POWRMATIC®

Delivering complete climate control solutions worldwide

Individually designed and manufactured for the efficient heating and stratification of large indoor spaces.
The Powrmatic TEx Range.

TEx

Air Rotation Space Heater

Gas and oil-fired thermal econimisers



ErP Ready

www.powrmatic.co.uk

TEx Air Rotation Heater



TEx Product Benefits

FACTORY FITTED CONTROLS

FROST PROTECTION SYSTEM

EASY ENGINEERS ACCESS

EXTERNAL WEATHER PROOF OPTIONS

HOT AIR RECIRCULATION

Overview

The Powrmatic TEx range of gas and oil-fired air rotation heaters are specifically designed for the efficient heating of large areas and are especially suitable for open plan warehousing and manufacturing facilities. Our air rotation units utilise high efficiency axial fans to move large volumes of air. These heaters achieve uniformity in the distribution of heated air that cannot be matched by conventional units that treat low volumes of air at high temperature.

Customised Flexible Efficient

The all new TEx from Powrmatic.

Internal & External

Ideally the Powrmatic TEx would be sited adjacent to an external wall within the building to minimise the use of floor space, enable a simple flue installation and reduce gas and electrical works. Where project constraints dictate the unit can be supplied insulated and weather proofed for external use. Insulated and weatherproof low and high level duct connections will be required along with louvers within space.

Solutions

- Stock frost protection
- Water fed sprinkler system protection
- Background heating and ventilation
- Constant temperature control

Models Available

- TExG - Gas Fired
- TExO - Oil Fired
- TExD - Destratification

Product Features

Construction
Standard internal cabinet construction is a formed metal frame with steel panels all protected with a hardwearing epoxy coated stove baked paint finish. Externally installed units are supplied with fully insulated and weatherproof metal frame and panels all protected with an epoxy, stove baked paint finish. Optional RAL colours can be supplied as required to suit specific project requirements.

Controls
Using our MC200 controller as standard the system is supplied ready for automatic operation once commissioned. Whichever burner option is specified the simple and user friendly MC200 package offers password protected fully optimised control with all the built in safety features required. Optional control upgrades are available including remote averaging sensors, or fully integrated building management system strategy.

Efficiencies
Fuel and electricity use are minimised by specifying Air Rotation technology. High efficiency burners linked to drum and tube heat exchangers and low energy main axial fans are carefully controlled to provide heat destratification ensuring building occupier satisfaction.

Combustion Chamber
A high grade T304 stainless steel drum combustion chamber with a tubular heat exchanger gives the customer the highest thermal efficiency along with proven long service. This important component has been fully life cycle tested and is backed by an extensive time related twenty year warranty.

Installer Benefits
- Minimises gas/oil pipe work runs.
- Modular delivery to speed up HVAC installation.
- Reduces commissioning and servicing points.
- Electrical wiring simplified.
- Single flue penetration through wall or roof.
- Simple optimised controls.
- Built in building destratification.

Customer Benefits
- Large spacing heating with minimal heaters
- Painted to any RAL/BS colour (optional extra cost)
- Recovers and redistributes waste heat produced in space
- Minimise service costs by reducing the amount of overall heaters
- Proven, worldwide installed technology
- British manufactured, long term warranty and technical support

Efficiency and ErP Compliance
From 1st January 2018 all warm air heaters used to provide comfort for the occupants of a heated space are required to meet minimum standards of 'seasonal' efficiency as determined by the Ecodesign regulation (EU) 2015/1188, Directive 2009/125/EC - Lot 21 Tier 1. Compliance to the standard is mandatory. The calculation for seasonal efficiency takes into account air flow, temperature rise across the heat exchanger, electrical power consumption as well as the usual thermal efficiencies. TEx gas fired suspended unit heaters placed on the market after 1st January 2018 comply with the requirements of the standard.



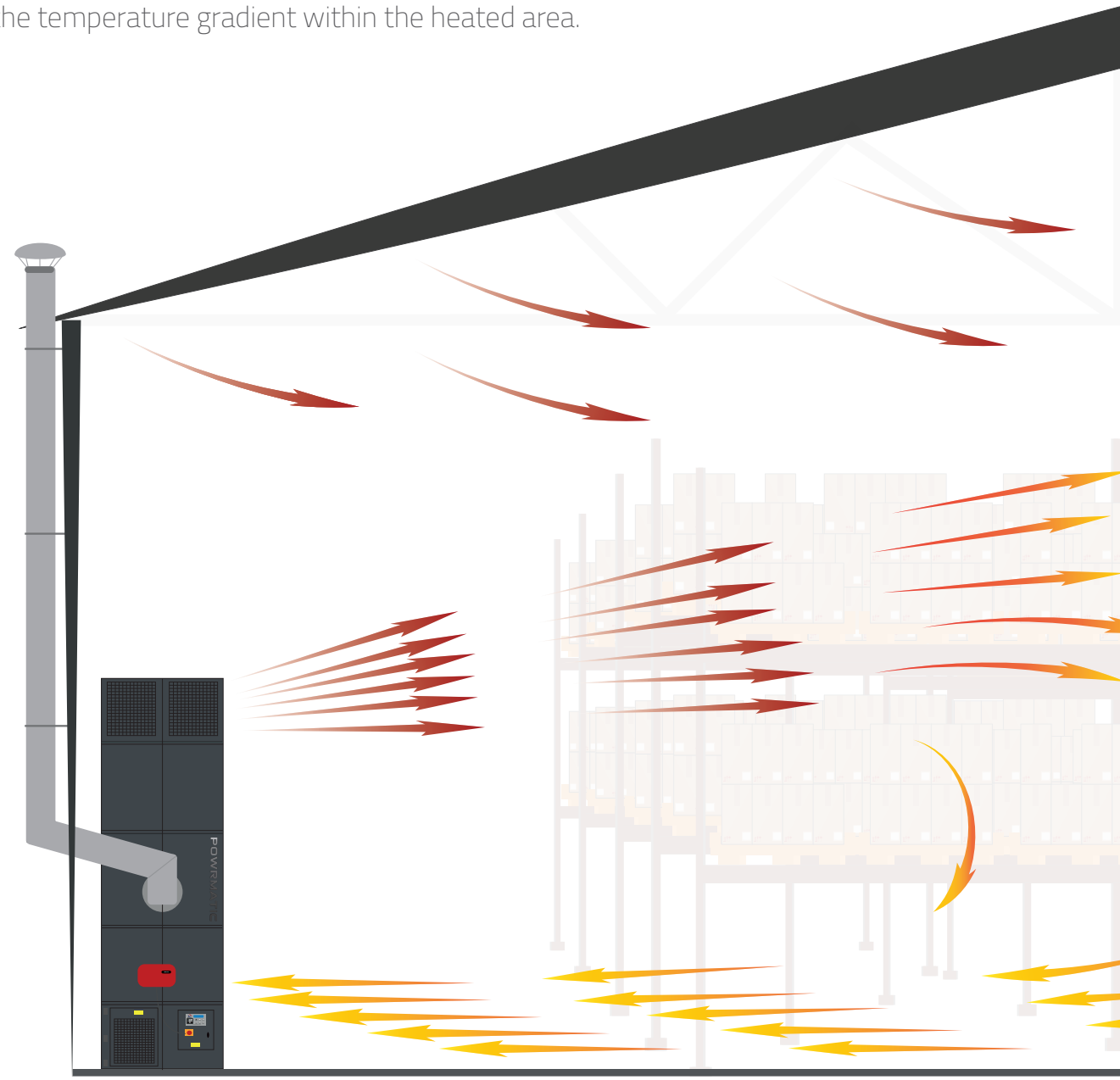
Approvals
CE

All Powrmatic heaters are type tested to meet the stringent requirements of the Gas Appliance Directive and are CE approved.

Hot Air Rotation

The Technology

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.



1

Warm air rises, cold air falls. Powrmatic's TEx Air Rotation Heater minimises this waste of energy and the uncomfortable working environments created. The Powrmatic TEx turns over a large volume of the building air, minimising wasteful heat stratification and maximising energy efficiency.

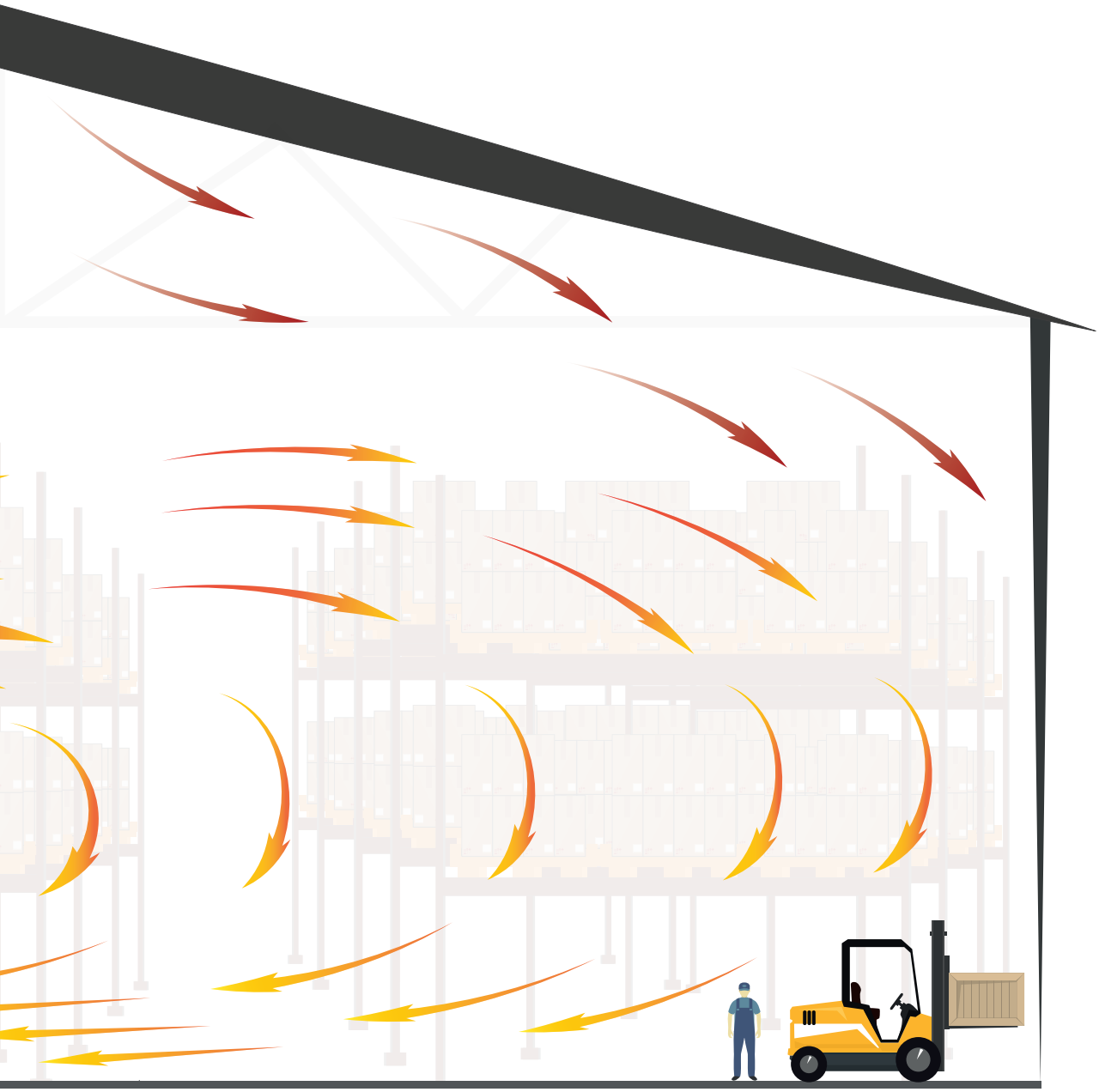
2

Cooler, floor level air is drawn by the fan section into the heater, additional heat is only added when the automatic control senses a fall in the space temperature thus assuring the lowest possible temperature rise and a gentle but powerful airflow pattern over the whole space to be heated or protected.

Hot Air Rotation

The Technology

Pioneered by our U.S sister company over 40 years ago, the Powrmatic Group have been market leaders in air rotation technology for many years and continue to be a major global supplier of such systems today.



3

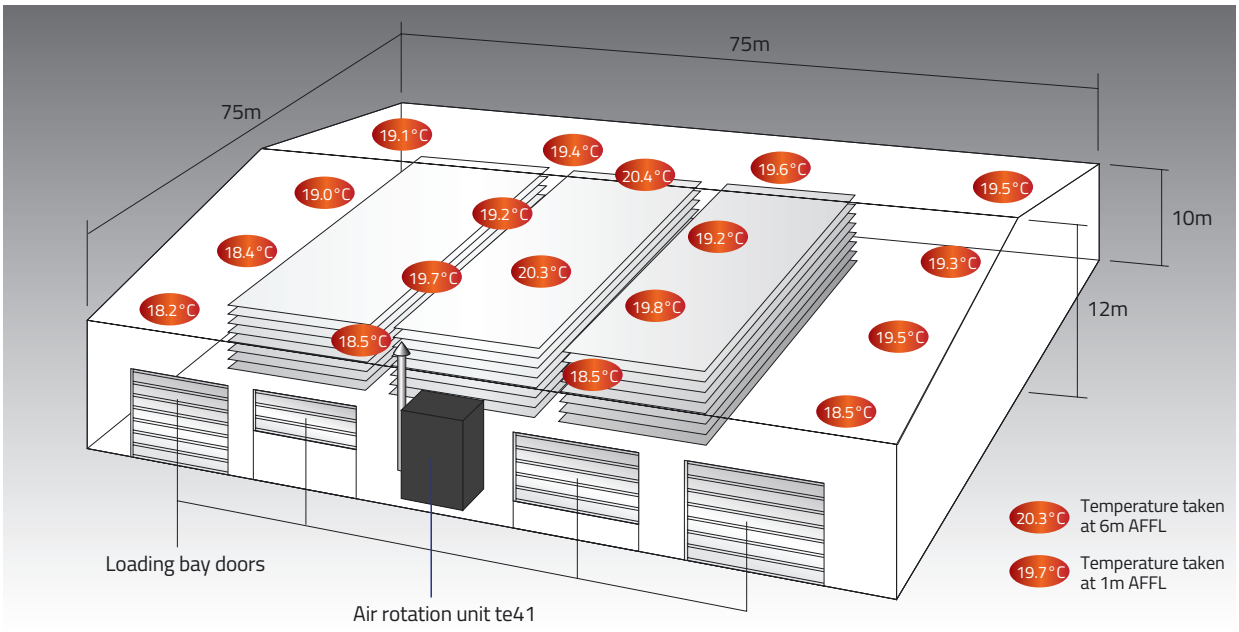
Due to the system's increased constant volume of air intake at floor level , which is heated to more energy-efficient temperatures, heated air is distributed with a uniformity that cannot be achieved by conventional heating units.

4

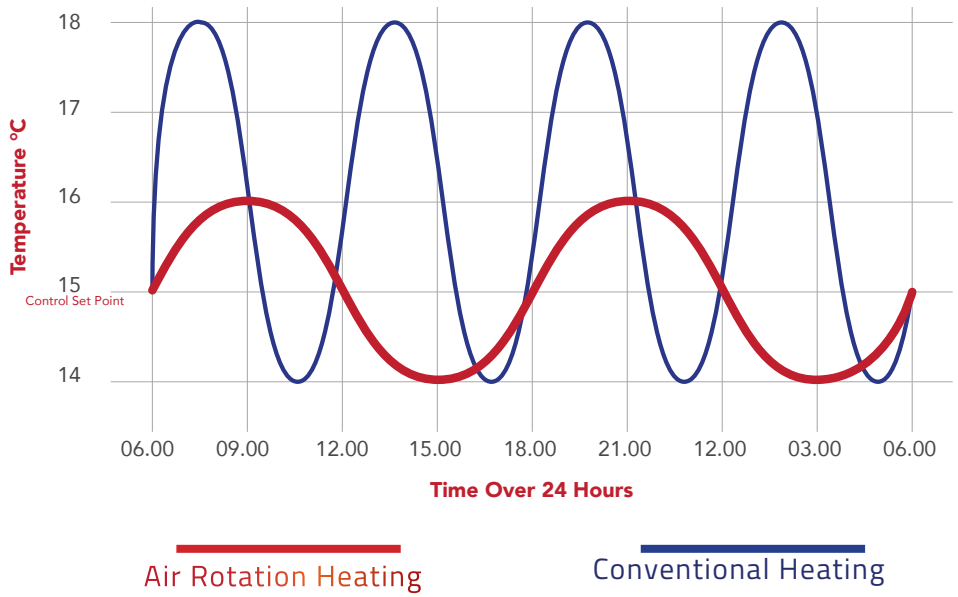
Ideal as a standalone system, alternatively the Air Rotation Powrmatic TEx heater can be used in conjunction with Powrmatic Baratherm door curtains, radiant spot heaters and warm air units as required.

Temperature Control

Using Powrmatic MC200 as standard the Powrmatic TEx has fully automatic control with minimal temperature stratification ideally suited to 24 hour operation. Moving a large volume of air at only a few degrees above the ambient temperature environmental fluctuations are evened out throughout the building envelope.



Temperature readings taken from actual installation of TE41 unit 'J&L industrial Supply'.
Outside temperature = 7.5°C, set point of control unit = 19°C

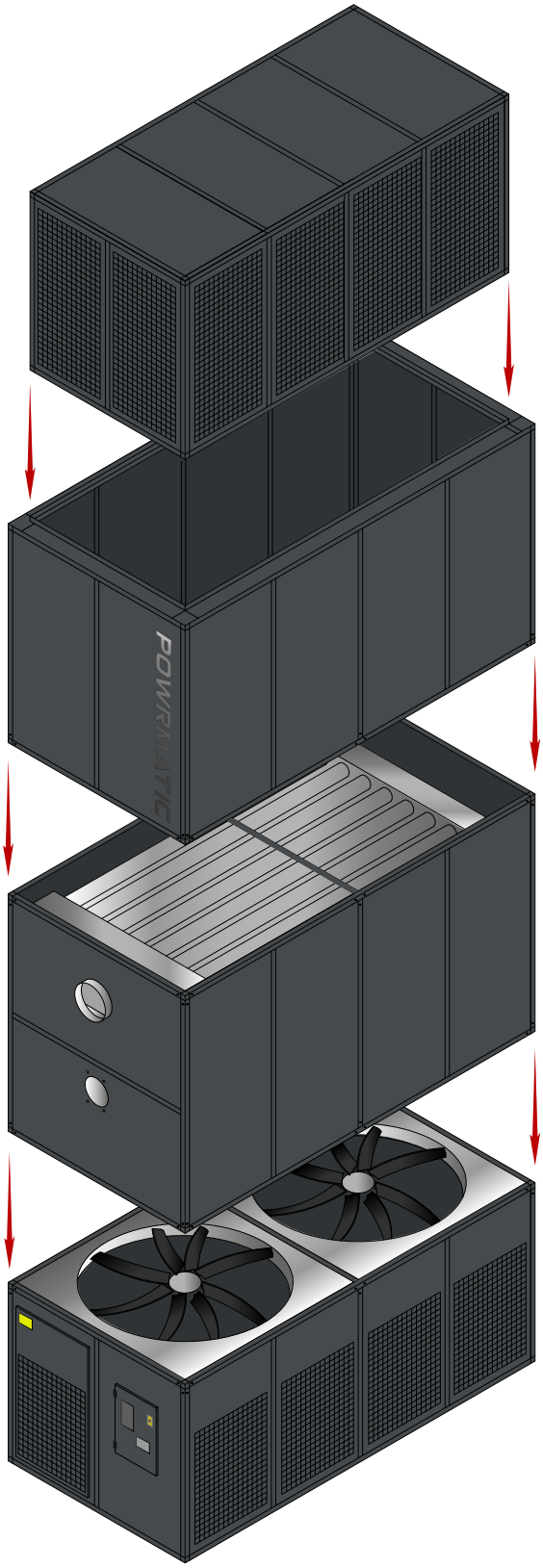


Frost Protection

Water filled sprinkler systems and stored goods require frost protection during colder periods. Air Rotation systems can be designed to give the small temperature rises and large air volumes needed when specifying this type of protection. Powrmatic TEx units can be supplied with and without heat exchangers to give the air mixing to serve such spaces.

On Site Installation

The ease and safety of installation is paramount when specifying a heating system. Powrmatic TEx Air Rotation Heater has been designed with this in mind. The units are floor mounted, supplied in modules, with gas and electrical services running at a lower level than conventional systems. Installation, commissioning and all servicing working at height is kept to an absolute minimum, the integral controls are easily accessible at a safe height.



Head Section

Lightweight but robust, this section is the mixed supply air outlet at high level.
Designed to give unrestricted high volume airflows into the large space.

Plenum Section

Specified to give the optimal outlet height for the head section.

Heat Exchanger Section

Carrying the drum and tube heat exchanger and burner in standard TExG & TExO units, can be supplied without heat exchanger for TExD destratification only types.

Base Section

The supply air inlets, horizontal axial fans, wiring and controls are mounted within this sturdy floor standing base section.

Technical Specification

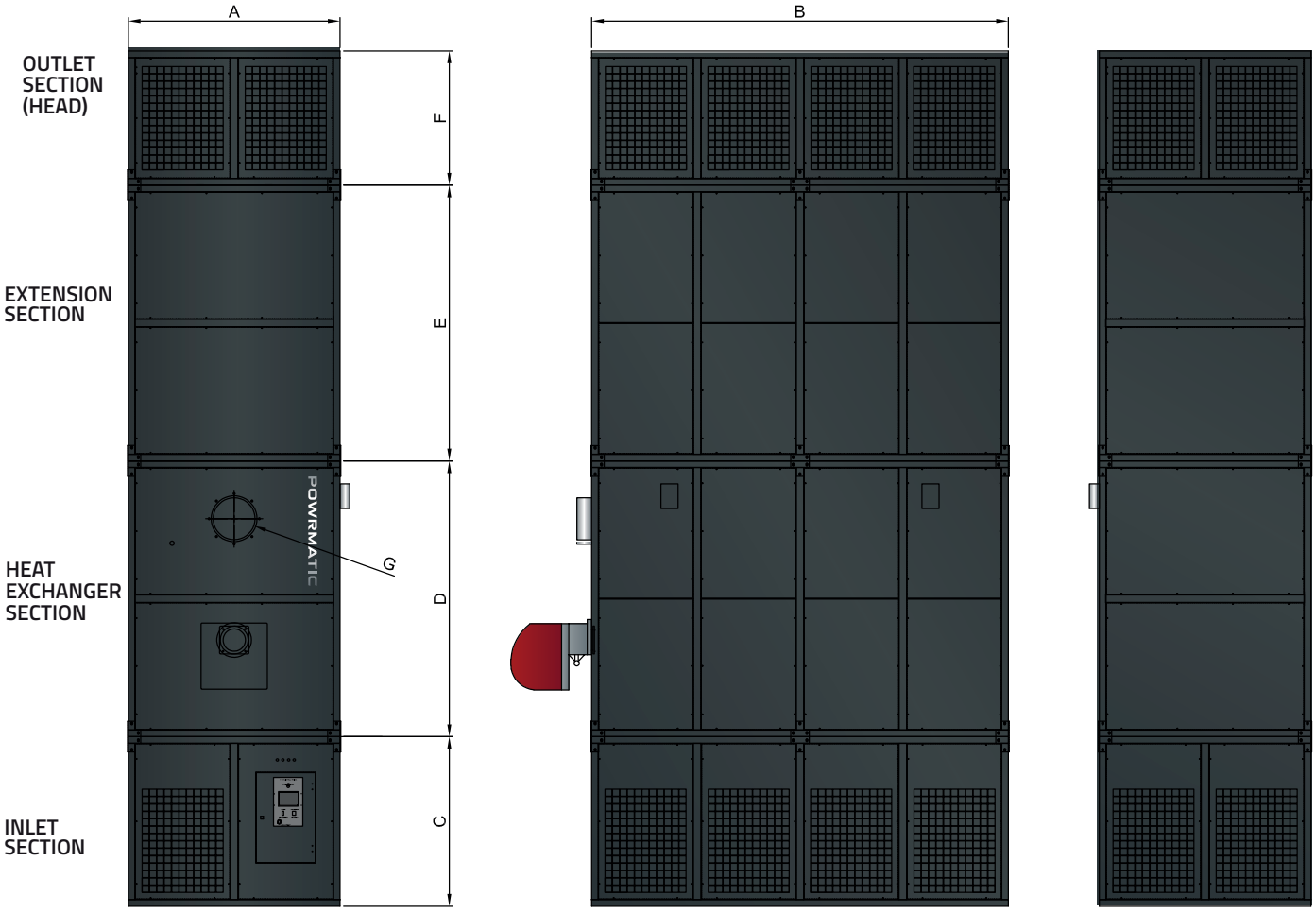
Model				31	41	61
Nominal Output			kW	100-234	220-440	450-850
Air Volume			m^3/s	5.5 - 12.6	14.2 - 25.5	30.7 - 47.2
Electric	Supply		V/ph/Hz	400/3/50		
	Motor Rating		kW	Dependant upon design criteria of system		
	Start Current		amp	Dependant upon design criteria of system		
	Run Current		amp	Dependant upon design criteria of system		
Burner Options	Modulating Gas			Riello RS 25/BLU	Riello RS 55/BLU	Riello RS 68/BLU Reillo RS 120/BLU
	High Low Oil			Riello RL 34	Riello RL 50	Riello RL 70/100
Fuel	Connection	Oil	BSP/Rc	⅜"	⅜"	½"
		Gas	BSP/Rc	1¼"	1½"	2"
	Minimum Inlet Pressure	Nat Gas	mbar	17.5		
		LPG	mbar	37.0		
	Consumption Standard Outputs	Oil	l/h	Dependant upon design criteria of system		
		Nat Gas	m^3/h			
		LPG	m^3/h			
Overall Dimensions	Standard Unit	Height	mm	5225	6125	8045
		Width	mm	1162	1518	2026
		Depth	mm	2025	2991	4007
Installation Clearances	Standard Unit	Front	mm	1000		
		Side	mm	1000		
		Rear	mm	1000		
Flue Diameter			mm ø	200	300	350
Combustion Air Spigot			mm ø	150		200
Noise Level			dBA	Dependant upon design criteria of system		

Notes –

- Fuel consumption and output figures based upon nett calorific values as follows
  - Class D light distillate fuel oil nett CV 36.28 MJ/l
  - Natural gas (G20) nett CV 34.02 MJ/m^3
  - Propane (G31) nett CV 88.00 MJ/m^3
- TEx heaters comply with the seasonal efficiency and NOx limits requirements of the Ecodesign regulation (EU) 2015/1188, Directive 2009/125/EC – Lot 21 Tier 1
- Overall heater height includes extension module. Alternative height extension modules can be specified to suit site conditions
- Data and dimensions refer to standard internal models - for external models contact our sales office
- Fan motor sizes and electrical consumption levels will vary according to the specification of the heater. Actual rates will be confirmed at the time of quotation, alternatively contact the sales office for further information.

Dimensions

Powrmaster TExG/TExO



FRONT VIEW | R.H SIDE VIEW | REAR VIEW

Model	A	B	C	D	E	F	G	H	
								Gas	Oil
	mm	mm	mm	mm	mm	mm	mm	mm	mm
TEx 31	1162	2025	1213	1574	1778	660	200	508	468
TEx 41	1518	2991	1215	1975	1975	960	300	640	468
TEx 61	2026	4007	1769	2355	2152	1769	350	840	680

Notes -

- Dimensions for TExD destratification units are the same as above.


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AIR ROTATION UNIT No2


POWRMATIC


TE CONTROL PANEL
OFF
AUTO
EXT
HIGH LIMIT
LOCKOUT INDICATOR
RESET AT THERMOSTAT
POWRMATIC
POWRMATIC
17.5°C 10:45 Thu
P1
www.powrmatic.co.uk

General
The following notes are provided as a guide, 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 TEx heaters must be installed, commissioned and operated with due regard to appropriate regulations including but not limited to BS 6230, 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 TEx 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.

Heaters will need to be installed within the space they are heating - they can be installed externally to the space but must be directly linked with ductwork. 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 supplied in modular format. Consideration should however be given to the means of moving the component parts within the site and necessary mechanical handling for assembly. Each heater will be delivered in sections and will require on site lifting. Please contact Powrmatic for further advice.

Heaters should be installed on a level non-combustible base. It is important that all supporting structures 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.

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:

- 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 (i.e 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.

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. 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 it's 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 TEx 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 sliding scale time related warranty. All guarantees are subject to terms and conditions.

About Us

Powrmatic design, develop and deliver HVAC solutions worldwide across a wide range of commercial and industrial applications creating comfortable and safe environments, differentiated through innovation, integrity, compliance and service.

Our specialised HVAC divisions:

Heating

Industrial and commercial warm air and radiant space heating solutions manufactured to achieve efficient performance, compliance and reliability for every application in partnership with the HVAC trade.

Ventilation

Custom designed highly efficient, cost-effective smoke, natural and powered ventilators manufactured to meet project requirements of building operators, architects, specifiers and contractors.

Air Conditioning

Worldwide distributors of innovative wall mounted heat pumps air conditioner technology providing efficient comfort cooling and heating all year round.

Engineered Products

Bespoke heating and ventilation solutions designed to serve individual customers specific project requirements. In addition our OEM products provide partner AHU manufacturers with high quality energy efficient gas fired heat exchangers.

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