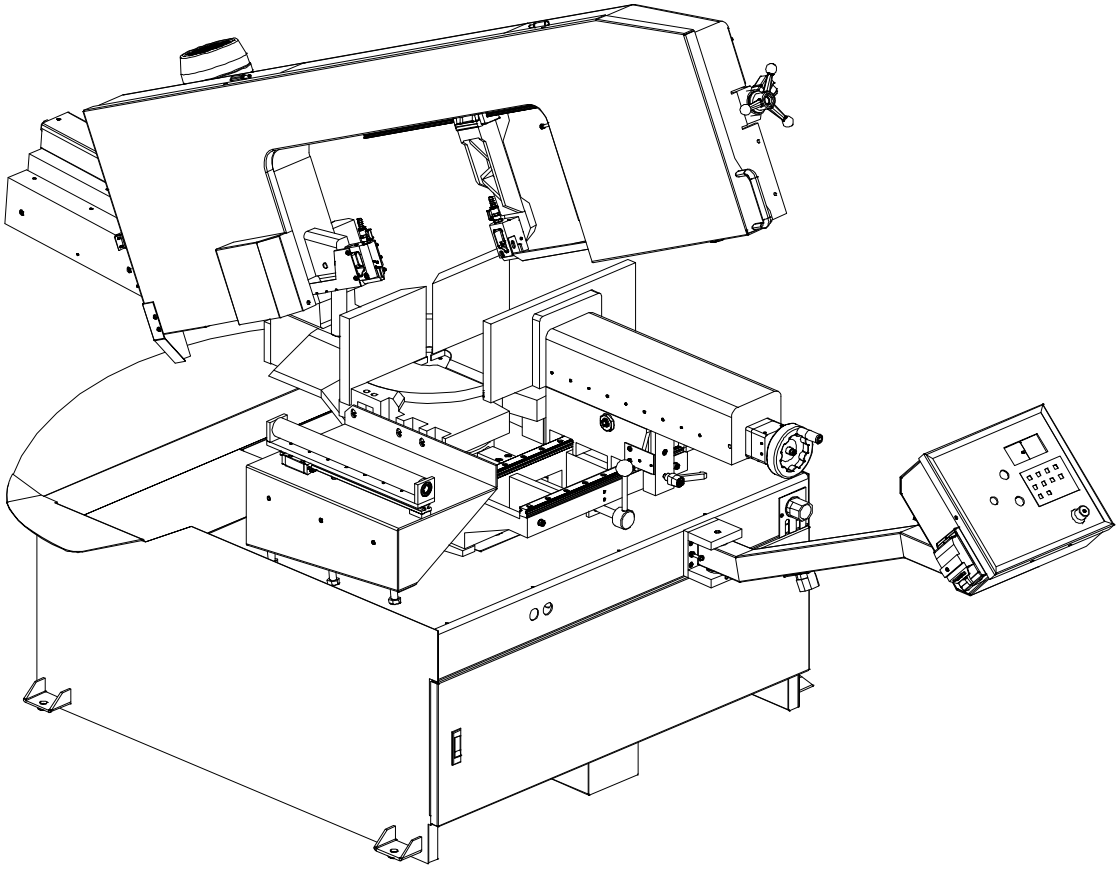


USE AND MAINTENANCE MANUAL

EN SHARK 512 SXI–EVO

YEAR OF MANUFACTURE: _____

CE

EN

Translation of the original instructions

"CE" CONFORMITY DECLARATION
(according to EEC MACHINES DIRECTIVE 2006/42/CE annex II A)

The manufacturer:

MEP S.p.A.
Via Enzo Magnani, 1
61045 Pergola (PU) ITALIA
Tel. 072173721–Fax 0721734533

Hereby declares that the bandsawing machine:

Machine Type:	**SAWING MACHINE**
Machine model:	**SHARK 512 SXI–EVO**
Serial number:	
Year of manufacture:	

is in specification wi[illegible]ne followi[illegible] di[illegible]

- **EEC MACHI[illegible]ES DIREC[illegible]06/[illegible]2/CE**
  - **EN 1609[illegible]017**
- **DIREC[illegible]IVE 201[illegible]/UE [illegible]MC**
  - **E[illegible]0370–1:200[illegible]**
  - **[illegible] 50370–2:2003 Immun[illegible]**

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c/o MEP SPA
Via Enzo Magnani, 1
61045 – Pergola – PU – ITALY

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(Wi[illegible]m Giacc[illegible]netti)

Pergola, lì _____

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Introduction and technical specifications

1

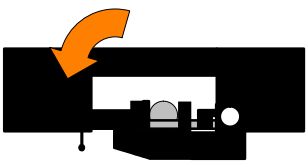
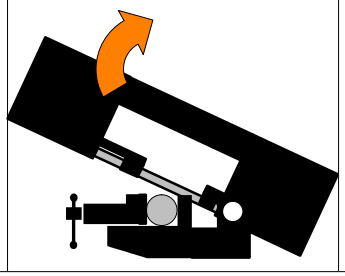
Foreword

MEP S.p.A.,in response to modern production techniques, has developed the new **SHARK 512 SXI–EVO**.
This work tool has been designed to satisfy the wide range of cutting needs of a modern workshop with simplicity and reliability, while at the same time complying with all EEC safety standards.
The **SHARK 512 SXI–EVO** is structurally rigid, silent and safe: it produces a minimum of waste while its great versatility makes it suitable for cutting various materials such as stainless steel light alloys, aluminium, copper and bronze at high speed and with high precision.
Its high cutting capacity, combined with the possibility of making inclined cuts from 60° left to 60° right, make this model the ideal solution for satisfying the wide strange of cutting needs of machine shops, turneries, structural steel shops and engineering workshops.
We congratulate our clients on having chosen this product, which will give effective and faithful service for many years, especially if the instructions contained in this use and maintenance manual are carefully followed.

Warning This band saw has been exclusively designed to cut metals.

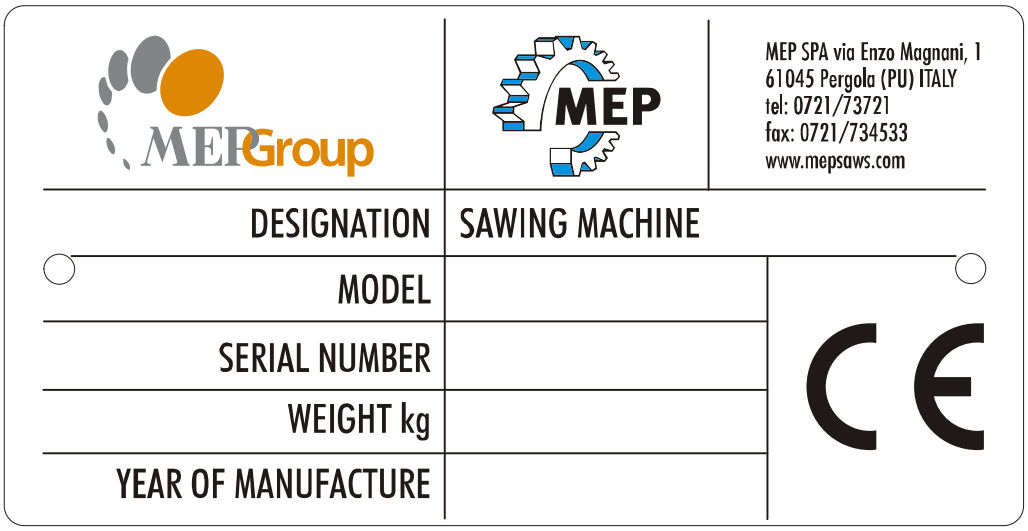
Machine presentation

Functioning is SEMI–AUTOMATIC.
In **Semi–automatic** mode, after setting the head cutting stroke on the control panel and the head downstroke speed, the operator positions the vice 2÷3 mm from the workpiece and presses the start button (or optional foot pedal if fitted) on the control panel to start up the band saw. The vice then clamps the material, the head lowers, cuts the piece and returns to its start position and the vice opens again.

1. The cutter vice closes	2. The head lowers until the cut is made (FCTA)	3. The head returns to start position (FCTI)	4. The cutter vice opens
			

Machine specification

The anodised aluminium name plate is riveted on the side of the machine; the same data are reproduced on the declaration of conformity included with this use and maintenance
manual.



N.B. When communicating with the Technical Service department, the model, serial number and year of manufacture of the machine must be quoted.

CUTTING SPEEDS		
Blade rotation speed	mt/min	15 ÷ 100

BAND SAW		
Rated size	mm	4640 x 34 x 1,1
Max/min blade length	mm	4640 ± 20
Blade height	mm	34
Blade width	mm	1,1
Band saw tension	kg	1460

Attention When choosing the cutting tool, if its dimensions do not correspond to those included in the ”Rated size” section, check that the dimensions at least fall within the admissible max/min specifications.

RATED ELECTRICAL POWER		
Head spindle motor	kW	4,0
Electric coolant pump motor	kW	0,1
M1 power pack motor	kW	0,37
Max installed power	kW	4,47

WORKING PRESSURE		
Working pressure	Bar	26/30
Working pressure of vice with optional adjuster	Bar	16/25

LUBRICANT/COOLANT FLUID AND OIL		
Oil for blade tensioner unit (optional)	capacità Lt	2,5
Lubricant/coolant fluid (oil concentration 5–6%)	capacità Lt	82

VICE		
Vice max. opening	mm	515

SPINDLE MOTOR

No.of poles	Current (Volts)	Absorption (Amps)	Power (Kw)	rpm
4	400	4	1,5	1410
Stator wound with enamelled copper wire, class H 200°C.				
Class F insulation (limit temperature TL 155°C).				
IP 55 protection rating (total against contact with live parts, water sprayed from all directions, with shaft oil seal).				
Conforming to CEI–EN 60034–1:2011				

N.B. Example of class F insulation: in air–cooled machines at an ambient temperature of 40¿ C, the allowable overtemperature is 100¿ C (where 100¿C represents the allowable DT).

ELECTROPUMP MOTOR
Single phase; Frequency 50 Hz.

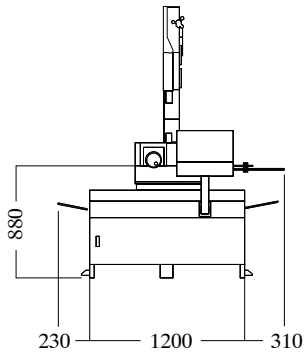
Voltage (Volts)	Absorption (Amps)	Power (Kw)	rpm	Delivery rate lt/min	Head (mt.)
230	0,30	0,09	2800	24	1,5
400	0,18	0,09	2800	24	1,5
Protection rating IP 55.					
Conforming to CEI–EN 60034–1:2011					

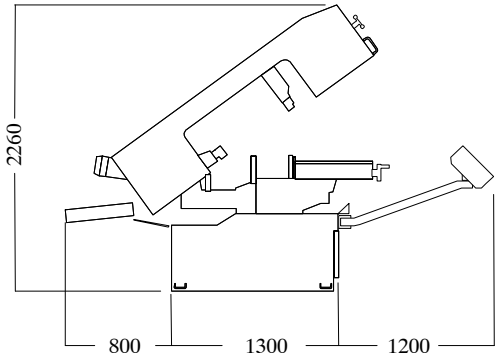
CUTTING CAPACITY

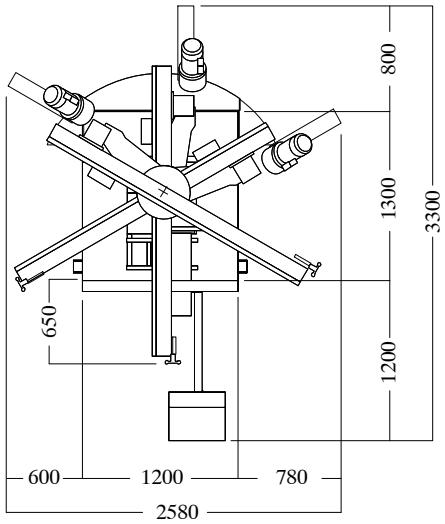
Section	○	H	⊔
0°	330	320	510x320
45° ◖	320	320	350x320
60° ◖	230	230	220x310
45° ◗	320	320	380x320
60° ◗	250	250	240x320

Dimensions

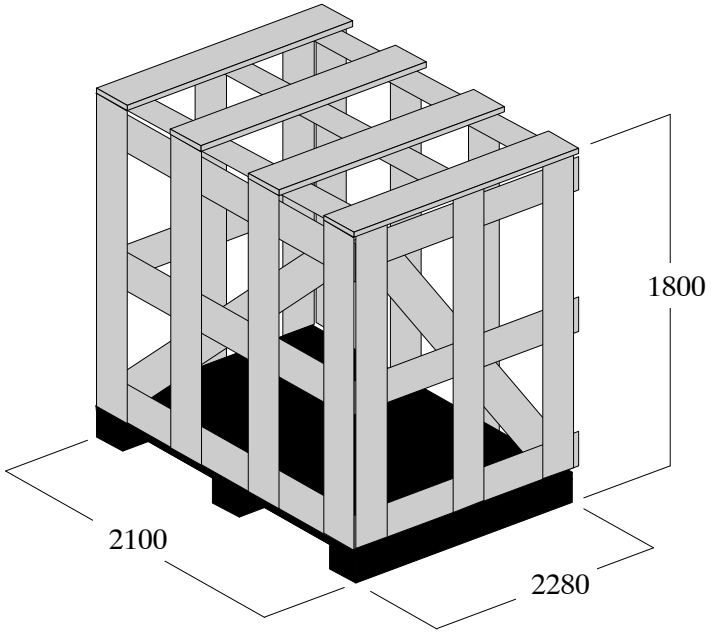
MACHINE INSTALLED		
Work table height	mm	880
Weight	kg	1190







PACKED WEIGHT		
Wooden cage and pallet	kg	130
Wooden pallet	kg	70

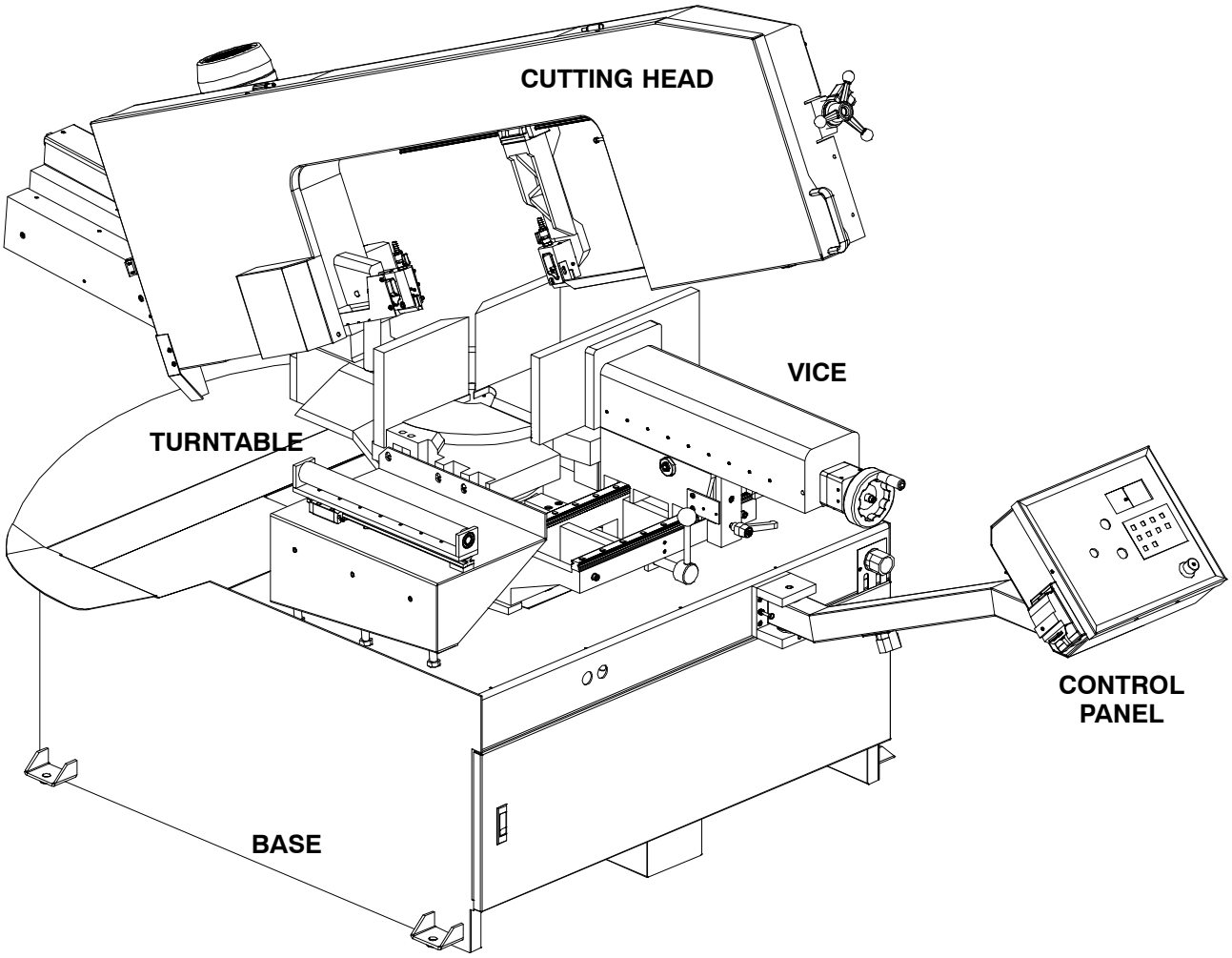


Functional parts

2

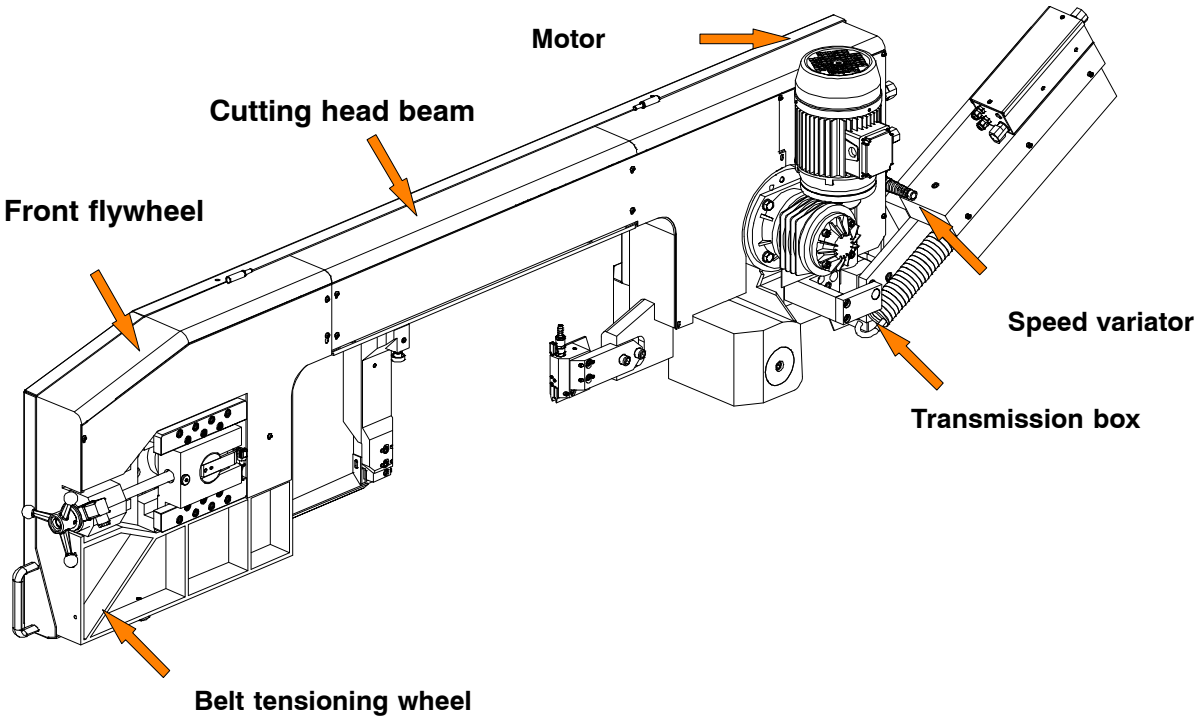
SHARK 512 SXI–EVO model

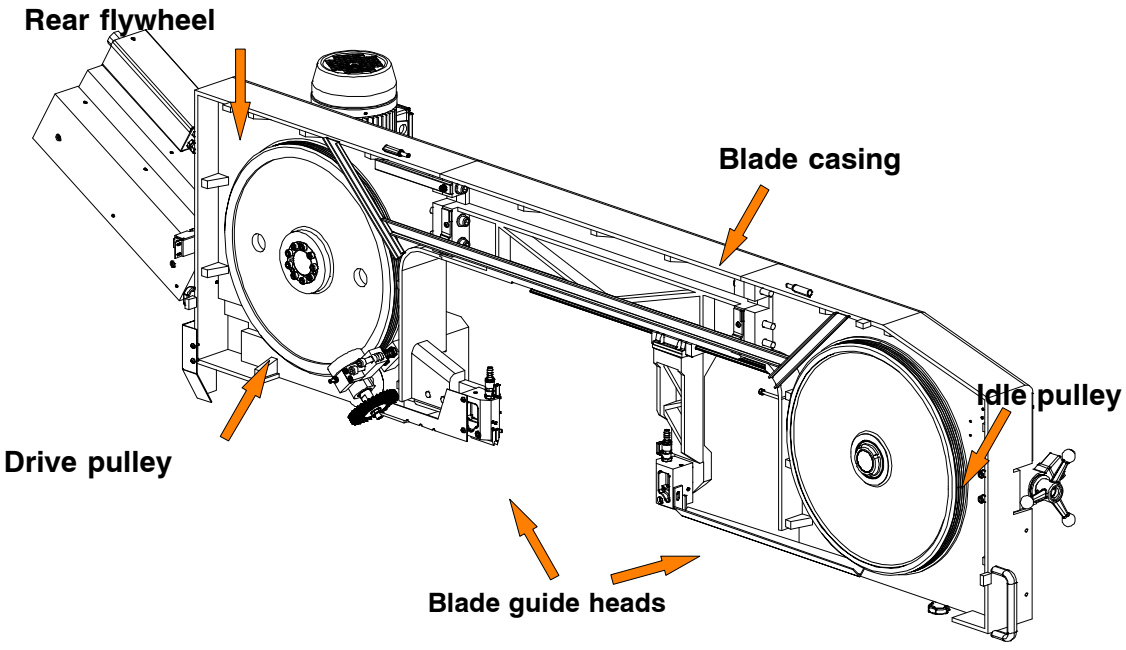
In order for the user to move towards a full understanding of how the machine works, which is described in detail in the chapter 5, this chapter deals with the main units and their locations.



Cutting head

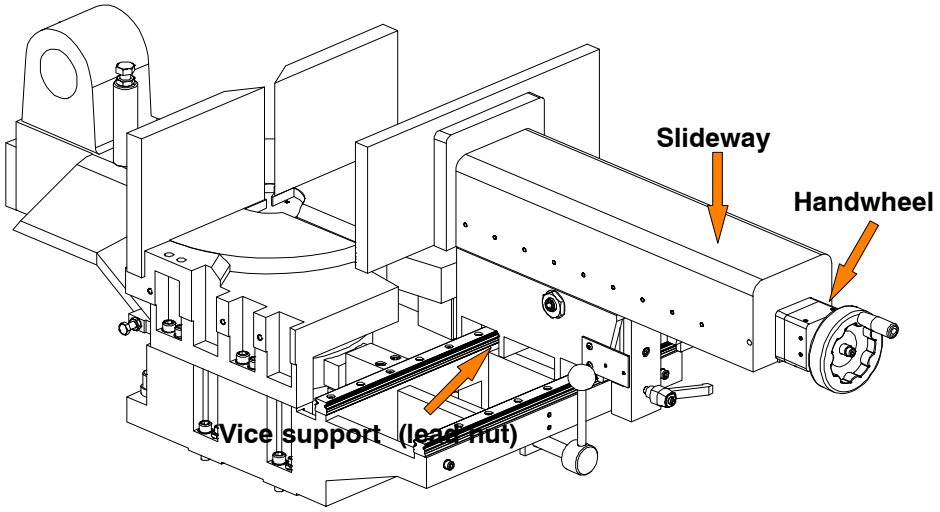
The oerating head is the element that performs the cut and is made up of a bow made from a fusion of cast iron onto which the band, the band guide elements, the band tensioning unit and the mechanical speed variator are mounted. The operating head is restricted in its movements by the articulated joint on the rotatng platform.





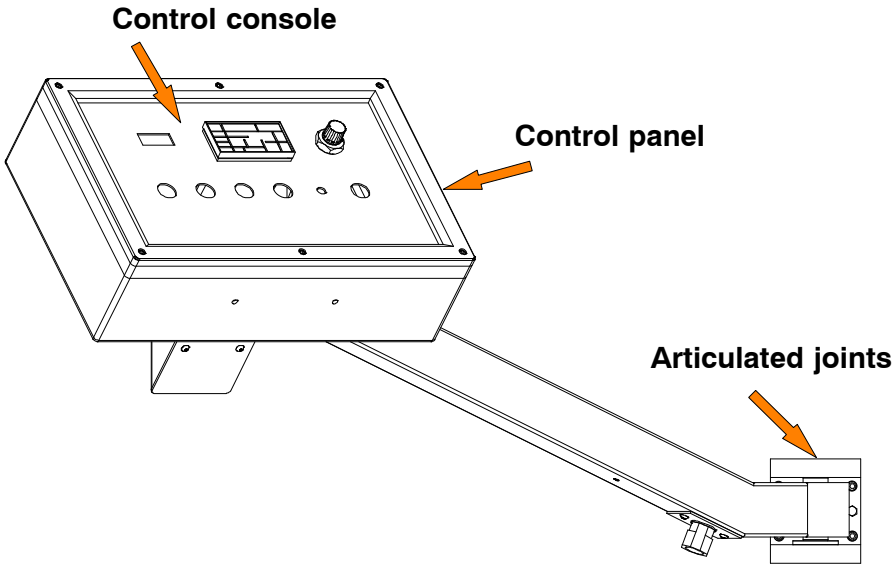
Vice

The vice is the unit that clamps the workpiece during cutting. It consists of a vice support, commonly known as a “lead nut”, fixed to the work table, and a lead screw with a sliding support on which the mobile jaw is mounted. It can run transversely with respect to the cutting surface, or lengthways, for opening and closing, on the linear guides and slides with recirculation of pre−loaded spheres. The vice is manually neared to the material to be cut using a hand−wheel and blocking is performed using a hydraulic cylinder (in the AV version).



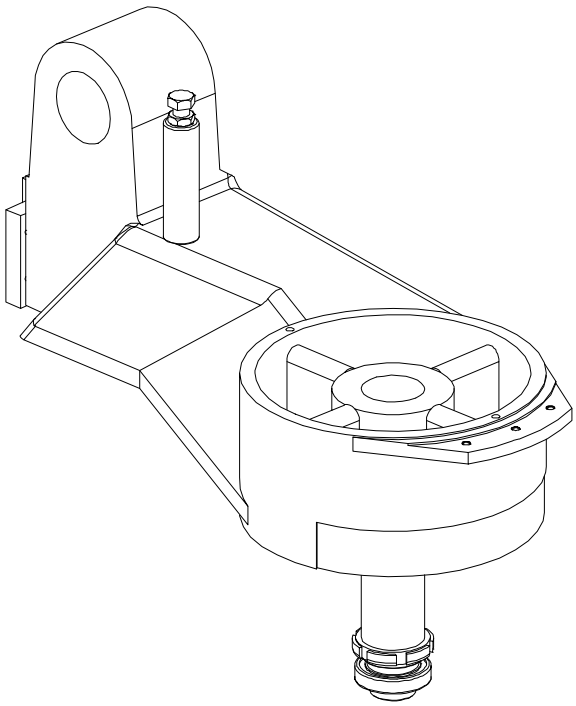
Control Panel

The control panel has a protection rating of IP 54 and contains the electronic equipment. Access to the control panel is protected by a safety panel mounted on hinges and fastened with screws, specially designed to prevent tampering. The control panel swivels on two articulated joints so that it can be positioned by the operator for greater ease−of−use and safety.



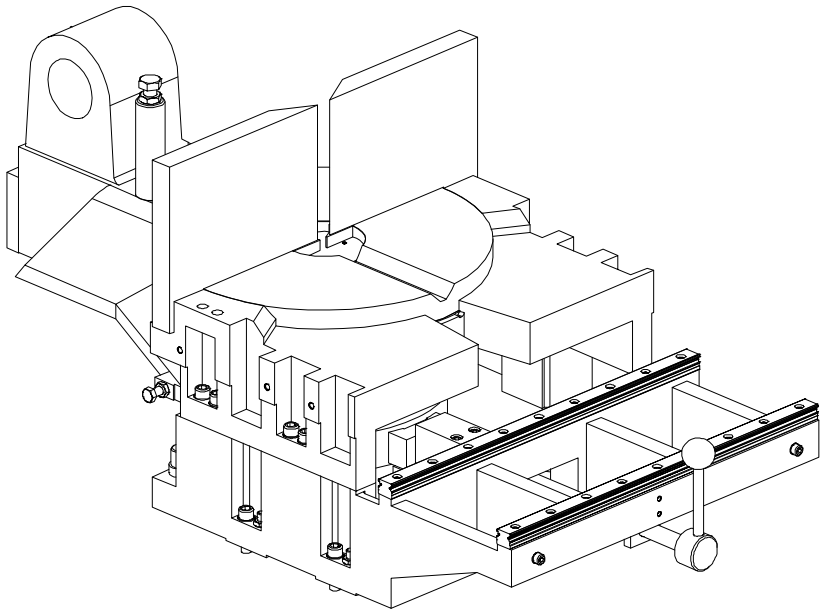
Turntable

Made from a fusion of cast iron it makes up the fulcrum of the cutting band. By releasing the blocking lever on the fixed platform right and left rotation of the bow is consented.



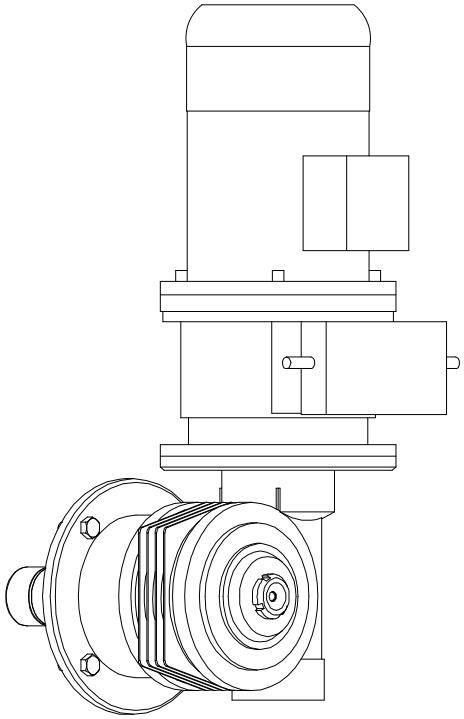
Fixed platform

It is made up of two parts, upper and lower, which close the rotating and platform and support the cutting surface in interchangeable steel.
The lower part is the resting base of the rotating platform, cutting surface and vice. It is free to run transversely on linear guides and slides with re−circulation of pre−loaded spheres. It is integral to the base and the rear part has the reference strokes for 605 left and 605 right cuts.



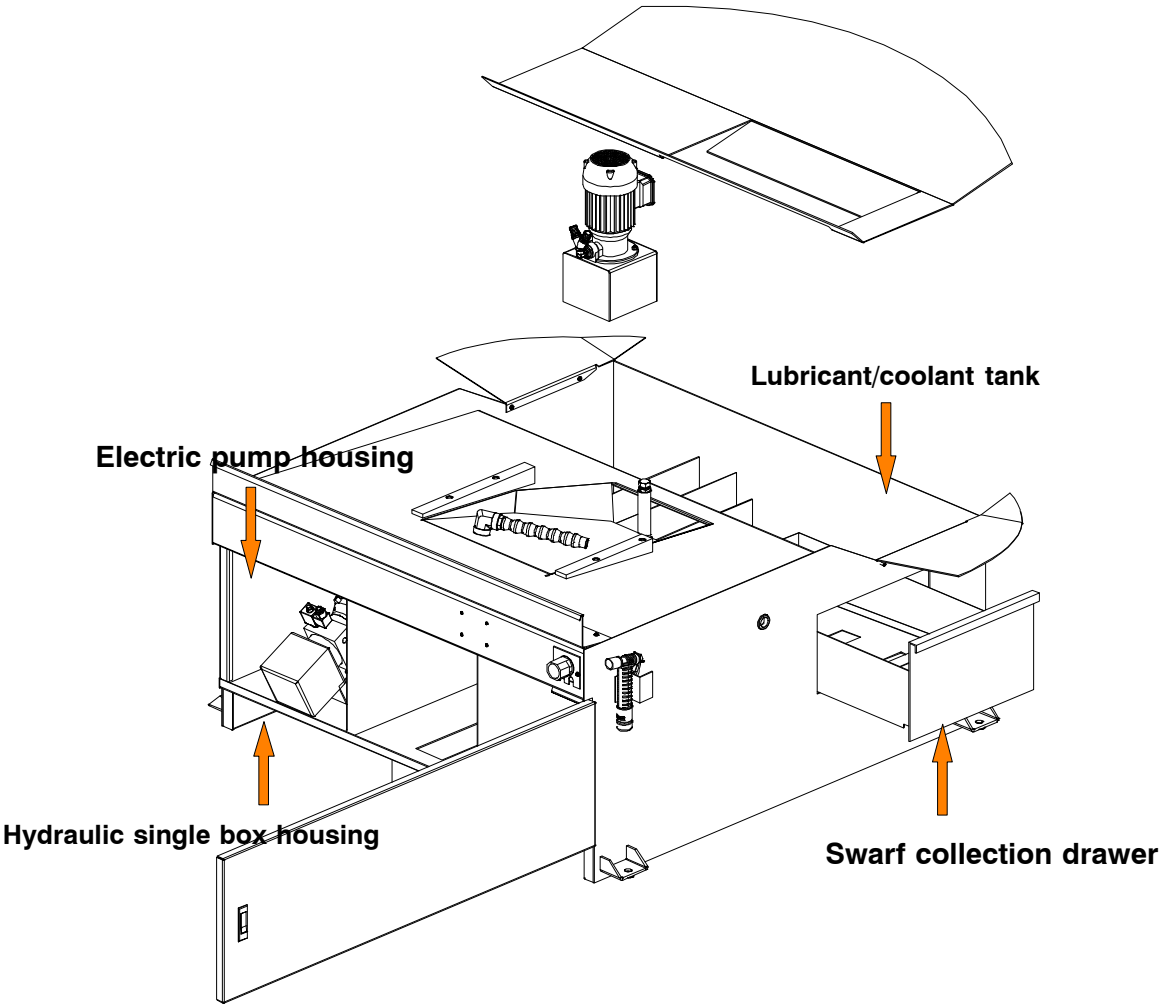
Motion–variator–reducer unit

Rotation of the band is performed by a system made up of a motor connected to a variator and a mechanical speed reducer.
This unit allows rotation of the band in a continuous adjustment range that goes from 20 to 100m/min.

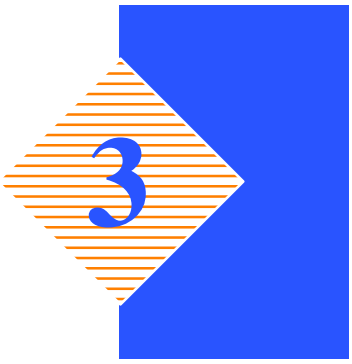


Base

This unit features a large coolant collection surface which conveys the coolant to the rear tank via the tank cover, and a swarf collection drawer. An electric pump is housed inside the tank which draws the clean fluid from the filter system.



Safety and accident prevention



The **SHARK 512 SXI–EVO** has been designed and produced in accordance with European standards. For the correct use of the machine we recommend that the instructions contained in this chapter are carefully followed.

Use of the machine

The **SHARK 512 SXI–EVO** band saw cutting machine is intended exclusively for cutting metallic materials, ferrous or non–ferrous, in section or solid.
Other types of material and machining are not compatible with the specific characteristics of the saw.
The employer is responsible for instructing the personnel who, in turn, are obliged to inform the operator of any accident risks, safety devices, noise emission and accident prevention regulations provided for by international standards and national laws regarding the use of the machine. The operator must be perfectly aware of the position and function of all the machine's controls.The instructions, warnings and accident prevention standards in this manual must be respected without question by all those concerned.The following definitions are those provided for by **MACHINES DIRECTIVE 2006/42/CE**

- "Danger zone": any zone in and/or around a machine in which the presence of a person constitutes a risk for the safety and health of that person.
- "Person exposed": any person finding himself either completely or partly in a danger zone.
- "Operator": the person or persons given the responsibility of installing, operating, adjusting, maintaining, cleaning, repairing or transporting the machine.

Attention

The manufacturer declines any responsibility whatsoever, either civil or criminal, should there be unauthorised interference or replacement of one or more parts or assemblies on the machine, or if accessories, tools and consumable materials are used that are different from those recommended by the manufacturer itself or if the machine is employed in a plant system and its proper function is thereby altered.

General recommendations

LIGHTING

Insufficient lighting for the types of operation envisaged could constitute a safety hazard for the persons concerned. For this reason, the machine user must provide lighting in the working area sufficient to eliminate all shadowy areas while also avoiding any blinding light concentrations. (Reference standard EN 12464–1:2011"Lighting in work environments").

CONNECTIONS

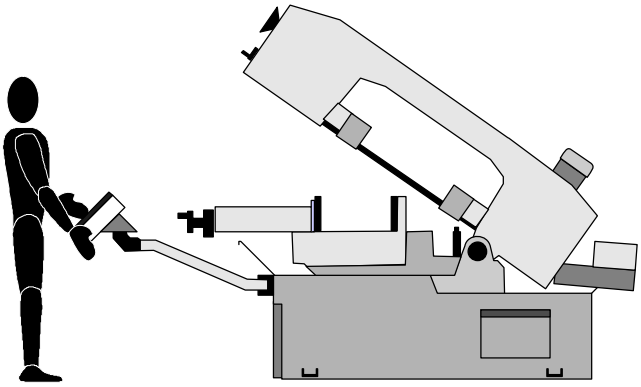
Check that the power supply cables and pneumatic feed systems comply with the maximum machine absorption values listed in the “Machine Specification” tables; replace if necessary.

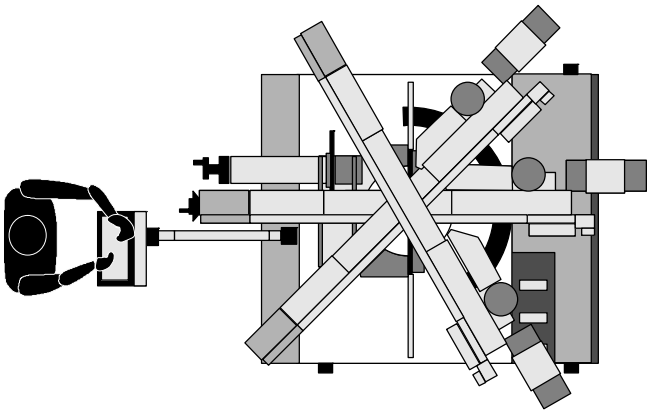
EARTHING

The installation of the earthing system must comply with the requirements set out in EN 60204−1:2006/AC:2010.

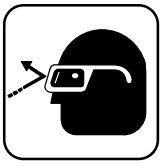
OPERATOR POSITION

The position of the operator controlling machine operations must be as shown in the diagram below.





Recommendations to the operator



Always wear proper goggles or protective glasses.



Do not use the machine without the guards in position. Replace the polycarbonate windows , if subject to corrosion.



Do not allow hands or arms to encroach on the cutting zone while the machine is in operation.



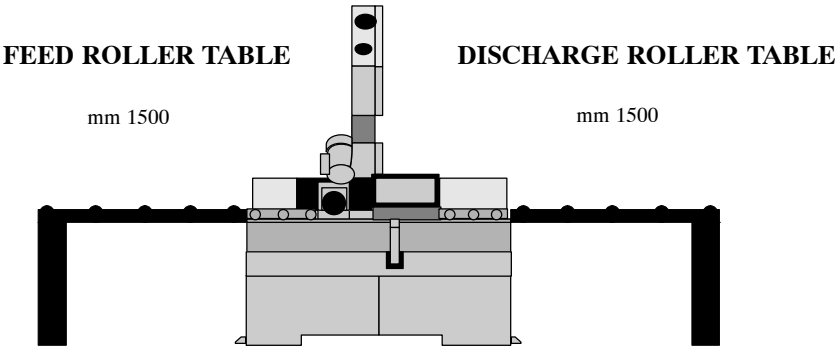
Do not wear oversize clothing with long sleeves, oversize gloves, bracelets, necklaces or any other object that may become entangled in the machine during working; long hair must be tied back and bunched.



Always disconnect the power supply to the machine before carrying out any maintenance work whatsoever, including in the case of abnormal operation of the machine.

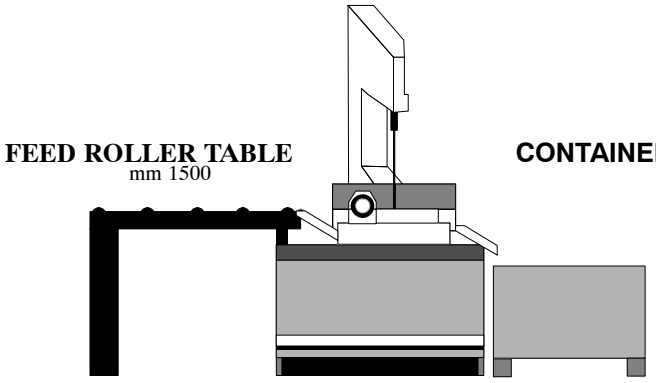


Before starting cutting operations, support the material at both ends of the machine using the support arm – standard, or OPTIONAL accessories such as the feed and discharge roller tables shown in the diagram below. Before removing the devices supporting and moving the material, fasten the latter in place using the machine's clamping devices or other suitable equipment.





Arrange recovery/collection systems for the cut pieces, such as metal baskets, for example.



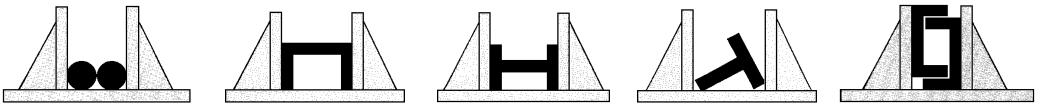


Any maintenance work on the hydraulic or pneumatic systems must be carried out only after the pressure in the system has been released.

The operator must not perform any risky operations or operations not required for the machining operation under way (e.g. remove swarf or metal shavings from the machine while cutting).

Remove equipment, tools or any other objects from the cutting zone; always keep the working area as clean as possible.

Before starting any cutting operations, ensure that the workpiece is securely held in the vice and the machine has been set correctly. A number of examples of how to clamp different profiles correctly in our machines are shown below.



Do not use the machine to cut pieces that exceed the capacity of the machine as listed in the machine specifications.

Never move the machine while it is cutting.

Do not use blades of different sizes to those recommended in the machine specifications.

When cutting very short pieces, make sure that they are not dragged behind the support shoulder, where they could jam in the blade.

When the hydraulic vice is used automatically, check it actually locks the piece, as its stroke is 8 mm only, and that the tightening pressure is correct.

When working on the band saw, wear gloves only when handling materials and for tool changing or adjustment operations. Only perform one operation at a time and do not hold more than one item or operate more than one device simultaneously. Keep hands as clean as possible.

Warning: if the blade jams in the cut, press the emergency stop push–button immediately. If this does not free the blade, slowly loosen the vice, remove the piece and check the blade or blade teeth for breakage. Replace the blade if necessary.



Before carrying out any repair work on the machine, consult the MEP Technical Assistance Service: this can be done through a representative in the country of use of the machine.



Adjustment of the blade–guide head must only be carried out with the machine at a standstill.

Machine safety devices

This use and maintenance manual is not intended as purely a guide for the use of the machine in a strictly productive environment, it is instead an instrument providing information on how to use the machine correctly and safely. The following standards are those specified by the EEC Committee in the directives regarding safety of machinery, health and safety at work, personal protection and safeguarding of the environment. These standards have been applied to the **SHARK 512 SXI–EVO** band saw.

Reference standards

MACHINE SAFETY

- MACHINES DIRECTIVE 2006/42/CE;
- Directive 2014/30/UE "EMC – Electromagnetic Compatibility";
- Directive 2014/35/UE known as "Low voltage directive".
- EN 16093:2017 Machine tools - Safety - Sawing machines for cold metal
- EN ISO 12100:2010 "Safety of machinery - General principles for design - Risk assessment and risk reduction".

HEALTH AND SAFETY AT WORK

- D.lgs 81/08 and subsequent amendment D.lgs 106/09 ;Directive 91/382/CE;2003/10/CE for the protection of workers against risks caused by exposure to physical, chemical and biological agents during working;
- Directive89/391/CE and Special EEC Directives No. 89/654/CE 2009/104/CE for improvements in health and safety at work;
- Directive 2004/37/CE for the protection of workers against risks deriving from exposure at work to carcinogenic substances;
- Directive 92/58/CE and No. 79/640/CE on safety signs at work.

PERSONAL PROTECTION

- Directive89/656/CE and Regulation 2016/425/UE on the use of personal protection devices.

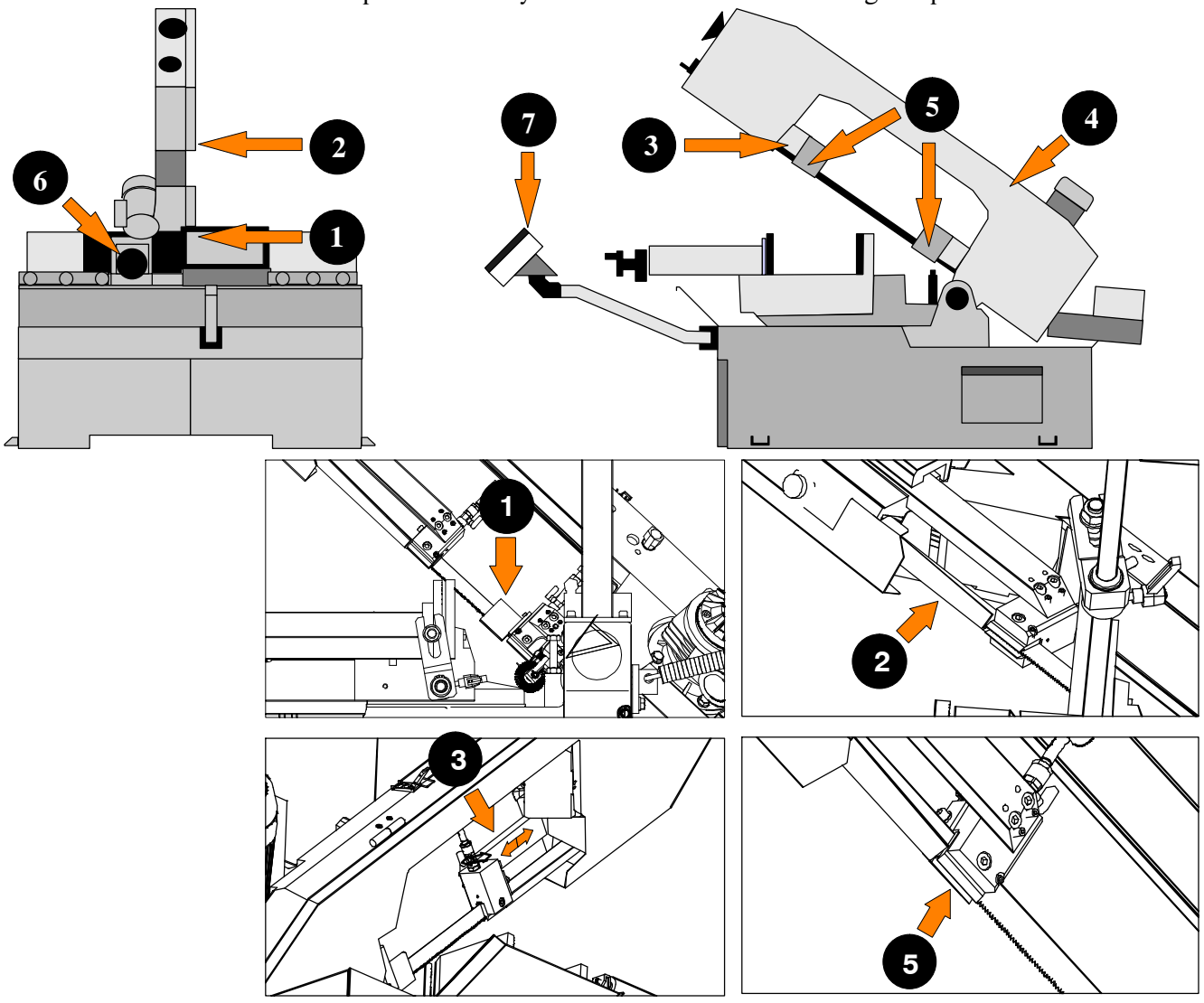
ENVIRONMENTAL PROTECTION

- Directive 2006/12/CE on waste disposal;
- Directive 2008/98/CE on the disposal of used oil.
- Directive 2011/65/CE on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS).

Protection against accidental contact with the blade

1. Metal guard screwed to the rear blade guide head (machine side);

2. metal guard screwed to the front blade guide head (operator side);
3. front head sliding support: when the head is at maximum aperture, the support ensures that the blade is covered, leaving free only the part of the blade engaged in the actual cutting, in accordance EN 16093:2017 ;
4. hinged protective cover over blade, fitted with “removable” closing devices;Annex V, Part II, point 5.5.2 of D.lgs 81/08 and Subsequent amendment D.lgs 106/09.
5. blade guide plates completely covering the blade teeth;
6. the cutting vice is operated by hydraulic devices, with a max. stroke of 6 mm; the jaws locking the piece must be moved at a distance of 2P3 mm from the piece to be machined.
7. programming and control panel mounted on an articulated, adjustable arm, so that the operator is always at a safe distance from moving components.



Electrical equipment

In accordance with Italian standard EN 60204−1:2006/AC:2010.

- Access to electrical control panel limited by screws and panel−lock device, allowing panel to be opened only after the electricity supply has been turned off;
- 24 Vac Control voltage for actuators, in accordance with chapter 6 or European Standard ”Control and indication circuits”, paragraph 2 ”Control Circuits” sub−section 1 ”Preferential voltage values for control circuits”;

- plant short−circuit protection by means of rapid fuses, earthing of all plant parts connected with work as well as all foreseeable accidental contact; a thermal−magnetic overload cutout switch shuts down the motor;
- protection from accidental start−up by a minimum voltage relay in case of power failure.

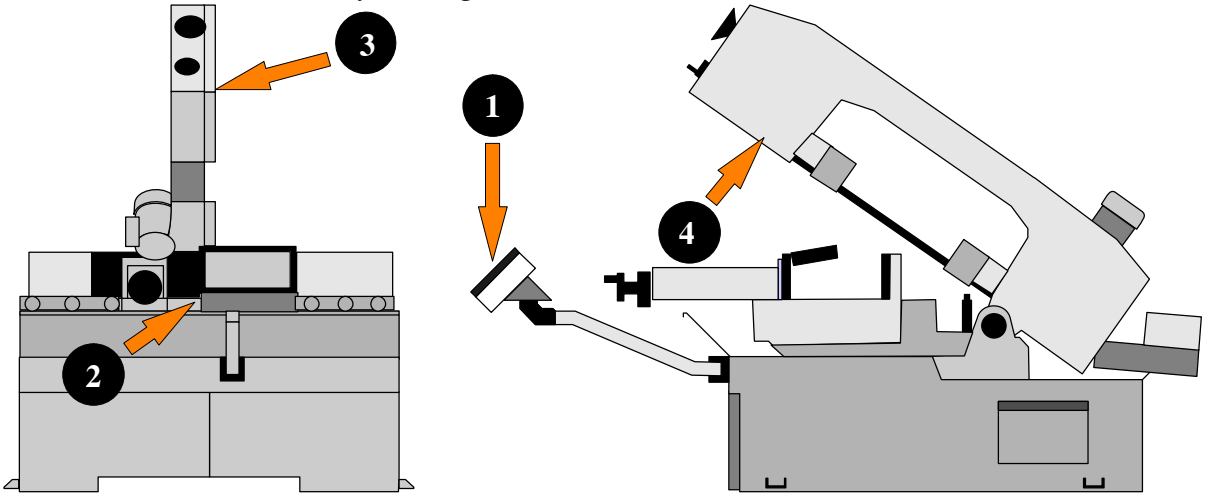
Emergency devices

In accordance with Italian standard EN 60204−1:2006/AC:2010.

- **Chapter 5 Section 6 Sub−section 1 "Emergency stop device"**: «the emergency stop device immediately stops all the dangerous and other functions of the machine»;
- **chapter 6 Section 2 Sub−section 4 Point 7 "Protective guards":** «the removal of protective guards designed to prevent access to dangerous parts or zones causes the machine to stop immediately; replacing the guards does not restart the functions, which must be reset».

...Emergency devices applicable to the SHARK 512 SXI−EVO:

1. **Emergency stop**: a non−return mushroom−head pushbutton, colour red on yellow background, is located on the control panel of the machine. To release the pushbutton, the actuator must be rotated 45°. After the emergency situation has been resolved, the machine must be reset.
2. **Automatic thermal−magnetic cutout switch with thermal−magnetic relay:** The machine's automatic switch, positioned on the left−hand side of the base, has two protective systems against the lack of voltage. In fact, if there is a lack of voltage, it disconnects all electrical devices, blocking the machine immediately and impedes the automatic restore of the voltage. The other function is that of re−arming the circuit breaker relay, positioned to protect from the overloads of current.
3. **Pressure transducer for monitoring the blade tension:** the machine stops immediately if the blade breaks or the tensioner cylinder pressure drops.
4. **Protective guard for blade:** a coded key microswitch is operated if the blade cover is accidentally or intentionally opened during the machine operating cycle, immediately shutting down all functions.



Noise level of the machine

Noise can cause hearing damage and represents one the problems faced by many countries who adopt their own standards. In accordance with the**MACHINES DIRECTIVE 2006/42/CE** , we are listing the standards that specify noise levels for machine tools.
The following paragraph explains the modes and the detected sound power and

pressure values released by the sawing machine.
These values comply with norm EN 16093:2017, EN ISO 12100:2010 and EN ISO 4871:2009,concerning the rules for drawing and presenting a procedure for noise tests and the declaration and check of sound emission values by machines and equipment.

Noise level measurement

Noise levels are measured using an instrument known as an Integrator noise−meter which registers the equivalent continuous acoustic pressure level at the work station.The damage caused by noise depends on three parameters: level, frequency and duration. The equivalent level concept Leq combines the three parameters and supplies just one indication. The Leq is based on the principle of equal energy, and represents the continuous stationary level containing the same amount of energy, expressed in dBA, as that actually fluctuating over the same period of time.This calculation is made automatically by the integrator noise−meter. The measurements are taken every 60 seconds, in order to obtain a stabilised value. The reading stays on the display for a sufficient time to enable a reading to be taken by the operator.Measurements are taken by holding the instrument at approximately 1 metre from the machine at a height of 1.60 metres above the platform at the operator's work station.
Two measurements are taken: the first while the machine operates without cutting anything, the second while cutting in manual mode.

Noise level values

Identification	
Machine type	Band saw for metal applications
Model	**SHARK 512 SXI−EVO**
Reference standard	EN ISO 3746:2010

Results		
Test 1st0	**Description**	C53 steel cut − pipe 356 x 286 mm Bimetal band 4640 x 34 x 1,1
	Results	**Mean sound level (Leq) 71,00 dB (A)** Environmental correction (K) 3,76 dB(A) Peak sound power (Lw) 81,93 dB(A)
Test 2nd	**Descriprion**	C 40 steel cut − HPE 400 x 300 mm Bimetal band 4640 x 34 x 1,1
	Results	**Mean sound level (Leq) 68,92 dB(A)** Environmental correction (K) 3,76 dB(A) Peak sound power (Lw) 81,90 dB(A)
Test 3rd	**Description**	34CND6 material cut −pipe Ø 150 mm Bimetal band 4640 x 34 x 1,1
	Results	**Mean sound level (Leq) 69,07 dB(A)** Environmental correction (K) 3,76 dB(A) Peak sound power (Lw) 79,78 dB(A)

Vibration emission

This sawing machine complies with the norms EN 1299:1997 + A1:2008 and EN ISO 20643:2008/A1:2012, as the machine vibration emission on the devices controlled by the operator does not exceed the threshold of 2.5 m/s^2

Electromagnetic compatibility

As from 1 January 1996 all electrical and electronic appliances bearing the CE marking that are sold on the European market must conform to Directive 2014/30/UE e 2014/35/UE and **MACHINES DIRECTIVE 2006/42/CE**. The prescriptions regard two specific aspects in particular:

1. "EMISSIONS: during its operation, the appliance or system must not emit spurious electromagnetic signals of such magnitude as to contaminate the surrounding electromagnetic environment beyond clearly prescribed limits";
2. "IMMUNITY: the appliance or system must be able to operate correctly even when it is placed in an electromagnetic environment that is contaminated by disturbances of defined magnitude".

The following text contains a list of the applied standards and the results of the electromagnetic compatibility testing of machine model **SHARK 512 SXI–EVO**.

Emissions

- EN 61000–6–4:2007 + A1:2011 Electromagnetic Compatibility (EMC) – Generic standard regarding emissions. Part 6–4: Industrial Environment.
- EN 55011:2009 + A1:2010 Industrial, scientific, and medical radio frequency appliances (ISM). Characteristics of radio frequency disturbance – Limits and methods of measurement.
- EN 50370–1:2005 Electromagnetic compatibility (EMC) – Product family standard for machine tools – Part 1: Emission

CONDUCTED EMISSIONS				
Gate A	**Freq. (MHz)**	**Q–peak limit (dBuV)**	**Mean value limit (dBuV)**	**Result**
A.C. power supply input	0.15 – 0.5 0.5 – 5 5 – 30	79 – 73 (linear reduction with log of frequency) 73 73	66 – 60 (linear reduction with log of frequency) 60 60	Complies

IRRADIATED EMISSIONS			
Gate	**Freq. (MHz)**	**Q–peak limit (10 m) (dBuV/m)**	**Result**
Enclosure	30 – 230 230 – 1000	40 47	Complies

Immunity

- IEC 61000–6–2:2005 + AC:2005 Electromagnetic Compatibility (EMC) – Generic standard on immunity. Part 6–2: Industrial Environment.
- EN 61000–4–2 + A1 (1996–1999) Electromagnetic Compatibility (EMC) – Part 4: Test and measurement techniques – Section 2: Electrostatic discharge immunity tests – Basic publication.
- IEC 61000–4–3:2006 + AMD1:2007 + AMD2:2010 Electromagnetic Compatibility (EMC) – Part 4: Test and measurement techniques – Section 3: Radiated, radio–frequency, electromagnetic field immunity test.
- IEC 61000–4–4:2012 Electromagnetic Compatibility (EMC) – Part 4: Test and measurement techniques – Section 4: Fast transients/bursts immunity tests – Basic publication.

- IEC 61000−4−5:2014 + AMD:2017 Electromagnetic Compatibility (EMC) – Part 4: Test and measurement techniques – Section 5: Surge immunity test.
- IEC 61000−4−6:2013 Electromagnetic Compatibility (EMC) – Part 4: Test and measurement techniques – Section 6: Immunity to conducted interference, induced by radio frequency fields.
- IEC 61000−4−11:2006 Electromagnetic Compatibility (EMC) – Part 4: Test and measurement techniques – Section 11: Voltage dips, short interruptions and voltage variations immunity tests.
- EN 50370−2:2003 Electromagnetic compatibility (EMC) – Product family standard for machine tools – Part 2: Immunity

IMMUNITY TO ELECTROSTATIC DISCHARGES			
Gate	**Test levels**	**Evaluation criterion**	**Result**
Enclosure	contact 4 kV steel plate 4 kV in air 8 kV	B	Complies

IMMUNITY TO VOLTAGE (BURSTS)			
Gate	**Test levels**	**Evaluation criterion**	**Result**
A.C. power supply input	2 kV	B	Complies

IMMUNITY TO HIGH VOLTAGE PULSES (Surge)			
Gate	**Test levels**	**Evaluation criterion**	**Result**
A.C. power supply input	1 kV (Phase – phase) 2 kV (Phase – earth)	B	Complies

IMMUNITY TO DIPS AND SHORT VOLTAGE INTERRUPTIONS (PQT)			
Gate	**Test levels**	**Evaluation criterion**	**Result**
A.C. power supply input	70% per 0.5 periods	B	Complies
	0% per 0.5 periods 40% per 5 periods 40% per 50 periods	B	

IMMUNITY TO CONDUCTED ELECTROMAGNETIC FIELDS			
Gate	**Test levels**	**Evaluation criterion**	**Result**
A.C. power supply input	10V	A	Complies

IMMUNITY TO IRRADIATED ELECTROMAGNETIC FIELDS			
Gate	**Test levels**	**Evaluation criterion**	**Result**
Enclosure	10 V/m	A	Complies

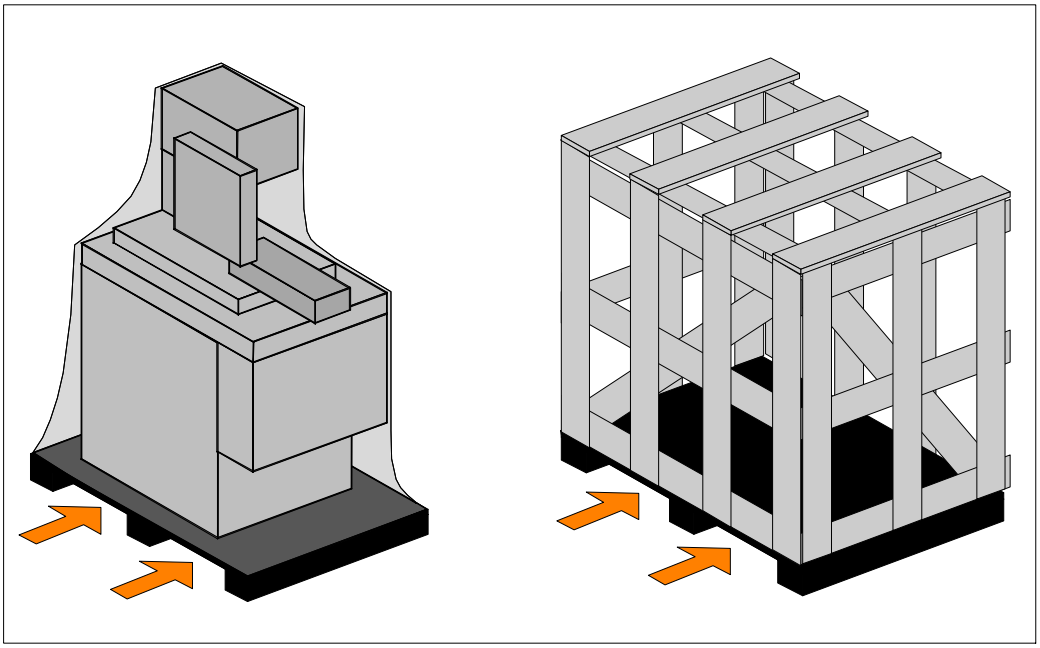
Machine installation

4

Packaging and storage

MEP S.p.A. use packing materials that guarantee the integrity and protection of the machine during its transport to the customer.

The type of packing differs according to the size, weight and destination. Therefore the customer will receive the machine in one of two following ways:

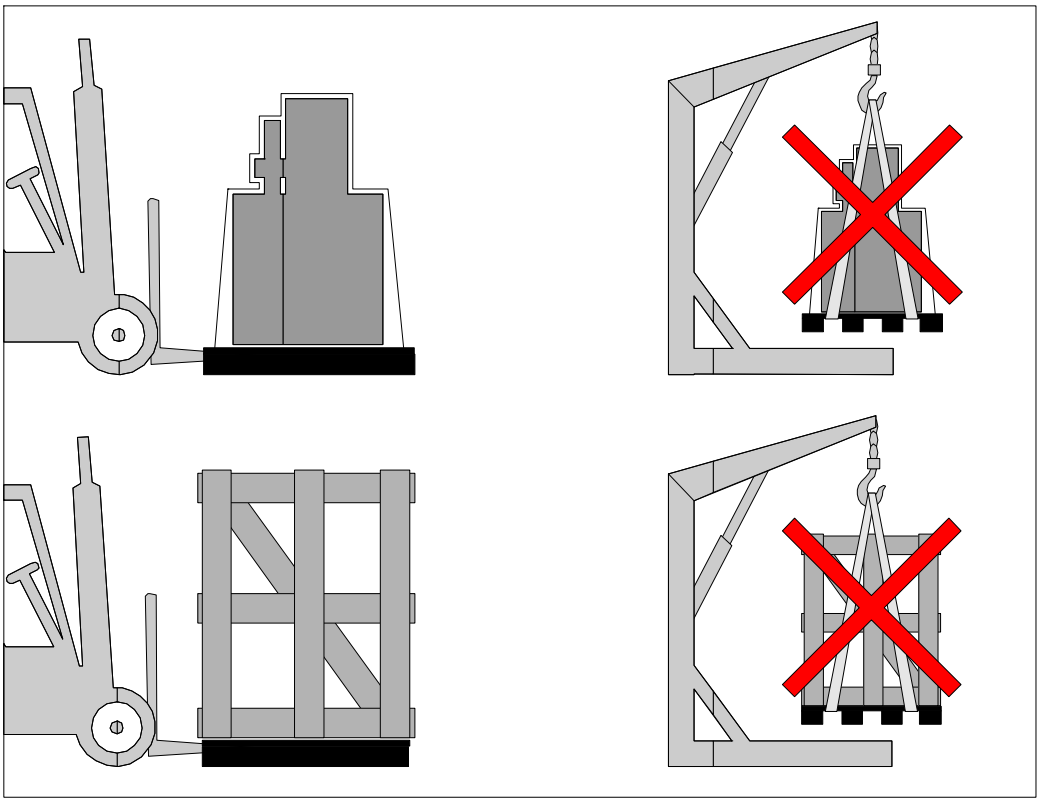


1. on a pallet with straps and heat−shrink plastic;
2. on a pallet with straps, heat−shrink plastic and a wooden crate.

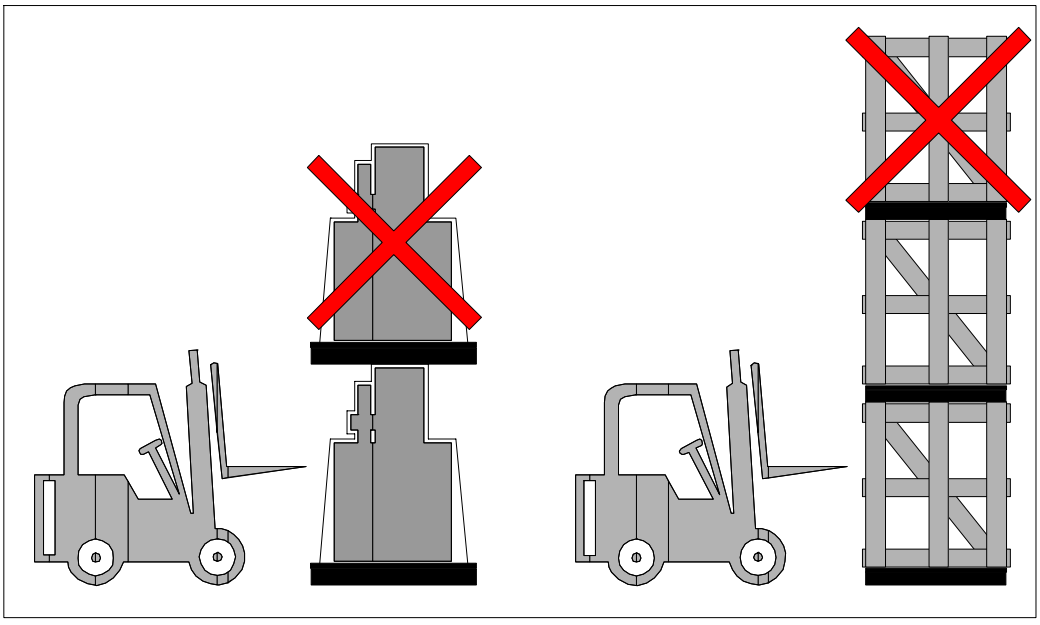
Warning In both cases, for correct balancing the machine must be handled using a fork−lift truck, inserting the tines at the points indicated by the arrows, using the reference marks on the crate itself.

Attention Before carrying out lifting operations, make sure that the weight of the machine, as indicated on the crating or other packaging, is within the forklift truck load limit.

Attention Do not handle the packed machine using slings.

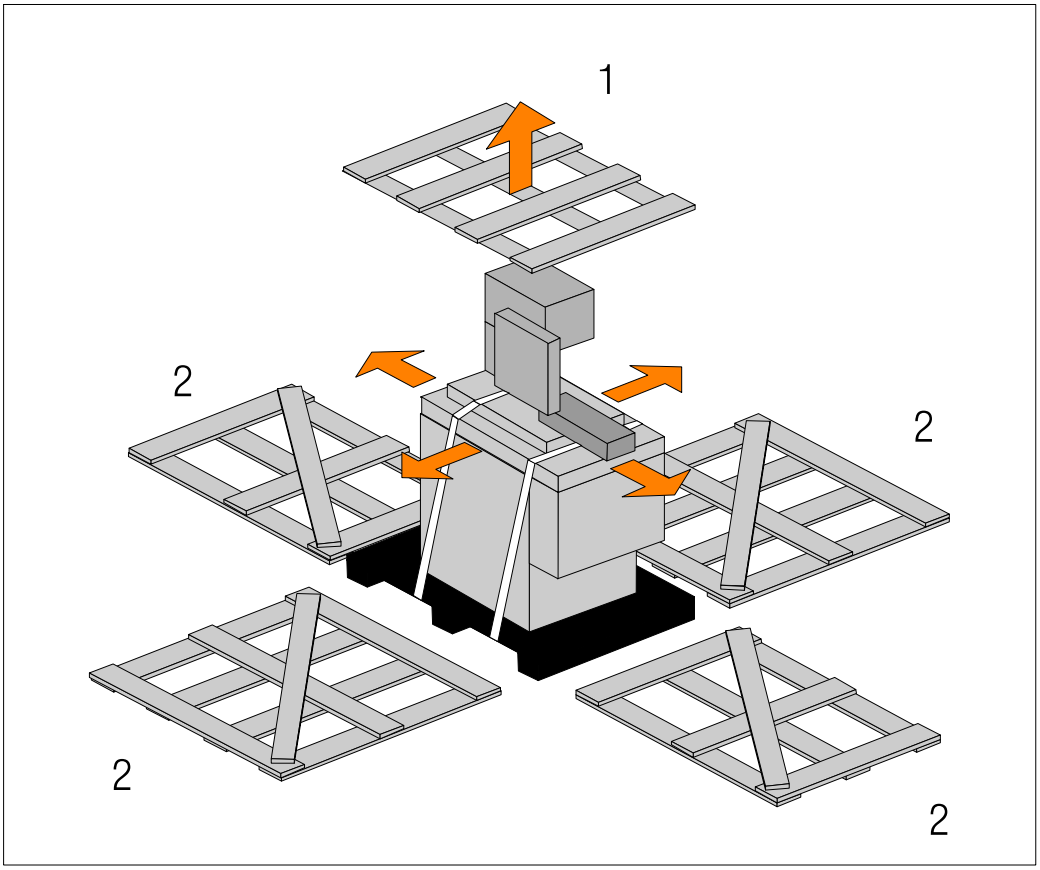


Attention When storing, machines palletized and shrink–wrapped must not be stacked two high, and machines pallettized and crated must not be stacked three high.

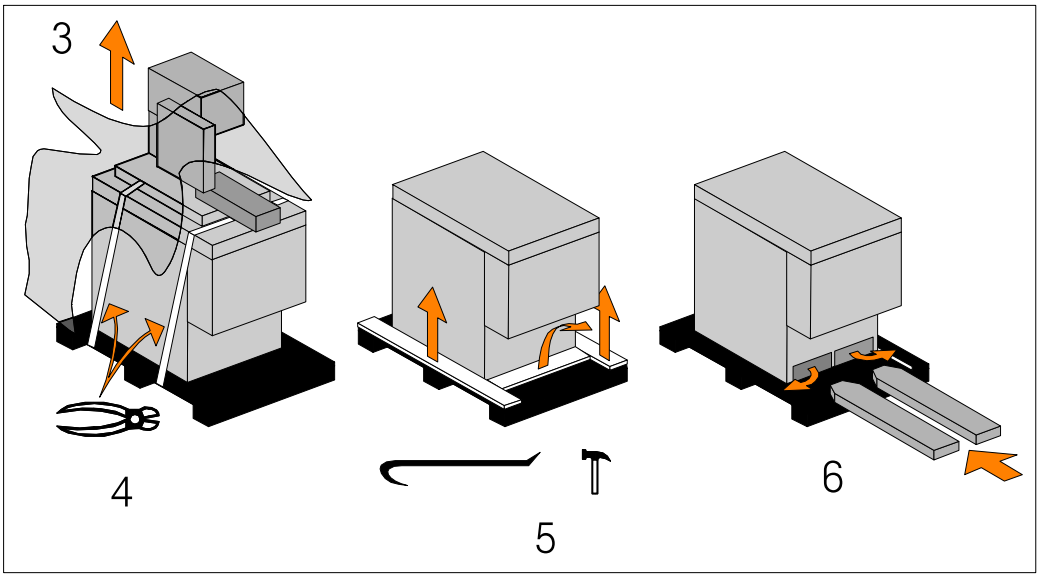


To install the machine, first remove the packing, paying particular attention not to cut any electric wires or hydraulic hoses; if necessary use pliers, a hammer and a cutter.
Open crate in the illustrated order:

1. remove nails and lift the top of the cage;
2. remove nails and lower walls;



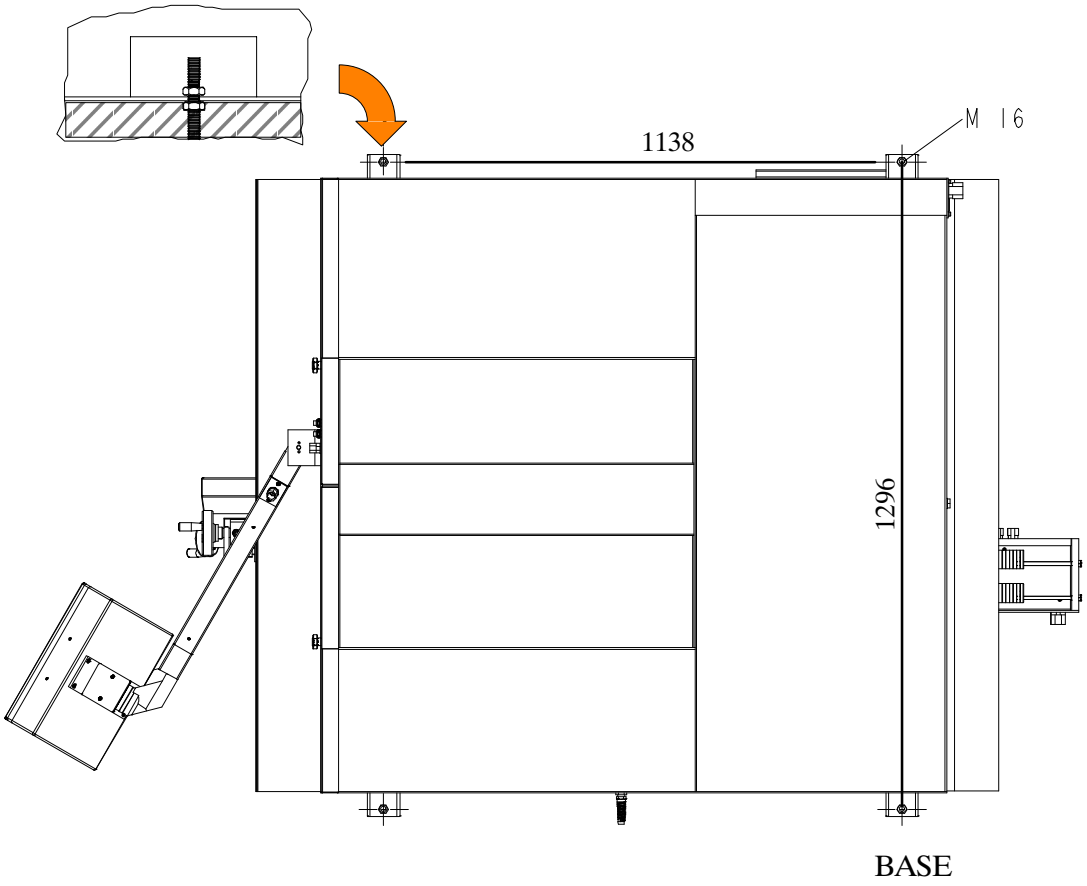
3. remove heat−shrink covering;
4. remove the straps;
5. remove nails from pallet securing planks and remove planks;
6. remove the front panel and insert fork tines.



To locate the machine in the workplace, **the machine dimensions** and necessary operator working space, including **the spaces laid** down in safety standards, **must be taken into account.**

Anchoring the machine

The base of the machine is anchored to the floor by two permanent studs located on the sides of the base. The studs are screwed into nuts previously sunk into the concrete, and tightened from above with lock nuts. The schematic specifications set out in Chapter 1 should be taken into account when positioning the machine.



Minimum requirements

For the machine to function correctly, the room in which it is to be installed must satisfy the following requirements:

- power supply voltage/frequency: refer to the values on the rating plate;
- pneumatic operating pressure: not less than 6 Bar and not more than 8 Bar;
- temperature of machine location: from – 10 to + 50¿C;
- relative humidity: not more than 90%
- lighting: not less than 500 Lux.

Warning The machine is already protected against voltage variations, but will only run trouble–free if the variations do not exceed ± 10%.

Check list

Before starting installation, check that all the accessories, whether standard or optional, supplied with the machine are present.

CHARACTERISTICS	STANDARD	OPTIONAL
Base with large swarf collection drawer, removable coolant tank and electropump for band saw lubrication/cooling	✓	
Bar support sliding on straight ball guides, located to the left of the cutting table	✓	
Blade 4640 x 34 x 1,1 mm	✓	
Recordable stroke to perform cuts of the same size	✓	
Rotating head on a rotating surface with ball bearings and recordable strokes allow the stopping and the blocking in correspondence of the 0°, 45°, 60° right and 45°, 60° left angles	✓	
Electronic transducer of the stretching of the band with display on the console	✓	
Blade cleaning device with rotating brushes	✓	
Designed for transpallet handling systems	✓	
Mobile console to operate while maintaining visual control	✓	
New latest generation hydraulic control unit, with high efficiency and low energy consumption	✓	
Low voltage soft keyboard, in polyester, with thermo−shaped buttons, with tactile feeling and sound signal when operating	✓	
Message display	✓	
Electronic speed control (inverter) 15÷100 mt/min	✓	
Hydraulic vice with screws with rapid nearing and transfer on the linear guides and slides with re−circulation of pre−loaded spheres	✓	
Steel blade guide head with adjustable hard metal blocks which open to facilitate blade replacement	✓	
Work table spray gun	✓	
Accessory kit	✓	
Mobile START device for semi−automatic cycle/EMERGENCY		✓
Cutting oil 5 lt		✓
Viewer cutting angle*		✓
Vice pressure control*		✓
Laser pointer and work lamp*		✓
3.44640 x27x0.9 M2/M42 bimetal band saw		✓
Min. lubrication system		✓

***ACCESSORIES AVAILABLE ON REQUEST**

The bag of accessories is enclosed in the machine before being packed and contains:

- hex wrenches 3/4/5/6/10 mm;
- pipe wrench 10 mm;
- 36mm wrench;
- use and Maintenance manual, including order form for parts in relevant user language.

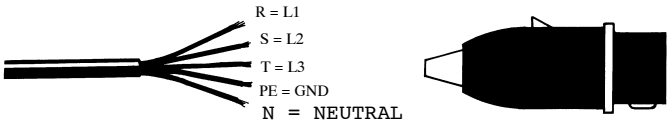
Connection to the power supply

Before connecting the machine to the power supply, check that the socket is not connected in series with other machines. This requirement is fundamental for the good operation of the machine.

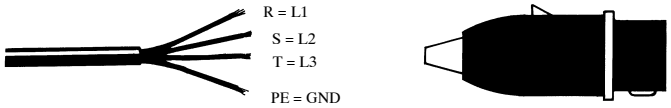
To connect the machine to the power supply, proceed as follows:

▶ connect the power supply cable of the machine to a plug which matches the socket to be used. (EN 60204–1; par. 5.3.2)

CONNECTION FOR **"5–CORE"** WIRE SYSTEMS WITH NEUTRAL



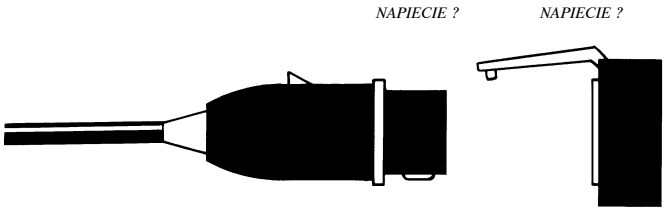
CONNECTION FOR **"4–CORE"** WIRE SYSTEMS WITH NEUTRAL



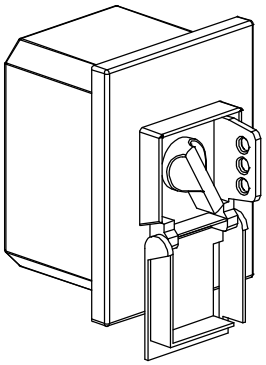
Attention

When using systems with a neutral wire, special care must be taken when connecting the **blue** neutral wire, in that if it is connected to a phase wire it will discharge the **phase voltage** to the equipment connected for **voltage: phase–neutral.**

▶ Insert the plug in the socket, ensuring that the mains voltage is the same as that for which the machine has been setup.

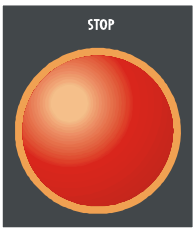


- Power up the machine by turning the main switch on the left hand side of the base (the control console should illuminate);

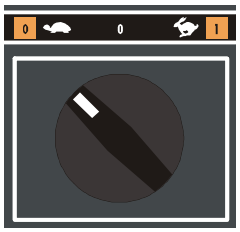


Check that the motor is rotating in the correct direction. For this check the following operations must be carried out:

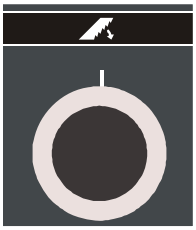
- set the blade tension to 1200 BAR;
- make sure the cover is properly closed: at the back of the cutting head there is a bayonet limiter for correct cover closure;
- make sure that the machine is not in an emergency condition (red mushroom−head pushbutton released);



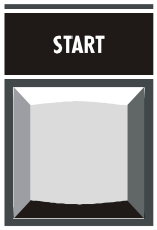
- after having applied voltage to the machine, set the selector for permission of motor start up to 1;



▶ Ensure that the head lowering control is at zero (fully closed);

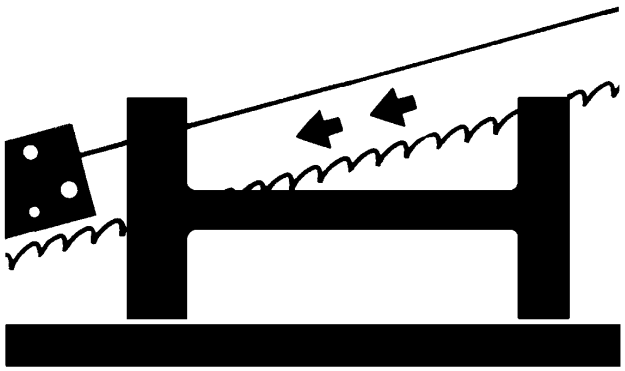


▶ start the belt turning by pressing START;



▶ if all the above operations have been carried out correctly, the blade motor will start up and the blade will start rotating.

Attention **Ensure that the blade moves in the correct direction as shown in the above figure.** If it does not, simply reverse two of the phase wires on the machine power supply input.



The sawing machine is now ready to start the work for which it was designed. Chapter 5 provides a detailed description of the various functions of the machine and its operating cycles.

Description of machine operation

5

This chapter analyses all the machine functions. We begin with a description of the pushbuttons and other components on the control panel.

Control panel description

The figure below shows the control panel of the **SHARK 512 SXI–EVO**.



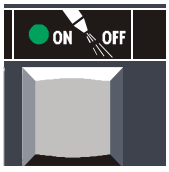
Key of control console keyboard



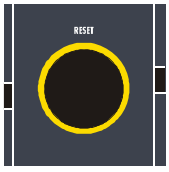
Initialisation key: enables machine operation



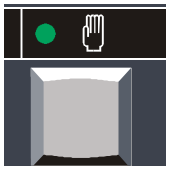
Cutting speed selection: hare (fast), turtle (slow) and zero (deselection)



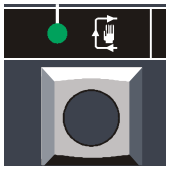
Selection for min. lubrication (optional)



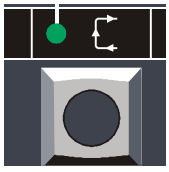
RESET key: resets the machine after an emergency condition or conflicting command



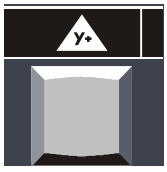
Manual cycle key (optional)



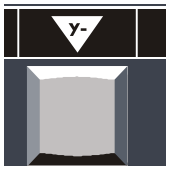
Semi–automatic/Dynamic cycle key (optional)



Semi–automatic cycle key



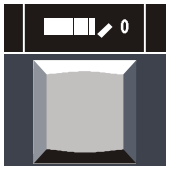
Head “up” key



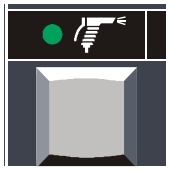
Head “down” key



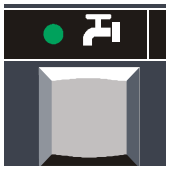
Machine parameters input/edit key



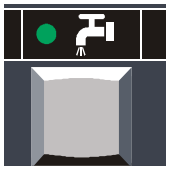
Zeroing key for cuts made



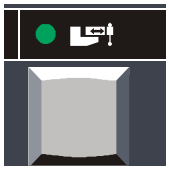
Nonoperating



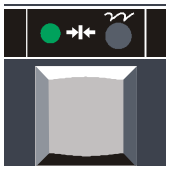
No lubricant/coolant key



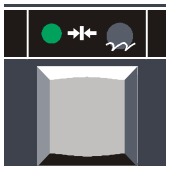
Lubricant/coolant spray cock key (only available during cycle)



Vice opening/closing



FCTI (Head Upstroke Limit) memory key for Head Positioning System



FCTA (Head Downstroke Limit) memory key for Head Positioning System



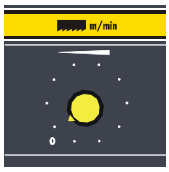
Diagnostics key



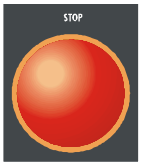
Programmed cycle start key



Foot pedal or console START selection key



Optional: electronic speed control (inverter). Blade cutting speed potentiometer: 20 to 45 m/min. at low speed and 35 to
90 m/min. at high speed



Mushroom head emergency stop button: when pressed, this button immediately shuts down the machine. To reset the emergency stop button, simply rotate through 45°



Hydraulic adjuster for choosing the head lowering speed



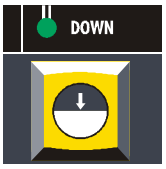
Key for displaying the machine parameters for performing a machining cycle: TL blade tension, PT head position, VL blade speed, T cutting time, PZ cut piece number, I motor absorption



Switch to activate or deactivate the laser to position the bar accurately to carry out non−standard or facing cuts, or to activate or deactivate the lamp for lighting the cutting area.

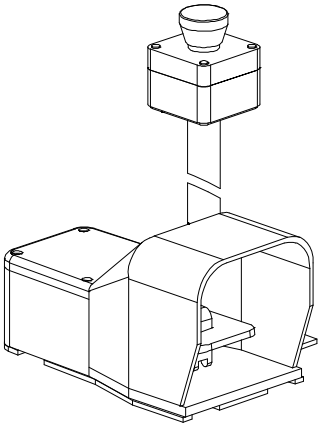


Button to take the cutting head to the stored RHLS point during the semiautomatic and semiautomatic−dynamic machining cycle, when the head reaches the cut end and if the DOWN button has been previously activated.



Button to stop the cutting head at the FHLS point when it reaches the cut end in the semiautomatic and semiautomatic−dynamic machining cycle.

MOBILE START−EMERGENCY DEVICE (optional)



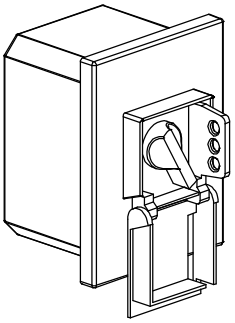
The machine can be equipped with a remote control device, enabling the start of the semiautomatic cycle through pedals and the emergency stop through red mushroom push button (optional).

THERMAL−MAGNETIC CIRCUIT−BREAKER WITH UNDERVOLTAGE COIL AND DOOR LOCKING DEVICE

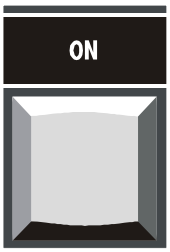
On the left side of the control board, the machine is equipped with a main switch that, when set ON (1), powers the machine. When set to ON (1), this switch powers up the machine. The main switch is fitted with three power failure protection systems. In fact, in the event of a power failure, this switch disconnects all the electrical devices, causing the machine to immediately shut down, and prevents it from automatically starting up again when power is restored. This device also resets the thermal relay fitted to protect against current overloads.

Basic instructions for carrying out a cutting operation cycle

▶ Power up the machine by turning the main switch.

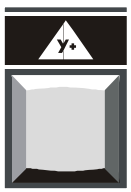


▶ press the ON key;



Manoeuvring the cutting head

The cutting head may be operated by the head “up” and “down” buttons of the Head Positioning System (previously illustrated in the key for the control console keyboard), which are enabled in SEMI−AUTOMATIC mode.

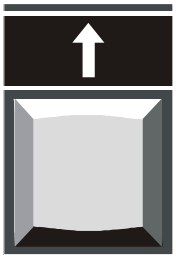


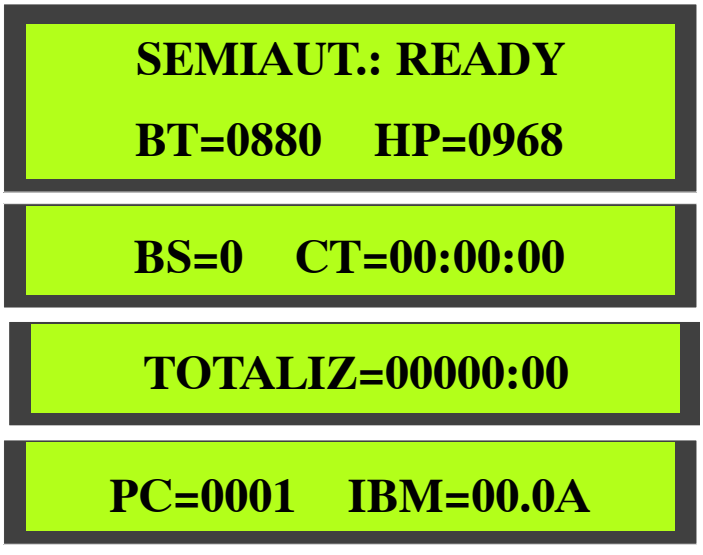
Head “down” key



Head “up” key

N.B. During any processing cycle it is possible to control the machine operating parameters BT (blade tensioning) and HP (head position), pressing the key below it is also possible to display the values BS (blade speed), CT (cutting time), PC (cut piece counting) and IBM (motor current absorption).

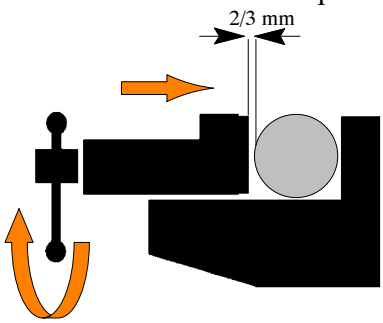




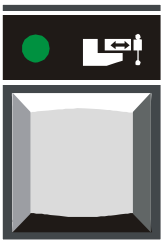
Clamping the work piece in the vice

Vice opening and closure is controlled by the corresponding buttons on the control console. However, to ensure that the workpiece is securely clamped in the vice, proceed as follows:

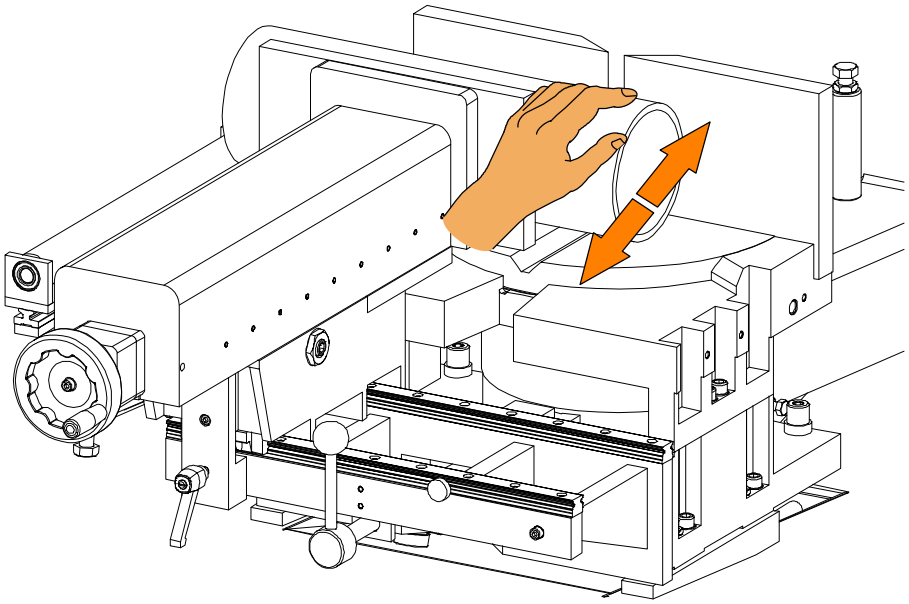
- ▶ make sure the workpiece dimensions do not exceed the machine's cutting capacity;
- ▶ make sure the piece is correctly supported on both sides of the machine;
- ▶ move the vice to within 2÷3 mm of the workpiece using the handwheel.



- ▶ Turn the selector for the closure of the vice;



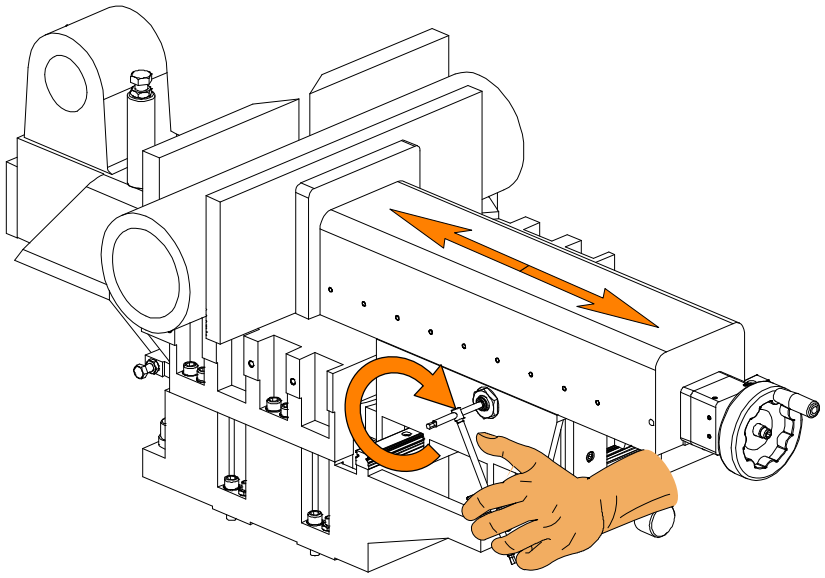
- ▶ make sure the workpiece is securely clamped in the vice by trying to move it manually.



Rapid vice positioning

By means of a simple device the vice can be slid back and forth to accelerate vice opening and closing operations.

▶ Grip the lever illustrated in the figure below and rotate in a clockwise direction: the vice is now free to slide back and forth to the required position. Once positioned, release the lever to lock the vice in place.



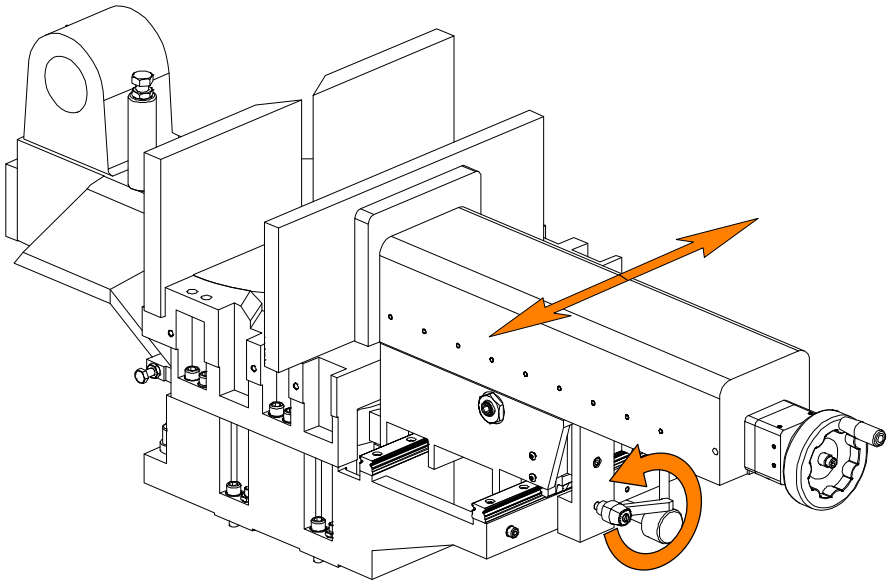
▶ Finally, position the vice to within 2÷3 mm of the workpiece using the handwheel.

Rapid vice translation

The vice can be moved to the left or to the right in order to carry out angled cuts, by sliding it along the straight guides.

▶ Release the blocking ball grip indicated in the figure;

▶ Position the vice on the left or on the right and tighten the blocking ball grip;

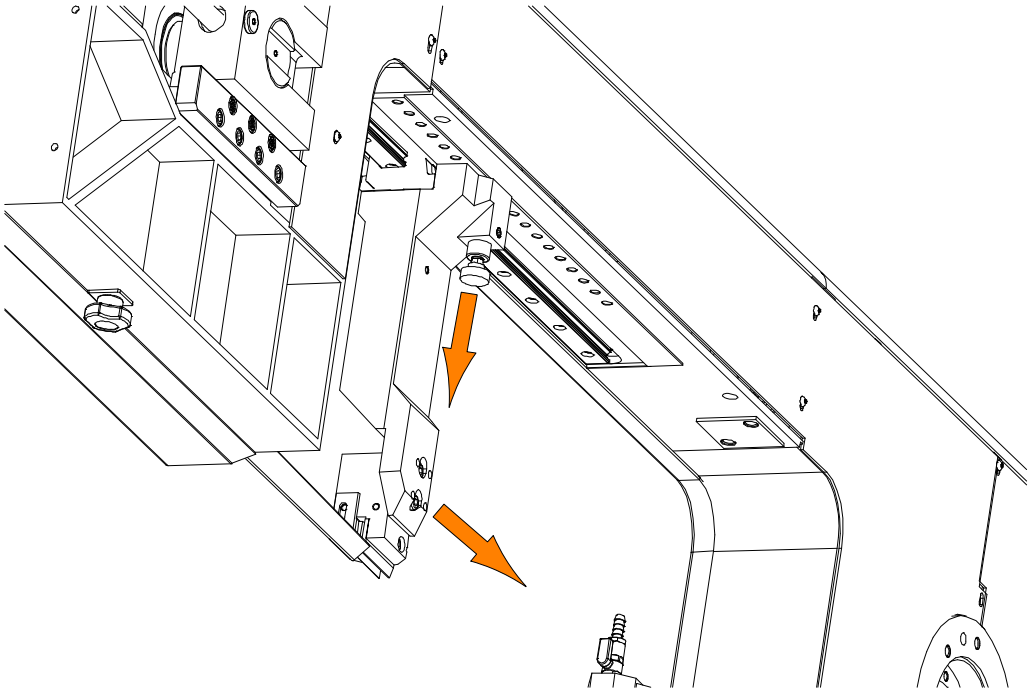


Width of cut

The machine is fitted with protections which protect the entire blade stroke, leaving exposed only the part of the blade required to make the cut itself as specified by current standards. The width of the cut is determined by the longitudinal section of the workpiece, so that only the part of the blade required to make the cut is actually exposed.

▶ Position the workpiece on the work table in proximity to the blade downstroke trajectory and clamp it in the vice;

▶ release the lever to allow the blade guide small head rod to run inside the bow;



▶ position the mobile front guide head near the workpiece so that the downstroke trajectory exceeds the mobile vice jaw;

Preliminary check list for cutting operation

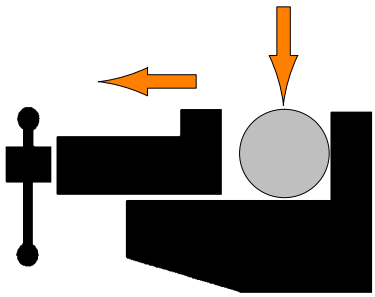
To guarantee complete safety during cutting cycles, the operator should work through a check list of the entire apparatus, checking:

- blade tension;
- that the blade guide head bracket is locked in the correct position;
- that the cutting angle is correct and the cutting head is locked;
- that the work piece is properly clamped in place;
- that the blade teeth are correct for the job to be begun;
- that the speed selected is right for the kind of piece to be cut;
- that all protections are in place and correctly locked;
- the level of lubricant/coolant and that the electropump is activated;
- That the blade descent speed is correct.

Semi–automatic operating cycle

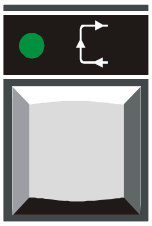
Semi–automatic cutting sequence:

- position the workpiece in the vice.

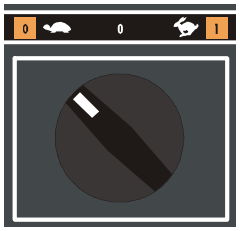


Warning During this programming phase of the cycle, do not position the workpiece perpendicular to the blade so that the head may be moved up and down without colliding with the workpiece.

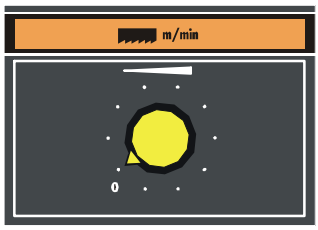
- Select semi–automatic mode by pressing the corresponding button on the control console.



▶ Select the required cutting speed in accordance with the type of material being cut (tortoise = low speed; hare = high speed).

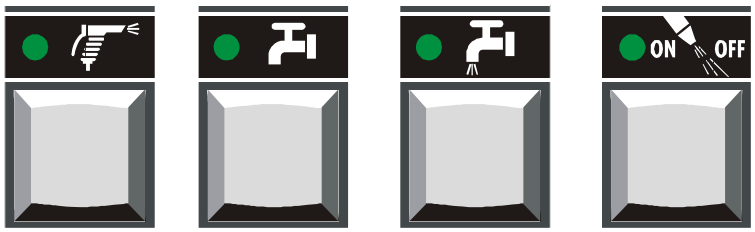


N.B. If the machine is equipped with the optional inverter, set the speed for the type of material being cut using the potentiometer on the control console.



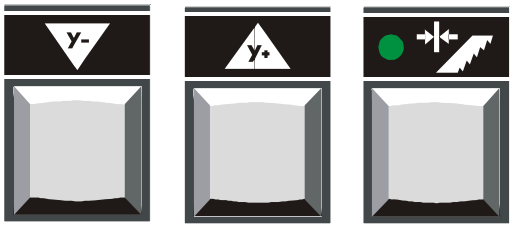
▶ Program the lubricant/coolant spray using the corresponding button on the control console and adjust the delivery rate using the cocks on the blade guide heads. It is also possible to set the lubricant/coolant delivery mode.

OPCJA



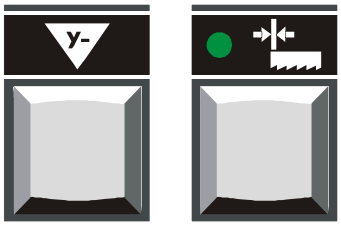
▶ Position the cutting head about 10 mm from the workpiece using the up (Y+) and down (Y−) arrow keys.

▶ Press the FCTI (Head Upstroke Limit) memory button to save the head start position at the beginning of the cycle.

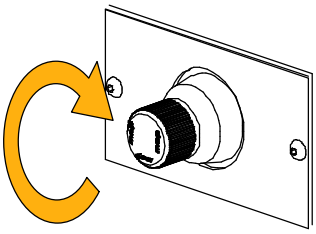


▶ Lower the head to the end−of−cut position by pressing the down (Y−) arrow key.

▶ Press the FCTA (Head Downstroke Limit) memory key to determine the final position of the head at the end of the cut. As soon as you have pressed the FCTA memory key the vice will close and the head will return up to the FCTI position ready for cycle start.

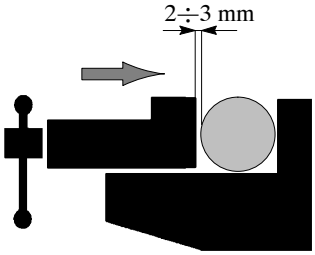


▶ Fully close the head lowering adjuster, on the right side of the control console.

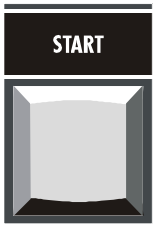


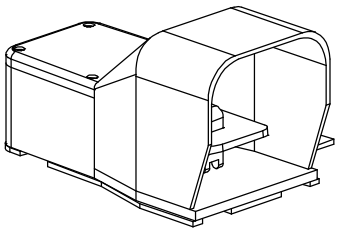
▶ Correctly position the workpiece in the vice and calculate the length of cuts (using the cut−to−size rod).

▶ Open the vice using the relative button and manually move the vice towards the material, leaving a minimum distance of 2÷3 mm. (as illustrated in the Manual cycle).

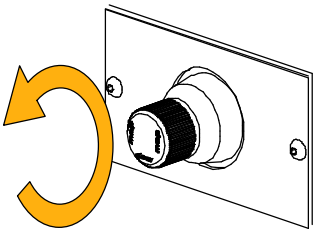


▶ Start the cutting cycle pressing the start key or the pedal control (optional).





▶ After you have given the START command, the blade starts to rotate, the vice clamps the workpiece and the coolant spray is activated. The cutting head will remain in the start position until the head descent regulator located on the front right of the base is opened.



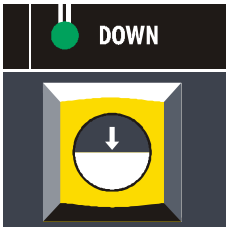
Warning Adjust the head downstroke speed in accordance with the type of material being cut, the blade rotation speed and the quality of finish required.

▶ Once the piece has been cut (FCTA position), the blade stops rotating, the cutting head returns to the FCTI position and the vice opens. The machine is now ready to start a new cycle.

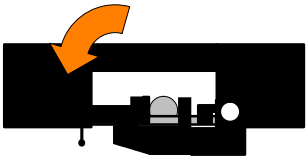
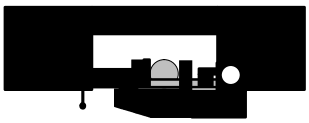
UP and DOWN function

In the semiautomatic cycle this function enables to stop the head at the RHLS to make operations on the cut piece holding it locked in the vice after the cut.

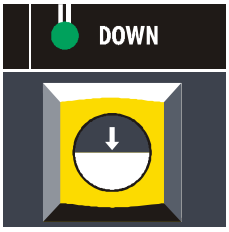
▶ Select the semiautomatic cycle, press the DOWN button.



The cutting cycle is the following:

1. The cutter vice closes	2. The band starts and the head lowers till the cut end (FHLS)	3. The head stops at the FHLS point and the band stops	4. The cutting vice remains closed
			

▶ Press the UP button to return the head to the RHLS, then the vice opens automatically.



Warning

In the semiautomatic–dynamic machining cycle the head return spring must be detensioned to prevent the spring pulling force from lifting the head when it has reached the FHLS point.

▶ Press the Down button to deactivate this function.

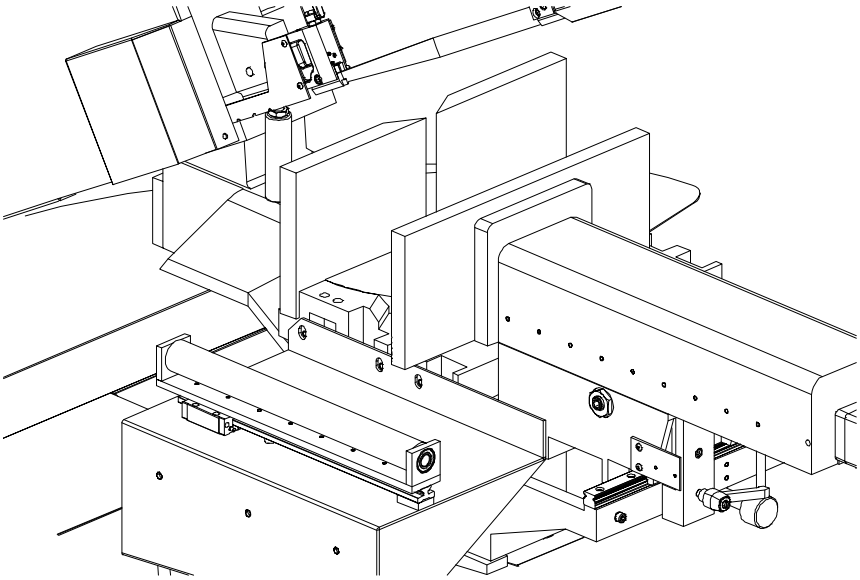
Execution of inclined cuts

It is possible to perform inclined cuts with angles from 60° left and 60° right. The rotating platform has pre−set reference strokes for the fast execution of cuts at 0°, 45°, 60° right, and 45°, 60° left.

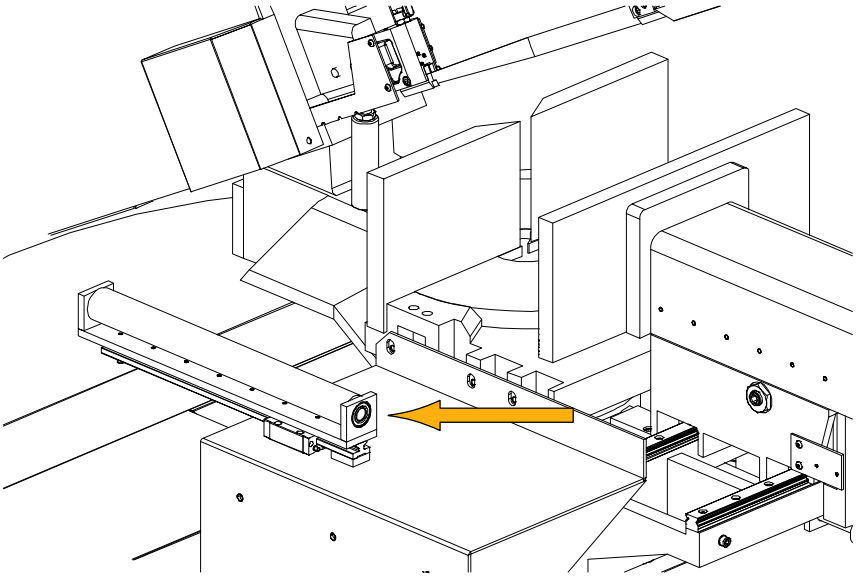
In any case it must be pointed out that the bar support rollerway, located on the loading side of the machine (to the left of the cutting table) has two pre−set positions, one for straight cuts or cuts with an inclination of up to 30° (left or right), the other for cuts with an inclination of 60° right.

Loading side rollerway position

For 0° or 30° left/right cuts check that the rollerway is positioned as shown in the drawing below:

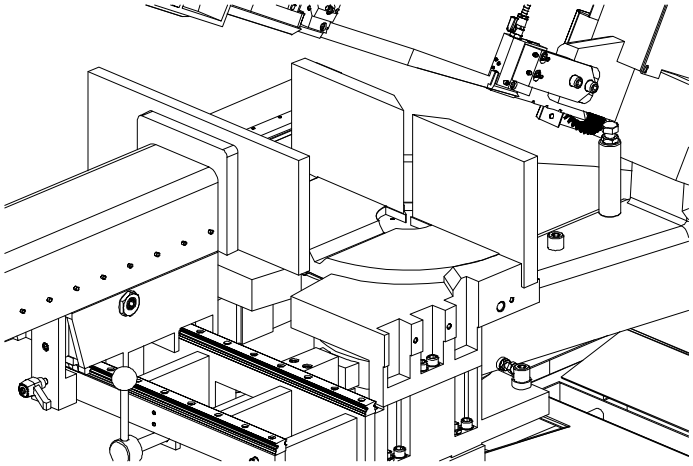


For 30° to 60° right cuts check that the rollerway is positioned as shown in the drawing below:

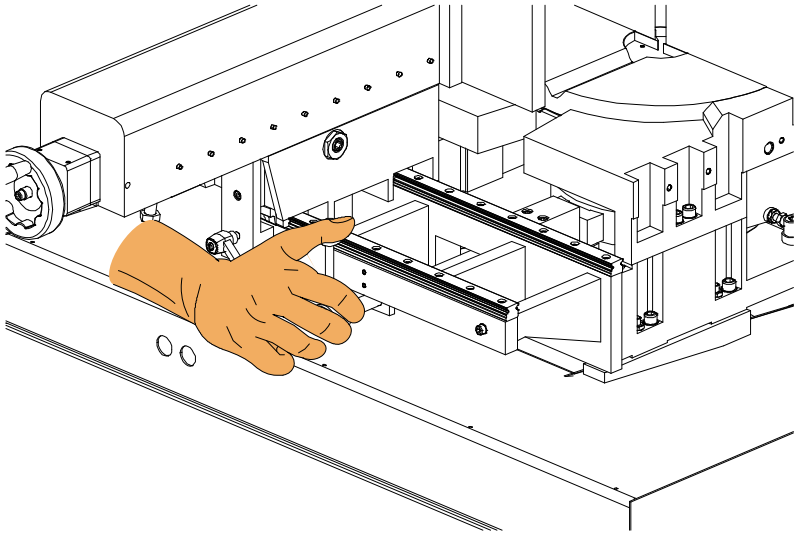


Angled cuts 45° to the left

▶ Make sure the vice is positioned to the left of the 0° cutting slot;



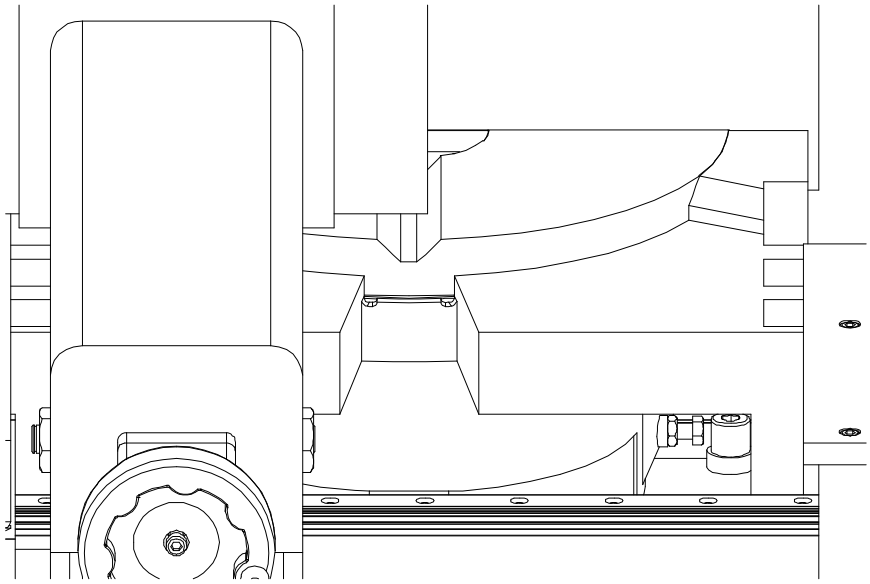
▶ slacken the turntable lock/release lever.



Warning

The 0, 45 and reference stops for cuts to the right and the 45° reference stop for cuts to the left facilitate rapid head positioning during turntable rotation. However, the eccentric pin is only correctly positioned if the initial rotation of the turntable when released is corrected.

▶ Swing the head from left to right until it is positioned at the required angle, as indicated by the graduated scale on the turntable.



Attention Always rotate the head when it is in the upper position to avoid blade collision with the moving jaw on the clamp.

▶ Relock the turntable lock/release lever.

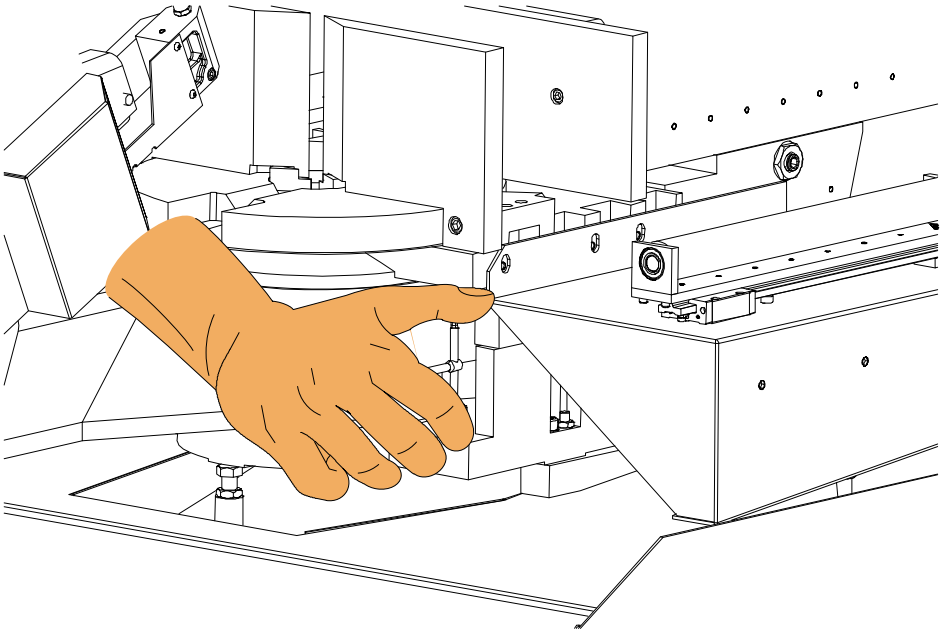
▶ Perform the cut keeping in mind the preliminary safety instructions noted in this chapter.

Angled cuts 60° to the left

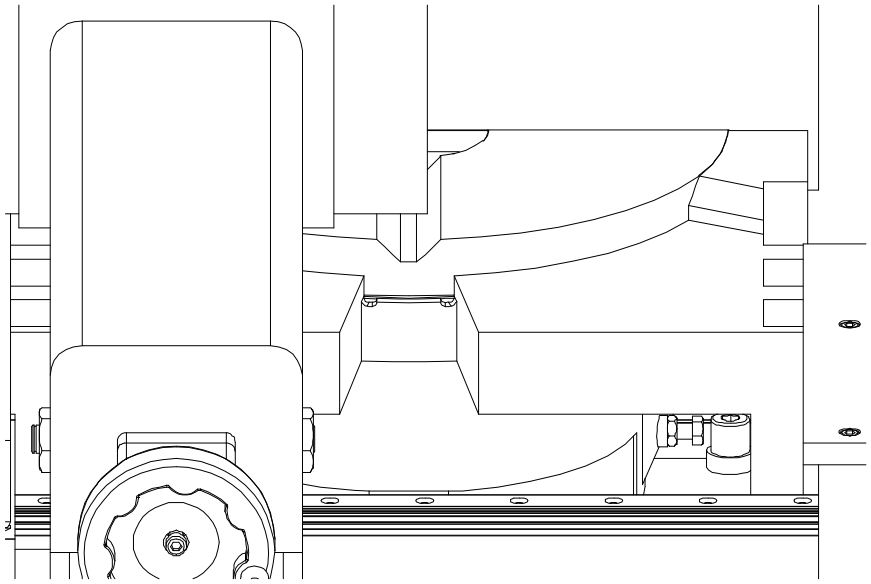
▶ Ensure that the vice is positioned on the left of the cutting slit at 0°, see the previous paragraph;

▶ Release the the block/unblock head rotating surface lever.

▶ remove the pre−set stroke to 45° left;



▶ Turn the head from left to right until the desired inclination is obtained. This is displayed on the graduation noted on the rotating surface.



Attention Always rotate the head when it is in the upper position to avoid blade collision with the moving jaw on the clamp.

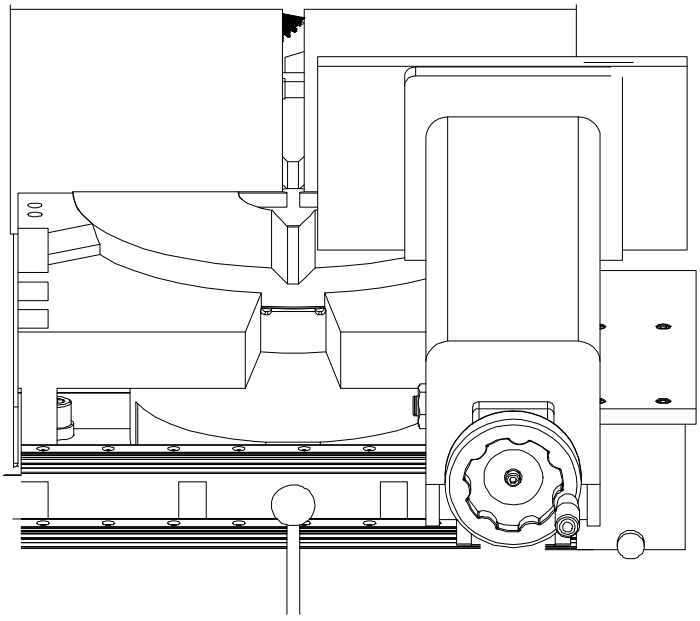
▶ Tighten the block/unblock rotating surface lever;

▶ Perform the cut keeping in mind the preliminary safety instructions noted in this chapter.

Angled cuts 45° to the right

Carry out the same operations described in the previous paragraph, remembering that before you start machining you must first:

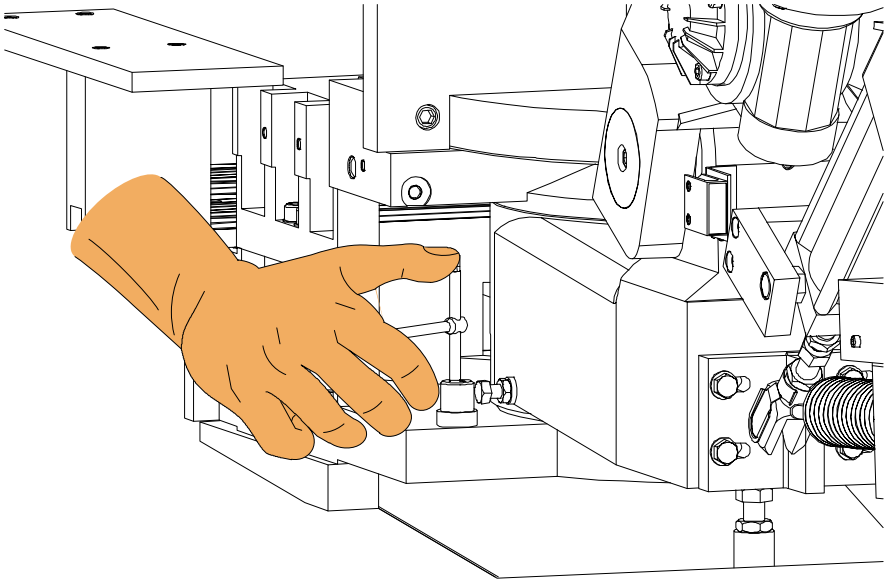
▶ move the vice to the right of the cutting slot;



Attention When positioning the vice to the left or right, make sure the moving jaw is beyond the 0° cutting slot to avoid any risk of collision with the blade downstroke.

▶ slacken the turntable lock/release lever;

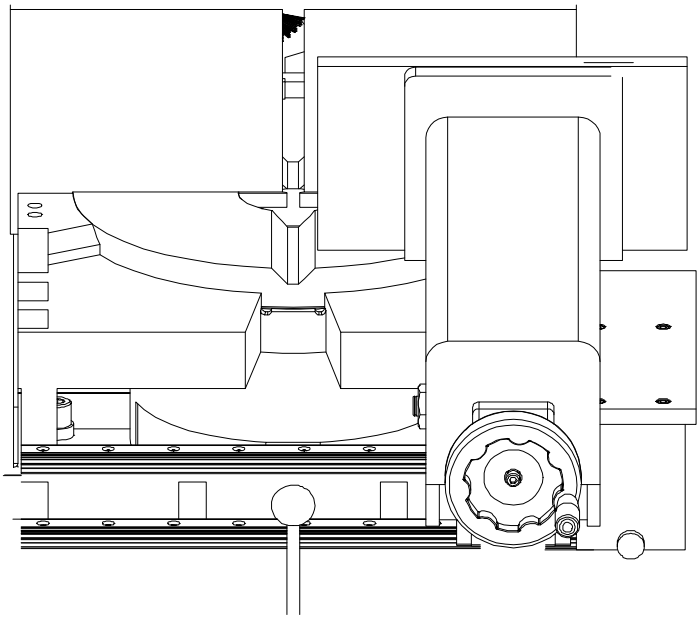
- remove the 0° stop;



- swing the head from left to right until it is positioned at the required angle, as indicated by the graduated scale on the turntable;
- relock the turntable lock/release lever;
- Perform the cut keeping in mind the preliminary safety instructions noted in this chapter.

Angled cuts until 60° to the right

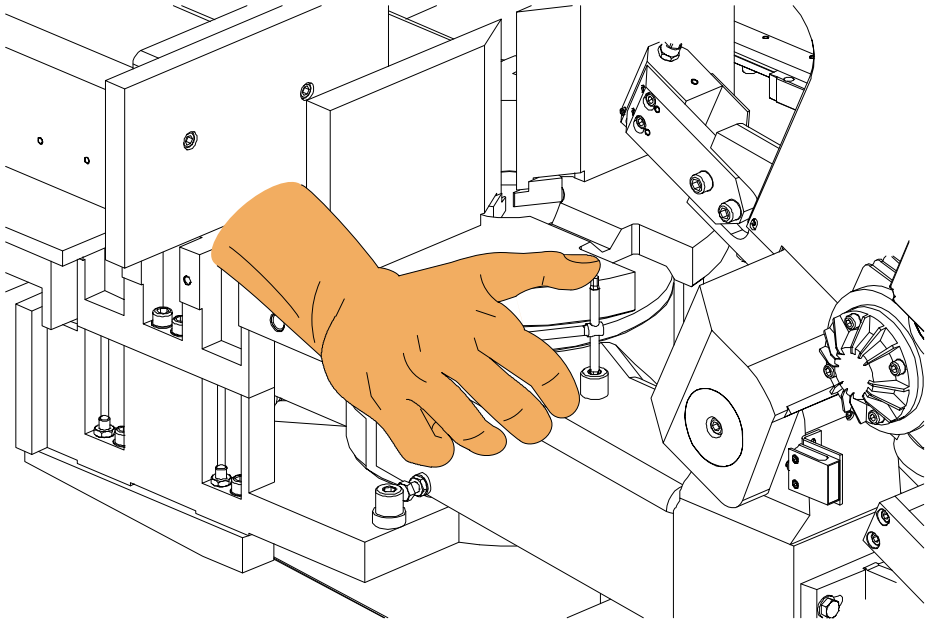
▶ Move the vice to the right of the cutting slit;



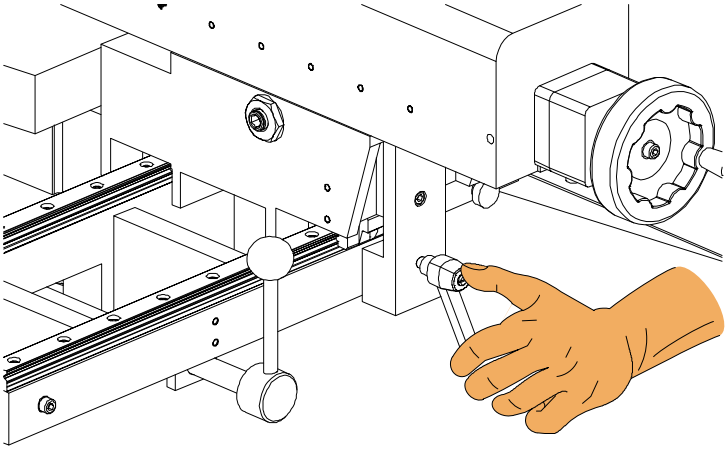
Attention

When positioning the vice on the left or on the right, pay attention that the mobile jaw does not exceed the cutting slit at 05. In this way it will not interfere with the band during descent.

▶ Remove the pre−set stroke to 45° right

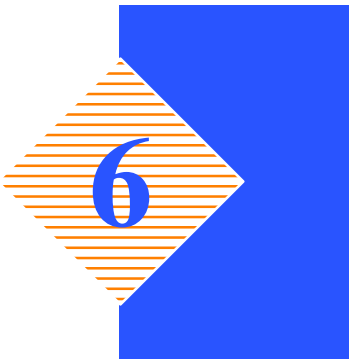


- Slacken the turntable lock/release lever;



- swing the head until it is positioned at the required angle, as indicated by the graduated scale on the turntable;
- relock the turntable lock/release lever;
- Perform the cut keeping in mind the preliminary safety instructions noted in this chapter.

Diagrams, exploded views and replace–ment parts



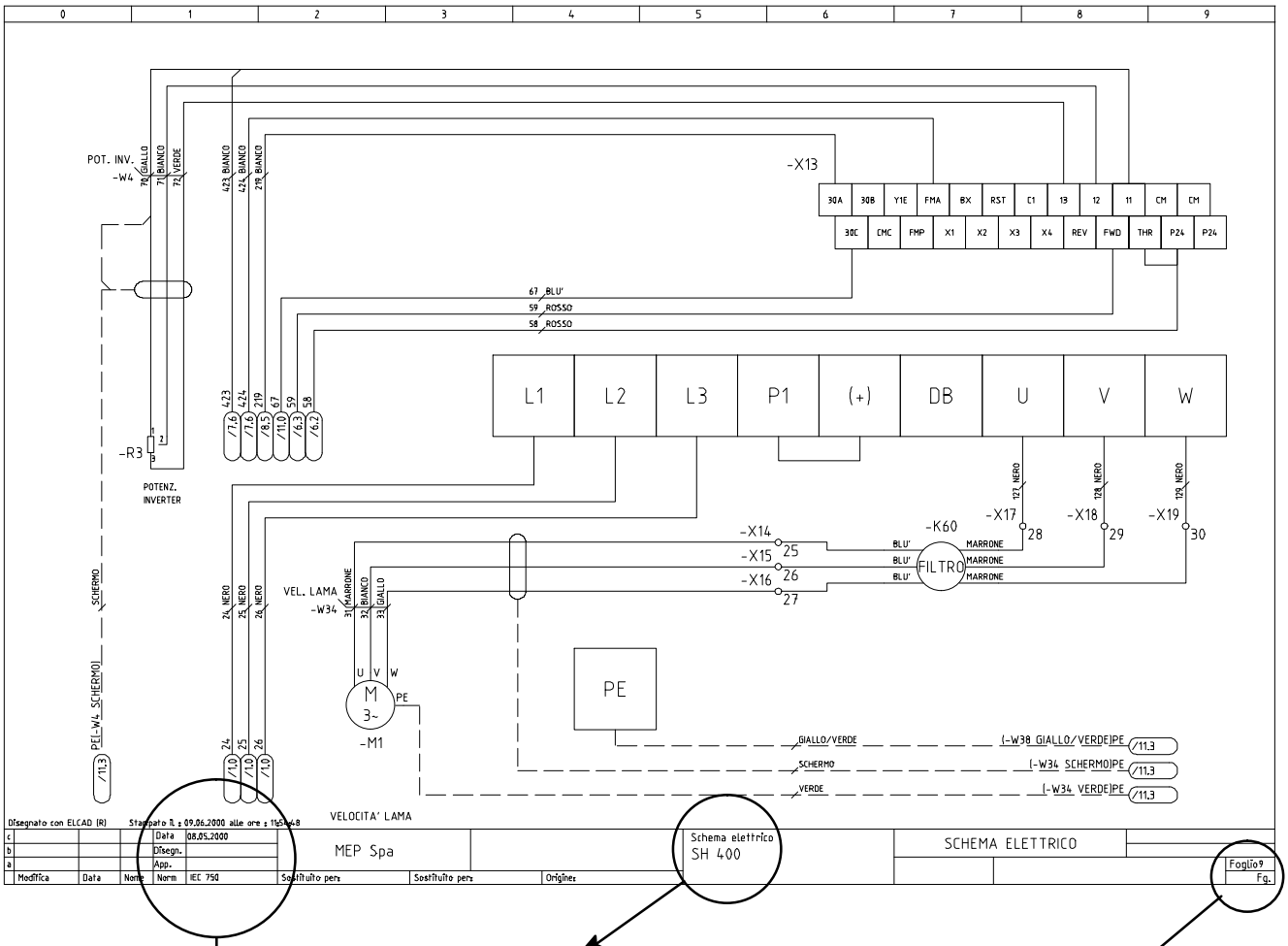
This chapter contains functional diagrams and exploded views of the **SHARK 512 SXI–EVO**. This document is intended to help in identifying the location of the various components making up the machine, giving information useful in carrying out repair and maintenance operations; This chapter will also enable the user to order replacement parts with no risk of misunderstanding, as all parts are given codes.

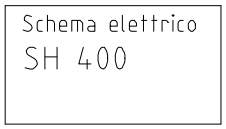
How to read the wiring diagrams

With the introduction of the new standardised wiring diagrams, the following gives an illustration of the way in which they have been drawn up.

Each sheet of the project contains a box which gives the following information:

The numbers indicate the columns into which the entire drawing is divided





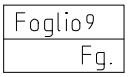
Indications of the model of machine

Data	08.05.2000
Disegn.	MARIO ROSSI
App.	
Norm	IEC 750

Indications of the date production started

Identification of the designer

Identification of the Reference Standard

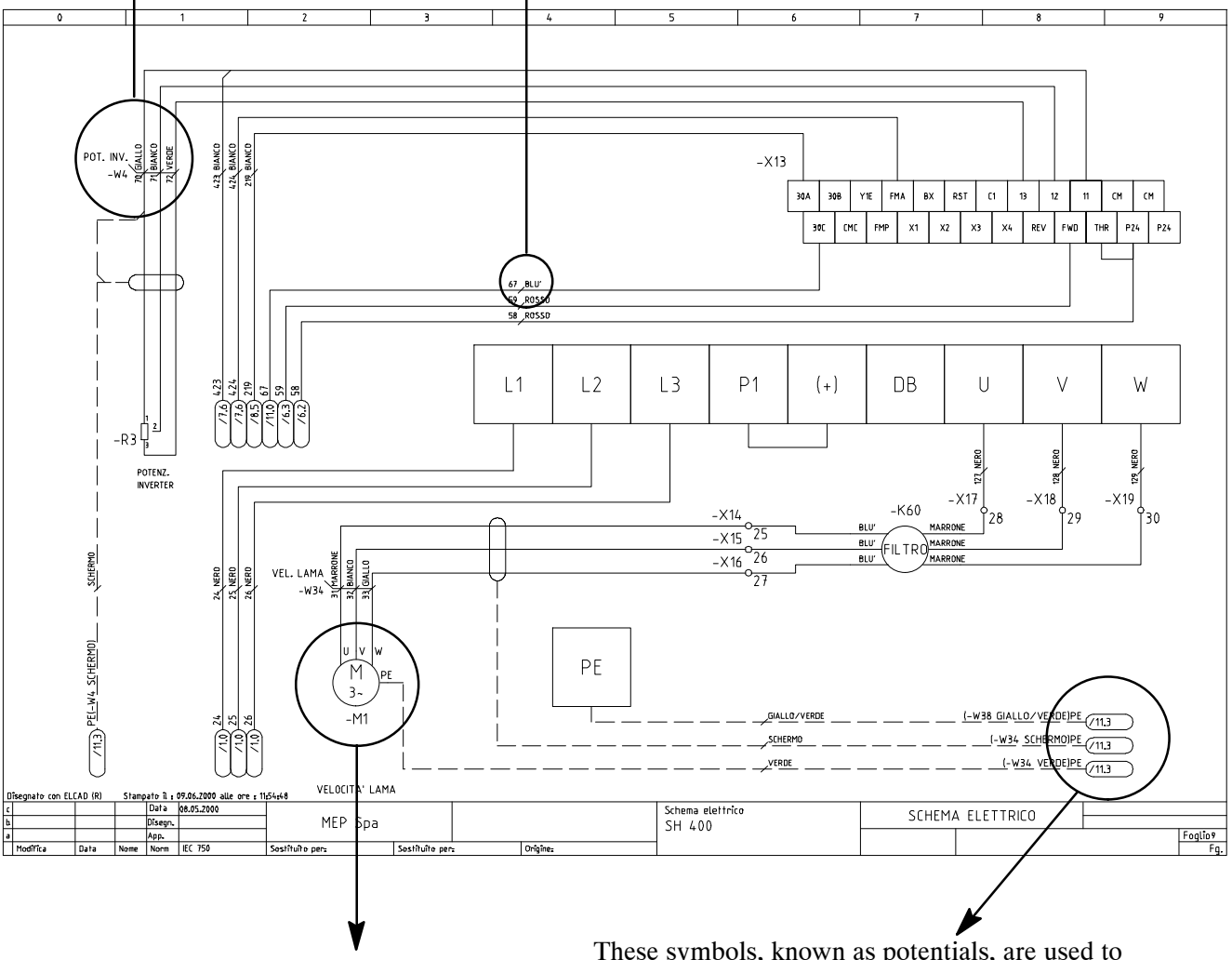


Indication of the page number

Each component in the wiring diagram is identified by a unique alphanumeric identification code, in compliance with regulations:

The wire is identified by the code –W4

This symbol identifies the wire with its relative number and colour



The motor is identified by the code –M1

These symbols, known as potentials, are used to provide page references: the first number indicates the page to be referred to, the second number, after the dot, identifies the column on that page; example /11.8 indicates that the wire continues on page no. 11 in column 8

The pages following the wiring diagrams contain the following lists:

1. components list (list of all components) and terminals list (list of all the terminals) with the following information:
   - in–house article code;
   - identification code;
   - reference, no. of the page and column on which it can be found;
   - description;
   - manufacturer.

ART. COD.	ID	PRES. REF	DESCRIPTION	MANUFACTURER
022.2151	–B1	/5.2	STRAIN GAUGE	DELTATEC

2. wires list (list of all wires) with the following information:
   - in−house article code;
   - identification code;
   - description;
   - section of wire (mm2);
   - colour of wire;
   - start: indicates the component (identification code and contact number) at which the wire starts;
   - end: indicates the component (identification code and contact number) at which the wire ends; e.g.

CODE	CABLE	DESCRIPTION	SECTION	NO.	COLOUR	START		END	
022.0141	−W7	RESET+EMERGEN-ZA	0.50	317	BIANCO	−S3	4	−K10	14

In this example, wire no. 317 white, identified as −W7, starts from contact no. 4 on component −S3, and ends at contact no. 14 on component −K10.
Enclosed below is Appendix D2 to European Standard EN 60204−1

D2 − Letter codes used to designate the type of component

LETTER	TYPE OF COMPONENT	EXAMPLES	IDENTIFICATION OF THE APPLIANCE
A	Complex units	Laser Maser Regulator	A
B	Transducers converting a non electrical signal to an electrical signal and vice versa	Transistor amplifier IC amplifier Magnetic amplifier Valve amplifier Printed circuit board Drawer Rack	AD AJ AM AV AP AT AR
C	Capacitors		C
D	Binary operators, timing devices, storage devices	Digital integrated circuits and devices: Delay line Bistable element Monostable element Recorder Magnetic memory Tape or disk recorder	D
E	Various materials	Devices not specified in this table	E
F	Protective Devices	Lightning protectors Arrestors	F
		Instant action current threshold protector Delayed action current threshold protector Instant and delayed action current threshold protector Fuse Voltage threshold protector	FA FR FS FU FV

LETTER	TYPE OF COMPONENT	EXAMPLES	IDENTIFICATION OF THE APPLIANCE
G	Generators, feeders	Rotating generators Crystal oscillators	G
		Accumulator battery Rotating or static frequency converter Power feeder	GB GF GS
H	Signaling Devices	Buzzer Optical signal, indicator light device	HA HL
J			
K	Relays, Contactors	Instant all or nothing relays or instant contactors Bistable relays or interdependent contactors (All or nothing contactors with mechanical contact or permanent magnet etc.) Contactors Polarised relays Reed relays All or nothing timed relays (timers)	KA KL KM KP KR KT
L	Inductors, reactors	Inductor Stop coil Reactor	I
M	Motors		M
N	Analogue intgrated circuits	Operational amplifiers Hybrid analog/digital appliances	N
P	Measurement equipment, test devices	Indicator, recorder and integrator measurement devices Signal generators	P
Q	Power circuit switching appliances	Automatic switch Engine saver switch Knife switch	QF QM QS
R	Resistors	Fixed or variable resistor (rheostat)	R
S	Command or control devices	Selector or switch Button (including electronic proximity switch) Numerical all or nothing sensors (single step) of mechanical and electronic type: – Liquid level sensor –Pressure sensor Position sensor (including proximity) –Rotation sensor –Temperature probe	SA SB SL SP SQ SR ST

LETTER	TYPE OF COMPONENT	EXAMPLES	IDENTIFICATION OF THE APPLIANCE
T	Transformers	Current transformer Control circuit supply transformer Power transformer Magnetic stabiliser Voltage transformer	TA TC TM TS TV
U	Modulators, converters	Discriminator Demodulator Frequency converter Coder Converter Inverter Telegraphic repeater	U
V	Electronic pipes, semiconductors	Electronic pipe Gas discharge pipe Diode Transistor Thyristor	V
W	Transmission lines, wave guides, antennas	Conductor Cable Bar Wave guide Wave guide directional coupler Dipole Parabolic antenna	W
X	Terminals, sockets, plugs	Connector bar Test plug Plug Socket Terminal connector band	XB XJ XP XS XT
Y	Electrically operated mechanical appliances	Electromagnet Electromagnetic brake Electromagnetic clutch Magnetic table spindle Electromagnetic valve	YA YB YC YH YV
Z	Transformers, impedence adapters, equalizers, band limiters	Line equalizer Compresser Crystal filter	Z

0	1	2	3	4	5	6	7	8	9

LISTA FOGLI \ INDEX

Foglio Sheet	Descrizione Description	Revisione \ Revision 0	1	2	3	4	5	6	7	8	9	Foglio Sheet	Descrizione Description	Revisione \ Revision 0	1	2	3	4	5	6	7	8	9
1	INDICE CONTENUTI											14	INGRESSI MEP32										
	Content index												Mep32 Inputs										
2	INDICE CONTENUTI											15	USCITE MEP32										
	Content index												Mep32 Outputs										
3	LEGENDA SIMBOLI											16	USCITE MEP32										
	Symbol key												mep32 Outputs										
4	ALIMENTAZIONE											17	INGRESSI ANALOGICI MEP32										
	Power supply												Mep32 Analogic Inputs										
5	ALIMENTAZIONE MOTORI											18	COLLEGAMENTO ENCODER										
	Motor power supply												Encoder Connection										
6	ALIMENTAZIONE TRASFORMATORI											19	OPTIONAL										
	Transformer power supply												Optional										
7	ALIMENTAZIONE AUSILIARI											20	MORSETTIERA QUADRO										
	Auxiliary power supply												Panel terminal board										
8	EMERGENZA E PROTEZIONE LAMA											21	INTERNO QUADRO										
	Emergency and Blade Guard												Board inside										
9	AUSILIARI CA											22	GUAINE E ACCESSORI										
	Auxiliary CA												Sheaths and accessories										
10	COMANDO BIMANUALE											23	GUAINE E ACCESSORI										
	Control Bimanual												Sheaths and accessories										
11	AUSILIARI INVERTER											24	RIASSUNTIVO CAVI										
	Inverter auxiliary circuits												Cable summary										
12	MEP32											25	RIASSUNTIVO CAVI										
	MEP32												Cable summary										
13	INGRESSI MEP32											26	RIASSUNTIVO CAVI										
	Mep32 Inputs												Cable summary										

Note :

REV.	MODIFICA	DATA	FIRME
0.2	Agg. Laser e Lampada	16/11/2018	Bartoli
0.1	Agg. cod. S50	13/12/2017	Bartoli

Impianto/Plant: SHARK SXI

File: SH_SXI\1.DWG

Data: 26–09–2016 CAD SPAC

Dis. N.: SH_SXI/40050_CE/3916

Denom./Title: INDICE CONTENUTI / *Content index*

Ordine/Requisition

Commessa/Order

Esecutore/Executor

MEP

Foglio/Page: 1

Segue/Follow: 2

Ultimo/Last: 204

LISTA FOGLI \ INDEX

Foglio Sheet	Descrizione Description	Revisione \ Revision 0 1 2 3 4 5 6 7 8 9	Foglio Sheet	Descrizione Description	Revisione \ Revision 0 1 2 3 4 5 6 7 8 9
27	RIASSUNTIVO CAVI				
	Cable summary				
28	RIASSUNTIVO CAVI				
	Cable summary				
29	LISTA MATERIALI				
	Material list				
30	LISTA MATERIALI				
	Material list				
31	LISTA MATERIALI				
	Material list				
32	LISTA MATERIALI				
	Material list				
33	LISTA MATERIALI				
	Material list				
34	LISTA MATERIALI				
	Material list				
100	LISTA SIMBOLI				
	Simbol key				
101	CENTRALINA IDRAULICA				
	Oil unit central				
102	DISTINTA CENTRALINA				
	Oil unit material list				
103	DISTINTA CENTRALINA				
	Oil unit material list				

Note :

REV.	MODIFICA	DATA	FIRME
0.2	Agg. Laser e Lampada	16/11/2018	Bartoli
0.1	Agg. cod. S50	13/12/2017	Bartoli

Impianto/Plant: *SHARK SXI*

File: SH_SXI\1.DWG

Data: 26-09-2016 CAD: SPAC

Dis. N.: SH_SXI/40050_CE/3916

Denom./Title: INDICE CONTENUTI

Content index

Ordine/Requisition

Commessa/Order

Esecutore/Executor

Foglio/Page: 2

Segue/Follow: 3

Ultimo/Last: 204

Sim.\Sym.	File	Descrizione\Description
	M2	Motore asincrono trifase *THREE-PHASE INDUCTION MOTOR*
	Q1360	Int. automatico magnetotermico sezionatore tripolare *THREE-PHASE AUTOMATIC SWITCH*
	R6	Potenziometro *POTENTIOMETER*
	R60	Potenziometro *POTENTIOMETER*
	S2	Comando a Pulsante NO *PUSH BOTTON NO*
	S4C	Pulsante di emergenza NC *EMERGENCY PUSH BOTTON NC*
	S5	Comando rotativo a due posizioni NO *ROTARY SELECTOR TWO POSITION*
	S7	Comando a pedale NO *CONTROL PEDAL NO*
	S8	Comandato dalla pressione (pressostato) NO *PRESSURE SWITCH*
	S15C	Comandato dal livello di un fluido (livellostato) NC *WATER GAUGE NC*
	S24C	Pulsante di emergenza a posizione stabile NC *EMERGENCY PUSH BOTTON NC*

Sim.\Sym.	File	Descrizione\Description
	T1	Trasformatore di corrente *CURRENT TRANSFORMER*
	Y1	Elettrovalvola aperta (in chiusura) *SOLENOID VALVE*
	KA1	Bobina rele' Aux *AUXILIARY RELAY COIL*
	KM1	Bobina contattore *CONTACTOR COIL*
	BLK26	Connettore EV in AC *SV AC CONNECTOR*
	BLK41	Raccordo SX *CONNECTOR SX*
	BLK42	Raccordo DX *CONNECTOR DX*
	BLK43	Tubo corrugato *CORRUGATED PIPE*
	BLK44	Riduzione PG *PG ADAPTER*
	BLK51	Dado PG *NUT PG*
	BLK49	Pressa-cordone PG *FAIR LEAD*

Sim.\Sym.	File	Descrizione\Description
	BLK50	Guaina termorestringente Ø26mm *SHEATH Ø26mm*
	BLK57	Guaina termorestringente Ø10mm *SHEATH Ø10mm*
	BLK55	Flangia di passaggio *LOOSE FLANGE*
	BLK56	Terminale a puntale *TERMINAL*
	BLK57	Filo unipolare *WIRE*
	BLK58	Fascette plastiche di fissaggio *CLAMP*
	BLK60	Terminale a occhiello *TERMINAL*
	BLK66	Sacchetto portafusibile *BAG FUSE*

REV.	MODIFICA	DATA	FIRME
0.2	Agg. Laser e Lampada	16/11/2018	Bartoli
0.1	Agg. cod. S50	13/12/2017	Bartoli

Impianto/Plant: *SHARK SXI*

File: SH_SXI\1.DWG

Data: 26-09-2016 CAD: SPAC

Dis. N.: SH_SXI/40050_CE/3916

Denom./Title: LEGENDA SIMBOLI

Symbol key

Ordine/Requisition

Commessa/Order

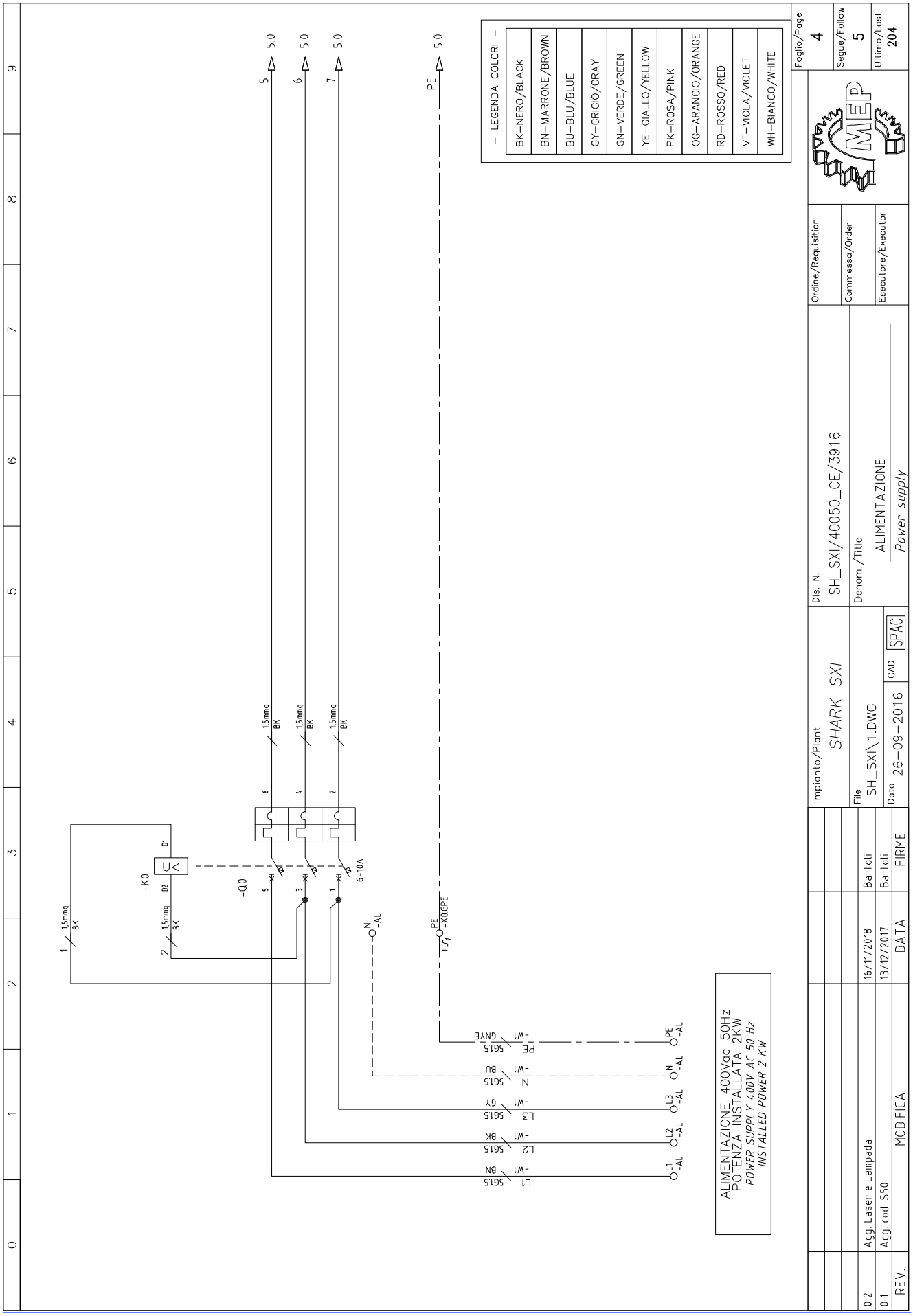
Esecutore/Executor

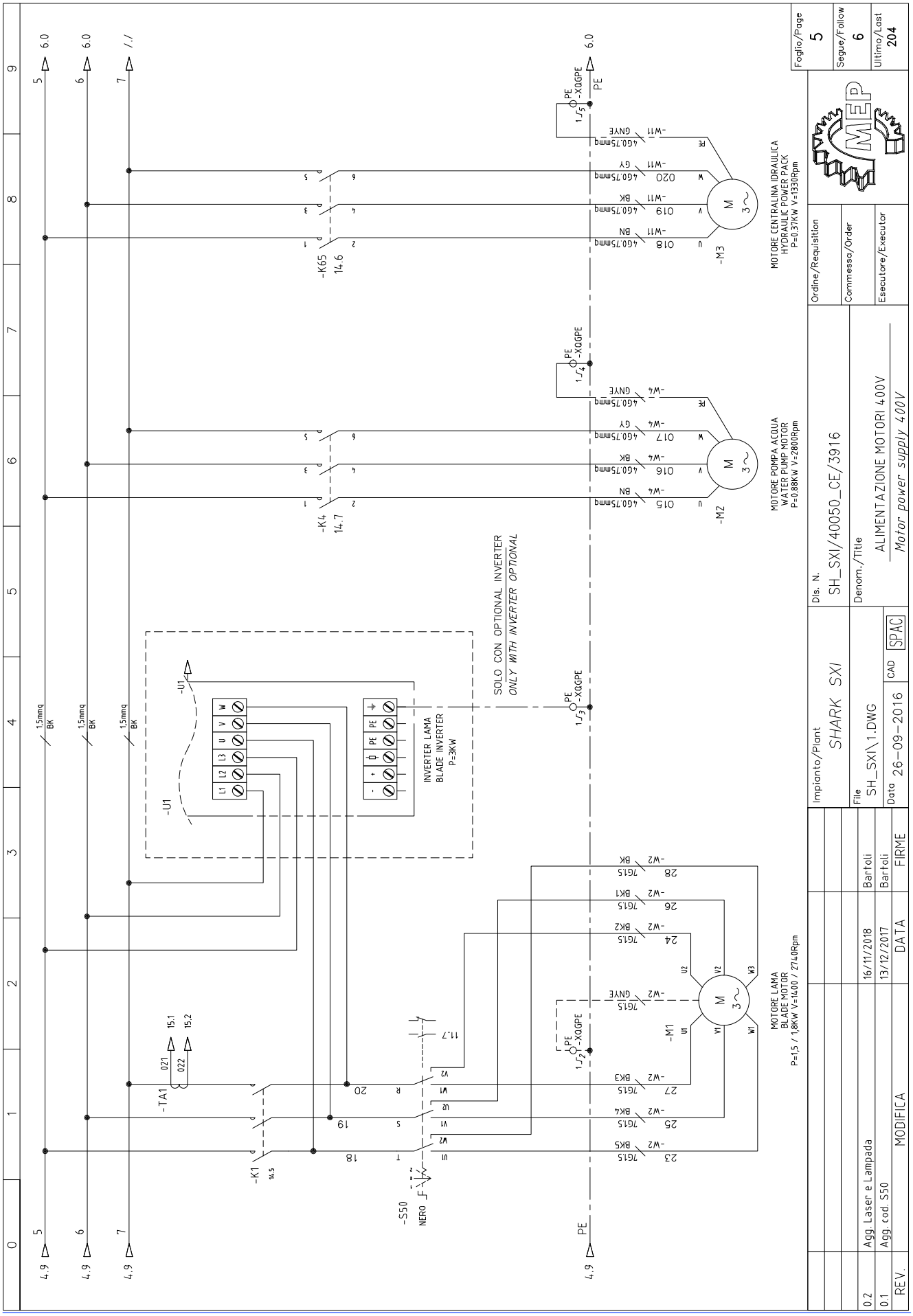
MEP

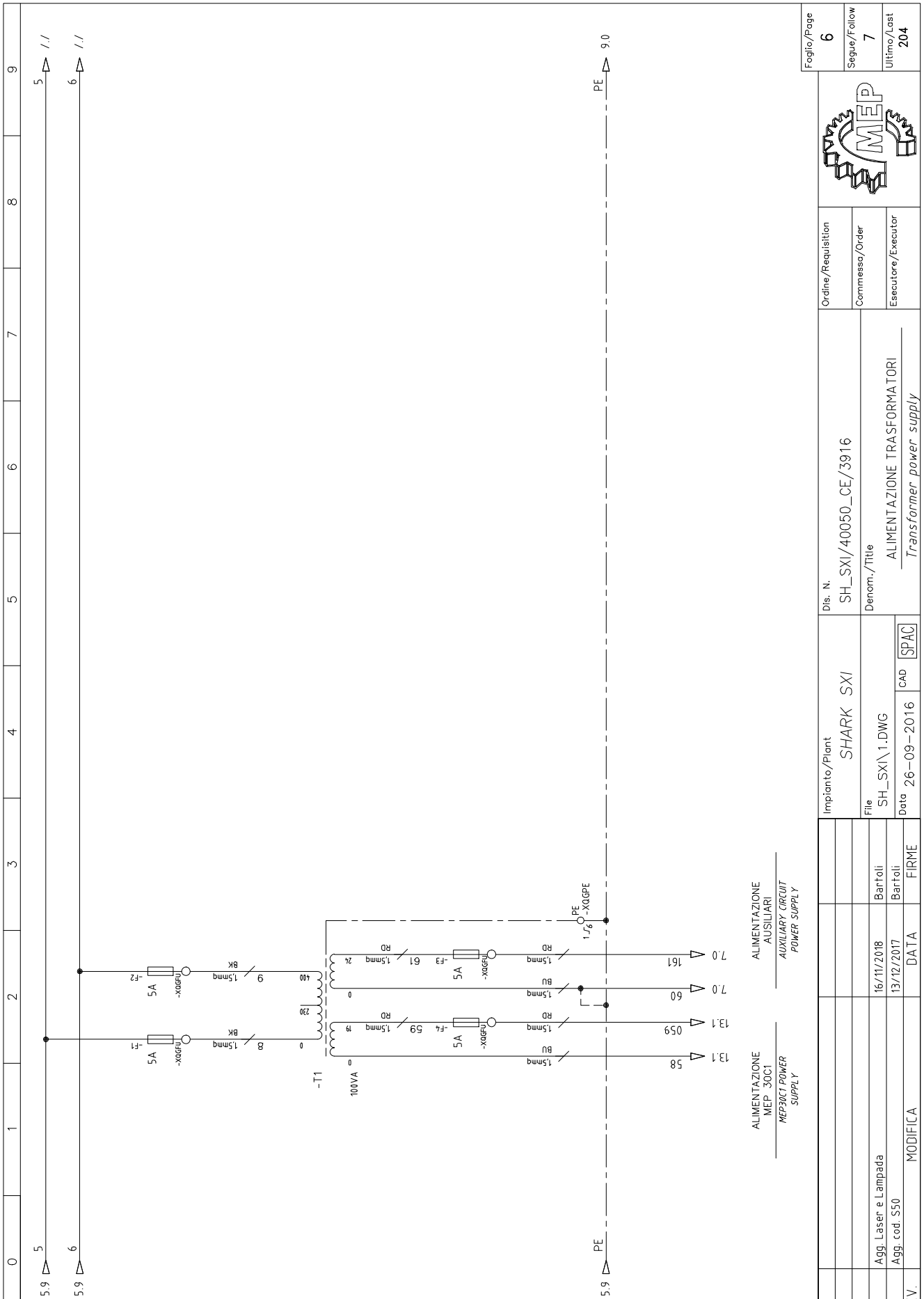
Foglio/Page: 3

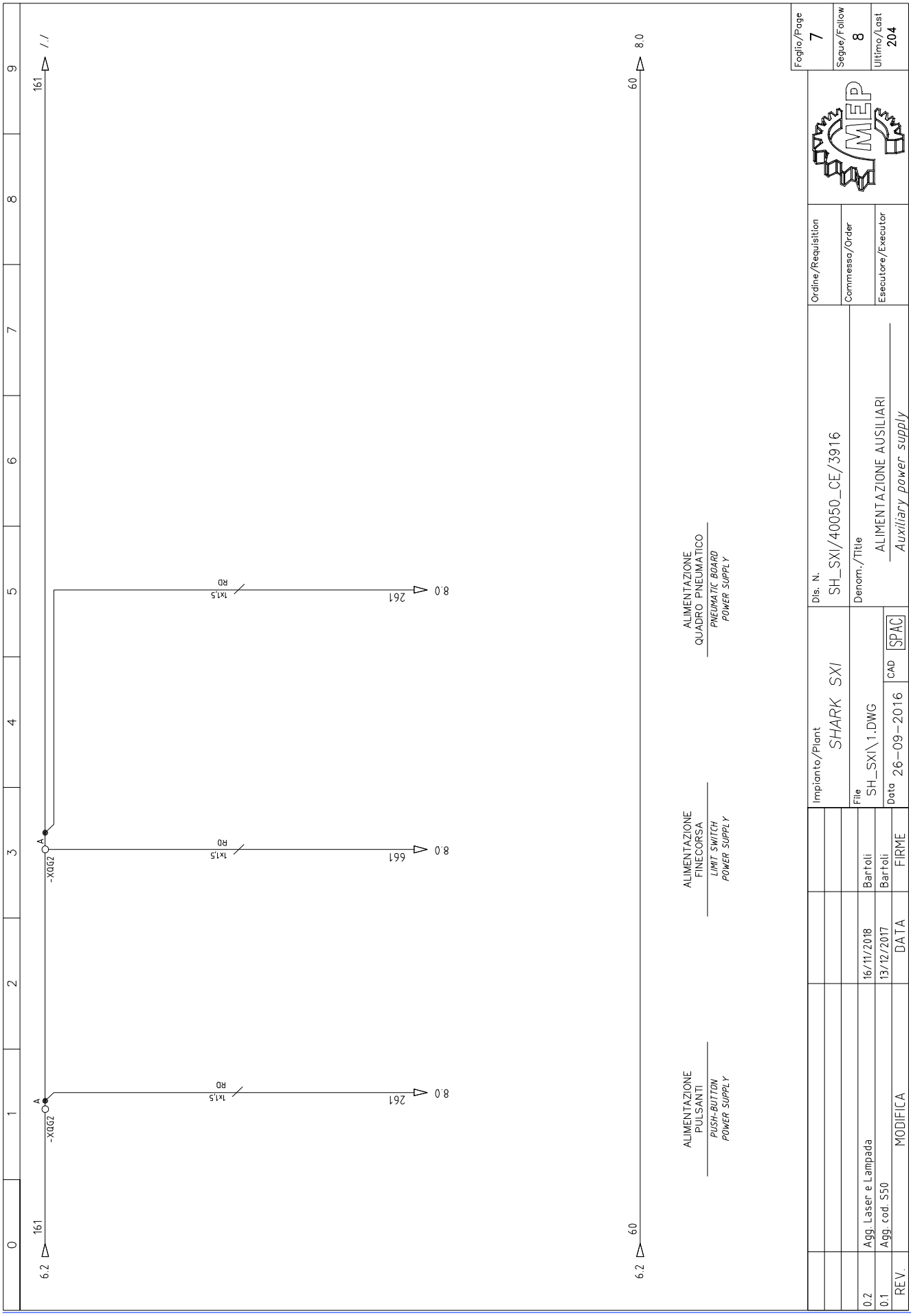
Segue/Follow: 4

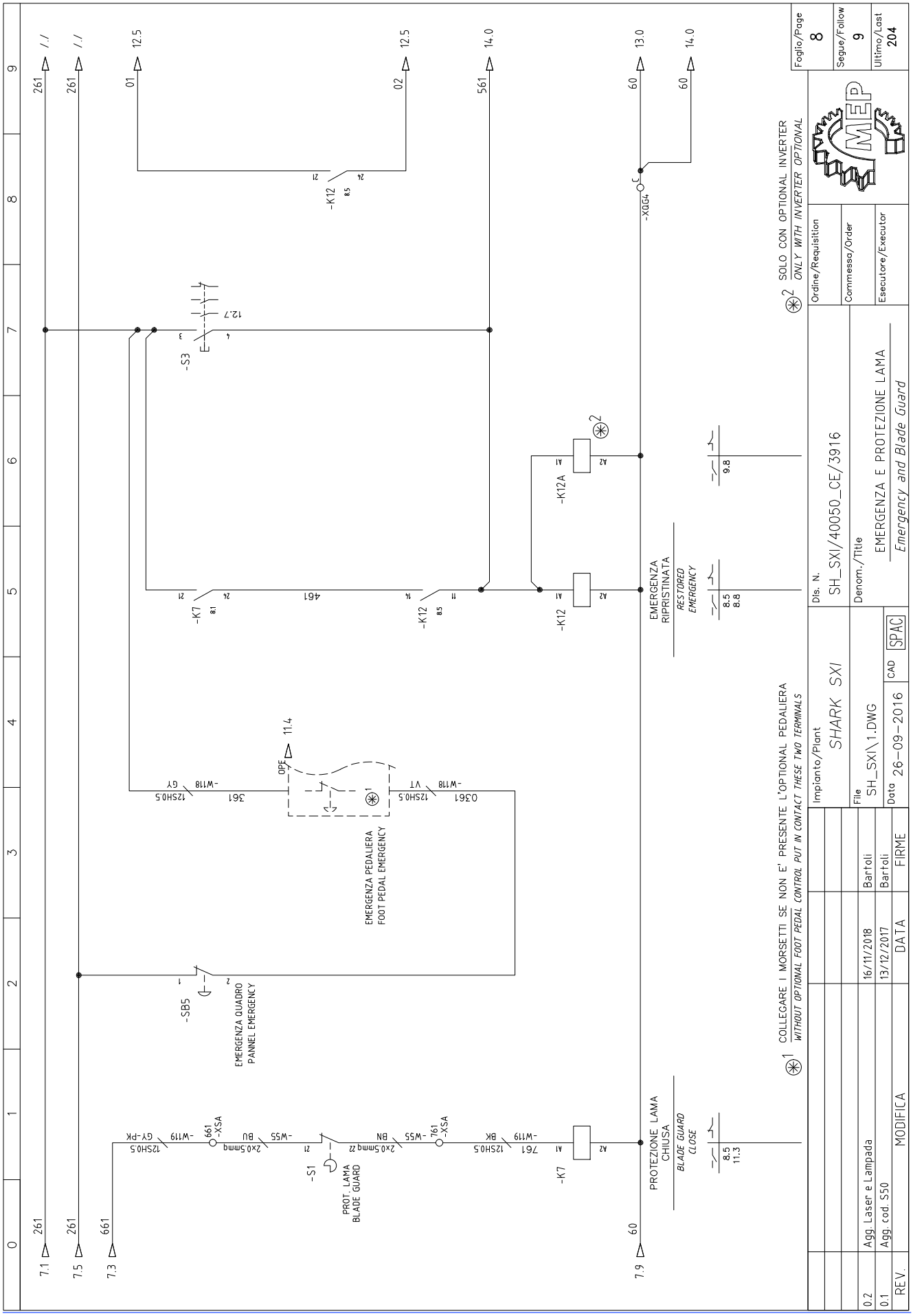
Ultimo/Last: 204

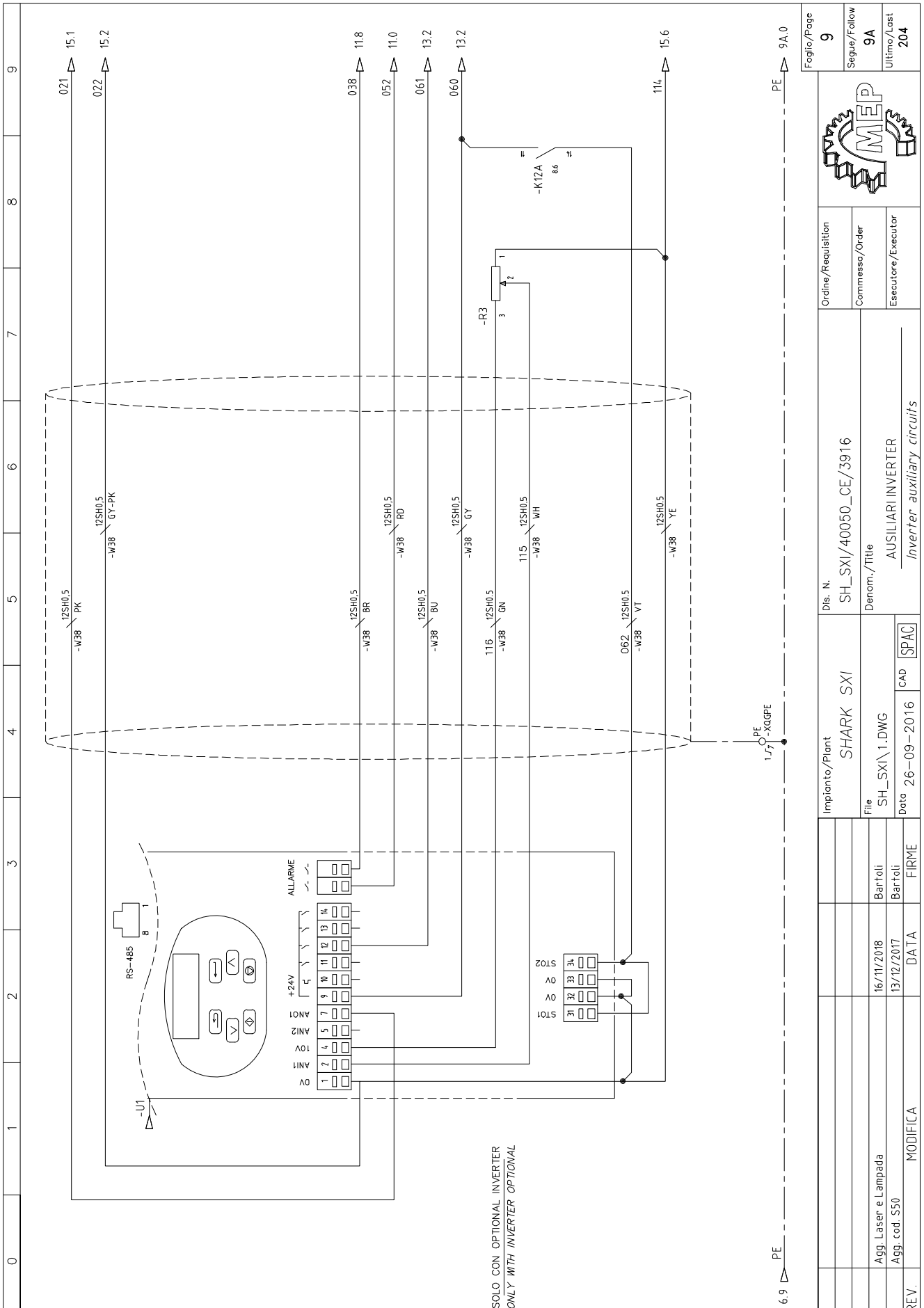

– LEGENDA COLORI –
BK–NERO/BLACK
BN–MARRONE/BROWN
BU–BLU/BLUE
GY–GRIGIO/GRAY
GN–VERDE/GREEN
YE–GIALLO/YELLOW
PK–ROSA/PINK
OG–ARANCIO/ORANGE
RD–ROSSO/RED
VT–VIOLA/VIOLET
WH–BIANCO/WHITE
ALIMENTAZIONE 400Vac 50Hz
POTENZA INSTALLATA 2KW
POWER SUPPLY 400V AC 50 Hz
INSTALLED POWER 2 KW
-K0
-Q0
-XQGPE
-AL
-W1
6-10A
1,5mmq
Foglio/Page 4
Segue/Follow 5
Ultimo/Last 204
Impianto/Plant SHARK SXI
Dis. N. SH_SXI/40050_CE/3916
Denom./Title ALIMENTAZIONE
Power supply
File SH_SXI\1.DWG
Data 26-09-2016
CAD SPAC
0.2 Agg. Laser e Lampada 16/11/2018 Bartoli
0.1 Agg. cod. S50 13/12/2017 Bartoli
REV. MODIFICA DATA FIRME

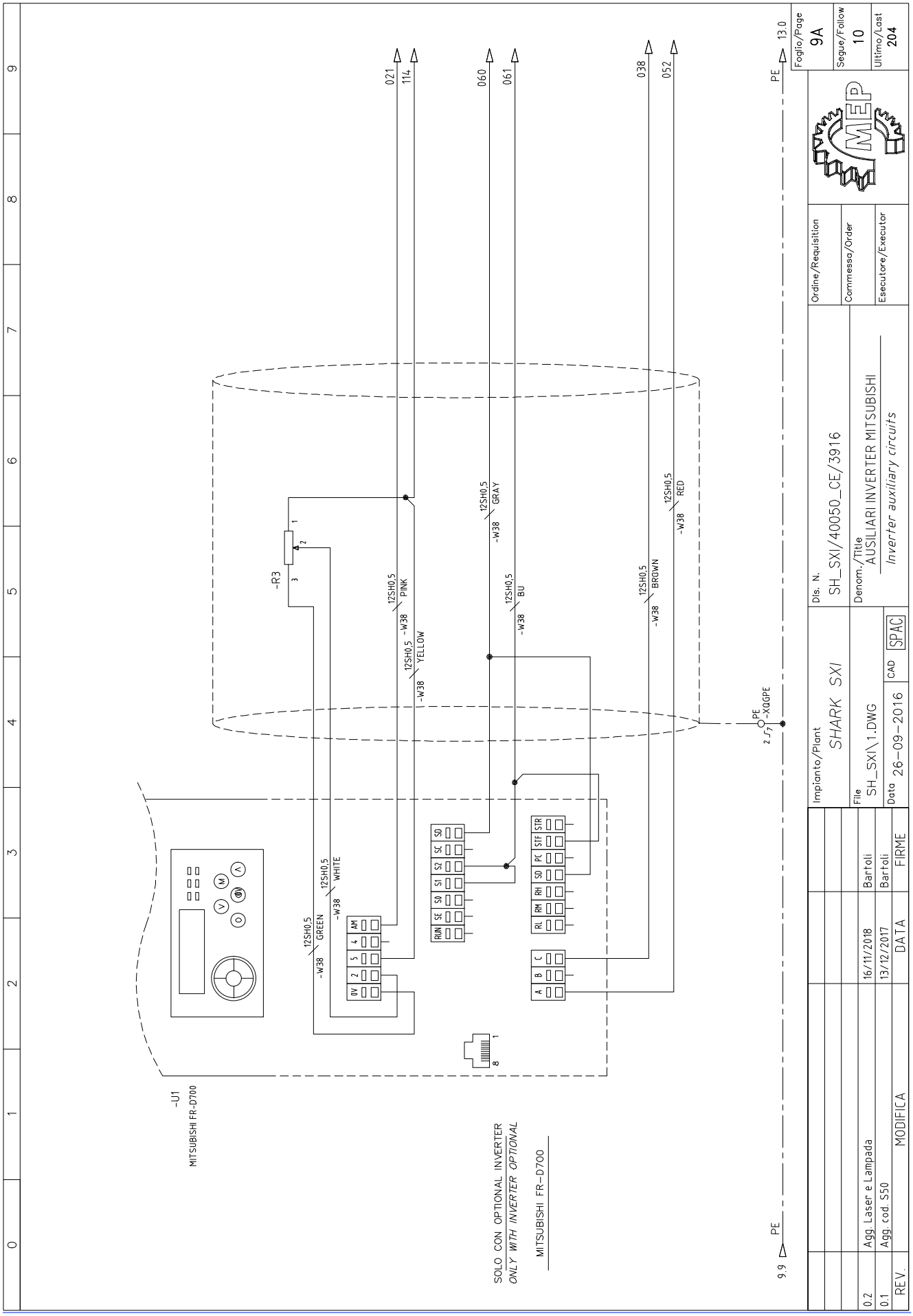

MOTORE CENTRALINA IDRAULICA
HYDRAULIC POWER PACK
P=0,37KW V=1330Rpm
MOTORE POMPA ACQUA
WATER PUMP MOTOR
P=0,88KW V=2800Rpm
MOTORE LAMA
BLADE MOTOR
P=1,5 / 1,8KW V=1400 / 2740Rpm
SOLO CON OPTIONAL INVERTER
ONLY WITH INVERTER OPTIONAL
INVERTER LAMA
BLADE INVERTER
P=3KW
-M1
-M2
-M3
-K1
-K4
-K65
-TA1
-S50
-U1
-XQGPE
Foglio/Page 5
Segue/Follow 6
Ultimo/Last 204
Ordine/Requisition
Commessa/Order
Esecutore/Executor
Dis. N. SH_SXI/40050_CE/3916
Denom./Title ALIMENTAZIONE MOTORI 400V
Motor power supply 400V
Impianto/Plant SHARK SXI
File SH_SXI\1.DWG
Data 26-09-2016
CAD SPAC
0.2 Agg. Laser e Lampada 16/11/2018 Bartoli
0.1 Agg. cod. S50 13/12/2017 Bartoli
REV MODIFICA DATA FIRME

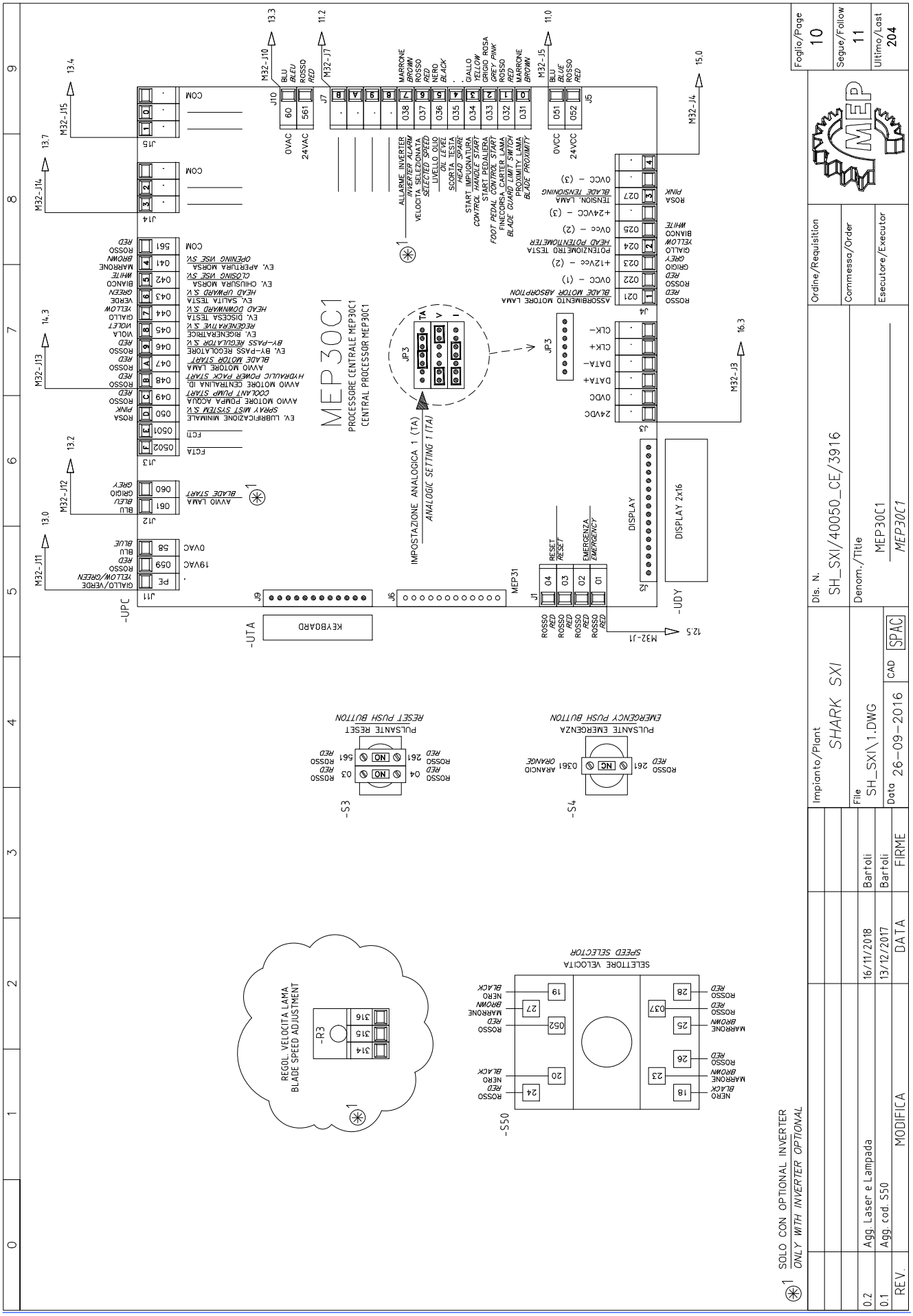

Foglio/Page 6
Segue/Follow 7
Ultimo/Last 204
Ordine/Requisition
Commessa/Order
Esecutore/Executor
Dis. N. SH_SXI/40050_CE/3916
Denom./Title
ALIMENTAZIONE TRASFORMATORI
Transformer power supply
Impianto/Plant SHARK SXI
File SH_SXI\1.DWG
Data 26-09-2016
CAD SPAC
REV. MODIFICA DATA FIRME
0.2 Agg. Laser e Lampada 16/11/2018 Bartoli
0.1 Agg. cod. S50 13/12/2017 Bartoli
ALIMENTAZIONE MEP_30C1
MEP30C1 POWER SUPPLY
ALIMENTAZIONE AUSILIARI
AUXILIARY CIRCUIT POWER SUPPLY
-T1
100VA
230
400
-F1
-F2
-F3
-F4
5A
-XAGFU
-XAGPE
PE
1.5mmq
BK
RD
BU
5.9
9.0
7.0
13.1

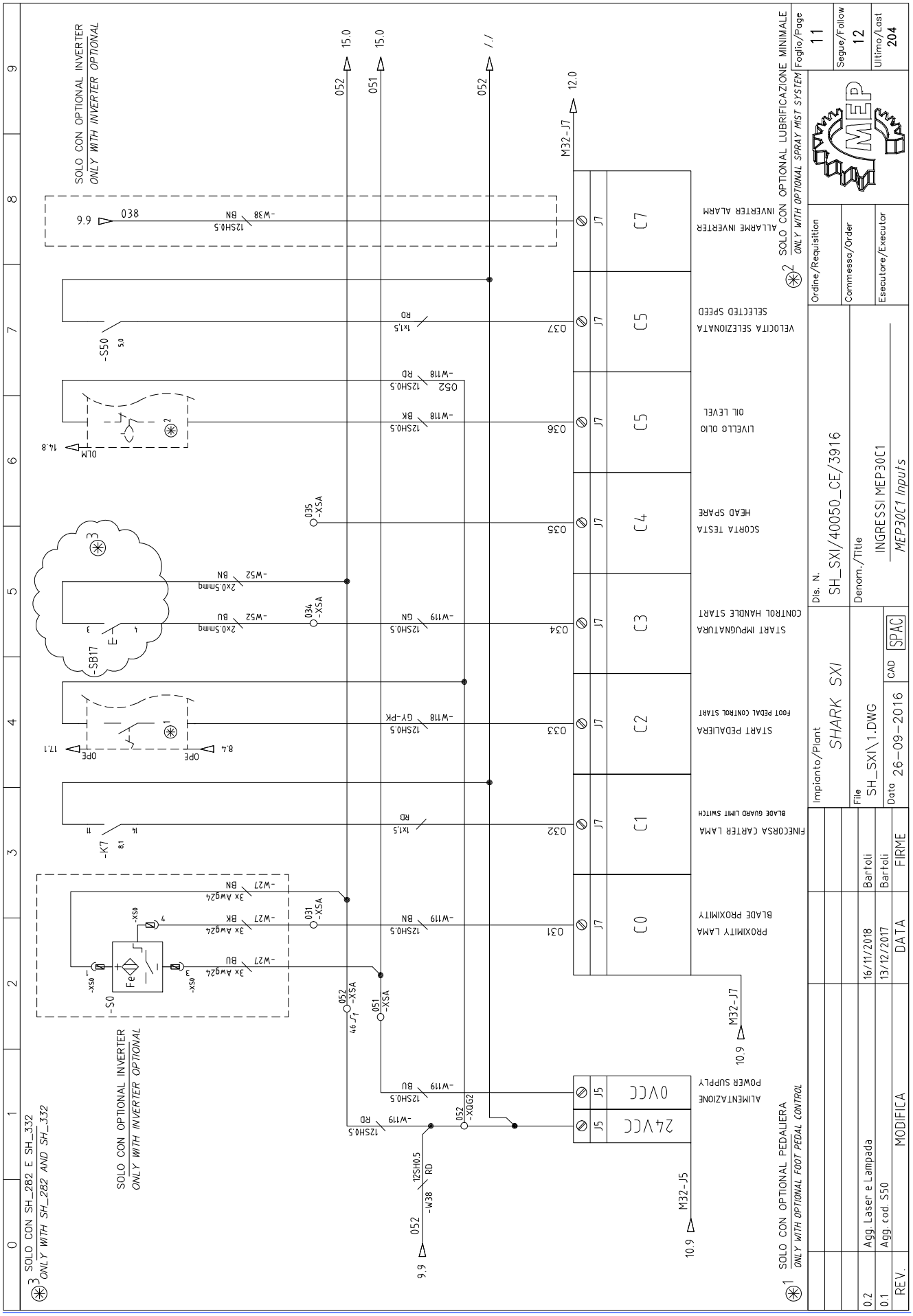

0 1 2 3 4 5 6 7 8 9
6.2
161
-XAG2
A
TX1,5 RD
261
8.0
661
ALIMENTAZIONE PULSANTI
PUSH-BUTTON POWER SUPPLY
ALIMENTAZIONE FINECORSA
LIMIT SWITCH POWER SUPPLY
ALIMENTAZIONE QUADRO PNEUMATICO
PNEUMATIC BOARD POWER SUPPLY
60
8.0
Foglio/Page 7
Segue/Follow 8
Ultimo/Last 204
Ordine/Requisition
Commessa/Order
Esecutore/Executor
Dis. N. SH_SXI/40050_CE/3916
Denom./Title ALIMENTAZIONE AUSILIARI
Auxiliary power supply
Impianto/Plant SHARK SXI
File SH_SXI\1.DWG
Data 26-09-2016
CAD SPAC
0.2 Agg. Laser e Lampada 16/11/2018 Bartoli
0.1 Agg. cod. S50 13/12/2017 Bartoli
REV. MODIFICA DATA FIRME

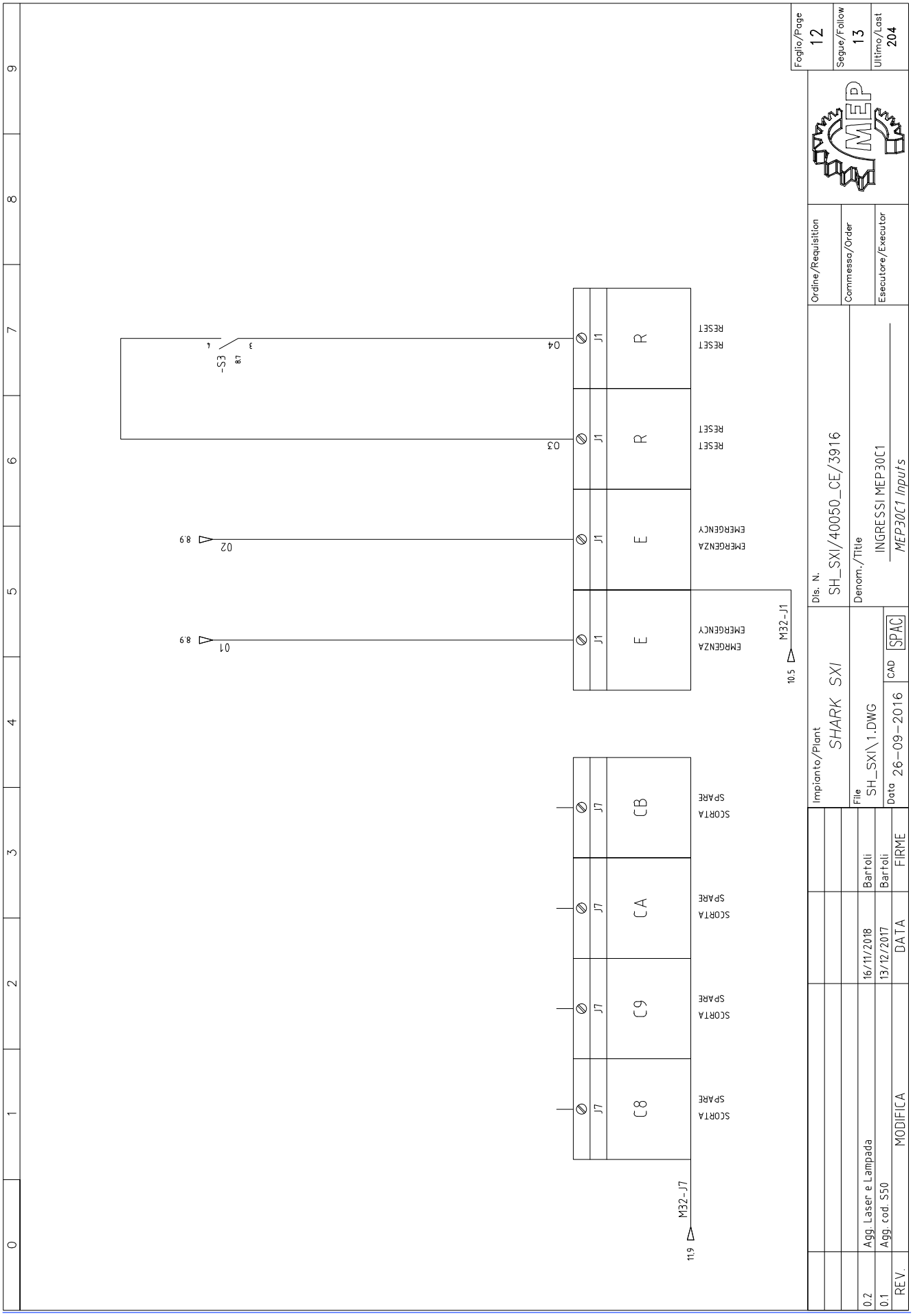

SHARK SXI
SH_SXI/40050_CE/3916
EMERGENZA E PROTEZIONE LAMA
Emergency and Blade Guard
SH_SXI\1.DWG
26-09-2016
SPAC
Bartoli
16/11/2018
13/12/2017
MODIFICA
DATA
FIRME
COLLEGARE I MORSETTI SE NON E' PRESENTE L'OPTIONAL PEDALIERA
WITHOUT OPTIONAL FOOT PEDAL CONTROL PUT IN CONTACT THESE TWO TERMINALS
SOLO CON OPTIONAL INVERTER
ONLY WITH INVERTER OPTIONAL
EMERGENZA PEDALIERA
FOOT PEDAL EMERGENCY
EMERGENZA QUADRO
PANNEL EMERGENCY
PROT. LAMA
BLADE GUARD
PROTEZIONE LAMA
CHIUSA
BLADE GUARD
CLOSE
EMERGENZA
RIPRISTINATA
RESTORED
EMERGENCY
-S1
-S3
-SB5
-K7
-K12
-K12A
-XG64
-XSA
-W119
-W55
-W118
Foglio/Page 8
Segue/Follow 9
Ultimo/Last 204

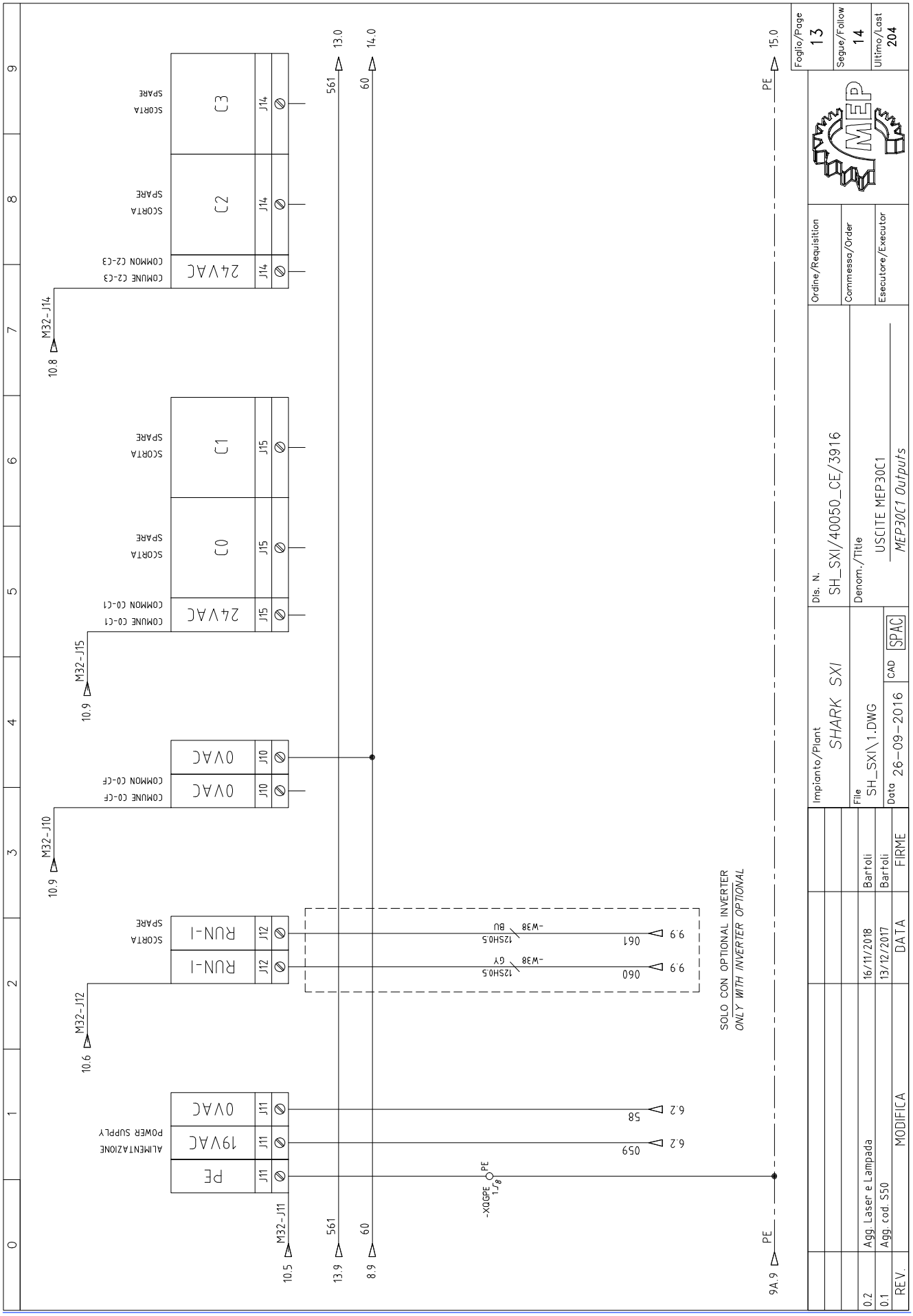

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Ordine/Requisition
Commessa/Order
Esecutore/Executor
Dis. N. SH_SXI/40050_CE/3916
Denom./Title AUSILIARI INVERTER
Inverter auxiliary circuits
Impianto/Plant SHARK SXI
File SH_SXI\1.DWG
Data 26-09-2016
CAD SPAC
0.2 Agg. Laser e Lampada 16/11/2018 Bartoli
0.1 Agg. cod. S50 13/12/2017 Bartoli
REV. MODIFICA DATA FIRME
SOLO CON OPTIONAL INVERTER
ONLY WITH INVERTER OPTIONAL
-U1
RS-485
ALLARME
+24V
AN01
AN02
10V
AN01
0V
ST01
ST02
-R3
-K12A
-X0GPE
PE
021
022
038
052
061
060
114
062
116
115
-W38
12SH0.5
PK
GY-PK
BR
RD
BU
GY
GN
WH
YE
VT

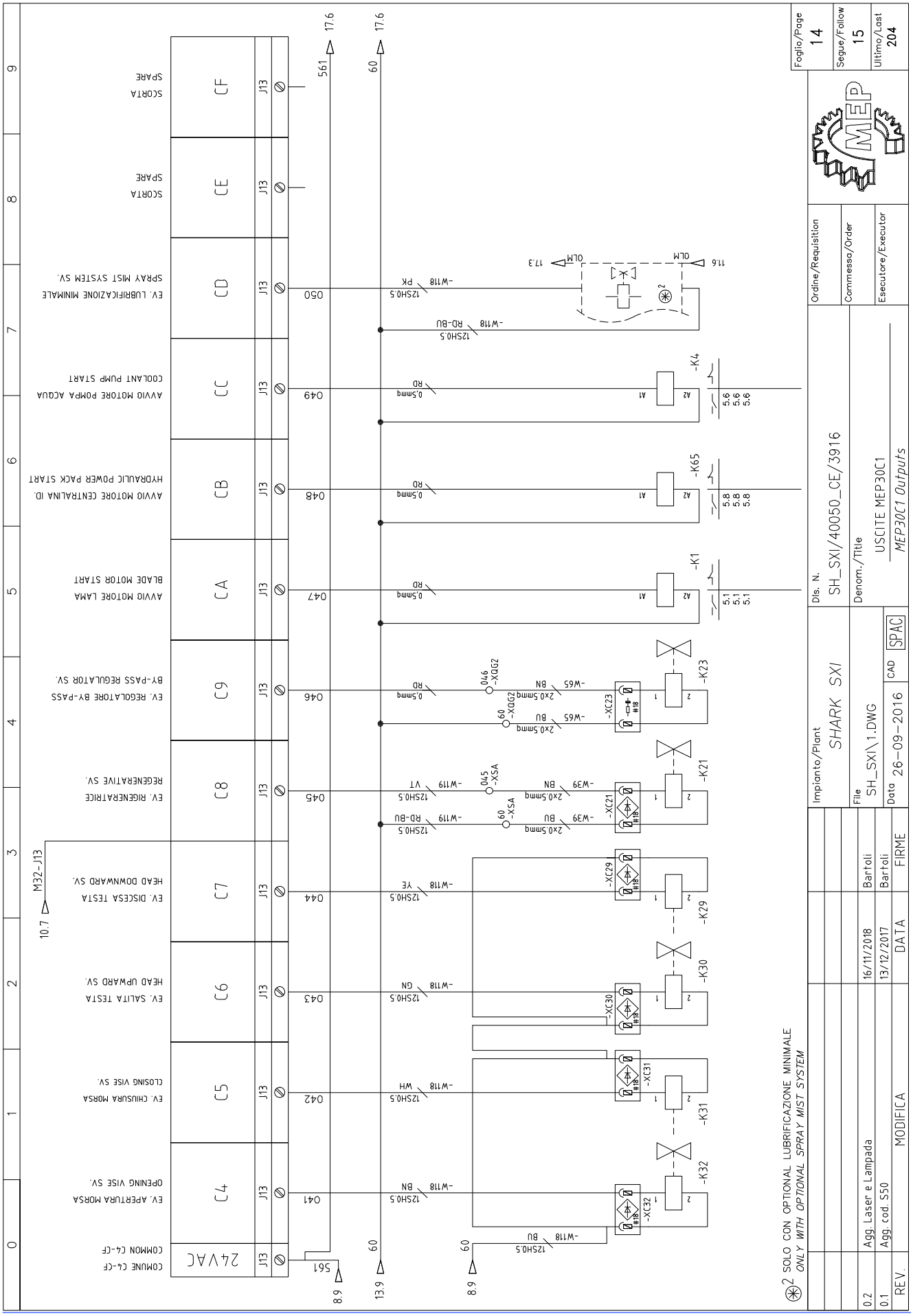

-U1
MITSUBISHI FR-D700
-R3
12SH0.5 GREEN -W38
12SH0.5 WHITE -W38
12SH0.5 PINK -W38
12SH0.5 YELLOW -W38
12SH0.5 GRAY -W38
12SH0.5 BU -W38
12SH0.5 BROWN -W38
12SH0.5 RED -W38
021
114
060
061
038
052
PE
13.0
9.9
2-r7 -XAGPE
SOLO CON OPTIONAL INVERTER
ONLY WITH INVERTER OPTIONAL
MITSUBISHI FR-D700
Impianto/Plant
SHARK SXI
File
SH_SXI\1.DWG
Data
26-09-2016
CAD
SPAC
Dis. N.
SH_SXI/40050_CE/3916
Denom./Title
AUSILIARI INVERTER MITSUBISHI
Inverter auxiliary circuits
Ordine/Requisition
Commessa/Order
Esecutore/Executor
Foglio/Page
9A
Segue/Follow
10
Ultimo/Last
204
REV.
MODIFICA
DATA
FIRME
0.1 Agg. cod. S50 13/12/2017 Bartoli
0.2 Agg. Laser e Lampada 16/11/2018 Bartoli

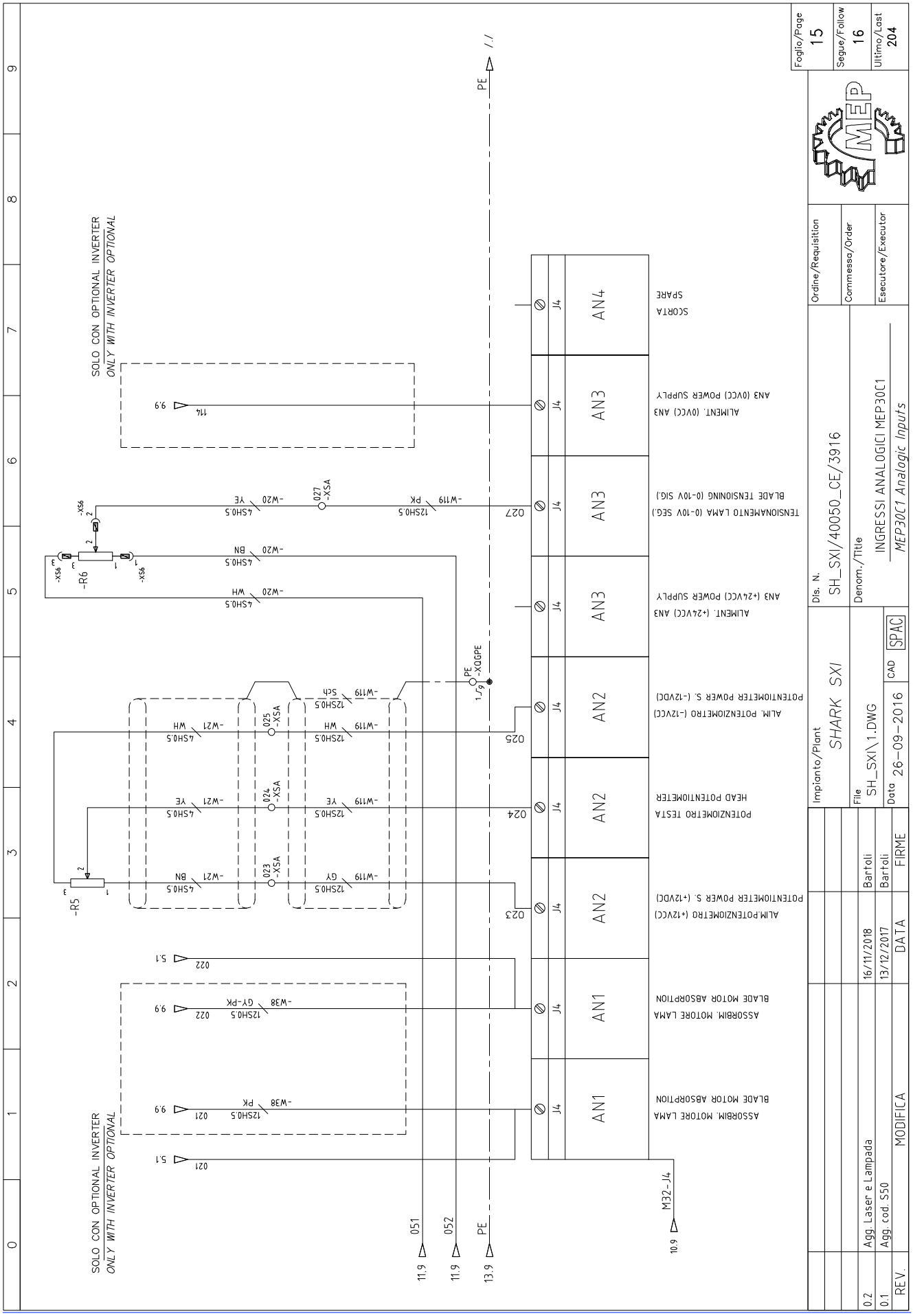

MEP30C1
PROCESSORE CENTRALE MEP30C1
CENTRAL PROCESSOR MEP30C1
-UTA
KEYBOARD
-UPC
-UDY
DISPLAY 2x16
IMPOSTAZIONE ANALOGICA 1 (TA)
ANALOGIC SETTING 1 (TA)
SELETTORE VELOCITA
SPEED SELECTOR
REGOL. VELOCITA LAMA
BLADE SPEED ADJUSTMENT
PULSANTE RESET
RESET PUSH BUTTON
PULSANTE EMERGENZA
EMERGENCY PUSH BUTTON
SOLO CON OPTIONAL INVERTER
ONLY WITH INVERTER OPTIONAL
Impianto/Plant
SHARK SXI
File
SH_SXI\1.DWG
Data 26-09-2016
CAD
SPAC
Dis. N.
SH_SXI/40050_CE/3916
Denom./Title
MEP30C1
MEP30C1
Ordine/Requisition
Commessa/Order
Esecutore/Executor
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REV. MODIFICA DATA FIRME

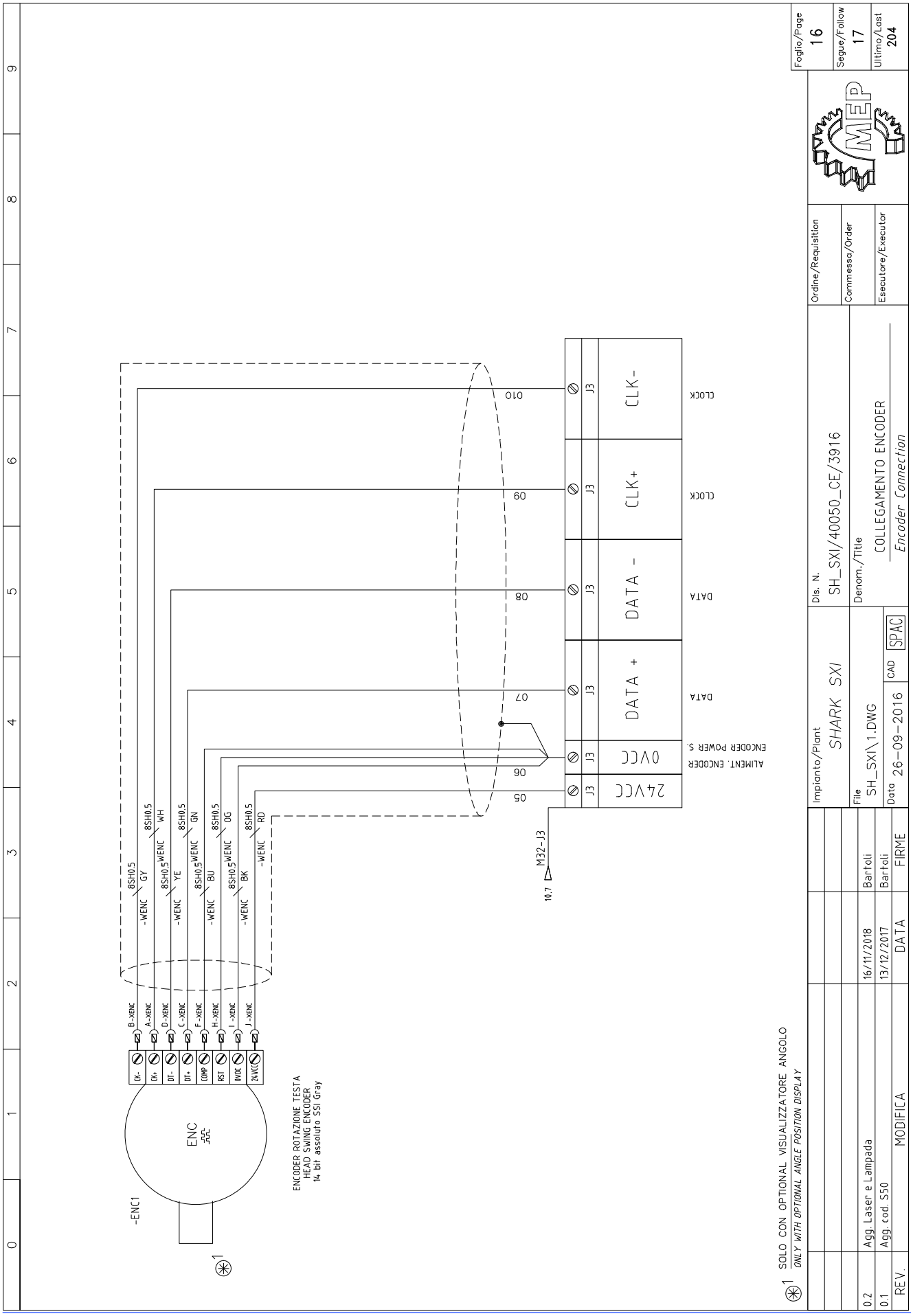

SOLO CON OPTIONAL INVERTER
ONLY WITH INVERTER OPTIONAL
SOLO CON OPTIONAL LUBRIFICAZIONE MINIMALE
ONLY WITH OPTIONAL SPRAY MIST SYSTEM
SOLO CON OPTIONAL PEDALIERA
ONLY WITH OPTIONAL FOOT PEDAL CONTROL
SOLO CON SH_282 E SH_332
ONLY WITH SH_282 AND SH_332
ALLARME INVERTER
INVERTER ALARM
VELOCITA SELEZIONATA
SELECTED SPEED
LIVELLO OLIO
OIL LEVEL
SCORTA TESTA
HEAD SPARE
START IMPUGNATURA
CONTROL HANDLE START
START PEDALIERA
FOOT PEDAL CONTROL START
FINECORSA CARTER LAMA
BLADE GUARD LIMIT SWITCH
PROXIMITY LAMA
BLADE PROXIMITY
ALIMENTAZIONE
POWER SUPPLY
Impianto/Plant
SHARK SXI
File
SH_SXI\1.DWG
Data
26-09-2016
CAD
SPAC
Dis. N.
SH_SXI/40050_CE/3916
Denom./Title
INGRESSI MEP30C1
MEP30C1 Inputs
Ordine/Requisition
Commessa/Order
Esecutore/Executor
Foglio/Page
11
Segue/Follow
12
Ultimo/Last
204
REV.
MODIFICA
DATA
FIRME
0.2
Agg. Laser e Lampada
16/11/2018
Bartoli
0.1
Agg. cod. S50
13/12/2017
Bartoli

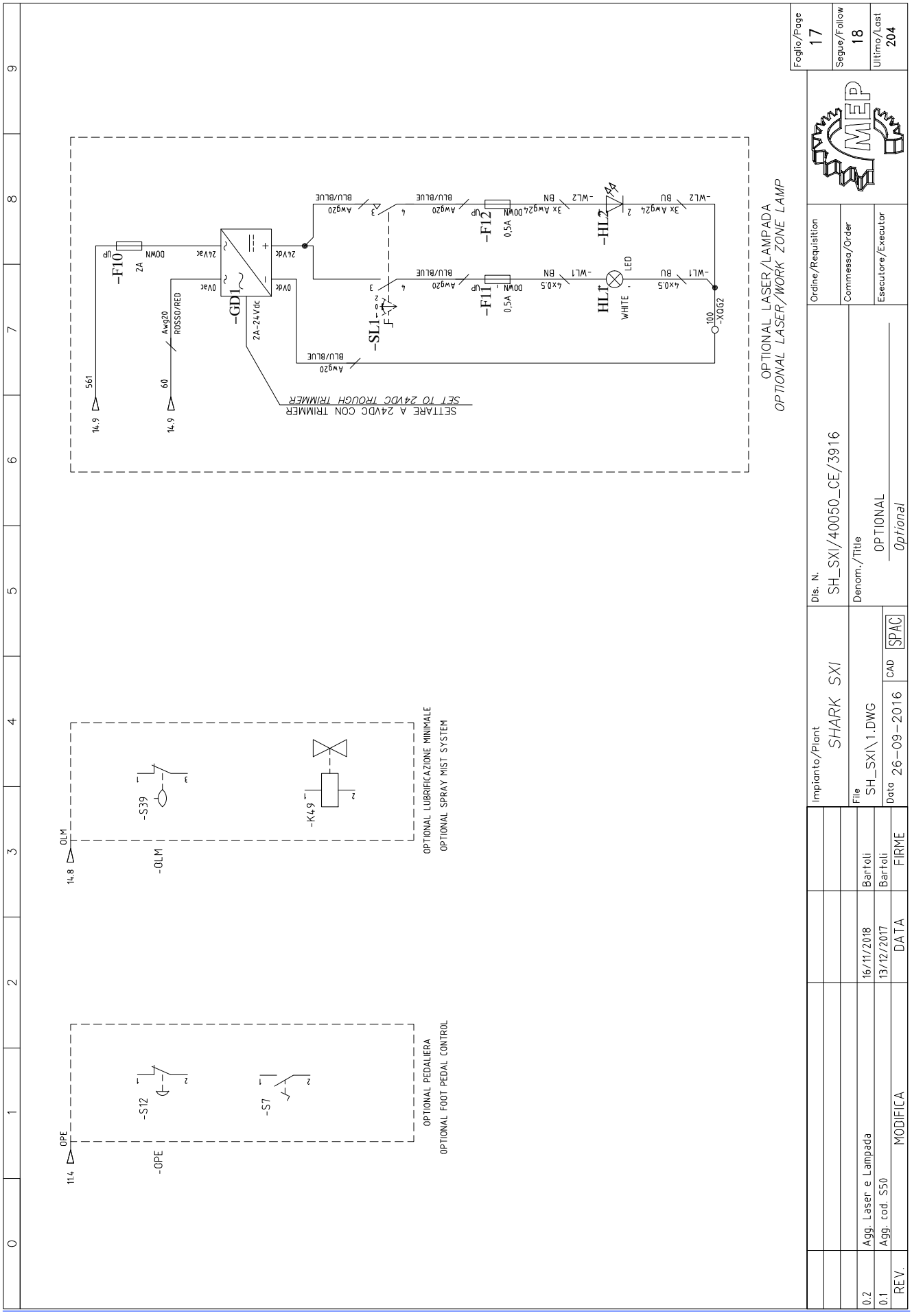

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Ordine/Requisition
Commessa/Order
Esecutore/Executor
Dis. N. SH_SXI/40050_CE/3916
Denom./Title INGRESSI MEP30C1
MEP30C1 Inputs
Impianto/Plant SHARK SXI
File SH_SXI\1.DWG
Data 26-09-2016
CAD SPAC
REV. MODIFICA DATA FIRME
0.2 Agg. Laser e Lampada 16/11/2018 Bartoli
0.1 Agg. cod. S50 13/12/2017 Bartoli
-S3
01
02
03
04
EMERGENZA
RESET
SPARE
SCORTA
C8
C9
CA
CB
J1
J7
M32-J1
M32-J7

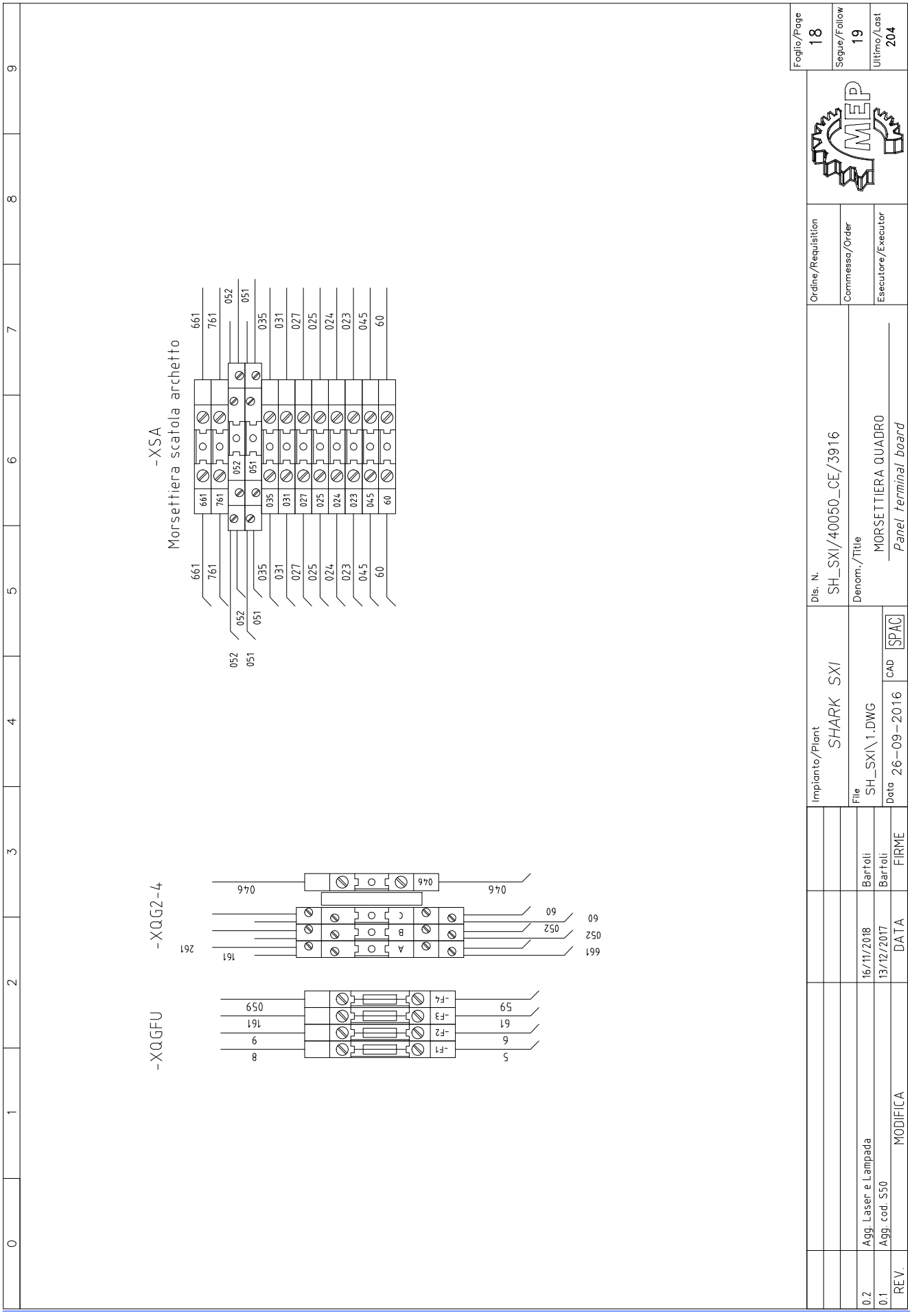

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Ordine/Requisition
Commessa/Order
Esecutore/Executor
Impianto/Plant SHARK SXI
Dis. N. SH_SXI/40050_CE/3916
Denom./Title USCITE MEP30C1
MEP30C1 Outputs
File SH_SXI\1.DWG
Data 26-09-2016
CAD SPAC
REV. MODIFICA DATA FIRME
0.2 Agg. Laser e Lampada 16/11/2018 Bartoli
0.1 Agg. cod. S50 13/12/2017 Bartoli
SOLO CON OPTIONAL INVERTER
ONLY WITH INVERTER OPTIONAL
M32-J11
M32-J12
M32-J10
M32-J15
M32-J14
PE
0VAC
19VAC
RUN-I
24VAC
C0
C1
C2
C3
SCORTA
SPARE
ALIMENTAZIONE
POWER SUPPLY
COMUNE C0-CF
COMMON C0-CF
COMUNE C0-C1
COMMON C0-C1
COMUNE C2-C3
COMMON C2-C3
-XQGPE
-W38
12SH0.5
BU
GY
059
058
060
061
561
60

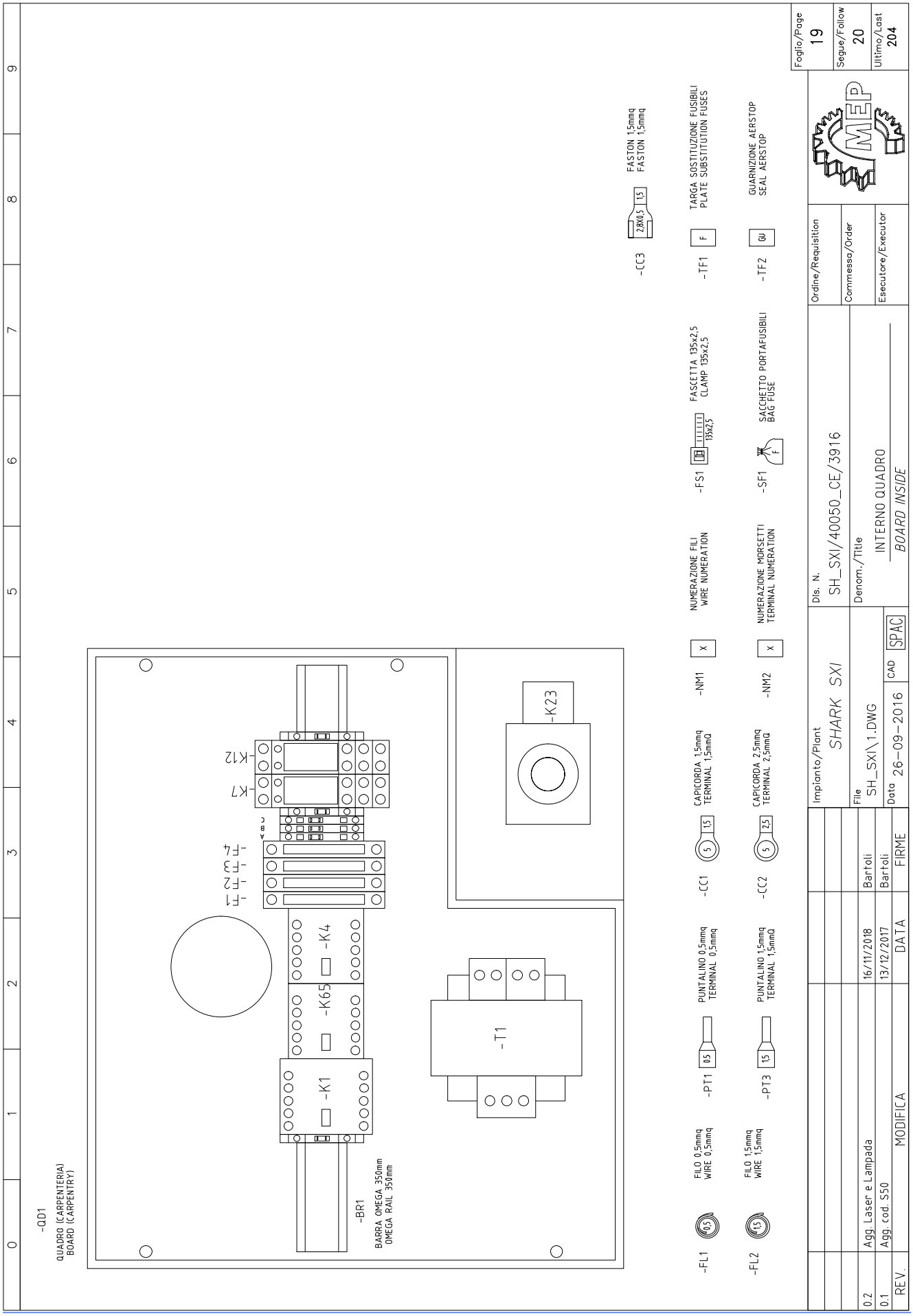

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Ordine/Requisition
Commessa/Order
Esecutore/Executor
Dis. N. SH_SXI/40050_CE/3916
Denom./Title USCITE MEP30C1
MEP30C1 Outputs
Impianto/Plant SHARK SXI
File SH_SXI\1.DWG
Data 26-09-2016
CAD SPAC
REV. MODIFICA DATA FIRME
0.2 Agg. Laser e Lampada 16/11/2018 Bartoli
0.1 Agg. cod. S50 13/12/2017 Bartoli
SOLO CON OPTIONAL LUBRIFICAZIONE MINIMALE
ONLY WITH OPTIONAL SPRAY MIST SYSTEM
24VAC
COMUNE C4-CF
COMMON C4-CF
EV. APERTURA MORSA
OPENING VISE SV.
EV. CHIUSURA MORSA
CLOSING VISE SV.
EV. SALITA TESTA
HEAD UPWARD SV.
EV. DISCESA TESTA
HEAD DOWNWARD SV.
EV. RIGENERATRICE
REGENERATIVE SV.
EV. REGOLATORE BY-PASS
BY-PASS REGULATOR SV.
AVVIO MOTORE LAMA
BLADE MOTOR START
AVVIO MOTORE CENTRALINA ID.
HYDRAULIC POWER PACK START
AVVIO MOTORE POMPA ACQUA
COOLANT PUMP START
EV. LUBRIFICAZIONE MINIMALE
SPRAY MIST SYSTEM SV.
SCORTA
SPARE
SCORTA
SPARE
SCORTA
SPARE
-K1
-K4
-K65
-K21
-K23
-K29
-K30
-K31
-K32
-XC21
-XC23
-XC29
-XC30
-XC31
-XC32
-W118
-W119
-W39
-W65
-XSA
-XDG2
-XDG
M32-J13
OLM

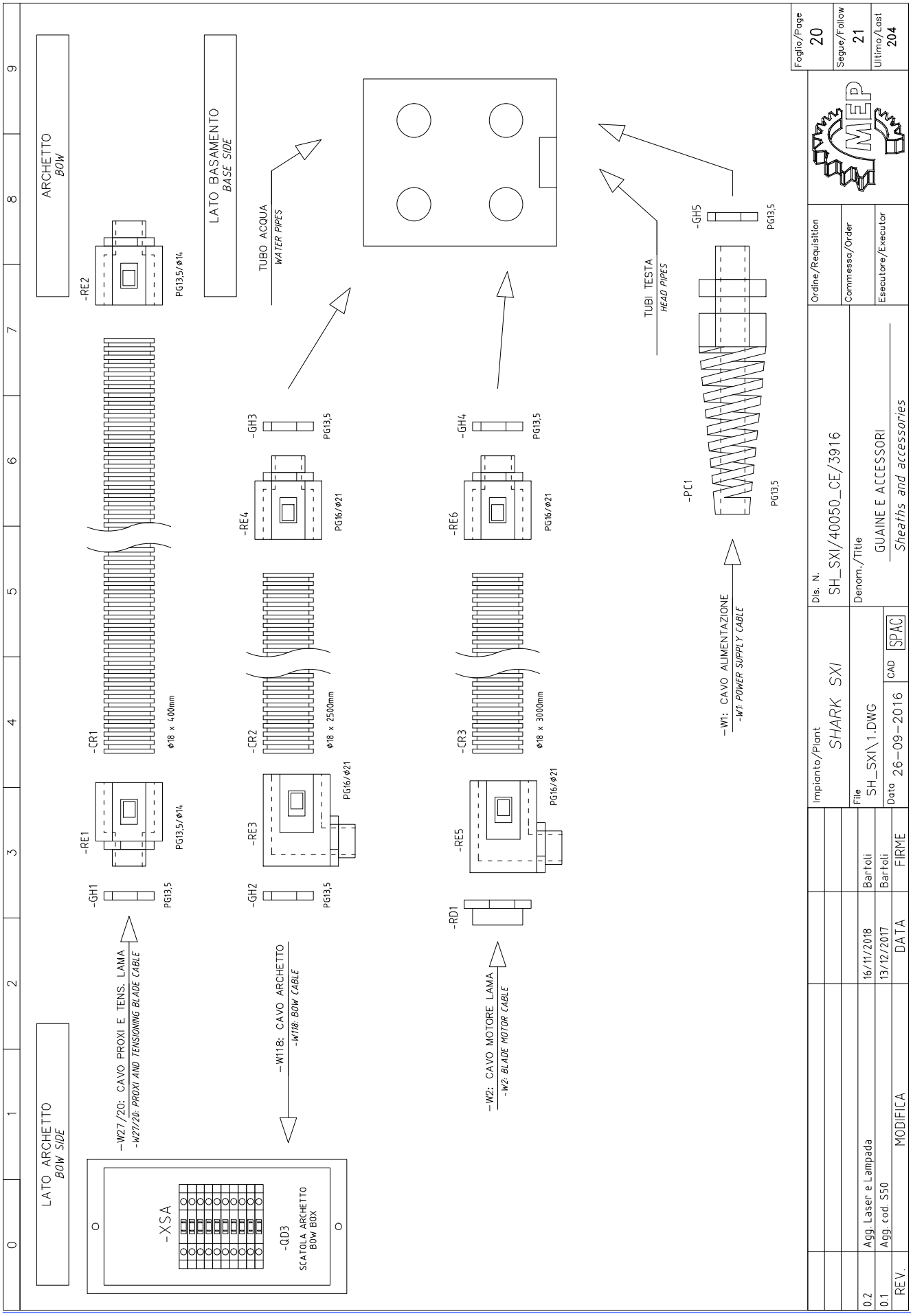

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Ordine/Requisition
Commessa/Order
Esecutore/Executor
Impianto/Plant SHARK SXI
Dis. N. SH_SXI/40050_CE/3916
Denom./Title INGRESSI ANALOGICI MEP30C1
MEP30C1 Analog Inputs
File SH_SXI\1.DWG
Data 26-09-2016
CAD SPAC
REV. MODIFICA DATA FIRME
0.2 Agg. Laser e Lampada 16/11/2018 Bartoli
0.1 Agg. cod. S50 13/12/2017 Bartoli
SOLO CON OPTIONAL INVERTER
ONLY WITH INVERTER OPTIONAL
AN1 AN2 AN3 AN4 J4
ASSORBIM. MOTORE LAMA BLADE MOTOR ABSORPTION
ALIM.POTENZIOMETRO (+12VCC) POTENTIOMETER POWER S. (+12VDC)
POTENZIOMETRO TESTA HEAD POTENTIOMETER
ALIM. POTENZIOMETRO (-12VCC) POTENTIOMETER POWER S. (-12VDC)
ALIMENT. (+24VCC) POWER SUPPLY AN3
TENSIONAMENTO LAMA (0-10V SEG.) BLADE TENSIONING (0-10V SIG.)
ALIMENT. (0VCC) POWER SUPPLY AN3
SCORTA SPARE
PE
051
052
M32-J4
-R5
-R6
-XSA
-XGGPE
-W19
-W20
-W21
-W38
12SH0.5
4SH0.5

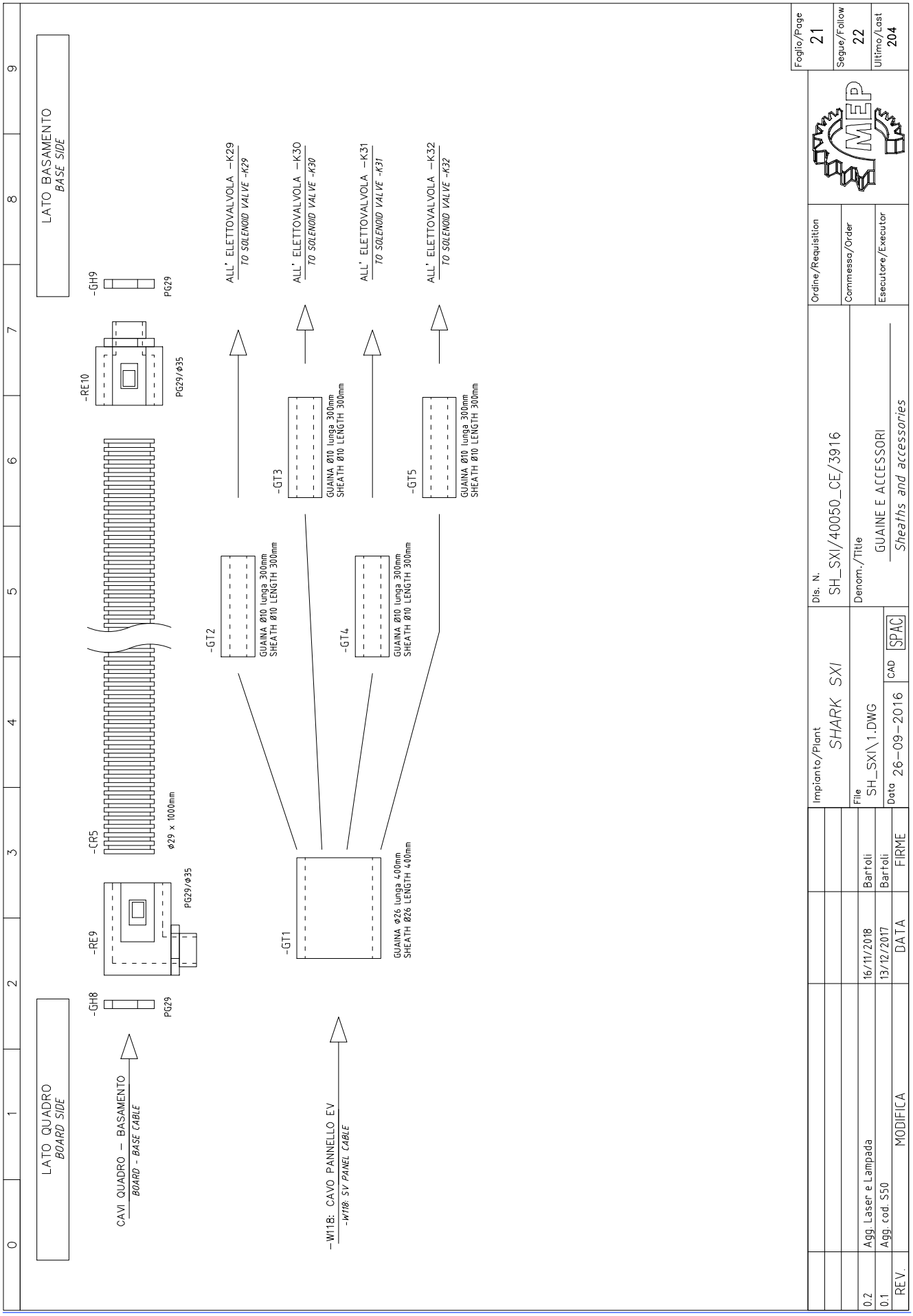

-ENC1
ENC
CK-
CK+
DT-
DT+
COMP
RST
0VDC
24VDC
B-XENC
A-XENC
D-XENC
C-XENC
F-XENC
H-XENC
I -XENC
J -XENC
8SH0.5
-WENC
GY
WH
YE
GN
BU
OG
BK
RD
ENCODER ROTAZIONE TESTA
HEAD SWING ENCODER
14 bit assoluto SSI Gray
M32-J3
10.7
05
06
07
08
09
010
24VDC
0VDC
DATA +
DATA -
CLK+
CLK-
J3
ALIMENT. ENCODER
ENCODER POWER S.
DATA
CLOCK
SOLO CON OPTIONAL VISUALIZZATORE ANGOLO
ONLY WITH OPTIONAL ANGLE POSITION DISPLAY
REV.
0.2 Agg. Laser e Lampada 16/11/2018 Bartoli
0.1 Agg. cod. S50 13/12/2017 Bartoli
MODIFICA DATA FIRME
Impianto/Plant
SHARK SXI
File
SH_SXI\1.DWG
Data 26-09-2016
CAD
SPAC
Dis. N.
SH_SXI/40050_CE/3916
Denom./Title
COLLEGAMENTO ENCODER
Encoder Connection
Ordine/Requisition
Commessa/Order
Esecutore/Executor
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OPTIONAL LASER/LAMPADA
OPTIONAL LASER/WORK ZONE LAMP
SETTARE A 24VDC CON TRIMMER
SET TO 24VDC TROUGH TRIMMER
-F10
-GD1
-F12
-F11
-SL1
-HL2
HL1
-XQG2
OPTIONAL LUBRIFICAZIONE MINIMALE
OPTIONAL SPRAY MIST SYSTEM
-OLM
-S39
-K49
OPTIONAL PEDALIERA
OPTIONAL FOOT PEDAL CONTROL
-OPE
-S12
-S7
Impianto/Plant
SHARK SXI
Dis. N.
SH_SXI/40050_CE/3916
Denom./Title
OPTIONAL
Optional
File
SH_SXI\1.DWG
Data
26-09-2016
CAD
SPAC
Ordine/Requisition
Commessa/Order
Esecutore/Executor
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REV.
MODIFICA
DATA
FIRME
0.2
Agg. Laser e Lampada
16/11/2018
Bartoli
0.1
Agg. cod. S50
13/12/2017
Bartoli


-XSA
Morsettiera scatola archetto
661
761
052
051
035
031
027
025
024
023
045
60
-XQG2-4
046
261
161
A
B
C
-XQGFU
-F1
-F2
-F3
-F4
8
9
161
059
5
6
61
59
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Ordine/Requisition
Commessa/Order
Esecutore/Executor
Dis. N. SH_SXI/40050_CE/3916
Denom./Title MORSETTIERA QUADRO
Panel terminal board
Impianto/Plant SHARK SXI
File SH_SXI\1.DWG
Data 26-09-2016
CAD SPAC
0.2 Agg. Laser e Lampada 16/11/2018 Bartoli
0.1 Agg. cod. S50 13/12/2017 Bartoli
REV. MODIFICA DATA FIRME


-QD1
QUADRO (CARPENTERIA)
BOARD (CARPENTRY)
-BR1
BARRA OMEGA 350mm
OMEGA RAIL 350mm
-K1
-K65
-K4
-K7
-K12
-FT1
-FT2
-FT3
-FT4
-K23
-T1
-FL1
FILO 0,5mmq
WIRE 0,5mmq
-FL2
FILO 1,5mmq
WIRE 1,5mmq
-PT1
PUNTALINO 0,5mmq
TERMINAL 0,5mmq
-PT3
PUNTALINO 1,5mmq
TERMINAL 1,5mmQ
-CC1
CAPICORDA 1,5mmq
TERMINAL 1,5mmQ
-CC2
CAPICORDA 2,5mmq
TERMINAL 2,5mmQ
-NM1
NUMERAZIONE FILI
WIRE NUMERATION
-NM2
NUMERAZIONE MORSETTI
TERMINAL NUMERATION
-FS1
FASCETTA 135x2,5
CLAMP 135x2,5
-SF1
SACCHETTO PORTAFUSIBILI
BAG FUSE
-CC3
FASTON 1,5mmq
FASTON 1,5mmq
-TF1
TARGA SOSTITUZIONE FUSIBILI
PLATE SUBSTITUTION FUSES
-TF2
GUARNIZIONE AERSTOP
SEAL AERSTOP
REV.
MODIFICA
DATA
FIRME
0.1
Agg. cod. S50
13/12/2017
Bartoli
0.2
Agg. Laser e Lampada
16/11/2018
Bartoli
Impianto/Plant
SHARK SXI
File
SH_SXI\1.DWG
Data
26-09-2016
CAD
SPAC
Dis. N.
SH_SXI/40050_CE/3916
Denom./Title
INTERNO QUADRO
BOARD INSIDE
Ordine/Requisition
Commessa/Order
Esecutore/Executor
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LATO ARCHETTO
BOW SIDE
ARCHETTO
BOW
LATO BASAMENTO
BASE SIDE
-XSA
-QD3
SCATOLA ARCHETTO
BOW BOX
-W27/20: CAVO PROXI E TENS. LAMA
-W27/20: PROXI AND TENSIONING BLADE CABLE
-W118: CAVO ARCHETTO
-W118: BOW CABLE
-W2: CAVO MOTORE LAMA
-W2: BLADE MOTOR CABLE
-W1: CAVO ALIMENTAZIONE
-W1: POWER SUPPLY CABLE
TUBO ACQUA
WATER PIPES
TUBI TESTA
HEAD PIPES
-GH1
-GH2
-GH3
-GH4
-GH5
-RE1
-RE2
-RE3
-RE4
-RE5
-RE6
-RD1
-PC1
-CR1
-CR2
-CR3
PG13,5
PG13,5/Φ14
PG16/Φ21
Φ18 x 4000mm
Φ18 x 2500mm
Φ18 x 3000mm
Impianto/Plant
SHARK SXI
Dis. N.
SH_SXI/40050_CE/3916
Denom./Title
GUAINE E ACCESSORI
Sheaths and accessories
File
SH_SXI\1.DWG
Data 26-09-2016
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LATO QUADRO
BOARD SIDE
LATO BASAMENTO
BASE SIDE
CAVI QUADRO – BASAMENTO
BOARD – BASE CABLE
-GH8
PG29
-RE9
PG29/ø35
-CR5
ø29 x 1000mm
-RE10
PG29/ø35
-GH9
PG29
-W118: CAVO PANNELLO EV
-W118: SV PANEL CABLE
-GT1
GUAINA ø26 lunga 400mm
SHEATH ø26 LENGTH 400mm
-GT2
GUAINA ø10 lunga 300mm
SHEATH ø10 LENGTH 300mm
-GT3
GUAINA ø10 lunga 300mm
SHEATH ø10 LENGTH 300mm
-GT4
GUAINA ø10 lunga 300mm
SHEATH ø10 LENGTH 300mm
-GT5
GUAINA ø10 lunga 300mm
SHEATH ø10 LENGTH 300mm
ALL' ELETTOVALVOLA -K29
TO SOLENOID VALVE -K29
ALL' ELETTOVALVOLA -K30
TO SOLENOID VALVE -K30
ALL' ELETTOVALVOLA -K31
TO SOLENOID VALVE -K31
ALL' ELETTOVALVOLA -K32
TO SOLENOID VALVE -K32
REV.
0.2 Agg. Laser e Lampada 16/11/2018 Bartoli
0.1 Agg. cod. S50 13/12/2017 Bartoli
MODIFICA DATA FIRME
Impianto/Plant
SHARK SXI
File
SH_SXI\1.DWG
Data 26-09-2016
CAD SPAC
Dis. N.
SH_SXI/40050_CE/3916
Denom./Title
GUAINE E ACCESSORI
Sheaths and accessories
Ordine/Requisition
Commessa/Order
Esecutore/Executor
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CAVI ESTERNI \ EXTERNAL CABLES

QUADRO \ BOARD								DESTINAZIONE \ LOCATION			
QUADRO BOARD	FOGLIO SHEET	NR. MORSETTO TERMINAL NO.	NR. FILO CONDUCTOR NO.	ID SUL CAVO ID IN CABLE	CAVO CABLE	LUNGHEZZA LENGHT [mt]	DISTURBO NOISE LEVEL	ID SUL CAVO ID IN CABLE	NR. FILO CONDUCTOR NO.	NR. MORSETTO TERMINAL NO.	FOGLIO SHEET	QUADRO BOARD
			041	BN				BN	041			
=QgCv -XC32	14/0		361	GY				GY	361	J13	14/0	C4
=QgCv -K7	8/5	21	60	BU				BU	60			
=QgCv -XC32	14/0		043	GN				GN	043	○ C	8/8	=QgCv -XQG4
=QgCv -XC30	14/2		052	RD				RD	052	J13	14/2	C6
=BmCv -XQG2	11/1	052 ○	044	YE				YE	044			
=QgCv -XC29	14/3		042	WH	-W118 022.0147	5,00Mt		WH	042	J13	14/3	C7
=QgCv -XC31	14/1		050	PK	Cavo coll. basamento			PK	050	J13	14/1	C5
CD	14/7	J13	036	BK				BK	036			
C5	11/6	J7	0361	VT				VT	0361			
=BmPeCv -SB5	8/2	2	60	RD-BU				RD-BU	60			
=QgCv -XQG4	8/8	C ○	033	GY-PK				GY-PK	033			
C2	11/4	J7		Sch				Sch				
			031	BN				BN	031			
=SaCv -XSA	11/2	031 ○	023	GY				GY	023	J7	11/2	C0
=BmCv -XSA	15/3	023 ○	051	BU				BU	051	J4	15/3	AN2
=QgCv -XSA	11/2	○	034	GN				GN	034	J5	11/1	0VCC
=QgCv -XSA	11/5	034 ○	052	RD				RD	052	J7	11/5	C3
=QgCv -XSA	11/2	46_1 ○	024	YE				YE	024	○ 052	11/1	=BmCv -XQG2
=BmCv -XSA	15/3	024 ○	025	WH	-W119 022.0147	7.00Mt		WH	025	J4	15/3	AN2
=BmCv -XSA	15/4	025 ○	027	PK	Cavo coll. scatola archetto			PK	027	J4	15/4	AN2
=BmCv -XSA	15/6	027 ○	761	BK				BK	761	J4	15/6	AN3
=QgCv -K7	8/1	A1	045	VT				VT	045	○ 761	8/1	=BmCv -XSA
=QgCv -XSA	14/3	045 ○	60	RD-BU				RD-BU	60	J13	14/3	C8
=QgCv -XQG4	8/8	C ○	661	GY-PK				GY-PK	661	○ 60	14/3	=BmCv -XSA
=QgCv -XQG2	7/3	A ○								○ 661	8/1	=BmCv -XSA

REV.	MODIFICA	DATA	FIRME
0.2	Agg. Laser e Lampada	16/11/2018	Bartoli
0.1	Agg. cod. S50	13/12/2017	Bartoli

Impianto/Plant: SHARK SXI
Dis. N.: SH_SXI/40050_CE/3916
File: SH_SXI\1.DWG
Data: 26-09-2016 CAD SPAC
Denom./Title: RIASSUNTIVO CAVI / Cable summary
Ordine/Requisition:
Commessa/Order:
Esecutore/Executor:

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Translation of the original instructions

CAVI ESTERNI \ EXTERNAL CABLES

QUADRO \ BOARD								DESTINAZIONE \ LOCATION			
QUADRO BOARD	FOGLIO SHEET	NR. MORSETTO TERMINAL NO.	NR. FILO CONDUCTOR NO.	ID SUL CAVO ID IN CABLE	CAVO CABLE	LUNGHEZZA LENGHT [mt]	DISTURBO NOISE LEVEL	ID SUL CAVO ID IN CABLE	NR. FILO CONDUCTOR NO.	NR. MORSETTO TERMINAL NO.	FOGLIO SHEET	QUADRO BOARD
=QgCv	9/3		038	BN				BN	038	J7	11/8	C7
=QgCv	9/2	9	060	GY				GY	060	J12	13/2	RUN-I
=QgCv	9/2	12	061	BU				BU	061	J12	13/2	RUN-I
=QgCv	9/2	4	116	GN				GN	116	3	9/6	=QgCv -R3
=QgCv	9/3		052	RD				RD	052	○ 052	11/1	=BmCv -XQG2
				YE				YE				
=QgCv	9/1	2	115	WH	-W38 022.0147	4,5 MT		WH	115	2	9/7	=QgCv -R3
=QgCv	9/2	7	021	PK	Cavo comandi inverter			PK	021	J4	15/1	AN1
				BK				BK				
				VT				VT				
				RD-BU				RD-BU				
=QgCv	9/1	1	???	GY-PK				GY-PK	???	J4	15/2	AN1
=QgCv -XSA	14/3	045 ○	045	BN	-W39 022.0160			BN	045		14/3	=QgCv -XC21
=BmCv -XSA	14/3	60 ○	60	BU	Cavo EV Rigeneratrice			BU	60		14/3	=QgCv -XC21
=QgCv -XSA	11/2	46_1 ○	052	BN	-W52 022.0160			BN	052	3	11/5	=BmPeCv -SB17
=QgCv -XSA	11/5	034 ○	034	BU	Cavo Micro switch			BU	034	4	11/5	=BmPeCv -SB17
=BmCv -XSA	8/1	761 ○	761	BN	-W55 022.0160	1.50Mt		BN	761	22	8/1	=BmCv -S1
=BmCv -XSA	8/1	661 ○	5	BU	Cavo coll. fc carter lama			BU	5	21	8/1	=BmCv -S1
=QgCv -XQG2	14/4	046 ○	045	BN	-W65 022.0160	1,5Mt		BN	045		14/4	=QgCv -XC23
=QgCv -XQG2	14/4	47 ○	60	BU	Cavo coll. EV by-pass			BU	60		14/4	=QgCv -XC23
=QgCv -XSA	11/2	46_1 ○	052	BN				BN	052	⊂— 1	11/2	=BmMep -XS0
=SaCv -XSA	11/2	031 ○	031	BK	-W27 022.0376	5.00 Mt		BK	031	⊂— 4	11/2	=BmMep -XS0
=QgCv -XSA	11/2	○	051	BU	Cavo coll. proximity			BU	051	⊂— 3	11/2	=BmMep -XS0
=BmMep -M3	5/8	U	018	BN				BN	018	2	5/8	=QgCv -K65
=BmMep -M3	5/8	V	019	BK	-W11 022.0162	5.00 Mt		BK	019	4	5/8	=QgCv -K65
=BmMep -M3	5/8	W	020	GY	Cavo centralina idraulica			GY	020	6	5/8	=QgCv -K65
=BmMep -M3	5/8	PE	PE	GNYE				GNYE	PE	○ 1_1	4/2	=QgCv -XQGPE

REV.	MODIFICA	DATA	FIRME
0.2	Agg. Laser e Lampada	16/11/2018	Bartoli
0.1	Agg. cod. S50	13/12/2017	Bartoli

Impianto/Plant	SHARK SXI
File	SH_SXI\1.DWG
Data	26–09–2016
CAD	SPAC
Dis. N.	SH_SXI/40050_CE/3916
Denom./Title	RIASSUNTIVO CAVI
	Cable summary
Ordine/Requisition	
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CAVI ESTERNI \ EXTERNAL CABLES

QUADRO \ BOARD								DESTINAZIONE \ LOCATION			
QUADRO BOARD	FOGLIO SHEET	NR. MORSETTO TERMINAL NO.	NR. FILO CONDUCTOR NO.	ID SUL CAVO ID IN CABLE	CAVO CABLE	LUNGHEZZA LENGHT [mt]	DISTURBO NOISE LEVEL	ID SUL CAVO ID IN CABLE	NR. FILO CONDUCTOR NO.	NR. MORSETTO TERMINAL NO.	FOGLIO SHEET	QUADRO BOARD
=QgCv -K4	5/6	2	015	BN	-W4 022.0162	5.00 MT		BN	015	U	5/6	=BmMep -M2
=QgCv -K4	5/6	4	016	BK				BK	016	V	5/6	=BmMep -M2
=QgCv -K4	5/6	6	017	GY				GY	017	W	5/6	=BmMep -M2
=QgCv -XQGPE	4/2	1_1 ○	PE	GNYE	Cavo pompa acqua			GNYE	PE	PE	5/6	=BmMep -M2
=QgCv -XSA	11/2	46_1 ○	052	BN	-W20 022.0141	1Mt		BN	052	⊂— 1	15/5	=BmCv -XS6
=BmCv -XSA	15/6	027 ○	027	YE				YE	027	⊂— 2	15/5	=BmCv -XS6
=QgCv -XSA	11/2	○	051	WH				WH	051	⊂— 3	15/5	=BmCv -XS6
				GN	Cavo coll. tensionatore			GN				
=BmMep -R5	15/3	1	023	BN	-W21 022.0141	5Mt		BN	023	○ 023	15/3	=BmCv -XSA
=BmMep -R5	15/3	2	024	YE				YE	024	○ 024	15/3	=BmCv -XSA
=BmMep -R5	15/3	3	025	WH				WH	025	○ 025	15/4	=BmCv -XSA
				GN	Cavo coll. potenziometro testa			GN				
				Sch				Sch				
=QgCv -AL	4/1	L1 ○	L1	BN	-W1 022.0158	4,5 MT		BN	L1	5	4/3	=QgCv -Q0
=QgCv -AL	4/1	L2 ○	L2	BK				BK	L2	3	4/3	=QgCv -Q0
=QgCv -AL	4/2	N ○	N	BU				BU	N	○ N	4/1	=QgCv -AL
=QgCv -AL	4/1	L3 ○	L3	GY				GY	L3	1	4/3	=QgCv -Q0
=QgCv -AL	4/2	PE ○	PE	GNYE	Cavo alimentazione			GNYE	PE	○ 1_1	4/2	=QgCv -XQGPE
=QgCv -S50	5/1	W2	28	BK	-W2 022.0154	5 MT		BK	28	W3	5/2	=BmMep -M1
=QgCv -S50	5/1	U2	26	BK1				BK1	26	V2	5/2	=BmMep -M1
=QgCv -S50	5/1	V2	24	BK2				BK2	24	U2	5/2	=BmMep -M1
=QgCv -S50	5/1	W1	27	BK3				BK3	27	U1	5/2	=BmMep -M1
=QgCv -S50	5/1	V1	25	BK4				BK4	25	V1	5/2	=BmMep -M1
=QgCv -S50	5/1	U1	23	BK5				BK5	23	W1	5/2	=BmMep -M1
=BmCv -XQGPE	5/1	1_2 ○	PE	GNYE	Cavo motore lama(2 VEL)			GNYE	PE			

REV.	MODIFICA	DATA	FIRME
0.2	Agg. Laser e Lampada	16/11/2018	Bartoli
0.1	Agg. cod. S50	13/12/2017	Bartoli

Impianto/Plant: SHARK SXI
Dis. N.: SH_SXI/40050_CE/3916
File: SH_SXI\1.DWG
Denom./Title: RIASSUNTIVO CAVI / Cable summary
Data: 26-09-2016 CAD SPAC
Ordine/Requisition:
Commessa/Order:
Esecutore/Executor:

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Translation of the original instructions

CAVI ESTERNI \ EXTERNAL CABLES

QUADRO \ BOARD								DESTINAZIONE \ LOCATION			
QUADRO BOARD	FOGLIO SHEET	NR. MORSETTO TERMINAL NO.	NR. FILO CONDUCTOR NO.	ID SUL CAVO ID IN CABLE	CAVO CABLE	LUNGHEZZA LENGHT [mt]	DISTURBO NOISE LEVEL	ID SUL CAVO ID IN CABLE	NR. FILO CONDUCTOR NO.	NR. MORSETTO TERMINAL NO.	FOGLIO SHEET	QUADRO BOARD
=QgCv -XENC	16/2	J	05	RD	-WENC 022.0409 Cavo Encoder			RD	05	J3	16/3	24VCC
=QgCv -XENC	16/2	I	06	BK				BK	06	J3	16/4	0VCC
=QgCv -XENC	16/2	B	010	GY				GY	010	J3	16/7	CLK-
=QgCv -XENC	16/2	F	66	BU				BU	66	J3	16/4	0VCC
=QgCv -XENC	16/2	D	08	YE				YE	08	J3	16/5	DATA -
=QgCv -XENC	16/2	C	07	GN				GN	07	J3	16/4	DATA +
=QgCv -XENC	16/2	H	68	OG				OG	68	J3	16/4	0VCC
=QgCv -XENC	16/2	A	09	WH				WH	09	J3	16/6	CLK+
				Sch				Sch				

REV.	MODIFICA	DATA	FIRME
0.2	Agg. Laser e Lampada	16/11/2018	Bartoli
0.1	Agg. cod. S50	13/12/2017	Bartoli

Impianto/Plant: *SHARK SXI*

File: SH_SXI\1.DWG

Data: 26-09-2016 CAD SPAC

Dis. N.: SH_SXI/40050_CE/3916

Denom./Title: RIASSUNTIVO CAVI

Cable summary

Ordine/Requisition:

Commessa/Order:

Esecutore/Executor:

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NOME/ITEM	TIPO/TYPE	DESCRIZIONE IT (DB)	DESCRIZIONE EN (DB)	CODICE INTERNO (DB)	Q.TA/Q.TY	FG/SH	QUADRO/BOARD
'-CR1	'022.2602	Guaina POLIFLEX Ø18	Poliflex Covering Ø18	NW 14-1200143	0,40	22	'=BmCv
'-CR2	'022.2602	Guaina POLIFLEX Ø18	Poliflex Covering Ø18	NW 14-1200143	2,50	22	'=BmCv
'-CR3	'022.2602	Guaina POLIFLEX Ø18	Poliflex Covering Ø18	NW 14-1200143	3,00	22	'=BmCv
'-CR5	'022.0197	Guaina POLIFLEX Ø35	Poliflex Covering Ø35	NW 29-3800296	1,00	23	'=BmCv
'-GH1	'022.0244	DADO 3217B GRIGIO PG 13,5	Nut Pg 13,5	PG13.5	1	22	'=BmCv
'-GH2	'022.0244	DADO 3217B GRIGIO PG 13,5	Nut Pg 13,5	PG13.5	1	22	'=BmCv
'-GH3	'022.0244	DADO 3217B GRIGIO PG 13,5	Nut Pg 13,5	PG13.5	1	22	'=BmCv
'-GH4	'022.0244	DADO 3217B GRIGIO PG 13,5	Nut Pg 13,5	PG13.5	1	22	'=BmCv
'-GH5	'022.0244	DADO 3217B GRIGIO PG 13,5	Nut Pg 13,5	PG13.5	1	22	'=BmCv
'-GH8	'022.0247	Dado poliammide PG29		PG29	1	23	'=BmCv
'-GH9	'022.0247	Dado poliammide PG29		PG29	1	23	'=BmCv
'-GT1	'022.0180	Guaina termoretraibile	Heatshrink Guide	Ø 26mm	0,40	23	'=BmCv
'-GT2	'022.0181	Guaina termoretraibile	Heatshrink Guide	Ø 10mm	0,30	23	'=BmCv
'-GT3	'022.0181	Guaina termoretraibile	Heatshrink Guide	Ø 10mm	0,30	23	'=BmCv
'-GT4	'022.0181	Guaina termoretraibile	Heatshrink Guide	Ø 10mm	0,30	23	'=BmCv
'-GT5	'022.0181	Guaina termoretraibile	Heatshrink Guide	Ø 10mm	0,30	23	'=BmCv
'-PC1	'022.0234	Pressacordone	Cable Gland Strain Relief	3246 nero PG13,5	1	22	'=BmCv
'-QD3	'016.1196	Scatola derivazione metallica	Metal junction box	240x80 P.70	1	22	'=BmCv
'-RD1	'022.0349	Riduzione	Joint Reduction	M/F M20/PG13,5	1	22	'=BmCv
'-RE1	'022.0211	Raccordo rapido dritto PG13,5/Ø19		SEM PG13,5/Ø19	1	22	'=BmCv
'-RE2	'022.0211	Raccordo rapido dritto PG13,5/Ø19		SEM PG13,5/Ø19	1	22	'=BmCv
'-RE3	'022.0211	Raccordo rapido dritto PG13,5/Ø19		SEM PG13,5/Ø19	1	22	'=BmCv
'-RE4	'022.0211	Raccordo rapido dritto PG13,5/Ø19		SEM PG13,5/Ø19	1	22	'=BmCv
'-RE5	'022.0211	Raccordo rapido dritto PG13,5/Ø19		SEM PG13,5/Ø19	1	22	'=BmCv
'-RE6	'022.0211	Raccordo rapido dritto PG13,5/Ø19		SEM PG13,5/Ø19	1	22	'=BmCv
'-RE9	'022.0209	Raccordo rapido dritto PG29/Ø35	Rapid Joint	SEM PG29/Ø35	1	23	'=BmCv
'-RE10	'022.0209	Raccordo rapido dritto PG29/Ø35	Rapid Joint	SEM PG29/Ø35	1	23	'=BmCv
'-S1	'022.0037	Finecorsa di sicurezza con chiave 1NO + 1NC	Safety Switch with key 1NO + 1NC	FR 690 SH - MOELLER	1	8	'=BmCv
'-XS6	'022.0378	Connettore EV idra. in DC con ponte e led (V1406)	Connector for solenoid valve DC	2 poli + PE - Din 43650-A int. 18mm	1		'=BmCv
'-OLM	'090.1601	Gruppo lubrificazione minimale SHARK	Spray mist oil system for Shark		1	19	'=BmLmCv

REV.	MODIFICA	DATA	FIRME
0.2	Agg. Laser e Lampada	16/11/2018	Bartoli
0.1	Agg. cod. S50	13/12/2017	Bartoli

Impianto/Plant: *SHARK SXI*

File: SH_SXI\1.DWG

Data: 26-09-2016 CAD SPAC

Dis. N.: SH_SXI/40050_CE/3916

Denom./Title: LISTA MATERIALI / *Material list*

Ordine/Requisition

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NOME/ITEM	TIPO/TYPE	DESCRIZIONE IT (DB)	DESCRIZIONE EN (DB)	CODICE INTERNO (DB)	Q.TA/Q.TY	FG/SH	QUADRO/BOARD
'-M1	'019.1706	Motore KW 1,5/1,87 2/4P B14 FC90L V400.50		'019.1706	1	5	'=BmMep
'-M2	'028.0271	Elettropompa monofase 230/400V 50/60Hz	Electropump single phase 230/400V 50/60Hz	SAP SA FH2	1	5	'=BmMep
'-M3	'019.4006	Motore da 0,5Hp C71 B14 V230-415-50Hz / V240-480-60Hz		'019.4006	1	5	'=BmMep
'-R5	'022.0046	Potenziometro 2K2 monogiro	Potentiometer 2K2 single turn	6639S-001-202	1	17	'=BmMep
'-R6	'022.2152	Tensionatore elettronico 3T	Electronic tensioner 3T	TR-S-A/3T 1,5V- 900Kg Deltateck	1	17	'=BmMep
'-S0	'022.0527	Sensore di prossimita PNP corto conn. M12	Proximity PNP		1	13	'=BmMep
'-XPR1	'022.0376	Connettore F303N5000 per prossimity		'022.0376	1		'=BmMep
'-XPR2	'022.0376	Connettore F303N5000 per prossimity		'022.0376	1		'=BmMep
'-XS0	'022.0376	Connettore F303N5000 per prossimity		'022.0376	1		'=BmMep
'-S3A	'022.1408	Pulsante blu	Blue push button	M22-D-B cod. 216600	1	9	'=BmPeCv
'-S3A	'022.0911	Portacontatti per pulsantiera	Contact holder for push button	M22-A cod. 216374	1	9	'=BmPeCv
'-S3A	'022.0937	Contatto pulsantiera NA	Normally open contact	M22-K10 cod. 216376	1	9	'=BmPeCv
'-S3A	'022.0937	Contatto pulsantiera NA	Normally open contact	M22-K10 cod. 216376	1	9	'=BmPeCv
'-SB5	'022.1245	Fungo emergenza	Emergency push button	M22-PVT cod.263467	1	8	'=BmPeCv
'-SB5	'022.0911	Portacontatti per pulsantiera	Contact holder for push button	M22-A cod. 216374	1	8	'=BmPeCv
'-SB5	'022.0936	Contatto pulsantiera NC	Normally close contact	M22-K01 cod. 216678	1	8	'=BmPeCv
'-SB10	'022.1405	Pulsante nero	Black push button	M22-D-S cod. 216590	1	10	'=BmPeCv
'-SB10	'022.0911	Portacontatti per pulsantiera	Contact holder for push button	M22-A cod. 216374	1	10	'=BmPeCv
'-SB10	'022.0936	Contatto pulsantiera NC	Normally close contact	M22-K01 cod. 216678	1	10	'=BmPeCv
'-SB10	'022.0937	Contatto pulsantiera NA	Normally open contact	M22-K10 cod. 216376	1	10	'=BmPeCv
'-SB11	'022.1405	Pulsante nero	Black push button	M22-D-S cod. 216590	1	10	'=BmPeCv
'-SB11	'022.0911	Portacontatti per pulsantiera	Contact holder for push button	M22-A cod. 216374	1	10	'=BmPeCv
'-SB11	'022.0936	Contatto pulsantiera NC	Normally close contact	M22-K01 cod. 216678	1	10	'=BmPeCv
'-SB11	'022.0937	Contatto pulsantiera NA	Normally open contact	M22-K10 cod. 216376	1	10	'=BmPeCv
'-SB15	'022.1001	Pedaliera 2NO + 2NC	Foot pedal	PS1214 Comepi	1	9	'=BmPeCv
'-SB17	'022.1405	Pulsante nero	Black push button	M22-D-S cod. 216590	1	13	'=BmPeCv
'-SB17	'022.0911	Portacontatti per pulsantiera	Contact holder for push button	M22-A cod. 216374	1	13	'=BmPeCv
'-SB17	'022.0937	Contatto pulsantiera NA	Normally open contact	M22-K10 cod. 216376	1	13	'=BmPeCv
'-CR7	'022.0185	Guaina rivestita treccia acciaio Øi16	Cable Screening Braid	FTR16 RTA	5,00	23	'=BmPeMep
'-OPE	'090.0672	Comando supplementare a pedaliera per Shar	Foot-pedal device for Shark		1	19	'=BmPeMep

REV.	MODIFICA	DATA	FIRME
0.2	Agg. Laser e Lampada	16/11/2018	Bartoli
0.1	Agg. cod. S50	13/12/2017	Bartoli

Impianto/Plant: *SHARK SXI*

File: SH_SXI\1.DWG

Data: 26–09–2016 CAD SPAC

Dis. N.: SH_SXI/40050_CE/3916

Denom./Title: LISTA MATERIALI / *Material list*

Ordine/Requisition

Commessa/Order

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'-PED	090.0P001	Comando supplementare per bimanuale	Bi-manual device		1	19	'=BmPeMep
'-RE13	'022.0222	Raccordo per guaina metallica PG16/Ø16	Joint for Cable Screening Braid	82029 RTA	1	23	'=BmPeMep
'-RE14	'022.0221	Raccordo per guaina metallica con ghiera PG13,5/Ø16	Joint for Cable Screening Braid with Nut	PG13,5/Ø16	1	23	'=BmPeMep
'-ENC1	'022.1316	Encoder assoluto 14 bit monogiro	Absolute encoder 14Bit single-turn	AS5814/GA-6-ERQ LIKA	1	18	'=BmViAn
'-K21	V.d.Id.	Vedi distinta idraulica	See hydraulic list	V.d.Id.	1	16	'=CeIdCv
'-K23	V.d.Id.	Vedi distinta idraulica	See hydraulic list	V.d.Id.	1	16	'=CeIdCv
'-K30	V.d.Id.	Vedi distinta idraulica	See hydraulic list	V.d.Id.	1	16	'=CeIdCv
'-BM1	022.0P69	Rele sicurezza bimano 3NO, 1NC cat.4	Bi-manual safety relay 3NO, 1NC cat.4	CS DM-01-M024 PIZZATO	1	10	'=PpCv
'-CR6	'022.0197	Guaina POLIFLEX Ø35	Poliflex Covering Ø35	NW 29-3800296	1,00	23	'=PpCv
'-GH10	'022.0247	Dado poliammide PG29		PG29	1	23	'=PpCv
'-GH11	'022.0247	Dado poliammide PG29		PG29	1	23	'=PpCv
'-K14	V.d.P.	Vedi distinta pneumatica	See pneumatic list	V.d.P.	1	15	'=PpCv
'-K15A	V.d.P.	Vedi distinta pneumatica	See pneumatic list	V.d.P.	1	15	'=PpCv
'-K24	V.d.P.	Vedi distinta pneumatica	See pneumatic list	V.d.P.	1	15	'=PpCv
'-K25A	V.d.P.	Vedi distinta pneumatica	See pneumatic list	V.d.P.	1	16	'=PpCv
'-KA12A	022.0994 + 022.2391	Rele 24VAC - 2 contatti scambio + zoccolo	Relay 24 VAC - 2 exchange contacts + base		1	9	'=PpCv
'-KA13	022.0994 + 022.2391	Rele 24VAC - 2 contatti scambio + zoccolo	Relay 24 VAC - 2 exchange contacts + base		1	9	'=PpCv
'-KA14	022.0994 + 022.2391	Rele 24VAC - 2 contatti scambio + zoccolo	Relay 24 VAC - 2 exchange contacts + base		1	9	'=PpCv
'-KA15	022.0994 + 022.2391	Rele 24VAC - 2 contatti scambio + zoccolo	Relay 24 VAC - 2 exchange contacts + base		1	9	'=PpCv
'-KA16	022.0994 + 022.2391	Rele 24VAC - 2 contatti scambio + zoccolo	Relay 24 VAC - 2 exchange contacts + base		1	9	'=PpCv
'-KA17	022.0994 + 022.2391	Rele 24VAC - 2 contatti scambio + zoccolo	Relay 24 VAC - 2 exchange contacts + base		1	16	'=PpCv
'-PR1	000.0P43	Pressostato pneumatico digitale 0-6Bar 24Vdc conn. M12	Digital air pressure 0-6Bar 24Vdc M12	DS-E1P06F4B2PR00 - Norgren	1	14	'=PpCv
'-PR2	000.0P43	Pressostato pneumatico digitale 0-6Bar 24Vdc conn. M12	Digital air pressure 0-6Bar 24Vdc M12	DS-E1P06F4B2PR00 - Norgren	1	14	'=PpCv
'-QD2	000.0P54	Scatola derivazione 340x340x150		Codice provvisorio	1	21	'=PpCv
'-RE11	'022.0209	Raccordo rapido dritto PG29/Ø35	Rapid Joint	SEM PG29/Ø35	1	23	'=PpCv
'-RE12	'022.0209	Raccordo rapido dritto PG29/Ø35	Rapid Joint	SEM PG29/Ø35	1	23	'=PpCv
'-XC14	000.0P14	Connettore EV pneum. in AC		2 poli + PE - Din 43650-B int. 11mm	1	15	'=PpCv
'-XC15	000.0P14	Connettore EV pneum. in AC		2 poli + PE - Din 43650-B int. 11mm	1	15	'=PpCv
'-XC15A	000.0P14	Connettore EV pneum. in AC		2 poli + PE - Din 43650-B int. 11mm	1	15	'=PpCv
'-XC24	000.0P14	Connettore EV pneum. in AC		2 poli + PE - Din 43650-B int. 11mm	1	15	'=PpCv

REV.	MODIFICA	DATA	FIRME
0.2	Agg. Laser e Lampada	16/11/2018	Bartoli
0.1	Agg. cod. S50	13/12/2017	Bartoli

Impianto/Plant: SHARK SXI

File: SH_SXI\1.DWG

Data: 26-09-2016 CAD: SPAC

Dis. N.: SH_SXI/40050_CE/3916

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'-XC25	000.0P14	Connettore EV pneum. in AC		2 poli + PE - Din 43650-B int. 11mm	1	16	'=PpCv
'-XC25A	000.0P14	Connettore EV pneum. in AC		2 poli + PE - Din 43650-B int. 11mm	1	16	'=PpCv
'-BR1	'022.0900	Barra omega	Omega guide		0,35	21	'=QgCv
'-BR2	'022.0900	Barra omega	Omega guide		0,30	21	'=QgCv
'-CC1	'022.0304	Terminale a occhiello (Rosso)	Wire Terminal Connection Red	Ø5 da 1,5mmq A5/P-B15/P	3	21	'=QgCv
'-CC2	'022.0296	Terminale a occhiello (Blu)	Wire Terminal Connection Blue	Ø5 da 2,5mmq	1	21	'=QgCv
'-CC3	'022.0307	Terminale a faston (Rosso)	Wire Terminal Connection Red	2.8x0.5 da 1,5mmq A00T/P	2	21	'=QgCv
'-CN1	'022.0903	Canalina portacavi in plastica	Cable holding plastic channel	40x60	0,50	21	'=QgCv
'-FL1	'022.0171	Filo unipolare 0,50mmq	Single wire 0.5mmq		35,00	21	'=QgCv
'-FL2	'022.0172	Filo unipolare 1,50mmq	Single wire 1,50mmq		1,50	21	'=QgCv
'-FS1	'019.5353	Fascetta in plastica 140x3,5	Plastic clamp 140x3,5	32031 Legrand	30	21	'=QgCv
'-K0	'022.0555	Bobina di minima		U-PKZO V.400.50 Moeller	1	4	'=QgCv
'-K1	'022.3007	Contattore (24 V. 50.60 HZ)	Contactor (24 V. 50.60 HZ)	DILM9-01 cod.276729	1	16	'=QgCv
'-K4	'022.3004	Contattore mini 9 AMP. - (24V.50.60 HZ)	Contactor mini 9 AMP. - (24V.50.60 HZ)	DILEM-10 cod. 21417 Moeller	1	16	'=QgCv
'-K7	022.0994 + 022.2391	Rele 24VAC - 2 contatti scambio + zoccolo	Relay 24 VAC - 2 exchange contacts + base		1	8	'=QgCv
'-K12	022.0994 + 022.2391	Rele 24VAC - 2 contatti scambio + zoccolo	Relay 24 VAC - 2 exchange contacts + base		1	8	'=QgCv
'-K65	'022.3004	Contattore mini 9 AMP. - (24V.50.60 HZ)	Contactor mini 9 AMP. - (24V.50.60 HZ)	DILEM-10 cod. 21417 Moeller	1	16	'=QgCv
'-NM1	'022.0290	Etichetta segnafilo	Cable maker and wire		500	21	'=QgCv
'-NM2	'022.0290	Etichetta segnafilo	Cable maker and wire		20	21	'=QgCv
'-PT1	'022.0311	Terminale a puntale da (Bianco)	Wire Terminal Connection White	0,5mmq DZ5CE005	300	21	'=QgCv
'-PT3	'022.0312	Terminale a puntale da (Nero)	Wire Terminal Connection Black	1,5mmq DZ5CE015	60	21	'=QgCv
'-Q0	'022.0124	Custodia isolante con manopola rossa	Housing with red handle	E-PKZO-GR - Moeller	1	4	'=QgCv
'-Q0	'022.0125	Blocco porta luchettabile	Lockable block	SBV-PKZO-E cod.35127 - Moeller	1	4	'=QgCv
'-Q0	'022.0126	Barretta per neutro	Lockable device	N-PKZO cod. 82160 - Moeller	1	4	'=QgCv
'-Q0	'022.1287	Magnetotermico 6.3-10A	Magneto-termal overload 6.3-10A	PKZM0-10 cod. 72739 Moeller	1	4	'=QgCv
'-QD1	'016.0719	Quadro comandi SH SXI verticale	Vertical board for SH-SXI	'016.0719	1	21	'=QgCv
'-R3	'022.0045	Potenziometro 10K monogiro	Potentiometer 10K single turn		1	11	'=QgCv
'-R3	'034.1166	Manopola	Knob	22mm Ø6	1	11	'=QgCv
'-S3	'022.1408	Pulsante blu	Blue push button	M22-D-B cod. 216600	1	8	'=QgCv
'-S3	'022.0911	Portacontatti per pulsantiera	Contact holder for push button	M22-A cod. 216374	1	8	'=QgCv

REV.	MODIFICA	DATA	FIRME
0.2	Agg. Laser e Lampada	16/11/2018	Bartoli
0.1	Agg. cod. S50	13/12/2017	Bartoli

Impianto/Plant: *SHARK SXI*

File: SH_SXI\1.DWG

Data: 26-09-2016 CAD SPAC

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'-S3	'022.0937	Contatto pulsantiera NA	Normally open contact	M22-K10 cod. 216376	1	8	'=QgCv
'-S3	'022.0937	Contatto pulsantiera NA	Normally open contact	M22-K10 cod. 216376	1	8	'=QgCv
'-S50	'022.3054	Selettore 2 velocita 16A	Switch 2 Speed	T0-5-70331 GB/E	1	5	'=QgCv
'-SA1	000.0P23	Selettore 2 posizioni stabile a chiave estr. 0 e I M22-WRS cod. 216887 MOELLER		Codice provvisorio	1	9	'=QgCv
'-SA1	'022.0911	Portacontatti per pulsantiera	Contact holder for push button	M22-A cod. 216374	1	9	'=QgCv
'-SA1	'022.0937	Contatto pulsantiera NA	Normally open contact	M22-K10 cod. 216376	1	9	'=QgCv
'-SB4	'022.1245	Fungo emergenza	Emergency push button	M22-PVT cod.263467	1	8	'=QgCv
'-SB4	'022.0911	Portacontatti per pulsantiera	Contact holder for push button	M22-A cod. 216374	1	8	'=QgCv
'-SB4	'022.0936	Contatto pulsantiera NC	Normally close contact	M22-K01 cod. 216678	1	8	'=QgCv
'-SB16	'022.1405	Pulsante nero	Black push button	M22-D-S cod. 216590	1	9	'=QgCv
'-SB16	'022.0911	Portacontatti per pulsantiera	Contact holder for push button	M22-A cod. 216374	1	9	'=QgCv
'-SB16	'022.0937	Contatto pulsantiera NA	Normally open contact	M22-K10 cod. 216376	1	9	'=QgCv
'-SF1	'047.0182	Sacchetto portafusibili	Printed envelopes		1	21	'=QgCv
'-SF1	'022.1133	Microfusibile	Microfuse	1AMP. 250V	1	21	'=QgCv
'-T1	'022.1651	Trasformatore	Transformer	100VA V.230-400 S0.24 S0.19	1	6	'=QgCv
'-TF1	'031.2622	Targa sostituzione fusibili	Replace fuse adhesive sign		1	21	'=QgCv
'-TF2	'025.0604	Guarnizione aerstop	Control panel gasket		3,00	21	'=QgCv
'-U1	'022.0724	Inverter V380-480.50.60 KW3 e modbus	Inverter V380-480.50.60 KW3	SKC 03400300 ControlTechniques	1	5	'=QgCv
'-UDY	'022.0757	Display MEP30	Display MEP30	LCD 2x16	1	12	'=QgCv
'-UPC	022.2820.1	Controllore MEP 32/CC con rele	Controller MEP32CC with relais		1	12	'=QgCv
'-UTA	'031.2030	Consolle di programmazione SX EVO	Programming consolled SX EVO		1	12	'=QgCv
'-XC21	'022.0276	Connettore EV idra. in AC con varistore (V1403)	Connector for solenoid valve AC	2 poli + PE - Din 43650-A int. 18mm	1	16	'=QgCv
'-XC23	'022.0276	Connettore EV idra. in AC con varistore (V1403)	Connector for solenoid valve AC	2 poli + PE - Din 43650-A int. 18mm	1	16	'=QgCv
'-XC29	'022.0378	Connettore EV idra. in DC con ponte e led (V1406)	Connector for solenoid valve DC	2 poli + PE - Din 43650-A int. 18mm	1	16	'=QgCv
'-XC30	'022.0378	Connettore EV idra. in DC con ponte e led (V1406)	Connector for solenoid valve DC	2 poli + PE - Din 43650-A int. 18mm	1	16	'=QgCv
'-XENC	'022.0409	Cavo per encoder Lika EC-M10F-LK-A8-5		'022.0409	1		'=QgCv
'-XPD	'022.2256	Morsetto da 2.5 mm singolo per 2 fili a molla	Single pole spring terminal 2,5mmq	56.703.0055.0	12		'=QgCv
'-XQG2	'022.2258	Morsetto da 2.5 mm singolo per 4 fili a molla	Quadruple pole spring terminal 2,5mmq	56.703.5155.0	3		'=QgCv
'-XQG2	'022.2288	Piastra di chiusura x morsetto a 4 fili	Closing plate	07.312.7155.0	1		'=QgCv
'-XQG4	'022.2256	Morsetto da 2.5 mm singolo per 2 fili a molla	Single pole spring terminal 2,5mmq	56.703.0055.0	1		'=QgCv

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0.2	Agg. Laser e Lampada	16/11/2018	Bartoli
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Impianto/Plant: *SHARK SXI*

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Dis. N.: SH_SXI/40050_CE/3916

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'-XQGFU	022.2256 + 022.1136 + 022.1136				4		'=QgCv
'-XQGPE	'022.0377	Morsetto PE da 2.5 mm singolo per 2 fili a molla WK4	SLU		1		'=QgCv
'-XQGPE	'022.2247	Morsetto PE da 2.5 mm singolo per 4 fili a molla WK4/D2/2	SLU		1		'=QgCv
'-XQP	'022.2256	Morsetto da 2.5 mm singolo per 2 fili a molla	Single pole spring terminal 2,5mmq	56.703.0055.0	14		'=QgCv
'-XQP	'022.2258	Morsetto da 2.5 mm singolo per 4 fili a molla	Quadruple pole spring terminal 2,5mmq	56.703.5155.0	7		'=QgCv
'-XSA	'022.2256	Morsetto da 2.5 mm singolo per 2 fili a molla	Single pole spring terminal 2,5mmq	56.703.0055.0	10		'=QgCv
'-XSA	'022.2258	Morsetto da 2.5 mm singolo per 4 fili a molla	Quadruple pole spring terminal 2,5mmq	56.703.5155.0	6		'=QgCv

NOME/ITEM	TIPO/TYPE	DESCRIZIONE IT (DB)	DESCRIZIONE EN (DB)	CODICE INTERNO (DB)	Q.TA/Q.TY	FG/SH	QUADRO/BOARD
'-GD1	'022.0909	Alimentaore Monofase In:4-28Vac, Out:5-36Vdc			1	18	'=QgCv
'-HL1	022.3255	Faro Led 4,2W 16/36V 330Lm			1	18	'=QgCv
'-HL2	'022.1191	Traguardatore Laser		Mod.50EM	1	18	'=QgCv
'-F10/11/12	'022.2252	Morsetto Portafusibile 6,3x32		ZFK4-HESI	4	18	'=QgCv
'-F10	'022.1152	Fubili Ceramici 6,3x32 2A ritardati			2	18	'=QgCv
'-F11/12	'022.1156	Fubili Ceramici 6,3x32 0,5A ritardati			4	18	'=QgCv
'-WL1	'022.0424	Connettore 90° M12 4poli 5mt			1	18	'=QgCv
'-WL2	'022.0355	Connettore M8 3poli 5mt			1	18	'=QgCv
'-SL1	'022.1225	Selettore 3 pos. Stabile		M22-WRK3 cod 216872	1	18	'=QgCv
'-SL1	'022.0937	Contatto NO		M22-K10 cod. 216376	2	18	'=QgCv
	'090.0899	Supporto gruppo laser-lampada			1	18	'=QgCv

REV.	MODIFICA	DATA	FIRME
0.2	Agg. Laser e Lampada	16/11/2018	Bartoli
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Impianto/Plant: SHARK SXI

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Denom./Title: LISTA MATERIALI / Material list

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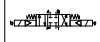
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Sim.\Sym.	File	Descrizione\Description
	POMPAID	Pompa idraulica *Hydraulic pump*
	BLK106	Raccordo idraulico *Pipe fitting*
	FFLH53	Valvola riduttrice *Reducing valve*
	FFLH97	Elettovalvola direz. 4/3 elettroidr. *Double-acting solenoid valve 4/3*
	FFLP42	Manometro *Gauge*
	FFLP53	Motore elettrico *Electric motor*
	FFLP62B	Valvola di blocco *Check valve*
	FFLP75A	Cilindro a doppio effetto *Double-acting cylinder*
	FILTROID	Filtro aspirazione *Suction filter*
	NIPPLO-FOR	Raccordo idraulico a flusso ridotto *Reduced flow pipe fitting*
	GIU_POM	Giunto meccanico asse pompa *Pump axis coupling*

Sim.\Sym.	File	Descrizione\Description
	REG_FLU	Regolatore di flusso con by-pass elettrico *Flow regulator with electric by-pass*

Sim.\Sym.	File	Descrizione\Description

REV.	MODIFICA	DATA	FIRME

Impianto/Plant: *SHARK SXI*

File: SH_SXI\2.DWG

Data: 26-09-2016 CAD: SPAC

Dis. N.: SX_SXI/40050_CE/3916

Denom./Title: LISTA SIMBOLI

Simbol key

Ordine/Requisition:

Commessa/Order:

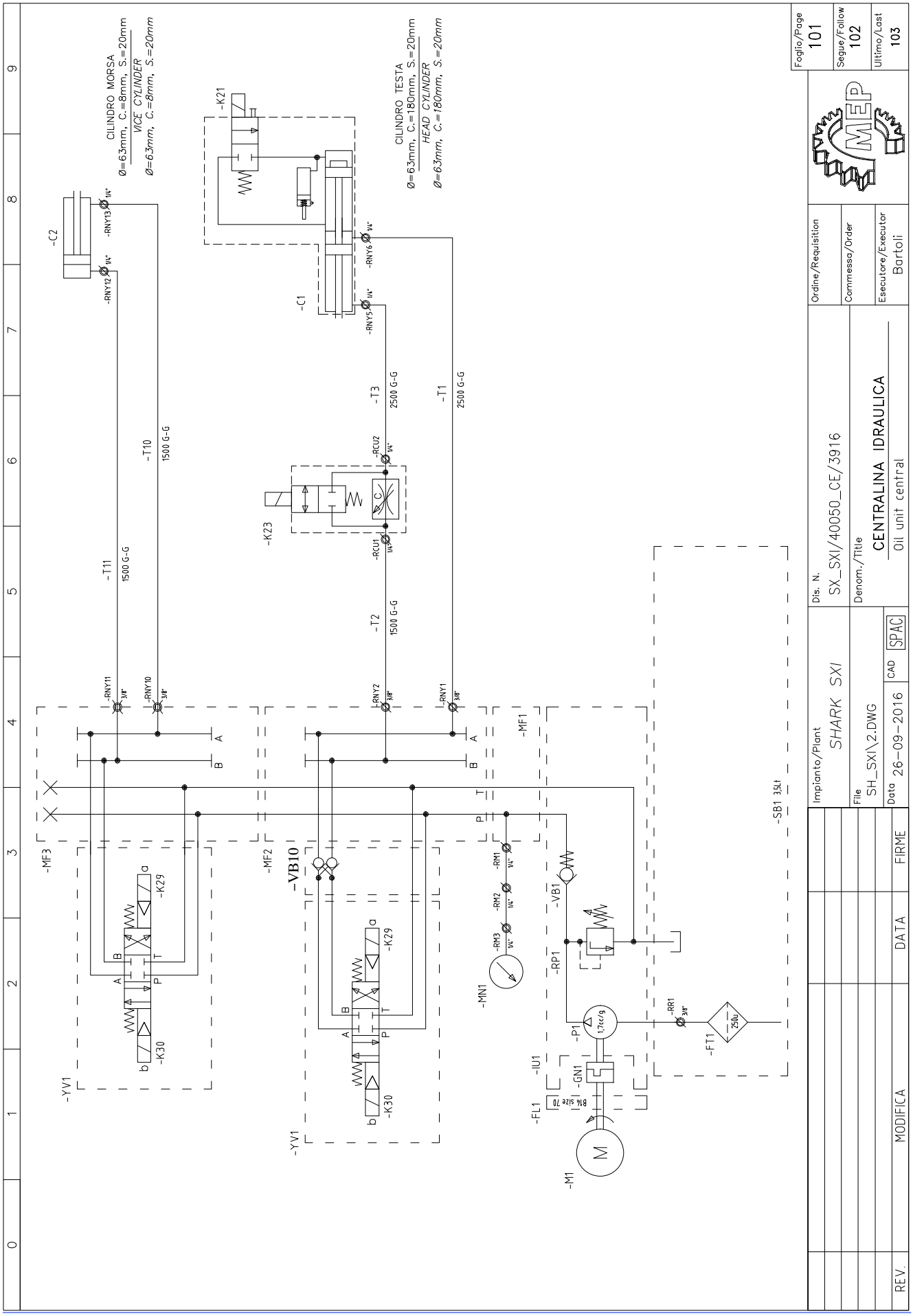
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CILINDRO MORSA
Ø=63mm, C.=8mm, S.=20mm
VICE CYLINDER
Ø=63mm, C.=8mm, S.=20mm
CILINDRO TESTA
Ø=63mm, C.=180mm, S.=20mm
HEAD CYLINDER
Ø=63mm, C.=180mm, S.=20mm
-C2
-C1
-K21
-K23
-T10 1500 G-G
-T11 1500 G-G
-T2 1500 G-G
-T3 2500 G-G
-T1 2500 G-G
-RNY12
-RNY13
-RNY6
-RNY5
-RCU2
-RCU1
-RNY11
-RNY10
-RNY2
-RNY1
-MF3
-MF2
-MF1
-VB10
-YV1
-K29
-K30
-VB1
-RP1
-P1
-RR1
-FT1
-RM1
-RM2
-RM3
-MN1
-IU1
-GN1
-FL1
-M1
-SB1 3St
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Denom./Title CENTRALINA IDRAULICA
Oil unit central
Impianto/Plant SHARK SXI
File SH_SXI\2.DWG
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CAD SPAC
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-C2	V.d.M.	V.d.M.	Vedi distinta meccanica	See mechanical BOM	1	=BmCv	101
-C1	V.d.M.	V.d.M.	Vedi distinta meccanica	See mechanical BOM	1	=CiBmMep	101
-K23	043.0585	043.0585	Regolatore di flusso con by-pass baffo C da 1/4"G		1	=CiBmMep	101
-RCU1	044.0552		Raccordo a gomito ID. MF-1/4"G	Hydraulic elbow coupling M/F 1/4"	1	=CiBmMep	101
-RCU2	044.0552		Raccordo a gomito ID. MF-1/4"G	Hydraulic elbow coupling M/F 1/4"	1	=CiBmMep	101
-RNY12	043.0275	043.0275	Nipplo da 1/4"G		1	=CiBmMep	101
-RNY13	043.0275	043.0275	Nipplo da 1/4"G		1	=CiBmMep	101
-RNY5	043.0275	043.0275	Nipplo da 1/4"G		1	=CiBmMep	101
-RNY6	043.0275	043.0275	Nipplo da 1/4"G		1	=CiBmMep	101
-T1	044.0125		Tubo idraulico 1/4"G 2500 G-G	Hydraulic flex pipe 1/4"G 2500 C-C	1	=CiBmMep	101
-T10	044.0107	044.0107	Tubo idraulico 1/4"G 1500 G-G	Hydraulic flex pipe 1/4"G 1500 C-C	1	=CiBmMep	101
-T11	044.0107	044.0107	Tubo idraulico 1/4"G 1500 G-G	Hydraulic flex pipe 1/4"G 1500 C-C	1	=CiBmMep	101
-T2	044.0107	044.0107	Tubo idraulico 1/4"G 1500 G-G	Hydraulic flex pipe 1/4"G 1500 C-C	1	=CiBmMep	101
-T3	044.0125		Tubo idraulico 1/4"G 2500 G-G	Hydraulic flex pipe 1/4"G 2500 C-C	1	=CiBmMep	101
-FL1	044.5154	drive 133 200.6582.0012.0 Bucher	Flangia accoppiamento motore C71 B14	Power pack motor flange C71 B14	1	=CiCv	101
-FT1	044.5156		FILTRO ASPIRAZ.X MONOCENTRAL.SXI- EVO ?A?	Suction pipe M-M3/8"G lung. 200mm	1	=CiCv	101
-GN1	044.4635	drive 133 200.6594.0022.0 Bucher	Giunto elas. lato motore C71 B14	Connecting coupling motor side C71 B14	1	=CiCv	101
-GN1	044.4637	drive 131 200.6594.0033.0 Bucher	Giunto elas. lato pompa AP100 S309	Connecting coupling pump side	1	=CiCv	101
-IU1	044.5152	200.7404.1038.1 Bucher	Base UP100 K3P0-01	Housing UP100 K3P0-01	1	=CiCv	101
-M1	019.4006	019.4006	Motore da 0,5Hp C71 B14 V230-415-50Hz / V240-480-60Hz	Motor 0,5Hp C71 B14 V230-415-50Hz / V240-480-60Hz	1	=CiCv	101
-MF1	007.6612	007.6612	Distanziale idraulico diritto per housing BUCHER		1	=CiCv	101
-MF2	007.6692	007.6692	Manifold idraulico 1 posto CETOP 3 per housing BUCHER		1	=CiCv	101
-MF3	007.6691	007.6691	Manifold idraulico 1 posto terminale CETOP 3 per housing BUCHER		1	=CiCv	101
-MN1	043.0557	WIKA	Manometro ID. 0-60bar Ø40 con attacco radiale da 1/4"G	Hydraulic manometer Ø60 1/4"G	1	=CiCv	101
-P1	044.4505	AP100/1.7 S309 - 200.7482.2023.0 Bucher	Pompa 1.7 cc/giro per housings	Pump 1,7cc/rev fou housings	1	=CiCv	101
-RM1	043.0229	043.0229	Riduzione diritta M/F da 1/4"G		1	=CiCv	101
-RM2	043.0250		Raccordo gomito M/F da 1/4"G	Elbow coupling M/F 1/4"	1	=CiCv	101
-RM3	043.0553		Raccordo gomito M/F da 1/4"G per manometro	Elbow coupling M/F 1/4" for manometer	1	=CiCv	101
-RNY1	044.0503		Nipplo ID. MM-3/8"G - 1/4"G	Hydraulic nipple MM-3/8"G - 1/4"G	1	=CiCv	101
-RNY10	044.0506		Nipplo ID. a flusso ridotto MM-3/8"G a 1/4"G	Hydraulic nipple reduced flow MM-3/8"G - 1/4"G	1	=CiCv	101
-RNY11	044.0506		Nipplo ID. a flusso ridotto MM-3/8"G a 1/4"G	Hydraulic nipple reduced flow MM-3/8"G - 1/4"G	1	=CiCv	101
-RNY2	044.0503		Nipplo ID. MM-3/8"G - 1/4"G	Hydraulic nipple MM-3/8"G - 1/4"G	1	=CiCv	101
-RP1	044.1263		Valvola di massima idraulica a cartuccia per housing Buche	Max valve pressure reduction for housing	1	=CiCv	101
-RR1	044.5156		FILTRO ASPIRAZ.X MONOCENTRAL.SXI- EVO ?A?	Suction pipe M-M3/8"G lung. 200mm	1	=CiCv	101
-SB1	034.1387		Serbatoio centralina cap.3,5Lt per SXI con tappo e kit fissaggio	Hydraulic oil unit 3,5 lt for SXI with cap	1	=CiCv	101
-VB1	044.4554	RS3/817 - 200.7876.0141.0	Valvola di ritegno idraulica per housing BOUCHER	Check valve for housing BOUCHER	1	=CiCv	101

REV.	MODIFICA	DATA	FIRME

Impianto/Plant: *SHARK SXI*

File: SH_SXI\2.DWG

Data: 26-09-2016 CAD: SPAC

Dis. N.: SX_SXI/40050_CE/3916

Denom./Title: DISTINTA CENTRALINA

Oil unit material list

Ordine/Requisition:

Commessa/Order:

Esecutore/Executor: Bartoli

MEP

Foglio/Page: 102

Segue/Follow: 103

Ultimo/Last: 103

0	1	2	3	4	5	6	7	8	9

NOME/ITEM	TIPO/TYPE	CODICE INTERNO (DB)	DESCRIZIONE IT (DB)	DESCRIZIONE EN (DB)	Q.TA/Q.TY	QUADRO/BOARD	FG/SH
-VB10	044.1262	MVPP-D50	Valvola di ritegno idraulica modulare	Modular check valve	1	=CiCv	101
-YV1	043.1002	MD1L- S1/10 N-D24K1 DUPLOMATIC	Elettrovalvola idraulica 4/3 centri chiusi CETOP 3 24Vdc	Hydraulic electrovalve 4/3 close center CETOP3 24Vdc	1	=CiCv	101

REV.	MODIFICA	DATA	FIRME

Impianto/Plant: *SHARK SXI*

File: SH_SXI\2.DWG

Data: 26-09-2016 CAD SPAC

Dis. N.: SX_SXI/40050_CE/3916

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Oil unit material list

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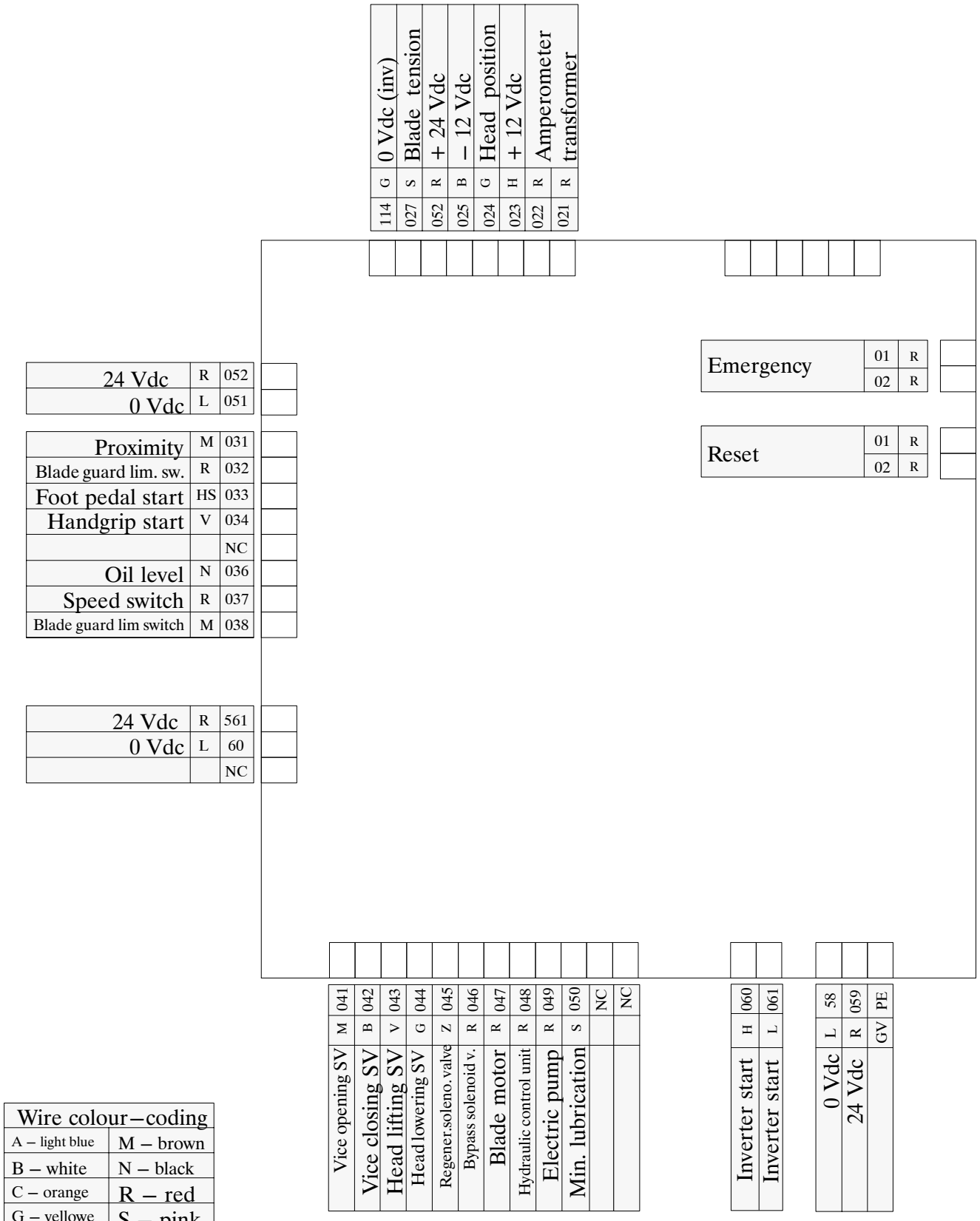
Esecutore/Executor: Bartoli

Foglio/Page: 103

Segue/Follow: //

Ultimo/Last: 103

IUD/IUV card

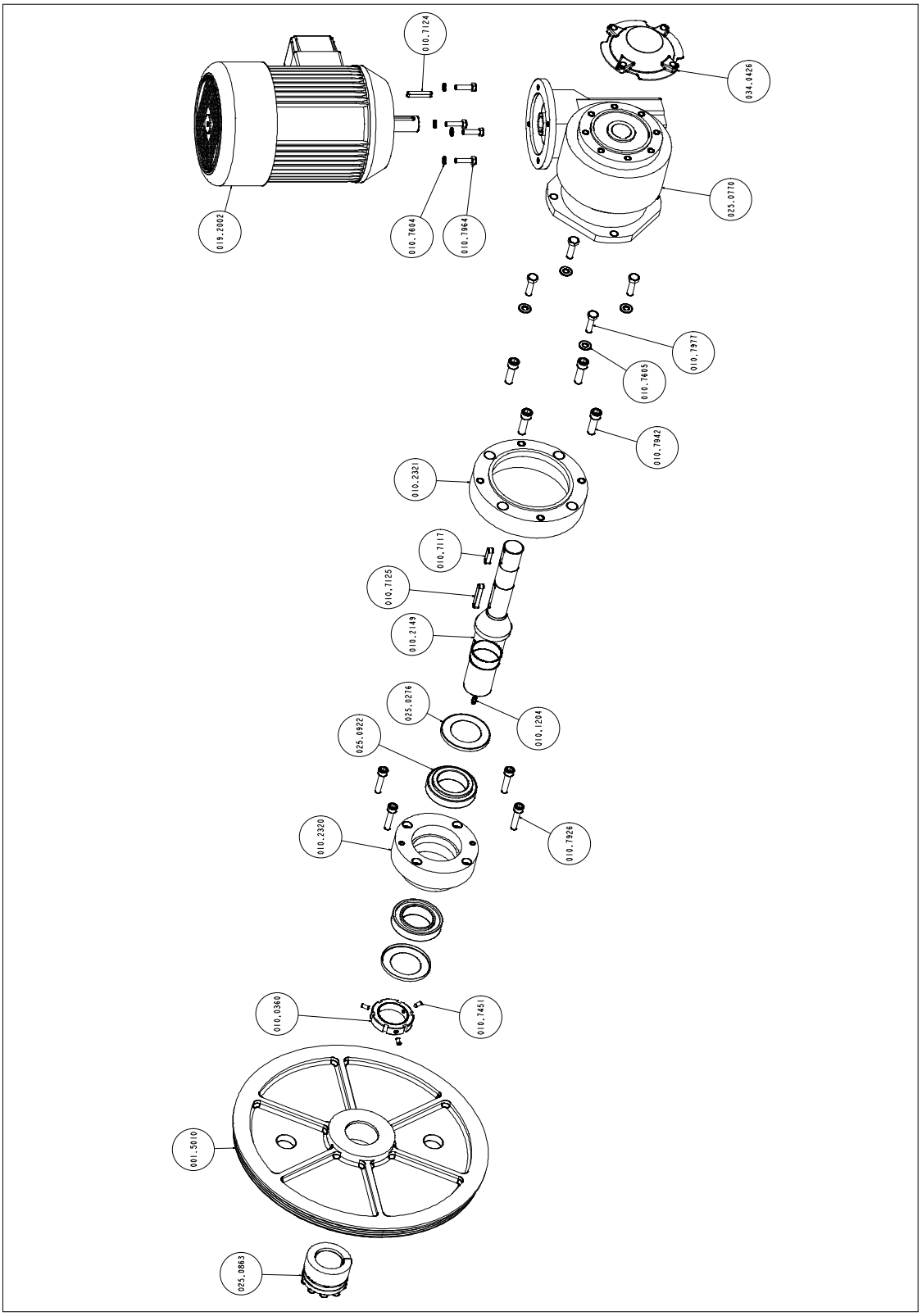


Wire colour–coding	
A – light blue	M – brown
B – white	N – black
C – orange	R – red
G – yellowe	S – pink
H – grey	V – green
L – blue	Z – purple

Exploded views

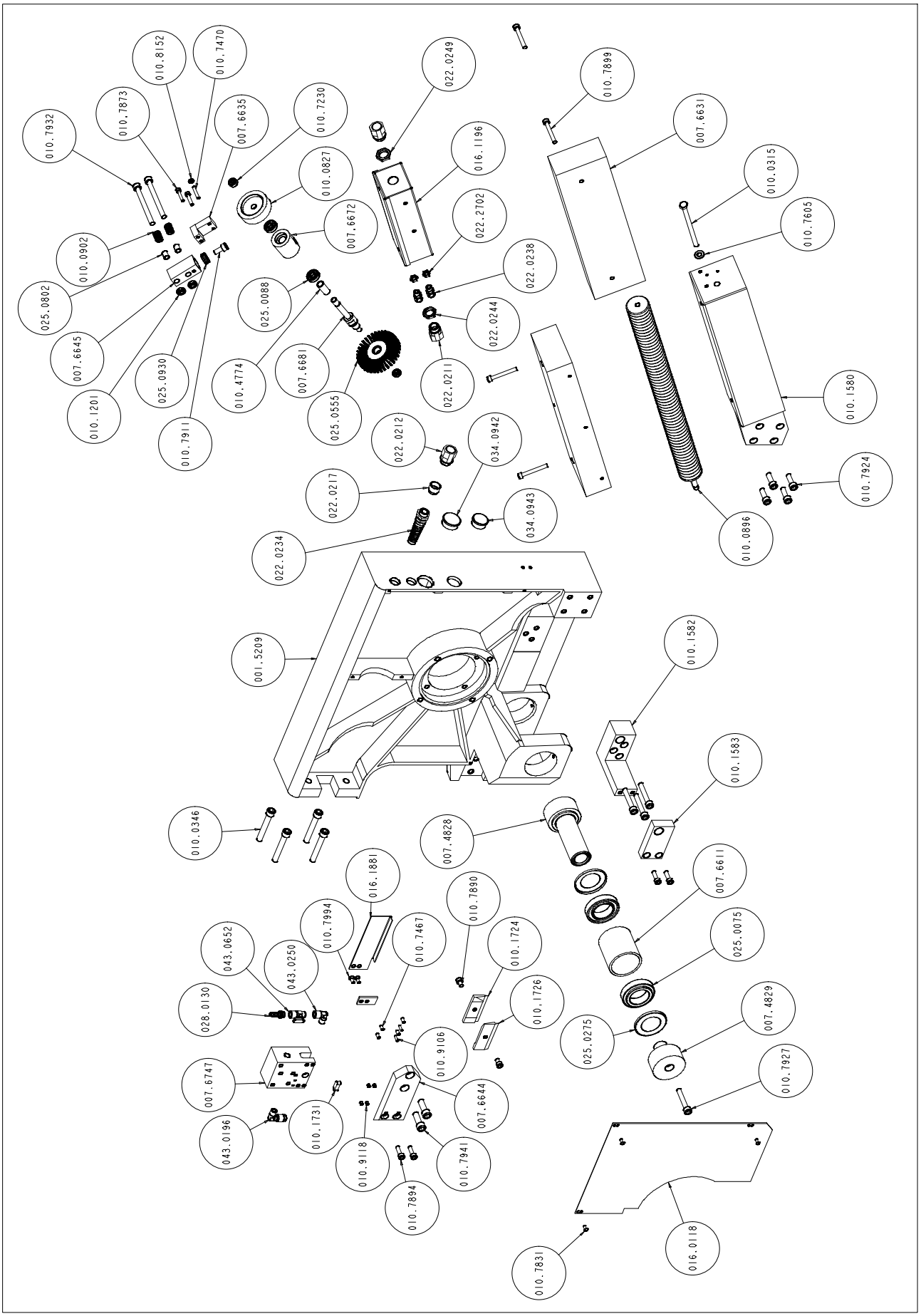
This part of the manual contains detailed exploded views of the machine which can help to gain a deeper knowledge of how it is made.

Motor unit



Code	Description	Description	Q.ty
025.0863	CALETTATORE TLK 130 50X80	LOCKING SET TLK 130 50X80	1.000
001.5010	PULEGGIA MOTRICE SHARK 452 M.1557	MOTOR WHEEL	1.000
010.7605	RONDELLA 0 10	0 10 WASHER	4.000
010.7604	RONDELLA 0 8	0 8 WASHER	4.000
010.0360	GHIERA BLOCC.ALBERO RIDUTTORE	DRIVE SHAFT LOCKNUT	1.000
010.7451	GRANO VCE PUNTA CONICA 6 X 12	6 X 12 CONICAL POINT VCE GRUB SCREW	1.000
010.2320	TAMPONE RIDUTTORE DM13/18 P	GEARBOX SLEEVE	1.000
010.7926	VITE TCEI 10 X 45	TCEI 10 X 45 SCREW	1.000
025.0922	CUSCINETTO 32011	BEARING 32011	1.000
010.2149	ALBERO RIDUTTORE SH 310 CNC–HS / H–14A	DRIVE SHAFT	1.000
010.7117	CHIAVETTA 10 X 8 X 35	10 X 8 X 35 KEY	1.000
010.1204	INGRASSATORE M 6	M 6 LUBRICATOR	1.000
025.0276	ANELLO DI PROTEZIONE NILOS 32011	NILOS GUARD RING 32011	1.000
010.2321	FLANGIA AGGANCIO RIDUTTORE DM13/18 P	GEARBOX HOLDING FLANGE	1.000
010.7942	VITE TCEI 12 X 40	TCEI 12 X 40 SCREW	1.000
019.2002	KW 4 4P.B.14 GR112 S6 60% V.230–400/240–415/265–460.50/277–480.60 TI 370 CNCLR	KW 4 4P.B.14 GR112 S6 60% V.230–400/240–	1.000
010.7964	VITE TE 8 X 30	TE 8 X 30 SCREW	1.000
010.7977	VITE TE 10 X 35	TE 10 X 35 SCREW	1.000
025.0770	RIDUTTORE FCPDKO 85 FC IEC 112B14SH 310 CNC–HS / H–14A	GEARBOX	1.000
010.7125	CHIAVETTA 10 X 8 X 56	10 X 8 X 56 KEY	1.000
034.0426	COPERCHIO RIDUTTORE SHARK 452–1	REDUCTOR COVER SH 452–1	1.000
010.7124	CHIAVETTA 8 X 7 X 45	8 X 7 X 45 KEY	1.000

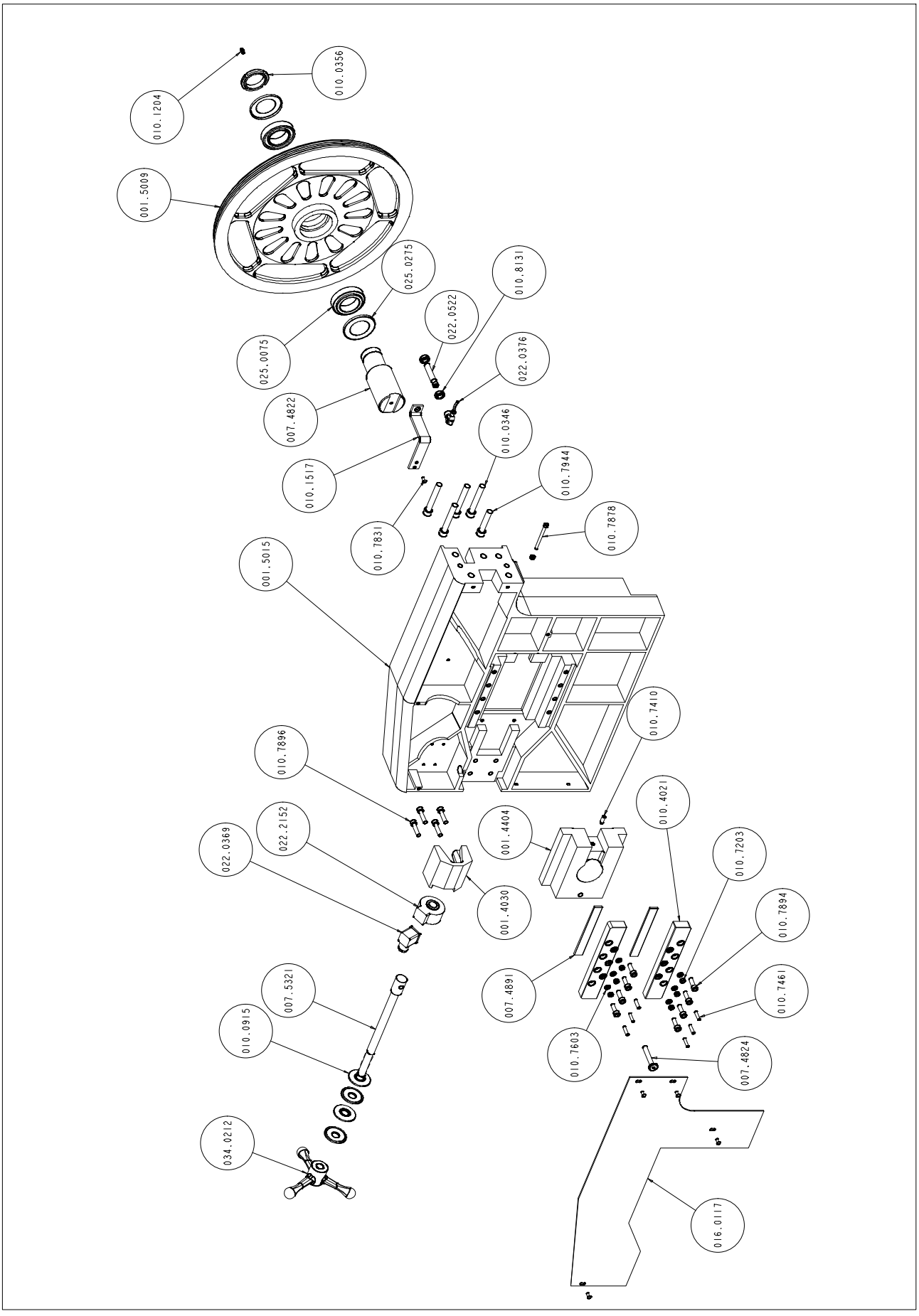
Driving pulley unit



Code	Description	Description	Q.ty
007.4828	PERNO SNODO ARCHETTO FEMMINA	BOW PIVOTING PIN FEMALE FITTING	1,000
007.4829	PERNO SNODO ARCHETTO MASCHIO	BOW PIVOTING PIN MALE FITTING	1,000
007.6611	DISTANZIALE CUSCINETTI SNODO TESTA	SWIVELING POINT SPACER	1,000
007.6631	PIASTRA BILANCIATRICE SH 452	COUNTERBALANCING PLATE SH 452	2,000
007.6635	PIASTRINO REGISTRAZIONE SPAZZOLAPULI-LAMA SHARK 452 / H–14A	BRUSH REGULATING PLATE	1,000
007.6644	STAFFA TESTINA GUIDALAMA POSTERIORE	FRONT BLADE HEAD GUIDE BRACKET	1,000
007.6645	STAFFA FISSAGGIO ALBERO PULILAMA	BRUSH SHAFT FIXING BRACKET	1,000
007.6672	SUPPORTO ALBERO SPAZZOLA PULILAMA	BRUSH SHAFT SUPPORT	1,000
007.6681	ALBERO SPAZZOLA PULILAMA	BRUSH SHAFT	1,000
010.0315	VITE 8.8 TESTA ESAGONALE 10X140 TUTTO-FILETTO ZINCATA 282–292–320–332	SCREW 8.8 10X140 SH 320	1,000
010.0827	RUOTA IN GOMMA X SPAZZOLA PULILAMA	RUBBER WHEEL F. CHIP BRUSH	1,000
010.0896	MOLLA RICHIAMO TESTA SH 452–400 ESTER-NO52 A 55	HEAD RETURN SPRING SH 400	1,000
010.0902	MOLLA PUNTO FISSO TESTA MOD. 95	HEAD FIXED POINT SPRING	4,000
010.1201	VITERIA E BULLONERIA	SCREWS AND BOLTS	3,000
010.1580	STAFFA AGGANCIO MOLLA ARCHETTO 452	HEAD RETURN SPRING COVER SH 452	1,000
010.1582	STAFFA AGGANCIO CILINDRO ARCHETTO	HEAD CYLINDER BRACKET	1,000
010.1583	STAFFA ESTERNA CILINDRO SH 452	EXTERNAL BRACKET CYLINDER SH 452	1,000
010.7230	DADO AUTOBLOCCANTE M10	M10 SELF–LOCKING SCREW NUT	1,000
010.7470	GRANO VCE PUNTA PIANA 6 X 35	6X35 FLAT POINT VCE GRUB SCREW	1,000
010.7831	VITE BUTON 5 X 12	5 X 12 BUTON SCREW	5,000
010.7859	VITE TCEI 5 X 12	TCEI 5 X 12 SCREW	3,000
010.7873	VITE TCEI 6 X 30	TCEI 6 X 30 SCREW	2,000
010.7890	VITE TCEI 8 X 12	TCEI 8 X 12 SCREW	2,000
010.7893	VITE TCEI 8 X 20	TCEI 8 X 20 SCREW	4,000
010.7899	VITE TCEI 8 X 60	TCEI 8 X 60 SCREW	4,000
010.7911	VITE TCEI 10 X 20	TCEI 10 X 20 SCREW	1,000
010.7927	VITE TCEI 10 X 60	TCEI 10 X 60 SCREW	1,000
010.7932	VITE TCEI 10 X 110	TCEI 10 X 110 SCREW	2,000
010.8152	DADO M6 BASSO	M16 NUT	1,000
016.0118	CARTER ARCHETTO POSTERIORE SH 452NT	REAR BOW HEAD COVER SH 452	1,000
016.1196	SCATOLA DI DERIVAZIONE SH SXI EVO	PNEUMATIC EQUIPMENT CABLING PANEL	1,000
022.0211	RACCORDO RAPIDO SEM PG 13,5	RAPID JOINT SEM PG 13,5	1,000
022.0212	RACCORDO RAPIDO SEM PG 16	RAPID JOINT SEM PG 16	2,000
022.0234	PRESSACORDONE 3246 NERO PG 13,5	CORD PRESSER	1,000
022.0238	PRESSACAVO PG 7 BS01	CABLE PRESSER PG 7 BS01	2,000
022.0244	CONTRODADO 3217B GRIGIO PG 13,5	LOCK NUT 3217B GREY PG 13,5	1,000
022.0249	DADO POLIAMIDE HUMMEL DIAM. 16	POLYAMIDE HUMMEL NUT 0 16	1,000
022.2702	DADO PG 7 BL01	NUT PG 7 BL01	2,000
025.0075	CUSCINETTO 32009X	BEARING 32009X	2,000
025.0088	CUSCINETTO 6001 2Z PH 100	BEARING 6001 2Z PH 100	2,000
025.0275	ANELLO DI PROTEZIONE NILOS 32009X	NILOS GUARD RING 32009X	2,000
025.0555	SPAZZOLA PULILAMA	BAND BRUSH	1,000
025.0802	BOCCOLA GRAFITATA L. 15 DIAM. 10	GRAPHITIZED BUSHING L. 15 DIA M. 10	1,000
025.0930	CUSCINETTO 51100	BEARING 51100	1,000
028.0130	RACCORDO 1/4–9 CL 2601	JOINT 1/4–9 CL 2601	1,000
043.0652	RUBINETTO 1/4 F.M.	1/4 F. M. TAP	1,000
010.4774	DISTANZIALE CUSCINETTO PULILAMA	BEARING PUSH BAND LOWER SPACER	1,000
007.6747	TESTINA GUIDALAMA POSTERIORE DM13/18 P	REAR BLADE GUIDE HEAD	1,000
043.0196	RACCORDO A GOMITO MF 8X1/4 CL 1020	MF 8X1/4 CL 1020 ELBOW JOINT	1,000
010.1731	CHIAVETTA PREMILAMA TESTINA	CARBIDE PAD KEY	1,000
010.9118	GRANO VCE PUNTA PIANA 6 X 6	6X6 FLAT POINT GRUB SCREW	1,000
010.7894	VITE TCEI 8 X 25	TCEI 8 X 25 SCREW	1,000
010.7941	VITE TCEI 12 X 35	TCEI 12 X 35 SCREW	1,000
010.9106	GRANO VCE PUNTA PIANA 4 X 16	4X 16 FLAT POINT GRUB SCREW	1,000
010.1726	GUIDALAMA DUE INSERTI ANTERIORE FIS-SACON SMUSSO	2 INSERTS FIXING FRONT BAND GUIDE	1,000
010.1724	PLACCHETTA GUIDALAMA ANTERIORE MOBI-LECON SMUSSO SH400/420/422 DM13/18P	MOVING FRONT BAND GUIDE	1,000

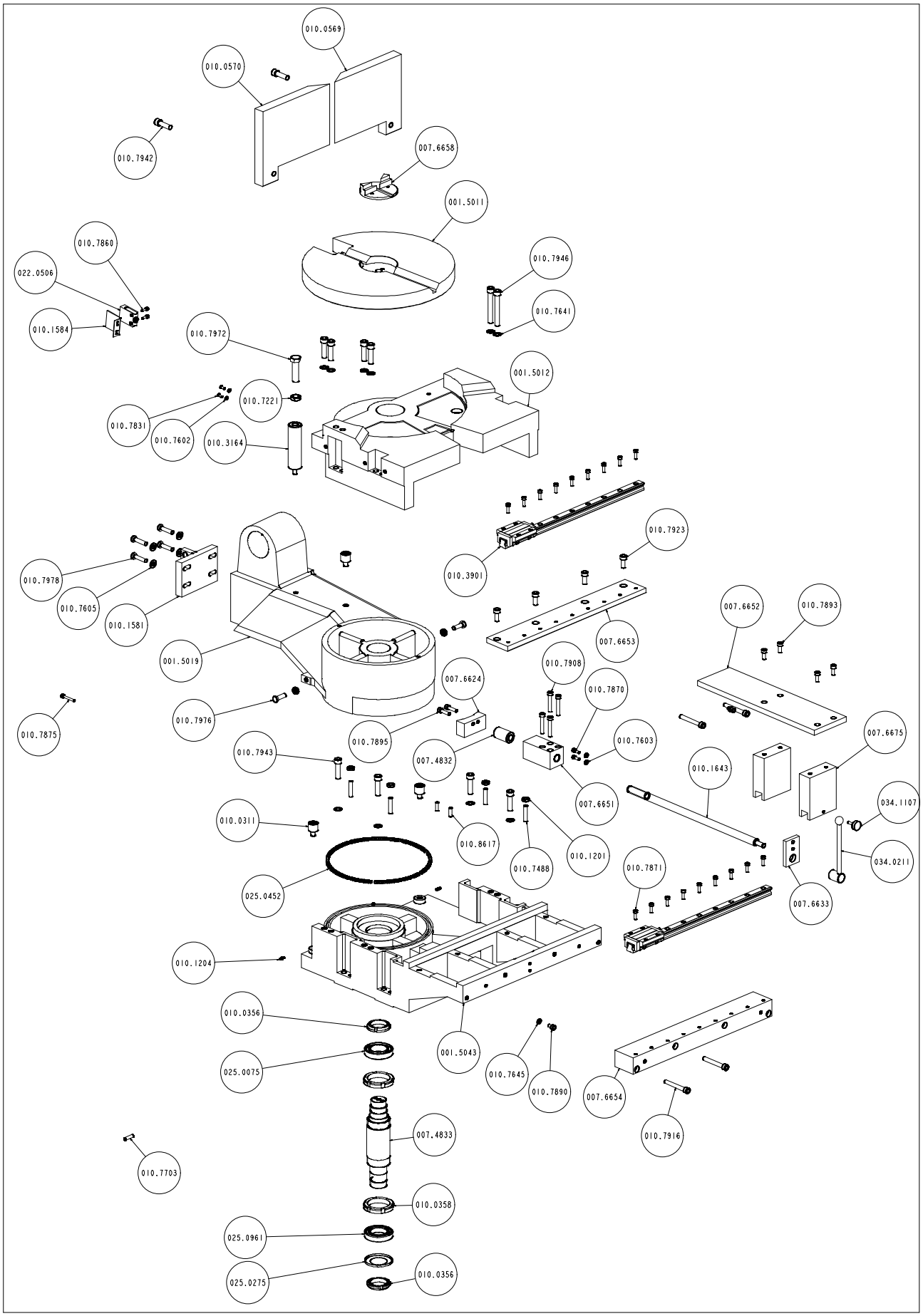
Code	Description	Description	Q.ty
010.7467	GRANO VCE PUNTA PIANA 6 X 12	6 X 12 FLAT POINT VCE GRUB SCREW	1,000
016.1881	PROTEZIONE LAMA POSTERIORE TESTINA FISSADM13/18P	REAR FIXED HEAD BLADE SHIELD	1,000
010.7994	VITE TSPEI 6 X 12	TSPEI 6 X 12 SCREW	1,000
043.0250	GOMITO M.F. 1/4 CL 2020	M.F. ELBOW 1/4 CL 2020	1,000
010.0346	VITE TCEI 12 X 80 12K X SHARK 452	SCREW 12X80 12K	1,000
001.5209	ARCHETTO SPM DM13/18 P MOD.1611	DRIVE BOW SECTION	1,000
022.0217	RIDUZIONE PG 16–M PG 13,5–F	REDUCTION	1,000
034.0942	TAPPO IN PLASTICA STT40	PLASTIC LID STT40	1,000
034.0943	TAPPO IN PLASTICA STT35	PLASTIC LID STT35	1,000
010.7924	VITE TCEI 10 X 30	TCEI 10 X 30 SCREW	1,000
010.7605	RONDELLA 0 10	0 10 WASHER	1,000

Front flywheel assembly



Code	Description	Description	Q.ty
001.4030	SUPPORTO TENSIONAMENTO LAMA ELETT. MOD.1403	SUPPORT SH 330 CNC FE MOD.1403	1,000
001.4404	SLITTA TENDILAMA SH 452	BAND TENSION SLIDE SH 452	1,000
001.5015	ARCHETTO SEZIONE PULEGGIA FOLLE MOD.1610	IDLER WHEEL BOW HEAD	1,000
007.4822	PERNO PULEGGIA FOLLE	IDLER WHEEL PIN	1,000
007.4824	PERNO BLOCC.SLITTA TENDILAMA	LOCKING PIN	1,000
007.4891	LARDONE SLITTA TENDILAMA E SUPPORTO TESTINA ANTERIORE	SLIDE GIB SH 400 / H–14A	2,000
007.5321	PERNO X TENSIONAMENTO LAMA	BAND TENSION PIN	1,000
010.0356	GHIERA AUTOBLOCCANTE 45X1,5	SELF–LOCKING RING NUT 45X1,5	1,000
010.0915	MOLLA A TAZZA 50X18,4X3	BELLEVILLE SPRING WASHERS 50X18,4X3	2,000
010.1517	STAFFA FISSAGGIO PROSSIMITI SH 400	PROXIMITY FIXING BRACKET SH 400	1,000
010.4021	PIASTRA REGOLAZIONE SLITTA LARDONE	GIB SLIDE ADJUSTMENT PLATE	2,000
010.7203	DADO M6	M6 SCREW NUT	7,000
010.7461	GRANO VCE PUNTA PIANA 6 X 25	6 X 25 FLAT POINT VCE GRUB SCREW	6,000
010.7831	VITE BUTON 5 X 12	5 X 12 BUTON SCREW	4,000
010.7878	VITE TCEI 6 X 70	TCEI 6 X 70 SCREW	1,000
010.7894	VITE TCEI 8 X 25	TCEI 8 X 25 SCREW	8,000
016.0117	CARTER ARCHETTO ANTERIORE	FRONT BOW HEAD COVER	1,000
022.0369	CONNETTORE PER BOBINA U2 E TENSIONA-TORETRSA/3T.00 SH 420–282–292–332	CONNECTOR F.U2 COIL AND TENSIONER	1,000
022.0376	CONNETTORE 90 M12 CON 5 MT. CAVO 4X0,5PER PROSSIMITY	CONNECTOR FOR PROXIMITY	1,000
022.0522	SENSORE PROSSIMITA' PNP X AX–NCEVO	PROXIMITY PNP AX	1,000
022.2152	TENSIONATORE ELETTRONICO TRSA/3T.00	ELECTRONIC TENSIONER TRSA/3T.00	1,000
025.0075	CUSCINETTO 32009X	BEARING 32009X	2,000
025.0275	ANELLO DI PROTEZIONE NILOS 32009X	NILOS GUARD RING 32009X	2,000
034.0212	VOLANTINO TENSIONAMENTO LAMA S 20 3 BRACCI D.220 CON INSERTO M18X1,5	BLADE TENSIONING HANDWHEEL	1,000
010.7603	RONDELLA 0 6	0 6 WASHER	1,000
010.7410	GRANO VCE PUNTA CILINDRICA 8X16(010.7410	8 X 16 CYLIND.POINT VCE GRUB SCREW	1,000
010.7896	VITE TCEI 8 X 35	TCEI 8 X 35 SCREW	1,000
010.7944	VITE TCEI 12 X 60	TCEI 12 X 60 SCREW	1,000
010.0346	VITE TCEI 12 X 80 12K X SHARK 452	SCREW 12X80 12K	1,000
010.8131	DADO M12 BASSO	M12 LOW NUT	1,000
001.5009	PULEGGIA FOLLE SHARK 452 MOD.1556	IDLER WHEEL	1,000
010.1204	INGRASSATORE M 6	M 6 LUBRICATOR	1,000

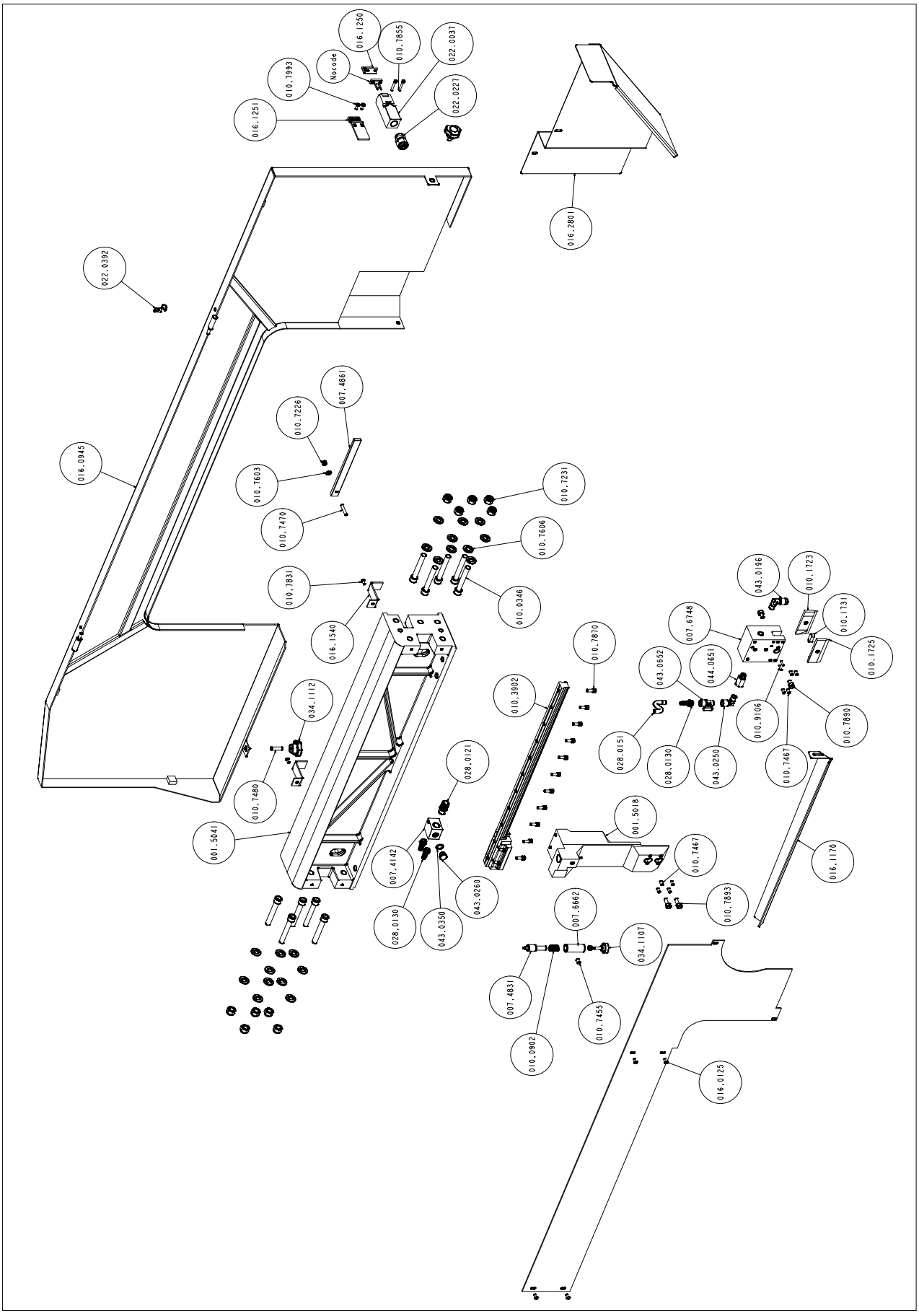
Fixed worktable



Code	Description	Description	Q.ty
001.5011	PIANO DI TAGLIO ROTANTE MOD. 1609	ROTATING CUTTING TABLE	1,000
001.5012	PIATTAFORMA FISSA SUPERIORE N.T. MOD. 1606	N.S. UPPER FIXED PLATFORM	1,000
007.4832	PERNO GANASCIA BLOCC. PIATAFORMA GIREVOLE	JAW LOCKING PIN FOR ROTATING TABLE	1,000
007.4833	PERNO DI CENTRO N.T. SH 452	CENTRE SHAFT	1,000
007.6624	GANASCIA BLOCCAGGIO PIATTAFORMA ROTANTE	CLAMPING JAW FOR ROTATING TABLE	1,000
007.6633	PIASTRA FISSAGGIO VITE BLOCCAGGIOPIATTAFORMA ROTANTE	FIXING PLATE F.ROTATING TOWER SCREW	1,000
007.6651	CHIOCCIOLA BLOCCAGGIO PIATTAFORMAROTANTE	CLAMPING NUT FOR ROTATING TABLE	1,000
007.6658	BUSSOLA GANASCE SQUADRI MORSA	UPPER VICE JAWS BUSHING	1,000
007.6675	SUPPORTO APPOGGIA BARRA SUPPLEMENTARESH 452–420 SXI	LEAN BAR SUPPORT	2,000
010.0311	VITE TESTA CILINDRICA ESAGONO INCASSATOM12X16BATTUTA PIANO GIREVOLE	SCREW M12X16 ROTATING TABLE STOP	3,000
010.0356	GHIERA AUTOBLOCCANTE 45X1,5 SH	SELF–LOCKING RING NUT 45X1,5 SH	2,000
010.0358	GHIERA 60X2 SHARK 452	60X2 LOCKNUT F. SHARK 452	2,000
010.0569	GANASCIA FISSA DESTRA SH 452 N.T.	N.S. RIGHT FIXED JAW SH 452	1,000
010.0570	GANASCIA FISSA SINISTRA SH 452 N.T.	RIGHT FIXED IAW SHARK 452	1,000
010.1201	VITERIA E BULLONERIA	SCREWS AND BOLTS	6,000
010.1204	INGRASSATORE M 6	M 6 LUBRICATOR	2,000
010.1581	STAFFA AGGANCIO MOLLA PIANO ROTANTE SHARK 452	FIX BRACKET FOR SPRING ROTATING TOWER	1,000
010.3164	BATTUTA FINECORSA TESTA SH 400	HEAD HEAD STROKE STOP	1,000
010.7221	DADO M16 BASSO	M16 LOW SCREW NUT	1,000
010.7488	GRANO VCE PUNTA PIANA 10 X 45	10 X 45 FLAT POINT VCE GRUB SCREW	4,000
010.7603	RONDELLA 0 6	0 6 WASHER	2,000
010.7605	RONDELLA 0 10	0 10 WASHER	4,000
010.7641	RONDELLA GROOVER M12	GROOVER WASHER M12	10,000
010.7645	RONDELLA GROOVER M8	M8 SPRING WASHER	2,000
010.7703	SPINA CILINDRICA DIAM. 8 X 30	CYLINDRICAL PIN DIAM. 8 X 30	1,000
010.7870	VITE TCEI 6 X 16	TCEI 6 X 16 SCREW	20,000
010.7875	VITE TCEI 6 X 40	TCEI 6 X 40 SCREW	1,000
010.7890	VITE TCEI 8 X 12	TCEI 8 X 12 SCREW	2,000
010.7893	VITE TCEI 8 X 20	TCEI 8 X 20 SCREW	3,000
010.7895	VITE TCEI 8 X 30	TCEI 8 X 30 SCREW	2,000
010.7908	VITE TCEI 8 X 50	TCEI 8 X 50 SCREW	4,000
010.7942	VITE TCEI 12 X 40	TCEI 12 X 40 SCREW	2,000
010.7943	VITE TCEI 12 X 45	TCEI 12 X 45 SCREW	10,000
010.7972	VITE TE 16X60	TE 16 X 60 SCREW	1,000
010.7976	VITE TE 10 X 30	TE 10 X 30 SCREW	2,000
010.7978	VITE TE 10 X 40	TE 10 X 40 SCREW	4,000
010.8617	SPINA CILINDRICA DIAM. 8 X 25	PARALLEL PIN DIAM.8 X 25	2,000
025.0075	CUSCINETTO 32009X	BEARING 32009X	1,000
025.0275	ANELLO DI PROTEZIONE NILOS 32009X	NILOS GUARD RING 32009X	1,000
025.0961	CUSCINETTO 6009 2RS	6009 2RS BEARING	1,000
034.0211	VOLANTINO BLOCCAGGIO PIANO GIREVOLE GN 125–45–M12–D GN 18361 SH 452	LOCKING LEVER FOR ROTATING TABLE	1,000
001.5016	ARCHETTO SEZIONE PULEGGIA MOTRICE N.T. MOD.1611	MOTOR WHEEK BOW HEAD	1,000
001.5043	PIATTAFORMA FISSA INFERIORE MOD.1604	FIXED PLATFORM	1,000
007.6654	SUPPORTO GUIDA MORSA DI TAGLIO ESTERNA	EXTERNAL GUIDE SUPPORT FOR CUTTING VICE	1,000
007.6652	PIASTRA APPOGGIA BARRA SUPPLEMENTARE	LEAN PLATE BAR	1,000
007.6653	SUPPORTO GUIDA MORSA DI TAGLIO INTERNASH 512	INTERNAL GUIDE SUPPORT FOR CUTTING VICE	1,000
010.7923	VITE TCEI 10 X 25	TCEI 10 X 25 SCREW	1,000
010.3901	GUIDA +1 PATTINO HSR25LA1SSC1S+520L–E20(GK)–MT15	SL.GUIDE HSR25LA1SSC1S+520L–E20(GK)–MT15	2,000

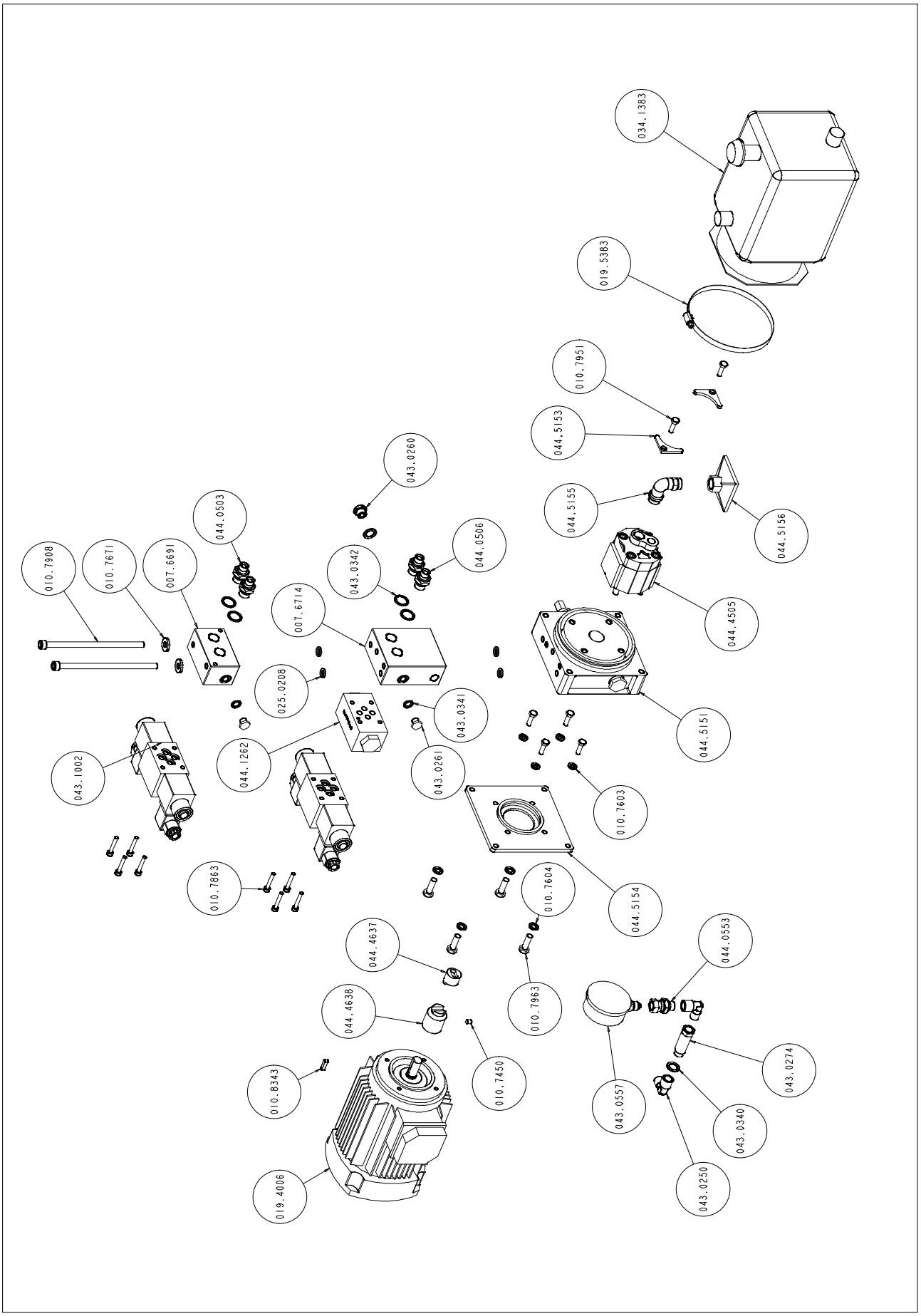
Code	Description	Description	Q.ty
034.1107	VOLANTINO O 30 M6 X 20	O 30 M6 X 20 HANDWHEEL	1,000
010.1643	VITE BLOCCAGGIO PIANO GIREVOLE X LEVA ASCATTO SH 512	ROTATING TABLE LOCKING SCREW SH 512	1,000
010.7871	VITE TCEI 6 X 20	TCEI 6 X 20 SCREW	1,000
025.0452	RULLI 6X6 AISI 420	ROLLERS 6X6 AISI 420	1,000
010.7916	VITE TCEI 10 X 75	TCEI 10 X 75 SCREW	1,000
010.7946	VITE TCEI 12 X 90	TCEI 12 X 90 SCREW	1,000
010.7860	VITE TCEI 5 X 15	TCEI 5 X 15 SCREW	2,000
022.0506	FINECORSA D4C-1201 2M ALIMEN.AX-AXI	LIMIT SWITCH F.FEEDER AX-AXI	1,000
010.1584	STAFFA FISSAGGIO FINECORSA SH 452	FIXING BRACKET FOR LIMIT SWITCH	1,000
010.7831	VITE BUTON 5 X 12	5 X 12 BUTON SCREW	2,000
010.7602	RONDELLA 0 5	0 5 WASHER	2,000
010.7645	RONDELLA GROOVER M8	M8 SPRING WASHER	1,000
010.7890	VITE TCEI 8 X 12	TCEI 8 X 12 SCREW	1,000

Cutting head cover



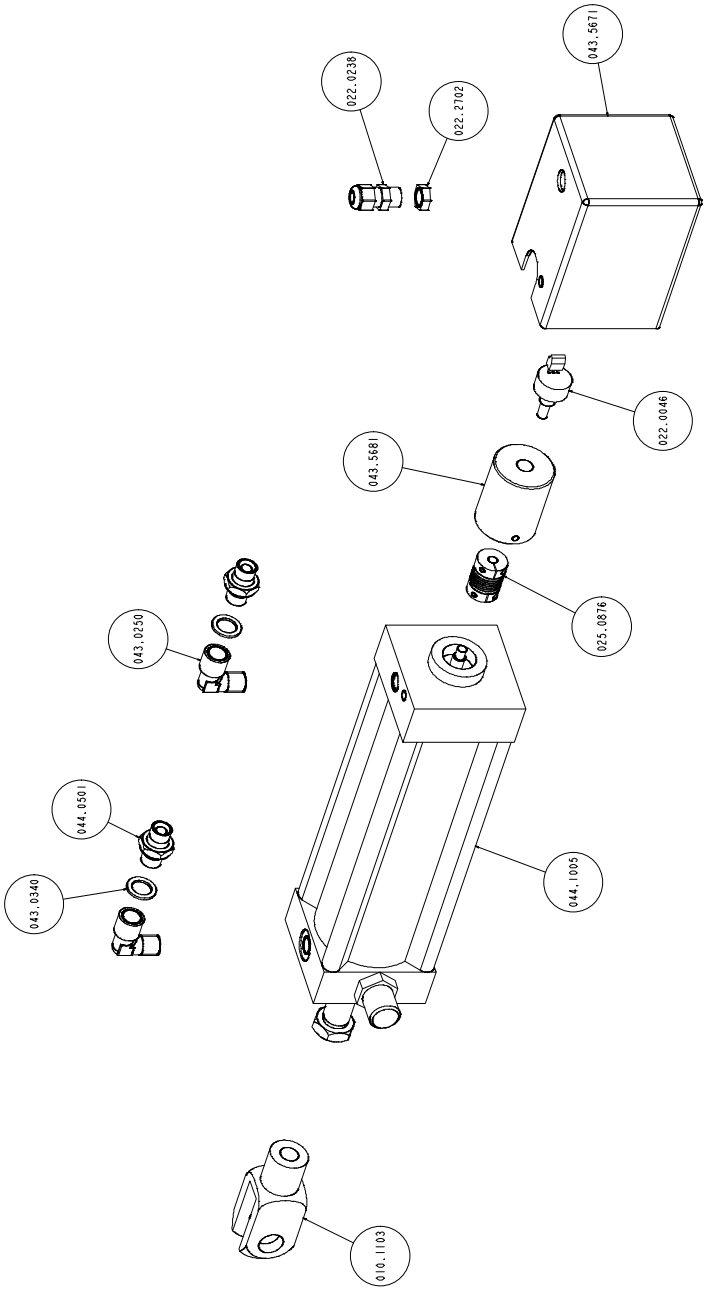
Code	Description	Description	Q.ty
001.5018	STAFFA GUIDALAMA ANTERIORE SH 452 MOD.1613	FRONT BAND GUIDE BRAKET SH 452	1,000
007.4142	SQUADRETTO PER LIQUIDO	PLATE	1,000
007.4831	PERNO BLOCCAGGIO TESTINA ANTERIORE	LOCKING PIN FRONT HEADGUIDE	1,000
007.4861	SOSTEGNO COPERCHIO ARCHETTO	BOW COVER SUPPORT	1,000
007.6662	BOCCOLA PUNTO FISSO	FIXING BUSHING	1,000
010.0346	VITE TCEI 12 X 80 12K X SHARK 452	SCREW 12X80 12K	10,000
010.0902	MOLLA PUNTO FISSO TESTA MOD. 95	HEAD FIXED POINT SPRING	1,000
010.7226	DADO AUTOBLOCCANTE M6	M6 SELF–LOCKING SCREW NUT	2,000
010.7231	DADO AUTOBLOCCANTE M12	M12 SELF–LOCKING SCREW NUT	10,000
010.7455	GRANO VCE PUNTA CONICA 8 X 10	8 X 10 CONICAL POINT VCE GRUB SCREW	1,000
010.7467	GRANO VCE PUNTA PIANA 6 X 12	6 X 12 FLAT POINT VCE GRUB SCREW	5,000
010.7470	GRANO VCE PUNTA PIANA 6 X 35	6X35 FLAT POINT VCE GRUB SCREW	1,000
010.7480	GRANO VCE PUNTA PIANA 8 X 30	8 X 30 FLAT POINT VCE GRUB SCREW	2,000
010.7603	RONDELLA 0 6	0 6 WASHER	1,000
010.7606	RONDELLA 0 12	0 12 WASHER	10,000
010.7831	VITE BUTON 5 X 12	5 X 12 BUTON SCREW	8,000
010.7870	VITE TCEI 6 X 16	TCEI 6 X 16 SCREW	10,000
010.7890	VITE TCEI 8 X 12	TCEI 8 X 12 SCREW	2,000
010.7893	VITE TCEI 8 X 20	TCEI 8 X 20 SCREW	2,000
022.0037	INTERRUTTORE DI SICUREZZA FR 690 SH	FR 690 SH SAFETY SWITCH	1,000
028.0121	RACCORDO 3/8–17 CL 2601	JOINT 3/8–17 CL 2601	1,000
028.0130	RACCORDO 1/4–9 CL 2601	JOINT 1/4–9 CL 2601	3,000
034.1107	VOLANTINO O 30 M6 X 20	O 30 M6 X 20 HANDWHEEL	1,000
034.1112	VOLANTINO O 40M8 X PIEDISTALLO	O 40 M8 HANDWHEEL X STEEL BASE	2,000
043.0652	RUBINETTO 1/4 F.M.	1/4 F. M. TAP	1,000
001.5041	TRAVE DELL'ARCHETTO SH 512 MOD.1616	BOW HEAD BEAM SH 512	1,000
043.0350	GUARNIZIONE GFV 1/4	GFV 1/4 GASKET	1,000
043.0260	TAPPO TTE4 1/4 – CL 2611	1/4 TAP TTE4	1,000
016.0125	CARTER ARCHETTO TRAVE SH 512	BOW BEAM COVER	1,000
010.3902	GUIDA + 1 PATTINO HSR25LA1SSC1S+640L–E20(GK)–MT15	SLIDE GUIDE HSR25LA1SSC1S+640L–E20(GK)	1,000
028.0151	TUBO PLASTIFICATO 07–11	PLASTIC HOSE 07–11	1,000
044.0651	PROLUNGA 1/4' M.F. ESAGONALE 25MM.	"1/4"" M.F. EXTENSION 20 MM"	1,000
007.6748	TESTINA GUIDALAMA ANTERIORE	FRONT BLADE GUIDE HEAD	1,000
043.0250	GOMITO M.F. 1/4 CL 2020	M.F. ELBOW 1/4 CL 2020	1,000
010.9106	GRANO VCE PUNTA PIANA 4 X 16	4X 16 FLAT POINT GRUB SCREW	1,000
016.1170	PROTEZIONE LAMA ANTERIORE SH 512	FRONT BAND GUIDE GUARD SH 512	1,000
010.1725	GUIDALAMA DUE INSERTI POSTERIORE FISSACON SMUSSO	2 INSERTS FIXING RAER BAND GUIDE	1,000
010.1731	CHIAVETTA PREMILAMA TESTINA	CARBIDE PAD KEY	1,000
010.1723	PLACCHETTA GUIDALAMA POSTERIORE MOBILECON SMUSSO	MOVING REAR BAND GUIDE	1,000
043.0196	RACCORDO A GOMITO MF 8X1/4 CL 1020	MF 8X1/4 CL 1020 ELBOW JOINT	1,000
016.1540	STAFFA DI FERMO LAMA	STOP BRACKET	1,000
016.0945	COPERCHIO ARCHETTO SH 512	BOW COVER	1,000
022.0392	GRAFFETTE IN ACCIAIO DM 10–11	STEEL WALL FASTENER DM 10–11	1,000
016.1251	PIASTRA ATTACCO F.C. CHIUSURA COPERCHIOARCHETTO SH N.T.	PLATE FIXING SAFETY SWITCH	1,000
016.1250	PIASTRINO FIX INTERRUTTORE COPERCHIOARCHETTO SH N.T.	PLATE FIXING BOW COVER SAFETY SWITCH	1,000
010.7993	VITE TSPEI 5 X 12	TSPEI 5 X 12 SCREW	1,000
010.7855	VITE TCEI 4 X 30	TCEI 4 X 30 SCREW	1,000
022.0227	PRESSACAVO PLASTICA TEC–SM 2006.3.9 M20	PLASTIC CABLE PRESSER TEC–SM2006.3.9 M20	1,000
016.2801	RACCOGLITORE ACQUA ARCHETTO SH 512/452–1	COOLANT TRAY BOW SH 512/452–1	1,000
010.7467	GRANO VCE PUNTA PIANA 6 X 12 (	6 X 12 FLAT POINT VCE GRUB SCREW	1,000

Hydraulic control unit



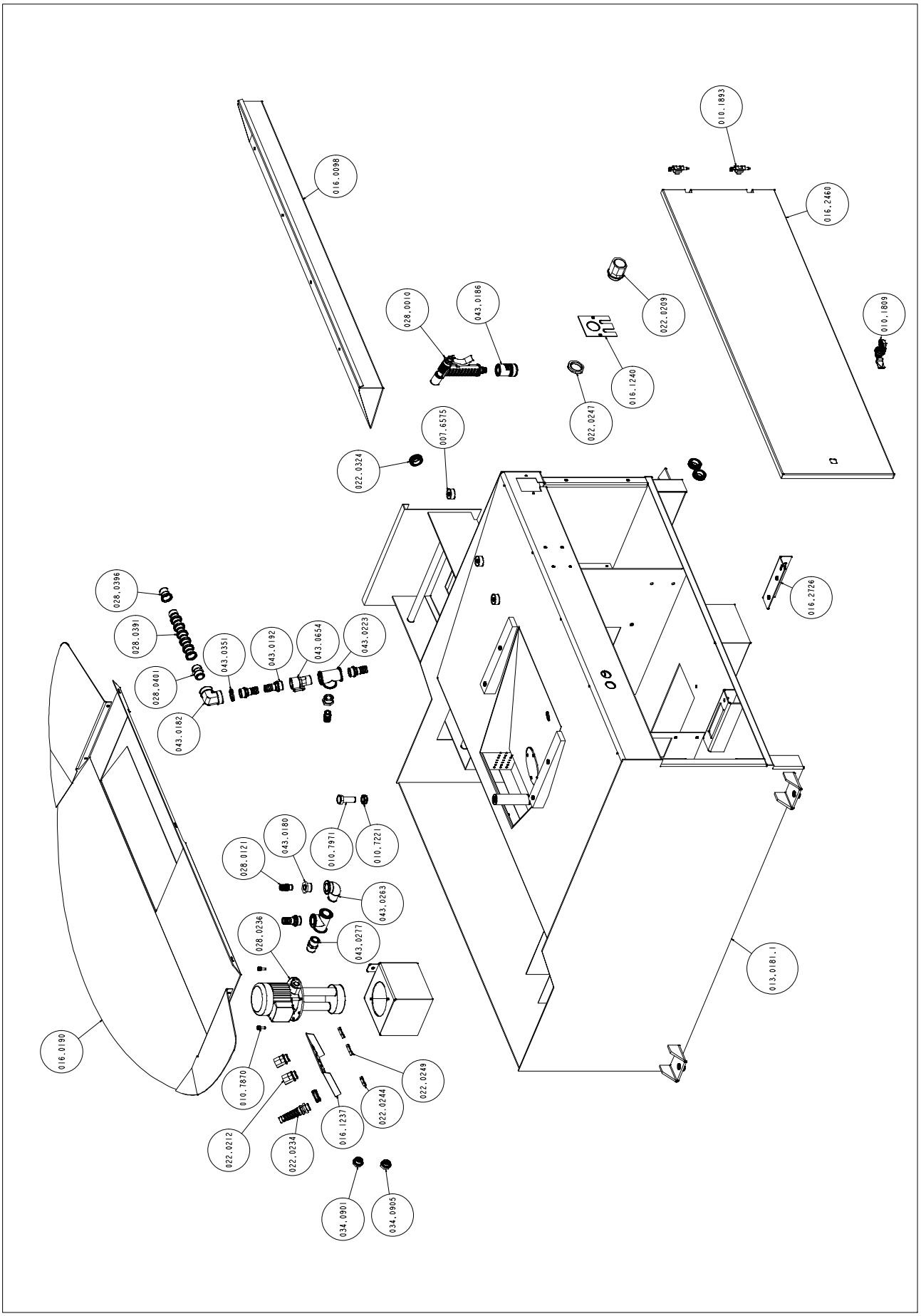
Code	Description	Description	Q.ty
044.0037	MINICENTRALINA SENZA MOTORE X SXI EVO0/1	MINI'HYDR.UNIT WITHOUT MOTOR FOR SXIE	1,000
044.0012	MONOCENTRALINA IDRAULICA X SXI EVO ––A––	HYDRAULIC UNIT X SXI EVO ––A––	1,000
007.6612	DISTANZIALE BLOCCHETTO IDRAULICOCEN-TRALINA X SXI EVO–HYDRA	IDRAULIC DISTANTIALING	1,000
007.6691	BLOCCHETTO IDRAULICO TERMINALECEN-TRALINA X SXI EVO–HYDRA	TERMINAL HYDRAULIC UNIT BLOCK SXI	1,000
007.6692	BLOCCHETTO IDRAULICO CENTRALECEN-TRALINA X SXI EVO–HYDRA	CENTRAL HYDRAULIC UNIT BLOCK SXI	1,000
010.7604	RONDELLA 0 8	0 8 WASHER (010.7604)	6,000
010.7908	VITE TCEI 8 X 50	TCEI 8 X 50 SCREW	2,000
019.4006	MOTORE CENTRAL.HP 0,5 4P C71 B14 V.230400–415.50/240–480.60	MOTOR HYDR.HP 0,5 4P C71 B14 V.230–400	1,000
043.0250	GOMITO M.F. 1/4 CL 2020	M.F. ELBOW 1/4 CL 2020	1,000
043.0340	RONDELLA RAME 13X19X1,5–1/4	COPPER WASHER 13X19X1,5–1/4	7,000
043.0557	MANOMETRO 0–60 WIKA P.1275 PERCEN-TRALINA IDRAULICA	WIKA 0 60 MANOMETER SH 310 SXI	1,000
043.1002	ELETTROVALVOLA DL3–S1/10N–D24K1 CON-BOBINA X CENTRALINA SXI–EVO–NC EVO	ELECTROVALVE FOR HYDRAULIC UNIT SXI EVO	1,000
044.0503	NIPPLO IDRAULICO M 3/8–M 1/4	HYDRAULIC FITTING M 3/8 M 1/4	2,000
044.0506	NIPPLO 3/8 1/4 FORO 1MM E.22X32,5 ZINC.G	NIPPLE 3/8 1/4 E.22X32,5 ZINC.G.	2,000
044.0553	RACCORDO IDRAULICO MF 1/4 GIREVOLE XMANOMETRO CENTRALINA	HYDRAULIC COUPLING FOR POWER PACK MANOM.	1,000
044.4505	POMPA IDR. MONOCEN. CC 1,7 SXI EVO–VW18P–VW18PT–VW18PTR ––A––	POWERPACK HYDRAULIC PUMP ––A––	1,000
044.4637	GIUNTO COLLEGAMENTO LATO POMPA X MONOCENTRALINA	PUMP CONNECTING COUPLING FOR CEN-TRALUNIT	1,000
044.4638	GIUNTO LATO MOTORE X MONOCENTR.	MOTOR CONNECTIN COUPLING FOR CEN-TRALUNIT	1,000
044.5151	COLLETTORE PER POMPA DA 1,7 SXI–EVO	PUMP COLLECTOR 1,7	1,000
044.5153	STAFFA SERBATOIO X MONOCENTRALINA	POWER PACK TANK BRACKET	2,000
044.5154	FLANGIA MONOCENTRALINA SXI–EVO X MOTOREC71B14	POWER PACK MOTOR FLANGE	1,000
044.5155	ASTA PESCANTE X MONOCENTR.SXI–EVO ––A––	FILTER PUMP CONNECTOR FOR POWER-PACK	1,000
044.5156	FILTRO ASPIRAZ.X MONOCENTR.SXI–EVO ––A––	SUCTION FILTER FOR POWERPACK	1,000
019.5383	FASCETTA NS KC 140–9 MM. 120–140MONOCENTRALINA SXI–EVO	STRIP NS KC 140–9 MM. 120–140	1,000
025.0208	ANELLO TENUTA OR 109–9,13	O RING 109–9,13	6,000
034.1383	SERBATOIO X MONOCENTRALINA SXI–EVO	POWER PACK MOTOR TANK	1,000
043.0261	TAPPO TTE8 1/8 – CL 2611	1/8 TAP TTE8	2,000
043.0274	RACCORDO MF 1/4–43 CL 2525 SH 330	MF 1/4–43 CL 2525 SH 330 JOINT	1,000
043.0341	RONDELLA RAME 10X5 –1/8	10X5– 1/8 COPPER WASHER	2,000
043.0342	RONDELLA RAME 17X23X1,5–3/8	COPPER WASHER 17X23X1,5–3/8	4,000
010.7450	GRANO VCE PUNTA CONICA 6 X 6	6 X 6 CYLINDRICAL POINT VCE GRUB	1,000
010.7603	RONDELLA 0 6	0 6 WASHER (010.7603)	4,000
010.7671	RONDELLA SPESSORE DIAM. 8 X 3	THICKNESS WASHER DIAM. 8 X 3	2,000
010.7863	VITE TCEI 5 X 30	TCEI 5 X 30 SCREW	8,000
010.7951	VITE TE 6 X 20	TE 6 X 20 SCREW	6,000
010.7963	VITE TE 8 X 25	TE 8 X 25 SCREW	4,000
010.8343	CHIAVETTA 5 X 5 X 20	KEY 5 X 5 X 20	1,000
044.1262	VALVOLA MODULARE DI BLOCCO SH SXI / NCEVO (MVPP–D/50)	STOP VALVE FOR SH SXI / NC EVO	1,000

Cylinders


043.5671
022.0238
022.2702
022.0046
043.5681
025.0876
043.0250
044.0501
043.0340
044.1005
010.1103

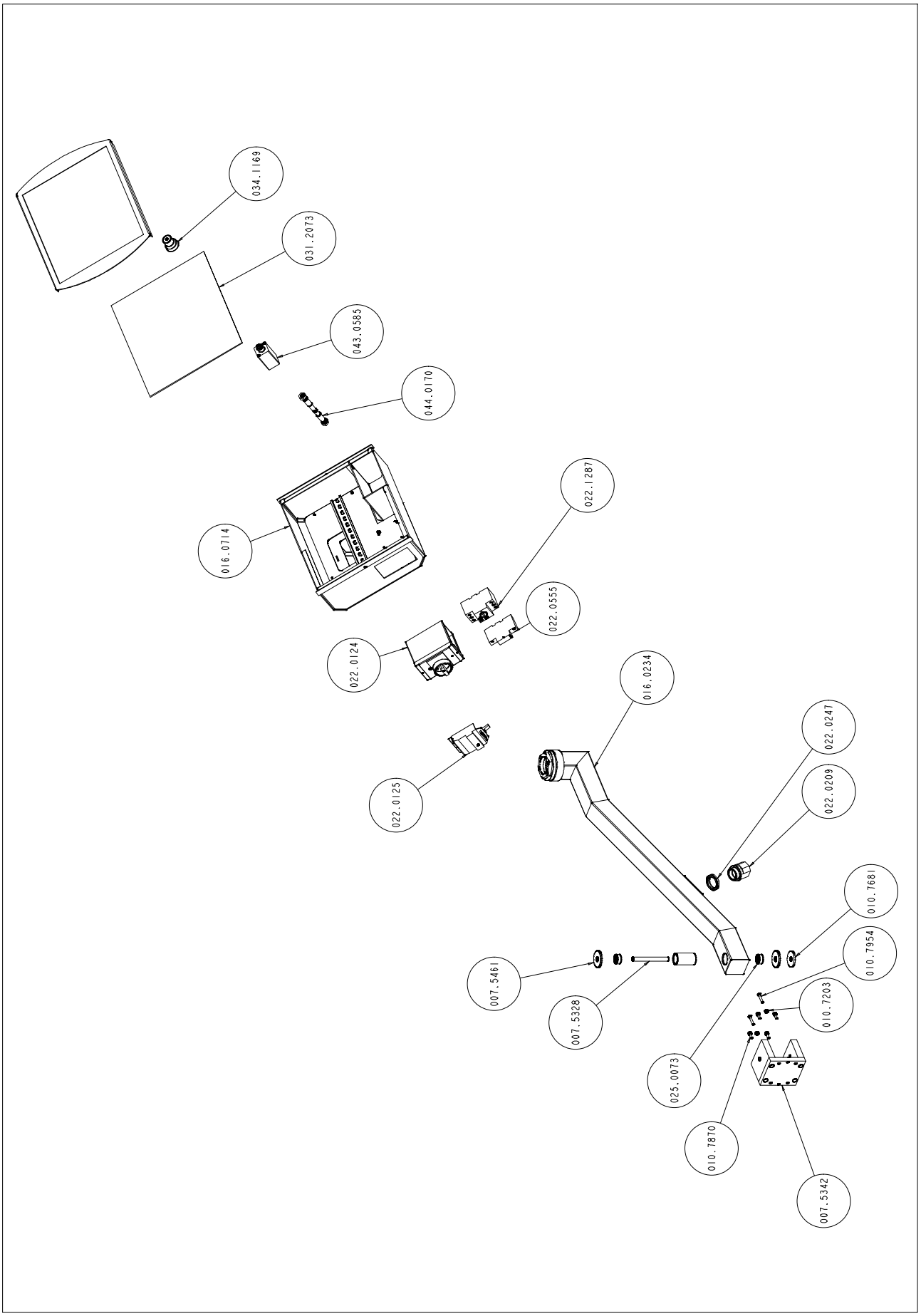
Code	Description	Description	Q.ty
010.1103	FORCELLA 16 X 1,5	16 X 1,5 FORK	2,000
022.0046	POTENZIOMETRO 6639S–001–202 SH SX	6639S–001–202 POTENTIOMETER SH SX	1,000
022.0238	PRESSACAVO PG 7 BS01	CABLE PRESSER PG 7 BS01	1,000
022.2702	DADO PG 7 BL01	NUT PG 7 BL01	1,000
025.0876	GIUNTO WA 6–6.35 MM.28 X CILINDRO	JOINT WA 6–6.35 M M.28 FOR CYLINDER	1,000
043.0250	GOMITO M.F. 1/4 CL 2020	M.F. ELBOW 1/4 CL 2020	2,000
043.0340	RONDELLA RAME 13X19X1,5–1/4	COPPER WASHER 13X19X1,5–1/4	2,000
043.5671	PROTEZIONE POTENZIOMETRO CILINDRO	GUARD F.CYLINDER POTENTIOMETER	1,000
043.5681	SUPPORTO POTENZIOMETRO CILINDRO	CYLINDER POTENTIOMETER SUPPORT	1,000
044.0501	NIPPLO NP 1/4 IDRAULICO	NP 1/4 HYDRAULIC NIPPLE	1,000
044.1005	CILINDRO IDRAULICO 63.150 MM. SH 280–320SXI SET 452 SXI EVO	HYDRAULIC CYLINDER SH 280–320 SXI SET	1,000

Base assembly



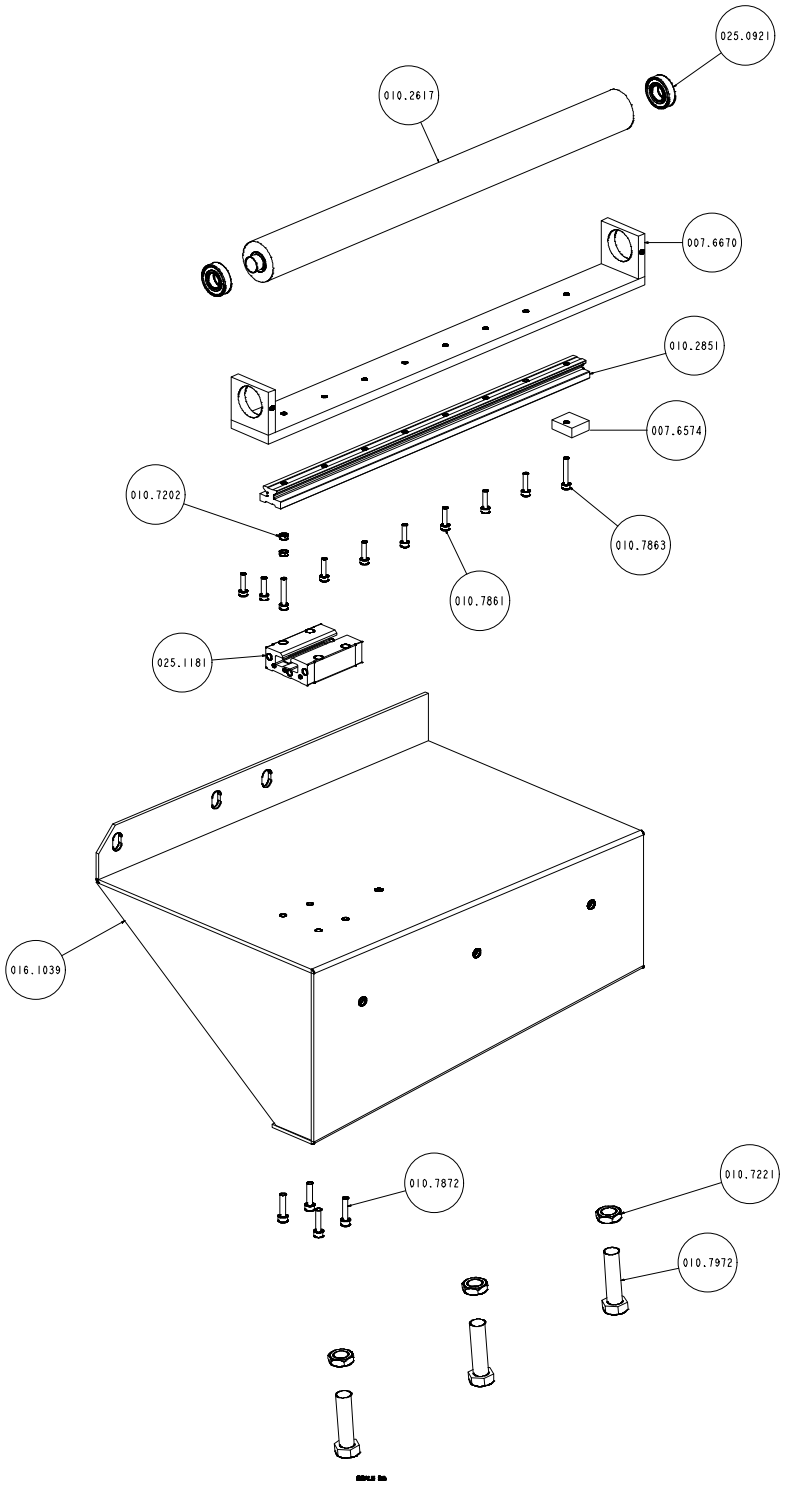
Code	Description	Description	Q.ty
010.7221	DADO M16 BASSO	M16 LOW SCREW NUT	5,000
010.7870	VITE TCEI 6 X 16	TCEI 6 X 16 SCREW	2,000
010.7971	VITE TE 16 X 40	TE 16 X 40 SCREW	1,000
013.0181.1	PIEDISTALLO	STEEL BASE	1,000
016.0190	RACCOGLITORE ACQUA POSTERIORE	REAR WATER COLLECTOR	1,000
016.1237	PIASTRA PASSACAVI POSTERIORE	BACK FAIRLEAD P LATE	1,000
016.1240	PIASTRA PASSACAVI ANTERIORE SH SXI	VICE CLAMPING LEVER SC–PK 250 MOD.3	1,000
022.0209	RACCORDO RAPIDO SEM 29 ART.3800296	RAPID JOINT SEM 29	1,000
022.0212	RACCORDO RAPIDO SEM PG 16	RAPID JOINT SEM PG 16	2,000
022.0234	PRESSACORDONE 3246 NERO PG 13,5	CORD PRESSER	1,000
022.0244	CONTRODADO 3217B GRIGIO PG 13,5	LOCK NUT 3217B GREY PG 13,5	1,000
022.0249	DADO POLIAMIDE HUMMEL DIAM. 16	POLYAMIDE HUMMEL NUT 0 16	2,000
022.0324	PASSACAVI 24 INC.MM.2.5	FAIRLEADS 24 INC.M M.2.5	2,000
028.0010	PISTOLA SH–TI ART. 8966	COOLANT PISTOL SH–TI 8966	1,000
028.0121	RACCORDO 3/8–17 CL 2601	JOINT 3/8–17 CL 2601	2,000
028.0236	ELETTROPOMPA TRIFASE PA150/120 KW 0,2V.230/400 X SHARK 452 PA 150	3–PH ELECTROPUMP PA150/120	1,000
028.0391	TUBO LOOC LINE SPD ART.69540 3/4	LOOC LINE HOSE SPD ART.69540 3/4	1,000
028.0396	UGELLO 0 20 SPD FP50.11B50	NOZZLE 0 20 SPD FP50.11B50	1,000
028.0401	RACCORDO 3/4 SPD FP50.17A20	FITTING 3/4 SPD FP50.17A20	1,000
034.0901	TAPPO LIVELLO OLIO 1/2 'GAS.	1/2" GAS. OIL LEVEL CAP	1,000
034.0905	TAPPO OLIO TAO– 3 1/2 POL. NERO	TAO/3 1/2" BLACK OIL CAP	1,000
043.0180	RIDUZIONE M 3/4–F 3/8	REDUCTION M 3/4–F 3/8	2,000
043.0182	RACCORDO A GOMITO FF ZINCATO 3/4	3/4 ELBOW ZINKED JOINT	1,000
043.0186	RACCORDO FEMMINA 1/2 ACQUASTOP	1/2 WATERASTOP FEMALE JOINT	1,000
043.0192	RACCORDO RB 9889 3/4X20	RB 9889 JOINT 3/4X20	2,000
043.0223	RACCORDO TE FFF ZINCATO 3/4	TE FFF GALVANISED 3/4 JOINT	2,000
043.0277	NIPPLO CONICO ZINCATO 3/4	GALVANISED 3/4 CONICAL NIPPLE	2,000
043.0351	GUARNIZIONE 3/4	3/4 GASKET	2,000
043.0654	RUBINETTO M/F 3/4 CL 6310	M/F 3/4 CL 6310 TAP	1,000
043.0263	RACCORDO A GOMITO M/F ZINCATO 3/4	3/4 ELBOW JOINT	1,000
010.1809	CHIUSURA SPORTELLO	DOOR LOCKING WIT KEY	1,000
016.2460	SPORTELLO PIEDISTALLO	STEEL BASE DOOR	1,000
010.1893	CERNIERA SPORTELLO PIEDISTALLO N.T.	PROTECTION DOOR HINGE N.T.	1,000
016.0098	RACCOGLITORE ACQUA ANTERIORE	FRONT WATER COLLECTOR	1,000
016.2726	STAFFA FISSAGGIO MONOCENTRALINA	FIX BRACKET MONOUNIT	1,000
022.0247	DADO POLIAMIDE HUMMEL DIAM. 29	POLYAMIDE HUMMEL NUT 0 29	1,000
007.6575	TASSELLO APPOGGIA VITI PIATTAFORMA FISSASH 512	FIX PLATFORM FOR PLATE SCREW SUP-PORT	1,000

Control panel



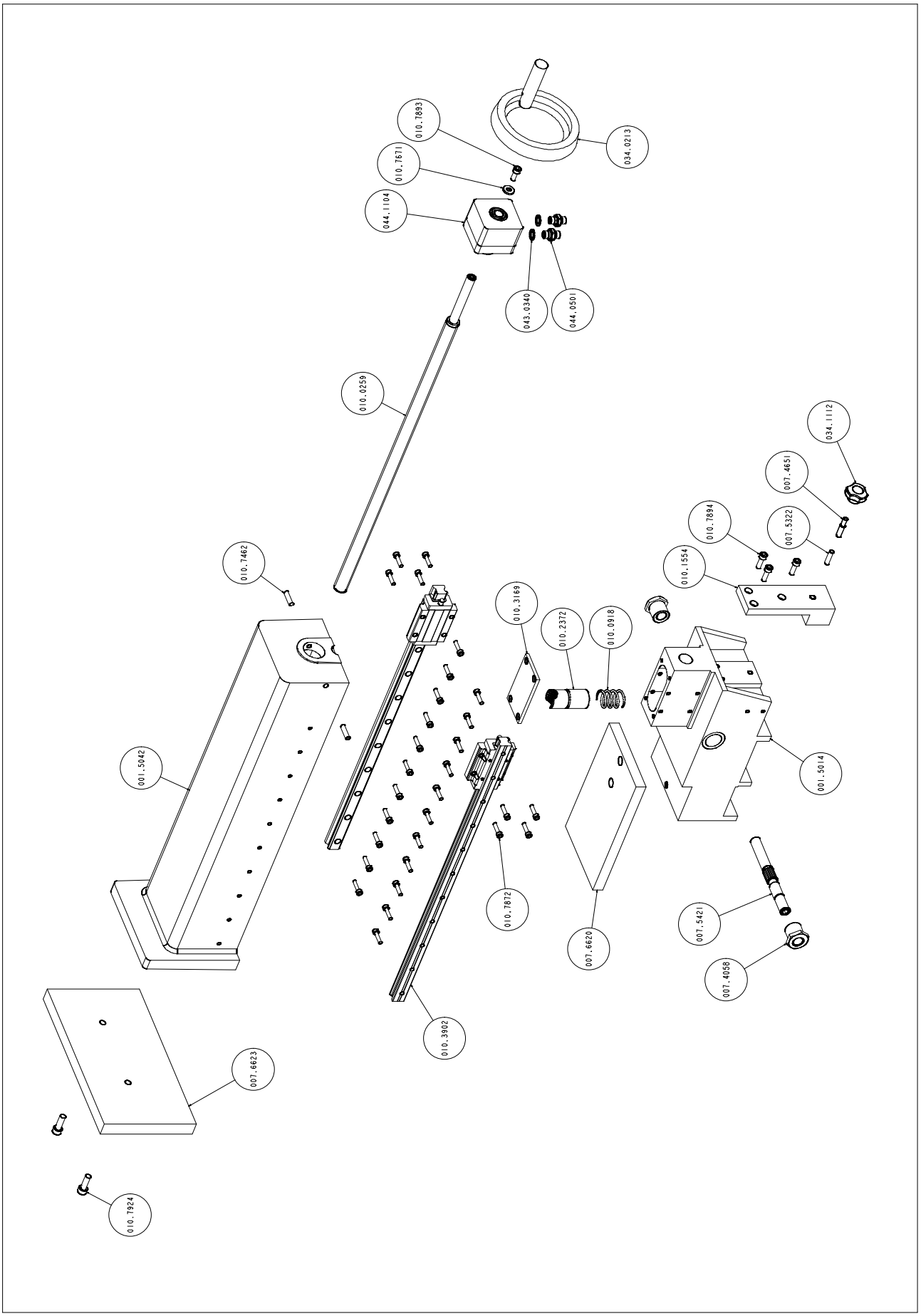
Code	Description	Description	Q.ty
007.5328	PERNO PER CUSCINETTO ASTA MOBILE	BEARING PIN	1,000
007.5342	SUPPORTO ASTA MOBILE SH 420 SE	MOVING ROD SUPPORT	1,000
007.5461	ROSETTA ASTA MOBILE SH 420 SE	MOVING ROD WASHER	2,000
010.7203	DADO M6	M6 SCREW NUT	2,000
010.7681	RONDELLA SPESSORE DIAM.12X48	THICKNESS WASHER DIAM.12 X 48	1,000
010.7870	VITE TCEI 6 X 16	TCEI 6 X 16 SCREW	4,000
010.7954	VITE TE 6 X 30	TE 6 X 30 SCREW	2,000
016.0234	ASTA MOBILE X CONSOLLE CON GIUNTO SH 452CCS–SXI SH 422 SXI S20DSP	SWINGING ARM WITH COUPLING SH 452	1,000
016.0714	QUADRO COMANDI SH SXI N.T.	CONTROL BOX (SHEET METAL ONLY) SH SXI NT	1,000
022.0124	CUSTODIA ISOLANTE E–PKZO–GR CON MANOPOLAROSSA COD. 72908	HOUSING W.RED HANDLE	1,000
022.0125	BLOCCO LUCCHETTABILE SBV–PKZ0–ECOD.35127	LOCKABLE BLOCK	1,000
022.0209	RACCORDO RAPIDO SEM 29 ART.3800296	RAPID JOINT SEM 29	1,000
022.0247	DADO POLIAMIDE HUMMEL DIAM. 29	POLYAMIDE HUMMEL NUT 0 29	1,000
022.0555	SGANCIATORE U–PKZ0 V.400.50 COD.73138	RELEASER U–PKZ0 V.400.50	1,000
022.1287	INTERRUTTORE PKZM0–10 (TERMI-CA)COD.72739	SWITCH PKZM0–10 (THERMAL)	1,000
025.0073	CUSCINETTO 63001 2RS	BEARING 63001 2RS	2,000
044.0170	TUBO CENTRALINA IDRAULICA MM.6800DD	HYDRAULIC UNIT HOSE MM.6800DD	1,000
034.1169	MANOPOLA REGOLAZIONE MONOGIRO	FEED RATE KNOB (W/ SEMICIRCLE HOLE)	1,000
031.2073	CONSOLLE DI PROGRAMMAZIONE SX–SXI EVO NT	PROGRAMMING CONSOLLE SXI EVO NEW	1,000
043.0585	REGOLATORE DISCESA TESTA CON VALVO-LABYPASS SH SXI EVO (BAFFO A)	HEAD DOWN STROKE REGULATOR SXI EVO	1,000

Optional Discharge side adaptor



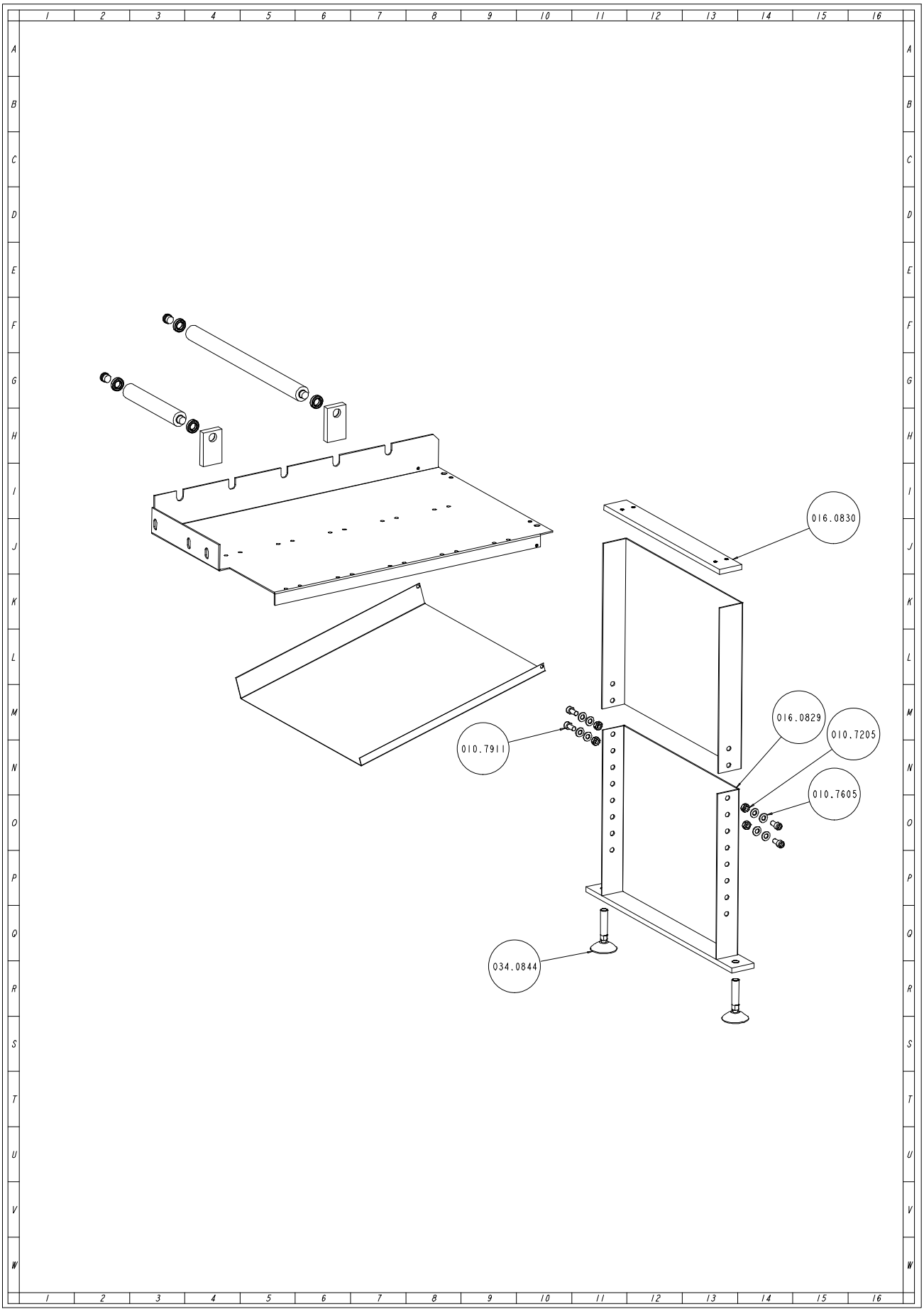
Code	Description	Description	Q.ty
010.2851	GUIDA DRYLIN T TS–01–20 L.460 SH452	DRY LINTTS GUIDE–01–20 L. 460 SH 452	1,000
010.7202	DADO M5	M5 SCREW NUT	2,000
010.7221	DADO M16 BASSO	M16 LOW SCREW NUT	3,000
010.7861	VITE TCEI 5 X 20	TCEI 5 X 20 SCREW	8,000
010.7863	VITE TCEI 5 X 30	TCEI 5 X 30 SCREW	2,000
010.7872	VITE TCEI 6 X 25	TCEI 6 X 25 SCREW	4,000
010.7972	VITE TE 16X60	TE 16 X 60 SCREW	3,000
016.1039	BRACCETTO APPOGGIA BARRA	INFEED ROLLER BRACKET SUPPORT	1,000
025.0921	CUSCINETTO 6003 2Z	BEARING 6003 2Z	2,000
025.1181	PATTINO DRYLIN T TW–01–20 X SH 452	DRY LINTTW CARRIAGE –01–20 X SH 452	1,000
010.2617	RULLO DIAM.45 BRACCETTO CARICO	GUIDE ARM ROLLER DIAM. 45	1,000
007.6670	SUPPORTO RULLO BRACCETTO SHARK 512	ROLLER SUPPORT ARM	1,000
007.6574	TASSELLO POLIZENE X BRACCETTO APPOG-GIABARRA	POLIZENE PLATE FOR BAR SUPPORT	1,000

Vice assembly



Code	Description	Description	Q.ty
001.5014	SUPPORTO SCORREVOLE MORSA SH 452	MOVABLE VICE SUPPORT	1,000
007.4058	BOCCOLA ECCENTRICA	ECCENTRIC BUSHING	2,000
007.4651	GRANO BLOCCAGGIO PIANO ROTANTE	LOCKING GRUB SCREW	1,000
007.5322	PERNO PER STAFFA BLOCCAGGIO MORSA TAGLIO	CLAMPING BRACKET PIN	1,000
007.5421	PIGNONE SBLOCC.SCORREVOLE	UNLOCKING PINION	1,000
007.6623	GANASCIA SCORREVOLE MORSA	JAW	1,000
010.0918	MOLLA RICHIAMO CHIOCCIOLA VITE MORSA	VICE SCREW NUT RETURN SPRING	1,000
010.1554	STAFFA BLOCCAGGIO MORSA DI TAGLIO	CUTTING VICE CLAMPING BRAKET	1,000
010.2372	CHIOCCIOLA BRONZO 45	SCREW NUT 45	1,000
010.3169	BATTUTA SUPERIORE PATTINI MORSA DI TAGLIO SH 422 – 452	UPPER STOP SH 422–452	1,000
010.7454	GRANO VCE PUNTA CONICA 8 X 8	8 X 8 CONICAL POINT VCE GRUB SCREW	1,000
010.7462	GRANO VCE PUNTA CONICA 8 X 30	8 X 30 CONICAL POINT VCE GRUB SCREW	2,000
010.7671	RONDELLA SPESSORE DIAM. 8 X 3	THICKNESS WASHER DIAM. 8 X 3	1,000
010.7872	VITE TCEI 6 X 25	TCEI 6 X 25 SCREW	28,000
010.7893	VITE TCEI 8 X 20	TCEI 8 X 20 SCREW	1,000
010.7894	VITE TCEI 8 X 25	TCEI 8 X 25 SCREW	7,000
010.7924	VITE TCEI 10 X 30	TCEI 10 X 30 SCREW	2,000
034.0213	VOLANTINO DSH CON MAN.RIBALTABILE D.160FORO 16 SH 452 – 422 SXI	HANDWHEEL SH 452 – 422 SXI	1,000
034.1112	VOLANTINO O 40M8 X PIEDISTALLO	O 40 M8 HANDWHEEL X STEEL BASE	1,000
043.0340	RONDELLA RAME 13X19X1,5–1/4	COPPER WASHER 13X19X1,5–1/4	3,000
044.0501	NIPPLO NP 1/4 IDRAULICO	NP 1/4 HYDRAULIC NIPPLE	2,000
044.1104	CILINDRO VOLAMPRESS D.E.SH 330 N.T.SH 292–SH 332	HYDRAULIC CYLINDER SH 330 N.T.	1,000
001.5042	SCORREVOLE MORSA SH512 MOD.1617	UPPER VICE	1,000
010.3902	GUIDA + 1 PATTINO HSR25LA1SSC1S+640L–E20(GK)–MT15	SLIDE GUIDE HSR25LA1SSC1S+640L–E20(GK)	1,000
007.6620	PIASTRA APPOGGIA PEZZI SH 512	LEAN PLATE PIECIES	1,000
010.0259	VITE MORSA 780X24 SH 512	VICE SCREW	1,000

Optional Discharge side adaptor



Code	Description	Description	Q.ty
010.7205	DADO M10	M10 SCREW NUT	4,000
010.7605	RONDELLA 0 10	0 10 WASHER	8,000
010.7911	VITE TCEI 10 X 20	TCEI 10 X 20 SCREW	4,000
016.0829	GAMBA TELESCOPICA INFERIORE K 210	LOWER PART TELESCOPIC LEG K210	1,000
016.0830	GAMBA TELESCOPICA SUPERIORE K 210	UPPER PART TELESCOPIC LEG K210	1,000
034.0844	PIEDINO COMPLETO DI DADO X PIANALE K 60IR – K 110	FOOT WITH NUT FOR K 60 IR	2,000

Adjustments

This chapter describes the operations required to adjust the electronic, mechanical and the hydraulic systems. By following these instructions, you can “customise” your machine to suit the type of cut required, thereby optimising cutting times.

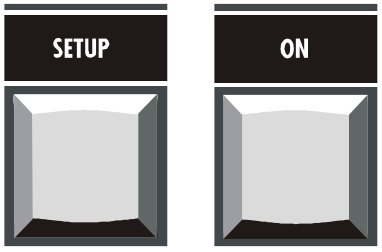
Displaying and editing the set–up parameters

The machine set–up parameters may be programmed directly from the control console.

▶ Power up the machine at the main switch located on the left hand side.

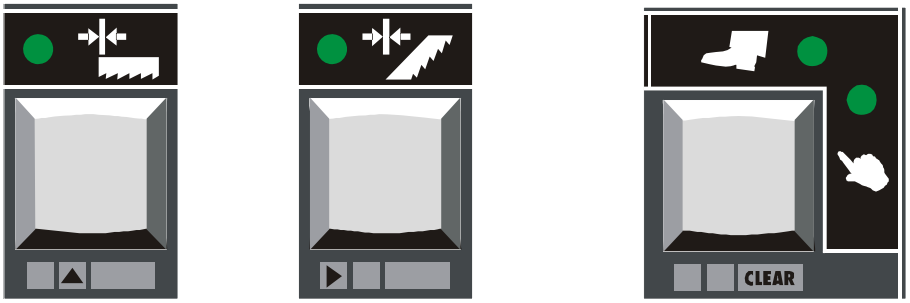


▶ Press simultaneously and in sequence the keys SET–UP and ON;



▶ Once inside the SET−UP menu, use the following three keys to navigate through the different menu screens:

FCTA Head Downstroke Limit | **FCTI Head Upstroke Limit** | **CONSOLE or FOOT PEDAL START**



▶ The FCTA key (▲) allows you to change parameter settings in increments of one unit.

▶ The FCTI key (▶) instead has two functions: it is used to save parameter settings and navigate inside the SET−UP menu.

▶ The console or foot pedal START selection key allows you to zero the current parameter setting.

▶ The key ”Y−” enables the cursor to return to the previous positions.

▶ To quit the SETUP parameters, press in sequence and simultaneously the SETUP and ON keys.

Set language parameter

▶ Press ▲ to change the display messages presentation language.



Set parameter for machine type

▶ Press ▶ to display the parameter for the machine type. Press the ▲ key to change machine type; each press of the key corresponds to a different machine configuration.



Semiautomatic–Dynamic and Manual operation setting (optional)

▶ In this video page it is possible to configure the possible presence of optional operating cycles, such as the Manual and Semiautomatic–Dynamic cycle. Pressing the key ▶ go to the item of this parameter, then with the ▲ key choose YES or NO.



Pedal control setting (optional)

▶ Press ▶ to display the pedal control parameter, then press ▲ to set the presence (YES) or the absence (NO) of this optional.



Optional inverter presence settings

▶ Press ▶ to display the inverter parameter and then press ▲ to set the presence or absence of this optional device by selecting ”yes” or ”no”.



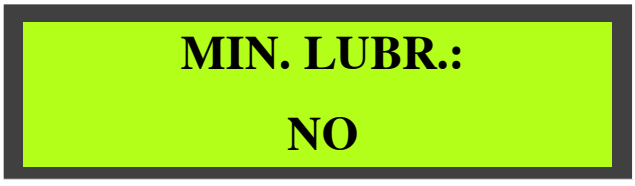
Blade speed proximity settings

▶ Press ▶ to display the band speed detection proximity parameter, then press ▲ to set the presence or the absence of this optional, choosing YES or NO.



Minimal lubrication system settings

▶ Press ▶ to display the min. lubrication system parameter, then press ▲ to set the presence or the absence of this optional, choosing YES or NO.



FCTI / FCTA digital output enabling setting

▶ Press the ▶ key to display the parameter enabling or disabling the outputs of the positions FCTI (backward head limit switch) and FCTA (forward head limit switch). Press the ▲ key to set YES or NO.



Blade stop setting

▶ Press the ▶ key to display the blade stop parameter, then press ▲ to set the value of this parameter.
If the value is set as 2, the blade never stops;
if it is set as 1, the blade stops in the FCTI (backward head limit switch) point;
if the values is set as 0, the blade stops in the FCTA (forward head limit switch) point.



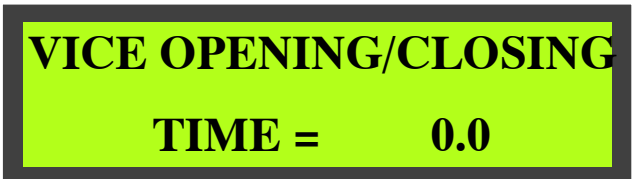
Cutting vice opening setting

▶ Press the ▶ key to display the parameter indicating if the shearing vice must open when the head is in the FCTI (backward head limit switch) point or in the FCTA (forward head limit switch) point; press ▲ to set the value as 0 (vice opening in FCTA), or as 1 (vice opening in FCTI).



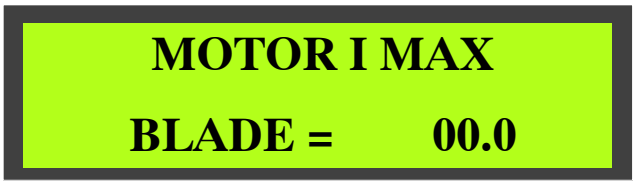
Cutting vice opening/closing time setting

▶ Press the ▶ key to display the parameter indicating the time between the vice closing and the cut start and between the cut end and the vice re−opening. Press ▲ to change this value, ranging between 0.0 and 9.9 seconds.



Machine maximum power input setting

▶ Press the ▶ key to display the parameter and then increase or reduce the value with the ▲ key.



N.B. The factory set values are relative to the motor installed on the machine.

Measurement unit setting

▶ Press the ▶ key to display the parameter, then press ▲ to set the value as 0 or 1, to choose the measurement unit expressed respectively in pounds or kilograms.



Setting minimum blade tensioning

The machine will enter emergency mode if the band is not tensioned correctly. This parameter allows to set the minimum blade tension threshold (Kg 600);



Display backlighting time setting

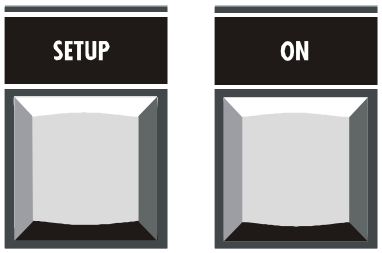
▶ Press the ▶ key to display the LCD backlighting time parameter, then press the ▲ and ▶ keys to set the time expressed in minutes.



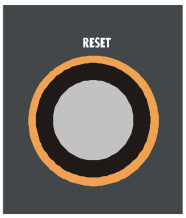
Cutting head stroke

The cutting head crosses the space between the forward and backward position definable in the SET−UP with the CUTTING HEAD POSITION parameter. A value between 000 and 254 must be set. Check that the bow, really and not virtually, crosses the amplitude of the cut between the structural limits of cutting head backward end run and cutting head forward end run. The scope of adjustment is to set the value of the real cutting head position both at FCTI (backward limit 252÷254) and at FCTA (forward limit 008÷012). Two adjustments are performed to obtain this result: one on the cutting head cylinder and the other on the IUD/IUV layout of the MEP 30 controller. Operation sequences:

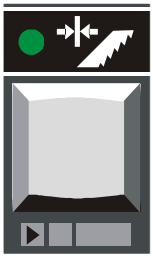
- ▶ Power the machine rotating the main switch on the left side of the console;
- ▶ Press simultaneously and in sequence the keys SET−UP and ON;



- ▶ Press the RESET.



- ▶ scroll the machine parameters with the key indicated in the figure till reaching the following video page:



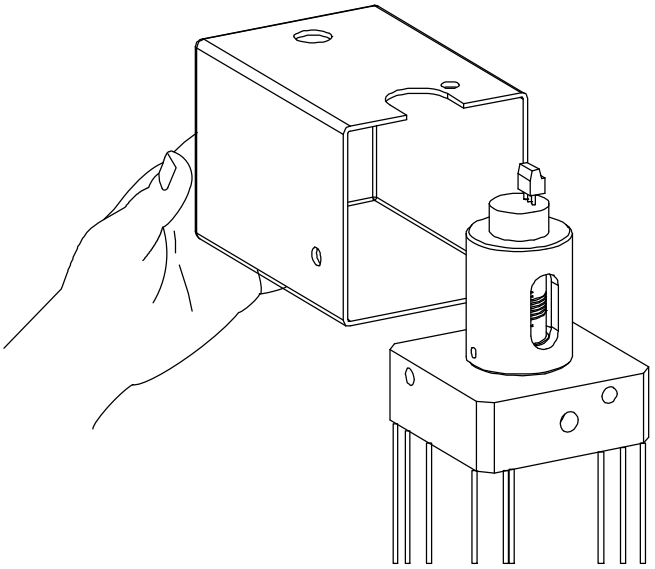


- ▶ Press the RESET.
- ▶ Press in sequence and simultaneously the â key and the key for the head lowering (Y−), position the bow completely downwards;

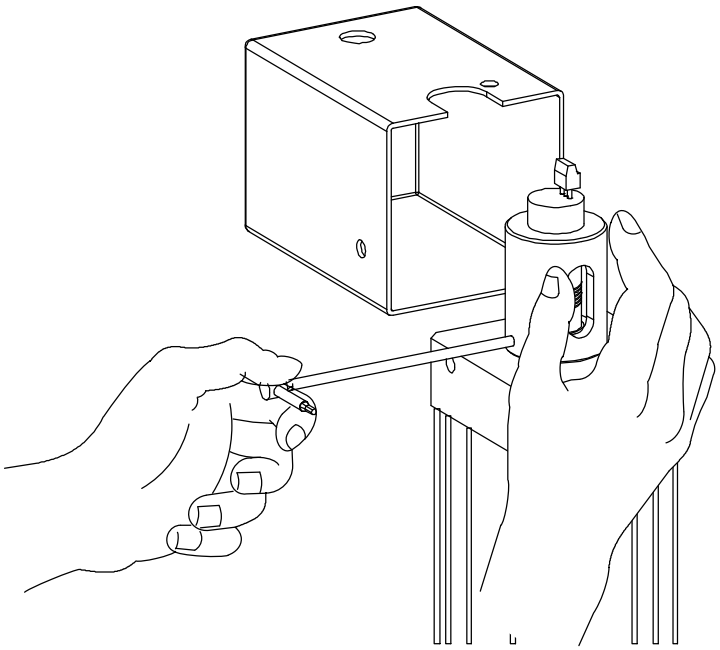
The down position must have a value ranging between 008 and 012, otherwise operate as follows:

- ▶ Remove the fixing screws from the black box on the cylinder using a hex wrench.

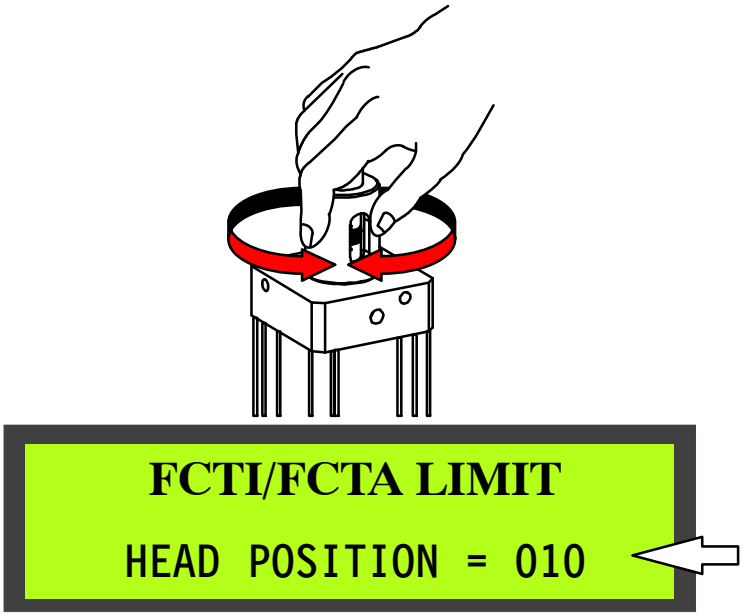
▶ Remove the box protecting the potentiometer, taking care not to tug at the connection cables.



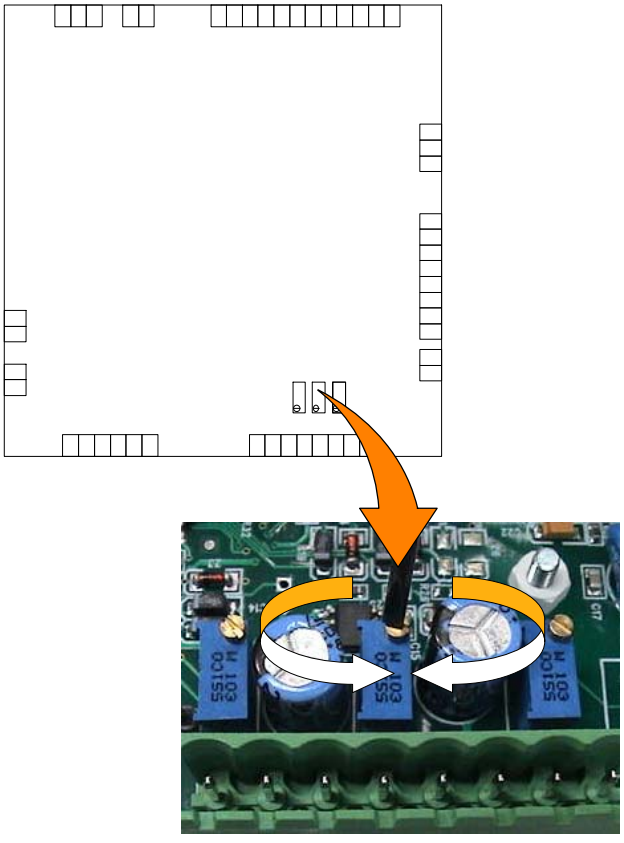
▶ Using an Allen key, slacken the grub screws fixing the rod and free the potentiometer body.



- Manually rotate the potentiometer body until the display readout is between 008÷012.



- Lock the potentiometer support in place using the grub screw. Close the cylinder box and tighten down the screws.
- Press the ⇑ and FCTA keys in sequence and simultaneously.
- Set the FCTI point, taking the head completely backwards pressing in sequence and simultaneously the ⇑ key and the key for the head lifting (Y+).
- Open the control board removing the frame and pull the keyboard out of the console;
- Identify the board IUD/IUV of the controller MEP 30 to adjust the potentiometer indicated by the arrow in the following image:



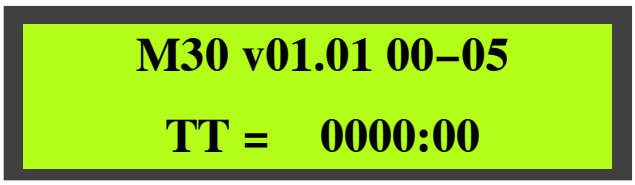
- Three potentiometers are mounted on the IUD/IUV card. Adjust the adjustment screw of the potentiometer indicated by the arrow by a screw−driver at a value of 252÷254; the obtained variation is displayed on the machine.



- Press the ⇑ and FCTI keys in sequence and simultaneously.
- Press simultaneously and in sequence the keys SET−UP and ON to quit the SETUP parameters:
- Test to make sure it is functioning correctly.

Software version and total use time of the machine

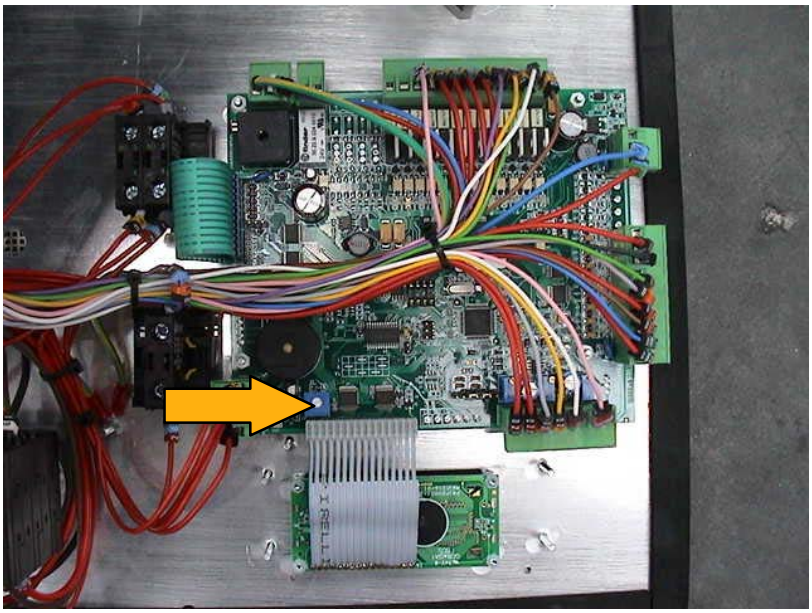
- This parameter indicates the installed software version and the total working time of the machine.



Adjusting the display brightness

If external factors like changing ambient lighting conditions in the machine installation site, affect visibility, adjust the brightness of the control and programming console display. This is very important since the operator must be able to clearly read the display messages at all times.

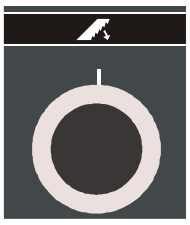
▶ To adjust the brightness, first remove the screws fixing the front console panel. The photo below illustrates the MEP 30 controller card on which the brightness potentiometer is marked by an arrow.



▶ Using a screwdriver, rotate the potentiometer until the required display brightness is obtained.

Machine working pressures

This section describes the procedures to change the vice and head operating pressures. Both adjustments strongly depend on the material type being processed.
The vice locking pressure can be set if the material could be strained or could be quite unstable while cutting.
The head lowering speed can be set by a flow adjuster on the control console.



Hydraulic pressure

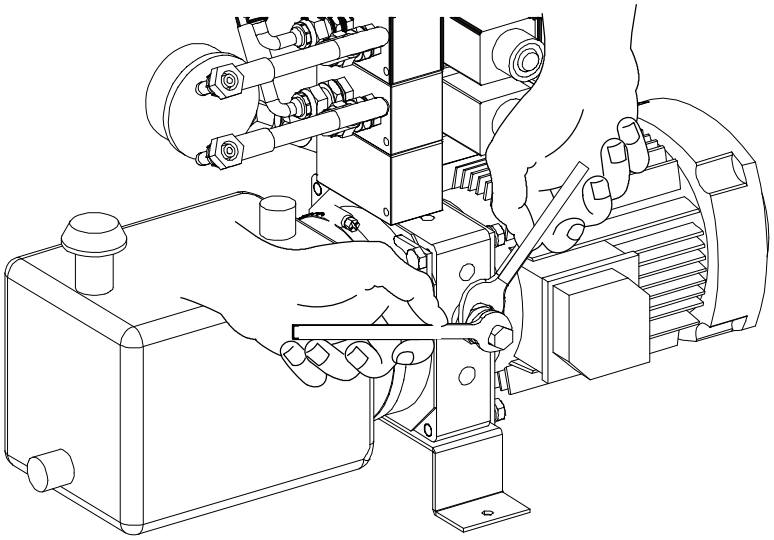
Both vice and head pressures can be adjusted by the power packs.

Warning

Both the pneumatic and hydraulic vices have a maximum travel of 8 mm. This means that after positioning the workpiece on the work table and before starting the cycle, the moving jaw must be positioned to within 2÷3 mm of the workpiece as previously described in Chapter 5.

The operating pressures (shearing vice and cutting head) can be adjusted by the max. pressure adjusting valve.

- ▶ Open the door of the machine base, remove the fastening screws and pull out the power pack from inside the base.
- ▶ Slacken the hex nut on the relief valve, and using an Allen key, increase (clockwise) or reduce (counter−clockwise) the pressure reading on the pressure gauge.



- ▶ This done, tighten the lock nut and return the hydraulic power pack back inside the base.

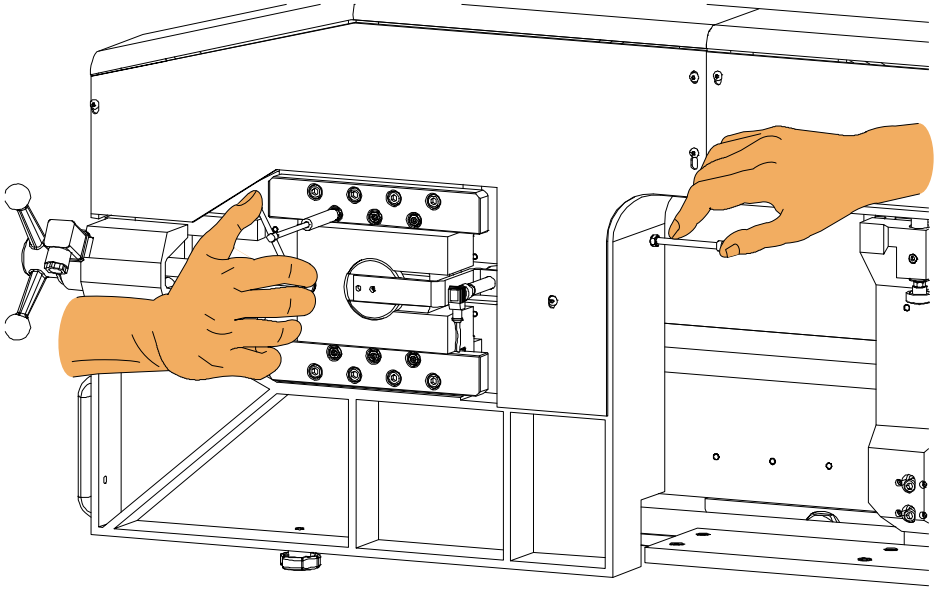
Cutting head

Blade tensioner slide play adjustment

To reduce the play which may develop over time between the blade tensioner slide and slide gibs, adjust the grub screws between the gibs and slide as follows:

- ▶ open the cutting head cover;
- ▶ un−tension the band with the relevant hand−wheel:
- ▶ remove the blade from the flywheels;
- ▶ remove the plug connecting the slideway to the cylinder rod;
- ▶ move the slide back and forwards to locate any friction or excessive play;

▶ slacken the nuts, using a tubular nut driver to hold the grub screws firm;



▶ finally, tighten the grub screws to take up any play or otherwise, slacken them to reduce any friction.

Blade guide components

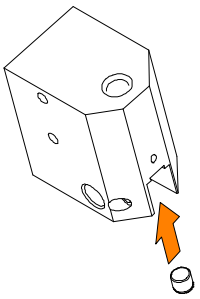
Band saw blades offer enormous advantages to cutting applications, without requiring any special skills by the operator. A description follows of the blade guide adjustments required to ensure correct operation of the saw.

Blade guide heads

The first blade adjustment involves adjustment of the heads. The blade guide heads comprise the blade guide plates which ensure correct longitudinal alignment, the blade steady buttons which control vertical blade flexure and the coolant delivery cocks.

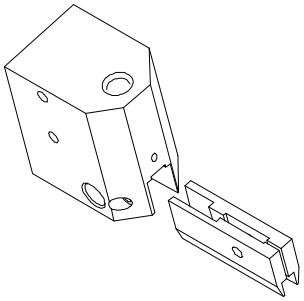
Blade steady buttons

The blade steady buttons prevent upward blade flexure caused by the vertical action of the cutting force. These buttons are fitted on both the front and rear heads and need no adjustment.



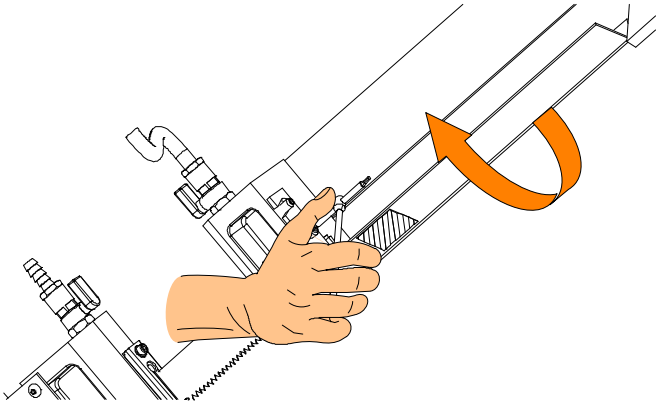
Blade guide plates

The plate contact points feature widia inserts which guide the blade longitudinally. A small amount of play must exist between the plates and blade to ensure that the blade runs smoothly and perpendicular to the work table.

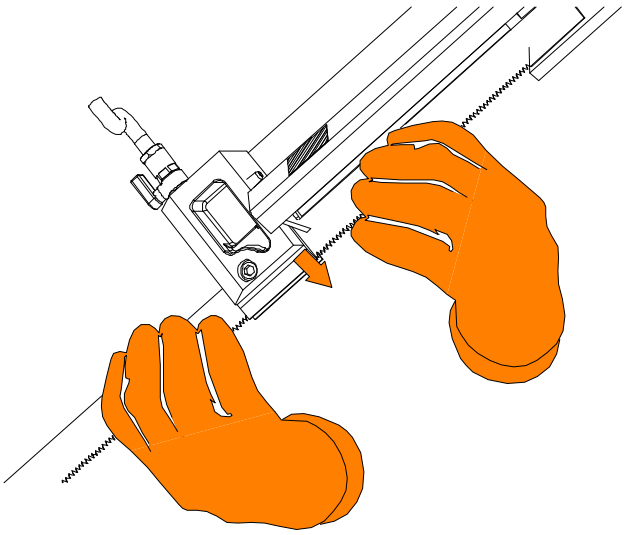


Thanks to the widia inserts, the working life of the guide plates is practically the same as that of the machine itself. However, if due to wear or the assembly of a new blade with a different thickness, the following adjustments must be made:

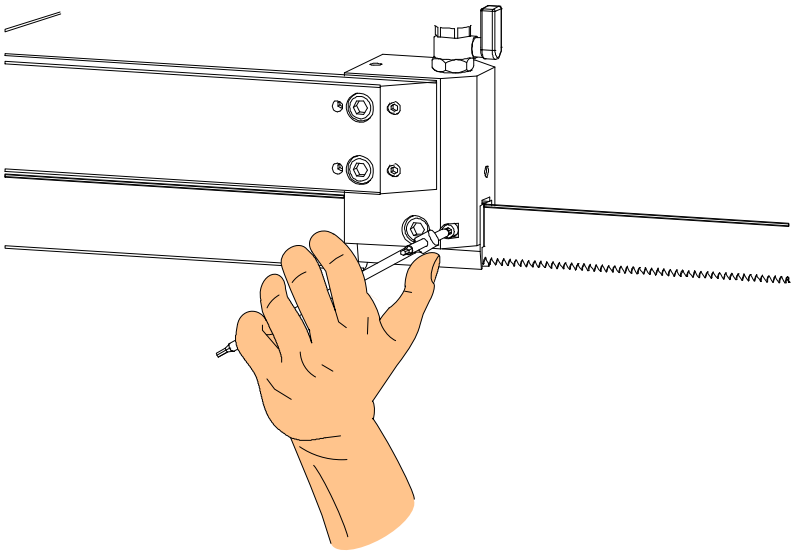
- disconnect the machine from the power supply;
- slacken the blade tension using the handwheel;
- open the front blade guard by undoing the fixing screw and rotating it as illustrated in the figure below;



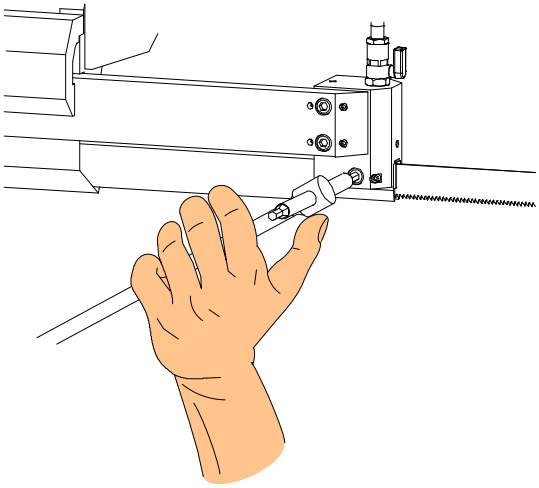
- wear protective gloves when making this adjustment;
- make sure there is a small amount of play between the blade and guide plate inserts;



- if the amount of play is not sufficient for the blade to run smoothly, adjust the locking torque of the two grub screws with an Allen key;



- replace any worn plates by removing the plate fixing screw;



- repeat the above sequence of steps on the rear blade guide head;
- refit the front blade guard;
- tension the blade and power up the machine again.

Blade

The adjustments required to ensure correct operation of the blade are described below. For further information regarding band saw blades, refer to Chapter 9 which provides a more detailed description of the different types of blade.

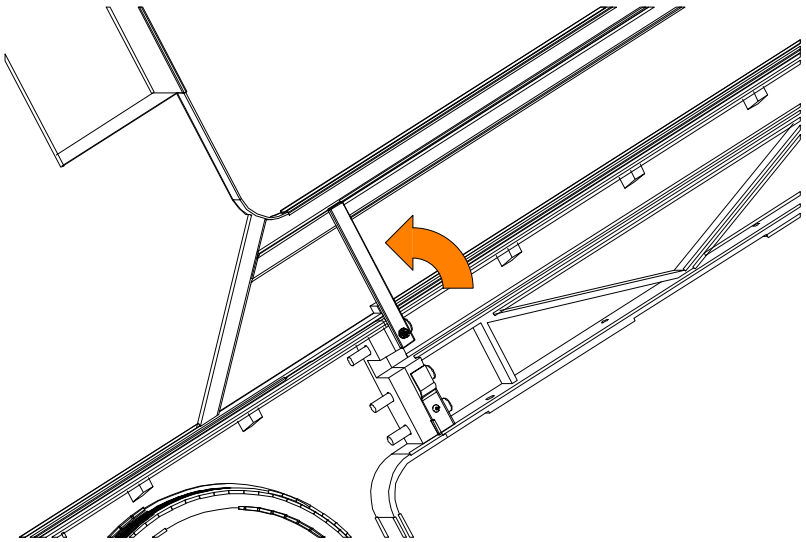
Tool changeover

Optimum working conditions both enhance operator safety and extend the tool service life. The cutting tool should in any case be replaced when poor cutting performance starts to affect productivity. The tool changeover procedure is described as follows:

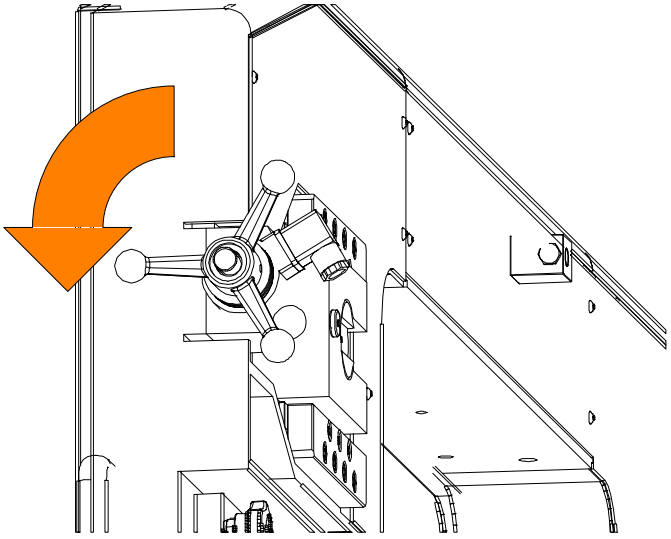
Warning

In case of machine in emergency, or simply to lower the cutting head without starting up belt rotation, close the cutting head descent regulator completely and press the START button, then gradually open the cutting head descent regulator. If the machine has version HH, perform the same operations by pressing the mushroom−shaped EMERGENCY button and the START button at the same time.

- disconnect the machine from the power supply;
- Wear protective gloves when changing the blade;
- open the cutting head cover by unscrewing the two knobs and hooking it onto the galvanised lever on the back of the head;

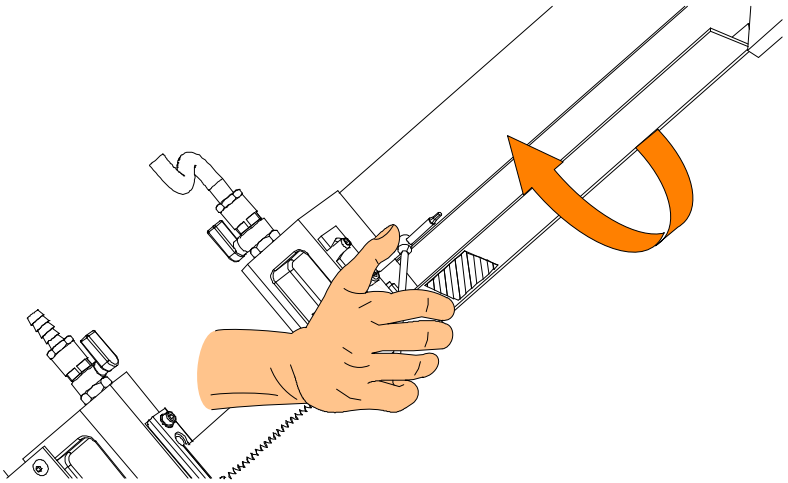


- un−tension the band using the relevant hand−wheel;

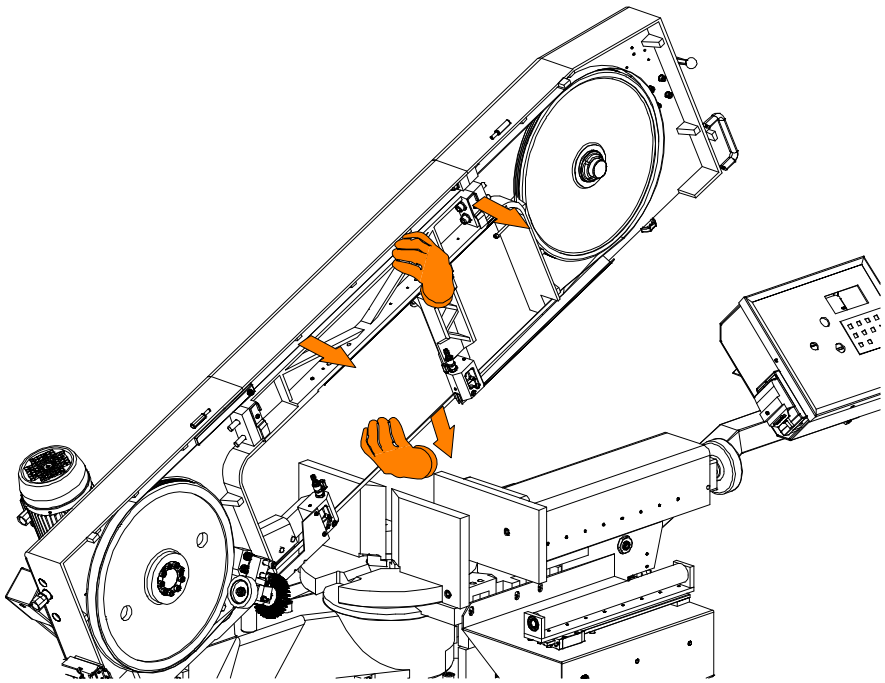


- remove the blade cleaning brush by removing the two TCF1 fixing screws;

- open the front blade guard by undoing the fixing screw and rotating it as illustrated in the figure below;



- remove the rear blade guard by undoing the two fixing screws using an Allen key;
- Remove the worn blade by sliding it off the flywheels and front and rear heads;
- fit the new blade into the front blade guide head;
- make sure the back of the blade is facing the flywheel stop and that the teeth along the lower part of the blade are inclined towards the head pivot.
- Make sure there is a small amount of play between the blade and guide plate inserts;

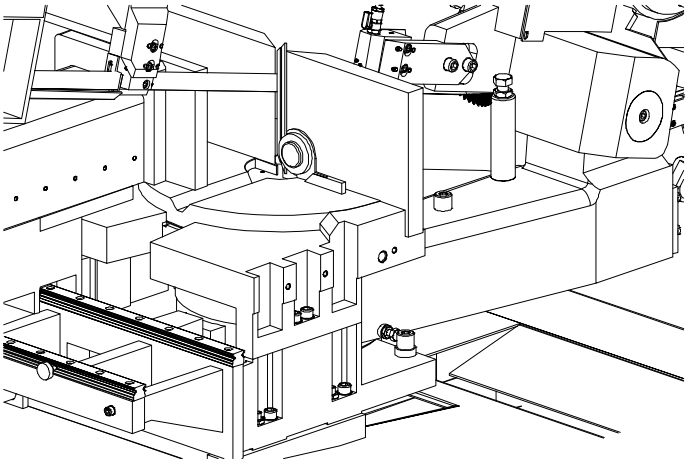


- repeat the above sequence of steps on the rear blade guide head;
- fit the blade on the flywheels and remount the front and rear blade guards;
- close the cutting head cover, correctly tension the blade and power up the machine.

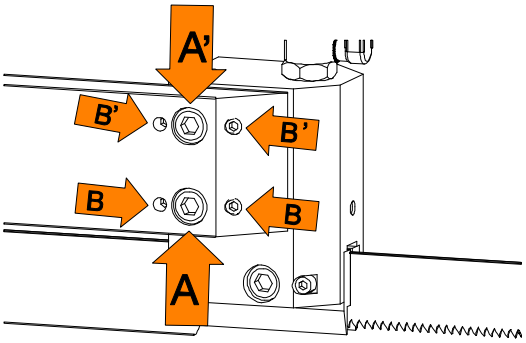
Blade perpendicularity

The perpendicularity of the blade to the work surface plus the blade tension are vital for achieving straight cuts. This adjustment is carried out with the help of a goniometer and a workshop square which should be placed adjacent to the blade resting on the work surface.

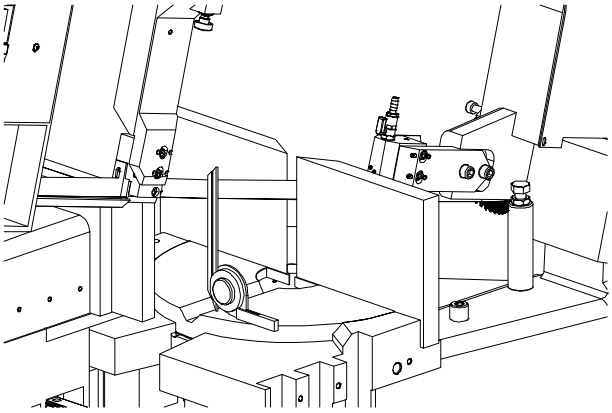
- ▶ disconnect the machine from the power supply;
- ▶ open the cutting vice;
- ▶ position the square on the cleaned work surface and rest it against the blade close to the right hand vice jaw at a point where the blade teeth do not prevent contact;



- ▶ Slacken the head fixing screw (A) and adjust the two grub screws (B) if the blade touches the square at the bottom. If the contact point is instead located at the top of the square, slacken screw (A) and tighten grubs screws (B) to the same torque until the blade is perpendicular to the square.



- ▶ Position the square on the relative surface near the front head.

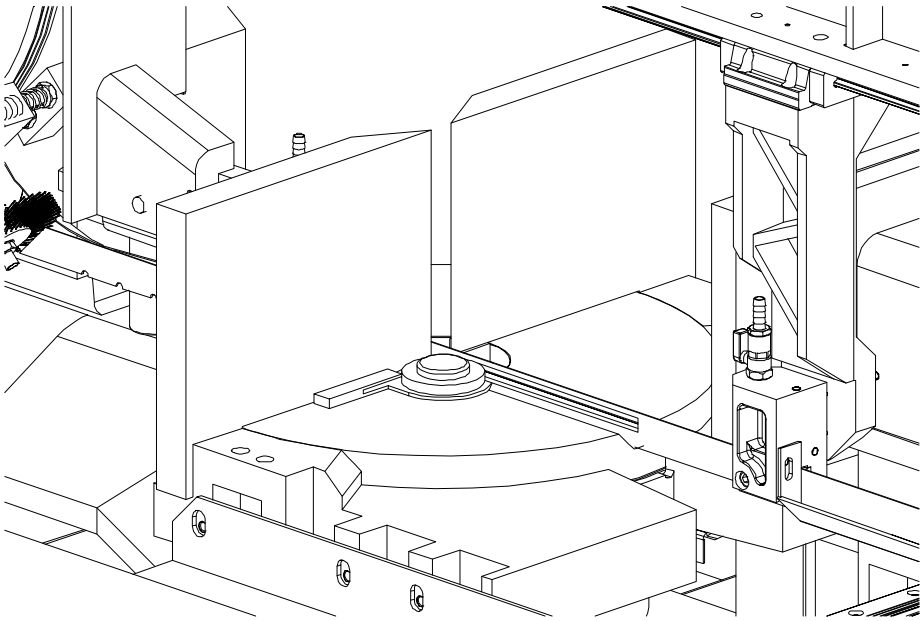


- ▶ Repeat the squaring sequence described above on the front head.

Blade orthogonality

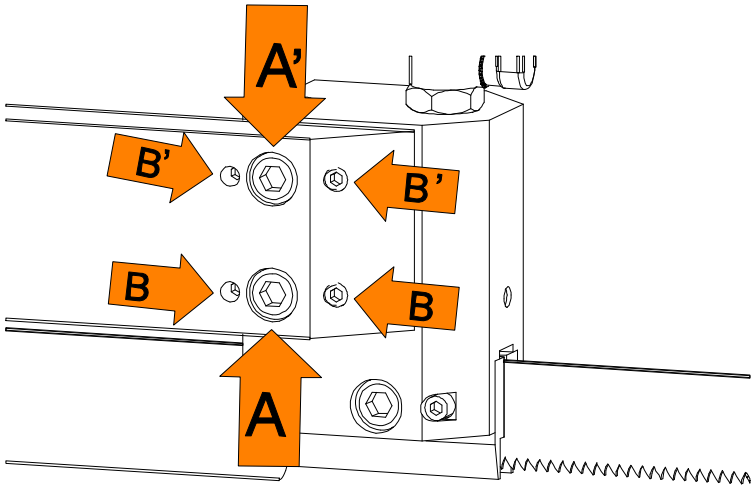
The procedure for correcting and adjusting the blade to 0 degrees in order to make cuts at right angles to the fxed vice jaw. To make **orthogonal adjustments at 0°**, use a workshop goniometer or a simple 90° square. Operation sequence:

- ▶ place the head in the lowest position;
- ▶ Position the goniometer or square against the fixed vice jaw adjacent to the blade;



If an error in orthogonality is found, realign the blade guide heads as follows:

- ▶ loosen the TCEI head locking screws (A–A) and uniformly adjust grub screws (B–B) until blade orthogonality in relation to workpiece rest shoulder, is obtained.

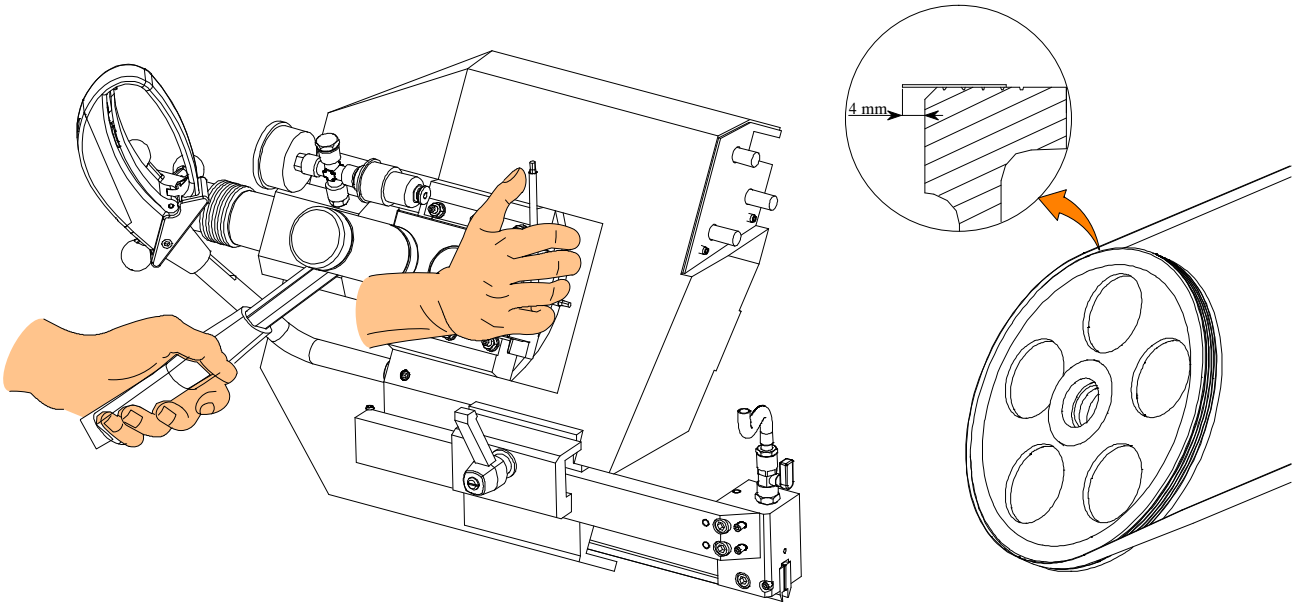


- ▶ After adjusting, check and restore blade perpendicularity.

Rotation axis control

Pulleys must be adjusted in their coplanarity. The adjustment is aimed at ensuring the belt rotation, keeping approx. 4 mm of distance from the point of the belt teeth to the pulley machined surface. This prevents an early wear of the belt.

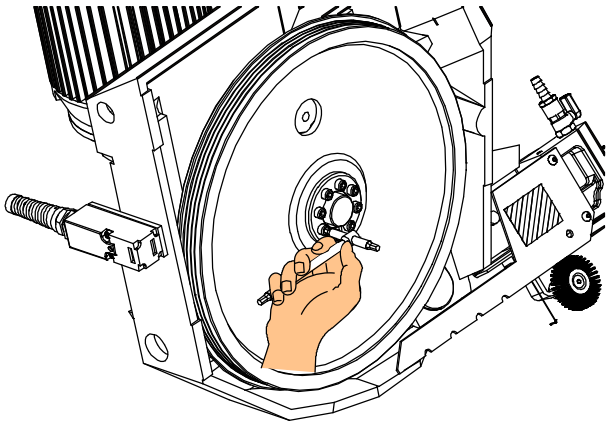
- ▶ Slacken the blade tension and open the cutting head cover;
- ▶ slacken the grub screw and, using a mallet, tap the shaft in or out;
- ▶ finally, close the cover and set the blade in motion;
- ▶ check the distance, as shown in the picture;



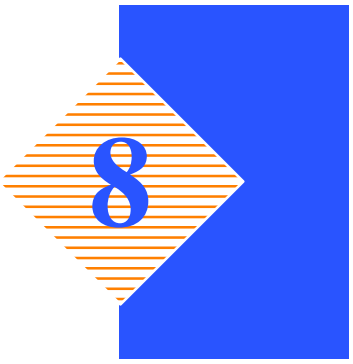
- ▶ if necessary, repeat the operation till getting the correct position.

Rear flywheel alignment is closely linked to adjustment of the front flywheel.

- ▶ Adjust by loosening all pulley locking screws and moving the pulley manually inwards or outwards according to the distance of the blade from the pulley machined surface. Tighten the screws again and check the coplanarity making the belt turn a few times.



Maintenance and choice of consumables



SHARK 512 SXI–EVO is built to be sturdy and long–lasting It has no need of any special maintenance, though, like all other tools, it needs adjusting from time to time, especially if not regularly looked over or used without due care.

This chapter, therefore, is intended as a guide for those who want to look after the machine and get the most out of it for as long as possible.

The role of the operator

The person operating and maintaining the machine must follow these instructions for his own safety, as well as for the safety of other personnel, and in the interests of machine productivity:

- check that his own work and that of the other operators of the machine always complies with the relevant safety standards. Therefore, check that the safety devices are in position and work perfectly and that personal safety requirements are complied with.
- Ensure that the working cycle is efficient and guarantees maximum productivity, checking:
  - the functions of the main components of the machine;
  - the sharpness of the blade and coolant flow;
  - the optimum working parameters for the type of material.
- Check that the quality of the cut is that required and that the final product does not have any machining defects.

Maintenance requirements

- All ordinary and extraordinary maintenance must be carried out with the power switched off and the machine in emergency condition.
- To guarantee perfect operation, all spare parts must be MEP S.p.A originals.
- On completion of maintenance works, ensure that the replaced parts or any tools used have been removed from the machine before starting it up.
- Any behaviour not in accordance with the instructions for using the machine may create risks for the operator.
- Therefore, read and follow all the instructions for use and maintenance of the machine and those on the product itself.

General maintenance

Daily

The daily maintenance operations to carry out on the machine are as follows:

- remove all swarf from the machine (preferably with a non−fibrous cloth);
- empty the swarf drawer (this is located on the right side of the base);
- top up the lubricant/coolant level;



- check state of blade wear and replace if necessary;
- check the blade cleaning brush, clean and relocate; if worn, replace;
- at the end of the working day, decrease tension in the blade to 550 Kg to avoid unnecessary and harmful strain on the tool.

Weekly

The weekly maintenance operations are as follows:

- remove all swarf;
- clean the vice and lubricate all joints and sliding surfaces with a good quality oil;

Monthly

This section lists the operations to be carried out for the monthly maintenance of the machine:

- check the perpendicularity of the blade to the work surface; if it is necessary to adjust the blade setting, follow the instructions set out in Chapter 7;
- check on blade orthogonality with respect to the workpiece rest shoulder; if adjustment is necessary, proceed as instructed in Chapter 7;
- check that the 0° notch on the work table is in line with the graduation on the turntable; if not, readjust by regulating the 0° stop; then re−check that the blade is perpendicular and orthogonal;
- check the precision of the 45° and 60° right stops and the 45° left stop; if out−of−set, adjust following the steps indicated in Chapter 7;
- check the state of the widia inserts and the blade steady button; replace if worn or chipped; check their positions and adjust if necessary (see Chapter 7);
- thoroughly clean the bottom of the water tank and the electropump filter.

Maintenance of working parts

Maintenance personnel working on the **SHARK 512 SXI−EVO** must pay particular attention to operating components such as the blade tensioning cylinder (already dealt with in Chapter 7), loading, the air treatment unit and the pneumatic vice. No maintenance is required for the worm screw reduction gear fitted on the machine.

Hydraulic powerpack

Maintenance of the hydraulic powerpacks.
After every 1000 working hours:

- check the oil level visually, topping up with compatible oil if necessary,
- check that the pipe couplings are tightened;
- check for any leak.

After every 2000 working hours:

- carry out the same operations scheduled after 1000 working hours;
- check that the filters are clean.

After every 3000 working hours:

- carry out the same operations scheduled after 1000 and 2000 working hours;
- check the life declared in the oil specifications;
- drain the circuit and the tank of the power pack, filter the initial oil charge, if the oil life is still valid;
- drain the circuit and the tank of the power pack, replace the initial oil charge, if the oil life is not valid any more;
- never use cotton or frayed rags to clean the tank;
- clean or replace the filters;
- operate the machine idle for 30 minutes to drain the circuit automatically; at the end, check the oil level e possibly top up.

Consumable materials

It is essential to use specific oils for the pneumatic and lubricant/coolant circuits. The oils suitable for each of these circuits are listed below.

Oils for oleopneumatic circuit

The machine can be equipped with a worm gear which is permanently lubricated and therefore maintenance−free.
Otherwise, the machine can be equipped with a worm gear having filler cap, level checker and drain to top the oil up if necessary. Below, there is a short list of synthetic oils for permanent lubrication:

BP Energol SG XP220 − KLUBER Syntheso D220EP − ESSO Glycolube Range 220 − IP CT614 − FINA Girans.

Oil for lubricant/coolant fluid

The oil used for the machine lubricant/coolant fluid is CASTROL Syntolin TFX. Though there are no specific standards for these types of oils, MEP considers that the above product has the best price/quality rapport. The following oils can also be said to have similar characteristics and are therefore compatible:

AGIP NB 200 − SHELL Lutem TT − IP Utens Fluid−F

Finally, a lubricant/coolant guaranteed and distributed by a band saw manufacturer (LENOX) is BAND−ADE SAWING FLUID LENOX.

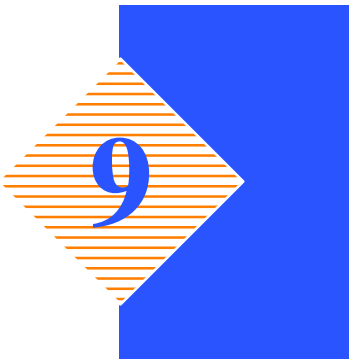
− tank capacity	Lt. 82
− oil concentration	5−6 %

Oils for spray mist system (optional)

The oil type used for the machine spray mist system is the cutting oil: Blaser Vascomill F 22.
Though there are no specific standards for these types of oils, MEP considers that the above product has the best price/quality rapport. The following oils can also be said to have similar characteristics and are therefore compatible:

SHELL MACROM 401 F22 − AGIP ESTRAMET F20

Cutting speed and choice of tools



The cutting speed is determined by the blade speed and the head feed speed. While the head speed is provided by the downstroke movement of the head, the blade rotation speed can either be fixed or variable. When using the **SHARK 512 SXI–EVO**, it is important to select the correct type of blade for the material to be cut. This chapter explains the limitations and specific applications of the different types of blades.

Cutting speed

Standard machine

The basic version with 4 pole motor, is provided with the following cutting speeds:

- 1st speed = 15 ÷ 100 m/min

Inverter technical specifications	
Protection rating	IP 31
Vibration and shock resistance (EN50178)	0.6 gn from 10 to 50 Hz 2 gn from 50 to 150 Hz
Max. relative humidity	93% without condensation or drop–forming
Acceptable Temperature Range (EN 50178)	For warehouse storing: from –25° C to +65° C For operating purposes: from –10° C to +40° C
Max. altitude	1000mt. with no derating
Supply	– single phase: 200V – 15% to 240V + 10%
	– three phase: 200V – 15% to 230V + 10% 380V – 15% to 460V + 10%
Frequency	50/60 Hz ± 5%
Output voltage	Maximum voltage equal to the supply voltage
Output frequency range	0,5 przy 320 Hz
Max. transients	150% of electronic speed control rated current for 60 secs.
Frequency resolution	– Display: 0.1 Hz – Analog inputs: 0.1 Hz per 100 Hz max.
Switching frequency	Adjustable from 2.2 to 12 Hz max.
Electronic speed control protection and safety devices	Short circuit protection: – of available internal supplies; –between U–V–W output phases between phase and earth for calibres from 5.5 to 15Kw
	Thermal protection against overheating and overcurrents
Motor protections	Protection integrated in the electronic speed control with 1^2t calculation
Motor protections	Protection integrated in the electronic speed control with 1^2t calculation
Motor protections	Protection integrated in the electronic speed control with 1^2t calculation

Choice of blade

When using band saws to cut metals, an important factor is the choice of pitch, i.e. the number of teeth per inch (25.4 mm.), which must be suitable for the workpiece material. The following recommendations may be taken as general guidelines:

- thin−walled materials, such as sheet steel, tubes and profiles require a fine pitch frequency. 3 to 6 teeth should be engaged in the breadth of the material at any one time;
- large section cutting requires a coarse pitch to cope with the higher volume of swarf and optimal tooth penetration;
- soft materials (aluminium alloys, soft bronze etc.) also require a coarse tooth pitch.

Saw tooth pitch

The choice of teeth per inch, therefore, depends on various factors:

- the size of the section;
- the hardness of the material;
- workpiece wall breadth.

Very large dimensions require coarse teeth, while small dimensions require finer teeth. Whatever the case, ensure that there are always at least six teeth engaged in the cut, with reference to the thinnest vertical walls positioned transversally to the blade.

Cutting speed and downstroke speed

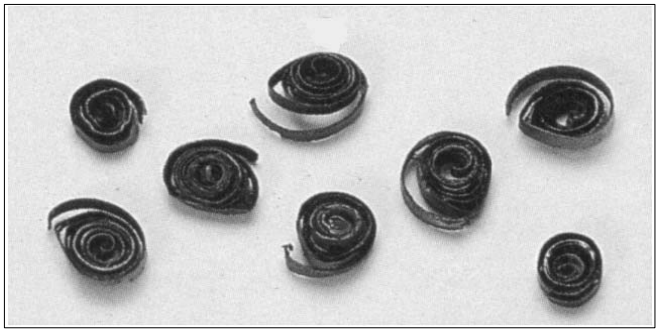
The cutting speed (m/min) and the downstroke speed (cm^2/min) are limited by the heat generated around the points of the teeth. If the downstroke speed is too high, the cut will not be straight, either vertically or horizontally. The cutting speed depends, as indicated above, on the tensile strength of the material (kg/mm^2), its hardness (HRB) and the thickness of largest sections. The downstroke speed depends on the material thickness. Therefore, large−section, solid or thick−walled materials ($s > 5$ mm), can be cut at high speeds, providing there is sufficient swarf removal from the blade; thin−walled materials, such as slim piping or profiles, must be cut using low and especially constant downstroke speeds. A new blade must be worn in, which in effect means lowering the downstroke speed to about half that of normal (from 60 to 70 cm^2/min on normal steels), equal to a removed surface area of about 300 − 600 cm^2.

Types of swarf:

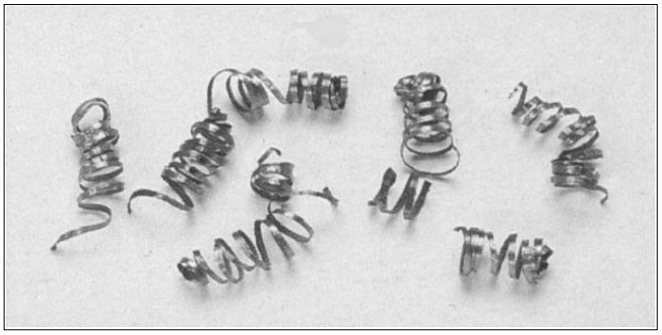
- Very fine or fragmented swarf indicates that the downstroke speed and/or cutting pressure is too low.



- Thick and/or blue swarf indicates that the blade is overloaded.

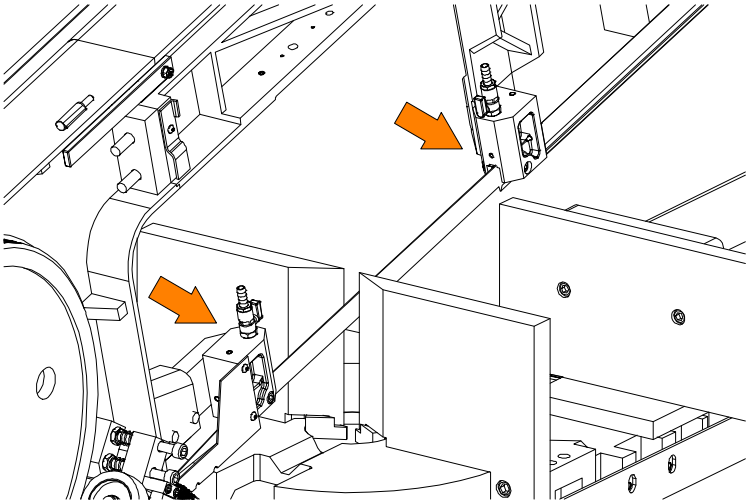


- Long coils of swarf indicate ideal cutting conditions.



Lubricant/coolant fluid

The lubricant/coolant fluid must ensure so that neither the saw teeth nor the work piece material in the cutting zone overheat. Furthermore, there must be a sufficient quantity and pressure of lubricant/coolant to remove swarf from the cutting zone. The lubricant/coolant fluid must be of the highest quality in order to prevent tooth abrasion and welding of swarf to the teeth themselves (seizing).

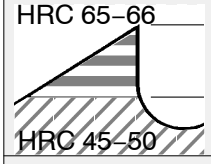
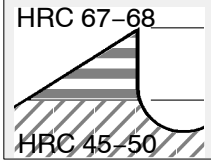


Blade structure

The most commonly used blades are the bimetal types, i.e. manufactured with a silicon steel body and having a high fatigue strength, and super high−speed steel teeth; the two parts are welded by electronic or laser−welding.

Standardised teeth types are termed M2 and M42; the difference being that M42 teeth are harder due to the addition of cobalt to the steel used to make the teeth.

Key									
Mo	Molybdenum	Ni	Nickel	Si	Silicon	V	Vanadium	W	Tungsten
Al	Aluminium	C	Carbon	Co	Cobalt	Cr	Chromium	Mn	Manganese

TYPE OF BLADE	C	Mn	Si	Cr	W	Mo	V	Ni	Co	Al	HRC
	0,47	0,75	0,22	1,00		1,00	0,12	0,52		0,08	45–50
HSS M2 	0,85	0,25	0,30	4,15	6,37	5,00	1,92				64–66
HSS M42 	1,07	0,25	0,20	3,75	1,50	9,50	1,15		8,00		67–69

N.B. The numbers in the columns indicate the % content of the element in the steel.

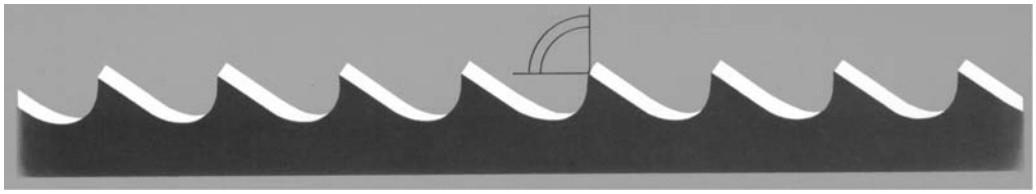
Blade types

The blades mounted on the **SHARK 512 SXI−EVO** are 4640 x 34 x 1,1 mm the length can vary between 4620 mm. and 4660 mm thanks to the blade tensioner device. The blades, however, apart from size and tooth pitch, are differentiated by other geometrical characteristics which determine their specialised uses:

- tooth cutting angle (rake), can be 0° or positive;
- the tooth pitch can be constant or variable;
- the set, i.e. the various teeth alignments, have many possible configurations.

Conventional rake

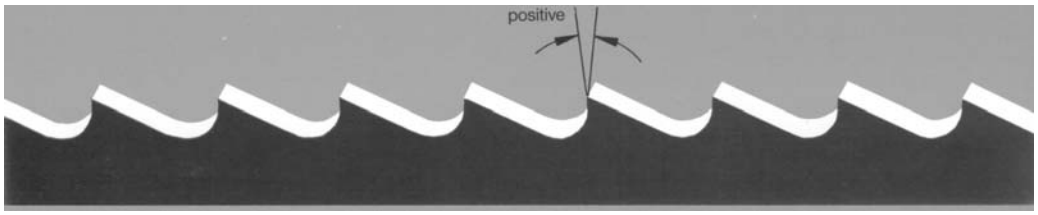
Cutting angle 0°, constant pitch.



In general use, for small or medium section cast iron or steels and rolled materials, for straight or angled cuts.

Positive rake

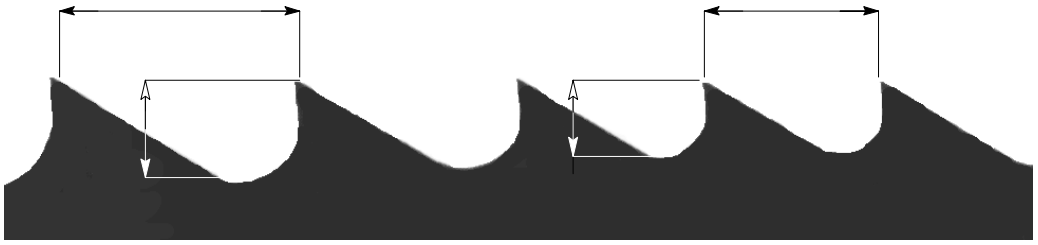
Positive cutting angle 9–10°, constant pitch.



Can be used for cutting all types of materials, and is particularly suited to low–carbon and non–ferrous steels. Used for cutting very large sections and diameters.

Variable pitch

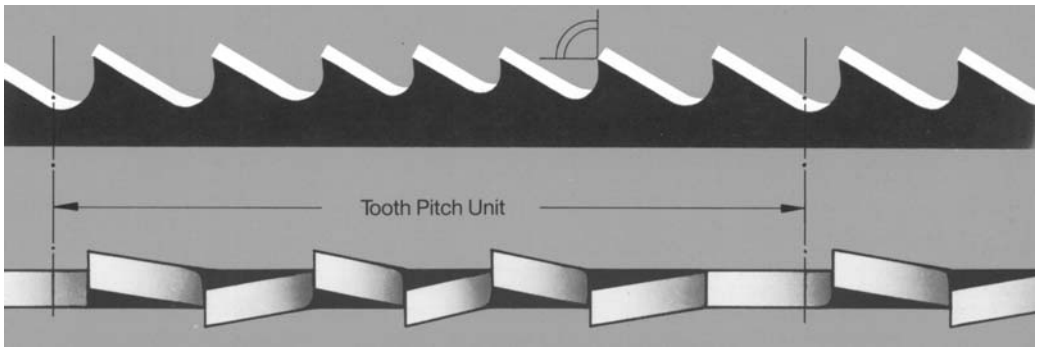
These blades have groups of teeth having different pitches and, as a consequence, have various tooth dimensions and differing relief angles. These are also available in M2 and M42 types with zero and positive rakes. The alternation of the different types of teeth helps to prevent vibration and noise. Elimination of vibration increases the useful life of the tool and improves the cut surface finish.



A further advantage in using these types of blades lies in the fact that a wide range of different material types and dimensions can be cut with the same blade.

Variable pitch blades with 0° cutting angle

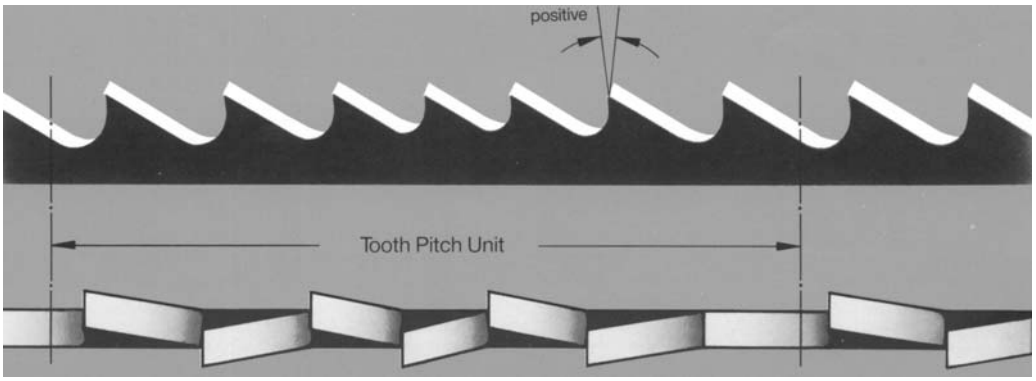
This type of tooth formation is ideal for cutting single pipes or medium size bundles, in accordance with the capacity of the machine.



Pitches available: 3−4 / 4−6 / 5−7 / 5−8 / 6−10 / 8−12 / 10−14.

Variable pitch with positive rake (from 9 to 10 degrees)

This toothing type is the most suitable for cutting large dimension pipes and profiles, including large sections, as well as for cutting solid sections up to the machine capacity limit.



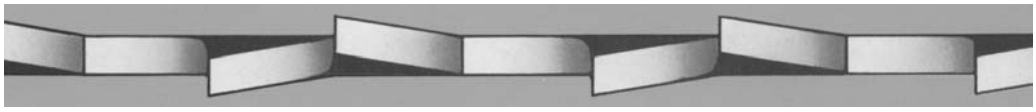
Pitches available: 3−4 / 4−6.

Set:

The term set refers to the section of material removed by the blade during the cutting operation, i.e. relating to width of cut and the offset position of the teeth with respect to the blade back.

Standard or splayed set

This term is used to describe an alternated angling of the teeth: one to the right, one to the left and one straight.



For general use on materials over 5 mm. thick. Suitable for cutting steels, castings and non−ferrous hard materials.

Undulated set

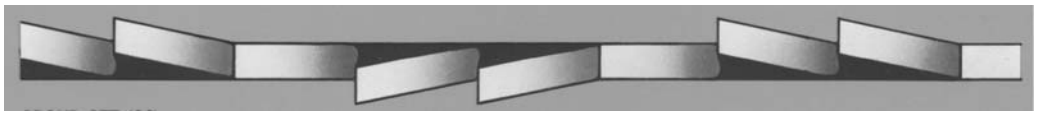
Used to describe groups of teeth undulating alternatively to the right and left.



This type of set is used with very fine teeth for cutting thin pipe walls and small−section profiles (from 1 to 3 mm).

Alternating grouped sets

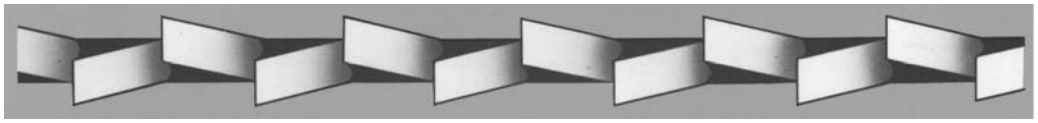
These are groups of teeth angled to the right, one straight tooth, then a further group angled to the left.



This set is used for very fine teeth for cutting very thin sections (less than 1 mm).

Alternating set

This set is one tooth to the right followed by one to the left.



This set is used for soft non−ferrous materials, plastics and wood.

Blade selection table relating to cutting speed and downstroke speed

Cutting material	Cutting speed mt./min	Dimensions of the cutting section S (mm) S10	10S30	30S50	50S80	80S120	120S230	Lubrication	sq. mt./min. cut
Structural steel	50 / 70	10 / 14	10 / 14	6 / 10	5 / 8	4 / 6	3 / 4	Emulsible oil	60 – 70
Casehardened steel		14	10	8	6	4	3		
Steel for turning								Cutting fluid	
Mild steel									
High–duty cast iron	40 / 50	10 / 14	10 / 14	6 / 10	5 / 8	4 / 6	3 / 4	Emulsible oil	50 – 60
Rolled steel		14	10	8	6	4	3		
Spring steel									
Alloy steel	30 / 40	10 / 14	10 / 14	6 / 10	5 / 8	4 / 6	3 / 4	Emulsible oil	15 – 20
Tool steel		14	10	8	6	4	3	Cutting fluid	
Valve steel									
Stainless steel	30 / 40	10 / 14	10 / 14	6 / 10	5 / 8	4 / 6	3 / 4	Emulsible oil	15 – 20
Nodular cast iron		14	10	8	6	4	3		
Copper	90 / 150	10 / 14	10 / 14	5 / 8	4 / 6	3 / 4	3 / 4	Emulsible oil	75 – 90
Soft bronze		14	10	6	4	3	3		
Brass	90 / 300	10 / 14	10 / 14	5 / 8	4 / 6	3 / 4	3 / 4	Emulsible oil	80 – 90
		14	10	6	4	3	3		
Hard bronze	20 / 40	10 / 14	10 / 14	5 / 8	4 / 6	3 / 4	3 / 4	Emulsible oil	25 – 40
		14	10	6	4	3	3		
Aluminium	80 / 800	10 / 14	10 / 14	4 / 6	3 / 4	3 / 4	3 / 4	Emulsible oil	70 – 80
		14	6	4	3	3	3		
Plastics	90 / 400	10 / 14	10 / 14	4 / 6	4 / 6	3 / 4	3 / 4	Emulsible oil	80 – 90
		14	6	4	4	3	3		

Blade pitch **Number of teeth per inch**

Classification of steels

This page provides a table giving the user specific information on the cutting materials, in order that they can be classified on the basis of their hardness, and thus the correct tool can be selected for the task in hand.

Types of steel				Hardness		
UNI	DIN	BS	AISI	Brinell HB	HRB	kg/mm2
C 22 – C 35	CK 22 – CK 3	En 2 C – En 6	1022 – 1035	160 – 170	34 – 87	55 – 59
C 45	CK 45	En 8	1040	160 – 180	84 – 89	55 – 61
C 10 – C 15	CK 10 – CK 15	En 32 A – En 328	1010 – 1015	150 – 175	81 – 87	51 – 59
C 60	CK 60	En 9	1060	160 – 180	84 – 89	55 – 61
		4360 – 50 A		160 – 180	84 – 89	55 – 61
	17100	3706 – 1.2.3.	ASTMA – 36/68	160 – 180	84 – 89	55 – 61
45 Cr Si 9	17115	4360		160 – 180	84 – 89	55 – 61
		En 20 A		190 – 215	91 – 97	64 – 73
34 Cr Mo 5	17221	970 – 1955	1065	180 – 205	89 – 94	61 – 69
		En 18 B	5135 – 5145	180 – 200	89 – 93	61 – 67
35 Cr Mo 4	34 Cr Mo	En 19 B	4135	200 – 230	93 – 99	67 – 77
	36 Ni Cr 6	En 111	3135	190 – 230	91 – 99	64 – 77
		En 36	3310 – 3315	200 – 230	93 – 99	67 – 77
20 Nc Cr Mo 2		En 362	4315	200 – 225	93 – 98	67 – 75
		En 100 D	8645	190 – 220	91 – 97	64 – 74
	1880 X C 95	DX	W 1	150 – 190	80 – 91	51 – 64
100 Cr 6	100 Cr 6	En 31	52100	210 – 230	96 – 99	71 – 77
		B 2	L 6	190 – 230	91 – 99	64 – 77
52 Nc Cr Mo KU	56 Ni Cr Mo V 7			217 – 248	97 – 102	73 – 83
	2750 (280W18)	18 % W	T 1	217 – 248	97 – 102	73 – 83
		1507 – 825	1310	160 – 220	84 – 91	55 – 64
		A 2	M 13	200 – 230	93 – 99	67 – 77
	210 Cr 46	A 1	D 3	215 – 240	97 – 101	73 – 81
	4845	En 58 G	309 S	150 – 200	80 – 93	51 – 67
X 12 Cr 13	4001	En 56 A	410	150 – 200	80 – 93	51 – 67
X 6 Cr Ni 1810	4301	En 58 E	304	130 – 170	74 – 86	45 – 58
X Cr Ni 1910						
X 8 Cr Ni Mo 1713	4401	1501 – 845	316	160 – 200	84 – 93	55 – 67
Phosphor bronze				60 – 100	56,5	36
Aluminium bronze				70 – 90	49	32
Manganese bronze				95 – 120	51 – 69	34 – 42
Silicon bronze				70 – 100	56,5	36

Classification of steels

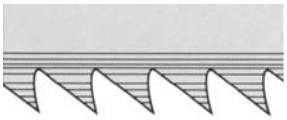
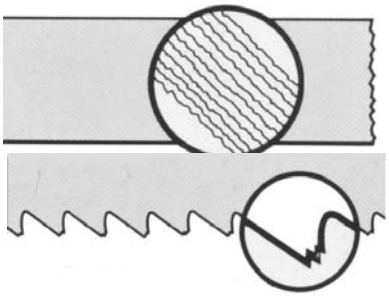
Material	SS Svezia	AISI U.S.A.	DIN Germania	BS Inghilterra	UNI Italia	AFNOR Francia
Carbon steels	1311	1015 – 1035	C 22 – C 35	050 A 20	C 15 – C 35	XC 18
			20 Mn 5 – 28 Mn 6	080 M 46 – 50	C 22 Mn	XC 38 H 1
	1572		CK 22 – CK 50	120 M 19	C 28 Mn	20 M 5
				150 M 28		
Carbon steels	1650	1040 – 1064	CK 60 – CK 101	060 A 40 – 060 A 96		XC 60 – XC 75
			36 Mn 5	070 M 55		40 M 5
	1880	1770 – 1880	Cm 45 – Cm 55	080 A 40 – 080 A 62	C 45 – C 60	XC 42 H 1
						XC 55 H 1
Alloy steel	2120	1335 – 1345	25 Cr Mo 4 – 42 Cr Mo 4	1717 CDS 110	25 Cr Mo 4 – 42 Cr Mo 4	25 CD 4
				708 A 37		
	2255	4130 – 4140		708 M 40		42 CD 4
Alloy steels	2541	4337 – 4340	40 Ni Cr Mo 6	735 A 50, 534 A 99	40 Ni Cr Mo 2 – 40 Ni Cr Mo 7	35 NCD 6
	2230	50100 – 52100	40 Ni Cr Mo 73	817 M 40	30 Ni Cr Mo 8 – 35 Ni Cr Mo 6 KB	50 CV 4
	2258	6145 – 6152 8630 – 8645	34 Cr Ni Mo 6, 100 Cr 6	311 typu 6 i 7	50 Cr V 4, 100 Cr 6	100 C 6
Tool steels	2310 – 12	D – 2, D – 3	X 210 Cr 12	BD 2, BD 3	X 205 Cr 12 KU	Z 160 CVD 12
	2754 – 55		X 155 Cr V Mo 121		X 155 Cr V Mo 121 KU	Z 200 C 12
Tool steel	2550	S – 1	60 W Cr V 7	BS 1	55 W Cr V 8 Ku	55 NCVD 7
	2710		55 Ni Cr Mo V 6		55 Ni Cr Mo V 6	
Stainless steels	2324	201, 202	X 2 Cr Ni 189	304 S 15	X 2 Cr Ni 18.11	Z 2 CN 18.10
	2333	302, 304	X 5 Cr Ni 189	304 C 12	X 5 Cr Ni 18.10	Z 6 CN 18.09
			G – X 2 Cr Ni 189	304 S 12	G – X 2 Cr Ni 19.10	Z 3 CN 19.10
Stainless steel	2343	314, 316	X 15 Cr Ni Si 2520	316 S 16	X 16 Cr Ni Si 2520	Z 12 CNS 25.20
			X 5 Cr Ni Mo 1812		X 5 Cr Ni Mo 1713	
	2353	317	X 5 Cr Ni Mo 1713	317 S 16	X 5 Cr Ni Mo 1815	Z 6 CND 17.12

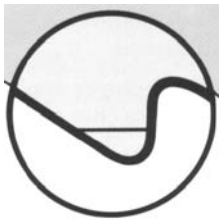
Troubleshooting

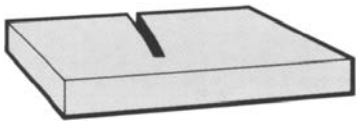
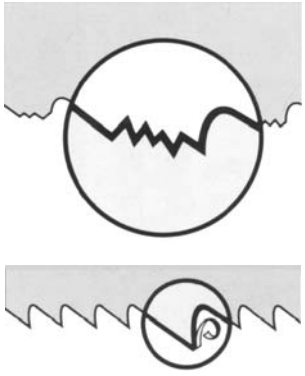
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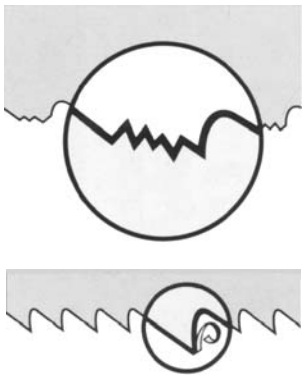
This chapter describes the inspection and troubleshooting procedures for the **SHARK 512 SXI–EVO**. Regular inspections and efficient maintenance are essential to ensure your machine gives you a long, trouble–free service life. The chapter is divided into two sections: the first being dedicated specifically to TROUBLESHOOTING BLADE AND CUTTING PROBLEMS, while the second TROUBLESHOOTING section concerns troubleshooting general machine operating faults. Taken together they form a comprehensive troubleshooting guide which will enable you to follow a methodical procedure for solving any problem.

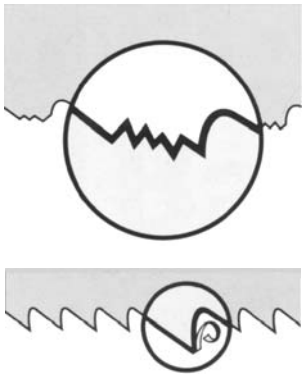
Troubleshooting blade and cutting problems

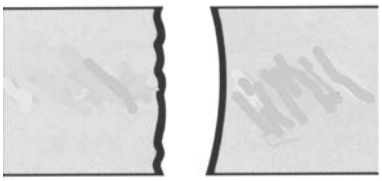
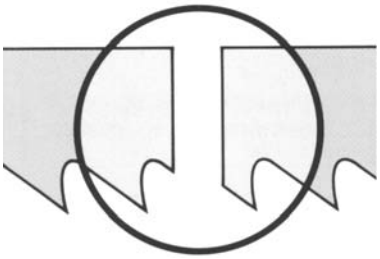
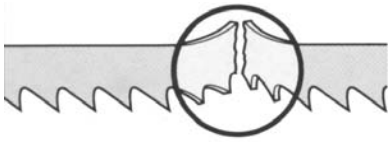
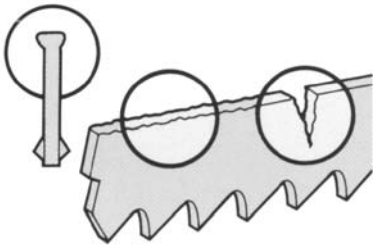
PROBLEM	PROBABLE CAUSE	SOLUTION
Blade scored or scratched 	◗ Widia inserts chipped or worn	☞Replace
	◗ Widia inserts loose or tight	☞Adjust
	◗ Widia inserts dirty	☞Clean and re–adjust correctly
Cutting surfaces scored 	◗ Blade teeth worn	☞Replace blade
	◗ Head downstroke speed too fast	☞Reduce downstroke speed
	◗ Cutting speed too slow	☞Increase cutting speed
	◗ Blade teeth too wide	☞Change for wider teeth
	◗ Free blade guide head too far away	☞Move blade guide head closer so as to leave only that part of the blade free which is needed to effect the cut
	◗ Blade tension low	☞Reset tension to rated tension
	◗ Broken teeth on blade	☞Check and replace blade

PROBLEM	PROBABLE CAUSE	SOLUTION
Rapid tooth wear 	◗ Teeth pointing in the wrong direction	☞Set teeth in correct direction
	◗ Blade worn in wrongly	☞With a new blade cutting should be done at half–speed and with downstroke speed also at half normal speed. After the blade has been worn in (about 300 cm^2 of work for hard cutting materials and about 1000 cm^2 for soft cutting materials) the cutting and downstroke speeds can be brought up to rated levels
	◗ Material too hard	☞Check cutting speed, downstroke speed and blade pressure, as well as type of band saw being used
	◗ Material defective	☞Surface defects: oxides, sand, surface hardening. Hardened inclusions in section. Reduce cutting and downstroke speeds or clean surface.
	◗ Cutting speed too high	☞The teeth slide on the material without cutting: reduce cutting speed
	◗ Head downstroke speed too slow	☞The band saw runs over the material without removing it: increase downstroke speed
	◗ Insufficient coolant	☞Check coolant level and clean pipes and jets
	◗ Incorrect fluid concentration	☞Check and use the correct concentration
	◗ New blade inserted into a partially–made cut	☞The cutting surface might have been subject to a localised heat–induced alteration, making it harder: recommence cut using a slower cutting and downstroke speed. There may be a broken tooth from the old blade lodged in the cut: check and remove before recommencing work
	◗ Flutter	☞Blade tension too low: tighten. Tooth shape or pitch unacceptable: change type of blade used. Widia blade steady buttons too far from the blade back: adjust guide heads, rotating them slightly to bring them closer to the blade back.

PROBLEM	PROBABLE CAUSE	SOLUTION
Cuts not orthogonal or inclined 	◗ Head downstroke speed too fast	☞Reduce head downstroke speed
	◗ Widia inserts worn	☞Replace
	◗ Inserts loose	☞Adjust width
	◗ Blade guide head positioned wrongly	☞Move mobile head up to the workpiece using the guide plate to leave free only that part of the blade actually needed to make the cut
	◗ Orthogonality of blade to workpiece rest shoulder	☞Check and realign the blade guide heads, then reset the blade orthogonality with the shoulder using the adjustment pin at 0° ; then set the stops at 45° right and left by means of the appropriate screws
	◗ Perpendicularity of the blade to the work surface	☞Check and realign the blade guide heads then adjust the blade using the appropriate screws so that it is perpendicular to the work surface
	◗ Blade tension incorrect	☞Bring pressure up to 60 Bar
	◗ Blade worn	☞Replace blade
	◗ Tooth pitch unsuitable	☞Probably a blade with too many teeth per inch is being used; change for a coarser blade
	◗ Cutting speed too slow	☞Increase the cutting speed
	◗ Wrong coolant	☞Check the water and oil emulsion; check that none of the holes or hoses are blocked; direct the jets correctly
	◗ Broken teeth	☞Check the hardness of the material being cut
Broken teeth 	◗ Cutting speed too high	☞Reduce cutting speed
	◗ Downstroke speed too high	☞Reduce downstroke speed

PROBLEM	PROBABLE CAUSE	SOLUTION
Broken teeth 	◗ Cutting pressure too high	☞Check and set to correct pressure
	◗ Tooth pitch unsuitable	☞Teeth too close together: change blade for one with a coarser tooth pitch
	◗ Swarf welded to teeth and gullets	☞Check blade–cleaning coolant jets. Check the blade–cleaning brush. If the swarf is not removed from the blade it will be drawn back into the cut and weld to the teeth, causing tooth breakage
	◗ Swarf welded to teeth and gullets	☞Check blade–cleaning fluid jets. Check blade–cleaning brush. If the swarf is not removed from the blade it will be drawn back into the cut and weld to the teeth, causing the teeth to break.
	◗ Material defects	☞The material may have altered surface areas, such as oxides or sand, or subcooled inclusions in the section. These areas are much harder than the blade and will cause the teeth to break: scrap or clean these materials.
	◗ Workpiece not clamped	☞The blade may break if the workpiece moves during cutting: check the vice, jaws and clamping pressure
	◗ The blade stops in the cut	☞Cutting pressure too high: check and restore to rated pressure. Downstroke speed too fast: reduce speed. Cutting speed too slow: increase. The blade slips on the flywheels: either the wheels are worn and need to be replaced or the blade tension is incorrect (too low) and must be re–adjusted.
	◗ New blade inserted in a partially made cut	☞The cutting surface may have been subjected to a localised heat–induced alteration, making it harder: recommence cut using a slower cutting and downstroke speed. A tooth from the old blade may be left in the cut: check and remove before restarting work.

PROBLEM	PROBABLE CAUSE	SOLUTION
Broken teeth 	◗ Widia inserts positioned incorrectly	☞Adjust the position of the inserts, especially the width, since blade thicknesses can exceed the manufacturer's declared tolerance ratings
	◗ Widia blade steady buttons	☞Two widia blade steady buttons are located in the top of the blade guide heads which press on the back of the blade to transmit cutting pressure. If these buttons are too far from the blade, the blade may be prone to an up and down undulating action or abnormal vibrations, liable to cause the teeth to break: adjust the position of the heads by rotating them downwards so as to bring the blade steady buttons up against the back of the blade
	◗ Sections with large thickness variations	☞The cutting speed and downstroke speed must be chosen to suit the most critical part of the cut
	◗ Teeth angled in the wrong direction	☞Fit blade so that teeth point in the right direction
	◗ Blade run in wrongly	☞When using a new blade, the cutting and downstroke speeds must be reduced to half the normal operating speed. After the blade has been worn in (about 300 cm2 for hard materials and about 1000 cm2 for soft materials) the cutting and downstroke speeds may be returned to their rated levels
	◗ Insufficient coolant	☞Check coolant level and clean fluid lines and jets
	◗ Incorrect fluid concentration	☞Check and use the correct concentration
	◗ Blade tension too high or too low	☞Check and reset to rated tension

PROBLEM	PROBABLE CAUSE	SOLUTION
Blade path fault 	◗ Front flywheel position incorrect	☞Check that the band saw is correctly positioned on the flywheel. Adjust the position of the flywheel under the blade, moving the shaft of the flywheel
	◗ Flywheels worn	☞Replace
	◗ Gaps full of swarf	☞Clean inside machine using blown air.
	◗ Blade guide head alignment	☞Check and adjust
Blade broken    	◗ Cutting speed too high	☞Reduce cutting speed
	◗ Head downstroke too fast	☞Reduce head downstroke speed
	◗ Cutting pressure too high	☞Check and set to correct pressure
	◗ Tooth pitch unsuitable	☞Teeth too close together: change the blade for one with coarser tooth spacings
	◗ Workpiece not clamped properly	☞The blade may break if the workpiece moves during cutting: check the vice, jaws and clamping pressure.
	◗ Widia inserts positioned incorrectly	☞Adjust inserts position, especially the width, since blade thickness can exceed the manufacturer's declared tolerance ratings
	◗ Widia blade steady buttons	☞Can have a milling action on the back of the blade if worn or chipped, causing cracks from the back towards the teeth.
	◗ Position of blade on flywheels incorrect	☞The blade may be scraping on the edges of the flywheels: this problem is generally caused by blades which are deformed or wrongly welded (conical) Adjust the position of the front flywheel by moving the pin, or change the blade
	◗ Blade tension incorrect	☞If the blade tension is too high or too low, the blade will be subjected to abnormal stress: set the tension back to the rated value.
	◗ Blade weld fault	☞The point at which a blade is welded is its most critical point; problems could be caused by welds which are not aligned perfectly or have inclusions or blowholes

PROBLEM	PROBABLE CAUSE	SOLUTION
	◗ Free blade guide head	☞The head is too far away from the workpiece: move the head closer, leaving free only that part of the blade actually needed to make the cut
	◗ Teeth in contact with the material before starting the cut	☞Always check the position of the blade before starting a new job, especially for the semi–automatic cycle
	◗ Widia inserts	☞If worn, the inserts can score the blade, weakening it even to breaking point. If the inserts are too far apart, the blade will whip, striking both the inserts and the material. Replace or adjust
	◗ Insufficient coolant	☞Check coolant fluid level; clean pipes and jets
	◗ Incorrect fluid concentration	☞Check and use the correct concentration
	◗ The blade stops in the cut	☞Cutting pressure too high: check pressure and reset to rated pressure. Head downstroke speed too fast: reduce. Head downstroke speed too slow: increase. The blade slips on the flywheels: incorrect or low blade tension; readjust or increase.

Troubleshooting

This section deals with the problems which may occur during machine operation. The MEP 30 controller allows you to test all the machine's electric and electronic devices by checking the status of the input and output signals on the IUD/IUV card (see Chapter 6).

The board IUD/IUV is inside the electric board.

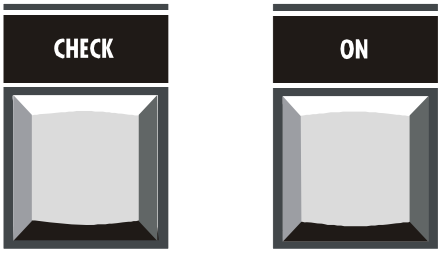
Displaying the diagnostics menu

▶ Power the machine rotating the main switch on the left side of the control

board;



▶ press simultaneously and in sequence the keys CHECK and ON;



Diagnostics system

Once you have opened the diagnostics menu, a set of characters, each corresponding to an OUTPUT signal on the MEP 30 controller, is displayed. For further information about the machine's outputs, refer to the electrical and electronic diagrams illustrated in Chapter 6 of this manual.

Testing the control console keyboard

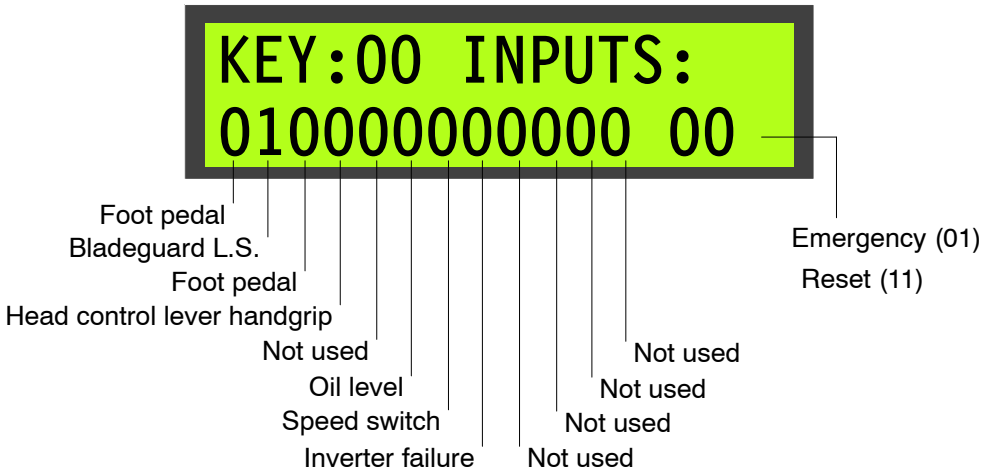
Each console key has an identification number which is displayed on the diagnostics screen after the letter "K", when the key is pressed. For example, when pressing the key for the manual cycle (HAND key), the figure 12 is displayed next to the letter "K":



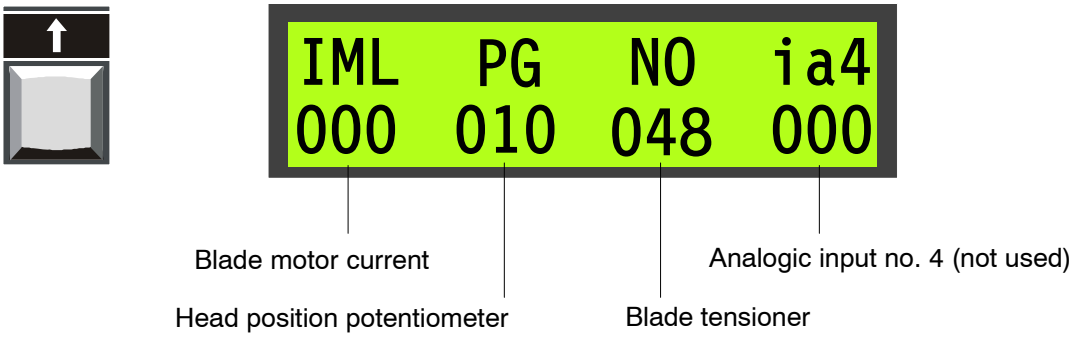
if the figure K does not change pressing the key HAND, the probable malfunctioning is due to the console key that does not deliver power when closed.

List of IUD–IUV card INPUTS

▶ the digits 0 and 1 shown in the display lower line indicate the status OFF (0) or ON (1) of each single input;

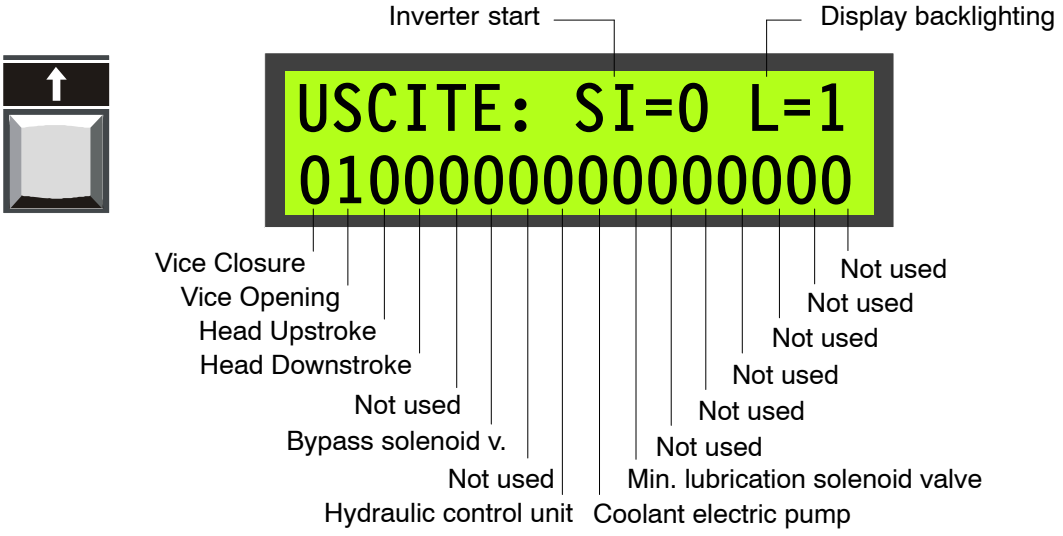


▶ Starting from the video page of the digital inputs, press the key “arrow up” once to display the list of the analogic inputs of the board IUD/IUV:

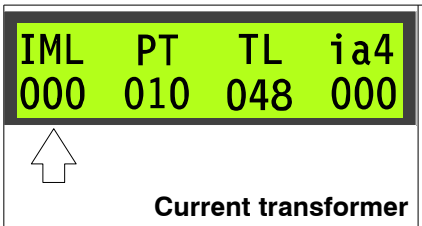
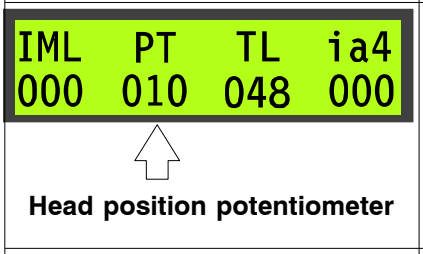
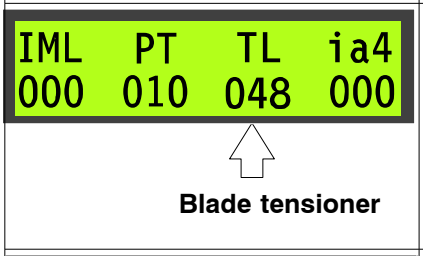
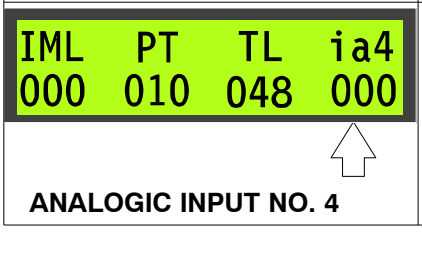


List of IUD–IUV card OUTPUTS

▶ Starting from the video page of the digital inputs, press the key “arrow up” once to display the list of the outputs of the board IUD/IUV:



▶ the digits 0 and 1 shown in the display lower line indicate the status OFF (0) or ON (1) of each single output. Pressing the ▶ or ◀ key it is possible to move the cursor till selecting the output to be checked. Pressing the ▲ key it is activated or deactivated.

	**AMMETER TRANSFORMER FOR CHECKING BLADE MOTOR ABSORPTION** If the display of blade motor absorption doesn't visualise the current values any longer, it's possible to check if the fault is relative to "AMMETER TRANSFORMER", to visualisation, to wiring, or to input of IUV board.
	**POTENTIOMETER OF HEAD CYLINDER TRANSDUCER (CUTTING HEAD POSITION)** If, by moving the head upwards or downwards, the value visualised doesn't change, you can check if the problem is due to the transducer potentiometer, to connections or to problems of the IUV. Move the head manually and check that the value changes on the display.
	**PRESSURE SWITCH FOR SURVEYING PRESENCE OF COMPRESSED AIR** To reduce dangerous situations, if there's absence of air, a pressure switch inhibits all machine functions, safeguarding safety of operator from residual risks. If the visualised vale is 0 (OFF), it means that there's no pressure or that compressed air is disconnected.
	ANALOGIC INPUT NO. 4 Available for connecting optional instruments.

Machine alarms and emergencies

The machine's MEP 30 controller notifies the operator of any alarm or emergency condition which may occur during production by way of acoustic and visual signals. This section lists the messages shown on the display.

	This message is displayed during the initialisation phase after pressing the ON key
	This message is displayed when the cutting start position is lower than the previous position saved for the cutting end position. ▶Save both the FCTI and FCTA positions again.
	This message is displayed if the head is not positioned at the FCTI position when the cycle is STARTED. ▶Return the head to the FCTI position before resuming the cycle
	This message is displayed if the cycle is STARTED without having first selected the cutting speed. ▶Return the head to the FCTI position before resuming the cycle

STOP BUTTON PRESSED PRESS RESET	This message is displayed if an operation is activated before releasing the MUSHROOM HEAD EMERGENCY STOP button. ▶Release the EMERGENCY STOP button and press RESET.
EMERGENCY BLADE GUARD OPEN	This message is displayed if the blade guard is opened, for example, to change the blade. ▶Make sure the blade guard is closed. ▶Check the safety limit switch. ▶Check the connections.
EMERGENCY INVERTER FAILURE	This message is displayed if the machine is equipped with an INVERTER (optional). Press RESET to test the manual commands. ▶Check the inverter contactor. ▶Check the power supply voltage. ▶Check the power phases and supply voltage of the blade motor. ▶Check the connections.
EMERGENCY BLADE STOPPED	Displayed when the blade is jammed while cutting: ▶Press RESET
EMERGENCY AIR PRESSURE	It is displayed when the air pressure from the network fails. ▶Press RESET
EMERGENCY BLADE MOT I OVERC.	It is displayed when there is an overcurrent at the blade motor ▶Press RESET
EMERGENCY BLADE TENSION	This message indicates a mechanical or electric/electronic fault affecting the blade tensioning unit. ▶Check the blade tension. ▶Check the operation of the tensioning slide. ▶Make sure the blade is correctly positioned on the flywheels. ▶Check the STRAIN GAUGE input on the IUV card. ▶Check the condition of the blade. ▶Check the connections.
EMERGENCY ERROR CODE: 01	RESETS OR INTERRUPTS NOT JUSTIFIABLE
EMERGENCY ERROR CODE: 02	EEPROM NOT AVAILABLE
EMERGENCY ERROR CODE: 03	RAM TEST FAILED

EMERGENCY ERROR CODE: 04	ROM TEST FAILED
EMERGENCY ERROR CODE: 05	STATUS OR TEMPLATE NON−EXISTENT
EMERGENCY ERROR CODE: 06	CUTTING CYCLE PHASE NON−EXISTENT
EMERGENCY ERROR CODE: 07	EMERGENCY NOT DEFINED
EMERGENCY ERROR CODE: 07	SERIAL 485 FAILURE
EMERGENCY ERROR CODE: 07	SERIAL 422 FAILURE
EMERGENCY ERROR CODE: 08	UNSTABLE DIGITAL INPUTS
EMERGENCY ERROR CODE: 09	UNSTABLE BLADE (ch0) MOT ABSORB ANAL. INPUT
EMERGENCY ERROR CODE: 10	UNSTABLE HEAD (ch1) POSIT. P. ANAL. INPUT
EMERGENCY ERROR CODE: 15	POWER FAILURE

Accessory Installation

11

In this chapter are listed the accessories that may be fitted by the user to this model of machine, along with the relative assembly instructions.

Accessories that can be fitted by the user

Blade

The blades that can be used on this machine include:

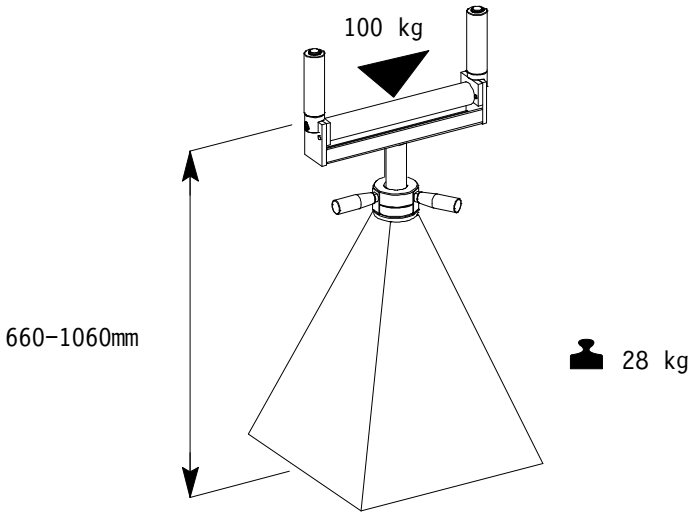
- 46400 x 34 x 1,1 bimetal blade for solid and section materials;

Can of emulsible oil

5 l can of emulsible oil.

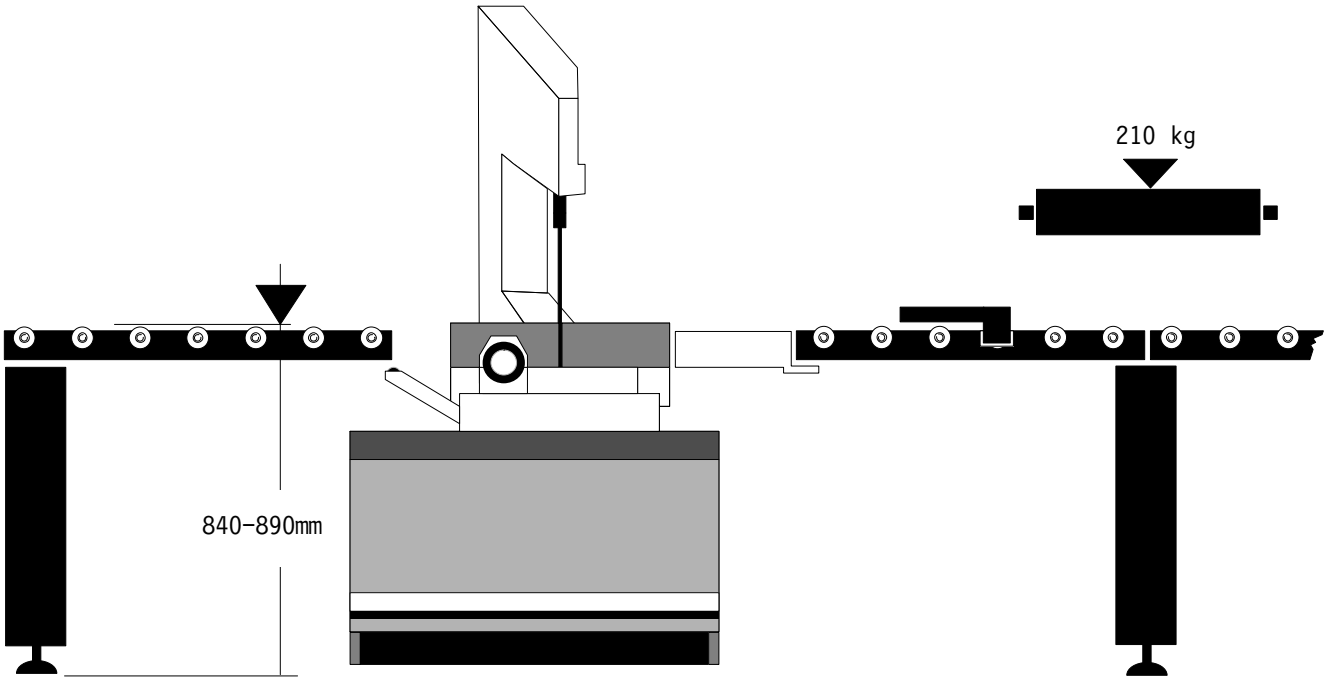
Bar support

This device is used to increase the load−bearing strength of the roller table, both during feeding and discharge. The steps which should be followed to assemble it are illustrated below.



Roller table

- K210 roller table module for feed side, 1500 mm;



- K210 roller table for discharge side, 1500÷6000 mm;
- measuring stroke R1/R2/R3 1500–6000 mm;
- pair of vertical rollers.

Can of emulsible oil

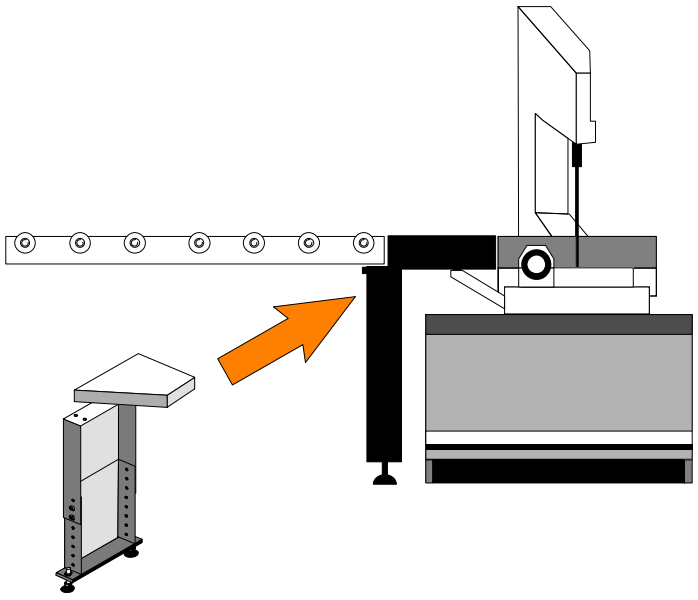
5 l can of emulsible oil.

Roller plane adapter, loading side

The installation operations are given below:

▶ install the adapter on the machine loading side (namely the left side, standing before the sawing machine), fastening it with the three screws supplied with the machine fixed platform.

▶ fasten the support leg to the adapter end, using two of the four holes in the support upper part, leaving the other two available for engaging the roller device.

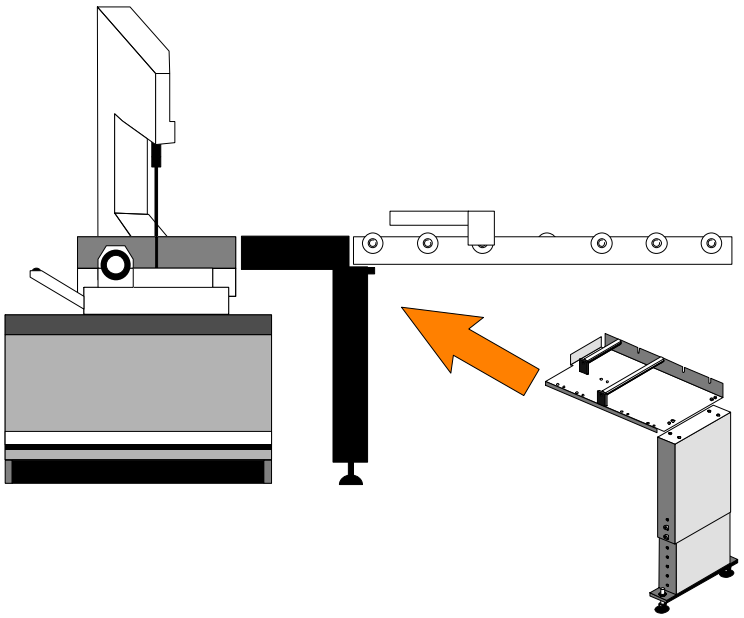


▶ Attach the outfeed rolling deck by fixing it with the screws supplied.

Roller plane adapter, unloading side

The installation operations are given below:

- install the adapter on the machine unloading side (namely the right side, standing before the sawing machine) fastening it with the three screws supplied with the machine fixed platform.
- fasten the support leg to the adapter end, using two of the four holes in the support upper part, leaving the other two available for engaging the roller device.



- Attach the outfeed rolling deck by fixing it with the screws supplied.

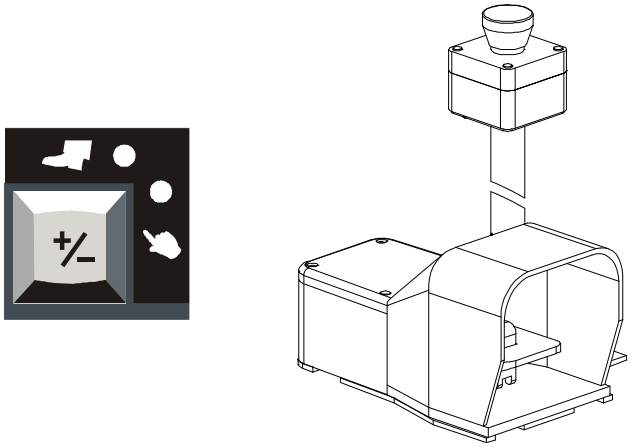
Minimal lubrication system

This device was designed to improve lubrication of the tool during cutting.

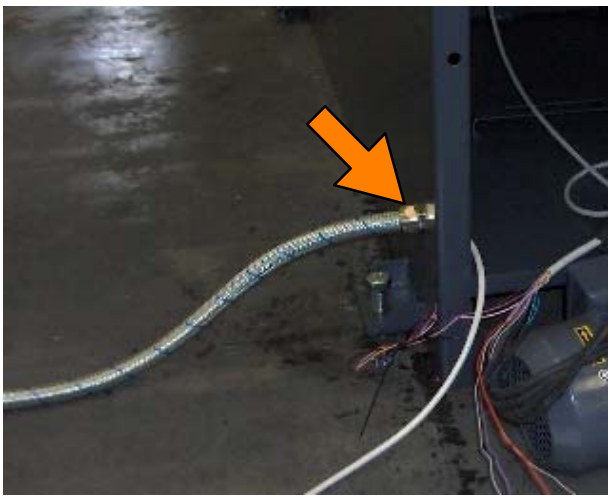
- An instruction book is supplied with the kit to explain how to install this optional unit.

Additional pedal control with emergency device

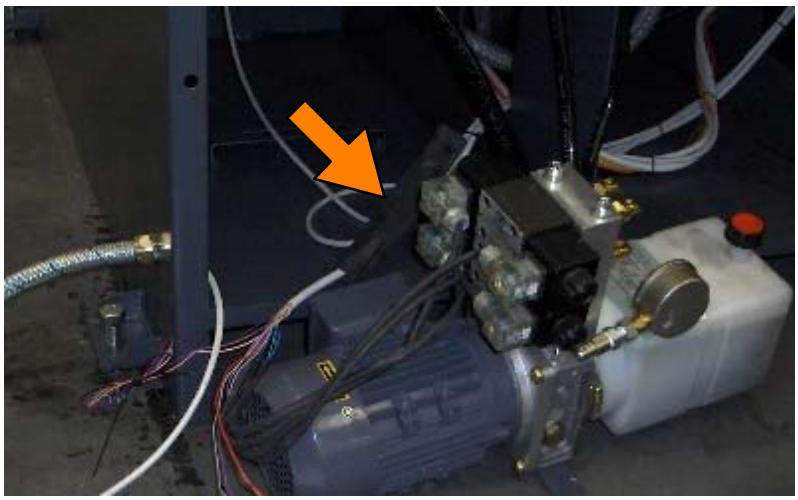
It is possible to select the start mode on the machine with foot pedal. The machine can be activated from the control panel (START) or foot pedal.



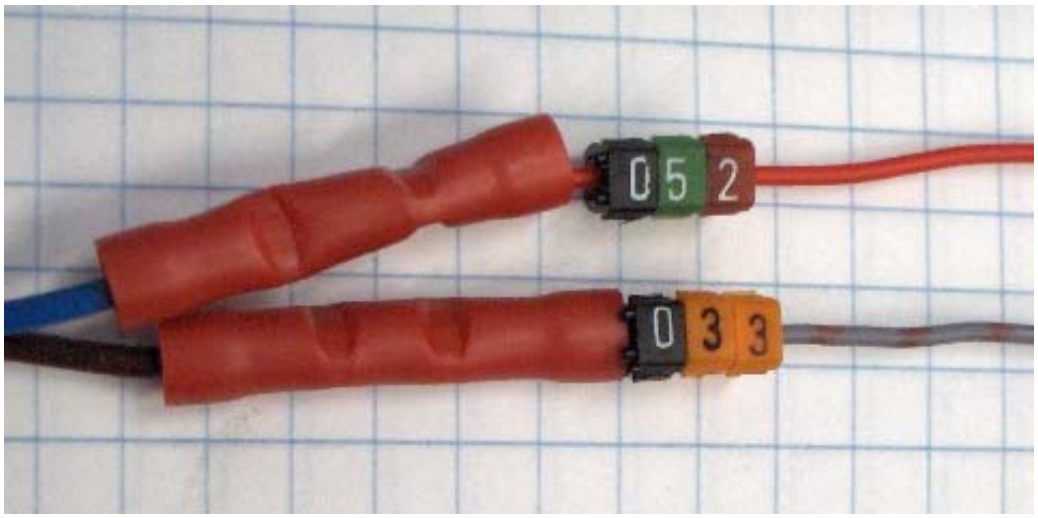
▶ Drill a hole on the base to let the cables pass.



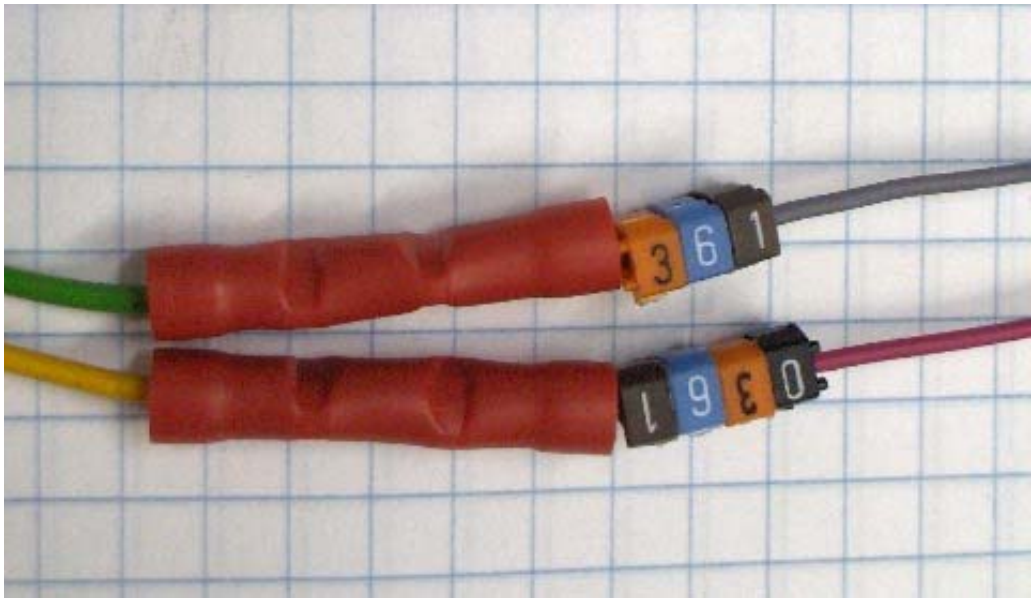
▶ The cables to be connected to the pedal control are inside the sheath of the control unit cable.



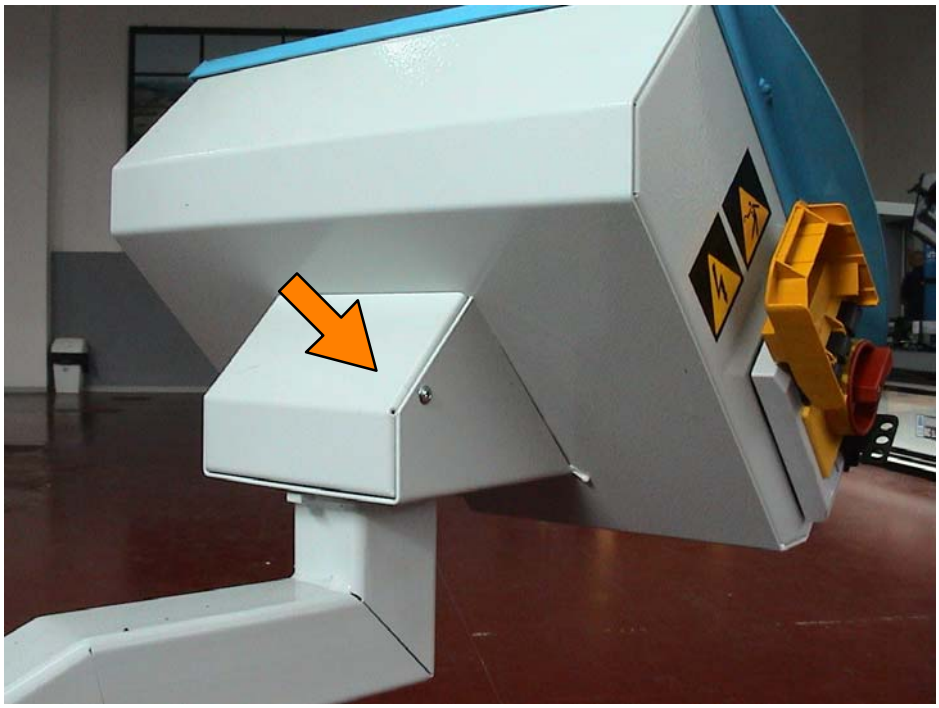
▶ Cables to be connected to the control pedal:
– the pedal cable is 2x0.50 mm¿.
– Connect the blue and brown wires of the cable 2x0.50 mm¿ of the pedal control with the cables numbered 052 (red) and 033 (grey/pink) on the sawing machine.



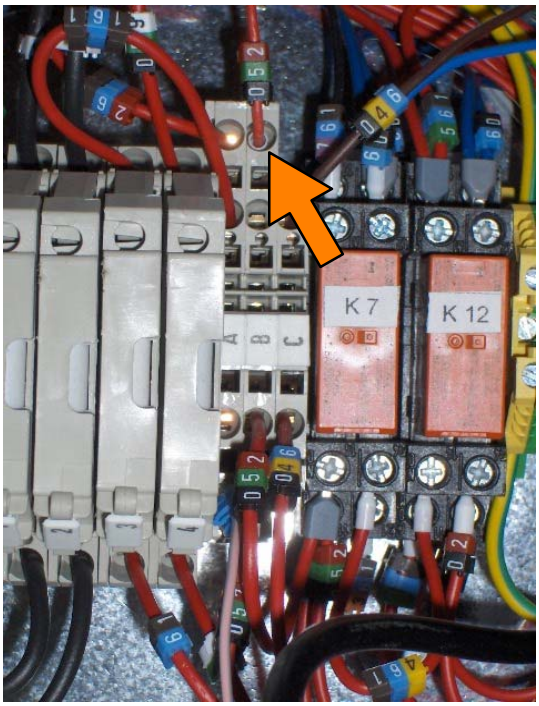
▶ Cables to be connected with the pedal emergency contact.
– The emergency mushroom cable is 4x0.50 mm¿.
– Connect the yellow and green wires of the cable 4x0.50 mm¿ of the emergency mushroom with the cables numbered 0361 (purple) and 361 (grey) on the sawing machine.



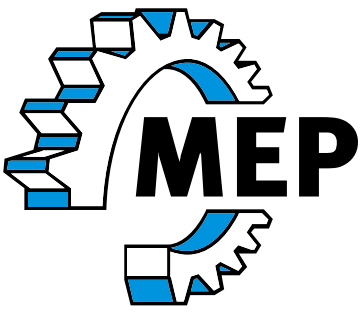
▶ Open the cover, take the wire no. 052 and lead it inside the electric cabinet.



▶ Connect the wire no. 052 to the terminal B (where other wires with the same number are present already).



Mep spa guarantees that the sold product is free from defects making it unsuitable for its intended use or significantly decreasing its value.
The guarantee shall not apply if the buyer was aware of defects in the product when buying it or if defects were clearly recognizable.
Regulations by the Italian law shall apply to this article.


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