

Axial and centrifugal condensation hanging hot air generators  
with pre-mixed modulating gas burner

**MEC MIX C**  
modulating condensation

**MEC MIX F**  
fixed power



MADE  
IN ITALY



CONDENSATION  
SYSTEM



CONDENSING  
PREMIXED BURNER



REMOTE  
OF SERIES



HIGH  
PERFORMANCE 104%  
CERTIFICATED



COMBUSTION  
ROOM IN  
STAINLESS STEEL

# **HOT AIR GENERATORS PRE-MIXED WALL UNITS MEC MIX C CONDENSING SERIES AXIALS AND CENTRIFUGES MODELS 20/35 - 20/45 - 20/70 - 20/90 SERIES MEC MIX F AXIAL AND CENTRIFUGAL MODELS 35 - 50 - 70 - 100**

## **Technical information**

This manual is separated into five sections:

**- SECTION A - GENERAL INFORMATION**

It contains all the news related to the description of the generators and their technical characteristics

**- SECTION B - TECHNICAL NEWS FOR THE INSTALLER**

It collects all the indications and the instructions that the installation technician must observe for the realization of an optimal system

**- SECTION C - HYDRAULIC INSTALLER**

**- SECTION D - ELECTRIC INSTALLER**

**- SECTION E - ASSISTANCE AND MAINTENANCE**

### **Important notes for consultation:**

- 1 - For the purpose of the correct and safe use of the appliance, the designer, the installer, the user and the maintenance technician, for their respective competences, must scrupulously observe what is indicated in this manual. It must be kept for possible consultation and must accompany the appliance throughout its life, including the case of transfer to third parties.
- 2 - With the wording **ATTENTION!** they follow information that, due to their importance, must be scrupulously observed and whose non-compliance can cause damage to the appliance and / or jeopardize its safe use. The paragraphs highlighted in bold contain information, warnings or important advice that is recommended to evaluate carefully.
- 3 - The A2B Accorroni E.G. Srl declines any responsibility for any damage caused by improper use of the appliance, from a different use to the intended use and from an incomplete or approximate application of the instructions contained in this manual.
- 4 - The technical data, the aesthetic characteristics, the components and the accessories shown in this manual are not binding.  
The A2B Accorroni E.G. Srl reserves the right to make changes at any time deemed necessary for the improvement of its product.
- 5 - References to laws, regulations or technical rules cited in this manual are intended for information purposes only and referred to the date of printing of the same, shown on the last page. The entry into force of new provisions or changes to those in force will not constitute a reason for any obligation of A2B Accorroni E.G. S.r. towards third parties.
- 6 - The A2B Accorroni E.G. Srl is responsible for the conformity of its product with the laws, directives and construction standards in force at the time of marketing. The knowledge and observance of the laws and regulations concerning the design of the systems, installation, operation and maintenance are the sole responsibility, for the respective skills, of the designer, installer and user.

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# SEZIONE A - INFORMAZIONI GENERALI

## **1. GENERAL WARNINGS**

This manual is an integral part of the product, it should not be separated from it and must be kept carefully for any future use or consultation.

Failure to comply with the indications in this manual will result in the forfeiture of the warranty conditions.

Should the appliance be sold or transferred to another owner, make sure that the manual always accompanies the appliance. This appliance must only be used for the purpose for which it was built.

All uses not expressly indicated in this manual are considered improper and therefore dangerous.

## **2. SAFETY WARNINGS**

### **2.1 QUALIFICATION OF THE INSTALLER**

Installation and maintenance must only be carried out by specialized and specially qualified personnel.

### **2.2 POWER SUPPLY**

The MEC MIX series hot air generator must be correctly connected to an efficient grounding system.

The connection to the power supply must be performed according to the current national plant standards.

### **2.3 COMBUSTIBLE**

Before starting the MEC MIX verify that:

- the data of the gas supply networks are compatible with those shown on the plate;
- the combustion air intake grill is not obstructed (even partially);
- the generator is powered by the same type of fuel for which it is prepared;
- the system is sized for this capacity and is equipped with all safety and control devices caught by applicable rules
- internal cleaning of the gas pipes and channels air distribution for ductable generators has been performed correctly
- the fuel flow rate setting is adequate to the power required by the generator
- the fuel supply pressure is included in the values shown on the plate.

### **2.4 GAS LEAKS**

If you feel a gas smell:

- do not operate electric switches, the telephone or any other item or device that can cause sparks;
- open doors and windows immediately;
- request the immediate intervention of qualified and specialized personnel.

## **2.5 USE**

The use of the appliance should not be allowed to children, inexperienced persons and unassisted disabled persons.

The following indications must be observed:

- do not touch the appliance with parts of the body wet or humid and / or barefoot;
- do not insert tools, paper or anything else penetrate through the protection grids of the fans;
- do not open the access panels to the internal parts unit. These operations have been re-established exclusively to specialized personnel;
- do not clean the external parts without having first removed it the power supply from the main switch;
- do not touch the hot parts of the generator such as example the smoke exhaust duct;
- do not wet the generator with water or other liquids;
- do not use gas pipes as grounding electrical devices;
- do not leave the appliance exposed to agents weather;
- do not place objects on top of the appliance;
- do not touch the moving parts of the generator.

## **2.6 TRANSPORTATION AND HANDLING**

The appliance is shipped on wooden pallets, covered with a suitably secured cardboard box.

The appliance can only be moved by suitably equipped personnel and with equipment suitable for the weight of the product, such as a forklift truck or transpallet, taking care to distribute the weight on the supports.

**WARNING! During transport and handling the appliance must only be kept in a vertical position.**

Upon delivery, check that no visible damage has occurred during transport on the packaging and / or on the appliance.

In case of damage assessment, immediately expose a formal complaint to the forwarder.

Do not install damaged devices during transport.

**It is forbidden to dispose parts of the packaging in the environment, or leave it within reach of children as a potential source of danger.**

Any storage of the generator must take place in a suitable place, protected from atmospheric agents and from excessive humidity, for the shortest possible time.

### **3. MAIN FEATURES**

#### **3.1 FUNCTIONAL DESCRIPTION**

The MEC MIX series hot air generator is an independent heating device of type atin circuit.

The appliance belonging to the II2H3P category according to the EN 1020 standard, can be adapted to operation with natural gas (G20) and G.P.L. (G31). It was designed to be installed inside the room to be heated.

The combustion circuit is watertight compared to the heated environment and meets the requirements of the EN 1020 and EN 1196 standards for type C appliances: the combustion air extraction and the fumes discharge take place outside and are insured from the operation of a blower inserted in the circuit of combustion.

The operation of the generator is controlled by the room thermostat integrated in the chronothermostat.

When the hot card is hot, after a pre-wash time of about 40 seconds, provides for the ignition of the burner.

The detection electrode checks that the ignition has occurred.

In the event of a flame failure, the control board blocks the device.

The combustion products internally cross the heat exchangers that are invested externally from the air flow produced by the fan giving rise to the circulation of hot air in the environment.

The airflow direction is adjustable by means of the horizontal fins of the mobile grate.

The fan is automatically activated only by hot heat exchangers (when the temperature of 40 °C is reached on the exchangers probe), in order to avoid the introduction of cold air into the environment, and it will switch off with cold exchangers.

In case of overheating of the heat exchangers, due to anomalous functioning, the probe of temperature removes voltage from the gas valve by supplying the blower and the fan at maximum speed; if the temperature should increase further, the limit thermostat intervenes which causes the generator to switch off.

The reset of the generator in block due to intervention of the limit thermostat is manual and takes place via the remote control.

#### **WARNING!**

**The reset of the generator in block due to intervention of the limit thermostat is the responsibility of the personnel professionally qualified, after having identified the cause of overheating.**

Upstream of the burner a blower provides for the air-gas mixing and for the forced expulsion of the fumes derived from combustion.

In the case of obstruction of the intake or exhaust duct, or in the event of malfunction of the blower, the electronics respond automatically, causing

generator modulation.

In the event of obstructions or malfunctions beyond the permitted temperature, a flue gas thermostat will then cause the gas valve to stop and the generator to shut down.

Winter operation of the generator can be automatic or manual: for further information see paragraph WINTER OPERATION (HEATING).

During the summer it is possible to operate the fan only, in automatic or manual mode, to order to have a pleasant movement of the ambient air.

#### **3.2 CONSTRUCTION CHARACTERISTICS**

The MEC MIX series hot air generator is supplied complete with:

- premixed stainless steel burner
- high prevalence blower, with modulation of the rotation speed
- stainless steel combustion chamber
- heat exchangers, made of stainless steel, with a very high heat exchange capacity.
- external paneling made of painted steel with epoxy powders.
- high air flow axial fans, with variation of the rotation speed.

The generator is also supplied with the following components control and security:

- electronic management board, with microprocessor and anti-noise filter: provides for burner ignition functions, surveillance and flame modulation; command and control of the burner fan speed, command fan speed; temperature control of the exchanger by means of a probe;
- Supply voltage: 230 V - 50 Hz
- Security time: 5 seconds
- Prewash time: 40 seconds
- Model: BRAHMA TC3 40 with transformer ignition BRAHMA AR1
- 90 °C limit thermostat against overheating of heat exchangers.
- flue gas thermostat: in case the duct of aspiration / exhaust fumes or the duct internal condensate evacuation were blocked, the appliance is stopped.
- gas solenoid valve: if a device intervenes of safety (limit thermostat, thermostat of safety, etc.) the gas valve is de-energized electrically with the consequent interruption of inflow of gas to the burner.
- Supply voltage: 230 V - 50 Hz
- Operating temperature: 0 ° C up to + 60 ° C.
- Model: SIT 848 SIGMA

### 3.3 Technical data table MEC MIX C axial

DESCRIPTION	U.M.	MEC MIX C 20/35 A	MEC MIX C 20/45 A	MEC MIX C 20/70 A	MEC MIX C 20/90 A	
Equipment category		I2H3P				
Type of device		B23 - C13 - C33 - C63 - C53				
Gas supplies		Gas Naturale - G.P.L.				
Rated heating capacity	kW	34,9	45,0	69,8	90,0	
Heat capacity min	kW	19,8	20,0	39,6	40,0	
Nominal heat output	kW	34,2	43,4	68,4	86,9	
Thermal power min	kW	20,8	20,9	41,6	41,8	
Condensation produced maximum	l/h	3,9	4,3	7,8	8,6	
Gas flow rate maximum power	<i>Methane 20 mbar</i>	m <sup>3</sup> /h	3,69	4,76	7,40	9,50
15 °C - 1.013 mbar	<i>Propane 37 mbar</i>	kg/h	2,71	3,49	5,40	7,00
Gas flow rate minimum power	<i>Methane 20 mbar</i>	m <sup>3</sup> /h	2,10	2,12	4,20	4,20
15 °C - 1.013 mbar	<i>Propane 37 mbar</i>	kg/h	1,55	1,55	3,10	3,10
Nominal yield at maximum flow	%	98,0	96,5	98,0	96,5	
Nominal yield at minimum flow	%	105,1	104,5	105,1	104,5	
Class of NOx emission		4	3	4	3	
Diameter gas supply	"	G 1/2		2 x G 1/2		
Diameter air supply pipe	mm	60		2 x 60		
Diameter exhaust fumes pipe	mm	60		2 x 60		
Electrical Supply		230V/1/50Hz				
Air flow max	m <sup>3</sup> /h	3600	3600	7200	7200	
Air flow min	m <sup>3</sup> /h	2100	2100	4200	4200	
Rpm air fans	n.	1210	1210	1210	1210	
Launching	m	27	27	27	27	
Jump thermal power max	°C	28,4	36,1	28,4	36,1	
Jump thermal power min	°C	29,6	29,8	29,6	29,8	
Sound level (5 meters)	dB(A)	48	48	51	51	
Electrical power	W	365	365	730	730	
Fuse	A	6,3	6,3	2 x 6,3	2 x 6,3	
Net weight	kg	84	84	160	160	

### 3.4 Technical data table MEC MIX F axial

DESCRIPTION	U.M.	MEC MIX F 35 A	MEC MIX F 50 A	MEC MIX F 70 A	MEC MIX F 100 A	
equipment category		I2H3P				
Type of device		B23 - C13 - C33 - C63 - C53				
Gas supplies		Gas Naturale - G.P.L.				
Rated heating capacity	kW	34,9	50,1	69,8	100,2	
Heat capacity min	kW	33,9	47,9	67,7	95,8	
Gas flow	<i>Methane</i>	m <sup>3</sup> /h	3,69	5,30	7,39	10,60
15°C-1.013 mbar	<i>Propane</i>	kg/h	2,71	3,89	5,42	7,78
Nominal yield at maximum flow	%	97,0	95,6	97,0	95,6	
Nominal yield at minimum flow	mbar	20				
pressure feeding LPG 31	mbar	37				
Class of NOx emission		4	2	4	2	
Diameter gas supply	"	G 1/2		2 x G 1/2		
Diameter air supply pipe	mm	60		2 x 60		
Diameter exhaust fumes pipe	mm	60		2 x 60		
Air flow max		230V/1/50Hz				
Air flow min	m <sup>3</sup> /h	3600	3600	7200	7200	
Rpm air fans	m <sup>3</sup> /h	2100	2100	4200	4200	
launching	n.	1120	1120	1210	1210	
Jump thermal power max	m	27	27	27	27	
Jump thermal power min	°C	28,1	39,8	28,1	39,8	
Sound level (5 meters)	dB(A)	48	48	51	51	
electrical power	W	365	365	730	730	
fuse	A	6,3	6,3	2 x 6,3	2 x 6,3	
net Weight	kg	84	84	160	160	

### 3.5 Technical data table MEC MIX C centrifuge

DESCRIPTION	U.M.	MEC MIX C 20/35 C	MEC MIX C 20/45 C	MEC MIX C 20/70 C	MEC MIX C 20/90 C	
equipment category		II2H3P				
Type of device		B23 - C13 - C33 - C63 - C53				
Gas supplies		Natural Gas - G.P.L.				
Rated heating capacity	kW	34,9	45,0	69,8	90,0	
Heat capacity min	kW	19,8	20,0	39,6	40,0	
Nominal heat output	kW	34,2	43,4	68,4	86,9	
Thermal power min	kW	20,8	20,9	41,6	41,8	
Condensation produced maximum	l/h	3,9	4,3	7,8	8,6	
Gas flow rate maximum power	<i>Methane 20 mbar</i>	m <sup>3</sup> /h	3,69	4,76	7,40	9,50
15 °C - 1.013 mbar	<i>Propane 37 mbar</i>	kg/h	2,71	3,49	5,42	6,99
Gas flow rate minimum power	<i>Methane 20 mbar</i>	m <sup>3</sup> /h	2,10	2,12	4,19	4,24
15 °C - 1.013 mbar	<i>Propane 37 mbar</i>	kg/h	1,55	1,55	3,10	3,11
Nominal yield at maximum flow	%	98,0	96,5	98,0	96,5	
Nominal yield at minimum flow	%	105,1	104,5	105,1	104,5	
Class of NOx emission		4	3	4	3	
Diameter gas supply	"	G 1/2		2 x G 1/2		
Diameter air supply pipe	mm	60		2 x 60		
Diameter exhaust fumes pipe	mm	60		2 x 60		
Electrical Supply		230V/1/50Hz				
Pressure ventilation	Pa	100				
Air flow max	m <sup>3</sup> /h	3700	3750	7400	7500	
Air flow min	m <sup>3</sup> /h	2200	2200	4400	4400	
Jump thermal power max	°C	27,7	34,7	27,7	34,7	
Jump thermal power min	°C	28,3	28,4	28,3	28,4	
Sound level (5 meters)	dB(A)	52	52	54	54	
Electrical power	W	1050	1050	2100	2100	
Fuse	A	10	10	2 x 10	2 x 10	
Net Weight	kg	93	94	185	188	

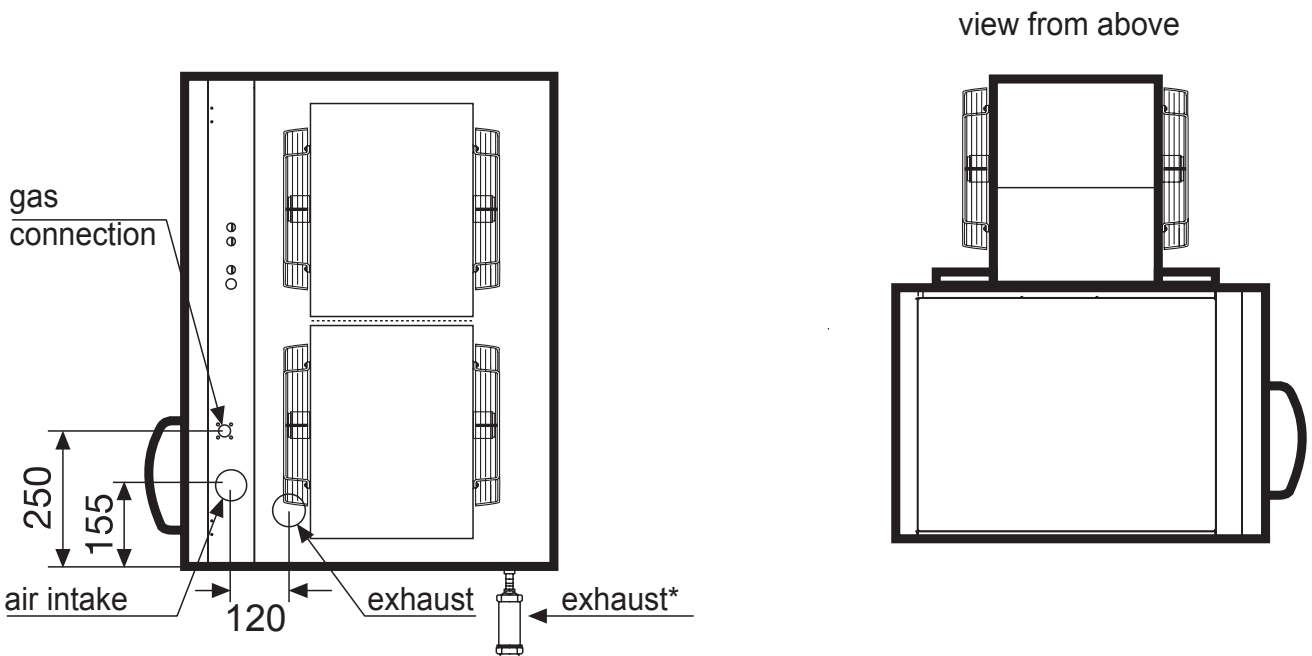
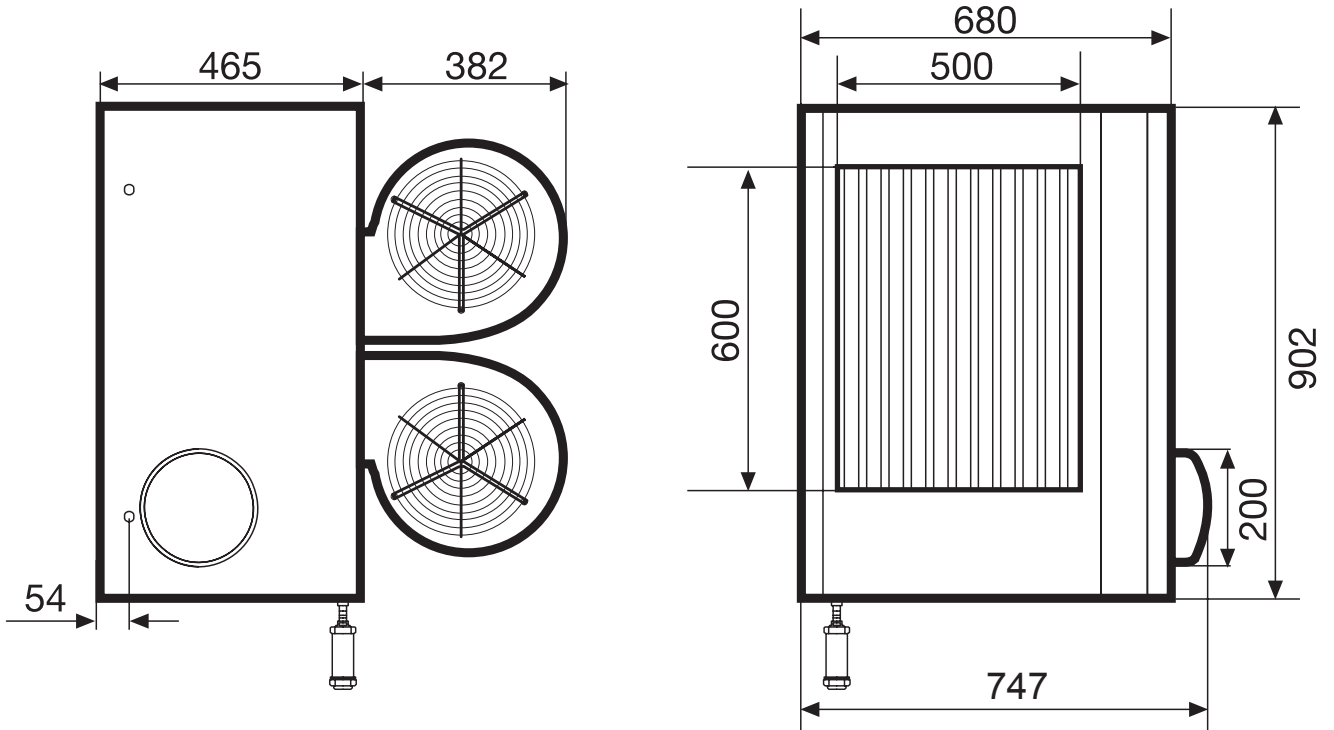
### 3.6 Technical data table MEC MIX F centrifuge

DESCRIPTION	U.M.	MEC MIX F 35 C	MEC MIX F 50 C	MEC MIX F 70 C	MEC MIX F 100 C	
equipment category		II2H3P				
Type of device		B23 - C13 - C33 - C63 - C53				
Gas supplies		Natural Gas - G.P.L.				
	kW	34,9	50,1	69,8	100,2	
Rated heating capacity	kW	33,8	47,9	67,6	95,8	
Heat capacity min	<i>Methane</i>	m <sup>3</sup> /h	3,69	5,30	7,39	10,60
Gas flow	<i>Propane</i>	kg/h	2,71	3,89	5,42	7,78
15°C-1.013 mbar	%	96,8	95,6	96,8	95,6	
Nominal yield at maximum flow	mbar	20				
Nominal yield at minimum flow	mbar	37				
pressure feeding LPG 31		4	2	4	2	
Class of NOx emission	"	G 1/2		2 x G 1/2		
Diameter gas supply	mm	60		2 x 60		
Diameter air supply pipe	mm	60		2 x 60		
Diameter exhaust fumes pipe		230V/1/50Hz				
Electrical power	Pa	100				
Air flow max	m <sup>3</sup> /h	3700	3750	7400	7500	
Air flow min	m <sup>3</sup> /h	2200	2200	4400	4400	
Jump thermal power max	°C	27,3	38,2	27,3	38,2	
Sound level (5 meters)	dB(A)	52	52	54	54	
electrical power	W	1050	1050	2100	2100	
fuse	A	10	10	2 x 10	2 x 10	
net Weight	kg	93	94	185	188	

### 3.7 DIMENSIONS AND DIMENSIONS

Series MEC MIX C condensing models 20/35 - 20/45 with centrifugal fans

MEC MIX F series models 35 - 50 with centrifugal fans



Values expressed in mm

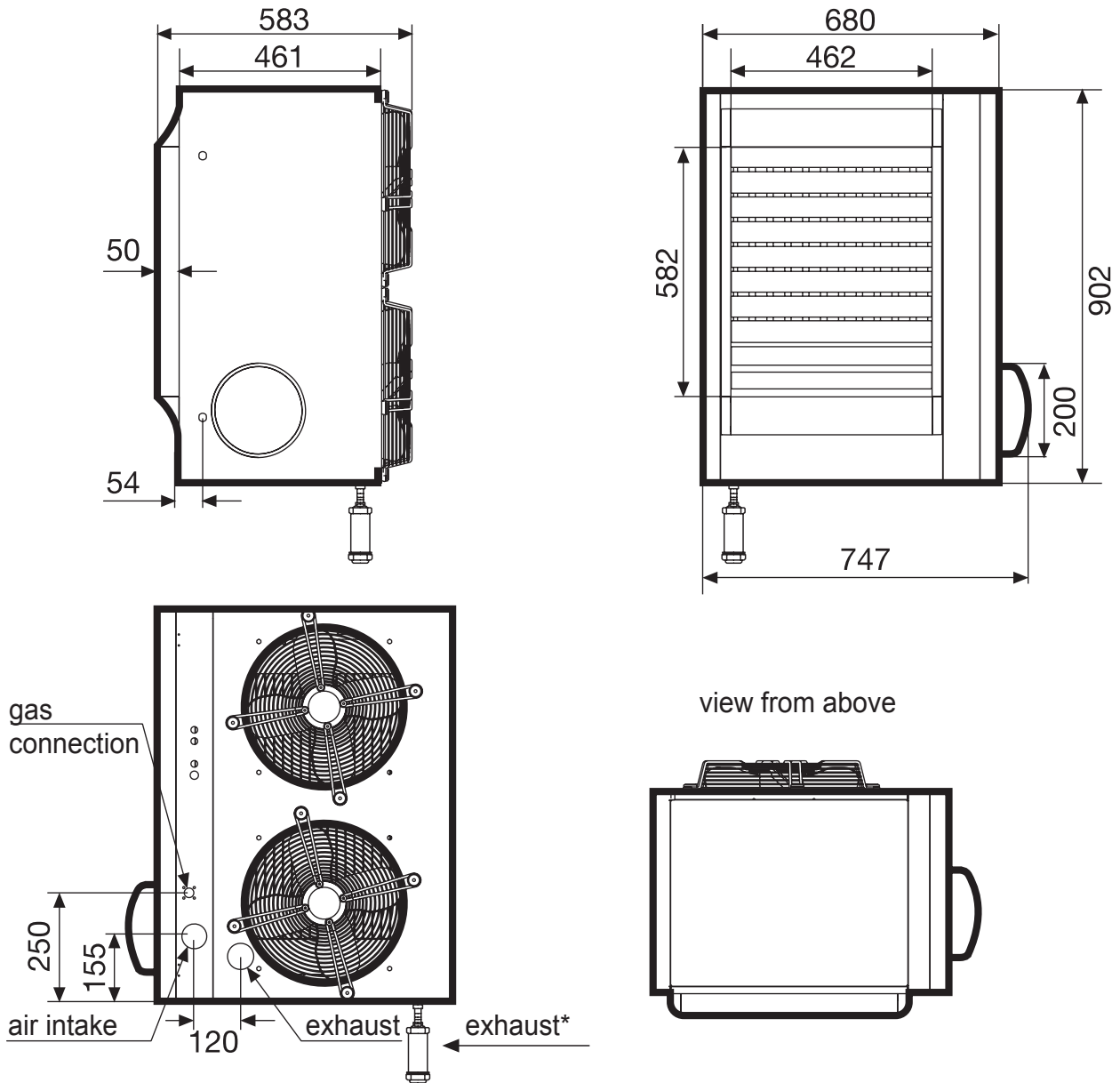
\* The drain siphon is only available in the condensing MEC MIX C series



### 3.8 DIMENSIONS AND DIMENSIONS

Series MEC MIX C condensing models 20/35 - 20/45 with axial fans

MEC MIX F series models 35 - 50 with axial fans



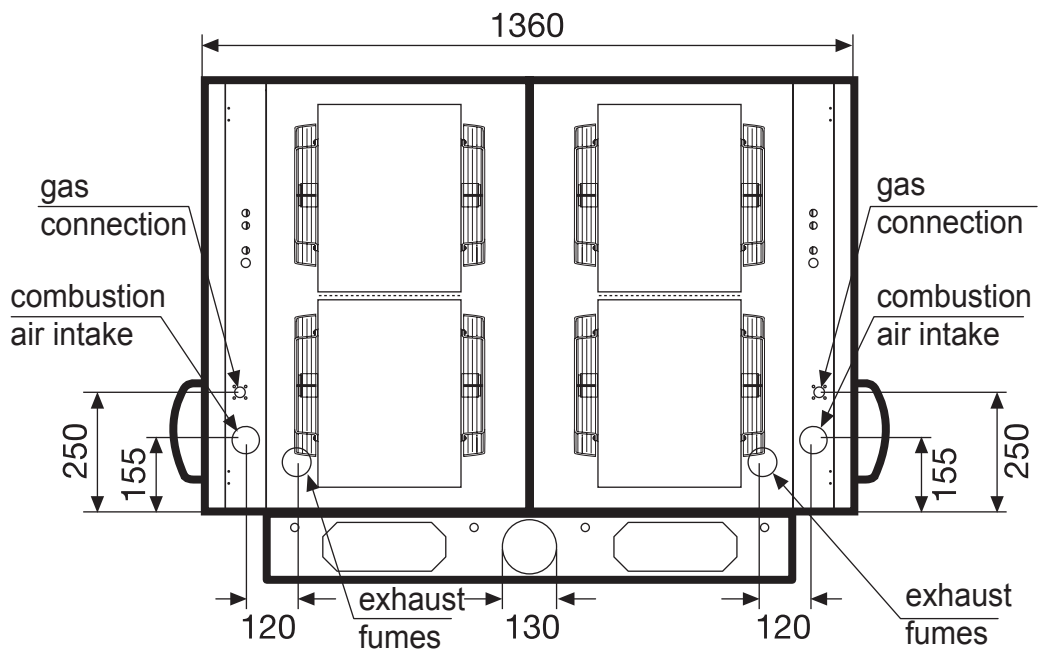
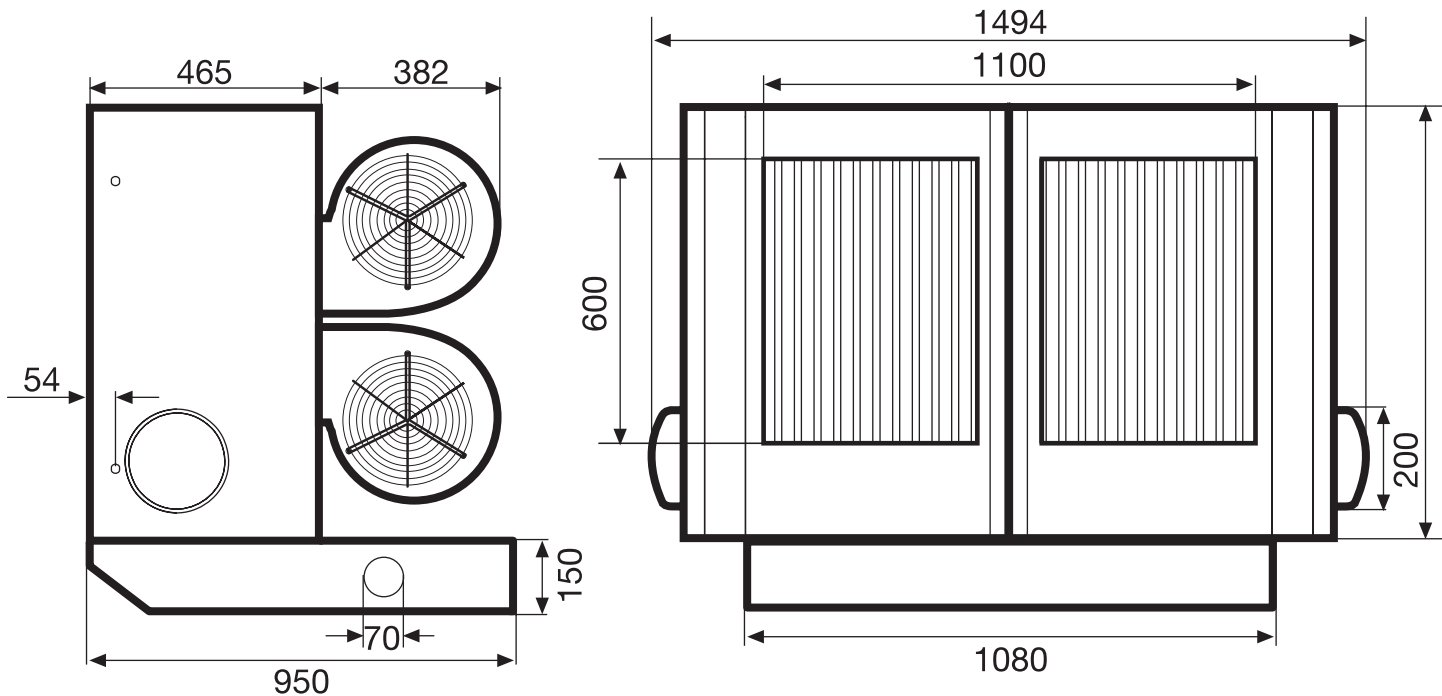
Values expressed in mm

\* The drain siphon is only available in the condensing MEC MIX C series

### 3.9 DIMENSIONS AND DIMENSIONS

Series MEC MIX C condensing models 20/70 - 20/90 with centrifugal fans

Series MEC MIX F models 70 - 100 with centrifugal fans

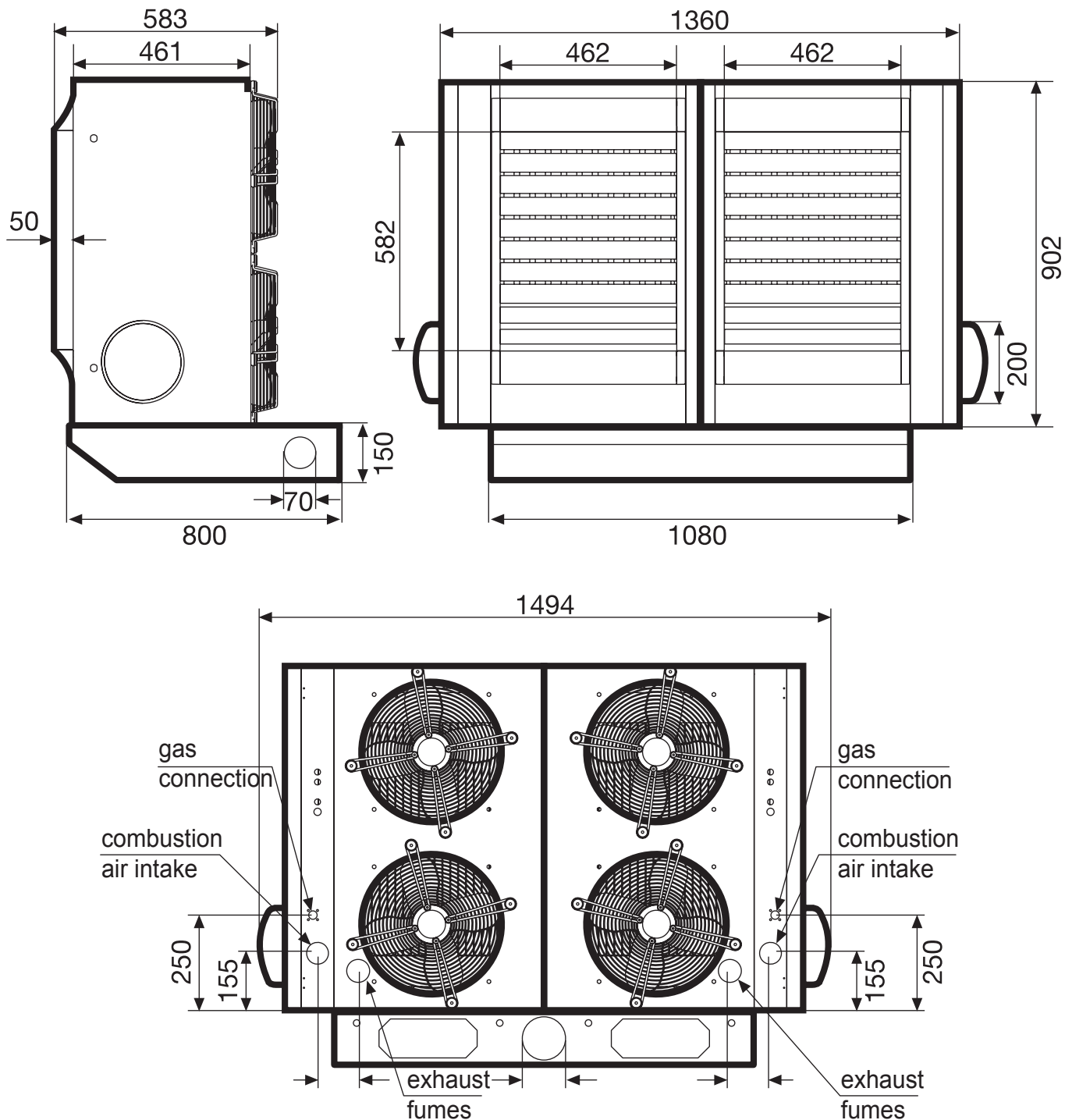


Values expressed in mm

### 3.10 DIMENSIONS AND DIMENSIONS

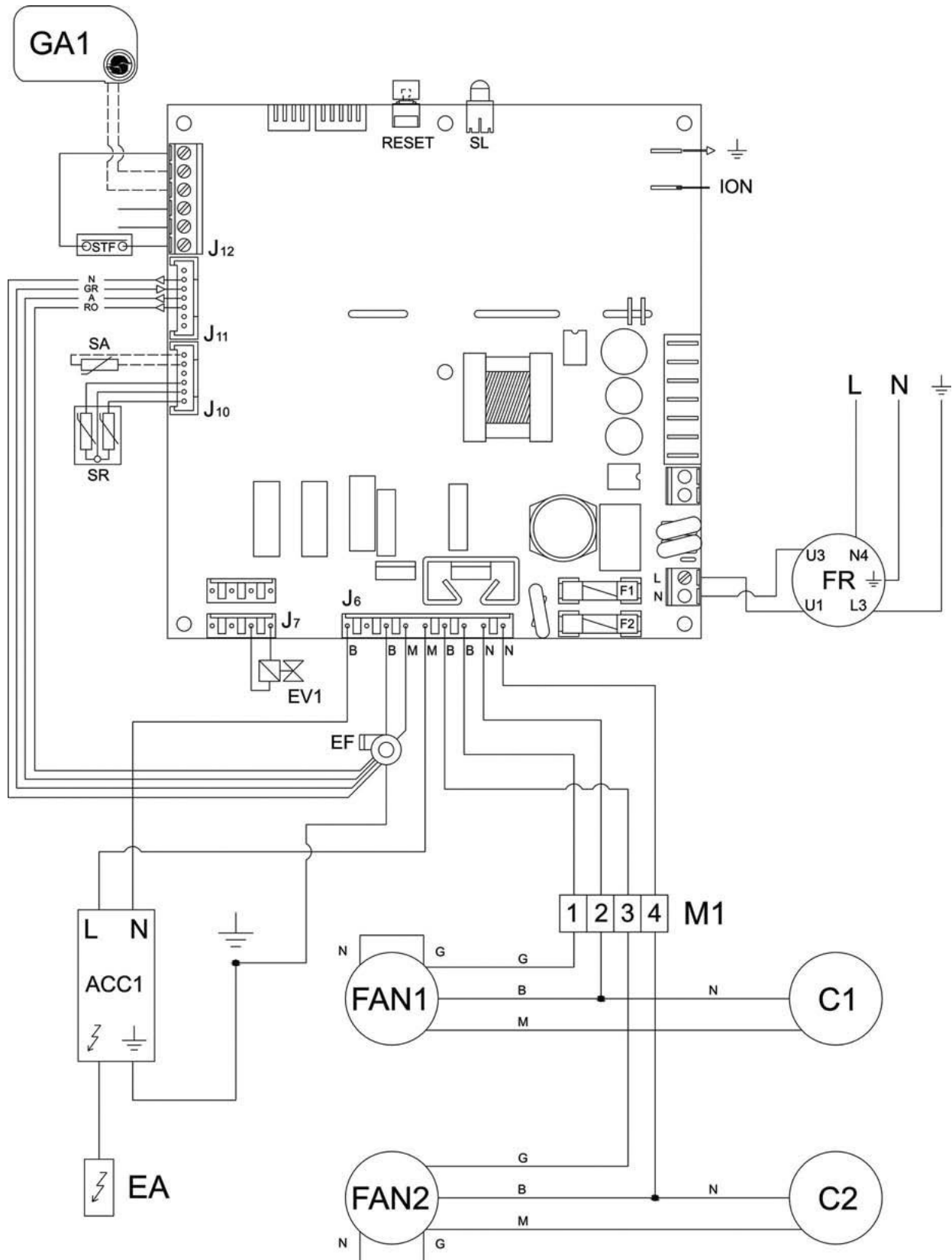
MEC MIX C series condensing models 20/70 - 20/90 with axial fans

MEC MIX F series 70 - 100 models with axial fans



Values expressed in mm

### 3.11 ELECTRICAL DIAGRAM - MEC MIX C / F Series



#### LEGEND

ACC1 Remote ignition transformer  
 C1 Capacitor 1 (5 $\mu$ F)  
 C2 Capacitor 2 (5 $\mu$ F)  
 EA Ignition electrode  
 EF Burner fan motor  
 EV1 First valve stage  
 EX Connection for equipment  
 in cascade  
 F1 Fuse 1 (6.3A)  
 F2 Fuse 2 (6.3A)

FAN1 Fan motor 1 treated air  
 FAN2 Fan motor 2 treated air  
 GA1 Programmable thermostat  
 ION Detection electrode  
 M1 Terminal block 1  
 RESET Release button  
 SA Room sensor (optional)  
 SL LED light signaling  
 SR FAN and LIMIT regulation sensor  
 STF Fire damper (optional)

# SECTION B - USER

## 4. CONTROL AND SECURITY BODIES

In this section you will find all the necessary information to make it work properly MEC MIX series generators.

The functioning of the MEC MIX series generator is controlled by the BRAHMA digital thermoregulation system mod. TC340.

The digital thermoregulation system performs the dual function of room thermostat and clock programmer as well as to diagnose any operating errors.

The following are all the necessary instructions for the correct use of the thermoregulation system digital.

### 4.1 DESCRIPTION

This device is expressly designed for the control of the safety cycle and for the thermoregulation in the hot air generators using gas burners sealed chamber with automatic ignition and pre-mixed modulating burners.

### 4.2 GENERAL CHARACTERISTICS

Important device requirements are:

- compliance with EN 298: 2003-09 (European standard for automatic programming systems and verification of the presence of flame for burners gas);
- CE certification in accordance with the Directive Gas 90/396 / EEC and subsequent amendments (Directive 93/68 / EEC);
- piloting and regulation by phase cutting of the treated air convector fan (FAN);
- piloting and regulation of the fan burner by phase cutting (applications with burners forced draft gas) or via PWM signal (applications with type gas burners premixed using type fans brushless with integrated management electronics);
- two independent safety contacts for the piloting of the main gas solenoid valve EV1;
- exit for driving a transformer auxiliary electronic ignition;
- regulation of the burner power via PWM signal (for type applications premix);
- interfacing with a digital chronothermostat GA1 type via communication protocol OpenTherm™;
- summer ventilation function (requires connection to BRAHMA chronothermostat type GA1);
- management of a double NTC probe type ST16 for the control of the delivery temperature air for regulation and safety functions;

- management of a double NTC probe type ST08 for the control of the delivery temperature air for regulation functions;
- possibility of managing a thermostat safety;
- provision for the management of a probe ad NTC type ST07 with room probe function or external probe (fig 3);
- possibility of connecting a damper contact fire barrier (optional);
- possibility of use in applications with regulation by analogue 0,10V signal (ex. PLC);
- manual reset button on the board;
- reporting of the operating status and of any anomalies by means of two-colored LEDs;
- RS-232 communication interface for diagnostic and setup functions;
- integrated EMI noise filter;
- two fuses with a suitable extractor for the power line protection on both potentials;
- connections for integrated security lands on card.

### 4.3 TECHNICAL DATA LOGIC CARD

**Internal fuses:** 6.3 A delayed type  
for TC340P: 3.15 A delayed type

**External fuses (recommended):** 6.3 A quick type 1  
for TC340P: 3.15 A rapid type 1

**EC type examination certificate:**  
CE0051-PIN0051BU3887

**Times:**

**Pre-ventilation time (TP):** 0...60 s

**Safety time (TS):** 3 ... 120 s

**Intervention time in case of shutdown**

**flame:** <1 s

#### Post-ventilation times

- on the burner fan

EF (tPOST): 0 ... 1200 s

- on treated air fan

**FAN (tFS):** 20 ... 1200 s

**Delay time at power up**

**of the FAN fan (tFA):** 2 0 ... 1200 s<sup>14</sup>

**Waiting time or ventilation:** 1 ... 240 s

**Waiting time for entry**

**in modulation (tRP1):** 1 ... 240 s

**Block delay for parasitic**

**flame (option Knn):** 0 ... 60 s

**Block for air lack**

**(option Qnn) 3:** 3 ... 120 s

<b>Pre-ignition time (option Jnn):</b>	1 ... 60 s
<b>Cycle repetition attempt (option Ynn):</b>	1 ... 10
<b>Maximum cable length of external components:</b>	OpenTherm™
<b>interfaces:</b>	50 m

### Flame control

The flame detection device uses the righting property of the flame.

As an important safety aspect, it should be noted that the control device is more sensitive to flame at start-up or during waiting / pre-purge time (negative differential switching).

**Minimum ionization current: 0.5 μA**

### System temperature probes

#### - Regulation probe (SR)

The control probe is designed to detect the temperature of the heat exchanger and is mainly used by the NTC dual-sensor FAN heating function

#### (version standard):

in this case the probe has a double function as it avoids the use of the safety thermostat.

It will therefore be used both for temperature control functions and for safety functions ( safety shutdown due to excessive system temperature).

For this purpose it is necessary to use the BRAHMA probe type ST16 (fig.3).

### Ambiance sensor (SA)

The room probe (optional) can be used if the remote temperature control (BRAHMA chrono thermostat type ENCRONO GA1) is not in the area where you want to implement thermoregulation or in cases where it is necessary to relate the latter to the temperature of the environment external.

For more details about the functions in which this probe is used, refer to the section

### “OPERATION”

For this purpose it is necessary to use the BRAHMA probe type ST07 (for the detection of the local ambient temperature) or the BRAHMA probe type SSE (for the detection of the external ambient temperature).

### Fire damper (STF)

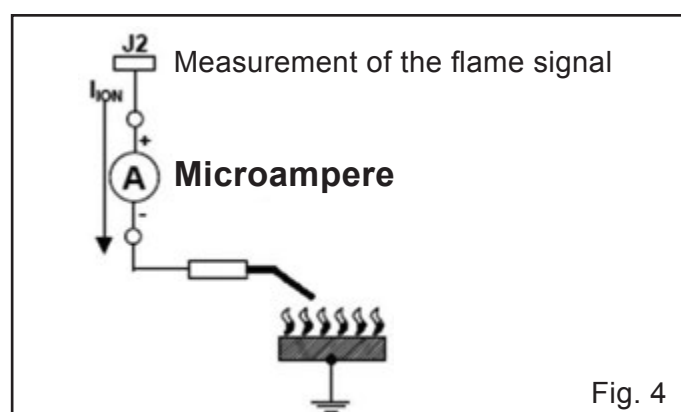
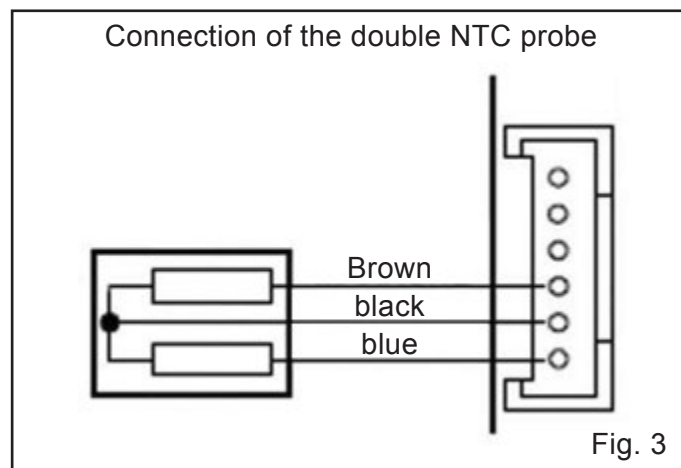
Through this input (option S) it is possible to check the contact status of the fire damper: in case this consent was open (fault condition) the ignition cycle it is interrupted by bringing the device into the waiting position, signaling the error by means of LEDs.

On request, the behavior of the equipment in case of opening of the contact can be modified according to customer specifications.

### 4.4 CHECKS STARTING UP

Carry out a check of the device when it is put into operation for the first time, after each revision and after the system has been inactive for a long time. Before any ignition operation, check that the combustion chamber is free from gas, therefore check that:

- if the start-up attempt is implemented without gas injection occurs a blocking stop at the end of the security time;
- interrupting the flow of gas with the appliance in the operating position, voltage is removed within 1s to the gas solenoid valves and, after a repetition of cycle (or more cycle repetitions up to a maximum of 10, depending on the settings), the device make a block stop;
- the times and the cycle comply with those declared for the type of device used;
- the flame signal level is sufficient high (see Fig.4);
- the ignition electrodes are adjusted stably for a discharge distance in air between 2 and 4 mm;
- the intervention of limiters or safety devices cause the safety lock or shutdown of the appliance according to the type of application and the procedures laid down.



## 5. GA1 CHRONOTHERMOSTAT

### 5.1 APPLICATION

The GA1 digital chrono thermostat (fig.5) with weekly programming for the remote control of the MEC MIX C hot air generators, regulates the room temperature according to a weekly program with three selectable temperature levels and hourly resolution, driving one or more generators of hot air.

It does not need any power from the network or from batteries and also allows the centralized control of various generators in series, if equipped with an appropriate interface card, to be requested when ordering.

Various operating modes are available for more flexible thermoregulation management environmental, such as “manual” mode, “holiday” mode and “antifreeze” mode.

In addition to generating the environmental heating request, which is of the modulating type, the programmable thermostat can detect the blocking status of the appliance and command its release.

The characteristics of the chrono thermostat and the instructions for use are described in detail below.

Figure 7 shows the stylized image of the chrono thermostat design.

Figure 6 shows a brief description of the elements of the LCD panel, while Figure 7 shows the illustration of the main chrono thermostat commands.

The use of the serial interface of the equipment is possible through BRAHMA type 810 interface device and dedicated management software.


### 5.2 GENERAL TECHNICAL DATA

Connection:	non-polarized two-wire
Degree of protection:	IP 20
Weight:	110 g
Display:	LCD
Clock:	quartz
Type of regulation:	modulating
Adjustment range:	1 °C to 30 °C
Display t. environment:	0 °C ÷ +35 °C
Temperature acquisition:	every 60 seconds
Measured temperature resolution:	0.1 °C
Temperature setting resolution:	0.5 °C
Accuracy of temperature control:	± 1 °C
Weekly program with three-hour time resolution temperature levels.	
Special functions:	automatic, manual, holidays, antifreeze
Power reserve for the clock:	8 hours approx.

### 5.3 INSTRUCTIONS FOR USE

After resetting the chrono thermostat, the time and day indicated by the display flash to remind you to update them.

During operation in “automatic”, “manual” or “antifreeze” mode it is possible to proceed with their setting as described below:

Pressing the [  ] button only displays the time and the day of the week indicator flashes.

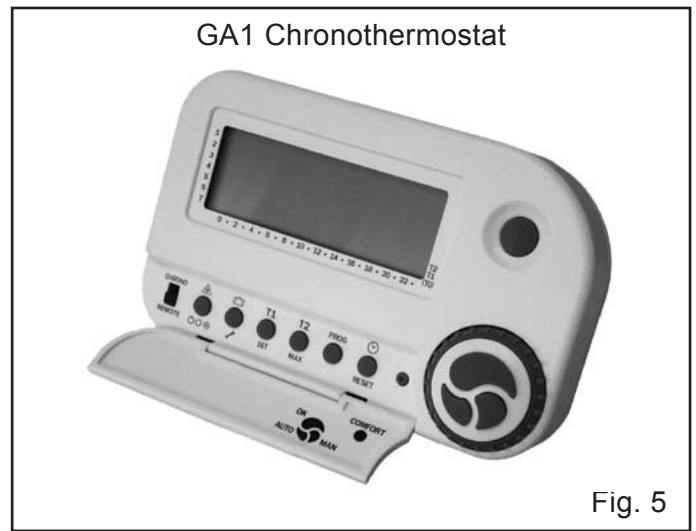





Fig. 5

By acting on the knob you can set the current day. Pressing the [  ] key again returns to the normal display, while pressing [OK] you can switch to setting the hours, which flash, Timetable with knob.

Similarly, pressing the [  ] key returns to the normal display, while pressing [OK] switches to the flashing minutes setting, and then returns to the normal display either through [OK] or [  ].

If you do not operate the buttons or the knob each of the settings will end automatically after about 10 seconds, returning to the main display.

The presence of the current graph, time and temperature indicates that the weekly program is executed relative to the day indicated on the left of the display.

#### “Antifreeze” mode

By pressing the [T2] key you can set the highest temperature (which flashes), obviously by turning the knob.

You can confirm the setting with [OK] or the same [T2] key.


In the same way, by pressing [T1], the intermediate temperature can be set.

The setting ends, in both cases, after 10 seconds of inactivity of the keys and the knob.

It should be noted that the settable value of a temperature is limited by the values assumed by the another two.

In particular, the system limits the settings, with a warning “beep”, imposing that T2 is greater than (or equal to) T1, which in turn must be greater than (or equal to) T0.

In any case the temperatures must be higher than 1 °C and below 30 °C.

The setting of T0 (the lowest temperature) requires particular attention because the [  ] key has a double function.

By pressing this key it is possible:

- set T0 using the knob and return to the menu main, by pressing the same key;
- enter “antifreeze” mode, setting first T0 and then pressing [OK].

## DESCRIPTION OF THE DISPLAY AND ITS TAMPOGRAPHS

Indicator of the day of the week  
1 = Monday ... 7 = Sunday

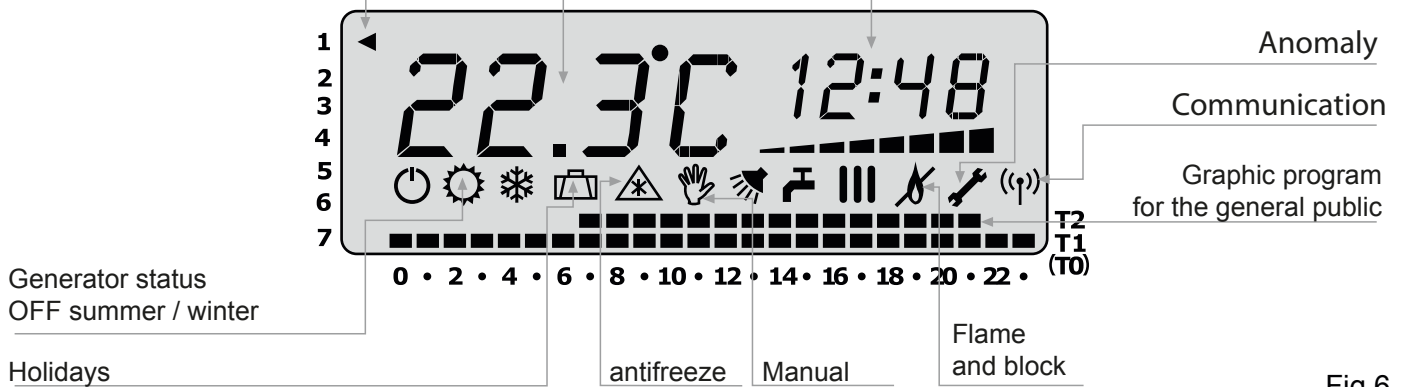


Fig.6

## ILLUSTRATION OF THE CHRONOTHERMOSTAT PROGRAMS

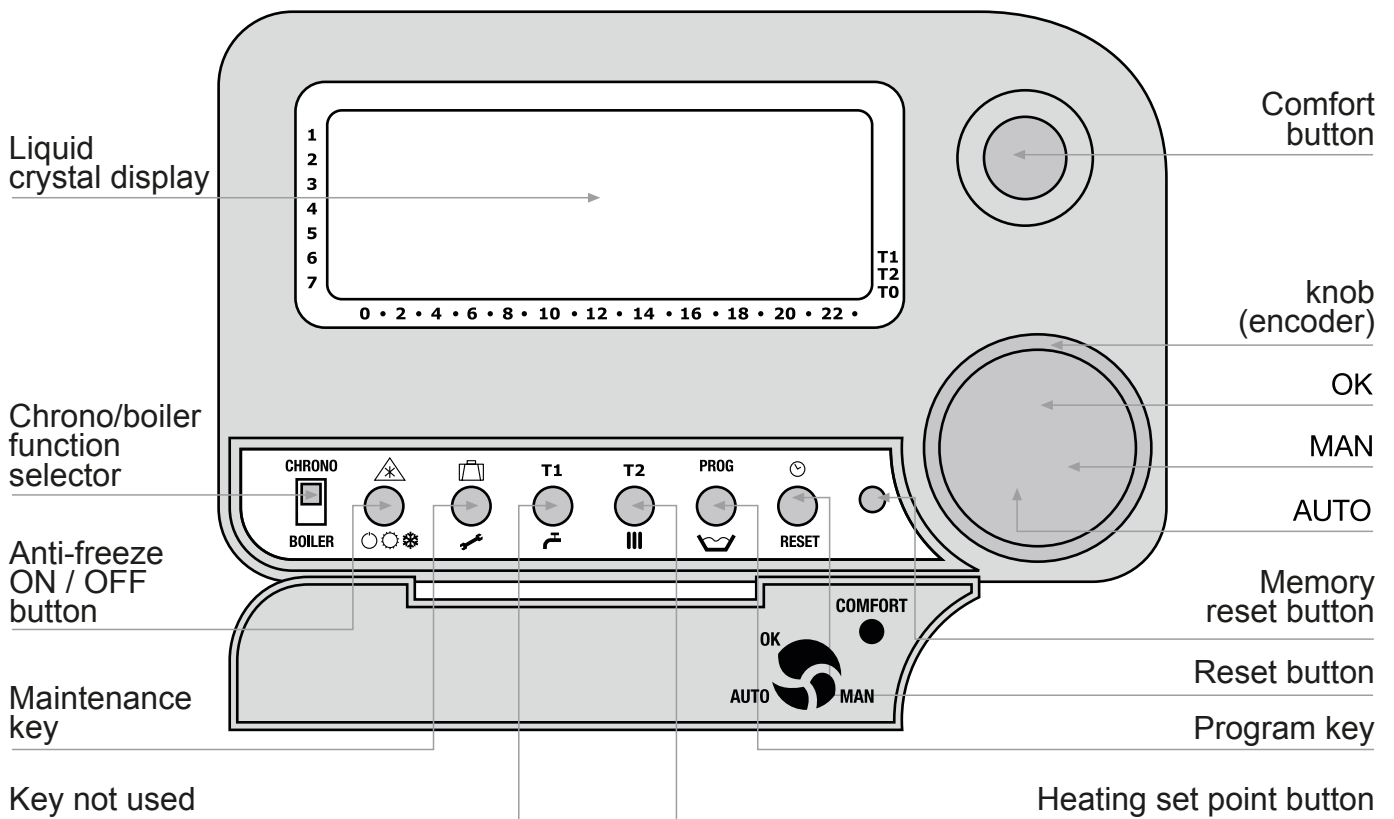


Fig.7

In any case, during the setting of T0, 10 seconds of inactivity of the keyboard or knob activate the mode "Antifreeze". Operation in this mode is highlighted, in the display, by the absence of the graph e from the symbol. Acting on the knob is possible change the temperature value at any time desired: the first shot displays the value current, the later modify it. The **[AUTO]** key cancels the "antifreeze" mode and reactivates the program weekly.

### "Manual" mode

By pressing the **[MAN]** key you can set the temperature value you want to be maintained independently of the weekly program.

Once this value is set, using the knob, you can confirm the "manual" mode by pressing **[OK]** (or waiting 10 seconds) or return to the automatic mode by pressing **[AUTO]**.


The manual mode is highlighted by the symbol [👉] on the display.

Note that the graph, as the program is not active, is not shown.



By acting on the knob it is possible to change the desired temperature value at any time: the first shot displays the current value, the subsequent changes it. The [AUTO] key cancels the “manual” mode and re-activates the weekly program.


### “Vacation” mode

By pressing the [] key you can set the temperature you want to keep for whole days of absence from the home.

Once the temperature has been chosen and [OK] has been pressed, the number of holiday days is selected, which appears on the display preceded by the indication “d-” and the maximum limit is 99.

Once confirmed with [OK], the number of holiday days decreases by one unit at the stroke of midnight of each of the following days until it is reset: at this point the “holiday” mode ends and the weekly program is reactivated (automatic mode).

Without leaving the holiday mode it is possible to adjust the temperature value selected simply by turning the knob and confirming with [OK], similar to what happens with manual modes

and antifreeze, while to change the number of days, press the [] button and confirm with [OK].

At any time it is possible to return to the automatic mode by pressing [AUTO].

Note that the holiday mode is also canceled by setting the number of holiday days to zero.

### Weekly programming

Pressing the [PROG] key enters the weekly programming menu: using the knob, select the desired day, which flashes together with the corresponding graph. In this phase it is possible to copy the program of the day highlighted on the following day by keeping the [OK] key pressed for a long time.

Alternatively, you can return to automatic operation by pressing [AUTO] or [PROG].

By briefly pressing the [OK] key, you enter the programming of the chosen day.

Initially, by turning the knob, you can scroll through the entire program by referring to it at the flashing point on the graph and the indication of the time and the corresponding temperature level.

To make a change just select the time of interest and press [OK].

At this point, select the desired temperature level with the knob, choosing between T0, T1 and T2 (whose value is shown, for convenience, to the user) and confirmed with [OK].

Then you go to the selection of the time in which you want to maintain the chosen temperature level: by acting on the knob you can extend this time, hour by hour, starting from the selected start time until the end of the day.

The display shows, flashing, the time at which it ends band you are planning.

In any moment it is also possible to go back up to the initial time without compromising the previous

programming;

selecting the same start time as the end time the program is not modified in any way.

There selection of the final time is done by pressure of the [OK] button.

At this point it is possible to insert another program band by repeating the operations described above or to return to the menu of the days to be programmed by pressing the [PROG] key.

To exit programming, however, you press the [AUTO] key.







### Normal communication

If the interface responds with valid messages, the communication icon remains fixed, indicating the correct exchange of information.

Normally, the display provides the percentage value of power (of the heating system) that is currently requested by the chrono thermostat; if the application requires it, at the top right you can see the number of connected generators, otherwise the word “ot” appears.

The other functions and displays are shown below.

### Status selection: Off-Summer-Winter





The operating status can be set by pressing the [  ] key and selecting between “off” () , “Summer” () and “winter” () .

In “winter” heating is active, with a modulating percentage request generated according to the desired temperature in the room (depending on the operating mode set in **CHRONO** mode) and the thermal differential, which can be set as described below.

In “summer” the only ventilation is active, which can be activated manually or by program: the temperature T2 of the automatic program, in fact, corresponds to the activation of the ventilation; the programmed temperatures T0 and T1, and any other operating mode, deactivate the ventilation.


Manual ventilation is activated by pressing the appropriate button on the chrono thermostat front panel.

Note that the deactivation of the ventilation can be carried out using the same key only if the chrono thermostat is not in automatic mode and the program does not provide, for the current time, the activation of forced ventilation (temperature T2).

To deactivate ventilation in these conditions it is necessary to enter one of the special modes (manual, holiday or antifreeze) or simply press the [  ] key and select the “off” status () .

In “off” the system is in stand-by.

### External temperature

By pressing the [] key for a long time, you enter the menu for the external temperature probe.

In the event that, in fact, one of the equipment connected to Encrono GA1 has an external temperature probe (and is configured to transmit

the information via OpenTherm), you can display its value next to the “tout” indication.

In this mode it is also possible to set an additional parameter, indicated with “tset”, which represents a further temperature set-point for the connected boards: by turning the knob clockwise, in fact, it is possible to switch to “tset” display.

To change the value simply press the [OK] key and turn the knob, confirming with [OK] again.

The adjustment range for “tset” ranges from -99 °C to 100 °C; the default value of the parameter is zero, but when Encrono GA1 is connected to one or more devices, the initial value is acquired by the same devices through a parameter reading.

Lockout status and remote unlock command In the event that one or more devices are blocked, the information displayed on the display, in “remote” mode, is highly dependent on the application.

In particular, on the left side of the display may appear:

- 1) the identification number of the card in bulk or that communicates an anomaly, through the display “n. 01”, “n. 02”, etc (in the case of more generators in cascade and only if the application is expected);
- 2) a two-digit error code, in the “E00” format, “E01”, etc. which specifies the type of anomaly;
- 3) the indication of generic error “Err”, in the case

where no details of nature are available anomaly.

The meaning of the error codes displayed on the left side of the chrono thermostat display is summarized in the table “5.4 DESCRIPTION OF ERROR CODES”. It should be noted that the error E05 is the only one independent of the connected equipment, as it signals the breaking of the internal room temperature probe to the chrono thermostat itself.

Regardless of the display shown on the left side of the display, on the right side a further three-digit error code will appear, preceded by the letter “F”, communicated directly from the remote board and displayed without any processing or interpretation by the chrono thermostat.

In the event of a blockage, it is also possible to attempt to release it by pressing the [RESET] key: if the timer-thermostat emits an error beep, the remote unlocking key is disabled (ie the connected device inhibits the unlock request) , otherwise the key press generates an unlock request that is sent to all connected equipment.

If, despite the key is enabled, the unlock request is not accepted, the error appears temporary “E11” (the error disappears after 10 seconds or after pressing any key).

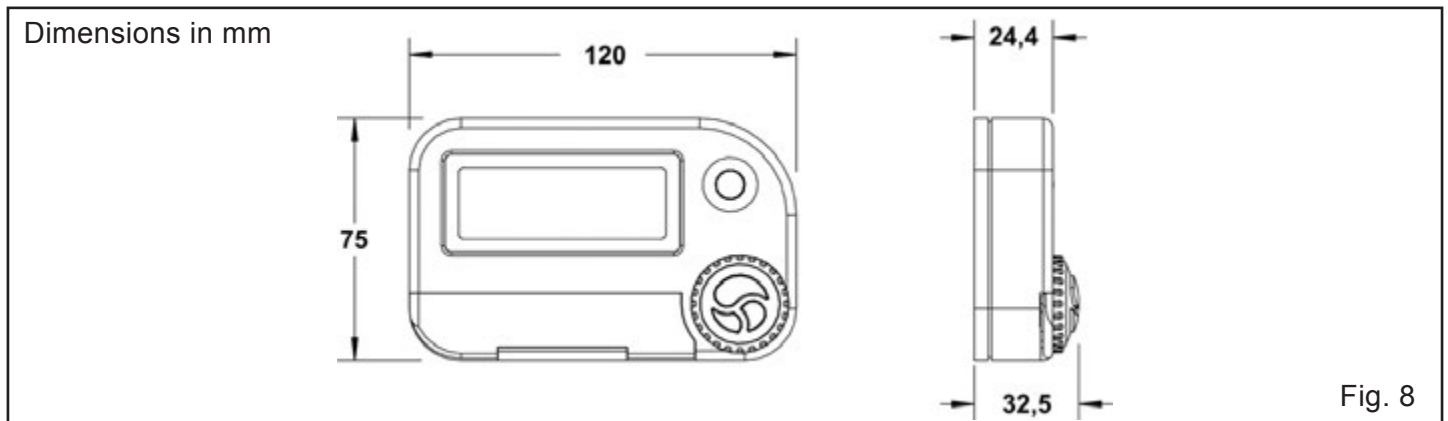


Fig. 8

#### 5.4 DESCRIPTION CODES ERROR

Code	Description
n.XX	Failure in slave number xx
n.03	Failure in slave number 3 (example)
E00	Communication error
E01	Lockout for burner ignition failure
E02	Air pressure switch failure
E05	Room temperature probe failure
E08	Water pressure switch failure
E09	Max heating limit intervention
E15	Communication error of one of the slaves
E11	Error in the remote reset procedure
Err	Generic error (internal diagnostics not available)

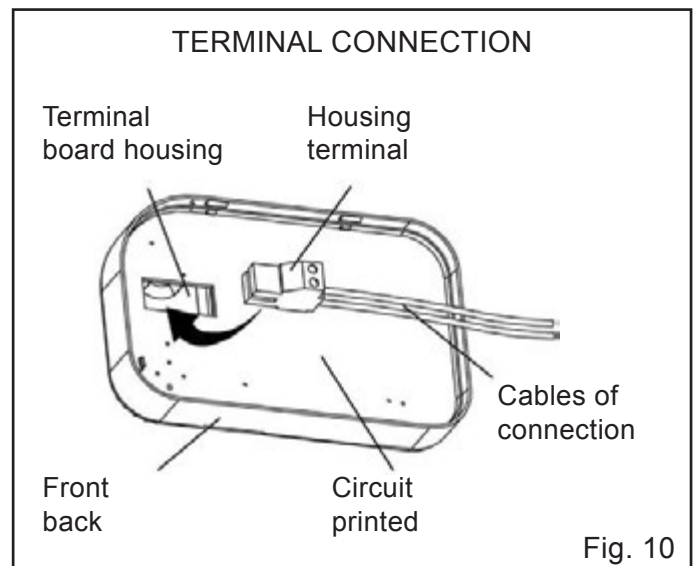


Fig. 10

### 5.5 INSTALLATION INSTRUCTIONS

For the installation of Encrono choose a position suitable for the correct detection of the room temperature, at a height of 1.5 m from the floor and away from sources of heat or from doors and windows that communicate with the external environment. Fixing can be carried out, through the appropriate holes, directly on the wall or on a common recessed box.

It should be noted that the area of the wall used for the installation must be well leveled and free of imperfections that may cause deformation of the support base, in order to avoid difficulties in assembling the front panel.

Once the support has been fixed, the wiring can be carried out using the removable screw terminal board: after having removed it from the appropriate housing and connecting the connecting cables properly, it must be reinserted "sled" into its housing, as shown in the figure 10.

The communication protocol provides for a maximum cable length of 50 m; the resistance of each conductor must not, however, exceed 5 Ω.

In environments with particularly intense electromagnetic disturbances it is advisable to use a shielded bipolar cable.

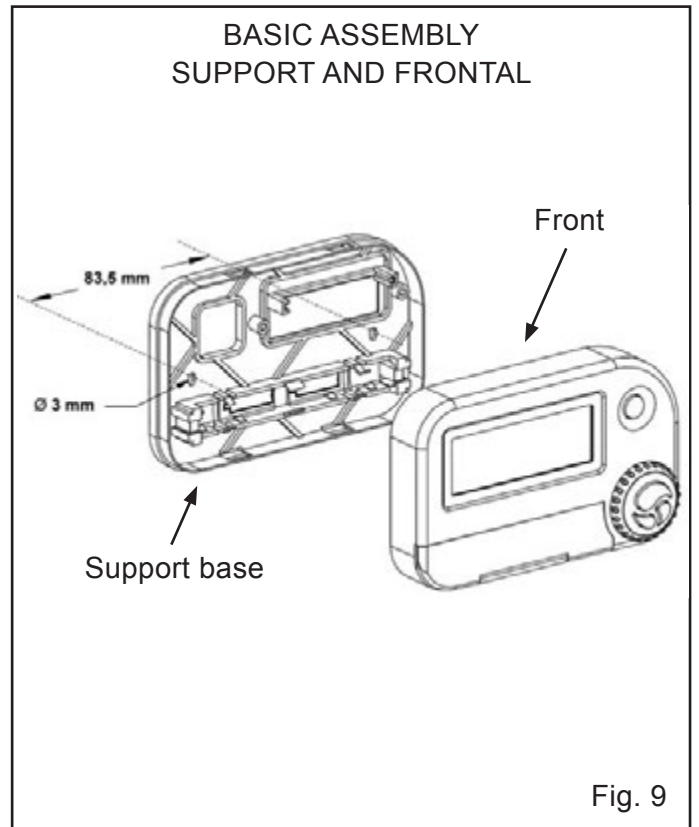


Fig. 9

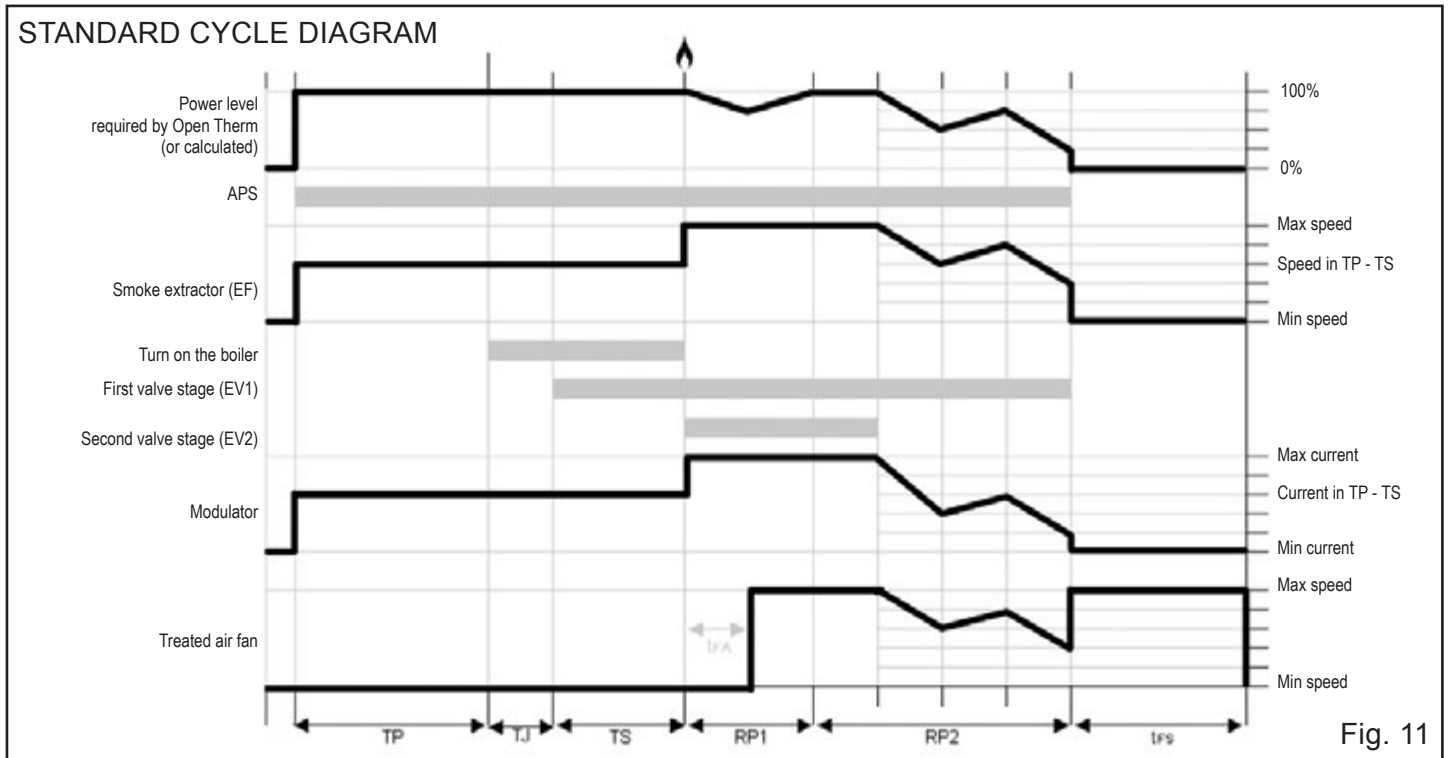


Fig. 11

## 5.6 WIRING DIAGRAM FOR BRAHMA EQUIPMENT TYPE TC340P

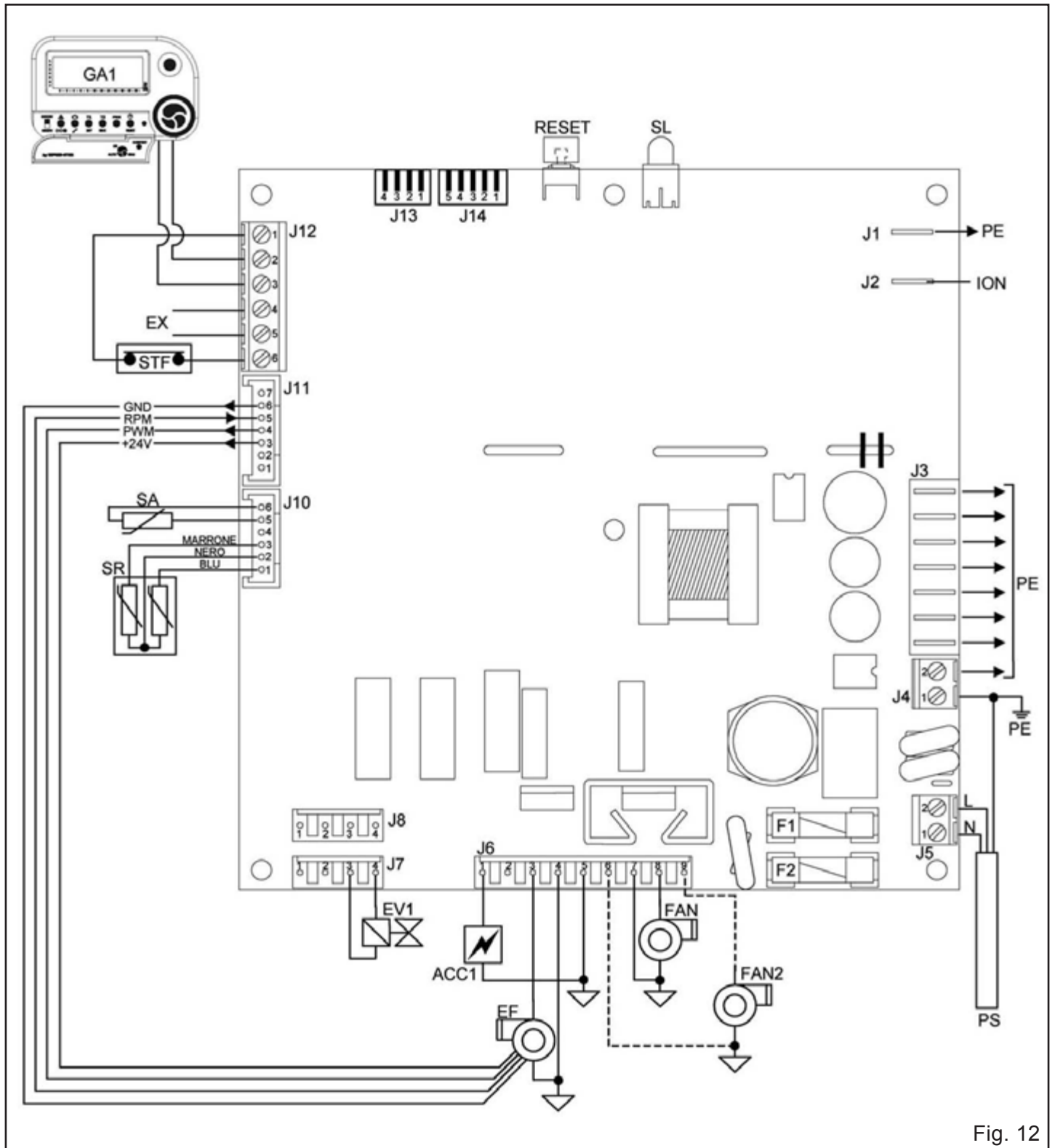
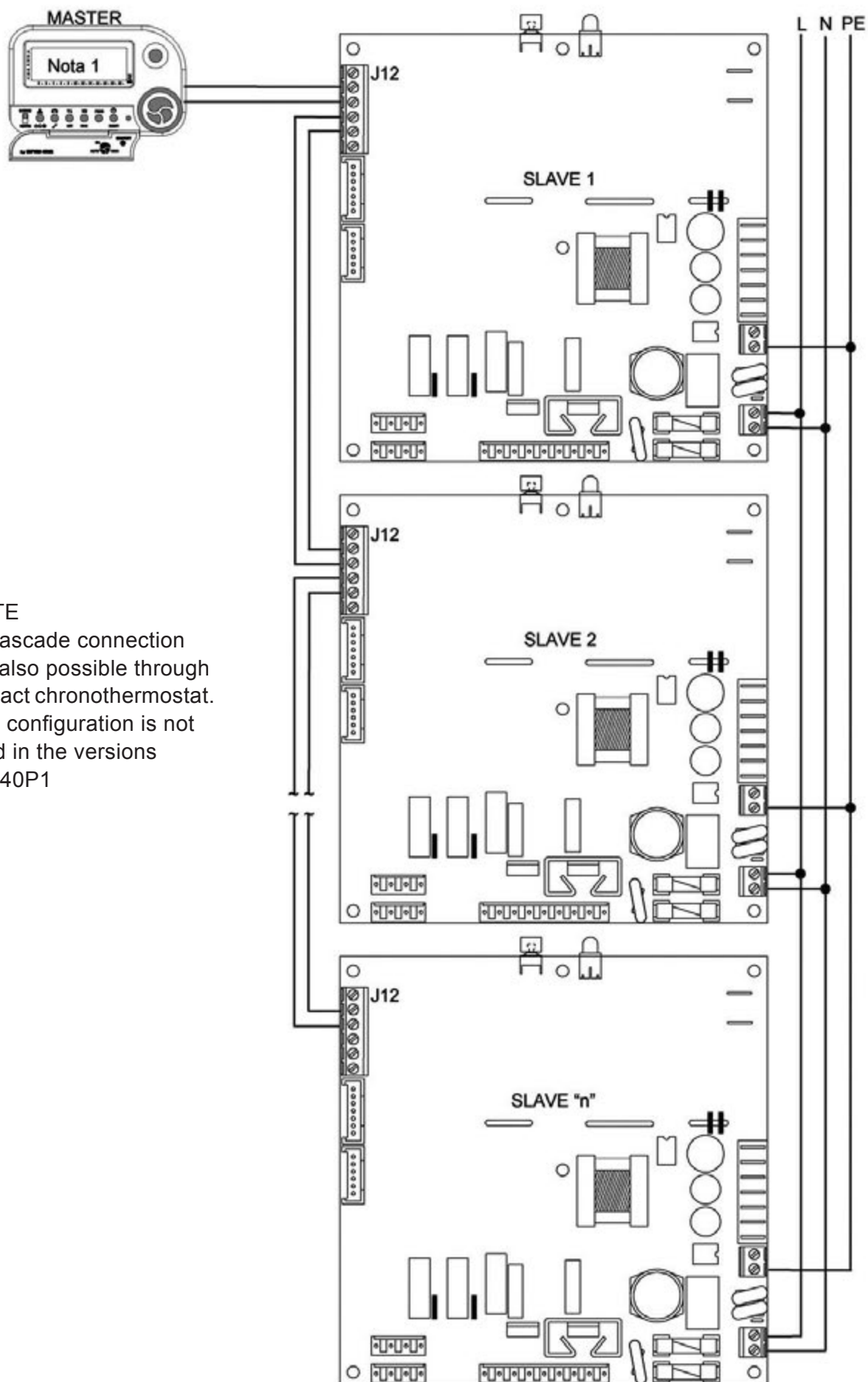


Fig. 12

### Legend

GA1	Thermostat
EF	Burner fan motor
FAN	Treated air blower motor
ACC1	Auxiliary remote ignition transformer
EV1	Valve first stage
SR	Adjustment probe
STF	Fire damper
SA	Room sensor (optional)
SL	Signaling brightness and LEDs
RESET	Outlet button
EX	Connection for cascaded equipment
ION	Detection electrode

## 5.7 CONNECTION DIAGRAM FOR CASCADE CONNECTIONS MORE DEVICES THROUGH Open Therm



### NOTE

1. Cascade connection  
it is also possible through  
contact chronothermostat.  
This configuration is not  
used in the versions  
TC340P1

Fig. 13

## 5.8 TYPES OF CONNECTION

The following are all connection types

Reference	Description	Type of connection
J1	Functional earth for flame detection	Female faston 6,3 mm
J2	Detection electrode	Female faston 4,8 mm
ACC2	Ignition electrode	Female faston 2,8 mm
J3	Safety ground for loads	Female faston 6.3 mm (7-pole)
J4	Earth connection	2-pole screw terminal block for Ø 2.5 ©2-pole
J5	Supply	screw terminal block for Ø 2.5 mm <sup>2</sup>
J6	Power connector for fan EF fan FAN, auxiliary electronic transformer and modulation increase / decrease inputs	9-pole connector MOLEX type 3001 series terminals type MOLEX seie 2478
J7 - 8 (nota 1)	Power connector of the first valve stage EV1 and of the second EV2	9-pole connector MOLEX type 3001 series terminals type MOLEX seie 2478
J9	Modulator power connector (MOD)	Modulator power connector (MOD)
J10	Flow regulation probe connector (SR) and ambient probe (SA)	7-pole LUMBERG series 3114 connector (LUMBERG series terminals 3111 01 L)
J11	Air pressure switch connector (APS) or low-voltage signals of the PWM brushless fan	6-pole LUMBERG series 3114 connector (LUMBERG series terminals 3111 01 L)
J12	Connector for Open Therm communication and fire damper	6-pole screw terminal block for Ø 2.5 mm <sup>2</sup> cabler
J13	RS-232 serial communication connector for interfacing with diagnostic software	4-pole LUMBERG series 3517 04 K connector
J14	Connector for remoting of the reset signal and LED status signals	5-pole LUMBERG series 3517 05 K connector
J19	Pressure sensor	3-pole LUMBERG series 3114 connector (LUMBERG series terminals 3111 01 L)

NOTES: The JB connector is parallel to the J7 connector in the sense that in the same position it is possible to pick up the same output signal. This connector is convenient if double-coil gas valves are used.

## SECTION C - HYDRAULIC INSTALLER

### 6. INSTALLATION

In this section you will find all the information necessary to install the MEC MIX C - MEC MIX F series generators from a hydraulic point of view.

#### 6.1 GENERAL INSTALLATION RULES APPLIANCE

The installation must be carried out, according to the manufacturer's instructions, by professionally qualified personnel;

For professionally qualified personnel means those with specific technical competence in the sector of heating system components.

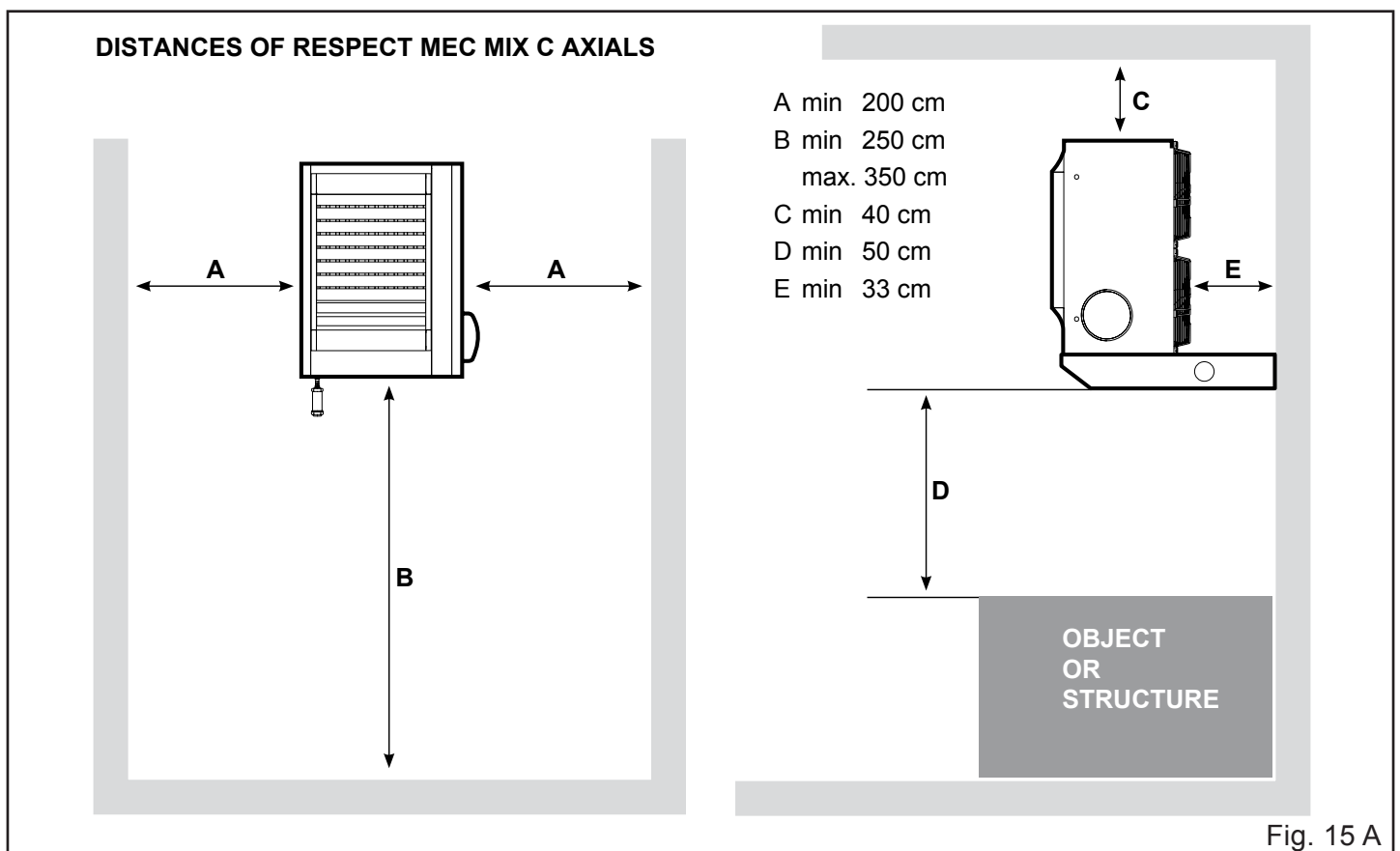
In any case, by calling the Presale office of A2B Accorroni E.G. srl (phone +39.071.723991) you can receive the necessary information.

Incorrect installation can cause damage to people, animals and things, against which the manufacturer can not be held responsible.

However, comply with the regulations in force and in particular:

- to the D.M. of 12 April 1996 containing the rules of fire prevention for the design, the construction and operation of thermal plants powered by gaseous fuels.
- D.P.R. n. 412/93 which regulates the design, installation, operation and maintenance of thermal plants.
- D.P.R. n. 551/99 which introduces some modifications to the D.P.R. n. 412/93.

- Legislative Decree 192/05 "Implementation of the Directive 2002 / 91CE on energy efficiency in Building "and the subsequent Legislative Decree 311/06 "Corrective and supplementary provisions to the decree legislative 19 August 2005, n. 192 ".
- To the law n. 46/90 and the related regulation of implementation (D.P.R. 447/91) on the safety of thermal plants.
- To the UNI CIG 7129 standard that regulates the installation of gas-powered appliances natural.
- To the UNI CIG 7131 standard that regulates the installation of appliances powered by LPG
- To the UNI 11071 standard that regulates the installation of heat generators a condensation.
- To the law n. 186 of March 1, 1968 concerning the installation of electrical systems. For the installation is good to respect the following requirements:
  - the distance between the back side of the generator and the wall must be sufficient to allow it air intake (minimum 330 mm). The distance minimum from the side walls is shown in Figure 21.
  - **The distance from the bottom of the generator to any object or structure below it cm must be not less than 50 cm to allow installation and maintenance of the condensate drain siphon.**
  - The optimal height recommended from the ground to the base of the generator is 2.5 - 3.5 m (see Figure 15 A / B). Heights below 2.5 meters are not recommended in as the flow of air coming out of



## DISTANCES OF RESPECT MEC MIX C CENTRIFUGES

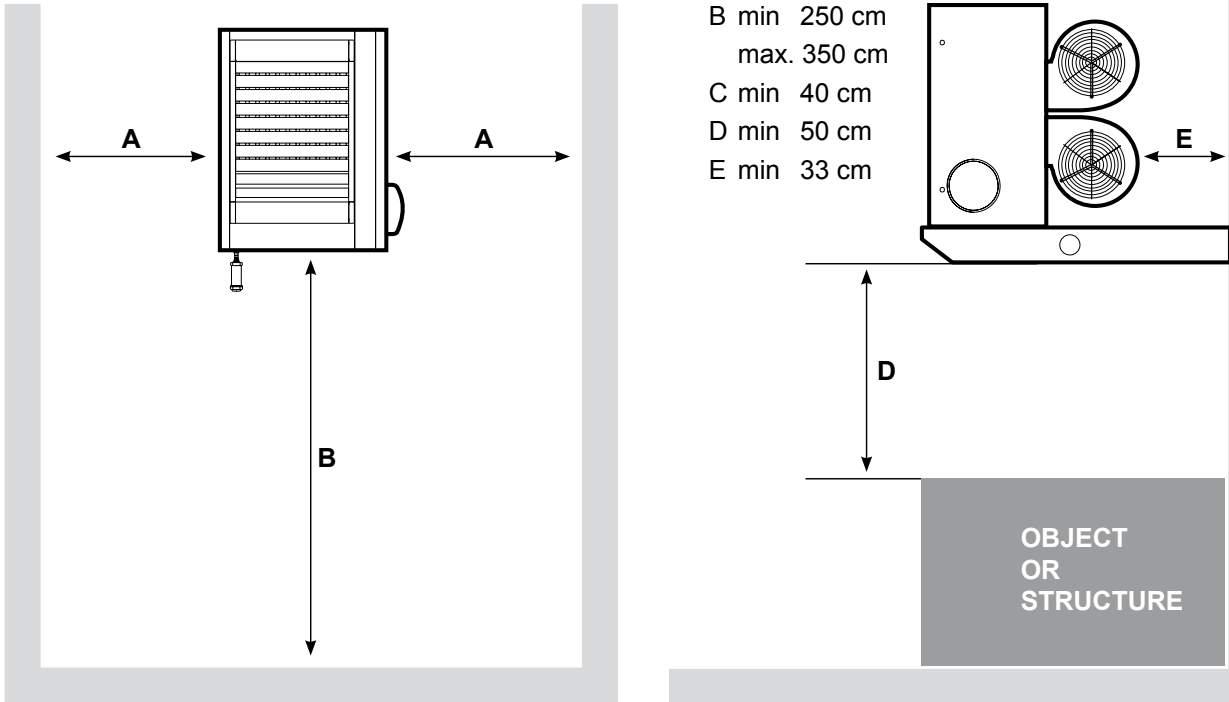


Fig. 15 B

the mouth of sent could affect the present staff in the environment annoying him. It is also remembered that for heights less than 2.5 meters the legislation in force requires more prescriptions. Installation is not recommended at heights above 3.5 meters because in this way it is not guaranteed an air intake in the lower layers environment, generating potential situations of stagnation of cold air near the floor. **To achieve maximum comfort and performance from the plant it is advisable to observe the following rules:**

- pay attention that the airflow does not invest directly the staff;
- take into account the presence of obstacles (pillars or other);
- for better heat distribution, in case install with multiple machines, create streams alternating hot air (see Figure 16);
- in some cases it may also be appropriate to ask the appliances in the vicinity of gates in way which also act as an air barrier at the time of opening the doors. Do not install the MEC MIX series generators in greenhouses or environments with a high degree of humidity or conditions similar atmospheres as they have not been designed for this type of use.

## 6.2 INSTALLATION SEQUENCE

Based on the installation project, prepare the gas and electricity supply lines, as well as the holes for

1. Unpack the appliance taking care of verify that it has not been damaged during the transport; each appliance is tested in factory before shipping, so if you are there been damaged immediately notify the conveyor.
2. Install the support bracket, following the indications given on the instruction sheet a kit with the bracket itself.
3. Fix the generator to the bracket using the screws a kit with the bracket.
4. Check that an adequate supply exists and gas distribution network. In particular if the appliance is powered by:

### **Natural gas**

Make sure the network pressure of gas supply, with working device, is adjusted to the value of 20 mbar (204 mm H<sub>2</sub>O) (admissible tolerance between 17 mbar and 25 mbar).

### **G.P.L. (mixture of Propane and Butane)**

It is essential to fit a pressure reducer first jump near the gas tank liquid to reduce the pressure to 1.5 bar and a second jump gearbox from 1.5 bar to 37 mbar in proximity of the generator (tolerance from 20 mbar to 45 mbar).

5. Connect the generator to the gas network by providing on the gas supply pipe a tap interception and a three piece joint.



## POSITIONING EXAMPLES

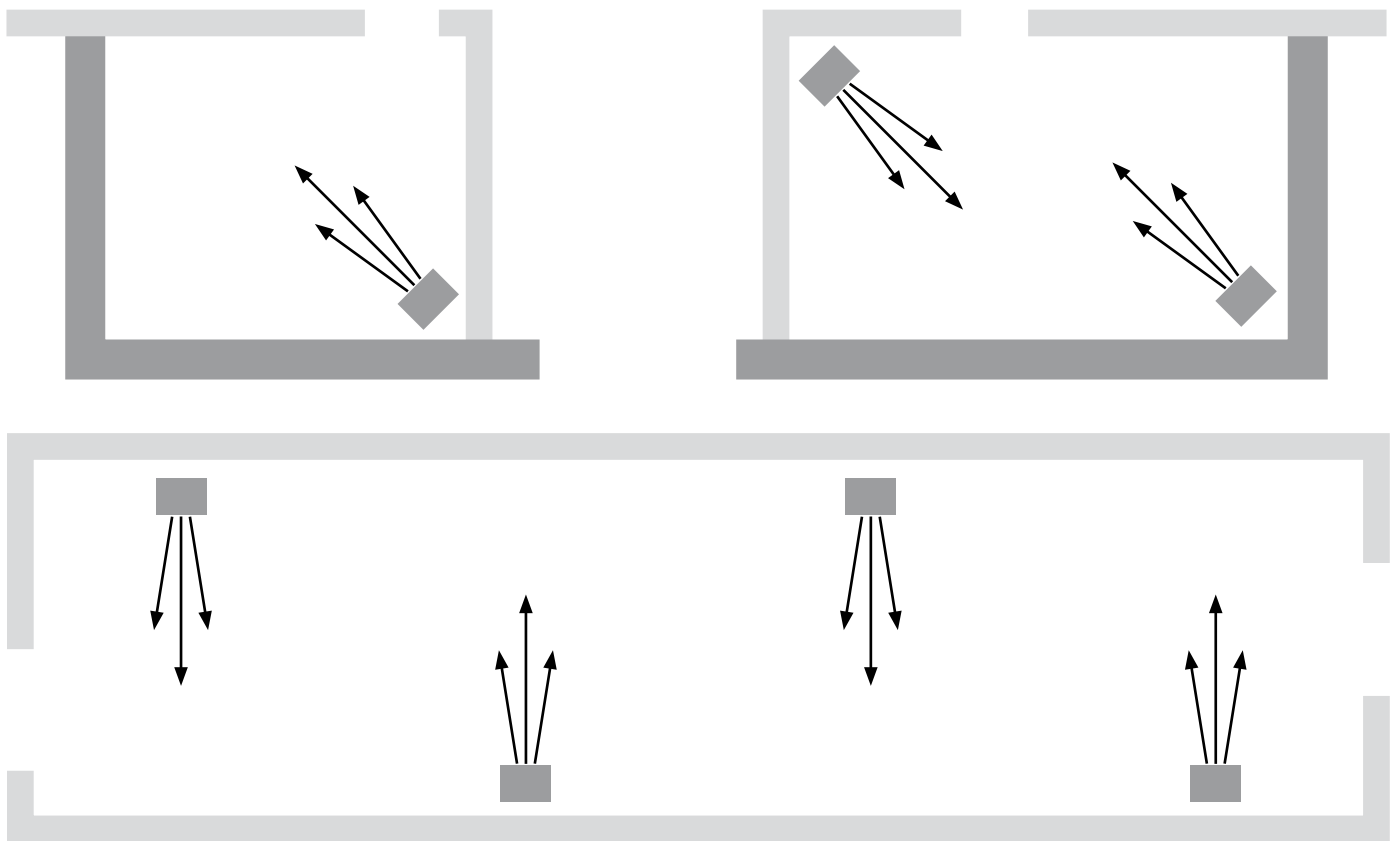


Fig.16

### 6.3 DIMENSIONING OF AIR TUBES COMBURENTE / FUMES DISCHARGE

MEC MIX series hot air generators can be installed in one of the following ways:

- installation type C13: product unloading of combustion and air sampling comburent occur on the wall through ducts separated (see Fig. 18 and 19) or coaxial (see Fig. 20). In this way the appliance is watertight compared to the room in which it is installed.
- installation type B23: this type includes the combustion air intake in the environment and exhaust of the fumes on the outside wall through a specific horizontal duct (see Fig. 23 e 24) or on the roof through a special duct vertical (see figures 25 and 26). installation type C53: the discharge of products of combustion and the intake of combustion air they take place through separate conduits that flow outside the building and distant from each other. This type allows to realize, to example, the air intake in the wall behind the appliance and the fume exhaust far away from the appliance or to the roof (see Fig. 21 e 22). In this way the appliance is watertight to the room in which it is installed.
- C33 type installation: product unloading combustion and the intake of combustion air they take place on the roof through coaxial pipes (see Figure 27). In this way the appliance it is tin compared to the

room in which it is installed.

- C63 type installation: this type allows to realize fume exhaust / air sampling systems using tubes, curves and terminals retrieved from trade, provided that they are approved. Also, lets use duct diameters greater than 60 mm: for example when it is necessary to realize very long air / smoke systems. With this type, for the calculation of the system air fume must also refer to the data provided by the pipe constructor, as well as the composition, at the smoke flow and temperature (see Table 12).

In any case, use approved ducts according to the type of installation to be carried out.

The material used for the flue gas exhaust duct must be of class W1 according to the UNI EN 1443 standard and therefore suitable for resisting the action of the condensates of combustion products from gaseous fuels.

If you use ducts other than those supplied by manufacturer, make sure that these are suitable for the type of the device on which they are installed. In particular, the temperature class of the duct must be appropriate to the operating characteristics of the apparatus.

To size the pipe system it is necessary to calculate the equivalent length of the fumes exhaust pipes and air. For each model and for each configuration of exhaust fumes, the maximum lengths are shown of linear pipes.

The equivalent lengths of special pieces, like curves with various angles are shown in table 13.

The load losses of the external terminals can be neglected because they are very low.

In the design phase it is necessary to verify that the equivalent total length is less than or equal to the maximum possible length as shown in figures 18÷28.

The maximum lengths of the air tube and the flue pipe, according to the type of installation made, they are shown in fig. 18 to fig. 27.

The aforementioned lengths are to be understood as indicative, valid in the case of standard installations in which the air tube and the flue pipe carry out a linear path as shown in the respective figures.

Otherwise it is necessary to calculate the load loss check (see CALCULATION EXAMPLE).

The following indications must be observed:

flue pipe length  $\leq 1$  m: install the flue pipe with a 2 or 3 cm slope against the generator.

Flue pipe length  $> 1.5$  m: the condensation produced by the exhaust pipe must be adequate collected and drained by a special disposal system, in accordance with the provisions of the UNI 11071 standard.

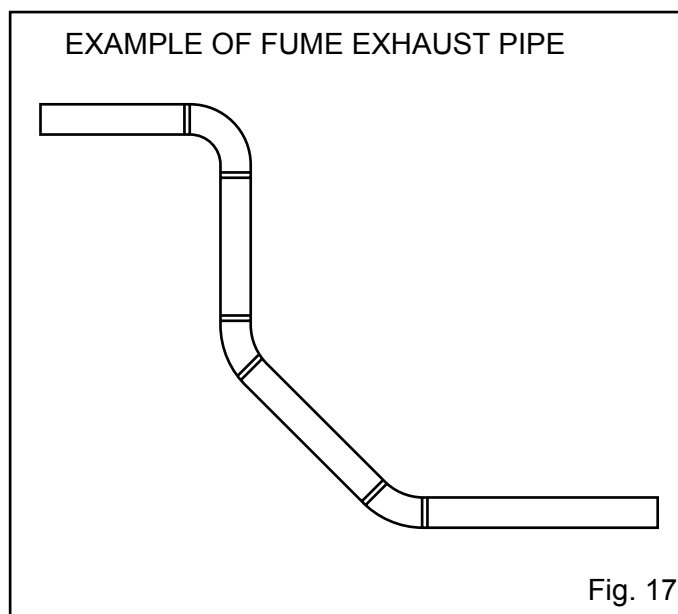
For a correct installation of the external combustion products exhaust and combustion air intake terminals, follow the instructions given.

As can be seen from table 13, for each special piece, it is necessary to evaluate its equivalent length, which in case of 45° curve is equal to 0.9 m.

Below is an example of a calculation related to a flue outlet as shown in figure 17.

The maximum length of the pipe for air and fumes provided for the model 35, type C13, is 20 m. It is therefore possible to perform the installation.

If the total equivalent length was more than 20 meters, the path would have to be changed or pipes



with a larger diameter, 80 mm in diameter, that can reach 40 m in length.

The total pressure drop of the pipe system is higher to the maximum permissible load loss (219 Pa GREATER of 200 Pa) then the installation IS NOT PERMITTED.

#### 6.4 CALCULATION EXAMPLE

Suppose we install a MEC MIX 35 with drain fume and horizontal air intake pipe that develop as shown in figure 17.

First linear section = 7 m.

90° curve = 0.9 m.

Linear section = 3 m.

45° curve = 0.5 m.

Linear section = 2 m.

45° curve = 0.5 m.

Line section = 2 m.

Total meters = 15.9 m.

Table 12

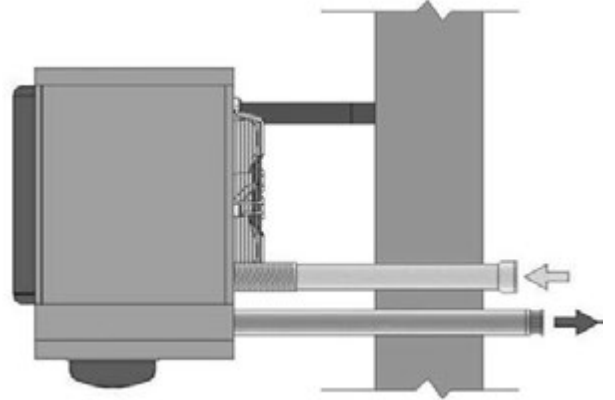
DATA FOR THE CALCULATION OF THE AIR / FUMES SYSTEM WITH EXISTING TUBES IN COMMERCE				
Mod.	Smoke temperature output ° C	Flow rate in mass kg/h	CO <sub>2</sub> in the fumes %	
			Natural Gas	GPL
35	82	52	9,4-9,6	10,7
45	96	67		

Table 13

DATA FOR THE CALCULATION OF THE AIR / FUMES SYSTEM WITH Ø 60 OR Ø 80 CONDUITS SUPPLIED ON REQUEST				
Mod.	Equivalent length Ø 60			Adapter Coaxial
	curve 15°	curve 45°	curve 87°	
u.m.	m	m	m	m
35-45	0,5	0,9	1,1	3,2

INSTALLATION TYPE C13 - SEPARATED WALL TUBES Ø 60

MAXIMUM ADMISSION LENGTHS (m)		
Mod.	AIR PIPE	FUMES TUBE
35	18	18
45	18	18



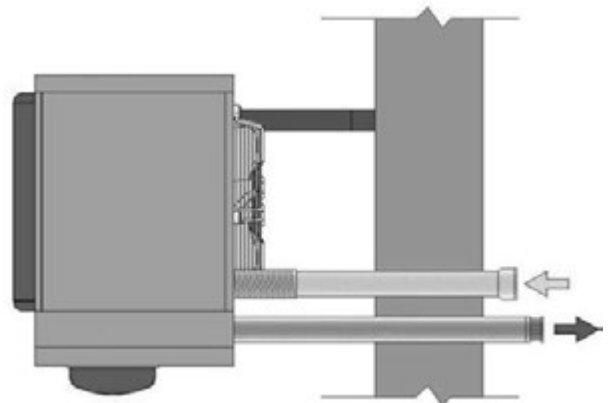
**WARNING!**

the aforesaid lengths are to be understood in the case of installations in which the air tube and the flue pipe carry out a linear path as shown in the figure. Otherwise it is necessary to proceed with the calculation of the load loss check (see EXAMPLE OF CALCULATION).

Fig. 18

INSTALLATION TYPE C13 - SEPARATED WALL TUBES Ø 80

MAXIMUM ADMISSION LENGTHS (m)		
Mod.	AIR PIPE	FUMES TUBE
35	34	34
45	34	34



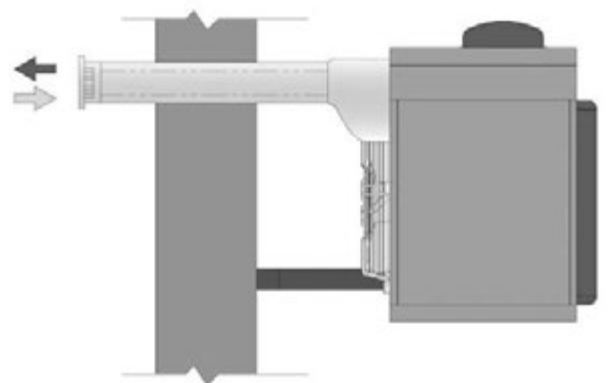
**WARNING!**

the aforesaid lengths are to be understood in the case of installations in which the air tube and the flue pipe carry out a linear path as shown in the figure. Otherwise it is necessary to proceed with the calculation of the load loss check (see EXAMPLE OF CALCULATION).

Fig. 19

INSTALLATION TYPE C13 - WALL COAXIAL C / TUBES Ø 60 - 100

MAXIMUM ADMISSION LENGTHS (m)	
Mod.	COAXIAL TUBE
35	8
45	8



**WARNING!**

the aforesaid lengths are to be understood in the case of installations in which the air tube and the flue pipe carry out a linear path as shown in the figure. Otherwise it is necessary to proceed with the calculation of the load loss check (see EXAMPLE OF CALCULATION).

Fig. 20

INSTALLATION TYPE C53 - SEPARATED WALL TUBES Ø 60

MAXIMUM ADMISSION LENGTHS (m)		
Mod.	AIR PIPE	FUMES TUBE
35	34	34
45	34	34

**WARNING!**

the aforesaid lengths are to be understood in the case of installations in which the air tube and the flue pipe carry out a linear path as shown in the figure. Otherwise it is necessary to proceed with the calculation of the load loss check (see EXAMPLE OF CALCULATION).

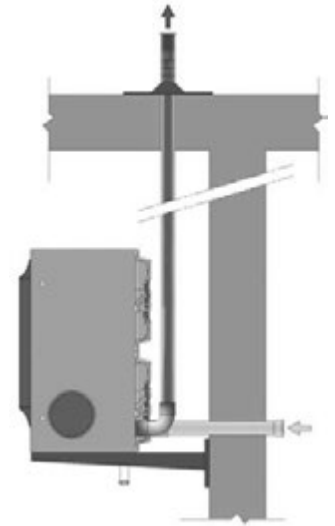


Fig. 21

INSTALLATION TYPE C53 - SEPARATED WALL TUBES Ø 80

MAXIMUM ADMISSION LENGTHS (m)		
Mod.	AIR PIPE	FUMES TUBE
35	34	34
45	34	34

**WARNING!**

the aforesaid lengths are to be understood in the case of installations in which the air tube and the flue pipe carry out a linear path as shown in the figure. Otherwise it is necessary to proceed with the calculation of the load loss check (see EXAMPLE OF CALCULATION).

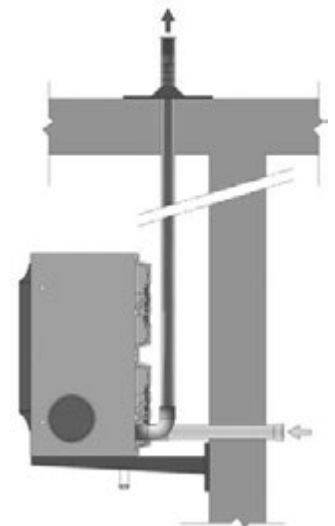


Fig. 22

INSTALLATION TYPE B23 - TUBES Ø 60

MAXIMUM ADMISSION LENGTHS (m)	
Mod.	FUMES TUBE
35	24
45	24

**WARNING!**

the aforesaid lengths are to be understood in the case of installations in which the air tube and the flue pipe carry out a linear path as shown in the figure. Otherwise it is necessary to proceed with the calculation of the load loss check (see EXAMPLE OF CALCULATION).

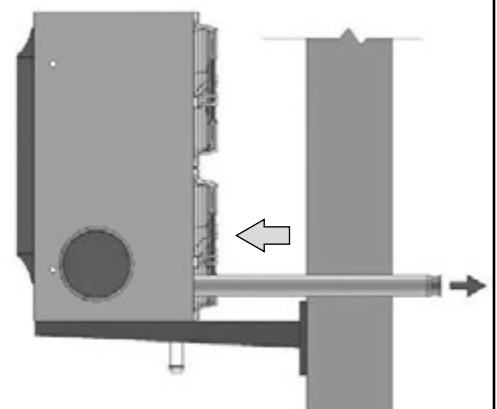
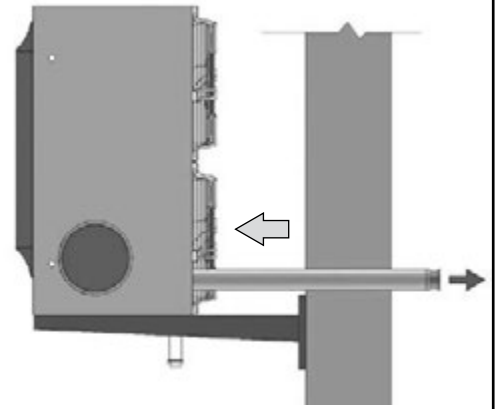


Fig. 23

INSTALLATION TYPE B23 - TUBES Ø 80

MAXIMUM ADMISSION LENGTHS (m)	
Mod.	FUMES TUBE
35	34
45	34



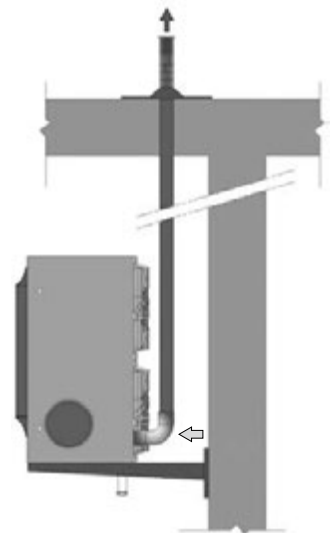
**WARNING!**

the aforesaid lengths are to be understood in the case of installations in which the air tube and the flue pipe carry out a linear path as shown in the figure. Otherwise it is necessary to proceed with the calculation of the load loss check (see EXAMPLE OF CALCULATION).

Fig. 24

INSTALLATION TYPE B23 - ROOF EXHAUST FUMES Ø 80

MAXIMUM ADMISSION LENGTHS (m)	
Mod.	FUMES TUBE
35	34
45	34



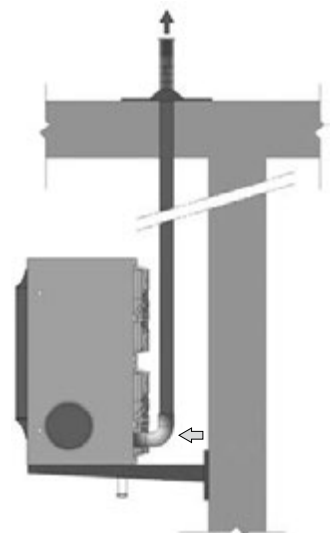
**WARNING!**

the aforesaid lengths are to be understood in the case of installations in which the air tube and the flue pipe carry out a linear path as shown in the figure. Otherwise it is necessary to proceed with the calculation of the load loss check (see EXAMPLE OF CALCULATION).

Fig. 25

INSTALLATION TYPE B23 - ROOF EXHAUST FUMES Ø 60

MAXIMUM ADMISSION LENGTHS (m)	
Mod.	FUMES TUBE
35	24
45	24



**WARNING!**

the aforesaid lengths are to be understood in the case of installations in which the air tube and the flue pipe carry out a linear path as shown in the figure. Otherwise it is necessary to proceed with the calculation of the load loss check (see EXAMPLE OF CALCULATION).

Fig. 26

INSTALLATION TYPE C33 - ROOF COAXIAL EXHAUST FUMES Ø 60/100

MAXIMUM ADMISSION LENGTHS (m)	
Mod.	COAXIAL TUBE
35	12
45	12

**WARNING!**

the aforesaid lengths are to be understood in the case of installations in which the air tube and the flue pipe carry out a linear path as shown in the figure. Otherwise it is necessary to proceed with the calculation of the load loss check (see EXAMPLE OF CALCULATION).

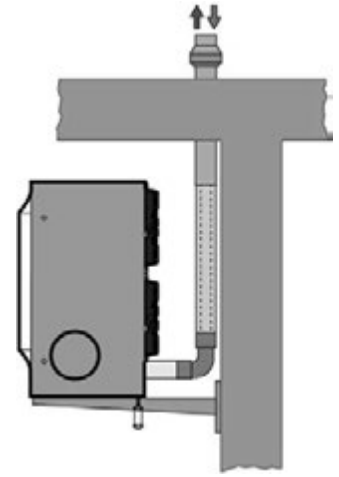


Fig. 27

**6.5 CONDUCT EVACUATION**

The MEC MIX series generators are equipped as standard with a condensation drain kit to be connected (by the installer) to the special outlet on the bottom of the generator.

Connect the two pieces of the kit (present in the bag supplied as standard): unscrew the upper ring nut of the “condensation drain siphon”, insert the “condensation drain connection collar” in aluminum (with the connection to the outside) and re-tighten the ring.

At this point, screw the kit (assembled) on the side of the “aluminum mounting collar” to the generator outlet (Figure 28).

The outlet on the lower part of the appliance has been set up so that it remains usable even when the

swiveling cross-piece bracket (accessory) is fitted.

Adjust the siphon so that the drain fitting of this is facing the path intended for the drain pipe (Figure 29).

The drain connection to the sewage system must be carried out at atmospheric pressure, ie by dripping in a siphoned container connected to the sewage system, interposing a suitable condensate neutralizer provided for by the installation standards.

For the realization of the conveying pipes of the condensates, suitable materials must be used to withstand over time the mechanical, thermal and chemical stresses of the condensates, such as for example stainless or plastic pipes (PP). Do not use copper or iron pipes, materials that can be easily attacked and deteriorated by the condensation acidity. The condensate disposal system, including the siphon, must be adequately protected from the risk of freezing of the condensate in the circuit.

It is advisable to run the condensate collection system inside the heated rooms.

Make sure that the condensate collection pipes are tight, and before use, the siphon must be filled with water and sealed with the appropriate cap, in order to avoid the burning gases coming out during the initial ignition phase.

In the absence of specific technical standards, refer to the provisions of the UNI 11071 standard.

CONDENSATE DISCHARGE SIPHON POSITION

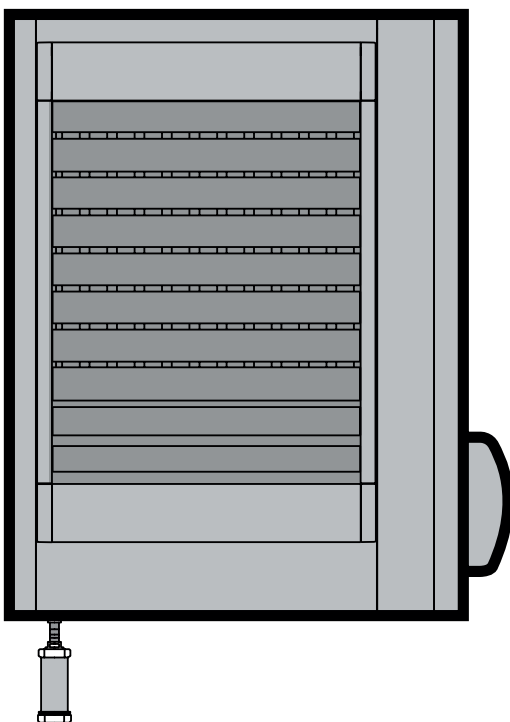
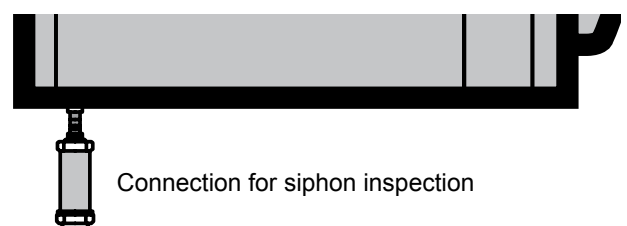


Fig. 28

PARTICULAR INSTALLATION SIPHON DISCHARGE CONDENSE



Attack for condensation drainage (by the installer)

Fig. 29

# SECTION D - ELECTRIC INSTALLATION

## **7. INSTALLATION**

In this section you will find all the information necessary to electrically connect the MEC MIX series generators.

### **7.1 HOW TO CONNECT THE GENERATOR TO ELECTRIC LINE**

- Electrical connections must be made from professionally qualified staff. In each case, before making electrical connections, make sure there is no voltage in the cables.
- 1. Check that the supply voltage is 230V - 50Hz single phase.
- 2. Make the electrical connection according to the electrical assembly scheme using a cable type H05 VVF 3x1.5 mm<sup>2</sup> with external diameter maximum of 8.4 mm.
- 3. Make the electrical connection so that the ground cable is longer than those under tension. It will be the last cable to tear off in case it comes accidentally pulled the power cord and a good continuity will therefore be assured land.
- The electrical safety of the appliance is reached only when the same is correctly connected to an effective grounding system, performed as required by current safety regulations. Do not use the gas pipes as grounding Electrical devices.
- 4. The generator must be connected to the line electrical supply by means of a switch bipolar with minimum contact opening of 3 mm. The bipolar switch is defined as the one with possibility of opening both on the phase and on the neutral. This means that at its opening both contacts are open.
- Control cables (in particular that of connection to the chrono thermostat) must be protected by interference created by power cables. This, ad example, it can be obtained or by means of

shielding of cables or by laying in raceways separate from those in which cables are used power.

### **7.2 DIGITAL CHRONOTHERMOSTAT INSTALLATION**

- Electrical connections must be made from professionally qualified staff. In each case, before making electrical connections, make sure there is no voltage in the cables For the installation of the digital chrono thermostat proceed as follows:
    1. Locate the location where you intend to install the chrono thermostat trying to position it at approx 1.5 m from the floor, protected from drafts, direct exposure to sun rays, influence from direct heating sources (lamps, air flows of the appliance itself, etc.) and possibly NOT on walls bordering the outside, for not distort the detected temperature and then the operation of the system.  
**YOU WILL AVOID SO STARTING AND NO ARRESTS OF THE IMPLANT AND YOU WILL GUARANTEE AN OPTIMAL COMFORT ENVIRONMENT.**
- If this is not possible, screen the chrono thermostat interposing a sheet of insulating material (cork, polystyrene or other) between it and the wall.
2. Drill the wall at the points of fixing the chrono thermostat.
  3. Fasten the chrono thermostat with 2 expansion screws.
  4. The chrono thermostat is supplied already connected to the electronic board of the generator via a cable 5 meters long. For longer lengths at 5 meters use a 2-pole cable section 0.75 mm<sup>2</sup> with maximum resistance per conductor (Use a shielded cable if the installation has strong electrical disturbances). In any case, the cable can not be more than 30 meters long.

# SECTION E - ASSISTANCE AND MAINTENANCE

## 8. ASSISTANCE AND MAINTENANCE

### 8.1 FIRST START-UP OF THE APPLIANCE

The first ignition must be carried out exclusively by an authorized Technical Assistance Center or by professionally qualified personnel.

Before starting the generator, have it checked by professionally qualified personnel:

- that the plate data correspond to those of the electricity and gas supply networks; Established correctness of the installation and of the required installation data, the authorized Technical Assistance Center can proceed with the first start up of the appliance and with the verification of its correct functioning. In particular, he will have to check:
- that the data of the static and dynamic pressure of the gas network fall within the required range;
- that the calibration values of the gas valve correspond to what is indicated in Table 16;
- that the combustion air supply e the fumes are evacuated correctly as established by the current regulations;
- the correct functioning of the evacuation duct of the fumes. If the calibration values of the gas valve do not they correspond to those indicated in Table 16, it is advisable to adjust the combustion parameters as reported in the relative paragraph 8.2. The generator is set up for operation a methane (G20): in the case of plants that provide for a type of gas supply different from that of preparation, it is necessary to perform the gas

change procedure (paragraph 8.3) and the relative regulation of the parameters (paragraph 8.2).

### 8.2 HOW TO MAKE THE ADJUSTMENT OF THE GAS VALVE (or the combustion parameters)

#### Gas valve operating principle

The gas valve (fig.31) installed in the MEC MIX series generators is a 1: 1 gas/air control type whose operating principle is to maintain the PINT output gas pressure constantly equal to the air pressure signal Pa increased of the set value on the offset screw.

In formula:

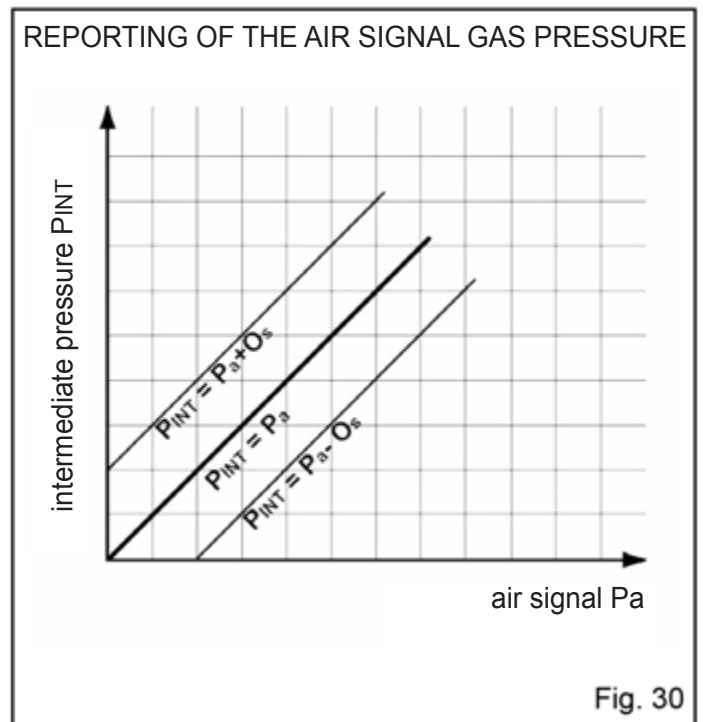
$$P_{INT} = P_a + O_s$$

where  $O_s$  is the value adjusted on the offset screw. The relation can be represented in a  $P_a / P_{INT}$  graph (fig.30).

In the case where  $O_s$  (offset) is set to zero and in the hypothesis that the relation flow volumetric / fall of air pressure and gas follow in first approximation of the same law, the volumetric gas/air ratio is kept constant for any value of  $P_a$ . In other words, the ratio  $Q_g / Q_a$ , where  $Q_g$  and  $Q_a$  are respectively the flows in volume of gas and air, is constant over the entire range of the air signal  $P_a$ .

#### Technical features of the gas valve

Gas of use:	2nd / 3rd family
T ° environment:	0-60 ° C
Inlet pressure max:	60 mbar
Gas inlet / outlet:	fil. male G3 / 4 B ISO 228
Pressure sockets:	diameter 9 mm
Air signal connection:	diameter 7 mm
Degree of protection:	IP 40 with connector NAC 504 and gasket





## GAS REGULATION VALVE

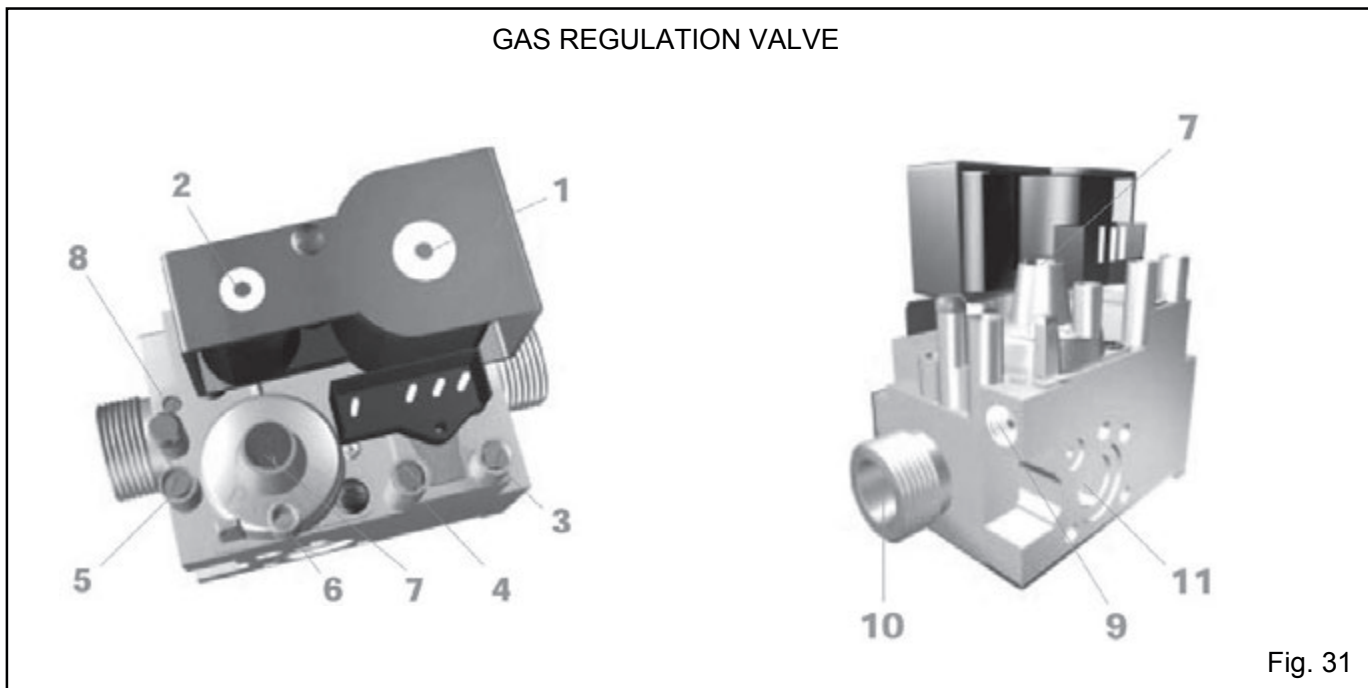


Fig. 31

### LEGEND

- 1 EV1 solenoid valve
- 2 EV2 solenoid valve
- 3 Inlet pressure outlet
- 4 Pint outlet pressure outlet
- 5 P. of additional outlet pressure

- 6 Air signal connection
- 7 Adjustment of O (offset)
- 8 Adjustment of the ratio (opt.)
- 9 Pilot output (optional)
- 10 Main gas outlet
- 11 Side exit

### Adjustment of the gas valve

The hot air generators of the MEC MIX C series are equipped with gas valve with constant gas air ratio. All valves are calibrated at the factory for use with Natural gas, in case of replacement or performance verification or if necessary it is possible to carry out the calibration of the gas valve followed slavishly the operations described below, which must be carried out by following them in the order.

Remove the hood of the minimum adjustment screw A as shown in fig. 32.

Then proceed with the adjustment of the minimum. With the help of the GA1 remote control, set the generator power to minimum after starting the generator.

In this condition adjust the CO<sub>2</sub> content to the fumes by reading the value with a fume analyzer and adjusting the value by acting on the screw of the minimum "B".

Bring the burner to maximum power and check the value of the CO<sub>2</sub> percentage to the fumes, correcting it if necessary by adjusting the maximum power adjustment screw "8". The minimum screw "B" adjusts the gas air ratio by moving the ideal upward or downward line of the ratio as shown in fig. 33.

The adjustment screw of the maximum "8", on the other hand, modifies the inclination of the gas-air ratio line fig. 34.

Return the burner to the minimum power and check the CO<sub>2</sub> content of the fumes and reconnect the

value if necessary.

Bring the burner back to its maximum speed again power and check the CO<sub>2</sub> value on the fumes and if necessary correct it by turning the screw "8", see fig. 31.

The double check will guarantee a constant air gas ratio and within the limits of the tolerances indicated in fig. 34.

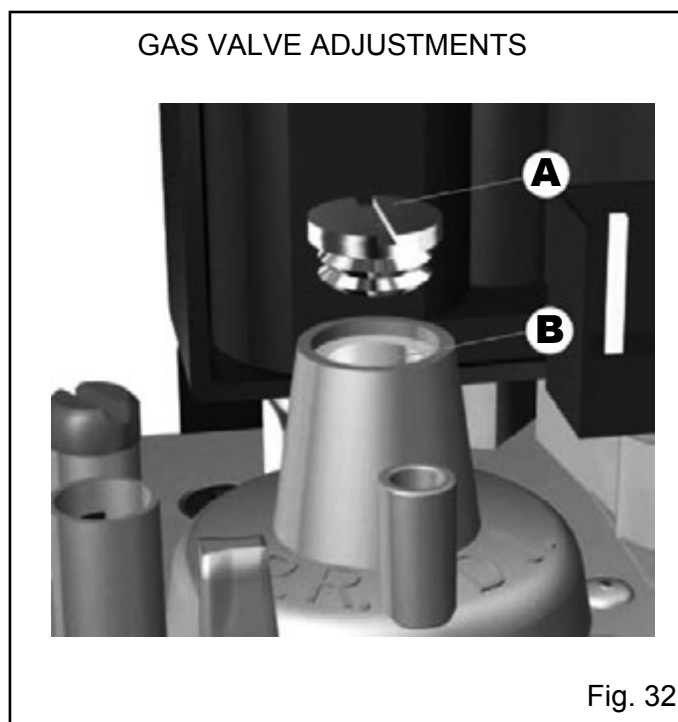
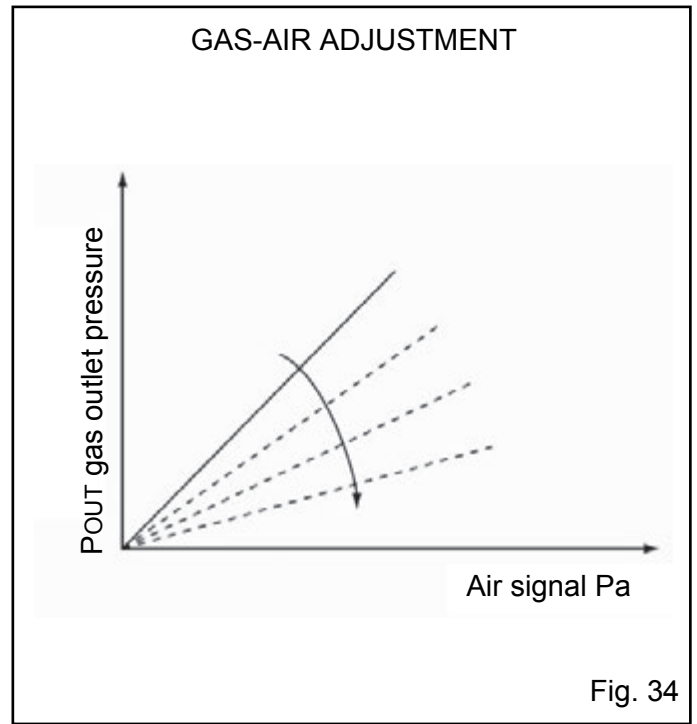
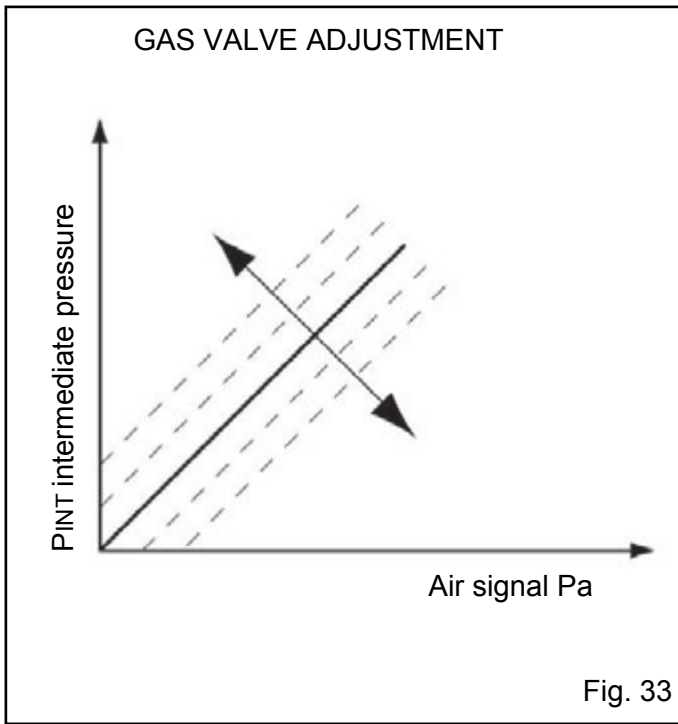


Fig. 32



The adjustment operation of the gas valve must be carried out by professionally qualified personnel. In this regard A2B srl has a network of Assistance Points that can be reached through the seller, the local agent, or by calling directly the Customer Care of A2B Accorroni E.G. srl - tel. +39.071.723991.

**Table n. 16**

<b>CO2 VALUES FOR METHANE GAS VALVE ADJUSTMENT</b>	
<b>METHANE</b>	9,8% - 10,2 %
<b>LPG</b>	10,8 % - 11,2%

**8.3 HOW TO MAKE THE GAS CHANGE**

To have: the generator installed and connected to the electricity network and the gas network.

The gas change operation must be carried out by professionally qualified personnel.

A wrong or incorrect assembly of the gas circuit can cause dangerous gas leaks throughout the circuit and particularly in tampered areas.

Also use on all suitable filler joints.

If the type of gas indicated on the label does not correspond to the type to be used, the appliance must be converted and adapted to the type of gas to be used.

To change the gas, repeat the adjustment operation described in paragraph 8.2, changing the CO2 reference parameters present in the exhaust fumes. The reference parameters to be used are those described in table 16.

**8.4 MAINTENANCE**

Accurate maintenance is always a source of savings and security.

Pursuant to the provisions contained in the D.P.R. n.412 / 93 and subsequent modifications and additions and of the D.P.R. n.551 / 99, maintenance for heating systems must be carried out annually, preferably at the beginning of the winter season, by professionally qualified personnel.

For a correct and prolonged operation it is recommended to carry out at least once a year a general cleaning of the appliance (taking particular care of the heat exchangers and fan grilles) and the combustion tests according to the provisions of the specific regulations.

The intervention of the limit thermostat is ALWAYS an indication of an anomalous condition.

Before restoration, it is therefore advisable to search for them reasons that led to the overheating of the appliance.

In case of frequent arrests, contact the A2B Accorroni E.G. srl.

## 9. TABLE OF TECHNICAL DATA ERP

### 9.1 TABLE OF TECHNICAL DATA ERP - MEC MIX C 20/35 AXIALS

$\eta_s = \eta_{s,on} - 10\% + F(1) + F(2) + F(3) - F(4) - F(5)$			
Type of device:	Heaters of gaseous fuel		closed front.
Efficiency of the appliance under nominal conditions (Pci net value)	96,4	%	$\eta_{s,on} = \eta_{th,non}$
Not applicable for gas appliances	0,0	%	F(1)
Positive influence on hS, on (only one possibility)	7,0	%	F(2)
two or more phases single phase thermal power without ambient temperature control			0.0%
with manual steps without room temperature control			1.0%
with room temperature control via mechanical thermostat			2.0%
with electronic control of the ambient temperature			4.0%
with electronic control of the room temperature and daily timer			6.0%
with electronic control of the room temperature and weekly timer			7.0%
Positive influence on hS, on (only one possible multiple selection the final result is the sum)	<b>1,0</b>	%	F(3)
Room temperature control with presence detection (1%)	No	%	F(3)
Room temperature control with open window control (1%)	No	0,0	%
With remote control option (1%)	Yes	1,0	%
	<b>1,9</b>	<b>kW</b>	<b>F(4)</b>
<b>el<sub>max</sub></b> (consumption of electricity at nominal heat output)	0,409	kW	F(4)
<b>el<sub>min</sub></b> (consumption of electricity at minimum heat output) in case there is not a minimum: $el_{min} = el_{max}$	0,211	kW	F(4)
<b>elsb</b> (electric consumption in standby mode)	0,009	kW	F(4)
<b>P<sub>nom</sub></b> (rated thermal power of the appliance)	37,77	kW	F(4)
Influence of a permanent pilot burner)	0,0	%	F(5)
Pilot burner consumption	0,00	KW	F(5)
NOx emission based on gross caloric value (<130mg / kW)	31	mg/KWh	
<b><math>\eta_s =</math></b>	<b>92,5</b>	<b>%</b>	<b>Energy efficiency class</b>
			<b>A</b>

## 9.2 TABLE OF TECHNICAL DATA ERP - MEC MIX C 20/35 CENTRIFUGES

<b><math>\eta_s = \eta_{s,on} - 10\% + F(1) + F(2) + F(3) - F(4) - F(5)</math></b>			
Type of device:	Heaters of gaseous fuel		closed front.
Efficiency of the appliance under nominal conditions (Pci net value)	97,0	%	$\eta_{s,on} = \eta_{th,non}$
Not applicable for gas appliances	0,0	%	F(1)
Positive influence on hS, on (only one possibility)	7,0	%	F(2)
two or more phases single phase thermal power without ambient temperature control			0.0%
with manual steps without room temperature control			1.0%
with room temperature control via mechanical thermostat			2.0%
with electronic control of the ambient temperature			4.0%
with electronic control of the room temperature and daily timer			6.0%
with electronic control of the room temperature and weekly timer			7.0%
Positive influence on hS, on (only one possible multiple selection the final result is the sum)	<b>1,0</b>	%	F(3)
Room temperature control with presence detection (1%)	No	%	F(3)
Room temperature control with open window control (1%)	No	0,0	%
With remote control option (1%)	Yes	1,0	%
	<b>4,1</b>	<b>kW</b>	<b>F(4)</b>
<b>el<sub>max</sub></b> (consumption of electricity at nominal heat output)	0,779	kW	F(4)
<b>el<sub>min</sub></b> (consumption of electricity at minimum heat output) in case there is not a minimum: $el_{min} = el_{max}$	0,499	kW	F(4)
<b>elsb</b> (electric consumption in standby mode)	0,009	kW	F(4)
<b>P<sub>nom</sub></b> (rated thermal power of the appliance)	34,22	kW	F(4)
Influence of a permanent pilot burner)	0,0	%	F(5)
Pilot burner consumption	0,00	KW	F(5)
NOx emission based on gross caloric value (<130mg / kW)	17	mg/KWh	
<b><math>\eta_s =</math></b>	<b>90,9</b>	<b>%</b>	<b>Energy efficiency class</b>
			<b>A</b>

### 9.3 TABLE OF TECHNICAL DATA ERP - MEC MIX C 20/45 AXIAL

<b><math>\eta_s = \eta_{s,on} - 10\% + F(1) + F(2) + F(3) - F(4) - F(5)</math></b>			
Type of device:	Heaters of gaseous fuel		closed front.
Efficiency of the appliance under nominal conditions (Pci net value)	95,7	%	$\eta_{s,on} = \eta_{th,non}$
Not applicable for gas appliances	0,0	%	F(1)
Positive influence on hS, on (only one possibility)	7,0	%	F(2)
two or more phases single phase thermal power without ambient temperature control			0.0%
with manual steps without room temperature control			1.0%
with room temperature control via mechanical thermostat			2.0%
with electronic control of the ambient temperature			4.0%
with electronic control of the room temperature and daily timer			6.0%
with electronic control of the room temperature and weekly timer			7.0%
Positive influence on hS, on (only one possible multiple selection the final result is the sum)	<b>1,0</b>	%	F(3)
Room temperature control with presence detection (1%)	No	%	F(3)
Room temperature control with open window control (1%)	No	0,0	%
With remote control option (1%)	Yes	1,0	%
	<b>1,6</b>	<b>kW</b>	<b>F(4)</b>
<b>el<sub>max</sub></b> (consumption of electricity at nominal heat output)	0,409	kW	F(4)
<b>el<sub>min</sub></b> (consumption of electricity at minimum heat output) in case there is not a minimum: $el_{min} = el_{max}$	0,211	kW	F(4)
<b>elsb</b> (electric consumption in standby mode)	0,009	kW	F(4)
<b>P<sub>nom</sub></b> (rated thermal power of the appliance)	40,80	kW	F(4)
Influence of a permanent pilot burner)	0,0	%	F(5)
Pilot burner consumption	0,00	KW	F(5)
NOx emission based on gross caloric value (<130mg / kW)	33	mg/KWh	
<b><math>\eta_s =</math></b>	<b>92,1</b>	<b>%</b>	<b>Energy efficiency class</b>
			<b>A</b>

## 9.4 TABLE OF TECHNICAL DATA ERP - MEC MIX C 20/45 CENTRIFUGES

<b><math>\eta_s = \eta_{s,on} - 10\% + F(1) + F(2) + F(3) - F(4) - F(5)</math></b>			
Type of device:	Heaters of gaseous fuel		closed front.
Efficiency of the appliance under nominal conditions (Pci net value)	96,0	%	$\eta_{s,on} = \eta_{th,non}$
Not applicable for gas appliances	0,0	%	F(1)
Positive influence on hS, on (only one possibility)	7,0	%	F(2)
two or more phases single phase thermal power without ambient temperature control			0.0%
with manual steps without room temperature control			1.0%
with room temperature control via mechanical thermostat			2.0%
with electronic control of the ambient temperature			4.0%
with electronic control of the room temperature and daily timer			6.0%
with electronic control of the room temperature and weekly timer			7.0%
Positive influence on hS, on (only one possible multiple selection the final result is the sum)	<b>1,0</b>	%	F(3)
Room temperature control with presence detection (1%)	No	%	F(3)
Room temperature control with open window control (1%)	No	0,0	%
With remote control option (1%)	Yes	1,0	%
	<b>3,4</b>	<b>kW</b>	<b>F(4)</b>
<b>el<sub>max</sub></b> (consumption of electricity at nominal heat output)	0,779	kW	F(4)
<b>el<sub>min</sub></b> (consumption of electricity at minimum heat output) in case there is not a minimum: $el_{min} = el_{max}$	0,499	kW	F(4)
<b>elsb</b> (electric consumption in standby mode)	0,009	kW	F(4)
<b>P<sub>nom</sub></b> (rated thermal power of the appliance)	44,49	kW	F(4)
Influence of a permanent pilot burner)	0,0	%	F(5)
Pilot burner consumption	0,00	KW	F(5)
NOx emission based on gross caloric value (<130mg / kW)	38	mg/KWh	
<b><math>\eta_s =</math></b>	<b>90,6</b>	<b>%</b>	<b>Energy efficiency class</b>
			<b>A</b>

## 9.5 TABLE OF TECHNICAL DATA ERP - MEC MIX F 35 AXIAL

<b><math>\eta_s = \eta_{s,on} - 10\% + F(1) + F(2) + F(3) - F(4) - F(5)</math></b>			
Type of device:	Heaters of gaseous fuel		closed front.
Efficiency of the appliance under nominal conditions (Pci net value)	96,4	%	$\eta_{s,on} = \eta_{th,non}$
Not applicable for gas appliances	0,0	%	F(1)
Positive influence on hS, on (only one possibility)	7,0	%	F(2)
two or more phases single phase thermal power without ambient temperature control			0.0%
with manual steps without room temperature control			1.0%
with room temperature control via mechanical thermostat			2.0%
with electronic control of the ambient temperature			4.0%
with electronic control of the room temperature and daily timer			6.0%
with electronic control of the room temperature and weekly timer			7.0%
Positive influence on hS, on (only one possible multiple selection the final result is the sum)	<b>1,0</b>	%	F(3)
Room temperature control with presence detection (1%)	No	%	F(3)
Room temperature control with open window control (1%)	No	0,0	%
With remote control option (1%)	Yes	1,0	%
	<b>3,1</b>	<b>kW</b>	<b>F(4)</b>
<b>el<sub>max</sub></b> (consumption of electricity at nominal heat output)	0,409	kW	F(4)
<b>el<sub>min</sub></b> (consumption of electricity at minimum heat output) in case there is not a minimum: $el_{min} = el_{max}$	0,409	kW	F(4)
<b>elsb</b> (electric consumption in standby mode)	0,009	kW	F(4)
<b>P<sub>nom</sub></b> (rated thermal power of the appliance)	33,85	kW	F(4)
Influence of a permanent pilot burner)	0,0	%	F(5)
Pilot burner consumption	0,00	KW	F(5)
NOx emission based on gross caloric value (<130mg / kW)	31	mg/KWh	
<b><math>\eta_s =</math></b>	<b>91,3</b>	<b>%</b>	<b>Energy efficiency class</b>
			<b>A</b>

## 9.6 TABLE OF TECHNICAL DATA ERP - MEC MIX F 35 CENTRIFUGES

<b><math>\eta_s = \eta_{s,on} - 10\% + F(1) + F(2) + F(3) - F(4) - F(5)</math></b>			
Type of device:	Heaters of gaseous fuel		closed front.
Efficiency of the appliance under nominal conditions (Pci net value)	97,0	%	$\eta_{s,on} = \eta_{th,non}$
Not applicable for gas appliances	0,0	%	F(1)
Positive influence on hS, on (only one possibility)	7,0	%	F(2)
two or more phases single phase thermal power without ambient temperature control			0.0%
with manual steps without room temperature control			1.0%
with room temperature control via mechanical thermostat			2.0%
with electronic control of the ambient temperature			4.0%
with electronic control of the room temperature and daily timer			6.0%
with electronic control of the room temperature and weekly timer			7.0%
Positive influence on hS, on (only one possible multiple selection the final result is the sum)	<b>1,0</b>	%	F(3)
Room temperature control with presence detection (1%)	No	%	F(3)
Room temperature control with open window control (1%)	No	0,0	%
With remote control option (1%)	Yes	1,0	%
	<b>5,8</b>	<b>kW</b>	<b>F(4)</b>
<b>el<sub>max</sub></b> (consumption of electricity at nominal heat output)	0,779	kW	F(4)
<b>el<sub>min</sub></b> (consumption of electricity at minimum heat output) in case there is not a minimum: $el_{min} = el_{max}$	0,779	kW	F(4)
<b>elsb</b> (electric consumption in standby mode)	0,009	kW	F(4)
<b>P<sub>nom</sub></b> (rated thermal power of the appliance)	34,00	kW	F(4)
Influence of a permanent pilot burner)	0,0	%	F(5)
Pilot burner consumption	0,00	KW	F(5)
NOx emission based on gross caloric value (<130mg / kW)	17	mg/KWh	
<b><math>\eta_s =</math></b>	<b>88,5</b>	<b>%</b>	<b>Energy efficiency class</b>
			<b>A</b>



## 9.7 TABLE OF TECHNICAL DATA ERP - MEC MIX F 50 AXIAL

<b><math>\eta_s = \eta_{s,on} - 10\% + F(1) + F(2) + F(3) - F(4) - F(5)</math></b>			
Type of device:	Heaters of gaseous fuel		closed front.
Efficiency of the appliance under nominal conditions (Pci net value)	92,9	%	$\eta_{s,on} = \eta_{th,non}$
Not applicable for gas appliances	0,0	%	F(1)
Positive influence on hS, on (only one possibility)	7,0	%	F(2)
two or more phases single phase thermal power without ambient temperature control			0.0%
with manual steps without room temperature control			1.0%
with room temperature control via mechanical thermostat			2.0%
with electronic control of the ambient temperature			4.0%
with electronic control of the room temperature and daily timer			6.0%
with electronic control of the room temperature and weekly timer			7.0%
Positive influence on hS, on (only one possible multiple selection the final result is the sum)	<b>1,0</b>	%	F(3)
Room temperature control with presence detection (1%)	No	%	F(3)
Room temperature control with open window control (1%)	No	0,0	%
With remote control option (1%)	Yes	1,0	%
	<b>2,4</b>	<b>kW</b>	<b>F(4)</b>
<b>el<sub>max</sub></b> (consumption of electricity at nominal heat output)	0,409	kW	F(4)
<b>el<sub>min</sub></b> (consumption of electricity at minimum heat output) in case there is not a minimum: $el_{min} = el_{max}$	0,409	kW	F(4)
<b>elsb</b> (electric consumption in standby mode)	0,009	kW	F(4)
<b>P<sub>nom</sub></b> (rated thermal power of the appliance)	44,74	kW	F(4)
Influence of a permanent pilot burner)	0,0	%	F(5)
Pilot burner consumption	0,00	KW	F(5)
NOx emission based on gross caloric value (<130mg / kW)	53	mg/KWh	
<b><math>\eta_s =</math></b>	<b>91,3</b>	<b>%</b>	<b>Energy efficiency class</b>
			<b>A</b>

## 9.8 ABLE OF TECHNICAL DATA ERP - MEC MIX F 50 CENTRIFUGES

$\eta_s = \eta_{s,on} - 10\% + F(1) + F(2) + F(3) - F(4) - F(5)$			
Type of device:	Heaters of gaseous fuel		closed front.
Efficiency of the appliance under nominal conditions (Pci net value)	93,9	%	$\eta_{s,on} = \eta_{th,non}$
Not applicable for gas appliances	0,0	%	F(1)
Positive influence on hS, on (only one possibility)	7,0	%	F(2)
two or more phases single phase thermal power without ambient temperature control			0.0%
with manual steps without room temperature control			1.0%
with room temperature control via mechanical thermostat			2.0%
with electronic control of the ambient temperature			4.0%
with electronic control of the room temperature and daily timer			6.0%
with electronic control of the room temperature and weekly timer			7.0%
Positive influence on hS, on (only one possible multiple selection the final result is the sum)	<b>1,0</b>	%	F(3)
Room temperature control with presence detection (1%)	No	%	F(3)
Room temperature control with open window control (1%)	No	0,0	%
With remote control option (1%)	Yes	1,0	%
	<b>4,6</b>	<b>kW</b>	<b>F(4)</b>
<b>el<sub>max</sub></b> (consumption of electricity at nominal heat output)	0,779	kW	F(4)
<b>el<sub>min</sub></b> (consumption of electricity at minimum heat output) in case there is not a minimum: $el_{min} = el_{max}$	0,779	kW	F(4)
<b>elsb</b> (electric consumption in standby mode)	0,009	kW	F(4)
<b>P<sub>nom</sub></b> (rated thermal power of the appliance)	43.21	kW	F(4)
Influence of a permanent pilot burner)	0,0	%	F(5)
Pilot burner consumption	0,00	KW	F(5)
NOx emission based on gross caloric value (<130mg / kW)	42	mg/KWh	
<b><math>\eta_s =</math></b>	<b>87,3</b>	<b>%</b>	<b>Energy efficiency class</b>
			<b>A</b>

## 10. MAIN REQUIREMENTS FOR HOT AIR GENERATORS

### 9.1 TABLE REQUIREMENTS MAIN MEC MIX C 20/35 AXIALS

MODEL				MEC MIX C 20-35 AXIALS			
Hot air generators B1 (yes - no)				NO			
C2 hot air generators (yes - no)				NO			
C4 hot air generators (yes - no)				SI			
Type of fuel (gaseous / liquid / electricity)				Gaseous			
Element	Symbol	Value	U.M.	Element	Symbol	Value	U.M.
<b>CAPACITY</b>				<b>USEFUL EFFICIENCY</b>			
Nominal heating capacity	P ated, h	35,03	kW	Useful efficiency for nominal heating capacity *	μ mon	96,4	%
Minimum capacity	P min	20,62	kW	Useful efficiency at minimum capacity *	μ pl	98,0	%
<b>ELECTRICITY CONSUMPTION*</b>				<b>HIGH ELEMENTS</b>			
At the nominal heating capacity	el max	4,409	kW	Loss of casing factor	F env	0,0	%
At the minimum capacity	el min	0,211	kW	Burner consumption	P ing	0,0	%
In stand-by mode	el sb	0,009	kW	Emissions of nitrogen oxides (*) (**)	Nox	31	mg/kWh input power(GCV)
				Emission efficiency	μs flow		%
				Seasonal energy efficiency of space heating	μs,h	92,5	%
Contact				A2B ACCORRONI E.G. Via d'Ancona, 37 - 60020 Osimo (AN)			

(\*) not required for electric hot air generators

(\*\*) from 26 September 2018

### 9.2 TABLE REQUIREMENTS MAIN MEC MIX C 20/35 CENTRIFUGES

MODEL				MEC MIX C 20-35 CENTRIFUGES			
Hot air generators B1 (yes - no)				NO			
C2 hot air generators (yes - no)				NO			
C4 hot air generators (yes - no)				SI			
Type of fuel (gaseous / liquid / electricity)				Gaseous			
Element	Symbol	Value	U.M.	Element	Symbol	Value	U.M.
<b>CAPACITY</b>				<b>USEFUL EFFICIENCY</b>			
Nominal heating capacity	P ated, h	35,28	kW	Useful efficiency for nominal heating capacity *	μ mon	97,0	%
Minimum capacity	P min	20,09	kW	Useful efficiency at minimum capacity *	μ pl	97,5	%
<b>ELECTRICITY CONSUMPTION*</b>				<b>HIGH ELEMENTS</b>			
At the nominal heating capacity	el max	0,779	kW	Loss of casing factor	F env	0,0	%
At the minimum capacity	el min	0,499	kW	Burner consumption	P ing	0,0	%
In stand-by mode	el sb	0,009	kW	Emissions of nitrogen oxides (*) (**)	Nox	17	mg/kWh input power(GCV)
				Emission efficiency	μs flow		%
				Seasonal energy efficiency of space heating	μs,h	90,9	%
Contact				A2B ACCORRONI E.G. Via d'Ancona, 37 - 60020 Osimo (AN)			

(\*) not required for electric hot air generators

(\*\*) from 26 September 2018

### 9.3 TABLE REQUIREMENTS MAIN MEC MIX C 20/45 AXIALS

MODEL				MEC MIX C 20-45 AXIALS			
Hot air generators B1 (yes - no)				NO			
C2 hot air generators (yes - no)				NO			
C4 hot air generators (yes - no)				SI			
Type of fuel (gaseous / liquid / electricity)				Gaseous			
Element	Symbol	Value	U.M.	Element	Symbol	Value	U.M.
<b>CAPACITY</b>				<b>USEFUL EFFICIENCY</b>			
Nominal heating capacity	P ated, h	42,64	kW	Useful efficiency for nominal heating capacity *	μ mon	95,7	%
Minimum capacity	P min	19,54	kW	Useful efficiency at minimum capacity *	μ pl	98,1	%
<b>ELECTRICITY CONSUMPTION*</b>				<b>HIGH ELEMENTS</b>			
At the nominal heating capacity	el max	0,409	kW	Loss of casing factor	F env	0,0	%
At the minimum capacity	el min	0,211	kW	Burner consumption	P ing	0,0	%
In stand-by mode	el sb	0,009	kW	Emissions of nitrogen oxides (*) (**)	Nox	33	mg/kWh input power(GCV)
				Emission efficiency	μs flow		%
				Seasonal energy efficiency of space heating	μs,h	92,1	%
Contact				A2B ACCORRONI E.G. Via d'Ancona, 37 - 60020 Osimo (AN)			

(\*) not required for electric hot air generators

(\*\*) from 26 September 2018

### 9.4 TABLE OF MAIN REQUIREMENTS MEC MIX C 20/45 CENTRIFUGES

MODEL				MEC MIX C 20-35 CENTRIFUGES			
Hot air generators B1 (yes - no)				NO			
C2 hot air generators (yes - no)				NO			
C4 hot air generators (yes - no)				SI			
Type of fuel (gaseous / liquid / electricity)				Gaseous			
Element	Symbol	Value	U.M.	Element	Symbol	Value	U.M.
<b>CAPACITY</b>				<b>USEFUL EFFICIENCY</b>			
Nominal heating capacity	P ated, h	43,22	kW	Useful efficiency for nominal heating capacity *	μ mon	96,0	%
Minimum capacity	P min	20,13	kW	Useful efficiency at minimum capacity *	μ pl	97,6	%
<b>ELECTRICITY CONSUMPTION*</b>				<b>HIGH ELEMENTS</b>			
At the nominal heating capacity	el max	0,779	kW	Loss of casing factor	F env	0,0	%
At the minimum capacity	el min	0,499	kW	Burner consumption	P ing	0,0	%
In stand-by mode	el sb	0,009	kW	Emissions of nitrogen oxides (*) (**)	Nox	38	mg/kWh input power(GCV)
				Emission efficiency	μs flow		%
				Seasonal energy efficiency of space heating	μs,h	90,6	%
Contact				A2B ACCORRONI E.G. Via d'Ancona, 37 - 60020 Osimo (AN)			

(\*) not required for electric hot air generators

(\*\*) from 26 September 2018

## 9.5 TABLE REQUIREMENTS MAIN MEC MIX F 35 AXIALS

MODEL				MEC MIX F 35 AXIALS			
Hot air generators B1 (yes - no)				NO			
C2 hot air generators (yes - no)				NO			
C4 hot air generators (yes - no)				SI			
Type of fuel (gaseous / liquid / electricity)				Gaseous			
Element	Symbol	Value	U.M.	Element	Symbol	Value	U.M.
<b>CAPACITY</b>				<b>USEFUL EFFICIENCY</b>			
Nominal heating capacity	P ated, h	35,12	kW	Useful efficiency for nominal heating capacity *	μ mon	96,4	%
Minimum capacity	P min	35,12	kW	Useful efficiency at minimum capacity *	μ pl	96,4	%
<b>ELECTRICITY CONSUMPTION*</b>				<b>HIGH ELEMENTS</b>			
At the nominal heating capacity	el max	0,409	kW	Loss of casing factor	F env	0,0	%
At the minimum capacity	el min	0,409	kW	Burner consumption	P ing	0,0	%
In stand-by mode	el sb	0,009	kW	Emissions of nitrogen oxides (*) (**)	Nox	31	mg/kWh input power(GCV)
				Emission efficiency	μs flow	91,3	%
				Seasonal energy efficiency of space heating	μs,h		%
Contact				A2B ACCORRONI E.G. Via d'Ancona, 37 - 60020 Osimo (AN)			

(\*) not required for electric hot air generators

(\*\*) from 26 September 2018

## 9.6 TABLE OF MAIN REQUIREMENTS MEC MIX F 35 CENTRIFUGES

MODEL				MEC MIX F 35 CENTRIFUGES			
Hot air generators B1 (yes - no)				NO			
C2 hot air generators (yes - no)				NO			
C4 hot air generators (yes - no)				SI			
Type of fuel (gaseous / liquid / electricity)				Gaseous			
Element	Symbol	Value	U.M.	Element	Symbol	Value	U.M.
<b>CAPACITY</b>				<b>USEFUL EFFICIENCY</b>			
Nominal heating capacity	P ated, h	35,06	kW	Useful efficiency for nominal heating capacity *	μ mon	97,0	%
Minimum capacity	P min	35,06	kW	Useful efficiency at minimum capacity *	μ pl	97,0	%
<b>ELECTRICITY CONSUMPTION*</b>				<b>HIGH ELEMENTS</b>			
At the nominal heating capacity	el max	0,779	kW	Loss of casing factor	F env	0,0	%
At the minimum capacity	el min	0,779	kW	Burner consumption	P ing	0,0	%
In stand-by mode	el sb	0,009	kW	Emissions of nitrogen oxides (*) (**)	Nox	17	mg/kWh input power(GCV)
				Emission efficiency	μs flow		%
				Seasonal energy efficiency of space heating	μs,h	89,2	%
Contact				A2B ACCORRONI E.G. Via d'Ancona, 37 - 60020 Osimo (AN)			

(\*) not required for electric hot air generators

(\*\*) from 26 September 2018

## 9.7 TABLE REQUIREMENTS MAIN MEC MIX F 50 AXIALS

MODEL				MEC MIX F 50 AXIALS			
Hot air generators B1 (yes - no)				NO			
C2 hot air generators (yes - no)				NO			
C4 hot air generators (yes - no)				SI			
Type of fuel (gaseous / liquid / electricity)				Gaseous			
Element	Symbol	Value	U.M.	Element	Symbol	Value	U.M.
<b>CAPACITY</b>				<b>USEFUL EFFICIENCY</b>			
Nominal heating capacity	P ated, h	48,16	kW	Useful efficiency for nominal heating capacity *	μ mon	92,9	%
Minimum capacity	P min	48,16	kW	Useful efficiency at minimum capacity *	μ pl	92,9	%
<b>ELECTRICITY CONSUMPTION*</b>				<b>HIGH ELEMENTS</b>			
At the nominal heating capacity	el max	0,409	kW	Loss of casing factor	F env	0,0	%
At the minimum capacity	el min	0,409	kW	Burner consumption	P ing	0,0	%
In stand-by mode	el sb	0,009	kW	Emissions of nitrogen oxides (*) (**)	Nox	53	mg/kWh input power(GCV)
				Emission efficiency	μs flow	88,5	%
				Seasonal energy efficiency of space heating	μs,h		%
Contact				A2B ACCORRONI E.G. Via d'Ancona, 37 - 60020 Osimo (AN)			

(\*) not required for electric hot air generators

(\*\*) from 26 September 2018

## 9.8 TABLE OF MAIN REQUIREMENTS MEC MIX F 50 CENTRIFUGES

MODEL				MEC MIX F 35 CENTRIFUGES			
Hot air generators B1 (yes - no)				NO			
C2 hot air generators (yes - no)				NO			
C4 hot air generators (yes - no)				SI			
Type of fuel (gaseous / liquid / electricity)				Gaseous			
Element	Symbol	Value	U.M.	Element	Symbol	Value	U.M.
<b>CAPACITY</b>				<b>USEFUL EFFICIENCY</b>			
Nominal heating capacity	P ated, h	46,02	kW	Useful efficiency for nominal heating capacity *	μ mon	93,9	%
Minimum capacity	P min	46,02	kW	Useful efficiency at minimum capacity *	μ pl	93,9	%
<b>ELECTRICITY CONSUMPTION*</b>				<b>HIGH ELEMENTS</b>			
At the nominal heating capacity	el max	0,779	kW	Loss of casing factor	F env	0,0	%
At the minimum capacity	el min	0,779	kW	Burner consumption	P ing	0,0	%
In stand-by mode	el sb	0,009	kW	Emissions of nitrogen oxides (*) (**)	Nox	42	mg/kWh input power(GCV)
				Emission efficiency	μs flow		%
				Seasonal energy efficiency of space heating	μs,h	87,3	%
Contact				A2B ACCORRONI E.G. Via d'Ancona, 37 - 60020 Osimo (AN)			

(\*) not required for electric hot air generators

(\*\*) from 26 September 2018

## DECLARATION OF CONFORMITY

**Manufacturer:** A2B Accorroni E.G. srl  
**Address:** 60027 Osimo (AN) - Via D'Ancona, 37 Tel 071/723991 - Fax 071/7133153  
**VAT and C.F.** 02345650424  
**Unit:** Independent forced gas heating appliances with forced air-gas premixer  
**Type:** MEC MIX  
**Model:** C20 / 35 axial, C20 / 45 axial, C20 / 70 axial, C20 / 90 axial, C20 / 35 centrifugal, C20 / Centrifugal, Centrifugal C20 / 70, Centrifugal C20 / 90, Axial F35, Axial F50, Axial F70, Axial F100, Centrifugal F35, Centrifugal F50, Centrifugal F70, Centrifugal F100,  
**Classification:** Category: I<sub>2H</sub>, I<sub>2E</sub>, I<sub>2E</sub> +, I<sub>2E(S)</sub>, I<sub>2Esi</sub>, I<sub>3P</sub>  
**Types:** C<sub>13</sub> - C<sub>13</sub> COAXIAL - C<sub>33</sub> - B<sub>23</sub> / C<sub>53</sub>,

with certificate of CE certification of type n ° 1312CN5748 - 1312CP5955 - 051BU3870ED - 051BU3873ED - 051BU3874ED of 31.3.2016 issued by CERTIGAZ (Notified Body No. 1312 and CI 0234 Rev. 3) to which this declaration refers, complies with the essential safety requirements expressed by the following directives applicable to the product mentioned. Under its responsibility, as a manufacturer

### DECLARES

that the product

- complies with Directive 2009/142 / EC
- complies with Directive 2014/35 / EC low voltage
- complies with Directive 2014/30 / CE

and the following harmonized standards:

- EN 1020: 2009

Also declares that it is subjected to continuous CE surveillance by the Notified Body CERTIGAZ (Notified Body No. 1312 and CI 0234 Rev. 3)

Osimo, March 2016

A2B Accorroni EG srl  
The legal representative  
Altamura Lorenza

*Altamura Lorenza*



A2B Accorroni E.G. s.r.l.  
Via d'Ancona, 37 - 60027 Osimo (An) - Tel. 071.723991  
web site: [www.accorroni.it](http://www.accorroni.it) - e-mail: [a2b@accorroni.it](mailto:a2b@accorroni.it)