

# EVO S

## PRODUCT AND FLUE GUIDE

Our NEW wall hung condensing boiler  
with stainless steel technology





# WHO ARE WE?

**ACV has been designing, manufacturing and distributing heating and hot water products for commercial and residential applications since 1922.**

In the UK, we formed in 1991, providing and servicing the range of tank-in-tank products to the UK and ROI. Based in Dalgety Bay, Scotland, we supply and support ACV products across the country.

Specialists in stainless steel and home of the patented tank-in-tank concept, we've been developing and manufacturing our range of high performance heating and hot water products for 100 years.

# WHAT MAKES OUR PRODUCTS DIFFERENT?

## Stainless steel

This material, which resists corrosion in the most aggressive water, has given our products an exceptional lifetime with minimal maintenance.

## Tank-in-tank

The patented tank within a tank is a simple and effective concept that gives you a reliable DHW performance to match the largest of hot water demands. You can see our full range of tank-in-tank products on our website.

## Excellence in hot water

Whilst heating requirements have decreased over the years, the demands of modern life have increased the need for a reliable but at the same time economical and environmentally friendly hot water supply.

Our mission is to use our experience to give you the best technology for generating the hot water you need.

Our motto 'Excellence in hot water' reflects the ambition of our team and partners to fulfil our mission and meet your expectations.

All our hot water products are KIWA approved demonstrating our compliance with UK Water Regulation 4 of the Water Supply (Water Fittings) Regulations 1999.



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## EVO S

**40 - 150kW**

40, 60, 70, 80, 100, 120  
and 150kW

ACV is pleased to announce the launch of the new EVO S range of wall mounted condensing boilers with stainless steel heat exchanger technology.

# EVO S

## 40 - 150kW

Available with outputs of 40, 60, 70, 80, 100, 120 and 150kW, EVO S combines the latest stainless steel heat exchanger technology with straightforward installation and maintenance. LGP convertible on all models up to and including 120kW.

### EVO S Range Overview

- > EVO S Boilers (7 models)
- > Frame and Header kits for cascade installations
- > Low Loss Headers and Plate Heat Exchanger kits for hydraulic separation
- > A selection of pumps to accommodate all system requirements
- > B23, C13 and C33 flue system accessories
- > Optional system control accessories



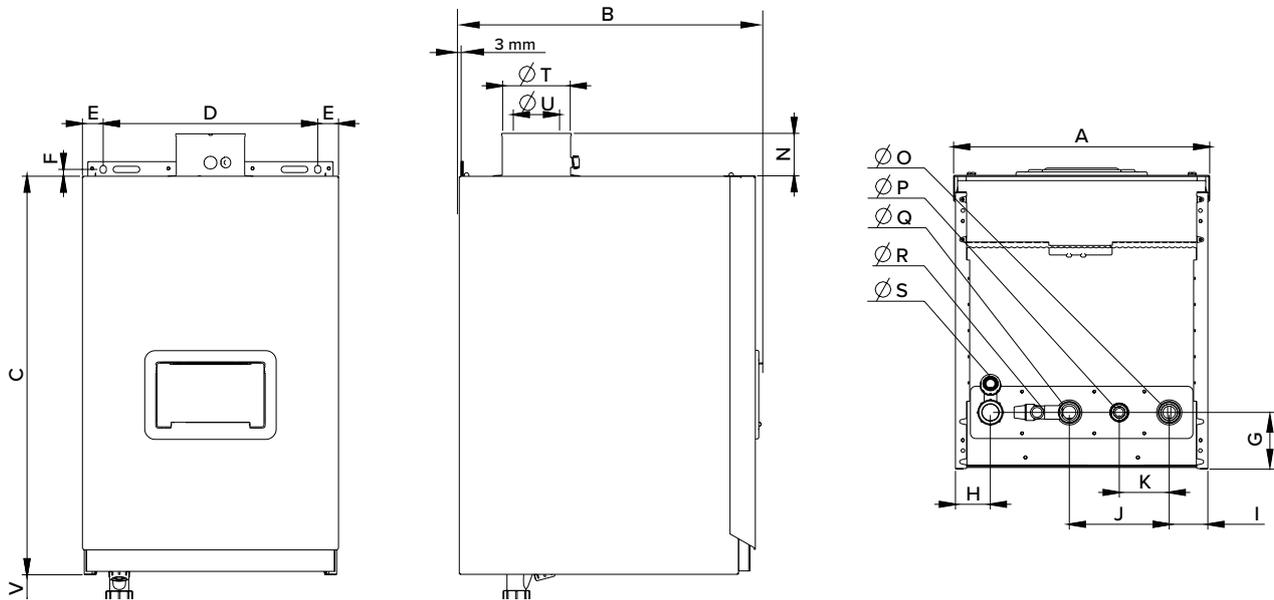
### Features

- > Brand new robust stainless steel heat exchanger
- > 5 year warranty\* (T&Cs apply)
- > NOx class 6 for all models
- > 5:1 turndown
- > New compact design
- > Large product range up to 150kW
- > 6 bar max operating pressure (80kW and above)
- > Cascade capability up to 900kW (exceptions apply)
- > Full suite of cascade accessories available
- > 2022 Part L compliant
- > Full range of hydraulic separation options available
- > New pump modulation controls built into boiler software
- > 20% hydrogen blend ready

\*5 year warranty subject to Terms and Conditions. 5 years parts and labour warranty available subject to being commissioned by ACV. Must be fitted with a suitably sized Low Loss Header or Plate Heat Exchanger. Terms and conditions available at [acv.com/gb](http://acv.com/gb)

## Dimensions and Clearances

Boiler	Dimension A	Dimension B	Dimension C	Dimension D
40 - 70kW	487mm	577mm	764mm	408mm
80 - 150kW	487mm	668mm	895mm	408mm



The following minimum clearances must be maintained for operation and servicing:



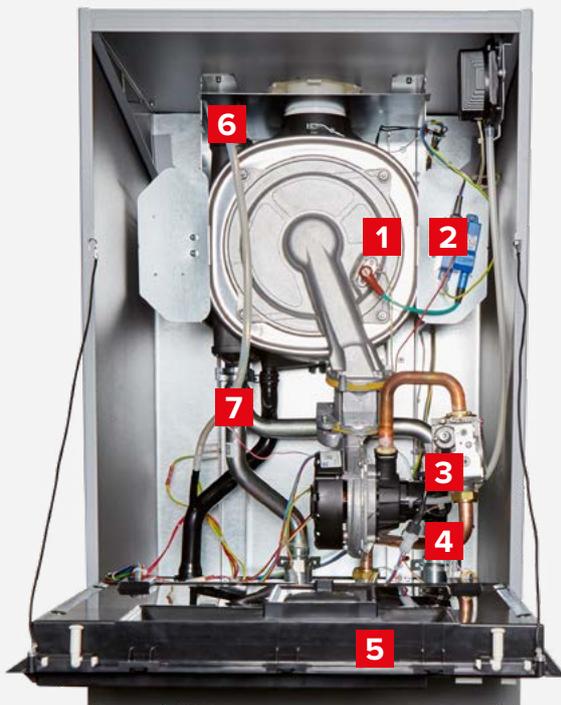
**TOP**  
Between 145 and 450mm depending on flue system type



**FRONT**  
800mm



**SIDES**  
250mm clearance between end boiler and closest wall



## Boiler Assembly

**Internal View**  
(40 - 70kW MODEL SHOWN)

### KEY

1. Ignition Electrode
2. Ignition Unit
3. Gas Valve
4. Water Pressure Sensor and Flow meter
5. Control Panel With Protective Cover
6. Manual Air Vent
7. Flow Temperature Sensor

ISO version for 40 - 70kW, DUO version for 80 - 150kW

# Technical Specification

EVO S								
	Unit	40kW	60kW	70kW	80kW	100kW	120kW	150kW
Part Number		100008264200	100008264300	100008265900	100008264400	100008264500	100008264600	100008264700
<b>Performance</b>								
Nominal heat input Qn	kW	40	55	69.9	80	96	120	145
Minimum heat input Qmin	kW	8	11	14	19.2	19.2	24	29
Modulation		5:1	5:1	5:1	4:1	5:1	5:1	5:1
Nominal output Pn (80/60)	kW	38.8	53.4	67.8	77.8	93.4	116.8	141.1
Nominal output (50/30)	kW	42.2	58	73.6	84.4	101.3	127.8	154.5
Max total cascade output (80/60)	kW	155	214	271	467	560	584	847
Thermal efficiency - 100% GCV	%	97.2	97.2	97.1	97.4	97.4	97.4	97.4
Thermal efficiency - 30% NCV	%	108.4	108.2	108.3	108.3	108.3	108.3	108.6
Part L 2022 seasonal efficiency	%	97.6	97.4	97.5	97.5	97.5	97.5	97.8
Seasonal space heating efficiency (ErP)	%	92	92	92	92	92	92	93
Space heating energy efficiency class		A	A	A	n/a	n/a	n/a	n/a
Standing loss	W	52	54	56	63	63	72	69
<b>Combustion</b>								
Minimum gas pressure (NG)	mbar	17	17	17	17	17	17	17
Minimum gas pressure (LPG)	mbar	25	25	25	25	25	25	N/A
Gas flow rate at Pn (15°C) (NG)	m³/h	4.2	5.8	7.4	8.5	10.2	12.7	15.3
Gas flow rate at Pn (15°C) (LPG)	m³/h	1.64	2.25	2.86	3.27	3.93	4.91	n/a
NOx Emissions according to EN 15502-1 (Gross)	mg/kWh	36	39	39	39	39	39	39
NOx class		6	6	6	6	6	6	6
<b>Hydraulic</b>								
Flow rate at nominal heat input Qn	m³/h	1.72	2.36	3	4.16	4.3	5.16	6.23
Flow rate at minimum heat input Qmin	m³/h	0.57	1.15	1.15	2.3	2.3	3	3.44
Maximum operating pressure	bar	4	4	4	6	6	6	6
Minimum operating pressure	bar	1	1	1	1	1	1	1
Maximum operating temperature	°C	85	85	85	85	85	85	85
Water content	L	3	4	4.5	8	7.5	9.5	11
Sound power at PmaxLw	dB(A)	50	59	60.2	64.7	64.7	64.9	59.2

EVO S								
	Unit	40kW	60kW	70kW	80kW	100kW	120kW	150kW
Part Number		100008264200	100008264300	100008265900	100008264400	100008264500	100008264600	100008264700
<b>System Hydraulic Info (NG &amp; LPG)</b>								
Hydraulic resistance (ΔT 11 °C)	mbar	1539	1560	1890	1043	1457	1648	2278
Flow rate (ΔT 11 °C)	l/min	52	71.4	90.9	103.9	129.9	155.8	188.3
Hydraulic resistance (ΔT 15 °C)	mbar	821	837	842	577	794	881	1223
Flow rate (ΔT 15 °C)	l/min	38.1	52.4	66.7	76.2	95.2	114.3	138.1
Hydraulic resistance (ΔT 20 °C)	mbar	459	470	520	318	449	515	701
Flow rate (ΔT 20 °C)	l/min	28.6	39.3	50	57.1	71.4	85.7	103.6
Hydraulic resistance (ΔT 25 °C)	mbar	223	305	306	203	287	335	441
Flow rate (ΔT 25 °C)	l/min	22.9	31.4	40	45.7	57.1	68.6	82.9
Max system temp differential	°C	35*			30*			
<b>Flue</b>								
C = Concentric Flue, B = Open Flue								
Approved flue systems		B23, B23P, C13, C33						
Flue size		80/125	80/125	80/125	100/150	100/150	100/150	100/150
Concentric flue system max length (NG)	m	15	10	10	10	10	8	6
Concentric flue system max length (LPG)	m	15	10	10	10	10	8	n/a
Vertical concentric flue system (C33) min length (LPG)	m	n/a	n/a	n/a	1m	1m	n/a	n/a
Max allowable nozzle pressure open flue (80/60) NG	Pa	150	170	185	120	165	190	190
Max allowable nozzle pressure open flue (50/30) NG	Pa	126	145	145	153	153	157	170
Max allowable nozzle pressure open flue (80/60) LPG	Pa	145	175	175	120	165	190	n/a
Max allowable nozzle pressure open flue (50/30) LPG	Pa	125	155	155	100	145	170	n/a
Flue gas mass flow rate (80/60) NG	g/s	18.6	25.6	32.5	37.2	44.7	55.8	67.5
Flue gas mass flow rate (50/30) NG	g/s	16.8	23.1	29.3	33.6	40.3	50.3	60.8
Flue gas mass flow rate (80/60) LPG	g/s	17.8	24.5	31.2	35.7	42.8	53.5	n/a
Flue gas mass flow rate (50/30) LPG	g/s	18.9	25.9	32.9	37.7	45.2	57.1	n/a

EVO S								
	Unit	40kW	60kW	70kW	80kW	100kW	120kW	150kW
Part Number		100008264200	100008264300	100008265900	100008264400	100008264500	100008264600	100008264700
<b>Electric</b>								
Electrical supply		230V - 50Hz						
Power consumption at Qn	kW	0.067	0.107	0.121	0.094	0.143	0.233	0.26
Power consumption in standby mode	kW	0.004	0.004	0.004	0.004	0.004	0.003	0.003
<b>Physical</b>								
Dry weight	kg	45	51	55	77	77	81	100
Gas supply connection		G 1"						
Flow/Return connections		G 1 1/4"						
Clearances - front of boiler (service clearance)	mm	800						
Clearances - boiler to wall	mm	250						
Clearances - above boiler casing (B23/B23P flue)	mm	393			289			
Clearances - above boiler casing (C13 flue)	mm	290			325			
Clearances - above boiler casing (C33 flue)	mm	145			145			

\* For information relating to flow rates and hydraulic resistance, please get in touch with ACV Technical Support

## Overview

The boilers must be fully automatically controlled, wall hung, fanned, highly efficient condensing appliances utilising a stainless steel heat exchanger and be suitable for connection to a sealed heating system.

## Controls

The condensing boilers must have connectivity for common types of BMS. Additional modules may be used for volt free connectivity. Where no BMS is present a modulating sequencer must be available.

The boiler must be fully modulating with a 5:1 turndown ratio and have control features enabling set point adjustment, heating circuit control of one constant temperature and one DHW circuit or 2 constant temperature circuits, and safety lock out parameters including fault diagnosis for both boiler and external components such as sensors or pumps.

Boiler capabilities must include, with the use of external components, frost protection, weather or room compensation and system pump control.

## Flue

The condensing boilers must be suitable for use with a room sealed flue or open flue applications including C13, C33 and B23 classifications. The combined flue outlet and air inlet must be situated on the top of the boiler.

## Hydraulic

The condensing boiler must be suitable for connection to a sealed circuit. All hydraulic connections including flow, return and condensate drain must be located on the bottom of the boiler. Hydraulic connections must be uniform across the outputs available in the range to ensure ease of installation and maintenance in mixed output cascades.

The boiler must have maximum operating pressure of at least 4 bar and be suitable for heating and indirect hot water systems.

## Dimensions

The condensing boiler range must be of compact design with a maximum permitted wall area of 0.44m<sup>2</sup>.

## Mounting

The condensing boilers can be installed either onto the wall or onto a bespoke prefabricated floor mounted frame. Wall brackets must be located at the top of the boiler and visible from the front to aid installation.

## Efficiency

The condensing boilers are capable of high seasonal efficiencies with a minimum requirement of 97.4% (Part L2) and low NOx emissions no greater than 39mg/kWh.

Models <70kW must have a Seasonal Space Heating Energy Efficiency category of A.

## Approvals

The boiler must be tested and certified to; EN 483, EN 677, PREN 15420, BS EN 15502, BS EN 656, BS EN 55014-1, BS EN 55014-2 and BS EN 60335-1, BS EN 60335-2-102 for use with Natural Gas. Boilers are certified to meet the requirements of the Gas Appliances Regulation (EU), Boiler Efficiency Directive, EMC and Low Voltage Directive. The boilers are fully CE approved.

The manufacturer must be ISO 9001 accredited.

## Specification

The boiler will be capable of flow rates for common systems using 11°C to 35°C (specific operating conditions apply) temperature differentials.

## Cascade

The boiler must be configurable up to between 4 and 6 boilers (depending on individual model output) in cascade using a prefabricated frame and header kit.

## Warranty

The boiler must be available with a 5 year warranty.

# Cascade Accessories

Boilers not included with Frame and Header Kits; please remember to add them to your order.

Choose a header kit
1 boiler, 40 - 70kW (DN50) XB150005
1 boiler, 80 - 100kW (DN80) XB150011
1 boiler, 150kW (DN100, DN32 pump, LLH) XB150017
1 boiler, 150kW (DN100, DN40 pump, PHEX) XB150023
2 boilers, 40 - 70kW (DN50) XB150006
2 boilers, 80 - 120kW (DN80) XB150012
2 boilers, 150kW (DN100, DN32 pump, LLH) XB150018
2 boilers, 150kW (DN100, DN40 pump, PHEX) XB150024
3 boilers, 40 - 70kW (DN50) XB150007
3 boilers, 80 - 120kW (DN80) XB150013
3 boilers, 150kW (DN100, DN32 pump, LLH) XB150019
3 boilers, 150kW (DN100, DN40 pump, PHEX) XB150025
4 boilers, 80 - 120kW (DN80) XB150014
4 boilers, 150kW (DN100, DN32 pump, LLH) XB150020
4 boilers, 150kW (DN100, DN40 pump, PHEX) XB150026

5 boilers, 80 - 120kW (DN80) XB150015
5 boilers, 150kW (DN100, DN32 pump, LLH) XB150021
5 boilers, 150kW (DN100, DN40 pump, PHEX) XB150027
6 boilers, 80 - 100kW (DN80) XB150016
6 boilers, 150kW (DN100, DN32 pump, LLH) XB150022
6 boilers, 150kW (DN100, DN40 pump, PHEX) XB150028



If using a Low Loss Header or Plate Heat Exchanger not from ACV UK, please use the pump recommended by the separation manufacturer.

Choose hydraulic separation
<b>Low Loss / Mixing Header</b>
DN50 XB150029
DN80 XB150030
DN100 XB150031
<b>Plate Heat Exchanger</b>
Up to 60kW total output (DN50) XB150035
Up to 150kW total output (DN50) XB150036
Up to 300kW total output (DN50) XB150037
Up to 150kW total output (DN80) XB150038
Up to 300kW total output (DN80) XB150039
Up to 450kW total output (DN80) XB150040
Up to 600kW total output (DN80) XB150041
Up to 300kW total output (DN100) XB150042
Up to 450kW total output (DN100) XB150043
Up to 600kW total output (DN100) XB150044
Up to 750kW total output (DN100) XB150045
Up to 900kW total output (DN100) XB150046

Choose pumps
Up to and including 120kW Grundfos UPMXXL Pump Kit XB160001
150kW, LLH Grundfos Magna 1 32 120F XB160002
150kW, PHEX Grundfos Magna 1 40 150F XB160003

1 pump required per boiler  
i.e. a 4 boiler cascade requires 4 pumps

Other accessories
40 - 70kW retrofit kit XB150001
Circuit extension header, DN50 (Pair) XB150032
Circuit extension header, DN80 (Pair) XB150033
Circuit extension header, DN100 (Pair) XB150034
40 - 70kW support frame Up to 4 boilers XB150002
80 - 120kW support frame Up to 6 boilers XB150003
150kW support frame Up to 6 boilers XB150004

# Cascade Frame and Header Kits

**Header kits (inclusive of individual support frame) are available to create cascades of up to 4 boilers (40 - 70kW) or 6 boilers (80 - 150kW).**

All cascade configurations are simple and quick to construct with minimal jointing and assembly required. Cascades of 3 boilers and above are comprised of configurations of single and double pre-fabricated and fully welded frame and header kits which also results in minimal installation time requirements.

40 - 70kW boiler models are installed onto DN50 flow and return headers, 80 - 120kW models are installed onto DN80 flow and return headers, and 150kW boilers are mounted onto DN100. All flanges provided are PN06 rated.

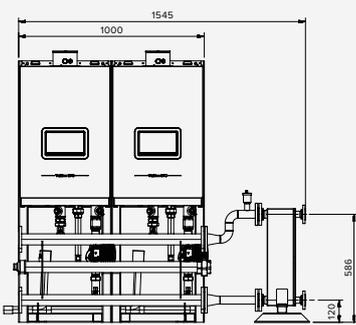
Header kits are supplied without pumps, 1 pump is required for each boiler within the cascade. ACV offer a selection of pumps which have been matched for optimised system performance for cascade configuration and hydraulic separation selection.

Header kits are supplied with a simple hook arrangement to enable rapid mounting of the boiler to the frame, and all of the hoses and fittings which would be required for complete installation.

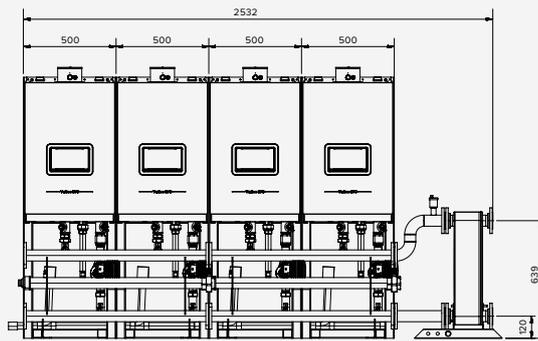
ACV EVO S boilers can be hung onto an existing Ideal EVO S or Stratton Mk2 frame using the ACV EVO S Retrofit Kit.

## DN50

2 wide cascade



4 wide cascade

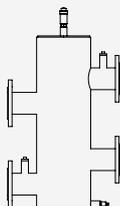
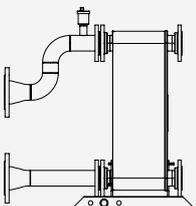


Model	PHEX (based on largest model)	Installed Width (inc PHEX)	Installed Height (Top of frame)
2 wide all models	150kW	1545mm	1418mm
3 wide 40kW	150kW	2045mm	
3 wide 60kW/70kW	300kW	2031mm	
4 wide all models	300kW	2532mm	
	<b>LLH Cascade Dims</b>	<b>Installed Width (inc LLH)</b>	
2 wide all models	DN50	1386mm	
3 wide all models	DN50	1886mm	
4 wide all models	DN50	2386mm	

## KEY

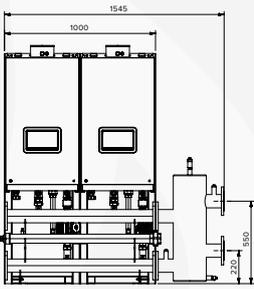
PHEX - Plate Heat Exchanger

LLH - Low Loss Header

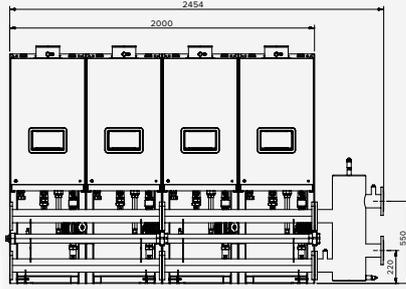


# DN80

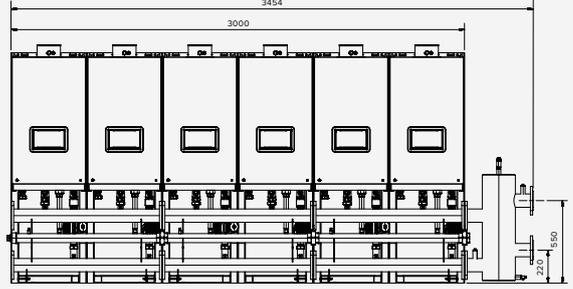
2 Wide Cascade



4 Wide Cascade



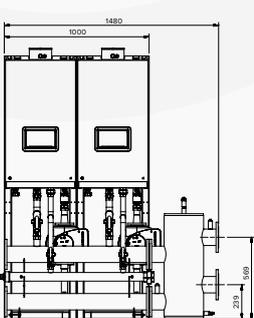
6 Wide Cascade



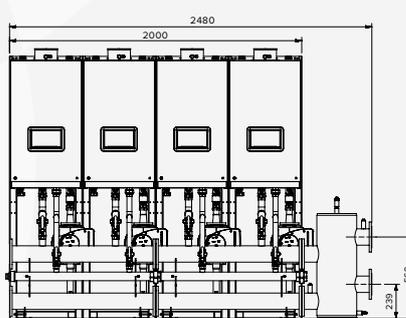
Model	PHEX (based on largest model)	Installed Width (inc PHEX)	Installed Height (Top of frame)
2 wide all models	300kW	1622mm	1535mm
3 wide 80 - 100kW	300kW	2122mm	
3 wide 120kW	450kW	2178mm	
4 wide 80 - 100kW	450kW	2678mm	
4 wide 120kW	600kW	2764mm	
5 wide 80kW	450kW	3178mm	
5 wide 100 - 120kW	600kW	3246mm	
6 wide 80 - 100kW	600kW	3764mm	
LLH Cascade Dims		Installed Width (Inc LLH)	
2 wide all models	DN80	1454mm	
3 wide all models	DN80	1954mm	
4 wide all models	DN80	2454mm	
5 wide all models	DN80	2954mm	
6 wide all models	DN80	3454mm	

# DN100

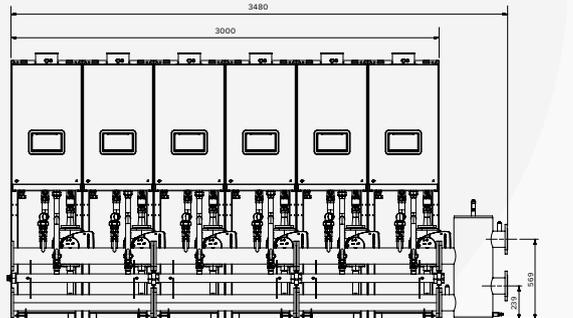
2 Wide Cascade



4 Wide Cascade



6 Wide Cascade



Model	PHEX (based on largest model)	Installed Width (inc PHEX)	Installed Height (Top of frame)
2 wide	300kW	1634mm	1830mm
3 wide	450kW	2190mm	
4 wide	600kW	2779mm	
5 wide	750kW	3322mm	
6 wide	900kW	3853mm	
LLH Cascade Dims		Installed Width (Inc LLH)	
2 wide all models	DN100	1480mm	
3 wide all models	DN100	1980mm	
4 wide all models	DN100	2480mm	
5 wide all models	DN100	2980mm	
6 wide all models	DN100	3480mm	

# Flue Options

A comprehensive range of flue kits are available from ACV including horizontal and vertical concentric and open flue options.

When installing EVO S boilers with concentric flue (horizontally or vertically) the ACV flue system must be used.

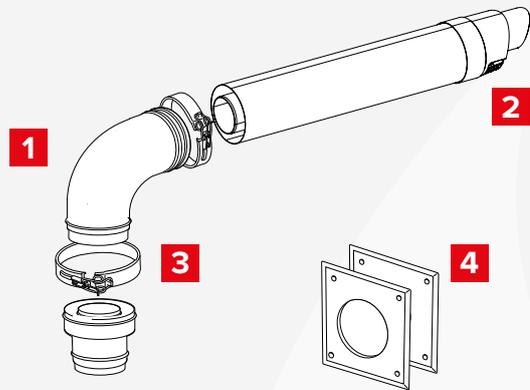
## Horizontal Wall Flue Kit

EVO S horizontal concentric flue application. Maximum lengths													
Model	40		60		70		80		100		120		150
Fuel	Nat gas	LPG	Nat gas										
Max flue length (m)	15	15	10	10	10	10	8	8	8	8	8	8	6
Flue size	80/125						100/150						
Wall flue kit part no	220919						220921						

\*These measurements do not include the terminal or any elbows

### Contents

- 1 90° Elbow
- 2 Terminal
- 3 Locking clamp x1
- 4 Wall plates x2



## Vertical Roof Flue Kit

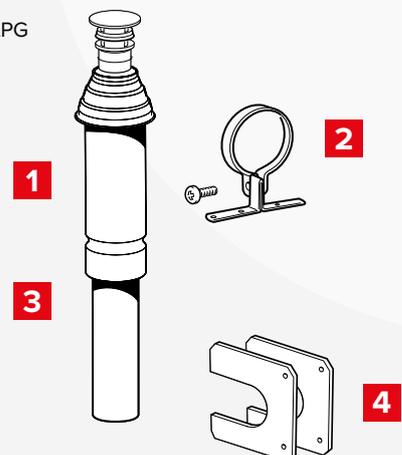
EVO S vertical concentric flue application. Maximum lengths													
Model	40		60		70		80		100		120		150
Fuel	Nat gas	LPG	Nat gas										
Max flue length (m)	15	15	10	10	10	10	10	10	10	10	8	8	6
Flue size	80/125						100/150						
Roof flue kit part no	220915						220918						

\*These measurements do not include the terminal or any elbows

For sizes 80kW & 100kW, there is a minimum length requirement of 1m if the boiler is running on LPG

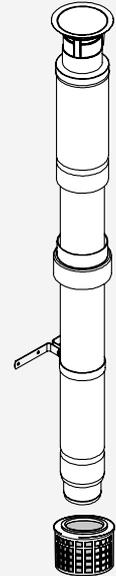
### CONTENTS

- 1 Vertical terminal
- 2 Locking clamp x1
- 3 Bracket
- 4 Finishing plates x2



## Open Flue Options (B Type)

EVO S open flue application. Maximum flue outlet pressure													
Model	40		60		70		80		100		120		150
	Nat gas	LPG	Nat gas	LPG	Nat gas	LPG	Nat gas	LPG	Nat gas	LPG	Nat gas	LPG	Nat gas
Max flue pressure at outlet (Pa) 80/60°C	150	145	170	175	185	175	120	120	165	165	190	190	190
Max flue pressure at outlet (Pa) 50/30°C	126	125	145	155	145	155	153	100	153	145	157	170	170
Flue size	80mm						100mm						
Flue kit part no	221216 + 158771 + 158769						221218 + 158772 + 158770						



To comply with CE certification, EVO S boilers must be fitted with:

- B type flues must use the air inlet grille, C type flues must use a complete EVO S flue.

# Flue Installation and Regulations

## When should I use commercial flue requirement legislation and Guidance?

BS5440 covers domestic installations up to 70kW net input, however if an appliance is to be installed in a factory location even if under 70kW then the commercial requirements of IGEN UP10 & BS6644 must be adopted.

Similarly if a cascade boiler installation is fitted and the total input exceeds 70kW then the commercial flues and ventilation should be adopted.

## What is guidance and what is mandatory?

British Standards are a mandatory requirement. The approved documents offer guidance on how to comply and are not legally binding unless the manufacturer of the appliance stipulates them in the installation manual. It is prudent however to follow them because they would likely be used in a court of law as the minimum expected by a competent person to install a safe system. Building Regs are a mandatory requirement as set out in Government legislation.

IGEM Documents offer guidance in the same way as British standards. However these have been set and adopted by a board of industry experts and represent current best practice and are aligned with National/International legislation and standards.

**Clean Air Act** – This is a mandatory requirement as set out in Government legislation.

**Gas Safety (Installation and Use) Regulations 1998** – These are mandatory and set out the requirements for safe installations.

# CLEAN AIR ACT

## THE FACTS

**The Act applies to gas (and other fuels) fired appliance installations generally but with specific requirements for installations exceeding 333kW net heat input including approval of the height of the chimney by the Local Authority.**

The essential requirements are that flue discharges are not to cause a nuisance to others or be a hazard to health.

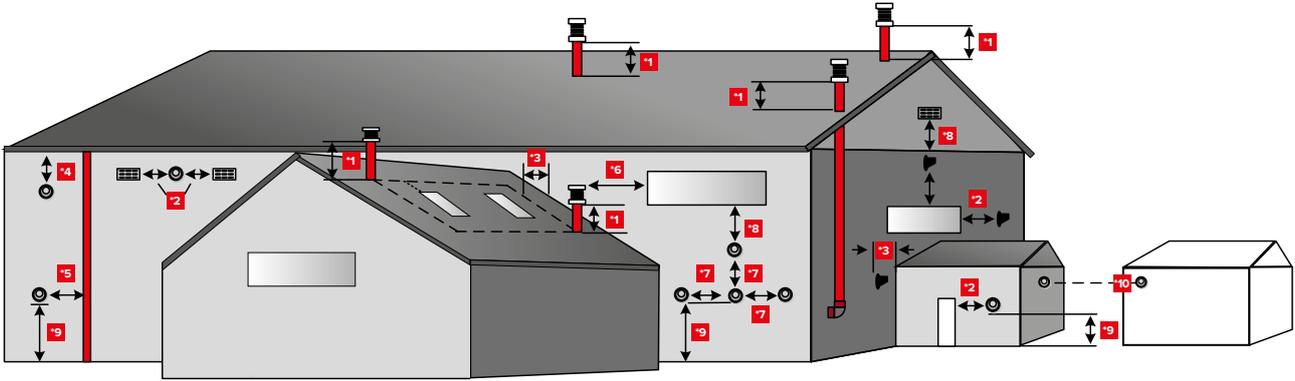
In 1956 there was a clean air act memorandum that stated appliances with gross input of 150kW must terminate vertically. This has no foundation in law and was not written for modern high efficiency products. To this effect the current guidance suggests that all installations from 135kW net input that wish to terminate horizontally should be subject to a risk assessment which can be found in IGEM UP10.

All installations are subject to the clean air act requirements:

Installations below 333kW net heat input can terminate horizontally at low level subject to a risk assessment and complying with all other clearance distances as defined in IGEM UP10.

- > Appliance inputs greater than 333kW net need prior approval from the Local Authority with position of flue termination agreed by them.
- > No terminal fitted to natural draught flues should be less than 170mm.
- > Terminal positions for fanned or natural draught flues shall be clear of obstructions and openings into buildings. Wall terminations shall be directed away from the building.
- > Vertical outlets must be the minimum required above the roof level.
- > Any horizontal outlet below 2m must be guarded and a minimum of 300mm above ground level.

# Termination Positions Appliances Over 70kW Net Input



## Key to diagram

- \*1 Minimum termination height for ridged and flat roofs, see clause 8.7.2 and Figures 10A and 10B.
- \*2 Minimum horizontal termination distance from openings i.e. doorways, windows, ventilation grilles, etc., see clause 8.7.1.3 and Figure 7.
- \*3 Minimum horizontal termination distance from adjacent walls or obstructions, see clause 8.7.2.7.
- \*4 Minimum distance to be 200 mm for fan assisted appliances, 300 mm for room sealed natural draught appliances, see BS 5440 and clause 8.7.3.3.
- \*5 Minimum distance to be 150 mm, see BS 5440 and clause 8.7.3.3.
- \*6 Minimum termination distance from openings i.e. doorways, windows, ventilation grilles, etc., see clause 8.7.2.2.
- \*7 Minimum distance of centres of flue terminal, see manufacturer's instructions.
- \*8 Minimum distance below terminal or opening 2.5 m, see Figure 7.
- \*9 See Sub-section 8.7.3.

## See IGEM 10 for further details

1, 3 & 6 Minimum Height of Termination Located on a Roof								
	70kW	80kW	100kW	120kW	150kW	200kW	240kW	300kW
Natural draught	600mm	615mm	645mm	676mm	722mm	798mm	859mm	950mm
For other natural draught appliances use distance = 1.5225 (net heat input kW) + 493.43								
Fanned draught	300mm	327mm	380mm	433mm	513mm	646mm	753mm	913mm
For other fan draught appliances use distance = 2.6644 (net heat input kW) + 113.49								
For all sloped roofs over 20 degree pitch the terminal must be 1.5m away								
If the flue termination is within 2.5m of an adjacent structure then these heights above the structure will apply								

2 Minimum Horizontal Termination To Openings Into Buildings (side or above)								
	70kW	80kW	100kW	120kW	150kW	200kW	240kW	300kW
Open flue and fanned draught	1500mm	1600mm	1790mm	1975mm	2265mm	2740mm	3120mm	3690mm
For other open flue fan draught inputs use distance = 9.5156 x (net heat input) + 833.91								
Room sealed fanned draught	600mm	675mm	820mm	960mm	1180mm	1540mm	1830mm	2265mm
For other room sealed fan draught inputs use distance = 7.232 x (net heat input) + 93.708								
The minimum distance below in all cases is 2500mm								

10 Room Sealed Fanned Draught Minimum Horizontal Termination To Opposing Walls/Terminals								
	70kW	80kW	100kW	120kW	150kW	200kW	240kW	300kW
Opposing flat surface	1000mm	1231mm	1694mm	2156mm	2850mm	4006mm	4931mm	6319mm
For other inputs use distance = 23.126 x (net heat input) - 618.84								
Opposing terminal	600mm	675mm	820mm	960mm	1180mm	1540mm	1830mm	2265mm
For other inputs use distance = 19.32 x (net heat input) + 647.59								

# Controls

The EVO S comes with a range of new optional controls accessories and built-in pump modulation controls within its software.

## Communication

### **XBH235342 Boiler Run/Fault Signalling**

Positioning - Mounted within the boiler

Description – A remote signalling kit which gives Volts Free communication for common fault and normal run indication.

### **XBH235792 Heating Circuit Extension Module**

Positioning - Mounted within the boiler

Description – A Clip-In kit which enables the boiler to control an additional heating circuit if required.

### **XBH235783 LPB Interface**

Positioning - Mounted within the boiler

Description – The LPB interface enables communication between the boiler and another external LPB device, boiler, or external module (including XBH235785 Loose Sequence Controller). One LPB interface is required per boiler within the cascade.

### **XBH235791 Modbus Interface**

Positioning - Mounted within the boiler

Description – Enables connection and communication with a Modbus PLC system.

### **XBH235785 Loose Sequence Controller**

Positioning - External Kit

Description – Loose components supplied for fitting into an external control box to offer boiler sequence control as an alternative to a BMS system. One controller can control up to fifteen boilers.

### **XBH235788 Heating Circuit Control – Assembled**

Positioning - External Kit

Description – An externally mounted extension module which enables the boiler to control additional heating circuits if required. This comes in an enclosure ready for mounting.

### **XBH235789 Heating Circuit Control – Kit**

Positioning - External Kit

Description – An externally mounted extension module which enables the boiler to control additional heating circuits if required.

## Pump Control

### **XBH235787 PWM to 0-10V Conversion Kit**

Positioning - Mounted within the boiler

Description – An extension module which converts a PWM signal into a 0-10V signal for pumps installed which are different to those offered through ACV.

## Temperature Control

### **XBH236002 Outdoor Temperature Sensor**

Positioning - External Kit

Description – A sensor which can be wired directly to the boiler to offer weather compensation. XBH236002 must be used if the boiler is to manage the heating circuit.

### **XBH235781 Programmable room sensor**

Positioning - External Kit

Description – A thermostat which can offer precise temperature control and is fully programmable by a building occupant.

### **XBH235782 Offset Adjustable Room Sensor**

Positioning - External Kit

Description - A thermostat which offers limited control change functionality by building occupants.

### **XBH605609 Insertion Temperature Sensor**

Positioning - External Kit

Description – An Insertion Temperature Sensor can be used for several applications where a temperature measurement for system operation is required. Common examples are:

- a. Common flow sensor on a cascade
- b. External DHW tank sensor
- c. DHW outlet flow sensor
- d. Heating circuit flow temperature sensor, i.e. within a Low Loss Header

### **XBH236001 Strap on Temperature Sensor**

Positioning - External Kit

Description – A Strap on Temperature Sensor may be used to measure flow and DHW temperature when an Insertion Temperature Sensor is not possible. A Strap on Sensor is commonly used to measure the flow temperature on Plate Heat Exchangers.

# Product Listing

Boilers	
Product Code	Description
100008264200	ACV EVO S 40kW stainless steel wall hung condensing boiler
100008264300	ACV EVO S 60kW stainless steel wall hung condensing boiler
100008265900	ACV EVO S 70kW stainless steel wall hung condensing boiler
100008264400	ACV EVO S 80kW stainless steel wall hung condensing boiler
100008264500	ACV EVO S 100kW stainless steel wall hung condensing boiler
100008264600	ACV EVO S 120kW stainless steel wall hung condensing boiler
100008264700	ACV EVO S 150kW stainless steel wall hung condensing boiler

Optional Control Accessories	
Product Code	Description
XBH235342	Volt free signalling kit
XBH236002	Outdoor temperature sensor
XBH605609	Insertion temp sensor and pocket - recommended for LLH installations
XBH236001	Strap on temp sensor - recommended for PHEX installations
XBH235781	Room sensor fully programmable
XBH235782	Room sensor offset adjustable
XBH235783	LPB bus module - 1 required per boiler linked to sequence controller
XBH235785	Loose sequence controller kit
XBH235787	PWM 0 10v conversion kit
XBH235788	External Hc option assembled
XBH235789	External HC option kit
XBH235791	Modbus gateway
XBH235792	HC clip in kit

Pumps (1 Required Per Boiler)	
Product Code	Description
XB160001	UPMXXL for all DN50 and DN80 cascades (up to 120kW)
XB160002	Magna1 32 - 120F for DN100 cascades using a LLH
XB160003	Magna1 40 - 150F for DN100 cascades using a PHEX

Hydraulic Accessories	
Product Code	Description
XB150001	Retrofit kit 40 - 70kW (to retrofit ACV EVO S boilers onto existing Ideal EVO S/Stratton Mk2 frames)
XB150002	Support frame 40 - 70kW boilers
XB150003	Support frame 80 - 120kW boilers
XB150004	Support frame 150kW boilers
XB150032	Circuit extension headers DN50 pair
XB150033	Circuit extension headers DN80 pair
XB150034	Circuit extension headers DN100 pair

# Product Listing Continued

Frame and Header Kits	
Product Code	Description
XB150005	DN50 header kit 1 x 40 - 70kW boiler
XB150006	DN50 header kit 2 x 40 - 70kW boilers
XB150007	DN50 header kit 3 x 40 - 70kW boilers
XB150008	DN50 header kit 4 x 40 - 70kW boilers
XB150011	DN80 header kit 1 x 80 - 120kW boiler
XB150012	DN80 header kit 2 x 80 - 120kW boilers
XB150013	DN80 header kit 3 x 80 - 120kW boilers
XB150014	DN80 header kit 4 x 80 - 120kW boilers
XB150015	DN80 header kit 5 x 80 - 120kW boilers
XB150016	DN80 header kit 6 x 80 - 120kW boilers
XB150017	DN100 header kit 1 x 150kW boiler, LLH
XB150018	DN100 header kit 2 x 150kW boilers, LLH
XB150019	DN100 header kit 3 x 150kW boilers, LLH
XB150020	DN100 header kit 4 x 150kW boilers, LLH
XB150021	DN100 header kit 5 x 150kW boilers, LLH
XB150022	DN100 header kit 6 x 150kW boilers, LLH
XB150023	DN100 header kit 1 x 150kW boiler, PHEX
XB150024	DN100 header kit 2 x 150kW boilers, PHEX
XB150025	DN100 header kit 3 x 150kW boilers, PHEX
XB150026	DN100 header kit 4 x 150kW boilers, PHEX
XB150027	DN100 header kit 5 x 150kW boilers, PHEX
XB150028	DN100 header kit 6 x 150kW boilers, PHEX

Hydraulic Separation	
Product Code	Description
XB150029	DN50 low loss header PN06
XB150030	DN80 low loss header PN06
XB150031	DN100 low loss header PN06
XB150035	DN50 60kW plate heat exchanger kit
XB150036	DN50 150kW plate heat exchanger kit
XB150037	DN50 300kW plate heat exchanger kit
XB150038	DN80 150kW plate heat exchanger kit
XB150039	DN80 300kW plate heat exchanger kit
XB150040	DN80 450kW plate heat exchanger kit
XB150041	DN80 600kW plate heat exchanger kit
XB150042	DN100 300kW plate heat exchanger kit
XB150043	DN100 450kW plate heat exchanger kit
XB150044	DN100 600kW plate heat exchanger kit
XB150045	DN100 750kW plate heat exchanger kit
XB150046	DN100 900kW plate heat exchanger kit

Open Flue Accessories	
Product Code	Description
XBI221216	80mm open flue kit
XBI158771	80mm extension pipes (pair)
XBI158773	80mm 90 degree elbow
XBI158775	80mm 45 degree flue bend (pair)
XBI159769	80mm roof flue terminal
XBI152259	80mm and 100mm flat roof flashing
XBI158779	80mm and 100mm pitch roof flashing
XBI221218	100mm open flue kit
XBI158772	100mm extension pipes (pair)
XBI158770	100mm vertical roof terminal
XBI158774	100mm 90 degree elbow
XBI158776	100mm 45 degree flue bend (pair)
XBI152404	Expansion adaptor 80 - 100

Concentric Flue Accessories	
Product Code	Description
XBI220915	80/125 vertical roof flue kit
XBI220919	80/125 horizontal flue kit
XBI213261	80/125 1m flue extension
XBI213259	80/125 90 degree bend
XBI213260	80/125 45 degree bend
XBI152611	80/125 flat roof flashing
XBI152609	80/125 pitch roof flashing
XBI202242	125mm flue wall bracket
XBI220918	100/150 vertical roof flue kit
XBI220921	100/150 horizontal flue kit
XBI213262	100/150 1m flue extension
XBI213263	100/150 90 degree bend
XBI213258	100/150 45 degree bend
XBI152612	100/150 flat roof flashing
XBI152610	100/150 pitch roof flashing
XBI202243	150mm flue wall bracket
XBI222133	Expansion adaptor 80/125 to 100/150

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