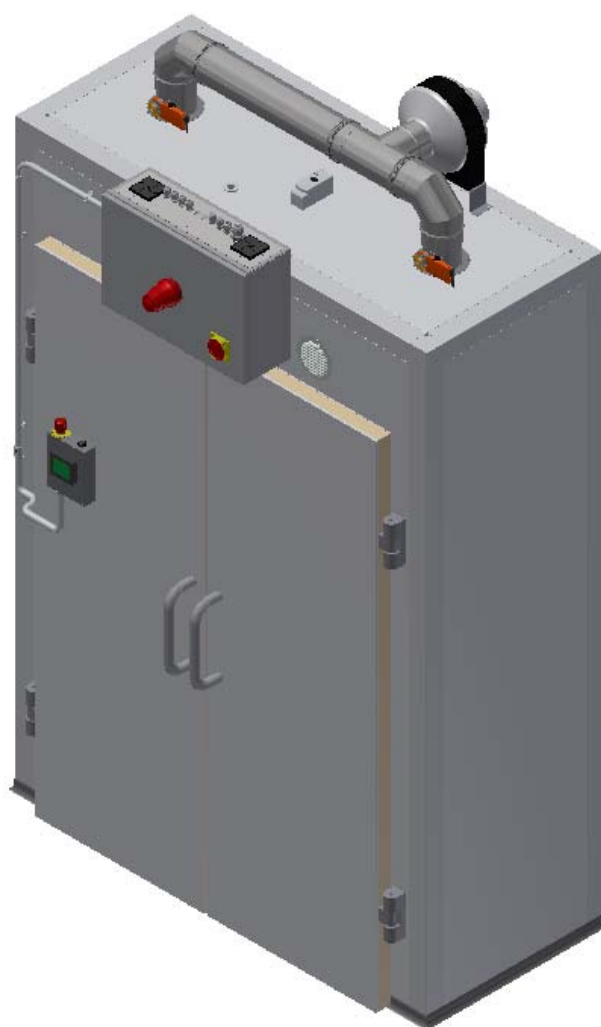


TRANSLATION OF
“ISTRUZIONI ORIGINALI”



IMPERIA & MONFERRINA S.p.A.

Dryer EC/NG



User and maintenance manual

Construction year: 2015
Edition: 05/2015

Revision: 01

REVISIONS

REVISIONs				
MODEL	LANGUAGE	DATA	VERSION	NOTE
DRYER EC/NG	English	11/2014	00	FIRST RELEASE

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In the case of doubts or difficulty in understanding or interpreting the handbook, the original/official version indicated by "**ISTRUZIONI ORIGINALI**" on the cover, is to be considered the valid version.

We have checked with care and attention that the contents of this documentation correspond to the system in question. However, since possible differences cannot be excluded, we cannot guarantee a perfect consistency. The contents of this documentation are periodically verified and any corrections or modifications will be included in the subsequent editions.

Some of the pictures included in this handbook must be considered as an example, therefore they may not refer to the machining centre herein described.

HANDBOOK STRUCTURE

The manual is divided into 8 chapters.

CHAPTER 1 – GENERAL INFORMATION

This chapter contains general descriptions regarding the handbook structure.

CHAPTER 2 – SAFETY

This chapter contains a description regarding the standards, working environment conditions, ergonomics, accident prevention devices used, residual risks, warning plates applied to the machining centre.

CHAPTER 3 – GENERAL DESCRIPTION

This chapter contains the description of the functioning principles, general technical data and description of mechanical, electrical and fluidic units of the machining centre.

CHAPTER 4 – INSTALLATION

This chapter contains the instructions for the correct installation in the user plant, the connections to the plant power mains, the checks and controls and any adjustments to be made before start-up.

CHAPTER 5 –USE

This chapter, addressed to the machining centre operators and maintenance technicians, contains the instructions for use of the system with the different operating cycles, and describes the controls available for the operator, the more important operating sequences and how to use the diagnostics systems.

CHAPTER 6 – MAINTENANCE

This chapter, addressed to the maintenance technicians contains the system maintenance schedule. It contains the warnings, precautions and instructions to correctly carry out the maintenance operations on the machine

CHAPTER 7 – SPARE PARTS

CHAPTER 8 – WIRING DIAGRAM

TABLE OF CONTENTS

1.	GENERAL INFORMATION	1-1
1.1	INTRODUCTION.....	1-1
1.2	GLOSSARY	1-2
1.3	SYMBOLS.....	1-4
1.4	ADDRESS OF MANUFACTURER	1-5
1.5	SAFETY STANDARDS.....	1-5
1.6	RESPONSIBILITIES OF THE MANUFACTURER	1-6
1.7	MACHINE MANAGEMENT.....	1-6
1.8	WARRANTY.....	1-7
2.	SAFETY	2-1
2.1	GENERAL INFORMATION.....	2-1
2.2	DIRECTIVES APPLIED	2-1
2.2.1	Harmonised technical standards	2-1
2.2.2	Machining centre Certification	2-2
2.2.3	Foreseen and Unforeseen Uses.....	2-2
2.3	ENVIRONMENTAL WORKING CONDITIONS.....	2-3
2.3.1	Explosive Atmospheres	2-3
2.3.2	Lighting	2-3
2.3.3	Vibrations.....	2-3
2.3.4	Noise.....	2-4
2.3.5	Electromagnetic Emissions	2-4
2.4	SAFETY DEVICES APPLIED ON THE SYSTEM	2-5
2.4.1	Energy Cut-out.....	2-6
2.4.2	Fixed and Mobile Protections	2-7
2.4.3	Emergency Stop	2-8
2.4.4	Personal protection Devices	2-9
2.5	RESIDUAL RISKS	2-10
2.5.1	General information	2-10
2.5.2	Residual Risks	2-10
2.5.3	Plates Installed on Machine.....	2-11
3.	GENERAL DESCRIPTION	3-1
3.1	MAIN MACHINE COMPONENTS.....	3-1
3.2	TECHNICAL DATA.....	3-3
3.3	OVERALL DIMENSIONS.....	3-4
4.	INSTALLATION.....	4-1
4.1	INSTALLATION.....	4-14
4.1.1	Positioning	4-14
4.1.2	Installation.....	4-15
4.2	REMOVAL AND DISPOSAL OF PACKAGING	4-35
5.	USE	5-1
5.1	DESCRIPTION OF CONTROLS	5-1
5.2	SCREEN PAGES.....	5-2
5.3	PROGRAMMING A NEW RECIPE.....	5-12
6.	MAINTENANCE	6-1
6.1	GENERAL SAFETY PRECAUTIONS.....	6-1
6.1.1	General Hazard Notes.....	6-2
6.1.2	General Warnings.....	6-3
6.2	QUALIFICATION OF MAINTENANCE TECHNICIANS	6-4
6.2.1	General Tasks	6-4

6.2.2	Tasks of Qualified Operators	6-5
6.3	SAFETY CONTROL PLAN	6-6
6.3.1	Checks and Functional Tests on Safety Devices	6-6
6.4	STOP PROCEDURE FOR MAINTENANCE	6-7
7.	SPARE PARTS	7-1
7.1	COMPONENTS SUBJECT TO WEAR AND MECHANICAL FATIGUE	7-1
7.2	LIST OF RECOMMENDED SPARE PARTS	7-1
8.	ELECTRICAL DIAGRAMS	8-1

GENERAL INFORMATION	1
----------------------------	----------

SAFETY	2
---------------	----------

GENERAL DESCRIPTION	3
----------------------------	----------

INSTALLATION	4
---------------------	----------

USE	5
------------	----------

MAINTENANCE	6
--------------------	----------

SPARE PARTS	7
--------------------	----------

WIRING DIAGRAM	8
-----------------------	----------

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1. GENERAL INFORMATION

1.1 INTRODUCTION



NOTE

IMPERIA & MONFERRINA S.P.A. the machining centre manufacturing company, is indicated in the handbook with the name: **Manufacturer**.



NOTE

The Company purchasing the machining centre, is indicated in the handbook with the name: **Customer**.

The Manufacturer recommends a training course for the persons assigned to the running of the machining centre to assure perfect familiarity and knowledge of the procedures.

This manual contains the features, performances, instructions for use and the references to the preventive and remedial operations of the machining centre.

The Manufacturer insists that this document is read by the persons assigned to the running and maintenance of the machining service, as well as by the persons who carry out the transport and assembly.

This document is the instructions handbook for the:

DRYER EC/NG

and has been drawn up in compliance with Directive 2006/42/EC.

The Use and Maintenance Handbook is to be considered an integral part of the system, and is to be kept until final dismantling. It is to be kept by the person in charge of the machining service after the final installation.

1.2 GLOSSARY

Control circuit (of a machine): circuit used to control the machine operation and to protect the power circuits.

Component: part of the electrical equipment, usually specified by its function, but used in various applications.

Machines Directive: DIRECTIVE 2006/42/EC OF THE EUROPEAN PARLIAMENT AND COUNCIL concerning the harmonising of the laws of Member States related to machinery.

Device: unit of an electrical system that transmits but does not use electric power

Control device: device inserted in a control circuit and used to control machine functioning (e.g.. position sensors, manual control switches, relays, electromagnetically controlled valves).

Bill of Materials : list of components that are part of mechanical units, fluidic or electrical system, indicated with the quantity, code and name of supplier.

Supplier: body (for example, manufacturer, installation dealer, systems integrator) that supplies the equipment or services associated to the machine (the user can also act as manufacturer for himself).

Machine: a group of parts or components , at least one of which is moving, connected together and possibly with drives, with control and power circuits, etc., integrally connected for a precise application, indicated for conversion, treatment, movement and conditioning of a material.

Interchangeable equipment that changes the function of a machine, procured on the market to be mounted by the operator onto a machine or a series of different machines or on a tractor, within the limits in which this equipment is not a spare part or a tool.

Marking: symbol and wording to identify the machine, applied by the manufacturer. (Chapter III - Article 10 directive 2006/42/EC).

Safe operating procedure : a working method that reduces risks .

Obstacle: an element intended to prevent direct accidental contact, but that does not impede a direct intentional contact (Item 3.38 of European Standard EN 60204-1).

Operator: person qualified to install, run, adjust, clean and carry out maintenance on the machine. (Annex I - 1.1.1 directive 2006/42/CE).

Danger /Hazard: Potential source of damage. (Chapter 3.6 of the European Standard EN ISO 12100).

Exposed person: person who is entirely or partially in a hazardous zone.

Safe operating procedure : a working method that reduces risks .

Safety protections: guard or protection device used as a safety measure to protect the persons against hazards that are present or potential.

Protections (protection criteria): means of protection that uses measures to protect persons against hazards that cannot be rationally eliminated, against risks that cannot be sufficiently reduced by protection measures integrated in the design. (Chapter 3.20 of European Standard EN ISO 12100).

Reference person: person responsible for certain operations or assessments that could arise during operation or maintenance .

Risk: combination of probabilities that a damage occurs and the severity of that damage. (Item 3.12 of Standard EN ISO 12100).

Transport: operations involved to transfer the machine from the manufacturer's assembly site to the final workplace of the Customer.

Incorrect use: machine use out of the limits specified in the technical documentation.

User: those who use the machine and associated electrical equipment.



NOTE

The terminology has been taken from the European Standards listed in chapter 2 "SAFETY".

1.3 SYMBOLS

Some symbols are used in the handbook to call the attention of the reader and to highlight certain aspects which are especially important.

SYMBOL	MEANING	NOTES
	DANGER	Indicates a hazard with accident risk, even death, for the user. Pay very careful attention to the texts indicated by this symbol
	WARNING	A warning of possible deterioration or damage to the machining centre, equipment or personal belongings of the user. Pay attention to the texts indicated by this symbol.
	CAUTION NOTE	A warning or note regarding key functions or useful information. Pay attention to the texts indicated by this symbol.
	ADDITIONAL INFORMATION	Texts that contain additional information are indicated by this symbol. This information does not relate directly to the description of an operation or to the development of a procedure. It may give reference to other supplementary documentation or to other sections of the handbook.

1.4 ADDRESS OF MANUFACTURER

For any type of information or clarification regarding the use, maintenance, installation etc, the Manufacturer Technical Office is always available for requests from the Customer.

Please state your requests in clear terms, with reference to this handbook, and always indicating the data of the system identification plate.

Requests for interventions, technical assistance in the Customer's works, or explanations regarding technical aspects of this document, are to be addressed to:

IMPERIA & MONFERRINA S.p.A.

Via Statale, 27/A - 14033 – Castell'Alfero (AT) - Italia

Tel: 0039.0141.27.60.11

www.imperiamonferrina.com

1.5 SAFETY STANDARDS

The specifications, indications, standards and related safety notes described in the various chapters of the handbook have the purpose of defining a series of actions and obligations to be observed when carrying out the different activities that form the modes of use foreseen for the machining centre, so as to operate under safe conditions for the workers, the equipment and the surrounding environment. The safety rules included are directed to all the persons authorised, instructed and assigned to carry out the operations regarding:

- Transport
- Installation
- Functioning
- Use
- Management
- Maintenance
- Cleaning
- Putting Out Of Service And Dismantling

1.6 RESPONSIBILITIES OF THE MANUFACTURER

The Manufacturer shall not be held in any way liable for incidents caused by incorrect or improper use of the machining centre, or for any damage caused by the use of spare parts that are not those specified, by maintenance operations not carried out correctly and/or by tampering on system circuits, components and software.

The responsibility to ensure the application of the safety precautions is that of the technician in charge of the activities to be carried out on the system. The Customer is to ensure that the operators authorised to carry out the required activities are qualified, that they observe and are fully aware of the provisions contained in this document and the general safety standards applied to the system.

Non-observance of safety standards can cause injuries to the personnel and damage to the equipment.

1.7 MACHINE MANAGEMENT

The machining centre management is only permitted to the authorised operators who have been appropriately instructed, or who have sufficient technical experience.

The operators assigned to the running and maintenance of the system are to be aware that the knowledge and application of safety standards is an integral part of their job.

Operators not authorised to work on the machining centre are not to have access to the operating area and/or the control panels.

Never remove, even partially safety protections and devices installed to safeguard the persons in the system hazardous zones.

The same rule is applied to the warning plates..

Safety protection and devices are to be kept in perfect working order, to ensure correct functioning. In the case of malfunctioning or failure on these devices, they are to be immediately repaired or replaced.

1.8 WARRANTY

The manufacturer guarantees, for a period of 12 months from the date of purchase, all parts excluding those subject to normal wear.

The warranty shall no longer be valid if the machine has been repaired by unauthorised third parties or if fixtures, accessories are used that have not been supplied by the manufacturer or have not been recommended or approved by the same, or if the serial number is altered or removed during the warranty period.

The warranty starts from the date of purchase, indicated on the official document at the time of the machine delivery by the dealer.

The manufacturer undertakes to repair or replace free of charge those parts that within the warranty period are found to have manufacturing defects. The warranty does not cover any cleaning of functioning components.

Defects that cannot be clearly attributed to the material or the manufacture shall be examined by the Technical Assistance Centre in the works of the manufacturer.

If the claim should result unjustified, all the costs for the repair and/or replacement shall be debited to the purchaser.

The warranty certificate and the official document shall be assigned to the technical staff that carry out the repair, or who have to accompany the shipped machine for the repair.

The warranty shall not be extended following technical intervention on the machine. The repair shall be carried out by the Technical Assistance Centre in the works of the manufacturer, and is to arrive in free port (with transport costs covered by the user, unless otherwise agreed).

In any case the following are excluded from the warranty: accidental damage caused by transport, neglect or inadequate treatment, from improper use that does not conform with the warnings indicated in the instructions handbook, and in any case factors that do not arise from normal functioning or use of the machine.

The manufacturer shall not be held in any way liable for any damage to persons or materials caused by wrong or incorrect use of the machine.

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GENERAL INFORMATION	1
----------------------------	----------

SAFETY	2
---------------	----------

GENERAL DESCRIPTION	3
----------------------------	----------

INSTALLATION	4
---------------------	----------

USE	5
------------	----------

MAINTENANCE	6
--------------------	----------

SPARE PARTS	7
--------------------	----------

WIRING DIAGRAM	8
-----------------------	----------

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2. SAFETY

2.1 GENERAL INFORMATION

The Customer shall instruct the personnel regarding accident risks, safety devices installed on the machining centre and the general rules concerning accident prevention specified by the EU Directives and the laws of the country where the machining centre is installed.

The operators are to know the position and functioning of all the system controls and the relevant characteristics. Furthermore they are to have read and fully understood the contents of this handbook.

Maintenance operations are to be carried out by qualified operators and only after setting the system in maintenance status.

Unauthorized tampering or replacement of one or more system components, use of accessories that change the use of the same and the use of spare parts that are different to those recommended could cause accident risks.



DANGER

It is strictly forbidden to cut out/tamper with the safety devices on the machining centre.

The Manufacturer declines any responsibility concerning the machining centre safety if this prohibition is ignored.

2.2 DIRECTIVES APPLIED

The following directives are applied to the machine described in this handbook:

- **2006/42/EC** Machines Directive
- **2004/108/EC** Electromagnetic compatibility Directive
- **2006/95/EC** Low voltage Directive
- **2002/95/CE** Directive concerning the use of certain harmful products in electrical or electronic equipment
- **Regulation (EC) n. 1935/2004** concerning materials and items that shall come into contact with foodstuff products.

2.2.1 Harmonised technical standards

The machine has been designed and tested in conformity with the “essential health and safety requirements” of annex 1 of European directive 2006/42/EC.

The standards used as reference for the design, realisation and inspection of the machine are listed in the technical folder archived in IMPERIA & MONFERRINA S.p.A.

2.2.2 Machining centre Certification

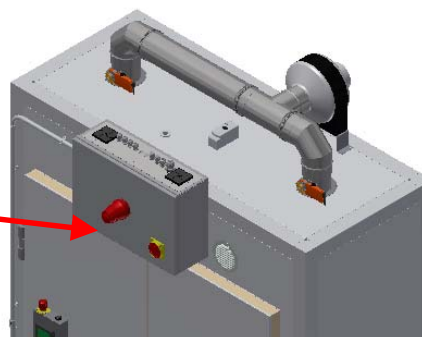
The system is supplied with the **EC** Declaration of Conformity to the essential safety requirements as per Machines Directive 2006/42/EC (annex II A), the Low Voltage Directive 2006/95/EC and the Electromagnetic Compatibility Directive 2004/108/EC.



NOTE

Any modification made to the Machining centre will immediately annul the **EC** certification issued by the Manufacturer.

Imperia & Monferrina S.p.A.					
Via Vittime di Piazza Fontana 48 - 10024 Moncalieri (TO) ITALY					
Tel. +39 0141 27.60.11					
MODEL					
S/N					
YEAR	KW	VOLT	PHASE	Hz	Kg



2.2.3 Foreseen and Unforeseen Uses

The drier EC/NG drier has been designed, constructed and outfitted exclusively to dry pasta.

2.3 ENVIRONMENTAL WORKING CONDITIONS

To permit the best possible environment conditions, it is necessary that the Customer organizes the machining centre and related systems in the workshop in a manner that provides good ventilation.

The machining centre is to be installed in an environment equipped with all the safety precautions required by the laws in force in the user country.

The environment temperature range is to be between 20°C and 30°C and with relative humidity ranging between 40% and 50%.

2.3.1 Explosive Atmospheres

The machining centre has not been designed and constructed to operate in explosive, or partially explosive atmospheres.



DANGER

In the case of fire, always immediately cut out the power from the main switch of the main electric cabinet.

It is not sufficient to use the emergency pushbuttons, because these do not cut-out the main power of the cabinets/panels.

2.3.2 Lighting

The machine is not fitted with an autonomous lighting system.

2.3.3 Vibrations

The machining centre does not produce vibrations that are hazardous for the persons operating on it.



WARNING

Excessive vibration can only be caused by a mechanical failure, that is to be immediately notified and removed, to avoid jeopardising the safety of the machining centre and those who operate on it.

2.3.4 Noise

The noise has been measured in accordance with the requirements of acoustic standard EN ISO 11200 and related standards.

The typical phonometrical data is kept by the Manufacturer.

The machining centre operating characteristics are such that, in a dry run, overall noise generated is less than 75 dB (A), measured in the operator workstations.



NOTE

The sound pressure level under actual working conditions will depend on the characteristics, programming of the specific processes and the materials used.



NOTE

Measurement of the noise level to which the operators are exposed is to be carried out by the user, in accordance with the requirements of the laws in force in the relevant country.

2.3.5 Electromagnetic Emissions

The machining centre contains electronic components subject to the Electromagnetic Compatibility standards, subjected to conducted and radiated emissions.

The emission values are kept in compliance with the standard by means of components installed in accordance with the Electromagnetic Compatibility directive, appropriate connections and the installation of filters where necessary.

Therefore the machining centre is in conformity with the Electromagnetic Compatibility Directive (EMC).



WARNING

Any maintenance activities on electrical equipment carried out in a manner that does not conform, or wrong replacement of components, could jeopardise the efficiency of the equipment.

2.4 SAFETY DEVICES APPLIED ON THE SYSTEM

The machining centre is equipped with safety devices/solutions:

Type of device/solution	Function
Main switch	To cut-out machine electric power
Fixed and mobile protections	Enclosure of machine hazardous zones
Emergency stop	Emergency stop of entire system, or part of the same.
Personal protection devices	Protections for the operator when carrying out the jobs



ADDITIONAL INFORMATION

For information regarding the safety devices installed on the machine, see the specific handbooks.

2.4.1 Energy Cut-out

Function: To cut-out power supplies of the machining centre.

Characteristics and method: Before starting any type of maintenance job on the system, or part of the same, cut-out the power supplies and discharge any accumulated energy.

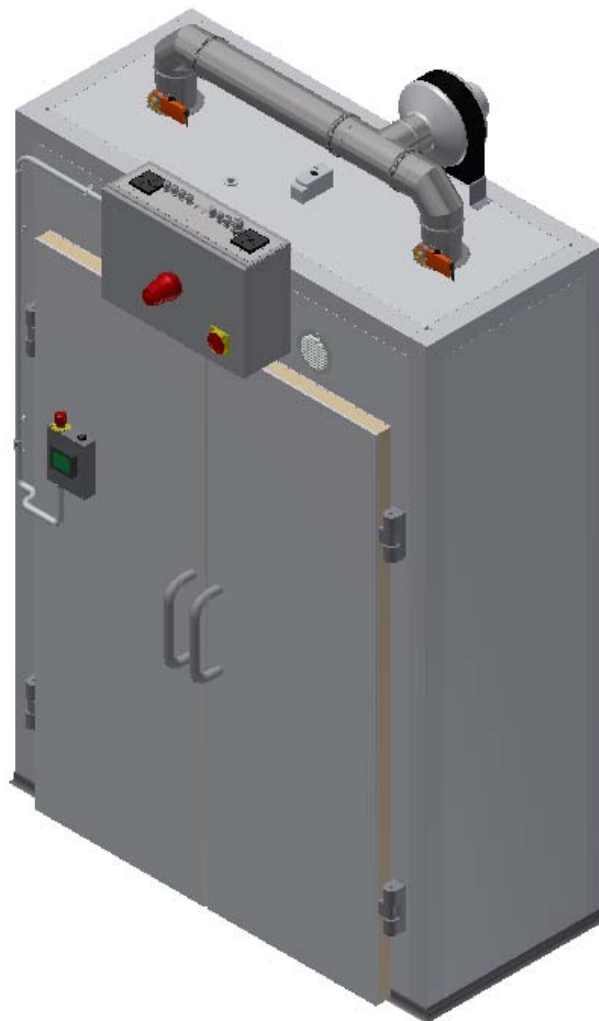
Cut-out the machine electrical supply acting on the main switch.

After cutting out the power supplies, padlock the cut-out levers



WARNING

For maintenance work, it is not sufficient to press the emergency pushbuttons to cut out the machine power supplies.



2.4.2 Fixed and Mobile Protections

Function: To segregate hazardous zone of the machining centre

Protections are fixed and mobile.

Characteristics and method:

Fixed protections:

The purpose of the fixed protections is to prevent access to machine component movements during the operating cycle.

The guards (casings) that cover/protect moving parts are in Plexiglas firmly secured to the structure with screws that require a special tool to remove them.

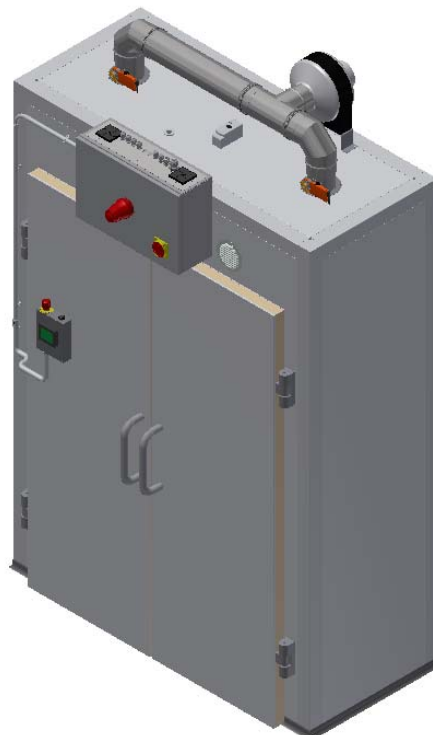
The fixed protections and casings are not controlled and the removal is exclusively subordinated to maintenance operations with the machine power supplies deactivated.

Mobile protections:

The machine is fitted with a safety cover with a safety hook that stops the processing if the cover is lifted.

WARNING

For maintenance it is not sufficient to open the access door to cut out the system power supplies. The Manufacturer shall not be held liable if the system is put into function with guards that are incomplete, open and/or not installed.



2.4.3 Emergency Stop

Function: Emergency stop by pressing the red head emergency push-button on the machining centre, following a hazard risk for the safety of the operators and/or the system.

Characteristics and method: All motion of the system is stopped.

Pressing this push-button deactivates all movements, due to cut-out of power of all the machine actuators.

If pressed, the emergency push-button remains in low position. To reset, turn the control emergency push-button clockwise.



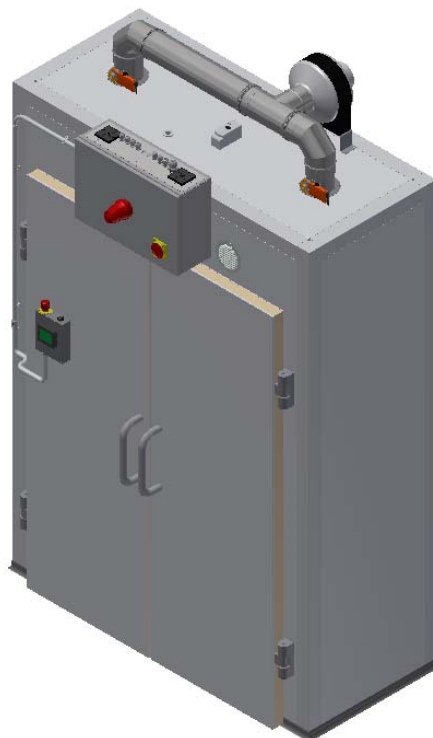
WARNING

For maintenance work, it is not sufficient to press the emergency push-buttons to cut out the machine power supplies.



WARNING

Check the emergency push-buttons periodically to ensure correct functioning.



2.4.4 Personal protection Devices

Function: To protect the operator when working.

Characteristics and method: The persons operating on the machine are to use personal protection devices to cut the possibility of risks to a minimum.



DANGER

Clothing of those who operate or carry out maintenance on the system, is to conform to the essential safety requirements and the laws in force in the country where the machine is installed.



WARNING

During handling and maintenance operations, the workers are to wear appropriate work clothes to avoid accidents.

To avoid mechanical risks, such as dragging, entrapment or other, never wear bracelets, wristwatches, rings or chains during the work cycle and maintenance operations

2.5 RESIDUAL RISKS

2.5.1 General information

During the design, all the zones or parts with risks have been assessed, and as a consequence all the necessary precautions have been taken to avoid risks to persons and damage to system components.

In order to assure the health and safety of exposed persons, at a general level the system is fitted with fixed and mobile protections, casings to cover moving parts. Furthermore the operators running the machinery are to use the specific personal protection devices.



NOTE

Periodically check the functioning of all safety devices.
Do not remove the fixed and mobile protections installed on the system.
Do not introduce unnecessary objects and tools in the system working area.

2.5.2 Residual Risks

After carefully considering all possible system risks, all the necessary solutions have been applied to eliminate the risks and limit hazards for the exposed persons. However, although the system is fitted with these safety systems, some risks remain that can be eliminated or reduced by taking the relevant precautions.



WARNING

As a precautionary measure for safety, periodically check correct functioning of safety devices and the documentation supplied by the manufacturer.



WARNING

It is strictly forbidden to make any type of mechanical, electrical or fluidic modification, to avoid creating additional hazards and risks that have not been foreseen.

A list follows of the machine residual risks.

Serious injury risk



DANGER

Never start the machine with fixed and/or mobile guards removed, or not correctly assembled with the specific screws or with guard closed safety device by-passed by tampering.
Never start the machine with safety guards open and safety.

Jamming and machine stop risks



DANGER

Never leave rags, wrenches, tools, screws used for a maintenance job inside the machine.
Before starting the cycle, always carefully check and if necessary remove any foreign objects found inside.

2.5.3 Plates Installed on Machine

The Manufacturer has installed several hazard warning and obligatory plates on the machining centre, in accordance with standards regarding the graphic symbols to be used on systems (Directive 92/58/EC).

Maintenance shall immediately replace any plates that, due to wear, become illegible.

These plates are located in positions well in sight.



WARNING

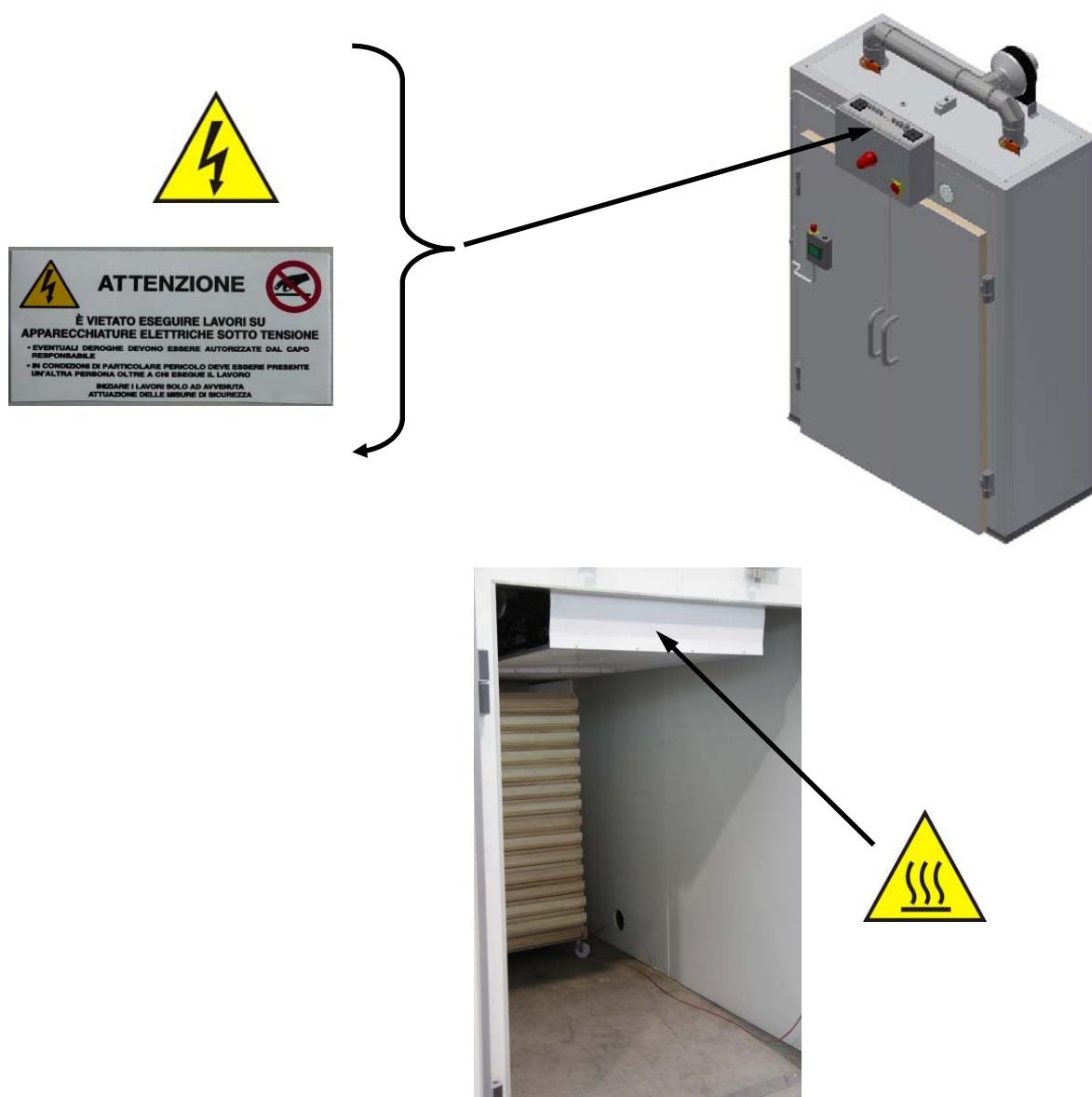
It is strictly forbidden to remove the warning plates affixed on the machining centre.

The Manufacturer shall not be held in any way responsible for the machining centre safety if this prohibition is ignored.



ADDITIONAL INFORMATION

For further information regarding the warning plates installed on incorporated machine parts, see the specific handbooks



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GENERAL INFORMATION	1
----------------------------	----------

SAFETY	2
---------------	----------

GENERAL DESCRIPTION	3
----------------------------	----------

INSTALLATION	4
---------------------	----------

USE	5
------------	----------

MAINTENANCE	6
--------------------	----------

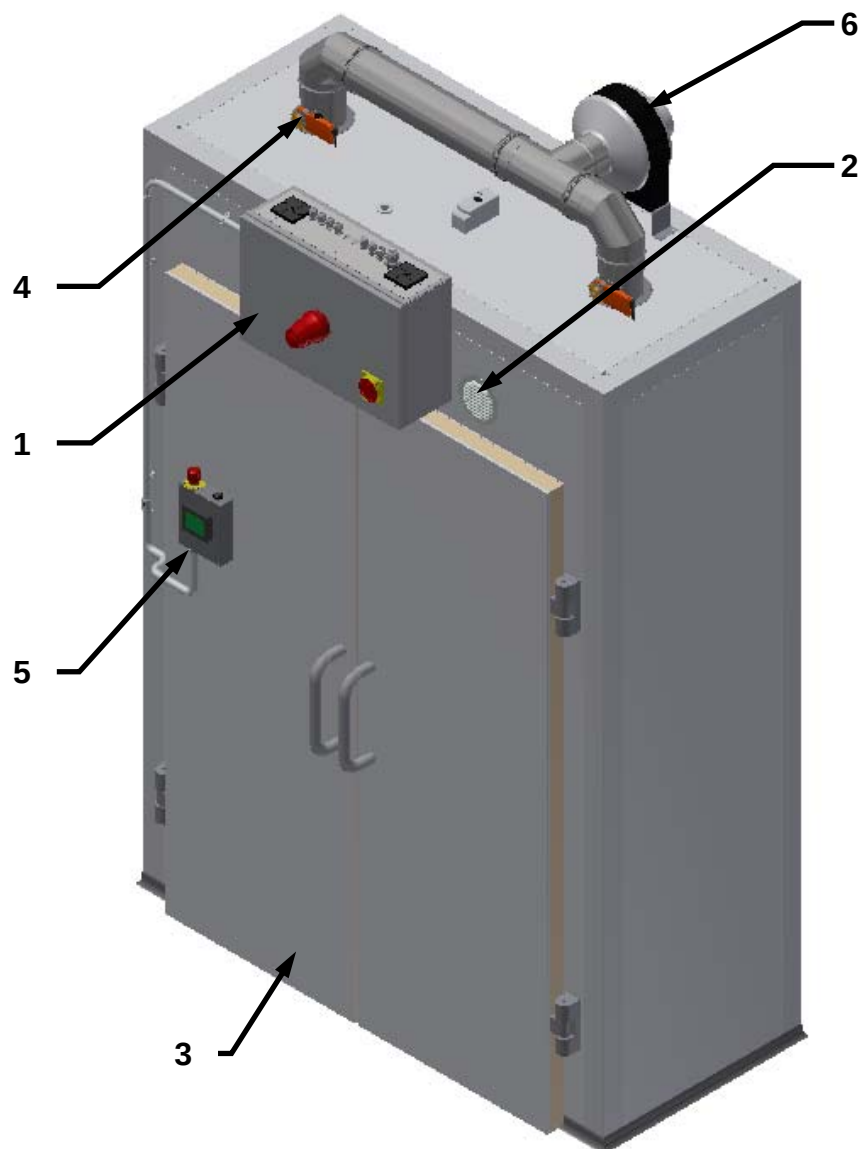
SPARE PARTS	7
--------------------	----------

WIRING DIAGRAM	8
-----------------------	----------

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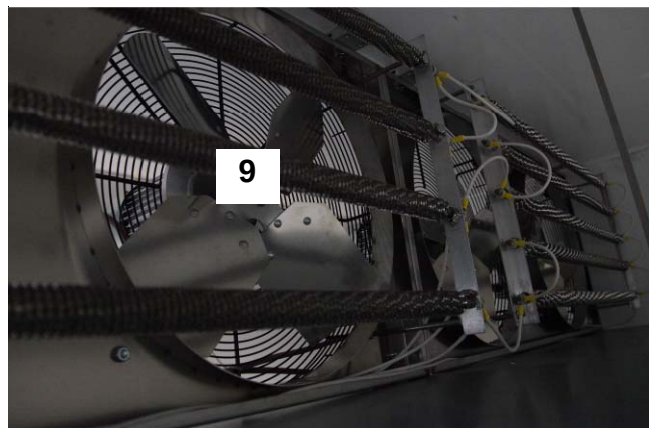
3. GENERAL DESCRIPTION

3.1 MAIN MACHINE COMPONENTS



Legend:

- | | |
|---|-------------------------|
| 1 | Electric cabinet |
| 2 | Air socket |
| 3 | Drier access door |
| 4 | Vapour exhaust valve |
| 5 | Control panel |
| 6 | Vapours extraction unit |



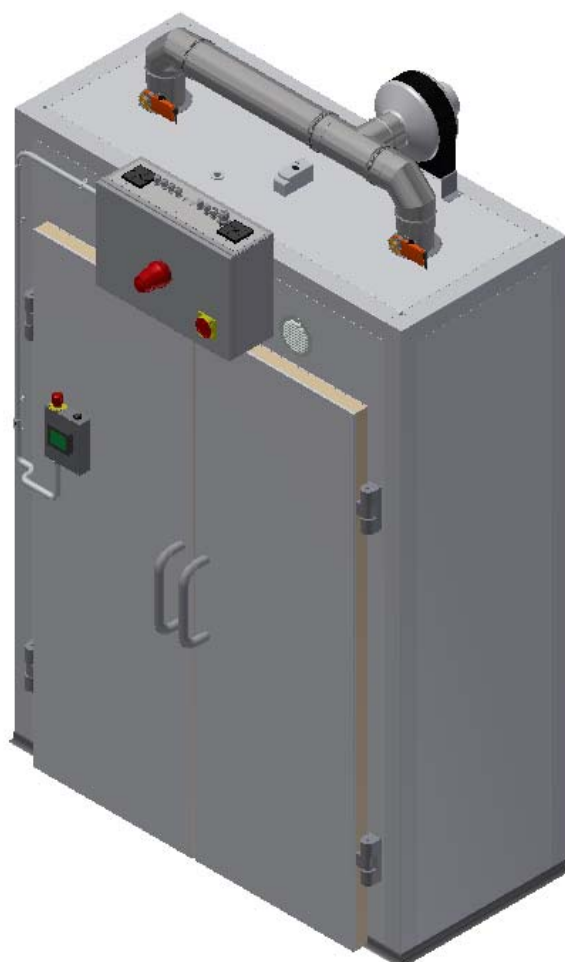
Legend:

- | | |
|---|-----------------------------|
| 7 | Air circulation fans motors |
| 8 | Stacks of pasta to be dried |
| 9 | Air heating resistors |

3.2 TECHNICAL DATA

The following table contains the main technical data of the machine.

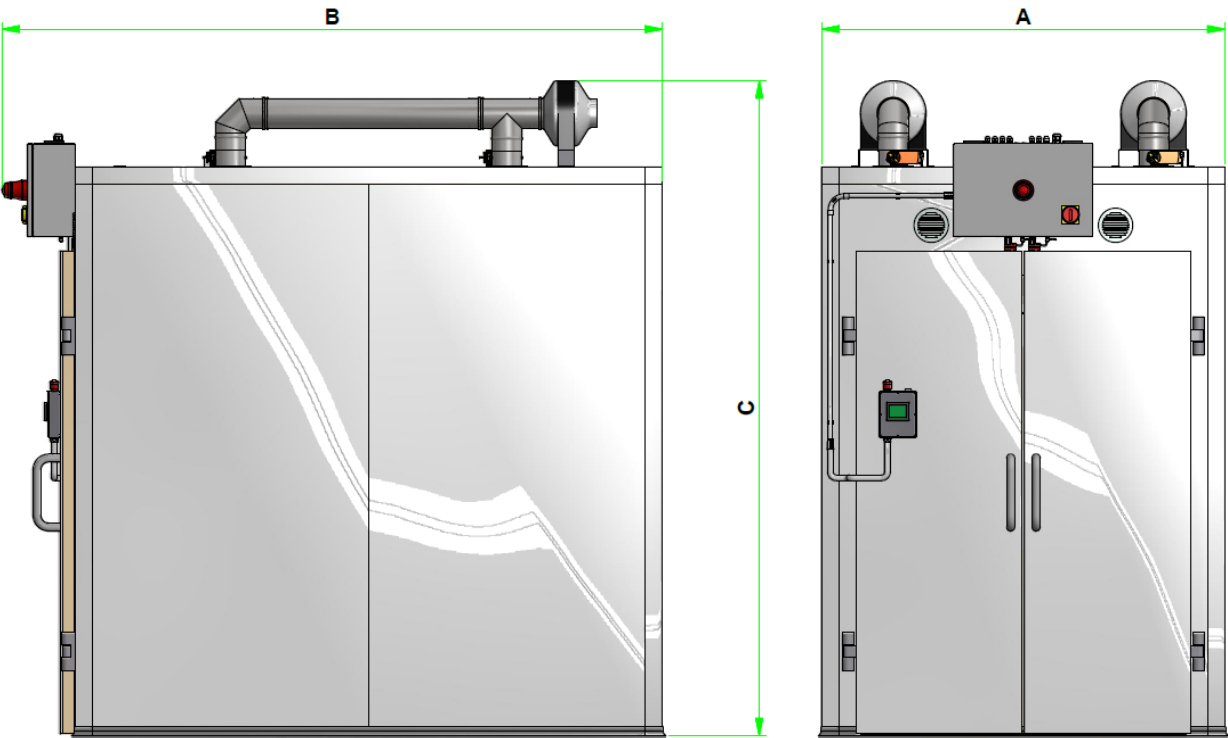
General					
	EC/NG 25	EC/NG 50	EC/NG 100	EC/NG 150	EC/NG 200
Power installed (W)	4160	7720	15740	21360	31480
N° trolleys (nr.)	1	2	4	6	8
N° sieves (nr.)	25	50	100	150	200
Sieve dimensions (mm)	600x1200	600x1200	600x1200	600x1200	600x1200
Quantity of pasta (Kg)	100	200	400	600	800



3.3 OVERALL DIMENSIONS

The following table contains the dimensions of the drier (in mm).

	EC/NG 25	EC/NG 50	EC/NG 100	EC/NG 150	EC/NG 200
Width (A)	1750	1750	1750	1750	1750
Depth (B)	1100	1700	2900	4100	5350
Height (C)	2860	2860	2860	2860	2860



GENERAL INFORMATION	1
----------------------------	----------

SAFETY	2
---------------	----------

GENERAL DESCRIPTION	3
----------------------------	----------

INSTALLATION	4
---------------------	----------

USE	5
------------	----------

MAINTENANCE	6
--------------------	----------

SPARE PARTS	7
--------------------	----------

WIRING DIAGRAM	8
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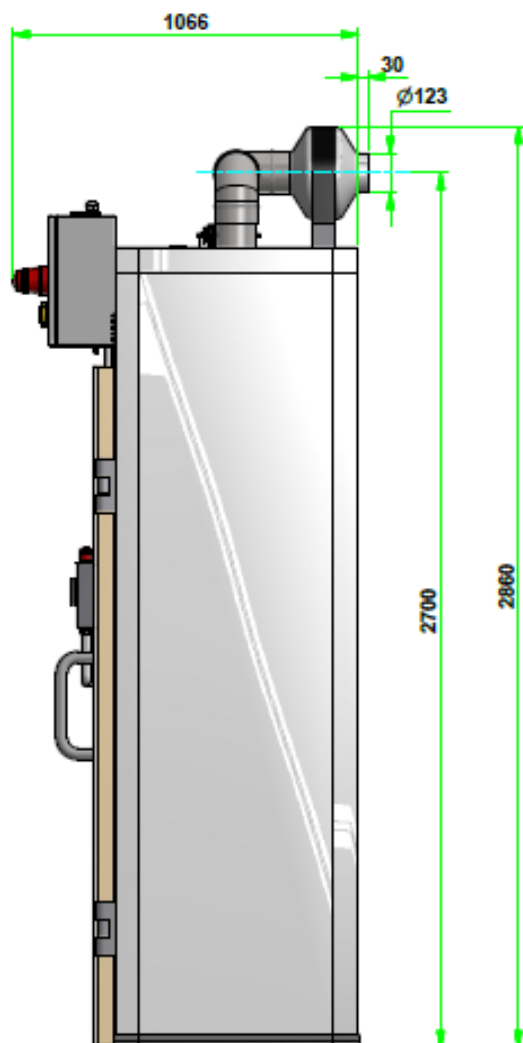
4. INSTALLATION

WARNING

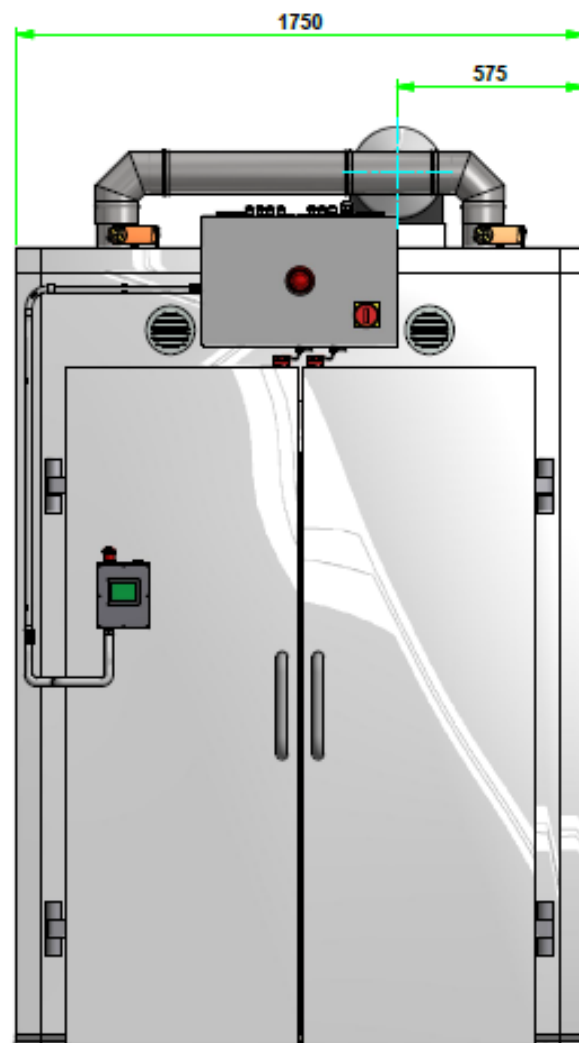


To run the drier, before installation it is necessary to drill 1 hole for EC/NG 25/50 models, and 2 holes for EC/NG 100/150/200 models to extract the humidity (see following "Vapours Extraction" drawings).

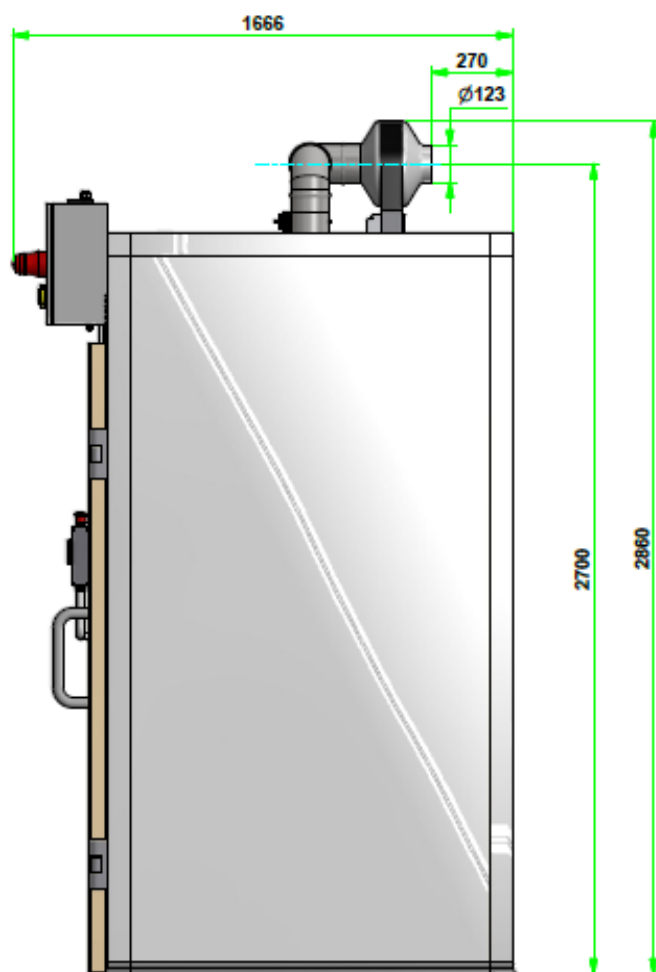
Drier EC/NG 25 side view



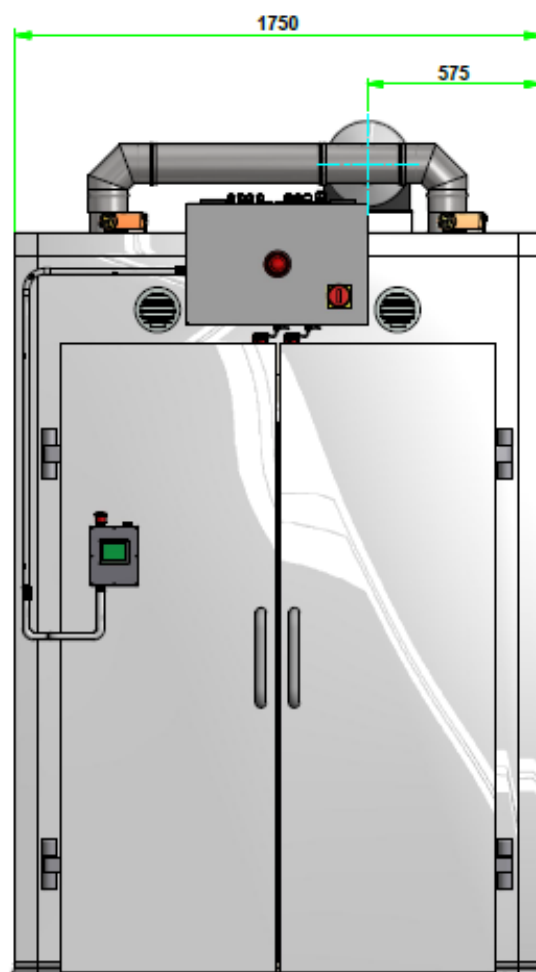
- Drier EC/NG 25/50 front view



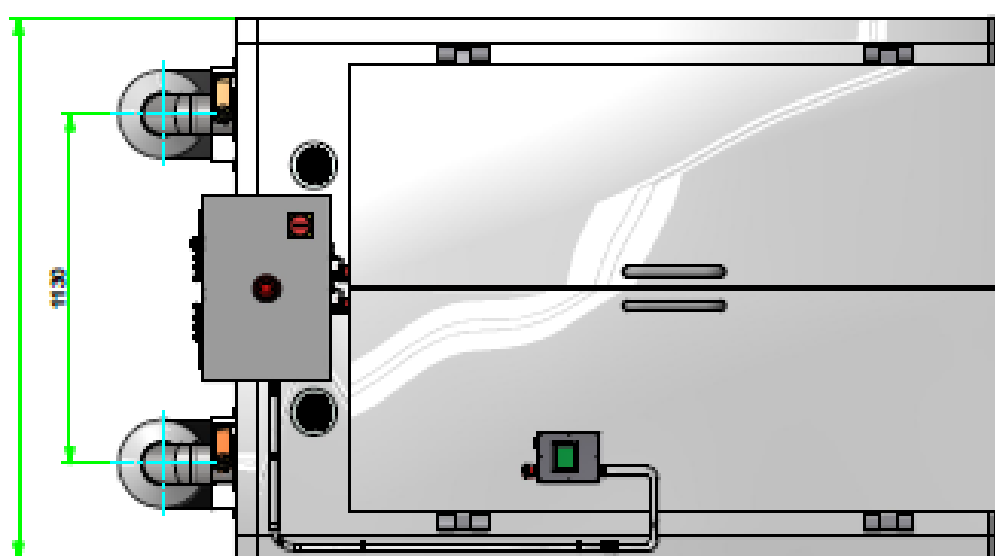
Drier EC/NG 50 side view



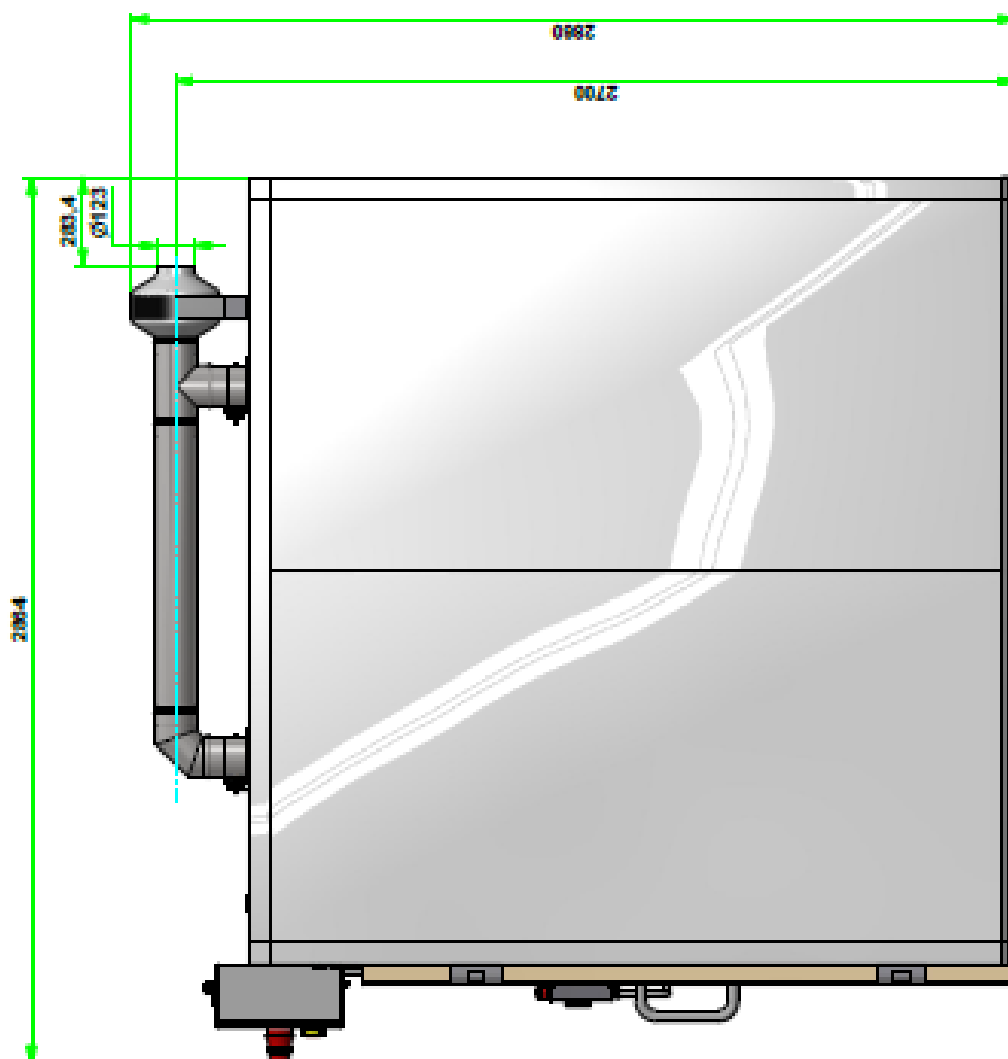
Drier EC/NG 25/50 front view



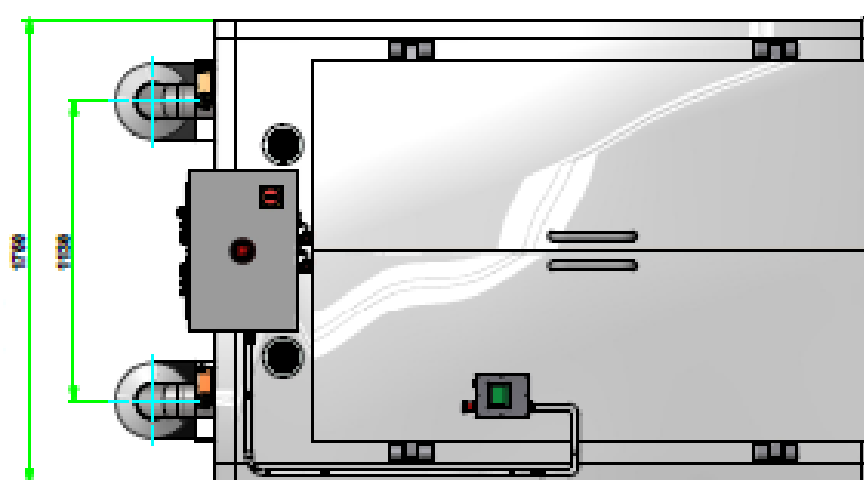
**Drier EC/NG 100/150/200
front view**



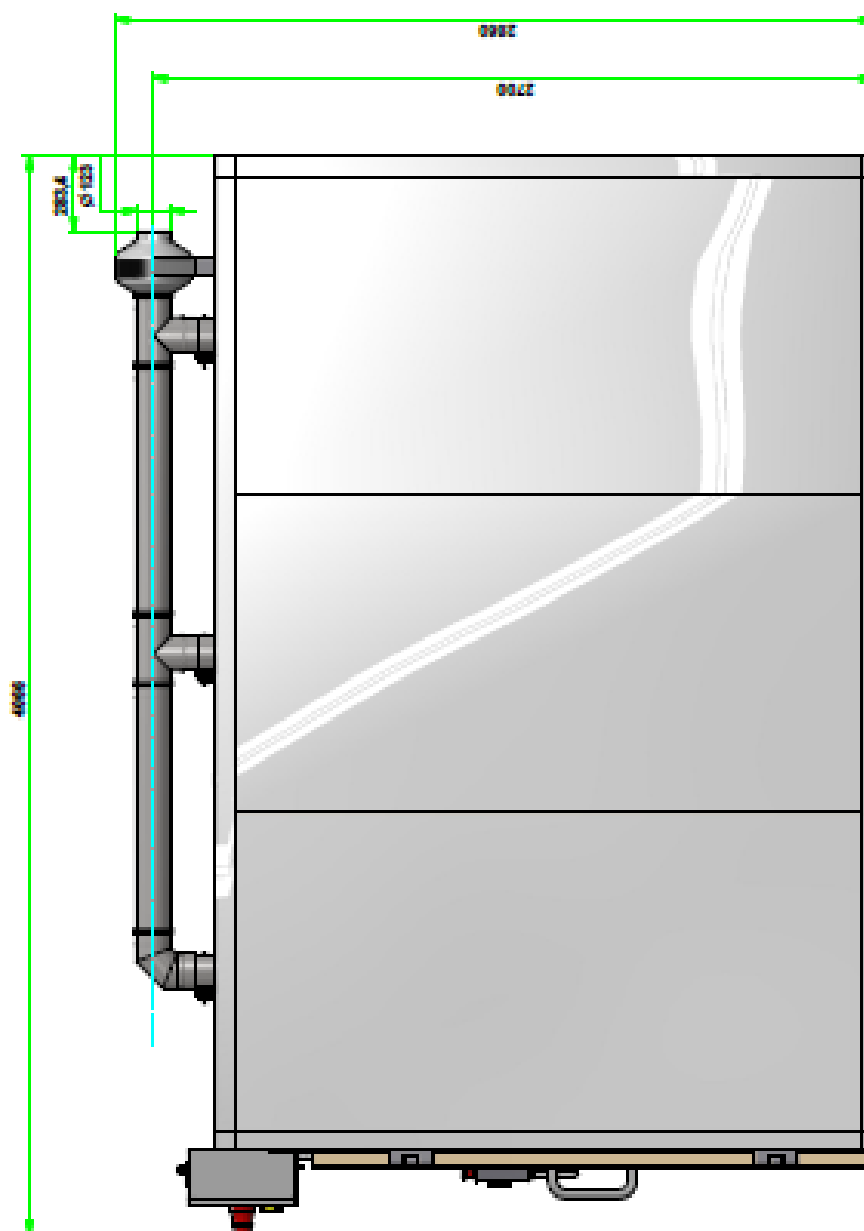
**Drier
EC/NG 100 side view**



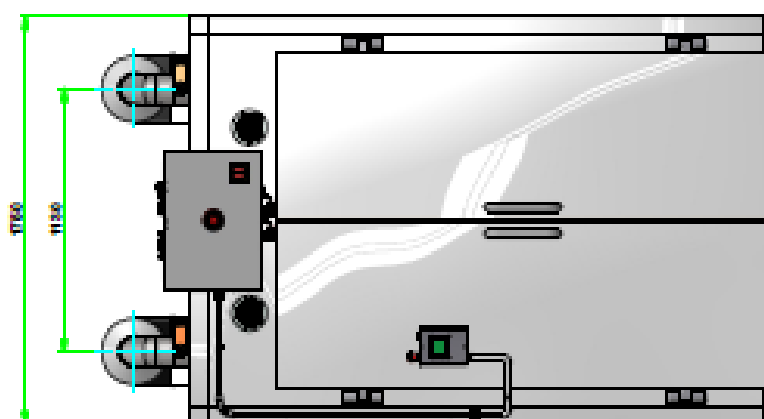
Drier EC/NG 100/150/200
front view



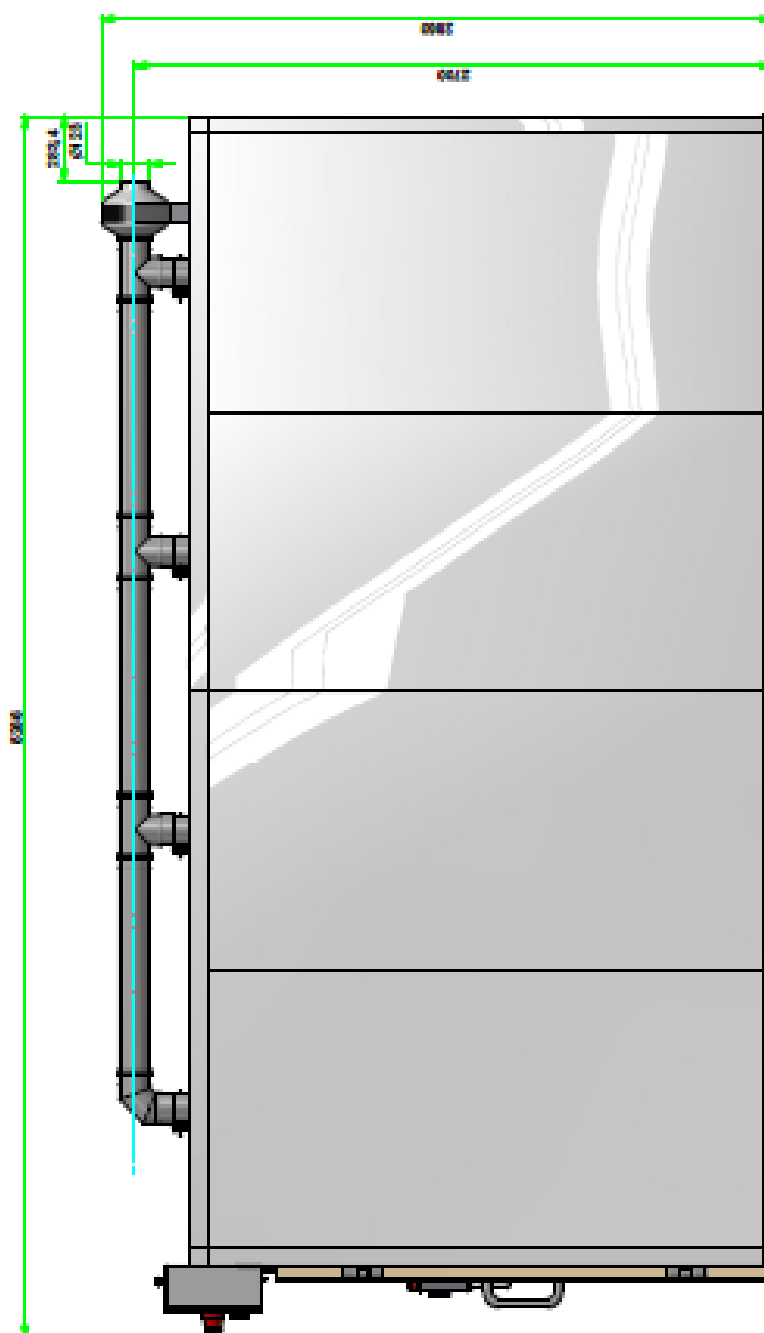
Drier EC/NG 150
side view



**Drier EC/NG 100/150/200
front view**



**Drier
EC/NG 200 side view**



Before installing the system, it is necessary to:

- Remove the protective packaging ;
- Remove any fastening restrictions used for transport.

The following items are contained in the package:

1. Upper wall including panel and fan

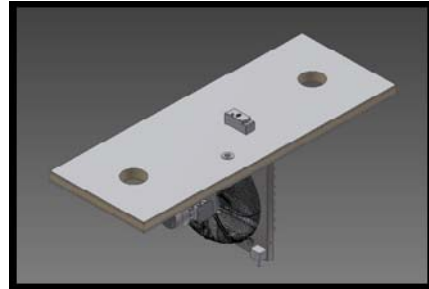
For EC 25 n°1 panel measuring 160cm x 60cm

For EC 50 n°1 panel measuring 160cm x 120cm

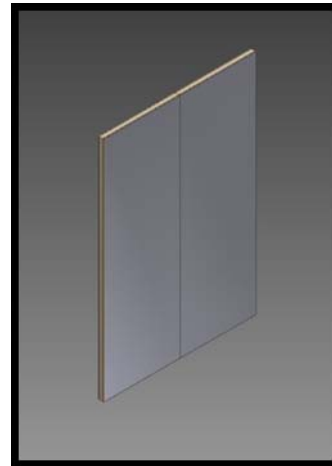
For EC 100 n°2 panels measuring 160cm x 120cm

For EC 150 n°3 panels measuring 160cm x 120cm

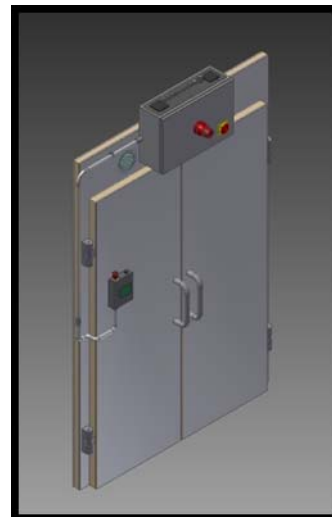
For EC 200 n°4 panels measuring 160cm x 120cm.



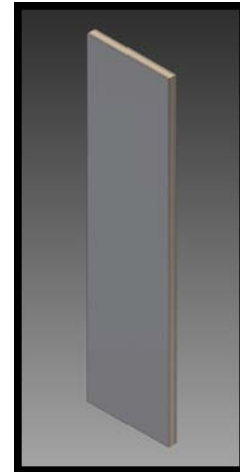
2. Rear wall consisting of 2 panels (n°1)



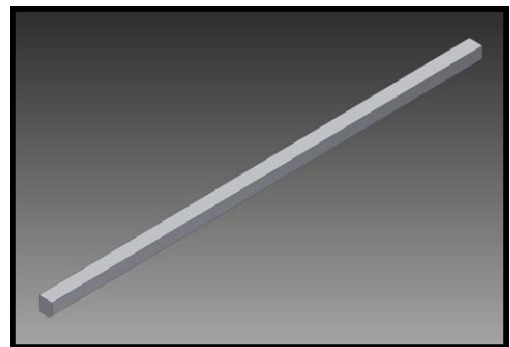
3. Front wall with doors, electric panel and control panel (n°1)



4. Side walls with different widths according to the drier
For EC 25 n°2 panels measuring 240cm x 60cm
For EC 50 n°2 panels measuring 240cm x 120cm
For EC 100 n°4 panels measuring 240cm x 120cm
For EC 150 n°6 panels measuring 240cm x 120cm
For EC 200 n°8 panels measuring 240cm x 120cm

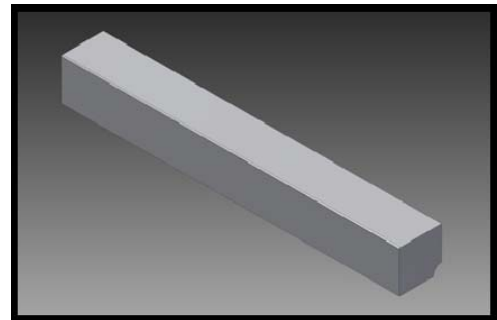


5. Lateral side members with height 240cm (n°4)

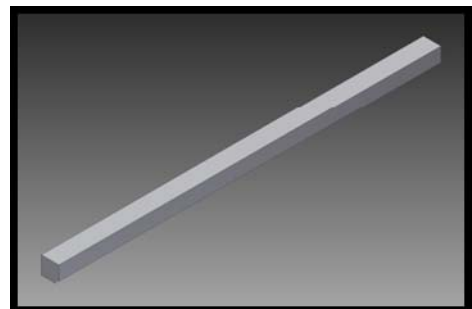


6. Lateral side members

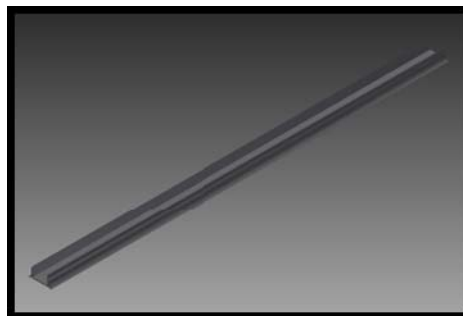
For EC 25 n°2 side members width 60 cm
For EC 50 n°2 side members width 120 cm
For EC 100 n°2 side members width 240 cm
For EC 150 n°2 side members width 120 cm
n°2 side members width 240 cm
For EC 200 n°4 side members width 120 cm



7. Front and rear side members width 160cm (n°2)



8. Rear side wall guide , width 160 cm (n°1)



9. Side wall guide

For EC 25 n°2 guides width 60cm

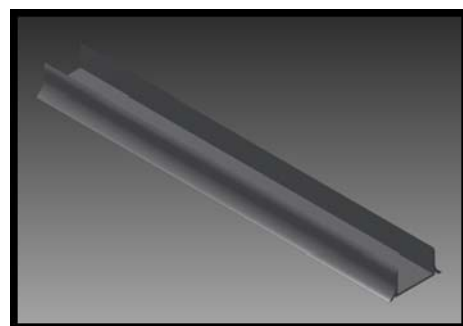
For EC 50 n°2 guides width 120cm

For EC 100 n°2 guides width 240 cm

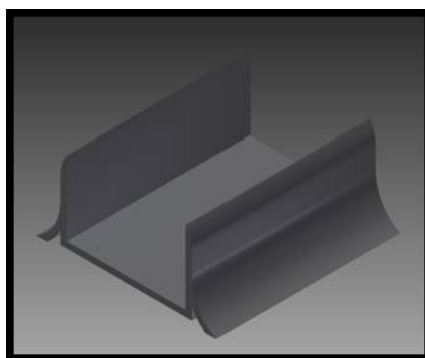
For EC 150 n°2 guides width 120 cm

n°2 guides width 240 cm

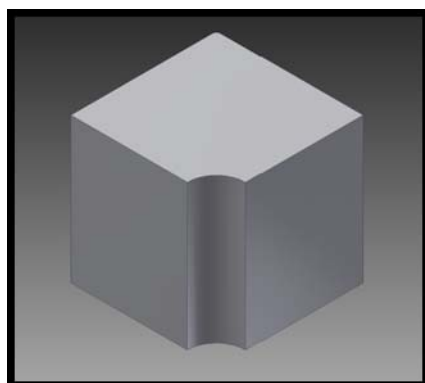
For EC 200 n°2 guides width 240 cm



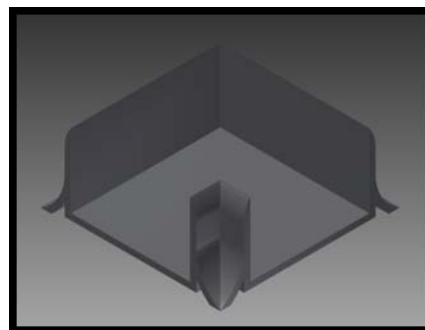
10. Doors wall front guide, width 9cm (n°2)



11. Upper corners closing caps (n°4)



12. Lower corners closing caps (n°4)



13. Extractor with fastening bracket

For EC 25 n°1 Extractor with fastening bracket

For EC 50 n°1 Extractor with fastening bracket

For EC 100 n°2 Extractors with fastening brackets

For EC 150 n°2 Extractors with fastening brackets

For EC 200 n°2 Extractors with fastening brackets



14. Valves connecting bends (n°2)



15. Vapour extraction valve

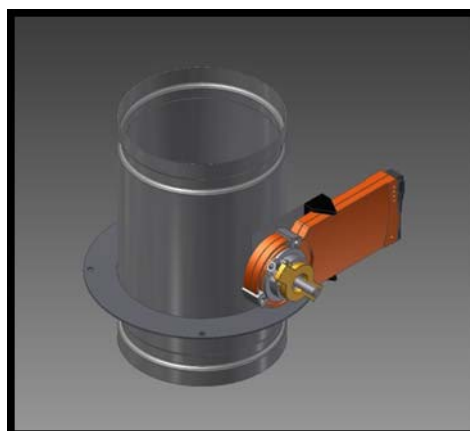
For EC 25 n°2 vapour extraction valves

For EC 50 n°2 vapour extraction valves

For EC 100 n°4 vapour extraction valves

For EC 150 n°6 vapour extraction valves

For EC 200 n°8 vapour extraction valves



16. "T" joint for vapours extraction pipes

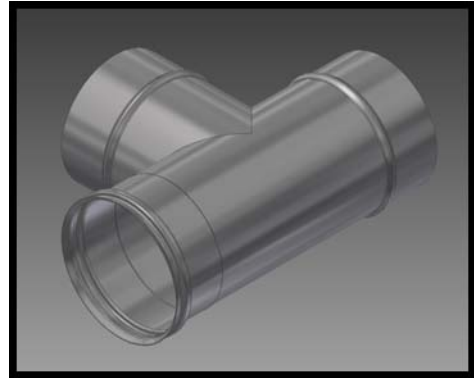
For EC 25 n°1 "T" joint

For EC 50 n°1 "T" joint

For EC 100 n°2 "T" joints

For EC 150 n°4 "T" joints

For EC 200 n°6 "T" joints

**17. Vapours extraction system connecting pipe**

For EC 25 n°1 connecting pipe length 65cm

For EC 50 n°1 connecting pipe length 65cm

For EC 100 n°2 connecting pipes length 100 cm

For EC 150 n°4 connecting pipes length 100 cm

For EC 200 n°6 connecting pipes length 100 cm

**18. Vapours extraction system connecting pipe**

For EC 25 n°1 connecting pipe length 65cm

For EC 50 n°1 connecting pipe length 65cm

For EC 100 n°2 connecting pipes length 100 cm

For EC 150 n°4 connecting pipes length 100 cm

For EC 200 n°6 connecting pipes length 100 cm

**19. Lower baffle plate**

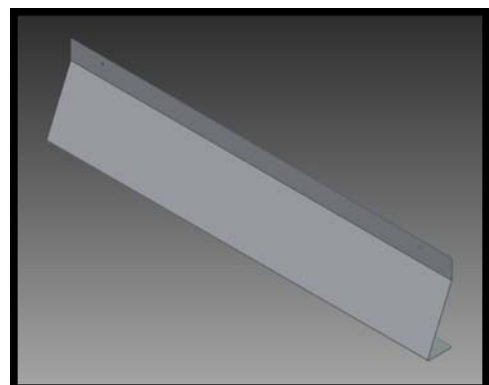
For EC 25 n°2 metal sheets width 60cm

For EC 50 n°2 metal sheets width 120cm

For EC 100 n°4 metal sheets width 120cm

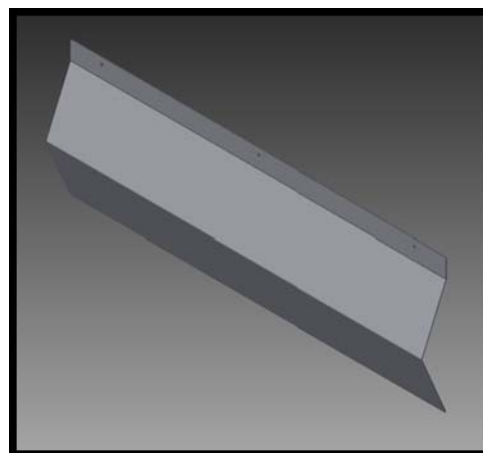
For EC 150 n°6 metal sheets width 120cm

For EC 200 n°8 metal sheets width 120cm

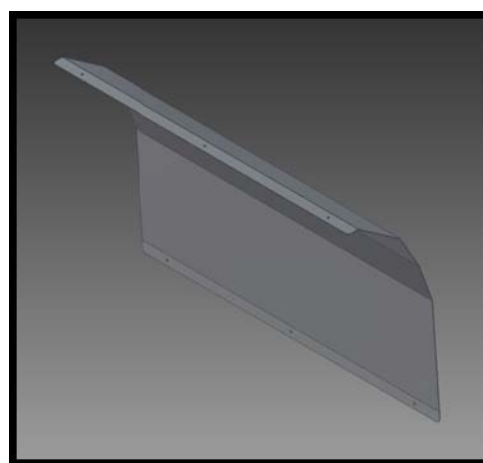


20. Central baffle plate

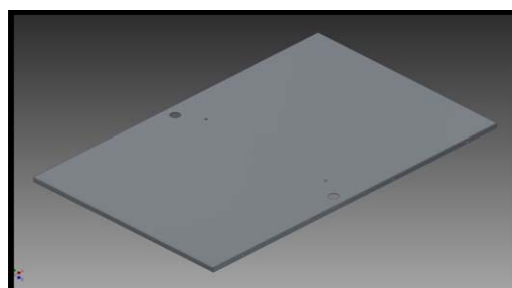
For EC 25 n°4 metal sheets width 60cm
For EC 50 n°4 metal sheets width 120cm
For EC 100 n°8 metal sheets width 120cm
For EC 150 n°12 metal sheets width 120cm
For EC 200 n°16 metal sheets width 120cm

**21. Upper baffle plate**

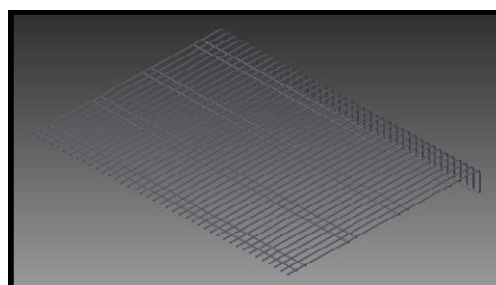
For EC 25 n°2 metal sheets width 60cm
For EC 50 n°2 metal sheets width 120cm
For EC 100 n°4 metal sheets width 120cm
For EC 150 n°6 metal sheets width 120cm
For EC 200 n°8 metal sheets width 120cm

**22. Upper horizontal metal sheet**

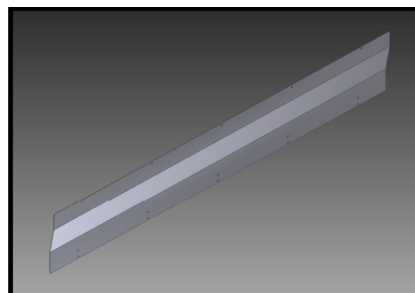
For EC 25 n°1 metal sheet width 60cm
For EC 50 n°1 metal sheet width 120cm
For EC 100 n°2 metal sheets width 120cm
For EC 150 n°3 metal sheets width 120cm
For EC 200 n°4 metal sheets width 120cm

**23. Protection grid**

For EC 25 n°1 metal sheet width 60cm
For EC 50 n°2 metal sheets width 60cm
For EC 100 n°4 metal sheets width 60cm
For EC 150 n°6 metal sheets width 60cm
For EC 200 n°8 metal sheets width 60cm



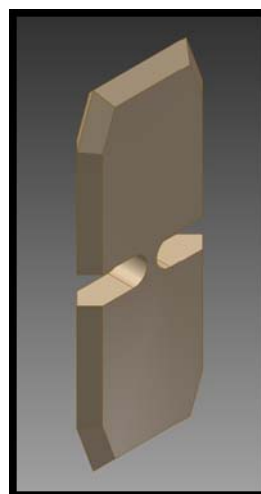
24. Metal sheet for horizontal wall (n°1)



25. Wrench to close panels (n°1)



26. Panels fastening key



27. Panel holes closing cap



28. Self drilling screw UNI 8118

EC 25 n°50 screws

EC 50 n°60 screws

EC 100 n°110 screws

EC 150 n°205 screws

EC 200 n°220 screws



29. Washer UNI 6593 Ø6X24

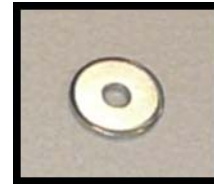
EC 25 n°2 washers

EC 50 n°4 washers

EC 100 n°8 washers

EC 150 n°12 washers

EC 200 n°16 washers



30. Socket head cap screw M5X12 UNI 5931

EC 25 n°10 screws

EC 50 n°12 screws

EC 100 n°18 screws

EC 150 n°20 screws

EC 200 n°26 screws



31. Socket head cap screw M5X20 UNI 5931

EC 25 n°2 screws

EC 50 n°4 screws

EC 100 n°8 screws

EC 150 n°8 screws

EC 200 n°16 screws



32. Socket head cap screw M5X30 UNI 5931 n. 4



4.1 INSTALLATION

4.1.1 Positioning



NOTE

Before positioning the machine a preventive visual check is necessary to detect any damage caused during transport.

Should one or more components be found damaged, do not continue with the installation, but inform the manufacturer of the faults found, deciding together with the same the action to be taken .

The machine is able to operate according to the technical parameters indicated, if it is correctly arranged on the workshop floor so that it is stable when functioning.

During cleaning operations the operators are to be provided with the necessary personal protection equipment.



WARNING

Electrical connections are to be carried out by skilled technicians who have been adequately trained.



IMPORTANT

Install the panels following the numbers on the same, checking that the numbers are facing inside the drier.

4.1.2 Installation



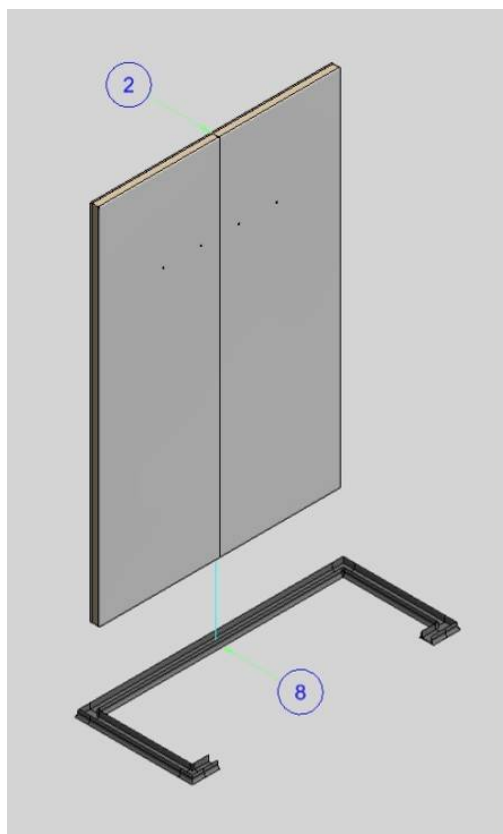
WARNING

Check that the floor is perfectly flat and is not uneven. If the surface where the drier is to be installed is rough, level with silicon.

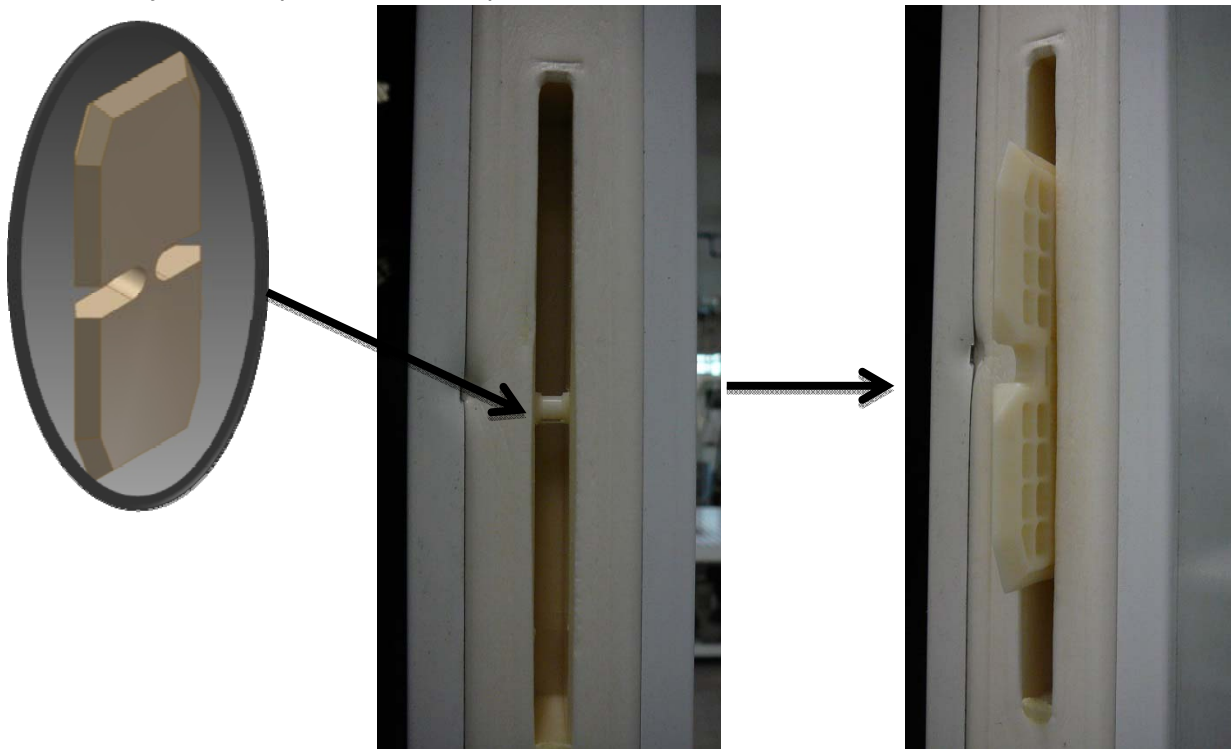
- Place the guides (8-9-10-12), in the zone where the drier is to be installed fitting each inside the next.



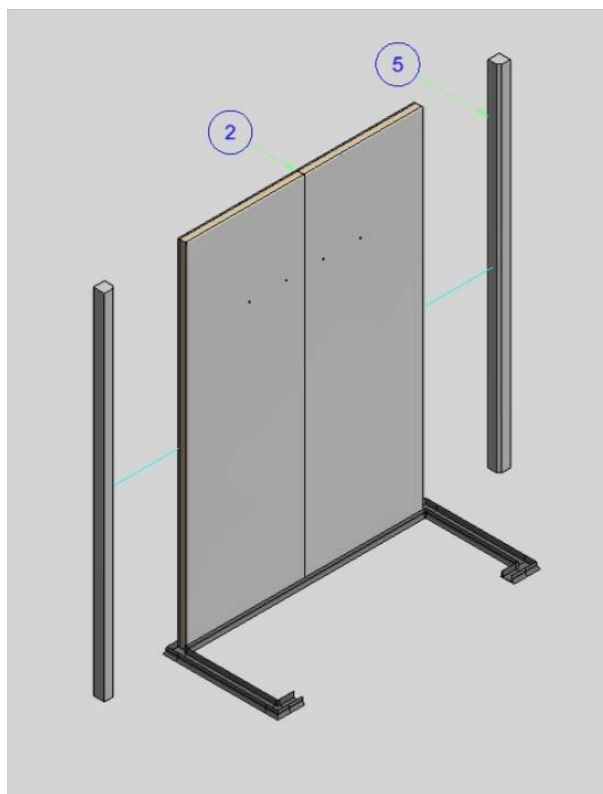
- Inside the rear guide (8) insert the rear wall (2).



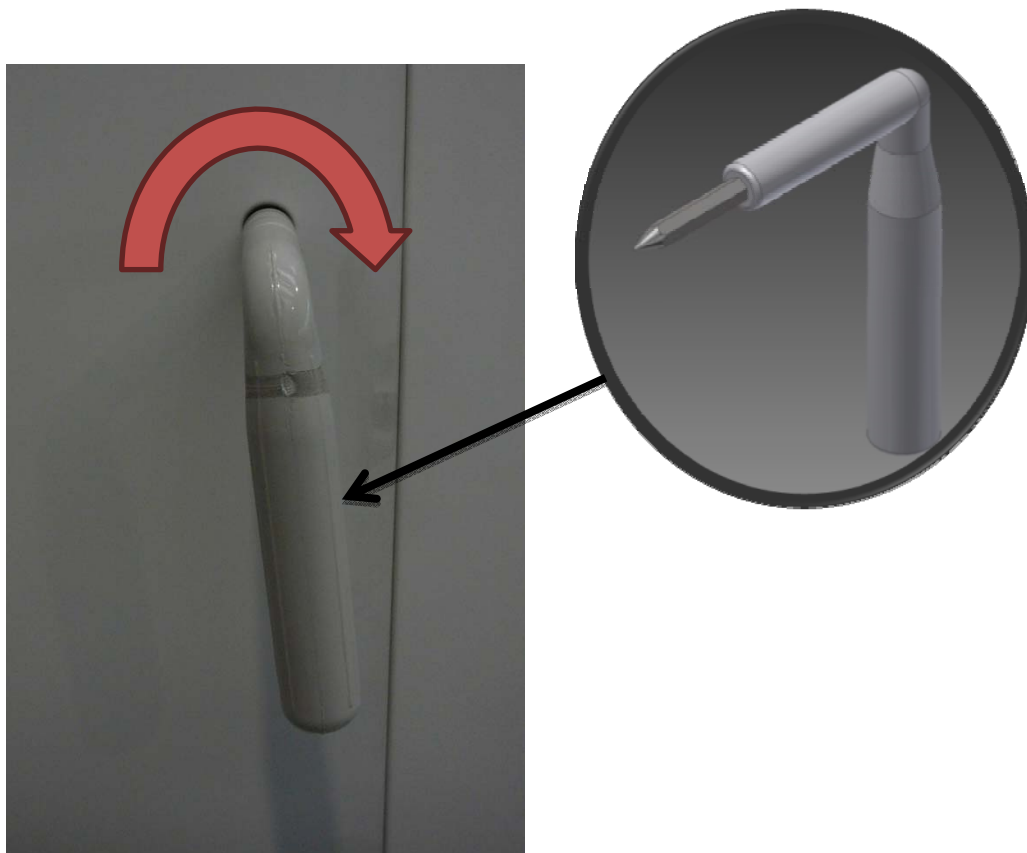
- Insert a key (25) into each free space of the panels "closure" to give better structural stiffness to the Drier. Carry out this operation for each panel.



- Hook the 2 side members (5) to the rear wall (2) and lock them with the key (24).



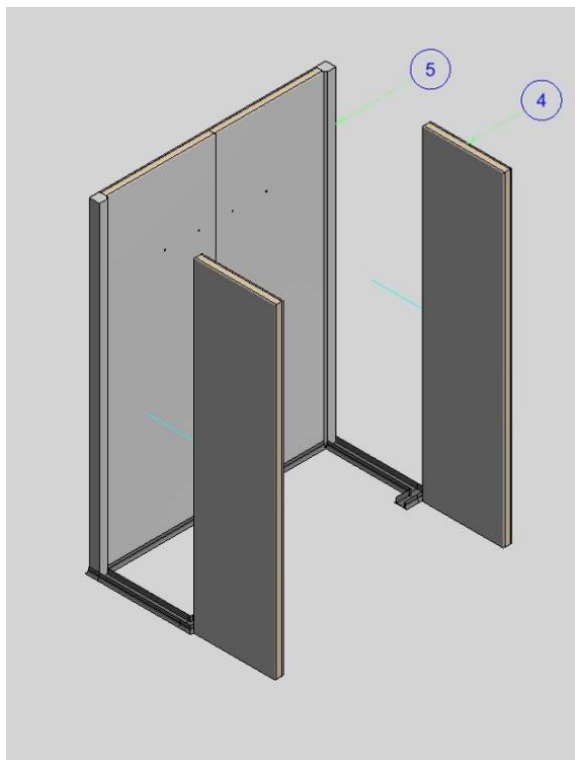
- To lock the panels to each other, approach the parts, insert the wrench (24) in the seat on the panels, and turn clockwise so that this hook pulls the wall toward it, locking it .



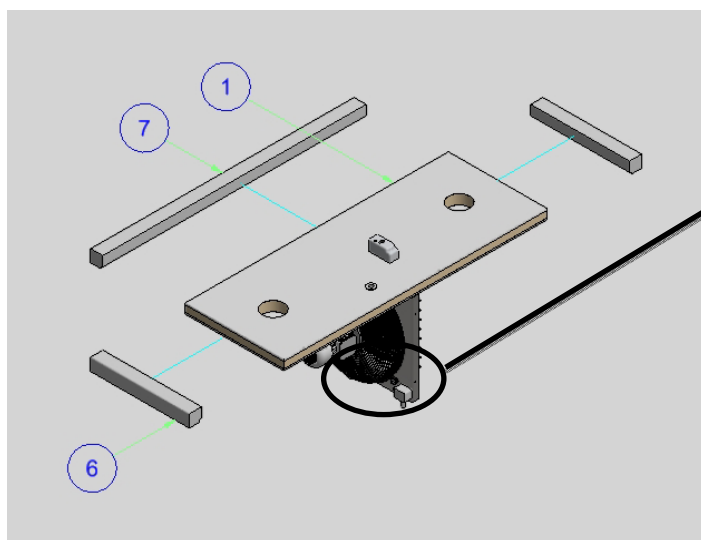
WARNING

Take care not to excessively force with the wrench to avoid breaking the hook.

- Hook the side walls (4) to the side members (5) already mounted.



- Hook the rear side member (7) and the lateral members (6) to the roof (1) .

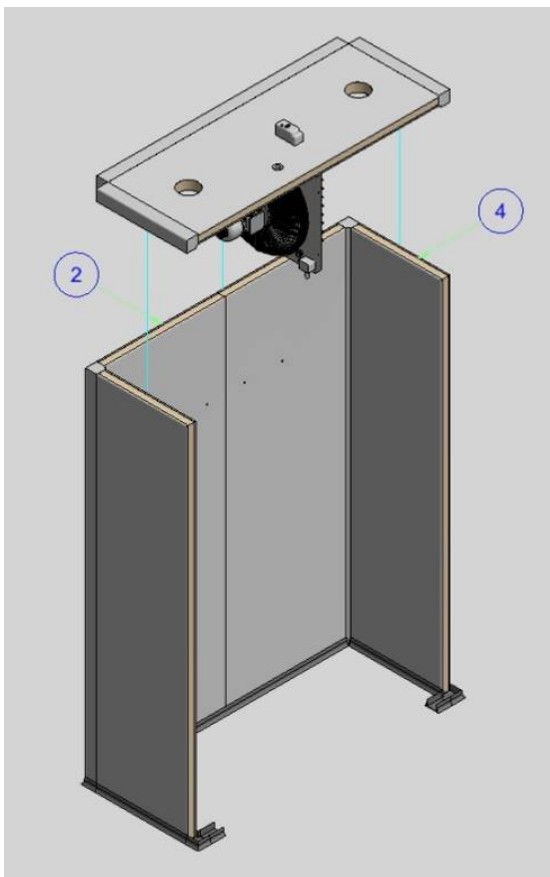


WARNING

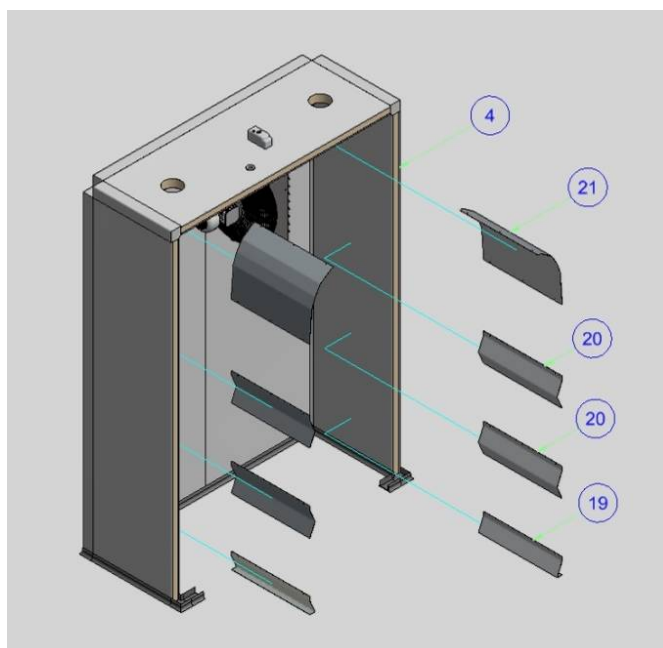


Turn the probe on the panel with the sensor facing downward for correct Drier functioning

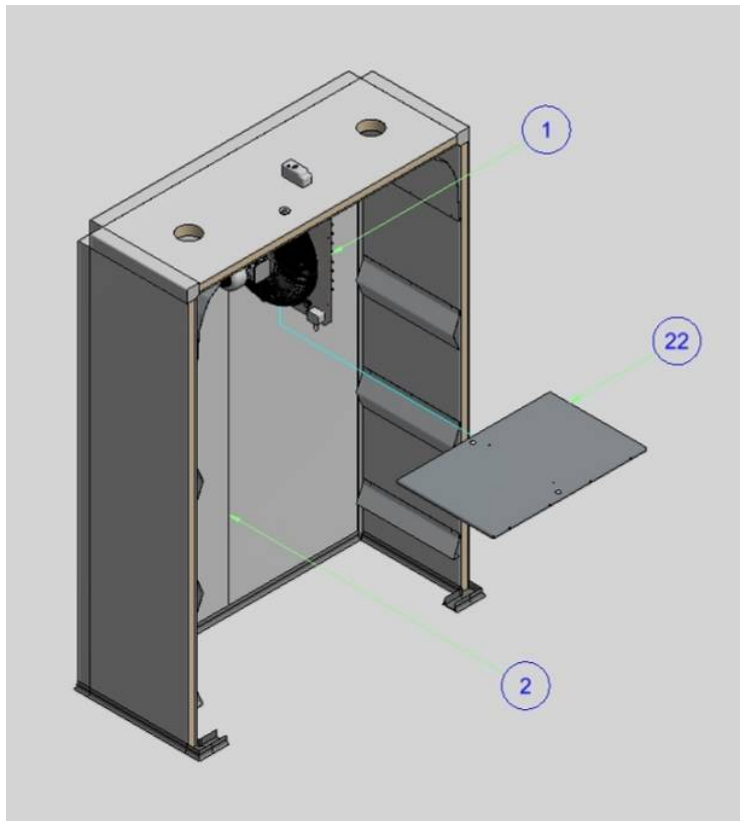
- Place the assembled roof of side members and fasten it to the side walls (4) and the rear wall (2).



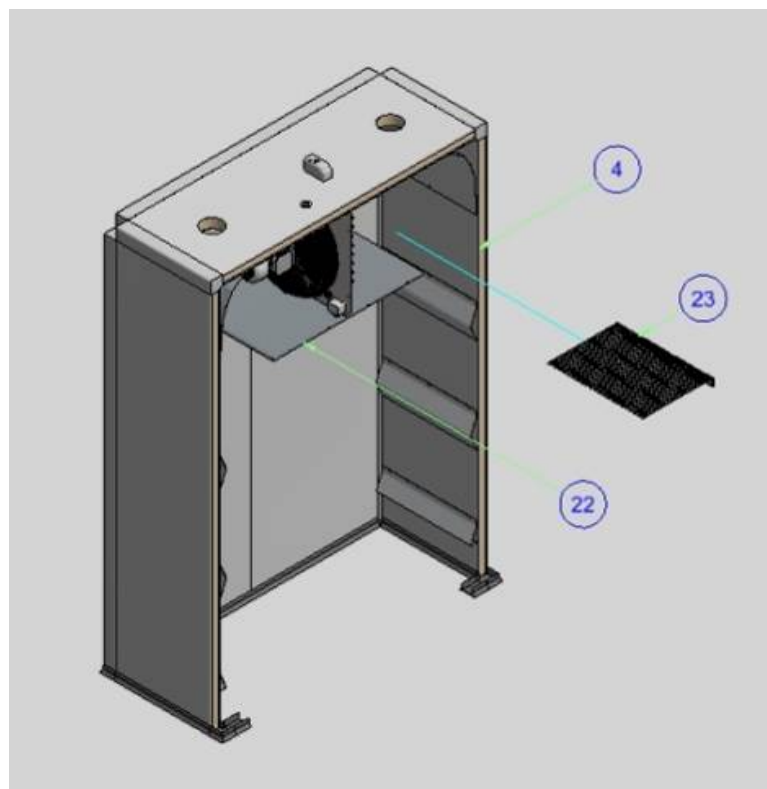
- Fasten the lower baffle plates (19), the central baffle plates (20) and the upper baffle plates (21) to the side walls (4) using the screws (28) supplied in the kit.



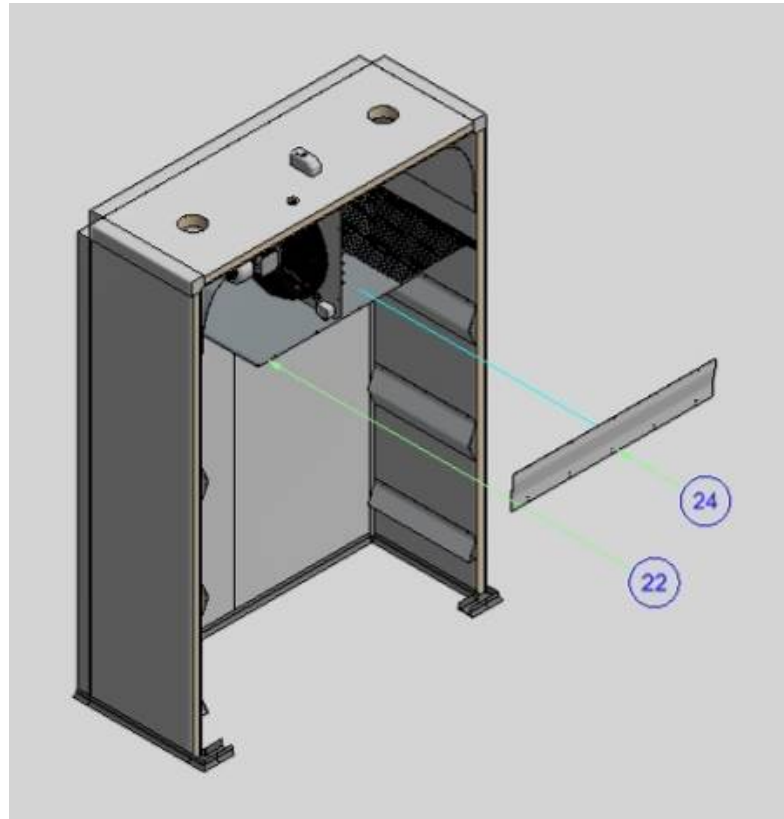
- Fasten the upper horizontal metal sheet (22) to the rear wall (2) using the screws (32) and the resistor support mounted on the roof (1) with the screws (30) supplied in the kit.



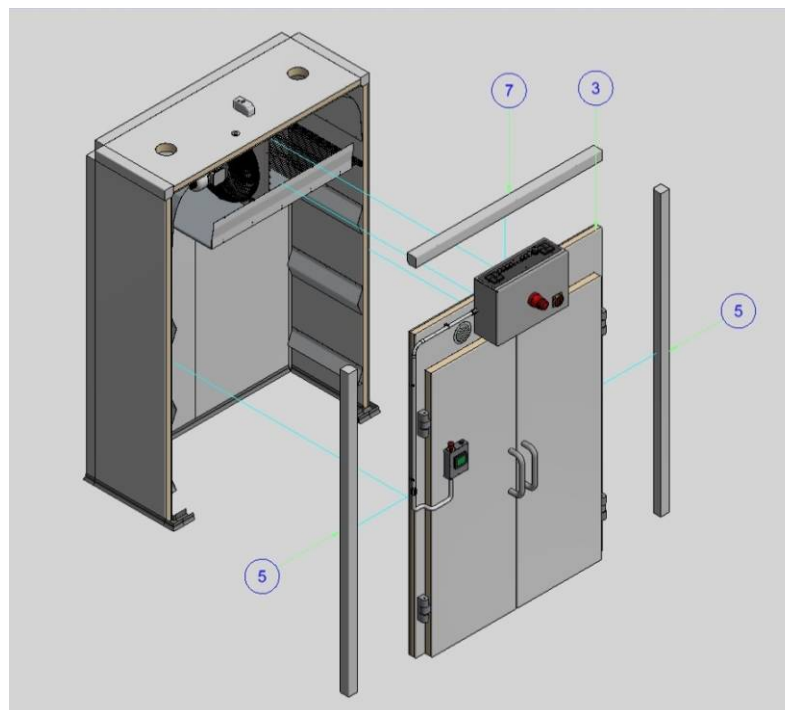
- Insert the protective grid (23) over the upper horizontal metal sheet (22) and fasten it to the wall (4) with the washers (29) and screws (31).



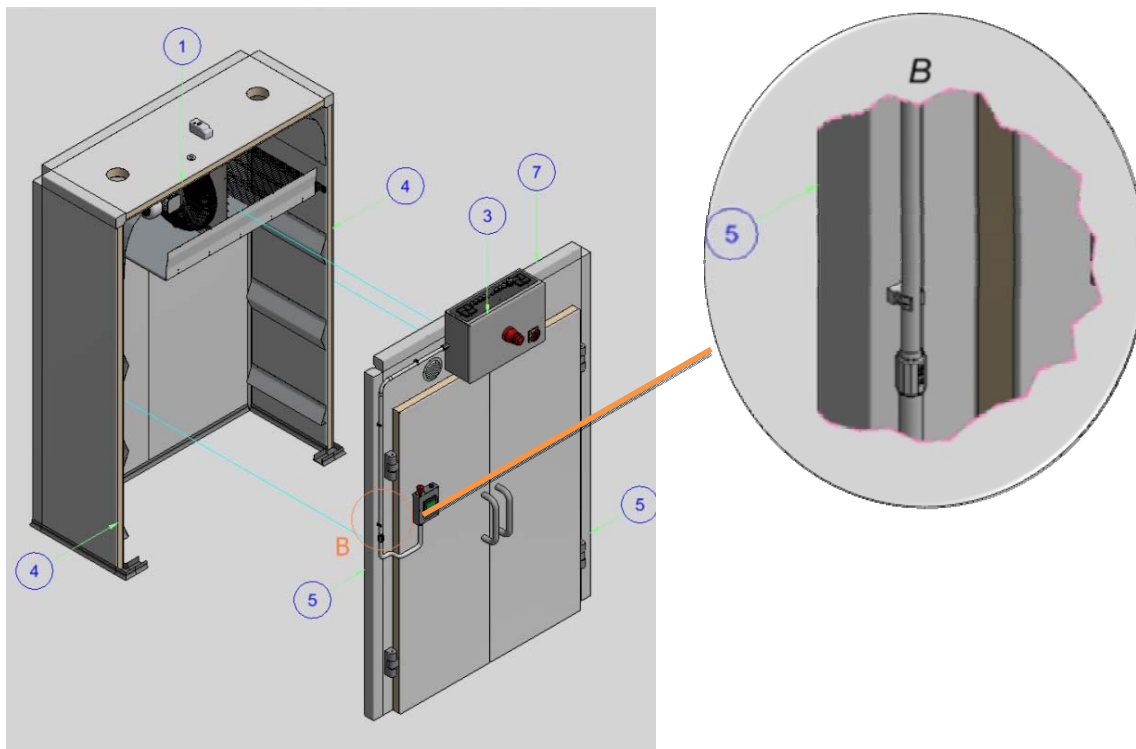
- Fasten the horizontal wall metal sheet (24) to the upper horizontal metal sheet (22) using the screws (30) contained in the kit.



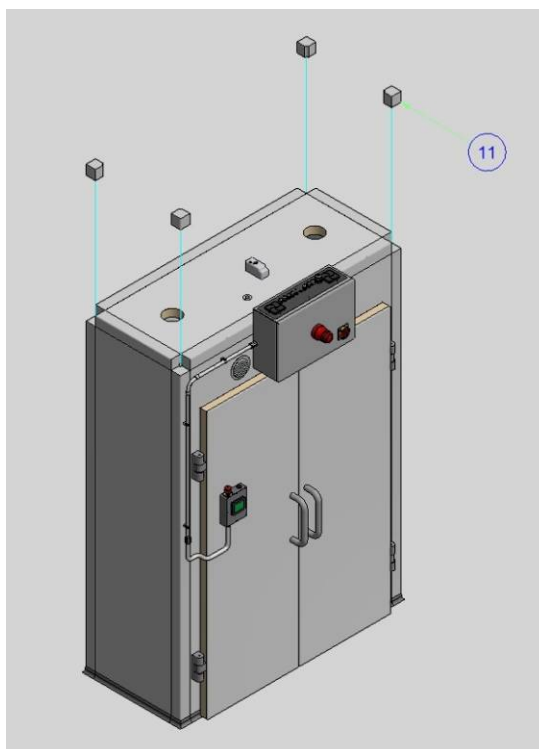
- Hook the front side member (7) and other 2 lateral side members (5) to the front wall with the doors (3).



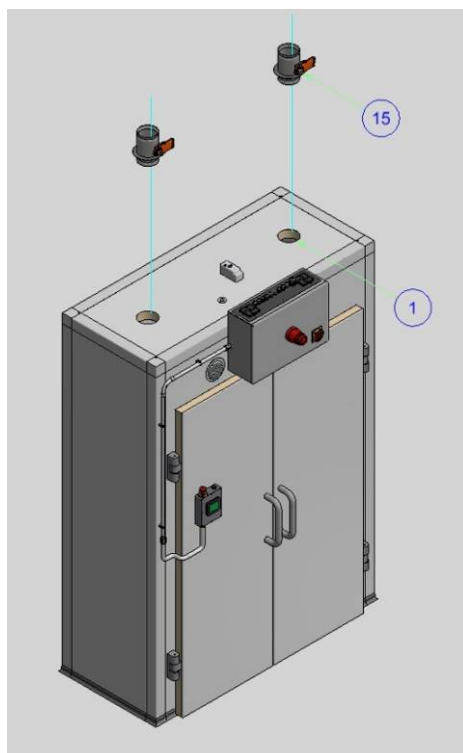
- Fasten the front wall with doors (3) through the side members previously mounted (5 and 7) to the side walls (4) and the upper wall (1). Fasten the pipe support to the left side member (5) of the front wall with doors (3). Fasten the upper part of metal sheet for the horizontal wall (24) with 2 screws (30) to the front wall with doors (3).



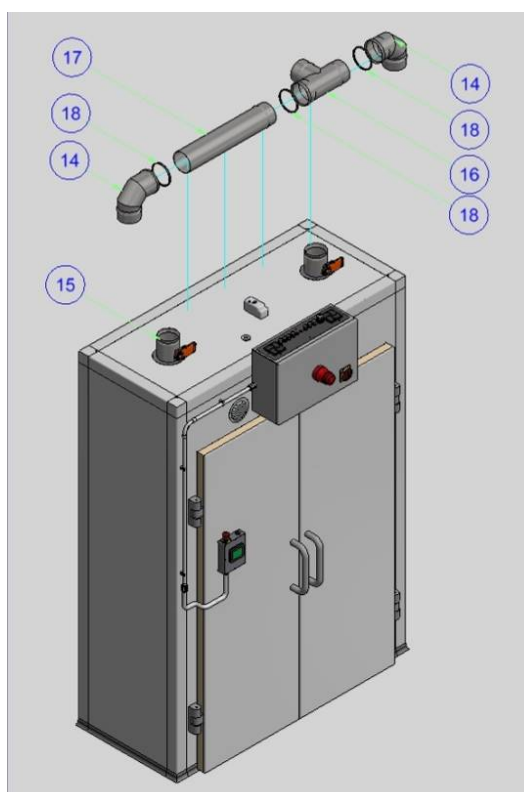
- Insert the 4 caps (11) in the housings in the upper part of the roof.



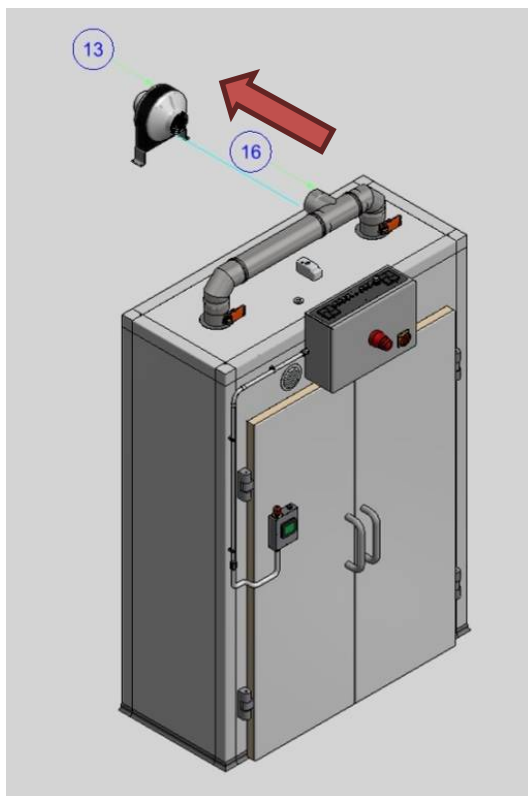
- Insert the valves (15) in the holes in the roof (1) and fasten them using the screws (28) supplied in the kit.



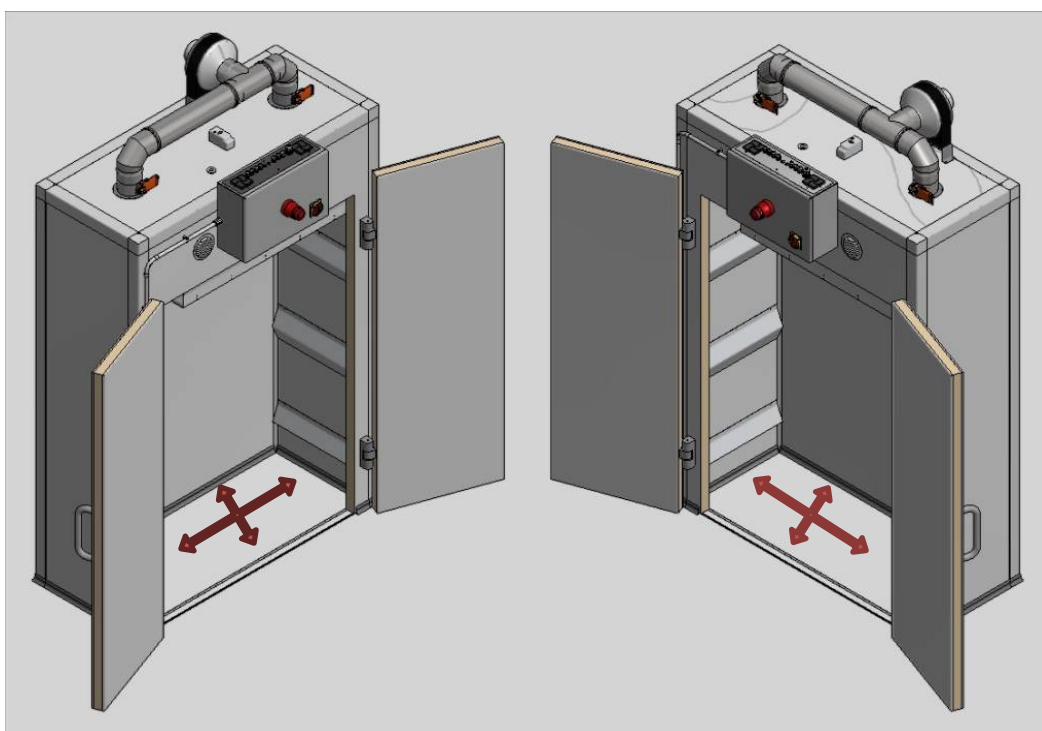
- Insert the gaskets (18) in the bends (14) and in the “T” joints (16), mount the piping as shown in the figure and fit the bends (14) on the valves (15).



- Insert the extractor (13) inside the “T” junction (16) with the air expulsion arrow pointing toward the rear of the drier and fasten it to the roof with the screws (28) supplied in the kit.



- Apply a coating of silicon over all the lower internal perimeter of the drier to completely isolate the cell against external infiltrations. After the application of the silicon, leave to dry for 48 hours **WITH THE DRIER DOORS OPEN !!!**



- Once the silicon is dry, adjust the doors so they assure a perfect seal in the drier. Unscrew the screws and remove the covering of the door hinges.



- Remove the grey plastic caps from the hinges using a flat tip screwdriver.



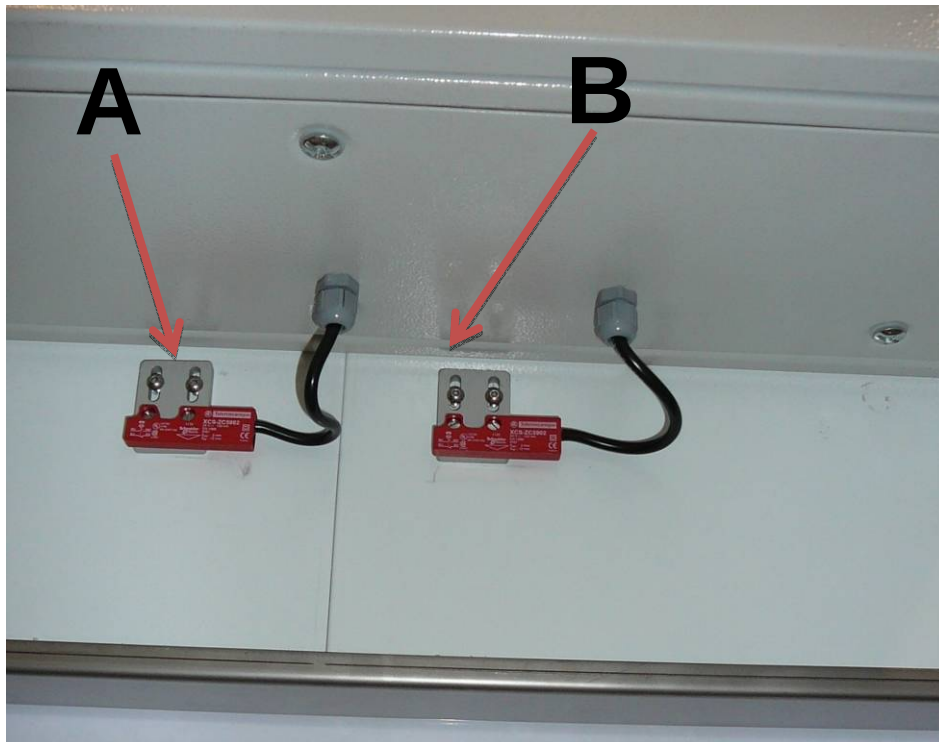
- Loosen the screws that fasten the hinges to the door.



- Close the door and check that it is not possible to pass a sheet of paper under the gasket of the door lower section. Tighten the previously loosened screws of the hinges and test again. Carry out the operation on both doors.

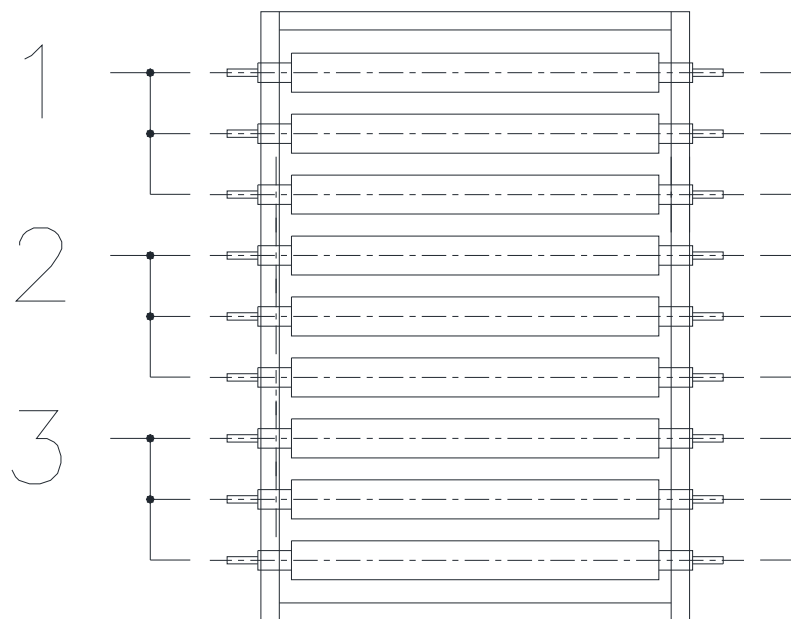


- At this point the microswitches on the door frame may have lost their setting. Loosen the screws (A) of the plates (B) that sustain the microswitches, adjust the correct functioning, retighten the plate screws and check correct functioning of the drier.

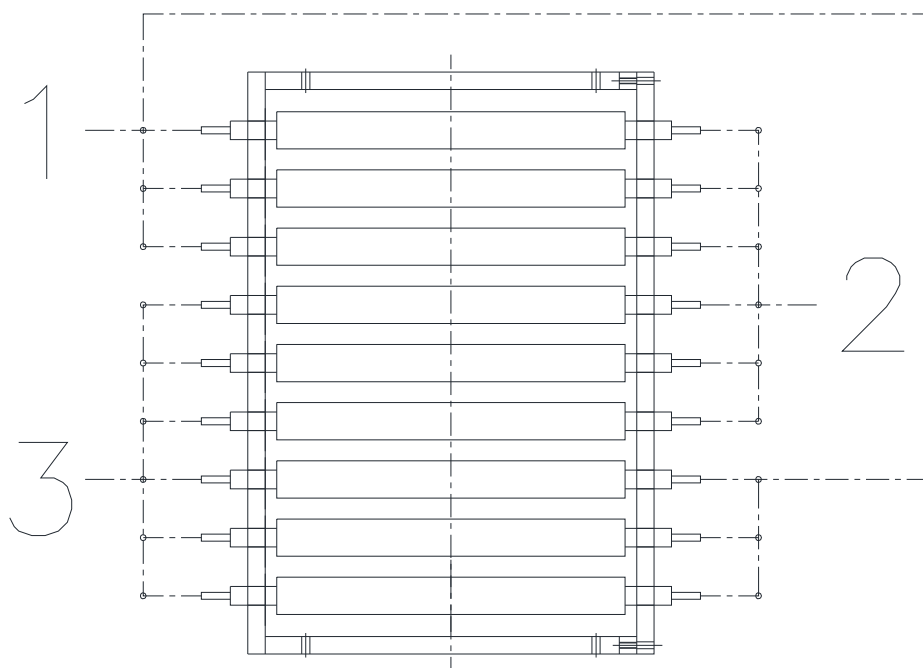


- When there are several groups of electric resistors, make the connections as shown in the following figures.

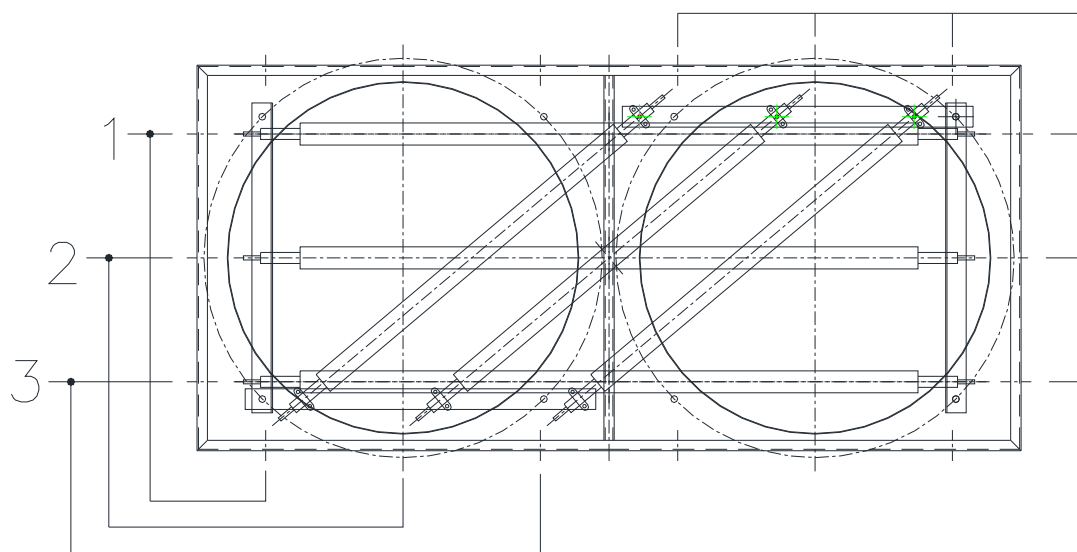
EC25 - TF 400 V



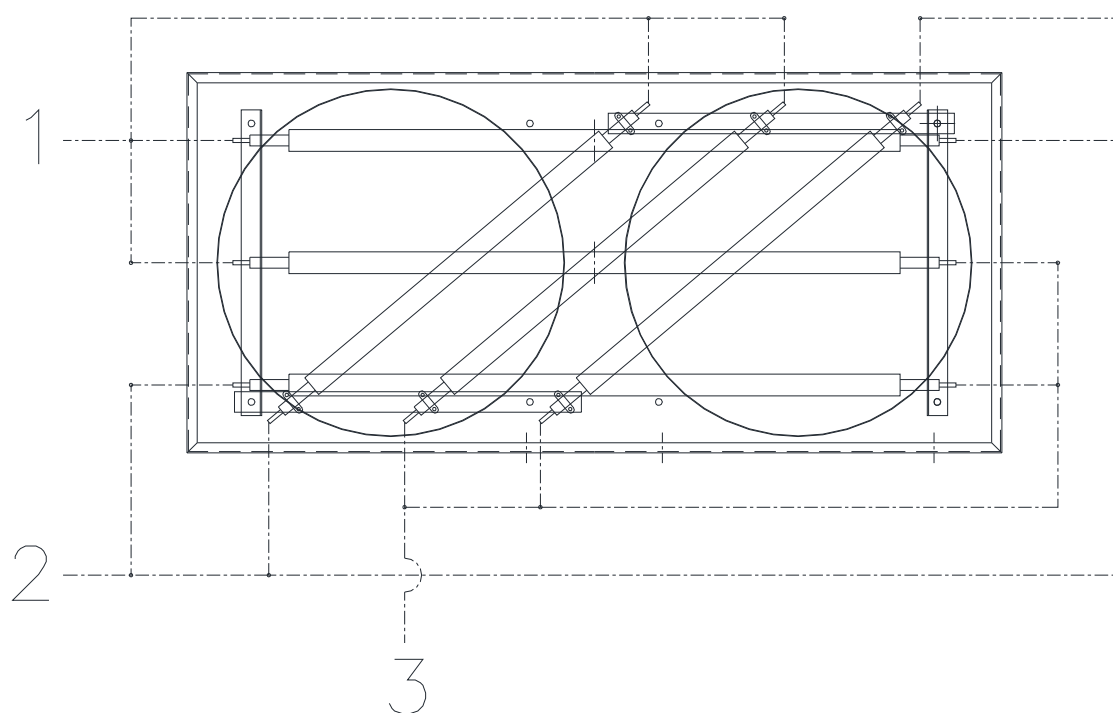
EC25 - TF 230 V



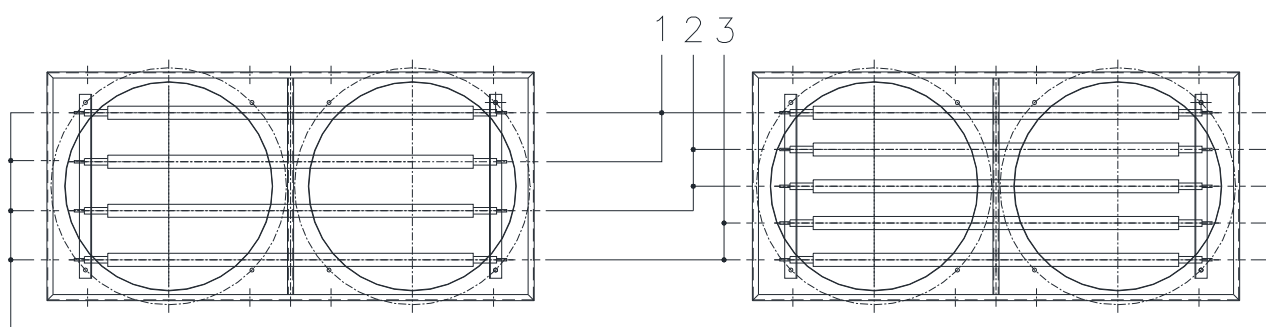
EC50 - TF 400 V



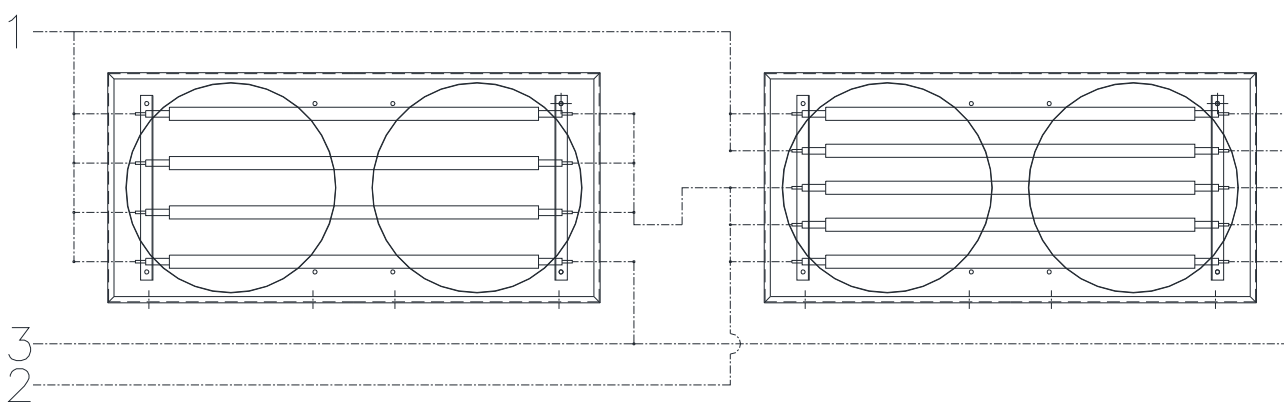
EC50 - TF 230 V



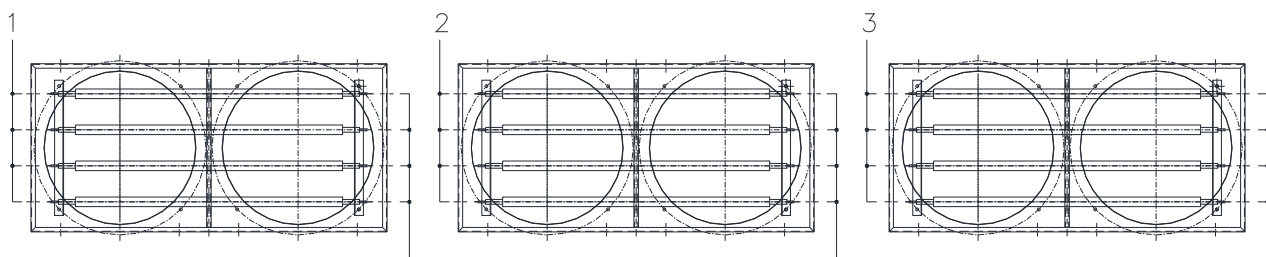
EC100 - TF 400 V



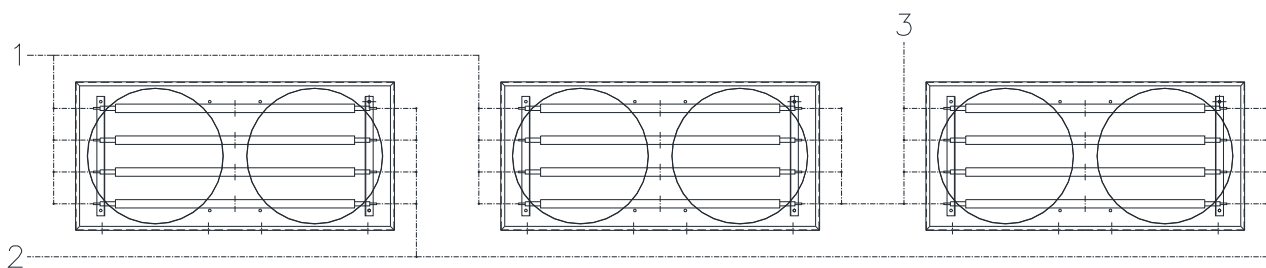
EC100 - TF 230 V



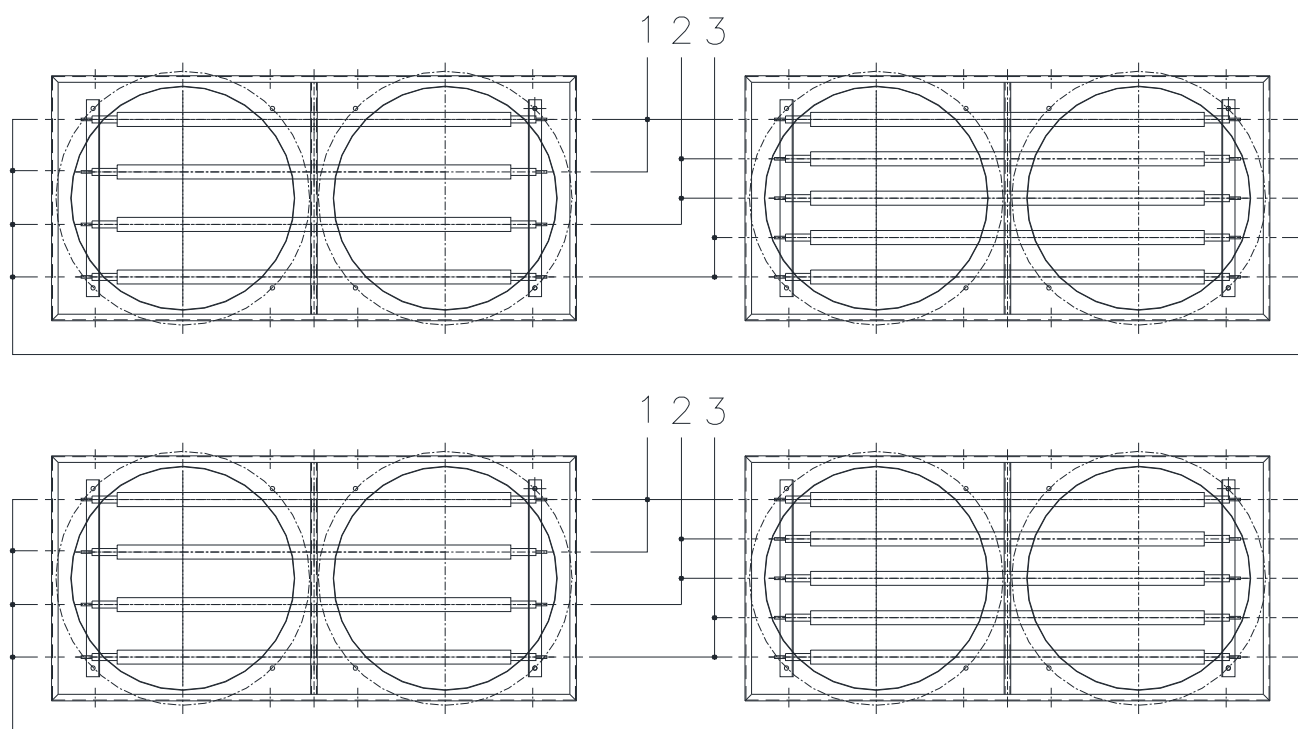
EC150 - TF 400 V



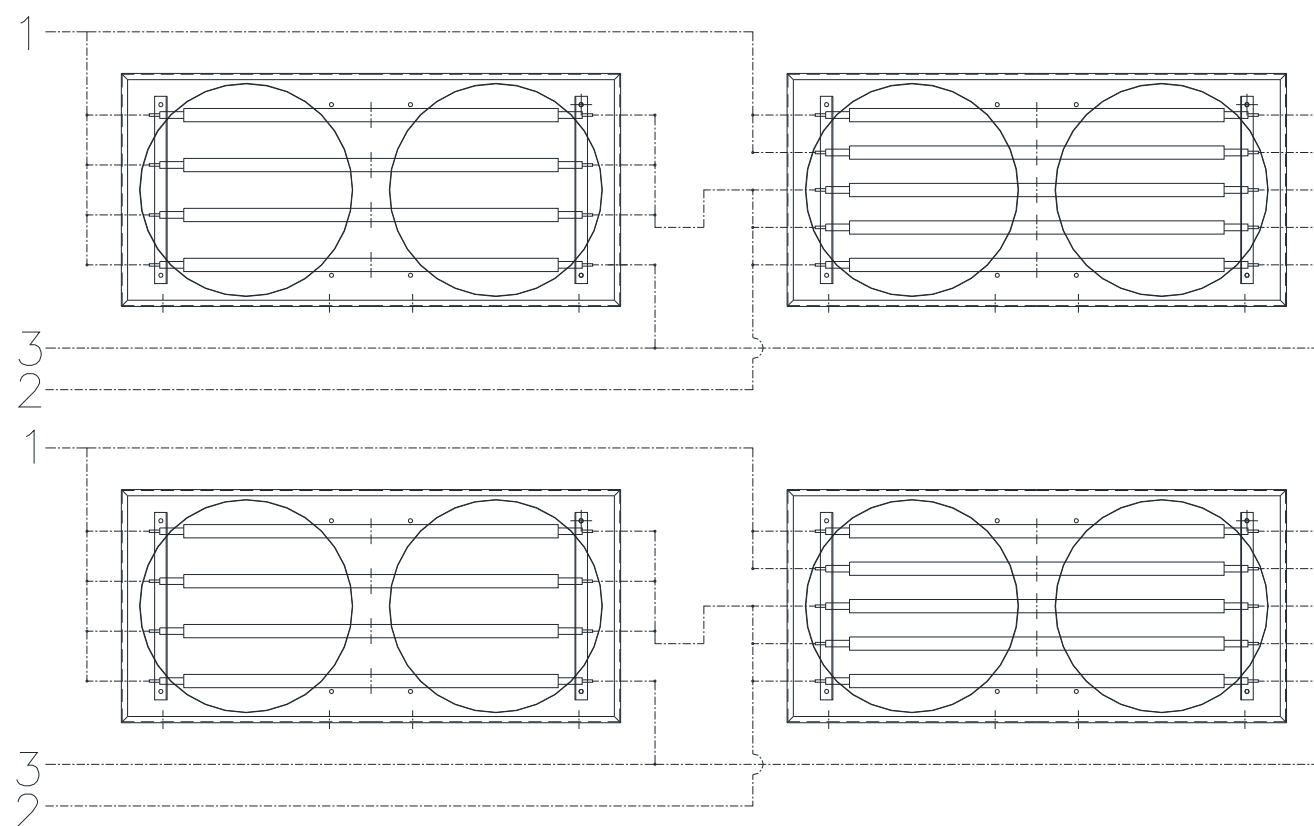
EC150 - TF 230 V



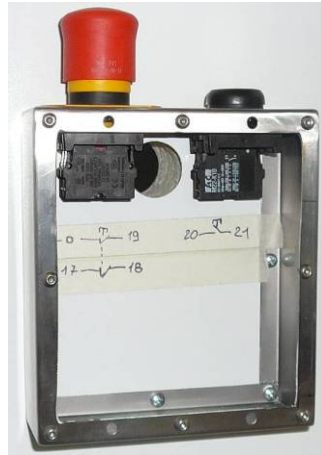
EC200 - TF 400 V



EC200 - TF 230 V



- Extract the connection cable and the power supply terminal of the panel.



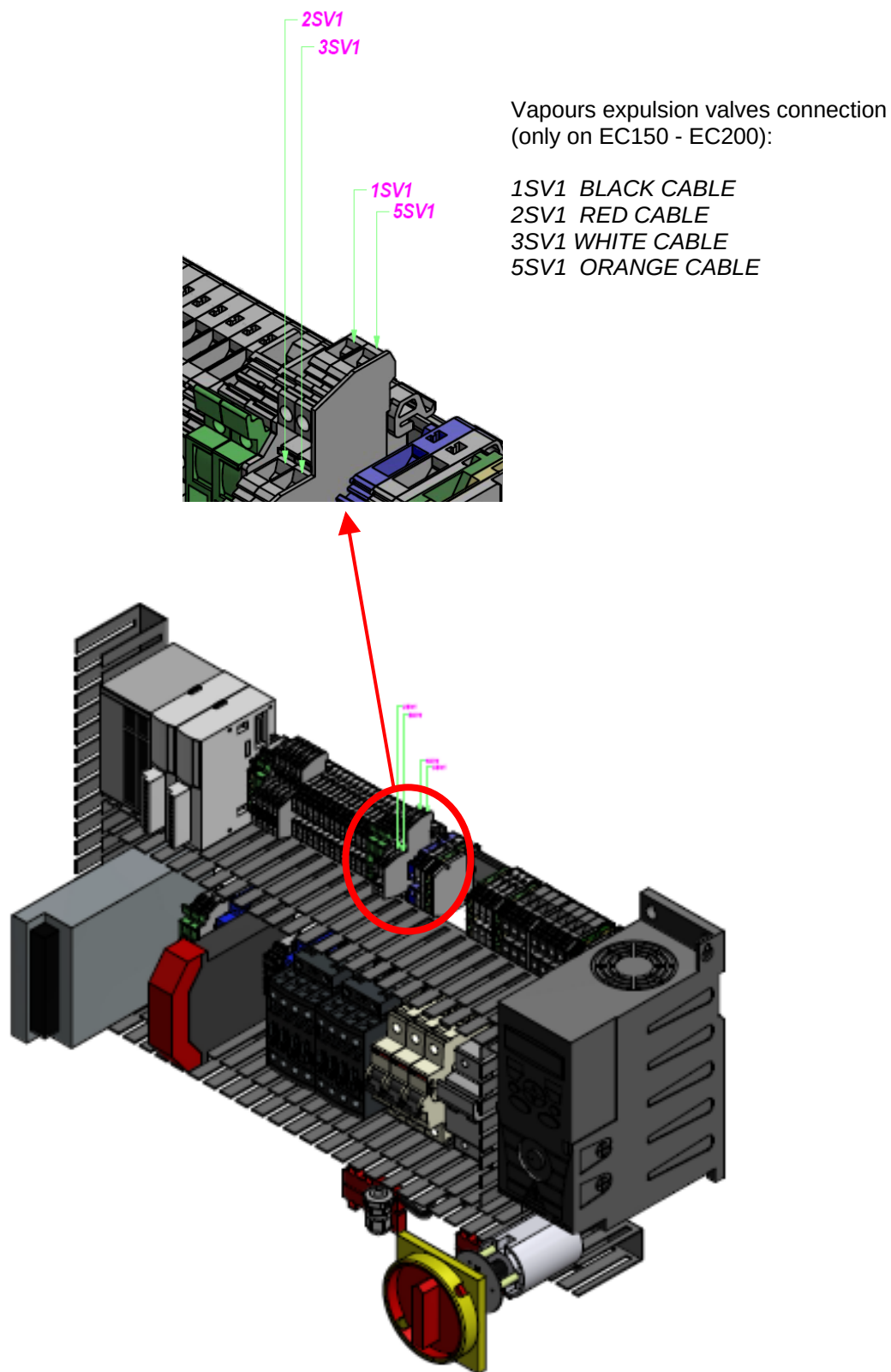
- Connect the cables to the PLC.

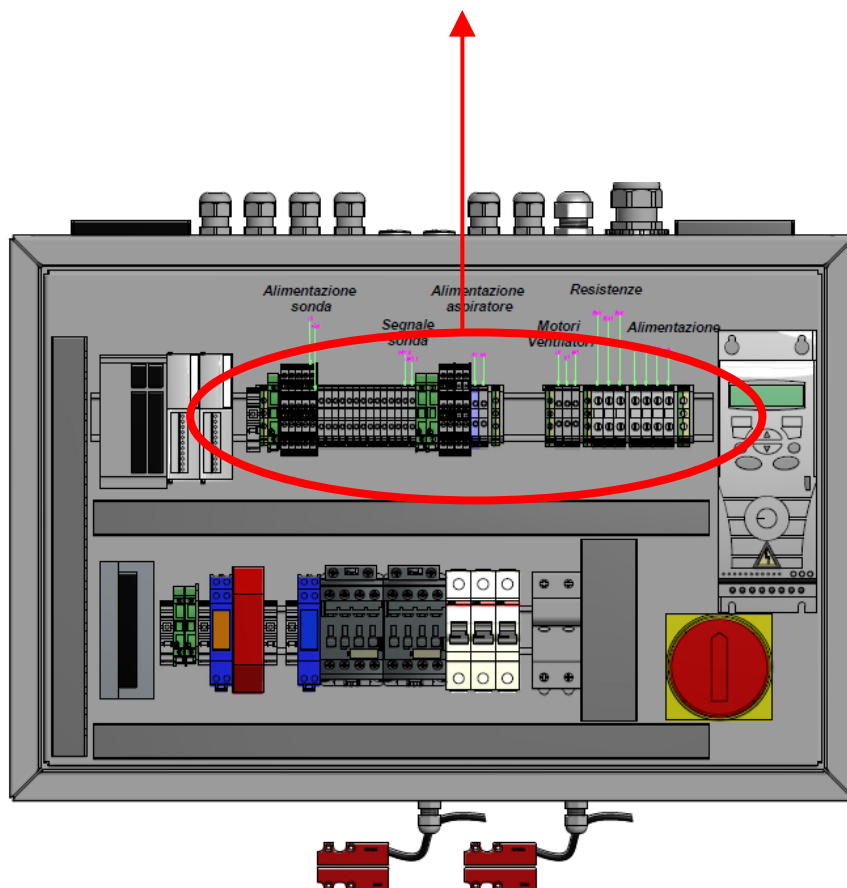
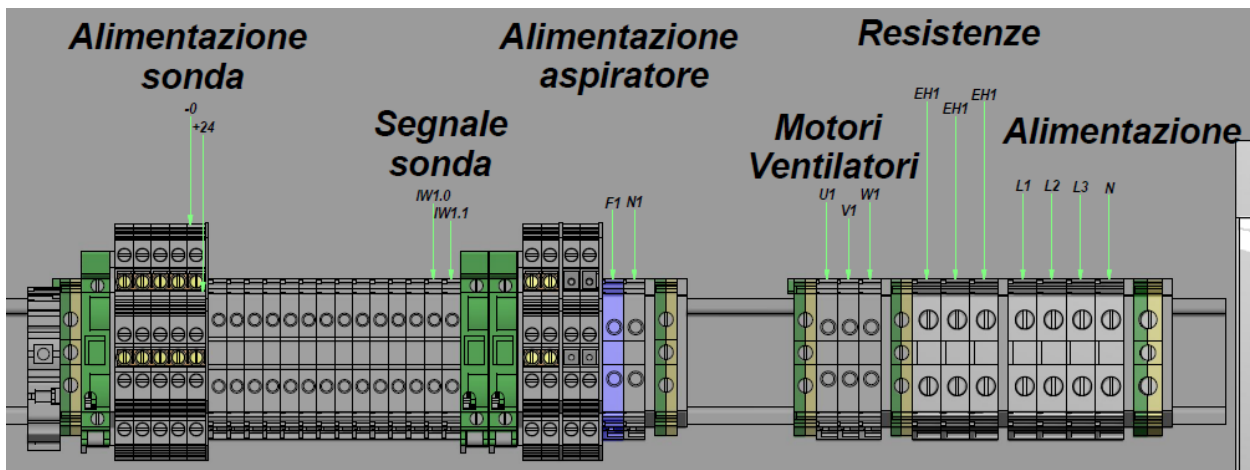


- Position and block the module to the structure fastened on the door, using the relevant screws



- Connect the fan motor power supply cables of the heat exchangers (22) and the cooling fans (21) inside the electric panel.





WARNING



Carefully check that all the terminals of the electrical system are correctly tightened.

WARNING



Remove all the film from the panels and metal sheets.
The drier is mounted and ready for use.

4.2 REMOVAL AND DISPOSAL OF PACKAGING

The machine packing consists of:

- Wooden box: usually deal-poplar, recyclable material.
- Protective sack: sack in recyclable aluminium.
- Expanding film: expanding polyethylene film. recyclable (LLDPE).
- "Bubble" film: polyethylene film or recyclable material.
- Cardboard: cardboard with air bubbles, recyclable.
- Polystyrene : non recyclable material



WARNING

All packaging materials are to be disposed of in accordance with the standards in force regarding waste disposal and separated collection.

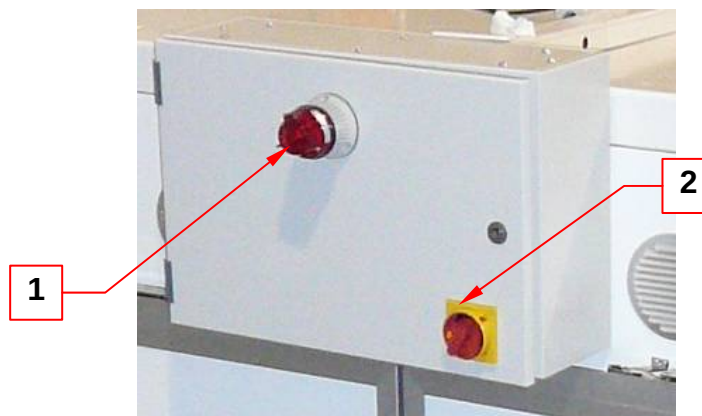
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GENERAL INFORMATION**1****SAFETY****2****GENERAL DESCRIPTION****3****INSTALLATION****4****USE****5****MAINTENANCE****6****SPARE PARTS****7****WIRING DIAGRAM****8**

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5. USE

5.1 DESCRIPTION OF CONTROLS

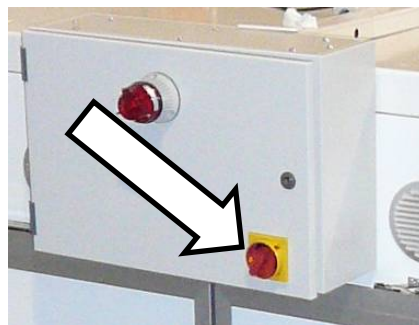


Legend:

- | | |
|---|--------------------------------|
| 1 | Red lamp to indicate faults |
| 2 | Main switch |
| 3 | Emergency mushroom head button |
| 4 | Machine reset button |
| 5 | Control panel |

5.2 SCREEN PAGES

1. Power-on the machine from the main switch.



2. Press the machine reset button (to be pressed every time the message "EMERGENCY ON" is displayed).



NOTE

This button is to be pressed every time the message "EMERGENCY ON" is displayed

When the drier is powered the following page is shown.

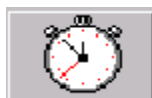


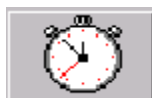


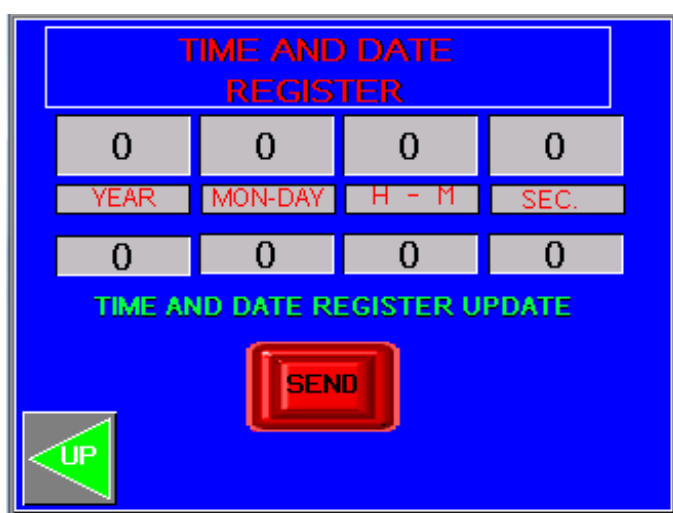
Pressing the  key from the main page, the following page is shown.



On this page, pressing the relevant key, the language is selected to be used for the operator interface. The square below shows the current language.



Pressing the  key from the main page, the following page is displayed where it is possible to view and set the current date and time



After updating the date and time, press  to confirm.



Pressing the following page is displayed.

RecipeGroup	Recipe Group1	▼
Recipe	Ricetta2	▼
SELECT RECIPE		
	SEND RECIPE	
	SEND STATUS	

Recipe Group

In the window select the group of recipes from which the required recipe is to be loaded:

1 = protected recipes (that can be selected from the 33 indicated in the following pages).

2 = free recipes (to be programmed and inserted, see the instructions at the end of this chapter to program a new recipe).

Recipe

After the group has been selected, in the window select the required recipe and press

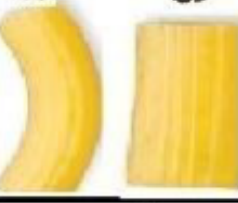
SEND RECIPE

to load the data in the PLC.

				
R. 1 CANESTRINI ORE. 10,30 mm 0,85 - 0,95	R. 2 GIGLIO ORE. 10,54 mm 0,85 - 0,95	R. 3 CASARECCIE ORE. 10,48 mm 1 - 1,10	R. 4 GRAMIGNA ORE. 10,12 mm 0,85 - 0,90	R. 5 CAVATELLI ORE. 11,08 mm 1,5 - 2
				
R. 6 PACCHERI ORE. 12,10 mm 1,4 - 1,8	R. 7 CONCHIGLIE ORE. 10,26 mm 0,85 - 0,95	R. 8 PENNE ORE. 10,44 mm 0,84 - 0,95	R. 9 DITALI ORE. 10,46 mm 0,85 - 0,90	R. 10 SPAGHETTI ORE. 10,52 mm 1,3 - 1,7
				
R. 11 ELICOIDALI ORE. 10,53 mm 0,85 - 0,95	R. 12 RUOTE ORE. 10,54 mm 0,80 - 0,90	R. 13 NIDI ORE. 11,00 mm 0,85 - 0,94	R. 14 PASTINA ORE. 11,04 mm 1 - 1,6	R. 15 FUSILLI ORE. 10,44 mm 0,85 - 0,95

PASTA PRODOTTA CON SEMOLA DI GRANO DURO -- GRANULOMETRIA 180-420 µm --

(1)

 161 mm 6 163 mm 8 169 mm 6 171 mm 8	 230 232 231 530 218 219 225 226	 370 Ø mm 10 373 Ø mm 8 469 Ø mm 10	 135 mm 2,3	 89 mm 10 98 mm 13
R. 16 GOMITO ORE. 12,12 mm 0,9 - 1	R. 17 CONCHIGLIE ORE. 11,02 mm 0,85 - 1	R. 18 FUSILLI ORE. 10,48 mm 0,85 - 0,95	R. 19 GRAMIGNA ORE. 10,46 mm 0,90 - 0,95	R. 20 RIGATONI ORE. 11,20 mm 0,90 - 1,10
 27 mm 4,5 28 mm 6	 64 mm 6 81 mm 6 84 mm 8 66 mm 8 68 mm 10 472 mm 8 473 mm 9	 4 mm 0,8 5 mm 1,0 23 mm 1,8 24 mm 2,5	 7 mm 1,5 8 mm 1,7 9 mm 1,9	
R. 21 TAGLIATELLE ORE. 11,42 mm 0,85 - 0,90	R. 22 PENNE ORE. 11,28 mm 0,80 - 0,95	R. 23 TAGLIOLINI ORE. 11,32 mm 0,85 - 0,90	R. 24 SPAGHETTI ORE. 12,18 mm 1,5 - 1,7	R. 25 PRERISCALDAMENTO 30 MIN. PRIMA DELL' INSERIMENTO DEL 1° CARRELLO

PASTA PRODOTTA CON FARINA O MIX SEMOLA E FARINA

(2)

	8 mm 1,7 9 mm 1,9	R. 26 SPAGHETTI ORE. 13,02 mm. 1,7 - 1,9		SPESSORE mm 1,2 - 1,4	R. 30 LASAGNE ORE. 11,14 mm. 1,2 - 1,4
	23 mm 1,8 24 mm 2,5 25 mm 3	R. 27 TAGLIOLINO ORE. 12,24 mm. 0,85 - 0,90		SENZA GLUTINE	R. 31 PASTA CORTA ORE. 13,04 mm. 0,85 - 0,95
	28 mm 6	R. 28 TAGLIATELLE ORE. 12,36 mm. 0,85 - 0,95		SENZA GLUTINE SPESSORE mm 1,2 - 1,4	R. 32 LASAGNE ORE. 12,02 mm. 1,1 - 1,4
	31 mm 12	R. 29 PAPPARDELLE ORE. 12,38 mm. 0,90 - 1			R. 33 PRERISCALDAMENTO 30 MIN. PRIMA DELL' INSERIMENTO DEL 1° CARRELLO

PASTA PRODOTTA CON AGGIUNTA DI UOVO (PASTA ALL'UOVO)

(3)



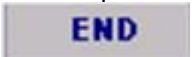
Pressing  from the main page displays the following page .



On the left of the page the selected group of recipes and the recipe loaded are shown .



Press  to start the drying cycle.

At the side of the square  the time of the cycle start is shown and frozen. Underneath in the square  the time that passes is shown, until the cycle finishes.



Press  if the wrong recipe is selected, to stop the machine, then keep the  key pressed (for at least 3 seconds) to reset the settings and select a new recipe.



At the end of the drying cycle the system stops (END OF CYCLE is displayed). To continue with another



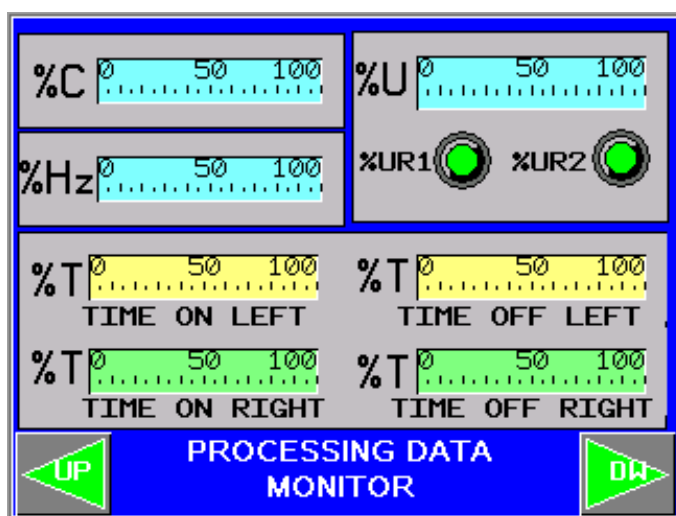
cycle, keep the  key pressed (for at least 3 seconds) until the wording CYCLE START PRESS START is displayed.



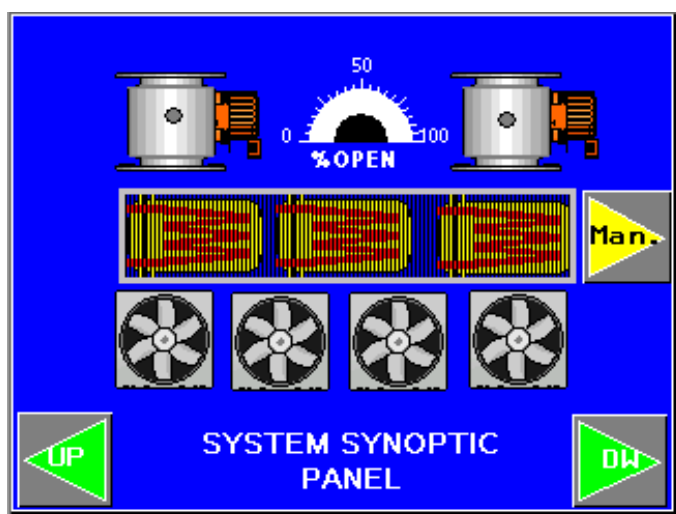
Pressing the  key from the main page displays the following page where it is possible to view the setting percentages of the various parameters through a coloured graduated scale.

The parameters are the following:

- Temperature;
- Speed (fans);
- Humidity;
- On and Off time for left side;
- On and Off time for right side.



Pressing the  key displays the following page to view the valves opening status and the functioning of the resistors and fans.



If the red rectangle on the valve is displayed, this indicates it is closed, whereas the green rectangle indicates it is open.

In the middle of the icons for the two valves the opening is shown as a percentage (minimum 2%).

In the centre of the page the resistors are displayed, red when on and green when off.

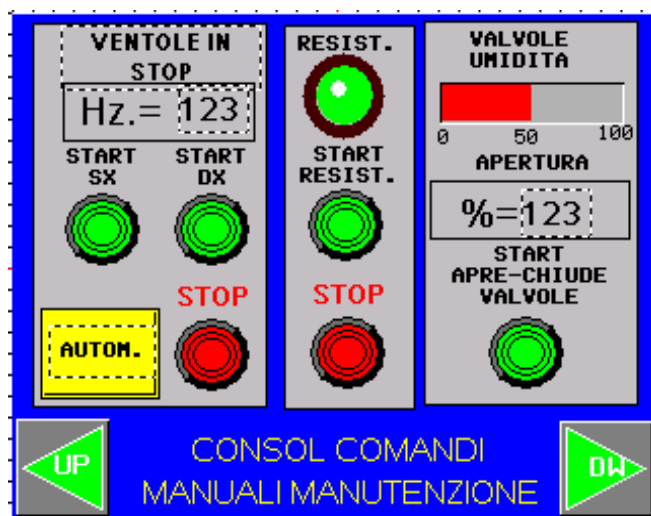
Under the resistors the fans are shown with indication of direction and related rotation.



Press again to return to the first page.



Press to have access to this page related to manual controls for maintenance operations.



This page containing the manual controls is used for maintenance operations, after contacting the **IMPERIA & MONFERRINA S.p.A** technical after sales service

From this page the machine can be controlled manually, after setting the operating cycle to zero and stopping the system, the drier components.

Press the "AUTOM" button that changes to "MAN" (carry out this operation if the doors are opened).

To control the fans, in the related window set the frequency value (from 10 to 60) and press the "LH START" button for left-hand rotation or the "RH START" for right-hand rotation.

Press "STOP" to stop the fans.

To control the resistors, press the "START RESIST" key (the relevant green warning light switches on); to stop, press the "STOP" key.

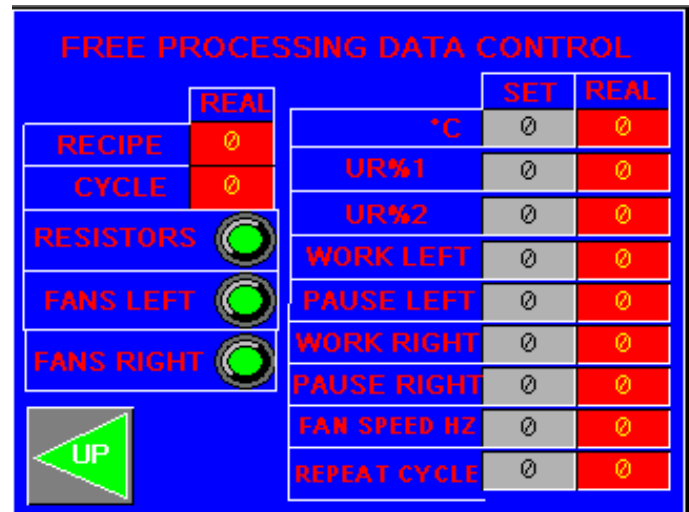
To control the humidity valves, in the "OPENING" window set the value in percentage (from 0 to 100) for the opening required and confirm pressing the "START OPEN-CLOSE VALVES" key.

Setting a value of 100 the valves open fully, whereas with 0 they close completely .

To return to automatic operating mode press the yellow "MAN" key that changes to "AUTOM" or press the "UP" button.

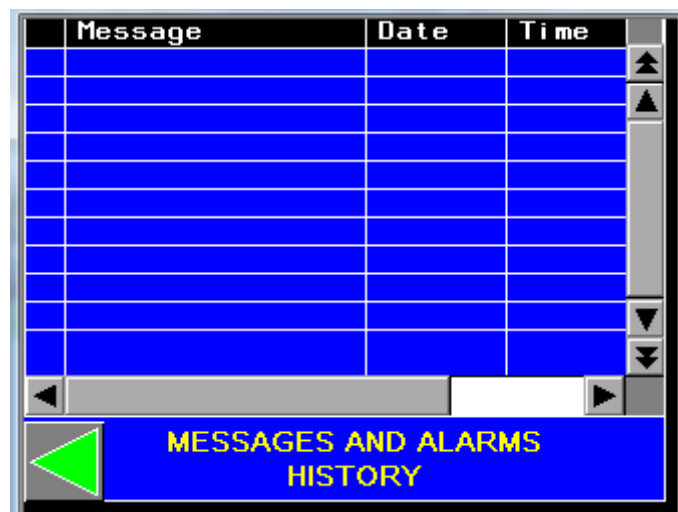


Pressing the  key from the main page the following page is displayed to view each parameter of the recipe, both that which is set and the real values (only for recipes group 2).



Pressing the  key from the main page displays the following page to view all the messages that are shown on the drier.

The messages in red are those which are active.



WARNING

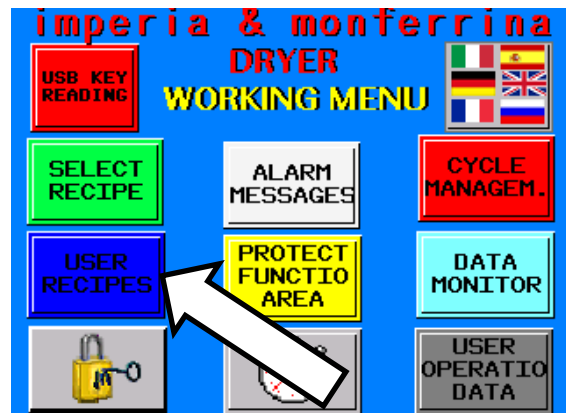


The drier is to always function with full load and with a single pasta form for each drying cycle.

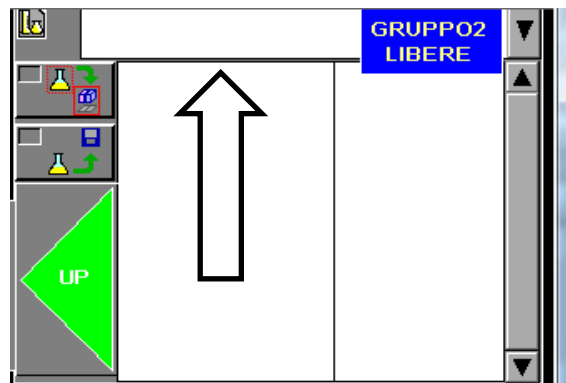
5.3 PROGRAMMING A NEW RECIPE

To program a new recipe, proceed as follows:

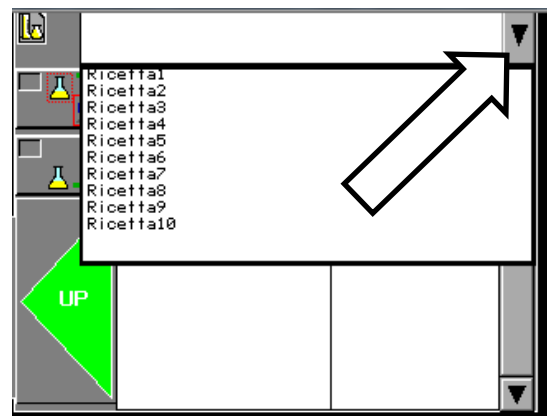
1. Press the "USER RECIPES" key.



2. The following screen page is shown with the top bar empty.



3. Pressing the arrow key as shown in the figure, the following pop-up menu is shown with all the "user recipes".



4. Select the recipe, the fields to be programmed are shown.

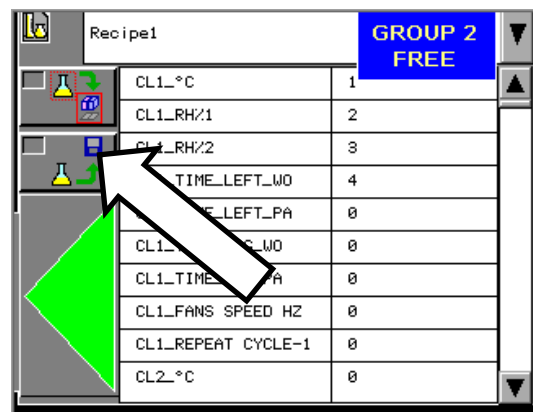
Recipe1		GROUP 2 FREE
CL1_°C	1	
CL1_RH/1	2	
CL1_RH/2	3	
CL1_TIME_LEFT_WO	4	
CL1_TIME_LEFT_PA	0	
CL1_TIME_RIG_WO	0	
CL1_TIME_RIG_PA	0	
CL1_FANS SPEED HZ	0	
CL1_REPEAT CYCLE-1	0	
CL2_°C	0	

5. Set all the parameters for each cycle (27 are available)

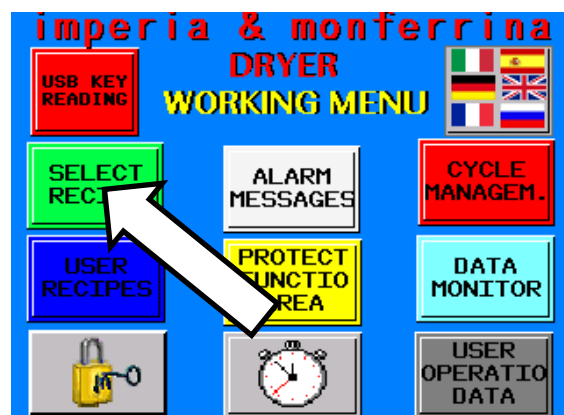
°C	= Temperature
UR%1	= Humidity threshold 1
UR%2	= Humidity threshold 2
TIME WORK LH	= Work time LH fans
TIME PAUSE LH	= Pause time LH fans
TIME WORK RH	= Work time RH fans
TIME PAUSE RH	= Pause time RH fans
HZ FANS SPEED	= Fans speed from 1 to 60 Hz
REPEAT CYCLE	= Repeat number of cycles (up to 27 cycles)

	Variabile ing...	Etichetta	Modifi...	Min	Max	Ricetta1
		BLOCCO_UT	☒			
1	[0]	CL1_°C				1
2	[1]	CL1_UR% 1				0
3	[2]	CL1_UR% 2				0
4	[3]	CL1_TIME LAVORO SX				0
5	[4]	CL1_TIME PAUSA SX				0
6	[5]	CL1_TIME LAVORO DX				0
7	[6]	CL1_TIME PAUSA DX				0
8	[7]	CL1_% HZ VEL VENTOLE				0
9	[8]	CL1_RIPETI CICLO-1				0
10	[9]	CL2_°C				0
11	[10]	CL2_UR% 1				0
12	[11]	CL2_UR% 2				0
13	[12]	CL2_TIME LAVORO SX				0
14	[13]	CL2_TIME PAUSA SX				0
15	[14]	CL2_TIME LAVORO DX				0
16	[15]	CL2_TIME PAUSA DX				0
17	[16]	CL2_% HZ VEL VENTOLE				0
18	[17]	CL2_RIPETI CICLO-2				0
19	[18]	CL3_°C				0
20	[19]	CL3_UR% 1				0

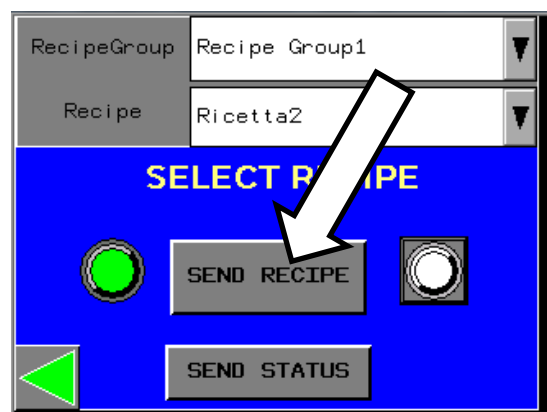
6. Press the "SAVE" button



7. Return to the main menu and press "SELECT RECIPES".



8. Press the "SEND RECIPE" button and return to the main menu.



GENERAL INFORMATION	1
----------------------------	----------

SAFETY	2
---------------	----------

GENERAL DESCRIPTION	3
----------------------------	----------

INSTALLATION	4
---------------------	----------

USE	5
------------	----------

MAINTENANCE	6
--------------------	----------

SPARE PARTS	7
--------------------	----------

WIRING DIAGRAM	8
-----------------------	----------

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6. MAINTENANCE

6.1 GENERAL SAFETY PRECAUTIONS

This section describes the inspection and routine maintenance operations that are indispensable to ensure correct functioning of the machine.

Any other intervention required to correct failures or operative anomalies are to be specifically authorised by the manufacturer.

In such cases always indicate the identification data (model, serial number, identification of electrical, pneumatic systems etc.).

For important repairs it is advised to contact the manufacturer who, by means of the specialised technicians with all the technological experience of the original construction in the plant, can always offer advice and promptly intervene.

For the maintenance or replacement of commercial components installed on the machine, follow the instructions supplied directly from the Manufacturers and contained in their specific handbooks or catalogues



DANGER notes precede an operation that, if not performed correctly, could cause an accident. These notes, to be borne in mind during maintenance operations, indicate a hazard with risk of serious injuries for the person.



WARNING notes precede an operation that, if not performed correctly, could cause damage to the equipment. These notes, to be borne in mind during maintenance operations, are warnings of possible deterioration or damage to the machining centre components or equipment or personal belongings of the user.

6.1.1 General Hazard Notes

- High voltages can cause death upon contact. Always work with maximum caution and in accordance with the accident prevention rules in force in the country.
- When the system is running there are moving parts that can cause serious damage to persons. For this reason cleaning and special maintenance operations that require removal or replacement of components on the machining centre or control units, are to be carried out with the system off and with no pressure in the systems:
 - Main switches are to be in OFF position (OPEN) and locked with a safety padlock that prevents being turned to On position;
- Place specific SYSTEM BEING SERVICED - DO NOT POWER ON warning signs on the main switches and air reduction and filtering unit.
- Do not use inflammable or toxic solvents.
- Always wear goggles and protective gloves when carrying out maintenance operations on the equipment.
- Make sure tools to be used are in perfect condition and with isolating grips, where required. Check that insulation of cables and conductors of testing equipment have no signs of breakage or damage.
- Long overloads or failures can cause overheating of electric motors and electrical equipment generating harmful fumes; cut out the power supply immediately and do not approach the equipment until the fumes have been dispersed with adequate ventilation. Do not inhale the fumes remaining inside the equipment during the repair jobs.
- In the case of fire, never spray water on the equipment. Cut out all power supplies and use CO2 extinguishers.
- Avoid prolonged, excessive or repeated contact of the skin with lubrication products and change clothes immediately if they become impregnated, because lubricants are very harmful for the skin.

6.1.2 General Warnings

- System maximum reliability and minimum maintenance costs are the result of a maintenance and inspection schedule planned and scrupulously followed during the entire system life. Scrupulously observe the maintenance time scales set and time operations according to specific requirements related to the machining centre production cycle.
- If operations of a certain consistency are necessary, it is advised to contact the Manufacturer for any clarifications regarding the project or technical assistance.
- Before starting checking and maintenance operations, remove dirt from the system.
- Always use perfectly dry air for cleaning, with a pressure that does not exceed 0.2 MPa.
- Always use tools in perfect working order and specifically for the operation to be carried out; use of inappropriate and/or inefficient equipment can cause serious damage.
- Repair operations are to be carried out in clean environments, and where possible without dust. Protect all connection gaps with plastic plugs and carefully cover machined surfaces of dismantled parts, until they are refitted on the machining centre.
- During disassembly, mark the individual parts with an identification plate, to make sure that they are assembled correctly later.
- After every maintenance operation that requires disconnection of wiring and/or fixed and mobile parts, check the consistency of the number/plate on fixed and mobile part.
- Before restarting the equipment after a failure, inspect the parts carefully and check for any signs of damage.
- Never act, unless there has been a failure, on adjustments and positions of microswitches; tampering with them can cause serious damage to the machining centre.

6.2 QUALIFICATION OF MAINTENANCE TECHNICIANS



WARNING

The safety warden shall make sure that all the persons operating on the machining centre have received all the instructions that concern them, contained in this handbook, including the initial installation and start-up operations.

6.2.1 General Tasks

To attain the qualification requirements that continually increase in maintenance for fully automated manufacturing systems, the maintenance technicians shall:

- have knowledge of directives in force regarding prevention of accidents when working on machining centre with motor transmission, and be able to apply them,
- have read and understood the "Safeties applied to the machining centre",
- know the fundamental construction and functions of the manufacturing system for special workpieces,
- know how to use and consult manufacturing papers and machining centre documents,
- assume the responsibility to make decisions regarding operations on fully automated manufacturing systems,
- be ready to adapt to technological modifications on the machining centre,
- note irregularities in the production process and when necessary take the necessary measures.

6.2.2 Tasks of Qualified Operators

The composition and qualifications of the teams indicated in the maintenance plan are those recommended by the Manufacturer

The operations, if necessary can also be carried out by persons with the same or higher qualifications, who have attended the relevant training courses. The professional figures qualified to take action on the machining centre are the following:

6.2.2.1 Machining centre manager

Typical activities:

Control and maintenance of production quality on fully automated manufacturing systems, and in particular:

- mechanical clearances on guides and kinematic chains adjustment ;
- driving belts replacement ;
- execution of movements check;
- mechanical clearances on shoes and rollers check;
- mechanical unit repairs.

Technical knowledge required:

- good knowledge of mechanical. pneumatic and hydraulic installations;
- familiarity with numeric controls used on the machine ;
- basic knowledge of electrical adjustment and checking techniques ;
- ability to assess results of overhauls and decide the measures to be taken;
- know how to draw up an overhaul report;
- knowledge of measuring and test methods to determine the actual state of the machine/movement.

Qualification required:

- Complete training as industrial mechanic with specialisation in technical sector of automated systems;
- Experience in maintenance of automatic handling systems. Instruction and training on the machine are assured by the manufacturer.

6.3 SAFETY CONTROL PLAN



WARNING

It is strictly forbidden to electrically or mechanically jumper safety switches of guards, light barriers, safety circuits or tamper with them in any way.

6.3.1 Checks and Functional Tests on Safety Devices

Maintenance technicians have the obligation to periodically check functioning of safety devices.

The operation is to be carried out by competent persons with specific knowledge on the uses of safety devices.

This procedure must be repeated as normal maintenance practices.

6.4 STOP PROCEDURE FOR MAINTENANCE

Before carrying out the maintenance procedures the operator has to stop the machining centre and set it in maintenance mode, using this procedure:

- Cut out machining centre power supplies if this is required by the maintenance operations. Otherwise it is not necessary. The cards indicate electric power and fluidic supply OFF or otherwise electric power and fluidics ON.
- Place the "MACHINING CENTRE BEING SERVICED – DO NOT POWER ON - WORK IN PROGRESS, DO NOT PUT IN MOTION" warning sign near the main switches
- Carry out the maintenance operations described on the relevant cards.
- After the maintenance operations restore the power supplies.
- For access into the machining centre observe the procedures.
- Before resuming system normal functioning, check again the whole system, applying the start-up procedures.

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GENERAL INFORMATION	1
SAFETY	2
GENERAL DESCRIPTION	3
INSTALLATION	4
USE	5
MAINTENANCE	6
SPARE PARTS	7
WIRING DIAGRAM	8

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7. SPARE PARTS

7.1 COMPONENTS SUBJECT TO WEAR AND MECHANICAL FATIGUE



CAUTION

The components subject to wear caused by the relevant functioning are to be checked at regular intervals and replaced as soon as they show significant signs of wear.

The manufacturer has designed and built the machine for a rational life, taking into account the normal use conditions of the Customer; in any case all these components have to be meticulously checked periodically.

Should “mechanical cracking” or permanent or cyclic structural deformation be found, immediately contact the Manufacturer and expert technicians who will take the necessary action.

Electrical wires, especially if exposed to heat, humidity and/or low temperatures lose their insulating characteristics over time.

With the aid of skilled technicians, check the integrity.

All electrical components with mechanical parts in motion during the work cycle (pushbuttons, selector switches, relays, etc.) are guaranteed by the manufacturer for a certain number of cycles, high, but still limited.

Check their condition frequently and contact skilled technicians for any periodical replacement within the guaranteed working life indicated.



ENVIRONMENT

Removed parts that have been replaced are to be delivered to the specific collection centres for disposal.

7.2 LIST OF RECOMMENDED SPARE PARTS

The recommended spare parts are not incorporated in the supply of the machinery, unless provided for in the initial purchasing contract.

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GENERAL INFORMATION**1****SAFETY****2****GENERAL DESCRIPTION****3****INSTALLATION****4****USE****5****MAINTENANCE****6****SPARE PARTS****7****WIRING DIAGRAM****8**

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8. ELECTRICAL DIAGRAMS

imperia & monferrina s.p.a.

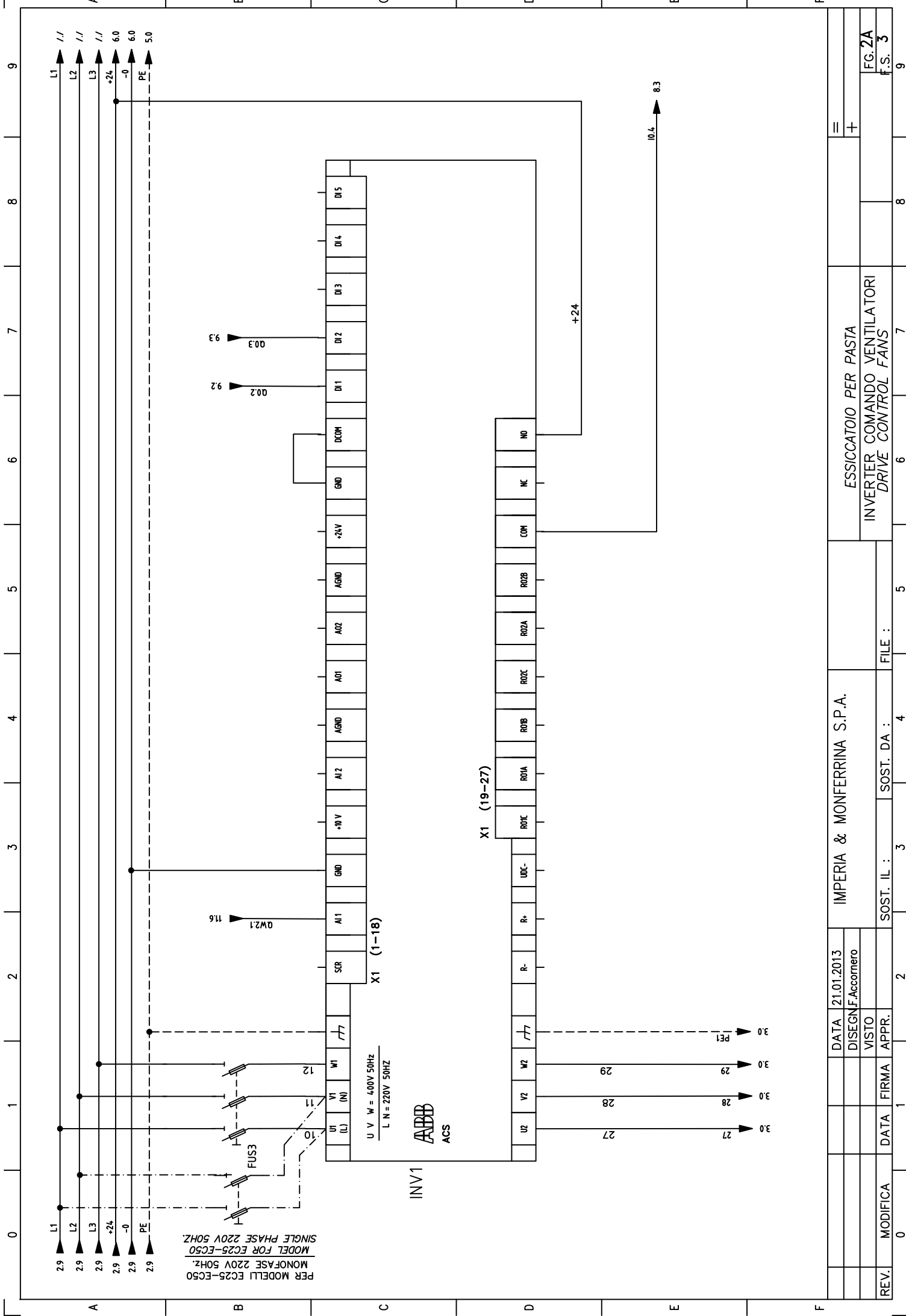
SCHEMA ELETTRICO

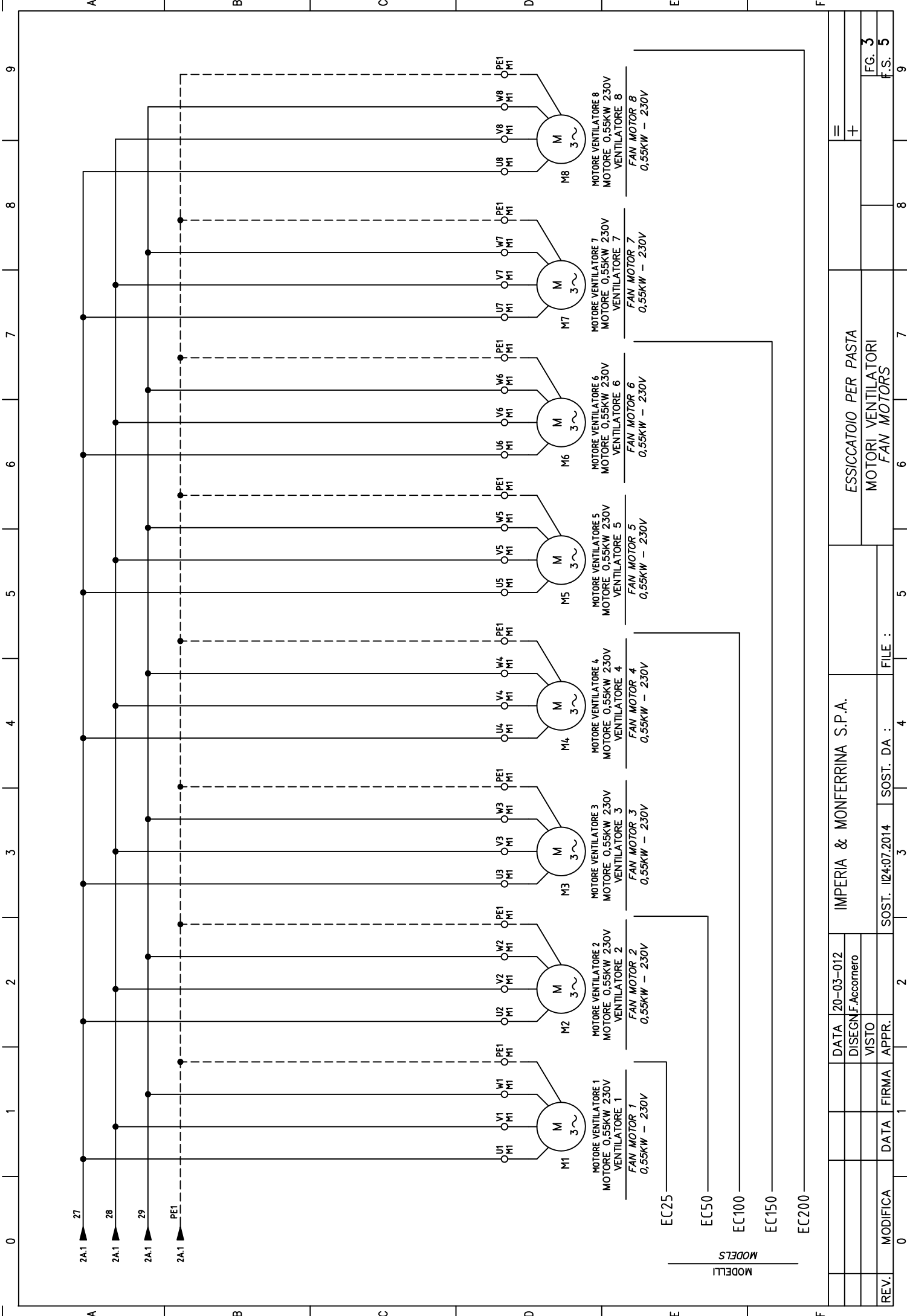
CIRCUIT DIAGRAM

ESICATOIO

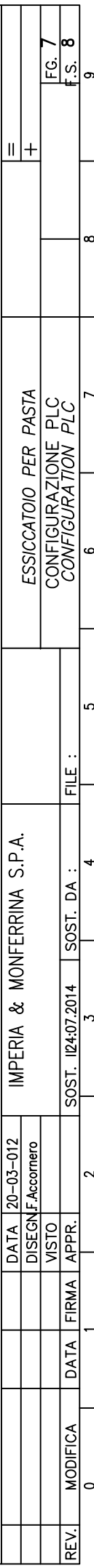
PROGETTAZIONE FAPROJECT					TENSIONE 230V AC 50/60Hz ESERCIZIO		NORME IEC	PROTEZIONI
SERIE					TENSIONE COMANDI		24V DC	+ ==QG / =BM
COMMESSA 000130011-4					TENSIONE SEGNALI		24V DC	
COMMITTENTE IMPERIA&MONFERRINA								

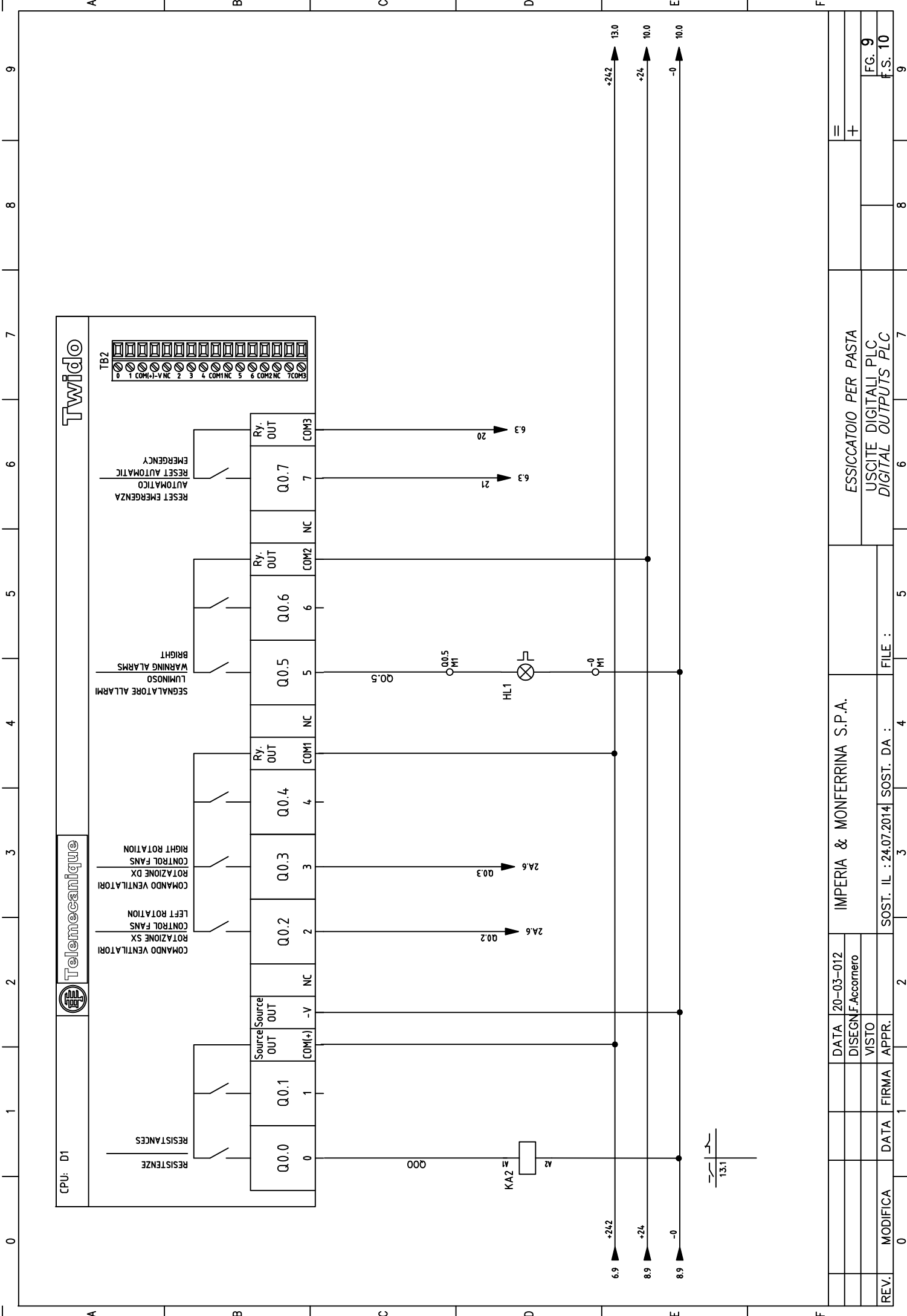
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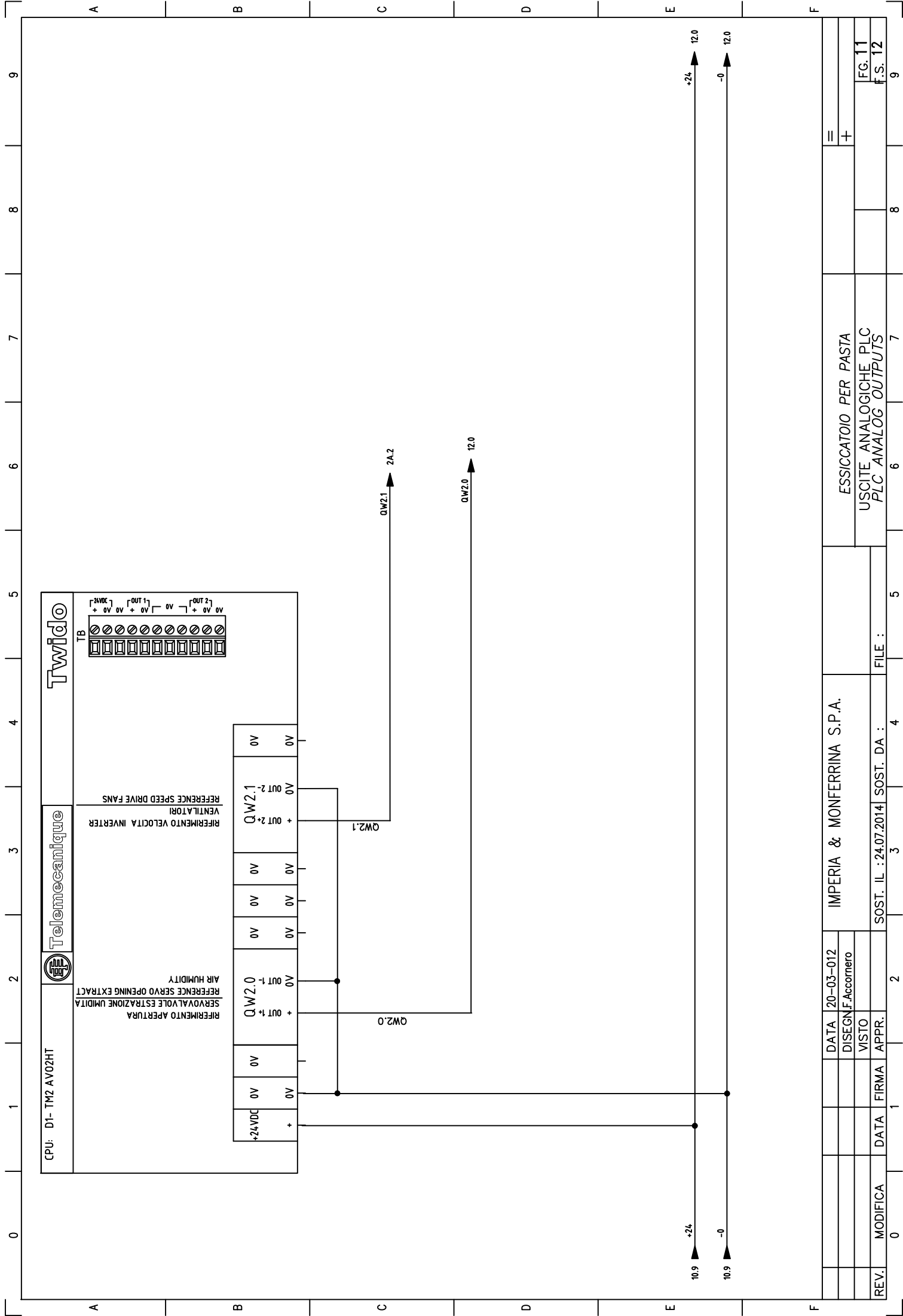


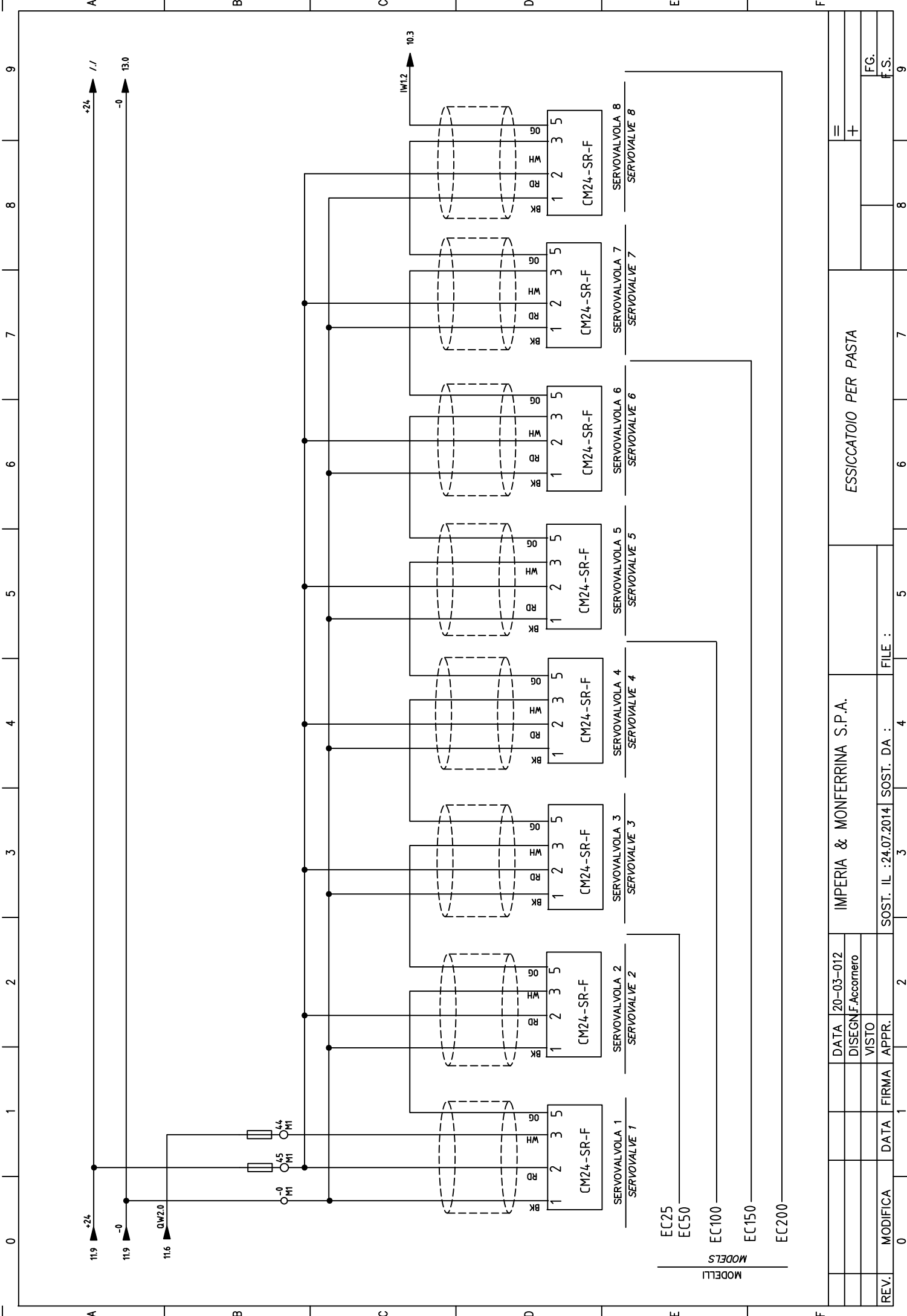
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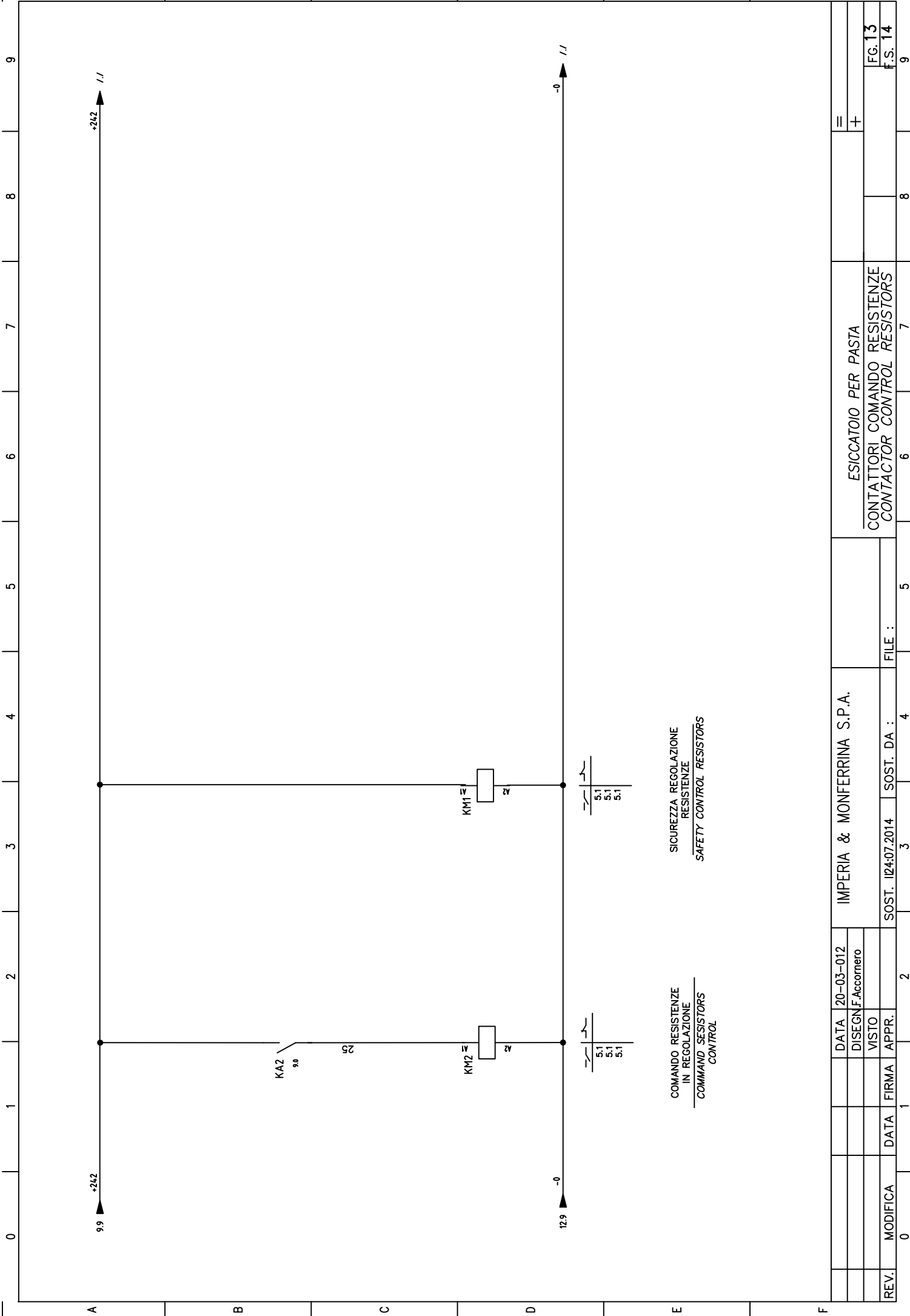


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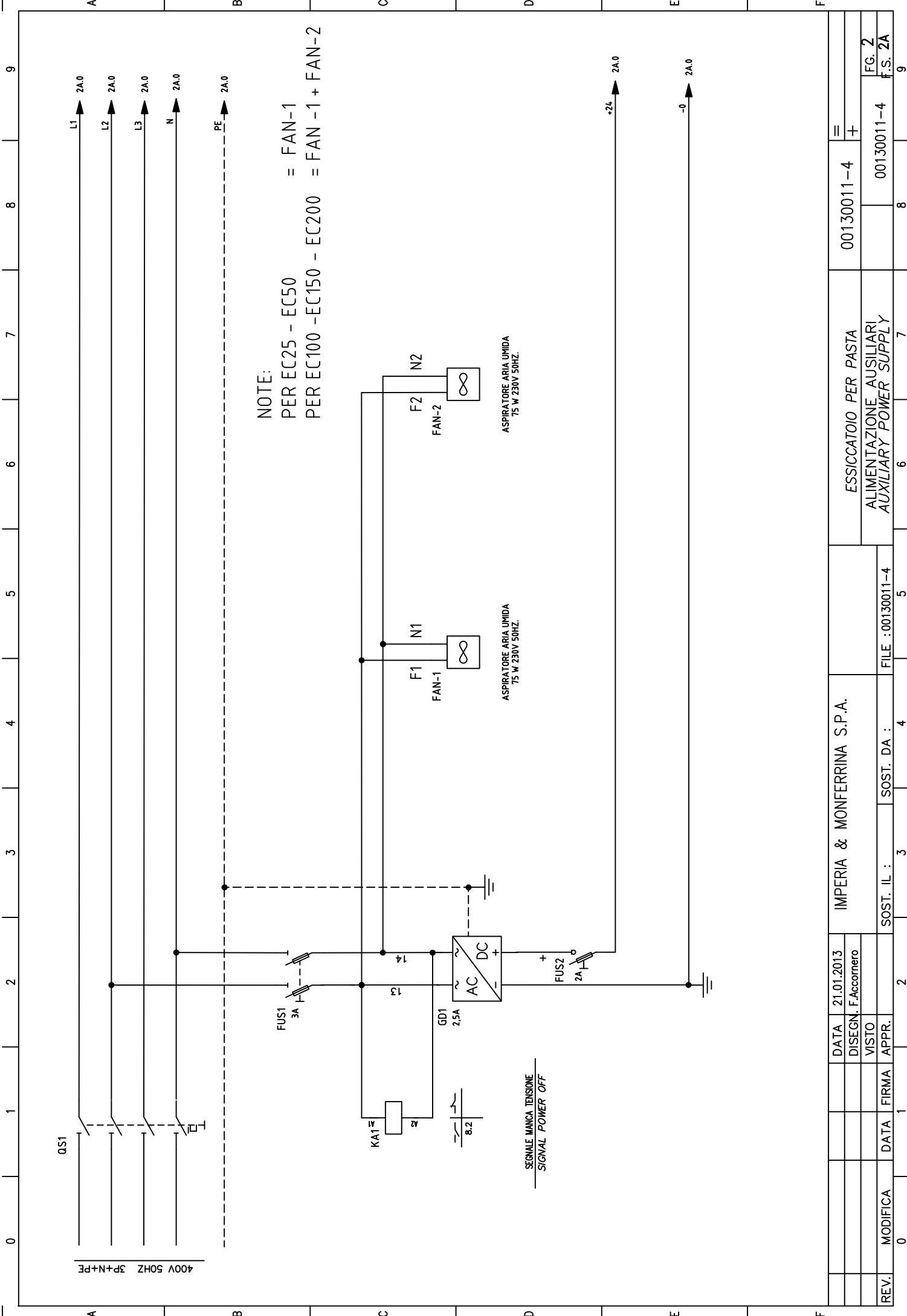
imperia & monferrina s.p.a.

SCHEMA ELETTRICO

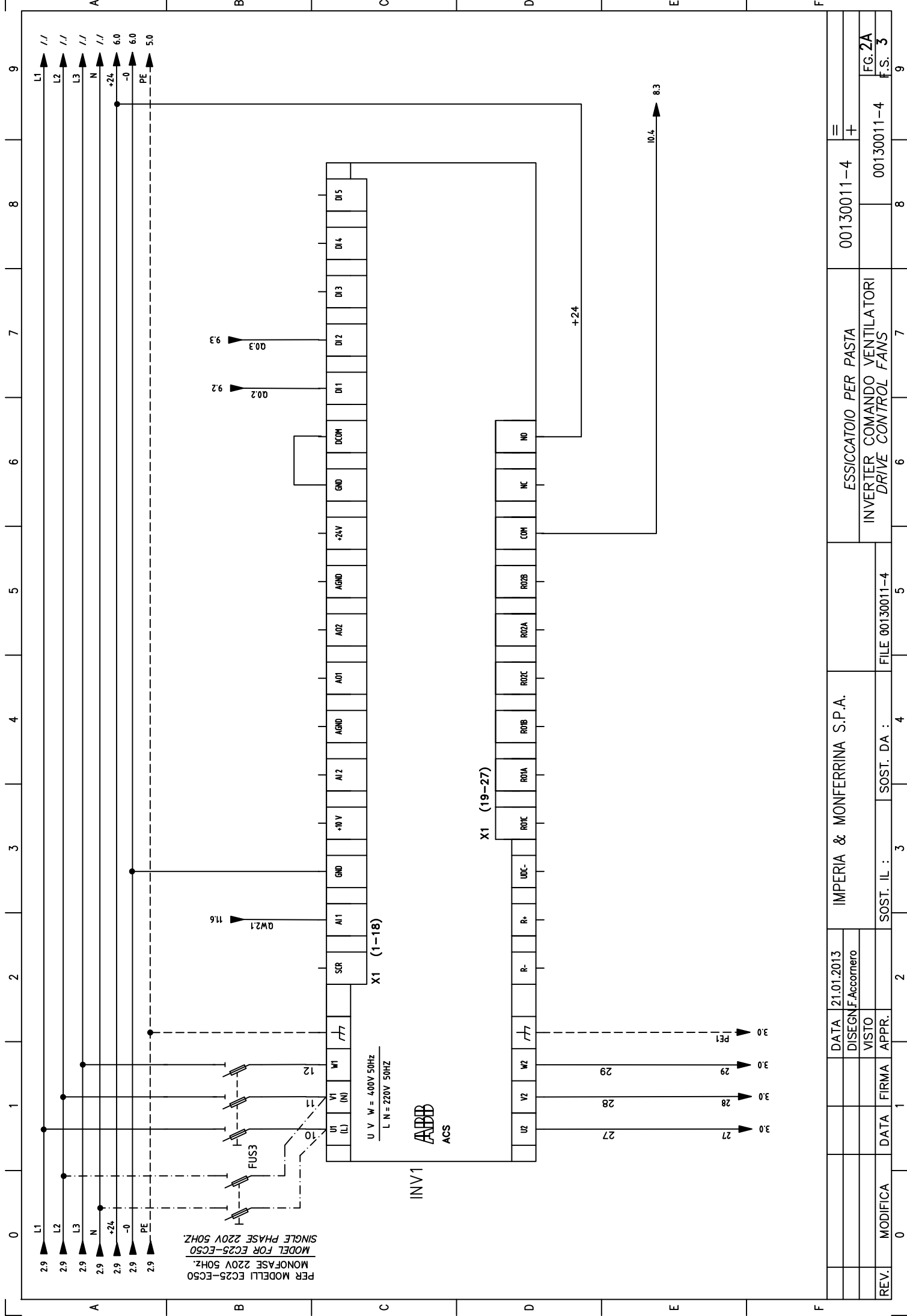
CIRCUIT DIAGRAM

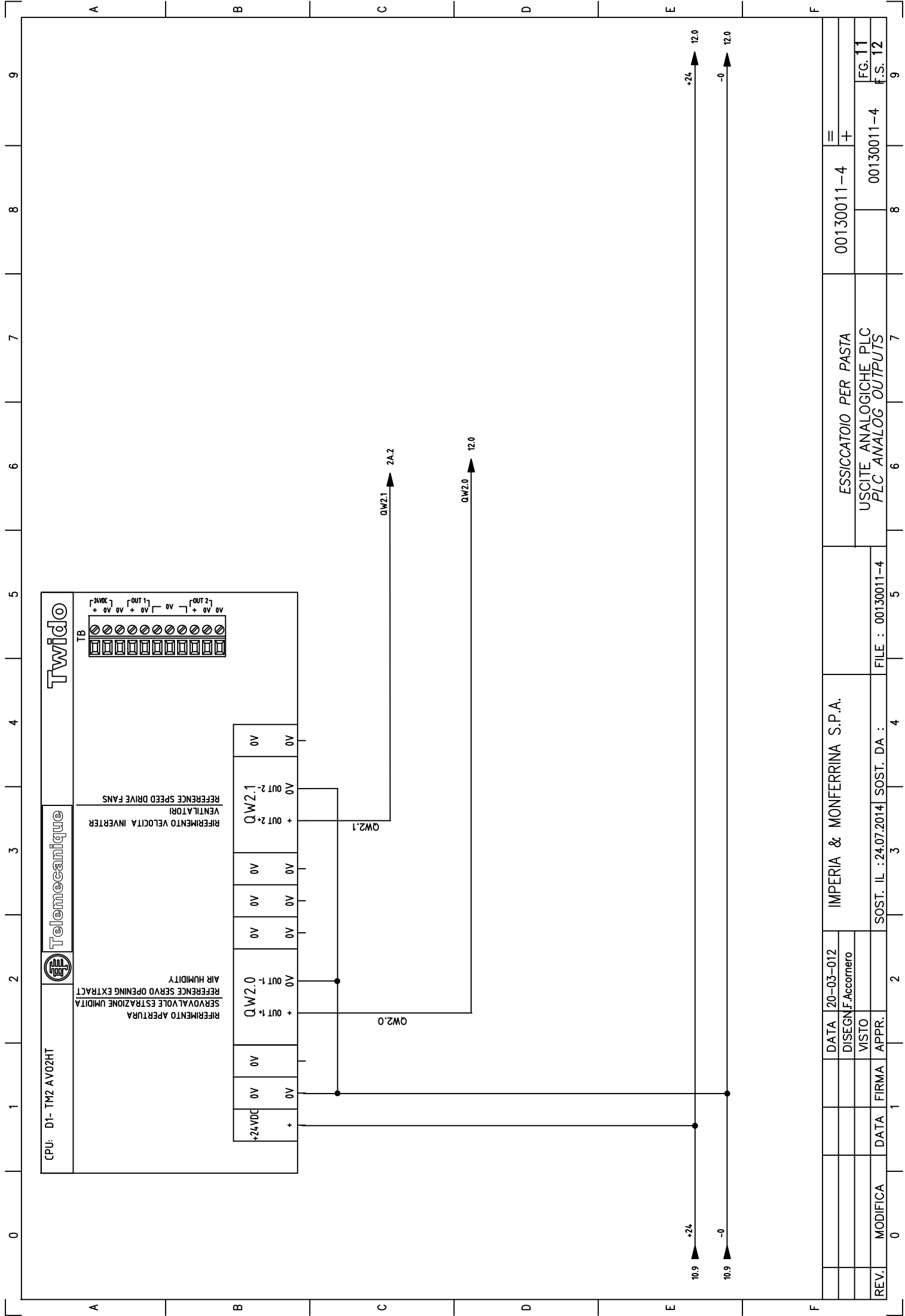
ESSICCATOIO

PROGETTAZIONE			FAPROJECT		TENSIONE 400V AC 50/60Hz		NORME		IEC		PROTEZIONI	
SERIE					TENSIONE		COMANDI		24V DC		+ ==QC / =BM	
COMMESSA			000130011-4		TENSIONE		SEGNALI		24V DC			
COMMITTENTE			IMPERIA&MONFERRINA									



					IMPERIA & MONFERRINA S.P.A.			ESSICCATOIO PER PASTA		00130011-4	=	
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REV.	MODIFICA	DATA	FIRMA	APPR.	SOST. IL :	SOST. DA :	FILE : 00130011-4		ALIMENTAZIONE AUSILIARI AUXILIARY POWER SUPPLY	00130011-4	FG. 2 F.S. 2A	
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A	Sim.\Sym.Sigla\Item	Funzione\Use Type	A1 =QG 6		HL1 = QG 9		LAMPEGGIANTE ESTERNO	M6 =BM 3		MOTORE VENTILATORE 6
B	Sim.\Sym.Sigla\Item	Funzione\Use Type	A2 =QG 7		INV1 = QG 2A		INVERTER MOTORI VENTILATORI	M7 =BM 3		MOTORE VENTILATORE 7
C	Sim.\Sym.Sigla\Item	Funzione\Use Type	A3 =QG 7		KA1 =QG 2		RELE CONTROLLO TENSIONE 220 V	M8 =BM 3		MOTORE VENTILATORE 8
D	Sim.\Sym.Sigla\Item	Funzione\Use Type	D1 =QG 7		KA2 =QG 9		RELE INTERFACCIA COMANDO RESISTENZE	QF1 = QG 5		MAGNETOTERMICO PROTEZIONE RESISTENZE
E	Sim.\Sym.Sigla\Item	Funzione\Use Type	EH1 = QG 5		KM1 =QG 13		CONTATTORE SICUREZZA COMANDO RESISTENZE	QS1 = QG 2		INTERRUTTORE SEZIONATORE GENERALE
F	Sim.\Sym.Sigla\Item	Funzione\Use Type	FAN-1 = QG 2		KM2 =QG 13		CONTATTORE COMANDO RESISTENZE	SB1 =BM 6		PULSANTE DI EMERGENZA
A	Sim.\Sym.Sigla\Item	Funzione\Use Type	FAN-2 = QG 2		M1 =BM 3		MOTORE VENTILATORE 1	SB2 =BM 6		PULSANTE DI RESET EMERGENZA
B	Sim.\Sym.Sigla\Item	Funzione\Use Type	FUS1 =QG 2		M2 =BM 3		MOTORE VENTILATORE 2	SQ1 =BM 6		MICRO PORTA 1
C	Sim.\Sym.Sigla\Item	Funzione\Use Type	FUS2 =QG 2		M3 =BM 3		MOTORE VENTILATORE 3	SQ2 =QG 6		MICRO PORTA 2
D	Sim.\Sym.Sigla\Item	Funzione\Use Type	FUS3 = QG 2A		M4 =BM 3		MOTORE VENTILATORE 4	T1S =BM 6		TERMOSTATO DI SICUREZZA
E	Sim.\Sym.Sigla\Item	Funzione\Use Type	GD1 =QG 2		M5 =BM 3		MOTORE VENTILATORE 5	TU1 =QG 10		SONDA TEMPERATURA - UMIDITA
F	REV. MODIFICA	DATA FIRMA APPR.	20-03-012	DISEGNI F. Accornero	VISTO	SOST. IL : 24.07.2014	SOST. DA :	FILE : 00130011-4	ESSICCATOIO PER PASTA	00130011-4
A	Sim.\Sym.Sigla\Item	Funzione\Use Type	A1 =QG 6		HL1 = QG 9		LAMPEGGIANTE ESTERNO	M6 =BM 3		MOTORE VENTILATORE 6
B	Sim.\Sym.Sigla\Item	Funzione\Use Type	A2 =QG 7		INV1 = QG 2A		INVERTER MOTORI VENTILATORI	M7 =BM 3		MOTORE VENTILATORE 7
C	Sim.\Sym.Sigla\Item	Funzione\Use Type	A3 =QG 7		KA1 =QG 2		RELE CONTROLLO TENSIONE 220 V	M8 =BM 3		MOTORE VENTILATORE 8
D	Sim.\Sym.Sigla\Item	Funzione\Use Type	D1 =QG 7		KA2 =QG 9		RELE INTERFACCIA COMANDO RESISTENZE	QF1 = QG 5		MAGNETOTERMICO PROTEZIONE RESISTENZE
E	Sim.\Sym.Sigla\Item	Funzione\Use Type	EH1 = QG 5		KM1 =QG 13		CONTATTORE SICUREZZA COMANDO RESISTENZE	QS1 = QG 2		INTERRUTTORE SEZIONATORE GENERALE
F	Sim.\Sym.Sigla\Item	Funzione\Use Type	FAN-1 = QG 2		KM2 =QG 13		CONTATTORE COMANDO RESISTENZE	SB1 =BM 6		PULSANTE DI EMERGENZA
A	Sim.\Sym.Sigla\Item	Funzione\Use Type	FAN-2 = QG 2		M1 =BM 3		MOTORE VENTILATORE 1	SB2 =BM 6		PULSANTE DI RESET EMERGENZA
B	Sim.\Sym.Sigla\Item	Funzione\Use Type	FUS1 =QG 2		M2 =BM 3		MOTORE VENTILATORE 2	SQ1 =BM 6		MICRO PORTA 1
C	Sim.\Sym.Sigla\Item	Funzione\Use Type	FUS2 =QG 2		M3 =BM 3		MOTORE VENTILATORE 3	SQ2 =QG 6		MICRO PORTA 2
D	Sim.\Sym.Sigla\Item	Funzione\Use Type	FUS3 = QG 2A		M4 =BM 3		MOTORE VENTILATORE 4	T1S =BM 6		TERMOSTATO DI SICUREZZA
E	Sim.\Sym.Sigla\Item	Funzione\Use Type	GD1 =QG 2		M5 =BM 3		MOTORE VENTILATORE 5	TU1 =QG 10		SONDA TEMPERATURA - UMIDITA
F	REV. MODIFICA	DATA FIRMA APPR.	20-03-012	DISEGNI F. Accornero	VISTO	SOST. IL : 24.07.2014	SOST. DA :	FILE : 00130011-4	ESSICCATOIO PER PASTA	00130011-4
A	Sim.\Sym.Sigla\Item	Funzione\Use Type	A1 =QG 6		HL1 = QG 9		LAMPEGGIANTE ESTERNO	M6 =BM 3		MOTORE VENTILATORE 6
B	Sim.\Sym.Sigla\Item	Funzione\Use Type	A2 =QG 7		INV1 = QG 2A		INVERTER MOTORI VENTILATORI	M7 =BM 3		MOTORE VENTILATORE 7
C	Sim.\Sym.Sigla\Item	Funzione\Use Type	A3 =QG 7		KA1 =QG 2		RELE CONTROLLO TENSIONE 220 V	M8 =BM 3		MOTORE VENTILATORE 8
D	Sim.\Sym.Sigla\Item	Funzione\Use Type	D1 =QG 7		KA2 =QG 9		RELE INTERFACCIA COMANDO RESISTENZE	QF1 = QG 5		MAGNETOTERMICO PROTEZIONE RESISTENZE
E	Sim.\Sym.Sigla\Item	Funzione\Use Type	EH1 = QG 5		KM1 =QG 13		CONTATTORE SICUREZZA COMANDO RESISTENZE	QS1 = QG 2		INTERRUTTORE SEZIONATORE GENERALE
F	Sim.\Sym.Sigla\Item	Funzione\Use Type	FAN-1 = QG 2		KM2 =QG 13		CONTATTORE COMANDO RESISTENZE	SB1 =BM 6		PULSANTE DI EMERGENZA
A	Sim.\Sym.Sigla\Item	Funzione\Use Type	FAN-2 = QG 2		M1 =BM 3		MOTORE VENTILATORE 1	SB2 =BM 6		PULSANTE DI RESET EM