

Gas boilers to be installed in the 11 houses – Technical Note

Project	Coppetts Wood				
Reference	Individual Houses Gas Boilers				
Scope	Boilers Specifications Technical Note				
Date	08.01.2021	Job number	J3762	Author	Elisa Sartori

This note clarifies the individual Houses Gas boilers Specifications against the Planning Condition 17 requirement for Coppett's Wood development.

Planning Condition 17

All combination gas boilers that are to be installed in the 11 houses on the site are to:

- a) have a minimum SEDBUK rating of 91%;
- b) have dry NOx emissions not exceeding 20 mg/kWh @0% O2.

The applicant will demonstrate compliance by supplying installation specification documents within 3 months of completion of works on site. Once installed they shall be operated and maintained as such in perpetuity.

EMPLOYER REQUIREMENTS Extract

The following equipment is specified within the Appendix of the ERs.

Blocks A-B

Vaillant	2.10	Boiler	Vaillant Ecotec. A+ Combination gas boiler designed and sized to suit each unit type - 5 person or larger home to have system boilers with an unvented Hot Water Cylinder + secondary electric immersion coil
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Block E

Vaillant (Where communal heating applies refer to guidance in ERs.)	2.4	Boiler	EcoTec range boiler Combination in 1 and 2 bed homes or System Boiler with Cylinder in 3 bed or more or 2 beds with 2 bathrooms/ ensuites Boiler sized to suit system requirements
	2.5	Cylinder	As required Cylinder size to suit system requirements Electric Immersion Heater connected to switch outside bathroom

Equipment Schedule

In line with the Employer's Requirements the following equipment have been specified in the document RY1019-WEBB-00-XX-SP-M-1000.

Item	Location	Capacity	Model Number
Boiler	Houses Block A (no. 3)	30kW	Vaillant ecoTEC plus system 630
Cylinder	Houses Block A (no. 3)	250 l	Vaillant Unistor 250 l
Boiler	Houses Block B (no. 3)	24kW	Vaillant ecoTEC plus system 624
Cylinder	Houses Block B (no. 3)	250 l	Vaillant Unistor 250 l
Boiler	Houses Block E	37kW	Vaillant ecoTEC plus system 637
Cylinder	Houses Block E	300 l	Vaillant Unistor 300 l

Boilers Efficiency

The specified Vaillant ecoTEC plus system 624, Vaillant ecoTEC plus system 630 and Vaillant ecoTEC plus system 637 have a ErP efficiency of **94%**.

Vaillant is one of the manufacturers with the best reputation for delivering units with high boiler efficiency.

A minimum SEDBUK rating of 91% is required by the Planning condition. The Boiler efficiency is expressed as ErP on the Vaillant Ecotec plus datasheet. The newer ErP ratings are calculated slightly differently to the older SEDBUK ratings; modern condensing boilers are now required by law to meet a minimum efficiency of 92% and the selected boilers meet this standard, too.

Boilers Emissions

The specified boilers have the following NO_x emissions (EN 15502-2-1):

- Vaillant ecoTEC plus system 624 - 35mg/KWh
- Vaillant ecoTEC plus system 630 - 29mg/KWh and
- Vaillant ecoTEC plus system 637 - 36mg/KWh

All selected boilers have very low NO_x emissions and classify as Ultra Low NO_x emissions Boilers (Class 6) with NO_x emissions lower than 40mg/kWh. The Boilers are compliant with the Ecodesign - September 2018 which reduced the emission level on all natural gas boilers to a level of max 56mg/kWh.

The levels required by the Planning Condition 17 are unlikely to be met with any of the products currently on the market. The selected boilers meet and exceed all the current regulations as highlighted above and are .

Conclusion

The selected boilers have a ErP efficiency of 94%, classify as Ultra Low emission Boilers (Class 6, which is the lowest class), with NO_x emissions of 35, 29 and 36 mg/kWh, and are in line with the current Building Regulations.

The emissions target set in the planning condition is very challenging to be achieved with any of the products currently on the market and the selected boilers are in between the top-rated products on the market.

Appendix – Boilers Datasheet



Heating



Hot water



Renewables

ecoTEC plus

System boiler 12, 15, 18, 24, 30 and 37kW



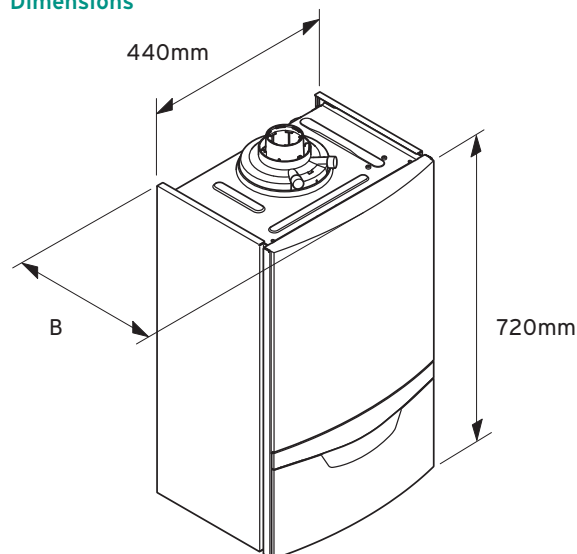
Key features and benefits

- 10 year guarantee available when registered on Vaillant Advance and installed with our Boiler Protection Kit
- Boiler Plus compliant with time and temperature controls - Install with VRT 15, timeSWITCH 160 and VR 66 wiring centre for the easiest way to meet Boiler Plus
- Premium quality components, ensuring highest reliability and performance
- Wide modulation of up to 1:6 - adapts perfectly to all systems in every situation
- Patented stainless steel heat exchanger, providing superior heat transfer and highly efficient performance
- Awarded Quiet Mark accreditation - one of quietest boilers in the market, designed for a peaceful home
- Easy installation and maintenance - accessible layout allows all components to be replaced from the boiler front

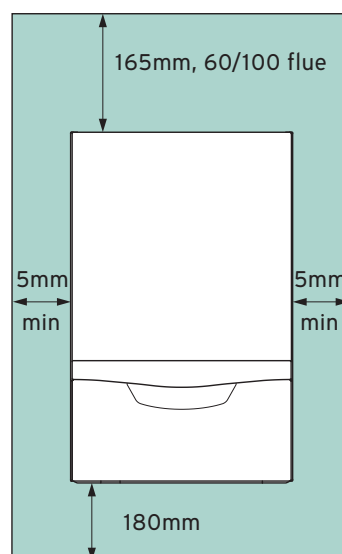


Comfort for your home

Dimensions



Clearances



Model	Dimension B
ecoTEC plus 612, 615, 618, 618 LPG, 624	338
ecoTEC plus 630, 630 LPG	372
ecoTEC plus 637	406

NOTE: all measurements are in mm

Minimum clearances	Unit	ecoTEC plus 612, 615, 618, 618 LPG, 624, 630, 630 LPG and 637
Side left and right	mm	5
Top	mm	165
Top (if using rear flue)	mm	-
Below	mm	180
Front	mm	500

Technical data	Unit of measure	ecoTEC plus 612	ecoTEC plus 615	ecoTEC plus 618	ecoTEC plus 618 LPG	ecoTEC plus 624	ecoTEC plus 630	ecoTEC plus 630 LPG	ecoTEC plus 637
General									
Article number		0010021828	0010021829	0010021830	0010021831	0010021832	0010021833	0010021834	0010021835
Boiler dimensions (HxWxD)	mm	720 x 440 x 338					720 x 440 x 372		720 x 440 x 406
Heating									
Nominal heat output range at 50/30°C (Condensing mode)	kW	3.3 - 13.2	3.3 - 16.7	4.1 - 20.0	5.4 - 19.4	5.8 - 26.4	6.5 - 32.8	9.4 - 31.9	7.1 - 40.5
Nominal heat output range at 80/60°C (Non condensing mode)	kW	3.0 - 12.2	3.0 - 15.4	3.8 - 18.5	5.0 - 18.2	5.2 - 24.4	5.8 - 30.4	8.5 - 30.4	6.4 - 37.6
Maximum flow temperature	°C	85							
Flow temperature range	°C	30 - 80							
Flow temperature factory setting	°C	75							
Approximate condensate volume at 50/30°C	litres/hr	1.2	1.6	1.9		2.5	3.1		3.8
Mechanical									
Boiler lift weight (Dry boiler)	kg	36				37	38		43
Maximum horizontal flue length 60/100	m	22.0		12.0		5.5			
Performance									
NOx (En 15502-2-1)	mg/kWh	23	23	29	39	35	29	64	36
ErP efficiency (Heating / DHW)	A, A/A, A+	A / -							
ErP efficiency	%	94							
ErP decibel rating (sound power)	dBa	43		47			46		50

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