ASYMETRICAL 3ROLLER BENDING MACHINE

ASM

AKYAPAK Mak.San. ve Tic. Ltd.Şti.
Akçalar Sanayi Bölgesi 16225
Akçalar / BURSA / TÜRKIYE
Tel : 0090 224 280 75 00 Fax : 0090 224 280 75 02

www.akyapak.com.tr

CE CONFORMITY DECLARATION

98 / 37 / EWG STANDARDS AND II-A ADDITIONAL INSTRUCTION

Akçalar Sanayi Bölgesi 16225
Akçalar / BURSA / TÜRKİYE

Tel : 00 90 224 280 75 00
Fax : 00 90 224 280 75 01-02

The machine production in our factory is suitable to the standards below.
Eropean standards and instructions are listing at the table below.

Machine Name	**ASYMETRICAL 3 ROLLER BENDING MACHINE**
Machine type	**ASM /**
Production year And serial number	**2013/**
EC- Instruction	EC Terms (98/37/EC) EC Low Voltage Terms (73/23/EC) EC-Eloctro Magnetic Terms (89/336/EC i.d.F. 93/31 EC)
EC-Standards	**DIN EN-292-1** **DIN EN-292-2** **DIN EN-60204-1**
I NTERNATIONAL STANDARDS	

WARRANTY CONDITIONS

I-) Warranty period is valid for only 1 (One) year after the date of the invoice. Guarantee conditions will not be available unless the machine would be used apart from unsuitable purposes and 3rd parties which is not mentioned in the invoice.

II-) Warranty is only covered for the parts to be delivered at Akyapak factory which is the subject of poor design or production faults. Phone assistance is only given for software faults. All other demands are into subjects of extra charges according to usual market price conditions.

III-) Akyapak Company undertakes the guarantee for 10 years to supply service support and spare parts after the date of manufacturing. Only the exception of this situation is the subject of the other parts what is not manufactured by Akyapak.

IV-) Never run the machine before reading and understanding the instruction manual. Just because the instruction manual will provide general information for your use. So that you can understand the functions of the parts and some reactions of the machine.

V-) Rest of the other principal conditions which are not the subject of warranty cases are listed below. Please notice that those conditions are not gradual, but also covers all similar situations. Warranty does not provide extra time with decleration of disgrace or the claim for asking a justice. Buyer can not claim any written or oral justice opposed to the Seller for the purposes which contradicts with warranty conditions.

- Faulty usage of the user
- Processes over capasity
- Problems occured later on designs made by user and never accepted by manufacturer
- Damage due to transportation
- Problems which is occured by rarely or poor maintenance
- Wrong using processes in contradistinction to the instruction manual
- Faults which are not informed in 3 (Three) working days
- Keep on using the machine even with the fault
- Damages because of using the machine under the rain or in open area or unsuitable enviroment

All the related expenses are belongs to buyer for out of warranty cases…

Akyapak Mak. San. Tic.Ltd.Şti.
Akçalar Sanayi Bölgesi
Sanayi Caddesi No:8
Nilüfer – Bursa – Türkiye

Tel: 0090 224 280 75 00
Faks: 0090 224 280 75 01

http://www.akyapak.com.tr

service@akyapak.com.tr

2.COMMENCE

This USER MANUAL,contain the AKYAPAK asymetrical machine setting,using,safety careful maintenance repair,technical characteristics,spare parts listing and electrical connection planes.

Keep this USER MANUEL in your hand,when machine is setting ,working,and maintenance repair.

ATTENTION!!!!!!

Keep this USER MANUEL near the machine working area.

ATTENTION!!!

Only the autorized personal may use this machine.

All the modifications making on the machine without the autorized personal, AKYAPAK is not responsible for the accidents.

When the operator is leaving the working place,the machine key will close ''O'' Position,and the machine voltage will stoped.

Don't stripp the safety elements on the machine.

The operator reading this USER MANUEL must sign your name and confirm his boss that he is understand the writing.

NAME AND SURNAME OPERATOR	Signature	Date	Signature Responsible

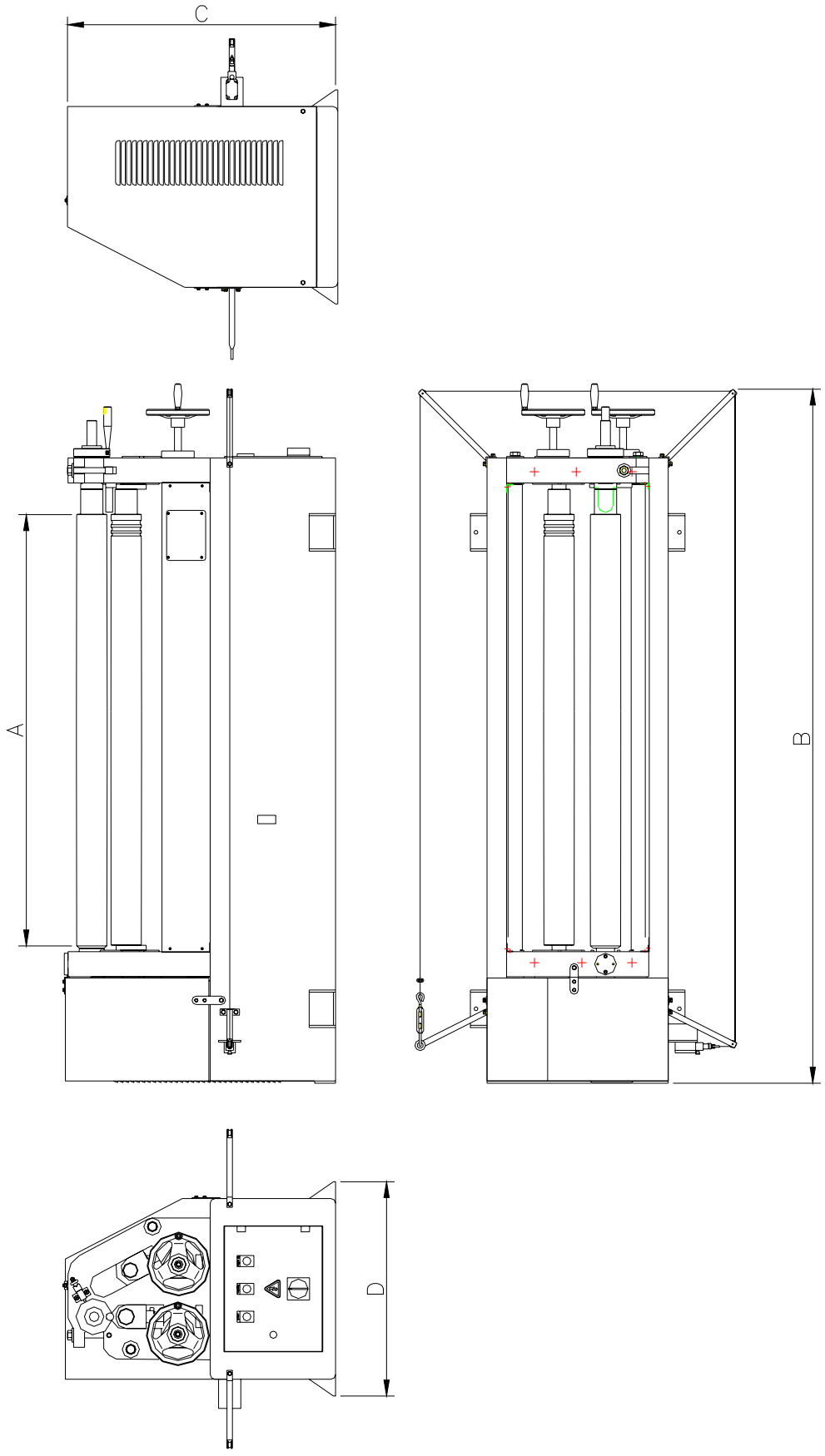
3.TECHNICAL SPESIFICATIONS

Working voltage : 380-415 V
Max.Current : 7 A
Frequency : 50 HZ

REAR AXLE ENGINE : 0,75 kW
Cable Section : 5x2,5 MİN.
ROTATION ENGINE : 2,2 KW

	(A) Working Length	Bending Thickness	Max. Thickness	Shaft diameter	Minimum Bending diameter	Motor power	Machine dimensions (B) Length	(C) Height	(D) Wide	Weight
	mm	mm	mm	mm	mm	kW	mm	mm	mm	kg
ASM110-10/4.0	1050	4.0	5.0	110	150	2.2	1820	1150	850	1080
ASM110-12/3.5	1270	3.5	4.0	110	150	2.2	2020	1150	850	1150
ASM110-15/3.0	1550	3.0	3.5	110	150	2.2	2320	1150	850	1250
ASM110-20/2.0	2050	2.0	3.0	110	150	2.2	2820	1150	850	1350
ASM120-10/4.5	1050	4.5	5.0	120	175	2.2	1820	1150	850	1150
ASM120-12/4.0	1270	4.0	4.5	120	175	2.2	2020	1150	850	1250
ASM120-15/3.5	1550	3.5	4.0	120	175	2.2	2320	1150	850	1300
ASM120-20/2.5	2050	2.5	3.0	120	175	2.2	2820	1150	850	1420
ASM130-10/5.0	1050	5.0	5.5	130	190	2.2	1820	1200	850	1220
ASM130-12/4.5	1270	4.5	5.0	130	190	2.2	2020	1200	850	1290
ASM130-15/4.0	1550	4.0	4.5	130	190	2.2	2320	1200	850	1360
ASM130-20/3.0	2050	3.0	4.0	130	190	2.2	2820	1200	850	1480
ASM140-10/5.5	1050	5.5	6.0	140	210	2.2	1820	1200	850	1280
ASM140-12/5.0	1270	5.0	5.5	140	210	2.2	2020	1200	850	1365
ASM140-15/4.5	1550	4.5	5.0	140	210	2.2	2320	1200	850	1450
ASM140-20/4.0	2050	4.0	4.5	140	210	2.2	2820	1200	850	1530

4.Machine measurement:



5. MACHINE KNOWLEDGE

5.1. STANDART EQUIPMENTS

- ✓ The machine body are made from iron constraction.
- ✓ The bottom shaft is with motor+reducer system stimulating
- ✓ The upper shaft is openable auxiliary
- ✓ Cone bending appliances
- ✓ Break motor
- ✓ The bottom and back shaft are moving manuel
- ✓ The control panel and foot pedal are movable
- ✓ Appropriate at CE' Standards

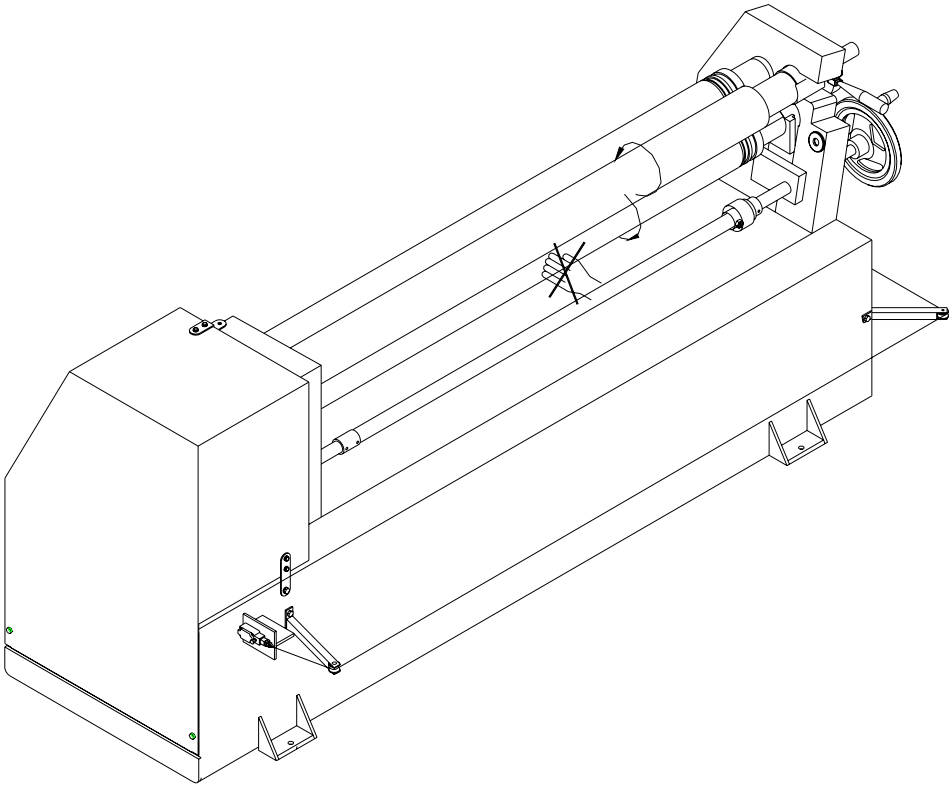
5.2. SPECIAL EQUIPMENTS

- ✓ Induction hardened rolls
- ✓ Back shaft with motor
- ✓ Digital display

6. SAFETY FACTORS

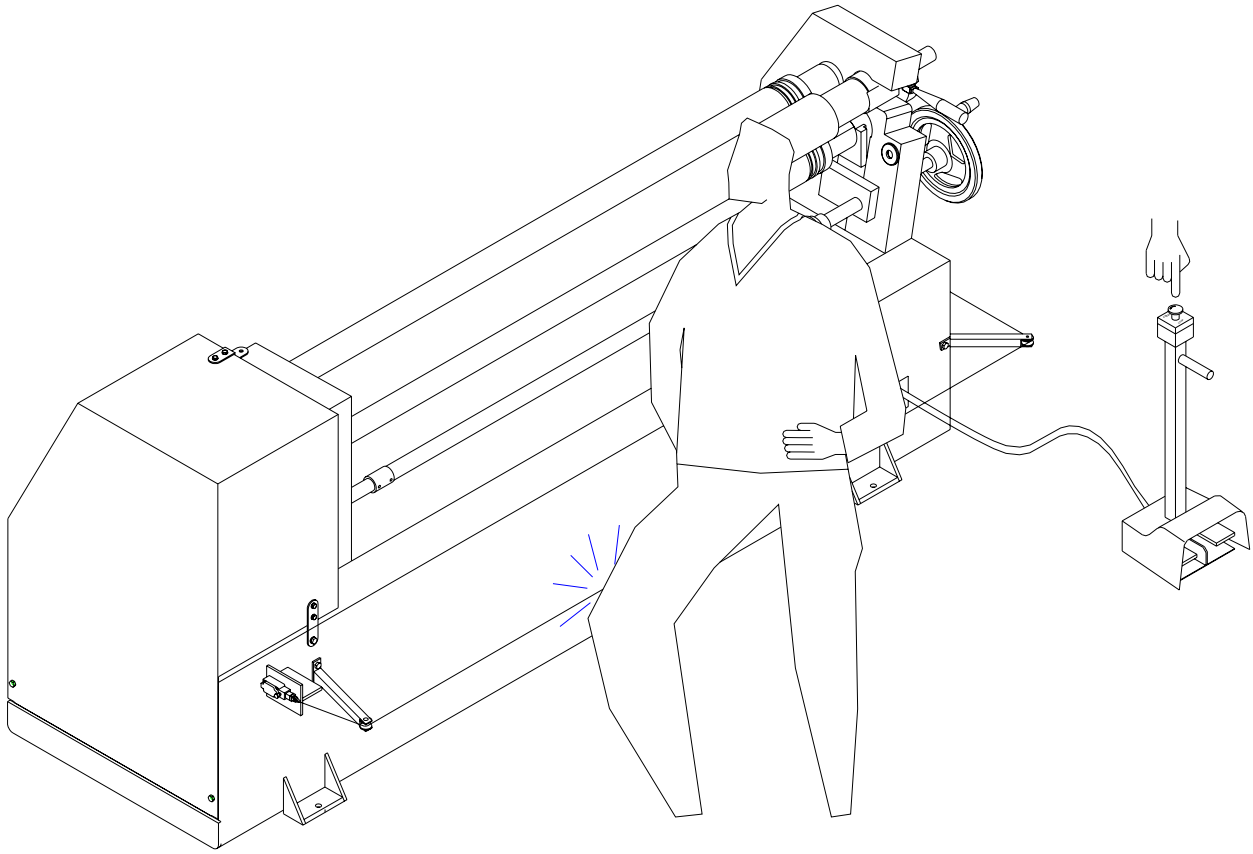
6.1. THE MACHINE DANGER AREAS

The bottom and upper shafts asymetrical cylinder machine are rotationable.
When the machine is working ,don't put your hands on the cylinders,and protect your working dresses from the pressing.It is will be very danger .



When the machine is working,don't make the maintenance or any installation.
When you close the cover,control the rope switch.
After the maintenance of the machine,control the side covers are closed.

Don't forget to press the emergency switch or the rope in the time of danger situation.



6.2. The danger situations on the machine.

This machine is ornamenting with protaction appliances.When the machine is not using accurate,this protaction appliances, may create the danger situations.

The result from the losses

- ✓ The hand operator or his finger.
- ✓ The dresses and the other things.
- ✓ The deformation of the bending material.
- ✓ When the material is bending the other worker staying near the machine.
- ✓ The bending accesories of the machine.

According to the right using of the machine,and maintenanse,all the personal is responsible..

Don't bend the hard material on the machine,outside the aluminium material.The lossing on the machine and on himself should be very serious.
For the security machine,all the modifications on the machine are forbid.
This USER MANUEL should advice you about the working system,maintenance and protection factors.

6.3. Machine function

USING AREA: Sheet bending, Cone bending.
This machine is not suitable for the series production.

The shaft of the rolls, the width and the thickness of the bending material for the sylinder bending machine producing at AKYAPAK, are given with the codes.

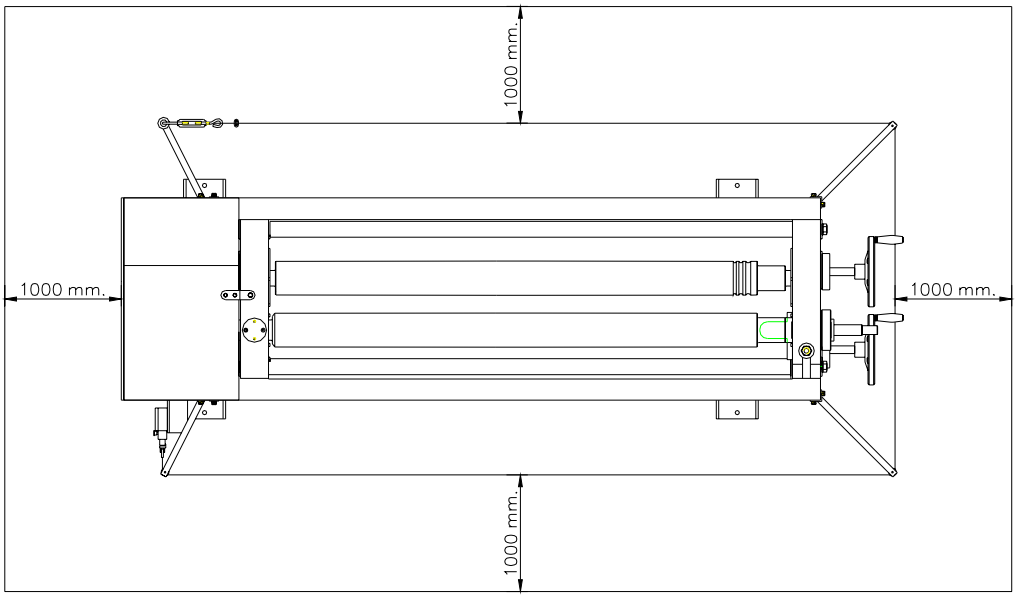
For example ASM 140 - 20 / 4,5
ASM = Machine type
140 = Rolls shaft diameter
20 = The width of the bending material 20=2050 m.
4,5 = Min rolls shaft diameter ,1,5 much more thickness of the material in mm.
This values are valid for the material quality St-37 .

If the material flow limit and the quality is changeable,the value should be changeable also.

6.4. The machine setting plan

When the machine is assembly,be careful about the machine place and surroundings factor necessity.
The place for assembly must be hard and strong.Check the weight machine for the safety of the working.The machine must placed on the large area,for the periodical maintenance of the machine. Nearby the machine minimum area must be 1 mt.

In addition for the material diameter must have the area up and nearby the machine. Put into working place near the machine warning singboard.



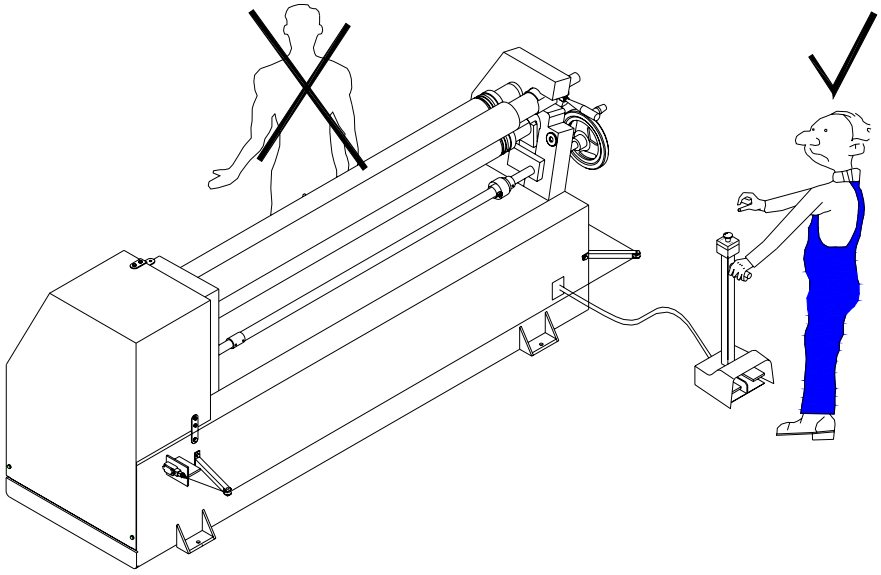
6.5.The machine appropriate usage.

All the bending operations on the machine must be controled on the front of the machine and only from the autoritative personal.

The material taken upon the machine in the first operation must be helping from the other operators,and after this operation the operator must bend the material alone.

For this reason the operator must to read and understand the user manuel very well.

For all the bending operations,the operator must be take safety dispositions,and control step by step completely all the operations.
Surround the machine,at the bending operation,the max parts of the material,must be take at the reliable place,and the other personel must not enter there.
The right using of the machine is given below.



6.6. RISKS ARISING FROM THE ACCESSORIES IN THE MACHINE

When the accessories are assembling in the machıne or taken out, the machine must be closed (Don't work) . The emergency switch or hand wheel must be using very easy from the operator.

! ATTENTION LIFE SECURITY

6.7. EMISSIONS (VOICE FLOW)

The machine working voice flow must be under 70db .

6.8. THE SITUATION OF THE RISK.

***** The machine is with 3 Rolls.One of the rolls is fixed,the other two rolls are moving.If they did not use careful,the serious crushing and wounding will be cause.

*** In this situation :** Stoping the motor.
*All the electrical connections must be closed,when the machine is cleaning.(Pull the plug, Close the safety.)
*Don't pull out the machine safety appliances.Don't make any changes and correction on the machine.

IN DANGER SITUATION PRESS THE EMERGENCY STOP BUTTON.

6.9. APPROPRIATE OPERATOR

UNDER 16 YEAR PERSONAL,CAN NOT USE THIS MACHINE (AB-AS REQUIRED CHARTER)

* The user must read the USER MANUEL,before starting the machine to work,and try to understand the writing.
* If the user is hesitate the situation,absolutely must give the information to producer.
*The machine definitely must using only from the side autorized personal.If the other personal come near the working place,the operator is responsible for him,from the wound and damage.
* The machine can work only ,at the closed area. To working the machine at the explosive containing the gas and burning dangerous areas ,is forbidden.

* The producer is not responsible for the parts and accessories ,which are not original and using at the time of the repairing the machine.

* When you come near the machine,to fill the need situations,turn the switch button to ''0''.
* At the working necessary time,if you hear the high voice and determine the damage,stoping the machine and try to search the damage.

6.10. TO PROTECT THE OPERATOR ONESELF

The operator can not take the special disposition,for the machine using at the normaly conditions.Nevertheless;

At the working time of the machine,for the hard and sharp material, the operator must use the steal nose shoes and gloves.According the maintainence and repairment the machine,the personel which are autorized must have the needed equipments at the wardrobe.

- ✓ Screwdriver set.
- ✓ Tighting set.
- ✓ Key set.
- ✓ Lubrication gun.
- ✓ Gloves, Steal nose shoes.

6.11. SAFETY FACTORS AT THE MACHINE ASSEMBLY.

Akyapak sylinder bending machine ,must be placed on the hard and strong ground.(See the assembly plan)

DANGEROUS LIFE !

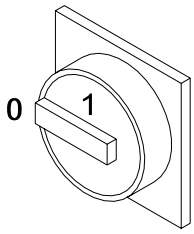
The working place of the machine must be clean ,every time.

6.12 IMMEDIATE SITUATION TO DO

At the immediate situation press the emergensy button to stop the machine.

6.13 WARNING SAFETY FACTORS

The machine can use only from the authorized personal. The machine can use only at the closed places. The machine mus be held far-off ,from the burning and explosive material. When the operator is living his place,the switch from ON position must remove to OFF position. The producer is not responsible for the damage at the equipments and parts,changing on the machine.



7. PROTACTION FACTORS

The protection factors,for the operator working at the machine,are warning equipments,attached below in 7.1 Chapter-check list .This protaction factors,are separate attached for USER.

CONTROL THE PROTACTION FACTORS

- ✓ Before every work in relays, control the protaction factors.
- ✓ Once at the week periodicaly ,control the safety elements.
- ✓ After all the repairments, control the protaction factors.

TO MAKE THE CONTROL,BE CAREFULE FOR THE FOLLOWING SUBJECTS

- ✓ Are the fixed position is right or not.
- ✓ Reliable or not .
- ✓ The function are right or not.
- ✓ The assembly are right reliable or not.

Before working if the machine have problem or mistake, satisfy the problem.
In the working time if you see the problem,try to satisfy them.Before and at the working time don't pull out the safety elements,and don't leave the circuit.

7.1. PROTACTION FACTORS CHECKING LIST

At the control process follow this checking list and mark the quadrant below.To supply the continuous auditing copy this page.

☐ 1.Protactive sheet ; assembly and screwing very reliable.

☐ 2.Emergency stop button ; when you press on the button the machine will stop.

☐ 3.Emergency-stoping rope ; assembly very reliable and must working very well.

☐ 4.Emergency stop switch :assembly and screw very well.Must working witout problem.

☐ 5.Control panel: must tight the screws and assembly reliable.

☐ 6.The "Warning" table must stick on the determined places.If one or a few tables are not on their places,immediately provide the new tables.

7.2. THE LOSSES AT THE TRANSPORTATION

ATTENTION !!!

Take out the plastic protaction package,when you receive the machine.If you fixing from the transportation any damage,write at the documentation farwording agency this not,and inform the producer for the looses.

WARNING

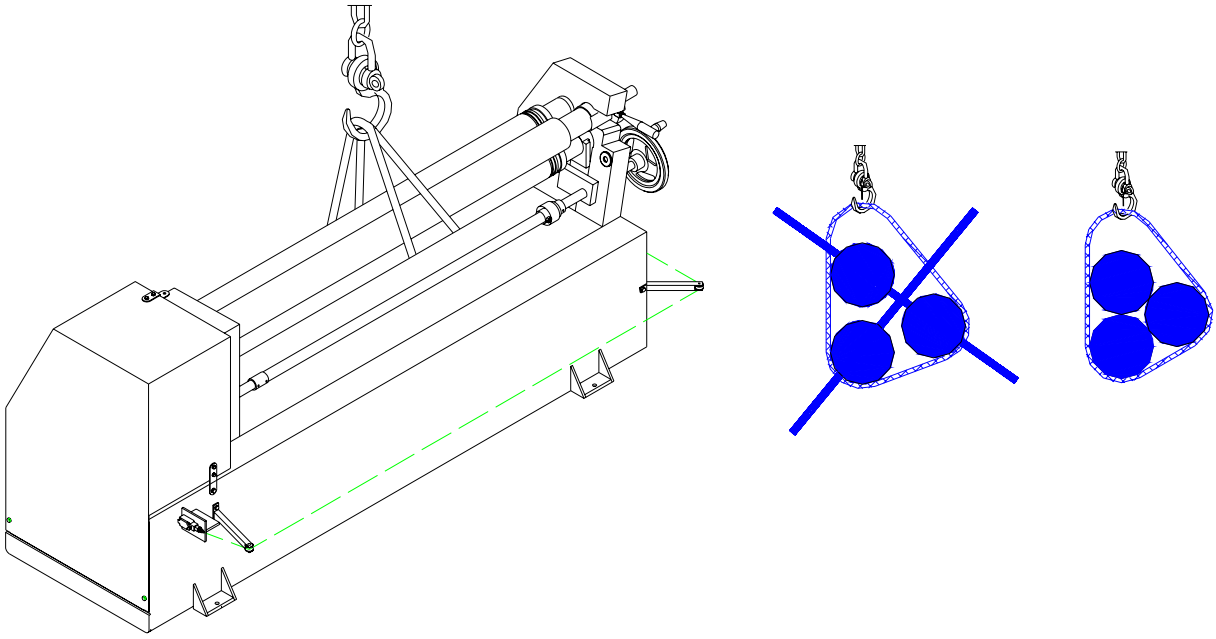
*The USER must read the user manuel,use and start the machine in appropriate way .
*The user must not take out the safety elements. ,For example:Switch or Emergency stop button pulling out ,must not changing. This situation is danger for user and for the machine also.
After this stimulating explination,the producer is not responsible for the looses.

7.3. THE MACHINE PROTACTION

7.4. TRANSPORT AND RAISING THE MACHINE

Akyapak 3 rolls bending machine,must lift carefuly with crane and helping with rope. Be careful for the damage at the lifting operations.The producer is not responsible for the damage arising in this situation.

DON'T LIFT WITH THE FORK LIFT!!!



7.5. EXTRACTING THE PACKAGE (DISASSEMBLE)

To be ineffected from the transport and atmosphere conditions AKYAPAK ASYMETRICAL BENDING MACHINE are coverd with nylon water infect material. For the following operations to be ineffected from the weather,must be carrying with nylon and rubberized waterproof cloth.
At the time of the pulling out the package ,if you run into the damage from the transportation mistake,call the shipping agency and inform the manufacturer company for the damage.
The children must not contact with the package material (if the plastic and chemistry material are higher). The package must pull out with the gloves.During the carriage,the varios parts of the machine are lubricate with oil.The oil may cleaning with diesel or solvent.

7.6. THE MACHINE ASSEMBLY PLAN ON THE GROUND

The main screw machine must screwing on the ground,inside the ground place with the screw socket.
* To strengthen the machine,be careful at the following points;

See the basis plane.

* The strength screw socket must be controled one time a mounth.The producer is not responsible for the damages come out,if this step does not follow.

7.7. SETTING KNOWLEDGE

1-All the sides machine must approximetly and easily approuch,and for the maintenance repair must leave the cavity.

2-The sheet bending on the machine must easily take out,and the sheet lenght must be (L)1,5 rigid and (Lx1,5)cavity.

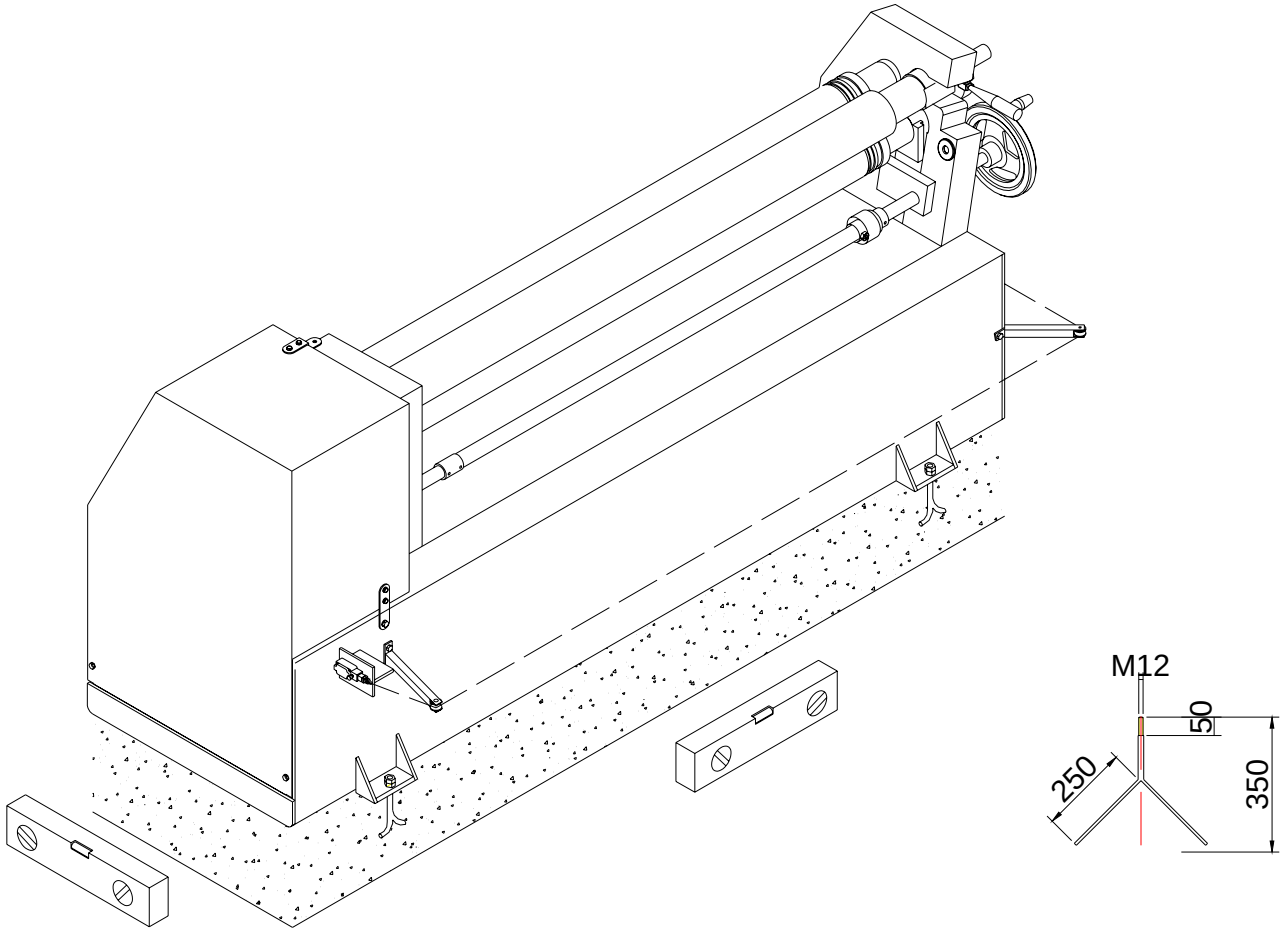
3-The machine side border must leave a margin cavity 1 meter to moving the bending sheet material.

7.8. MAIN PLAN

The machine must be connecting on the hard and strong ground for the security of the working machine.

The cement quality using on the ground basis must be appropriate to the machine weight and the ground.

The machine must place after 72 hour on the cement spilling ground.



7.9. SURROUNDING CONDITIONS

The respect to be careful;
The surroundings conditions are very important ,for the productivety of the machine.
a) The machine must work far-off the machine with rust and metal filings.
b) The place of the machine must be far –off the machine with the vibration.
c)If the machine does not fixed on the ground,the machine will goes at the front and back.,and can move on their places.
d) At the some situations,the machine main lower parts must be isolated..

7.10. TO TAKE THE MACHINE ON THE SCALE

To work the machine productive and long time,must be assembly on the straight floor.
The scale must have the sensitiveness approximatly 0,04mm.
Short pause for rest the sensitiveness must be controling.

- ✓ The first control must be make after 24 hour.
- ✓ After the first control ,mountly and yearly the control must be reapeated.

8. TO OPERATE THE MACHINE

8.1. ELECTRICAL CONNECTIONS

The electrical connection must be repair only at the side qualifed electrician personel.
Before repairing the technical characteristics on the table must be controling.
Fit the energy cable into the hole auxiliary the machine.
. Assembly the energy cable in the clamps L1-L2-L3-N-PE inside the electrical panel.

8.2. CONNECTING THE CONTROL PANEL TO THE MACHINE

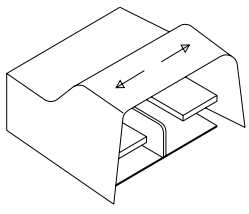
Take the control panel near the side machine and put the plug inside the socket.

8.3. CONTROLING THE DIRECTION OF THE ELECTRICAL ENGINE ROTATION

After the electrical connections the electrician must control the rotation of the motor. Follow-up the description below.

1-Take the circuit breaker in the position 1.
2-Control the emergency stop button is setting or not.
3-Press the start button.
4-Control the rotation of the rolls.

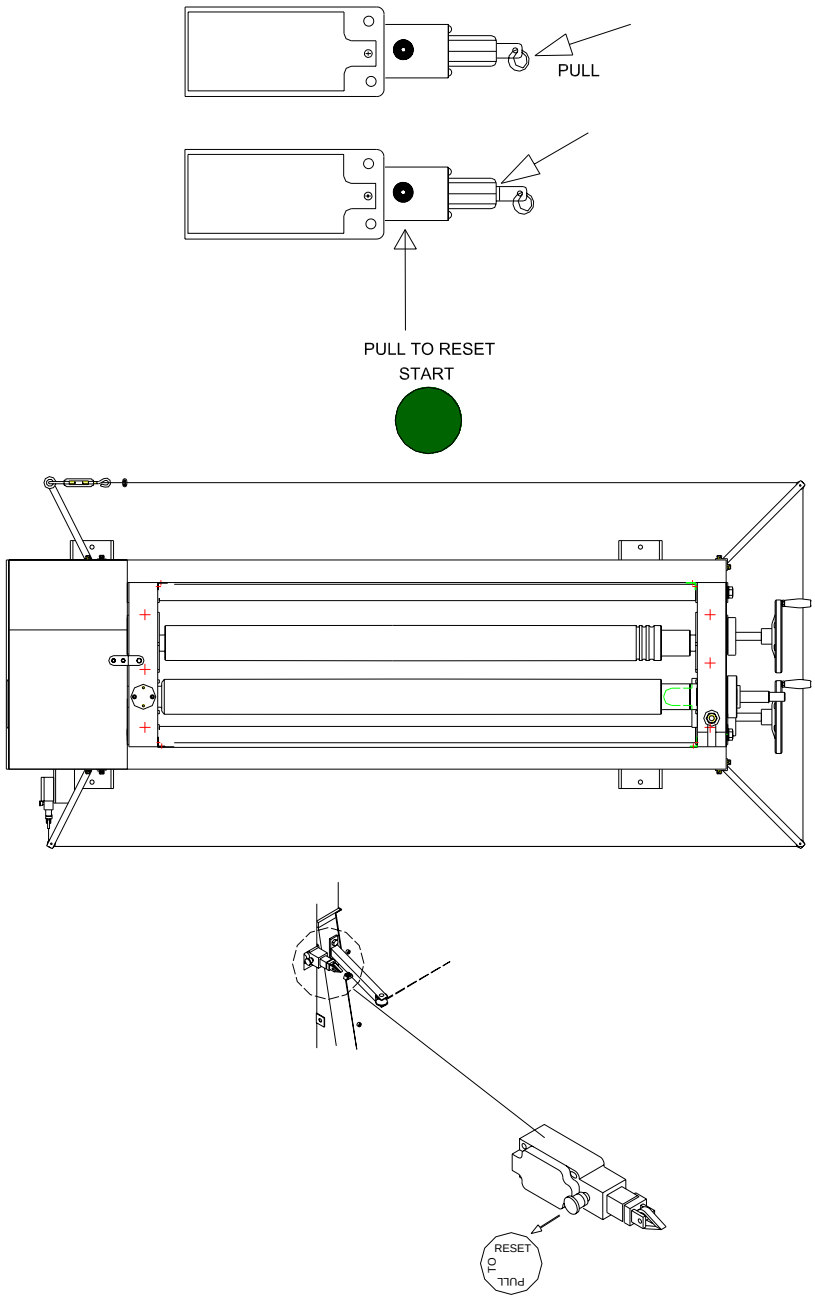
To press on the foot pedal,control the rotation arrow(picture A),If the arrow of the rotation is correct,countinue to work .
If the rotation of the rolls are not like on the picture arrow,press the emergency stop button to stop the machine. In this position,the machine working is loser.To correct this situation,must be cutting the energy of the machine and change the phase R and S inside the socket.



FORM - A

8.4. SAFETY ROPE

At the time of the transportation the machine,the safety rope assembling to the surrounding the machine should take out.May using after the assembling on the ground the safety rope.
The safety rope at 3 side of the machine must be assembling.
To strengthen the rope,must be use the angular arms.Screw this arms to the surround the machine.
Place the rope inside the round of the pulley and tight them. To adjust the switch,the end of the rope must stretch over showing below,and the button will pulling up and straight.For the security machine is assembly the safety rope.
To stopping the machine,touch slowly the rope. To working the machine pull the button (Pull to reset).



8.5. SAFETY SWITCH

1.) The cover open switch : The cover open switch is using to stop the turning top rolls,for easily take out the bending sheet metal.
2.) The rope switch :The rope switch is using for the emergency stopping the machine.

9. USAGE

Are you read the user manuel completely?
Are you understand everything?
If you have any problem,please advice the producer.
In spite of this user manuel,for the damages arise from the wrong using,the producer is not responsible.

If the machine does not starting.
A) Control the emergency stop button is pressed or not.
B) Control the thermic is cuttings or not.

Thecnical macnetic circuit breaker.
1)Present the inside machine electrical panel.For each motor are using.
2)At the extremely current situation the motor this electrical parts stop the current circuit.
3)At the normaly working on the circuit breaker position 1 ,if the motor take the extremely current the thermic will cutting the circuit machine and the circuit breaker will take the position 0.To take the position 1 again, the thermic must become cold.

BEFORE BEGIN TO WORK
Read the user manuel and description for the safety.

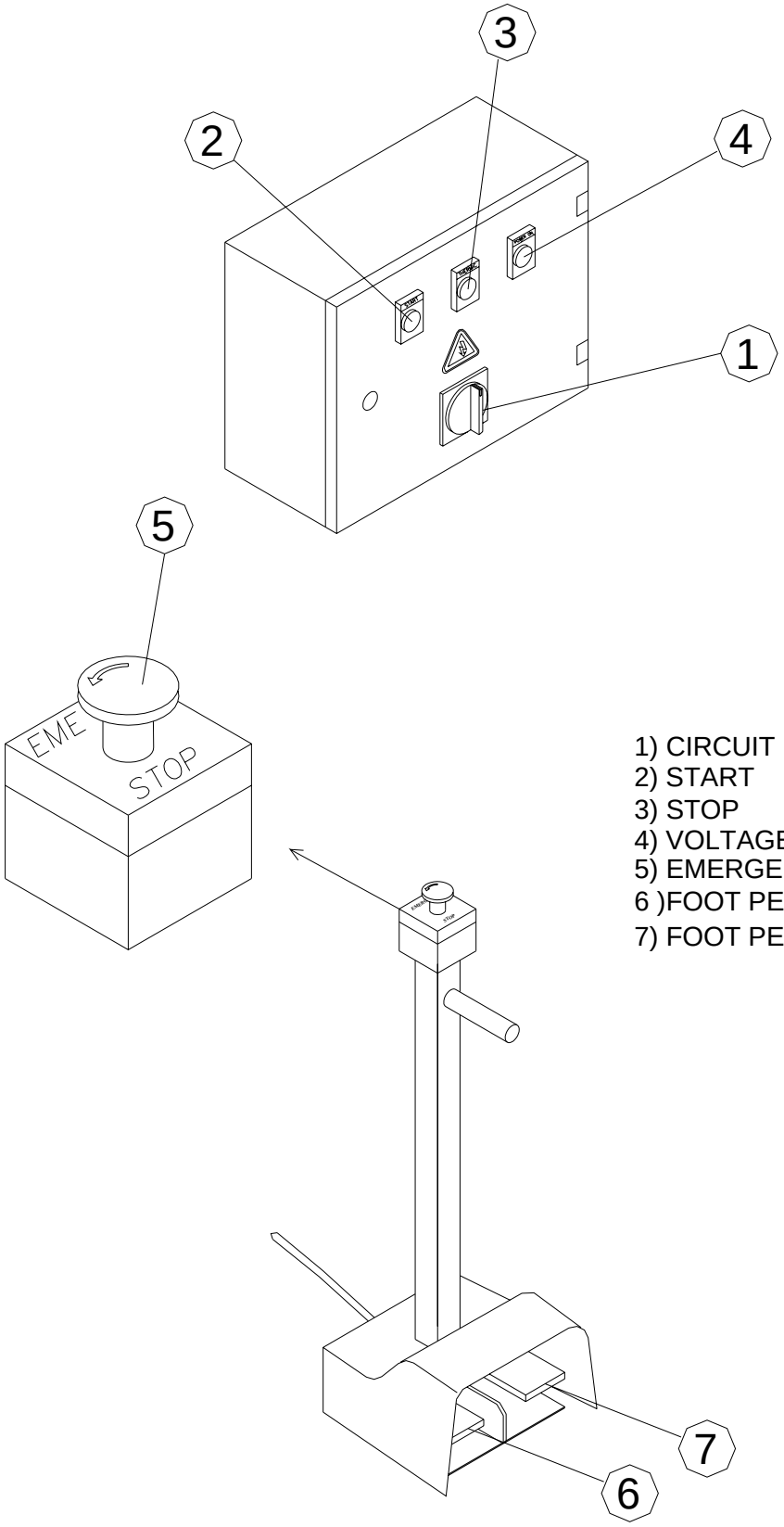
DANGER !!!

Don't press on the foot pedal ,before preparing the material and changing the top roll position.

YOU MAY PREPARE THE MATERIAL.ONLY WHEN THE MACHINE IS CLOSED.
* Take the top rolls on the position you need.
* Put into place the sheet metal.

AKYAPAK 3 rolls bending machine before working must be lubricate.The parts which must lubricating, are indicating on the rear page.

9.1. CONTROL PANEL



1) CIRCUIT BREAKER
2) START
3) STOP
4) VOLTAGE EXPANDING POISON
5) EMERGENCY STOP BUTTON
6)FOOT PEDAL
7) FOOT PEDAL

9.2.GENERAL INFORMATION

To get the high yield of the machine ,the right using,maintenance and regular cleaning are necessary.
The physics situation of the bending material is very important,preparing before the bending operation .Of this:

1-For the material cutting with Oxygen ,the edge shavings is cleaning with emery stone.
2-On the sheet metal all the protrusion,rust,cinder,must be clening.They can damage the top rolls,if only the rolls are hardened.
3- The two sides of the bending material must be cleaning.
4-Before the bending operation,control the parts.If you see the problem clean again.

The physics situation of the bending material, effect the quality bending parts of the material.If the surface material is very dirty,the surface material must sanding.

9.3.THE QUALITY OF THE BENDING MACHINE

If the quality for bending material is different the bending adjustment will be different.The materials which will bending with more quantity may can not give the same results. The effects on the quality material,which are very important as below:
1-The quality of the material.
2- Yield point
3- Elasticity module.
4- If the thicknees of the material at all the places is not the same,the material will be without homogeneous.
5-The material fibre direction.

This factors are very important.The dimensions can not get again,if one of them is changing before bending operation .
For example,with the same machine adjustments the diameters will get different,if the elasticity factor is more at the bending operation.

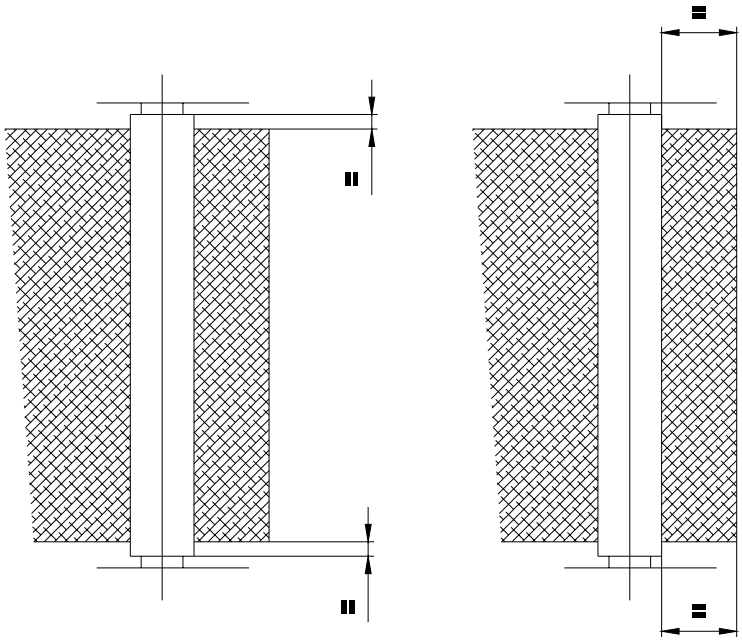
Again for example,according the twice material bending before the bending operations, you will get the different results for the next one bending operation. The yield point may changing , if the mill operation is made after the first operation , and the bending operations are done twice. Of this factor differences frequently the same material group is come across.This reason,you must use only the material with good quality.
The other mistake of the bending material, is the bigger diameters of the material. The begining of the bending operation must be correct,when this type of the material are bending. At the middle of the bending operation , the self weight may at the front surrounding and the spoil requiring diameters.

9.4. SETTLE THE BENDING MATERIAL

You can begin the bending operation,after all the control operations.
The first step of the bending operations,is the place of the bending material.
The stright position of the material tighten between the top rolls,is initial condition for the good quality bending material.

The step for this operations.

1-The bending material,absolutely must place between the top rolls.
2-The bending material,absolutely must be paralel to the top rolls axis.



9.5. BENDING OPERATION

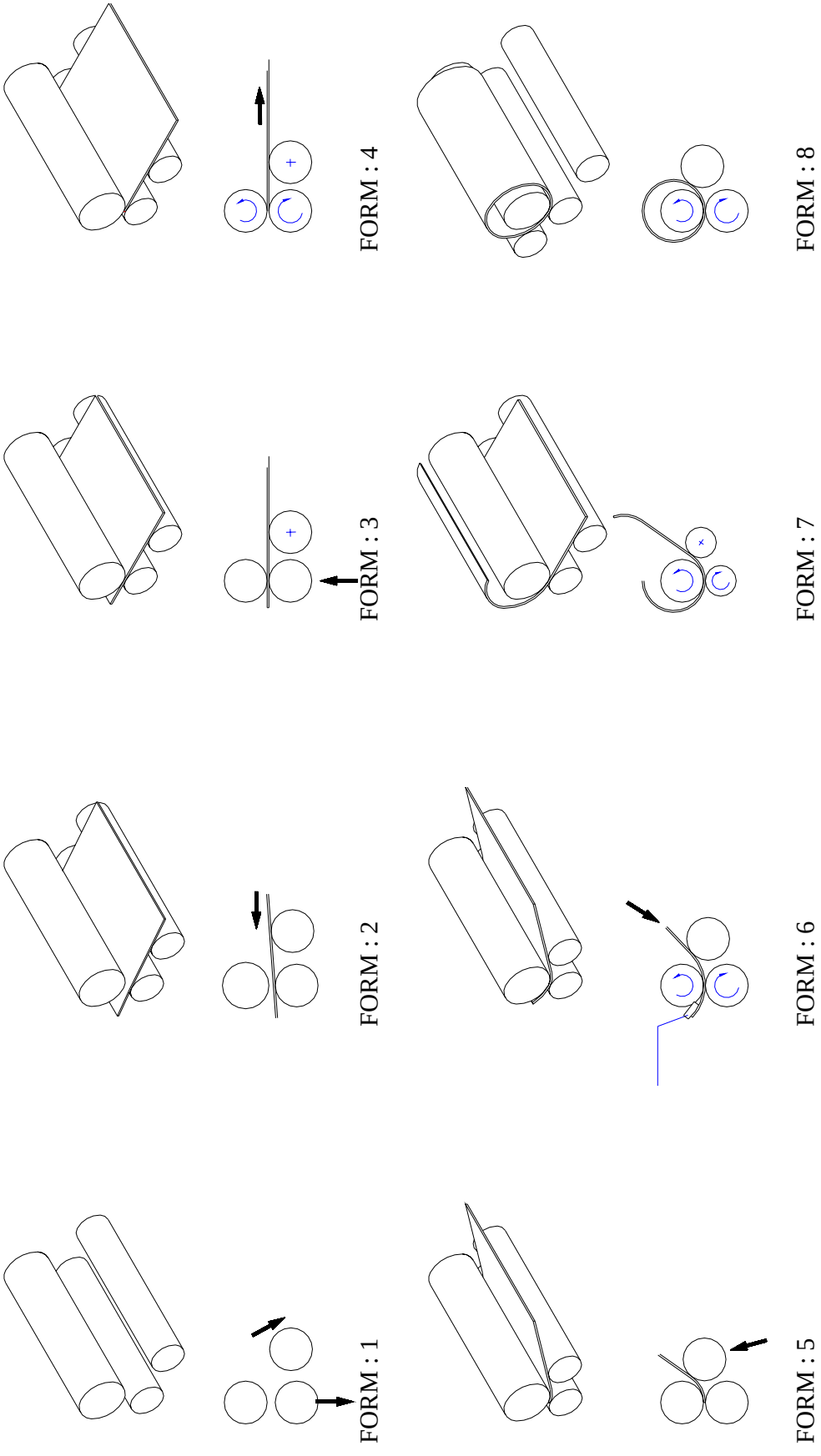
The first operation is giving the machine power. The other operations are following.

1- Turn the power switch to position 1 rear the face electrical panel.

2- Check the power lamp is lighting or not. If the lamp is not lighting,check the electrical connections..
3- Press the start button.

The machine is ready to working.

9.6. THE MACHINE METOD FOR THE BENDING OF THE MATERIAL



9.7. BENDING OPERATION LINE OF THE MATERIAL

ŞEKİL 1 : Bring down the top rolls low and rear shaft according to the bending material thicknees .

ŞEKİL 2 : Ride the material which will bending between the top rolls shaft.

ŞEKİL 3 : Put into place the sheet according the top rolls on the page 23 determine at the figure. The top rolls shaft bring up and tight the material.

ŞEKİL 4 : Pull the material near the side top rolls axis.

ŞEKİL 5 : To make the prebending, bring up the rear top rolls shaft at the required diameters.

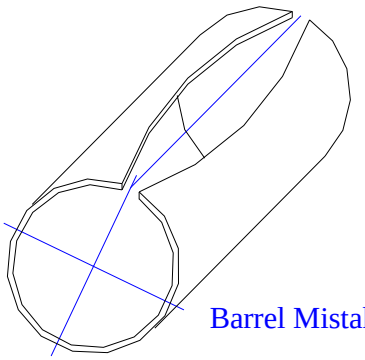
ŞEKİL 6 : Press the foot pedal(turn the button)turn slowly the material.
Turn the arm at the type of the machine with arm.
According the requiring diameter, control the prebending operation with the preparing stencil.If the prebending operation is right,turn the sheet metal backword side,and the same operation repeat at the edge of the other side.
RE
ŞEKİL 7 : To reaching the require diameter, rotate the rear shaft top rolls up.

ŞEKİL 8 : Reaching to the requiring diameter, one or two time rotate the material and make the calibre.

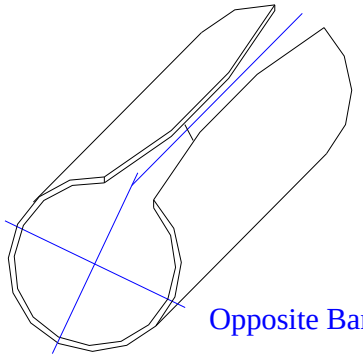
The important component for the right measured bending material, is the development sheet metal.According the bending form the development of the sheet metal must correct accounting and cutting.

At the bending operation the other important component for the material ,is between the lower and upper rolls is the pressing strength.The pressing of the lower and upper rolls with the standard machine is done with hand arm,and the requiring special equipments with motor.

If the lower pressing strenght is possible bigger,the sides of the bending material will touching and the middle will be separated. For this kind of defect,it is say the barrel mistake.If the lower strenght is possible small ,the sides of the bending material will separated,and the middle will be touching.For this kind of defect,it is say the opposite barrel mistake.



Barrel Mistake



Opposite Barel Mistake

9.8. CONE BENDING

The cone bending operation,is prepare together with the cone bending system.Cone bending;the most difficult operations within the bending shape.About this the operator must have too much experience.

The operation is difficult because;

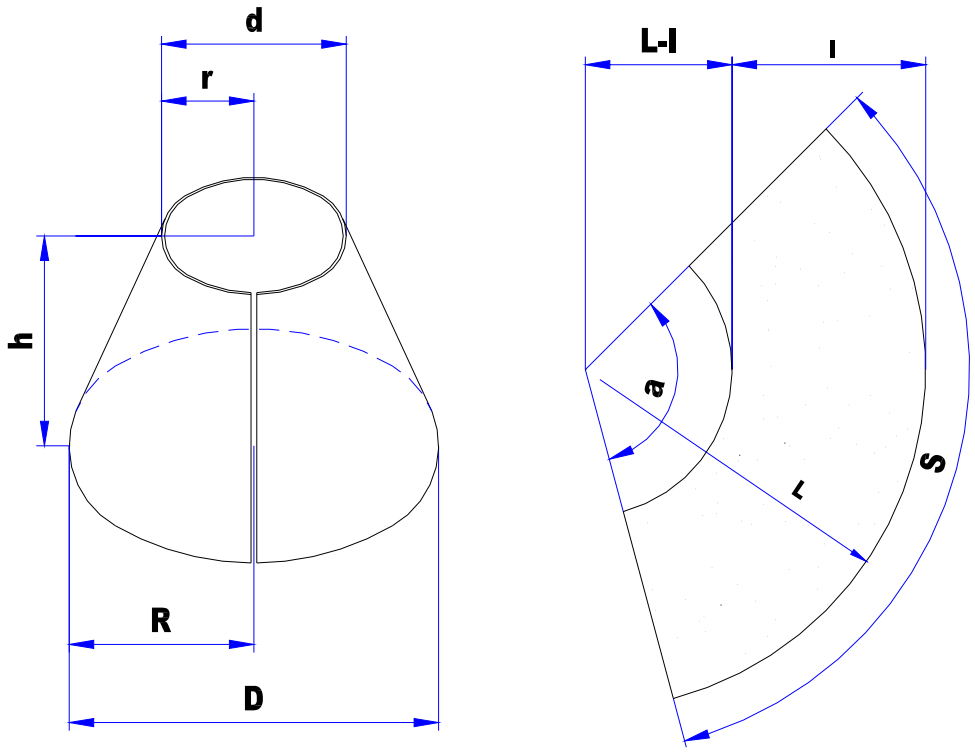
THE HALF USING FOR THE MACHINE NORMAL CAPACITY.

This mean;the machine , 2000 mm x 6 mm.the thickness sheet metal and the capacity of the cone bending ,the half of the capacity can bend 1000 mm x 3 mm.
If you want make at the below illustration the end of the cone is cutting,you must prepare the diameter and lenght the sheet metal development.

This development,is prepare at the following formula.

L = (D x I) / (D - d)	**$I = \sqrt{h + (R - r)}$**	**a = S x 180 x L / 3,14**	**S = D x 3,14**

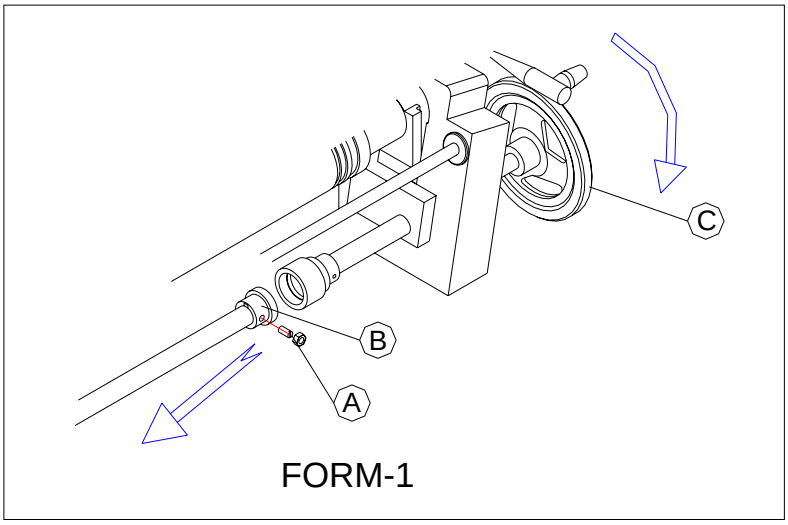
D, d, R, r the average diameters.



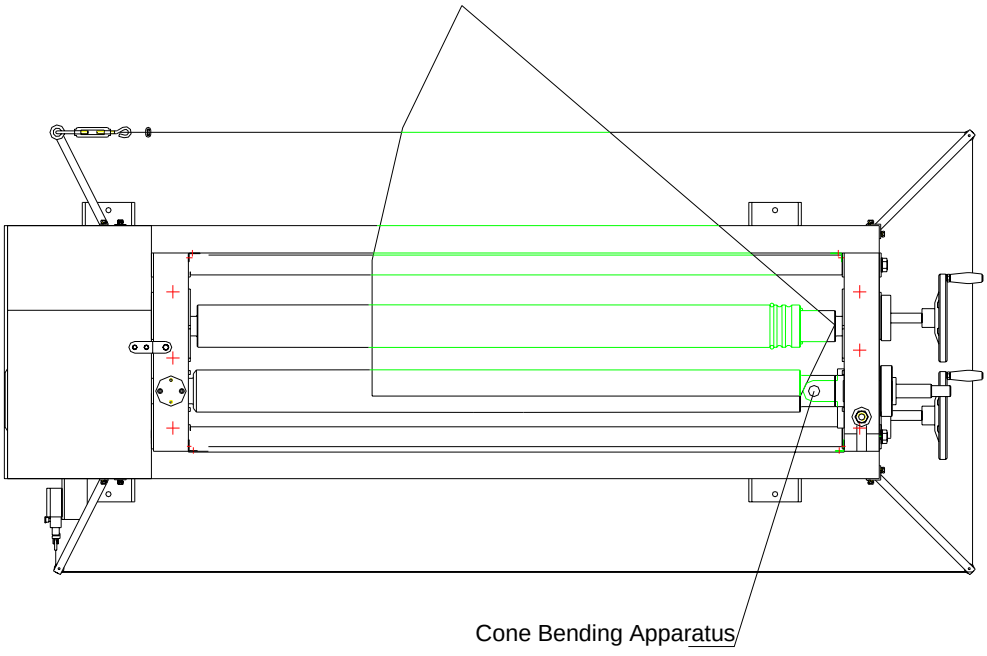
9.9. CONE BENDING POSITION LINE

At the cone bending operation the operation lines are determine below.

1-Loose the headless bolt(A)on the clutch shaft to obtain the require cone bending.(See form 1 below).
2-Pull the clutch (B)orientate the arrow direction.(See form 1 below).
3-Rotate the rear shaft arm(C) and take up the rear shaft to the requiring dimension. z. The rear shaft opposite end hold down according to the cone position.(Form 1).
4-According the requiring dimensions take the rear shaft up, put forward the clutch shaft and tighten the headless bolt.(Form 1).
5-As development for the cutting and bending material ,on the body rest are present the cone bending apparatus.(form 2)Tight the lower top roll and make the bending operation.



FORM-1

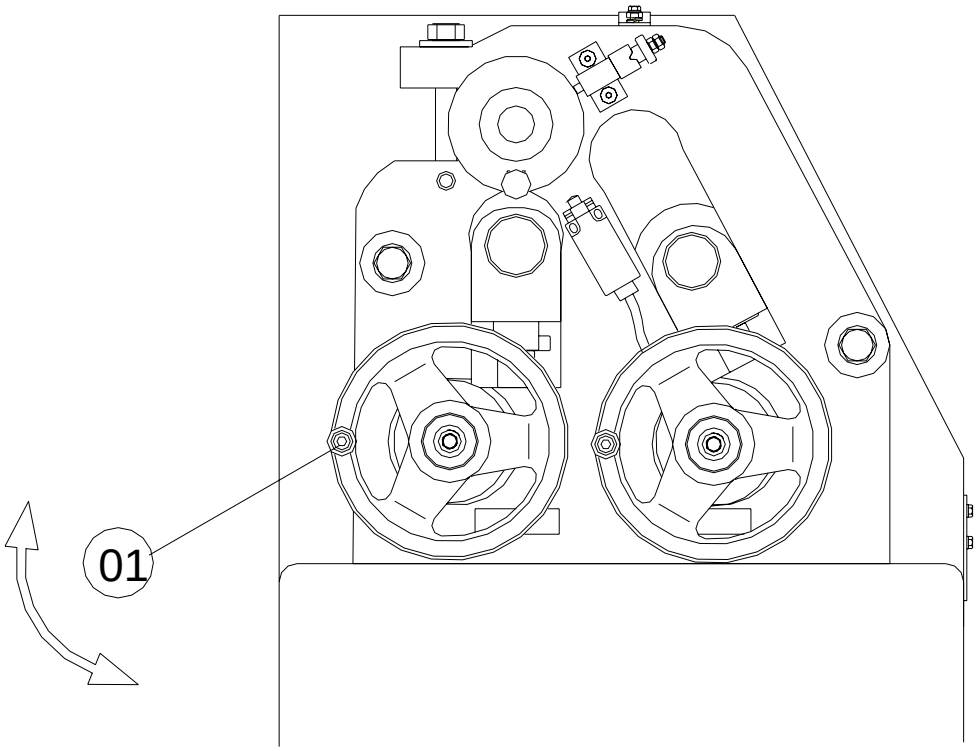


FORM-2

9.10. THE LOW ROLL MATERIAL COMPESSION (UP –DOWN MOVING)

1- Bring the lower top rolls up,turning the arm 01-number.

2- After the sheet metal tightening between the lower and upper top rolls, take the bending sheet out,the lower sheet metal must bring down.Of this do the same operation opposite.



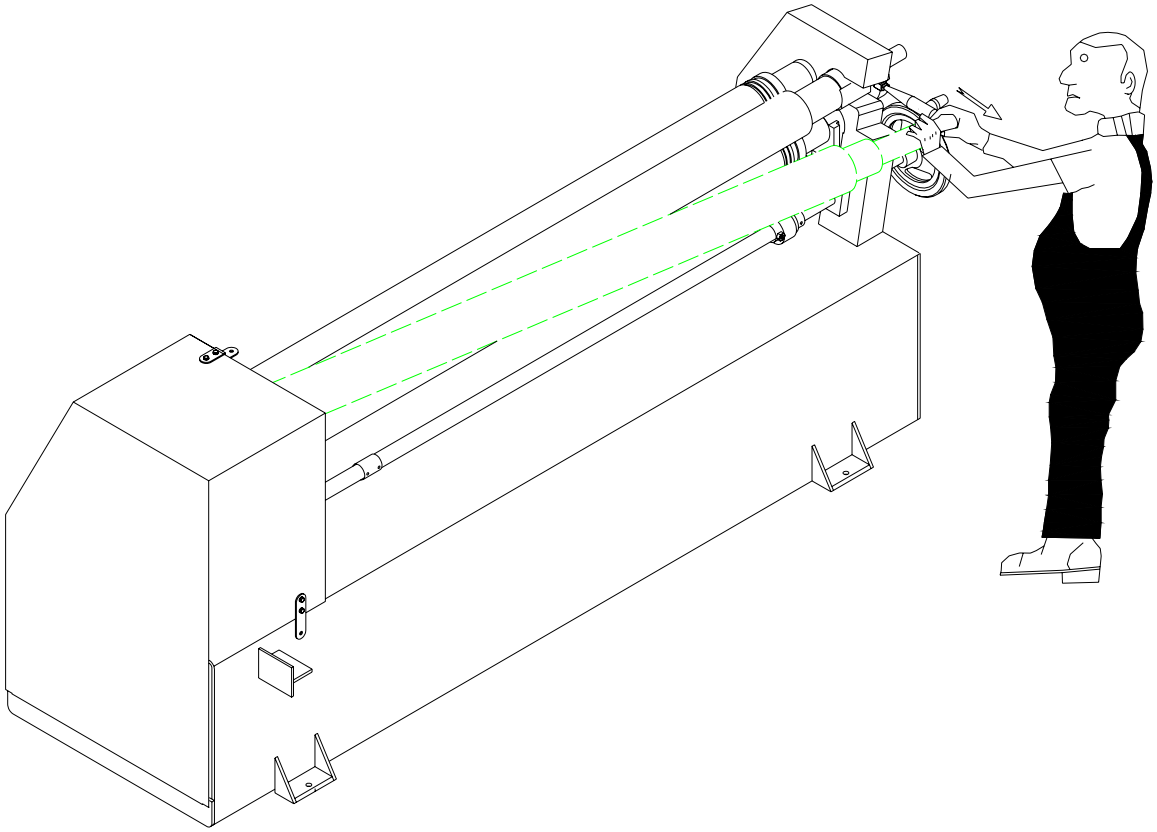
9.11. TAKEN THE BENDING MATERIAL OUT OF THE MACHINE

After the bending operation of the material ,bring the lower rolls down and;

1- Take out the upper roll eccentric . So the upper top rolls bearing will come off position.

2- Pull the upper top rolls shaft sttraight yourself.Take out the shaft from the housing.

3- Take out the bending material from the opening space.



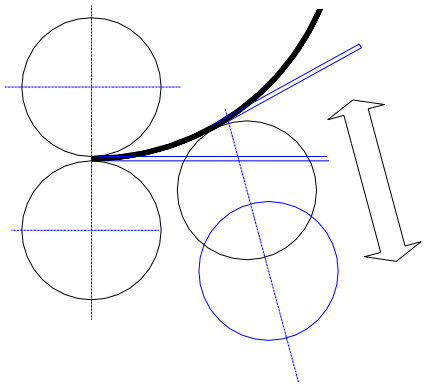
9.12.ADJUSTMENT OF THE DIGITAL DISPLY

ATTENTION !!!!

Without reading the user manuer,for Digital display don't enter any value inside the apparatus.

Available of the dijital display purpose

The rear position of the top rolls is very important when the material is bending with the sylinder machine.Because,the dimension which is geting with the side top rolls,is related how many unit are moving completely.The digital display show us how many rear top rolls shaft are positioning,that is to say how many unit is moving.For many bending parts,when the first part is finish to bending,the display take notes for the rear top rolls shaft position ,this value for the next bending materials will bend at the same dimensions. This will win you series production,for all the parts you will adjust only one value.



10. MAINTENANCE

To take the high performance from our machine,must be cleaning and doing the regular maintenance.
The maintenance operation we can add in two groups.
1- Protaction of the maintenance.
2- Maintenance and repairing after the machine damage.

10.1.PROTACTION OF THE MAINTENANCE

The protaction of the maintenance;the losses determined in the machine,before the damage,the dispositions taken in this situations are below.

- Regular control of the lubrication
-Regular cleaning
- The cleanness of the bending material.
- Controling the machine parts with amortization.
- The risk of the loosing the screw parts due to vibration working.

10.2. REGULAR CLEANLINESS

In the bending operation on the rolls can stick the dirty and rust parts.The rolls shaft after the bending operation must clean and their surfaces are controling.Don't bend the hard materials on the machine,if only the rolls are hardened.The machine working atmosphere,must not effective ,from the atmosphere conditions,and must be witout the dust.Especially must to pay attention for the lift screw at the bottom and side rolls shaft.This lift screw must control every day by run an eye over,lubricate and clean their surface from the strange parts.

10.3. CHECKING THE ABRASION PARTS IN THE MACHINE

If the operator and the person responsible for the maintenence parts,at the working operation,hear the voice inside the machine ,must stop the machine and control the looses parts.If you don't want to abrasion the parts inside the machine,do the right time control and lubricate the machine .

10.4. REPAIRING THE FAILURE

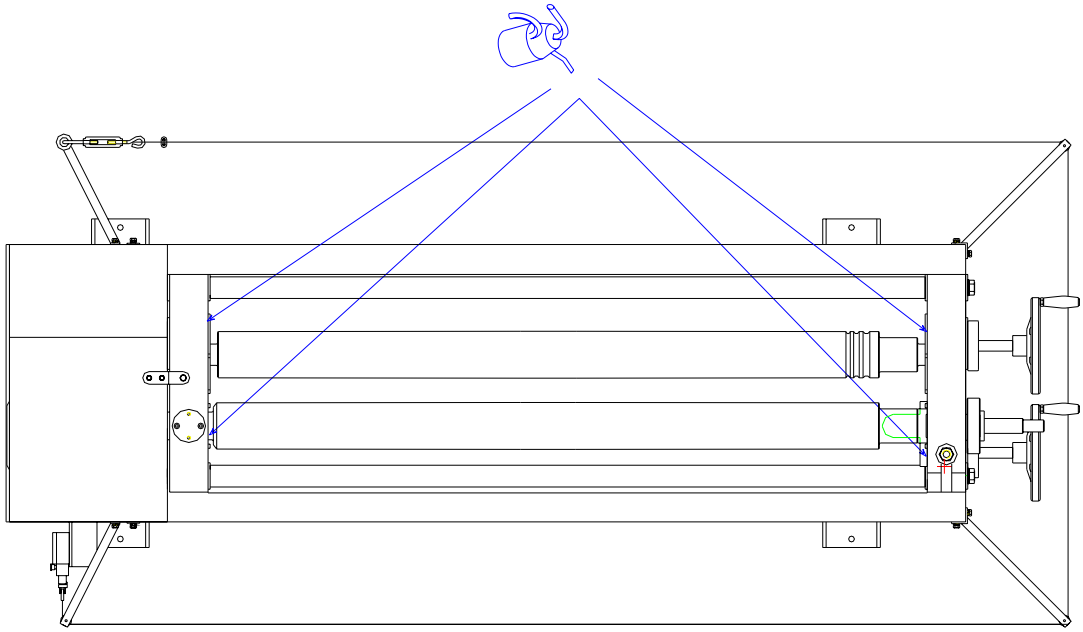
At the damage situations and maintenance, the machine cover must be closed and the energy is cutting.The machine repairment must be doing from the side autorized personal.,and the assembly drawing carefully to investigate.

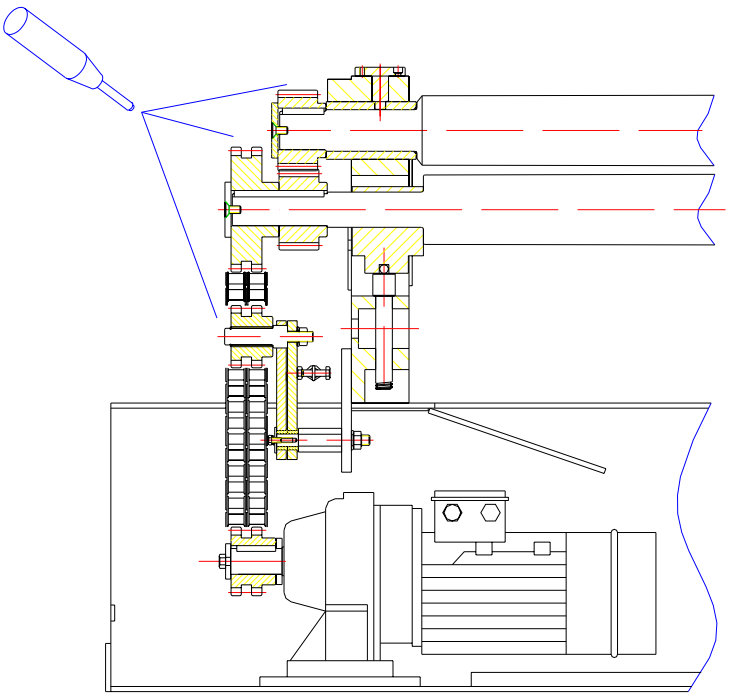
ATTENTION !!!!!
For all the maintanence and repairments the machine cover will be closed and the energy must be cutting.

11. GREASE

In the machine are using two kind of the grease.
- Grease
- Liquid grease

11.1. GREASE POINTS

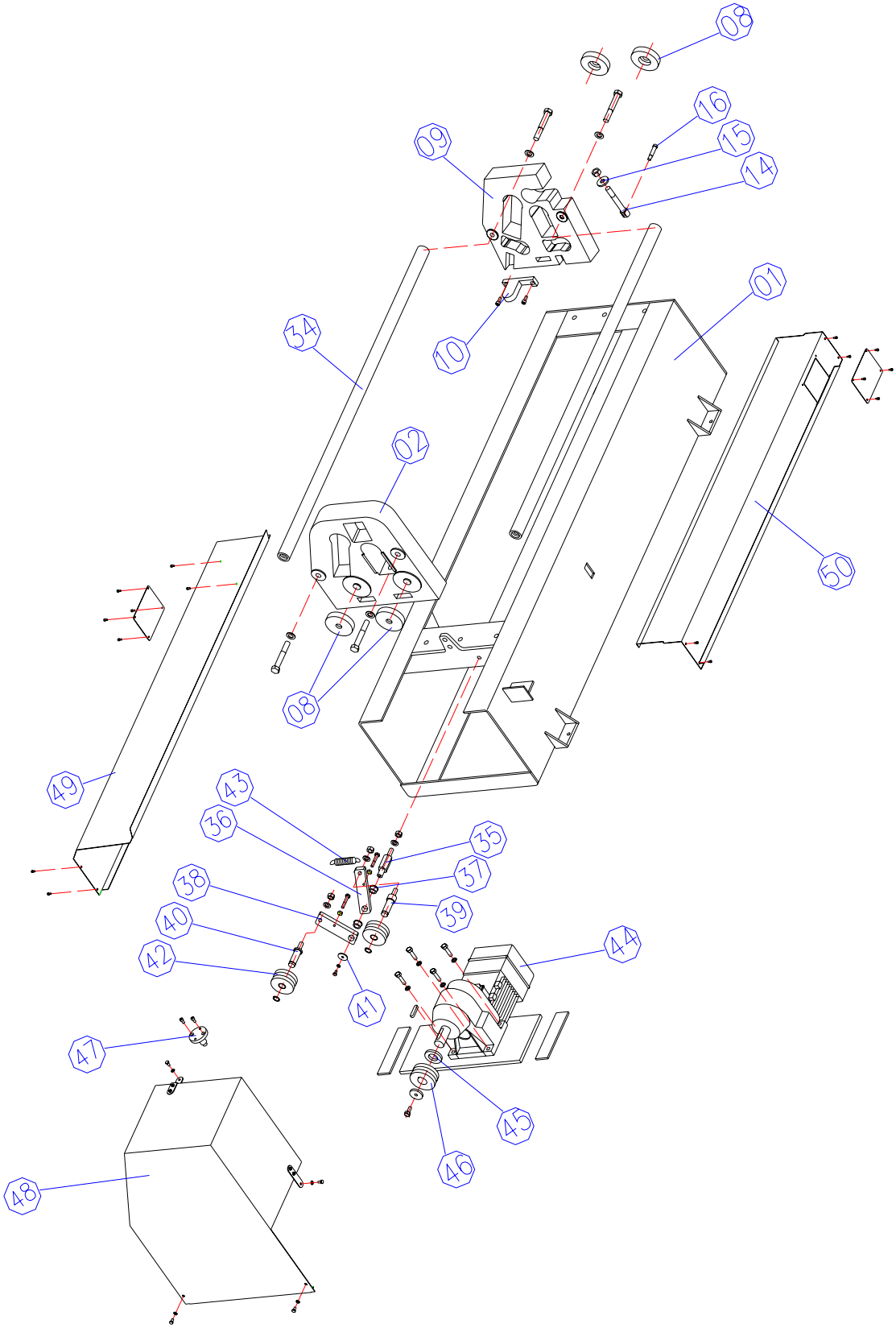




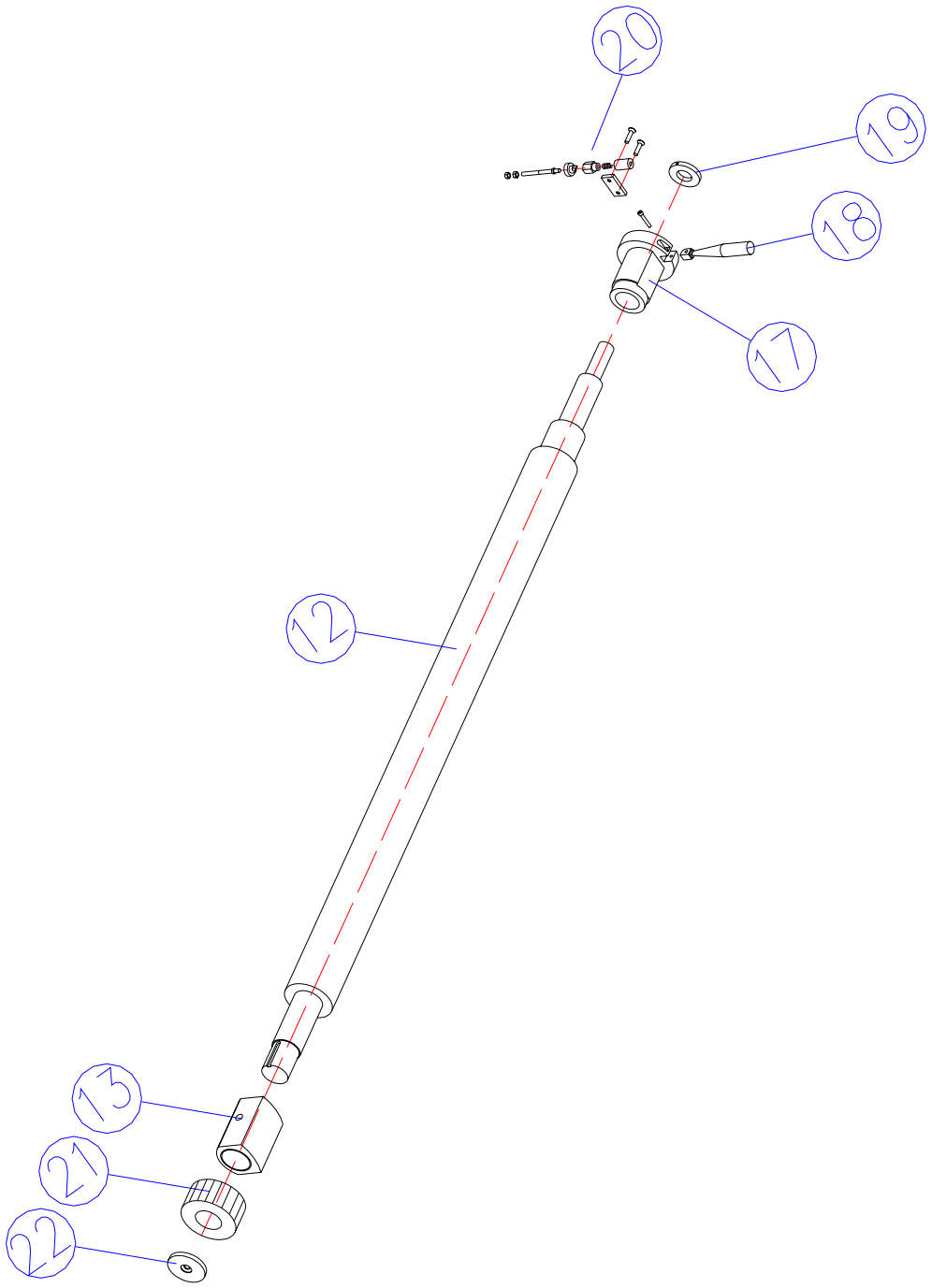
11.2. THE TABLE FOR GRAESE COMPARISON

TYPE	Graese	Liquid
MOBIL	Kup Grease 2	Mobil Gear 629
BP	Energrease GP2	Energol GR-XP 150
SHELL	Livona 2	Omala Oil 150
CASTROL	Helvium 2	Alpha SP 150
TEXACO	-	Meropa 150
ELF	-	Reductelf SP 150
TOTAL	-	Carter EP 150
ESSO	-	Spartan EP 0
AGIP	-	Blasia 150
Q8	-	Goya 150

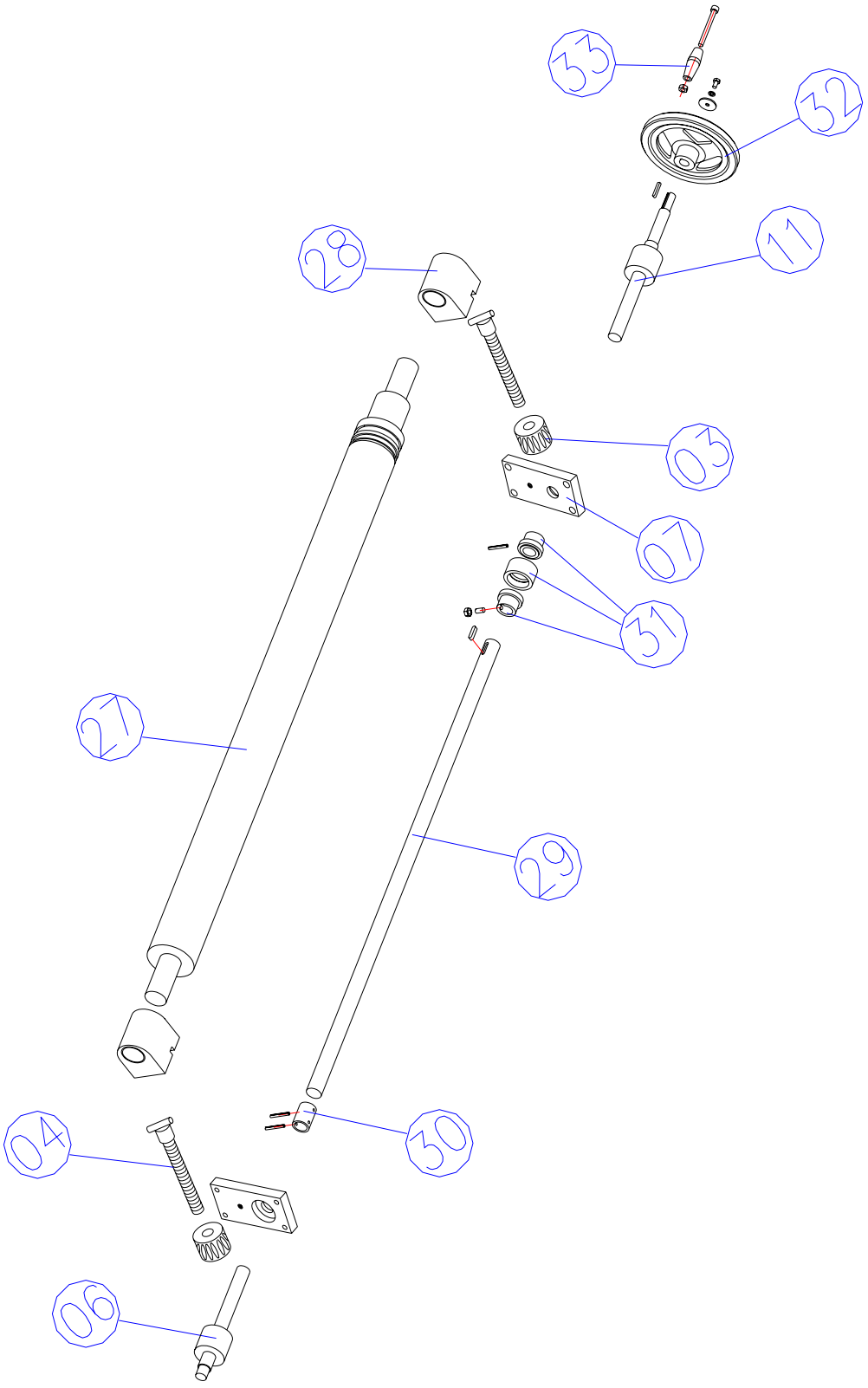
12. SPARE PARTS PLAN



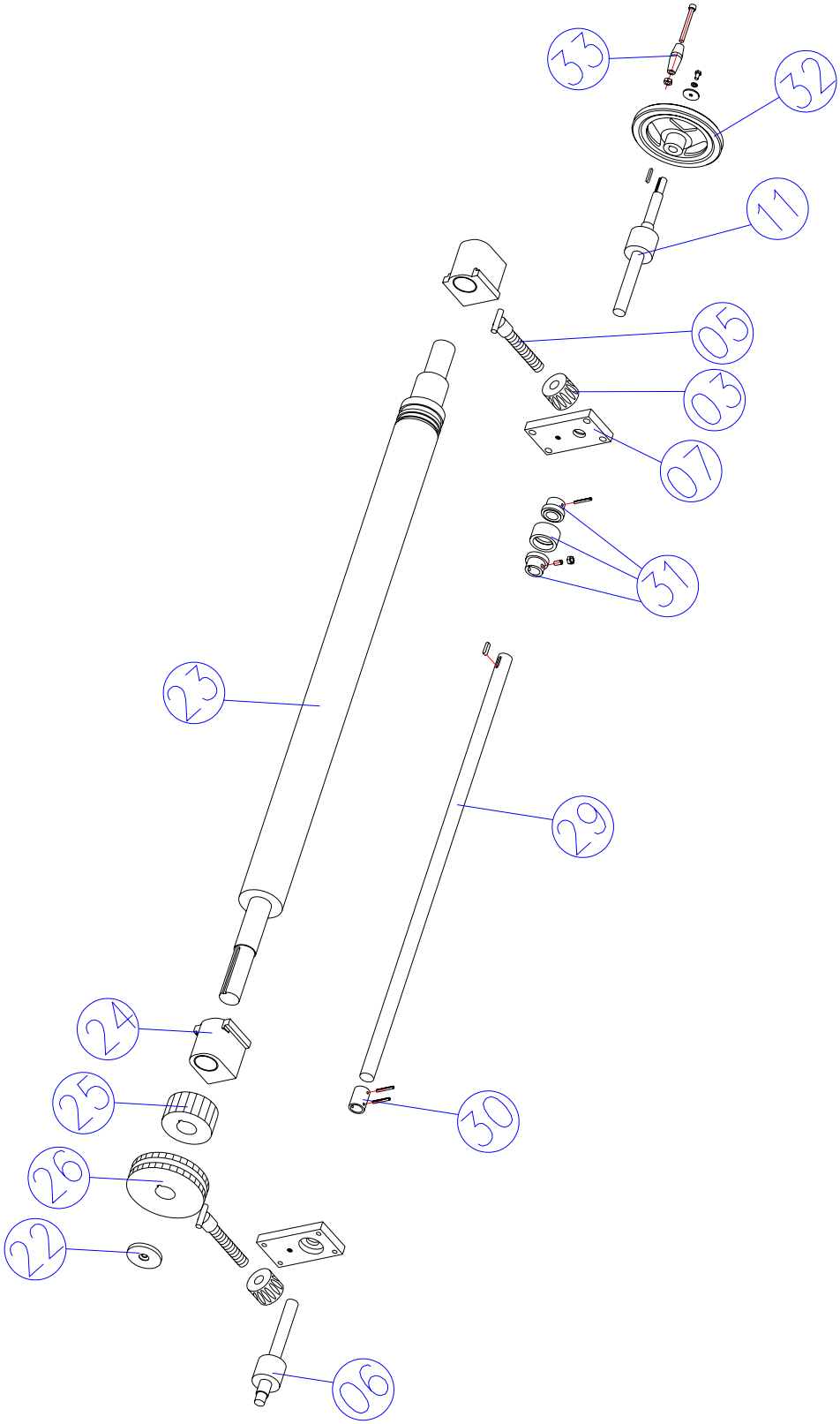
12.1 SPARE PARTS PLAN 1(UPPER ROLLS SHAFT)



12.2 SPARE PARTS PLAN 2 (REAR ROLLS SHAFT)



12.3 SPARE PARTS SCHEME 3 (BOTTOM ROLLS SHAFT)

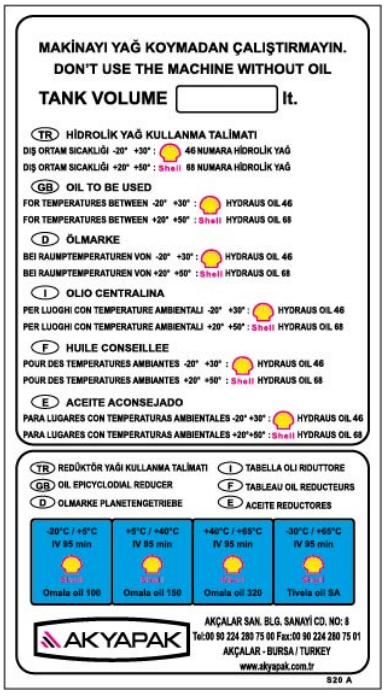


LABELS USED ON THE MACHINE

ÜRETİCİ FİRMA ETİKETİ (MANUFACTURER COMPANY LABEL)

MAKİNE BİLGİ ETİKETİ (MACHINE DETAILS LABEL)

YAĞ ETİKETİ (MACHINE OIL LABEL)



UYARI ETİKETİ (WARNING LABEL)

İŞ GÜVENLİĞİ UYARI ETİKETİ (WORKING SAFETY WARNING LABEL)

14. INDEX