Variante

BENSON HEATING

VRA Axial Fan

VRC Centrifugal Fan

VRE Downflow

VRBD Bi-Directional

Variante

Introduction

The compact highly efficient Benson Variante heaters provide cost effective heating for most commercial and industrial buildings, such as showrooms, factories, workshops, warehouses, greenhouses etc.

Using wall or roof mountings, the heaters are available for either room sealed or conventional power flue applications.

Options

- Top mounted spigots (VRA)
- High/Low gas value
- 0 - 10v burner modulation
- Downflow heads
- Mixing box c/w dampers
- Wall brackets
- Stainless steel heat exchanger
- Air rotation thermostat

Model Range

The Variante gas fired units are available with heat outputs ranging from 12kW-144kW for use on natural gas (G20), or propane (G31)

Air Distribution

VRA heaters are fitted with high efficiency axial fans and discharge warm air through an outlet grille complete with adjustable horizontal louvres.

VRBD heaters discharge warm air in two opposing directions potentially enhancing distribution whilst reducing capital and installation costs for certain applications.

VRE heaters are downward discharging units that can provide both heating and de-stratification.

VRC heaters are designed for ducted applications and are fitted with a centrifugal fan(s) and have a duct spigot outlet. Louvres and downflow can be supplied as an option.

ECA

Qualified for Energy Technology List
www.eca.gov.uk

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

VRA Horizontal discharge unit

VRE Downflow discharge unit

VRBD Bi-directional unit

Additional Control at the Touch of a Button

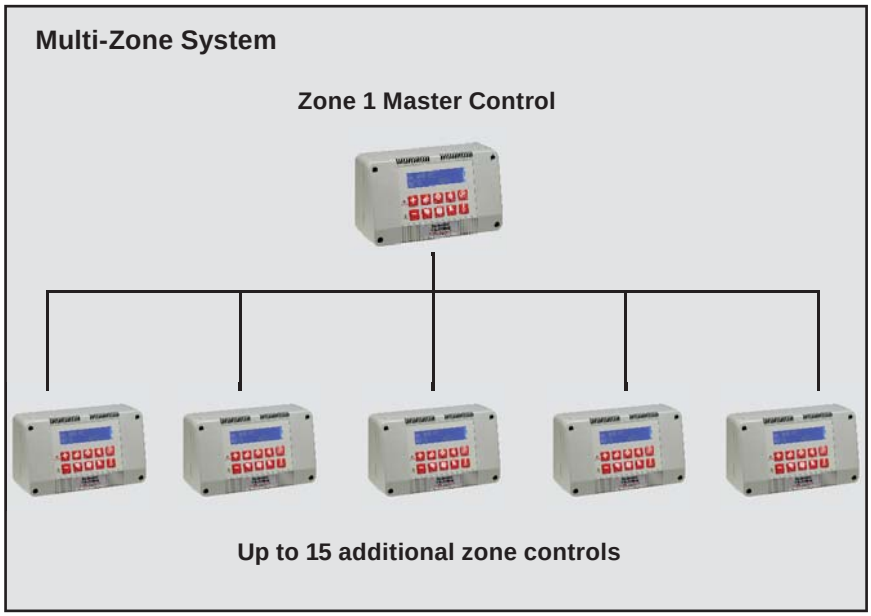
To complement the high efficiency Variante units a versatile range of SmartCom control panels are available.

- Self adapting optimum start and stop
- Simple user friendly programming
- Individual seven day programming
- Day, night and frost (5ºC) temperature settings
- Three on/off periods per day
- Remote burner reset facility
- Password protection to prevent unauthorised adjustment
- Hours run and service data logging
- Battery back up in the event of mains failure
- High Low or modulating burner control (SmartCom Multi-Zone required)

SmartCom Multi-Zone

SmartCom Multi-Zone controls allow up to 16 units to be centrally controlled. Functions controlled by the master unit include:

- Clocking updating
- Updating temperature functions and programme settings
- Viewing the room and set temperature settings of all units
- Setting holiday, overtime and vent only functions for the entire network
- Centralised burner lock out reset



Variante

Specification

Cabinet
Low profile in design and robotically punched and formed from electro-zinc plated steel the heater cabinet presents a functional yet pleasing appearance. Access to the burner and controls compartment is via a full width side hinged door. The unit is stove hardened epoxy powder coated with a durable Kestrel Grey paint finish.

Heat Exchanger
Formed from aluminised steel tube into a compact, highly efficient four pass 'S' shaped assembly the Variante heat exchanger is capable of delivering efficiencies in excess of 91% nett.

Stainless steel heat exchanger tubes are available as an option.

Burner
Variante heaters are fitted with a quiet multi-flame, in-shot burner complete with automatic electronic spark ignition and ionisation flame proving. On/off control is standard, optional high/low or modulation can be specified for greater energy efficiency and close environmental control.

Electric Motors
All electric motors comply with EC motor directive 2005/32/EC

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. All heater efficiencies are compliant with the needs of Part L2B of the 2010 Building Regulations and have been rated to meet the current criteria necessary for inclusion into the Enhanced Capital Allowance (ECA) scheme.

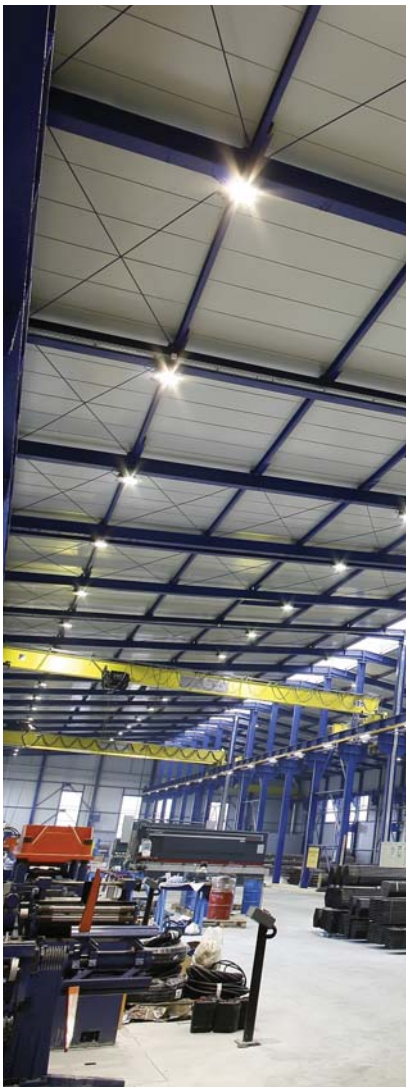
Fuel
Heaters can be specified to operate on either natural gas (G20) or LPG (Propane G31).

Sealed Combustion Circuit
Variante heaters are factory fitted with a power flue venter that enables the heater to be operated in either room sealed or fan assisted flue mode. The flue fan is safety interlocked with the burner control system via a pressure differential sensor.

Air Distribution
The VRA, VRE and VRBD models are fitted with a dynamically balanced aerofoil type axial fan(s) which discharges warmth directly into the space via adjustable horizontal louvres. Heaters for ducted applications, type VRC, are supplied with a centrifugal fan and outlet duct connection spigot.

Testing, Approvals and Certification

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



VRC complete with centrifugal fan and duct spigot outlet for use with ductwork

Installation

Installation Standards

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

Siting

Benson Variante gas unit heaters can be positioned on flat non-combustible surface, located on or fixed to cantilever brackets or suspended by means of the M10 fixings. It is recommended that for the cantilever bracket or suspended
applications that the manufacturer's purpose designed brackets be used. Care should always be taken to ensure that bracket fixings or other mounting points are structurally adequate.

Recommended minimum and maximum mounting heights, clearances for maintenance, air discharge, return and re-circulation should be observed.

Consideration should be given to the route and maximum permitted length of the flue, the provision and connection of gas and electrical supplies and protection from overhead cranes, fork lift trucks etc.

Plant Room/Enclosure Siting

Where it is proposed to install a Variante VRC (centrifugal fan) heater within a plant room or enclosure then return air and discharge air arrangements must be such that they do not interfere with the operation of the flue or burner. The warm air discharge and return air should be positively ducted to and from the heater.

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. It is recommended that the final connection to all Variante gas unit heaters be made with an approved and adequately sized flexible gas connector.

Air Supply

Where heaters are installed directly within the heated space and (ie not in a plant room or enclosure) then combustion air or heater related ventilation air will generally not be required if the heater is installed in room sealed mode (ie with the positive connection of both flue and combustion air ductwork) or if the air change rate of the heated space is 0.5 air changes per hour or greater. If it is proposed to install a heater in flue only mode (ie without the positive connection of combustion air ductwork) and the heated space has an air change rate of less than 0.5 air changes per hour then it will be necessary to provide either natural ventilation openings or mechanical ventilation.

Where heaters are installed within a plant room or enclosure then provision for both combustion air and air for general ventilation will be required by means of high and low level ventilation openings. Alternatively, the plant rooms or enclosures may be mechanically ventilated.

Flue

Variante heaters are approved for use in both room sealed and fan assisted flue format. The in-built flue fan permits the heater to be sited several metres away from the point of flue exit.

The units may be flued either through the wall or roof. Balanced flue models must be used with the wall or roof balanced flue outlet supplied by Benson to comply with CE certification.

The maximum permitted lengths given in the data table must be observed. The inclusion of 45° and 90° flue bends will
reduce the total available length, a 45° bend is equivalent to 0.5 metres of straight flue and 90° bend is equivalent to 1.0 metres of straight flue.

The flue route and exit point needs to be selected carefully and it is recommended that the installer consult the installation and commissioning instructions before commencing installation.

On VRA and VRC models the flue/combustion air spigots are situated on the rear of the heater. Top flue/combustion air spigots are available as an option on most models.

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 exchangers and It is strongly recommended that you consult Benson at the design stage. Failure to do so may invalidate guarantee cover.

Variante

TECHNICAL DATA											
New Model Ref		**12**	**20**	**30**	**42**	**50**	**60**	**72**	**95**	**120**	**145**
Old Model Ref		**40**	**70**	**100**	**135**	**170**	**200**	**250**	**330**	**410**	**490**
Nominal heat output	kW	12	20	29	39	49	59	72	96	120	144
ECA listed*		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Airflow	m^3/h	1116	1980	2844	3456	4356	5544	6840	8136	11088	13608
Temperature rise	^oC	32	30	31	36	34	32	32	35	32	32
Static pressure (VRC)	Pa	100	125	100	150	150	180	150	180	200	200
Throw											
VRA	m	8	15	18	22	24	27	31	32	38	39
VRE (Downflow)	m	4.5	5.5	6.0	7.0	8.0	12.0	8.0	10.0	12.0	12.0
VRBD (Total)	m	n/a	n/a	n/a	n/a	n/a	n/a	62	64	76	78
Gas Consumption											
Natural gas G20	m^3/h	1.37	2.23	3.38	4.50	5.63	6.76	8.33	11.12	13.87	16.63
Propane G31	m^3/h	0.52	0.86	1.30	1.73	2.16	2.59	3.21	4.28	5.34	6.41
Gas connection	Rc	½"	½"	½"	½"	½"	½"	¾"	¾"	¾"	¾"
Electrics											
Supply											
VRA / VRE / VRBD	V/ph/hz	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50
VRC	V/ph/hz	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	415/3/50	415/3/50
FLC											
VRA / VRE / VRBD	amps	0.4	0.7	0.8	1.2	1.6	2.7	2.8	3.4	4.8	5.8
VRC	amps	2.0	2.0	2.0	6.0	8.0	8.0	9.0	12.0	6.0	6.0
Mounting height(s)											
VRA / VRC	m	1.8 - 2.5	1.8 - 2.5	2.0 - 3.2	2.0 - 3.2	2.4 - 4.0	2.4 - 4.0	2.4 - 5.0	2.4 - 5.0	2.4 - 5.0	2.4 - 5.0
VRE (Downflow)	m	3.5 - 4.5	4.0 - 5.5	4.0 - 6.0	4.0 - 7.0	5.0 - 8.0	5.0 - 12.0	5.0 - 8.0	6.0 - 10.0	6.0 - 12.0	6.0 - 12.0
VRBD	m	n/a	n/a	n/a	n/a	n/a	n/a	2.4 - 5.0	2.4 - 5.0	2.4 - 5.0	2.4 - 5.0
Flue diameter nom	mmø	80	80	100	100	100	100	130	130	130	130
Combustion air diameter nom	mmø	80	80	100	100	100	100	130	130	130	130
Maximum horizontal run	m	3.0	6.0	6.0	6.0	6.0	6.0	8.0	8.0	8.0	8.0
Maximum vertical run	m	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Noise level (approx)											
VRA / VRC	dB(A)	53	55	57	58	61	65	61	63	66	66
VRE / VRBD	dB(A)	57	59	61	62	65	68	66	69	74	78
Net weight											
VRA	kg	71	76	90	104	120	138	181	203	242	279
VRC	kg	82	87	108	126	142	160	216	238	281	323
VRBD / VRE	kg	73	79	93	107	124	142	189	211	250	287

Throw figures provide the distance to the point where average air velocity is 0.25 m/s.

Throw figures for VRE heaters are based upon the effective maximum mounting height.

Throw figures for VRBD heaters are taken as the 'combined' bi-directional throw to the point where the average air velocity is 0.25 m/s.

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

Flue and combustion air maximum runs for guidance purposes only. Please refer to installation instructions for detailed information.

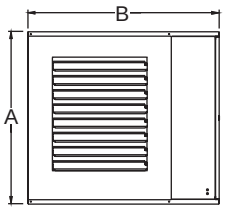
Consideration should be given to use of downflow heads for heaters stored at maximum height.

Maximum mounting heights may exceed the figure recommended where de-stratification fans are used (see Benson recoupak range)

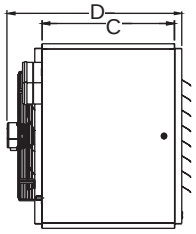
Noise levels measured 3m from appliance.

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

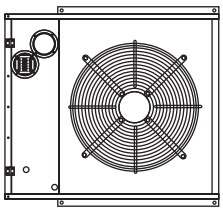
VRA

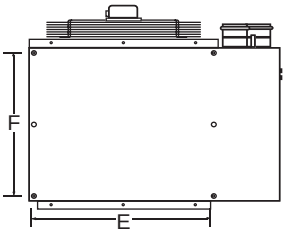


Front view



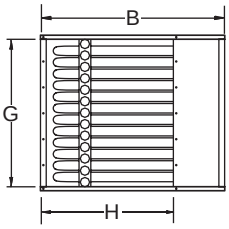
Side view


Back view

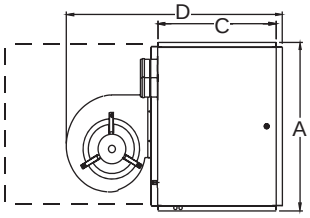


Plan view

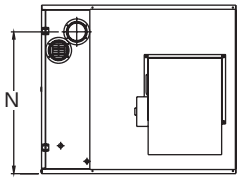
VRC



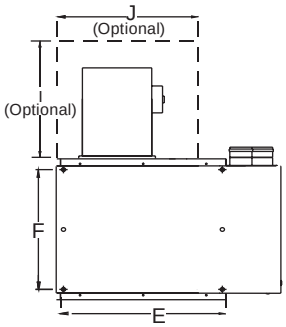
Front view



Side view

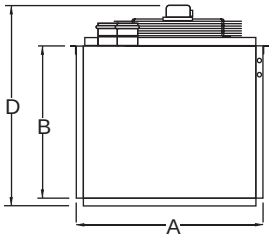


Back view

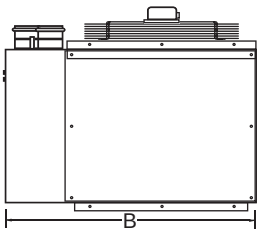


Plan view

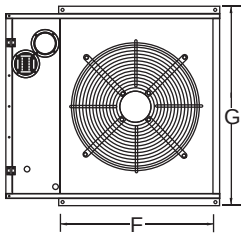
VRE



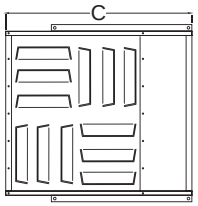
End view



Side view



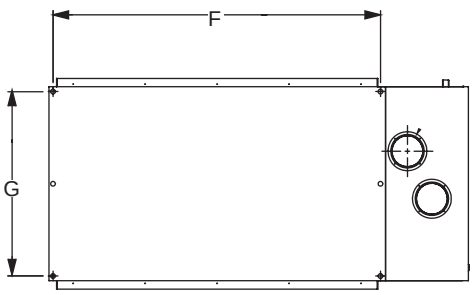
Top Plan



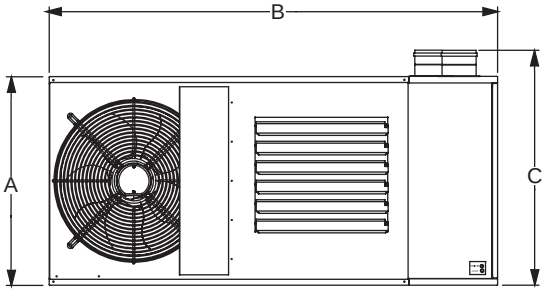
Bottom Plan

VARIANTE VRA / VRC / VRE DIMENSIONS										
New Model Ref		**12**	**20**	**30**	**42**	**50**	**60**	**72**	**95**	**120**	**145**
Old Model Ref		**40**	**70**	**100**	**135**	**170**	**200**	**250**	**330**	**410**	**490**
	A	440	440	545	650	910	910	650	800	980	1150
	B	1050	1050	1050	1050	1050	1050	1750	1750	1750	1750
	C	680	680	680	680	680	680	810	810	810	810
VRA/VRE	D	841	881	893	893	893	893	1023	1023	1023	1023
VRC	D	1134	1175	1175	1175	1246	1246	1305	1376	1625	1625
	E	755	755	755	755	755	755	1365	1365	1365	1365
VRA/VRC	F	640	640	640	640	640	640	770	770	770	770
VRE	F	500	500	605	710	840	970	710	860	1040	1210
VRC	G	390	390	495	600	730	860	600	750	930	1100
VRC	H	729	729	729	729	729	729	1339	1339	1339	1339
VRC plenum box (optional)	I	700	800	800	800	800	800	900	900	1100	1100
VRC plenum box (optional)	J	795	795	795	795	795	1405	1405	1405	1405	1405
Top clearance (VRA/VRC)		300	300	300	300	300	300	300	300	300	300
Top clearance (VRE)		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Rear clearance (VRA)		300	350	400	500	500	560	560	560	560	630
Rear clearance (VRC)		200	200	200	200	200	200	200	200	200	200
Rear clearance (VRE)		300	300	300	300	300	300	300	300	300	300
Bottom clearance (VRA/VRC)		300	300	300	300	300	300	300	300	300	300
Bottom clearance (VRE)		3500	4000	4000	4000	5000	5000	5000	6000	6000	6000
Left-hand side clearance (All)		250	250	250	250	250	250	250	250	250	250
Right-hand side clearance (All)		800	800	800	800	800	800	950	950	950	950

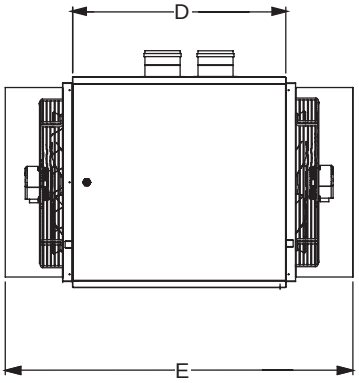
VRBD



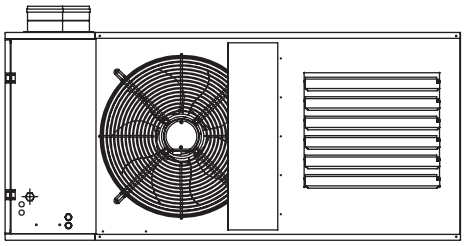
Plan view



Front view



Side view



Back view

VARIANTE VRBD DIMENSIONS					
New Model Ref		**72**	**95**	**120**	**145**
Old Model Ref		**250**	**330**	**410**	**490**
	A	650	800	980	1150
	B	1750	1750	1750	1750
	C	750	900	1080	1250
	D	810	810	810	810
	E	1321	1321	1321	1321
	F	1365	1365	1365	1365
	G	770	770	770	770
Flue and Combustion air collars	Ø	130	130	130	130
Top clearance		300	300	300	300
Bottom clearance		300	300	300	300
Left-hand side clearance		250	250	250	250
Right-hand side clearance		950	950	950	950

GB/BEN/007/1210

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BENSON HEATING
The AmbiRad Group