Commercial heating

ecoTEC, ecoCRAFT
and atmoCRAFT
commercial boilers

Vaillant -
the best in the business

For more than 130 years, Vaillant has set the standards in the heating market, creating products that have revolutionised the industry. As Europe's **number 1** boiler manufacturer, innovation still comes as second nature. Our products boast the highest energy efficiency ratings and lowest emissions, and come with an enviable reputation for performance, quality and reliability. At the same time we continue to invest in developing new technologies for solutions that further simplify installation, commissioning and servicing, and make everyday operation even easier. Add this to our legendary training and sales support services and you will understand why there's no better total product and service package for your business.

ecoTEC wall hung commercial boiler

ecoTEC
wall hung condensing boilers

High efficiency condensing gas system boilers
With a whole host of built-in features, installation and servicing of ecoTEC commercial boilers could not be more straightforward. Light weight for it's class, compact design, and a comprehensive range of flues, fittings and accessories means that ecoTEC boilers can be sited almost anywhere. For larger buildings, or buildings with more complex layouts, multiple boilers can be installed in cascade to provide a highly effective and extremely efficient heating system. They are configured to automatically optimise heat and hot water supply according to the demands on the system at any particular time.

Two models
- ecoTEC 46
  heat output range (heating 50/30 °C) 12.9 - 46.4 kW
  heat output range (heating 80/60 °C) 12.3 - 44.1 kW
- ecoTEC 65
  heat output range (heating 50/30 °C) 14.6 - 67.6 kW
  heat output range (heating 80/60 °C) 13.7 - 63.7 kW

High performance
- High efficiency SEDBUK band 'A' rating
- Fully modulating low NOx burner and fan (Class 5)
- Heating output up to 65 kW
- Stainless steel heat exchanger

Easy installation
- Case dimensions:
  - ecoTEC 46 H800 mm x W480 mm x D450 mm
  - ecoTEC 65 H800 mm x W480 mm x D472 mm
  - Delivered with $1^1/_4$" female BSP flow and return service valves and 1" female BSP gas service valve
- Connections:
  - Flow/Return – 1" internal, $1^1/_2$" external
  - Gas - 20mm with adapter for 1"
  - Pressure safety valve outlet -
      $^3/_4$" female BSP (ecoTEC 46)
      1" female BSP (ecoTEC 65)
  - Condensate – 19mm
  - Combined filling/emptying valve on return pipe
- All major components built-in:
  - Siphonic condensate discharge (ecoTEC 65 only)
  - Condensate trap (ecoTEC 46)
  - Energy saving 2-stage frost protection
  - 0 – 10v compatible for BEMS applications
    (via VR34 accessory)

- 8m head shunt pump
  - Pressure sensor to monitor system pressure via diagnostics
  - Flow sensor to monitor water flow through boiler
  - Air separator with auto air vent and filter for bleeding system and filtering of fine particles
- Push-fit flue system with telescopic accessories
- LPG conversion kit available (ecoTEC 46 only)
- Full range of intelligent eBUS controls including weather compensators and multiple boiler management controls available.

Flexible siting
- Flue lengths up to 18m horizontal or 21m vertical with 125 mm flue
- Optional 125mm stainless façade kit available
- 3 bar PRV
- IPX4D electrical safety rating
- No compartment ventilation needed*

Easy service and repair
- Built-in comprehensive boiler status/diagnostic display system
- Blue backlit display for easy reading
- Easy access to all components from the front
- Single electronic circuit board
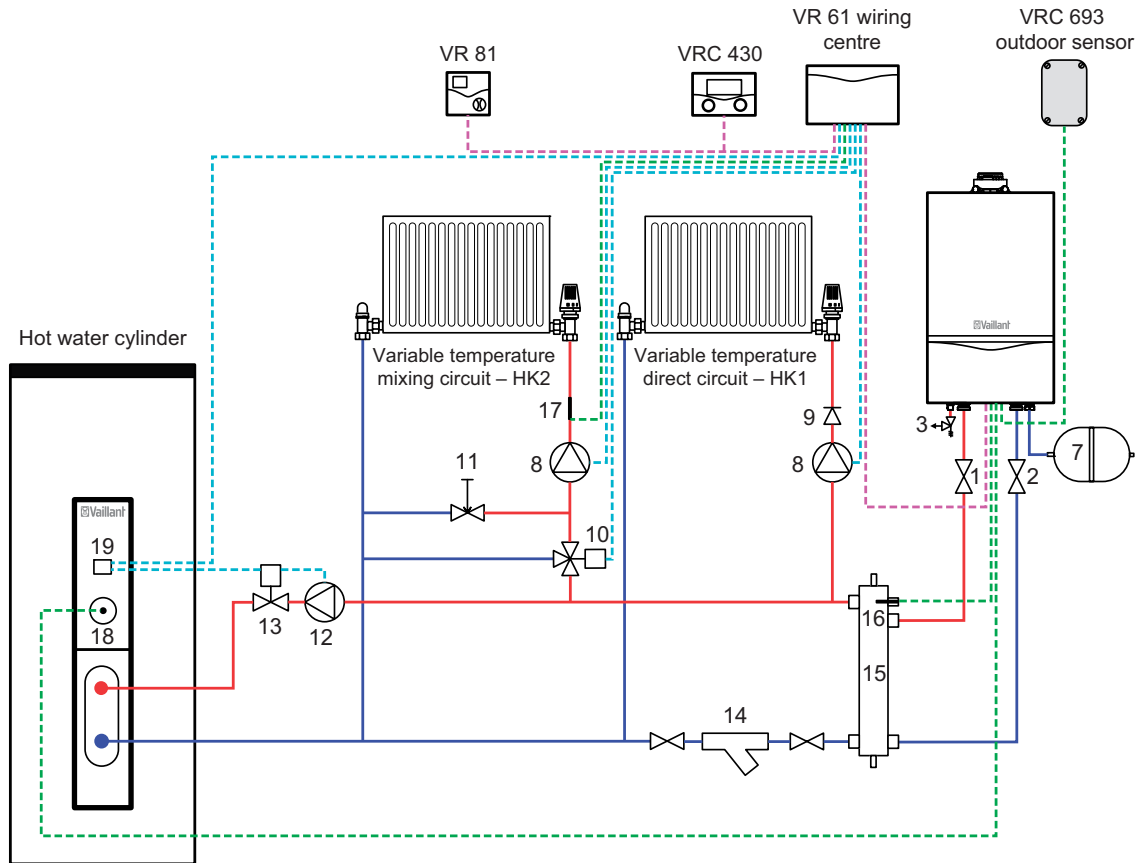- Flue gas analysis point

Quality and reliability
- Stainless steel heat exchanger
- Production to ISO 9001
- 2 year warranty on boiler
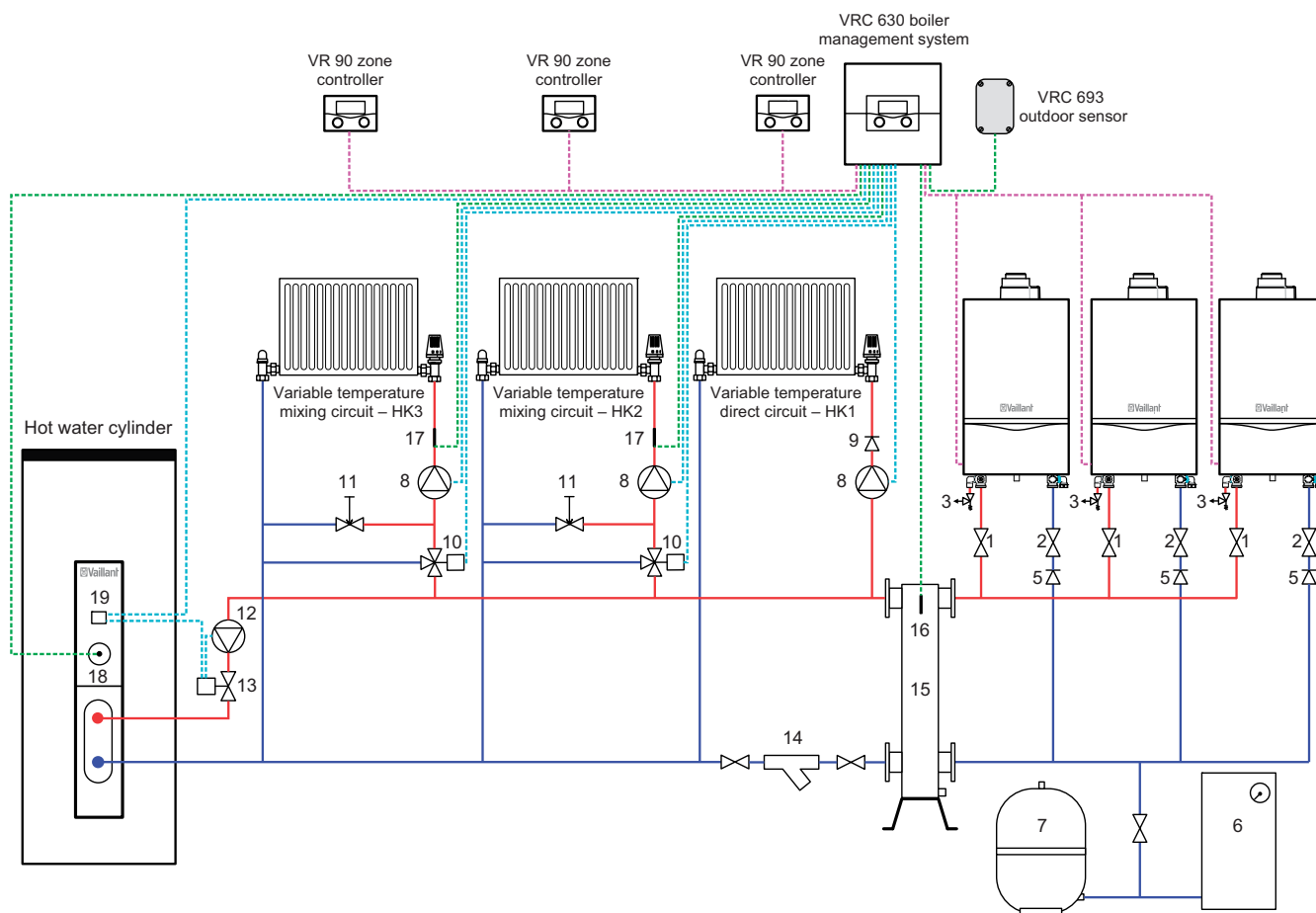- Commissioning service available

*See BS6644 for more specific advice if appliance installed in boiler room/enclosure.

System design

VR 81

VRC 430

VR 61 wiring centre

VRC 693 outdoor sensor

Hot water cylinder

Variable temperature mixing circuit – HK2

Variable temperature direct circuit – HK1

Key
1. Boiler flow isolation valve
   (supplied only with ecoTEC)
2. Boiler return isolation valve
   (supplied only with ecoTEC)
3. Boiler safety valve (supplied only with ecoTEC)
4. Boiler shunt pump (supplied only with ecoTEC
   (internal) or available as an accessory with
   ecoCRAFT and atmoCRAFT)
5. Single check valve
6. Primary pressurisation unit
   (available as an accessory)
7. Primary expansion vessel
   (available as an accessory)
8. Heating pumps
9. System check valve
10. Heating circuit mixing valve
11. Regulating valve
12. Cylinder primary pump
13. Cylinder motorised valve
   (supplied only with uniSTOR cylinder)

14. Dirt separator or strainer
   (available as an accessory)
15. Low loss header (available as an accessory)
16. Low loss header VR 10 sensor (supplied with
   VRC 630 controller)
17. Heating circuit VR 10 sensor (supplied with
   VRC 630 controller) or VR 692 clip on pipe
   sensor (available as an accessory)
18. Cylinder VR 10 sensor
   (supplied with VRC 630 controller)
19. Cylinder high limit thermostat
   (supplied only with uniSTOR cylinder)
Note: items are not supplied by Vaillant unless
stated

Wiring Colours
---------- purple - eBUS
---------- green - sensors
---------- blue - 230 volt

VRC 630 boiler
management system

VR 90 zone
controller

VR 90 zone
controller

VR 90 zone
controller

VRC 693
outdoor sensor

Variable temperature
mixing circuit – HK3

Variable temperature
mixing circuit – HK2

Variable temperature
direct circuit – HK1

Hot water cylinder

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Key components

Quality and reliability – the inside story

ecoTEC 46

ecoTEC 65

Flow and return isolation valves

Push-fit flueing
A wide range of flue options, all with push-fit connection provides total flexibility in siting

Main heat exchanger
High-performance, circular stainless steel heat exchanger allows more heat to be extracted by recapturing other-wise wasted heat

Fully modulating low NOx pre-mix burner
Automatically matching heat output to demand, achieves best class emissions within European standards

Condense trap
The 46kW model is supplied with an internal condensate trap whilst the larger 65kW model has an external siphonic discharge trap

Shunt pump
Pumps from the boiler to the low loss header. Ensures correct flow of water is circulating between boiler and low loss header

Air separator
An integral means of removing air from the boiler

Boiler fascia
Backlit display provides comprehensive status and diagnostic information for easy servicing. The Vaillant weather compensator control (VRC430) can also be plugged into the boiler fascia

Water pressure
Easy to read system pressure gauge with a 0 to 3 bar display

Technical specification - ecoTEC

ecoTEC		46	65
Heat output range (heating 50/30 °C)	kW	12.9 - 46.4	14.6 - 67.6
Heat output range (heating 80/60 °C)	kW	12.3 - 44.1	13.7 - 63.7
Maximum heat input (Net)	kW	45	65
Net efficiency @ 100% load	%	98.4	97.4
Net efficiency @ 30% load	%	108.3	107.6
SEDBUK rating		A	A
SAP seasonal efficiency	%	91.1	90.35
Inlet gas working pressure required (natural gas)	mbar	20	20
Inlet gas working pressure required (LPG)	mbar	37	N/A
NOx class	-	5	5
NOx levels	mg/kWh	36	36
CO_2 percentage (after 5 minutes full load +/- 1)	%	8.8	8.8
Maximum CO level	ppm	150	150
Gas rate (natural gas)	m^3/h	4.8	6.9
Gas rate (LPG)	kg/h	3.5	N/A
Water flow rate (when ΔT = 20K)	l/h	1935	2750
Available pump head (without check valve)	mbar	280	280
Available pump head (with check valve)	mbar	190	190
Pressure drop across the heat exchanger (at full load and 20K temperature difference)	mbar	350	375
Maximum flow temperature	°C	85	85
Maximum operating primary pressure	bar	3	3
Minimum operating primary pressure	bar	0.8	0.8
Condensate volume (pH value: 3.0-4.0)	l/h	4.5	6.5
Electrical connection	V / Hz	230 / 50	230 / 50
Electrical power consumption min./max. (with integrated pump)	W	138 / 180	170 / 260
Electrical protection rating	-	IP X 4 D	IP X 4 D
Dimensions			
Height	mm	800	800
Width	mm	480	480
Depth	mm	450	472
Lift weight	kg	46	75
Water content	l	4.5	6.5
Flue			
Flue gas mass flow min./max	g/s	5.7 / 20.5	6.5 / 30.3
Flue gas temperature min./max.	°C	40 / 70	40 / 70
Maximum length of concentric flue horizontal	m	18	15
Maximum length of concentric flue vertical	m	21	18
Connections			
Heating flow/return (isolation valve size)		$1^{1}/_{4}$" female BSP	$1^{1}/_{4}$" female BSP
Gas isolation valve size		1" female BSP	1" female BSP
Pressure safety valve outlet		$^{3}/_{4}$" female BSP	1" female BSP
Condensate drain	mm	19	19
Flue connection	mm	80/125	80/125

ecoCRAFT

ecoCRAFT
floor standing condensing gas boiler

The complete solution
Starting at 80kW, the range consists of six models and enables the closest load matching with modulation ranges as wide as 17% to 100% on the 160kW boiler.

The ecoCRAFT range has a compact size for its class with an appliance width of 695mm and is delivered to site on a single pallet. Its easy manoeuvrability offers flexible siting and a modular heat exchanger design utilising a single pre-mix burner and fan to achieve part load efficiencies as high as 108.4% (net) enabling you to maximise Building Regulations rating of your installation.

The class 5 NOx rating of ecoCRAFT ensures that less than 60mg/kW of NOx is produced satisfying the most stringent of environmental standards.

High Performance
- Large output range from 14.1 - 281.4kW (60/40C)
- High efficiency exceeding Part L2 Building Regulations 2005
  - VKK 806, VKK 1206 and VKK 1606 net efficiency 108.4% low, 97.8% high
  - VKK 2006, VKK 2406 and VKK 2806 net efficiency 108.2% low, 98.4% high
- Sectional heat exchanger with single burner control allowing boiler modulation ranges of 16.8% - 100%
- Adjustable maximum flow temperature from 35 – 85°C
- Fully modulating, low NOX pre mix horizontal firing burner (class 5) <60mg/kWh
- Aluminium alloy heat exchanger

Easy Installation
- Connections
  - Flow and return 2″ male BSP
  - Gas 1^1/$_2$″ male BSP
  - Condensate 40mm
- Pro E electrical connections
- Modulating primary pump (3 sizes available as accessory)
- 0 – 10v compatible for BEMS applications (via VR34 accessory)
- Compatible with Vaillant VRC 630 cascade controller
- Cascade installations via Vaillant ebus (via VR 32 accessory)

- Push fit appliance flue outlet
  - VKK 806, 1206 & 1606 150mm
  - VKK 2006, 2406 & 2806 200mm

Flexible siting
- Flue categories B23, B23P, C33, C53, C43, C83, C63
- Maximum system working pressure 6bar
- Remote safety circuit interlock (24Volt)
- Fully programmable boiler interface to match system requirements
- Compact size for output to enable easy transport and manoeuvrability
- VKK 806, VK 1206 and VK 1606 (HxWxD) 1285x695x1240
- VKK 2006, VK 2406 and VK 2806 (HxWxD) 1285x695x1550

Easy service and repair
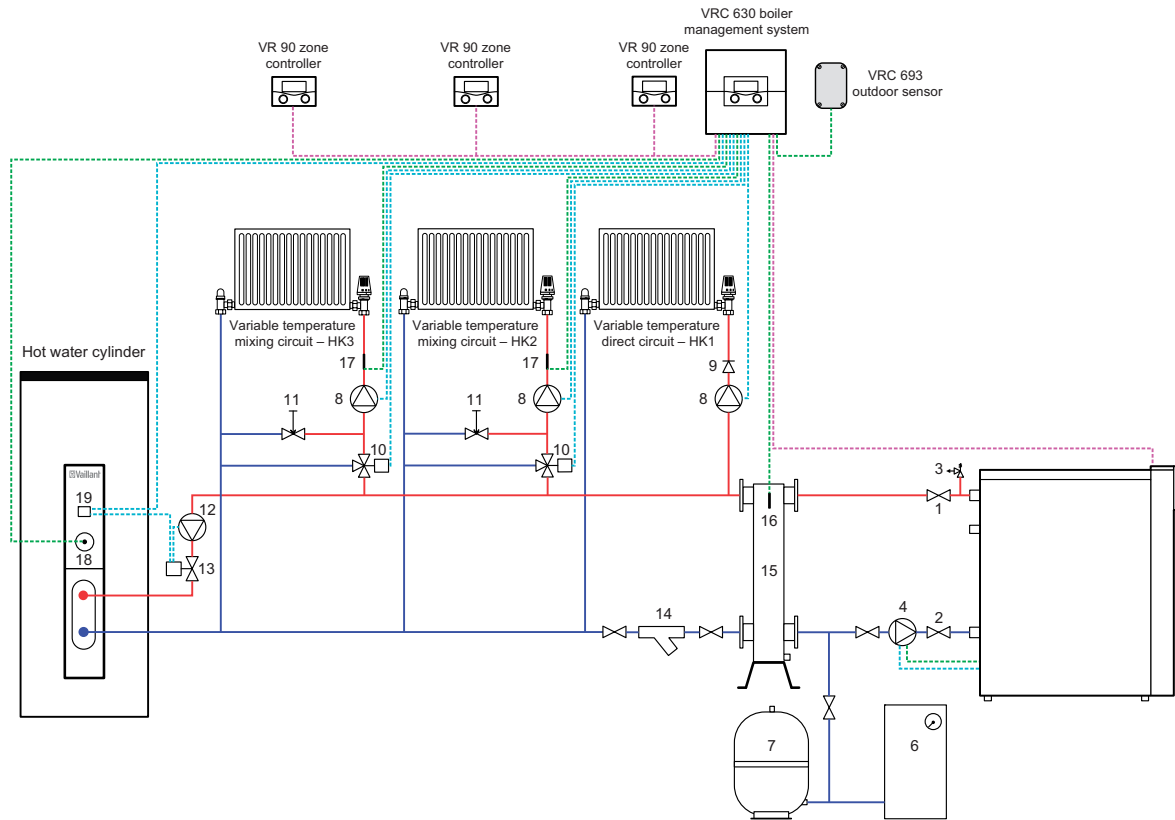- Simple case assembly and removal

Quality and reliability
- Removable condensate siphon trap
- Air inlet filter to maintain clean air for combustion
- Integral boiler frost protection
- 1 year standard warranty (2 years when commissioned by Vaillant)

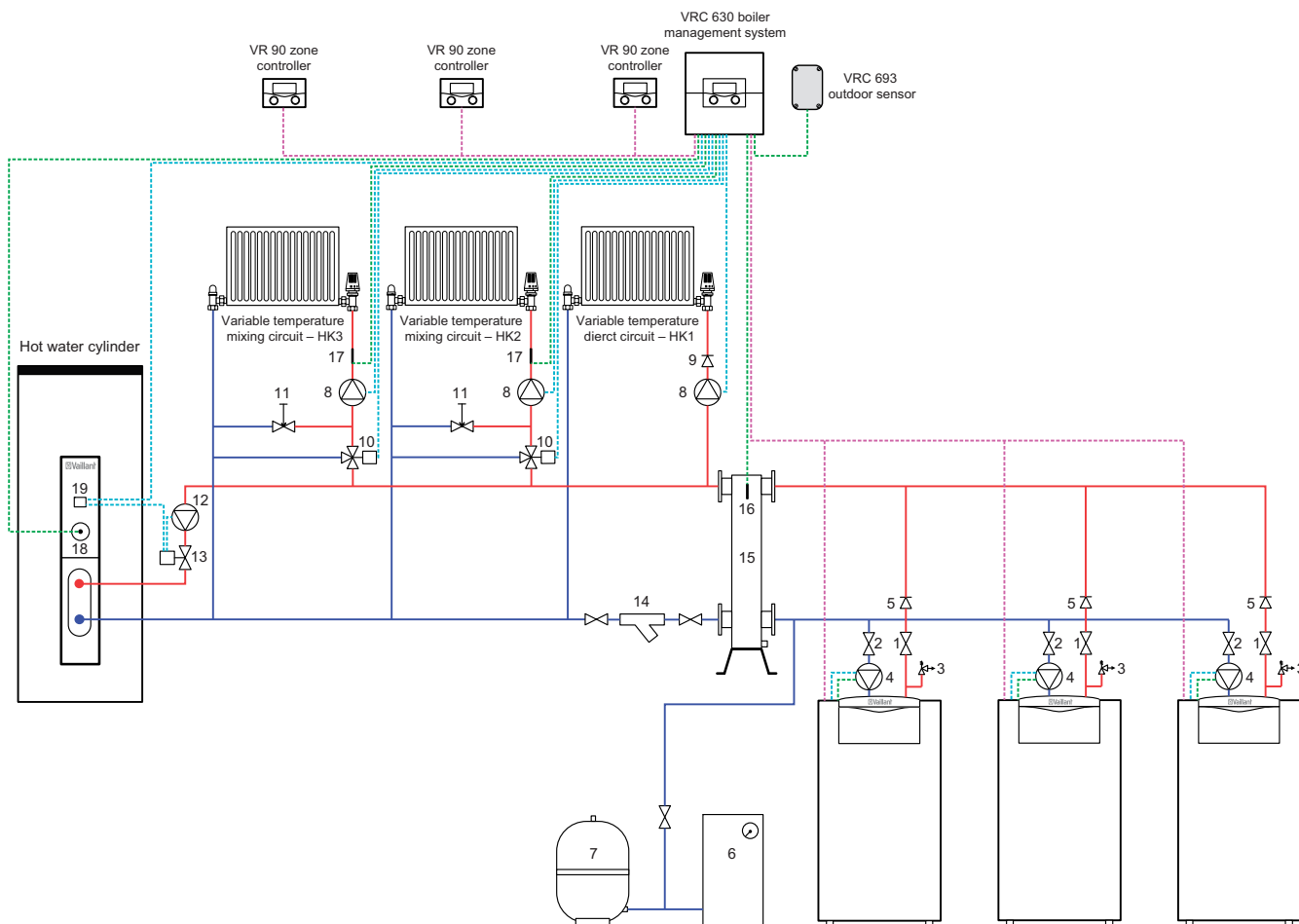Standard Vaillant interface for ease of operation

System design

Key
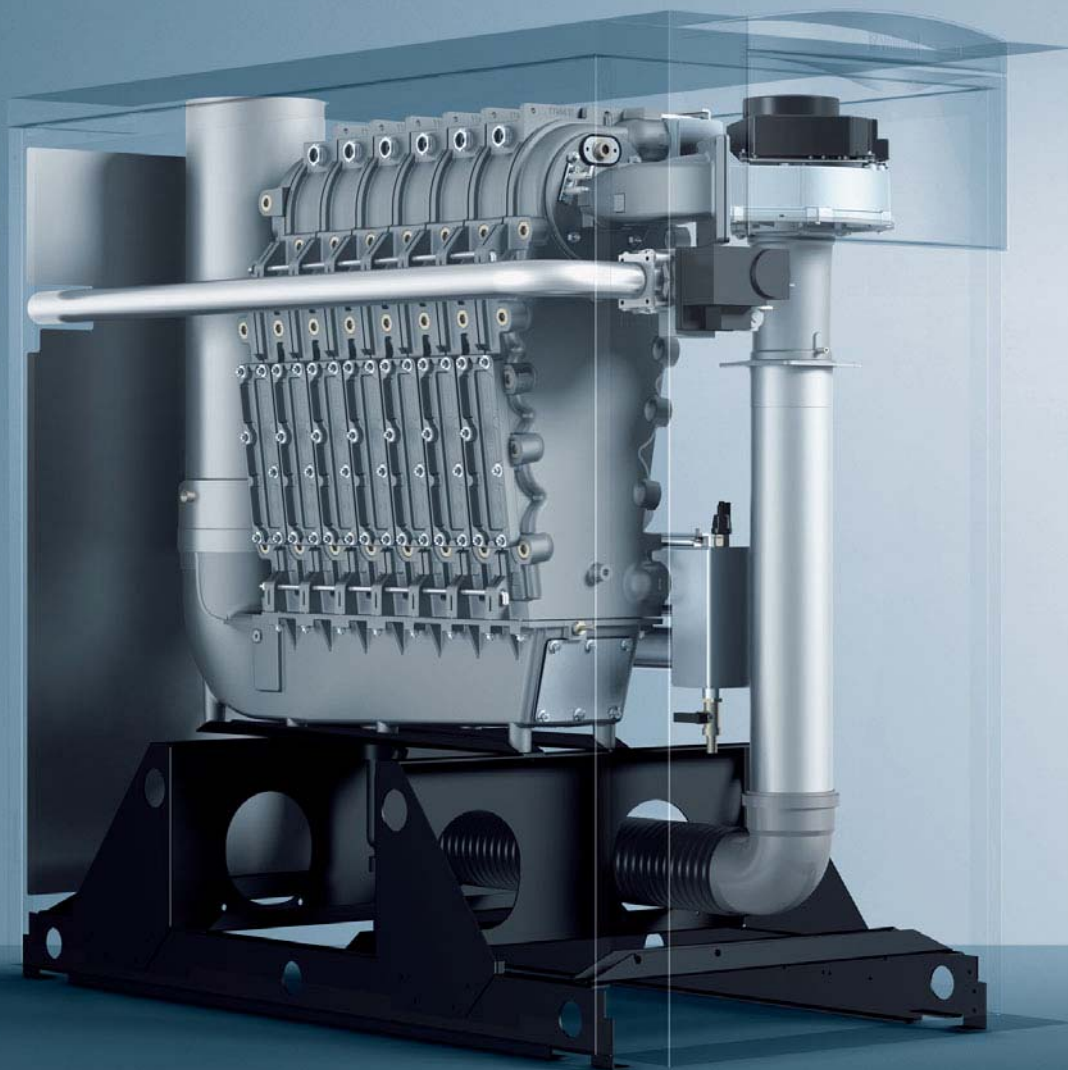
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11. Regulating valve
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16. Low loss header VR 10 sensor (supplied with
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Wiring Colours
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VR 90 zone controller

VR 90 zone controller

VR 90 zone controller

VRC 630 boiler management system

VRC 693 outdoor sensor

Hot water cylinder

Variable temperature mixing circuit – HK3

Variable temperature mixing circuit – HK2

Variable temperature dierct circuit – HK1

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Key components

Modulating low NOx pre-mix burner
A single pre-mix burner enables low NOx performance of less than 60mg/kwh to be achieved.

Levered controls flap
Stylish drop down mechanism opens to display the boiler control panel.

Air inlet filter
To ensure the combustion is maintained at optimum performance, the filter removes damaging dust particles to ensure that it is always at peak efficiency. Simple replacement during servicing ensures prolonged life of your appliance.
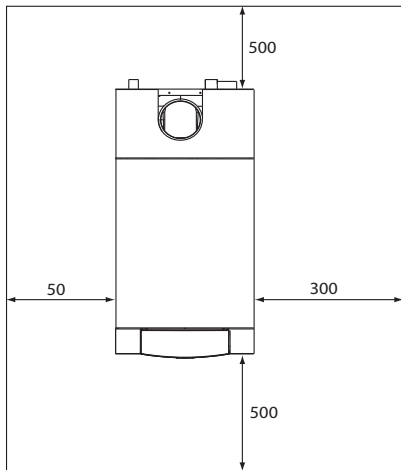
Main heat exchanger
High performance aluminium based alloy heat exchanger for long life. The matching range of modulating pumps compliment the low hydraulic resistance of the heat exchanger.
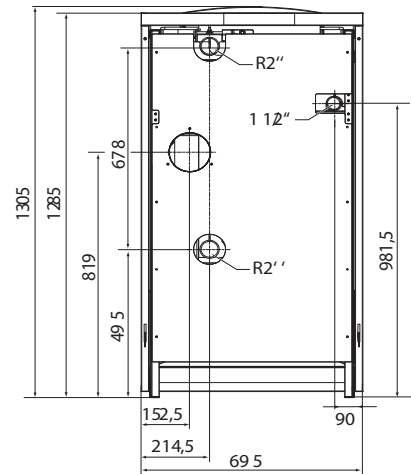
Boiler fascia
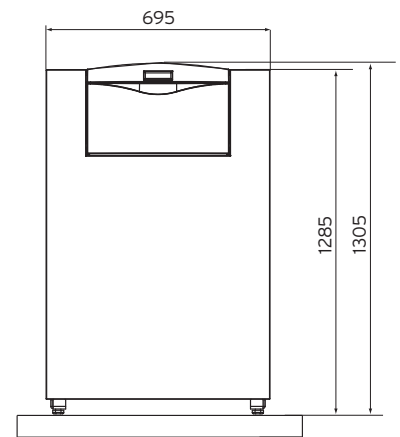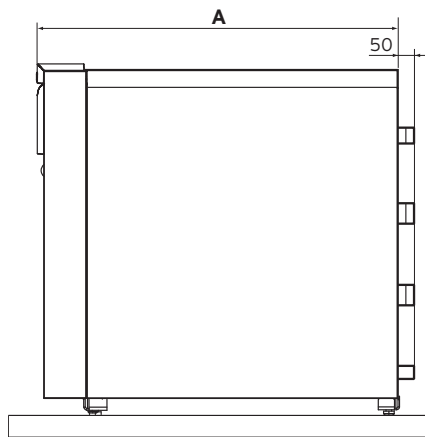Backlit display provides comprehensive status and diagnostic information for easy servicing.
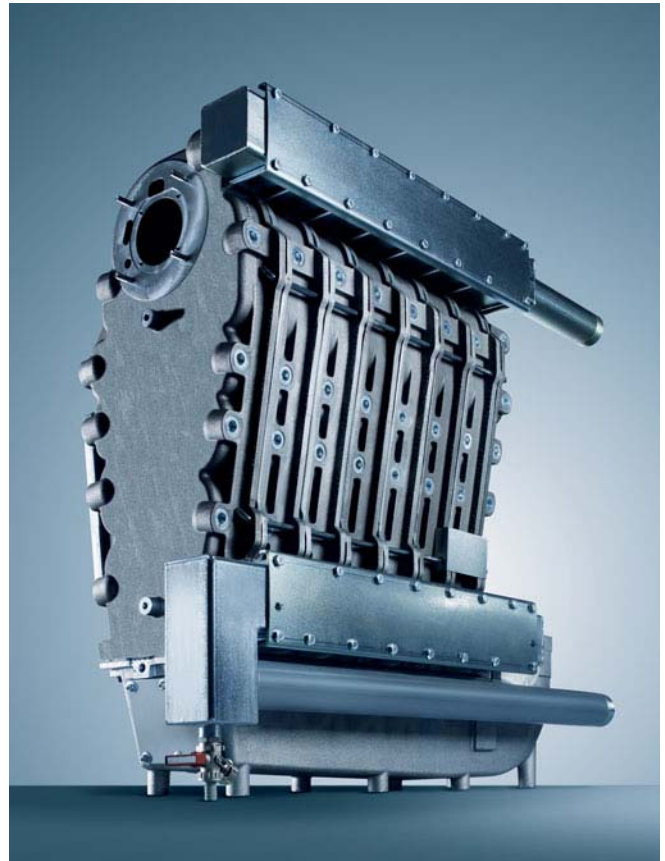
ecoCRAFT
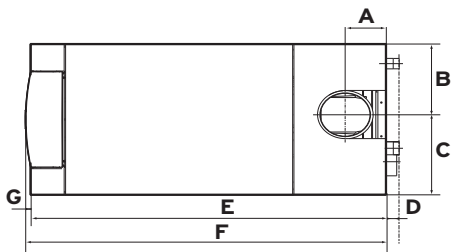
Recommended minimum distances
for installation

Pipe connection
dimensions

	VKK GB 80-1606/3-E-H	VKK GB 200-2806/3-E-H
A	165	165
B	326	326
C	369	369
D	50	50
A	1478	1168
F	1550	1168
G	22	22

Technical specification - ecoCRAFT

ecoCRAFT		VKK 806/3-E	VKK 1206/3-E	VKK 1606/3-E	VKK 2006/3-E	VKK 2406/3-E	VKK 2806/3-E
Heat output (80/60°C)	kW	13.6 - 77.9	21.3 - 112.9	26.2 - 155.8	43.1 - 196.8	47.0 - 236.2	51.0 - 275.5
Heat output (60/40°C)	kW	14.1 - 80.4	22.1 - 116.5	27.1 - 160.8	44.2 - 201	48.2 - 241.2	52.3 - 281.4
Heat output (40/30°C)	kW	14.7 - 84.1	23.1 - 121.8	28.4 - 168.2	46.2 - 210.2	50.4 - 252.2	54.7 - 294.3
Maximum heat input (net)	kW	80	115.9	160	200	240	280
Flow Temperature (min/max°C)	°C	35/85	35/85	35/85	35/85	35/85	35/85
Net Efficiency 100% load	%	97.8	97.8	97.8	98.4	98.4	98.4
Net Efficiency 30% load	%	108.4	108.4	108.4	108.2	108.2	108.2
Part L2 seasonal efficiency	%	95.85	95.85	95.85	95.76	95.76	95.76
Condensate volume @ 40/30 (pH value: 3.4)	l/h	13	20	27	34	40	47
Gas supply pressure (natural gas) (G20)	mbar	20	20	20	20	20	20
Gas type	-	I2H	I2H	I2H	I2H	I2H	I2H
Gas rate natural gas (G20)	m^3/hr*	8.5	12.3	16.9	21.2	25.4	26.9
Nominal water circulating volume (Δt = 20K)	m^3/hr	3.44	4.99	6.88	8.60	10.33	12.05
Primary water flow pressure drop (Δt = 20K)	mbar	80	85	90	95	100	105
Maximum operating primary pressure	bar	6	6	6	6	6	6
Electrical connection	V/Hz	230/50	230/50	230/50	230/50	230/50	230/50
Electrical protection rating	-	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20
Electrical power consumption (max)	W	260	260	320	320	320	320
Electrical power consumption (stand-by)	W	8	8	8	8	8	8
Dimensions Dry Weight	kg	200	220	235	275	295	310
Height	mm	1285	1285	1285	1285	1285	1285
Width	mm	695	695	695	695	695	695
Depth	mm	1240	1240	1240	1550	1550	1550
Water content	l	5.74	8.07	10.40	12.73	15.05	17.37
Gas connection Ø	BSP(m)	1$^1/_2$"	1$^1/_2$"	1$^1/_2$"	1$^1/_2$"	1$^1/_2$"	1$^1/_2$"
Flow and return connection	BSP(m)	2"	2"	2"	2"	2"	2"
Condensate pipe Ø	mm	21	21	21	21	21	21
Flue Flue type classification		B$_{23}$, B$_{23P}$, C$_{33}$, C$_{53}$, C$_{43}$, C$_{63}$, C$_{83}$					
Nox Class		5	5	5	5	5	5
Nox emmissions (EN 483)	mg/kWh	<60	<60	<60	<60	<60	<60
CO$_2$ percentage (G20) (Max output)	%	9.3	9.3	9.3	9.3	9.3	9.3
CO$_2$ percentage (G20) (Min output)	%	9.1	9.1	9.1	9.1	9.1	9.1
Recommended CO maximum	ppm	80	80	80	80	80	80
Flue outlet diameter	mm	150	150	150	200	200	200
Flue gas temperature min (80/60)	°C	60-65	60-65	60-65	60-65	60-65	60-65
Flue gas temperature max (80/60)	°C	65-70	65-70	65-70	65-70	65-70	65-70
Flue gas volume (nominal minimum)	g/s	6.3	10	12.2	19.9	21.7	23.5
Flue gas volume (nominal maximum)	g/s	35.4	51.2	70.7	88.4	106.1	123.8
Residual fan pressure	Pa	100	100	150	150	150	150
CE CE number (PIN)		CE-006BS3986					

* 15°C 1013mbar

atmoCRAFT

atmoCRAFT
floor standing atmospheric gas boiler

Complete replacement boiler solution
Incorporating robust cast iron design, atmoCRAFT delivers a high performance with low pollutant NOx class 5 burner. Starting at 65kW, the range enables flexible and close load matching right up to 165kW. Coming in a single package, the atmocraft is delivered ready assembled for installation. Finalising your installation could not be more straightforward, a separate easy to assemble casing pack ensures your installation measures up to its performance in looks too.

For enhanced efficiency, atmoCRAFT boilers are compatible with Vaillant's weather compensated controllers and system components to ensure you maximise your heating credits under the Building Regulations. Integration with BEMS systems ensure a flexible approach to your installation.

As well as being competitively priced, atmoCRAFT boilers are packed with a host of built in features to ensure that installation, commissioning and servicing could not be more straightforward. They are configured to allow simple adjustment of the central heating and hot water parameters to suit your individual requirements.

Vaillant's atmoCRAFT range of commercial atmospheric boilers is available in eight power outputs. Perfect for the replacement installation in commercial applications, atmoCRAFT delivers solid cast iron performance and power.

Each unit features an easy to use, advanced diagnostic display, which, combined with a single electronic circuit board simplifies commissioning, servicing and operation.

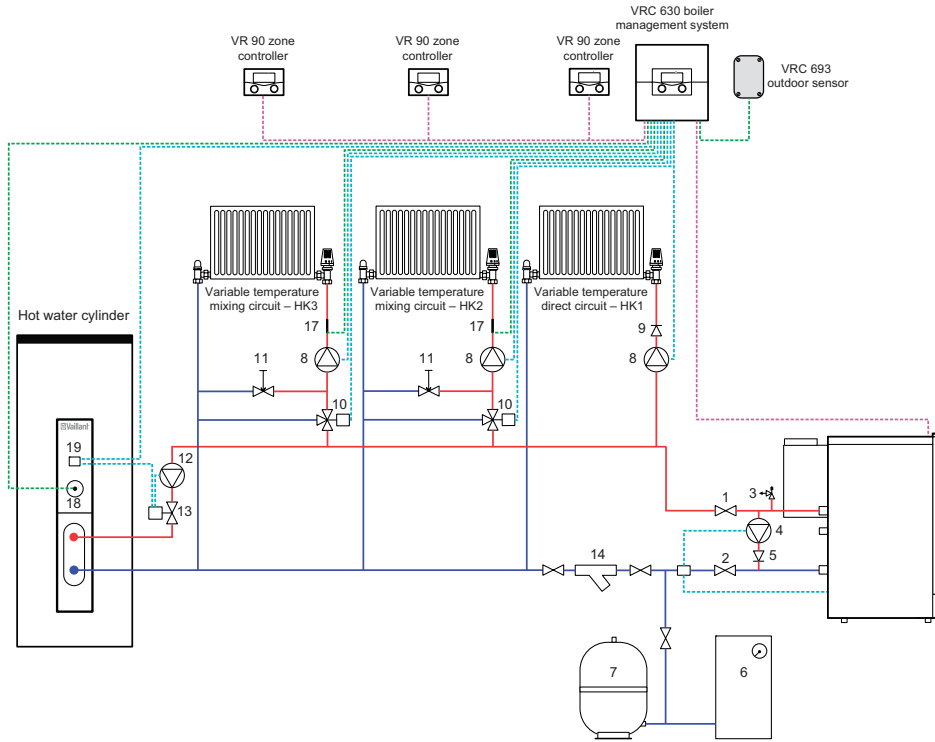**atmoCRAFT features and benefits**
Eight models available
- with outputs ranging from 65 - 165kW

Features and benefits
- A sealed combustion chamber ensures minimal NOx levels – typically less than 80mg/kWh (class 5)
- Close load matching with modulation ranges from 65% to 100%
- Vaillant weather compensated controller and systems components compatible to ensure maximised heating credits under the Building Regulations act
- BEMS compatible
- Comprehensive diagnostic numeric display that enables simple and efficient commissioning, servicing and operation
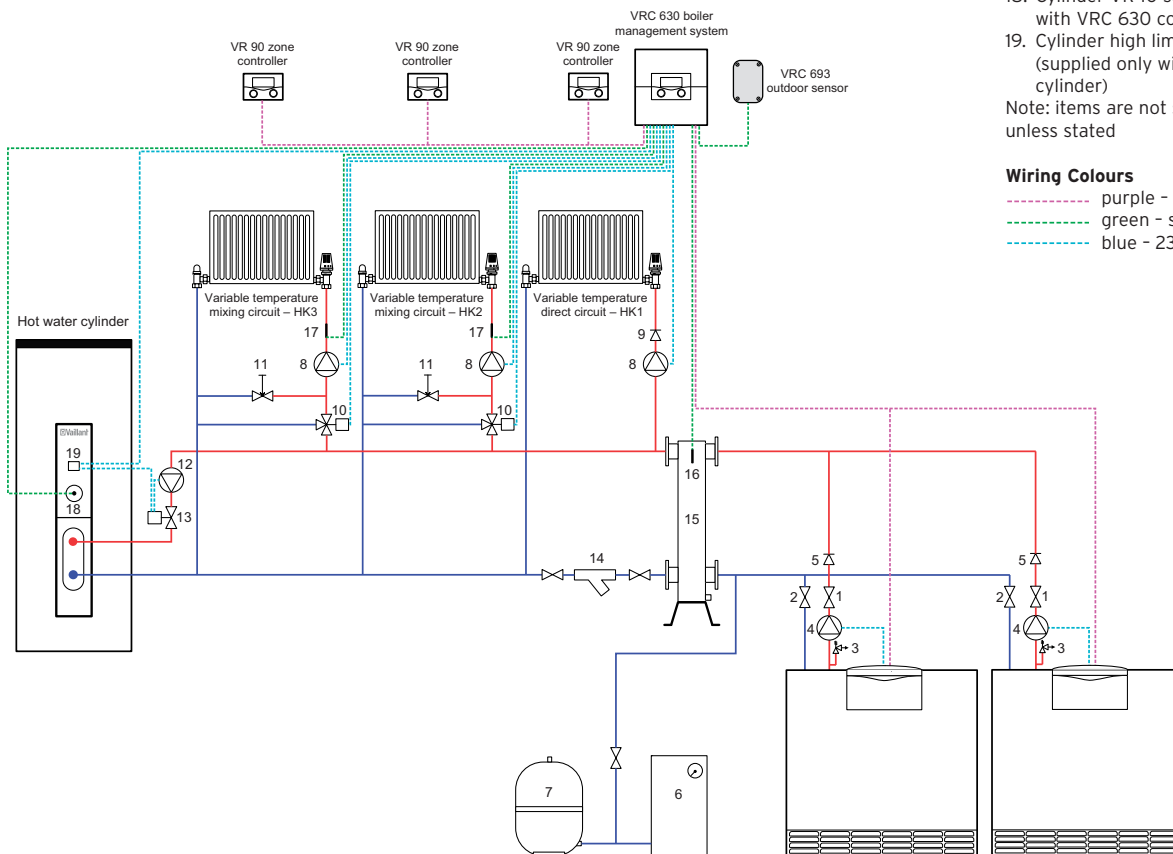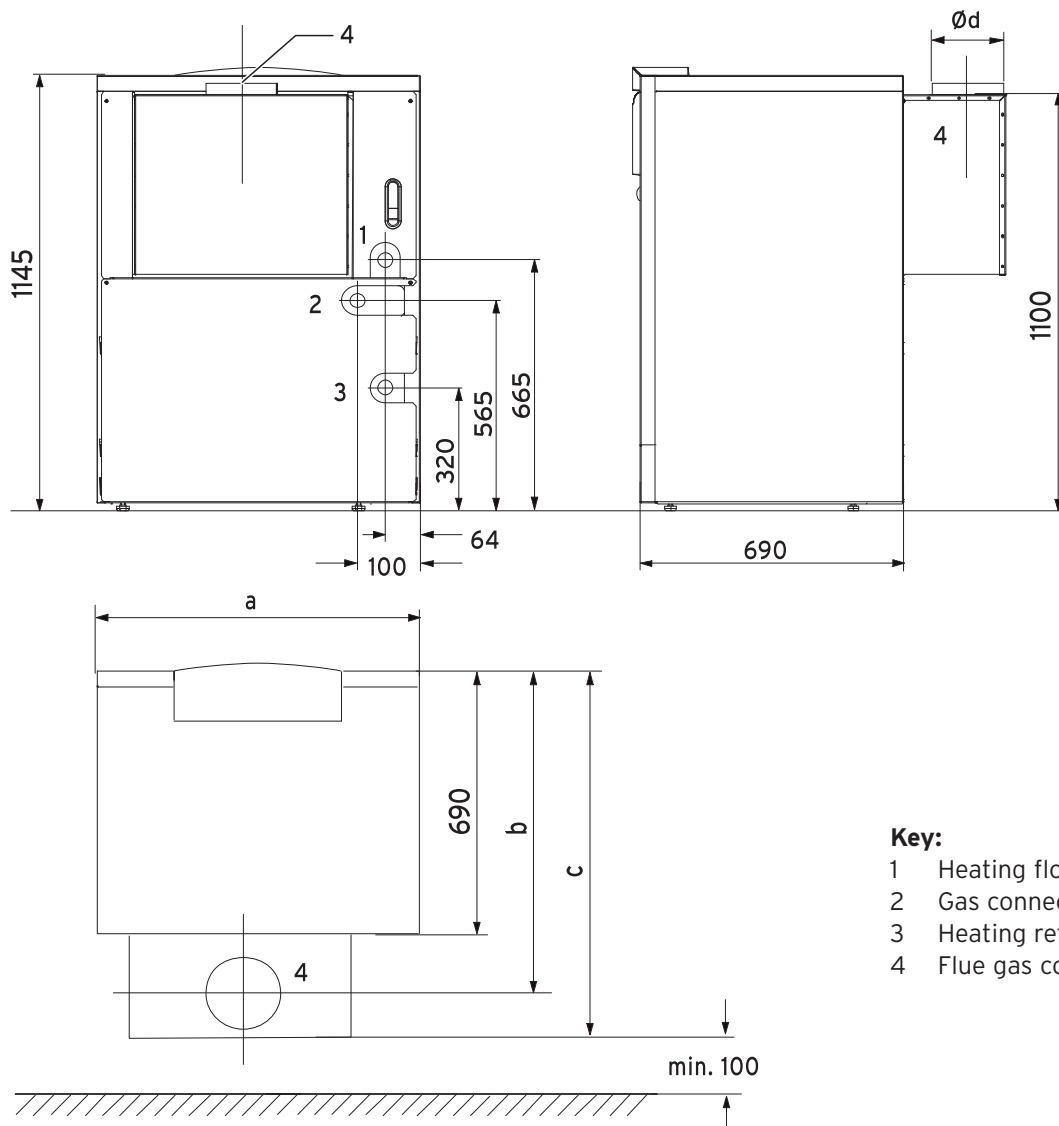
System design

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2. Boiler return isolation valve (supplied only with ecoTEC)
3. Boiler safety valve (supplied only with ecoTEC)
4. Boiler shunt pump (supplied only with ecoTEC (internal) or available as an accessory with ecoCRAFT and atmoCRAFT)
5. Single check valve
6. Primary pressurisation unit (available as an accessory)
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11. Regulating valve
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Note: items are not supplied by Vaillant unless stated

Wiring Colours
- - - - - purple – eBUS
- - - - - green – sensors
- - - - - blue – 230 volt

Key:

1. Heating flow
2. Gas connection
3. Heating return
4. Flue gas connection

Boiler type	A	B	C	Ø d	Heating feed/ Heating return	Gas connection
65 kW	850mm	860mm	960mm	180mm	1^1/$_2$" male BSP	1" male BSP
75 kW	930mm	850mm	960mm	200mm	1^1/$_2$" male BSP	1" male BSP
85 kW	1010mm	850mm	960mm	200mm	1^1/$_2$" male BSP	1" male BSP
105 kW	1170mm	838mm	960mm	225mm	1^1/$_2$" male BSP	1" male BSP
115 kW	1250mm	838mm	960mm	225mm	1^1/$_2$" male BSP	1" male BSP
130 kW	1410mm	825mm	960mm	250mm	1^1/$_2$" male BSP	1^1/$_4$" male BSP
150 kW	1570mm	825mm	960mm	250mm	1^1/$_2$" male BSP	1^1/$_4$" male BSP
165 kW	1730mm	852mm	1012mm	300mm	1^1/$_2$" male BSP	1^1/$_4$" male BSP

Key components
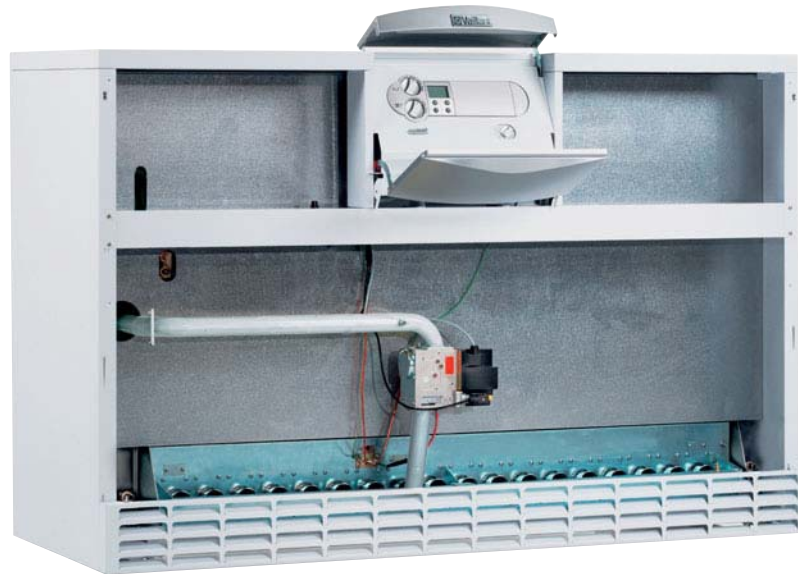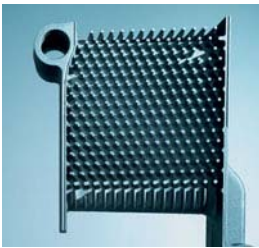
Heat exchanger
Cast iron sectional design heat exchanger delivered fully assembled as a single unit for quick and simple installation. The heat exchanger can be dismantled on site for easier siting of boiler, and then re-assembled using new boiler nipples and sealant. Vaillant provides a boiler assembly tool hire service (please contact Vaillant for more details).

Heat exchanger insulation
A heavy duty insulation covers the heat exchanger improving overall thermal efficiency and reduces standing heat losses.

Low NOX burner
Atmospheric burner designed to produce NOx levels <80mg/kWh (class 5).

Automatic flue damper
Adjustment of the excess air being drawn through the heat exchanger to the flue system, whilst the burner is in low fire, will maintain a greater efficiency. Whilst in stand-by mode the flue damper will remain in the closed position there-by reducing the standing losses of the appliance.

Sealed combustion chamber
The burner utilises a sealed combustion chamber enabling only primary combustion air to burn with the gas, this ensures the NOx levels are kept to an absolute minimum.

Controls
atmoCRAFT boilers can be controlled with the optional VRC 410s weather compensator to maximise system and boiler efficiency.

The digital display unit can be wall mounted and automatically matches the boiler flow temperature to the outside temperature.

To prevent back end corrosion of the heat exchanger a shunt pump and thermostat are recommended. Vaillant dedicated pumps and thermostats are available as accessories.

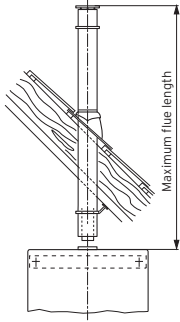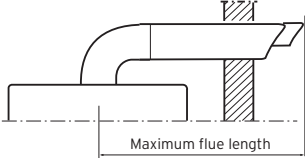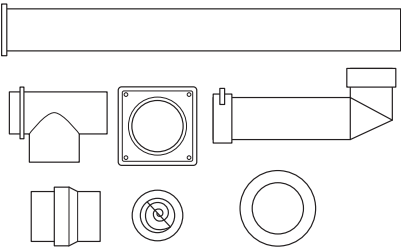## Boiler display with optional VRC 410s
Provides status and diagnostic information for easy servicing, as well as optional climate and time control with the VRC 410s weather compensator.

Technical specification - atmoCRAFT

atmoCRAFT		VK 654	VK 754	VK 854	VK 1054	VK 1154	VK 1304	VK 1504	VK 1654
Heat output (80/60°C)	kW	42.2 - 65	48.7 - 75	55.2 - 85	68.2 - 105	74.7 - 115	84.5 - 130	97.5 - 150	107.5 165
Maximum heat input (net)	kW	70.7	81.5	92.5	114	125	141.3	163	179.3
Number of sections		8	9	10	12	13	15	17	19
Net Efficiency 100% load	%	91.23	91.33	90.91	91.21	91.14	91.28	91.41	91.51
Net Efficiency 30% load	%	91.56	91.46	91.01	91.41	90.98	90.68	90.84	90.94
Modulation range	%	65-100							
Flow Temperature (max/min)	°C	35/83							
Inlet gas working pressure required (natural gas)	mbar	20							
Inlet gas working pressure required (lpg propane)	mbar	37							
NOx Class		5							
NOx emissions	mg/kWh	‹80							
CO_2 percentage (after 5mins full load +/-1)		6.5	6.5	6.5	6.5	6.6	6.6	6.6	6.6
Flue type classification		B_{11}							
Gas type		II_{2H3P}							
Gas rate natural gas (G20)	m³/hr	7.4	8.5	9.7	11.9	13.0	14.9	17.0	18.8
Gas rate lpg propane (G31)	kg/hr	5.5	6.3	7.2	8.8	9.7	11.0	12.7	14.0
Primary water flow pressure drop ($\Delta T = 20K$)	mbar	18	25	32	44	46	52	60	68
Primary water flow pressure drop ($\Delta T = 10K$)	mbar	76	110	130	150	180	220	250	280
Maximum operating primary pressure	bar	3							
Electrical connection	V/Hz	230/50							
Electrical power consumption	W	‹60							
Dimensions Height	mm	1145	1145	1145	1145	1145	1145	1145	1145
Width	mm	850	930	1010	1170	1250	1410	1570	1730
Depth	mm	960	960	960	960	960	960	960	1012
Dry Weight	kg	317	343	369	421	447	499	550	601
Water content	l	28.0	31.0	34.3	40.9	44.0	51.0	57.0	65.0
Gas connection	BSP(m)	1"	1"	1"	1"	1"	1¼"	1¼"	1¼"
Flow and return connection	BSP(m)	1½"	1½"	1½"	1½"	1½"	1½"	1½"	1½"
Flue Flue outlet diameter	(mm)	180	200	200	225	225	250	250	300
Flue gas temperature (min/max)	°C	80/115	80/115	80/115	80/115	80/115	80/115	80/115	80/115
Flue gas volume (nominal)	kg/h	162	180	205	252	270	317	360	403

Flueing

ecoTEC flueing and lengths

Elements	Article No.		ecoTEC	
			VU GB 466/4-5	**VU GB 656/4-5**
Vertical flue terminal	303 200	Max. permissible length of concentric flue	21.0 m without elbow	18.0 m without elbow
			Maximum length of flue is reduced by 2.5 m for each additional 87° elbow Maximum length of flue is reduced by 1.0 m for each additional 45° elbow	
Horizontal flue terminal	303 209	Max. permissible length of concentric flue	18.0 m plus 1 elbow, 87°	15.0 m plus 1 elbow, 87°
			Maximum length of flue is reduced by 2.5 m for each additional 87° elbow Maximum length of flue is reduced by 1.0 m for each additional 45° elbow	
Façade kit connection set	00 2004 2748	Max. permissible length of concentric flue gas pipe	22.0 m plus 3 elbows 87° and support elbow	22.0 m plus 3 elbows 87° and support elbow
			Air intake piece positioned no further than 4 m from the connection with the boiler	

Alternative termination accessories

Concentric system Ø 80/125

303 200 = Vertical air/flue duct (black)

00 2004 2748 = Connection to flue gas pipe, installation on external wall

303 209 = Horizontal air/flue duct

| Optional connection accessories		Accessory No.	303 200	303 209	00 2004 2748
Air/flue duct extensions, concentric 470 mm - Ø 80/125		303 202	●	●	●
Air/flue duct extensions, concentric 970 mm - Ø 80/125		303 203	●	●	●
Air/flue duct extensions, concentric 1970 mm - Ø 80/125		303 205	●	●	●
Bends (PP), concentric (pack of 2) 45° - Ø 80/125		303 211	●	●	●
Elbow (PPs), concentric 87° - Ø 80/125		303 210	●	●	●
Flue support clips (pack of 5), Ø 125		303 616	●	●	●
Sliding sleeve (PPs) Ø 80/125		303 215	●	●	●
Adjustable roof tiles for pitched roof		009 076 (black)	●		
Flat roof penetration collar		009 056	●		
Flexible pitched roof seal		303 980	●		

Facade kit

The façade kit system is a stainless steel solution which enables the flue outlet to be re-sited to a different location outside the property. It is designed for installations where flue vapour (pluming) is, or might be, an issue. The façade kit is available in stainless steel only.

The façade kit can only be used with the 80/125 flue system and is connected to the boiler with a basic connection set which forms the interface between the standard concentric 80/125 flue system and the stainless steel components. The facade kit should be mounted and terminated vertically outside the building.

Concentric system Ø 80/125

00 2004 2748 = Connection to flue gas pipe, installation on external wall

Optional connection accessories		Accessory No.	00 2004 2748
External wall bracket (50 to 300 mm, adjustable), stainless steel		0020042749	●
Fastening clamp (50 to 90 mm), stainless steel		0020042751	●
Extension for fastening clamp (90 to 280 mm), stainless steel		0020042752	●
0.5 m extension for external wall installation, concentric 80/125, stainless steel		0020042753	●
1.0 m extension for external wall installation, concentric 80/125, stainless steel		0020042754	●
0.5 m extension for external wall installation, concentric 80/125, stainless steel, shortenable		0020042755	●
87° elbow for external wall installation, concentric 80/125, stainless steel		0020042756	●
45° elbow (2 pieces) for external wall installation, concentric 80/125, stainless steel		0020042757	●
Rain collar for roof penetration, stainless steel		0020042760	●

Cascade flueing

Example of typical cascade flueing intallation

Flue gas non-return flap

ecoTEC commercial boilers can be used in cascade configuration similar to that shown above.
Each boiler must be fitted with the flue gas non-return flap accessory (303960). Please refer to the flue installation manual (0020046373) for further help.

- Standard flue connection 125mm Ø
- Range of 125mm Ø horizontal and vertical flue accessories available
- Stainless steel 80/125mm concentric facade system available

ecoCRAFT flueing

ecoCRAFT/3		VKK 806/3	VKK 1206/3	VKK 1606/3	VKK 2006/3	VKK 2406/3	VKK 2806/3
Flue gas temperature min (80/60)	°C	60-65	60-65	60-65	60-65	60-65	60-65
Flue gas temperature max (80/60)	°C	65-70	65-70	65-70	65-70	65-70	65-70
Flue gas volume (nominal minimum)	g/s	6.3	10	12.2	19.9	21.7	23.5
Flue gas volume (nominal maximum)	g/s	35.4	51.2	70.7	88.4	106.1	123.8
Residual fan pressure	Pa	100	100	150	150	150	150

atmoCRAFT flueing

atmoCRAFT		VK 65/4	VK 75/4	VK 85/4	VK 105/4	VK 115/4	VK 130/4	VK150/4	VK 165/4
Flue outlet diameter	mm	180	200	200	225	225	250	250	300
Flue gas temperature min (80/60)	°C	80	80	80	80	80	80	80	80
Flue gas temperature max (80/60)	°C	115	115	115	115	115	115	115	115
Flue gas volume (nominal)	g/s	45	50	57	70	75	88	100	112

Controls

VRC 630

A range of controls is available for use with Vaillant commercial boilers and offers a whole building approach to improve operating efficiencies.

VRC 630 boiler management control
The VRC 630 control provides weather-compensated flow temperature control for a heating system and has time programs for controlling a heating and hot water system. This versatile control is able to control multiple boilers in cascade and multiple heating circuits using additional accessories. The VRC 630 control can also be easily used for single boiler applications bringing benefits of multiple heating zone control.

The VRC 630 can control the following system circuits:
- A direct heating circuit
- Two mixed circuits, e.g. compensated heating
- An indirectly heated hot water cylinder (can be designated as a heating circuit)
- A hot water secondary re-circulation pump

The system can be extended by adding up to six further extension circuit modules (accessory VR 60) each VR 60 allows two further circuits which can either be central heating or hot water. A maximum of 15 heating circuits can be controlled in total (1 X VRC 630 - 3 circuits and 6 X VR 60 - 2 circuits each). The extension circuits are programmed at the central VRC 630 control. For more convenience the heating circuits can be controlled locally using separate room/zone controls (VR 80 or VR 90) for each extension circuit. These room/zone controls can be connected to the first eight heating circuits.

Up to eight Vaillant ecoTEC, ecoCRAFT or atmoCRAFT boilers can be connected to the VRC 630 using a bus coupler (accessory VR32 for ecoTEC/ecoCRAFT and VR30/2 for atmoCRAFT).

VRC 430
The VRC430 is a weather compensator designed for use with single eBUS (ecoTEC/ecoCRAFT) boilers. It features a backlit plain text display with two click and turn knobs which together with numbered screens make navigation easy. It has time and temperature control for heating and hot water channels and an additional timed channel for a circulation pump. Programming for 7 day, 5/2 day or 24hr operation is possible with three different switching periods for all three channels and three temperature profiles can be set for the heating channel. Additional features include; set-back temperature, heating and hot

water advance, automatic summer winter changeover, holiday mode, optimum start/stop. With additional accessories (VR61 and VR81) the VRC430 can be used to control two heating zones and hot water circuit. Simple two-wire low voltage eBUS connections make installing the VRC430 easy or simply fit into boiler fascia for true plug and play flexibility.

VR 90 room/zone control (for use with VRC630 only)
A separate control can be connected to eight heating circuits (room/zone/ 1 ... room/zone 8). The VR 90 allows a user to set the operating mode and the target room temperature. The control can take into account the actual room temperature measured by the built-in room sensor, if necessary. It is also possible for the user to adjust some parameters for the associated heating circuit (time program, heating curve etc.) and to select special functions (over-ride/party etc.). It is also possible to query the heating circuit, and show maintenance and fault messages for the boiler. The VR 90 control is connected to the rest of the control system via 2-core eBus cable to enable communication.

VR 80 room/zone control (for use with VRC630 only)
Similar to the VR 90, the control can be connected to eight heating circuits (room/zone 1 ... room/zone 8). The VR 80 allows a user to set the target room temperature and heating mode (auto, eco, off and over-ride/party). The control can take into account the actual room temperature measured by the built-in room sensor. It is also possible for the user to adjust some parameters for the associated heating circuit and to select special functions (party etc.). The VR 80 control is connected to the rest of the control system via 2-core eBus cable to enable communication.

VRC 410s weather compensator
The VRC 410s is designed for use with atmoCRAFT floor standing atmospheric boilers only. An externally mounted temperature sensor monitors the outside temperature and adjusts the boiler flow temperature to achieve the required room temperature. The relationship between outdoor and boiler flow temperature is programmed by the installer who selects the appropriate heat curve based on the design temperature of the heating system. Ideal for properties with low heat losses, the control creates a constant indoor temperature whilst maximising fuel savings. The control offers timed control of both central heating and hot water. The control can be plugged into the boiler fascia or installed on an internal wall. A room thermostat is not required.


VRC 430

VR 90

VR 80

VRC 410

Controls

The VR34 is a 0-10 Volt coupler for ecoTEC and ecoCRAFT 3 that transfers a voltage input from the BEMS equipment into a temperature setpoint for the boiler. The VR34 also has a 24Volt fault signal output in the event of a boiler failure, this will remain active until the fault is cleared and the boiler reset.
The VR34 also has an LED to indicate operation.
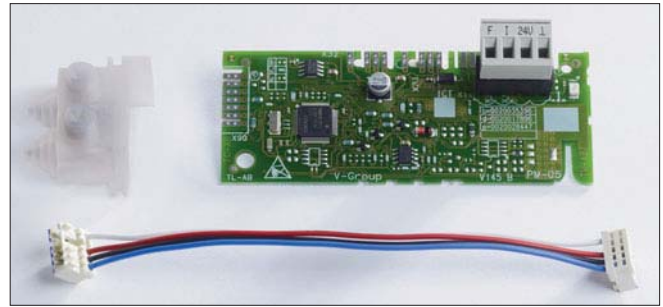
VR34 0-10 Volt coupler

Vaillant controls compatibility table

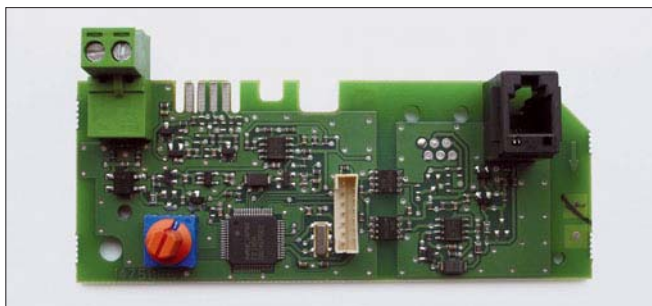| Boilers			Non - eBUS control	eBUS controls				
			Single boiler	Single boiler controls				
			Weather compensator	Weather compensator		Remote control	2 ch zone wiring centre	1 ch zone wiring centre
	Model		**VRC410**	**VRC400**	**VRC430 blue backlight**	**VR81**	**VR61**	**VR65**
		Number of boilers	CH time & temp DHW time & temp circulation pump time	CH time & temp DHW time & temp circulation pump time single heating zone only	CH time & temp DHW time & temp circulation pump time two heating zones with VR61 accessory	For use with VRC430 ony	For use with VRC430 only	For use with VRC430 or VRC400
Wall hung	ecoTEC	Single boiler installation	N/A	Yes	Yes	Yes	Yes (low loss header required)	Yes (low loss header required)
		2 + boiler installation	N/A	N/A	N/A	N/A	N/A	N/A
Floor standing	ecoCRAFT 3	Single boiler installation	N/A	Yes	Yes	Yes	Yes (low loss header required)	N/A
		2 + boiler installation	N/A	N/A	N/A	N/A	N/A	N/A
Floor standing	atmoCRAFT	Single boiler installation	Yes	N/A	N/A	N/A	N/A	N/A
		2 + boiler installation	N/A	N/A	N/A	N/A	N/A	N/A

VR32

The VR32 is a bus coupler for use with ecoTEC and ecoCRAFT 3 boilers. It is needed for cascade installations and allows the VRC630/2 controller to identify the boilers connected to it. The VR32 sits alongside the boiler main PCB and connects via an interface cable. A simple numbered rotary switch is used to set the address of the boiler. The VR32 can then be connected to the VRC630/2 controller using the eBUS terminals.

eBUS controls continued				Bus couplers		Accessories			
Multi boiler controls									
Cascade control	Zone expansion module	Remote zone controls							
VRC630	**VR60**	**VR80**	**VR90**	**VR30**	**VR32**	**VR34**	**1-in-5**	**2-in-6**	**VR40 (2-in-7)**
3 heating 1 hot water 1 circulating pump	VRC630 + 2 heating circuits	For each heating circuit	For each heating circuit	For each boiler	For each boiler	0-10Volt coupler	Expansion module for additional pump or remote fault indication	Expansion module for additional device connections or remote fault indication	Expansion module for additional device connections or remote fault indication
Connected via VR32	Connected via eBUS	Connected via eBUS	Connected via eBUS	N/A	Fitted in each boiler	Connect to boiler eBUS	N/A	N/A	Yes
Connected via VR32	Connected via eBUS	Connected via eBUS	Connected via eBUS	N/A	Fitted in each boiler	One in each boiler connect to eBUS	N/A	N/A	Yes
Connected via VR32	Connected via eBUS	Connected via eBUS	Connected via eBUS	N/A	Fitted in each boiler	Connect to boiler eBUS	N/A	N/A	Yes
Connected via VR32	Connected via eBUS	Connected via eBUS	Connected via eBUS	N/A	Fitted in each boiler	One in each boiler connect to eBUS	N/A	N/A	Yes
Connected via 7-8-9	Connected to VRC630 via eBUS	Connected to VRC630 via eBUS	Connected to VRC630 via eBUS	Fitted in each boiler	N/A	N/A	Yes	Yes	N/A
Connected via 7-8-9	Connected to VRC630 via eBUS	Connected to VRC630 via eBUS	Connected to VRC630 via eBUS	Fitted in each boiler	N/A	N/A	Yes	Yes	N/A

Low loss headers

Boiler	Low loss header	△t
ecoTEC 46	WH 40	20
ecoTEC 46 (X2)	WH 95	20
ecoTEC 46 (X3)	WH 95	20
ecoTEC 46 (X4)	WH 160	20
ecoTEC 65	WH 95	20
ecoTEC 65 (X2)	WH 95	20
ecoTEC 65 (X3)	WH 160	20
ecoTEC 65 (X3)	WH 160	20
ecoTEC 65 (x4)	WH280	20
ecoCRAFT 806	WH 95	20
ecoCRAFT 1206	WH 160	20
ecoCRAFT 1606	WH 160	20
ecoCRAFT 2006	WH 280	20
ecoCRAFT 2406	WH 280	20
ecoCRAFT 2806	WH 280	20
atmoCRAFT 654	WH 95	15
atmoCRAFT 754	WH 95	15
atmoCRAFT 854	WH 95	15
atmoCRAFT 1154	WH 95	15
atmoCRAFT 1304	WH 160	15
atmoCRAFT 1504	WH 160	15
atmoCRAFT 1654	WH 160	15

WH 95

The main purpose of the low loss header is to maintain correct flow of water through the boiler and allow a constant temperature supply of water to multiple heating circuits downstream of the low loss header connection. These heating circuits may have different temperature and flow rate requirements, (e.g. underfloor heating and radiator circuits). Cooler return water from the heating circuits is mixed with water from the boiler in the low loss header. An NTC (supplied) is used to monitor the temperature of water supplied by the boiler. It is recommended that a suitable strainer is fitted in the return flow between the low loss header and the heating circuits as a precaution to prevent system dirt from entering the boiler.

Low loss headers dimensions

Model	Article number	Connection sizes 1	Header width A	Header depth (not shown)	Total height C	Insulation dimensions	To boiler D	To heating circuit E	Height from floor F	Maximum flow rate m³/hr
WH 40	306720	1 1/4" BSP (f)	115	115	500	115/115	280	340	N/A	3.5
WH 95	306721	2" BSP (f)	155	155	750	155/155	470	540	N/A	8
WH 160	306726	DN65	520*	120	1350	220/220	900	900	300	12
WH 280	306725	DN80	600*	160	1390	260/260	930	930	300	21.5

All dimensions in mm * = distance between flanges
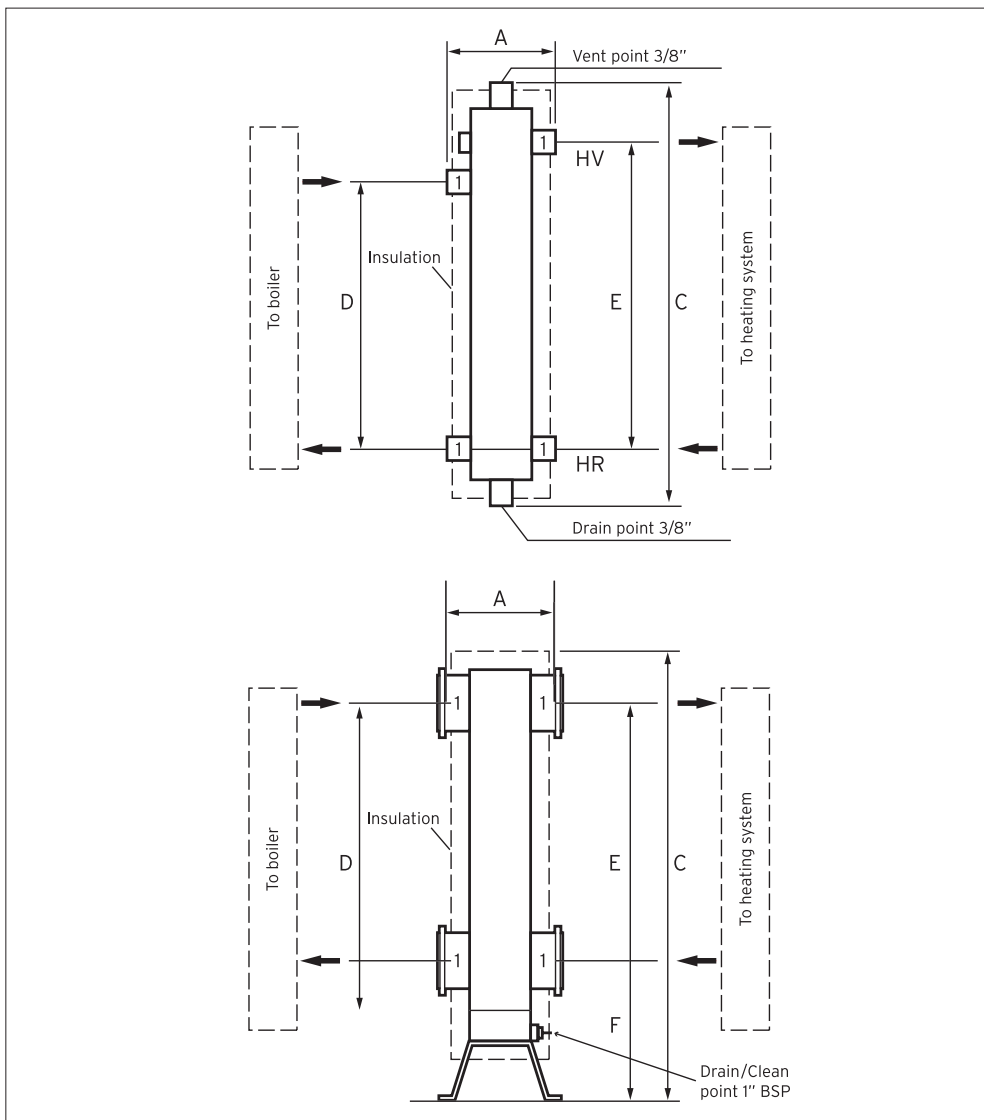
WH 95

WH 160

WH 280

Large headers available on application.

System accessories

ecoLEVEL condensate pump

Condensate neutraliser with pump

Vaillant have a range of condensate pumps to suit most applications up to 300kW. The ecoLEVEL condensate pump, ideally suited to single boiler applications is a small unit that can be fixed to the wall close to the boiler. It can connect directly to the ecoTEC or ecoCRAFT PCB and prevent the boiler from firing if the outlet is blocked or there is a fault with the condensate pump (e.g. blocked drain).

For applications where there is a larger volume of condensate to dispose of, or where disposal of condensate into waste is a problem the commercial neutralisation condensate pump should be used. Larger than the ecoLEVEL and floor mounted it is wired in line with the boiler 230V supply and like the ecoLEVEL will stop the boiler in the event of a blockage or failure.

Description	Article Number
ecoLEVEL condensate pump	0020030797
Condensate neutraliser with pump	301374
Condensate neutraliser without pump	009730
Refill neutralisation granules (5kg)	009741

atmoCRAFT thermal by-pass pump

Cold starts and low return temperatures can mean that condensation affects a cast iron boiler. To prevent corrosion, caused by condensation, a range of dedicated by-pass pumps and thermostat kits are available as a dedicated accessory.

The minimum return temperature of the boiler can be maintained at all times prolonging boiler life and performance.

Order no.	009732	009733	009734
Boiler size	VK 654	VK 105	VK 1304
	VK 754	VK 115	VK 1504
	VK 854		VK 1654

Speed Setting	1	2
VK 654	009732	
VK 754	009732	
VK 854		009732
VK 1054	009733	
VK 1154		009733
VK 1304		009734
VK 1504		009734
VK 1654		009734

ecoCRAFT modulating pumps

A range of dedicated modulating pumps are available to be installed with the boiler and have pre-configured electronics matched as close as possible to each boiler requiring minimal or no adjustment. The pumps are designed to modulate their water flow in relation to the boiler output therefore allowing the boiler to produce more condensation and therefore reduce running costs. The pump simply plugs into the boiler control box using the leads supplied.

Article number	Description
0020022253	Modulating pump ecoCRAFT 80 & 120kW
0020022254	Modulating pump ecoCRAFT 160, 200 & 1240kW
0020022255	Modulating pump ecoCRAFT 280kW

uniSTOR
unvented cylinders

uniSTOR is a range of six high grade stainless steel unvented cylinders from Vaillant. Finished with a stylish casing they are available in a range of sizes from 125 litres to 310 litres. uniSTOR can be used with proprietary system boilers. However when installed with ecoTEC plus system or open vent boilers, a total heating and hot water solution is provided.

uniSTOR features a high recovery heating coil and insulation which exceeds CHeSS Best Practice. All seams are laser welded and the cylinder shell is backed up by a 25 year guarantee.

- uniSTOR cylinders operate using a mains water pressure supply and do not require a feed from a cold water storage tank
- all necessary cold and hot water controls and a 2-port valve for control of domestic hot water are supplied
- all uniSTOR cylinders are backed by a full 2 year guarantee as well as a 25 year guarantee on the cylinder shell

uniSTOR stainless steel unvented cylinder		125	155	180	210	260	310
External case height	mm	969	1179	1339	1499	1789	2109
External case width	mm	598	598	598	598	598	598
External case depth	mm	554	554	554	554	554	554
Weight approx.	kg	28	30	33	39	44	49

Customer
support services

Vaillant sales and aftersales support team
We aim to provide the best service standards in the industry. Our nationwide service network provide an expert, highly responsive, commissioning and after sales service.

Vaillant's complete and comprehensive commissioning service helps ensure optimum boiler performance. All ecoCRAFT boilers carry a one year warranty for parts, but any ecoCRAFT commercial boiler which is commissioned by Vaillant benefits from a two year parts and labour warranty.

In addition, our dedicated helpline is on hand to offer help and technical support before, during and after purchase.

High quality training
Vaillant's detailed product training – available at our dedicated training centres nationwide – is unrivalled in the industry and provides delegates with practical, expert knowledge of our commercial heating range.

Contact details

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Training
Telephone   01634 292370
Fax   01634 292354
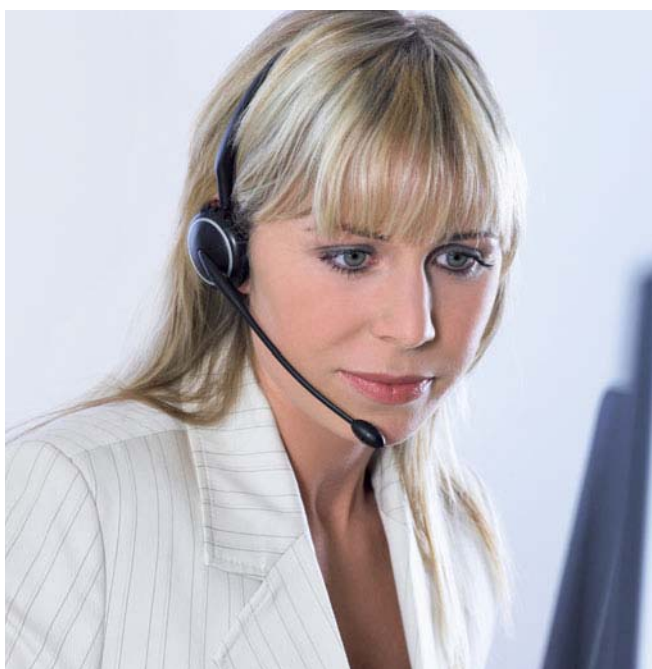E-mail   training@vaillant.co.uk

Commissioning, Technical and Service Support
Telephone   0870 8503072
Fax   01773 525946
E-mail   aftersales@vaillant.co.uk

Training support

As the industry leading training provider, Vaillant offers comprehensive training courses which can add value to your business

Vaillant invests heavily in improving the skills of everyone involved with installation, commissioning, servicing and repair – as the single most important contributor to long term reliability. All training to support Partnering agreements is free of charge.

Our dedicated training centres are strategically located around the country. Each training centre has a lecture room with up to the minute audio-visual technology. Our practical demonstration rooms are fitted with working appliances, which can be stripped down and examined in detail.

Each training centre has a dedicated trainer, qualified not only to deliver product training, but to conduct ACS accreditations and deliver the Energy Efficiency in Domestic Heating qualification.

Who are Vaillant training courses designed for?
- Corgi Registered Installers
- iphe Registered Installers
- SNIPEF Registered Installers
- Local Authorities and Housing Associations
- Service Organisations
- Architects and Specifiers
- Merchants and Spare Part Stockists
- Solar DHW installers
- Commercial boiler heating installers
- Air conditioning contractors

Some of our current training courses include:

High efficiency domestic boiler range
A one-day course covering our latest range of condensing boilers, including installation, operation, servicing and repair.

Commercial boiler range
A one-day course covering commercial installation, operation, servicing and repair.

Unvented DHW course
A one-day BPEC certified course covering unvented domestic hot water storage systems for Certificate of Competence, as defined by the Building Regulations G3.

Solar Appreciation course
A one-day course for heating professionals wanting to get a basic understanding of solar domestic heating systems.

BPEC Solar DHW course
A two-day course for heating professionals looking to gain solar heating BPEC certification.

Air Conditioning Appreciation course
A one-day course designed for installers who wish to expand into the air conditioning market.

For more information on any Vaillant training course please contact our Training Department on:
Telephone: 01634 292370
Fax: 01634 292354
Email: training@vaillant.co.uk