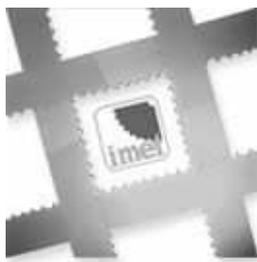


INSTRUCTIONS FOR USE



IMET Spa

Loc. Tre Fontane - Cisano Bergamasco

Tel. 035/4387911 - Fax. 035/787066

Web site: www.imetsaws.com

E-mail: imet@imetsaws.com

**Manual Bandsaw BS 300 PLUS
BS 300 PLUS GH Autocut**

INSTRUCTIONS FOR USE



RI0371



INSTRUCTIONS FOR USE

1

We recommend to read carefully the information here included in order to install, use and maintain correctly and safely this machine.

Please refer always to this instruction manual in case of assistance service need and keep it carefully for all the machine life. The reference number is in Italy +39 035 4397918 or +39 035 4387928r.

A consequence of the continuous improvement of the product is that some images/descriptions here included could not correspond to the improved features of the machines. Your kind help would allow us to offer a prompt assistance.

In the enclosed Compliance Declaration you will find the Safety and Reference Norms applied during the planning and construction of this machine. The choice and the use of the parts have been made considering the conditions of use and the long machine life.

The identification plate, with the serial number, is placed on the side of the machine or on the control panel

RI0445	 Localita' 3 Fontane Cisano Bergamasco 24034 -BG- Italy Tel. +39 035787833 Fax. +39 035787066	
MACCHINA/MACHINE	072304=BS300/60 AFI-E/ESC 2006 18>110 M/1 NEWAUT 400V-3-50HZ 2765X27	
	MATRICOLA N. 061065001 SERIAL NUMBER	
DICHIARAZIONE CE/ CE DECLARATION	072304=BS300/60 AFI-E/ESC 2006 18>110 M/1 NEWAUT 2765X27 400V-3-50HZ 061065001 I M E T	
IMBALLO/PACKING	072304=BS300/60 AFI-E/ESC 2006 18>110 M/1 NEWAUT 2765X27 400V-3-50HZ 061065001 I M E T	

1.1 - ATTACHED DOCUMENT FOR E.M.C. (INDUSTRIAL ENVIRONMENT)

The user is responsible for the installation and use of this machine in compliance with the manufacturer's instructions shown in this manual. This equipment meets the protection requirements in accordance with the Directives 89/336/EEC, 92/31/EEC e 93/68/EEC as for Electromagnetic Compatibility (EMC). In particular, it follows the technical guidelines of the Directives EN55011, EN50082-2 and it has been made for industrial and not for household use.

In the event of electromagnetic interferences the user is responsible for solving the problem with the help of the technical assistance by the manufacturer. Before installing the machine the user must take into account possible electromagnetic problems of the working area. In particular, we suggest to install the machine away from:

- signalling, control and telephone cables;
- radio-television transmitters and receivers;
- computers or controlling and measuring instrument;
- safety and protection devices.

The electric supply cable must be kept as short as possible, without any twists.

Covers, doors and the frame must be suitably closed when the saw is operating.

Under no circumstances the machine must be modified except for adjustments and changes specifically approved by the manufacturer. Follow the maintenance schedule.

INSTRUCTIONS FOR USE



DECLARATION OF CONFORMITY, TYPE 01

According to the law that reproduces the Machine Directives

MANUFACTURER: IMET S.p.A.
Località Tre Fontane
24034 - CISANO BERGAMASCO (BG) - ITALY

HEREBY DECLARES THAT

in designing and manufacturing the machine described here below, we have observed the most important requirements of safety and health dictated by the European Directives of Machine Safety.

Don't forget that this declaration loses its validity if the machine is modified without our approval.

BANDSAW FOR CUTTING METALS

Code / Model / Type

Manufacturing year

Serial number

THE ORIGINAL DECLARATION IS ON THE MACHINE

Reference Directives: Machine Directives (89/392/CE) in the versions
91/368/CE, 93/44/CE, 93/68/CEE,98/37/CE.
Directives 2006/95/CE, 2002/95/CE, 2002/96/CE, 2003/108/CE
Low Tension Directive (73/23/CE).
Electromagnetic Compatibility (89/336/CE)
in the versions 92/31/CE, 93/68/CE, 2004/108/CE.

Norms Applied: EN 292-1 and EN 292-2; EN 60204-1, EN 13898
EN 414, EN 418, EN 55011, EN 50082-2

Date : 01.01.2008

The signatory identification

The manager

Angelo Meroni

File: Machine no. Delivery note no dated



3 - MACHINE NOISE

The noise level of the working area - given the conditions described below - is determined by the simultaneous working of several parts of the machine in motion (according to the working cycle), in addition to the tool when cutting the material.

The noise level is detected in different moments, corresponding to different working phases. **The proper device is placed about 1 meter near the machine and about 1,60 m above the floor. The results of each test is in dBA and they are the average of 3 tests made from the left side, opposite side and right side.**

For any machines the working conditions are the following:

When idle, at the maximum blade speed: dBA 63

During the cut, at a suited blade speed, cutting solid steel (St12≈C20, 80mm diameter): dBA 75 (tolerance ± 2dB).

In the standard production the test is made on a machine like this, in compliance with E.C. safety norms 89/392/CEE and 86/188/CEE. Using the saw in bad conditions or using wrong tools causes significant alterations of these tests and it jeopardizes the health of the staff and the good results of the work.

The noise depends mostly on the cutting material, on its size and on the clamping. Considering that the above mentioned decibels could be exceeded, we recommend the operator to use personal protections (headsets, plugs, and so on) when working for a long time with high noise levels.

3.1 - ADDITIONAL HEALTH AND SAFETY REQUIREMENTS

The machines manually controlled by an operator during all work phases must comply to further health and safety requirements as specified by article 2.2 of the Annexed I of the European Directive 89/392 and following integrations. In particular, the level of the machine vibrations when working must be clearly specified in the instructions.

This machine does not produce vibrations higher than 2.5 m/s²

The measurement procedure is in compliance with the general norms applied to this type of machinery.

As in the previous paragraph, using the machine in unsuitable conditions or using the wrong tools can cause changes affecting this value, causing a risk to the health of the working staff as well as the quality of the production.

Vibrations produced during the cut may be amplified by the material, by its dimensions and its positioning/clamping in the vice.

INSTRUCTIONS FOR USE



4 - GUARANTEE NORMS

I.ME.T. offers a wide range of sawing machines and accessories, destined to who buys/uses them as part of a commercial or professional activity.

The manufacturer grants that this product has been strongly controlled and that there are no defects in the used and working materials for a period of 12 months from the date of the delivery note.

The Italian law D.L. n°24 issued on 02/02/2002 and valid since 23/03/2002 (which carries out the European Directive 1999/44/CE) indicates different terms only for convenience products for private use.

If the user points out some defects to the manufacturer during the warranty time, the manufacturer will replace the components that are considered faulty.

In case of reparation of the machine during the warranty time the shipment will be accepted only if the delivery is Free Destiny (that is the freight costs are supported by the owner of the machine), and the return of the machine to the customer is considered EX WORKS.

If the manufacturer is not able to replace a component within an acceptable time, both companies (manufacturer and user) will reach an agreement to satisfy completely the needs of the user.

The a.m. warranty is not valid in case of accidental damages, or defects provoked by a wrong use or maintenance of the machine, by variations made on the equipment, or by the use of the machine in a place not corresponding to the indicated environmental specifications.

4.1 - The manufacturer does not offer further warranties, written or spoken, explicit or implicit of its products and does not offer implicit warranties on suitability for particular uses not foreseen by the agreement or on chances of selling them.

The a.m. limitations and exclusions can also be not applicable in Countries, where there are no implicit limits of warranty time on the products. Anyway each implicit warranty is limited to a time of 12 months from the date of the delivery note.

4.2 - The date of manufacture, which can be evinced from the serial number placed on the machine, is a necessary reference for warranty, after-sale assistance and product identification.

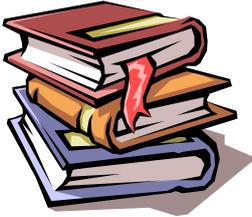
Each modification of the products, especially the installation of safety devices, will relieve the manufacturer of any kind of responsibility.

The parts most subject to rapid and continuous wear are not included in the warranty (for example: transmission belts, gaskets, oil, blades, and so on).

For electrical, electronic and hydraulic equipments and for all other equipment having its own specifications (whereas the name of the manufacturer is known), the manufacturer gives to the user the same warranty received by the primary manufacturer of these parts.

4.3 - The components replaced during the assistance provided by the manufacturer have a **warranty of 6 months** from the installation date indicated on the Technical Service paper, one copy of which is given to the owner.

INSTRUCTIONS FOR USE



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INSTRUCTIONS FOR USE

6 – TECHNICAL CHARACTERISTICS

Bandsaw in compliance with E.C. - CSA - UL Safety Norms and with the Norms of Electromagnetic Compatibility (EMC). Suitable for cutting metal profiles and solids (steel, stainless steel, brass, aluminium, copper). The cast iron saw frame with tubular section swivels from 0° to 60° left and from 0° to 45° right. Blade tension 1700 Kg/cm². Adjustable tapered roller bearings placed on the hinged pivot pin, 320-mm diameter band wheels. Gear reducer with oil bath. Hard metal pads inside the band guides.

STANDARD VERSION COMPLETE WITH:

electrical components complying with E.C. Norm EN60204-1, EN55011, EN50082-2, low voltage (24V) with start button inside the handle of the control lever, micro switches on the band protection guard and on the band tensioner; front fixed screw vice with quick locking and fast positioning, jaws of 130 mm height, easy stops at 0°, 45°, 60° left and 45° right; base with coolant tank and electro-pump, bi-metal band, wrenches and manual of instructions.

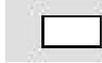
Available versions:

manual: with 3-phase 2-speed motor

GH: with 3-phase 2-speed motor or 3-phase motor with electronic variable speed; plus the “Autocut System”, which takes advantage of the sawframe weight to make autonomous cuts with adjustable downfeed speed. Manual lifting of the sawframe after the cut.

The technical specifications that you will find in the following charts are intended to have a general evaluation of the machine and its performances.

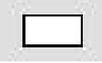
Ⓛ If not differently indicated, all data reported in this manual refer to the standard version, suitable for working at 400 V / 50 Hz if **THREEPHASE** (or 230.V / 50 Hz if **SINGLEPHASE**).

    = cutting capacity

 = blade size  = weight  = vice opening

  = motor choice and blade speeds (at 50 Hz);

				
mm	Kw	M/min	Mm	Kg
2765x27x0,9	1.5-1,8 3~	35-70	300	289
	1.5 1~	60	300	289
	1.5 3~	18 /110 (ESC)	300	299

			
	mm	mm	mm
 0°	255	240	300x180
 45°	210	190	210x100
 60°	135	110	130x100
45° Right	180	155	180x100

Dimensions (mm)	B Width	L Length	H Height	H Worktable height
When working	900	1700	1970	940
Packed	1500	1050	1150	-



7 – INSTALLATION

This machine can work according to the parameters provided by the manufacturer if correctly installed and if the minimum requirements are observed, as follows:

- It must be used indoor and with temperatures from +5 to + 40 °C.
- The relative humidity of the environment must not be over 95%.
- The nominal value of the voltage must be between $\pm 10\%$ and the frequency must be between $\pm 2\%$ of the nominal value.

The floor must have a proper loading capacity and be flat.

Floor space, operator position and working area are indicated in the included drawing that concerns only the bandsaw, without optional accessories.

The worktable must be levelled by using the screws and nuts (NOT SUPPLIED) put in the little feet holes.

The machine has to be fixed to the floor .

The included electrical schemes reproduce the necessary details to arrange the connections, to be suited for a 4 KW power request.

Earthing of all the electric parts with a dedicated GREEN/YELLOW wire, connected with a TN system to the supply cable. A supplementary earthing point – indicated with PE – can be located on the metallic structure of the machine.

At the origin of the power supply cables a device (such as fuses) to protect against overloading has to be installed. On the models equipped with electronic variable-speed drive unit (ESC), in order to connect the differential protection on the power supply line, switches with a threshold of interference on the power dissipation of not less than 300 mA (size 0.3 A or higher is recommended) have to be employed, having possibly time adjustment availability ($0 > 1.5$ sec).

E.M.C. - Electromagnetic noise

The user is responsible for installing and using this saw according to the manufacturer's guidelines outlined in this manual. This equipment complies with the protection requirements established by the Directives 89/336/CEE, 92/31/CEE, 93/68/CEE concerning Electromagnetic Compatibility (EMC). It is in compliance also with the technical guidelines of the Norms EN 55011, EN 50082-2 and it is intended for industrial and not for household use.

Before installing the machine the user must take into account possible electromagnetic problems of the working area. In particular we suggest to install the equipment away from:

- signalling, control and telephone cables;
- radio-television transmitters and receivers;

The supply cable has to be as short as possible, with no twists. All doors, coverings and frame have to be closed when the saw is running. Do not make any modifications to the machine except for adjustments and replacements allowed/recommended by the manufacturer. Follow the maintenance schedule.



8 - MOVING AND SHIPPING

The packing of the machine guarantees protection even during shipments with normal means of transport. Special packing can be supplied in case of particular requests by the user.

These models are supplied with a carton packing which allows to store them one above the other (1+1 max.) and to move them for a short way.

INSTRUCTIONS FOR USE

After unpacking, remove the locks between base and floor stand, assemble them and place the unit the working area.

The floor stand is not assembled when delivered, it must be fixed to the machine by means of screws on the four corners. The rear side is punched. Use two lifting belts, placed below the front and back side of the base and put the machine on the floor stand. The weight is shown on the packing and also written in the technical data of the manual.

Make sure that the lifting tools are suited to the weight and that the operation is correctly made without unbalancing the machine.

In case the bandsaw has to be moved again, fix always the machine to the floor stand.

9 - FITTINGS / ACCESSORIES

The necessary information for the installation are given along with the related accessories. Anyway you can find here short description of several products.

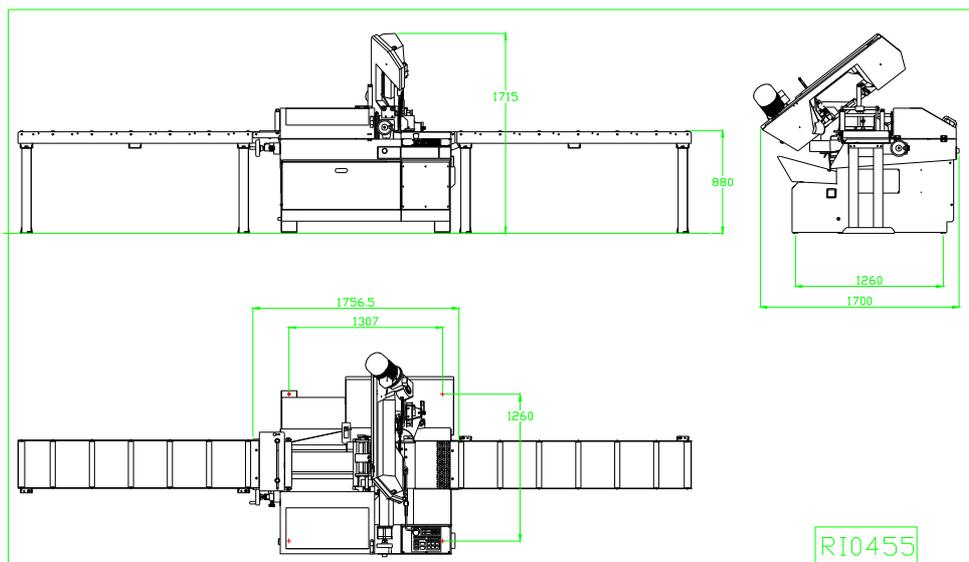
Electronic Inverter for blade speed (ESC) – it can be installed while manufacturing the machine, not later. It allows to have variable blade speed. **The Inverter box is fixed to the floor stand before placing the saw on it.** An handle placed on the control box allows to vary the blade speed, which is shown either in M/Min or FPM. A green light on the control panel, when off, shows that the maximum power supply threshold has been exceeded; thus the motor stops. This can happen for a number of reasons: excessive cutting pressure, unsuited blade speed, and so on.

To start working again, turn off the machine, wait one minute and then turn it on again.

Adjustable Length Stop – standard device: Placed on the right side of the worktable, it is useful when making several cuts with the same cutting length.

Loading roller table – To install them correctly, the saw must be fixed to the floor. The machine is equipped with connection for loading table (left side). Remove the roller to connect the first element of the loading table (type RTS). To connect the unloading table (right side, type RTS, RTM or RTD), **the connection element RAB2PS** is required.

Start aligning the roller tables with the one which is nearest to the saw. In case of long bars, it is recommended to fix the legs to the floor and recover the coolant left on the bars after the cut. On the unloading side they can be equipped with a metric rod to check the cutting length (RTM) or with digital measuring system (RTD). The RTD has to be completed with a device to synchronize the sawframe motion and the automatic lift of the length stop at the start of the cut.



Pneumatic vice - Assembled when manufacturing the saw, it is synchronized with the head movement, so that when the head moves down, the pneumatic cylinder closes the vice to clamp the bar.

Any retrofitting operation should be driven out by Imet technical service.

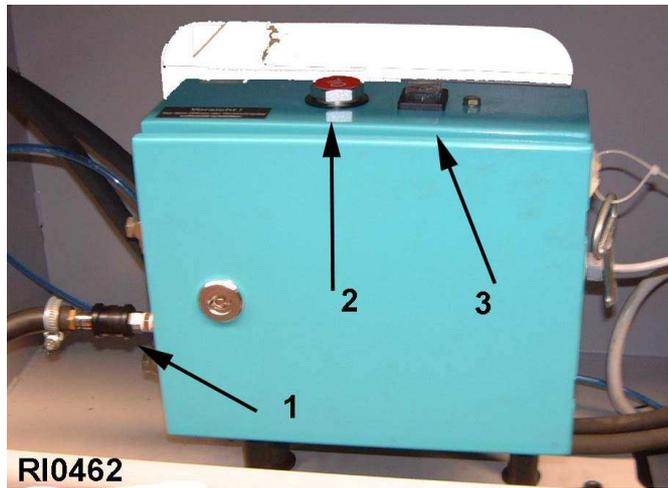
INSTRUCTIONS FOR USE

Sawframe downfeed brake – By tightening the handle, the sawframe downfeed is slower; when loosening it, the downfeed is faster.

If supplied at a later stage, install it according to the instructions provided.

Minimal lubrication system – This device, applied to the saw, allows to eliminate almost completely the traditional coolant system, keeps the material much cleaner and avoids to waste cutting oil and water. It works only during the cut.

It is comprised of a nozzle - 1/RI0463 - with 5 micro-holes, a tank with devices to adjust the quantity of oil and the air pressure. The switch of the electric system - 3/RI0462 - working with low tension 24V AC allows to turn it off at any moment and use the normal coolant system



INSTRUCTIONS FOR USE

10 - BAND CHOICE for BS 300 MODELS

In this paragraph we recommend the type of blade according to the material to cut. To get the best performance from this machine it is necessary to understand how to use the tools and what you do not have to do with them. The blade for this bandsaw must have the following size (mm) :

maximum length = 2770 minimum length = 2750 height = 27 thickness =0,9

The type of blade is also important, usually it's a bi-metal blade with different HARDNESS, named **M42 or SVGLB (for general purpose, tubes, profiles and solids, available in all pitch type), M51 or SHL (preferred for big solids of hardening steel, INOX material too, available with 3/4 tooth pitch).**

The durability of the teeth increases, and also the fragility, when going from the material M42 to M51.

To making a correct cut it's essential to choose the pitch (t) or the number of the teeth per inch (z). Usually the blade must have a pitch as follows :

- high pitch (small teeth), to cut thin materials, tubular and profiles.
- low pitch (big teeth), to cut solids or particular sections that require at times a big blade effort (for example, the central part of a U profile), or softer materials as aluminium, copper, soft bronze.

By choosing the right one you can avoid a lot of working errors, get a good cut and the necessary room for the chips. **If you cut more bars at the same time, you must consider them as a single bar and consider the total size.** The following table provide the information for a correct choice, **it can also be updated or modified by the user according to his personal experiences.**

Even if blades with constant pitch are available, most bandsaws allow to use blades with variable pitch - groups of teeth with different pitch between them - which reduce vibrations and noise, improving the quality of the cut and the performance.

SUGGESTED TOOTH PITCH		SOLIDS Outside Diameter (mm)	BIG PROFILE S Wall Thickness (mm)	PROFILES Wall Thickness (mm)	BUNDLE Length to Cut (mm)	
VARIABLE	CONSTANT					
	14 M42	-	-	1,5 max	-	
10/14 M42	10 M42	-	-	1 to 2	-	
8/12 M42	8 M42	20 max	-	2 to 4	-	
6/10 M42	6 M42	40 max	-	4 to 8	-	
5/8 or 5/7 M42	5 M42	30 to 80	6 to 12	-	50 to 100	
4/6 M42	4 M42	40 to 90	10 to 20	-	70 to 120	
3 / 4 M42 or M51	3 M42 or M51	70 to 150	15 to 40	-	100 to 200	
2/3 M42 or M51	2 M42 or M51	120 to 230	over 40	-	120 to280	

INSTRUCTIONS FOR USE

The following chart refers to the cut of a solid with diameter 80mm, using a standard bandsaw. If the material size changes, the corresponding parameters change as well, according to the type of machine and to the possible accessories which have been installed. For example, in case the material size increases, these parameters have to be reduced, and vice versa.

Using manually a saw often means a significant variation of the cutting times, because of the inconsistent down-feed speed.

MATERIAL GROUP	i.e. DIN denomination	DIN N°	Maximum BLADE SPEED m/min	Minimum BLADE SPEED m/min	MOTOR SPEED (1or2)	FEED FORCE	COOL ratio
1)STRUCTURAL STEEL	St37 St42	10037-10042	60	40	1.	LOW	10%.
	St50 St60	10050-10060	50	35	1	LOW	10%
HARDENING STEEL	C10 C15	10301 10401	45	35	1	LOW	15%
	16MnCr5 20CrMo5	17131 17264	40	30	1	Low/Med	10%
AUTOMATIC STEEL	9S20 10SPb28	10711	70	50	1 2	LOW	15%
BEARING STEEL	100Cr6	13505	40	25	1	Med/Hig	5%
SPRING	65Si7	15028	40	30	1	Med/Hig	5%
2)TOOL STEEL	C80W1	11525 11663	40	30	(1)	HIGH	5%
ALLOYED	210Cr12 X155CrVMo	12080 12379	30	20	(1)	HIGH	dry
	X40CrMoV51	12344	35	20	(1)	HIGH	5%
HIGH SPEED	S-6-5-2-2	13243	30	20	(1)	HIGH	5%
INOX STEEL	X5CrNi18 X10Cr1810	14305	30	20	(1)	HIGH	5%
3)SPECIAL ALLOYS	NiCr19NbMo	24668	20	15	--	HIGH	20%
	NiMo30	24810	20	15	--	HIGH	15%
	NiCr13Mo6Ti3	24662	20	15	--	HIGH	15%
TITANIUM	Ti1	37025	30	20	(1)	HIGH	10%
	G-TiAl6V4	37164	35	20	(1)	HIGH	10%
4)CAST IRON	GG15 GG30	--	50	30	1	Med/Low	dry
5)NOT-FERROUS	AL99.5 GalSi15Mg	--	300	50	2	Med/Low	2%
BRONZE	CuSn6 CuSn6Zn	--	120	40	2 1	Med/Hig	2%
COPPER	G.Cu Ke.Cu	--	200	50	2	LOW	2%



11 - INSTRUCTIONS FOR USE AND WARNINGS

This machine is manually driven by the operator during the cutting cycle by means of the proper handle, which also contains the button to turn on and off the blade motor.

The GH models have a special device that, after the start button has been pushed, allows an autonomous motion by the sawframe which automatically stops at the lower cutting point. The blade stops, too, thanks to a micro-switch. The sawframe has then to be lifted manually after the cut.

ⓘ 11.1 - This machine is designed and manufactured so as to be safely used by the operator, provided that it is properly run. No protections will ever suffice if the operator does not work with caution, does not make sure that the machine is in top working conditions and does not follow the instructions below.

Don't forget that this bandsaw is designed to CUT METALS with a proper tool, and that you are responsible for a SAFE and CORRECT use. You must :

1. check that the machine is properly installed and electric supply is suited.
2. be sure to learn all main features of the saw before running it.
3. do not expose yourself or any other people to any risk.
4. wear personal protective equipment
5. do not remove or modify the SAFETY DEVICES installed by the manufacturer, make sure that they are always in a good condition, too.
6. follow a regular maintenance schedule and check regularly the efficiency of the saw.
7. never use tools with unsuited characteristics
8. do not try to cut material with a size bigger than the cutting capacity of the machine
9. Keep the cutting area clear of tools or other loose objects.
10. do not run the saw unless all guards and protections are in place
11. NEVER WEAR loose clothing, long sleeves, large gloves, jewellery, or any other items that may get entrapped into the machine
12. Always disconnect the power supply when performing maintenance or making adjustments.
13. do not get close to the cutting area with your hands or any other part of your body when the saw is running
14. Clamp properly the material in the vice and never hold it with your hands
15. Support appropriately the bar from both sides to prevent it from falling

We recommend to install a roller table on the unloading side in case the cutting length of the bar is bigger than the distance between the blade and the right side of the basement

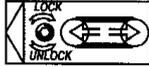
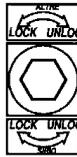
16. When cutting very short pieces, make sure they do not jam into the blade.
17. If the blade remains entangled with the material, stop the machine, open the vice and remove the material, then check the condition of the blade and the teeth: if they are damaged or broken, change the blade
18. Apply a constant pressure during the cut
19. Do not move the saw during the cut or cause instability
20. Wear personal safety equipment when running the machine

ALWAYS RUN THE SAW SAFELY, USING COMMON SENSE AND ALERTNESS

INSTRUCTIONS FOR USE

On some parts of the machine there are some stickers which warn about the safety measures that have to be taken by the operator who runs it. Their meaning (easy to understand) is indicated in the following chart

RI0151AA.TIF

SEGNALI DI AVVERTIMENTO E PERICOLO – SAFETY SIGNS		SYMBOLS DE SÉCURITÉ – SICHERHEITSVORSCHRIFTEN	
	-Pericolo di taglio -Caution! Cutting area -Peligro de corte -Danger de coupe -Verletzungsgefahr		-Usare guanti protettivi -Wear protective gloves -Usar guantes protectivos -Porter gants de travail -Arbeitshandschuhe tragen
	-Pericolo di schiacciamento -Danger of being crushed -Peligro de aplastarse -Danger d'écrasement -Quetschgefahr		-Usare occhiali protettivi -Wear protective glasses -Usar gafas protectivas -Porter des lunettes de sécurité -Schutzbrille tragen
	-Pericolo di scivolamento -Caution! Slipping surface -Peligro de deslizarse -Danger de glissement -Rutschgefahr		-Tensionamento nastro -Band tensioning -Tensionamiento cinta -Tension du ruban -Bandspannung
	-Pericolo: uscita aria/trucioli -Caution! Air/chip outlet -Peligro: escape de aire y virutas -Attention: Sortie d'air / des copeaux -Achtung! Luft und Späneaustritt		-Bloccaggio/sbloccaggio lama -Blade locking/unlocking -Bloqueo/desbloqueo hoja -Blocage/déblocage de la lame -Sägeblatt klemmen/loesen
	-Pericolo scariche elettriche -Caution! Risk of electric shock -Peligro: corriente eléctrica -Attention: risque de décharge électrique -Achtung! Elektrische Spannung		-Dispositivo di apertura sportello -Flap door opening device -Dispositivo de abrir la puerta -Dispositif d'ouverture de la porte -Öffnungsvorrichtung der Tuere
	-Non togliere protezioni durante funzionamento -Do not remove guards while machine is running -No quitar la protección durante el funcionamiento -Ne pas enlever les protections pendant le fonctionnement. -Während des Betriebes keine Schutzeinrichtung entfernen.		-Non riempire oltre questo limite -Do not fill over this limit -No llenar más de este límite -Ne pas remplir en dessus de cette limite -Nicht ueberfuellen
	-Non lubrificare/regolare durante funzionamento -Do not lubricate/make adjustments while machine is running. -No lubrificar/regular durante el funcionamiento -Ne pas lubrifier/régler pendant le fonctionnement -Während des Betriebes keine Einstellung/Schmierung ausführen.		-Zone sporgenti – Sagome pericolose -Protruding areas – Dangerous shapes -Zonas sobresalientes – Formas peligrosas -Zones en saillie – Formes dangereuses -Hervorstehende – Gefährliche Formen

RI0151A4

i 11.2 - OPERATOR'S SAFETY

This section illustrates the safety protections applied on the saw, according to the current legislation in the field of safety.



11.2.1. ELECTRIC EQUIPMENT – norm EN 60204-01

- . Electric board closed with screws
- . Marking of the electric components, according to the indications on the electric scheme
- . Control circuit with 24V tension – Control transformer with fuses on input and output
- . Earthing of all the electric parts with a proper GREEN/YELLOW wire, connected with a TN system to the supply cable. A supplementary earthing point – indicated with PE – can be located on the metallic structure of the machine
- . Button to start/stop the motor inside the handle (effective only when pushed)
- . Protection from overloads and high temperature thanks to bimetal thermo-protectors placed directly in the blade motor
- . Sensor of the blade tension: in case the blade breaks or the tension strength diminishes, the machine stops immediately
- . Sensor of the closing of the blade protection: if it opens while working, the machine stops.
- . The stop caused by one of the aforementioned devices needs a complete restoring of the working cycle



11.2.2 – PROTECTION AGAINST ACCIDENTAL CONTACTS

- . Complete metallic main protection of the blade, the pulleys and the back blade-driving pad
- . Forward metallic movable guard, fixed to the forward blade-driving pad. It assures the coverage of the blade in every position, except for the stretch of blade which makes the cut. Joint to the blade-driving pad, it can be removed only after opening the main protection.
- . Positioning of the blade close to the bar; the cut is carried out thanks to the lever equipped with safety guard to prevent unintentional starts.
- . Clamping vice with rapid clamping action (maximum stroke 7 mm), according to the norms on automatic closing
- . Parts of the machine with suitably chamfered or rounded angles



11.2.5. LIGHTING OF THE WORKING AREA

An inappropriate lighting can cause accidents to the operator, who consequently needs a suited lighting in the working area. In case of a lack of precise indications (for example, norm ISO 8995) for special areas, we recommend to supply a lighting equal to 750 LUX.

12 – MACHINE DESCRIPTION

Bandsaw for mitre cutting from 0° to 60° left and 0 to 45° right of metal profiles and solids. **The GH model allows to perform autonomous cuts.** The emergency RED/YELLOW switch allows to stop the saw at any time, especially when performing autonomous cuts.

INSTRUCTIONS FOR USE

ⓘ It is not suited to cut wood and assimilated materials (see D.M. 89/392, enclosure I, paragraph 2.3)

The following operations have to be done manually: material clamping, sawframe drop and cut, sawframe return, material unclamping and feeding for a new cut.

The blade start is controlled by the button inside the handle, which has a safety guard to prevent unintentional starts.

The Machine Directives and the Norms applied when designing and manufacturing this bandsaw are mentioned in the enclosed Declaration of Conformity.

From the working position, in front of the vice, the operator has the possibility to activate all drivers and check the correct working of the machine, as well as to avoid risky areas.

In the following paragraphs you will find all information to use the machine in the best way and for a very long time.



13 - MACHINE SETTING FOR STARTING

Verify that the machine has not apparent damages or faults and check the standard equipment that includes tools, fittings to carry out some adjustments, use and maintenance handbook. In case the machine is supplied with additional equipment make sure that it is suited to the machine. Inform promptly the Imet dealer about damages or faults before starting to work with the machine. . Remove the locking shaft between sawframe and base, fix in the handle-holder the plastic screw for band guide fixing –4/RI0461-.

The protective substances put on the surface to protect the saw during the transport must be cleaned by means of a cloth or paper, please check that there is no rust on the metallic parts as well.

ⓘ In case compressed air jets are used, always wear proper eye protection.

The parts in motion (band guides, trolleys, pivots, bearings, and so on) have already been lubricated, the reducer contains the exact oil quantity necessary to work.

13.1 - COOLANT

Prepare the coolant by mixing cutting oil and water (the tank capacity is about 14 litres) with a proportion of 1/10, 1/15 or according to the instructions provided by the product supplier; pour in the coolant in the tank or directly on the worktable – 16/RI0080. Pay attention that the coolant does not spill out.

13.2 - ELECTRICAL CONNECTION

ⓘ Verify that the voltage and power frequency are compatible with the parameters reported on the technical data plate located on the right side of the floor stand. A difference over 10% causes some working anomalies.

INSTRUCTIONS FOR USE

The sawframe of the GH models can't be pulled down without power supply. For safety reasons, the automatic lowering of the sawframe is not possible if the electric driver is not properly supplied. In case of power supply interruption, the sawframe stops immediately and the main switch turns off.

Normally the springs for the sawframe motion are tensioned at 50% of their range. Keep this in mind when making the first cuts, using a low blade speed. We recommend to modify the springs tension – if necessary – only after learning how to run correctly this saw.

The supply cable is complete with a CEE plug. If you have to replace it, we recommend to let specialized personnel carry out the whole procedure.

If an external voltage transformer is supplied, put it in a safe place far from the material loading/unloading areas.

The phasing performed by the manufacturer allows to get a correct rotation of all motors by connecting the wires in the following order: L1=R, L2=S, L3=T. Anyway check what follows:

a) insert the plug into the socket (turn on the switch, if present); the GREEN lights that controls the 24V line supply, the blade guard, the motor and the blade tension must be flashing.

If this does not happen you need to tension the blade according to the instructions of the following paragraph.

b) turn the motor speed selector to 1st speed)

c) push the button placed inside the control handle (for GH models, turn the selector on MANUAL  before pushing the start button)

d) check that the blade moves in the direction shown by the arrow placed on the blade guard - 15/RI0080 - (if not, turn off the machine, disconnect the power supply, reverse the connection of two of the wires, excluding the earthing green/yellow cable, then start again from point a).

e) check if the coolant flow is regular while the blade is running and the tap is open.

h) stop the machine by releasing the switch in the handle

13.3 - PNEUMATIC CONNECTION (if supplied MINIMAL LUBRICATION OR PNEUMATIC VICE))

The saw has to be connected to a system provided at least with: condensate unloading device, filter and reducer to stabilize the pressure at about 5/6 BAR. It is possible to assemble a pressure reducer only for the vice when working with material that can deform

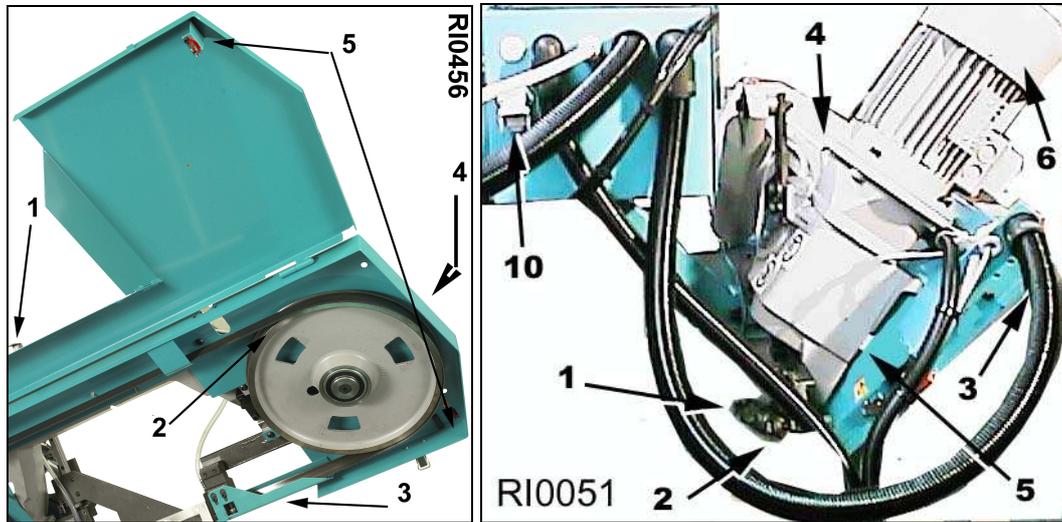


14 - BLADE TENSION

This saw is equipped with a blade which is already tensioned, so as to allow the motor to start (the saw doesn't work if the blade does not have the correct tension).

INSTRUCTIONS FOR USE

It is recommended to verify, while the machine is off, that the blade is correctly assembled: open the blade guard and fix it with the back hook - 1/RI0456 – then make sure the blade is about 1-2 mm away from the edge of the pulleys – 2/RI0456 – and correctly placed in the guides – 3/RI0456. if necessary, loosen the blade-tensioning screw - 4/RI0456 – to be able to change the placement of the blade, then assemble the blade guard again. Be sure that the end-stroke key is suitably placed into its location - 5/RI0456



After switching on the machine, if related GREEN light of control box is not flashing, it means that you must tension the band: It is necessary to tighten the frontal screw –4/RI0456-until the light flashes; tighten for 1/4 of a round more to prevent future loosening.

This procedure has to be followed also when changing the blade. In this case a careful cleaning of all contact points with the blade will be necessary



15 – DRIVERS DESCRIPTION

The selection device of the external power supply is the main switch and, on models equipped with pneumatic vice, the compressed air connection point.

The control box – picture RI0080 - includes:

- 1 - Main switch, which includes the magnetic and thermic protection, and a safety device to protect against power drops.
 - 2 - Motor speed selector
 - 3 - Analogical device to check the motor absorption
 - 4 – Inverter potentiometer for variable blade speed (only on saws which can be equipped with ESC)
 - 5 – Blade tension check light
 - 6 – Blade guard check light
 - 7 – Low-tension (24V) driver light
 - 18 – Emergency stop
 - 19 – Motor check light (or Inverter, if supplied)
- Other devices are placed in easily accessible points:
- 8 - Wheel for manual opening/closing of the vice
 - 9 - Unlocking/locking of the worktable rotation for mitre cutting
 - 10 – Coolant tap
 - 11- Locking/unlocking of the forward mobile blade guide protection
 - 12 – External fuse for low-tension circuit (24V)
 - 13 - Handle with start button
 - 14 – Locking/unlocking of the vice for lateral motion left and right
 - 15 – Handle to adjust down-feed brake (only on units equipped with brake)

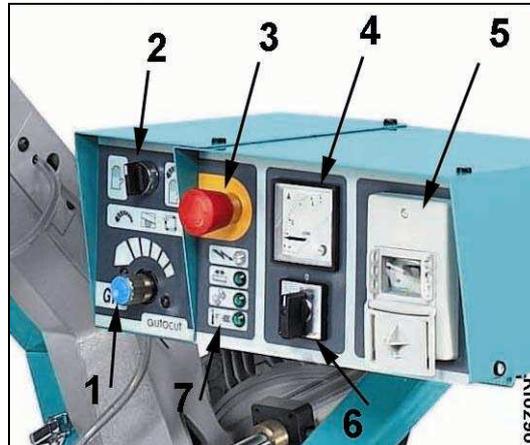
The control box of the GH models includes also:

INSTRUCTIONS FOR USE

- Selector with 3 positions:
 - 1) manual cut  ;
 - 2) autonomous cut with adjustable downfeed **autocut**;
 - 3) manual cut with brake
- Device to adjust the sawframe downfeed

On the back of the sawframe there are also:

- Handle to move the tension springs – 1/RI0298
- Springs tension-adjusting screw – 2/RI0298



15.1 - CUTTING

The standard blade allows to cut different materials and sizes, thanks to the variable tooth pitch (smaller teeth alternating with bigger teeth), but it's essential to use the blade most suited to the material to cut in order to get the best performance. Therefore read the chapter "BLADE CHOICE" for a correct use.

Vice motion: open it quickly by pulling it while holding down the lever on the left, place the material inside the vice, leaving 2-3 mm room between the jaws, necessary for a correct working of the quick-clamping device. Lift again the lever on the left, if the clamping is not perfect, rotate slightly the front wheel.

The vice can be moved sideways on the worktable to prevent it from being on the cutting line, for example when making mitre cuts. To do it, while there is no material clamped, loosen the handle placed on the left side of the vice, move it to the desired position and then tighten the handle again.

- a) position the material left of the cutting line
- b) Make sure that the handle – 9/RI0080 - hinders the rotation of the worktable
- c) clamp the bar between the jaws by means of the front wheel or by lowering the sawframe on models equipped with pneumatic vice

 Check if the bar is effectively clamped and if the closing pressure does not deform it

d) place the mobile forward blade guide – pos. 11/RI0080 - in a position close to the material but not colliding with it or the jaws when the sawframe drops

e) Turn on the main switch, restore the emergency button in case it has been activated, select the blade speed on the selector – 2/RI0078 – and push the button inside the handle 13/RI0080; adjust the coolant flow and pull down the sawframe to start the cut. Keep a constant speed during the cut.

If the unit is equipped with a brake to help to provide a consistent cutting pressure, all the down-feed motion is adjusted.

 Support properly the material on both sides of the saw

 In case of short cutting lengths, make sure that, at the end of the cut, they are not dragged by the blade or get entangled with it.

On GH models the sawframe drops manually only if the selector is on the MANUAL  or MANUAL WITH BRAKE position, while it drops automatically if it's in the central position, defined as "autocut"

INSTRUCTIONS FOR USE

This version allow to begin the cut like a normal manual saw and then to continue automatically – the sawframe drops thanks to the gravity – or always manually till the cut is completed.

To get the most out of the versatility of this saw the operator has to adjust the loading springs - pos. 3/R10298 - along their slot depending on the cut requirements (see picture R10298):

- positioned in the upper part of the slot means more down-feed pressure and therefore more penetration of the blade into the material (the sawframe will be heavier to lift)

- positioned in the lower part of the slot it works like a normal manual machine, allowing the user to lower/raise the sawframe easily

- the middle position is a compromise between downfeed force and easy handling. Normally this is the standard position



To move the springs easily along the slot it is advisable to do the following (with power on, blade speed = 0):

- lower the sawframe manually so that the springs move up and lock the handle again
- or
- raise the sawframe manually to move the springs down and lock the handle again.

At the end of the cut the user has to lift the sawframe manually.

15.2 – STOP

i The cutting cycle can be stopped at any time:

- by pushing the emergency button – 18/R10080 – everything is turned off and no operation is possible before restoring it
- by releasing the button inside the handle – 13/R10080 - all electric devices stop immediately
- by turning off the main switch – 1/R10080.
- by opening the blade guard a safety micro-switch – 2/R10461- stops all drivers and the saw is turned off.

In case of a power failure, the main switch goes to the 0 position and it must be restored in order to run the saw again.

15.3 - ESC = Electronic Speed Control (if supplied)

The electronic inverter allows to change continuously the blade speed, simply by turning the little knob on the control box – 4/R10080 - thus optimizing the blade performance according to the material.

When the GREEN light –19/R10080- is off, it means the temporary lock of the device because of excessive cutting pressure, unsuited blade speed, too high start-up speed, and so on. Switch off the machine, wait about one minute and turn it on again.

15.4 - SAWFRAME ROTATION FOR MITER CUTTING – picture R10080

To make these cuts the lever – pos 9 – has to be loosened. Turn the sawframe manually until you reach the

INSTRUCTIONS FOR USE

desired angle – pos. 17 - then tighten the lever again. Easy stops at 0°, 45° and 60°.

When moving from an angle to another it is recommended to not have material on the worktable and/or clamped by the vice.

① 15.5 - OVERLOAD PROTECTIONS

The motor is protected against overheating thanks to bi-metal thermo-protectors which stop the control circuit and the blade and the related GREEN light on the control panel switches off.

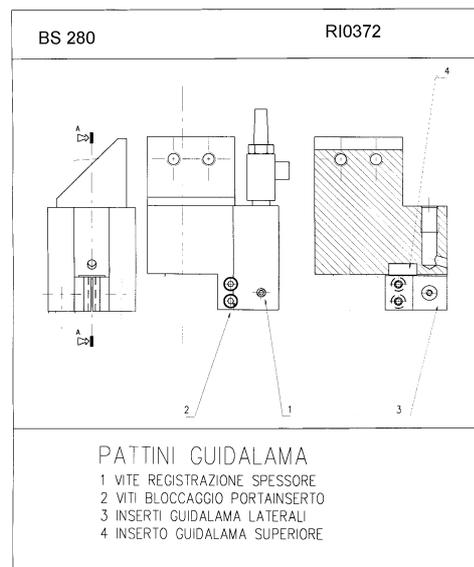
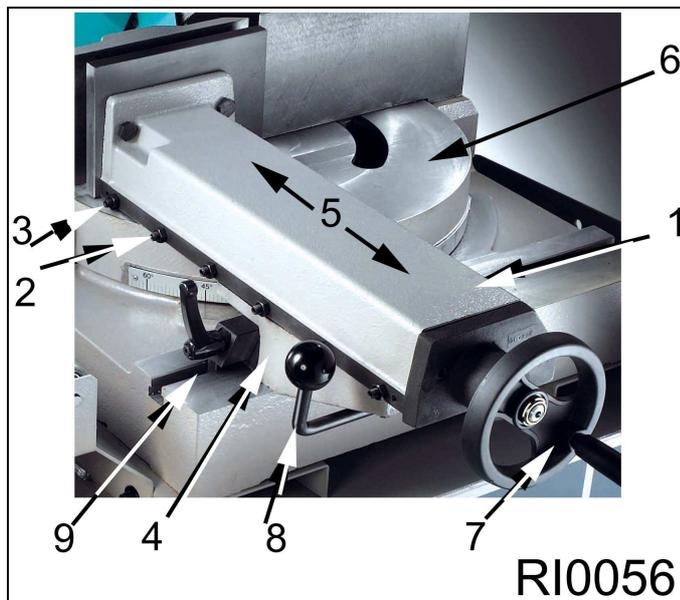
To start working again, the temperature must have dropped below the maximum limit allowed.

In the meantime try to remove the causes that led to the overheating, for example the blade is entrapped in the material, the cutting speed is too high, oil is missing in the gear box, and so on.



16 - ADJUSTMENTS (with machine switched off)

- picture RI0056 - Guides Play Adjustment by means of nuts and screw - When the vice is almost completely open, loosen all nuts – pos. 2 – and, starting with the first screws – pos. 3 – tighten them more strongly, continue with the screws that are aligned with the fixed part of the vice – pos. 4 – and lock them with the nuts. Close the vice and adjust the remaining screws. Verify the result by opening and closing repeatedly the vice.



16.2 - BLADE

Adjustment of the blade guides because of different blade thickness - picture RI0372

This adjustment must be done when you have a blade with thickness other than 0.9 mm or in case the hard metal pads are worn out. The easiest test is the following: put a blade in the guides and move it back and forth to evaluate the mechanical play. Depending on the result, proceed as follows: loosen slightly one screw – pos. 1 – to make more room for the blade (or tighten it to get the pads closer).

Check that the mechanical play is not excessive (Max. 0.02 or 0.03 mm) and make sure that both screws – pos. 2 - are properly tightened.

The lateral pads are mechanically fixed and each can be replaced without removing the whole blade guide, just by loosening completely the two screws – pos. 2. By removing both lateral pads, the special upper pad which is in contact with the blade can be removed.

Check of the perpendicularity between blade and worktable

This is very important and, along with the blade tension, it assures straight cuts. Check it the following way: with the sawframe up and at 0° and the vice completely open, put a square at 90° on the worktable (close to the supporting jaws) and very close to the blade.

While keeping the square still, lower the sawframe until reaching the end-cut point and evaluate if the blade gets closer to it or farther. Lift the sawframe, move the square towards the operator so that the

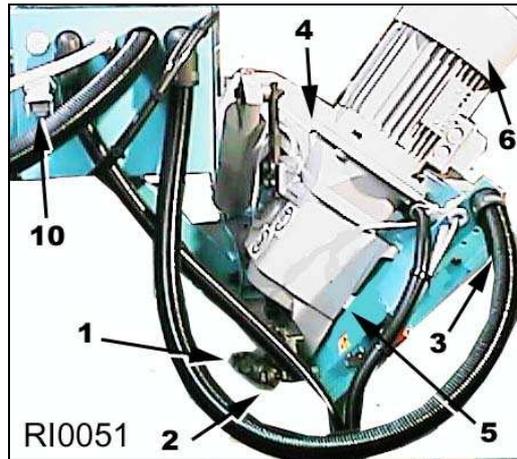
INSTRUCTIONS FOR USE

blade is close to the higher extremity of the square, then lower the sawframe again until reaching the end-cut point while always keeping the square still.

Usually this test allows to single out geometrical errors, but it is even more important in order to ensure that, in case of not perfectly perpendicular cuts, the reason is not linked with factors external to the machine (for example, blade in a bad condition, wrong tension, wrong tooth pitch, excessive pressure during the cut).

SPRINGS – It may be necessary to modify the tension of the return springs – 1/RI0051 – located in the back of the sawframe. Loosen the fixing screws of the floating plate – 2/RI0051 - and position them at the centre of their slots. Tighten strongly the screws.

It is recommended to carry out this procedure while the sawframe is all the way up. If you have problems doing it, you can lower the back stop screw before tensioning the spring, and then put it back in the original position. Verify the correct balancing by lifting and lowering the sawframe repeatedly.

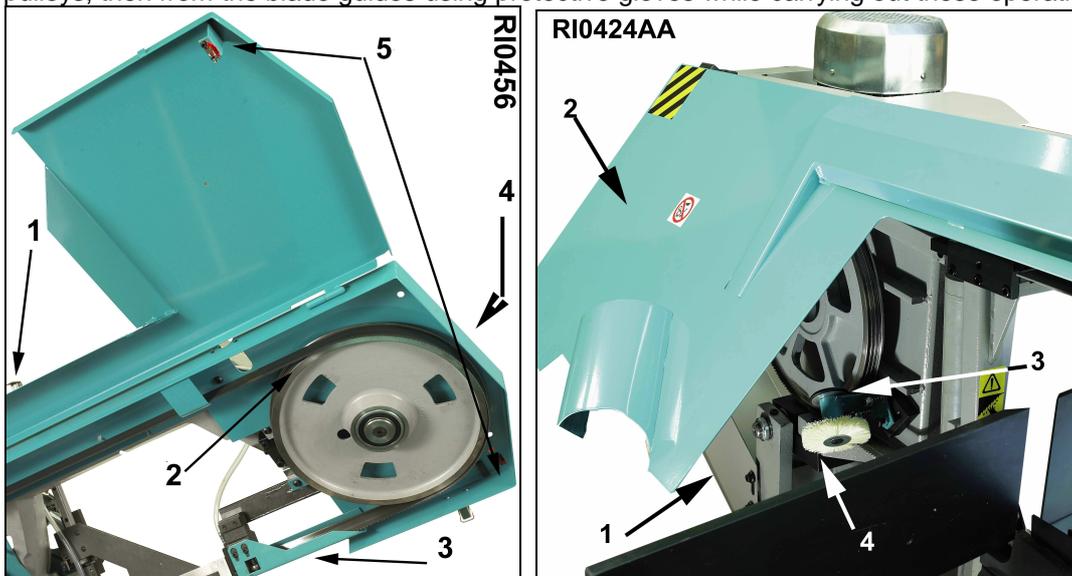


17 – MAINTENANCE – for the user

Regularly carry out maintenance operations as described below to maintain unchanged the machine safety devices and technical features of the saw.

17.1 - BLADE REPLACEMENT

This is the most frequent maintenance operation, due to the natural deterioration of the blade; it is essential to replace it correctly and safely. With the sawframe up and at 0°, power off: open the blade guard and fix it with the upper hook, loosen the blade tension device by means of the front screw. Remove first the blade from the pulleys, then from the blade guides using protective gloves while carrying out these operations.



Make sure that there are no chips or dirt on the pulleys, and following the cutting direction, shown also by an arrow, put the new blade in the guides **without removing the plastic protection**, and then on the pulleys. The upper supports prevent the blade from falling. Tighten the tension-adjusting screw and make sure the blade is correctly placed on the pulleys. **Remove the plastic protection**, then assemble the blade guard and the front mobile protections.

INSTRUCTIONS FOR USE

After restoring the power supply, the GREEN light off shows that the blade has to be tensioned. **The front screw has to be tightened until the light turns on and then tighten 1/4 of a round more.**

The procedure described above has to be carried out also when changing the blade. In this case an accurate cleaning of all contact points of the blade is highly recommended.

17.2 PERIODICAL MAINTENANCE

To be carried out **DAILY** or more often if the machine is doing a heavy job: remove the chips from the machine; check the wear of the blade and replace it if necessary; check the blade-cleaning brush and related ring – 3,4 / RI0424 – and verify the coolant level.

WEEKLY

Clean the machine, lubricate all joints and sliding surfaces with oil or grease

Check the oil level in the gearbox: with the motor running, the oil must be seen from the small window on the right side of the gearbox

Check the oil level in the hydraulic unit, while the motor is off, by means of the proper plug equipped with a rod; the oil must be about 3mm below the top.

MONTHLY

Replace the coolant and clean the tank

Ensure that all screws and bolts are properly tightened, and that all stroke-ends and switches work properly; check the leads, tubes and fittings.

Make sure that seldom-used devices work properly

Check the blade guides and the hard metal pads inside, adjust and possibly replace them

Once a **YEAR** - or after 2000 working hours - replace the oil in the gearbox, as shown in the chapter **MACHINE RUN IN**.

The hydraulic device that comes with this version, even though it has a closed circuit, needs to be checked periodically to ascertain the level of hydraulic oil present.

The oil level should never go lower than the minimum level, shown on the notch on the dip-stick in the supplementary tank - pos. 5/fig. R10298 - otherwise air bubbles form that can compromise the constancy of the regulation. Eventual refilling can be done , consulting Customer Assistance in advance.

The pre-loading of the back springs - pos. 3/fig. R10298 - can be varied using the screws - pos. 2/fig. R10298 - that must be: **screwed up to increase the pre-loading or unscrewed to decrease it.**

The two screws that stop the sliding bracket must be loosened first by a 1/4 turn - pos. 4/fig. R10298 - and loosen the lock nut



18 – BLADE RUN-IN

To grant an efficient performance and a longer blade life, a good run-in of the blade is crucial each time you use a new blade.

During the first cuts of a blade, we recommend to reduce the penetration speed up to half the normal value - about 40 cm²/min - and keep a constant blade speed. Only after cutting 250/350 cm² of material the penetration speed can be increased till reaching the normal value.

INSTRUCTIONS FOR USE

The working conditions can also be evaluated by observing the chips produced during the cutting; you can find 3 kinds of chips:

THIN OR POWDERED CHIPS indicate poor advancing pressure and/or low speed; teeth too little.

BIG CHIPS (MAYBE BLUE / BROWN) indicate overload on the blade, poor lubricating.

SPIRAL AND RIGHT DEVELOPED CHIPS indicate the ideal cutting conditions.

For a correct use, see the paragraph BAND CHOICE.

19 - MACHINE RUN-IN

The maintenance required by this machine is essential to guarantee the continuous correct working over the course of time and keep the saw in an efficient condition. When you start to use the machine you must do some additional operations to allow all parts of the machine to settle down to the working conditions.

Please check frequently the working of the machine and avoid to force it to make too many cuts. For a time of 80/100 working hours check the oil level in the gearbox: while the saw is running, the oil must fill about half of the oil window with the sawframe all the way down.

After this time, unload the oil completely by removing the lower plug - 5/RI0051 - shown by a sticker. Put in the plug again and introduce gasoline for internal cleaning. Run the motor -6/RI0051-a few seconds, unload the cleaning liquid and then pour in new oil – about 1.5 liters – to restore the normal level.

Note: The presence of bronze and/or iron particles in the oil is normal. The heating of the mechanical parts (and of the hydraulic parts on semiautomatic and automatic machines) is normal during the usual work and anyway it does not exceed the conventional thermic limits set by the Norm EN5637.

Please see the OIL AND LUBRICANTS TABLE in order to choose the most suitable one and to compare the different types.



20 - DRAINING OF USED / PRODUCED SUBSTANCES

Please remember to follow the current Law Norms concerning the draining of:

- materials used by the machine (for example: hydraulic unit oil, gearbox oil, oil for lubrication systems and so on);
 - scrap materials or materials that can't be used anymore (for example: ferrous and non-ferrous chips, tools such as blades and so on)
 - substances used for cleaning and maintenance
 - materials used for specific needs (for example when packing, shipping and so on)
- Do not throw the packing away as it could be used in case you should return the machine to the dealer or to the service staff - when the saw is still under warranty



21 – TROUBLE-SHOOTING

The solution of most anomalies that can happen during the working can be found by consulting this paragraph.

INSTRUCTIONS FOR USE

The first part concerns the working of the machine and includes a list of the possible faults with the corresponding operations that must be carried out; the second part refers to the anomalies that can be found by checking the blade and/or the pieces after the cut.

If your problem is not among the ones listed in the following pages or you need the assistance of qualified personnel, please get in touch with the manufacturer or your local dealer, and always refer to this Manual.

21.1 - DEFECTS CAUSED BY THE MACHINE

Anomalies

Check

A* The blade motor does not work	3-4-5-9
B* The control panel does not turn on	6-7-8-9
C* Not enough coolant	12-13-14-15
D* The work-piece moves or gets deformed	16-17
E* Inconsistent sawframe drop (models with hydraulic brake)	10-11

LIST OF THE PARTS THAT MUST BE CHECKED

- 1 = Plug correctly inserted in the socket
- 2 = Main switch
- 3 = The motor is burned or damaged
- 4 = Electric supply is not appropriate
- 5 = Transmission hindered
- 6 = Fuses on the primary of the transformer
- 7 = Fuses on the secondary of the transformer
- 8 = Transformer damaged or burned
- 9 = Connection of the supply cables
- 10 = Oil level in the tank of the down-feed brake
- 11 = Leaks from pipes and/or connections
- 12 = The circuit taps are closed
- 13 = The coolant filters must be cleaned
- 14 = The electro-pump does not work (see 3-4-5-9)
- 15 = The tank is empty or dirty
- 16 = Excessive cutting feed
- 17 = The vice is not correctly closed, thus the material is not properly clamped

21.2 - DEFECTS OF THE BLADE / CAUSES / SOLUTIONS

In case of broken teeth, broken blades or short blade life, lay down the broken band on the floor and check it carefully; look for imperfections in the following table and read the corresponding solution of the problem.

1. PREMATURE AND EXCESSIVE TEETH WEAR AND TEAR

- Insufficient pressure: increase it
- Reduce the blade speed
- Insufficient coolant flow
- Inappropriate cooling emulsion
- Incorrect blade pitch: use a blade with a thicker pitch
- Blade run-in not correctly carried out
- Blade turns in the wrong direction: reverse it

2. BLADE VIBRATION

- Increase or reduce the blade speed
- Dull vibration: increase the blade tension
- Teeth are too big for the piece that must be cut
- The vibration reverberates in the base; reduce the cutting pressure
- The vibration could be due to the high frequency: increase the sawframe down-feed speed
- The material is not properly clamped
- Use a variable pitch or a positive toothing

INSTRUCTIONS FOR USE

3. BROKEN TEETH

- Too big teeth for the section that must be cut
- The material is not perfectly clamped
- Unsuitable coolant
- Cutting pressure too high: control the chips
- Too low blade speed
- The area between the teeth are full of chips

4. CUTTING SURFACE TOO ROUGH

- Choose a thinner pitch
- Increase the blade speed
- Reduce the sawframe down-feed speed
- Adjust the flow of the coolant

5. EARLY BLADE BREAKING

- Excessive blade thickness for the diameter of the pulley
- Blade guides too open with high speed
- Increase or reduce the speed
- Check if the pulleys are faulty
- Tooth pitch is too big
- Blade tension is too high; the blade does not stick to the pulleys
- Too powerful sawframe down-feed speed: the blade backside is polished
- The bearings are not aligned with the pulleys: the blade doesn't stick to the pulleys and the blade backside is polished
- The blade guides are too tight: the blade spirals up like a spring; the more they are tight, the more the blade twists
- Not enough coolant.

6. THE CUTS SHOW A ROUND SURFACE

- Increase the band tension
- Move the blade guides toward the cutting area
- The teeth are too thin
- Reduce the cutting pressure.

7. THE CUT IS NOT STRAIGHT

- Move the blade guides closer to the cutting area
- Check if the material is placed correctly on the roller table and worktable
- Check the blade perpendicularity: if it is not perpendicular, adjust the blade guides
- Tothing too thick
- The teeth are broken or damaged
- Increase the cutting speed

8. BAND NOISE ON THE BEARINGS

- Adjust the blade backside
- Check the pulleys alignment
- Check the bearings wear and tear
- The welding is not good

9. THE BAND BENDS POSITIVELY

- Reduce the cutting pressure;
- Use a blade with bigger tooth pitch to improve the penetration;
- Move the blade guides closer to the cutting area

10. THE BAND BENDS NEGATIVELY

- The blade backside collides against the upper bearing guides; check the pulleys and the bearings with blade running and stopped
- Check the alignment of the band wheels.

INSTRUCTIONS FOR USE

11. HIGH CUTTING TIME, THIN CHIPS

- Increase the blade speed
- Increase the cutting pressure
- Use a blade with bigger teeth
- Use a proper coolant.

12. EARLY DAMAGE OF THE BLADE STRUCTURE

- Reduce the blade speed
- Increase the coolant flow

13. THE BLADE TWISTS LIKE A SPRING

- Reduce the cutting pressure
- Reduce the blade tension
- Excessive blade guides pressure: adjust it
- Move the blade closer to the cutting area

14. THE CHIPS STICK TO THE TEETH / CHIPS ARE TOO BIG

- Reduce the cutting pressure
- Use proper coolant and in a suited quantity
- Check the brush used for removing the chips from blades.

15. THE BLADE IS SCRATCHED ON ONE SIDE

- Check if the metal pads have worn down
- The metal pads press too much against the blade

16. THE MATERIAL AFTER THE CUT SHOWS BLACK MARKS

- Black marks on the left: the left blade guide is not correctly positioned
- Black marks on the right: the right blade guide is not correctly positioned
- Black marks on the cutting line: the blade guides are not in a correct position, or the cutting pressure is too high, or the blade tension is low, or the coolant is not appropriate, or the tooth pitch is wrong

22 - MACHINE DEMOLITION



This paragraph may give some informations about the macrooperations of machine disassembly for its scrapping.

Special procedures are not required but it is necessary to take only some cares to avoid damages in the last phase of the machine life.

Generally: you must empty the cooling installation tank, take out the oil from the reduction box, from the hydraulic or hydropneumatic installation. **Lock the parts that could move and cause danger or instability.**



Remove the parts assigned to the differentiated draining, for example the printed circuit, display stations, programming keyboards, buffer batteries and so on, especially the ones which shows the picture



.In these cases, in relation with the WEEE/AEEE Regulations ask to the supplier to know the right process, that depends by the machine size and purpose.

23 - SPARE PARTS

The choice of the required spare parts is aided by the included drawings that allow, along with the working schemes, to get a better knowledge of this machine.

INSTRUCTIONS FOR USE

23.1 - GUIDELINES TO REQUEST SPARE PARTS

It is necessary to communicate to the TECHNICAL SERVICE the following data:

- the serial number indicated on the identification plate
- model, version, type
- voltage and power frequency
- code number of the spare-parts
- requested quantity
- possibly the fittings assembled later

23.2 – OIL AND LUBRICANTS

In the following chart you can find information on the oils and lubricants of different brands that can be used with this saw. Comparison table RI0108

RI0108	#1		#2		#3			
GEBRAUCH	GETRIEBE		HYDRAULISCHER KREIS		PNEUM. KREIS	SCHMIERE	KUEHLMITTEL	
UTILISATION	ROUAGES DE LA TÊTE		CIRCUITS HYDRAULIQUES		CIRCUITS PNEUMATIQUES	GRAISSES	REFRIGERATION DE LA LAME	
USE	GEAR HEAD		HYDRAULIC PLANT		PNEUMATIC PLANT	GREASE	COOLANT	
USO	ROTISMI TESTA		CIRCUITI IDRAULICI		CIRC. PNEUMATICI	GRASSI	REFRIGERAZIONE LAMA	
	BS 280 BS 350	IDEAL PERFECT SIRIO RECORD	BS280 SH SIRIO VELOX	BS280 SHI/SHE VTF500 BS350 XT360 XT410			STAHL ACIER STEEL ACCIAIO	ALUMINIUM ALUMINIUM ALUMINIUM ALLUMINIO
 AGIP	BLASIA 100	BLASIA 220	OSO 15	OSO 46	ASP 3/C	GR MU 2	OXALIS 250	ULEX 100
 BRIT. PETROL.	(SAE 80-GL4) (150 cSt.)	ENERGOL GR-XP 220	ENERGOL HLP 15	ENERGOL HPL 46	ENERGOL HLP 32	ENERGREASE L2		
 CASTROL	ALPHA SP100	ALPHA SP220	HISPIN AWS15	HISPIN AWS46	HYSPIN AWS 32	SPHEEROL APT2	SUPEREDGE 4	SUPEREDGE 4
 CHEVRON	NL GEAR COMPOUND 100	NL GEAR COMPOUND 220	EP HYDRAULIC OIL 15	EP HYDRAULIC OIL 46	VISTAC OIL 68	DURA LIGHT GREASE 2	EP SOLUBLE	
 ESSO	SPARTAN EP 100	SPARTAN EP 220	NUTO H15	NUTO H46	NUTO H32	BEACON 2	KUTWELL 40	
 FINA	GIRAN 100	GIRAN 220	HYDRAN 15	HYDRAN 46	PURFIROK EP 32	MARSON EPL 2	PURFISOL PURFISOL LAM	PURFISOL IT4/018
 SHELL	OMALA OIL 100	OMALA OIL 220	TELLUS OIL 15	TELLUS OIL 46	TELLUS OIL S 32	ALVANIA GREASE R2	DROMUS OIL F	
 TOTAL	CARTER EP 100	CARTER EP 220	AZOLLA ZS 15	AZOLLA ZS 46	PNEUMA 46	NYCTEA 2	LACTUCA EP	LACTUCA EP
 TEXACO	MEROPA 100	MEROPA 220	RANDO OIL HD 15	RANDO OIL HD46		MULTIFAC EP 2		
 VANGUARD	GEARING EP 100	GEARING EP 220	HYDRAULIC 15	HYDRAULIC 46	KOMOL SRV 32	LIKO 2	VANSIN 80 EP	VANSIN 80 EP
 SINOL	SINTREX EP 100	SINTREX EP 220	SINOLUBE	SINOLUBE		BEARING EP 2	SINOL BIO 90	
 ITAL. PETROLI	MELLANA OIL 100	MELLANA OIL 220	HIDRUS OIL 15	HIDRUS OIL 46	BANTIA OIL R 32	ATHESIA GREASE 2	UTENS FLUID F	UTENS FLUID F
 CINCINNATI							CIMPERIAL C 60	CIMCOOL AL
ISO - UNI CLASS.	CC100	CC220	HM15	HM32	FD32	XM2		

INSTRUCTIONS FOR USE

24 - MAINTENANCE - for skilled personnel

IMPORTANT

If you want to make some special maintenance/disassembly/resetting operations on the machine, it is necessary to know all information concerning safety procedures.

The skills of specialized personnel allow to solve more easily all problems found by the user when running the saw. This allows also to safeguard the technical, production and safety features of this equipment, according to the initial setting by the manufacturer.

To get a detailed knowledge of this machine you can find here enclosed:

- Electrical scheme/s: divided into theme tables and made according to the current norms concerning this subject, with index, material indication, reference code numbers.

- Pneumatic and hydraulic circuits

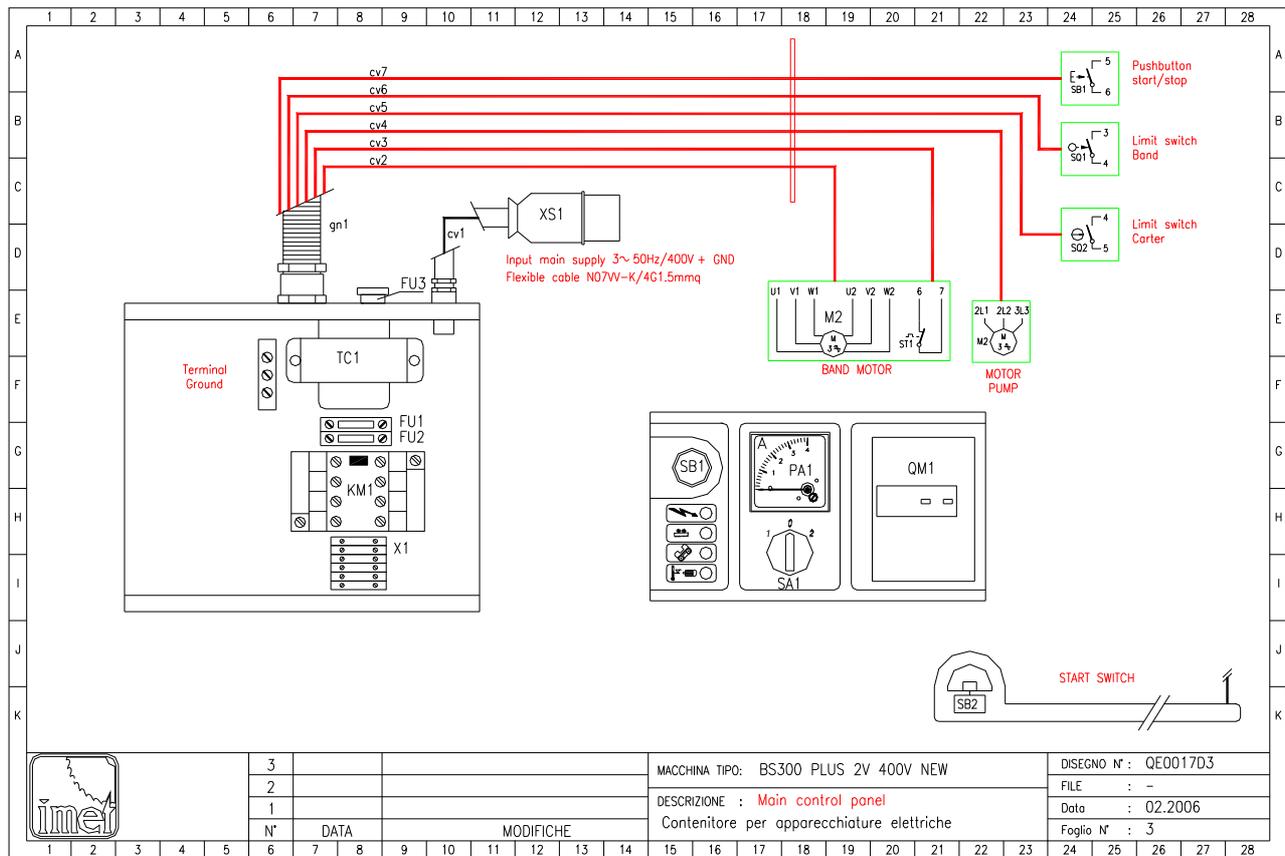
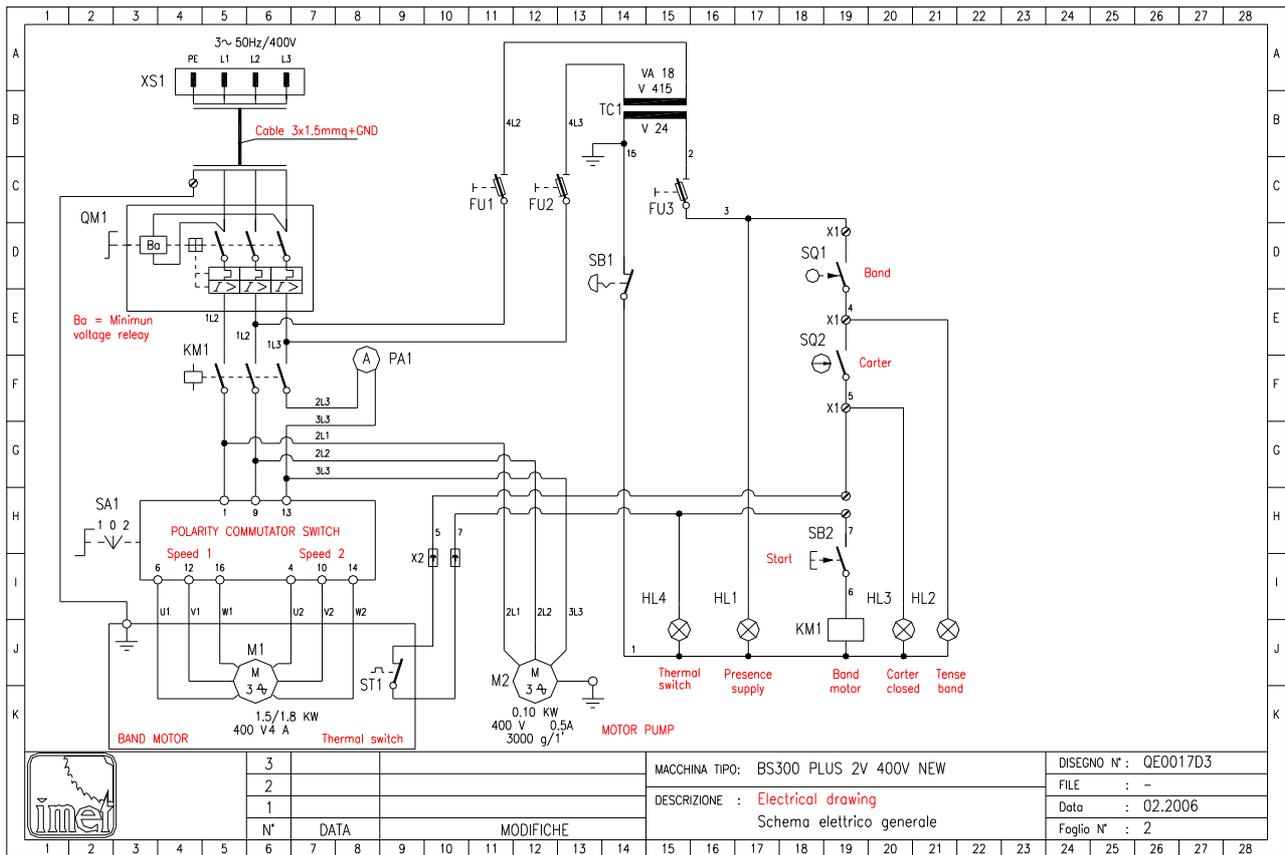
- Drawings: divided into the main parts the saw is comprised of. They code, description and quantity of each component.

The electrical/electronic/pneumatic or hydraulic components are not showed in these drawings but only in the aforementioned schemes.

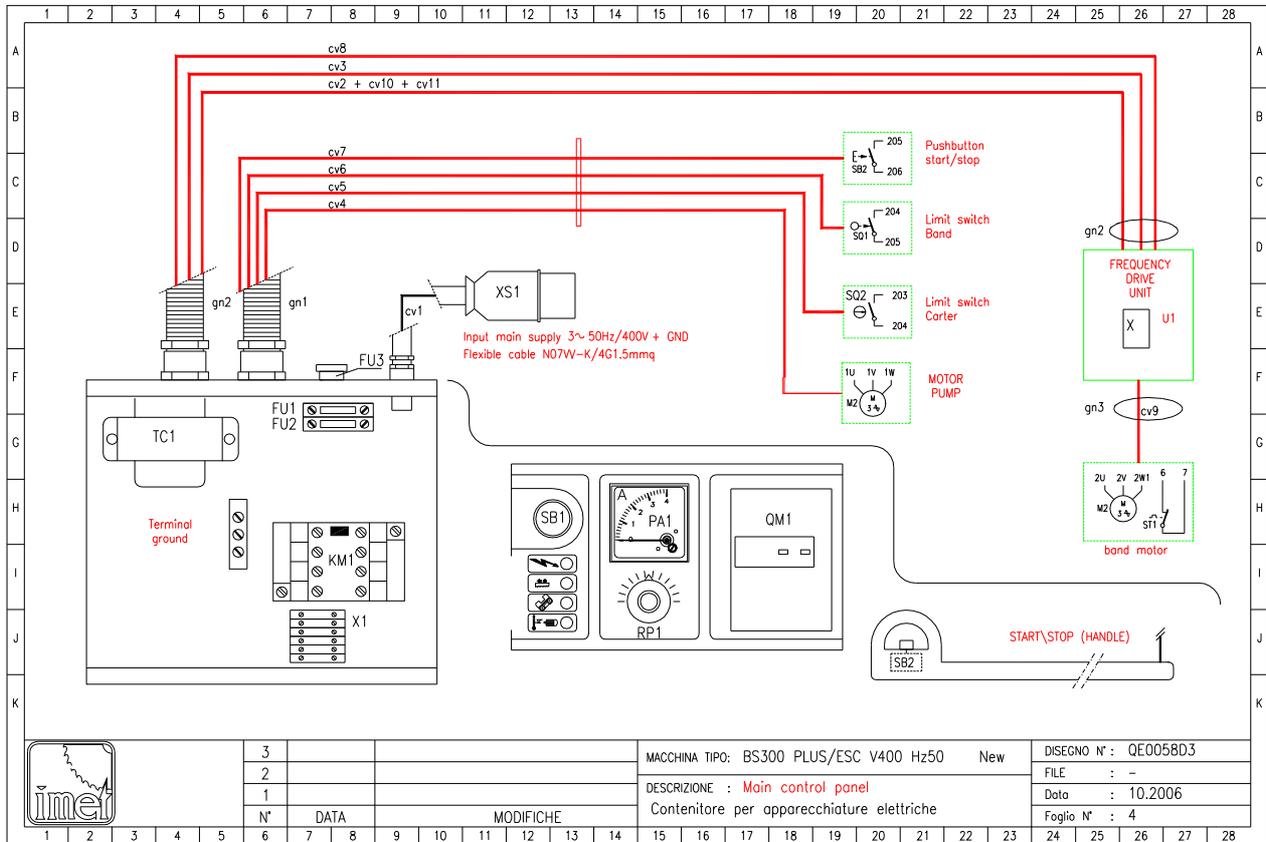
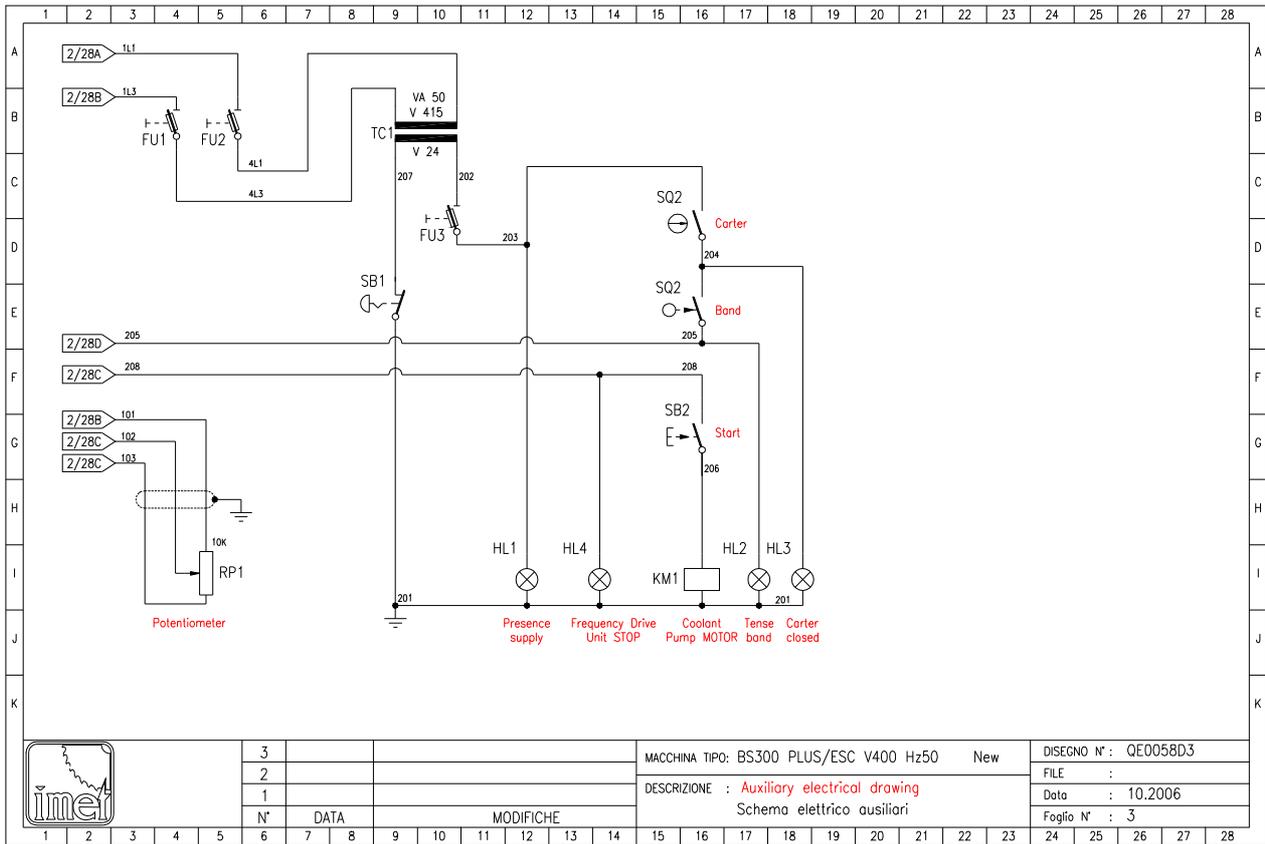
If the users want to know this saw in detail, they can study this manual and follow its indications meticulously, but they do not have to modify any parts of this equipment, since by doing so the DECLARATION OF CONFORMIITY would lose its validity

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28																							
A																												A																							
B	DEVICE DESIGNATIONS													CODE TO NUMBER AUXILIARY CONDUCTORS (ABCD)														B																							
C	AT	Main control	B	Proximity switch	C	Capacitor	FU	Fuse block	KM	Control master relay	HL	Pilot light	L	Filter suppressor	M	Motor	PA	Ampermeter	QM	Circuit breaker	RP	Potentiometer	SA	Selector switch	SB	Pushbutton	SQ	Limit switch	SP	Pressure switch	ST	Thermic switch	TC	Control circuit transformer	TV	Voltage transformer	U	Controller A.C.	V	Rectifier diode	VC	Rectifier bridge	X	Terminal block	XS	Plug	XP	Receptacle	YV	Solenoid valve	C
D														CODE TO INITIALLING FOR ELECTRIC EQUIPMENT (A B C)														D																							
E														A = page's number B = device designation C = progressiv's number														E																							
F														CODE TO LOCATE OF RELAY CONTACTS (A . B)														F																							
G														A = page's number B = column's number														G																							
H														CODE TO REFER LINE (A / B)														H																							
I														A = page's number B = column's number and letter's line														I																							
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						2						DESCRIZIONE : Device designations						FILE : -																																	
						1						Legenda simbologia elettrica						Data : 02.2006																																	
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INSTRUCTIONS FOR USE



INSTRUCTIONS FOR USE



INSTRUCTIONS FOR USE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
REF.	DEVICE	SPECIFICATIONS					FUNCTION					FACTORY	TYPE	ITEM N°	Q.TY												
A	FU1	Fuse block	4mmq. - 6A					Primary protection transformer					CONTACLIP	STK1-PA	694520	1											
	FU1	Fuse	5x25mm. - Size 2A					Primary protection transformer					WEBER	5x25mm./2A	390010	1											
B	FU2	Fuse block	4mmq. - 6A					Primary protection transformer					CONTACLIP	STK1-PA	694520	1											
	FU2	Fuse	5x25mm. - Size 2A					Primary protection transformer					WEBER	5x25mm./2A	390010	1											
	FU3	Fuse block	Munting of panel					Secondary protection transformer					E.S.	PTF/30	694765	1											
C	FU3	Fuse	5x20mm. - Size 6.3A					Secondary protection transformer					WEBER	5x20mm./6.3A	390001	1											
	KM1	Control master relay	4KW - 9A - 24Vac					Power coolant motor pump					LOVATO	MC9-10-24	260750	1											
D	M1	3Phase motor	0.15KW-400V- 3000g/1'					Coolant motor pump					OMCC	PMU40L P90	331416	1											
	M2	3Phase motor	1.5/1.8KW-400V-1500/3000g/1'					Circular motor					ELECTROADDA	B5 FC 90 2/4 POLI	590050	1											
	L1	Filter (optional)	RC+Cable 575V					Noise suppressor					MPM	130809	334010	1											
E	PA1	Ampermeter	0 / 5 a Mec 72X72					BAND motor current control					PANTEC	72/72 5A ANALOG.	118282	1											
	HL1/2/3	Pilot lights	IP44 + Cable 1.200mm-24V					Supply=White Band=Green Carter=Green					SIGNALUX	ART3190 24V	786691	1+2											
	HL4	Pilot lights	IP44 + Cable 1.200mm-24V					STOP frequency drive unit = Green					SIGNALUX	ART3190 24V	786691	1											
F	QM1	Circuit breaker	3P/P.1.16KA/4-6.3A/Rate 4.5A					Main circuit breaker - Ampere rating 4.5					TELEMECANIQUE	GV2 M10/4-6.3A	766162	1											
	QM1	Min. voltege relay	400V					Unlooh main circuit					TELEMECANIQUE	GV2 AU385	164908	1											
	QM1	BOX	IP55					Box for main circuit breaker					TELEMECANIQUE	GV2 MP04 + V01	766196	1											
G	RP1	Potentiometer	10K Ohm Rotatin type, diam.6X50					Control speed band motor							699748	1											
	RP1	Handle for Potentiometer	Hole diam. 22mm, rear type					Control speed band motor					CGE - CEMA	080 PTZ	699748	1											
H	SB1	Pushbutton (handle)	6A 250 V					Control band motor					BREMAS	AP65	520821	1											
	SO1	Limit switch	NC/0/NO					Control band position					-	ABV121260	520941	1											
	SO2	Limit switch	IP65 - NC/0/NO					Control carter close					PIZZATO	FK3393-01	520765	1											
	ST1	Thermal switch	Classe B					Overcurrent protection band motor					TERMIK			1											
J	TC1	Control circuit transformer	50VA-Vi 230/400-Vu 24 CE11418					Main auxiliary supply					C.E.	TM VA50	932500	1											
K	U1	Frequency drive unit	1.5KW-400V/3 phase					Control speed circular motor					TELEMECANIQUE	ALTIVAR 31ATV	521200	1											



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N°	DATA

MACCHINA TIPO: BS300 PLUS/ESC V400 Hz50 New	
DESCRIZIONE : General list of electrical equipments	
Elenco generale componenti elettrici	

DISEGNO N° : QE0058D3	
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Foglio N° : 5	

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REF.	DEVICE	SPECIFICATIONS					FUNCTION					FACTORY	TYPE	ITEM N°	Q.TY												
B	XS1	Plug	3 P+Terra IEC 309 16A					Connection main supply					ILME	PE 1665 SV	787000	1											
	X2	Insulation terminal	Sez. 1.5mmq					Connection thermal switch					K.E.	35038 + 35004	182942 + 182945	2											
	X1	Terminal block	Double terminal block 2.5 mmq					Connection external equipments					CONTACLIP	RKD 2.5 PA	559092	6											
	X	Terminal block	terminal block 2.5 mmq					Connection external equipments					SCHIAVI	ART6904	558853	1											
C	gn1	Flexible tube	PVC 1"					Connection external equipments					TEAFLEX	PAS-G29B	507382	1											
	gn2	Flexible tube	PVC 3/4"					Connection external equipments					TEAFLEX	PAS-G23B	507386	1											
	gn3	Flexible tube	PVC 1/2"					Connection external equipments					TEAFLEX	PAS-G17B	507392	1											
E	cv1	Flexible cable	N07V-K 4G2.5mmq.					Connection main supply							205065	1											
	cv2	Flexible cable	3 X 0.75 + shield					Connection frequency drive unit (controls)								1											
	cv3	Flexible cable	1 X 1.5 mmq + shield					Connection frequency drive unit (power)								5											
F	cv4	Flexible cable	N07V-K 4G1.5mmq.					Connection coolant motor pump							205065	1											
	cv5/cv6	Flexible cable	N07V-K 2x1 mmq.					Connection limit switch carter ond band								1+1											
	cv7	Flexible cable	N07V-K 2x1 mmq. Black					Connection pushbutton start/stop (handle)								1											
G	cv8	Flexible cable	1 X 1.5 mmq + shield					Connection frequency drive unit (ammeter)								2											
	cv8	Flexible cable	1 X 1.5 mmq + shield					Connection band MOTOR								5											
	cv2	Flexible cable	2 X 0.75 + shield					Connection frequency drive unit (controls)								1											
H	cv2	Flexible cable	2 X 0.75					Connection frequency drive unit (controls)								1											



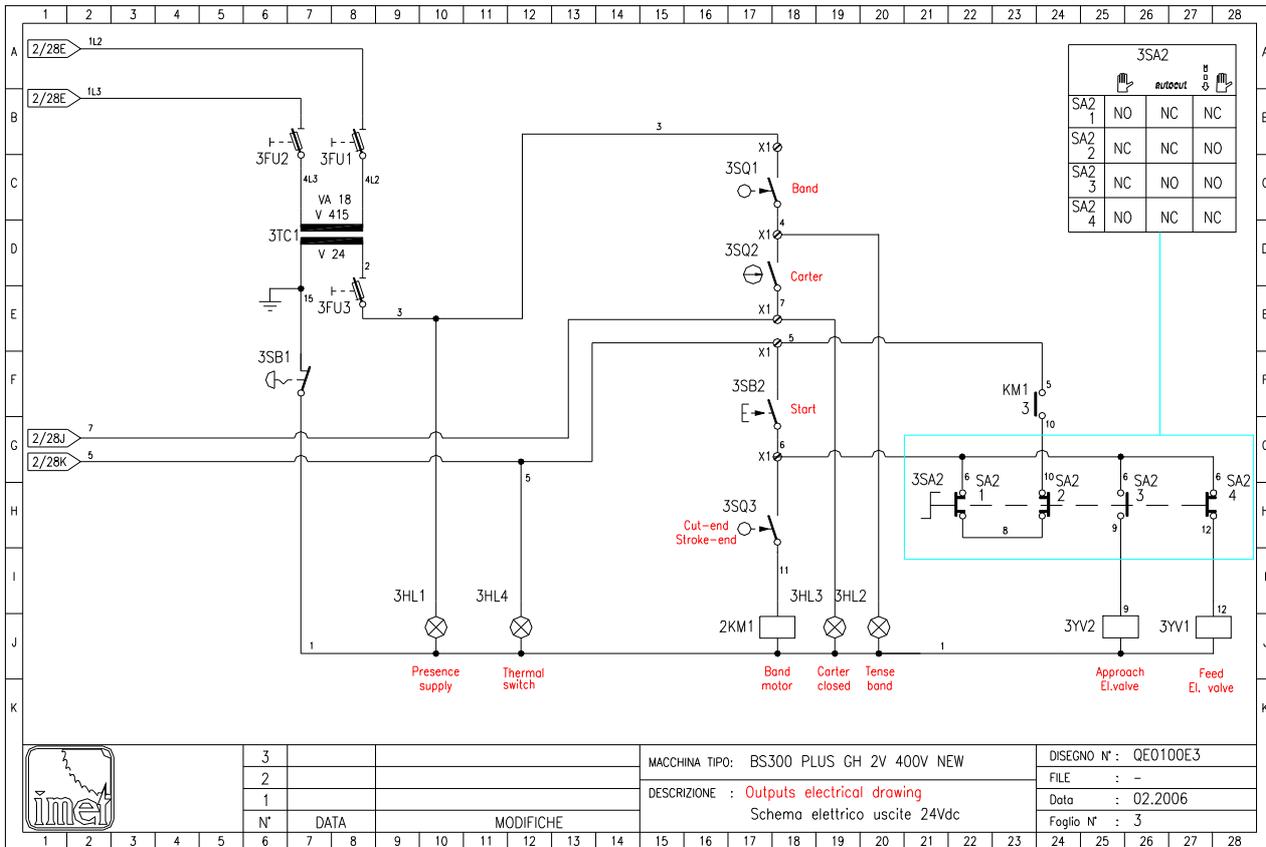
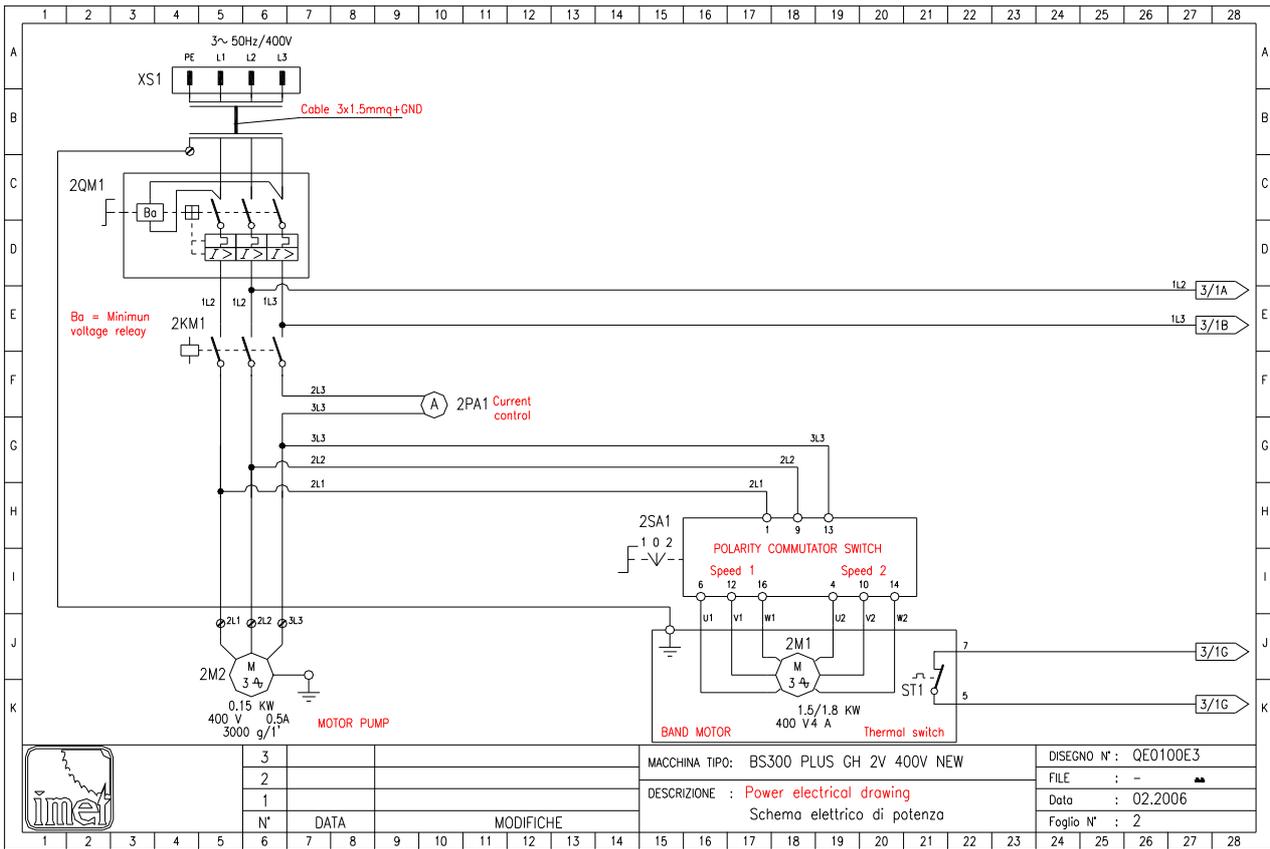
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DESCRIZIONE : General list of electrical equipments	
Elenco generale componenti elettrici	

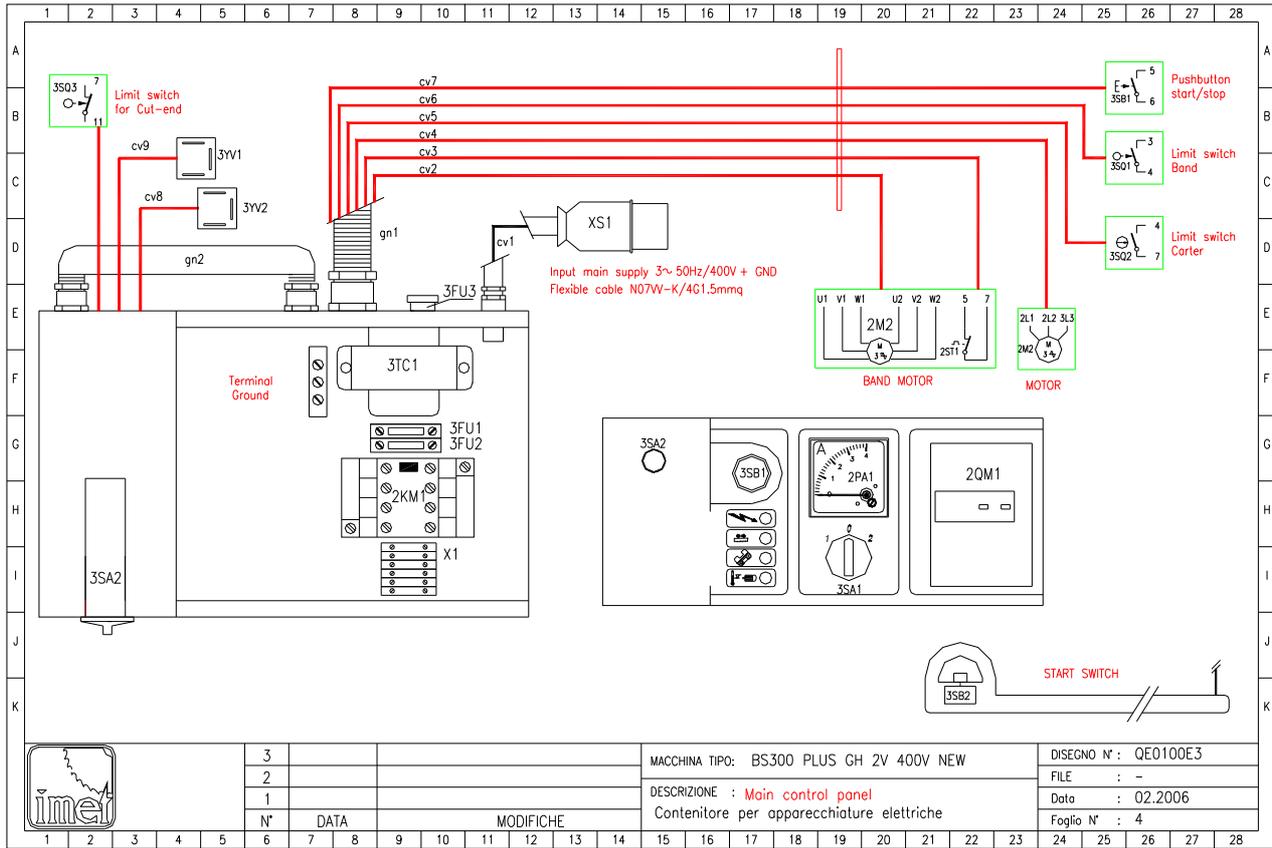
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Foglio N° : 6	

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INSTRUCTIONS FOR USE



INSTRUCTIONS FOR USE



REF.	DEVICE	SPECIFICATIONS	FUNCTION	FACTORY	TYPE	ITEM N°	Q.TY
3FU1	Fuse block	4mmq. - 6A	Primary protection transformer	CONTACLIP	STK1-PA	694520	1
3FU1	Fuse	5x25mm. - Size 2A	Primary protection transformer	WEBER	5x25mm./2A	390010	1
3FU2	Fuse block	4mmq. - 6A	Primary protection transformer	CONTACLIP	STK1-PA	694520	1
3FU2	Fuse	5x25mm. - Size 2A	Primary protection transformer	WEBER	5x25mm./2A	390010	1
3FU3	Fuse block	Munting of panel	Secondary protection transformer	E.S.	PTF/30	694765	1
3FU3	Fuse	5x20mm. - Size 2 A	Secondary protection transformer	WEBER	5x20mm./2 A	390001	1
2KM1	Control master relay	4KW - 9A - 24Vac	Power band motor - Forward start	LOVATO	MC9-10-24	260750	1
2M1	3Phase motor	1.5/1.8KW-400V-1500/3000g/1'	Band motor	ELECTROADDA	B5 FC 90 2/4 Poles	590050	1
2M2	3Phase motor	0.15KW-400V- 3000g/1'	Coolant motor pump	OMCG	PMU40L P90	331416	1
2PA1	Amperemeter	0 / 5A - Mec 72	Current control circular motor	PANTEC	72/72 5A F72E	118282	1
2Q01	Circuit breaker	3P/P.I. 6KA-4/6.3A-Rating 4.5A	Main circuit breaker - Ampere rating 4.5	TELEMECANIQUE	GV2 M10 -4/6.3A	766162	1
2Q01	Min. voltage realy	400V +- 10%	Unload main circuit	TELEMECANIQUE	GV2 AU385	164908	1
2Q01	Terminal box	IP65	Box for main circuit breaker	TELEMECANIQUE	GV2 MP04 + V01	766196	1
2Q01	Emergency button	IP55 rotating type	Break-off thermamagnetic protector	TELEMECANIQUE	GV2 K031	1	
3HL1/2/3	Pilot lights	IP44 + Cable 1.200mm-24V	Supply=white Band=green Carter=green	SIGNALUX	ART3190 24V	786691	1+2
2SA1	Polarity commutator switch	3 Poles/16A - 3 Pos.Δ-0-Υ-Υ	Setting speed circular motor	TECNOMATIC	HD12X222 R922	257909	1
3SB1	Pushbutton (handle)	6A 250 V	Control band motor	BREMAS	AP65	520821	1
3S01	Limit switch	IP00 - NC/0/NO	Control band position	PIZZATO	MS 06	520916	1
3S02	Limit switch	IP65 - NC/0/NO	Control carter close	PIZZATO	FK3393-01	520765	1
2ST1	Thermal switch	Classe B	Overcurrent protection circular motor	TERMIK		1	1
2TC1	Control circuit transformer	50VA-Vf 240/415-Vu 24 CE11418	Main auxiliary supply	ZE	50VA E/U 0/2A	932500	1
XS1	Plug	3 P+Terra IEC 309 16A	Connection main supply	ILME	PE 1665 SV	787000	1
X2	Insulation terminal	Sez. 1.5mmq	Connection thermal switch	K.E.	35038 + 35004	182942 + 182945	2
X1	Terminal block	Double terminal block 2.5 mmq	Connection external equipments	CONTACLIP	RKD 2.5 PA	559092	6
gn1	Flexible tube	PVC 1"	Outputs bow motor	TEAFLEX	PAS-G29B	507382	1
cv1	Flexible cable	N07W-K 4G1.5mmq.	Connection main supply			205065	1
cv2+cv3	Flexible cable	N07W-K 6G1.5mmq.+2G1mmq.	Connection band motor and thermal switch				1
cv4	Flexible cable	N07W-K 4G1.5mmq.	Connection motor pump			205065	1
cv5/cv6	Flexible cable	N07V-K 2x1 mmq.	Connection limit switch carter and band				1+1
cv7	Flexible cable	N07V-K 2x1 mmq. Black	Connection pushbutton start/stop				1

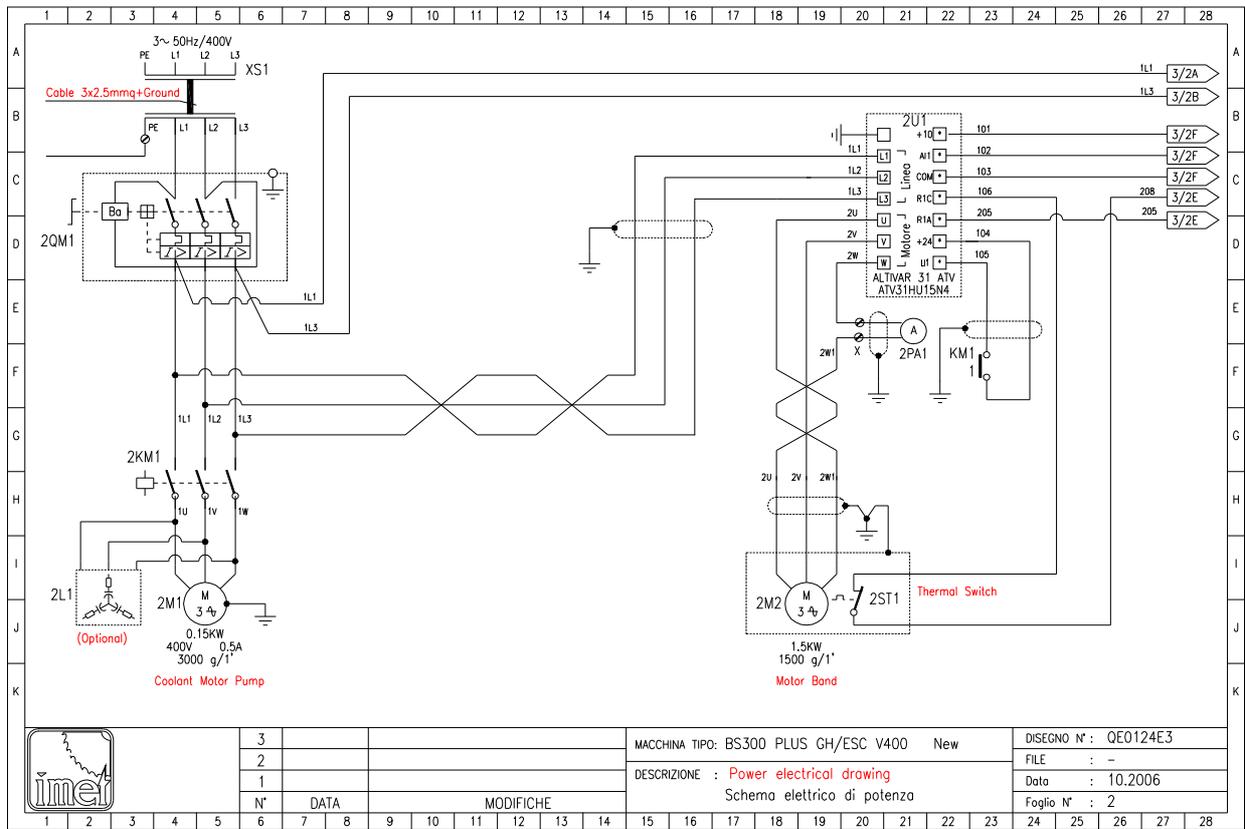
MACCHINA TIPO: BS300 PLUS GH 2V 400V NEW
 DESCRIZIONE : General list of electrical equipments
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DESEGNO N° : QEO100E3
 FILE : -
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 Foglio N° : 5

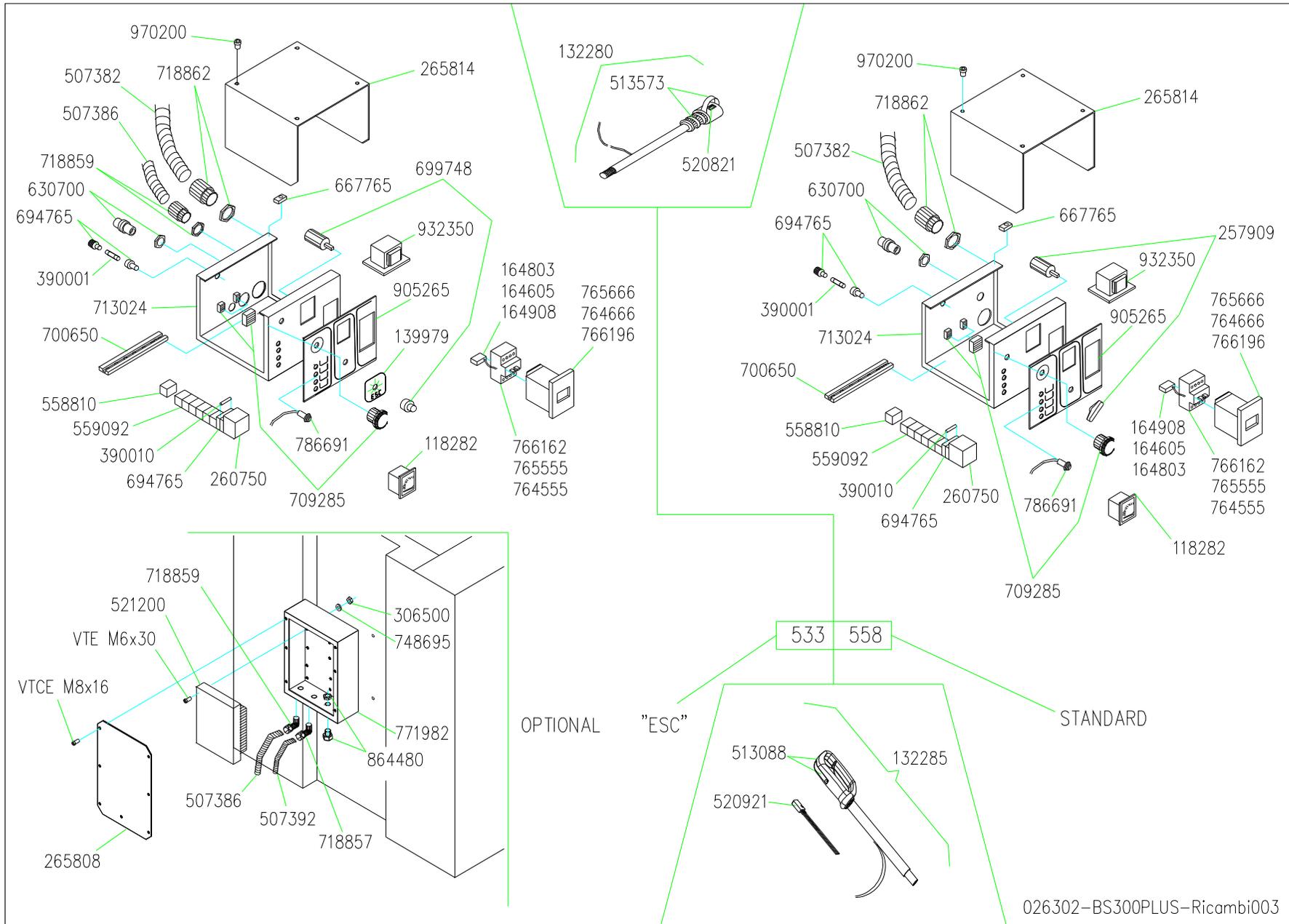
INSTRUCTIONS FOR USE

REF.	DEVICE	SPECIFICATIONS	FUNCTION	FACTORY	TYPE	ITEM N°	Q.TY
3SA2	SELECTOR 3 POS.	3 POS. DIA. 22 RANGE	MANUAL/GRAVITY FEED SELECTOR	BRETER	RM 310 N	773823	1
3SA2/1	EL.CONTACT	NO ADVANCE CONTACT YELLOW TIGE	MANUAL/GRAVITY FEED SELECTOR	BRETER	VAO+P24420G	260399	2
3SA2/2	EL.CONTACT	NC ADVANCE CONTACT GREY TIGE	MANUAL/GRAVITY FEED SELECTOR	BRETER	VRO+P24419H	260235	1
3SA2/3	EL. CONTACT	NC RED IP20	MANUAL/GRAVITY FEED SELECTOR	BRETER	V40+P24417R	260231	1
3SA2/4	EL.CONTACT	NO ADVANCE CONTACT YELLOW TIGE	MANUAL/GRAVITY FEED SELECTOR	BRETER	VAO+P24420G	260399	2
3S03	STROKE-END	IP 67 W/CABLE	END OF CUT	TELEMECANIQUE	XCMA1023	521145	1
3YV1	EL. VALVE	2/2 NC 24V AC	HEAD LOWERING	PARKER	VE 146 -A3 ABV	331690	1
3YV2	EL. VALVE	2/2 NC 24V AC	HEAD LOWERING	PARKER	VE 146 -A3 ABV	331690	1
gn2	FLEXIBLE CABLE	PVC 1/22	CONNECTING	TEAFLEX	PAS G 17 B	507392	1
cv8-9	FLEXIBLE WIRE	N007V-K 2X1 mmq	CONNECTION				2

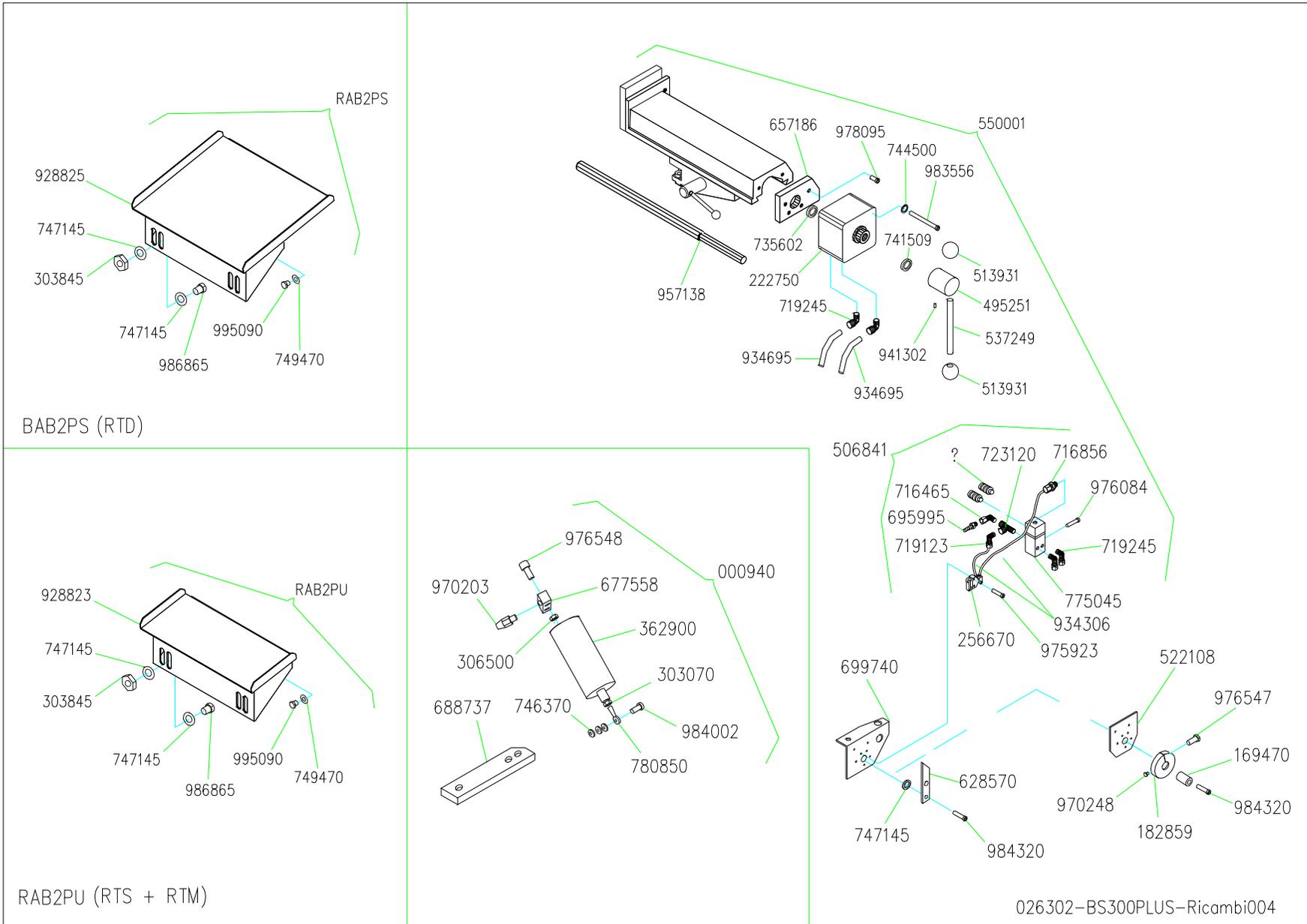
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	2			DESCRIZIONE : General list of electrical equipments	FILE : -
	1			Elenco generale materiale elettrico	Data : 02.2006
	N°	DATA	MODIFICHE		Foglio N° : 6



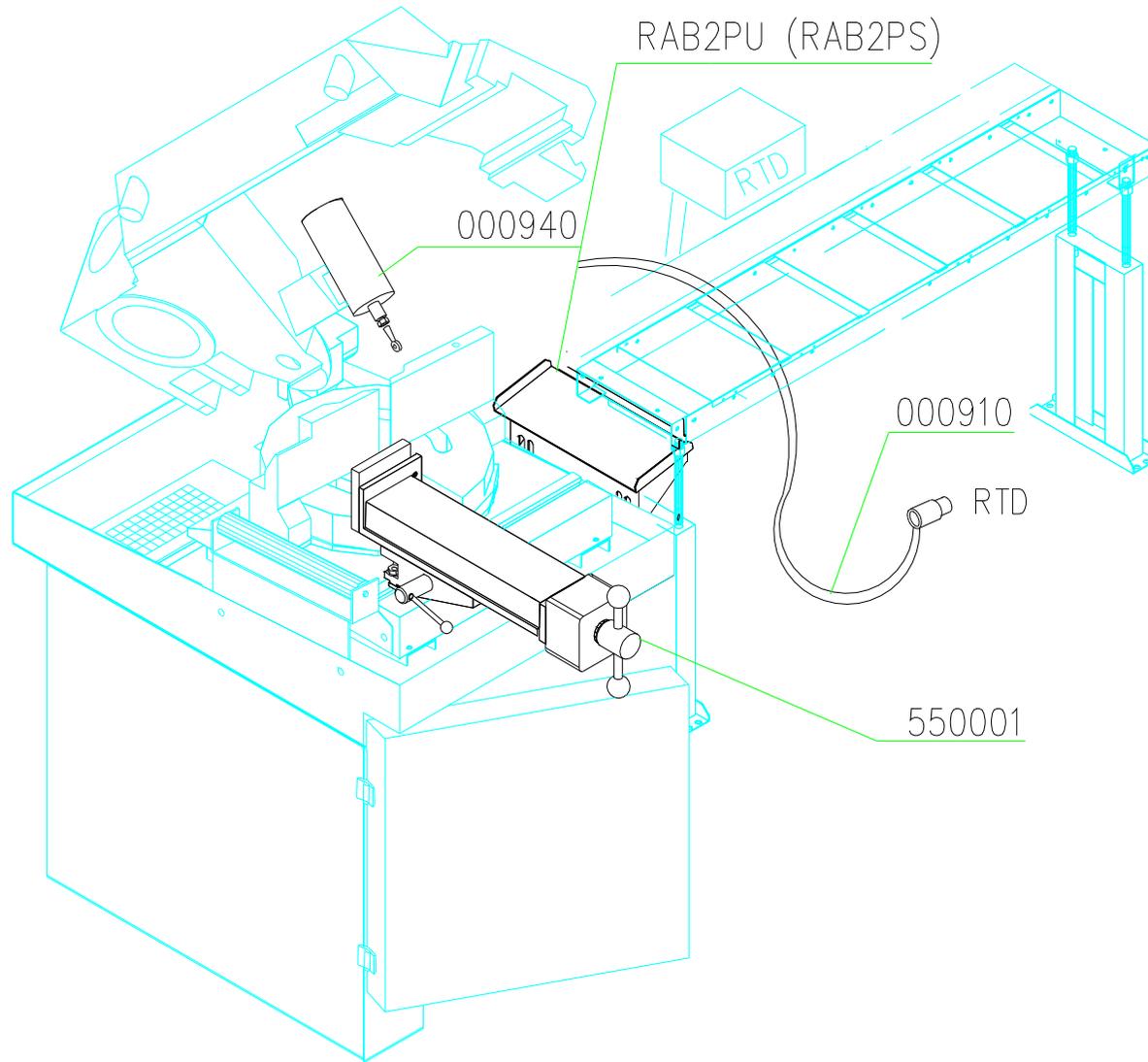
INSTRUCTIONS FOR USE



INSTRUCTIONS FOR USE

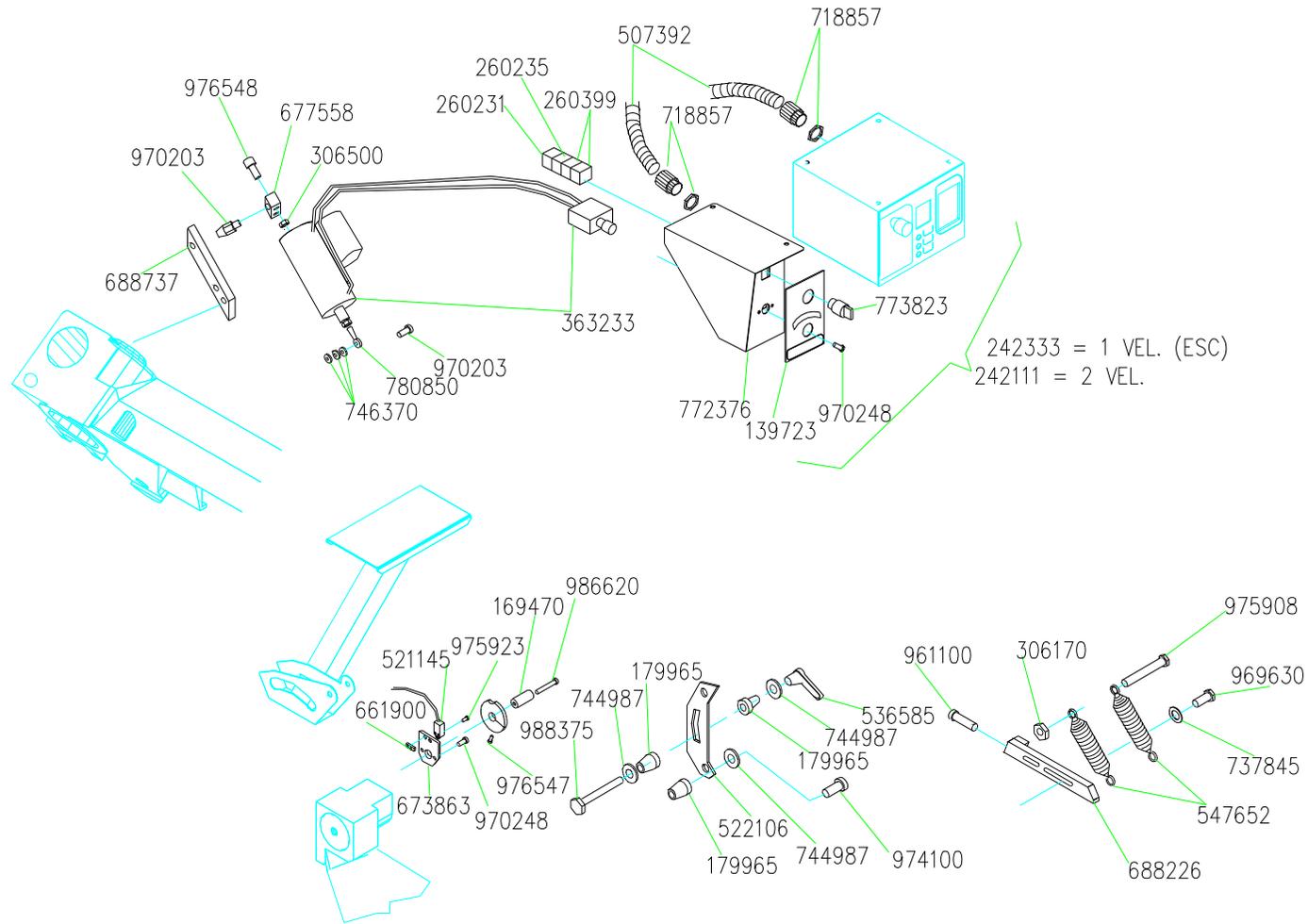


INSTRUCTIONS FOR USE



026302-BS300PLUS-Ricambi005.dwg

INSTRUCTIONS FOR USE



026352-BS300PLUSGH-Ricambi001

INSTRUCTIONS FOR USE

<u>COD.</u>	<u>ITALIANO</u>	<u>ENGLISH</u>	<u>FRANCOISE</u>	<u>DEUTSCH</u>
<u>026302</u>	<u>BS300 PLUS 3F 2V 35/70 V400 24V CEE SEGATRICE</u>	<u>BS280 PLUS 3PH 2SP 35/70 V400</u>	<u>BS280 PLUS 3PH 2SP 35/70 V400</u>	
<u>113502</u>	<u>ALBERO X PULEGG.ANT.BS280 FRES ATO</u>	<u>BS 280 FRONT BAND WHEEL SHAFT</u>		<u>BS 280 VORDERSCHEIBE SAEGEARM</u>
<u>119395</u>	<u>ANELLO TENUTA OR 159 3.53X55.5 6</u>	<u>OR RING 3.53X55.56</u>		
<u>119621</u>	<u>ANELLO TENUTA OR 171 3.53X68.2 6</u>	<u>OR RING 3.5X68.26</u>		
<u>127655</u>	<u>ANELLO SEEGER RS6 DIN 6799</u>	<u>SEEGER RING RS6 DIN 6799</u>		
<u>127810</u>	<u>ANELLO SEEGER A17 RIGA RTD</u>	<u>SEEGER RING A17 RTD TABLE</u>		
<u>128116</u>	<u>ANELLO SEEGER J72 PULEGGE FORO 72</u>	<u>SEEGER INNER RING J72</u>	<u>BOUCLE SEEGER J72 POULIES</u>	<u>SEEGER INNERER RING J72</u>
<u>128702</u>	<u>ANELLO TENUTA 25X35X7</u>	<u>SEAL RING 25X35X7</u>		
<u>129107</u>	<u>ANELLO TEN.PARAP.BASL 55X70X8</u>	<u>SEAL RING 55X70X8 FOR COUPLING</u>		
<u>129736</u>	<u>ANELLO TENUTA 47X22X7</u>	<u>SEAL RING 47X22X7</u>		
<u>131828</u>	<u>ARCO-RIDUTTORE BS300 LAVORATO</u>	<u>FRAME REDUCER BS300</u>		
<u>136827</u>	<u>ASTA REG.MISURA BS350/280 BRUN D.20+FILETTO M12</u>	<u>LENGTH STOP ROD D.20 BS340/280</u>		
<u>142719</u>	<u>BASAMENTO GHISA BS280 PLUS CON CAVA SCOR</u>	<u>CAST IRON BASE+GROOVE BS280PLU</u>		
<u>142805</u>	<u>BASAMENTO LAM.BS280 PLUS NEW</u>	<u>IRON SHEET BASE BS280 PLUS NEW</u>		
<u>144999</u>	<u>BIELLA OTTON.TPN25 MORSA BS280 PLUS</u>	<u>VICE THREADED ROD BS280</u>		<u>SCHRAUBST.GEWINDEPLEUEL STANGE</u>
<u>157210</u>	<u>BLOCCHETTO TENDINASTRO 280350 FRONTALE</u>	<u>BAND TENSIONER BLOCK 280350NEW</u>		
<u>157220</u>	<u>BLOCCHETTO SPINTA BIELLA BS350</u>	<u>VICE ROD FOR BS 350</u>		<u>SPANNSTOCK PLEUELSTANGE BS350</u>
<u>165895</u>	<u>BOCCOLA RIFERIM.GANASCE BS 280 PLUS</u>	<u>JAWS RING WASHER BS 280PLUS</u>		
<u>169462</u>	<u>BRACCIO COMANDO EL.BS280</u>	<u>EL.CONTROL SUPPORT BS 280</u>		
<u>172180</u>	<u>BUSSOLA OTT.D20X35 BLOCC.PIATT T</u>	<u>BASE LOCKING BUSH D20 BS280</u>		
<u>172190</u>	<u>BUSSOLA OTT.D8X15 BLOC.PIATTO PATTINO BS280</u>	<u>D8X15 PLATE BLOCKING BUSH</u>		
<u>172378</u>	<u>BUSSOLA CENTRALE D.40 BASAM.BS 280 PLUS</u>	<u>BASE CENTRAL BUSH D.40</u>		
<u>177280</u>	<u>BUSSOLA D.16X25 PERNO OSC.BS28 0</u>	<u>OSCILLATING PIN BUSH D.16X25</u>		
<u>179458</u>	<u>BUSSOLA DISTANZ.D.6.5X10X14</u>	<u>SPACER D.6.5X10X14</u>		
<u>179965</u>	<u>BUSSOLA MOLLE/ARCO 280- GH BRUN</u>	<u>280-GH BUSH SPRINGS/BOW</u>		
<u>182433</u>	<u>BUSSOLA TEMP.10X15X12 DIN179/A</u>	<u>TEMPERATED BUSH 10X15X12</u>		
<u>182466</u>	<u>BUSSOLA TEMP.12X18X12 DIN179/A</u>	<u>TEMPERATED BUSH 12X18X12</u>		
<u>182476</u>	<u>BUSSOLA TENDINASTR.300350 NEWA UT</u>	<u>BAND STRETCHER BUSH</u>		
<u>184921</u>	<u>CARRELLO MORSA SCOR.BS300 PLUS 2X45°</u>	<u>SLIDING VICE CARRIAGE BS280PL</u>		
<u>201483</u>	<u>CARTER COPRIARCO BS300 PLUS</u>	<u>TUBE GUARD BS300 PLUS</u>		
<u>201538</u>	<u>CARTER NASTRO-BS300 CERN+SIC.</u>	<u>BAND GUARD-2 PIECES- NEWBS300</u>		
<u>214700</u>	<u>CHIAVETTA 6X6X20 UNI6604</u>	<u>KEY 6X6X20</u>		
<u>215123</u>	<u>CHIAVETTA 8X7X15 UNI6604</u>	<u>KEY 8X7X15 UNI6604</u>		
<u>216270</u>	<u>CHIAVETTA 8X7X25 UNI6604</u>	<u>KEY 8X7X25 UNI6604</u>	<u>TL CLAVETTE ENTR.BAGUE</u>	
<u>227379</u>	<u>COLONNA COMPL.BS280 PLUS NEW</u>	<u>COMPL.BASE FOR BS280PLUS NEW</u>		
<u>265814</u>	<u>COPERCHIO QUADRO BS280 PLUS NE W</u>	<u>ELECTRIC BOARD COVER 280 PLUS</u>		

INSTRUCTIONS FOR USE

276674	CORONA BRONZ. M2,75 Z35 BS280	BRONZE WHEEL M2,75 Z35 BS280	
279150	CUNEO SX BLOC.MORSA SIRIO370	SIRIO370 VICE ADJ. LEFT WEDGE	COIN GAUCHE BLOCAGE ÉTAU S.370
279160	CUNEO DX BLOC.MORSA SIRIO370	SIRIO370 VICE ADJ. RIGHT WEDGE	COIN DROI BLACAGE ÉTAU S.370
280052	CUNEO REGISTR.MORSA BS280 PLUS L.452 CON 2 FORI SPINA	VICE ADJUSTING WEDGE BS280PLUS	
283011	CUSCINETTO 32005X 25X47X15	BEARING 32005X 25X47X15	
283102	CUSCINETTO 32008XA 40X68X19	CARRIAGE CONNECT.32008X4 40X68	
286020	CUSCINETTO 608.2ZR 8X22X7	BRUSH/PUMP CARRIAGE CONNECTION	ROULEMENT 608.2ZR 8X22X7
286302	CUSCINETT.30305DJR 25X62X17/13 =310305A	BEARING 31305A 25X62X17/13	
286795	CUSCINETTO 30305DR 25X62X15/13 = 30305A	CARRIAGE CONNECTION 25X62X15	ROULEMENT 30305A 25X62X15/13
288083	CUSCINETTO ASS.51102 15X28X9	BEARING 51102 15X28X9	
288090	CUSCINETTO ASS.51103 17X30X9	BEARING 51103 ..X..X.	
288725	CUSCINETTO 6206 30X62X16	CARRIAGE CONNECTION 6206 30X62	ROULEMENT 6206 30X62X16
288995	CUSCINETTO 6209 45X85X19	CARRIAGE CONNECTION 6209 45X85	
291020	CUSCINETTO 6207.2RSR 35X72X17	CARRIAGE CONNECTION 6207 35X72	LAGER 6207EE 35X72X17
291304	CUSCINETTO 626.2ZR 6X19X6 PATTINI 280/300	BEARING 626.2ZR 6X19X6	
315285	DISCO REGISTR.VSF BS280	SCREW ADJUSTING DISC BS280	
322160	Distanziale CORONA BS280	WHEEL SPACER BS280	
325859	Distanziale GIUNTO/MOT.BS280	MOTOR COUPLING SPACER BS280	
327118	Distanziale PUL.D.35X42 BS280	PULLEY SPACER D.35X42 BS280	SCHEIBE DISTANZSTUECK D35X42
327281	DISTRIBUTORE REFRIG.YRS686 BS2 80	COOLANT DISTRIBUTOR BS280	
330055	ECCENTR.CHIUS.RAPIDA MORSA 350 (D32X90)	VICE RAPID MOVING ECCENTRIC 35	SCHRAUBS.SCHNELLBEW.EXZ ENTER
331416	EL.POMPA CORTA PIEDE 85 AST30 230400460-1/2"-W90 =PMU40L P90	SHORT ELECTRIC PUMP 230400460	ELECTROPOMPE COURTE 230400460
349584	FLANGIA CHIUS.RIDUTT.BS280	REDUCTION CLOSING FLANGE BS280	
486394	GANASCIA CARR.MORSA 130X10X190 BS300 PLUS	VICE CARRIAGE JAW 130X15X190	
492590	GANASCIA APP.DESTRA 280PLUS/60	RIGHT CAST IRON JAW, 280 PLUS	
492590L	GANASCIA APP.DX.LAV.280PLUS	RIGHT CAST IRON JAW, 280 PLUS	
492640	GANASCIA APP.SINIST.280PLUS/60	LEFT CAST IRON JAW, 280 PLUS	
492640L	GANASCIA APP.SX.LAV.280PLUS	LEFT CAST IRON JAW.BS280PLUS	
497110	GHIERA KM5 M25X1,5 PERNO OSC.B S280	RING KM5 M25X1,5	
499145	GHIERA GN NORMAL.M15X1 AUTOBLO CCANTE	SELF LOCKING RING M15X1	AUTOBLOCANT M15X1
500316	GIUNTO M24JUNIOR D.19X24 BS280	COUPLING D.19X24 BS 280	
510200	GUARNIZIONE EL.POMPA D.130X102 X2 GOMMA ANTIOILIO	ELECTROPUMP SEAL D.130X102	
511300	GUARNIZIONE LANTERNA BS280 120 X80	GASKET BS 280	
511330	GUARNIZIONE FLANGIA BS280 D.14 5X110	FLANGE GASKET BS 280 D.14	
513088	IMPUGNATURA	TOURQUOISE HANDLE	

INSTRUCTIONS FOR USE

	TURCHESE+INS.BIANC O AZIONAM+INS.BIANCO INTERRUT			
513931	IMPUGNATURA SFERA NERA D.12X40 (MONT.PRESS.)	BLACK HANDLE D.12x40	BOULE BAKELITE POIGNEE	SCHWARZER HANDGRIFF D.12X40
515780	INSERTO SPECIALE D15.95X6.4 BS350	SPECIAL INSERT D15.95X6.4	PLAQUETTE SPECIALE D15.95X6.4	
515800	INSERTO QUADRO SVAS.19,3X4 F.4 WXP0274=GATTIA191DB10.OD C4.2G	SQUARE CARBURE PAD 19,3X4 F.4	PLAQUETTE CARBURE 19,3X4 F.4	VIERECKIGER EINSATZ 19,3X4 F.4
520765	INTER.SICUR.FK3393-D1 CHIAV.90 °PIZZATO	SAFETY SWITCH FK3393-D1		
520921	FINCORSIA PISTONCINO ABV1610618 NAIS=OMRON D2VW51M	STROKE-END ABV161060		
520941	FINCORSIA LEVA ABV121260 NAIS= OMRON D2VW5L1B1M- BS-230	STROKE-END ABV161660		
521580	LACCIO LEGRAND 320-32 2.4X180	LEGRAND PLASTIC STRING		
521585	BASE A INCASTRO 320.76 X LACCI LEGRAND	SUPPORT FOR STINGS 320.76		
521951	LAMIERA X DISTRIB.REFRIG.BS280 SU ARCO	COOLANT DISTR.SHEET METAL 280		
523762	LANTERNA MOTORE BS280 FINITA	MOTOR/BOW STRAINER BS280		
529020	LEVA BLOCC.CILINDR.AVANZ.BRUN AVANZATORE	CYLINDER LOCKING LEVER		ZYLINDER SPERRHEBEL
536523	MANIGLIA RIP.M10F.ART.592- 80 R AL9011 (M10 NL)	TURNING HANDLE M10 TYPE592-80	POIGNÉE M10F ART.592-80 R	HANDGRIFF M10 TYP 592-80
536675	MANIGLIA RIPRESA M12X45 TIP.80 MASCHIO	TURNING HANDLE M12X45 TYPE 80	POIGNEE M 12X45	DREHEBARER HANDGRIFF M12X45 80
544666	MOLLA COMPENSAZ.CUSC.D.62 MOT	SPRING WASHER DIA. 62		
546938	MOLLA TAZZA 40X20.4X2.5 MANDRI NO/PULEGG.	SPINDLE CUP SPRING 40X20.4X2,5	RESSORT 40X20.4X2,5	SPINDEL FEDERRING 40X20.4X2,5
546957	MOLLA TAZZA 31,5X16,3X2 TENDIN AST.BS280	CUP SPRING 31,5X16,3X2	RESSORT 31,5X16,3X2	TELLERFEDER 31,5X16,3X2
547263	MOLLA SELETT.SIRIO/BIELL.BS350	HEAD SELECTOR SPRING SIRIO		DRUCKFEDER SIRIO
547316	MOLLA NASELLO BASAM.BS280/350	BASE SPRING BS280PLUS/340/350		GRUNDLAGE NASE FEDER BS280/350
547652	MOLLA PER ARCO BS230-280- 350-3 40	SAW FRAME RETURN SPRING 340280	RESSORT RAPPEL ARCHET BS340-BS	RAHMEN RUECKFEDER BS340- BS280
550999	MORSA BS280 PLUS MAN. MONTATA			
590050	MOT.3F 2/4P FC90TP B5 V400 280 CE*1,7/1,3*B5 *SENZA CHIAVETT	3PH MOTOR 2-4P FC90 V400 B5		
614397- 6/10	NASTRO"280"2765X27X09 M42SVGLB (STB)DENTATURA =6/10 HV950	BAND 2765X27X09 SVGLB M42 6/10	RUBAN "280" 2765X27X09 M42	
630632	PASSACAVO A MEMBRANA DG9 D.15	DIAPHRAGM CABLE GLAND DG9		
631163	PATTINO ANTER.COMPLETO BS280 N EW	FRONT BAND GUIDE BS280		VORD.BANDFUEHRUNGSSCHUH K.BS280
631165	PATTINO POST.COMPLETO BS280 NE W	LOWER BAND GUIDE BS280		HINTERER BANDFUEHRUNGSSCHUH 280
631167	PATTINO GUIDALAM.ANT.BS280 LAV ORATO	FRONT BAND GUIDE BS280		VORDERER BANDFUEHRUNGSSCHUH
631168	PATTINO GUIDALAM.POST.BS280 LA VORATO	BACK BAND GUIDE BS280		HINTERER BANDFUEHRUNGSSCHUH
632788	PASTIGLIA D.10 OTTONE	BRASS. SPACER D.10		MESSING DISTANZSTUECK D.10
651426	PERNO OSCILLANTE BS280 x POTEN ZIOMETRO	OSCILLATING PIN FOR BS 280		
652539	PERNO SPAZZOLA PERNO D.8	BRUSH PIN D.6		

INSTRUCTIONS FOR USE

	BRUN.			
657190	PIASTRA FR.MORSE 280 PLUS LAVO RATA	280PLUS WORKED MILL VICE PLATE		
658340	PIASTRA GUIDATENDINASTR.300350 FRONTALE	BAND TENSIONING GUIDE PLATE BS		BANDSPANNERFUEHRUNGSPLATTE
658663	PIASTRA TENDINASTRO ANT.80X20 BS280	FRONT BAND TENS.PLATE 80X20		VORDERE BANDSPANN.PLATTE 80X20
661915	PIASTRINA FINC.NASTRO NEW 2XM3 10X2X35 BRUNITA	PLATE FOR BANDSTRETCHER 2XM3		
661920	PIASTR.BLOCC.SPAZZOLINO PLUS60 (BS280 PLUS 60 GRADI)	BRUSH LOCKING PLATE BS280/60PL		
667770	PIASTRINA ESPANS. RPE0166-4.8	PLATE RPE0166-4.8		PLATTE RPE0166-4.8
688448	PIATTO ATTACC.MOLLE BS280 BRUN	SPRINGS CONNECTION PLATE BS280		
688802	PIATTO GUID.ANT.SCOR. 280 NEW	NEW SLID. BAND GUIDE PLATE 280		
688820	PIATTO GUID.POST.FISSO 280 NEW	280 NEW FIX. BACK GUIDE PLATE		
694280	PORTA SPAZZ.NASTRO 280PLUS 60	SAW BAND CLEANER HOLDER BS280		
696080	PORTAGOMMA NYLON GES6 R1/8	NYLON RUBB.HOSE CONNECTOR GES6		
696346	PORTAGOMMA NYLON WES8 R1/2 GOM ITO	NYLON PUSH-ON CONNECTOR R1/2		NYLON ANSCHLUSS R1/2 KNIE
697300	PORTA PLACCHETTE PATTINO BS350	PAD SUPPORT FOR BAND GUIDE 350		EINSATZLAGER FUER BANDFUEHRUNG
698045	PORTARULLO W30 CAR.BS280 PLUS NEW	UNLOAD.W30 ROLLER HOLDER BS280	SUPPORT ROULEAU BS280PLUS/GH	ABFUHR-ROLLERTRAGER BS280
699580	PORTA FINCORS/MOLLE NASTRO 280 350 FRONTALE	BAND FRONT STROKE-END HOLDER		BAND VORD. ENDSCHALTER TRAGER
707195	PULEGGIA D.320X14 POST.BS280	BACK PULLEY D.320X14 BS280		
707209	PULEGGIA D.320X72 ANT.BS280	FRONT PULLEY D.320X72 BS280		
713024	QUADRO COM.EL.BS280 PLUS NEW	EL.CONTROL BOX 280PLUS NEW		
713041	COM.EL.BS300 PLUS 2V V40050 CO MPLETO -CE-	EL.CONTROL BS280PLUS 2SP 40050		
725445	REGISTRO MISURA ALLUM.+2VITI FORI D.20/12	ALUMINIUM LENGTH STOP DEVICE	SUPPORT DIA 20	ALUMESSANSCHLAG + 2 SCHRAUBEN
726786	REGISTRO MISURA BS350/280 BRUN D.12 LUNGO PIEGATO	LENGTH STOP ROD D.20 BS340/280		
728542	RIPARO ANTER.NASTRO BS280 NEW	FRONT SAW BAND COVER BS280 NEW		
728559	RIPARO NAST.POST.BS280PLUS NEW	NEW SAWBAND COVER BS280 PLUS		
734540	RONDELLA ALLUMINIO 1-2	ALUMINIUM WASHER 1-2		
734745	RONDELLA ALLUMINIO 1-4	ALUMINIUM WASHER 1-4		ALU DICHRING 1-4
735602	RONDELLA APPOGGIO SS22X32X2 DIN 988 HRC45	SUPPORT WASHER SS22X32X2		AUFLAGE-FEDERRING SS22X32X2
735755	RONDELLA APPOGGIO SS30X42X2,5 DIN 988 HRC45	WASHER SS30X42X2,5		
737845	RONDELLA 35X12X6 SVASAT.BRUNIT	WASHER 35X12X6		
741509	RONDELLA APPOGGIO SS20X28X2 DIN 988 HRC45	SUPPORT WASHER SS20X28X2	RONDELLE VOLANT SS20X28X2	DICHRING SS20X28X2
742282	RONDELLA 40X30X10,5 SVASATA (GREZZO =AVP D.40 BARRA)	WASHER 40X30X10,5		
742333	RONDELLA 45X35X10,5 SVASATA	WASHER 45X35X10,5	RONDELLE 45X35X10,5	FEDERRING 45X35X10,5
744045	RONDELLA SPECIALE D.20X5 BRUN.	SPECIAL BURNISHED WASHER 20X5	RONDELLE D.20X5	SPEZIALUNTERLEGSCHIEBE D.20X5
744611	RONDELLA STAMPATA 5X15X1,2	PRINTED WASHER 5X15X1,2		
744987	RONDELLA STAMP.12X30X4 BRUNITA	PRINTED WASHER 12X30X4		GEDRUCKTER FEDERRING 12X30X4

INSTRUCTIONS FOR USE

755995	RUBINETTO SFERA ART.405 1/2"MF	COCK 405 1/2"MF		HAHN 405 1/2"MF
759398	RULLO GL/10 50Z C300 D10 Molla ACC.ZINC. S1.5 (RULL.W30)	SPRING ROLLER GL/10 50Z C300	ROULEAU GL/10 50Z C300 D10	
777703	SFERA D.6 ROTAZ.DISCO DIN5401	ROTATING DISC BALL D.6		
778615	SFERA D.12 NASELL.PIATTAF.BS28 0/BS340	BALL D.12 BS280		KUGEL D.12 GRUNDPLATTE BS280
785682	SPAZZOLA FERRO D.50 PERNO6x25 G1052	BLADE CLEANING BRUSH 6X25	BROSSE DIA 50 6X25 G1052	
786162	SPIA OLIO HE45 PERFECT-RECORD- 280 COD.12001	OIL SIGHT GLASS HE45 PERF/REC	PERFECT-RECORD BOUCH. NIVEAU	OELSCHAUGLAS HE45 PERF/REC
788270	SPINA EL.SPIROL 5X10 DIN7343	ELASTIC PIN 5X10 DIN7343		
791640	SPINA CIL.RETT.10X60 UNI 6364A	CYLINDRICAL PIN 10X60 UNI6364	FICHE CYL. RECT. 10X60 UNI6364	
792331	SPINA TENDINASTRO BS300350 M12 D.16X290	BAND TENSIONING ROD 280350 NEW		VORDERER BANDSPANNER STIFT
798940	STAFFA BLOC.GUIDALAM BS280 NEW	BS280NEW BLOCK.BRACKETS.BLAD.G		
851994	SUP.CAR.MORSA 280PLUS NEW LAVO RATO	VICE CARRIAGE SUPPORT BS280PL	EMBASE ETAU	
865362	TAPPO+ASTINA ALS 2-18	PLUG+BAR ALS 2-18		
905265	TARGH.QUADRO EL.BS280 PLUS NEW	EL.BOARD PLATE BS280PLUS NEW		
911020	TARGHETTA GRAD.PIATT.BS280PLUS (60°-45°-0°-45°)	PLATFORM GRADUATED PLATE BS280		
929297	TIRANTE M10x170 MORSA PLUS NEW	TIE ROD M10X170 PLUS	VIS M10X170	
935500	TUBO RETINATO 8X14 ARIANNA	PLASTIC TUBE 8X14 ARIANNA		SCHLAUCH 8X14 ARIANNA
936359	TUBETTO GEMMA 6X9 = 45 GR/MT.	TUBE 6X9		
956843	VITE TE M14X30 SIN.SVASATA	LEFT SCREW TE M14X30	VIS GAUCHE TE M14X30	
957131	VITE MORSA BS300 PLUS	BS280 PLUS VICE SCREW	VIS SANS FIN ETAU	-
958928	VITE SENZA FINE BS280	ENDLESS SCREW BS280		SCHNECKE BS 280
962390	VOLANTINO ART.751-32-M8X30 BS280	WHEEL 750-32-M8 BS280		
963615	VOLANTINO MORSE D.130=280 MAN.	VICE WHEEL D.130 FOR BS280 MAN	MANIVELLE ETAU	

COD.	ITALIANO	ENGLISH	FRANCOISE	DEUTSCH
026352	BS300 PLUS GH 3F 2V V400 35/70 SEGATRICE AUTO-CUT	BS 280 PLUS GH 3PH 2SP V40050	BS 280 PLUS GH 3PH 2VIT. V400	
113502	ALBERO X PULEGG.ANT.BS280 FRES ATO	BS 280 FRONT BAND WHEEL SHAFT		BS 280 VORDERSCHEIBE SAEGEARM
113517	ALBERO PULEGGIA POST.BS280	BS 280 BACK BAND WHEEL SHAFT		
119395	ANELLO TENUTA OR 159 3.53X55,5 6	OR RING 3.53X55.56		
119621	ANELLO TENUTA OR 171 3.53X68,2 6	OR RING 3.5X68.26		
127655	ANELLO SEEGER RS6 DIN 6799	SEEGER RING RS6 DIN 6799		
127810	ANELLO SEEGER A17 RIGA RTD	SEEGER RING A17 RTD TABLE		
128116	ANELLO SEEGER J72 PULEGGE FORO 72	SEEGER INNER RING J72	BOUCLE SEEGER J72 POULIES	SEEGER INNERER RING J72
128702	ANELLO TENUTA 25X35X7	SEAL RING 25X35X7		
129107	ANELLO TEN.PARAP.BASL 55X70X8	SEAL RING 55X70X8 FOR COUPLING		
129736	ANELLO TENUTA 47X22X7	SEAL RING 47X22X7		

INSTRUCTIONS FOR USE

131828	ARCO-RIDUTTORE BS300 LAVORATO	FRAME REDUCER BS300	
136827	ASTA REG.MISURA BS350/280 BRUN D.20+FILETTO M12	LENGTH STOP ROD D.20 BS340/280	
139727	AUTOADESIVO BS280 PLUS GH NEW	LABEL FOR BS 280 PLUS GH NEW	
142719	BASAMENTO GHISA BS280 PLUS CON CAVA SCOR	CAST IRON BASE+GROOVE BS280PLU	
142805	BASAMENTO LAM.BS280 PLUS NEW	IRON SHEET BASE BS280 PLUS NEW	
144999	BIELLA OTTON.TPN25 MORSA BS280 PLUS	VICE THREADED ROD BS280	SCHRAUBST.GEWINDEPLEUEL STANGE
157210	BLOCCHETTO TENDINASTRO 280350 FRONTALE	BAND TENSIONER BLOCK 280350NEW	
157220	BLOCCHETTO SPINTA BIELLA BS350	VICE ROD FOR BS 350	SPANNSTOCK PLEUELSTANGE BS350
165895	BOCCOLA RIFERIM.GANASCE BS 280 PLUS	JAWS RING WASHER BS 280PLUS	
169462	BRACCIO COMANDO EL.BS280	EL.CONTROL SUPPORT BS 280	
169470	BUSSOLA X 1CAMMA 280PLUS GH NE W	NEW ALUM.RING FOR BS280GH NEW	
172180	BUSSOLA OTT.D20X35 BLOCC.PIATT T	BASE LOCKING BUSH D20 BS280	
172190	BUSSOLA OTT.D8X15 BLOC.PIATTO PATTINO BS280	D8X15 PLATE BLOCKING BUSH	
172378	BUSSOLA CENTRALE D.40 BASAM.BS 280 PLUS	BASE CENTRAL BUSH D.40	
177280	BUSSOLA D.16X25 PERNO OSC.BS28 0	OSCILLATING PIN BUSH D.16X25	
179458	BUSSOLA DISTANZ.D.6.5X10X14	SPACER D.6.5X10X14	
179965	BUSSOLA MOLLE/ARCO 280-GH BRUN	280-GH BUSH SPRINGS/BOW	
182433	BUSSOLA TEMP.10X15X12 DIN179/A	TEMPERATED BUSH 10X15X12	
182466	BUSSOLA TEMP.12X18X12 DIN179/A	TEMPERATED BUSH 12X18X12	
182476	BUSSOLA TENDINASTR.300350 NEWA UT	BAND STRETCHER BUSH	
182860	CAMMA ALL.FINCORSA PLUS GH NEW	ALUM.BUSH STROKE-END BS280GH	
184921	CARRELLO MORSA SCOR.BS300 PLUS 2X45°	SLIDING VICE CARRIAGE BS280PL	
201483	CARTER COPRIARCO BS300 PLUS	TUBE GUARD BS300 PLUS	
201538	CARTER NASTRO-BS300 CERN+SIC.	BAND GUARD-2 PIECES-NEWBS300	
214700	CHIAVETTA 6X6X20 UNI6604	KEY 6X6X20	
215123	CHIAVETTA 8X7X15 UNI6604	KEY 8X7X15 UNI6604	
216270	CHIAVETTA 8X7X25 UNI6604	KEY 8X7X25 UNI6604	TL CLAVETTE ENTR.BAGUE
227379	COLONNA COMPL.BS280 PLUS NEW	COMPL.BASE FOR BS280PLUS NEW	
242111	COM.EL.BS300 PLUS GH V400/2VEL COMPLETO (SCAT.LARGA)	ELEC.CONTROL BS280GH V400 2SP	
260150	CONNETTORE 4 VIE=C18209N21 DIN 43650A=CNN2=ULR1	4WAYS CONNECTOR	4WEGE VERBINDER=C18209N21
265814	COPERCHIO QUADRO BS280 PLUS NE W	ELECTRIC BOARD COVER 280 PLUS	
276674	CORONA BRONZ. M2.75 Z35 BS280	BRONZE WHEEL M2.75 Z35 BS280	
279150	CUNEO SX BLOC.MORSA SIRIO370	SIRIO370 VICE ADJ. LEFT WEDGE	COIN GAUCHE BLOCAGE ÉTAU S.370
279160	CUNEO DX BLOC.MORSA SIRIO370	SIRIO370 VICE ADJ. RIGHT WEDGE	COIN DROI BLACAGE ÉTAU S.370
280052	CUNEO REGISTR.MORSA BS280 PLUS L.452 CON 2 FORI SPINA	VICE ADJUSTING WEDGE BS280PLUS	
283011	CUSCINETTO 32005X 25X47X15	BEARING 32005X 25X47X15	

INSTRUCTIONS FOR USE

283102	CUSCINETTO 32008XA 40X68X19	CARRIAGE CONNECT.32008X4 40X68		
286020	CUSCINETTO 608.2ZR 8X22X7	BRUSH/PUMP CARRIAGE CONNECTION	ROULEMENT 608.2ZR 8X22X7	
286302	CUSCINETT.30305DJR 25X62X17/13 =310305A	BEARING 31305A 25X62X17/13		
286795	CUSCINETTO 30305DR 25X62X15/13 = 30305A	CARRIAGE CONNECTION 25X62X15	ROULEMENT 30305A 25X62X15/13	
288083	CUSCINETTO ASS.51102 15X28X9	BEARING 51102 15X28X9		
288090	CUSCINETTO ASS.51103 17X30X9	BEARING 51103 ..X.X.		
288725	CUSCINETTO 6206 30X62X16	CARRIAGE CONNECTION 6206 30X62	ROULEMENT 6206 30X62X16	
288995	CUSCINETTO 6209 45X85X19	CARRIAGE CONNECTION 6209 45X85		
291020	CUSCINETTO 6207.2RSR 35X72X17	CARRIAGE CONNECTION 6207 35X72		LAGER 6207EE 35X72X17
291304	CUSCINETTO 626.2ZR 6X19X6 PATTINI 280/300	BEARING 626.2ZR 6X19X6		
315285	DISCO REGISTR.VSF BS280	SCREW ADJUSTING DISC BS280		
322160	DISTANZIALE CORONA BS280	WHEEL SPACER BS280		
325859	DISTANZIALE GIUNTO/MOT.BS280	MOTOR COUPLING SPACER BS280		
327118	DISTANZIALE PUL.D.35X42 BS280	PULLEY SPACER D.35X42 BS280		SCHEIBE DISTANZSTUECK D35X42
327281	DISTRIBUTORE REFRIG.YRS686 BS2 80	COOLANT DISTRIBUTOR BS280		
330055	ECCENTR.CHIUS.RAPIDA MORSA 350 (D32X90)	VICE RAPID MOVING ECCENTRIC 35		SCHRAUBS.SCHNELLBEW.EXZ ENTER
331416	EL.POMPA CORTA PIEDE 85 AST30 230400460-1/2"-W90 =PMU40L P90	SHORT ELECTRIC PUMP 230400460	ELECTROPOMPE COURTE 230400460	
349584	FLANGIA CHIUS.RIDUTT.BS280	REDUCTION CLOSING FLANGE BS280		
363233	FRENO ARCO+REGOL.+TUBI BS280GH (PER KIT GRAVITA')	HYDRAULIC BRAKE/VALVE BS280 GH		
486394	GANASCIA CARR.MORSA 130X10X190 BS300 PLUS	VICE CARRIAGE JAW 130X15X190		
492590	GANASCIA APP.DESTRA 280PLUS/60	RIGHT CAST IRON JAW, 280 PLUS		
492590L	GANASCIA APP.DX.LAV.280PLUS	RIGHT CAST IRON JAW, 280 PLUS		
492640	GANASCIA APP.SINIST.280PLUS/60	LEFT CAST IRON JAW, 280 PLUS		
492640L	GANASCIA APP.SX.LAV.280PLUS	LEFT CAST IRON JAW.BS280PLUS		
497110	GHIERA KM5 M25X1.5 PERNO OSC.B S280	RING KM5 M25X1.5		
499145	GHIERA GN NORMAL.M15X1 AUTOBLO CCANTE	SELF LOCKING RING M15X1	AUTOBLOCANT M15X1	
500316	GIUNTO M24JUNIOR D.19X24 BS280	COUPLING D.19X24 BS 280		
510200	GUARNIZIONE EL.POMPA D.130X102 X2 GOMMA ANTIOLIO	ELECTROPUMP SEAL D.130X102		
511300	GUARNIZIONE LANTERNA BS280 120 X80	GASKET BS 280		
511330	GUARNIZIONE FLANGIA BS280 D.14 5X110	FLANGE GASKET BS 280 D.14		
513088	IMPUGNATURA TURCHESE+INS.BIANC O AZIONAM+INS.BIANCO INTERRUT	TOURQUOISE HANDLE		
513931	IMPUGNATURA SFERA NERA D.12X40 (MONT.PRESS.)	BLACK HANDLE D.12x40	BOULE BAKELITE POIGNEE	SCHWARZER HANDGRIFF D.12X40
515780	INSERTO SPECIALE D15.95X6.4 BS350	SPECIAL INSERT D15.95X6.4	PLAQUETTE SPECIALE D15.95X6.4	
515800	INSERTO QUADRO SVAS.19.3X4 F.4 WXP0274=GATTIA191DB10.OD	SQUARE CARBURE PAD 19.3X4 F.4	PLAQUETTE CARBURE 19.3X4 F.4	VIERECKIGER EINSATZ 19.3X4 F.4

INSTRUCTIONS FOR USE

	C4.2G			
520765	INTER.SICUR.FK3393-D1 CHIAV.90 °PIZZATO	SAFETY SWITCH FK3393-D1		
520921	FINCORSA PISTONCINO ABV1610618 NAIS=OMRON D2VW51M	STROKE-END ABV161060		
520941	FINCORSA LEVA ABV121260 NAIS= OMRON D2VW5L1B1M- BS-230	STROKE-END ABV161660		
521145	INTER.FINCORS=TELEMEC.XC MA1023 CAVO 3M.RUOTA DIR.E700-0-BM/3	STROKE END SWITCH TELEMEC.	FIN DE COURSE	ENDSCHALTER TELEMEC. XCMA1023
521580	LACCIO LEGRAND 320-32 2.4X180	LEGRAND PLASTIC STRING		
521585	BASE A INCASTRO 320.76 X LACCI LEGRAND	SUPPORT FOR STINGS 320.76		
521951	LAMIERA X DISTRIB.REFRIG.BS280 SU ARCO	COOLANT DISTR.SHEET METAL 280		
522108	LAMIERA ATT.MOL.280PLUS GH NEW	280PLUSGH SHEET SUPPORT WET		
523762	LANTERNA MOTORE BS280 FINITA	MOTOR/BOW STRAINER BS280		
529020	LEVA BLOCC.CILINDR.AVANZ.BRUN AVANZATORE	CYLINDER LOCKING LEVER		ZYLINDER SPERRHEBEL
536523	MANIGLIA RIP.M10F.ART.592-80 R AL9011 (M10 NL)	TURNING HANDLE M10 TYPE592-80	POIGNÉE M10F ART.592-80 R	HANDGRIFF M10 TYP 592-80
536585	MANIGLIA RIPRES.M12 FEMM.TIP80	TURNING HANDLE M12 TYPE 80	POIGNEE M12 TIP80	
544666	MOLLA COMPENSAZ.CUSC.D.62 MOT	SPRING WASHER DIA. 62		
546938	MOLLA TAZZA 40X20,4X2,5 MANDRI NO/PULEGG.	SPINDLE CUP SPRING 40X20,4X2,5	RESSORT 40X20,4X2,5	SPINDEL FEDERRING 40X20,4X2,5
546957	MOLLA TAZZA 31,5X16,3X2 TENDIN AST.BS280	CUP SPRING 31,5X16,3X2	RESSORT 31,5X16,3X2	TELLERFEDER 31,5X16,3X2
547263	MOLLA SELETT.SIRIO/BIELL.BS350	HEAD SELECTOR SPRING SIRIO		DRUCKFEDER SIRIO
547316	MOLLA NASELLO BASAM.BS280/350	BASE SPRING BS280PLUS/340/350		GRUNDLAGE NASE FEDER BS280/350
547652	MOLLA PER ARCO BS230-280- 350-3 40	SAW FRAME RETURN SPRING 340280	RESSORT RAPPEL ARCHET BS340-BS	RAHMEN RUECKFEDER BS340- BS280
550999	MORSA BS280 PLUS MAN. MONTATA			
590050	MOT.3F 2/4P FC90TP B5 V400 280 CE*1,7/1,3*B5 *SENZA CHIAVETTI	3PH MOTOR 2-4P FC90 V400 B5		
614397- 6/10	NASTRO"280"2765X27X09 M42SVGLB (STB)DENTATURA =6/10 HV950	BAND 2765X27X09 SVGLB M42 6/10	RUBAN "280" 2765X27X09 M42	
630632	PASSACAVO A MEMBRANA DG9 D.15	DIAPHRAGM CABLE GLAND DG9		
631163	PATTINO ANTER.COMPLETO BS280 N EW	FRONT BAND GUIDE BS280		VORD.BANDFUEHRUNGSSCHUH K.BS280
631165	PATTINO POST.COMPLETO BS280 NE W	LOWER BAND GUIDE BS280		HINTERER BANDFUEHRUNGSSCHUH 280
631167	PATTINO GUIDALAM.ANT.BS280 LAV ORATO	FRONT BAND GUIDE BS280		VORDERER BANDFUEHRUNGSSCHUH
631168	PATTINO GUIDALAM.POST.BS280 LA VORATO	BACK BAND GUIDE BS280		HINTERER BANDFUEHRUNGSSCHUH
632788	PASTIGLIA D.10 OTTONE	BRASS. SPACER D.10		MESSING DISTANZSTUECK D.10
651426	PERNO OSCILLANTE BS280 x POTEN ZIOMETRO	OSCILLATING PIN FOR BS 280		
652539	PERNO SPAZZOLA PERNO D.8 BRUN.	BRUSH PIN D.6		
657190	PIASTRA FR.MORSE 280 PLUS LAVO RATA	280PLUS WORKED MILL VICE PLATE		
658340	PIASTRA GUIDATENDINASTR.300350 FRONTALE	BAND TENSIONING GUIDE PLATE BS		BANDSPANNERFUEHRUNGSP LATE

INSTRUCTIONS FOR USE

658663	PIASTRA TENDINASTRO ANT.80X20 BS280	FRONT BAND TENS.PLATE 80X20		VORDERE BANDSPANN.PLATTE 80X20
661900	PIASTRINA X FINC.PATT.INF.VTF NUOVO	PLATE FOR LOWER BANDGUIDE VTF		
661915	PIASTRINA FINC.NASTRO NEW 2XM3 10X2X35 BRUNITA	PLATE FOR BANDSTRETCHER 2XM3		
661920	PIASTR.BLOCC.SPAZZOLINO PLUS60 (BS280 PLUS 60 GRADI)	BRUSH LOCKING PLATE BS280/60PL		
667770	PIASTRINA ESPANS. RPE0166-4.8	PLATE RPE0166-4.8		PLATTE RPE0166-4.8
673863	PIASTRINA F.C. 280PLUS GH NEW	-		
677558	PIASTRINA SNODO FRENO BS280	BRAKE JOINT PLATE BS280		
688226	PIATTO ATTACC.MOLLE 280GH NEW	NEW SPRING CONNECT.PLATE 280GH		
688737	PIATTO 40X10X173 CIL/FRENO BS 2 80	CYLINDER/BRAKE PLATE 40X10X173		
688802	PIATTO GUID.ANT.SCOR. 280 NEW	NEW SLID. BAND GUIDE PLATE 280		
688820	PIATTO GUID.POST.FISSO 280 NEW	280 NEW FIX. BACK GUIDE PLATE		
694280	PORTA SPAZZ.NASTRO 280PLUS 60	SAW BAND CLEANER HOLDER BS280		
696080	PORTAGOMMA NYLON GES6 R1/8	NYLON RUBB.HOSE CONNECTOR GES6		
696346	PORTAGOMMA NYLON WES8 R1/2 GOM ITO	NYLON PUSH-ON CONNECTOR R1/2		NYLON ANSCHLUSS R1/2 KNIE
697300	PORTA PLACCHETTE PATTINO BS350	PAD SUPPORT FOR BAND GUIDE 350		EINSATZLAGER FUER BANDFUEHRUNG
698045	PORTARULLO W30 CAR.BS280 PLUS NEW	UNLOAD.W30 ROLLER HOLDER BS280	SUPPORT ROULEAU BS280PLUS/GH	ABFUHR-ROLLERTRAGER BS280
699580	PORTA FINCORS/MOLLE NASTRO 280 350 FRONTALE	BAND FRONT STROKE-END HOLDER		BAND VORD. ENDSCHALTER TRAGER
707195	PULEGGIA D.320X14 POST.BS280	BACK PULLEY D.320X14 BS280		
707209	PULEGGIA D.320X72 ANT.BS280	FRONT PULLEY D.320X72 BS280		
713024	QUADRO COM.EL.BS280 PLUS NEW	EL.CONTROL BOX 280PLUS NEW		
725445	REGISTRO MISURA ALLUM.+2VITI FORI D.20/12	ALUMINIUM LENGTH STOP DEVICE	SUPPORT DIA 20	ALUMESSANSCHLAG + 2 SCHRAUBEN
726786	REGISTRO MISURA BS350/280 BRUN D.12 LUNGO PIEGATO	LENGTH STOP ROD D.20 BS340/280		
728542	RIPARO ANTER.NASTRO BS280 NEW	FRONT SAW BAND COVER BS280 NEW		
728559	RIPARO NAST.POST.BS280PLUS NEW	NEW SAWBAND COVER BS280 PLUS		
734540	RONDELLA ALLUMINIO 1-2	ALUMINIUM WASHER 1-2		
734745	RONDELLA ALLUMINIO 1-4	ALUMINIUM WASHER 1-4		ALU DICHRING 1-4
735602	RONDELLA APPOGGIO SS22X32X2 DIN 988 HRC45	SUPPORT WASHER SS22X32X2		AUFLAGE-FEDERRING SS22X32X2
735755	RONDELLA APPOGGIO SS30X42X2,5 DIN 988 HRC45	WASHER SS30X42X2,5		
737845	RONDELLA 35X12X6 SVASAT.BRUNIT	WASHER 35X12X6		
741509	RONDELLA APPOGGIO SS20X28X2 DIN 988 HRC45	SUPPORT WASHER SS20X28X2	RONDELLE VOLANT SS20X28X2	DICHRING SS20X28X2
742282	RONDELLA 40X30X10,5 SVASATA (GREZZO =AVP D.40 BARRA)	WASHER 40X30X10,5		
742333	RONDELLA 45X35X10,5 SVASATA	WASHER 45X35X10,5	RONDELLE 45X35X10,5	FEDERRING 45X35X10,5
744045	RONDELLA SPECIALE D.20X5 BRUN.	SPECIAL BURNISHED WASHER 20X5	RONDELLE D.20X5	SPEZIALUNTERLEGSCHIEBE D.20X5
744611	RONDELLA STAMPATA 5X15X1,2	PRINTED WASHER 5X15X1,2		
744987	RONDELLA STAMP.12X30X4 BRUNITA	PRINTED WASHER 12X30X4		GEDRUCKTER FEDERRING 12X30X4
755995	RUBINETTO SFERA ART.405	COCK 405 1/2"MF		HAHN 405 1/2"MF

INSTRUCTIONS FOR USE

	1/2"MF			
759398	RULLO GL/10 50Z C300 D10 MOLLA ACC.ZINC. S1.5 (RULL.W30)	SPRING ROLLER GL/10 50Z C300	ROULEAU GL/10 50Z C300 D10	
772376	SCATOLA AGGIUNT.280PLUS GH NEW	SUPPLEM. BOX FOR NEW 280 GH		
777703	SFERA D.6 ROTAZ.DISCO DIN5401	ROTATING DISC BALL D.6		
778615	SFERA D.12 NASELL.PIATTAF.BS28 0/BS340	BALL D.12 BS280		KUGEL D.12 GRUNDPLATTE BS280
780850	SNODO UNIBALL SMG10 M10 MASCHI O	UNIBALL JOINT SMG10 M10		UNIBALL GELENK SMG10 M10 ZAPFE
785682	SPAZZOLA FERRO D.50 PERNO6x25 G1052	BLADE CLEANING BRUSH 6X25	BROSSE DIA 50 6X25 G1052	
786162	SPIA OLIO HE45 PERFECT- RECORD- 280 COD.12001	OIL SIGHT GLASS HE45 PERF/REC	PERFECT-RECORD BOUCH. NIVEAU	OELSCHAUGLAS HE45 PERF/REC
787000	SPINA CEE NORM 3P+N+T 16A ROSS A 6H	INTAKE PLUG 3POLES 16A RED		
788270	SPINA EL.SPIROL 5X10 DIN7343	ELASTIC PIN 5X10 DIN7343		
791640	SPINA CIL.RETT.10X60 UNI 6364A	CYLINDRICAL PIN 10X60 UNI6364	FICHE CYL. RECT. 10X60 UNI6364	
792331	SPINA TENDINASTRO BS300350 M12 D.16X290	BAND TENSIONING ROD 280350 NEW		VORDERER BANDSPANNER STIFT
798940	STAFFA BLOC.GUIDALAM BS280 NEW	BS280NEW BLOCK.BRACKETS.BLAD.G		
851994	SUP.CAR.MORSA 280PLUS NEW LAVO RATO	VICE CARRIAGE SUPPORT BS280PL	EMBASE ETAU	
865362	TAPPO+ASTINA ALS 2-18	PLUG+BAR ALS 2-18		
905265	TARGH.QUADRO EL.BS280 PLUS NEW	EL.BOARD PLATE BS280PLUS NEW		
911020	TARGHETTA GRAD.PIATT.BS280PLUS (60°- 45°-0°-45°)	PLATFORM GRADUATED PLATE BS280		
929297	TIRANTE M10x170 MORSA PLUS NEW	TIE ROD M10X170 PLUS	VIS M10X170	
935500	TUBO RETINATO 8X14 ARIANNA	PLASTIC TUBE 8X14 ARIANNA		SCHLAUCH 8X14 ARIANNA
936359	TUBETTO GEMMA 6X9 = 45 GR/MT.	TUBE 6X9		
956843	VITE TE M14X30 SIN.SVASATA	LEFT SCREW TE M14X30	VIS GAUCHE TE M14X30	
957131	VITE MORSA BS300 PLUS	BS280 PLUS VICE SCREW	VIS SANS FIN ETAU	-
958928	VITE SENZA FINE BS280	ENDLESS SCREW BS280		SCHNECKE BS 280
961100	VITE REGOLAZIONE BRACCIO VELOX	ARM REGULATING SCREW VELOX		ARM REGULIERUNG- SCHRAUBE VELOX
962390	VOLANTINO ART.751-32-M8X30 BS280	WHEEL 750-32-M8 BS280		
963615	VOLANTINO MORSE D.130=280 MAN.	VICE WHEEL D.130 FOR BS280 MAN	MANIVELLE ETAU	