

**DG-60 / DG-90 WARM AIR GENERATOR
MANUAL OF USE AND INSTRUCTIONS**

- Edition July 2006
- We reserve the right to make technical modifications in order to improve the product.
- Total or partial printing is forbidden without previous authorization from MET MANN



TECHNICAL FEATURES

MODEL			DG - 60	DG - 90
Nominal thermal power (Hi)		kW	69	104
TREATED AIR	Airflow at +20°C	m³/h	5.000	7.500
	Useful static pressure	mm.c.a	8	10
	Thermal leap	°C	40	40
Fan		Nº	1	1
		r.p.m	925	925
Electric tension		V	230	400
Installed electric power		kW	0,55	1,1
Noise level at 3 meters in typical installation		dB (A)	82	76
Weight		Kg.	285	350
Maximum loading (dry wood)		Kg.	15	22

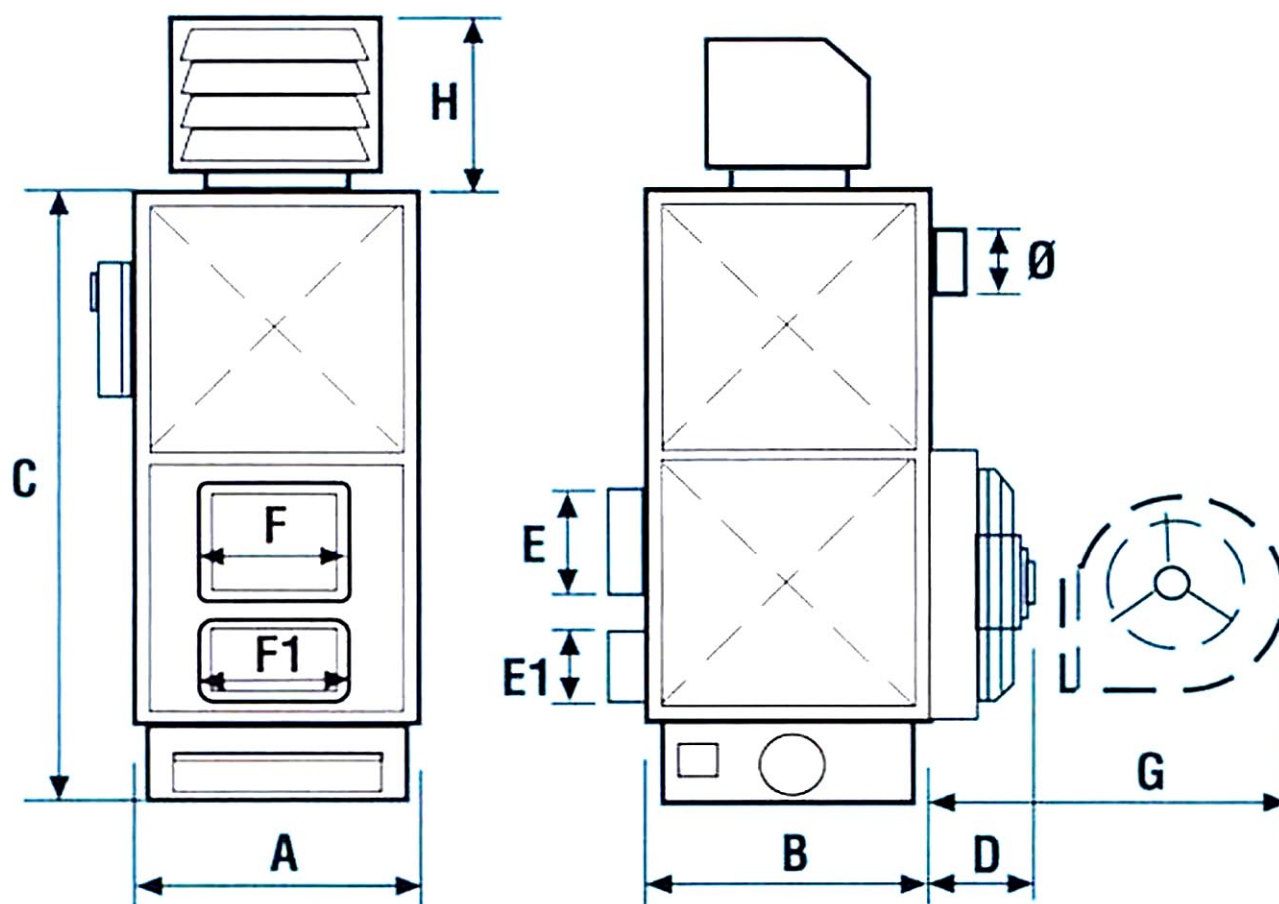
Dry wood calorific power = 4.000 kcal/kg

• 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 will be used, according to the manufacturer instructions, by the qualified professional staff from the authorised Assistance Centre by the manufacturer. An error in the installation can be harmful to persons 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 represents a source of danger.
- Leave free the aspiration grills.
- In case of equipment breakdown or malfunctioning, deactivate it, do not make any intent to repair it and ask for the installation agent intervention.
- Since the moment we decide not to use more the equipment, we have to put out of action the parts that can be a source of danger.
- This machine has to be used in the application it is previewed for it. 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, must be installed in a way that it will not be of easy access.

GENERAL DIMENSIONS

MODEL	A	B	C	D	E	E1	F	F1	G	H	Ø
DG - 60	800	800	1940	290	300	200	350	350	490	480	200
DG - 90	1000	1100	2110	-	400	200	500	500	490	480	200



Functional features

The warm air generator that functions with solid combustibles is equipment whose system is to heat the ambient air using thermal energy produced by combustion.

The thermal exchange takes place when passing by the heat exchanger surfaces, an airflow generated by the centrifugal fan, without help of the intermediate fluid.

The combustion products, when completed the thermal exchanger, are expelled outside through a chimney.

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

Construction features

The warm air generator is made in inox steel Aisi 430, made according to the European standards, easily inspected for casual cleaning operations and maintenance; it is made of:

- a) A circular combustion oven surrounded refractory iron ingot.
- b) Loading mouth for solid combustibles.
- c) Tubular exchanger of big surface.
- d) Ash collecting box.
- e) Chimney connector in which go the combustion products in order to send them later through the chimney to the exterior of the enclosure.

• Fan group

It is made of a helicoidal fan or centrifuge of low noise level and with a big airflow. This fan is connected to an atmosphere thermostat, which orders the fan starting when the selected is reached.

• Smoke unloading mouth

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

This tube must have the following features.

- Diameter equal or superior to that of the mouth and without sections reductions.
- Do not make elbows superior to 45°.
- To have 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.

The shipping, the unloading and maintenance must be realised with the maximum care in order to avoid possible harms.

INSTRUCTIONS FOR THE QUALIFIED INSTALATOR

The DG series warm air generator position can be defined taking into account the following indications:

- Installation in the floor, regulating the equipment stability.
- The equipments do not have to fit in the
- Do not obstruct the fan aspiration grills.
- It is necessary to avoid installing it close to obstacles that can prevent warm air diffusion.
- To respect the minimum distance to the wall allowed by standards.
- Check if the maintenance and cleaning operations can take place with facility.
- [Electrical connection](#)

This equipment is made according to the CEE 73/23 directive and functions with 230V/AC 50Hz electric power (DG-60) and 400V/AC 50Hz (DG-90)

INSTRUCTIONS FOR COMBUSTION GAS EVACUATION

The chimneys to install 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:

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

H_r= reduced height.

H= chimney real height.

N= direction change number.
L= horizontal longitude.
R= generator resistance.

R= 1 mm to 60.000 kcal/h.
R= 2 mm to 90.000 kcal/h.

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

HORIZONTAL CONDUCT

$A = 0,55 * S (L / H + 1)$ 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 isolated according to the regulations in force.

FUNCTIONNING IRREGULARITIES CAUSES AND SOLUTIONS

In case of anomalies in the warm air generators functioning, insure first that:

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

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



CASUAL MAINTENANCE

For a regular functioning and the good conservation of the equipment, we recommend that a qualified technical staff do, at least once a year preferably at the end of the season, the periodical maintenance operations.
Any intervention in these equipments must be done in cold.

- Exchanger cleaning at the end of winter period

For this operation proceed as follows:

- Clean the exchange elements with a steel small brush.
- Aspire with an aspirator the possible soot that felt from the exchange elements in the combustion oven.
- Substitute the deteriorated iron ingot.
- Clean the exchanger external surface.
- Unloading smokes tube

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

- Fan starting thermostat

Check its efficiency and functioning.

- Fan group

Clean it with a brush or compressed air.

INSTRUCTIONS FOR THE USER

- Use

This equipment is designated to industrial building.
We cannot install in direct contact with atmospheric agents.

- Functioning

- Load the equipment with wood or similar.
- Put the fan thermostat at around 30°C.
- Connect the fan to the electric installation.
- Proceed to flare up the wood.

Once the flame is lightened, we will see that some minutes later, the fan will be activated automatically, diffusing warm air in the atmosphere.



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

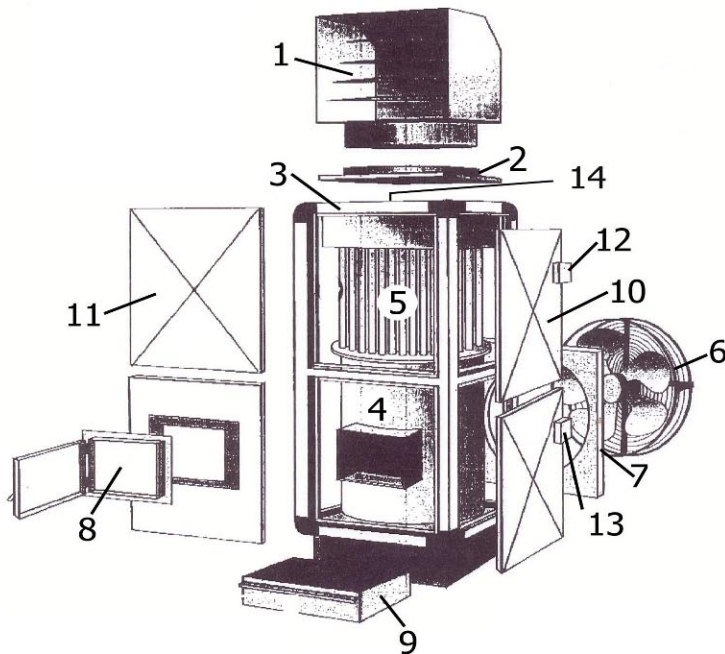
To obtain from the generator only ventilation, proceed as follows:

- To low the thermostat level of the fan to 0° and connect it to the network.
- Disconnection at the end of the season
- Disconnect the equipment and do the corresponding maintenance.

ASSISTANCE

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

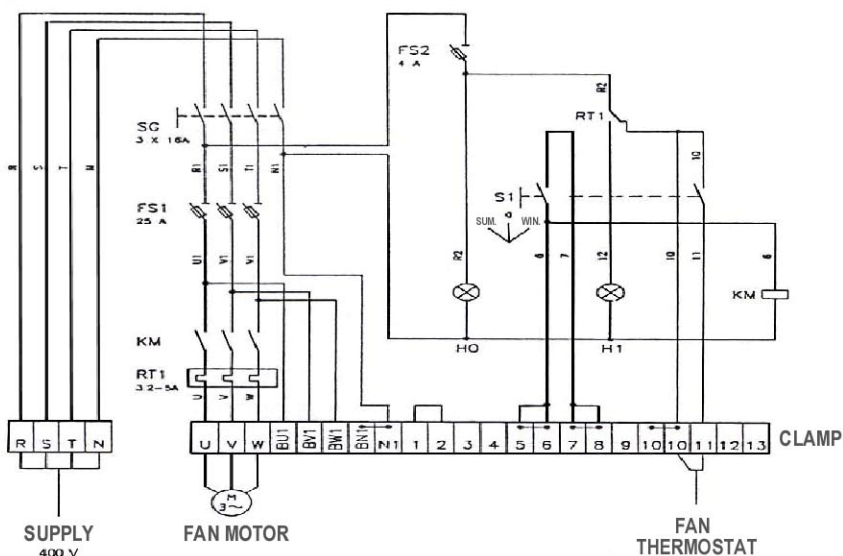
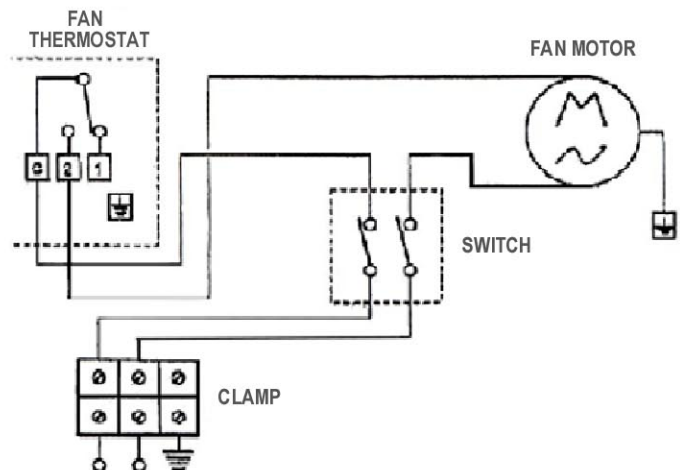
GENERATOR EXPLODED VIEW



- 1 - Turnig head
- 2 - Turning head panel
- 3 - Frame
- 4 - Combustion chamber
- 5 - Heat exchanger
- 6 - Axial fan
- 7 - Fan panel
- 8 - Raft - port
- 9 - Ash drawer
- 10 - Side pannel
- 11 - Front pannel
- 12 - Fan thermostat
- 13 - Control box
- 14 - Heat exchanger cover

ELECTRICAL DIAGRAMM

Model DG - 60



Model DG - 90



FACTORY AND OFFICES

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