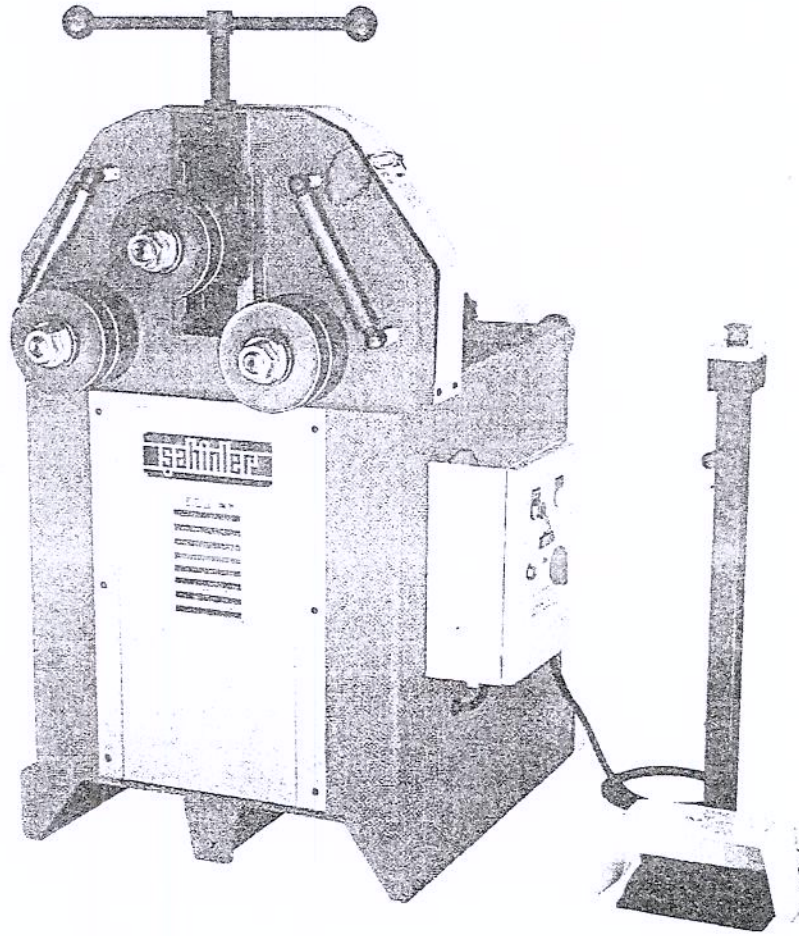




sahinler
METAL MAKINE ENDÜSTRİ A.Ş.



S746 RING ROLLER FEB 2008
USER'S MANUEL
MODEL PK 35
SECTION BENDING MACHINE



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

Tel: +90-224-4700158 (6 lines pbx) Fax: +90-224-4700770

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ŞAHİNLER
METAL MAKİNE ENDÜSTRİ A.Ş.



CE DECLARATION

We as

ŞAHİNLER METAL MAKİNE END. A.Ş.
İzmir Yolu 22.km
Mümin Gençoğlu Caddesi
Bursa / TÜRKİYE

confirm that the machine

PK 35 F

Serial Number :
Production Year :

complies with

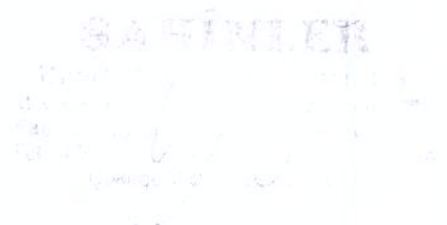
EC MACHINES DIRECTIVE 98 / 37 / EC
replaced with EC-Directives 91 / 368 / EWG and
93 / 44 / EWG and
93 / 68 / CEE
EC-Low Voltage 73 / 23 / EWG
EC-Noise Level Directives 86 / 188 / EWG

and the machine also harmonized with the standards

DIN EN 60204 Part 1

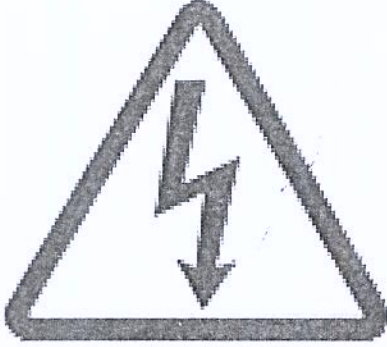
Name : Orhan ŞAHİN
Position : General Director

BURSA, on.....





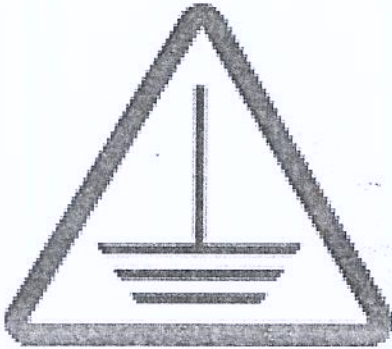
LABELS



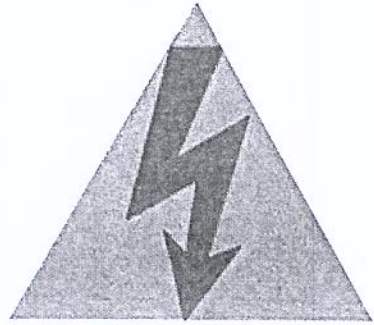
DANGER OF ELECTRIC



EMERGENCY STOP



GROUNDING SYSTEM



WORKING VOLTAGE



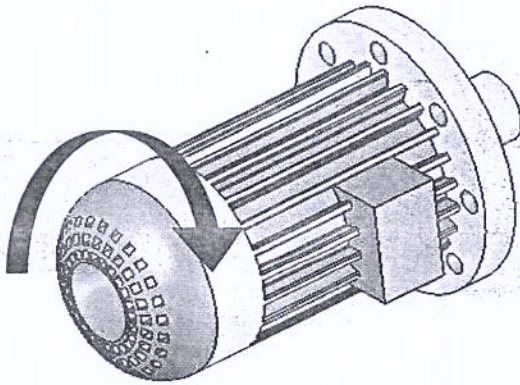
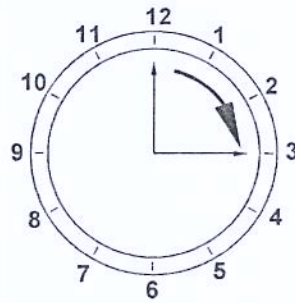
DANGER



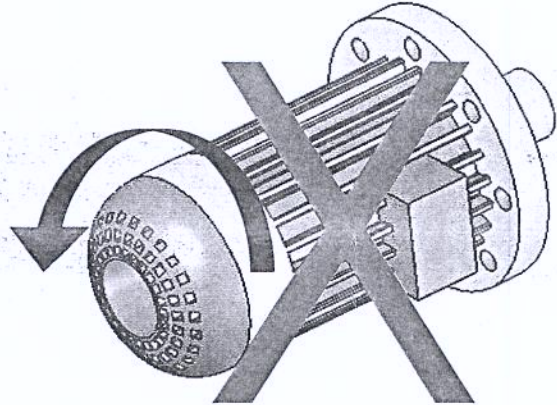
WARNING

Before operating machine;

You must follow these important steps













RIGH



WRONG

1. *Open the cover and check the direction of motor rotation*
2. *If motor rotation direction is wrong, then change L1-L2 cables with themselves*

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

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GENERAL NOTES

1. Introduction

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 notes 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.

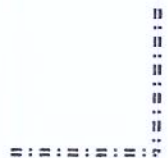


GENERAL WARRANTY TERMS

- 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.





GENERAL SAFETY TERMS

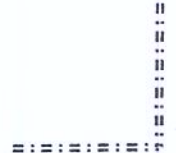
1. Machine's Safety Accessories and Accident Prevention Terms

- The machine is provided with fixed shelters for the protection of all gears. But some mobile parts, because of their shape for the bending processing cannot be protected within a case. However, safety is guaranteed by the machine features and by the use of "human presence" controls.
- The machine is controlled by means of main switch and speed selection knob. During operation the specified safety distance must always be observed.
- No other persons except for the qualified and well-trained operator should be allowed to use the machine and to be present in the working area of the machine.
- Any damaged or defective connections to the different energy supplies must be replaced.
- All interventions concerning installation, start-up, change of equipment, use, change to the use and the operation, regular maintenance, inspection and periodical maintenance can be performed only after disabling the machine according to relevant chapter of this handbook.
- For any intervention to change the machine's use, please contact to ŞAHİNLER METAL MAKİNE ENDÜSTRİ AŞ. previously and ask for their written approval.

2. Abnormal Conditions

In order to avoid unusual working conditions, in the following several recommendations to the operator are listed. Also, do not forget that this machine can be used only in the conditions presented in this operation and maintenance handbook.

- Before connecting the machine double-check electrical connections read the instructions carefully. For, almost 65% of the failure reports we receive are based on either wrong electric connection or use in contradiction to the User's Manual.
- Avoid the approach of persons to the operator while the machine is running.
- Loading and unloading of the material should be done according to the instructions of this handbook.
- During the bending process avoid holding material with the hand.
- Never wear garments with loose parts, which may be dragged by the machine parts, long loose hair, necklaces, rings etc.
- Never use goods except for the allowed ones as operational materials.
- Never run the machine without safety devices.
- Don't climb on the machine.
- If the customer wants to install on the PK 30 machine a piece of equipment, which has not been supplied by ŞAHİNLER METAL MAKİNE ENDÜSTRİ AŞ. the compliance with the safety conditions explained here has to be checked.
- The machine cannot be installed and used in corrosive environments.
- The machine must always be operated with one qualified operator who has the required knowledge to use this machine properly.



TRANSPORTING, LIFTING AND CARRYING

Before preparing the machine for installation and start-up, an accurate visual control is required in order to detect any possible damages occurred during transporting and handling phases.

Your machine is located on a wooden grid and the package is a waterproof plastic cover.

If one or several parts of the machine have been damaged while shipping, the installation of the machine has to be suspended. ŞAHİNLER METAL MAKİNE ENDÜSTRİ AŞ. has to be informed of the unexpected occurrence straight away.

While lifting take care of these points:

- Always lift and carry the machine from the handles.
- Use a steel rope capable of carrying 500 kg.
- Do not forget the Mobil Control Panel.
- Take precautions for handling and lifting.
- Check if the load is properly balanced by lifting it some centimeters.
- Lift the machine, proceeding with care, without sudden accelerations or quick changes of directions.
- Place the machine where it must be installed, lower the machine slowly till it touches the floor.

Figure 1 shows a way of carrying the machine. You can use a crane with hook or a forklift for handling operation.

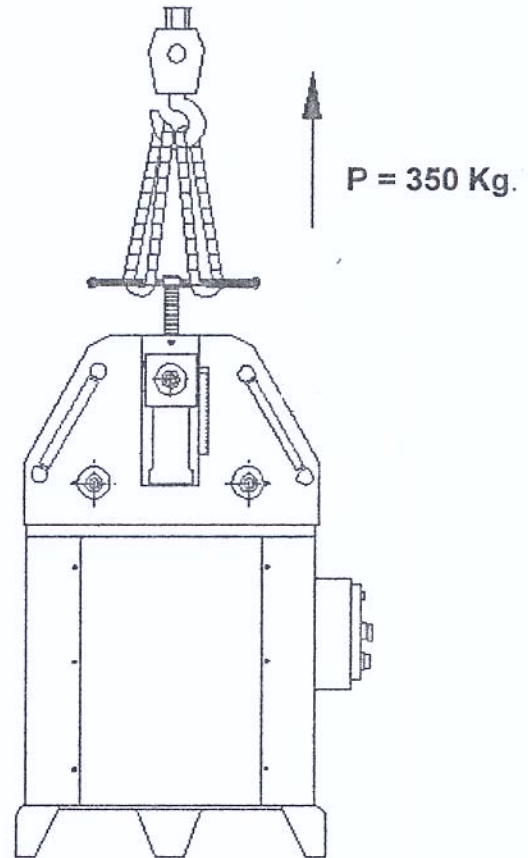


Figure 1

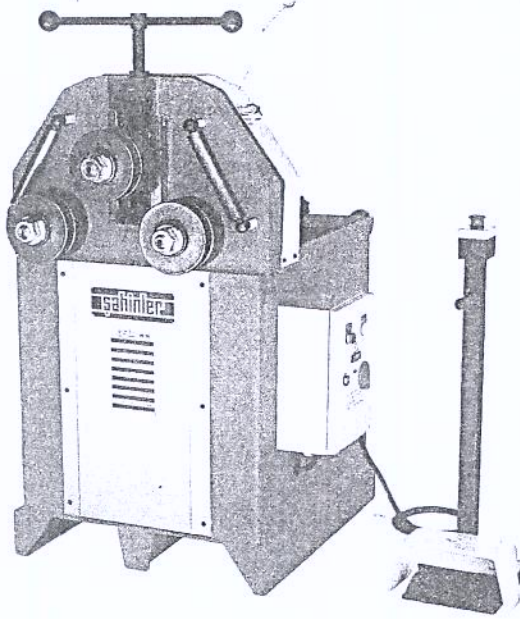


Attention: Lifting and carrying operations should be carried out by skilled workers, such as truck operator, crane operator, etc. Also, it is necessary to keep in mind that having large safety margins will provide you efficient working conditions and enable you to take into consideration most of the precautions.



PK 35's TECHNICAL PROPERTIES

As a superior model in its own class the PK 35 is equipped with a powerful motor and a low noise reduction gearbox, which gives the machine power to bend with ease. The digital Read-Out (optional) that can be fitted to top roll gives higher accuracy and helps increase the efficiency. By using Mobile Control Panel. PK-35 F includes foot pedal and an emergency stop you can easily and safely bend the required materials. General Technical Information of PK 35 is given below.



MODEL: PK 35		
Shaft Diameters	Ø mm	50
Roll Diameters	Ø mm	155
Working Speed	M/min	4,5
Motor Power	kW	1,5
Weight	kg.	350
Length	mm	660
Width	mm	900
Height	mm	1355

STANDART SPECIFICATIONS

- Spheroid Cast Iron Frame
- Two rollers are powered
- Rolls are hardened
- Rolls Shafts are Special Steel material hardened and grinded
- Standard Rolls
- Foot pedal control
- Guide Rolls
- Horizontal and Vertical Working Position
- User's manual book

SAFETY UNITS

- Emergency Button on Mobile Control Panel
- Various DANGER signs around the machine
- Brake motor (Optional)
- Overload Circuit – Breaker

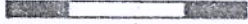
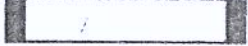

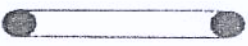

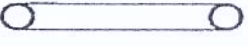

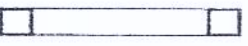




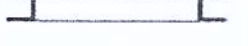

SPECIAL FEATURES

- Pipe / Tube Bending Rolls
- Profile Bending Rolls
- Angle Bending Rolls
- Digital Read-Out
- Special Lateral Angle Guides
- Double-Speed Motor



Note: Due to various safety regulations, the specifications presented here can change from country to country without prior notice. Above dimensions and other characteristics can also change without prior notice due to our constant improvements on our products.

CAPACITY CHART FOR PK 35

no	profile type	Maximum size	min. int Ø	notes
1		40 x 10 60 x 10	500 800	Standard rolls
2		60 x 10 100 x 15	600 750	Standard rolls
3		20 35	400 1200	Standard rolls
4		30 35	600 800	Optional rolls
5		30 x 2 70 x 2	500 1200	Optional rolls
6		33.7 x 2.65 60.3 x 2.9 (2")	320 1200	Optional rolls
7		50 x 40 x 3 70 x 30 x 2	1500 1500	Optional rolls
8		40 x 40 x 3 50 x 50 x 3	800 2000	Optional rolls
9		50 x 50 x 5 60 x 60 x 6	850 1200	Optional rolls
10		30 x 30 x 3 50 x 50 x 6	700 1200	Optional rolls
11		50 x 50 x 6 60 x 60 x 7	650 900	Standard rolls
12		50 x 50 x 6 60 x 60 x 7	650 900	Standard rolls
13		60 x 30 x 6 80 x 45 x 6	550 1000	Standard rolls
14		60 x 30 x 6 80 x 45 x 6	700 1200	Standard rolls

- Capacities are given for ST 42 material.
- We reserve the right to make changes without notices.



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 scope the one for which it has been designed.





STANDARD ROLLER DIMENSIONS FOR PK 35

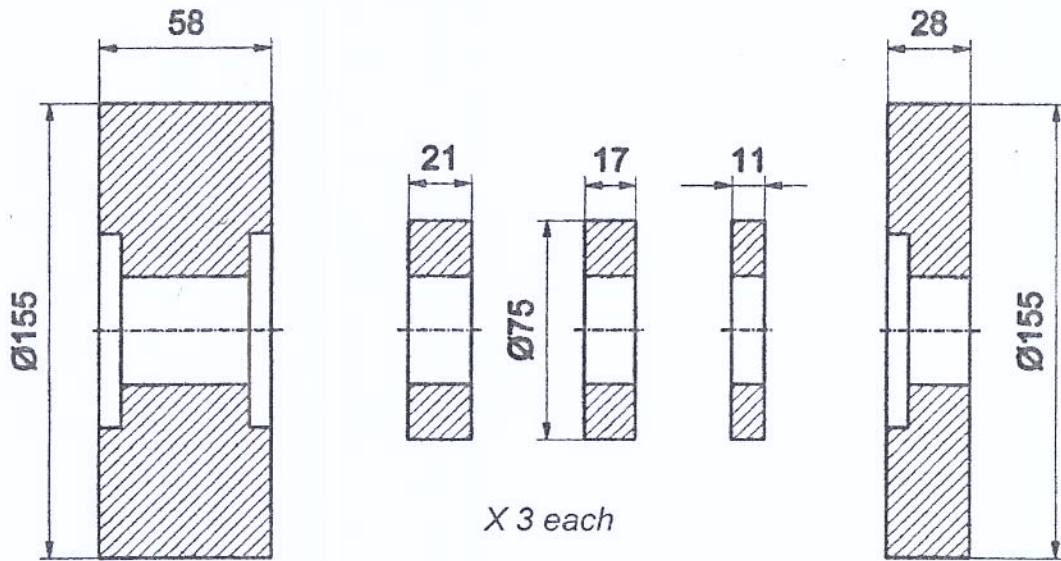



Figure 1

 **Note:** As the three rollers have the same and standard sizes, the dimensions given in figure 1 is valid for them all.

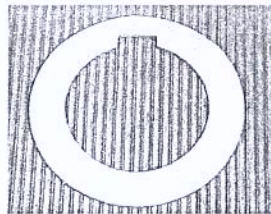


Figure 2

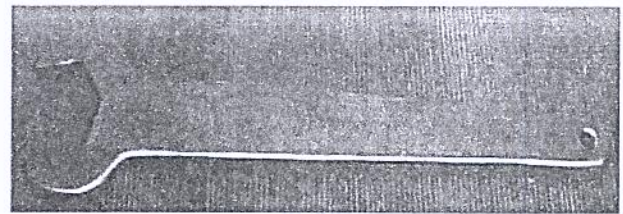
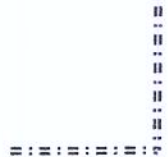


Figure 3

We supply 6 pieces of spacers with the machine (as shown in Figure 2). These spacers can be used to obtain different width with the standard set of rolls. The spacers are divided into two groups as shown below.

This table is standard sequins of dimensions.

dimension	group 1	group 2
diameter	75	75
width	2	1
piece	3	3





CHANGING THE ROLLS

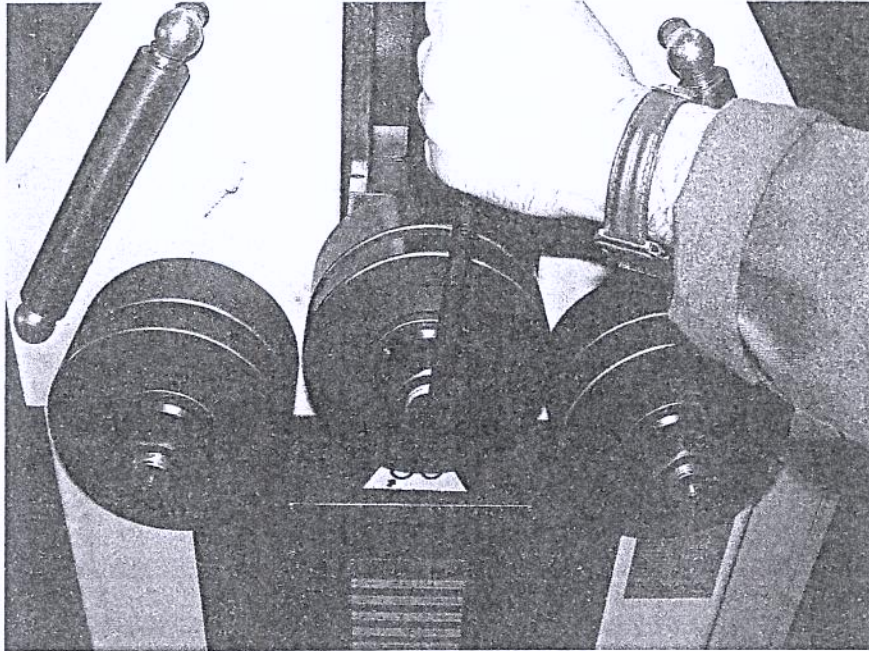


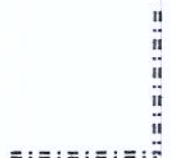
Figure 1

In order to change the lower rolls:

- *Stop the machine if it is active*
- *Dismantle the nuts at the end of the lower rolls' shafts*
- *Pull out the rolls*
- *Replace with the ones you want to use*
- *Tighten the nuts again.*

To change the upper roll:

- *Stop the machine if it is active*
- *To pull the top roll out as shown on the picture please take with an appropriate 10's allen key out by hardening.*
- *Replace with the ones you want to use*
- *Then please harden it with the same operation.*



FOUNDATION AND MAIN DIMENSIONS OF THE MACHINE

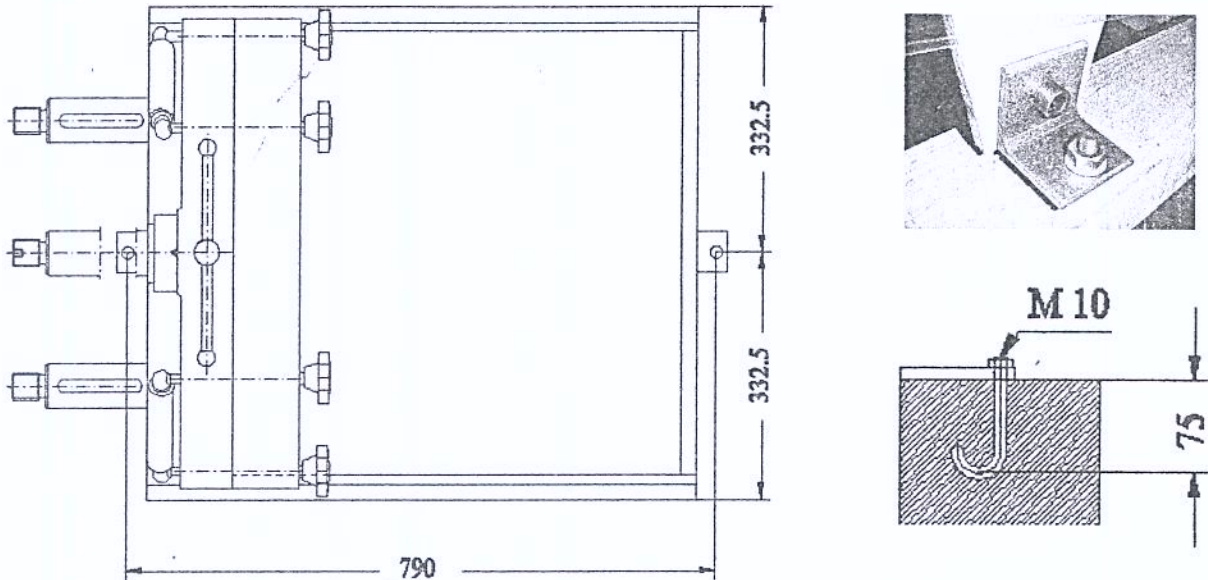


Figure 1

For a good operation, the machine needs to be bolted to the floor with anchor bolts as shown in figure 1. However, not being high operational speeds, there is no necessity to use technical devices to reduce the transmission of vibrations.

Figure 2 shows the main dimensions of the machine.



Note: For a correct operation the machine must be placed on a flat, preferably concrete base and even floor.



Note: Figure 3 shows the area into which anyone except for the operator is forbidden to enter. that this area is illustrated considering the machine located horizontally. If you operate it vertically, then the borders will be the same. That is, no matter how you located the machine (vertical or horizontal) you should always keep the safety distance of one meter around the machine.



Note: The manufacturer doesn't accept any responsibility for damages due to the non-observance of the above specifications.

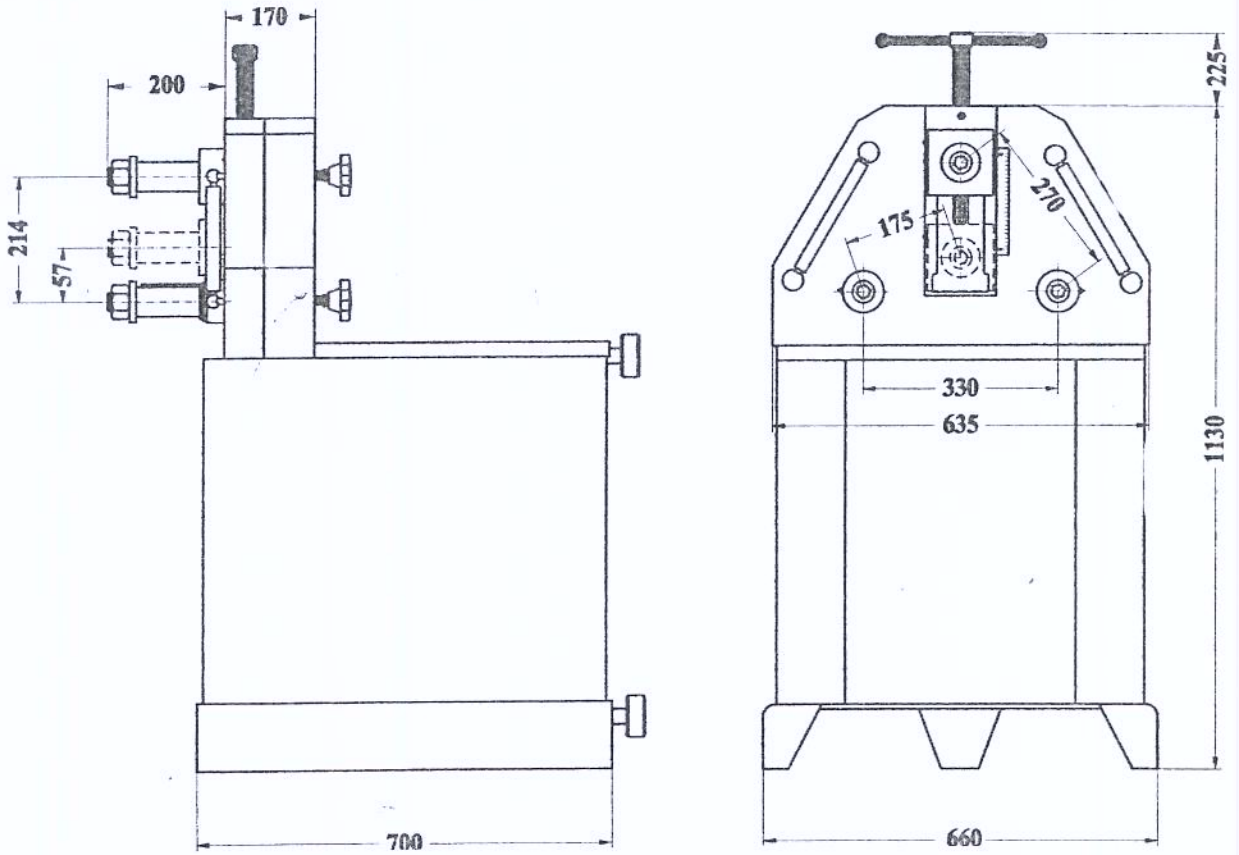
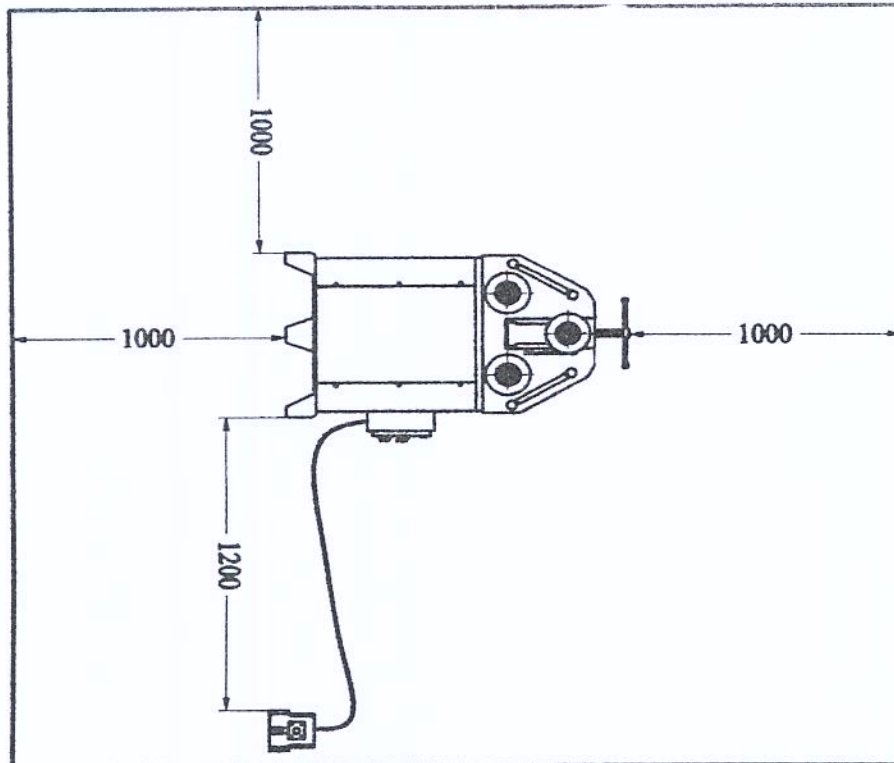


Figure 2



Safety Area (Figure 3)

OPERATING PK 35 AS HORIZONTAL

Before positioning the machine it is necessary to leave enough working area for the proper bending operations such as: extraction of the cylindrical profile, feeding of the semi product, bending of big diameters.

If you have no alternative to install the machine in a broad area but a low-height area, then there is a solution to this problem as shown in figure 2.

To set the machine horizontally follow these steps:

- Wrap a belt capable of carrying at least 500 kg around the top roll's shaft (shown by ① in fig.1).
- Lift the machine slowly by means of a forklift or a crane with hook.
- When you are satisfied that you have lifted the machine to the degree that only the corner shown by ② in figure 2 touches to the floor, rotate the machine right slowly with the help of a person so that the mass center of the machine tend to be at the right side of that corner.
- After that, slowly lower the machine.

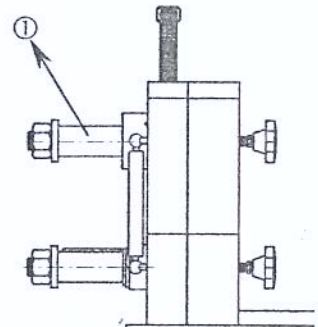


Figure 1



Attention:

Do not wrap the belt around the top roll adjustment screw so that it may be bent or its teeth may be damaged.

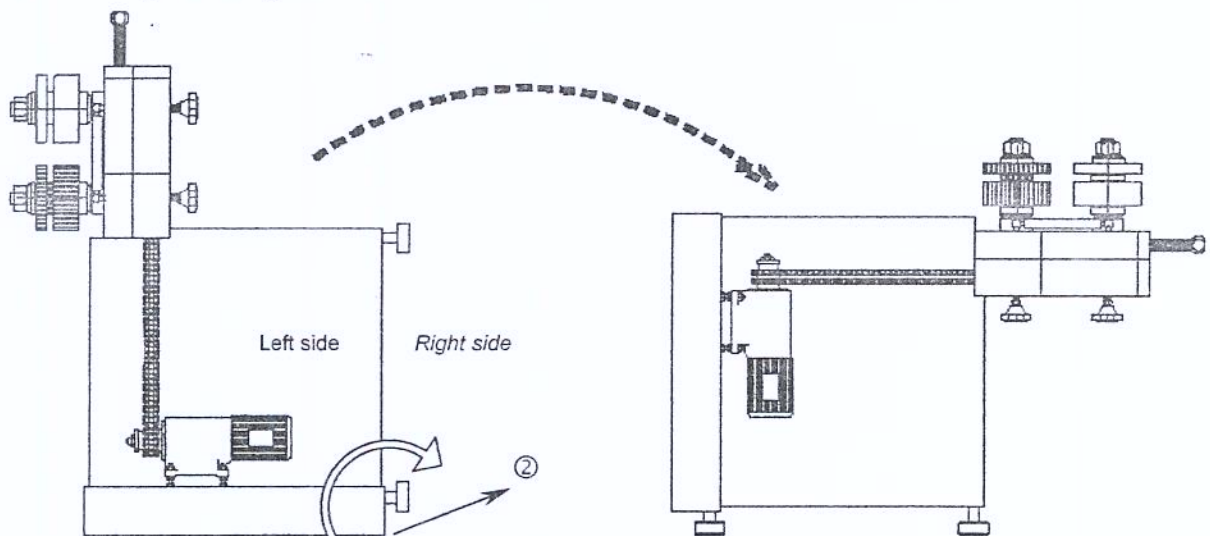


Figure 2

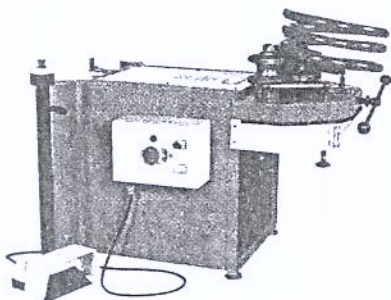


Figure 3

Figure 3 shows an example of horizontal working.

START-UP INSTRUCTIONS

1. Materials and Products

The machine is mainly steel and it is not designed for handling inflammable or detrimental products. It is duty of the customer to check if the processed materials respond to these requirements. Also, it is duty of the customer to check if the processed materials can be dangerous for the operator working nearby.

When selecting the most appropriate operation material you should keep in mind those instructions:

- Material must be clean out of oil and dry.
- Hardness value must always be same thorough the material.
So, we recommend you to buy certificated steel.
- Parts to be bended should have smooth surface to fulfill the procession correctly and easily.



Note: The thorough cleaning of the rolls is absolutely necessary in order to avoid possible sliding of the profile due to grease residues on the rolls.

2. Electrical Connection

Have a qualified electrician connect the machine to the electric supply. In some cases inverse electrical connection causes the motor burn out. To avoid such an undesirable event, after having connect the machine see that the motor turns to the direction shown by arrow when activated. Or you can check to see if the rolls are rotating to the same direction of the pedals. That is, if the right pedal is pushed, the rolls should rotate right and if the left pedal is pushed, the rolls should rotate left. If the machine does not comply then inverse the electric cables.

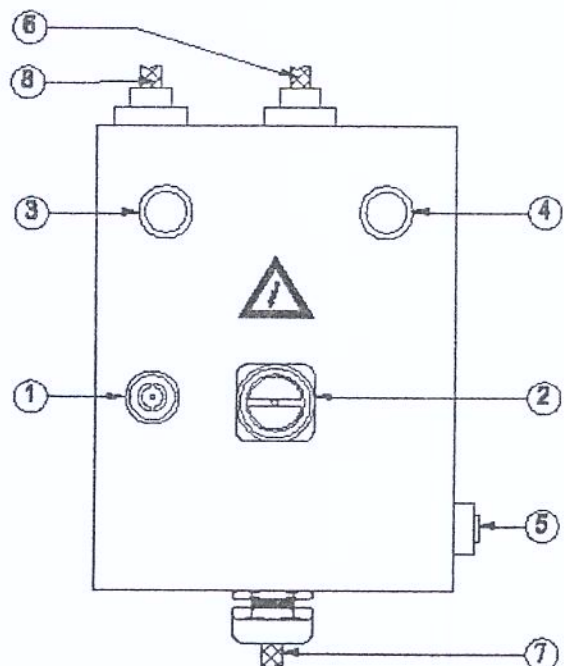
3. Electric Box

The PK 35-F's electric box includes very important controls of the machine and is also connected to the below shown foot pedals. The keys on the electric box are shown and explained here:

1. Electric box lock
2. Main switch
3. Start indicator
4. Electric on indicator
5. Foot pedal plug-in
6. R-S-T phases plug-in
7. Electric plug-in
8. Digital connection (optional)



Attention: Electric box shelter must be removed only when the machine is stopped, or during maintenance or adjustment interventions.



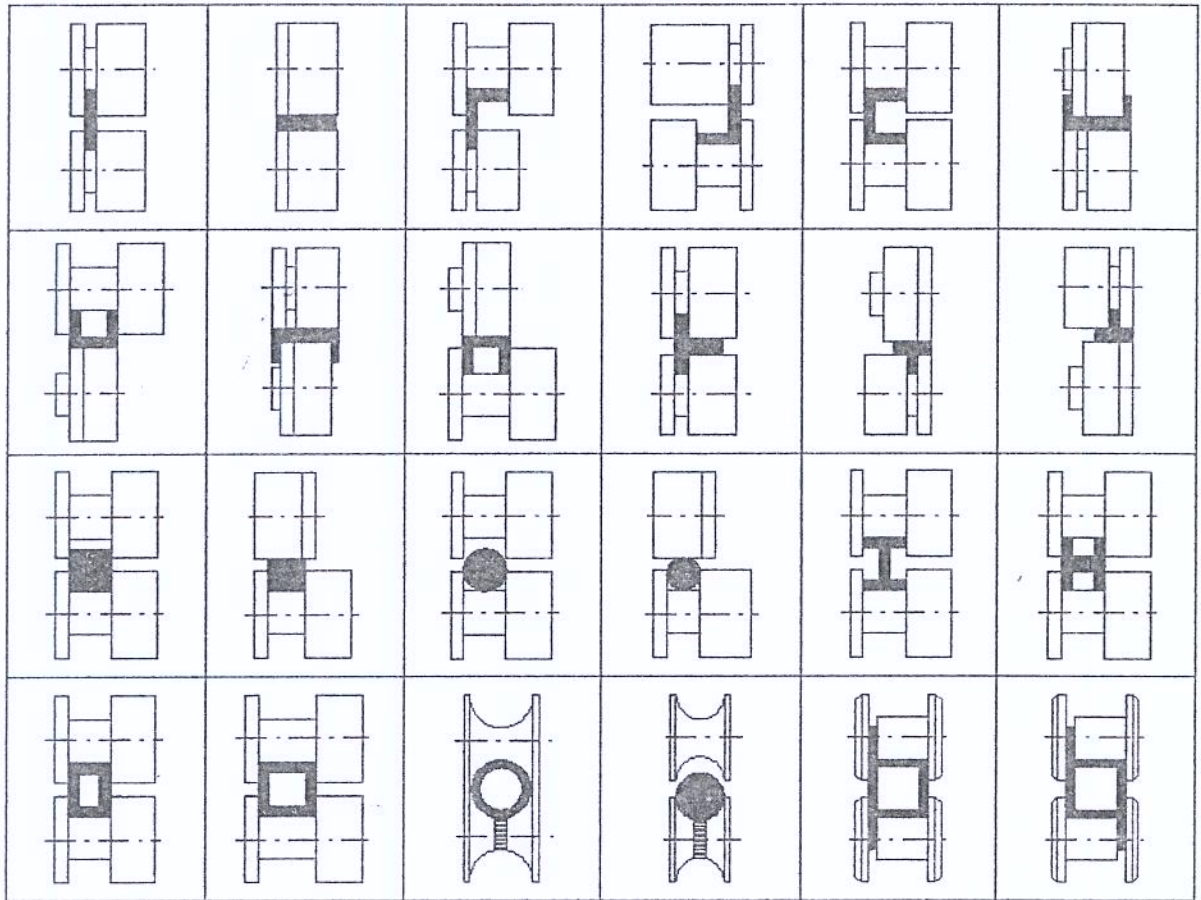


Figure 6

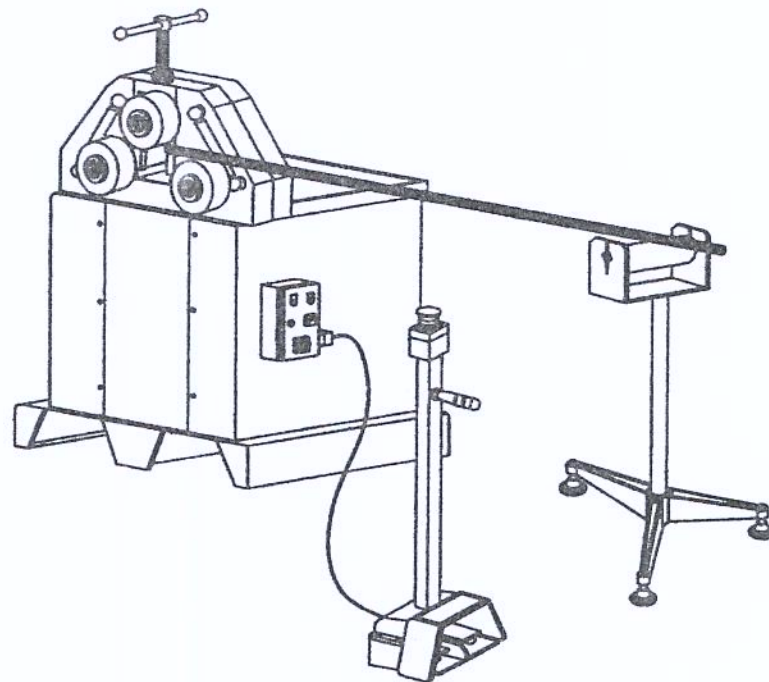


Figure 7



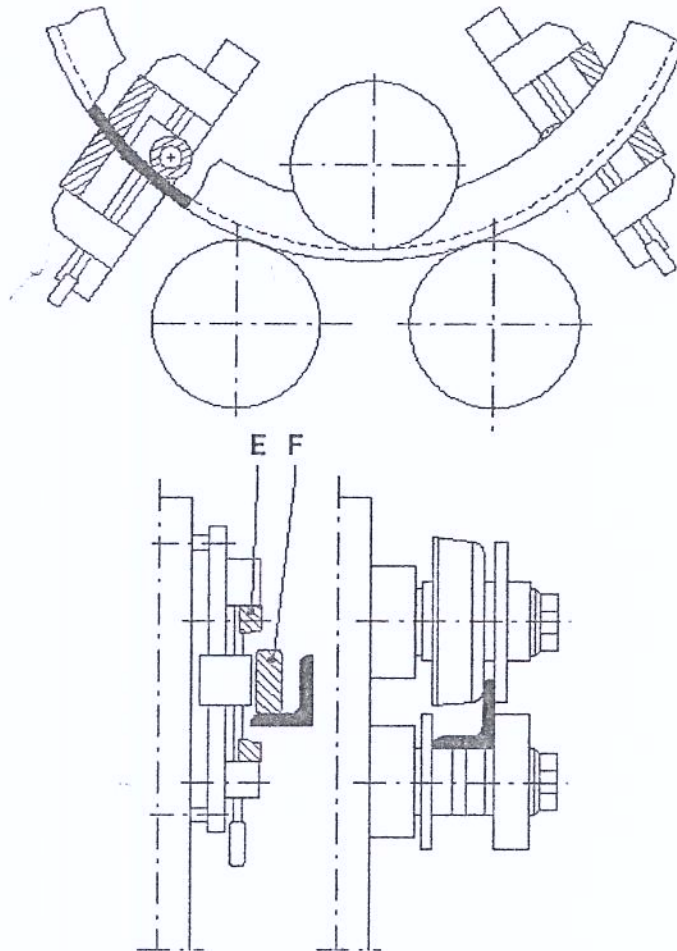


Figure 8

Figure 8 shows the use of "Leg-In Bending Guide Rolls". These guide rolls are special accessory for bending leg-in (angle) material and are available for extra cost. They are adjustable for any size of material and easy to use. Special rolls are recommended for any batch jobs of leg-in or leg-out material. Some of the angle materials can be bent with standard rolls

2. Operational Hints

- Always clean the rolls and the material of dust, dirt and grease for bending
- If you are bending a pipe do not rotate the pipe while bending
- We advise you to fill the profiles or pipes with sand or any similar material if they have a wall thickness of less than 2 mm
- Do not overload the machine and use special rolls for profiles as well as pipes
- Operate safely keeping in mind the third party people around the machine
- Leave enough workspace around the machine
- The machine can also work horizontally for extremely large diameters
- The machine has double-speed motor.



MAINTENANCE

A suitable maintenance is also compulsory to get a maximum machine life and optimal working conditions for machine's efficiency.

A regular maintenance interventions should be performed by a well-trained safety responsible and if possible by a mechanical engineer.



Attention: Regular and scheduled maintenance interventions cannot be performed by running machine. The main switch must be turned off. Besides, a warning signal telling, **"DO NOT ACTIVATE - MACHINE IN MAINTENANCE"** must be clearly visible on the machine.



Attention: Any processing system, which may endanger the machine safety, must be avoided.

As the machine does not include any kind of hydraulic system, it is simple to lubricate its functional parts as shown in the below.

- Firstly, turn off the machine if it is active by moving the **main switch "0"** on the electric box.
- Remove the back lid by dismantling its screws.
- Grease the power joints inside the machine with the help of an oilfeeder (*).
- Also grease the upper roll adjustment shaft (shown by X points in figure 1)(**).
- Lubricate the reduction gearbox with OIL SAE 30 (illustrated by point Yin figure 1).
- After the lubrication, assemble again the back lid and the protections.
- Restart the machine according to the start procedure, and check if there are any anomalies due to faults or unintentional tampering during maintenance.



Attention: For replacement of oil, use a funnel with a filter in order to avoid that impurities enter into the gearbox or among the other movable parts and damage the good functioning of the machine.

Internal cleaning of the electric box is also needed and must be done like in the following:

- Turn off the machine moving the main switch on the electric box "0".
- Disconnect the mains supply from the electric board.
- Open the electric box lock.
- Do not use liquid detergents while cleaning the electric box inside.
- Check the connections to the terminals of the different devices.
- Tighten any loose connections.
- Close the door of the electric box and check if it is closed perfectly enough.
- Connect the electric board to the mains.
- Restart the machine according to the start procedure, and check if there are any anomalies because of faults or unintentional tampering during maintenance.

(*): Use commercial grease for lubrication and make this operation once per month.

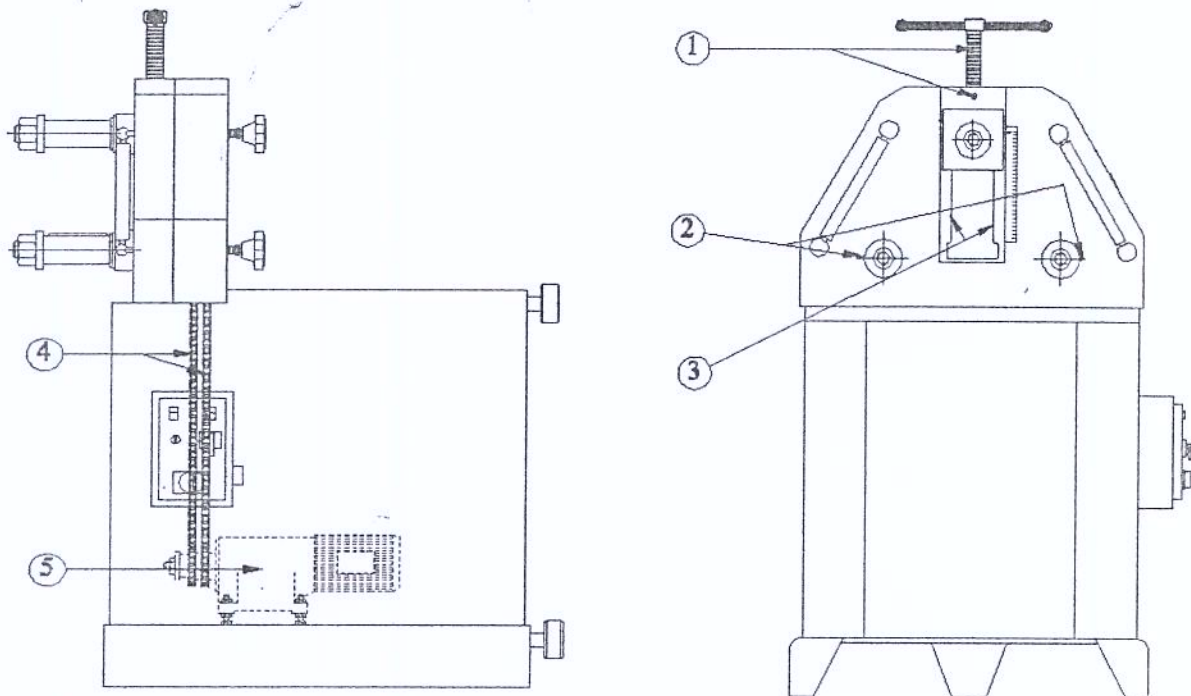
(**): Use "MOBIL VACTRA OIL No: 2" or equivalent and lubricate this shaft once per week.

LUBRICATION SCHEDULE

General Maintenance

The machine needs to be lubricating periodically for efficient working and longer to be lubricated periodically for efficient working and a longer life. You can see the points of lubrication list below and a lubrication chart for periods of lubricated

Lubricate chart



IMPORTANT

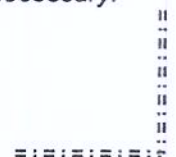
The rolls of the machine must **NEVER** be greased or lubricated. Because then the rolls will slip the material and will not bend. Always keep the rolls clean and free from grease or any lubricant. Also make sure that the material is free from grease and dirt.

These points must be greased periodically at least once a month or more if daily usage exceeds 8 hours a day. Note that some of these points are actually inside the machine cover and the front cover must be removed in order to reach them. Any standard commercial grease can be used for lubrication.

NUMBER	PERIOD	WHAT TO DO
1-Top Roll Adjustment	Every Week	Grease
2-Bottom Roll Shafts and Bushings	Every Week	Grease
3-Top Roll Housing	Once a month	Grease
4-Chain Gear	Once a month	Grease
S-Reduction Gear-Box	Once in 6 months	Control fixing bolts

REDUCTION GEARBOX MAINTENANCE

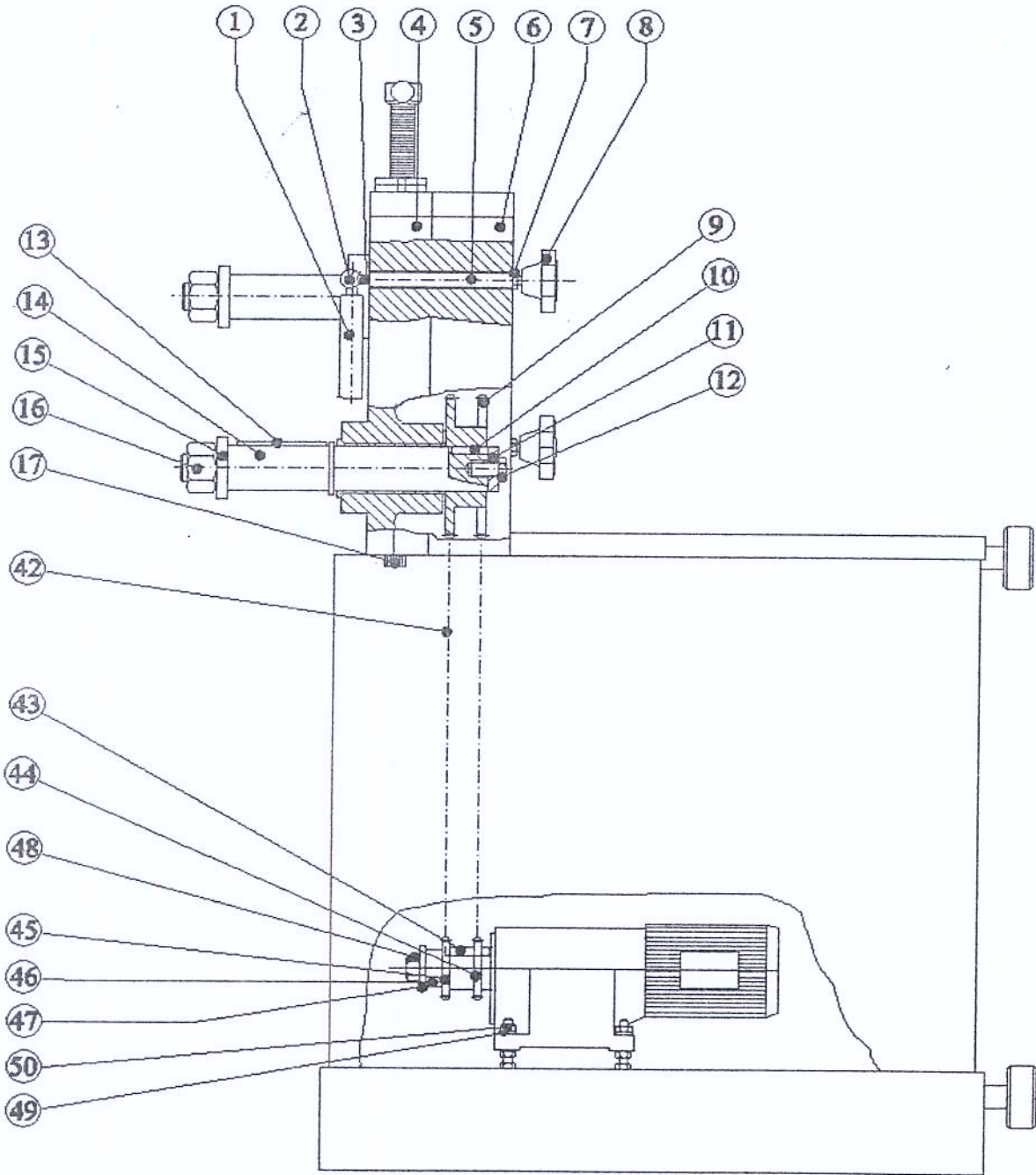
The reduction gearbox of the machine is inside the front cover and is maintenance free. Only you should control it periodically and tighten the bolts fixing it to motor and to the frame, if necessary.

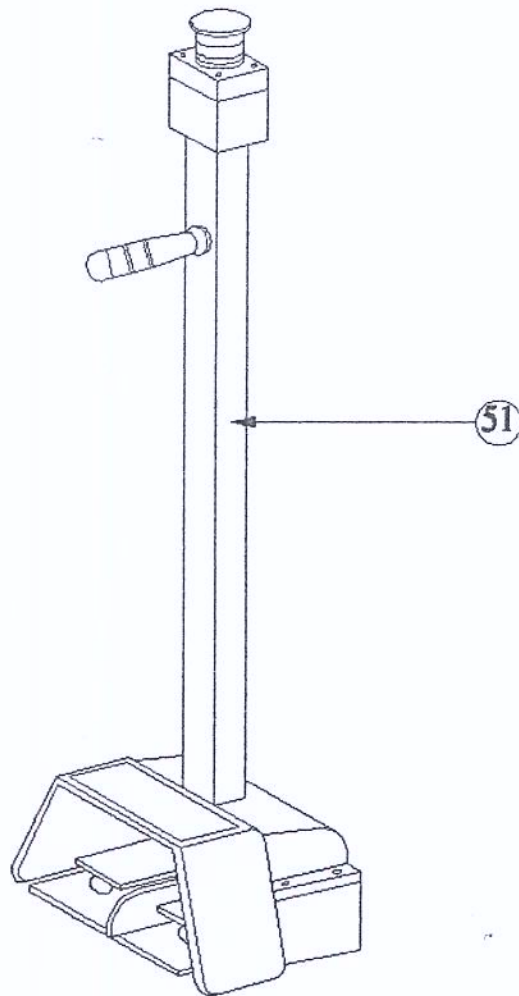
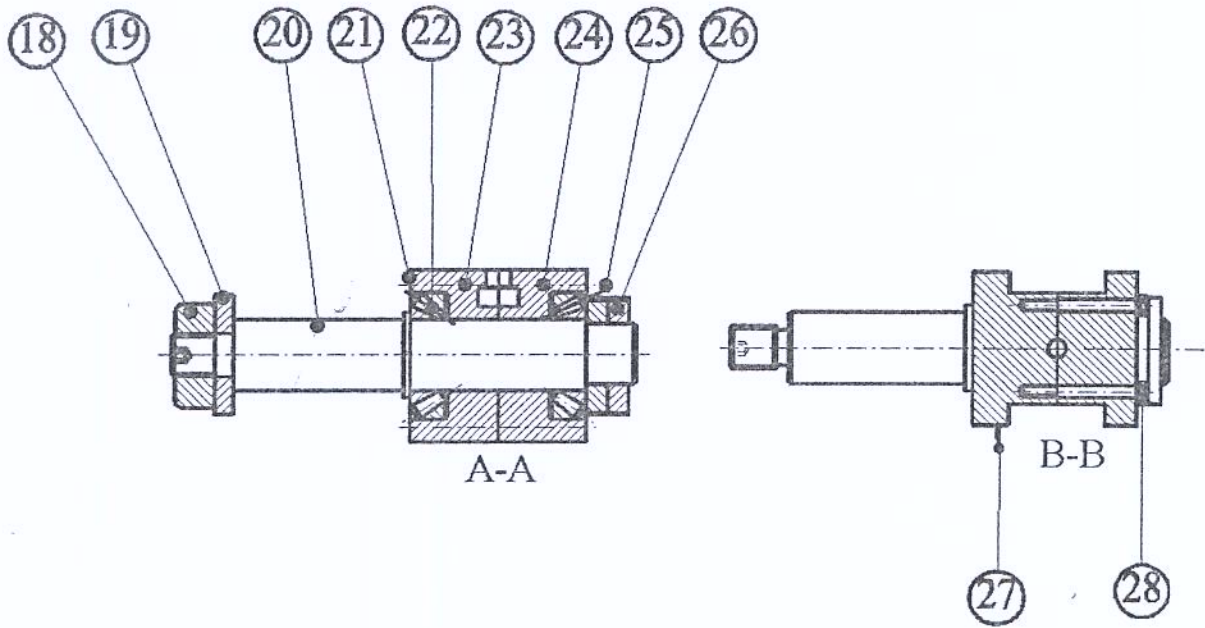


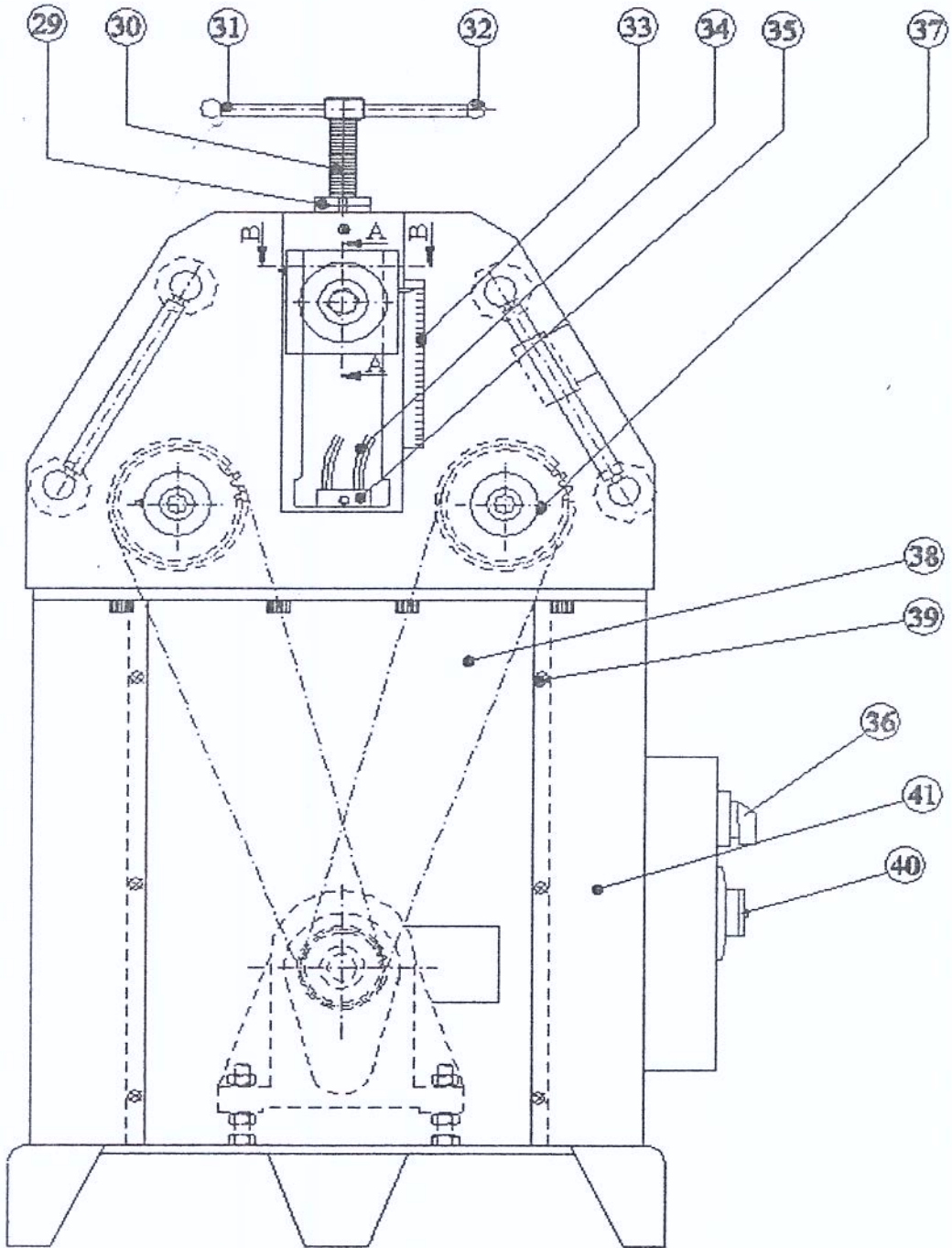
PARTS LIST

1. Parts and Parts List of The Main Frame

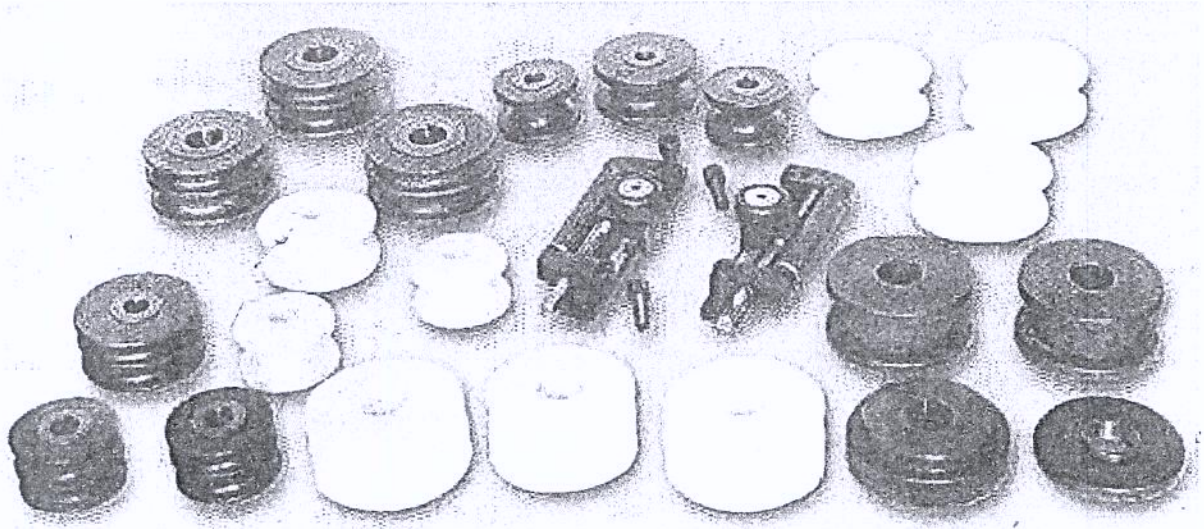
Assembly No	Quantity	Part Identification
1	2	Guide Rolls
2	4	Guide Rolls Joint
3	4	Joint Bolt
4	1	Cast Frame
5	4	Guide Roll Adjustment Bolt
6	1	Back Cover
7	4	M10 Nut
8	4	Adjustment Handwheel
9	2	Z=25 3/4" Chain Gear
10	2	37x14 Key
11	2	Washer
12	2	M14x30 Bolt
13	2	Key
14	2	Bottom Roll Shaft
15	2	110x14 Washer
16	2	M30 Nut
17	4	M16x45 Hex. Socked Head Cap Bolt
18	1	M30 Nut
19	1	Washer
20	1	Top Roll Shaft
21	1	Top Roll Bearing Cap
22	2	#30210 Conical Bearing
23	1	Top Roll Shaft Front Housing
24	1	Top Roll Shaft Back Housing
25	1	Top Roll Shaft Housing Cap
26	2	KM 9 Nut
27	1	Arrow
28	4	M12x90 Hex. Socked Head Cap Bolt
29	2	KM 6 Safety Nut
30	1	Top Roll Adjustment Shaft
31	1	Adjustment Shaft Hand Lever
32	2	Lever Handles
33	1	Adjust Ruler
34	1	Electric Cable
35	1	Cable Fitting
36	1	Electric command switch (1-2)
37	3	Grease Nipple
38	1	Front Cover
39	6	M6x10 Hex. Socket Head Cap Bolt
40	1	Main Power Switch
41	1	Steel Frame Stand
42	2	3/4" Chain 37link (with lock)
43	1	70x14 Key
44	1	Z=15 3/4" Chain Gear
45	1	Z=15 3/4" Chain Gear
46	1	Motor Cap
47	1	Washer
48	1	M16x50 Hex. Head Bolt
49	4	M12x70 Hex. Head Bolt
50	4	M12 Nut





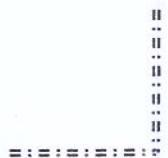


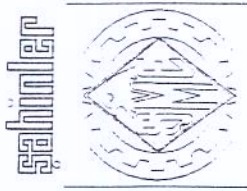
SPECIAL ACCESSORIES FOR MODEL PK 35



Various special rolls;

1. For bending
2. Aluminum profiles
3. Pipes, tubes
4. Hollow sections
5. Angle sections





SAHINLER METAL MAKINA ENDÜSTRİ A. S.

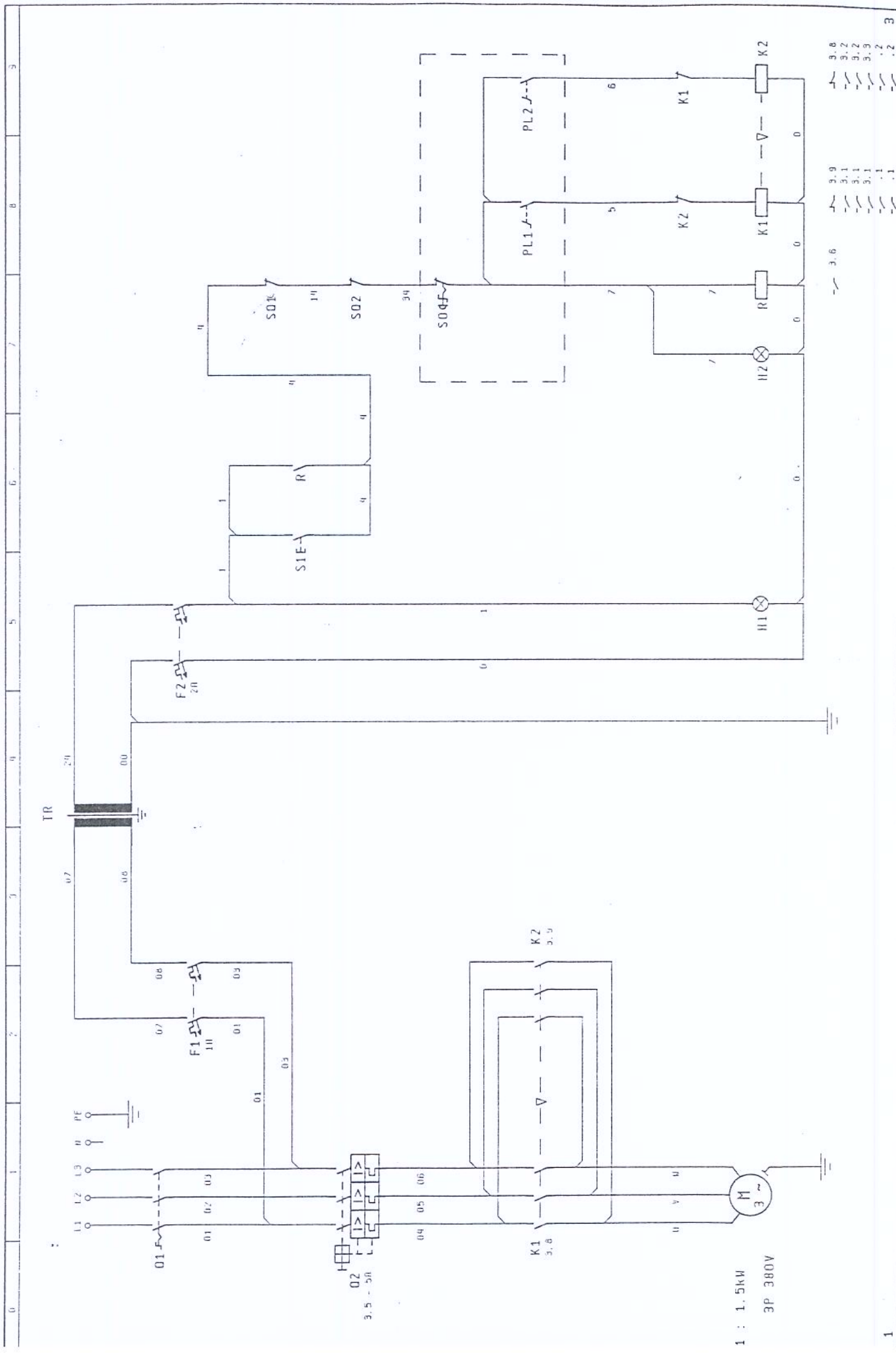
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Customer :
Project name : PK - 35 PROFILE BENDING MACHINE
Drawing number : 23052003
Customer's address:

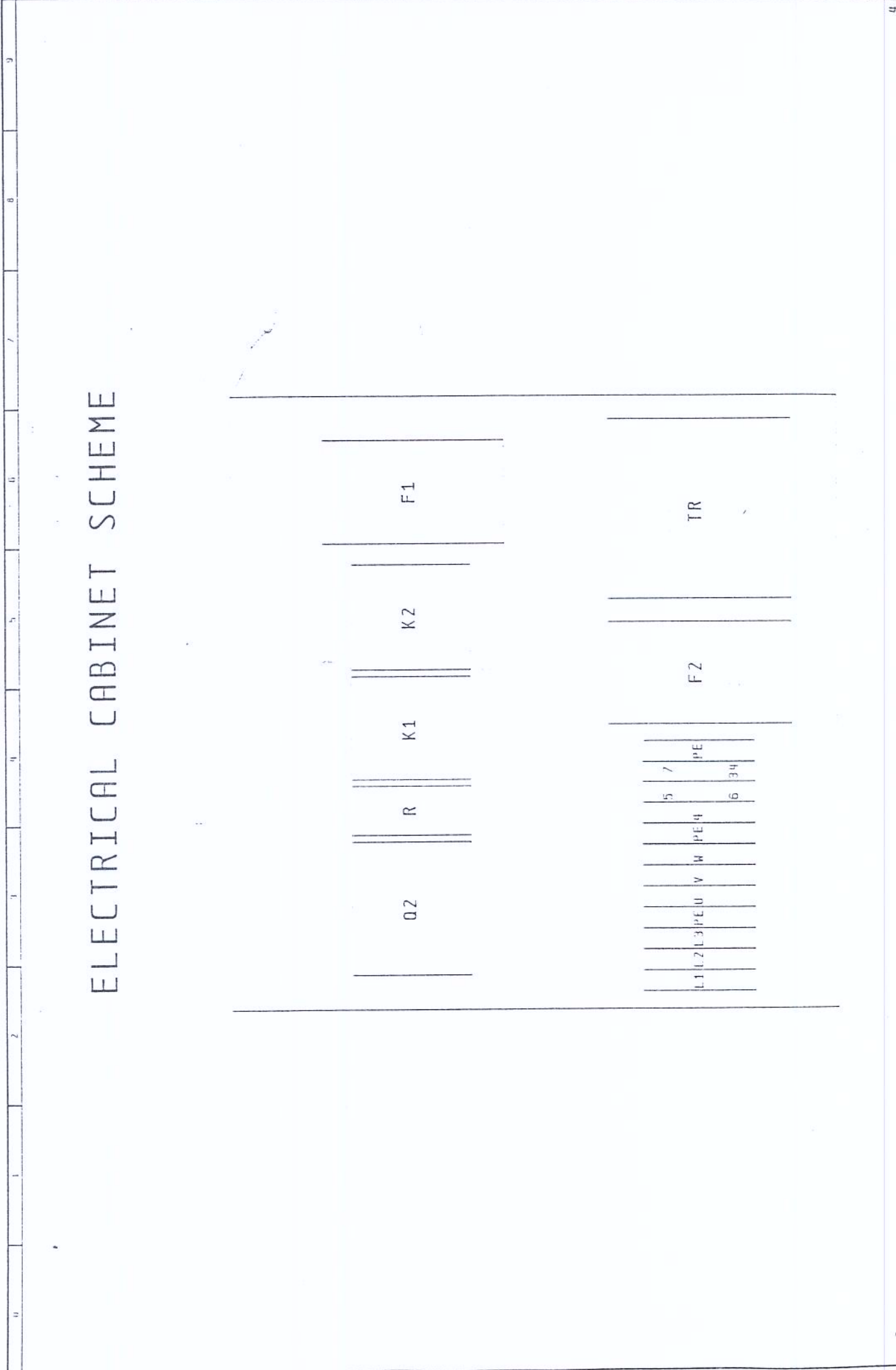
Manufacturer : SAHINLER METAL MAKINA ENDUSTRI A. S.

File name (\EPLAN4\P): PK3530TF
Drawn by : AHMET CETIN
Checked by : AHMET CETIN
Responsible for project : AHMET CETIN

Start Date : 15. Aug. 2002
Complete Date : 24. May. 2003
The Last Page : 4
Total page : 4



1 : 1.5kW
3P 380V



ELECTRICAL CABINET SCHEME

ELECTRICAL PARTS LIST

CODE	EXPLANATION	ORDER NUMBER	MANUFACTURER
01	MAIN SWITCH	K610B	KRAUS NAIMER
02	MOTOR PROTECTION OVERLOAD THERMAL RELAY (3.5 - 50)	3RV1011 - 1FA10	SIEMENS
K1	MOTOR CONTACTOR	3RT1015 - 1AB02	SIEMENS
K2	MOTOR CONTACTOR	3RT1015 - 1AB02	SIEMENS
R	CONTROL RELAY	992108	WEIDMULLER
F1	TRANSFORMER INPUT FUSE	C60N 2P C1	MERLIN GERIN
F2	TRANSFORMER INPUT FUSE	C60N 2P C2	MERLIN GERIN
TR	TRANSFORMER (+15/0/-15/230/400 // 0/24V 50VA)		ETA
H1	POWER ON LAMP	XB4 - BV61	TELEMECANIQUE
S0	EMERGENCY STOP	XB7 - ES542	TELEMECANIQUE
S1 - H2	START BUTTON AND LAMP	XB4 - BW3365	TELEMECANIQUE
S01 - S02	SAFETY SWITCHES	FP 678	PIZZATO
PL1 - PL2	FOOT PEDAL		DISPA