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**ENGLISH**



Manufacturer	GHIDINI BENVENUTO s.r.l.
Product	Steam generator <b>MAXI 16</b>
Year	2007
Certification	

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## 1 INTRODUCTION

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The present user's and maintenance manual refers to the steam generator "Maxi 16".

It is possible to receive the latest release from our Technical Commercial Department or by visiting our website [www.ghidini-gb.it](http://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

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The steam boiler Maxi 16 is an equipment producing steam. For its operation, the machine has to be connected to an external power and water supply

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

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

## 3 MACHINE IDENTIFICATION

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

## 4 TECHNICAL FEATURES

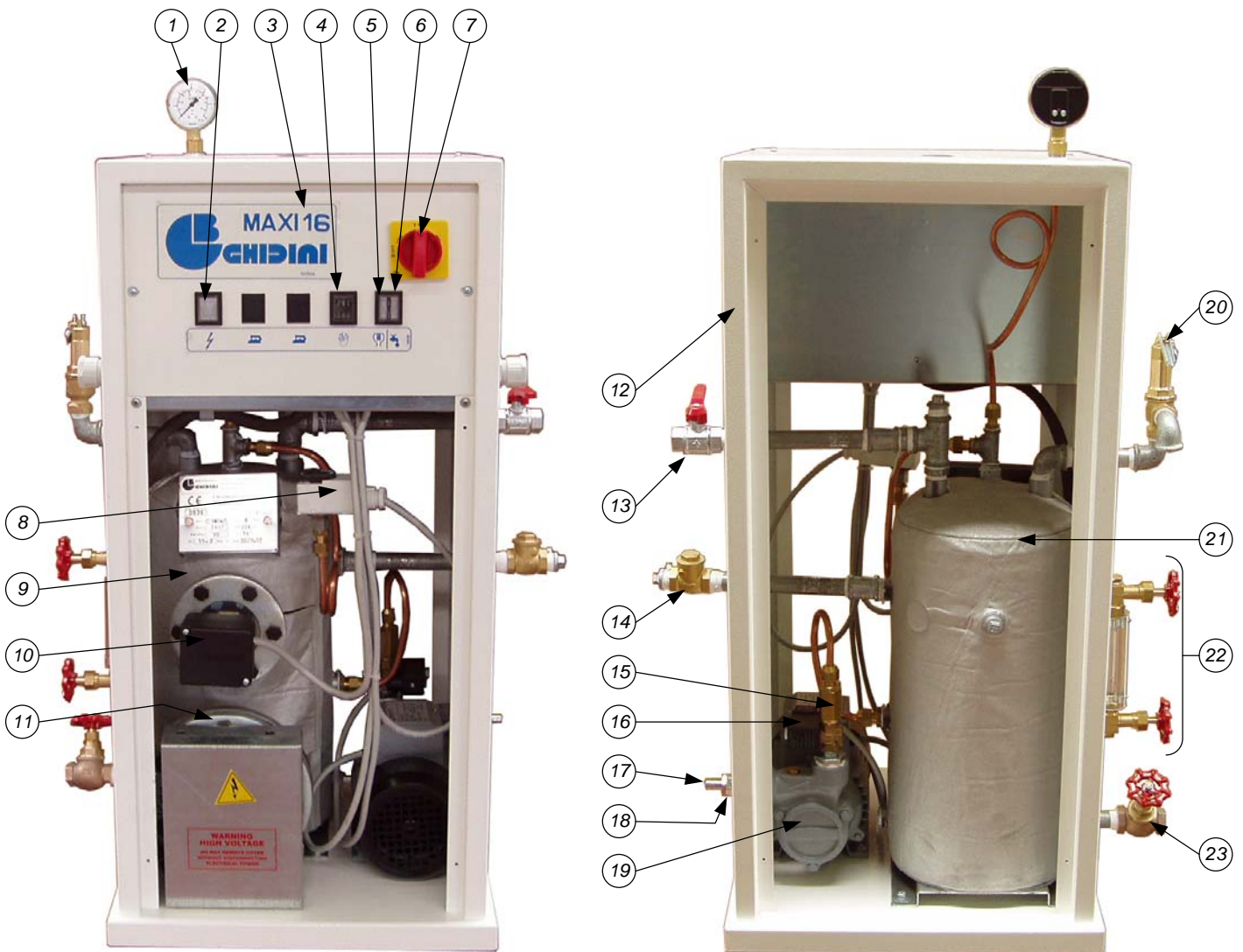
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TECHNICAL FEATURES	
Power supply	220/380V – 3Ph – 50/60 Hz
Boiler capacity	16 L
Max. steam pressure	4,5 bar
Pump motor power	0,8 Hp
Boiler heater	6 – 7 – 8 – 10 – 12 – 15 Kw
Sound intensity level	< 70 dB(A)
Working temperature	+ 5 ÷ + 80 °C
Working humidity	90 % max.
Storing temperature	-20 ÷ +50 °C
Net dimensions	650 x 450 x 1000 mm.
Net weight	74 Kg
Overall dimensions (packaging included)	670 x 470 x 1030 mm
Gross weight (packaging included)	78 Kg

**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	35A002	Pressure gauge	13	37B001	Steam inlet tap
2	43A046	Warning light indicating presence of tension	14	38F003	Condensation return connection with valve
3	175021	Control panel	15	38W001	Check valve
4	43A020	Boiler switch	16	39B017	Water solenoid valve V220 - 1Ph - 50Hz
5	43A016	Warning light for boiler heater	17	36E006	Hose connection Ø12
6	43A016	Warning light for water feeding	18	174356	Water filter
7	43A038	Disconnecting switch	19	42B029	Pump
8	45G001	Pressure switch	20	38S014	Safety valve G 1/2"
9	200076F	Boiler	21	224299	Boiler insulation
10	49D002	Complete automatic water level control	22	37C001	Double tap for water level indicator
11	183268	Heater flange	23	37B001	Gate valve for boiler exhaust
12	160036	Covering body			

### BOILER-HEATER

ARTICLE	DESCRIPTION	ARTICLE	DESCRIPTION
212159	Boiler heater 230 V – 2 kW	213149	Boiler heater 230 V – 3,3 kW
213147	Boiler heater 230 V – 2,3 kW	213151	Boiler heater 230 V – 4 kW
213159	Boiler heater 230 V – 2,7 kW	213153	Boiler heater 230 V – 5 kW

## 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 steam generator 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 cables in the relevant cable passage holes, 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 pipe, 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.

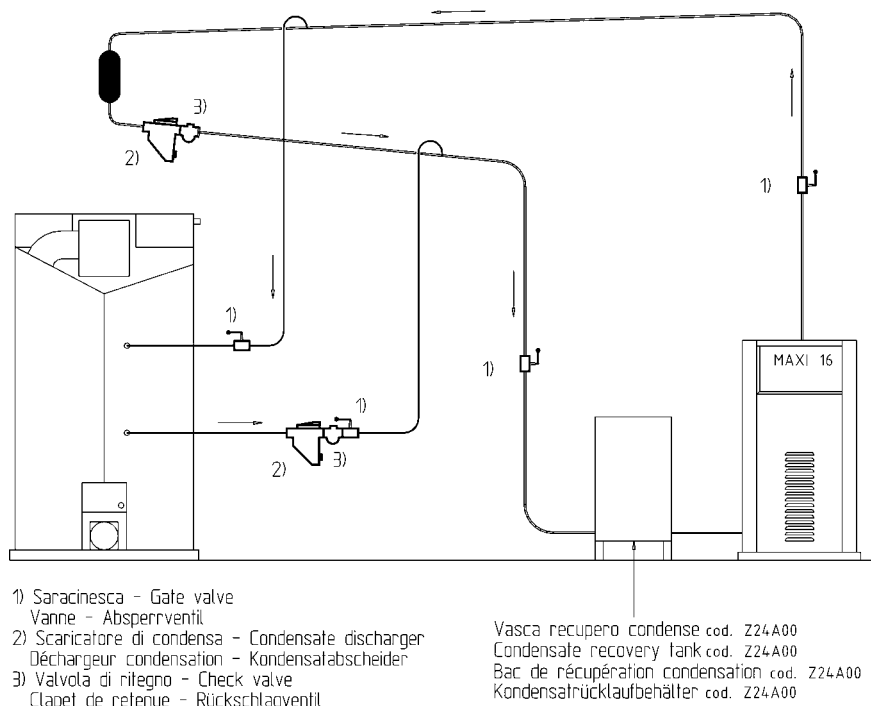
### 6.5 CENTRAL STEAM SUPPLY CONNECTION

Connect a pipe with an internal diameter of at least 6 mm to the steam inlet (threading G 3/8") of the machine.

The steam network pressure must be of max. 4,5 bar. 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 6 mm.

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 boiler exhaust valves are correctly closed.
- Check that the direction of the motor rotation correct.

### 7.2 USE

- Open the on-off valve on the water-feeding pipe.
- Turn on the main switch of the steam generator.
- On the control panel, the warning light signalling the presence of tension will switch on.
- Turn on the boiler switch.
- 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 steam generator is now ready to supply steam.

## 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
<b>The machine doesn't switch on</b>	The main switch is turned off	<i>Turn on the main switch</i>
	Burnt out fuses	<i>Check the fuses</i>
<b>The water warning light is switched on and the pump keeps on running:</b>	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>
<b>The warning light of the heater keeps to be switched on and the boiler doesn't reach the working pressure:</b>	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.

Any installed electrical or electronic equipment 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, and check that there are no residual pressures in any branch of the pneumatic/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**

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The conformity verification according to the essential safety rules and to the provisions of 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.

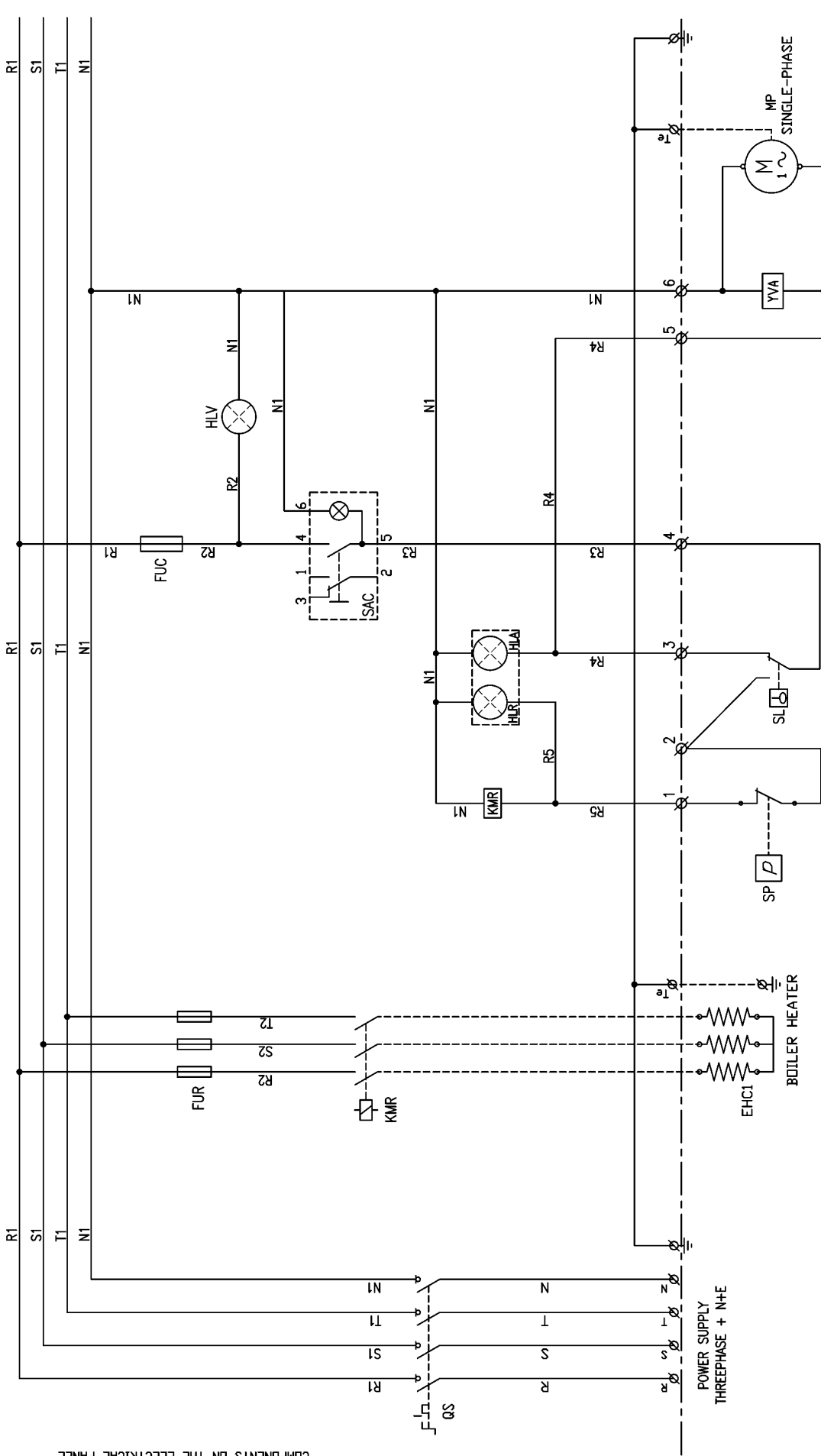
## **11 OVERALL DIMENSIONS AND DRAWINGS**

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- |                                                                                                                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"><li>1. Water feeding</li><li>2. Steam inlet</li><li>3. Power supply inlet</li><li>4. Boiler exhaust</li><li>5. Condensate return with valve</li></ol> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



COMPONENTS ON THE ELECTRICAL PANEL



QS: MAIN DISCONNECTING SWITCH ART. 43A038

FUR: FUSE 40A ART. 43F040

FUC: FUSE HOLDER 50A ART. 43F031

KMR: HEATER CONTACTOR ART. 44A013

EHC1: HEATER

FUC: FUSE HOLDER ART. 43F017

FUC: FUSE 16A ART. 43F005

HLV: WARNING LIGHT "PRESENCE OF TENSION" ART. 43A046

SAC: BOILER SWITCH ART. 43A020

HLR: WARNING LIGHT "HEATER ON" ART. 43A016

HLA: WARNING LIGHT "PUMP RUNNING" ART. 43A016

SP: BOILER PRESSURE SWITCH ART. 45G001

SL: WATER LEVEL CONTROL ART. 49D002

YVA: WATER SOLENOID VALVE ART. 39B017

MP: WATER PUMP ZPLM70 ART. 42B029

Denominazione  
Description

MAXI 16  
POWER SUPPLY 3-PHASE+N+E

SINGLE-PHASE PUMP SINGLE HEATER

3	Data	A.G.
	17/04/07	
2	Dis.	Appr.
1	Cod.	SE
	SE.G07518	
Modifiche Changes	Data	Segn. Sign.

Titolo  
Descriz.

SCHEMA ELETTTRICO  
ELECTRICAL WIRING



Dis. NG

Foglio  
Segue

1/1

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

## 12 MAINTENANCE PROCEDURES

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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 heater	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 exhaust valve of the boiler. 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 water supply are disconnected prior to any maintenance service.**

## 13 DISPOSAL

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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

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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

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

## 16 WARRANTY

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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

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**Manufacturer:**

GHIDINI  
Company

Via Tolstoj, 24 – 20098 S. Giuliano Milanese (MI)  
Address

+39 -02 -98.24.06.00  
Phone number

**Declares that:**

**The machine:**

Steam generator **MAXI 16**

- \* has been designed in compliance with the DIRECTIVES OF THE EC-COUNCIL referring to machines (98/37/EU) and to low voltage (BT 73/23/EWU), as well as to Pressure Equipment Directive (97/23/CE).
- \* 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

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Managing director

Roland Fleischmann

Product manager

Name

GHIDINI S.R.L.

Company



May 2007

Signature

Date

