ALLEGATO 1 AL MANUALE DI ISTRUZIONI

INFORMAZIONI SUL FABBRICANTE

In tutte le parti del presente manuale nelle quali si fa riferimento, quale fabbricante, a una delle seguenti società:

- Ravaglioli S.p.A., P.IVA e C.F.: 01759471202, con sede legale in Sasso Marconi (BO), Via 1° Maggio, 3, Italia
- Butler Engineering and Marketing S.p.A., P.IVA: 01741580359, C.F.: 01824810368, con sede legale in Rolo (RE), Via dell'Ecologia, 6, Italia
- Space S.r.l., P.IVA e C.F.:07380730015, con sede legale in Trana (TO), Via Sangano, 48, Italia

tale società deve essere intesa come:

**Vehicle Service Group Italy S.r.l.**

P.IVA: 01426630388

C.F.: 01633631203

con sede legale in Ostellato (FE), Via Brunelleschi, 9, Italia

per effetto della intervenuta fusione per incorporazione delle citate Ravaglioli S.p.A., Butler Engineering and Marketing S.p.A. e Space S.r.l. in Officine Meccaniche Sirio S.r.l., ridenominata, a seguito della fusione, Vehicle Service Group Italy S.r.l., avente efficacia giuridica a far data dal 1° luglio 2023.

Il presente Allegato 1 al Manuale di istruzioni costituisce parte integrante del Manuale di istruzioni stesso.

Simone Ferrari

Direttore Generale

**Vehicle Service Group Italy S.r.l.**
Via Filippo Brunelleschi 9
44020 Ostellato (FE) Italy
VAT no.: 01426630388 | Tax no.: 01633631203



Vehicle Service Group Italy S.r.l. | Via Filippo Brunelleschi 9 | 44020 Ostellato (FE) Italy
+39.051.6781511 | +39.051.846349 | info.emea@vsgdover.com
VAT no.: 01426630388 | Tax no.: 01633631203

ANNEX 1 TO THE INSTRUCTION MANUAL

MANUFACTURER INFORMATION

In all parts of the present manual in which reference is made to one of the following companies as the manufacturer:

- Ravaglioli S.p.A., VAT Number and Tax Code: 01759471202, with registered office in Sasso Marconi (BO), Via 1° Maggio, 3, Italy
- Butler Engineering and Marketing S.p.A., VAT Number: 01741580359, Tax Code: 01824810368, with registered office in Rolo (RE), Via dell'Ecologia, 6, Italy
- Space S.r.l., VAT Number and Tax Code: 07380730015, with registered office in Trana (TO), Via Sangano, 48, Italy

this company is to be understood as:

**Vehicle Service Group Italy S.r.l.**

VAT Number: 01426630388

Tax Code: 01633631203

with registered office in Ostellato (FE), Via Brunelleschi, 9, Italy

as a result of the intervened merger by incorporation of the aforementioned Ravaglioli S.p.A., Butler Engineering and Marketing S.p.A. and Space S.r.l. into Officine Meccaniche Sirio S.r.l., renamed, following the merger, as Vehicle Service Group Italy S.r.l., having legal effect as of July 1st, 2023.

This Annex 1 to the Instruction Manual is an integral part of the Instruction Manual itself.

Simone Ferrari

Managing Director

**Vehicle Service Group Italy S.r.l.**
Via Filippo Brunelleschi 9
44020 Ostellato (FE) Italy
VAT no.: 01426630388 | Tax no.: 01633631203

ANLAGE 1 ZUR BEDIENUNGSANLEITUNG

HERSTELLERANGABEN

In allen Teilen der vorliegenden Bedienungsanleitung, in denen auf eine der folgenden Gesellschaften:

- Ravaglioli S.p.A., Umsatzsteuer-Identifikationsnummer und Italienische Steuernummer: 01759471202, mit Rechtssitz in Sasso Marconi (BO), Via 1° Maggio, 3, Italien
- Butler Engineering and Marketing S.p.A., Umsatzsteuer-Identifikationsnummer 01741580359, und Italienische Steuernummer: 01824810368, mit Rechtssitz in Rolo (RE), Via dell'Ecologia, 6, Italien
- Space S.r.l., Umsatzsteuer-Identifikationsnummer und Italienische Steuernummer: 07380730015, mit Rechtssitz in Trana (TO), Via Sangano, 48, Italien

als Hersteller Bezug genommen wird, ist diese Gesellschaft zu verstehen als:

**Vehicle Service Group Italy S.r.l.**

UMSATZSTEUER-IDENTIFIKATIONSNUMMER: 01426630388

ITALIENISCHE STEUERNUMMER: 01633631203

mit eingetragenem Rechtssitz in Ostellato (FE), Via Brunelleschi, 9, Italien

als Folge der verschmelzenden Übernahme der vorgenannten Ravaglioli S.p.A., Butler Engineering and Marketing S.p.A. und Space S.r.l. in die Officine Meccaniche Sirio S.r.l., die nach der Verschmelzung mit rechtlicher Wirkung zum 1. Juli 2023 in Vehicle Service Group Italy S.r.l. umbenannt wurde.

Die vorliegende Anlage 1 zur Bedienungsanleitung ist integrierender Bestandteil der Betriebsanleitung selbst.

Simone Ferrari

Geschäftsführer

**Vehicle Service Group Italy S.r.l.**
Via Filippo Brunelleschi 9
44020 Ostellato (FE) Italy
VAT no.: 01426630388 | Tax no.: 01633631203

ANNEXE 1 DU MANUEL D'INSTRUCTIONS

INFORMATIONS SUR LE FABRICANT

Dans toutes les parties de ce manuel où il est fait référence à l'une des sociétés suivantes en tant que fabricant:

- Ravaglioli S.p.A., numéro de TVA et code fiscal: 01759471202, dont le siège social est situé à Sasso Marconi (BO), Via 1° Maggio, 3, Italie
- Butler Engineering and Marketing S.p.A., numéro de TVA: 01741580359, code fiscal: 01824810368, dont le siège est à Rolo (RE), Via dell'Ecologia, 6, Italie
- Space S.r.l., numéro de TVA et code fiscal: 07380730015, dont le siège est à Trana (TO), Via Sangano, 48, Italie

cette société doit être sous-entendue comme:

**Vehicle Service Group Italy S.r.l.**

numéro de TVA: 01426630388

code fiscal: 01633631203

dont le siège social est situé à Ostellato (FE), Via Brunelleschi, 9, Italie

à la suite de la fusion par incorporation des sociétés Ravaglioli S.p.A., Butler Engineering and Marketing S.p.A. et Space S.r.l. dans Officine Meccaniche Sirio S.r.l., renommée, à la suite de la fusion, Vehicle Service Group Italy S.r.l., avec effet juridique à compter du 1er juillet 2023.

La présente Annexe 1 au Manuel d'instructions fait partie intégrante du Manuel d'instructions lui-même.

Simone Ferrari

Directeur Général

**Vehicle Service Group Italy S.r.l.**
Via Filippo Brunelleschi 9
44020 Ostellato (FE) Italy
VAT no.: 01426630388 | Tax no.: 01633631203

ANEXO 1 AL MANUAL DE INSTRUCCIONES

INFORMACIÓN DEL FABRICANTE

En todas las partes de este manual en las que se haga referencia a una de las siguientes empresas como fabricante:

- Ravaglioli S.p.A., número de IVA y código fiscal: 01759471202, con domicilio social en Sasso Marconi (BO), vía 1° Maggio, 3, Italia
- Butler Engineering and Marketing S.p.A., número de IVA: 01741580359, código fiscal: 01824810368, con domicilio social en Rolo (RE), vía dell'Ecologia, 6, Italia
- Space S.r.l., número de IVA y código fiscal:07380730015, con domicilio social en Trana (TO), vía Sangano, 48, Italia

que debe entenderse por sociedad:

**Vehicle Service Group Italy S.r.l.**

Número de IVA: 01426630388

código fiscal: 01633631203

con domicilio social en Ostellato (FE), vía Brunelleschi, 9, Italia

como resultado de la fusión por incorporación de las mencionadas Ravaglioli S.p.A., Butler Engineering and Marketing S.p.A. y Space S.r.l. en Officine Meccaniche Sirio S.r.l., rebautizada, tras la fusión, Vehicle Service Group Italy S.r.l., con efectos jurídicos a partir del 1 de julio de 2023.

El presente Anexo 1 del Manual de Instrucciones forma parte integrante del mismo.

Simone Ferrari

Director Gerente

**Vehicle Service Group Italy S.r.l.**
Via Filippo Brunelleschi 9
44020 Ostellato (FE) Italy
VAT no.: 01426630388 | Tax no.: 01633631203

ENGINEERING and MARKETING S.P.A.

**7522-M001-17**

# NAV43.15
# NAV63.15

INSTRUCTION MANUAL

EN TRANSLATION FROM THE ORIGINAL INSTRUCTIONS

*For spare parts drawings refer to "LIST OF COMPONENTS" section.*

• For any further information please contact your local dealer or call:

**BUTLER ENGINEERING and MARKETING S.p.A. a s. u.**
Via dell'Ecologia, 6 - 42047 Rolo - (RE) Italy
Phone (+39) 0522 647911 - Fax (+39) 0522 649760 - e-mail: Info@butler.it

**7522-M001-17 - Rev. n. 17 (12/2021)**

## SUMMARY

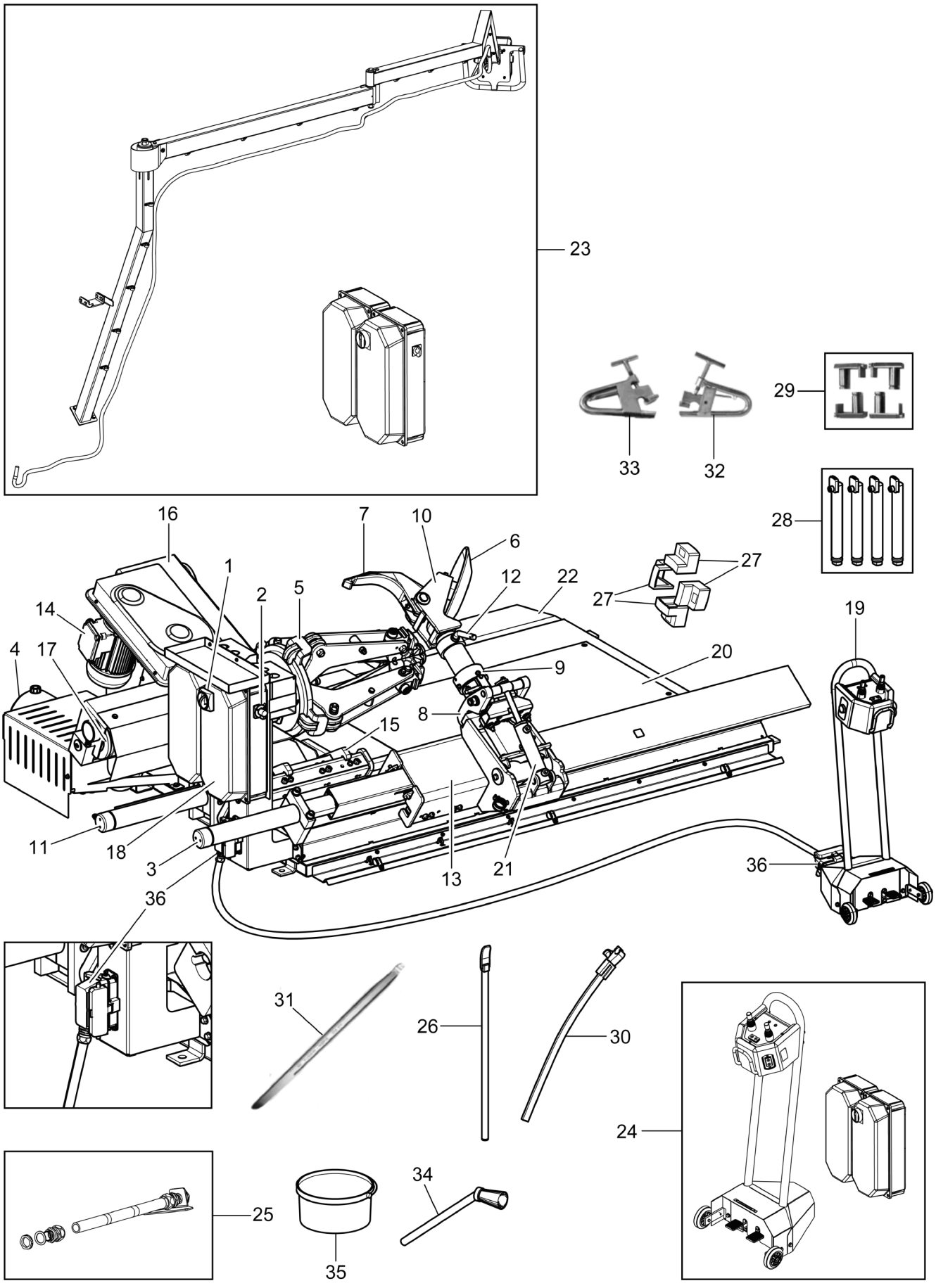
| Feature /Versions / Model | NAV43 | NAV63 |
|---|---|---|
| Power supply 400V 50Hz 3Ph | • | • |
| Power supply 230V 50Hz 3Ph | **OPT** | **OPT** |
| Power supply 500V 50Hz 3Ph | | **OPT** |
| Power supply 230V 60Hz 3Ph | **OPT** | **OPT** |
| Power supply 220V 60Hz 3Ph | **OPT** | |

• = standard

**OPT** = optional

## GENERAL DESCRIPTION

Fig. 1



KEY (**Fig. 1**)

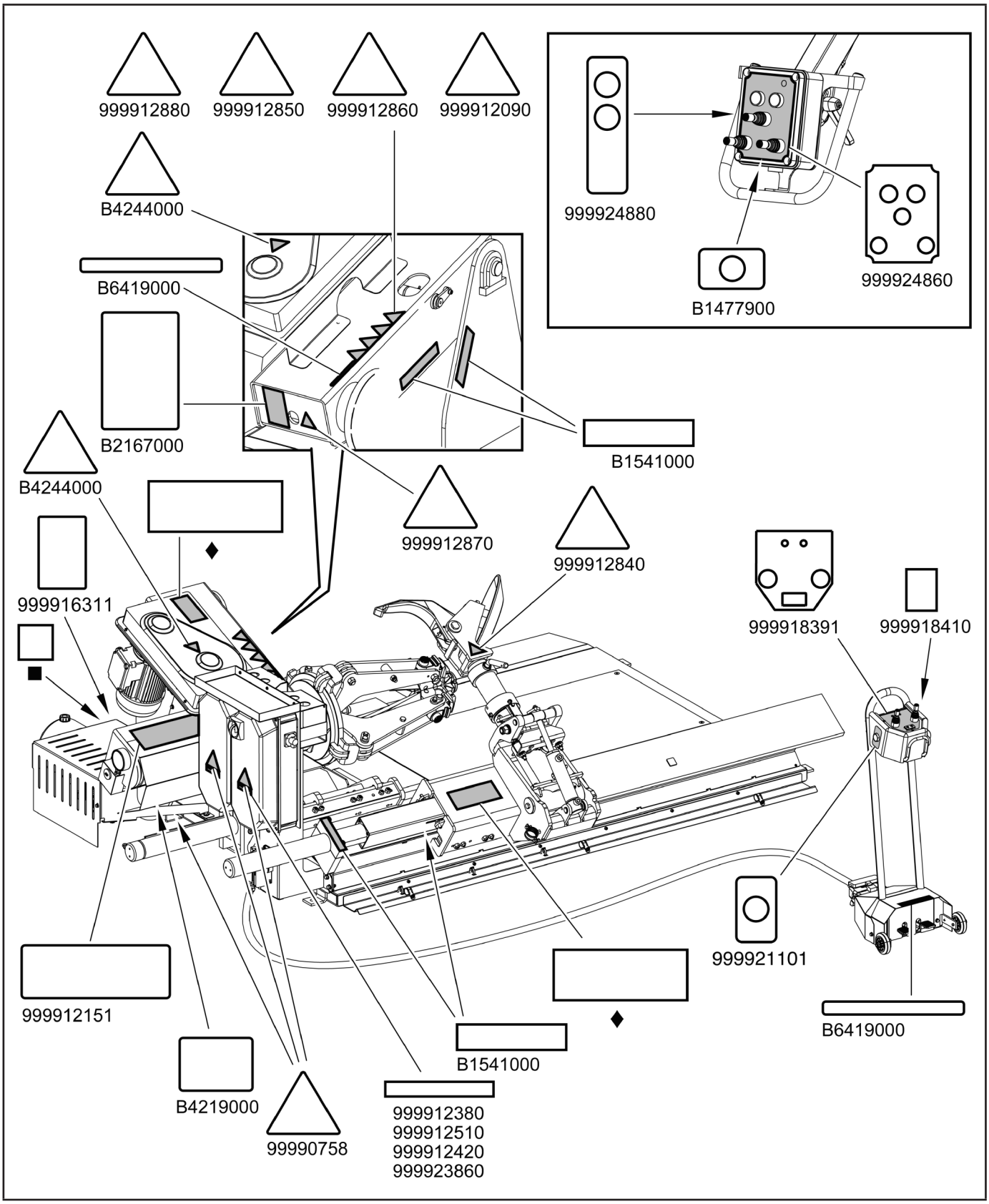
1 - Main switch
2 - Selector 1-0-2 self-centring chuck speed control
3 - Tools carriage movement cylinder
4 - Hydraulic power unit
5 - Self-centring chuck
6 - Bead breaking disc
7 - Tool
8 - Jack
9 - Tools holder arm
10 - Tools unit
11 - Chuck carriage movement cylinder
12 - Tools unit positioning lever
13 - Tools carriage
14 - Chuck rotation motor
15 - Chuck carriage
16 - Chuck arm
17 - Chuck opening/closing cylinder
18 - Electric cabinet
19 - Control unit
20 - Platform
21 - Tools holder arm release cylinder
22 - Ramp
23 - Handle control in air (aerial handle control version)
24 - Control unit (bluetooth version)
25 - Metal sheath assembly (metal sheath version)
26 - Long lever “A”
27 - Standard clamp protections for alloy rims
28 - Chuck grip extensions
29 - Adapters with increased grip
30 - Bead lever
31 - Lever with bead wires
32 - Bead locking clamp for alloy rims
33 - Bead locking clamp for earth-moving wheels
34 - Brush
35 - Mounting grease
36 - Machine-manipulator connectors

## SYMBOLS USED IN THE MANUAL

| Symbols | Description |
|---|---|
|  | Read instruction manual. |
|  | Wear work gloves. |
|  | Wear work shoes. |
|  | Wear safety goggles. |
|  | Mandatory.<br>Operations or jobs to be performed compulsorily. |
|  | Warning.<br>Be particularly careful (possible material damages). |
|  | Danger!<br>Be particularly careful. |

| Symbols | Description |
|---|---|
|  | Note. Indication and/or useful information. |
|  | Move with fork lift truck or pallet truck. |
|  | Lift from above. |
|  | Technical assistance necessary.<br>Do not perform any intervention. |
|  | Risk of crushing and collisions (tools holder shaft). |
|  | Danger: tyre could fall. |
| | |

## INFORMATION PLATE LOCATION DRAWING



| Code numbers of plates | |
|---|---|
| **B1477900** | *Plate for double speed of aerial handle control (aerial control version only)* |
| **B1541000** | *Danger plate* |
| **B2167000** | *Protective clothing plate* |
| **B4219000** | *Rotation indicating plate* |
| **B4244000** | *Rotating parts danger plate* |
| **B6419000** | *Rotation plate* |
| **99990758** | *Electric shock danger plate* |
| **999912090** | *Danger plate 6* |
| **999912380** | *400V 50Hz 3Ph voltage plate* |
| **999912420** | *Voltage plate 220/50/3 (apply to version 220V 50Hz 3Ph)* |
| **999912510** | *Voltage plate 220/60/3 (apply to version 220V 60Hz 3Ph)* |
| **999912840** | *Danger plate 1* |
| **999912850** | *Danger plate 2* |
| **999912860** | *Danger plate 3* |
| **999912870** | *Danger plate 4* |
| **999912880** | *Danger plate 5* |
| **999916311** | *Rubbish skip plate* |
| **999918391** | *Handle control plate* |
| **999918410** | *Self-centring chuck plate* |
| **999921101** | *Double speed nameplate* |
| **999923860** | *Voltage plate 3Ph 500V 50Hz (500V 50Hz 3Ph version only)* |
| **999924860** | *Air controls plate (aerial control version only)* |
| **999924880** | *Tool rotation plate (aerial control version only)* |
| ■ | *QR code plate* |
| • | *Serial number plate* |
| * | *Machine nameplate* |
| ♦ | *Manufacturer plate* |

**IF ONE OR MORE PLATES DISAPPEAR FROM THE MACHINE OR BECOMES DIFFICULT TO READ, IT MUST BE REPLACED. QUOTE THE CODE NUMBER WHEN REORDERING.**

**SOME OF THE PICTURES PRESENT IN THIS MANUAL HAVE BEEN OBTAINED FROM PICTURES OF PROTOTYPES, THEREFORE THE STANDARD PRODUCTION MACHINES AND ACCESSORIES CAN BE DIFFERENT IN SOME COMPONENTS.**

## 1.0 GENERAL INTRODUCTION

**This manual is an integral part of the product and must be retained for the whole operating life of the machine.**
Carefully study the warnings and instructions contained in this manual. It contains important instructions regarding **FUNCTIONING, SAFE USE and MAINTENANCE.**

**KEEP THE MANUAL IN A KNOWN, EASILY ACCESSIBLE PLACE FOR ALL ACCESSORY OPERATORS TO CONSULT IT WHENEVER IN DOUBT.**

**THE MANUFACTURER DISCLAIMS ALL RESPONSIBILITY FOR ANY DAMAGE OCCURRED WHEN THE INDICATIONS GIVEN IN THIS MANUAL ARE NOT RESPECTED: AS A MATTER OF FACT, THE NON-COMPLIANCE WITH SUCH INDICATIONS MIGHT LEAD TO EVEN SERIOUS DANGERS.**

### *1.1 Introduction*

Thank you for purchasing this electro-hydraulic tyre changer. We feel sure you will not regret your decision. This machine has been designed for use in professional workshops and in particular it stands out for its reliability and easy, safe and rapid operation: with just a small degree of maintenance and care, this tyre changer will give you many years of trouble-free service and lots of satisfaction.

## 2.0 INTENDED USE

The machines described in this manual and their different versions are tyre changers with electro-hydraulic working, to be used only for the mounting and demounting of any type of wheel with whole rim (with groove and bead wire) , with dimension and weight values described in “Technical specifications” chapter. The machine is NOT to be used for tyre inflation.

**DANGER: EMPLOYING THESE MACHINES OUTSIDE THE USE DESTINATION THEY HAVE BEEN DESIGNED FOR (AS INDICATED IN THIS MANUAL) IS INAPPROPRIATE AND DANGEROUS.**

**THE MANUFACTURER CANNOT BE HELD RESPONSIBLE FOR ANY DAMAGE CAUSED BY IMPROPER, ERRONEOUS, OR UNACCEPTABLE USE.**

### *2.1 Training of personnel*

**The machine may be operated only by suitably trained and authorized personnel.**

Given the complexity of the operations necessary to manage the machine and to carry out the operations safely and efficiently, the personnel must be trained in such a way that they learn all the information necessary to operate the machine as intended by the manufacturer.

**A CAREFUL READING OF THIS INSTRUCTION MANUAL FOR USE AND MAINTENANCE AND A SHORT PERIOD OF TRAINING WITH SKILLED PERSONNEL CAN BE ENOUGH PREVENTIVE PREPARATION.**

## 3.0 SAFETY DEVICES

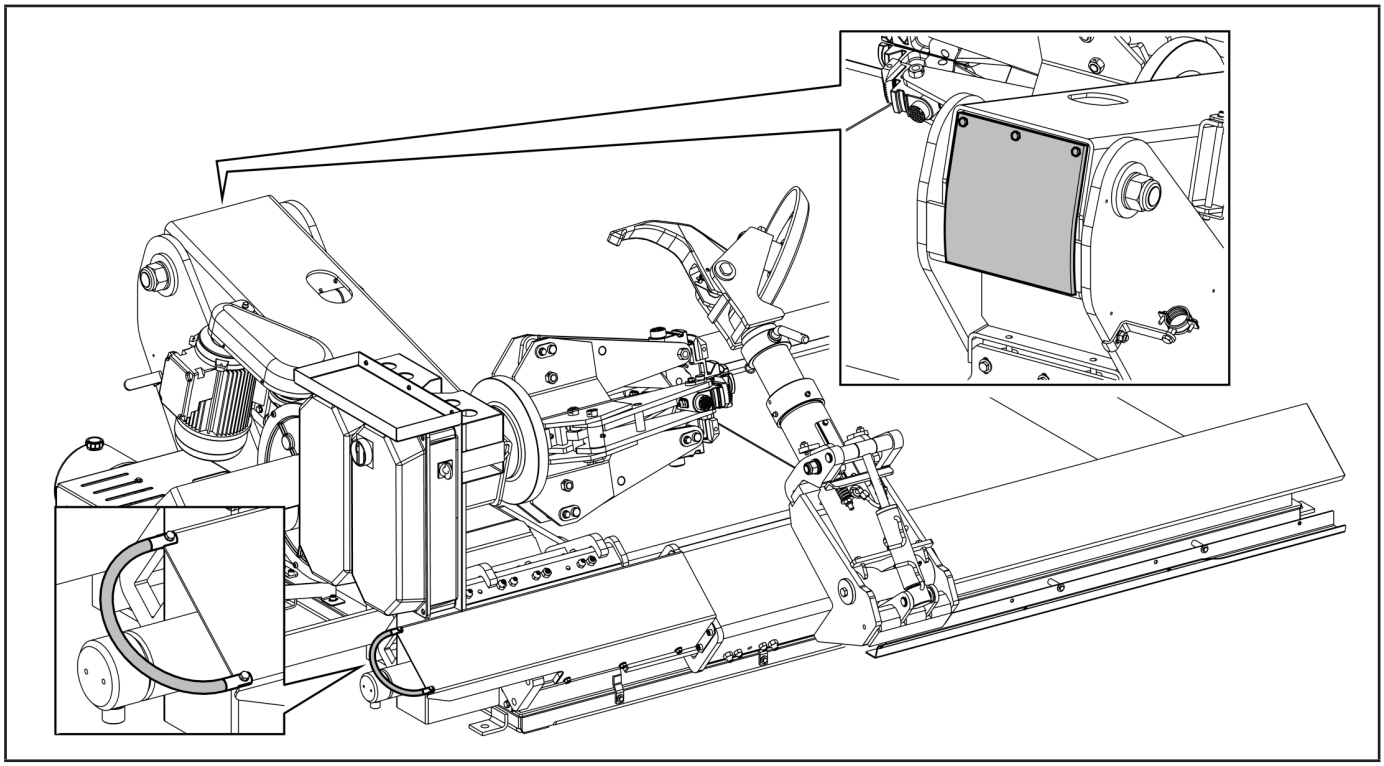
**DAILY CHECK THE INTEGRITY AND THE FUNCTIONALITY OF THE SAFETY AND PROTECTION DEVICES ON THE MACHINE.**

All the machines are equipped with:

- **"man-operated" controls** (immediate stop of operation when the control is released);
- **controls logic disposition:**
  to prevent the operator from making dangerous mistakes;
- **Thermal magnetic** switch on the supply line of the oil-pressure power unit motor: avoids the motor overheating in case of intensive use;
- **controlled check valves** on:
  - opening of chuck clamps;
  - chuck arm lifting;
  - tool holder arm tilting (for versions foreseeing such operation only).
  These valves have been fit in order to avoid unexpected movements of the clamps, tool or chuck arm (and, as a consequence, the wheel fall) caused by accidental oil drippings;

**NO MODIFICATION OR CALIBRATION OF THE OPERATING PRESSURE OF THE MAXIMUM PRESSURE VALVE OR OF THE HYDRAULIC CIRCUIT PRESSURE LIMITER IS PERMITTED.**

- **fuses** on the power supply line of the chuck motor;
- **automatic power supply disconnection** with the opening of the electric cabinet.
- **chuck self-braking motor**;
- **fixed protections and guards.**
  The machine is fitted with a number of fixed guards intended to prevent potential crushing, cutting and compression risks.
  These protections have been realized after risks evaluation and after all machine operative situations have been considered.
  These protections can be located in the figure below.



### 3.1 Residual risks

The machine was subjected to a complete analysis of risks according to reference standard EN ISO 12100. Risks are as reduced as possible in relation with technology and product functionality.
This manual stresses possible residual risks, also highlighted in pictograms on the present manual and adhesive warning signals placed on the machine: their location is represented in "LOCATION ON MACHINE INFORMATION DRAWING" on page 7.

## 4.0 GENERAL SAFETY RULES

- Any tampering with or modification to the machine not previously authorized by the manufacturer exempts the latter from all responsibility for damage caused by or derived from said actions.
- Removing of or tampering with the safety devices or with the warning signals placed on the machine leads to serious dangers and represents a transgression of European safety standards.
- Use of the machine is only permitted in places free from **explosion** or **fire** hazard and in **dry places under cover**.
- The use of only original accessories and spare parts is advised. Our machine is designed to function only with original accessories.

**THE MANUFACTURER DENIES ANY RESPONSIBILITY IN CASE OF DAMAGES CAUSED BY UNAUTHORIZED MODIFICATIONS OR BY THE USE OF NON ORIGINAL COMPONENTS OR EQUIPMENT.**

- The installation must be performed by qualified and authorized personnel in full compliance with the instructions given below.
- Ensure that there are no dangerous situations during the machine operating manoeuvres. Immediately stop the machine if it miss-functions and contact the customer service of an authorized dealer.
- In emergency situations and before carrying out any maintenance or repairs, isolate the equipment from energy sources by disconnecting the power supply using the main switch.
- The machine power supply system must be equipped with an appropriate earthing, to which the yellow-green machine protection wire must be connected.
- Ensure that the work area around the machine is free of potentially dangerous objects and that there is no oil since this could damage the tyre. Oil on the floor is also a potential danger for the operator.

**OPERATORS MUST WEAR SUITABLE WORK CLOTHES, PROTECTIVE GLASSES AND GLOVES, AGAINST THE DANGER FROM THE SPRAYING OF DANGEROUS DUST, AND POSSIBLY LOWER BACK SUPPORTS FOR THE LIFTING OF HEAVY PARTS. DANGLING OBJECTS LIKE BRACELETS MUST NOT BE WORN, AND LONG HAIR MUST BE TIED UP. FOOTWEAR SHOULD BE ADEQUATE FOR THE TYPE OF OPERATIONS TO BE CARRIED OUT.**

- The machine handles and operating grips must be kept clean and free from oil.
- The workshop must be kept clean, dry and not exposed to atmospheric agents. Make sure that the working premises are properly lit.
  The machine can be operated by a single operator. Unauthorized personnel must remain outside the working area, as shown in **Fig. 4.**
  Avoid any hazardous situations. Do not use air-operated or electrical equipment when the shop is damp or the floor slippery and do not expose such tools to atmospheric agents.
- When operating and servicing this machine, carefully follow all applicable safety and accident-prevention precautions.
  The machine must not be operated by untrained personnel.

**THE MACHINE OPERATES WITH PRESSURIZED HYDRAULIC FLUID. MAKE SURE EVERY COMPONENT OF THE HYDRAULIC CIRCUIT IS ALWAYS PROPERLY LOCKED, ANY PRESSURIZED LEAKS MAY CAUSE SERIOUS INJURIES OR WOUNDS.**

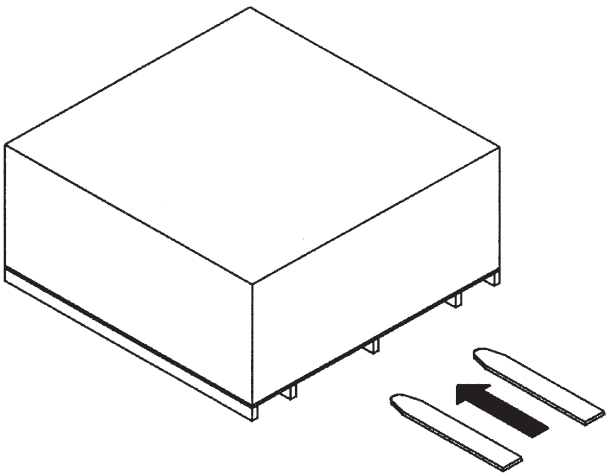
**IN CASE OF A CHANCE SUPPLY FAILURE (WHETHER ELECTRICITY OR OIL-PRESSURE), MOVE THE CONTROLS TO THE NEUTRAL POSITION.**

## 5.0 PACKING AND MOBILIZATION FOR TRANSPORT

**HAVE THE MACHINE HANDLED BY SKILLED PERSONNEL ONLY.**
**THE LIFTING EQUIPMENT MUST WITHSTAND A MINIMUM RATED LOAD EQUAL TO THE WEIGHT OF THE PACKED MACHINE (SEE PARAGRAPH "TECHNICAL SPECIFICATIONS").**

The machine is supplied completely assembled, packed in a cardboard box.
Movement must be by pallet-lift or fork-lift trolley.
Lift the packaging as indicated in **Fig. 2** (forks introduced in the middle to ensure a correct loads distribution).

**Fig. 2**



## 6.0 UNPACKING

**DURING UNPACKING, ALWAYS WEAR GLOVES TO PREVENT ANY INJURY CAUSED BY CONTACT WITH PACKAGING MATERIAL (NAILS, ETC.).**

After removing the packing, and in the case of the machine packed fully assembled, check that the machine is complete and that there is no visible damage. If in doubt **do not use the machine** and refer to professionally qualified personnel (to the seller). The packaging elements (plastic bags, polystyrene foam, nails, bolts, wood, etc.) must be collected up and disposed of through according to the in force laws, except for the pallet, which could be used again for subsequent machine handling.

**THE BOX CONTAINING THE FIXTURES IS CONTAINED IN THE WRAPPING. DO NOT THROW IT AWAY WITH THE PACKING.**

## 7.0 MOBILIZATION

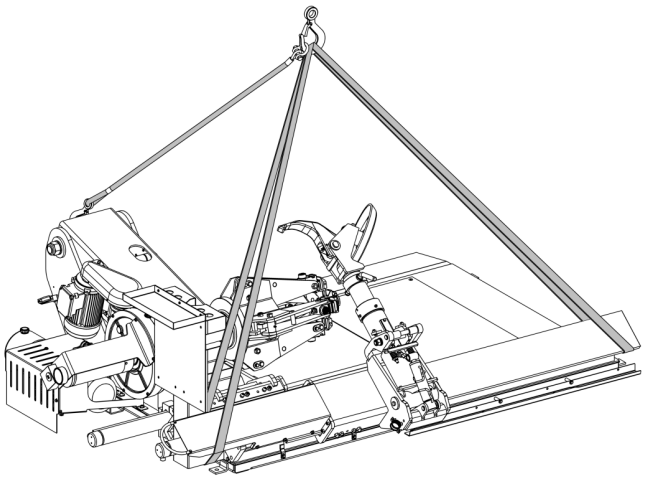
If the machine has to be moved.

**THE LIFTING EQUIPMENT MUST WITHSTAND A MINIMUM RATED LOAD EQUAL TO THE WEIGHT OF THE MACHINE (SEE PARAGRAPH TECHNICAL SPECIFICATIONS). DO NOT ALLOW THE LIFTED MACHINE TO SWING.**

If the machine has to be moved from its normal work post, the movement must be conducted following the instructions listed below.

- Protect the exposed corners with suitable material (Pluribol/cardboard).
- Do not use metallic cables for lifting.
- Move the chuck to completely lowered position and in the centre of the machine in order to ensure a correct load balancing.
- Move the tool carriage to limit switch towards the chuck.
- Disconnect all machine power supply sources.
- Sling with three sufficiently long belts (300 cm - 118" at least) and with capacity load at least equal to machine weight (see **Fig. 3**).
- Lift and transport with suitable device with adequate dimensions.

**Fig. 3**



## 8.0 WORKING ENVIRONMENT CONDITIONS

The machine must be operated under proper conditions as follows:

- temperature: +5 °C ÷ +40 °C (+41 °F ÷ +104 °F)
- relative humidity: 30 - 95% (dew-free)
- atmospheric pressure: 860 - 1060 hPa (mbar) (12.5 ÷ 15.4 psi).

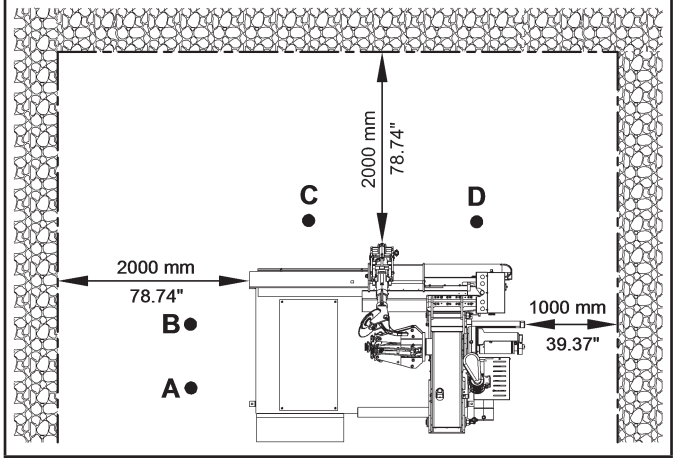
The use of the machine in ambient conditions other than those specified above is only allowed after prior agreement with and approval of the manufacturer.

### *8.1 Working position*

In **Fig. 4** it's possible to define working positions **A, B, C, D** , which will be referred to in the description of machine operative phases.
Positions **A** and **B** must be considered as main positions for tyre mounting and demounting and for wheel clamping on the chuck, while positions **C** and **D** are the best positions to follow tyre bead breaking and demounting operations.
Working in these positions allows better precision and speed during operating phases as well as greater safety for the operator.

### *8.2 Installation space*

**Fig. 4**




**USE THE MACHINE IN A DRY AND SUFFICIENTLY ILLUMINATED PLACE, CLOSED, PROTECTED FROM ALL WEATHER CONDITIONS AND COMPLYING WITH THE REGULATIONS IN FORCE REGARDING WORK SAFETY.**

The location of the machine requires a usable space as indicated in **Fig. 4**. The positioning of the machine must be according to the distances shown. From the control position the operator is able to observe all the machine and surrounding area.
He must prevent unauthorized personnel or objects that could be dangerous from entering the area. The machine must be secured to a flat floor surface, preferably of cement or tiled. Avoid yielding or irregular surfaces. The base floor must be able to support the loads transmitted during operation. This surface must have a capacity load of at least 500 Kg\m² (102 lb/ft²). The depth of the solid floor must be sufficient to guarantee that the anchoring bolts hold (excluded from supply).

### *8.3 Lighting*

The machine does not require its own lighting for normal working operations. However, it must be placed in an adequately lit environment.

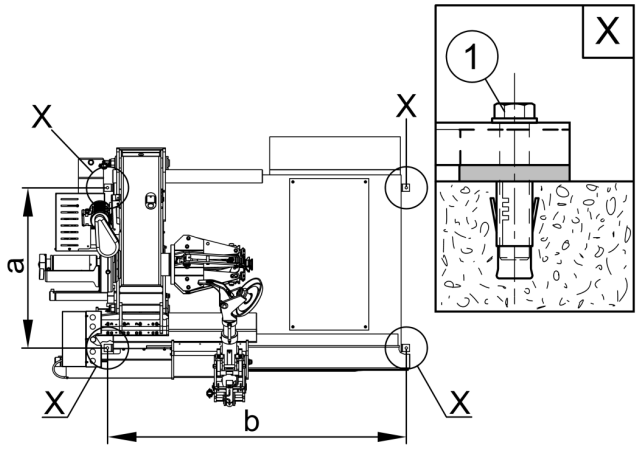
## 9.0 MACHINE ASSEMBLY

**EACH MECHANICAL INTERVENTION MUST BE CARRIED OUT BY PROFESSIONALLY QUALIFIED STAFF.**

### *9.1 Anchoring system*

The packed machine is fixed to the support pallet through the holes prearranged on the frame and indicated in the figure below. Such holes can be used also to secure the machine to the ground, using floor anchors (not included in the supply). Before carrying out the definitive fixing, check that all the anchor points are laid down flat and correctly in contact with the fixing surface itself. If not so, insert shimming profiles between the machine and the fixing lower surface, as indicated in **Fig. 5**.

**Fig. 5**




| NAV43 | NAV63 |
|---|---|
| **a** = 1185 mm / 46.65”<br>**b** = 2173 mm / 85,55” | **a** = 1216 mm / 47.87”<br>**b** = 2265 mm / 89,17” |

- To fasten the product to the ground, use anchoring plugs (**Fig. 5 ref. 1**) with a threaded shank M12 (UNC 1/2-13) suitable for the floor on which the tyre changer will be fixed and in a number equal to the number of fixing holes arranged on the bottom frame;
- drill holes in the floor, suitable for inserting the chosen anchors, in correspondence with the holes arranged on the bottom frame;
- insert the anchors into the holes made in the floor through the holes on the bottom frame and tighten the threaded elements;
- tighten the anchors on the base frame by applying a torque equal to that indicated by the manufacturer of the anchors.

## 10.0 ELECTRICAL CONNECTIONS

**EVEN THE TINIEST PROCEDURE OF AN ELECTRICAL NATURE MUST BE CARRIED OUT BY PROFESSIONALLY QUALIFIED STAFF.**

**BEFORE CONNECTING THE MACHINE MAKE SURE THAT:**
- **POWER LINE SPECIFICATIONS CORRESPOND TO MACHINE REQUIREMENTS AS SHOWN ON THE MACHINE PLATE;**
- **ALL MAIN POWER COMPONENTS ARE IN GOOD CONDITION;**
- **THE ELECTRICAL SYSTEM IS PROPERLY GROUNDED (GROUND WIRE MUST BE THE SAME CROSS-SECTION AREA AS THE LARGEST POWER SUPPLY CABLES OR GREATER);**
- **MAKE SURE THAT THE ELECTRICAL SYSTEM FEATURES A CUTOUT WITH DIFFERENTIAL PROTECTION SET AT 30 MA.**

The machine is supplied with a cable. A plug corresponding to the following requirements must be connected to the cable:

For any other type of power supply, ask the manufacturer at the time of purchase: a machine functioning under the required voltage conditions will be prepared.

**FIT A TYPE-APPROVED PLUG TO THE MACHINE CABLE (THE GROUND WIRE IS YELLOW/GREEN AND MUST NEVER BE CONNECTED TO ONE OF THE PHASE LEADS).**

**MAKE SURE THAT THE ELECTRICAL SYSTEM IS COMPATIBLE WITH THE RATED POWER ABSORPTION SPECIFIED IN THIS MANUAL AND APT TO ENSURE THAT VOLTAGE DROP UNDER FULL LOAD WILL NOT EXCEED 4% OF RATED VOLTAGE (10% UPON START-UP).**

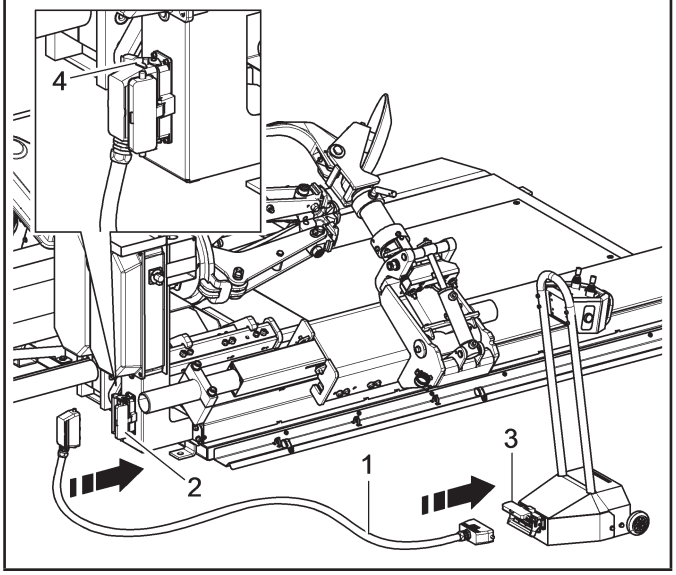
**IN CASE OF A CHANCE SUPPLY FAILURE, AND/OR BEFORE ANY POWER SUPPLY CONNECTIONS, MOVE THE PEDALS TO THE NEUTRAL POSITION.**

| Models | Conformity standard | Voltage | Amperage | Poles | Minimum IP rating |
|---|---|---|---|---|---|
| 3-Ph double speed | IEC 309 | 230/400V | 16 A | 3P + Ground | IP 44 |
| Version 230V 50Hz 3Ph | | 230V | | | |
| Version 500V 50Hz 3Ph | | 500V | | | |
| Version 230V 60Hz 3Ph | | 230V | | | |
| Version 220V 60Hz 3Ph | | 220V | | | |

## 10.1 Manipulator cable connection

Connect the cable through connectors (**Fig. 6 ref. 1**) to the machine socket (**Fig. 6 ref. 2**) and to that of the manipulator (**Fig. 6 ref. 3**), as shown in the drawing.

**Fig. 6**




**AFTER CONNECTING THE CABLE, TO PREVENT IT FROM BEING INADVERTENTLY DISCONNECTED DURING OPERATION OF THE MACHINE, MAKE SURE TO LOCK IT USING THE PROVIDED DEVICE (FIG. 6 REF. 4).**

## 10.2 Oil check on oil-pressure power unit

**ANY OIL-PRESSURE INTERVENTION MUST BE CARRIED OUT BY PROFESSIONALLY QUALIFIED STAFF.**

**THE OIL-PRESSURE POWER UNIT IS DELIVERED WITHOUT HYDRAULIC OIL, THEREFORE MAKE SURE THE TANK PROVIDED IS FILLED WITH AN APPROXIMATE AMOUNT OF OIL OF 5 LITRES (1,32 GALLONS), ALWAYS BEING CAREFUL NOT TO SPILL IT OUTSIDE THE TANK.**
**USE HYDRAULIC OIL WITH A VISCOSITY DEGREE APPROPRIATE TO THE AVERAGE TEMPERATURES IN THE INSTALLATION COUNTRY AND IN PARTICULAR:**
- **VISCOSITY 32 (OR COUNTRIES WITH ROOM TEMPERATURE FROM 0 °C ÷ +30 °C (+32 °F ÷ +86 °F);**
- **VISCOSITY 46 (FOR COUNTRIES WITH ROOM TEMPERATURE ABOVE +30 °C degrees (+86 °F).**

## 10.3 Check of motor rotation direction

Once the last electrical connection has been terminated, power the machine with the main switch. Make sure the motor of the hydraulic power unit rotates in the direction indicated by the arrow (**Fig. 7 ref. B**) visible on the electric motor cap. If rotation should occur in the opposite direction, the machine must be immediately stopped and phase inversion must be executed inside the plug connection in order to reset the correct rotation direction.

**FAILURE TO OBSERVE THE ABOVE INSTRUCTIONS WILL IMMEDIATELY INVALIDATE THE WARRANTY.**

## *10.4 Electrical checks*

**BEFORE STARTING UP THE TYRE-CHANGER, BE SURE TO BECOME FAMILIAR WITH THE LOCATION AND OPERATION OF ALL CONTROLS AND CHECK THEIR PROPER OPERATION (SEE PAR. "CONTROLS").**

**CARRY OUT A DAILY CHECK OF THE MAINTAINED ACTION CONTROLS CORRECT FUNCTIONING, BEFORE STARTING MACHINE OPERATION.**

Once the plug/socket connection has been made, turn on the machine using the main switch (**Fig. 7 ref. A**).

**Bluetooth versions only**

Then horizontally or vertically move the lever (**Fig. 9 ref. H**): the red LED (**Fig. 9 ref. B**) will turn on.
Wait a few seconds for the green LED turning on (**Fig. 9 ref. A**) and then release the lever (**Fig. 9 ref. H**).
In the end, the green LED (**Fig. 9 ref. A**) flashes to indicate that the machine is ready for operation.

**WHEN A CONTROL IS OPERATED, THE GREEN LED (FIG. 9 REF. A) LIGHT IS FIXED: IT FLASHES AGAIN WHEN IT IS RELEASED.**

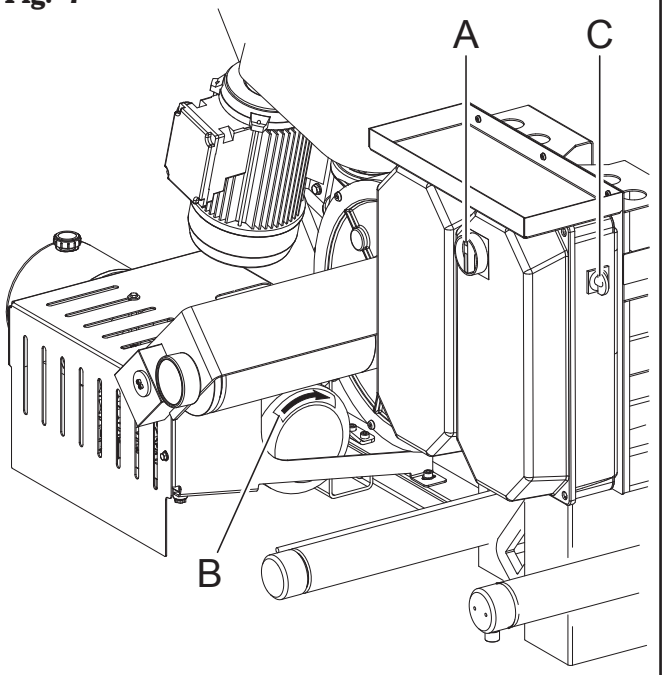
If during the operations the red LED (**Fig. 9 ref. B**) turns on and the green led turns off, charge the control batteries with the provided socket for battery charger, located under the control (**Fig. 9 ref. M**).

**For all models**

The machine is equipped with a device for the interruption of the communication between the control and the electrical cabinet, when more than 6 hours have passed after the last executed control. In this case, just repeat the turning on operations described in the "Electrical checks" chapter.

**ONCE THE ASSEMBLY OPERATIONS HAVE BEEN ENDED, CHECK ALL MACHINE FUNCTIONS.**

**Fig. 7**




KEY
A – Main switch
B – Rotation direction of power unit motor
C – Selector 1-0-2 self-centring chuck speed control

## 11.0 CONTROLS

### *11.1 Control device*

The control (handle control) can be moved according to the positioning necessities of the operator.
The operator should place the control in a zone free from obstacles in order to see clearly and completely the operative zone.

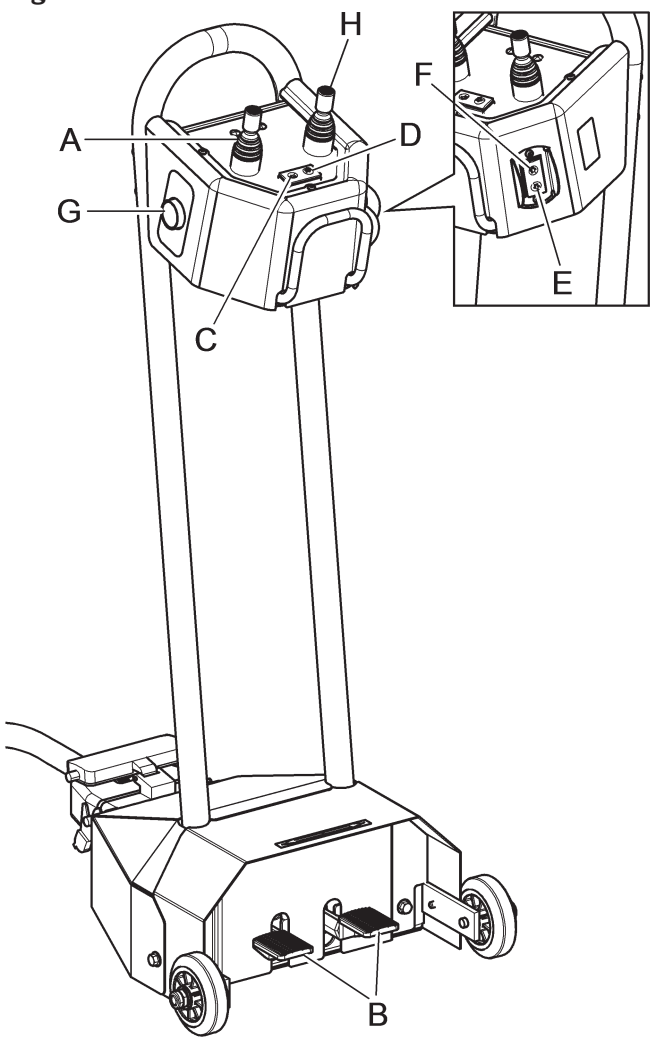
**MAKE SURE THERE ARE NO PERSONS OR OBJECTS HIDDEN TO THE OPERATOR VISUAL FIELD BY THE WHEEL SIDE PLAY (ESPECIALLY IN CASE OF WHEELS WITH LARGE DIMENSIONS).**

"Lever **A**" has four maintained action operative positions:
- Lever rightwards or leftwards, operates respectively the chuck holder carriage shifting rightwards or leftwards.
- Lever upwards or downwards: it operates respectively the rising and the lowering of the chuck holding arm.

"Pedal **B**" controls chuck clockwise and counterclockwise rotation.
"Push button **C**" has a maintained action position, and when pressed it rotates the tools holder head counterclockwise (from behind the tool).
"Push button **D**" has a maintained action position, and when pressed it rotates the tools holder head clockwise (from behind the tool).
"Push button **E**" has a maintained action position and when pressed, it operates the self-centring chuck opening.
"Push button **F**" has a maintained action position, and when pressed it operates the self-centring chuck closing.
"Push button **G**" has a maintained action position: when it is pressed and lever "**A**" or "**H**" is laterally shifted at the same time, it doubles the movement speed of the self-centring carriage and of the tool holder carriage respectively.
"Lever **H**" has four maintained action positions:
- Lever rightwards or leftwards, operates respectively the tool holder carriage shifting rightwards or leftwards.
- Lever upwards or downwards: it respectively lowers or lifts the tool holder arm.

**THE HANDLE MUST NOT BE PLACED WHERE WATER STAGNATES.**

**Fig. 8**



## 11.2 Control device with bluetooth transmission (Bluetooth versions only)

The control (handle control) can be moved according to the positioning necessities of the operator.
The operator should place the control in a zone free from obstacles in order to see clearly and completely the operative zone.

**MAKE SURE THERE ARE NO PERSONS OR OBJECTS HIDDEN TO THE OPERATOR VISUAL FIELD BY THE WHEEL SIDE PLAY (ESPECIALLY IN CASE OF WHEELS WITH LARGE DIMENSIONS).**

The flashing green LED "**A**", indicates the machine stand-by position. When any control is operated, the machine is started and it is ready for operation. During functioning, the LED "**A**" is turned on with a fixed light. The red turned on LED "**B**" and the green turned off LED "**A**" indicate that the manipulator batteries are exhausted: in order to carry on the functioning, the batteries must be charged.

**IN ORDER TO ACTIVATE THE COMMUNICATION BETWEEN HANDLE CONTROL AND MACHINE, ON MACHINE SWITCHING AND AFTER EACH POSITIONING IN STAND-BY MODE, IT'S NECESSARY TO OPERATE ANY JOYSTICK (LEVER "H" OR LEVER "I") FOR 5 SECONDS AT LEAST.**

"Push button **C**" has a maintained action position, and when pressed it rotates the tools holder head counterclockwise (from behind the tool).
"Push button **D**" has a maintained action position, and when pressed it rotates the tools holder head clockwise (from behind the tool).
"Push button **E**" has a maintained action position and when pressed, it operates the self-centring chuck opening.
"Push button **F**" has a maintained action position, and when pressed it operates the self-centring chuck closing.
"Push button **G**" has a maintained action position: when it is pressed and lever "**I**" or "**H**" is laterally shifted at the same time, it doubles the movement speed of the self-centring carriage and of the tool holder carriage respectively.
"Lever **H**" has four maintained action positions:

- Lever rightwards or leftwards, operates respectively the tool holder carriage shifting rightwards or leftwards.
- Lever upwards or downwards: it respectively lowers or lifts the tool holder arm.

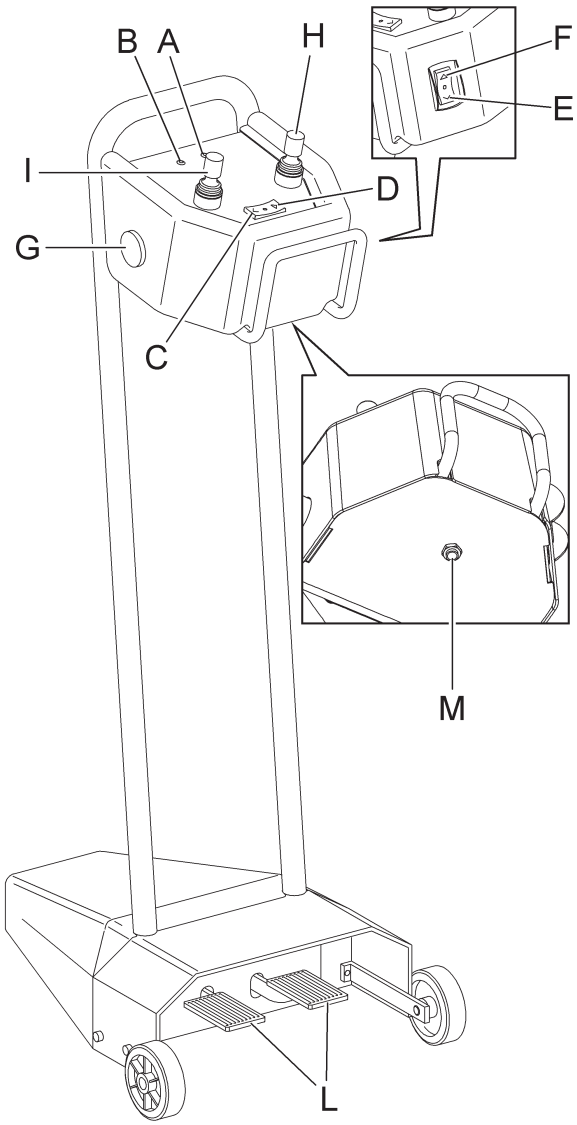
"Lever **I**" has four maintained action positions:

- Lever rightwards or leftwards, operates respectively the chuck holder carriage shifting rightwards or leftwards.
- Lever upwards or downwards: it operates respectively the rising and the lowering of the chuck holding arm.

"Pedal **L**" starts clockwise and anti-clockwise rotation of the chuck.
When any control is operated, the machine is started again, ready for operation: LED "**A**" flashes.

**THE HANDLE MUST NOT BE PLACED WHERE WATER STAGNATES.**

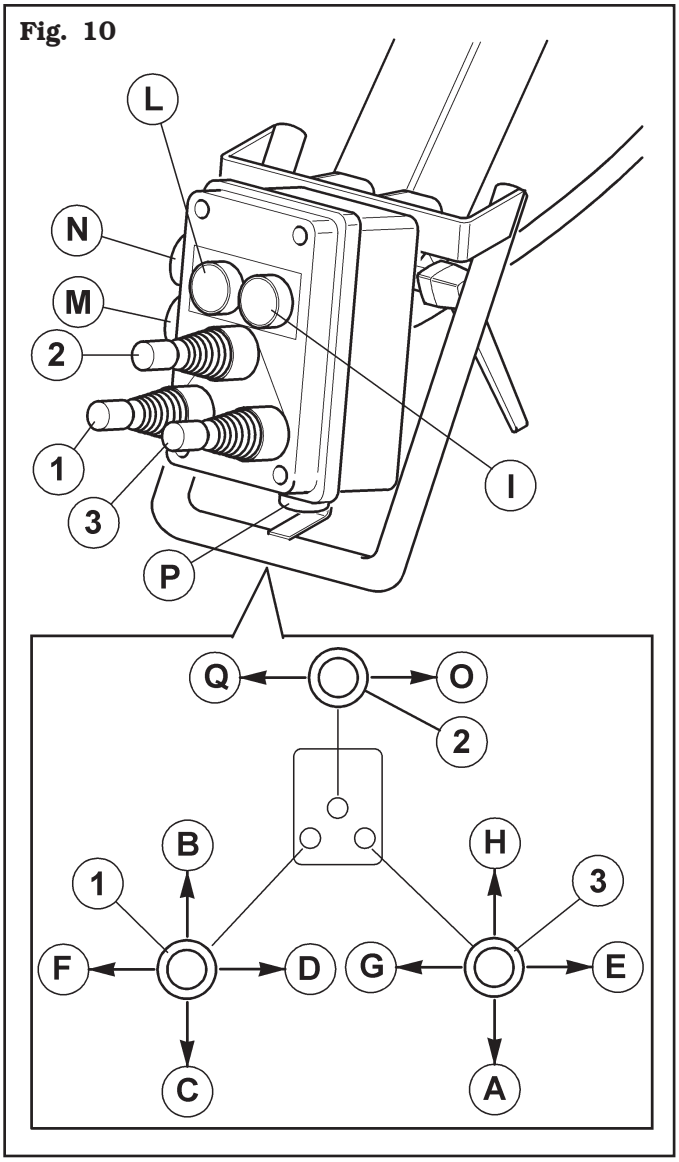
**Fig. 9**



### *11.3 Handle control in air (aerial handle control versions only)*

The control (handle control) can be moved according to the positioning necessities of the operator.
Lever handling (**Fig. 10 ref. 3**) in **A** position, with maintained action, lifts the tools holder arm.
Lever handling (**Fig. 10 ref. 1**) in **B** position, with maintained action, controls the self-centring carriage arm rising.
Lever handling (**Fig. 10 ref. 1**) in **C** position, with maintained action, controls the self-centring carriage arm descent.
Lever handling (**Fig. 10 ref. 1**) in **D** position, with maintained action, controls the self-centring carriage right shifting.
Lever handling (**Fig. 10 ref. 3**) in **E** position, to "hands-on" operating position, controls the tools holder carriage right shifting.
Lever handling (**Fig. 10 ref. 1**) in **F** position, with maintained action, controls the self-centring carriage left shifting.
Lever handling (**Fig. 10 ref. 3**) in **G** position, with maintained action, controls the tools holder carriage left shifting.
Lever handling (**Fig. 10 ref. 3**) in **H** position, with maintained action, lowers the tools holder arm.
"Push button **P**" has a maintained action position, and when pushed in combination with the horizontal movement of levers **3** and/or **1**, it doubles tool-holder or self-centring carriage shifting speed. Pressing push button "**P**" in combination with the vertical movement of lever "**1**" it doubles the rise or descent speed of the self-centring carriage.
**"**Lever 2" has two maintained action positions: turned to right (**Ref. O**) or to left (**Ref. Q**), it respectively controls the clockwise and counterclockwise rotation of the self-centring chuck.
"Push button **I**" has a maintained action position, and when pressed it opens the self-centring chuck.
"Push button **L**" hasa maintained action position, and when pressed it closes the self-centring chuck.
"Push button **M**" a maintained action position, and when pressed, it operates the counterclockwise rotation of the tools holder head (from behind the tool).
"Push button **N**" has a maintained action position, and when pressed, it operates the clockwise rotation of the tools holder head (from behind the tool).

Fig. 10



# 12.0 USING THE MACHINE

## 12.1 Precaution measures during tyre removal and fitting

Before fitting a tyre, observe the following safety rules:

- always use clean, dry and in good condition rims and tyres; in particular, if necessary, clean the rims after all the old balancing weights (as well as the adhesive weights on the inner side) have been removed, and make sure that:
  - neither the bead nor the tread of the tyre are damaged;
  - the rim does not produce dents and/or deformation (especially for alloy rims, dents can cause internal micro-fractures, that pass unobserved at visual inspection, and can compromise the solidity of the rim and constitute danger even during inflation);
- adequately lubricate the contact surface of rim and the tyre beads, using specific tyre lubricants only;
- replace the inner pipe valve with a new valve, if the tyre pipe has a metal valve, replace the grommet;
- always make sure that tyre and rim sizes are correct for their coupling; on the contrary, never fit a tyre unless you are sure it is of the right size (the rated size of rim and tyre is usually printed directly on them);
- do not use compressed air or water jets to clean the wheels on the machine.

## 12.2 Preliminary operations

In view of the tyre changer structure and of its intended use, the operator must work with wheels with large diameter (up to 2360 mm / 93" on NAV43 model and up to 2700 mm / 106" on NAV63 model) and with remarkable weight (up to 2300 kg / 5070 lbs on NAV43 model and up to 2600 kg / 5732 lbs on NAV63 model). The utmost care while moving the wheels is recommended: make use of other operators, properly trained and with suitable clothes.

**THROUGHOUT TYRE MOUNTING AND DEMOUNTING OPERATIONS, THE SELF-CENTRING CHUCK ROTATION SPEED CAN BE DOUBLED BY ROTATING THE SELECTOR (FIG. 7 REF. C).**
**LOW SPEED IS RECOMMENDED FOR WHEELS WITH GREAT DIAMETER AND WEIGHT.**
**THE CAREFUL LUBRICATION OF THE TYRE BEADS IS ALSO RECOMMENDED, IN ORDER TO PROTECT THEM FROM POSSIBLE DAMAGES AND TO FACILITATE MOUNTING AND DEMOUNTING OPERATIONS.**

## 12.3 Preparing the wheel

- Remove the wheel balancing weights from both sides of the wheel.

**REMOVE THE VALVE STEM AND ALLOW THE TYRE TO COMPLETELY DEFLATE.**

- Establish from which side the tyre should be demounted, checking the position of the groove.
- Find the rim locking type.

## *12.4 Wheel clamping*

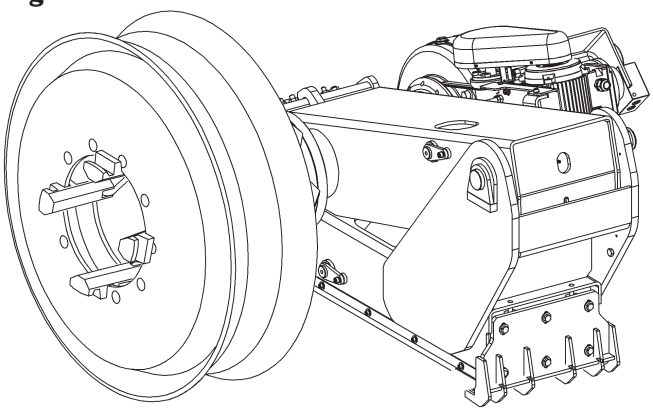
**FOR WHAT CONCERNS THE DIMENSIONS AND WEIGHT OF THE WHEEL TO BE LOCKED, MAKE USE OF A SECOND OPERATOR WHO MUST HOLD THE WHEEL INTO VERTICAL POSITION, IN ORDER TO ENSURE SAFE OPERATIVE CONDITIONS.**

**WHEN HANDLING WHEELS WEIGHING MORE THAN 500 KG (1102 LBS) A FORK-LIFT TRUCK OR A CRANE SHOULD BE USED.**

**MAKE SURE THAT RIM CLAMPING IS DONE PROPERLY AND THAT THE GRIP IS SAFE, TO PREVENT THE WHEEL FROM FALLING DURING MOUNTING OR REMOVAL OPERATIONS.**

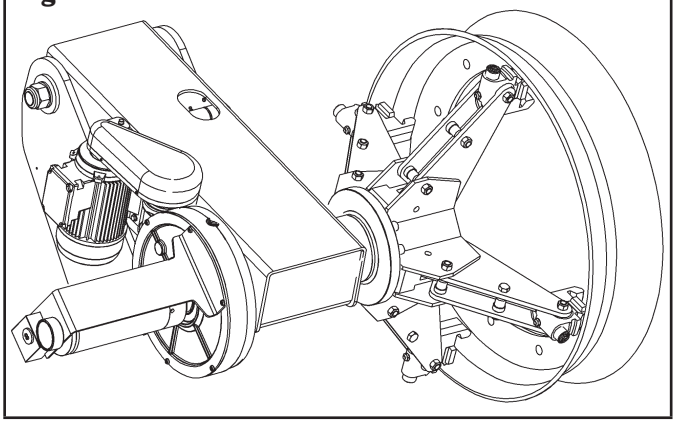
**DO NOT CHANGE THE SET OPERATING PRESSURE VALUE BY MEANS OF THE MAXIMUM PRESSURE VALVES. THE MANUFACTURER SHALL NOT BE RESPONSIBLE FOR INJURY OR DAMAGE ARISING FROM UNAUTHORISED CHANGES.**

**Fig. 11**



Clamping on the central hole

**Fig. 12**



Clamping on bead seat

**OPENING/CLOSING MOVEMENT OF THE SELF-CENTRING CHUCK CAN GENERATE DANGER OF SQUASHING, CUTTING, COMPRESSING. DURING WHEEL LOCKING/UNLOCKING PHASE, AVOID THAT PARTS OF HUMAN BODY COME INTO CONTACT WITH MOVING PARTS OF THE MACHINE.**

All wheels must be clamped from the inside.
**Clamping on the central flange is always safest.**

**FOR WHEELS WITH GROOVED RIMS SECURE THE WHEEL SO THAT THE GROOVE IS FACING OUTWARDS COMPARED TO THE CHUCK.**

If it is not possible to clamp the rim in the hole of the disc, clamp on the bead seat close to the disc.

**TO SECURE WHEELS WITH ALLOY RIMS ADDITIONAL PROTECTIVE CLAMPS ARE AVAILABLE. THEY ALLOW YOU TO WORK ON THE RIMS WITHOUT DAMAGING THEM. THE PROTECTIVE CLAMPS ARE FITTED ONTO THE CHUCK'S NORMAL CLAMPS BY MEANS OF A BAYONET CONNECTION.**

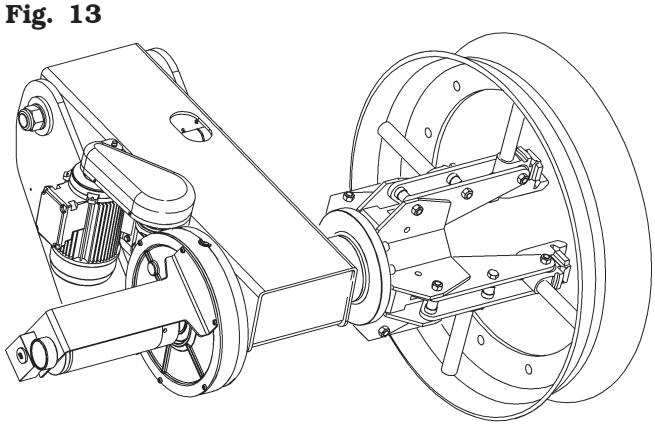
To clamp the wheel proceed as follows:

- Move the tool holder arm (**Fig. 15 ref. 1**) to "out of work" position, manually or with the help of the provided controls, according to the model of tyre changing machine which is being used;
- Place the wheel vertical on the machine table;
- Translate the chuck carriage towards the tyre until the self-centring arms are inserted inside the rim;
- Adjust the opening of the self-centring chuck through the "opening/closing"control (**Fig. 8 ref. E/F**) according to the type of rim to be locked;
- The lever (**Fig. 8 ref. A**) to position the coaxial chuck with the wheel centre, in order to make clamp edges skim the wheel edge;
- Operate the control (**Fig. 8 ref. E**) until the wheel is completely clamped;
- Make sure the rim is always correctly locked and centred, and the wheel is lifted from the machine platform, in order to prevent the rim from slipping in the following operations.

**KEEP ON OPERATING RIM CLAMPING CONTROL, UNTIL REACHING THE MAX. OPERATING PRESSURE (160÷180 BAR / 2320÷2610 PSI), WHICH CAN BE CHECKED THROUGH THE PREARRANGED PRESSURE GAUGE.**

**THROUGHOUT TYRE MOUNTING AND DEMOUNTING OPERATIONS, THE SELF-CENTRING CHUCK ROTATION SPEED CAN BE DOUBLED BY ROTATING THE SELECTOR (FIG. 7 REF. C).**
**LOW SPEED IS RECOMMENDED FOR WHEELS WITH GREAT DIAMETER AND WEIGHT.**
**THE CAREFUL LUBRICATION OF THE TYRE BEADS IS ALSO RECOMMENDED, IN ORDER TO PROTECT THEM FROM POSSIBLE DAMAGES AND TO FACILITATE MOUNTING AND DEMOUNTING OPERATIONS.**

**Fig. 13**



Locking with extensions

Whenever the rim exceeds the 42" in the locking point, use the appropriate extensions supplied with the tyre-changer. To avoid damages or scratches on light alloy rims, the special clamps supplied with the tyre changer as an optional should be used.

**AFTER COMPLETION OF TYRE MOUNT/DEMOUNT OPERATIONS DO NOT LEAVE THE WHEEL CLAMPED ON THE SELF-CENTRING CHUCK AND NEVER LEAVE IT UNATTENDED ANYWAY.**

**THROUGHOUT TYRE MOUNTING AND DEMOUNTING OPERATIONS, THE SELF-CENTRING CHUCK ROTATION SPEED CAN BE DOUBLED BY ROTATING THE SELECTOR (FIG. 7 REF. C).**
**LOW SPEED IS RECOMMENDED FOR WHEELS WITH GREAT DIAMETER AND WEIGHT.**
**THE CAREFUL LUBRICATION OF THE TYRE BEADS IS ALSO RECOMMENDED, IN ORDER TO PROTECT THEM FROM POSSIBLE DAMAGES AND TO FACILITATE MOUNTING AND DEMOUNTING OPERATIONS.**

## 12.5 Functioning of tools holder arm

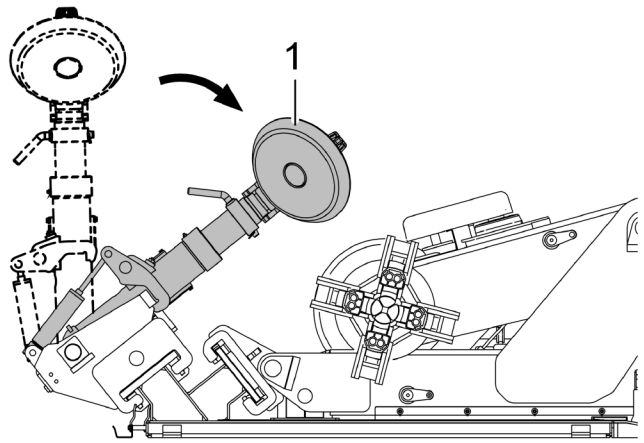
During the working phases, the tools holder arm can maintain two firm positions, that is:

1) "Working" position;

2) "Out of work" position.

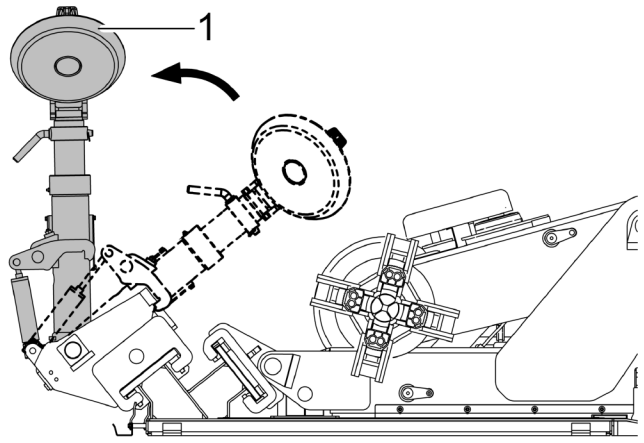
In "working" position (**Fig. 14 ref. 1**) the tools holder arm is lowered towards the chuck and from this position it executes the various tyre bead breaking, demounting and mounting operations.

**Fig. 14**




In "out of work" position (**Fig. 15 ref. 1**): the tools holder arm is in vertical position and has to be brought in this position every time it is not in use and in order to be shifted from one tyre side to another, during the different working phases.

**Fig. 15**




The tools holder arm moves from "out of work" position to "working position through hydraulic cylinder.

**IN WORK POSITION, THE SAFETY JACKS (FIG. 1 REF. 8) MUST BE HOOKED TO THE TOOL CARRIAGE (FIG. 1 REF. 13).**

To shift from "work" position to "off-work" position, the tools holder arm moves by the handle control that activates the cylinder (**Fig. 1 ref. 21**) .
The tools holder arm moves from "out of work" position to "working position through hydraulic cylinder.

### 12.5.1 Tools rotation

Tools holder head 180° rotation is automatic, and it takes place through handle control operation (**Fig. 8 ref. C and D**).

### 12.5.2 Tools unit extraction/insertion

The tools holder head has two working positions.

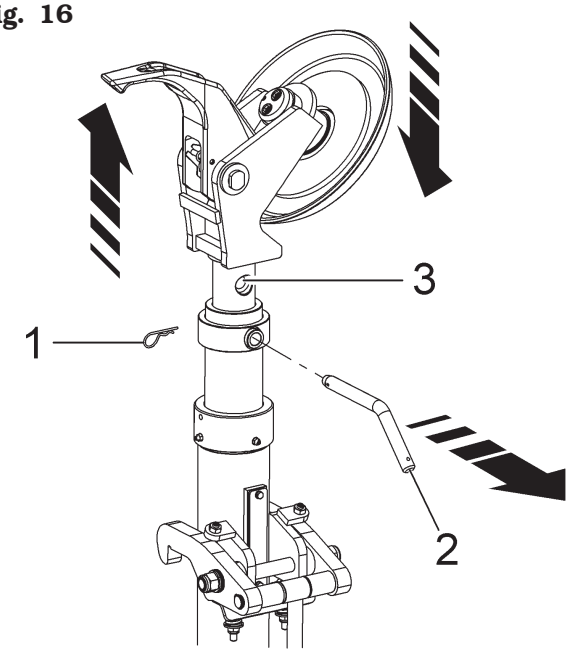
**THE FOLLOWING OPERATIONS MUST BE CARRIED OUT WITH THE TOOLS HEAD IN "OFF- WORK" POSITION.**

Remove the safety split pin (**Fig. 16 ref. 1**) and manually extract the lever (**Fig. 16 ref. 2**) to change from one position to another. Manually lift or lower the tools holder head until the locking holes match (**Fig. 16 ref. 3**).

**WHEN THE TOOLS HOLDER HEAD IS LOWERED, MOVE THE HEAD ITSELF DOWNWARDS WITH THE FREE HAND.**

When the new position has been reached, insert the lever again (**Fig. 16 ref. 2**) in the provided hole and assemble the safety split pin (**Fig. 16 ref. 1**) again.

**Fig. 16**



## 12.6 Tubeless tyres

### 12.6.1 Bead breaking

**NEVER PLACE ANY PART OF YOUR BODY BETWEEN THE TOOLS UNIT AND THE TYRE.**

**THROUGHOUT TYRE MOUNTING/DEMOUNTING OPERATIONS, CHECK THAT THE SELF-CENTRING CHUCK CLAMPING PRESSURE IS CLOSE TO THE MAX. OPERATING VALUE (160 - 180 BAR / 2320 - 2610 PSI).**

**A.** Lock the wheel on the chuck as described in the previous paragraph.

**B.** Remove all balancing weights from the rim. Extract the valve and let air out of tyre.

**C.** Move to work position **C** (**Fig. 4**).

**D.** Lower tools holder arm into work position (hooked safety jack) (**Fig. 14**).

**ALWAYS MAKE SURE THAT THE ARM IS CORRECTLY HOOKED TO CARRIAGE.**

**E.** Place as shown in **Fig. 17** the beading disc (**Fig. 17 ref. 1**) by means of the relevant handle control; the outer profile of the rim (**Fig. 17 ref. 2**) must almost touch the bead breaking disc.

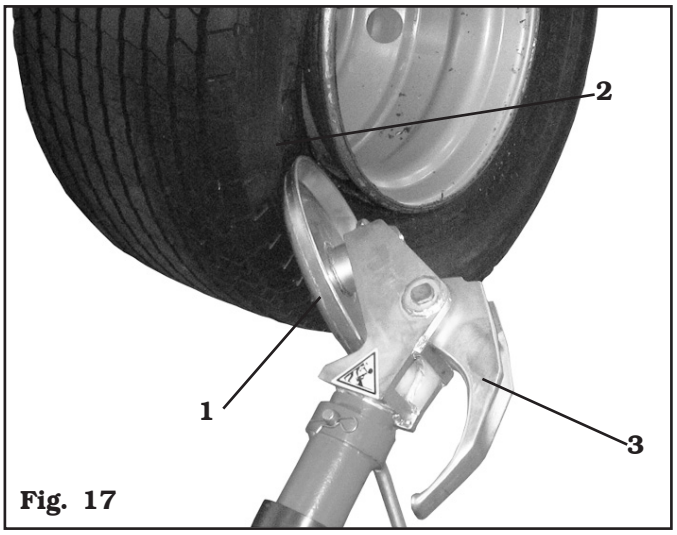


Fig. 17

**THE BEAD BREAKING DISC MUST NOT EXERT PRESSURE ON THE RIM BUT ON THE TYRE BEAD.**

**F.** Turn the chuck counterclockwise and, at the same time, gradually move the tool carrier inwards to bead the tyre. Keep turning the chuck while generously lubricating the tyre rim and bead with a suitable lubricant. To avoid risks, lubricate the beads by turning clockwise if you are working on the outer side or counterclockwise if you are working on the inner side.
The more the wheel adheres to the rim, the slower should the beading disc advance.

**USE ONLY TYRE LUBRICANTS. SUITABLE LUBRICANTS CONTAIN NO WATER, HYDROCARBONS, OR SILICONE.**

**G.** Once external beading has been carried out, unhook and lift the tool holder arm placing it in "off-work" position (**Fig. 15 ref. 1**); use the handle control to position the tool holder arm on the inner side of the wheel, then place it in "work position" (**Fig. 14 ref. 1**) and secure it with the special safety jack.

**PAY ATTENTION WHEN REPOSITIONING THE TOOLS HOLDER ARM TO AVOID CRUSHING HANDS.**

**H.** Carry out the tools holder head 180° rotation according to the descriptions of the relevant paragraph, so that the beading disc (**Fig. 18 ref. 1**) is placed against the rim edge (**Fig. 18 ref. 2**).

**I.** Move to work position **D** (**Fig. 4**) and repeat the operations described in points **E**, **F** until the tyre has been completely beaded.

Throughout beading operations it is advisable to bend the hook tool (**Fig. 17 and Fig. 18 ref. 3**) back to itself to avoid obstacles during the operating phases.

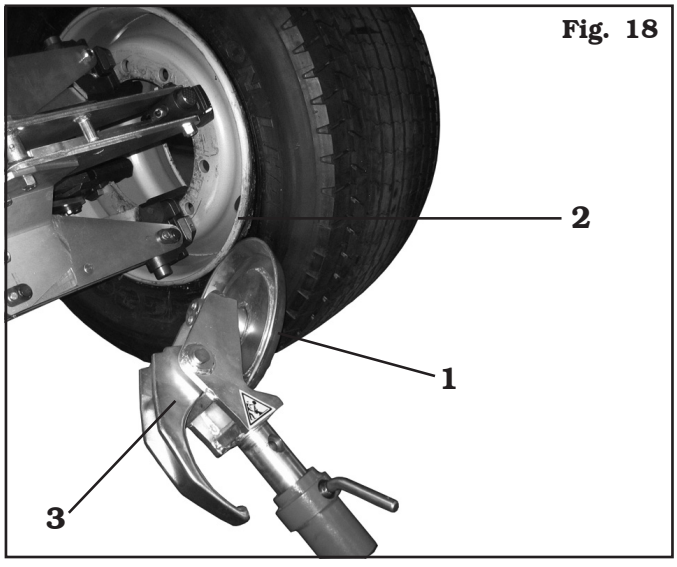


Fig. 18

### *12.6.2 Demounting*

**THROUGHOUT TYRE MOUNTING/DEMOUNTING OPERATIONS, CHECK THAT THE SELF-CENTRING CHUCK CLAMPING PRESSURE IS CLOSE TO THE MAX. OPERATING VALUE (160 - 180 BAR / 2320 - 2610 PSI).**

**Tubeless tyres can be removed in two ways:**

**A.** If the wheel does not present particular problems, continuing beading operation will completely dislodge the beads from the rim. The inner bead, pushed by the disc, presses against the outer one till it has been completely removed (see **Fig. 19**).

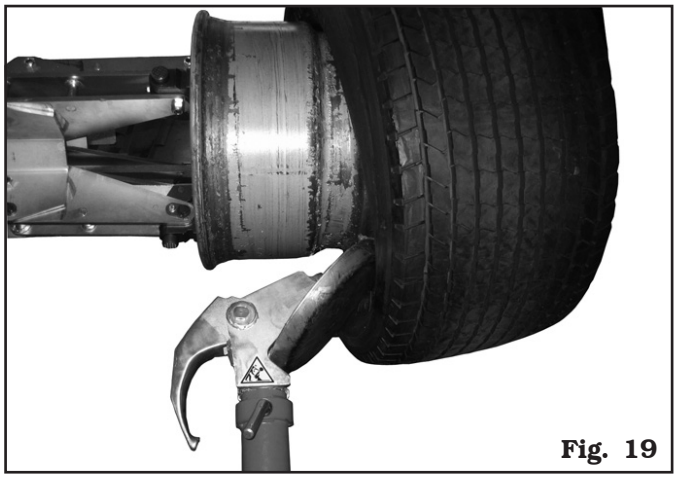


**Fig. 19**

**B.** If the wheel is especially hard, it is not possible to carry out the procedure described in point **A**. A different procedure will be necessary: use the hook tool and follow this sequence of operations:

- Move to work position C (**Fig. 4**).
- Position the tool holder arm on the outer side of the wheel and bring forward the hook tool, inserting it between rim and bead up to it is secured to the bead itself (see **Fig. 20**).

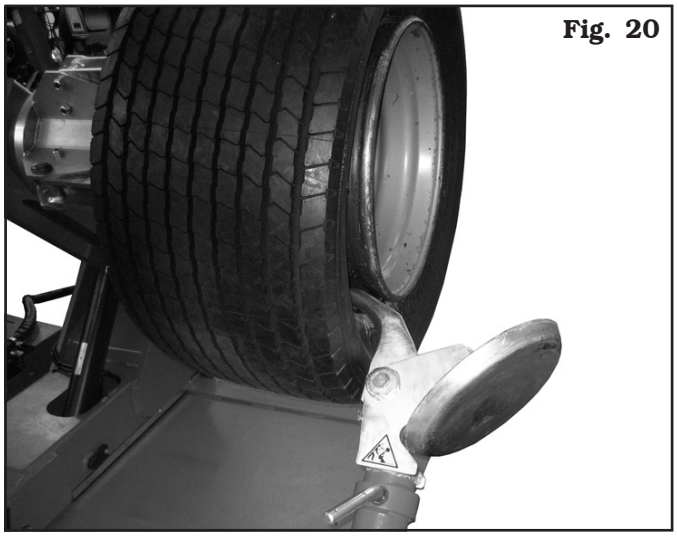


**Fig. 20**

- Move the rim away from the tool by about 4-5 cm (1.6"- 2") to avoid possible unhooking of the bead from the same tool.
- Move to work position **A** (**Fig. 4**).
- Translate the tool outwards (**Fig. 21 ref. 2**) to allow easy insertion of lever (**Fig. 21 ref. 1**) between the rim and the bead; insert lever (**Fig. 21 ref. 1**) between the rim and the bead on the right-hand side of the tool (**Fig. 21 ref. 2**).

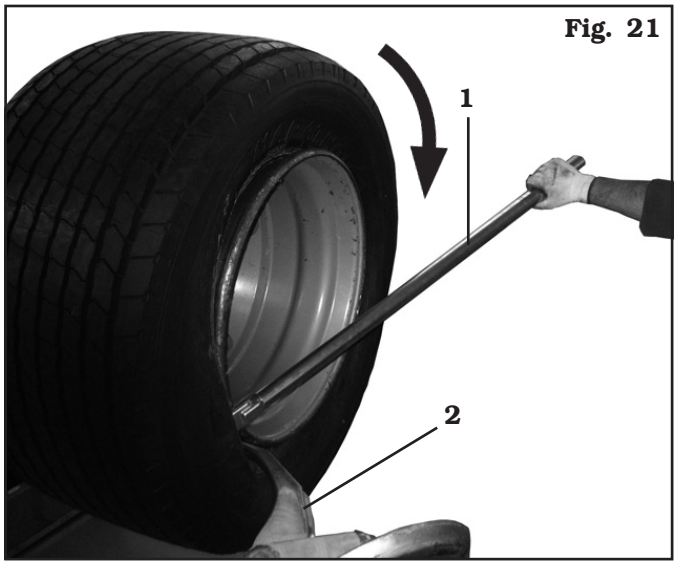



**Fig. 21**

- Keeping the lever pressed, lower the wheel until the edge of the rim is 5 mm distant from the hook tool.
- Turn the wheel clockwise keeping lever pressed (**Fig. 21 ref. 1**) until the bead has gone completely out.
- Once the external bead has been removed, move tool holder arm away from the wheel, unhook it and lift it bringing it in "off-work" position (**Fig. 15 ref. 1**); use the handle control to position the tool holder arm on the inner side of the wheel then place it in work position again (**Fig. 14 ref. 1**) and secure with the safety hook provided.

**PAY ATTENTION WHEN REPOSITIONING THE TOOLS HOLDER ARM TO AVOID CRUSHING HANDS.**

**ALWAYS MAKE SURE THAT THE ARM IS CORRECTLY HOOKED TO CARRIAGE.**

- Move to work position **D** (**Fig. 4**).
- Carry out the tool holder head 180° rotation in order to insert the hook tool (**Fig. 22 ref. 1**) between the rim edge and the tyre bead.

**Fig. 22**


- Move the rim away from the tool by about 4-5 cm (1.6"- 2") to avoid possible unhooking of the bead from the same tool.
- Move to work position **B** (**Fig. 4**).
- Translate the hook tool outwards to allow easy insertion of the lever between the rim and the bead on the tool left. Keeping the lever pressed, lower the wheel until the edge of the rim is 5 mm (0.2") distant from the hook tool then turn the chuck counterclockwise until the tyre has been completely removed.

**THE REMOVAL OF THE BEADS FROM THE RIM CAUSES THE TYRE TO FALL. ALWAYS MAKE SURE THAT NO ONE IS STANDING BY ACCIDENT IN THE WORK AREA.**

### *12.6.3 Mounting*

**WHEN DEMOUNTING VERY HEAVY TYRES, IT IS IMPORTANT TO MOVE THE WHEEL AS CLOSE AS POSSIBLE TO THE BASE BEFORE COMPLETING THE OPERATION.**

**THROUGHOUT TYRE MOUNTING/DEMOUNTING OPERATIONS, CHECK THAT THE SELF-CENTRING CHUCK CLAMPING PRESSURE IS CLOSE TO THE MAX. OPERATING VALUE (160 - 180 BAR / 2320 - 2610 PSI).**

Tubeless tyre fitting is normally done with the disc tool; if the wheel is especially hard to fit, use the hook tool.

**With bead breaking disc**

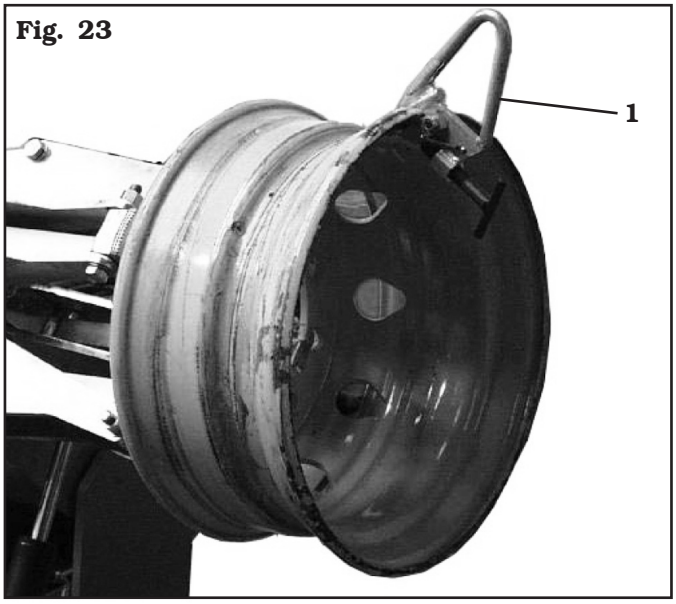
Proceed as follows:

- Secure the rim to the chuck according to the procedure described in paragraph "WHEEL CLAMPING".
- Adequately lubricate tyre beads and rim bead seats with a suitable lubricant using the supplied brush.

**USE ONLY TYRE LUBRICANTS. SUITABLE LUBRICANTS CONTAIN NO WATER, HYDROCARBONS, OR SILICONE.**

- Mount clamp (**Fig. 23 ref. 1**) on the external edge of the rim in the highest point as shown in **Fig. 23**.

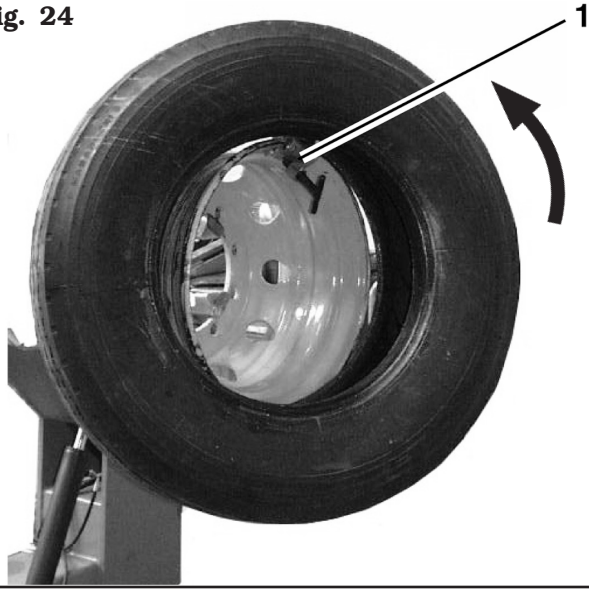
**Fig. 23**



**THE CLAMP MUST BE TIGHTLY SECURED TO THE EDGE OF THE RIM.**

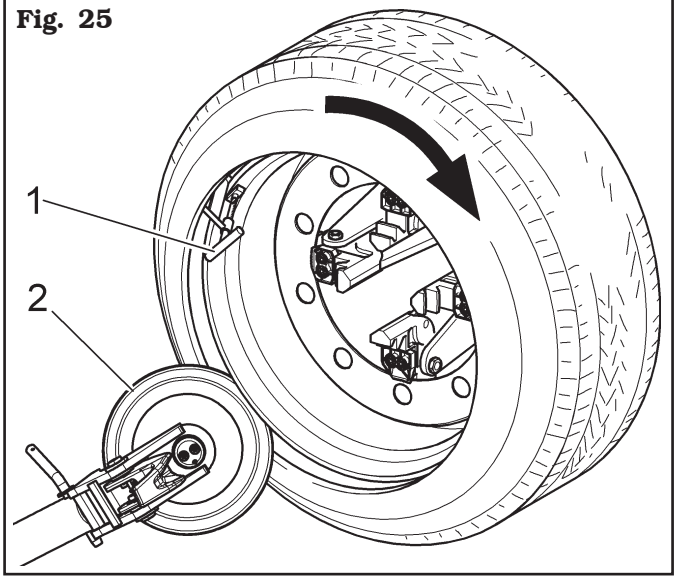
- Move to work position **B** (**Fig. 4**).
- Lower the chuck arm completely. Roll the tyre on the platform and hook it to clamp (**Fig. 24 ref. 1**).
- Lift the chuck arm with the tyre hooked and turn it counterclockwise about 15-20 cm (5.9"- 7.9"); the tyre will position itself sideways in relation to the rim (see **Fig. 24**).

**Fig. 24**




- Move to work position **C** (**Fig. 4**).
- Position bead breaking disc (**Fig. 25 ref. 2**) so that it is at approximately 1,5 cm (0.6") from the edge of the rim. The fitting clamp **(Fig. 25 ref. 1)** is at 11 o'clock. Turn the chuck until the clamp reaches the lowest point ("6 o'clock").

**Fig. 25**




- Move the bead breaking disc away from the wheel.
- Remove the clamp and fit it in the same position ("6 o'clock") outside the second bead.
- Turn the chuck 90° clockwise up to the clamp is at "9 o'clock".
- Move the beading disc forward until it is inside the edge of the rim by about 1-2 cm (0.4"- 0.8") , making sure it is approximately 5 mm (0.2") from rim edge. Start clockwise rotation making sure that, after a 90° turn, the second bead begins sliding in the rim groove.
- Once insertion is completed, move the tool away from the wheel, turn it over into "out of work" position and remove the clamp.
- Lower the chuck until the wheel rests on the footboard.
- Move to work position **A** (**Fig. 4**).
- Close the chuck clamps completely, making sure the wheel is held up to avoid dropping.

**MAKE SURE THAT THE WHEEL'S HOLD IS SECURE TO AVOID IT FALLING DURING REMOVAL. FOR HEAVY AND/OR VERY LARGE WHEELS USE AN ADEQUATE LIFTING DEVICE.**

- Translate the platform to release the wheel from the chuck. With especially soft tyres, simultaneously insert both beads on the clamp so that bead insertion in the tyre is done only once; this single operation is ideal for saving time.

**With hook tool**

Proceed as follows:

- Secure the rim to the chuck according to the procedure described in paragraph "WHEEL CLAMPING".
- Adequately lubricate tyre beads and rim bead seats with a suitable lubricant using the supplied brush.

**USE ONLY TYRE LUBRICANTS. SUITABLE LUBRICANTS CONTAIN NO WATER, HYDROCARBONS, OR SILICONE.**

- Mount the clamp (**Fig. 23 ref. 1**) on the external edge of the rim in the highest point.

**THE CLAMP MUST BE TIGHTLY SECURED TO THE EDGE OF THE RIM.**

- Move to work position **B** (**Fig. 4**).
- Lower the chuck arm completely. Roll the tyre on the platform and hook it to clamp (**Fig. 24 ref. 1**).
- Lift the chuck arm with the tyre hooked and turn it counterclockwise about 15-20 cm (5.9"- 7.9"); the tyre will position itself sideways in relation to the rim (see **Fig. 24**).
- Place the tool holder arm in "out of work" position (**Fig. 15 ref. 1**); translate it to the inner side of the tyre and hook it again into "working" position (**Fig. 14 ref. 1**).
- Carry out the tools head 180° rotation up to the hook tool is moved onto the tyre side (see **Fig. 26**).

**Fig. 26**

- Move to work position **D** (**Fig. 4**).
- Move the tool forward until the reference notch matches the external edge of the rim coincide at about 5 mm (0.2") from the rim itself.
- Move to work position **C** (**Fig. 4**).
- From the external side of the wheel, check the exact position of the tool and, if necessary, correct it. Then, turn the chuck clockwise up to the clamp reaches the lowest point ("6 o'clock"). The first bead should now be inserted in the rim.
- Remove clamp.
- Move to work position **D** (**Fig. 4**).
- Extract the tool from the tyre.
- Place the tool holder arm in "out of work" position (**Fig. 15 ref. 1**); translate it to the outer side of the tyre and hook it again into "working" position (**Fig. 14 ref. 1**).
- Carry out the tool head 180° rotation until the hook tool is moved onto the tyre side (see **Fig. 20**).
- Mount clamp in the lowest point ("6 o'clock") outside the second bead.
- Move to work position **C** (**Fig. 4**).
- Turn the chuck about 90° clockwise up to clamp is at "9 o'clock".
- Move the tool forward until the axis of the reference notch matches that of the external edge of the rim at about 5 mm from the rim itself (**Fig. 20**). Begin clockwise rotation making sure that, after a 90° turn, the second bead begins to slide in the rim groove. Turn the chuck until the clamp reaches the lowest point ("6 o'clock"). The second bead should now be inserted in the rim.
- Move the tool away from the wheel, turn it over into "out of work" position and remove the clamp.
- Lower the chuck until the wheel rests on the foot-board.
- Move to work position **A** (**Fig. 4**).
- Close the chuck clamps completely, making sure the wheel is held up to avoid dropping.

**MAKE SURE THAT THE WHEEL'S HOLD IS SECURE TO AVOID IT FALLING DURING REMOVAL. FOR HEAVY AND/OR VERY LARGE WHEELS USE AN ADEQUATE LIFTING DEVICE.**

## *12.7 Tyres with inner pipe*

### *12.7.1 Bead breaking*

**REMOVE THE LOCK NUT OF THE INNER PIPE VALVE TO ALLOW ITS EXTRACTION DURING TYRE REMOVAL PHASES; REMOVE THE NUT WHEN DEFLATING THE TYRE.**

The beading procedure is the same one described for tubeless tyres.

**WHEN BEADING WHEELS WITH INNER PIPES, INTERRUPT THE FORWARD MOVEMENT OF THE BEAD BREAKING DISC AS SOON AS THE BEADS HAVE BEEN DISLODGED TO AVOID DAMAGE TO THE INNER PIPE OR TO THE VALVE.**

### *12.7.2 Demounting*

**THROUGHOUT TYRE MOUNTING/DEMOUNTING OPERATIONS, CHECK THAT THE SELF-CENTRING CHUCK CLAMPING PRESSURE IS CLOSE TO THE MAX. OPERATING VALUE (160 - 180 BAR / 2320 - 2610 PSI).**

- Tilt up tool holder arm, unhook it and lift it placing it in "off-work" position (**Fig. 15 ref. 1**); use the handle control to position the tool holder arm on the outer side of the wheel then place it in work position (**Fig. 14 ref. 1**) and secure with the safety hook provided (**Fig. 1 ref. 8**).

**PAY ATTENTION WHEN REPOSITIONING THE TOOLS HOLDER ARM TO AVOID CRUSHING HANDS.**

**ALWAYS MAKE SURE THAT THE ARM IS CORRECTLY HOOKED TO CARRIAGE.**

- Carry out the tools holder head 180° rotation, according to the descriptions in the relevant paragraph, in order to insert the hook between the rim edge and the tyre bead; the operation must be carried out during chuck rotation.
- Move the rim away from the tool by about 4-5 cm (1.6"- 2") to avoid possible unhooking of the bead from the same tool.
- Translate the hook tool outwards until the reference notch matches the external edge of the rim.
- Move to work position **A** (**Fig. 4**).
- Insert lever (**Fig. 27 ref. 1**) between the rim and the bead on the right-hand side of the tool.

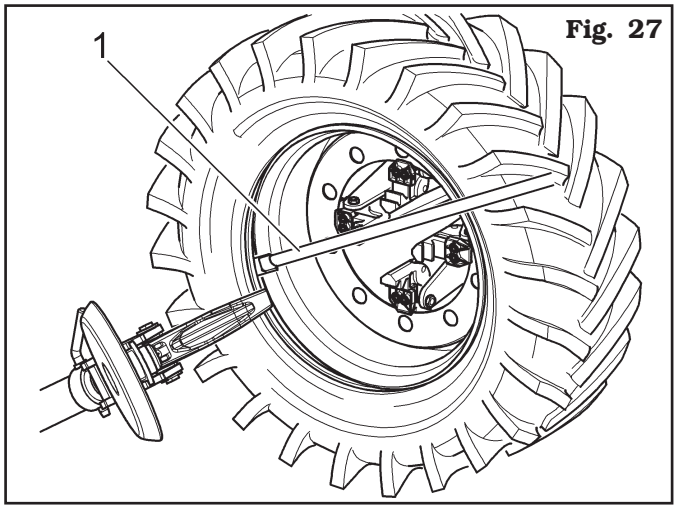



**Fig. 27**

- Keeping the lever pressed lower the wheel until the edge of the rim is 5 mm (0.2") distant from the hook tool.
- Turn the wheel clockwise by keeping lever pressed until the bead has gone completely out.
- Move the tool holder arm away in "off-work" position (**Fig. 15 ref. 1**); lower the chuck until the tyre rests on the footboard ; exert a certain pressure on it so that when the chuck is moved slightly backwards, this will create the space required to extract the inner pipe.
- Extract the inner pipe and lift the wheel again.
- Move to work position **D** (**Fig. 4**).
- Tilt up tool holder arm, unhook it and lift it placing it in "off-work" position (**Fig. 15 ref. 1**); use the handle control to position the tool holder arm on the inner side of the wheel then place it in work position (**Fig. 14 ref. 1**) and secure with the safety hook provided (**Fig. 1 ref. 8**).
- Carry out the tools holder head 180° rotation, according to the descriptions in the relevant paragraph, in order to insert the hook between the rim edge and the tyre bead; the operation must be carried out during chuck rotation.
- Move the rim away from the tool by about 4-5 cm (1.6"- 2") to avoid possible unhooking of the bead from the same tool.
- Move to work position **A** (**Fig. 4**).
- Translate the hook tool outwards until the reference notch is 3 cm inside the rim.
- Insert the lever (**Fig. 28 ref. 1**) between rim (**Fig. 28 ref. 2**) and bead (**Fig. 28 ref. 3**) on the tool right.

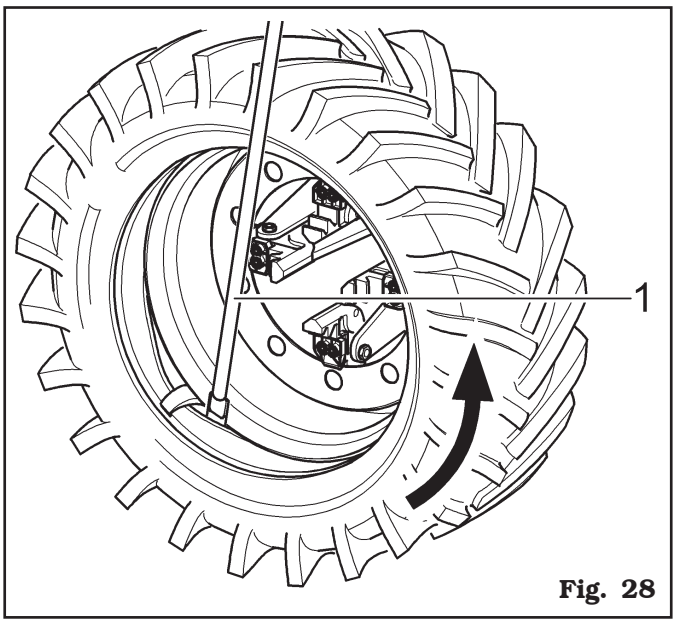



**Fig. 28**

- Keeping the lever pressed, lower the wheel until the edge of the rim is approximately 5 mm (0.2") distant from the hook tool then turn the chuck counterclockwise keeping the lever (**Fig. 28 ref. 1**) pressed until the tyre has been completely dislodged from the rim.

**THE REMOVAL OF THE BEADS FROM THE RIM CAUSES THE TYRE TO FALL. ALWAYS MAKE SURE THAT NO ONE IS STANDING BY ACCIDENT IN THE WORK AREA.**

**WHEN DEMOUNTING VERY HEAVY TYRES, IT IS IMPORTANT TO MOVE THE WHEEL AS CLOSE AS POSSIBLE TO THE BASE BEFORE COMPLETING THE OPERATION.**

### *12.7.3 Mounting*

**THROUGHOUT TYRE MOUNTING/DEMOUNTING OPERATIONS, CHECK THAT THE SELF-CENTRING CHUCK CLAMPING PRESSURE IS CLOSE TO THE MAX. OPERATING VALUE (160 - 180 BAR / 2320 - 2610 PSI).**

- Secure the rim to the chuck according to the procedure described in paragraph "WHEEL CLAMPING".
- Adequately lubricate tyre beads and rim bead seats with a suitable lubricant using the supplied brush.

**USE ONLY TYRE LUBRICANTS. SUITABLE LUBRICANTS CONTAIN NO WATER, HYDROCARBONS, OR SILICONE.**

- Mount clamp (**Fig. 23 ref. 1**) on the external edge of the rim in the highest point as shown in **Fig. 23**.

**THE CLAMP MUST BE TIGHTLY SECURED TO THE EDGE OF THE RIM.**

- Move to work position **B** (**Fig. 4**).
- Position the tyre on the footboard and lower the chuck (make sure the clamp is at the highest point) to hook the first tyre bead (internal bead).
- Lift the chuck arm with the tyre hooked and turn it counterclockwise about 15-20 cm (5.9"- 7.9"); the tyre will position itself sideways with respect to the rim.
- Tilt up tool holder arm, unhook it and lift it placing it in "off-work" position (**Fig. 15 ref. 1**); use the handle control to position the tool holder arm on the inner side of the wheel then place it in work position "(**Fig. 14 ref. 1**) and secure with the safety hook provided.

**PAY ATTENTION WHEN REPOSITIONING THE TOOLS HOLDER ARM TO AVOID CRUSHING HANDS.**

**ALWAYS MAKE SURE THAT THE ARM IS CORRECTLY HOOKED TO CARRIAGE.**

- Carry out the tools holder head 180° rotation, according to the descriptions in the relevant paragraph, in order to insert the hook between the rim edge and the tyre bead; the operation must be carried out during chuck rotation.
- Move to work position **D** (**Fig. 4**).
- Move the tool forward until the axis of the reference notch matches that of the external edge of the rim at about 5 mm (0.2") from the rim itself (see **Fig. 29**).

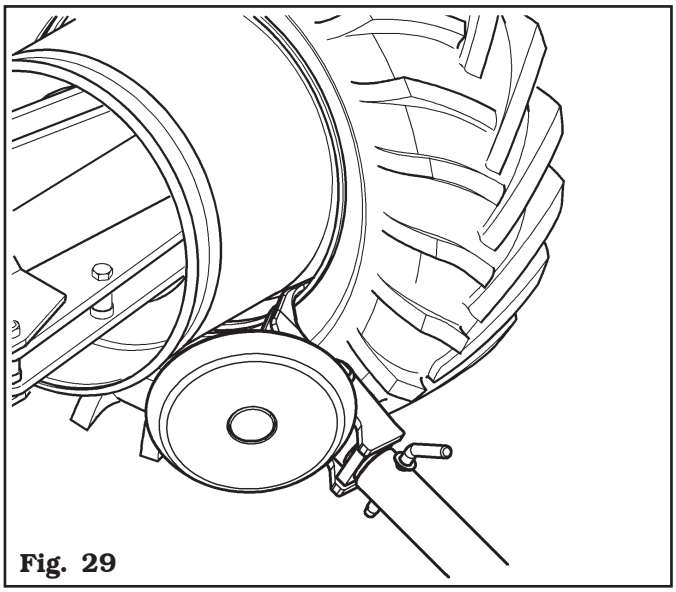


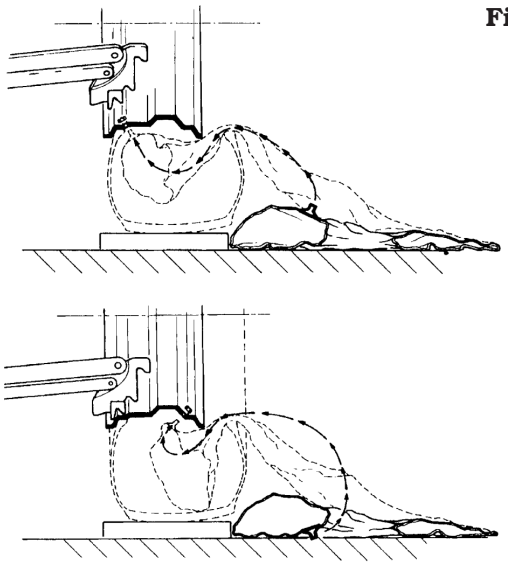
**Fig. 29**

- Move to work position **C** (**Fig. 4**).
- From the external side of the wheel, check the exact position of the tool and, if necessary, correct it, then, turn the chuck clockwise until the clamp reaches the lowest point ("6 o'clock"). The first bead should now be inserted in the rim, then remove clamp.

- Move to work position **D** (**Fig. 4**).
- Extract the tool hook from the tyre.
- Place the tools holder arm in "out of work" position (**Fig. 15 ref. 1**) and translate it to the outer side of the tyre.
- Carry out the tools holder head 180° rotation, according to the descriptions in the relevant paragraph.
- Move to work position **B** (**Fig. 4**).
- Turn the chuck to position the hole to insert the valve downward ("6 o'clock").
- Lower the chuck until the wheel rests on the footboard. Move the chuck backward to create the necessary space between tyre edge and rim for the introduction of the inner pipe.

**THE VALVE HOLE COULD BE IN AN ASYMMETRIC POSITION WITH RESPECT TO THE CENTRE OF THE RIM. IN THIS CASE IT IS NECESSARY TO POSITION AND INTRODUCE THE INNER PIPE AS SHOWN IN FIG. 30.**

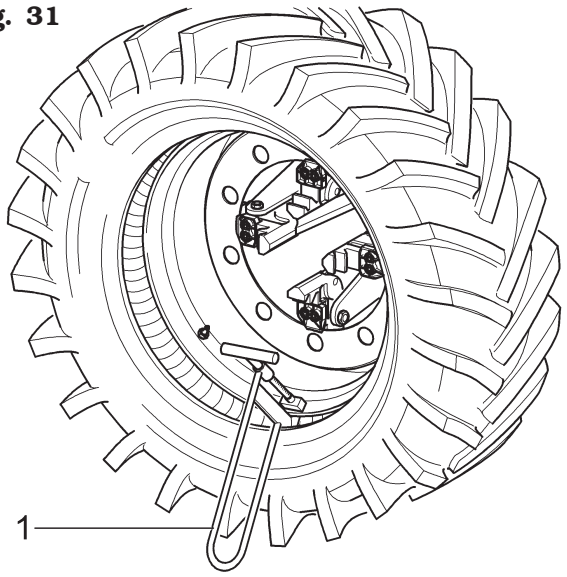
**Fig. 30**



Introduce the valve in the hole and secure it with the provided ring nut. Introduce the inner pipe in the central groove of the rim (to make this operation easier, it is advisable to simultaneously turn the chuck clockwise).

- Turn the chuck and position the valve downwards ("6 o'clock").
- To avoid damaging the inner pipe, slightly inflate it when inserting the second bead.
- To avoid damaging the valve when securing the second bead, remove the fixing ring nut and mount an extension on the same valve.
- Move to work position **C** (**Fig. 4**).
- Lift the chuck and mount the clamp (**Fig. 31 ref. 1**) on the rim outside the second bead at about 20 cm (7.9" from the inflating valve on the right.
- Turn the chuck clockwise until clamp (**Fig. 31 ref. 1**) is positioned at "9 o'clock".

**Fig. 31**




- Place the tool holder arm in "work position" (**Fig. 14 ref. 1**) on the outer side of the tyre.
- Place the hook tool in work position and bring the tool holder arm forward until the axis of the reference notch matches that of the outer edge of the rim at a distance of 5 mm (0.2").
- Turn the chuck clockwise until lever (**Fig. 32 ref. 1**) is introduced in the housing obtained on the hook tool.
- Turn the chuck with lever (**Fig. 32 ref. 1**) hooked up to the complete insertion of the tyre outer bead.
- Remove lever (**Fig. 32 ref. 1**), clamp (**Fig. 32 ref. 2**) and extract the hook tool by turning the chuck counterclockwise and translating it outwards.

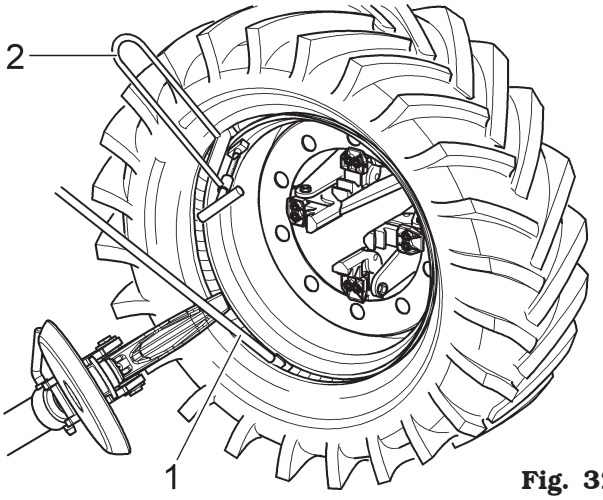



**Fig. 32**

- Tilt up tool holder arm placing it in "out of work" position (**Fig. 15 ref. 1**) after it has been unhooked.
- Lower the chuck until the wheel rests on the footboard.
- Move to work position **B** (**Fig. 4**).
- Check the condition of the tyre valve and centre it in the rim hole if necessary, by slightly turning the chuck; secure the valve with the supplied ring nut after removing the protective extension.
- Close the chuck clamps completely, making sure the wheel is held up to avoid dropping.

**MAKE SURE THAT THE WHEEL'S HOLD IS SECURE TO AVOID IT FALLING DURING REMOVAL. FOR HEAVY AND/OR VERY LARGE WHEELS USE AN ADEQUATE LIFTING DEVICE.**

- Translate the platform to release the wheel from the chuck.

## *12.8 Wheels with bead wire*

As an example **Fig. 33** and **Fig. 34** illustrate sections and compositions of types of wheels with bead wire currently being sold.

**Fig. 33**

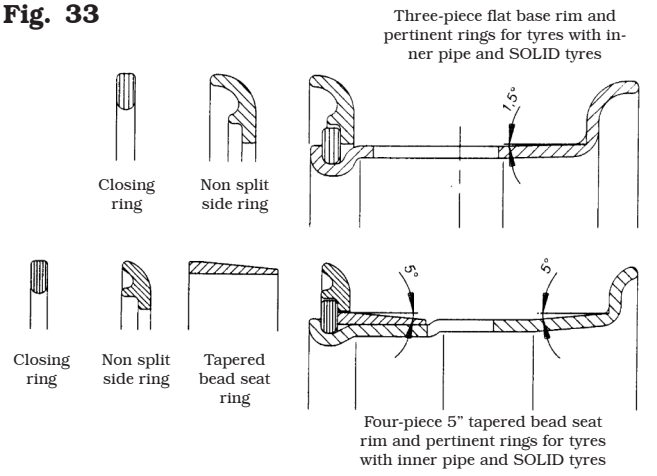
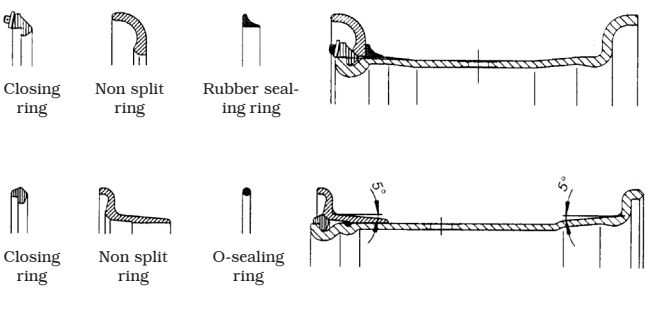



**Fig. 34**



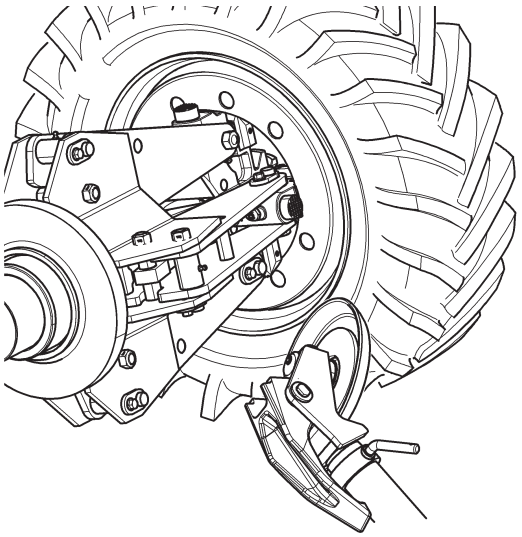

### *12.8.1 Beading and demounting*

**NEVER STAND IN FRONT OF THE WHEEL WHILE THE INFLATION RING IS BEING EXTRACTED FROM THE BEAD WIRE, SINCE IT MAY BE EJECTED VIOLENTLY, CAUSING SERIOUS INJURIES OR WOUNDS.**

**THROUGHOUT TYRE MOUNTING/DEMOUNTING OPERATIONS, CHECK THAT THE SELF-CENTRING CHUCK CLAMPING PRESSURE IS CLOSE TO THE MAX. OPERATING VALUE (160 - 180 BAR / 2320 - 2610 PSI).**

- Mount the wheel on the chuck as described in "WHEEL CLAMPING" and make sure it is deflated.
- Move to work position **D** (**Fig. 4**).
- Place the tool arm in "work position" (**Fig. 14 ref. 1**) in the tyre inner side, and make sure it is locked by the provided safety stop (**Fig. 1 ref. 8**).
- Position the bead breaking disc on rim edge (see **Fig. 35**).

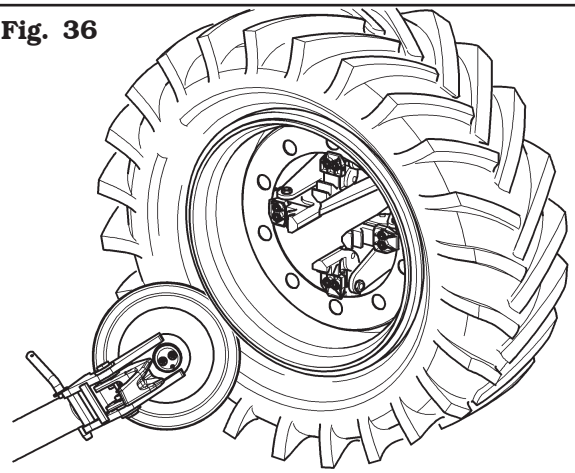
**Fig. 35**



- Turn the chuck and smear the entire bead seat of the rim with lubricant. While doing this, jerk the bead breaking disc forward until the first bead is removed (as these wheels feature inner pipes, carry out the operation carefully, paying special attention to when the bead dislodges, trying to stop disc advance immediately to avoid compromising the integrity of the inner pipe and valve).
- Place the tools holder arm in "out of work" position (**Fig. 15 ref. 1**), operate the handle control in order to position the tools holder arm on the wheel outer side, then place it in "working" position (**Fig. 14 ref. 1**) again and lock it with the safety hook provided.

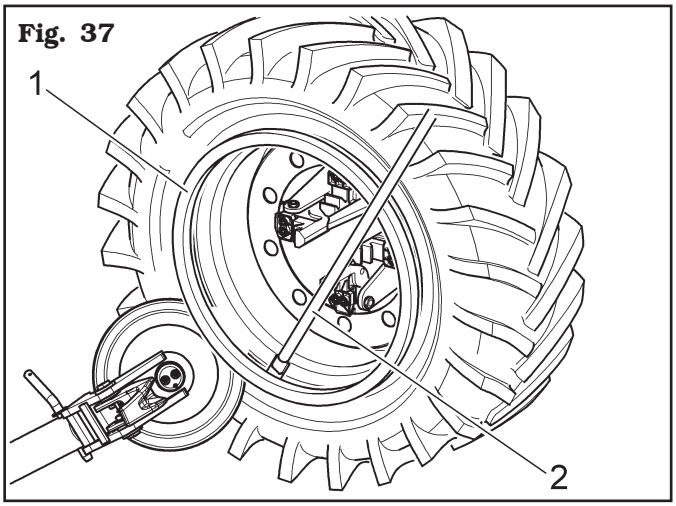
- Carry out tools holder head 180° rotation according to the description of the relevant paragraph, in order to let the bead breaking disc come into contact with the tyre outer side (see Fig. 36).

**Fig. 36**



- Turn the chuck and smear the entire bead seat of the rim with lubricant.
- While doing this, jerk the bead breaking disc forward until bead is removed.
- Repeat the operation, making the bead breaking disc move forward against the bead wire (see **Fig. 37**) up to the stop ring is released (**Fig. 37 ref. 1**). It will be then extracted through lever (**Fig. 37 ref. 2**).

**Fig. 37**




- Remove the bead wire.
- Remove the O-Ring, when featured.
- Tilt up tool holder arm placing it in "out of work" position (**Fig. 15 ref. 1**) after it has been unhooked.
- Lower the chuck until the wheel rests on the footboard.
- Move to work position **B** (**Fig. 4**).
- Move the chuck backward until the tyre is completely dislodged from the rim (in case of tyres with inner pipe, make sure the valve hasn't been damaged during removal).

**THE REMOVAL OF THE BEADS FROM THE RIM CAUSES THE TYRE TO FALL. ALWAYS MAKE SURE THAT NO ONE IS STANDING BY ACCIDENT IN THE WORK AREA.**

**WHEN DEMOUNTING VERY HEAVY TYRES, IT IS IMPORTANT TO MOVE THE WHEEL AS CLOSE AS POSSIBLE TO THE BASE BEFORE COMPLETING THE OPERATION.**

**PAY ATTENTION WHEN REPOSITIONING THE TOOLS HOLDER ARM TO AVOID CRUSHING HANDS.**

**ALWAYS MAKE SURE THAT THE ARM IS CORRECTLY HOOKED TO CARRIAGE.**

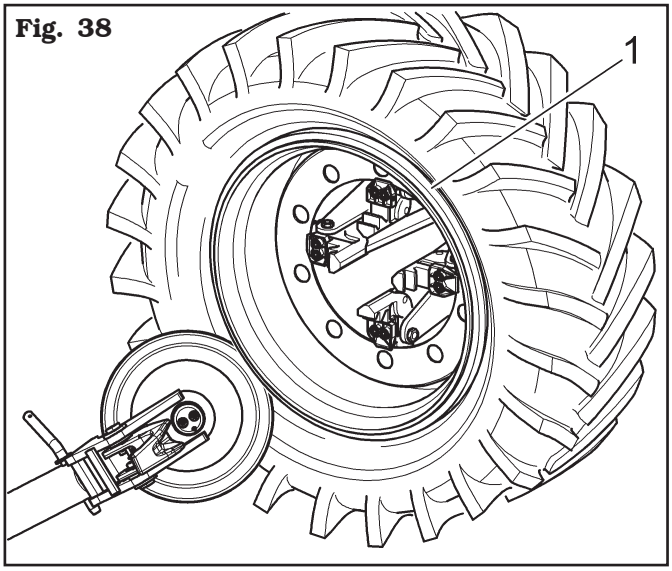
### *12.8.2 Mounting*

**THROUGHOUT TYRE MOUNTING/DEMOUNTING OPERATIONS, CHECK THAT THE SELF-CENTRING CHUCK CLAMPING PRESSURE IS CLOSE TO THE MAX. OPERATING VALUE (160 - 180 BAR / 2320 - 2610 PSI).**

- Place the tools holder arm in off-work position (**Fig. 15 ref. 1**); if it has been removed, secure the rim to the chuck as described in "WHEEL CLAMPING" paragraph. If the wheel features an inner pipe, position the rim with the valve slot facing downwards (at "6 o'clock").
- Lubricate the entire bead seat of the rim and the tyre beads.
- Move to work position **B** (**Fig. 4**).
- Place the chuck in order to centre the rim on the tyre.
- Operate chuck forward movement in order to insert the rim in the tyre (in case of tyres with inner pipe, make the valve re-enter in order not to damage it). Move forward until the rim is completely inserted in the tyre.
- Insert the bead wire on the rim with the stop ring fitted (if the rim and bead wire feature fixing slits, they must be in phase with each other).
- Move to work position **C** (**Fig. 4**).

- Place the tools holder arm on the external side then lower it into "work position" (**Fig. 14 ref. 1**) with the bead breaking disc facing the wheel. If the outer edge ring is not sufficiently fitted on the rim, position the chuck until the bead wire is near the bead breaking disc. Move the bead breaking disc forward and then turn the chuck until the housing of the O-Ring (if featured) is found.
- Lubricated the O-Ring and place it in its housing.
- Move to work position **B** (**Fig. 4**).
- Position the bead wire (**Fig. 38 ref. 1**) on the rim, fit the stop ring with the help of the bead breaking disc as shown in **Fig. 38**.

**Fig. 38**




- Tilt up tool holder arm placing it in "out of work" position (**Fig. 15 ref. 1**) after it has been unhooked.
- Lower the chuck until the wheel rests on the footboard.
- Close the chuck clamps completely and translate the platform outwards until the rim has been completely removed, making sure the wheel is held up to avoid dropping.

**CLOSING THE CHUCK CAUSES THE WHEEL TO FALL. ALWAYS MAKE SURE THAT NO ONE IS STANDING BY ACCIDENT IN THE WORK AREA.**

## 13.0 ROUTINE MAINTENANCE

**BEFORE CARRYING OUT ANY ROUTINE MAINTENANCE OR ADJUSTMENT PROCEDURE, DISCONNECT THE EQUIPMENT FROM THE ELECTRICITY SUPPLY USING THE SOCKET/PLUG COMBINATION AND CHECK THAT ALL MOBILE PARTS ARE AT A STANDSTILL.**

**BEFORE EXECUTING ANY MAINTENANCE OPERATION, MAKE SURE THERE ARE NO WHEELS LOCKED ONTO THE CHUCK.**

**BEFORE REMOVING HYDRAULIC CIRCUIT FITTING OR PIPES, MAKE SURE THAT THERE ARE NO PRESSURISED FLUIDS PRESENT. PRESSURISED OIL SPILLS MAY CAUSE SERIOUS WOUNDS OR INJURIES.**

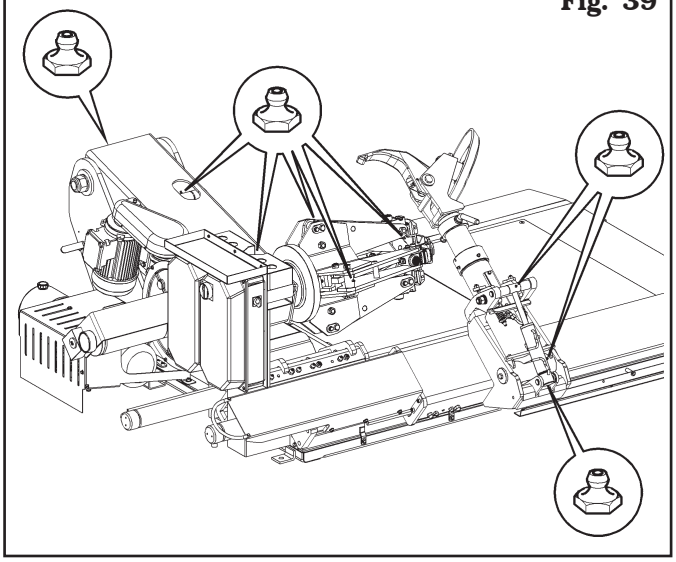
**BEFORE CARRYING OUT ANY MAINTENANCE WORK ON THE HYDRAULIC CIRCUIT, SET THE MACHINE IN THE REST CONDITION.**

To guarantee the efficiency and correct functioning of the machine, it is essential to carry out daily or weekly cleaning and weekly routine maintenance, as described below

Cleaning and routine maintenance must be conducted by authorized personnel and according to the instructions given below:

- Disconnect the equipment from the electrical and pneumatic power supplies before carrying out any cleaning operations.
- Remove deposits of tyre powder and other waste materials with a vacuum cleaner.
- **NEVER BLOW WITH COMPRESSED AIR.**
- Periodically (preferably once a month) make a complete check on the controls, ensuring that they provide the specified actions.
- Every 100 working hours lubricate the (tool and chuck) carriage sliding guides.
- Periodically (preferably once a month), grease all moving parts of the machine (see **Fig. 39**).

Fig. 39



- Check periodically the oil level of the oil-pressure unit and, in case, carry out the filling up with hydraulic oil having a viscosity degree suitable for the average temperatures of the country where the machine is installed and in particular:
  - viscosity 32 (or countries with room temperature from 0 °C ÷ +30 °C (+32 °F ÷ +86 °F);
  - viscosity 46 (for countries with room temperature above 30 degrees (+86 °F).

  At least once a year it is advisable to proceed anyway to the complete replacement of the hydraulic oil of the same oil-pressure unit.

**PERFORM THIS OPERATION ONLY WITH THE MACHINE COMPLETELY CLOSED (HYDRAULIC PISTONS EXTENDED).**

- Periodically (about every 100 hours), check the oil level of the reduction gear and eventually reset the level.
- Check operation of the safety devices every week.
- Periodically (every 50 working hours approximately), carry out the (inner and outer) guides of the tool and chuck carriages.

**A.** Place the whole support (**Fig. 40 ref. 1**) in horizontal position, then check the reduction gear oil level (**Fig. 40 ref. 2**); the level indicator window (**Fig. 40 ref. 3**) must be covered with lubricant, otherwise, remove the plug (**Fig. 40 ref. 4**) and top up using appropriate lubricants until the level is reset.

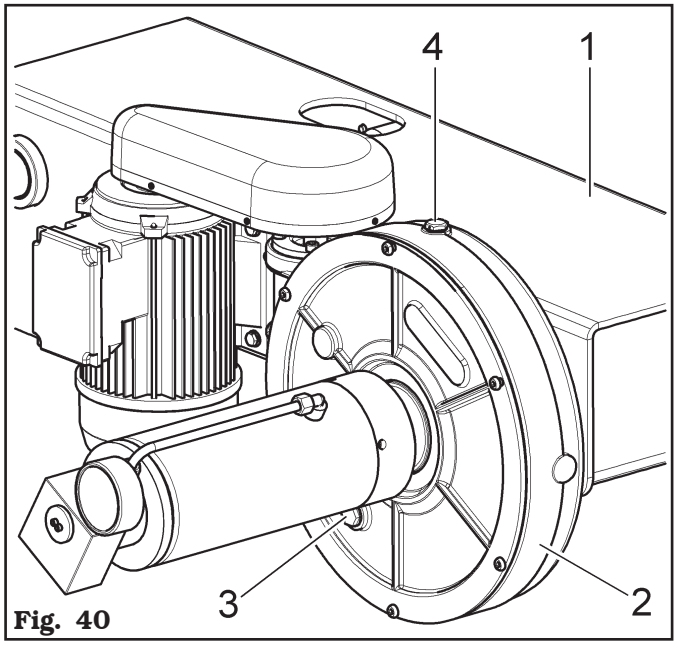
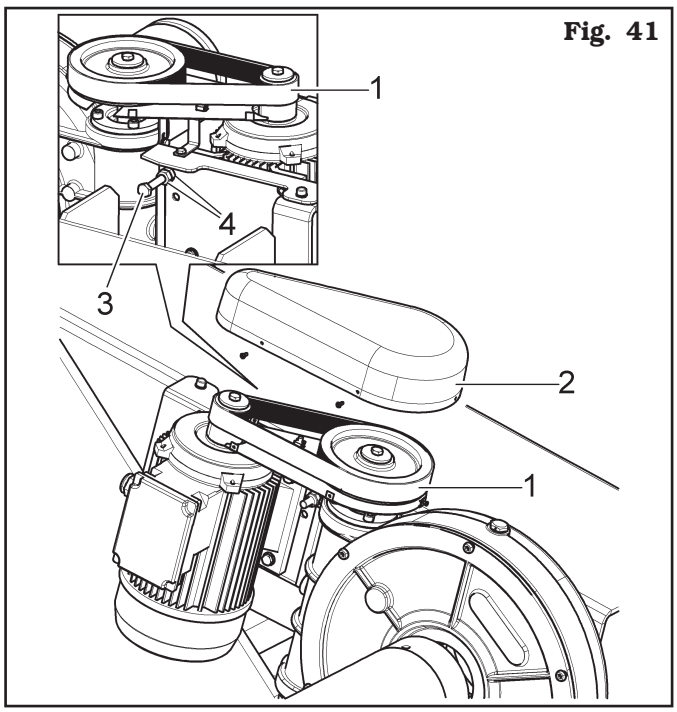



Fig. 40

**B.** Check belt tensioning (**Fig. 41 ref. 1**):

- Remove the upper guard (**Fig. 41 ref. 2**) with a screwdriver.
- Stretch the belt (**Fig. 41 ref. 1**) using the screw (**Fig. 41 ref. 3**) after the nuts (**Fig. 41 ref. 4**); have been slackened.
- Tighten the fixing nuts (**Fig. 41 ref. 4**) after the adjustment operations, then assemble the protection guard (**Fig. 41 ref. 2**) again.

Fig. 41



**C.** Check periodically and, if necessary, adjust the play of slide (**Fig. 42 ref. 1**) on guide plates (**Fig. 42 ref. 2**) by means of the adjustment bolts (**Fig. 42 ref. 3**) of sliding blocks (**Fig. 42 ref. 4**).

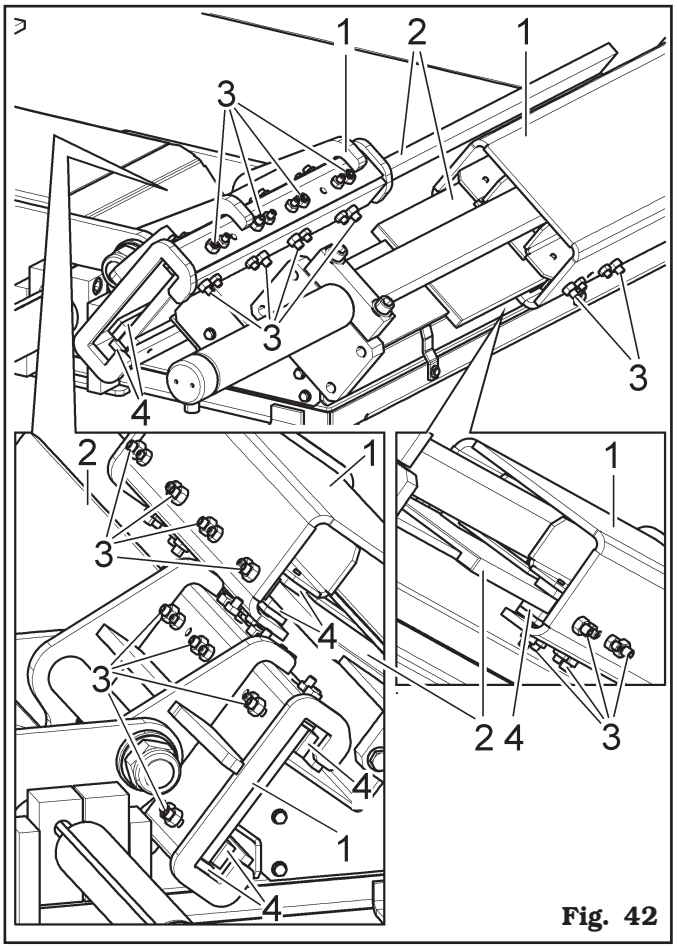



**Fig. 42**

**OPERATION TO BE CARRIED OUT ONLY IN CASE THE CARRIAGE MOVES IN A NON-LINEAR WAY (TRIGGER ACTION).**

**ANY DAMAGE TO THE MACHINE DEVICES RESULTING FROM THE USE OF LUBRICANTS OTHER THAN THOSE RECOMMENDED IN THIS MANUAL WILL RELEASE THE MANUFACTURER FROM ANY LIABILITY!!**

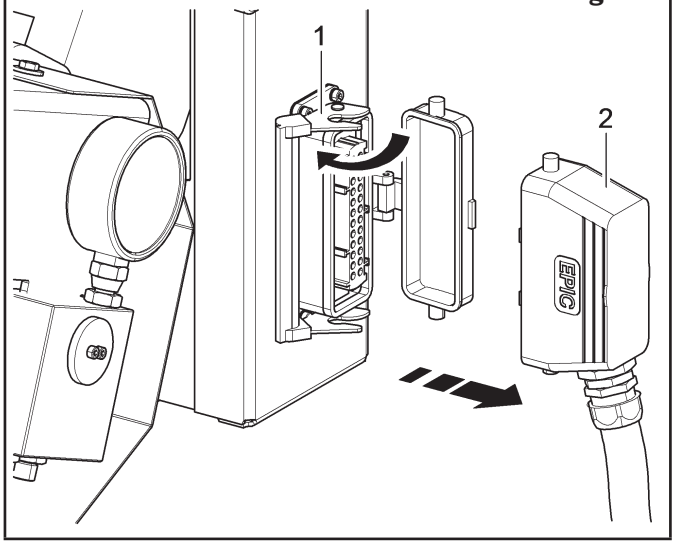
**ANY EXTRAORDINARY MAINTENANCE OPERATION MUST BE CARRIED OUT EXCLUSIVELY BY PROFESSIONALLY QUALIFIED PERSONNEL.**

## *13.1 Manipulator cable replacement*

If you need to quickly replace the manipulator cable as it is damaged, proceed as follows:

- Open the locking device (**Fig. 43 ref. 1**),
- replace the damaged cable (**Fig. 43 ref. 2**),
- secure the locking device.

**Fig. 43**



## 14.0 TROUBLESHOOTING TABLE

Possible troubles which might occur to the tyre-changer are listed below. The manufacturer disclaims all responsibility for damages to people, animals or objects due to improper operation by non-unauthorised personnel. In case of trouble, call Technical Service Department for instructions on how to service and/or adjust the machine in full safety to avoid any risk of damage to people, animals or objects.

In an emergency and before maintenance on tyre-changer, set the main switch to "0" and lock it in this position.

**CONTACT AUTHORIZED TECHNICAL SERVICE**

**do not try and service alone**

| Problem | Possible cause | Remedy |
|---|---|---|
| Pump motor does not work but wheel holder chuck motor works perfectly. | **a)** Hydraulic control unit damaged. | **a)** Call Technical Service Dept.  |
| When main switch is turned on, wheel holder chuck does not turn whereas the pump motor works. | **a)** Gearbox change-over switch damaged. | **a)** Call Technical Service Dept.  |
| Power drop during wheel holder chuck rotation. | **a)** Timing belt too loose. | **a)** Tension up the belt. |
| No pressure in the hydraulic system. | **a)** Pump damaged. | **a)** Replace pump.  |
| The chuck opening pressure does not go down. | **a)** Pressure limiting valve jammed | **a)** Download chuck (remove wheel), completely undo adjusting handle. Perform many opening and closing cycles up to jam release.  |
| The machine does not start. | **a)** No power supply.<br>**b)** Overload cutouts not set.<br>**c)** Transformer fuse blown. | **a)** Connect the power supply.<br>**b)** Set the overload cutouts.<br>**c)** Change the fuse. |
| Fluid leaks from fitting or pipeline. | **a)** Fitting not tightened correctly.<br>**b)** Pipeline cracked. | **a)** Tighten the fitting.<br>**b)** Call the after-sales service.  |
| A control device is remaining on. | **a)** The switch has broken.<br>**b)** A solenoid valve has jammed. | **a)** Call the after-sales service.<br>**b)** Call the after-sales service.  |
| The self-centring chuck cylinder is losing pressure. | **a)** The directional control valve is leaking.<br>**b)** The gaskets are worn. | **a)** Call the after-sales service.<br>**b)** Call the after-sales service.  |
| The motor stops during operation. | **a)** Overload cutout tripped. | Open the electrical cabinet and reset the overload cutout tripped. |

| Problem | Possible cause | Remedy |
|---|---|---|
| When a control device is operated the machine does not move at all. | **a)** Solenoid valve not receiving power.<br>**b)** Solenoid valve jammed.<br>**c)** Transformer fuse blown.<br>**d)** Control unit not set correctly. | **a)** Call the after-sales service.<br>**b)** Call the after-sales service.<br>**c)** Change the fuse.<br>**d)** Call the after-sales service.  |
| No pressure in hydraulic circuit. | **a)** Power unit motor turning in wrong direction.<br>**b)** Power unit pump has failed.<br>**c)** No oil in power unit tank. | **a)** Restore correct rotation direction by changing socket connection.<br>**b)** Call the after-sales service.<br>**c)** Fill power unit tank with oil  |
| Machine operates in jerks. | **a)** Not enough fluid in power unit tank.<br>**b)** Control unit switch has failed. | **a)** Top up with oil.<br>**b)** Call the after-sales service.  |

# 15.0 TECHNICAL DATA

## 15.1 Technical electrical data

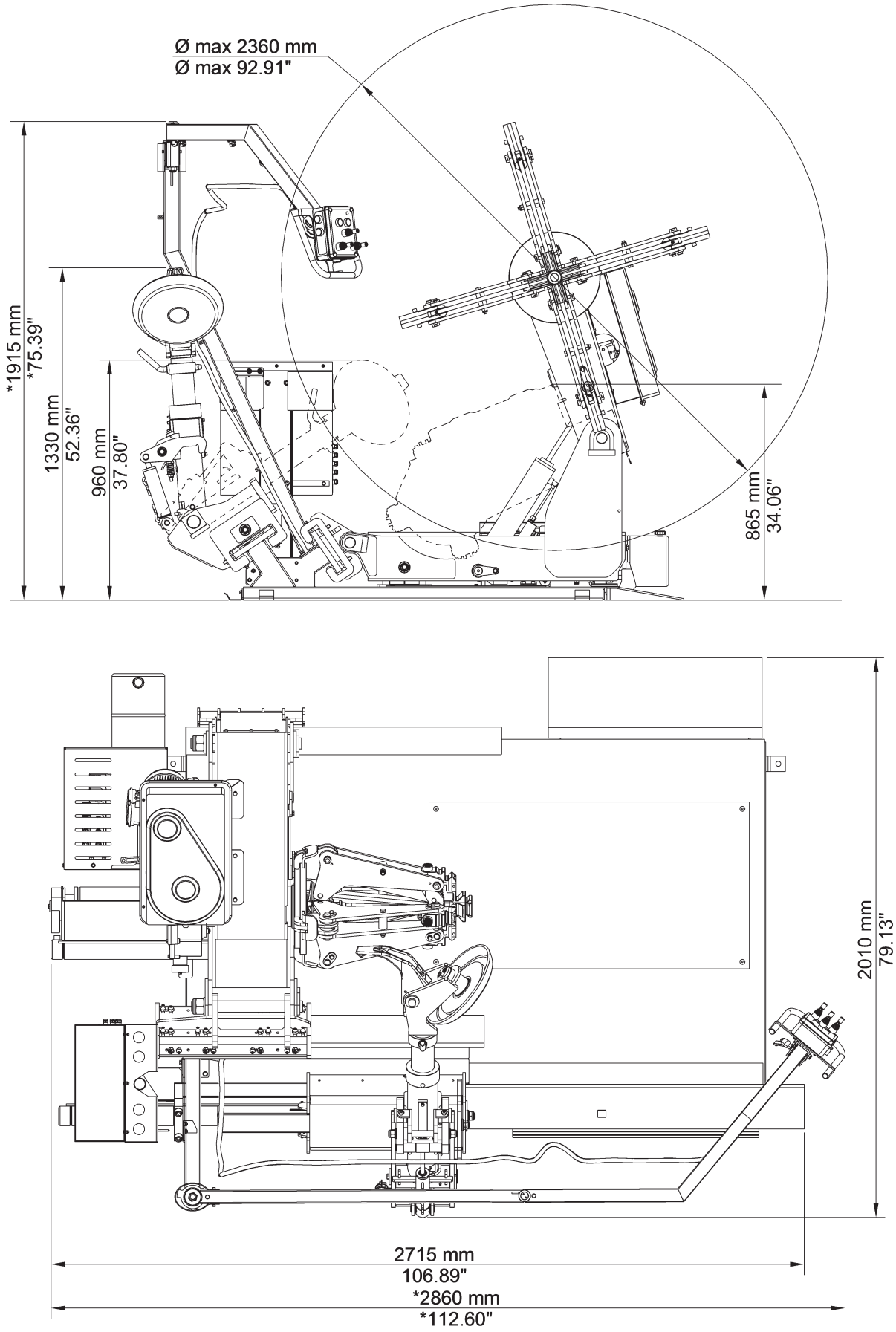
| | | NAV43 | NAV63 | Version 230V 50Hz 3Ph | Version 500V 50Hz 3Ph | Version 220V 60Hz 3Ph | Version 230V 50Hz 3Ph | Version 220V 60Hz 3Ph |
|---|---|---|---|---|---|---|---|---|
| Motor power (kW) | | 1.3-1.85 | 1.5-2.2 | 1.3-1.85 | 1.5-2.2 | | | 1.3-1.85 |
| Power supply | Voltage (V) | 400 | | 230 | 500 | 230 | | 220 |
| | Phases | 3 | | | | | | |
| | Frequency (Hz) | 50 | | | | 60 | 50 | 60 |
| Hydraulic drive unit motor (kW) | | 1.85-2.5 | | | | | | |
| Power supply | Voltage (V) | 400 | | 230 | 500 | 230 | | 220 |
| | Phases | 3 | | | | | | |
| | Frequency (Hz) | 50 | | | | 60 | 50 | 60 |
| Typical current draw (A) | | 12.5 | 13.5 | 21.5 | 11.5 | 24 | 23.5 | 22.5 |
| Self-centring chuck rotation speed (revolutions/ min) | | 4-8 | | | | | | |

## 15.2 Technical mechanical data

| | NAV43 | NAV63 |
|---|---|---|
| Maximum tyre diameter (mm) | 2360 (93”) | 2700 (106”) |
| Rim maximum diameter (inches) | 11 - 42 | |
| Max. wheel width (mm) | 1500 (59”) | |
| Max. rotation torque (Nm) | 5300 (3906 ft·lbs) | 5800 (4275 ft·lbs) |
| Max. wheel weight (kg) | 2300 (5070 lbs) | 2600 (5732 lbs) |
| Self-centring chuck clamping (inches) | 11÷ 56 (with extensions) | 11÷ 60 (with extensions) |
| Minimum locking hole (mm) | 90 (3.54”) | |
| Bead-breaking force (N) | 32000 (7194 lbf) | 37000 (8318 lbf) |
| Gear noise (dB) (A) | < 80 | |
| Operating pressure (bar) | 160 (2320 psi) | 180 (2610 psi) |
| Weight (Kg) | 1150 (2536 lbs) | 1400 (3087 lbs) |

**NAV43**

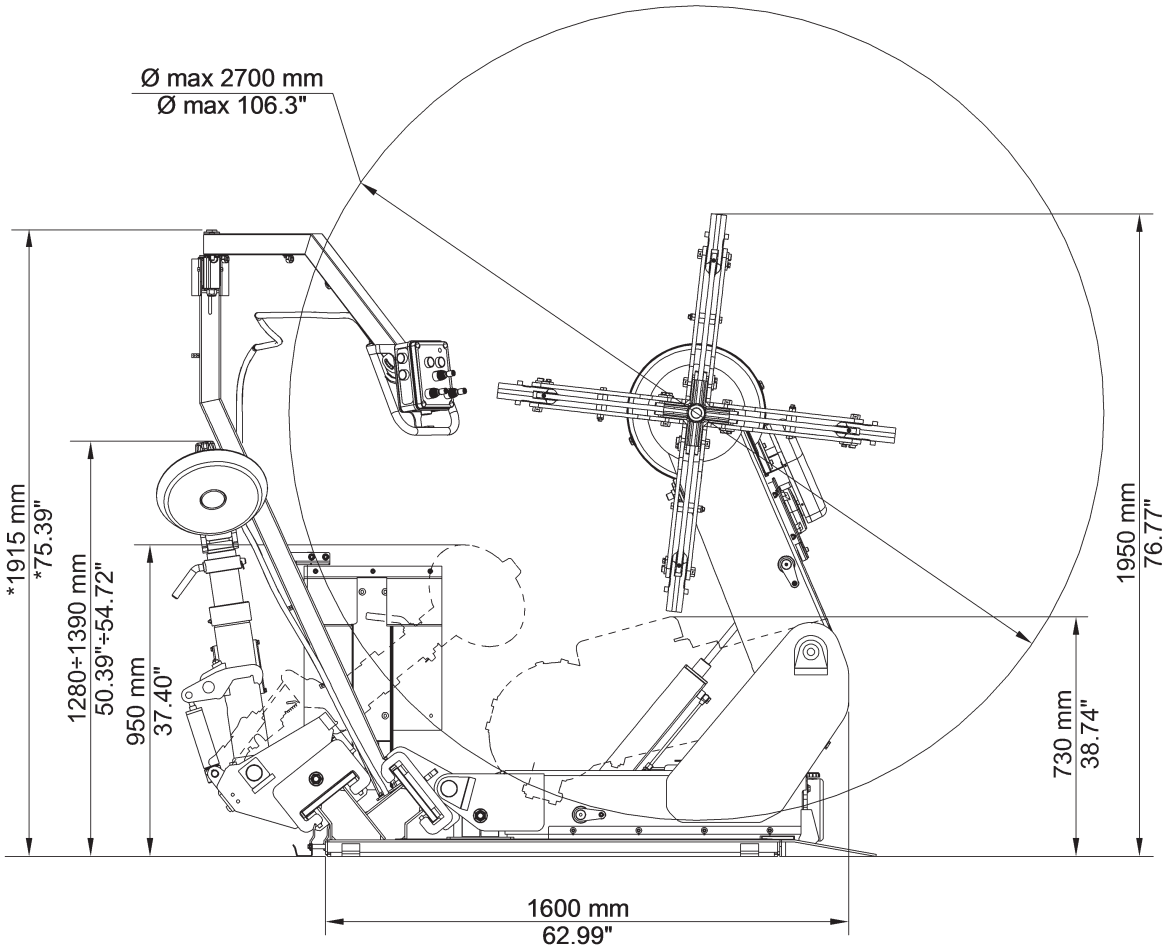
**Fig. 44**

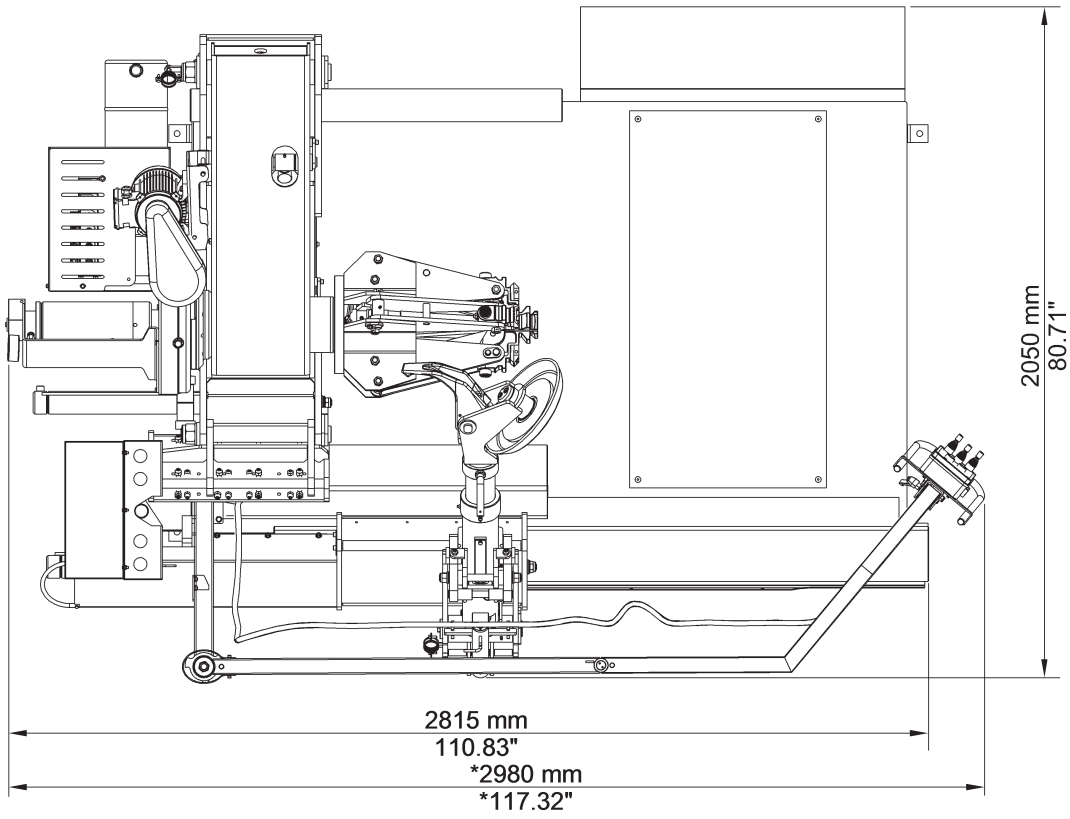



* Apply to versions with aerial control

**NAV63**

**Fig. 45**




* Apply to versions with aerial control

## 16.0 STORING

If storing for long periods (6 months or longer) disconnect the main power supply and take measures to protect the machine from dust build-up. Lubricate parts that could be damaged from drying out. When putting the machine back into operation replace the rubber pads and the mounting tool. Moreover, carry out a verification of machine perfect functioning.

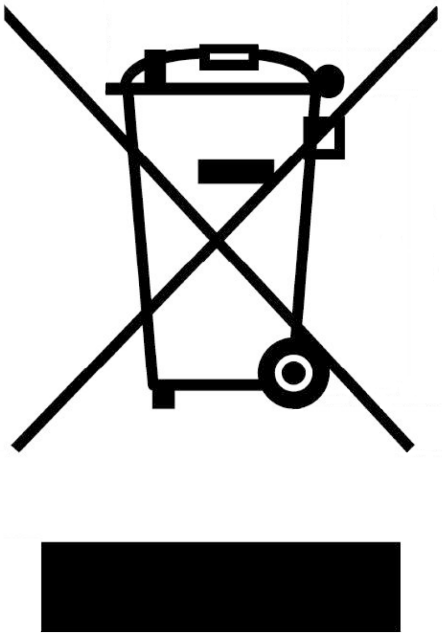
## 17.0 SCRAPPING

When the decision is taken not to make further use of the machine, it is advisable to make it inoperative by removing the connection pressure pipes. The machine is to be considered as special waste and should be dismantled into homogeneous parts. Dispose of it in accordance with current legislation.

***Instructions for the correct management of waste from electric and electronic equipment (WEEE) according to the Italian legislative decree 49/14 and subsequent amendments.***

In order to inform the users on the correct way to dispose the product (as required by the article 26, paragraph 1 of the Italian legislative decree 49/14 and subsequent amendments), we communicate what follows: the meaning of the crossed dustbin symbol reported on the equipment indicates that the product must not be thrown among the undifferentiated rubbish (that is to say together with the "mixed urban waste"), but it has to be managed separately, to let the WEEE go through special operations for their reuse or treatment, in order to remove and dispose safely the waste that could be dangerous for the environment and to extract and recycle the raw materials to be reused.

**Fig. 46**



## 18.0 REGISTRATION PLATE DATA

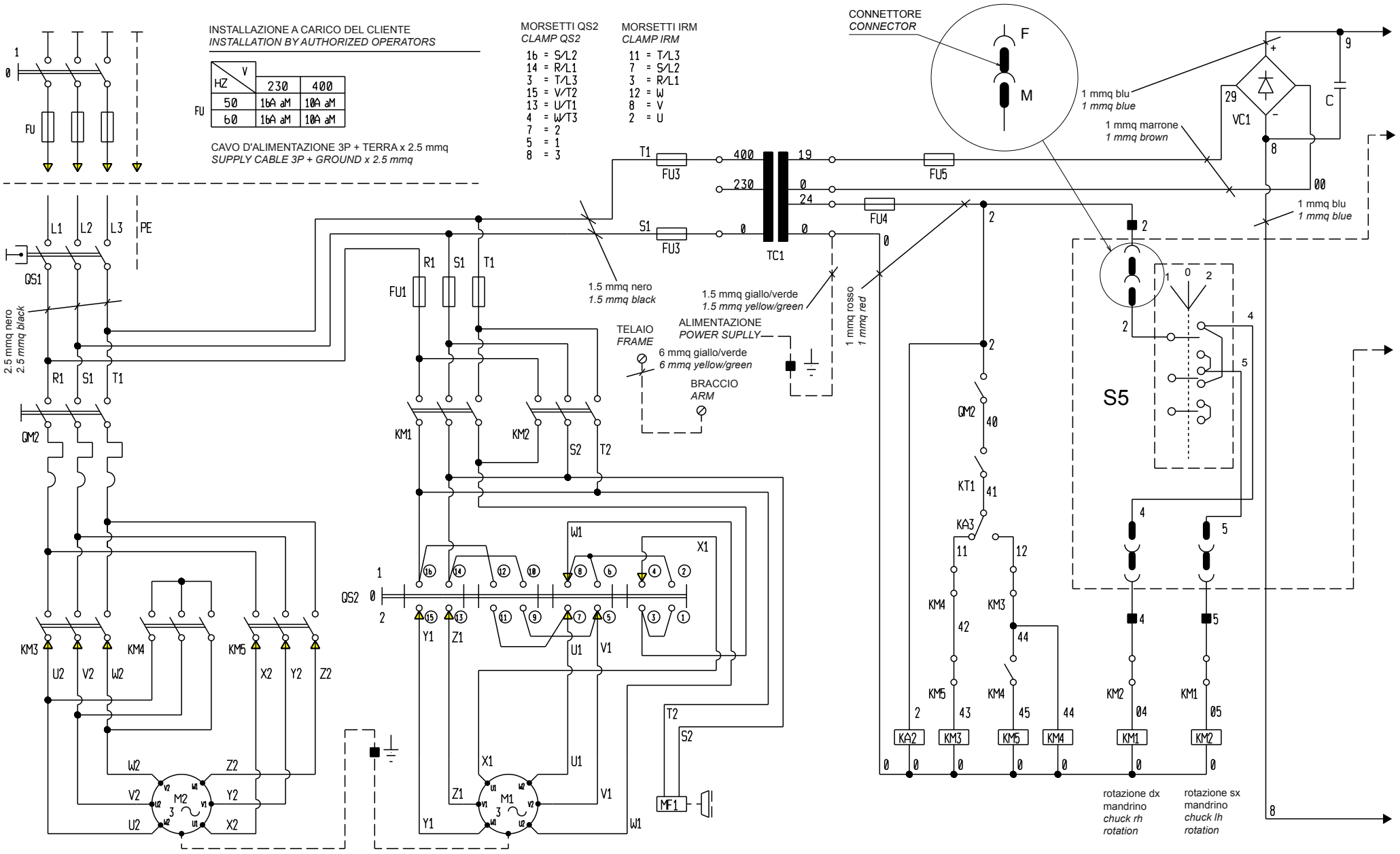

**The validity of the Conformity Declaration enclosed to this manual is also extended to products and/or devices the machine model object of the Conformity Declaration can be equipped with.**
**Said plate must always be kept clean from grease residues or filth generally.**

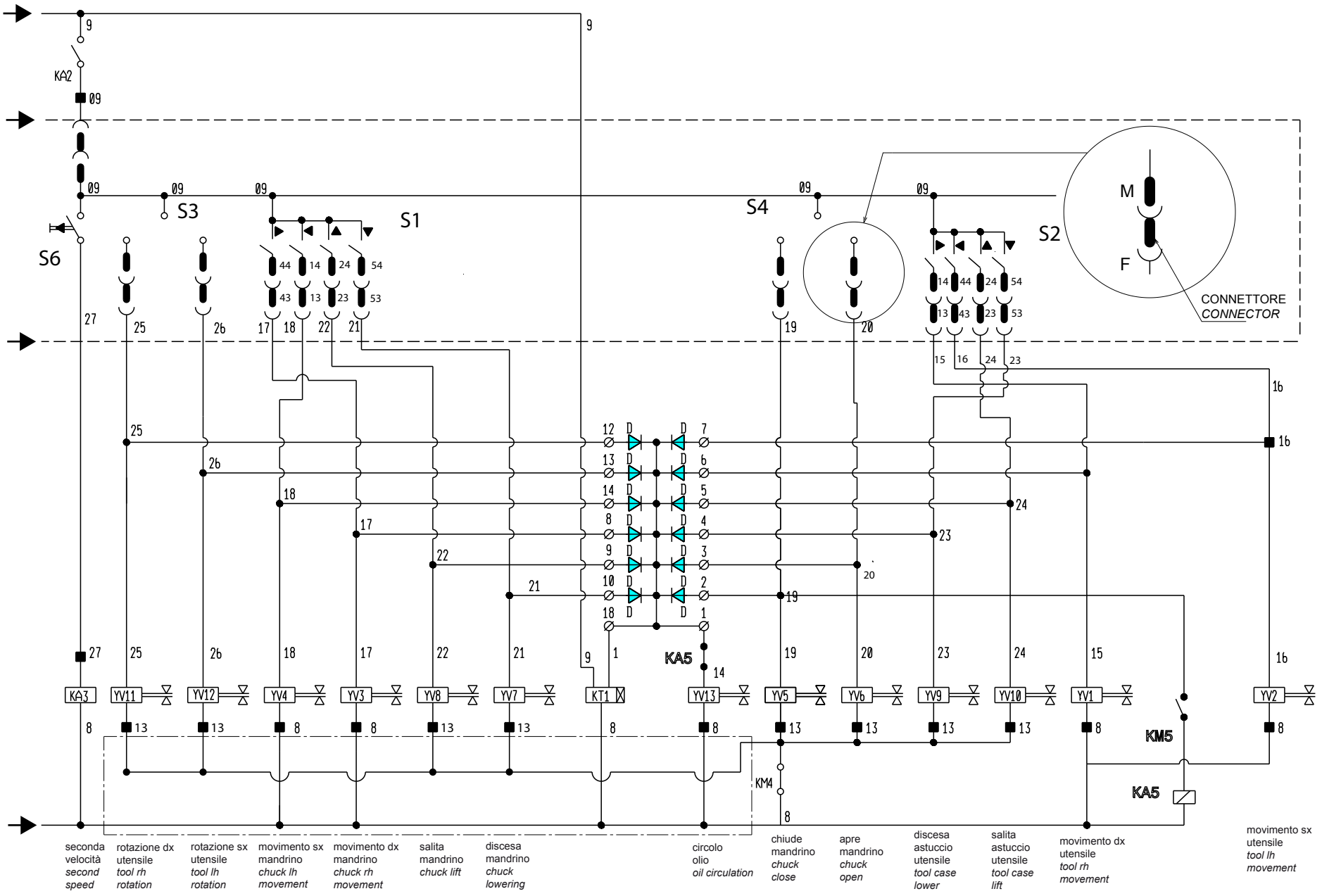
**ATTENTION: TAMPERING WITH, CARVING, CHANGING ANYHOW OR EVEN REMOVING MACHINE IDENTIFICATION PLATE IS ABSOLUTELY FORBIDDEN; DO NOT COVER IT WITH TEMPORARY PANELS, ETC., SINCE IT MUST ALWAYS BE VISIBLE.**

*WARNING: Should the plate be accidentally damaged (removed from the machine, damaged or even partially illegible) inform immediately the manufacturer.*

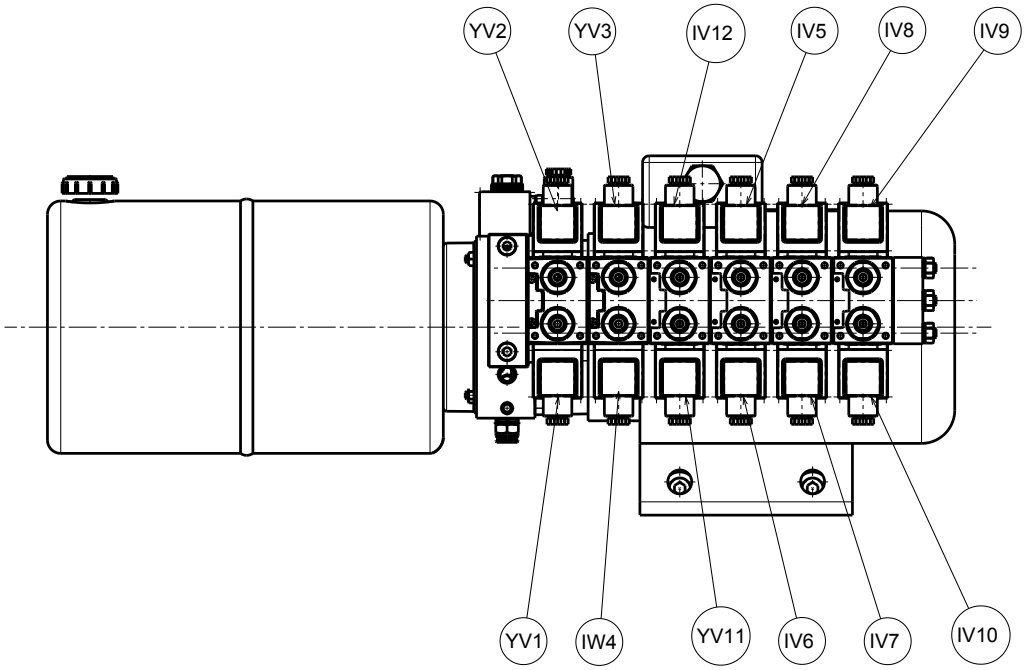
## 19.0 FUNCTIONAL DIAGRAMS

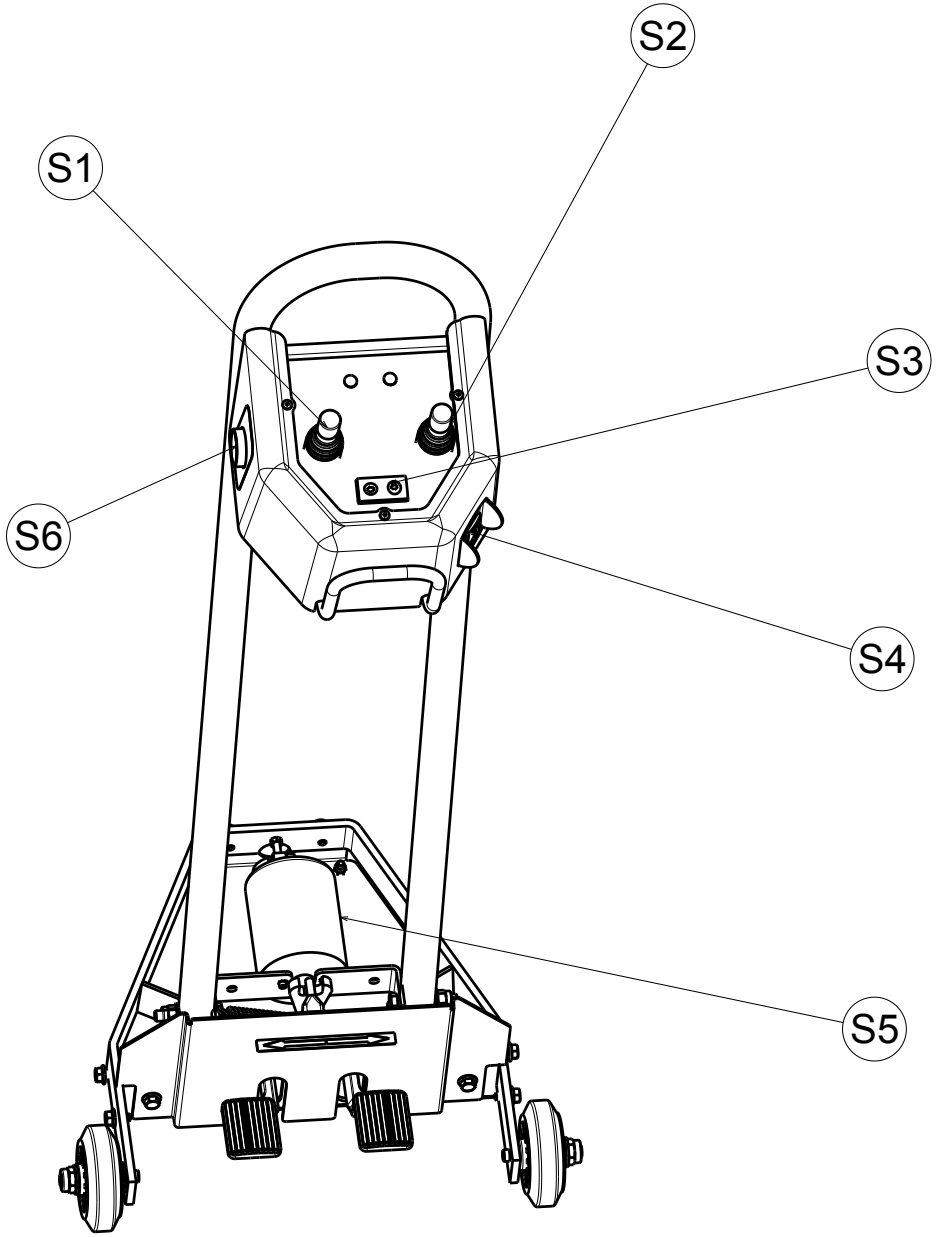
Here follows a list of the machine functional diagrams.


INSTALLAZIONE A CARICO DEL CLIENTE
INSTALLATION BY AUTHORIZED OPERATORS
V
HZ
230
400
50
16A aM
10A aM
60
16A aM
10A aM
FU
CAVO D'ALIMENTAZIONE 3P + TERRA x 2.5 mmq
SUPPLY CABLE 3P + GROUND x 2.5 mmq
MORSETTI QS2
CLAMP QS2
16 = S/L2
14 = R/L1
3 = T/L3
15 = V/T2
13 = U/T1
4 = W/T3
7 = 2
5 = 1
8 = 3
MORSETTI IRM
CLAMP IRM
11 = T/L3
7 = S/L2
3 = R/L1
12 = W
8 = V
2 = U
CONNETTORE
CONNECTOR
F
M
1 mmq blu
1 mmq blue
1 mmq marrone
1 mmq brown
VC1
C
L1
L2
L3
PE
QS1
2.5 mmq nero
2.5 mmq black
R1
S1
T1
FU1
FU3
FU4
FU5
TC1
400
230
24
19
1.5 mmq nero
1.5 mmq black
1.5 mmq giallo/verde
1.5 mmq yellow/green
1 mmq rosso
1 mmq red
TELAIO
FRAME
ALIMENTAZIONE
POWER SUPLLY
6 mmq giallo/verde
6 mmq yellow/green
BRACCIO
ARM
QM2
KM1
KM2
KM3
KM4
KM5
KT1
KA3
KA2
S2
T2
W1
X1
U1
V1
Y1
Z1
U2
V2
W2
X2
Y2
Z2
QS2
M1
M2
MF1
S5
rotazione dx
mandrino
chuck rh
rotation
rotazione sx
mandrino
chuck lh
rotation

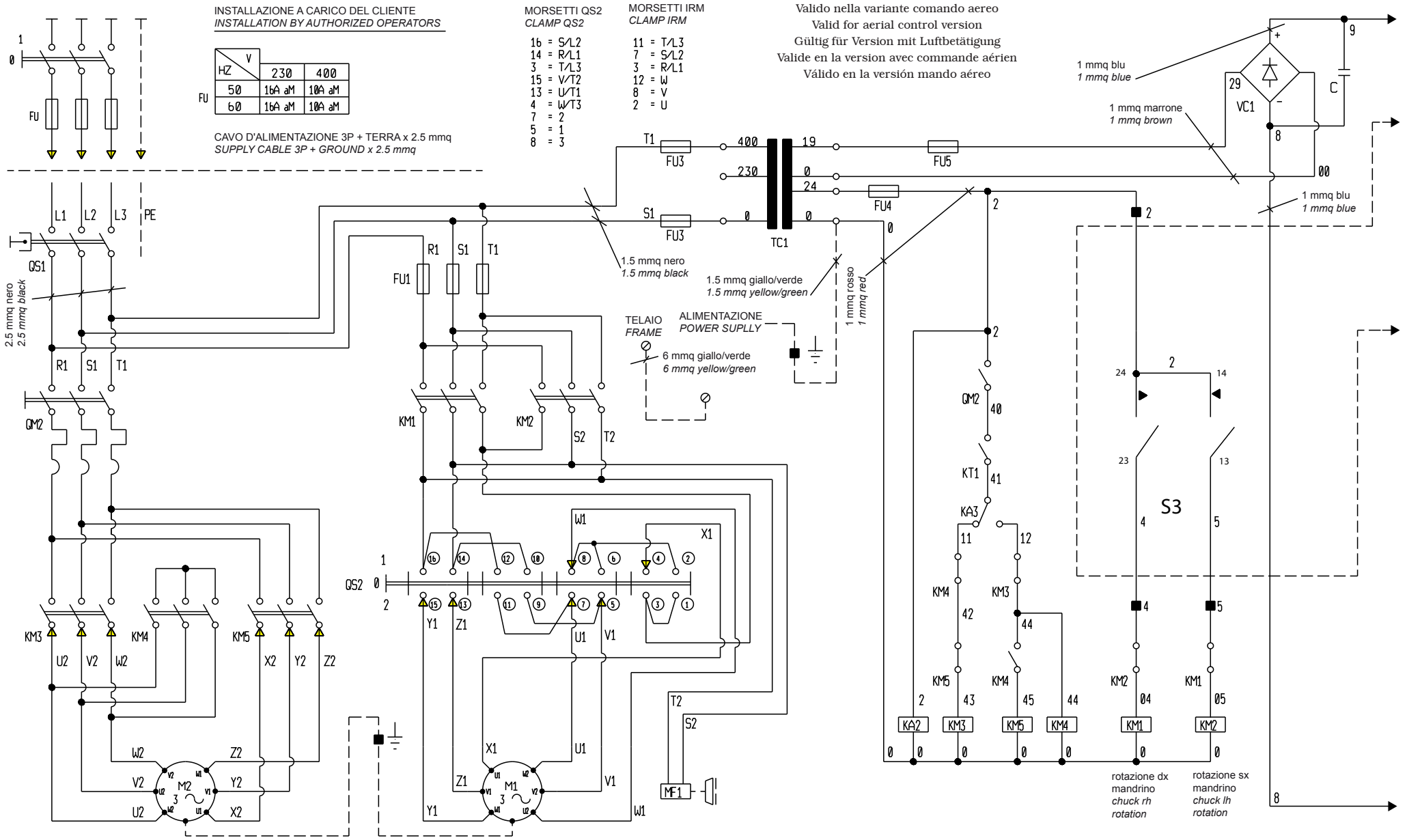

KA2
S6
S3
S1
S4
S2
M
F
CONNETTORE
CONNECTOR
KA5
KM4
KM5
KA3
YV11
YV12
YV4
YV3
YV8
YV7
KT1
YV13
YV5
YV6
YV9
YV10
YV1
YV2
seconda velocità second speed
rotazione dx utensile tool rh rotation
rotazione sx utensile tool lh rotation
movimento sx mandrino chuck lh movement
movimento dx mandrino chuck rh movement
salita mandrino chuck lift
discesa mandrino chuck lowering
circolo olio oil circulation
chiude mandrino chuck close
apre mandrino chuck open
discesa astuccio utensile tool case lower
salita astuccio utensile tool case lift
movimento dx utensile tool rh movement
movimento sx utensile tool lh movement

| | CODICE CENTRALINA<br>*HYDRAULIC POWER UNIT CODE* |
|---|---|
| MACCHINE NAV63/ *NAV63 MACHINE* | 752292610 |
| MACCHINE NAV43/ *NAV43 MACHINE* | 752290510 |



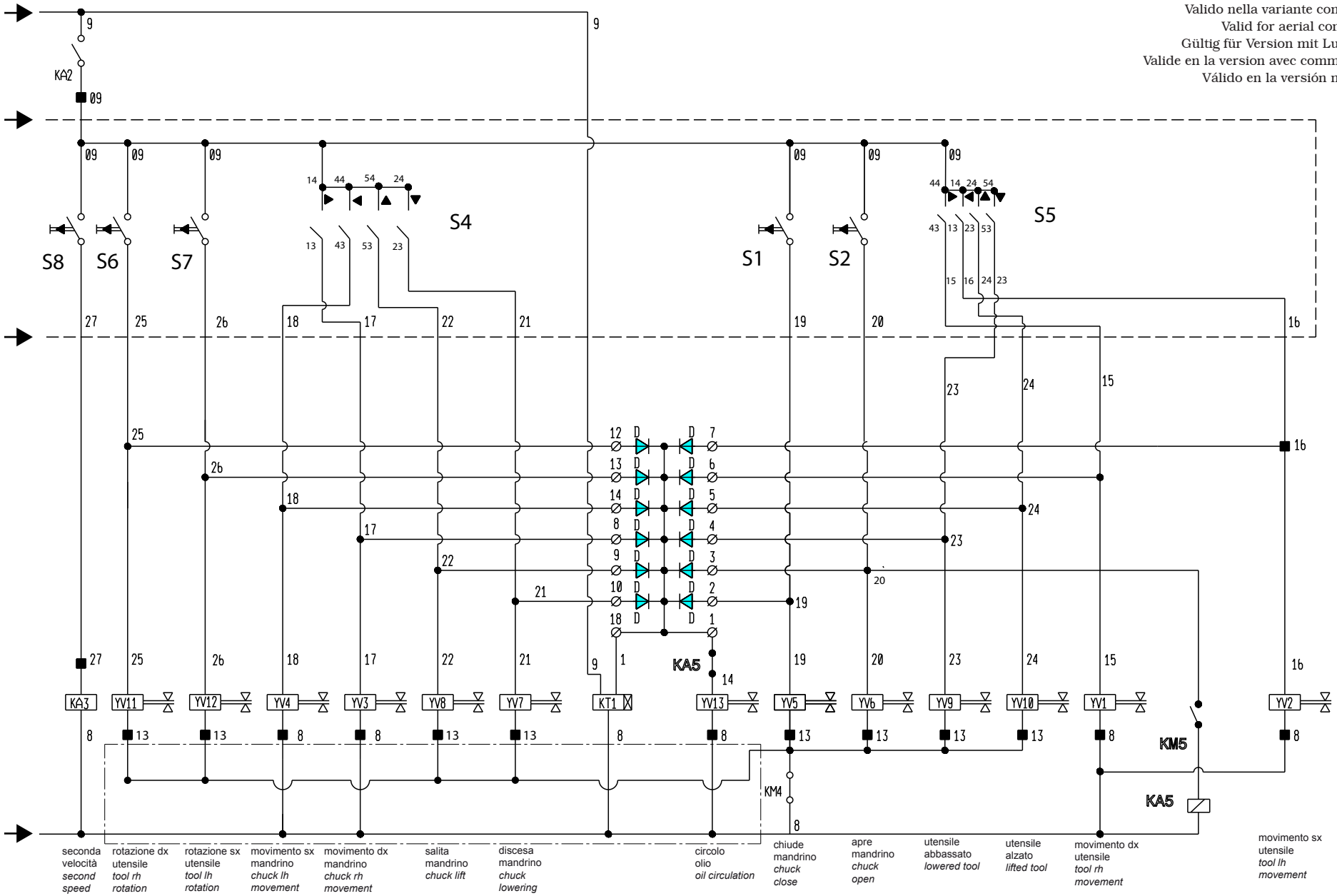



| N° | Cod. | Descrizione | Description |
|---|---|---|---|
| | C | *Condensatore elettrolitico* | *Electrolytic condenser* |
| | D | *Diodo 1N4007* | *1N4007 diode* |
| | FU1 | *Fusibile protezione linea* | *Line guard fuse* |
| | FU3 | *Fusibile protezione primario* | *First guard fuse* |
| | FU4 | *Fusibile protezione secondario* | *Second guard fuse* |
| | FU5 | *Fusibile protezione secondario* | *Second guard fuse* |
| | KA2 | *Relè blocco comandi* | *Controls block relay* |
| | KA3 | *Relè comando seconda velocità* | *Relay commande second speed* |
| | KA5 | *Relè inibitore elettrovalvola in seconda velocità* | *Second speed solenoid valve inhibitor relay* |
| | KM1 | *Contattore rotazione oraria mandrino* | *Chuck clockwise rot. Contactor* |
| | KM2 | *Contattore rotazione antioraria mandrino* | *Chuck anticlockwise rot. Contactor* |
| | KM3 | *Contattore comando prima velocità* | *First speed control contactor* |
| | KM4/KM5 | *Contattore comando seconda velocità* | *Second speed control contactor* |
| | KT1 | *Timer comando motore centralina* | *Hydraulic power unit control timer* |
| | MF1 | *Freno motore mandrino* | *Chuck motor brake* |
| | S5 | *Commutatore comando rotazione mandrino* | *Chuck rotation control commutator* |
| | S2 | *Manipolatore comando carro utensile avanti/indietro e salita/discesa* | *Handle for tool carriage forward/backward control* |
| | S1 | *Manipolatore comando salita/discesa mandrino e movimento sx / movimento dx mandrino* | *Handle for chuck up/down control handle and chuck lh / rh movement* |
| | M1 | *Motore mandrino* | *Chuck motor* |
| | M2 | *Motore centralina* | *Hydraulic power unit motor* |
| | QM2 | *Interruttore magnetotermico* | *Magnetic-thermique switch* |
| | QS1 | *Interruttore generale* | *Main switch* |
| | QS2 | *Commutatore di poli* | *Pole commutator* |
| | S4 | *Pulsante apre/chiude mandrino* | *Chuck open/close push-button* |
| | S3 | *Pulsante comando rotazione utensili dx/sx* | *Rh/lh tools rotation control push-button* |
| | S6 | *Pulsante seconda velocità centralina* | *Hydraulic power unit second speed push-button* |
| | TC1 | *Trasformatore comandi* | *Control transformer* |
| | VC1 | *Ponte raddrizzatore* | *Bridge* |
| | YV1 | *Elettrovalvola movimento dx utensile* | *Tool rh movement solenoid valve* |
| | YV2 | *Elettrovalvola movimento sx utensile* | *Tool lh movement solenoid valve* |
| | YV3 | *Elettrovalvola movimento dx mandrino* | *Chuck rh movement solenoid valve* |
| | YV4 | *Elettrovalvola movimento sx mandrino* | *Chuck lh movement solenoid valve* |
| | YV5 | *Elettrovalvola chiude mandrino* | *Chuck closing solenoid valve* |
| | YV6 | *Elettrovalvola apre mandrino* | *Chuck opening solenoid valve* |
| | YV7 | *Elettrovalvola discesa mandrino* | *Chuck descent solenoid valve* |
| | YV8 | *Elettrovalvola salita mandrino* | *Chuck rising solenoid valve* |
| | YV9 | *Elettrovalvola entra utensile* | *Tool "in" solenoid valve* |
| | YV10 | *Elettrovalvola esce utensile* | *Tool "out" solenoid valve* |
| | YV11 | *Elettrovalvola rotazione Synodx* | *Rotation solenoid vavle Synodx* |
| | YV12 | *Elettrovalvola rotazione Synosx* | *Synosx rotation solenoid valve* |
| | YV13 | *Elettrovalvola circolo olio* | *Oil circulation solenoid valve* |
| | ■ | *Morsetto* | *Morsetto* |
| | | | |
| | | | |
| | | | |
| | | | |




| | | | |
|---|---|---|---|
| Butler ENGINEERING and MARKETING S.P.A. | **LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIECES DETACHEES - LISTA DE PIEZAS** | *SCHEMA ELETTRICO 1/3 ELECTRICAL SCHEME 1/3 SCHALTPLAN 1/3 SCHEMA ELECTRIQUE 1/3 ESQUEMA ELECTRICO 1/3* | ***Pag. 48 di 88*** |
| | **Tavola N°B - Rev. 4** / **752205661** | | **NAV43.15 - NAV63.15** |

Valido nella variante comando aereo
Valid for aerial control version
Gültig für Version mit Luftbetätigung
Valide en la version avec commande aérien
Válido en la versión mando aéreo



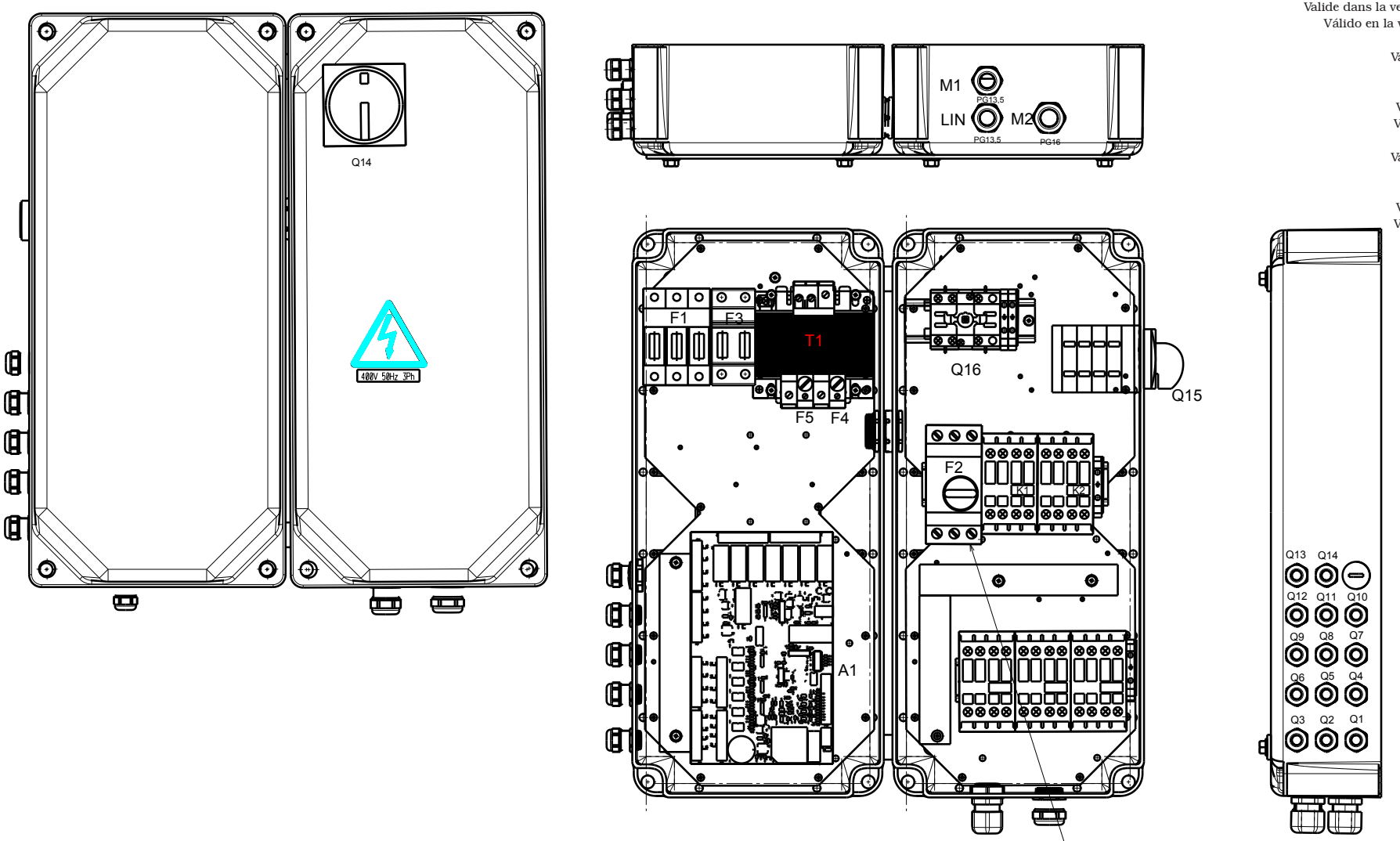

| | | | | |
|---|---|---|---|---|
| Butler ENGINEERING and MARKETING S.P.A. | **LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIECES DETACHEES - LISTA DE PIEZAS** | | *SCHEMA ELETTRICO 2/3 ELECTRICAL SCHEME 2/3 SCHALTPLAN 2/3 SCHEMA ELECTRIQUE 2/3 ESQUEMA ELECTRICO 2/3* | ***Pag. 49 di 88*** |
| | **Tavola N°B - Rev. 4** | **752205661** | | **NAV43.15 - NAV63.15** |

| N° | Cod. | Descrizione | Description |
|---|---|---|---|
| | C | *Condensatore elettrolitico* | *Electrolytic condenser* |
| | D | *Diodo 1N4007* | *1N4007 diode* |
| | FU1 | *Fusibile protezione linea* | *Line guard fuse* |
| | FU3 | *Fusibile protezione primario* | *First guard fuse* |
| | FU4 | *Fusibile protezione secondario* | *Second guard fuse* |
| | FU5 | *Fusibile protezione secondario* | *Second guard fuse* |
| | KA2 | *Relè blocco comandi* | *Controls block relay* |
| | KA3 | *Relè comando seconda velocità* | *Relay commande second speed* |
| | KA5 | *Relè inibitore elettrovalvola in seconda velocità* | *Second speed solenoid valve inhibitor relay* |
| | KM1 | *Contattore rotazione oraria mandrino* | *Chuck clockwise rot. Contactor* |
| | KM2 | *Contattore rotazione antioraria mandrino* | *Chuck anticlockwise rot. Contactor* |
| | KM3 | *Contattore comando prima velocità* | *First speed control contactor* |
| | KM4/KM5 | *Contattore comando seconda velocità* | *Second speed control contactor* |
| | KT1 | *Timer comando motore centralina* | *Hydraulic power unit control timer* |
| | MF1 | *Freno motore mandrino* | *Chuck motor brake* |
| | S3 | *Manipolatore comando rotazione mandrino* | *Chuck rotation control handle* |
| | S5 | *Manipolatore comando salita/discesa utensile e movimento sx/dx utensile* | *Handle for tool up/down control handle and tool lh/rh movement* |
| | S4 | *Manipolatore comando salita/discesa mandrino e movimento sx/dx mandrino* | *Handle for chuck up/down control handle and chuck lh/rh movement* |
| | M1 | *Motore mandrino* | *Chuck motor* |
| | M2 | *Motore centralina* | *Hydraulic power unit motor* |
| | QM2 | *Interruttore magnetotermico* | *Magnetic-thermique switch* |
| | QS1 | *Interruttore generale* | *Main switch* |
| | QS2 | *Commutatore di poli* | *Pole commutator* |
| | SB1 | *Pulsante chiude mandrino* | *Chuck close push-button* |
| | SB2 | *Pulsante apre mandrino* | *Chuck open push-button* |
| | S6 | *Pulsante comando rotazione utensile* | *Tool rotation control push-button* |
| | S7 | *Pulsante comando rotazione utensile* | *Tool rotation control push-button* |
| | S8 | *Pulsante seconda velocità centralina* | *Hydraulic power unit second speed push-button* |
| | TC1 | *Trasformatore comandi* | *Control transformer* |
| | VC1 | *Ponte raddrizzatore* | *Bridge* |
| | YV1 | *Elettrovalvola movimento dx utensile* | *Tool rh movement solenoid valve* |
| | YV2 | *Elettrovalvola movimento sx utensile* | *Tool lh movement solenoid valve* |
| | YV3 | *Elettrovalvola movimento dx mandrino* | *Chuck rh movement solenoid valve* |
| | YV4 | *Elettrovalvola movimento sx mandrino* | *Chuck lh movement solenoid valve* |
| | YV5 | *Elettrovalvola chiude mandrino* | *Chuck closing solenoid valve* |
| | YV6 | *Elettrovalvola apre mandrino* | *Chuck opening solenoid valve* |
| | YV7 | *Elettrovalvola discesa mandrino* | *Chuck descent solenoid valve* |
| | YV8 | *Elettrovalvola salita mandrino* | *Chuck rising solenoid valve* |
| | YV9 | *Elettrovalvola entra utensile* | *Tool "in" solenoid valve* |
| | YV10 | *Elettrovalvola esce utensile* | *Tool "out" solenoid valve* |
| | YV11 | *Elettrovalvola rotazione Synodx* | *Synorh rotation solenoid valve* |
| | YV12 | *Elettrovalvola rotazione Synosx* | *Synolh rotation solenoid valve* |
| | YV13 | *Elettrovalvola circolo olio* | *Oil circulation solenoid valve* |
| | ■ | *Morsetto* | *Morsetto* |
| | | | |
| | | | |

Valido nella versione con manipolatore Bluetooth
Valid for Bluetooth handle control version
Gültig für Version mit Bluetooth-Manipulator
Valide dans la version avec manipulateur Bluetooth
Válido en la versión con manipulador Bluetooth

Valido nella variante 230V 50Hz 3Ph
Valid for 230V 50Hz 3Ph version
Gültig für 230V 50Hz 3Ph Version
Valide en la version 230V 50Hz 3Ph
Válido en la versión 230V 50Hz 3Ph

Valido nella variante 230V 60Hz 3Ph
Valid for 230V 60Hz 3Ph version
Gültig für 230V 60Hz 3Ph Version
Valide en la version 230V 60Hz 3Ph
Válido en la versión 230V 60Hz 3Ph




Tarare il salvamotore a 8A
*Set the overload cut-out at 8A*

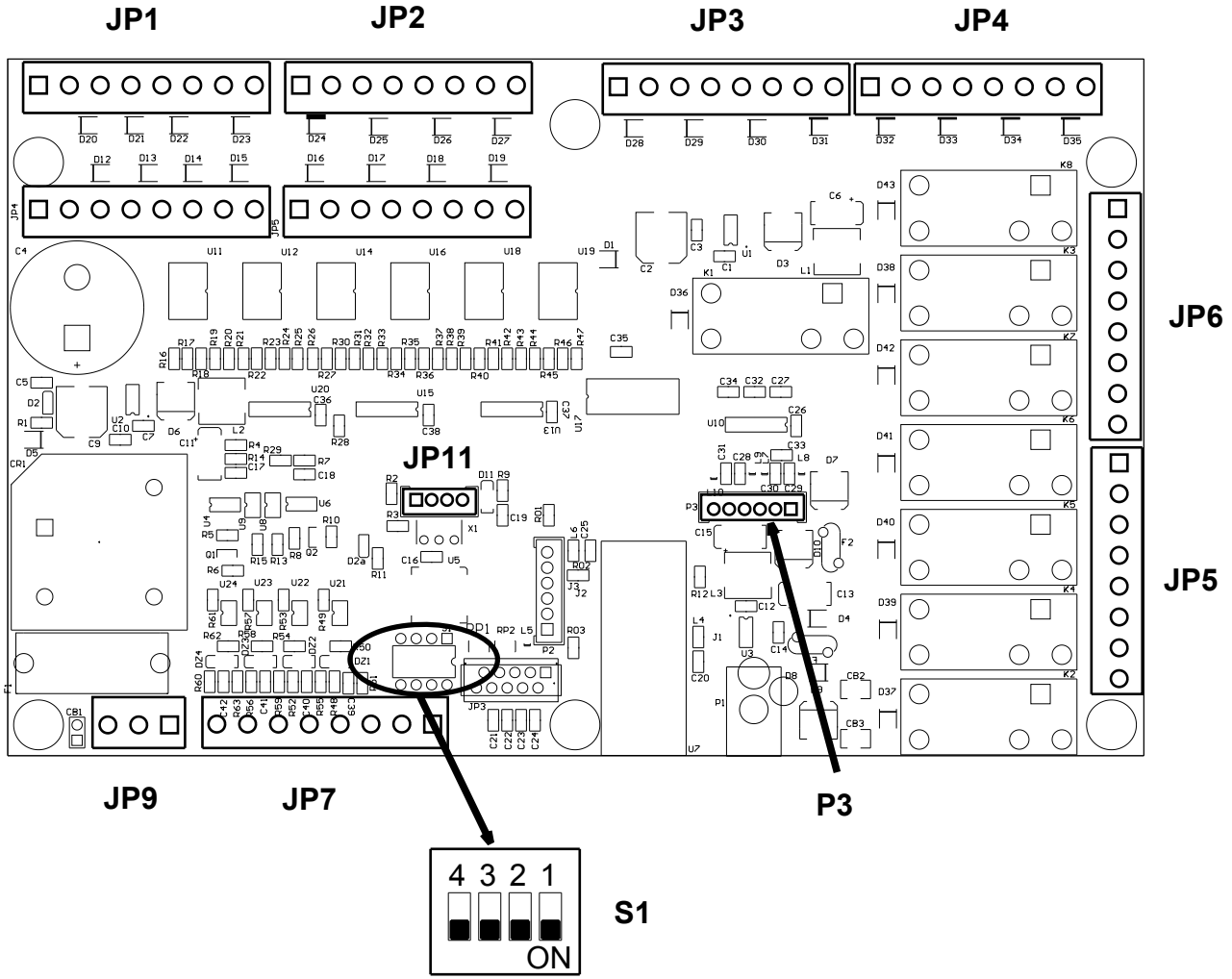
| | | | |
|---|---|---|---|
| Butler ENGINEERING and MARKETING S.P.A. | **LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIECES DETACHEES - LISTA DE PIEZAS** | *SCHEMA ELETTRICO 1/18 ELECTRICAL SCHEME 1/18 SCHALTPLAN 1/18 SCHEMA ELECTRIQUE 1/18 ESQUEMA ELECTRICO 1/18* | ***Pag. 51 di 88*** |
| | **Tavola N°C - Rev. 1** / **752205562** | | **NAV43.15 - NAV63.15** |

Valido nella versione con manipolatore Bluetooth
Valid for Bluetooth handle control version
Gültig für Version mit Bluetooth-Manipulator
Valide dans la version avec manipulateur Bluetooth
Válido en la versión con manipulador Bluetooth

Valido nella variante 230V 50Hz 3Ph
Valid for 230V 50Hz 3Ph version
Gültig für 230V 50Hz 3Ph Version
Valide en la version 230V 50Hz 3Ph
Válido en la versión 230V 50Hz 3Ph

Valido nella variante 230V 60Hz 3Ph
Valid for 230V 60Hz 3Ph version
Gültig für 230V 60Hz 3Ph Version
Valide en la version 230V 60Hz 3Ph
Válido en la versión 230V 60Hz 3Ph

# TOPOGRAFICO SCHEDA RICEVENTE 18962
# *RECEIVING CARD 18962 TOPOGRAPHIC VIEW*




| | | | |
|---|---|---|---|
| Butler ENGINEERING and MARKETING S.P.A. | **LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIECES DETACHEES - LISTA DE PIEZAS** | *SCHEMA ELETTRICO 2/18 ELECTRICAL SCHEME 2/18 SCHALTPLAN 2/18 SCHEMA ELECTRIQUE 2/18 ESQUEMA ELECTRICO 2/18* | ***Pag. 52 di 88*** |
| | **Tavola N°C - Rev. 1** / **752205562** | | **NAV43.15 - NAV63.15** |

# IN/OUT SCHEDA RICEVENTE 18962

Valido nella versione con manipolatore Bluetooth
Valid for Bluetooth handle control version
Gültig für Version mit Bluetooth-Manipulator
Valide dans la version avec manipulateur Bluetooth
Válido en la versión con manipulador Bluetooth

Valido nella variante 230V 50Hz 3Ph
Valid for 230V 50Hz 3Ph version
Gültig für 230V 50Hz 3Ph Version
Valide en la version 230V 50Hz 3Ph
Válido en la versión 230V 50Hz 3Ph

Valido nella variante 230V 60Hz 3Ph
Valid for 230V 60Hz 3Ph version
Gültig für 230V 60Hz 3Ph Version
Valide en la version 230V 60Hz 3Ph
Válido en la versión 230V 60Hz 3Ph

| PIN JP1 | NUMERO | FUNZIONE |
|---|---|---|
| 1 | JP1-1 | Q1 INDIETRO CARRO UTENSILE |
| 2 | JP1-2 | 0V per Q1 |
| 3 | JP1-3 | Q2 AVANTI CARRO UTENSILE |
| 4 | JP1-4 | 0V per Q2 |
| 5 | JP1-5 | Q3 AVANTI CARRO MANDRINO |
| 6 | JP1-6 | 0V per Q3 |
| 7 | JP1-7 | Q4 INDIETRO CARRO MANDRINO |
| 8 | JP1-8 | 0V per Q4 |

| PIN JP2 | NUMERO | FUNZIONE |
|---|---|---|
| 1 | JP2-1 | Q5 CHIUSURA MANDRINO |
| 2 | JP2-2 | 0V per Q5 |
| 3 | JP2-3 | Q6 APERTURA MANDRINO |
| 4 | JP2-4 | 0V per Q6 |
| 5 | JP2-5 | Q7 DISCESA BRACCIO MANDRINO<br>Q14 LENTO DISCESA MANDRINO |
| 6 | JP2-6 | 0V per Q7<br>0V per Q14 |
| 7 | JP2-7 | Q8 SALITA BRACCIO MANDRINO |
| 8 | JP2-8 | 0V per Q8 |

| PIN JP3 | NUMERO | FUNZIONE |
|---|---|---|
| 1 | JP3-1 | Q9 ROTAZ.ANTIORARIA UTENSILE |
| 2 | JP3-2 | 0V per Q9 |
| 3 | JP3-3 | Q10 ROTAZ.ORARIA UTENSILE |
| 4 | JP3-4 | 0V per Q10 |
| 5 | JP3-5 | Q11 DISCESA BRACCIO UTENSILE |
| 6 | JP3-6 | 0V per Q11 |
| 7 | JP3-7 | Q12 SALITA BRACCIO UTENSILE |
| 8 | JP3-8 | 0V pe Q12 |

| PIN JP4 | NUMERO | FUNZIONE |
|---|---|---|
| 1 | JP4-1 | Q13 RICIRCOLO OLIO |
| 2 | JP4-2 | 0V per Q13 |
| 3 | JP4-3 | N.U. |
| 4 | JP4-4 | N.U. |
| 5 | JP4-5 | N.U. |
| 6 | JP4-6 | N.U. |
| 7 | JP4-7 | N.U. |
| 8 | JP4-8 | N.U. |

| PIN JP5 | NUMERO | FUNZIONE |
|---|---|---|
| 1 | JP5-1 | N.U. |
| 2 | JP5-2 | N.U. |
| 3 | JP5-3 | 0 Vac |
| 4 | JP5-4 | KM5 COMANDO ROTAZ. 2V CENTRALINA OLEOD |
| 5 | JP5-5 | KM4 COMANDO MOTORE CENTRALINA A STELLA 2V |
| 6 | JP5-6 | KM3 COMANDO ROTAZ. 1V CENTRALINA OLEOD |
| 7 | JP5-7 | KM2 COMANDO ROTAZ. ORARIA MANDRINO |
| 8 | JP5-8 | KM1 COMANDO ROTAZ. ANTIORARIA MANDRINO |

| PIN JP7 | NUMERO | FUNZIONE |
|---|---|---|
| 1 | JP7-1 | COLLEGATO A JP7-2 |
| 2 | JP7-2 | COLLEGATO A JP7-1 |
| 3 | JP7-3 | N.U. |
| 4 | JP7-4 | N.U. |
| 5 | JP7-5 | N.U. |
| 6 | JP7-6 | N.U. |
| 7 | JP7-7 | N.U. |
| 8 | JP7-8 | N.U. |

| PIN JP9 | NUMERO | FUNZIONE |
|---|---|---|
| 1 | JP9-1 | 0 Vac |
| 2 | JP9-2 | N.U. |
| 3 | JP9-3 | 19 Vac |

# RECEIVING CARD 18962 IN/OUT

Valido nella versione con manipolatore Bluetooth
Valid for Bluetooth handle control version
Gültig für Version mit Bluetooth-Manipulator
Valide dans la version avec manipulateur Bluetooth
Válido en la versión con manipulador Bluetooth

Valido nella variante 230V 50Hz 3Ph
Valid for 230V 50Hz 3Ph version
Gültig für 230V 50Hz 3Ph Version
Valide en la version 230V 50Hz 3Ph
Válido en la versión 230V 50Hz 3Ph

Valido nella variante 230V 60Hz 3Ph
Valid for 230V 60Hz 3Ph version
Gültig für 230V 60Hz 3Ph Version
Valide en la version 230V 60Hz 3Ph
Válido en la versión 230V 60Hz 3Ph

| PIN JP1 | NUMBER | FUNCTION |
|---|---|---|
| 1 | JP1-1 | Q1 TOOL CARRIAGE BACKWARD |
| 2 | JP1-2 | 0V for Q1 |
| 3 | JP1-3 | Q2 TOOL CARRIAGE FORWARD |
| 4 | JP1-4 | 0V for Q2 |
| 5 | JP1-5 | Q3 CHUCK CARRIAGE FORWARD |
| 6 | JP1-6 | 0V for Q3 |
| 7 | JP1-7 | Q4 CHUCK CARRIAGE BACKWARD |
| 8 | JP1-8 | 0V for Q4 |

| PIN JP2 | NUMBER | FUNCTION |
|---|---|---|
| 1 | JP2-1 | Q5 CHUCK CLOSING |
| 2 | JP2-2 | 0V for Q5 |
| 3 | JP2-3 | Q6 CHUCK OPENING |
| 4 | JP2-4 | 0V for Q6 |
| 5 | JP2-5 | Q7 CHUCK ARM DESCENT<br>Q14 CHUCK SLOW DESCENT |
| 6 | JP2-6 | 0V for Q7<br>0V for Q14 |
| 7 | JP2-7 | Q8 CHUCK ARM RISE |
| 8 | JP2-8 | 0V for Q8 |

| PIN JP3 | NUMBER | FUNCTION |
|---|---|---|
| 1 | JP3-1 | Q9 TOOL COUNTERCLOCKWISE ROT. |
| 2 | JP3-2 | 0V for Q9 |
| 3 | JP3-3 | Q10 TOOL CLOCKWISE ROTATION |
| 4 | JP3-4 | 0V for Q10 |
| 5 | JP3-5 | Q11 TOOL ARM DESCENT |
| 6 | JP3-6 | 0V for Q11 |
| 7 | JP3-7 | Q12 TOOL ARM RISE |
| 8 | JP3-8 | 0V for Q12 |

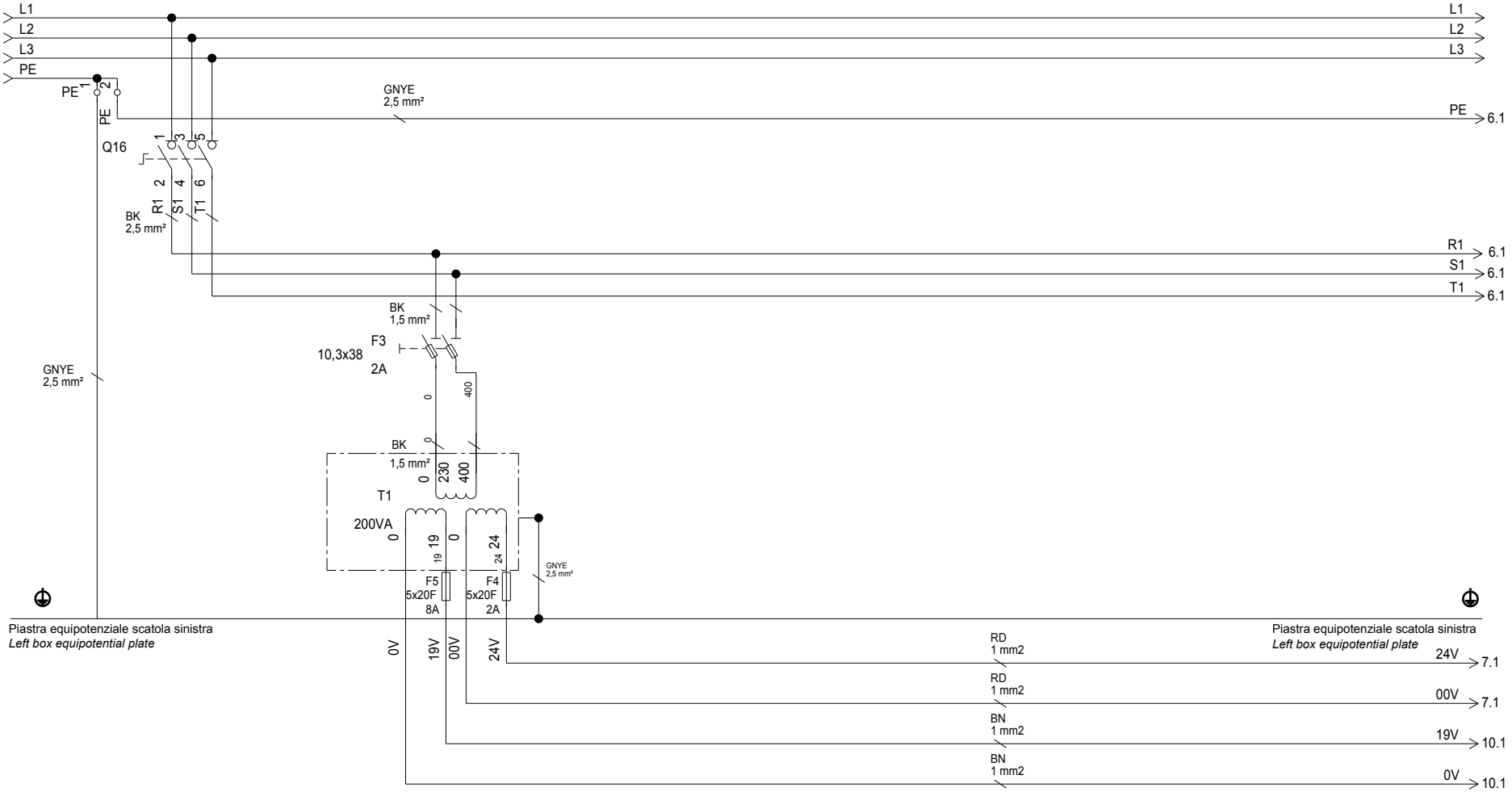
| PIN JP4 | NUMBER | FUNCTION |
|---|---|---|
| 1 | JP4-1 | Q13 OIL RECIRCULATION |
| 2 | JP4-2 | 0V for Q13 |
| 3 | JP4-3 | N.U. |
| 4 | JP4-4 | N.U. |
| 5 | JP4-5 | N.U. |
| 6 | JP4-6 | N.U. |
| 7 | JP4-7 | N.U. |
| 8 | JP4-8 | N.U. |

| PIN JP5 | NUMBER | FUNCTION |
|---|---|---|
| 1 | JP5-1 | N.U. |
| 2 | JP5-2 | N.U. |
| 3 | JP5-3 | 0 Vac |
| 4 | JP5-4 | KM5 2V HYDR. POWER UNIT ROTATION CONTROL |
| 5 | JP5-5 | KM4 2V STAR TYPE HYDR. POWER UNIT MOTOR ROT. CONTR. |
| 6 | JP5-6 | KM3 1V HYDRAULIC POWER UNIT ROT. CONTROL |
| 7 | JP5-7 | KM2 CHUCK CLOCKWISE ROTATION CONTROL |
| 8 | JP5-8 | KM1 CHUCK COUNTERCLOCKWISE ROT. CONTROL |

| PIN JP7 | NUMBER | FUNCTION |
|---|---|---|
| 1 | JP7-1 | CONNECTED TO JP7-2 |
| 2 | JP7-2 | CONNECTED TO JP7-1 |
| 3 | JP7-3 | N.U. |
| 4 | JP7-4 | N.U. |
| 5 | JP7-5 | N.U. |
| 6 | JP7-6 | N.U. |
| 7 | JP7-7 | N.U. |
| 8 | JP7-8 | N.U. |

| PIN JP9 | NUMBER | FUNCTION |
|---|---|---|
| 1 | JP9-1 | 0 Vac |
| 2 | JP9-2 | N.U. |
| 3 | JP9-3 | 19 Vac |

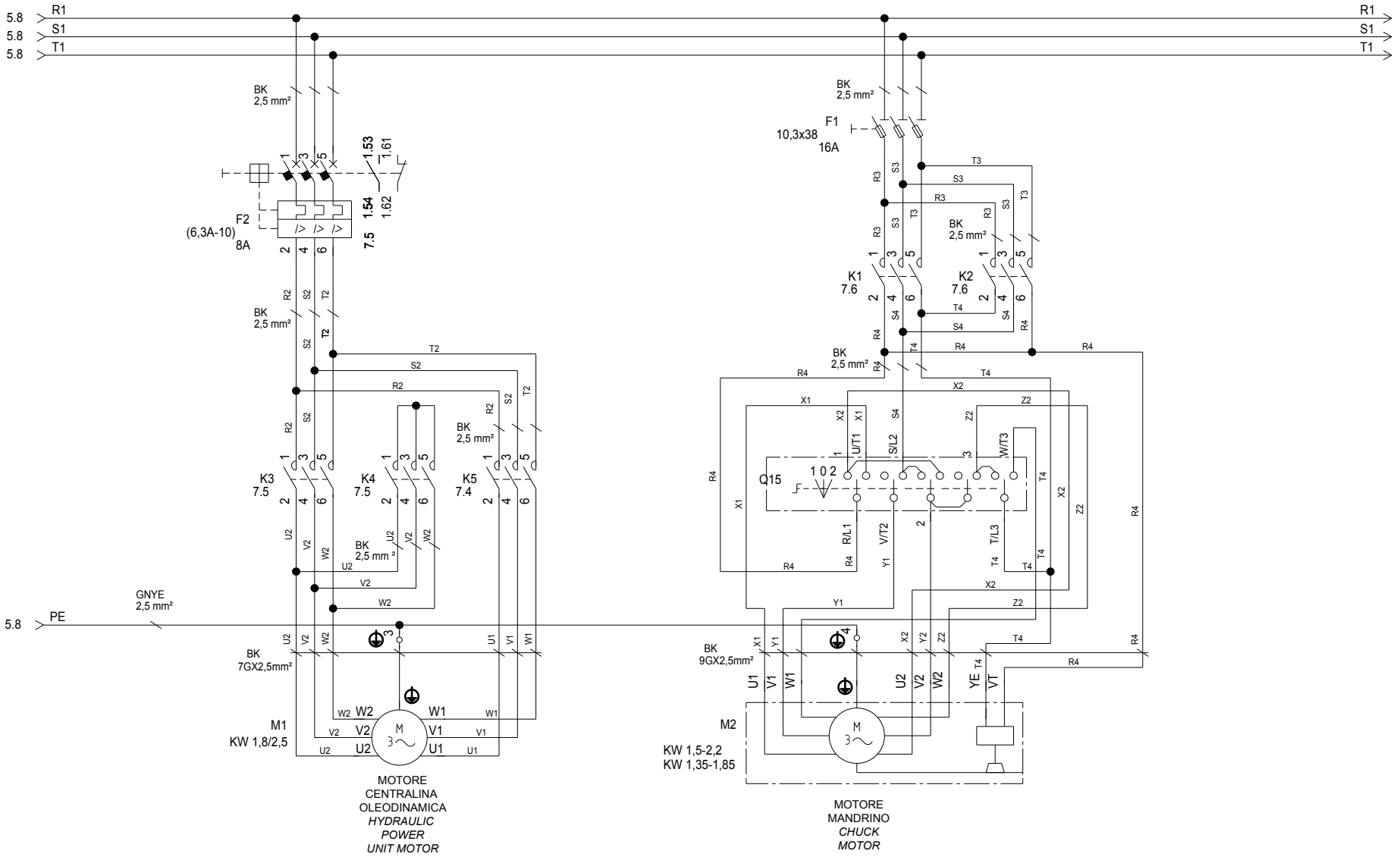
# SCHEMA CIRCUITI QUADRO ELETTRICO (RICEVITORE)
# *ELECTRICAL PANEL (RECEIVER) CIRCUITS DIAGRAM*




Valido nella versione con manipolatore Bluetooth
Valid for Bluetooth handle control version
Gültig für Version mit Bluetooth-Manipulator
Valide dans la version avec manipulateur Bluetooth
Válido en la versión con manipulador Bluetooth

Valido nella variante 230V 50Hz 3Ph
Valid for 230V 50Hz 3Ph version
Gültig für 230V 50Hz 3Ph Version
Valide en la version 230V 50Hz 3Ph
Válido en la versión 230V 50Hz 3Ph

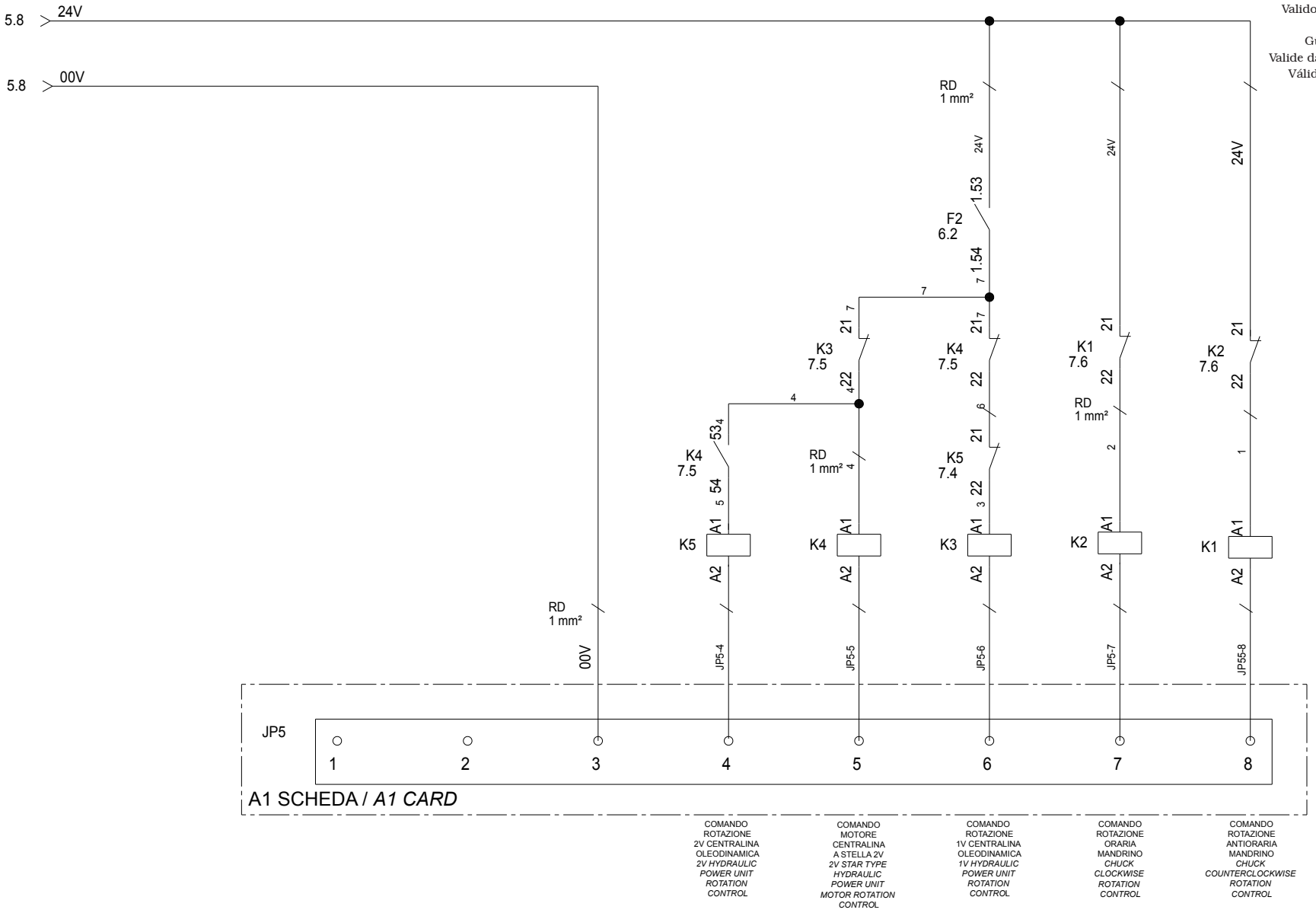
Valido nella variante 230V 60Hz 3Ph
Valid for 230V 60Hz 3Ph version
Gültig für 230V 60Hz 3Ph Version
Valide en la version 230V 60Hz 3Ph
Válido en la versión 230V 60Hz 3Ph




Valido nella versione con manipolatore Bluetooth
Valid for Bluetooth handle control version
Gültig für Version mit Bluetooth-Manipulator
Valide dans la version avec manipulateur Bluetooth
Válido en la versión con manipulador Bluetooth

Valido nella variante 230V 50Hz 3Ph
Valid for 230V 50Hz 3Ph version
Gültig für 230V 50Hz 3Ph Version
Valide en la version 230V 50Hz 3Ph
Válido en la versión 230V 50Hz 3Ph

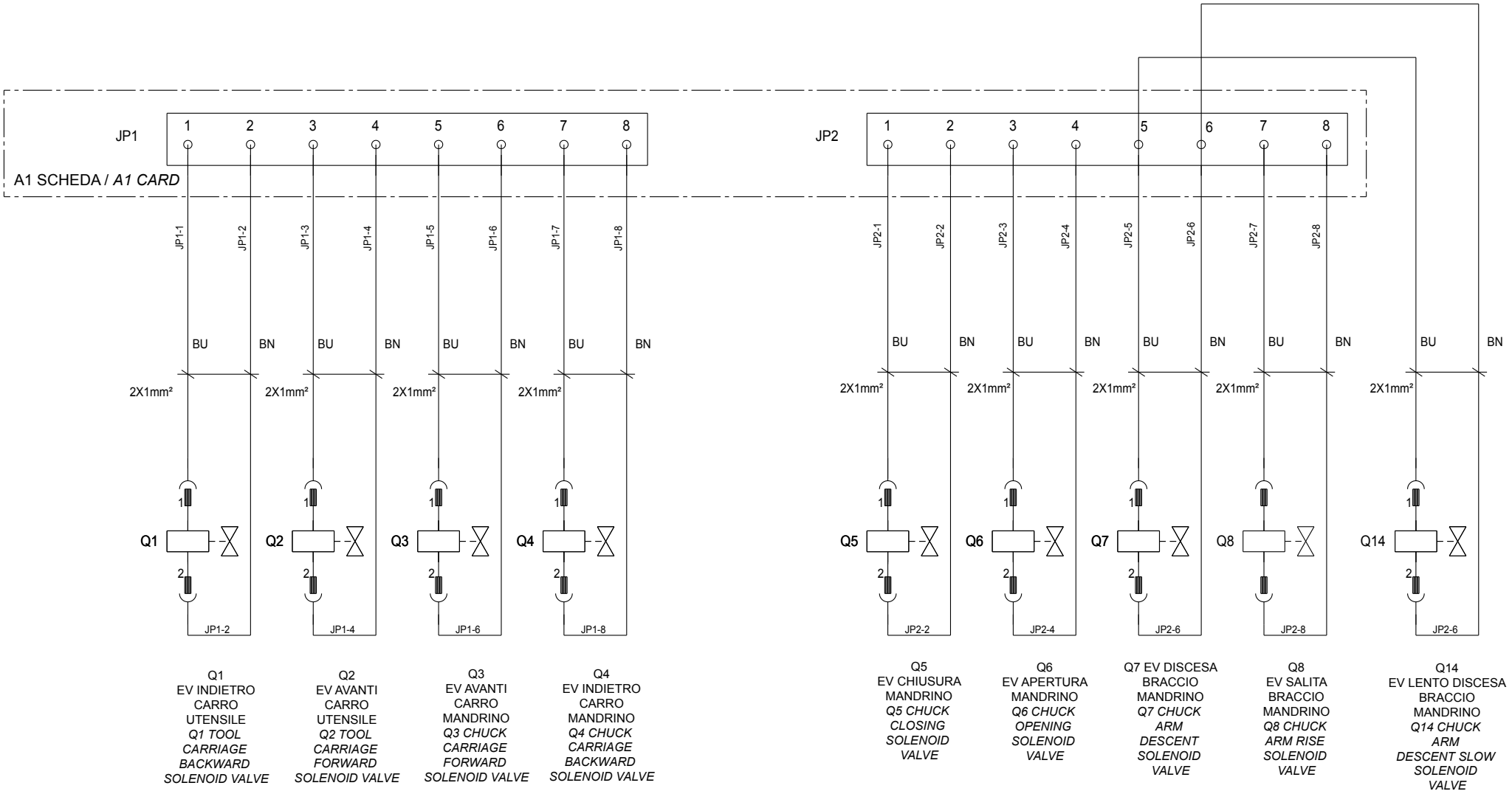
Valido nella variante 230V 60Hz 3Ph
Valid for 230V 60Hz 3Ph version
Gültig für 230V 60Hz 3Ph Version
Valide en la version 230V 60Hz 3Ph
Válido en la versión 230V 60Hz 3Ph




Valido nella versione con manipolatore Bluetooth
Valid for Bluetooth handle control version
Gültig für Version mit Bluetooth-Manipulator
Valide dans la version avec manipulateur Bluetooth
Válido en la versión con manipulador Bluetooth

Valido nella variante 230V 50Hz 3Ph
Valid for 230V 50Hz 3Ph version
Gültig für 230V 50Hz 3Ph Version
Valide en la version 230V 50Hz 3Ph
Válido en la versión 230V 50Hz 3Ph

Valido nella variante 230V 60Hz 3Ph
Valid for 230V 60Hz 3Ph version
Gültig für 230V 60Hz 3Ph Version
Valide en la version 230V 60Hz 3Ph
Válido en la versión 230V 60Hz 3Ph




Q1
EV INDIETRO CARRO UTENSILE
*Q1 TOOL CARRIAGE BACKWARD SOLENOID VALVE*

Q2
EV AVANTI CARRO UTENSILE
*Q2 TOOL CARRIAGE FORWARD SOLENOID VALVE*

Q3
EV AVANTI CARRO MANDRINO
*Q3 CHUCK CARRIAGE FORWARD SOLENOID VALVE*

Q4
EV INDIETRO CARRO MANDRINO
*Q4 CHUCK CARRIAGE BACKWARD SOLENOID VALVE*

Q5
EV CHIUSURA MANDRINO
*Q5 CHUCK CLOSING SOLENOID VALVE*

Q6
EV APERTURA MANDRINO
*Q6 CHUCK OPENING SOLENOID VALVE*

Q7 EV DISCESA BRACCIO MANDRINO
*Q7 CHUCK ARM DESCENT SOLENOID VALVE*

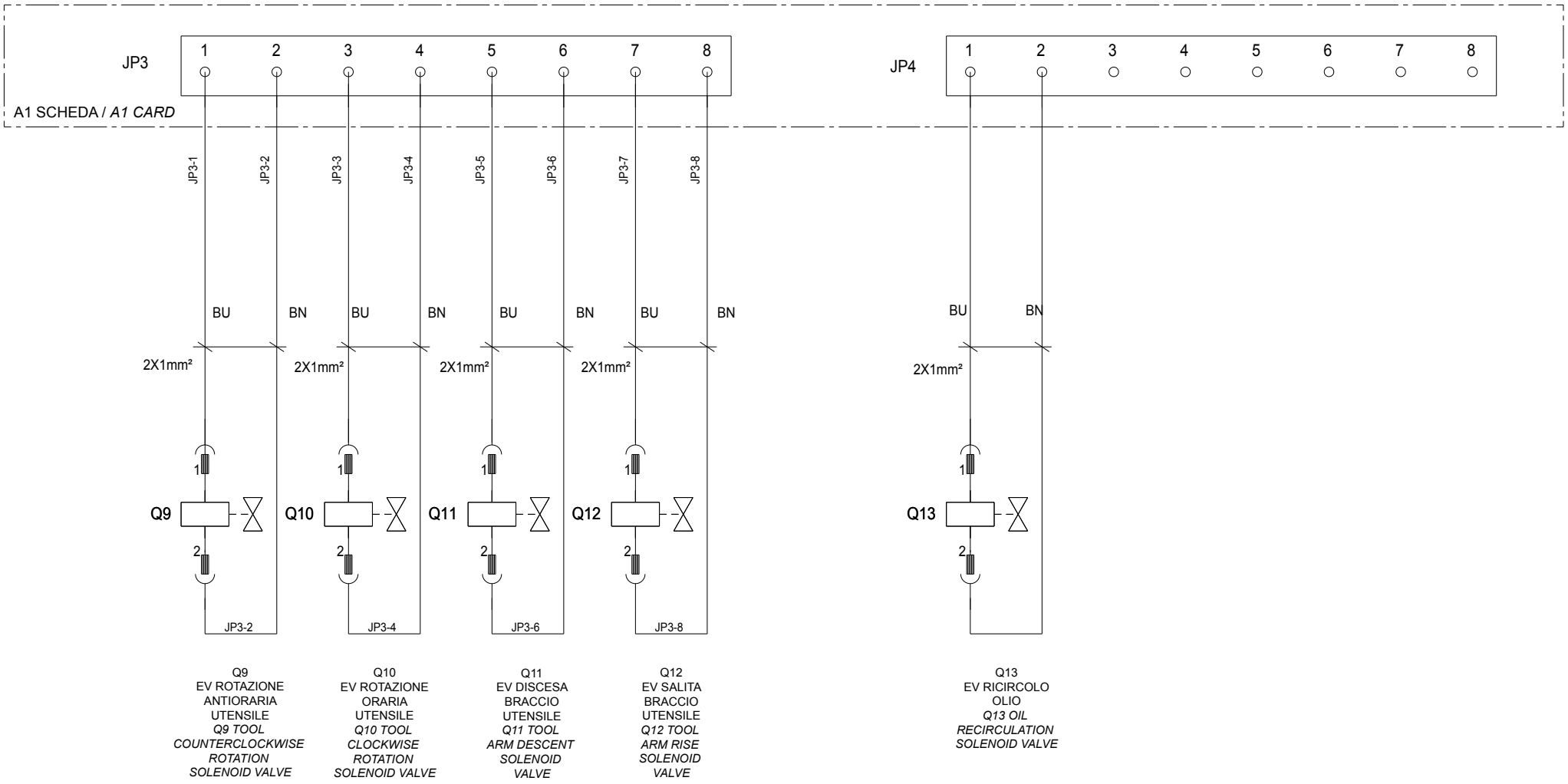
Q8
EV SALITA BRACCIO MANDRINO
*Q8 CHUCK ARM RISE SOLENOID VALVE*

Q14
EV LENTO DISCESA BRACCIO MANDRINO
*Q14 CHUCK ARM DESCENT SLOW SOLENOID VALVE*

Valido nella versione con manipolatore Bluetooth
Valid for Bluetooth handle control version
Gültig für Version mit Bluetooth-Manipulator
Valide dans la version avec manipulateur Bluetooth
Válido en la versión con manipulador Bluetooth

Valido nella variante 230V 50Hz 3Ph
Valid for 230V 50Hz 3Ph version
Gültig für 230V 50Hz 3Ph Version
Valide en la version 230V 50Hz 3Ph
Válido en la versión 230V 50Hz 3Ph

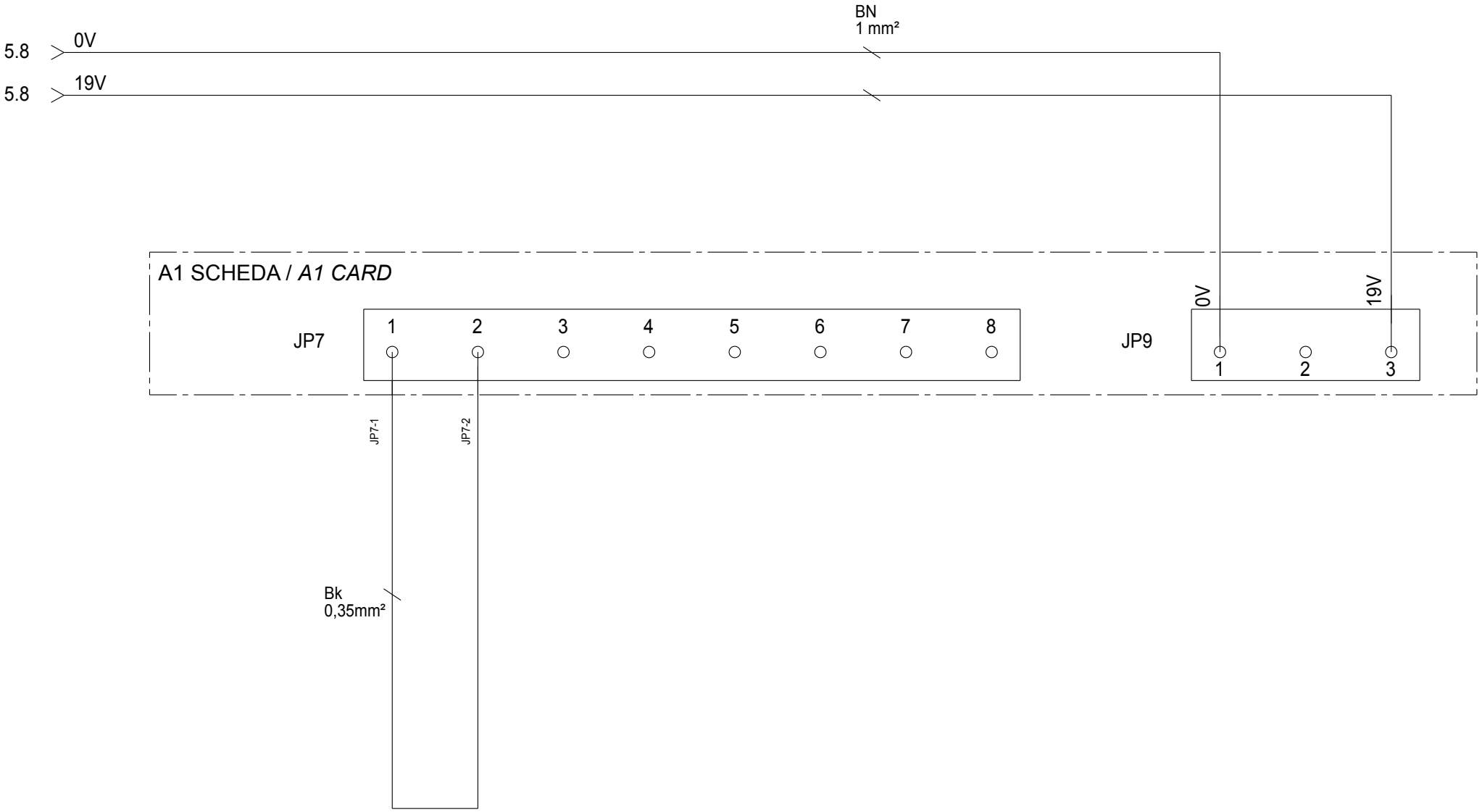
Valido nella variante 230V 60Hz 3Ph
Valid for 230V 60Hz 3Ph version
Gültig für 230V 60Hz 3Ph Version
Valide en la version 230V 60Hz 3Ph
Válido en la versión 230V 60Hz 3Ph




Valido nella versione con manipolatore Bluetooth
Valid for Bluetooth handle control version
Gültig für Version mit Bluetooth-Manipulator
Valide dans la version avec manipulateur Bluetooth
Válido en la versión con manipulador Bluetooth

Valido nella variante 230V 50Hz 3Ph
Valid for 230V 50Hz 3Ph version
Gültig für 230V 50Hz 3Ph Version
Valide en la version 230V 50Hz 3Ph
Válido en la versión 230V 50Hz 3Ph

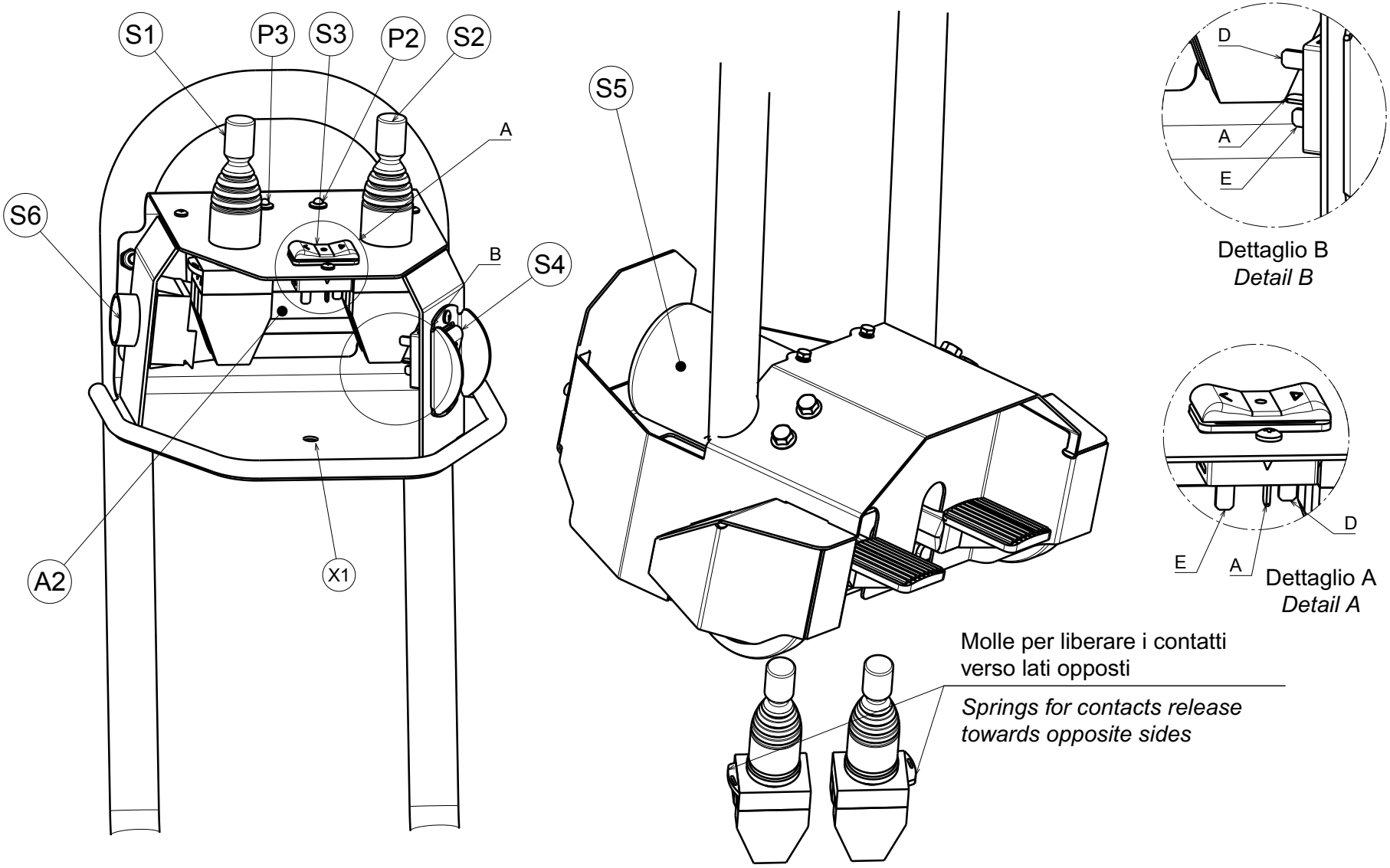
Valido nella variante 230V 60Hz 3Ph
Valid for 230V 60Hz 3Ph version
Gültig für 230V 60Hz 3Ph Version
Valide en la version 230V 60Hz 3Ph
Válido en la versión 230V 60Hz 3Ph




Valido nella versione con manipolatore Bluetooth
Valid for Bluetooth handle control version
Gültig für Version mit Bluetooth-Manipulator
Valide dans la version avec manipulateur Bluetooth
Válido en la versión con manipulador Bluetooth

Valido nella variante 230V 50Hz 3Ph
Valid for 230V 50Hz 3Ph version
Gültig für 230V 50Hz 3Ph Version
Valide en la version 230V 50Hz 3Ph
Válido en la versión 230V 50Hz 3Ph

Valido nella variante 230V 60Hz 3Ph
Valid for 230V 60Hz 3Ph version
Gültig für 230V 60Hz 3Ph Version
Valide en la version 230V 60Hz 3Ph
Válido en la versión 230V 60Hz 3Ph




Valido nella versione con manipolatore Bluetooth
Valid for Bluetooth handle control version
Gültig für Version mit Bluetooth-Manipulator
Valide dans la version avec manipulateur Bluetooth
Válido en la versión con manipulador Bluetooth

Valido nella variante 230V 50Hz 3Ph
Valid for 230V 50Hz 3Ph version
Gültig für 230V 50Hz 3Ph Version
Valide en la version 230V 50Hz 3Ph
Válido en la versión 230V 50Hz 3Ph

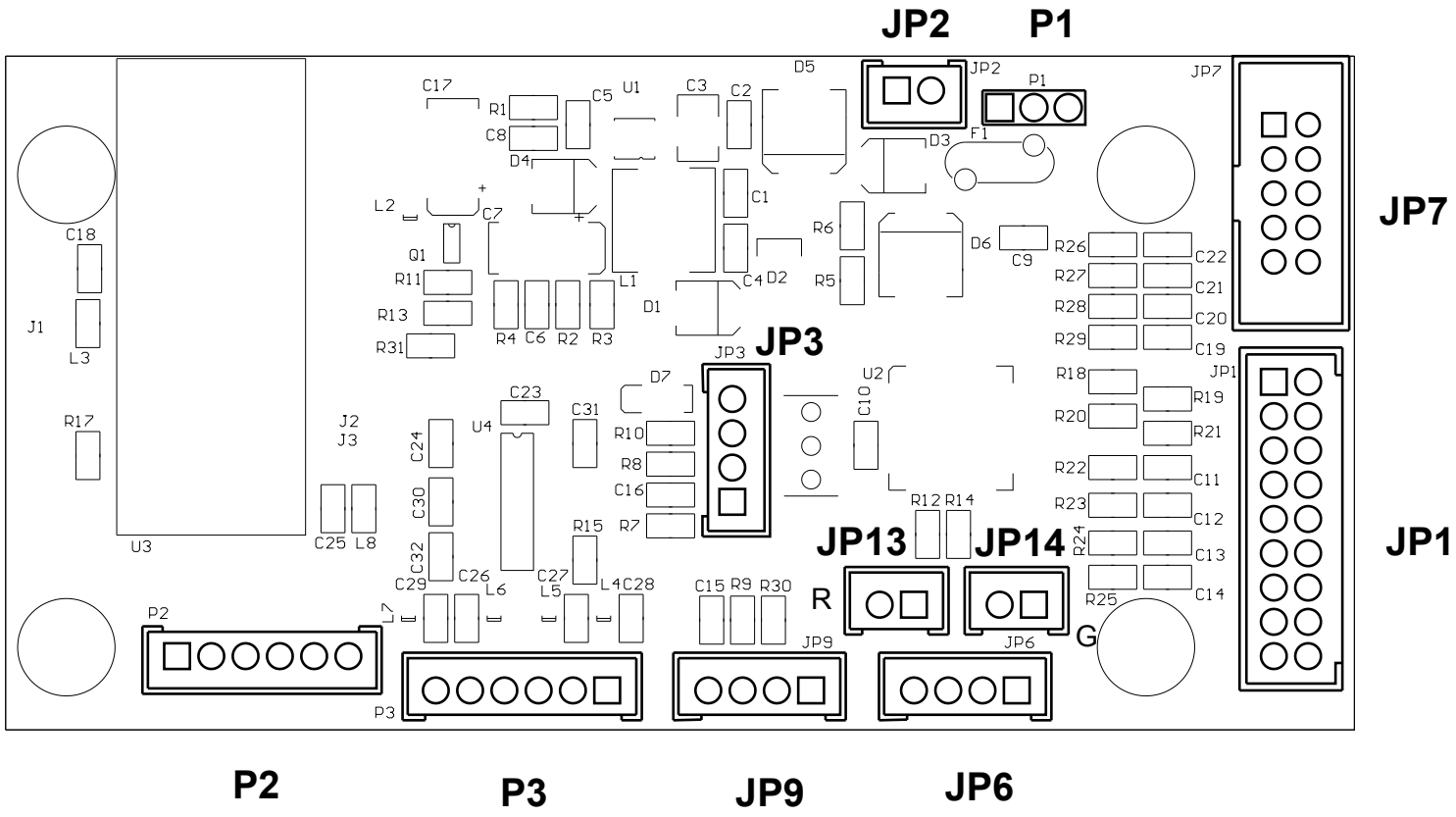
Valido nella variante 230V 60Hz 3Ph
Valid for 230V 60Hz 3Ph version
Gültig für 230V 60Hz 3Ph Version
Valide en la version 230V 60Hz 3Ph
Válido en la versión 230V 60Hz 3Ph

Valido nella versione con manipolatore Bluetooth
Valid for Bluetooth handle control version
Gültig für Version mit Bluetooth-Manipulator
Valide dans la version avec manipulateur Bluetooth
Válido en la versión con manipulador Bluetooth

Valido nella variante 230V 50Hz 3Ph
Valid for 230V 50Hz 3Ph version
Gültig für 230V 50Hz 3Ph Version
Valide en la version 230V 50Hz 3Ph
Válido en la versión 230V 50Hz 3Ph

Valido nella variante 230V 60Hz 3Ph
Valid for 230V 60Hz 3Ph version
Gültig für 230V 60Hz 3Ph Version
Valide en la version 230V 60Hz 3Ph
Válido en la versión 230V 60Hz 3Ph

# TOPOGRAFICO SCHEDA TRASMITTENTE 18961
# *TRANSMITTING CARD 18961 TOPOGRAPHIC VIEW*




**P2** **P3** **JP9** **JP6**

# IN/OUT SCHEDA TRASMITTENTE 18961

| PIN JP1 | NUMERO | FUNZIONE |
|---|---|---|
| 1 | JP1-1 | S1 INDIETRO CARRO MANDRINO |
| 2 | JP1-2 | S2 INDIETRO CARRO UTENSILE |
| 3 | JP1-3 | S1 AVANTI CARRO MANDRINO |
| 4 | JP1-4 | S2 AVANTI CARRO UTENSILE |
| 5 | JP1-5 | S1 SALITA BRACCIO MANDRINO |
| 6 | JP1-6 | S2 DISCESA BRACCIO UTENSILE |
| 7 | JP1-7 | S1 DISCESA BRACCIO MANDRINO |
| 8 | JP1-8 | S2 SALITA BRACCIO UTENSILE |
| 9 | JP1-9 | S1 (COMUNE) |
| 10 | JP1-10 | S2 (COMUNE) |
| 11 | JP1-11 | S4 (COMUNE) |
| 12 | JP1-12 | N.U. |
| 13 | JP1-13 | S4 PULSANTE CHIUSURA MANDRINO |
| 14 | JP1-14 | N.U. |
| 15 | JP1-15 | S4 PULSANTE APERTURA MANDRINO |
| 16 | JP1-16 | N.U. |
| 17 | JP1-17 | S3 PULS.ROTAZ.ANTIOR. UTENS. |
| 18 | JP1-18 | N.U. |

| PIN JP6 | NUMERO | FUNZIONE |
|---|---|---|
| 1 | JP6-1 | S5 SELETT.ROTAZ.ANTIOR. MANDRINO |
| 2 | JP6-2 | S5 SELETT. ROTAZ.ORARIA MANDRINO |
| 3 | JP6-3 | S3 PULS.ROTAZ.ORARIA UTENSILE |
| 4 | JP6-4 | S5 COMUNE |

| PIN JP2 | NUMERO | FUNZIONE |
|---|---|---|
| 1 | JP2-1 | G2 BATTERIA - |
| 2 | JP2-2 | G2 BATTERIA + |

| P1 | NUMERO | FUNZIONE |
|---|---|---|
| X1 | | 0-12Vdc |

| PIN JP9 | NUMERO | FUNZIONE |
|---|---|---|
| 1 | JP9-1 | S6 PULS. DOPPIA VELOC. CENTR. |
| 2 | JP9-2 | N.U. |
| 3 | JP9-3 | S3 (COMUNE) |
| 4 | JP9-4 | S6 PULS. DOPPIA VELOC. CENTR. |

| PIN JP13 | NUMERO | FUNZIONE |
|---|---|---|
| 1 | JP13-1 | P2 LED ROSSO + |
| 2 | JP13-2 | P2 LED ROSSO - |

| PIN JP14 | NUMERO | FUNZIONE |
|---|---|---|
| 1 | JP14-1 | P3 LED VERDE + |
| 2 | JP14-2 | P3 LED VERDE - |

Valido nella versione con manipolatore Bluetooth
Valid for Bluetooth handle control version
Gültig für Version mit Bluetooth-Manipulator
Valide dans la version avec manipulateur Bluetooth
Válido en la versión con manipulador Bluetooth

Valido nella variante 230V 50Hz 3Ph
Valid for 230V 50Hz 3Ph version
Gültig für 230V 50Hz 3Ph Version
Valide en la version 230V 50Hz 3Ph
Válido en la versión 230V 50Hz 3Ph

Valido nella variante 230V 60Hz 3Ph
Valid for 230V 60Hz 3Ph version
Gültig für 230V 60Hz 3Ph Version
Valide en la version 230V 60Hz 3Ph
Válido en la versión 230V 60Hz 3Ph

# TRANSMITTING CARD 18961 IN/OUT

| PIN JP1 | NUMBER | FUNCTION |
|---|---|---|
| 1 | JP1-1 | S1 CHUCK CARRIAGE BACKWARD |
| 2 | JP1-2 | S2 TOOL CARRIAGE BACKWARD |
| 3 | JP1-3 | S1 CHUCK CARRIAGE FORWARD |
| 4 | JP1-4 | S2 TOOL CARRIAGE FORWARD |
| 5 | JP1-5 | S1 CHUCK ARM RISE |
| 6 | JP1-6 | S2 TOOL ARM DESCENT |
| 7 | JP1-7 | S1 CHUCK ARM DESCENT |
| 8 | JP1-8 | S2 TOOL ARM RISE |
| 9 | JP1-9 | S1 (COMMON) |
| 10 | JP1-10 | S2 (COMMON) |
| 11 | JP1-11 | S4 (COMMON) |
| 12 | JP1-12 | N.U. |
| 13 | JP1-13 | S4 CHUCK CLOSING PUSHBUTTON |
| 14 | JP1-14 | N.U. |
| 15 | JP1-15 | S4 CHUCK OPENING PUSHBUTTON |
| 16 | JP1-16 | N.U. |
| 17 | JP1-17 | S3 TOOL COUNTERCLOCKWISE ROT. PUSHBUTTON |
| 18 | JP1-18 | N.U. |

| PIN JP6 | NUMBER | FUNCTION |
|---|---|---|
| 1 | JP6-1 | S5 CHUCK COUNTERCLOCKWISE ROT. SELECTOR |
| 2 | JP6-2 | S5 CHUCK CLOCKWISE ROT. SELECTOR |
| 3 | JP6-3 | S3 TOOL CLOCKWISE ROT. PUSHBUTTON |
| 4 | JP6-4 | S5 COMMON |

| PIN JP2 | NUMBER | FUNCTION |
|---|---|---|
| 1 | JP2-1 | G2 BATTERY - |
| 2 | JP2-2 | G2 BATTERY + |

| P1 | NUMBER | FUNCTION |
|---|---|---|
| X1 | | 0-12Vdc |

| PIN JP9 | NUMBER | FUNCTION |
|---|---|---|
| 1 | JP9-1 | S6 HYDR. POWER UNIT DOUBLE SPEED PUSHBUTTON |
| 2 | JP9-2 | N.U. |
| 3 | JP9-3 | S3 (COMMON) |
| 4 | JP9-4 | S6 HYDR. POWER UNIT DOUBLE SPEED PUSHBUTTON |

| PIN JP13 | NUMBER | FUNCTION |
|---|---|---|
| 1 | JP13-1 | P2 RED LED + |
| 2 | JP13-2 | P2 RED LED - |

| PIN JP14 | NUMBER | FUNCTION |
|---|---|---|
| 1 | JP14-1 | P3 GREEN LED + |
| 2 | JP14-2 | P3 GREEN LED - |

Valido nella versione con manipolatore Bluetooth
Valid for Bluetooth handle control version
Gültig für Version mit Bluetooth-Manipulator
Valide dans la version avec manipulateur Bluetooth
Válido en la versión con manipulador Bluetooth

Valido nella variante 230V 50Hz 3Ph
Valid for 230V 50Hz 3Ph version
Gültig für 230V 50Hz 3Ph Version
Valide en la version 230V 50Hz 3Ph
Válido en la versión 230V 50Hz 3Ph

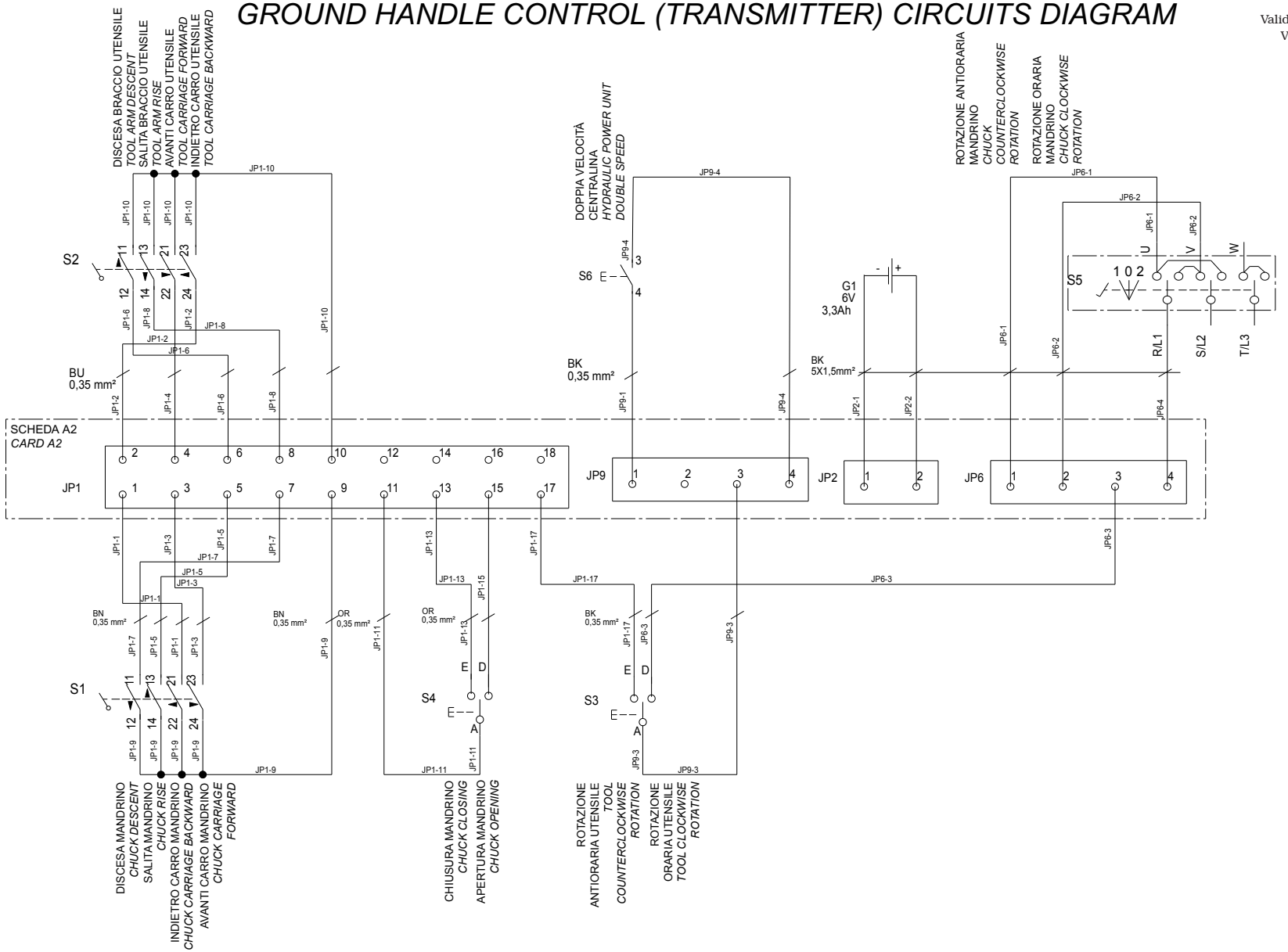
Valido nella variante 230V 60Hz 3Ph
Valid for 230V 60Hz 3Ph version
Gültig für 230V 60Hz 3Ph Version
Valide en la version 230V 60Hz 3Ph
Válido en la versión 230V 60Hz 3Ph

# SCHEMA CIRCUITI MANIPOLATORE A TERRA (TRASMETTITORE)
# *GROUND HANDLE CONTROL (TRANSMITTER) CIRCUITS DIAGRAM*

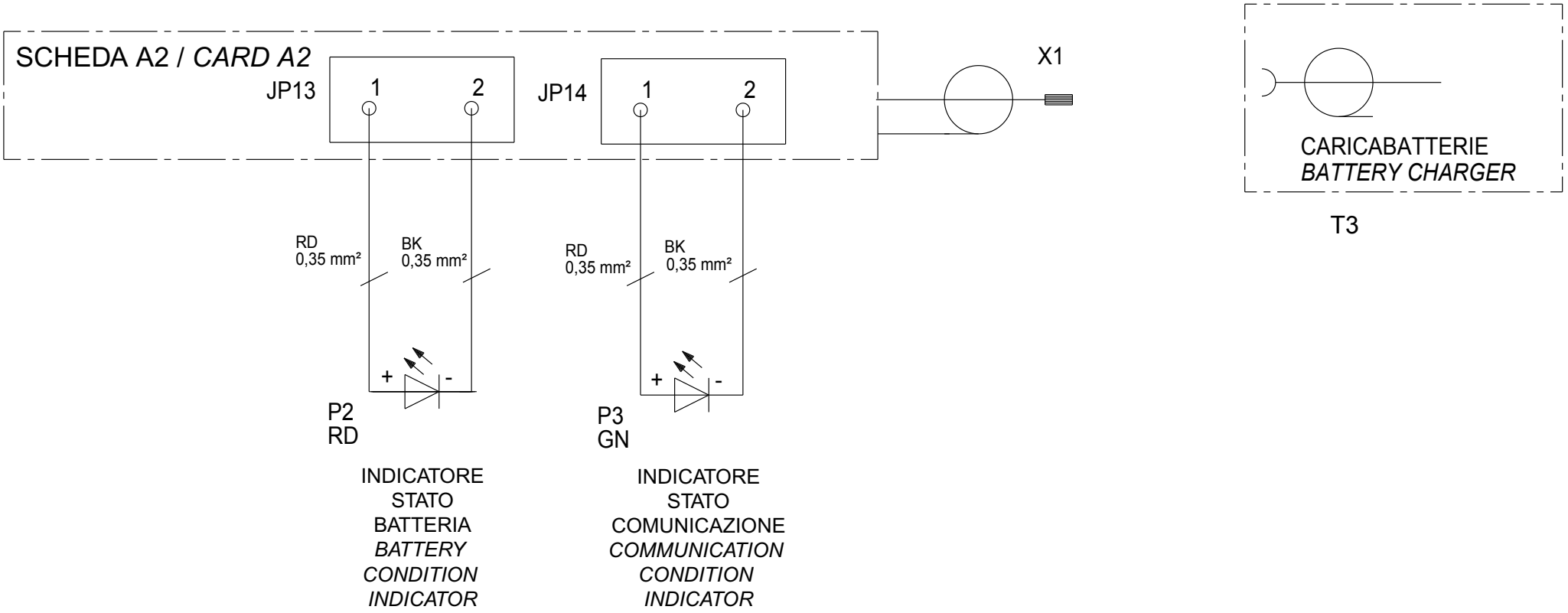
Valido nella versione con manipolatore Bluetooth
Valid for Bluetooth handle control version
Gültig für Version mit Bluetooth-Manipulator
Valide dans la version avec manipulateur Bluetooth
Válido en la versión con manipulador Bluetooth

Valido nella variante 230V 50Hz 3Ph
Valid for 230V 50Hz 3Ph version
Gültig für 230V 50Hz 3Ph Version
Valide en la version 230V 50Hz 3Ph
Válido en la versión 230V 50Hz 3Ph

Valido nella variante 230V 60Hz 3Ph
Valid for 230V 60Hz 3Ph version
Gültig für 230V 60Hz 3Ph Version
Valide en la version 230V 60Hz 3Ph
Válido en la versión 230V 60Hz 3Ph




| | | | | |
|---|---|---|---|---|
| Butler ENGINEERING and MARKETING S.P.A. | **LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIECES DETACHEES - LISTA DE PIEZAS** | | *SCHEMA ELETTRICO 15/18 ELECTRICAL SCHEME 15/18 SCHALTPLAN 15/18 SCHEMA ELECTRIQUE 15/18 ESQUEMA ELECTRICO 15/18* | ***Pag. 65 di 88*** |
| | **Tavola N°C - Rev. 1** | **752205562** | | **NAV43.15 - NAV63.15** |




Valido nella versione con manipolatore Bluetooth
Valid for Bluetooth handle control version
Gültig für Version mit Bluetooth-Manipulator
Valide dans la version avec manipulateur Bluetooth
Válido en la versión con manipulador Bluetooth

Valido nella variante 230V 50Hz 3Ph
Valid for 230V 50Hz 3Ph version
Gültig für 230V 50Hz 3Ph Version
Valide en la version 230V 50Hz 3Ph
Válido en la versión 230V 50Hz 3Ph

Valido nella variante 230V 60Hz 3Ph
Valid for 230V 60Hz 3Ph version
Gültig für 230V 60Hz 3Ph Version
Valide en la version 230V 60Hz 3Ph
Válido en la versión 230V 60Hz 3Ph

# LISTA COMPONENTI

Valido nella versione con manipolatore Bluetooth
Valid for Bluetooth handle control version
Gültig für Version mit Bluetooth-Manipulator
Valide dans la version avec manipulateur Bluetooth
Válido en la versión con manipulador Bluetooth

Valido nella variante 230V 50Hz 3Ph
Valid for 230V 50Hz 3Ph version
Gültig für 230V 50Hz 3Ph Version
Valide en la version 230V 50Hz 3Ph
Válido en la versión 230V 50Hz 3Ph

Valido nella variante 230V 60Hz 3Ph
Valid for 230V 60Hz 3Ph version
Gültig für 230V 60Hz 3Ph Version
Valide en la version 230V 60Hz 3Ph
Válido en la versión 230V 60Hz 3Ph

| RIFERIMENTO | DESCRIZIONE | DATI TECNICI | SIGLA CATALOGO | QUANTITA | RIFERIMENTO DOCUMENTO |
|---|---|---|---|---|---|
| A1<br>A2 | SCHEDA ELETT. RICEVENTE<br>SCHEDA ELETT.TRASMITTENTE | - | 18962<br>18961 | 1<br>1 | 2.5<br>11.2 |
| F1 | PORTAFUSIBILE | 3 POLI SEZIONABILE 10,3x38 32A 690V | 515025 | 1 | 6.6 |
| | FUSIBILE | 10,3x38 16A 500V aM RITARDATO | 507045 | 3 | |
| F2 | INTERRUTTORE AUTOM. TRIPOLARE | 6,3-10A AC3 400V 2,2KW | 518277 | 1 | 6.2 |
| | CONTATTI AUSILIARI | 1NO+1NC ATTACCO FRONTALE | 518279 | 1 | 6.2 |
| F3 | PORTAFUSIBILE | 2 POLI SEZIONABILE 10,3x38 32A 690V | 515027 | 1 | 5.3 |
| | FUSIBILE | 10,3X38 2A 500V RAPIDO | 507019 | 2 | |
| F4 | FUSIBILE | 5x20F 250V 2A RAPIDO | 507043 | 1 | 5.3 |
| F5 | FUSIBILE | 5x20F 250V 8A RAPIDO | 507090 | 1 | 5.3 |
| F6 | FUSIBILE | 5X20 T 8A 250V | 507118 | 1 | 5.7 |
| G1 | BATTERIA | 6V 3,3AH/20HR Lead | 10066 | 1 | 14.6 |
| K1 | CONTATTORE TRIPOLARE | 9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz | 522137 | 1 | 7.6 |
| K2 | CONTATTORE TRIPOLARE | 9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz | 522137 | 1 | 7.6 |
| K3 | CONTATTORE TRIPOLARE | 9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz | 522137 | 1 | 7.5 |
| K4 | CONTATTORE TRIPOLARE | 9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz | 522137 | 1 | 7.5 |
| | CONTATTI AUSILIARI | 1NO+1NC ATTACCO FRONTALE | 522147 | 1 | 7.4 |
| K5 | CONTATTORE | 9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz | 522137 | 1 | 7.4 |
| P2 | INDICATORE LUMINOSO (LED) | ROSSO | 18065 | 1 | 15.4 |
| P3 | INDICATORE LUMINOSO (LED) | VERDE | 18066 | 1 | 15.5 |
| Q1...Q14 | ELETTROVALVOLE | - | - | 14 | 8-9 |
| Q16 | SEZIONATORE TRIPOLARE | Ith 32A Ui 690V-50Hz Uimp 4KW | 518223+518226 | 1 | 5.2 |
| Q15 | COMMUTATORE DI POLI DAHLANDER | 25A 500V | 518189 | 1 | 6.5-6.6 |
| S1 | MANIPOLATORE | 4 POS.+CENTR.TEMPORANEE Ø22 | 517157AS | 1 | 14.2 |
| S2 | MANIPOLATORE | 4 POS.+CENTR.TEMPORANEE Ø22 | 517157AS | 1 | 14.2 |
| S3 | PULSANTE BASCULANTE | - | 517283 | 1 | 14.5 |
| S4 | PULSANTE BASCULANTE | - | 517283 | 1 | 14.4 |
| S5 | COMMUTATORE | Ith 25A Ui 690V-50Hz Uimp 4KW | 518058 | 1 | 14.7-14.8 |
| S6 | PULSANTE | - | 517105AS | 1 | 14.5 |
| T1 | TRASFORMATORE | 200 VA 50/60 Hz<br>PRI: 0/230/400V<br>SEC: 0/19V 8,95A<br>0/24V 1,25A | 528056 | 1 | 5.3 |
| - | - | - | - | - | - |
| T3 | CARICABATTERIA | 21.6W 7.2V 3A Lithium ion | 18064 | 1 | 15.6 |
| M1 | MOTORE CENTRALINA NAV63.15<br>NAV43.15 | 1,85/2,5KW 400V 50HZ 4,9/7,7A<br>cosØ=0,73/0,70 1400/2800 rpm | 900003880 | 1 | 6.3 |
| M2 | MOTORE MANDRINO NAV43.15 | 1,35/1,85KW 400V 50Hz 1400/2800rpm<br>AUTOFR. | 900003840 | | |
| M2 | MOTORE MANDRINO NAV63.15 | 1,5/2,2KW 400V 50Hz 4,2/6A<br>cosØ=0,80/0,84 1400/2800rpm AUTOFR. | 900003810 | 1 | 6.5 |

# COMPONENTS LIST

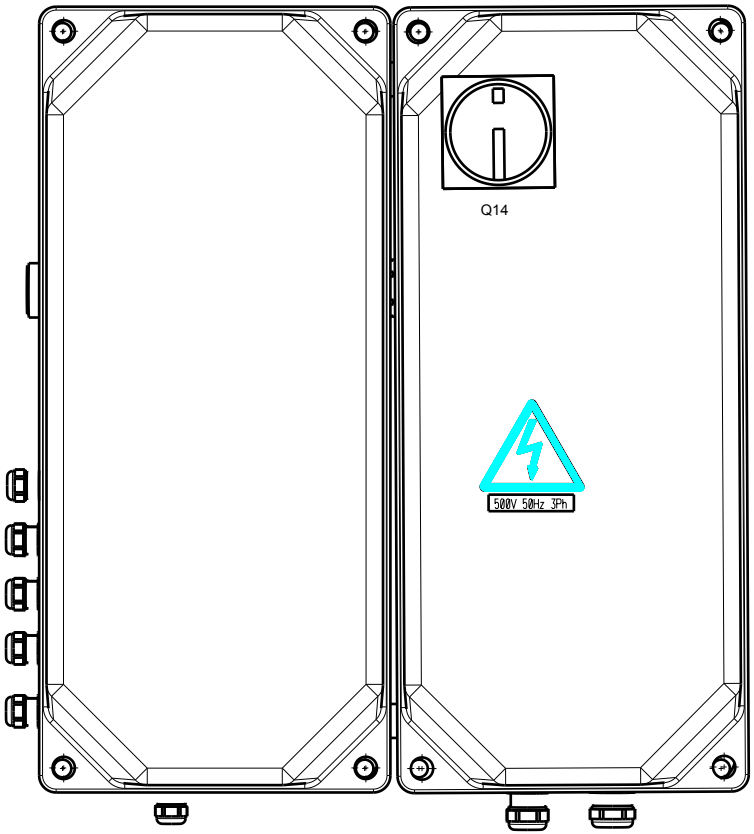
Valido nella versione con manipolatore Bluetooth
Valid for Bluetooth handle control version
Gültig für Version mit Bluetooth-Manipulator
Valide dans la version avec manipulateur Bluetooth
Válido en la versión con manipulador Bluetooth

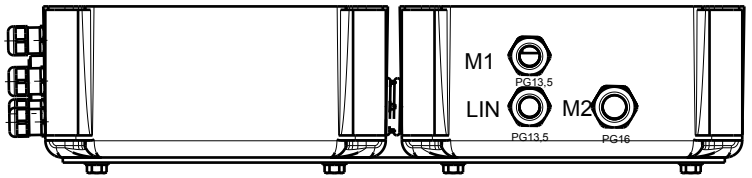
Valido nella variante 230V 50Hz 3Ph
Valid for 230V 50Hz 3Ph version
Gültig für 230V 50Hz 3Ph Version
Valide en la version 230V 50Hz 3Ph
Válido en la versión 230V 50Hz 3Ph

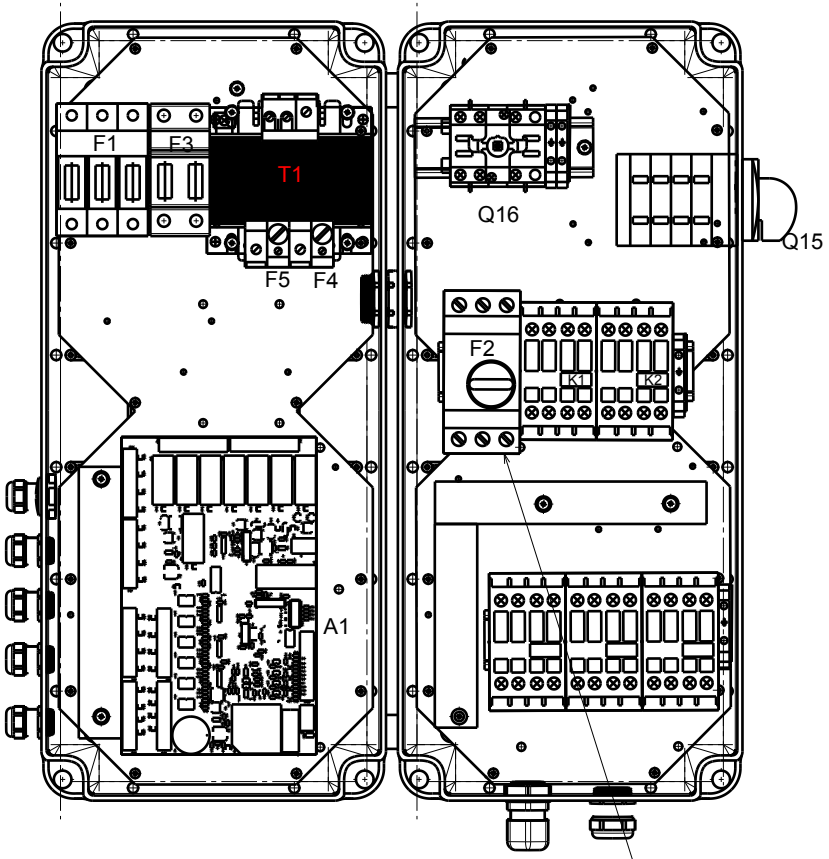
Valido nella variante 230V 60Hz 3Ph
Valid for 230V 60Hz 3Ph version
Gültig für 230V 60Hz 3Ph Version
Valide en la version 230V 60Hz 3Ph
Válido en la versión 230V 60Hz 3Ph

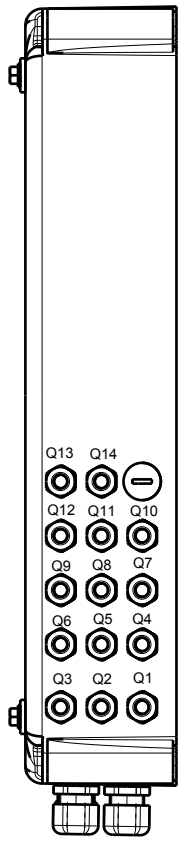
| REFERENCE | DESCRIPTION | TECHNICAL SPECIFICATIONS | ABBREVIATION ON CATALOGUE | QUANTITY | DOCUMENT REFERENCE |
|---|---|---|---|---|---|
| A1 | RECEIVING ELECTRICAL CARD | - | 18962 | 1 | 2.5 |
| A2 | TRANSMITTING ELECTRICAL CARD | | 18961 | 1 | 11.2 |
| F1 | FUSE HOLDER | 10,3x38 32A 690V SECTIONABLE 3 POLES | 515025 | 1 | 6.6 |
| | FUSE | 10,3x38 16A 500V aM DELAYED-ACTION | 507045 | 3 | |
| F2 | TRIPOLAR AUTOMATIC SWITCH | 6,3-10A AC3 400V 2,2KW | 518277 | 1 | 6.2 |
| | AUXILIARY CONTACTS | 1NO+1NC FRONT COUPLING | 518279 | 1 | 6.2 |
| F3 | FUSE HOLDER | 10,3x38 32A 690V SECTIONABLE 2 POLES | 515027 | 1 | 5.3 |
| | FUSE | 10,3X38 2A 500V RAPID | 507019 | 2 | |
| F4 | FUSE | 5x20F 250V 2A RAPID | 507043 | 1 | 5.3 |
| F5 | FUSE | 5x20F 250V 8A RAPID | 507090 | 1 | 5.3 |
| F6 | FUSE | 5X20 T 8A 250V | 507118 | 1 | 5.7 |
| G1 | BATTERY | 6V 3,3AH/20HR Lead | 10066 | 1 | 14.6 |
| K1 | TRIPOLAR CONTACTOR | 9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz | 522137 | 1 | 7.6 |
| K2 | TRIPOLAR CONTACTOR | 9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz | 522137 | 1 | 7.6 |
| K3 | TRIPOLAR CONTACTOR | 9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz | 522137 | 1 | 7.5 |
| K4 | TRIPOLAR CONTACTOR | 9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz | 522137 | 1 | 7.5 |
| | AUXILIARY CONTACTS | 1NO+1NC FRONT COUPLING | 522147 | 1 | 7.4 |
| K5 | CONTACTOR | 9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz | 522137 | 1 | 7.4 |
| P2 | BACKLIGHTED INDICATOR (LED) | RED | 18065 | 1 | 15.4 |
| P3 | BACKLIGHTED INDICATOR (LED) | GREEN | 18066 | 1 | 15.5 |
| Q1...Q14 | SOLENOID VALVES | - | - | 14 | 8-9 |
| Q16 | TRIPOLAR KNIFE SWITCH | Ith 32A Ui 690V-50Hz Uimp 4KW | 518223 + 518226 | 1 | 5.2 |
| Q15 | DAHLANDER POLES COMMUTATOR | 25A 500V | 518189 | 1 | 6.5-6.6 |
| S1 | HANDLE CONTROL | 4 POS.+ CENTRAL POS. TEMPORARY Ø22 | 517157AS | 1 | 14.2 |
| S2 | HANDLE CONTROL | 4 POS.+ CENTRAL POS. TEMPORARY Ø22 | 517157AS | 1 | 14.2 |
| S3 | BALANCING PUSHBUTTON | - | 517283 | 1 | 14.5 |
| S4 | BALANCING PUSHBUTTON | - | 517283 | 1 | 14.4 |
| S5 | COMMUTATOR | Ith 25A Ui 690V-50Hz Uimp 4KW | 518058 | 1 | 14.7-14.8 |
| S6 | PUSHBUTTON | - | 517105AS | 1 | 14.5 |
| T1 | TRANSFORMER | 200 VA 50/60 Hz<br>PRI: 0/230/400V<br>SEC: 0/19V 8,95A<br>0/24V 1,25A | 528056 | 1 | 5.3 |
| - | - | - | - | - | - |
| T3 | BATTERY CHARGER | 21.6W 7.2V 3A Lithium ion | 18064 | 1 | 15.6 |
| M1 | HYDRAULIC POWER UNIT MOTOR | 1,85/2,5KW 400V 50HZ 4,9/7,7A<br>cosØ=0,73/0,70 1400/2800 rpm | 900003880 | 1 | 6.3 |
| M2 | CHUCK MOTOR | 1,35/1,85KW 400V 50Hz 1400/2800rpm<br>SELF BRAKING | 900003840 | 1 | |
| M2 | CHUCK MOTOR | 1,5/2,2KW 400V 50Hz 4,2/6A<br>cosØ=0,80/0,84 1400/2800rpm SELF BRAKING | 900003810 | 1 | 6.5 |

Valido nella variante 500V 50Hz 3Ph
Valid for 500V 50Hz 3Ph version
Gültig für 500V 50Hz 3Ph Version
Valide en la version 500V 50Hz 3Ph
Válido en la versión 500V 50Hz 3Ph



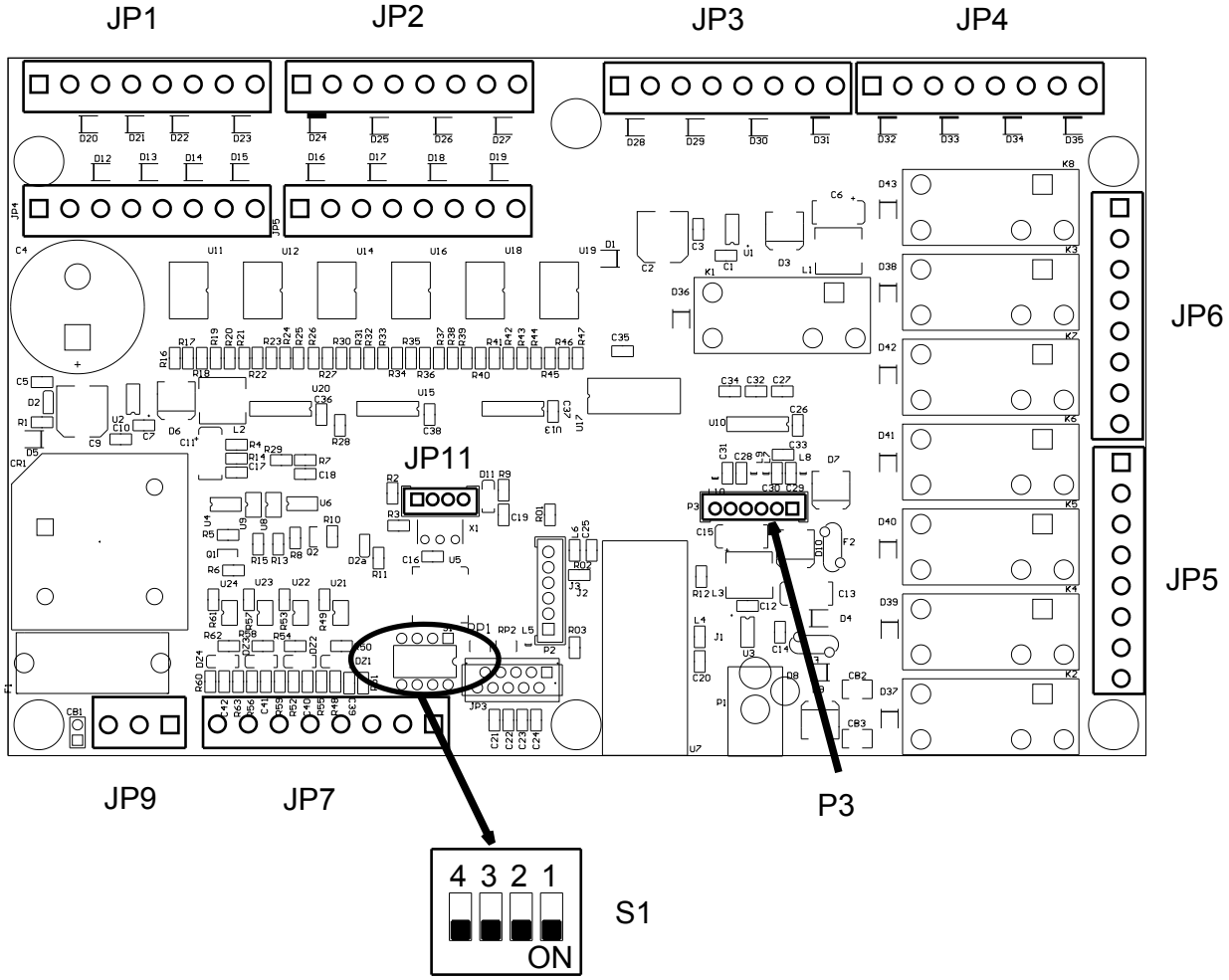




Tarare il salvamotore a 8A
*Set the overload cut-out at 8A*

Valido nella variante 500V 50Hz 3Ph
Valid for 500V 50Hz 3Ph version
Gültig für 500V 50Hz 3Ph Version
Valide en la version 500V 50Hz 3Ph
Válido en la versión 500V 50Hz 3Ph

# TOPOGRAFICO SCHEDA RICEVENTE 18962
# *RECEIVING CARD 18962 TOPOGRAPHIC VIEW*



# IN/OUT SCHEDA RICEVENTE 18962

Valido nella variante 500V 50Hz 3Ph
Valid for 500V 50Hz 3Ph version
Gültig für 500V 50Hz 3Ph Version
Valide en la version 500V 50Hz 3Ph
Válido en la versión 500V 50Hz 3Ph

| PIN JP1 | NUMERO | FUNZIONE |
|---|---|---|
| 1 | JP1-1 | Q1 INDIETRO CARRO UTENSILE |
| 2 | JP1-2 | 0V per Q1 |
| 3 | JP1-3 | Q2 AVANTI CARRO UTENSILE |
| 4 | JP1-4 | 0V per Q2 |
| 5 | JP1-5 | Q3 AVANTI CARRO MANDRINO |
| 6 | JP1-6 | 0V per Q3 |
| 7 | JP1-7 | Q4 INDIETRO CARRO MANDRINO |
| 8 | JP1-8 | 0V per Q4 |

| PIN JP2 | NUMERO | FUNZIONE |
|---|---|---|
| 1 | JP2-1 | Q5 CHIUSURA MANDRINO |
| 2 | JP2-2 | 0V per Q5 |
| 3 | JP2-3 | Q6 APERTURA MANDRINO |
| 4 | JP2-4 | 0V per Q6 |
| 5 | JP2-5 | Q7 DISCESA BRACCIO MANDRINO<br>Q14 LENTO DISCESA MANDRINO |
| 6 | JP2-6 | 0V per Q7<br>0V per Q14 |
| 7 | JP2-7 | Q8 SALITA BRACCIO MANDRINO |
| 8 | JP2-8 | 0V per Q8 |

| PIN JP3 | NUMERO | FUNZIONE |
|---|---|---|
| 1 | JP3-1 | Q9 ROTAZ.ANTIORARIA UTENSILE |
| 2 | JP3-2 | 0V per Q9 |
| 3 | JP3-3 | Q10 ROTAZ.ORARIA UTENSILE |
| 4 | JP3-4 | 0V per Q10 |
| 5 | JP3-5 | Q11 DISCESA BRACCIO UTENSILE |
| 6 | JP3-6 | 0V per Q11 |
| 7 | JP3-7 | Q12 SALITA BRACCIO UTENSILE |
| 8 | JP3-8 | 0V pe Q12 |

| PIN JP4 | NUMERO | FUNZIONE |
|---|---|---|
| 1 | JP4-1 | Q13 RICIRCOLO OLIO |
| 2 | JP4-2 | 0V per Q13 |
| 3 | JP4-3 | N.U. |
| 4 | JP4-4 | N.U. |
| 5 | JP4-5 | N.U. |
| 6 | JP4-6 | N.U. |
| 7 | JP4-7 | N.U. |
| 8 | JP4-8 | N.U. |

| PIN JP5 | NUMERO | FUNZIONE |
|---|---|---|
| 1 | JP5-1 | N.U. |
| 2 | JP5-2 | N.U. |
| 3 | JP5-3 | 0 Vac |
| 4 | JP5-4 | KM5 COMANDO ROTAZ. 2V CENTRALINA OLEOD |
| 5 | JP5-5 | KM4 COMANDO MOTORE CENTRALINA A STELLA 2V |
| 6 | JP5-6 | KM3 COMANDO ROTAZ. 1V CENTRALINA OLEOD |
| 7 | JP5-7 | KM2 COMANDO ROTAZ. ORARIA MANDRINO |
| 8 | JP5-8 | KM1 COMANDO ROTAZ. ANTIORARIA MANDRINO |

| PIN JP7 | NUMERO | FUNZIONE |
|---|---|---|
| 1 | JP7-1 | COLLEGATO A JP7-2 |
| 2 | JP7-2 | COLLEGATO A JP7-1 |
| 3 | JP7-3 | N.U. |
| 4 | JP7-4 | N.U. |
| 5 | JP7-5 | N.U. |
| 6 | JP7-6 | N.U. |
| 7 | JP7-7 | N.U. |
| 8 | JP7-8 | N.U. |

| PIN JP9 | NUMERO | FUNZIONE |
|---|---|---|
| 1 | JP9-1 | 0 Vac |
| 2 | JP9-2 | N.U. |
| 3 | JP9-3 | 19 Vac |

# RECEIVING CARD 18962 IN/OUT

Valido nella variante 500V 50Hz 3Ph
Valid for 500V 50Hz 3Ph version
Gültig für 500V 50Hz 3Ph Version
Valide en la version 500V 50Hz 3Ph
Válido en la versión 500V 50Hz 3Ph

| PIN JP1 | NUMBER | FUNCTION |
|---|---|---|
| 1 | JP1-1 | Q1 TOOL CARRIAGE BACKWARD |
| 2 | JP1-2 | 0V for Q1 |
| 3 | JP1-3 | Q2 TOOL CARRIAGE FORWARD |
| 4 | JP1-4 | 0V for Q2 |
| 5 | JP1-5 | Q3 CHUCK CARRIAGE FORWARD |
| 6 | JP1-6 | 0V for Q3 |
| 7 | JP1-7 | Q4 CHUCK CARRIAGE BACKWARD |
| 8 | JP1-8 | 0V for Q4 |

| PIN JP2 | NUMBER | FUNCTION |
|---|---|---|
| 1 | JP2-1 | Q5 CHUCK CLOSING |
| 2 | JP2-2 | 0V for Q5 |
| 3 | JP2-3 | Q6 CHUCK OPENING |
| 4 | JP2-4 | 0V for Q6 |
| 5 | JP2-5 | Q7 CHUCK ARM DESCENT<br>Q14 CHUCK SLOW DESCENT |
| 6 | JP2-6 | 0V for Q7<br>0V for Q14 |
| 7 | JP2-7 | Q8 CHUCK ARM RISE |
| 8 | JP2-8 | 0V for Q8 |

| PIN JP3 | NUMBER | FUNCTION |
|---|---|---|
| 1 | JP3-1 | Q9 TOOL COUNTERCLOCKWISE ROT. |
| 2 | JP3-2 | 0V for Q9 |
| 3 | JP3-3 | Q10 TOOL CLOCKWISE ROTATION |
| 4 | JP3-4 | 0V for Q10 |
| 5 | JP3-5 | Q11 TOOL ARM DESCENT |
| 6 | JP3-6 | 0V for Q11 |
| 7 | JP3-7 | Q12 TOOL ARM RISE |
| 8 | JP3-8 | 0V for Q12 |

| PIN JP4 | NUMBER | FUNCTION |
|---|---|---|
| 1 | JP4-1 | Q13 OIL RECIRCULATION |
| 2 | JP4-2 | 0V for Q13 |
| 3 | JP4-3 | N.U. |
| 4 | JP4-4 | N.U. |
| 5 | JP4-5 | N.U. |
| 6 | JP4-6 | N.U. |
| 7 | JP4-7 | N.U. |
| 8 | JP4-8 | N.U. |

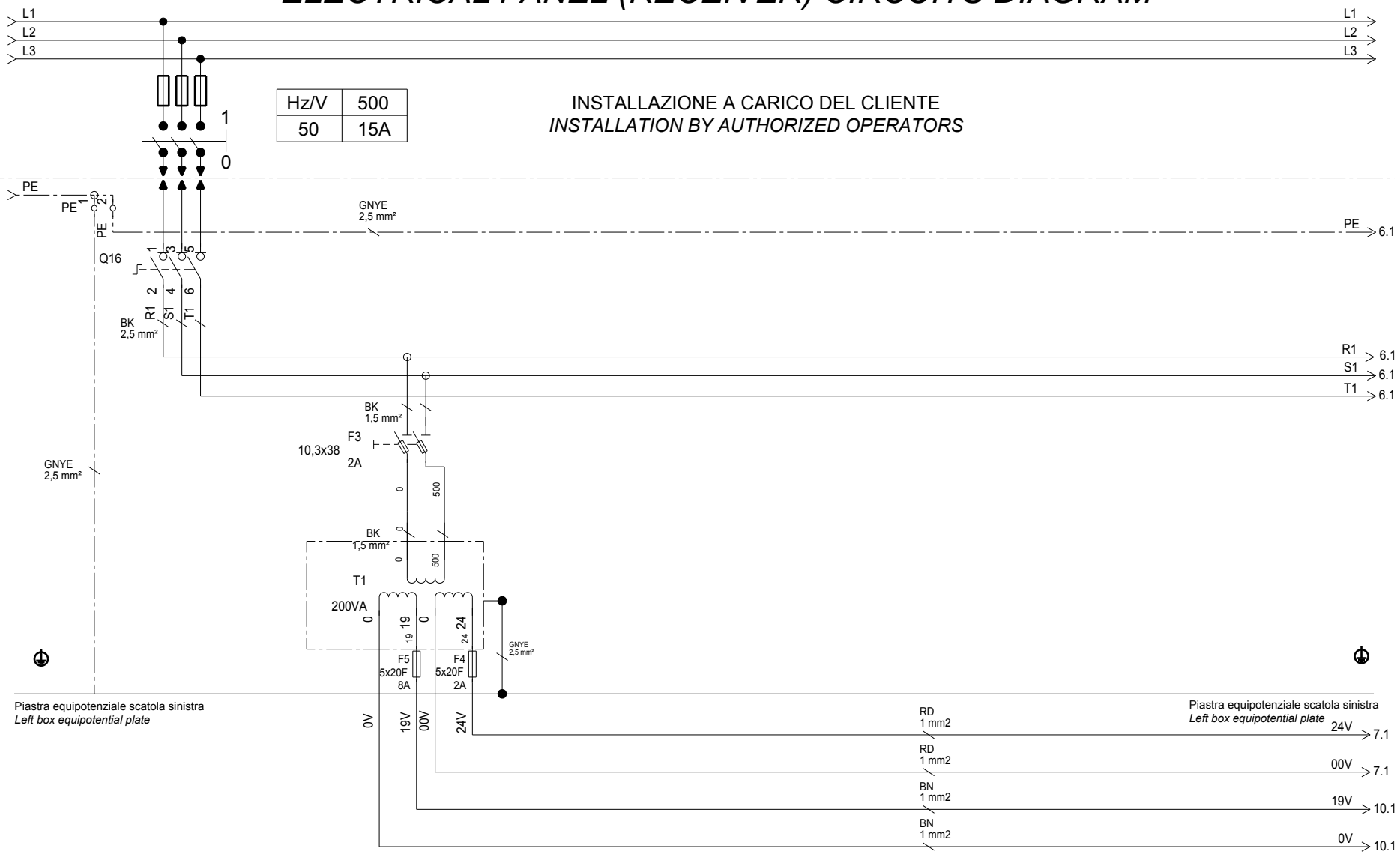
| PIN JP5 | NUMBER | FUNCTION |
|---|---|---|
| 1 | JP5-1 | N.U. |
| 2 | JP5-2 | N.U. |
| 3 | JP5-3 | 0 Vac |
| 4 | JP5-4 | KM5 2V HYDR. POWER UNIT ROTATION CONTROL |
| 5 | JP5-5 | KM4 2V STAR TYPE HYDR. POWER UNIT MOTOR ROT. CONTR. |
| 6 | JP5-6 | KM3 1V HYDRAULIC POWER UNIT ROT. CONTROL |
| 7 | JP5-7 | KM2 CHUCK CLOCKWISE ROTATION CONTROL |
| 8 | JP5-8 | KM1 CHUCK COUNTERCLOCKWISE ROT. CONTROL |

| PIN JP7 | NUMBER | FUNCTION |
|---|---|---|
| 1 | JP7-1 | CONNECTED TO JP7-2 |
| 2 | JP7-2 | CONNECTED TO JP7-1 |
| 3 | JP7-3 | N.U. |
| 4 | JP7-4 | N.U. |
| 5 | JP7-5 | N.U. |
| 6 | JP7-6 | N.U. |
| 7 | JP7-7 | N.U. |
| 8 | JP7-8 | N.U. |

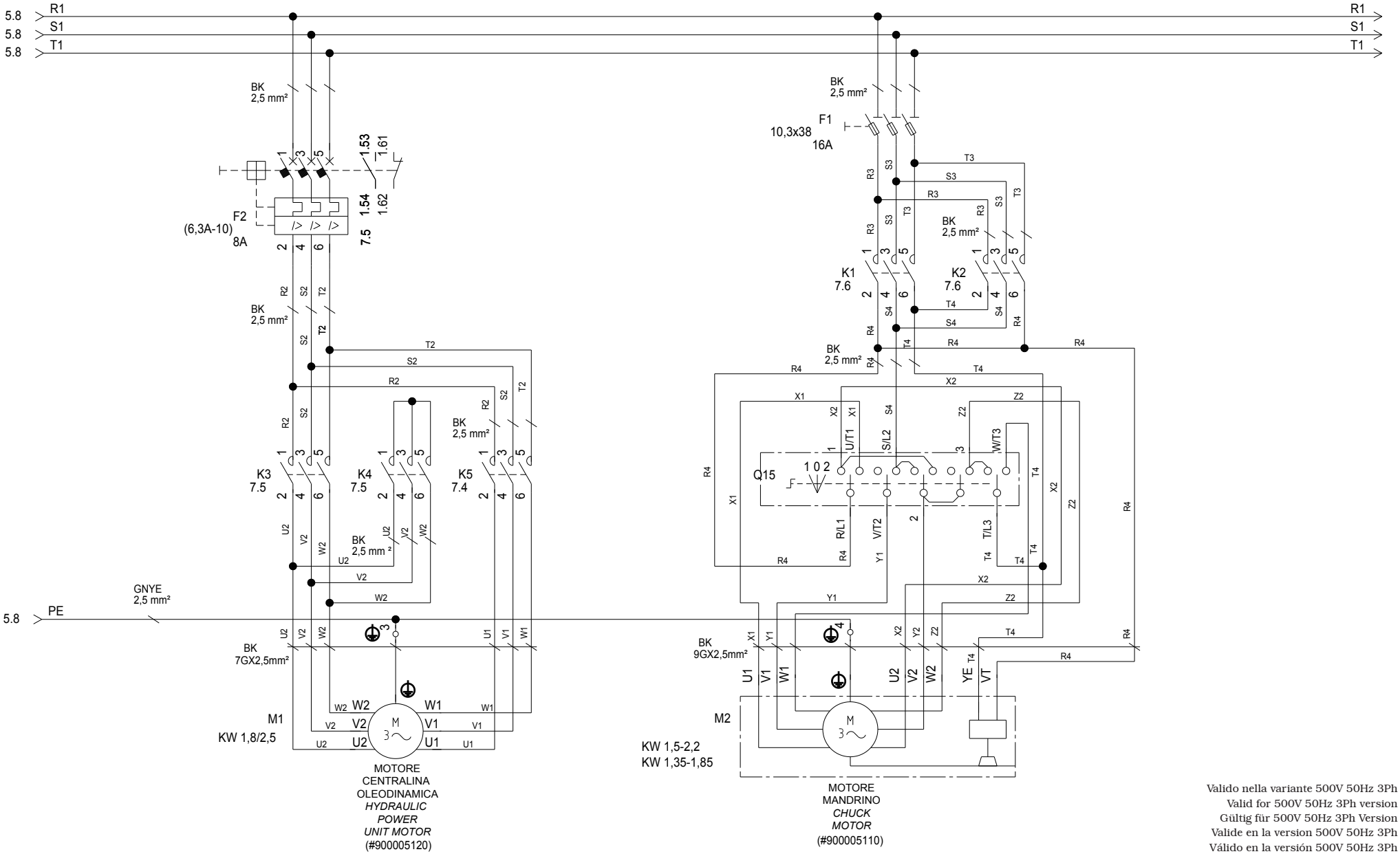
| PIN JP9 | NUMBER | FUNCTION |
|---|---|---|
| 1 | JP9-1 | 0 Vac |
| 2 | JP9-2 | N.U. |
| 3 | JP9-3 | 19 Vac |

Valido nella variante 500V 50Hz 3Ph
Valid for 500V 50Hz 3Ph version
Gültig für 500V 50Hz 3Ph Version
Valide en la version 500V 50Hz 3Ph
Válido en la versión 500V 50Hz 3Ph

# SCHEMA CIRCUITI QUADRO ELETTRICO (RICEVITORE)
# *ELECTRICAL PANEL (RECEIVER) CIRCUITS DIAGRAM*

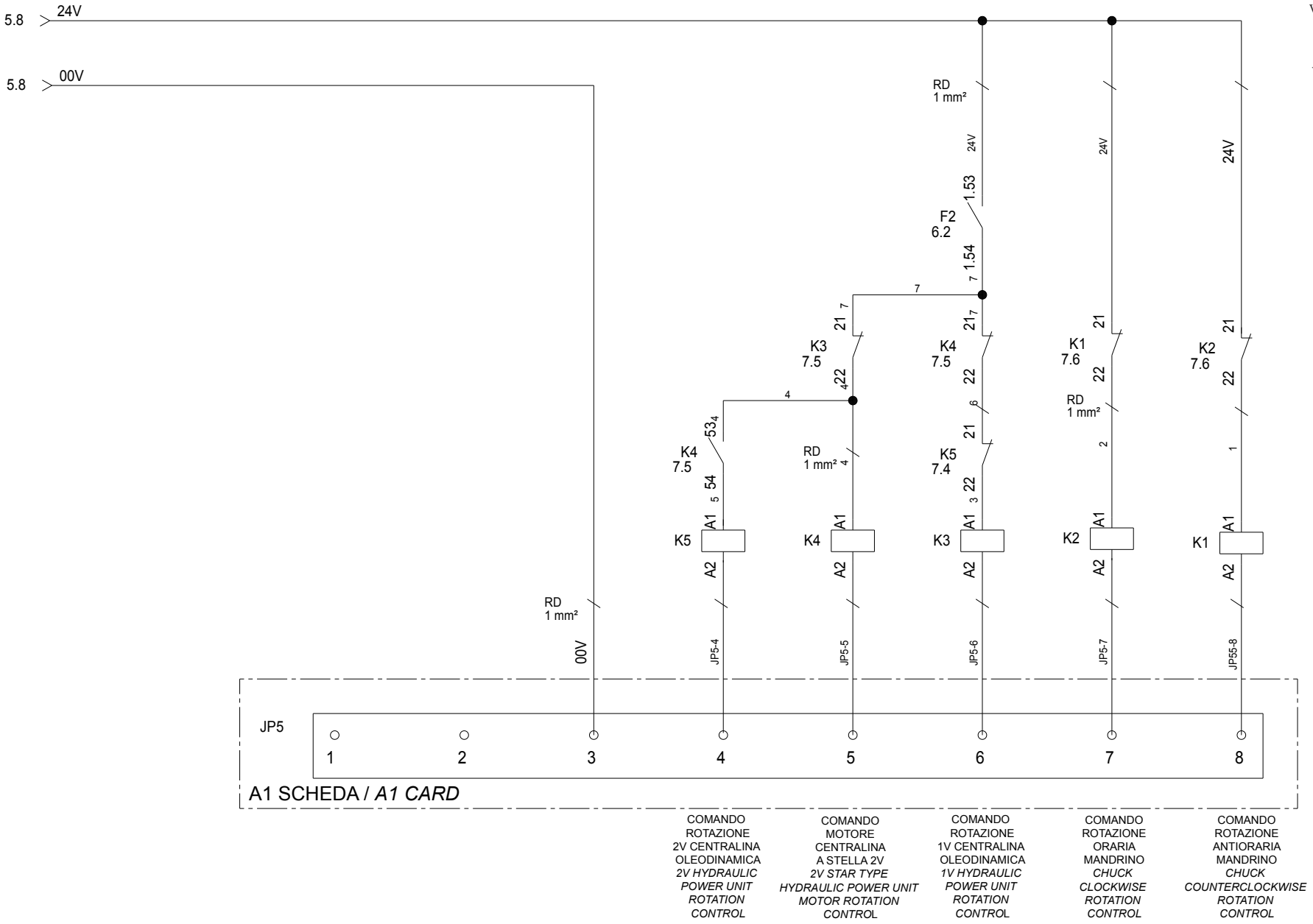


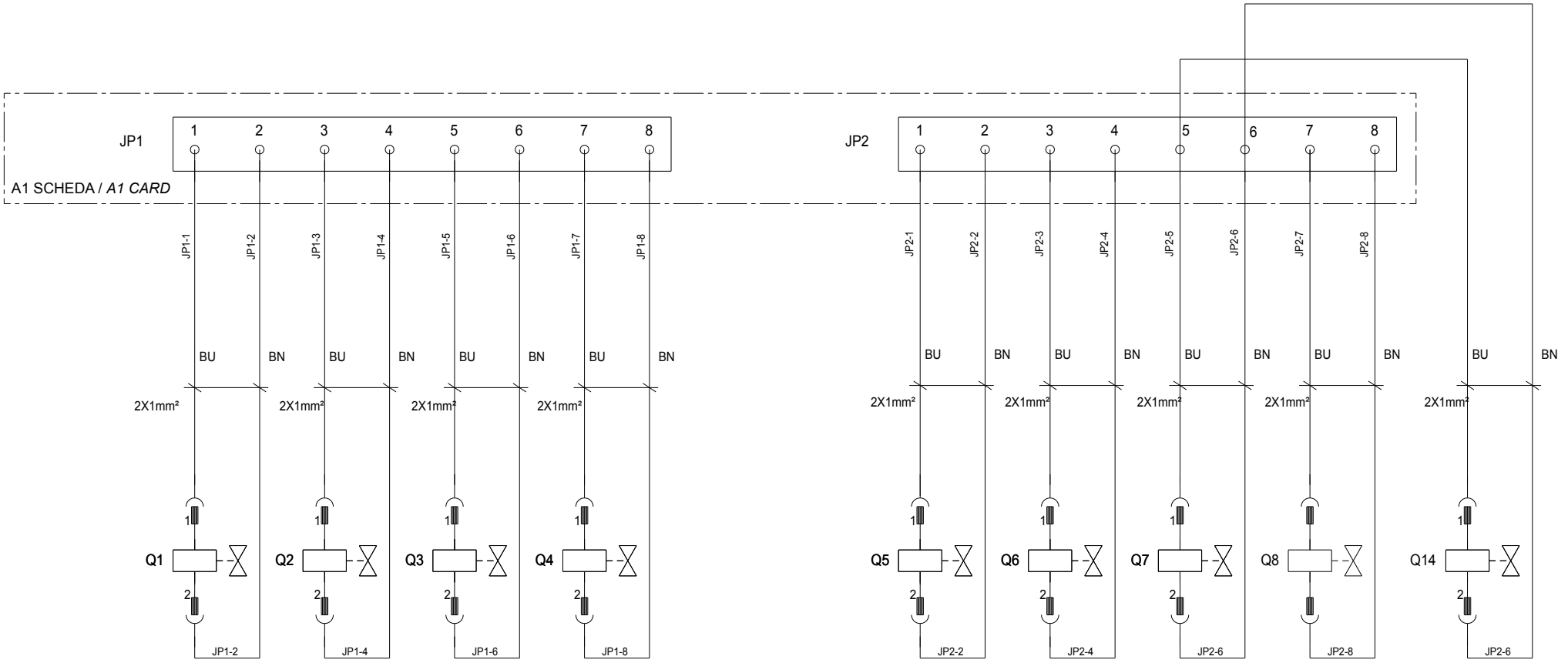

| | | | |
|---|---|---|---|
| **Butler** ENGINEERING and MARKETING S.P.A. | **LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIECES DETACHEES - LISTA DE PIEZAS** | *SCHEMA ELETTRICO 5/18 ELECTRICAL SCHEME 5/18 SCHALTPLAN 5/18 SCHEMA ELECTRIQUE 5/18 ESQUEMA ELECTRICO 5/18* | ***Pag. 73 di 88*** |
| | **Tavola N°D - Rev. 0** / **790005590** | | **NAV43.15 - NAV63.15** |




Valido nella variante 500V 50Hz 3Ph
Valid for 500V 50Hz 3Ph version
Gültig für 500V 50Hz 3Ph Version
Valide en la version 500V 50Hz 3Ph
Válido en la versión 500V 50Hz 3Ph

Valido nella variante 500V 50Hz 3Ph
Valid for 500V 50Hz 3Ph version
Gültig für 500V 50Hz 3Ph Version
Valide en la version 500V 50Hz 3Ph
Válido en la versión 500V 50Hz 3Ph






Q1
EV INDIETRO CARRO UTENSILE
*Q1 TOOL CARRIAGE BACKWARD SOLENOID VALVE*

Q2
EV AVANTI CARRO UTENSILE
*Q2 TOOL CARRIAGE FORWARD SOLENOID VALVE*

Q3
EV AVANTI CARRO MANDRINO
*Q3 CHUCK CARRIAGE FORWARD SOLENOID VALVE*

Q4
EV INDIETRO CARRO MANDRINO
*Q4 CHUCK CARRIAGE BACKWARD SOLENOID VALVE*

Q5
EV CHIUSURA MANDRINO
*Q5 CHUCK CLOSING SOLENOID VALVE*

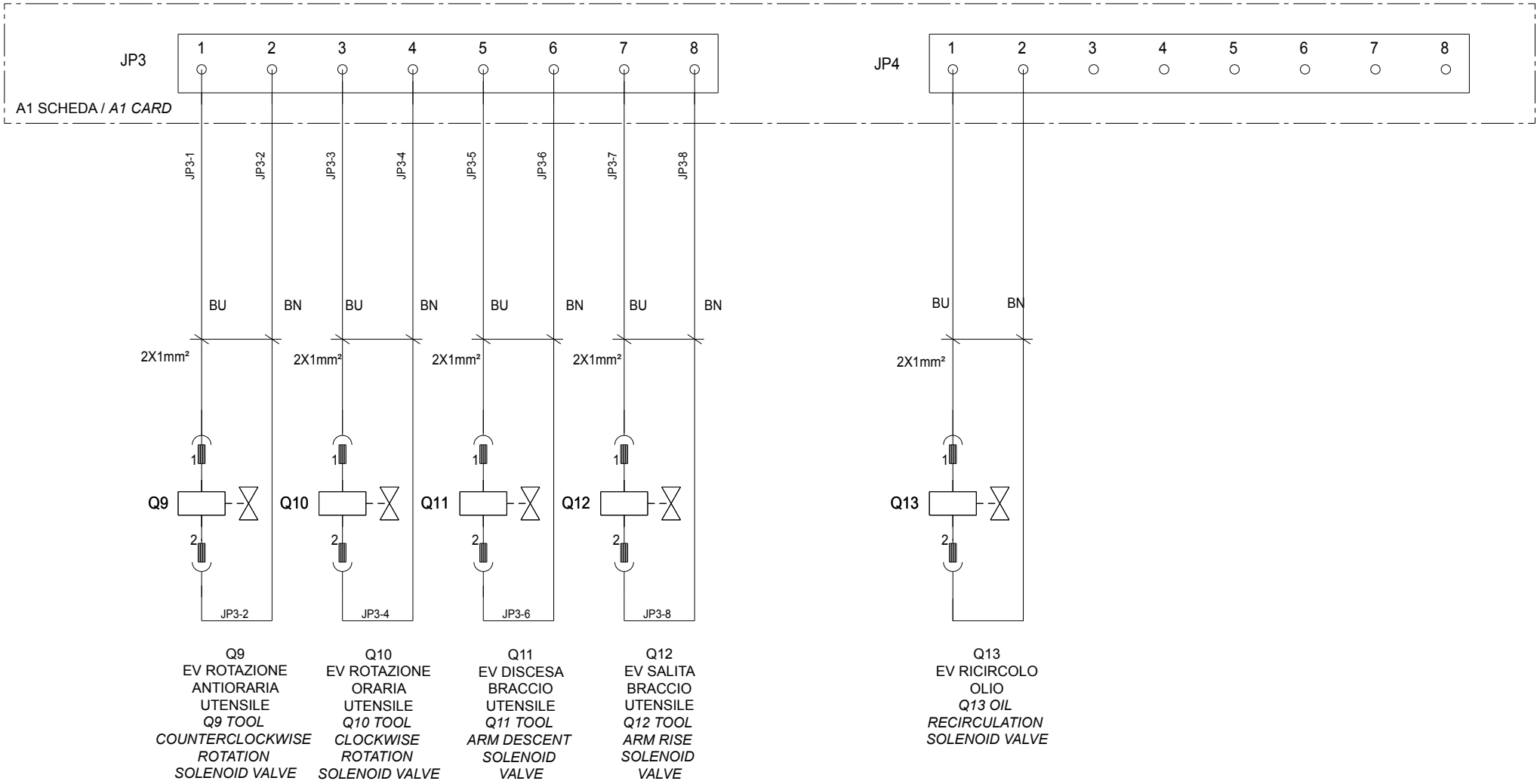
Q6
EV APERTURA MANDRINO
*Q6 CHUCK OPENING SOLENOID VALVE*

Q7 EV DISCESA BRACCIO MANDRINO
*Q7 CHUCK ARM DESCENT SOLENOID VALVE*

Q8
EV SALITA BRACCIO MANDRINO
*Q8 CHUCK ARM RISE SOLENOID VALVE*

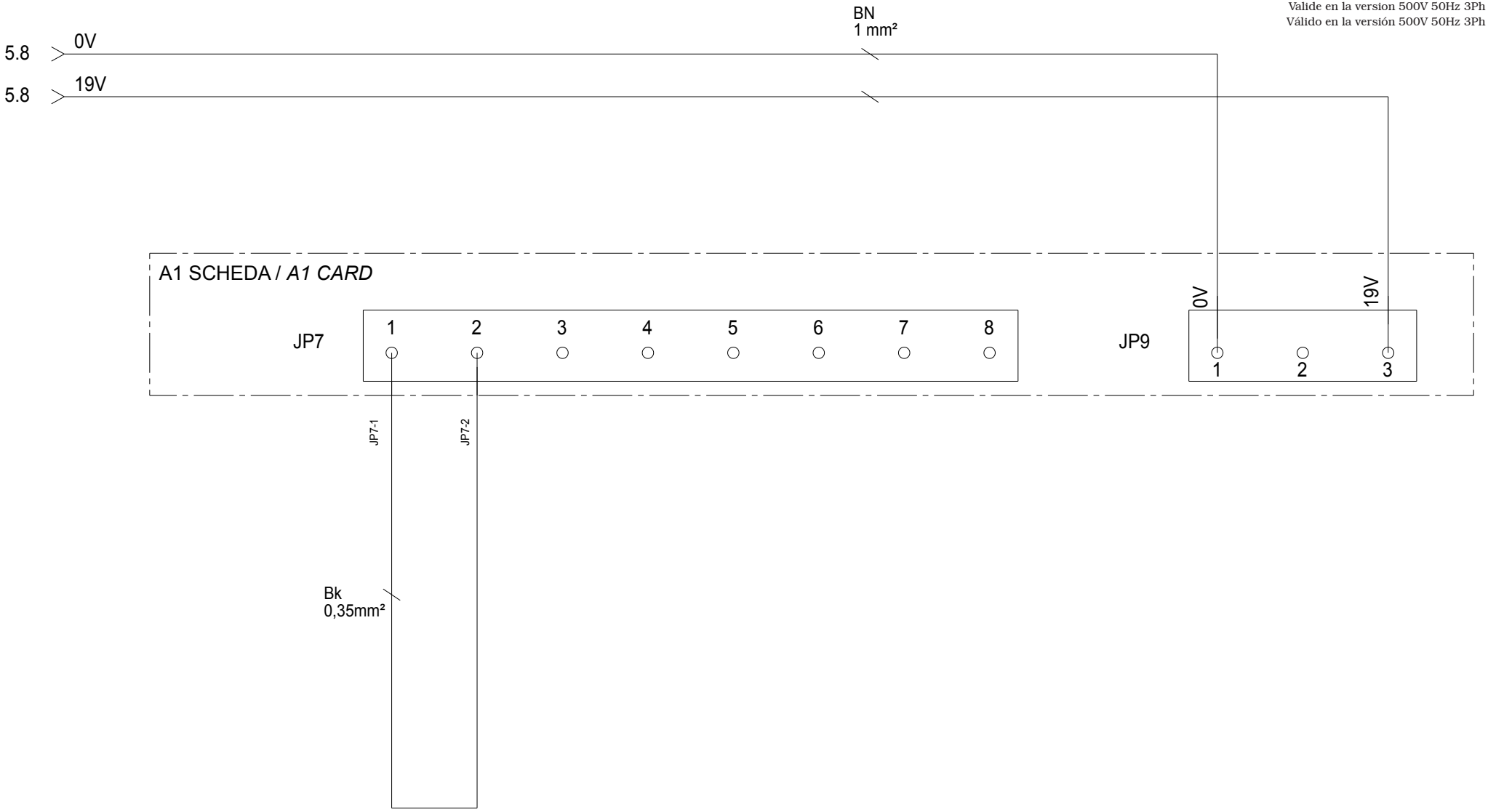
Q14
EV LENTO DISCESA BRACCIO MANDRINO
*Q14 CHUCK ARM DESCENT SLOW SOLENOID VALVE*

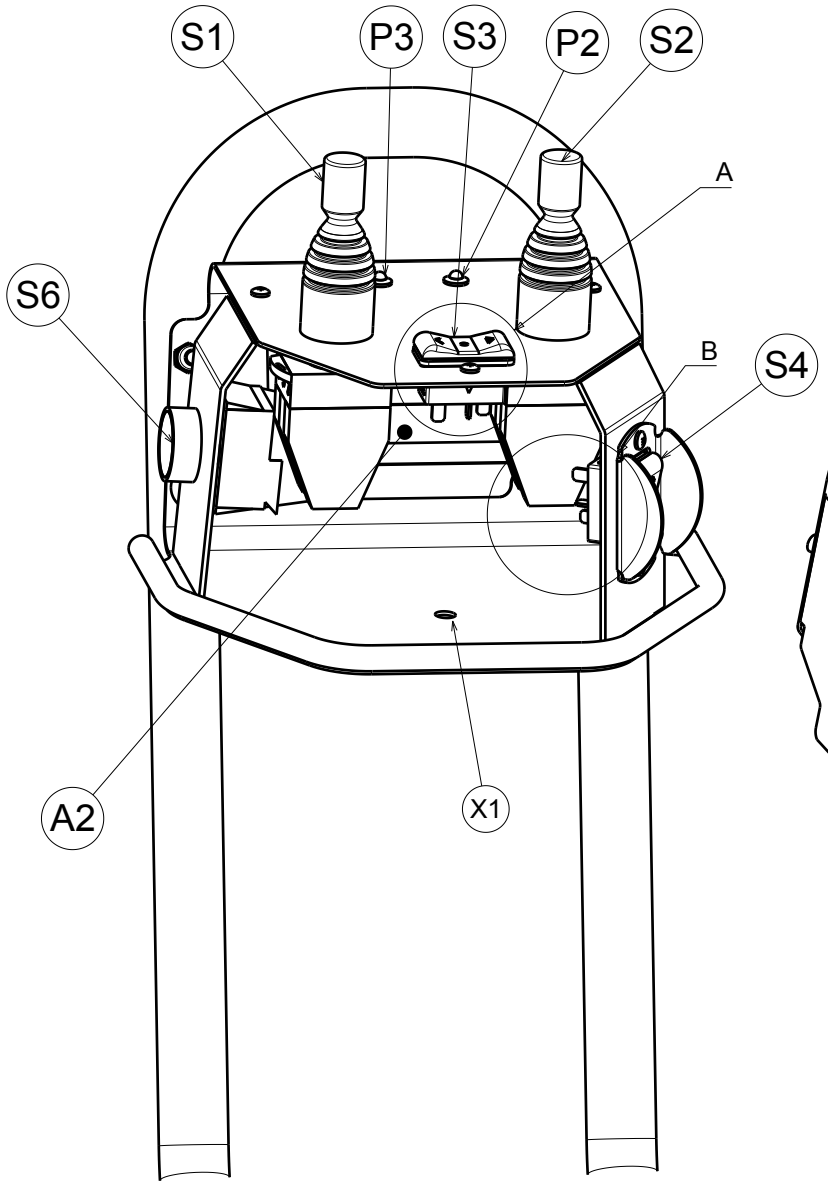
Valido nella variante 500V 50Hz 3Ph
Valid for 500V 50Hz 3Ph version
Gültig für 500V 50Hz 3Ph Version
Valide en la version 500V 50Hz 3Ph
Válido en la versión 500V 50Hz 3Ph

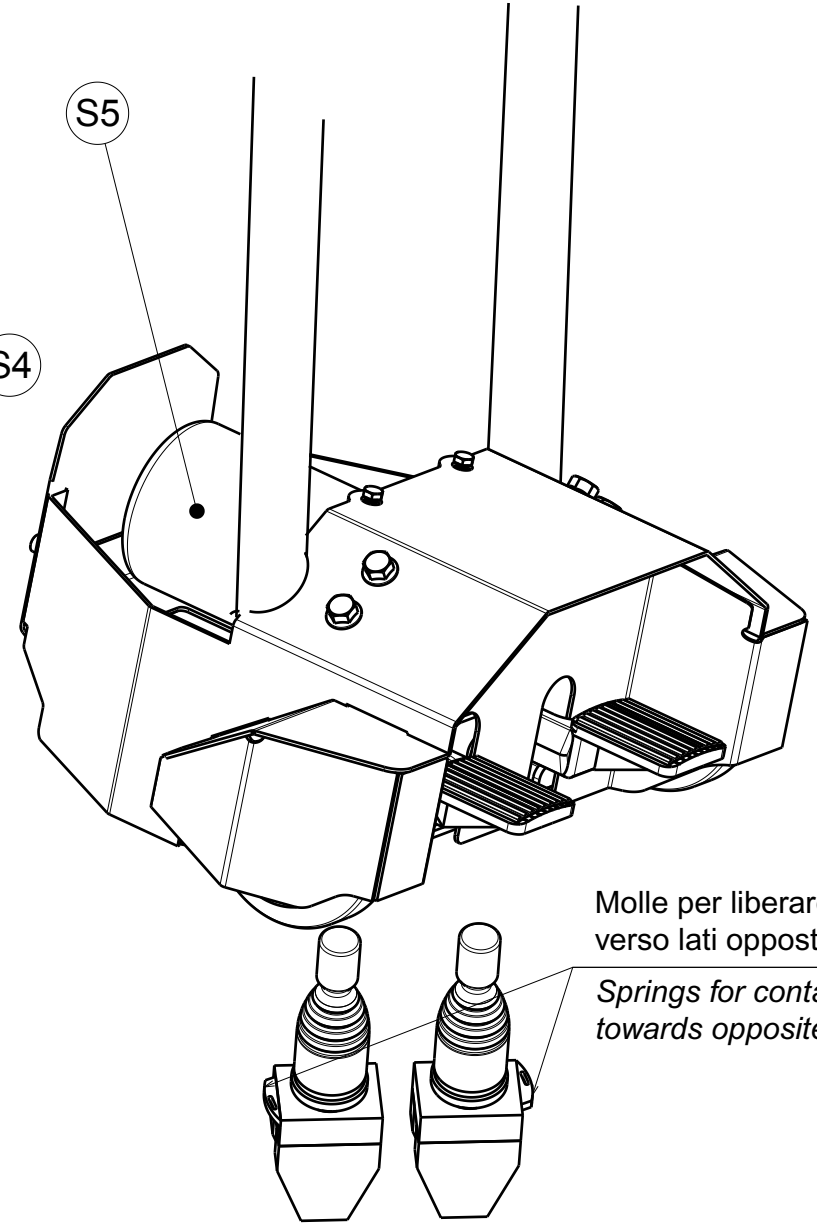


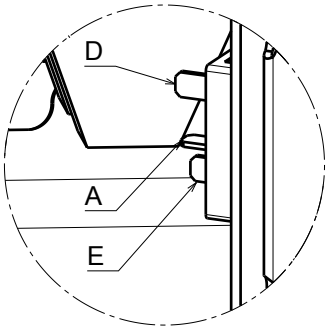

Valido nella variante 500V 50Hz 3Ph
Valid for 500V 50Hz 3Ph version
Gültig für 500V 50Hz 3Ph Version
Valide en la version 500V 50Hz 3Ph
Válido en la versión 500V 50Hz 3Ph

Valido nella variante 500V 50Hz 3Ph
Valid for 500V 50Hz 3Ph version
Gültig für 500V 50Hz 3Ph Version
Valide en la version 500V 50Hz 3Ph
Válido en la versión 500V 50Hz 3Ph

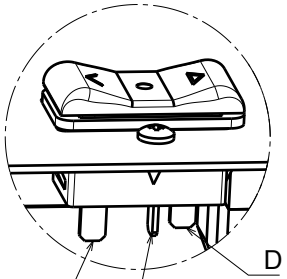





Dettaglio B
*Detail B*




Dettaglio A
*Detail A*

Molle per liberare i contatti
verso lati opposti

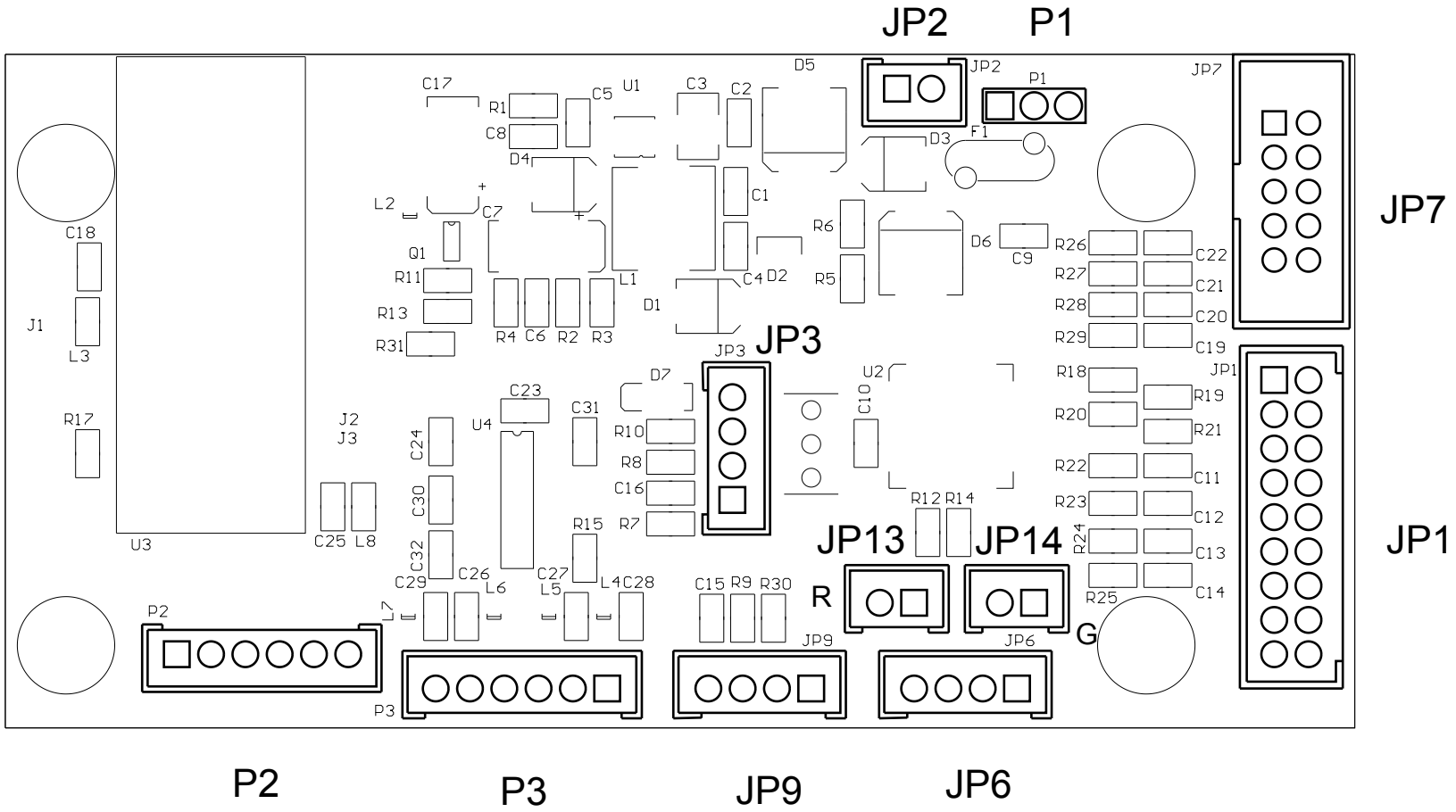
*Springs for contacts release towards opposite sides*



Valido nella variante 500V 50Hz 3Ph
Valid for 500V 50Hz 3Ph version
Gültig für 500V 50Hz 3Ph Version
Valide en la version 500V 50Hz 3Ph
Válido en la versión 500V 50Hz 3Ph

Valido nella variante 500V 50Hz 3Ph
Valid for 500V 50Hz 3Ph version
Gültig für 500V 50Hz 3Ph Version
Valide en la version 500V 50Hz 3Ph
Válido en la versión 500V 50Hz 3Ph

# TOPOGRAFICO SCHEDA TRASMITTENTE 18961
# *TRANSMITTING CARD 18961 TOPOGRAPHIC VIEW*




P2 P3 JP9 JP6

# IN/OUT SCHEDA TRASMITTENTE 18961

| PIN JP1 | NUMERO | FUNZIONE |
|---|---|---|
| 1 | JP1-1 | S1 INDIETRO CARRO MANDRINO |
| 2 | JP1-2 | S2 INDIETRO CARRO UTENSILE |
| 3 | JP1-3 | S1 AVANTI CARRO MANDRINO |
| 4 | JP1-4 | S2 AVANTI CARRO UTENSILE |
| 5 | JP1-5 | S1 SALITA BRACCIO MANDRINO |
| 6 | JP1-6 | S2 DISCESA BRACCIO UTENSILE |
| 7 | JP1-7 | S1 DISCESA BRACCIO MANDRINO |
| 8 | JP1-8 | S2 SALITA BRACCIO UTENSILE |
| 9 | JP1-9 | S1 (COMUNE) |
| 10 | JP1-10 | S2 (COMUNE) |
| 11 | JP1-11 | S4 (COMUNE) |
| 12 | JP1-12 | N.U. |
| 13 | JP1-13 | S4 PULSANTE CHIUSURA MANDRINO |
| 14 | JP1-14 | N.U. |
| 15 | JP1-15 | S4 PULSANTE APERTURA MANDRINO |
| 16 | JP1-16 | N.U. |
| 17 | JP1-17 | S3 PULS.ROTAZ.ANTIOR. UTENS. |
| 18 | JP1-18 | N.U. |

| PIN JP6 | NUMERO | FUNZIONE |
|---|---|---|
| 1 | JP6-1 | S5 SELETT.ROTAZ.ANTIOR. MANDRINO |
| 2 | JP6-2 | S5 SELETT. ROTAZ.ORARIA MANDRINO |
| 3 | JP6-3 | S3 PULS.ROTAZ.ORARIA UTENSILE |
| 4 | JP6-4 | S5 COMUNE |

| PIN JP2 | NUMERO | FUNZIONE |
|---|---|---|
| 1 | JP2-1 | G2 BATTERIA - |
| 2 | JP2-2 | G2 BATTERIA + |

| P1 | NUMERO | FUNZIONE |
|---|---|---|
| X1 | | 0-12Vdc |

| PIN JP9 | NUMERO | FUNZIONE |
|---|---|---|
| 1 | JP9-1 | S6 PULS. DOPPIA VELOC. CENTR. |
| 2 | JP9-2 | N.U. |
| 3 | JP9-3 | S3 (COMUNE) |
| 4 | JP9-4 | S6 PULS. DOPPIA VELOC. CENTR. |

| PIN JP13 | NUMERO | FUNZIONE |
|---|---|---|
| 1 | JP13-1 | P2 LED ROSSO + |
| 2 | JP13-2 | P2 LED ROSSO - |

| PIN JP14 | NUMERO | FUNZIONE |
|---|---|---|
| 1 | JP14-1 | P3 LED VERDE + |
| 2 | JP14-2 | P3 LED VERDE - |

Valido nella variante 500V 50Hz 3Ph
Valid for 500V 50Hz 3Ph version
Gültig für 500V 50Hz 3Ph Version
Valide en la version 500V 50Hz 3Ph
Válido en la versión 500V 50Hz 3Ph

# TRANSMITTING CARD 18961 IN/OUT

| PIN JP1 | NUMBER | FUNCTION |
|---|---|---|
| 1 | JP1-1 | S1 CHUCK CARRIAGE BACKWARD |
| 2 | JP1-2 | S2 TOOL CARRIAGE BACKWARD |
| 3 | JP1-3 | S1 CHUCK CARRIAGE FORWARD |
| 4 | JP1-4 | S2 TOOL CARRIAGE FORWARD |
| 5 | JP1-5 | S1 CHUCK ARM RISE |
| 6 | JP1-6 | S2 TOOL ARM DESCENT |
| 7 | JP1-7 | S1 CHUCK ARM DESCENT |
| 8 | JP1-8 | S2 TOOL ARM RISE |
| 9 | JP1-9 | S1 (COMMON) |
| 10 | JP1-10 | S2 (COMMON) |
| 11 | JP1-11 | S4 (COMMON) |
| 12 | JP1-12 | N.U. |
| 13 | JP1-13 | S4 CHUCK CLOSING PUSHBUTTON |
| 14 | JP1-14 | N.U. |
| 15 | JP1-15 | S4 CHUCK OPENING PUSHBUTTON |
| 16 | JP1-16 | N.U. |
| 17 | JP1-17 | S3 TOOL COUNTERCLOCKWISE ROT. PUSHBUTTON |
| 18 | JP1-18 | N.U. |

| PIN JP6 | NUMBER | FUNCTION |
|---|---|---|
| 1 | JP6-1 | S5 CHUCK COUNTERCLOCKWISE ROT. SELECTOR |
| 2 | JP6-2 | S5 CHUCK CLOCKWISE ROT. SELECTOR |
| 3 | JP6-3 | S3 TOOL CLOCKWISE ROT. PUSHBUTTON |
| 4 | JP6-4 | S5 COMMON |

| PIN JP2 | NUMBER | FUNCTION |
|---|---|---|
| 1 | JP2-1 | G2 BATTERY - |
| 2 | JP2-2 | G2 BATTERY + |

| P1 | NUMBER | FUNCTION |
|---|---|---|
| X1 | | 0-12Vdc |

| PIN JP9 | NUMBER | FUNCTION |
|---|---|---|
| 1 | JP9-1 | S6 HYDR. POWER UNIT DOUBLE SPEED PUSHBUTTON |
| 2 | JP9-2 | N.U. |
| 3 | JP9-3 | S3 (COMMON) |
| 4 | JP9-4 | S6 HYDR. POWER UNIT DOUBLE SPEED PUSHBUTTON |

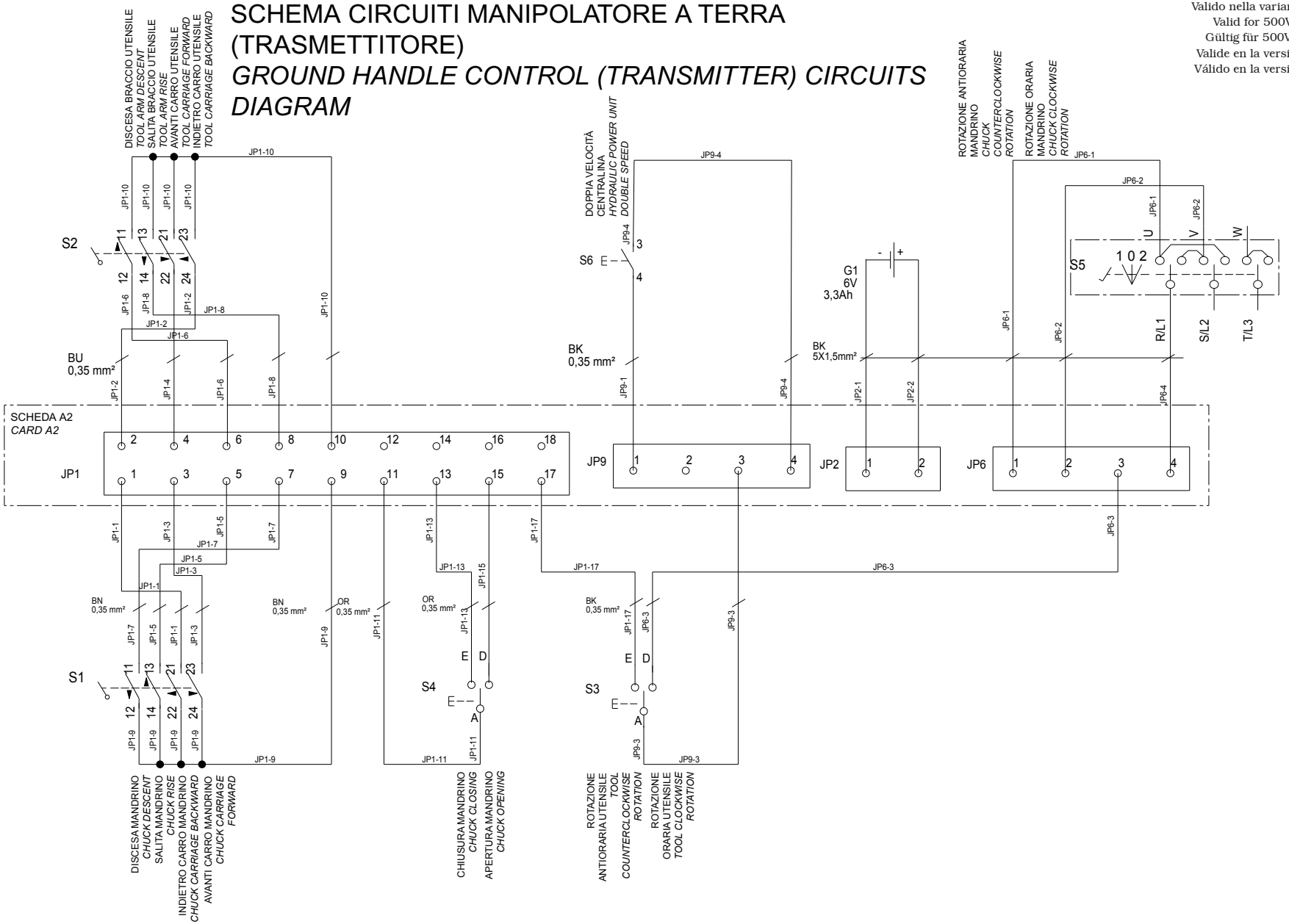
| PIN JP13 | NUMBER | FUNCTION |
|---|---|---|
| 1 | JP13-1 | P2 RED LED + |
| 2 | JP13-2 | P2 RED LED - |

| PIN JP14 | NUMBER | FUNCTION |
|---|---|---|
| 1 | JP14-1 | P3 GREEN LED + |
| 2 | JP14-2 | P3 GREEN LED - |

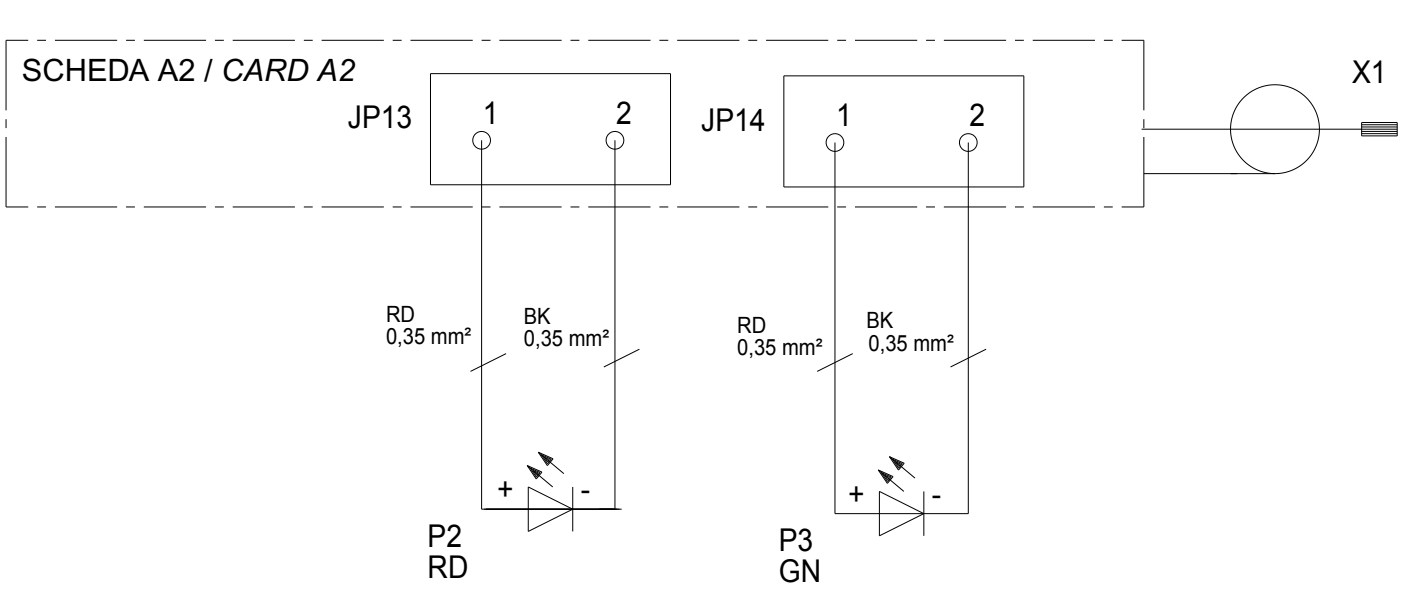
Valido nella variante 500V 50Hz 3Ph
Valid for 500V 50Hz 3Ph version
Gültig für 500V 50Hz 3Ph Version
Valide en la version 500V 50Hz 3Ph
Válido en la versión 500V 50Hz 3Ph

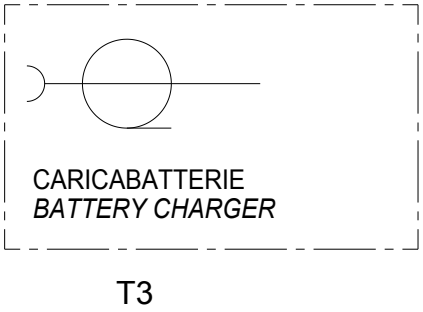
# SCHEMA CIRCUITI MANIPOLATORE A TERRA (TRASMETTITORE)
# *GROUND HANDLE CONTROL (TRANSMITTER) CIRCUITS DIAGRAM*

Valido nella variante 500V 50Hz 3Ph
Valid for 500V 50Hz 3Ph version
Gültig für 500V 50Hz 3Ph Version
Valide en la version 500V 50Hz 3Ph
Válido en la versión 500V 50Hz 3Ph




| | | | | |
|---|---|---|---|---|
| Butler ENGINEERING and MARKETING S.P.A. | **LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIECES DETACHEES - LISTA DE PIEZAS** | | *SCHEMA ELETTRICO 15/18 ELECTRICAL SCHEME 15/18 SCHALTPLAN 15/18 SCHEMA ELECTRIQUE 15/18 ESQUEMA ELECTRICO 15/18* | ***Pag. 83 di 88*** |
| | **Tavola N°D - Rev. 0** | **790005590** | | **NAV43.15 - NAV63.15** |


SCHEDA A2 / CARD A2
JP13
1
2
JP14
1
2
X1
RD
0,35 mm²
BK
0,35 mm²
RD
0,35 mm²
BK
0,35 mm²
+
-
+
-
P2
RD
P3
GN
INDICATORE
STATO
BATTERIA
BATTERY
CONDITION
INDICATOR
INDICATORE
STATO
COMUNICAZIONE
COMMUNICATION
CONDITION
INDICATOR


CARICABATTERIE
BATTERY CHARGER
T3

Valido nella variante 500V 50Hz 3Ph
Valid for 500V 50Hz 3Ph version
Gültig für 500V 50Hz 3Ph Version
Valide en la version 500V 50Hz 3Ph
Válido en la versión 500V 50Hz 3Ph

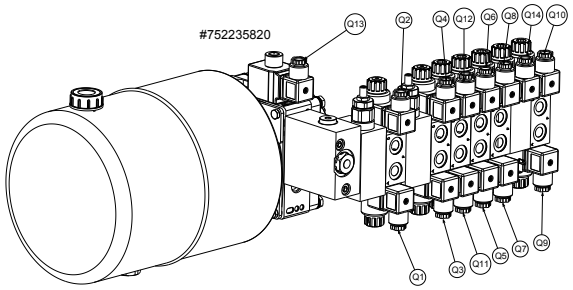
# LISTA COMPONENTI

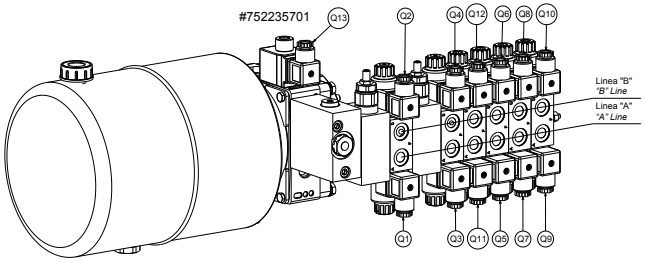
| RIFERIMENTO | DESCRIZIONE | DATI TECNICI | SIGLA CATALOGO | QUANTITA | RIFERIMENTO DOCUMENTO |
|---|---|---|---|---|---|
| A1 | SCHEDA ELETT. RICEVENTE | - | 18962 | 1 | 2.5 |
| A2 | SCHEDA ELETT.TRASMITTENTE | | 18961 | 1 | 11.2 |
| F1 | PORTAFUSIBILE | 3 POLI SEZIONABILE 10,3x38 32A 690V | 515025 | 1 | 6.6 |
| | FUSIBILE | 10,3x38 16A 500V aM RITARDATO | 507045 | 3 | |
| F2 | INTERRUTTORE AUTOM. TRIPOLARE | 6,3-10A AC3 400V 2,2KW | 518277 | 1 | 6.2 |
| | CONTATTI AUSILIARI | 1NO+1NC ATTACCO FRONTALE | 518279 | 1 | 6.2 |
| F3 | PORTAFUSIBILE | 2 POLI SEZIONABILE 10,3x38 32A 690V | 515027 | 1 | 5.3 |
| | FUSIBILE | 10,3X38 2A 500V RAPIDO | 507019 | 2 | |
| F4 | FUSIBILE | 5x20F 250V 2A RAPIDO | 507043 | 1 | 5.3 |
| F5 | FUSIBILE | 5x20F 250V 8A RAPIDO | 507090 | 1 | 5.3 |
| F6 | FUSIBILE | 5X20 T 8A 250V | 507118 | 1 | 5.7 |
| G1 | BATTERIA | 6V 3,3AH/20HR Lead | 10066 | 1 | 14.6 |
| K1 | CONTATTORE TRIPOLARE | 9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz | 522137 | 1 | 7.6 |
| K2 | CONTATTORE TRIPOLARE | 9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz | 522137 | 1 | 7.6 |
| K3 | CONTATTORE TRIPOLARE | 9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz | 522137 | 1 | 7.5 |
| K4 | CONTATTORE TRIPOLARE | 9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz | 522137 | 1 | 7.5 |
| | CONTATTI AUSILIARI | 1NO+1NC ATTACCO FRONTALE | 522147 | 1 | 7.4 |
| K5 | CONTATTORE | 9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz | 522137 | 1 | 7.4 |
| P2 | INDICATORE LUMINOSO (LED) | ROSSO | 18065 | 1 | 15.4 |
| P3 | INDICATORE LUMINOSO (LED) | VERDE | 18066 | 1 | 15.5 |
| Q1...Q14 | ELETTROVALVOLE | - | - | 14 | 8-9 |
| Q16 | SEZIONATORE TRIPOLARE | Ith 32A Ui 690V-50Hz Uimp 4KW | 518223+518226 | 1 | 5.2 |
| Q15 | COMMUTATORE DI POLI DAHLANDER | 25A 500V | 518189 | 1 | 6.5-6.6 |
| S1 | MANIPOLATORE | 4 POS.+CENTR.TEMPORANEE Ø22 | 517157AS | 1 | 14.2 |
| S2 | MANIPOLATORE | 4 POS.+CENTR.TEMPORANEE Ø22 | 517157AS | 1 | 14.2 |
| S3 | PULSANTE BASCULANTE | - | 517283 | 1 | 14.5 |
| S4 | PULSANTE BASCULANTE | - | 517283 | 1 | 14.4 |
| S5 | COMMUTATORE | Ith 25A Ui 690V-50Hz Uimp 4KW | 518058 | 1 | 14.7-14.8 |
| S6 | PULSANTE | - | 517105AS | 1 | 14.5 |
| T1 | TRASFORMATORE | 200 VA 50/60 Hz<br>PRI: 0/500V<br>SEC: 0/19V 8,95A<br>0/24V 1,25A | 528095 | 1 | 5.3 |
| - | - | - | - | - | - |
| T3 | CARICABATTERIA | 21.6W 7.2V 3A Lithium ion | 18064 | 1 | 15.6 |
| M1 | MOTORE CENTRALINA NAV63.15<br>NAV43.15 | M.E.1.8-2.5 500V 3Ph SX B3-B14 50Hz | 900005120 | 1 | 6.3 |
| M2 | MOTORE MANDRINO NAV63.15 | M.E.KW1.5/2.2 500V 3Ph 50Hz B3G90L | 900005110 | 1 | 6.5 |

# COMPONENTS LIST

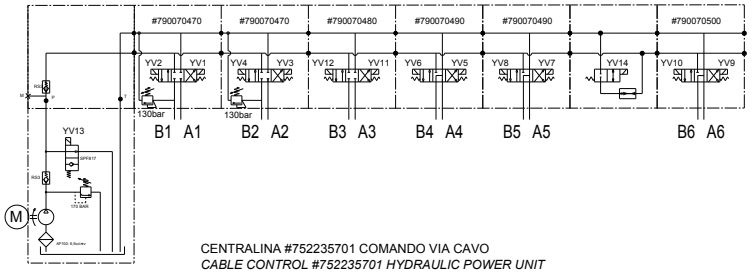
Valido nella variante 500V 50Hz 3Ph
Valid for 500V 50Hz 3Ph version
Gültig für 500V 50Hz 3Ph Version
Valide en la version 500V 50Hz 3Ph
Válido en la versión 500V 50Hz 3Ph

| REFERENCE | DESCRIPTION | TECHNICAL SPECIFICATIONS | ABBREVIATION ON CATALOGUE | QUANTITY | DOCUMENT REFERENCE |
|---|---|---|---|---|---|
| A1 | RECEIVING ELECTRICAL CARD | - | 18962 | 1 | 2.5 |
| A2 | TRANSMITTING ELECTRICAL CARD | | 18961 | 1 | 11.2 |
| F1 | FUSE HOLDER | 10,3x38 32A 690V SECTIONABLE 3 POLES | 515025 | 1 | 6.6 |
| | FUSE | 10,3x38 16A 500V aM DELAYED-ACTION | 507045 | 3 | |
| F2 | TRIPOLAR AUTOMATIC SWITCH | 6,3-10A AC3 400V 2,2KW | 518277 | 1 | 6.2 |
| | AUXILIARY CONTACTS | 1NO+1NC FRONT COUPLING | 518279 | 1 | 6.2 |
| F3 | FUSE HOLDER | 10,3x38 32A 690V SECTIONABLE 2 POLES | 515027 | 1 | 5.3 |
| | FUSE | 10,3X38 2A 500V RAPID | 507019 | 2 | |
| F4 | FUSE | 5x20F 250V 2A RAPID | 507043 | 1 | 5.3 |
| F5 | FUSE | 5x20F 250V 8A RAPID | 507090 | 1 | 5.3 |
| F6 | FUSE | 5X20 T 8A 250V | 507118 | 1 | 5.7 |
| G1 | BATTERY | 6V 3,3AH/20HR Lead | 10066 | 1 | 14.6 |
| K1 | TRIPOLAR CONTACTOR | 9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz | 522137 | 1 | 7.6 |
| K2 | TRIPOLAR CONTACTOR | 9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz | 522137 | 1 | 7.6 |
| K3 | TRIPOLAR CONTACTOR | 9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz | 522137 | 1 | 7.5 |
| K4 | TRIPOLAR CONTACTOR | 9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz | 522137 | 1 | 7.5 |
| | AUXILIARY CONTACTS | 1NO+1NC FRONT COUPLING | 522147 | 1 | 7.4 |
| K5 | CONTACTOR | 9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz | 522137 | 1 | 7.4 |
| P2 | BACKLIGHTED INDICATOR (LED) | RED | 18065 | 1 | 15.4 |
| P3 | BACKLIGHTED INDICATOR (LED) | GREEN | 18066 | 1 | 15.5 |
| Q1...Q14 | SOLENOID VALVES | - | - | 14 | 8-9 |
| Q16 | TRIPOLAR KNIFE SWITCH | Ith 32A Ui 690V-50Hz Uimp 4KW | 518223 + 518226 | 1 | 5.2 |
| Q15 | DAHLANDER POLES COMMUTATOR | 25A 500V | 518189 | 1 | 6.5-6.6 |
| S1 | HANDLE CONTROL | 4 POS.+ CENTRAL POS. TEMPORARY Ø22 | 517157AS | 1 | 14.2 |
| S2 | HANDLE CONTROL | 4 POS.+ CENTRAL POS. TEMPORARY Ø22 | 517157AS | 1 | 14.2 |
| S3 | BALANCING PUSHBUTTON | - | 517283 | 1 | 14.5 |
| S4 | BALANCING PUSHBUTTON | - | 517283 | 1 | 14.4 |
| S5 | COMMUTATOR | Ith 25A Ui 690V-50Hz Uimp 4KW | 518058 | 1 | 14.7-14.8 |
| S6 | PUSHBUTTON | - | 517105AS | 1 | 14.5 |
| T1 | TRANSFORMER | 200 VA 50/60 Hz<br>PRI: 0/500V<br>SEC: 0/19V 8,95A<br>0/24V 1,25A | 528056 | 1 | 5.3 |
| - | - | - | - | - | - |
| T3 | BATTERY CHARGER | 21.6W 7.2V 3A Lithium ion | 18064 | 1 | 15.6 |
| M1 | HYDRAULIC POWER UNIT MOTOR NAV63.15 NAV43.15 | M.E.1.8-2.5 500V 3Ph SX B3-B14 50Hz | 900005120 | 1 | 6.3 |
| M2 | CHUCK MOTOR NAV63.15 | M.E.KW1.5/2.2 500V 3Ph 50Hz B3G90L | 900005110 | 1 | 6.5 |

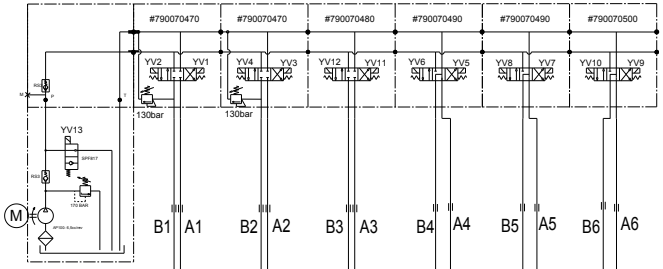


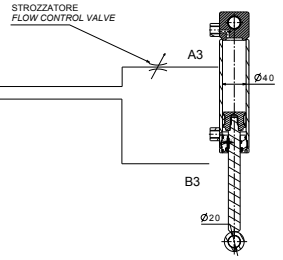




CENTRALINA #752235820 COMANDO BLUETOOTH
*BLUETOOTH CONTROL #752235820 HYDRAULIC POWER UNIT*

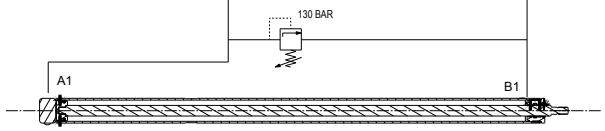



CENTRALINA #752235701 COMANDO VIA CAVO
*CABLE CONTROL #752235701 HYDRAULIC POWER UNIT*

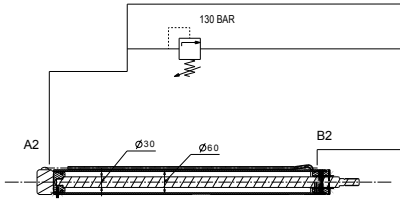


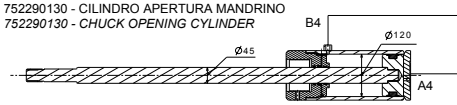

752290240 - CILINDRO ALZATA/BLOCCAGGIO UTENSILE
*752290240 - RAISING CYLINDER/TOOL LOCKING*



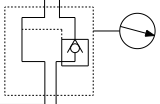

752290530 - CILINDRO TRASLAZIONE CARRO UTENSILE
*752290530 - TOOL CARRIAGE TRANSLATION CYLINDER*



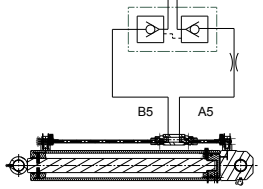

752290410 - CILINDRO TRASLAZIONE CARRO MANDRINO
*752290410 - CHUCK CARRIAGE TRANSLATION CYLINDER*



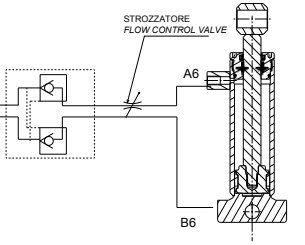

752290130 - CILINDRO APERTURA MANDRINO
*752290130 - CHUCK OPENING CYLINDER*



752216020 - BLOCCO MANDRINO SE
*752216020 - SE CHUCK BLOCK*

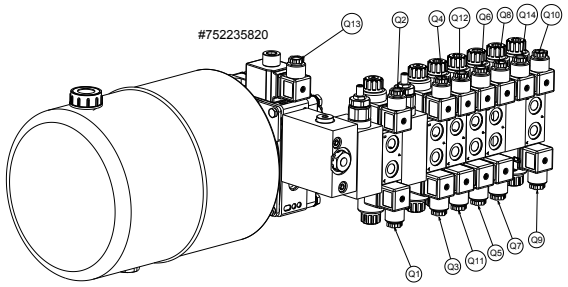



752290260 - CILINDRO SALITA/DISCESA BRACCIO MANDRINO
*752290260 - CHUCK ARM UP/DOWN CYLINDER*

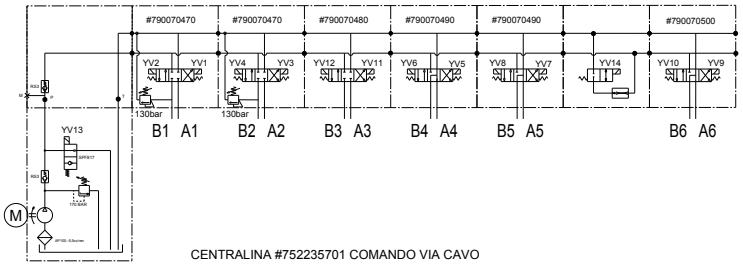


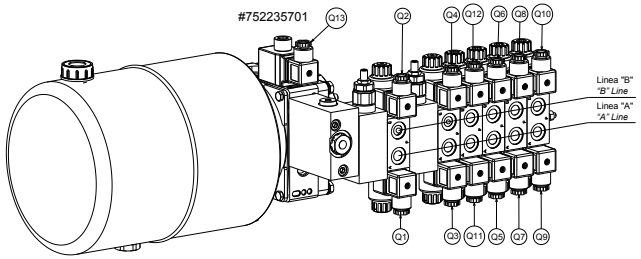

146501050 - ROTAZIONE UTENSILE
*146501050 - TOOL ROTATION*

| | | | |
|---|---|---|---|
| **Butler** ENGINEERING and MARKETING S.P.A. | **LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIECES DETACHEES - LISTA DE PIEZAS** | *SCHEMA OLEODINAMICO HYDRAULIC SCHEME ÖLDYNAMISCHPLAN SCHEMA HYDRAULIQUE ESQUEMA OLEODINÁMICO (NAV43)* | ***Pag. 87 di 88*** |
| | **Tavola N°E - Rev. 5** / **752205051** | | **NAV43.15 - NAV63.15** |

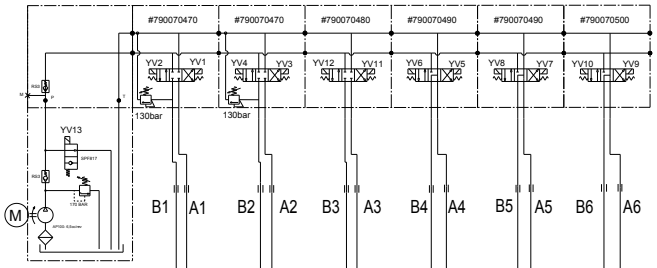



CENTRALINA #752235820 COMANDO BLUETOOTH
*BLUETOOTH CONTROL #752235820 HYDRAULIC POWER UNIT*

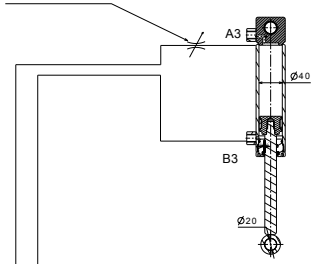


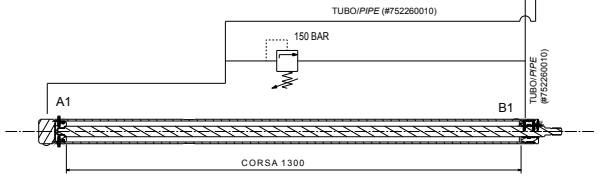

CENTRALINA #752235701 COMANDO VIA CAVO
*CABLE CONTROL #752235701 HYDRAULIC POWER UNIT*



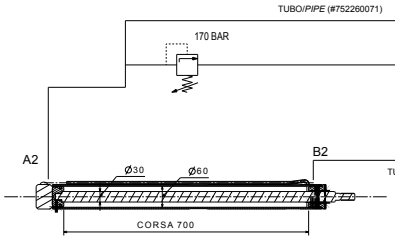

STROZZATORE
*FLOW CONTROL VALVE*



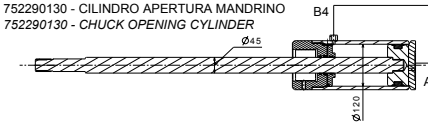

752290240 - CILINDRO ALZATA/BLOCCAGGIO UTENSILE
*752290240 - RAISING CYLINDER/TOOL LOCKING*

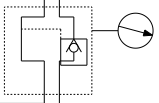



752290530 - CILINDRO TRASLAZIONE CARRO UTENSILE
*752290530 - TOOL CARRIAGE TRANSLATION CYLINDER*



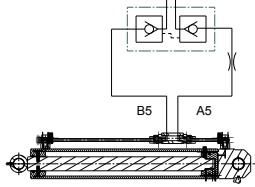

752290410 - CILINDRO TRASLAZIONE CARRO MANDRINO
*752290410 - CHUCK CARRIAGE TRANSLATION CYLINDER*



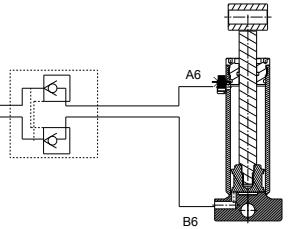



752216020 - BLOCCO MANDRINO SE
*752216020 - SE CHUCK BLOCK*

TUBO/*PIPE* (#752260030)
TUBO/*PIPE* (#752260030)
TUBO/*PIPE* (#752260060)
TUBO/*PIPE* (#752260060)
TUBO/*PIPE* (#752260050)
TUBO/*PIPE* (#752260050)




752290260 - CILINDRO SALITA/DISCESA BRACCIO MANDRINO
*752290260 - CHUCK ARM UP/DOWN CYLINDER*




752290881 - ROTAZIONE UTENSILE
*752290881 - TOOL ROTATION*

| | | | |
|---|---|---|---|
| Butler ENGINEERING and MARKETING S.P.A. | **LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIECES DETACHEES - LISTA DE PIEZAS** | *SCHEMA OLEODINAMICO HYDRAULIC SCHEME ÖLDYNAMISCHPLAN SCHEMA HYDRAULIQUE ESQUEMA OLEODINÁMICO (NAV63)* | ***Pag. 88 di 88*** |
| | **Tavola N°F - Rev. 5** / **752205011** | | **NAV43.15 - NAV63.15** |

Butler
Engineering and Marketing

# Dichiarazione di Conformità
*Declaration of Conformity*
*Konformitätserklärung*
*Déclaration de Conformité*
*Declaración de Conformidad*

CE

Noi
*We / Wir / Nous / Nosotros*

**BUTLER ENGINEERING AND MARKETING S.p.A.s.u.**
**Via dell'Ecologia, 6**
**42047 Rolo RE ITALIA**

**dichiariamo sotto la nostra esclusiva responsabilità che il prodotto**
*declare, undertaking sole responsibility, that the product*
*erklären unter unserer alleinigen Verantwortung, dass das Produkt*
*déclarons, sous notre entière responsabilité, que le produit*
*declaramos bajo nuestra exclusiva responsabilidad, que el producto*

| | |
|---|---|
| ***Smontagomme***<br>*Tyre changer*<br>*Reifenmontiermaschine*<br>*Démonte-Pneus*<br>*Desmontadora* | |

**al quale questa dichiarazione si riferisce, risponde alle seguenti Direttive applicabili:**
*to which this declaration applies is in compliance with the following applicable Directives:*
*auf das sich diese Erklaerung bezieht, den nachstehenden anwendbaren Normen entspricht:*
*objet de cette déclaration est conforme aux Directives applicables suivantes:*
*al que se refiere esta declaración cumple con las siguientes Normas aplicables:*

| | |
|---|---|
| **2006/42/CE** | Direttiva Macchine |
| **2014/30/UE** | Direttiva Compatibilità Elettromagnetica |

**Per la conformità alle suddette direttive sono state seguite le seguenti Norme Armonizzate:**
*To comply with the above mentioned Directives, we have followed the following harmonized directives:*
*In Übereinstimmung mit o.g. Richtlinien wurden folgende harmonisierte Normen befolgt:*
*Pour la conformité aux normes ci-dessus, nous avons suivi les normes harmonisées suivantes:*
*Para la conformidad a las Normas arriba mencionadas, hemos seguido las siguientes Normas armonizadas:*

| | |
|---|---|
| **UNI EN ISO 12100:2010** | Sicurezza del macchinario – Principi generali di progettazione – Valutazione del rischio e riduzione dei rischi |
| **CEI EN 60204-1:2018** | Sicurezza del macchinario – Equipaggiamento elettrico delle macchine – Parte 1: Regole generali |

**La persona preposta a costituire il fascicolo tecnico è Butler S.p.A. s.u.**
*The technical documentation file is constituted by Butler S.p.A.s.u.*
*Vorgesetzte Rechtsperson für die Erstellung des technischen Lastenheftes ist Butler S.p.A.s.u.*
*La société Butler S.p.A.s.u. est l'organisme délégué à la présentation de la documentation technique.*
*Butler S.p.A.s.u. es encargada a la constitución del archivo técnico.*

Rolo,



**Il modello della presente dichiarazione è conforme alla norma** **UNI CEI EN ISO/IEC 17050-1**
*The version of this declaration conforms to the regulation*
*Das Modell der vorliegenden Erklärung entspricht der Norm*
*Le modèle de la présente déclaration est conforme à la norme*
*El modelo de la presente declaración cumple la norma*

**Dichiarazione di Conformità**
*Declaration of Conformity*
*Konformitätserklärung*
*Déclaration de Conformité*
*Declaración de Conformidad*

CE

Noi
*We / Wir / Nous / Nosotros*

**Vehicle Service Group Italy S.r.l.**
**via Brunelleschi, 9**
**44020 San Giovanni di Ostellato (Ferrara) – ITALIA**

**dichiariamo sotto la nostra esclusiva responsabilità che il prodotto**
*declare, undertaking sole responsibility, that the product*
*erklären unter unserer alleinigen Verantwortung, dass das Produkt*
*déclarons, sous notre entière responsabilité, que le produit,*
*declaramos bajo nuestra exclusiva responsabilidad, que el producto*

| | |
|---|---|
| Smontagomme / Tyre Changer<br>Reifenmontiermaschinen / Démonte Pneus<br>Desmonta Neumáticos | |

**al quale questa dichiarazione si riferisce, risponde alle seguenti Direttive applicabili:**
*to which this declaration applies is in compliance with the following applicable Directives:*
*auf das sich diese Erklaerung bezieht, den nachstehenden anwendbaren Normen entspricht:*
*objet de cette déclaration est conforme aux Directives applicables suivantes:*
*al que se refiere esta declaración cumple con las siguientes Normas aplicables:*

| | |
|---|---|
| **2006/42/CE** | Direttiva Macchine |
| **2014/30/UE** | Direttiva Compatibilità Elettromagnetica |

**Per la conformità alle suddette direttive sono state seguite le seguenti Norme Armonizzate:**
*To comply with the above mentioned Directives, we have followed the following harmonized directives:*
*In Übereinstimmung mit o.g. Richtlinien wurden folgende harmonisierte Normen befolgt:*
*Pour la conformité aux normes ci-dessus, nous avons suivi les normes harmonisées suivantes:*
*Para la conformidad a las Normas arriba mencionadas, hemos seguido las siguientes normas armonizadas:*

| | |
|---|---|
| **UNI EN ISO 12100:2010** | Sicurezza del macchinario – Principi generali di progettazione - Valutazione del rischio e riduzione del rischio |
| **CEI EN 60204-1:2018** | Sicurezza del macchinario – Equipaggiamento elettrico delle macchine - Parte 1: Regole generali |



**La persona preposta a costruire il fascicolo tecnico è Vehicle Service Group Italy S.r.l.**
*The technical documentation file is constituted by Vehicle Service Group Italy S.r.l.*
*Vorgesetzte Rechtsperson für die Erstellung des technischen Lastenheftes ist Vehicle Service Group Italy S.r.l.*
*La société Vehicle Service Group Italy S.r.l. est l'organisme délégué à la presentation de la documentation technique.*
*Vehicle Service Group Italy S.r.l. es encargata a la constitución del archivo técnico.*

**SIMONE FERRARI**
**VP VSG Europe Managing Director**

S.G. di Ostellato, / /



**Il modello della presente dichiarazione è conforme alla norma** **UNI CEI EN ISO/IEC 17050-1**
*The version of this declaration conforms to the regulation*
*Das Modell der vorliegenden Erklärung entspricht der Norm*
*Le modèle de la présente déclaration est conforme à la norme*
*El modelo de la presente declaración cumple la norma*

# UK Declaration of Conformity

We

Vehicle Service Group Italy S.r.l.
via Brunelleschi, 9
44020 San Giovanni di Ostellato (Ferrara) – ITALIA

declare, undertaking sole responsibility, that the product

| | |
|---|---|
| Tyre Changer | |

to which this declaration applies is in compliance with the following applicable Regulations:

**The Supply of Machinery (Safety) Regulations 2008**

**The Electrical Equipment (Safety) Regulations 2016**

**Electromagnetic Compatibility Regulations 2016**

To comply with the above mentioned Regulations, we have followed, totally, the following designated standards

| | |
|---|---|
| **BS EN ISO 12100:2010** | Safety of machinery. General principles for design. Risk assessment and risk reduction. |
| **BS EN 60204-1:2018** | Safety of machinery. Electrical equipment of machines. General requirements. |
| **BS EN 61000-6-3:2007 +A1:2011 +AC:2012** | Electromagnetic compatibility (EMC) - Part 6-3. Generic Standards - Emission standard for residential, commercial and light-industrial environments. |
| **BS EN 61000-6-2:2005 +AC:2005** | Electromagnetic compatibility (EMC) - Part 6-2. Generic Standards - Immunity for industrial environments. |



The technical documentation file is constituted by

**VEHICLE SERVICE GROUP UK LTD**
**3 Fourth Avenue**
**Bluebridge Industrial Estate**
**Halstead**
**Essex C09 2SY**
**United Kingdom**

S.G.di Ostellato, / /

**SIMONE FERRARI**
**VP VSG Europe Managing Director**

UK7503-DC001P 01/07/2023

The version of this declaration conforms to the standard BS EN ISO/IEC 17050- 1:2010