SEGATRICE A NASTRO PER METALLI FERROSI BAND SAW FOR FERROUS METALS BANDSAEGEMASCHINE FÜR EISENMETALLE SCIE A RUBAN POUR METAUX FERREUX SIERRA DE CINTA PARA METALES FERROSOS ЛЕНТОЧНЫЙ РАСПИЛОВОЧНЫЙ СТАНОК ДЛЯ МЕТАЛЛОВ

MANUALE DI ISTRUZIONI PER L'USO - INSTRUCTION MANUAL FOR OPERATION BETRIEBSANLEITUNG - MANUEL D'INSTRUCTIONS POUR L'EMPLOI MANUAL DE INSTRUCCIONES DE USO РУКОВОДСТВО ПО ЭКСПЛУАТАЦИИ И ТЕХОБСЛУЖИВАНИЮ

## COSTRUTTORE:

MANUFACTURER:
ERBAUER:
CONSTRUCTEUR:
CONSTRUCTOR:
ИЗГОТОВИТЕЛЬ:

MODELLO:
MODEL:
MODELL:
MODELE:

## SPECIAL 320 CSO

MODELO:

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MACC s.r.I. SCHIO(VI) - ITALY
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МОДЕЛЬ:

## MATRICOLA:

SERIAL NUMBER:
KENNNUMMER:
MATRICULE:
MATRICULA:
СЕРИЙНЫЙ НОМЕР:

ANNO DI COSTRUZIONE:
YEAR OF CONSTRUCTION:
BAUJAHR:
ANNEE DE CONSTRUCTION:
AÑO DE COSTRUCCION:
ГОД ИЗГОТОВЛЕНИЯ:



> DICHIARAZIONE DI CONFORMITA' 'CE' CERTIFICATE OF CONFORMITY 'EEC' KONFORMITÄTSBESCHEINIGUNG 'EWG' DECLARATION DE CONFORMITE 'CE' DECLARACION DE CONFORMIDAD 'CE' ДЕКЛАРАЦИЯ О СООТВЕТСТВИИ 'СЕ'

MACC Costruzioni Meccaniche s.r.I. - Via Lago di Albano, 10-36015 Schio (VI) Italy Tel.: 0445/575005 Fax: 0445/575006 Web site: www.macc.it E-mail: info@macc.it

- Dichiara, sotto la propria responsabilità, che la macchina nuova descritta in appresso:
- Declares, by its own undertaking, that the new machine described below:
- Erklärt auf eigene Verantwortung, daß die nachstehend beschriebene neue Maschine:
- Déclare sous sa propre responsabilité, que la machine neuve décrite de suite:
- Declara, bajo la propia responsabilidad, que la nueva màquina descripta a continuaciòn:
- Заявляет под личную ответственность, что описанная новая машина под названием:


# SEGATRICE A NASTRO PER METALLI <br> BAND SAW MACHINE FOR METALS <br> BANDSAEGEMASCHINE FÜR EISENMETALLE SCIE A RUBAN POUR METAUX SIERRA DE CINTA PARA METALES ЛЕНТОЧНЫЙ РАСПИЛОВОЧНЫЙ СТАНОК ДЛЯ МЕТАЛЛОВ 

TIPO - TYPE - TYP - TYPE - TIPO - ТИП

## SPECIAL 320 CSO

MATRICOLA - SERIAL NUMBER - KENNNUMMER - MATRICULE - MATRICULA - СЕРИЙНЫЙ НОМЕР

## ANNO DI COSTRUZIONE - YEAR OF CONSTRUCTION - BAUJAHR - ANNEE DE CONSTRUCTION AÑO DE COSTRUCCION - ГОД ИЗГОТОВЛЕНИЯ

- E' CONFORME ALLA DIRETTIVA MACCHINE 2006/42/CE, ALLA DIRETTIVA COMPATIBILITA' ELETTROMAGNETICA 2014/30/UE ED ALLA DIRETTIVA BASSA TENSIONE 2014/35/UE.
- IS IN COMPLIANCE WITH THE 2006/42/EEC MACHINERY DIRECTIVE, 2014/30/UE DIRECTIVE ON ELECTROMAGNETIC COMPATIBILITY, 2014/35/UE LOW VOLTAGE DIRECTIVE.
- DEN NORMEN BEZÜGLICH DER MASCHINEN-RICHTLINIE 2006/42/EWG, 2014/30/EWG RICHTLINIE ZUR ELEKTROMAGNETISCHEN KOMPATIBILITÄT, 2014/35/EWG RICHTLINIE FÜR NIEDERSPANNUNG ENTSPRICHT.
- EST CONFORME A LA DIRECTIVE MASCHINES 2006/42/CEE, 2014/30/CEE DIRECTIVE SUR LA COMPATIBILITÉ ÉLECTROMAGNÉTIQUE, 2014/35/CEE DIRECTIVE BASSE TENSION.
- HA SIDO FABRICADA CONFORME A LA DIRECTIVA MÁQUINAS 2006/42/CEE, 2014/30/CEE DIRECTIVA COMPATIBILIDAD ELECTROMAGNÉTICA, 2014/35/CEE DIRECTIVA BAJA TENSIÓN.
- ОТВЕЧАЕТ ТРЕБОВАНИЯМ ДИРЕКТИВЫ ПО МАШИНАМ 2006/42/СЕ, ДИРЕКТИВЫ ОБ ЭЛЕМКТРОМАГНИТНОЙ

СОВМЕСТИМОСТИ 2014/30/СЕ И ДИРЕКТИВЫ О НИЗКОМ НАПРЯЖЕНИИ 2014/35/СЕ.
Nome della persona autorizzata a costituire il 'Fascicolo Tecnico' - Name of the person authorized to represent the 'Technical File' - Name der Person, auf die "Technical File" vertreten - Nom de la personne autorisée à représenter le 'dossier technique' Nombre de la persona autorizada para representar a la "Ficha Técnica" - Фамилия, имя лица, уполномоченного составить техническую документацию
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Nome del Rappresentante Legale - Name of the Legal Representative - Name des Gesetzlichen Vertreters Nom du Représentant Légal - Apellido del Representante Legal - Фамилия, имя законного представителя:
Zanella Gianfranco
MACC Costruzioni Meccaniche s.r.I. - Via Lago di Albano, 10 - 36015 Schio (VI) Italy Tel.: 0445/575005 Fax: 0445/575006
Firma - Signature - Unterschrift - Signature - Firma - Подпись:



## E' SEVERAMENTE VIETATO UTILIZZARE LA MACCHINA SENZA LIQUIDO DI TAGLIO.

## IT IS STRICTLY FORBIDDEN TO USE THE MACHINE WITHOUT CUTTING FLUID.

## ES IST STRENG VERBOTEN, DIE MASCHINE OHNE

 SCHNEIDFLÜSSIGKEIT IN BETRIEB ZU NEHMEN.IL EST SEVEREMENT INTERDIT D'UTILISER LA MACHINE SANS LIQUIDE DE COUPE.

SE PROHÍBE TERMINANTEMENTE UTILIZAR LA MÁQUINA SIN LíQUIDO DE CORTE.

É SEVERAMENTE PROIBIDO UTILIZAR A MÁQUINA SEM LÍQUIDO DE CORTE.

Категорчески запрещена эксплуатация машины без смазочноохлаждающей жидкости


SISTEMA DI MICROLUBRIFICAZIONE: SE INSTALLATO SULLA MACCHINA, È OBBLIGATORIO L'USO DI MASCHERINA PROTETTIVA DELLE VIE AEREE. SI CONSIGLIA DI MANTENERE AREATO IL LOCALE.

MICRO-LUBRICATION SYSTEM: IF INSTALLED ON THE MACHINE, THE USE OF PPE (AIRWAYS PROTECTION MASK) IS NECESSARY. KEEP THE PLACE AERATED.

## MIKRODOSIERGERÄT: FÜR MASCHINEN MIT

MIKRODOSIERGERÄT IST ES STRIKT ERFORDERLICH EINE ATEMMASKE ZUM SCHUTZ DER ATEMWEGE ZU TRAGEN. BITTE DAS GERÄT NUR IN GUT BELÜFTETEN RÄUMEN ANWENDEN.

SYSTÈME DE MICRO-LUBRIFICATION: SI LE SYSTĖME EST INSTALLÉ SUR LA MACHINE, IL EST IMPÉRATIF DE PORTER UN MASQUE DE PROTECTION POUR PROTÉGER LES VOIES RESPIRATOIRES. LES LOCAUX DOIVENT ÉGALEMENT ÊTRE VENTILÉS.

SISTEMA DE MICROLUBRICACIÓN: SI ESTÁ INSTALADO EN LA MÁQUINA, ES OBLIGATORIO EL USO DE UNA MÀSCARA PROTECTORA DE LAS VÍAS RESPIRATORIAS. ES ACONSEJABLE MANTENER LA SALA VENTILADA.

SISTEMA DE MICRO-LUBRIFICAÇÃO: SE INSTALADO NA MÁQUINA, O USO DE UMA MÁSCARA PROTETORA DAS VIAS AÉREAS É OBRIGATÓRIO. É ACONSELHÁVEL MANTER O LOCAL VENTILADO.

СИСТЕМА МИКРОСМАЗКИ: ЕСЛИ СИСТЕМА УСТАНОВЛЕНА, ОБЯЗАТЕЛЬНО ИСПОЛЬЗОВАТЬ ЗАЩИТНУЮ МАСКУ И ПРОВЕТРИВАТЬ ПОМЕЩЕНИЕ.



## 1. INTRODUCTION

This operation instruction manual conforms to the requirements of the 2006/42/EEC Machine Directives and subsequent amendments. In the light of this, special attention has been given to safety aspects and accident prevention in the work-place for each stage in the machine's "life" . Information which could be of particular assistance to the operator has been highlighted .
The "Operating instructions" are an integral part of the machine and should be consulted before, during and after the start up of the machine and whenever else required. The content of these instructions should always be carefully observed.
The observance of the above is the only way to achieve the two fundamental aims of this manual :

## - Optimization of machine performance

- Prevent damage to the machine and injury to the operator

The index of the chapters and the index of the drawings, diagrams and tables is contained in chapter 3 and can be used to help the location of specific information.

## CAUTION : BEFORE INSTALLING THE MACHINE , READTHE OPERATING INSTRUCTIONS CAREFULLY

## 2. INFORMATION ABOUT MAINTENANCE ASSISTANCE

### 2.1 GUARANTEE

- MACC S.r.l. products are guaranteed against material and manufacturing defects for a period of 12 months from the date of delivery or , if the machine is installed by MACC employees, from the date of machine start up .
- The buyer is only entitled to the replacement of parts which are acknowledged as faulty : carriage and packing are at the buyer's expense. In the event of the above, the following information should be supplied:

1. Date and number of purchasing document.
2. Machine model.
3. Serial number .
4. Code of any relevant drawings .

- Requests for compensation for the inactivity of the machine will not be accepted .
- The guarantee does not cover uses which are not in line with these operating instructions which are an integral part of the machine. Nor is maintenance covered if the instructions supplied are not observed.
- The guarantee will not cover machines which have undergone unauthorized modifications .
- Modification or tampering with the safety devices is strictly forbidden.


## 3. INDEX

### 3.1 INDEX OF CHAPTERS

| Chap. | 1 | Introduction |
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| Chap. | 2 | Information about maintenance assistance |
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| Chap. | 4 | Description of the machine |
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| Chap. | 5 | Main technical data |
| Chap. | 6 | Handling and transportation |
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| Chap. | 8 | Start up and operation |
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| Drawings | Handling and transportation - Installation plan | 2 | $6 / 7 \mathrm{~A} / 7 \mathrm{~B} / 8.1 / 8.3$ |
| Drawings | Blade guides - Tensioning - pulleys - bow support | 3 | $7 \mathrm{C} / 8.3 / 9.3$ |
| Drawings | Block vice | 4 | $8.3 / 9.3$ |
| Drawings | Machine assembly | 5 | 9.3 |
| Drawings | Machine assembly - Control panel | 6 | $7 C / 8.3$ |
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## 4. DESCRIPTION OF THE MACHINE

### 4.1 SAFETY STANDARDS COMPLIED WITH DURING THE DESIGN AND CONSTRUCTION OF THE MACHINE

The machine produced by us is in compliance with :

- 2006/42/EEC Machinery Directive .

The following Standards apply:

- EN ISO 12100 Safety of machinery. Basic concepts, general principles for design , basic methodology .
- EN ISO 16093 Safety of machinery. Basic concepts and general principles for design. Specifications EN ISO 13850 and technical principles.
-EN ISO 13850 Safety of machinery . Emergency stop devices, functional aspects - design principles .
-EN ISO 4413-14 Safety requirements related to systems and components for hydraulic and pneumatic
- EN 14118 Safety of machinery . Prevention of unexpected start-up .
- EN 14119 Interlocking devices associated with guards - Principles for design and selection .
- EN 60204-1 Safety of machinery. Electrical equipment of machines . General requirements .
- EN 13857 Safety distances to prevent danger zones being reached by the upper limbs .
- 2014/30/UE Directive on electromagnetic compatibility .

The following Standards apply :

- EN 55014-1 Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus .
-EN 61000-3-2 Electromagnetic compatibility - Limits for harmonic current emissions .Electromagnetic compatibility of multimedia equipment - Emission requirements
-EN 61000-3-11 Electromagnetic compatibility (EMC) - Limitation of voltage changes , voltage
- EN $55032 \quad$ Electromagnetic compatibility of multimedia equipment - Emission requirements .
-EN 61000-4-2 Electromagnetic compatibility (EMC) Part 4 : Testing and measurement techniques
Section 2 . Electrostatic discharge immunity test. EMC Base Publication.
- EN 61000-4-4 Electromagnetic compatibility (EMC) Part 4-4: Testing and measurement techniques -
- EN 61000-4-6 Electromagnetic compatibility (EMC) Part 4 : Testing and measurement techniques.

Section 6 : Immunity to conducted disturbances, induced by radio-frequency fields .

- 2014/35/UE Low Voltage Directive .

Directive 2003/11/EC Directive 2003/11/EC of the European Parliament and of the Council of 6 February 2003 amending for the 24th time Council Directive 76/769/EEC relating to restrictions on the marketing and use of certain dangerous substances and preparations ( pentabromodiphenyl ether, octabromodiphenyl ether )
Directive 2002/44/EC of the European Parliament and of the Council of 25 June 2002 on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents ( vibration ) ( sixteenth individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC ) .

### 4.2 DESCRIPTION OF THE MACHINE AND ITS COMPONENTS

The SPECIAL 320 CSO band sawing machine produced by MACC has a sturdy frame made from welded and painted sheet-steel . The upper surface is designed to allow the complete draining away of the cutting fluid. The band holding bow is made of cast-iron and has generous dimensions, providing the cutting unit with the necessary strength and precision. The vice unit is also made of cast-iron and clamps the material to be cut securely. The bar-stop device allows the length required to be present and a constant level of performance for repeated cuts. The blade-holding bow is firmly attached to a reduction unit built onto the motor and to the base by means of a joint which allows $60^{\circ}$ rotation to the right This joint also allows the cutting movement to advance manually or by means or by falling . The coolant pump is fitted to the machine base. An electro-mechanical band tensioning device, with gate microswitch, stops the band from advancing in the event of insufficient tension and moreover allows ideal operation conditions to be restored at any moment. This is confirmed by an illuminated pilot light. The main switch is located on the front panel. Another switch , located to the right of the main switch, allows the cutting liquid pump to be started .
The choice of one of the two motor rotation speeds and therefore cutting speed is carried out by means of a switch , also located on the front panel. The front panel is also fitted with an emergency stop button. The control lever, fitted with an ergonomic hand-grip and activation button with safety release action, reduces fatigue during operation to a minimum. The blade is protected by a guard with interlock which covers the upper area and the handwheels and by two adjustable lower guards which protect the operator from ejected shavings and coolant. The machine is supplied with a set of service spanners .

### 4.3 INTENDED AND UNSUITABLE USES OF THE MACHINE

The SPECIAL 320 CSO band sawing machine has been designed and built to cut bars, structural steel and ferrous metal pipes in accordance with the instructions contained in this manual . Therefore, the cutting of other materials is not permitted : if the above recommendations are not observed, the machine could be damaged and the health and safety of the operator put at risk. Cutting is not permitted, if the bar has not been first locked in the vice.

## 5. MAIN TECHNICAL DATA

Under no circumstances should the following data be altered , this is in order to protect the correct functioning of the machine and to avoid creating safety risks for the operator .

|  | Three phase power supply |
| :--- | ---: |
| Motor power | $0.75-1.1 \mathrm{~kW}$ |
| Motor revolutions | Single phase power supply |
| Cutting speed | $700-1400 \mathrm{rpm}$ |
|  | $35-71 \mathrm{~m} / 1^{\prime}$ |
| Motor power | 1.1 kW |
| Motor revolutions | 1380 rpm |
| Cutting speed | $69 \mathrm{~m} / 1^{\prime}$ |
| Electric pump | 0.06 kW |
| Blade size ( length $\times$ width $\times$ thick ) | $2825 \times 27 \times 0.9 \mathrm{~mm}$ |
| Cutting thickness | $1,2 \mathrm{~mm}$ |
| Cutting angle | $60^{\circ} \mathrm{dx}$ |
| Material clamping vice max opening | 315 mm |
| Rapid clamping displacement | 5 mm |
| Jaws height | 120 mm |
| Jaws length | 170 mm |
| Bed height | 965 mm |
| Clamping force | $3920 \mathrm{~N}(400 \mathrm{~kg})$ |
| Coolant tank capacity | 13 liters |
| Machine weight | $\sim 3340 \mathrm{~N} \mathrm{(340} \mathrm{~kg} \mathrm{)}$ |

## 6. HANDLING AND TRANSPORTATION

For safe handling and transportation use a lift truck for movement indoors also indicated on the Drawing 3 ENCL. 2 . Keep the machine in its normal position and avoid turning it upside down. If the machine is fastened to the pedestal , stability will be greatly reduced and therefore all the necessary measures should be taken to stop the machine from tipping over.
All handling and transportation operations should be carried out by trained staff .

## 7. MACHINE INSTALLATION

## A. MACHINE CHECK

The machine should be checked to make sure that it has not been damaged during transportation and handling. If the machine appears to have been damaged, contact MACC immediately. Fit all the supplied accessories onto the machine such as the bar-stop 116 and the roller arm 54 (DRAW. 4 ENCL. 2 ).

## B. FASTENING OF THE MACHINE

The machine will be able to operate in keeping with the technical parameters supplied by MACC if it is positioned correctly and fastened securely to the bench or the factory floor so that vibrations are minimal during operation. Consult Drawing 4 SPECIAL 320 CSO Installation plan ENCL. 2 .

## C. BAND ASSEMBLY

Remove the bow guard 2 by unscrewing the screws (DRAW. 14 ENCL. 6 ) . Fit the band by inserting it first between the bearings of the blade guide heads and then on the two pulleys, tighten the blade slightly by means of the hand wheel $058 / 35$ and replace the bow guard. Check that the band is fitted with the correct direction of teeth, as shown in drawing $5-6-7$ enclosed document 3 . Make sure that the band type (dimensions $2825 \times 27 \times 0.9$ ) and its teeth pitch are suited to the material to be cut .

## D. ELECTRICAL CONNECTION TO THE MAINS

## Install a differential thermomagnetic switch with characteristics suited to the mains .

Make sure that the power supply voltage corresponds to the voltage on the motor plate . Connect the cable to the power supply line observing the colour codes of the individual wires, pay particular attention to the earth wire . Connect the machine, make sure that the rotation of the circular blade is in the direction shown by the arrow on the guard .
E. CUTTING COOLANT

For the cooling of the circular blade, fill the tank with emulsible oil obtained from a mixture of water and EMULSOL SGA/NF oil with a percentage of $5-7 \%$

## 8. MACHINE START UP AND OPERATION

### 8.1 DEVICES AND THEIR LOCATION

( The location of the devices described is shown on the SPECIAL 320 CSO installation plan Drawing 4 ENCL. 2 )
Code 228 LOCKABLE MAIN SWITCH
Code 105 ELECTRIC PUMP
Code 132 LOCKING VICE
Code 116 BAR-STOP
Code 160 CUTTING ANGLE DEVICE : to check that cutting inclination is as required .

### 8.2 TOOLS SUPPLIED

1 Allen wrench size 3
1 Allen wrench size 5
1 Allen wrench size 6
1 Allen wrench size 8
1 Allen wrench size 10

### 8.3 OPERATION

## CHECKS TO CARRY OUT BEFORE EACH CUT

A. Tension the band by rotating the handwheel 28 until the limit switch (DRAW.5-6-7 ENCL. 3 ). Remember at the end of the operation to loosen the hand wheel to avoid the slackening of the band .
B. Check that the hand indicates the required cutting angle (vice scale ).
C. Make sure that the bow and the vice are locked by means of the lever 113 (DRAW. 11 ENCL. 4 ).
D. With the motor off, lower the bow and check that at the end of stroke, the band does not touch the counter-vice
115. If the band does touch, adjust the screw 225/95 located on the bow support 107 (DRAW.8-9 ENCL. 3 ) . By adjusting screw 225/95, the width of the working stroke can also be established .
$E$. Make sure that the piece to be cut is properly secured in the vice
F. Make sure that the cooling liquid is circulating in the machine

When starting the motor, make sure that the band rotates in the direction of the arrow shown in DRAW.5-6-7 ENCL. 3 .
H. To obtain maximum cutting accuracy, the unit must be located the nearest possible to the work piece. Clamp the work piece with the vice . release the blade guide arm 60 (DRAW.5-6-7 ENCL. 3 ) with handle 61 and move it near the vice jaw so that it doesn't touch it during the cutting operation , then secure it again .

## CUTTING OPERATION

A. Before cutting, check that the inclination is the one required. In order to correct or change the inclination, place the bench lever 113 in position A ( DRAW. 11 ENCL. 4 ) and after correction, move it back to position D strongly .
B. Clamp the material to be cut with the handwheel 28 after having positioned the vice $3-4 \mathrm{~mm}$ near the piece to be cut by turning the lever 96 from position B to position C (DRAW. 10 ENCL. 4 ). Turn the main switch 212 and the speed change over switch 203 to the position required. After having started the unit by pressing the START push button, the blade starts to rotate .
The down stroke of the bow can be adjusted by means of the appropriate regulator. Position the blade carefully on the piece to be cut. Then increase the pressure with the regulator in order to accelerate the cutting operation without forci
C. To make a series of cuts, position the bar stop 116 in correspondence of the size required. Fix it into position by using the handwheel 121 (DRAW. 10 ENCL. 4 ).
D. To replace the band, carry out the same operations used to assemble the band (chapter 7c ) .
E. For the choice of blade see table ENCL. 1 .

We strongly discourage the use of blades with ruined or insufficiently sharp cutting edges

> Attention!!! With selector in CSO position is strictly forbidden to perform cuts by forcing the bow manually. This machine has been conceived to perform cuts by falling action only . Any manual operation can seriously damage the machine.

### 8.4 SPECIAL SAFETY CHECKS

A. Before using the machine, check carefully that the safety devices are in good working order, that the mobile parts are not blocked, that no parts are damaged and that all the components are installed correctly and are functioning properly.
B. Make sure, before operating the machine, that the screws of the guards and other protective devices are adequately secured, especially the screws of the bow guard.
C. Check that the safety microswitches and the emergency button are functioning correctly. Test them during a loadless machine cycle.
D. Make sure that the mobile guard does not leave uncovered an angle of more than $5^{\circ}$ in order to prevent fingers from entering.
E. Pay attention to environmental conditions. Do not expose the machine to rain ; to not use it in damp environments , position the machine on a clean dry floor that has no oil or grease stains.
F. Before using the machine, the operator should make sure that all tools and service spanners used for maintenance or adjustment have been removed .

### 8.5 GENERAL SAFETY RULES

A. Wear appropriate clothing. The operator's clothing should not be loose or dangling nor should it have parts which could easily get caught. Sleeves should contain elastic .
Belts, rings or chains should not be worn. Long hair should be kept in a net .
B. Avoid unstable operating positions. Find a safe and evenly balanced position to operate the machine .
C. Keep the work area tidy, untidiness increases the risk of accidents .
D. Do not use the power supply cable to disconnect the plug from the socket. Protect the cable from high temperatures, oil or sharp edges. For outdoor use, only use extension cables which are in line with current regulations.

### 8.6 MEASURES TO PREVENT RESIDUAL RISKS

A. The removal of guards and tampering with the safety devices is strictly forbidden.
B. Gloves and safety glasses should always be worn .
C. Standard work clothing should be used and kept closed and should not have flapping parts .
D. The machine should not be cleaned with liquids under pressure .
E. In the event of fire, extinguishers should not be used unless they are the powder type. The electric power supply to the machine should always be disconnected in these circumstances .
F. Do not insert foreign bodies into the motor cover and to not supply the machine with voltage by tampering with the safety microswitches or main switch .
G. Take the necessary precautions to avoid the machine being started by other people during loading , adjustment, piece changing or cleaning.

### 8.7 SAFETY, GUIDANCE , NOTICE LABELS ON THE MACHINE



> - ME TTERE IN TENSIONE LA LABIA RUOTANDO IL VOLANTINO FINO A FINE CORSA.
> PUTTENSION ONTHE BLADE BY ROTATING THE HANDWHEELTO THE END OF STROKE.
> OAS SAGEBAND SPANNEN. INDEH DAS
> HANDRAD BIS ZUH ENDE GEDREHT WIRD. METTRE ENTENSION LA LABE ENTOURNANT LE VOLANT JUSOU'A LA FIN DE COURSE. TENSIONAR LA CINTA GIRANDO EL VOLANTE HASTA EL FINAL DE CARRERA.


COLLEGATO CONNECTED
400 volt

## 9. MAINTENANCE AND REPAIRS

9.1 GENERAL SAFETY MEASURES
A. Lockable main switch. Use the padlock in the event of machine failure or replacement of the band. The padlock key should be entrusted to a responsible person .
B. Before carrying out any work on electrical equipment, remove the power supply plug from the control panel ( disconnect voltage).
C. Only use cables to supply power, which have a cross-section suited to the power of the machine .
D. Opening key. The keys of the machine should be kept by authorized personnel. Do not leave the keys for doors which provide access to the hydraulic or electrical parts or keys to lockable switches in easy of reach of unauthorized personnel.
E. Repairs should only be carried out by authorized personnel. Only spare parts made by the original manufacturer should be used, otherwise these could cause damage or injury .
F. Do not insert foreign bodies into the motor cover and to not supply the machine with voltage by tampering with the safety microswitches or main switch .
G. Take the necessary precautions to avoid the machine being started by other people during loading , adjustment, piece changing or cleaning.
9.2 ROUTINE CHECKS AND MAINTENANCE

| FREQUENCY <br> (working hours ) | OPERATION |
| :---: | :--- |
| 1000 hours | Adjustment blade guide bearings |
| 1000 | Lubrication of mobile parts in the piece locking vice (ENI GREASE MU EP 2 ) |
| 50 | Cleaning of the coolant tank and filter check |
| if necessary | Check functioning of bench lever |

### 9.3 DESCRIPTION OF ROUTINE MAINTENANCE

## A.Adjustment of the blade guide bearings

Loosen the screw 69-A , rotate the cams 72 , so that the blade guide bushings vertically position the blade in axis ( DRAW.5-6-7 ENCL. 3 ) . Tighten the dowels $67-$ A until the blade secured. Loosen the dowels $67-A$ slightly ( about $1 / 10$ of a turn ). The front blade guides must be positioned the nearest possible to the piece to be cut . Check every 3 months the existing tolerance between the blade guides, making sure that it does not exceed the blade thickness of one tenth of a millimeter, so as to avoid inexactnesses in the cut squaring. Periodically check with mounted blade that the blade guide bearings rotate freely.

## B. Lubrication of mobile parts of piece locking vice

Remove jaw 137 ( DRAW. 10 ENCL. 4 - DRAW. 11 ENCL. 4 ), withdraw vice 132 completely by turning the handwheel 125 . Clean and grease the mobile parts of the counter-vice 115 and vice 132 . In case of sliding difficulties or play the clamp guides carry out the following operations : loosen nut 57-A , adjust dowel 56-A and secure nut 57-A .
C. Cleaning of the coolant tank.

The coolant tank can be cleaned by simply removing the crucible 104 (DRAW. 12 ENCL. 5 ). Empty the coolant from the tank and collect the coolant in a container for future disposal. Clean away the shavings and the metallic powder, taking care not to scatter this over the machine especially around the motor and the box containing the electrical equipment . Fill the tank with the amount and liquid stated earlier .
D Checking of bench lever functioning
Check regularly that the rotation release - locking lever is working properly. In the event of the lever not locking correctly, loosen grub screw 123 (DRAW. 12 ENCL. 5 ), tighten nut 114 and fasten grub screw 123 again. Make sure that with the bench lever in position D , arm 109+107 which supports the bow, can rotate freely .

## 10. INFORMATION REGARDING ENVIRONMENTAL NOISE

An environmental noise test carried out on the SPECIAL 320 CSO band saw machine, identical to the machine to which these operation instructions refer, has given the following results :
ACOUSTIC RADIATION PRESSURE

1. $\mathrm{L}_{\text {Aeq }}=83,2 \mathrm{~dB}(\mathrm{~A})$
2. $\quad L_{\text {peak }}=90,6 \mathrm{~dB}$ ( the maximum acceptable value is 140 dB ).
3. The level of background noise has no influence $=48.5-54.2 \mathrm{~dB}(\mathrm{~A})$.

The considerable data are the result of tests made under the D. Igs. 277/1991 in the implementation of the directives nr. 80/1107/CEE , nr. 82/605/CEE , nr. 84/477/CEE , and 88/642/CEE .

## 11. LAYING OFF AND DISMANTLING

### 11.1 LAYING OFF

If the machine is to be laid off or left idle for a long period , the following operations must be carried out :

1. Disconnect the machine from the electricity mains .
2. Empty oil from the gear box and cooling liquid from its tank
3. Clean carefully the machine by getting rid of all traces of grease, especially on the worked parts that must be protected with anti-oxidants .
4. Cover the machine with a sheet, preferably not plastic as it can cause rust due to the humidity condensation .
5. Store the machine in a closed, dust-free place .

### 11.2 DISMANTLING

If the machine must be definitively dismantled, its components must be sub-divided for the purpose of a possible recycle of the materials and for the environment safety. The following table is given for your guidance :

| Steels | Electric and electronic <br> components | Light alloy | Cast iron | Copper bronze | Plastic and <br> rubber | Various |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Shafts, Flanges,, <br> Pivots | Motor winding | Motor casing | Structural parts | Bushings | Seals |  |
| Rollers | Electronic panel | Cylinders |  |  | Handwheels |  |
| Base |  |  |  |  | Handles |  |
| Springs |  |  |  |  |  |  |
| Tank |  |  |  | Cable <br> support <br> chain |  |  |
| Plate with <br> electrical <br> components | Push buttons and control <br> systems (relays, <br> transformers, etc. ) |  |  |  |  |  |
| Guards |  |  |  |  |  |  |

Used oil and materials must be disposed of according to 87/101/EEC Directives and to country specific regulations .
The disposal of electrical components is provided for by European Directives UE 2015/863 .

## 12. SPARE PARTS LIST

| POS. | DESCRIPTION | CODE | Q.TY |
| :---: | :---: | :---: | :---: |
| 1 | Bow | 044/38 | 1 |
| 2 | Bow guard | 045-A/38 | 1 |
| 3 | Bow drip tray | 034/38 | 1 |
| 4 | Washer as drawing $\varnothing 45$ foro12,5 sp. 6 Washer as drawing $\varnothing 45$ foro 12,5 sp. 6 | $\begin{gathered} \hline 040 / 06 \\ 040-\mathrm{A} / 06 \end{gathered}$ | $\begin{aligned} & 1 \\ & 1 \end{aligned}$ |
| 5 | Band $2825 \times 27 \times 0,9$ | MAR2825270946 | 1 |
| 6 | Bow cylinder bracket bushing | 070/38 | 2 |
| 7 | Idle pulley spacer | 048/32 | 1 |
| 8 | Bearing 6207 2RS | 103/32 | 2 |
| 9 | Idle pulley | 036/32 | 1 |
| 10 | Blade tightener pin | 037/38 | 1 |
| 11 |  |  |  |
| 12 |  |  |  |
| 13 | Blade tightener guide plate | 046/32 | 2 |
| 14 |  |  | 2 |
| 15 | Blade tightener screw | 039/32 | 1 |
| 16 |  |  |  |
| 17 | Clamping lever M10x40 | 061/35 | 1 |
| 18 | Mobile blade guide fastening plate | 018/38 | 1 |
| 19 | Rear Guard | 042/38 | 1 |
| 20 | Microswitch ERSCE E 10000 BI | 023/90 | 1 |
| 21 | Bearing vice flange | 020/31 | 1 |
| 22 | Oiler ø6 | 490/95 | 1 |
| 23 | Blade tightener bushing | 041/38 | 1 |
| 24 | Casing AXK 2035 | 109/32 | 1 |
| 25 | Thrust bearing AS 2035 | 108/32 | 2 |
| 26 | Belleville washer $40 \times 20,4 \times 1,5$ DIN-2093 | 458/95 | 18 |
| 27 |  |  |  |
| 28 | Blade tightener handwheel | 058/35 | 1 |
| 29 | Eye tie rod M12x50 | 035/38 | 2 |
| 30 | Micro switch stop bush | 120/38 | 1 |
| 31 | Micro carrier block | 051/38 | 1 |
| 32 | Micro ERSCE E 100 00BI | 023/90 |  |
| 33 |  |  |  |
| 34 | Micro switch stop washer | 094/32 | 1 |
| 35 |  |  |  |
| 36 |  |  |  |
| 37 |  |  |  |
| 38 | Reduction unit MV 63 FC 1/19 | 021/38 | 1 |
| 39 | Motor M90L V.400/50 8/4P kW 0,75/1,1 | 122/80 | 1 |
| 40 | OR ring 4900 | 024/34 | 1 |
| 41 |  |  |  |
| 42 |  |  |  |
| 43 |  |  |  |
| 44 |  |  |  |
| 45 |  |  |  |
| 46 | Micro ERSCE E-100-00-AI | 022/90 | 1 |
| 47 |  |  |  |
| 48 | Bearing 6208 2RS | 016/38 | 1 |
| 49 |  |  |  |
| 50 |  |  |  |
| 51 |  |  |  |
| 52 |  |  |  |
| 53 |  |  |  |
| 54 |  |  |  |
| 55 | Motor pulley | 045/32 | 1 |
| 56 |  |  |  |
| 57 |  |  |  |
| 58 |  |  |  |
| 59 |  |  |  |
| 60 | Blade guide mobile rod | 023/35 | 1 |
| 61 | Clamping lever M12x45 | 037/32 | 1 |
| 62 |  |  |  |
| 63 | Mobile front blade guide cover | 071/38 | 1 |
| 64 | Spring anchoring bracket | 032/38 | 1 |


| 65 | Blade guide tap ø1/8" | 030/96 | 2 |
| :---: | :---: | :---: | :---: |
| 66 | Front blade guide | 026/35 | 1 |
| 67 |  |  |  |
| 68 | Blade guide plate | 044/35 | 2+2 |
| 69 |  |  | 2 |
| 70 | Control panel | 053-C/38 | 1 |
| 71 | Bearing 608 2RS | 055/35 | 2+2 |
| 72 | Guide blade eccentric bushing | 027/35 | 4 |
| 73 |  |  |  |
| 74 | Rear blade guide | 025/35 | 1 |
| 75 | Fixed guide blade rod | 041/40 | 1 |
| 76 |  |  |  |
| 77 | Rotation pin | 108/38 | 1 |
| 78 | Bearing 32008 XA | 072/20 | 2 |
| 79 | Rotation pin nut | 027/38 | 1 |
| 80 |  |  |  |
| 81 |  |  |  |
| 82 |  |  |  |
| 83 |  |  |  |
| 84 |  |  |  |
| 85 |  |  |  |
| 86 | Positioning pin | 002-B/35 | 1 |
| 87 | Sphere ø30 F.M. 10 | 082/14 | 1 |
| 88 | Spring anchoring bracket | 030/38 | 1 |
| 89 | Return spring | 031/38 | 1 |
| 90 | Spring pin | 017/32 | 1 |
| 91 |  |  | 1 |
| 92 | Fixed blade guide guard | 071-C/38 | 1 |
| 93 | Countervice fastening bracket | 057/35 | 1 |
| 94 | Handle rod | 035/32 | 1 |
| 95 | Handle | 146/05 | 1 |
| 96 | Micro | 328/90 | 1 |
| 97 | Antigrease ring | 020/35 | 1 |
| 98 | Mobile blade guide guard | 071-A/38 | 1 |
| 99 |  |  | 1 |
| 100 | Hub flange | 003/34 | 1 |
| 101 | Base | 110/38 | 1 |
| 102 | Door | 111/38 | 1 |
| 103 | Tank | 119/38 | 1 |
| 104 | Crucible | 025-A/38 | 1 |
| 105 | Coolant pump SA/85 | 090/90 | 1 |
| 106 | Valve EUROPA ø3/8" | 035/96 | 1 |
| 107 | Bow support | 114/38 | 1 |
| 108 | Cylinder bracket | 061/38 | 1 |
| 109 | Rotating arm | 113/38 | 1 |
| 110 | Door hinge | 156/50 | 2 |
| 111 | Countervice pin | 031/35 | 1 |
| 112 | Joint fork M10x1,25 ø25/35 | 040/39 | 1 |
| 113 | Bench lever | 062/32 | 1 |
| 114 | Bench lever nut | 027/04 | 1 |
| 115 | Countervice | 004/35 | 1 |
| 116 | Millimetric rod | 077/32 | 1 |
| 117 | Metric rule | 080/32 | 1 |
| 118 | Stopping rod | 078/32 | 1 |
| 119 | Stopping rod support | 079/32 | 1 |
| 120 |  |  |  |
| 121 | Handwheel $\varnothing 40$ 4L M8x20 | 077/25 | 2 |
| 122 | Degrees index | 128/36 | 1 |
| 123 |  |  |  |
| 124 | Bow protection hinge | 025/32 | 2 |
| 125 | Vice handwheel | 056/35 | 1 |
| 126 | Vice screw washer | 053/31 | 1 |
| 127 | Vice screw | 067/35 | 1 |
| 128 | Vice lever | 007/31 | 1 |
| 129 | Vice spring | 021/31 | 1 |
| 130 | Thrust bearing AS 3047 | 061/31 | 1 |
| 131 | Casing AxK 3047 | 060/31 | 1 |
| 132 | Vice | 005/35 | 1 |


| 133 |  |  |  |
| :---: | :---: | :---: | :---: |
| 134 | Bush | 018/34 Bis | 1 |
| 135 | Rear female hinge S40/41+pin | 041/39 | 1 |
| 136 | CSO cylinder | 080/38 | 1 |
| 137 | Vice jaw | 032/35 | 1 |
| 138 |  |  |  |
| 139 | Vice gib | 031/03 | 1 |
| 140 |  |  |  |
| 141 |  |  |  |
| 142 | Roller | 076/32 | 1 |
| 143 | Roller carrier arm | 075/35 | 1 |
| 144 | Big countervice jaw | 066/35 | 1 |
| 145 | Small countervice jaw | 065/35 | 1 |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| 200 | Plate with electrical components | 054-B/38 | 1 |
| 201 | Control panel | 052-C/38 | 1 |
| 202 | Fuse 10x38 gG 1A | 202/90 | 2 |
| 203 | Changeover switch VEMER CA0120000R03 | 018/90 | 1 |
| 204 |  |  |  |
| 205 | Transformer 30VA 0-230-400V 0-24V | 045/90 | 1 |
| 206 |  |  |  |
| 207 |  |  |  |
| 208 | Fuse 10x38 AM 10A | 206/90 | 3 |
| 209 | Fuse carrier WEBER PCH3x38 | 092/90 | 1 |
| 210 | Omega holed bar cm. 10 | 046/90 | 1 |
| 211 | Omega holed bar cm. 17 | 047/90 | 1 |
| 212 | Terminal CABUR CBD. 2 | 222/90 | 22 |
| 213 |  |  |  |
| 214 |  |  |  |
| 215 | Remote control switch LC1-D12 | 032/90 | , |
| 216 |  |  |  |
| 217 |  |  |  |
| 218 | Thermal relay LR2-D1308/10/12 | 053/90 | 1 |
| 219 | Fuse carrier WEBER PCH1 $\times 38$ | 093/90 | 1 |
| 220 | Fuse carrier WEBER PCH2×38 | 094/90 | 1 |
| 221 | Fuse 10x38 gG 2A | 203/90 | 1 |
| 222 | White light | 266/90 | 2 |
| 223 | Green light | 267/90 | 1 |
| 224 | On switch | 086/90 | 1 |
| 225 | Selector | 100/90 | 1 |
| 226 | Emergency button | 085/90 | 1 |
| 227 | Coolant pump switch | 006/90 | 1 |
| 228 | Main switch VEMER CA0120003207+G595 Yellow terminal cover G3228 | $\begin{aligned} & \hline 002 / 90 \\ & 065 / 90 \end{aligned}$ | 1 1 |
| 229 | Earth connection bar | 050/90 | 1 |
| 230 | Control panel seal | 054/38 | 1 |
|  |  |  |  |
|  |  |  |  |

## CAPACITA' DI TAGLIO - Special 320 M-CSO-S

| CAPACITA' DI TAGLIO <br> CUTTING CAPACITY - CAPACITE DE COUPE <br> SCHNITTKAPAZITAET - CAPACIDAD DE CORTE |  |  |  |
| :---: | :---: | :---: | :---: |
| $90^{\circ}$ | 230 | 220 | $300 \times 170$ |
| $45^{\circ}$ Destra - right - droite - rechts | 210 | 210 | $210 \times 210$ |
| $60^{\circ}$ Destra - right - droite - rechts | 135 | 105 | $130 \times 105$ |

## SCELTA DELLA LAMA

SCELTA DELLA LAMA SELECTION OF BLADE CHOIX DE LA LAME WAHL DES SAEGEBLATTS SELECCION DE LA HOJA

|  | L mm |  |  |
| :---: | :---: | :---: | :---: |
| - L - | $\leqq 40$ | 8 | 6/10 |
|  | $>30<80$ | 6 | 5/8 |
|  | $>60<90$ | 4 | 4/6 |
|  | $\leq 100$ | 3 | 3/4 |


|  | $S \mathrm{~mm}$ |  |  |
| :---: | :---: | :---: | :---: |
|  | $\leqq 1,5$ | 14 | - |
|  | $>1<2$ | 10 | 10/14 |
|  | $>2<4$ | 8 | 8/12 |
|  | $>4<8$ | 6 | 6/10 |
| $\mathrm{S}^{\text {S }}+$ | >6<12 | 6 | 5/8 |
|  | $\leqq 12$ | 4 | $4 / 6$ |

Allegato / Encl. 1 - Dis. / Draw. 1

| Velocita di taglio <br> La macchina è dotata di due velocità di taglio | 35-71 m/1' |
| :---: | :---: |
| Cutting machine <br> The machine is equipped with two cutting speeds | $35-71 \mathrm{~m} / 1^{\prime}$ |
| Vitesse de coupe <br> La machine est dotée de deux vitesses de coupe | 35-71 m/1' |
| Schnittgeschwindigkeit <br> Die maschine ist mit zwei Schnittgeschwindigkeiten ausgetattet | $35-71 \mathrm{~m} / 1^{\prime}$ |
| Velocidad de corte <br> La maquina esta dotata de dos velocidades de corte | 35-71 m/1' |
| Materiale <br> Material <br> Materiel <br> Material <br> Material | Velocità di taglio m/1 Cutting machine m/1 Vitesse de coupe $\mathrm{m} / 1$ Schnittgeschwindigkeit m/1 Velocidad de corte m/1 |
| Acciai da costruzione Fe37+Fe42 <br> Structural steel <br> Fe37+Fe42 | Pieni <br> Solid <br> Pleins <br> Volles Material <br> 1 <br> Pies |
| Aciers de costruction $\mathrm{Fe} 37+\mathrm{Fe} 42$ <br> Baustahl $\mathrm{Fe} 37+\mathrm{Fe} 42$ <br> Acero de costruccion $\mathrm{Fe} 37+\mathrm{Fe} 42$ | Profilati <br> Structural steel <br> Profilés <br> Profile <br> Perfiles |
| Acciai da costruzione Fe50+Fe70 <br> Structural steel Fe50 Fe70 <br> Aciers de costruction Fe50+Fe70 <br> Baustahl Fe50 Fe70 <br> Acero de costruccion Fe50+Fe70 | 71 |
| Acciai al carbonio C40+C60 <br> Carbon steel C40+C60 <br> Aciers au carbone C40+C60 <br> Kohlenstoffstahl C40+C60 <br> Acero de carbono C40+C60 | 71 |
| Acciai legati Alloyed steel Aciers allié Legierter Stahl Acero aleado | 35 |
| Acciai inox Stainless steel Aciers inoxydables Rostfreier Stahl Acero inoxidable | 35 |
| Ghisa grigia Grey cast iron Fonte grise Grauguß Fundiciòn gris | 71 |
| Leghe d'alluminio <br> Alluminium alloys <br> Allieges d'aluminium <br> Legierungen aus Aluminium <br> Aleaciòn de Aluminio | 71 |
| Bronzi <br> Bronze <br> Bronze <br> Bronze <br> Bronces | 71 |

## MOVIMENTAZIONE E TRASPORTO

Handling and transportation
Manutention et transport
Handhabung und Transpor† Movilización y transporte


Allegato / Encl. 2 - Dis. / Draw. 3

## DIMENSIONI D'INGOMBRO ED INSTALLAZIONE

Overall dimensions and installation
Dimensions hors-tout et installation
Aussenabmessungen und installation Dimensiones máximas extremas e instalación


Allegato / Encl. 2 - Dis. / Draw. 4


Allegato / Encl. 3 - Dis. / Draw. 5-6-7


Allegato / Encl. 3 - Dis. / Draw. 8-9



Allegato / Encl. 4 - Dis. / Draw. 11


Allegato / Encl. 5 - Dis. / Draw. 12



Allegato / Encl. 6 - Dis. / Draw. 14

## PANNELLO COMANDI SPECIAL 301-320-330-411 CSO/M

 CONTROL PANEL SPECIAL 301-320-330-411 CSO/M

Allegato / Encl. 6 - Dis. / Draw. 15

| DEUTSCH |
| :--- |
| THERMISCHES RELAIS OIL PUMPE MOTOR |
| THERMISCHES RELAIS SÄGEBLATTMOTOR |
| THERMISCHES RELAIS ÜHLMITTELMOTOR |
| THERMISCHES RELAIS CHIP EXTRACTORMOTOR |
| THERMISCHES RELAIS Motor Führungsstück |
| Photozelle Werkstoff Anwesenheit. |
| SICHERUNG TRAFO SCHUTZ |
| SICHERUNG MOTOR SCHUTZ |
| SICHERUNG KÜHLMITTELPOMPE SCHUTZ |
| SICHERUNG ZUFÜHRER SCHUTZ |
| SICHERUNG 24 V dc SCHUTZ |
| SICHERUNG 24 V ac SCHUTZ |
| GESCHWINDIGKEITUMRICHTER SICHERUNGSDRAHT |
| SCHWIMMER |
| LINE PRÄSENZ LAMPE |
| BLATT TENSION LAMPE |
| ZYKLUS START LAMPE |
| KONTAKTGEBER WIDERSTANDSTHERMOMETER |
| Fernschalter Frequenzumrichter Versorgung |
| KONTAKTGEBER ZENTRALHYDRAULIK MOTOR |
| KONTAKTGEBER SÄGEBLATTMOTOR |
| KONTAKTGEBER KÜHLMITTELPUMPE |
| KONTAKTGEBER SPÄNE AUSZIEHER |
| KONTAKTGEBER Motor Führungsstück |
| KONTAKTGEBER WIEDERGEWINNUNG KÜHLMITTELPUMPE |
| ZENTRALHYDRAULIKMOTOR |
| SÄGEBLATTMOTOR |
| KÜHLMITTELPUMPE MOTOR |
| SPAENEAUSLASSVORRICHTUNG MOTOR |
| DREHUNGS KOPF MOTOR |
| FÜHRUNGSSTÜCK MOTOR |

thaliano


RELE' TERMICO MOTORE LAMA | FR2 | RELE' TERMICO MOTORE LAMA |
| ---: | :--- |
| FR3 | RELE' TERMICO MOTORE REFRIGERANTE |
| FR4 | RELE' TERMICO MOTORE ESTRATTORE TRUCIOLI |
| FR5 | RELE' TERMICO MOTORE GUIDA PEZZO |
| FTC | FOTOCELLULA PRESENZA MATERIALE |
| FU1 | FUSIBILI PROTEZIONE TRASFORMATORE |
| FU2 | FUSIBILI PROTEZIONE MOTORI |
| FU3 | FUSIBILI PROTEZIONE POMPA REFRIGERANTE |
| FU4 | FUSIBILI PROTEZIONE ALIMENTATORE |
| FU5 | FUSIBILI PROTEZIONE 24 V dc |
| FU6 | FUSIBILI PROTEZIONE 24 V ac |
| FU7 | FUSIBILE PROTEZIONE MOTORE INVERTER |
| G | GALLEGGIANTE |
| H1 | SPIA PRESENZA LINEA |
| H2 | SPIA LAMA IN TENSIONE |
| H3 | SPIA START CICLO |
| K | TELERUTTORE TERMORESISTENZA |
| KM | IL | KMO TELERUTTORE ALIMENT. INVERTER kM1 TELERUTTORE MOTORE POMPA OLIO KM2 TELERUTTORE MOTORE LAMA

\section*{ITALIANO} , KM4 TELERUTTORE ESTRATTORE TRUCIOLI (COCLEA) KM3 TELERUTTORE POMPA REFRIGERANTE ELERUTTORE MOTORE GUIDA PEZZO KM6 TELERUTTORE POMPA RECUPERO REFRIGERANTE | KM6 | TELERUTTORE POMPA RECUPERO REFRIGERANTE |
| :---: | :--- |
| M1 | MOTORE POMPA OLIO | M2 MOTORE LAMA

M3 MOTORE POMPA REFRIGERANTE MOTORE ESTRATTORE TRUCIOLI motore rotazione testa
10
RELE' TERMICO MOTORE REFRIGERANT
RELE' TERMICO MOTORE GUIDA PEZZO
H3 SPIA START CICLO M50 MOTORE GUIDA PEZZO
RELE' TERMICO MOTORE ESTRATTORE TR

THERMAL RELAY GUIDA-PIECE MOTOR CONTROL SWITCH COOLANT RECYCLE PUMP THERMAL RELAY \begin{tabular}{l}
OIL PUMP MOTOR <br>
BLADE MOTOR <br>
\hline

 

OIL PUMP MOTOR <br>
BLADE MOTOR <br>
\hline
\end{tabular}

COOLANT PUMP MOTOR CHIP EXTRACTOR MOTOR SAWHEAD ROTATION MOTOR
ENGLISH THERMAL RELAY OIL PUMP MOTOR THERMAL RELAY BLADE MOTOR THERMAL RELAY COOLANT MOTOR ELAY THERMAL CHIPS EXTRACTOR THERMAL RELAY GUIDA-PIECE MOTOR RELAY THERMAL CHIPS EXTRACTOR MOTOR FUSE TRANSFORMER PROTECTION FUSE MOTOR PROTECTION

FUSE COOLANT PUMP PROTECTION
FUSE COOLANT PUMP PROTECTION FUSE 24 V dc PROTECTION FUSE 24 V ac PROTECTION FUSE INVERTER PROTECTION FLOAT $\qquad$ SPY BLADE IN TENSION SPY CYCLE START THERMO-RESISTANCE CONTROL SWITCH INVERTER FEEDING CONTROL SWITCH OIL PUMP MOTOR REMOTE CONTROL SWITCH BLADE MOTOR REMOTE CONTROL SWITCH COOLANT PUMP REMOTE CONTROL SWITCH CHIP EXTRACTOR CONTROL SWITCH


> MATERIAL PRESENCE PHOTOELECTRIC CELL FUSE MOTOR PROTECTION

FUSE TRANSFORMER PROTECTIONN

## FUSE FEEDER PROTECTION FUSE 24 V dc PROTECTION

N AT SPY NE PRESENCE TCH $\square$ COOLANT PUMP REMOTE CONTROL SWITCH Y

[^0]
GUIDA-PIECE MOTOR
SAWHEAD ROTATION MOTOR

ㅅyOWヨW ヨINVS7nd 6as
感
品感怱
䍙 $\stackrel{\infty}{\stackrel{m}{N}}$
 $\frac{刃}{6}$ ग 刀 刀 刀忍 $刀_{0}$男 $\square$卫刀 Q 웅 우 문 N －ス〕 ふ 형 VIITVS IO ヨINVSTก』 $\forall$ SYOW VYחㄴyヨdy $\exists$ INVSTnd $\forall$ SYOW $\forall$ Ynsniro ヨunvsind PUSANTE DI RESET OTOI $\perp \forall \forall \perp S$ ヨiNVS7nd VWV7 OLNヨWVNOISNヨL ヨINVS7nd

 VWV7 OIqWVO ヨyOIヨ7ヨs NO ONISSヨyd ヨyОㅍヨ7ヨS SELETTORE FUNZIONE RELE＇COMANDO TERMOSTATO RELE＇COMANDO MICROLUBRIFICAZIONE
 RELE＇COMANDO TELERUTTORE POMPA OLIO VWV7 ヨNOIZVIOY シIOY甘W OONVWOO．ヨาヨコ INTERRUTTORE／COMMUTATORE DI VELOCITA
INTERRUTTORE POMPA REFRIGERANTE
 POTENZIOMETRO VELOCITA＇LAMA
SENSORE ROTAZIONE LAMA INVERTER MOTORE AVANZAMENTO MATERIALE INVERTER MOTORE LAMA
 MOTORE RECUPERO REFRIGERANTE里
 REFRIGERANTE BUTTON＂ON＂ BUTTON DOWN BUTTON UP
 LOCK VICE BUTTON CYCLE START BUTTON BLADE TENSIONING BUTTON bLADE DETENSIONING BUTTON EMERGENCY PUSH BUTTON bLADE RELACEMENT CHANGEOVER SWITCH VERTICAL VICE ON CHANGEOVER SWITCH FUNCTION SELECTOR bADE DESCENT RELAY
thermostat command relay MICROLUBRICATION COMMAND RELAY
TIMER RELAY BLADE REMOTE CONTROL SWITCH COMMAND RELAY VERTICAL VICE RELAY OIL PUMP REMOTE CONTROL SWITCH COMMAND RELAY ROTATING BLADE COMMAND RELAY COOLANT PUMP SWITCH SWITCH／SPEED CHANGE OVERSWITCH MAIN ON／OFF SWITCH bLADE ROTATION SENSOR bLADE SPEED POTENTIOMETER BLADE POSITIONING POTENTIOMETER MATERIAL FEEDING MOTOR INVERTER BLADE MOTOR INVERTER MATERIAL FEEDING MOTOR COOLANT RECYCLE MOTOR

MEMORY TASTER
 HINTEN TASTER
 SPANNSOCH SCHLIEß TASTER ZYKLUS START TASTER
RESETTASTER SAEGEBLAT SPANNSCHALTER SAEGEBLATT ENSPANNSCHALTER NOT AUS TASTER SAEGEBLATT WAEHLSCHALTER GESCHWINDIGKEITUMRICHTER WAEHLER ON FUNKTION WÄHLER SAEGEBLATT ABSTIG RELE THERMOSTATSTEUER RELAIS ZEITGEBER RELE MIKROSPRÜHEINRICHTUNGSTEUER RELAIS RELAIS BLATT FERNSCHALTER SENKRECHT SCHRAUBSTOCK RELE RELAIS OIL PUMPE FERNSCHALTER SÄGEBLATT UMDREHUNG POTENZIOMETER KÜHLMITTELPUMPE SCHALTER SCHALTER／GESCHWINDIGKEIT UMSCHALTER HAUPTSCHALTER BLATT UMDREHUNGSSENSOR SÄGEBLATT－GESCHWINDIGKEIT POTENZIOMETER SÄGEBLATT－STENUNG POTENZIOMETER VORSCHUBMATERIAL MOTOR WECHSELRICHTER SÄGEBLATTMOTOR WECHSELRICHTER VORSCHUBMATERIAL MOTOR

WIEDERGEWINNUNG KÜHLMITTELPUMPE MOTOR

| AUSLOESER TASTE |
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| ENDSCHALTER BLATT GEBROCHEN |
| PEDALS MIKROSCHALTER |
| FußSCHALTER SPENNSTOCK SCHLIEßEN MIKROSCHALTER |
| ENDSCHALTER FÜHRUNGSSTÜCK NACH VORNE |
| ENDSCHALTER FÜHRUNGSSTÜCK NACH HINTEN |
| HEBEWERK NACH OBEN ENDSCHALTER |
| ENDSCHALTER SCHUTZGEHÄUSE |
| SCHUTZ GEÖFFNET ENDSCHALTER |
| SPANNDRUCK TASTE |
| ENDSCHALTER WAGEN VORNE |
| $-45^{\circ} ~ U M D R E H U N G ~ E N D S C H A L T E R ~$ |
| ENDSCHALTER WAGEN ZURÜCK |
| ENDSCHALTER BÜGEL NACH OBEN |
| ENDSCHALTER BÜGEL NACH UNTEN |
| ENDSCHALTER STANGENENDE |
| STÜCKANWESENDHEIT ENDSCHALTER |
| ENDSCHALTER GRIFF |
| ENDCSHALTER MANUELL START |
| ZEITGEBER |
| TRANSFORMATOR |
| THERMOSTAT |
| THERMO-WIDERSTAND |
| ELEKTROVENTIL WAGEN LANGSAM VORNE |
| ELEKTROVENTIL MANUELL AUFHEBUNG |
| SAEGEBLATT ENTSPANNUNG MAGNETVENTIL |
| ELETRISCHESVETIL SAEGEBLATT ENSPANNUNG |
| SAEGEBLATT SPANNUNG MAGNETVENTIL |
| ELETRISCHESVENTIL SAEGEBLATT SPANNUNG |
| LADEMAGAZIN HEBEWERK ELEKTROVENTIL |
| LADEMAGAZINSPANNSTOCK ELEKTROVENTIL |
| $E L E K T R O V E N T I L ~ Z A U N ~ N A C H ~ V O R N E ~$ |

MICROSWITCH BLADE FAILURE PEDAL MICROSWITCH START PEDAL VICE CLOSING MICROSWITCH MICROSWITCH GUIDE-PIECE FORWARD MICROSWITCH GUIDE-PIECE BACKWARD MICROSWITCH LIFT UP POSITION MICROSWITCH PROTECTION CASE COVER OPEN MICROSWITCH VICE PRESSURE SWITCH MICROSWITCH CARRIAGE FORWARD MICROSWITCH - $45^{\circ}$ ROTATION MICROSWITCH CARRIAGE BACK MICROSWITCH HEAD / BOW UP MICROSWITCH HEAD / BOW DOWN MICROSWITCH BAR END MICROSWITCH PIECE PRESENCE MICROSWITCH HANDLE
MICROSWITCH MANUAL START TIMER TRANSFORMER THERMOSTAT

## THERMO-RESISTANCE

CARRIAGE SLOW FORWARD MOTION SOLENOID VALVE MANUAL UNLOCKING SOLENOID VALVE UNTIGHTNING BLADE SOLENOID VALVE BLADE DETENSIONING SOLENOID VALVE TIGHTNING BLADE SOLENOID VALVE BLADE TENSIONING SOLENOID VALVE LOADER LIFT SOLENOID VALVE LOADER VICE SOLENIOID VALVE GUIDE-PIECE FORWARD VALVE
PULSANTE DI SBLOCCO
11 MICROINTERRUTTORE CHIUSURA MORSA A PEDALE
の
SQ1 MICROINTERRUTTORE ROTTURA LAMA SQ10 MICROINTERRUTTORE START A PEDALE SQ15 FINECORSA GUIDA PEZZO AVANTI SQ16 FINECORSA GUIDA PEZZO INDIETRO SQ18 FINECORSA SOLLEVATORE ALTO SQ2 MICROINTERRUTTORE CARTER APERTO 1 SQ02 MICROINTERRUTTORE CARTER APERTO 2 SQ20 PRESSOSTATO CHIUSURA MORSA SQ3 FINECORSA CARRO AVANTI SQ30 FINECORSA ROTAZIONE -45 SQ4 FINECORSA CARRO INDIETRO SQ5 FINECORSA TESTA ALTA FINECORSA TESTA BASSA SQ8 MICROINTERRUTTORE MANIGLIONE (CARICO) SQ9 MICROINTERRUTTORE START MANUALE TEMPORIZZATORE TC1 TRASFORMATORE TERMOSTATO
TERMORESISTENZA
YV1 ELETTROVALVOLA CARRO AVANTI LENTO
 YV11 ELETTROVALVOLA DETENSIONAMENTO LAMA YV11 ELETTROVALVOLA DETENSIONAMENTO LAMA YV12 ELETTROVALVOLA TENSIONAMENTO LAMA YV12 ELETTROVALVOLA TENSIONAMENTO LAMA YV15 ELETTROVALVOLA SOLLEVATORE CARICATORE YV16 ELETTROVALVOLA MORSA CARICATORE YV18 ELETTROVALVOLA GIUDA PEZZO AVANTI

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