



MAXI 60


GHIDINI

User's and Maintenance Manual



ENGLISH



Manufacturer	GHIDINI BENVENUTO s.r.l.
Product	Steam generator MAXI 60
Certification	

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1 INTRODUCTION

The present user's and maintenance manual refers to the steam generator "Maxi 60".

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 60 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

A tag placed on the cover of the electrical header indicates type, serial number, year of construction, supply voltage, and pressure.

4 TECHNICAL FEATURES

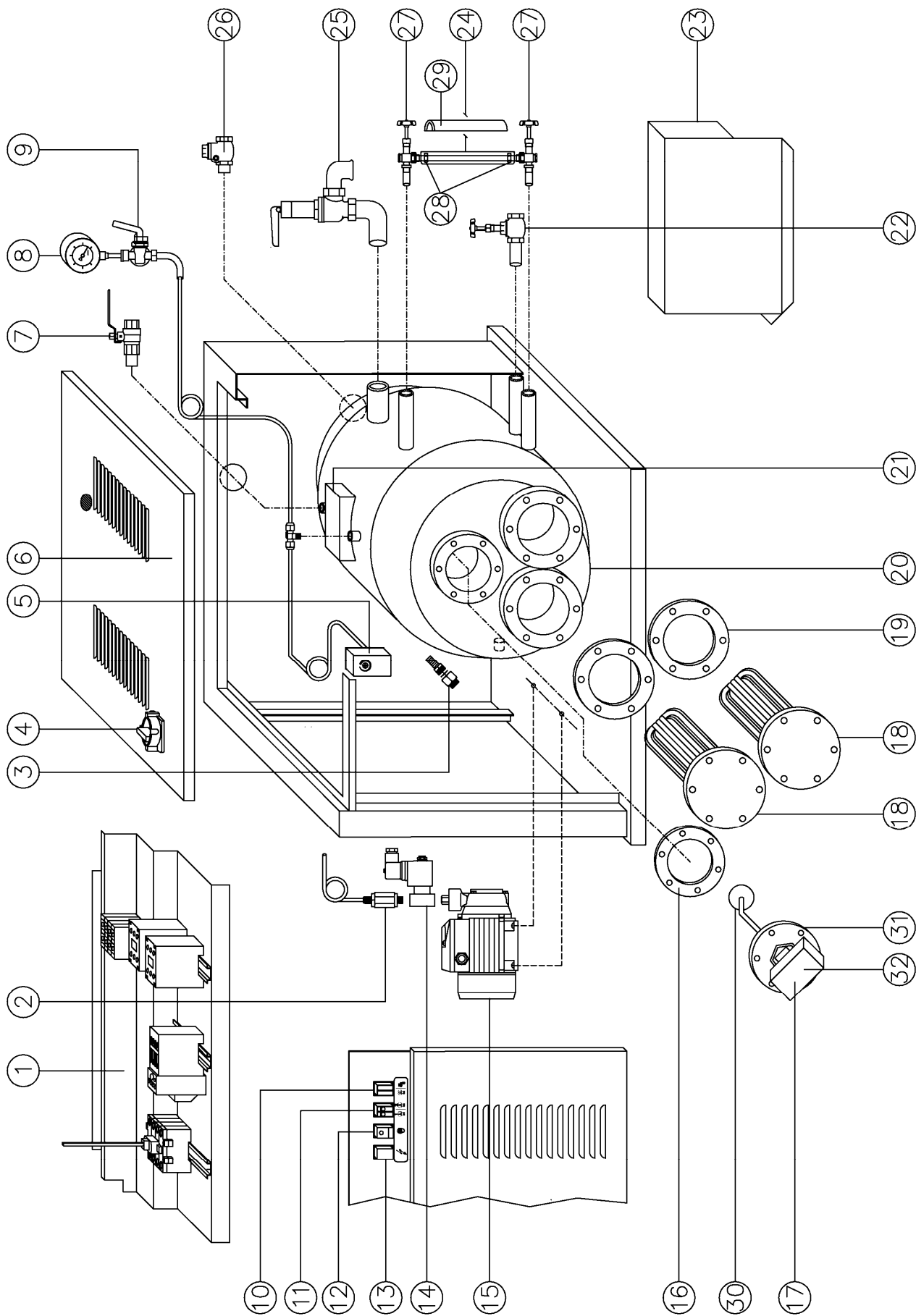
TECHNICAL FEATURES										
Power supply	220/380V – 3ph – 50 Hz									
Boiler capacity	53,5 L									
Steam pressure	4,5 bar									
Pump motor power	0,55 Hp									
Sound intensity level	< 70 dB(A)									
Working temperature	+ 5 ÷ + 80 °C									
Working humidity	90 % max.									
Storing temperature	- 20 ÷ + 50 °C									
Net dimensions	830 x 830 x 570 mm.									
Net weight	113 Kg									
Overall dimensions (packaging included)	900 x 900 x 780 mm									
Gross weight (packaging included)	191 Kg									
Boiler heater	20 ÷ 42 Kw									
Kw	20	24	25	28	30	30	33	36	38	42
	10 + 10*	12 + 12*	18 + 7*	18 + 10*	15 + 15*	20 + 10*	18 + 15*	18 + 18*	20 + 18*	21 + 21*
Kcal/h	17200	20600	21500	24000	25800	25800	28400	31000	32700	36120
Kgh	25 ÷ 27	31 ÷ 33	33 ÷ 35	37 ÷ 39	40 ÷ 42	40 ÷ 42	44 ÷ 46	48 ÷ 50	51 ÷ 53	55 ÷ 57

*: 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

The main parts of the machine are:



Pos.	ARTICLE	DESCRIPTION	Pos.	ARTICLE	DESCRIPTION
1	161015	Lower panel	16	244236	Level control gasket
2	38W001	Non return valve	17	49A001	Complete automatic level control
3	36E006	Hose holder 3/8" M - Ø12	18	•	Boiler heater 6 ÷ 30 Kw
4	43A043	Handle of the disconnecting switch	19	244237	Heater gasket
5	45G001	Pressure switch 2 ÷ 5,5 bar	20	200074	Boiler with PED cert.
6	163088	Upper panel	21	264378	PED-tag
7	37A003	Ball tap 1/2"	22	37B001	Boiler exhaust valve
8	35A002	Pressure gauge	23	173461	Heater cover
9	37E001	Pressure gauge cock 1/4"	24	52G002	Level glass
10	43A016	Warning light for water	25	38S016	Safety valve 1"
	43A016	Warning light of boiler heater	26	38F003	Level valve 1/2"
11	43A014	First heater switch	27	37C001	Couple of level cocks
	43A014	Second heater switch	28	244243	Level glass gasket
12	43A020	Boiler switch	29	244217	Level glass cover
13	43A046	Warning light indicating presence of tension	30	49G001	Floating ball
14	39B002	Complete solenoid valve 230V 50/60Hz	31	183270	Flange for level control
15	42B024	Pump PQ81 230/400V – 50Hz – 3Ph	32	49G002	Bulb
	42B006	Pump PQM81 230V – 50Hz – 1Ph	• : See following chart		

ARTICLE	DESCRIPTION	ARTICLE	DESCRIPTION
215168	Heater 230/400V - 16,5Kw – stainless steel	212071	Heater 230/400V - 19,5Kw
213424	Heater 230/400V - 10Kw - stainless steel	212070	Heater 230/400V - 16,5Kw
215163	Heater 230/400V - 30Kw - stainless steel	212069	Heater 230/400V - 13,5Kw
215167	Heater 230/400V - 13,5Kw - stainless steel	212068	Heater 230/400V - 10,5Kw
215166	Heater 230/400V - 21Kw - stainless steel	215164	Heater 230/400V - 12Kw
215165	Heater 230/400V - 27Kw - stainless steel	212067	Heater 230/400V - 9,3Kw
212075	Heater 230/400V - 27Kw	212066	Heater 230/400V - 7,5Kw
212072	Heater 230/400V - 21Kw	212065	Heater 230/400V - 6Kw

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, 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, then tighten. Connect the cable to the terminals of the feeder line on the control panel, 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 in the boiler. Connect the gate valve of the boiler exhaust (thread G 1/2") to the drain.

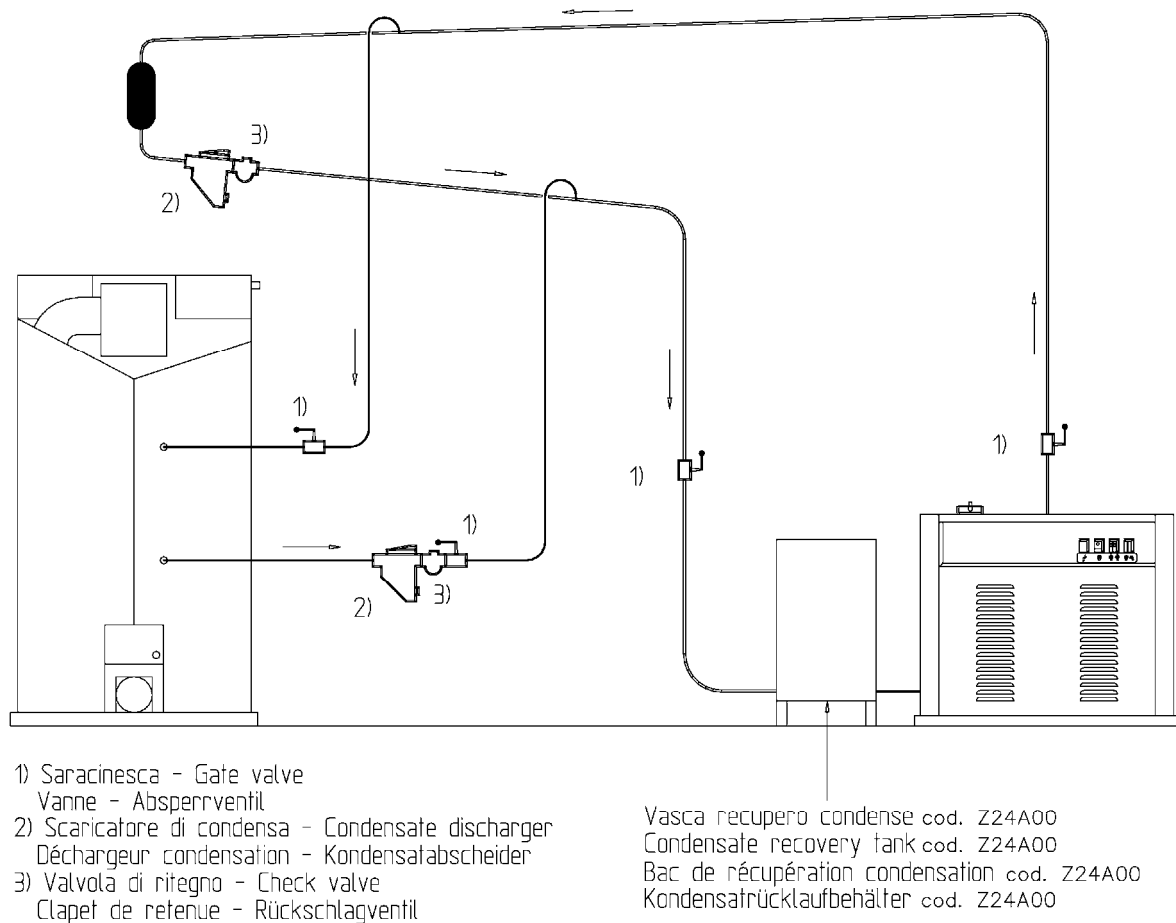
6.5 STEAM SUPPLY CONNECTION

In case of connection for a central steam supply, proceed as follows:

Connect a pipe of G 3/8" the top part of the steam outlet of the central unit and put an on-off valve close to the machine. Connect a pipe (threading G 3/8") with an internal diameter of at least 10 mm to the steam inlet of the machine. For the condensation return, provide a pipe with exactly the same features of the steam pipe, and install a steam trap with filter close to the machine, followed by an on-off valve and by a non-return valve. For the connection to the non return valve use a pipe with an internal diameter of at least 10 mm. The steam network pressure must be of max. 4,5 bar.

Do not bend the pipes at right angles, but at least with a 50 mm radius. Make sure that the pipes have an even incline, especially the one for the condensation return.

Do not use traps, fittings or gate valves with a smaller diameter than the pipe, itself. The piping must not exceed 2.5 meters. The hole of the condensation return of the machine has to be at least 150 mm higher than the water level inside the boiler.



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

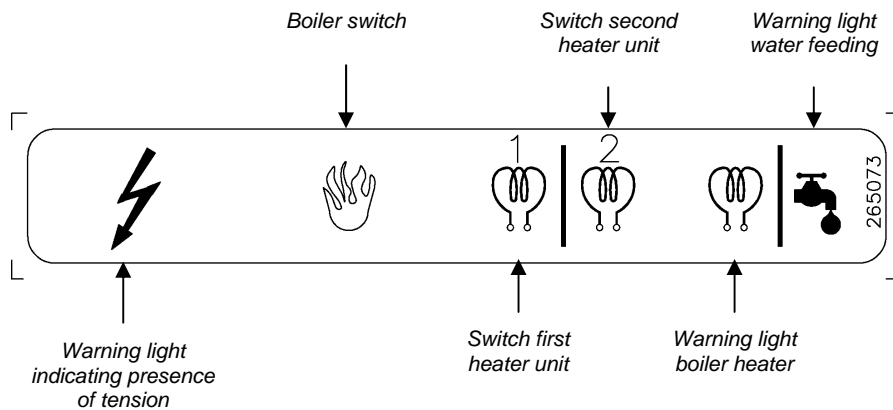
7.1 PUTTING INTO OPERATION

- 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.
- Use always suitable pipes for 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.
- Check that control and safety devices of the boiler (pressure gauge, pressure switch and safety valve) are intact.
- Check that the gate valve of the boiler exhaust is correctly closed.
- Check that the direction of the motor rotation correct.

7.2 USE

- Open the on-off valve on the water feeding.
- Switch on the boiler.
- On the control panel, the warning light signalling the presence of tension will switch on.
- Switch on the first and the second heater unit of the boiler.
- 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 water level control), 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 of 4,5 bar (check the pressure on the pressure gauge) and the relevant warning light switches off automatically.
- The boiler is now ready to supply steam

WARNING: It is advisable switch on both heater units at the same time, in order to reach the working pressure of 4,5 bar 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 can't 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>
	The thermal circuit breaker is disconnected	<i>Connect the thermal circuit breaker</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 cock is open</i>
		<i>Check if the water network is under pressure .</i>
		<i>Make sure that the water filter is not obstructed.</i>
The warning light of the heaters keeps to be switched on and the boiler doesn't reach the working pressure:	Leak on the boiler exhaust	<i>Control if the gate valve of the boiler exhaust 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 boilers 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*.

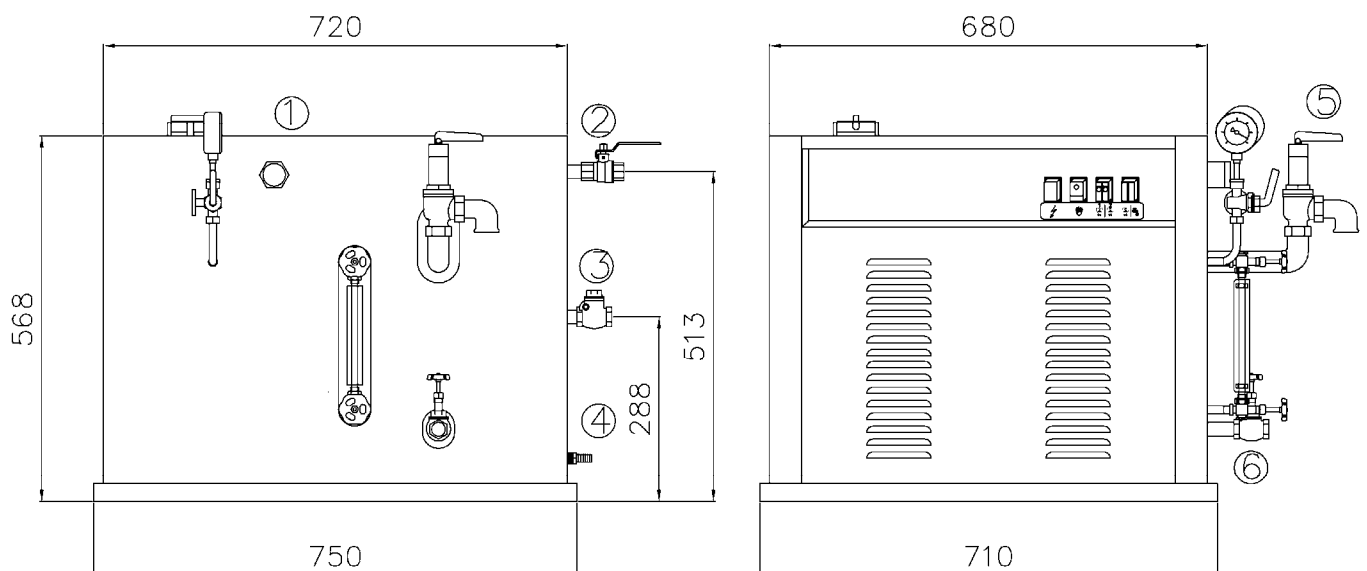
The checking lists are of two kinds:

- 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:

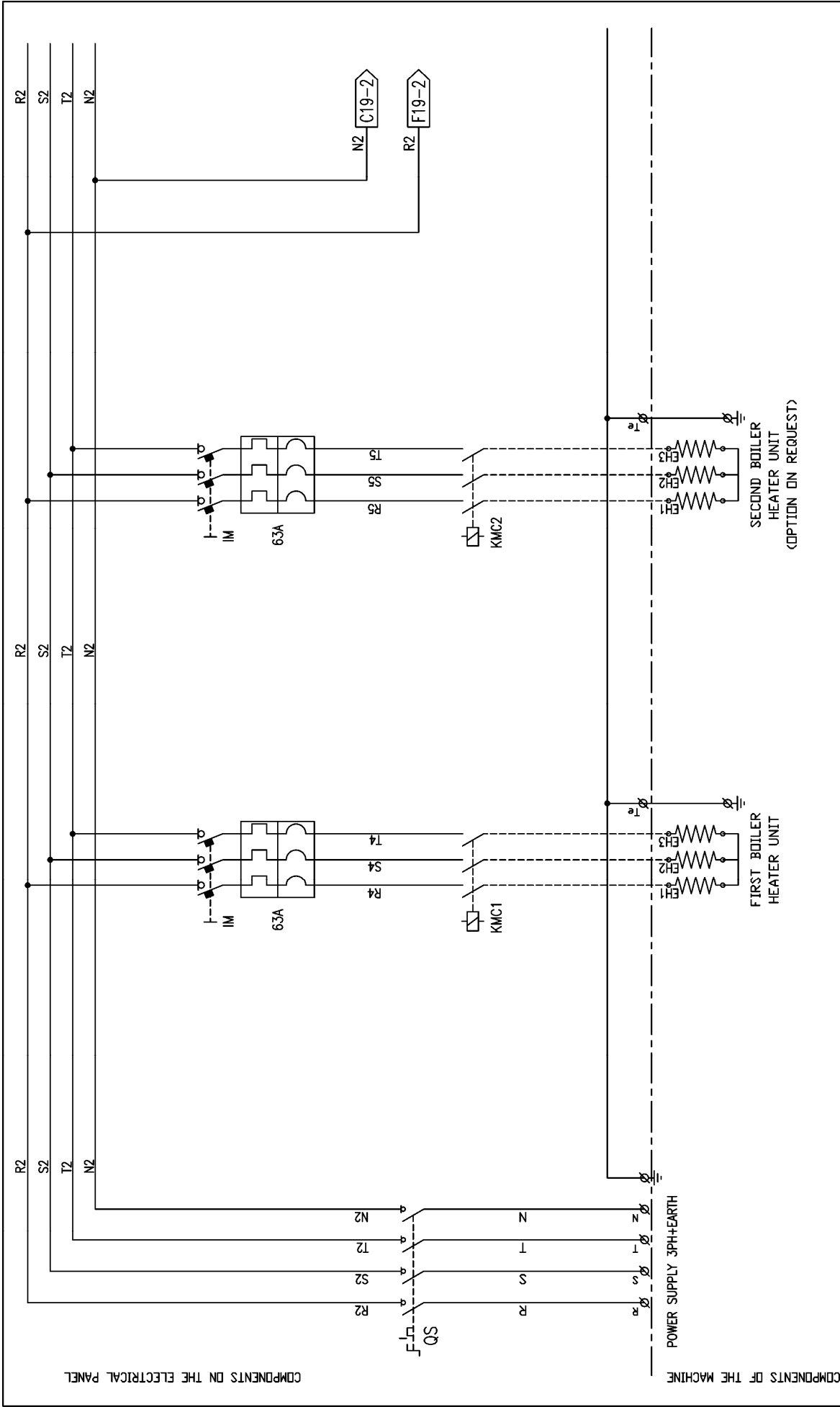
- During the maintenance operation there could be some steam jets at low pressure, (maintenance operation must therefore be carried out by using suitable protection devices)
- A protection against direct and indirect contacts with the steam must be provided for by the user.

11 OVERALL DIMENSIONS AND DRAWINGS



1. Electrical feeding inlet
2. Steam inlet
3. Condensate return

4. Water feeding inlet
5. Safety valve
6. Boiler exhaust



Denominazione Description		MAXI 60 POWER SUPPLY 3PH+N+E SINGLEPHASE PUMP DOUBLE HEATING ELEMENT	
3	Data	19/05/97	
2	Dis. LC		
1	Cod.	04/08/05 AG	308061
Modifiche Changes		Data	Descr.
		Appr.	

Titolo
Descriz. SCHEMA ELETTTRICO
ELECTRICAL WIRING

Dis. NG
Dwg. SE970519

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Foglio 1/2
 Segue 2/2

Denominazione
Description
 MAXI 60
 POWER SUPPLY 3PH+N+E SINGLEPHASE PUMP
 DOUBLE HEATING ELEMENT

Data 19/05/97
 Dis. LC
 Cod. 04/08/05 AG
 308061

Modifiche
Changes
 Data Descr.
 Appr.

QUESTO DISEGNO VIENE CONSEGNATO ALL'ESPRESSIONE CONDIZIONE CHE NON VENGA SENZA NS/ CONSENSO NE RIPRODOTTO NE CEDUTO AD ALTRE DITTE

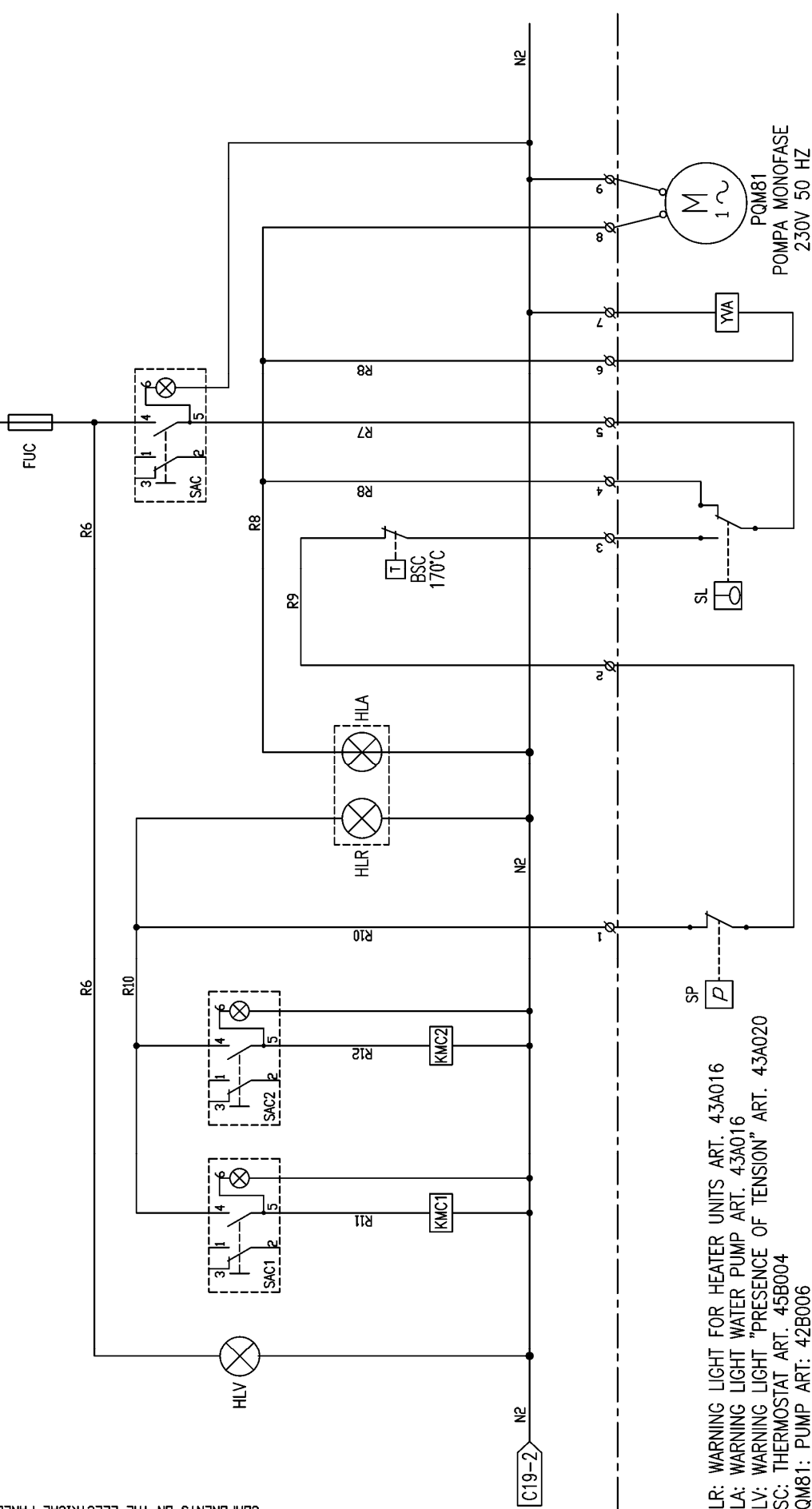
QS: MAIN DISCONNECTING SWITCH ART. 173101
 IM: THERMAL CIRCUIT BREAKER ART. 43A006
 KMC1: CONTACTOR FIRST BOILER HEATER UNIT ART. 44A005
 KMC2: CONTACTOR SECOND BOILER HEATER UNIT ART. 44A005

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R2

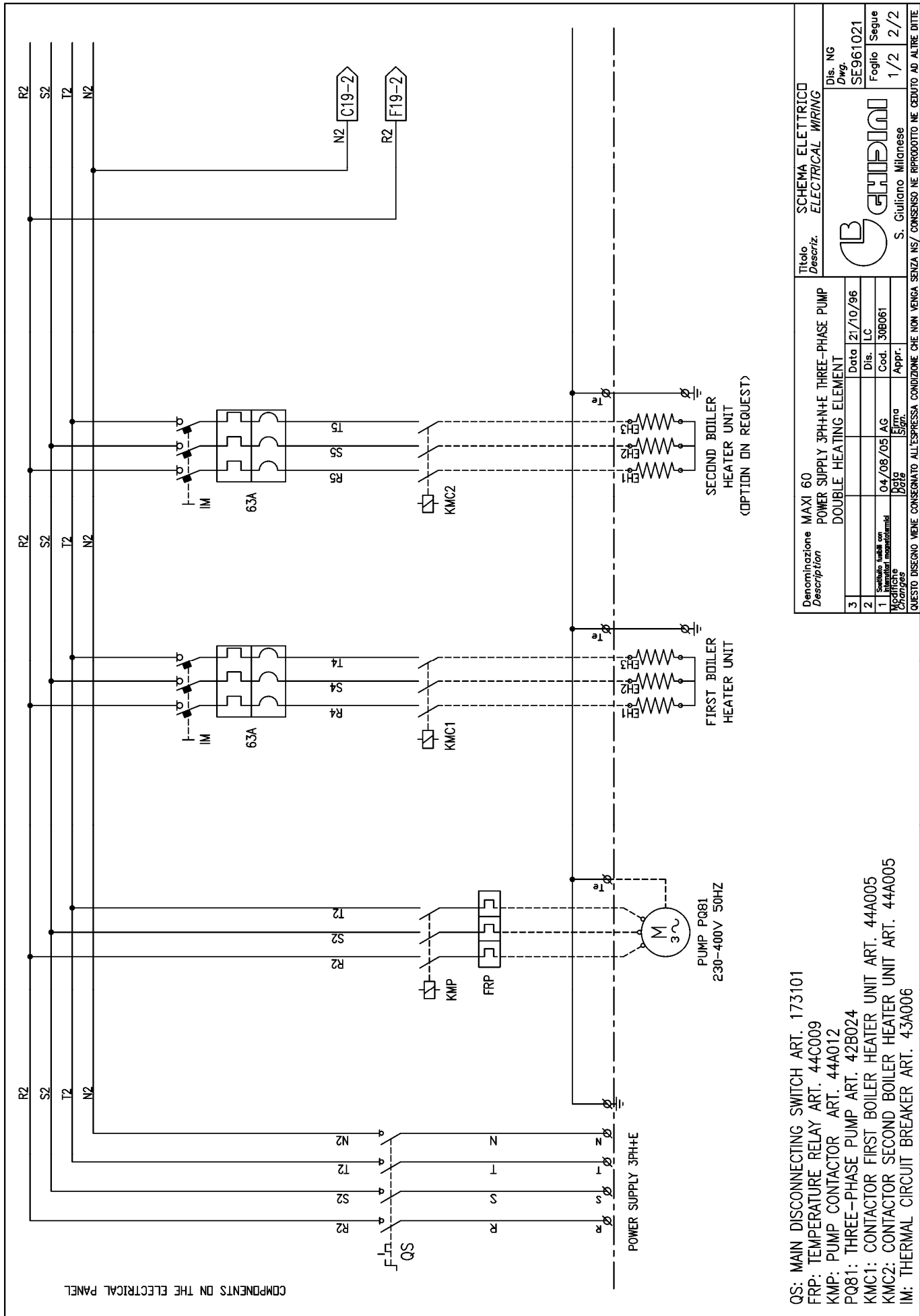
R2

COMPONENTS ON THE ELECTRICAL PANEL



- HLV: WARNING LIGHT FOR HEATER UNITS ART. 43A016
- HLA: WARNING LIGHT WATER PUMP ART. 43A016
- HLV: WARNING LIGHT "PRESENCE OF TENSION" ART. 43A020
- BSC: THERMOSTAT ART. 45B004
- PQM81: PUMP ART. 42B006
- SP: PRESSURE SWITCH FOR BOILER
- SL: WATER LEVEL CONTROL
- SAC: BOILER CIRCUIT SWITCHES ART. 43A020
- SAC1: SWITCH FOR FIRST BOILER HEATER UNIT ART. 43A014
- SAC2: SWITCH FOR SECOND BOILER HEATER UNIT ART. 43A014
- FUC: FUSE 16A ART. 43F005
- FUC: FUSE HOLDER ART. 43F017

Denominazione Description		TITOLO Descriz.	
MAXI 60 POWER SUPPLY 3PH+N+E SINGLEPHASE PUMP DOUBLE HEATING ELEMENT		SCHEMA ELETTRICO ELECTRICAL WIRING	
3	Data	19/05/97	Dis. NG
2	Dis. LC		Dwg. SE970519
1	Cod.	308061	Foglio Segue
Modifiche Changes	Data	Segn.	2/2
		S. Giuliano Milanese	
		GHIPINI	
		S. Giuliano Milanese	



COMPONENTS ON THE ELECTRICAL PANEL

- QS: MAIN DISCONNECTING SWITCH ART. 173101
- FRP: TEMPERATURE RELAY ART. 44C009
- KMP: PUMP CONTACTOR ART. 44A012
- PQ81: THREE-PHASE PUMP ART. 42B024
- KMC1: CONTACTOR FIRST BOILER HEATER UNIT ART. 44A005
- KMC2: CONTACTOR SECOND BOILER HEATER UNIT ART. 44A005
- IM: THERMAL CIRCUIT BREAKER ART. 43A006

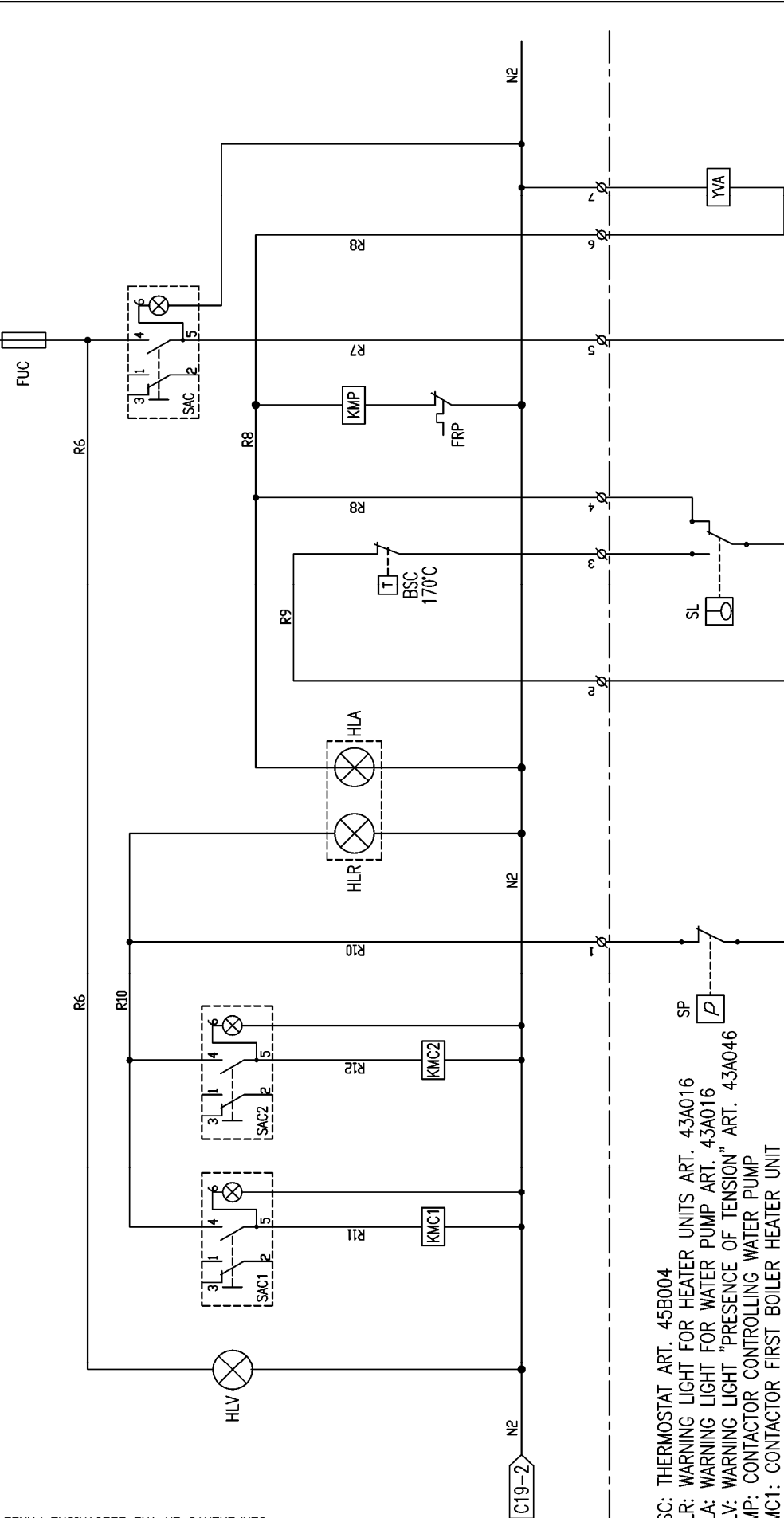
Denominazione Description		Data	
MAXI 60 POWER SUPPLY 3PH+N+E THREE-PHASE PUMP DOUBLE HEATING ELEMENT		21/10/96	
3		Dis. LC	
2		Cod.	308061
1 Sviluppo tabella con l'intervento monitoraggio Chirurgiche		04/08/05 AG	
		Data	Appr.
		Disegn.	Dis. NG
		Foglio	SE961021
		1/2	2/2
		S. Cutiliano - Milanese	
		GHIARDINI	
Titolo Descriz.		SCHEMA ELETTRICO ELECTRICAL WIRING	

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R2

R2

COMPONENTS ON THE ELECTRICAL PANEL



- BSC: THERMOSTAT ART. 45B004
- HLR: WARNING LIGHT FOR HEATER UNITS ART. 43A016
- HLA: WARNING LIGHT FOR WATER PUMP ART. 43A016
- HLV: WARNING LIGHT "PRESENCE OF TENSION" ART. 43A046
- KMP: CONTACTOR CONTROLLING WATER PUMP
- KMC1: CONTACTOR FIRST BOILER HEATER UNIT
- KMC2: CONTACTOR SECOND BOILER HEATER UNIT
- SP: PRESSURE SWITCH FOR BOILER
- SL: WATER LEVEL CONTROL
- SAC: BOILER CIRCUIT SWITCHES ART. 43A020
- SAC1: SWITCH FOR FIRST BOILER HEATER UNIT ART. 43A014
- SAC2: SWITCH FOR SECOND BOILER HEATER UNIT ART. 43A014
- FUC: FUSE 4A ART. 43F018
- FUC: FUSE HOLDER ART. 43F017

Denominazione Description		Data		Dis. NG	
MAXI 60 POWER SUPPLY 3PH+N+E DOUBLE HEATING ELEMENT		21/10/96		SE961021	
		LC		Foglio Segue	
1		Cod. 308061		2/2	
Modifiche Changes		Data Date		Firma Sign.	

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 S. Giuliano Milanese

Titolo
 Descrizione
**SCHEMA ELETTRICO
 ELECTRICAL WIRING**

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 (*)	150
Clean the water filter	150
Clean boiler and heating elements	500
Check the automatic level control	250

(*): 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.

ARTICLE	DESCRIPTION
Z24A00	Stainless steel condensation recovery tank 83 Ltr (option on request)

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 annuls 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.