

All Heaters
Part L2B Compliant



BENSON
HEATING



Technical Data – Variante² External /Roof Top Gas Unit Heaters

For Models

EVRC Centrifugal Fan

EVRD Duct Module



Range & Configuration

External Gas Unit Heaters Automatic Ignition	
Standard Pressure Centrifugal Fan	12 kW to 144 kW
Medium Pressure Centrifugal Fan	12 kW to 144 kW
High Pressure Centrifugal Fan	12 kW to 144 kW
Duct Unit (No Fan)	12 kW to 144 kW

Specification

Cabinet: Essentially designed as compact gas fired air handling units the Variante² external range of heaters are suitable for rooftop or other outside location. The unit is of low profile design and for additional weather protection formed from electro-zinc plated steel. Access to the burner and controls compartment is via a full width side hinged door. The burner and fan compartments are lined with a high specification closed cell insulation to assist with noise reduction and enable unit operation in lower than normal external ambient temperatures. For further protection the whole assembly is complete with sloped roof section complete with rain channels as well as raised mounting skids. All external cabinet surfaces are stove hardened, epoxy powder coated with a durable Kestrel Grey paint finish. All units IP44 rated

Heat Exchanger: Formed from aluminised steel tube into a compact yet highly efficient four pass 'S' shaped assembly the Variante² heat exchanger has been designed so that manufacture can be accomplished without the use of any stress inducing welding processes. Stainless steel heat exchanger tubes available as an option.

Burner: External Variante² family heaters are fitted with a quiet multi-flame low Nox burner which in turn, is complete with automatic electronic spark ignition and ionisation flame proving. The burner, in conjunction with the heat exchanger is capable of delivering efficiencies in excess of 91% nett. High/low burner options available to order.

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 L2B of the 2006 Building Regulations and have been rated to meet the criteria necessary for inclusion into the Enhanced Capital Allowance (ECA) scheme.

Fuel: Heaters can be specified to operate on either natural gas (G20) or Lpg (Propane G31).

Flue: External Variante² heaters are all factory fitted with a power flue venter that discharges the products of combustion through a flue system and terminal which is an integral part of the appliance. The flue fan is safety interlocked with the burner control system via a pressure differential sensor. The combustion air intake duct is also provided and factory fitted.

Air Distribution: Air movement for EVRC heaters is via quiet yet powerful centrifugal fan sets. Three alternative fan/motor combinations are available - the standard range with external static pressures typically of 100 to 200 Pa, a medium pressure range where the external static pressure is circa 250 Pa and a high pressure range where the external static pressure increases to 500 Pa.

In all cases air is discharged through a vertical duct outlet spigot. Air inlet is via the centrifugal fan housing with alternative rear or underside duct spigots. If the heater is to be used on 100% fresh air then a rear weather louvre is available as an option.

The EVRD duct heater is supplied without fan, motor or fan compartment and therefore has inlet and outlet duct spigots only.

Controls: External Variante² heaters are complete with necessary safety controls including overheat protection as well as remote lockout indication facilities and external control connections which include 'fan only' options for ventilation and air movement. Automatic operation requires only the simple connection of time and temperature controls. Benson, as an option, can provide a number of alternative integrated control consoles with the choice ranging from simple digital/mechanical controls through to fully optimised systems. Benson control systems are for remote mounting with inter-connecting wiring by others

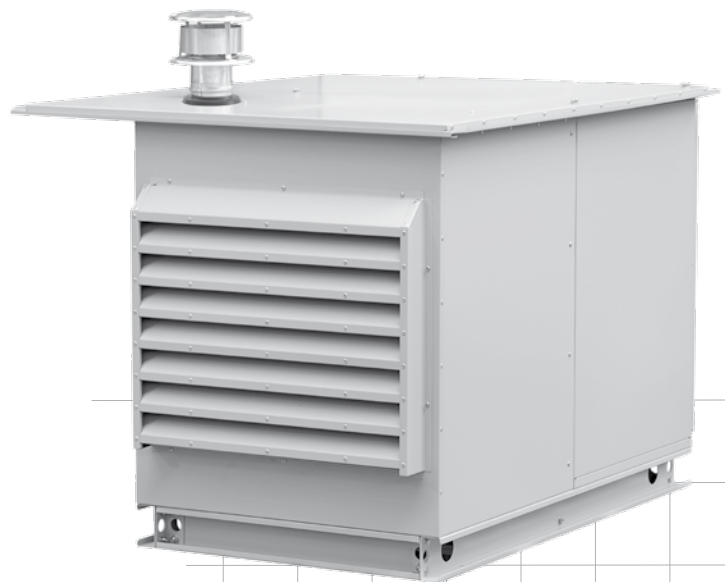
Testing, Approvals & Certification: Benson Heating is accredited with ISO 9001 quality assurance certification – certificate number FM14923. All gas fired heaters have been type tested and approved to CE standards by an independent notified body. Each heater is function tested and fired prior to despatch.

Guarantee: Benson External Variante² gas unit heaters are provided with a comprehensive package of guarantees covering both the appliance and the heat exchanger, which has the further benefit of an extended guarantee. For sales within the United Kingdom the guarantee includes a 'whole appliance' twelve months parts and labour guarantee supported by a further twelve months 'parts only' guarantee whilst the heat exchanger assembly has a ten year time related warranty. For Variante² heaters supplied to overseas markets please refer to the relevant country documentation. All guarantees are subject to terms and conditions.

Specification

Variante² External Gas Unit Heaters EVRC/EVRC-250/EVRC-500/EVRD

Model			40	70	100	135	170	200	250	330	410	490		
Output		kW	12	20	29	39	49	59	72	96	120	144		
ECA Approved			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Airside Data	Airflow	EVRC	m ³ /s	0.31	0.55	0.79	0.96	1.21	1.54	1.90	2.26	3.08	3.78	
		EVRD	Min	m ³ /s	0.25	0.42	0.60	0.81	1.02	1.23	1.50	2.00	2.50	3.00
			Max	m ³ /s	0.50	0.83	1.21	1.63	2.04	2.46	3.00	4.00	5.00	6.00
	Fan Static	EVRC	Pa	100	125	100	150	150	180	150	180	200	200	
		EVRC-250	Pa	250	250	250	250	250	250	250	250	250	250	
		EVRC-500	Pa	500	500	500	500	500	500	500	500	500	500	
Electrical Supply	EVRC	V/ph/hz	230/1/50									415/3/50		
	EVRC-250	V/ph/hz	230/1/50									415/3/50		
	EVRC-500	V/ph/hz	230/1/50					415/3/50						
	EVRD	V/ph/hz	230/1/50											
Overall Dimensions	All	Height	mm	595	595	700	805	935	1065	805	955	1135	1305	
		Width	mm	1150	1150	1150	1150	1150	1150	1850	1850	1850	1850	
	EVRC	Depth	mm	1575	1575	1575	1575	1750	1750	1805	1875	1875	1875	
		EVRD	Depth	mm	780	780	780	780	780	780	910	910	910	910
Flue Diameter		mm ø	80	80	100	100	100	100	130	130	130	130		
Combustion Air Spigot		mm ø	80	80	100	100	100	100	130	130	130	130		
Noise Level		dB(A)	48	50	52	53	55	59	55	58	60	60		
Nett Weight	EVRC	kg	140	146	163	181	202	227	294	324	370	414		
	EVRD	kg	76	80	93	107	121	135	184	204	243	276		



Note

Where heaters are selected for the UK Enhanced Capital Allowance (ECA) scheme then they must be specified with CP4 controllers

All models have efficiency levels which meet with the minimum efficiency requirements of UK Part L2B Building Regulations

Air handling data is assessed at room ambient conditions

Overall heater height excludes flue and cowl - for more detailed dimensions refer to dimensions page

If it is necessary to select EVRD airflows which fall outside the minimum/maximum parameters above then please refer to Benson

Noise levels relate to EVRC with inlet and outlet ductwork fitted and measured 3m from appliance.

Installation

Installation Standards: Benson external Variante² gas fired unit heaters must be installed and commissioned by a competent person and in accordance with Benson's installation and commissioning instructions, relevant local and national standards, Codes of Practice, and any requirements of Local Authorities, Fire Officer or insurers.

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

External Variante² gas unit heaters are designed for rooftop or external location and must be positioned on a flat, level and non-combustible surface. Care should always be taken to ensure that any base, platform or structural steelwork supporting the heater is structurally adequate and that there is both access and provision for maintenance purposes.

Care should be taken to ensure that the recommended clearances are maintained and that there is sufficient space for the connection of discharge and/or return ductwork or, if fitted, that there is sufficient clearance 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.

So far as controls are concerned siting will often depend upon the type selected. Where controls have in-built or remote temperature sensors then consideration should be given to ensure that the sensor is 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.

Gas Pipework: The gas supply pipework should be sized and installed with due regard for all relevant standards and legislation, flow rates and the maximum/minimum inlet pressure requirements of the heater. Isolating gas cocks and service unions should be provided adjacent to each heater.

Air Supply: External Variante² heaters are designed specifically for outdoor location and as such obtain necessary combustion air directly from an external source. Care should be taken to ensure that the combustion air inlet duct of the appliance is not modified, repositioned, damaged or in anyway restricted.

Flues: External Variante² heaters are supplied complete with a flue kit which permits the free discharge of flue gases directly to atmosphere. For particular applications it may be possible to extend the flue to enable the point of discharge to be repositioned. However should this be necessary then the diameter of flue must not be less than stated in the data sections of this brochure and length and bend restrictions will apply.

In the event that it is necessary to extend the flue then the route and exit point needs to be selected carefully and it is recommended that the installer consult the installation and commissioning instructions or Benson before commencing installation.

Further Information: The foregoing is given for guidance purposes. More detailed information can be found within the relevant installation, commissioning and servicing instructions or alternatively contact Benson.

Installation Data

Variante² External Gas Unit Heaters EVRC/EVRC-250/EVRC-500/EVRD

Model			40	70	100	135	170	200	250	330	410	490	
Fuel Connection		BSP/Rc	½	½	½	½	½	½	¾	¾	¾	¾	
Minimum Gas Inlet Pressure	Nat Gas	mbar	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	
	Lpg	mbar	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	
Fuel Consumption	Nat Gas	m³/h	1.37	2.23	3.38	4.50	5.63	6.76	8.33	11.12	13.87	16.63	
	Lpg	m³/h	0.52	0.86	1.30	1.73	2.16	2.59	3.21	4.28	5.34	6.41	
Electrics	Supply	EVRC	230/1/50								415/3/50		
		EVRC-250	230/1/50								415/3/50		
	EVRC-500	230/1/50					415/3/50						
	EVRD	230/1/50											
Fan Motor	EVRC	Kw	0.25	0.38	0.38	0.55	0.74	1.10	1.10	2.20	2.20	3.00	
	EVRC-250	Kw	0.38	0.38	0.55	0.55	1.10	1.50	1.50	2.20	4.00	4.00	
	EVRC-500	Kw	0.75	0.75	1.10	1.10	1.50	1.50	2.20	3.00	5.50	5.50	
Flue & Com.	Flue Diameter	mm ø	80	80	100	100	100	100	130	130	130	130	
Air Details	Combustion Air Diameter	mm ø	80	80	100	100	100	100	130	130	130	130	
Installation Clearances	All	Lh side	mm	250	250	250	250	250	250	250	250	250	
		Rh side	mm	800	800	800	800	800	800	950	950	950	950
		Above	mm	300	300	300	300	300	300	300	300	300	300
Nett Weight	EVRC	kg	140	146	163	181	202	227	294	324	370	414	
	EVRD	kg	76	80	93	107	121	135	184	204	243	276	



Note

Fuel consumption and output figures based upon gross calorific values as -

Natural gas (G20) @ 37.78 MJ/m³

Lpg Propane (G31) @ 95.65 MJ/m³

Rh side clearance (as viewed from front) = burner compartment side

Pressure Drop Chart

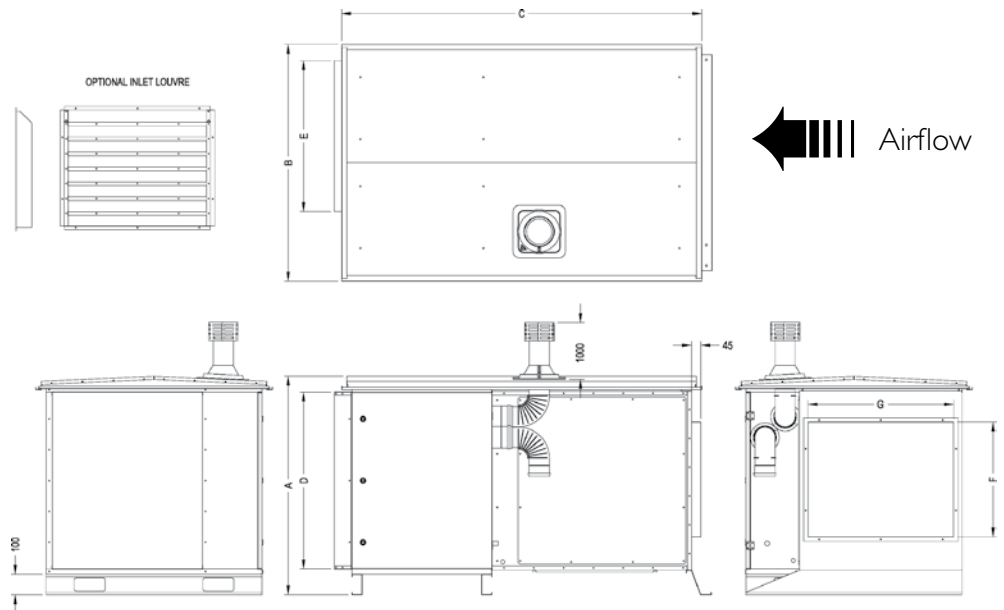
Variante² External Gas Unit Heaters EVRD - Pressure Loss (Pa)

Airflow (m³/s)

	40									
0.2	4									
0.3	9									
0.4	16	70								
0.5	25	33	100							
0.6		48	45							
0.7		65	61	135						
0.8		85	79	72						
0.9			100	91	170					
1.0			124	113	95					
1.1			150	136	115	200				
1.2			179	162	137	118				
1.3				190	161	139				
1.4				221	186	161	250			
1.5				253	214	185	56			
1.6				288	243	210	64			
1.7					275	238	73			
1.8					308	266	81			
1.9					343	297	91	330		
2.0					380	329	100	86		
2.1						363	111	94		
2.2						398	121	104		
2.3						435	133	113		
2.4						474	145	123	410	
2.5							157	134	109	
2.6							170	145	118	
2.7							183	156	127	
2.8							197	168	137	
2.9							211	180	146	490
3.0							226	193	157	134
3.1								206	167	144
3.2								219	178	153
3.3								233	190	163
3.4								248	201	173
3.5								262	213	183
3.6								278	226	194
3.7								293	238	204
3.8								309	251	216
3.9								326	265	227
4.0								343	279	239
4.1									293	251
4.2									307	263
4.3									322	276
4.4									337	289
4.5									353	302
4.6									368	316
4.7									385	330
4.8									401	344
4.9									418	359
5.0									435	373
5.1										388
5.2										404
5.3										420
5.4										435
5.5										452
5.6										468
5.7										485
5.8										502
5.9										520
6.0										538

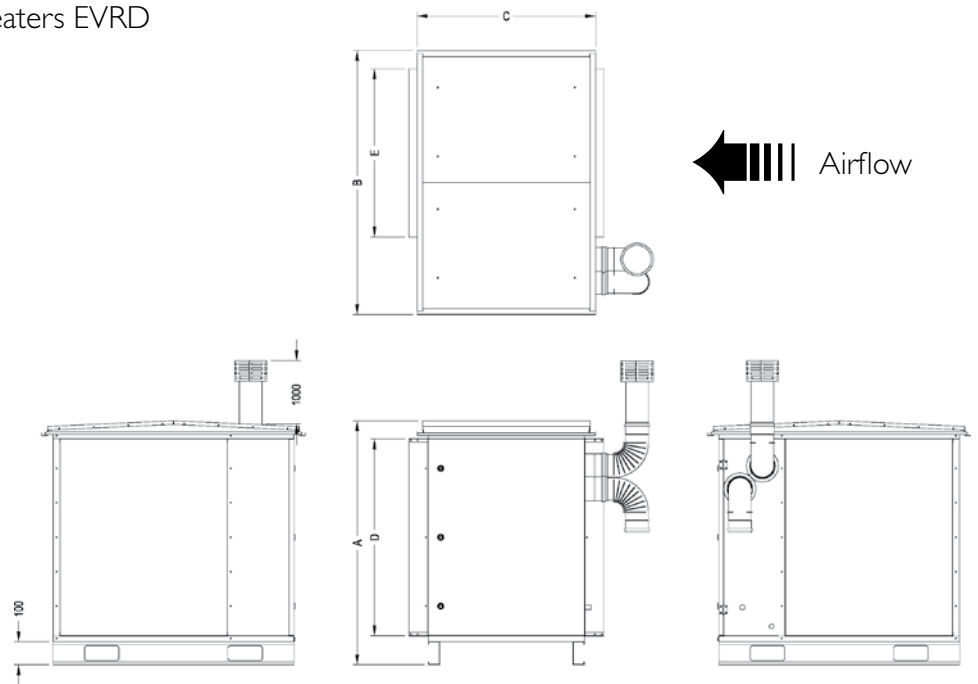
Dimensions

Variante² External Gas Unit Heaters EVRC/EVRC-250/EVRC-500



Model			40	70	100	135	170	200	250	330	410	490
A	All	mm	595	595	700	805	935	1065	805	955	1135	1305
B	All	mm	1150	1150	1150	1150	1150	1150	1850	1850	1850	1850
C	All	mm	1575	1575	1575	1575	1750	1750	1805	1875	1875	1875
D	All	mm	390	390	495	600	730	860	600	750	930	1100
E	All	mm	729	729	729	729	729	729	1339	1339	1339	1339
F	All	mm	276	276	381	486	558	558	668	668	748	828
G	All	mm	708	708	708	708	708	708	1318	1318	1318	1318

Variante² External Gas Unit Heaters EVRD



Model			40	70	100	135	170	200	250	330	410	490
A	All	mm	595	595	700	805	935	1065	805	955	1135	1305
B	All	mm	1150	1150	1150	1150	1150	1150	1850	1850	1850	1850
C	All	mm	780	780	780	780	780	780	910	910	910	910
D	All	mm	390	390	495	600	730	860	600	750	930	1100
E	All	mm	729	729	729	729	729	729	1339	1339	1339	1339



**BENSON
HEATING**

Ludlow Road
Knighton
Powys
LD7 1LP

Telephone (main) + 44 (0)1547 528534

Facsimile (main) + 44 (0)1547 520399

Telephone (sales) + 44 (0)1547 529245

Facsimile (sales) + 44 (0)1547 529195

e.mail information@bensonheating.co.uk

sales@bensonheating.co.uk

exportsales@bensonheating.co.uk



Guarantees and warranties subject to terms and conditions. It is the policy of Benson Heating to pursue a programme of continuous development. We therefore reserve the right to change models, types, specifications and prices without prior notice. Details are believed to be correct but do not form the basis of any contract or guarantee. All orders accepted subject to our standard Conditions of Sale, copy available on request.