

External Cabinet Heaters



Unit 5 Image Business Park
East Cannock Road, Cannock, WS12 1LT
Tel: 0845 5578085 Fax: 01543 876582
www.warmairheaters.com
office@warmairheaters.com



External Gas and Oil Fired
Cabinet Heaters

EVD Vertical Heaters

EHD Horizontal Heaters

External Cabinet Heaters

Introduction

The Benson range of external cabinet heaters combines innovative design with a proven four pass heat exchanger technology to provide a high efficiency cost effective and durable range.

External cabinets provide the ideal solution for a wide range of industrial and commercial applications where space or environmental criteria restrict the use of internally sited units.

All units are IP44 rated purpose designed for external installation and are available in both vertical and horizontal configuration. All heaters are CE certified in accordance with EN1020.

Units are manufactured in accordance with ISO 9001 accreditation, all heater efficiencies are compliant with the 2010 Building Regulations with the majority of models also meeting the higher efficiency requirements for Enhanced Capital Allowances.



Options

- Low ambient units for installations where external temperatures are below -5°C
- High/low or fully modulating burners
- Fresh air inlet louvres
- Air inlet filters
- Manual or motorised inlet dampers
- Up-rated fan motor for increased static pressure

Applications

- Factories
- Showrooms
- Warehouses
- Workshops

Model Range

Cabinet heaters are available as either gas or oil fired models.

- Gas fired cabinet heaters are suitable for use with Natural Gas (G20), most units can also be specified for Propane (G31)
- Oil fired cabinet heaters are suitable for use with Class D gas oil (35 sec), most units can also be specified for Kerosene (28 sec oil)

Vertical freestanding models are available from 29kW to 380kW

Horizontal models from 58kW to 380kW

ECA



This symbol verifies that the product has been independently assessed and currently qualifies for the ECA scheme, an upfront tax relief enabling businesses that invest in energy-saving equipment to claim 100% first-year capital allowances against their taxable profits.





Specification

Cabinets

Cabinets are constructed from electro-zinc coated steel with an inner heat shield and finished in a durable epoxy powder coated finish to form a rigid weatherproof casework suitable for outdoor installation. All cabinets are IP44 rated.

Air Distribution

Centrifugal fan(s) circulate large air volumes evenly across the full heat exchanger surface for enhanced life expectancy. Fans on models 30 to 85 are direct drive with a single phase motor whilst larger models are fitted with three phase motors compliant with directive 2005/32/EC.

Standard heaters are supplied with a duct outlet and a return air spigot for connection to ductwork, a fresh air inlet louvre may be specified as an option.

Heat Exchanger and Burner

Four pass combustion chamber/heat exchanger assembly provides improved thermal efficiency in excess of 91% on most models and is manufactured from stainless steel for enhanced life expectancy.

The combustion chamber and heat exchanger are mounted to allow for thermal expansion thereby avoiding undue stress and premature heat exchange failure.

Gas fired heaters are fitted with a fully automated forced draught burner complete with full safety controls, all burners are CE certified to EN676. High/low and modulating gas burners can be specified as an option on models 60 and above, a high low gas burner is supplied as standard on model 375.

Oil fired units are supplied complete with a fully automatic burner complete with safety controls and a factory fitted oil filter and fire valve. High/low oil fired burners may be specified on models 60 and above, a high low oil burner is fitted as standard on models 350 and 375,

Efficiency

Each heater within the range has been designed and developed with fuel efficiency in mind and efficiencies exceed the mandatory requirements of CE legislation. Additionally for the United Kingdom market all heater efficiencies are compliant with the needs of Part L2A and Part L2B of the 2010 Building Regulations whilst most models within the range have also been rated to meet the criteria necessary for inclusion into the Enhanced Capital Allowance (ECA) scheme.

Fuel

Gas fired heaters are designed for use with natural gas (G20), most gas fired units can also be specified for use on Propane (G31)

Oil fired heaters are designed to operate on Class D light distillate 'gas oil' having a maximum viscosity of 4.5c.St at 20°C (35 sec Redwood at 100°F). The burners have also been designed to operate on oil containing up to 7% bio diesel. Most oil fired heaters can also be specified to operate using Kerosene.

Controls

Benson external cabinet heaters are supplied ready for fully automatic operation and are complete with both safety and comfort controls. Each heater is fitted with a safety overheat thermostat and supplied with a time and temperature control system.

As standard, heaters are supplied with a remote SmartCom, an optimised control that includes a secure entry code facility, an optimised digital time switch with override facility, electronic day thermostat, and frost protection sensor. The control is supplied loose. Inter-connecting wiring between heater and remote control is by others.

All heaters have the facility of 'fan only' operation for summer air movement.

Testing, Approvals & Certification

Benson Heating is accredited with ISO9001 quality assurance. All gas fired heaters have been type tested by an independent notified body and CE certified to conform with EN1020 in accordance with Gas Appliance Directive.

Prior to despatch Each heater is inspected and test fired.



External Cabinet Heaters

TECHNICAL DATA

New Model Ref		30	35	40	60	75	85	120	135	180	205	235	275	350	375	
Old Model Ref		100	125	150	200	250	300	400	500	600	700	800	1000	1200	1300	
Gas Fired																
ECA Approved*		✓	✓	✗	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✗	
Nominal heat output	kW	29	36	40	58	73	83	117	133	177	206	237	278	350	380	
Temperature rise	K	39	42	45	46	43	48	44	41	46	49	44	46	41	45	
Gas Consumption Nat gas G20	m ³ /h	3.7	4.4	4.7	6.9	8.5	9.7	13.6	15.3	20.4	23.9	27.2	33.0	40.7	45.8	
Gas Consumption propane G31	m ³ /h	1.3	1.6	1.8	2.6	3.2	3.7	5.2	6.0	7.8	9.2	10.4	12.3	16.1	18.1	
Minimum inlet pressure Nat gas G20	mbar	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	
Minimum inlet pressure propane G31	mbar	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	
Gas Connection ¹	Rc	½"	½"	½"	½"	½"	½"	¾"	¾"	1"	1¼"	1¼"	1¼"	1 ½"	2"	
Oil Fired																
ECA Approved*		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	
Nominal heat output	kW	32	38	43	60	76	82	123	138	184	208	248	265	350	380	
Temperature rise	K	43	43	49	47	44	48	46	42	48	50	47	44	41	45	
Oil Consumption	l/h	3.4	4.1	4.7	6.5	8.1	9.1	13.3	15.0	19.5	22.5	27.0	34.1	40.4	45.6	
Oil Connection	Rc	¾"	¾"	¾"	¾"	¾"	¾"	¾"	¾"	¾"	¾"	¾"	¾"	¾"	¾"	
Air Handling Data																
Airflow	m ³ /s	0.61	0.71	0.71	1.03	1.39	1.39	2.15	2.65	3.11	3.4	4.32	4.86	6.88	6.88	
Static pressure	Std motor	Pa	75	100	100	125	100	137	150	175	188	125	175	250	250	
	Increased motor	Pa	n/a	n/a	n/a	n/a	n/a	175	200	225	225	188	225	n/a	n/a	
Main fan motor	kW	0.55	0.55	0.55	0.99	0.99	0.99	1.50	2.20	3.0	3.00	4.00	5.50	7.50	7.50	
FLC 230/1/50	amp	3.2	4.8	4.8	6.0	7.2	7.2	12.0	14.0	n/a	n/a	n/a	n/a	n/a	n/a	
FLC 415/3/50	amp	n/a	n/a	n/a	2.2	2.2	2.2	3.6	5.2	6.5	6.5	8.4	11.0	17.0	17.0	
Up-rated fan motor	kW	n/a	n/a	n/a	n/a	n/a	n/a	2.2	3.0	4.0	4.0	5.5	7.5	11.0	11.0	
FLC 413/3/50	amp	n/a	n/a	n/a	n/a	n/a	n/a	5.2	6.5	8.4	8.4	11.0	14.0	24.0	24.0	
Overall Dimensions	EVD	Height mm	1665	1665	1665	1915	1915	1915	2040	2040	2140	2140	2125	2125	2712	2712
		Width mm	660	660	660	660	660	660	740	740	916	916	1100	1100	1244	1244
		Depth mm	1165	1165	1165	1430	1430	1430	1590	1590	220	220	2400	2400	2550	2550
	EHD	Length mm	n/a	n/a	n/a	1960	1960	1960	2085	2085	2185	2185	2170	2170	2757	2757
		Width mm	n/a	n/a	n/a	1661	1661	1661	1801	1801	2456	2456	2676	2676	2816	2816
		Height mm	n/a	n/a	n/a	750	750	750	830	830	1006	1006	1440	1440	1590	1590
Installation Clearances	EVD	Front mm	550	550	550	550	550	550	600	600	600	900	900	900	900	900
		Side mm	150	150	150	150	150	150	150	150	150	150	400	400	500	500
		Rear mm	700	700	700	1000	1000	1000	1200	1200	1500	1500	2000	2000	2000	2000
	EHD	Front mm	n/a	n/a	n/a	550	550	550	600	600	600	900	900	900	900	900
		Side mm	n/a	n/a	n/a	150	150	150	150	150	150	150	400	400	500	500
		Rear mm	n/a	n/a	n/a	1000	1000	1000	1200	1200	1500	1500	2000	2000	2000	2000
General Data																
Flue diameter Nominal	mmø	125	125	125	150	150	175	175	175	200	200	225	225	250	250	
Combustion air diameter Nominal ²	mmø	125	125	125	125	125	125	150	150	150	150	150	150	150	150	
Noise level ³	dB(A)	67	69	69	72	72	72	74	76	78	78	79	81	81	81	
Net weight	kg	196	196	196	241	243	243	330	332	525	540	630	646	1090	1090	

1 Gas lines must be adequately sized and reduced at appliance as required.

2 Standard external cabinets are designed to take combustion air directly from external source, however combustion air may be ducted from the heated space for installations where external ambients are very low. This option must be specified at time of order.

3 Noise levels measured at 5 metres from appliance.

*Please check ETL at time of ordering for latest listings as criteria are subject to change



Installation

Installation Standards

Benson gas and oil fired external cabinet heaters must be installed and commissioned by a competent person and in accordance with Benson installation and commissioning instructions, relevant local and national standards, Codes of Practice, and any requirements of Local Authorities, Fire Officer or insurers.

Siting

External cabinet heaters are specifically designed for external location and must be positioned on a flat, level and non-combustible surface. Any base, platform or structural steelwork supporting the heater must be structurally adequate with safe access and provision for maintenance purposes.

Recommended clearances should be maintained with sufficient space for the connection of discharge and return ductwork. If applicable sufficient clearance must be allowed for the passage of air to the fresh air inlet weather louvre.

Consideration should be given to the location of the appliance so that the flue exit point does not discharge exhaust gases beneath or adjacent to doors, windows, building overhangs or in passageways.

Gas & Oil Pipework

The gas or oil supply pipework should be installed with due regard to all relevant standards and legislation. Pipework should be sized taking into account flow rates and the maximum/minimum inlet pressure requirements for both gas and oil fired heaters. Isolating gas cocks, oil line gate valves and service unions should be provided for each heater.

Combustion Air Supply

External cabinet heaters are designed specifically for outdoor location and as such obtain necessary combustion air via the inlet louvres in the control compartment door. Where heaters are installed in very low ambient temperatures it may be desirable to duct the combustion air from the heated building to the heater via a combustion air connection. Where ducted combustion air is required a spigot will be provided, this option must be specified at time of order clearly stating which side the spigot is required.

Care should be taken to ensure that the combustion air inlet louvre is not restricted and the combustion air duct (if required) is the correct size and is not re-positioned or in anyway restricted.

Flues

External cabinet heaters are supplied complete with a short flue kit which allows the free discharge of flue gases directly to atmosphere. Depending on the heater location it may be necessary to extend the flue to enable the point of discharge to be repositioned. Should this be necessary the diameter of any flue must not be less than stated in the data table.

Ductwork Connections

Supply and return air ductwork must be adequately sized and sharp reductions or bends adjacent to the heater connections should be avoided. Ductwork should always be connected via the spigot connections on the heater and all joints should be sealed to prevent air leakage and water ingress. Ductwork connections should be adequately insulated and both the ductwork and insulation should be weatherproof and water tight.

Controls

Benson external cabinet heaters are supplied complete with flame monitoring and overheat safety controls plus time and temperature controls for fully automatic operation.

Standard heaters are supplied with a remote SmartCom, a password protected microprocessor controller complete with optimised start and stop time control with override facility, electronic day, night and frost protection temperature control.

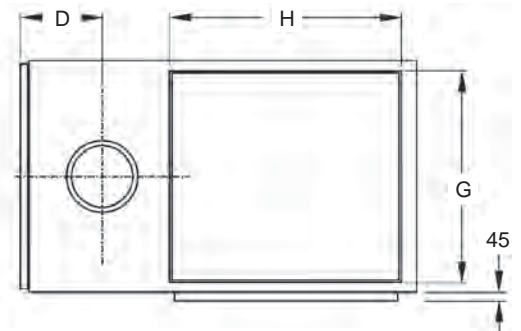
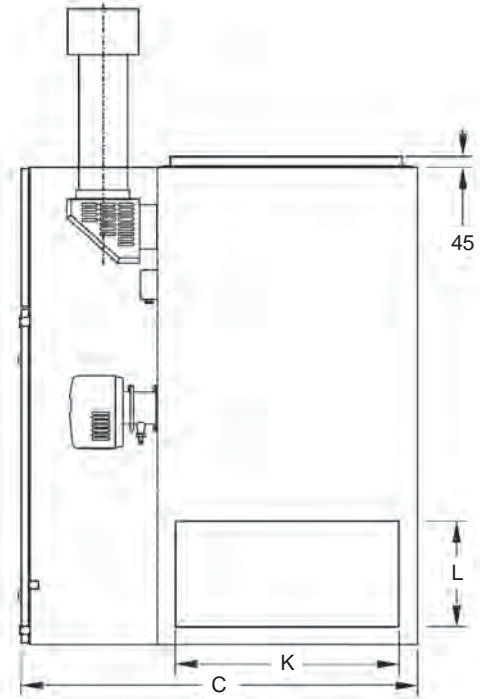
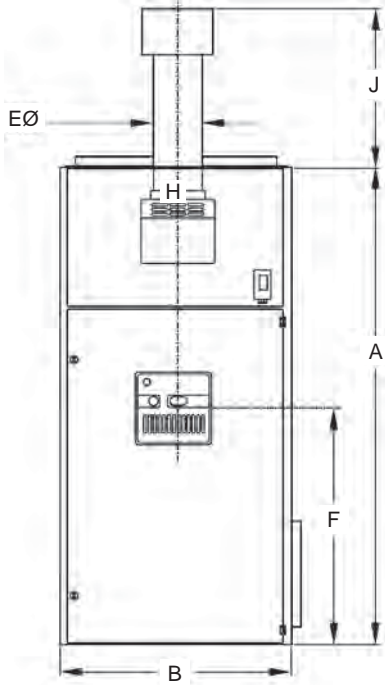
The SmartCom control is supplied loose, inter connecting wiring between the heater and the control sited within the heated building is by others.

All heaters have the facility of 'fan only' operation for summer air movement.



External Cabinet Heaters

External Vertical Cabinet Heaters EVD



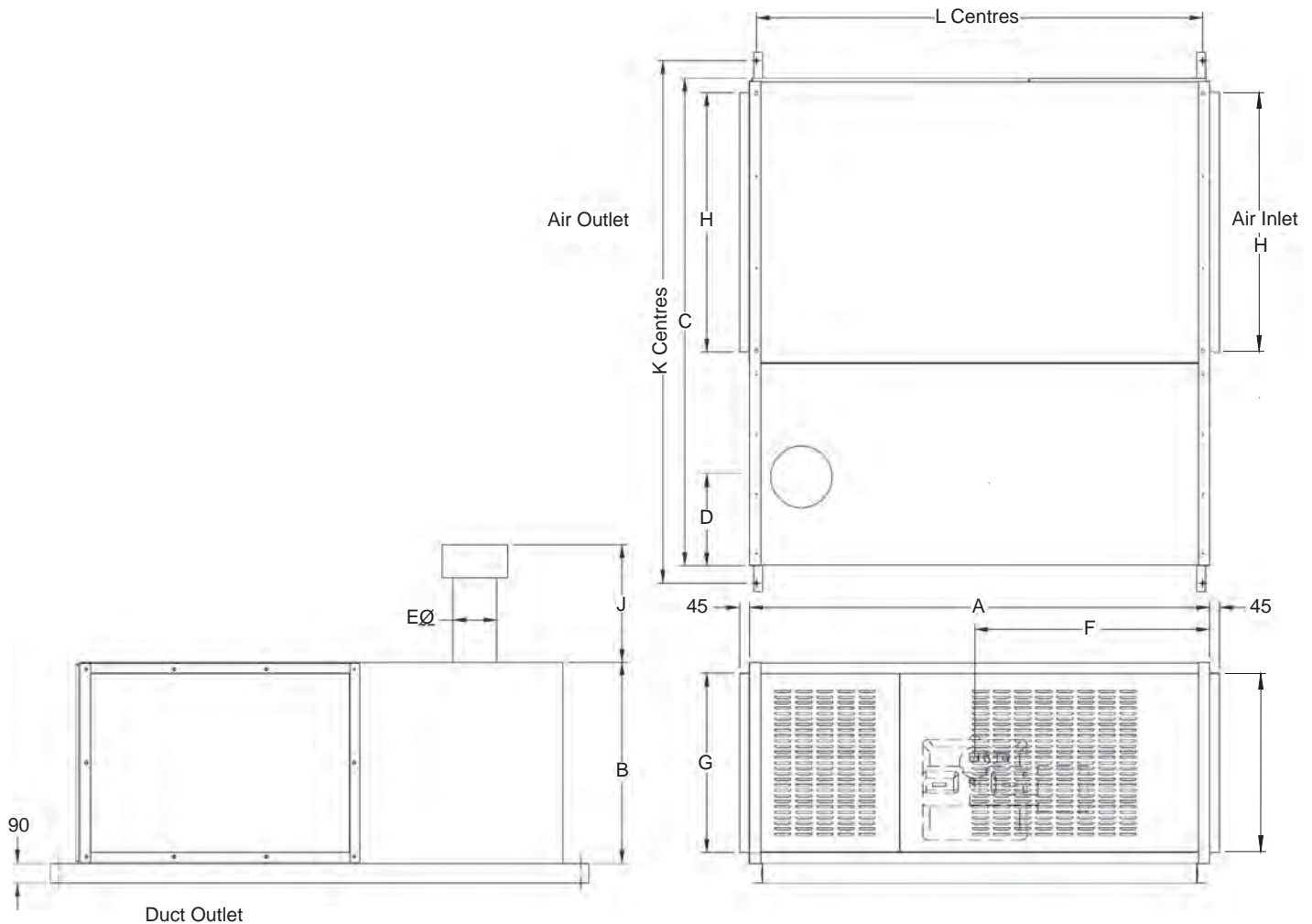
DIMENSIONS

New Model Ref			30	35	40	60	75	85	120	135	180	205	235	275	350	375
Old Model Ref			100	125	150	200	250	300	400	500	600	700	800	1000	1200	1300
A	All	mm	1620	1620	1620	1870	1870	1870	1995	1995	2095	2095	2080	2080	2667	2667
B	All	mm	660	660	660	660	660	660	740	740	916	916	1100	1100	1244	1224
C	All	mm	1165	1166	1165	1430	1430	1590	1590	1590	2200	2200	2400	2400	2550	2550
D	All	mm	408	408	408	335	335	335	335	335	510	510	505	505	797	797
E	All	mm Ø	125	125	125	150	150	175	175	175	200	200	225	225	250	250
F	All	mm	835	835	835	984	984	984	968	968	1068	1068	1054	1054	1372	1372
G	All	mm	570	570	570	634	634	634	714	714	890	890	1000	1000	1086	1086
H	All	mm	570	570	570	770	770	770	950	950	1120	1120	1450	1450	1365	1365
J	All	mm	640	640	640	690	690	690	770	770	945	945	1130	1130	1203	1203
K	All	mm	522	522	522	702	702	702	904	904	1078	1078	1145	1145	1150	1150
L	All	mm	348	348	348	427	427	427	542	542	692	692	654	654	796	796

Side return air spigot shown is on right hand side but can be specified for left hand side. The side required for the return air spigot must be specified at time of order.
Return air spigot sited on the rear panel is available on certain models as detailed on rear of brochure.



External Horizontal Cabinet Heaters EHD



DIMENSIONS			60	75	85	120	135	180	205	235	275	350	375
New Model Ref			60	75	85	120	135	180	205	235	275	350	375
Old Model Ref			200	250	300	400	500	600	700	800	1000	1200	1300
A	All	mm	1870	1870	1870	1995	1995	2095	2095	2080	2080	2667	2667
B	All	mm	660	660	660	740	740	916	916	1350	1350	1500	1500
C	All	mm	1430	1430	1430	1590	1590	2200	2200	2400	2400	2550	2550
D	All	mm	335	335	335	335	335	510	510	505	505	797	797
E	All	mm Ø	150	150	175	175	175	200	200	225	225	250	250
F	All	mm	984	984	984	968	968	1068	1068	1054	1054	1372	1372
G	All	mm	634	634	634	714	714	890	890	1000	1000	1086	1086
H	All	mm	770	770	770	950	950	1120	1120	1450	1450	1365	1365
J	All	mm	570	570	570	640	640	725	725	665	665	675	675
K	All	mm	1585	1585	1585	1725	1725	2380	2380	2600	2600	2740	2740
L	All	mm	1806	1806	1806	1935	1935	2035	2035	2020	2020	2610	2610

Heater shown is with airflow right to left, units may also be specified for airflow left to right. Airflow direction required must be specified at time of order. Optional locations for return air spigots are detailed on rear of brochure.



Benson Heating, Ludlow Road
Knighton, Powys, LD7 1LP
United Kingdom

Telephone 01547 528534
Facsimile 01547 520399
E-mail sales@bensonheating.co.uk
Website www.bensonheating.co.uk



Benson Heating Ltd is a registered trademark of AmbiRad Limited. Because of continuous product innovation, Benson Heating reserves the right to change product specification without due notice.