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AMBIRAD

ENERGY EFFICIENT HEATING SYSTEMS

NORRAYVAC

CONTINUOUS RADIANT
TUBE HEATING SYSTEM

The Nor-Ray-Vac 'LR' system is a lightweight gas fired continuous radiant tube heating system that offers the widest range of burner inputs of any continuous radiant system and comprises the following features:

- *In-line fuel efficient burners (inputs between 12-46kW).*
- *Common vacuum fan operation.*
- *Stoichiometric or 'perfect' combustion.*
- *Upto 92% combustion efficiency.*
- *Good visual appearance.*

The Nor-Ray-Vac system is designed to provide uniform heat coverage over the entire floor area.

Alternatively the system can also cater for distinct zones providing a varied degree of comfort level within the overall layout of the building.

System operation

The system operates on a vacuum principle and utilises a zero governor within a dedicated gas valve ensuring optimum efficiency, reliability and safety.

The zero governor will only allow flow of gas when a vacuum is created by the fan. Therefore apart from the standard failsafe (where the gas valve locks out with ignition or gas supply failure), the zero governor also mechanically prevents gas flow in the event of vacuum shut down. The control of gas flow through the zero governor and the air flow into the mixing chamber under the influence of the vacuum fan, also enables stoichiometric combustion at the burner head.

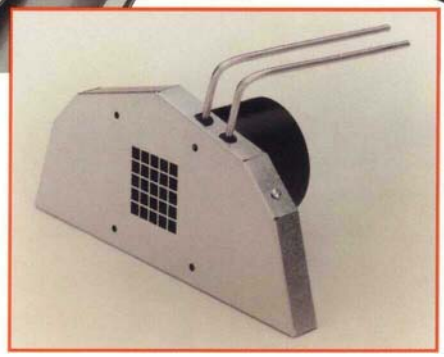
The stoichiometric principle, where gas and air are mixed in the correct proportions so that secondary air is not required to complete combustion of the gas, permits the inclusion of further burners within the same tubing, 'downstream' of the first burner, ensuring evenly distributed heat along the length of radiant tube.

In order to conform to the latest European Gas Appliance regulations (pr EN 777) an End Vent Module burner has been developed to 'prove' the flow of air at the start of each radiant branch. The End Vent Module burner is a feature which is unique to the Nor-Ray-Vac 'LR' series, and instils the principle of 'safety of operation' as a prerequisite of design.

Nor-Ray-Vac 'LR' system benefits

- Low running costs. Saving between 25-60% of fuel costs can be achieved.
- Good aesthetic integration with building.
- Minimal flue penetrations - single flue system. Up to 550kW per single discharge.
- Capable of running three 46kW burners in a radiant branch.
- Widest range of burner inputs for any continuous system.
- Uniform even distribution of heat.
- Reliability and safety of operation to the latest European Standard for multi-burner systems (pr EN 777).

Specification



Burner Control Housing
Chassis style with detachable pivoting lid for ease of access during maintenance.

Reflectors
The radiant tube sections of the system are fitted with reflectors made of Aludip or stainless steel to direct infra-red rays downward. The reflectors are a unique design profile to maximise the reflected radiant heat, minimise convective loss and maximise rigidity.

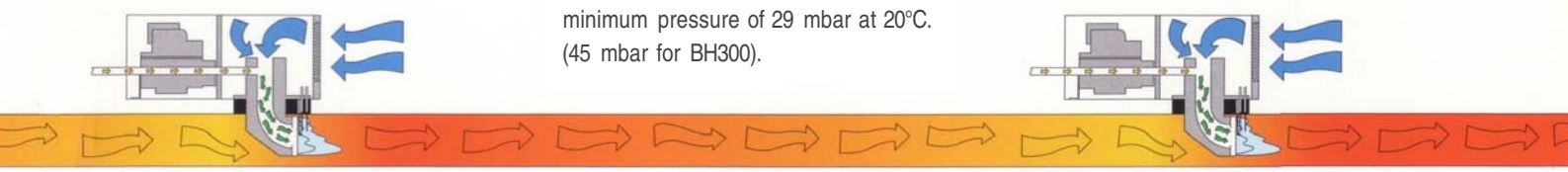
System Tube
The tube manufactured to BS6323 pt. 5 1982 is factory pre-painted. The tube and fittings are connected together using special stainless steel wrap-round couplings.

End Vent, Module/Burner
At the start of each radiant branch an EVM is connected to the rear of the first combustion chamber. The EVM/Burner incorporates a vacuum pressure switch to prove flow at the start of the radiant branch to comply with European standards.

Vacuum Fans
Robust steel plate fabricated centrifugal fan coated with heat and corrosion resistant paint. Capable of static minimum pressure of 29 mbar at 20°C. (45 mbar for BH300).

Burner Head Assembly
A lightweight aluminium construction, with a ceramic burner head insert. The slim aerodynamic shape reduces pressure drop across the burner head and promotes a greater volume flame at the bottom of the tube where maximum release heat is desirable. (Patent applied for).

Control Panel
A range of control panels specially designed for Nor-Ray-Vac radiant heating systems isavailable.



Specification and technical data

Burner model		NRV12LR	NRV18LR	NRV24LR	NRV32LR	NRV38LR	NRV46LR
Input rating							
Gross	kW	12	18	24	32	38	46
Gas consumption							
Natural gas G20	m^3/h	1.143	1.715	2.287	3.05	3.62	4.38
Propane G31	m^3/h	0.452	0.677	0.903	1.21	1.43	1.73
Inlet gas pressure	mbar Max	50	50	50	50	50	50
	mbar Min	12	12	12	12	12	12
Radiant tube length (distance between burners)							
	m Min	5.2	7.4	9.4	14	18	23
	m Max	7.2	10.2	13.1	18	23	27
Maximum tube temperature	℃	450	450	450	480	480	480

Electrical details

Burner model	NRV12LR	NRV18LR	NRV24LR	NRV32LR	NRV38LR	NRV46LR
Electrical supply	230 volts 1 phase 50Hz					
Current rating	0.05 amps max (inductive)					

Noise rating at 3m below burner

Burner model	NRV12LR	NRV18LR	NRV24LR	NRV32LR	NRV38LR	NRV46LR
dB(A)	46	47	47	48	50	51
NR±2	40	41	41	42	44	45

Distance from combustibles

Burner model	NRV12LR	NRV18LR	NRV24LR	NRV32LR	NRV38LR	NRV46LR
Below tube	End vent/inline					
Without undershield	1120/1250	1120/1250	1120/1250	1440/1700	1570/2100	1700/2100
With undershield	760/850	760/850	760/850	760/850	785/1050	850/1050
Above tube	250	250	250	250	250	250
Horizontally						
Standard reflector	600/770	600/770	600/770	700/850	700/1000	700/1000
Perimeter reflector	305/450	305/450	305/450	305/510	305/600	305/600

All distances are in millimetres.

Minimum mounting height

Burner model	NRV12LR	NRV18LR	NRV24LR	NRV32LR	NRV38LR	NRV46LR
m	3	3.6	4	4.7	5.3	6

System weight

System type		NRV12LR	NRV18LR	NRV24LR	NRV32LR	NRV38LR	NRV46LR
Average weight	kg/m	10	10	10	10	10	10

Ambi-Rad Limited Fens Pool Avenue
Brierley Hill West Midlands
DY5 1QA United Kingdom

Telephone 01384 489700
Facsimile 01384 489707
UK sales email sales@ambirad.co.uk
Website www.ambirad.co.uk

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