1 DESCRIPTION

The M series gas unit heaters are appliances with atmospheric burner with fixed heat output and fixed air flow fans.
They may only be used in air heating systems where human beings comfort is not required (production processes such as drying, drying rooms, weaving, livestock and greenhouses).
Available in two different versions and seven heat output sizes, they adapt to any direct exchange process heating demand.
In addition to the version with axial fans, the M series gas unit heaters are also available with centrifugal fans for delivery air ducting (Paragraph 2 *p. 1*).
The M series gas unit heaters can be managed and controlled in different ways: from a simple on/off control, to a zone control for the management of 10 devices, up to a remote control via PC on which a specific software developed by Robur allows the single management of up to 100 gas unit heaters (Paragraph 4.3 *p. 3*).

2 AVAILABLE RANGE

M gas unit heaters are available in two versions:
- ► with horizontal flow, with axial fan (M series)
- ► with horizontal flow, ductables, with centrifugal fan (M C series)

3 SPECIFICATION OF SUPPLY

Direct exchange gas unit heater fired by natural gas/LPG with sealed chamber and forced draught, with fixed heat output and air flow rate, designed to be installed inside the room to be heated, for systems that do not have a thermal comfort of human beings function, equipped with:
- ► Stainless steel multigas atmospheric burner.
- ► Flue gas extractor for forced draft of combustion products.
- ► Heat exchangers, made out of a special aluminium die-cast alloy, with a very high heat exchange capacity.
- ► Ground control with lock signal and reset button.

The gas unit heater is suitable for the type of installation B22, C12, C32, C62.

Axial fan models

Axial fan models with high air flow, available in 7 sizes of heat output (18,3 / 25,5 / 30,7 / 37,4 / 42,5 / 50,7 / 63,8 kW).

Centrifugal fan models

Models with high head centrifugal fan, equipped with flange for the connection of any air ducting, available in 3 sizes of heat output (25,5 / 30,7 / 63,8 kW).

3.1 MECHANICAL COMPONENTS

- ► Stainless steel atmospheric burner.
- ► Flue gas extractor for forced draft of combustion products.
- ► Cylindrical stainless steel combustion chamber.
- ► Robur patented heat exchangers, made out of a special aluminium die-cast alloy, with horizontal finning on the air side and vertical finning on the flue gas exhaust side, with a very high heat exchange capacity.
- ► External steel panelling with epoxy powder enamel finish.
- ► External panels made of stainless steel (available on request).
- ► Axial fan(s) with high flow rate.
- ► Centrifugal fan (for the M C series).
- ► Flange for duct connection (for series M C).
- ► Ground control with lock signal and reset button.

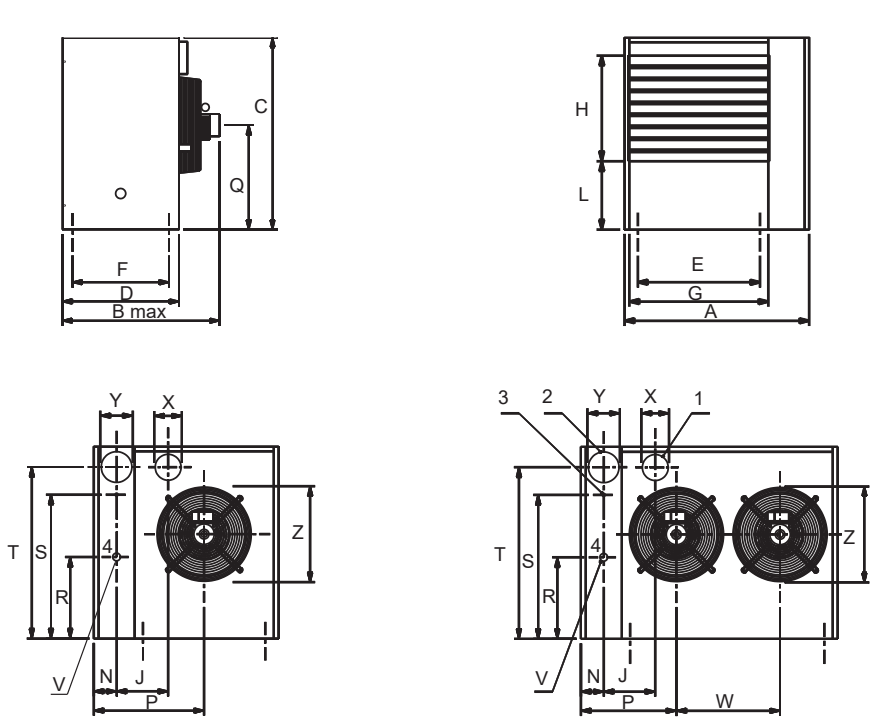
3.2 CONTROL AND SAFETY DEVICES

- ► Electronic control unit, which provides the following functions:
  - ■ burner ignition
  - ■ flame monitoring
- ► 100 °C limit thermostat with manual reset against heat exchangers overheating.
- ► Thermostat to protect the internal components from overheating, with manual reset.
- ► Differential pressure switch.
- ► Fan thermostat.
- ► Gas solenoid valve.

4 FEATURES AND TECHNICAL DATA

4.1 DIMENSIONS

Figure 4.1 *M series generators size*

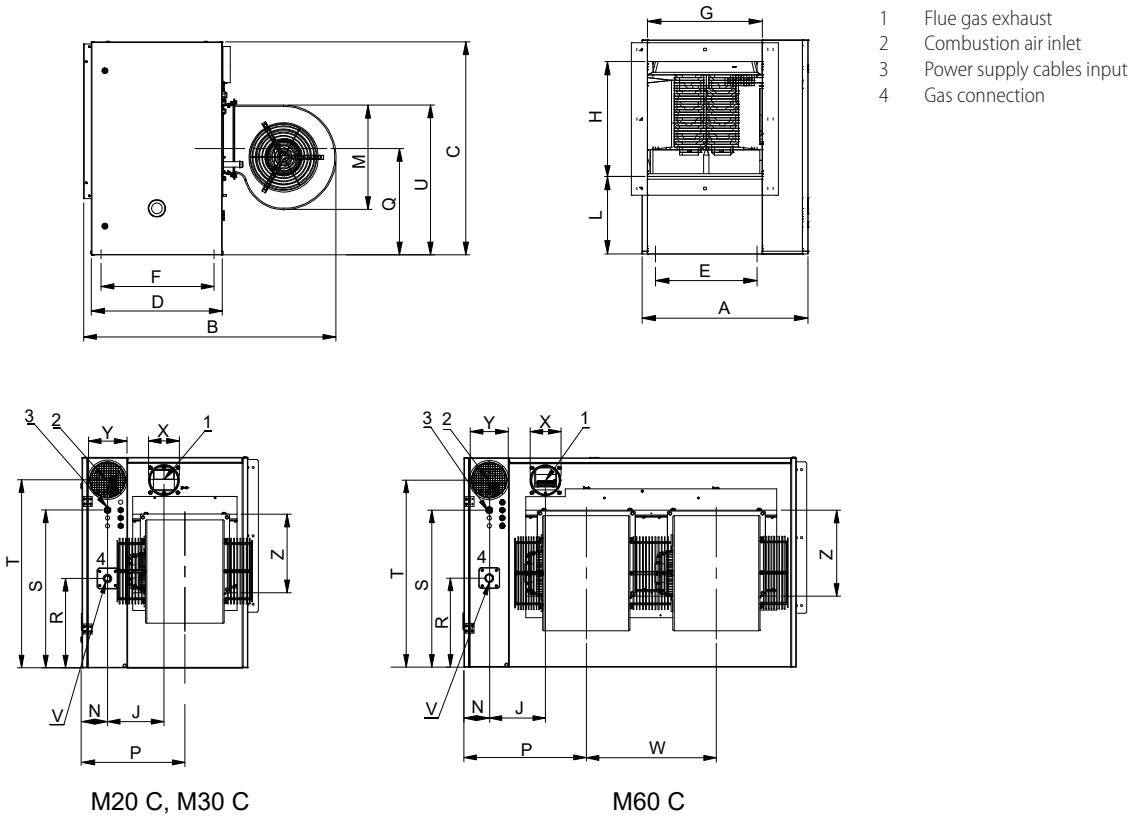


1 Flue gas exhaust
2 Combustion air inlet
3 Power supply cables input
4 Gas connection

M20, M25, M30, M35, M36, M40

M50, M60

Figure 4.2 *M C series generators size*



1 Flue gas exhaust
2 Combustion air inlet
3 Power supply cables input
4 Gas connection

M20 C, M30 C M60 C

Table 4.1 *Dimensions*

	M20	M20 C	M25	M30	M30 C	M35 /M36	M40	M50	M60	M60 C
A	630	630	630	770	770	880	880	1070	1270	1270
B	631	947	590	624	988	624	643	590	624	988
C	800	800	800	800	800	800	800	800	800	800
D	490	490	490	490	490	490	490	490	490	490
E	370	370	370	510	510	620	620	810	1010	1010
F	405	405	405	405	405	405	405	405	405	405
G	440	438	440	580	578	690	690	880	1080	1078
H	430	431	430	430	431	430	430	430	430	431
J	215	215	215	215	215	215	215	215	215	215
L	285	284	285	285	284	285	285	285	285	284
M	-	393	-	-	393	-	-	-	-	393
N	95	95	95	95	95	95	95	95	95	95
P	390	390	390	460	460	515	515	398	468	468
Q	435	435	435	435	435	435	435	435	435	435
R	340	340	340	340	340	340	340	340	340	340
S	600	600	600	600	600	600	600	600	600	600
T	715	715	715	715	715	715	715	715	715	715
U	-	563	-	-	580	-	-	-	-	580
V	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	3/4"	3/4"	3/4"	3/4"
W	-	-	-	-	-	-	-	432	495	495
X	113	113	113	113	113	113	113	113	113	113
Y	133	133	133	133	133	133	133	133	133	133
Z	355	300	355	410	324	410	410	355	410	324

4.2 OPERATION MODE

The M gas unit heater operates at constant heat output and fan speed, controlled on/off.
The operation of the gas unit heater is controlled by a control device, available on demand, chosen from those available (Paragraph 4.3 *p. 3*).

4.3 CONTROLS

4.3.1 Control device

The appliance may only work if it is connected to a control device, selected from:

1. 1 button basic control OCDS012 (supplied)
2. OCTR000 2-key basic control

3. OTRG005 thermoregulator
4. OCDS008 digital chronothermostat (in association with OTRG005 thermoregulator)
5. OSWR000 Genius software for remote management of gas unit heaters (in association with OTRG005 thermoregulator)
6. External request

Refer to Section C01.03 for further details about control devices.

4.4 TECHNICAL DATA

Table 4.2 *Technical data*
Axial fan models

			M20	M25	M30	M35	M36	M40	M50	M60
Heating mode										
Heat input	nominal (1013 mbar - 15 °C) (1)	kW	20,6	28,8	34,8	42,2	39,4	48,2	57,3	72,5
Heat output	nominal	kW	18,3	25,5	30,7	37,4	34,9	42,5	50,7	63,8
Efficiency	nominal heat input	%	88,8	88,5	88,2	88,6	88,5	88,2	88,5	88,0
	useful at 100% heat input	%	88,5	88,2	87,9	88,3	88,2	87,8	88,0	87,5
Heat losses	to flue in operation	%	11,20	11,50	11,80	11,40	11,50	11,80	11,50	12,00
	to casing in operation	%	0,30					0,40	0,50	
	with burner off	%	0,25							
Temperature rise	nominal heat input	K	20,5	29,4	23,8	28,6	26,6	27,8	29,8	27,3
lenght of throw (residual speed < 0,5 m/s) (2)		m	12,0	15,0	18,0	20,0		21,0	23,0	25,0
Ambient air temperature (dry bulb)	maximum	°C	35							
	minimum	°C	0							
Electrical specifications										
Power supply	voltage	V	230							
	type	-	single-phase							
	frequency	Hz	50							
Electrical power absorption	nominal	kW	0,25	0,24	0,34			0,40	0,50	0,61
fuse		A	4,0							
Degree of protection	fan motor	IP	42	44	54				44	54
	appliance	IP	20							
Installation data										
Gas consumption	G20 natural gas (nominal)	m^3/h	2,18	3,05	3,68	4,47	4,17	5,10	6,06	7,67
	G25 (nominal)	m^3/h	2,54	3,54	4,28	5,19	4,85	5,93	7,05	8,92
	G25.1 (nominal)	m^3/h	2,53	3,54	4,28	5,19	4,84	5,92	7,04	8,91
	G25.3 (nominal)	m^3/h	2,48	3,47	4,19	5,08	4,74	5,80	6,89	8,72
	G27 (nominal)	m^3/h	2,66	3,72	4,49	5,45	5,09	6,22	7,40	9,36
	G2.350 (nominal)	m^3/h	3,03	4,23	5,12	6,20	5,79	7,09	8,42	10,66
	G30 (nominal)	kg/h	1,63	2,27	2,74	3,33	3,11	3,80	4,52	5,72
	G31 (nominal)	kg/h	1,60	2,24	2,70	3,28	3,06	3,75	4,45	5,63
Air flow	nominal	m^3/h	2630	2550	3800	3850		4500	5000	6875
Gas connection	type	-	M							
	thread	"	1/2						3/4	
Flue gas exhaust	diameter (Ø)	mm	110							
	residual head	Pa	40	30	35	42		30	27	69
	type of installation	-	B22, C12, C32, C62							
Combustion air intake connection	diameter (Ø)	mm	130							
recommended height		m	2,5	2,5 ÷ 3,0	3,0 ÷ 3,5					
sound power L_w (max)		dB(A)	67,5	70,5	72,5	72,0		74,5	71,5	76,5
sound pressure L_p at 5 metres (max)		dB(A)	45,5	48,5	50,5	50,0		52,5	49,5	54,5
Dimensions	width	mm	630		770	880			1070	1270
	depth	mm	631	590	624			643	590	624
	height	mm	800							
Weight	in operation	kg	55	59	68	80			90	108

(1) Relative to NCV (net calorific value).
(2) Values measured in an open area; in a real installation, the thermal flow may reach greater distances than those given here (depending on the height of the ceiling and its thermal insulation).

Centrifugal fan models

			M20 C	M30 C	M60 C
Heating mode					
Temperature rise	nominal heat input	K	19,2	22,6	23,5
Electrical specifications					
Electrical power absorption	nominal	kW	0,41	0,75	1,30
fuse		A	6,3		
Installation data					

			M20 C	M30 C	M60 C
Air flow	at maximum available head	m^3/h	1900	3100	6400
	free blowing	m^3/h	2800	4000	8000
maximum useful pressure head		Pa	110		
minimum pressure drop on heat flow delivery		Pa	0	50	30
sound power L_w (max)		dB(A)	74,0	78,0	81,0
sound pressure L_p at 5 metres (max)		dB(A)	52,0	56,0	59,0
Dimensions	width	mm	632	772	1272
	depth	mm	948	992	
	height	mm	800		
Weight	in operation	kg	66	82	133

The M36 model is only available for the French market.