



Why Vaillant?

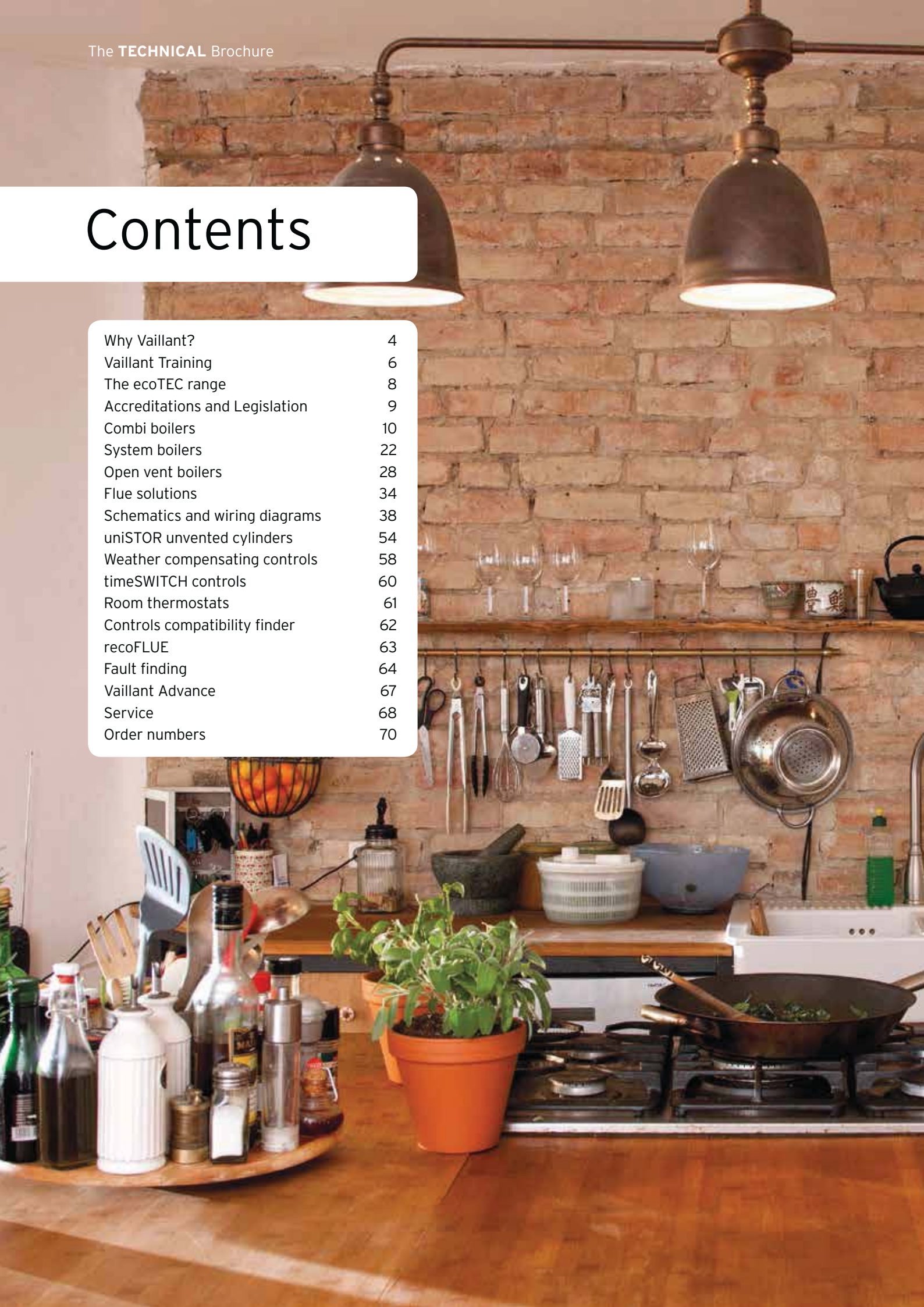
Because the ecoTEC delivers day in, day out



Vaillant ecoTEC boiler range

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Thinking back on over 140 years in business keeps us thinking ahead.

Vaillant has been setting the standard in the heating market since 1874 by continually developing products that revolutionise the industry.

Yesterday

Vaillant was born in 1874 when Johann Vaillant founded his workshop in Remscheid, Germany. Twenty years later, the world's first ever gas-fired water heater with domestic hot water changed the way we heat our homes forever.

In 1930 the first Vaillant gas-fired water heater came to life, and so began a continual process of innovation and design evolution that has led to the extensive range of products we offer today.

What the future could look like...



Today

Over the last 140 years, we have revolutionised the industry. Safeguarding the planet for future generations, we've created products that can help reduce carbon emissions and the cost of providing heat and water for your home.

Along with our highly accredited, super-efficient range of ecoTEC domestic boilers, we have a fully comprehensive range of renewable technologies. From the aroTHERM air to water and geoTHERM ground source heat pumps, to hot water cylinders and a full range of controls, we can help to ensure your system is maximised to its full potential.

The future

Behind every Vaillant product is the quality and efficiency of pioneering German engineering. We never stop pushing the limits of what can be achieved, creating revolutionary new products that help to reduce our impact on the planet.

We use only the best materials and workmanship, continually raising our game to maintain our enviable reputation.

Today, Vaillant systems already meet the demands and standards of tomorrow.



Vaillant Training



Industry leading training designed for industry leading engineers.

With a team of fully qualified industry experts, our training courses have been designed and tailored to keep you one step ahead of the ever-developing world of heating and hot water technologies and industry regulations.

We offer the full package of courses for all levels within the industry. From a full day getting hands on with the ecoTEC range of domestic boilers to our aroTHERM air to water heat pumps - we have a course for you.

Dedicated state of the art Centres of Excellence.

Located in Glasgow, Elland (near Leeds), Belper (near Derby), Cambridge, Farnborough, Bristol and Maidstone you can rest assured there is a centre never far away from where you are. Our centres have been developed and designed with you in mind, offering spacious facilities, a comfortable and superbly equipped training environment, with plenty of opportunities for hands on experience and product familiarisation.



Simpler, smarter, state of the art e-learning from Vaillant.

Here at Vaillant, we know that time is money. That is why our new blended approach to training combines convenient online tuition with expert hands-on training at our cutting edge nationwide Centres of Excellence. Proven to be 60% quicker and twice as effective*, Vaillant training means you can be the expert engineer without compromising time with your customers. Experience the new age of training today innovation today at www.vaillant.co.uk



* Twice as effective and 60% quicker when combined with traditional practical training

The ecoTEC range



The Vaillant ecoTEC range of boilers delivers first class performance and reliability.

The Vaillant ecoTEC is a remarkable boiler. With 22 gas boilers ranging from 12-38kW outputs, available in combination, system or open vent formats, there's an ecoTEC for virtually every home in the UK. We've also got a full range of controls and cylinders available, to help you maximise your boiler to its full potential.

All our ecoTEC boilers have Vaillant's key qualities running through them; fantastic engineering, incredible efficiency, compact and subtle design. We use only the highest quality components - because reliability is as important to us as it is to you.

Compact dimensions and a range of flueing options mean the ecoTEC boiler is as versatile as ever.

We're just as committed to performance too. With ratings of up to 90% efficiency, the ecoTEC range about as frugal with fuel as you can get, meaning saving energy has never been so easy.

What's more, with a Quiet Mark Award, from the UK Noise Abatement Society, it's one of the most understated miracles of engineering we've ever produced.

It's simpler, smarter, easier, cleaner, leaner, quieter - and just plain better.

Accreditations

It's not enough that the ecoTEC boiler range delivers class-leading performance and reliability, we've also been recognised for our contributions to British business and developing quieter technology. With Superbrand and Quiet Mark accreditations, you know you are getting the best when you choose Vaillant.

Superbrands

Vaillant is named as one of the UK's leading business brands in the 2014 and 2015 Superbrands Business index

Vaillant joins some of the world's most recognisable and reputable brands—including British Airways, Google and Apple—to have achieved Superbrands status. The annual league table is based on independent research to identify the UK's strongest brands, as voted for by marketing experts, business professionals and thousands of British consumers.



Quiet Mark

Quiet Mark is the international seal of approval from the UK's Noise Abatement Society, which serves to educate people on the effects of excessive noise and campaigns for noise reduction in our environment. Recognising those products that succeed in combining quality technology with reduced noise levels, Quiet Mark helps to ensure that consumers can make an informed choice when looking to purchase a product.

Vaillant's ecoTEC boilers, geoTHERM ground source heat pumps and aroTHERM air to water heat pumps have all been awarded Quiet Mark accreditation.



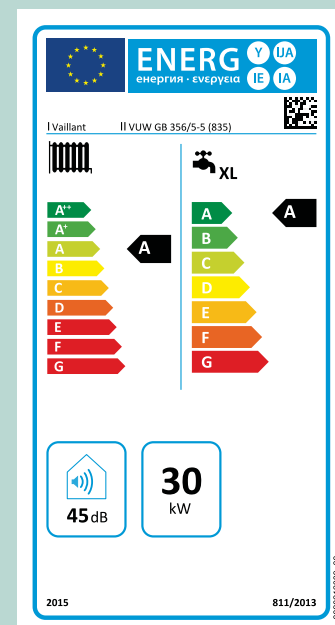
Legislation

ErP: Energy savings with a future

The ErP (Energy related Product) regulations will be introduced in the summer of 2015, meaning that all heating and hot water products must meet certain levels of efficiency specified by the EU, in line with the European emission and carbon reduction targets we have pledged to meet by 2020.

All Vaillant boilers have been manufactured to the highest of standards and now feature an upgraded high efficiency pump.

A new energy label is also being introduced in the EU to accompany the ErP Regulation. Using a scale of A++ to G, the label will also contain information on other factors such as the appliance's heating performance and noise levels.



Combi boilers



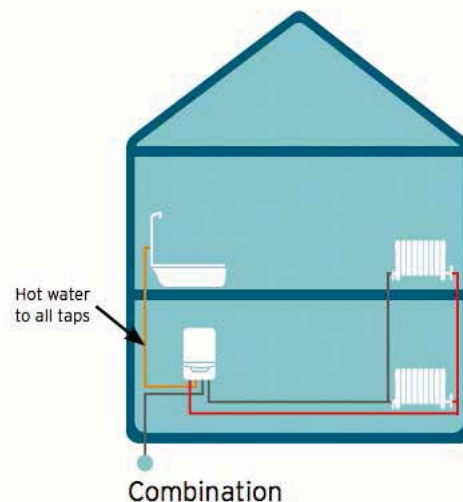
High efficiency combination boilers are an increasingly popular choice in UK homes and now account for well over half of all new domestic boilers installed in UK every year.

ecoTEC condensing combi boilers do not require hot water cylinders or cold water storage tanks, minimising the space they occupy.

Vaillant's range of combi boilers is broad enough to ensure the ideal solution for all house types – from a one-bedroom/bathroom flat through to a four-bedroom property with two bathrooms.

The ecoTEC plus high efficiency combi boiler range uses premium components for outstanding performance, quality, reliability and efficiency, the very best in home heating. The ecoTEC combination range is available in a wide range of outputs from 25kW to 38kW.

The ecoTEC plus 938 is a 38kW high efficiency storage combination boiler, which has been designed especially for larger homes that have a higher hot water demand. Featuring an innovative integrated hot water device at the back of the boiler called the 'actoSTOR'. This separate 15 litre 'actoSTOR' unit provides exceptional hot water delivery which re-charges in just 2 minutes. All of this without the need for you to install a separate hot water cylinder.





Key features and benefits:

- **Highly efficient and economical to run**
With up to an 89.3% efficiency rating (SAP 2009)
ErP rated A
- **Instant hot water delivery in just 5 seconds***
Meaning no need for a storage tank or cylinder
- **Flame lift detection system**
Enabling more efficient and quieter combustion
- **Dedicated models available for LPG**
Giving a solution for off-gas areas
- **Stylish contoured case design with drop down flap**
Making this a boiler that fits with the decor of any home
- **Built-in two-stage frost protection**
Ensuring optimal performance all year round
- **An innovative solution for large homes**
Featuring an innovative integrated hot water device 'actoSTOR' at the back of the boiler (938 only)
- **Extended guarantees available when installed by a Vaillant Advance partner**
For total peace of mind
- **Total system solution available from one manufacturer**
Intelligent controls and accessories all available (see pages 54 - 61)
- **Quiet Mark accreditation**
Thanks to being ultra quiet whilst in operation
- **Step by step full text Installation Wizard**
For quicker, "first time right" set up and installation
- **Compatible with aroTHERM air to water heat pump hybrid system**
Making the perfect entry into renewable systems

Below is a list of related Vaillant accessories, designed to help maximise your system to its full potential:

<p>Heating controls: timeSWITCH 150 timeSWITCH 160</p> <p>VRC 470 VRC 470f (wireless version)</p> <p>VRT 350 VRT 350f (wireless version)</p>		<p>Room thermostats: VR 81 VRT 50 VRT 15</p> <p>Passive Flue Gas Heat Recovery Device recoFLUE**</p> <p>Renewable solution: aroTHERM air to water heat pump hybrid system</p>	
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*Dependent on the distance of the boiler from taps

**Compatible with ecoTEC pro 24, pro 28, pro 28 LPG, pro 30, ecoTEC plus 825, ecoTEC plus 832, ecoTEC plus 832 LPG, ecoTEC plus 835 and ecoTEC plus 838 only

ecoTEC exclusive 832 and 838



The ecoTEC exclusive range of high efficiency combi boilers offers premium performance and fuel efficiency whilst creating a solid basis for the heating system of larger homes.








The range features 32kW and 38kW models, which can deliver much higher than average central heating outputs, making the ecoTEC exclusive a must have for larger properties.

Key features and benefits:

- **Highly efficient and economical to run**
ErP rated A
- **Features electronically controlled low energy pump**
Helping to reduce energy consumption

- **Compact dimensions (800mm x 480mm x 450mm)**
For excellent siting, flexibility and ease of installation
- **Installed filling loop**
For even quicker installation
- **Push fit flue system**
For greater installation flexibility
- **Wide modulation range**
For maintaining higher efficiencies at lower outputs
- **Blue backlit scrolling text display**
Meaning clear visibility even in poor light conditions
- **Extended guarantees available when installed by a Vaillant Advance partner**
For total peace of mind
- **Total system solution available from one manufacturer**
Intelligent controls and accessories all available (see pages 54 - 61)
- **Quiet Mark accredited**
Thanks to being ultra quiet whilst in operation
- **Compatible with aroTHERM air to water heat pump hybrid system**
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*Compatible with ecoTEC pro 24, pro 28, pro 28 LPG, pro 30, ecoTEC plus 825, ecoTEC plus 832, ecoTEC plus 832 LPG, ecoTEC plus 835 and ecoTEC plus 838 only



The ecoTEC pro range of combi boilers combine the built-in quality, reliability and performance you'd expect from Vaillant, with a simple design and approach.

The range features 24, 28 and 30kW models, making this boiler perfect for homes with a smaller heating and hot water requirements.

Key features and benefits:

- **Highly efficient and economical to run**
With up to an 89.3% efficiency rating (SAP 2009) ErP rated A
- **Compact dimensions**
(720mm x 440mm x 338mm)
For flexible siting options

- **Removable side panels and push-fit flue system**
For improved accessibility, ease of installation and greater installation flexibility

- **Quiet Mark accredited**
Thanks to being ultra quiet whilst in operation

- **Fully modulating low NOx burner and fan**
For improved energy efficiency

- **Built-in two-stage frost protection**
To ensure optimal performance all year round

- **Increased speed of hot water delivery**
Thanks to Vaillant's 'aquaCOMFORT' warm start feature

- **Extended guarantees available when installed by a Vaillant Advance partner**
For added piece of mind







- **Total system solution available from one manufacturer**
Intelligent controls and accessories all available (see pages 54 - 61)

- **Dedicated models available for LPG**
Giving a solution for off-gas areas

- **Wide modulation range of up to 1:4**
Ensuring low energy consumption and maximum efficiency

- **Compatible with aroTHERM air to water heat pump hybrid system**
Making the perfect entry into renewable systems

Below is a list of related Vaillant accessories, designed to help maximise your system to its full potential:

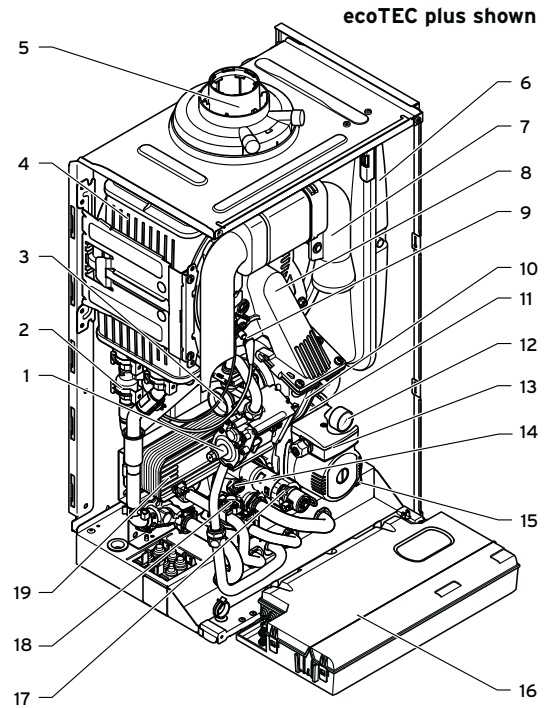
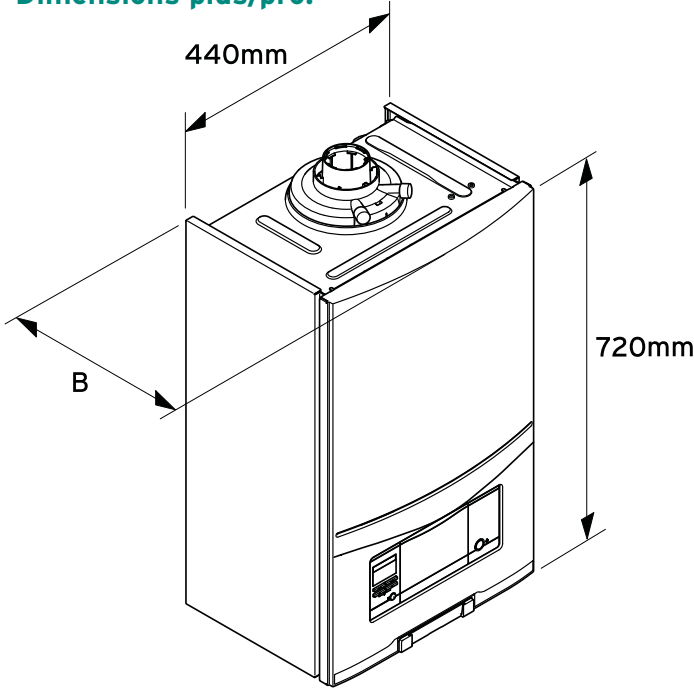
<p>Heating controls: timeSWITCH 150 timeSWITCH 160</p> <p>VRC 470 VRC 470f (wireless version)</p> <p>VRT 350 VRT 350f (wireless version)</p>	  	<p>Room thermostats: VR 81 VRT 50 VRT 15</p> <p>Passive Flue Gas Heat Recovery Device: recoFLUE*</p> <p>Renewable solution: aroTHERM air to water heat pump hybrid system</p>	  
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*Compatible with ecoTEC pro 24, pro 28, pro 28 LPG, pro 30, ecoTEC plus 825, ecoTEC plus 832, ecoTEC plus 832 LPG, ecoTEC plus 835 and ecoTEC plus 838 only

ecoTEC combination boiler dimensions and key components

Combination boilers - ecoTEC plus 825 / 832 / 835 / 838
ecoTEC pro 24 / 28 / 30

Dimensions plus/pro:

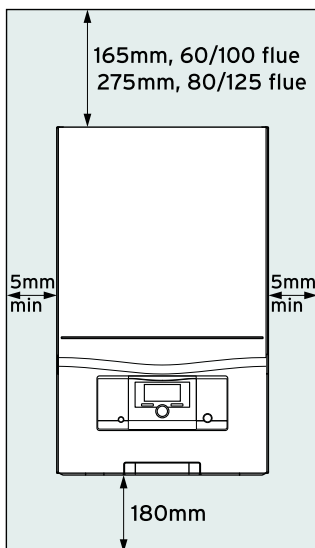


Boiler model	Dimension B
ecoTEC pro 24/28/30	338mm
ecoTEC plus 825/832	338mm
ecoTEC plus 835	372mm
ecoTEC plus 838	406mm
ecoTEC plus 938	600mm

Key:

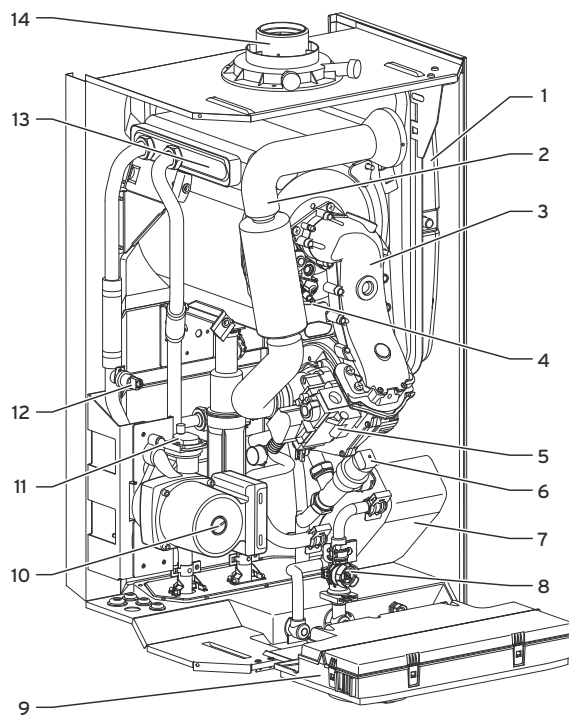
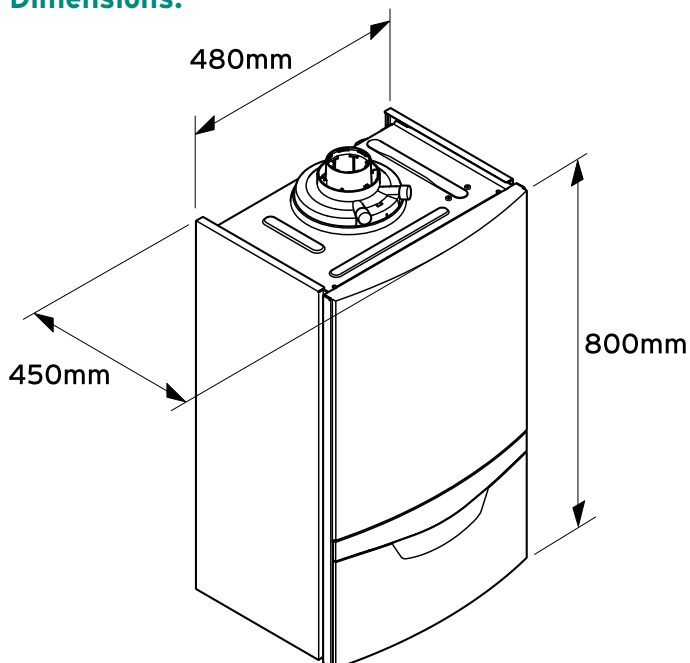
1. Gas valve
2. Water pressure sensor
3. Venturi with mass flow sensor (plus only)
4. Heat exchanger
5. Connection for the air/ flue gas duct
6. Expansion vessel
7. Air intake pipe
8. Compact thermal module
9. Ignition electrode
10. Fan
11. Automatic air vent
12. Pressure gauge
13. Internal pump
14. Bypass valve
15. Expansion relief valve
16. Electronics box
17. Diverter valve with bypass
18. Impeller sensor (hot water)
19. Secondary heat exchanger

Clearances:

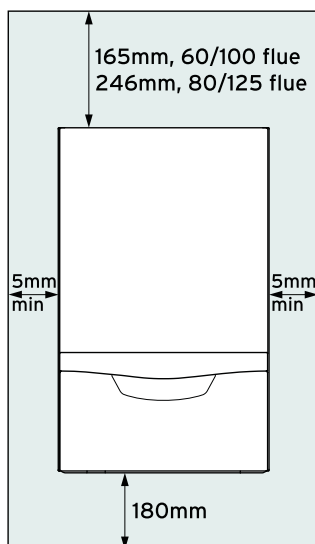


Combination boilers - ecoTEC exclusive 832 / 838

Dimensions:



Clearances:



Key:

- 1 Expansion vessel
- 2 Air intake pipe
- 3 Burner assembly
- 4 Ignition electrode
- 5 Gas Valve
- 6 Diverter valve
- 7 Hot water heat exchanger
- 8 Aqua-Sensor
- 9 Electronics box
- 10 Pump
- 11 Auto air vent
- 12 Pressure sensor
- 13 Heat exchanger
- 14 Air / flue gas duct

ecoTEC combination technical specifications

Combination boilers - ecoTEC plus 825 / 832 / 835 / 838 / 938

Technical data	Unit	ecoTEC plus				938
		825	832	835	838	
Article number		0010018353	0010018354 0010018355 (LPG)	0010016540	0010018356	0010018357
Gas inlet connection	mm	15			22	22
Connections heating flow and return	mm	22				
Connector expansion relief valve (min.)	mm	15				
Flue sizes (concentric)	mm	60/100				
Condensate drain (min. internal diameter drain)	mm	19				
Inlet gas working pressure (G20, natural gas)	mbar	20				
G31 propane gas flow pressure	mbar	37				
Gas flow rate at 15°C and 1013 mbar (based on hot water generation, if applicable), G20	m ³ h	2.7	3.4	3.8	4.2	
Gas flow rate at 15°C and 1013 mbar (based on hot water generation, if applicable), G31	kg/h	2.0	2.5	2.8	3.1	
Approved flue type		C13, C33, C43, C53				
NOx class		5				
SEDBUK SAP seasonal efficiency 2009	%	89.3				
ErP rating Central Heating		A				
ErP rating Hot Water		A				
Boiler dimensions (WxHxD)	mm	440x720x338		440x720x372	440x720x406	440x720x600
Weight (boiler only)	kg	36	37	38	43	60
Nominal heat output range of CH at 50°C flow/30°C return	kW	4.2 - 20.4	5.7 - 25.7 6.7 - 25.7 (LPG)	6.4 - 32.2	7.1 - 30.1	
Nominal heat output range of CH at 80°C flow/60°C return	kW	3.8 - 19.3	5.2 - 24.4 6.0 - 24.4 (LPG)	5.8 - 30.4	6.4 - 28.6	
Maximum DHW output	kW	25.4	31.8	35	38.7	
Maximum DHW input	kW	25.9	32.4	35.7	39.5	

Combination boilers - ecoTEC plus 825 / 832 / 835 / 838 / 938

Technical data	Unit	ecoTEC plus				
		825	832	835	838	938
Article number		0010018353	0010018354 0010018355 (LPG)	0010016540	0010018356	0010018357
Maximum CH input	kW	19.6	24.7	31	28.9	
Minimum CH output	kW	4	5.5 6.4 (LPG)	6.2	6.8	
Maximum flow temperature	°C	85				
Adjustable flow temperature (default setting: 75°C)	°C	30 - 80				
Maximum CH system pressure	bar	3				
Mains water pressure required for maximum flow rate	bar	0.80				
Expansion vessel capacity	litre	10				
Volume of water circulating ($\Delta T = 20k$)	l/h	830	1,049	1,307	1,230	
Approx. Condensation volume at 50°C feed/30°C return	l/h	2.0	2.5	3.1	2.9	
Remaining feed head of pump (at nominal circulation water volume)	bar	0.25				
Minimum DHW flow rate	l/min	2				
DHW flow rate at 35°C temperature rise	l/min	10.5	13	14.3	15.9	
Maximum domestic cold water pressure	bar	10				
Minimum operational water pressure	bar	0.35				
Hot water discharge temperature range	°C	35 - 65				
Electricity supply voltage	V-/Hz	230/50				
Internal fuse (slow) main voltage	A	2				
Minimum electrical power consumption	W	35		45	55	
Maximum electrical power consumption	W	65	85	90	120	140
Standby electrical power consumption	W	<2			<3	
Protection class		IP X 4D				

ecoTEC combination technical specifications

Combination boilers - ecoTEC pro 24 / 28 / 30

Technical data	Unit	ecoTEC pro		
		24	28	30
Article number		0010018494	0010018495 0010018496 (LPG)	0010016538
Gas inlet connection	mm	15		
Connections heating flow and return	mm	22		
Connector expansion relief valve (minimum)	mm	15		
Flue size (concentric)	mm	60/100		
Condensate drain (minimum internal diameter drain)	mm	19		
Inlet gas working pressure (G20, natural gas)	mbar	20		
Inlet gas working pressure (G31, propane)	mbar	37		
Gas flow rate at 15°C and 1013 mbar (based on hot water generation, if applicable), G20	m³/h	2.5	2.9	3.2
Gas flow rate at 15 °C and 1013 mbar (based on hot water generation, if applicable), G31	kg/h	1.9	2.2	2.4
Approved flue type		C13, C33, C43, C53		
NOx class		5		
SEDBUK SAP seasonal efficiency 2009	%	89.3		
ErP rating Central Heating		A		
ErP rating Hot Water		A		
Boiler dimensions (WxHxD)	mm	440x720x338		
Weight (boiler only)	kg	38		39
Nominal heat output range of central heating at 50°C flow/30°C return	kW	5.7 -19.9	5.7-19.9 6.9-25.7 (LPG)	6.9-25.7
Nominal heat output range of central heating at 80°C flow/60°C return	kW	5.2 - 18.9		8.0 - 24.7
Maximum DHW output	kW	23.4	27.2	30

Combination boilers - ecoTEC pro 24 / 28 / 30

Technical data	Unit	ecoTEC pro		
		24	28	30
Article number		0010018494	0010018495 0010018496 (LPG)	0010016538
Maximum DHW input	kW	23.7	27.8	30.6
Maximum central heating input	kW	19.1	19.1 18.8 (LPG)	25
Minimum central heating output	kW	5.5	5.5 7.7 (LPG)	8.5
Maximum flow temperature	°C	85		
Adjustable flow temperature (default setting: 75°C)	°C	30 - 80		
Maximum CH system pressure	bar	3		
Mains water pressure required for maximum flow rate	bar	0.8		
Expansion vessel capacity	litre	8		
Volume of water circulating (T= 20 K)	l/h	813		1,049
Approx. Condensation volume at 50°C feed/30°C return	l/h	1.9		2.5
Remaining feed head of pump (at nominal circulation water volume)	bar	0.25		
Minimum DHW flow rate	l/min	2		
DHW flow rate at 35°C temperature rise	l/min	9.6	11.1	12.3
Max. domestic cold water pressure	bar	10		
Min. operational water pressure	bar	0.35		
Hot water discharge temperature range	°C	35 - 65		
Electrical supply voltage	V-/ Hz	230/50		
Internal fuse (slow) main voltage	A	2		
Minimum electrical power consumption	W	35		
Maximum electrical power consumption	W	50	80	
Standby electrical power consumption	W	< 2		
Protection class		IP X 4D		

Combination boilers - ecoTEC exclusive 832 / 838

Technical data	Unit	ecoTEC exclusive	
		832	838
Article number		0010002668	0010002669
Gas inlet connection	mm	15	
Connections heating flow and return	mm	22	
Connector expansion relief valve (minimum)	mm	15	
Flue size (concentric)	mm	60/100	
Condensate drain (minimum internal diameter drain)	mm	10.7	14.4
Inlet gas working pressure (G20, natural gas)	mbar	20	
Inlet gas working pressure (G31, propane)	mbar	37	
Gas flow rate at 15°C and 1013 mbar (based on hot water generation, if applicable), G20	m³/h	3.4	4
Gas flow rate at 15 °C and 1013 mbar (based on hot water generation, if applicable), G31	kg/h	2.49	2.95
Approved flue type		C13, C33, C43, C53	
NOx class		5	
SEDBUK SAP seasonal efficiency 2009	%	89.8	89.9
ErP rating Central Heating		A	
ErP rating Hot Water		A	
Boiler dimensions (WxHxD)	mm	480x800x450	
Weight (boiler only)	kg	44	46
Nominal heat output range of central heating at 50°C flow/30°C return	kW	10.8 - 28.7	11.9 - 31.8
Nominal heat output range of central heating at 80°C flow/60°C return	kW	10.2 - 27.0	11.2 - 30.0
Maximum DHW output	l/min	31.4	37.2
Maximum DHW input	l/min	32	38
Maximum central heating input	l/min	27.6	30.6
Minimum central heating output	l/min	10.4	11.4
Maximum flow temperature	°C	90	
Adjustable flow temperature (default setting: 75°C)	°C	40 - 85	
Maximum CH system pressure	bar	3	
Mains water pressure required for maximum flow rate	bar	0.5	

Combination boilers - ecoTEC exclusive 832 / 838

Technical data	Unit	ecoTEC exclusive	
		832	838
Article number		0010002668	0010002669
Expansion vessel capacity	litre	10	
Volume of water circulating ($\Delta T = 20\text{ K}$)	l/h	1,161	1,290
Approx. Condensation volume at 50°C feed/30°C return	l/h	2.8	3.1
Remaining feed head of pump (at nominal circulation water volume)	bar	0.25	
Minimum DHW flow rate	l/min	1.5	
DHW flow rate at 35°C temperature rise	l/min	12.9	15.2
Maximum domestic cold water pressure	bar	10	
Minimum operational water pressure	bar	0.35	
Hot water discharge temperature range	°C	35 - 65	
Electrical supply voltage	V-/ Hz	230/50	
Internal fuse (slow) main voltage	A	2	
Minimum electrical power consumption	W	40	
Maximum electrical power consumption	W	95	110
Standby electrical power consumption	W	5	
Protection class		IP X 4D	

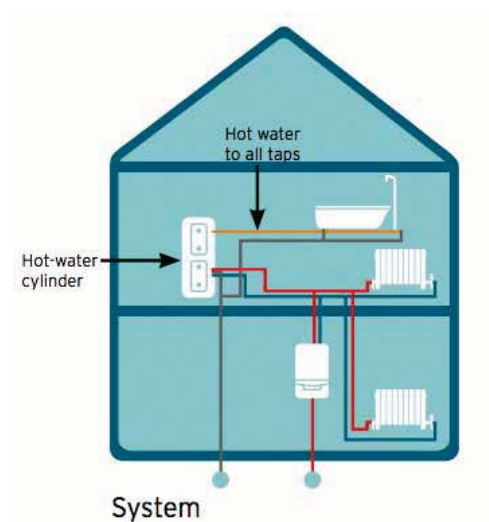
System boilers



A system boiler provides central heating and hot water via a storage cylinder, which is filled from the mains and often housed in an airing cupboard.

This means that there is no need for water tanks in the loft, as with an open vent boiler. This type of system benefits from having an electric immersion heater within the cylinder.

System boilers can be used with a hot water storage cylinder as a stand-alone heating system, or can be used as part of a number of renewable heating systems for example solar thermal.





The ecoTEC plus range of system boilers is available in a wide range of output models including 12kW, 15kW, 18kW, 24kW, 30kW and 37kW, meaning that there is a suitable model for almost any home. The stylish design and small dimensions also make it a perfect fit with any home.

Key features and benefits:

- **Removable side panels**
For additional accessibility flexibility

- **Highly efficient and economical to run**
With up to an 89.4% efficiency rating (SAP 2009) ErP rated A
- **Advanced modulation during periods of low heat demand**
Ensuring low energy consumption and maximum efficiency
- **Flame lift detection system**
Enabling more efficient and quieter combustion
- **Quiet Mark accredited**
Thanks to being ultra quiet whilst in operation
- **Stylish contoured case design with drop down flap**
Making this a boiler, which fits with the decor of any home
- **Total system solution available from one manufacturer**
Intelligent controls, cylinders and accessories all available (see pages 54 - 61)
- **Dedicated models available for LPG**
Giving a solution for off-gas areas
- **Step by Step, full text installation wizard**
For quicker, "first time right" set up and installation

Below is a list of related Vaillant accessories, designed to help maximise your system to its full

Heating controls:

timeSWITCH 160

VRC 470

VRC 470f (wireless version)

VRT 350

VRT 350f (wireless version)

Room thermostats:

VRT 15

VRT 81



Cylinders:

uniSTOR

Renewable solutions:

auroTHERM solar systems

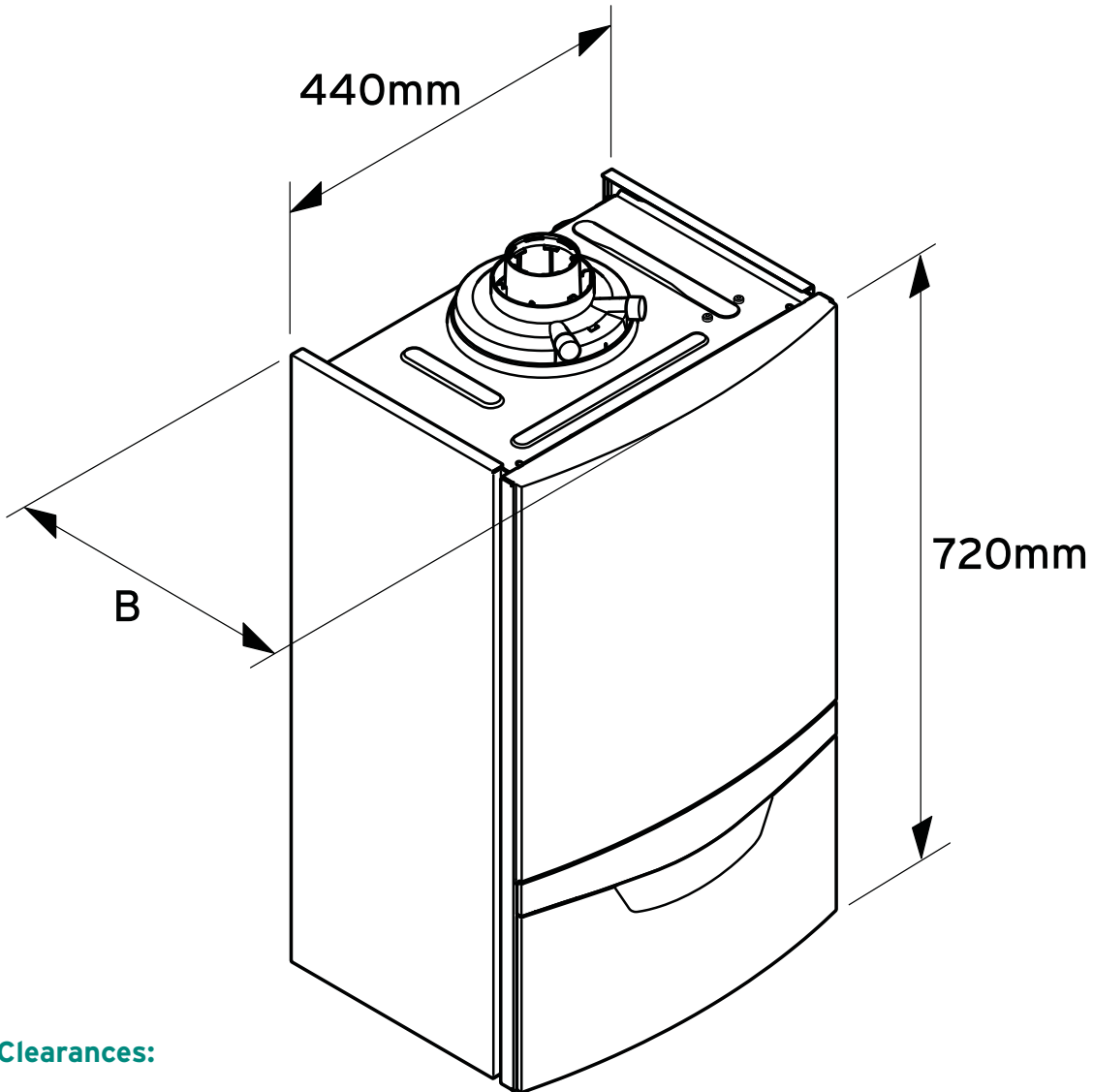
aroTHERM air to water heat

pump hybrid systems

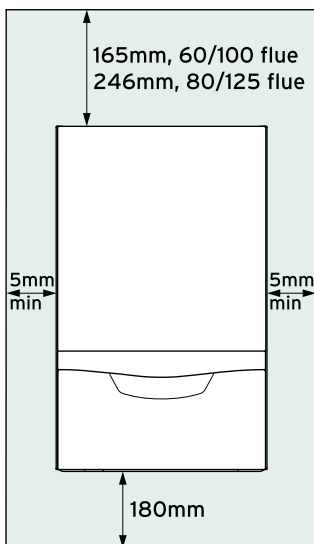


ecoTEC system dimensions and flue clearances

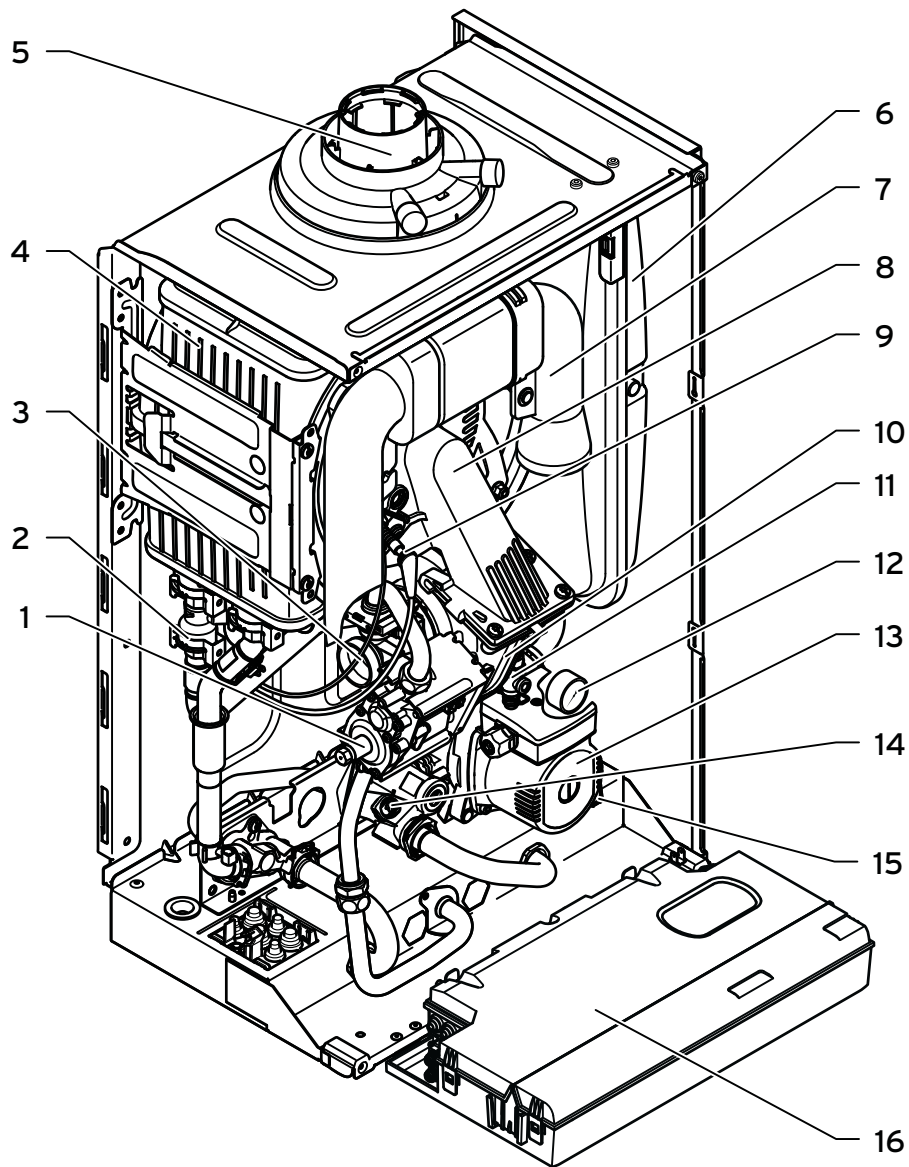
Dimensions:



Clearances:



Boiler model	Dimension B
ecoTEC plus 612/615/618/624	338mm
ecoTEC plus 630	372mm
ecoTEC plus 637	406mm



Key:

- | | |
|------------------------------------------|----------------------------|
| 1. Gas valve | 9. Ignition electrode |
| 2. Water pressure sensor | 10. Fan |
| 3. Venturi with mass flow sensor | 11. Automatic air vent |
| 4. Heat exchanger | 12. Pressure gauge |
| 5. Connection for the air/ flue gas duct | 13. Internal pump |
| 6. Expansion vessel | 14. Bypass valve |
| 7. Air intake pipe | 15. Expansion relief valve |
| 8. Compact thermal module | 16. Electronics box |

ecoTEC system technical specifications

System boilers - ecoTEC plus 612 / 615 / 618 / 624 / 630 / 637

Technical data	Unit	ecoTEC plus					
		612	615	618	624	630	637
Article number		0010018531	0010018532	0010018533 0010018534	0010018535	0010018536 0010018537	0010018538
Gas inlet connection	mm	15					22
Connections heating flow and return	mm	22					
Connector expansion relief valve (minimum)	mm	15					
Flue size (concentric)	mm	60/100					
Condensate drain (minimum internal diameter drain)	mm	19					
Inlet gas working pressure (G20, natural gas)	mbar	20					
Inlet gas working pressure (G31, propane)	mbar	-		37			
Gas flow rate at 15°C and 1013 mbar (based on hot water generation, if applicable), G20	m ³ /h	1.3	1.6	2	2.6	3.7	4.1
Gas flow rate at 15 °C and 1013 mbar (based on hot water generation, if applicable), G31	kg/h	-	-	1.5	1.9	2.4	3
Approved flue type		C13, C33, C43, C53					
NOx class		5					
SEDBUK SAP seasonal efficiency 2009	%	89.0	89.1	89.3	89.4		89.2
ErP rating		A					
Boiler dimensions (WxHxD)	mm	440x720x338				440x720x372	440x720x406
Weight (boiler only)	kg	36			37	38	43
Nominal heat output range of central heating at 50°C flow/30°C return	kW	3.3 - 12.9	3.3 - 16.1	4.2 - 19.3 9.4 - 32.1 (LPG)	5.7 - 25.7	6.4 - 32.2 5.5 - 19.3 (LPG)	7.1 - 39.6
Nominal heat output range of central heating at 80°C flow/60°C return	kW	3.0 - 12.2	3.0 - 15.4	3.8 - 18.5 5.0 - 18.5 (LPG)	5.2 - 24.4	5.8 - 30.4 8.5 - 30.4(LPG)	6.4 - 37.6
Maximum DHW output	kW	12.2	15.4	18.5	24.4	30.4	37.6
Maximum DHW input	kW	12.4	15.7	18.9	24.9	31	38.4

System boilers - ecoTEC plus 612 / 615 / 618 / 624 / 630 / 637

Technical data	Unit	ecoTEC plus					
		612	615	618	624	630	637
Article number		0010018531	0010018532	0010018533 0010018534	0010018535	0010018536 0010018537	0010018538
Maximum central heating input	kW	12.4	15.5	18.6	24.7	30.9	38.1
Minimum central heating output	kW	3.2		4 5.3 (LPG)	5.5	6.2 9.0 (LPG)	6.8
Maximum flow temperature	°C	85					
Adjustable flow temperature (default setting: 75°C)	°C	30 - 80					
Maximum CH system pressure	bar	3					
Mains water pressure required for maximum flow rate	bar	0.8					
Expansion vessel capacity	litre	10					
Volume of water circulating ($\Delta T = 20$ K)	l/h	525	662	796	1,049	1,307	1,617
Approx. Condensation volume at 50°C feed/30°C return	l/h	1.2	1.6	1.9	2.5	3.1	3.8
Remaining feed head of pump (at nominal circulation water volume)	bar	0.25					
Electrical supply voltage	V-/ Hz	230/50					
Internal fuse (slow main voltage)	A	2					
Minimum electrical power consumption	W	35				45	55
Maximum electrical power consumption	W	50	55	65	70	80	115
Standby electrical power consumption	W	< 2					< 3
Protection class		IP X 4D					

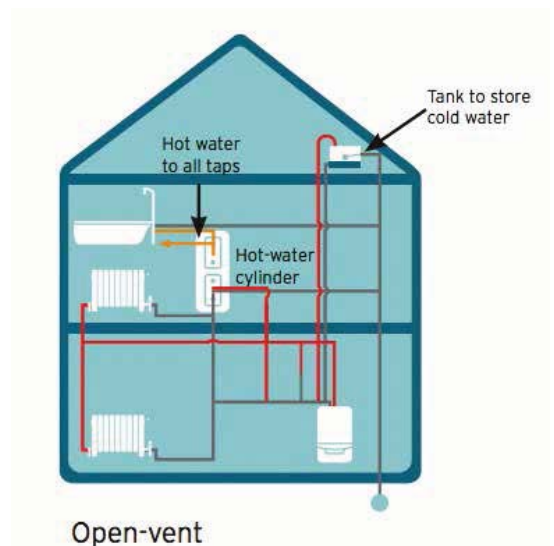
Open vent boilers



An open vented boiler works alongside a separate hot-water cylinder and require tanks to store the cold water.

Like a sealed system, an open vented boiler is normally suited to a larger home with a higher hot water requirement.

For homes that already use a traditional open vented system (with a storage cylinder and cold water tank), this extremely compact, highly versatile and kitchen-friendly boiler is the perfect upgrade.





Key features and benefits:

- **Highly efficient and economical to run**
With up to an 89.2% efficiency rating (SAP 2009) ErP rated A
- **Compact and light weight**
(375 x 600 x 302 on most models)
Ideal kitchen friendly design
- **Push button programming**
Makes usage straightforward and easy to use
- **Built-in two-stage frost protection**
To ensure optimal performance all year round
- **Push fit flue system**
For greater installation flexibility
- **Total system solution available from one manufacturer**
Intelligent controls, cylinders and accessories all available (see pages 54 - 61)
- **Wide modulation range of up to 1:6**
Ensuring low energy consumption and maximum efficiency
- **Quiet Mark accredited**
Thanks to being ultra quiet whilst in operation



Extremely reliable and displaying all the in-built quality you've come to expect from Vaillant, the ecoTEC plus is clearly one of the best open vent solutions available today. Where homes utilise a traditional open-vented system to provide their heating and hot water, the ecoTEC plus open vent boiler is the ideal way to deliver exceptional, energy efficient performance.

Available in six different output models, 12, 15, 18, 24, 30 and 38kW - ecoTEC plus open vent boilers are the most compact boilers ever developed by Vaillant. This kitchen-friendly design, along with excellent siting versatility and low lift weight, ensure a quick and straightforward installation.

Below is a list of related Vaillant accessories, designed to help maximise your system to its full potential:

Heating controls:

timeSWITCH 160

VRC 470

VRC 470f (wireless version)

VRT 350

VRT 350f (wireless version)



Room thermostats:

VRT 15

VRT 81

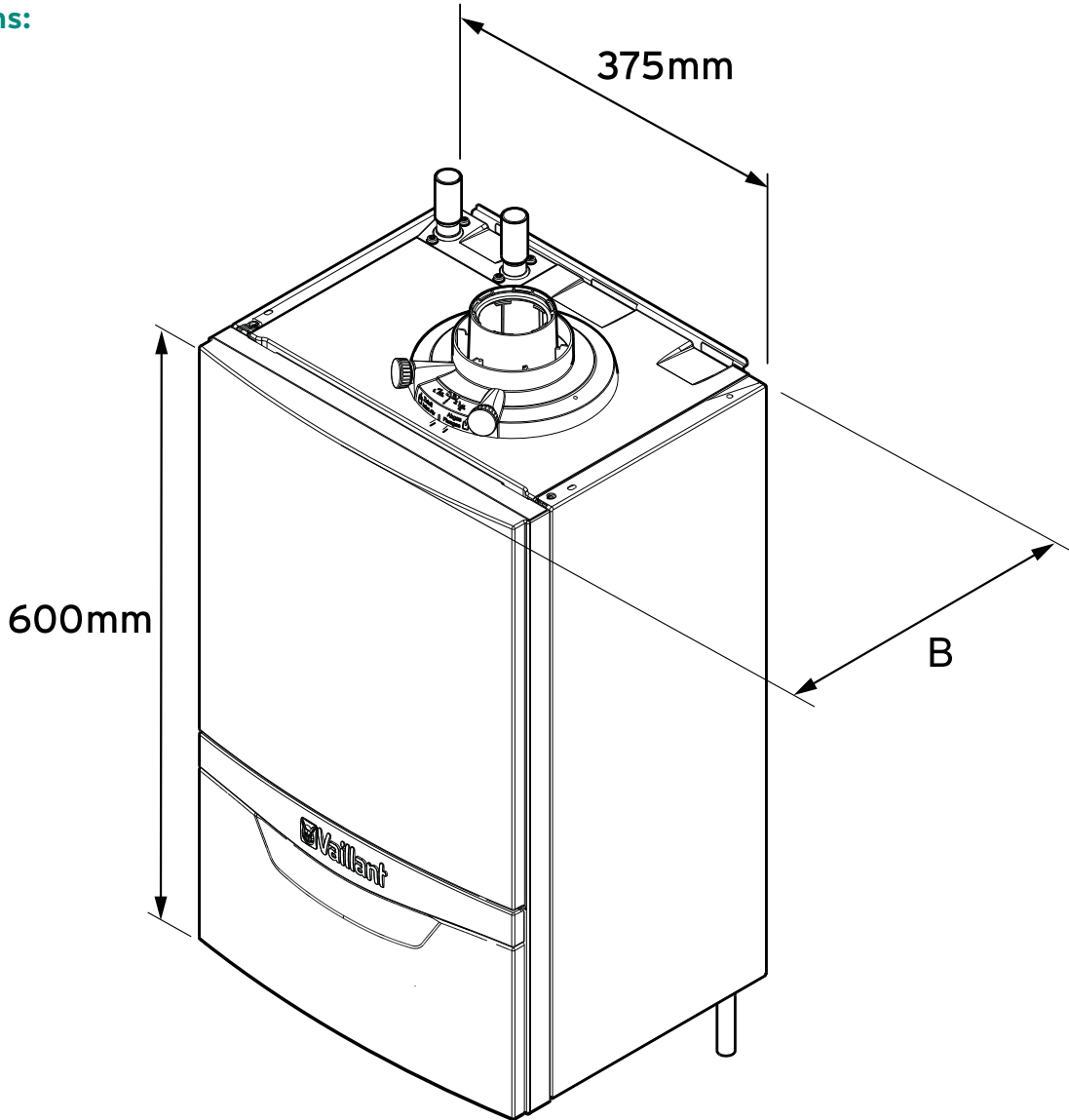
Cylinder:

uniSTOR

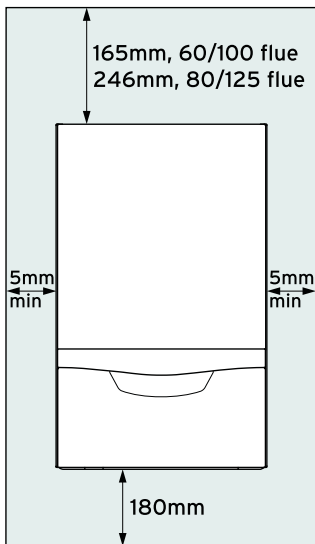


ecoTEC open vent dimensions

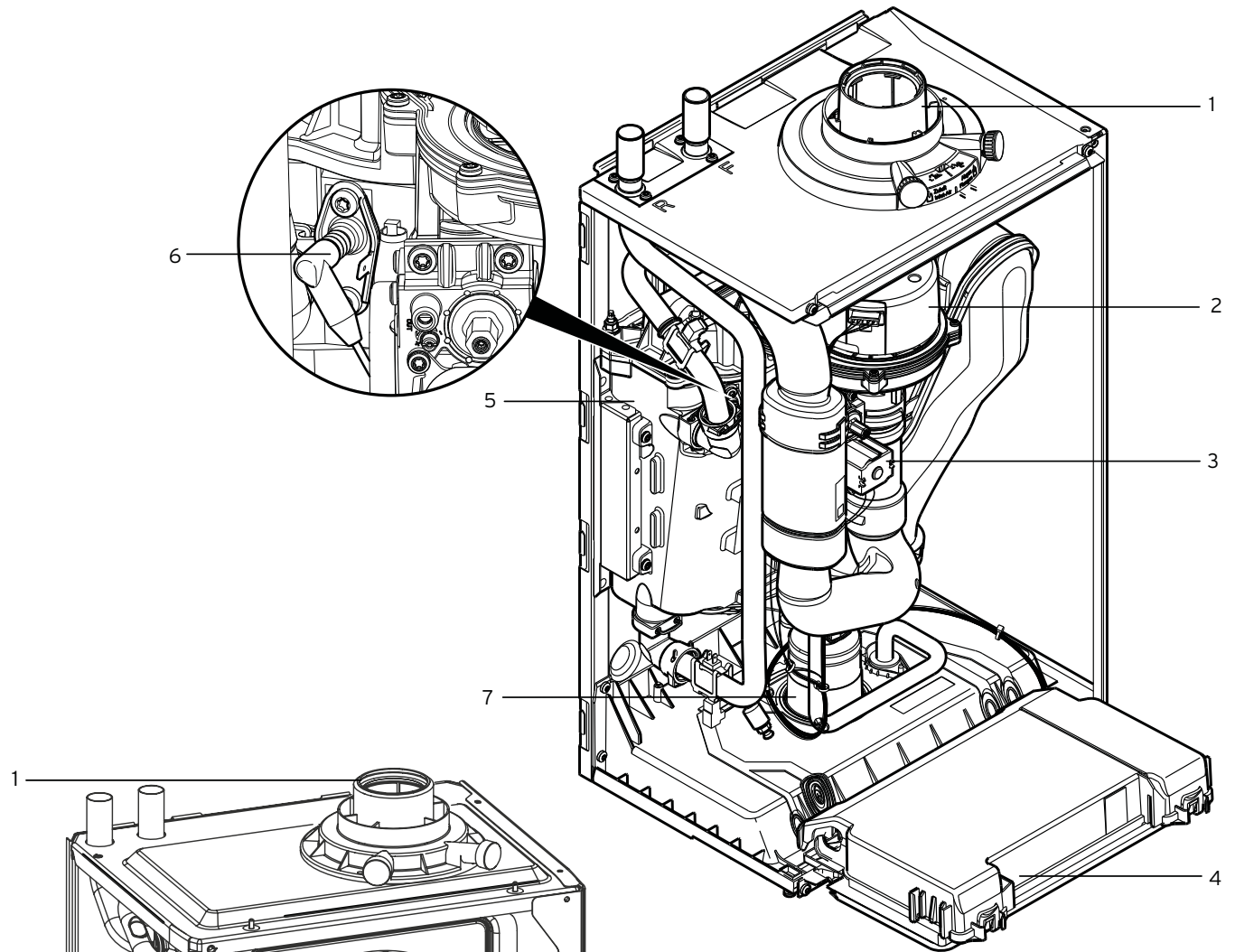
Dimensions:



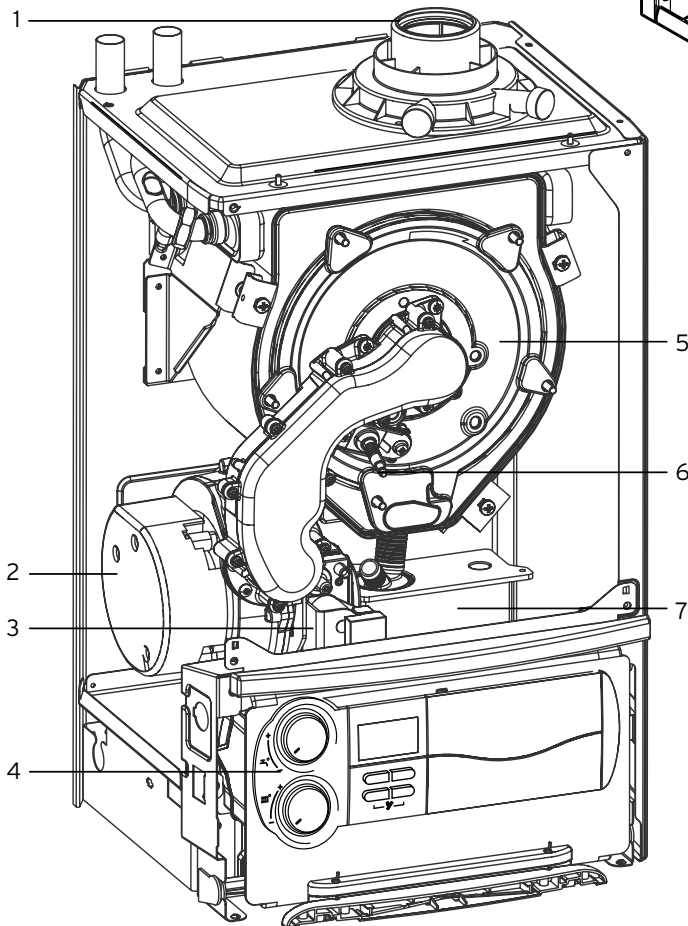
Clearances:



Boiler model	Dimension B
ecoTEC plus 412/415/418/424/430	302mm
ecoTEC plus 438	340mm



412, 415, 418, 424, 430



438 only

Key:

- 1. Flue pipe connection
- 2. Fan
- 3. Gas valve
- 4. Electronics box
- 5. Burner module
- 6. Ignition electrode
- 7. Condensate Siphon

ecoTEC open vent technical specifications

Open vent boilers - ecoTEC plus 412 / 415 / 418 / 424 / 430 / 438

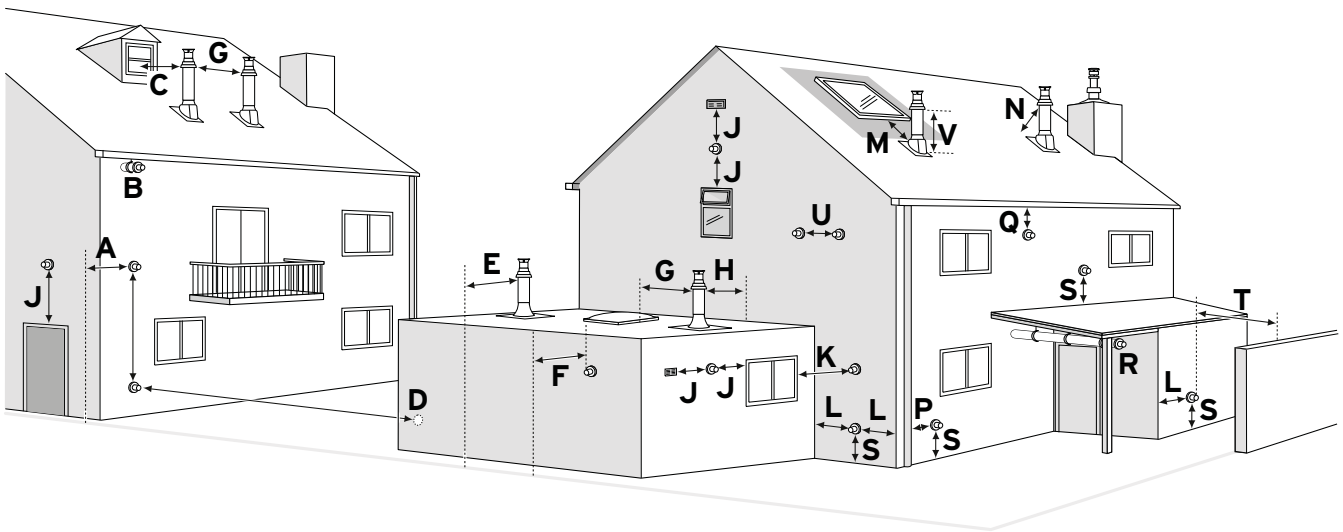
Technical data	Unit	ecoTEC plus					
		412	415	418	424	430	438
Article number		0010015669	0010015670	0010015671	0010015672	0010015673	0010002725
Heat exchanger type (material)		Aluminium					Stainless Steel
Gas inlet connection	mm	15					
Connections heating flow and return	mm	22					
Connector expansion relief valve (minimum)	mm	15					
Flue size (concentric)	mm	60/100 boiler connection (80/125 available with adaptor)					
Condensate drain (external diameter)	mm	21.5					19 (int diameter)
Inlet gas working pressure (G20, natural gas)	mbar	20					
Maximum gas flow rate at 15°C and 1013 mbar (based on hot water generation, if applicable), G20	m ³ /h	1.9		2.7	3.2	3.8	4.06
Minimum gas flow rate at 15°C and 1013 mbar (based on hot water generation, if applicable), G31	m ³ /h	0.48		0.53	0.65	0.76	0.71
Approved flue type		C13, C33, C43, C53					
NOx class		5					
ErP rating Central Heating		A	A	A	A	A	A
Boiler dimensions (WxHxD)	mm	375x600x302					375x600x340
Weight (boiler only)	kg	23.5			23.8		33
Nominal heat output range of central heating at 50°C flow/30°C return	kW	4.7 - 12.8	4.7 - 15.9	5.2 - 19.1	6.3 - 25.7	7.5 - 31.8	6.8 - 41.0
Nominal heat output range of central heating at 80°C flow/60°C return	kW	4.5 - 12.3	4.5 - 15.2	5.0 - 18.3	6.1 - 24.6	7.2 - 30.5	6.3 - 38.0
Maximum central heating input	kW	12.3	15.3	18.4	24.7	30.6	38.4
Minimum central heating output	kW	5.0	4.5	5.0	6.1	7.2	6.3
Maximum flow temperature	°C	75					
Adjustable flow temperature (default setting: 75°C)	°C	10 - 83	10 - 80				15 - 80

Open vent boilers - ecoTEC plus 412 / 415 / 418 / 424 / 430 / 438

Technical data	Unit	ecoTEC plus					
		412	415	418	424	430	438
Article number		0010015669	0010015670	0010015671	0010015672	0010015673	0010015674
Maximum working pressure (pms)	bar	0.3/3					
Approx. Condensation volume at 50°C feed/30°C return	l/h	1.23	1.53	1.84	2.47	3.06	3.1
Electrical supply voltage	V-/ Hz	230/50					
External fuse (slow) main voltage	A	3					
Standby electrical power consumption	W	2					<5
Protection class		IP X 4D					

Permissible flue lengths

Maximum flue lengths*	ecoTEC plus combi					ecoTEC plus system					ecoTEC plus open vent	ecoTEC pro combi		
	Boiler model	825	832	835	838	938	612/615	618	624	630		637	412/415/418/424/430/438	24
Standard horizontal 100mm diameter	12m	5.5m	5.5m	5.5m	5.5m	22m	12m	5.5m	5.5m	5.5m	10m	12m	12m	12m
Standard vertical 100mm diameter	16m	8m	8m	8m	8m	26m	16m	8m	8m	8m	10m	16m	16m	16m
Optional horizontal 125mm diameter	39m	32m	32m	32m	32m	25m	39m	32m	32m	32m	25m	39m	39m	39m
Optional vertical 125mm diameter	41m	34m	34m	34m	34m	27m	41m	34m	34m	34m	25m 27m (438 only)	41m	41m	41m



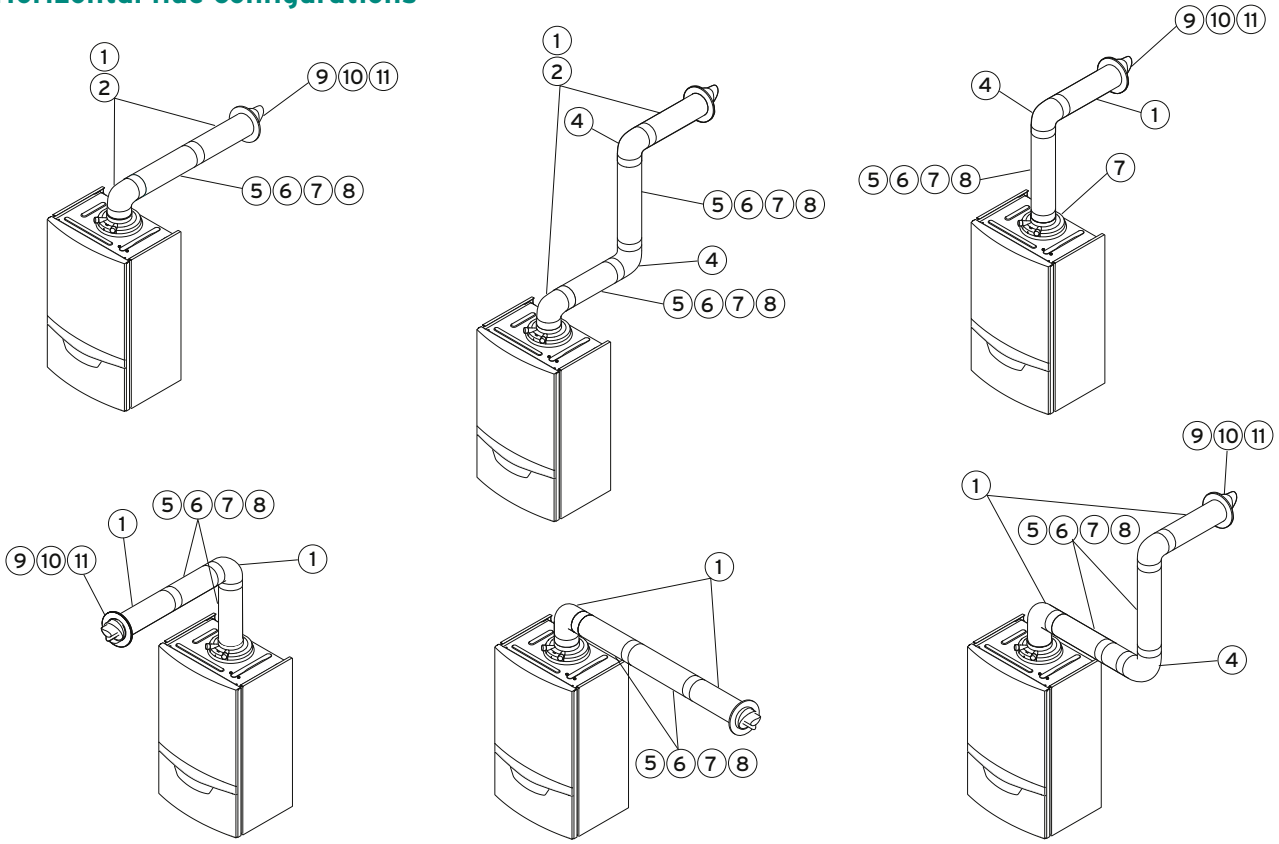
A	300mm adjacent to a boundary.
B	The dimension below eaves, balconies and car ports can be reduced to 25mm, as long as the flue terminal is extended to clear any overhang. External flue joints must be sealed with a suitable silicon sealant.
C	1500mm between a vertical flue terminal and a window or dormer window.
D	1200mm between terminals facing each other.
E	Vertical flue clearance, 300mm adjacent to a boundary line.
F	600mm distance to a boundary line, unless it will cause a nuisance. BS 5440: Part 1 recommends that care is taken when siting terminal in relation to boundary lines.
G	300mm minimum clearance from a skylight to a vertical flue or to another vertical flue.
H	Vertical flue clearance, 500mm to non-combustible building material, and 1500mm clearance to combustible building material.
J	300mm above, below and either side of an opening door, air vent or opening window.
K	600mm diagonally to an opening door, air vent or opening window.
L	300mm to an internal or external corner.
M	2000mm below a Velux window, 600mm above or to either side of the Velux window.
N	400mm from a pitched roof or 500mm in regions with heavy snowfall.
P	25mm from vertical drain pipes and soil pipes.
Q	200mm below eaves and 75mm below gutters, pipe and drains.

R	The dimension below eaves, balconies and car ports can be reduced to 25mm, as long as the flue terminal is extended to clear any overhang. External flue joints must be sealed with suitable silicon sealant.
S	300mm above adjacent ground or balcony or storm porch
T	600mm distance to a surface facing a terminal, unless it will cause a nuisance. BS 5440: Part 1 recommends that care is taken when siting terminals in relation to surfaces facing a terminal.
U	300mm clearance alongside another terminal.
V	300mm above roof level.

- All measurements are the minimum clearances required.
- Terminals must be positioned so to avoid combustion products entering the building.
- Support the flue at approximately one metre intervals and at a change of direction, use suitable brackets and fixings.
- Installations in car ports are not recommended.
- A flue outlet should be protected with a guard if persons could come into contact with it or if it could be damaged.
- The flue cannot be lower than 1 metre from the top of a light well due to the build up of combustion products.
- Dimensions from a flue terminal to a fanned air inlet to be determined by the ventilation equipment manufacturer.

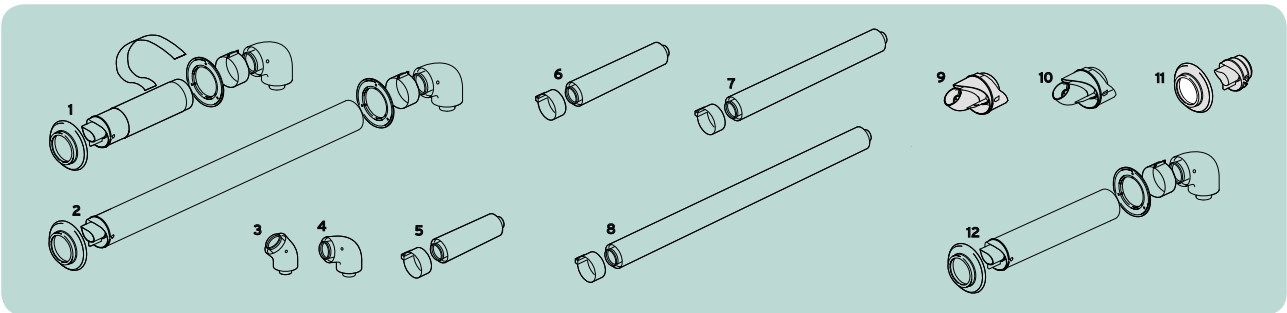
Flue solutions

Horizontal flue configurations



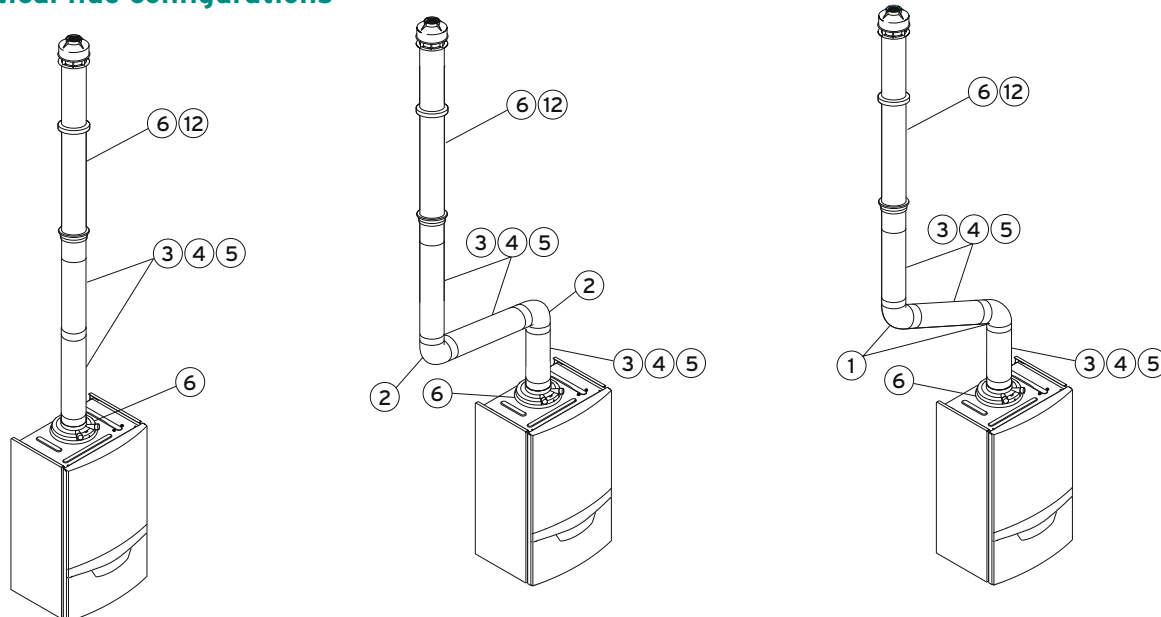
Horizontal flue accessories

The overall maximum flue length must not be exceeded



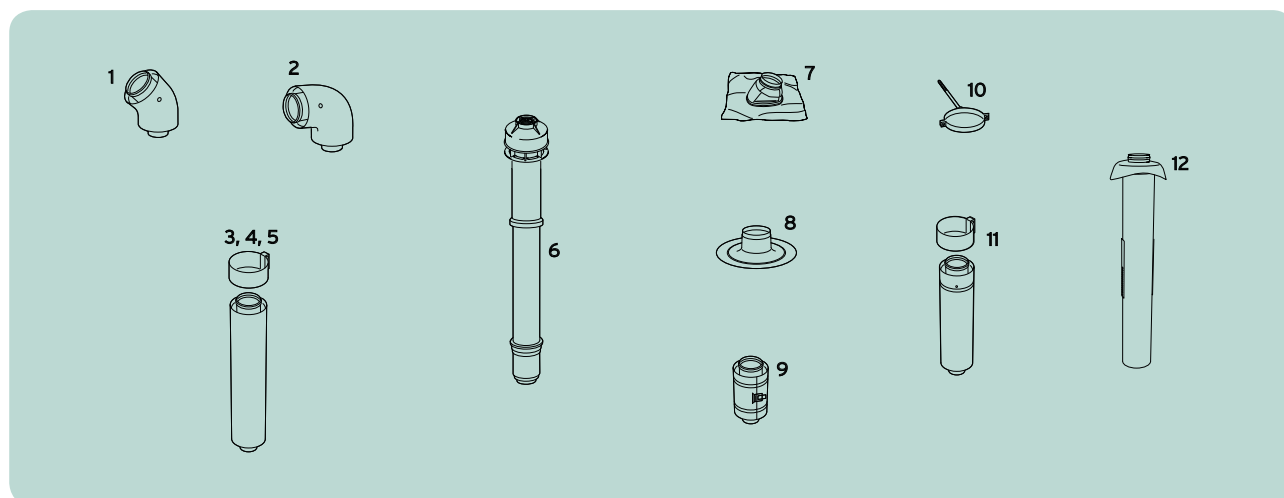
Component	Description	Part Number Ø60/100	Part Number Ø80/125
1	Horizontal Telescopic air/flue duct with elbow and terminal	303936	-
2	Horizontal air/flue duct with elbow and terminal 1770mm	0020178285	-
3	Bends 45° (pack of 2)	303911	303211
4	Elbow 87°	303910	303210
5	Air/flue duct extension (470mm)	303902	303202
6	Air/flue duct extension (970mm)	303903	303203
7	Air/flue duct extension (1970mm)	303905	303205
8	Air/flue duct extension (4000mm)	0020104555	-
9	Plume deflector horizontal (black)	0020060584	-
10	Plume deflector horizontal (white)	0020060585	-
11	Black terminal kit for horizontal air/flue duct	303934	-
12	Standard Horizontal air/flue duct with elbow and terminal	303933	303209

Vertical flue configurations



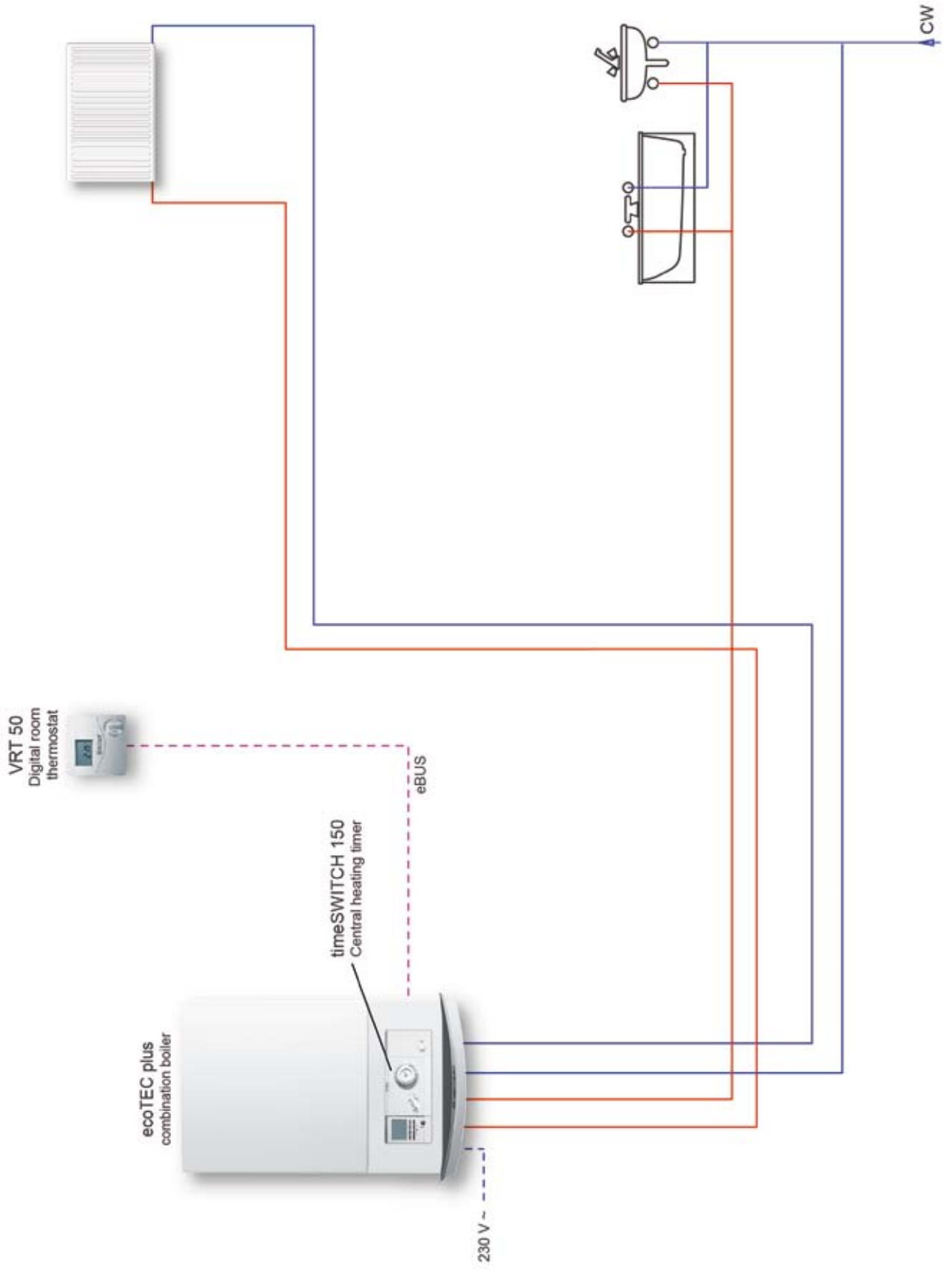
The overall maximum flue length must not be exceeded
Horizontal sections must have a continuous fall of at least 2.5° (44mm/metre) back to the boiler

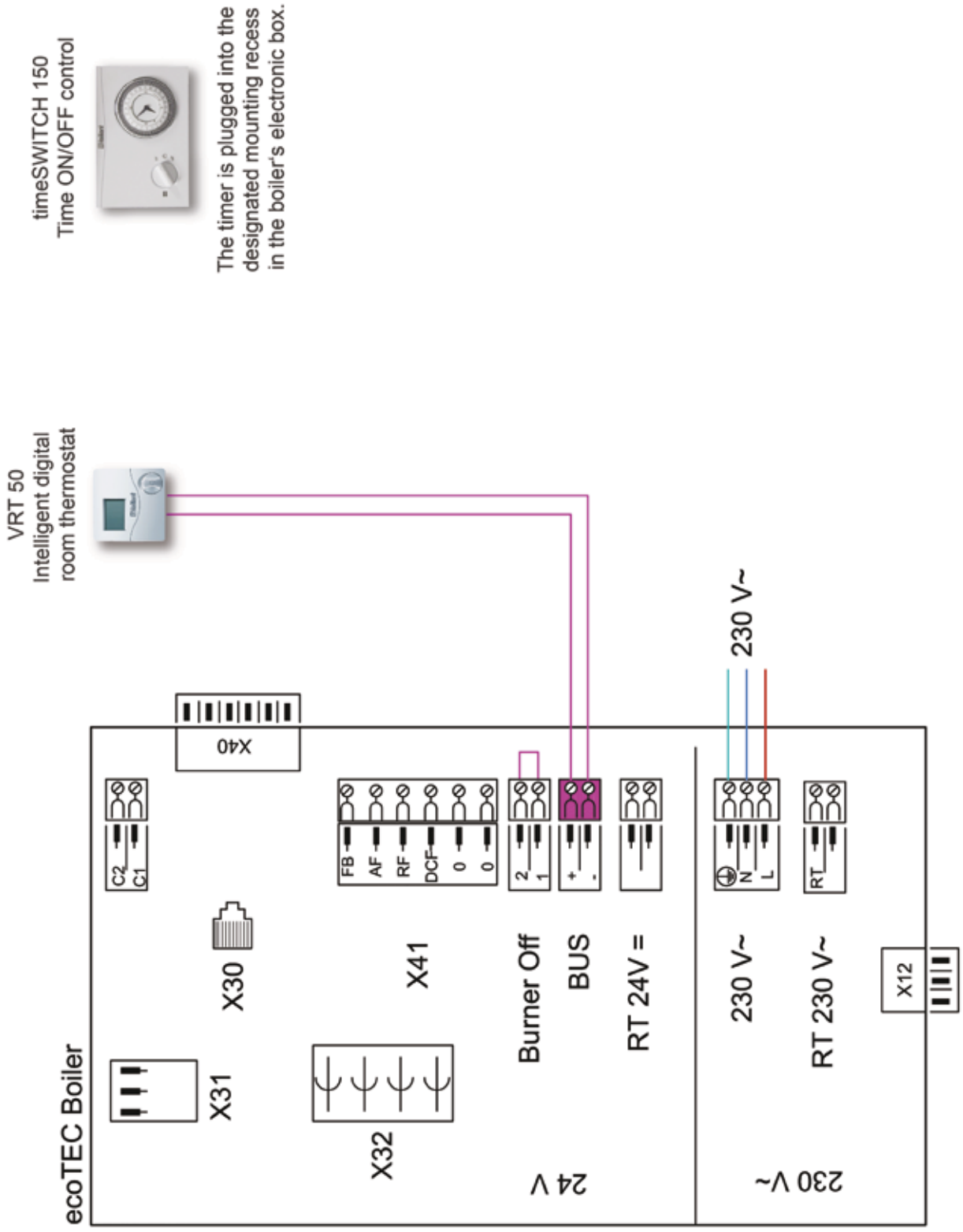
Vertical flue accessories



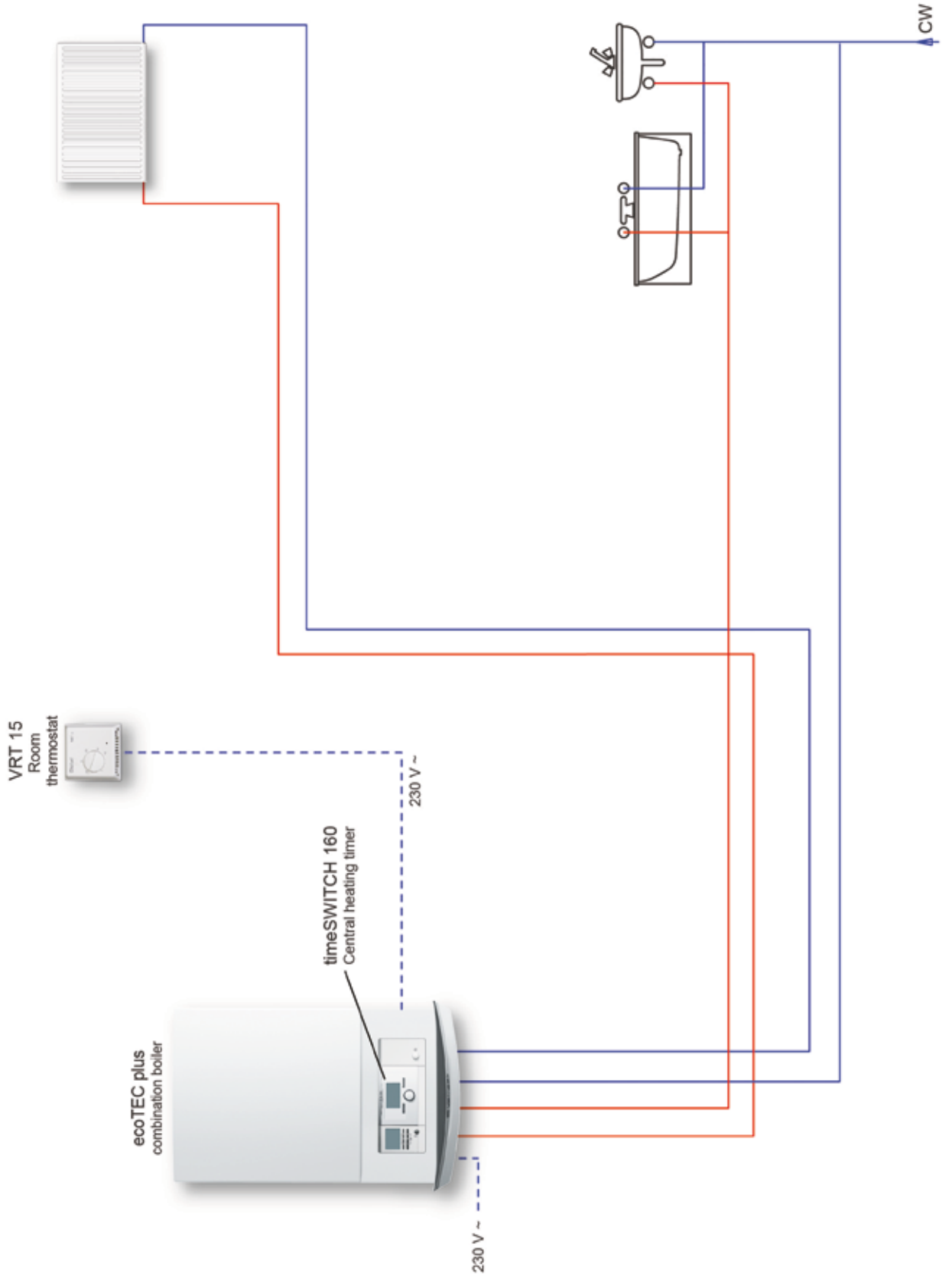
Component	Description	Part Number Ø60/100	Part Number Ø80/125
1	Bends 45° (pack of 2)	303911	303211
2	Elbow 87°	303910	303210
3	Air/flue duct extension (470mm)	303902	303202
4	Air/flue duct extension (970mm)	303903	303203
5	Air/flue duct extension (1970mm)	303905	303205
6	Vertical air/flue duct and terminal	0020065937	303200
7	Flexible Roof Seal	303980	303980
8	Flat roof penetration collar	009056	009056
9	Sliding Sleeve	303915	303215
10	Adjustable flue support (pack of 3)	303935	303616
11	Telescopic air/flue duct extension	303906	-
12	Flue terminal for ridge tile	303982	-

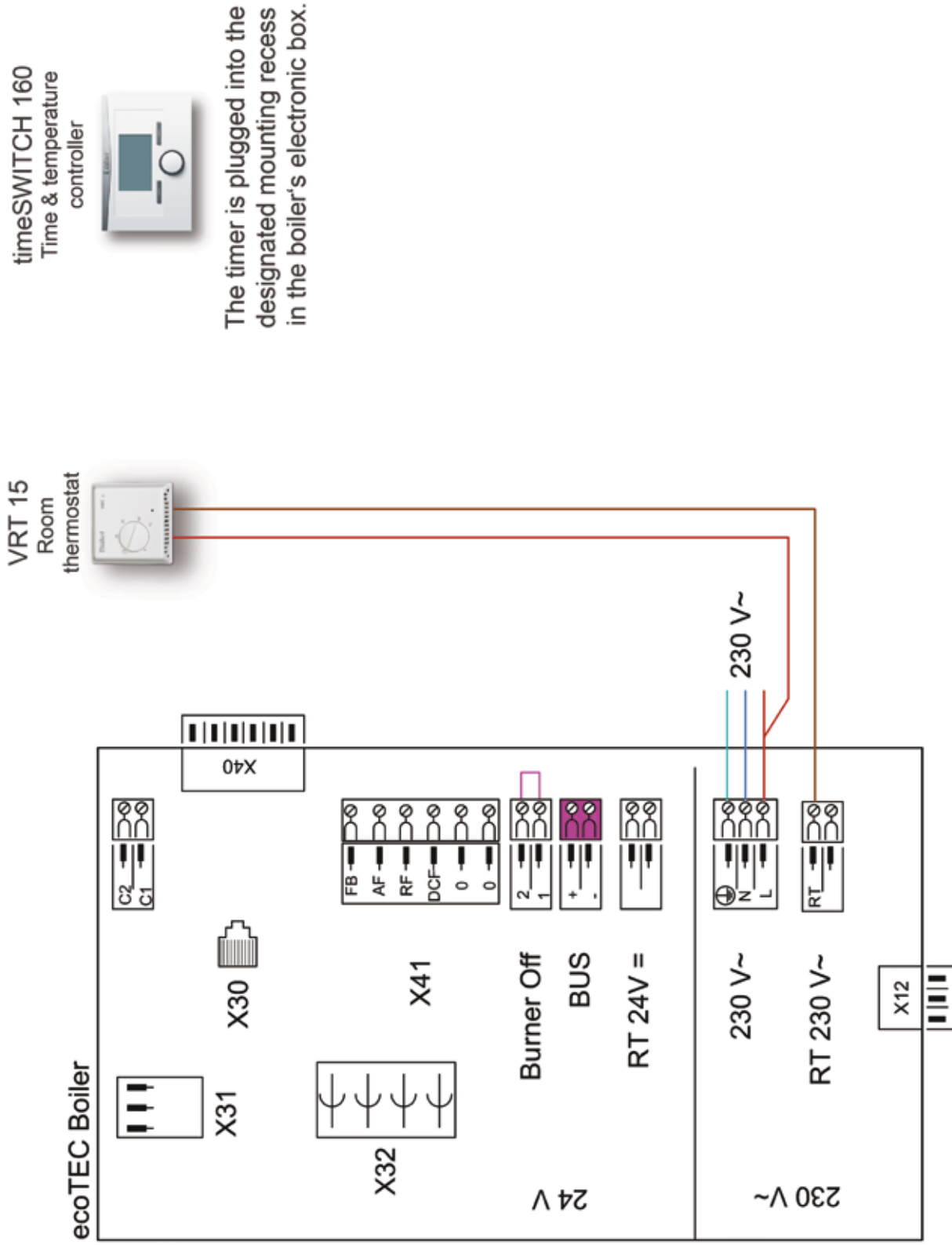
Combi boiler with timeSWITCH 150, VRT 50, single zone - schematic





Combi boiler with timeSWITCH 160, VRT 15, single zone - schematic





The timer is plugged into the designated mounting recess in the boiler's electronic box.

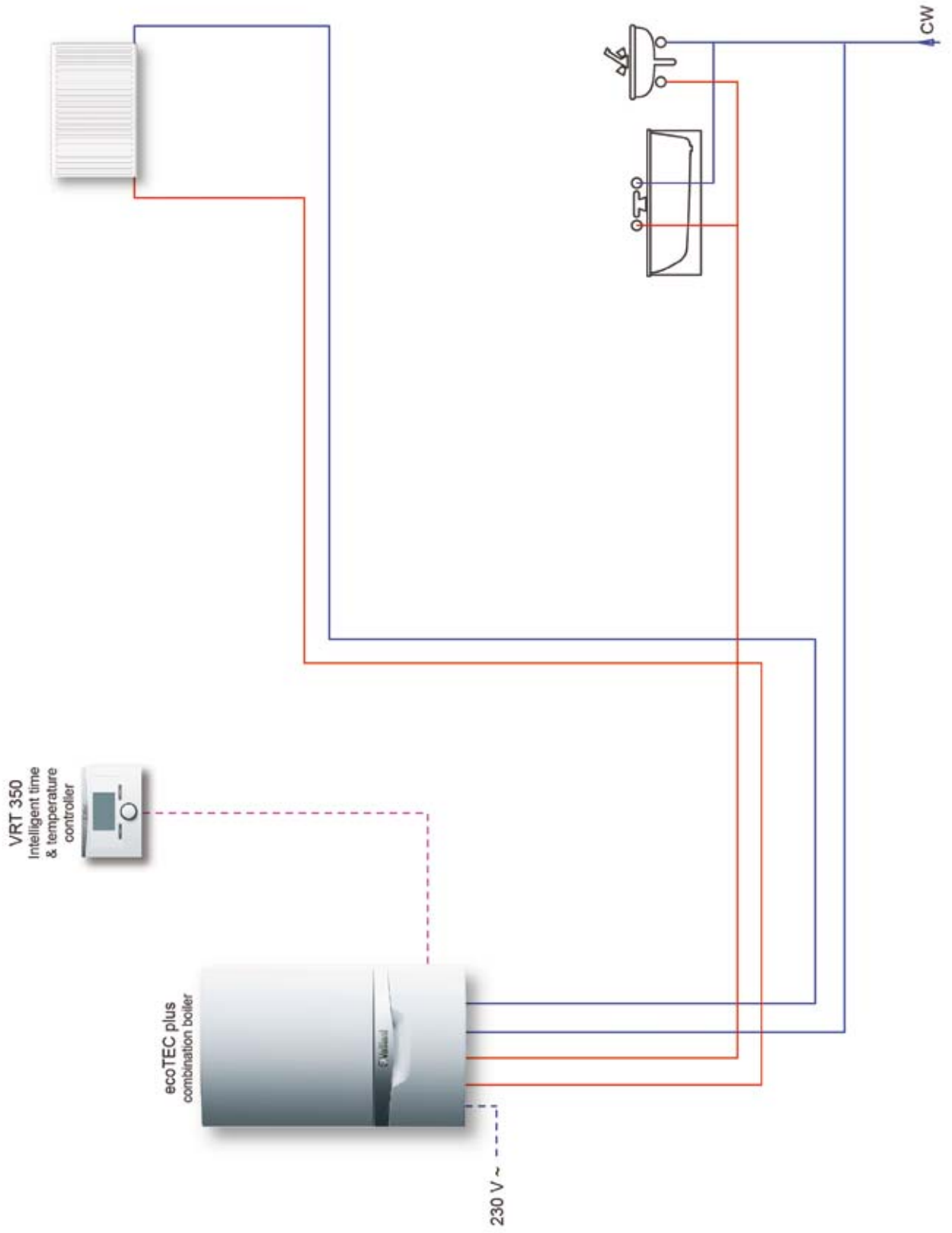
timeSWITCH 160
Time & temperature
controller

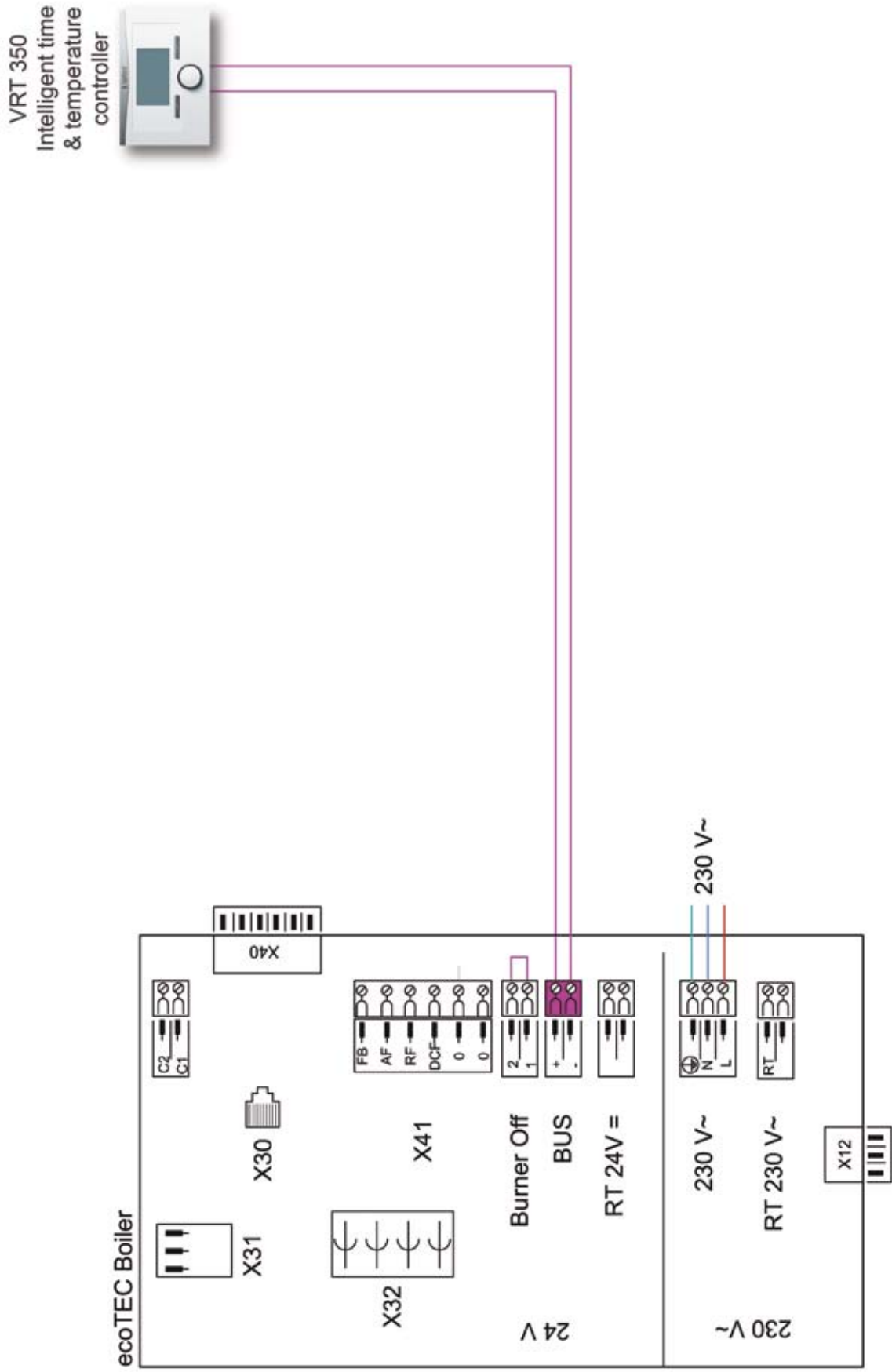


VRT 15
Room
thermostat

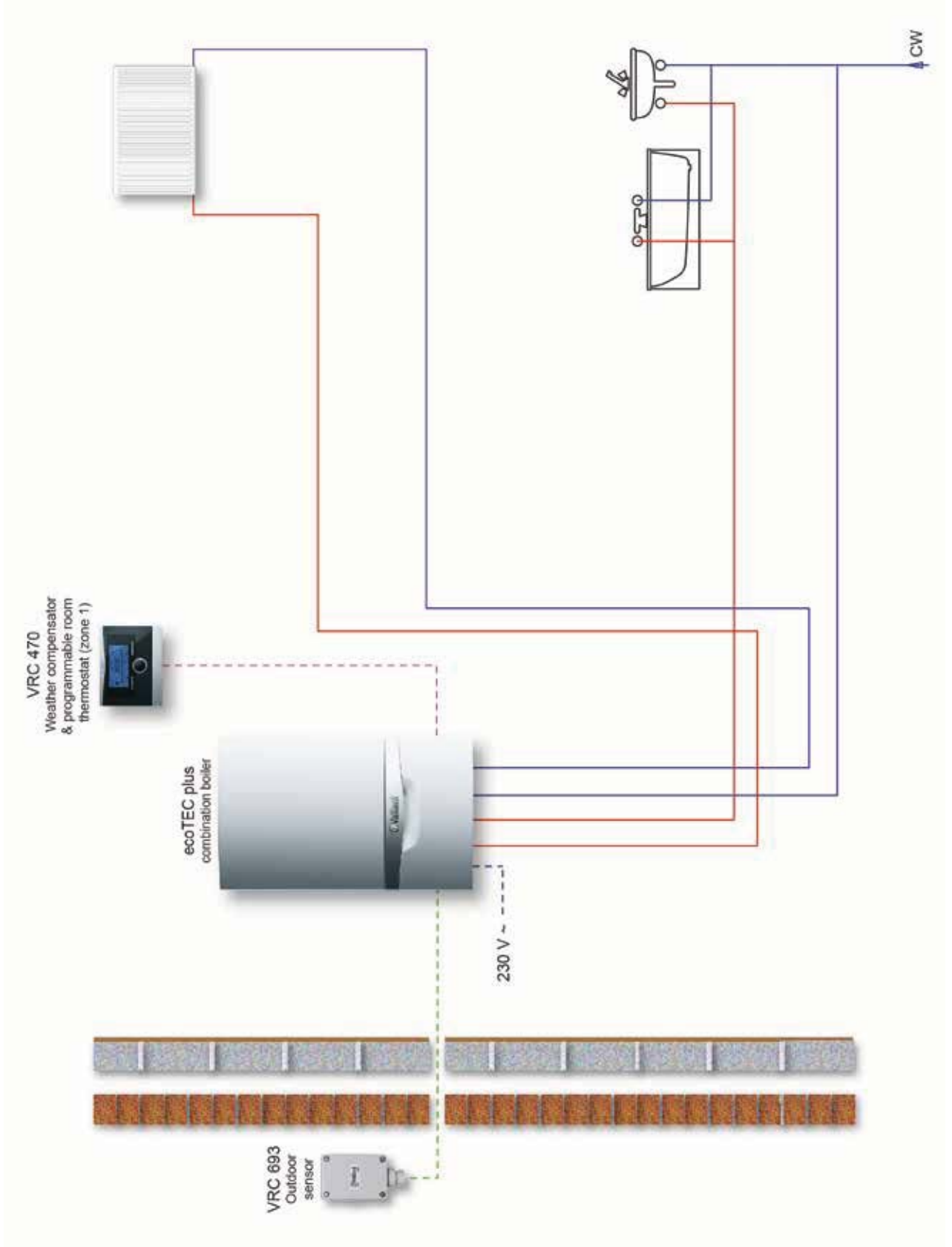


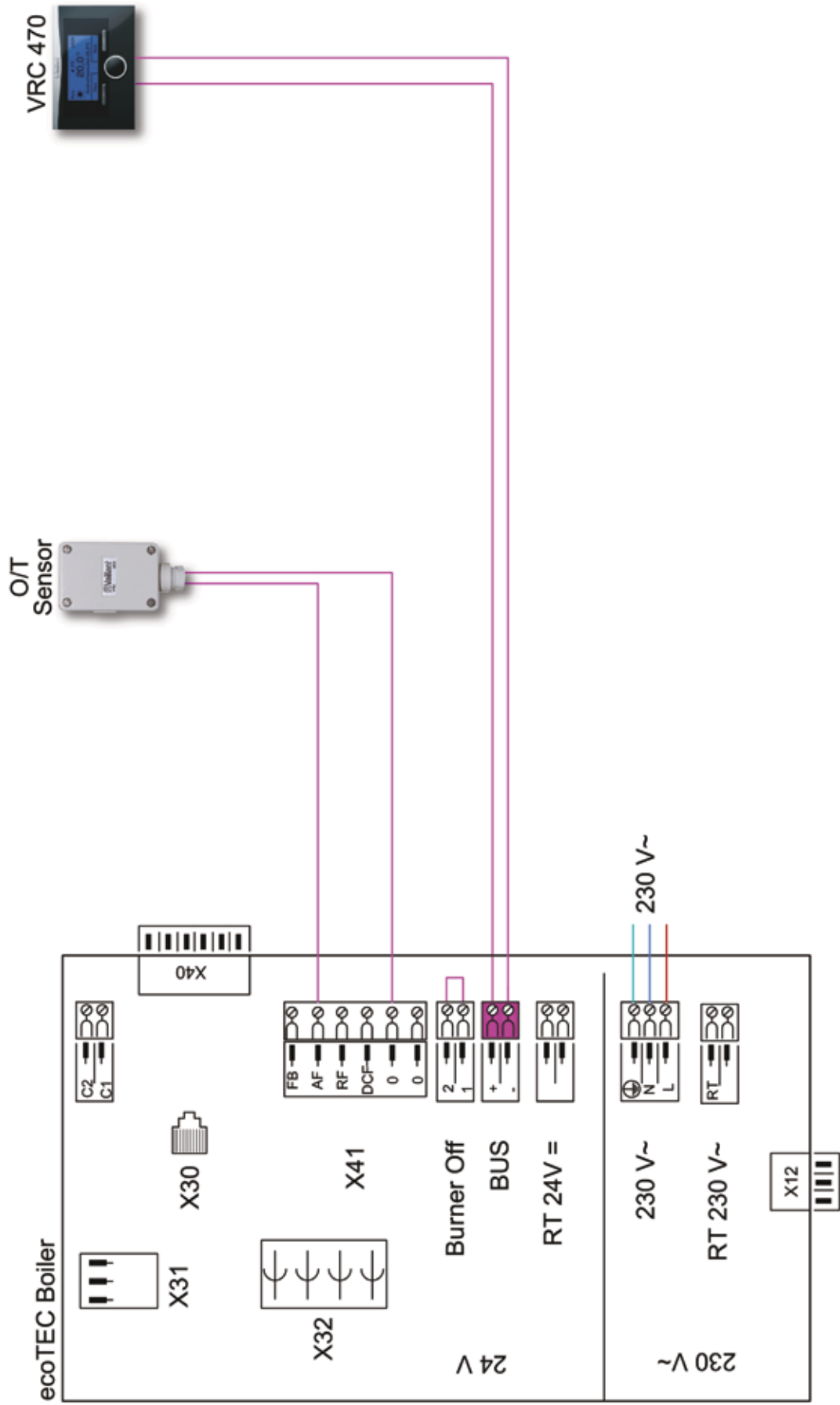
Combi boiler with VRT 350, single zone - schematic



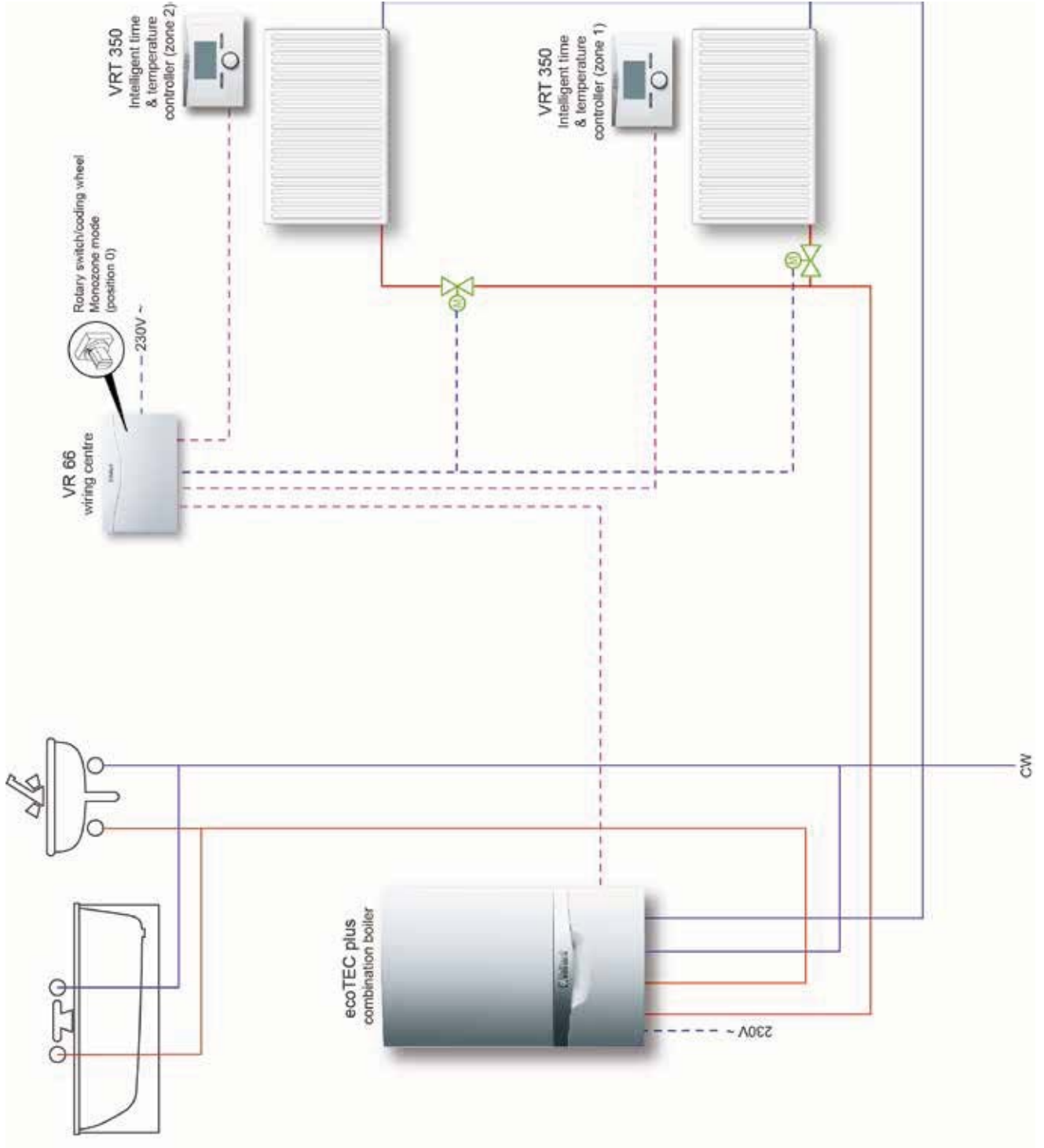


Combi boiler with VRC 470, single zone - schematic

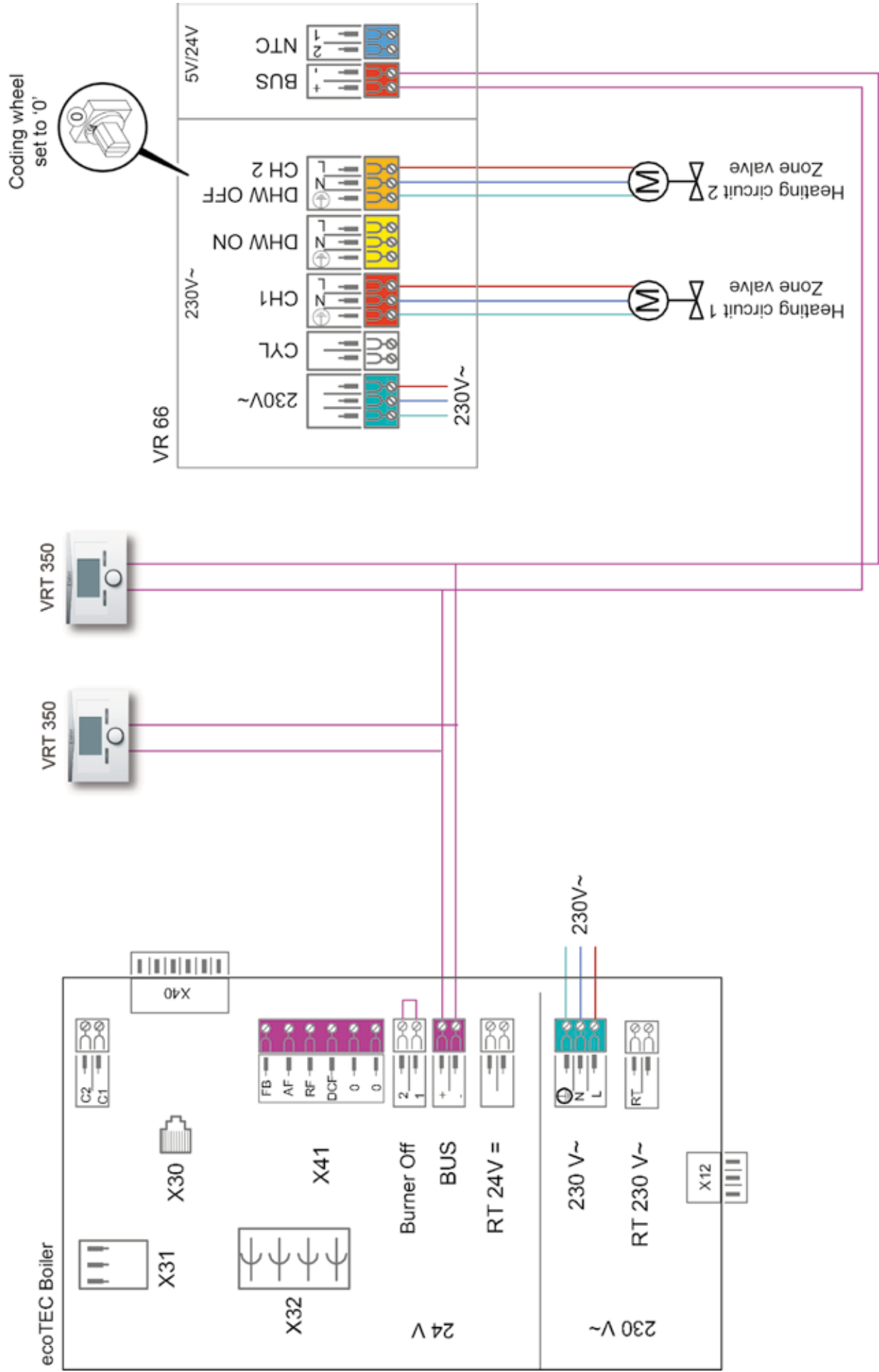




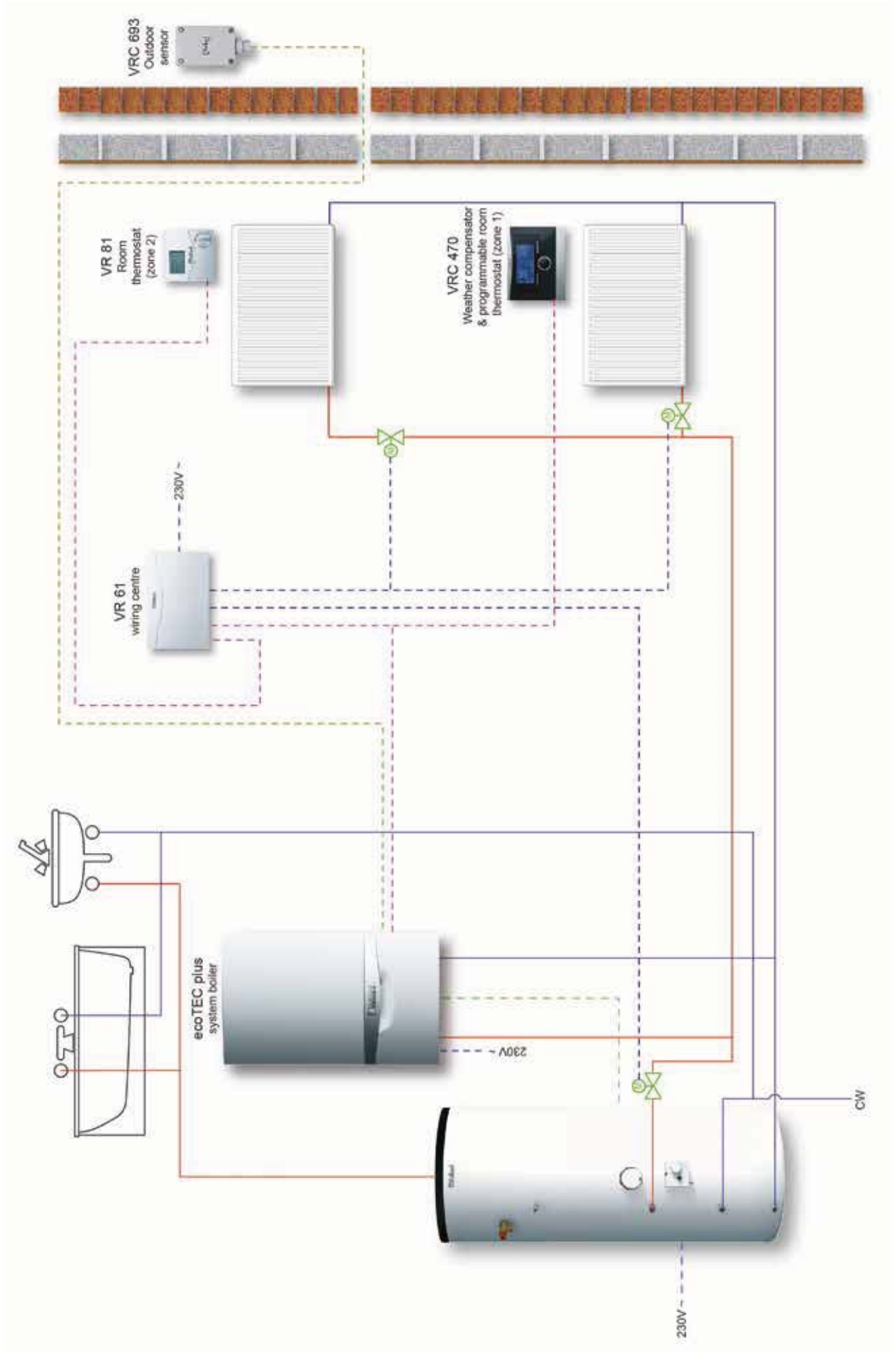
Combi boiler with two VRT 350, VR 66, 2 zone - schematic



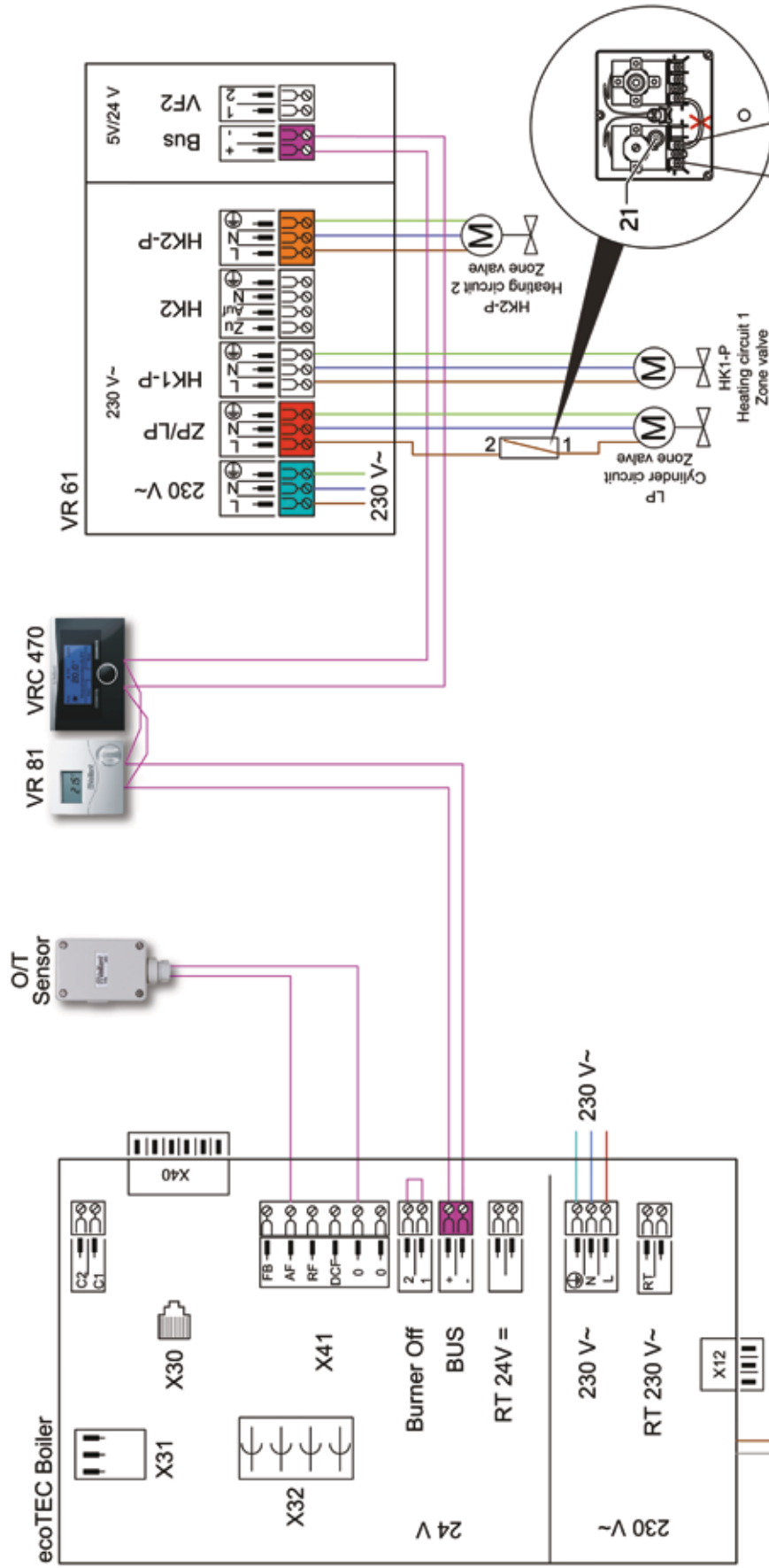
Combi boiler with two VRT 350, VR 66, 2 zone - wiring



System boiler with VRC 470, VR 81, VR 61, 2 zone - schematic

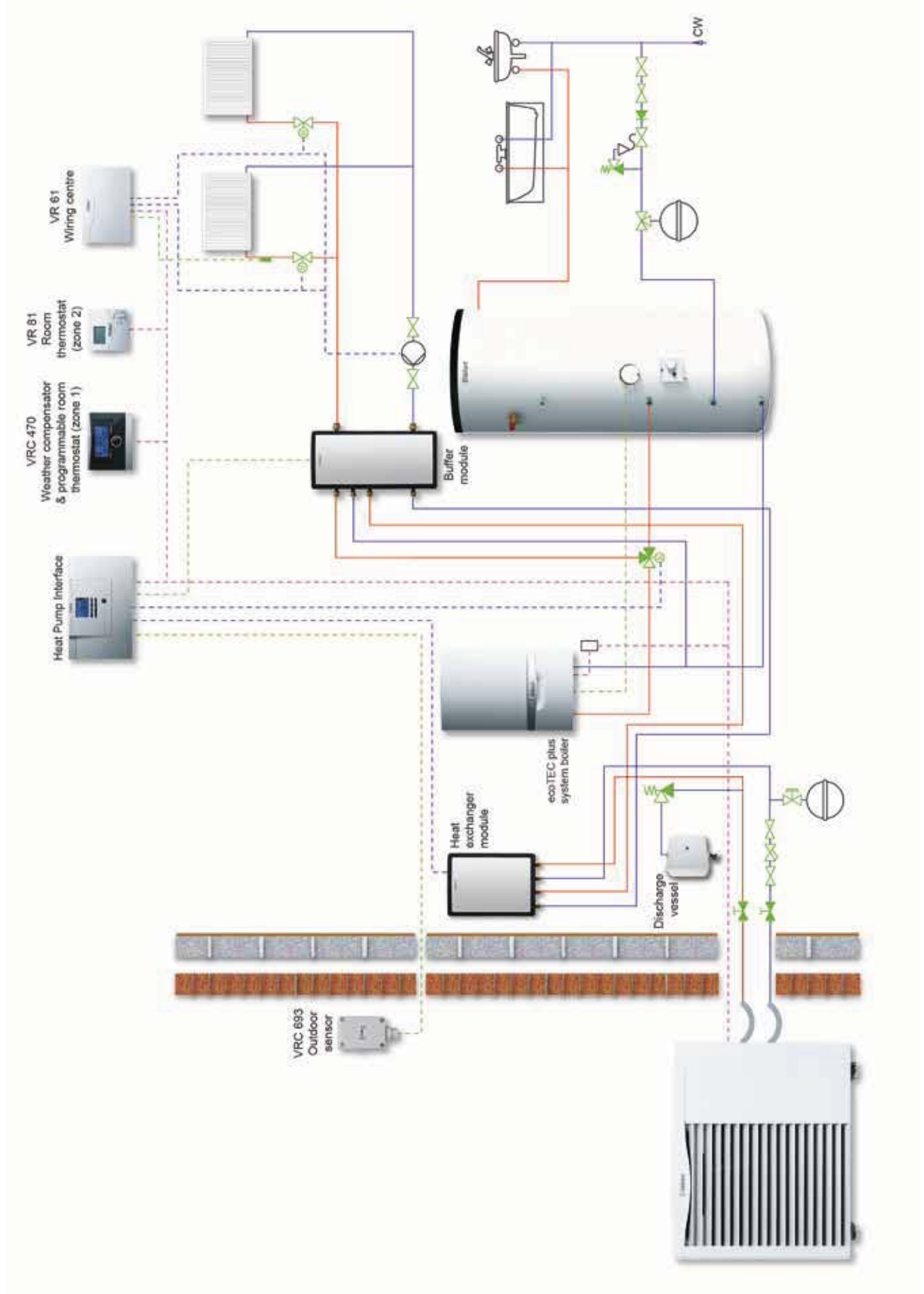


System boiler with VRC 470, VR 61, VR 81, 2 zone - wiring

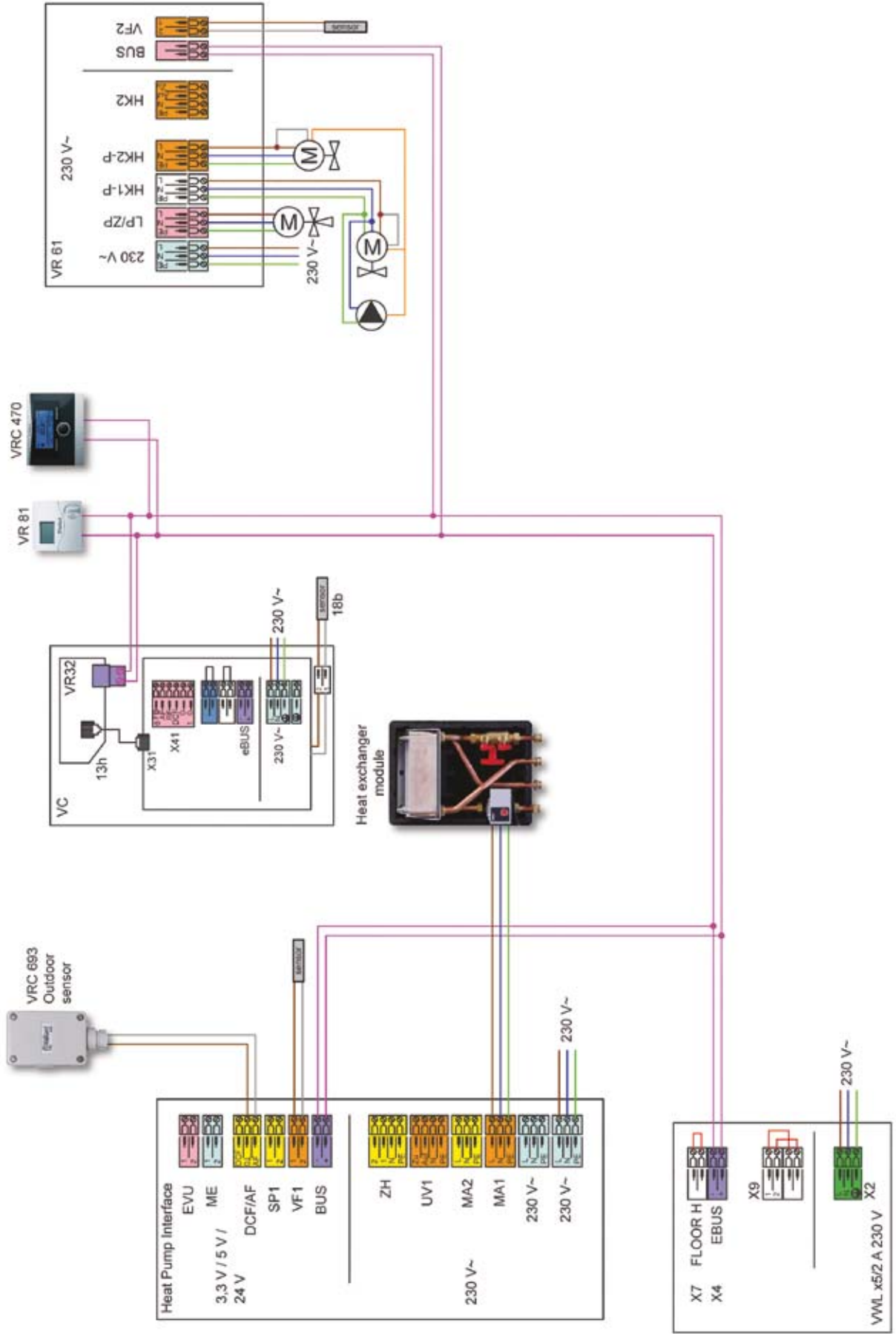


Remove link (X) and wire live supply (1) & (2) through TCO (21) for the cylinder zone valve.

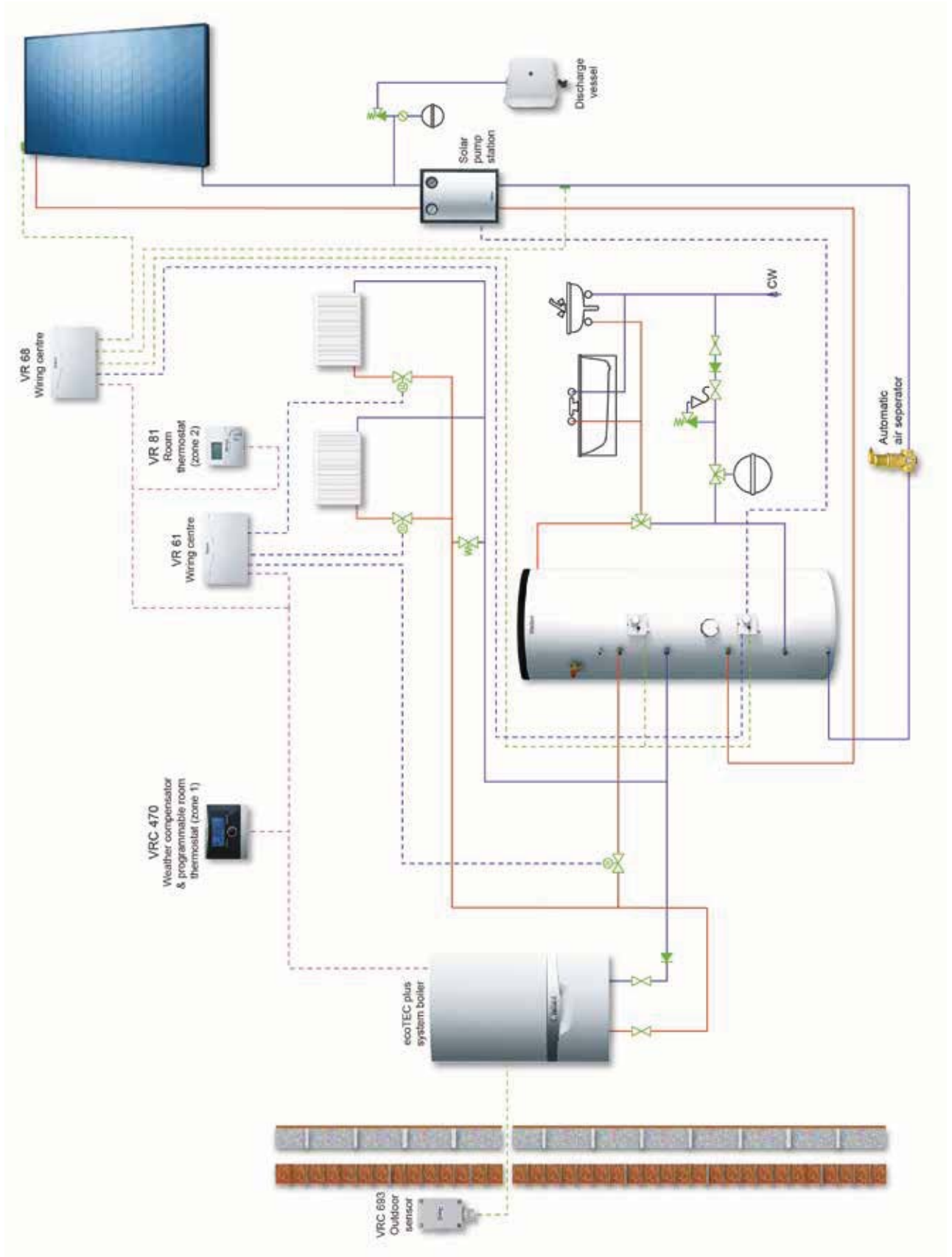
System boiler, heat pump, 2 zone - schematic

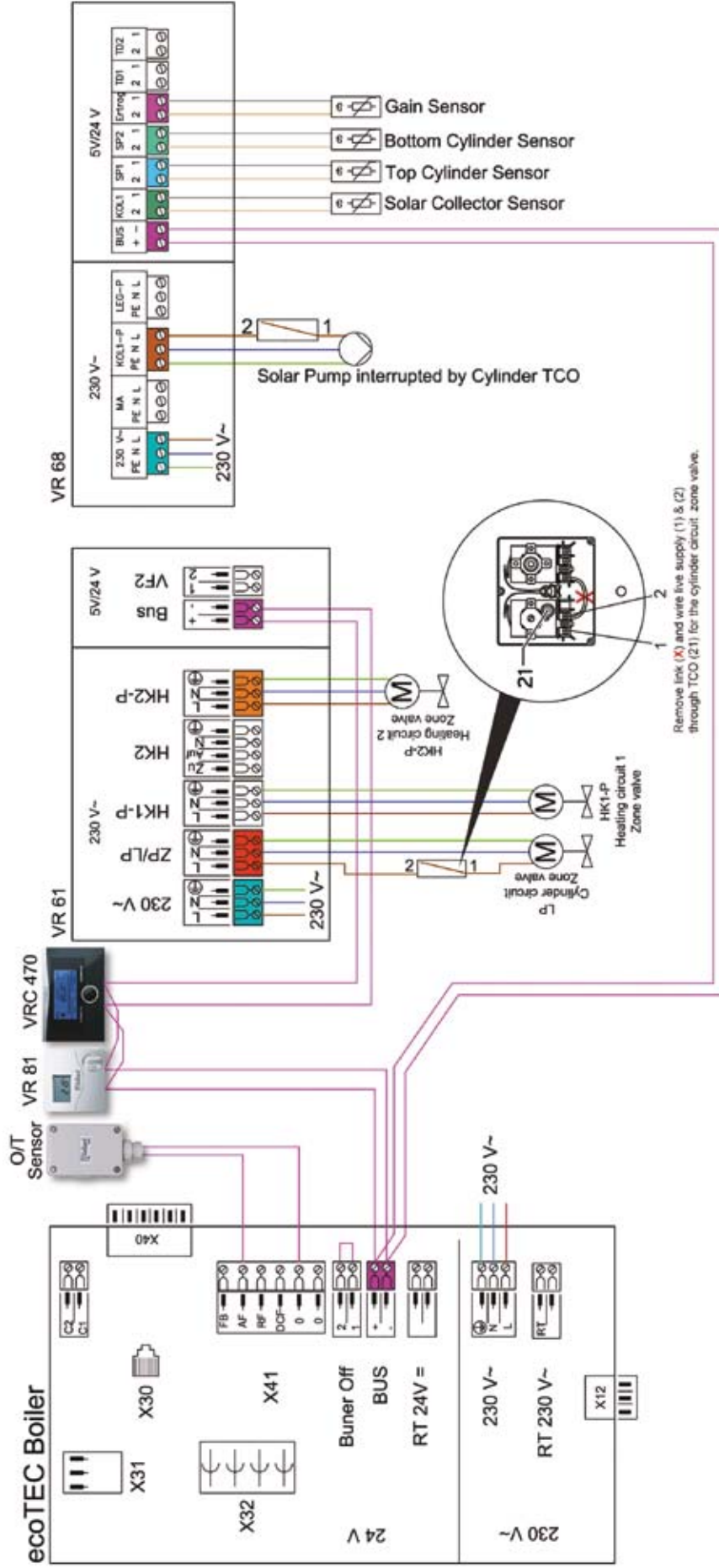


System boiler, heat pump, 2 zone - wiring



System boiler, solar, 2 zone - schematic





UniSTOR unvented cylinders



The uniSTOR stainless steel cylinder range can be used together with any Vaillant system and open vent boiler (or any existing system or open vent boiler). They work in perfection when used with the ecoTEC range of system boilers, where they can make full use of Vaillant's intelligent ebus temperature sensing controls as part of Vaillant's Total System Solution.

Key features and benefits:

- 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
- Complete with G3 kit and expansion vessel



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
Diameter (mm)	554.5	554.5	554.5	554.5	554.5	554.5
Approx weight when empty (Kg)	26	29	32	36	41	46

uniSTOR 120 / 155 / 180 / 210 / 260 / 310L

Technical data	Unit	uniSTOR			uniSTOR		
		120	155	180	210	260	310
Article number		0010010900	0010010901	0010010902	0010010903	0010010904	0010010905
Total capacity	l	120	155	180	210	260	310
Actual capacity	l	119.2	149.1	176.6	211.2	250.3	298.5
Hot water capacity	l	1040	1367	1664	2039	2475	2705
Maximum supply pressure to pressure reducing valve	MPa (bar)	1.2 (12)			1.2 (12)		
Rated pressure of cylinder	MPa (bar)	0.7 (7)			0.7 (7)		
Maximum operating pressure of heating coil	MPa (bar)	0.35 (3.5)			0.35 (3.5)		
Pressure reducing valve	MPa (bar)	0.35 (3.5)			0.35 (3.5)		
Expansion relief valve	MPa (bar)	0.6 (6.0)			0.6 (6.0)		
Temperature and pressure relief valve	°C MPa (bar)	90 0.7 (7)			90 0.7 (7)		
Charge pressure of hot water expansion vessel	MPa (bar)	0.4 (4)			0.4 (4)		
Maximum temperature of heating circuit	°C	85			85		
Maximum temperature of potable hot water	°C	85			85		
Standing heat loss	kW/24 h	1.26	1.53	1.66	1.89	2.07	2.26
Heat up time according to EN 12897	mins	18	23	24	28	35	42
Recovery time (70% capacity)	kW	16	18	17	20	25	30
Primary heat exchanger performance	l/min	18.6	18.8	22.0	22.6	22.3	20.4
Flow rate for primary heat exchanger performance	l/min	23.3			23.3		
Primary heat exchanger pressure drop	mbar	97	97	116	116	116	115
Primary heat exchanger volume	l	2.94	2.94	3.56	3.56	3.56	3.56
Primary heat exchanger surface area	m ²	0.62	0.62	0.75	0.75	0.75	0.75

uniSTOR 120 / 155 / 180 / 210 / 260 / 310L

Technical data	Unit	uniSTOR			uniSTOR		
		120	155	180	210	260	310
Article number		0010010900	0010010901	0010010902	0010010903	0010010904	0010010905
Height	mm	1001	1191	1371	1593	1843	2153
Height with hot water draw off	l	1033	1223	1403	1625	1875	2185
Topple measure	mm	1138	1308	1473	1680	1918	2217
Diameter	mm	554.5			554.5		
Depth	mm	633			633		
Net weight	kg	26	29	32	36	41	46
Weight (full)	kg	145	177.8	209	248	291	345
Connections							
Cold water inlet		22mm unprofiled pipe (crimp joints)			22mm unprofiled pipe (crimp joints)		
Hot water draw off		22mm unprofiled pipe (crimp joints)			22mm unprofiled pipe (crimp joints)		
Pressure-controlled cold water inlet		22mm unprofiled pipe (crimp joints)			22mm unprofiled pipe (crimp joints)		
Secondary return		15mm unprofiled pipe (crimp joints)			15mm unprofiled pipe (crimp joints)		
Primary heater flow		22mm unprofiled pipe (crimp joints)			22mm unprofiled pipe (crimp joints)		
Primary heater return		22mm unprofiled pipe (crimp joints)			22mm unprofiled pipe (crimp joints)		
Primary heating circuit immersion sleeve size	mm	8			8		
Electrical connections							
Immersion heater (according to ENBS 60335)		2.7 kW, 230 V, 50 Hz			2.7 kW, 230 V, 50 Hz		
Length of immersion heater	inch	14			14		
Two port motorised valve		230/240 V, 50 Hz			230/240 V, 50 Hz		
Cylinder thermostat		230/240 V, 50 Hz			230/240 V, 50 Hz		
Material data							
Cylinder body material		Stainless steel (1.4521)			Stainless steel (1.4521)		
Cylinder jacket material		Polypropylene			Polypropylene		
Insulation material		EPS with heat radiation absorber			EPS with heat radiation absorber		
Insulation thickness	mm	50			50		
Corrosion protection		Stainless steel			Stainless steel		
Blowing agent for insulation material		Pentane (GWP < 5)			Pentane (GWP < 5)		
Ozone Depletion Potential		0			0		

Weather compensating controls VRC 470 and 470f



Our intelligent compensating controls give you even more control over your heating system so that you can ensure that it's working as efficiently as possible.

The VRC 470 is a unique weather compensating control. Constantly monitoring the temperature outside, it intelligently adapts to optimise the boilers output for maximum efficiency and home comfort.

Featuring a backlit plain text display with a single rotary 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 24 hours, operation is possible with 3 different time windows per day with one comfort and setback temperature for all time periods.

Additional features include; set-back temperature, heating and hot water advance, automatic summer to winter changeover, holiday mode, and optimum start/stop. With additional accessories 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.

Key features and benefits:

- Intelligent time and temperature control for central heating and domestic hot water
- Classed as enhanced load compensator adding 3% to the SEDBUK efficiency rating
- Automatic heat curve adjustment function which optimises settings (VRC 470/3 and above, wired version only)
- Cylinder boost function
- Holiday function
- Includes a service reminder function
- Automatic summer/winter time change over
- Wireless control (VRC 470f only)
- Supplied with outdoor sensor which monitors the outdoor temperature
- Receiver can be fascia or wall-mounted (VRC 470f only)



You have a choice of what kind of controls you have to manage your boiler. The more sophisticated the control, the more control you have over your heating system.

Our intelligent room compensating controls allow you to fine tune your heating system, giving you even more control. These controls allow you to turn your system on or off at different times of the day, and continually monitors and adapts to give you the desired room temperature. The blue backlit screen and plain text display make the VRT 350 and VRT 350f easy and clear to understand. Only two push buttons and one rotary knob are needed to select and change data.

Plus, when you go on holiday the VRT 350 and VRT 350f have a holiday set-back function, which reduces the temperature in your property and heats it up before you come back home.

Key features and benefits:

- Intelligent time and temperature control of heating and domestic hot water
- New attractive, easy-to-use design with blue backlit display
- Automatic summer/winter time change over
- Five operation modes: automatic, summer, comfort, set-back and system off
- Two temperature setting levels: desired and set-back temperatures
- Cylinder boost option
- Wireless control (VRT 350f only)

timeSWITCH controls



Proper control of central heating and domestic hot water systems can provide a comfortable living environment and help to minimise fuel costs.

timeSWITCH 150

Our basic boiler control allows you to adjust the heating programme by choosing when you would like your system to switch on or off, and how long you would like it to operate for.

The timeSWITCH 150 is compatible with all Vaillant ecoTEC combi boilers and plugs directly into the boiler without the need for any wiring. This timer provides easy-to-use, basic timing for your central heating needs.

Key features and benefits:

- Single channel analogue timer
- Mounts directly into boiler fascia
- 24-hour timer for central heating
- Compatible with all Vaillant combi boilers
- Compatible with VRT 50 digital room thermostat

timeSWITCH 160

The timeSWITCH 160 can be used with all Vaillant ecoTEC boilers and mounts directly into the front of the boiler without the need for any wiring. This timer gives you control of your central heating and domestic hot water with a timed programming function. With the added option of up to three programme times per day, seven days a week, for added flexibility and comfort.

Key features and benefits:

- Two channel digital timer
- Mounts directly into boiler fascia
- Controls heating and domestic hot water timed programmes
- Holiday function—days away from home scheduling
- Compatible with all Vaillant system and heat-only appliances
- Compatible with the VRT 15 room thermostat



Central heating and domestic hot water controls are key to delivering greater efficiency.

Room thermostat VRT 15

This easy-to-use, simple room thermostat works with the timeSWITCH 160. This thermostat is compatible with all ecoTEC boiler models.

Key features and benefits:

- Simple 230V analogue room thermostat
- Compatible with timeSWITCH 160
- Easy to use

Room thermostat VRT 50

This easy-to-use, intelligent VRT 50 digital room thermostat shows the current room temperature and can be used with Vaillant ecoTEC plus combi boilers and the timeSWITCH 150 central heating timer.

The thermostat can be set to intelligent control, which provides greater efficiency and a more comfortable room temperature.

Key features and benefits:

- Compatible with timeSWITCH 150
- Easy to use

Room thermostat VR81

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.



Makes saving energy simply effortless.

You can be sure that when it comes to creating the ideal environment, Vaillant has it all under control. Vaillant's ecoTEC product range offers exceptionally high efficiency and is also highly economical in operation. Now, our Passive Flue Gas Heat Recovery Device, recoFLUE, can be used with our ecoTEC pro and plus domestic combination boiler ranges* to create an even more efficient, cost-effective system.

What is recoFLUE?

Installed on top of the boiler, recoFLUE captures wasted energy from the flue gases and subsequently returns this recovered energy to further improve the efficiency of the boiler.

Why install recoFLUE?

- A simple and cost effective product to provide improved efficiency
- Easy to install
- Helps to meet the requirements of higher levels of the code for sustainable homes – on new dwellings the energy rating can be increased by circa +3%

- Improve the efficiency of hot water production
- Can be easily linked to weather compensation control technology to further improve efficiency
- Now a proven and tested technology that has been developed following the rigorous Vaillant innovation process and quality assurance procedures

Kit components:

1. PFGHRD unit
2. Support bracket
3. Wall fixing screws
4. Unit fixing screws
5. Installation manual
6. SAP label (attached to product)
7. Wall template
8. Flue anchor bracket (attached to product)

*Compatible with ecoTEC pro 24, pro 28, pro 28 LPG, pro 30, ecoTEC plus 825, ecoTEC plus 832, ecoTEC plus 832 LPG, ecoTEC plus 835 and ecoTEC plus 838 only

Fault finding

Fault codes

Fault codes take priority over all other display functions in the event of a system fault occurring.

If multiple faults occur, the corresponding fault codes are displayed alternately for about two seconds each.

Fault memory

The fault memory stores details of the ten most recent faults:

- Press the "i" and "-" buttons simultaneously.
- Use the "+" button to scroll back through the list of memorised errors.

To cancel fault error memory display mode, proceed as follows:

- Press the "i" button below the display or
- Do not touch any key for about four minutes.

The display will now revert back to showing the current flow temperature.

Code	Meaning	Cause
F.00	Flow temperature sensor interruption	NTC plug not plugged in or has come loose, multiple plug on the PCB not plugged in correctly, interruption in cable harness, NTC defective
F.01	Return temperature sensor interruption	NTC plug not plugged in or has come loose, multiple plug on the PCB not plugged in correctly, interruption in cable harness, NTC defective
F.02	Interruption cylinder charging sensor actoSTOR (NTC) only in combination with F.91	NTC defective, NTC cable defective, defective plug connection on NTC, defective plug connection on actoSTOR electronics
F.03	Interruption cylinder sensor actoSTOR (NTC) only in combination with F.91	NTC defective, NTC cable defective, defective plug connection on NTC, defective plug connection on actoSTOR electronics
F.10	Flow NTC short circuit	NTC defective, short circuit in cable harness, cable/casing
F.11	Return NTC short circuit	NTC defective, short circuit in cable harness, cable/casing
F.12	Short circuit at cylinder charging sensor (NTC) only in combination with F.91	NTC defective, short circuit in cable harness, cable/casing
F.13	VU-/VUW boiler: short circuit warm start sensor/cylinder sensor VUW boiler with actoSTOR: short circuit cylinder sensor (NTC) only in combination with F.91	NTC defective, short circuit in cable harness, cable/casing
F.20	Safety switch-off: temperature limiter	Incorrect earth connection between cable harness and boiler, flow or return NTC defective (loose connection), black discharge via ignition cable, ignition plug or ignition electrode
F.22	Safety switch-off: low water pressure	No or too low water pressure in the boiler, water pressure sensor defective, cable to pump or water pressure sensor loose/not connected/defective
F.23	Safety switch-off: temperature difference too great	Pump blocked, insufficient pump output, air in boiler, flow and return NTC interchanged
F.24	Safety switch-off: temperature rise too fast	Pump blocked, poor pump performance, air in boiler, system pressure too low, non-return valve blocks/incorrectly installed
F.25	Safety switch-off: flue gas temperature too high	Break in plug connection for optional flue gas safety thermostat (STB), break in cable harness
F.26	Fault: gas valve without function	Gas valve stepper motor not connected, multiple plug on the PCB not plugged in correctly, interruption in cable harness, gas valve stepper motor defective, electronics defective
F.27	Safety switch-off: flame simulation	Moisture on the electronics, electronics (flame monitor) defective, gas solenoid valve leaking

Fault finding

Code	Meaning	Cause
F.28	Failure during start-up: ignition unsuccessful	Gas meter defective or gas pressure regulator has triggered, air in gas, gas flow pressure too low, thermal isolator device (TAE) has triggered, condensate duct blocked, incorrect gas restrictor, incorrect ET gas valve, fault on the gas valve, multiple plug on PCB incorrectly plugged in, break in cable harness, ignition system (ignition transformer, ignition cable, ignition plug, ignition electrode) defective, ionisation current interrupted (cable, electrode), incorrect earthing of boiler, electronics defective
F.29	Failure during operation: re-ignition unsuccessful	Gas supply temporarily stopped, flue gas recirculation, condensate duct blocked, faulty earthing of boiler, ignition transformer has spark failure
F.32	Fan fault	Plug at fan not correctly plugged in, multiple plug on PCB not correctly plugged in, break in cable harness, fan blocked, hall sensor defective, electronics defective
F.35	Air/flue gas duct fault	Air/flue gas duct blocked
F.42	Coding resistor fault (possible in combination with F.70)	Short circuit/interruption in coding resistor output range (in cable harness at heat exchanger) or gas group resistor (on PCB)
F.49	eBUS fault	Short circuit on eBUS, eBUS overload or two power supplies with different polarities on the eBUS
F.52	Mass flow sensor connection fault	Mass flow sensor not connected/disconnected, plug not connected or incorrectly connected
F.53	Mass flow sensor fault	Mass flow sensor faulty, filter below venturi filter cap wet or blocked, gas flow pressure too low
F.54	Gas pressure fault (in combination with F.28/F.29)	No or too little gas supply pressure, gas valve closed
F.56	Fault: mass flow sensor regulation	Gas valve defective, cable harness to gas valve defective
F.57	Fault during comfort safety mode	Ignition electrode highly corroded
F.61	Fault: gas valve regulation	- Short circuit/short to earth in cable harness for the gas valve - Gas valve defective (coils shorted to earth) - Electronics defective
F.62	Fault: gas valve switch-off delay	- Delayed shutdown of gas valve - Delayed extinguishing of flame signal - Gas valve leaking - Electronics defective
F.63	EEPROM error	Electronics defective
F.64	Electronics/NTC fault	Supply or return NTC short circuited, electronics defective
F.65	Electronic temperature fault	Electronics overheating due to external influences, electronics defective
F.67	Electronics/flame fault	Implausible flame signal, electronics defective
F.68	Unstable flame signal fault	Air in gas, gas flow pressure too low, wrong air ratio, condensate route blocked, wrong gas restrictor, ionisation flow interruption (cables, electrodes), flue gas recirculation, condensate route
F.70	Invalid device specific number (DSN)	Spare part case: display and PCB replaced at same time and DSN not set, wrong or missing output range coding resistor

Code	Meaning	Cause
F.71	Flow NTC fault	Flow temperature sensor signalling constant value: - Flow temperature sensor incorrectly positioned at supply pipe - Flow temperature sensor defective
F.72	Flow/return NTC fault	Flow/return NTC temperature difference too great -> flow and/or return temperature sensor defective
F.73	Water pressure sensor signal in the wrong range (too low)	Interruption/short circuit of water pressure sensor, interruption/short circuit to GND in supply line to water pressure sensor or water pressure sensor defective
F.74	Water pressure sensor signal outside correct range (too high)	Cable to water pressure sensor has short-circuited at 5 V/24 V or internal fault in water pressure sensor
F.75	Fault: no pressure change detection when starting pump	Water pressure sensor and/or pump defective, air in heating installation, too low water pressure in boiler; check adjustable bypass, connect external expansion vessel to return
F.76	Overheating protection on primary heat exchanger has responded	Cable or cable connections for safety fuse in primary heat exchanger or primary heat exchanger defective
F.77	Flue non-return flap/condensate pump fault	No response from flue non-return flap or condensate pump defective
F.78	Interruption to DHW outlet sensor at external controller	UK link box is connected, but hot water NTC not bridged
F.83	Flow and/or return temperature sensor temperature change fault	When the burner starts, the temperature change registered at flow and/or return temperature sensor is non-existent or too small - Not enough water in the boiler - Flow and/return temperature sensor not in correct position at pipe
F.84	Fault: flow/return temperature sensor temperature difference implausible	Flow and return temperature sensors returning implausible values - Flow and return temperature sensors have been inverted - Flow and return temperature sensors have not been correctly fitted
F.85	Fault: flow and return temperature sensors incorrectly fitted	Flow and/or return temperature sensors have been fitted to the same pipe/wrong pipe
F.92	Coding resistor fault	The coding resistor on the PCB does not match the entered gas family. Check the resistor, repeat the gas family check and enter the correct gas family
F.93	Gas group fault	Combustion quality outside the permitted range: wrong gas restrictor, recirculation, wrong gas group, internal pressure measuring point in venturi blocked (do not use lubricant on O-ring in venturi). Gas family check prematurely terminated
Communication fault	No communication with the PCB	Communication fault between display and PCB in the electronics box

A job well done
is now a job well rewarded

The Vaillant Advance rewards scheme for installers.

Fed up of reward schemes that are a bit light on rewards? Say hello to Vaillant Advance instead. It's the generous way we're rewarding installers when they introduce customers to our cutting-edge heating solutions.

By simply signing up and taking a short ecoTEC product training course you become an accredited partner and from then on you'll enjoy extended guarantees, exclusive promotions and valuable cashback & credits every time you install a Vaillant product. And as a welcome bonus, we'll even give you double credits for your first claim*.

You can join the scheme or find out more at www.vaillant-advance.co.uk

The good feeling of doing the right thing

ADVANCE

*Terms & conditions apply. See website for more details.



■ Heating ■ Hot water ■ Renewables

Because  **Vaillant** thinks ahead.

The Vaillant service standard



Here at Vaillant, we invest as much time, energy and effort into getting outstanding service as we do in creating industry leading heating and renewable solutions. So you know when, you choose us, you will be supported by the best.

With Vaillant, you'll find that help is never far away. We have Vaillant operators available at the end of dedicated phone lines, 7 days a week, 364 days a year, able to arrange for a local Vaillant service engineer to attend on site. Moreover, our operators are qualified experts who can call upon a wide technical knowledge of Vaillant appliances and supply you with right first time advice over the phone.

Next day service

Vaillant employs 250 dedicated service engineers, so we can offer all our customers a next day service, if required. Making sure that if you need us, we will be there.

Outstanding first fix rate

When we get to you we can fix the problem and have a staggering 98% first fix rate. This is because our engineers are expertly trained on all of our products and carry 95% of all Vaillant spare parts on their vans.

The Vaillant service standard



Spares availability

We are committed to responsible spares provision and provide spares for a minimum of 15 years after product discontinuation. We have a nationwide network of genuine spares stockists and a dedicated spare parts team to help you identify the parts you require, call **01773 596 615**.

Renewable calculator

This helpful tool is designed to help you discover how much money and CO₂ you could save by installing a Vaillant renewable heating or hot water system in your home.

Go to **www.vaillantrenewables.co.uk**

Installer technical helpline

Whether working on new or old Vaillant products, we have a team of dedicated technical experts waiting to answer any specific technical queries you have during installation or servicing. Please call **01732 878 803** to speak to our expert advisors.

End user technical helpline

Should you have any questions once your boiler is installed, such as how to change the timer settings, call **0330 100 3461** for assistance.

As well as our range of ecoTEC domestic boilers, we're proud to have a whole suite of Commercial and Renewable heating and hot water solutions:

We offer a wide range of:

- Commercial wall hung and floor standing ecoTEC boilers
- aroTHERM air to water heat pumps
- aroTHERM air to water hybrid systems
- geoTHERM ground source heat pumps
- auroTHERM solar systems



For further information on our range of renewable systems, visit **www.vaillant.co.uk** or contact your local area representative.

Order Numbers

You will find the relevant article numbers referenced throughout this brochure. However for ease of ordering, all ecoTEC components are summarised below:

High efficiency combination boilers	Article Number
ecoTEC plus 825	0010018353
ecoTEC plus 832	0010018354
ecoTEC plus 832 LPG	0010018355
ecoTEC plus 835	0010016540
ecoTEC plus 838	0010018356
ecoTEC plus 938	0010018375
ecoTEC pro 24	0010018494
ecoTEC pro 28	0010018495
ecoTEC pro 28 LPG	0010018496
ecoTEC pro 30	0010016538
ecoTEC exclusive 832	0010002668
ecoTEC exclusive 838	0010002669

High efficiency system boilers	
ecoTEC plus 612	0010018531
ecoTEC plus 615	0010018532
ecoTEC plus 618	0010018533
ecoTEC plus 618 LPG	0010018534
ecoTEC plus 624	0010018535
ecoTEC plus 630	0010018536
ecoTEC plus 630 LPG	0010018537
ecoTEC plus 637	0010018538

High efficiency open vent boilers	
ecoTEC plus 412	0010015669
ecoTEC plus 415	0010015670
ecoTEC plus 418	0010015671
ecoTEC plus 424	0010015672
ecoTEC plus 430	0010015673
ecoTEC plus 438	0010002725

Single coil cylinders	
uniSTOR 120	0010010900
uniSTOR 155	0010010901
uniSTOR 180	0010010902
uniSTOR 210	0010010903
uniSTOR 260	0010010904
uniSTOR 310	0010010905

Controls	
timeSWITCH 150	0020116882
timeSWITCH 160	0020124498
VRT 15	306777
VRT 50	0020018265
VRT 350	0020124475
VRT 350f	0020124482
VRC 470	0020108130
VRC 470f	0020108137
VR 81	0020129323
VR 66	0020135785
VR 40	0020017744
VR 61	0020139853
VR 68	0020139859
VR32	0020139895

Order Numbers

Passive Flue Gas Heat Recovery Device	Article Number
recoFLUE PFGHRD	0020152033
High efficiency flues - 100mm	
Standard horizontal air/flue duct with elbow and terminal	303933
Vertical air flue duct and terminal	0020065937
Flat roof penetration collar	009056
Pitched roof adjustable roof tile	009076
Flexible roof seal	303980
Horizontal telescopic air/flue duct with elbow and terminal	303936
87° elbow	303910
45° bends (x 2)	303911
Air/flue duct extension (470mm)	303902
Air/flue duct extension (970mm)	303903
Air/flue duct extension (1970mm)	303905
Air/flue duct extension (4000mm)	0020138174
Telescopic air/flue duct extension	303906
Telescopic offset	303919
Sliding sleeve	303915
Flue support clips (x 5)	303821
Adjustable flue support (x 3)	303935
Black terminal kit for horizontal air/flue duct	303934
Plume deflector horizontal (black)	0020060584
Plume deflector horizontal (white)	0020060585
Flue terminal for ridge tile	303982
Variable termination kits	
Variable termination kit - black	303942
Extension pipe for variable termination kit - black (1m)	303943
90° elbow for variable termination kit - black	303944
45° bend for variable termination kit - black (2 pieces)	303945
Variable termination kit - white	303946
Extension pipe for variable termination kit - white (1m)	303947
90° elbow for variable termination kit - white	303949
45° bend for variable termination kit - white (2 pieces)	303948
High efficiency flues - 125mm	
Optional boiler flue adaptor (100mmØ to 125mmØ)	303926
Optional boiler flue adaptor (100mmØ to 125mmØ) - bayonet	0020147469
Horizontal air/flue duct with elbow and terminal	303209
Vertical air/flue duct and terminal	303200
87° elbow	303210
Two 45° bends	303211
Air/flue duct extension (470mm)	303202
Air/flue duct extension (970mm)	303203
Air/flue duct extension (1970mm)	303205
Sliding sleeve	303215
Flue support clips (pack of 5)	303616
Accessories	
Spacing frame accessory	308650
Boiler security bracket	2370109
Pipe cover accessory	2378099
ecoLEVEL condensate pump	0020030797
Remote PRV mounting kit	0020094185

Training Enquiries

For information on training courses and centres in your area:

Telephone: 0845 601 8885

Email: training@vaillant.co.uk

After Sales

For support after your boiler has been installed, whether you would like to book a service or are in need of technical advice, our operators are available 7 days a week, 364 days a year.

Telephone: 0330 100 3143

Sales Enquiries

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:

Telephone: 0845 602 0262

Technical Enquiries

For technical assistance:

Telephone: 01732 878803

Email: technical@vaillant.co.uk

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