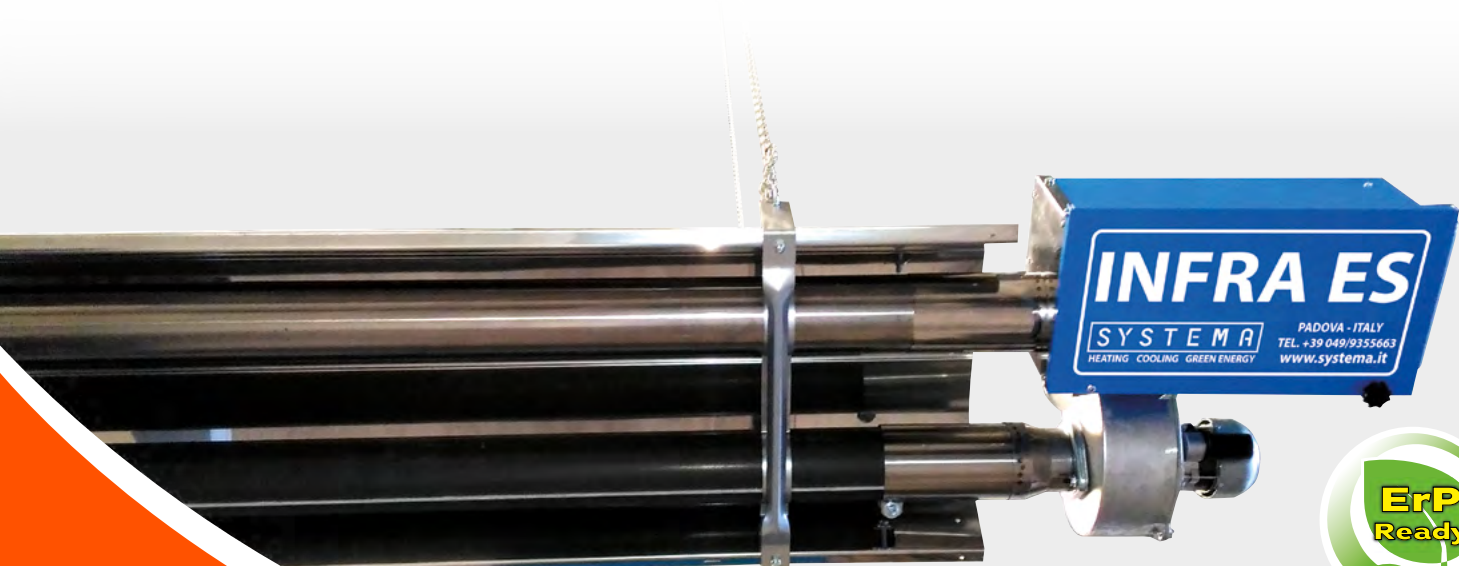


# SYSTEMA

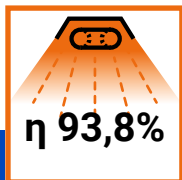
HEATING COOLING GREEN ENERGY

## INFRA ES

Gas fired radiant tubes for radiant heating  
from 28 to 60 kW



FAST AND EASY  
INSTALLATION



HIGH EFFICIENCY  
AND EMISSIVITY



SILENT AND  
HEALTHY



LOW  
MAINTENANCE



FAST AND HIGH  
THERMAL COMFORT

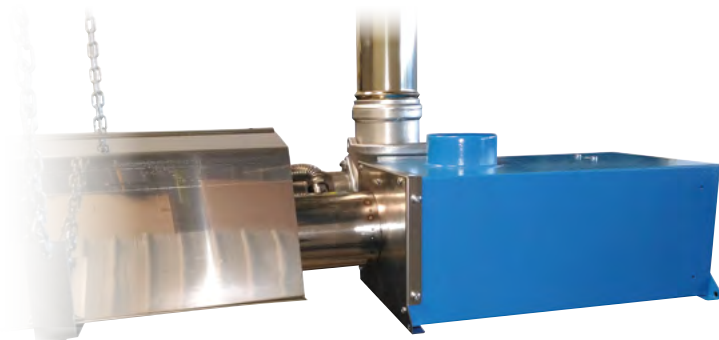


LOW RUNNING  
COSTS

## GENERAL FEATURES



## INFRA ES-R WITH FUME RECYCLING



L'INFRA ES-R with fume recycling is designed to ulteriorly reduce the emission in the atmosphere of, and for maximize the **RADIANT FACTOR** with a bigger **combustion yield up to 93,4%**.

The configuration of the recycling fume collector is fundamental to obtain the ideal balance of flown and fume temperature and the temperature of the heating exchanger.

- ❖ **Infra 9 ES-R 45**, 9 m long with a power of 45 kW and a **93,3% yield**
- ❖ **Infra 12 ES-R 45**, 12 m long with a power of 45 kW and a **93,4% yield**



## HOW IT WORKS

**INFRA** radiant tubes produced by **Systema S.p.A.** use the radiant heat propagation system to heat large areas quickly, economically, quietly and environmentally friendly, without any air movement.

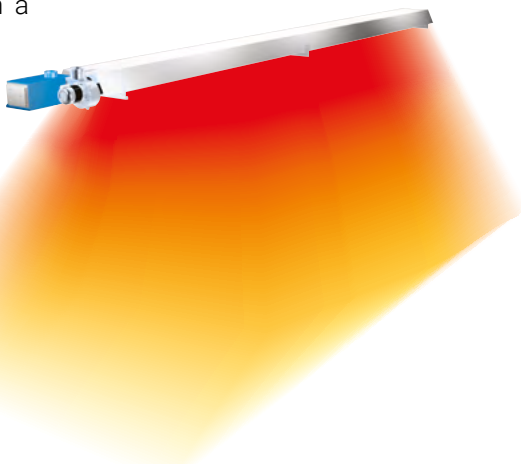
Heating occurs through the transfer of energy by means of electromagnetic waves, known as radiation (infrared radiation, i.e. heat), which enables the transport of thermal energy in a straight line at the speed of light.

Radiation from the **INFRA** radiant tube directly heats the surfaces at reflected surface temperatures of the hood, located above the entire surface of the tube, being partly absorbed by objects and partly reflected, then hitting other objects.

The **INFRA** radiation system allows a precise localisation of the surfaces to be heated without any stratifying effect, avoiding costly energy losses and concentrating the heating in the areas that require it, allowing the possibility of zone heating. The lack of air movement also makes the rooms healthier by avoiding the movement of annoying dust inside them, not least the rapidity in switching on and starting up the system allowing interesting savings in consumption.

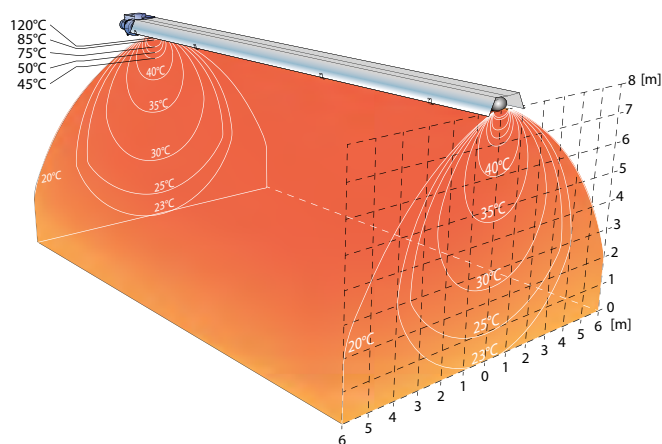
The **INFRA** radiant tube, thanks to an efficient electronic command and control system, guarantees very high levels of safety, functionality and efficiency, all this combined with a double shutter gas valve, an electronically controlled ignition and a completely vacuum system that can further increase its safety and efficiency, allowing it to be used even in the most critical and demanding environments.

**INFRA** runs on both gas and diesel fuel, it has been designed to be easily installed and to have a totally autonomous and independent operation, the wide choice of remote control and command accessories, is able to guarantee levels of efficiency that are among the best available on the market, and can be inserted in complex systems even for heating with differentiated zones with remote control and supervision, thanks to a MODBUS or PC connection system.



**CONDIZIONI DI PROVA:** Max temperature of the radiant tube surface: 450 °C, heated material: wooden-paper with a surface of 0,5 m<sup>2</sup>, 5 mm depth, parallel to the suspended tube.

Temperature has been detected after 90 minutes of heating. Operating temperature and air movement speed of < 0,15 m/s



- Device complies to LOW TENSION 73/23CEE directive.
- Device complies to ELECTROMAGNETIC COMPATIBILITY directive.
- Device complies to UNI EN 416-1 standard.
- **Device certified according to the European rule on radiant efficiency UNI EN 416-2.**
- Device certified CE according to European directive 90/396 CEE.
- Hygienic and sanitary considerations on the "INFRA Radiant Tube Modules", produced by Systema S.p.A., by Prof. Giuseppe RAUSA of the Institute of Hygiene and Preventive Medicine UNIVERSITY OF FERRARA

## RANGE

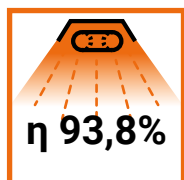
Version	Model	Power	$\eta_s$	Length
<b>BIGGER</b>	INFRA 15 ES 60	60 kW	82,3%	15 m
	INFRA 12 ES 60 *	60 kW	82,9%	12 m
	INFRA 9 ES 53 *	53 kW	82,1%	9 m
	INFRA 6 ES 35 *	35 kW	82,1%	6 m
<b>R RECYCLING</b>	INFRA 12 ES-R 45	45 kW	83%	12 m
	INFRA 9 ES-R 45	45 kW	79,2%	9 m
<b>STANDARD</b>	INFRA 12 ES 45	45 kW	79,7%	12 m
	INFRA 9 ES 45	45 kW	76,8%	9 m
	INFRA 6 ES 28	28 kW	78,7%	6 m

Version	Model	Power	Length
<b>STANDARD MONOTUBE</b>	INFRA 18 BM 45 *	45 kW	18 m
	INFRA 15 BM 35 *	35 kW	15 m
	INFRA 12 BM 28 *	28 kW	12 m
	INFRA 9 BM 18 *	18 kW	9 m

\* BL Versions with reflecting canopy in aluminised steel. -  $\eta_s$  = Seasonal energy efficiency of ambient heating ( $\geq 74\%$ )

## ADVANTAGES



### HIGH COMBUSTION YIELD

INFRA ES offers high combustion efficiencies, and in the **INFRA ES-R** versions (with flue gas recirculation), it further optimises **efficiency up to 93.8%**, reducing atmospheric emissions (Low NOx), and increasing radiant emissivity (RADIANT FACTOR).



### HIGHEST SAFETY IN THE FUNCTIONING

Certified according to 90/396 CEE rule. LOW TENSION 73/23CEE rule and ELECTROMAGNETIC COMPATIBILITY ECM 89/336/CEE rule. Device complies the **European standard UNI EN 416-1** and **European standard on radiant efficiency UNI EN 416-2**.



### FAST INSTALLATION AND COMMISSIONING

Only a gas connection, an electric connection and the fumes discharge are required, really quick installation:

1. Assemble
2. Connect
3. Switch ON, in about 15 minutes it is warm.



### QUIET FUNCTIONING

**INFRA ES does not move any air and for this reason it has a very quiet functioning.** It could be installed in gyms and sport areas without any annoying noise in functioning



### SPACE SAVING: NO NEED OF CENTRAL HEATING

Thanks to its features **INFRA ES** does not imply any floor space, allowing people to operate without any obstacle. Install it with no need of any central heating and it is easy to be moved to heat other areas in case of modification or enlargements of the building.





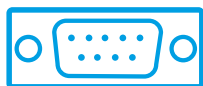
## CENTRALISED CONTROL

### Control Panel SYS 150

Digital chronothermostat with automatic operation based on program and timer settings entered, controls up to 16 units and up to 4 zones.

*Available in 2 versions:*

**Control Panel SYS 150 BASE** type iNET (Code 00CECR2693)



**Control Panel SYS 150 ModBUS** is a chronothermostat type iNET (Code 00CECR2694) with communication port for Modbus and connection to i<sup>2</sup>NET network for connection to SYS850/SYS830 type switchboards as slaves.

Environment probes are separate, also provide network interface board for INFRA Code 00CECR2687.

**For the management of large building sites with multiple thermal zones are also available the control boards SYS850/SYS830 (Contct Systema for )**

### CE Standard control board

With temperature digital control



*Available in 3 versions:*

Code	Devices	Thermal area
00CEQU1196/A	1	1
00CEQU1198/A	2	1
00CEQU1200/A	4	1

### CE control board with chrono thermostat

With daily/weekly programming and timer



*Available in 3 versions:*

Code	Devices	Thermal area
00CEQU1197/A	1	1
00CEQU1197/A	2	1
00CEQU1201/A	4	1



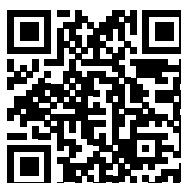
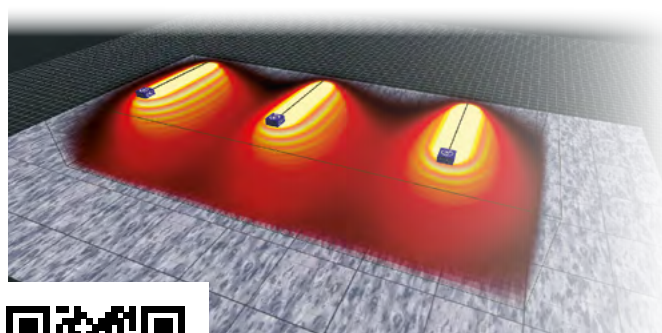
## SYSTEMA RADIANT SOFTWARE

### AUTOMATIC PLANT DIMENSIONING

The **design and calculation software** developed by Systema S.p.A. allows optimal plant dimensioning for heating all types of rooms. The software is equipped with a wide range of specific settings, which can be selected according to the needs of the room to be heated, allowing the right solution to be designed.

The software allows you to change the type, quantity, power and position of the products to be installed while maintaining the dimensions of the building, so that you can evaluate the most appropriate solution for the system to be heated.

By changing the dimensions of the 3D rooms to be heated, the software will automatically vary the number or power of the selected products to achieve the best thermal comfort.



**To download the software, subscribe and fill the form on:**

<https://www.systema.it/en/login>

## REFERENCES





## REFERENCES







Since 1986, Systema S.p.A. is one of the leader companies in Italy and Europe in designing, developing and producing devices for the heating and conditioning in industrial and commercial buildings.

There has been always in Systema's Research and Development department where high investments have been made, since the beginning, for the creation of an internal laboratory who could design and offer highly innovative products that can satisfy and anticipate all the requests coming from the market. In this field Systema works together with important Italian, European and extra-European laboratories and university departments. A cooperation which leads to the concept of innovative and visionary products and solutions and to the obtaining of several international patents.

Systema S.p.A. differs from competitors because can offer a complete range of products that goes from commercial and industrial heating with radiant and hot air solutions, to conditioning with absorption chillers, electric heat pumps and evaporative adiabatic coolers and with a specific focus on the agricultural and breeding farms products for heating (both heaters and radiant systems) and conditioning with adiabatic coolers. This range has been conceived looking for environmental-friendly products with the lowest energy consumption.

Managing such a large range of products is not easy but, also in this field, Systema S.p.A. has been always different with an internal and external organization that guarantees high quality services through an extensive commercial network made of highly qualified technical salesmen, an internal organization of customer service with experience in designing and consultancies well aware of all the required standards and rules and a massive after sales structure both internal and external that Systema keeps regularly update in order to have technicians who are always very well prepared.

The work of these structures is greatly facilitated by Systema S.p.A.'s production facilities, which are made up of the highest quality standards and production processes that are technologically advanced and constantly modernised. The united work of those responsible for production, procurement and quality allows Systema S.p.A. to make available to its commercial structure products and systems that are of high quality, reliable and made in full compliance with the most advanced standards.

Systema S.p.A. is able to supply its sales organisation with products and systems of high quality and reliability and manufactured in full compliance with the most advanced standards.

Systema S.p.A. has thus managed, over the years, to gain a strong international presence which sees it active in markets all over the world, carrying forward the flag of top quality Made in Italy and achieving leadership positions in many countries. A strategic decision was taken by Systema S.p.A. to create Systema Polska, which is able to provide a highly qualified, high quality production force and a commercial structure, in synergy with that of Systema S.p.A., which is able to present and improve the commercial penetration of Systema products in markets such as Poland and neighbouring countries.

The synergies put in place have greatly facilitated the growth of the services offered to the market, services made up of a very high level of attention to the customer, who in Systema finds not only a business partner but also a highly qualified technical consultancy service that goes hand in hand with reliable after-sales services that are always ready to quickly resolve any problems reported by the customers themselves.

*Systema: focus on the future  
by interpreting the present...*



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