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:
MACC s.r.I. SCHIO ( VI ) - ITALY
CONSTRUCTOR:
ИЗГОТОВИТЕЛЬ:

MODELLO:
MODEL:
MODELL:
MODELE:

## SPECIAL 335

MODELO:
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'

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- 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 335
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
Macc Costruzioni Meccaniche s.r.I.
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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 instruction manual has been produced in accordance with the requirements of the Machinery Directive 2006/42/EEC and its subsequent amendments. In this context, particular attention has been paid to safety aspects and the prevention of accidents at work during the various phases of the machine's "life", highlighting the information that is particularly useful for the user. The "Instructions for use" must be an integral part of the machine, to be consulted before and after the machine is put into service, whenever the need arises, respecting its contents in all its parts. Only in this way will it be possible to achieve the two fundamental objectives that have been laid down in this manual:

- Optimize machine performance
- Prevent damage to the machine and risk of injury to the user

The index of chapters and the index of drawings, diagrams and tables, reported in chapter 3, will certainly facilitate the search for specific topics.

## WARNING: READ THE OPERATING INSTRUCTIONS CAREFULLY BEFORE INSTALLING THE MACHINE.

## 2. INFORMATION ON MAINTENANCE ASSISTANCE

### 2.1 WARRANTY

- MACC S.r.I. guarantees its products against defects in materials and manufacturing for a period of 12 months from the date of delivery or, in case of installation by MACC personnel, from the date of commissioning.
- The purchaser shall only be entitled to the replacement of parts recognised as defective: transport and packaging costs shall be borne by the purchaser. In this case, the following must be specified:

1. Date and number of the purchase document
2. Machine model
3. Serial number
4. Code of any drawings concerned

- No claims for damages caused by any period of inactivity of the machine will be recognized.
- The warranty does not cover damage due to use not in accordance with these Operating Instructions, which are an integral part of the machine, including maintenance, if not in accordance with the instructions provided.
- The warranty will not be recognized for machines on which unauthorized modifications have been made.
- Modification or tampering with safety devices is strictly prohibited.


## 3. INDEXES

### 3.1 INDEX OF CHAPTERS

Chap 1 Introduction
Chap 2 Information on maintenance support
Chap 3 Index of chapters, drawings, diagrams, tables
Chap 4 Description of the machine Safety standards applied in design and construction Description of the machine and its components Intended and unintended use of the machine
Chap 5 Significant technical data
Chap 6 Handling and transport
Chap 7 Machine installation
Chap 8 Putting into service and operation of the machine Devices and their location Tools supplied Commissioning Specific safety checks General rules of conduct for safety purposes Adoption of measures to prevent residual risks Warning, obligation, prohibition labels on the machine
Chap 9 Maintenance and repair General safety measures Periodic checks and maintenance Description of periodic maintenance
Chap 10 Airborne noise information
Chap 11 Decommissioning - Dismantling

| TYPE OF ANN. | DESCRIPTION | ANN. NO. |
| :--- | :--- | :---: |
| Table | Cutting capacity -Choice of blade - Cutting speed | $1-2$ |
| Drawings | Handling and transport - Installation plan | $3-4$ |
| Drawings | Arc - Fixed and mobile blade guide | $5-6$ |
| Drawings | Arc support | 7 |
| Drawings | Bench and turntable | 8 |
| Drawings | Clamp - Base | $9-10$ |
| Drawings | Control panel | 11 |
| Drawings | Control unit ( Special-335-MS ) | 12 |
| Scheme | Hydraulic scheme ( Special-335-MS ) |  |
| Scheme | Wiring diagram |  |

## 4. DESCRIPTION OF THE MACHINE

### 4.1 SAFETY STANDARDS APPLIED IN DESIGN AND CONSTRUCTION

The machine complies with :

- Machinery Directive 2006/42/EEC .

The following standards have been applied:

- EN ISO 12100 Safety of machinery. Basic concepts, general design principles terminology, basic methodology .
- EN ISO 16093 Safety of machinery . Basic concepts, general design principles
- EN ISO $13850 \quad$ Safety of machinery. Emergency stop devices, functional aspects
principles for design
- EN ISO 4413-4414
- EN 14118

Safety requirements for hydraulic and pneumatic transmission systems and their components.
Safety of machinery - Prevention of unexpected start-up .

- EN 14119
- EN 60204-1

Safety of machinery. Electrical equipment of the machines
part 1 general rules.

- EN 13857 Safety distances to prevent danger zones being reached with the upper limbs .
- Directive 2014/30/EU ( Electromagnetic compatibility ) .

Standards have been applied :

- EN 55014-1 Electromagnetic compatibility - Specifications for household appliances, power tools and similar appliances .
- EN 61000-3-2 Electromagnetic compatibility - Limits for harmonic current emissions .
- EN 61000-3-11 Electromagnetic compatibility - Limitation of voltage variations , voltage fluctuations and flicker in public low-voltage power systems .
- EN $55032 \quad$ Electromagnetic compatibility of multimedia equipment - Emission requirements .
- EN 61000-4-2 Electromagnetic compatibility (EMC ) Part 4-2 : Test and measurement techniques Section 2: Electrostatic discharge immunity tests. EMC Basic Publication .
- EN 61000-4-4 Electromagnetic compatibility ( EMC ) Part 4-4 : Test and measurement techniques Immunity test to transient/fast electrical trains .
- EN 61000-4-6 Electromagnetic compatibility ( EMC ) Part 4-6 : Test and measurement techniques Section 6: Immunity to conducted disturbances induced by radio frequency fields .
- Directive 2014/35/EU ( Low voltage).

Directive 2003/11/EC 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 risks arising from physical agents ( vibration ) (sixteenth individual Directive pursuant to Article 16(1) of Directive 89/391/EEC ) .

### 4.2 DESCRIPTION OF THE MACHINE AND ITS COMPONENTS

The SPECIAL 335 band saw machine produced by MACC consists of a robust welded and painted steel sheet structure. The upper surface is designed to facilitate the complete flow of the cutting fluid. The band holder arc is made of a cast iron casting, widely dimensioned to give the necessary rigidity and precision to the cutting unit. The vice unit, also made of cast iron, allows the material to be securely clamped. The bar stop device allows to set the desired length and a remarkable constancy in repetitive cuts. The blade holder arc is rigidly connected to a gearbox integral to the motor , and to the base by means of a joint that allows a rotation of $60^{\circ}$ to the right and $45^{\circ}$ to the left. The descent of the arc during the cutting manoeuvre will be performed manually for the Special 335-M ; manual or with assisted descent via hydraulic cylinder for the Special 335-CSO ; manual or semi-automatic (a hydraulic cylinder accompanies the ascent and descent) for the Special $335-\mathrm{MS}$. The coolant pump is mounted on the base of the machine. A manual handwheel for the band tension, with consent microswitch, prevents the belt from moving forward in case of insufficient tension applied and also allows to restore at any time the optimal operating conditions, confirmed by an indicator light. The main switch is located on a front panel together with the emergency stop button.
The choice of one of the two motor rotation speeds and therefore the cutting speed is made by means of a switch , located on the front panel. By choosing the optional INVERTER, the potentiometer adjusting the speed will be controlled by a regulator that will replace the two-speed switch .
The operating lever, equipped with an ergonomic handle and a hold-to-run button, allows you to operate with minimum fatigue.
The blade is protected by an interlocking guard that covers the upper area and the flywheels and by two adjustable lower guards that protect the operator from the projection of chips and coolant. The machine is completed with service keys .

### 4.3 INTENDED AND UNINTENDED USE OF THE MACHINE

The band saw SPECIAL 335 has been designed and manufactured exclusively for cutting bars, profiles and pipes of ferrous metals according to the instructions contained in this manual. The cutting of other materials is therefore not permitted : failure to comply with the above may result in damage to the machine and risks to the safety and health of the operator. Cutting is not allowed unless the bar has been clamped in the vice beforehand .

## 5. SIGNIFICANT TECHNICAL DATA

The following data must not be altered for any reason whatsoever in order not to compromise the correct operation of the machine and not to create dangerous conditions for the operators .

| Three-phase power supplyMotor cod.122/80_400V-50/60Hz 4/8P Gearbox cod.021/38_1:20 |  |
| :---: | :---: |
| Main engine power | $0.75-1.1 \mathrm{~kW}$ |
| Engine revs | 700-1420 rpm |
| Cutting speed | 38-78 m/1' |
| Three-phase INVERTER power supply (optional) Motor cod.222/80_230/400V-50/60Hz 4P Gearbox cod.021-A/38_1:30 |  |
| Main engine power | 1.5 kW |
| Engine revs | 1400 rpm |
| Cutting speed | 0-90 m/1' |
| Single-phase power supply (optional) <br> Motor cod.125/80_230V-50Hz 4P Gearbox cod.021/38_1:20 |  |
| Main engine power | 1.1 kW |
| Engine revs | 1380 rpm |
| Cutting speed | $75 \mathrm{~m} / 1^{\prime}$ |
| Electric pump power | 0.06 kW |
| Belt dimensions ( length x width x thickness ) | $3010 \times 27 \times 0.9 \mathrm{~mm}$ |
| Cutting thickness | 1.2 mm |
| Cutting angle | $60^{\circ} \mathrm{rh}-45^{\circ} \mathrm{lh}$ |
| Maximum workpiece clamping vice opening | 330 mm |
| Quick clamping displacement | 5 mm |
| Jaw height | 130 mm |
| Jaw length | 240 mm |
| Worktop height | 965 mm |
| Cooling tank capacity | 12 litres ~ |
| Weight of the Special 335-M / CSO machine | $\sim 3580 \mathrm{~N}$ ( 365 kg ) |
| Weight of the Special 335-MS machine | $\sim 4080 \mathrm{~N}(415 \mathrm{~kg})$ |

## 6. HANDLING AND TRANSPORT

For safe handling and transport use an internal transport trolley as indicated in ANN. 3 . Keep the machine in the normal position , avoiding tipping it over .

## All handling and transport operations must be carried out by trained personnel

## 7. MACHINE INSTALLATION

## A. INTEGRITY CHECK

It is necessary to check that the machine has not been damaged during transport and handling. If any anomalies are detected, notify MACC immediately. Mount all the available accessories on the machine such as the bar stop cod.077/32 and the roller arm cod.075/35 ( ANN.4-8-10) .

## B. FIXING THE MACHINE

The machine will be able to operate according to the technical parameters provided by MACC if it is correctly positioned and fixed to the floor of the workshop in a stable manner and such as to limit vibrations during its operation. See ANNEX 4.

## C. BAND ASSEMBLY

Remove the arc guard 128-A/38 by removing the two screws (ANN. 5 ) mount the band by inserting it first between the blade-guide head bearings and then on the two pulleys, tension the blade a little bit by means of the handwheel 058/35 and put back the arc guard. Check that the band is mounted with the exact direction of the teeth, as indicated in ANN. 5 . Make sure that the band ( dimensions $3010 \times 27 \times 0.9$ ) is of the right type and pitch for the material to be cut .

## D. ELECTRICAL CONNECTION TO THE MAINS

Install a residual current device with suitable characteristics for the power supply line before the socket .
Make sure that the supply voltage corresponds to the voltage indicated on the motor's nameplate. Connect the cable to the line according to the colour code of the individual cables, with particular attention to the earthing cable. Once the machine is connected, check that the rotation of the band complies with the direction of the arrow on the guard.

## E. CUTTING COOLANT

To cool the disc, fill the tank with emulsifiable oil obtained from a mixture of water and WLADOIL EMULSOL SGA/NF oil in a percentage of $5-7 \%$.

## 8. PUTTING INTO SERVICE AND USE OF THE MACHINE

### 8.1 DEVICES AND THEIR LOCATION

( The location of the described devices is illustrated in the various ANNEXES ) .
Code 002/90 (ANN. 11 ) COMMUTATOR
Code 090/90 (ANN. 10 ) ELECTRIC PUMP
Code 005/38 (ANN. 9 ) CLAMP
Code 077/32 (ANN. 8 ) STOP BAR
Code 222/38 ( ANN. 8 ) TURNTABLE WITH CUTTING ANGLE DEVICE: to check that the cutting angle is the

### 8.2 TOOLS SUPPLIED

1 3" hexagonal bar spanner
15 " hexagonal bar spanner
16 " hexagonal bar spanner
18 " hexagonal bar spanner
1 10" hexagonal bar spanner

### 8.3 COMMISSIONING

CHECKS TO BE PERFORMED BEFORE EACH CUT
A. Tension the band by turning the handwheel 058/35 until the end of the stroke ( ANN. 5 ) . Always remember at the end of the work to loosen the handwheel to avoid the yield of the band .
B. Check that the index corresponds to the fixed cutting angle (vice graduation).
C. Check that the arc and vice are locked with lever 062/32 ( ANN. 8 ).
D. With the motor switched off, lower the arc and check that at the end of the stroke the band does not come into contact with the turntable $222 / 38$; if not , adjust by acting on the screw located on the arc support 128-A/38 ( ANN. 5 ) . By adjusting the screw you can also determine the working stroke width.
E . Make sure that the workpiece is securely clamped in the vice .
F. Check that the coolant circulates in the machine .
G. Make sure that when starting the motor the band rotates according to the arrow indicated in ANN. 5 .
H. To achieve maximum cutting precision, the sliding blade guide unit must be placed as close to the workpiece as possible. Secure the workpiece with the vice, unlock the blade guide arm 023/35 (ANN. 6 ) using the handle 037/32 ( ANN. 5 ) and bring it close to the jaw of the vice so that it does not touch it during cutting , then secure it again .
I. Check that the pressure gauge placed on the hydraulic control unit 074/90 (ANN. 13 ) indicates a pressure of about 30 bar, otherwise position it at this value through the regulator of the control unit itself. ( SPECIAL 335-MS ).

## CUTTING

## SPECIAL 335-M

A. Before starting to cut, if the cutting angle is not the desired one, correct it or change it by loosening the table lever 062/32 ( ANN. 8 ) and , after correcting, fix the lever with force .
B. Lock the material to be cut by approaching the vice at $3-4 \mathrm{~mm}$ from the workpiece by means of the handwheel $058 / 35$ then fix it definitively by turning the lever 023/38 ( ANN. 9 ) . Turn main switch 002/90 to "1", turn switch speed 018/90 ( or potentiometer regulator 098/90 in case of INVERTER ) to the desired position. Hold the handle at the end of the arc lever and press the button. At this point the blade starts to turn, position yourself with the blade on the workpiece with great caution, then increase the pressure to accelerate cutting without ever straining, once cutting is complete release the button and return the arc to the start position .
C. For cutting lengths in series, position the bar stop 077/32 at the desired size by fixing it with the handwheel 077/25 (ANN. 8 ).
D. To cut to the left, loosen lever 023/38 and move the vice assembly to the right and secure lever 023/38 (ANN. 8 ) .
E. To replace the band, perform the same operations as described in the band assembly (Chapter 7C ) .
F. For the choice of the most suitable blade see table ANN. 1 .

It is recommended not to use blades with damaged or insufficiently sharpened cutting edges.

## SPECIAL 335-CSO

A. Before starting to cut, if the cutting angle is not the desired one, correct it or change it by loosening the table lever 062/32 ( ANN. 4 ) and , after correcting, fix the lever with force.
B. Clamp the material to be cut by approaching the vice at $3-4 \mathrm{~mm}$ from the workpiece by means of the handwheel $058 / 35$ then fix it definitively by turning the lever 023/38 (ANN. 9 ). Turn main switch 002/90 to "1" , turn speed switch 018/90 ( or potentiometer regulator 098/90 in case of INVERTER ) to the desired position .
With the selector 100/90 oriented on "CSO", the start of the cycle is obtained by pressing the START button 086/90, the blade starts to turn, while through the cylinder regulator 080/38 placed on the panel 053-C/38 ( ANN. 10 ) , it is possible to vary the speed of descent of the arc. Once the cut is completed the machine switches off. Hold the handle 146/05 at the end of the head lever to return the arc to the start cutting position. Position yourself with the blade on the workpiece very carefully, then increase the pressure to accelerate the cut without ever forcing .
With selector 100/90 oriented to "M", hold the handle at the end of the arc lever and press the button. At this point the blade starts to turn, position yourself with the blade on the workpiece with great caution, then increase the pressure to accelerate cutting without ever straining, once cutting is complete release the button and return the arc to the start position.
C. For cutting lengths in series, position the bar stop 077/32 on the desired size by fixing it with the handwheel 077/25 ( ANN. 8 ) .
D. To cut to the left, loosen lever 023/38 and move the vice assembly to the right and secure lever 023/38 (ANN. 8 ) .

E . To replace the band, perform the same operations as described in the band assembly (Chapter 7C ).
F. For the choice of the most suitable blade see table ANN. 1 .

It is recommended not to use blades with damaged or insufficiently sharpened cutting edges.

## Attention!!!! With the selector switch in CSO cycle it is strictly forbidden to cut by hand with force on the arc , because the machine is designed only to make drop cuts . Acting manually can cause serious damage to the machine.

## SPECIAL 335-MS

A. Before starting to cut, if the cutting angle is not the desired one, correct it or change it by loosening the table lever 062/32 ( ANN. 4 ) and, after correcting, fix the lever with force.
B. Clamp the material to be cut by approaching the vice at $3-4 \mathrm{~mm}$ from the workpiece by means of the handwheel 058/35 then fix it definitively by turning the lever 023/38 ( ANN. 9 ) .
C. SEMIAUTOMATIC cutting :

Switch the machine on by means of the main switch 002/90 and turn the speed switch 018/90 ( or the potentiometer regulator 098/90 in case of INVERTER ) to the desired speed. To start the hydraulic control unit, press the RESET button A, press the RESET button again to move the arc to the high position .
If at any control the machine does not make any movement, it is necessary to invert two phases of the line cable thus reversing the direction of rotation of the oil pump motor .
With this tool, you have the possibility to program the high and low limit of the cut, directly from the control keyboard.
To store the high limit, start cutting, bring the blade closer to the material to be cut by positioning it about 5 mm away from it using keys C and F. To store the position, press the D ( Start ) button. Each time you press the D ( Start ) button, the cutting start point is automatically stored. To store the low-cutting limit, bring the blade to the desired location by pressing the F button and holding down the E ( Memory ) button until it flashes, indicating that storage has been performed.
To perform cutting after storing the desired high and low limit, start the cutting cycle by pressing the Start D button.
Before performing this last operation, make sure that the 100/38 descent regulator is closed in order to prevent the blade from falling sharply on the workpiece.
Position the workpiece on the worktable, pressing the Start key D starts a cutting cycle in which the blade starts to turn, closes the vice and using the 100/38 regulator you can change the arc descent speed gradually until the desired one is reached.
When the initially programmed low limit is reached, the arc returns to the starting position, the blade stops and opens the vice.
To stop the cutting cycle, press the Reset button A; to return to the beginning of cutting, press the Reset button A again. To use the coolant, button B must be on.
If the machine remains unused for more than 3 minutes, the oil pump is automatically switched off; to switch it on again, press the Reset button A.
After resolving the possible causes of the alarm, press the Reset button A to clear the emergency from the control panel. D. Cutting in MANUAL mode (optional ):
turn main switch 002/90 and speed switch 018/90 ( or potentiometer regulator 098/90 in case of INVERTER ) to the desired speed. The hydraulic control unit is started through the RESET button of the MACC 8 instrument, press the RESET button again to bring the arc to high position, with the handwheel $072 / 36$ position the vice near ( $3-4 \mathrm{~mm}$ ) the piece to cut, hold the handle $146 / 05$ placed at the end of the head lever, press the button to enter the manual cutting speed, press a second time to start the manual cutting .
Press the " $\uparrow$ " ( UP ) button to close the vice, press the " $\downarrow$ " ( DOWN ) button to open the vice.
To bring the machine to SEMIAUTOMATIC mode press RESET .
E. For cutting lengths in series, position the bar stop $077 / 32$ on the desired size by fixing it with the handwheel $077 / 25$ ( ANN. 8 ).
F. To cut to the left , loosen lever 023/38 and move the vice assembly to the right and secure lever 023/38 ( ANN. 8 ) .
G. To replace the band, perform the same operations as described in the band assembly (Chapter 7C ).
H. For the selection of the most suitable blade see table ANN. 1 .

It is recommended not to use blades with damaged or insufficiently sharpened cutting edges.

PANNELLO COMANDI "MACC 8.1" CONTROL PANEL "MACC 8.1"


| A. | RESET button |
| :--- | :--- |
| B. | ON-OFF electric cooling pump button |
| C. | arc ascent button |
| D. | START button |
| E. | arc low limit storage button |
| F. | arc descent button |
| A1. | RESET button light |
| B1. coolant pump button light |  |
| D1 | START button light |
| E1. | low arc limit storage button light |
| $100 / 38$ | arc descent speed regulator |
| $018 / 90$ | switch 1-0-2 blade motor (098/90 potentiometer regulator for OPTIONAL INVERTER ) |
| $085 / 90$ | emergency button |
| $002 / 90$ | ON-OFF main switch |
|  |  |

### 8.4 SPECIFIC SAFETY CHECKS

A. Before using the machine, carefully check the efficiency and perfect functioning of the safety devices, that the moving parts are not blocked, that there are no damaged parts and that all the components are mounted correctly and function correctly .
B. Make sure before working with the machine that the casing screws or other guards are tightened properly , especially the screws of the band guard.
C. Check the correct operation of the safety microswitches and the emergency stop button, testing them during a no-load cycle of the machine .
D. Pay attention to environmental conditions. Do not expose the machine to rain ; do not use it in humid environments ; place it on a clean, dry floor free of oil and grease stains .
E. Before using the machine, the operator must ensure that tools or service wrenches used for maintenance or adjustments of the machine have been removed.

### 8.5 GENERAL RULES OF CONDUCT FOR SAFETY PURPOSES

A. Dress appropriately. The operator must never wear clothing that is too loose and free of fluttering parts and handholds. Sleeves must be fitted with elastic .
No belts, rings or chains should be worn. Hold any long hair with a special net .
B. Avoid unstable positions. Stand in a safe and balanced position while using the machine .
C. Keeping the workplace tidy, clutter leads to the danger of accidents .
D. Do not use the power cord to unplug the plug from the outlet. Protect the cable from high temperatures, oil and sharp edges. Outdoors use the machine only with standard extension cables.

### 8.6 POSITION OF THE OPERATOR

The position of the operator by the machine must correspond to the following figure


### 8.7 ADOPTION OF MEASURES TO PREVENT RESIDUAL RISKS

A. It is absolutely forbidden to tamper with the safety devices. Prohibited to remove the guards .
B. The use of gloves and goggles is mandatory .
C. It is mandatory to wear regulatory work clothing, to be kept closed and without loose parts .
D. It is forbidden to clean the machine with liquids under pressure.

E . In case of fire, it is forbidden to use fire extinguishers other than the powder type . In this case , the machine must be disconnected immediately .
F. Avoid introducing foreign bodies into the motor cover and do not energise the machine by tampering with the safety microswitches or the main switch .
G. Take the necessary measures so that the machine is not started by others during loading, adjusting , changing parts and cleaning .
8.8 WARNING , OBLIGATION , PROHIBITION LABELS ON THE MACHINE


AETTERE IN TENSIONE LA LARAA RUOTANDO IL VOL ANTINO FINO A FINE CORSA
PUT TENSION ON THE BL ADE BY ROTATING THE HANDWHEEL TO THE ENO OF STROKE
DAS SAGEBAND SPANNEN. INDEH DAS
HANDRAD BIS ZUA ENDE GEDREHT WIRD.


## COLLEGATO CONNECTED 400 vorr

## 9. MAINTENANCE AND REPAIR

### 9.1 GENERAL SAFETY MEASURES

A. Padlockable main switch. Apply the padlock in case of a faulty machine or disc replacement . The key to the lock must be kept by a person in charge .
B. Before any intervention on the electrical equipment, unplug the panel (disconnect power).
C. For the power supply, use only cables with a cross-section suitable for the power of the machine .
D. Opening key. The machine keys must be in the possession of authorised persons. Keys that allow access to hydraulic or electrical parts or those of padlockable switches must not be left within the reach of the outsiders .
E. Repairs may only be carried out by authorised personnel using original spare parts, otherwise damage to the user may result.
9.2 PERIODIC CHECKS AND MAINTENANCE

| FREQUENCY <br> ( hours of work ) |  |
| :---: | :--- |
| 1000 | Blade-guide bearing registration . |
| 1000 | Lubrication of workpiece clamping moving parts . (ENI GREASE MU EP 2 ) |
| 50 | Clean the coolant tray and check the coolant filter . |
| if necessary | Bench lever operation control . |

### 9.3 DESCRIPTION OF PERIODIC MAINTENANCE

## A. Registration of blade guide bearings

Unlock the screws, turn the eccentric bushes 027/35, so that the blade guide bearings position the band vertically ( ANN. 6 ) . Tighten the grub screws until the band locks and then unscrew them about $1 / 10$ of a turn. The front guide shoe must be positioned as close to the workpiece as possible. Check the tolerance between the blade guide shoes at least every 3 months, making sure that it does not exceed the thickness of the blade by more than a tenth, in order to avoid inaccuracies in the squaring of the cut. Check periodically with the blade removed that the blade guide bearings rotate freely.

## B. Lubrication of workpiece clamping moving parts

Remove the jaw 007/39 ( ANN. 9 ) , remove the vice 005/38 completely by lowering the lever 023/38. Clean and grease the machined parts of the counter-clamp 223/38-224/38 and vice 005/38-028-A/42. If there is a decrease in smoothness or play of the vice guides , perform the following operations: loosen the gib fixing nuts , adjust the grub screws and re-fix the nuts .

## C. Cleaning the coolant tray .

The coolant tank can be cleaned by simply removing the 201/38 swarf tank ( ANN. 10 ) . Empty the base tank of coolant pouring it into a container for subsequent disposal. Remove chips and metal dust, taking care not to disperse them on parts of the machine and in particular in the area of the motor and the box containing the electrical equipment. Fill the tank with the quantity and the product indicated above.

## D. Bench lever operation control

Check the efficiency of the rotation locking-unlocking lever periodically. In case of ineffective tightening, loosen the grub screw of nut 027/04 (ANN. 8 ) , tighten the nut and re-tighten the grub screw. Make sure that with the bench lever loose , turntable 222/38 and arc support 027/42, which supports the arc , rotate freely .

## 10. AIRBORNE NOISE INFORMATION

The analysis of airborne noise, performed on a band sawing machine SPECIAL 335, identical to the machine to which the operating instructions refer, has given the following results :
SOUND PRESSURE LEVEL

1. $L_{\text {Aeq }}=83,2 \mathrm{~dB}(A)$.
2. $L$ peak $=90,6 \mathrm{~dB}$ ( the maximum permissible value is 140 dB ).
3. The background noise level was completely irrelevant $=48.5-54.2 \mathrm{~dB}(\mathrm{~A})$.

The relevant data are derived from tests carried out on the basis of DL gs 277/1991 in implementation of the directives $n$. 80/1107/EEC ,
no. 82/605/EEC , no. 84/477/EEC , no. 88/642/EEC.

## 11. DECOMMISSIONING - DISMANTLING

### 11.1 DECOMMISSIONING

In the event of prolonged inactivity or shutdown of the machine , the following operations must be carried out :

1. Disconnect the machine from the power supply line .
2. Drain the oil completely from the gearbox and the cooling emulsion in order to avoid corrosion .
3. Thoroughly clean the machine by removing traces of grease especially on the machined parts and protect them with antioxidant products .
4. Cover the machine with a cloth, avoiding plastic sheets if possible in order not to favour oxidation phenomena due to moisture condensation.
5. Store the machine in a closed environment, not dusty .

### 11.2 DISMANTLING

During the final dismantling of the machine, for the possible reuse of materials, or disposal and environmental protection, it is necessary to make a subdivision, indicatively exemplified in the following terms :

| Steels | Electrical and electronic <br> components | Light <br> alloys | Copst iron <br> castings | Coper <br> Bronzes | Plastic and <br> rubber | Miscellaneous |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Rollers | Motor winding | Engine <br> casing | Structure | Seals |  |  |
| Springs | Cylinder |  |  | Flywheels |  |  |
| Flanges and pins |  |  |  |  |  |  |
| Base |  |  |  |  | Handle with <br> button |  |
| Tank |  |  |  |  |  |  |
| Electrical <br> components plate | Buttons and control systems <br> (relays, transformers, etc.) |  |  |  |  |  |
| Guards |  |  |  |  |  |  |

The disposal of waste oils must be carried out in accordance with Directives 2008198lCE .
The disposal of electrical components is provided for according to the European Directives 2011651EU .

| CAPACITA' DI TAGLIO <br> CUTTING CAPACITY - CAPACITE DE COUPE <br> SCHNITTKAPAZITAET - CAPACIDAD DE CORTE |  | 250 | $220 \times 330$ |
| :---: | :---: | :---: | :---: |
| $90^{\circ}$ | 260 | 210 | $160 \times 225$ |
| $45^{\circ}$ Sinistra - left - links - gauche | 225 | 200 | $160 \times 210$ |
| $45^{\circ}$ Destra - right - droite - rechts | 215 | 130 | $130 \times 140$ |
| $60^{\circ}$ Destra - right - droite - rechts | 130 |  |  |

## SCELTA DELLA LAMA

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

|  | L mm |  |  |
| :---: | :---: | :---: | :---: |
|  | $\leqq 40$ | 8 | 6/10 |
|  | $>30<80$ | 6 | 5/8 |
|  | $>60<90$ | 4 | $4 / 6$ |
|  | $\leqq 100$ | 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 |
|  | $>6<12$ | 6 | 5/8 |
|  | $\leqq 12$ | 4 | 4/6 |


| Velocita di taglio <br> La macchina è dotata di due velocità di taglio |  | 38-78 m/1' |
| :---: | :---: | :---: |
| Cutting machine <br> The machine is equipped with two cutting speeds |  | 38-78 m/1' |
| Vitesse de coupe <br> La machine est dotée de deux vitesses de coupe |  | 38-78 m/1' |
| Schnittgeschwindigkeit <br> Die maschine ist mit zwei Schnittgeschwindigkeiten ausgetattet |  | 38-78 m/1' |
| Velocidad de corte <br> La maquina esta dotata de dos velocidades de corte |  | 38-78 m/1' |
| Materiale Material Materiel Material Material |  | Velocità di taglio m/1 Cutting machine m/1 Vitesse de coupe m/1 Schnittgeschwindigkeir $/ 1 / 1$ Velocidad de corte $\mathrm{m} / 1$ |
| Acciai da costruzione <br> Structural steel <br> Aciers de costruction <br> Baustahl <br> Acero de costruccion | $\begin{aligned} & \text { Fe } 37+F e 42 \\ & F e 37+F e 42 \end{aligned}$ | Pieni <br> Solid <br> Pleins 78 <br> Volles Material <br> Pies |
|  | $\begin{aligned} & F e 37+F e 42 \\ & F e 37+F e 42 \end{aligned}$ | Profilati   <br> Stractural steel  <br> Profiles 78  <br> Profile  78 <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 |  | 78 |
| 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 |  | 78 |
| Acciai legati Alloyed steel Aciers allié Legierter Stahl Acero aleado |  | 38 |
| Acciai inox <br> Stainless steel Aciers inoxydables Rostfreier Stahl Acero inoxidable |  | 38 |
| Ghisa grigia Grey cast iron Fonte grise Grauguß Fundiciòn gris |  | 78 |
| Leghe d'alluminio Alluminium alloys Allieges d'aluminium Legierungen aus Aluminium Aleaciòn de Aluminio |  | 78 |
| Bronzi <br> Bronze <br> Bronze <br> Bronze <br> Bronces |  | 78 |




| DIMENSIONI <br> D'INGOMBRO ED <br> INSTALLAZIONE | OVERALL <br> DIMENSION AND <br> INSTALLATION | DIMENSIONS <br> HORS-TOUT ET <br> INSTALLATION | AUSSENABMESSUNGEN <br> UND INSTALLATION | DIMENSIONES <br> MȦXIMAS EXTREMAS <br> EINSTALACION |
| :---: | :---: | :---: | :---: | :---: |



| Pos. | Description | Code | Q.TY |
| :---: | :---: | :---: | :---: |
| 1 | BOW | 127/38 | 1 |
| 2 | REDUCTION UNIT MV63 FC 1/20 | 021/38 | 1 |
|  | REDUCTION UNIT INVERTER | 021-A/38 | 1 |
| 3 | MOTOR M90L_V400/50_8/4P_B5_HP1/1,5 | 122/80 | 1 |
|  | MOTOR SINGLE PHASE | 125/80 | 1 |
|  | MOTOR INVERTER | 222/80 | 1 |
| 4 | MOTOR PULLEY | 006/36 | 1 |
| 5 | BEARING 6208 2RS | 016/38 | 1 |
| 6 | VICE JAW FIXING WASHER | 040/06 | 1 |
| 7 | BLADE TIGHTENER PIN | 037/38 | 1 |
| 8 | IDLE PULLEY | 015/36 | 1 |
| 9 | BLADE TENSIONER FIXING PLATE | 046/32 | 2 |
| 10 | IDLE PULLEY SPACER | 016-A/36 | 1 |
| 11 | BEARING 6207 2RS | 103/32 | 2 |
| 12 | IDLE PULLEY SPACER | 016/36 | 1 |
| 13 | IDLE PULLEY FIXING WASHER | 040-B/06 | 1 |
| 14 | BLADE TIGHTENER SCREW | 039/32 | 1 |
| 15 | THRUST BEARING AS 2035 | 108/32 | 2 |
| 16 | CASING AXK 2035 | 109/32 | 1 |
| 17 | №13 BELLEVILLE WASHER ø40-20.4×1.5 | 458/95 | 1 |
| 18 | BLADE TIGHTENER BUSH | 041/38 | 1 |
| 19 | HANDWHEEL | 058/35 | 1 |
| 20 | MICROSWITCH E100/00/AI | 022/90 | 1 |
| 21 | BRACKET FOR CYLINDER (CSO _ MS) | 227/38 | 1 |
| 22 | CYLINDER CSO | 080/38 | 1 |
|  | CYLINDER MS | 059/38 | 1 |
| 23 | BOW CYLINDER BRACKET BUSH (CSO _ MS) | 070/38 | 2 |
| 24 | JOINT FORK M10X1,25 Ø25/35 (CSO_MS) | 040/39 | 1 |
| 25 | CYLINDER HINGE + PIN (CSO _ MS) | 041/39 | 1 |
| 26 | MOVABLE BLADE GUIDE | Att. 3 Blade guide | 1 |
| 27 | BLADE GUIDE FASTENING PLATE | 018/38 | 1 |
| 28 | RELEASE LEVER M12x45 | 037/32 | 1 |
| 29 | FIXED BLADE GUIDE | Att. 3 Blade guide | 1 |
| 30 | BLADE 3010-27-0.9 t4/6 m42 Mth | MAR3010270946 | 1 |
| 31 | BOW GUARD | 128-A/38 | 1 |
| 32 | BOW GUARD HINGE | 013-A/36 | 1 |
| 33 | MICROSWITCH E100-01-S5I | 030/90 | 1 |
| 34 | HANDLE ROD | 035/32 | 1 |
| 35 | HANDLE | 146/05 | 1 |
| 36 | BOW GUARD SHEET METAL | 132/38 | 1 |
| 37 | BLADE TENSIONING GUARD | 136/38 | 1 |
| 38 | BLADE DIMENSION PLATE | 505/80 | 1 |
| 39 | LIMIT SWITCH PLATE | 083/35 | 1 |



026/35

| GUIDALAMA <br> MOBILE | MOBILE BLADE <br> GUIDE | GUIDE-LAME <br> MOBILE | BEW. <br> SÄGEBLATFÜHRUNG | GUÍA-HOJA <br> MÓVIL |
| :---: | :---: | :---: | :---: | :---: |


| Pos. | Description | Code | QTY |
| :---: | :--- | :---: | :---: |
| 1 | REAR BLADE GUIDE | $025 / 35$ | 1 |
| 2 | BLADE GUIDE PLATE | $044 / 35$ | $2+2$ |
| 3 | BEARING 608-2RS | $055 / 35$ | $2+2$ |
| 4 | BLADE GUIDE ECCENTRIC BUSH (RIGHT AND LEFT) | $027 / 35$ | $1+1$ |
| 5 | BLADE GUIDE TAP Ø1/8" MF GAS | $030 / 96$ | $1+1$ |
| 6 | FIXED GUIDE BLADE ROD | $041 / 40$ | 1 |
| 7 | FIXED BLADE GUARD GUARD | $071-C / 38$ | 1 |
| 8 | BRUSH SUPPORT | $236 / 38$ | 1 |
| 9 | BRUSH | $022 / 42$ | 1 |
| 10 | BRUSH STOP BUSH | $023 / 42$ | 1 |
| 11 | FRONT BLADE GUIDE | $026 / 35$ | 1 |
| 12 | BLADE GUIDE MOVABLE ROD | $023 / 35$ | 1 |
| 13 | HANDLE MOVABLE GUIDE L.90 F.M.12 | $075 / 11$ | 1 |
| 14 | FRONT MOVABLE BLADE GUARD | $071-1 / 38$ | 1 |
| 15 | INTERNAL MOVABLE BLADE GUIDE GUARD | $071-A / 38$ | 1 |



| Pos. | Description | Code | QTY. |
| :---: | :--- | :---: | :---: |
| 1 | BOW SUPPORT | $027 / 42$ | 1 |
| 2 | ROTATION PIN FOR POTENTIOMETER | $108 / 38$ | 1 |
| 3 | ANTI-GREASE RING | $020 / 35$ | 2 |
| 4 | BEARING 32008 | $015 / 38$ | 2 |
| 5 | ROTATION PIN NUT | $027 / 38$ | 1 |
| 6 | EYE TIE ROD M12X50 | $035 / 38$ | 1 |
| 7 | RETURN SPRING | $031 / 38$ | 1 |
| 8 | SPRING PIN | $017 / 32$ | 1 |
| 9 | SPRING BRACKET | $013-A / 42$ | 1 |
| 10 | MICRO SWITCH STOP BUSH | $120 / 38$ | 1 |
| 11 | MICRO HOLDER BLOCK | $051 / 38$ | 1 |
| 12 | MICROSWITCH E 100-00-BI | $023 / 90$ | 1 |
| 13 | SUPPORT FOR POTENTIOMETER VERT-X 28-5V | $515 / 46$ | 1 |
| 14 | POTENTIOMETER CONTELEC VERT-X | $362 / 90$ | 1 |
| 15 | POTENTIOMETER GUARD | $018 / 42$ | 1 |



8

| BANCO E | BENCH AND | BANC ET | BANKUN | BANCO Y |
| :---: | :---: | :---: | :---: | :---: |
| PIATTO | ROTATING | PLAQUE | WERSTUUCKAUFLAGEPLATTE | PLATO |
| GIREVOLE | PLATE | PIVOTANT |  |  |


| Pos. | Description | Code | QTY. |
| :---: | :--- | :---: | :---: |
| 1 | COUNTERVICE PIN | $220 / 38$ | 1 |
| 2 | BENCH | $221 / 38$ | 1 |
| 3 | BENCH ROTATING PLATE | $222 / 38$ | 1 |
| 4 | COUNTERVICE EXIT SIDE | $223 / 38$ | 1 |
| 5 | COUNTERVICE ENTRY SIDE | $224 / 38$ | 1 |
| 6 | COUNTERVICE JAW EXIT SIDE | $225 / 38$ | 1 |
| 7 | COUNTERVICE JAW ENTRY SIDE | $226 / 38$ | 1 |
| 8 | PIECE SUPPORT PLATE | $228 / 38$ | 1 |
| 9 | BENCH LEVER | $062 / 32$ | 1 |
| 10 | BENCH LEVER NUT | $027 / 04$ | 1 |
| 11 | POSITIONING PIN | $002-B / 35$ | 1 |
| 12 | SPHERE ø30 F M10 | $082 / 14$ | 1 |
| 13 | PULLEY FIXING WASHER | $067 / 31$ | 2 |
| 14 | DEGREE DISPLAY OPENING PLATE | $235 / 38$ | 1 |
| 15 | MILLIMETRIC ROD | $077 / 32$ | 1 |
| 16 | METRIC RULE | $080 / 32$ | 1 |
| 17 | STOPPING ROD SUPPORT | $079 / 32$ | 1 |
| 18 | STOPPING ROD | $078 / 32$ | 1 |
| 19 | HANDWHEEL Ø40 4L M8X20 | $077 / 25$ | 2 |



| Pos. | Description | Code | QTY. |
| :---: | :--- | :---: | :---: |
| 1 | VICE | $005 / 38$ | 1 |
| 2 | VICE JAW | $007 / 39$ | 1 |
| 3 | VICE GIB 45 ${ }^{\circ}$ L-R | $008 / 38$ | 1 |
| 4 | VICE SCREW | $014 / 38$ | 1 |
| 5 | VICE FLANGE | $098 / 38$ | 1 |
| 6 | HANDWHEEL | $058 / 35$ | 1 |
| 7 | VICE SUPPORT | $028-A / 42$ | 1 |
| 8 | VICE THREADED PIN 45 ${ }^{\circ}$ L-R | $009 / 38$ | 1 |
| 9 | LEVER SPRING | $032 / 14$ | 1 |
| 10 | VICE LEVER | $023 / 38$ | 1 |
| 11 | VICE LEVER HANDLE | $086 / 38$ | 1 |
| 12 | VICE SUPPORT PAD | $/$ | 1 |
| 13 | RELEASE LEVER M8X20 | $025 / 21$ | 1 |
| 14 | EYE TIE ROD M8X40 | $525 / 95$ | 1 |
| 15 | EYE TIE ROD M8X70 | $527 / 95$ | 1 |
| 16 | HYDRAULIC VICE SPINDLE | $059-01 / 36$ | 1 |
| 17 | HYDRAULIC VICE CYLINDER 8MM STROKE | $059 / 36$ | 1 |
| 18 | VICE HANDWHEEL | $072 / 36$ | 1 |
| 19 | VICE SCREW WASHER | $053 / 31$ | 1 |



| Pos. | Description | Code | QTY. |
| :---: | :--- | :---: | :---: |
| 1 | BASE | $200 / 38$ | 1 |
| 2 | SIDE GUARD | $200-\mathrm{A} / 38$ | 1 |
| 3 | CHIP TANK | $201 / 38$ | 1 |
| 4 | TANK WATER SLIDE | $233 / 38$ | 1 |
| 5 | ADDITIONAL WATER SLIDE | $232 / 38$ | 1 |
| 6 | HANDLE | $038 / 09$ | 1 |
| 7 | COOLING PUMP SA/85 | $090 / 90$ | 1 |
| 8 | ROLLER SUPPORT ARM | $075 / 35$ | 1 |
| 9 | ROLLER | $076 / 32$ | 1 |
| 10 | CONTROL PANEL | Att.11 Cont. Pan. | 1 |
| 11 | CONTROL PANEL (CSO_MS) | $053-C / 38$ | 1 |
|  | CONTROL PANEL (M) | $052-\mathrm{A} / 38$ | 1 |
| 12 | DESCENT REGULATOR (MS) | $100 / 38$ | 1 |

## PANNELLO COMANDI SPECIAL 335 M CONTROL PANEL SPECIAL 335 M



| Pos. | Description | Code | QTY. |
| :---: | :--- | :---: | :---: |
| 1 | CONTROL PANEL | $052 / 38$ | 1 |
| 2 | MAIN SWITCH | $002 / 90$ | 1 |
|  |  |  |  |
|  | YELLOW TERMINAL COVER | $065 / 90$ | 1 |
| 3 | CHANGEOVER SWITCH | $018 / 90$ | 1 |
| 4 | PUMP SWITCH | $006 / 90$ | 1 |
| 5 | EMERGENCY BUTTON | $085 / 90$ | 1 |
| 6 | WHITE LIGHT 24V | $266 / 90$ | 2 |
| 7 | GREEN LIGHT 24V | $267 / 90$ | 1 |
| 8 | PLATE WITH ELECTRICAL COMPONENTS | $054-B / 38$ | 1 |
| 9 | TRANSFORMER 30VA_50/60Hz_230-400V_0-24V | $045 / 90$ | 1 |
| 10 | FUSE HOLDER RT18-32 3pole 10X38 | $092 / 90$ | 1 |
| 11 | FUSE HOLDER RT18-32 1pole 10X38 | $093 / 90$ | 1 |
| 12 | FUSE HOLDER RT18-32 2pole 10X38 | $094 / 90$ | 1 |
| 13 | FUSE 10X38 GG 1A | $202 / 90$ | 2 |
| 14 | FUSE 10X38 GG 2A | $203 / 90$ | 1 |
| 15 | FUSE 10X38 AM 10A | $206 / 90$ | 3 |
| 16 | REMOTE CONTROL SWITCH B7_24V_12A | $032 / 90$ | 1 |
| 17 | THERMAL RELAY 2,5-4A | $053 / 90$ | 1 |
| 18 | TERMINAL 2,5mm |  |  |
| 19 | OMEGA BAR cm.17 | $222 / 90$ | 18 |
| 20 | OMEGA BAR cm.15 | $046 / 90$ | 1 |
| 21 | EARTH BAR | $047 / 90$ | 1 |
| 22 | GASKET FOR CONTROL PANEL | $050 / 90$ | 1 |
| 23 | HANDLE | $054 / 38$ | 1 |
| 24 | MICROSWITCH | $146 / 05$ | 1 |

## PANNELLO COMANDI SPECIAL 335 CSO/M CONTROL PANEL SPECIAL 335 CSO/M



| Pos. | Description | Code | QTY. |
| :---: | :--- | :---: | :---: |
| 1 | CONTROL PANEL | $052-C / 38$ | 1 |
| 2 | MAIN SWITCH | $002 / 90$ | 1 |
|  |  |  |  |
|  | YELLOW TERMINAL COVER | $065 / 90$ | 1 |
| 3 | CHANGEOVER SWITCH | $018 / 90$ | 1 |
| 4 | PUMP SWITCH | $006 / 90$ | 1 |
| 5 | EMERGENCY BUTTON | $085 / 90$ | 1 |
| 6 | START BUTTON | $086 / 90$ | 1 |
| 7 | SELECTOR SWITCH CSO/M | $100 / 90$ | 1 |
| 8 | WHITE LIGHT 24V | $266 / 90$ | 2 |
| 9 | GREEN LIGHT 24V | $267 / 90$ | 1 |
| 10 | PLATE WITH ELECTRICAL COMPONENTS | $054-B / 38$ | 1 |
| 11 | TRANSFORMER 30VA_50/60Hz_0-230-400V_0-24V | $045 / 90$ | 1 |
| 12 | FUSE HOLDER RT18-32 3pole 10X38 | $092 / 90$ | 1 |
| 13 | FUSE HOLDER RT18-32 1pole 10X38 | $093 / 90$ | 1 |
| 14 | FUSE HOLDER RT18-32 2pole 10X38 | $094 / 90$ | 1 |
| 15 | FUSE 10X38 GG 1A | $202 / 90$ | 2 |
| 16 | FUSE 10X38 GG 2A | $203 / 90$ | 1 |
| 17 | FUSE 10X38 AM 10A | $206 / 90$ | 3 |
| 18 | REMOTE CONTROL SWITCH B7_24V_12A | $032 / 90$ | 1 |
| 19 | THERMAL RELAY 2,5-4A | $053 / 90$ | 1 |
| 20 | TERMINAL 2,5mm 2 | $222 / 90$ | 22 |
| 21 | OMEGA BAR cm.17 | $046 / 90$ | 2 |
| 22 | EARTH BAR | $050 / 90$ | 1 |
| 23 | GASKET FOR CONTROL PANEL | $054 / 38$ | 1 |
| 24 | HANDLE | $146 / 05$ | 1 |
| 25 | MICROSWITCH HANDLE | $328 / 90$ | 1 |

## PANNELLO COMANDI SPECIAL 335 MS CONTROL PANEL SPECIAL 335 MS




| Pos. | Description | Code | QTY. |
| :---: | :--- | :---: | :---: |
| 1 | CONTROL PANEL | $053-G / 38$ | 1 |
| 2 | MAIN SWITCH | $002 / 90$ | 1 |
|  |  |  |  |
|  | YELLOW TERMINAL COVER | $065 / 90$ | 1 |
| 3 | CHANGEOVER SWITCH | $018 / 90$ | 1 |
| 4 | EMERGENCY BUTTON | $085 / 90$ | 1 |
| 5 | START BUTTON | $086 / 90$ | 2 |
| 6 | SWITCH LAMP | $087 / 90$ | 4 |
| 7 | PLATE WITH ELECTRICAL COMPONENTS | $131 / 38$ | 1 |
| 8 | TRANSFORMER 100VA_50/60Hz_0-230-400V_0-24V | $044 / 90$ | 1 |
| 9 | BOARD SMD 200 | $357 / 90$ | 1 |
| 10 | FUSE HOLDER RT18-32 3pole 10X38 | $092 / 90$ | 1 |
| 11 | FUSE HOLDER RT18-32 1pole 10X38 | $093 / 90$ | 1 |
| 12 | FUSE HOLDER RT18-32 2pole10X38 | $094 / 90$ | 2 |
| 13 | FUSE 10X38 GG 4A | $204 / 90$ | 2 |
| 14 | FUSE 10X38 AM 6A | $205 / 90$ | 1 |
| 15 | FUSE 10X38 AM 10A | $206 / 90$ | 3 |
| 16 | FUSE 10X38 AM 2A | $356 / 90$ | 2 |
| 17 | REMOTE CONTROL SWITCH B7_24V_12A | $032 / 90$ | 3 |
| 18 | THERMAL RELAY 2,5-4A | $053 / 90$ | 2 |
| 19 | FILTER 0,1mF_380VAC | $354 / 90$ | 1 |
| 20 | TERMINAL 2,5mm 2 | $222 / 90$ | 17 |
| 21 | OMEGA BAR cm.15 | $047 / 90$ | 1 |
| 22 | OMEGA BAR cm.27 | $048 / 90$ | 1 |
| 23 | EARTH BAR | $050 / 90$ | 1 |
| 24 | GASKET FOR CONTROL PANEL | $054 / 38$ | 1 |
| 25 | HANDLE | $146 / 05$ | 1 |
| 26 | MICROSWITCH | $328 / 90$ | 1 |




| 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 KUEHLMITELPUMPE |
| ZENTRALHYDRAULIKMOTOR |
| SÄGEBLATTMOTOR |
| KÜHLMITTELPUMPE MOTOR |
| SPAENEAUSLASSVORRICHTUNG MOTOR |
| DREHUNGS KOPF MOTOR |
| FÜHRUNGSSTÜCK MOTOR |

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RELE' TERMICO MOTORE LAMA
RELE' TERMICO MOTORE REFRIGERANTE
 RELE' TERMICO MOTORE GUIDA PEZZO FOTOCELLULA PRESENZA MATERIALE
 FUSIBILI PROTEZIONE MOTORI

FUSE MOTOR PROTECTION FUSE FEEDER PROTECTION FUSE 24 V dc PROTECTION FUSE 24 V ac PROTECTION FUSE INVERTER PROTECTION FUSE INVERTER PROTECTION
FLOAT SPY BLADE IN TENSION INVERTER FEEDING CONTROL SWITCH BLADE MOTOR REMOTE CONTROL SWITCH COOLANT PUMP REMOTE CONTROL SWITCH
CHIP EXTRACTOR CONTROL SWITCH CHIP EXTRACTOR CONTROL SWITCH

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

COOLANT PUMP MOTOR THERMAL RELAY OIL PUMP MOTOR THERMAL RELAY BLADE MOTOR THERMAL RELAY COOLANT MOTOR RELAY THERMAL CHIPS EXTRACTOR THERMAL RELAY GUIDA-PIECE MOTOR MATERIAL PRESENCE PHOTOELECTRIC CELL FUSE TRANSFORMER PROTECTION FUSE MOTOR PROTECTION
FUSE COOLANT PUMP PROTECTION
SPY LINE PRESENCE
SPY BLADE IN TENSION
SPY CYCLE START SPY CYCLE START
ENGLISH
THERMO-RESISTANCE CONTROL SWITCH
INVERTER FEEDING CONTROL SWITCH
OIL PUMP MOTOR REMOTE CONTROL SWITCH COOLANT RECYCLE PUMP THERMAL RELAY

> CHIP EXTRACTOR MOTOR SAWHEAD ROTATION MOTOR GUIDA-PIECE MOTOR
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RELE＇PRESSINO ON

REIE＇COMANDO | INTERRUTTORE／COMMUTATORE DI VELOCITA |
| :--- |
| INTERRUTTORE POMPA REFRIGERANTE |
| RELE＇COMANDO MARCIA ROTAZIONE LAMA |

 SENSORE ROTAZIONE LAMA POTENZIOMETRO VELOCITA＇LAMA POTENZIOMETRO POSIZIONAMENTO LAMA MOTORE AVANZAMENTO MATERIALE


COVER OPEN MICROSWITCH RELEASE BUTTON MEMORY BUTTON REFRIGERANTE BUTTON＂ON＂ BUTTON DOWN BUTTON UP OPEN VICE BUTTON LOCK VICE BUTTON RESET 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 OTOR

| PEDALS MIKROSCHALTER |
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| FußSCHALTER SPENNSTOCK SCHLIEßEN MIKROSCHALTER |
| ENDSCHALTER FÜHRUNGSSTÜCK NACH VORNE |
| ENDSCHALTER FÜHRUNGSSTÜCK NACH HINTEN |
| HEBEWERK NACH OBEN ENDSCHALTER |
| ENDSCHALTER SCHUTZGEHÄUSE |
| SPANNDRUCK TASTE |
| ENDSCHALTER WAGEN VORNE |
| $-45^{\circ}$ UMDREHUNG ENDSCHALTER |
| 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 |
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| $E L E K T R O V E N T I L ~ H I N T E R E N ~ Z A U N ~$ |
| ELEKTROVENTIL WAGEN LANGSAM ZURÜCK |
| UMDREHUNG LOSMACHEN |


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