



Section roller

MIP 30



Users manual

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Our products are frequently updated and improved.
Minor changes may not yet be incorporated in this manual.
Always state the year of built, type and serial number of machine in correspondence.

NB.: Read the instructions carefully in order to avoid any problems.

As with all machinery there are certain hazards involved with operation and use of this machine. Using the machine with respect and caution will considerably lessen the possibility of personal injury. However, if normal safety precautions are overlooked or ignored, personal injury to the operator may occur. This machine was designed for certain applications only. We strongly recommend that this machine NOT be modified in any way and/or used for any application other than for which it was designed. If you have any questions relative to its application DO NOT use the machine until you have contacted your dealer.

General safety rules

1. For your own safety read the instruction manual before operating the tool.
2. Keep all guards in place and in working order.
3. Ground all tools.
4. Remove adjusting keys and wrenches. Make a habit of checking the machine before turning it on.
5. Keep the work area clean. Cluttered areas and benches invite accidents.
6. Do not use in a dangerous environment, such as damp or wet locations or expose to rain. Always keep the work area well lit.
7. Keep children and visitors away. They must be kept at a safe distance from the machine at all times.
8. Make sure that the work area is not accessible to unauthorised persons. Use padlocks, master switches, remove starter keys etc.
9. Never overload the machine. The capacity of the machine is at its largest when properly loaded.
10. Do not force the machine or attachment to do a job for which it was not designed.
11. Wear proper apparel. No loose clothing, gloves, neckties, rings, necklaces, bracelets or jewellery: they may get caught in moving parts. Non-slip footwear is recommended. Wear a hairnet to contain long hair.
12. Always wear safety glasses and work according to safety regulations. Use a face or dust mask if operation is dusty.
13. Always secure work piece tightly using a vise or clamping device. This will keep both hands free to operate the machine.
14. Do not overreach. Keep your proper footing and balance at all times.
15. Maintain tools in top condition. Keep them sharp and clean. Read the instructions carefully and follow the instructions for cleaning, lubrication and tool replacement.
- 16. Lubricate the machine and fill all oil reservoirs before operation.**

17. Disconnect tools before servicing and when changing accessories such as blades, bits, cutters etc.
18. Use only recommended accessories. Consult the owner's manual for recommended accessories. The use of improper accessories may cause hazards.
19. Avoid accidental starting. Make sure the on/off switch is in the "OFF" position before plugging in the power cord.
20. Never stand on the machine or tools. Serious injury could occur if the machine is tipped or if the cutting tool is accidentally touched.
21. Check damaged parts. Replace or repair damaged parts immediately. Check machine for alignment of moving parts, binding of moving parts, breakage of parts, mounting and any other conditions that may affect its operation.
22. Direction of feed. Feed work into a blade or cutter against the direction of rotation of the blade or cutter only.
23. Never leave tool running unattended. Do not turn power off until it has come to a complete stop.
24. Alcohol, medication, drugs. Never use the machine while under the influence of alcohol, medication or drugs.
25. Make sure the tool is disconnected from the power supply, before servicing, repairing etc.
26. Keep the original packing for future transport or relocation of the machine.

Additional safety rules

Always keep in mind that:

- the machine must be switched off and disconnected from the power supply during maintenance and repairs,
- clamped work pieces may only be measured when the machine is switched off.

Never lean over the machine, mind loose clothing, ties, jewellery etc. and wear a cap.

Do not remove safety devices or guards. Never use the machine while a guard is open.

Always use safety glasses for machining rough materials.

Burrs and chips should only be removed using a sweeper or other aid, never with your bare hands!

Never leave the machine running unattended.

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1. Features

The MIP 30 machine consists of:

- Engine base
- Bending mechanism
- Driving mechanism
- Front guard
- Back guard
- Driving pedal
- Electric installation

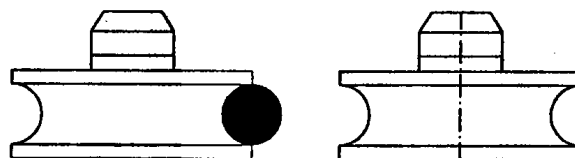
2. Use range

The MIP 30 Profile roller is used for bending steel profiles got by rolling. The machine is equipped with a set of standard rollers used for bending profiles of parallelepiped section. For other type of profiles there are special sets of rollers available. These rollers are to be found on the table below and are delivered on demand.

1. Round profile ≤ 30

Guide roll Ø30	MIP 30-15-4-1	2
Guide roll Ø25	MIP 30-15-4-2	2
Guide roll Ø20	MIP 30-15-4-3	2
Guide roll Ø15	MIP 30-15-4-4	2
Leading roll Ø30	MIP 30-15-4-5	1
Leading roll Ø25	MIP 30-15-4-6	1
Leading roll Ø20	MIP 30-15-4-7	1
Leading roll Ø15	MIP 30-15-4-8	1
Short distance piece	MIP 30-8-3	3
Long distance piece	MIP 30-8-4	3

MIP 30-15-4-0



2. Profile with clean inside

Flange Ø148x13	MIP 30-15-5-1	2
Ring Ø58x5	MIP 30-15-5-1	2
Ring Ø58x4	MIP 30-15-5-2	2
Ring Ø58x3	MIP 30-15-5-3	2
Ring Ø58x2	MIP 30-15-5-4	2
Guide roll R6/R5	MIP 30-15-5-5	2
Guide roll R3.5/R2.5	MIP 30-15-5-6	2
Leading roll	MIP 30-8-2	1
Short distance piece	MIP 30-8-3	3
Long distance piece	MIP 30-8-4	3

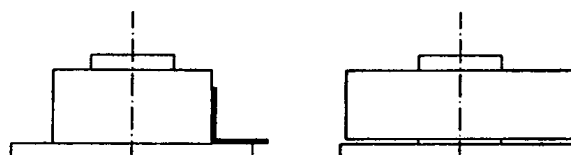
MIP 30-15-5-0



3. Profile with clean outside

Flange Ø148x3	MIP 30-15-6-2	1
Clean Ring	MIP 30-15-6-1	1
Clean Ring	MIP 30-15-6-2	1
Clean Ring	MIP 30-15-6-3	1
Clean Ring	MIP 30-15-6-4	1
Leading roll R6/R5	MIP 30-15-6-5	1
Leading roll R3.5/2.5	MIP 30-15-6-6	1
Guide roll	MIP 30-8-1	2
Short distance piece	MIP 30-8-3	3
Long distance piece	MIP 30-8-4	3

MIP 30-15-6-0

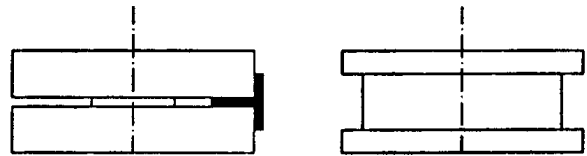


4. T-profile with clean inside



Guide roll R6/R5	MIP 30-15-7-1	4
Guide roll R4/R3	MIP 30-15-7-2	4
Ring Ø58x5	MIP 30-15-5-1	2
Ring Ø58x4	MIP 30-15-5-2	2
Ring Ø58x3	MIP 30-15-5-3	2
Ring Ø58x2	MIP 30-15-5-4	2
Flange Ø148x13	MIP 30-15-3-2	2
Leading roll 50	MIP 30-15-1-8	1
Leading roll 45	MIP 30-15-1-9	1
Leading roll 40	MIP 30-15-1-10	1
Leading roll 35	MIP 30-15-1-11	1
Leading roll 30	MIP 30-15-1-12	1
Leading roll 25	MIP 30-15-1-13	1

MIP 30-15-7-0

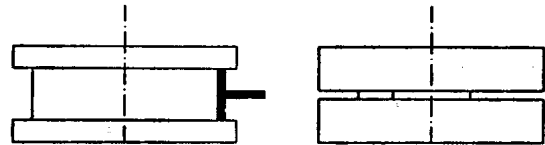


5. T-profile with clean outside



Leading roll R6/R5	MIP 30-15-8-1	2
Leading roll R4/R3	MIP 30-15-8-2	2
Ring Ø58x5	MIP 30-15-6-1	1
Ring Ø58x4	MIP 30-15-6-2	1
Ring Ø58x3	MIP 30-15-6-3	1
Ring Ø58x2	MIP 30-15-6-4	1
Flange Ø148x13	MIP 30-15-3-1	4
Guide roll 50	MIP 30-15-1-2	2
Guide roll 45	MIP 30-15-1-3	2
Guide roll 40	MIP 30-15-1-4	2
Guide roll 35	MIP 30-15-1-5	2
Guide roll 30	MIP 30-15-1-6	2
Guide roll 25	MIP 30-15-1-7	2

MIP 30-15-8-0

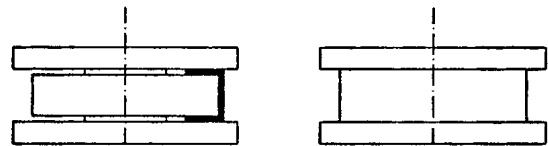


6. U-profile with clean inside



Flange Ø148x13	MIP 30-15-3-1	4
Flange Ø148x13	MIP 30-15-3-2	2
Ring Ø58x5	MIP 30-15-5-1	4
Ring Ø58x4	MIP 30-15-5-2	4
Ring Ø58x3	MIP 30-15-5-3	4
Ring Ø58x2	MIP 30-15-5-4	4
Guide roll 50	MIP 30-15-9-1	4
Guide roll 40	MIP 30-15-9-2	4
Guide roll 30	MIP 30-15-9-3	4
Driving axle ring 4	MIP 30-15-9-4	2
Driving axle ring 2	MIP 30-15-9-5	2
Leading roll 50	MIP 30-15-1-8	1
Leading roll 40	MIP 30-15-1-10	1
Leading roll 30	MIP 30-15-1-11	1

MIP 30-15-9-0

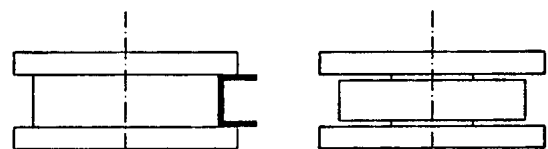


7. U-profile with clean outside



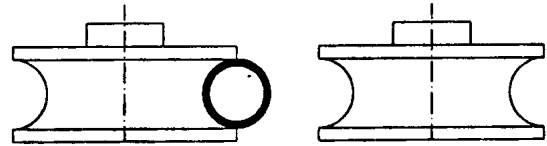
Flange Ø148x13	MIP 30-15-3-1	4
Flange Ø148x13	MIP 30-15-3-2	2
Ring Ø58x5	MIP 30-15-6-1	4
Ring Ø58x4	MIP 30-15-6-2	4
Ring Ø58x3	MIP 30-15-6-3	4
Ring Ø58x2	MIP 30-15-6-4	4
Leading roll 50	MIP 30-15-10-1	1
Leading roll 40	MIP 30-15-10-2	1
Leading roll 30	MIP 30-15-10-3	1
Driving axle ring 4	MIP 30-15-10-4	1
Driving axle ring 2	MIP 30-15-10-5	1
Guide roll 50	MIP 30-15-1-2	2
Guide roll 40	MIP 30-15-1-4	2
Guide roll 30	MIP 30-15-1-6	2

MIP 30-15-10-0



8. Round profile $30 < D \leq 60$	○	
Guide roll 60	MIP 30-15-11-1	2
Guide roll 55	MIP 30-15-11-2	2
Guide roll 50	MIP 30-15-11-3	2
Guide roll 45	MIP 30-15-11-4	2
Guide roll 40	MIP 30-15-11-5	2
Guide roll 35	MIP 30-15-11-6	2
Leading roll 60	MIP 30-15-11-7	1
Leading roll 55	MIP 30-15-11-8	1
Leading roll 50	MIP 30-15-11-9	1
Leading roll 45	MIP 30-15-11-10	1
Leading roll 40	MIP 30-15-11-11	1
Leading roll 35	MIP 30-15-11-12	1
Short distance piece	MIP 30-8-3	3
Long distance piece	MIP 30-8-4	3

MIP 30-15-11-0



3. Technical characteristics

Diameter of roller shaft	mm	Ø 30
Diameter of leading roller	mm	Ø 118-148
Speed of leading roller	min ⁻¹	20
Motor	400V, 0.75 kW, 1500 min ⁻¹	
Length.....	mm.....	620
Width	mm.....	480
Height	mm.....	1360
Weight	kg.....	170

Subject to change.

4. Operation

After setting the material to be bend between rollers, drive the leading roller by hand in the bending direction. The desired profile bending is obtained by turning the upright driving shaft of the slide way gradually as well as the position of the main roller shaft. The guiding rollers are driven by the bending mechanism activated by the electric motor. It allows repeated travels in both directions. Starting of the electric motor in both directions is possible by using the double pedal.

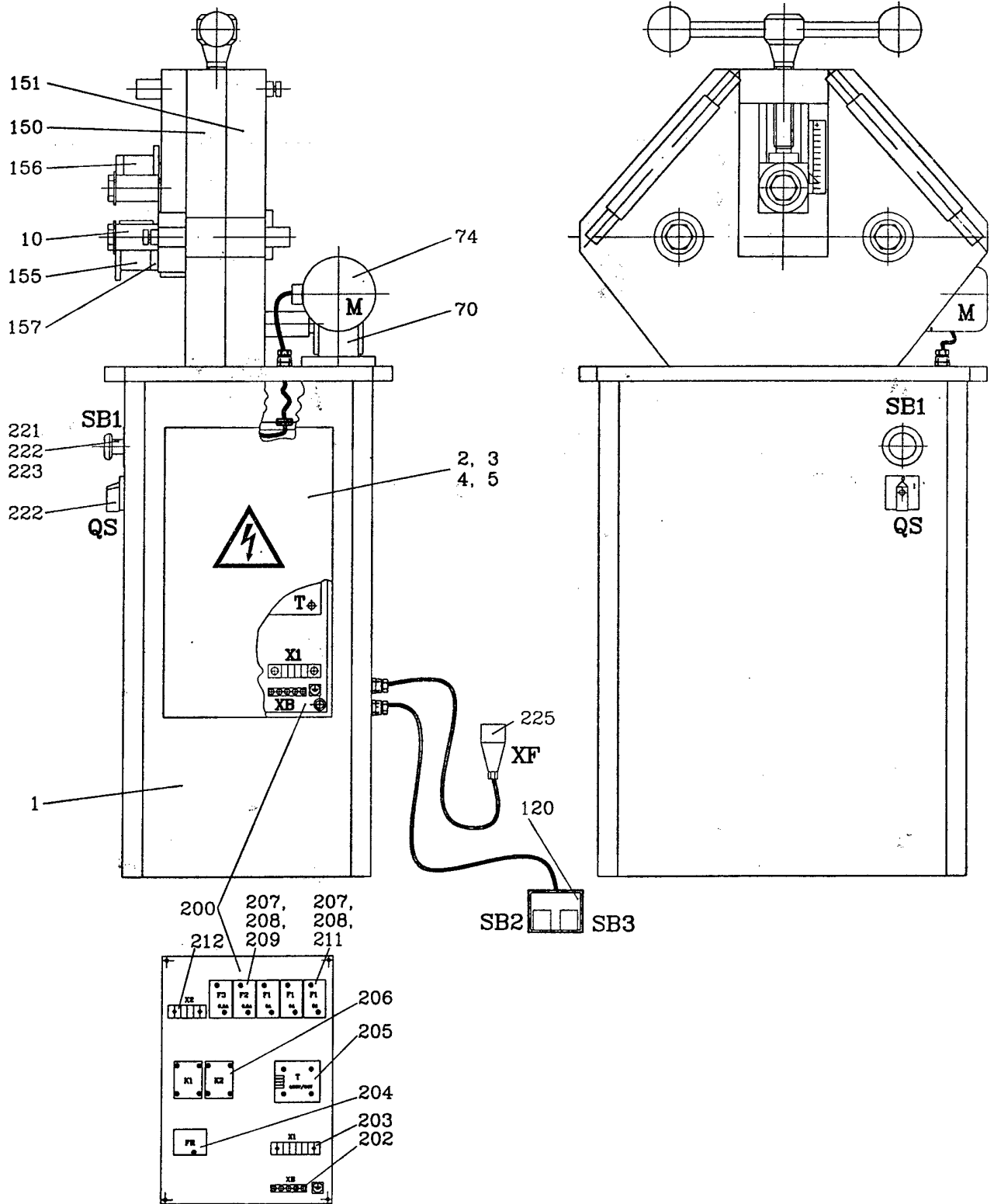
5. Labour protection rules

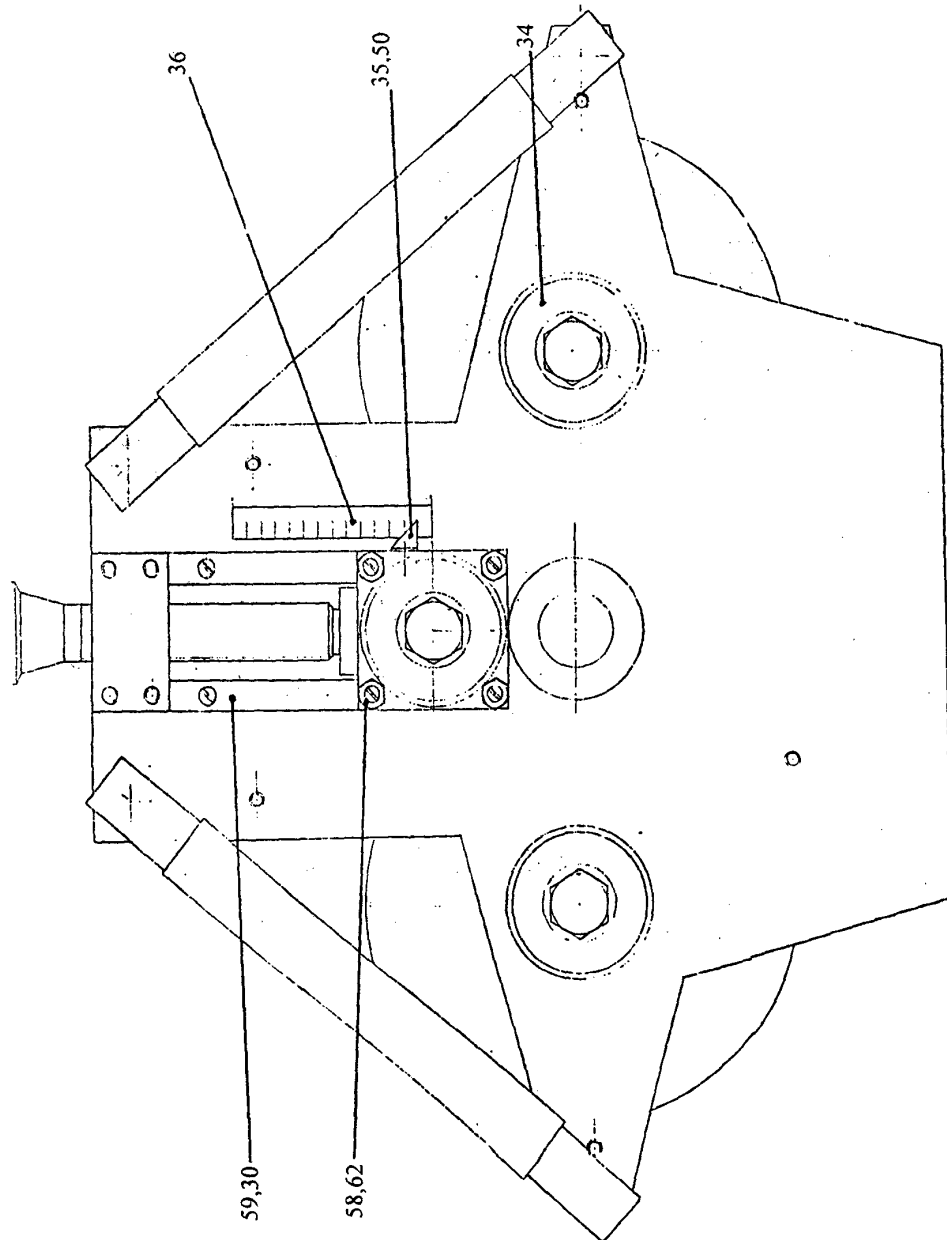
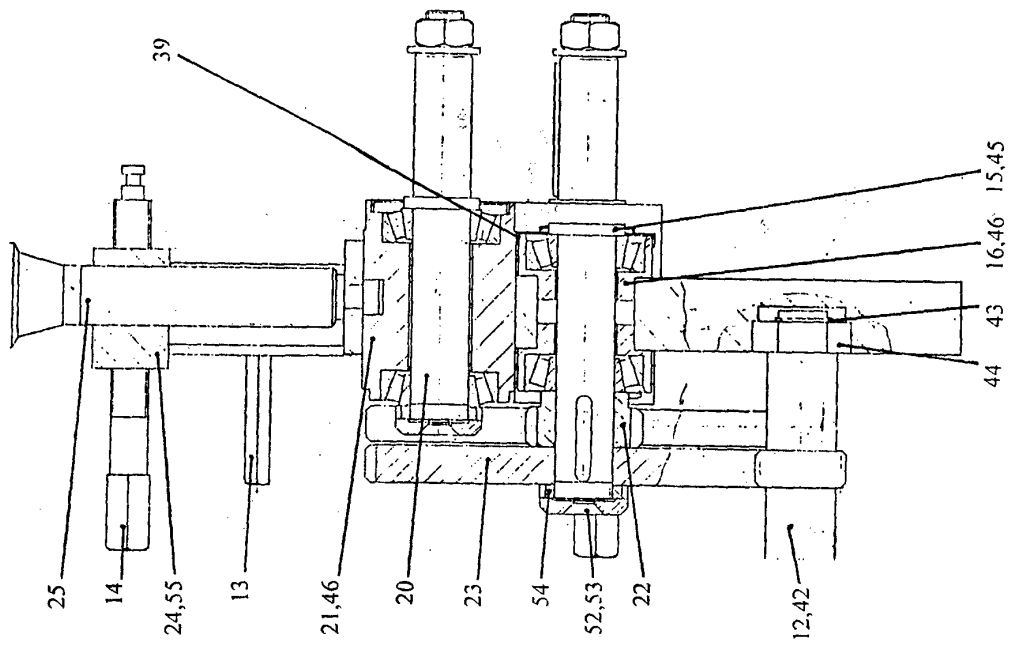
- For your own safety, disconnect the machine from the power source before maintaining or repairing it.
- It is forbidden to intervene to the gears during operation. They are protected by guards.
- Clothing and the tools you use for interventions have to be proper for the work you make.
- Check the fastening of the bending rollers on the shafts before starting the machine.
- Do not use pinched or cracked bending rollers.

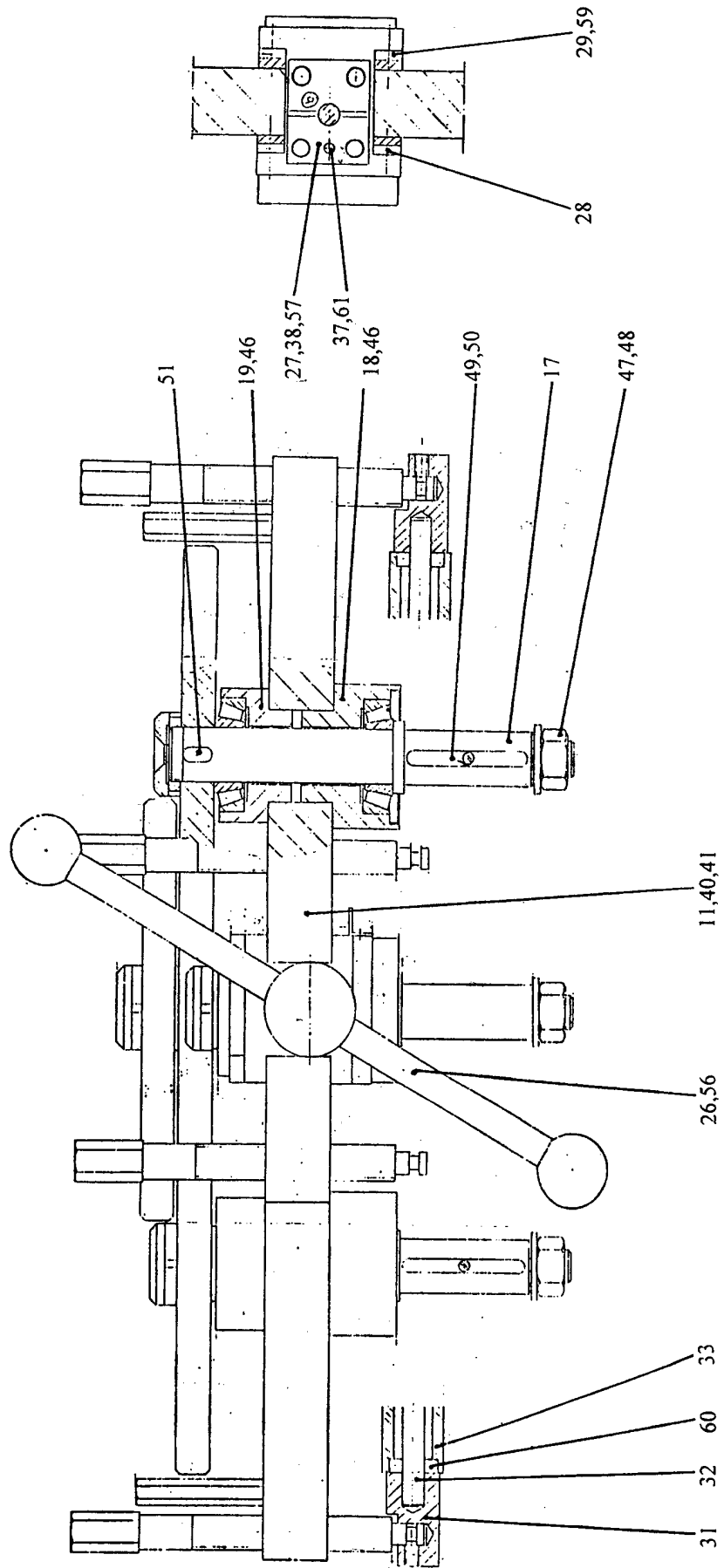
6. Maintenance

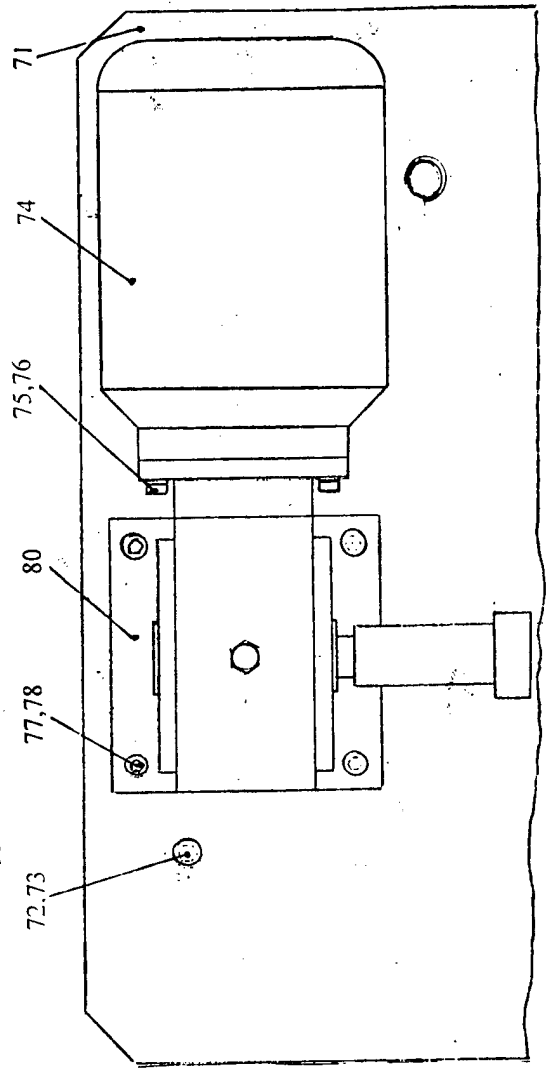
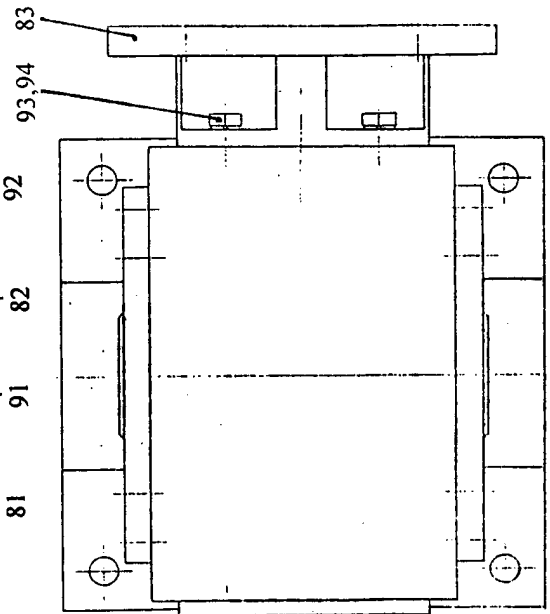
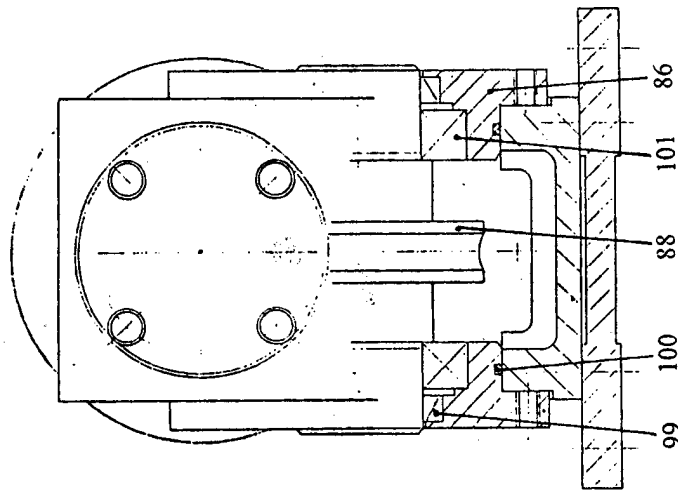
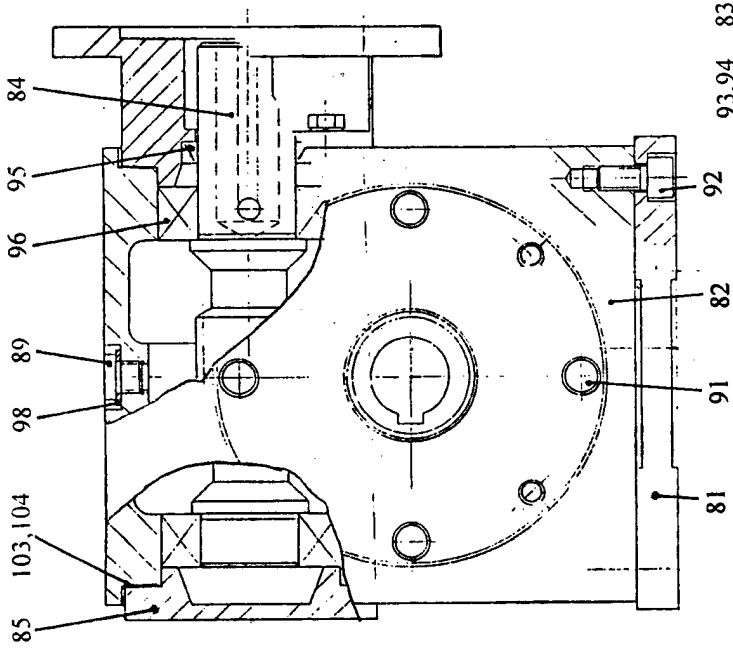
Clean, grease and make the necessary adjustments before each operation. Check the temperature of the bearings (touching them by hand) during operation. The temperature must not exceed 50°.

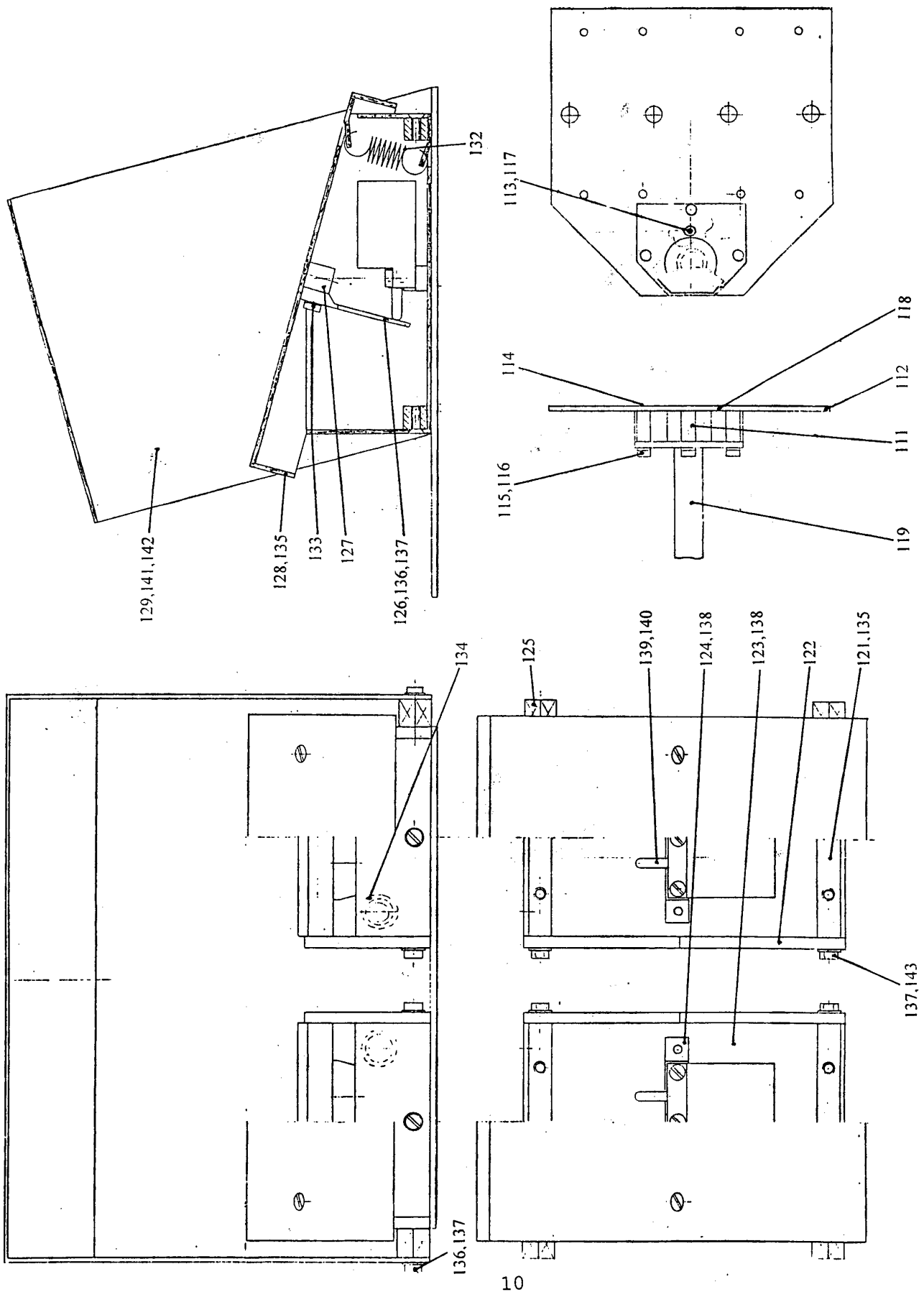
7. Drawings











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7.1 Part list

No.	Description	No.	Description
1	Base	84	Worm shaft
2	Door	85	Bearing cover
3	Door handle	86	Axle flange
4	Ball lock	88	Worm gear axle
5	Lock key	89	Valve
10	Bending equipment	91	Screw M6x14
11	Vertical support plate	92	Screw M816
12	Connecting	93	Screw M6x20
13	Guard bolt	94	Check washer MN6
14	Threaded rod	95	Sleeve A30x40x7
15	Main Shaft	96	Bearing 32006xA
16	Turning bearing	98	Packing ring
17	Driven axle	99	Sleeve
18	Front bearing	100	"O" ring
19	Back bearing	101	Bearing 6008
20	Slideway axle	103	Gasket
21	Slideway	104	Gasket
22	Central pinion	110	Pedals support
23	Driven wheel	111	Bolt
24	Threaded body	112	Support plate
25	Driving shaft	113	Screw M5x8
26	Handle	114	Screw M5x12
27	Axial fastening plate	115	Screw M5x12
28	Front sliceable crashed shoe	116	Flat washer
29	Back sliceable crashed shoe	117	Slot washer
30	Stationary crashed shoe	118	Dividing box
31	Shaft end	119	Rod
32	Supporting shaft	120	Double pedal
33	Supporting sleeve	121	Connecting bolt
34	Bearing (guard) housing	122	Lateral plate
35	Vernier	123	Base plate
36	Comparing rule	124	Micro switch support
37	Stopping bolt	125	Screw
38	Shaft fixing backing plate	126	Driving plate
39	Bearing (guard) housing	127	Pedal axle
40	Screw M8x40	128	Pedal body
41	Check washer MN12	129	Guard
42	Parallel key	132	Traction spring
43	Flexible ring	133	Check washer N5
44	Ball bearing 62052RS	134	Traction ring
45	Parallel key	135	Screw M5x12
46	Bearing	136	Screw M5x14
47	Flat washer AN20	137	Washer AN5
48	Nut M20x1.5	138	Screw M410
49	Fixing key	139	Micro switch
50	Screw M8x8	140	Screw M4x16
51	Parallel key	141	Screw M4x8
52	Screw	142	Washer AN4
53	Washer B45x6	143	Screw
54	Nut KM6	150	Front guard
55	Screw M10x60	151	Back guard
56	Handle N35	155	Guide pulley
57	Screw M5x14	156	Leading roller
58	Nut M8	157	Distance piece
59	Screw M5x14	200	Instruments plate
60	Ball bearing 6001 2RS	201	Plate for instruments
61	Compressing spring	202	XB Null bar
62	Threaded pin	203	X1 Multi-pole clamp
70	Driving mechanism	204	FR Thermal relay
71	Lower plate	205	T Transformer
72	Screw M10x30	206	K1;K2 contractor
73	Check washer MN10	207	Fuse base
74	Three-phase electric motor	208	Cap screw for fuse
75	Screw M6x20	209	F2 Fuse link
76	Check washer MN6	211	F1 Fuse link
77	31236295	212	X2Multi-pole clamp
78	Check washer MN8	221	SB1 Mushroom push-button
80	Reducer RM50x12.5	222	Support
81	Shoe	223	Contact block INC
82	Reducer case	224	QS OFF-ON Cam Switch
83	Axle flange	225	XF Plug and socket

8. Directions for operation, use and maintenance of electric installation

8.1 Technical conditions

- Supply with electrical power is made according to EN 60204-1, §4.3.
The machine is wired up to a three-phase supply network: 3-50Hz; 400V; equipped with working null (N) and earthing (PE).
The feed circuit will be protected against short-circuit and amperages exceeding the permitted values.
- Electric installation is made under IP44 protection degree
- Electric installation works under the following conditions:
 - maximum altitude..... 1000 m
 - environment temperature -5° up to +40° C
 - relative humidity of environment 40% up to 80% at 25° C
- Electric installation works normally at:
 - voltage between..... (0,9 – 1,1) Un
 - frequency between..... (0,99 – 1,01) Fn
- Voltage for control circuit..... 24 V / 50 Hz
- Maximum power input in the supply net work Pa = 0,97 kW
- The main parts of the electric installation:
 - instruments plate MIP30-9.1-0- for control and driving
 - three-phase induction motor M1 for machine driving
 - pedal MIP30-7-0 (with micro switch SB1, SB2) – for START/STOP control

8.1.1 COMPONENTS

Name	Nr.	Description	Type / Code	Features	Function
F1	207 208 211	Fuse base E16 LF25 Cap screw for fuse Fuse 6A	Code 1985 Code 2125 Code 2170	25A / 6A	Protection of motor
F2	207 208 209	Fuse base E16 LF25 Cap screw for fuse Fuse 0.5A	Code 1985 Code 2125 Code 2170	25A / 0.5A	Protection of transformer primary circuit
F3	207 208 209	Fuse base E16 LF25 Cap screw for fuse Fuse 0.5A	Code 1985 Code 2125 Code 2170	25A / 0.5A	Protection of control circuit
FR	204	Thermal relay	Type TSA 10/3.3A Code 3670	Is=3.3A; Ir=32.3A	Protection against overload Motor M
K1 K2	206	Contractor	RG10	P=2.2kW; Uc=24V/50Hz	Driving Motor M
M	74	3-Phase motor	Type MA AL19F100-4A	3~50Hz;400V; 0,75kW; 1500 min ⁻¹	Rollers driving
QS	224	On/Off Cam switch	Type CA4 A202-626E	400V/2.2kW; Ith=10A	Closing/opening of supply circuit
SB1	221 222 223	- Emergency switch - Support - Contact block NC	- PTZ-4-RT - KBH 3 - SEF-01	240V~/6A	Emergency switch
SB2	139	Micro switch	Code 7400	250V/10A	M start to right
SB3	139	Micro switch	Code 7400	250V/10A	M start to left
T	205	Transformator	TNC 25A	25VA;400V/24V	Supply 24V of control circuit
X1	203	Terminal block	ACI-5	8 polls; 2.5mm ² ;400V/10A	Electrical connections
X2	212	Terminal block	ACI-5	6 polls; 2.5mm ² ;400V/10A	Electrical connections
XB	202	Null bar	SAR-34.1-3	for 5 connections	Earth connections
XF	225	Power cable	Code 706	4 polls (3-Phase, PE) 400V/16A; IP44	Connecting to the power source

8.2 Operation instructions

After the machine is assembled and fixed in place, perform the actions below in the order prescribed:

- Check if all metallic parts of machine are well earthened, according to the electric diagram. Checking is made visually for the beginning, and then use an ohmmeter to measure the resistance of earthing circuit. Inside, the earthlings must have a resistance of < 0,4 Ω.

- Check condition of electric instruments, junction wires, cables and electrical connections.
- After everything has been checked, connect the machine to the mains:
Supply is made respecting all conditions in §1.
In order to protect the feed circuit it is recommended to equip the power unit with fusible: 3 x 10A for the 3 phases (L1, L2, L3); or to equip the power unit with an automatic switch 3P + N with $I_r = 2.5A$.
- Check if machine is correctly supplied after it is connected to the mains.
- After all checkings are made and machine is connected to the mains, start the machine on idle running in order to determine the correct sense of rotation of the roller: when pushing the pedal on the right side, the motor turns to the right and when pushing the left pedal, it turns left.
- Leave the machine on idle running for one hour. Meanwhile, check for abnormal noises of the electric motor or overheating of the electric motor or electric instruments.
- Start the machine under load and repeat all checking mentioned above.

8.3 Operation of the electric equipment

In order to start the machine, turn the QS power switch, which is to be found on machine frame, to the "I" position (shut):

Positions of QS:

"O"- machine: uncoupled

"T" –machine: coupled

Push the right pedal for starting with the sense of direction to the right. The pedal acts the SB2 micro switch making its contact; it controls connection of K1 contractor which supplies the M motor. The motor starts and turns right.

Push the left pedal for starting with the sense of direction to the left. The pedal acts the SB3 micro switch making its contact; it controls connection of K2 contractor which supplies the M motor. The motor starts and turns left.

When the pedals are not pushed, the contact of the micro switch (SB2 or SB3) opens, the contractor (K1 or K2) turns off and the M motor stops. The motor runs as long as one of the pedals is pushed. Machine is equipped with SB1 stop button, which can be used for emergency situations or when repairs, adjustments etc. take place. After the SB1 stop button was pushed, it is necessary to pull it out when you want to restart the machine because it is a retaining button and therefore will stay pushed.

8.4 Maintenance and repair of electric installation

8.4.1 TROUBLESHOOTING

In case all those indicated at the previous chapters were respected and machine does not start when pressing one of the paddles and K contractor (K1 or K2) does not connect, make the following operations:

- Check if machine is correctly supplied: 3 – 50Hz; 400V.
- Check if thermal protection of M motor (FR thermal relay) was activated and look for the cause which determinate it. Reasons could be:
 - Supply of M electric motor is made only on two phases or with lower voltage than 360V/50Hz.
 - Thermal relay is not correctly set – at 2.3A.
 - M electric is locked or turns hardly because of frictions;
 - FR thermal relay out of order

Make corrections and reset the thermal relay with the help of resetting lever.

- Check the fusible: F2 in transformer primary circuit and F3 in the control circuit. In case one of the fuses is broken, remove the fault and replace the fuse.

Attention! Use only calibrated replacing pieces with the parameters indicated.

- Check if the T transformer for 24V supply voltage of the control circuit is in working order:
 - Check if T transformer is fed correctly in primary with a 400 V voltage;
 - Check if in secondary the transformer supplies the 24 V voltage;
- Check if the control circuit has continuity:
 - Tighten screws of the connections.
 - Contacts of instruments (SB1, SB2, SB3 FR) in the control circuit to close correctly.
- Check if K contractor is in working order.

If pressing the pedal, the contractor makes a connection, but the M electric motor does not start, there could be two situations.

- If M motor is correctly fed from 3-50Hz, 400V voltage.
 - Check if the electric motor is in working order: stator winding not to be broken, connections at the terminal box to be perfect etc.

- If M motor is not correctly fed from 3-50Hz; 400V voltage, check motor force circuit:
- Check the F1 fuse in the motor force circuit. In case one of the fuses is broken, make the necessary repairs and replace the fuse.

ATTENTION!! Use only calibrated replacing pieces with the parameters indicated.

- Check if electric stress circuit of the FR thermal relay is not broken.
- Check if all junction wires and cable of electric stress circuit are not broken.

All necessary checks can be made with a general instrument (multimeter) which measures V,A.

8.5 Maintenance

Weekly checking:

- Make visual checking of electric apparent condition and in case they are damaged replace them with others with the same parameters;
- Tighten the screws of electric connections and the holding screws of electric apparent;
- Check condition of feeder cable; jack and connecting socket to the mains and in case they are damaged, replace them with others with the same parameters;
- Check if earthing circuit has continuity and its ohms resistance;
- Wipe the dust on the electric apparent and connecting elements. Use a soft brush.

8.6 Labour protection rules

- Respect all instructions and norms in force when mount, put into service, repair and maintain the electric installation.
- Stop the machine and release it from the mains before any intervention to the electric installation or before periodical checking of electric equipment and motor.
- All operations which ask the electric installation under voltage (measuring the energy, voltage, determining succession of phases) will be effected only by skilled people with legal authority. They must have proper tools equipped with non-conducting handles and non-conductive protection equipment.

It is forbidden to make any modifications to the electric installation. This could lead to dangerous situations.

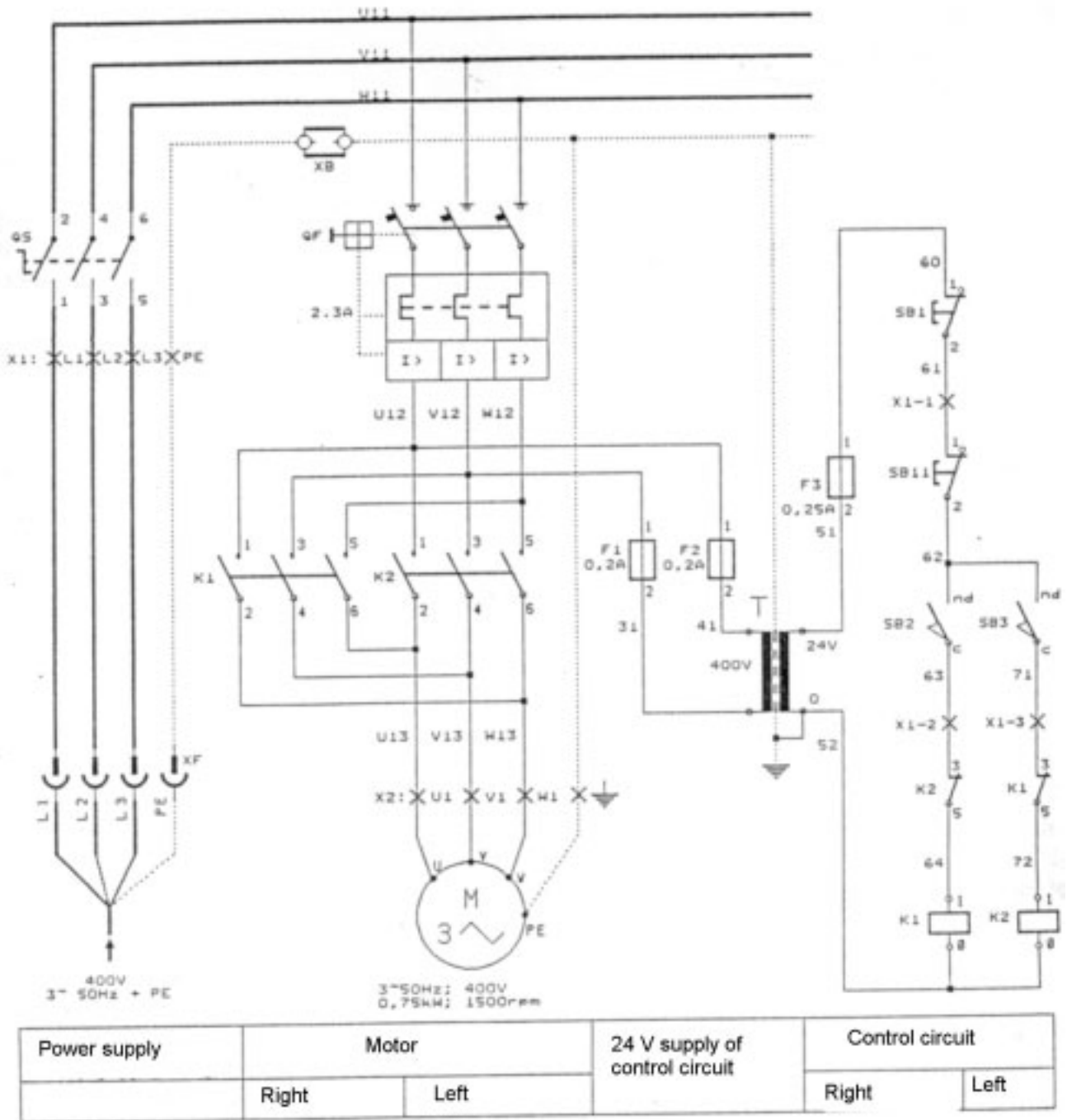
8.6.1 MEASURES TO PROTECT PEOPLE AGAINST ELECTRIC SHOCK

- All active metallic parts are inside cases. In this way people are protected against danger, which occurs by touching the parts directly, according to EN 60204 §6.2.1.
- All active metallic parts are insulated against inactive metallic parts which the people could come in touch with, according to EN 60204 §6.2.2.
- External connecting elements, which the people could come in touch with, have the active parts entirely insulated, according to EN §6.2.2.
- Galvanic separation of control circuit by transformer, according to EN 60204 §6.3.3.
- Use of reduced voltage (PELV) of 24V for supply of control circuit, according to EN 60204 §6.4.
- In order to avoid undesired acting owing to insulation damage, braking or detaching of connections of conductors in the control circuit, a branch of this circuit is connected to the protection circuit, according to EN 60204 §8.4.
- All inactive metallic parts of machine are earthed according EN 60204-1 § 5.2., § 8.2.and EN 60445 in order to protect people against dangerous caused by fault of insulation or accidental touching between active and inactive metallic parts.

Earthing link between machine and ground clamp of the mains is made by means of feeder cable and must be checked to be correctly executed. It's forbidden to put the machine under voltage before connecting it to the ground clamp of the mains and before verifying the earthing circuit according to instructions from §8.2.

From time to time it is necessary to check if continuity of earthlings is assured and all instructions from §8.2 are respected.

8.7 Electrical wiring



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