



**FLEXIHEAT UK LTD**

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# **CABINET WARM AIR HEATERS**

**Range ENERGY**



# CABINET WARM AIR HEATERS

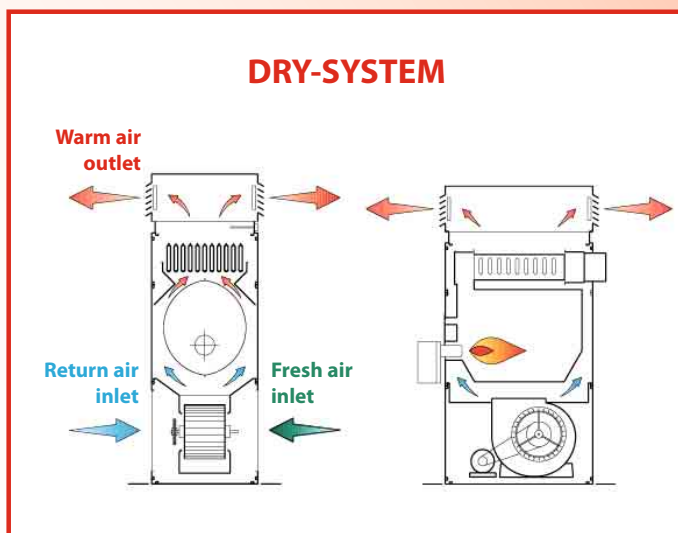
Cabinet warm air heaters are the ideal solution for heating and controlled ventilation of medium large areas such as workshops, laboratories, industrial halls, warehouses, gyms, shopping centers, exhibition halls, theaters, churches, etc. The operating principle is **simple, reliable and extremely effective**: cold air sucked by the fan is conveyed towards the heat exchanger, warmed up by the combustion that develops inside it; when crossing, the air raises its temperature and then it is distributed in the room to be heated. The heaters also allow the ventilation of the environment during the summer season.

The peculiarity of the **"dry" heating** technology is to directly and immediately transfer the heat produced by combustion in the environment to be heated, without use of intermediate heat transfer fluids (each intermediate heat exchange involves thermal losses and further system complexity), ensuring a high **overall efficiency** of the system, combined with a very **low thermal inertia**. These distinctive features make the installation of cabinet warm air heaters particularly advantageous in cases where rapid, reliable, intermittent or occasional heating is required or where there is a risk of freezing. Flexiheat cabinet warm air heaters require very little maintenance and ensure durability and reliability over time.

**Our cabinet warm air heaters have a wide range of energy-efficient models that meet the efficiency and atmospheric emissions requirements of the new European ERP2018 legislation which came into force on 1 January 2018.**



Flexiheat cabinet warm air heaters can be equipped with outlet plenum for **direct diffusion** of warm air into the environment or integrated with ducted air distribution systems. In case of ducted systems, according to the air pressure required by the system, **high pressure versions are available**. The standard versions are designed to treat air at a minimum temperature of  $-15^{\circ}\text{C}$ , **but versions suitable for operation in extremely cold climates with air intake up to  $-40^{\circ}\text{C}$  are available.**



Flexiheat's range of cabinet warm air heaters is very complete, covers a wide range of powers and responds to the most diverse needs with models for **vertical, horizontal, indoor and outdoor installation**. The wide range of accessories allows to complete the installation quickly and obtain the best comfort and energy saving performance.

Flexiheat uses best quality steel and functional components for the production of its cabinet warm air heaters, moreover, **each unit is carefully checked and tested** according to the most rigorous quality controls before shipping to the customer.

# ENERGY



- Maximum **energy efficiency** and **environmental comfort** thanks to power modulation and condensation operation at reduced thermal load.
- **8 models** with thermal capacity from 20 kW to 1.100 kW and air flow from 4.600 to 71.000 m<sup>3</sup> / h.
- **High efficiency ~ 103%**.
- Heat exchanger made entirely of stainless steel **AISI 304** with aerodynamic profile and turbulent imprints.
- Combustion chamber in **AISI 430** stainless steel.
- Can be combined with gas or diesel blown air burners, with **two-stage or modulating** operation.
- Suitable for **ducted or direct diffusion** systems with air outlet plenum.
- High performance centrifugal fans with variable ratio transmission (adjustable during installation).

**ENERGY** series warm air heaters are designed to be combined with burners with variable heat output, with **two-stage or modulating regulation**. In reduced thermal power operation, the temperature of the fumes is lowered until the condensation of the water vapor level contained therein, allowing **efficiency higher than 103%**.

The variable thermal power also allows a quick and effective preheating of the room to be treated. When the room temperature reaches the set point, operation at reduced power allows the maintenance of comfort without inconvenient temperature fluctuations, at a low thermal power, condensation regime and with reduced supply air temperature. These features allow not only an ideal comfort, **but also important savings in heating operation**. In applications with high or total external fresh air, the variable thermal power keeps the supply air temperature constant as the external environmental conditions change.

The wide range is divided into models **for vertical, horizontal, indoor and outdoor installation**.

In the case of ducted systems, **high pressure versions** up to 800 Pa are available. The standard version is designed to treat air at a minimum temperature of -15 °C. On request, suitable versions are available for operation with intake air up to **-25 °C and -40 °C**.

For transportability reasons, larger models are shipped in separate packages, to be assembled directly on the installation site.



# Technical features

## HEATING SECTION

### MAXIMUM OPERATING MODE

Models	U.M.	ENERGY 60	ENERGY 105	ENERGY 160	ENERGY 220	ENERGY 320	ENERGY 460	ENERGY 640	ENERGY 970
Thermal power input	kW	68,2	115,1	175,7	246,1	354,8	502,9	715,2	1.089,8
	kcal/h	58.635	99.025	151.145	211.670	305.120	432.495	615.045	937.300
Thermal power output	kW	60,1	103,5	160,3	217,1	323,9	465,2	648,6	970,0
	kcal/h	51.715	89.020	137.845	186.695	278.575	400.060	602.810	834.200
Air temperature increase	K	39	38	43	43	45	44	45	41

### MINIMUM OPERATING MODE IN CONDENSATION

Models	U.M.	ENERGY 60	ENERGY 105	ENERGY 160	ENERGY 220	ENERGY 320	ENERGY 460	ENERGY 640	ENERGY 970
Min thermal power input	kW	22,6	36,8	55,1	65,4	119,1	196,6	154,6	232,0
	kcal/h	19.430	31.665	47.345	56.280	102.465	169.075	132.990	199.520
Min thermal power output	kW	22,7	37,1	55,9	66,5	119,9	196,8	159,7	234,3
	kcal/h	19.540	31.950	48.040	57.155	103.115	169.265	137.370	201.150
Efficiency	%	100,6	100,9	101,5	101,6	100,6	100,1	103,3	101,0
Air temperature increase	K	14	14	15	13	16	19	11	9,8

## AERAILIC SECTION

Models	U.M.	ENERGY 60	ENERGY 105	ENERGY 160	ENERGY 220	ENERGY 320	ENERGY 460	ENERGY 640	ENERGY 970
Nominal air flow	Nm <sup>3</sup> /h	4.600	8.000	11.000	15.000	21.500	31.000	43.000	71.000
Static pressure (standard)	Pa	220	220	220	220	220	220	220	220
Fan motor (standard)	kW	1 x 1,1	1 x 2,2	1 x 3,0	1 x 4,0	1 x 5,5	1 x 9,2	1 x 15,0	2 x 11,0
Static pressure (S version)	Pa	450	450	450	450	450	450	450	450
Fan motor (S version)	kW	1 x 1,5	1 x 3,0	1 x 4,0	2 x 3,0	1 x 7,5	2 x 5,5	1 x 18,5	3 x 9,2

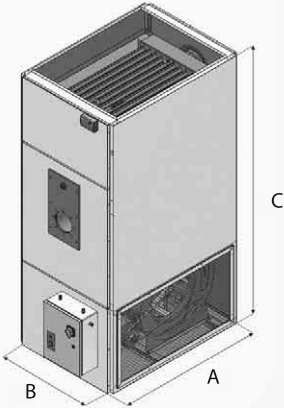
## ELECTRICAL SPECIFICATION

Models	U.M.	ENERGY 60	ENERGY 105	ENERGY 160	ENERGY 220	ENERGY 320	ENERGY 460	ENERGY 640	ENERGY 970
Electric voltage	V - 50Hz	400 3N ~ TRIFASE							

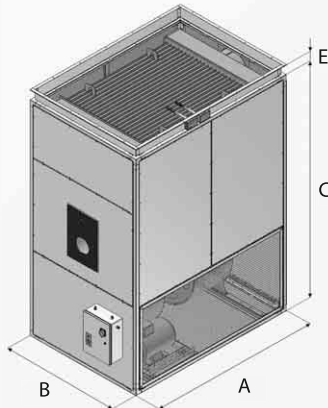
## Heater synthetic description

- **External casing** consists of demountable panels made of pre-painted galvanized steel sheet, with thermal insulation of the surfaces exposed to the heat exchanger. For all the models (except ENERGY 60) there is a load-bearing structure of painted galvanized steel of particular profile, joined by special die-cast aluminum joints.
- **High efficiency heat exchanger**, made of welded sheet steel, easy to inspect for normal operations of cleaning and maintenance, consisting of:
  - **Flame inversion combustion chamber**, in **AISI 430** stainless steel resistant to high temperatures, of large volume and low thermal load, with circular or ellipsoidal profile, complete with inlet with burner plate and flame control spy.
  - **Heat exchanger tubes entirely in AISI 304** stainless steel, suitable for the heater operation with reduced thermal power in condensation. Fumes tubes have a flattened tubular section with staggered and opposing turbulent imprints, with special reticular turbulators for maximum efficiency, complete with front and rear manifold with detachable inspection door, entrance for chimney connection and connection for condensation drainage.
- **Ventilation group** consists of one or more high performance centrifugal fans with low level of sound emission, powered by an electric motor (s) connected by a pulley and belt drive system, with a variable ratio driven pulley.
- **Fan-limit safety thermostat/s**, for automatic control of ventilation group and for the safety stop of the burner in case of abnormal overheating of the air.
- **Electrical panel** for command and control with general switch.

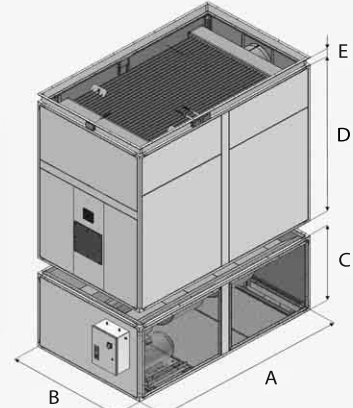
**ENERGY** *Vertical indoor installation version*



**ENERGY 60 ÷ 105 one section**



**ENERGY 160 ÷ 320 one section**



**ENERGY 460 ÷ 970 2 sections**

Models	Overall dimensions mm					Chimney Ø mm	Weight Kg	Weight with packaging Kg
	A	B	C	D	E			
<b>ENERGY 60</b>	812	544	1.580	–	–	150	135	140
<b>ENERGY 105</b>	1.060	774	1.926	–	–	200	255	260
<b>ENERGY 160</b>	1.300	900	2.120	–	100	250	450	457
<b>ENERGY 220</b>	1.500	1.000	2.120	–	100	250	535	542
<b>ENERGY 320</b>	1.700	1.200	2.350	–	100	300	750	760
<b>ENERGY 460</b>	2.090	1.270	1.000	1.870	100	330	1.180	1.190
<b>ENERGY 640</b>	2.500	1.500	1.000	2.120	100	370	1.650	1.660
<b>ENERGY 970</b>	3.500	1.500	1.200	2.120	100	380	2.150	2.160



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