

**PHOEN RANGE:
INDIRECT COMBUSTION
PORTABLE HEATERS
WITH DEDICATED BURNER**

**THE PROFESSIONAL
CHOICE**

PHOEN



PHOEN/S - SUSPENDED VERSION



They feature a heat exchanger with a flue union to expel fumes and have a thermal efficiency of almost 90%. They are widely used in warehouses, horticulture and floriculture, livestock rearing and the building sector, for drying, thawing and heating. For use in closed environments the installation of a small flue connected to the outside ensures that fumes are removed. Indirect combustion space heaters of the Phoen range are versatile, reliable, easy to use and safe thanks to the safety devices that shut down the machine in the case of malfunctioning.

MAXIMUM PERFORMANCE

The perfect combustion generated by an avant-garde BM2 dedicated burner that allows a optimum air-fuel mix together with the use of a combustion chamber that ensures that the fumes circulates four times, mean that the machine has a technical efficiency of almost 90%. Indeed, thanks to the increase of transit surface in the heat exchanger, the fumes are cooled more and therefore additional quantities of clean heat are produced.

IMMEDIATE HEAT

Easy to transport anywhere it is needed, it can be started immediately providing hot air at maximum thermal power.

VARIABLE POWER

Using the switch on the electrical control panel one can set mode 1 Stage (75 kW) or 2 Stage (110 kW). This operating flexibility allows:

- the reduction of consumption in applications where a low ΔT is enough;
- the avoidance of frequent on/off cycles on approaching the set ambient temperature, thus ensuring a better thermal performance of combustion.

RELIABILITY AND SAFETY

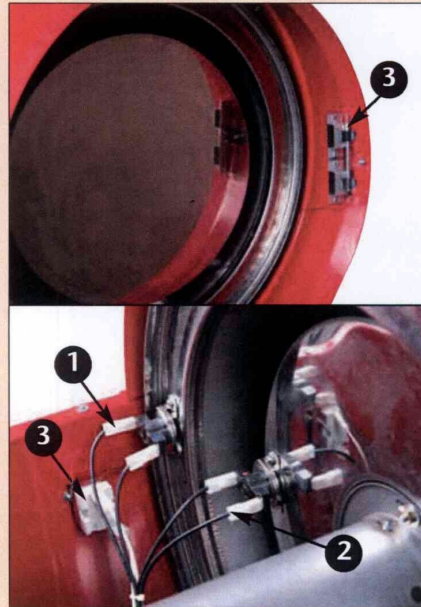
The design is based on long experience, the materials are carefully chosen and the production process is subject to the strictest control procedures. Maximum safety and minimum maintenance.

EASY TO USE

All the models are light and compact and come complete with a handle, trolley and wheels as well as a simple and an easy-to-use control panel. For heavy applications, a support kit for machine structure is available. The practical fuel filler cap means it is easy to fill the tank.

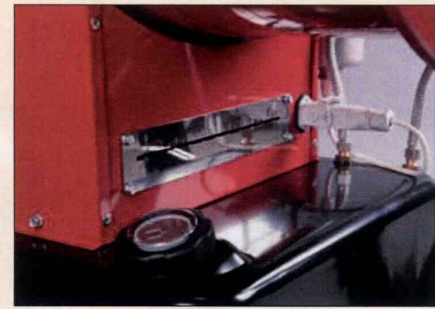
A – SAFETY THERMOSTATS

1. Overheating thermostat: located on combustion chamber, cuts out the stage automatically if the chamber overheats.
2. Ventilation thermostat: controls the switching on of the fan when the combustion chamber is sufficiently hot to prevent cold air being released into the area to be heated. On the other hand, when the burner is switched off, it controls how long the fan works to cool and exploit all the heat produced by the combustion chamber.
3. Limit thermostat: located on the air outlet, intervenes should the temperature of the air passing through the combustion chamber exceed 100°C.



B - AIR REGULATION VALVE

Thanks to a high regulation range and an accurate and practical graduated scale it is easy to control the inflow of combustion air, according to altitude, thus ensuring perfect combustion.



F - FUEL TANK CAP

The fuel tap has a heavy duty bayonet-type cap.



I - FUEL TANK

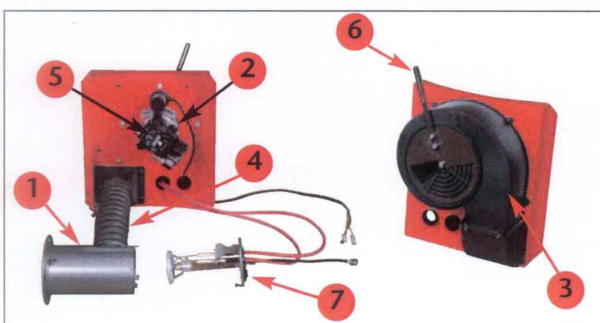
The innovative design gives the machine a strong and compact appearance. The strong steel tank allowing a high storage capacity.



L – BM2 BURNER

The feature that makes this series unique is that it has a special BM2 burner, that replaces the traditional ones that are on the market (Ecoflam, Riello, Lamborghini, ...) or the integrated systems that are used on cheap machines where the combustion air is generated from the air of the fan-motor. The use of the customised system based on years of research, allows:

1. The complete separation of the combustion air from that of the combustion chamber cooling fan: the combustion air enters the combustion head through a flexible hose connected to the fan-motor of the burner. Advantages:
 - precise and full combustion, with a CO (carbon monoxide) level of 0 ppm (parts per million);
 - possibility of operating separately the main fan and so switching it on automatically to blow out air into the premises to be heated only when the combustion chamber is sufficiently heated by the burner;
 - use of the machine for applications that only require ventilation;
 - optimisation and customising the burner to fully exploit the machine's technical features.
2. The possibility of placing the burner components in the optimum position for the functioning and maintenance of our applications.
3. The avoidance of functions and components that are superfluous for our applications, but which are necessary for the functioning of standard boilers.
4. The possibility of regulating the burner's capacity according to the application without effecting the perfect combustion of the machine.
5. Perfect combustion even when there are considerable differences of altitude.
6. The possibility of conveying combustion air outside the premises where the machine is located (snorkel connection).
7. The possibility of channelling outflow or inflow air from and to the machine using long hoses (50 m), naturally without any effect on the combustion parameters.



LEGEND

- | | |
|--|------------------------------|
| 1 - Combustion head | 5 - Double stage diesel pump |
| 2 - Fan-motor burner | 6 - Air regulation valve |
| 3 - Burner fan | 7 - Electrodes - Nozzle |
| 4 - Flexible hose connecting fan-motor and combustion head | |

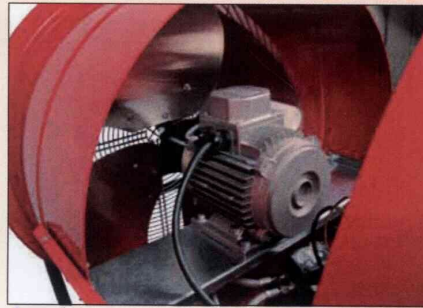
C - FOAM-FILLED WHEELS

The use of foam-filled wheels with bearings allows the easy movement of the unit, even on rough, snow-covered or icy ground. Furthermore, as the wheels are foam-filled they do not deflate even in the case of a puncture.



D - CONVEYANCE FAN, FAN MOTOR

To enhance the dynamic performance of the fan a conveyance unit has been added to provide a ducted fan. Furthermore, this acts as a guard that ensures safety during maintenance.



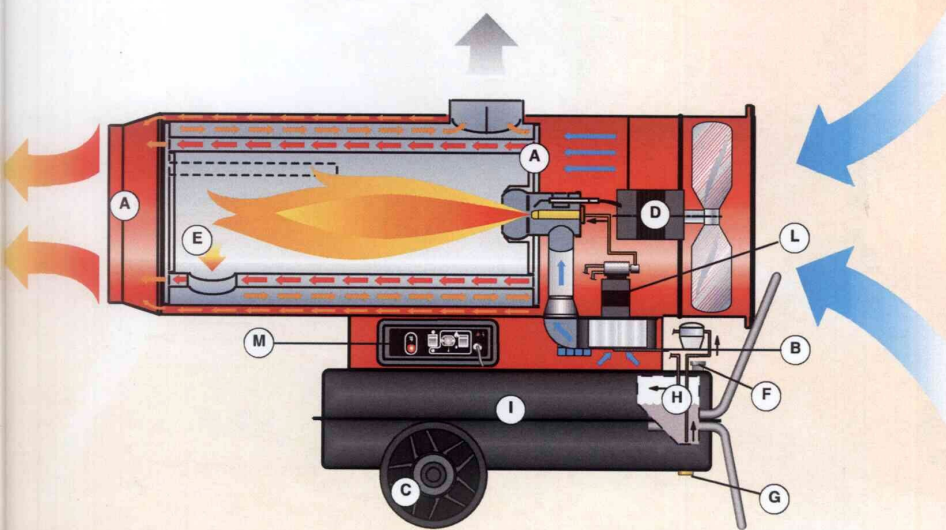
E - COMBUSTION CHAMBER

The combustion chambers are manufactured using AISI 430 stainless steel with aluminised steel heat exchangers to guarantee a better heat exchange with the cooling air. The new combustion chamber with four smoke revolutions allow increasing the heat exchange inside it, as well as the combustion gases cooling, obtaining in this way an efficiency of 90%.



G - FUEL TANK DRAIN PLUG

There is a drain plug on the fuel tank that allows the fuel to be drained off.



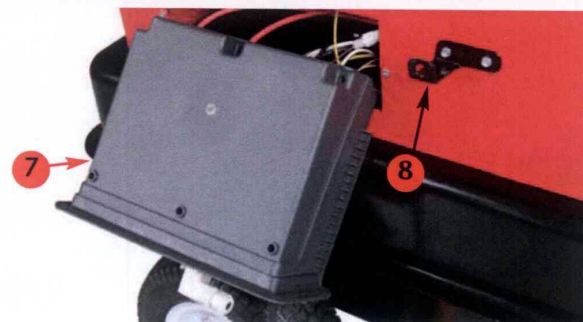
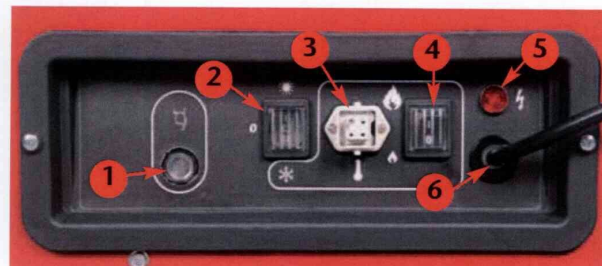
H - FUEL CIRCUIT

The fuel feed lines are in hydrocarbon resistant rubber, with a reinforced metal sheath, ensuring better resistance to cold climates and greater mechanical resistance to cutting surfaces or crushing. Furthermore these fuel lines can be safely fitted to the fuel pump, the fuel tank and the filter using high pressure crimp connectors.



M - ELECTRIC CONTROL PANEL

The electric panel, in robust flameproof plastic, has a plastic cover that prevents the infiltration of water, dust, etc.

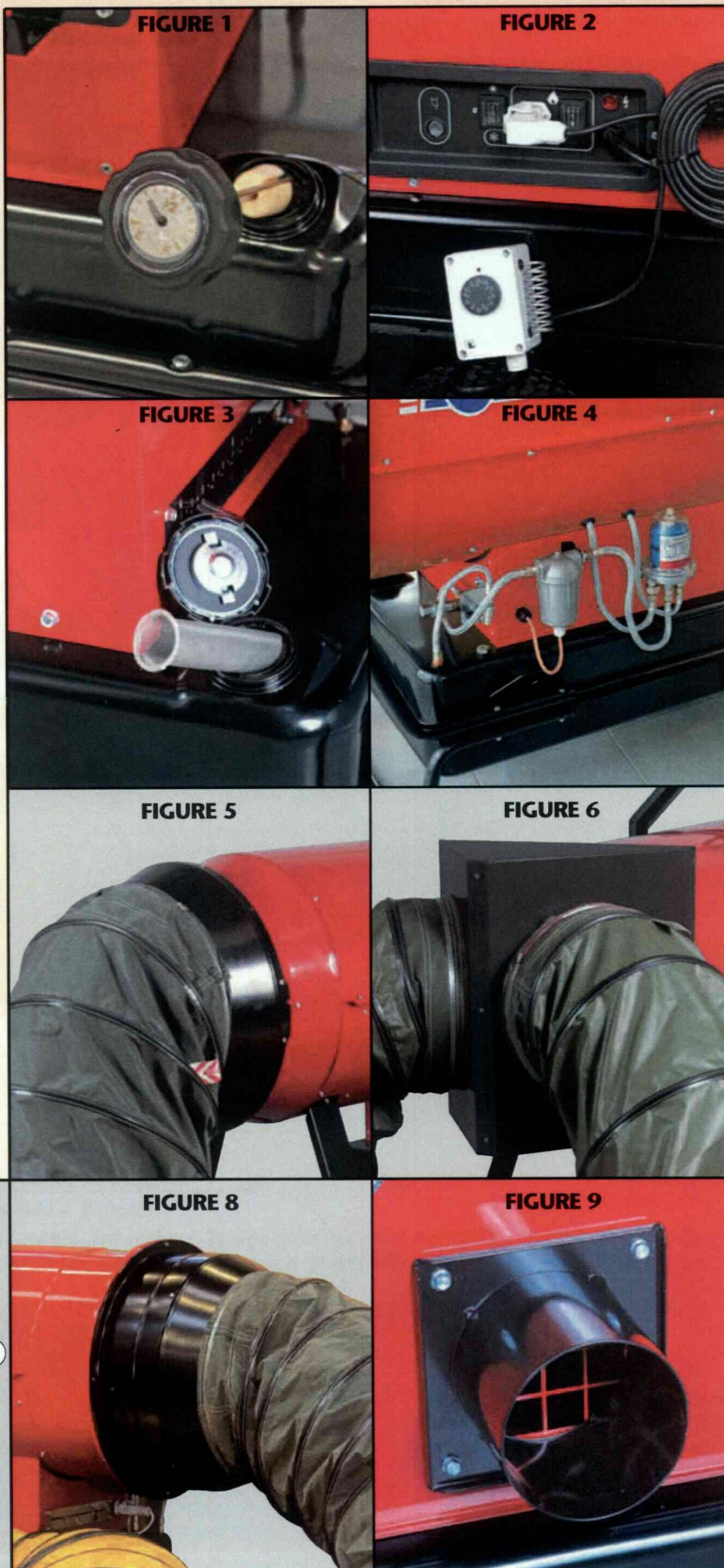


LEGEND

- 1 - Reset button with block (red), working (green) and stand-by (orange) indicator light
- 2 - Three way control switch:
 - position 0: stop
 - position 1: heating
 - position 2: ventilation
- 3 - Socket for ambient thermostat, humidistat, timer
- 4 - Two way power switch:
 - position 0: 1st stage (75 kW)
 - position 1: 2nd stage (115 kW)
- 5 - Voltage warning light (connected to the mains)
- 6 - Power cord outlet
- 7 - Plastic cover
- 8 - Power cord bracket

ACCESSORIES

- fuel gauge (figure 1)
- thermostat (figure 2)
- filler filter for fuel tank (figure 3)
- kit for connecting to external fuel tank (figure 4)
- pre-heating filter kit (figure 4)
- bi-composed flexible hose (figure 5, 6, 8)
- one-way duct adapter (figure 5)
- two-way duct adapter (figure 6)
- kit heavy duty (figure 7)
- air inlet kit (figure 8)
- snorkel kit for fresh air intake duct (figure 9)



model		PHOEN 110
rated heat. 1st stage Hi	(kW-kcal/h)	75,06-64.553
rated heat. 1st stage Hs	(kW-BTU/h)	80-275.214
effective heat. power 1st stage Hi	(kW-kcal/h)	66,80-57.452
effective heat. power 1st stage Hs	(kW-BTU/h)	71,20-244.941
rated heat. power 2nd stage Hi	(kW-kcal/h)	110,02-94.616
rated heat. power 2nd stage Hs	(kW-BTU/h)	117,26-403.387
effective heat. power 2nd stage Hi	(kW-kcal/h)	99,02-85.155
effective heat. power 2nd stage Hs	(kW-BTU/h)	105,54-363.048
thermal efficiency	(%)	90
consumption 1st stage	(kg/h)	6,330
consumption 2nd stage	(kg/h)	9,278
air flow	(m ³ /h)	5.500
Δ T	(1st stage)	60
Δ T	(2nd stage)	75
power absorption	(W)	1.820
current absorption	(A)	8,35
electrical power	(V, ~, Hz)	230, 1, 50
diam. outlet	(mm 1 way/2 way)	500/400
max. lenght outlet hose	(m 1 way/2 way)	50/20
tank capacity	(l)	135
diam. flue	(mm)	150
dimensions LD (LxWxH)	(mm)	1.918x731x1.220
dimensions HD (LxWxH)	(mm)	2.106x812x1.300
weight	(kg LD/HD)	149/184

The specifications are not binding and may be modified without notice.
Data calculated in accordance with standard UNI EN 13842:2005.

FIGURE 7

- A - Side protective bumper
- B - Brackets for anchoring to body
- C - Front protective bumper
- D - Fork-lift pockets
- E - Rear protective bumper with steering bar
- F - Single point lift bail

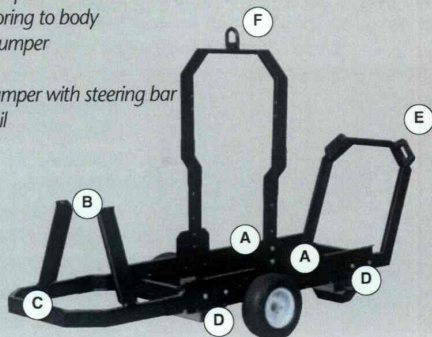


FIGURE 8



FIGURE 9

