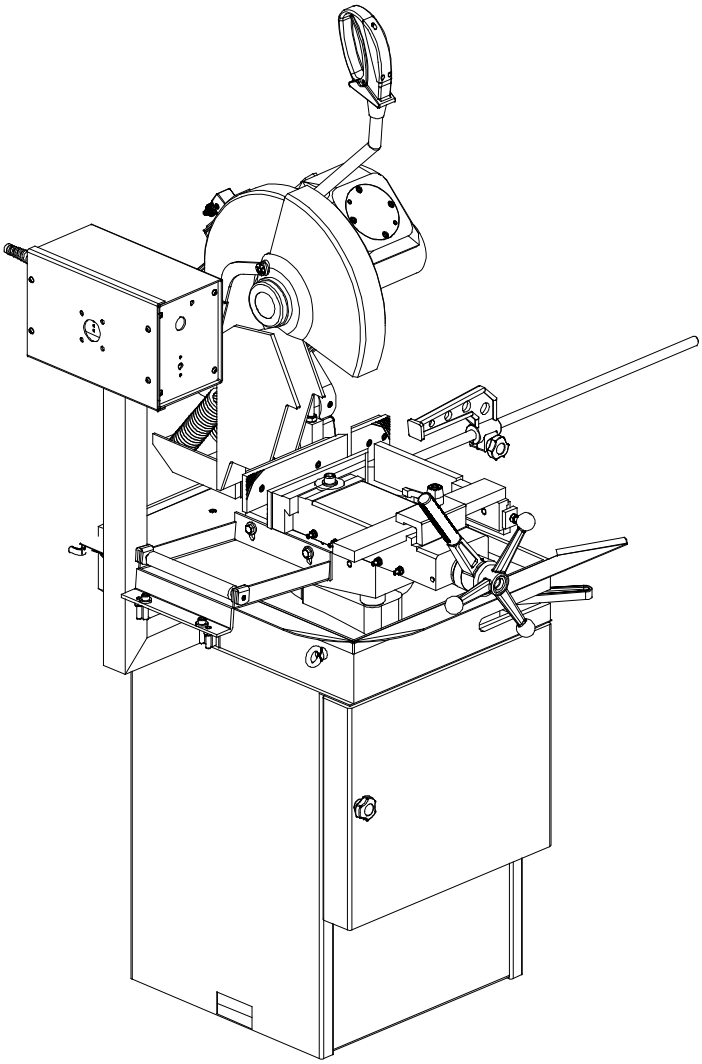


USE AND MAINTENANCE MANUAL

EN FALCON 352

YEAR OF MANUFACTURE: _____

EN

"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 circular sawing machine:

Machine Type:	**SAWING M HINE**
Machine model:	**FA ON 352**
Serial number:	
Year of manufacture:	

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- **D ECTIVE 2 E VD"**
- **IRECTIVE 2004/108 E "EMC**
- **D. Lgs /2010**

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

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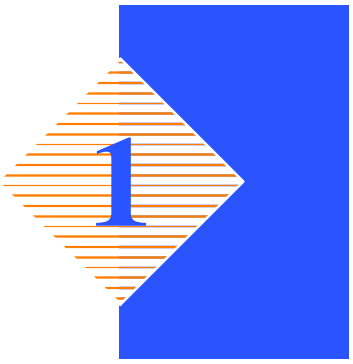
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Introduction and technical specifications



Foreword

We have decades of experience in the construction of the best metal- cutting machines. Our experience, our knowledge of our customers and constant technological development of design and production equipment allow us to offer a specific solution for every type of cutting need.

This work tool has been designed as a simple and reliable answer to the wide range of cutting needs of the modern workshop.

The **FALCON 352** is a pendular cutting off machine 2 speed versions. It can cut at angles of up to 45 degrees to the left and 45 degrees to the right. These features, together with its good cutting capabilities, make the Tiger 350 a very versatile machine.

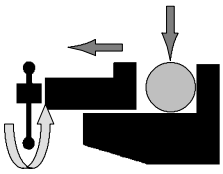
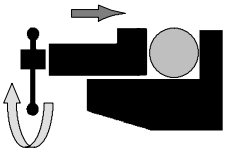
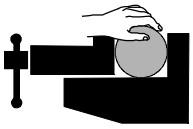
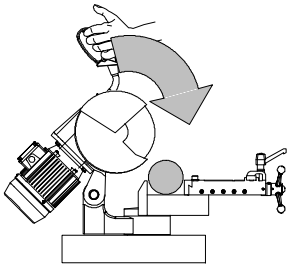
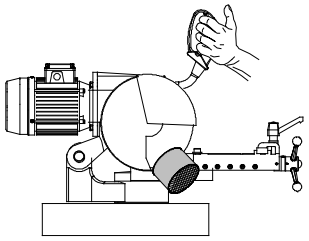
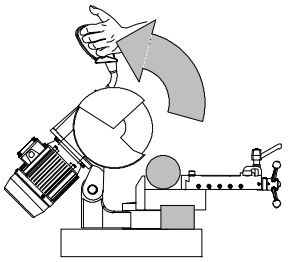
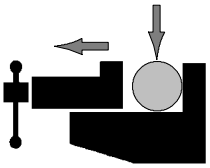
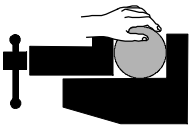
Congratulations for having chosen this product which, by following the instructions contained in this user and maintenance handbook, will guarantee you years of dependable service.

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

Machine presentation

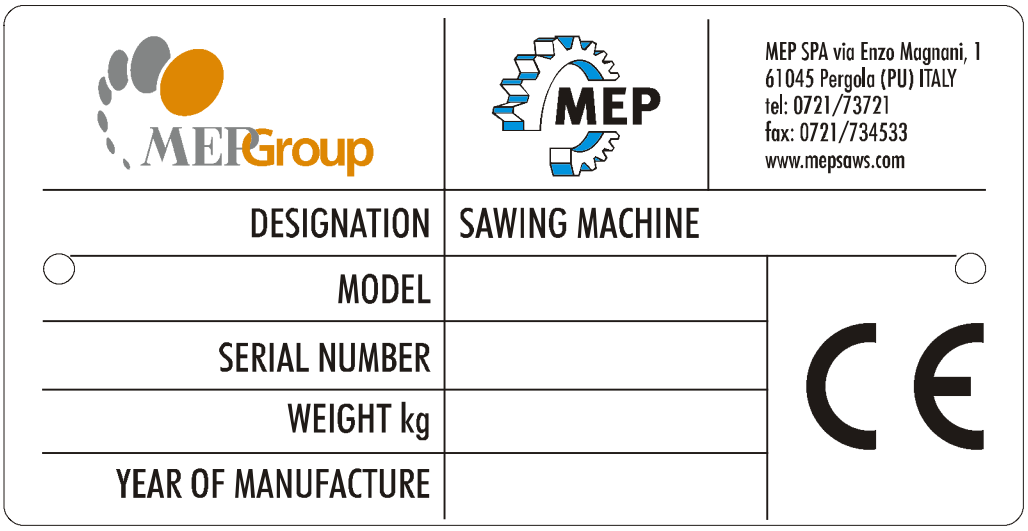
The machine is controlled manually: after having clamped the material in the vice, the operator grips the head control lever and presses the blade start- up microswitch. The downward movement of the lever controls the cutting of the material in accordance with the preset length. At the end of the cut, the cutting head moves upwards ready for another cutting cycle.

The MA version (automatic vice), a pneumatic cylinder clamps the workpiece between the jaws of the vice; the open/close command for the jaws is located on the base of the machine.

1. Position the material in the vice 	2. Close the vice 	3. Make sure the workpiece is securely clamped in the vice by trying to move it manually. 	4. Start the blade 
5. Cutting the material 	6. At the end of the cut, the head can be raised. 	7. Open the vice 	8. Feed the next part to be cut manually 

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.

TIGER 350 CUTTING SPEEDS		
Speeds 1/2	rpm	30/60

BLADE		
External disc diameter	mm	250÷350
Internal hole diameter	mm	32
Blade thickness	mm	2,5

RATED ELECTRICAL POWER		
Standard 4- 8 pole head spindle motor, 2 speeds	KW	2,2/1,1
Electric coolant pump motor	KW	0,045
Max installed power	KW	2,245

WORKING PRESSURE		
Air consumption for vice (version MA)	Nl/min	1,32

N.B. The ”air consumption for vice” value refers to standard conditions (temperature 0° and pressure 1.013 bar, i.e. density 1.3 x 10-3 Kg/l) where 1 Kg/min. = 772 Nl/min.

LUBRICANT/COOLANT FLUID AND OIL		
Lubricant/coolant fluid (oil concentration 5- 6%)	capacità Lt.	4,2
Oil for transmission box	capacità Lt.	2,6

VICE		
Vice max. opening	mm	130

SPECIFICATIONS OF STANDARD SPINDLE MOTOR
Three- phase; Frequency 50 Hz.

No.of poles	Current (Volts)	Absorption (Amps)	Power (Kw)	rpm
4	230/400	3,5	1,1	1.360
8	230/400	4,6	2,2	680

Stator wound with enamelled copper wire, class H 200° C.

Class F insulation (limit temperature TL 155° C).

IP 54 protection rating (total against contact with live parts, water sprayed from all directions, with shaft oil seal).

Conforming to CEI norms, publication: IEC 34 of 01/07/1985.

N.B. Example of class F insulation: in air- cooled machines at an ambient temperature of 40° C (according to CEI 2- 3 and IEC 85), the allowable overtemperature is 100° C (where 100° C represents the allowable ΔT).

ELECTROPUMP MOTOR

Voltage (Volts)	Absorption (Amps)	Power (Kw)	rpm
48	1,6	0,36	2800

Protection rating IP 55.

Conforming to CEI norms, publication: IEC 34 of 01/07/1985.

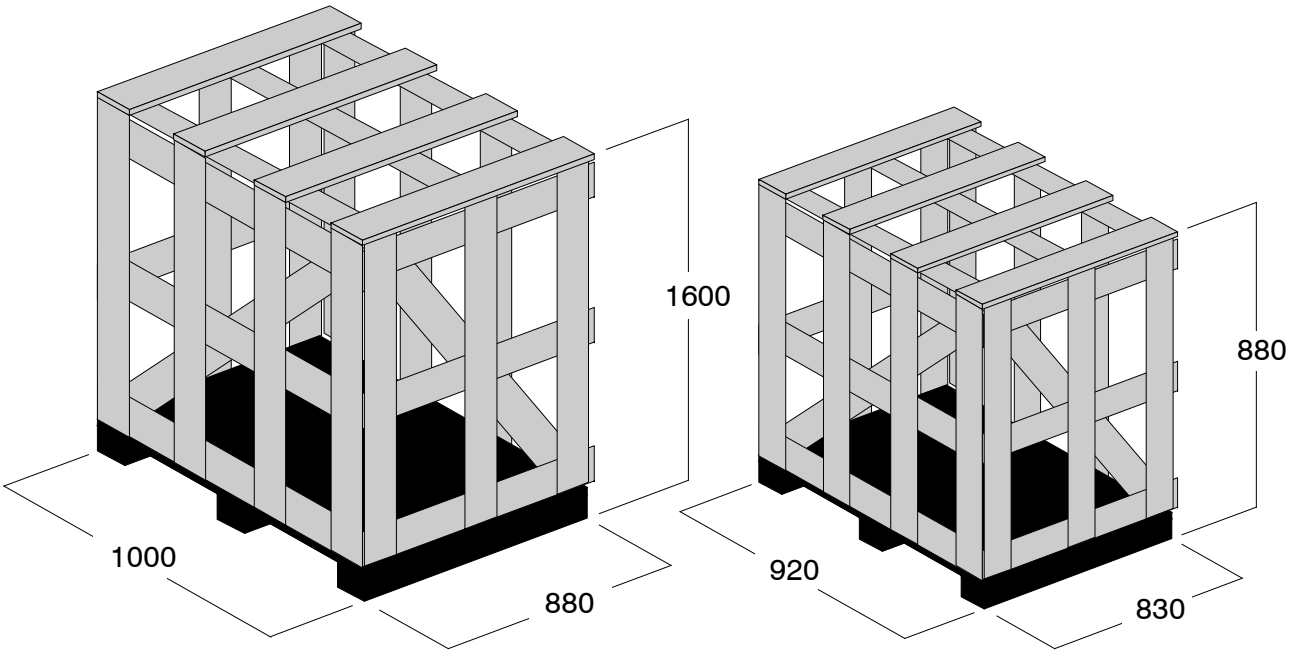
CUTTING CAPACITY for HOLLOW sections

Section			
0°	115	100	130 x 80
45° ◗	75	75	90 x 65
45° ◖	100	85	90 x 80

CUTTING CAPACITY for SOLID sections

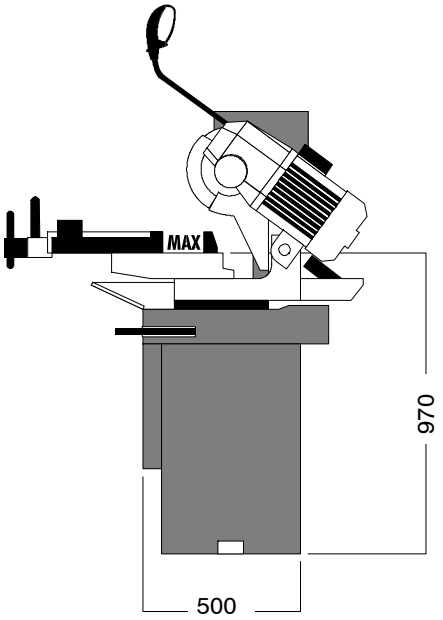
Section	
0°	50
45° ◗	40
45° ◖	40

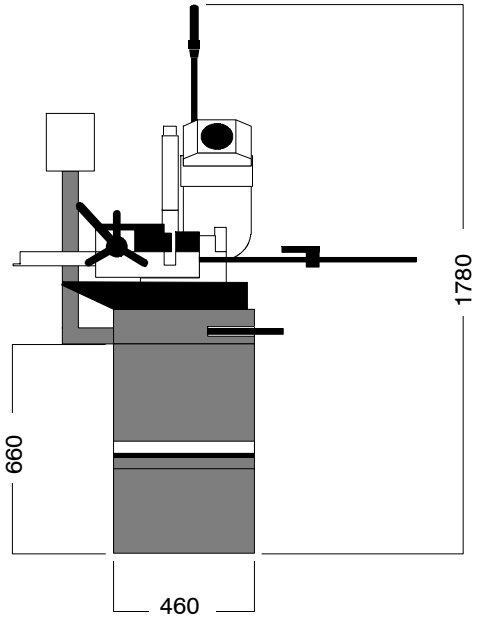
PACKED WEIGHT		
Wooden cage and pallet	Kg	70
Wooden pallet	Kg	20

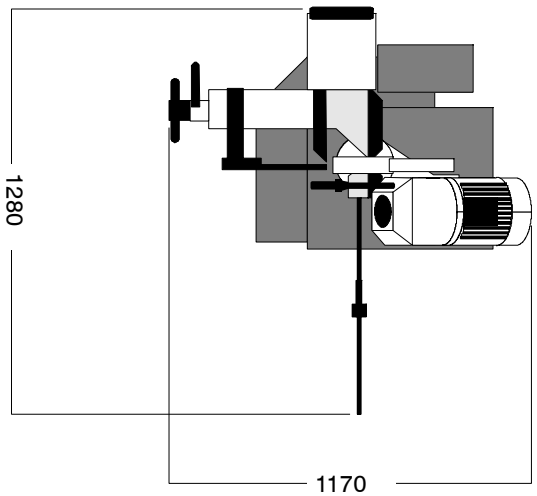


Dimensions

MACHINE INSTALLED		
Working table height (with base)	mm	970
Weight	Kg	375





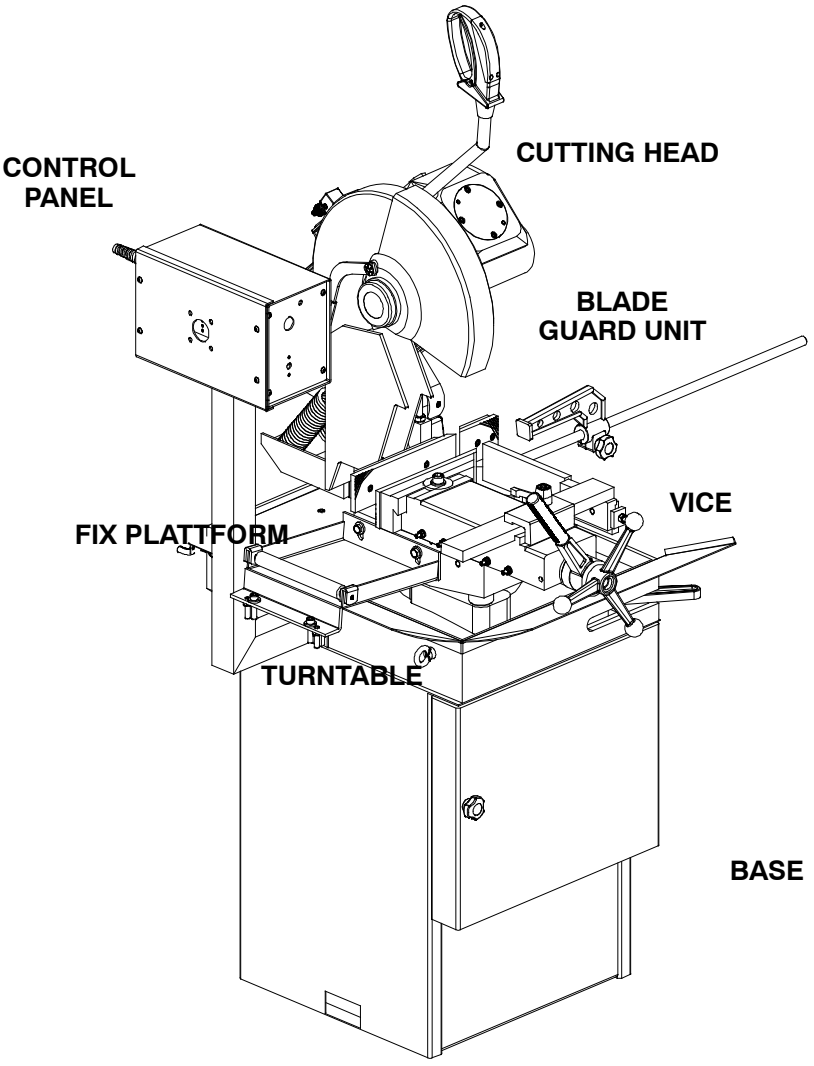


Functional parts

2

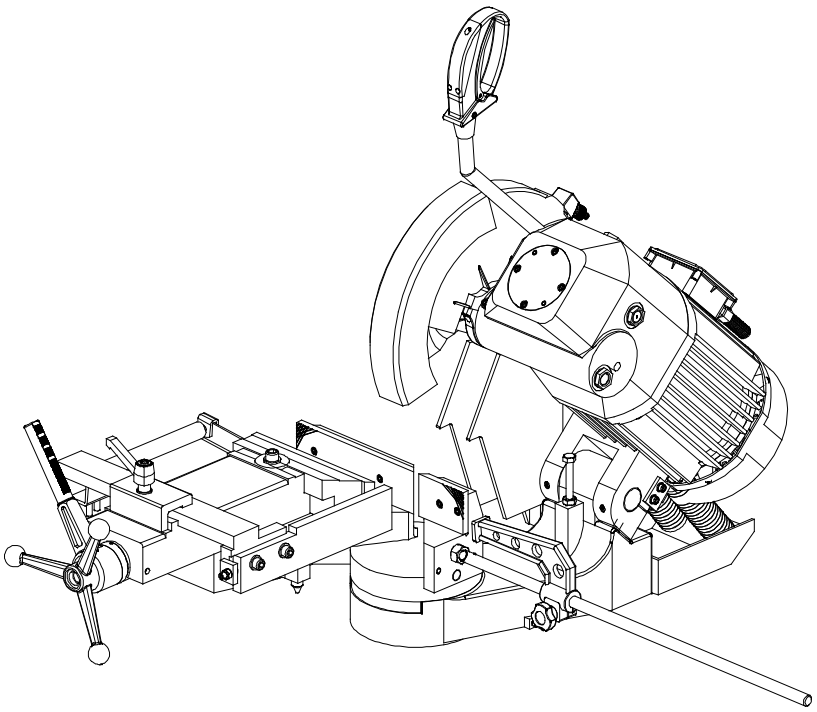
FALCON 352 model

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.



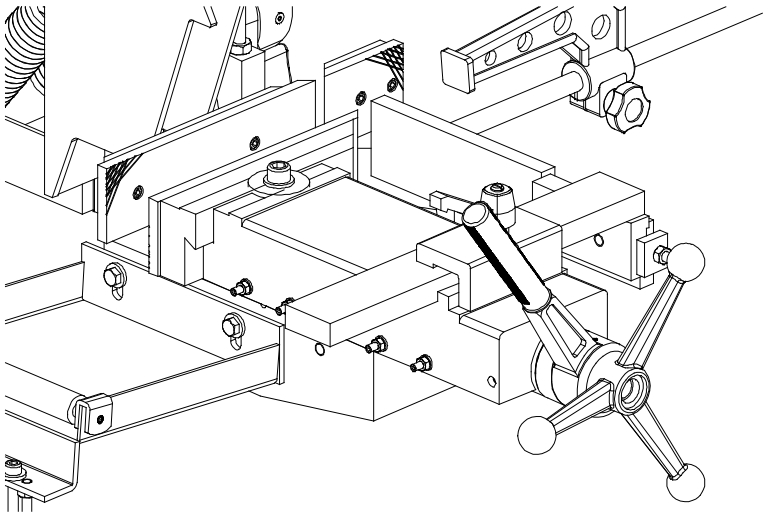
Cutting head

The cutting head is the unit that actually performs the cut and consists of a cast iron section on which the following parts are mounted: the disc, the disc support units, the drive transmission unit and the spindle motor. The cutting head is fixed to the turntable by means of a hinge and performs a downward travel to cut the material. The upward and downward movements of the head are controlled manually by the operator.



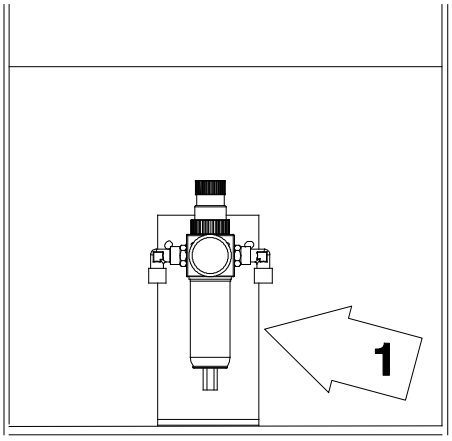
Vice

The cutting vice is the unit that clamps the material during the cut. It consists of a vice support, commonly known as a ”lead nut”, on which the slide with the mobile jaw and fixed jaw are mounted. The lead nut is fixed to the upper part of the base. In the MA version the vice is operated by a pneumatic cylinder (volampress).



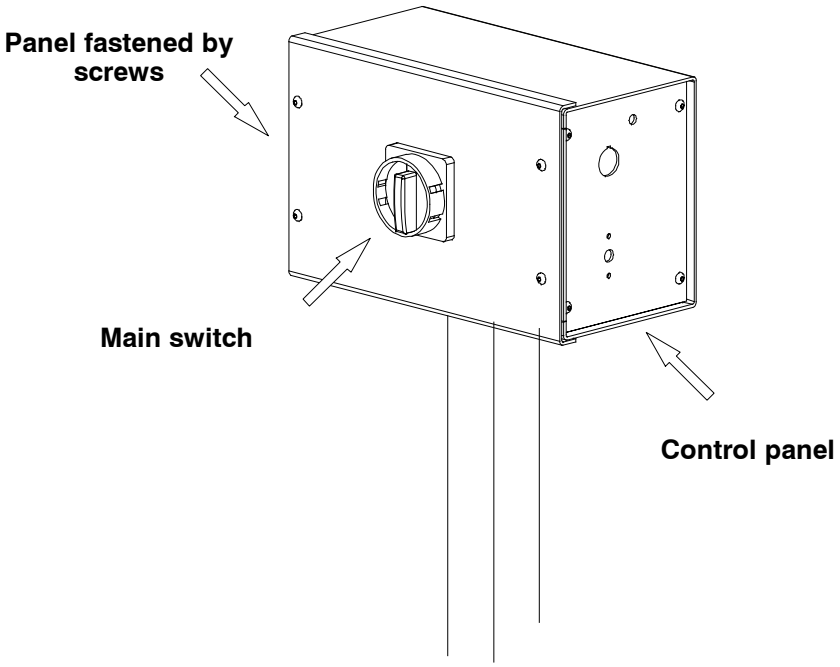
Air treatment unit for the automatic vice (version MA)

The panel shown below is the air treatment unit. It consists of an air treatment unit (1) and a valve; the unit serves to filter the air entering the circuit.



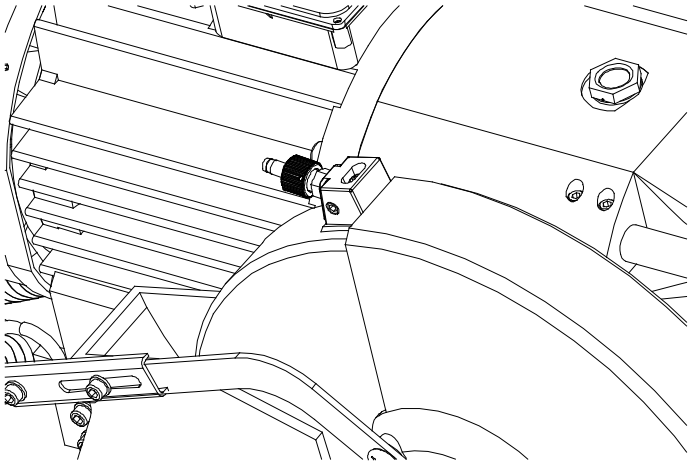
Control Panel

The control panel has a protection rating of IP 54 and contains the electrical equipment. Access to the control panel is safeguarded by screws and the operator's safety is ensured by a key- operated safety switch, which is designed to prevent any kind of deliberate tampering. Whenever the control panel is removed from its housing, the key is automatically extracted from the switch, thus disconnecting the power supply from the machine.

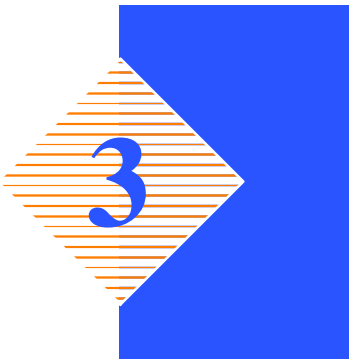


Lubricant/coolant system

The lubricant/coolant system consists of a submerged electric pump located inside the base and an outflow nozzle fixed to the blade protective cover.



Safety and accident prevention



The **FALCON 352** 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 **FALCON 352** pendulum circular saw is designed to cut exclusively metal profiles.
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 **EEC 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 ISO 8995- 89 ”Lighting in work environments”).

CONNECTIONS

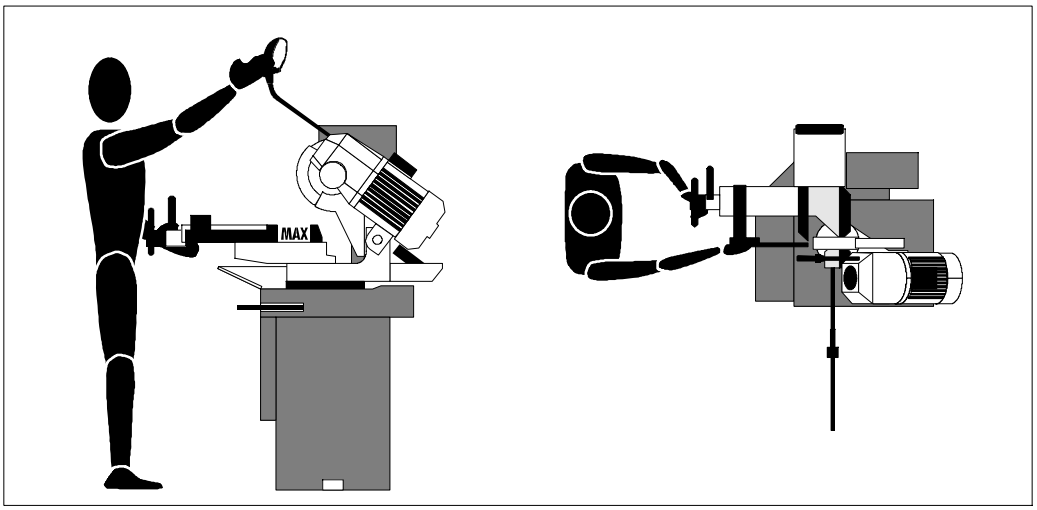
Check that the power supply cables and pneumatic feed systems comply with the maximum machine absorption values listed in the ”Machine Specification” tables; replace if necessary.

EARTHING

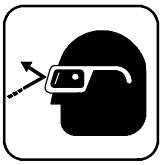
The installation of the earthing system must comply with the requirements set out in EN STANDARD 60204- 1:2010.

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 poly-carbonate windows, if subject to corrosion.



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



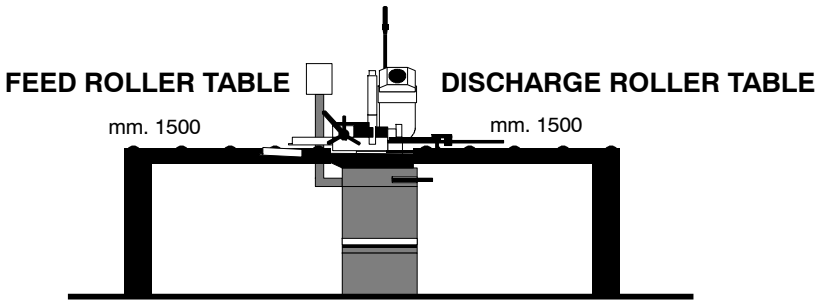
Do not wear oversize clothing with long sleeves, oversize gloves, bracelets, necklaces or any other object that may become entangled in the machine during working; long hair must be tied back and bunched.



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.





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 those not required for the machining in course (e.g. remove swarf or metal shavings form the machine while cutting).

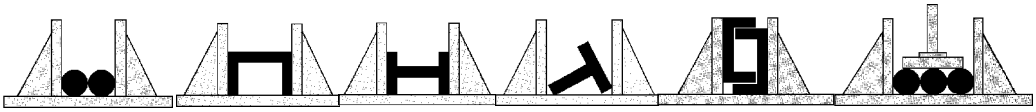


Remove equipment, tools or any other objects from the cutting zone; always keep the working area as clean as possible.



Do not use the machine for cutting pieces which exceed the cutting capacity described in the technical specifications or are less than 5 mm

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 the different profiles correctly in our machines are shown below.



Never move the machine while it is cutting.

Do not use blades of different sizes to those recommended in the machine's 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 using the pneumatic vice (version MA) check that the jaws actually move right up to and effectively block the piece, as the maximum travel in only 8 mm, and check that the clamping pressure is correct.

When working on the bandsaw, only wear gloves when handling materials and tool change or adjustment operations. Only carry out 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 pushbutton immediately. If this does not free the blade, slowly release the vice, remove the piece and check that the blade or its teeth for damage, if need be replace the blade.

Before carrying out any repair works on the machine, consult the MEP Technical Service; this can also be done through an agency in the country in which the machine is being used.

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 **FALCON 352** band saw.

Reference standards

MACHINE SAFETY

- EEC MACHINES DIRECTIVE 2006/42/CE ;
- EEC directive no. 2004/108/CE “EMC - Electromagnetic Compatibility”;
- EEC Directive No. 2006/95/CE known as “Low voltage directive”.
- EN 13898:2003+A1:2009 Machine tools - Safety - Sawing machines for cold metal

HEALTH AND SAFETY AT WORK

- EEC Directive No. 80/1107; 83/477;86/188;88/188; 88/642 for the protection of workers against risks caused by exposure to physical, chemical and biological agents during working;
- EEC Directive No. 89/391 and Special EEC Directives No. 89/654 and No. 89/655 for improvements in health and safety at work;
- EEC Directive No. 90/394 for the protection of workers against risks deriving from exposure at work to carcinogenic substances;
- EEC Directive No. 77/576 and No. 79/640 on safety signs at work.

PERSONAL PROTECTION

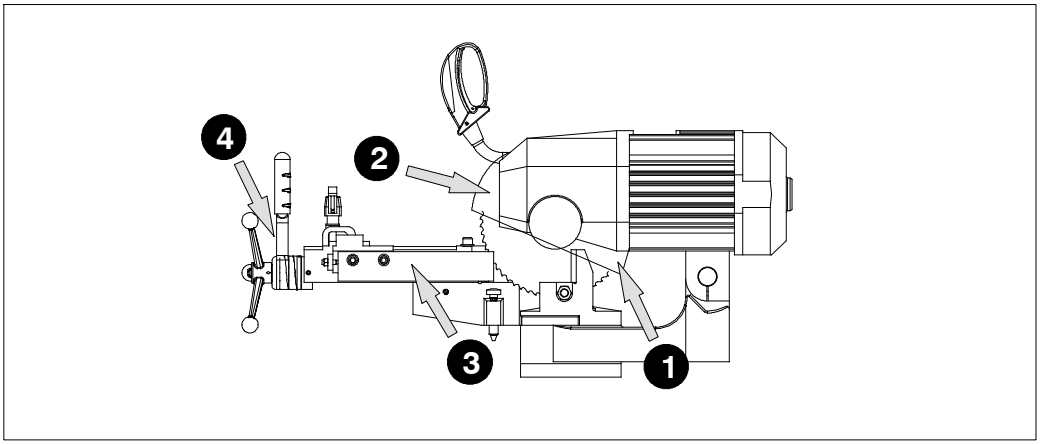
- EEC Directive No. 89/656 and No. 89/686 on the use of personal protection devices.

ENVIRONMENTAL PROTECTION

- EEC Directive No. 75/442 on waste disposal;
- EEC Directive No. 75/439 on the disposal of used oil.
- Directive 2002/95/EC 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 disc cover fixed to the cutting head;
2. mobile disc guard fixed to the cover and the lead nut body so as to ensure that the blade is covered and the only part of the disc exposed is that used for the actual cutting in accordance with DPR 547/55 art. 108;
3. vice with rag prevention device and double clamping for improved hold on workpiece (optional double mechanical or pneumatic vice);
4. On the MA version, the cutting vice is pneumatically operated by a manual control or foot pedal and has a maximum travel of 8 mm. The jaw that performs the actual clamping must be moved to within 2- 3 mm from the workpiece.



Electrical equipment

In accordance with Italian standard CEI EN 60204- 1:2010, derived from European Standard EN 60204- 1:2010:

- access to electrical board limited by screws and automatic electro- thermal main switch with Minimum Voltage Coil;
- 24 Vac Control voltage for actuators, in accordance with chapter 6 of European Standard ”Control and indication circuits” paragraph 2 ”Control Circuits” sub- section 1 ”Preferential voltage values for control circuits”.
- Plant protected against short circuits by quick blowing fuses and earthing of all work and accidental contact parts.
- Protection from accidental start- up by a minimum voltage relay in the case of power failure.

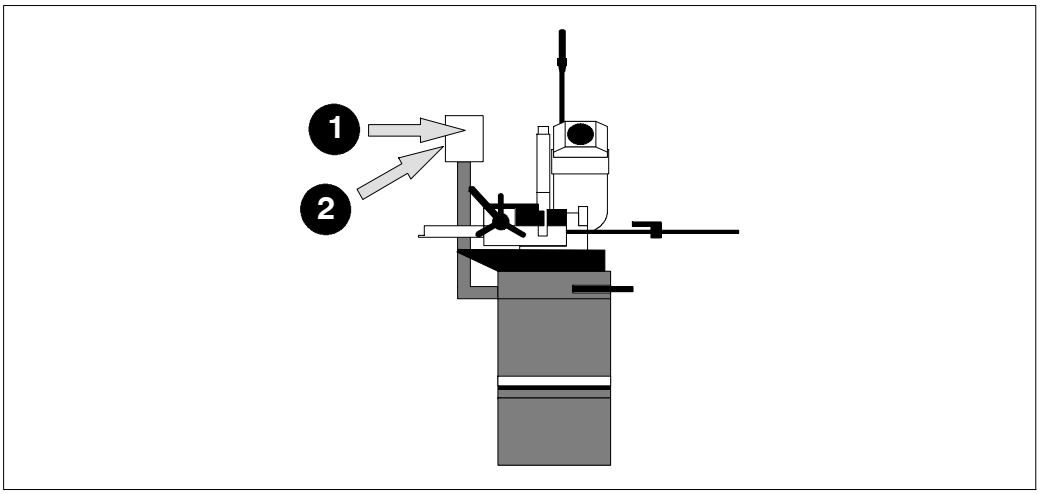
Emergency devices

In accordance with Standard EN 60204-1:2010:

- **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».

...Emergency devices applicable to the FALCON 352:

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 auto switch, located on the control panel, has two protection systems against voltage drops. In the case of a voltage drop, all electrical components are disengaged, the machine stops immediately, and automatic restart when the power supply returns is inhibited. Another function is that of resetting the thermal relay provided to protect against overcurrents.



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 **EEC 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 13898:2003 + A1:2009, EN ISO 12001:2010 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	**FALCON 352**
Reference standard	ISO 3746

Results		
Test 1st	**Description**	80x80 mm pipe in FE37 steel Disc blade HSS- DMO5 0 300 T6
	Results	**Mean sound level (Leq) 94,39 dB (A)** Environmental correction (K) 2,97 dB(A) Peak sound power (Lw) 104,80 dB(A)
Test 2nd	**Descriprion**	35x55 mm solid tube in C40 steel. Disc blade HSS- DMO5 0 250 T6
	Results	**Mean sound level (Leq) 79,45 dB(A)** Environmental correction (K) 2.97 dB(A) Peak sound power (Lw) 89,87 dB(A)
Test 3rd	**Description**	40x40 mm solid tube in C40 steel. Disc blade HSS- DMO5 0 250 T6
	Results	**Mean sound level (Leq) 80,56 dB(A)** Environmental correction (K) 2.97 dB(A) Peak sound power (Lw) 91,87 dB(A)

Vibration emission

This sawing machine complies with the norms EN1299 and EN1033, 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 2004/108/CE e 2006/95/CE and 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 **FALCON 352**;
Test report no. 011200061200.

Emissions

- CEI EN 61000-6-4 (2002) Electromagnetic Compatibility (EMC) - Generic standard regarding emissions. Part 6-4: Industrial Environment.
- EN 55011 (1999) Industrial, scientific, and medical radio frequency appliances (ISM). Characteristics of radio frequency disturbance - Limits and methods of measurement.
- EN 55014-1 (2002) Electromagnetic Compatibility - Prescriptions for domestic appliances, electric power tools, and similar equipment. Part 1: Standard Emission in relation to product family.

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	66 - 56 (linear reduction with log of frequency) 56 60	56 - 46 (linear reduction with log of frequency) 46 50	Complies

CONDUCTED EMISSIONS - ANALYSIS OF INTERMITTENT DISTURBANCES	
Gate	**Result**
A.C. power supply input	Not applicable

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

Immunity

- CEI EN 61000-6-2 (2000) Electromagnetic Compatibility (EMC) - Generic standard on immunity. Part 6-2: Industrial Environment.The EUT is deemed to fulfil the immunity requirements without testing, because it contains no electonic control circuitry.

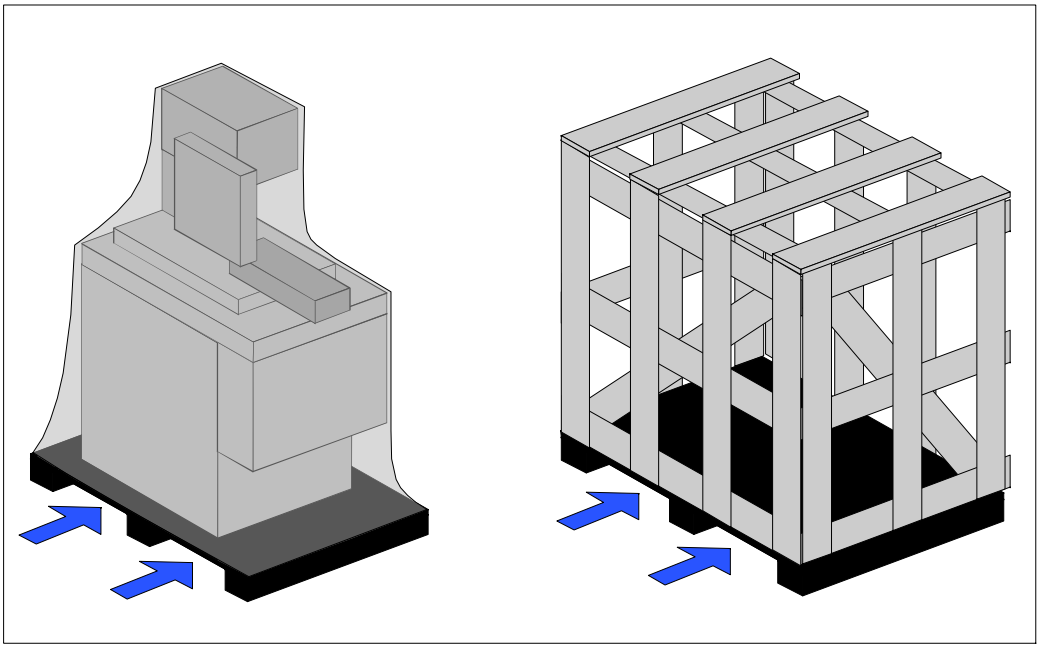
Machine installation

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:

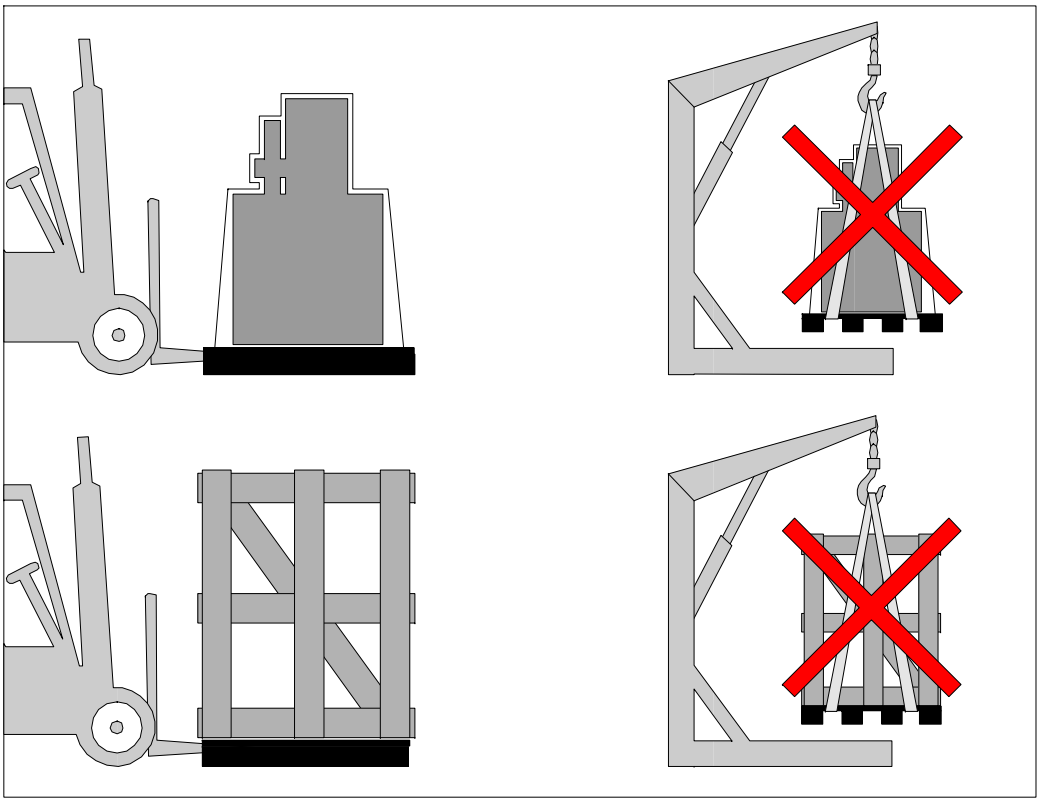


1. on a pallet with straps and heat- shrink plastic;
2. on a pallet with straps, heat- shrink plastic and a wooden crate.

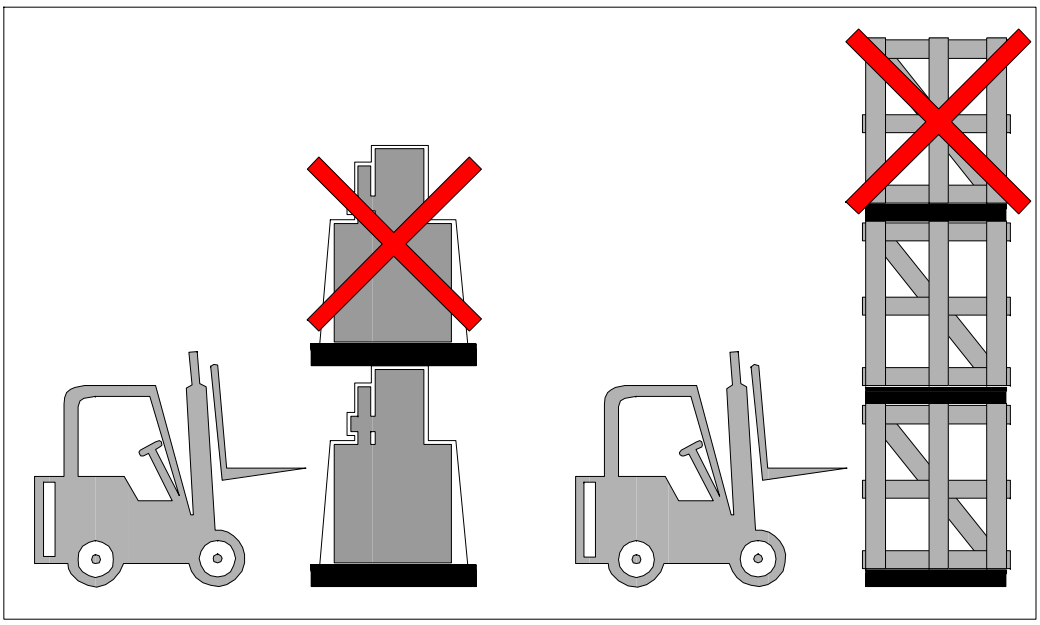
Warning In both cases, for correct balancing the machine must be handled using a fork- lift truck, inserting the tines at the points indicated by the arrows, using the reference marks on the crate itself.

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.



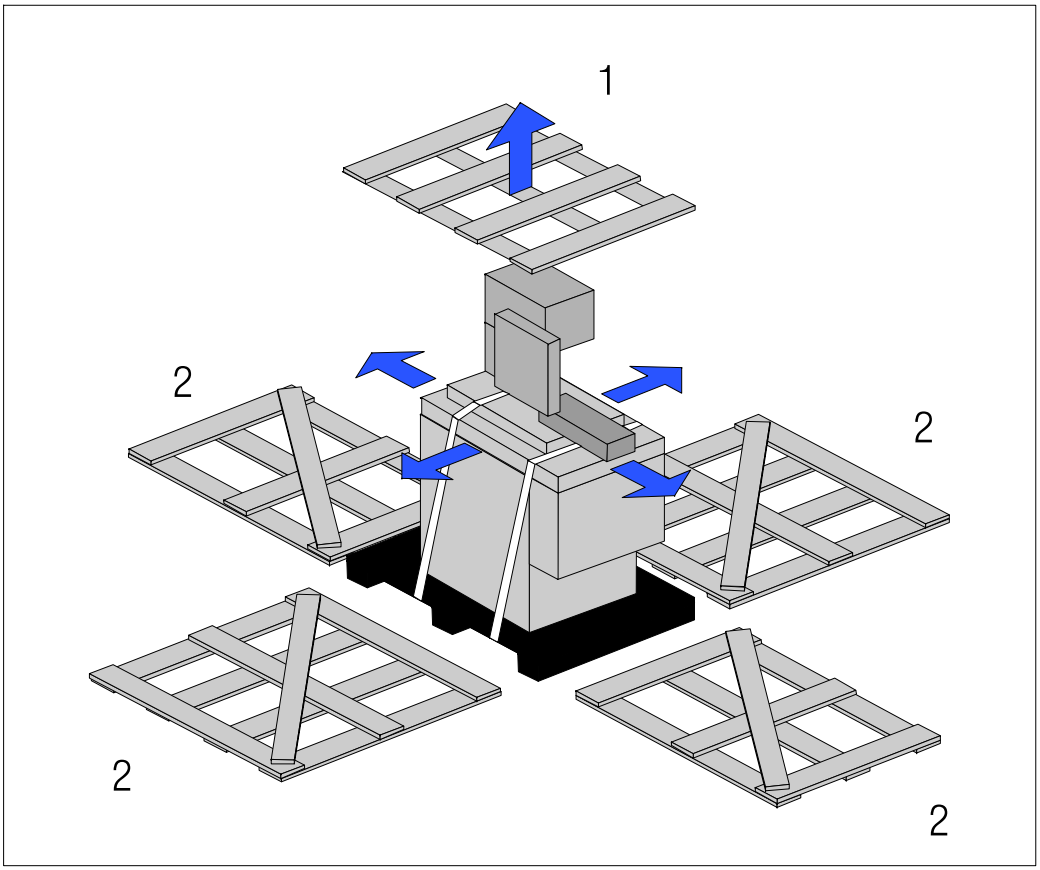
Attention When storing, machines palletized and shrink- wrapped must not be stacked two high, and machines pallettized and crated must not be stacked three high.



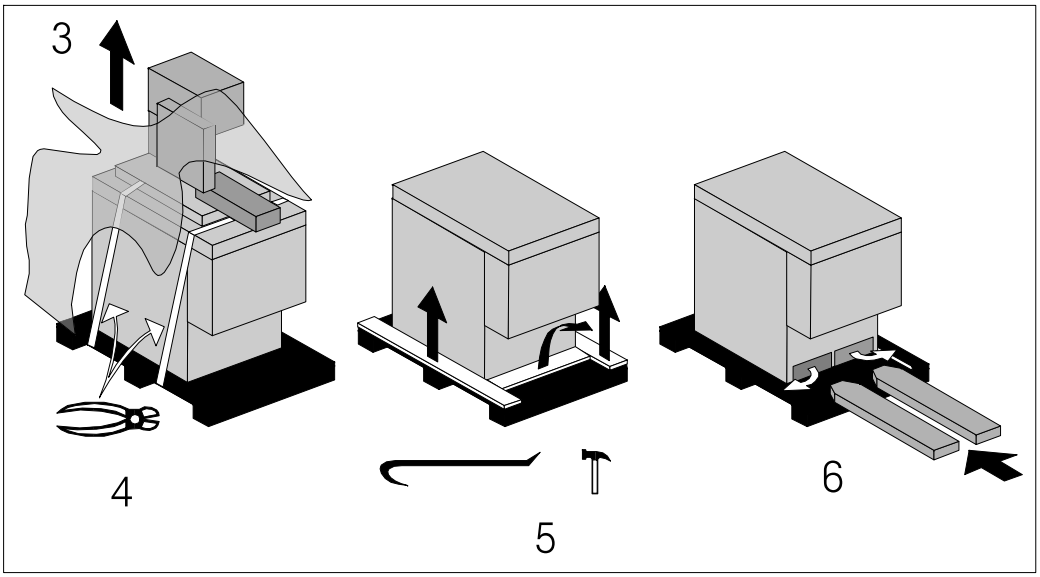
To install the machine, first remove the packing, paying particular attention not to cut any electric wires or hydraulic hoses; if necessary use pliers, a hammer and a cutter.
Open crate in the illustrated order:

1. remove nails and lift the top of the cage;

2. remove nails and lower walls;



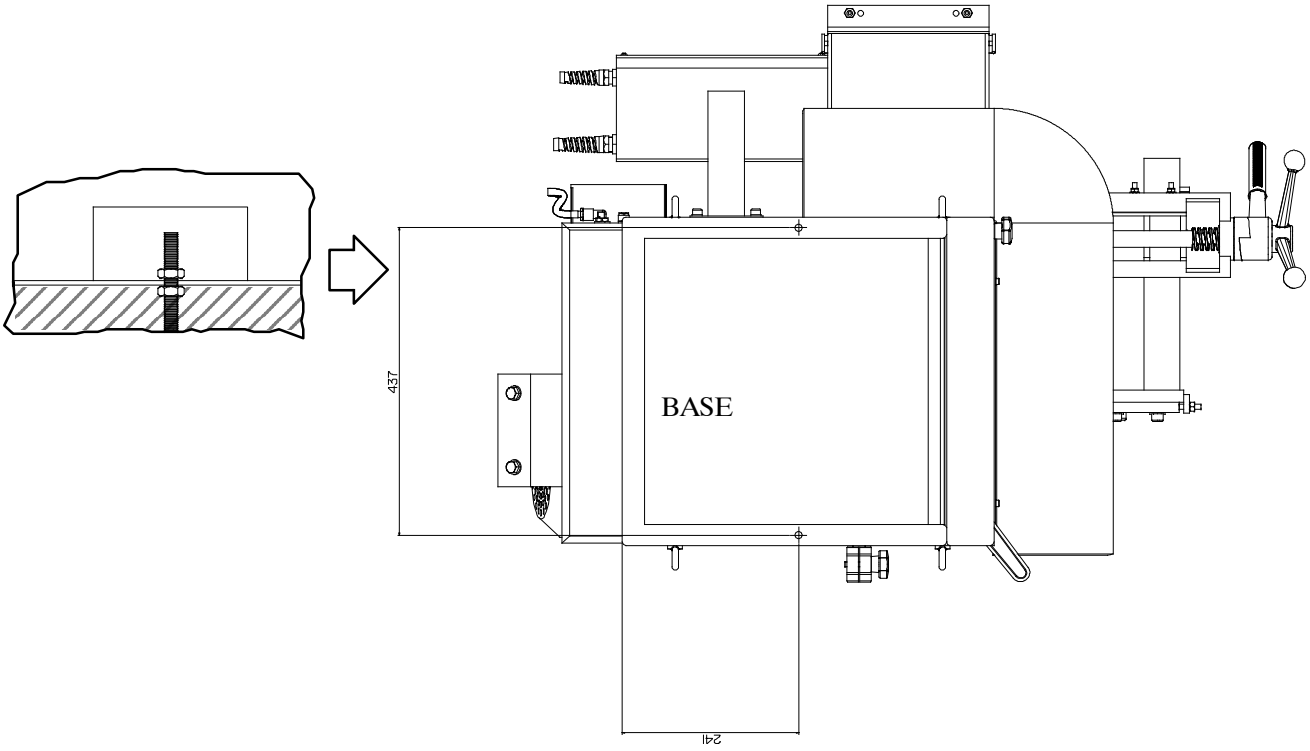
3. remove heat- shrink covering;
4. remove the straps;
5. remove nails from pallet securing planks and remove planks;
6. remove the front panel and insert fork tines.



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.**

Machine fastening (MA version)

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;
- Working pressure (MA version) not less than 6 Bar and not greater 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. The basic version of the **FALCON 352** machine is supplied complete with:

CHARACTERISTICS	STANDARD	OPTIONAL
Sheet metal stand (for version MA only)	✓	
Worm screw shaft installed on pair of bearings	✓	
Disk- holding shaft installed on a pair of preloaded taper bearings on eccentric pad	✓	
Clutch adjustable from outside	✓	
Fast locking device with screw vice, sliding on a prismatic slide with adjustable gib	✓	
Vice fixed jaws tipped with steel, knurled and burnished	✓	
Vice mobile jaws with axial adjustment to tighten the piece as close as possible to the cutting line	✓	
Adjustable anti- burr locking, entirely made in steel	✓	
Double spring for head call	✓	
Adjustable stroke for cuts of the same size	✓	
Bar- supporting arm complete with roller, preset for the loading plane application	✓	
Sheet metal stand		✓
Device for customized cuts with steel millimeter rod 0- 600 mm		✓
Electric pump for lubrication/cooling of disc	✓	
Possibility of making angled cuts from 0° to 45° right and 45° left	✓	
Key operated safety switch, magneto- thermal overload cutout, minimum voltage coil, emergency device and low voltage system (24 Volt)	✓	
Circular blade HSS DMo5/M2 D.250/300/315/350x32x2.5 for solid sections and profiles		✓
Set up for movement with transpallets	✓	
K40 roller table module for feed side, 1500 mm		✓
Feed side roller table support		✓
Discharge side roller table adapter		✓
K40 roller table for discharge side, 1500 mm		✓
K40 roller table for discharge side, 3000 mm		✓
K40 roller table for discharge side, 4500 mm		✓
K40 roller table for discharge side, 6000 mm		✓
5 l can of emulsible oil		✓

***ACCESSORIES AVAILABLE ON REQUEST**

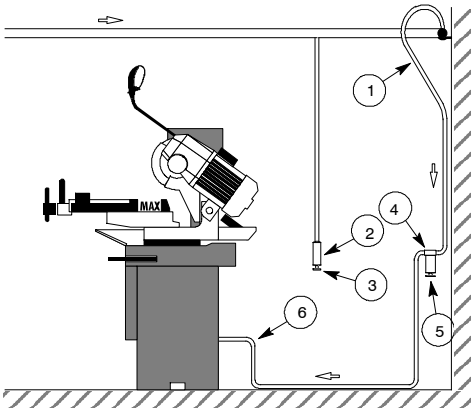
The bag of accessories is enclosed in the machine before being packed and contains:

- 3, 4, 5, 6, 8 and 10 mm Allen keys;
- 19 mm double open-ended and box wrenches;
- 20 mm Ø rod for cuts to measure with an 8 mm Ø ratchet fork and lever + VCE M8x35 Allen grub screw;
- arm with roller on which the bars to be cut rest and for fitting the feed side roller tables;
- this Use and Maintenance Manual.

Connection to the compressed air supply for MA version

To ensure perfect operation and a long service life, it is recommended that the machine is connected to a compressed air system having the characteristics reported in the diagram below.

KEY
1 - DOWN PIPE
2 - CONDENSATE COLLECTOR
3 - DRAIN COCK
4 - AIR FILTER
5 - DRAIN COCK
6 - CONNECTING HOSE



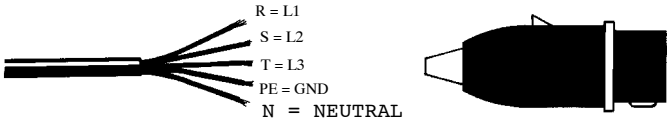
Connection to the power supply

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.

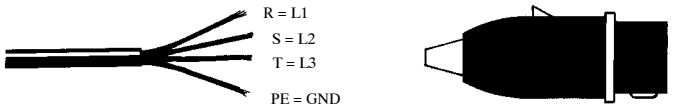
To connect the machine to the power supply, proceed as follows:

▶ 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

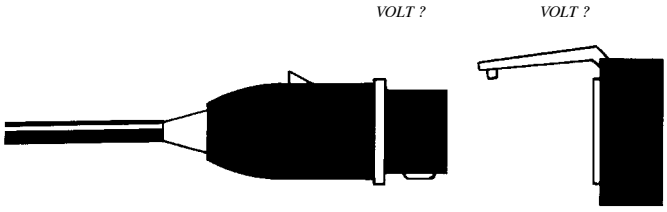


CONNECTION FOR **"4-CORE"** WIRE SYSTEMS WITH NEUTRAL

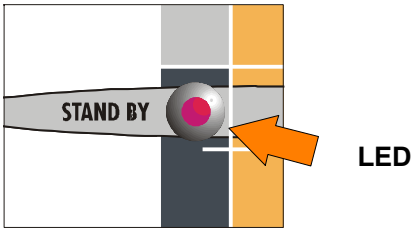


Attention When using systems with a neutral wire, special care must be taken when connecting the **blue** neutral wire, in that if it is connected to a phase wire it will discharge the **phase voltage** to the equipment connected for **voltage: phase-neutral.**

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

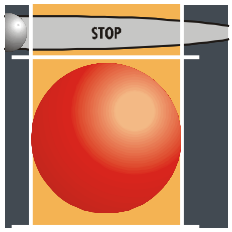


▶ Power up machine by rotating the main switch located on the right side of the control panel (The STAND BY LED lights up).

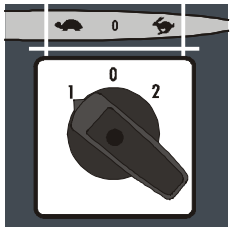


Check that the motor is rotating in the correct direction, as follows:

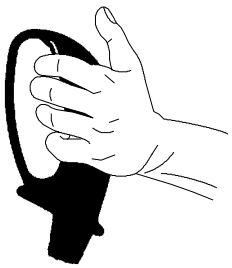
▶ make sure that the machine is not in an emergency condition (red mush-room- head pushbutton released);



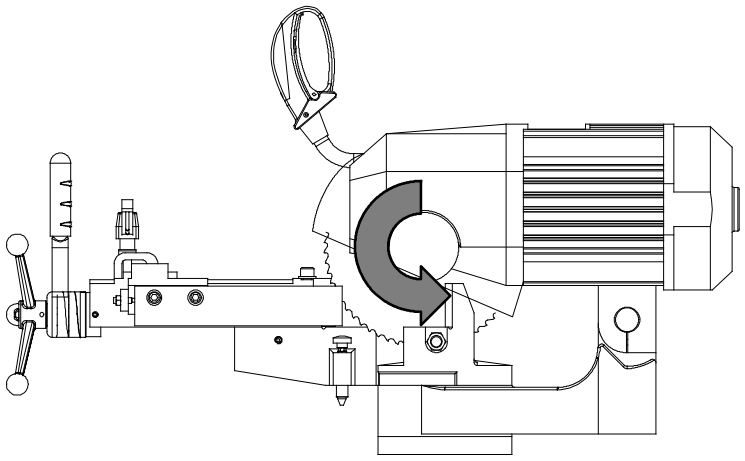
▶ select a cutting speed using the polarity change switch;



▶ operate the jog pushbutton on the manual head control lever;



▶ If all the above operations have been carried out correctly, the disc motor will start up and the disc will start to turn.



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's 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.

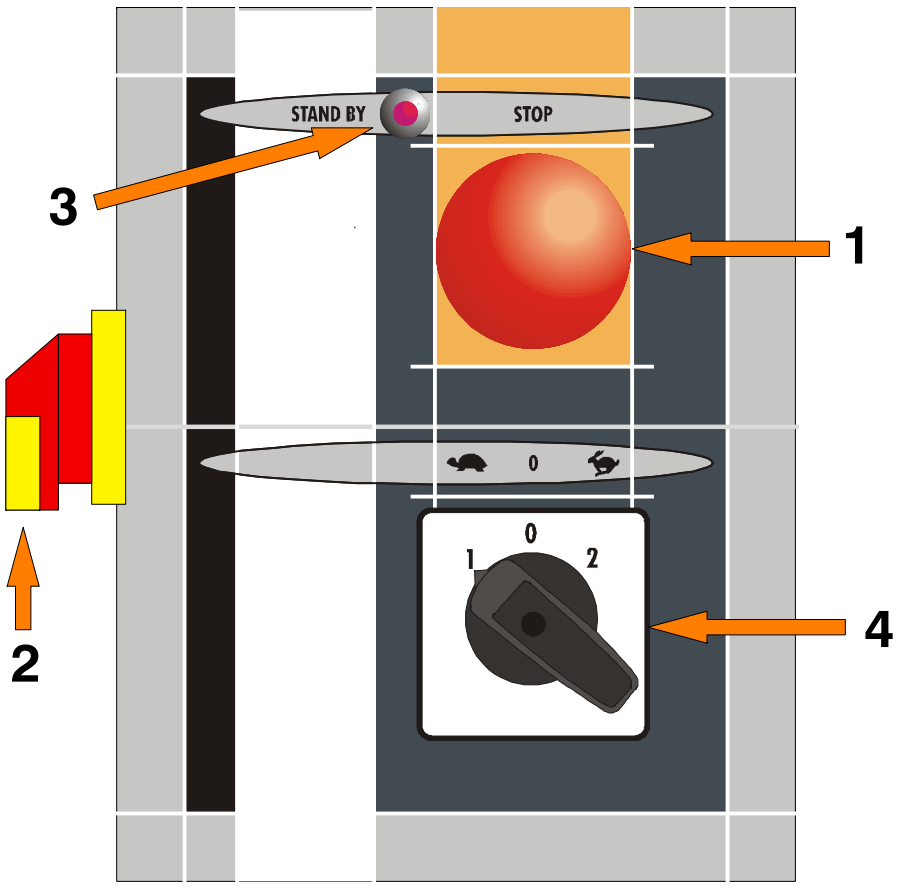
Description of machine operation

5

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

Description of the control panel

The components of the **FALCON 352** control panel are shown in the diagram below. Each arrow has a number which corresponds to the descriptions that follow.



1 - EMERGENCY STOP PUSHBUTTON

Pressing this pushbutton stops the machining operations immediately and stops any blade movement. The emergency pushbutton, designed in accordance with all relevant safety standards, is installed in a position that makes it easily accessible at any moment of potential danger. Its red colour on a yellow background makes it extremely visible. To reset the pushbutton, rotate it 45°.

2 - MAIN MAGNETO-THERMAL SWITCH

On the left hand side of the control panel is a main switch with a door locking device. When turned to position 1 it switches on the power to the machine through the MINIMUM VOLTAGE COIL RESET and the DISC MOTOR MAGNETO- THERMAL RESET. This device has three systems for protecting against voltage drops. In fact, in the event of a voltage drop, all the electrical components are disengaged, the machine stops immediately and is prevented from restarting automatically when the power supply returns. Another function is that of resetting the thermal relay provided to protect against current overloads.

3 - STAND BY LED

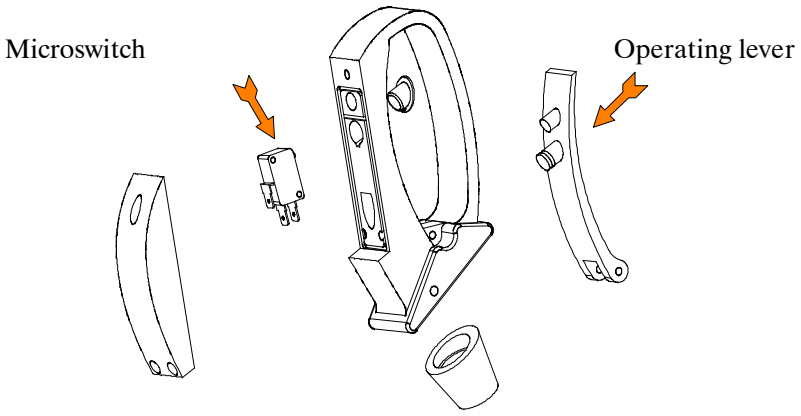
This either confirms machine start up or indicates an emergency state to the operator.

4 - POLARITY CHANGE SWITCH

This selects the cutting speed of the disc: 30/60 m/min on standard two- speed machines.

HEAD CONTROL LEVER MICROSWITCH

The top of the manual head control lever incorporates a microswitch for controlling the blade motor.

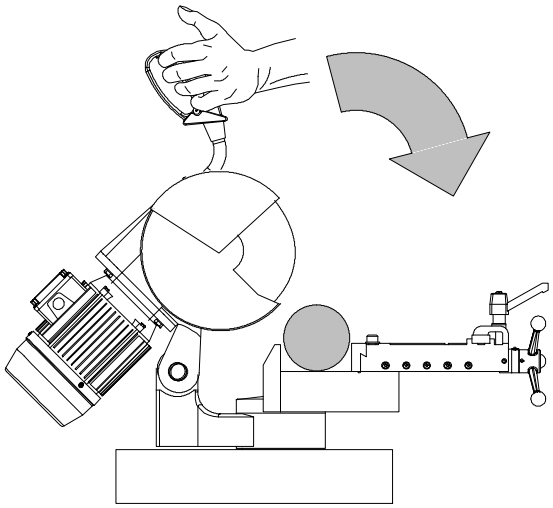


This microswitch is enabled when the machine is not in emergency condition. In accordance with the relevant standards in force, the voltage is 24V and the microswitch is installed in a housing (blue knob) sealed against external agents such as dust or moisture with a protection rating of IP 55.

Basic instructions for carrying out a cutting operation cycle

Manoeuvring the cutting head

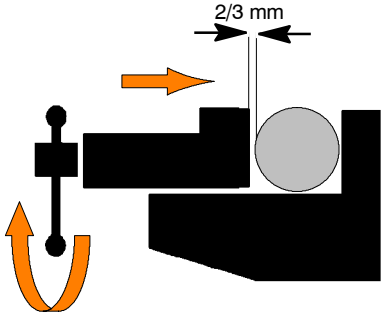
The hand grip on the cutting head control lever, gives the operator a solid grip. He can start the blade rotating by pressing the activating lever on the micro-switch, built in to the hand grip itself.



Clamping the work piece in the vice

The vice is opened and closed with a hand wheel, or by a foot pedal in the MA version. In any case, the part to be processed should always be clamped following this procedure:

- Make sure that the material dimensions are within the machine's cut capacity specified by the manufacturer
- switch on the machine at the reset switch;
- position the material in the vice and calculate the length of cut (using the rods for cuts to measure);
- close the vice manually up to the workpiece to cut, leaving a minimum distance of 2÷3 mm In the MA version, the automatic vice is enabled and can be controlled using the on/off selector on the base or foot pedal;



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

N.B. If the vice was already closed by the pneumatic piston, it may not block the piece. In this case it is necessary to repeat the operation, i.e.: open the vice by pressing the specific button, bring the moving jaw near to the piece and block it again with the closing button, bearing in mind that the stroke of the pneumatic piston is approx. 8 mm.

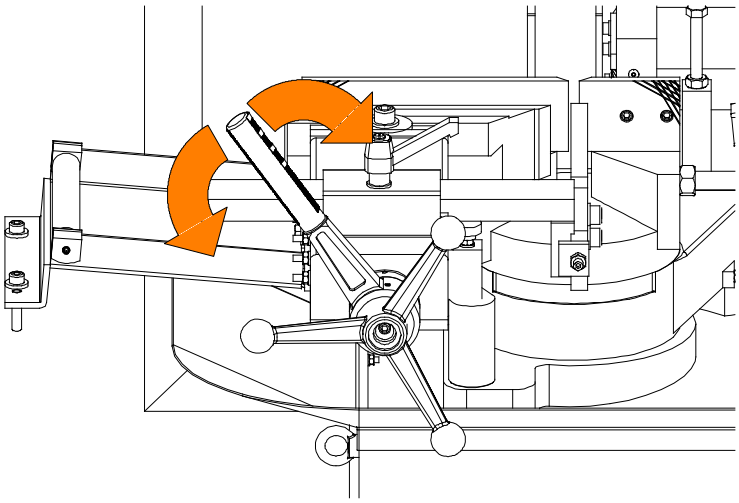
Width of cut

The machine is fitted with barriers which adjust to suit to the workpiece.

▶ Adjust the deburring bar if necessary.

Quick vice clamping

In the standard version the cutting vice is equipped with a quick clamping device that uses a cam system. Turn the lever located behind the vice clamping hand-wheel to clamp or release the workpiece quickly. Before being closed using the quick clamping system, the vice must in any case be moved to within about 2- 3 mm of the material to be cut.



Preliminary check list for cutting operation

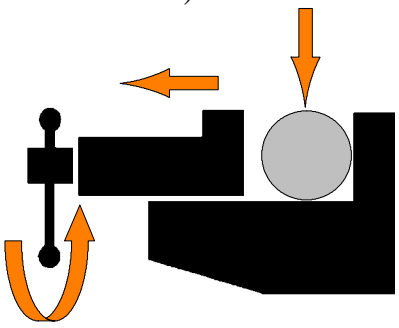
To guarantee complete safety during cutting cycles, the operator should work through a check list of the entire apparatus, checking:

▶ that the disk guard can move freely;
▶ that the right cut angle has been set and the turntable is locked in position;
▶ that the work piece is properly clamped in place;
▶ that the blade teeth are suitable for the material to be cut;
▶ that the speed selected is right for the kind of piece to be cut;
▶ that all protections are in place and correctly locked.

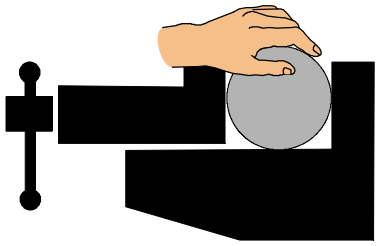
Manual operating cycle

Sequence of operations for performing a cut:

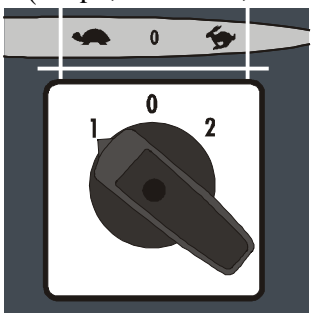
▶ power up the machine by pressing the reset button;
▶ position the workpiece in the vice and calculate the length of cut (using the measuring rod for cuts to measure).



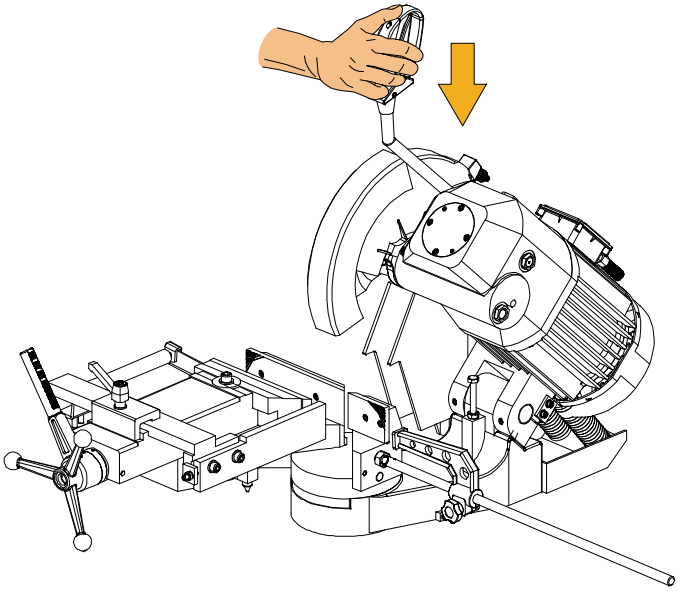
- Close the vice manually up to the workpiece to cut, leaving a minimum distance of 2÷3 mm. In the MA version, the automatic vice is enabled and can be controlled using the on/off selector on the base or foot pedal.
- Make sure the workpiece is securely clamped in the vice by trying to move it manually.



- Select the cutting speed on the “Polarity change switch” in accordance with the type of material to cut (shape, thickness, hardness, etc.).

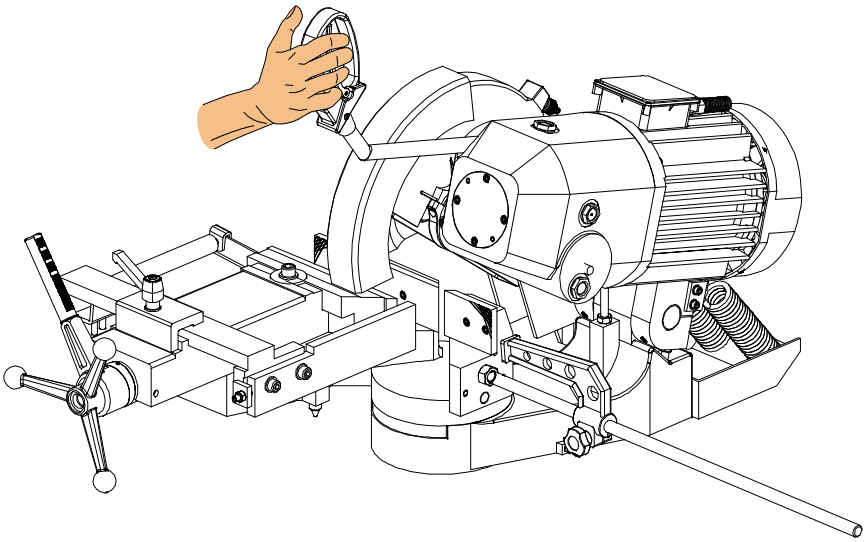


- Grip the head control lever and start the blade by pressing the microswitch on the handgrip. The descent speed of the head is controlled manually by the operator.



- The motor starts up and starts the blade moving, at the same time starting the lubricant/coolant pump.

▶ pull the head control lever downwards to start the cut: in this step it is important to have a very slow approach speed of the disk to the cutting material, not to damage the blade toothing



▶ at the end of the cut, the head can be raised;

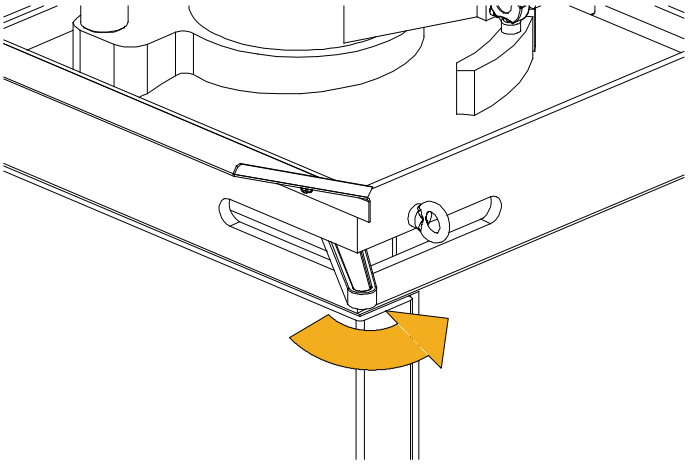
▶ Remove the workpiece from the vice, either using the vice handwheel or the rapid locking lever. In the MA version use the vice open/close pushbutton on the base.

Angled cuts

Sloped cuts with angles between 45° on the left and 45° on the right can be made. The rotating platform has preset reference strokes for the fast performance of cuts of 0° and 45° on the left.

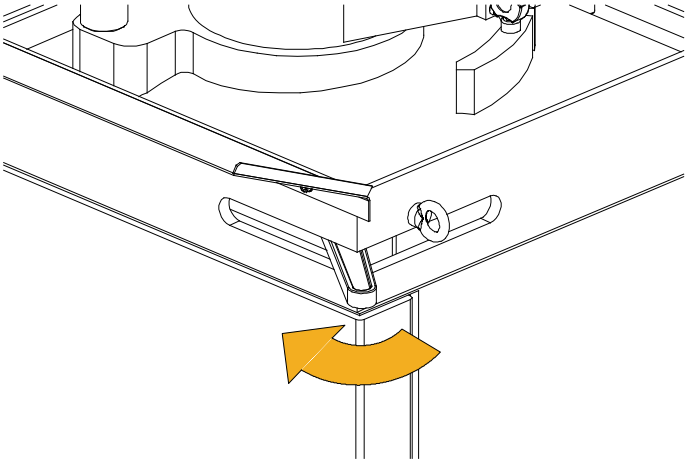
Angled cuts 45° and 60° to the left

▶ Release the turntable by means of the locking lever located on the front right section of the base;

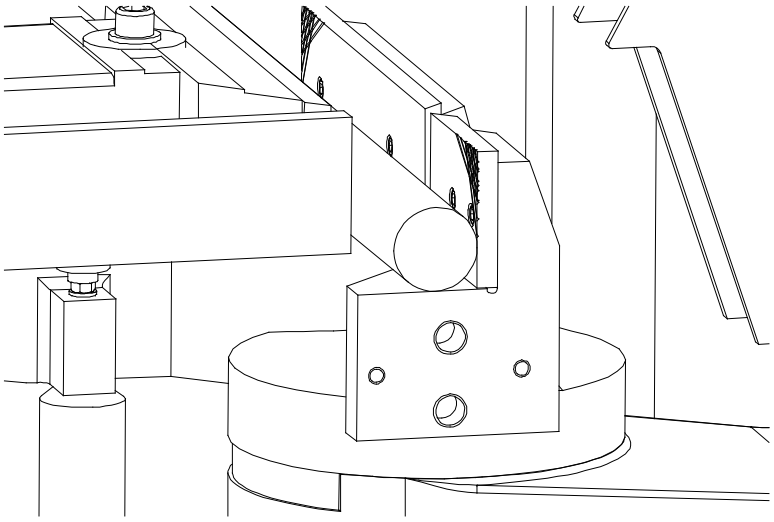


▶ rotate the cutting head to the right till taking it to the reference and check that it is at 15° on the grading indicated on the fixed platform;

▶ once the desired angle has been reached, fix the body of the machine again by means of the locking lever;



▶ suit the position of the anti- burr rod not to interfere with the cutting disk

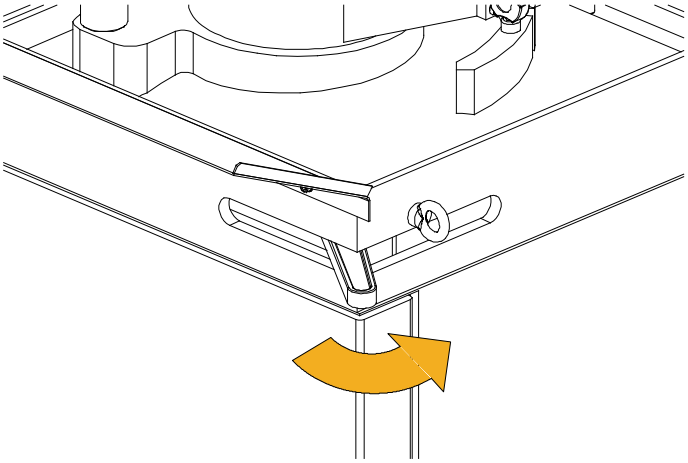


▶ the machine is now ready for making angled cuts.

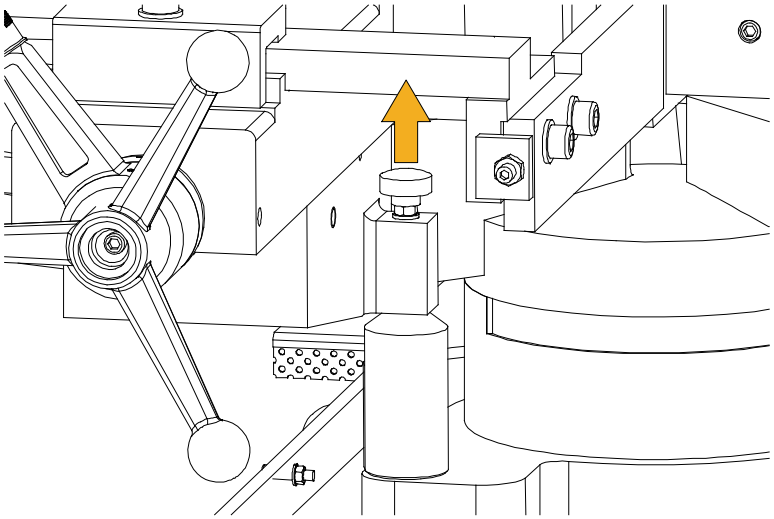
Angled cuts 45° to the right

To make mitre cuts on the right rotate the vice unit instead of the head unit.

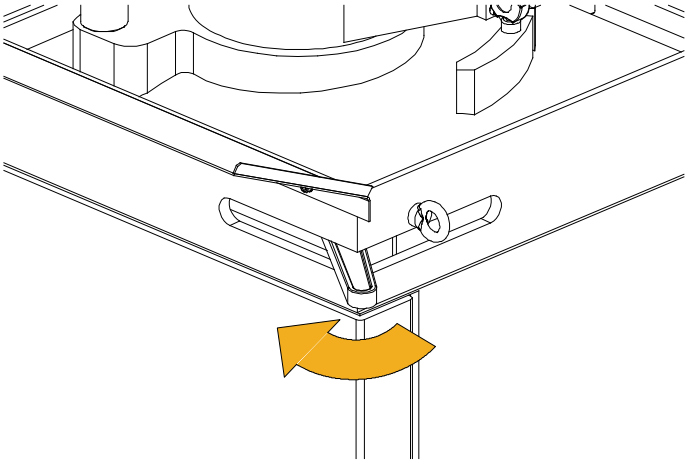
▶ Release the turntable by means of the locking lever located on the front right section of the base;



▶ Lift the vice locking pin and rotate the vice unit positioning it on the 45° notch of the graduated scale indicated on the rotating platform.



▶ once the desired angle has been reached, fix the body of the machine again by means of the locking lever.



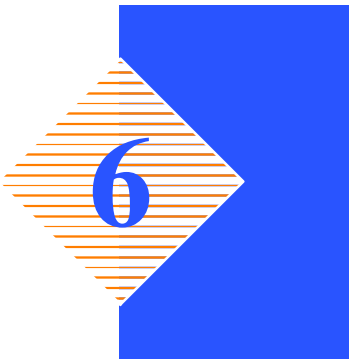
Attention When making cuts angled to the right, check before making the cut that the blade does not touch the vice slide jaw.

If it does:

▶ loosen the screw located above the vice slide jaw;
▶ move the jaw so that it does not touch the disc;
▶ tighten the screw while holding the jaw steady in its new position.

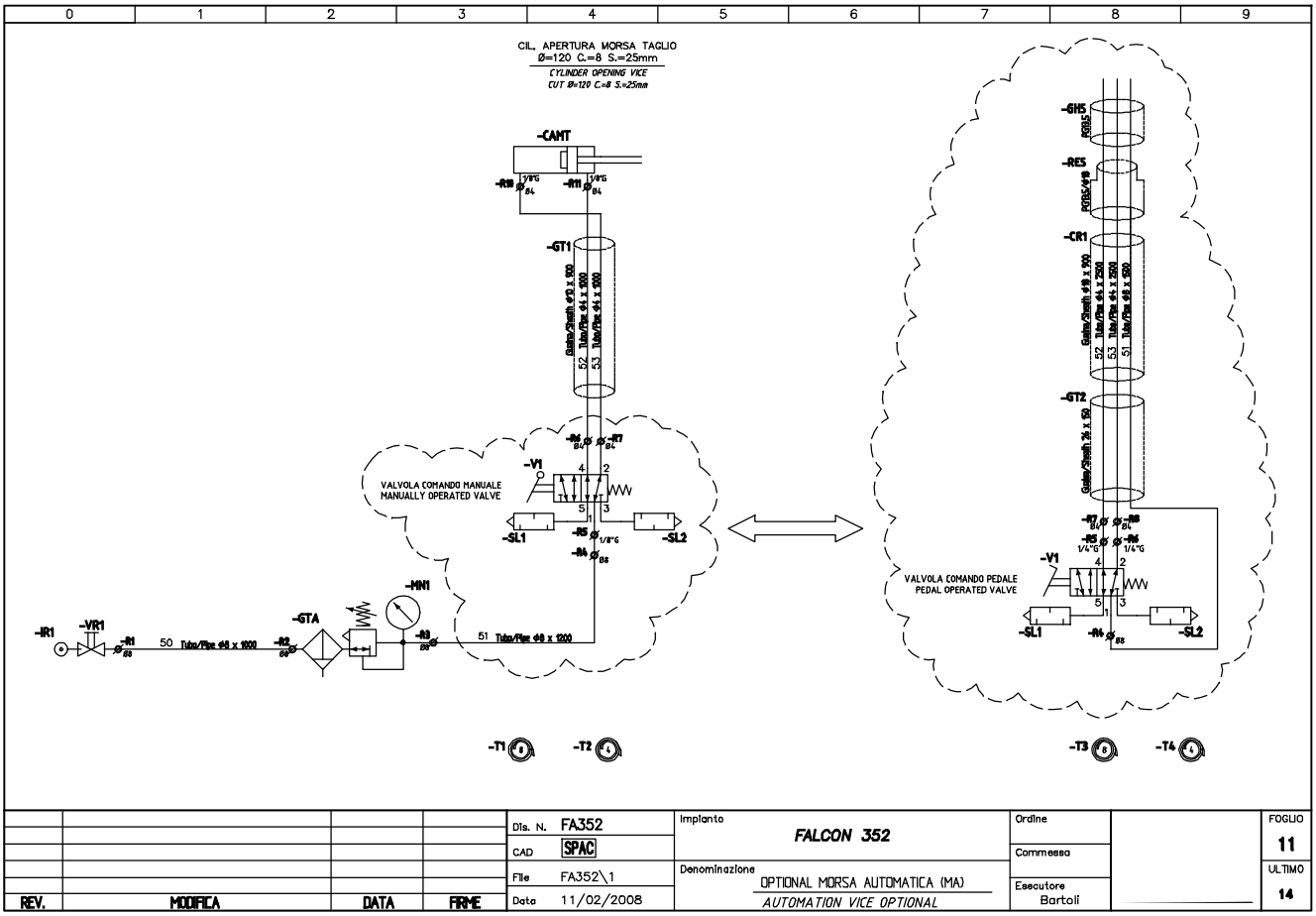
N.B. Another important function of the correct positioning of the mobile jaws is tightening the material as close as possible to the cutting area.

Diagrams, exploded views and replacement parts



This chapter contains functional diagrams and exploded views of the **FALCON 352**. 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.

Pneumatic diagram (MA version)



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	DISTINTA MATERIALI	
	CONTENT INDEX			MATERIAL LIST	
2	LEGENDA SIMBOLI				
	SYMBOL KEY				
3	ALIMENTAZIONE				
	POWER SUPPLY				
4	ALIMENTAZIONE MOTORI 380V				
	MOTOR POWER SUPPLY 380 V				
5	ALIMENTAZIONE TRASFORMATORI				
	TRANSFORMER POWER SUPPLY				
6	AUSILIARI				
	AUXILIARY				
7	MORSETTIERA				
	TERMINAL STRIP				
8	INTERNO QUADRO				
	BOARD INSIDE				
9	GUAINE E ACCESSORI				
	SHEATHS AND ACCESSORIES				
10	RIASSUNTIVO CAVI				
	CABLE SUMMARY				
11	OPTIONAL MORSA AUTOMATICA (MA)				
	AUTOMATION VICE OPTIONAL				
12	DISTINTA MATERIALI				
	MATERIAL LIST				
13	DISTINTA MATERIALI				
	MATERIAL LIST				

Note :

REV.	MODIFICA	DATA	FIRME

Dis. N. FA352
CAD SPAC
File FA352\1
Data 11/02/2008

Impianto: FALCON 352
Denominazione: INDICE CONTENUTI / CONTENT INDEX
Ordine
Commessa
Esecutore: Bartoli

FOGLIO 1
ULTIMO 14

Sim.\Sym.	File	Descrizione\Description
	H12	LED con resistenza *LED WITH RESISTOR*
	M9	Motore asincrono monofase *TWO PHASE INDUCTION MOTOR*
	M110	Motore asincrono trifase 6 poli *SIX PHASE INDUCTION MOTOR*
	Q1360	Int. automatico magnetotermico sezionatore tripolare *THREE PHASE AUTOMATIC SWITCH*
	S2	Comando a Pulsante NO *PUSH BUTTON NO*
	S4C	Pulsante di emergenza NC *EMERGENCY PUSH BUTTON*
	KA1	Bobina rele' Aux *AUXILIARY RELAY COIL*
	KM1	Bobina contattore *CONTACTOR COIL*
	trasf_duo	Trasformatore per ausiliari *TRANSFORMER FOR AUXILIARY*
	BLK41	Raccordop SX *CONNECTOR SX*
	BLK42	Raccordo DX *CONNECTOR DX*

Sim.\Sym.	File	Descrizione\Description
	BLK43	Tubo corrugato *CORRUGATED PIPE*
	BLK49	Pressa-cordone PG *PG FLEXIBLE CORD STOP*
	BLK51	Dado PG *PG NUT*
	BLK56	Terminale a puntale *TERMINAL*
	BLK57	Filo unipolare *WIRE*
	BLK58	Fascette plastiche di fossaggio *PLASTIC CLAMP*
	BLK60	Terminale a occhiello *TERMINAL*
	SEL__VEL	Selettore a tre posizioni stabili 0 centrale *SELECTOR THREE STABLE ZERO CENTRAL POSITION*
	BLK66	Sacchetto portafusibile *BAG FUSE*
	BLK106	Raccordo tubo *PIPE FITTING*
	FFLP40	Valvola di esclusione *ON-OFF VALVE*

Sim.\Sym.	File	Descrizione\Description
	FFLP51	Silenziatore *SILENCER*
	FFLP78B	Cilindro a doppio effetto *DOUBLE ACTING CYLINDER*
	FFLP155	Valvola *VALVE*
	FFLP176	Riduttore di pressione con manometro *PRESSURE REDUCING VALVE WHITE MANOMETER*

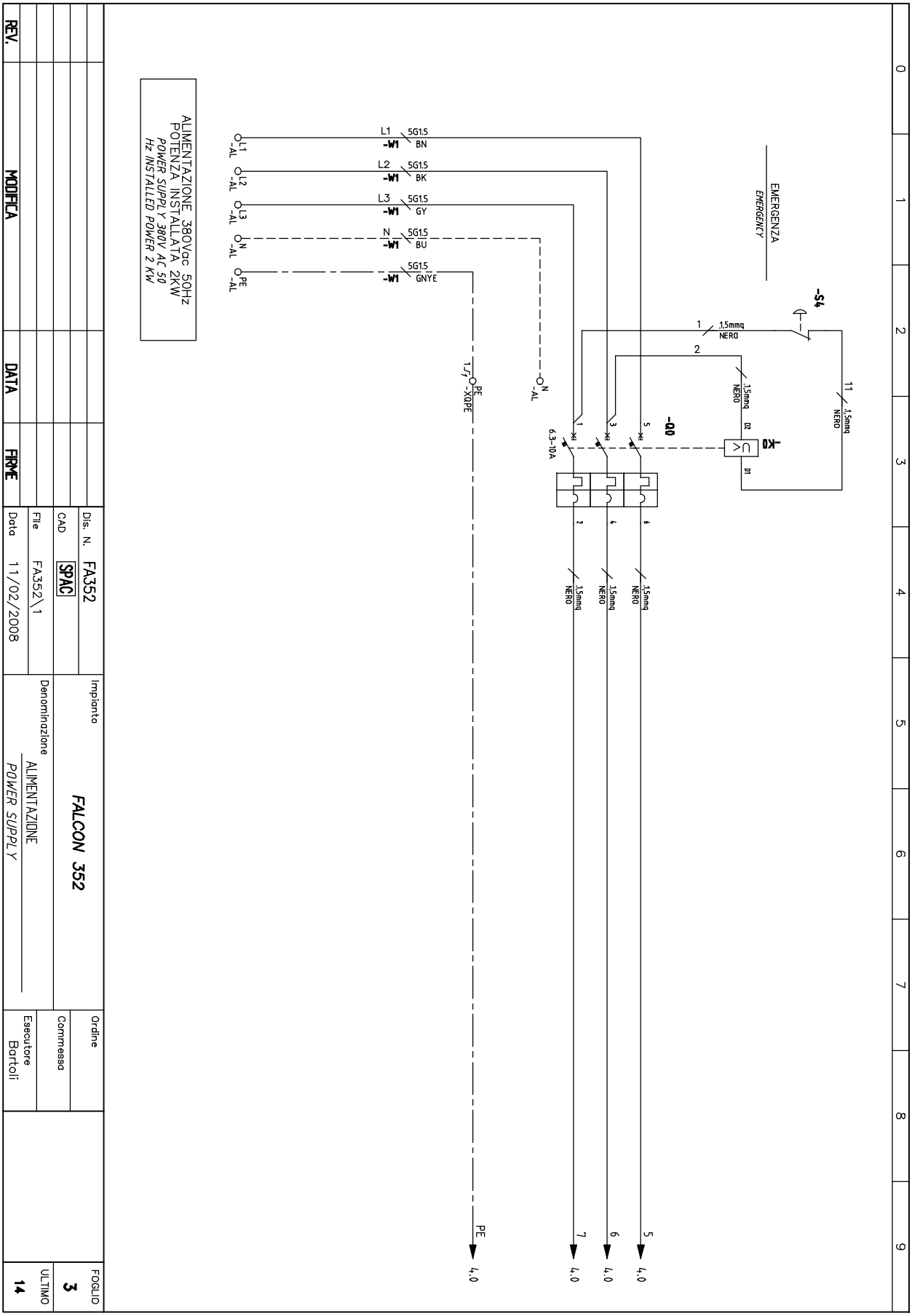
REV.	MODIFICA	DATA	FIRME

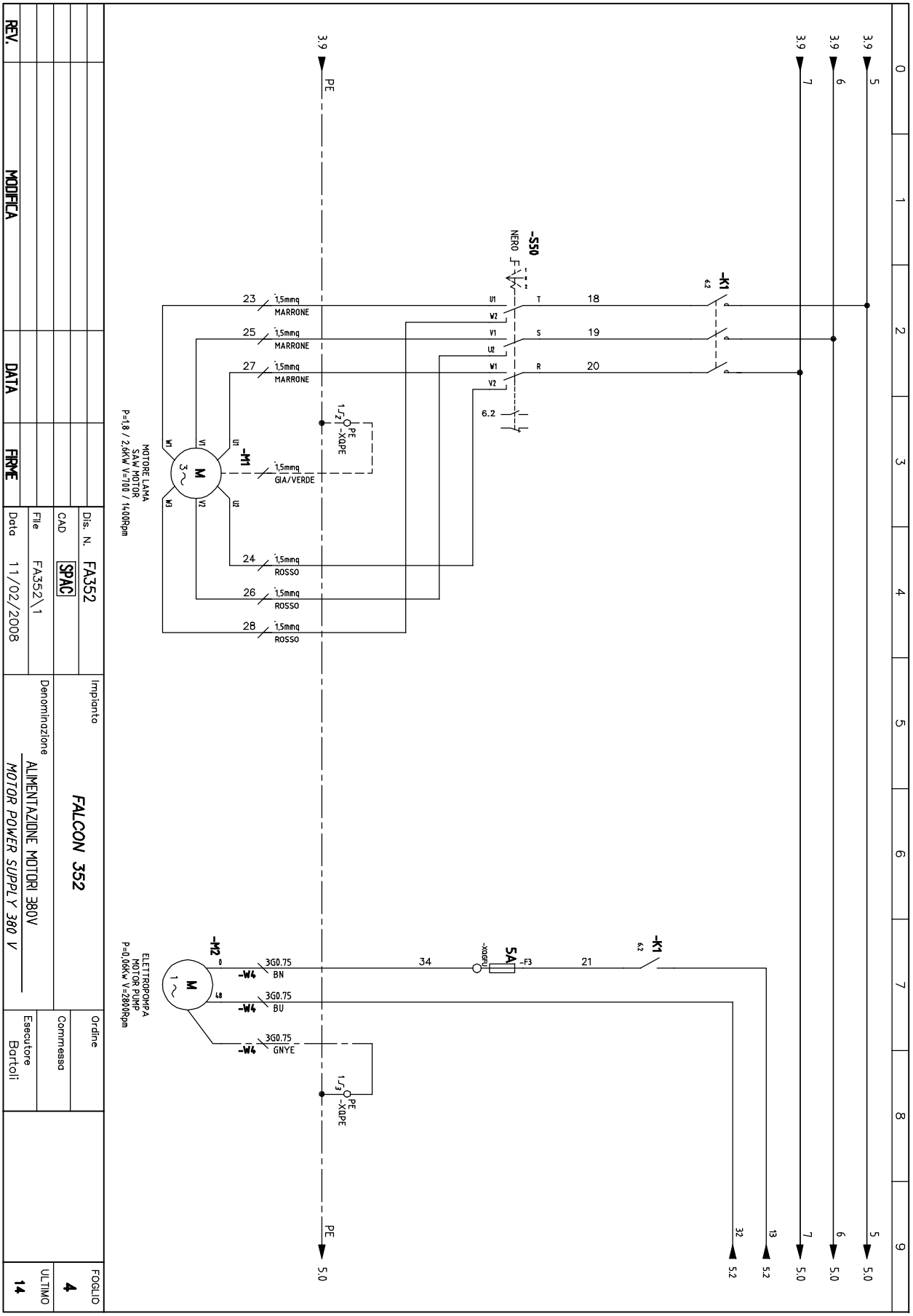
Dis. N.	FA352	Impianto	FALCON 352
CAD	SPAC		
File	FA352\1	Denominazione	LEGENDA SIMBOLI *SYMBOL KEY*
Data	11/02/2008		

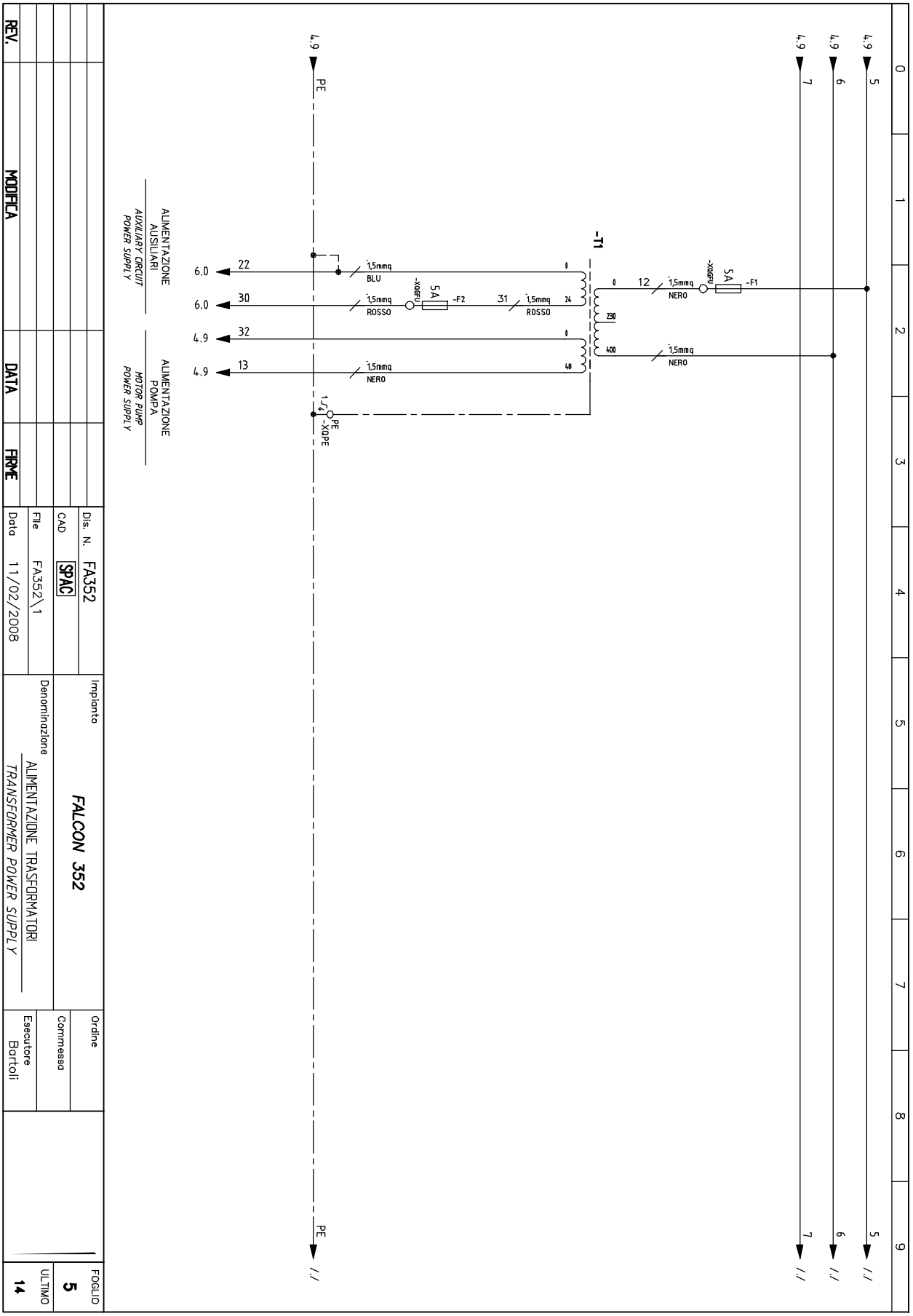
Ordine	
Commessa	
Esecutore	Bartoli

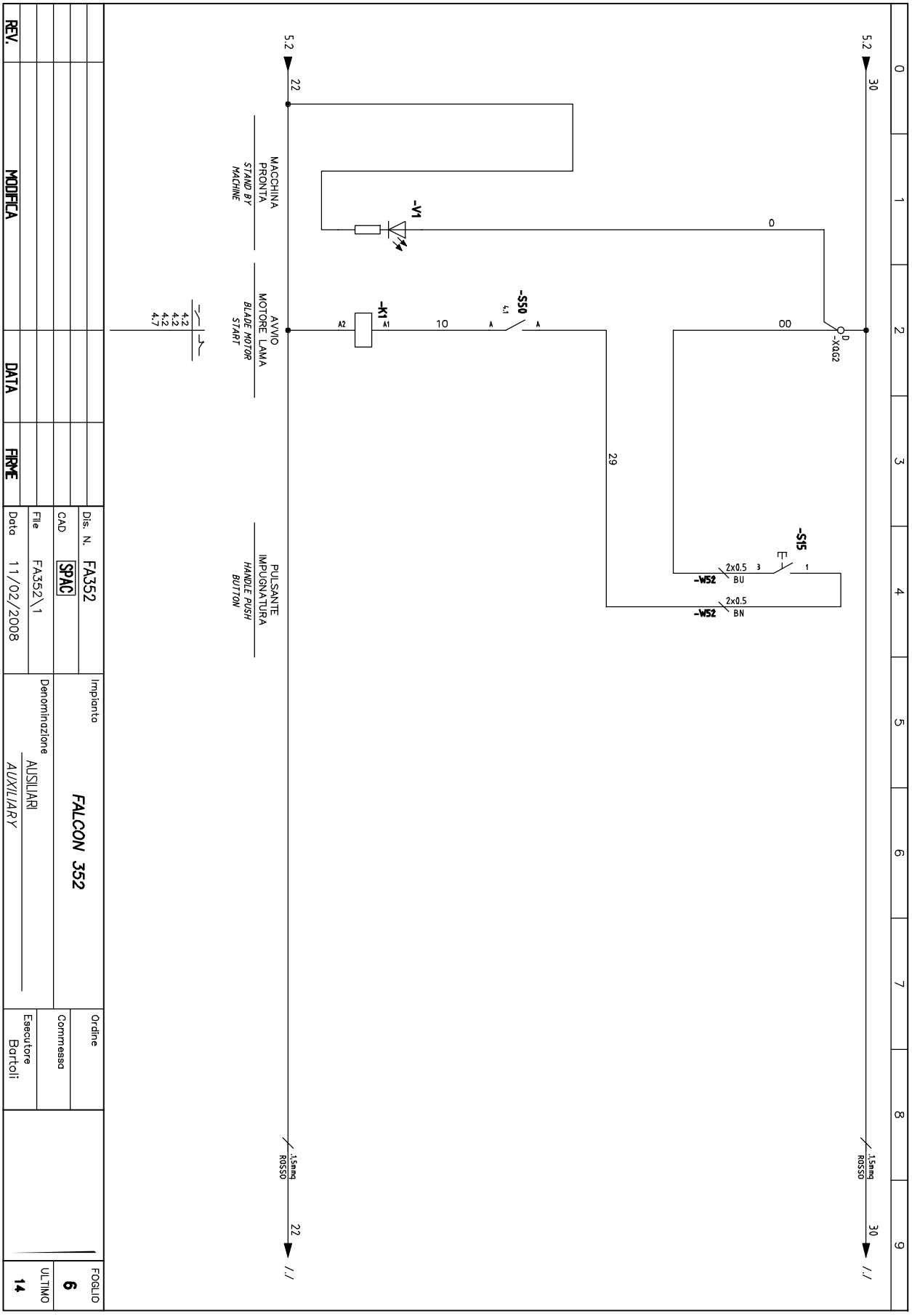
FOGLIO	2
ULTIMO	14

MEP S.p.A.

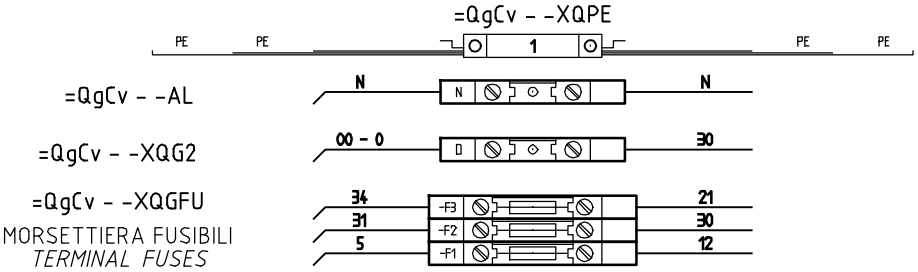

ALIMENTAZIONE 380Vac 50Hz
POTENZA INSTALLATA 2KW
POWER SUPPLY 380V AC 50
Hz INSTALLED POWER 2 KW
L1 5G1.5 -W1 BN
L2 5G1.5 -W1 BK
L3 5G1.5 -W1 GY
N 5G1.5 -W1 BU
PE 5G1.5 -W1 GNYE
-AL
-XGPE
EMERGENZA
EMERGENCY
-S4
1,5mmq NERO
-QD
6.3-10A
-K1
A1
A2
11
2
1
3
5
4.0
7
6
PE
REV.
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POWER SUPPLY
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Esecutore Bartoli
FOGLIO 3
ULTIMO 14


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Dis. N. FA352
CAD SPAC
File FA352\1
Data 11/02/2008
Impianto
FALCON 352
Denominazione
ALIMENTAZIONE MOTORI 380V
MOTOR POWER SUPPLY 380 V
Ordine
Commessa
Esecutore Bartoli
FOGLIO 4
ULTIMO 14
-S50
NERO
-K1
-M1
-M2
-W4
-XQPE
-XQBOX
-F3
5A
MOTORE LAMA
SAW MOTOR
P=1,8 / 2,6KW V=700 / 1400Rpm
ELETTROPOMPA
MOTOR PUMP
P=0,06Kw V=2800Rpm
23 1,5mmq MARRONE
25 1,5mmq MARRONE
27 1,5mmq MARRONE
24 1,5mmq ROSSO
26 1,5mmq ROSSO
28 1,5mmq ROSSO
1,5mmq GIA/VERDE
3G0.75 BN
3G0.75 BU
3G0.75 GNYE
18
19
20
21
34
6.2
PE
3.9
5.0
5.2


-T1
ALIMENTAZIONE AUSILIARI
AUXILIARY CIRCUIT POWER SUPPLY
ALIMENTAZIONE POMPA
MOTOR PUMP POWER SUPPLY
1,5mmq BLU
1,5mmq ROSSO
1,5mmq NERO
5A -F1
5A -F2
-XA6FU
-XA6FU
-XA0PE
PE
230
400
REV.
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FALCON 352
Denominazione
ALIMENTAZIONE TRASFORMATORI
TRANSFORMER POWER SUPPLY
Ordine
Commessa
Esecutore Bartoli
FOGLIO 5
ULTIMO 14


MACCHINA PRONTA
STAND BY MACHINE
AVVIO MOTORE LAMA
BLADE MOTOR START
PULSANTE IMPUGNATURA
HANDLE PUSH BUTTON
-V1
-K1
-S50
-S15
-W52
-X0G2
2x0.5 BU
2x0.5 BN
1.5mmq ROSSO
REV.
MODIFICA
DATA
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Dis. N. FA352
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Data 11/02/2008
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FALCON 352
Denominazione
AUSILIARI
AUXILIARY
Ordine
Commessa
Esecutore Bartoli
FOGLIO 6
ULTIMO 14

0	1	2	3	4	5	6	7	8	9

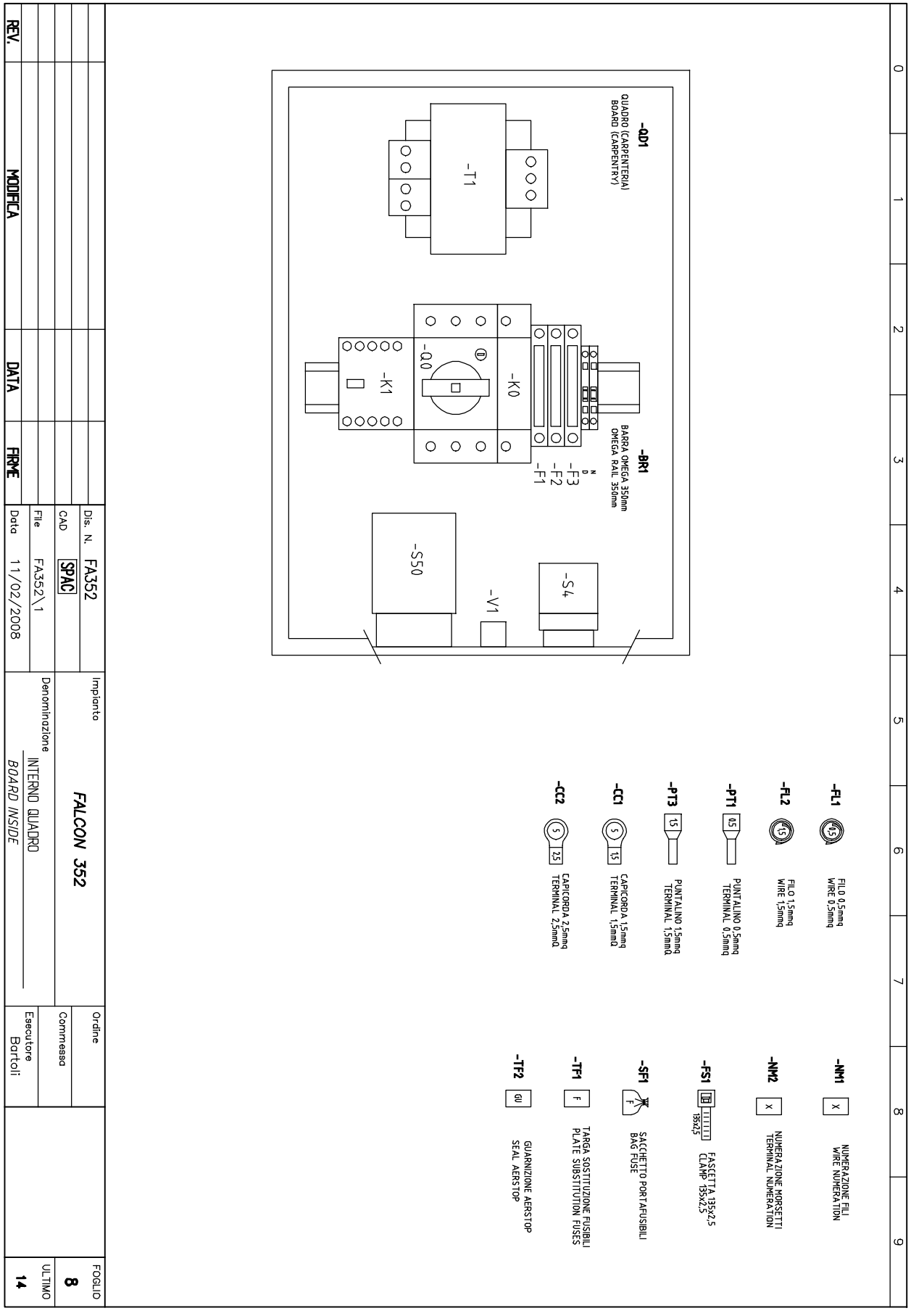


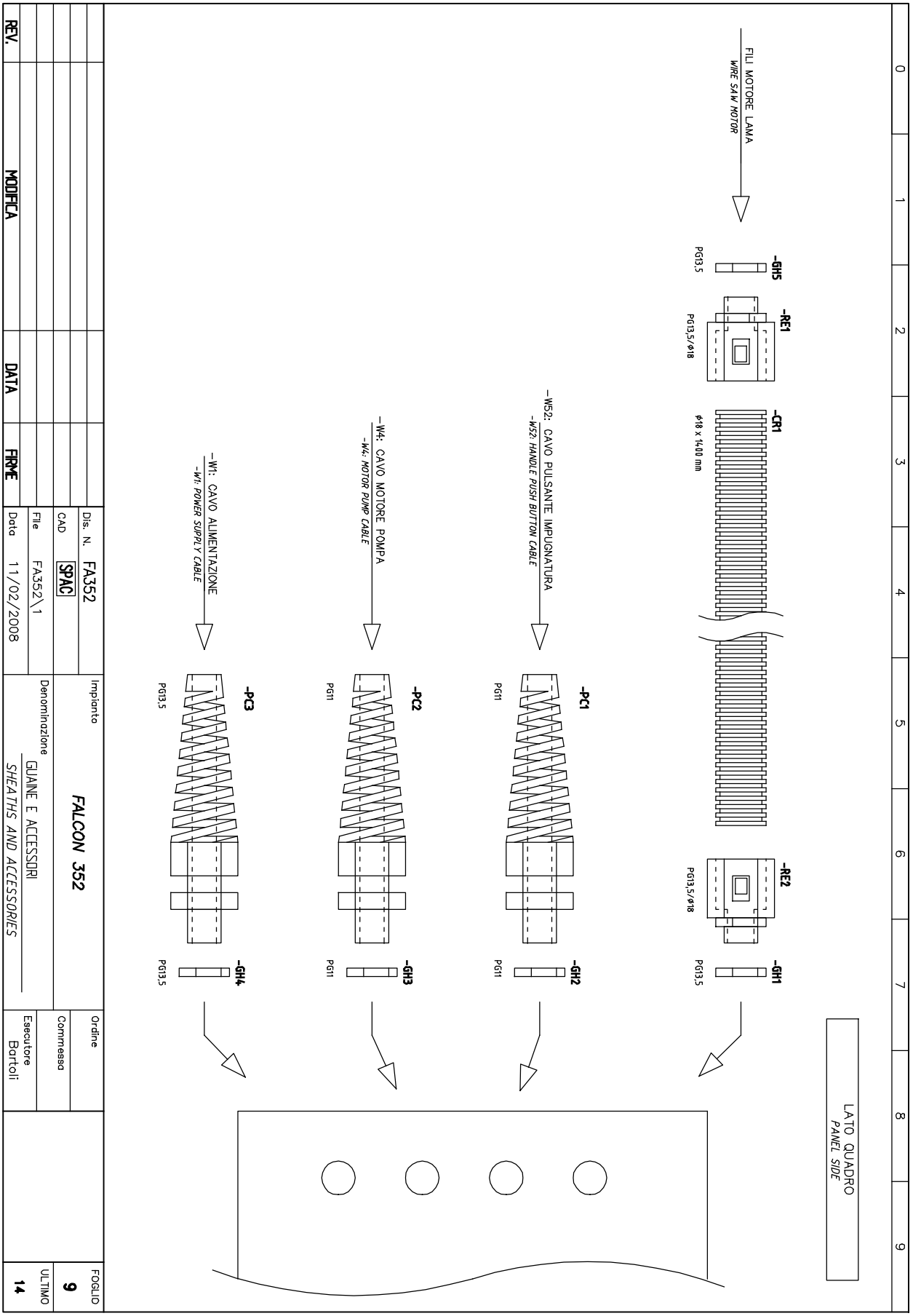
REV.	MODIFICA	DATA	FIRME

Dis. N.	FA352
CAD	SPAC
File	FA352\1
Data	11/02/2008

Impianto	*FALCON 352*
Denominazione	MORSETTIERA *TERMINAL STRIP*
Ordine	
Commessa	
Esecutore	Bartoli

FOGLIO	7
ULTIMO	14


-QD1
QUADRO (CARPENTERIA)
BOARD (CARPENTRY)
-T1
-K1
-Q0
-K0
-BR1
BARRA OMEGA 350mm
OMEGA RAIL 350mm
-F3
-F2
-F1
-S50
-S4
-V1
-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
-TF1
TARGA SOSTITUZIONE FUSIBILI
PLATE SUBSTITUTION FUSES
-TF2
GUARNIZIONE AERSTOP
SEAL AERSTOP
REV.
MODIFICA
DATA
FIRME
Dis. N. FA352
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FALCON 352
Denominazione
INTERNO QUADRO
BOARD INSIDE
Ordine
Commessa
Esecutore Bartoli
FOGLIO 8
ULTIMO 14


FILI MOTORE LAMA
WIRE SAW MOTOR
-GH5
PG13,5
-RE1
PG13,5/Ø18
-CR1
Ø18 x 1400 mm
-RE2
PG13,5/Ø18
-GH1
PG13,5
LATO QUADRO
PANEL SIDE
-W52: CAVO PULSANTE IMPUGNATURA
-W52: HANDLE PUSH BUTTON CABLE
-PC1
PG11
-GH2
PG11
-W4: CAVO MOTORE POMPA
-W4: MOTOR PUMP CABLE
-PC2
PG11
-GH3
PG11
-W1: CAVO ALIMENTAZIONE
-W1: POWER SUPPLY CABLE
-PC3
PG13,5
-GH4
PG13,5
REV.
MODIFICA
DATA
FIRME
Dis. N. FA352
CAD SPAC
File FA352\1
Data 11/02/2008
Impianto
FALCON 352
Denominazione
GUAINE E ACCESSORI
SHEATHS AND ACCESSORIES
Ordine
Commessa
Esecutore Bartoli
FOGLIO 9
ULTIMO 14

0	1	2	3	4	5	6	7	8	9

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
			L1	BN				BN	L1			
=QgCv -AL	3/1	L1 O	L2	BK				BK	L2	5	3/3	=QgCv -Q0
=QgCv -AL	3/1	L2 O	N	BU	-W1 022.0158 5G1.5	3,00		BU	N	3	3/3	=QgCv -Q0
=QgCv -AL	3/1	N O	L3	GY	Cavo alimentazione			GY	L3	O N	3/2	=QgCv -AL
=QgCv -AL	3/1	L3 O	PE	GNYE				GNYE	PE	1	3/3	=QgCv -Q0
=QgCv -AL	3/2	PE O								⏊ 1_1	3/2	=BmCv -XQPE
			34	BN				BN	34	0	4/7	=BmMep -M2
=QgCv -XQGFU	4/7	-F3 O	32	BU	-W4 022.1904 3G0.75	2,50		BU	32	48	4/7	=BmMep -M2
=QgCv -T1	5/2	0	7	GNYE	Cavo motore pompa			GNYE	7		0/7	
=QgCv -XQPE	4/8	1_3 ⏊										
			29	BN	-W52 022.0160 2x0.5	2,50		BN	29	1	6/4	=QgCv -S15
=QgCv -S50	6/2	A	00	BU	Colleg. pulsante impugnatura			BU	00	3	6/4	=QgCv -S15
=QgCv -XQG2	6/2	D O										

REV.	MODIFICA	DATA	FIRME

Dis. N.	FA352	Impianto	FALCON 352
CAD	SPAC		
File	FA352\1	Denominazione	RIASSUNTIVO CAVI / CABLE SUMMARY
Data	11/02/2008	Esecutore	Bartoli
Ordine		Commessa	
FOGLIO	10	ULTIMO	14

MEP S.p.A.

0	1	2	3	4	5	6	7	8	9

NOME/ITEM	TIPO/TYPE	DESCRIZIONE/DESCRIPTION	QUADRO/BOARD	FG/SH	Q.TA/Q.TY
'-RE1	'022.0211	Raccordo rapido dritto SEM PG13,5/Ø19	'=BmCv	9	1
'-RE2		Raccordo rapido dritto SEM PG13,5/Ø19	'=BmCv	9	1
'-PC3	'022.0234	Pressacordone 3246 nero PG13,5	'=BmCv	9	1
'-PC2	'022.0235	Pressacordone 3243 nero PG11	'=BmCv	9	1
'-PC1		Pressacordone 3243 nero PG11	'=BmCv	9	1
'-GH5	'022.0244	Dado grigio PG13,5	'=BmCv	9	1
'-GH1		Dado grigio PG13,5	'=BmCv	9	1
'-GH4		Dado grigio PG13,5	'=BmCv	9	1
'-XQPE	'022.2247	Morsetto PE da 2.5 mm singolo per 4 fili a molla	'=QgCv	4	1
'-CR1	'022.2602	Guaina POLIFLEX NW 14-1200143 (corrugato diam. 18)	'=BmCv	9	1,40
'-GH2	'022.2701	Dado BL03 PG11	'=BmCv	9	1
'-GH3		Dado BL03 PG11	'=BmCv	9	1
'-R7	'043.0206	Raccordo diritto da 1/8"G a Ø4mm	'=BmMaCm	11	1
'-R6		Raccordo diritto da 1/8"G a Ø4mm	'=BmMaCm	11	1
'-R4	'043.0208	Raccordo a gomito da 1/8"G a Ø8mm	'=BmMaCm	11	1
'-R5	'043.0231	Riduzione diritta M/F da 1/8"G	'=BmMaCm	11	1
'-T1	'043.0301	Tubo rilsan 8X6 NERO COD.17257181	'=BmMaCm	11	2,20
'-T2	'043.0302	Tubo rilsan 4X2.7 NERO C.17257162	'=BmMaCm	11	2,00
'-SL1	'043.0473	Silenziatore da 1/8"G in ottone	'=BmMaCm	11	1
'-SL2		Silenziatore da 1/8"G in ottone	'=BmMaCm	11	1
'-V1	'043.0604	Valvola 5/3 comando manuale 358/990 Camozzi	'=BmMaCm	11	1
'-GT2	'022.0180	Guaina termoretraibile 26mm	'=BmMaCp	11	0,15
'-RE5	'022.0211	Raccordo rapido dritto SEM PG13,5/Ø19	'=BmMaCp	11	1
'-GH5	'022.0244	Dado grigio PG13,5	'=BmMaCp	11	1
'-CR1	'022.2602	Guaina POLIFLEX NW 14-1200143 (corrugato diam. 18)	'=BmMaCp	11	0,90
'-R4	'043.0195	Raccordo diritto da 1/4"G a Ø8mm CL1050	'=BmMaCp	11	1
'-R8	'043.0206	Raccordo diritto da 1/8"G a Ø4mm	'=BmMaCp	11	1
'-R7		Raccordo diritto da 1/8"G a Ø4mm	'=BmMaCp	11	1
'-R6	'043.0228	Riduzione M/F da 1/4-1/8"G	'=BmMaCp	11	1
'-R5		Riduzione M/F da 1/4-1/8"G	'=BmMaCp	11	1
'-T3	'043.0301	Tubo rilsan 8X6 NERO COD.17257181	'=BmMaCp	11	3,70
'-T4	'043.0302	Tubo rilsan 4X2.7 NERO C.17257162	'=BmMaCp	11	7,00
'-SL1	'043.0474	Silenziatore da 1/4"G in ottone	'=BmMaCp	11	1
'-SL2		Silenziatore da 1/4"G in ottone	'=BmMaCp	11	1
'-V1	'043.0503	Pedaliera 5/3 354-925 Camozzi	'=BmMaCp	11	1

REV.	MODIFICA	DATA	FIRME

Dis. N. FA352
CAD SPAC
File FA352\1
Data 11/02/2008

Impianto: FALCON 352
Denominazione: DISTINTA MATERIALI / MATERIAL LIST
Ordine:
Commessa:
Esecutore: Bartoli

FOGLIO 12
ULTIMO 14

0	1	2	3	4	5	6	7	8	9

NOME/ITEM	TIPO/TYPE	DESCRIZIONE/DESCRIPTION	QUADRO/BOARD	FG/SH	Q.TA/Q.TY
'-GT1	'022.0181	Guaina termoretraibile 10mm	'=BmMaMep	11	0,90
'-R1	'043.0195	Raccordo diritto da 1/4"G a Ø8mm CL1050	'=BmMaMep	11	1
'-R10	'043.0199	Raccordo a gomito da 1/8"G a Ø4mm	'=BmMaMep	11	1
'-R11		Raccordo a gomito da 1/8"G a Ø4mm	'=BmMaMep	11	1
'-IR1	'043.0290	Innesto rapido ghiotto 1/4"G 13/A	'=BmMaMep	11	1
'-VR1	'043.0601	Valvola VMS 114-1/4 08	'=BmMaMep	11	1
'-M1	'019.0143	Motore KW 2,2/1,1 4/8P T100L V.400 FC352	'=BmMep	4	1
'-M2	'028.0291	Pompa sommersa tipo SP/48 V.48/50Hz	'=BmMep	4	1
'-R3	'043.0204	Raccordo a gomito da 1/4"G a Ø8mm	'=PpMaMep	11	1
'-R2		Raccordo a gomito da 1/4"G a Ø8mm	'=PpMaMep	11	1
'-MN1	'043.0552	Manometro Ø40 con attacco assiale da 1/8"G	'=PpMaMep	11	1
'-GTA	'043.0564	Regolatore di pressione da 1/4"G FR042	'=PpMaMep	11	1
'-S15	'010.0928	Molla per impugnatura MEP dis.1189559	'=QgCv	6	1
'-QD1	'016.0705	Quadro comandi TI 300-350 LVD	'=QgCv	8	1
'-FS1	'019.5353	Fascetta in plastica 135x2,5	'=QgCv	8	25
'-FL1	'022.0171	Cordicella unipolare 1 X 0,5	'=QgCv	8	2,00
'-FL2	'022.0172	Cordicella unipolare 1x1,50	'=QgCv	8	22,00
'-NM2	'022.0290	Etichetta per morsettiera	'=QgCv	8	90
'-NM1		Etichetta per morsettiera	'=QgCv	8	6
'-CC2	'022.0296	Terminale a occhiello Ø5 da 2,5mmq (Blu)	'=QgCv	8	2
'-CC1	'022.0308	Terminale a occhiello Ø5 da 1,5mmq (Rosso)	'=QgCv	8	4
'-PT1	'022.0311	Terminale a puntale da 0,5mmq (Bianco)	'=QgCv	8	12
'-PT3	'022.0312	Terminale a puntale da 1,5mmq (Nero)	'=QgCv	8	40
'-T1	'022.0440	Trasformatore 30 + 70VA V.230-400 S0.24 / 0.48 50/60Hz	'=QgCv	5	1
'-S15	'022.0515	Microinteruttore V-21-1C6	'=QgCv	6	1
'-K0	'022.0626	Bobina minima V380-400 50 /440-460 60 EP107.5.UA1-400 ABB	'=QgCv	3	1
'-V1	'022.0862	Scheda mono led 24V Ø8	'=QgCv	6	1
'-BR1	'022.0900	Barra omega	'=QgCv	8	0,16
'-S4	'022.1245	Emergenza M22-PVT cod.263467 + M22-A 216374 + M22-K01 216378	'=QgCv	3	1
'-Q0	'022.1264	Magnetotermico 6,3-10A EP-090 3-MS116-10 ABB	'=QgCv	3	1
'-AL	'022.2256	Morsetto da 2.5 mm singolo per 2 fili a molla 56.703.0055.0	'=QgCv	3	1
'-XQGFU	022.2256 + 022.1136 + 022.1136	Morsetto portafusibile a molla + N° 2 fusibili da 500V 5A	'=QgCv	5	1
'-XQGFU		Morsetto portafusibile a molla + N° 2 fusibili da 500V 5A	'=QgCv	5	1
'-XQG2	'022.2257	Morsetto da 2.5 mm singolo per 3 fili a molla 56.703.5055.0	'=QgCv	6	1
'-XQGFU	022.2260 + 022.1136 + 022.1136	Morsetto portafusibile 6,3x32 a molla + N° 2 fusibili da 500V 5A	'=QgCv	4	1

REV.	MODIFICA	DATA	FIRME

Dis. N. FA352
CAD SPAC
File FA352\1
Data 11/02/2008

Impianto *FALCON 352*
Denominazione DISTINTA MATERIALI / *MATERIAL LIST*

Ordine
Commessa
Esecutore Bartoli

FOGLIO 13
ULTIMO 14

MEP S.p.A.

0	1	2	3	4	5	6	7	8	9

NOME/ITEM	TIPO/TYPE	DESCRIZIONE/DESCRIPTION	QUADRO/BOARD	FG/SH	Q.TA/Q.TY
'-K1	'022.3002	Contattare DILM9-10 (24 V. 50.60 HZ) cod.276694	'=QgCv	6	1
'-S50	'022.3054	Selettore 2 velocita 20A T0-5-70331 GB/E	'=QgCv	4	1
'-TF2	'025.0604	Guarnizione aerstop	'=QgCv	8	1,50
'-S15	'025.0691	Serie guernizioni per impugnatura	'=QgCv	6	1
'-TF1	'031.2622	Targa sostituzione fusibili	'=QgCv	8	1
'-S15	'034.1221	Impugnatura MEP	'=QgCv	6	1
'-SF1	'047.0182	Sacchetto portafusibili	'=QgCv	8	1

Tipo/Type	Formaz./Format.	Descrizione/Description	Lungh./Lenght
022.0158	5G1.5	Cavo 5x1,5mmq	3.00
022.0160	2x0.5	Cavo 2x0.5mmq	2.00
022.1904	3G0.75	Cavo 3x0.75mmq	2.00

REV.	MODIFICA	DATA	FIRME

Dis. N. FA352
CAD SPAC
File FA352\1
Data 11/02/2008

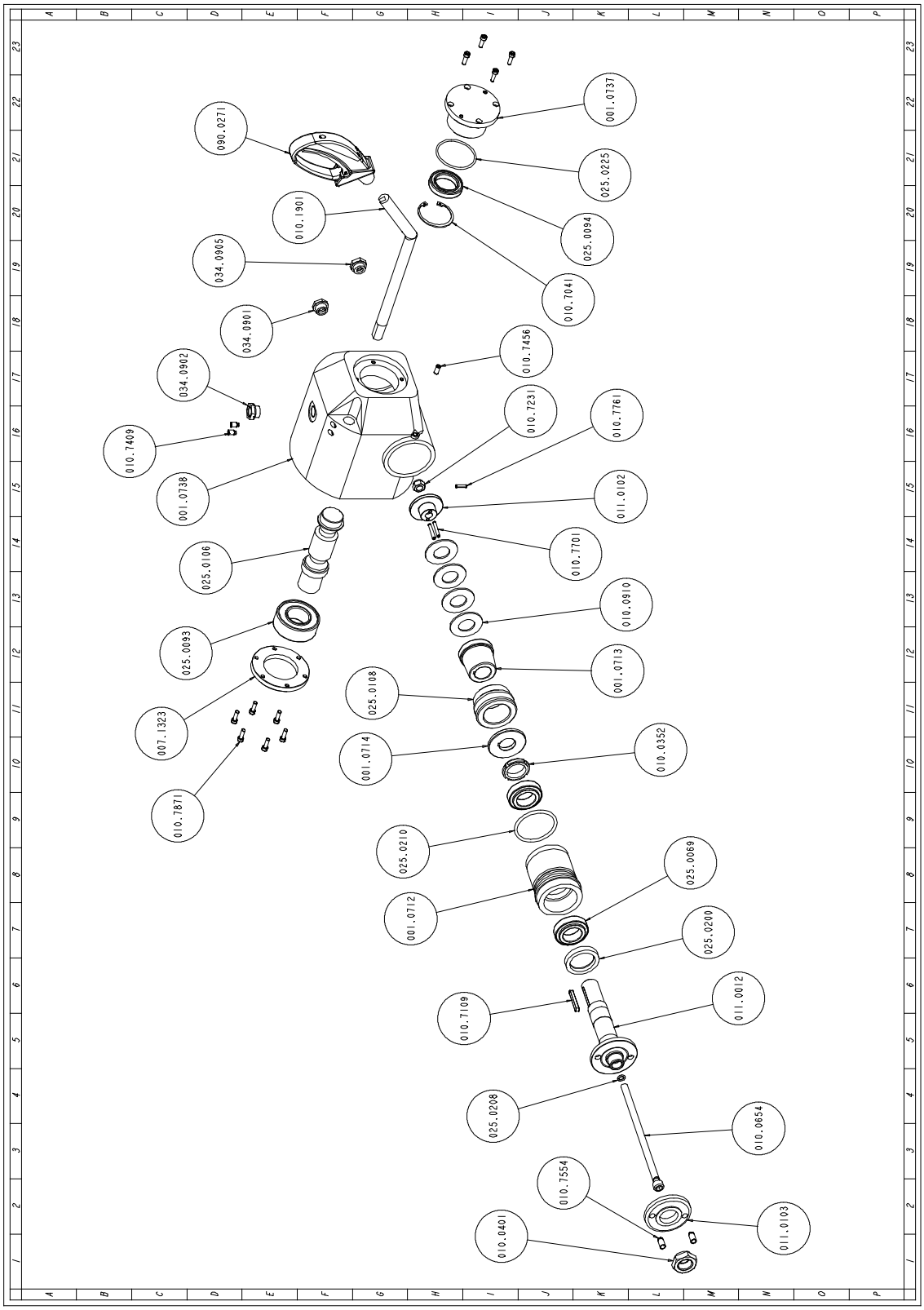
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Denominazione: DISTINTA MATERIALI / MATERIAL LIST
Ordine:
Commessa:
Esecutore: Bartoli

FOGLIO 14
ULTIMO 14

Exploded views

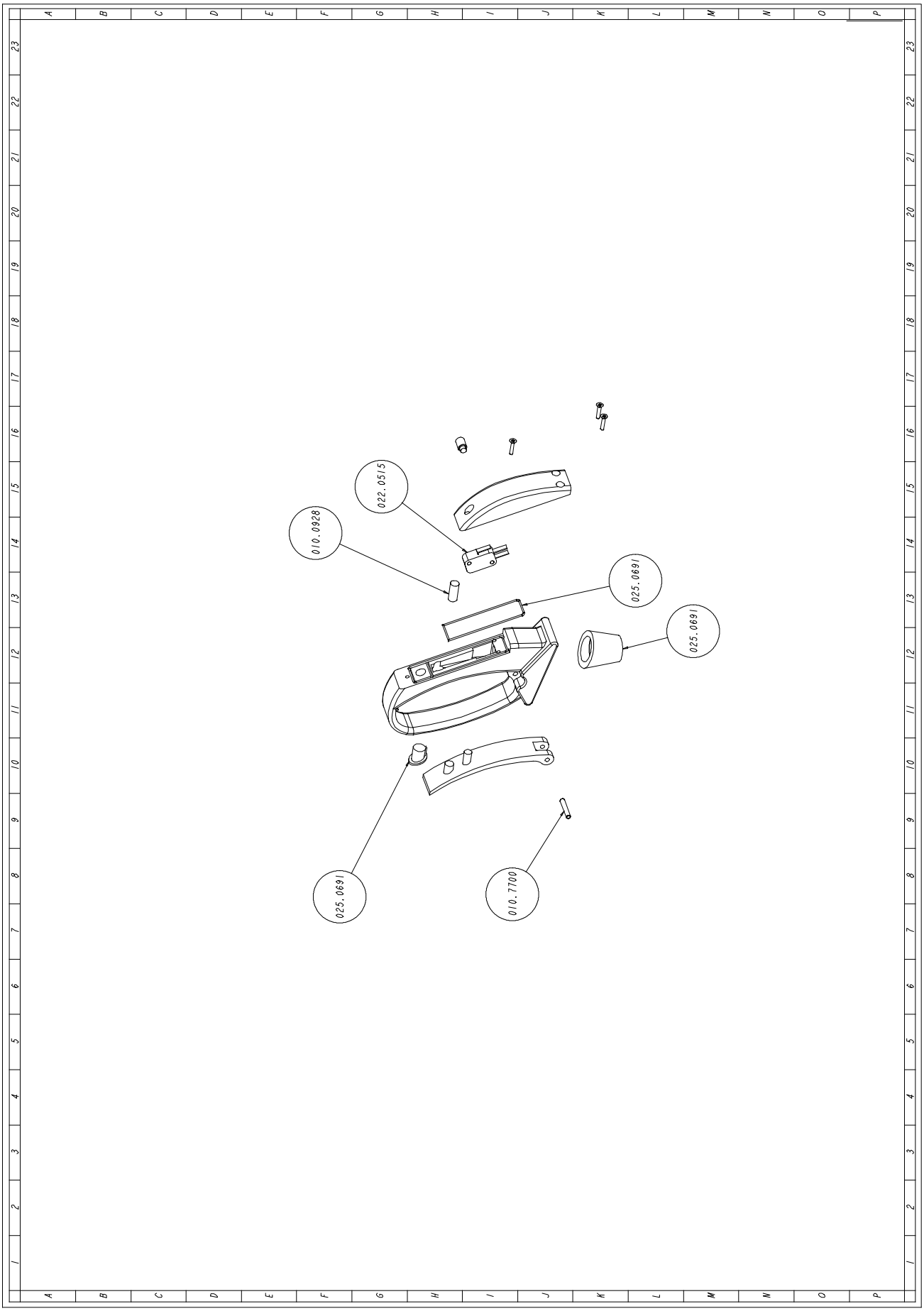
This part of the manual contains detailed exploded views of the machine which can help to gain a deeper knowledge of how it is made.

Drive unit



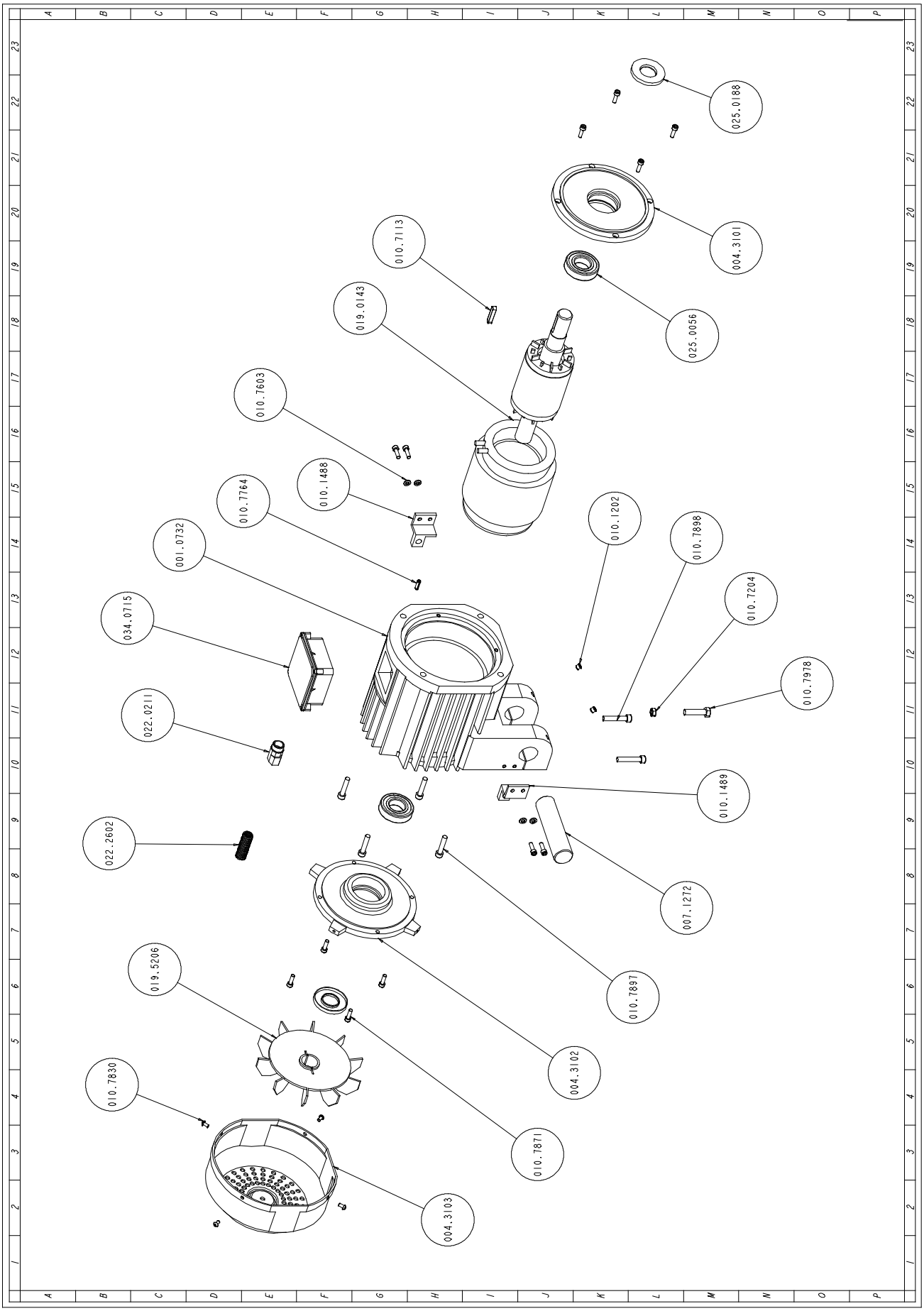
Code	Description	U. of M.	Quantity
001.0712	TAMPONE-GRUPPO-FRIZIONE	NR	1
001.0713	CONO-FRIZIONE	NR	1
001.0714	RANELLA-BATTUTA-INGRANAGGI	NR	1
001.0737	TAPPO-ANTERIORE-FC	NR	1
001.0738	TESTA-OPERATRICE-FC315	NR	1
007.1323	TAPPO-POSTERIORE-TESTA-FC	NR	1
010.0352	GHIERA-35-15	NR	1
010.0401	DADO-ESAG-MM27-P2	NR	1
010.0654	M12X250-TCEI	NR	1
010.0910	MOLLA-A-TAZZA	NR	4
010.0928	MOLLA-IMPUGNATURA	NR	1
010.1901	LEVA-COMANDO-TESTAFC315-350	NR	1
010.7041	SEEGER-V-J-65	NR	1
010.7109	LINGUETTA-A6X6X50	NR	1
010.7231	DADO-AUTOB-M12	NR	1
010.7409	M8X10-VCEI-PR	NR	3
010.7456	M8X16-VCEI-PC	NR	1
010.7554	PERNO-DI-TRASC-10X20	NR	2
010.7700	SPINA-CIL-4X24	NR	1
010.7701	SPINA-CIL-5X35	NR	2
010.7761	SPINA-ELASTICA-4X20	NR	1
010.7802	VITE-AUTOFIL-3_9X16	NR	3
010.7871	M6X20-TCEI	NR	10
011.0012	ALBERO-MANDRINOFC315	NR	1
011.0102	FLANGIA-SPING-FRIZ	NR	1
011.0103	FLANGIA-DISCO-FC315-350	NR	1
022.0515	MICRO.PRT	NR	1
025.0069	32007X	NR	2
025.0093	3208A	NR	1
025.0094	61908	NR	1
025.0106	VITE-SENZA-FINE-FC350	NR	1
025.0108	CORONA-ELICOIDALEFC350	NR	1
025.0200	ANELLO-62X45X10	NR	1
025.0208	ANELLO-OR-109	NR	1
025.0210	ANELLO-OR-6275	NR	1
025.0225	ANELLO-OR-171	NR	1
025.0691	SERIE-GUARNIZIONI-X-IMP-3	NR	1
025.0691	SERIE-GUARNIZIONI-X-IMP-2	NR	1
025.0691	SERIE-GUARNIZIONI-X-IMP-1	NR	1
034.0901	TAPPO-LIVELLO-OLIO-1_2-GAS	NR	1
034.0902	TAPPO-OLIO-SPF1_2ROSSO	NR	1
034.0905	TAPPO-OLIO-TAO_3-1_2NERO	NR	1
034.1221	IMP-P2	NR	1
034.1221	IMP-P1	NR	1
034.1221	IMP-P3	NR	1
090.0271	IMPUGNATURA	NR	1

Heandgrip



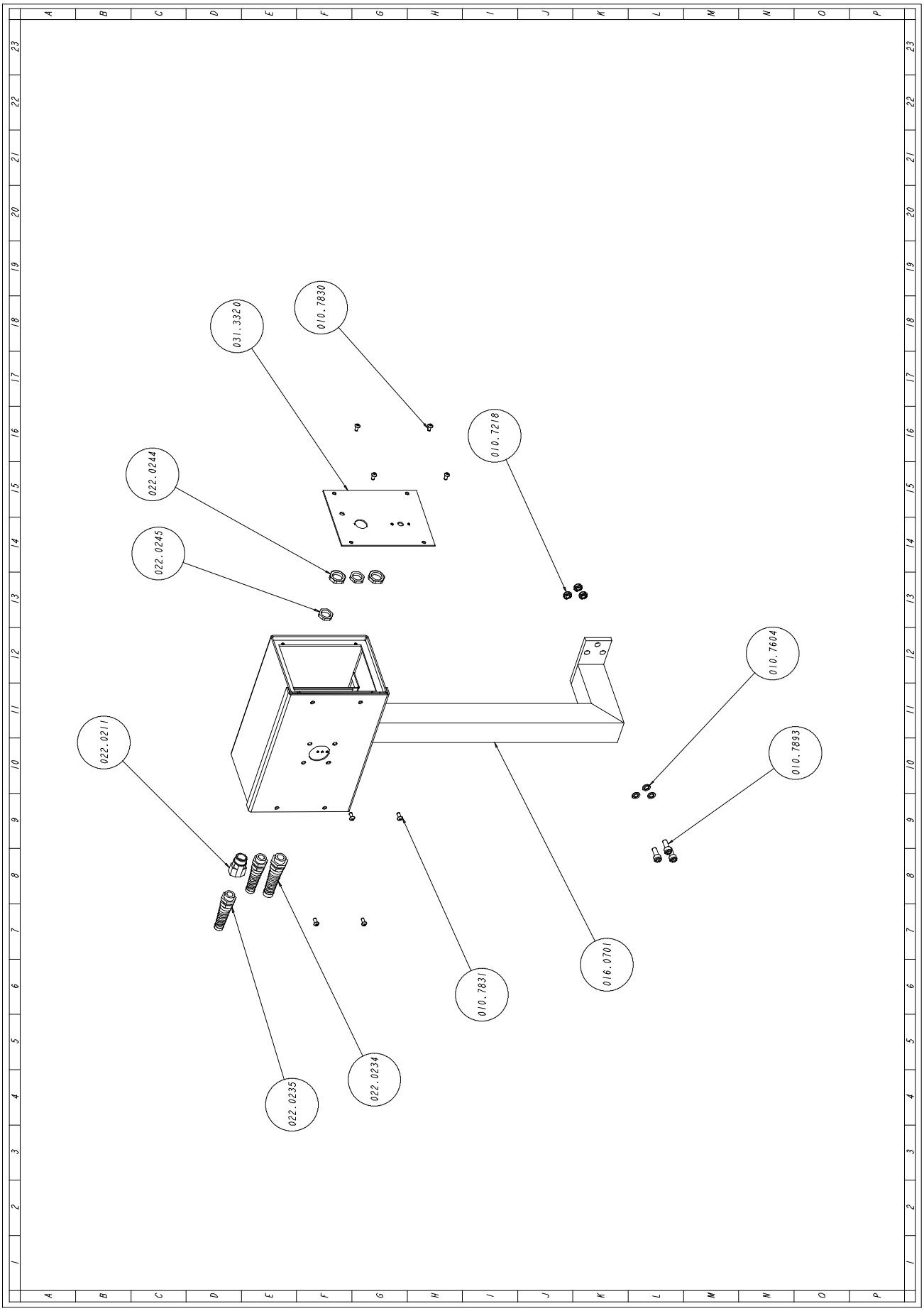
Code	Description	U. of M.	Quantity
010.0928	MOLLA X IMPUGNATURA	NR	1,000
010.7409	GRANO VCE P.CIL. 8 X 10	NR	1,000
010.7700	SPINA CILINDRICA DIAM. 4 X 24	NR	1,000
010.7800	VITE AUTOFIL. 2,9 X 15	NR	3,000
022.0515	MICROINTERRUTTORE V- 21- 1C6	NR	1,000
025.0691	SERIE GUARNIZIONI X IMPUGNATURA MEP	NR	1,000

Motor assembly



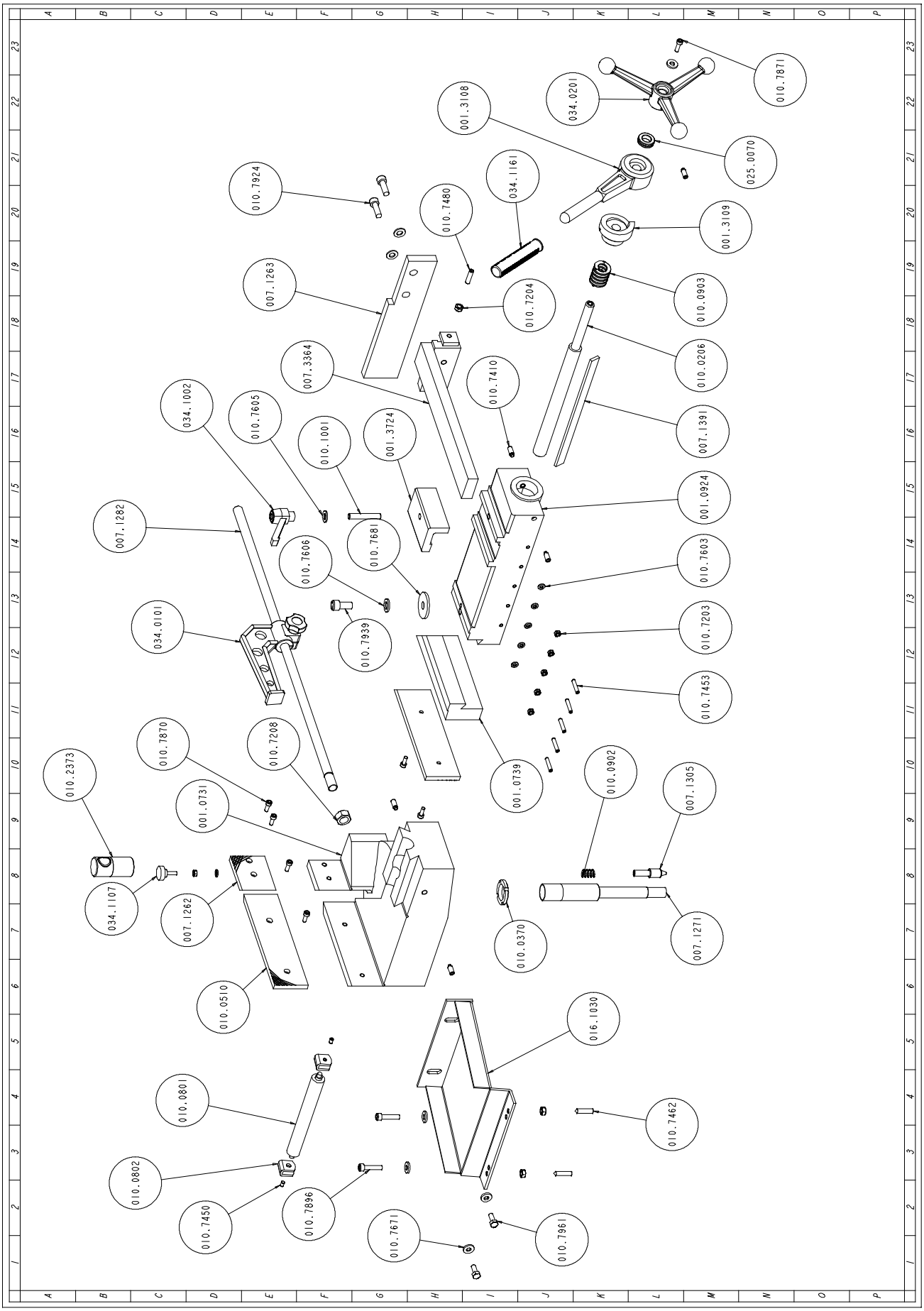
Code	Description	U. of M.	Quantity
	ROTORE-NEW-FC315.PRT	NR	1
	STATORE-FC315-NEW	NR	1
001.0732	CARCASSA-NEW-FC315	NR	1
004.3101	SCUDO-MOT-ANTFC315	NR	1
004.3102	SCUDO-MOT-POSTFC315	NR	1
004.3103	COPRIVENTOLA-FC315	NR	1
007.1272	PERNO-ROTAZIONE-TESTA-FC315	NR	1
010.1202	OLIATORE-A-SFERA-DIA8	NR	2
010.1488	STAFFA-AGGANCIO-MOLLA-DX	NR	1
010.1489	STAFFA-AGGANCIO-MOLLA-SX	NR	1
010.7113	LINGUETTA-A8X7X40	NR	1
010.7204	DADO-M8	NR	1
010.7603	ROSETTA-6_4X12_5	NR	4
010.7764	SPINA-ELASTICA-6X20	NR	1
010.7830	M5X10-BUTTO	NR	4
010.7871	M6X20-TCEI	NR	12
010.7897	M8X40-TCEI	NR	4
010.7898	M8X45-TCEI	NR	2
010.7978	M10X40-TE	NR	1
019.0143	ROTORE-STATORE-FC352	NR	1
019.5206	VENTOLA-NAYLON-XMOTORI-3K112	NR	1
022.0211	PG-13_5-KIEPE	NR	1
022.2602	GUAINA-POLIFLEX-NW14	NR	1
025.0056	6206-2Z	NR	2
025.0188	ANELLO-62X30X7	NR	2
034.0715	SCATOLA-MOTORE	NR	1
090.5201	GRUPPO-MOTORE-FC352	NR	1
NOCODE	COPERCHIO-SCATOLA-MOTORE	NR	1
NOCODE	ANELLO-OR-SCATOLA-MOTORE	NR	1
NOCODE	SCATOLA-MORSETTIERA-FC	NR	1
NOCODE	GUARNIZIONE-SCATOLA-MOTORE	NR	1

Control panel



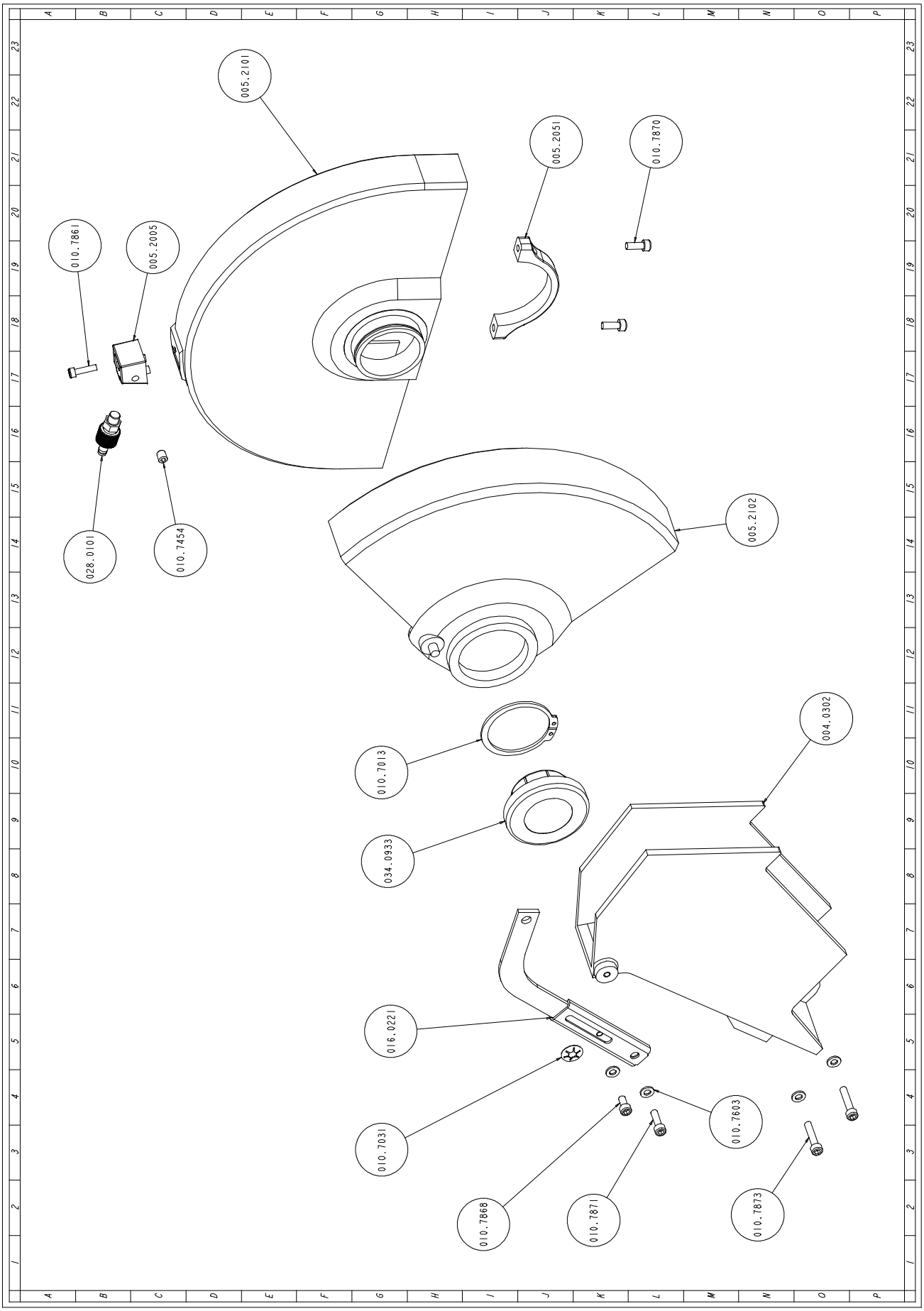
Code	Description	U. of M.	Quantity
010.7218	DADO M8 BASSO	NR	3,000
010.7604	RONDELLA DIAM. 8	NR	3,000
010.7830	VITE BUTON 5 X 10	NR	4,000
010.7831	VITE BUTON 5 X 12	NR	4,000
010.7893	VITE TCEI 8 X 20	NR	3,000
016.0701	QUADRO COMANDI LVD	NR	1,000
022.0211	RACCORDO RAPIDO SEM PG 13,5	NR	1,000
022.0234	PRESSACORDONE 3246 NERO PG 13,5	NR	1,000
022.0235	PRESSACORDONE 3243 NERO PG 11	NR	2,000
022.0244	CONTRODADO 3217B GRIGIO PG 13	NR	2,000
022.0245	CONTRODADO 3213B GRIGIO PG 11	NR	2,000
031.3320	TARGA INTERRUTTORE FC 275- 352 CB 352	NR	1,000

Vice


010.7871
034.0201
001.3108
025.0070
010.7924
034.1161
010.7480
001.3109
007.1263
010.7204
010.0903
007.3364
010.7410
010.0206
034.1002
010.7605
010.1001
001.3724
007.1391
007.1282
001.0924
010.7606
010.7681
010.7603
034.0101
010.7939
010.7203
010.7453
010.7870
010.7208
001.0739
010.0902
010.2373
001.0731
007.1305
034.1107
007.1262
010.0370
007.1271
010.0510
016.1030
010.0801
010.7462
010.0802
010.7450
010.7896
010.7671
010.7961

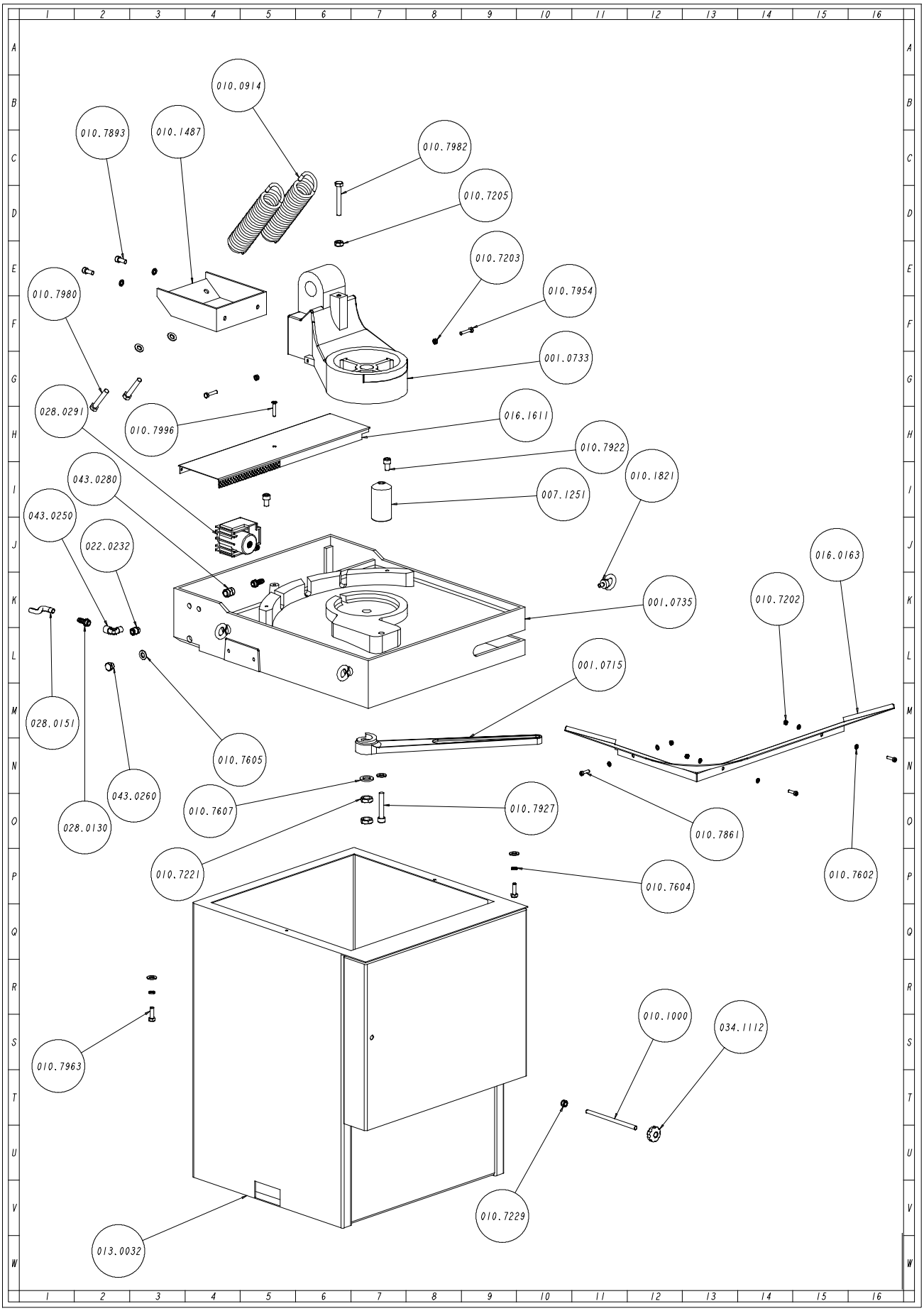
Code	Description	U. of M.	Quantity
001.0731	MORSA-FC315	NR	1
001.0739	GAN-SCORREVOLE-MORSA-FC315-350	NR	1
001.0924	SCORREVOLE-MORSASC300	NR	1
001.3108	LEVA-BLOC-MORSA-RAPIDA-MOD665	NR	1
001.3109	BOC-A-CAM-TI-SC-RA-CN-FC-M666	NR	1
001.3724	STAFFA-REG-ANTIBAVA-TI-FC-M721	NR	1
007.1262	GANASCIA-SQDX	NR	1
007.1263	GANASCIA-ANTIBAVA-SC316	NR	1
007.1271	PERNO-DI-CENTRO-FC315	NR	1
007.1282	ASTA-TAGLI-MISURA	NR	1
007.1305	PERNO-BLOCC-MORSA-FC315-350	NR	1
007.1391	LARDONE-MORSA-FALCON315-350	NR	1
007.3364	ASTA-SCORR-ANTIBAVA-TI-FC	NR	1
010.0206	VITE-MORSA381X24TI300FC315-350	NR	1
010.0370	GHIERA5S30X15	NR	1
010.0510	GAN-MORSA-DXTI350-SXFC315-350	NR	2
010.0801	RULLO-TIPO304011D24CB-TI-FC	NR	1
010.0802	SUPPORTO-PER-RULLO-CB-TI-FC	NR	2
010.0902	MOLLA-PUNTO-FISSO-TESTA-MOD95	NR	1
010.0903	MOLLA-MOR-RAP-MOD96-CO-TI-FC	NR	1
010.1001	BARRA-FILETTATA-10MA	NR	1
010.2373	CHIOCCIOLA_SC301-316	NR	1
010.7203	DADO-M6	NR	6
010.7204	DADO-M8	NR	3
010.7208	DADO-M16	NR	1
010.7410	M8X16-VCEI-PR	NR	5
010.7450	M6X8-VCEI-PC	NR	2
010.7453	M6X30-VCEI-PC	NR	5
010.7462	M8X30-VCEI-PC	NR	2
010.7480	M8X30-VCEI-P	NR	1
010.7603	ROSETTA-6_4X12_5	NR	6
010.7605	ROSETTA-10_5X21	NR	3
010.7606	ROSETTA-13X24	NR	1
010.7671	ROSETTA-8_4X3	NR	5
010.7681	ROSETTA-13X48	NR	1
010.7870	M6X16-TCEI	NR	6
010.7871	M6X20-TCEI	NR	1
010.7896	M8X35-TCEI	NR	2
010.7924	M10X30-TCEI	NR	2
010.7939	M12X25-TCEI	NR	1
010.7961	M8X20-TE	NR	2
016.1030	BRACCETTO-APPOGGIA-BARRA	NR	1
025.0070	51103	NR	1
034.0101	BATT-TAGLI-A-MISURA-GRANDE	NR	1
034.0201	VOLANTINO-MORSA-GRANDE	NR	1
034.1002	LEVA-SCATTO-M10	NR	1
034.1107	VOLANTINO-DIAM30M6X20	NR	1
034.1161	MANOPOLA-MOD-1014	NR	1
NOCODE	VOLANTINO-BATT-TM	NR	1
NOCODE	GRUPPO-MORSA-FC315	NR	1

Blade guard unit



Code	Description	U. of M.	Quantity
004.0302	PROTEZIONE-FISSA-FC350	NR	1
005.2005	SPRUZZATORE-RUBINETTO-FA-TI	NR	1
005.2051	FASCETTA-FISSAGGIO-CARTER	NR	1
005.2101	CARTER-FC350	NR	1
005.2102	PROTEZIONE-DISCO-O-CB350	NR	1
010.7013	SEEGER-62-EST	NR	1
010.7031	ANELLO-SEEGER-SK8	NR	1
010.7454	M8X8-VCEI-PC	NR	1
010.7603	ROSETTA-6_4X12_5	NR	4
010.7861	M5X20-TCEI	NR	1
010.7868	M6X12-TCEI	NR	1
010.7870	M6X16-TCEI	NR	2
010.7871	M6X20-TCEI	NR	1
010.7873	M6X30-TCEI	NR	2
016.0221	ASTA-COMANDO-PROT-M-FC350-315	NR	1
016.0221	ASTA-COMANDO-PROT-F-FC350-315	NR	1
028.0101	REG-SPRUZZ-RUBINETTO	NR	1
034.0933	TAPPO-CARTER-DISCO	NR	1

Base vice


010.0914
010.7893
010.1487
010.7982
010.7205
010.7203
010.7954
010.7980
001.0733
028.0291
010.7996
016.1611
010.7922
010.1821
043.0280
007.1251
043.0250
022.0232
016.0163
001.0735
010.7202
001.0715
028.0151
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043.0260
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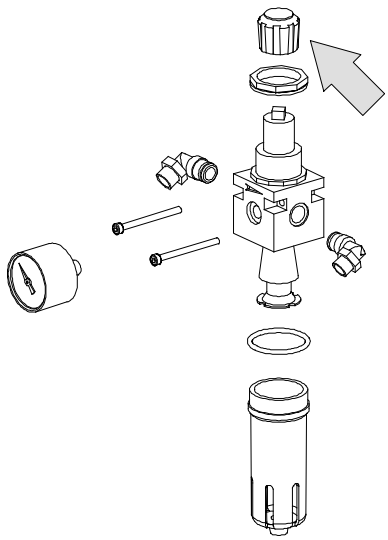
Code	Description	U. of M.	Quantity
001.0715	LEVA BLOCCAGGIO MORSA	NR	1,000
001.0733	PIANO ROTANTE	NR	1,000
001.0735	BASAMENTO	NR	1,000
007.1251	SUPPORTO BLOCCAGGIO MORSA	NR	1,000
010.0914	MOLLA RICHIAMO TESTA	NR	2,000
010.1000	BARRA FILETTATA 8MA	MT	1,000
010.1487	STAFFA AGG.MOLLA PIANO GIREVOLE	NR	1,000
010.1821	GOLFARE MASCHIO M 8 ZINCATO	NR	4,000
010.7202	DADO M5	NR	3,000
010.7203	DADO M6	NR	2,000
010.7205	DADO M10	NR	1,000
010.7221	DADO M16 BASSO	NR	2,000
010.7229	DADO AUT. M8	NR	1,000
010.7602	RONDELLA DIAM. 5	NR	6,000
010.7604	RONDELLA DIAM. 8	NR	4,000
010.7605	RONDELLA DIAM. 10	NR	6,000
010.7607	RONDELLA DIAM. 16	NR	1,000
010.7861	VITE TCEI 5 X 20	NR	3,000
010.7893	VITE TCEI 8 X 20	NR	2,000
010.7922	VITE TCEI 10 X 15	NR	2,000
010.7927	VITE TCEI 10 X 60	NR	1,000
010.7954	VITE TE 6 X 30	NR	2,000
010.7963	VITE TE 8 X 25	NR	2,000
010.7980	VITE TE 10 X 60	NR	2,000
010.7982	VITE TE M 10 X 70	NR	1,000
010.7996	VITE TSPEI 6 X 30	NR	1,000
013.0032	PIEDISTALLO	NR	1,000
016.0163	RACCOGLITORE ACQUA	NR	1,000
016.1611	COPERCHIO VASCA	NR	1,000
022.0232	PRESSACAVO IN OTTONE 1/4 BM 2450	NR	1,000
028.0130	RACCORDO 1/4- 9 CL 2601	NR	2,000
028.0151	TUBO PLASTIFICATO 07- 11	KG	0,080
028.0291	POMPA SOMMERSA TIPO SP/48 V.48.50	NR	1,000
034.1112	VOLANTINO DIAM.40 M8	NR	1,000
043.0250	GOMITO M.F. 1/4 CL 2020	NR	1,000
043.0260	TAPPO TTE4 1/4 - CL 2611	NR	1,000
043.0280	MANICOTTO 1/4 M 4/4 - CL 2543	NR	1,000

Adjustments

This chapter describes the operations needed to adjust the mechanical and pneumatic (MA version) systems enabling the **FALCON 352** to be used properly. These instructions will enable you to ”customise” your machine to suit the type of cuts being carried out, optimising the time required to complete them.

Air treatment system (MA version)

On the MA version of the **FALCON 352**, the machine’s pneumatic circuit moves the cutting vice using a pneumatic cylinder. The compressed air is treated and purified at the inlet to the system by an air treatment unit. This unit stabilises the pressure at 6 Bar, irrespective of the pressure in the factory circuit.
Nevertheless, the pressure can be preset if the material in the vice is deformed or not clamped properly during the cutting cycle. The mobile jaw of the vice must be positioned manually at 2 ÷ 3 mm from the workpiece before final clamping. This version of the machine requires the user to provide a compressed air system complying with the characteristics reported on chapter 4.
The diagram below shows an exploded view of the air treatment unit: rotating the arrowed knob alters the working pressure of the vice which is displayed by the pressure gauge.



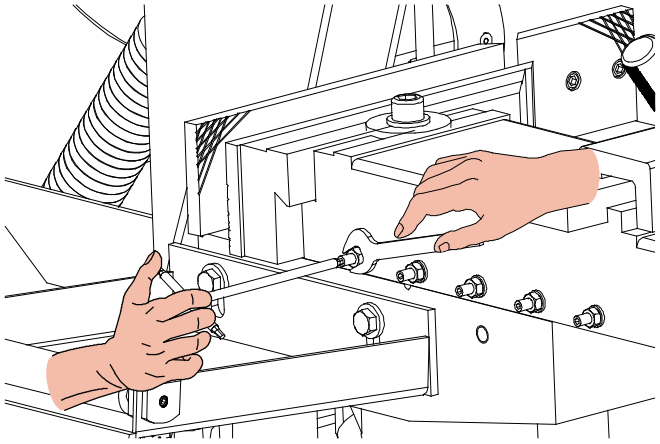
Vice

The vice, fitted as standard on the **FALCON 352**, is equipped with a rag prevention device, adjustable transverse positioning, a three- spoke opening/closing handwheel and rapid clamping device.
Below we shall look at these units in turn.

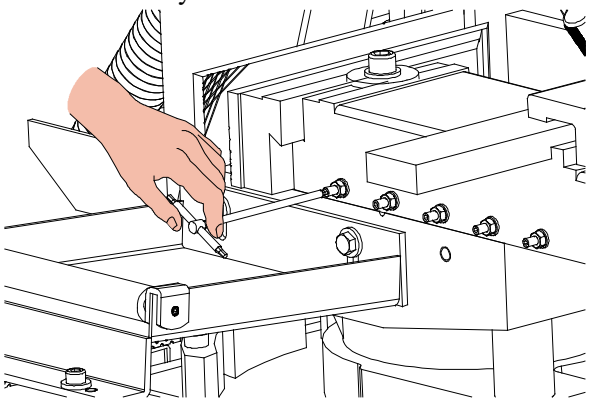
Adjusting the vice play

Any play which develops between the slideway and the slide gibs on the vice must be compensated by adjusting the grub screws setting the distance between the gib and lead screw, proceeding as follows:

- ▶ slacken all the locknuts on the grub screws in the slide, holding the screws still using an Allen key.
- ▶ move the vice to its fully open position.



- ▶ adjust the slight pressure exerted by the grub screws on the gib, starting with the first two in contact with the lead screw.
- ▶ adjust these two grub screws and tighten the relative lock nuts, keeping the screws still with an Allen key.



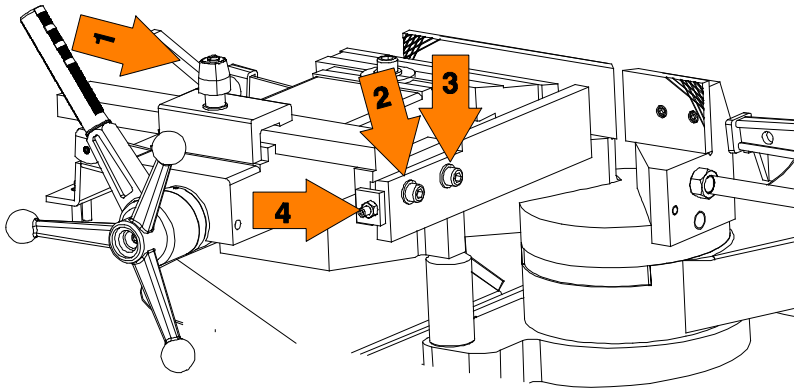
- ▶ close the vice until the other two grub screws coincide with the lead screw.
- ▶ repeat this adjustment on the gib grub screws for the entire length of the slideway
- ▶ at the end of the operation, use the handwheel to move the slide backwards and forwards, identifying the zones where the grub screws exert greater pressure on the gib.
- ▶ repeat the adjustments if necessary.

Rag prevention device

The vice is fitted as standard with a rag prevention device that serves to support the material and prevent the formation of ragged edges at the end of the cut.
To adjust the rag prevention device transversely:

- ▶ loosen the release lever (1) located above the vice slide;

- movement the rag prevention device arm to the right or left;
- tighten the release lever.



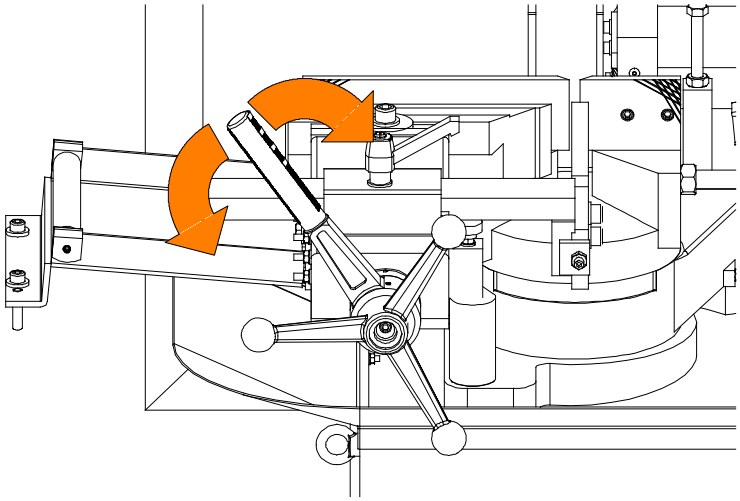
To adjust the longitudinal position of the vice jaw, proceed as follows:

- tighten the cutting vice completely;
- slacken the two screws located to the side of the rag prevention device (2- 3);
- slacken the nut that locks the grub screw;
- adjust the longitudinal position of the rag prevention vice jaw by slackening or tightening the grub screw (4) until the position of the rag prevention jaw is aligned with that of the cutting jaw;
- hold the grub screw steady using the Allen key and tighten the locking nut.

Fast vice clamping

In the standard version the cutting vice is complete with a fast clamping device that uses a cam system.Turning the lever located behind the vice clamping handwheel clamps or releases the vice rapidly.

- In any case, before being closed using the fast clamping system, the vice must be moved to within about 2- 3 mm of the material to be cut.



Disc

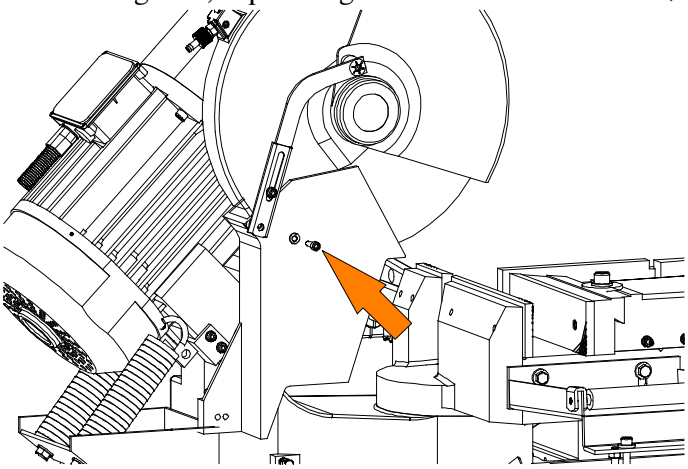
The HSS cutting discs can be used for any kind of cut since they combine good levels of toughness and elasticity thanks to various coatings, along with a good cutting resistance. The discs are made of a single piece of Tungsten- Molybdenum super- rapid steel with a hardness of about 64±1 HRC. A special characteristic of the discs during cutting is the excellent finish of the cut surfaces.

Changing the blade

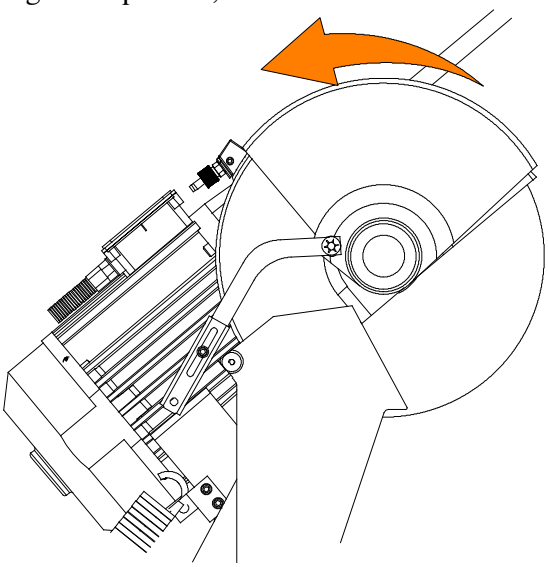
As we have already said, this machine uses different kinds of blades according to

the material to be cut. The procedures described below, however, also apply in the event of wear or breakage of the blade. To replace the blade, proceed as follows:

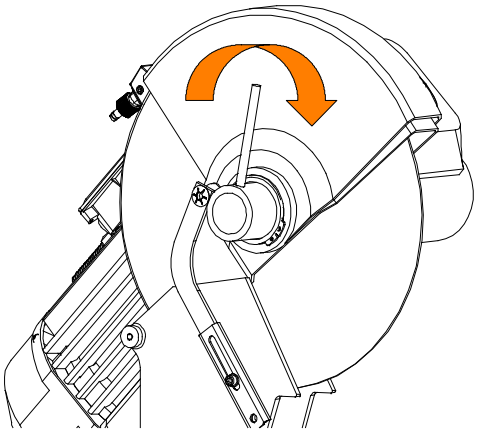
- switch off the machine and position the head so that the disc is easily accessible;
- free the mobile disc guard, separating it from the eccentric rod;



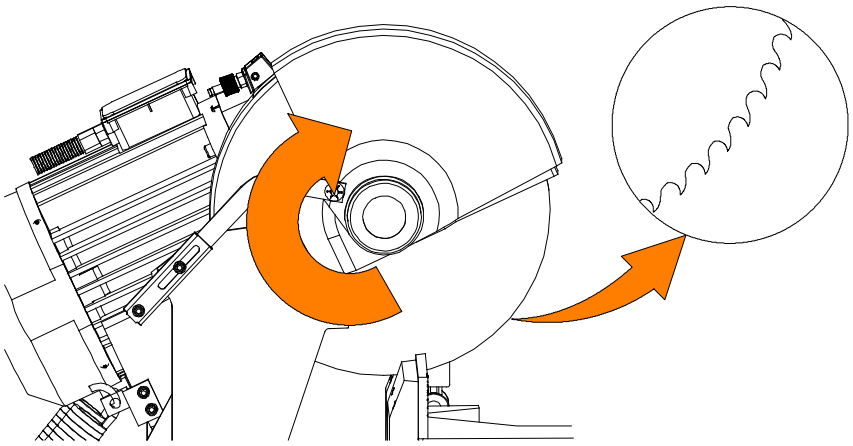
- move the mobile guard upwards;



- remove the cap located in the central part of the guard and loosen the nut that locks the disc using a 40 mm spanner;



Attention The nut unscrews in the same direction of the blade's rotation.



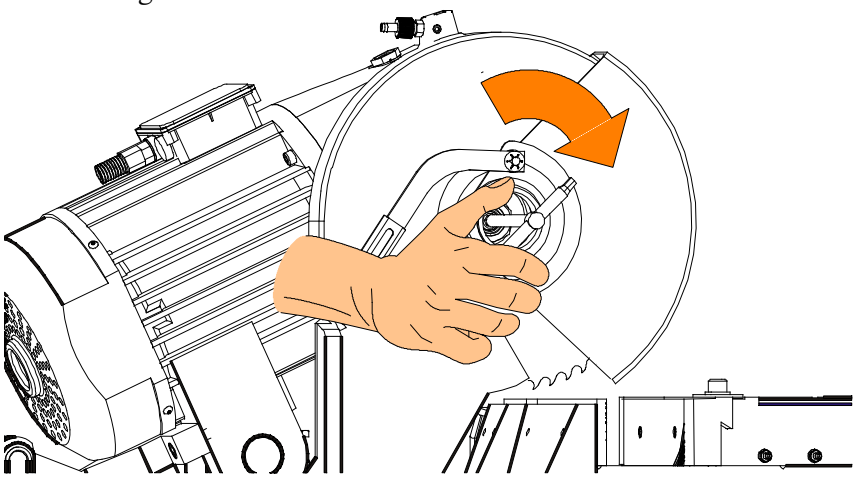
▶ Remove the worn or damaged disc and insert a new disc. Carry out the above procedure in reverse.

N.B. Before blocking, the disc must be put in traction, on the external flange pins, turning it in the opposite direction to that of the disc rotation. The procedure described above for changing the disc is the same irrespective of whether the disc is worn or broken.

Adjusting the clutch unit

If the disk blocks frequently when cutting, even when the head lowering speed is appropriately adjusted to the work material, the friction between the cone and the helical gear must be increased in the clutch unit:

▶ to increase friction, turn the torque wrench clockwise (see figure) to a tightening force of 4 kgm.



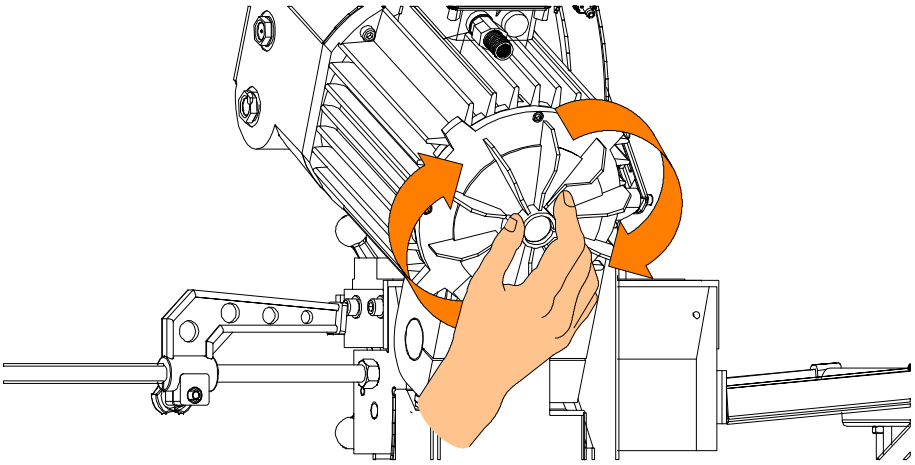
Adjusting the worm and wheel backlash

If the gears at the rear of the motor run noisily during normal operation, make certain that the backlash between the worm and wheel is correctly adjusted:

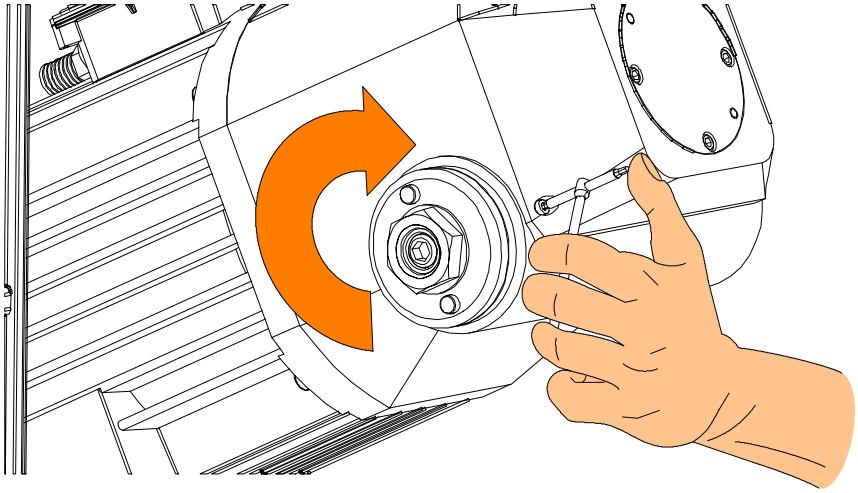
▶ remove the protective cover of the motor;

▶ rotate the motor fan manually first one way then the other; the ideal amount of backlash in the transmission corresponds to a distance of 1 cm approx.,

measured at the circumference of the fan, whereas if the distance is 2.5 cm or more, adjustment is necessary;



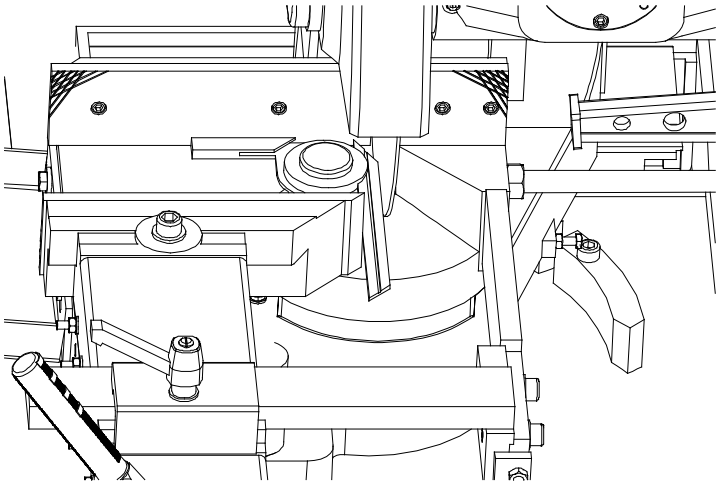
▶ if the backlash needs taking up, loosen the grub screw indicated in the figure and, using a chain wrench, turn the clutch unit in the direction of rotation of the disk until the correct backlash setting is restored in the transmission.



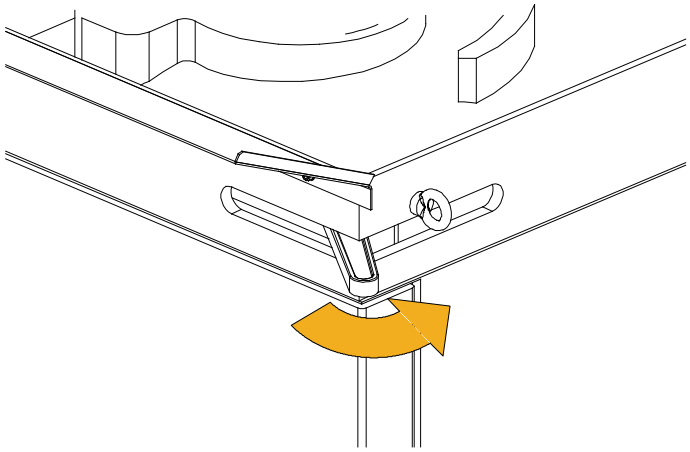
Adjustment of the rotating platform references

If, after a cut from 0° to 45° on the left, this does not correspond exactly to the angle indicated on the goniometric scale of the rotating platform the adjustable references must be used.

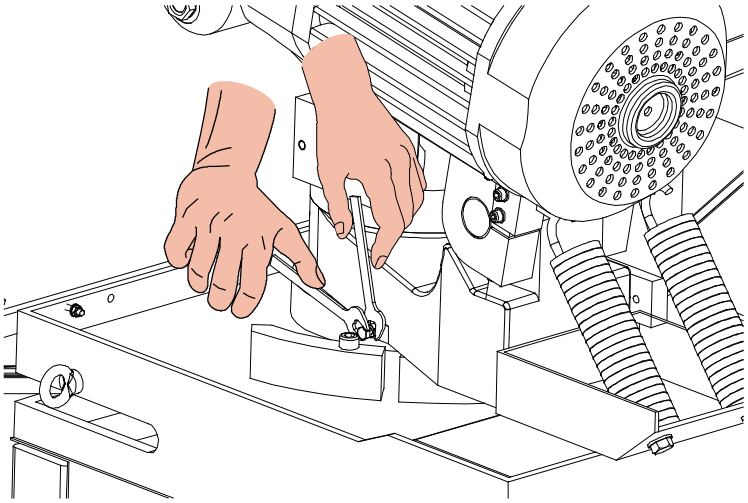
▶ Position a goniometer on the working table to check the cutting angle;



- release the rotating platform by using the locking lever on the right front side of the base;

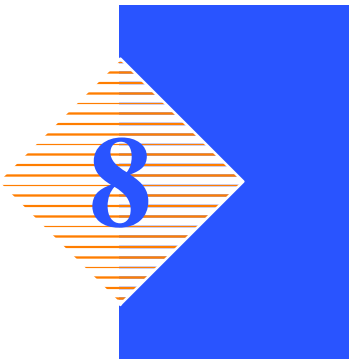


- Adjust the position of the reference screw corresponding to the measured angle according to the error detected on the goniometer.



- loosen the lock nut and adjust the nut with two wrenches, size 10, till the reference coincides with the angle reference notch; then, lock the lock nut holding the bolt still; check and repeat, if necessary.

Maintenance and choice of consumables



FALCON 352 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 (Do not use compressed air or fluffy rags);
- top up the lubricant/coolant fluid level;
- check the wear of the blade and change if necessary.

Weekly

The weekly maintenance operations are as follows:

- remove all swarf from the machine;
- clean the vice and lubricate all the joints and sliding surfaces using a good quality oil;
- check the oil level in the transmission box bringing the head completely down; if necessary fill through cap.
- check the vice sliding mechanism. If it is not smooth or is subject to side play, adjust as described in chapter 7.

Monthly

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

- check that the machine performs cuts perpendicular to the work surface; if not, contact our technical service centre;
- check that the blade is at right angles to the workpiece rest shoulder; if not, contact our technical service centre;
- verify the correspondence of the angle of the notches reflected at 0 and 45 degrees left if do not be verified, restore as described in Chapter 7;
- clean thoroughly the water tank and the electric pump filter.

Maintenance of working parts

During maintenance work on the **FALCON 352**, special attention should be paid to operating units such as the transmission box.

Transmission box

Transmission box maintenance:

- after the first 100 working hours, drain the transmission box through the drain plug located in the rear lower section of the unit and refill with new oil. If, in addition to the yellow filings from the bronze rim, there are other impurities in the drained oil, remove the cover and thoroughly wash the inside. The washing should be carried out using flushing oil, avoiding the use of cotton or threadbare rags for drying. Refill the transmission box;
- after every 200 working hours repeat the oil change operation.

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 transmission box

The machine is supplied with AGIP BLASIA 460 S oil, ISO and UNI symbol CC 460. However the following oils can be regarded as compatible or with equivalent characteristics:

SHELL TIVELIA 460 SC

Transmission box:
- capacity 2,6 litres

Oils for lubrication/coolant liquid

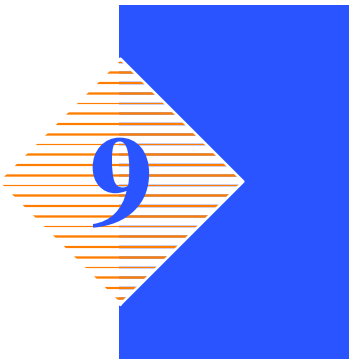
The oil used for the lubrication/coolant fluid in the machine is CASTROL Syntolin TFX. Though there are no specific standards for these types of oils, MEP considers that CASTROL Syntolin
TFX is the best product available with regard to quality:price ratio. Nevertheless, the following oils of similar characteristics can be said to be compatible:

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

Finally, one particular blade manufacturer (LENOX) recommends and supplies a coolant under the name of LENOX BAND- ADE SAWING FLUID.

Coolant tank:
- tank capacity 4,2 litres
- oil concentration 5- 6%

Cutting speed and choice of tools



The cut speed is determined by the speed the cutter disc rotates at, and by the feed speed. The latter is set manually by the movement of the tool head, whereas the cutter disc rotation speed is selected on the control panel with the speed setting switch. This chapter describes the various cutting speeds of which the standard and special machine configurations are capable.

Cutting speed

FALCON 352 standard machine

The basic machine version, with 2/4 pole motor, is capable of the following cutting speeds:

- 1st speed = 30 rpm
- 2nd speed = 60 rpm

Choice of blade

The different types of cutter disks that the **FALCON 352** can mount must, however, have the following main characteristics.

- Fine tooth pitch: for thin wall materials such as sheet steel, tubes and profiles;
- Coarse tooth pitch: for large cross- sections; for soft materials (aluminium alloys and soft alloys in general).

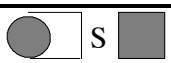
Tooth pitch

The choice of the most suitable tooth pitch depends on various factors:

- the size of the section;
- the hardness of the material;
- wall thickness.

Solid sections call for discs with a coarse tooth pitch, while small cross- sections require blades with finer teeth. This is because when cutting walls of small cross- section (1÷7 mm) profiles, it is important that the number of teeth actually making the cut should not be too small, otherwise the effect obtained will be one of tearing rather than of swarf removal, leading to a large increase in shearing stress. On the other hand, when cutting thick materials or solid sections using an excessively fine tooth pitch, the swarf collects as a spiral inside the gullet, and since fine tooth pitches have small gullets, the accumulated swarf will exceed the gullet capacity and press against the walls of the workpieces, resulting in poor cutting (same situation with soft materials), greater shearing stress and hence breakage of the blade.

Choice of tooth pitch T as a function of cross- section to be cut for light alloy solid pieces and profiles

			
S in mm.	Pitch T	S and sp in mm.	Pitch T
10	4- 5	10 sp = 0,5	3
30	6- 8	30 sp = 1,5	4 - 5
50	8- 10	50 sp = 2,5	5 - 6
70	10- 12	70 sp = 3,5	6- 7
90	12	90 sp = 4,5	7 - 8
130	16	130 sp = 6,5	8

KEY:
S = diameter or width of the solid piece to be cut in mm;
sp = thickness of the wall to be cut in mm;
T = tooth pitch in mm.

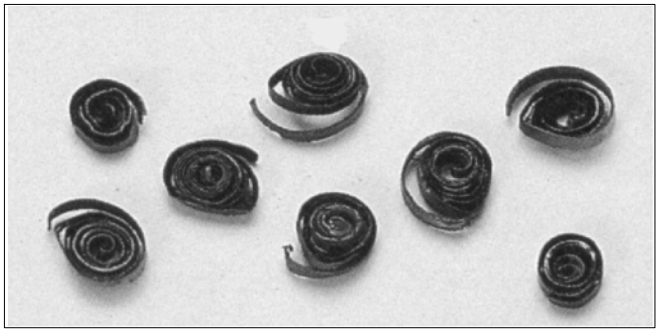
A larger pitch should be chosen when, as a result of the shape of the piece to be cut, the cross- section at any given point exceeds the average cross- section given above.

Types of swarf:

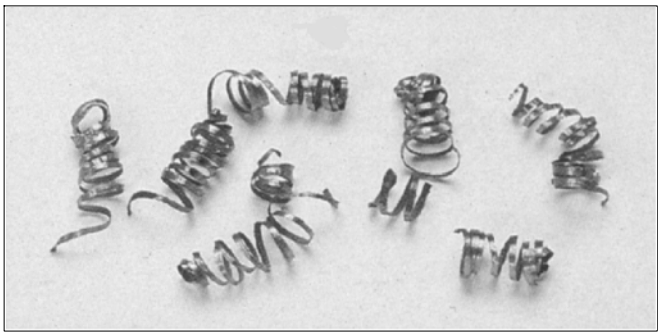
- Very fine or fragmented swarf indicates that the downstroke speed and/or cutting pressure is too low.



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



- Long coils of swarf indicate ideal cutting conditions.



Cutting and feeding speed

The cutting speed, in m/min, and the head feeding speed, in cm^2/min, are limited by the amount of heat generated near to the points of the teeth. If the head feeding speed is too high, the cut will not be straight in either the vertical or the horizontal plane. As we have already said, the cutting speed depends on the strength (kg/mm^2) and hardness (HRC) of the material and the dimensions of the thickest section. The feeding speed depends on the cross- section of the material. Solid or thick- walled materials (thickness > 5 mm), can therefore be cut at high speed providing there is sufficient swarf removal by the blade, while thin- walled materials such as tubes or thin profiles must be cut with a low feeding speed. A new blade requires a wearing- in period, during which time a feeding speed of about half normal speed should be used.

Lubricant/coolant

The lubricating/cooling fluid must ensure that the blade teeth and material in the area of the cut do not overheat. Furthermore, the quantity and pressure must be sufficient to remove the swarf from the cutting zone. The fluid must be an excellent lubricant, such that prevents abrasion of the teeth and welding of the swarf to the teeth themselves (seizing).

Blade structure

The circular blades most frequently used for cutting- off machines are HSS-DMo5/M2 consisting of a single piece and characterised by a high level of toughness and a good cutting resistance.

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

TYPE OF BLADE	C	Cr	W	Mo	V	Co	HRC
HSS-DMO 5/M2	0,47	1,00	6,37	1,00	0,12		45-50

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

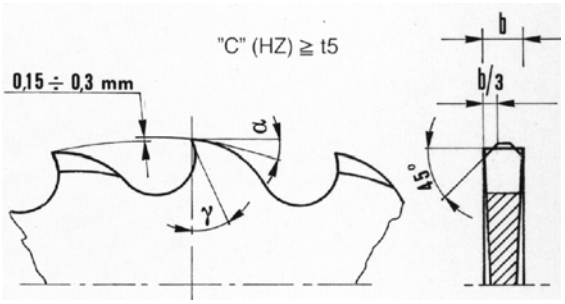
Types of blades

The blades fitted on the **FALCON 352** have dimensions 350x32x2,5 and are made of HSS DMO5 since the machine is intended for cutting ferrous materials. In addition to the size and pitch of the teeth, the blades also have other geometric characteristics according to their particular use:

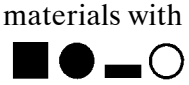
- tooth sharpening, which in this case may be BW with alternate raked tooth or C with roughing tooth raked on both sides and non-raked finishing tooth;
- tooth pitch, the distance between the crests of two subsequent teeth (tooth pitch = T).

Tooth shape

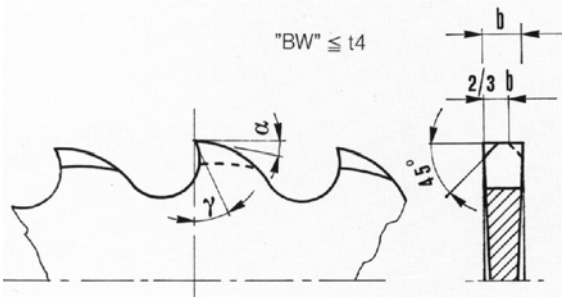
”C” TYPE SHARPENING (HZ)
Coarse toothing with roughing tooth raked on both sides and non- raked finishing tooth. The roughing tooth is about 0.3 mm higher.



Coarse toothing with roughing tooth and finishing tooth. Used in saws with pitch greater than or equal to 5 mm for cutting ferrous and non- ferrous materials with solid or solid- profiled sections.



”BW” TYPE SHARPENING DIN 1838- UNI 4014
Coarse toothing with teeth alternately raked to the right and left.



Toothing generally used on cutting- off machines for cutting ferrous and alloy materials with tubular and profiled sections.



The **FALCON 352** uses 350x2.5x32 discs made of HSS DMo5 and teeth with type C sharpening for hollow sections; for solid sections it uses 315x32x2 discs, again made of HSS. The tooth pitch is also important as shown in the table below. Disc selection table for FALCON machine. Other disc characteristics are: dimensions: internal hole diam. 32 mm, distance between fixing holes 63 mm, tooth shape type C.

MODEL	○ □			○ □			● ■		
	D.	T	Z	D.	T	Z	D.	T	Z
FALCON 352	350	5	220	350	8	140	350	12	90

This table can be used to facilitate the choice of toothing since it takes into account both the size of the material to be cut and the diameter of the disc to be used.

	D 200		225		250		275		300		315		350		370		400		425		450		500	
Solid section ● S	S	t z	t z	t z	t z	t z	t z	t z	t z	t z	t z	t z	t z	t z	t z	t z	t z	t z	t z	t z	t z	t z	t z	t z
	10	5 130	6 100	5 140	6 120	5 160	6 128	5 180	6 140															
	30	6 100	8 80	6 120	8 80	6 128	8 100	6 140	8 110	6 160	8 120	7 140	8 120											
	50			8 90	10 70	8 100	10 80	8 110	10 90	8 120	10 90	8 120	10 100	9 120	10 110	10 110	11 100								
	70							10 90	12 70	10 90	12 80	10 100	12 80	11 100	12 90	11 100	12 90	10 120	12 100	10 130	12 110	10 140	12 120	10 150	12 130
	90									12 80	14 70	12 80	14 70	12 90	14 80	12 90	14 80	12 100	14 90	12 110	14 94	12 120	14 100	12 130	14 110
	110											12 80	14 70	12 80	14 70	12 90	14 80	12 100	14 90	12 110	14 94	12 120	14 100	12 130	14 110
	130													12 80	16 70	14 80	16 70	14 90	16 80	14 94	16 84	14 100	16 90	14 110	16 100
	150																	14 90	16 80	14 94	16 84	14 100	16 90	14 110	16 100
Hollow section ○ S D	D																								
	10	3 200	3 200	3 220	3 220	3 250	3 250	3 280	3 280																
	30	4 160	5 130	4 180	5 140	4 200	5 160	4 220	5 180	4 220	5 180	4 240	5 200												
	50			5 140	6 120	5 160	6 128	5 180	6 140	5 180	6 160	5 200	6 160	5 200	6 180	5 220	7 160								
	70							6 140	8 110	6 160	8 120	6 160	7 140	6 180	7 160	7 160	8 140	6 200	7 180	6 220	7 190	6 230	7 200	6 260	7 220
	90									8 120	10 100	7 140	8 120	7 160	8 140	7 160	8 140	7 180	8 160	7 190	8 160	7 200	8 180	7 220	8 200
	110											8 120	10 100	8 140	9 120	8 140	9 120	8 160	9 140	8 160	9 150	8 180	9 160	8 200	9 170
	130													9 120	10 110	9 120	10 110	9 140	10 120	9 150	10 130	9 160	10 140	9 170	10 150
	150															9 120	10 110	9 140	10 120	9 150	10 130	9 160	10 140	9 170	10 150

Blade selection table with respect to cutting speed and downstroke speed

RECOMMENDED CUTTING PARAMETERS	CUTTING ANGLE		Cutting section (in mm)																											
	α	γ	10- 20			20- 40			40- 60			60- 90			90- 110			110- 130			130- 150									
			T mm	Vt m/1'	Av mm/1'	T mm	Vt m/1'	Av mm/1'	T mm	Vt m/1'	Av mm/1'	T mm	Vt m/1'	Av mm/1'	T mm	Vt m/1'	Av mm/1'	T mm	Vt m/1'	Av mm/1'	T mm	Vt m/1'	Av mm/1'								
Mild steel R = 350- 500 N/mmq	20	8	5	50	160	7	45	150	10	45	140	12	40	130	14	40	110	16	35	100	18	30	90							
Medium steel R = 500- 700 N/mmq	18	8	4	30	130	6	30	120	9	25	110	12	25	110	14	20	100	16	20	90	16	15	80							
Hard steel R = 750- 950N/mmq	15	8	4	20	110	6	20	110	8	18	100	11	17	50	14	15	80	16	14	70	16	12	60							
Super hard steel R = 950- 1000 N/mmq	12	6	3	15	60	4	15	60	6	14	50	9	14	28	12	13	45	14	13	45	14	12	40							
Hardened and tempere steel R = 950- 1300 N/mmq	10	6	2	9	35	3	9	33	4	9	30	6	8	8	8	8	25	10	7	25	10	7	22							
Austenitic stainless ste R = 500- 800 N/mmq	12	8	4	20	50	6	19	45	8	18	45	11	17	40	15	15	40	16	14	35	16	12	35							
Martensiticstainless R = 500- 800 N/mmq	15	6	4	20	50	6	19	45	8	18	45	11	17	40	15	15	40	16	14	35	16	12	35							
Grey iron	12	8	4	25	100	6	23	100	8	22	90	11	20	80	14	19	70	16	17	60	16	16	60							
Aluminium and alloys R = 200- 400 N/mmq	22	10	6	1100	1800	8	1000	1700	12	1000	1600	16	1400	1400	18	1300	1300	20	600	1100	20	500	900							
Aluminium and alloys R = 300- 500 N/mmq	20	8	5	200	400	7	180	400	10	160	350	12	300	160	14	300	250	16	250	130	16	130	250							
Copper R = 200- 350 N/mmq	20	10	6	400	600	8	350	600	11	300	550	14	550	250	17	500	500	18	200	500	20	120	400							
Hard bronze R = 600- 900 N/mmq	15	8	5	400	800	7	400	700	10	350	700	12	600	300	14	600	500	16	500	200	18	150	400							
Phosphor bronze R = 400- 600 N/mmq	12	8	4	120	160	8	110	150	8	100	140	10	130	90	12	130	70	14	100	50	16	50	90							
Brass R = 200- 400 N/mmq	16	16	5	600	1100	6	600	1100	10	550	1000	12	900	550	16	900	500	18	800	450	18	200	800							
Alloyed brass R = 400- 700 N/mmq	12	16	5	500	700	7	400	600	10	350	600	12	500	350	16	500	300	18	400	200	18	200	400							
Titanium and alloys R = 300- 800 N/mmq	18	8	4	50	160	4	45	150	6	45	140	10	130	45	12	110	40	14	35	110	16	30	100							
Profiles and tubes with wall thickness 0.05 D R = 300- 600 N/mmq	18	8	3	19	130	4	18	120	5	18	120	8	17	33	10	16	28	12	16	90	14	8	90							
Profiles and tubes wit wall thickness 0.25 D R = 300- 600 N/mmq	15	8	2	35	130	3	33	120	4	30	110	6	30	110	8	26	100	10	24	90	12	6	80							
Recommended lubrificants			Emulsion - cutting oil																Cutting oil										Emulsion	

Classification of steels

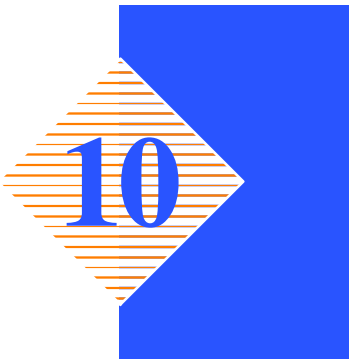
The tables on this page provide users with information on materials to cut, enabling their classification with respect to hardness and consequently the correct blade to use.

Types of steel				Hardness		
UNI	DIN	BS	AISI	Brinell HB	HRB	Kg/mmq
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

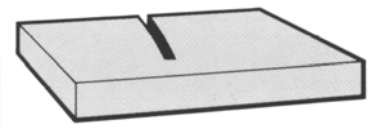
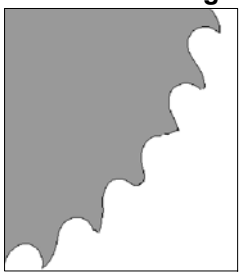
Material	SS Svezia	AISI U.S.A.	DIN Germania	BS Inghilterra	UNI Italia	AFNOR Francia
Carbon steels	1311	1015 - 1035	C 22 - C 35	050 A 20	C 15 - C 35	XC 18
			20 Mn 5 - 28 Mn 6	080 M 46 - 50	C 22 Mn	XC 38 H 1
	1572		CK 22 - CK 50	120 M 19	C 28 Mn	20 M 5
				150 M 28		
Carbon steels	1650	1040 - 1064	CK 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		1717 CDS 110		25 CD 4
			25 Cr Mo 4 - 42 Cr Mo 4	708 A 37	25 Cr Mo 4 - 42 Cr Mo 4	
	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 tipo 6 e 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

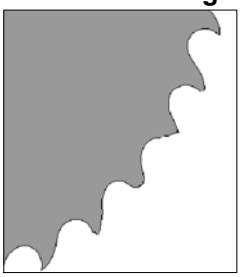
Troubleshooting



This chapter describes the inspection and troubleshooting procedures for the **FALCON 352**. 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 TROUBLE-SHOOTING 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
Cuts not at 90 degrees or angled 	◗ Head speed too high	☞Reduce head speed
	◗ Disc with worn teeth	☞Replace disc
	◗ Orthogonality of disc to work-piece rest shoulder	☞Adjust the position of the blade so that it is at right angles to the workpiece rest shoulder using the 0° ad-juster pin; then set the stops at 45° right and left using the appropriate screws.
	◗ Perpendicularity of disc to work surface	☞Contact our Assistance Of-fice
	◗ Cutting speed too low	☞Increase cutting speed.
	◗ Broken teeth	☞Check the hardness of the material being cut.
Teeth breaking 	◗ Incorrect lubricant/coolant fluid	☞Check the water and oil emulsion; check that the holes and hoses are not blocked; direct the nozzles correctly.

PROBLEM	PROBABLE CAUSE	SOLUTION
Teeth breaking 	◗ Material too hard	☞Check the cutting speed, feed speed and disc pressure parameters and the type of disc you are using.
	◗ Disc not worn- in correctly	☞With a new disc it is necessary to start cutting at half feeding speed. After the wearing- in period (a cutting surface of about 300 cm2 for hard materials and about 1000 cm^2 for soft materials) the cutting and feed speeds can be brought up to normal values.
	◗ Disc with excessively fine tooth pitch	☞The swarf wedges into the bottom of the teeth causing excessive pressure on the teeth themselves.
	◗ New blade inserted in a partially completed cut.	☞The surface of the cut may have undergone local thermal alteration, making it harder: when starting work again, use a lower cutting speed and head feed speed. A tooth from the old blade may be left in the cut: check and remove before starting work again.
	◗ Workpiece not clamped firmly in place	☞Any movement of the workpiece during cutting can cause broken teeth: check the vice, jaws and clamping pressure.
	◗ Vibration	☞Workpiece vibrates in the vice: check that the slide has been adjusted correctly; check the clamping pressure and if necessary increase.

Rapid tooth wear 	◗ Head speed too slow	☞The blade runs over the material without removing it: increase head speed.
	◗ Cutting pressure too high	☞Reduce cutting pressure.
	◗ Cutting speed too high	☞The teeth slide over the material without cutting it: reduce the cutting speed.
	◗ Insufficient coolant	☞Check the coolant level and clean piping and nozzles.
	◗ Incorrect fluid concentration	☞Check and use the correct concentration.

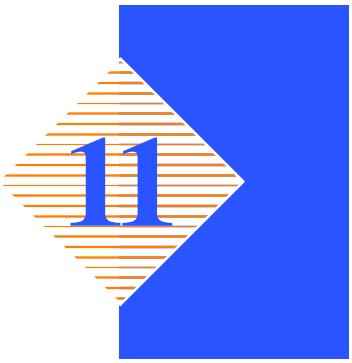
PROBLEM	PROBABLE CAUSE	SOLUTION
Rapid tooth wear 	◗ Material defective	☞The materials may present altered zones either on the surface, such as oxides or sand, or in section, such as under- cooled inclusions. These zones, which are much harder than the blade, cause the teeth to break: discard or clean these materials.
Broken blade 	◗ Head speed too high	☞Reduce head speed.
	◗ Teeth in contact with material before starting the cut	☞Always check the position of the blade before starting a new job.
	◗ Insufficient coolant	☞Check the coolant level and clean piping and nozzles.
	◗ Vibrations	☞Workpiece vibrates in the vice: check that the slide is regulated correctly; check the clamping pressure and if necessary increase.

Troubleshooting machine faults

PROBLEM	PROBABLE CAUSE	SOLUTION
For version MA: Cutting vice will not close or will not open	◗ VM: Cutting Vice Valve	☞Make sure the valve is operating correctly, replace if necessary.
BMT not energised (Minimum Tension Coil)	◗ Electrical power supply	☞Check: the phases; the cables; the plug; the socket.
	◗ BMT Reset switch	☞Make sure that the minimum tension coil is energised when switch is turned from 0 to 1. If it is not, replace the switch.
	◗ Emergency stop pushbutton in	☞Make sure the emergency stop button is released: turn it clockwise through 1/4 of a turn to release it.

PROBLEM	PROBABLE CAUSE	SOLUTION
For version MA: Cutting vice will not close or will not open	◗ Vice cylinder	☞Check that air is not leaking through the cylinder seals, by removing the hose (from the quick connector), where there is no pressurized air, and checking whether air escapes from the joint. If air is escaping, replace the seals or the entire cylinder.
	◗ Compressed air supply hose	☞Check the hose is not kinked or blocked. Remove the obstruction.
Spindle motor will not turn	◗ Electrical power supply	☞Check: the phases; the cables; the plug; the socket. Also check that the motor connections are in place.
	◗ Key operated safety switch	☞Check that the phases are present both on the input and output. Otherwise replace.
	◗ Contactor	☞Check that the phases in it are present both on the input and output, that it is not jammed, that it closes when powered and that it is not causing short circuits. Change if any of these problems are found.
	◗ Thermal relay	☞Make sure it is closed, ie check that the phases are present in input and output, that it is not causing short circuits and responds when the reset coil is closed. If it has tripped to protect the motor, check that the absorption values are balanced and do not exceed the motor's rated values. Change if necessary.
	◗ Motor	☞Check that it has not burnt out, that it turns freely and that there is no moisture in the connection terminal board box. The winding can be rewound or replaced.

Accessory Installation

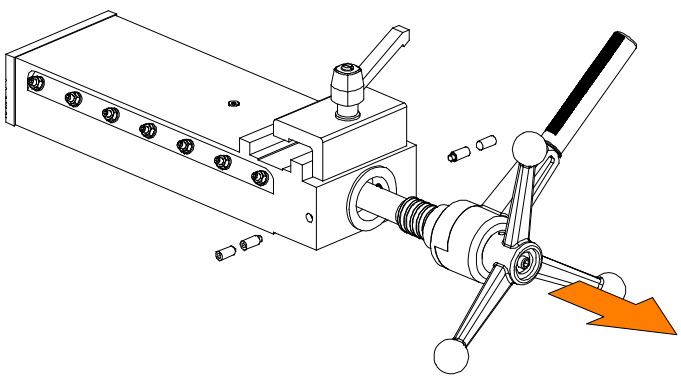


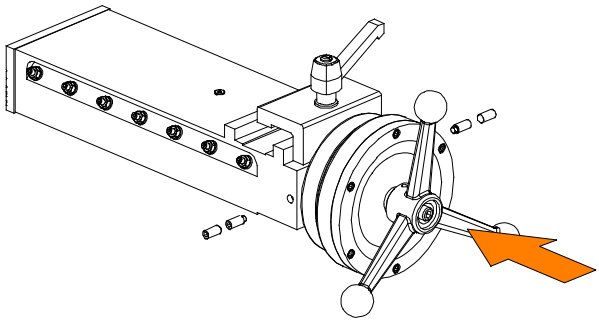
This chapter provides a list of the available accessories that can be fitted to this machine, along with assembly instructions.

Pneumatic shearing vice (MA)

To fit the pneumatic clamp proceed as follows:

- remove the grub screw and counter- screw holding the clamp drive screw bushing in place, as shown in the figure;

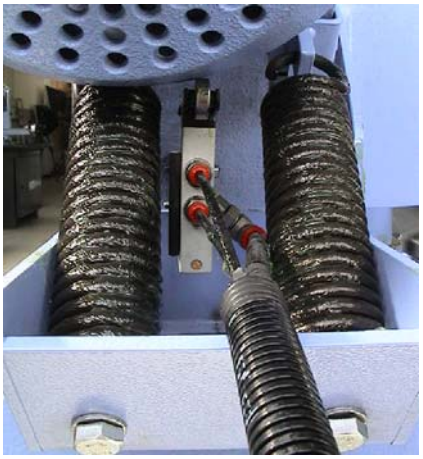


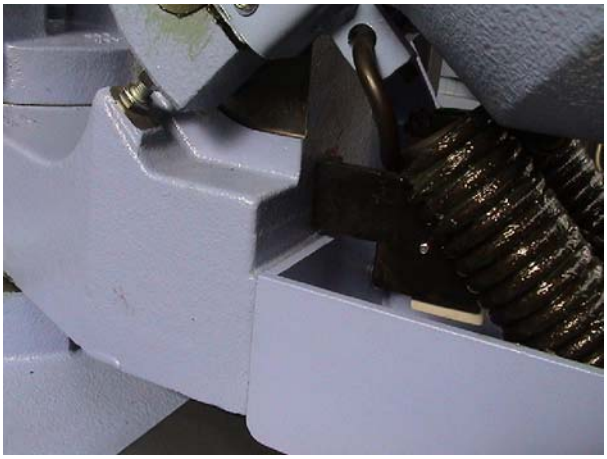


- remove the clamp drive screw group, the bushing and the hand wheel from the slide, and fit the clamp drive screw group, pneumatic cylinder and hand wheel provided in the kit;
- fit the pneumatic cylinder and drill two holes aligned with the fixing holes in the slide. Refit the grub screw and counter- screw;
- Fit the air filter group and secure it to the plate inside the base using the screws provided.

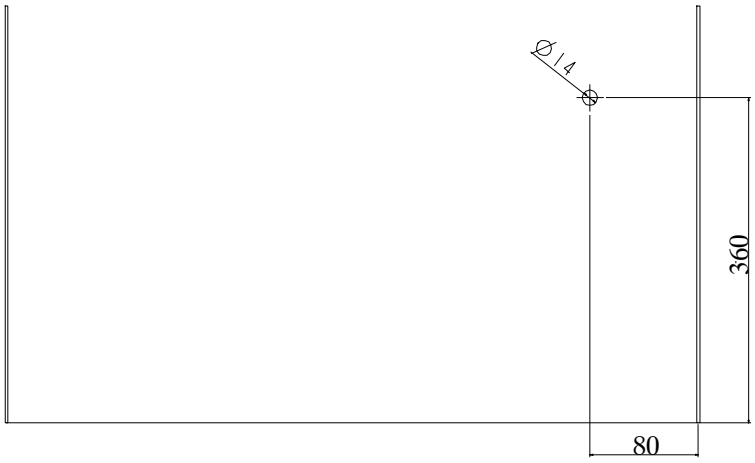


- position the supporting plate of the pneumatic valve in the rear part of the rotating platform (as indicated in the figure), so that the pneumatic limit switch is activated when the head in the rear head limit switch (RHLS) position; then mark the drilling points with a felt pen.
- drill two 4-mm holes in the points indicated in the figure and thread them M5, at a reciprocal distance of about 15 mm, to fasten the supporting plate of the pneumatic valve;





- Drill a 14 mm hole in the rear of the base. Screw into this hole the air feed pressure relief valve as shown in the figure;



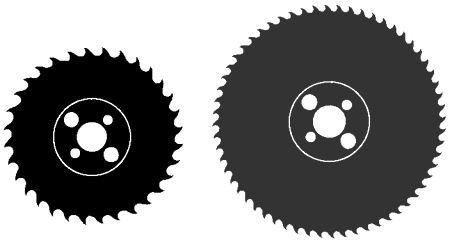
- Connect the air feed hose (ø 8 mm) from inside the base to the air filter group. Connect the air hose (ø 8 mm) from the air filter group to the manual valve. Connect the two small hoses (ø 4 mm) from the opening and closing unions on the manual valve to the quick connectors on the pneumatic cylinder.
- Reconnect the compressed air supply to the machine, and operate the manual valve to test the clamp opening/closing action.

Circular blade

The machine fits:

- circular blade HSS DMo5/M2 D.350x32x2.5 for profiles;
- circular blade HSS DMo5/M2 D.315x32x2.5 for profiles and solid pieces.
- circular blade HSS DMo5/M2 D.300x32x2.5 for profiles and solid pieces.

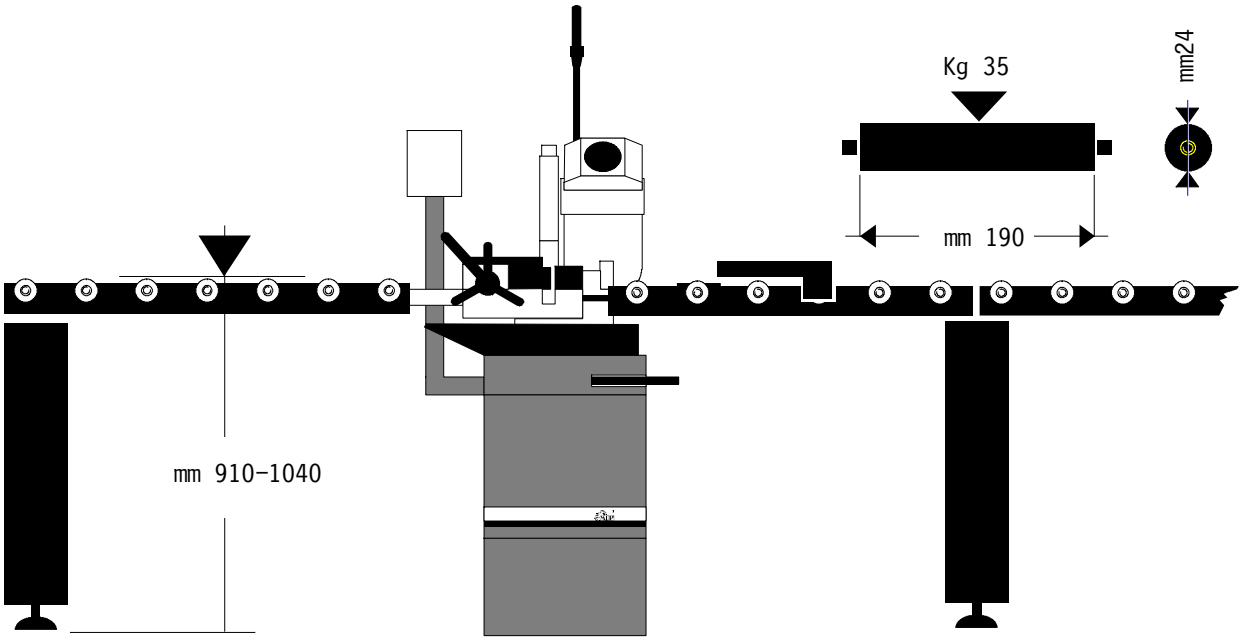
- circular blade HSS DMo5/M2 D.250x32x2.5 for solid pieces.



See chapter 7 of this manual for cutter blade installation instructions.

Roller table

- K40 roller table module for feed side, 1500 mm;
- K40 roller table for discharge side, 1500 mm;

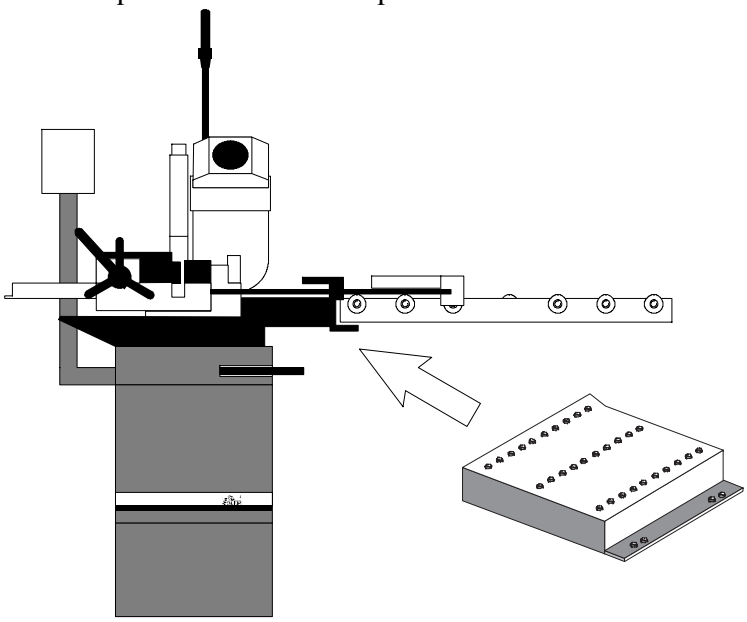


- K40 roller table for discharge side, 3000 mm;
- K40 roller table for discharge side, 4500 mm;
- K40 roller table for discharge side, 6000 mm.
- To fit the roller loading platform on the loading side, the machine has a bar-support arm that one end of the roller-way can be positioned on and then screwed in place.
- To install the roller loading platform on the discharge side an adapter must be used, with or without a support, as explained in the paragraphs that follow.

Adattatore pianale a rulli lato scarico

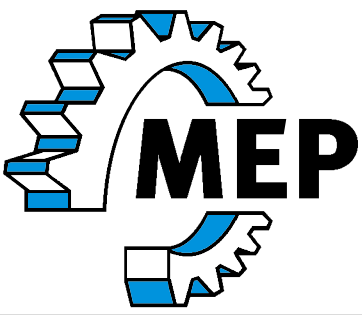
This device is used to attach the discharge roller table to the machine, and instructions are supplied below for how to assemble it:

- ▶ remove the two TE screws from the right side of the slideway;
- ▶ attach the adapter and secure it in place with the screws removed previously.



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

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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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