NVS Condensing Gas Suspended Unit Heater Range

Industrial & Commercial Heating Systems.

powrmatic

www.powrmatic.co.uk

UP TO
104%
THERMAL EFFICIENCY

Qualified for Energy Technology List
www.eca.gov.uk
Authorised User No. 00175

CE

NVS Overview

Models Available

- **NVS F -** Axial Fan Crossflow Units
- **NVS C -** Centrifugal Close Coupled Fan Units
- **NVS D -** Ducted Heat Module *(no fan)*

Installer Friendly

- Horizontal wall exit flue discharge option (no roof work)
- Fan assisted flue that can be room sealed
- Axial fan versions configured for crossflow applications
- Centrifugal fan and duct heater (no fan) options

Caring For The Environment

- High efficiency - fully condensing
- All models ECA approved *(Excluding NVS30)*

Peace Of Mind

- More than sixty years experience in warm air
- Two year parts and one year labour guarantee
- Ten year sliding scale time related combustion chamber/ heat exchanger warranty

Configuration

Powrmatic NVS gas fired unit heaters can be installed directly into the space to be heated. Ducted or duct module applications may be satisfied using either the centrifugal fan or duct module variants. Heaters can be specified to provide on/ off, high/low or modulated heat outputs.

Cabinet

Of unitary construction, complete with a separate burner compartment accessed via a full width door and finished with hardwearing epoxy powder coat stove baked paint.

Burners

Multi burner in-shot carefully 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).

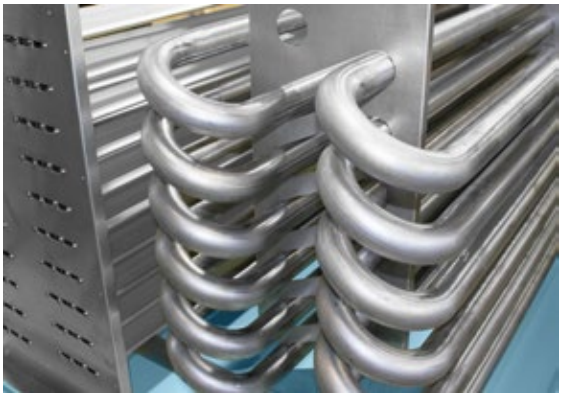
Alternative LPG propane (G31) firing available to order.

Fuel Efficiency and Low Carbon Emissions

Fuel usage is reduced, compared with the NVx range, due to the higher efficiency that NVS units have. All heaters have efficiencies which exceed the requirements of current Building Regulations. The NVS range also meets the requirements for the United Kingdom Enhanced Capital Allowance scheme. *(Excluding NVS30).*

Heat Exchanger

Four pass primary tubular assembly manufactured from aluminised steel formed, swaged and expanded without recourse to stress inducing welding. 409 and 316 grade stainless steel options available. Two pass secondary assembly manufactured from extruded aluminium.



Air Movement

The NVS is fitted with either single or multiple axial fan sets and discharge warmed air directly into the heated space via adjustable louvred horizontal grilles. For ducted applications the NVS is fitted with centrifugal fan(s) and can be supplied with optional fan plenum/silencer module.

Controls

As standard, Powrmatic heaters are supplied with high temperature limit protection as well as connections for heat and, where applicable, fan-only operation. For enhanced control the heaters may be connected to one of our compatible environmental control stations. These are available in three options:

- **MC200V3** *(control of single units)*

Tamper-proof digital control featuring optimised start/stop, digital time switch, electronic and frost protection thermostats. Remote temperature sensor option available.

- **MC300 Multi** *(control of multiple units)*

The MC300 multi is functionally identical to the MC200BL with the added ability to control up to five heaters from a master MC300 control. For ease of installation and to reduce installation time and cost slave pcbs are factory fitted with connections between master and slave enabled with low voltage control cable.

- **Powrtrol** *(control of single units)*

As an alternative to the MC control units, Powrtrol control stations provide a digital time switch with mechanical day and frost protection thermostats and a switched fan-only option for summer operation. Heaters controlled using Powrtrol do not qualify for Enhanced Capital Allowances.

Note: Interconnecting wiring for all controls is the responsibility of the installer. Visit www.powrmatic.co.uk for more information

Approvals

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

Duties

NVS

Model				30	60	90	140
Output			kW	30	60	90	140
Input (nett CV)			kW	29.02	59.22	86.74	137.95
Airflow	Volume	(All Models)	m^3/s	0.78	1.56	2.34	3.64
	Throw	NVS F	m	24	25	31	37
	Fan Static	NVS C	Pa	250	250	200	285
Electrics	Supply	Standard	V/ph/Hz	230/1/50			
		Optional	V/ph/Hz	415/3/50			
	NVS F	Motor	kW	0.39	0.68	2 x 0.39	2 x 0.68
		Start	amp	3.76	5.5	5.0	11
		Run	amp	1.70	2.4	2.3	4.9
	NVS C	Motor	kW	1.10	1.40	2 x 1.10	2 x 1.40
		Start	amp	18.50	28.90	31.0	40.0
		Run	amp	6.40	12.50	12.80	25.0
Fuel	Connection		BSP/Rc	¾"			
	Minimum Inlet Pressure	Nat Gas	mbar	17.5			
		LPG	mbar	37.0			
	Consumption	Nat Gas	m^3/h	3.07	6.26	9.17	14.59
		LPG	m^3/h	1.21	2.42	3.55	5.64
Mounting Height	NVS F	Min	m	2.50	3.00		
		Max	m	3.00	5.00		
Overall Dimensions	NVS F	Height	mm	818	818	705	1035
		Width	mm	1050	1345	2345	2345
		Depth	mm	1187	1204	1187	1204
Installation Clearances	NVS	Top	mm	200			
		LH Side	mm	200			
		RH Side	mm	1000			
		Rear	mm	600			
Condensate Output	Connection		mm	15	15	15	15
	Natural Gas		l/h	2.3	3.4	6.0	8.8
	Propane		l/h	1.2	1.7	3.0	4.4
Flue	Diameter		mm ø	100	130		
	Maximum Length	Flue Only	m	12			
		Room Sealed	m	6			
Combustion Air Spigot			mm ø	100	130		
Noise Level			dB(A)	54	62	66	67
Nett Weight		NVS F	kg	124	177	245	350
		NVS C	kg	195	252	384	514

Notes –

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

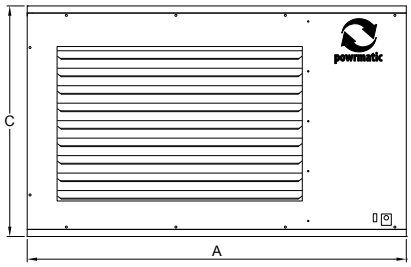
- Natural gas (G20) nett CV 34.02 MJ/m^3
- Propane (G31) nett CV 88.00 MJ/m^3

- Heaters have efficiency levels which meet with the minimum efficiency requirements of UK PartL2B Building Regulations
- Heaters have efficiency levels which meet the criteria of the Enhanced Capital Allowance Scheme (Excluding NVS30)
- Air handling data is assessed at room ambient conditions
- Throw figures provide the distance to the point where the terminal velocity degrades to 0.25 m/s
- Dimensions and clearance data in table above refer to NVS F units only - for NVS C and NVS D data refer to the dimensions page and or the installation instructions
- Condensate rates are approximate and for when heaters are working at maximum output.
- Noise levels are applicable to standard NVS F models and are measured 5m from appliance and in free field conditions
- Motor kW, run and start amps apply to standard electrical supply as stated. For optional data contact sales office
- Connection of combustion air duct is not required for 'flue only' applications
- Installer guidance notes on rear page

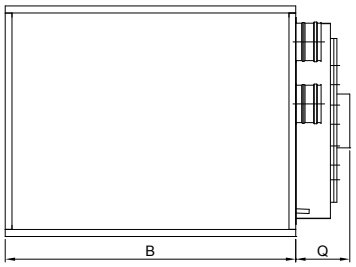
Dimensions

NVS F - Axial Fan Crossflow Units

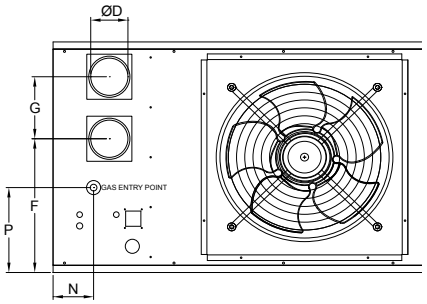
NVS 30 & 60



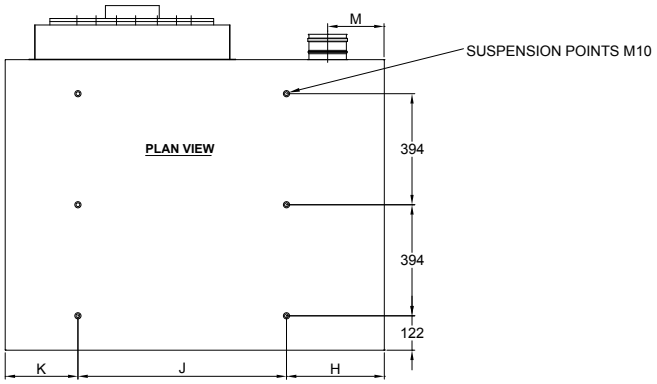
FRONT VIEW



R/H SIDE VIEW

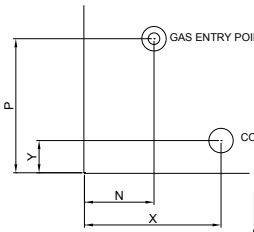


REAR VIEW



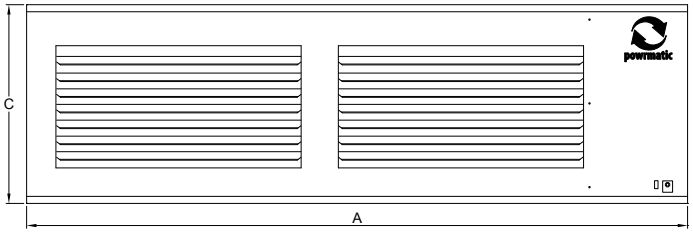
PLAN VIEW

Detailed View Of Gas Entry Point & Condensate Drain Point

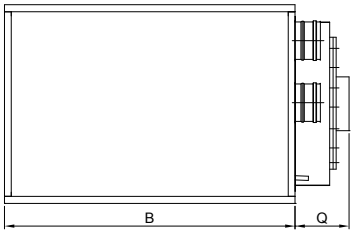


Model	X	Y
30/60	280	90
90/140	280	65

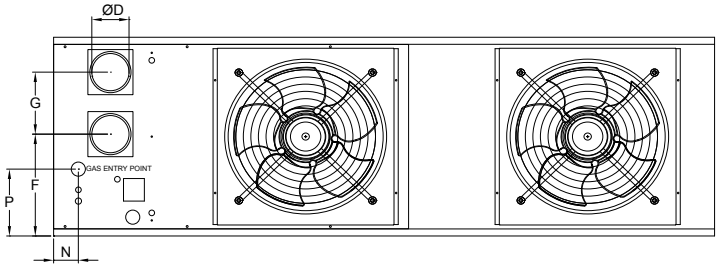
NVS 90 & 140



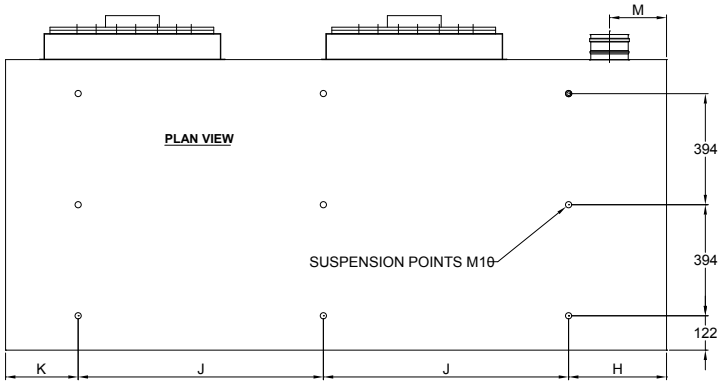
FRONT VIEW



R/H SIDE VIEW



REAR VIEW

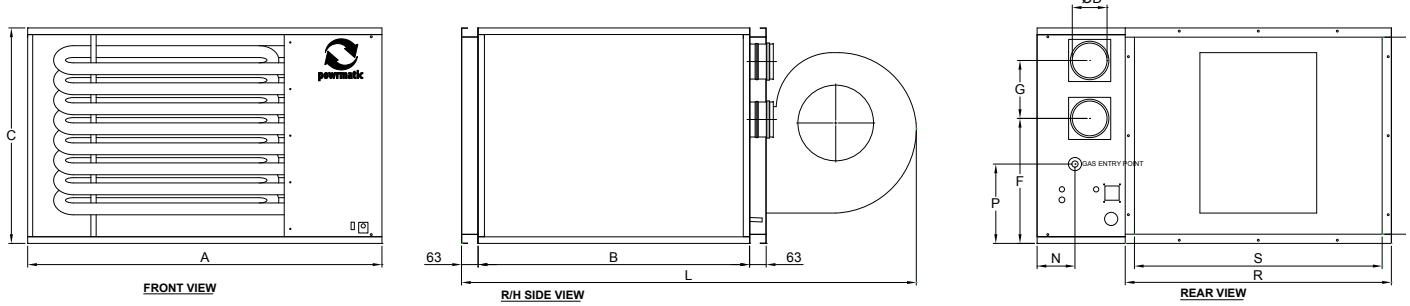


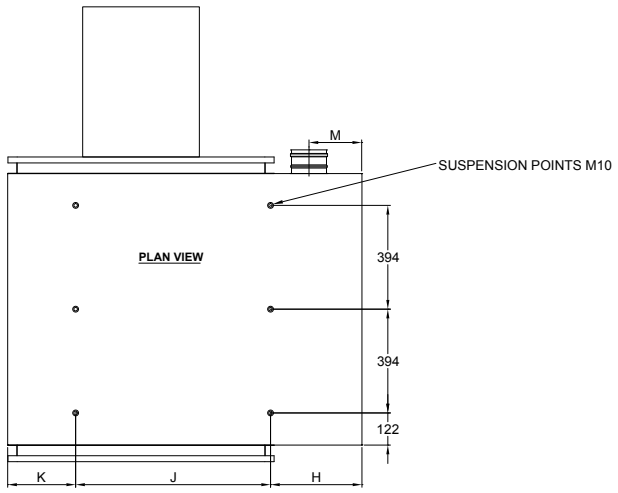
PLAN VIEW

Model	A	B	C	D	F	G	H	J	K	M	N	P	Q
NVS-F 30	1050	1031	818	100	552	142	347	445	258	201	144	225	156
NVS-F 60	1345	1031	818	130	475	220	347	740	258	201	144	301	173
NVS-F 90	2345	1031	705	130	356	220	347	870	258	201	88	237	156
NVS-F 140	2345	1031	1035	130	686	220	347	870	258	201	88	147	173

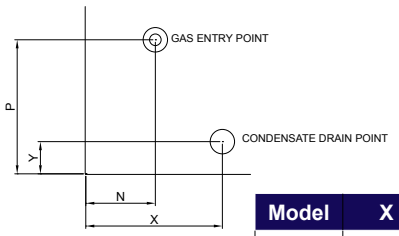
Dimensions

NVS C - Centrifugal Close Coupled Fan Units





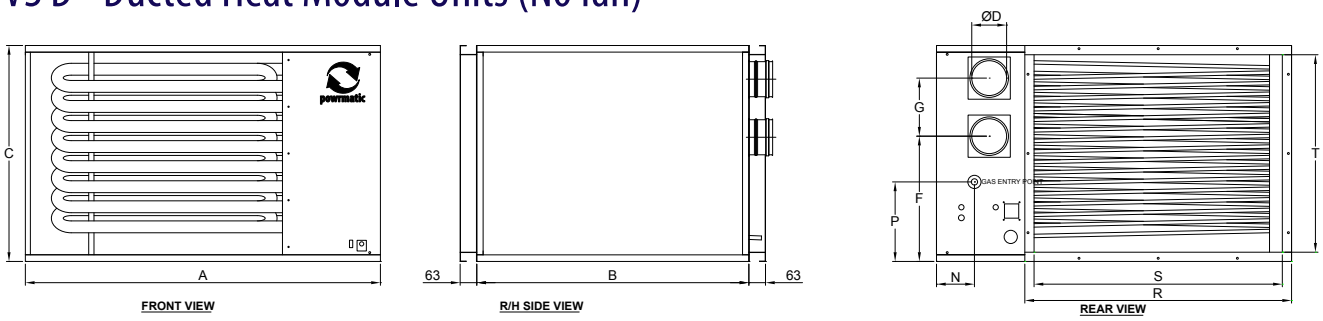
Detailed View Of Gas Entry Point & Condensate Drain Point

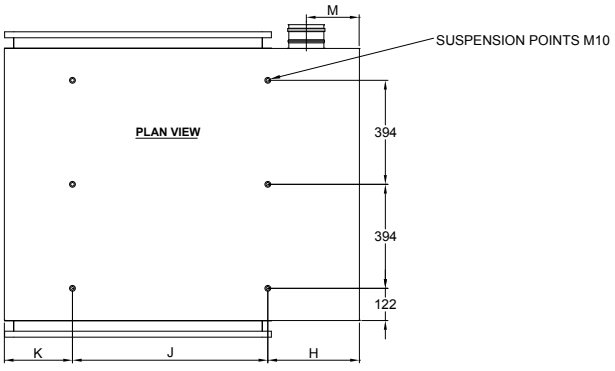


Model	X	Y
30/60	280	90
90/140	280	65

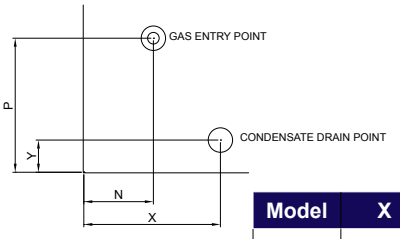
Model	A	B	C	D	F	G	H	J	K	L	M	N	P	R	S	T
NVS-C 30	1050	1031	818	100	552	142	347	445	258	1589	201	144	225	696	626	748
NVS-C 60	1345	1031	818	130	475	220	347	740	258	1589	201	144	301	1010	940	748
NVS-C 90	2345	1031	705	130	356	220	347	870	258	1589	201	88	237	2014	1944	635
NVS-C 140	2345	1031	1035	130	686	220	347	870	258	1664	201	88	147	2014	1944	965

NVS D - Ducted Heat Module Units (No fan)





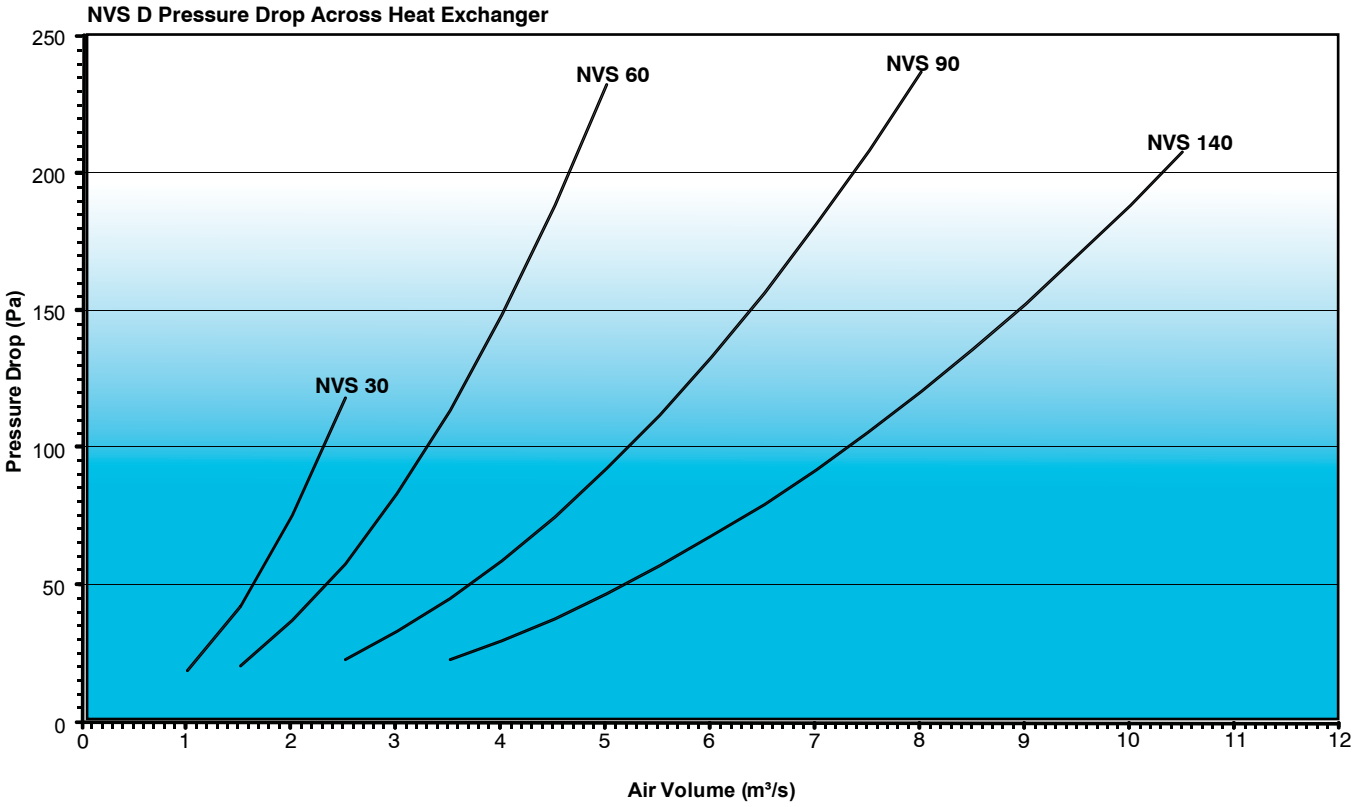
Detailed View Of Gas Entry Point & Condensate Drain Point



Model	X	Y
30/60	280	90
90/140	280	65

Model	A	B	C	D	F	G	H	J	K	M	N	P	R	S	T
NVS-D 30	1050	1031	818	100	552	142	347	445	258	201	144	225	696	626	748
NVS-D 60	1345	1031	818	130	475	220	347	740	258	201	144	301	1010	940	748
NVS-D 90	2345	1031	705	130	356	220	347	870	258	201	88	237	2014	1944	635
NVS-D 140	2345	1031	1035	130	686	220	347	870	258	201	88	147	2014	1944	965

NVS Pressure Drop Graph



Controls

The NVS Condensing Unit heater can be controlled using either our Powtrol/RR, MC200V3 or MC300-Multi controls.

Single units can be controlled by the Powrtrol/RR and MC200V3. Multiple units can be controlled using the RBR Relay box (up to 6 units) or the new MC300-Mutli which is an upgrade of the MC200BL, offering multiple heater connectivity of up to 5 heaters from one slave MC300. Each heater is equipped with a slave PCB board which is factory fitted allowing for cost and time saving installations on site. Wiring costs and installation times are again reduced due to the low cost, low voltage wiring which can be either two core for on/off heaters or up to five core for modulations units.

MC200V3

Single Unit Controls

MC300 Multi

Multiple connectivity of up to 5 heaters from a master MC300 unit with each heater factory fiited with a MC300 slave.

Powrtrol/RR

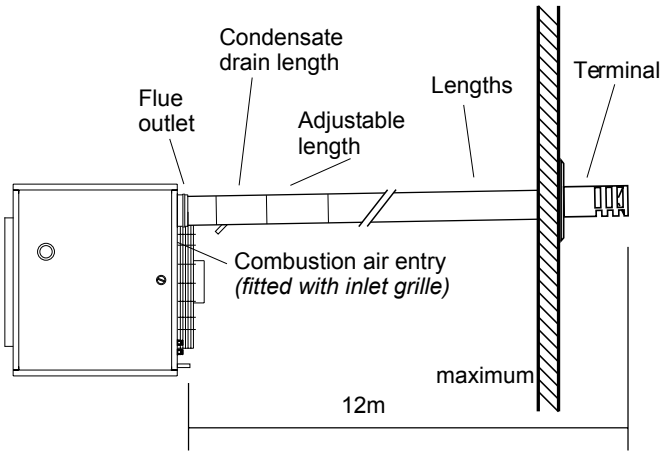
Single Unit Controls

RBR Relay Boxes

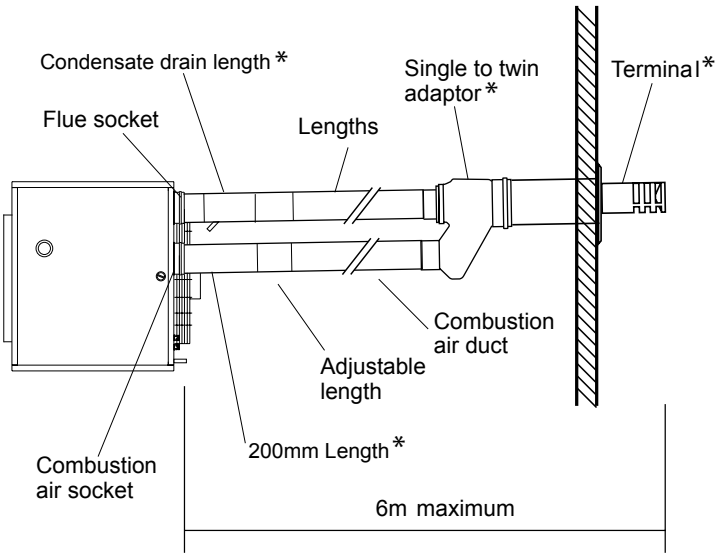
RBR2 shown - control up to 2 units. Other RBR relay boxes available to control up to 4 to 6 units.

Flue Arrangements

Flue Only- Horizontal Flue System

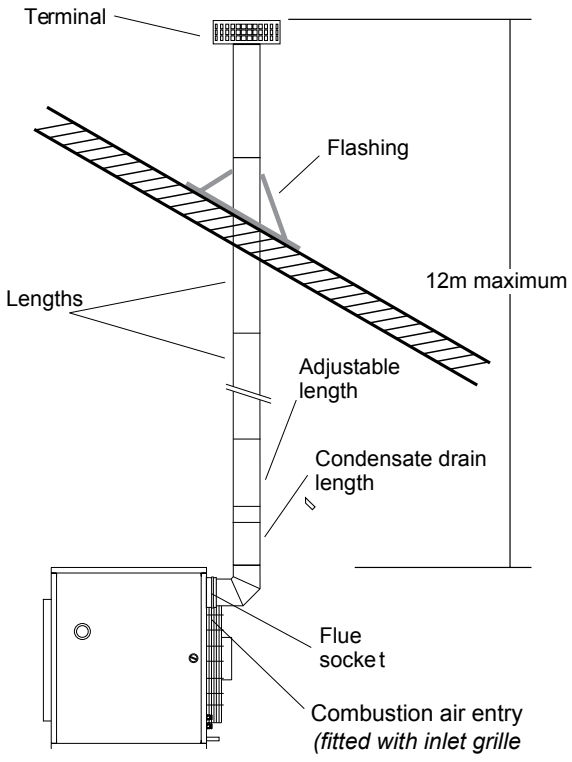


Room Sealed - Horizontal Flue System

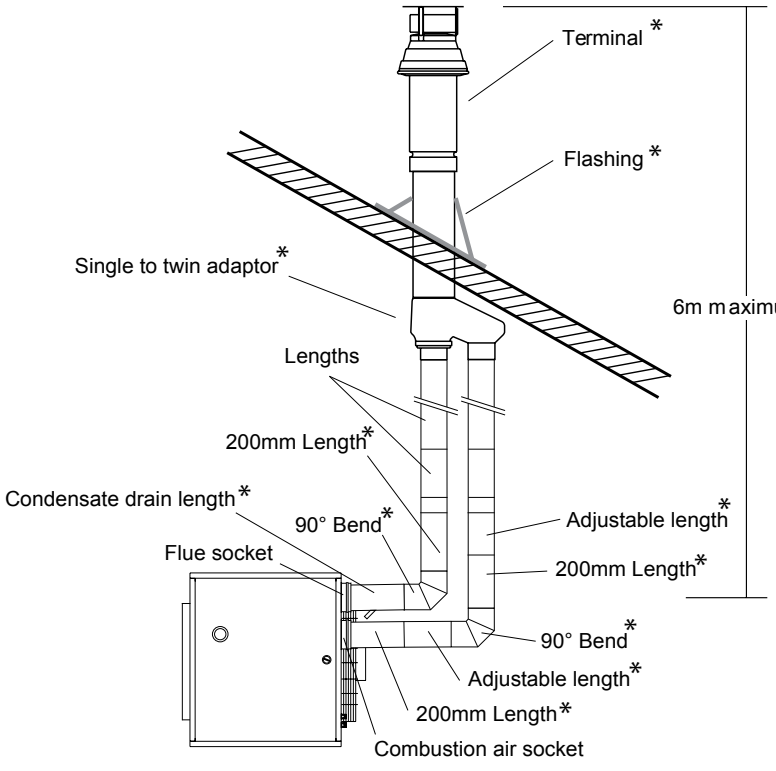


* Supplied in horizontal flue kit

Flue Only - Vertical Flue System



Room Sealed - Vertical Flue System



* Supplied in vertical flue kit

Notes for all systems

- Final overall length of adjustable length disconnection piece must be between 360 - 415mm
- 45° offsets may be used if required. Each set is equivalent to 0.5m of flue length
- 90° offsets may be used if required. Each set is equivalent to 1m of flue length
- Where NVS heaters are used in clean environments it is permissible to take the combustion air directly from the heated space. The supplied mesh intake plate, must be fitted to the combustion air inlet on the rear of the heater.
- Both the heater condensate outlet and the condensate drain length outlet must be trapped and connected to suitable ductwork.
- If fitted with vertical flue, Powrmatic recommend the installation of a condensate drain length.

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

Position & Location
NVS heaters can be 'drop rod' suspended via purpose designed M10 suspension fixing points, or positioned on a level non-combustible base. In all cases it is important that all supporting structures have due regard to the relevant weight loadings.

Consideration should also be given to flue routes and points of exit, gas, electrical and control connections, the throw characteristics of the heater, the routing of the condensate drain pipe, disposal of the condensate, issues of public access and where remote temperature sensors are used these need to be in a position that is representative of the zone temperature.

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 (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
It is possible to install centrifugal fan or duct module variants of the NVS heater within plant rooms or enclosures however specific requirements may be required. 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 or the installation manual 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 in room sealed mode (ie where both the flue exit and combustion air are positively connected to atmosphere) then there is no specific requirement for combustion air ventilation. However, depending upon location, provision for general ventilation may still be a necessity.
If the heater is installed in flue only mode and directly 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
Powrmatic NVS heaters can be installed in either room sealed or flue only mode. Each heater requires a separate flue and/or combustion air intake system of the appropriate size and type. Installers are reminded that type approval has been granted for these appliances on the basis that they are fitted with Powrmatic NVS flue systems. Maximum lengths apply and should be strictly observed.
Systems may be installed in either the horizontal or vertical plane. In either case the number of bends must be kept to a minimum and regard must be given to the reduction in permissible length with the addition of each bend. The flue must be adequately supported and terminated with the approved terminal assembly, with due regard to the point of exit and it's proximity to any windows, doors or ventilation intakes etc.

Condensate
NVS heaters continuously produce condensate during their operation. The condensate drain at the rear of the unit must be fitted with a trap, the outflow of which is piped to a suitable drain or disposal point. Full details regarding this are given in the Installation and Servicing instructions.

Pipework
Care should be taken when sizing pipework to ensure that minimum gas 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 **one year** labour guarantee whilst the heat exchanger assembly has a **ten year** sliding scale time related warranty. All guarantees are subject to terms and conditions.

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