

# POWRMATIC®

Delivering complete climate control solutions worldwide

ErP Ready

Providing the air handling industry with high quality, UK manufactured, energy efficient gas fired heat exchangers to suit any application.

**The HEMx Range from Powrmatic.**

## Heat Exchange Modules

HEM Lx & SLx Heater Models

Natural Gas & LPG Fired Options



New For 2021

[www.powrmatic.co.uk](http://www.powrmatic.co.uk)

# Heat Exchange Modules Lx &

## ErP Compliance

During 2021 the current Ecodesign Directive (2009/125/EC) ErP Lot21 – 2018 will be superseded by ErP Lot 21 – 2021. The new criteria for this directive is a minimum seasonal efficiency of 78% and reduced NOx emission levels (gas 70mg/kWh). Compliance to the standard remains mandatory.



## Product Benefits



REDUCED NO<sub>x</sub> LEVELS



COMPACT DESIGN



CUSTOMISBLE CONFIGURATION



ADAPTABILITY TO SUIT ANY DESIGN



WEATHERPROOF EXTERNAL OPTIONS



FAN ASSISTED FLUE



INCREASED SEASONAL SPACE HEATING EFFICIENCY

# Efficient, Adaptive & Compliant

The compact design and flexible configuration of Powrmatic HEMx gas fired heat exchange modules combine to provide designers with efficient and cost effective solutions for a wide variety of air heating and drying applications including new and refurbished air handling units, duct heaters and dryers.

The HEMx range is available in two differing configurations: HEM-Lx **15- 200** and HEM-SLx **30 - 200**. Where higher duties are required modules may be installed in either parallel or in series. Depending on model and size such multiple modules may be supplied factory pre-assembled.

Fuel usage and emissions are a key consideration within the HEMx design with all modules offering efficiencies compliant with the latest ErP legislation.

Making your next refurbishment project overhaul easier, we have the ability to offer direct replacements for HEM manufacturers, which ensures a seamless replacement process.

## Models Available

- HEM Lx
- HEM SLx
- HEM LxDH

## Key Product Features

### Burners

Multi in-shot burners matched to each tube assembly and manifolded to a common gas valve and ignition system, itself complete with flame monitoring and safety controls and supplied ready for use with natural gas (G20). Alternative LPG propane (G31) firing available upon request as a conversion kit.

### Fan Assisted Flue

Both the HEM Lx and HEM SLx modules have the benefit of fan assisted flues. Onward flue systems can be the addition of close coupled flue terminals or, if application requires, an extended system flue. In the event that an extended flue is required then please consult Powrmatic.

### Easy Access Control Panel

The HEMx range now has a unique pull down easy access control panel for easy onsite installation and maintenance

### External & Plant room Enclosures

Available for weatherproofed external and internal plant room applications (see page 10). Fully galvanized steel construction in either self finish or durable epoxy powder coated paint finish to BS 10-A-05 as standard. Other colours are available priced upon application.

### Customisable & Adaptive

Each Powrmatic HEMx unit is custom made with a wide range of kW and size configuration and have been adapted to suit the needs of the OEM and AHU industry by the provision of its slot-in casing arrangement.

### Compact & Robust Design

The compact design and flexible configuration of Powrmatic HEMx gas fired heat exchange modules combine to provide designers with efficient and cost effective solutions for a wide variety of air heating and drying applications including new and refurbished air handling units and duct heaters.



### Heat Exchanger

A four pass (HEM Lx) tubular heat exchanger and a two pass (HEM SLx) heat exchanger assembly manufactured from aluminised steel formed, swaged and expanded without recourse to stress inducing welding. AISI T 409 grade stainless steel option is standard with T316 an additional upgrade option.

### Approvals



All HEMx heaters are type tested and CE approved. In addition HEMx heaters made available to the market from 2021 onwards comply with the requirements of the Directive 2009/125/EC - Lot 21 Tier 1b.



# Technical Specification

## HEM-Lx

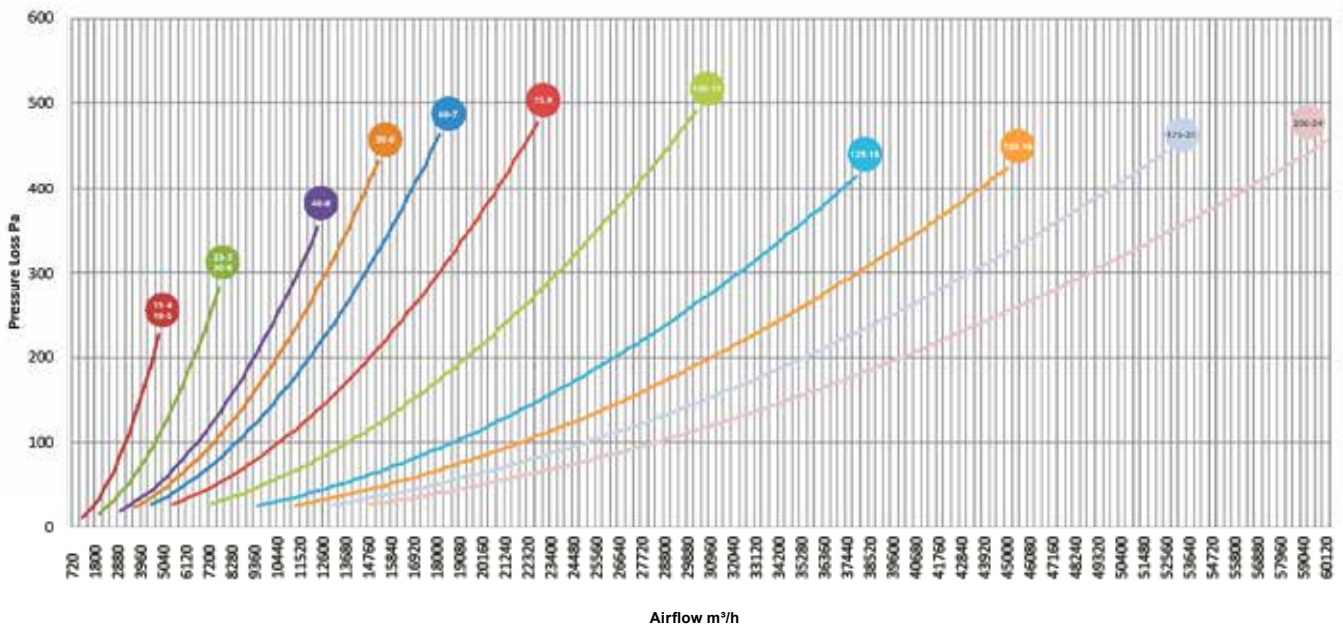
Model HEM Lx			15-4	18-5	25-5	30-6	40-8	50-6	60-7	75-9	100-12	125-15	150-18	175-21	200-24	
Output	Max	kW	14.4	17.7	25.0	28.0	39.7	50.4	58.7	74.5	99.3	124.0	149.5	174.9	196.0	
	Min.	kW	7.1	8.6	11.7	13.2	14.6	17.5	20.5	26.8	33.1	43.6	52.4	60.9	79.4	
Temp	Rise	Δt °C	28.5													
	Air Off	Max °C	70													
Airflow	Min. Airflow (@ 28½° rise)	m³/s	0.40	0.49	0.70	0.78	1.11	1.40	1.63	2.07	2.77	3.45	4.16	4.87	5.46	
	Min. Airflow ΔP	Pa	26	45	32	47	31	59	67	59	54	43	47	45	46	
Electrics		V/ph/Hz	230/1/50													
	Current	A/pha	0.304											0.9	1.3	
	Power	kW	0.07											0.207	0.8	
Fuel Natural Gas	Connection	BSP/Rc	¾											1¼		
	Minimum Inlet Pressure	mbar	20													
	Rate	m³/h	1.7	2.2	3.1	3.4	4.8	6.2	7.1	8.9	12.2	15.2	18.2	21.2	24.6	
Flue	Diameter	mm Ø	80			100			130							
	Max Length Type B	m	14						16						3m max @ Ø130mm**	
	Max Length Type C	m	14*						16*							
Nett Weight (single units)		kg	38	45	53	60	68	74	91	114	123	140	168	210	230	
Two Modules in Series Max Δt = 70°C	Heat Output	kW	28.8	35.4	50.1	61.9	79.5	100.8	117.4	149.0	198.6	248.1	299.1	349.7	392.0	
	Min. Airflow @ 28½°	m³/s	0.80	0.99	1.39	1.56	2.21	2.81	3.27	4.15	5.53	6.91	8.33	9.74	10.92	
	Min. ΔP	Pa	44	66	62	72	75	97	99	104	107	89	94	99	95	

**Notes:**

'Air off' temperature should not exceed 70°C. If higher air off temperatures are required refer to Powmatic Limited

\* Length shown is maximum **calculated** length. Concentric flue terminals are equivalent to 5m of flue length. If an offset is required two sets of 45° bends should be used each set being equivalent to 0.5m of flue length. 90° bends may be used but each set will be equivalent to 1.0m of flue length.

\*\* Ø150 for a total **calculated** length in excess of 3M up to 9M, Ø180 for in excess of 10m up to 18M and Ø200 for in excess of 18m up to 24M. If an offset is required a set of 45° bends should be used being equivalent to 0.5m of flue length. 90° bends may be used but each set will be equivalent to 1.0m of flue length.



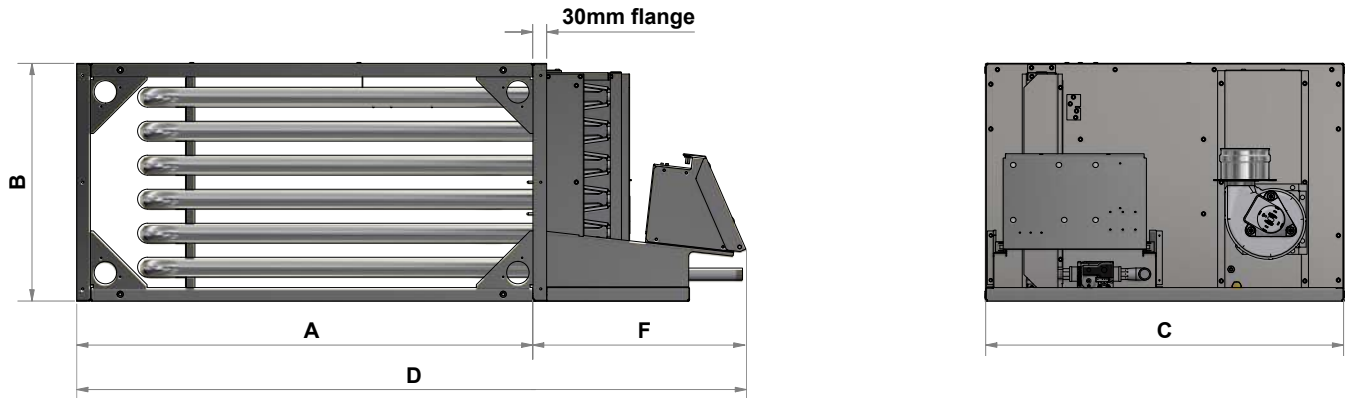
**Note:**

**HEM Lx**

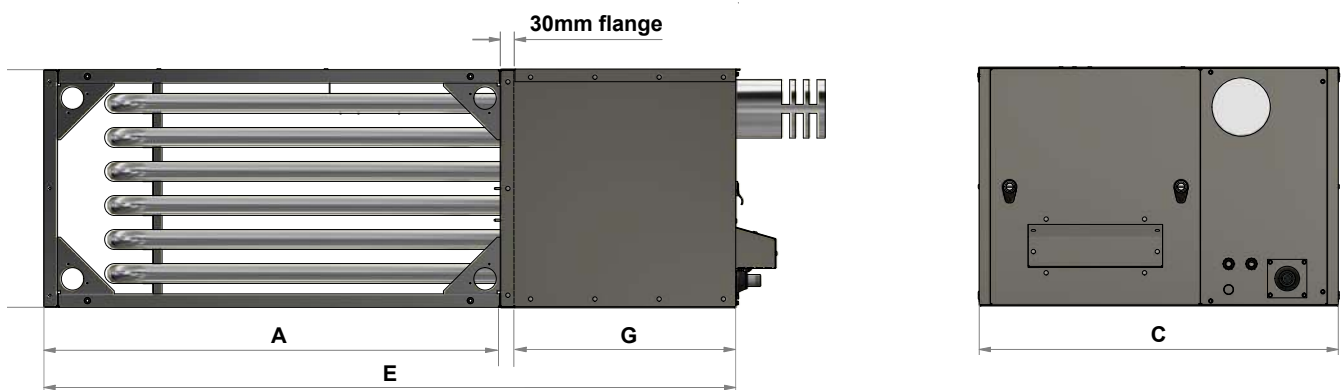
The above data refers to a single module pressure drop. For twin models and exact pressure drop calculations, contact manufacturer.



### Standard Unit



### Unit Fitted With standard EA Enclosure



Model	15-4	18-5	25-5	30-6	40-8	50-6	60-7	75-9	100-12	125-15	150-18	175-21	200-24
A (mm)	518	518	648	648	648	1020	1020	1020	1020	1050	1050	1050	1050
B (mm)	460	460	533	533	743	533	603	739	947	1270	1476	1684	1893
C (mm)	592	592	650	650	650	800	800	800	800	930	930	930	930
D (mm)	995	995	1125	1125	1125	1497	1497	1497	1497	1527	1527	1527	1527
E (mm)	1106	1106	1236	1236	1236	1608	1608	1608	1608	1638	1638	1638	1638
F (mm)	447	447	447	447	447	447	447	447	447	447	447	447	447
G (mm)	558	558	558	558	558	558	558	558	558	558	558	558	558
Flue $\phi$ (mm)	80	80	100	100	100	130	130	130	130	130	130	130	130

# Technical Specification

## HEM-SLx

Model - HEMSLx			30-6	45-9	50-6	60-12	75-9	75-15	90-18	100-12	125-15	150-18	175-21	200-24		
Output	Max	kW	29.8	43.0	49.7	59.9	74.5	74.2	89.9	99.3	125.2	145.0	175.0	195.0		
	Min	kW	9.7	19.0	16.9	20.1	27.7	27.3	29.7	34.8	46.9	52.8	61.5	74.0		
Temp	Rise	$\Delta t$ °C	28.5													
	Air Off	Max °C	70													
Airflow	Min. Airflow (@ 28½° rise)	m³/s	0.83	1.20	1.38	1.67	2.07	2.07	2.50	2.73	3.49	4.04	4.87	5.43		
	Min. Airflow $\Delta P$	Pa	16	17	20	18	21	15	19	22	19	19	20	21		
Electrics		V/ph/Hz	1N/230V/50~													
	Current	A	0.30									0.90		1.3		
	Power	kW	0.07									0.21		0.80		
Fuel Natural Gas	Connection	BSP/Rc	¾"									1½"				
	Minimum Inlet Pressure	mbar	20													
	Rate	m³/h	3.6	5.6	6.1	7.3	9.1	9.0	11.1	12.2	15.1	17.8	21.2	24.4		
Flue	Diameter	mm $\phi$	100			130										
	Max. Length Type B	m	14			16						3m max @ $\phi$ 130mm**				
	Max. Length Type C	m	14*			16*										
Nett Weight (single units)		kg	59	85	79	118	106	139	165	130	185	204	235	265		
Two Modules in Series Max $\Delta t$ @ 50°C	Heat Output	kW	59.6	86.0	99.4	119.9	148.9	148.4	179.8	198.6	250.4	290.0	349.9	390.0		
	Min. Airflow @ 28½°	m³/s	1.66	2.39	2.77	3.34	4.15	4.13	5.01	5.46	6.97	8.08	9.74	10.86		
	Min. $\Delta P$	Pa	24	24	29	27	31	22	28	32	28	27	30	29		
Three Modules in Series Max $\Delta t$ @ 75°C	Heat Output	kW	89.4	129.0	149.1	179.8	223.4	222.7	269.7	297.9	375.7	435.0	524.9	585.0		
	Min. Airflow @ 28½°	m³/s	2.49	3.59	4.15	5.01	6.22	6.20	7.51	8.19	10.46	12.11	14.62	16.29		
	Min. $\Delta P$	Pa	36	35	44	40	47	33	42	48	42	40	45	44		

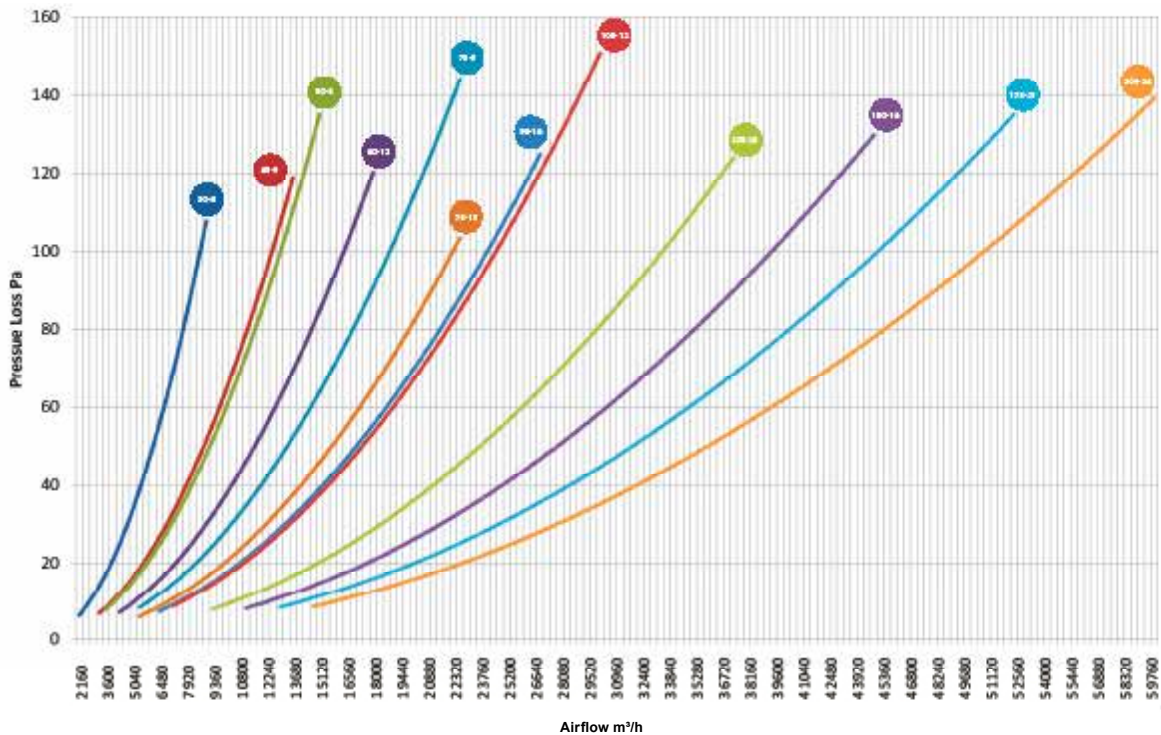
**Notes:**

'Air off' temperature should not exceed 70°C. If higher air off temperatures are required refer to Powmatic Limited

The air flow stated above for three HEMx modules in series at an air on temperature of 0°C gives a temperature rise of 70°C otherwise the 'Air off' temperature limit would be exceeded.

\* Length shown is maximum **calculated** length. Concentric flue terminals are equivalent to 5m of flue length. If an offset is required two sets of 45° bends should be used each set being equivalent to 0.5m of flue length. 90° bends may be used but each set will be equivalent to 1.0m of flue length.

\*\*  $\phi$ 150 for a total **calculated** length in excess of 3M up to 9M,  $\phi$ 180 for in excess of 10m up to 18M and  $\phi$ 200 for in excess of 18m up to 24M. If an offset is required a set of 45° bends should be used being equivalent to 0.5m of flue length. 90° bends may be used but each set will be equivalent to 1.0m of flue length.

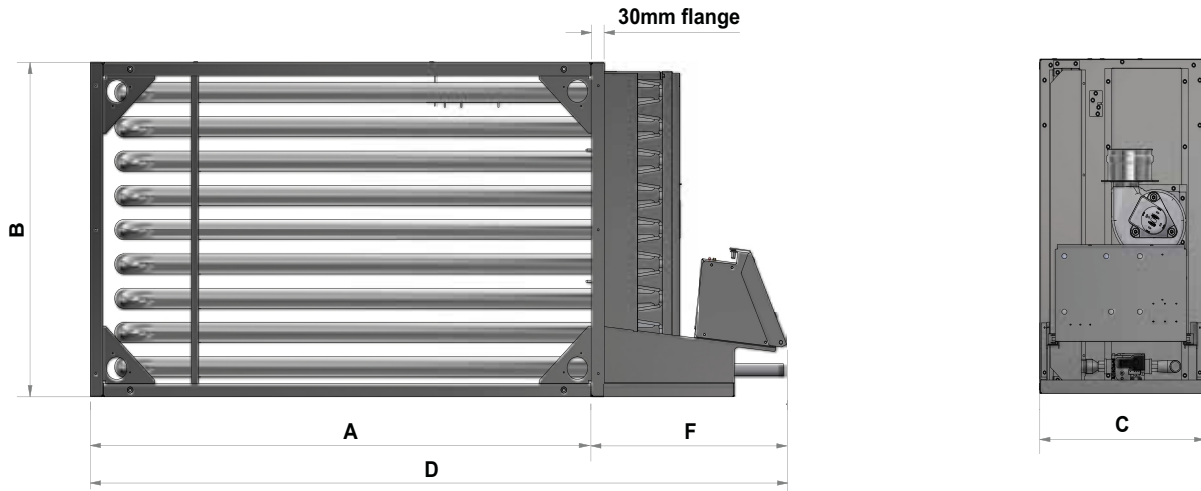


**Note:**

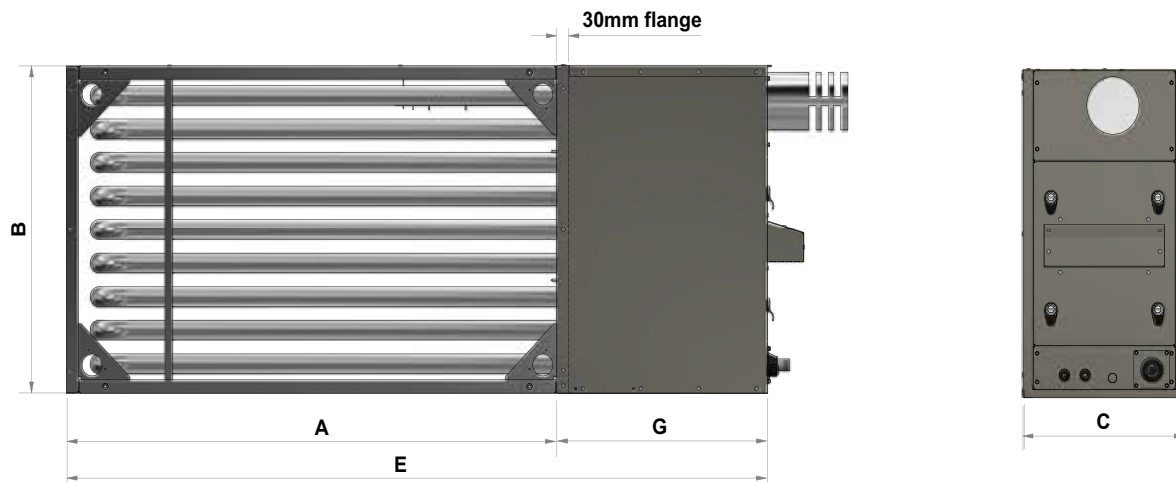
**HEM-SLx**

The above data refers to a single module pressure drop. For twin & triple models and exact pressure drop calculations, contact manufacturer.

### Standard Unit



### Unit Fitted With standard EA Enclosure



Model	30-6	45-9	50-6	60-12	75-9	75-15	90-18	100-12	125-15	150-18	175-21	200-24
A (mm)	1220	1220	1820	1220	1820	1220	1220	1820	1820	1820	1825	1825
B (mm)	533	739	533	947	739	1270	1476	947	1270	1476	1685	1893
C (mm)	400	400	400	400	400	400	400	400	400	400	532	532
D (mm)	1697	1697	2356	1697	2356	1697	2297	2297	2356	2356	2356	2356
E (mm)	1808	1808	2467	1808	2408	1808	2408	2408	2408	2408	2413	2413
F (mm)	477	477	537	477	537	477	477	477	537	537	537	537
G (mm)	558	558	558	558	558	558	558	558	558	558	558	558
Flue $\phi$ (mm)	100	100	130	130	130	130	130	130	130	130	130	130





Versatility meets performance.



### Single Unit



### Output Availability

- Lx Range 15-200kW in 12 single unit sizes
- SLx Range 30-200kW in 12 single unit sizes

### Double Units



### Output Availability

- Lx Range up to 400kW (2 x 200kW units)
- SLx Range up to 400kW (2 x 200kW units)
- Configured of single units of different kW output sizes to suit and fitted with a 2:1 gas manifold assembly.

### Triple Units



### Output Availability

- SLx Range up to 600 (3 x 200 units)
- Configured of single units of different kW output sizes to suit and fitted with a 3:1 gas manifold assembly.

# Burner Enclosures

HEMx

Burner enclosures are available for weatherproofed external and internal plant room applications. Fully galvanized steel construction in either self finish or durable epoxy powder coated paint finish to BS 10-A-05 as standard. Other standard BS or RAL colours are available priced upon application.

External Enclosure

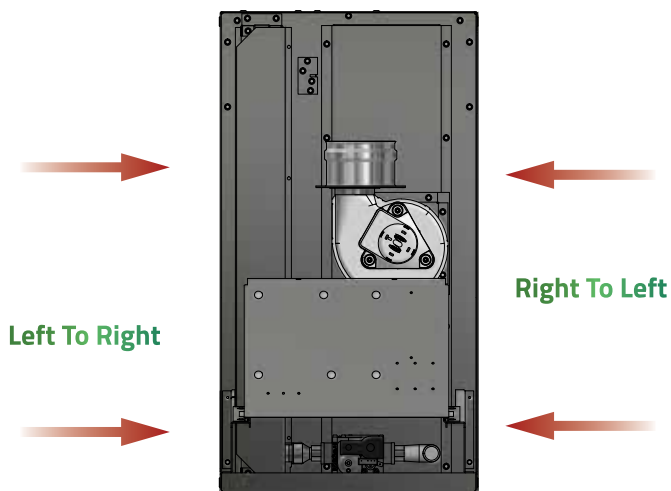


Plant Room Enclosure

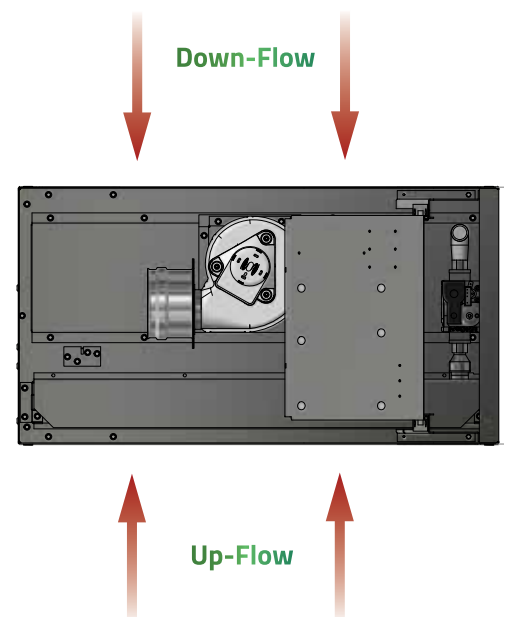


## Airflow Direction

Standard Airflow



Optional Airflow  
For horizontal unit installation



### 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](http://www.powrmatic.co.uk)

### Standards

All Powrmatic HEMx modules should be installed, commissioned and operated with due regard to appropriate regulations including but not limited to BS6230:2011, Gas Safety (Installation and Use Regulation) 1998, other relevant Codes of Practice, the possible requirements of Local Authorities, Fire Officers and insurers.

### Application

HEMx modules are typically applied in four distinct configurations and due regard is required for each to ensure safe and reliable operation as well as compliance to necessary regulations. Typical application types are as follows:

- External
- Internal
- Plant room
- Dedicated compartment within an air handling unit or process heater which itself may be externally located, internally located or within a plant room.

### Location and Position

Modules should be firmly fixed within their environment, free from vibration and protected from the effects of rain, spray or water ingress. External modules should be fitted with a dedicated Powrmatic burner enclosure.

Consideration should also be given to flue routes and points of exit, gas, electrical and where applicable control connections. Modules 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 degreasing 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 or Enclosure Locations

Specific requirements exist where modules are installed within plant rooms or enclosures, including within dedicated compartments of air handling units or process heaters. 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 the installation manual prior to installation.

### Installation Clearances

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

### Combustion Air & General Ventilation

Within the United Kingdom mandatory regulations apply concerning the provision of combustion air and general heater ventilation. Please consult the installation manual for further details.

### Ductwork

Duct connections to and from the module should be such that the airflow across the entirety of the heat exchanger is uniform. Sharp turns and/or restrictions close to the module should be avoided.

### Condensate

Care should be taken to ensure that when modules are operated with airflows or heat output rates which will generate the production of condensate then provision should be made with respect to the specification of heat exchanger material and for the removal of condensate. If in doubt then please consult our technical department.

### Fan Overrun

All HEMx modules require the provision of a fan overrun facility, by others, to ensure that the heat exchanger is correctly cooled at the end of each firing cycle. If in doubt then please consult our technical department.

### Gas Connections

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

Fuel consumption and output figures contained within this brochure are at maximum firing rate and based upon nett calorific values as:

- Natural gas (G20) nett CV 34.02 MJ/m<sup>3</sup>
- LPG Propane (G31) nett CV 88.0 MJ/m<sup>3</sup>

### Flue

Powrmatic HEMx modules requires a separate flue of the appropriate size and type. Systems may be installed in either the horizontal or vertical plane and maximum lengths apply and should be strictly observed. The inclusions of bends and/or provision of combustion air intake ductwork will reduce the permissible length. For further information please consult the Installation, Operation and Maintenance manual or Powrmatic Technical.

Flues must be adequately supported and terminated with the approved terminal assembly, with due regard to the point of exit and its proximity to any windows, doors or ventilation intakes etc.

### Guarantee

Powrmatic HEMx Heat Modules are provided with a comprehensive guarantee. For United Kingdom sales the heater has the benefit of a two year parts and one year labour guarantee. 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.

## Contact Us

Powrmatic Limited  
Hort Bridge, Ilminster  
Somerset  
TA19 9PS  
tel: **+44 (0) 1460 53535**  
fax: **+44 (0) 1460 52341**  
e-mail: **info@powrmatic.co.uk**



#keepingthenationwarm

Powrmatic Ireland  
45 Broomhill Close  
Tallaght  
Dublin 24  
tel: **+353 (0) 1452 1533**  
fax: **+353 (0) 1452 1764**  
e-mail: **info@powrmatic.ie**



Powrmatic pursues a policy of continuous improvement in both design and performance of its products and therefore reserves the right to change, amend or vary specifications without notice. Whilst the details contained herein are believed to be correct they do not form the basis of any contract and interested parties should contact the Company to confirm whether any material alterations have been made since publication of this brochure.