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USER AND MAINTENANCE INSTRUCTION MANUAL

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0. GENERAL PREMISES

0.1 HOW TO READ AND USE THIS MANUAL

0.1.1. IMPORTANCE OF THE MANUAL

- This manual is to be considered as an integral part of the machine.
- The manual must be kept for the entire lifetime of the machine.
- The manual must be provided with the machine in case of transfer of the same.
- The manual, in addition to reporting all useful information for operators, is accompanied by wiring diagrams that will be used for any necessary maintenance and repairs.

0.1.2. PRESERVATION OF THE MANUAL

- The manual must be kept in a place protected from humidity and excessive heat.
- The manual must be consulted without damaging its partial or total content.
- Do not remove any pages from the manual.
- Do not write on the manual's pages.

0.1.3. CONSULTING THE MANUAL

The manual was drawn up according to the **Machinery Regulations** issued by the EEC under **Law 98/37.**

It is essentially composed of:

A. Identification cover
B. Index of chapters
C. Machine instructions
D. Diagrams
E. Spare parts tables
F. Attachments.

A - Identification cover
The colored hard cardboard cover identifies the machine to which this manual is dedicated.

- Manufacturer's logo.
- Machine type.
- Identification code.
- Month of drafting.

B - Index of chapters
The chapter index lists the topics covered by the manual, expanding the search for topics with subtitles.

C - Machine instructions
This part of the manual describes in detail how the machine works, the operations to be carried out for proper operation, the installation instructions, the safety precautions, the machine cycle, and the intervention procedures for the operator.

D - Diagrams
This chapter shows all the wiring diagrams, necessary for any operator interventions.

E - Spare parts tables
These tables, which refer to the previous drawings, identify the components of the related sections, as well as the quantity assembled parts and possibly the quantities recommended as spare parts.

F - Attachments

This part shows the technical documentation of the commercial details contained in the machine for indicative purposes only.

0.1.4. UPDATES

In the event of substantial modifications to the machine, the manufacturer will provide the customer with a new version of this manual.

In this case, it is advisable to archive the present in order not to incur inconsistencies between what is reported in the two versions.

1. GENERAL INFORMATION

1. 1. INTRODUCTORY TECHNICAL INFORMATION

The machine was designed and built by COMAS with the aim of filling strips of various formats normally used in the Pharmaceutical, Chemical, Food and Cosmetic industries and sealing them by welding.

During operation in automatic mode, the semi-automatic operation of the machine is guaranteed, by a PLC which supervises the management of the data detected by the sensors, sequentially activating the actuators of the individual activities, if the manual feeding of the strips is guaranteed.

The machine can be interfaced with other machines used for the feeding or unloading of strips. The installation of the aforementioned machines is the responsibility of the Customer, who must provide for the interfacing.

However, during the processing of the machine, the presence of two users with Qualification Level 1 is required in order to manually load / unload the strips and check the machine's status.

The machine does not have work settings other than those specified in this manual. The moving parts, which are part of the machine, are equipped with fixed, interlocked protection devices and light-sensitive barriers.

NOTE

Further information may be provided by COMAS technical assistance upon special request of the user and / or operator.

1.2. MACHINE COMPOSITION

The definition of the groups constituting the single-dose machine allows to uniquely define and identify the components mentioned during the operation description.

The groups will also be highlighted with reference to their arrangement on the machine, so as to be easily traced by the user and / or operator. The terminology used in this paragraph will be the one used during the development of all the chapters making up this manual.

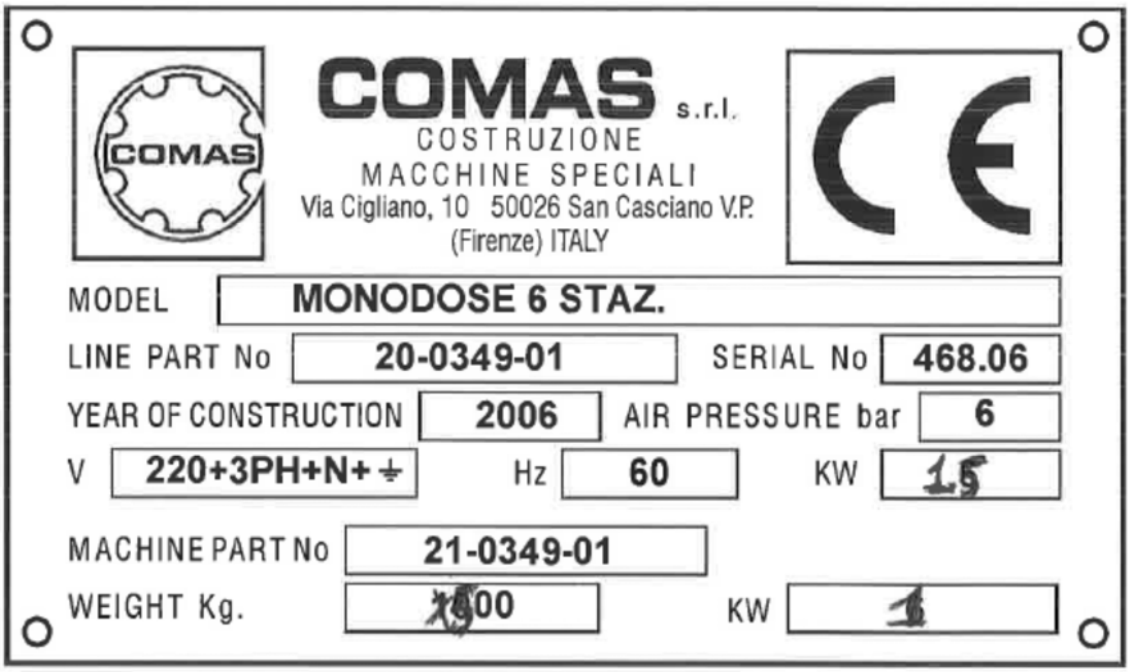
1.3. IDENTIFICATION DATA

The machine is identified as follows:

1. Strip filling and capping machine.

NOTE

This plate specifies the data related to the entire line (P / N 20-0349-01) in addition to the data of the filling and capping monobloc machine (P / N 21-0349-01).



CAUTION

The alteration of the configuration of the single-dose machine can only be carried out by COMAS technical personnel who will, at the same time, provide immediate information regarding the changes introduced, also updating this manual with subsequent supply to the customer.

DANGER

If interventions are carried out by unauthorized personnel, the responsibility for any machine malfunction, damage or accident will fall exclusively on the person who performed such interventions.

1.4. TECHNICAL ASSISTANCE

The machine represented in this manual is guaranteed by the manufacturer for a period of 12 months from installation.

The warranty is voided if the ordinary and extraordinary maintenance terms indicated in this manual are not respected, and for failures due to improper use of the machine.

Routine interventions can be carried out by maintenance personnel, while for changes related to operation, and anything else not covered in the manual, a request for intervention must be made to the manufacturer in writing or by fax.

1.5. GENERAL SAFETY WARNINGS

In relation to the general safety regulations, please keep in mind that the operation of the machine must be entrusted to qualified personnel according to the type of machine and in relation to the operations to be carried out.

In this regard, the manufacturer is not liable for any damage to things or persons caused by the negligence of personnel that does not comply with what is specified in this manual.

In this regard, the manufacturer has drawn up a table that outlines some levels of operation for interventions on the line.

This table is shown below and compliance with the qualifications is to be considered fundamental for the safety of the machine and the people working on it.

QUALIFICATION	***NOTE***	***ENABLE***
01	Staff **Unqualified**	Operation of the machine via commands on the control panel, loading and unloading of materials.
02	Staff **Unqualified**	It performs the tasks of the 01 qualification, in addition to this, it is enabled to run the machine in jog with disabled sensors to make adjustments and start the machine after forced stops.
03	Maintenance Mechanic **Qualified** **Technician**	It can perform the tasks of the 01 and 02 qualifications and in. It is also able to carry out interventions on mechanical parts for maintenance, adjustment and possibly repair.
04	Maintenance Electrician **Qualified** **Technician**	It performs the duties of qualifications 01 and 02 and is able to intervene in the electrical part for maintenance, adjustments and repairs. It can operate in the presence of electrical voltage inside cabinets.
05	**Manufacturer** **Technician**	These are highly specialized personnel and are able to carry out all the tasks of the previous qualifications and also intervene on problems of a complex nature.

Furthermore, the safety regulations provide for the following fundamental points:

- ***It is absolutely forbidden to inhibit the safety devices that the manufacturer has installed on the machine.***
- ***While cleaning the machine, it is mandatory to cut off all energy to the machine itself.***
- ***Adjustments with reduced safety must be made by one person only. During these operations, it is forbidden to access the machine to unauthorized persons.***

2. MACHINE CHARACTERISTICS

2.1. MACHINE DESCRIPTION

The single-dose machine is designed for filling and closing strips of various formats, with a capacity from 0.2 ml up to 10 ml. The filling and capping monobloc is equipped with five 10ml syringes and five filling needles.

Its field of application is oriented towards the Pharmaceutical, Food, Chemistry and Cosmetics industries.

The machine consists of a filling and closing monoblock that allows the work cycle to be carried out. Depending on the format of strips used (and the items that compose it) the monoblock must be equipped with different groups.

All the available groups are listed below, while chapter 12 of this manual lists the various operations to be carried out for the format change and the groups that must be mounted on the monoblock for each format.

- Starshaped workstation with strips supports
- Syringes
- Needle lifting unit
- Strip preheating group
- Welding group
- Welded surface forming unit
- Pick and place

The monobloc structure is made of aluminum. The machine is designed to accept one or more format change kits supplied by COMAS.

Any change in the strips' format consists in the replacement of some parts and / or adjustments. The description of the format change procedures, for the formats provided in this manual, is provided in chapter 12.

2.2. OPERATIONAL OPTIONS

The single-dose machine offers the possibility of filling and capping all types of strips normally used in the Chemical, Pharmaceutical and Cosmetic industries. The dimensions of the strips to be treated can vary from a minimum due to the stability of the strips themselves, to a maximum size that depends on the characteristics of the individual machines.

Production capacity varies according to the characteristics of the product (volume, density, foaming, etc.) and the composition of the format.

The machine described in this manual has a maximum speed of 15 strips / min.

2.3. CONSUMPTION AND POWER

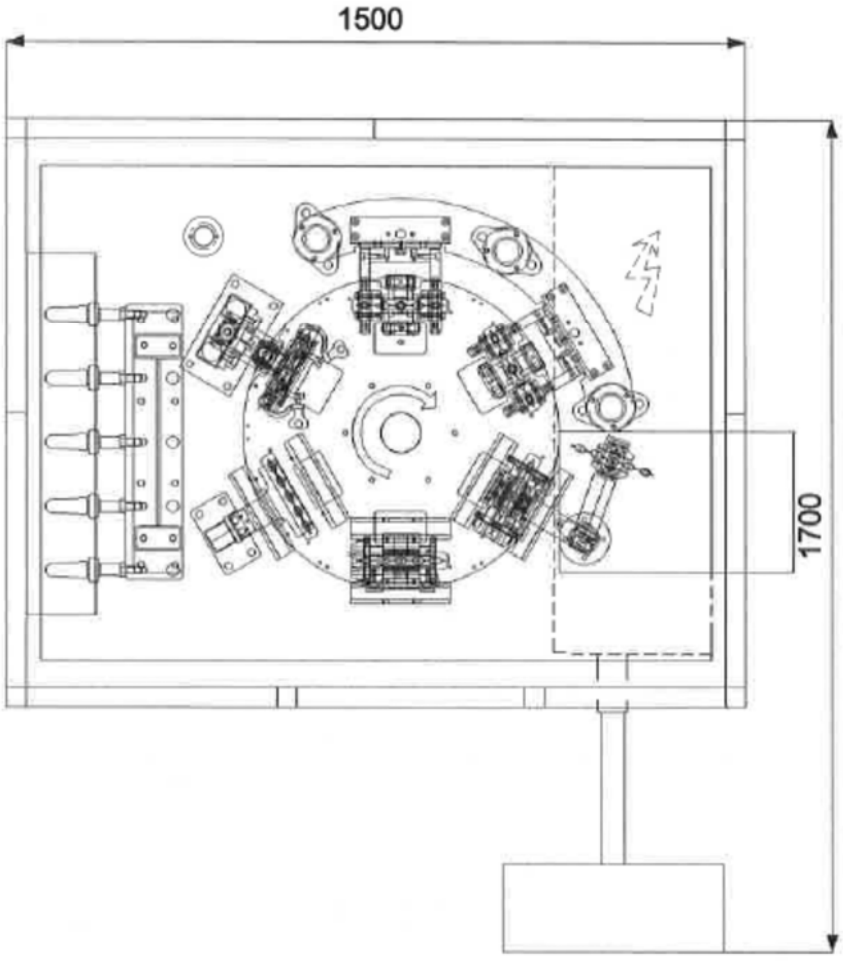
The energy sources applied to the machine are electric and pneumatic.

The power supply is 230V - 60Hz three-phase + Neutral + Earth. Total electrical absorption is 6 kW.

The pneumatic system requires a minimum inlet pressure of 6 bar.

2.4. WEIGHTS AND DIMENSIONS

Total monobloc height	=	1850 mm
Total monobloc weight	=	1000 kg



3. INSTALLATION

3.1. PRELIMINARY PROCEDURES

In order to prepare the installation of the machine in the best possible way, avoiding risks to both third parties and fitters, the following simple instructions must be followed carefully. As regards the area involved in the installation of the machine, the room must be absolutely free from any temporary and / or extraneous structure, before the arrival of the boxes containing the parts to be assembled.

- All the necessary masonry and finishing works (bases, partitions, walls, columns, etc.) should be carried out in advance of the arrival and assembly of the machine parts.

  If the assembly is to be carried out by the COMAS manufacturer, it is essential that the same will not be started in the presence of building and / or structuring works of the premises, of any type and nature.

- At the end of the preparation of the floors and structures, as well as of the finishes, please prepare the connection points for the energy according to the technical statements made with the COMAS construction company.
- The area intended for the machine's assembly must be adequately clean, free of debris and scraps of all possible materials and in particular the floor must be treated with anti-slip products for good anchoring of the feet.
- The aforementioned area, clean and tidy as above, must be suitably cordoned off and fenced off by two-colored (red / white) tapes with appropriate signs according to the safety regulations required by local authorities (see examples of signs below).

- At the points of access to the area intended for the machine's assembly, the following signs must be displayed both in the local language and in Italian:

ATTENZIONE

-MACCHINA COMAS IN MONTAGGIO-

E' VIETATO RIGOROSAMENTE
L'INGRESSO
E/O LA SOSTA A PERSONALE
NON AUTORIZZATO

With minimum dimensions of 850 mm base X 450 mm high. The color of the sign must be yellow with black / red writing for the two languages (local and Italian).

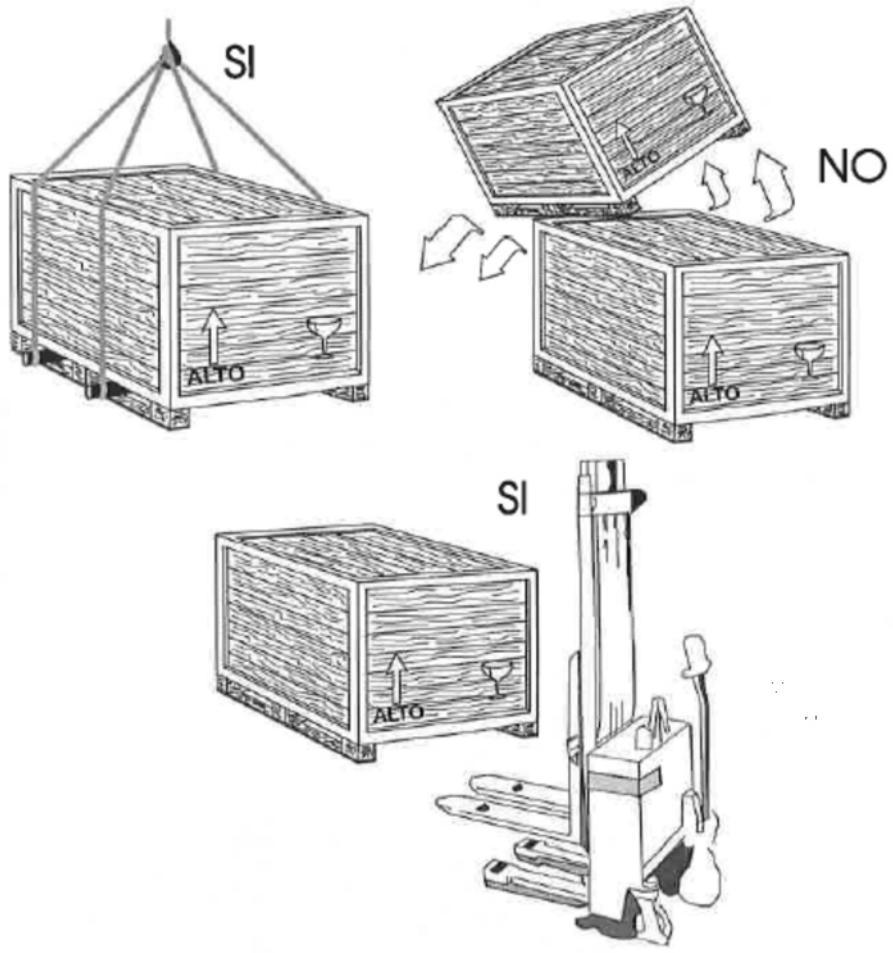
- The supply of flying energies necessary for assembly must be carried out in compliance with the safety regulations issued by the competent authorities in the place of installation.

- During the installation phase, as previously mentioned, please remember that the safety of the personnel responsible for the purpose, from unloading, unpacking, assembly, to final assembly, is of direct concern to the machine's user and / or the owner of the installation.

3.2. LIFTING AND UNLOADING - TRANSPORTATION

All lifting and unloading operations must compulsorily be carried out in compliance with current and current safety standards, especially with the necessary display of the warning signs for moving loads and suspended loads.

The packaging, both in crates and in cardboard, must be transported and handled with suitable means of transport and / or lifting (hoists, cranes, transpallets, forklifts, etc.) using suitable methods and systems, as indicated in some more usual examples and pictured below.



The personnel in charge must be suitably protected (gloves) in the manual handling of loads from direct damage, and must be protected in the head (helmet) to avoid indirect damage. The mandatory use of protective goggles should be observed in any unpinning operations with the use of manual or automatic extractors.

The same attention must be applied during the cutting, both with mechanical and electrical hand tools, of straps and ropes under tension, straps and metal clamping parts in general.

Important:
Please remember that it is forbidden for personnel to stand or walk under the area of use of the suspended load, nor in the vicinity when it is in motion. Failure to comply with these indications, as well as failure to comply with all the appropriate precautions in carrying out the listed operations, does not involve in any case, whether directly or indirectly, the COMAS company for any damage to property and / or persons.

3.3. SHIPPED PARTS INSPECTION

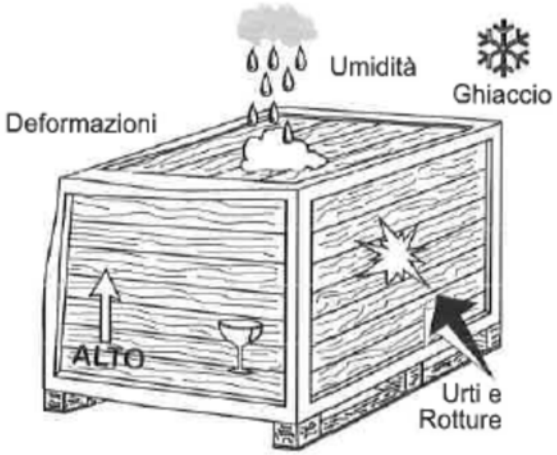
It is very important to carry out a proper check on the arrival of the packages, at the very moment of their receipt.

The check is carried out in two phases for each package received:

-A- Administrative confirmation: **case nº**
weight and dimensions
in order to avoid possible vector misunderstandings.

-B- Technical confirmation: **state of the packaging**
integrity of the packaging.

These examinations must be carried out on sight, in the presence of the carrier's delivery personnel (see figure).



Utmost meticulousness of, this examination is recommended, for possible damage reported on the packaging due to shocks or falls are not always immediately visible thanks to the absorption capacity that today’s packaging composite materials possess. This does not exclude that damage to the goods may have occurred, despite the best care provided by the COMAS company in placing the latter inside.

The COMAS company guarantees the perfect suitability of the materials chosen for its packaging, regarding both composition and mechanical resistance.

NOTE

As described above, the COMAS company reminds the customer that according to international and national regulations, the goods always travel at the latter's own risk. Likewise, unless otherwise signed in the order, the goods travel uninsured at the risk of the customer. Any claim for damage due to transport, loading, unloading and unpacking cannot therefore be charged to the COMAS company.

3.4. MACHINE ASSEMBLY

The RTS-4 machine does not require any particular rules for its assembly and commissioning. The machine was disassembled after testing by the manufacturer, who will arrange for the assembly at the customer's site.

3.5. ELECTRICAL CONNECTIONS

The machine is fully wired with the only need for connection to the power supply network. The same must be equipped with normal protection instruments against short circuits, overloads and lack of phase, undervoltage and differential controls to earth.

In case of insertion in line with other machines, such as:

- Special feeding units.
- Linear vibrators.
- Complementary devices (Marking, Labeling, Weighing etc.).

In other words, all the cycle completion units required for specific customer needs, the electrical connection is prepared according to the aforementioned needs with multipolar connectors on the machine.

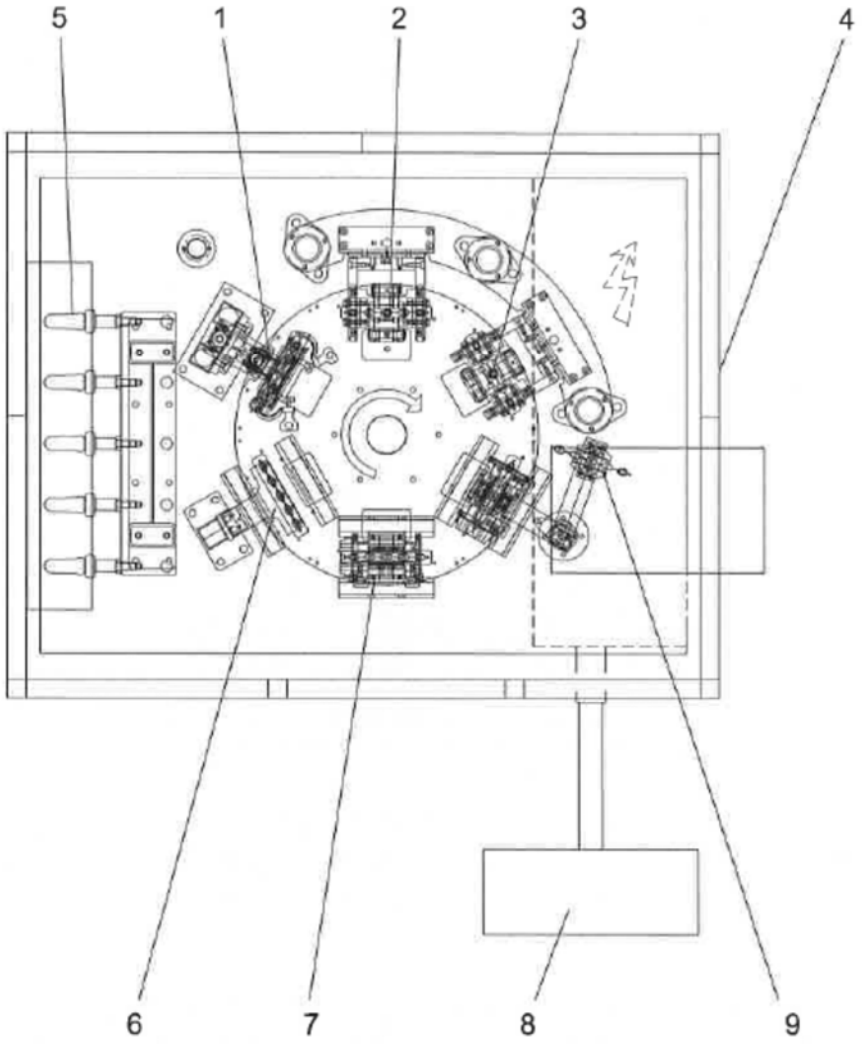
3.6. PNEUMATIC CONNECTION

The pneumatic connection is made simply by connecting the network piping to the air or nitrogen treatment units installed in the machine.

4. OPERATION

4.1. DESCRIPTION OF THE CYCLE

The machine is made up of various groups synchronized with each other. Together they perform the “Filling and Welding Cycle.” The following figure represents the machine’s layout, with an indication of the various groups that compose it.



Legend

1 Preheating station
2 Soldering station
3 Forming station
4 Electrical panel
5 Filling syringes
6 Filling station
7 Manual loading strips
8 Control panel
9 Pick and place

4.2. DESCRIPTION OF THE UNITS

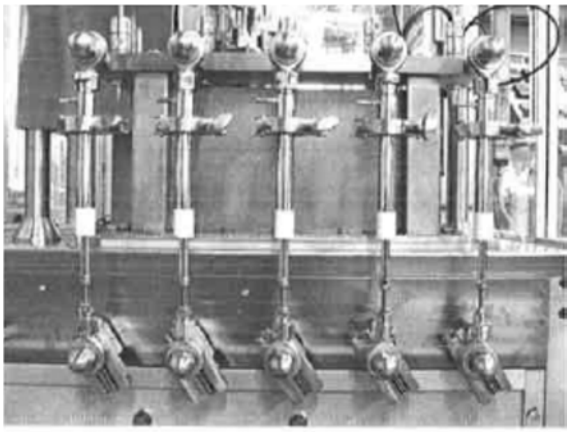
WORK STATION

The machine is equipped with a starshaped station for the transportation of the strips (placed in special supports, or inserts) during the work cycle. The star is built in AISI 304 steel, with 6 stations to receive the strips and provide for their transport.

The rotation (clockwise) and the position are determined by an intermittent movement with a Maltese cross system placed under the work bench.

RELEASE SYRINGES

This device allows the regulation of the product dosage. The machine is equipped with five 10ml syringes.



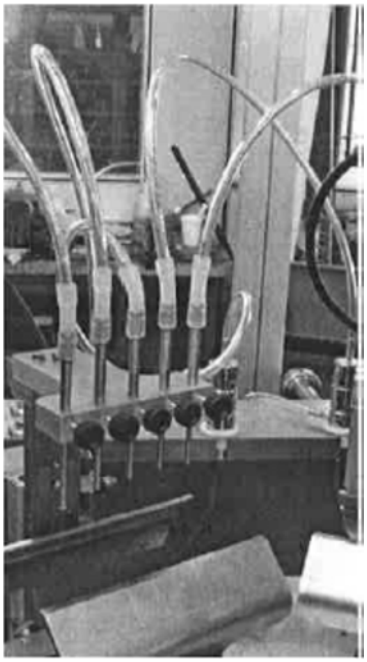
The movement that determines the dosage is controlled by a dedicated brushless motor. A potentiometer is installed on the control panel which allows the machine speed to be adjusted according to the product to be dosed.

The syringe holder is made of stainless steel, while the syringes are made of glass and Teflon. The dosage volume may depend on the format of strips in production and is in any case between a minimum of 0.2 ml and a maximum of 10 ml.

FILLING NEEDLE GROUP

The group consists of five needles in AISI 316L steel for filling the strips, connected to the syringes by means of special tubes from which they receive the product to be dosed. The needles are mounted on an AISI 304 stainless steel structure which allows them to descend into the tubes during the filling operation.

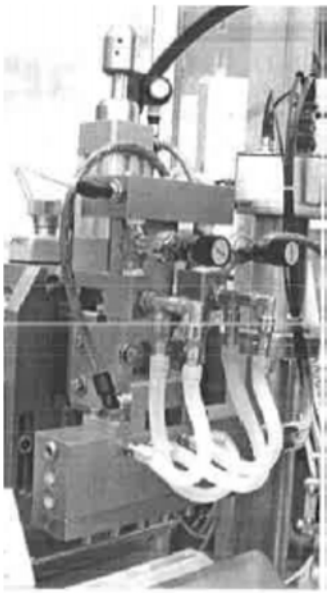
The head is entirely composed of an AISI 304 stainless steel structure on which a column supports a vertical slide which, by means of an arm, translates the nozzles and the relative product supply ducts, with a vertical reciprocating movement. This movement is driven by a stepping motor. Suitable adjustable guides allow the adjustment and fixing of the upper or lower point and the stroke of the vertical translation movement.



PRE-HEATING GROUP

A preheating unit is installed on the machine, which has the function of blowing hot air on the internal edge of the strip, before the next welding.

Heating is obtained by means of electric resistances, over which the jet of compressed air is passed. The compressed air supply is the same as for the pneumatic units.



A continuous flow of water allows to avoid overheating of the groups.

CAUTION

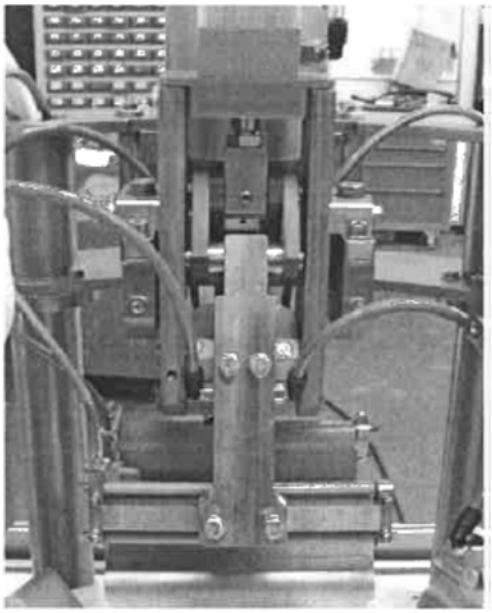
Lack of water supply can cause damage to the preheating, sealing and forming units due to failure to cool the units themselves.

WELDING GROUP

The closure of the strips is obtained by welding, with the passage of the same from the welding station formed by two electric heating resistances, on which are installed the Teflon films that are used for direct contact with the strips. A continuous flow of water allows to avoid overheating of the groups.

CAUTION

Lack of water supply can cause damage to the preheating, sealing and forming units due to failure to cool the units themselves.



DANGER

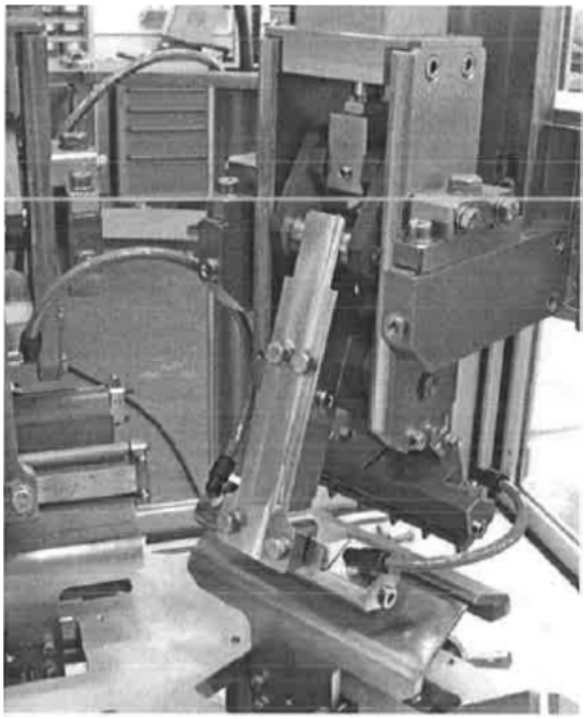
Due to the high temperature present on the welding units, it is necessary to wait at least 1 hour after turning off the machine, before accessing the inside.

FORMING GROUP

Immediately downstream of the welding the forming group is installed, which has the function of making the knurling on the edges of the strips just welded. A continuous flow of water allows to avoid the overheating of the group.

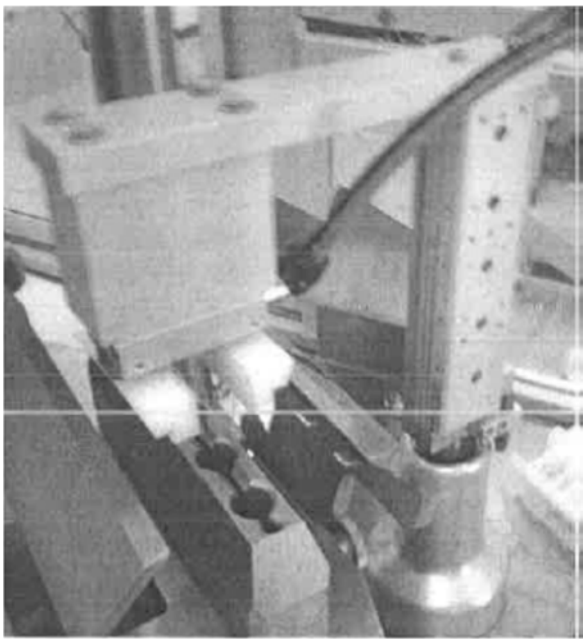
CAUTION

Lack of water supply can cause damage to the preheating, sealing and forming units due to failure to cool the units themselves.



PICK AND PLACE

At the end of the filling and sealing cycle of the strips, a pick and place unit is installed, which allows the automatic discharge of the strips into the outlet chute. The operation of the pick and place is operated by three pneumatic cylinders that allow the three movements: vertical, horizontal rotation and opening / closing half-calipers.



11.4. SCHEDULED MAINTENANCE

Given the simplicity of the machine, it does not require special maintenance operations. The only operations that can be scheduled based on time, provided by the manufacturer, are listed in the following table. These are easy to perform, therefore no further information is given.

Daily:	Machine cleaning
Daily:	Refilling of the product tank to be dosed.
Weekly:	Lubrication of mechanical parts, using grease type TUNGREASE BLANC NLG1 Klasse 2 (lithium grease) or similar products.
Weekly:	Condensate drain from the air filter.

11.5. EXTRAORDINARY MAINTENANCE

The machine provides for some types of maintenance interventions that cannot be planned over time and it will therefore be the responsibility of the production manager to periodically assess the need. The main maintenance interventions concern the replacement of the coating of the welding unit.

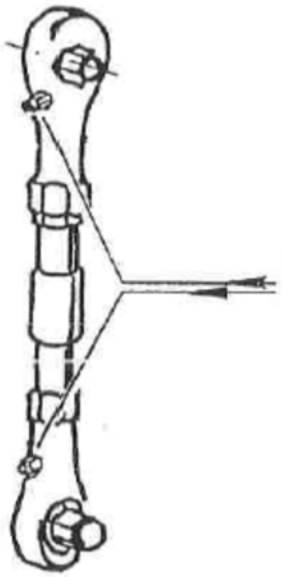
11.5.1. REPLACEMENT OF THE WELDING GROUP COVER

The strip welding unit uses a layer of plastic material to cover the welding resistances. Both groups are equipped with films wrapped on special supports, so that the sliding of a layer of a few centimeters on the containment support is generally sufficient to replace the layer required for welding. Only at the end of the film will the actual replacement be necessary.

11.3. MECHANICAL CARE

Even in the concept of non-continuous maintenance, it will still be necessary to pay some attention to the kinematics that operate in the machine.

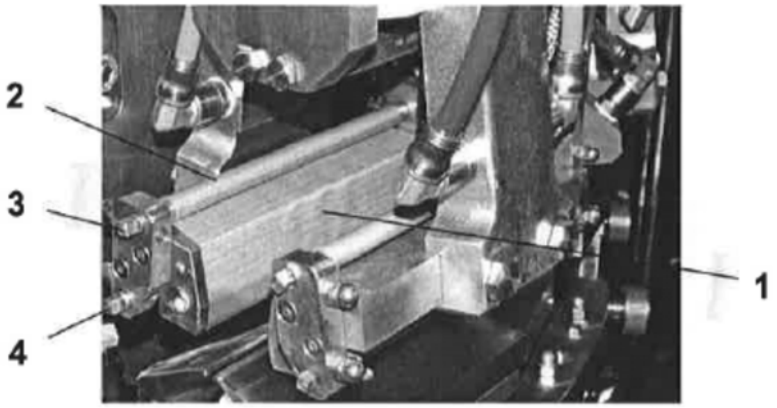
Care will be taken to periodically check the main clamping points of the mechanical units, such as slewing and oscillating or alternating movement heads, such as for example, sliding sleeves.



Lubrication point

Furthermore, we must not forget the periodic checks of the anchoring and ground support feet of the machine; in fact, vibrations during operation can cause anomalies and bending in the structure of the machine and any additional accessory groups.

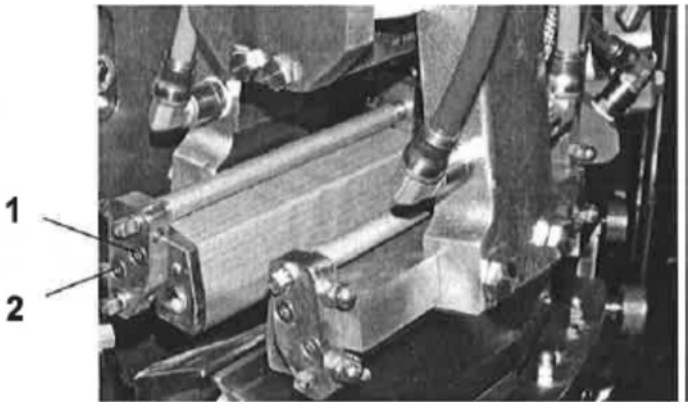
The film (1) covering the welding resistances is fixed between two rollers, one (2) above the resistor and one below it. Initially the film is completely wound on the roller (2).



When the film layer covering the resistance is worn, it is necessary to act as follows:

- Loosen the two nuts (3) (one on each side);
- Tighten the two nuts (4) (one on each side), so as to make the film slide, which accumulates on the roller below;
- Completely tighten all the nuts;
- Carry out the same operations for the other resistance.

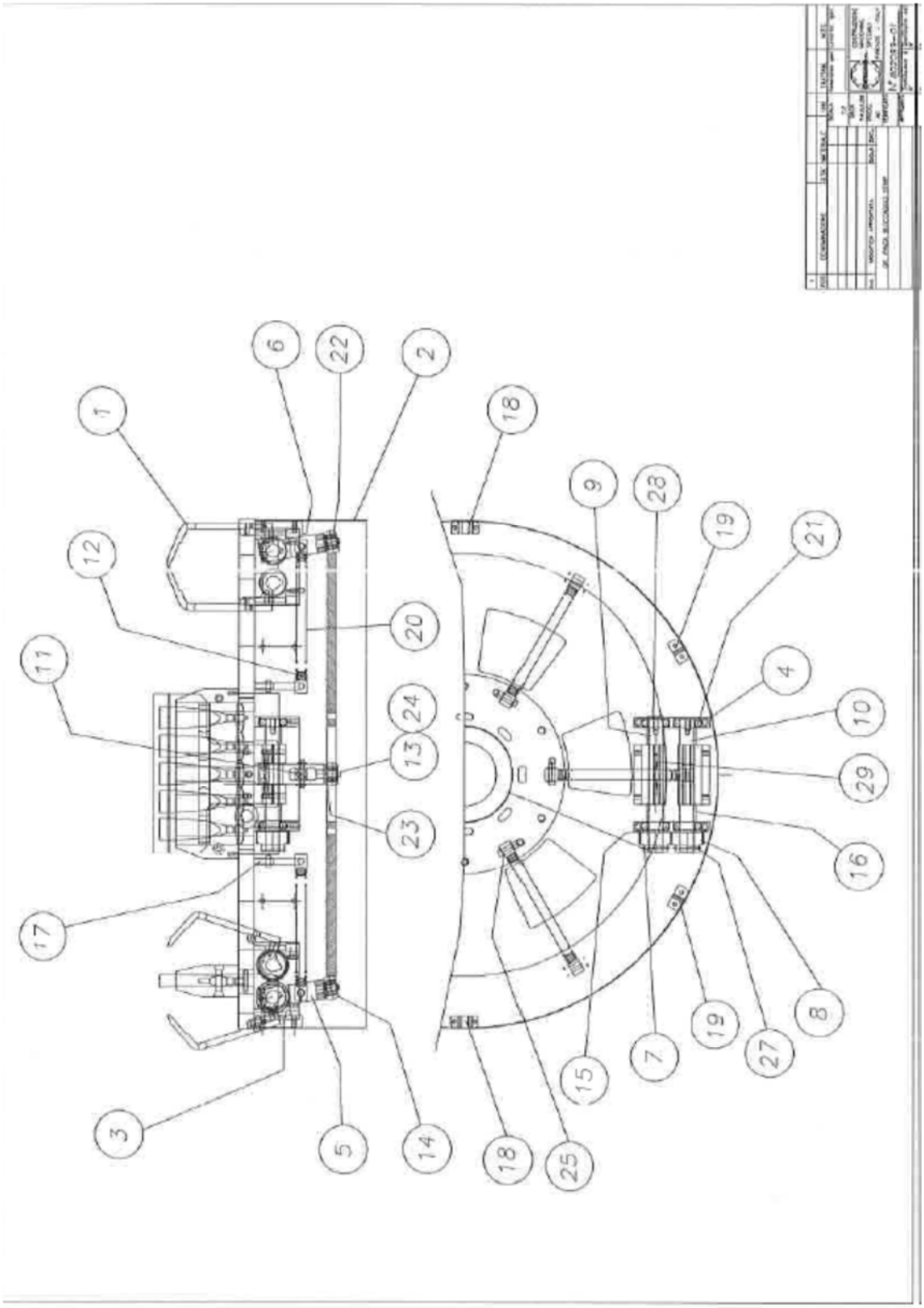
When the film wound on the roll (2) is finished, it is necessary to replace it.



- Unscrew the screws (1) and (2) in order to completely remove the film support assembly;
- Replace with a new film holder;
- Reinsert and tighten the screws (1) and (2);
- Carry out the same operations for the other resistance.

CARD Nº	DRAWING Nº	REFERENCE
658	33725-04	10CC STAINLESS STEEL SYRINGE

Part Nº	DESCRIPTION	Qty mounted	Suggested qty SPARE PARTS
1	Quick attachment female	1	
3	Expansible kit 10 cc	1	
4	Connection for cylinder	1	
5	Auction m8	1	
6	0 cc cylinder	1	
7	Tri-clamp tecninox 13hhm 1 "-1/2"	1	
8	Tube	1	
9	actuating	1	
10	Male joint m20 stainless steel getecno cod.	2	
11	mushroom	1	
12	Arnite guide	1	
13	Nut m8 inox uni 5589 (low)	3	
14	Tecninox tri-clamp gasket 40mp.e 1 "-1/2"	1	
15	Male quick attack	1	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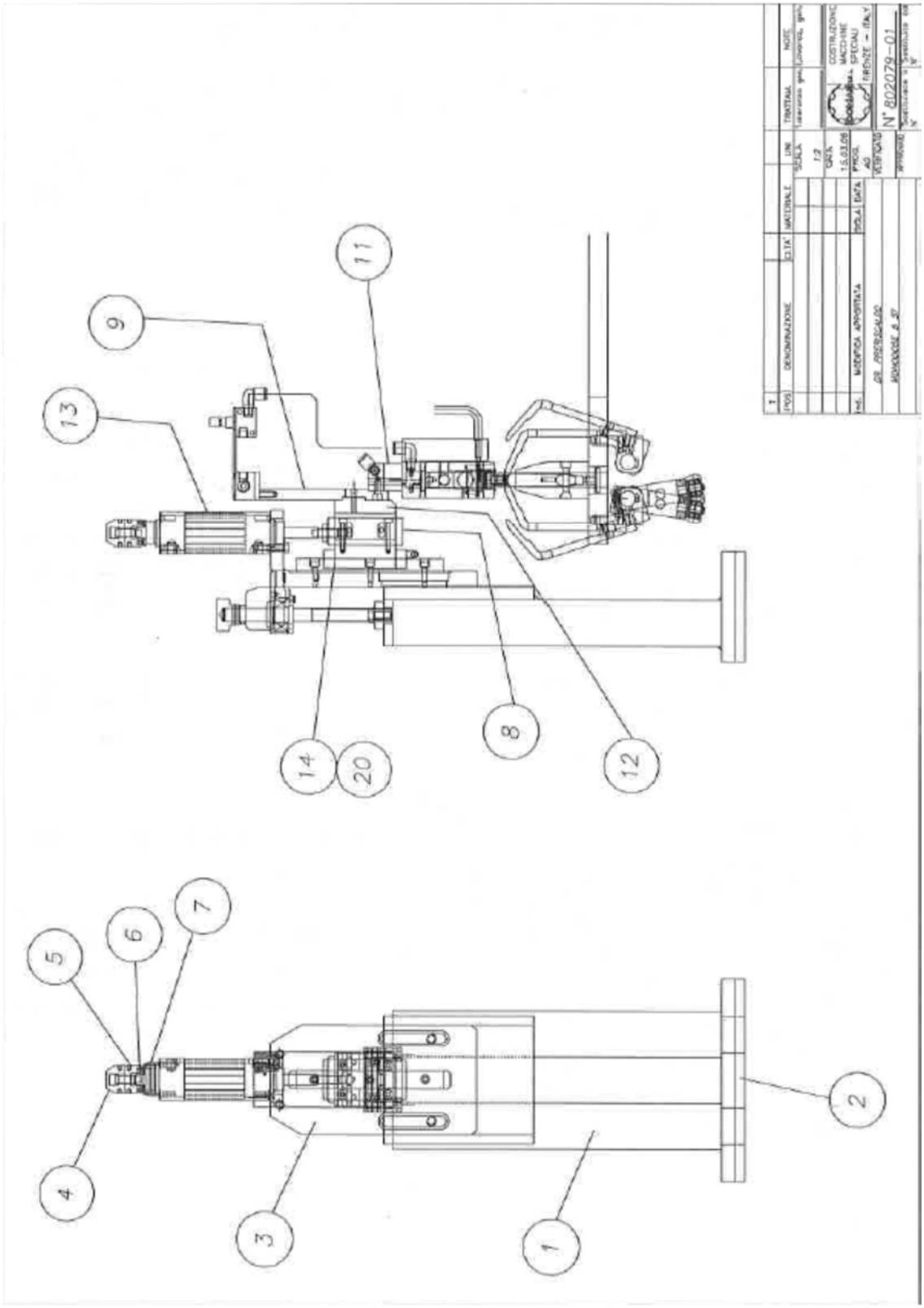
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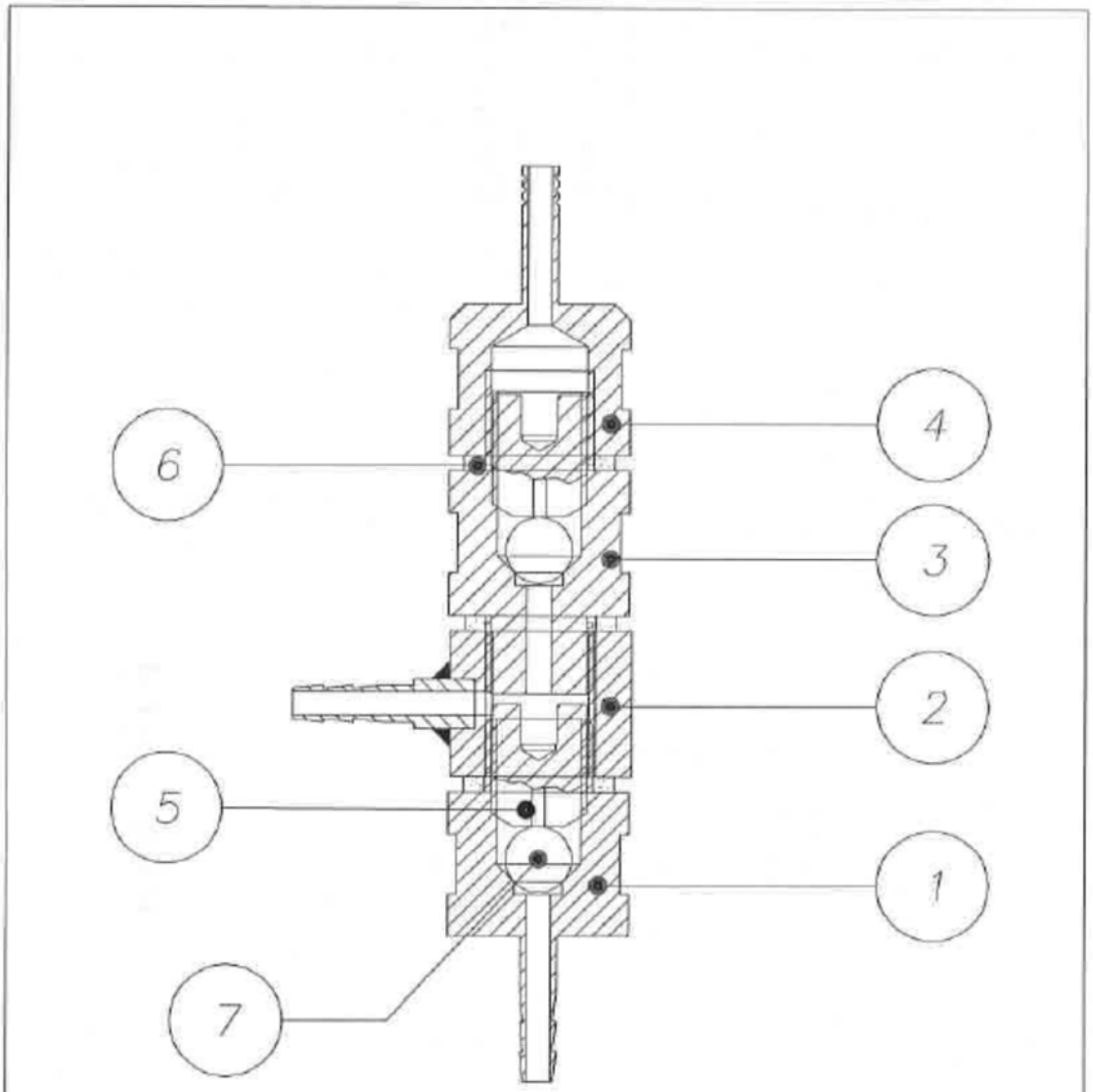
CARD Nº	**DRAWING Nº**	**REFERENCE**
709	**802099-01**	**STRIP LOCKING PLIER**

Part No.	DESCRIPTION	Qty mounted	Qty suggested PARTS
1	CLOSING NOZZLE		
2	SIDE CARTER		
3	VENT SUPPORT		
4	BEARING SUPPORT BLOCK		
5	LEVER SUPP. ROLLER		
6	CARTER INS.		
7	GEAR Z 38 (SX)		
8	GEAR Z 38 (RH)		
9	GEAR AXIS INT.		
10	EXT. GEAR AXIS		
11	SPRING ATTACHMENT PIN		
12	SPRING ATTACHMENT		
13	ROLLER PIN		
14	ROUNDED WHEEL		
15	GEAR AXLE SPACER		
16	GEAR AXLE SPACER		
17	CONNECTION FOR SPRING		
18	CRANKCASE CONNECTION BLOCK		
19	CRANKCASE CONNECTION BLOCK		
20	CAM LEVER SPRING		
21	BEARING SKF 6003-2RS1		
22	BEARING SKF 607-2RS1		
23	SEEGER 119 UNI 7437 INOX		
24	SEEGER 7 UNI 7435 INOX		
25	SEEGER 8 UNI 7435 INOX		
27	CONICAL PIN O4X30 UNI 7283 INOX		
28	DRAFT WASHER		
29	TAB A 5X5X50 UNI 6604		



SMUSSARE GLI SPIGOLI 0.5x45°

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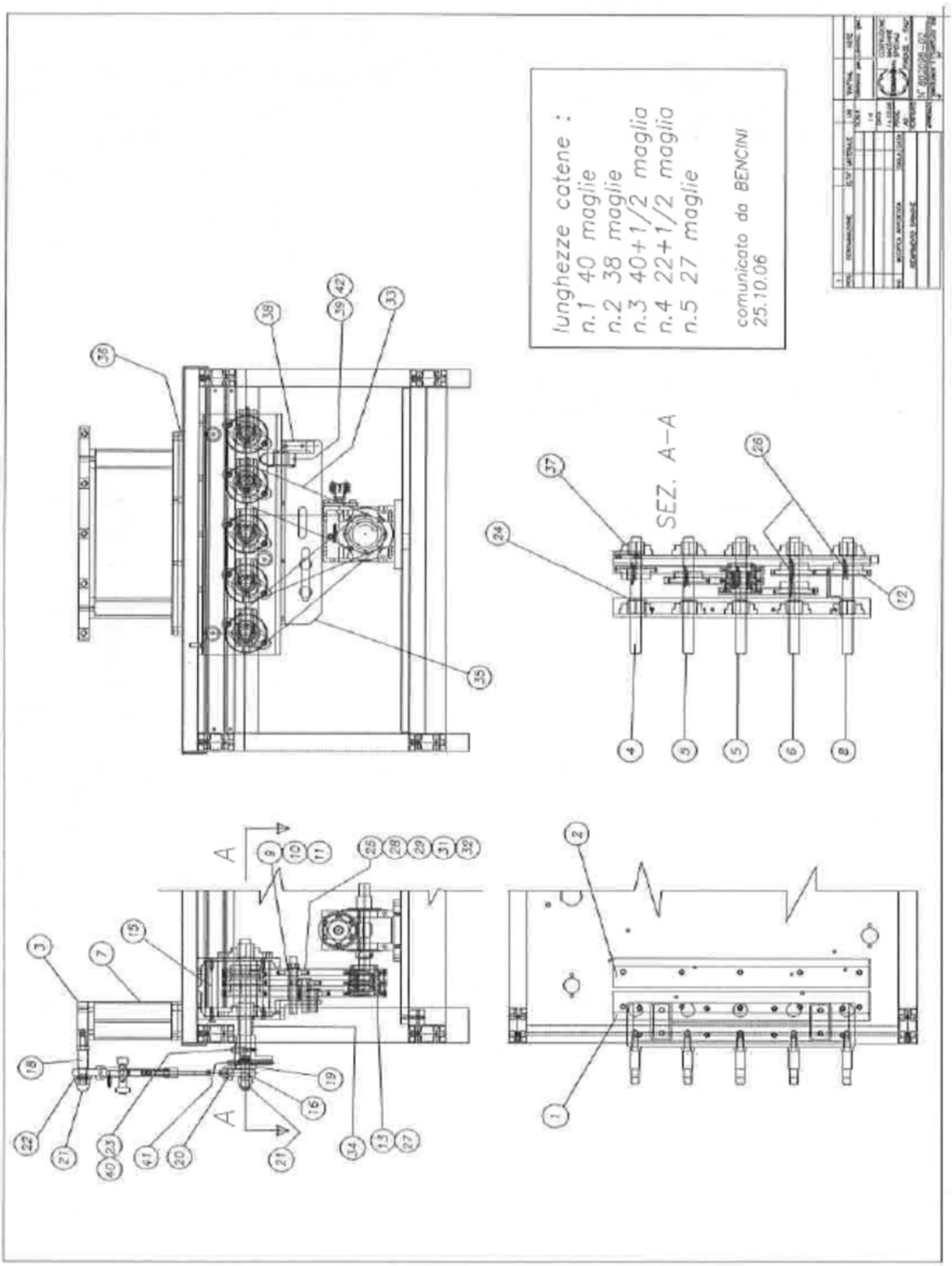
	VALVOLA 10cc			VERIFICATO	N° 27903-01	
				APPROVATO	Sostituisce il N°	Sostituito dal N°

CARD Nº	DRAWING Nº	REFERENCE
710	802079-01	PREHEATING GROUP

Part No.	DESCRIPTION	Qty mounted	Qty suggested PARTS
1	CYLINDER ATTACHMENT		
2	POLYETHYLENE SPACER		
3	SUPPORT		
4	UPPER RING		
5	LOWER RING NUT		
6	STRIKE RING.		
7	SPACER FOR BEAT		
8	SHOPPING CART		
9	PLATE		
10	COLLECTOR		
11	ATTACK		
12	BRACKET		
13	ISO 6431 CYLINDER THROUGH ROD SMC CP95SDB32-25W		
14	GUIDE HIWIN LGH 20 HA-1R160-Z1C1		
15	FILTER-Opticap-KTGR04TC3 (PACK OF 3 PCS.)		
16	TECNINOX 13HHM 1 "- ½" TRI-CLAMP LOCK		
17	“SWAGELOK” MICROMETRIC TAP SS-4MG-VCR-MH		
18	FILTER ADAPTER		
19	JOINT 1 / 4VCR-1/4 "G		
20	SMC D-Y59BL MAGNETIC SENSOR		
21	GASKET TRI-CLAMP TECNINOX 40 MP-X 1 "-1/2"		
22	STAINLESS STEEL THREADED CAP 316 LEGRIS ¼ ”0285 14 00		
23	STRAIGHT TERMINAL LEGRIS INOX BSP8-1 / 4 "(38050813)		
24	ELBOW MALE LEGRIS INOX 8-1 / 8 "(38890810)		


lunghezze catene :
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n.3 40+1/2 maglia
n.4 22+1/2 maglia
n.5 27 maglie
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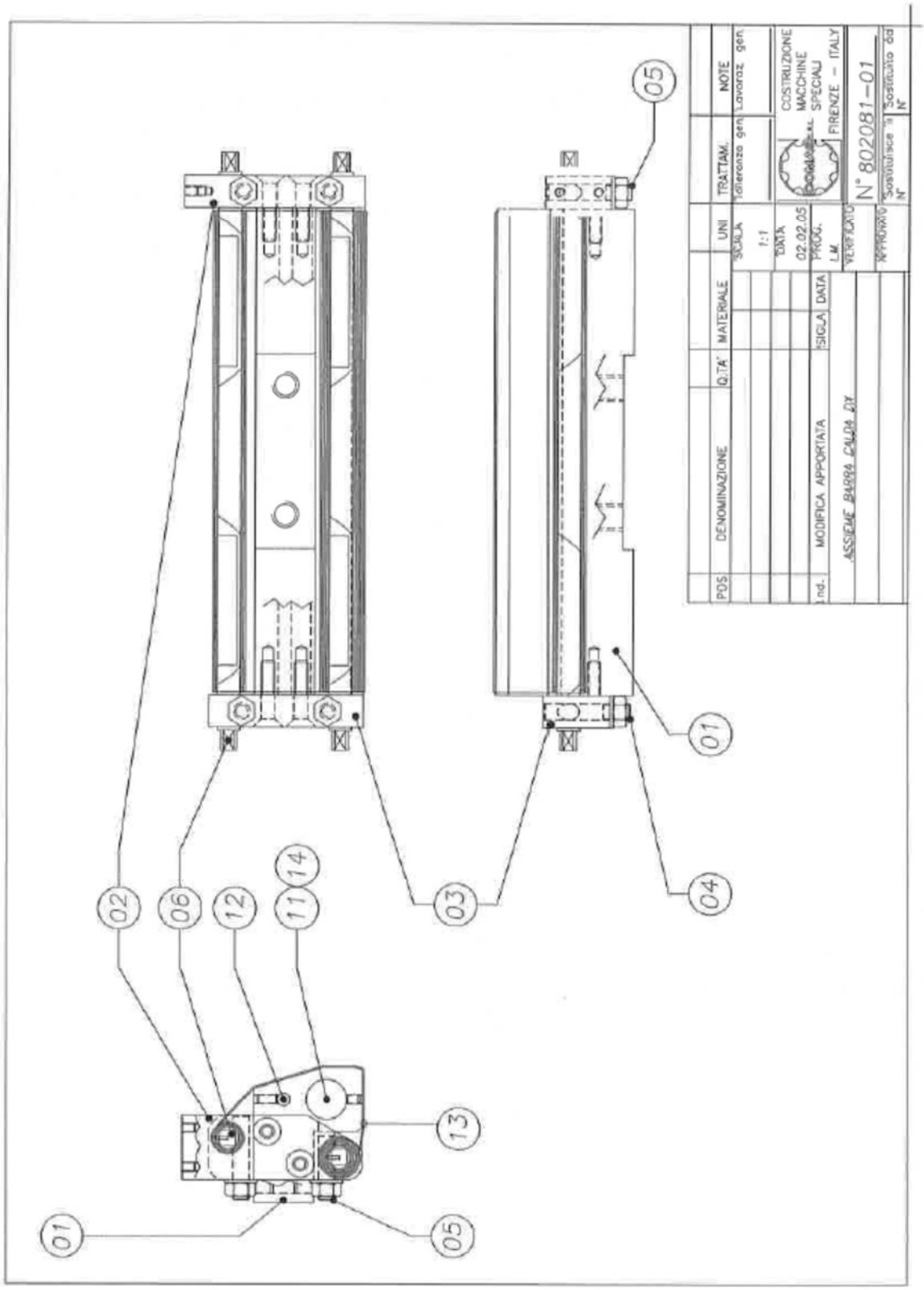
SEZ. A-A

CARD Nº	DRAWING Nº	REFERENCE
714	27903-01	VALVE WITH STANDARD BALL

Part No.	DESCRIPTION	Qty mounted	Qty suggested PARTS
1	LOWER ATTACK	1	
2	ATTACK SUPPORT	1	
3	INTERMEDIATE ATTACK	1	
4	TOP ATTACK	1	
5	COUNTERWEIGHTS 50ML.	2	
6	VALVE GASKET	3	
7	BALL D. 11,1 7/16 "STAINLESS STEEL AISI 316 G 28	2	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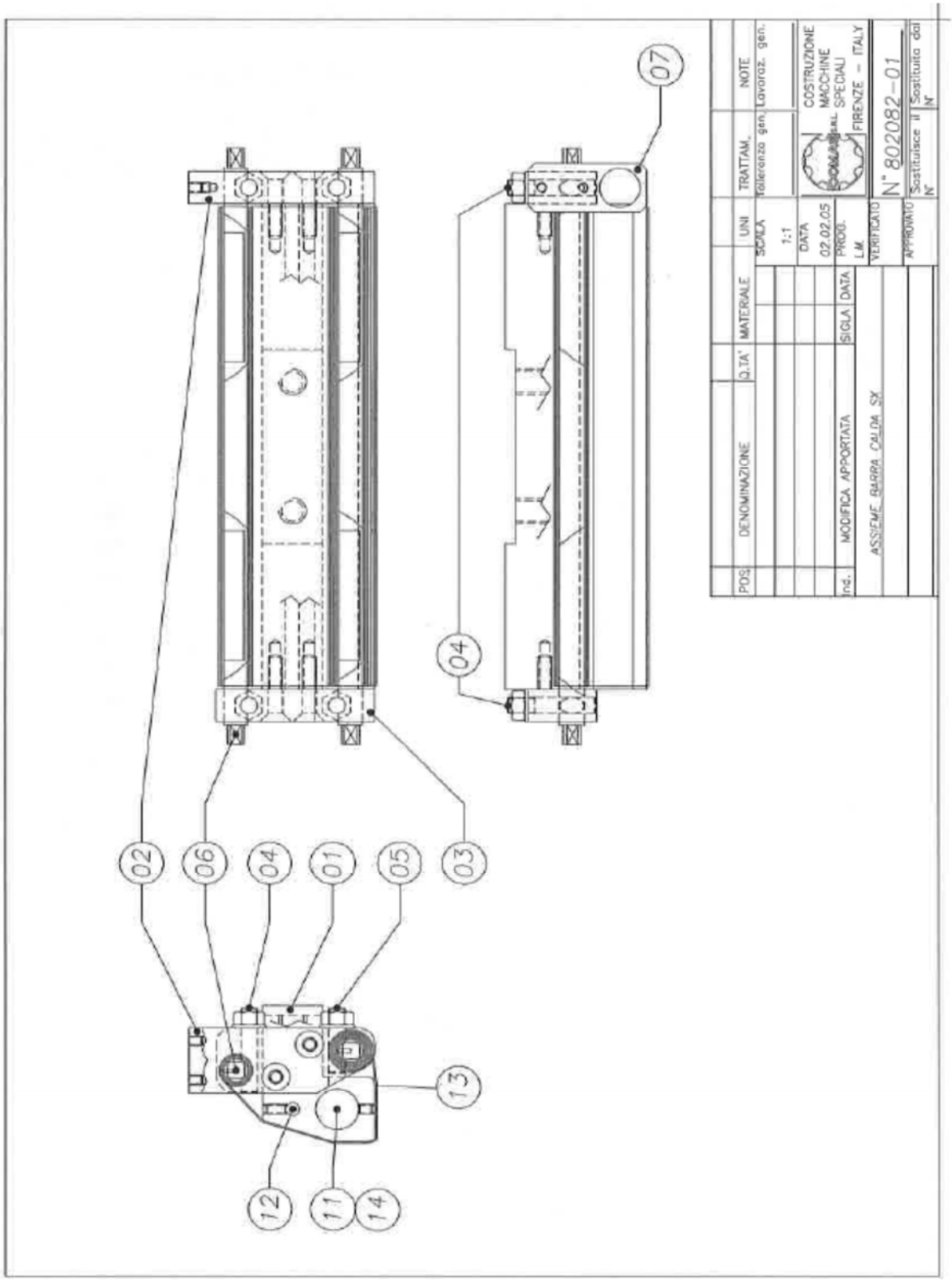
FIRENZE - ITALY
N° 802081-01
Sostituisce la N°
Sostituito da N°

CARD Nº	DRAWING Nº	REFERENCE
806	802098-02	FILLING 5 SYRINGES

Part No.	DESCRIPTION	Qty mounted	Qty suggested PARTS
1	RIGHT SIDE		
2	LEFT SIDE		
3	PLATE		
4	AXIS RIGHT ETC.		
5	CENTRAL AXIS ETC		
6	LEFT AXIS EXC		
7	SUPPORT		
8	LEFT AXIS EXC		
9	CHAIN SPACER		
10	CHAIN SPACER		
11	CHAIN SPACER		
12	SINGLE PINION Z24		
13	TRIPLE PINION Z24		
15	SIDE SPACER		
16	SCREW SEAL 2SIR.		
18	UPPER PIN SYRINGE		
19	WASHER FOR ECCENTRIC		
20	THREADED RING		
21	STAINLESS STEEL BLIND NUT M20X1.5		
22	UNIBAL THICKNESS		
23	CLAMP		
24	SEEGER 25 UNI 7437 INOX		
25	SPROCKET TENSIONER Z18 ½ 5/16		
26	TAB A 8X7X30 UNI 6604		
27	TOLLOK TLK 130 25X50 CLAMP		
28	SCREW M16X120 UNI 5739 INOX		
29	SCREW TE M16X90 UNI 5739 INOX		
31	WASHER D. 17XD.30 UNI 6592		
32	SCREW TE M16X60 UNI 5739 INOX		
33	RENOLD CHAIN ½ "5/16" SIMPLE 290 PITCHES L = 3683		
34	ECCENTRIC SPACER		
35	MINION SUPPORT		
36	POLYETHYLENE SPACER		
37	SUPPORT KOYO-NBR UCFL 205		
38	BRACKET FOR CHAIN TENSIONER		
39	TENSIONER		
40	ECCENTRIC WITH ADJUSTMENT		
41	LIFE FOR THE ECCENTRIC		
42	SPACER CHAIN TENSIONER		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FIRENZE - ITALY
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Sostituisce il N°
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MODIFICA APPORTATA
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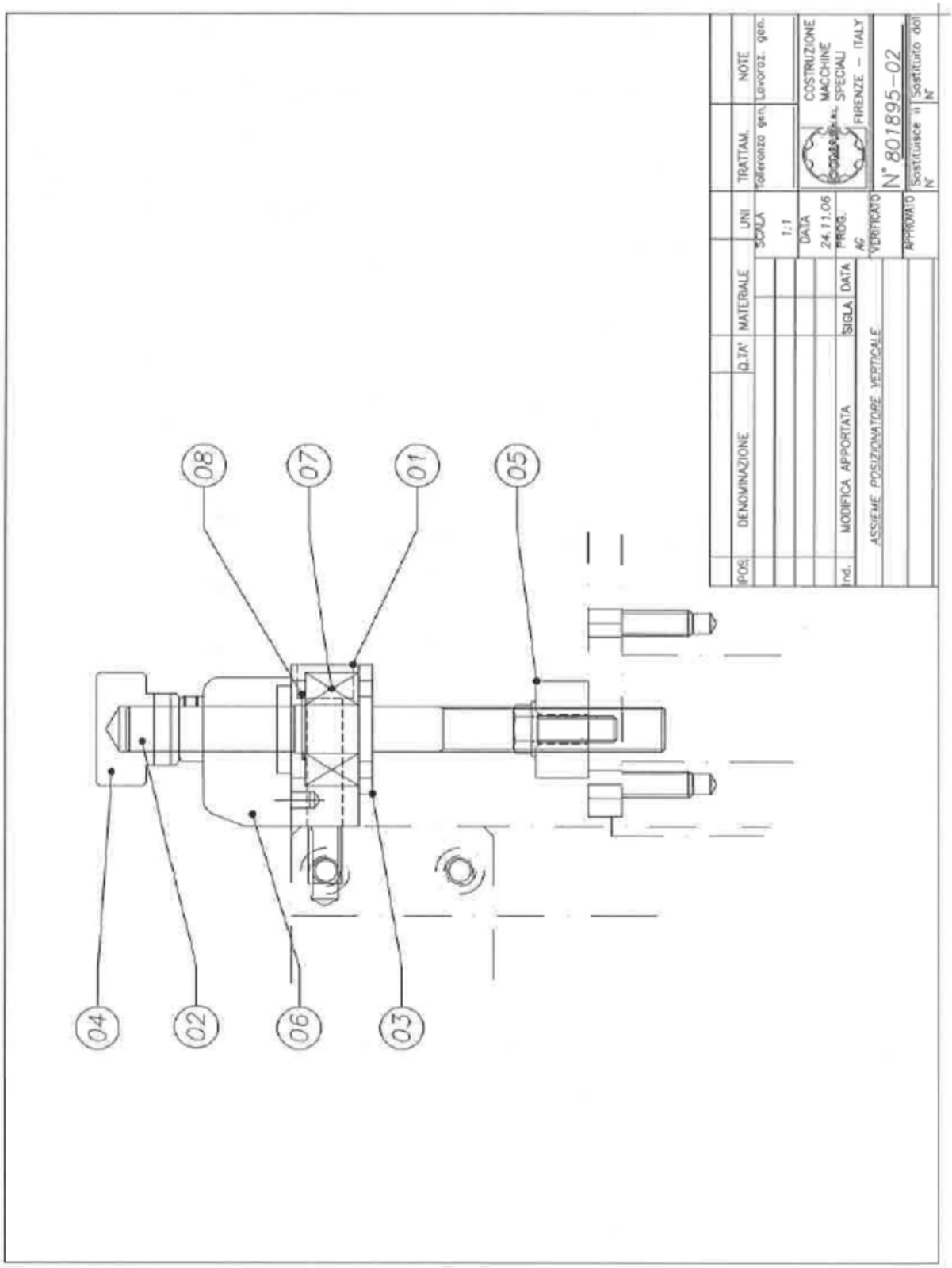
DATA
ASSIEME BARRA CALDA SX

CARD Nº	**DRAWING Nº**	**REFERENCE**
815	**802081-01**	**HOT BAR RH**

Part No.	DESCRIPTION	Qty mounted	Qty suggested PARTS
1	HOT BAR BODY	1	
2	RIGHT SIDE	1	
3	SHORT LEFT SIDE	1	
4	LOCKING PIN	2	
5	SHORT LOCKING PIN	2	
6	TENSIONER ROLL	2	
11	FIREROD "WATLOW" CARTRIDGE RESISTANCE O10X200MM 590W 230V	1	
12	PROBE O4.5 GEFRAN	1	
13	LUBRIGLASS TAPE THICKNESS MM 0.13 COD. LMT 0061 MT 1X1 (NOT ADHESIVE)	1	
14	PASTE FOR RESISTANCE COD. OKS 1103 PACK. FROM ½ KG.	1	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FIRENZE - ITALY
N° 801895-02
Sostituisce il N°
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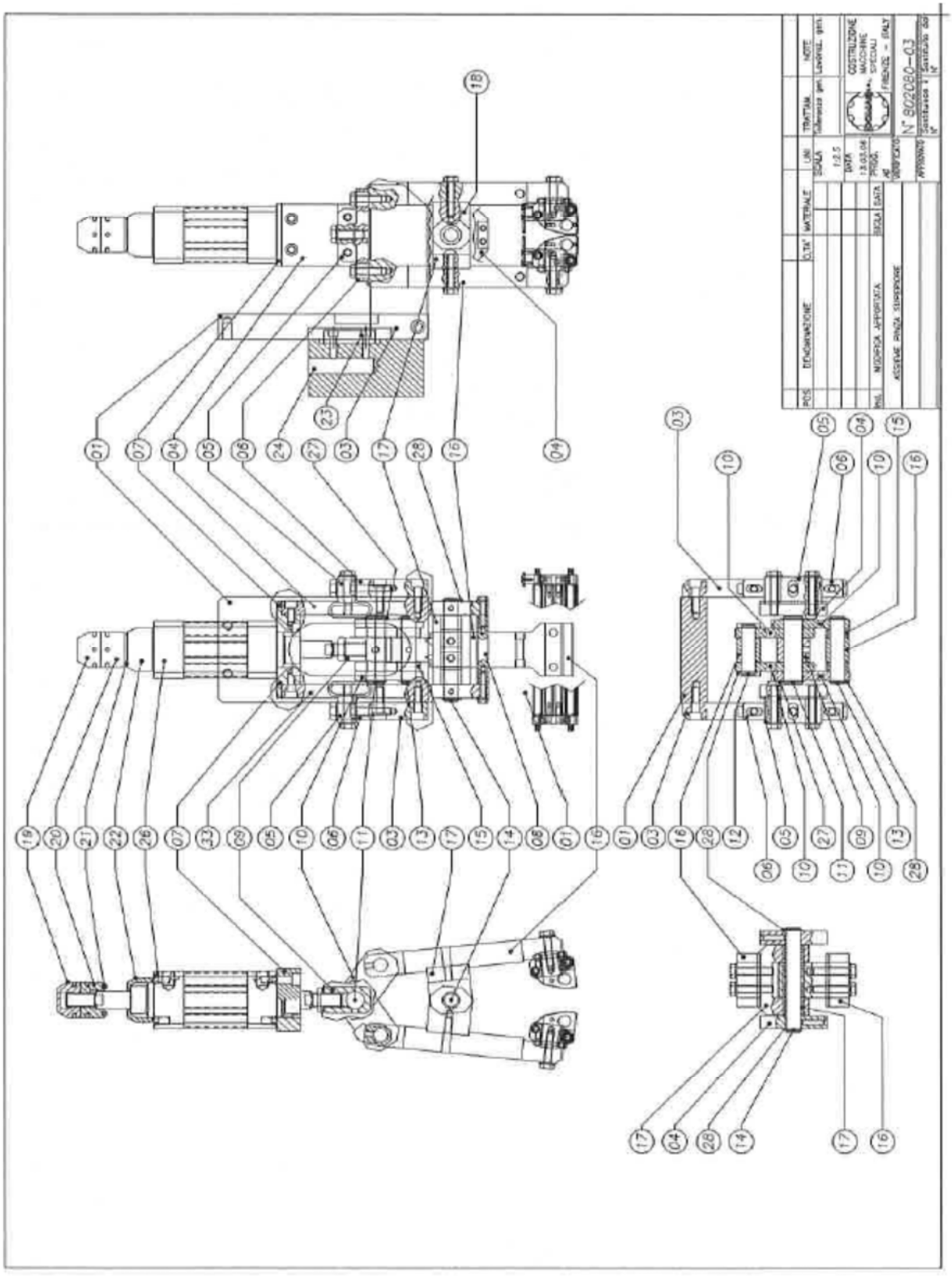
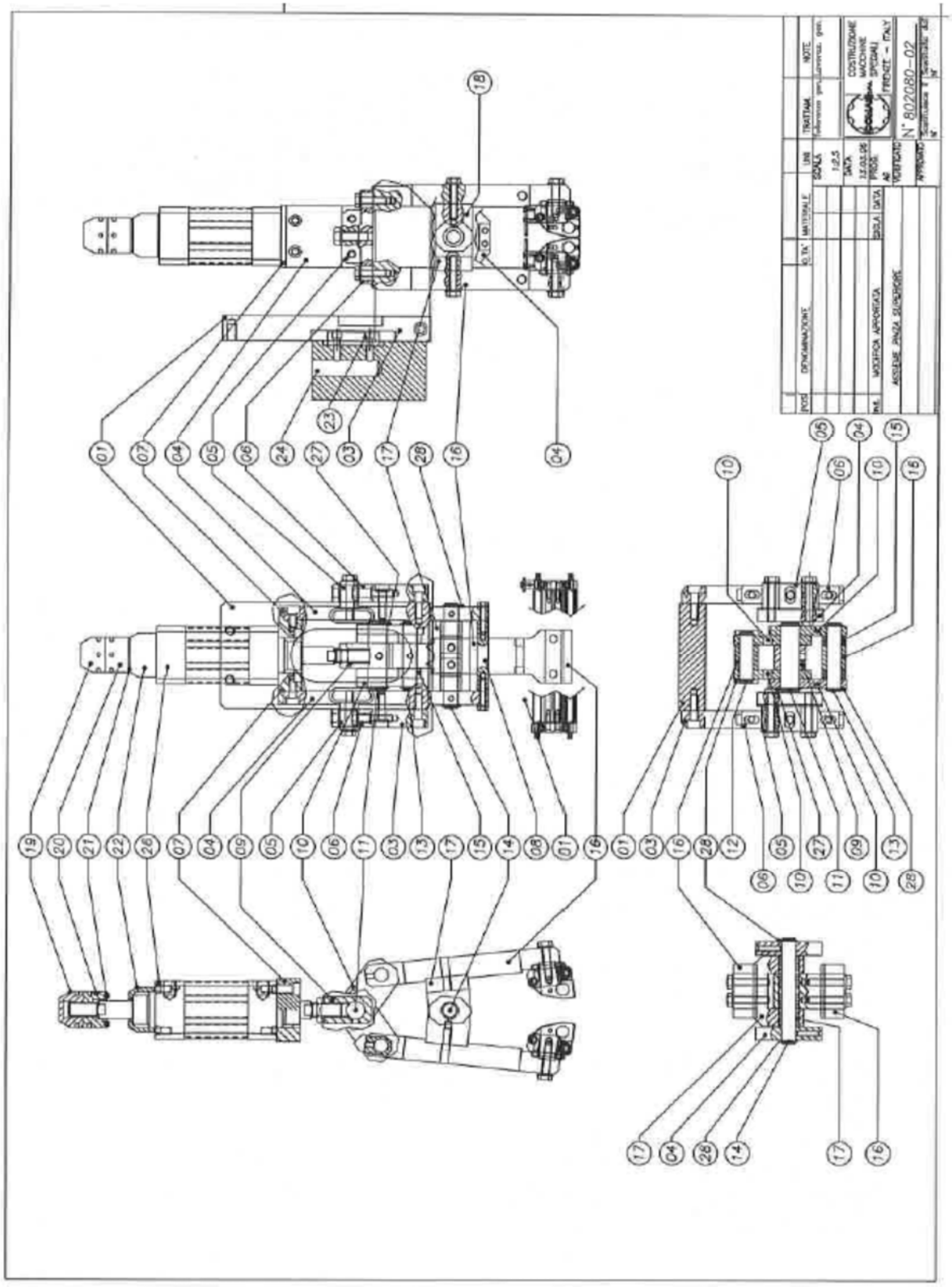
CARD Nº	DRAWING Nº	REFERENCE
816	802082-01	HOT BAR LEFT

Part No.	DESCRIPTION	Qty mounted	Qty suggested PARTS
1	HOT BAR BODY	1	
2	LEFT SIDE	1	
3	SHORT RIGHT SIDE	1	
4	LOCKING PIN	2	
5	SHORT LOCKING PIN	2	
6	TENSIONER ROLL	2	
7	CABLE PLATE	1	
11	FIREROD "WATLOW" CARTRIDGE RESISTANCE O10X200MM 590W 230V	1	
12	PROBE O4.5 GEFRAN	1	
13	LUBRIGLASS TAPE THICKNESS MM 0.13 COD. LMT 0061 MT 1X1 (NOT ADHESIVE)	1	
14	PASTE FOR RESISTANCE COD. OKS 1103 PACK. FROM ½ KG.	1	



CARD Nº	DRAWING Nº	REFERENCE
818	**801895-02**	**VERTICAL GR POSITIONER**

Part No.	DESCRIPTION	Qty mounted	Qty suggested PARTS
1	SUPPORT	1	
2	TREE	1	
3	PLATE FOR BEARING	1	
4	STAINLESS STEEL KNOB	1	
5	REGISTER PLATE	1	
6	INDICAT. OF POS. FLAME OP3 IB PITCH 0.75 INDICAT. AFTER A LAP 000 7 (5) DXF14 GR INOX (GRAY)	1	
7	SKF 3202ª-2RS1 OBLIQUE BEARING	1	
8	SEEGER 15 UNI 7435 INOX	1	



CARD Nº	DRAWING Nº	REFERENCE VERTICAL GR POSITIONER (HOT GRIPPER)
819	802080-03	

Part No.	DESCRIPTION	Qty mounted	Qty suggested PARTS
1	SUPPORT PLATE	1	
2	RIGHT BRACKET	1	
3	LEFT BRACKET	1	
4	SIDE	1	
5	STRAPPING	2	
6	ORTHOGONAL GUIDE	2	
7	CYLINDER BRACKET	1	
8	SIDE SPACER	1	
9	CYLINDER ATTACHMENT	1	
10	COOKIE	4	
11	UPPER PIN	1	
12	UPPER PIN	1	
13	SHORT PIN	1	
14	LONG PIN	1	
15	PIN FOR ARMS	2	
16	DISTANCE	2	
17	CALIPER ARM	1	
18	MALE HINGE	1	
19	UPPER RING	1	
20	LOWER RING NUT	1	
21	STRIKE RING	1	
22	SPACER FOR BEAT	1	
25	KEY	1	
26	ATTACK BLOCK	1	
28	FIXED DRILL BUSH A 15X16 COD. 179 / C - 15	4	
29	CYLINDER ISO 6431 THROUGH ROD SMC CP95SDB50-50W-Y56 (A DISPLAY PERFILETT.SUP.M16X0,75)	1	
31	SEEGER 20 UNI 7435 INOX	2	
32	SEEGER 15 UNI 7435 INOX	6	
33	RIGHT SIDE	1	

12. SIZE CHANGE

The single-dose machine described in this manual is equipped to process various types of strips.

For the processing of the aforementioned formats, COMAS supplies a kit of accessories and tools, necessary for the adjustment of the various groups. Each accessory or tool is suitably marked in order to make clear the correspondence between the format to be processed and the tool, which must be mounted on the machine, or used for its adjustments.

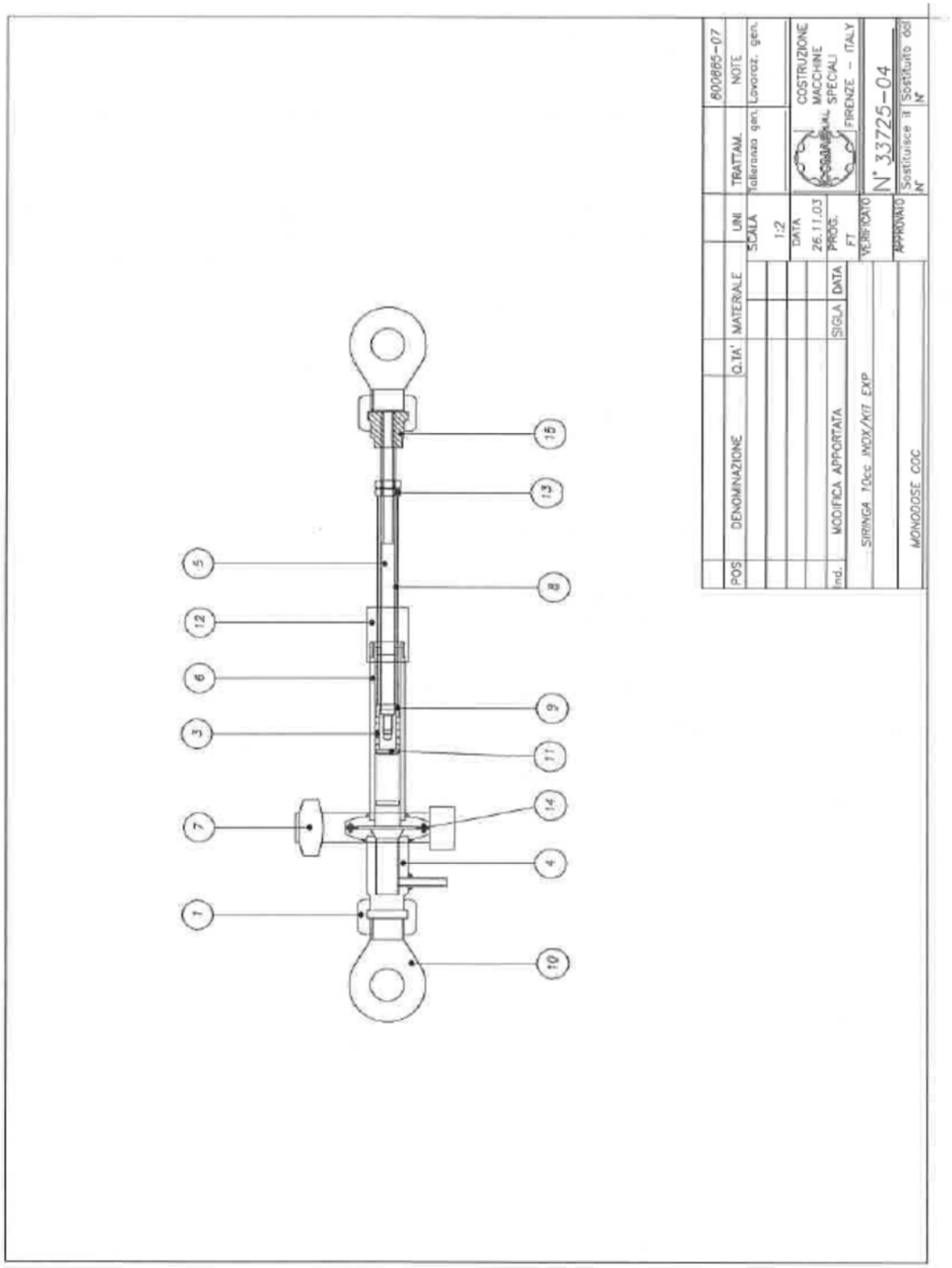
For the processing of any other formats, additional format change kits can be requested from COMAS.

12.1. FORMAT CHANGE PROCEDURES

Whenever the format being processed is changed, all the operations described in this paragraph must be performed, based on the format that is introduced.

All operations are easy to perform and therefore do not require specific training.

- Replacement of inserts.
- Replacement of syringes.
- Syringe dosage adjustment.
- Needle support replacement.
- Needle height adjustment.
- Strip presence sensor height adjustment.
- Preheating group height adjustment.
- Replacement of the blower tool of the preheating group
- Adjustment of the welding group height.
- Forming unit height adjustment.
- Replacement of the forming unit pliers.
- Adjusting the opening of the inserts support pliers.
- Adjustment of the welding group clamp opening.
- Molding unit clamp opening adjustment.
- Pick and place adjustment.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FIRENZE - ITALY
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13. SPARE PARTS - MECHANICAL DRAWINGS - EXPLODED VIEWS -

This chapter shows the identification tables of the parts that make up the single-dose machine.

In addition to the data necessary for any spare parts ordering, the tables also indicate the quantities suggested for the stock.

CARD N °	REFERENCE
658	SYRINGE 10 CC
709	STRIP BLOCK CLAMP GROUP
710	PREHEATING GROUP
714	VALVE WITH STANDARD BALL
806	FILLING FOR 5 SYRINGES
815	RIGHT HOT BAR
816	LEFT HOT BAR
818	VERTICAL POSITIONING GROUP
819	UPPER GRIPPER ASSEMBLY (HOT GRIPPER)
820	UPPER GRIPPER GROUP (FORMING GRIPPER)
821	PUCK 10 ML
822	DOUBLE RESISTANCE PREHEAT
823	PRESSING CLAMP GROUP
1233	MONO BRUSHLESS MOTORIZATION UNIT
1234	ELECTRIC NEEDLE LIFTING GROUP

5. ADJUSTMENTS

These operations are not normally required at the start of each production run. Some adjustments are only necessary when making a format change. In this case, they are indicated in chapter 12.

5.1. MACHINE ROTATION SPEED

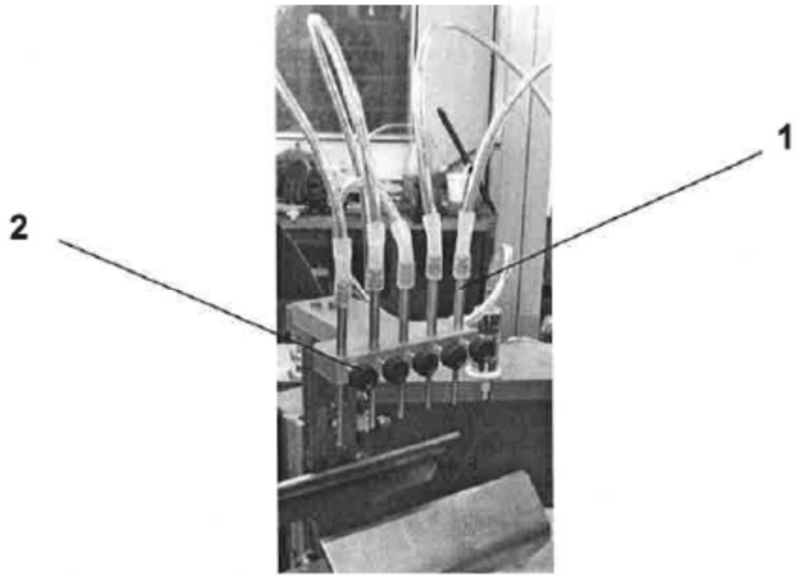
The adjustment of the rotation speed of the machine is carried out by means of the special potentiometer placed on the control panel.

5.2. DETECTION SENSOR HEIGHT ADJUSTMENT

The height adjustment of the control strip optical fiber support can be performed by loosening the corresponding knob and adjusting the height along the support rod according to the height of the strips in use. At the end of the adjustment, tighten the knobs.

5.3. NEEDLE HEIGHT ADJUSTMENT

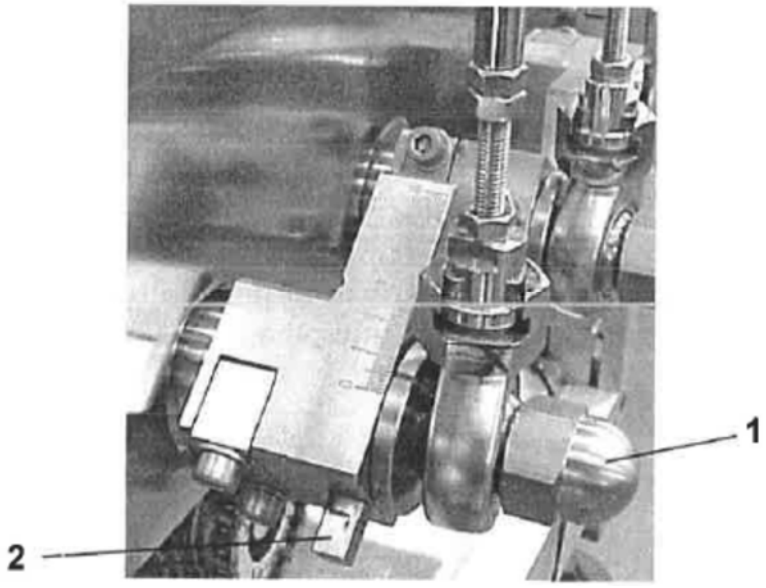
To adjust the height of the needles (1), loosen the fixing knobs (2), then position the height of the needles according to the format of strips in use. Finally tighten the knobs (2).



5.4. DOSAGE ADJUSTMENT

The dosage adjustment of the syringes can be done by acting as follows.

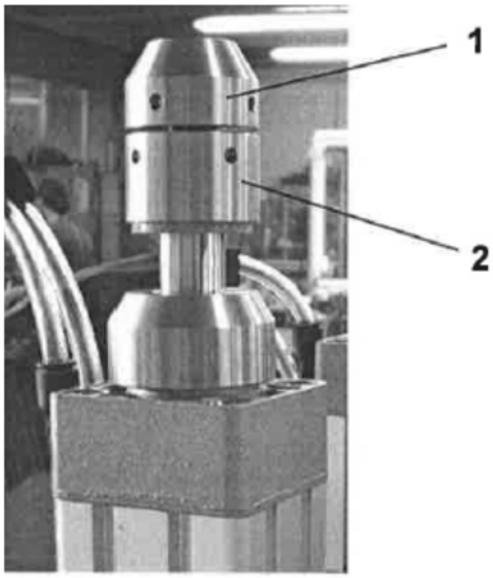
- Loosen the nut (1).
- Turn the screw (2) clockwise or counterclockwise to reduce or increase the stroke of the syringes.
- Tighten the nut (1) again.



5.5. CALIPER OPENING ADJUSTMENT

The opening of the pliers, for the groups that are equipped with them, can be adjusted by acting on the adjustment screws placed in the upper part.

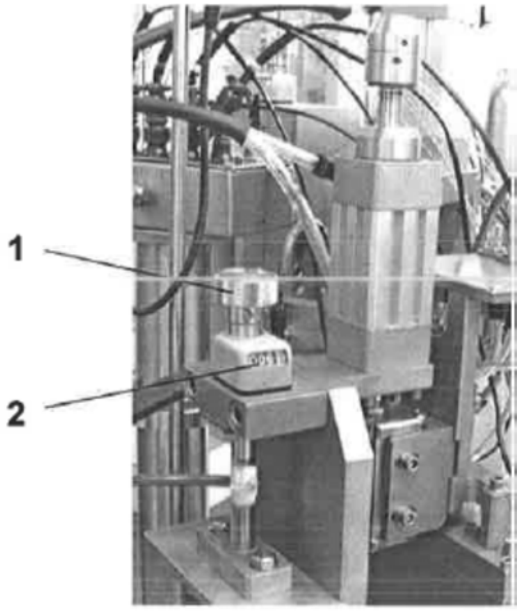
Using two special wrenches, loosen the upper screw (1) and turn the lower screw (2), screwing it in to loosen the calipers or unscrewing it to tighten the calipers. Finally tighten the upper screw (1).



5.6. GROUPS HEIGHT ADJUSTMENT

To adjust the height of the various groups of the machine it is necessary to loosen the fixing screws, then adjust the height by turning the knob (1) until the value for the size in use is read on the numerical indicator (2). Finally tighten the fixing screws.

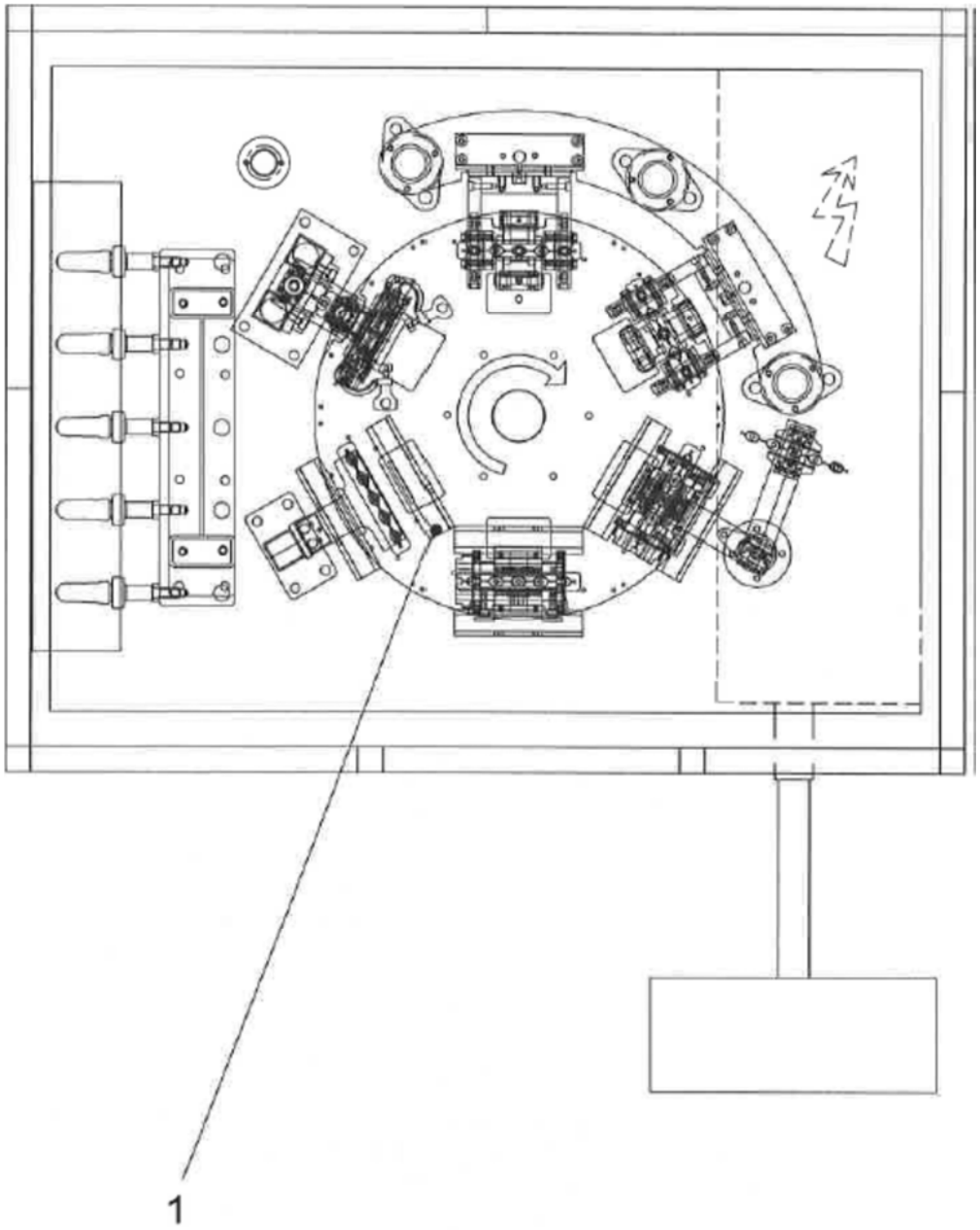
Repeat the same operations for all groups for which height adjustment is required.



6. CHECKS

All the most important operational functions of the single-dose machine are continuously controlled through a strip presence control sensor and a series of thermostats.

If a component (eg: strip) is missing during the work cycle, the machine stops.



1 Strip presence control sensor

7. SAFETY-RELATED PROVISIONS

7. 1. INTRODUCTORY INFORMATION

The machine has been conceived, designed and built taking into consideration the prescriptions contained in the European Directives and the harmonized standards applicable to them.

Compliance with the prescriptions contained therein was carried out taking care of the working methods, reserved for the operator and the user, regarding situations that may induce them to contravene the provisions indicated.

It is recommended not to underestimate the operating procedures inherent to the activities not directly connected to the work cycle (installation, adjustment, maintenance, etc.) since although they are simple to perform, they require the attention of those who perform them.

The safety of the machine has been achieved through the use, with appropriate sequences, of the control devices and through the use of interlocked protection devices that disable the operation of the machine when these have been removed from their usual position.

PERICOLO

Any alteration of the machine configuration can lead to the onset of dangerous situations that are not easily foreseeable, therefore the execution of these interventions is entrusted exclusively to COMAS technicians. contravening this provision implies the immediate assumption of the responsibilities inherent to the induced risks and as a consequence of this, there is the forfeiture of those attributable to COMAS.

The adaptability of the machines to functions other than those for which they were made is the exclusive competence of COMAS which reserves the right to modify them only after verifying the absence of any dangerous situations caused by them.

The above applies to both mechanical and electrical or pneumatic alterations. Particular care must be taken by those involved in the execution of the activities regarding the number and the Qualification since disregarding these indications could lead to unpredictable and / or unforeseen dangerous situations.

7.2. PROTECTION DEVICES

The safety devices the machine is equipped with are both fixed and interlocked. In particular, the latter are mounted exclusively on the monoblock for filling and closing the bottles and are made of glass or Lexan. These guarantee complete visibility of the processing cycle. In the strip loading area, photosensitive barriers have been used to facilitate the loading of the strips while maintaining the safety conditions required by current regulations.

The choice to mount the interlocked devices was determined by the need to open them to perform adjustments, operation or maintenance checks. The interlocks are made with devices certified in accordance with the IEC 947 standard.

The presence of fixed protection devices is due to the need to prevent operators from accessing the dangerous areas and they have been made in:

- Glass or Lexan as regards the upper part of the monobloc;
- sheet metal as regards the underlying part of the monobloc.

The opening of the fixed devices can be done with usual tools or with the special tool supplied together with the machine.

PERICOLO

It is absolutely forbidden to prevent or disrupt the operation of the interlocking devices with the use of tools, tools and accessories as the risk of crushing or dragging with moving elements would become very high. It is explicitly specified that in this case COMAS will not be liable for damage caused by employees, third parties or the machine since no such event is foreseen for any activity.

PERICOLO

The door interlock devices can be excluded by means of a selector located on the main panel which can only be operated with the key inserted. The key must be kept exclusively by the Safety Manager with Qualification 03 (see page 1-3).

7.3. COMMAND AND CONTROL DEVICES WITH SECURITY FUNCTIONS

The starting and stopping devices are arranged on the main control panel and comply with the regulations.

The correct operation of the machine can be verified by switching on the indicator lights on the control panel according to the indications provided in chap. 8.

ATTENZIONE

The use of the control devices in deviation from what is reported in chap. 8 or their replacement with non-original components or components that do not comply with the regulatory requirements will release COMAS from any liability regarding their operation.

The machine stop functions are of two types:

1. Stopping devices located both on the main control panel and on the push-button panel on the machine (if present), which cause a stop in phase of the machine, maintaining the power supply to the actuators of the same (category 2-EN 60204-1).

2. Emergency stop devices located both on the main control panel and on the push-button panel (if present), which cause an immediate suspension of the power supply to the machine actuators and comply with the requirements contained in the harmonized standard EN 418.

The choice of the stop mode must follow the criteria given in chap. 9.

7.4. EFFICIENCY OF THE DEVICES

The checks that the operator must perform before, during and after the operation of the machine are:

- The absence of any impediments to the maintenance of the machine parts.
- Fixed protective devices are closed.
- Adjustments are made in accordance with the provisions.
- The congruence of the mounted tools with the type of bottles.
- Presence of the product to be dosed.

If a detection sensor OR interlock device malfunctions or is in a fault condition, the machine cannot be reactivated until the cause of the fault has been removed.

The fixed protective devices must be removed from their usual positions only if! When adjustment or maintenance interventions are foreseen and only after disconnecting the machine from any energy source (electric and pneumatic).

The door interlock devices can be excluded by means of a selector located on the main panel which can only be operated with the key inserted. The key must be kept exclusively by the Safety Manager with Qualification 03 (see page 1-3).

The responsibility for improper or unforeseeable uses will be borne solely by the employees who carried out the operations, thereby excluding the COMAS Company.

7.5. PROVISIONS RELATING TO HIGH TEMPERATURE AREAS

There are areas on the machine that are at a high temperature during machine operation.

For access inside the machine, in high temperature areas, the use of protective gloves is mandatory.

To access these areas it is however necessary:

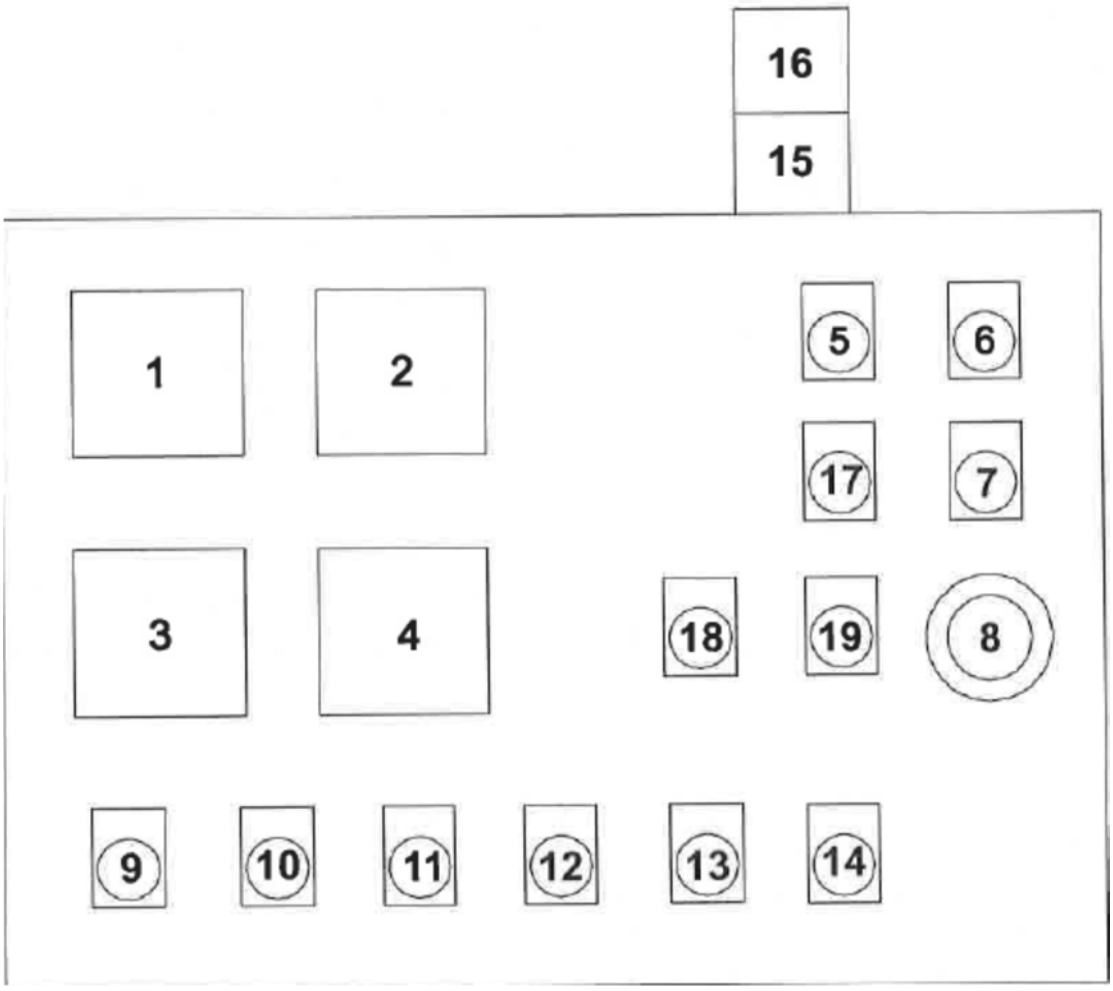
- stop the machine;
- disconnect the power supply;
- wait for the time necessary for the groups to cool down.

Due to the high temperature present on the welding units, it is necessary to wait at least 1 hour after turning off the machine, before accessing the inside.

8. CONTROL BUTTONS

8.1. COMMAND AND CONTROL PANEL

Made of stainless steel, it groups together all the buttons, switches and indicator lights necessary for the operation of the machine. It is schematically depicted in the following figure.



REF.	DESCRIPTION	FUNCTION
1 + 2	HOT AIR SYSTEM	Temperature thermostats of the preheating resistors
3 + 4	WELDING SYSTEM	Temperature thermostats of the welding resistances
5	CYCLE INSERTION RESET	Button with green light to reset alarms
6	FORWARD	Button for cycle activation
7	STOP	Machine stop button
8	EMERGENCY	Emergency stop button
9	HOT AIR SYSTEM	Preheating resistances activation / deactivation selector
10	WELDING SYSTEM	Welding resistors activation / deactivation selector
11	SENSOR EXCLUSION	Yellow light selector for cell exclusion
12	DOOR EXCLUSION	Key selector for the exclusion of the protection devices
13	LACK OF AIR	Yellow lamp indicating lack of compressed air supply
14	MACHINE SPEED	Production speed adjustment potentiometer
15	-	White lamp, it lights up when the monobloc is energized
16	-	Red lamp, indicates the presence of an active alarm
17	0 AXIS	Button to perform the zero axis
18	DOSAGE SPEED	Dosage speed adjustment potentiometer
19	VACUUM SPEED	Suction pump speed adjustment potentiometer

IMPORTANT NOTE

The selector key (12) must be kept exclusively by the Personnel Manager with Qualification 03 (see page 1 -2).

Note: The sensor exclusion does not deactivate the automatic machine stop circuit for opening the protection panels, which remains operational, prohibiting access to the inside of the machine, in cycle.

Attention: The 'EXCLUSION OF DOORS' key switch disconnects the automatic stop circuit when the doors are opened. The possibility of working with the access to the doors open makes the machine extremely dangerous.

8. 2. THERMOSTAT DESCRIPTION

The thermostats installed on the control panel allow the setting of the maximum and minimum temperatures of the group to which they refer and the real-time control of the working temperature.

The heating resistances present in the various groups, during the work cycle, must have a temperature between the maximum and minimum values set, otherwise the machine stops in alarm.

In addition to the temperature indication display, the following luminous indications are present on each thermostat:

DESCRIPTION	**FUNCTION**
AUT 1	Current temperature below the minimum set value
AUT 2	Resistance activated / deactivated
AUT 3	Current temperature higher than the maximum set value

The maximum and minimum temperature values can be set by pressing the "F" key several times and the two arrows on the lower edge of the thermostat.

CAUTION

It is advisable to avoid the modification of the temperature values set by COMAS during the setting up of the machine.

The adjustment of the working temperature can be carried out using the relative arrows.

9. OPERATING PROCEDURES

This chapter shows the methodologies for carrying out the normal operations that must be performed by the user.

The following sub-paragraphs show the provisions regarding the starting and stopping of the machine in the case of automatic or manual operation.

The selection of the working mode can be made by inserting the appropriate control device for manual operation, while it will take place automatically if this device is not connected with the appropriate plug.

The command devices that remain active in the two modes are described in detail below.

1. Automatic mode
In this mode, the machine enables operation of all the control devices present on the control panel and provides for the execution of the work cycle carried out continuously until the user intervenes again. In this mode the maximum productivity values are achieved.

2. Manual mode
This operation can be carried out by the user by inserting the accessory control device (jog). Since this is a monostable operating button, i.e. it acts as long as it is kept pressed, the functions are performed by the monobloc only by keeping the button pressed. The insertion of the plug into the socket provided on the control panel determines the operation of the monobloc regardless of the measurements made by the control sensor. This working mode allows the operator to perform activities regarding the installation, adjustment and maintenance of the monobloc.

9.1. PRE-CYCLE EXECUTION METHOD

The execution of the procedures described in this paragraph is necessary in the event:

- Start the car for the first time.
- Change the product to be dosed.
- Make a change of production

In these cases, the procedure to follow is as follows:

- Make sure the power sources are properly connected.
- Check that the disconnector on the machine is in position
- Check that the red and yellow lamps on the control panel are off and that the white voltage presence lamp is on.

NOTE

If the warning lights are in the opposite state from that envisaged, proceed to:

to) *Power the machine with electricity.*

b) *Close the interlocked protective devices.*

c) *Feed the machine with pneumatic energy.*

CAUTION

Lack of water supply can cause irreparable damage to the preheating, sealing and forming units due to failure of the units to cool.

- If they are not in position, insert the dosing needles into the rear needle case.
- Activate all utilities (preheating and welding).
- Wait for the various groups to warm up, so that the temperature of each is within the range envisaged by the work cycle.
- Use the "EXCLUSAO DE SENSORES" selector to exclude the operation of the control sensor.
- Press the "RESET INSERCAO DO CYCLE" button, checking that the relative light comes on.
- Press the "AVANCAR" button which determines the loading of the liquid to be dosed inside the syringes (visually check the filling of the ducts).

- As soon as the ducts are correctly filled, press the "PARADA" button.
- Manually insert the first strip into the insert in the operator station.
- Press the "AVANCAR" button to bring the strip into the. dosing station.
- Press the "PARADA" button.
- Open the protective devices, insert the needles into the needle holder and adjust their height appropriately so as to ensure, with the head in the low position, an insertion inside the strip of 10 mm.
- Close the guards.
- Use the "EXCLUSAO DE SENSORES" selector to reactivate the operation of the control sensor.
- Start the machine with the "AVANCAR" button and ensure the manual feeding of the strips, respecting the color of the traffic light lamp for access to the loading area, protected by the photosensitive barriers.
- Discard the first strip and then proceed with automatic processing; in this condition, the machine proceeds with processing until production is stopped.

NOTE

maintaining the sequence indicated above is necessary in order to carry out the procedure correctly.

9.2. START-UP AND STOP MODES IN AUTOMATIC OPERATION

9.2.1. POWER ON

The ignition procedure in normal operation is as follows:

- Make sure of the connection of the power sources.
- Place the disconnector in place
- Check that the red and yellow lamps on the control panel are off and that the white voltage presence lamp is on.

NOTE

If the warning lights are in the opposite state from that envisaged, proceed to:
a) Power the machine with electricity.
b) Close the interlocked protective devices.
c) Feed the machine with pneumatic energy.

- Activate all utilities (preheating and welding).
- Wait for the various groups to warm up, so that the temperature of each is within the range envisaged by the work cycle.
- Press the "RESET INSERT DO CYCLE" button. o Press the "AVANCAR" button.
- Carry out the manual loading of the strips, respecting the color of the traffic light placed in the loading area protected by the photosensitive barriers:

- With the red light the machine is moving and it is not possible to access inside the protections, in case of access the machine stops with an alarm;

- With the green light the machine is stopped and it is possible to carry out the manual loading of the strip in the first station.

9.2.2. STOP DUE TO ALARM

Stopping due to alarm is indicated by the lighting of the red light of the light tower and is caused by one of the following causes:

- Reading of the control sensor that detects a lack of strips.
- Welder temperature different from the range foreseen by the work cycle
- Preheating temperature different from the range foreseen by the work cycle

The yellow light on the control panel indicates the lack of pneumatic supply.

After stopping due to the action of the emergency button, or in the case of the above situations, if you wish to re-activate the operation in automatic mode, it is necessary to:

- Resolve the cause of the alarm.
- Press the "CYCLE INSERT RESET " button.
- Press the "FORWARD" button.

9.2.3. STOP DUE TO WORK END

During the normal execution of the work cycle with automatic operating mode, it is possible to stop the machine in order to end production according to the following procedure:

- Stop the machine by pressing "PARADA".
- Bring the disconnector into position
- Close the filter regulator valve.

9.2.4. EMERGENCY STOP

A red mushroom-shaped pushbutton for emergency stop is installed on the control panel. This device must be used:

- in case of immediate danger or mechanical accident;
- with the machine already at stop for short-term interventions, to ensure that the machine stops.

The pressed emergency causes the immediate block of the machine. This situation is also repeated in the case of opening the doors of the protections O access to the area protected by the photosensitive barriers when the traffic light is red.

To restart from an emergency stop condition, the red button must be disengaged by making it perform a quarter turn clockwise (as indicated by the arrow on the button).

CAUTION

When the emergency button is pressed, the machine remains under electrical voltage, therefore it is forbidden to carry out activities relating to adjustment and maintenance in this condition of the machine.

- Press the "CYCLE INSERT RESET" button.
- Press the "FORWARD" button.

9.3. MANUAL START-UP AND STOP

This operating procedure is to be followed in particular during the adjustment operations, since the presence detection sensor placed on the monobloc is disabled by inserting the "jog" plug. The procedure for making adjustments in manual mode is as follows:

- Insert the plug of the "jog" into the socket on the main control panel.
- Power the machine according to the procedures previously provided by bringing the disconnector into position
- Depending on the type of adjustment to be carried out, select the activation of the utilities by acting on the function keys.
- Press the "CYCLE INSERT RESET " button.
- Activate the "jog" which, if pressed, determines the movement of the monobloc for the entire time the button is pressed; if left, the movement stops immediately.

CAUTION

In manual mode it is possible to exclude the interlocked protection devices by means of the "EXCLUSAO DAS PORTAS" key selector; since this situation determines a reduced safety condition, the key must be kept by the machine safety manager.

Once the adjustment has been completed, remove the jog plug from the socket, allowing the machine to operate again in automatic mode.

10. TROUBLESHOOTING GUIDE

The machine, derived from an experience of over twenty years of construction, has now reached an almost total level of reliability and therefore the situations in which it can stop in its automatic operation generally derive from small problems external to its own production cycle and of gear.

11. MAINTENANCE

Given the particular care of the COMAS company in the choice of materials and the scrupulous design attention adopted for the construction of the machine, the same does not require particular maintenance rules for its continuous and safe operation.

It will be sufficient to follow the few and simple instructions summarized here to obtain from the machine a constant production result and absolute reliability over time.

11.1. MAIN STANDARD

The main rule that the user's maintenance service must keep in mind is the absolute care to keep the machine tidy and clean.

Cleaning must be taken care of and carried out, even partially, at each stop period.

According to free programs of the maintenance service, it will be possible to schedule cleaning periodically even during the production phase.

To be carried out, cleaning requires precise rules that respect both the materials to be cleaned and the products to be used, avoiding the use of products that can damage the components of the machine.

11.2. CLEANING METHOD

Cleaning must always be distinguished according to whether it is performed on metal and non-metal components and parts.

An indispensable rule is not to use metal components such as steel brushes, steel wool, spatulas or metal scrapers.

In conclusion, the best result and the greatest care are obtained in the following way:

1. ALWAYS use industrial vacuum cleaners with which to vacuum any traces of any foreign bodies both from the premises and from the machine before proceeding with its detailed cleaning.

2. ALWAYS USE clean tissue or paper for cleaning.

3. USE synthetic leathers to dry clean parts.

4. USE when necessary appropriate brushes to access the most difficult or hidden parts.

The basic diagram below will help to avoid misuse of unsuitable or improper detergents and cleaning tools.

CLEANING MATERIAL

METALLIC PARTS

NOT FERROUS

These are always alloy slight anodized, then use liquid detergents, in any case free from chloride and sodium salts, with low density, containing petrol or ethyl alcohol.

FERROUS

These are stainless steel parts, so use creamy polishing detergents as well as detergents. Do not use compounds in powder or composed of phosphoric derivatives.

NON-METALLIC PARTS

NYLON - PVC

POLIZENE

These are parts present a bit everywhere including the conveyor belts. Clean using only water and neutral soaps dissolved in low concentration. Rinse with water only and dry properly.

LEXAN

These are the hatches of protection of the machine and any accessories. Clean as above, absolutely avoiding chemical solvents, alcohol and petrol.

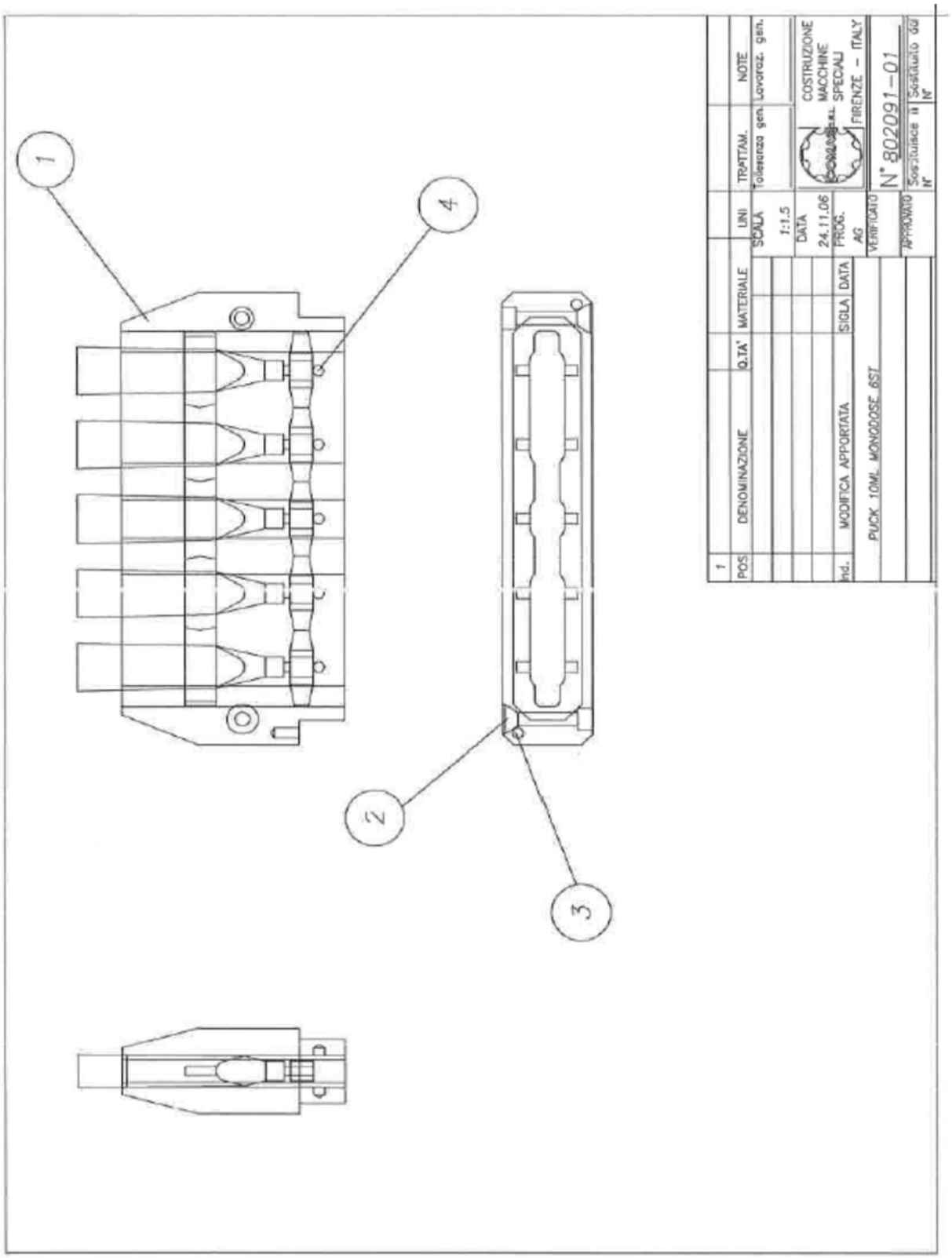
Remember that a good cleaning of the machine will last longer if the premises are kept clean and tidy.

The cleaning of the premises must always precede the cleaning of the machine.

A good cleaning of the premises and the machine are the best guarantees of good operation.

CARD NO	DRAWING NO	REFERENCE
820	**802080-02**	**UPPER GRIPPER GROUP (FORMING PLIER)**

Part No.	DESCRIPTION	Qty mounted	Qty suggested PARTS
1	SUPPORT PLATE	1	
2	RIGHT BRACKET	1	
3	LEFT BRACKET	1	
4	SIDE	1	
5	STRAPPING	2	
6	ORTHOGONAL GUIDE	2	
7	CYLINDER BRACKET	1	
8	SIDE SPACER	1	
9	CYLINDER ATTACHMENT	1	
10	COOKIE	4	
11	UPPER PIN	1	
12	SHORT PIN	1	
13	LONG PIN	1	
14	PIN FOR ARMS	1	
15	DISTANCE	2	
16	CALIPER ARM	2	
17	FEMALE HINGE	1	
18	MALE HINGE	1	
19	UPPER RING	1	
20	LOWER RING NUT	1	
21	STRIKE RING	1	
22	SPACER FOR BEAT	1	
23	KEY	1	
24	ATTACK BLOCK	1	
25	FIXED DRILL BUSH A 15X16 COD. 179 / C - 15	4	
26	CYLINDER ISO 6431 THROUGH ROD SMC CP95SDB50-50W-Y56 (A DISPLAY PERFILETT.SUP.M16X0,75)	1	
27	SEEGER 20 UNI 7435 INOX	2	
28	SEEGER 15 UNI 7435 INOX	6	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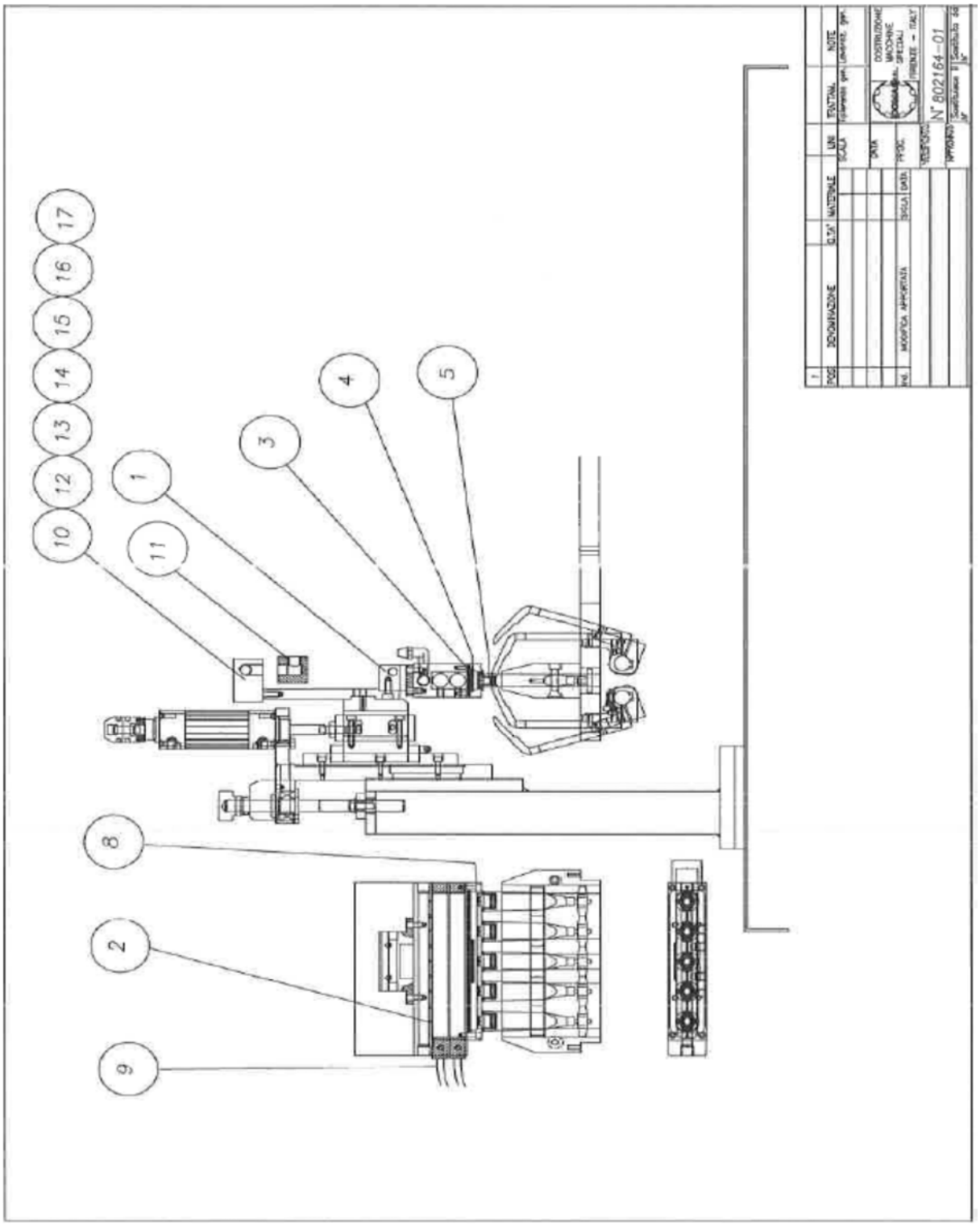
CARD Nº	DRAWING Nº	REFERENCE
821	**802091-01**	**PUCK 10 ML**

Part No.	DESCRIPTION	Qty mounted	Qty suggested PARTS
1	HALF BODY PUCK 10ML	2	
2	PUCK CLAMPING CONE	2	
3	STAINLESS STEEL CYLINDRICAL PIN ISO UNI 28734 O5X25 M6	2	
4	STAINLESS STEEL CYLINDRICAL PIN ISO UNI 28734 O5X20 M6	5	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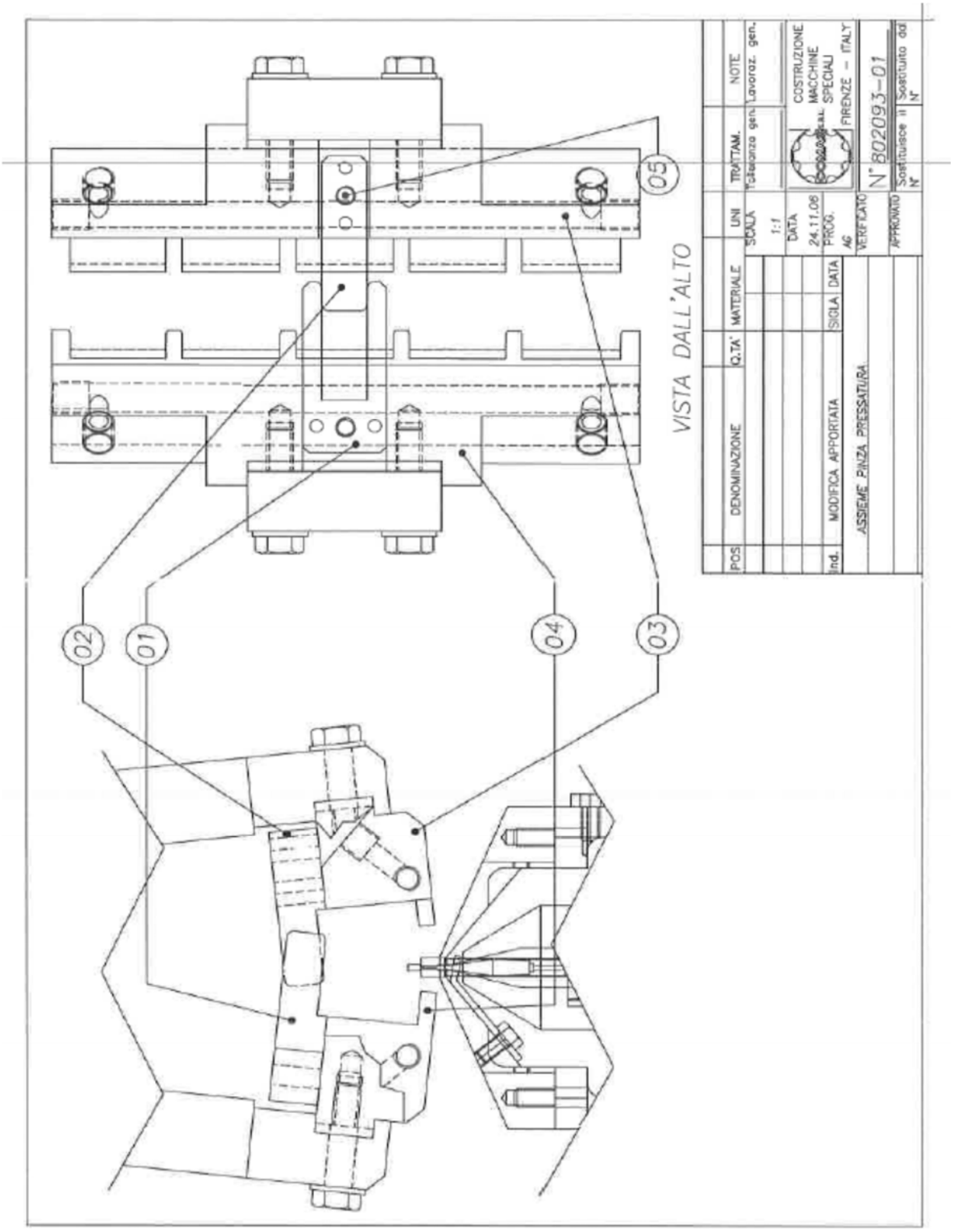
CARD NO	**DRAWING NO**	**REFERENCE**
		PREHEATING GROUP
822	**802164-01**	**DOUBLE RESISTANCE**

Part No.	DESCRIPTION	Qty mounted	Qty suggested PARTS
1	DOUBLE RESISTANCE ATTACHMENT	1	
2	HEATING BODY DOUBLE RESISTANCE O16 - 10ML MONOD.6 STAT	1	
3	SINTERED PLATE L = 165.8	1	
4	PLATE	1	
5	AIR DISTRIBUTOR	5	
8	DISTR. PLATE AIR 10ML MONOD.6 STAT	1	
9	RESISTANCE O16 MONOD. 6ST. 10ML.	2	
10	COLLECTOR	1	
11	DISTRIBUTOR	2	
12	TECNINOX 13HHM 1 "- ½" TRI-CLAMP LOCK	2	
13	“SWAGELOK” MICROMETRIC TAP SS-4MG-VCR-MH	1	
14	TRI-CLAMP GASKET TECNINOX 40 MP-X 1 "- ½"	2	
15	STAINLESS STEEL THREADED CAP 316 LEGRIS	2	
16	STRAIGHT TERMINAL LEGRIS INOX BSP8-1 / 4 "(38050813)	2	
17	MALE ELBOW BEND LEGRIS INOX 8 "- 1/8" (38890810)	2	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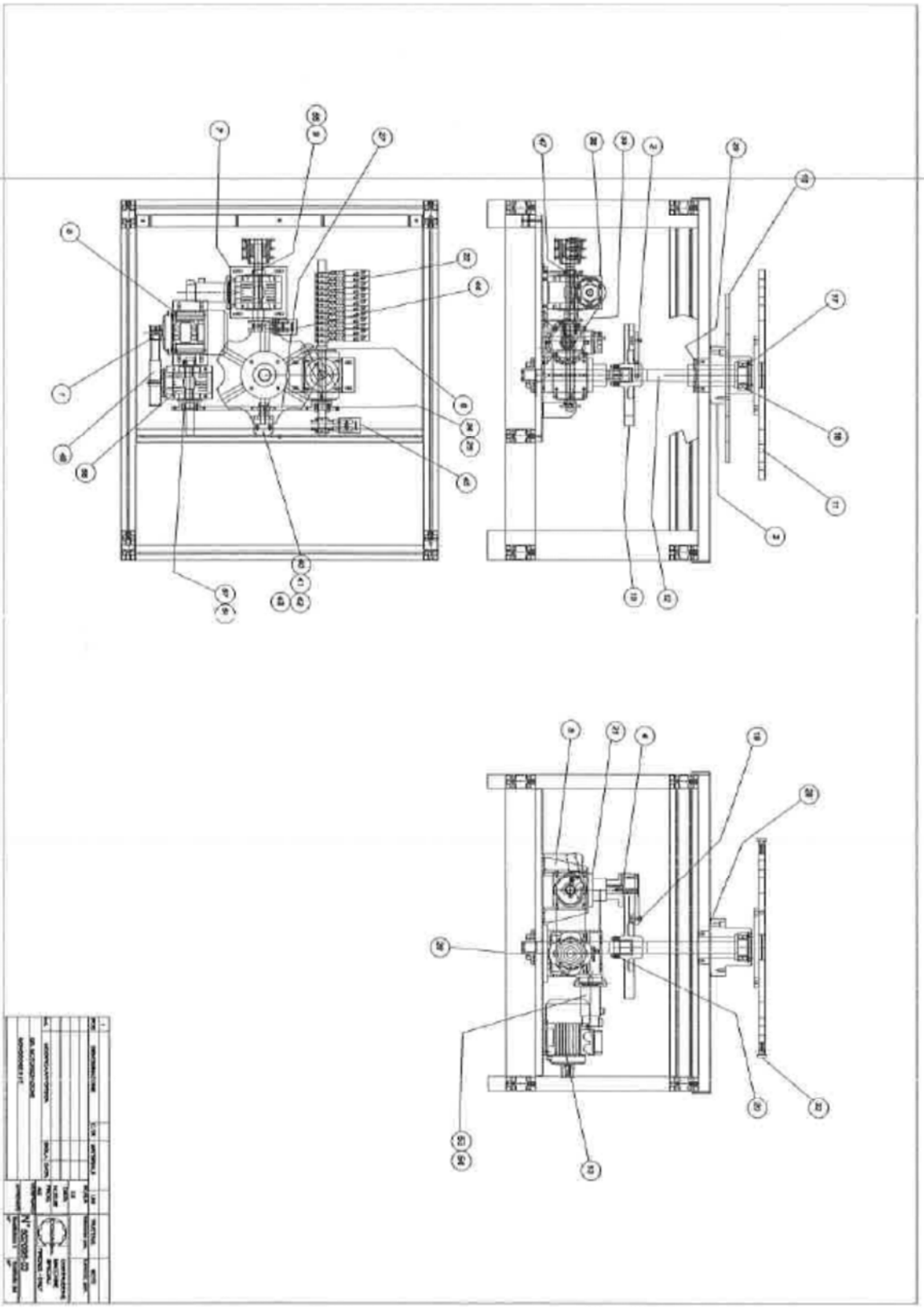
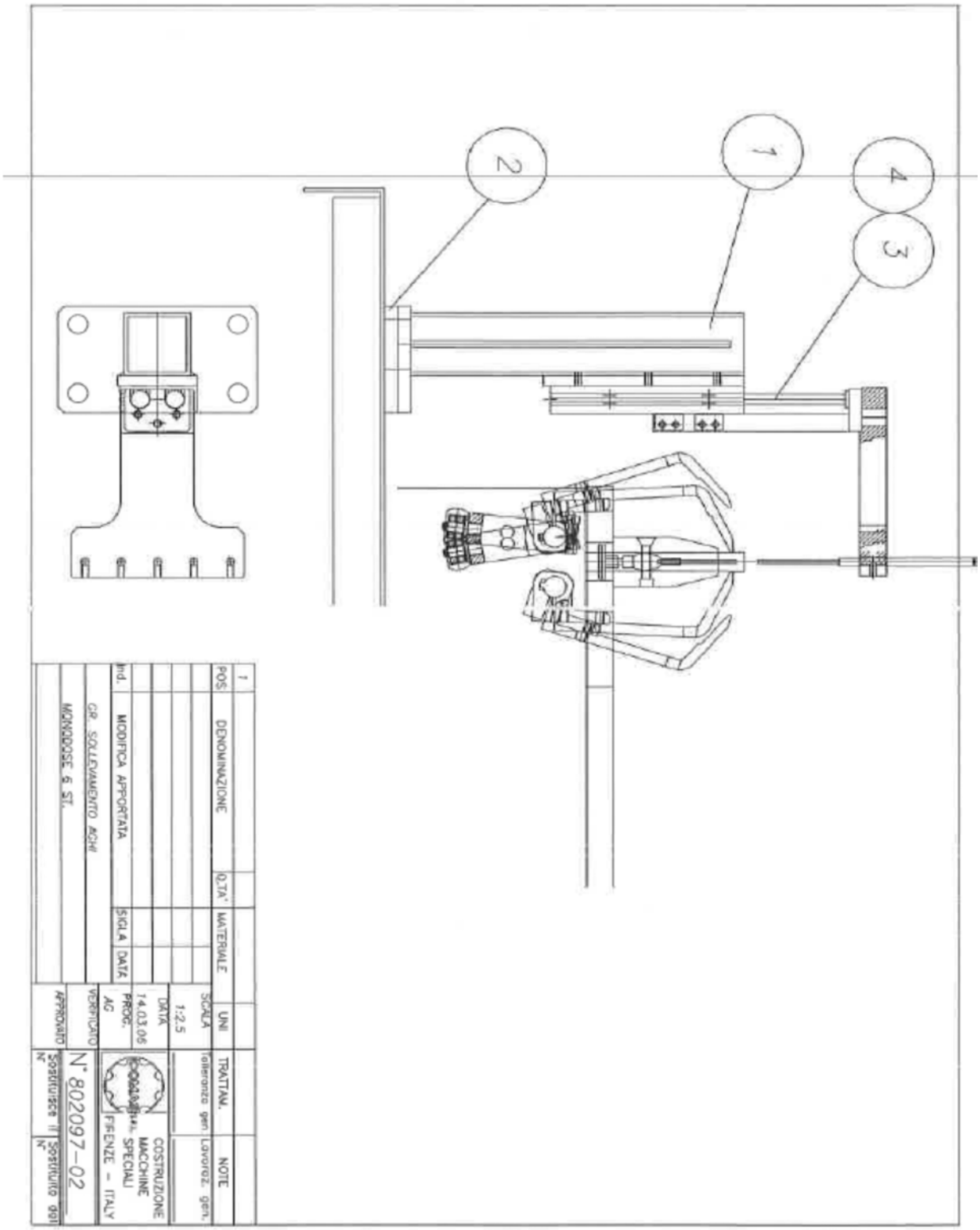
CARD Nº	DRAWING Nº	REFERENCE
823	**802093-01**	**PRESSING CLAMP GROUP**

Part No.	DESCRIPTION	Qty mounted	Qty suggested PARTS
1	FEMALE GUIDE	1	
2	MALE GUIDE	1	
3	INTERNAL CALIPER	1	
4	EXTERNAL CALIPER	1	
5	STAINLESS STEEL CYLINDRICAL PIN ISO UNI 28734	2	



CARD Nº 1233	DRAWING Nº 802096-03	REFERENCE MONO BRUSHLESS MOTORIZATION UNIT

Part No.	DESCRIPTION	Qty mounted	Q. ty Suggested PARTS
1	FEMALE GUIDE	1	
2	MALE GUIDE	1	
3	INTERNAL CALIPER	1	
4	EXTERNAL CALIPER	1	
5	STAINLESS STEEL CYLINDRICAL PIN ISO UNI 28734 O4X20 M 6	2	
6	MICRO AXIS		
7	REDUCER PLATE		
8	SLIDE SUPPORT		
9	REDUCER AXIS		
10	CROSS OF MALTA 6 LOCATION		
11	UPPER PLATE PUCK		
12	CENTRAL AXIS		
13	MOTOR GR.71-B3-4POLI-0,55KW-400V-THREE-PHASE-50HZ		
17	SEALING RING A&P AS 60X90X8		
18	TWO-BALL BEARINGS OBLIQUE BEARING SKF - 3210E - 50 X 90 X 30.2		
19	IDLE PIN INA KR26 PP		
20	LOCKING TOLLOK TLK 110 35X47		
21	BEVEL GEAR PCM BG24 AH RAPP.1: 1		
22	MICRO HOLDER BRACKET		
24	VALVE PLATE		
25	LOCKING UNIT TLK 200 25X25 (RCK 40)		
26	KOYO-NBR UCF 206 SUPPORT		
27	½ ”5/16” SIMPLE RENOLD CHAIN 54 STEPS L = 685, 8		
28	OR 4650		
32	ELESA STAINLESS STEEL KNOB WITH THREADED PIN TYPE GN29776-DIN 464-M8-30-NI		
38	MOTOVARIO REDUCER NRV063 RAP.1: 40		
40	GALOPPINO TEAM		
41	CHAIN TENSIONER PINION Z18 ½ 5/16		
42	GALOPPINO SPACER. MOTORIZATION		
43	TE M 16X16 UNI 5739 INOX SCREW		
44	MICRO TEAM		
45	MICRO TEAM		
47	LOCK RING O25		
48	SHALCON CAM FIXED PART (AUT. EXHAUST)		
49	DRIVEN PULLEY Z47		
50	TIMING BELT 255L100 SV.648 MM		
51	TAB A 8X7X30 UNI 6604		
52	SIDE CARTER		
53	ENGINE FLANGE ABB		
54	ABB BSM0400CN00 (400W) ENGINE		
55	LOCK RING O25		
56	MOTOVARIO GEAR UNIT NMRV063 RAPP.1: 40 PAM 71B14		
57	SINGLE PINION Z23		
58	LOCKING UNIT TLK 200 24X50		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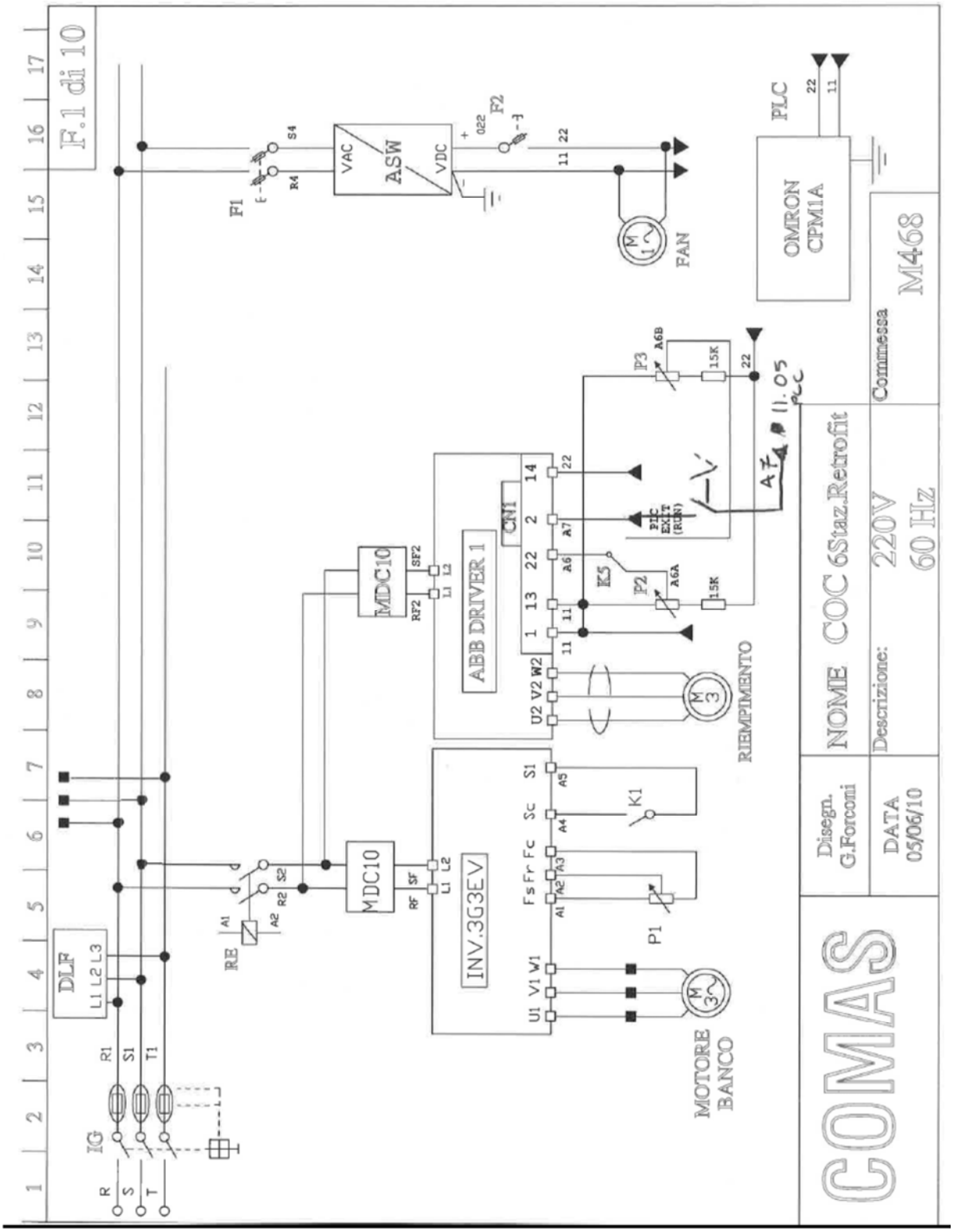
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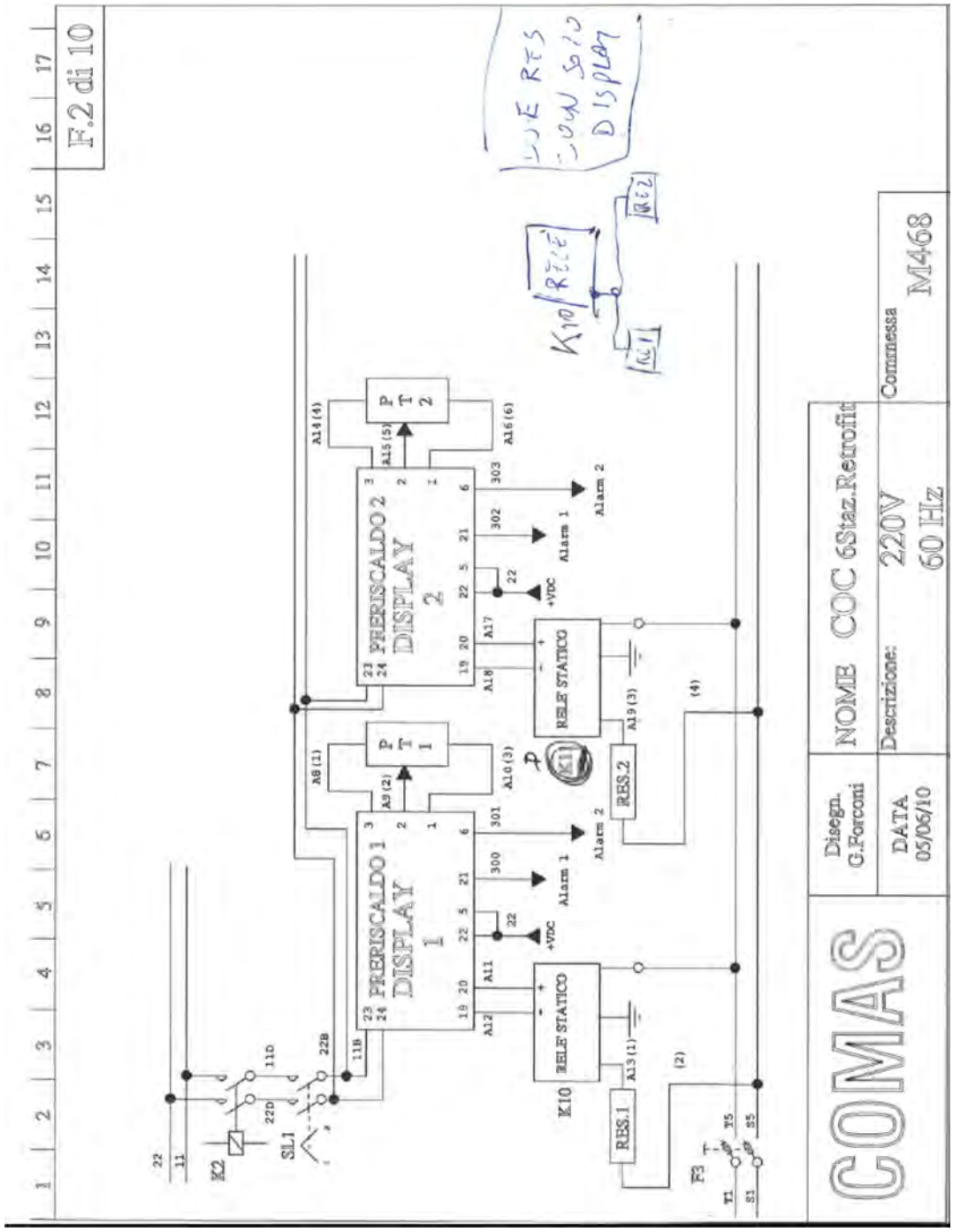
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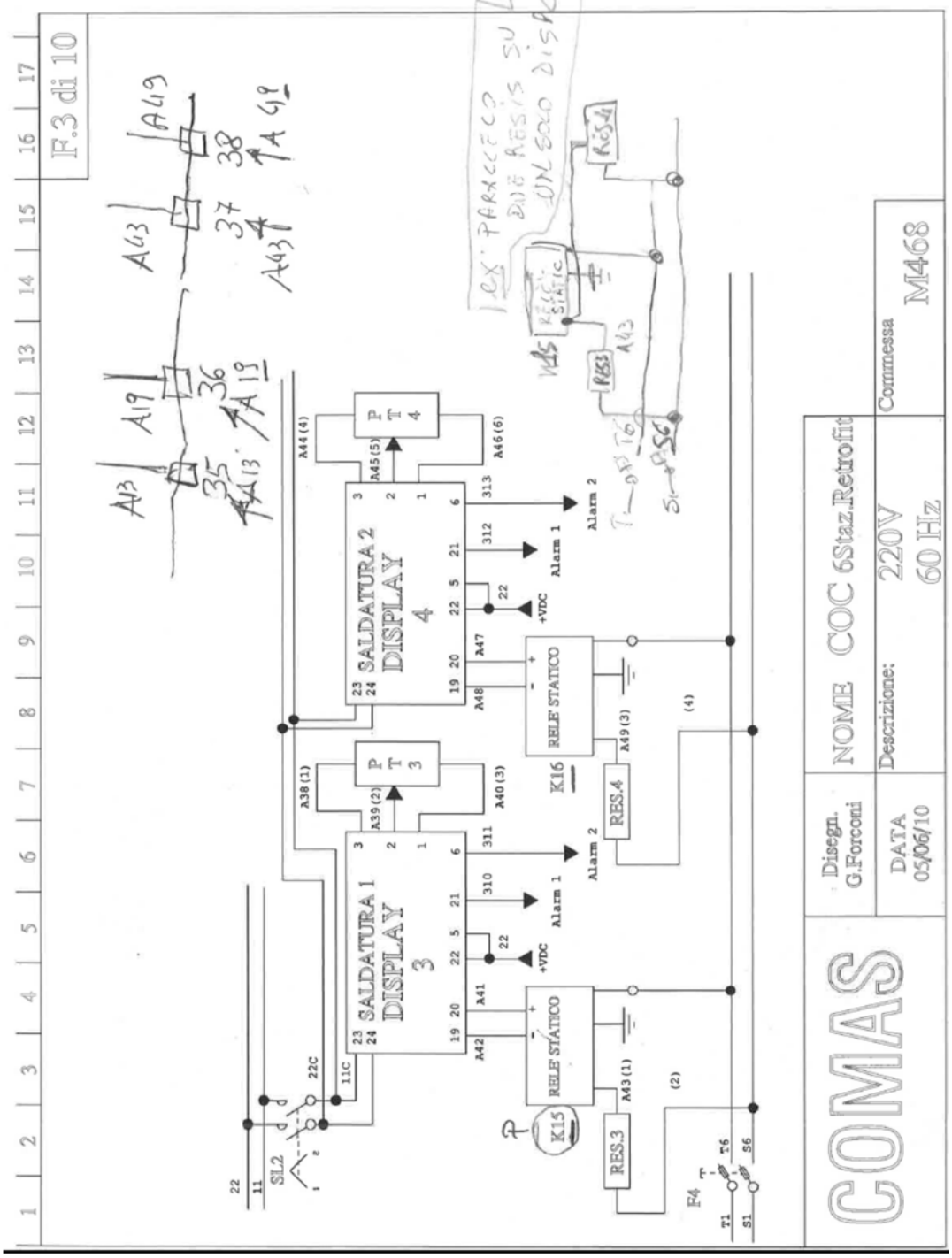
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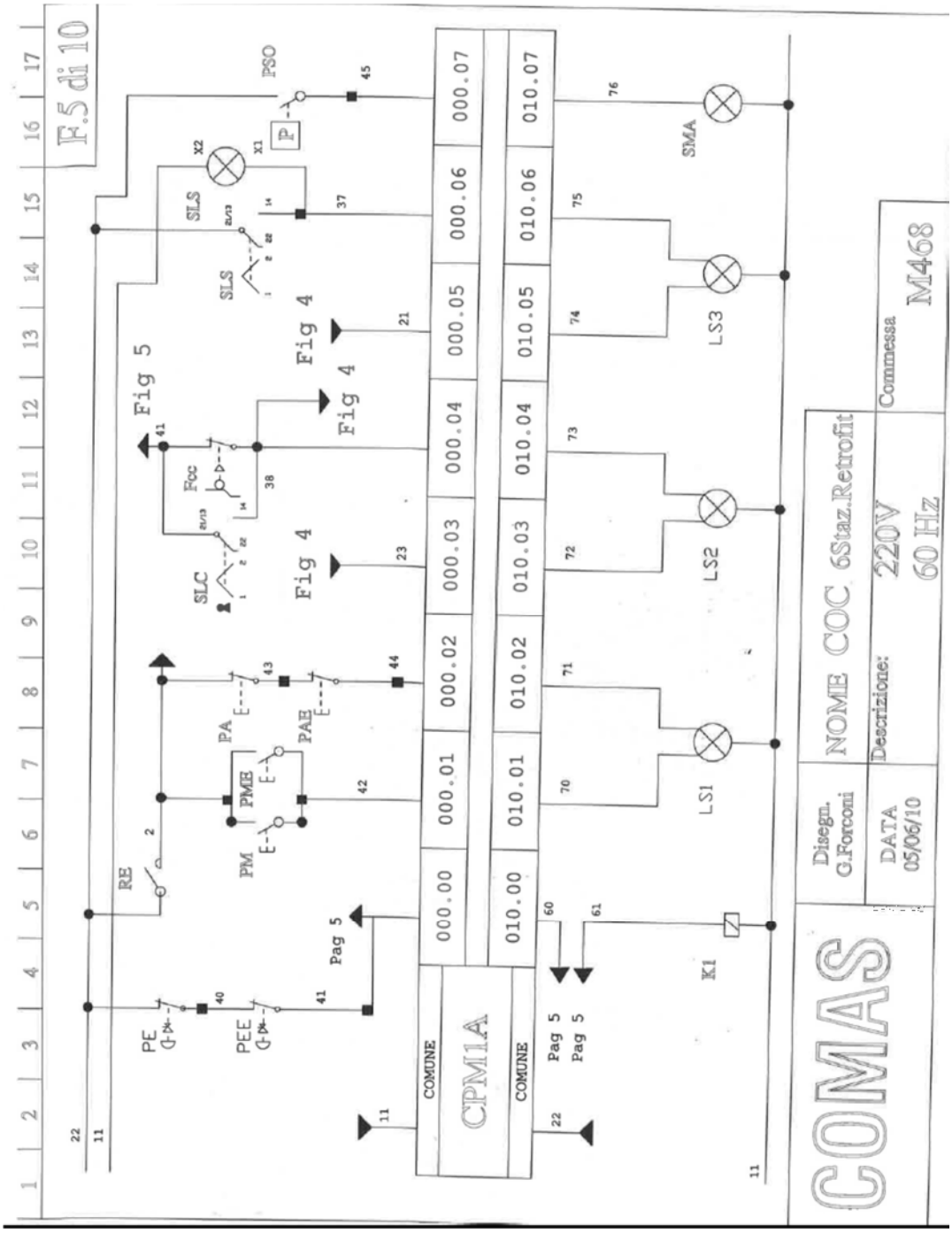
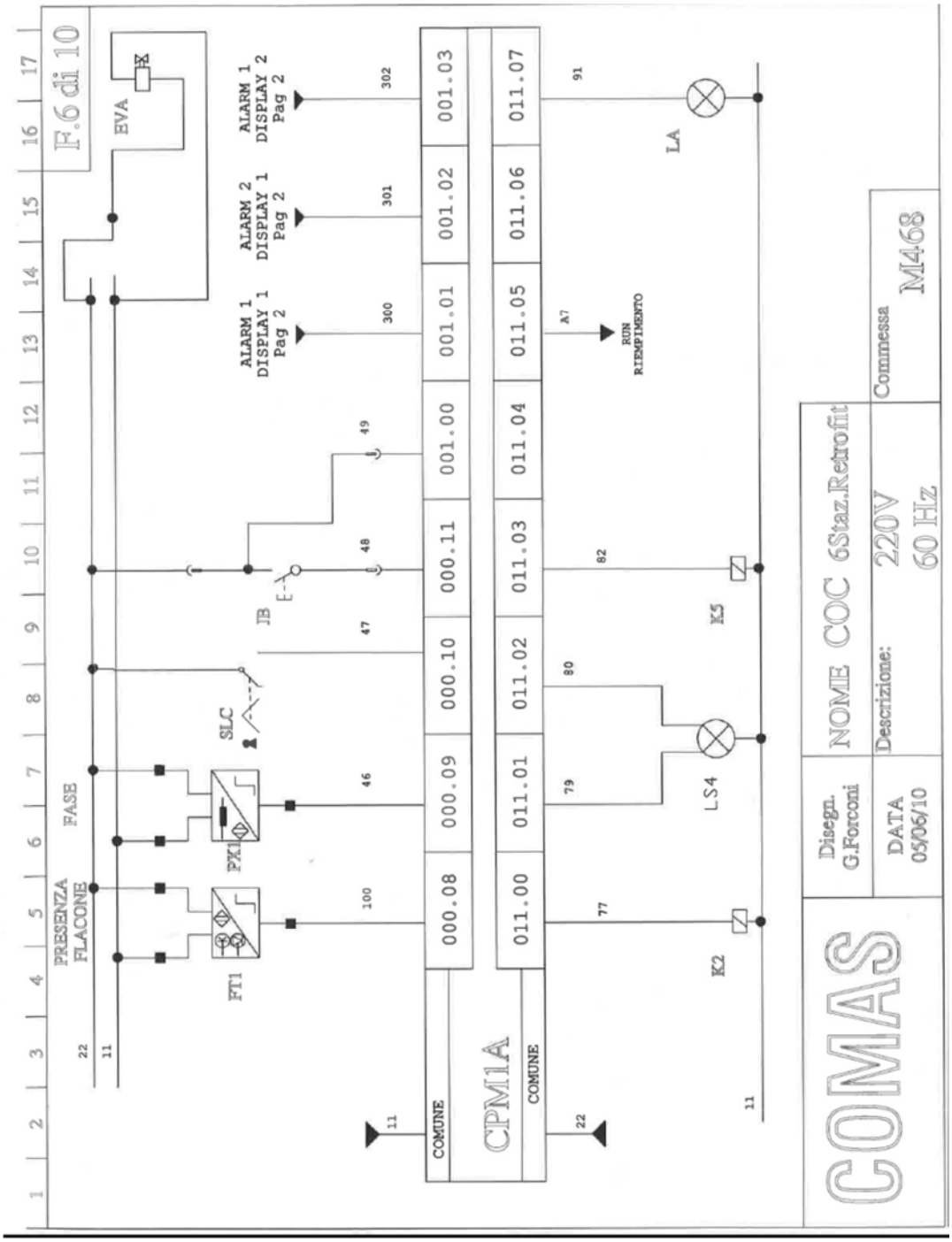
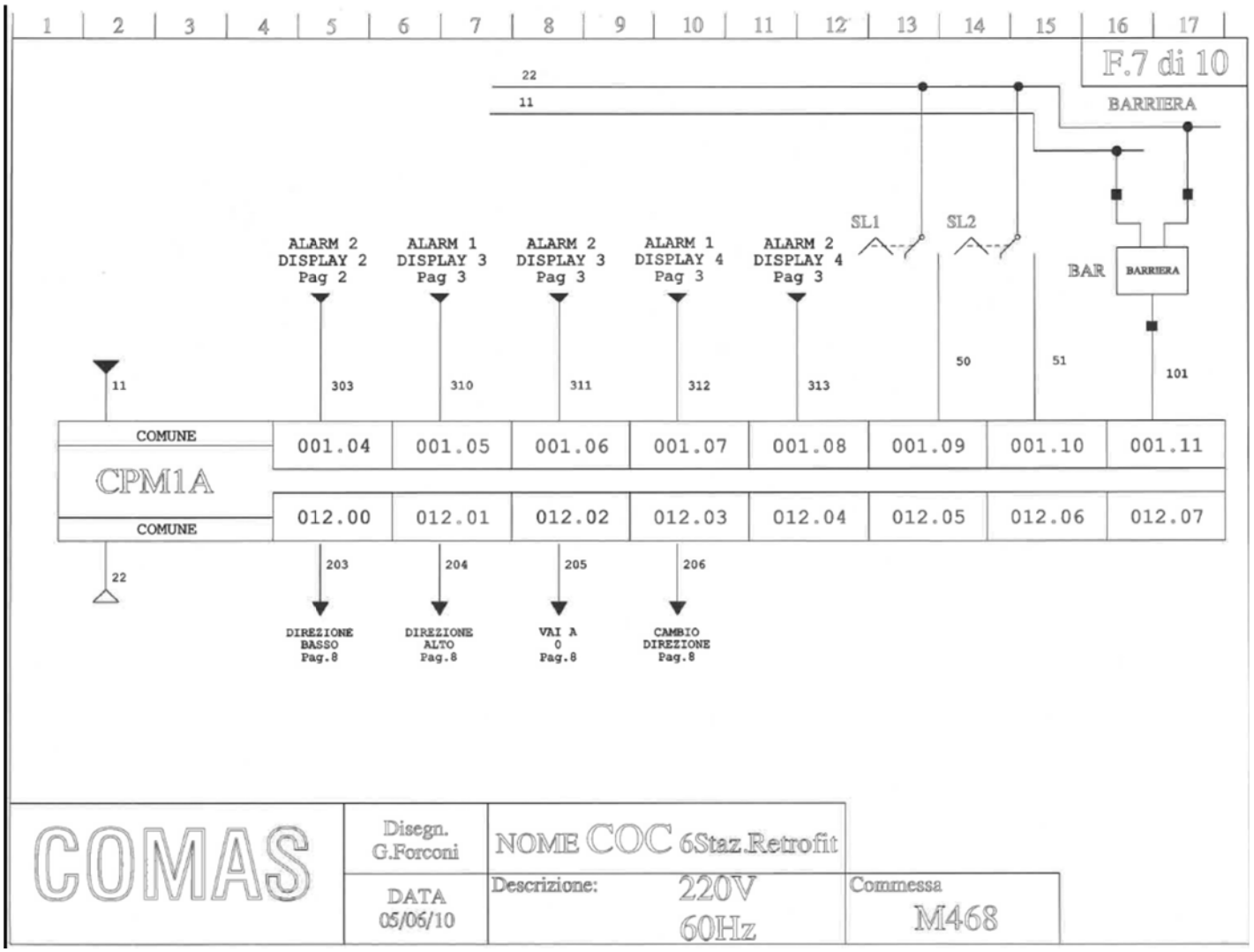
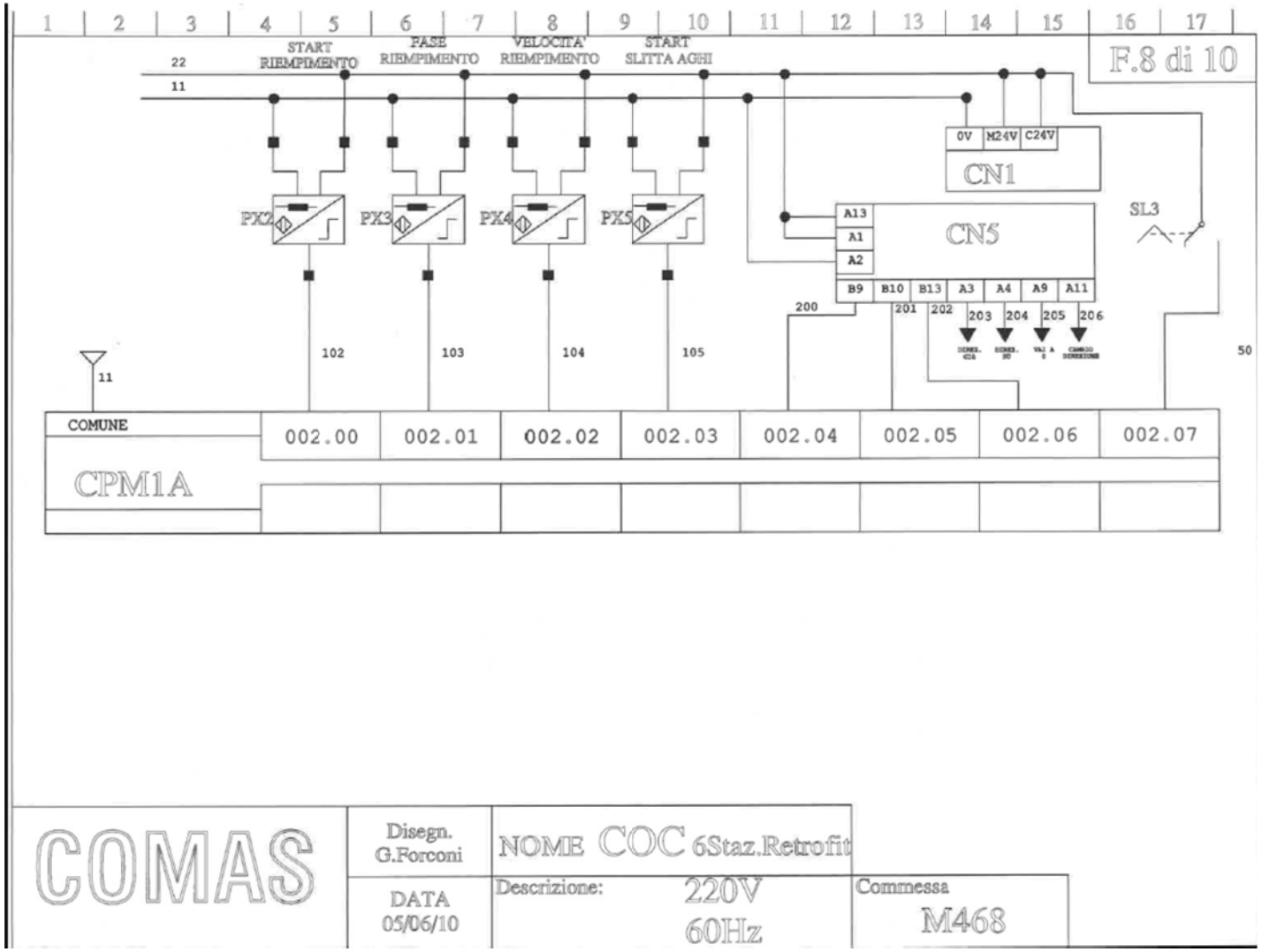
Commessa
M468


F.5 di 10
PSO
SLS
SLC
Fcc
PA
PAE
PM
PME
RE
PE
PEE
Fig 5
Fig 4
Fig 4
Fig 4
Pag 5
Pag 5
Pag 5
COMUNE
COMUNE
CPM1A
000.00
000.01
000.02
000.03
000.04
000.05
000.06
000.07
010.00
010.01
010.02
010.03
010.04
010.05
010.06
010.07
K1
LS1
LS2
LS3
SMA
COMAS
Disegn.
G.Forconi
DATA
05/06/10
NOME COC 6Staz.Retrofit
Descrizione:
220V
60 Hz
Commessa
M468


F.6 di 10
EVA
ALARM 1 DISPLAY 1 Pag 2
ALARM 2 DISPLAY 1 Pag 2
ALARM 1 DISPLAY 2 Pag 2
300
301
302
001.01
001.02
001.03
000.11
001.00
011.03
011.04
011.05
011.06
011.07
JB
48
49
47
SLC
000.10
011.02
A7
RUN RIEMPIMENTO
91
LA
82
K5
80
LS4
000.09
011.01
79
46
PX1
FASE
PRESENZA FLACONE
100
FT1
000.08
011.00
77
K2
22
11
COMUNE
CPM1A
COMUNE
22
11
COMAS
Disegn. G.Forconi
DATA 05/06/10
NOME COC 6Staz.Retrofit
Descrizione: 220V 60 Hz
Commessa M468


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
F.7 di 10
22
11
BARRIERA
SL1
SL2
BAR
BARRIERA
ALARM 2 DISPLAY 2 Pag 2
ALARM 1 DISPLAY 3 Pag 3
ALARM 2 DISPLAY 3 Pag 3
ALARM 1 DISPLAY 4 Pag 3
ALARM 2 DISPLAY 4 Pag 3
11
303
310
311
312
313
50
51
101
COMUNE
CPM1A
COMUNE
001.04 001.05 001.06 001.07 001.08 001.09 001.10 001.11
012.00 012.01 012.02 012.03 012.04 012.05 012.06 012.07
22
203
204
205
206
DIREZIONE BASSO Pag.8
DIREZIONE ALTO Pag.8
VAI A 0 Pag.8
CAMBIO DIREZIONE Pag.8
COMAS
Disegn. G.Forconi
DATA 05/06/10
NOME COC 6Staz.Retrofit
Descrizione: 220V 60Hz
Commessa M468


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
F.8 di 10
START RIEMPIMENTO
FASE RIEMPIMENTO
VELOCITA' RIEMPIMENTO
START SLITTA AGHI
22
11
PX2
PX3
PX4
PX5
0V M24V C24V
CN1
A13 A1 A2
CN5
B9 B10 B13 A3 A4 A9 A11
SL3
200 201 202 203 204 205 206
102 103 104 105
50
11
COMUNE
002.00 002.01 002.02 002.03 002.04 002.05 002.06 002.07
CPM1A
COMAS
Disegn. G.Forconi
DATA 05/06/10
NOME COC 6Staz.Retrofit
Descrizione: 220V 60Hz
Commessa M468

MARK	DENOMINATION
ASW	ALIM.SWITCHING 24VDC
ASW2	ALIM.SWITCHING 10VDC
BAR	BARRIERA DI PROTEZIONE
DLF	FILTRO DI PROTEZIONE LINEA
EVA	VALVOLA GENERALE ARIA
F1	FUSIBILI CIRCUITO 220 AL.SWITCH.
F2	FUSIBILI CIRCUITO 24 VDC
F3	FUSIBILI 220 V RESISTENZE
F4	FUSIBILI 220 V RESISTENZE
FAN	VENTILATORE
Fcc	MICRO PROTEZIONE OPERATORE
FT1	CELLULA PRESENZA FLACONE
IG	INTERRUTTORE GENERALE
JB	PULSANTE PASSO PASSO
K1	RELAY START/STOP MOTORE BANCO
K2	RELAY PRERISCALDO SENZA ARIA
K5	RELAY VELOCITA' RIEMPIMENTO
K10	RELE' STATICO PRERISCALDO 1
K11	RELE' STATICO PRERISCALDO 2
K15	RELE' STATICO SALDATURA 1
K16	RELE' STATICO SALDATURA 2

MARK	DENOMINATION
LA	SPIA ALLARME
LS1	SPIA ALLARME FLACONE
LS2	SPIA ALLARME PRERISCALDO
LS3	SPIA ALLARME SALDATURA
LS4	SPIA INSERIMENTO MANI OPERATORE
MDC10	FILTRO DI RETE
ME	MODULO EMERGENZA
P1	POTENZIOMETRO VELOCITA' BANCO
P2	POTENZIOM.VELOCITA' 1 RIEMPIMENTO
P3	POTENZIOM.VELOCITA' 2 RIEMPIMENTO
PA	PULSANTE STOP 1
PAE	PULSANTE STOP 2
PE	PULSANTE EMERGENZA 1
PEE	PULSANTE EMERGENZA 2
PIC	PULSANTE RESET CICLO
PM	PULSANTE DI MARCIA 1
PME	PULSANTE DI MARCIA 2
PSO	PRESSOSTATO
PT1	SONDA TEMPERATURA PRERISCALDO 1
PT2	SONDA TEMPERATURA PRERISCALDO 2
PT3	SONDA TEMPERATURA PT100 SALDATURA 1
PT4	SONDA TEMPERATURA PT100 SALDATURA 2
PX1	PROXIMITY DI FASE
PX2	PROXIMITY STRART RIEMPIMENTO

MARK	DENOMINATION
PX3	PROXIMITY FASE RIEMPIMENTO
PX4	PROXIMITY VELOCITA' RIEMPIMENTO
PX5	PROXIMITY START SLITTA AGHI
RE	RELE' EMERGENZA INSERZIONE CICLO
RES1	RISCALDAMENTO PRERISCALDO 1
RES2	RISCALDAMENTO PRERISCALDO 2
RES3	RESISTENZA PINZA CALDA SALDATURA 1
RES4	RESISTENZA PINZA CALDA SALDATURA 2
SL1	SELETTORE INSERIMENTO PRERISCALDO
SL2	SELETTORE INSERIMENTO SALDATURA
SLS	SELETTORE ESCLUSIONE CELLULE
SLC	SELETTORE ESCLUSIONE PORTE
SMA	SPIA ALLARME PRESENZA ARIA
ST	SPIA TENSIONE INSERITA

COMAS

Disegn. G.Forconi

DATA 05/06/10

NOME COC 6Staz.Retrofit

Descrizione: 220V 60 Hz

Commessa M468

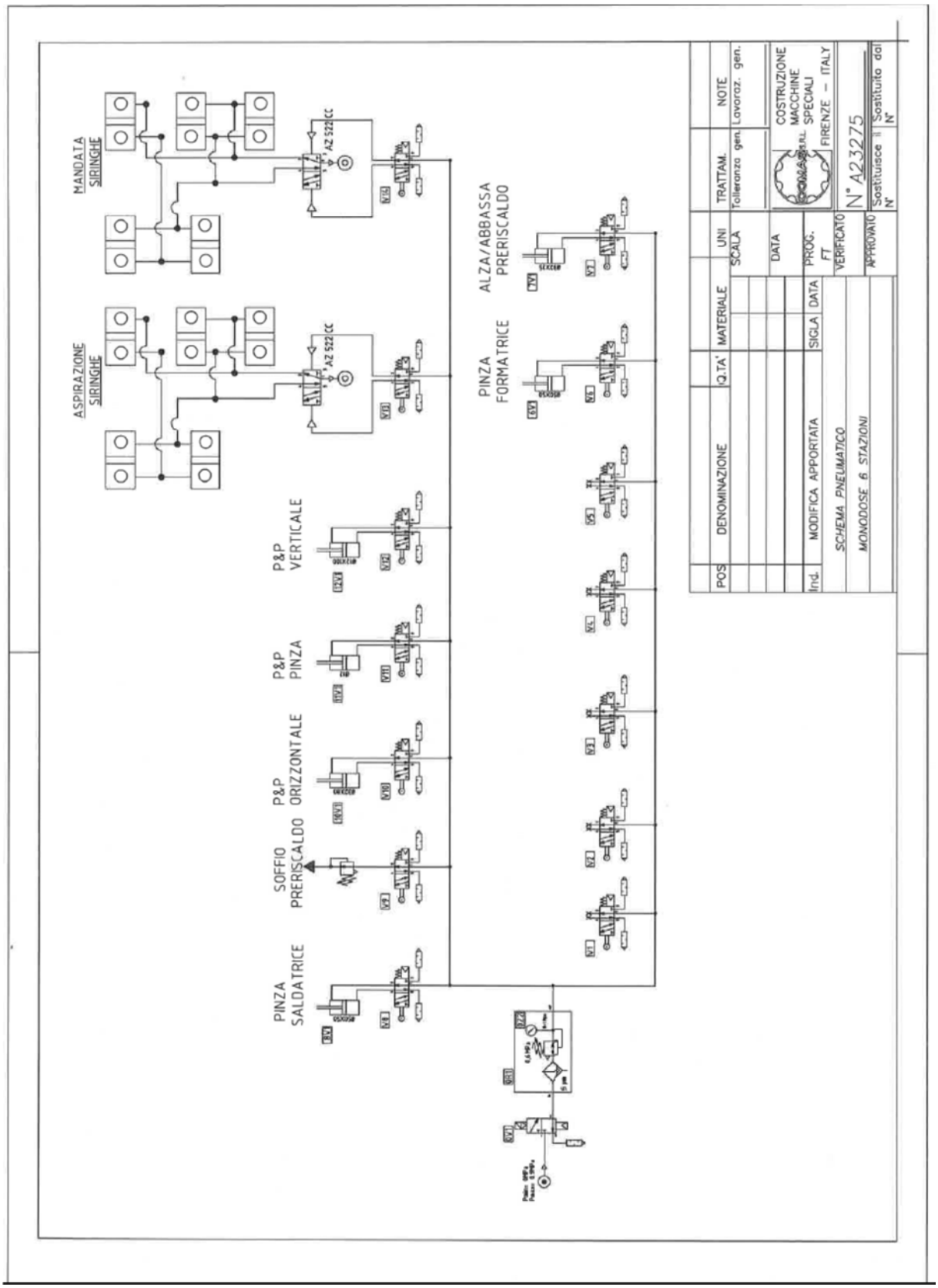
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
F.10 di 10
MARK
DENOMINATION
COMAS
Disegn.
G.Forconi
DATA
05/06/10
NOME COC 6Staz.Retrofit
Descrizione:
220V
60 Hz
Commessa
M468

15. ATTACHMENTS

This chapter contains the technical documentation of the main elements on the market that make up the PENTAFILL SA machine.

14. DIAGRAMS

This chapter contains the wiring diagrams relating to the PENTAFILL SA machine.


MANDATA SIRINGHE
ASPIRAZIONE SIRINGHE
AZ 522 CC
AZ 522 CC
P&P VERTICALE
P&P PINZA
P&P ORIZZONTALE
SOFFIO PRERISCALDO
PINZA SALDATRICE
ALZA/ABBASSA PRERISCALDO
PINZA FORMATRICE
POS
DENOMINAZIONE
Q.TA'
MATERIALE
UNI
SCALA
DATA
TRATTAM.
Tolleranza gen.
NOTE
Lavoraz. gen.
Ind.
MODIFICA APPORTATA
SIGLA
DATA
PROG. FT
SCHEMA PNEUMATICO
MONODOSE 6 STAZIONI
VERIFICATO
APPROVATO
COSTRUZIONE MACCHINE SPECIALI
FIRENZE – ITALY
N° A23275
Sostituisce il N°
Sostituito dal N°

CARD NO	DRAWING NO	REFERENCE
1234	**802097-02**	**MONO BRUSHLESS MOTORIZATION UNIT**

Part No.	DESCRIPTION	Qty mounted	Q. ty Suggested PARTS
1	CYLINDER SUPPORT	1	
2	CYLINDER WIDTH	1	
3	SMC LESH16RK-100-R16P1 ELECTRICAL SLED	1	
4	SMC LEC-T1-3EGS OPERATING PANEL FOR CLAMPS	1	