



Commercial Systems

■ Heating ■ Hot Water ■ Renewables



Why Vaillant commercial?	04
'The Vaillant Experience'	06
Our systems	08
ecoTEC	10
Cascade rigs	43
ecoCRAFT	44
atmoCRAFT	58
Renewables	64
Controls	66
System accessories	74
Cylinders	80
Customer service support	82



Why Vaillant commercial?

For over 135 years Vaillant has been leading the way in the development of domestic and commercial heating and hot water technology.

A family owned global company

As a renowned global family owned company, we have pioneered products that have revolutionised the heating industry. Today, our innovative solutions are still setting the standards in the heating market place. Whether it's our large output wall hung and floor standing condensing commercial boilers - with the ability to install into a cascade formation - or our commercial renewable solutions including solar thermal and heat pumps, capable of providing heating and hot water to large scale commercial applications. All are designed to push Vaillant to the forefront of technology.

Pioneering commercial heating and renewable products

Vaillant is not only looking forward in terms of its products. For just about as long as we've been creating appliances that transform the heating industry, we've also been focusing on developing better and more productive relationships with you - our customers.

That's because we know that the partnerships we establish with specifiers, consultants, engineers and installers are key to our continued future success - and the success of our partners' businesses.

Unwavering service

The commercial industry's most advanced heating solutions go hand in hand with the industry's most developed and forward thinking service solutions. At Vaillant there's an unwavering commitment to providing service excellence before, during and after the installation of the Vaillant appliance. In fact we look after the project from conception to solution and, through our service back up, afterwards as well.

Europe's leading heating technology manufacturer

These combined objectives - to deliver the best products and to provide the best service to you - are the twin driving forces that keep Vaillant out in front as Europe's market leading heating technology manufacturer.



'The Vaillant Experience'

'The Vaillant Experience' demonstrates that we strive to be the best in all we do and that Vaillant has always stood for premium quality. So, when it comes to customer training, you know you're getting the best the industry can offer.

Our training courses are designed for Gas Safe Registered Installers, low carbon and renewable technology installers, local authorities, housing associations, architects, specifiers, merchants and stockists. As the industry's leading training provider, we offer an all-encompassing range of courses on domestic boilers, cylinders, solar domestic hot water systems, air to air heat pumps, commercial boilers, certification in energy efficiency, combustion analyser assessment, ground source and air to water heat pumps, domestic controls, mechanical ventilation heat recovery and MCS Quality Management.

Training is provided in the main at six Vaillant Centres of Excellence. These spacious state of the art facilities offer a comfortable and superbly equipped training environment, with plenty of opportunities for hands-on experience and product familiarisation. These centres are also conveniently located around the country at Maidstone, Elland (near Leeds), Belper

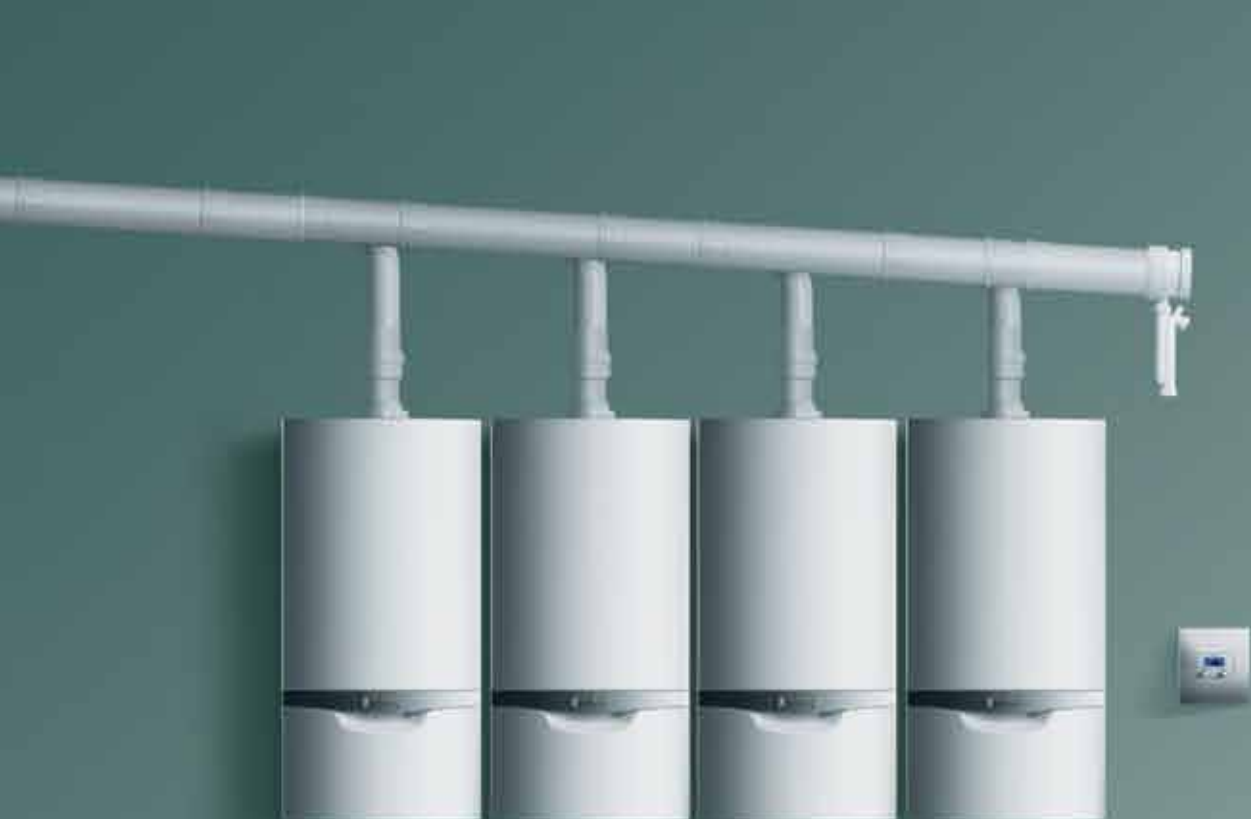
(near Derby), Cambridge, Bristol and Central Scotland, with a further centre opening soon in Ireland. So, rest assured there's a centre within easy reach, wherever you are.

As well as training, these centres offer our customers a unique opportunity to find out more about Vaillant's full range of services and any upcoming product developments. Giving you the skills, knowledge and understanding to help you take your business forward.

It's further testament to the fact that Vaillant isn't just giving the end user the products they want - we're also committed to providing our industry partners with the tools to achieve future success.

For more information or to visit one of our Centres of Excellence call **0845 601 8885** or email training@vaillant.co.uk





Our systems



The Vaillant name has long been associated with technological advances in the heating and hot water industry. Today, as well as focusing our energies on taking home heating comfort to a new level, we are applying this passion for innovation to the commercial arena.

The world is changing and, just as we recognise the importance of developing ever more sustainable heating solutions for the home, Vaillant is also harnessing its unrivalled expertise to deliver these same technological advances to the commercial heating environment.

For instance, we have developed a range of large output boilers that has the ability to cascade and has been designed specifically to meet the requirements of the commercial installation.

Furthermore, Vaillant is leading the way in commercial systems that utilise renewable energy sources.

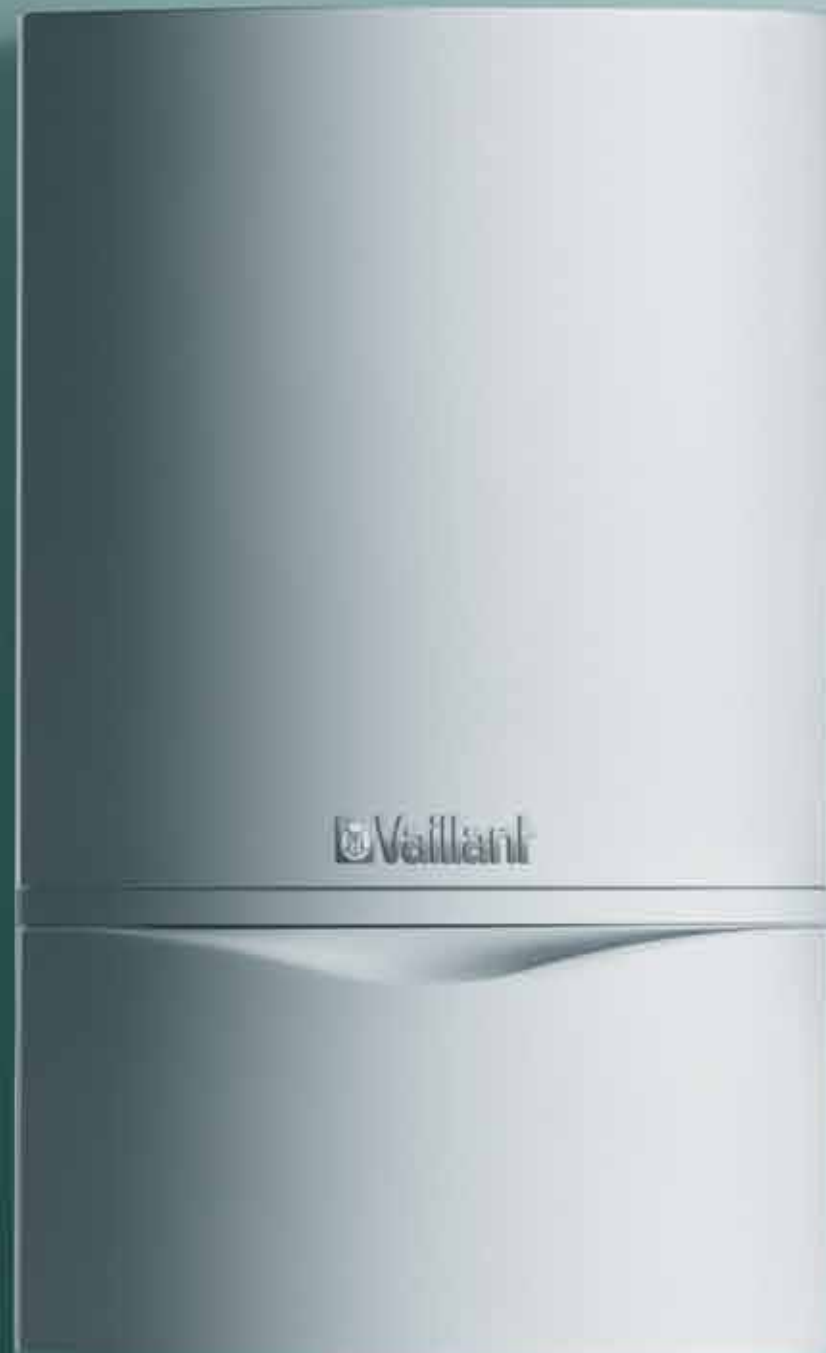
Alongside sustainability, Vaillant places a major emphasis on integration. So, not only are we developing class leading boilers, cylinders, controls, solar systems and other renewable products - we're also making sure that they all blend seamlessly together. A 'total system solution' that is ideal for a whole host of commercial specifications, whether the businesses are large or small.



ecoTEC

Wall hung condensing boiler range

ecoTEC 46 & 65



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. Lightweight for its 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 - 46.4kW
 - heat output range (heating 80/60°C) 12.3 - 44.1kW
- ecoTEC 65
 - heat output range (heating 50/30°C) 14.6 - 67.6kW
 - heat output range (heating 80/60°C) 13.7 - 63.7kW

High performance

- High efficiency SEDBUK 2005 band 'A' rating
- Fully modulating low NOx burner and fan (Class 5)
- Heating output up to 65kW
- Stainless steel heat exchanger

Easy installation

- Case dimensions:
 - ecoTEC 46 H800mm x W480mm x D450mm
 - ecoTEC 65 H800mm x W480mm x D472mm
- Connections:
 - 1 1/4" female BSP flow and return service valves
 - 1" female BSP gas service valve
 - Gas - 20mm with adapter for 1" (ecoTEC 46)
 - 25mm with adapter for 1" (ecoTEC 65)
 - 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
- 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 125mm flue
- Optional 125mm stainless façade kit available
- 3 bar PRV
- IP X 4D 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

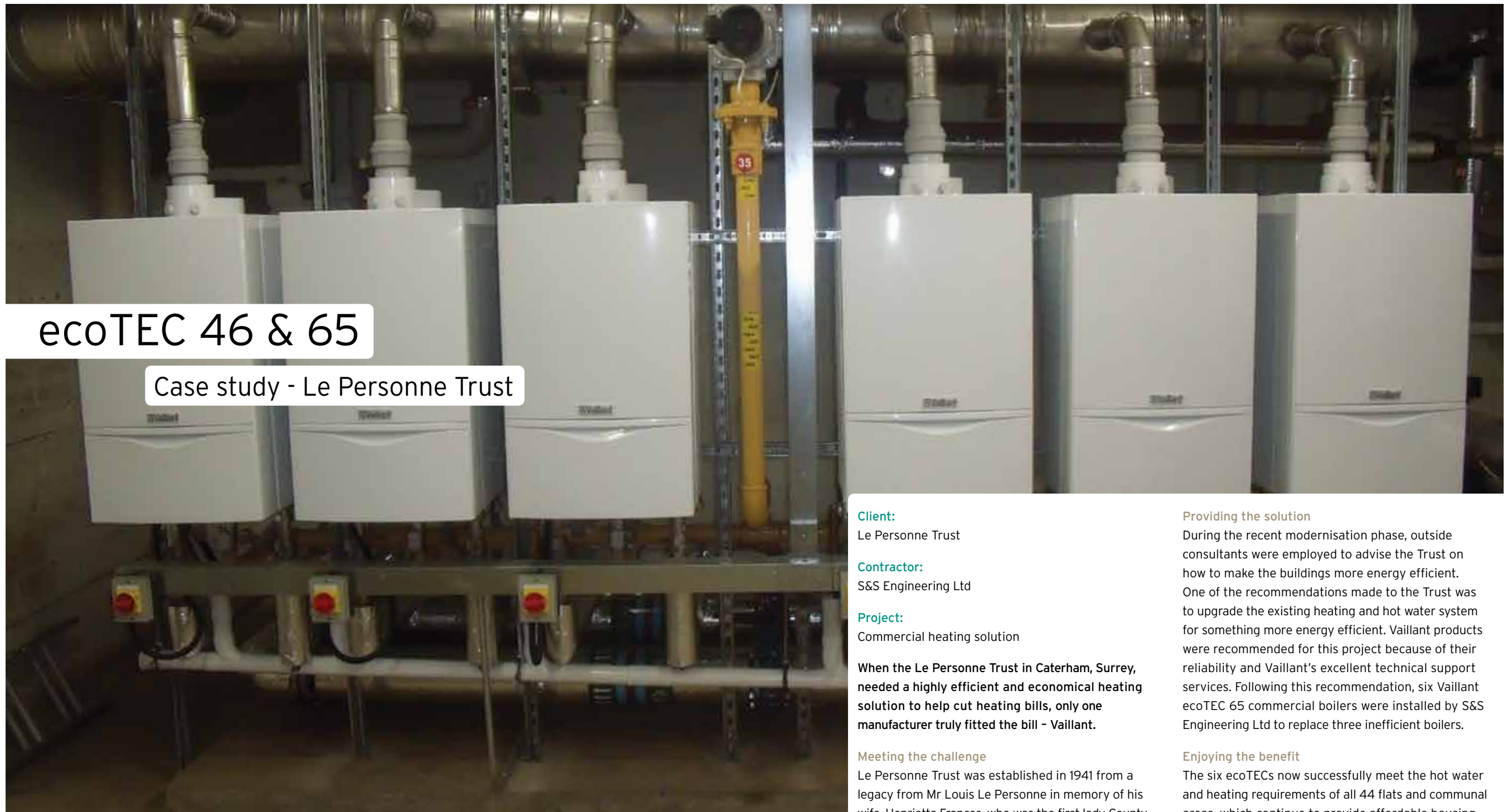
Quality and reliability

- Stainless steel heat exchanger
- Production to ISO 9001
- 2-year guarantee on boiler
- Commissioning service available

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



Authorised User No. 00581



ecoTEC 46 & 65

Case study - Le Personne Trust

Client:

Le Personne Trust

Contractor:

S&S Engineering Ltd

Project:

Commercial heating solution

When the Le Personne Trust in Caterham, Surrey, needed a highly efficient and economical heating solution to help cut heating bills, only one manufacturer truly fitted the bill - Vaillant.

Meeting the challenge

Le Personne Trust was established in 1941 from a legacy from Mr Louis Le Personne in memory of his wife, Henrietta Frances, who was the first lady County Councillor in Surrey. The Trust has been providing affordable housing for the elderly ladies of Caterham for 58 years. The original buildings, constructed in 1952, have since been extended in order to increase the accommodation available from 23 flats to 44.

Providing the solution

During the recent modernisation phase, outside consultants were employed to advise the Trust on how to make the buildings more energy efficient. One of the recommendations made to the Trust was to upgrade the existing heating and hot water system for something more energy efficient. Vaillant products were recommended for this project because of their reliability and Vaillant's excellent technical support services. Following this recommendation, six Vaillant ecoTEC 65 commercial boilers were installed by S&S Engineering Ltd to replace three inefficient boilers.

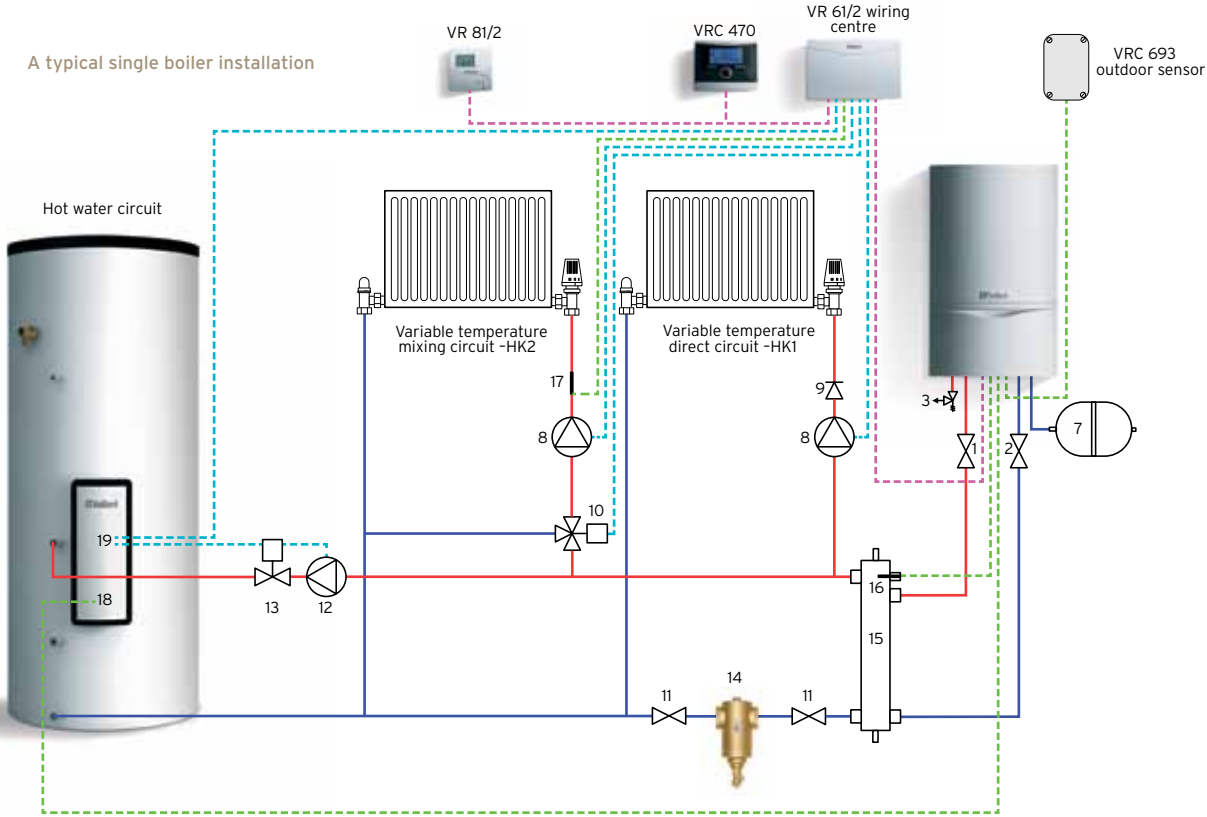
Enjoying the benefit

The six ecoTECs now successfully meet the hot water and heating requirements of all 44 flats and communal areas, which continue to provide affordable housing for elderly ladies.

Dave Yarwood, Maintenance Manager, Le Personne Trust, commented:

"Our residents feel the cold. Boilers here run 24 hours a day, 365 days a year, so it's vital they are as efficient as possible. We're really pleased with ecoTEC; our gas bills have noticeably reduced since installation."

System design



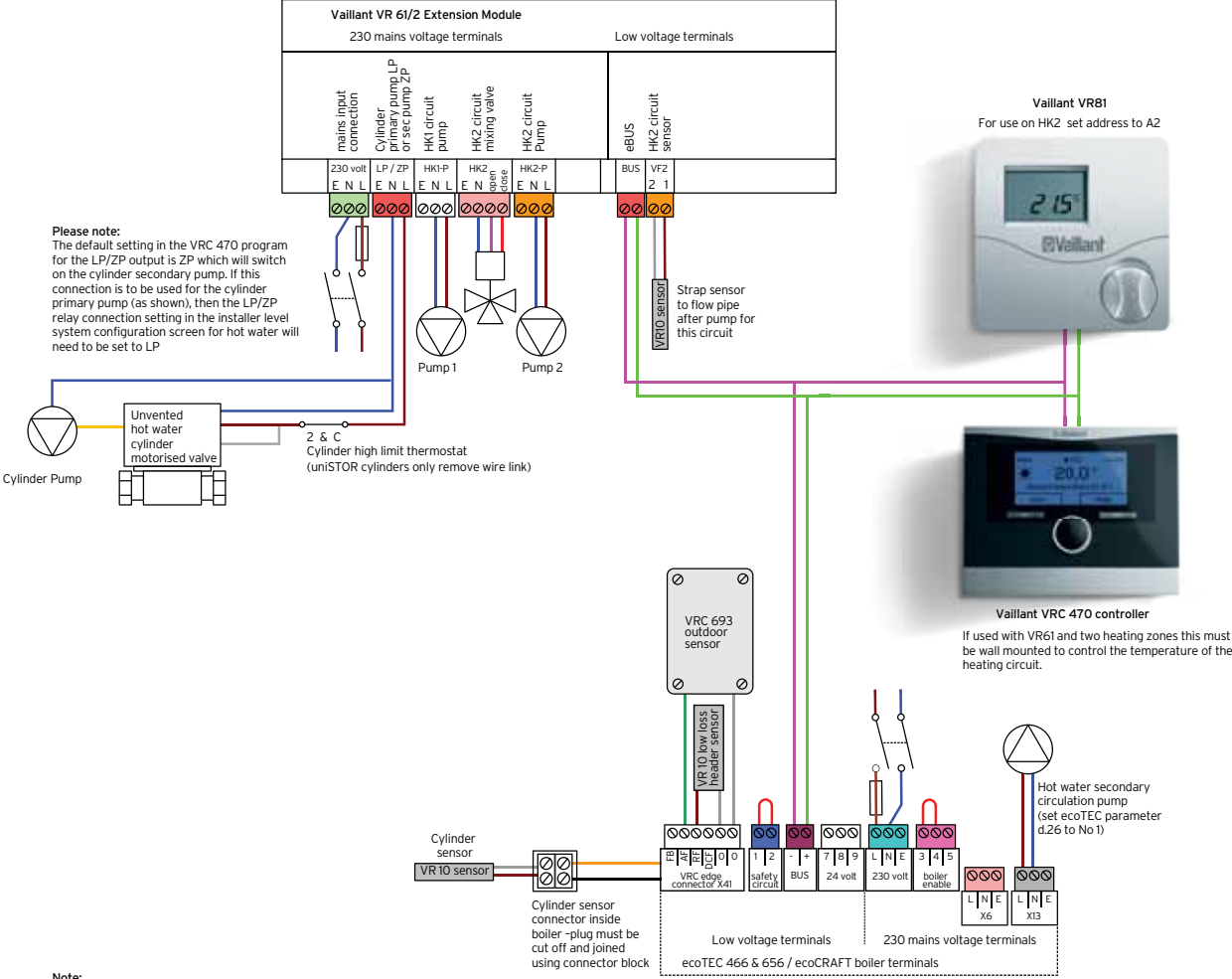
- Key**
- Boiler flow isolation valve (supplied only with ecoTEC)
 - Boiler return isolation valve (supplied only with ecoTEC)
 - Boiler safety valve (supplied only with ecoTEC)
 - Boiler shunt pump (supplied internally with ecoTEC 46 & 65, available as an accessory with ecoTEC 80, 100 & 120 and ecoCRAFT 80 - 280 ranges)
 - Single check valve required (supplied only with cascade rigs)
 - Primary pressurisation unit (available as an accessory)
 - Primary expansion vessel (available as an accessory)
 - Heating pumps
 - System check valve
 - Heating circuit mixing valve
 - Service valves (not supplied by Vaillant)
 - Cylinder primary pump
 - Cylinder motorised valve (supplied only with uniSTOR cylinder)
 - Dirt separator or strainer (available as an accessory)
 - Low loss header (available as an accessory)
 - Low loss header VR 10 sensor (supplied with VRC 630 controller)
 - Heating circuit VR 10 sensor (supplied with VRC 630 controller) or VR 692 clip on pipe sensor (available as an accessory)
 - Cylinder VR 10 sensor (supplied with VRC 630 controller)
 - Cylinder high limit thermostat (supplied only with uniSTOR cylinder)

Wiring Colours

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

- Note:**
- Vaillant strongly recommends the installation of a suitably sized dirt separator in the return pipe work to the header or system separation plate heat exchanger, particularly in the case of old systems.
 - The schematic drawings depicted in this brochure are a suggested layout of a typical system and should not be solely relied upon as a definitive design.

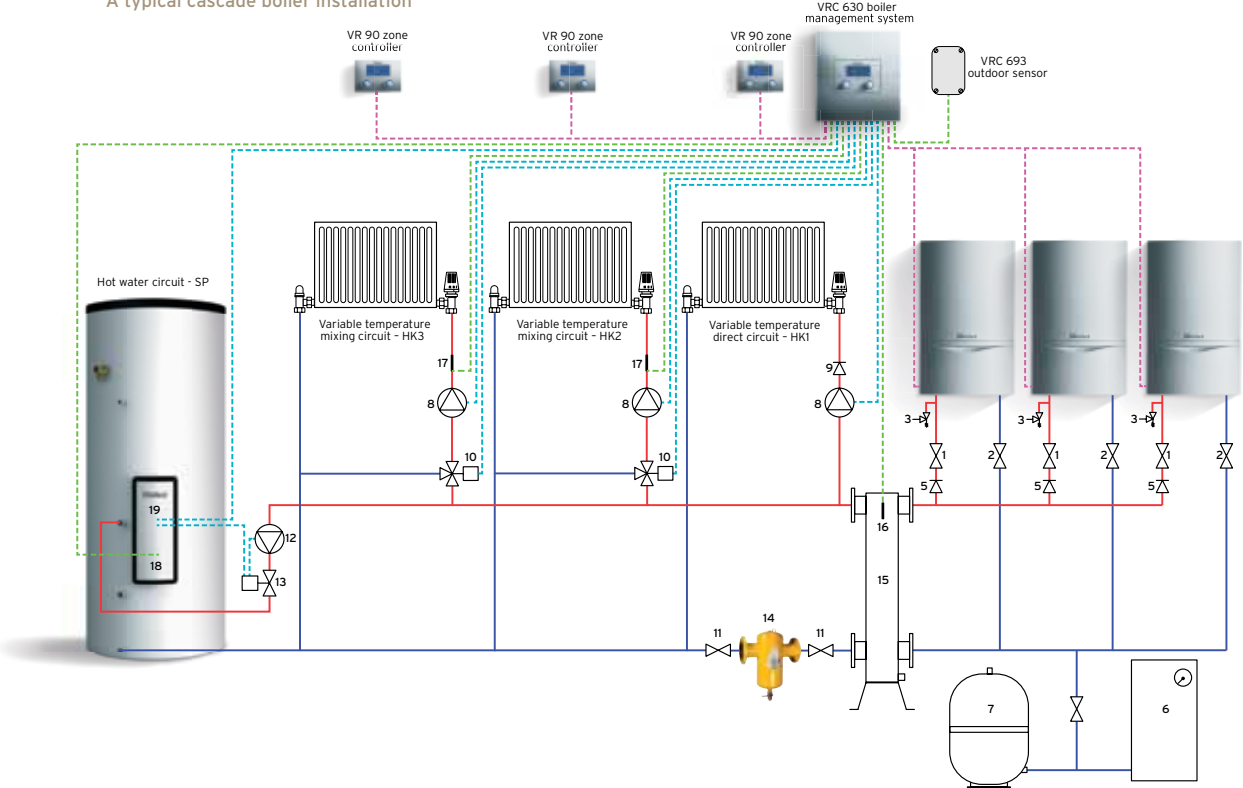
Note items are not supplied by Vaillant unless stated



- Note:**
- All electrical connections to the equipment must be in accordance with current IEE Wiring Regulations.
 - For drawing clarity, some earth wires have been omitted; these must be included on the installation.

System design

A typical cascade boiler installation



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 internally with ecoTEC 46 & 65, available as an accessory with ecoTEC 80, 100 & 120 and ecoCRAFT 80 - 280 ranges)
- 5. Single check valve required (supplied only with cascade rigs)
- 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. Service valves (not supplied by Vaillant)
- 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)

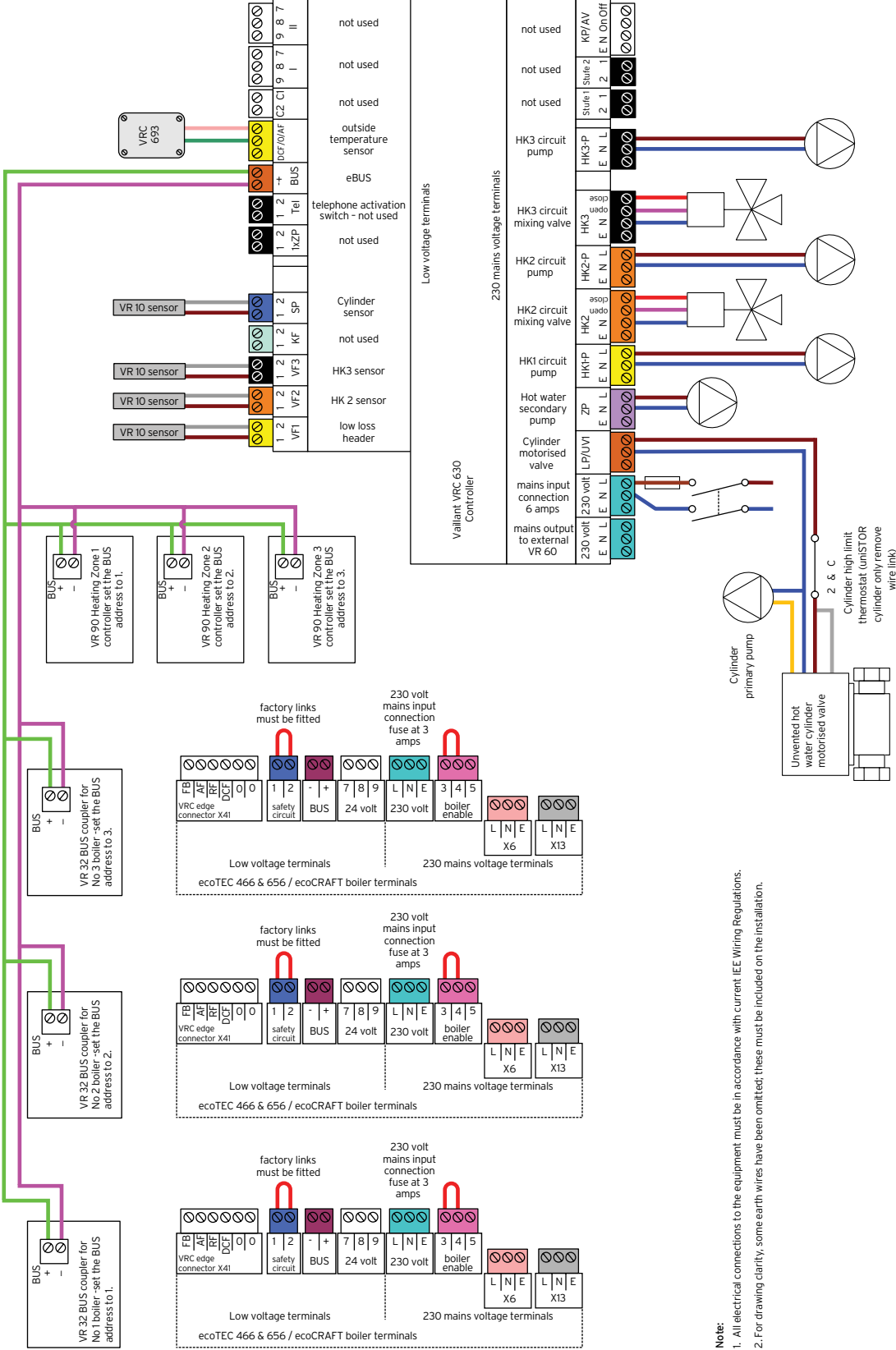
Wiring Colours

- purple - eBUS
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Note:

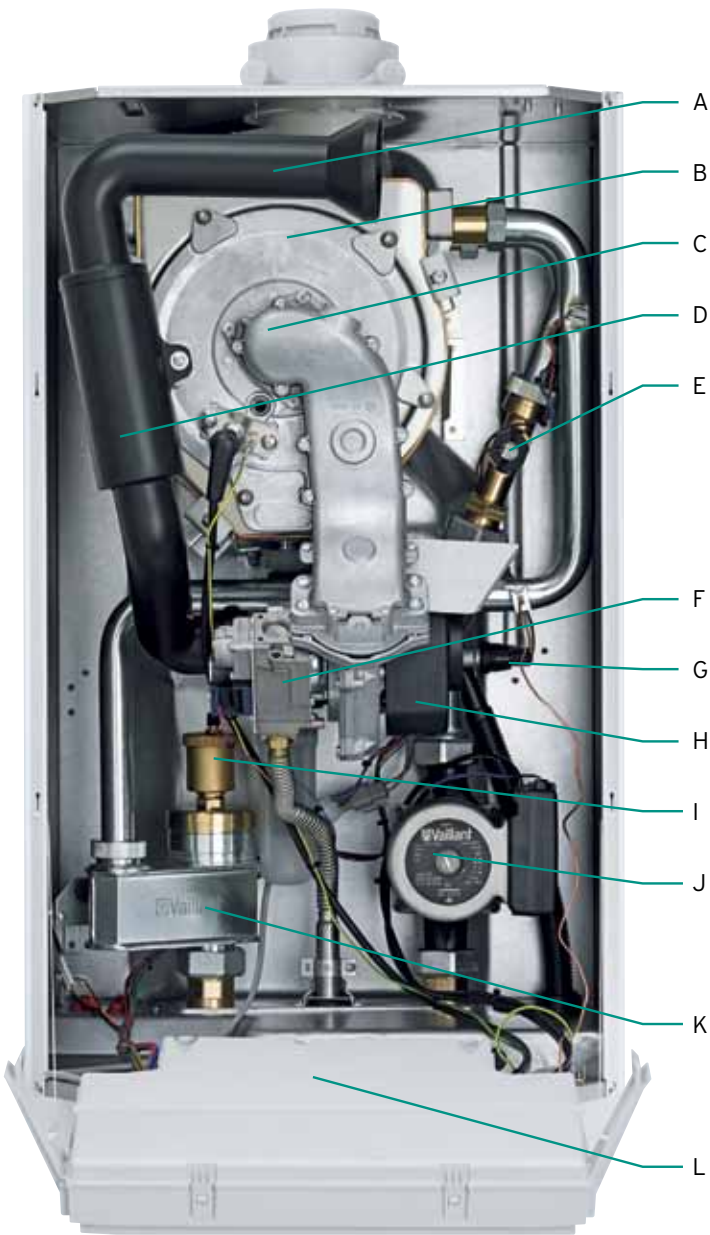
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- 2. The schematic drawings depicted in this brochure are a suggested layout of a typical system and should not be solely relied upon as a definitive design.

Note items are not supplied by Vaillant unless stated



Note:
1. All electrical connections to the equipment must be in accordance with current IEE Wiring Regulations.
2. For drawing clarity, some earth wires have been omitted; these must be included on the installation.

Key components



- Key**
- A Air intake
 - B Heat exchanger
 - C Burner
 - D Silencer
 - E Flow switch
 - F Gas valve
 - G Pressure switch
 - H Fan
 - I Automatic air vent
 - J Pump
 - K Air separator
 - L Electronics/PCB

Service valves
Flow and return isolation valve

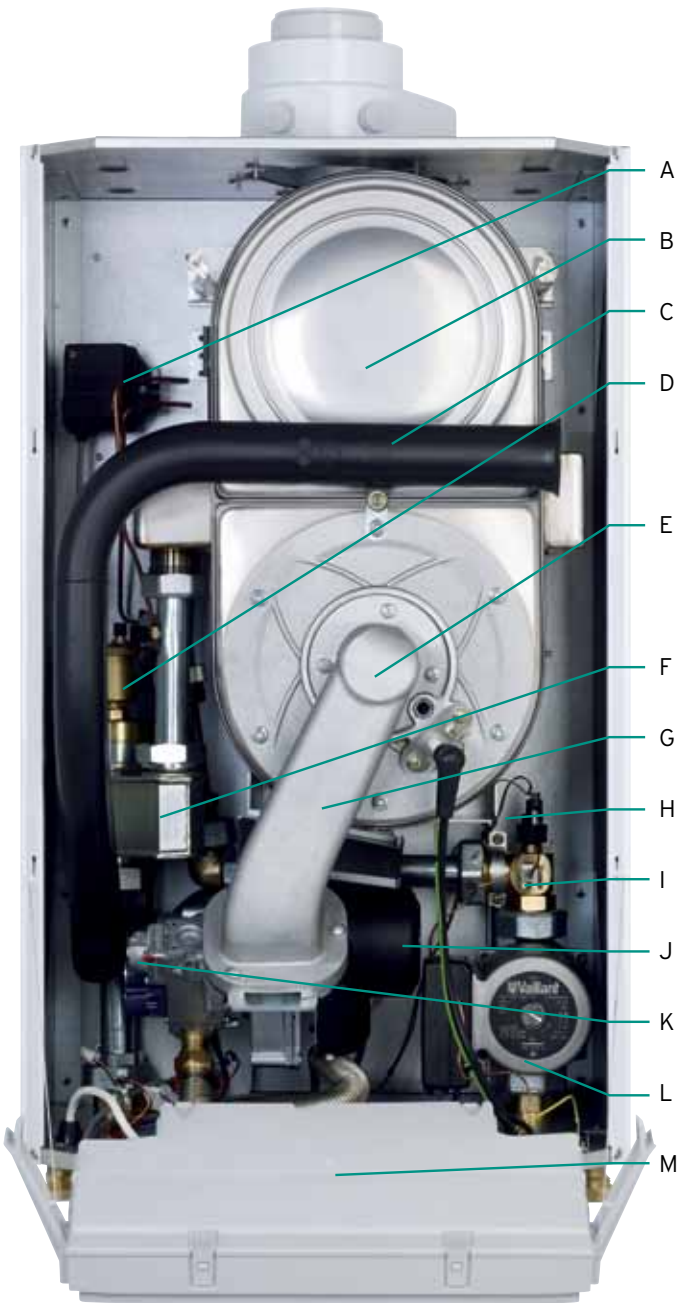


Gas isolation valve



All ecoTEC boilers are supplied with the above

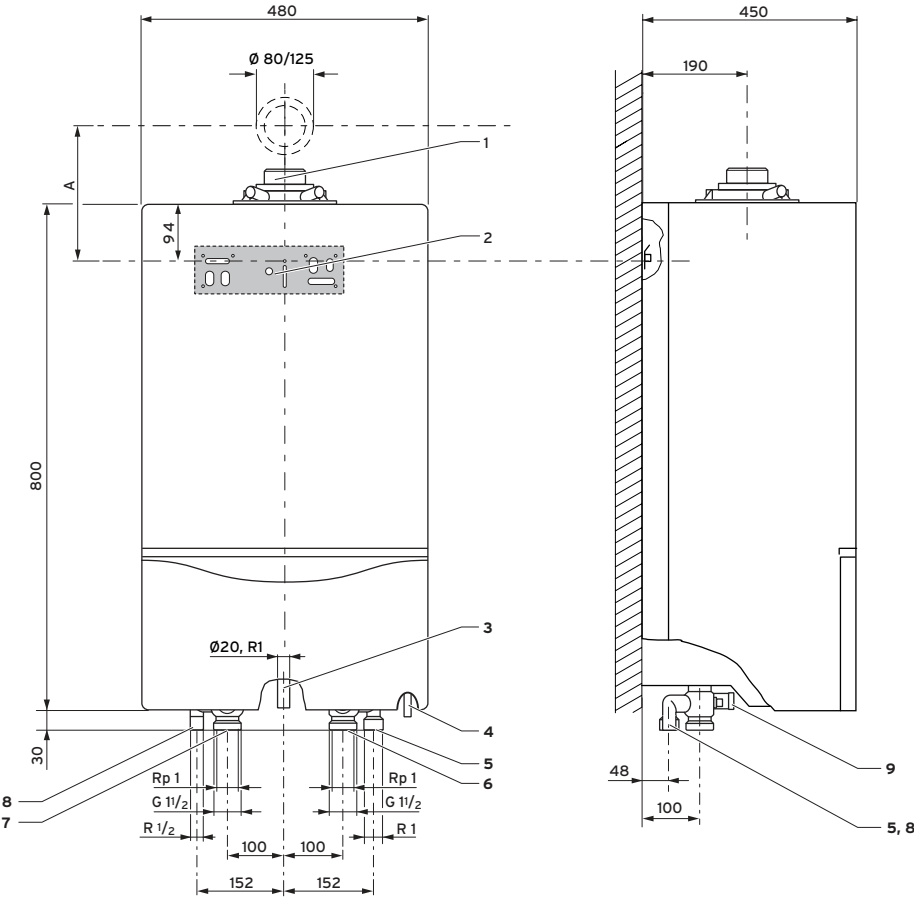
ecoTEC 46



- Key**
- A Pressure differential switch
 - B Heat exchanger
 - C Air intake
 - D Auto air vent
 - E Burner
 - F Air separator
 - G Mixing arm
 - H Pressure switch
 - I Flow switch
 - J Fan
 - K Gas valve
 - L Pump
 - M Electronic/PCB board

ecoTEC 65

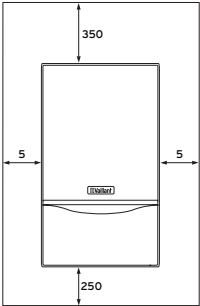
Connections and dimensions



Connection dimensions in mm

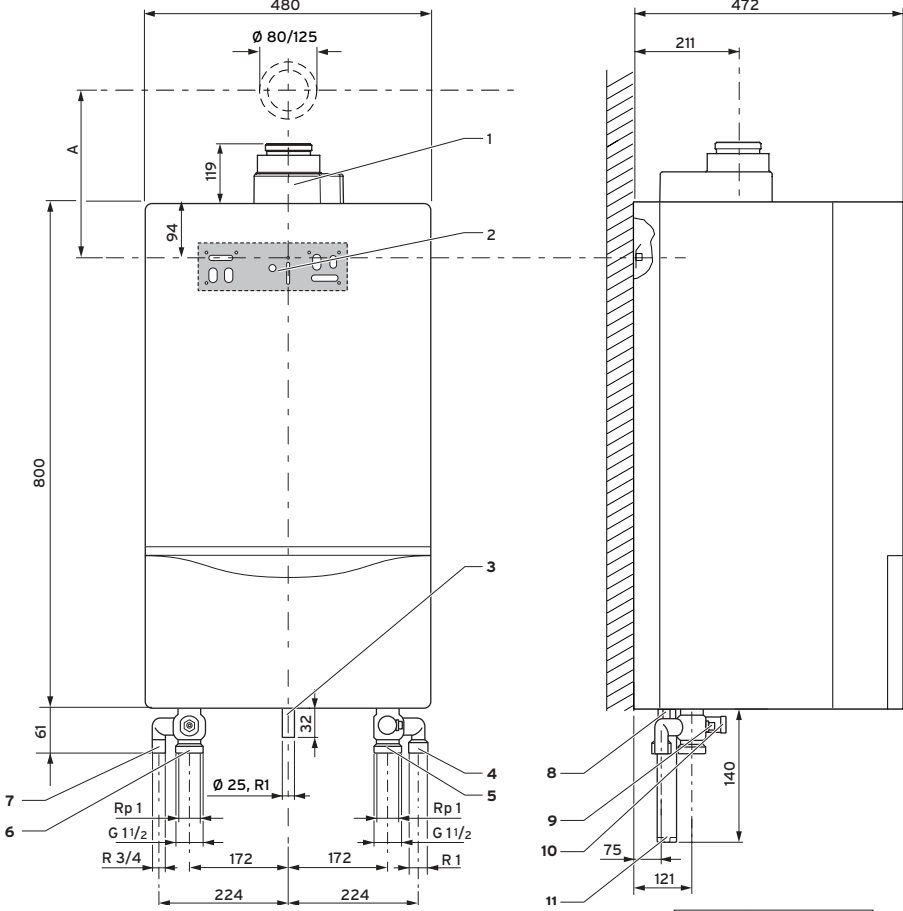
Key

- 1. Flue gas connection, 80/125mm diameter, dimension A (hanging bracket - centre of air/flue gas pipe) with 87° elbow: 253mm
- 2. Hanging bracket
- 3. Gas pipe, 20mm diameter, gas connection R1"
- 4. Connection for condensate drain pipework
- 5. Connection for expansion vessel
- 6. Connection for heating return
- 7. Connection for heating flow
- 8. Connection for expansion relief valve
- 9. Filling device (combined filling and emptying valve)



Required minimum gaps/assembly clearances
For the installation/assembly of the boiler as well as for carrying out future maintenance tasks, you need the minimum gaps and assembly clearances given above.

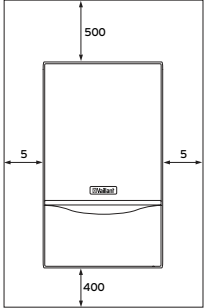
Connections and dimensions



Connection dimensions in mm

Key

- 1. Flue gas connection, 80/125mm diameter, dimension A (hanging bracket - centre of air/flue gas pipe) with 87° elbow: 297mm
- 2. Hanging bracket
- 3. Gas pipe, 25mm diameter, gas connection R1"
- 4. Connection provision - expansion vessel
- 5. Connection for heating return
- 6. Connection for heating flow
- 7. Connection provision - expansion relief valve
- 8. Connection for condensate drain pipework
- 9. Flow line drainage opening
- 10. Connection provision - filling (combined filling and emptying valve)
- 11. Siphon cartridge



Required minimum gaps/assembly clearances
For the installation/assembly of the boiler as well as for carrying out future maintenance tasks, you need the minimum gaps and assembly clearances given above.

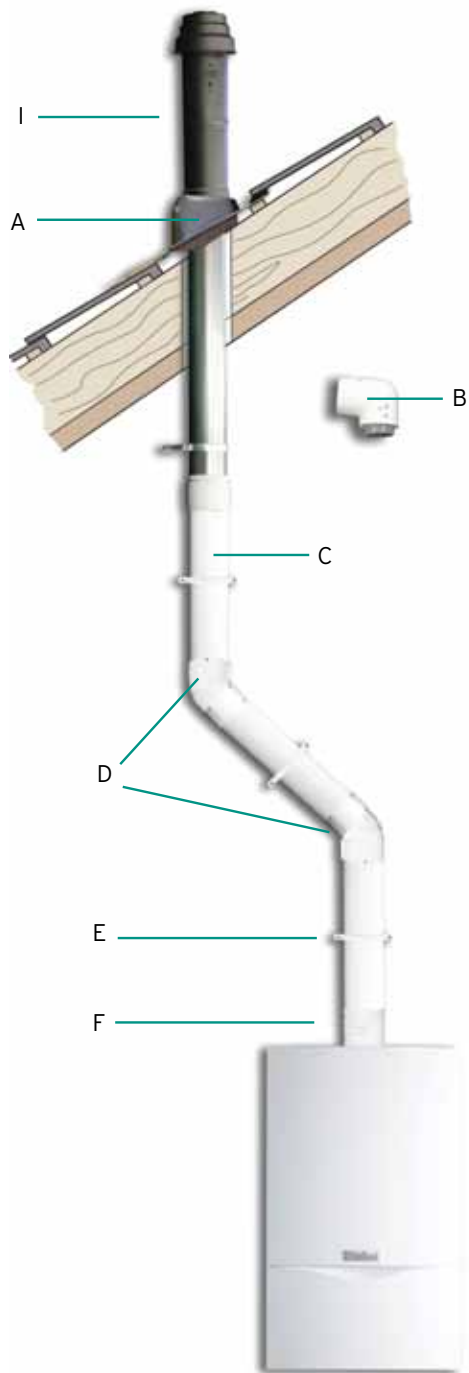


ecoTEC 46 & 65

Technical specifications

ecoTEC		46	65
Article number		0010004139	0010001440
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
SEDBUK 2005 rating	A	A	A
SEDBUK 2009 annual efficiency	%	89.1	88.7
Part L2 seasonal efficiency (natural gas)	%	95.8	95.2
Part L2 seasonal efficiency (LPG)	%	98.0	N/A
Net efficiency @ 100% load	%	98.4	97.4
Net efficiency @ 30% load	%	108.3	107.6
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)		1¼" female BSP	1¼" female BSP
Gas isolation valve size		1" female BSP	1" female BSP
Pressure safety valve outlet		¾" female BSP	1" female BSP
Condensate drain	mm	19	19
Flue connection	mm	80/125	80/125

Flue accessories



	ecoTEC	
	46	65
Max. permissible length of concentric flue	21.0m without elbow	18.0m without elbow
	Maximum length of flue is reduced by 2.5m for each additional 87° elbow	
	Maximum length of flue is reduced by 1.0m for each additional 45° elbow	

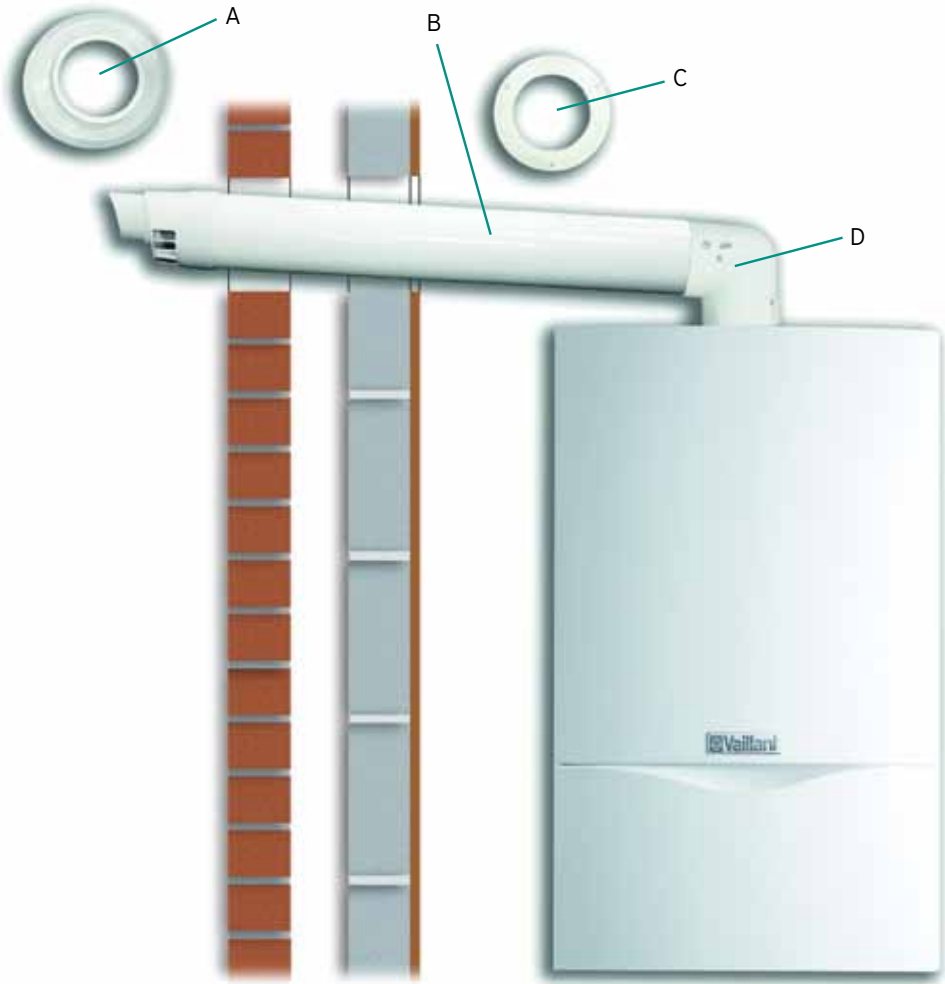


- Key**
- A Adjustable roof tile for pitched roofs (009076)
 - B 87° elbow (303210)
 - C Flue extension pieces:
470mm extension (303202)
970mm extension (303203)
1970mm extension (303205)
 - D 45° elbow (2 of) (303211)
 - E Flue support clips - pack of 5 (303616)
 - F Sliding sleeve (303215)
 - G Flat roof penetration collar (009056)
 - H Vertical flue duct & terminal (303200)
 - I Lead slate penetration seal for pitched roofs (303980)

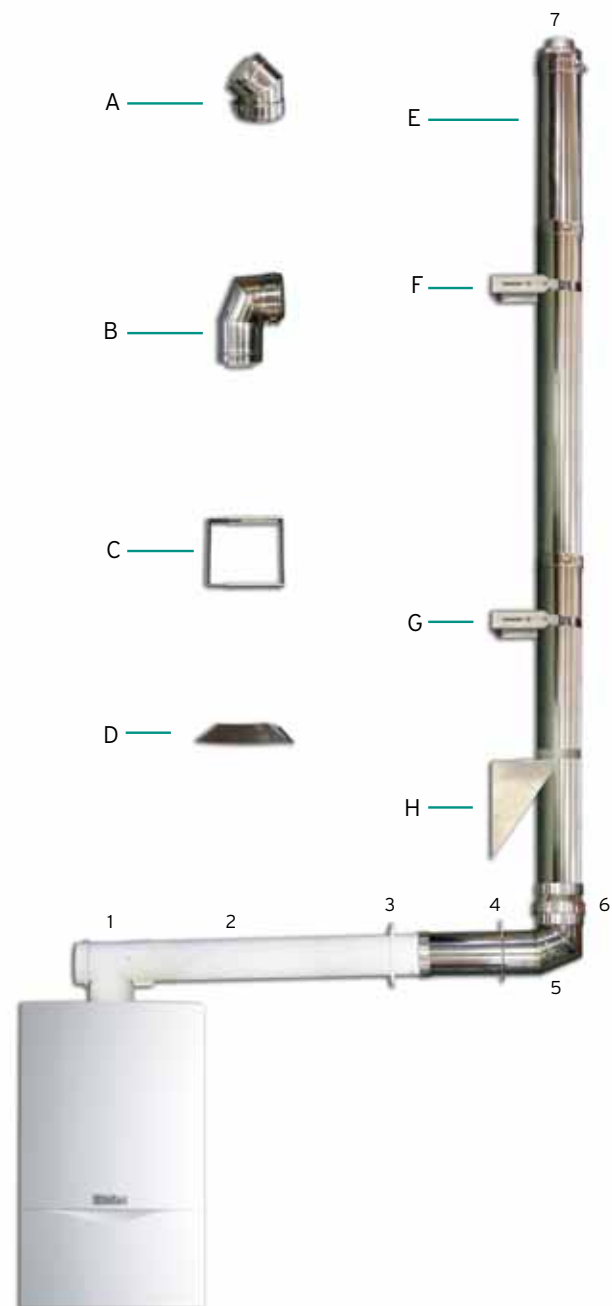
80/125mm concentric horizontal flue

Key
A - D Horizontal flue terminal (303209)

	ecoTEC	
	46	65
Max. permissible length of concentric flue	18.0m plus 1 elbow, 87°	15.0m plus 1 elbow, 87°
	Maximum length of flue is reduced by 2.5m for each additional 87° elbow	
	Maximum length of flue is reduced by 1.0m for each additional 45° elbow	



80/125mm concentric vertical flue



80/125mm concentric stainless steel façade flue

	ecoTEC	
	VU GB 466/4-5	VU GB 656/4-5
Max. permissible length of concentric flue gas pipe	22.0m plus 3 elbows 87° and support elbow	22.0m plus 3 elbows 87° and support elbow
	Air intake piece positioned no further than 4m from the connection with the boiler	

- Key**
- A 45° elbow (pair of) (0020042757)
 - B 87° elbow (0020042756)
 - C Fixing bracket extension (0020042752)
 - D Rain collar for vertical roof penetrations (0020042760)
 - E Flue extension pieces available in:
500mm extension (0020042753)
1m extension (0020042754)
500mm cutable extension (0020042755)
 - F Fixing bracket (0020042751)
 - G Fixing bracket (0020042751)
 - H Adjustable wall support for heights in excess of 4m (0020042749)

- Façade basic connection set (0020042748) contains items:
- 1 - T-piece elbow
 - 2 - Transition piece
 - 3 - Inner wall rosette
 - 4 - Outer wall rosette
 - 5 - Wall penetration elbow
 - 6 - Air intake piece
 - 7 - Bird cage terminal

ecoTEC 46 & 65

Cascade flueing



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 valve accessory (303960). Please refer to the flue installation manual (0020046373) for further help.

The non-return valve is not necessary if the chimney is designed to EN 13384-2 and the natural draught is greater than the pressure losses.



80mm flue non-return valve

Note

For non-standard flueing systems (e.g. chimneys with flexible liners and cascade flue system) advice from specialist flue companies must be sought. All flue installations must comply with the current Gas Safety (Installation and Use) regulations as well as current editions of BS5440-1, BS6644 and where necessary for installations over 150kW The Clean Air Act. Additionally any flue material must be suitable for the use and CE marked or comply with the current edition of BS715, also the flue system must be sized in accordance with EN13384-2 (chimneys - thermal and fluid dynamics calculation methods - Part 2: Chimneys serving more than one heating appliance).

ecoTEC 80, 100 & 120

Higher output

Vaillant is pushing back the technological boundaries to provide commercial wall hung boiler solutions that are bigger and better than ever before. Incorporating all the same high performance and efficiency features as its smaller domestic counterparts, the ecoTEC offers a superb output of 80kW, 100kW and 120kW with the ability to cascade up to 960kW. A wall-to-wall solution for every commercial specification.

Three models

- ecoTEC 80
 - heat output range (heating 50/30°C) 16.5 - 82.3kW
 - heat output range (heating 80/60°C) 14.9 - 74.7kW
- ecoTEC 100
 - heat output range (heating 50/30°C) 20.7 - 102.8kW
 - heat output range (heating 80/60°C) 18.8 - 93.3kW
- ecoTEC 120
 - heat output range (heating 50/30°C) 24.7 - 123.4kW
 - heat output range (heating 80/60°C) 22.4 - 112kW

High performance

- Exceeds Part L2 seasonal efficiency
- Fully modulating low NOx burner and fan (class 5) <40mg/kWh
- Single boiler heating output up to 120kW
- Stainless steel heat exchanger
- Modulation range of 1:5
- Intelligent fault system

Easy installation

- Case dimensions H960mm x W480mm x D602mm
- Connections:
 - 1 1/4" female BSP flow and return service valves
 - 1" female BSP gas service valve
 - Pressure safety valve outlet - 1" female BSP
 - Condensate - 19mm
 - Combined filling/emptying valve on return pipe
 - All major components built-in:
 - Siphonic condensate discharge
 - Energy saving 2-stage frost protection
- 0 - 10v compatible for BEMS applications (via VR 34 accessory)
- 8m head shunt pump (available as an accessory)
- Pressure sensor to monitor system pressure via diagnostics
- Flow sensor to monitor water flow through boiler

- Auto air vent
- Push-fit flue system
- Full range of intelligent eBUS controls including weather compensators and multiple boiler management controls available.

Flexible siting

- Flue lengths up to 22m concentric horizontal or 24m concentric vertical with 110/160mm flue - for further information, see flues and accessories
- Optional 160mm stainless façade kit available
- 6 bar PRV
- IP X 4D electrical safety rating
- No compartment ventilation needed*

Easy service and repair

- Built-in plain text comprehensive boiler status/ diagnostic display system
- Blue backlit display for easy reading
- Easy access to all components from the front
- Removable side panels for easy installation and servicing
- Single electronic circuit board
- Flue gas analysis point
- Intelligent fault system

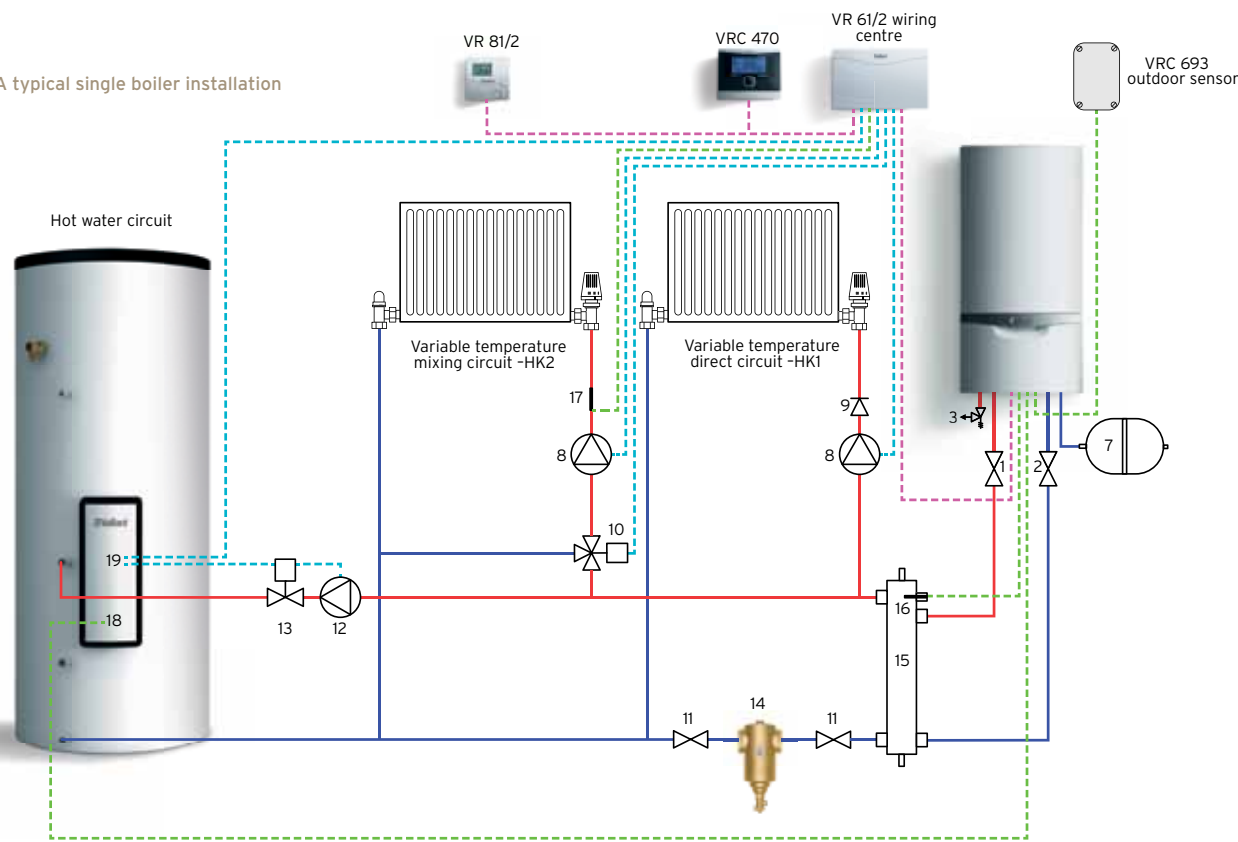
Quality and reliability

- Stainless steel heat exchanger
- Production to ISO 9001
- 5-year guarantee on boiler (subject to conditions)
- Commissioning service available

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

System design

A typical single boiler installation



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 internally with ecoTEC 46 & 65, available as an accessory with ecoTEC 80,100 & 120 and ecoCRAFT 80 - 280 ranges)
- 5. Single check valve required (supplied only with cascade rigs)
- 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. Service valves (not supplied by Vaillant)
- 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)

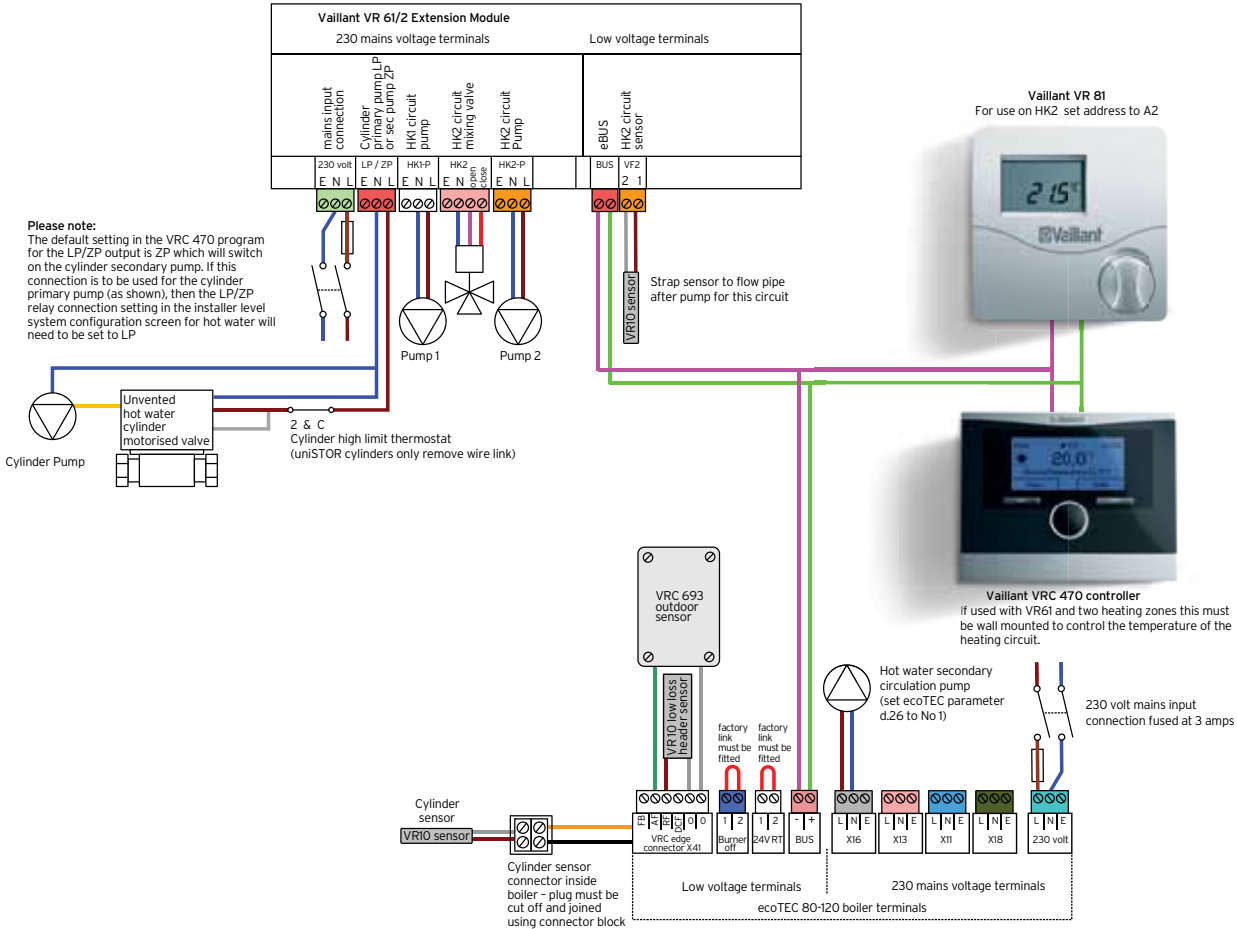
Wiring Colours

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

Note:

- 1. Vaillant strongly recommends the installation of a suitably sized dirt separator in the return pipe work to the header or system separation plate heat exchanger, particularly in the case of old systems.
- 2. The schematic drawings depicted in this brochure are a suggested layout of a typical system and should not be solely relied upon as a definitive design.

Note items are not supplied by Vaillant unless stated

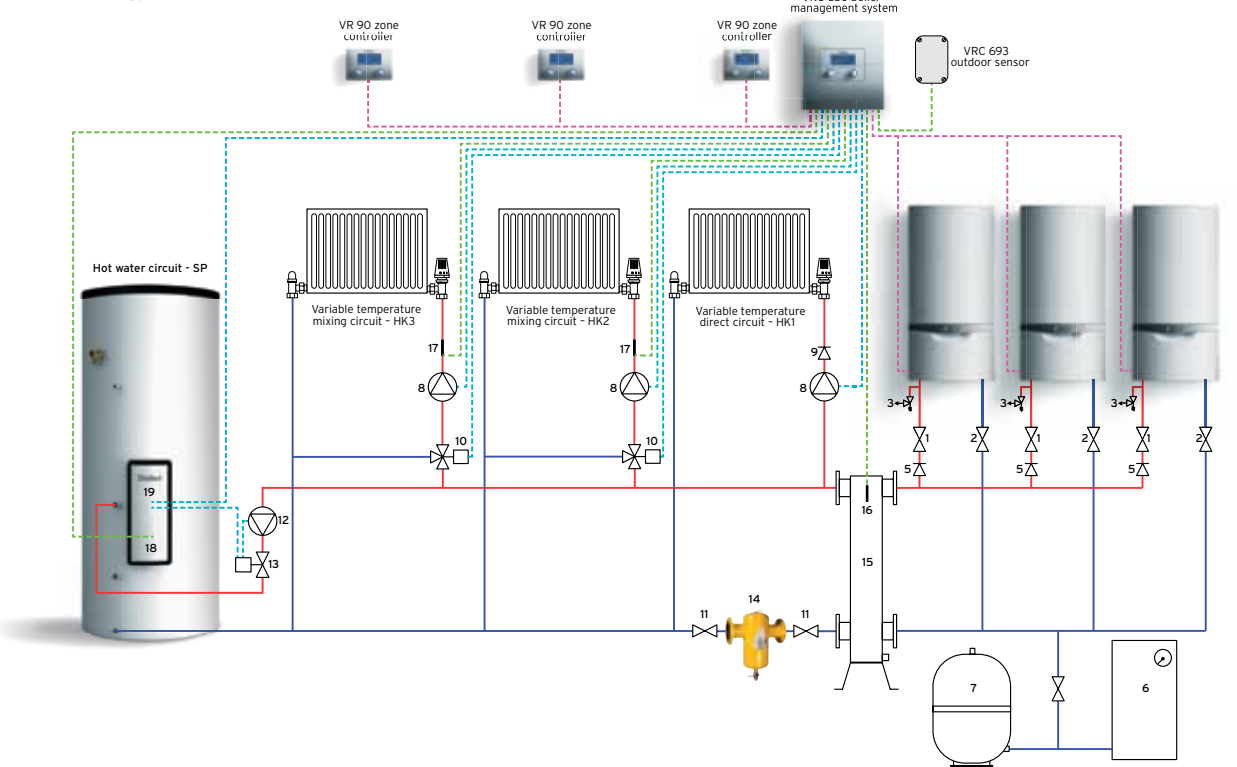


Note:

- 1. All electrical connections to the equipment must be in accordance with current IEE Wiring Regulations.
- 2. For drawing clarity, some earth wires have been omitted; these must be included on the installation.

System design

A typical cascade boiler installation



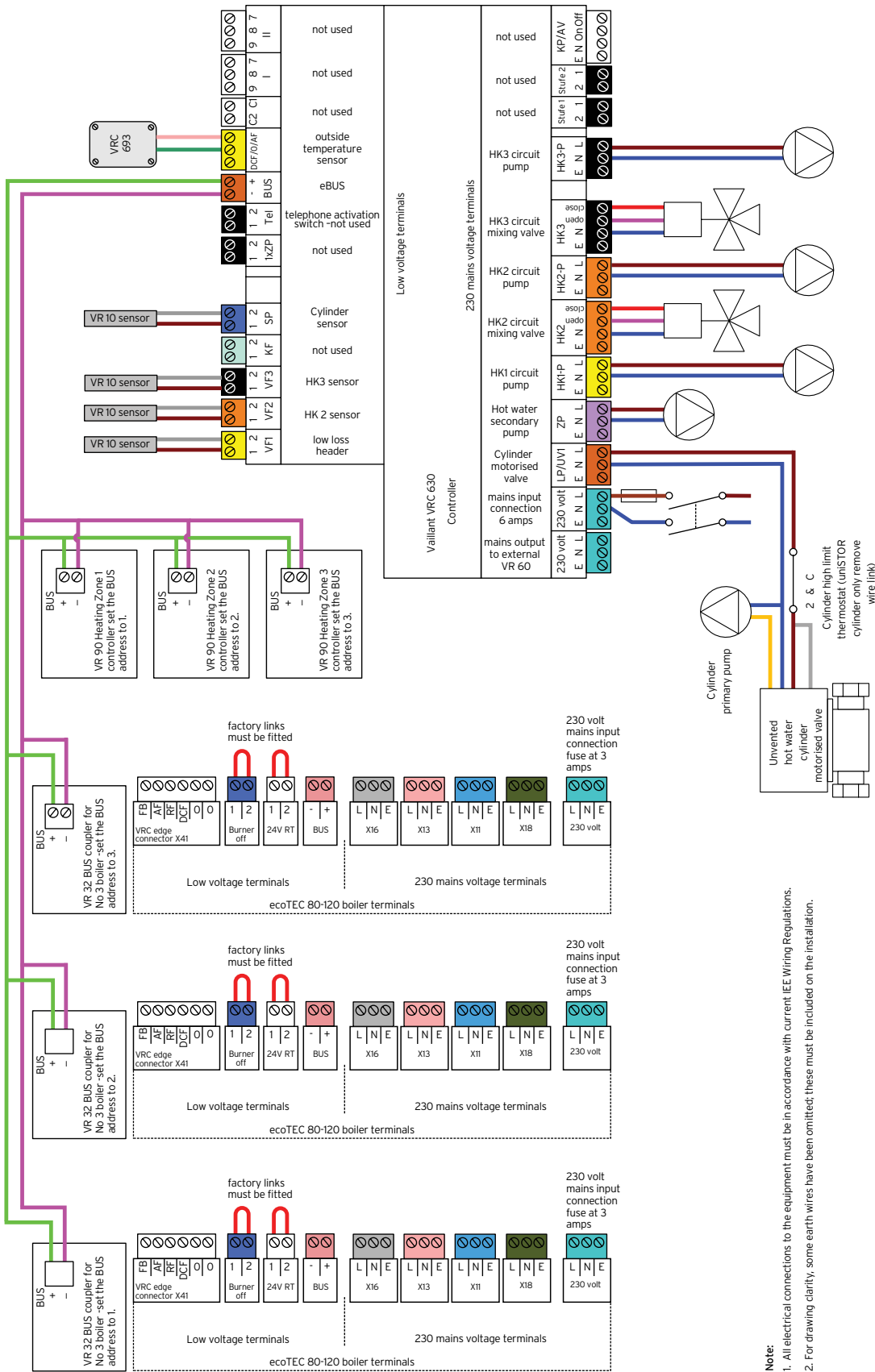
- Key**
- Boiler flow isolation valve (supplied only with ecoTEC)
 - Boiler return isolation valve (supplied only with ecoTEC)
 - Boiler safety valve (supplied only with ecoTEC)
 - Boiler shunt pump (supplied internally with ecoTEC 46 & 65, available as an accessory with ecoTEC 80, 100 & 120 and ecoCRAFT 80 - 280 ranges)
 - Single check valve required (supplied only with cascade rigs)
 - Primary pressurisation unit (available as an accessory)
 - Primary expansion vessel (available as an accessory)
 - Heating pumps
 - System check valve
 - Heating circuit mixing valve
 - Service valves (not supplied by Vaillant)
 - Cylinder primary pump
 - Cylinder motorised valve (supplied only with uniSTOR cylinder)
 - Dirt separator or strainer (available as an accessory)
 - Low loss header (available as an accessory)
 - Low loss header VR 10 sensor (supplied with VRC 630 controller)
 - Heating circuit VR 10 sensor (supplied with VRC 630 controller)
 - or VR 692 clip on pipe sensor (available as an accessory)
 - Cylinder VR 10 sensor (supplied with VRC 630 controller)
 - Cylinder high limit thermostat (supplied only with uniSTOR cylinder)

Wiring Colours

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

- Note:**
- Vaillant strongly recommends the installation of a suitably sized dirt separator in the return pipe work to the header or system separation plate heat exchanger, particularly in the case of old systems.
 - The schematic drawings depicted in this brochure are a suggested layout of a typical system and should not be solely relied upon as a definitive design.

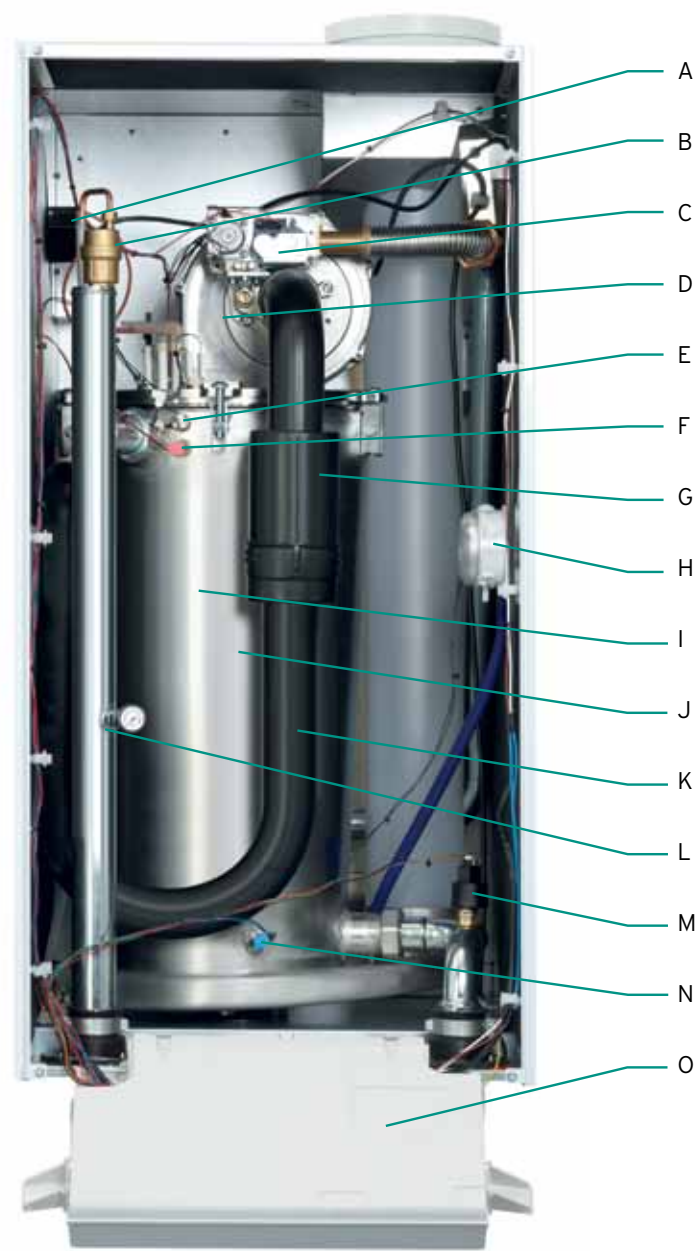
Note items are not supplied by Vaillant unless stated



Note:

- All electrical connections to the equipment must be in accordance with current IEE Wiring Regulations.
- For drawing clarity, some earth wires have been omitted; these must be included on the installation.

Key components



ecoTEC 80

- Key**
- A Ignition transformer
 - B Automatic air vent
 - C Gas valve
 - D Fan
 - E Flow STL
 - F Flow NTC
 - G Silencer
 - H Flue gas pressure switch
 - I Heat exchanger
 - J Burner (inside heat exchanger)
 - K Air intake
 - L Pressure gauge
 - M Water pressure sensor
 - N Return NTC
 - O Electronics/PCB

Service valves and pump group
Flow and return isolation valve

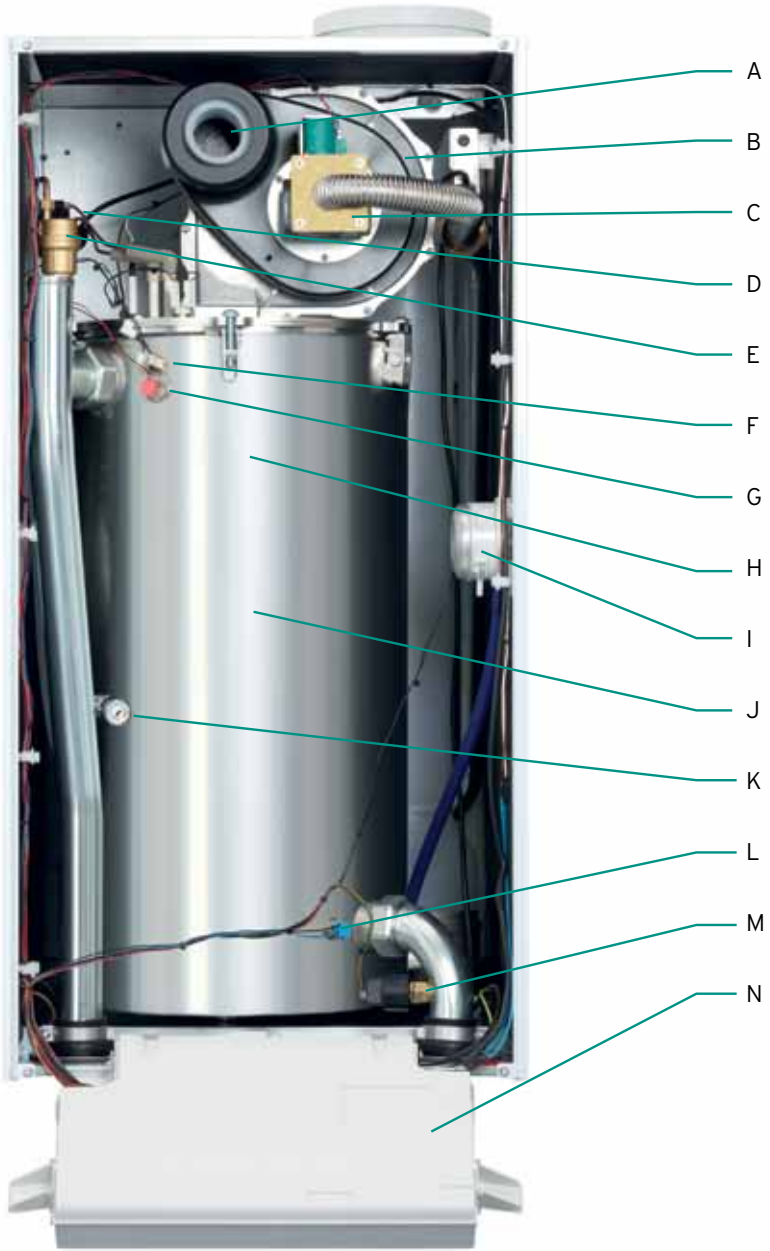


All ecoTEC 80, 100 & 120 boilers are supplied with the above

Pump group
(includes pump and insulation)



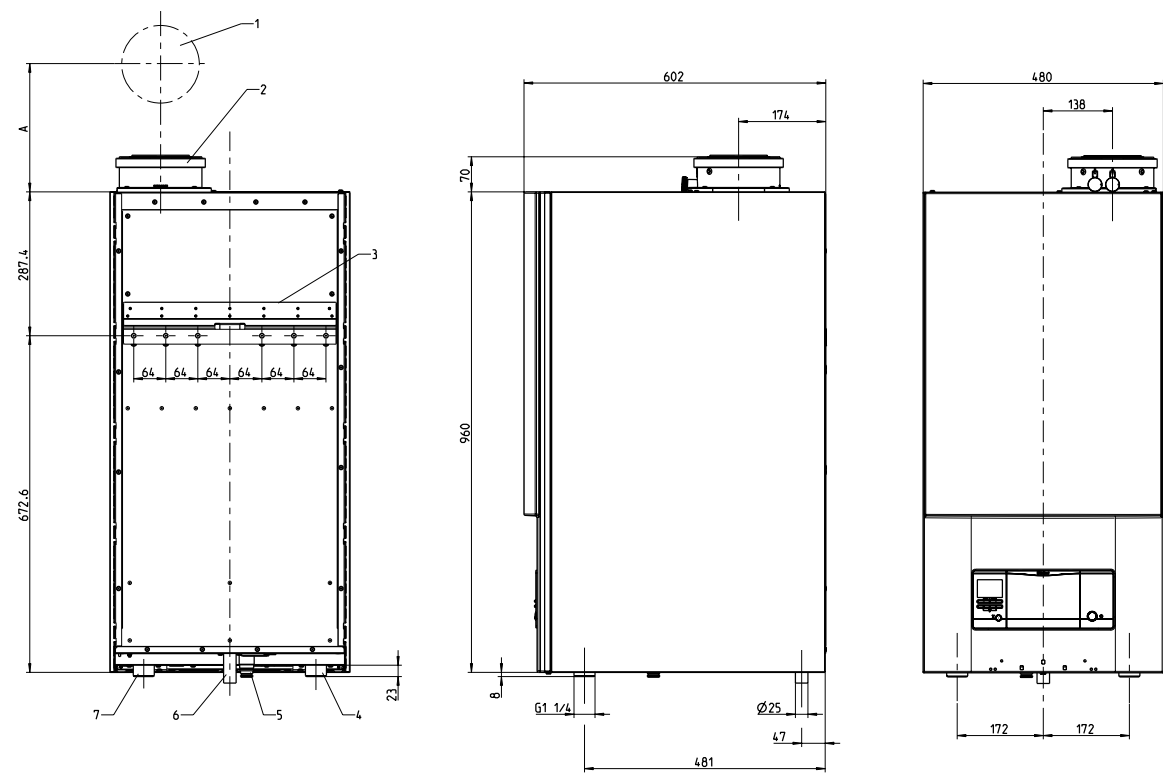
Available as an accessory



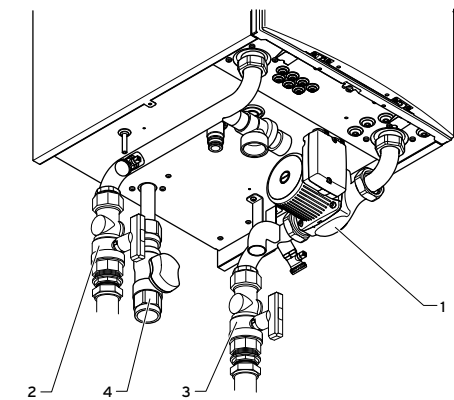
ecoTEC 100 & 120

- Key**
- A Air intake
 - B Fan
 - C Gas valve
 - D Ignition transformer
 - E Automatic air vent
 - F Flow STL
 - G Flow NTC
 - H Burner (inside heat exchanger)
 - I Flue gas pressure switch
 - J Heat exchanger
 - K Pressure gauge
 - L Return NTC
 - M Pressure sensor
 - N Electronics/PCB

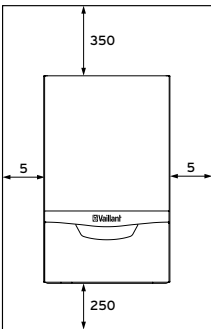
Connections and dimensions



Connection dimensions in mm
A = 476.6mm



Connections
1 Pump group
2 Heating flow
3 Heating return
4 Gas valve

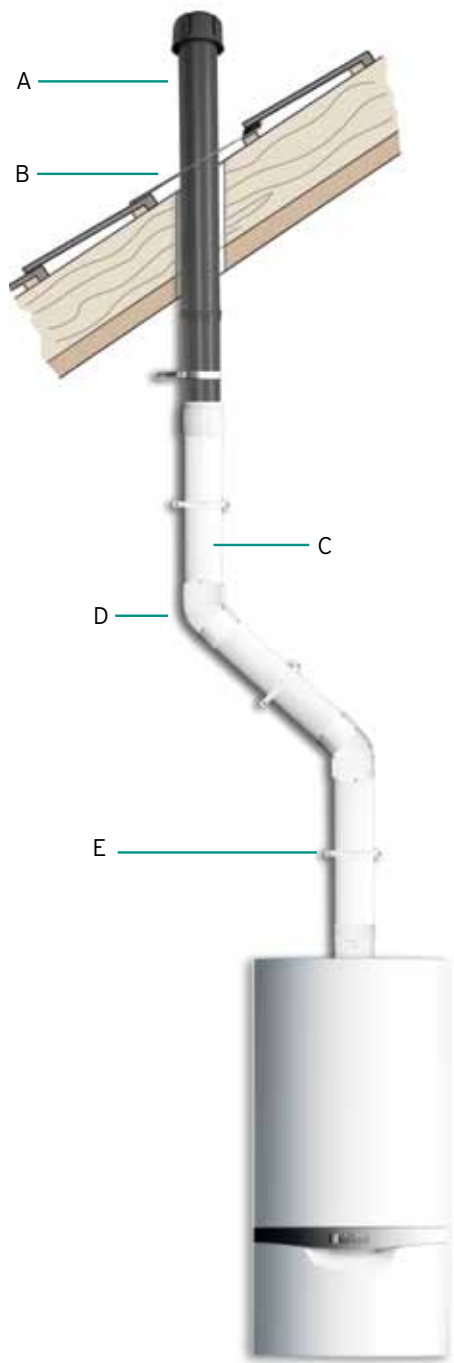


Required minimum gaps/assembly clearances
For the installation/assembly of the boiler as well as for carrying out future maintenance tasks, you need the minimum gaps and assembly clearances given above.

Technical specifications

ecoTEC	80	100	120
Article Number	0010010767	0010010780	0010010791
Heat output range (heating 50/30°C)	kW 20 - 80	25 - 100	30 - 120
Heat output range (heating 80/60°C)	kW 18.5 - 73.9	23.1 - 92.4	27.7 - 110.9
Maximum heat input (net)	kW 76.2	95.2	114.3
Net efficiency @ 100% load	% 98	98	98
Net efficiency @ 30% load	% 109	109	109
Inlet gas working pressure required (natural gas)	mbar 20	20	20
Inlet gas working pressure required (LPG)	mbar 37	37	37
NOx class	5	5	5
NOx levels	mg/kWh 39	36	38
CO ² percentage (after 5 minutes full load +/- 1)	% 8.8	9	9
Maximum CO level	ppm <30	<30	<30
Gas rate (natural gas)	m ³ /h 8	10.1	12.1
Water flow rate (when ΔT = 23K)	l/h 2990	3740	4485
Available pump head (without check valve)	mbar 240	380	360
Available pump head (with check valve)	mbar 150	100	90
Residual fan duty	Pa 220	300	300
Maximum flow temperature	°C 85	85	85
Maximum operating primary pressure bar	6	6	6
Minimum operating primary pressure bar	0.8	0.8	0.8
Condensate volume @ 40/30°C (pH value: 3.0 - 4.0)	l/h 12.16	15.2	18.24
Electrical connection	V/Hz 230 / 50	230 / 50	230 / 50
Electrical power consumption min./max. (with integrated pump)	W 165	181	181
Electrical protection rating	IP X 4D	IP X 4D	IP X 4D
Dimensions			
Height	mm 960	960	960
Width	mm 480	480	480
Depth	mm 610	610	610
Lift weight	kg 68	86	90
Water content	l 17	23.7	22.5
Flue			
Flue gas mass flow min./max.	g/s 6.9 / 34.4	8.9 / 43.6	10.6 / 52.5
Flue gas temperature max.	°C 85	85	85
Maximum length of concentric flue horizontal	m 22	22	22
Maximum length of concentric flue vertical	m 24	24	24
Connections			
Heating flow/return (isolation valve size)	1 ¼"	1 ¼"	1 ¼"
Gas isolation valve size	1"	1"	1"
Pressure safety valve outlet	1"	1"	1"
Condensate drain	mm 19	19	19
Flue connection	mm 110 / 160	110 / 160	110 / 160

Flue accessories




	ecoTEC		
	80	100	120
Max. permissible length of concentric flue	24.0m including 2 x 87° elbows	20.0m including 2 x 87° elbows	11.0m including 2 x 87° elbows
	Maximum length of flue is reduced by 1.5m for each additional 87° elbow		
	Maximum length of flue is reduced by 1.0m for each additional 45° elbow		

- Key
- A Vertical flue duct and terminal (0020166853)
 - B Pitched roof flashing (0020106409)
 - C Flue extension pieces:
 - 500mm extension (0020106376)
 - 1000mm extension (0020106377)
 - 2000mm extension (0020106378)
 - D 45° elbow (2 of) (0020106379)
 - E Flue support clips -
 - pack of 5 (0020106381)
 - Flat roof penetration collar (not shown) (0020106411)
 - 87° elbow (not shown) (0020106380)

- Key
- A - D Horizontal flue terminal (0020166854)

	ecoTEC		
	80	100	120
Max. permissible length of concentric flue	22.0m including 87° elbow	18.0m including 87° elbow	9.0m including 87° elbow
	Maximum length of flue is reduced by 1.5m for each additional 87° elbow		
	Maximum length of flue is reduced by 1.0m for each additional 45° elbow		





Cascade rigs

ecoTEC 46, 65, 80, 100 & 120

Introducing the new Vaillant cascade rigs, to offer even more efficiency and flexibility on outputs.

We are pleased to be able to offer our new range of cascade rigging, which is an easily expandable modular system and available for inline, back to back and corner installations of up to six ecoTEC 46, 65, 80, 100 or 120 wall hung commercial boilers.

For more information, please see our commercial website www.vaillant.co.uk/commercial or contact your local Vaillant representative.

ecoCRAFT

Floor standing condensing boiler range





ecoCRAFT range

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 the Building Regulations rating with a class rating for the boiler of NOx class 5.

High Performance

- Large output range from 14.1 - 281.4kW (60/4°C)
- 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/silicon alloy heat exchanger

Easy Installation

- Connections
- Flow and return 2" male BSP
- Gas 1 1/2" male BSP
- Condensate 21mm
- Pro E electrical connections
- Modulating primary pump (three sizes available as accessory)
- 0 - 10v compatible for BEMS applications (via VR 34 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
- Flues for this range should be supplied by a specialist flue company

Flexible siting

- Flue categories B23, B23P, C33, C53, C43, C83, C63
- Maximum system working pressure 6 bar
- Remote safety circuit interlock (24 Volt)
- 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) 1285 x 695 x 1240
- VKK 2006, VK 2406 and VK 2806 (HxWxD) 1285 x 695 x 1550

Modulating pumps

- Range of dedicated modulating pumps available
- Pre-configured electronics matched as close as possible to each boiler requiring minimal or no adjustment
- Designed to modulate their water flow in relation to the boiler output therefore allowing the boiler to produce more condensation and reduce running costs
- Simply plugs into the boiler control box using the leads supplied

Easy service and repair

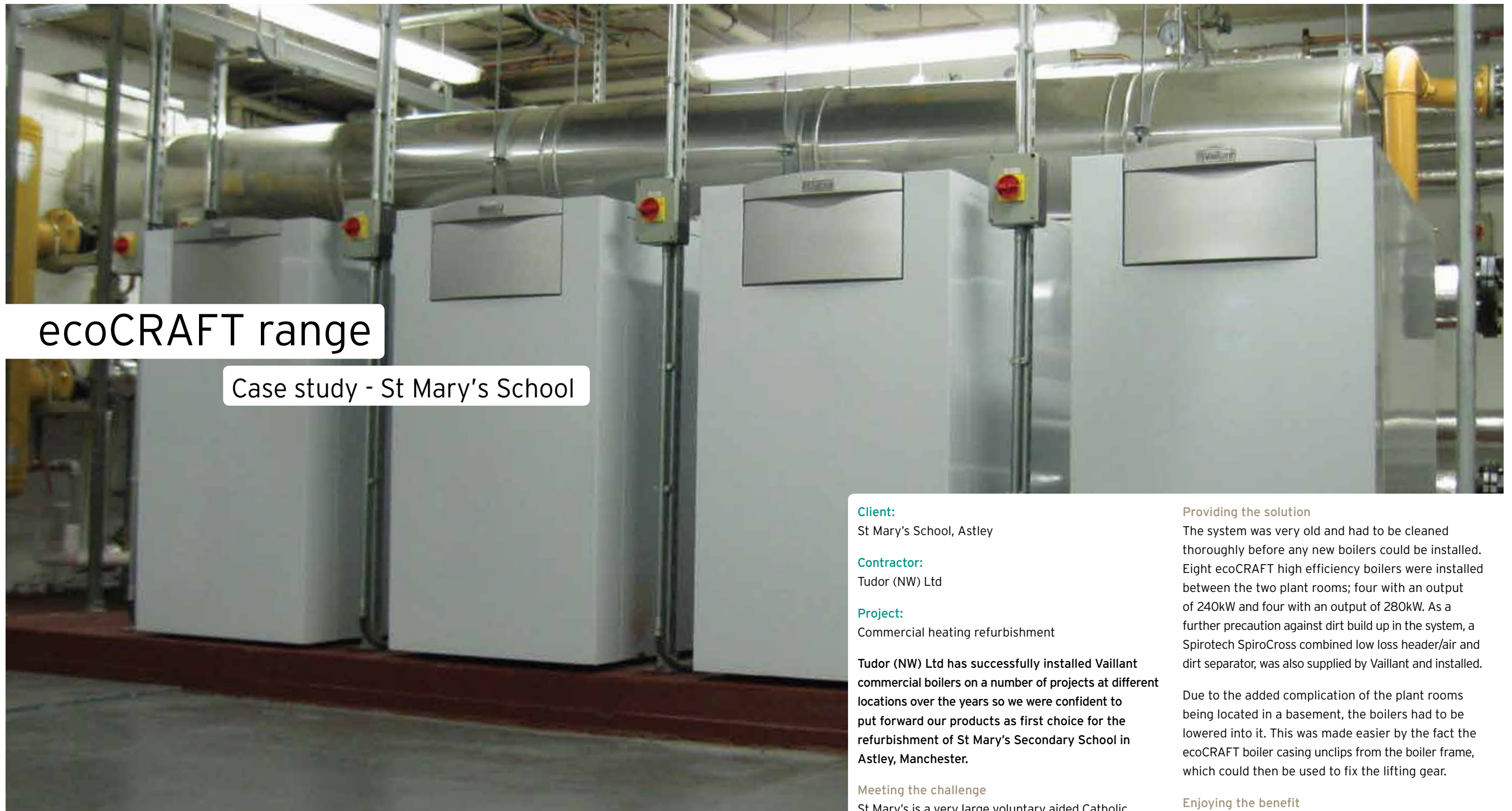
- Simple case assembly and removal

Quality and reliability

- Removable condensate siphon trap
- Air inlet filter to maintain clean air for combustion
- Integral boiler frost protection
- 2-year standard guarantee
 - additional 3-years available



Authorised User No. 00581



ecoCRAFT range

Case study - St Mary's School

Client:

St Mary's School, Astley

Contractor:

Tudor (NW) Ltd

Project:

Commercial heating refurbishment

Tudor (NW) Ltd has successfully installed Vaillant commercial boilers on a number of projects at different locations over the years so we were confident to put forward our products as first choice for the refurbishment of St Mary's Secondary School in Astley, Manchester.

Meeting the challenge

St Mary's is a very large voluntary aided Catholic Secondary School built in the 1960s with approximately 1,600 pupils aged between 11 and 18. Due to the large size of the school there are two plant rooms located in the basement. Before the refurbishment took place, these plant rooms housed a total of seven standard efficiency boilers.

Providing the solution

The system was very old and had to be cleaned thoroughly before any new boilers could be installed. Eight ecoCRAFT high efficiency boilers were installed between the two plant rooms; four with an output of 240kW and four with an output of 280kW. As a further precaution against dirt build up in the system, a Spirotech SpiroCross combined low loss header/air and dirt separator, was also supplied by Vaillant and installed.

Due to the added complication of the plant rooms being located in a basement, the boilers had to be lowered into it. This was made easier by the fact the ecoCRAFT boiler casing unclips from the boiler frame, which could then be used to fix the lifting gear.

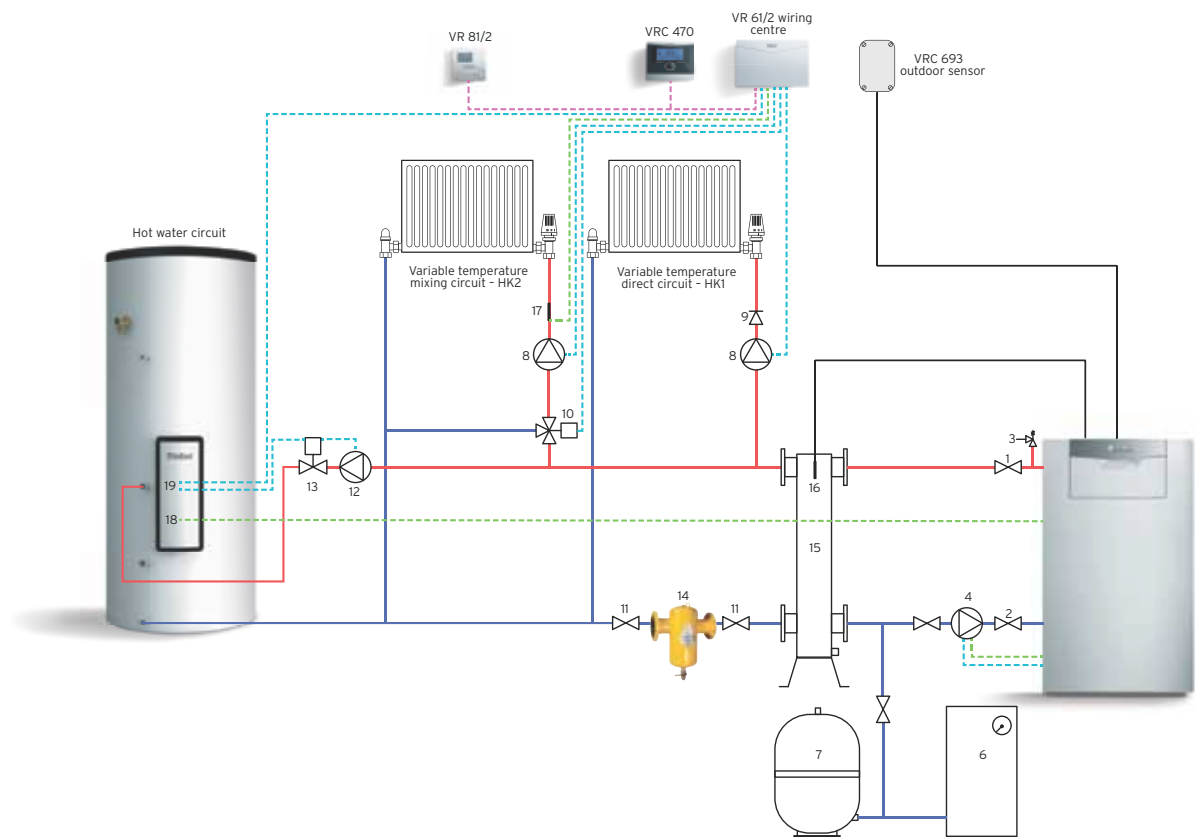
Enjoying the benefit

The eight ecoCRAFTs now successfully meet the hot water and heating requirements of the school.

Arthur Naylor, managing director of Tudor (NW) Ltd, the installer responsible, commented:

"Complex projects require a trusted partner and Vaillant is just that. Outstanding products backed up by terrific pre and after-sales service give both my team and our clients complete confidence of a flawless install and reassurance of long term service."

System design



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 internally with ecoTEC 46 & 65, available as an accessory with ecoTEC 80, 100 & 120 and ecoCRAFT 80 - 280 ranges)
- 5. Single check valve required (supplied only with cascade rigs)
- 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. Service valves (not supplied by Vaillant)
- 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)

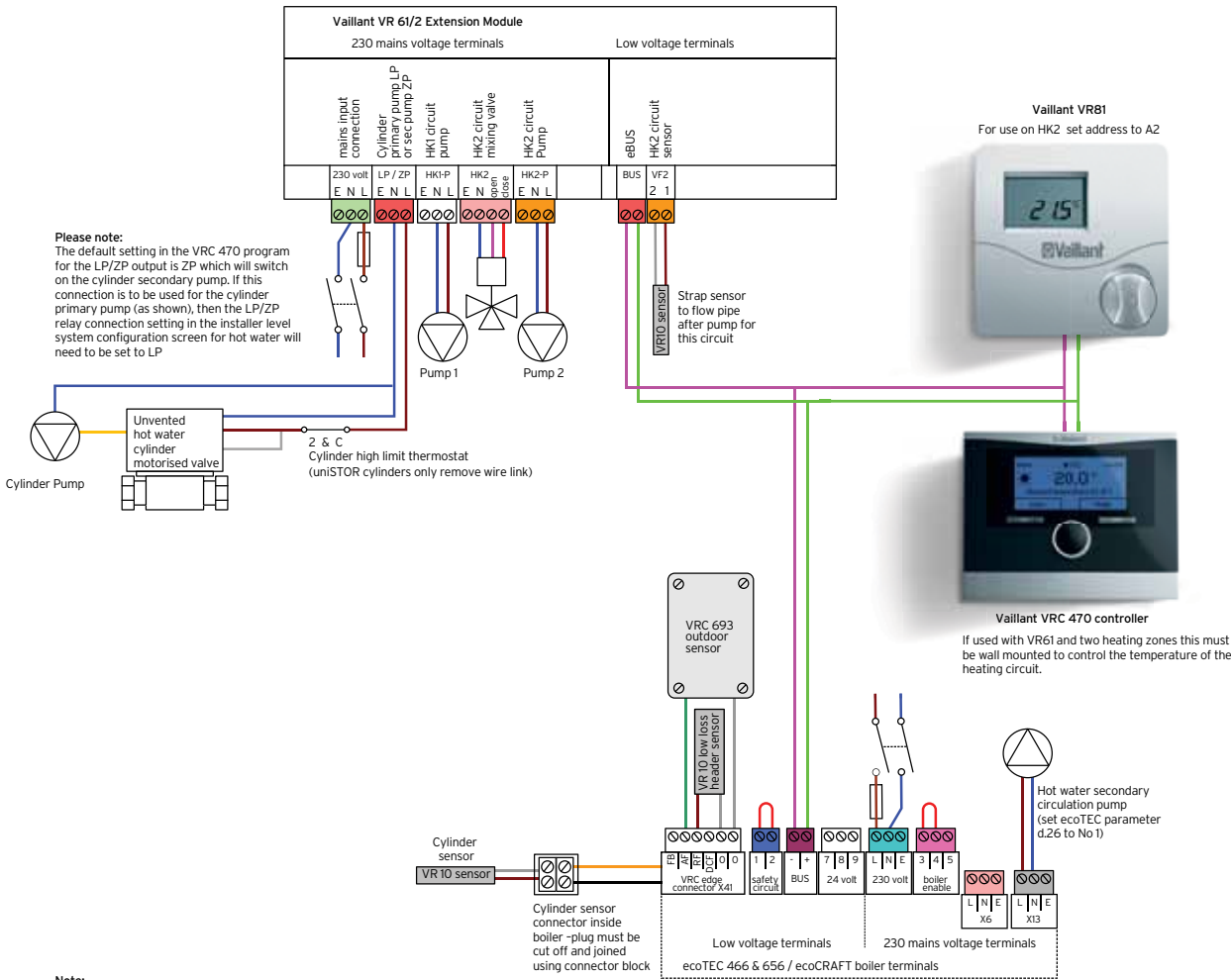
Wiring Colours

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

Note:

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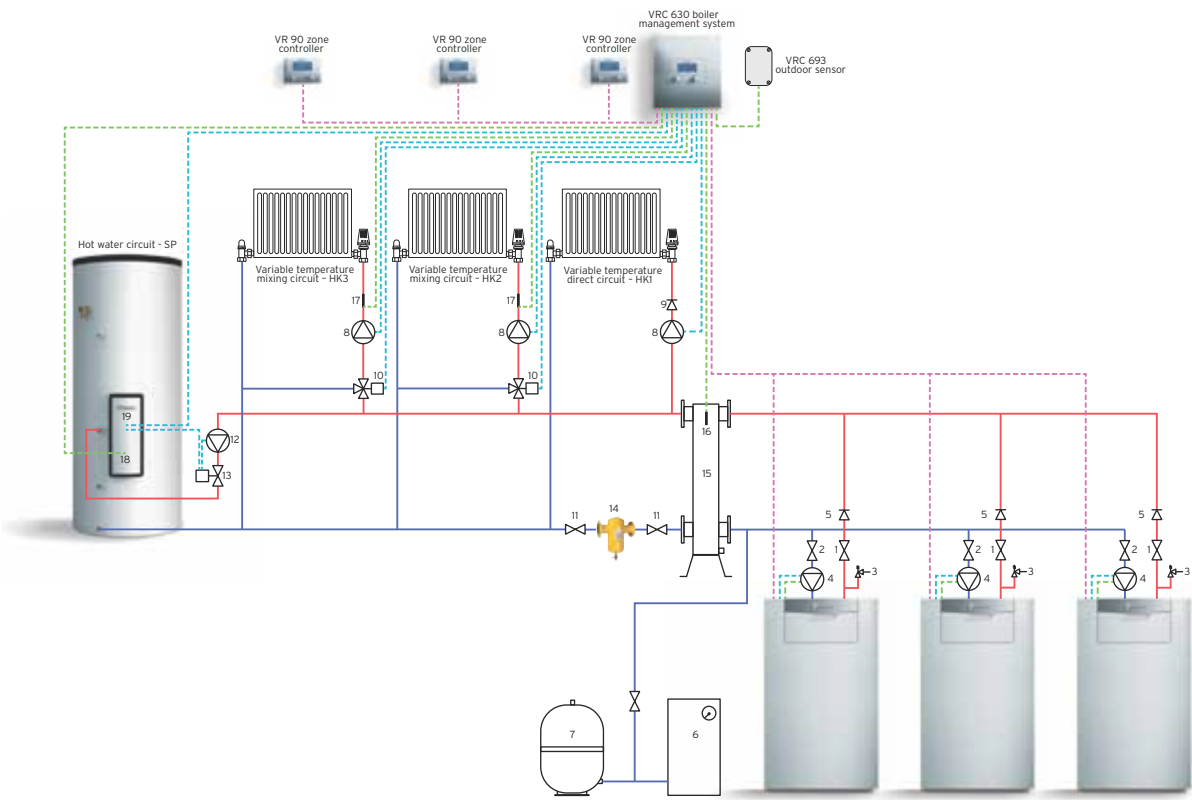
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System design



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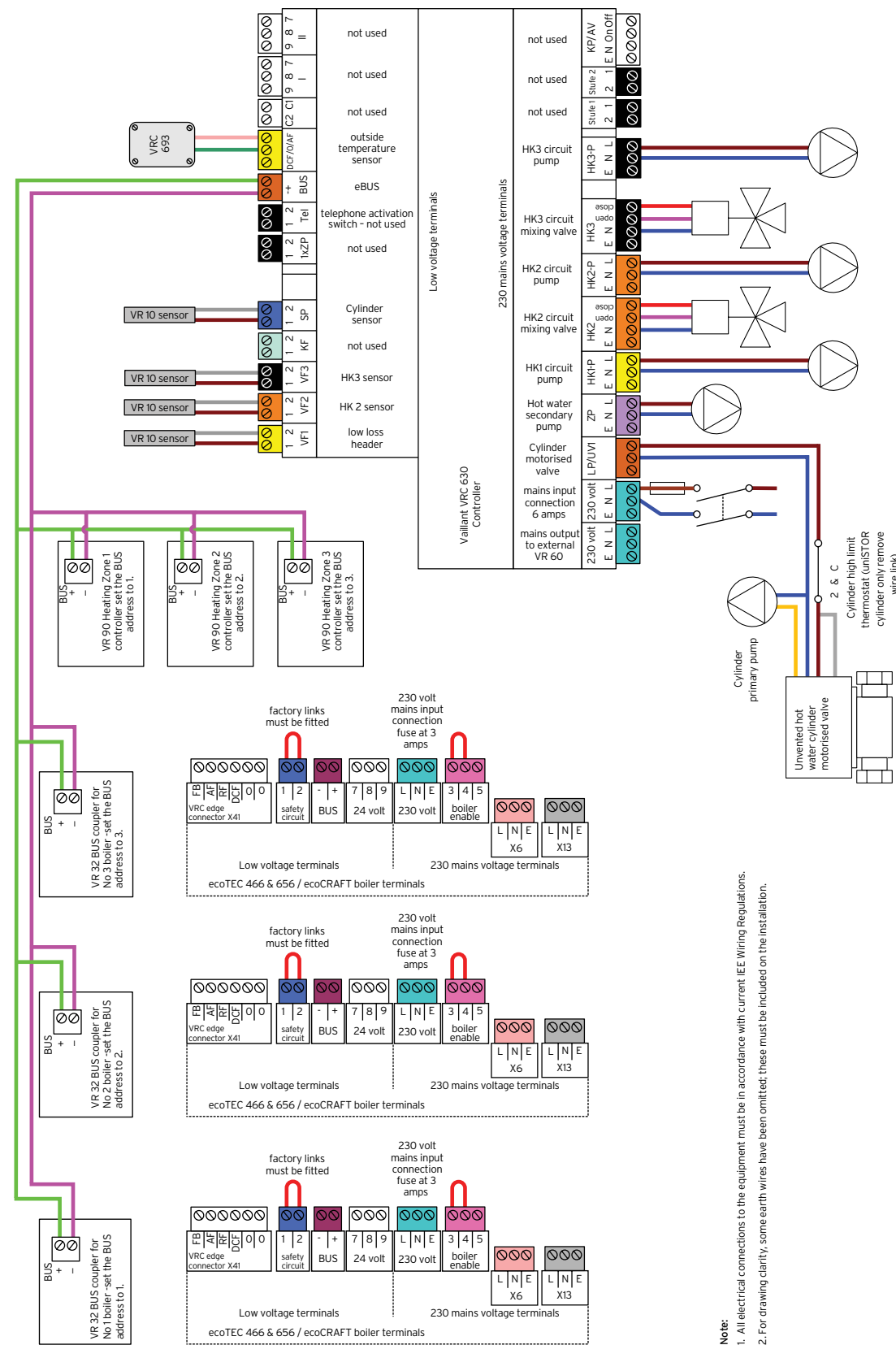
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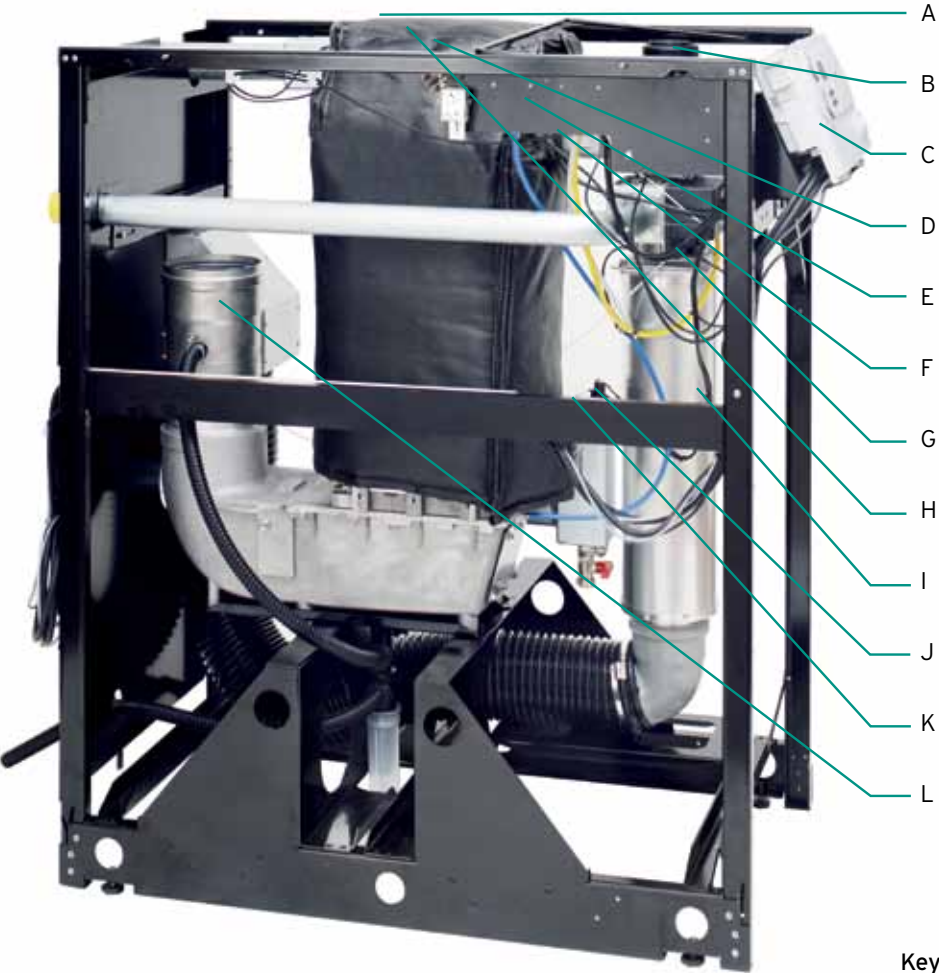
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Note items are not supplied by Vaillant unless stated



Note:
1. All electrical connections to the equipment must be in accordance with current IEE Wiring Regulations.
2. For drawing clarity, some earth wires have been omitted; these must be included on the installation.

Key components



- Key**
- A Flow NTC
 - B Fan
 - C Electronics/PCB
 - D Heat exchanger & burner (inside insulation jacket)
 - E Flue gas pressure switch
 - F Gas pressure switch
 - G Gas valve
 - H Flow STC
 - I Air intake
 - J Water pressure sensor
 - K Return NTC
 - L Flue outlet



Burner

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.



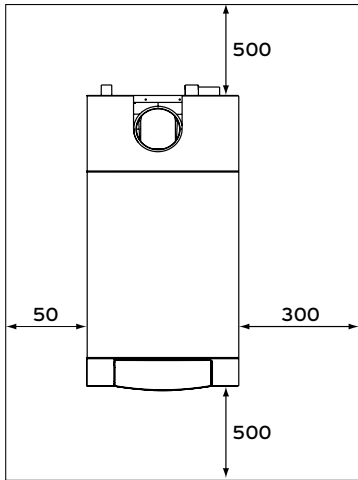
Heat exchanger

Main heat exchanger
High performance aluminium based alloy heat exchanger for long life. The matching range of modulating pumps complements the low hydraulic resistance of the heat exchanger.

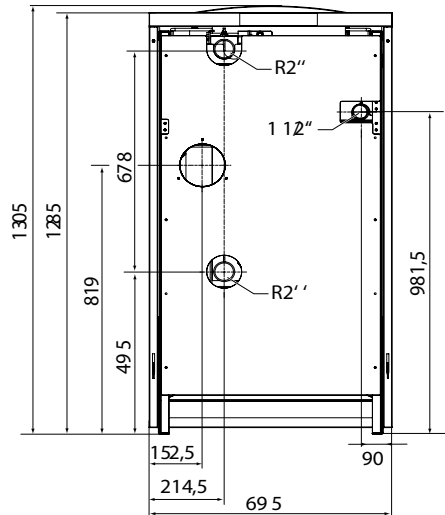


Boiler fascia
Located behind the front flap, the backlit display provides comprehensive status and diagnostic information for easy servicing.

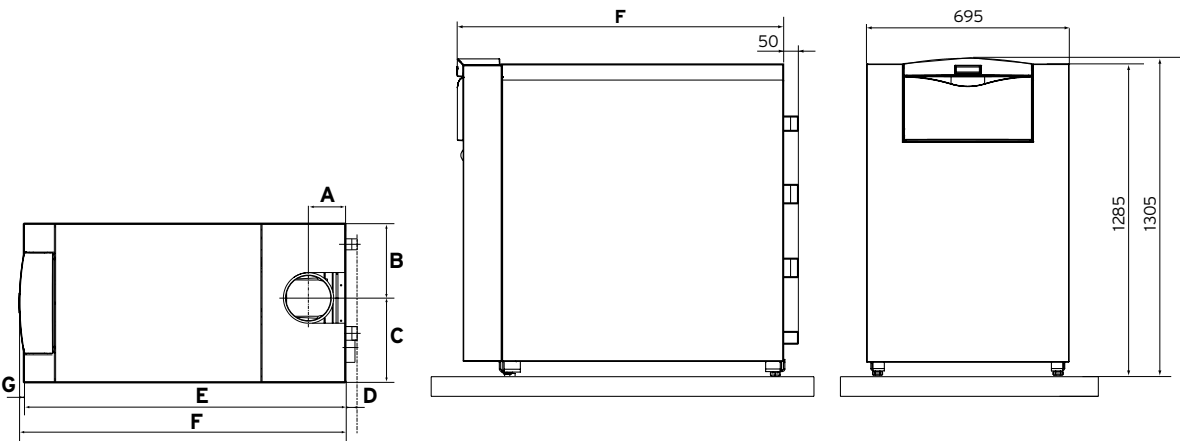
System unit dimensions



Recommended minimum distances for installation



Pipe connection dimensions



Connection dimensions in mm

	VKK GB 200-2806/3-E-H	VKK GB 80-1606/3-E-H
A	165	165
B	326	326
C	369	369
D	50	50
E	1478	1168
F	1550	1240
G	22	22

Technical specifications

ecoCRAFT	VKK 806	VKK 1206	VKK 1606	VKK 2006	VKK 2406	VKK 2806
Article number	0010005410	0010005411	0010005412	0010005413	0010005414	0010005415
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	- 12H	12H	12H	12H	12H	12H
Gas rate natural gas (G20)	m3/hr* 8.5	12.3	16.9	21.2	25.4	26.9
Nominal water circulating volume (Δ t = 20K)	m3/hr 3.44	4.99	6.88	8.60	10.33	12.05
Primary water flow pressure drop (Δ t = 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	200	235	275	295	310
Height	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) 1½"	1½"	1½"	1½"	1½"	1½"
Flow and return connection	BSP(m) 2"	2"	2"	2"	2"	2"
Condensate pipe Ø	mm 21	21	21	21	21	21
Flue	B23, B23P, C33, C53, C43, C63, C83					
Flue type classification						
Nox class	5	5	5	5	5	5
Nox emissions (EN 483)	mg/kWh <60	<60	<60	<60	<60	<60
CO² percentage (G20) (Max. output)	% 9.3	9.3	9.3	9.3	9.3	9.3
CO² percentage (G20) (Min. output)	% 9.1	9.1	9.1	9.1	9.1	9.1
Recommended C² max.	ppm 80	80	80	80	80	80
Flue outlet diameter	mm 150	150	150	200	200	200
Flue gas temperature min (80/60°C)	°C 60-65	60-65	60-65	60-65	60-65	60-65
Flue gas temperature max (80/60°C)	°C 65-70	65-70	65-70	65-70	65-70	65-70
Flue gas volume (nominal min.)	g/s 6.3	10	12.2	19.9	21.7	23.5
Flue gas volume (nominal max.)	g/s 35.4	51.2	70.7	88.4	106.1	123.8
Residual fan pressure	Pa 100	100	150	150	150	150
Modulating shunt pump (available as accessory)	0020022253		0020022254		0020022255	

* 15°C 1013mbar

atmoCRAFT range

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, with a separate easy to assemble casing pack ensuring 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 ensures a flexible approach to your installation.

The perfect combination of simplicity and affordability

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.

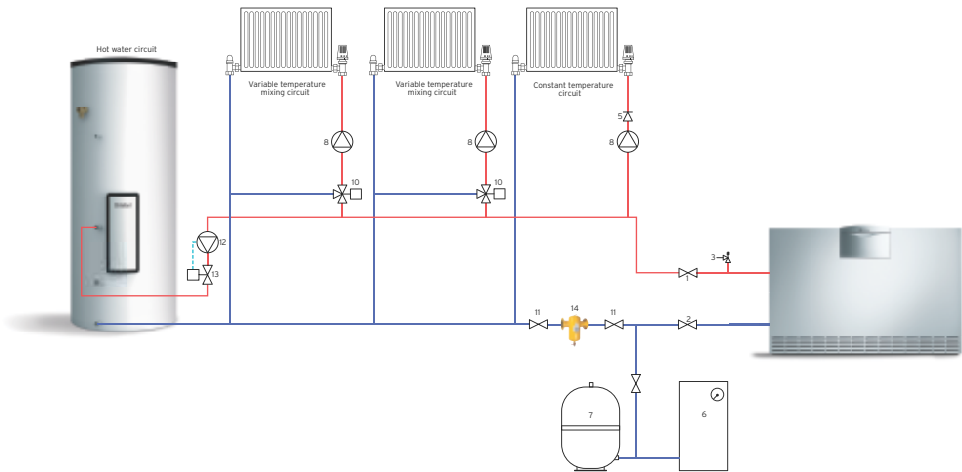
atmoCRAFT features and benefits

- Eight models available with outputs ranging from 65 - 165kW
- 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 Building Regulations
- BEMS compatible
- Comprehensive diagnostic numeric display that enables simple and efficient commissioning, servicing and operation

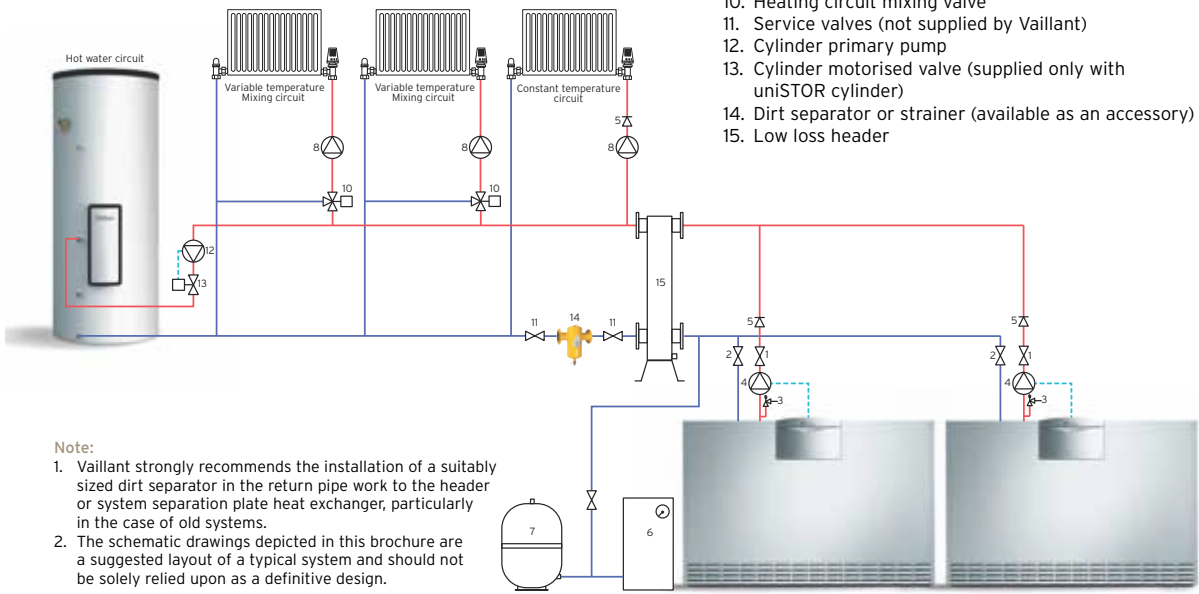


atmoCRAFT

System design



- 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
 - 5. Non-return valve
 - 6. Primary pressurisation unit (available as an accessory)
 - 7. Primary expansion vessel (available as an accessory)
 - 8. Heating pumps
 - 10. Heating circuit mixing valve
 - 11. Service valves (not supplied by Vaillant)
 - 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

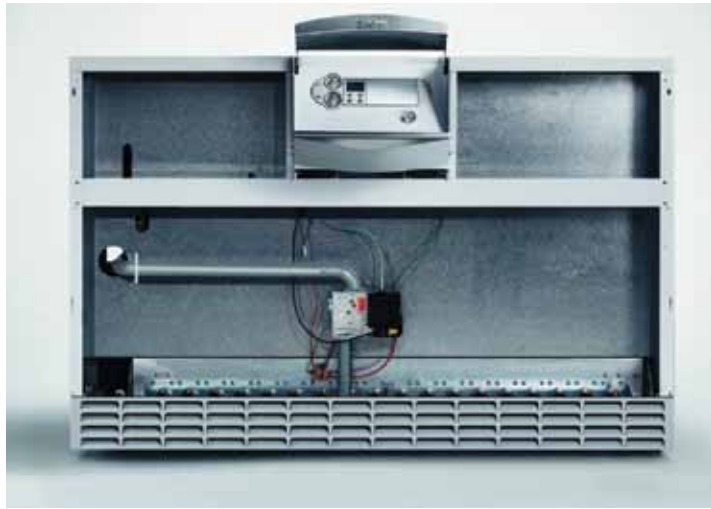
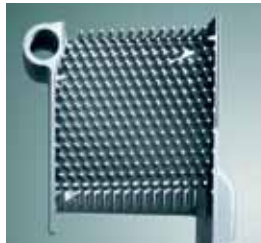


Note:

- 1. Vaillant strongly recommends the installation of a suitably sized dirt separator in the return pipe work to the header or system separation plate heat exchanger, particularly in the case of old systems.
- 2. The schematic drawings depicted in this brochure are a suggested layout of a typical system and should not be solely relied upon as a definitive design.

Note items are not supplied by Vaillant unless stated

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 thereby 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.

Shunt pump

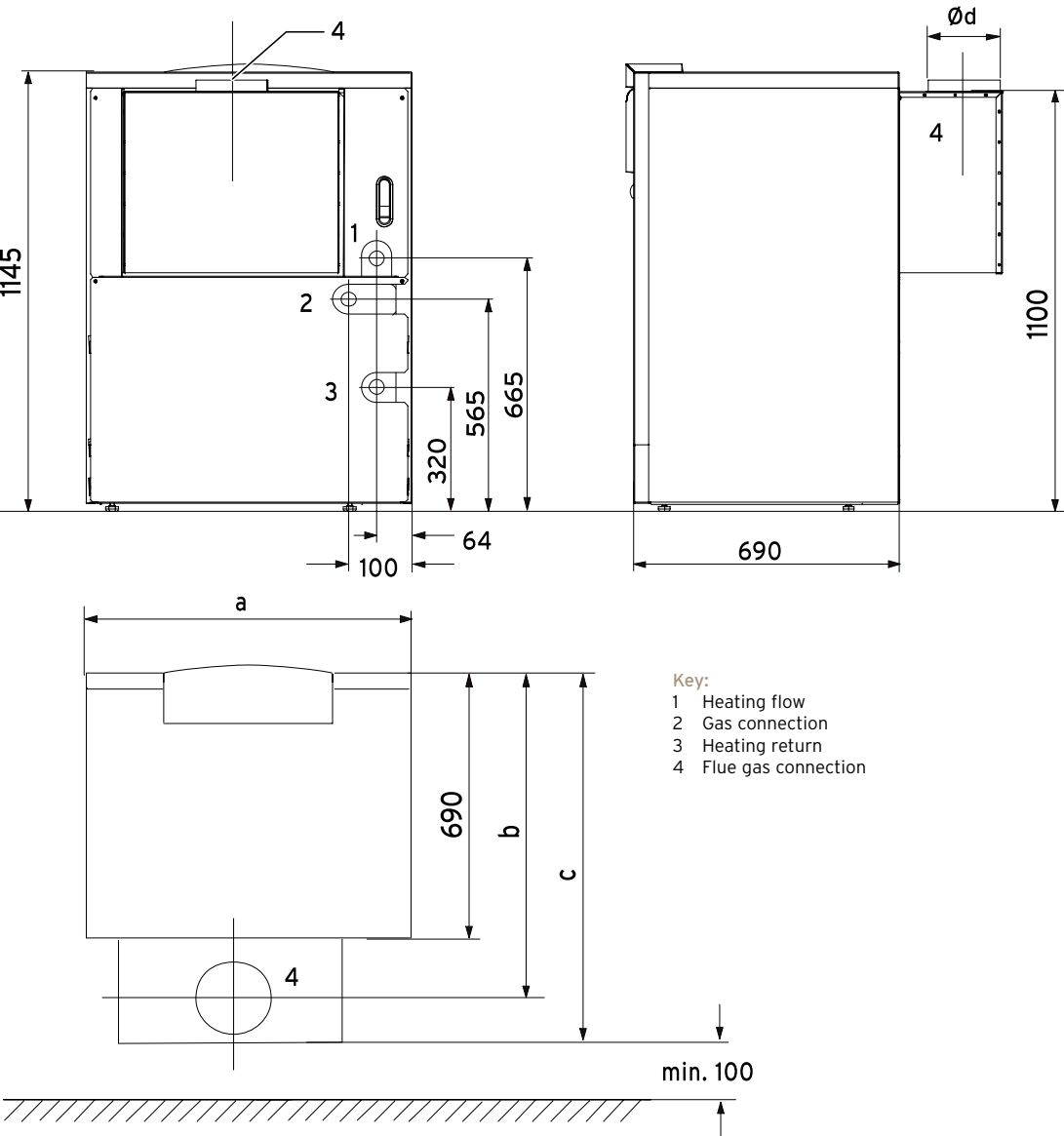
To prevent back end corrosion of the heat exchanger, a shunt pump and thermostat are recommended. Vaillant dedicated pumps and thermostats are available as accessories.

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.

Unit dimensions



Connection dimensions in mm

Boiler type	a	b	c	Ø d	Heating feed/Heating return	Gas connection
65kW	850mm	860mm	960mm	180mm	1½" male BSP	1" male BSP
75kW	930mm	850mm	960mm	200mm	1½" male BSP	1" male BSP
85kW	1010mm	850mm	960mm	200mm	1½" male BSP	1" male BSP
105kW	1170mm	838mm	960mm	225mm	1½" male BSP	1" male BSP
115kW	1250mm	838mm	960mm	225mm	1½" male BSP	1" male BSP
130kW	1410mm	825mm	960mm	250mm	1½" male BSP	1¼" male BSP
150kW	1570mm	825mm	960mm	250mm	1½" male BSP	1¼" male BSP
165kW	1730mm	852mm	1012mm	300mm	1½" male BSP	1¼" male BSP

Technical specifications

atmoCRAFT		VK 654	VK 754	VK 854	VK 1054	VK 1154	VK 1304	VK 1504	VK 1654
Article number		301928	301929	301930	301931	301932	301933	301934	301935
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 _{II}							
Gas type		II _{2H3P}							
Gas rate natural gas (G20)	m³/h	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 (ΔT = 20K)	mbar	18	25	32	44	46	52	60	68
Primary water flow pressure drop (ΔT = 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	225	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

Renewables



For 135 years, the Vaillant name has been leading the way in the development and manufacture of heating and hot water systems.

As well as Vaillant's conventional commercial systems, we are also leading the way in commercial systems that utilise renewable technology such as solar heating systems and ground source heat pumps. Both of these technologies can also create a 'total system solution' that is ideal for a whole host of commercial specifications, large or small.

For more information, please see our commercial website www.vaillant.co.uk/commercial or contact your local Vaillant representative.

Vaillant

Auto 13,5°C 11:54
20,0°C
Desired Heating temp 21,5°C
Menu Mode

Controls

Single boiler and cascade solutions

Controls - single boilers



VRC 470 Weather Compensator

VRC 470 Weather Compensator

The VRC 470 is a weather compensator designed for use with single eBUS (ecoTEC/ecoCRAFT) boilers. It features a backlit plain text display with a click and turn knob which, together with numbered screens, make navigation easy. It has time and temperature controls for heating and hot water channels and an additional timed channel for a circulation pump.

Programming for 7 day, 5 day/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 to winter changeover, holiday mode, optimum start/stop. With additional accessories (VR 61 and VR 81) the VRC 470 can be used to control two heating zones and hot water circuits. Simple two-wire low voltage eBUS connections make installing the VRC 470 easy to fit into the boiler fascia for true plug and play flexibility. Also available is the VRC 470f, a wireless control.



VR 81 Remote Control Unit

VR 81 Remote Control Unit

The VR 81 can be used as a remote control unit for the weather compensators VRC 470 or VRC 470f. The display of the VR 81 shows the current room temperature. With the 'turn and click' handling, the desired room temperature can easily be changed. The remote control unit VR 81 has two possible functions: In a single-zone heating system, the VR 81 will be installed on the wall inside a living area while the weather compensator VRC 470 remains in the boiler fascia. When used with a two zone heating system the VR 81 becomes the room thermostat for the second heating zone while the weather compensator VRC 470 or VRC 470f would act as a room thermostat for the first heating zone. For this installation an additional VR 61 wiring centre is required.

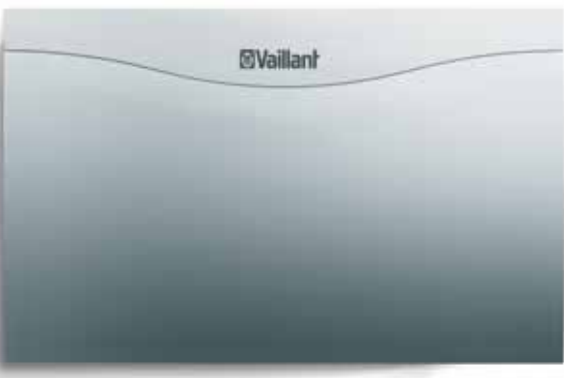


VR 61 Two Zone Wiring Centre

VR 61 Two Zone Wiring Centre

TheVR 61 is a two zone wiring centre for use with the VRC 470f and VR 81. This centre can control up to two heating zones (one mixed, one direct) and a cylinder primary loading pump or secondary circulation pump.

The VR 61 also enables the use of the VR 81 remote control unit when used on a two zone heating system and can be integrated with the VR 68 solar module within a solar heating system.

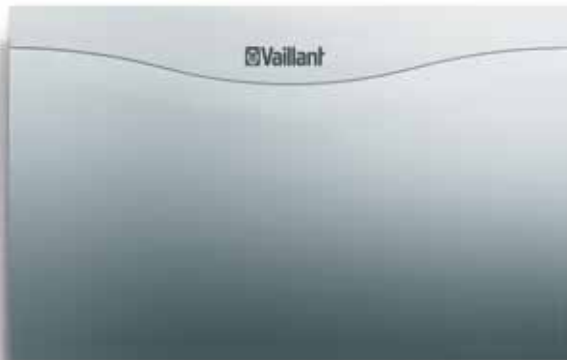


VR 65 Control Centre

VR 65 Control Centre

The VR 65 control centre is the heart of the Vaillant 'total system solution'.

The VR 65 control centre has been designed to allow Vaillant low voltage 'eBus' controls to be integrated within traditional 230V S-plan or Y-plan type installations to provide a 'total system solution' comprising an ecoTEC commercial boiler, uniSTOR cylinder and single zone control. Installation is simplified with all components being supplied by one manufacturer.



VR 68 Solar Module

VR 68 Solar Module

The VR 68 solar module is a system control used to integrate solar systems. The module allows for the connection of solar domestic hot water and automatically enables solar control functionality and display of solar menus on the VRC 470f. The controls maximise the solar gain by minimising hot water run time of the ecoTEC appliance.

Controls - cascade



VRC 630 Boiler Management Control

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 manages 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 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 - three circuits

and 6 x VR 60 - two 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 VR 32 for ecoTEC/ecoCRAFT and VR 30 for atmoCRAFT).

The VRS 620 Solar Cascade Control is also available for solar installations.



VR 90 Room/Zone Control

VR 90 Room/Zone Control (for use with VRC 630 only)

A remote room/zone control for use with the VRC 630 only. Up to eight VR 90 controls can be connected to the VRC 630. The VR 90 allows a user to set the operating mode and the target room temperature. Up to three time periods can be programmed and the user can select 5 day/2 day, 7 day or 24 hour operation. 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 view 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

VR 80 Room/Zone Control (for use with VRC 630 only)

The VR 80 control is similar to the VR 90 but with fewer functions. Up to eight VR 80s can be used, each controlling one heating zone. 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, if necessary. 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.

VR 32 eBus Coupler

The VR 32 is a bus coupler for use with ecoTEC and ecoCRAFT boilers. It is needed for cascade installations and allows the VRC 630 controller to identify the boilers connected to it. The VR 32 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 VR 32 can then be connected to the VRC 630 controller using the eBus terminals.



VR 60 Zone Extension Module

VR 60 Zone Extension Module

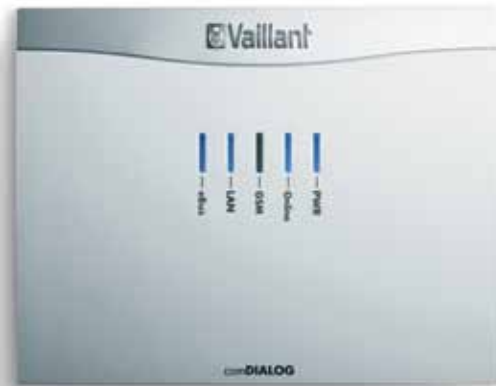
The VR 60 is an extension module which will allow two additional mixer circuits to be added to the system. Both circuits can be programmed via the central controller or a separate VR 90 remote device.



VR 32 eBus Coupler

Other controls

and electrical accessories



comDIALOG

comDIALOG*

comDIALOG & comDIALOG PLUS are electronic accessories for the remote monitoring and parameter setting of Vaillant system technology. Two communication units are available:

- comDIALOG is used via an ethernet broadband internet connection (DSL) in combination with a router to allow remote control via the internet.
- comDIALOG PLUS can be used over mobile phone networks (GSM/GPRS) and can also be used with an ethernet cable if a back up is required.

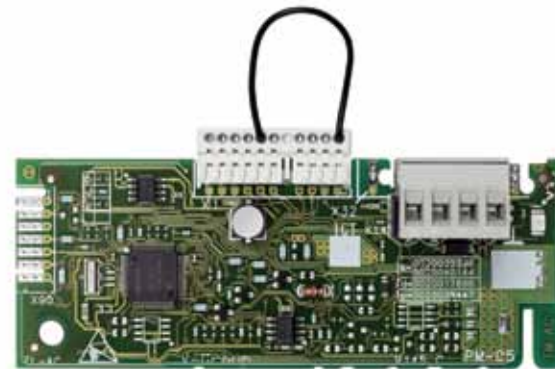
Both units integrate easily in to eBUS enabled Vaillant systems, such as heat pumps, heating cascades, gas fired and solar systems. Communication units and software can be used to control up to six boilers on a cascade system when used in conjunction with a VRC 630 controller.

Three user interfaces available:

- Smart phone mobile web page
- PC simple web control
- Professional control panel

Professional control panel allows:

- Access and adjustment of all installer level parameters
- Ability to log system parameters
- Notification of faults/failure messages



VR 34 Converter

The VR 34 is a 0-10 Volt coupler for ecoTEC and ecoCRAFT that transfers a voltage input from the BEMS equipment into a temperature set point for the boiler. The VR 34 also has a 24 Volt fault signal output in the event of a boiler failure, this will remain active until the fault is cleared and the boiler reset. The VR 34 also has an LED to indicate operation.



VR 36 Converter

The VR 36 is a 230 Volt switching interface card for use with third party controls, for example, standard on/off controls.

* Available March 2013



System accessories

Low loss headers and low loss plate heat exchangers



System accessories

Low loss headers

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.

Free standing and wall mounted low loss headers



WH 95



WH 160



WH 280

Boiler	Low loss header	Δt
ecoTEC 46	WH 40	20
ecoTEC 46 (X2/3)	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 (X4)	WH 280	20
ecoTEC 80	WH 95	20
ecoTEC 80 (X2/3)	WH 160	20
ecoTEC 80 (X4)	WH 280	20
ecoTEC 100	WH 95	20
ecoTEC 100 (X2)	WH 160	20
ecoTEC 100 (X3)	WH 280	20
ecoTEC 120	WH 95	20
ecoTEC 120 (X2)	WH 160	20
ecoTEC 120 (X3)	WH 280	20

Boiler	Low loss header	Δt
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
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

Model	Article number	Connection size	Header width	Header depth	Total height	Insulation dimensions	Distance between connections (boiler side)	Distance between connections (heating circuit side)	Height from floor	Maximum flow rate m³/hr	Flange type
WH 40	306720	1 1/4" BSP (f)	115	115	500	115/115	280	340	N/A	3.5	N/A
WH 95	306721	2" BSP (f)	155	155	750	155/155	470	540	N/A	8	N/A
WH 160	306726	DN65	120	120	1350	220/220	900	900	300	12	PN6
WH 280	306725	DN80	160	160	1390	260/260	930	930	300	21.5	PN6

Low loss headers suitable for use in pipework rigs



WH C 110 with insulation



WH C 160 with insulation



WH C 280 with insulation



WH C 350 with insulation

Model	Article number	Connection size	Header width	Header depth	Total height	Insulation dimensions	Distance between connections (boiler side)	Distance between connections (heating circuit side)	Height from floor	Maximum flow rate m³/hr	Connection type
WH C 110	0020107874	DN 65	510	100	795	N/A	211	400	25	9.5	Flange PN6
WH C 160	0020107875	DN 65	510	120	795	N/A	211	400	25	12	Flange PN6
WH C 280	0020151859	DN 100	510	160	795	N/A	211	400	25	21	Flange PN6
WH C 350	0020107876	DN 100	510	200	795	N/A	211	400	25	29	Flange PN6

Boiler	Low loss header	Δt
ecoTEC 80 (X2)	WH C 110	20
ecoTEC 80 (X3)	WH C 160	20
ecoTEC 80 (X4)	WH C 280	20
ecoTEC 80 (X5)	WH C 280	20
ecoTEC 80 (X6)	WH C 280	20
ecoTEC 100 (X2)	WH C 110	20
ecoTEC 100 (X3)	WH C 280	20
ecoTEC 100 (X4)	WH C 280	20
ecoTEC 100 (X5)	WH C 350	20
ecoTEC 100 (X6)	WH C 350	20
ecoTEC 120 (X2)	WH C 160	20
ecoTEC 120 (X3)	WH C 280	20
ecoTEC 120 (X4)	WH C 280	20
ecoTEC 120 (X5)	WH C 350	20
ecoTEC 120 (X6)	WH C 350	22



Low loss header in situ on boiler rig

All dimensions in mm

System accessories

Low loss plate heat exchanger ecoTEC 80, 100 & 120

Manufactured to the highest standards of quality, a Vaillant low loss plate heat exchanger is the ideal solution where it is impossible to guarantee system cleanliness or water quality.

The exchanger operates by separating the boiler water from the system water. It is particularly suitable for older applications such as those found in churches and historical buildings, where the systems cannot be pressurised.



Low loss plate heat exchanger in situ on boiler rig

Boiler	Plate heat exchanger	Δt
ecoTEC 806	PHE S 120-70	20
ecoTEC 806 (X2)	PHE C 240-40	20
ecoTEC 806 (X3)	PHE C 240-40	20
ecoTEC 806 (X4)	PHE C 360-70	20
ecoTEC 806 (X5)	PHE C 480-90	20
ecoTEC 806 (X6)	PHE C 480-90	20
ecoTEC 1006	PHE S 120-70	20
ecoTEC 1006 (X2)	PHE C 240-40	20
ecoTEC 1006 (X3)	PHE C 360-70	20
ecoTEC 1006 (X4)	PHE C 480-90	20
ecoTEC 1006 (X5)	PHE C 600-120	20
ecoTEC 1006 (X6)	PHE C 600-120	20
ecoTEC 1206	PHE S 120-70	20
ecoTEC 1206 (X2)	PHE C 240-40	20
ecoTEC 1206 (X3)	PHE C 360-70	20
ecoTEC 1206 (X4)	PHE C 480-90	20
ecoTEC 1206 (X5)	PHE C 600-120	20
ecoTEC 1206 (X6)	PHE C 720-170	20



PHE C 480-90



PHE S 120-70



PHE C 240-40



PHE C 720-120

Model	Article number	Connection size	Header width	Header depth	Total height	Insulation dimensions	Distance between connections (boiler side)	Distance between connections (heating circuit side)	Height from floor	Maximum flow rate m³/hr	Flange type
PHE S 120-70	0020137069	1 1/4" BSP (m)	335	124	166	N/A	281	281	N/A	1,25/1,436	N/A
PHE C 240-40	0020137070	DN 65	271	105	532	N/A	421	421	135	2,608/2,872	PN6
PHE C 360-70	0020137071	DN 65	271	176	532	N/A	421	421	135	3,911/4,309	PN6
PHE C 480-90	0020137072	DN 80	271	222	532	N/A	421	421	135	4,989/5,745	PN6
PHE C 600-120	0020137073	DN 80	271	292	532	N/A	421	421	135	6,236/7,181	PN6
PHE C 720-170	0020137074	DN 80	271	409	532	N/A	421	421	135	7,483/8,617	PN6

uniSTOR

Unvented cylinders

uniSTOR is a range of six high grade stainless steel unvented cylinders from Vaillant. Finished with stylish casing they are available in a range of sizes from 120 litres to 310 litres. uniSTOR can be used with proprietary system boilers.

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

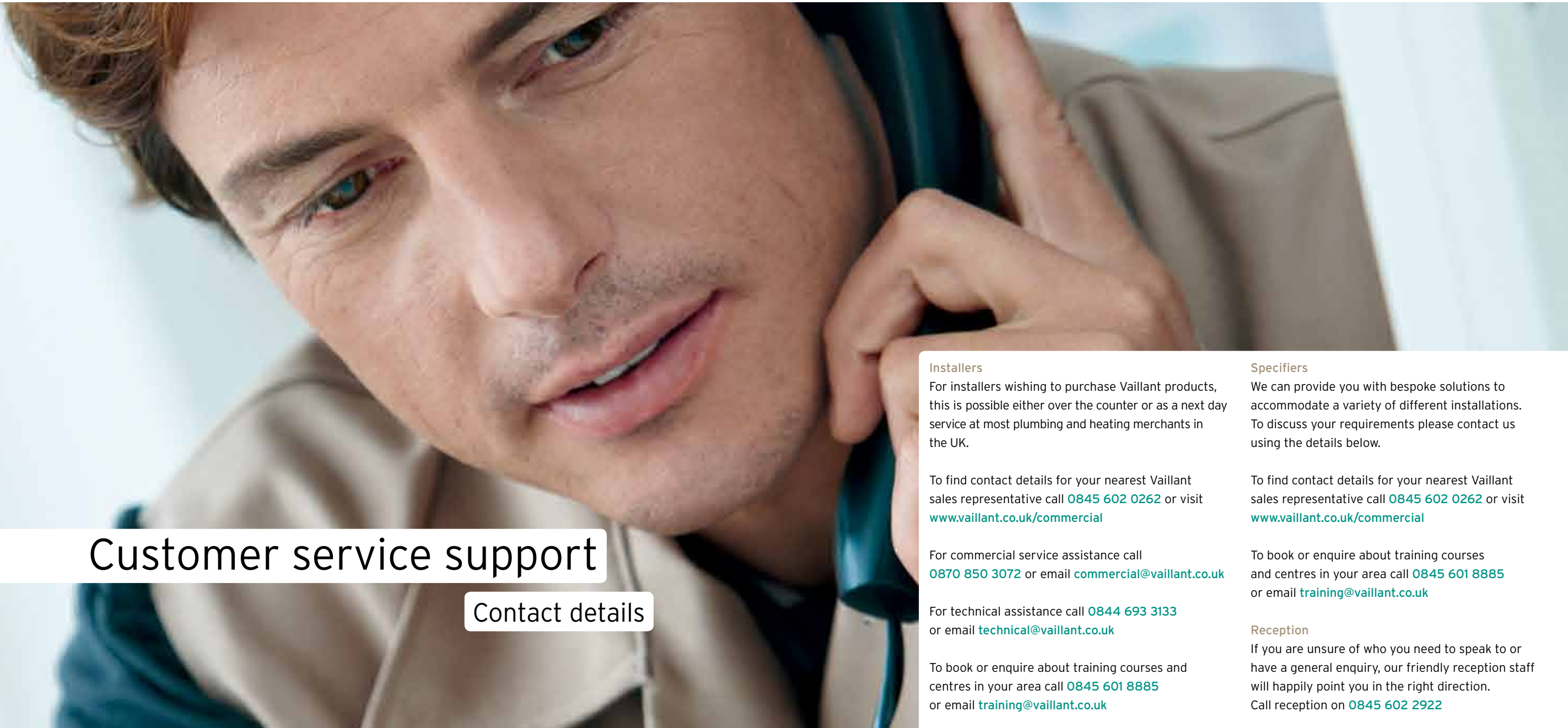
uniSTOR cylinders operate using a mains water pressure supply and do not require a feed from a cold water storage tank.

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	120	155	180	210	260	310
Article Number	0010010900	0010010901	0010010902	0010010903	0010010904	0010010905
External case height (mm)	1001	1191	1371	1593	1843	2153
External case width (mm)	633	633	633	633	633	633
Weight approx (kg)	26	29	32	36	41	46





Customer service support

Contact details

Installers

For installers wishing to purchase Vaillant products, this is possible either over the counter or as a next day service at most plumbing and heating merchants in the UK.

To find contact details for your nearest Vaillant sales representative call **0845 602 0262** or visit www.vaillant.co.uk/commercial

For commercial service assistance call **0870 850 3072** or email commercial@vaillant.co.uk

For technical assistance call **0844 693 3133** or email technical@vaillant.co.uk

To book or enquire about training courses and centres in your area call **0845 601 8885** or email training@vaillant.co.uk

Specifiers

We can provide you with bespoke solutions to accommodate a variety of different installations. To discuss your requirements please contact us using the details below.

To find contact details for your nearest Vaillant sales representative call **0845 602 0262** or visit www.vaillant.co.uk/commercial

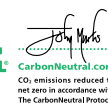
To book or enquire about training courses and centres in your area call **0845 601 8885** or email training@vaillant.co.uk

Reception

If you are unsure of who you need to speak to or have a general enquiry, our friendly reception staff will happily point you in the right direction. Call reception on **0845 602 2922**

Notes

Notes



100% of the inks used are vegetable oil based, 95% of press chemicals are recycled for further use and, on average 99% of any waste associated with this production will be recycled.

This brochure is printed on Core Silk, a paper containing 100% virgin fibre sourced from well managed, sustainable, FSC certified forests. The pulp used in this product is bleached using an elemental chlorine free (ECF) process.

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