

Trade Data



Powrmaster

Powrmaster Air Rotation Heaters
TEG (Gas Fired) - TEO (Oil Fired)
Heat Outputs from 88kW - 806kW

Issue 1.1 - August 2011

- Low cost solution to efficiently heat large spaces and racked warehouses
- Internal or external location with minimal impact on floor space
- No requirement for expensive or restrictive ductwork - does not compromise future racking layouts
- Uniform heat distribution
- Low capital cost - typically £30/kW installed
- Low operating cost - typically 2.0p/kWh
- Twenty year combustion chamber/heat exchanger warranty



Air Rotation Technology

Air rotation systems may well be chosen in preference to either radiant heating or ducted warm air heating on the promise of lower capital and operating costs. However cost benefits do not tell the whole story. Air rotation heaters have many other advantages.

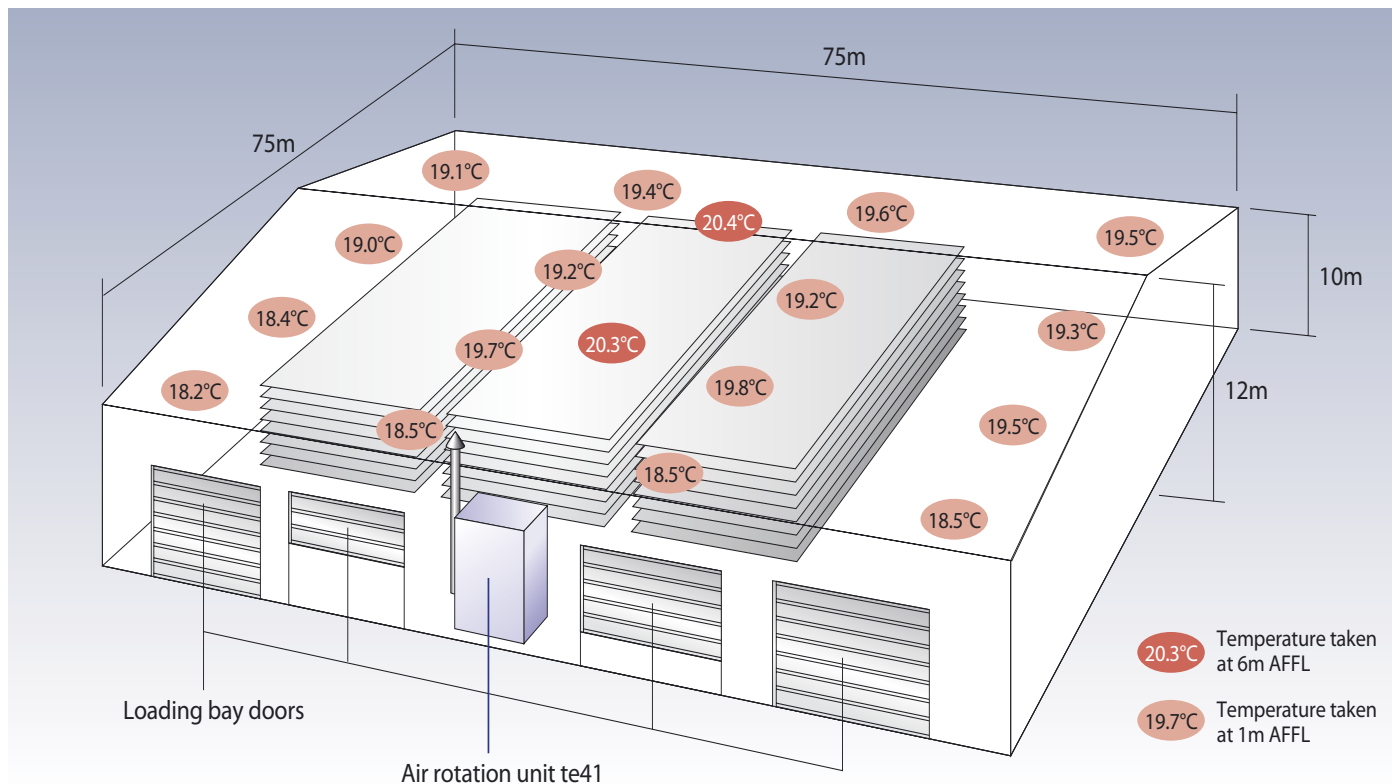
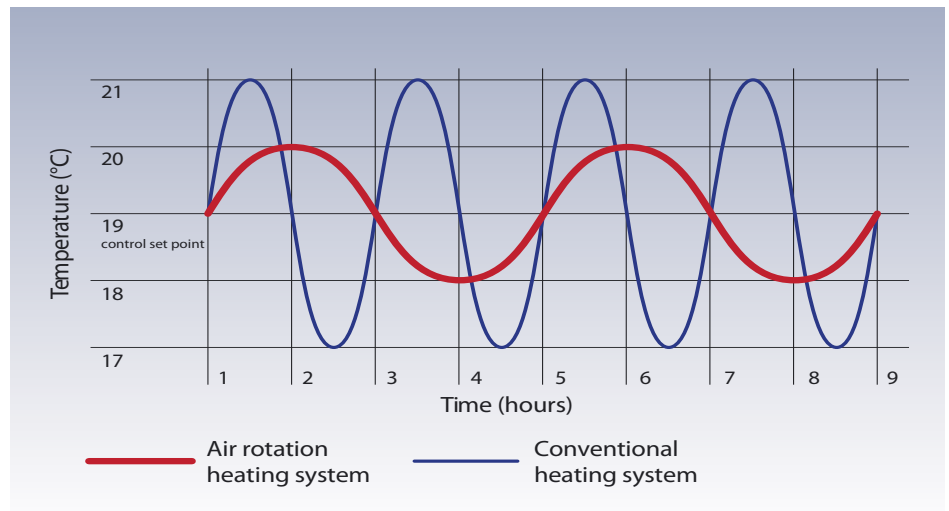
Alternative radiant or ducted systems will have been designed to suit the building and racking layout. Such systems often restrict future layout changes whereas air rotation heaters leave the working or storage zones clear permitting greater flexibility in use.

The principle of air rotation is to move large volumes of air at low velocity and controlled temperature. Cooler low level air is constantly drawn through the heater with a high level discharge effectively de-stratifying the building and, in turn, lowering the temperature gradient within the heated area. For the majority of applications a single heater can provide uniform warmth wall to wall and floor to ceiling.

Installation and service costs will be significantly lower than multi-heater installation, further reduced without the need for the high level access equipment associated with off-floor equipment.

The high air volume to heat ratio ensures high efficiency, further enhanced by the optional selection of high/low or modulating burners. Fuel usage and emissions are a key consideration with advanced burner technologies combining with inbuilt time and temperature controls to provide warmth when and where needed.

Heat input requirements can be reduced to steady state levels with no requirement for additional intermittent loadings when controlled in frost protection or night set-back mode with commensurate fuel savings resulting.



Application & Configuration Powrmatic te air rotation heaters are supplied in upright configuration. Whilst most te heaters will be internally located it is possible to choose an external location for the heater and for such applications Powrmatic can offer a fully weatherproofed unit. Weatherproof units attract an additional cost.

On matters of system sizing and plant location it is strongly recommended to consult with our in-house design team prior to product selection and installation. A free design service is available to customers.

Efficiencies Fuel usage and emissions are a key consideration within the te heater operating principles and design. All heaters have efficiencies which meet or exceed the requirements of current Building Regulations with additional output options available.

Efficiencies can be further enhanced with the selection of high/low or modulating burner options.

Cabinet Typically, the heater cabinet is constructed in three separate parts, the fan compartment, heat exchanger section and outlet plenum. All are designed for trouble-free on-site assembly. Each section is of frame and panel construction and finished with hardwearing epoxy powder coat stove baked paint.

Combustion Chamber The drum type chamber is fabricated from high grade 304 stainless steel close coupled to a high efficiency tubular heat exchanger. Both elements have been life-cycle tested and consequently covered by an extensive twenty year warranty.

Burners Powrmatic te heaters are specification matched to Riello pressure jet oil and forced draught gas burners. Oil fired heaters are arranged, as standard, for operation on Class D light distillate 35 second gas oil whilst gas fired heaters are supplied ready for use with natural gas (G20).

Alternative kerosene, lpg propane (G31) or liquid biofuel firing available to order.

Air Movement Via dynamically balanced and resiliently mounted axial fan sets with direct driven motors. For certain remote or external location heaters alternative centrifugal fan sets may be required.

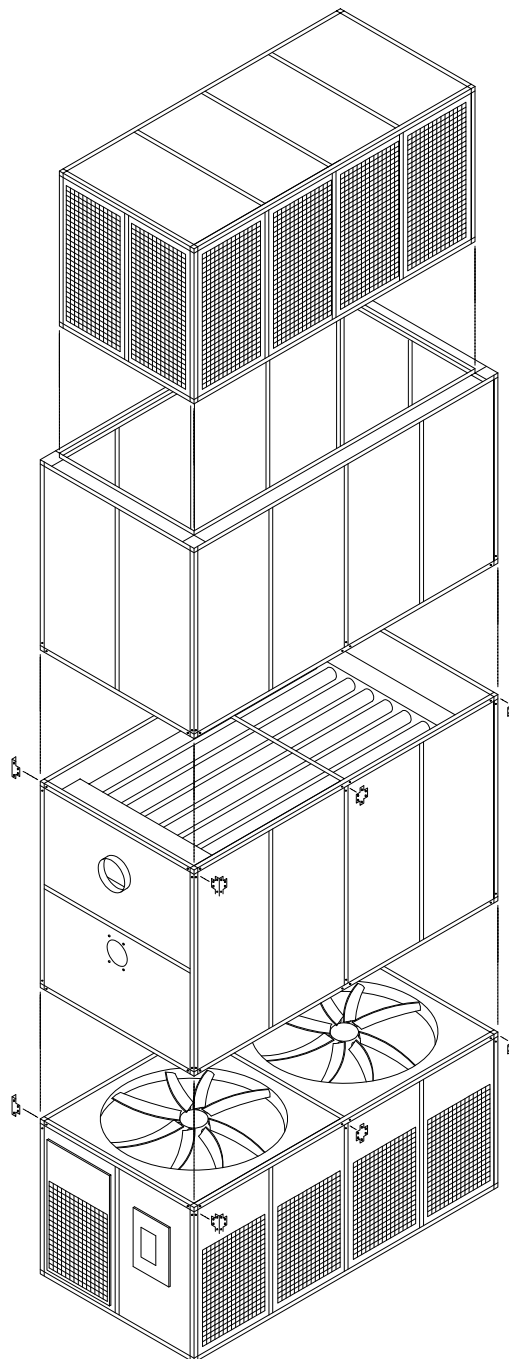
Controls Heaters are supplied ready for automatic operation and are complete with safety and comfort controls. As standard heaters will be provided with high temperature limit protection as well as an optimised entry code protected control which includes a digital time switch, electronic day thermostat and frost protection thermostats with a remote temperature sensor. Interconnecting wiring between the control and sensor by others.

The control console is heater mounted for all internal units and supplied in remote format for external heater variants. In the case of external the interconnecting wiring between the heater and control console is by others.

Approvals All Powrmatic heaters are type tested to meet the stringent requirements of both the Gas Directive and CE accreditation.

Guarantee Powrmatic te heaters come with a peace of mind guarantee. The heater has a two year parts guarantee and twelve months labour guarantee whilst the combustion chamber has the protection of a twenty year time related warranty.

TE heater



Powrmaster - TEG / TEO

Model			21	31	41	61		
Output			kW	88	100-234	220-440	513-806	
Volume			m ³ /s	Dependant upon design criteria of bespoke system				
Supply			v/ph/hz	230/1/50		400/3/50		
Burner Options	Gas (Standard)			Riello RS40GS10P	Riello RS40GS20P	Riello RS50	Riello RS70	
	High Low Gas (Optional)			Riello RS40GS10D	Riello RS40GS20D	std	std	
	Modulating Gas (Optional)			Riello RS40GS10M	Riello RS34MZ	Riello RS50M	Riello RS70M	
	Oil (Standard)			Riello RL40G10	Riello RS40G20S	Riello RL34	Riello RL70	
	High Low Oil (Optional)			Riello RL40G10I	Riello RS40G20D	std	std	
Fuel	Connection	Oil	bsp/Rc	1/4"	1/4"	3/8"	3/8"	
		Gas	bsp/Rc	3/4"	3/4"	1 1/2"	1 1/2"	
	Minimum Inlet Pressure	Nat Gas	mbar	17.5				
		LPG	mbar	37.0				
	Consumption Standard Outputs	Oil	l/h	10.4	Dependant upon design criteria of bespoke system			
		Nat Gas	m ³ /h	10.9				
LPG		m ³ /h	3.4					
Overall Dimensions	UD Upright Ducted	Height	mm	5162	5225	6046	8052	
		Width	mm	1010	1162	1518	2026	
		Depth	mm	1568	2025	2991	4058	
Installation Clearances	UD Upright Ducted	Front	mm	1000				
		Side	mm	1000				
		Rear	mm	1000				
Flue Diameter			mm ø	150	200	300	350	
Combustion Air Spigot			mm ø	150				
Noise Level			dBA	Dependant upon design criteria of bespoke system				

Notes –

Fuel consumption and output figures based upon gross calorific values as follows

Class D light distillate fuel oil nett CV 36.28 MJ/l

Natural gas (G20) nett CV 34.02 MJ/m³

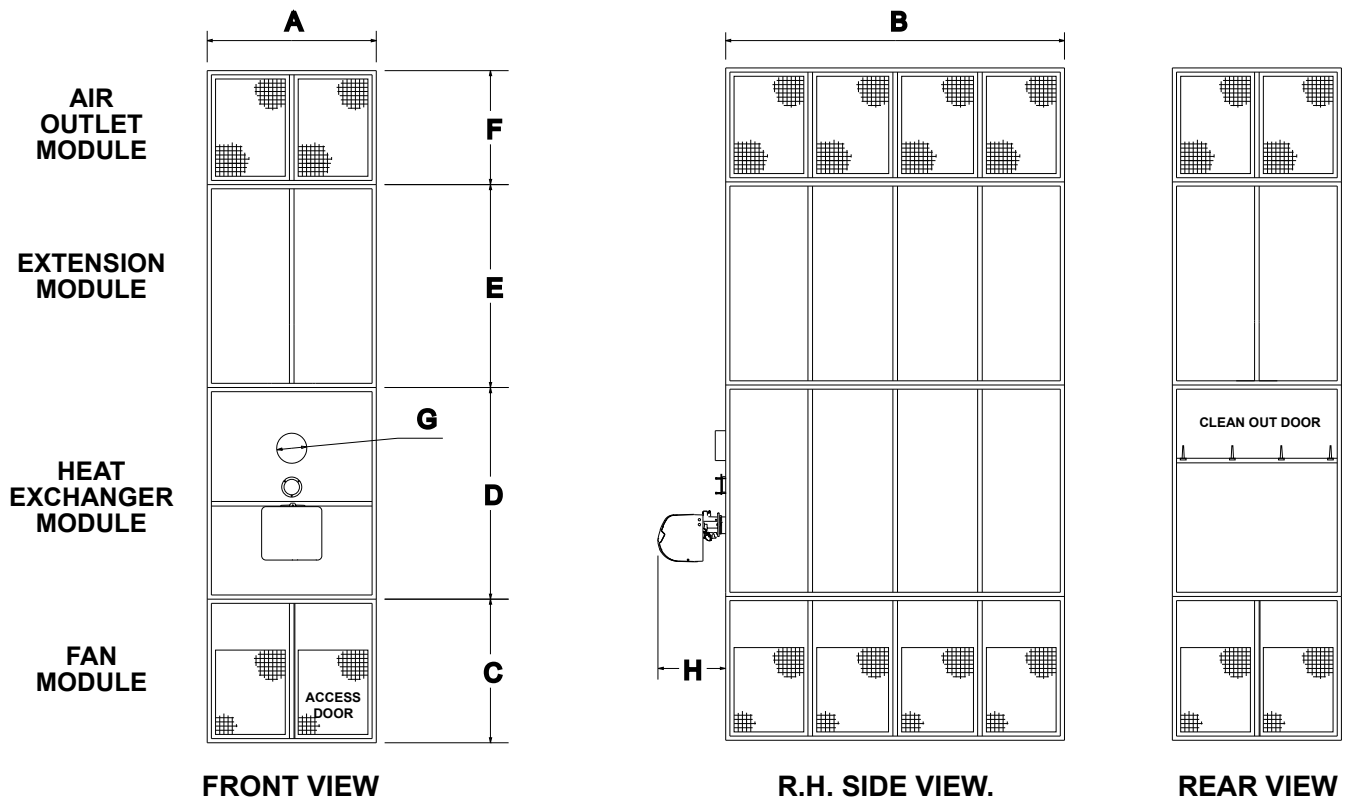
Propane (G31) nett CV 95.65 MJ/m³

Overall vertical heater height includes extension module

Bespoke extension modules can be specified to suit site conditions

Refer to dimensions page and for clearances refer to the relevant O & M manual

Installer guidance notes on rear page



Model	A	B	C	D	E	F	G	H	
								Gas	Oil
TE 21	1010	1568	1873 in Total		1873	1416	150	346	346
TE 31	1162	2025	1213	1574	1778	660	200	580	468
TE 41	1520	2991	1215	1975	1897	960	300	580	468
TE 61	2026	4008	1769	2355	2152	1769	350	840	680

Installer Guide

General The following notes are provided as a help, however installers and operators should fully acquaint themselves with the more detailed guidance provided in the relevant installation manual. For copies of such manuals please consult our technical department or visit our website - www.powrmatic.co.uk

Standards All Powrmatic heaters must be installed, commissioned and operated with due regard to appropriate regulations including but not limited to BS 6230 2005, BS5410 1998, relevant Codes of Practice, the possible requirements of Local Authorities, Fire Officers and insurers as well as Powrmatic's installation manual.

Position, Location & Assembly Powrmatic heaters are specifically designed to operate on air rotation principles. Consequently the location of the heater(s) and any supplementary 'fan-only' units (if required) may have a direct impact on the achievement of required design criteria.

It is possible to install the heater(s) directly within the space to be heated, within a plant room area, an adjacent building or an external location. Weatherproofed external heaters will attract an additional cost.

The height at which the air is discharged within the building can, for some applications, be critical and the final outlet plenum section of the heater(s) and 'fan-only' units (if required) may need to be tailored to the application.

On all matters of heater(s) and 'fan-only' unit location it is strongly recommended to consult with our in-house design team prior to product selection and installation. A free design service is available to customers.

To aid installation the heater(s) is generally supplied with separate fan, heat exchanger and outlet plenum sections and on-site assembly will be required. Consideration should however be given to the means of moving the component parts within the site and necessary mechanical handling for assembly.

Heaters should be installed on a level non-combustible base. It is important that all supporting structures or methods of suspension have due regard to the relevant weight loadings.

Consideration should also be given to flue routes, gas, oil, electrical and control connections, issues of public access and the siting of environmental control stations and/or remote temperature sensors where the position needs to be representative of the zone temperature to which they refer.

If the heater is to be located in a plant room, an adjacent building or externally then consideration of delivery and return air ductwork will be necessary.

Heaters should not be installed in hazardous areas or areas where there is a foreseeable risk of flammable or corrosion inducing particles, gases or vapours being drawn into the combustion air or main fan circuits. Areas where special consideration or advice may be required could include but is not limited to

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- where de-greasing solvents are present, even in minute concentrations
- where paint spraying is carried out
- where styrenes or other laminating products are used
- where airborne silicone is present
- where petrol engined vehicles are stored or maintained
- where dust is present (ie wood working or joinery shops)
- where high levels of extract persist

Installation in such areas may be possible under specific conditions. Please consult our technical department for further information.

Plant Room Locations Specific requirements exist where heaters are to be installed within plant rooms. Such requirements cover the provision of positive ductwork connections as well as ventilation for combustion air and general plant room or enclosure ventilation. It is recommended that you consult with our technical department prior to installation.

Combustion Air & General Ventilation Within the United Kingdom mandatory regulations apply concerning the provision of combustion air and general heater ventilation. Where a heater is installed within the heated space and where that heated space has a natural ventilation rate greater than 0.5 air changes per hour then combustion air and general heater ventilation is probably not required.

If the heated space has a natural ventilation rate of less than 0.5 air changes per hour then either natural ventilator openings or mechanical ventilation will be required. Please consult the installation manual for further details.

Installation Clearances Particular clearances may be necessary for the correct and safe function of the heater as well as for maintenance purposes. Such clearances are confirmed in the relevant installation manual.

Flue Each heater requires a separate flue system of the appropriate size. The flue should essentially be installed in the vertical plane and the number of bends kept to a minimum

The flue must be adequately supported and terminated with a suitable cowl, with due regard to the point of exit and its proximity to any windows, doors or ventilation intakes etc.

Pipework Care should be taken when sizing pipework to ensure that minimum gas and maximum oil inlet pressures are not compromised under dynamic load conditions. Isolating valves and service unions should be provided for each heater and pipework installed with due regard for relevant standards and Codes of Practice.

Guarantee Powrmatic heaters are provided with a comprehensive guarantee covering both the heater and the heat exchanger. For United Kingdom sales the heater has the benefit of a two year parts and twelve month labour guarantee whilst the heat exchanger assembly has a five year guarantee with a further fifteen year time related warranty. All guarantees are subject to terms and conditions.

