



bmm heaters
LIMITED



Air Heater Manufacturers

Warming the workplace



BMM Heaters Limited design and manufacture industrial and commercial warm air heating systems.

Our heaters are suitable as standard for Natural Gas, LPG, Oil and also Dual Fuel. These heaters are designed to give high efficiency, reliability and manufactured to give good access for ease of maintenance.

Standard heaters are designed to give output from 12kw to 952kw, larger outputs available on request.

These Units are available in all firing orientations, discharge can be horizontal, downward or upward, depending on the application. They can be purchased for very high air pressures and very high gas pressures and their range of uses include make up air, air handling, general heating and high temperature process heating.

Major Companies we have experience working with:

Alcan
AMC Cinemas
Automobile Association
Asda Stores
BBC
British Gas
B.I.C.C
Blackpool Airport
British Leyland
British Steel
Butlins
British Bakeries
British Rail
British Aerospace
British Telecom
British Army
British Waterways
British Caledonian Airways
Black & Decker
Boots Chemists
Burger King
Burnley Football Club
Buxted Chicken Company
Cambridge Airport
Cannon

Co-Operative Superstores
Crompton Eternacell
Curry's Stores
Dept. of the Environment
Docklands Arena
Dixon's Stores
Earls Court
Electricity Boards
English Industrial Estates
French Aerospace
Gatwick Airport
GKN
Glasgow University
Government Research Stations (poultry)
Heathrow Airport
Honda
H.M Customs & Excise
H.M Prisons
ICI
Jaguar Cars
Jersey Gas
KP Food Group
Littlewoods Stores
Lords Cricket Ground
Lucas

MFI
McDonalds Restaurants
Metro Centre
Marks & Spencer
Mercedes
Ministry of Agriculture
National Exhibition Centre
National Poultry Tests Ltd
Nissan
NSK
Peugeot Talbot
Rolls Royce
Rover
Royal Air Force
Royal British Legion
Russian Federation
Sharps
Spillers Foods
Texas Home Care Stores
TGI Friday Restaurants
UCI Cinemas
United Biscuits
Walkers Crisps
Walls Sausages
West Mercia Police HQ

Heat UNITS Indirect

MODELS

12/BMG to 952/BMG 12KW to 952 KW

BMG

Standard Horizontal, Units suitable for Natural Gas

BMPG

Standard Horizontal, Unit suitable for LPG

BMO

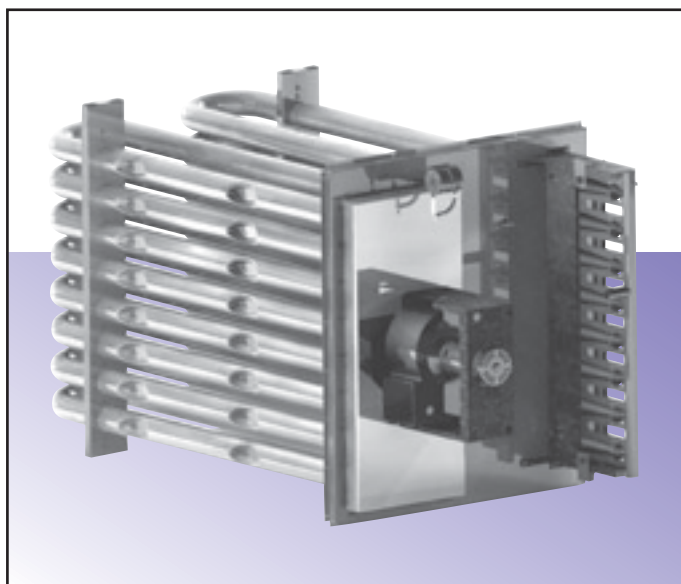
Standard Horizontal, Unit suitable for Oil

GAS / LPG / OIL

INTERNAL/EXTERNAL

Can be ordered Horizontal discharge or Downward discharge.

I n t e r n a l



E x t e r n a l



What is a Heat Unit

A Heat Unit is a source of Heat only to a supply of air provided by others. It should not be confused with a complete Heater incorporating its own fan to supply air.

Purpose of Heat Unit

A source of Heat to existing ventilation supply. An alternative form of heating for use with air handling equipment where electric, steam or hot water coils are not practical.

Indirect Fired

The term 'Indirect Fired' indicates that the products of combustion are kept isolated from the main supply airstream. The burner fires a flame into a combustion chamber, the heated products of combustion are directed into a heat exchanger and from there into an external flue which is then discharged into the atmosphere.

Burners and Fuel

Units are available with forced induced draught gas burners, suitable for propane or natural gas; pressure jet oil burners or dual fuel burners capable of fully automatic operation.

Burner type

Gas burners are available for ON/OFF HIGH/LOW or FULLY MODULATING CONTROL. Oil burners are available for ON/OFF or HIGH/LOW Control.

Unit type

Units are available in a very wide range of heat outputs, designed for high efficiency and built to the latest Regulations and Directives.

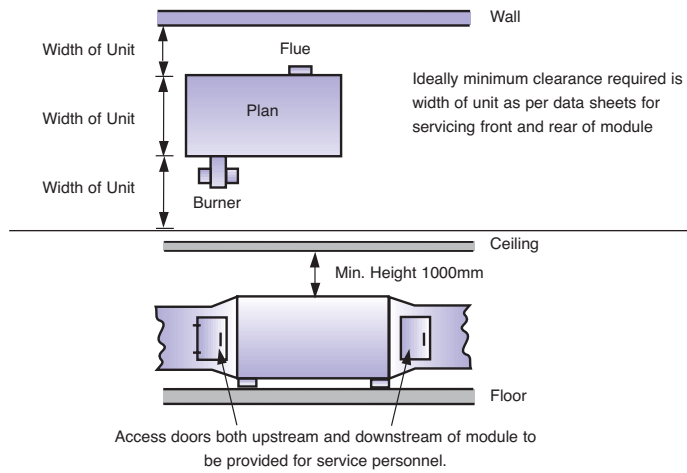
All Modules are constructed from a pentapost framework and consist of a Stainless Steel Combustion Chamber, Mild Steel Heat Exchanger with Double Skinned and Insulated front panel to protect the burner and ancillary controls from heat. All other external panels are of single skin construction.

External Cabinets

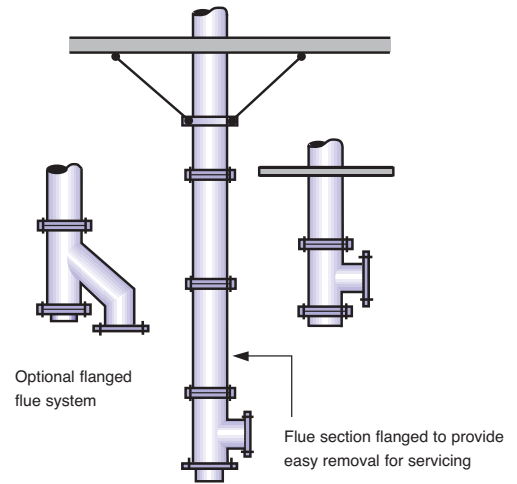
All have double skin panels.

Heat Units Indirect

Examples shown for installation design for minimum working distances



Examples shown for design of flue installation



- A** Top flue configuration utilising 45° condensation trap to transpose to vertical flue.
- B** Extra support required for stack in excess of 23Kg (50 lbs)
- C** 90° condensation trap to horizontal flue spigot.

Consideration for Design

When designing a System, allowance must be made so equipment can be serviced after installation and for the fitting of any spares which may be needed.

Also consideration for the flue arrangement so that they can be dismantled for servicing to take place (examples only).

The Standard Unit

The Standard Unit as described above is designed to be installed within an air handling unit or ductwork. Units with all external panels double skinned and insulated are available for self contained internal use with optional single skinned burner extension housing and weatherproofed for external installation. All external units are supplied with combustion air intake grille, hinged access door with lock and support stays and internal inspection lamp.

All units are supplied with a fully automatic start burner with sequence controls in accordance with CE approval and to the latest British Standards and Directives etc.

When a unit is required to be installed within a larger cabinet, perhaps to accommodate a higher volume air supply, adjustable air balancing plates can be installed to correct the balance of air between the unit and the by-pass area of the cabinet.

Units are available for horizontal, upwards or downwards discharge.

The Standard finish is in galvanised mild steel but can be supplied in an oven baked epoxy paint finish if required.

Process Heat Units

Process Heat Units are also available for normal space heating, low temperature air handling, or high temperature process heating. As high temperature process units are very specialised we would suggest contacting our Technical Sales Department before designing your system.

Overheat Protection

An overheat lockout manual reset thermostat will provide overheat safety protection against supply air fan failure or drastic reduction in air flow, resulting in the burner going to a hold-off condition and will not function again until the manual reset button has been pressed.

The combined overheat and fan control thermostat has the ability to allow the burner to give pre warm up to prevent cold air being dispersed when the unit is first started.

After a preset temperature has been reached it operates the supply air fan, thus discharging the warm air produced. When the heat is no longer required the burner is switched off but the supply air fan is allowed to continue to dissipate heat from the combustion chamber until the residual heat is removed. If this overheat facility is not required provision must be made to install a fan over-run timer to provide the same function. Overheat protection must be fitted.

Flue Pipe

All indirect fired heat units must have a flue. It is important to have a well designed flue system which should be a minimum of two metres in height and clear the apex of a roof by at least one metre. Whenever possible, horizontal runs of flue should be avoided. Supports should be provided for the flue and not rely on the unit for support. If the flue is more than fifty pounds in weight it should be self supporting. A condensation trap with a clean-out door should always be fitted at the base of the flue.

Down Draught

On external units it may be preferred for aesthetic reasons to fit a flue system which is as short as possible, however a minimum of one metre length should be fitted above the cabinet to reduce down draught problems.

If a down draught problem is anticipated, possibly due to the location of the flue terminal in relation to adjacent buildings or to prevalent site and landscape turbulence, an anti down draught cowl is recommended or in extreme cases the fitting of an I.D. Fan dilution system. The fitting of a burner fan over-run timer is particularly recommended to prevent heat damage to the burner internals after shut-down.

Combustion Chamber / Heat Exchanger

The standard combustion chamber/heat exchanger consists of a stainless steel combustion chamber with a mild steel heat exchanger of multi-tube construction with a condensation trap and clean out door at either end.

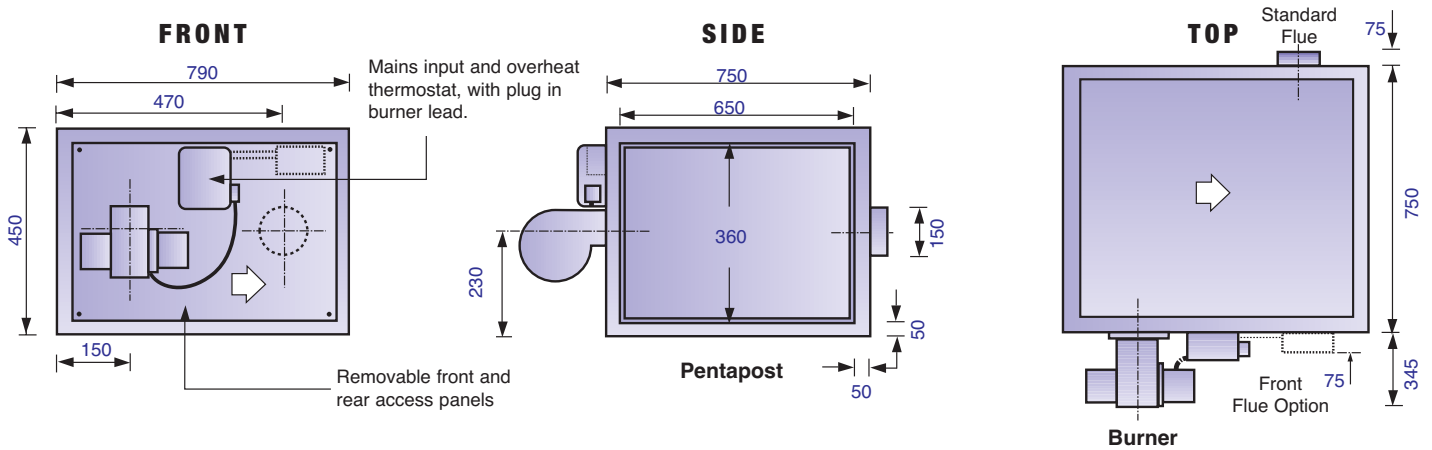
If by location the heat unit is to utilise part or full fresh air and is situated near the coast, in salt air, high humidity or areas of chemical process, corrosion could affect the heat exchanger and internals of the unit when shut down. To avoid this, consideration should be made to install an inlet damper to prevent air being introduced into the module when shut down or fit a stainless heat exchanger at an extra cost.

Heat Units Indirect

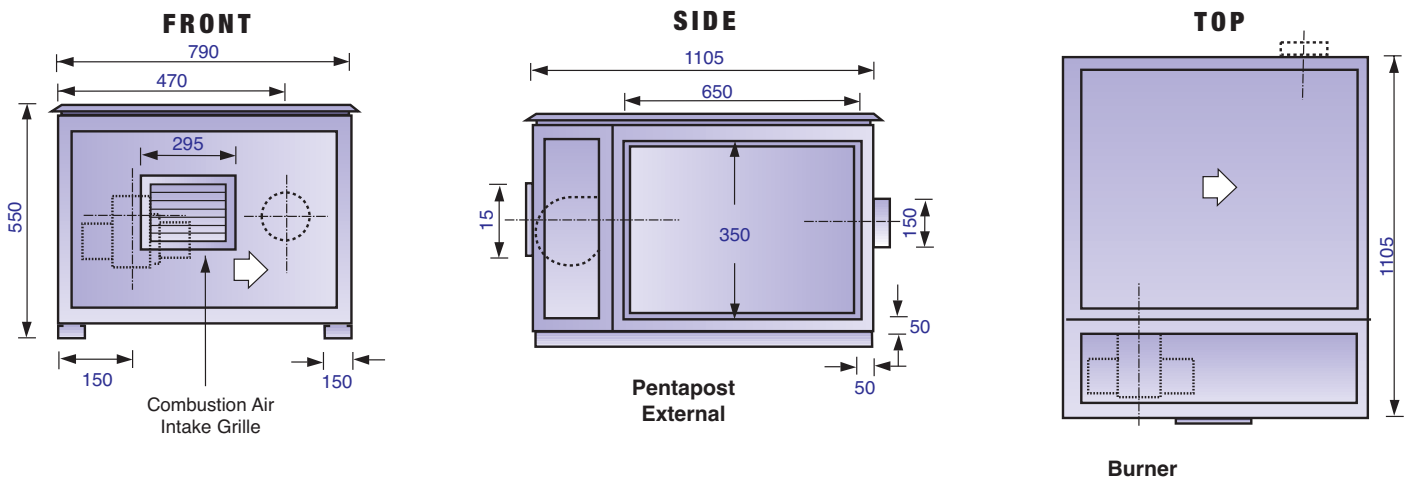
MODEL **12** **15** **18** **23** **30**
 KW Output **12** **15** **18** **23** **30**

I n t e r n a l U n i t s

Standard sizes shown in mm



E x t e r n a l U n i t s



Standard units will have burner and flue positioned as shown above. Burner can be positioned on opposite side providing we are notified. Flue can be catered for on the same side as burner at extra cost.

The installer should familiarise himself with any Planning Regulations, Building Regulations, Fire Regulations or Insurance Requirements and undertake whatever is necessary to satisfy these regulations. Whichever fuel is used great care should be taken to ensure that the Installation is safe and complies with all the above Regulations.

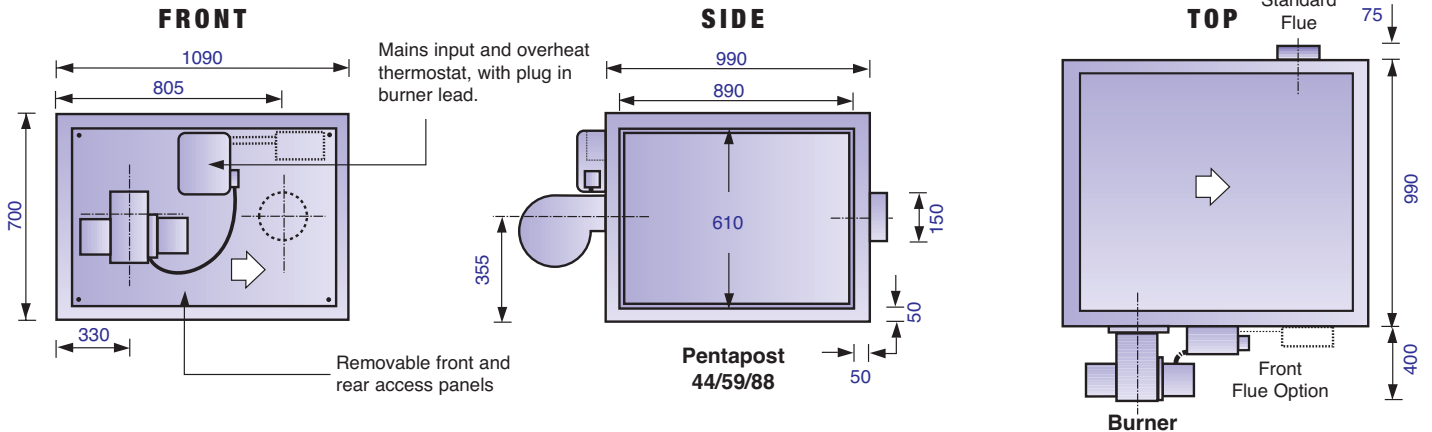
Model	12	15	18	23	30
Heat Output BTU x 1000	40	50	60	80	100
Heat Output K w	12	15	18	23	30
Gas flow rate M3/hr	1.5	1.8	2.2	2.9	3.9
Electrical Requirements	240V/1ph/50Hz	240V/1ph/50Hz	240V/1ph/50Hz	240V/1ph/50Hz	240V/1ph/50Hz
Running Current	0.3A	0.3A	0.3A	0.3A	0.3A
Gas Inlet Size	1/2" B.S.P.	1/2" B.S.P.	1/2" B.S.P.	1/2" B.S.P.	1/2" B.S.P.
Weight (Internal) Kg	66	66	66	66	66
Weight (External) Kg	75	75	75	75	75
Min. Air Volume c.f.m.	800	800	800	1000	1600
Min. Air Volume M3/Sec	.37	.37	.37	.47	.75
Pressure Drop at Minimum Air Volume across Standard Chamber at Ambient Temperature (Nominal)	125Pa	125Pa	125Pa	150Pa	175Pa

Heat Units Indirect

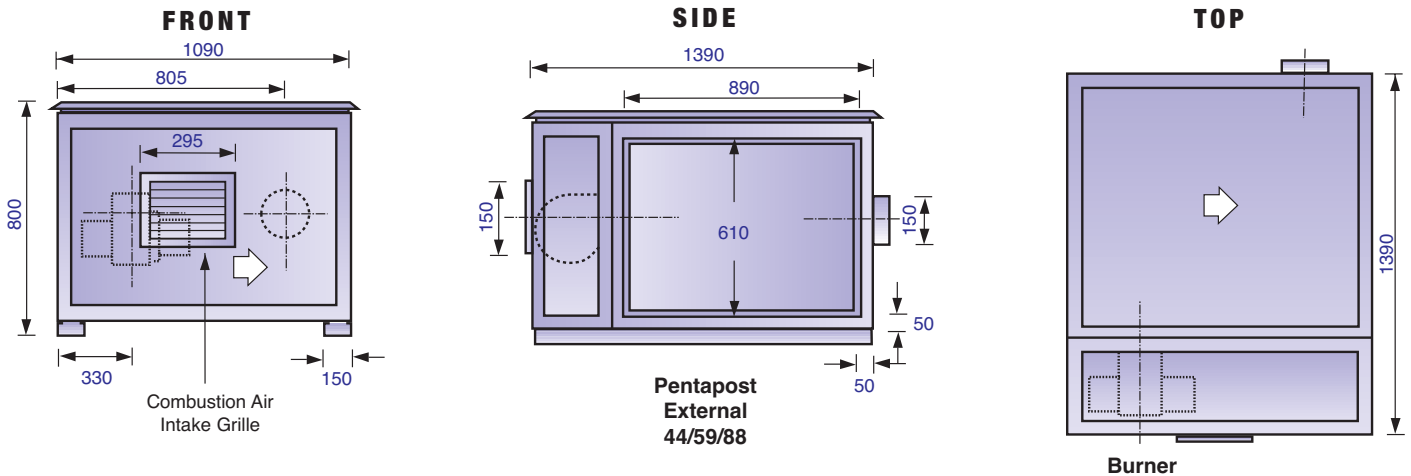
MODEL	44	59	88
KW Output	44	59	88

Internal Units

Standard sizes shown in mm



External Units



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Model	44	59	88
Heat Output BTU x 1000	150	200	300
Heat Output K w	44	59	88
Gas flow rate M3/hr	5.4	7.3	10.9
Electrical Requirements	240V/1ph/50Hz	240V/1ph/50Hz	240V/1ph/50Hz
Running Current	1.3A	1.7A	1.7A
Gas Inlet Size	1/2" B.S.P.	1/2" B.S.P.	3/4" B.S.P.
Weight (Internal) Kg	190	192	192
Weight (External) Kg	204	207	207
Min. Air Volume c.f.m.	1750	2400	3300
Min. Air Volume M3/Sec	.82	1.13	1.55
Pressure Drop at Minimum Air Volume across Standard Chamber at Ambient Temperature (Nominal)	125Pa	150Pa	175Pa

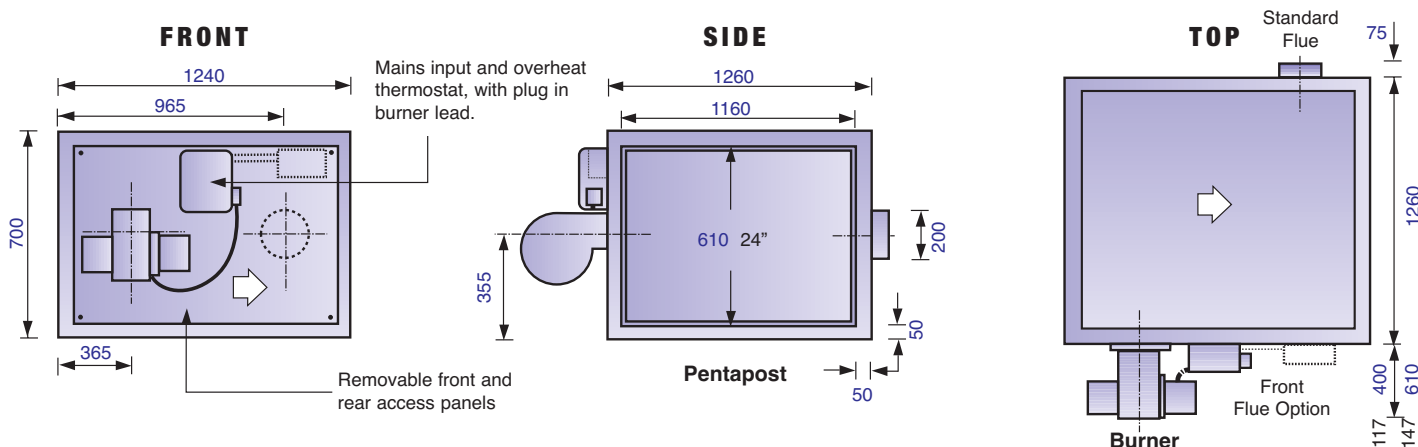
Specialised Models
 Manufactured to customers individual requirements.
 Sizes, outputs etc. can be catered for on application.

Heat Units Indirect

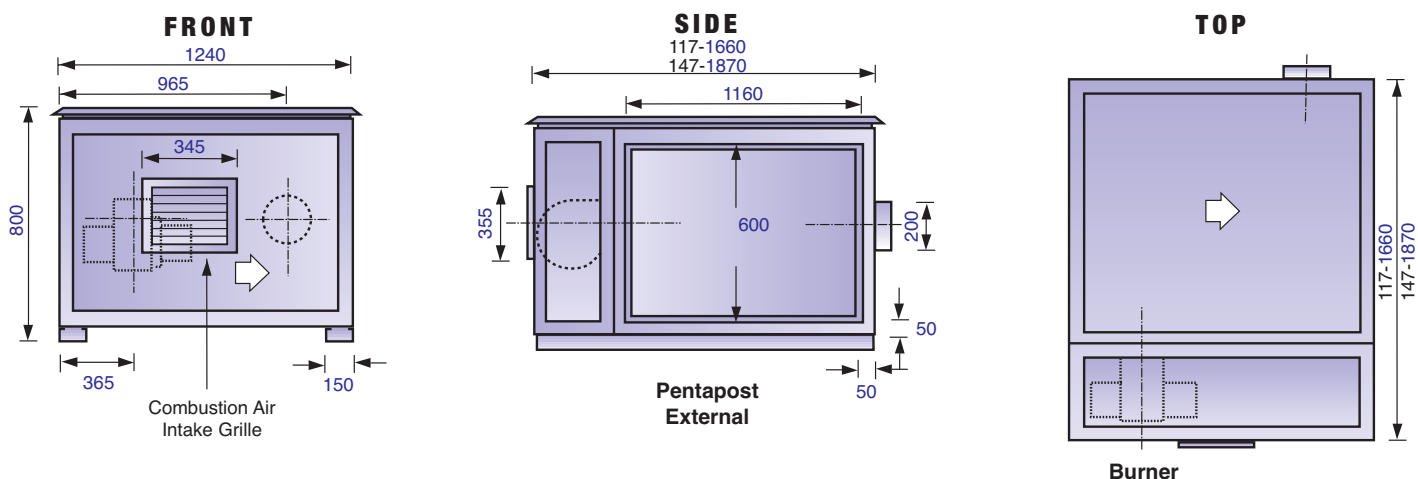
MODEL **117** **147**
KW Output **117** **147**

I n t e r n a l U n i t s

Standard sizes shown in mm



E x t e r n a l U n i t s



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The installer should familiarise himself with any Planning Regulations, Building Regulations, Fire Regulations or Insurance Requirements and undertake whatever is necessary to satisfy these regulations. Whichever fuel is used great care should be taken to ensure that the Installation is safe and complies with all the above Regulations.

Model	117	147
Heat Output BTU x 1000	400	500
Heat Output K w	117	147
Gas flow rate M3/hr	14.5	17.4
Electrical Requirements	240V/1ph/50Hz	240V/1ph/50Hz
Running Current	1.7A	3.8A
Gas Inlet Size	1" B.S.P.	1" B.S.P.
Weight (Internal) Kg	228	232
Weight (External) Kg	246	250
Min. Air Volume c.f.m.	4500	5500
Min. Air Volume M3/Sec	2.11	2.58
Pressure Drop at Minimum Air Volume across Standard Chamber at Ambient Temperature (Nominal)	125Pa	150Pa

Specialised Models Manufactured to customers individual requirements. Sizes, outputs etc. can be catered for on application.

Your Choice

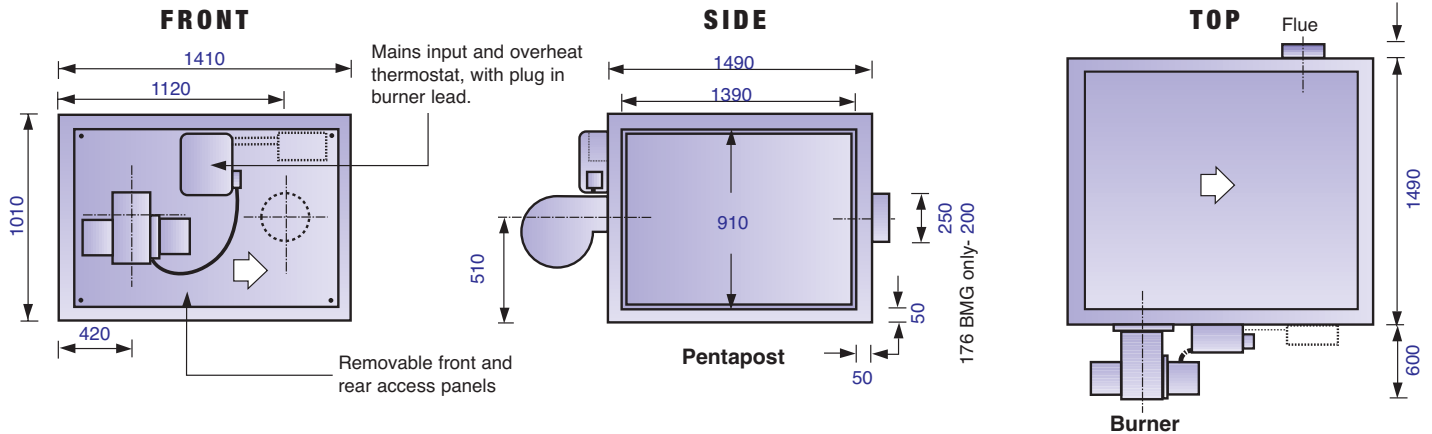
We can supply the Heat Units for you to install in your cabinets or alternatively you supply your cabinet to us and we will install.

Heat Units Indirect

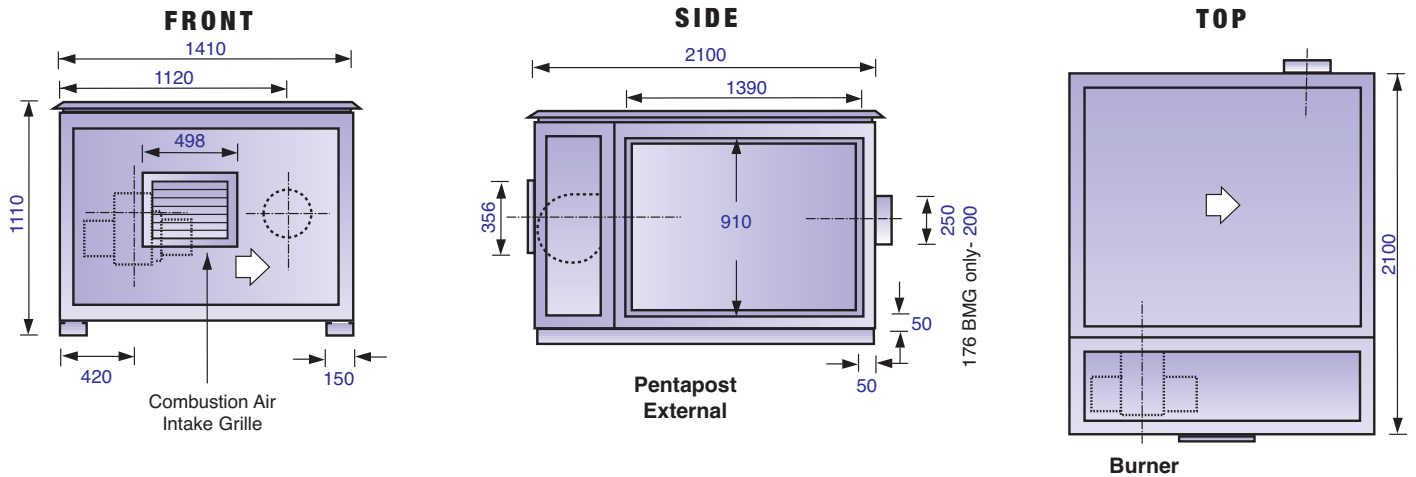
MODEL	176	205	235	264	293
KW Output	176	205	235	264	293

Internal Units

Standard sizes shown in mm



External Units



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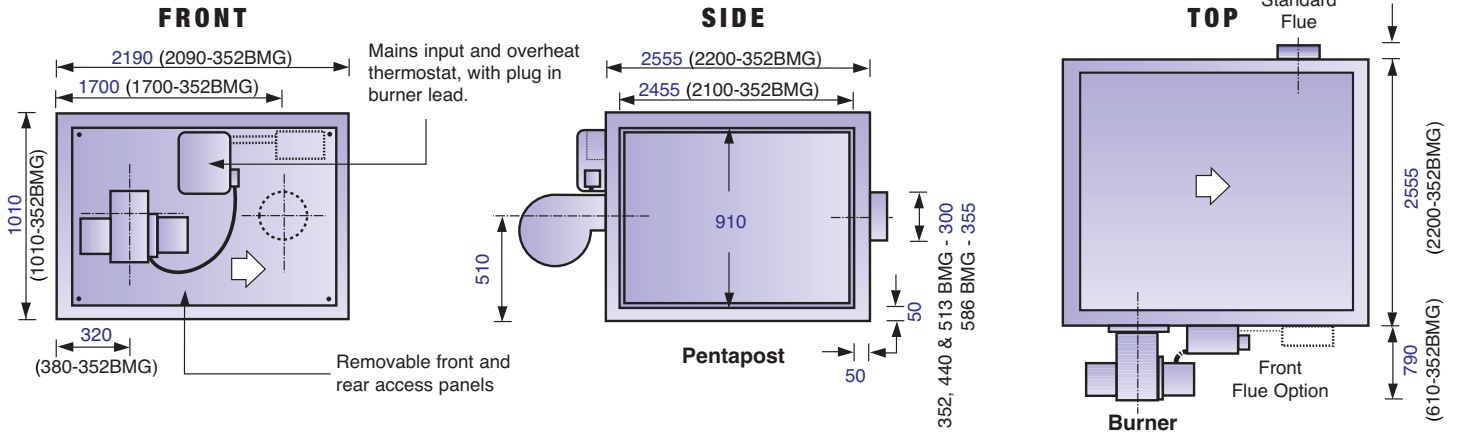
Model	176	205	235	264	293
Heat Output BTU x 1000	600	700	800	900	1000
Heat Output K w	176	205	235	264	293
Gas flow rate M3/hr	21.8	25.4	29.1	32.7	36.3
Electrical Requirements	240V/1ph/50Hz	240V/1ph/50Hz	240V/1ph/50Hz	240V/1ph/50Hz	240V/1ph/50Hz
Running Current	3-8A	3-8A	3-8A	3-8A	3-8A
Gas Inlet Size	1 1/2" B.S.P.	1 1/2" B.S.P.	1 1/2" B.S.P.	1 1/2" B.S.P.	1 1/2" B.S.P.
Weight (Internal) Kg	384	384	384	384	384
Weight (External) Kg	420	420	420	420	420
Min. Air Volume c.f.m.	6800	7900	9000	10,000	11,000
Min. Air Volume M3/Sec	3.19	3.75	4.23	4.75	5.17
Pressure Drop at Minimum Air Volume across Standard Chamber at Ambient Temperature (Nominal)	125Pa	125Pa	150Pa	150Pa	175Pa

Heat Units Indirect

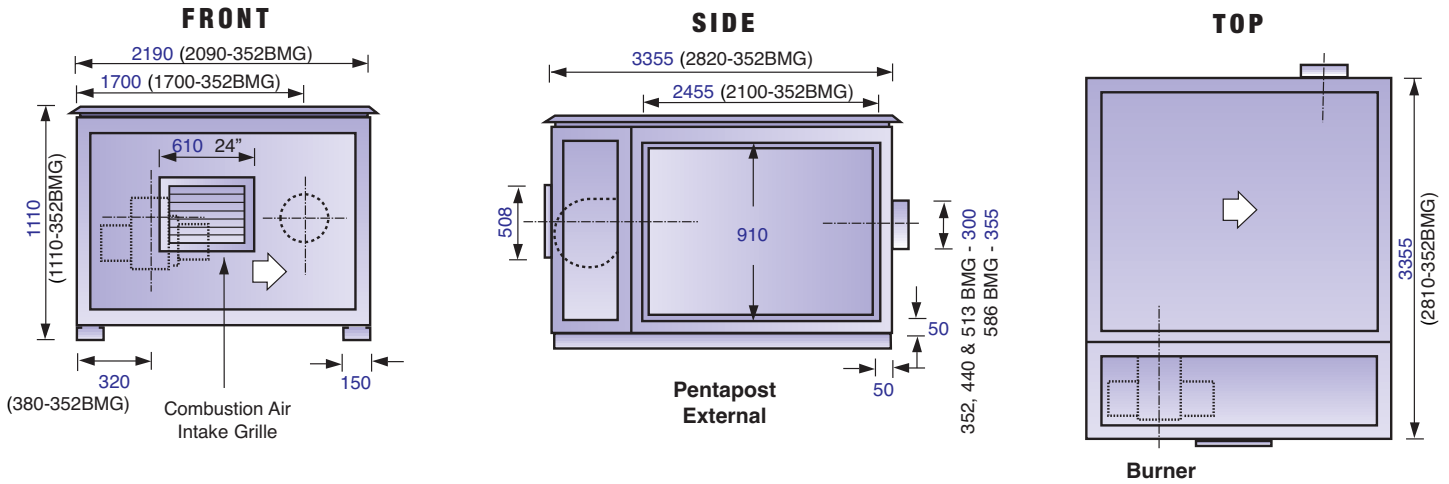
MODEL	352	440	513	586
KW Output	352	440	513	586

Internal Units

Standard sizes shown in mm. Model 352 measurements in (brackets).



External Units



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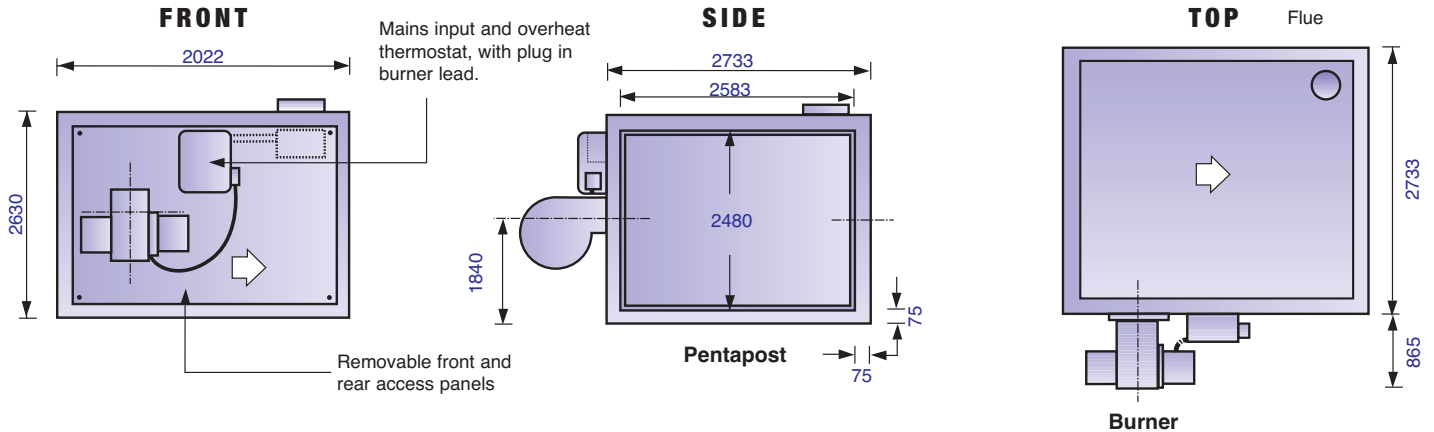
Model	352	440	513	586
Heat Output BTU x 1000	1200	1500	1750	2000
Heat Output K w	352	440	513	586
Gas flow rate M3/hr	43	54.5	63.5	72.6
Electrical Requirements	240V/1ph/50Hz	240V/1ph/50Hz	240V/1ph/50Hz	240V/1ph/50Hz
Running Current	5-3A	5-3A	5-9A	5-9A
Gas Inlet Size	1/2" B.S.P.	1 1/2" B.S.P.	2" B.S.P.	2" B.S.P.
Weight (Internal) Kg	1100	1146	1299	1364
Weight (External) Kg	1400	1432	1623	1704
Min. Air Volume c.f.m.	14,000	18,000	20,000	22,000
Min. Air Volume M3/Sec	6.3	8.46	9.40	10.34
Pressure Drop at Minimum Air Volume across Standard Chamber at Ambient Temperature (Nominal)	125Pa	125Pa	150Pa	175Pa

Heat Units Indirect

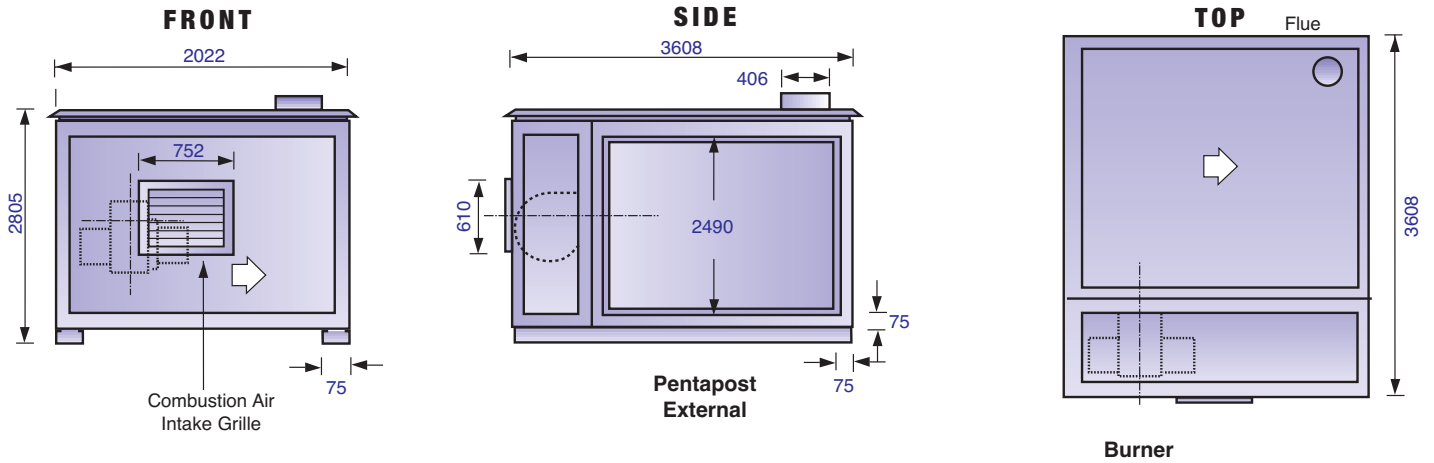
MODEL	733	880	952
KW Output	733	880	952

Internal Units

Standard sizes shown in mm



External Units



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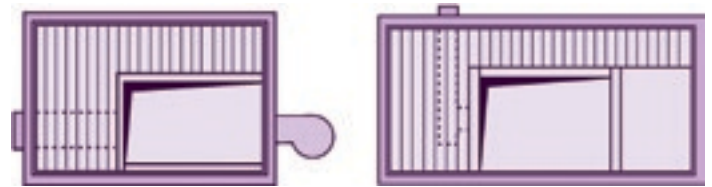
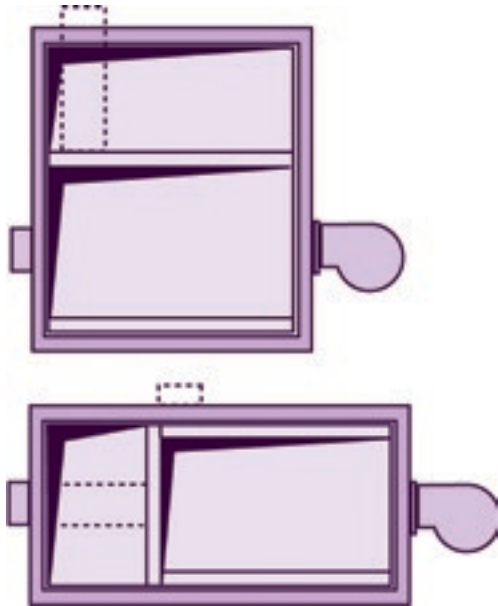
The installer should familiarise himself with any Planning Regulations, Building Regulations, Fire Regulations or Insurance Requirements and undertake whatever is necessary to satisfy these regulations. Whichever fuel is used great care should be taken to ensure that the Installation is safe and complies with all the above Regulations.

Model	733	880	952
Heat Output BTU x 1000	2500	3000	3250
Heat Output K w	733	880	952
Gas flow rate M3/hr	80.6	108.9	118
Electrical Requirements	415V/3ph/50Hz	415V/3ph/50Hz	415V/3ph/50Hz
Running Current	3.8A	3.8A	3.8A
Gas Inlet Size	2" B.S.P.	2" B.S.P.	2" B.S.P.
Weight (Internal) Kg	2160	2160	2160
Weight (External) Kg	2304	2304	2304
Min. Air Volume c.f.m.	27,500	32,500	35,000
Min. Air Volume M3/Sec	13	15.35	16.53
Pressure Drop at Minimum Air Volume across Standard Chamber at Ambient Temperature (Nominal)	150Pa	150Pa	175Pa

Heat Units Indirect

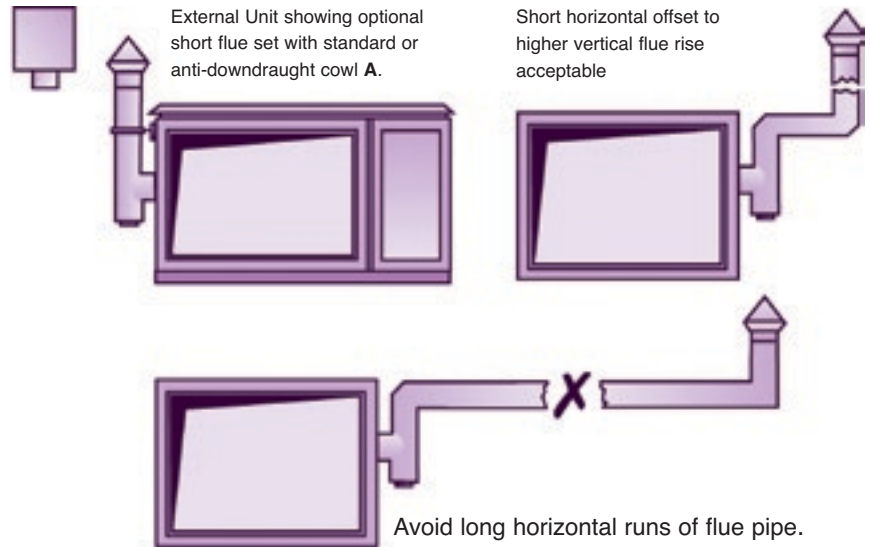
Showing example of Internal / External Heat Units being fitted into larger cabinets

Showing Units installed in alternatively sized cabinets, where the optional by-pass Damper Facility is required and optional flue configuration available.



Unit fitted in oversize cabinet showing optional position of air balancing plates

FLUE LAYOUTS



External Unit showing optional short flue set with standard or anti-downraught cowl A.

Short horizontal offset to higher vertical flue rise acceptable

Avoid long horizontal runs of flue pipe.

As we have explained a Heat Unit is only part of another Manufacturers Unit (Air Supply, Filters, Electric Supply, Flue etc., are all part of your system). BMM test all their appliances before they leave the factory. One should realise that our Equipment is not made in large production batches. Every system is individual and we recommend that you build and assemble all your equipment with the Ancillary (Our Heater) to make your unit complete and undertake a *Simulated Test* to iron out any problems and ensure that everything is to your satisfaction before delivery to site.

Servicing

Adequate room must be available for a service engineer to gain access to all sides of the module. Particular consideration should be given by the installer to provide sufficient space for the removal of the combustion chamber and burner for maintenance and servicing. Access doors for personnel both up and down stream of the module should be made available in adjacent cabinet chambers or ductwork.

Design

If you are unsure about any aspect of the heat module design please do not hesitate to contact our Technical Sales Department.

Commissioning

On site commissioning of Units is available on request. Commissioning by a BMM Engineer is recommended, not only for correct settings of burner combustion but also to advise on

items such as correct air volume, by-pass settings, the linking up of external controls and supply air fan motor control equipment. The use of this service could prevent the possibility of unnecessary post commissioning down time of expensive air handling equipment.

Controls

Our Technical Sales Department can give advice on linking into other manufacturers' control systems.

Air Required

The minimum amount of air required should be of even distribution when entering the Unit. All pressure calculations/ resistances for air are at ambient with the Heater in the Off position.

Specialised Units manufactured to customers individual requirements, sizes, outputs etc. can be catered for on application.

Your Choice

We can supply the Heat Units for you to install in your cabinets or alternatively you supply your cabinet to us and we will install.

Due to our policy of innovation and development we reserve the right to alter the specification without prior notice.



bmm heaters
LIMITED



1 Copeland Court, Forest Grove, Riverside Park, Middlesbrough, TS2 1RN.
Tel: 01642 240700 Fax: 01642 240708
Email: sales@bmmheaters.co.uk www.bmmheaters.co.uk

