

Room sealed circuit appliance sold without the terminal or the combustion air supply and exhausted gas ducts.

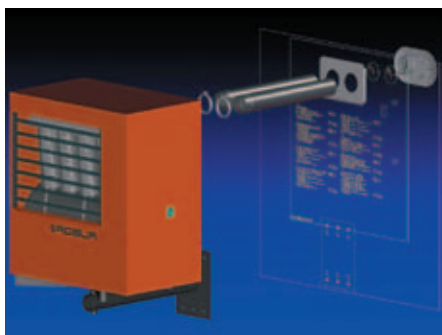
TYPE C 63

TYPE B

ROBUR offers a complete range of accessories for B-type installations.
All components are equipped with gaskets and clamps.

Type B 23 on the wall

- Ø 80 duct, available in the following lengths: 1000, 500 and 250 mm;
- Ø 80 weathering collars;
- Ø 80 external wall terminal;
- Ø 80, 45° and 90° bends.



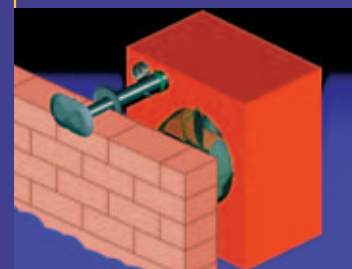
Type B 23 on the roof

- Ø 80 duct, available in the following lengths: 1000, 500 and 250 mm;
- Ø 80, 45° and 90° bends;
- Ø 80 "T" piece with condensation trap;
- Ø 80 weathering collars;
- Ø 80 roof terminal assembly.

All Robur **F1** gas fired unit heaters are equipped with installation template for proper installation of the appliance.

TYPE B 23

This appliance must be connected to a flue which draws the exhausted gas to the outside (on the WALL or on the ROOF) of the room containing the appliance.



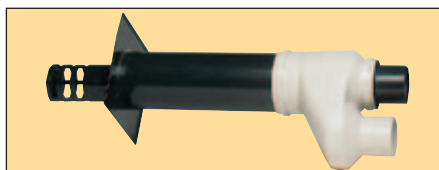
FLUE DUCTS AND ACCESSORIES

SEPARATE DUCTS KITS

All accessories required to create vertical or horizontal piping are available upon request. The maximum length depends on the model of gas unit heater and the number of bends. Maximum distance between unit heater and terminal is shown in the installation manual.

ROOF AND WALL CONCENTRIC FLUE TERMINALS

This allows for exit from the roof or wall via one hole instead of two. This kit includes external terminal and all other parts required for installation.



Robur offers a complete range of **F1** gas fired heaters optional to meet the different customer needs.



ROBUR ALSO MANUFACTURES:



Split system for cooling in summer and heating in winter. Ideal for commercial and industrial premises.



Gas fired absorption chillers and chiller-heaters for air-conditioning, refrigeration and process applications. Ideal for commercial and industrial applications.



Combi gas heating system. This split system heater provides rapid solutions to countless heating requirements.



Forced draught room gas heaters perfect for small rooms.



Air barriers to decrease heat loss due to frequent opening of the industrial doors.

ROBUR S.p.A.
Via Parigi 4/6
24040 Verdellino/Zingonia (Bg)
Tel. +39-035-888.111
Fax +39-035-48.21.334
www.robur.it - exportvendite@robur.it



ROBUR

M I S S I O N

ROBUR is dedicated to dynamic progression in research, development and promotion of safe, environmentally-friendly and energy-efficient products, through the commitment and caring of our employees and partners.

ROBUR
COSCIENZA ECOLOGICA



HEATING FOR
YOUR COMPANY

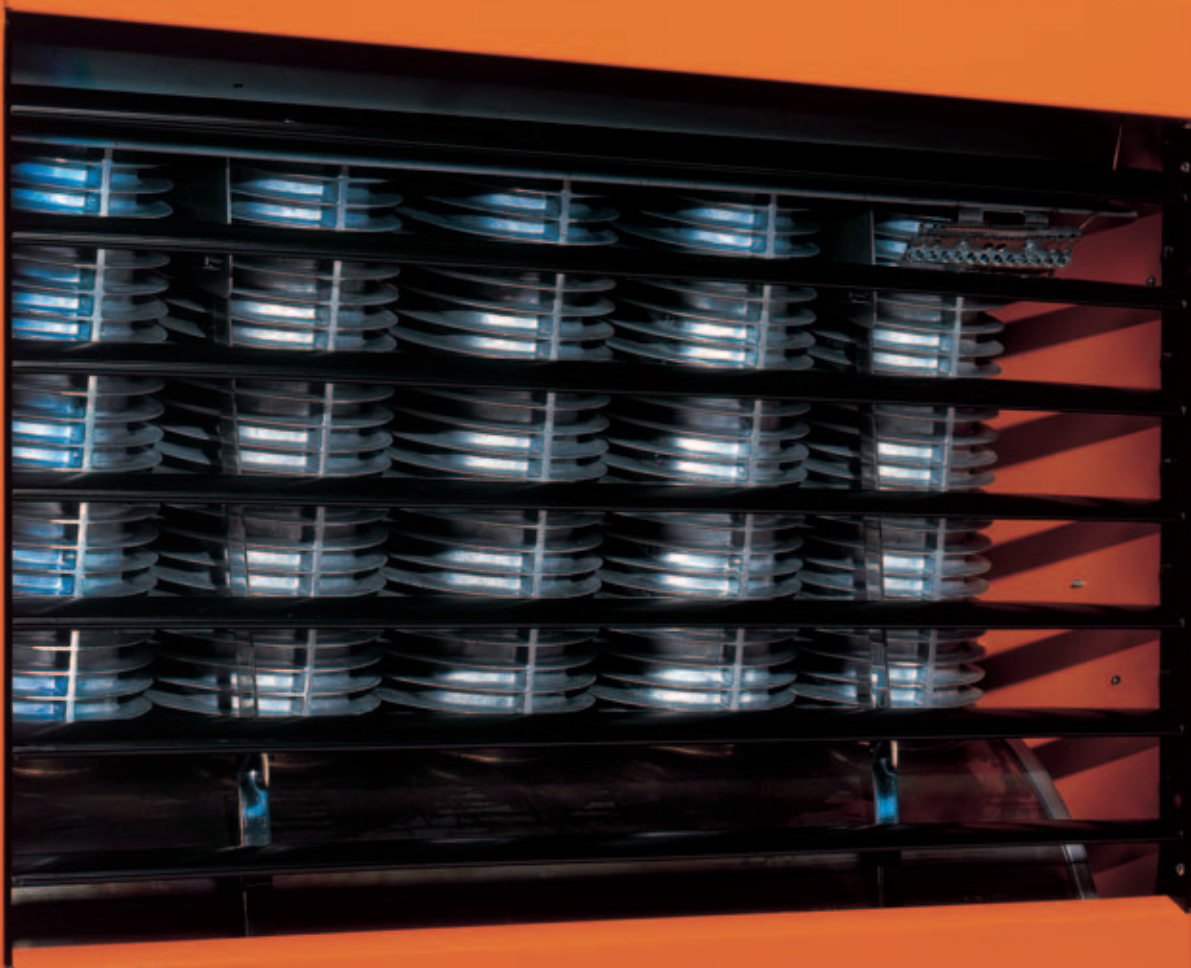
ROBUR®
COSCIENZA ECOLOGICA

GAS FIRED UNIT HEATERS



**HIGH QUALITY,
HIGH PERFORMANCES,
Low NOx**





ROBUR is Prize Winner of the European Quality Award 2003: the Europe's most prestigious Award for Organisational Excellence.



ROBUR Company Quality System is certified ISO 9001 since April 1995.



Robur F1 heaters are CE certified in compliance with EN 1020 standard.



The quality label EURO-AIR confirms Robur performances and customer focusing.



TECHNICAL CHARACTERISTICS

MODEL

F1 21 F1 31 F1 41 F1 51 F1 61 F1 81

MODEL		F1 21	F1 31	F1 41	F1 51	F1 61	F1 81	
Nominal heat input	kW	23.08	30.77	37.15	48.35	61.32	77.14	
Nominal heat output	kW	21	28	33.8	44	55.8	70.2	
Efficiency	%	91	91	91	91	91	91	
Air flow ⁽¹⁾	m ³ /h	2000	2700	3400	4200	5200	7800	
Temperature rise	K	31.1	30.7	29.5	31	31.8	26.7	
Gas rate ⁽²⁾	Natural gas	m ³ /h	2.43	3.25	3.93	5.11	6.49	
	L.P.G. G 30	kg/h	1.80	2.42	2.93	3.81	4.84	
	L.P.G. G 31	kg/h	1.78	2.38	2.87	3.74	4.75	
Inlet gas pressure	Natural gas	mbar	20					
	L.P.G. G 30	mbar	30					
	L.P.G. G 31	mbar	37					
Gas connection	"	3/4 Female						
Air inlet pipe diameter	mm	80						
Flue diameter	mm	80						
Electrical supply		230V ~ 50 Hz single phase						
Total Electrical load	W	260	400	450	640	900		
Fuse rating	A	6.3						
Throw ⁽³⁾	m	14	16	20	22	25	29	
Operating temperature ⁽⁴⁾	°C	0 / 35						
Noise level at 6 m distance	open field	dB (A)	41	43	44	46	47	49
	typical installation	dB (A)	53	55	56	57	60	63
Weight	kg	55	59	68	80	90	108	

(1) At 20°C - 1013 mbar (2) At 15°C - 1013 mbar (3) Throws for guidance only. Throw depends on height of building, mounting height of heater, room temperature and louvre setting. (4) Internal temperature of installation room. Internal components are tested for +60°C temperature.

Due to continuous product innovation and development, Robur reserves the right to change product specification without prior notice.



EC CERTIFICATE

EC mark guarantees product safety, in compliance with European standard EEC no. 90/396. EC certification covers 5 types of installation.

ROBUR Company Quality System is certified ISO 9001 since April 1995.



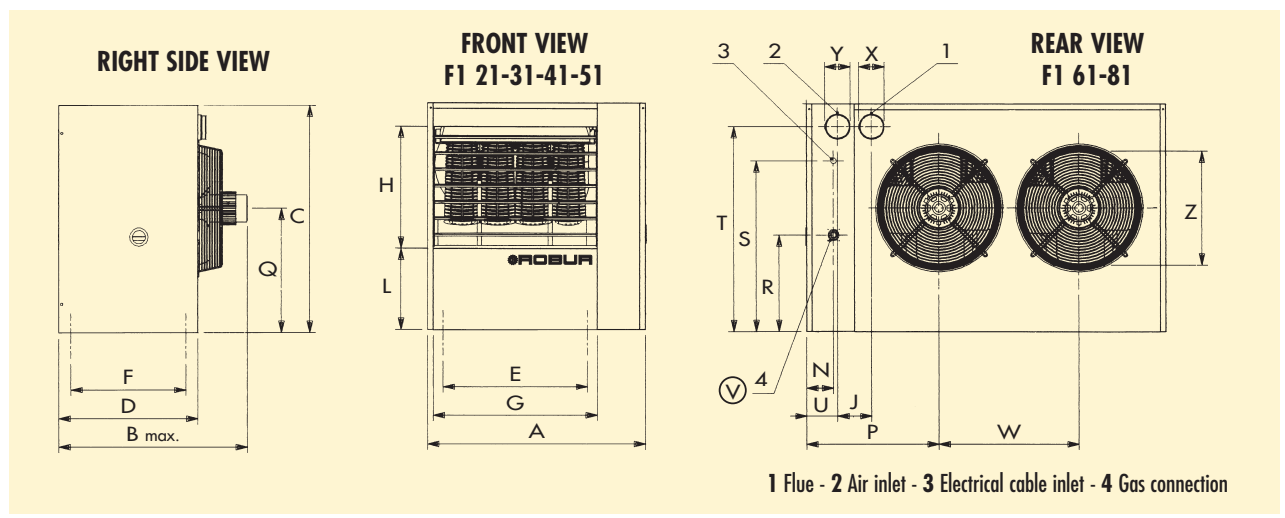
ISO 9001 CERTIFICATE



2000 VISION

DIMENSIONS

MODEL	F1 21	F1 31	F1 41	F1 51	F1 61	F1 81
A	630	630	770	880	1070	1270
B	640	640	670	700	640	700
C	800	800	800	800	800	800
D	490	490	490	490	490	490
E	370	370	510	620	810	1010
F	405	405	405	405	405	405
G	440	440	580	690	880	1080
H	430	430	430	430	430	430
J	120	120	120	120	120	120
L	285	285	285	285	285	285
N	95	95	95	95	95	95
P	390	390	460	515	398	468
Q	435	435	435	435	435	435
R	340	340	340	340	340	340
S	600	600	600	600	600	600
T	720	720	720	720	720	720
U	90	90	90	90	90	90
V	3/4	3/4	3/4	3/4	3/4	3/4
W	/	/	/	/	432	495
X	80	80	80	80	80	80
Y	80	80	80	80	80	80
Z	355	355	410	410	355	410



Due to continuous product innovation and development, Robur reserves the right to change product specification without prior notice.



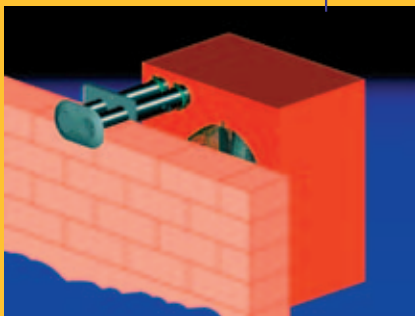
HEATING FOR
YOUR COMPANY

INSTALLATION EXAMPLES

European norms classify gas appliances depending on the type of installation of combustion air inlet and exhaust duct. **F1 gas unit heaters are certified** for the following types of installation using the ducts, components and terminals proposed by ROBUR:

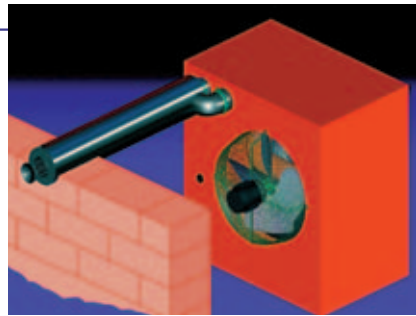
TYPE C 13

Room sealed combustion circuit appliance with inlet air supply and outlet of exhausted gases, either concentric or separated ducts on the same WALL.



TYPE C

The combustion circuit of this appliance (air supply, combustion chamber, heat exchanger, duct for exhausted gas) is sealed with respect to the room where the appliance is installed. Ducts for combustion air inlet and exhausted gas are both connected outside and the terminals might also be connected on different walls (for example, combustion air inlet on the wall and exhaust duct on the roof).



Robur offers a complete range of accessories for c-type installations. **All components are equipped with gaskets and clamps:**

TYPE C13 ACCESSORIES

Horizontal concentric flue terminal

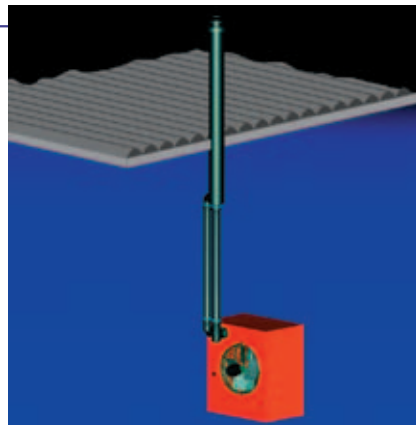
Separated ducts kit with measuring point, length 1000 m, inclusive of terminal assembly.

The following accessories are also available:

- Ø 80 duct, available in the following lengths: 1000, 500 and 250 mm;
- Ø 80 weathering collars;
- Ø 80 external wall terminal;
- Ø 80, 45° and 90° bends;
- Ø 125 wall terminal assembly.

TYPE C 33

Room sealed combustion circuit appliance with inlet air supply and outlet of exhausted gas, either concentric or separated ducts on the ROOF.



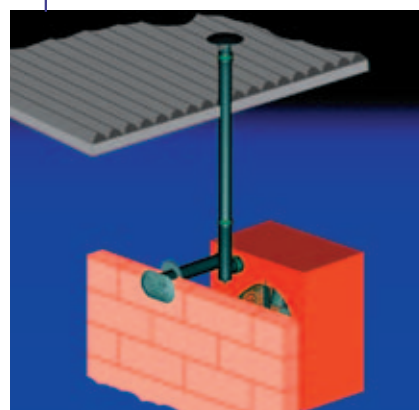
TYPE C33/C53 ACCESSORIES

Vertical concentric flue terminal

- Ø 80 duct, available in the following lengths: 1000, 500 and 250 mm;
- Ø 80 external roof terminal;
- Ø 80, 45° and 90° bends;
- Ø 80 "T" piece with condensation trap;
- Ø 80 weathering collars;
- Ø 80 roof terminal assembly.

TYPE C 53

Room sealed combustion circuit appliance with inlet air supply and outlet of exhausted gas by using separated ducts and terminals on different WALLS.





HEATING FOR
YOUR COMPANY

IDEAL

The all new ROBUR F1 gas fired
unit heaters:

HEAT

ANY TYPE
OF COMMERCIAL
ENVIRONMENT AND
AMBIENT REQUIREMENTS

ADD

HIGH QUALITY AND
PRESTIGE TO YOUR
INSTALLATIONS

SIMPLIFY

THE INSTALLATION
AND MAKE YOUR
WORK EASIER

SAVE

TIME AND THUS
REDUCES COST

For these reasons
the Robur F1 unit heaters

ARE IDEAL FOR YOU.

There are more than
180,000 ROBUR gas fired
unit heaters installed
throughout Europe.



HEATING FOR
YOUR COMPANY

POWERFUL



The new Robur F1 gas fired unit heaters

are available in 6 models with outputs from 21 to 70.2 kW and two colours:
Robur-Orange and Pearl-Grey.

The Robur F1 series adds exclusive advantages to the basic Robur unit heaters, such as:

■ Optimised combustion

F1 unit heaters ensure ultra-clean combustion (carbon oxides) and combustion residues are kept to a minimum.

■ In advance on the Draft of European Norm Project for NOx emissions,

F1 unit heaters already have lower values: up to 30 ppm, for both Natural gas and LPG.

■ Higher Thermal Efficiency: over 91%

guaranteed under any installation conditions.

■ Low thermal head

■ High air flow

■ Higher air throw

■ High volume of air re-circulated

■ Higher heat output

Product range:

Model	Heat output kW
F1 21	21
F1 31	28
F1 41	33.8
F1 51	44
F1 61	55.8
F1 81	70.2

External terminal: **only 4.3 cm projection**

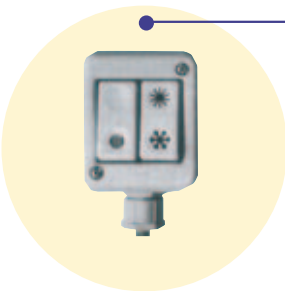


The new external terminal for 80 mm diameter (separate) inlet and outlet ducts is a Robur personalized accessory.

In addition to its modern design, the extremely limited projection (4.3 cm from the wall) is another of its exclusive characteristics. This aluminium terminal maintains a low operating temperature which makes it safer, it can also be painted in the same colour as the wall, following the customer's needs.

REMOTE CONTROL BOX AND OTHER ACCESSORIES

Robur F1 **unit heaters** have many options to allow installation to meet the customer's operating needs.



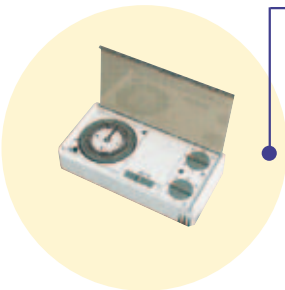
Standard remote control

All Robur F1 unit heaters are supplied with a remote control box, lock-out light, reset and summer/winter switches.



Room thermostat

This option is a mechanical type thermostat with on-off switch.



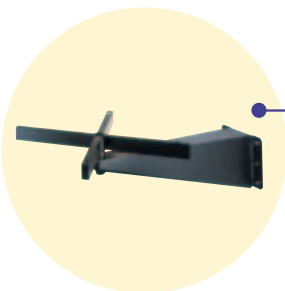
Analog programmable timer

This has an electronic thermostat with two independent control temperatures, allowing weekly programming of heater operation. The timer has a quartz movement and mechanical summer/winter switch.



Digital programmable timer

This accessory incorporates in a single device all programming and control functions of the gas unit heater, both daily and weekly.



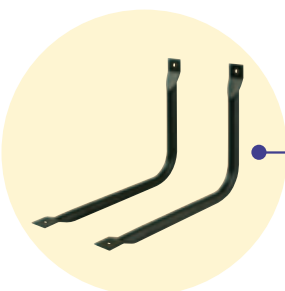
Revolving wall support bracket

This allows for an easy and correct installation of the gas unit heater.



Vertical louvres

These allow for left and/or right adjustment of the airflow from the front of the unit according to the site conditions and the customer requirements.



Tubular wall brackets

Very easy to install, it fits to all models and it is supplied with tie-rods, bolts and washers to anchor to the wall.



HEATING FOR
YOUR COMPANY

STRONG

The heating installation which uses Robur F1 unit heaters has a **global efficiency higher** than most other systems.

Tests performed at Robur Research and Development Center, as well as at several systems installed at sites all over Europe, have demonstrated that, assuming the heat outputs installed are the same, Robur unit heaters **reduce consumption** and offer a higher environmental comfort than other heating systems.

Robur heaters **allow users to reduce consumption and heat stratification problems.**

Its secret is the heat exchanger – the real heart of Robur unit heaters – which split the air flow into different layers having different temperatures: lower temperature in the higher levels and vice versa higher temperature in the lower levels.

This results in the lower, hotter air being kept down by the higher, cooler air. Thus the different temperatures within the air-throw ensure a complete air mixing, thus reducing the temperature gradient between floor and ceiling.

This Ground Effect is another exclusive advantage of Robur gas fired unit heaters.

The performance data for Robur installations all over Europe are available upon request.

The thermography on the left shows the concept of the GROUND EFFECT.



Room height	Energy saving
5 m	12 %
6 m	14 %
7 m	16 %
8 m	19 %
9 m	22 %

This table shows the reduction of thermal energy need (compared to traditional project data) following the higher global efficiency of the heating Robur system.

INSIDE THE PRODUCT: THE HEART

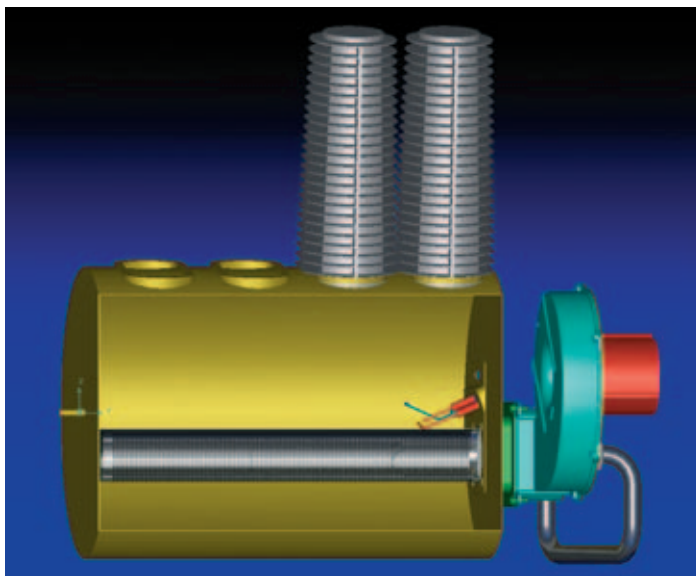
The heat exchanger is designed with double vertical and horizontal finning, increasing internal and external **heat exchange surface**. Made out of a special aluminum die-cast alloy (its **high thermal conductivity** is 10 times higher than steel) it allows a more homogeneous temperature on exchange surfaces with optimal distribution. The large heat exchange surface and the absence of high temperature areas avoid the carbonization of atmospheric dust, ensuring a perfect environmental comfort.



SMART SAFETY DEVICES

For safety protection:

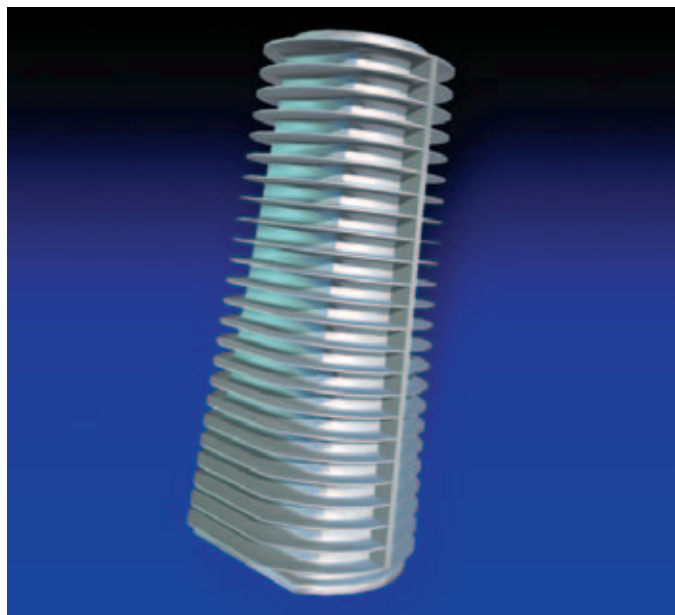
- High limit temperature switch, 100°C with manual reset to avoid overheating of the heat exchangers.
- Differential air pressure switch monitors flow and shuts down the heater in the event of flue or combustion air blockage or flue fan failure.
- Pre-mixing fan with electronic control (F1 51 and F1 81 models).
- Gas solenoid valve which automatically shuts down the gas supply if any of the safety or control devices are activated.
- Flame control and ignition control box monitoring pre-mixed burner ignition and flame detection operations.



SPECIFICATION

HIGH PERFORMANCE, forced draught F1 unit heaters are manufactured in compliance with the law in force concerning performance, energy saving and safety. They also comply with CEE Directive no. 89/336, concerning radio interferences.

- Stainless steel pre-mixed burner.
- Direct electronic ignition on the burner via twin electrodes for maximum safety and quick ignition at low temperatures.
- Protection against electromagnetic interferences.
- Room-sealed cylindrical combustion chamber, made of stainless steel, completely separated from the electric board to fully protect electric and electronic components.
- Robur patented heat exchanger is designed with double vertical and horizontal finning, increasing internal and external heat exchange surface. Made from a special aluminum die-cast alloy, with high thermal conductivity.
- High-efficiency axial fan.
- Radio interferences protection system.
- Steel external panels painted with epoxy powders available in two different colours.





HEATING FOR
YOUR COMPANY

EASY

The unique design features of the Robur F1 unit heaters **make for an easy to fit and safely** in any type of installation.



EASIER INSTALLATION

• **80 mm duct diameter**



The air and exhaust ducts of F1 unit heaters have the same diameter: 80 mm.

All unit heaters are equipped with air and exhaust gaskets already installed on the appliance, thus requiring no adapters.

OUR SECRET: ENHANCED QUALITY

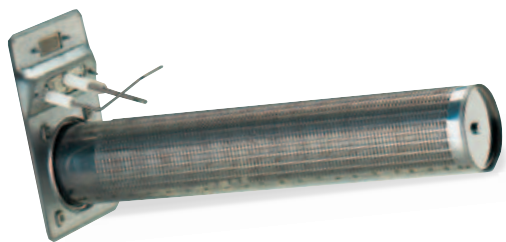
Robur F1 unit heaters are equipped with a multigas burner:

- made of stainless steel
- with optimum air/gas ratio.

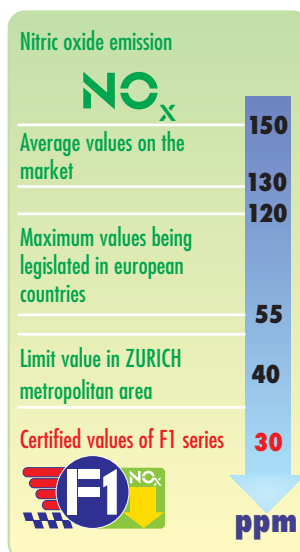
This allows a supply to the burner of a gas/air mixture already prepared for combustion, without any need for secondary air supply. This innovative burner, state-of-the-art in Europe, offers the following advantages:

- Simplified ordinary servicing
- Guaranteed and long life efficiency
- Resistance to thermal stresses
- Insensitivity to atmospheric humidity and to condensate occasionally produced in the combustion chamber
- Gas conversion simplified; change just one injector in an ergonomic position.

Low NO_x gas unit heaters have been developed in advance,
but in compliance with the Draft of European Norm.



This new Robur burner, with complete gas/air premixing, is the basis for the advantages offered by F1 unit heaters.



The countersunk flame orifices are able to reduce the temperature of the burner's surface thus extending its lifetime and assuring constant performance throughout. A further guarantee of extended life is the reduction of thermal expansion and the related mechanical stress. The large section of the flame orifice strongly reduces the deposit of the atmospheric dust, avoiding the burner becoming dirty; thus you can guarantee constant performance over time.

For a long time and with close attention, manufacturers in the heating market have been following the environmental issues. The Draft of European Norm for the NO_x emissions establishes the classification of heaters regarding those emissions.

Specifically, the Draft sets the highest level of NO_x for the Heaters at 147 ppm.

Indifferent to the combustion gas or burner used, these limits are to be applied to all heaters. This Draft is among those initiatives aimed at developing the quality standards and reducing the environmental impact.