




<i>Manufacturer</i>	GHIDINI BENVENUTO s.r.l.
<i>Product</i>	Steam generator MAXI 24
<i>Year</i>	2008
<i>Certification</i>	

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1 INTRODUCTION

The present user's and maintenance manual refers to the steam generator "Maxi 24".

It is possible to receive the latest release from our Technical Commercial Department or by visiting our website www.ghidini-gb.it.

The present user's and maintenance manual contains important information for the operator's health safeguard and safety.

This manual has to be read and kept carefully, in order to be always at the operator's disposal in case of need.

Ghidini s.r.l. cannot be held liable for any damage to things or injury to persons caused by improper use of the machine in contrast with these instructions.

Any possible modifications effected on the components of the machine or its different use without prior written authorization by Ghidini s.r.l., relieve the latter of injury to persons and / or damages to things, voiding any warranty bindings, as well.

2 GENERAL DESCRIPTION

The steam generator Maxi 24 is an equipment designed for the production of steam. For its operation, the machine has to be connected to an external power and water supply

The machine is provided with an automatic level control and water feeding.

Thanks to its frontal control panel, the steam generator results to be very user-friendly and efficient.

3 MACHINE IDENTIFICATION

The machine is provided with two tags: the one on the outside shows both the identification data and specifications related to the generator's functioning, whereas the one inside the panel shows the maximum allowed values.

4 TECHNICAL FEATURES

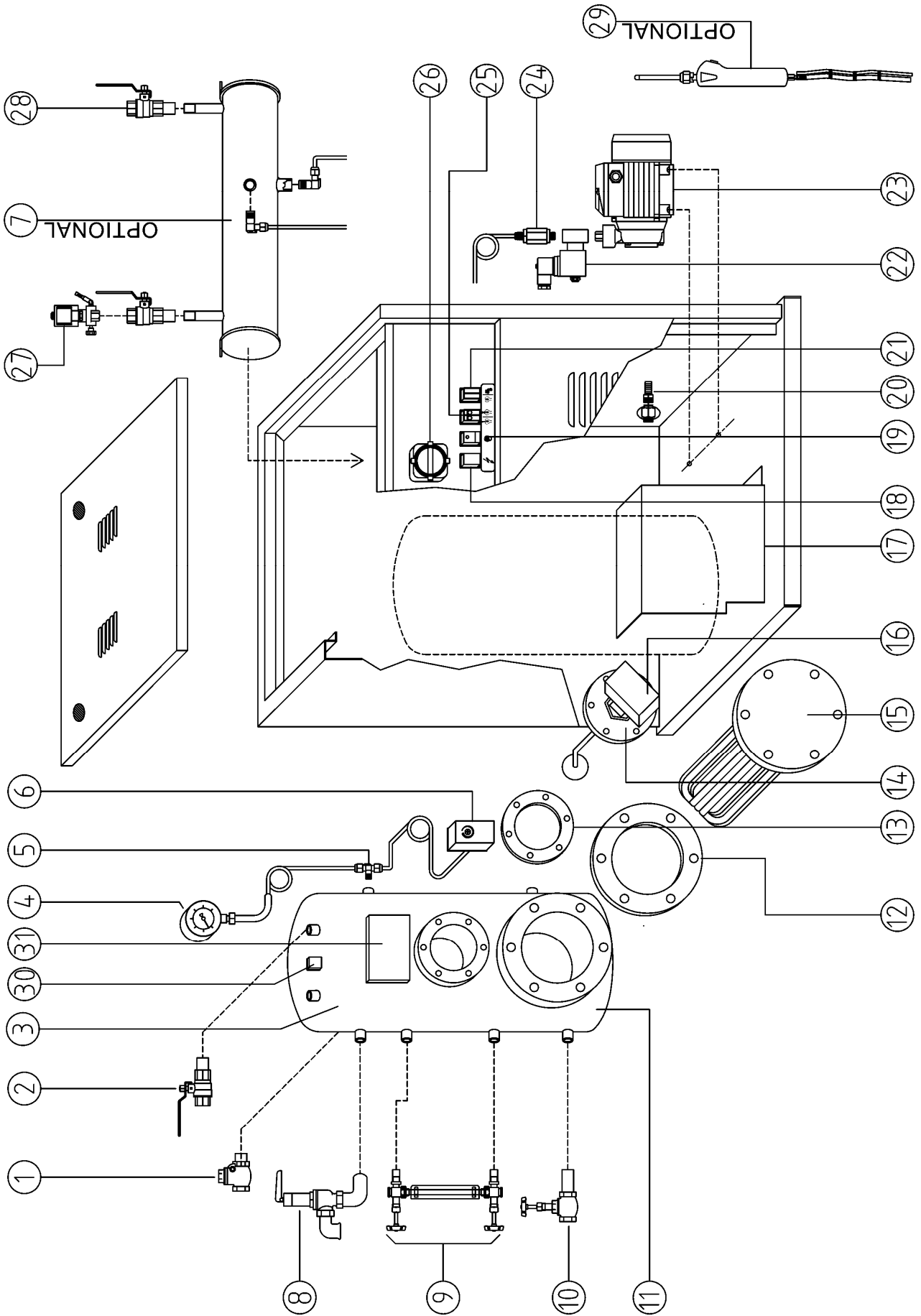
TECHNICAL FEATURES											
Power supply	230/400V – 3ph – 50 Hz										
Boiler capacity	24 L										
Steam pressure	7 bar max										
Pump motor power	0,5 Kw										
Sound intensity level	< 70 dB(A)										
Working temperature	+ 5 ÷ + 80 °C										
Working humidity	90 % max.										
Storing temperature	- 20 ÷ + 50 °C										
Net dimensions	580 x 660 x 765 mm.										
Net weight	78 Kg										
Overall dimensions (packaging included)	780 x 680 x 990 mm										
Gross weight (packaging included)	158 Kg										
Boiler heater	4 ÷ 24 Kw										
Kw	7	4 + 4*	10	6 + 6*	12	7 + 7*	15	8 + 8*	18	10 + 10*	12 + 12*
Kcal/h	6023	6883	8604	10325	10325	12046	12906	13767	15488	17208	20650
Kg/h	9,5	11	13,5	16	16	18,5	20	21	24,5	26,5	32,64

*: Double heater with the possibility of a reduced power operation.

WARNING: The machine must not be supplied with different voltages and pressures than those indicated on the table.

5 MACHINE COMPONENTS

Main components of the machine:



Pos.	ARTICLE	DESCRIPTION	Pos.	ARTICLE	DESCRIPTION
1	38F003	Check valve Clapet 1/2"	17	173465	Heater cover
2	37A003	Ball tap 1/2"	18	43A046	Warning light "Presence of tension"
3	224001	Boiler insulation	19	43A020	Boiler switch
4	35A002	Pressure gauge 0-10bar	20	36E006	Hose holder Ø12
5	36M016	Tee 1/4"	21	43A016	Warning light for boiler heater
6	45G001	Pressure switch 2 ÷ 5,5 bar		43A016	Water warning light
	45G014	Pressure switch 4 ÷ 15 bar	22	39B017	Water solenoid valve
7	202047	Condense vessel (optional)	23	42B006	Single-phase pump 50Hz
8	38S025	Safety valve 5bar ÷ 8bar		42B024	Three-phase pump 50Hz
9	37C001	Two cocks for visual level indicator	24	38W001	Check valve
10	37B001	Gate valve for boiler exhaust	25	43A014	1st boiler heater switch
11	200091	Boiler		43A014	2nd boiler heater switch
12	244238	Heater gasket	26	173099	Man switch
13	244236	Level control gasket	27	39B005	Steam solenoid valve (optional)
14	183273	Flange for level control	28	37A002	Tap with lever 3/8" (optional)
15	183271	Flange 1st boiler heater	29	Z07B00	Steam gun for fur garments (optional)
	183285	Flange 2nd boiler heater	30	45B021	Safety thermostat
16	49A002	Automatic level control	31	-	PED certification plate

BOILER HEATERS

ARTICLE	DESCRIPTION	ARTICLE	DESCRIPTION
213155	Heater 230 V – 6 Kw Copper	213145	Heater 230 V – 1,3 Kw Copper
213154	Heater 415 V – 5 Kw Copper	213150	Heater 230 V – 6 Kw Stainless steel
213153	Heater 230 V – 5 Kw Copper	215169	Heater 230 V – 1,3 Kw Stainless steel
213152	Heater 415 V – 4 Kw Copper	215172	Heater 230 V – 2 Kw Stainless steel
213151	Heater 230 V – 4 Kw Copper	215170	Heater 230 V – 2,3 Kw Stainless steel
215102	Heater 115 V – 3,3 Kw Copper	215173	Heater 230 V – 3,5 Kw Stainless steel
213159	Heater 230 V – 2,7 Kw Copper	215174	Heater 230 V – 4 Kw Stainless steel
213149	Heater 230 V – 3,5 Kw Copper	213161	Heater 230 V – 5 Kw Stainless steel
213147	Heater 230 V – 2,3 Kw Copper	215177	Heater 230 V – 4 Kw Incoloy
212159	Heater 230 V – 2 Kw Copper	215162	Heater 230 V – 6 Kw Incoloy

6 MACHINE UNPACKING AND INSTALLATION

WARNING: The unit must be installed, opened and repaired by fully qualified technicians only.

6.1 UNPACKING

Find the most suitable place where to put the machine, and then remove the packaging. Make sure that the machine has not been damaged during the transport and the storage.

The packaging material does not require any special precautions for its disposal, for it is not dangerous or polluting at all. Please refer to the local regulations for its disposal.

6.2 MACHINE INSTALLATION

The machine has not to be anchored to the floor, except for installations on moving means. In this case, use the holes on the bedplate for a proper fixing.

For a correct use and operation, as well as for an easy maintenance, leave enough free space around the machine.

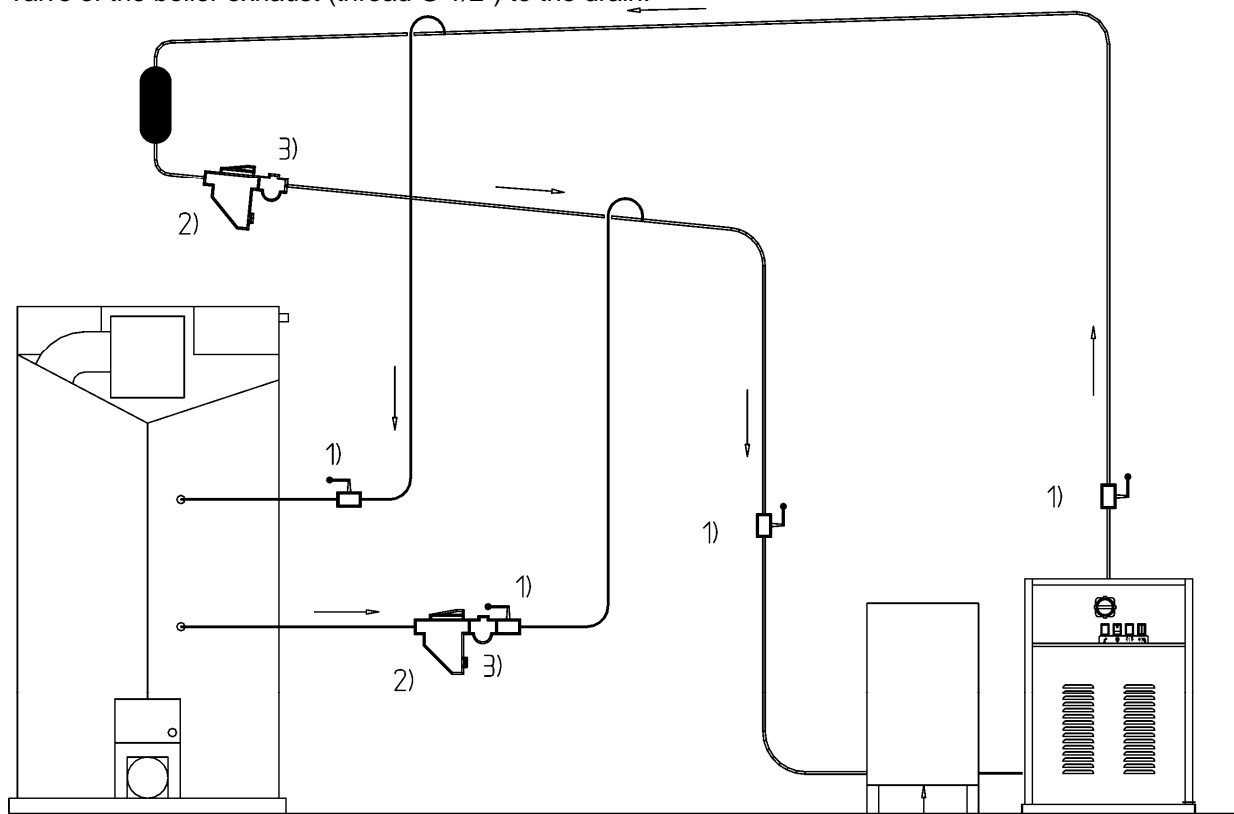
Do not place the machine in dangerous and/or explosive/inflammable places.

6.3 ELECTRICAL WIRING

The electrical wiring must be carried out as indicated in the drawing. Check that the supply voltage and the frequency correspond to those indicated on the rating plate. The dimensions of the supply cable must suit the machine absorption and comply with the current regulations. It is advisable to install a switch with fuses or a thermal circuit breaker. Put the cable in the relevant cable passage hole, and then tighten. Connect the cable to the terminals of the feeder line on the control board, as shown on the drawing of the present manual

6.4 WATER FEEDING AND BOILER EXHAUST

Connect the water pipe to the hose holder Ø12 of the machine. Install an on-off valve, as well as a filter on the water feeding, which has to be closed every evening, in order to avoid water eddies into the boiler. Connect the gate valve of the boiler exhaust (thread G 1/2") to the drain.



- 1) Saracinesca - Gate valve
Vanne - Absperrventil
- 2) Scaricatore di condensa - Condensate discharger
Déchargeur condensation - Kondensatabscheider
- 3) Valvola di ritegno - Check valve
Clapet de retenue - Rückschlagventil

Vasca recupero condense cod. Z24B00
Condensate recovery tank cod. Z24B00
Bac de récupération condensation cod. Z24B00
Kondensatrücklaufbehälter cod. Z24B00

WARNING: After having carried out all the electrical connections, make sure that pipes and cables are protected against any possible hits and are suitably fixed and isolated.

7 INSTRUCTIONS FOR USE

7.1 PUTTING INTO OPERATION

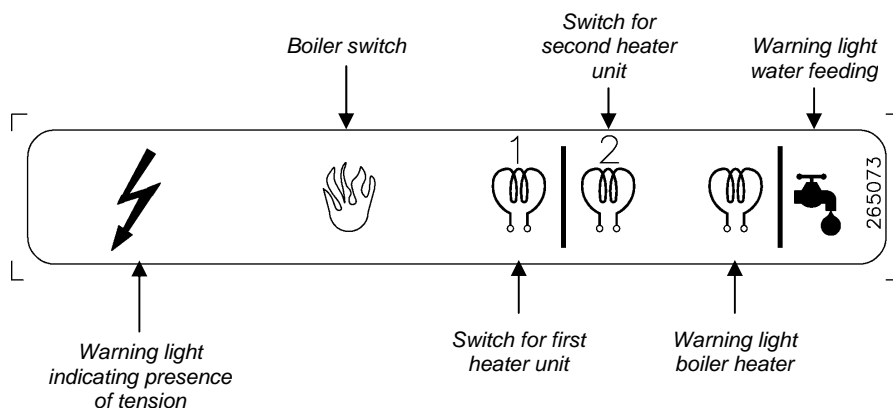
- The whole unit can be used, opened and repaired by qualified technicians only.
- It is forbidden to use the machine if flooded by liquids or in particularly aggressive or explosive/inflammable places.
- Do not ignore the dangers for the operator's health and follow the hygienic and safety regulations.
- Always use suitable pipes according to the working pressure.
- Check that the electrical wiring is carried out correctly according to the current regulations, and that the fuse blocks are closed and complete of fuses.
- Make sure that control and safety devices of the boiler (pressure gauge, pressure switch, and safety valve) are intact.
- Make sure that the gate valve of the boiler exhaust is correctly closed.
- Check if the direction of the motor rotation correct.

7.2 USE

- Open the on-off valve on the water feeding.
- Turn on the main switch of the machine.
- On the control board, the warning light signalling the presence of tension will switch on.
- *For boilers with one heater:*
 - Switch on the boiler.

- For boilers with double heater:
 - Turn on the boiler switches of the first and second heater unit.
- The warning light of the water-feeding device will switch on automatically (the water starts pouring into the boiler).
- As soon as the water has reached the right level (check also the one on the visual water level indicator), the relevant warning light switches off automatically, whereas the boiler heaters start working, indicated by the corresponding warning light.
- After a few minutes the boiler reaches the working pressure (check the pressure on the pressure gauge) and the relevant warning light switches off automatically.
- The generator is now ready to supply steam

WARNING: It is advisable to switch on both heater units at the same time, in order to reach the working pressure more quickly. Once this working pressure has been reached, you can switch off one of the two heater units.



8 TROUBLESHOOTING AND SOLVING

The following diagnostic table indicates the main irregularities which can occur, the probable causes and their possible solutions

In case of doubts and/or of problems, which cannot be solved, do not attempt to disassemble parts of the machine for the troubleshooting, but contact our Technical Department or the Ghidini-reseller, instead.

DIAGNOSTIC TABLE		
PROBLEMS	POSSIBLE CAUSES	SOLUTIONS
The machine does not work.	The main switch is turned off	<i>Turn on the main switch</i>
	Burnt out fuses	<i>Check the fuses</i>
The water warning light is switched on and the pump keeps on running:	No water pours into the boiler	<i>Check that the water tap is open</i>
		<i>Check if the water network is under pressure.</i>
		<i>Make sure that the water filter is not dirty.</i>
The warning light of the heater keeps to be switched on and the boiler doesn't reach the working pressure:	Leak on the boiler exhaust	<i>Control if the exhaust valve is tightly closed.</i>
	Heaters are burnt or covered by lime	<i>Check the heaters</i>

ATTENTION: if the safety valve turns on, switch the boiler immediately off and contact a qualified technician. Do not stop up the breather and do not underestimate the problem, as there could be a risk of explosion.

9 PRECAUTIONS

Read carefully the instructions and the risks related to the use of a steam generator. The operator has to know its working functions and must clearly understand its dangers with the help of the manual.

Main electrical supply

Prior to carrying out any inspection or service on the steam boiler, it is necessary to disconnect it from the main electrical supply. Make sure, that nobody can reconnect it during the technical service. Every installed electrical or electronic equipment and basic structures must be earthed.

Inflammability

Adopt all the necessary precautions to avoid any direct contact of the machine with hot materials or flames. Put fire extinguishers near the machine for an immediate intervention in event of fire.

Pressure / Steam

Before each intervention, switch the boiler first off, let the pipes cool down, and check that there are no residual pressures in any branch of the hydraulic circuit, as they could cause steam or product spurts, in case of disassembly of fittings or other components.

Noise

The machine's noise level is not very high, as it remains under 70dB (A).

10 HAZARDOUS USE

The conformity verification according to the essential safety rules and to the machine directive has already been carried out by filling out the specially provided checking lists, included in the *technical file*.

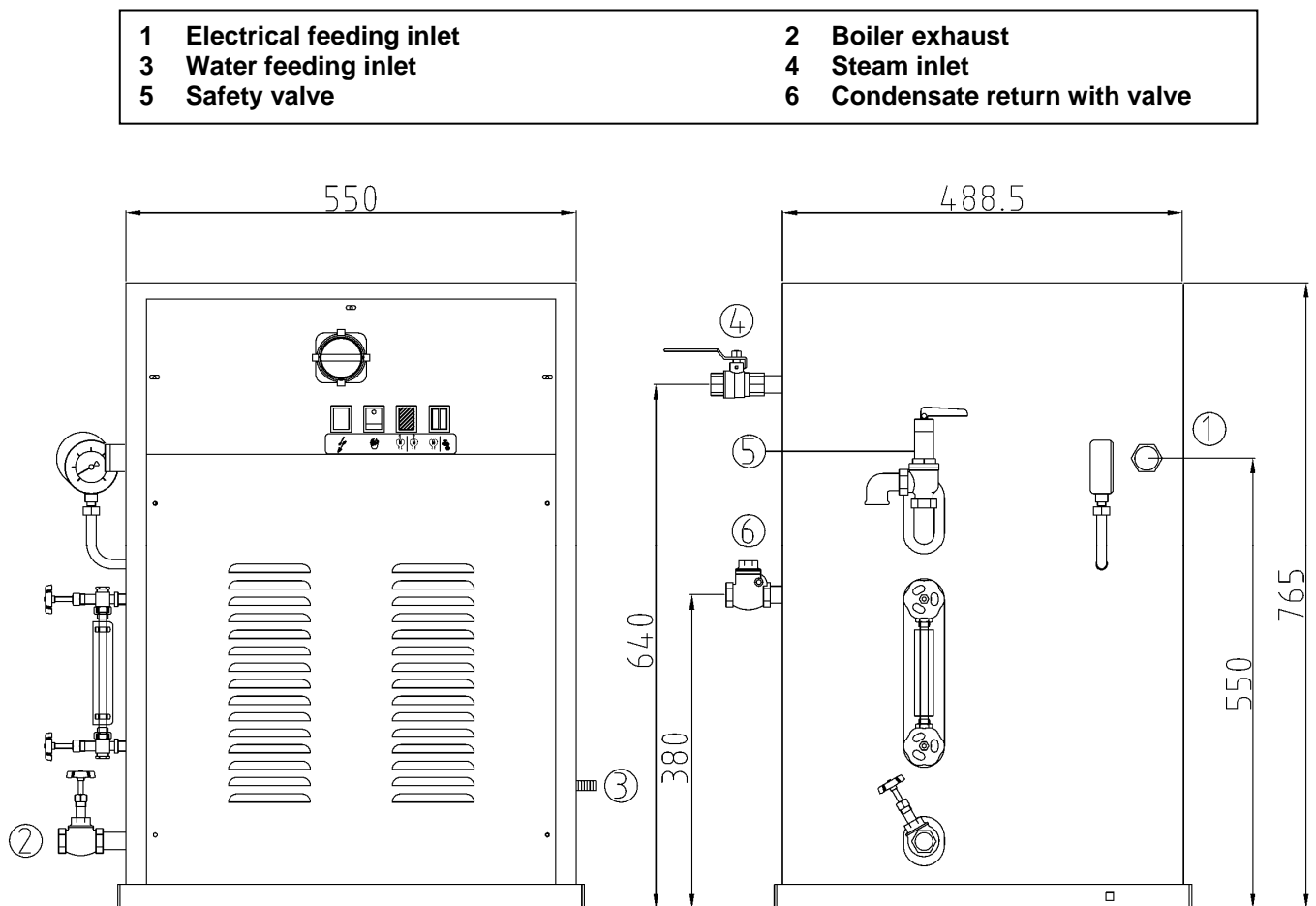
The checking lists are of two kinds:

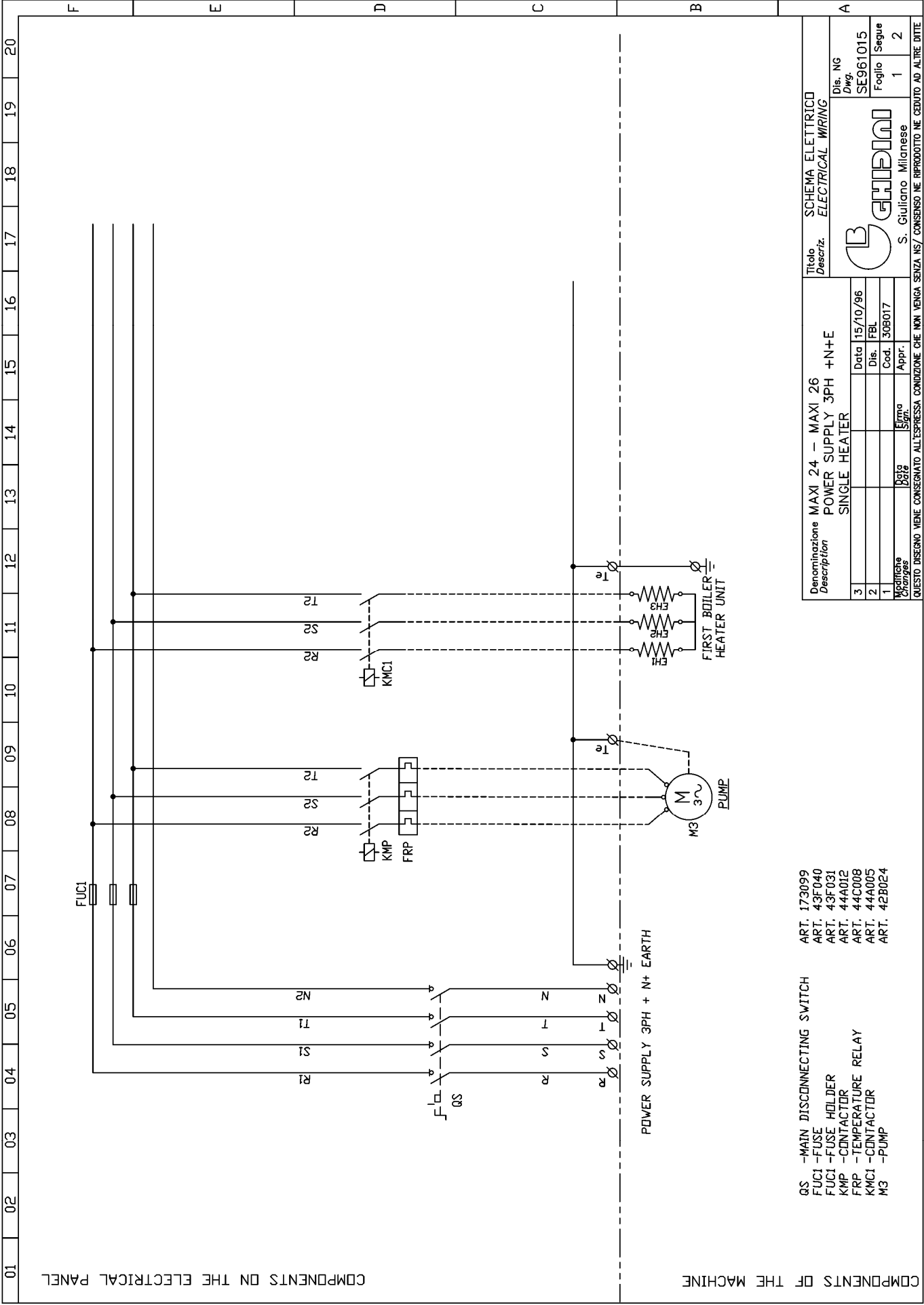
- List of dangers (drawn from EN 1050 referring to EN 292)
- Application of the main safety features (Machine Directive– appendix. 1, part 1)

The dangers described in the following have not been completely removed, but they have been deemed to be acceptable:

- During the maintenance operation there could be some steam jets at low pressure, (maintenance operation must therefore be carried out by using suitable protection devices)
- The user must provide for a protection against direct and indirect contacts with the steam.

11 OVERALL DIMENSIONS AND DRAWINGS





COMPONENTS ON THE ELECTRICAL PANEL

COMPONENTS OF THE MACHINE

- QS - MAIN DISCONNECTING SWITCH ART. 173099
- FUC1 - FUSE HOLDER ART. 43F040
- FUC1 - FUSE HOLDER ART. 43F031
- KMP - CONTACTOR ART. 44A012
- FRP - TEMPERATURE RELAY ART. 44C008
- KMCI - CONTACTOR ART. 44A005
- M3 - PUMP ART. 42B024

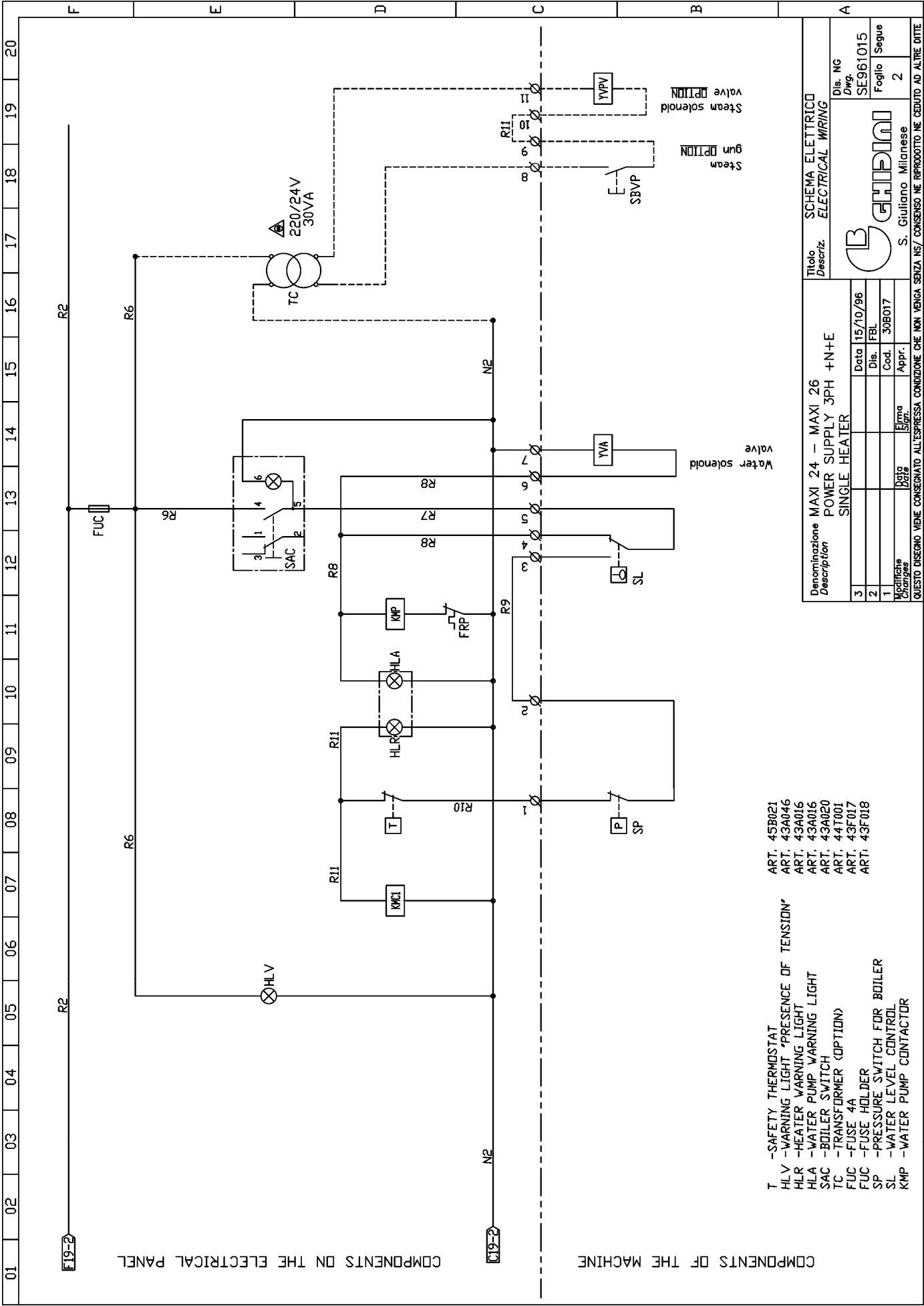
Denominazione Description		MAXI 24 - MAXI 26 POWER SUPPLY 3PH +N+E SINGLE HEATER	
3	Data	15/10/96	
2	Dis.	FBL	
1	Cod.	30B017	
Modifiche Changes		Disegn.	Suppl. Appr.

Titolo Descriz.		SCHEMA ELETTRICO ELECTRICAL WIRING	
Dis. NG Dwg.		SE961015	
Foglio		1	
Segue		2	
S. Giuliano Milanese			
QUESTO DISEGNO VIENE CONSEGNATO ALL'ESPRESSIONE CONDIZIONE CHE NON VENGA SENZA NS/ CONSENSO NE RIPRODOTTO NE CEDUTO AD ALTRE DITTE			



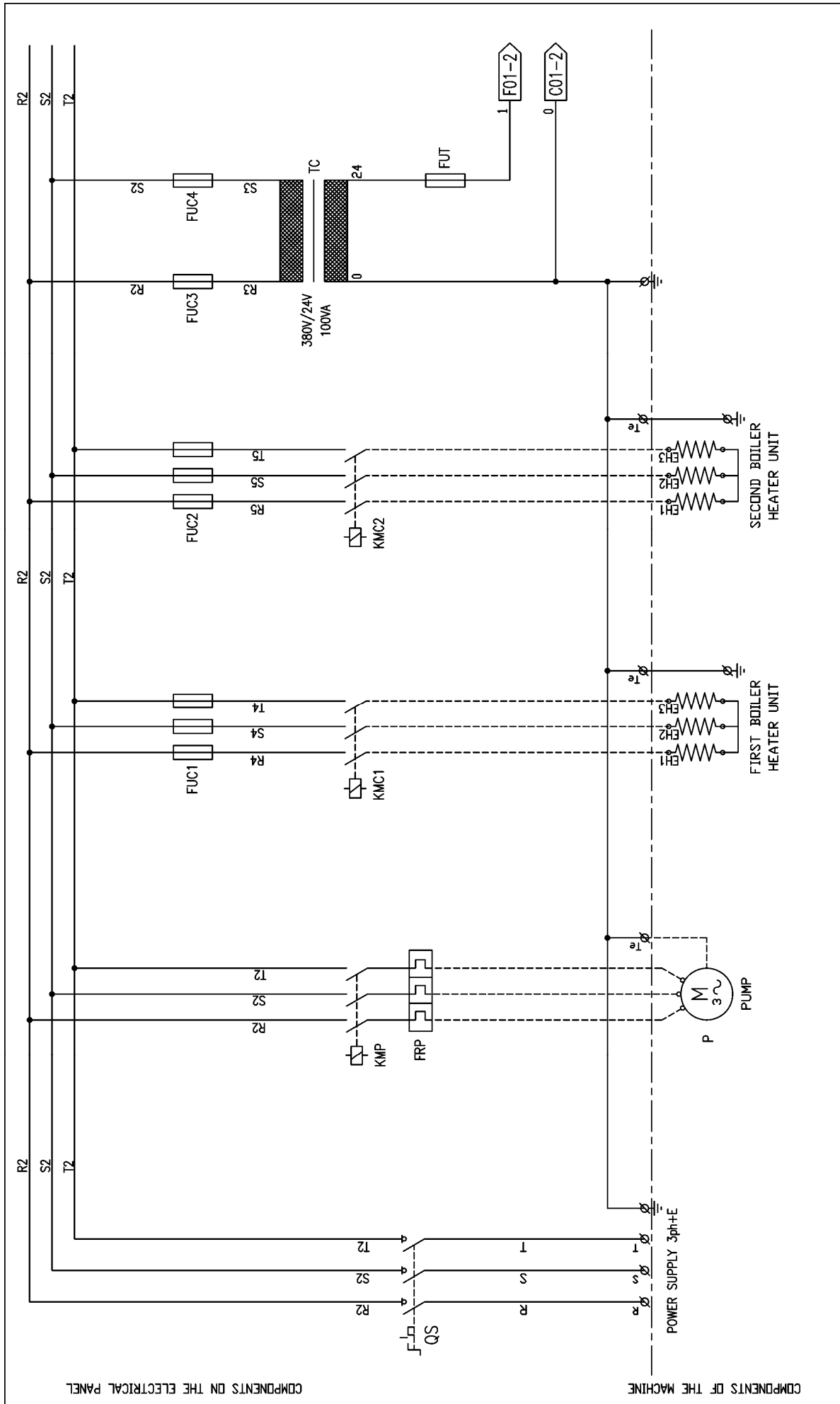
F E D C B A

01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20



- T - SAFETY THERMOSTAT
- HLV -WARNING LIGHT "PRESENCE OF TENSION"
- HLR -HEATER WARNING LIGHT
- HLA -WATER PUMP WARNING LIGHT
- SAC -BOILER SWITCH
- TC -TRANSFORMER (OPTION)
- FUC -FUSE 4A
- FUC -FUSE HOLDER
- SP -PRESSURE SWITCH FOR BOILER
- SL -WATER LEVEL CONTROL
- KMP -WATER PUMP CONTACTOR
- ART. 45B021
- ART. 43A046
- ART. 43A016
- ART. 43A016
- ART. 43A020
- ART. 44T001
- ART. 43F017
- ART. 43F018

Denominazione Description		MAXI 24 - MAXI 26 POWER SUPPLY 3PH +N+E SINGLE HEATER	
3	Data	15/10/96	
2	Dis. FBL		
1	Cod.	30B017	
Modifiche Changes		Dis. NG Dwg.	SE961015
		Appr.	Foglio Segue 2
		Dis. NG Dwg.	2
Titolo Descriz. SCHEMA ELETTRICO ELECTRICAL WIRING			
S. Giuliano Milanese			

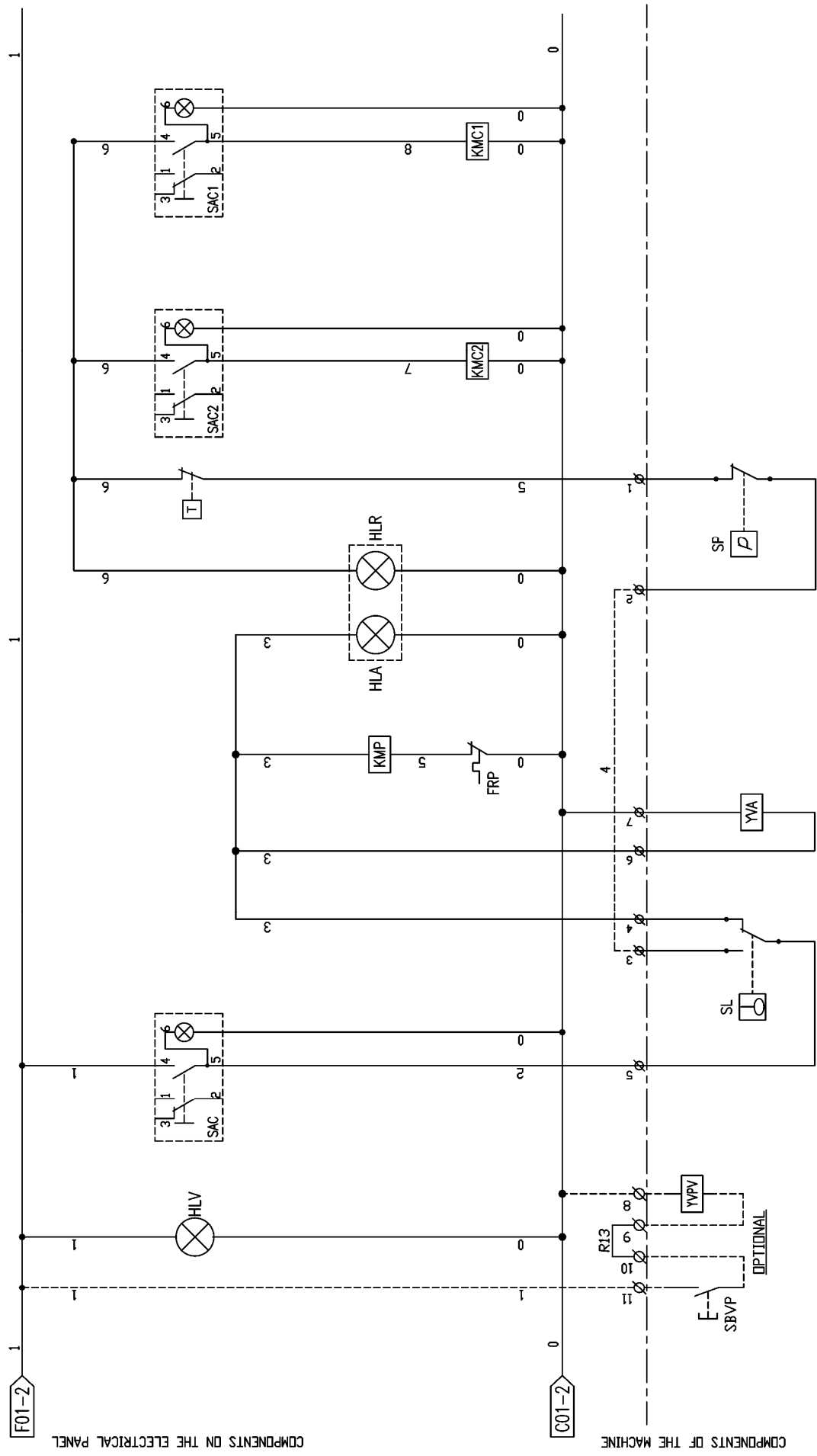


COMPONENTS ON THE ELECTRICAL PANEL

COMPONENTS OF THE MACHINE

Denominazione Description		MAXI 24 POWER SUPPLY 3ph+E - 400V DOUBLE HEATERS	
TITOLO Descriz.		SCHEMA ELETTRICO ELECTRICAL WIRING	
Data		14-04-10	
Dis. A. G.			
Cod.		30B039	
Appr.			
Firma Date			
Dis. NG Dwg.		30B039M1	
Foglio		Segue	
1/2		2/2	
S. Giuliano Milanese			
QUESTO DISEGNO VIENE CONSEGNATO ALL'ESPRESSIONE CONDIZIONE CHE NON VENGA SENZA NS/ CONSENSO NE RIPRODOTTO NE CEDUTO AD ALTRE DITTE			


- QS: Main Disconnecting Switch cod. 173099
- FRP: Termic Relay cod. 44C008
- P: Water pump 50Hz cod. 42B024
- P: Water pump 60Hz cod. 42B033
- FUC1: Fuse holder cod. 43F031
- FUC2: Fuse holder cod. 43F017
- FUC1: Fuse 40A cod. 43F040
- FUC2: Fuse 32A cod. 43F022
- FUC3-4: Fuse holder cod. 43F017
- FUC3-4: Fuse 4A cod. 43F018
- FUC5: Fuse 6A cod. 43F005
- TC: Transformer 380/24V 100VA cod. 44T014

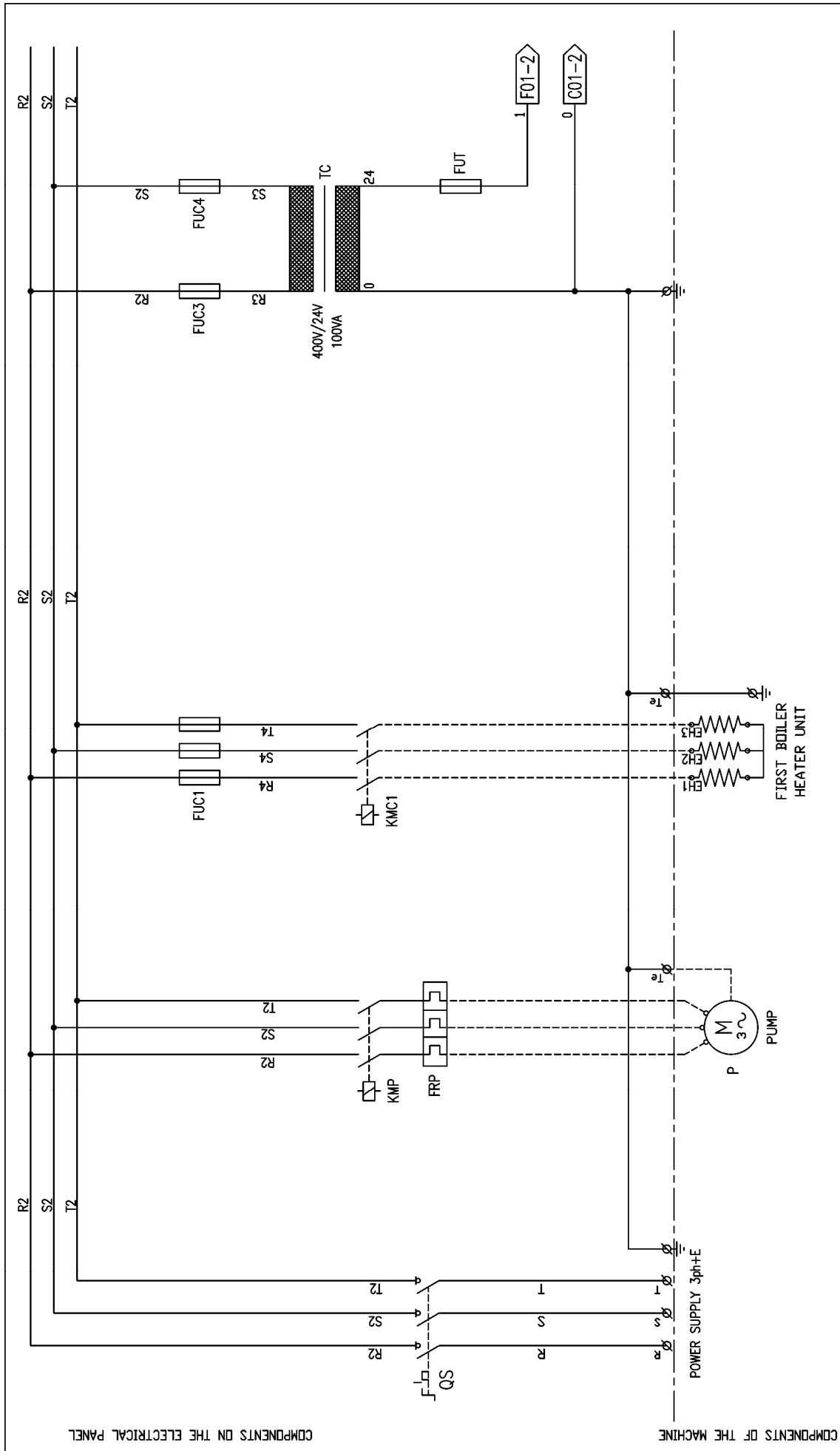


COMPONENTS ON THE ELECTRICAL PANEL

COMPONENTS OF THE MACHINE

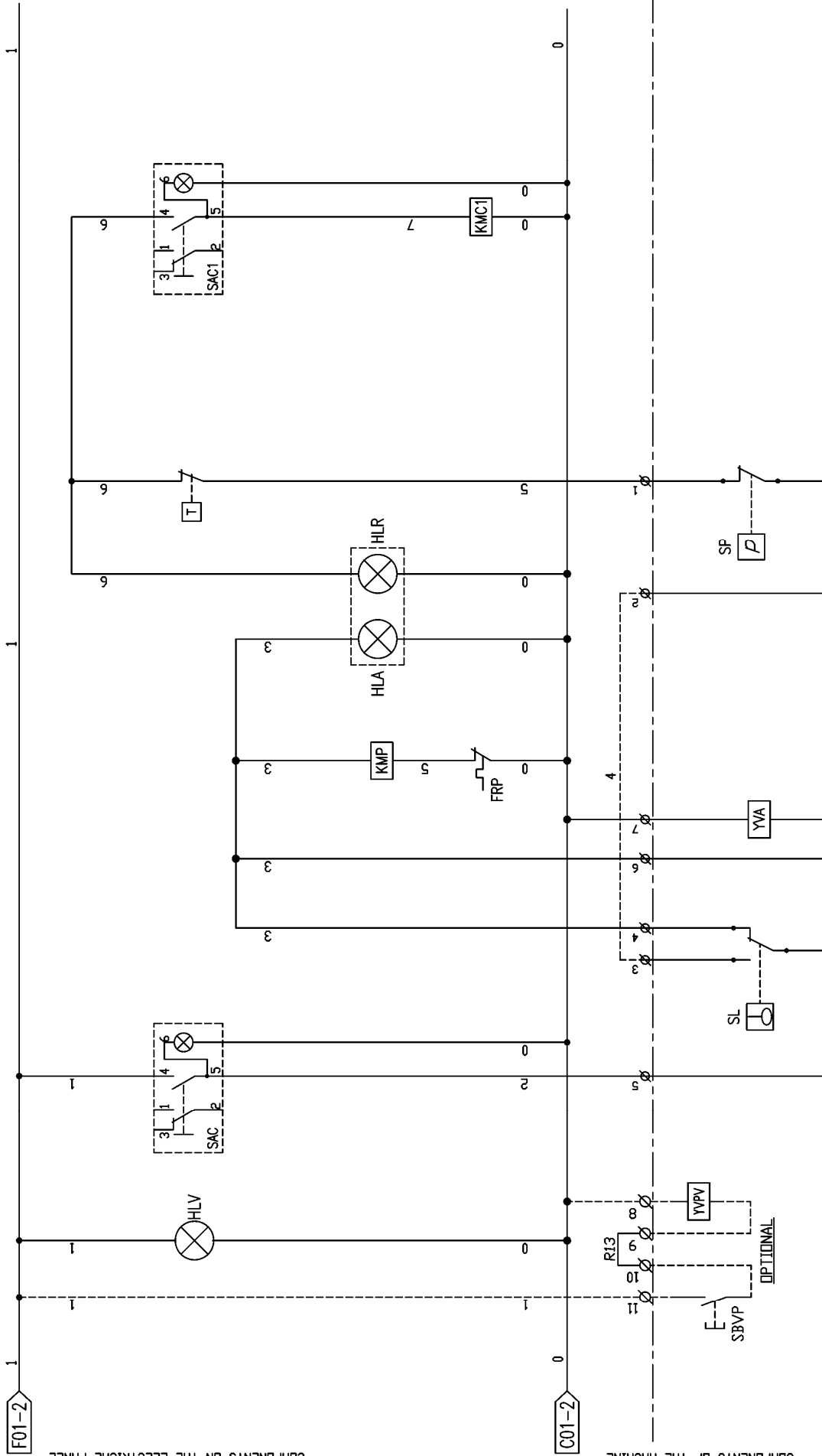
- SBVP: Steam gun cod. Z07B00
- T: Safety thermostat cod. 39B021
- SP: Pressure switch for boiler 5 bar cod. 45G001
- SP: Pressure switch for boiler 7 bar cod. 45G014
- SL: Water level control cod. 49A002
- SAC: Boiler switch cod. 43A034
- SAC1-SAC2: Switch boiler heater unit cod. 43A023
- YVA: Water solenoid valve cod. 43A023
- HLR: Heater warning light cod. 43A023
- HLA: Water pump warning light cod. 43A023
- HLV: Warning light "Presence of tension" cod. 43A036
- KMP: Contactor
- KMC1: Contactor first boiler heater unit cod. 44A004
- KMC2: Contactor second boiler heater unit cod. 44A008

Denominazione Description		MAXI 24 POWER SUPPLY 3ph+E - 400V DOUBLE HEATERS	
3	Data	14-04-10	
2	Dis. A. G.		
1	Cod.	30B039	
Modifiche Changes		Data	Sign.
Titolo Descriz.		SCHEMA ELETTTRICO ELECTRICAL WIRING	
		Dis. NG	30B039M2
		Foglio	Segue
		2/2	
			
S. Giuliano Milanese			



Denominazione Description		MAXI 24 POWER SUPPLY 3ph+E - 400V SINGLE HEATER	
3	Data	19-04-10	
2	Dis. A. G.		
1	Cod.	30B040	
Modifiche Changes		Data	Descr.
Titolo Descriz.		SCHEMA ELETTTRICO ELECTRICAL WIRING	
Dis. NG Dwg.		30B040M1	
Foglio Sheet		1/2	
Segue Follows		2/2	
S. Giuliano Milanese			
QUESTO DISEGNO MENE CONSEGNATO ALL'ESPRESSA CONDIZIONE CHE NON VENGA SENZA NS/ CONSENSO NE RIPRODOTTO NE CEDUTO AD ALTRE DITTE			

QS: Main Disconnecting Switch cod. 173099
 FRP: Thermic Relay cod. 44C008
 P: Water pump 50Hz cod. 42B024
 P: Water pump 60Hz cod. 42B033
 FUC1: Fuse holder cod. 43F031
 FUC1: Fuse 40A cod. 43F040
 FUC3-4: Fuse holder cod. 43F017
 FUC3-4: Fuse 4A cod. 43F018
 FUT: Fuse 6A cod. 43F005
 TC: Transformer 400/24V 100VA cod. 44T014



COMPONENTS ON THE ELECTRICAL PANEL

COMPONENTS OF THE MACHINE

- SBVP: Steam gun cod. Z07B00
- T: Safety thermostat cod. 39B021
- SP: Pressure switch for boiler 5 bar cod. 45G001
- SP: Pressure switch for boiler 7 bar cod. 45G014
- SL: Water level control cod. 49A002
- SAC: Boiler switch cod. 43A034
- SAC1-SAC2: Switch boiler heater unit cod. 43A023
- YVA: Water solenoid valve cod. 43A023
- HLR: Heater warning light cod. 43A023
- HLA: Water pump warning light cod. 43A023
- HLV: Warning light "Presence of tension" cod. 43A036
- KMP: Contactor
- KMC1: Contactor first boiler heater unit cod. 44A004

Denominazione Description		MAXI 24 POWER SUPPLY 3ph+E -- 400V	
Titolo Descriz.		SCHEMA ELETTRICO ELECTRICAL WIRING	
Data		19-04-10	
Dis. A. G.			
Cod.		30B040	
Firma		Appr.	
Data		Data	
Firma		Firma	
QUESTO DISEGNO VENE CONSEGNATO ALL'ESPRESSIONE CONDIZIONE CHE NON VENGA SENZA NS/ CONSENSO NE RIPRODOTTO NE CEDUTO AD ALTRE DITE			

GIUPPINI
 S. Giuliano Milanese
 Dis. NG
 30B040M2
 Foglio Segue
 2/2 //

12 MAINTENANCE PROCEDURES

In case of irregularities or malfunctioning, please contact the service technician for the relevant checks.

Periodically, it is necessary to carry out the following operations:

OPERATIONS	Working hours
Empty the boiler (*)	40
Clean the water filter	1500
Clean boiler and heating elements	1500
Check the automatic level control	1500

(*): Empty the boiler when it reaches a pressure of 1 bar, in order to remove every possible lime residue and dirt. When the machine is switched off, open gradually the gate valve of the boiler exhaust. We recommend to carry out this operation before the machine starts working and not in the evening at the end of the work, because the new water, streaming into the boiler, is high in oxygen and increases therefore the corrosion process inside the drum.

This machine does not require special equipment for check and/or maintenance operations. It is however advisable to use suitable tools and personal protections in compliance with the Italian law by decree 626/94, which have to be in good conditions (Presidential Decree 547/55), in order to avoid any damages to persons or machine components.

Make sure that the power, and hydraulic supply are disconnected prior to any maintenance service.

13 DISPOSAL

During the maintenance on the machine, or in case of its scrapping, please dispose carefully and correctly of any polluting components, according to the local regulations. In case of scrapping, the identification rating plate and any other document have to be destroyed.

14 HOW TO ORDER SPARE PARTS

Upon the spare parts request, please quote always:

Machine type, serial number, quantity of the requested spare parts, article number (these data can be read on the rating plate or supplied by the technical information of the machine and by the user's and maintenance manual).

For electrical components with a different voltage and frequency than V 230-380 50 Hz (data available on the rating plate of the faulty component), specify the right voltage and frequency after having mentioned the article number.

The technical data, the descriptions, and pictures included in this manual are not binding.

The manufacturer reserves the right to make any necessary modification without notice or having to up-date the present manual.

15 HANDLING AND TRANSPORT

Before its shipment, the machine is carefully packed. During the shipment and storing of the machine, pay particular attention to the upside indication on the packaging (wooden cage or reinforced carton box). Upon receipt, please check that the packing is intact and store the machine in a dry place.

16 WARRANTY

All Ghidini products are guaranteed for a maximum period of 12 months from delivery date as far as material and construction defects are concerned.

The warranty is extended as follows:

In case of malfunction of the equipment, please contact your Ghidini reseller, specifying the noticed defect, type, serial number and furthermore the operating conditions of the machine. After having received the equipment or component and after an accurate analysis, Ghidini reserve the right, whether to repair or to replace the product. If the machine is still under guarantee, the Ghidini reseller will carry out the service or replacement at Ghidini's charge.

In case the returned goods are not defective, Ghidini reserve the right to charge the customer with the met expenses (shipment, etc.).

The present warranty will be declared void, if the machine has been damaged due to improper use, negligence, normal wear, chemical corrosion, installation not according to the provided instructions and to the manufacturer's warnings.

Any modification, tampering, and alteration on the machine or its components, carried out without prior written authorization by Ghidini, relieve the latter of any responsibility, and annul any warranty obligation.

The components subject to normal wear and the perishable ones are not under warranty, as well as everything, which has not been previously explicitly indicated, or damages or expenses arising from defects of the same product.

The validity conditions of the guarantee provided by Ghidini are considered implicitly accepted upon purchase of the machine. Any possible changes to or derogations from the present guarantee are only valid prior written authorization by Ghidini.

17 CONFORMITY DECLARATION

Manufacturer: GHIDINI Company Via Tolstoj, 24 – 20098 S. Giuliano Milanese (MI) Address +39 -02 -98.24.06.00 Phone number
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Declares that:

The machine: <u>Steam generator MAXI 24</u>
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- * has been designed in compliance with the DIRECTIVES OF THE EC-COUNCIL referring to machines (98/37/EC) and to low voltage (BT 73/23/EEC), as well as to Pressure Equipment Directive (PED 97/23/EC).
- * has been designed, as far as enforceable, in compliance with the following harmonized regulations and technical specifications:
EN 292-1/2, EN 1050, EN 982, EN 11200, EN 60947, EN 894-1/2

Managing director	Roland Fleischmann
Product manager	Name

GHIDINI S.R.L.
Company

	January 2008
Signature	Date



Web site: <http://www.ghidini-gb.it> - **E-mail:** sales@ghidini-gb.it