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TRADE DATA – OIL & GAS CABINET HEATERS

VERTICAL, HORIZONTAL, REVERSE FLOW INTERNAL & EXTERNAL



VNO



VNG



HNO



For models -
VN/VD
HN/HD
RN/RD
EVD/EHD



RANGE & CONFIGURATION

Vertical Internal Forced Draught Oil and Gas
Vertical External Forced Draught Oil and Gas
Horizontal & Reverse Flow Internal Forced Draught Oil & Gas
Horizontal External Forced Draught Oil and Gas

29 kW to 381 kW
29 kW to 381 kW
58 kW to 381 kW
58 kW to 381 kW

SPECIFICATION

CABINET: Machine punched and folded from electro-zinc coated steel to form a robust monocoque case construction and finished with a durable stove hardened epoxy power coat paint.

COMBUSTION CHAMBER/HEAT EXCHANGER:

The combustion chamber/heat exchanger assembly has been designed to combine optimum thermal efficiency with extended service life. Manufactured from 304/316 stainless and HR4 steel each fabricated assembly comprises of a drum type chamber coupled to a tubular heat exchanger.

BURNER: All oil and gas fired cabinet heaters have been carefully matched with a fully automatic packaged pressure jet oil or forced draught gas burner. Oil fired cabinet heaters are complete with factory fitted fire valve and oil filter. Models 1200 and 1300 oil and 1300 gas are fitted as standard with high/low burners. High/low and modulating gas burners are available as an option for other models 200 and above.

ECA APPROVED: All Benson cabinet heaters are designed with fuel efficiency in mind and meet the efficiency requirements of current CE legislation. Additionally specific models within the range have been rated to meet the Government's energy efficiency criteria for inclusion into the Enhanced Capital Allowance scheme.

FUEL: Oil heaters are design to operate on Class D light distillate 'gas oil' having a maximum viscosity of 4.5 c.St at 20°C (35 sec Redwood at 100°F). Forced draught gas heaters can be specified to operate on either natural gas (G20) or Lpg Propane (G31). Certain oil fired models can be operated on kerosene.

FAN: Air movement is provided by either a single or duplex forward curved blade dynamically balanced centrifugal fan assembly complete with double inlet rotors. Fans on models 100 - 300 are powered by integral motors whilst all others employ pulley and belt drive arrangements.

AIR DISTRIBUTION: Free blowing internal heaters are fitted with aerodynamic discharge nozzles each of which can be rotated through 360°. Each nozzle is fitted with adjustable horizontal louvre blades to provide lateral distribution. Models 250 and above include raised nozzles (one per three

nozzled heater and two per four nozzled heaters) however for height sensitive applications lower standard nozzles can be specified. Heaters for ducted applications, including all external models, are supplied with a duct outlet spigot.

Generally return air to the heaters is via louvred inlet panels permitting air entry directly into the fan compartment. However heaters can, as an option, be fitted with alternative return air arrangements including fresh air spigots and filters.

CONTROLS: Benson 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 as well as a time and temperature control system. Two alternative control options are available.

As standard, heaters are fitted with a digital time switch, mechanical day temperature and frost protection thermostats. Alternatively heaters may be specified with a fully optimised control which includes a secure entry code facility, temperature dependent start time, digital time switch with override facility, electronic day thermostat and frost protection thermostat.

Unless otherwise specified the controls are factory fitted and pre-wired to all heaters except horizontal, reverse flow and external heaters where the controls are housed within a console for remote mounting. Inter-connecting wiring between heater and remote consoles is by others.

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

TESTING APPROVALS AND CERTIFICATION:

Benson Heating is accredited with ISO 9001 quality assurance certification – certificate number FM14923. All gas fired heaters have been type tested by an independent notified body and conform to CE requirements. Each heater is inspected and test fired prior to despatch.

GUARANTEE: Benson cabinet heaters are provided with a comprehensive guarantee which includes a twelve months parts and labour guarantee supported by a further twelve months parts guarantee whilst the combustion chamber/heat exchanger assembly has a **ten year** time related warranty. Guarantees subject to terms and conditions.

QUICK REFERENCE DATA

Vertical Cabinet Heaters Internal/External

Oil Fired, Natural Gas and Lpg (Propane) - Vertical Internal VN VD Vertical External EVD

Model			100	125	150	200	250	300	400	500	600	700	800	1000	1200	1300	
Output	Standard	kW	29.3	36.6	44.0	58.6	73.3	85.2	119.3	146.5	171.2	206.0	235.0	286.9	340.0	381.0	
		Btu/h(K)	100	125	150	200	250	291	407	500	584	703	802	979	1160	1300	
	ECA	kW	n/a	n/a	35.4	n/a	n/a	63.2	n/a	108.7	n/a	163.4	n/a	225.6	n/a	300.2	
		Btu/h(K)	n/a	n/a	121	n/a	n/a	216	n/a	371	n/a	558	n/a	770	n/a	1024	
Airflow	All	m ³ /s	0.61	0.71	0.71	1.03	1.39	1.39	2.15	2.65	3.11	3.40	4.32	4.86	6.88	6.88	
		ft ³ /m	1300	1500	1500	2180	2950	2950	4550	5620	6600	7200	9150	10300	14680	14680	
Electrics	Standard	V/ph/hz	230/1/50						415/3/50								
	Optional	V/ph/hz	n/a			415/3/50			230/1/50		n/a						
Overall Dim'ns	VN	Height	m	1890	1980	1980	2230	2230	2230	2385	2385	2535	2535	2570	2570	3280	3280
		Width	m	660	660	660	660	660	660	740	740	916	916	1100	1100	1244	1244
		Depth	mm	1011	1011	1011	1287	1287	1287	1517	1517	1747	1895	2130	2130	2130	2130
Flue CombAir	All	mm ø	125	125	125	150	150	175	175	175	200	200	225	225	250	250	
		mm ø	125	125	125	125	125	125	150	150	150	150	150	150	150	150	
Net Weight	VN	kg	196	196	196	241	243	243	330	332	525	540	630	646	1090	1090	
	EVD	kg	230	230	230	280	280	280	380	380	595	610	720	735	1200	1200	

Horizontal and Reverse Flow Cabinet Heaters Internal/External

Oil Fired, Natural Gas and Lpg (Propane) - Horizontal Internal HN HD Horizontal External EHD Reverse Flow RN RD

Model			200	250	300	400	500	600	700	800	1000	1200	1300	
Output	Standard	kW	58.6	73.3	85.2	119.3	146.5	171.2	206.0	235.0	286.9	340.0	381.0	
		Btu/h(K)	200	250	291	407	500	584	703	802	979	1160	1300	
	ECA	kW	n/a	n/a	63.2	n/a	108.7	n/a	163.4	n/a	225.6	n/a	300.2	
		Btu/h(K)	n/a	n/a	216	n/a	371	n/a	558	n/a	770	n/a	1024	
Airflow	All	m ³ /s	1.03	1.39	1.39	2.15	2.65	3.11	3.40	4.32	4.86	6.88	6.88	
		ft ³ /m	2180	2950	2950	4550	5620	6600	7200	9150	10300	14680	14680	
Electrics	Standard	V/ph/hz	230/1/50				415/3/50							
	Optional	V/ph/hz	415/3/50			230/1/50		n/a						
Overall Dim'ns.	HN	Height	mm	752	752	752	832	832	1008	1008	1192	1192	1336	1336
		Width	mm	2070	2070	2070	2263	2263	2458	2458	2441	2441	3032	3032
		Depth	mm	1403	1403	1403	1635	1635	2013	2013	2268	2268	2268	2268
Flue CombAir	All	mm ø	150	150	175	175	175	200	200	225	225	250	250	
		mm ø	125	125	125	150	150	150	150	150	150	150	150	
Net Weight	HN/RN	kg	241	243	243	330	332	525	540	630	646	1090	1090	
	EHD	kg	280	280	280	380	380	595	610	720	735	1200	1200	

Note -

Vertical heater height shown is minimum using standard nozzles. For typical heights of heaters with raised nozzles refer to dimensions page
 Dimensions in table above refer to horizontal heater only - for reverse flow heater dimensions refer to dimensions page
 Combustion air spigot optional

BURNER & FUEL CONSUMPTION DATA

Vertical Cabinet Heaters Internal/External

Oil Fired, Natural Gas and Lpg (Propane) - Vertical Internal VN VD Vertical External EVD

Model			100	125	150	200	250	300	400	500	600	700	800	1000	1200	1300	
Output	Standard	kW	29.3	36.6	44.0	58.6	73.3	85.2	119.3	146.5	171.2	206.0	235.0	286.9	340.0	381.0	
	ECA	kW	n/a	n/a	35.4	n/a	n/a	63.2	n/a	108.7	n/a	163.4	n/a	225.6	n/a	300.2	
Minimum Gas Inlet Pressure	Natural Gas	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	
		in wg	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
	Lpg Propane	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	
		in wg	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	
Fuel Consumption	Oil	l/h	3.4	4.4	5.3	6.9	8.6	10.4	14.1	17.3	20.1	24.5	27.7	34.1	40.4	45.6	
		gal/h	0.8	1.0	1.2	1.5	1.9	2.3	3.1	3.8	4.4	5.4	6.1	7.5	8.9	10.1	
	Standard Output	Nat Gas	m³/h	3.5	4.3	5.1	6.9	8.8	10.3	14.2	17.9	20.6	24.7	28.3	35.3	40.7	45.8
		Gas	ft³/h	122	152	182	243	311	363	501	633	727	872	1000	1246	1437	1617
	Lpg	m³/h	1.4	1.8	2.1	2.8	3.6	4.2	5.9	7.4	8.5	10.2	11.7	14.6	16.8	19.0	
		kg/h	2.5	3.2	3.8	5.1	6.3	7.3	10.2	12.6	14.7	17.7	20.2	24.7	29.3	32.8	
	ECA Output	Oil	l/h	n/a	n/a	4.3	n/a	n/a	7.5	n/a	12.8	n/a	19.3	n/a	27.0	n/a	35.8
			gal/h	n/a	n/a	0.9	n/a	n/a	1.7	n/a	2.8	n/a	4.2	n/a	5.9	n/a	7.9
	Lpg	Nat Gas	m³/h	n/a	n/a	4.1	n/a	n/a	7.3	n/a	12.5	n/a	18.7	n/a	26.2	n/a	34.8
			Gas	ft³/h	n/a	n/a	146	n/a	n/a	258	n/a	441	n/a	662	n/a	927	n/a
		m³/h	n/a	n/a	1.7	n/a	n/a	3.0	n/a	5.1	n/a	7.6	n/a	10.7	n/a	14.2	
			kg/h	n/a	n/a	3.0	n/a	n/a	5.4	n/a	9.2	n/a	13.8	n/a	19.4	n/a	25.7

Horizontal and Reverse Flow Cabinet Heaters Internal/External

Oil Fired, Natural Gas and Lpg (Propane) - Horizontal Internal HN HD Horizontal External EHD Reverse Flow RN RD

Model			200	250	300	400	500	600	700	800	1000	1200	1300	
Output	Standard	kW	58.6	73.3	85.2	119.3	146.5	171.2	206.0	235.0	286.9	340.0	381.0	
	ECA	kW	n/a	n/a	63.2	n/a	108.7	n/a	163.4	n/a	225.6	n/a	300.2	
Minimum Gas Inlet Pressure	Natural Gas	mbar	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	
		in wg	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
	Lpg Propane	mbar	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	
		in wg	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	
Fuel Consumption	Oil	l/h	6.9	8.6	10.4	14.1	17.3	20.1	24.5	27.7	34.1	40.4	45.6	
		gal/h	1.5	1.9	2.3	3.1	3.8	4.4	5.4	6.1	7.5	8.9	10.1	
	Standard Output	Nat Gas	m³/h	6.9	8.8	10.3	14.2	17.9	20.6	24.7	28.3	35.3	40.7	45.8
		Gas	ft³/h	243	311	363	501	633	727	872	1000	1246	1437	1617
	Lpg	m³/h	2.8	3.6	4.2	5.9	7.4	8.5	10.2	11.7	14.6	16.8	19.0	
		kg/h	5.1	6.3	7.3	10.2	12.6	14.7	17.7	20.2	24.7	29.3	32.8	
	ECA Output	Oil	l/h	n/a	n/a	7.5	n/a	12.8	n/a	19.3	n/a	27.0	n/a	35.8
			gal/h	n/a	n/a	1.7	n/a	2.8	n/a	4.2	n/a	5.9	n/a	7.9
	Lpg	Nat Gas	m³/h	n/a	n/a	7.3	n/a	12.5	n/a	18.7	n/a	26.2	n/a	34.8
			Gas	ft³/h	n/a	n/a	258	n/a	441	n/a	662	n/a	927	n/a
		m³/h	n/a	n/a	3.0	n/a	5.1	n/a	7.6	n/a	10.7	n/a	14.2	
			kg/h	n/a	n/a	5.4	n/a	9.2	n/a	13.8	n/a	19.4	n/a	25.7

Note -

Fuel consumption and output figures based upon gross calorific values as - Class D light distillate fuel oil @ 37.9 MJ/l

Natural gas (G20) @ 37.78 MJ/m³

Lpg Propane (G31) @ 95.65 MJ/m³

AIR HANDLING DATA

Vertical Cabinet Heaters Internal/External

Oil Fired, Natural Gas and Lpg (Propane) - Vertical Internal VN VD Vertical External EVD

Model			100	125	150	200	250	300	400	500	600	700	800	1000	1200	1300	
Output	Standard	kW	29.3	36.6	44.0	58.6	73.3	85.2	119.3	146.5	171.2	206.0	235.0	286.9	340.0	381.0	
	ECA	kW	n/a	n/a	35.4	n/a	n/a	63.2	n/a	108.7	n/a	163.4	n/a	225.6	n/a	300.2	
Airflow	All	m ³ /s	0.61	0.71	0.71	1.03	1.39	1.39	2.15	2.65	3.11	3.40	4.32	4.86	6.88	6.88	
		ft ³ /m	1300	1500	1500	2180	2950	2950	4550	5620	6600	7200	9150	10300	14680	14680	
Temp Rise	Std.	°C	40.0	43.0	51.6	47.4	43.9	51.1	46.2	46.1	45.9	50.5	45.3	49.2	41.2	46.1	
Nozzle Detail	VN	No.	2	2	2	2	3	3	3	4	4	4	4	4	4	4	
		Size	mm	280	280	280	280	280	280	308	308	356	356	406	406	450	450
		Height	mm	190	280	280	280	280	280	308	308	356	356	406	406	450	450
		Throw	m	14	14	14	17	17	17	20	20	20	22	22	25	31	31
			ft	46	46	46	56	56	56	66	66	66	72	72	82	102	102
Fan Static Pressure	Standard	Pa	75	100	100	125	100	100	137	150	175	188	125	175	250	250	
		in wg	0.30	0.40	0.40	0.50	0.40	0.40	0.55	0.60	0.70	0.75	0.50	0.70	1.00	1.00	
	Up-rated	Pa	n/a	n/a	n/a	n/a	n/a	n/a	175	200	225	225	188	225	n/a	n/a	
		in wg	n/a	n/a	n/a	n/a	n/a	n/a	0.70	0.80	0.90	0.90	0.75	0.90	n/a	n/a	

Horizontal and Reverse Flow Cabinet Heaters Internal/External

Oil Fired, Natural Gas and Lpg (Propane) - Horizontal Internal HN/HD Horizontal External EHD Reverse Flow RN/RD

Model			200	250	300	400	500	600	700	800	1000	1200	1300	
Output	Standard	kW	58.6	73.3	85.2	119.3	146.5	171.2	206.0	235.0	286.9	340.0	381.0	
	ECA	kW	n/a	n/a	63.2	n/a	108.7	n/a	163.4	n/a	225.6	n/a	300.2	
Airflow	All	m ³ /s	1.03	1.39	1.39	2.15	2.65	3.11	3.40	4.32	4.86	6.88	6.88	
		ft ³ /m	2180	2950	2950	4550	5620	6600	7200	9150	10300	14680	14680	
Temp Rise	Std.	°C	47.4	43.9	51.1	46.2	46.1	45.9	50.5	45.3	49.2	41.2	46.1	
Nozzle Detail	HN/RN	No.	4	4	4	4	4	4	4	4	4	4	4	
		Size	mm ø	203	203	203	284	284	420	420	420	420	473	473
		Throw	m	16	22	22	22	23	22	23	23	25	31	31
			ft	52	72	72	72	75	72	75	75	75	82	102
Fan Static Pressure	Standard	Pa	125	100	100	137	150	175	188	125	175	250	250	
		in wg	0.50	0.40	0.40	0.55	0.60	0.70	0.75	0.50	0.70	1.00	1.00	
	Up-rated	Pa	n/a	n/a	n/a	175	200	225	225	188	225	n/a	n/a	
		in wg	n/a	n/a	n/a	0.70	0.80	0.90	0.90	0.75	0.90	n/a	n/a	

Note -

Air handling data is assessed at room ambient conditions
 Throw figures provide the distance to the point where the average air velocity is 0.25m/s

INSTALLATION REQUIREMENTS

INSTALLATION STANDARDS: Benson oil and gas fired cabinet heaters must be installed by a competent person and in accordance with all current relevant standards, Codes of Practice, Building Regulations, Health and Safety Regulations, IEE Regulations and any requirements of the Local Authority, Fire Officer or insurers. Relevant standards may include BS 6230, BS 6891 and BS 5588 parts 2 and 3.

SITING: The position chosen for the heater will need to take account of the following points -

All heaters should be mounted on a flat non-combustible base capable of supporting the weight. Horizontal heaters can be base mounted on the skid frame provided or suspended from the mounting points provided on the lateral members of the skid frame. Reverse flow heaters are generally suspended on purpose brackets or drop-rods. Installers should ensure that brackets fixing or other mounting points are structurally adequate.

Care should also be taken to ensure that the recommended clearances for maintenance, air discharge, return and re-circulation are observed. Further information is provided in the Installation Data table on the page opposite.

Consideration should be given to the route and length of the flue, the provision and connection of oil, gas and electrical supplies, potential public access issues and protection from overhead cranes, fork lift trucks etc.

For effective warm air distribution free blowing heaters should be both selected and positioned to take account of the throw characteristics and sited such that the discharge avoids any immediate obstructions, partitions or other significant obstacles. In areas where it is proposed to install more than one heater then a general scheme of uniform air circulation should be employed to provide optimum distribution.

Generally, vertical internal heaters will be operated with in-built controls and temperature sensors which carefully monitors the return air temperature. In applications where internal vertical heaters are installed with fresh air intakes, when horizontal/reverse flow or external heaters are installed with remote controls then consideration should be given to ensure that the control and temperature sensors are located in a position which adequately reflects the working zone serviced by the heater. Sensors should not be located in areas subject to cold draughts.

In case of doubt relating to any aspect of heater or control siting please consult with Benson Sales.

OIL & GAS PIPEWORK: The oil and gas supply pipework must be sized and installed with due regard for all current standards and legislation, flow rates and the maximum/minimum inlet pressure requirements of both oil and gas fired heaters. Isolating gas cocks, oil line gate valves and service unions should be provided for each heater.

SPECIAL RISK AREAS: Where it is proposed to install a heater within a special risk area (including but not limited to areas containing flammable vapours, where petrol engined vehicles are stored, parked or serviced, where

paint spraying occurs or where wood working or other flammable dust creating process are employed) then restrictions, additional regulations and requirements concerning the heater installation may apply. Additionally areas containing chlorinated or halogenated hydrocarbons, degreasing solvents, styrene's, other laminating materials or airborne silicones can cause corrosion to heat exchange surfaces and It is strongly recommended that you consult Benson Sales before installation commences. Failure to do so may invalidate or reduce guarantee cover.

CAUTION: When specified in certain configurations it may be possible to install heaters in areas containing flammable vapours, high levels of airborne dust, combustible dust, chlorinated or halogenated hydrocarbons, degreasing solvents, styrene's, other laminating materials or airborne silicones however before doing so consult Benson Sales.

PLANT ROOM SITING: Where it is proposed to install a heater within a compartment or plant room the return air and discharge air arrangements must be such that they do not interfere with the operation of the flue or burner. Both the warm air discharge and return air should be positively ducted to and from the heater. In certain applications it may be possible to dispense with the return air ductwork. However, this results in a negative pressure within the plant room and may require purpose sized return air louvres and/or combustion air ductwork. In this instance you should consult with Benson Sales.

AIR SUPPLY: The provision of an air supply for combustion, for combustion product dilution if relevant, and for ventilation varies according to heater location. Where the heater is sited directly within the space to be heated then consideration of ventilation for combustion air and general ventilation is mandatory with the requirements dependent upon the ratio between heat input and building volume or the air change rate of the building. If the heater is to be sited directly into the space to be heated and used with separate positive combustion ductwork a combustion air supply for the building may not be necessary however the need for general ventilation may remain. Where the heater is to be sited within a plant room then general ventilation of the plant room will be a requirement. In all cases it is recommended that BS 6230 be used as a consultative document.

FLUES: Each heater requires a separate flue of a diameter not less than that detailed in the data sections of this brochure. The minimum vertical length of the flue must not be less than 3 metres. Flue systems should ideally rise vertically from the heater and incorporate the minimum of bends and terminate with a suitable terminal. It is recommended that BS 5854 and BS 5440 be used as consultative documents.

FURTHER INFORMATION: The foregoing is given for guidance purposes. More detailed information can be found within the relevant Installation, Operating and Maintenance manual supplied with the heater or alternatively contact Benson Sales.

INSTALLATION DATA

Vertical Cabinet Heaters Internal/External

Oil Fired, Natural Gas and Lpg (Propane) - Vertical Internal VN VD Vertical External EVD

Model			100	125	150	200	250	300	400	500	600	700	800	1000	1200	1300	
Fuel Connection	Oil	BSP/Rc	³ / ₈	³ / ₈	³ / ₈	³ / ₈	³ / ₈	³ / ₈	³ / ₈	³ / ₈	³ / ₈	³ / ₈	³ / ₈	³ / ₈	³ / ₈	³ / ₈	
	Gas	BSP/Rc	¹ / ₂	¹ / ₂	¹ / ₂	¹ / ₂	¹ / ₂	¹ / ₂	³ / ₄	³ / ₄	1	1 ¹ / ₄	1 ¹ / ₄	1 ¹ / ₄	1 ¹ / ₂	2	
Electrics	230/1/50	Motor	kW	0.55	0.55	0.55	0.99	0.99	0.99	1.50	2.20	n/a	n/a	n/a	n/a	n/a	
		FLC	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	
	415/3/50	Motor	kW	n/a	n/a	n/a	1.0	1.0	1.0	1.5	2.2	3.0	3.0	4.0	5.5	7.5	7.5
		FLC	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	14.0	14.0
	415/3/50 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	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	21.0	21.0
Installation Clearances	VN/VD	Front	mm	500	500	500	500	500	500	600	600	600	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
	EVD	Front	mm	610	610	610	610	610	610	790	790	870	870	1050	1050	1200	1200
		Side	mm	300	300	300	300	300	300	400	400	400	400	400	400	500	500
		Rear	mm	700	700	700	1000	1000	1000	1200	1200	1500	1500	2000	2000	2000	2000
Flue	All	mm ø	125	125	125	150	150	175	175	175	200	200	225	225	250	250	
Combustion Air	All	mm ø	125	125	125	125	125	125	150	150	150	150	150	150	150	150	
Noise Level	VN	dB(A)	67	69	69	72	72	72	74	76	78	78	79	81	81	81	
Nett Weight	VN	kg	196	196	196	241	243	243	330	332	525	540	630	646	1090	1090	
	EVD	kg	230	230	230	280	280	280	380	380	595	610	720	735	1200	1200	

Horizontal and Reverse Flow Cabinet Heaters Internal/External

Oil Fired, Natural Gas and Lpg (Propane) - Horizontal Internal HN/HD Horizontal External EHD Reverse Flow RN/RD

Model			200	250	300	400	500	600	700	800	1000	1200	1300	
Fuel Connection	Oil	BSP/Rc	³ / ₈	³ / ₈	³ / ₈	³ / ₈	³ / ₈	³ / ₈	³ / ₈	³ / ₈	³ / ₈	³ / ₈	³ / ₈	
	Gas	BSP/Rc	¹ / ₂	¹ / ₂	¹ / ₂	³ / ₄	³ / ₄	1	1 ¹ / ₄	1 ¹ / ₄	1 ¹ / ₄	1 ¹ / ₂	2	
Electrics	230/1/50	Motor	kW	0.99	0.99	0.99	1.50	2.20	n/a	n/a	n/a	n/a	n/a	
		FLC	Amp	6.0	7.2	7.2	12.0	14.0	n/a	n/a	n/a	n/a	n/a	
	415/3/50	Motor	kW	1.0	1.0	1.0	1.5	2.2	3.0	3.0	4.0	5.5	7.5	7.5
		FLC	Amp	2.2	2.2	2.2	3.6	5.2	6.5	6.5	8.4	11.0	14.0	14.0
	415/3/50 Up-rated Fan	Motor	kW	n/a	n/a	n/a	2.2	3.0	4.0	4.0	5.5	7.5	11.0	11.0
		FLC	Amp	n/a	n/a	n/a	5.2	6.5	8.4	8.4	11.0	14.0	21.0	21.0
Installation Clearances	HN/HD	Front	mm	500	500	500	600	600	600	900	900	900	900	
		Top	mm	150	150	150	150	150	150	150	400	400	500	500
		Rear	mm	1000	1000	1000	1200	1200	1500	1500	2000	2000	2000	2000
	EHD	Front	mm	610	610	610	790	790	870	870	1050	1050	1200	1200
		Top	mm	150	150	150	150	150	150	150	400	400	500	500
		Rear	mm	1000	1000	1000	1200	1200	1500	1500	2000	2000	2000	2000
Flue	All	mm ø	150	150	175	175	175	200	200	225	225	250	250	
Combustion Air	All	mm ø	125	125	125	150	150	150	150	150	150	150	150	
Noise Level	HN	dB(A)	72	72	72	74	76	78	78	79	81	81	81	
Nett Weight	HN/RN	kg	241	243	243	330	332	525	540	630	646	1090	1090	
	EHD	kg	280	280	280	380	380	595	610	720	735	1200	1200	

Note -

Electrics details in **bold** refer to standard configurations, other configurations optional
 Clearances refer to heaters with standard fresh/return air louvre arrangements
 Clearances for RN/RD heaters refer to relevant installation and operation manual
 Combustion air spigot optional

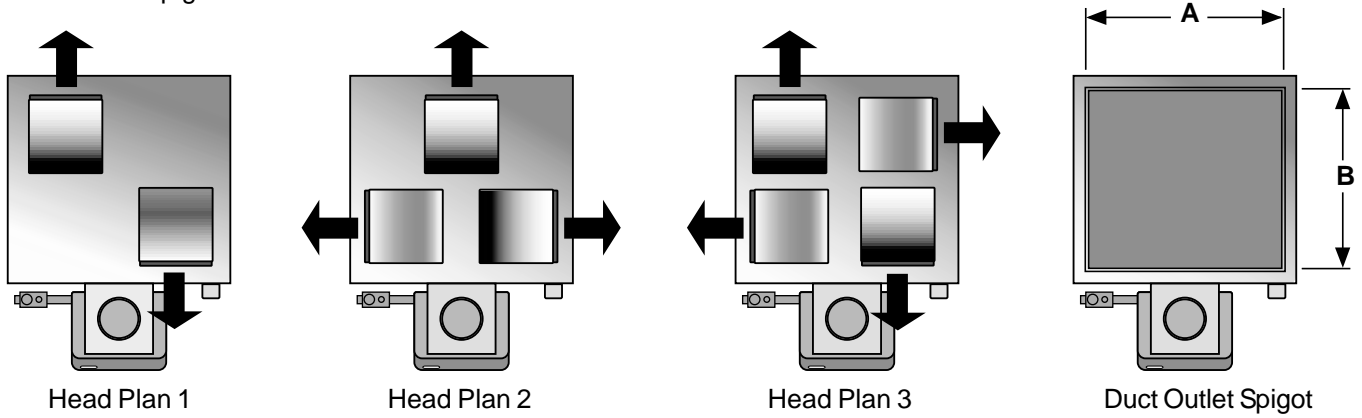
Noise levels measured 3m from appliance
 Models 1200 ducted and 1300 ducted (VD/EVD/HD/EHD) have an uprated fan motor as standard

AIR DISCHARGE & INLET DETAILS

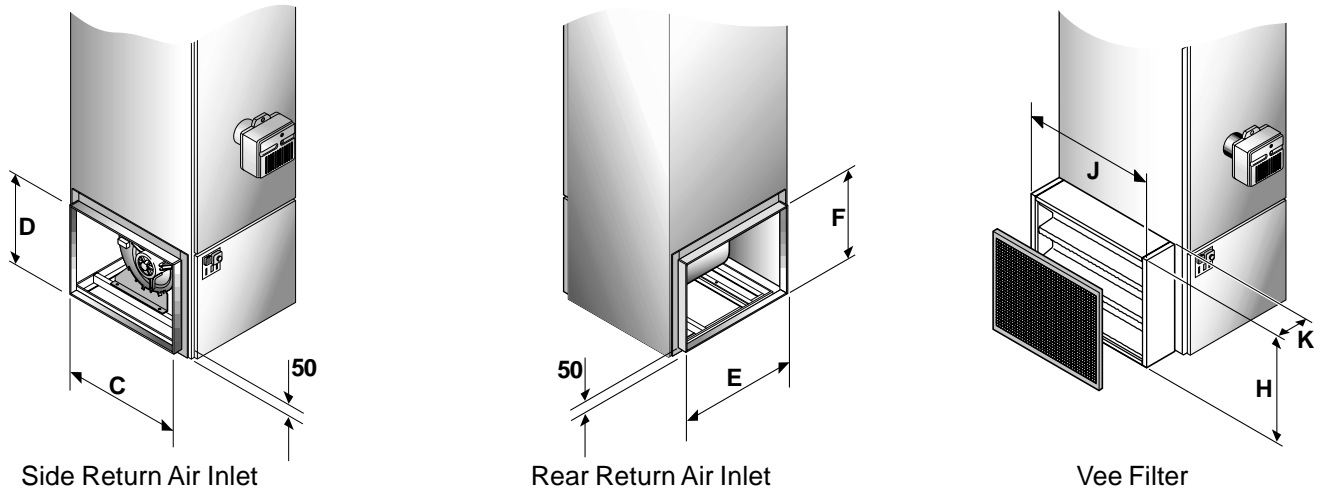
Vertical Cabinet Heaters Internal/External

Oil Fired, Natural Gas and Lpg (Propane) - Vertical Internal VN VD Vertical External EVD

Duct Outlet Spigots and Head Plans



Return Air Spigots and Filters



Model				100	125	150	200	250	300	400	500	600	700	800	1000	1200	1300
Head Plan	VN			1	1	1	1	2	2	2	3	3	3	3	3	3	3
Nozzle Detail	VN	No.		2	2	2	2	3	3	3	4	4	4	4	4	4	4
		Spigot	mm ø	240	240	240	240	240	240	280	280	320	320	370	370	470	470
Outlet Spigot	VD/EVD	A	mm	570	570	570	634	634	634	714	714	890	890	1000	1000	1086	1086
		B	mm	570	570	570	770	770	770	950	950	1120	1120	1450	1450	1365	1365
Side Inlet Spigot	All	C	mm	522	522	522	702	702	702	904	904	1078	1078	1078	1078	1077	1077
		D	mm	348	348	348	427	427	427	542	542	692	692	692	692	768	768
Rear Inlet Spigot	All	E	mm	620	620	620	520	520	520	608	608	790	790	790	790	n/a	n/a
		F	mm	445	445	445	550	550	550	550	550	560	560	560	560	n/a	n/a
Inlet Filter Assembly	VN/VD	H	mm	420	420	420	505	505	505	600	600	765	765	765	765	852	852
		J	mm	660	660	660	784	784	784	990	990	1165	1165	1165	1165	1155	1155
		K	mm	250	250	250	250	250	250	250	250	250	250	250	250	475	475

Note -

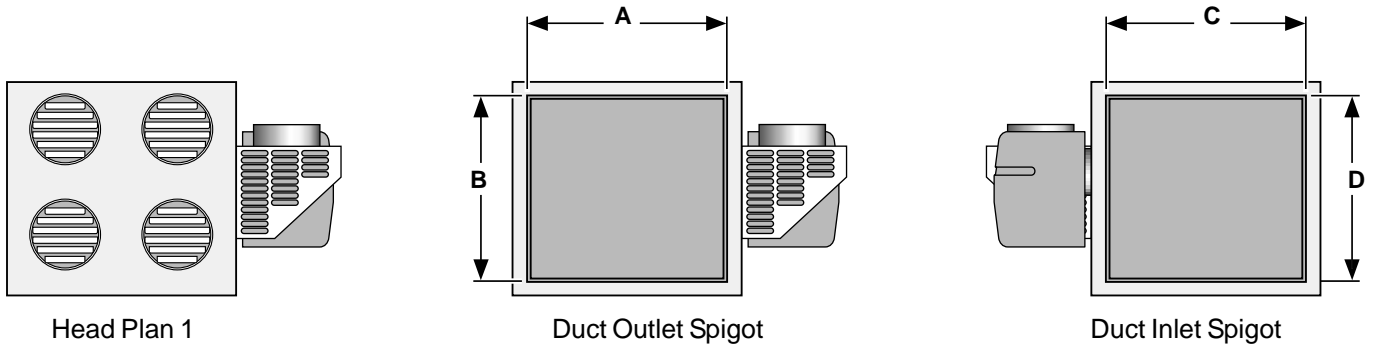
As standard external vertical heaters type EVD discharge through duct outlet (dimensions A and B)
 Side inlet spigots and filter assemblies require to be specified either left hand or right hand
 Filter details for external heaters on request

AIR DISCHARGE & INLET DETAILS

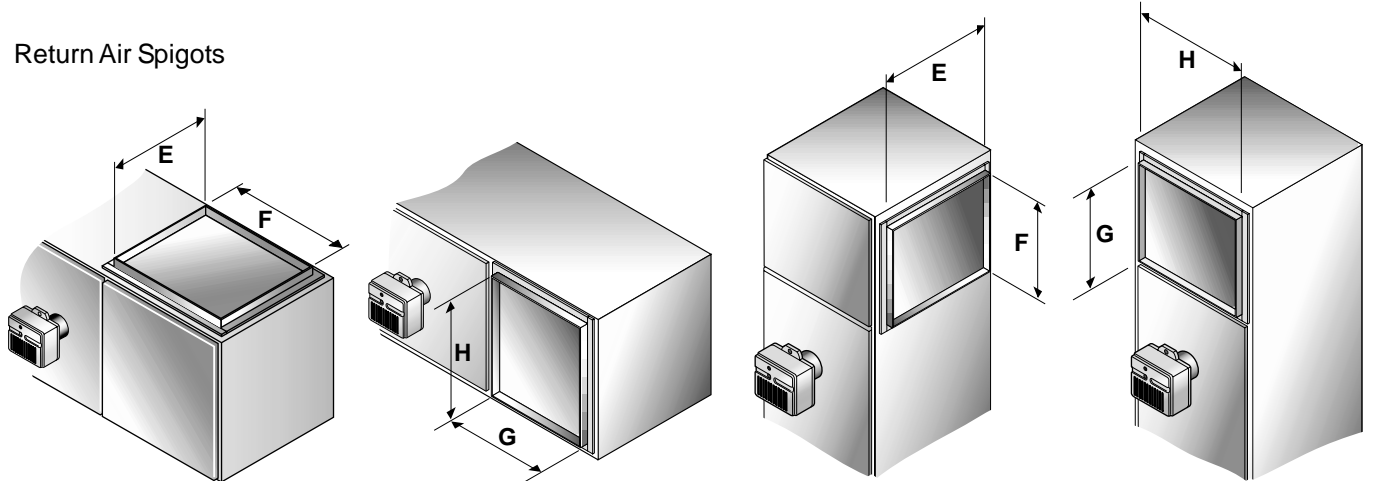
Horizontal and Reverse Flow Cabinet Heaters Internal/External

Oil Fired, Natural Gas and Lpg (Propane) - Horizontal Internal HN/HD Horizontal External EHD Reverse Flow RN/RD

Duct Outlet Spigots and Head Plans



Return Air Spigots



Horizontal Top Return Air Inlet

Horizontal Front/Rear Return Air Inlet

Reverse Flow Side Return Air Inlet

Reverse Flow Front/Rear Return Air Inlet

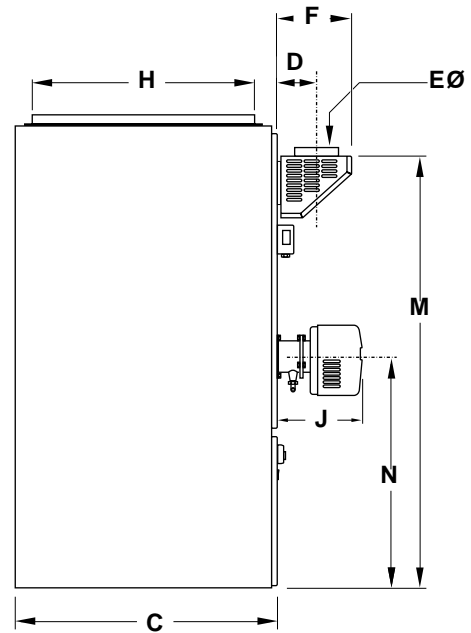
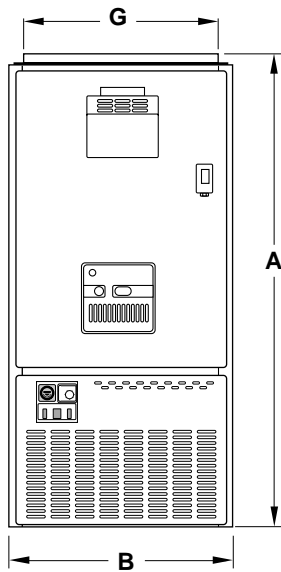
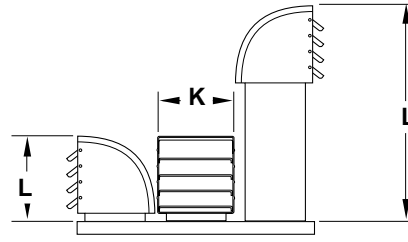
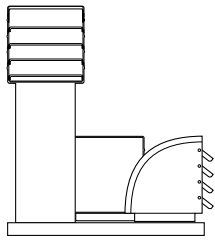
		Model		200	250	300	400	500	600	700	800	1000	1200	1300
Head Plan	HN/RN			1	1	1	1	1	1	1	1	1	1	1
Nozzle Detail	HN/RN Spigot	No.		4	4	4	4	4	4	4	4	4	4	4
		mm ø		203	203	203	284	284	419	419	419	419	470	470
Inlet Spigot	HD/RD/ EHD	A	mm	790	790	790	952	952	1182	1182	1450	1450	1365	1365
		B	mm	560	560	560	640	640	816	816	1000	1000	1086	1086
Outlet Spigot	HD/RD/ EHD	C	mm	790	790	790	952	952	1182	1182	1450	1450	1365	1365
		D	mm	560	560	560	640	640	816	816	1000	1000	1086	1086
Top Spigot	HN/HD	E	mm	702	702	702	904	904	1078	1078	1078	1078	1077	1077
		F	mm	427	427	427	542	542	692	692	692	692	768	768
Side Spigot	RN/RD	E	mm	702	702	702	904	904	1078	1078	1078	1078	1077	1077
		F	mm	427	427	427	542	542	692	692	692	692	768	768
Front/Rear Spigot	HN/HD	G	mm	550	550	550	550	550	560	560	560	560	n/a	n/a
		H	mm	520	520	520	608	608	790	790	790	790	n/a	n/a
Front/Rear Spigot	RN/RD	G	mm	550	550	550	550	550	560	560	560	560	n/a	n/a
		H	mm	520	520	520	608	608	790	790	790	790	n/a	n/a

Note -
Side inlet spigots require to be specified either left hand or right hand.
Filter details for external, horizontal and reverse flow heaters on request.

DIMENSIONS

Vertical Cabinet Heaters Internal

Oil Fired, Natural Gas and Lpg (Propane) - Vertical Internal VN VD Vertical External EVD

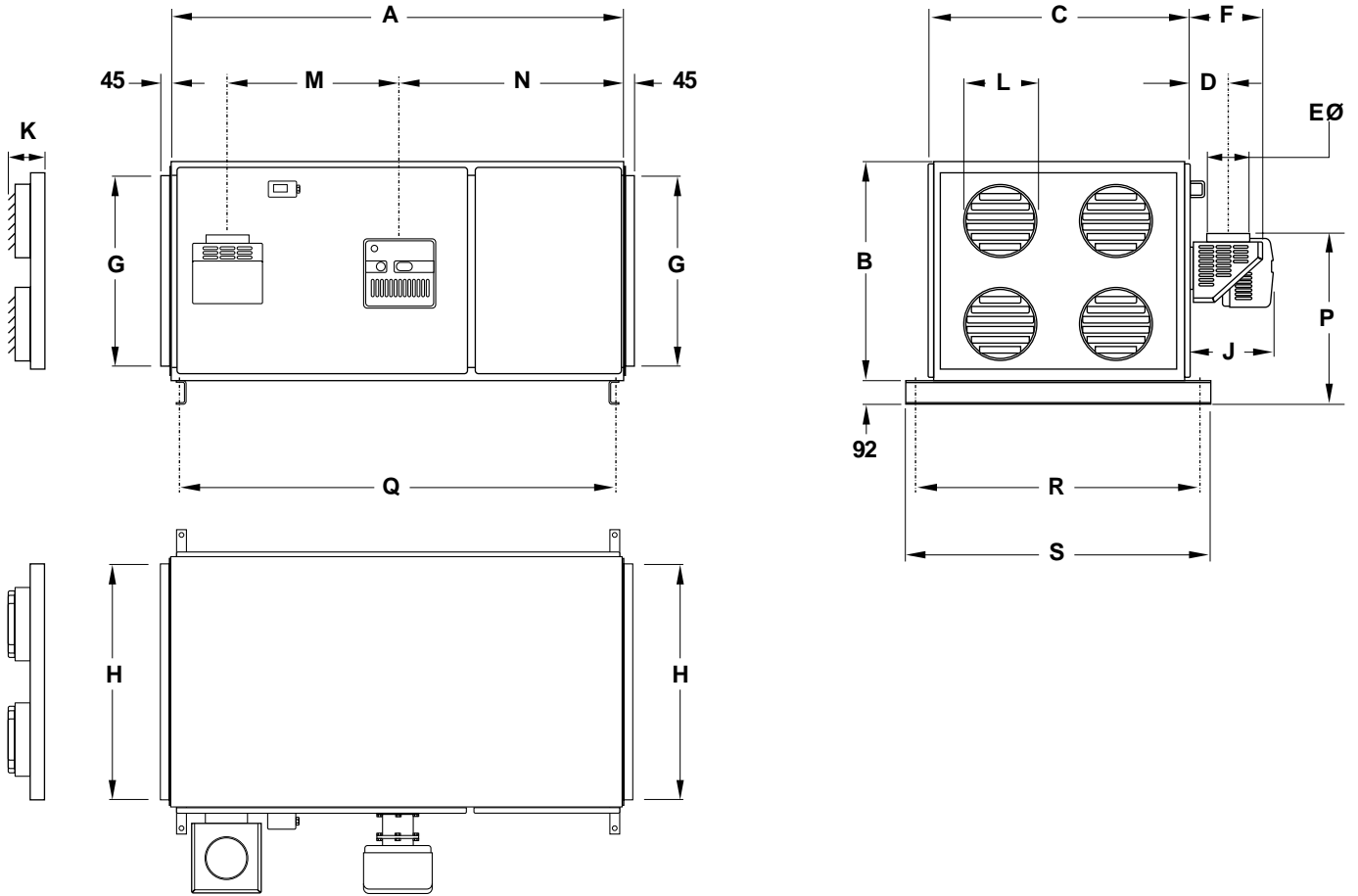


Model			100	125	150	200	250	300	400	500	600	700	800	1000	1200	1300
A	All	mm	1650	1650	1650	1900	1900	1900	2025	2025	2125	2125	2110	2110	2667	2667
B	All	mm	660	660	660	660	660	660	740	740	916	916	1100	1100	1244	124
C	All	mm	662	662	662	925	925	925	1085	1085	1315	1315	1550	1550	1550	1550
D	All	mm	95	95	95	170	170	170	170	170	195	195	195	195	203	203
E	All	mm ø	125	125	125	150	150	175	175	175	200	200	225	225	250	250
F	All	mm	250	250	250	320	320	320	320	320	380	380	380	380	355	355
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	Oil	mm	229	229	229	267	267	267	298	298	298	476	476	476	476	476
	Gas	mm	349	349	349	362	362	362	432	432	432	580	580	580	580	580
K	All	mm	280	280	280	280	280	280	305	305	355	355	406	406	474	474
L	Standard	mm	240	330	330	330	330	330	360	360	410	410	460	460	613	613
	Extended	mm	n/a	n/a	n/a	n/a	660	660	720	720	815	815	915	915	1115	1115
M	All	mm	1500	1500	1500	1778	1778	1778	1878	1878	1980	1980	1965	1965	2610	2610
N	All	mm	835	835	835	984	984	984	968	968	1068	1068	1054	1054	1372	1372

DIMENSIONS

Horizontal Cabinet Heaters Internal

Oil Fired, Natural Gas and Lpg (Propane) - Horizontal Internal HN HD

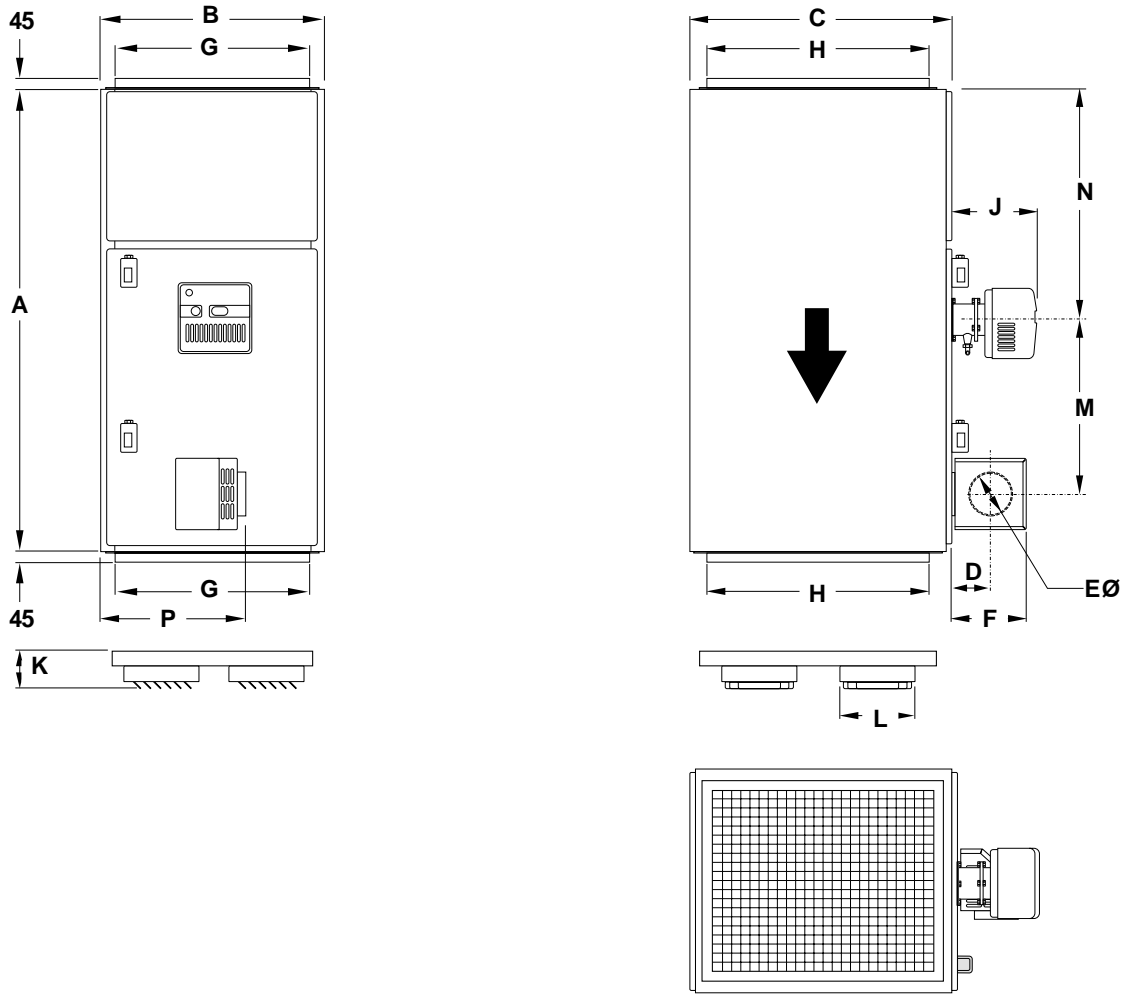


Model			200	250	300	400	500	600	700	800	1000	1200	1300
A	All	mm	1865	1865	1865	1993	1993	2093	2093	2076	2076	2667	2667
B	All	mm	660	660	660	740	740	916	916	1100	1100	1244	1244
C	All	mm	925	925	925	1085	1085	1315	1315	1550	1550	1550	1550
D	All	mm	170	170	170	170	170	200	200	225	225	203	203
E	All	mm ø	150	150	175	175	175	200	200	225	225	250	250
F	All	mm	320	320	320	320	320	380	380	380	380	355	355
G	All	mm	560	560	560	640	640	816	816	1000	1000	1086	1086
H	All	mm	790	790	790	952	952	1182	1182	1450	1450	1365	1365
J	Oil	mm	267	267	267	298	298	298	476	476	476	476	476
	Gas	mm	362	362	362	432	432	432	580	580	580	580	580
K	All	mm	160	160	160	225	225	320	320	320	320	320	320
L	All	mm ø	203	203	203	284	284	420	420	420	420	473	473
M	All	mm	676	676	676	790	790	790	790	769	769	1054	1054
N	All	mm	984	984	984	968	968	1068	1068	1054	1054	1372	1372
P	All	mm	568	568	568	607	607	740	740	840	840	1396	1396
Q	All	mm	1806	1806	1806	1934	1934	2034	2034	1475	1475	2612	2612
R	All	mm	1081	1081	1081	1244	1244	1474	1474	1750	1750	1750	1750
S	All	mm	1157	1157	1157	1320	1320	1550	1550	1826	1826	1826	1826

DIMENSIONS

Reverse Flow Cabinet Heaters

Oil Fired, Natural Gas and Lpg (Propane) - Reverse Flow Internal RN RD

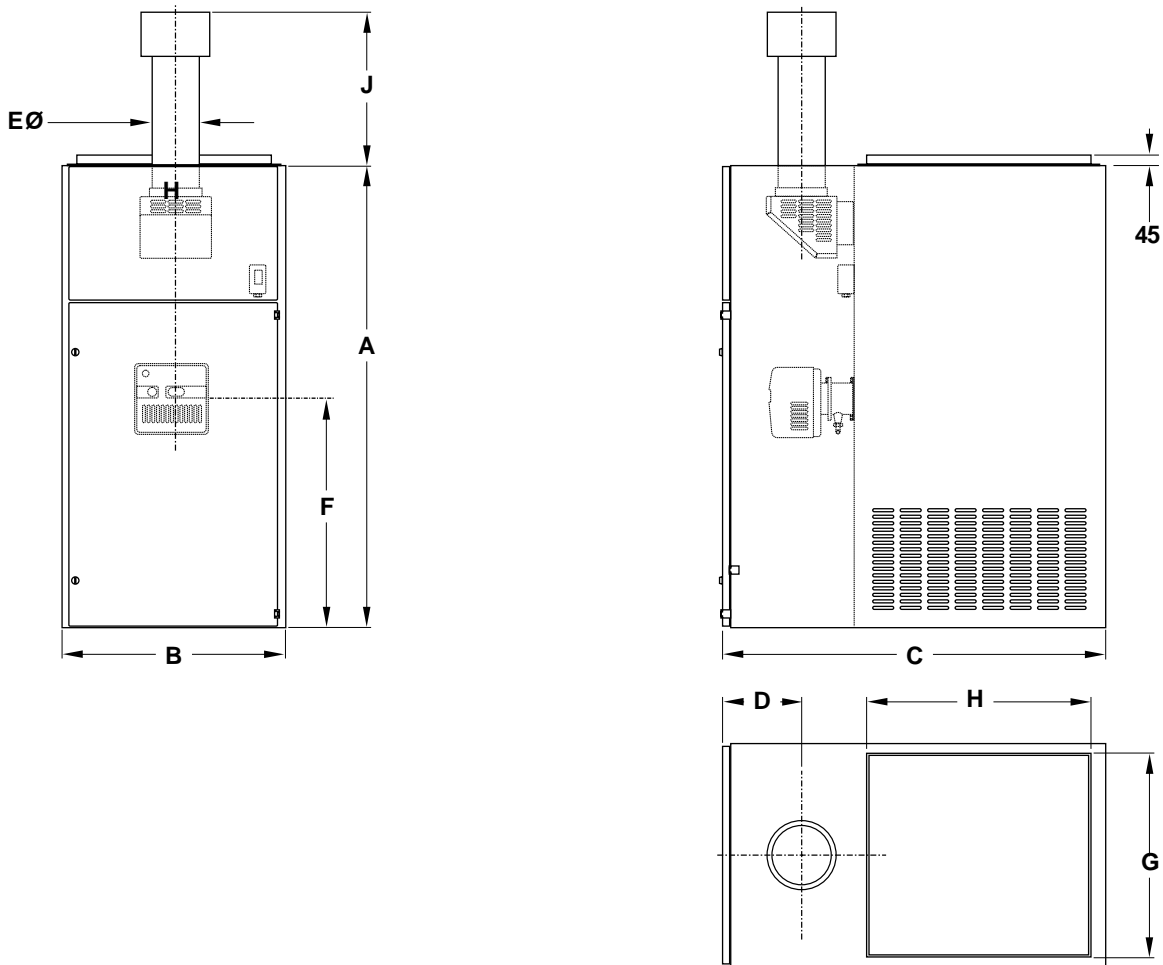


Model			200	250	300	400	500	600	700	800	1000	1200	1300
A	All	mm	1865	1865	1865	1993	1993	2093	2093	2076	2076	2667	2667
B	All	mm	660	660	660	740	740	916	916	1100	1100	1244	1244
C	All	mm	925	925	925	1085	1085	1315	1315	1550	1550	1550	1550
D	All	mm	170	170	170	170	170	200	200	225	225	203	203
E	All	mm ø	150	150	175	175	175	200	200	225	225	250	250
F	All	mm	320	320	320	320	320	380	380	380	380	355	355
G	All	mm	560	560	560	640	640	816	816	1000	1000	1086	1086
H	All	mm	790	790	790	952	952	1182	1182	1450	1450	1365	1365
J	Oil	mm	267	267	267	298	298	298	476	476	476	476	476
	Gas	mm	362	362	362	432	432	432	580	580	580	580	580
K	All	mm	160	160	160	225	225	320	320	320	320	320	320
L	All	mm ø	203	203	203	284	284	420	420	420	420	473	473
M	All	mm	676	676	676	790	790	790	790	769	769	1054	1054
N	All	mm	984	984	984	968	968	1068	1068	1054	1054	1372	1372
P	All	mm	568	568	568	607	607	740	740	840	840	1396	1396

DIMENSIONS

Vertical Cabinet Heaters External

Oil Fired, Natural Gas and Lpg (Propane) - Vertical External EVD



Model			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	2637	2637
B	All	mm	660	660	660	660	660	660	740	740	916	916	1100	1100	1244	1244
C	All	mm	1165	1165	1165	1430	1430	1430	1590	1590	2020	2020	2250	2250	2550	2550
D	All	mm	408	408	408	335	335	335	335	335	510	510	505	505	797	797
E	All	mmØ	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

Note -
External horizontal dimensions are available on request

INFORMATION

BENSON HEATING PRODUCTS

Oil and gas forced draught cabinet heaters
Oil and gas fired external cabinet heaters
Room sealed/fan assisted flue gas fired cabinet heaters
Room sealed/fan assisted flue gas fired unit heaters
Oil fired unit heaters
Combination heating and cooling units
Door curtains
Exchange modules
Marquee heaters
Cast iron boilers
Flue and accessories

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