USE AND MAINTENANCE MANUAL

COMPONENT:

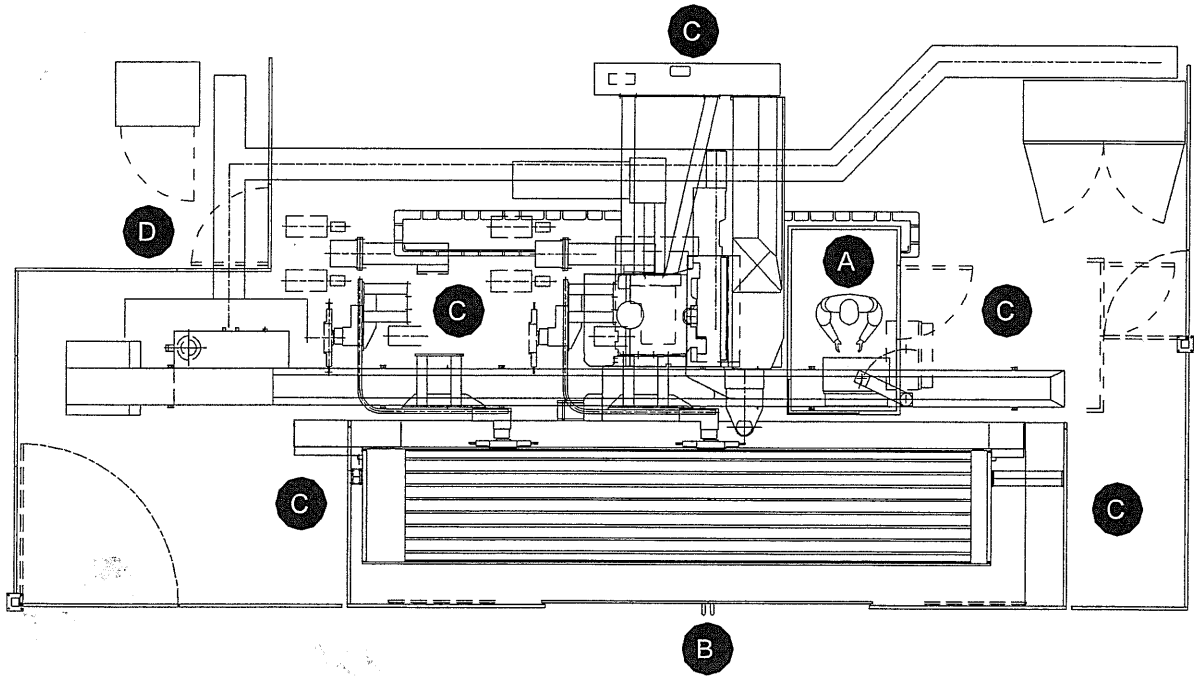
"BED TYPE MILLING MACHINE"

Mod.: **"MX 1200"**

Number: 196744

Year: 2003

- **A** Movable position of control
- **B** Area of loading piece on table
- **C** Dangerous area
- **D** Area of tools loading on magazine



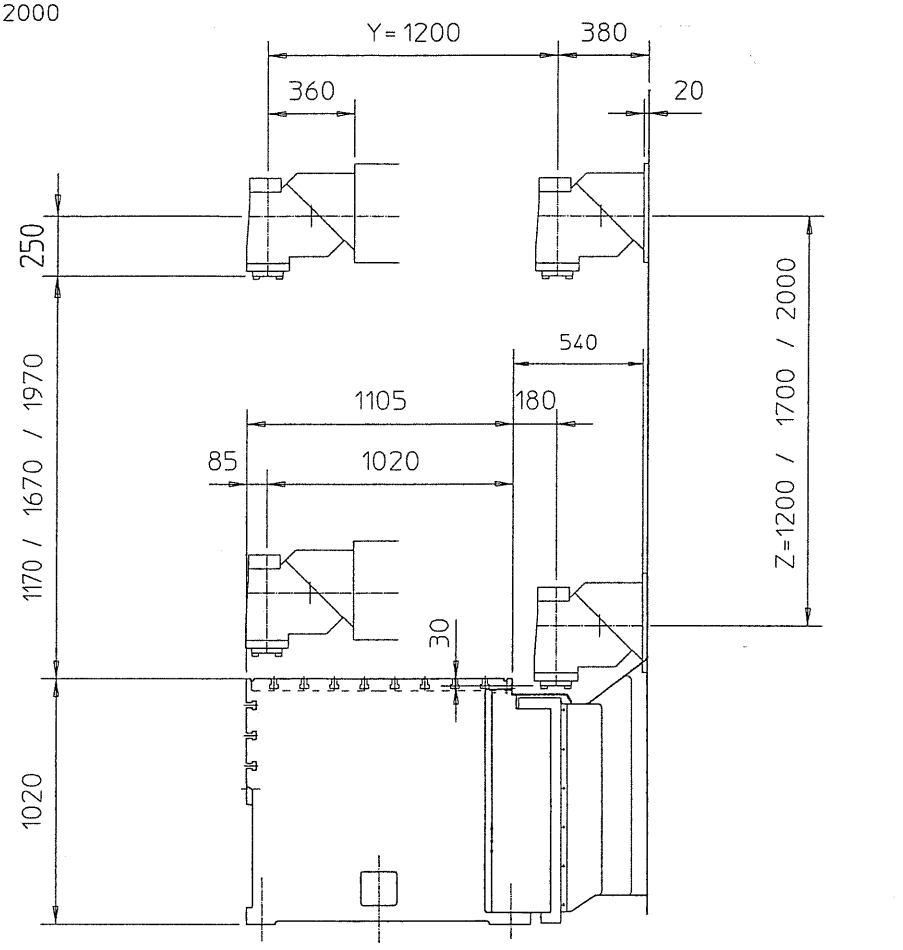
WORKING, COMMAND AND DANGEROUS
AREA FOR THE MACHINE MOD MX1000

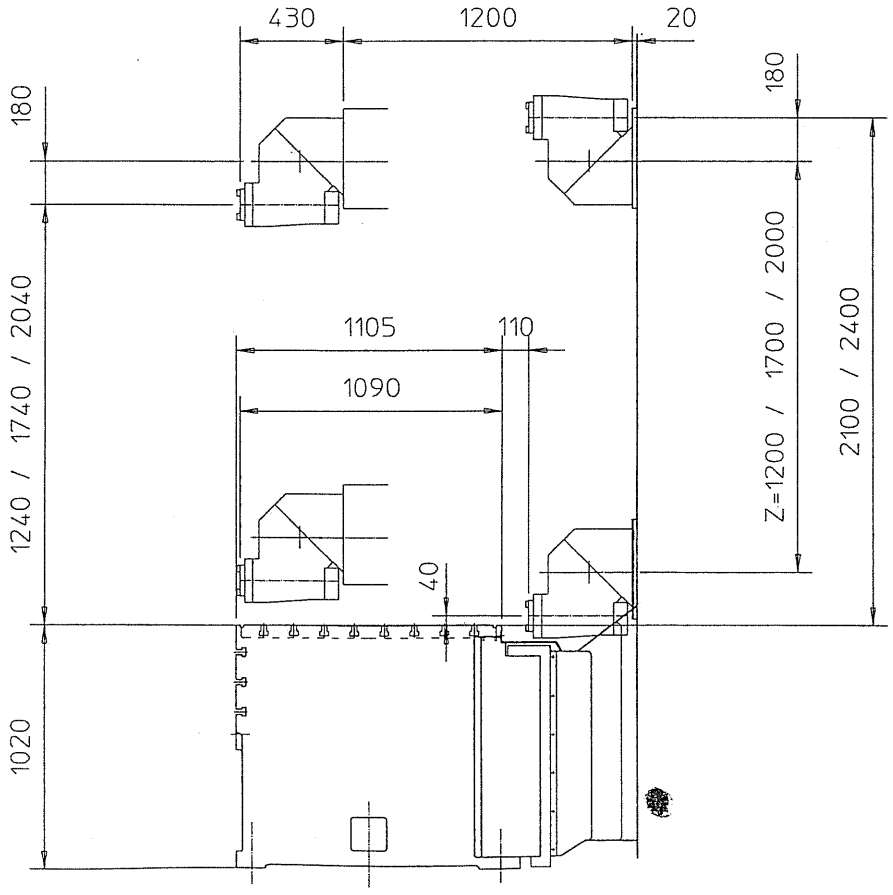
SACHMAN

TESTA KOSMO - CAMPO DI LAVORO MX1200
TETE KOSMO - CHAMP DE TRAVAIL MX1200
KOSMO HEAD - WORKING RANGE MX1200
KOSMO KOPF - ARBEITSBEREICH MX1200

MX1200-0001

Y=1200 Z=1200/1700/2000
KOSMO





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GENERAL INDEX

- This manual is intended to supply general information about the machine and the maintenance instructions necessary for its good working.
- Read the Manual attentively before installation, maintenance and repair since it contains all necessary information required to use the machine correctly and to avoid accidents.
- The frequency of check and maintenance interventions indicated is always intended as the minimum necessary to grant efficiency, safety and durability of the machine in normal working conditions. It is however necessary granting constant overseeing and prompt intervention in case of anomalies.
- The attached check and maintenance card must report every possible intervention of both General and Specific Maintenance with date and kind of intervention in order to create a chronicle of checks and interventions.
- The card is an extrapolation of the Conformity Management procedure, identified with item P.4/3 of Norm ISO 9001 and is suggested for control purpose (Enclosure No. 7.10).
- The stationary protections must only be removed by authorised personnel when the machine is stopped and under conditions of zero energy, as foreseen by Norm No. 292/2, Nov. 1992 Item 4.1.4.
- All ordinary maintenance operations and checks and the general lubrication must be carried out with the machine stopped and under no pressure or electric tension, that is in a condition of zero energy.

No operation is to be carried out with the machine working.
Such an instruction is MANDATORY.

⚠ IMPORTAN

* **Any change made on the machin g the Manufacturer, altering the functions foreseen and th nalysis of risks in the Technical Enclosure and/or generating s to those indicated, shall be total responsibility of the people who changes.**

Said changes, if they are carried out without t er's permission, will void any form of guarantee and invalidate the decla ion of conformity which was issued as a guarantee of the safety regulations concerning Machine Directive 89/392 and following modifications.

3.3. – TECNICHAL SPECIFICATIONS

SERIAL NUMBER UCIMU 196744		

TRAVERSES		
LONGITUDINAL TRAVERSE (X AXIS)	mm	6000
CROSS TRAVERSE (Y AXIS)	mm	1200
VERTICAL TRAVERSE (Z AXIS)	mm	1700

SPINDLE		
CONTINUOUS POWER	kW	30
SPINDLE SPEED HEAD KOSMO 4000	n/1'	4000
TOOL TAPER		DIN 69871-A50
DRAWROD		DIN 69872-28 (50)

MAX. WEIGHT	daN	39400
MAX. POWER INSTALLED	Kw	45

SACHMAN S.R.L.

SISTEMI . ASSERVIMENTI . MACCHINE

FRESATRICI A BANCO FISSO

SYSTEMS . ACCESSOIRES . MACHINES

BED TYPE MILLING MACHINE

42100 Reggio Emilia (ITALY)

via Masaccio . 15/A

Tel. 0522 / 516836 - Fax 0522 / 511701

CONTROLLO NUM. HEIDENHAIN

MACCHINA UTENSILE TIPO MILLING MACHINE TYPE	:	MX1200
SCHEMA ELETTRICO ELECTRIC DIAGRAM	:	SHAX40111
SCHEDA ELETTRICA ELECTRIC CARD	:	ACP
MATRICOLA SERIAL NUMBER	:	3004/16
UCIMU UCIMU	:	196744

Il presente schema elettrico e' realizzato con software Sigraph/et della Siemens NixdorF Informatica ed i simboli grafici utilizzati fanno riferimento alle norme DIN.

Schema Funzionale

Cliente

Cliente Finale ACP

Destinazione

Varie

Impianto MX TNC

Log. programm.

Contr. num.

Azion. assi SIEMENS

Azion. mandr. SIEMENS

INDICE

Dis.No 3004/16

Pagina 1

Data 16-06-03

Dis. M.C.

SACHMAN s.r.l.

via MASACCIO . 15/A TEL. 0522-516836 FAX 0522-511701

42100 REGGIO EMILIA (ITALY)

Ricavato/sostituisce

A

7.3. - INSTALLATION

(The present enclosure is made of No. pages
with different paging, non progressive to the present page)

7.3.1 INFORMATION FOR MACHINE INSTALLATION — GB

7.3.1.a Arrangement for the installation

THE ARRANGEMENT FOR THE INSTALLATION IS CHARGED TO THE CUSTOMER.

For the installation prearrange one area of operation suitable to the dimension of the machine and to the presenting hoisting equipment, pay attention to the obstacles (other machines, walls or something similar) that occupy the space which the moving equipment need.

Before the machine arrives, the customer should arrange one suitable environment to take it .

- Adequate illumination, in conformity with regulations of EN 60204-1
- Ground system in conformity with CEI 64-8 regulation. The machine and electric board should be connected to the ground system by a copper cord of adequate section. Assure that the ground system is in conformity with the regulations
- Arrangement of the electrical system, until to the machine feeding system. In conformity with EN 72-23.
  1. Electrical feeding of machine tool should be carried out by using one multipolar cable not halogen and resistant to flame according to the CEI 22-22 and IEC 332.2C.
  2. For the cables dimensions one density of at least 4A/mmq on the short section and insulation of grade 3 is suggested (CEI-UNEL regulation).
  3. Feeding cable entry to electrical board is required from the bottom through one special rubber gasket and connect it through L1-L2-L3 clamps for the three-phase tension and through PE for ground wire.

The installation of one protection against over-current device to the machine feeding cable will be taken care by the customer. We suggest one magneto-thermal switch which is differential and regulated in 5 sec. intervention and current threshold. (1 Amper), and particularly suitable to avoid unexpected intervention when machine equipped with frequency converters for power drive.

Pay attention to the power installed to the disposition more than or at least equal to the total consumers.
The machine and the electric panel should be bound with the copper plait whose section is suitable to the ground system. To be sure that the ground system is in conformity with the regulations.

The follows are the electric characteristics of all the models of our machines tools equipped with the motors and the spindle of brushless type:

Machine type	*P Rate [KW]*	*I Rate [A]*	*Cable section [mmq]*
RP 3	25	51	16
X11 - T10	28	58	16
T20-T22-TRT22	45	93	25
GL100	45	93	25
MX ~~1000~~ 1200	45	93	25

Electric principal data						
Electric system	3	phase				
	TN	☒	TT	❑	IT	❑
Voltage of function	380/400	V ±10%				
Voltage of insulation	500 d.c.	V				
voltage of trial 50 Hz 1min.	1500 a.c.	V				
Frequency rate	50	Hz± 2%				
Constructive characteristics						
Installation	inside	☒	outside	❑		
Accessibility	from front	☒	from back	❑		
Disposition	single front	☒	double front	❑		
Max. moveable dimension	height 2100		width 1600		depth 600	
Protection limit	external IP	54	inside IP	22	towards the base IP	
Arrival	with bars	❑	with cable	☒		
	from up	❑	from down	☒		
Exit	with cable	☒		❑		
	from up	☒	from down	❑		
General data						
rule of documentation of	CEI 17 - 31/1	☒	EN 60204 - 1	☒		
transport and storage	normal	☒	special	❑	packing type	
Notes						

7.3.1.b Environmental conditions of working

The machine should be installed inside the industrial building which should be enough wide, illuminated, aired and with solid and levelled ground.
Temperature from + 5° to + 40° C; humidity:

- not more than 50% with temperature of 40°C
- not more than 90% with temperature of 20°C

The position of installation should be free from heating or cooling unilateral of the machine (sun radiation, radiator, and air current, etc.)
To place the machine in a way that the workshop reflective light doesn't have effect on it and on the windows of the fairing.

7.3.1.c Foundations

In order to meet the characteristics of precision and the stability the Sachman milling machines should be rest on the solid foundation of concrete in reinforced cement.
The foundation should be studied and prepared by customer, by the persons specialized in foundation. They should know well the nature of the earth and the requirements of the customer. Therefore one foundation can not be valid for the other machines or the machine of the same series.
Anyway we want to specify that the our foundation plane is an example for guiding, it is valid only in respect to the installation dimension and it doesn't specify the structures of the foundation plinth. Actually, according to the foundation plane, it needs to calculate the depth of the plinth in function of the earth nature and the load of the machine.
The whole perimeter of the plinth of the machine is separated from the rest of the pavement by a coat of the insulating and vibration-damping material (polystyrene, panel in woollen glass, plate of prestressed cork antifire paint, ect.).
It is important to be sure that the foundation is properly consolidated for avoiding eventual crush.
The foundation in its superior part should house one frame of structural shapes with parallel large wings, including the whole perimeter of the machine. Once the casting has set, lay the machine.
Please the scheme in the chapter DOCUMENTS AND SCHEME ATTACHED.

7.3.1.d Machine laying

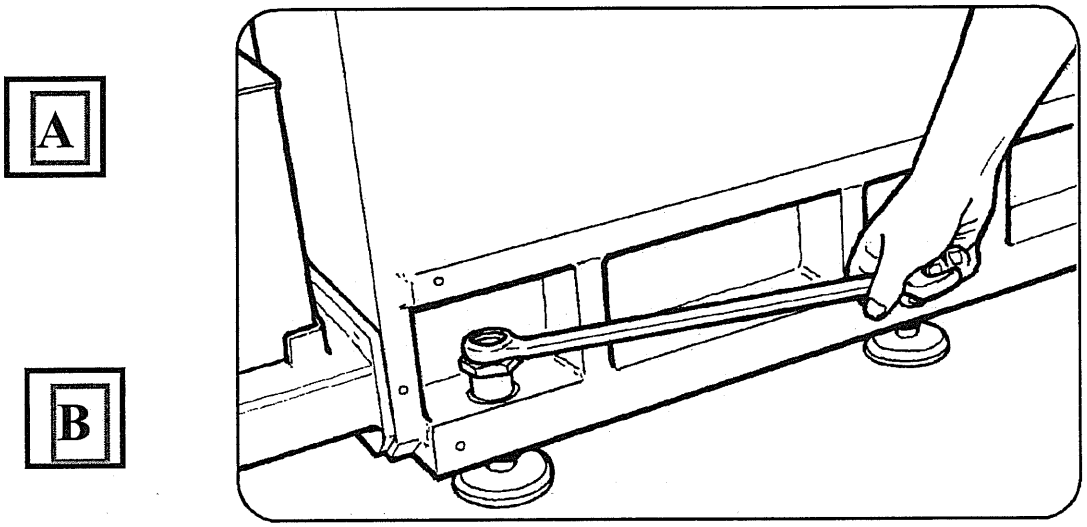
Prepare now some ties with threaded end M16 and some plates 100x100. in number equal to levelling spots indicated in the foundation plane, see chapter DOCUMENTS AND SCHEME ATTACHED.
Weld together ties and plates.

Ties and plates are not included in our supply and they must be prepared by customer.
On machine arrival, while it is still lifted off the ground, insert the parts indicated above in the holes of levelling nuts and put the machine on the frame previously prepared.

Weld plates to the frame, level the machine and tighten ties bolts.

7.3.1.e Levelling

The levelling of the machine can be carried out by regulating the footing screws which can be found under the bed of X and Y axes. Control flatness, straightness and orientation of guides with air bells level. When the levelling and related geometric controls are finished, it must be sure that the clamping screw nut "A" and the lock nut "B" are carefully tightened.



LEVELLING MACHINE

The 1° levelling machine is done by the Sachman technicians.

7.3.1.f Positioning of the conveyor

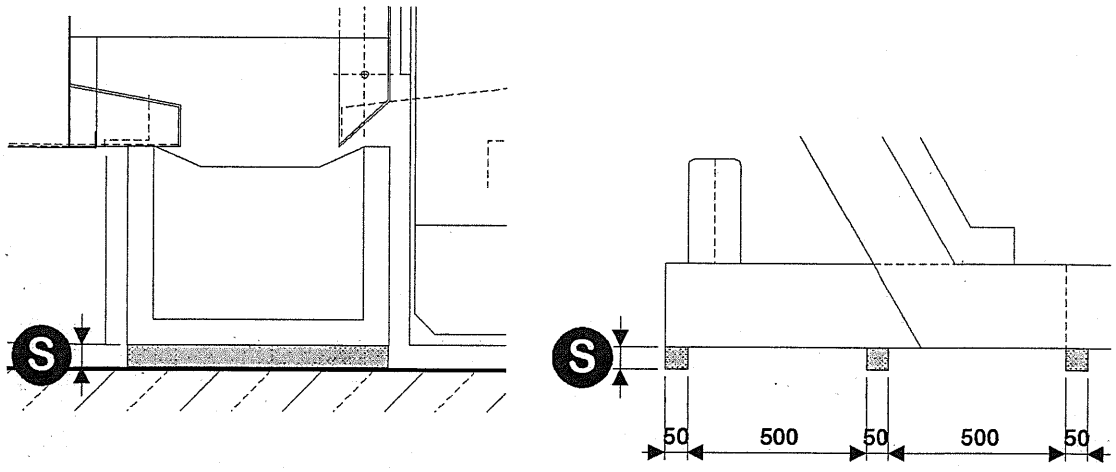
The conveyor is not in series. Please verify if it presents on the machine.

After the levelling of the machine and before the starting of the machine, it is necessary to position the conveyor as following:

1) Position the conveyor as layout. To have a easy operation, usually the conveyor is divided to some parts.

2) Insert the distance washers (rubber or wooden washers) adequate until the superior part of the conveyor is contacted with the fairing sheet.

NOTE:
The distance washers are spaced of 500 mm between them during all the length of the conveyor..



POSITIONING THE DISTANCE WASHERS UNDER THE CONVEYOR

S Distance

ATTENTION:

This procedure has the scope to make it inaccessible and therefore the conveyor is not dangerous. Please remember that it is oblige to carry out this procedure before the first starting. And after movement of conveyor a cleaning maintenance is needed.

The 1° positioning is taken by the Sachman technicians.

7.3.1.g Lubrication and refueling before start up

ATTENTION:
It is forbidden to lubricate the organs in motion.
The lubrication must be done with machines stopped and on maintenance condition (see instructions in chapter Maintenance).

The machine is delivered without lubricating oil and lubricating-cooling oil.

Customer shall procure by himself the following oils recommended by SACHMAN:

- TELLUS OIL S32 (ISO CKB 32) SHELL Lt. 40÷45 to put in the oleodynamic plant up to the level on the gauge. Absolutely avoid mixtures with other oil types.

Moreover:
- Put TONNA OIL T68 (ISO G 68) SHELL Lt. 3÷4 in the lubrication plant. Absolutely avoid mixtures with other oil types.
- Put a lubricating-cooling emulsible mixture in the tank or in the conveyor with stopped machine.
- We suggest you to use lubri-coolant made by emulsion of mineral oil with very low contents of aromatic compounds with emulsifier not ionic in order to protect the jointing, the paintings and all the parts with polymer material of the machine purchased by you.
  Since that general indications are limited, but not exclude the chemical lubri-coolant (can contain acids of boron, paraffin chlorine and the other substances that can have an chemical reaction), Sachman suggests its customers to be informed by their supplier f lubri-coolant of eventual interactions with the polyurethan painting, with the screen in polycarbonate and with the jointing in NBR presented in the machine.

NOTE:
Among many types of the best quality oil in market, we have tested the "BALSER LASOCUT 2000" with 5% dilution, and got the best results.

- Before starting the machine, check oil level of the above mentioned tanks.

ATTENTION:
If SHELL oil is not available, it is possible to use the exactly corresponding ones, as per UCIMU tables.

7.3.1.h Removal of oil of protection and the first cleaning of the machine.

Necessary interventions:

- The parts treated with rustproof: clean with attention taking away the eventual rustproof material, using detergents not dangerous to the healthy and not harmful to the surfaces (for example: to use the rugs soaking with water of CHESTERTON NR360).

ATTENTION:
It is forbidden to us the inflammable and corrosive solvents (like gasoline, thichloroethylene and etc..).

7.4. - WIRING DIAGRAM

(The present enclosure is made of No. pages
with different paging, non progressive to the present page)

7.4.1 INFORMATION ABOUT ELECTRICAL CONNECTION

GB

7.4.1.a Connecting to electrical feeding.

INSTRUCTION:

This work should be done by an qualified electrician in conformity with Regulation CEI 64-8

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Before to connect the equipment and the machines to the electrical net, it is necessary to verify:

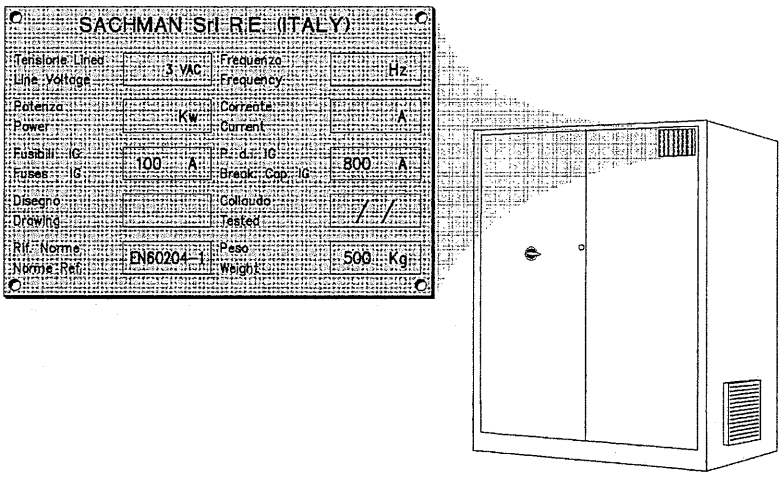
- voltage and frequency of the net are correct (see the following plate)
- current of the equipment of ground system is enough
- the max. variation of voltage in net is ± 10%;
- the max. of frequency in net is ± 2%.
  The feeding should not be interrupted or the voltage should not go to zero for not more than 3 thousandth second.
  The eventual lack of voltage should not be more than 20% of the voltage of feeding peak for more than one cycle.
- to use feeding cable with section adequate to the power of machine (referring to the schemes attached to the chapter DOCUMENTS AND SCHEMES ATTACHEDI), not halogen and resistant to flame according to the regulations CEI 2022 - IEC 332.3C.
  to verify that the current tap to that should be attached to the equipment of superior power or sufficient anyway respect to the max. power absorbed by the machine and to the current of the take-off of the motors.

It is necessary to protect the feeding line of electrical panel, considering the value of short circuit current in installation of the machine with:

- overvoltages (for example atmospheric unloaded)
- thermic and magnetic overcurrent with device (for example automatic switches) properly coordinated.

7.4.1 INFORMATION ABOUT ELECTRICAL CONNECTION — GB

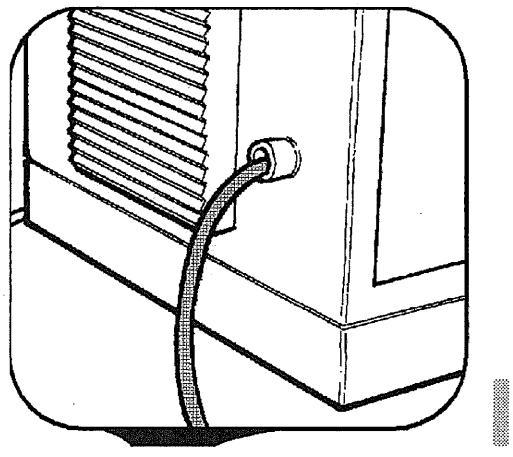
On the cabinet there is a plate on which the electric characteristics are found.



CABINET PLATE

The electric connection should be carried out by taking the three cables of feeding and the related cable of protection (ground system) to the inside of the electric cabinet and inserting and fixing with the special clamps L1, L2, L3, PE.

ATTENTION:
Anyway the electric connection should be done in conformity with the legislation of the regulations of the country in which the machine is installed.



ELECTRIC CONNECTION PREARRANGEMENT