

EP-050 / EP-100 WARM AIR GENERATOR MANUAL OF USE AND INSTRUCTIONS

- September 2006 edition
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TECHNICAL FEATURES

MODEL			EP-050	EP-100
Nominal thermal power (Hi)		kW	50	100
TREATED AIR	Airflow at +20°C	m³/h	1400	3.400
	Useful static pressure	mm.c.a	1	5
	Thermal difference	°C	85	35
Number of fans		Nº	1	1
		r.p.m	1150	900
Electric tension		V	230	230
Installed electric power		kW	0,16	0,25
Noise level at 3 meters in typical installation		dB (A)	65	65
Weight		Kg.	268	440
Maximum load (dry wood)		Kg.	10	20

Dry wood calorific power = 4.000 kcal/kg

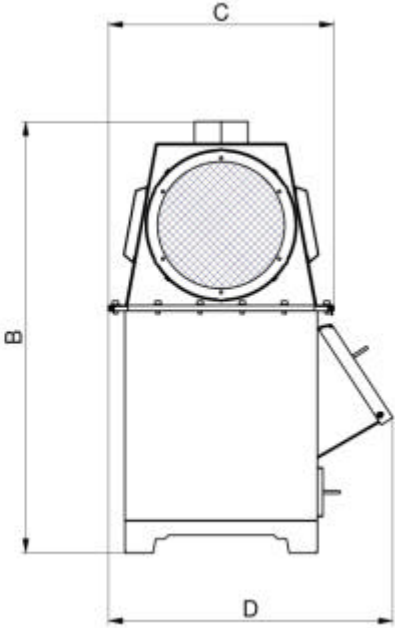
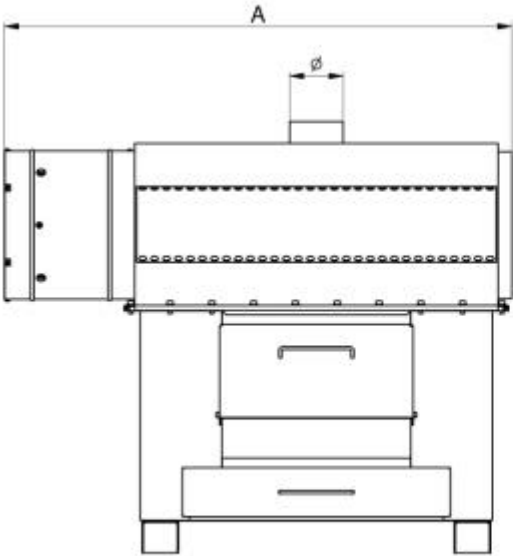
• Recommendations

- Read carefully the warnings shown in the instructions since they give important indications concerning the installation security, their use and maintenance.
- Use dry wood and avoid bad combustion of the equipment.
- The installation should be made according to the standards in force in the country in which it will be used, according to the manufacturer instructions, to those given by the qualified professional staff or to those given by the Assistance Centre authorised by the manufacturer. An error in the installation can be harmful to people and equipments, for which the manufacturer will not be responsible.
- To control the packing and the integrity of the content. In case of doubt do not use the equipment and send it back to the supplier.
- Do not leave the packing elements at children's reach because it is a source of danger.
- Leave free the aspiration grids.
- In case of equipment breakdown or malfunctioning, deactivate it, do not make any intent to repair it and ask for the installer intervention.
- Since you decide not to use the equipment any more, you must make useless the parts that can be a source of danger.
- This machine has to be used in the application it is made for. Any other use will be considered inadequate and even dangerous.
- Make sure that these instructions will always go with the machine.
- If this equipment is installed in a place where there are disabled persons and/or with children, it must be installed in a difficult-access way.

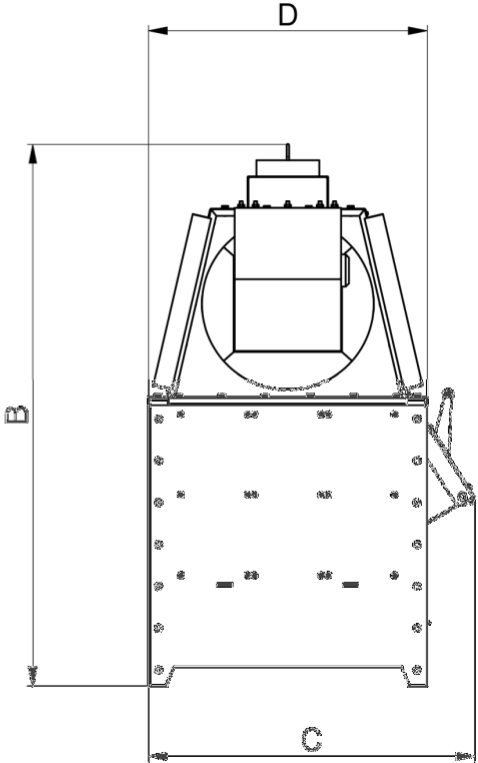
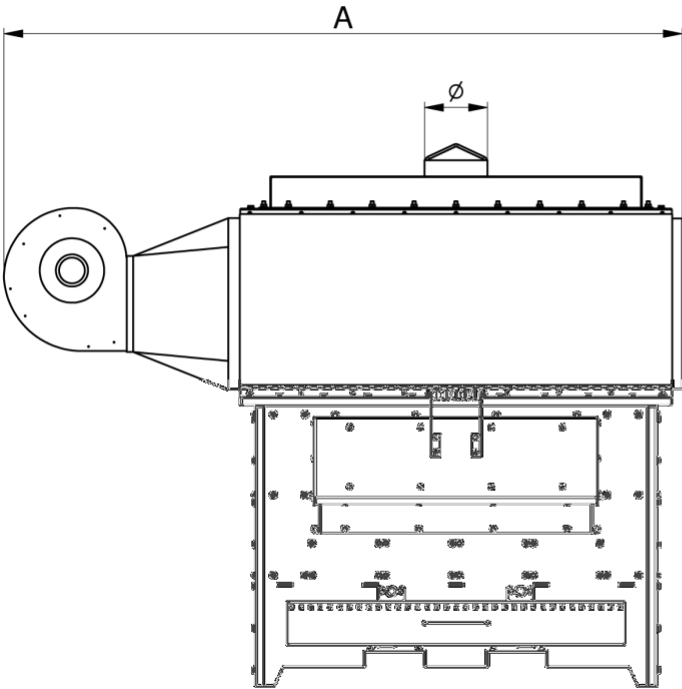
GENERAL DIMENSIONS

MODEL	A	B	C	D	Ø
EP-050	1396	1190	621	783	147
EP-100	2105	1682	1013	865	195

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FUNCTIONAL FEATURES

The warm air generator that functions with solid combustibles is an equipment of which the system consists on heating the environmental air by using thermal energy produced by combustion.

The thermal exchange takes place when an airflow generated by the centrifugal fan goes through the heat exchanger surfaces, without help of the intermediate fluid, and through the machine radiation.

The combustion products, when completed the thermal exchange, are expelled from inside through a chimney.

These equipments are used to heat industrial areas. (They cannot be installed in direct contact with atmospheric agents).

CONSTRUCTION FEATURES

The warm air generator is made in steel with carbon, made according to the European standards and easily inspected for casual cleaning operations and maintenance. It is made of:

- a) A rectangular combustion chamber surrounded by refractory bricks.
- b) Loading mouth for solid combustibles.
- c) Big tubular exchanger.
- d) Ash collecting box.
- e) Chimney connector in which the combustion products get through in order to be later send through the chimney to the exterior of the enclosure.

- **Fan group**

It is made of a helicoidal fan (EP-050) or a centrifugal one (EP-100) with a low noise level and a big airflow.

- **Smoke unloading mouth**

The equipment has a circular neck to which a metallic chimney can be connected and fixed in a secure way, in order to evacuate the combustion products.

This pipe must have the following features.

- Diameter equal or superior to that one of the mouth and without section reductions.
- Not making elbows superior to 45°.
- Having an external wind-proof terminal.

PACKING AND TRANSPORT

The warm air generators are sent in a plastic bubble packing. The accessories will be packaged separately.

Shipping, unloading and maintenance must be carried out with the maximum care in order to avoid possible harms.

ISTRUCCIONS FOR THE QUALIFIED INSTALLER

The EP series warm air generator position must be defined taking into account the following instructions:

- Installation on the floor, regulating the equipment stability.
- The equipments do not have to fit in niches.
- Do not obstruct the fan aspiration grids.
- Do not install it close to obstacles that can impede warm air diffusion.
- To respect the minimum distance to the wall allowed by standards.
- Check if the maintenance and cleaning operations can take place easily.

- **Electric connection**

This equipment is made according to the CEE 73/23 directive and operates with 230V/AC 50Hz electric power.

INSTRUCTIONS FOR COMBUSTION GAS EVACUATION

The chimneys to be installed will be homologated for its use and will have the draught regulation.

DRAUGHT

A chimney draught is determined by the expression:

$$T = H (Y_A - Y_B)$$

T= draught in mm.c.a.

H= vertical chimney height in meters.

Y_A= exterior air specific weight in kg/m³.

Y_B= specific weight of combustion gas expelled in kg/m³.

SECTION

The chimney section for both series is determined by the expression:

$$S = 8,61 Q/H^{1/2}$$

S= chimney section in cm²

Q= boiler power in kW/h.

H= reduced height expressed in meters.

The chimney reduced height is defined by the expression:

$$H_r = H - (N \cdot 0,5 + L + R)$$

Hr= reduced height.
H= chimney real height.
N= direction change number.
L= horizontal longitude.
R= generator resistance.

R= 1mm to 50.000 kcal/h.
R= 2mm to 160.000 kcal/h.

These values will increase a 6% for each 500 meters over the sea level.

HORIZONTAL PIPE

$A = 0,55 * S (L / H + 1)$ we have to check that $L < H / 3$

A= Section in cm² from the horizontal section.
S= vertical section in cm².
L= horizontal section longitude in meters.
H= chimney height in meters.

If the chimney is rectangular we have to check that the relation between both sides must not be superior to 1,5.

The chimney will be isolated according to the regulations in force.

OPERATION IRREGULARITIES - REASONS AND SOLUTIONS -

In case of anomalies in the warm air generators operation, ensure first that:

- There is enough electric power
- Not to give tensions superior to +10% o -15%.
- The fuses work correctly.
- There is enough solid combustible.



NOTE: The eventual repairs must be done by technical qualified staff which use original parts. It is forbidden to open or manipulate the generator parts except for those previewed in the maintenance.

CASUAL MAINTENANCE

For a regular operation and a good preservation of the equipment, we recommend that qualified technical staff do, at least once a year and preferably at the end of the season, the periodical maintenance operations.

Any intervention in these equipments must be done when cold.

- **Exchanger cleaning at the end of the winter period**

For this operation proceed as follows:

- Clean the exchange elements with a small steel brush.
- Aspire with an aspirator the possible soot that felt from the exchange elements in the combustion chamber.

- Replace the spoiled bricks.
- Clean the exchanger external surface.

- **Unloading smokes pipe**

Take out possible obstructions and/or deposits that could have been formed inside it.

- **Fan group**

Clean it with a brush or compressed air.

INSTRUCCIONS FOR THE USER

- **Use**

This equipment is designated to industrial use.

You must not install it in direct contact with atmospheric agents.

- **Operation**

- Load the equipment with wood or similar.
- Connect the fan to the electric installation.
- Proceed to flare up the wood.
- Do not connect the pipe to the machine outlet.
- The fuel load must **never** be superior to the nominal power of the machine.

Never put the generator into operation without connecting the fan to the electric net. Do not disconnect the generator if its hearth is lighted.



NEVER REMOVE THE TENSION WHEN THE EQUIPMENT IS HOT



NEVER TOUCH THE PARTS EXPOSED TO HEAT IRRADIATION

Since accumulated thermal energy in the exchanger can harm the fan group and the heat exchanger

- **Ventilation in summer**

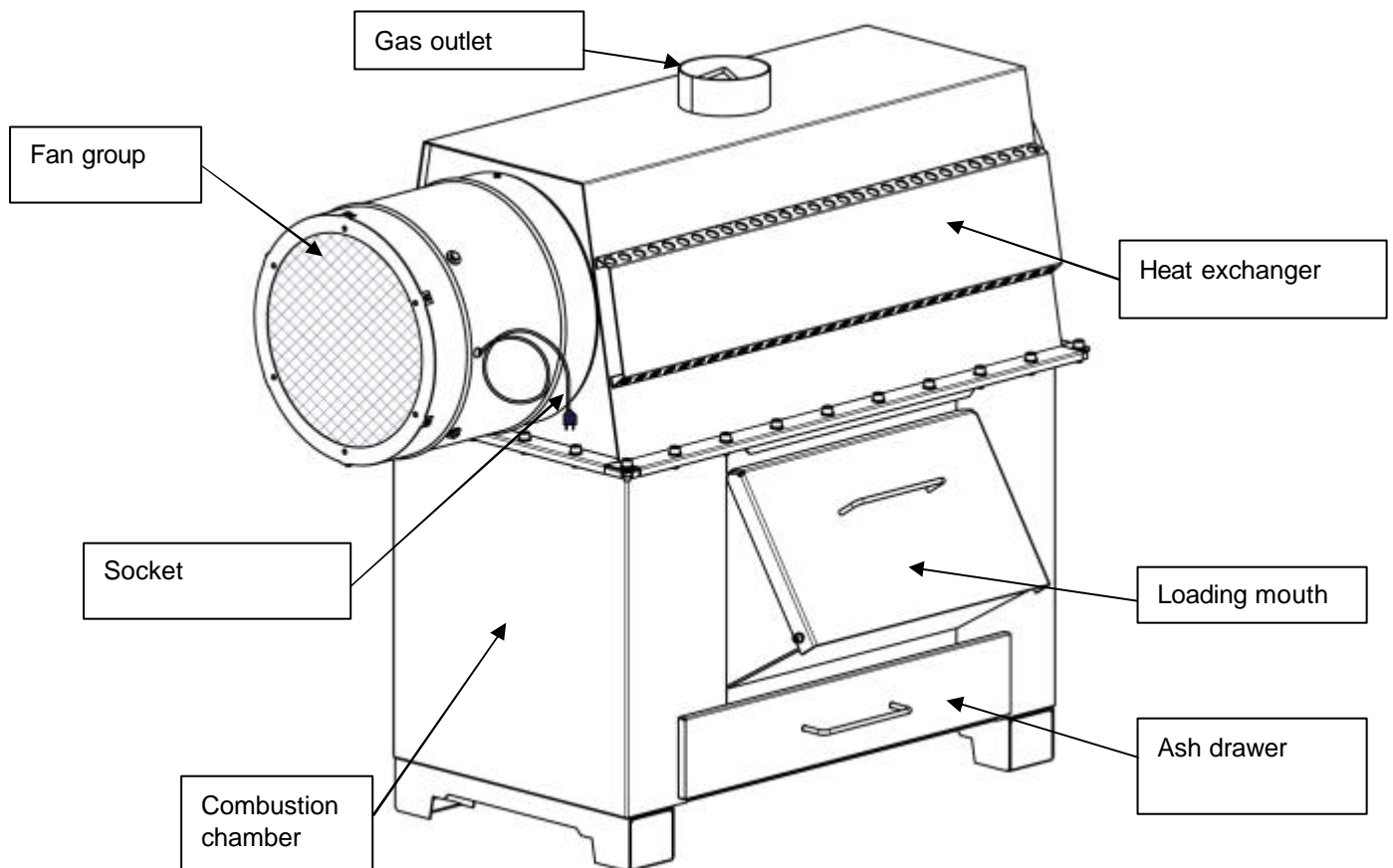
For obtaining from the generator only ventilation, proceed as follows:

- Connect the fan to the network.
- **Disconnection at the end of the season**
- Disconnect the equipment and do the corresponding maintenance.

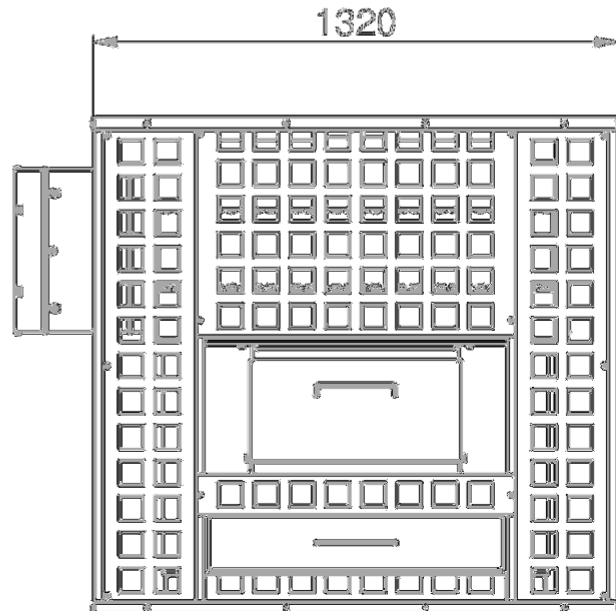
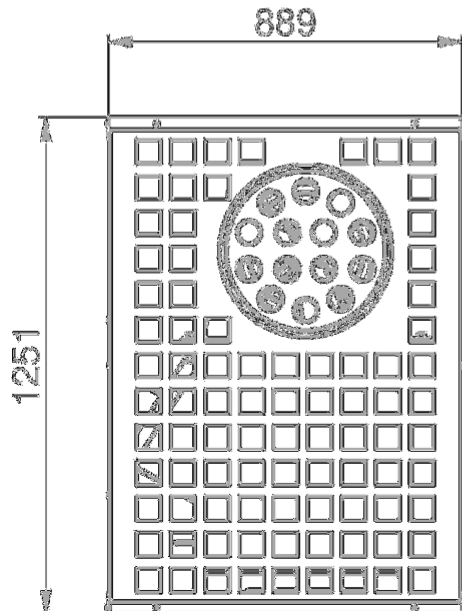
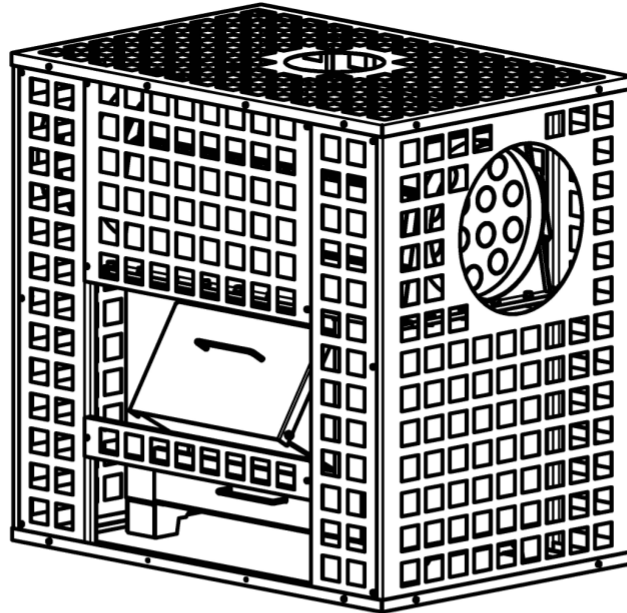
ASSISTANCE

You can ask directly your seller for a technical agent, or you can contact METALURGICA MANLLEUENSE, S.A., which will send you the address of the closest Assistance Service.

GENERATOR BREAKDOWN DRAWING



ACCESSORIES GENERATOR PROTECTION (EP-050)







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