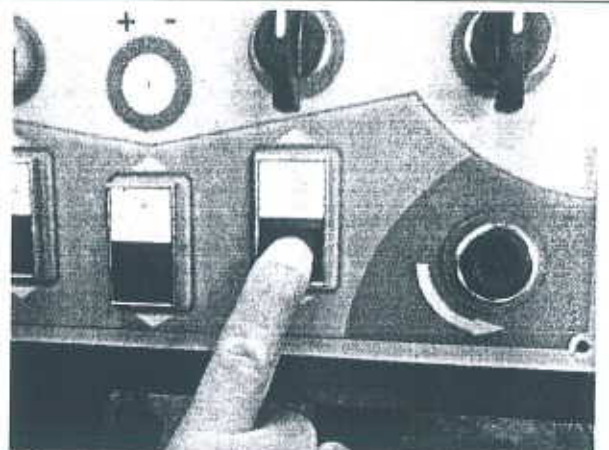
05 - FOR ENTERING THE
PASSWORD USE UP&DOWN
BUTTONS



06 - WRITE "53"



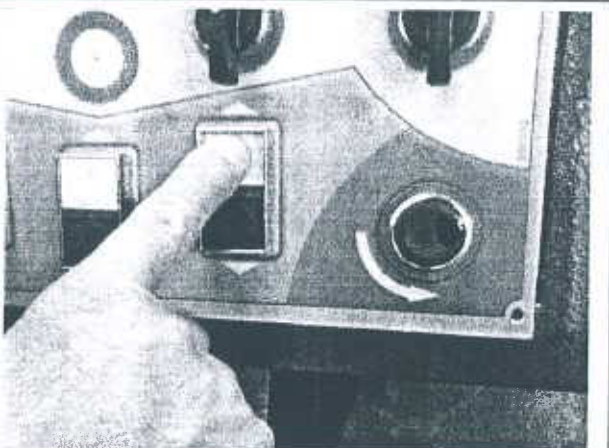
07 - PRESS " SET " BUTTON ON THE SCREEN YOU WILL SEE " CAL-1 "



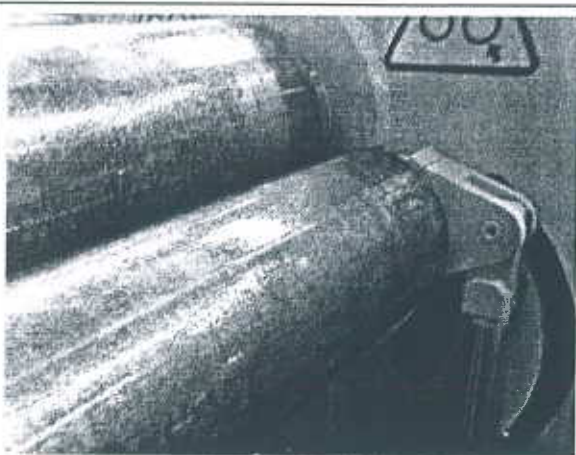
08 - CHECK AGAIN THAT ROLL IS IN THE LOWER MOST



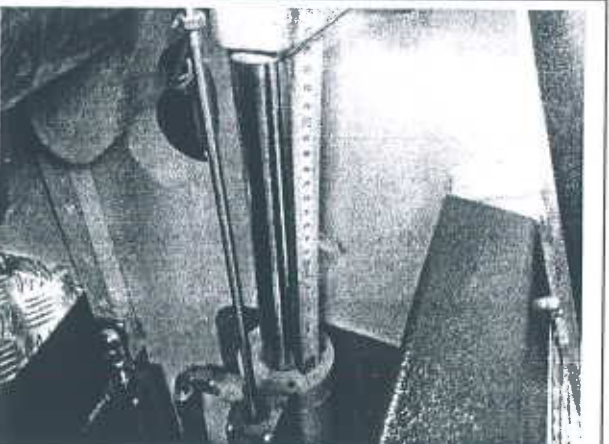
09 - PRESS " SET " BUTTON SCREEN YOU WILL SEE " CAL-2 "



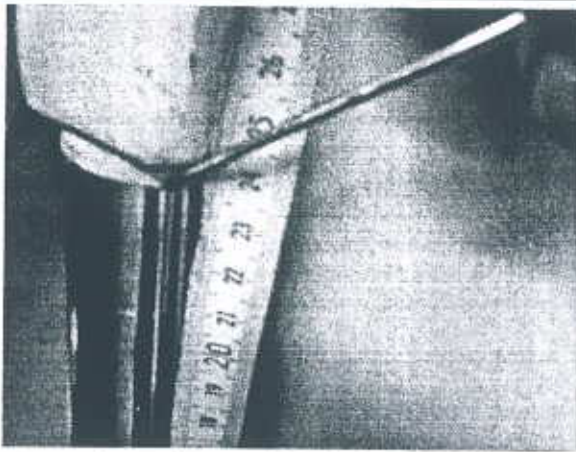
10 - CHECK THAT THE ROLL IS ON THE MAX LEVEL



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



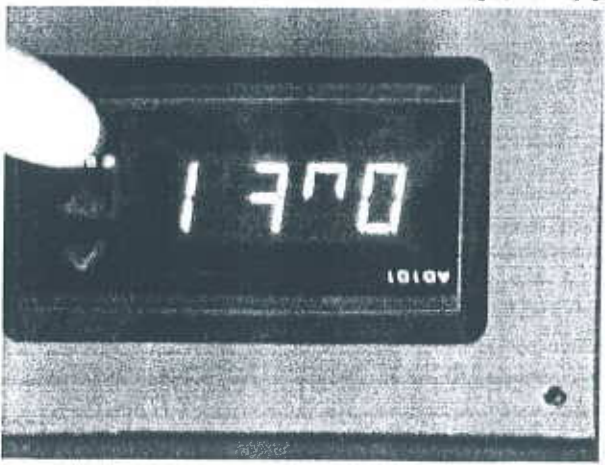
15 - PRESS "SET" BUTTON

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

