



# CONDENSING COMMERCIAL BOILERS

PRODUCT GUIDE



Ideal Heating is the UK's market leader of high efficiency commercial heating solutions.

Operating from its Hull manufacturing plant and offices since 1906, Ideal is one of the few true British manufacturers left in the heating industry.

## BRING BOILERS TO LIFE

Your phone or tablet can let you appreciate our Condensing Boiler range in a new dimension.

The Ideal Heating Eye app uses the latest Augmented Reality technology to project accurately scaled 3D renders into your surroundings.

The app is available for both Apple and Android devices; just search "Ideal Heating Eye".

Over the coming pages, the icon below shows which boilers are featured in the app:



**DOWNLOAD  
THE APP**



**ideal**  
HEATING

COMMERCIAL

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British  
Built



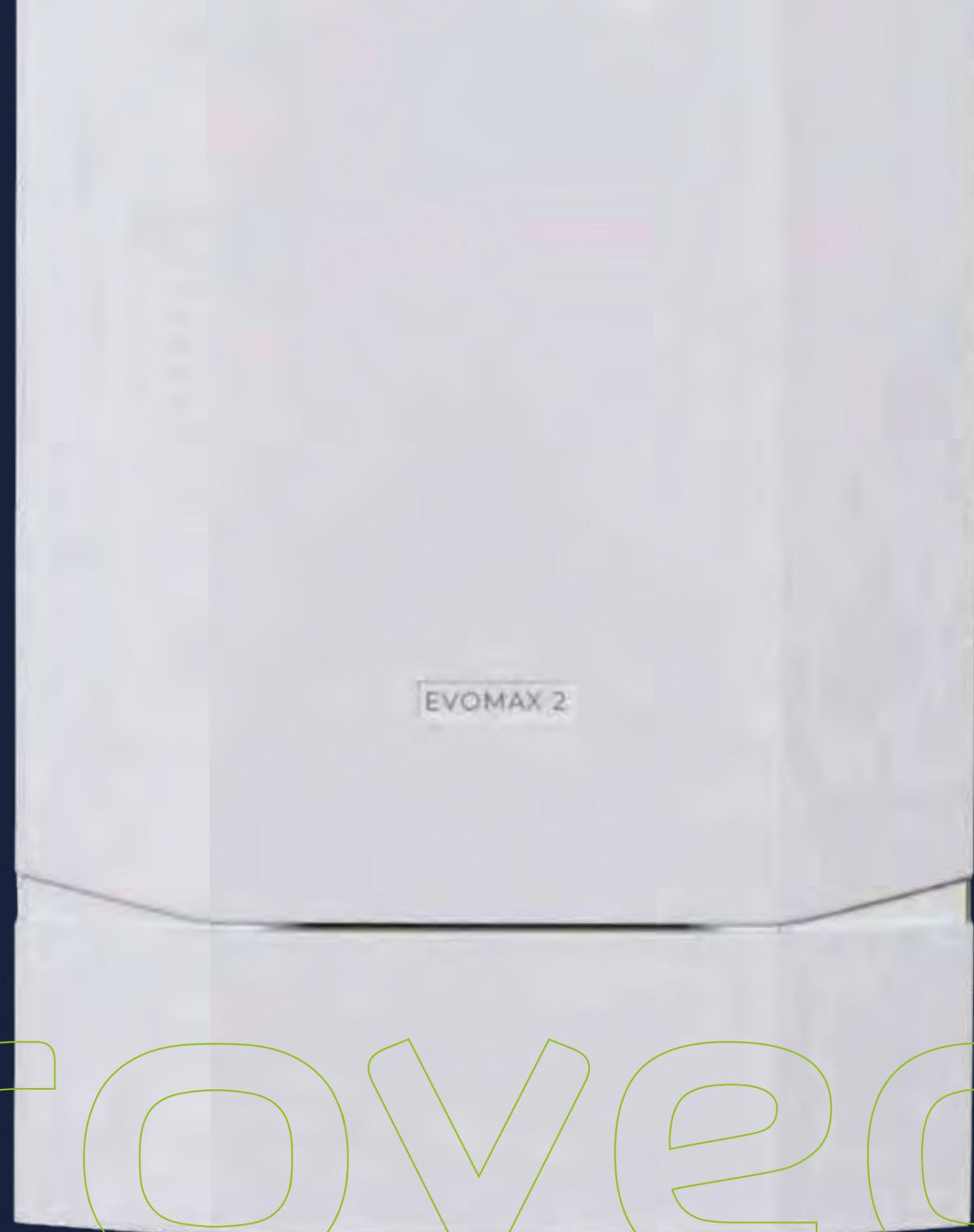
Industry  
Trusted

# EVOMAX 2

30 - 150kW



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improved

# EVOMAX 2

30 - 150kW

Available in outputs of 30, 40, 60, 80, 100, 120 and 150kW, Evomax 2 is designed to ensure all installation requirements can be achieved. There is also an LPG Evomax range from 30 to 120 kW for off mains installations.



Wall hung



BIM



NOx class 6



Flueing options



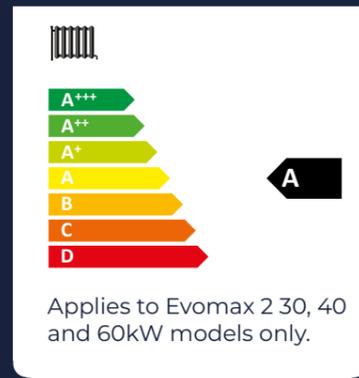
Cascade control



Part L 2022

## FEATURES AND BENEFITS

- Free commissioning
- 5 year warranty\*
- Robust cast aluminium silicon alloy heat exchanger
- NOx <40mg/kWh (Class 6) for all natural gas models
- High 5:1 turndown
- Up to 99.6% full load efficiency
- Up to 110% part load efficiency
- Exactly the same compact footprint as Evomax, allowing for easy like for like replacement
- Dynamic control menu set up
- Cascade controls option
- Easy servicing; 3 sides removable
- Built in, serviceable flue Non-Return Valve
- Capable of operating at up to 30° ΔT



## DIMENSIONS AND CLEARANCES

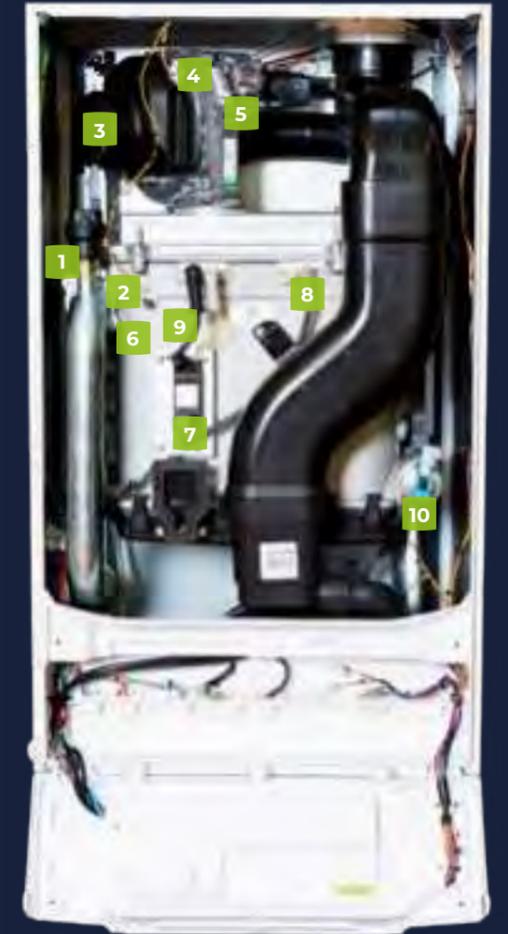
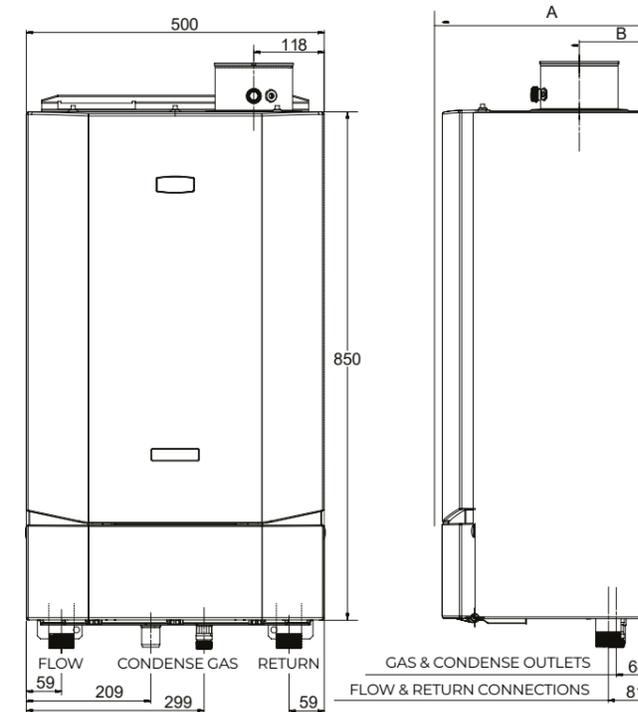
BOILER	DIM A	DIM B
30, 40, 60, 80	360	130
100, 120	520	226
150	610	233

All dimensions in mm

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



CLEARANCE BETWEEN MULTIPLE BOILER INSTALLATIONS: 25mm



BOILER ASSEMBLY  
INTERNAL VIEW  
(40kW MODEL SHOWN)

## KEY

1. Auto Air Vent
2. Burner Fixings
3. Fan
4. Gas Valve
5. Venturi
6. Flow Thermistor
7. Ignitor Unit
8. Electrode Detection
9. Ignition Electrode
10. Water Pressure Sensor

## PERFORMANCE DATA

### EVOMAX 2 30 - 150kW (Natural Gas)

MODEL			30	40	60	80	100	120	150
Boiler Output (non-condensing) Mean 70°C	Max	kW	30	40	60	80	100	120	150
	Min	kW	6	8	12	16	20	24	30
Boiler Output (condensing) Mean 40°C	Max	kW	31.5	42.0	63.5	84.4	103.9	124.7	158
	Min	kW	6.5	8.5	12.7	17.2	21.6	26.0	32.5
Boiler Input Max Rate	Net	kW	30.4	40.5	60.8	82.0	102.4	122.9	153.7
	Gross	kW	33.7	44.9	67.4	90.9	113.6	136.4	170.5
Boiler Input Min Rate	Net	kW	6.1	8.1	12.2	16.4	20.5	24.6	30.7
	Gross	kW	6.7	9.0	13.5	18.2	22.7	27.3	34.1
Gas Rate	Max rate	m³/hr	3.2	4.3	6.4	8.7	10.8	13.0	16.2
Flue Gas Flow Rate	Max Rate	m³/hr	41.30	54.05	80.65	110.10	140.50	173.33	210.70
CO <sub>2</sub> (±0.5%)	Max Rate	%	9.76	10.20	9.40	9.30	9.40	9.62	9.44
	Min Rate	%	8.56	8.60	8.60	8.70	8.60	8.98	8.51
NOx with O <sub>2</sub> = 0% (gross) (BS EN 15502-1)	Weighted	mg/kWh	34.1	33.2	35.2	34.9	34.8	33.9	35.7
Efficiency	Seasonal	%	96.7	96.2	96.4	97.2	96.7	96.6	96.7
	*SEDBUK 2009	%	89.6	89.3	89.4	n/a	n/a	n/a	n/a

### EVOMAX 2 30 - 120kW (LPG)

MODEL			30P	40P	60P	80P	100P	120P
Boiler Output (non-condensing) Mean 70°	Max	kW	30	40	60	80	100	120
	Min	kW	6	8	12	16	20	24
Boiler Output (condensing) Mean 40°C	Max	kW	30.9	41.2	62.1	82.6	101.7	123.3
	Min	kW	6.4	8.3	12.4	16.8	21.3	25.7
Boiler Input Max Rate	Net	kW	30.4	40.5	60.7	81.9	102.4	122.9
	Gross	kW	33	44	66	88.9	111.2	133.4
Boiler Input Min Rate	Net	kW	6.1	8.1	12.0	16.2	20.5	24.6
	Gross	kW	6.6	8.8	13.1	17.5	22.2	26.7
Gas Rate	Max rate	m³/hr	1.26	1.69	2.53	3.41	4.35	5.23
Flue Gas Flow Rate	Max Rate	m³/hr	44.09	61.68	88.66	121.57	153.60	183.81
CO <sub>2</sub> (±0.5%)	Max Rate	%	10.9	11.2	11.4	11.4	10.8	11.2
	Min Rate	%	10.3	9.7	10.2	10.8	10.1	10.1
NOx with O <sub>2</sub> = 0% (gross) (BS EN 15502-1)	Weighted	mg/kWh	52.3	64.4	67.7	63.2	65.3	41.6
Efficiency	Seasonal	%	97.2	96.7	96.9	97.7	96.7	96.6
	*SEDBUK 2009	%	90.6	90.3	90.5	n/a	n/a	n/a
Operating Temperature	Max	°C	85					

## GENERAL DATA

### EVOMAX 2 30 - 150kW (Natural Gas and LPG)

MODEL		30/30P	40/40P	60/60P	80/80P	100/100P	120/120P	150
Gas Supply		2H - G20 - 20mbar / 3P - G31 - 37mbar						
Gas Supply Connection		G ¾"						
Flow Connection		G1 ¼"						
Return Connection		G1 ¼"						
Max Pressure (sealed system)	Bar (psi)	6						
Maximum Static Head	m	6l						
Electricity Supply		230V - 50Hz						
Fuse Rating	A	4.0						
Power Consumption	W	81	138	82	149	187	243	240
IP Rating		IPX4D						
Nominal Flue Size (concentric)	mm	80/125*				100/150		
Condensate Drain	mm	25						
Water Content	l	3.0		5.0		7.0		9.2
Dry Weight	Kg	47.5		57.5		73		81
Weighted Sound Power Level	dBA	55.2	57.7	59	59.9	62	62	59

\*Optional kit available on 60kW and 80kW models for 100/150mm flue

### INCLUDED AS STANDARD

BOILER	EVOMAX 2
Remote indication (run and alarm)	✓
Hours run	✓
BMS (0-10v) operation	✓
Pump overrun	✓
Large backlit LCD controls, including 5 line plain text display	✓
Dynamic control menu set up	✓

### OPTIONAL KITS

BOILER	EVOMAX 2
Multi boiler frame and header kits (see pages 16-19)	✓
Varican Module Master Kit	✓
Varican Module Slave Kit	✓
Extension Module Kit	✓
OPENTHERM Room Control Kit	✓
Room Sensor Kit	✓
Tank Sensor Kit	✓
Outside Sensor Kit	✓
Header Flow Tank Immersion Sensor Kit	✓
Header Flow Tank Strap On Sensor Kit	✓
Safety Interlock Kit	✓
0-10V Pump Control Kit	✓
Condensate Pump	✓

## SUGGESTED ENGINEERING SPECIFICATION

The Suggested Engineering Specification is wording designed for specifiers to copy and paste into their specifications to ensure inclusion of Ideal Heating commercial boilers.

### OVERVIEW

The boilers must be fully automatically controlled, wall mounted, fanned, super-efficient condensing appliances utilising an aluminium silicon alloy heat exchanger and be suitable for connection to fully pumped open vented or sealed water systems.

### CONTROLS

The condensing boilers must have connectivity for all common types of BMS integration including 0-10v, volt free and OpenTherm connections. Additional modules may be used for BACnet, LONWorks and MODBus gateways. Where no BMS is present a modulating sequencer must be available.

The boiler must be fully modulating with a 5:1 turndown ratio and include 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 and be suitable for connection to fully pumped open vented or sealed water systems. 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 a maximum operating pressure of 6 bar and be suitable for heating and indirect hot water systems.

### DIMENSIONS

The condensing boiler range must have a universal compact width and height across the range to ensure mixed output cascades maintain the same universal configuration. Maximum permitted wall area of 0.43m<sup>2</sup>.

### MOUNTING

The condensing boilers can be installed either on the wall or into a 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 96.2% and low NOx emissions no greater than 39.8mg/kWh for natural gas and 80mg/kWh for LPG.

30, 40 and 60kW models must have a Seasonal Space Heating Energy Efficiency 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 and BS EN 55014-2 for use with Natural Gas. Boilers are certified to meet the requirements of the EC Gas Appliance Directive, Boiler Efficiency Directive, EMC and Low Voltage Directive.

The manufacturer must be ISO 9001 accredited.

### SPECIFICATION

- The 30kW boiler will be capable of flow rates for common systems using either 11°C, 15°C, 20°C or 25°C temperature differentials.
- The 40, 60 and 80kW boiler will be capable of flow rates for common systems using either 11°C, 15°C, 20°C, 25°C or 30°C temperature differentials.
- The 100kW boiler will be capable of flow rates for common systems using either 15°C, 20°C, 25°C or 30°C temperature differentials.
- The 120 and 150kW boiler will be capable of flow rates for common systems using either 20°C, 25°C or 30°C temperature differentials.

### SOURCING

The condensing boiler must be manufactured or finally assembled in the United Kingdom.

### CASCADE

The boiler must be configurable up to 6 boilers (max 900kW) in cascade using a prefabricated frame and header kit.

### WARRANTY

The boiler must be available with a 5 year warranty.

## SYSTEM TEMPERATURE DIFFERENTIALS

Flow rates for common systems using either 11°C, 15°C, 20°C, 25°C or 30°C temperature differentials are given in the table below.

BOILER	FLOW RATE (L/MIN)					HYDRAULIC RESISTANCE (MBAR)				
	11°C	15°C	20°C	25°C	30°C	11°C	15°C	20°C	25°C	30°C
Evomax 2 30 / 30P	39.1	28.7	21.5	17.9	N/A	425	225	127	89	N/A
Evomax 2 40 / 40P	52.1	38.2	28.7	23.9	19.1	875	405	225	163	100
Evomax 2 60 / 60P	78.2	57.3	43.0	35.9	28.7	435	180	83	57	30
Evomax 2 80 / 80P	104.2	76.4	57.3	47.8	38.2	750	420	180	125	70
Evomax 2 100 / 100P	N/A	95.6	71.7	59.8	47.8	N/A	315	134	97	60
Evomax 2 120 / 120P	N/A	N/A	86.0	71.7	57.3	N/A	N/A	218	149	80
Evomax 2 150	N/A	N/A	107.5	89.6	71.7	N/A	N/A	230	158	85

- 30kW boilers must operate with temperature differentials from 11°C to 25°C.
- 40, 60 and 80kW boilers must operate with temperature differentials from 11°C to 30°C.
- 100kW boilers must operate with temperature differentials from 15°C to 30°C.
- 120 and 150kW boilers must operate with temperature differentials from 20°C to 30°C.

## CONTROL KITS

### VARICAN MODULE MASTER and SLAVE KITS

Enables cascade control from Evomax 2 boiler controls

### EXTENSION MODULE KIT

Capable of managing 2 mixing circuits. Multiple modules can be used

### OPENTHERM ROOM CONTROL KIT

Timed control of central heating via OPENTHERM

### ROOM SENSOR KIT

Used with Extension Module Kit for CH control

### TANK SENSOR KIT

Provides DHW temperature control. Also for use with Extension Module Kit

### OUTSIDE SENSOR KIT

Provides weather compensation directly or with Extension Module Kit

### HEADER FLOW TANK IMMERSION SENSOR KIT

Ensures boiler provides correct temperature to water in header via immersed sensor

### HEADER FLOW TANK STRAP ON SENSOR KIT

Ensures boiler provides correct temperature to water in header via external sensor

### SAFETY INTERLOCK KIT

Provides boiler shut down via an external signal

## FLUE SYSTEMS

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

For horizontal flues: this is the distance from the flue outlet centre line on the boiler to the outside wall.

For vertical flue: this is the distance from the top of the boiler case to the aperture in the weather collar. If elbows are to be used, then the equivalent length of that fitting must be subtracted from the maximum flue extensions allowed for that flue option.

Note: Horizontal terminal resistance includes 1 x 90° elbow.

When installing Evomax 2 boilers with concentric flue (horizontally or vertically) the Ideal commercial flue system must be used.

The resistance of flue components, together with the maximum flue resistance each boiler can work against, may be used to calculate the total flue resistance of the system, and to determine if they are acceptable to run on the boiler. Multiple boilers may be installed with a common flue header.

The flue system should be designed and supplied by a specialist flue company. BS 6644 and IGEM UP10 provide guidance on design and the drainage of condensate from flue stack and headers. Condensate from a flue stack and header must be collected and drained before entering the boiler.

**For Ventilation requirements, please refer to the Installation Manual.**

# EVOMAX 2 CASCADE

30 - 900kW

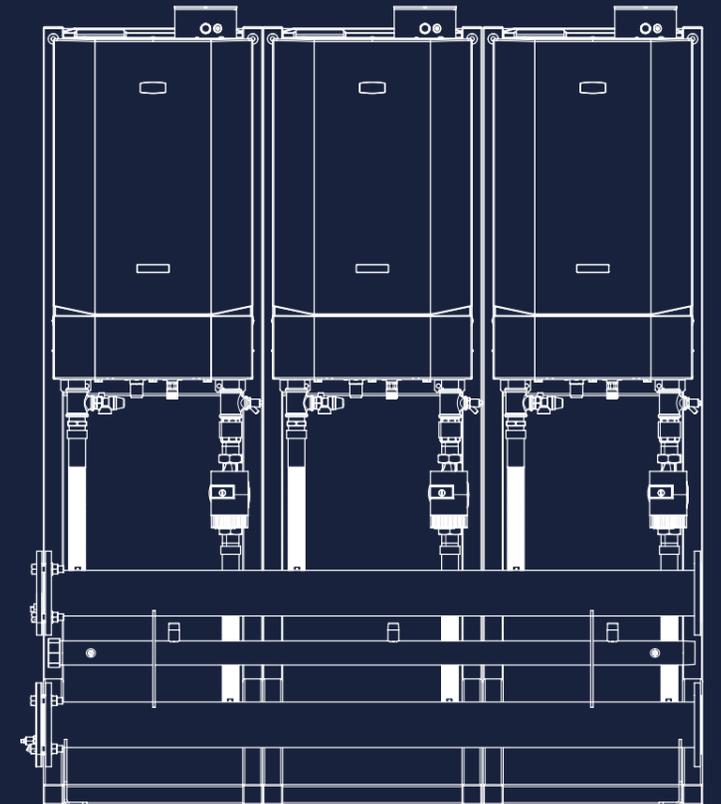


Cascade control



## EVOMAX 2 CASCADE Frame and Header Kits

For installations requiring more output delivered in a flexible way, up to 6 Evomax 2 boilers can be installed in a cascade. An output of up to 900kW is possible with this modular option which is available in both Inline (Standard and Low Height) and Back to Back arrangements.



### CHOOSING WHAT YOU NEED IS STRAIGHTFORWARD:

**Choose Frames:** select Standard or Low Height Frames, or mount on a wall

**Choose a Header:** select an Inline or Back to Back configuration for the total number of boilers in the cascade

**Choose Hydraulic Separation:** select Plate Heat Exchanger, Magnetic Low Loss Header or Low Loss Header

**Choose Pumps:** select the relevant pump for your cascade

**Choose Insulation:** select the insulation for a Header, Separation and Pumps

### A few things to bear in mind:

- A Standard Height Inline or Back to Back cascade can be for up to 6 boilers
- A Low Height Inline cascade can be for up to 4 boilers
- 1 Standard Height Frame required for each boiler in the cascade
- 1 pump required for each boiler in the cascade

The wide range of options available are detailed on the pages overleaf. Alternatively, use our online Evomax 2 Cascade Configurator tool to compile a complete list of accessories for your cascade:

[idealcommercialboilers.com/evomax2-cascade-configurator](https://www.idealcommercialboilers.com/evomax2-cascade-configurator)

# EVOMAX 2

## Cascade Accessories

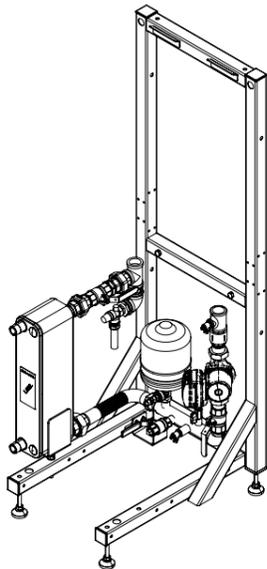
CHOOSE A FRAME KIT
<b>Standard Height</b> Up to 6 boilers 206970 1 frame required per boiler i.e. a 6 boiler cascade requires 6 frames
<b>Low Height Inline</b> Up to 4 boilers Included with Low Height Header Kit

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

EVOMAX2 PHEX PACKAGE
234562

A complete package to allow installation of single boilers with hydraulic separation from the secondary system using a brazed plate stainless steel plate heat exchanger. The boiler side of the package includes expansion vessel, pressure gauge, pressure relief valve, filling point and drain connection. Suitable for all Evomax2 boiler models with standard operating temperatures of 85/65°C boiler side and 75/55°C secondary side. Please contact your local sales representative to discuss other operating temperature profiles.

A complete package requires an Evomax2 boiler and boiler pump to be added.



CHOOSE A HEADER KIT
<b>Standard Height Frame, Inline boilers</b> 2 boilers, 30 - 100kW (DN80) for PHEX & LLH 219542 2 boilers, 120 & 150kW (DN100) for PHEX & LLH 219547 3 boilers, 30 - 100kW (DN80) for w & LLH 219543 3 boilers, 120 & 150kW (DN100) for PHEX & LLH 219548 4 boilers, 30 - 150kW (DN100) for PHEX & LLH 219549 5 boilers, 30 - 100kW (DN100) for PHEX & LLH 5 boilers, 120 & 150kW (DN100), PHEX 219545 5 boilers, 120 & 150kW (DN150) for LLH ONLY 219550 6 boilers, 30 - 150kW (DN100) for PHEX 6 boilers, 30 - 100kW (DN100) for LLH 219546 6 boilers, 120 & 150kW (DN150) for LLH ONLY 219551
<b>Standard Height Frame, Back to Back boilers</b> 2 boilers, 30 - 150kW (DN80) for PHEX & LLH 219555 3 boilers, 30 - 150kW (DN80) for PHEX & LLH 219556 4 boilers, 30 - 150kW (DN100) for PHEX & LLH 219557 5 boilers, 30 - 150kW (DN100) for PHEX & LLH 219558 6 boilers, 30 - 150kW (DN100) for PHEX ONLY 222397 6 boilers, 30 - 150kW (DN150) for LLH ONLY 219559
<b>Low Height Frame, Inline boiler</b> 1 boiler, 30 - 150kW for (DN50) for PHEX & LLH 221127 2 boilers, 30 - 150kW (DN65) for PHEX & LLH 221128 3 boilers, 30 - 150kW (DN80) for PHEX & LLH 221129 4 boilers, 30 - 150kW (DN100) for PHEX & LLH 219561

CHOOSE HYDRAULIC SEPARATION
<b>Low Loss / Mixing Header</b> DN50 209394 DN65 209395 DN80 219552 DN100 219553 DN150 219554
<b>Magnetic Low Loss / Mixing Header (MLLH)</b> DN50 222191 DN65 222192 DN80 222193 DN100 222194
<b>Plate Heat Exchanger</b> Up to 60kW nominal output (DN50) 222219 Insulation Kit - 234443 Up to 60kW nominal output (DN65) 222993 Insulation Kit - 234443 Up to 60kW nominal output (DN80) 222220 Insulation Kit - 234444 Up to 150kW nominal output (DN50) 222221 Insulation Kit - 234445 Up to 150kW nominal output (DN65) 222994 Insulation Kit - 234445 Up to 150kW nominal output (DN80) 222222 Insulation Kit - 234446 Up to 300kW nominal output (DN65) 222223 Insulation Kit - 234447 Up to 300kW nominal output (DN80) 222225 Insulation Kit - 234447 Up to 300kW nominal output (DN100) 222995 Insulation Kit - 234444 Up to 450kW nominal output (DN80) 222226 Insulation Kit - 234449 Up to 450kW nominal output (DN100) 222996 Up to 600kW nominal output (DN100) 222227 Up to 750kW nominal output (DN100) 222228 Up to 900kW nominal output (DN100) 222229

Note: PHEX Insulation Kits Available from Oct 2022

Plate Heat Exchanger
Up to 450kW nominal output (DN100) 222996 Insulation Kit - 234449
Up to 600kW nominal output (DN100) 222227 Insulation Kit - 234450
Up to 750kW nominal output (DN100) 222228 Insulation Kit - 234451
Up to 900kW nominal output (DN100) 222229 Insulation Kit - 234454

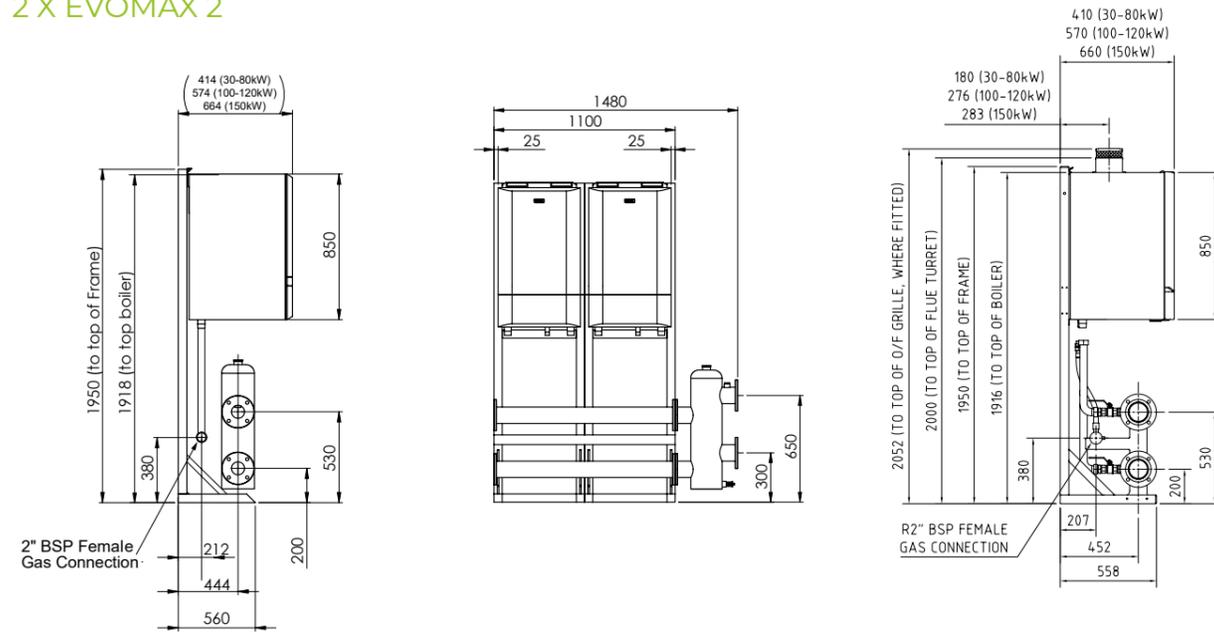
CHOOSE PUMPS
<b>Low Loss / Mixing Header Chosen</b> Grundfos UPML (M)LLH Pump Kit 222659
<b>Plate Heat Exchanger Chosen</b> Grundfos UPMXXL PHEX Pump Kit 222660 1 pump required per boiler i.e. a 6 boiler cascade requires 6 pumps
<b>No Separation Chosen</b> Grundfos UPML Pump Kit 222659

If using a Low Loss Header or Plate Heat Exchanger not from Ideal Heating, please use the pump recommended by the manufacturer

CHOOSE INSULATION
<b>For Standard Height Header Kits</b> DN80/100 Starter Kit 222960 DN80/100 Continuation Kit 222961 DN80/100 Joined Header Kit 222962
<b>For Low Height Header Kits</b> DN50 Starter Kit 223032 DN65 Starter Kit 223035 DN65 Continuation Kit 223036 DN80/100 Starter Kit 223038 DN80/100 Continuation Kit 223039 DN80/100 Joined Header Kit 223040
<b>For Low Loss and Magnetic Low Loss Header</b> DN50 (M)LLH Insulation Kit 222963 DN60 (M)LLH Insulation Kit 222964 DN80/100 (M)LLH Insulation Kit 222965
<b>For Grundfos UPML (M)LLH Pump Kit</b> (M)LLH Pump Insulation Kit 222894

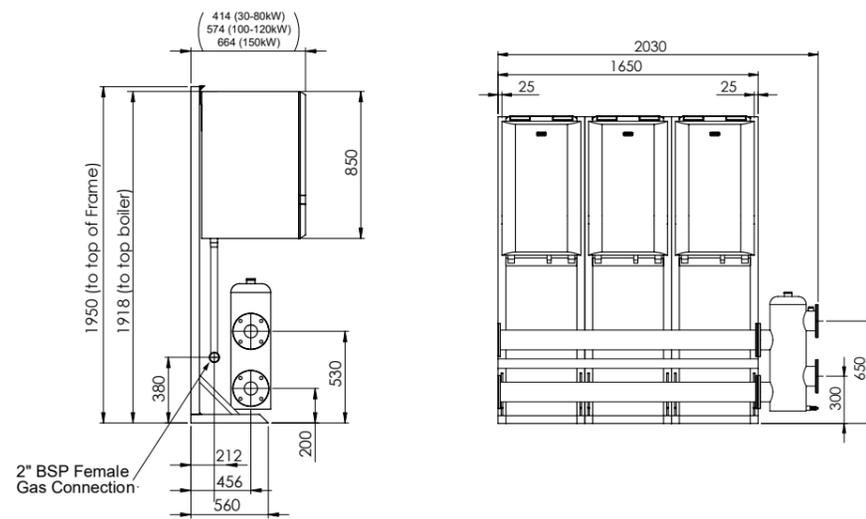
## STANDARD HEIGHT INLINE CASCADES

### 2 X EVOMAX 2



UIN	DN FLANGE SIZE	SUITABLE FOR
219542	DN80	2 x Evomax 2 boilers, 30 – 100kW with PHEX or (M)LLH separation
219547	DN100	2 x Evomax 2 boilers, 120 and 150kW with PHEX or (M)LLH separation

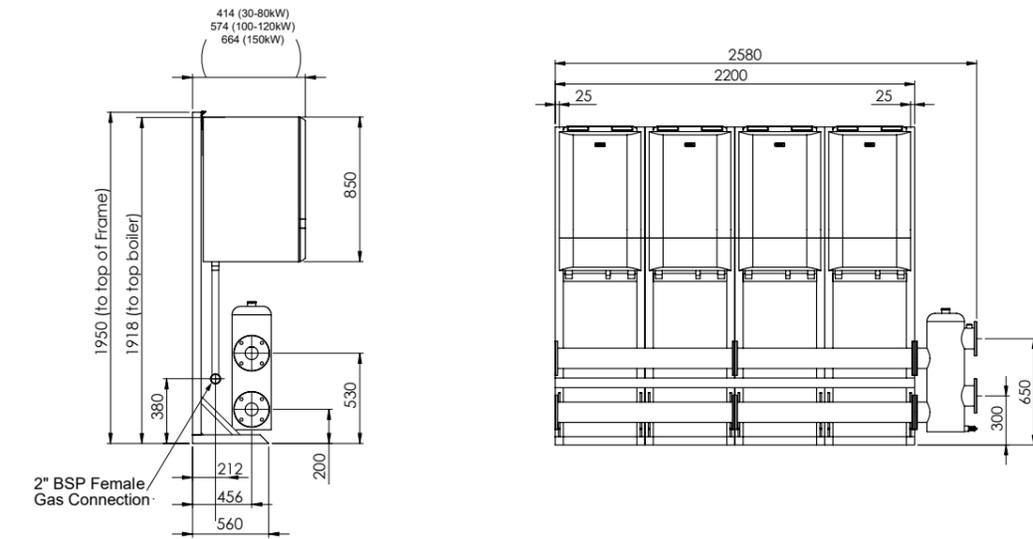
### 3 X EVOMAX 2



UIN	DN FLANGE SIZE	SUITABLE FOR
219543	DN80	3 x Evomax 2 boilers, 30 – 100kW with PHEX or (M)LLH separation
219547	DN100	3 x Evomax 2 boilers, 120 and 150kW with PHEX or (M)LLH separation

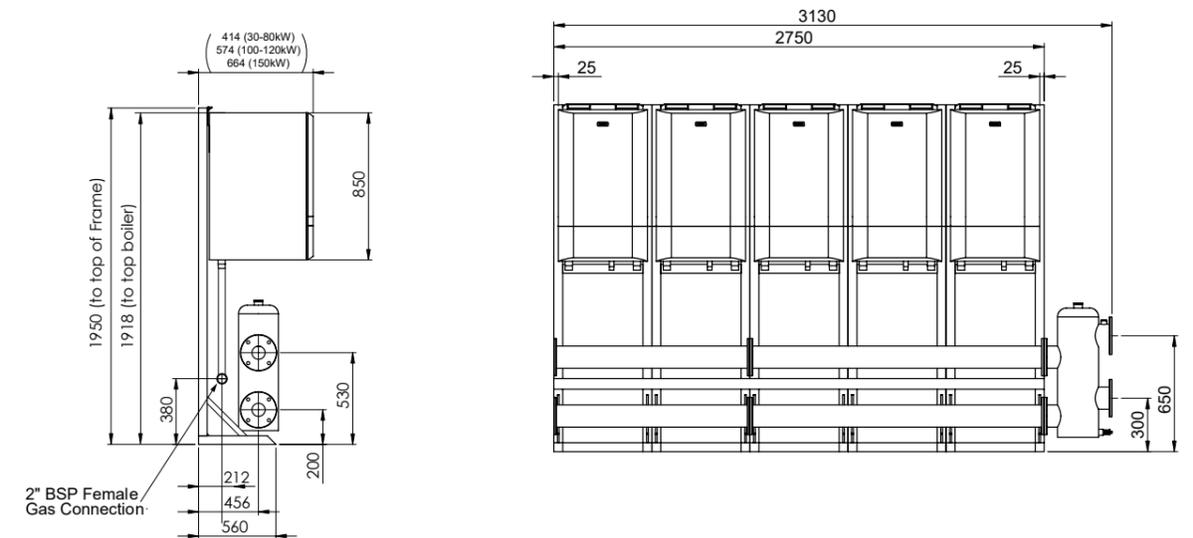
## STANDARD HEIGHT INLINE CASCADES

### 4 X EVOMAX 2



UIN	DN FLANGE SIZE	SUITABLE FOR
219549	DN100	4 x Evomax 2 boilers, 30 – 150kW with PHEX or (M)LLH separation

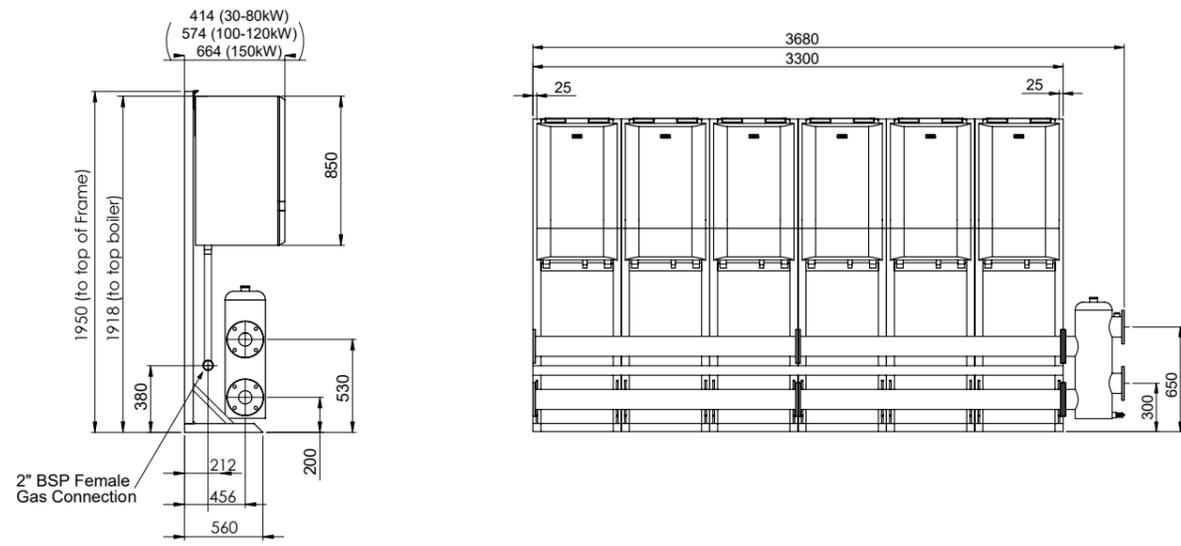
### 5 X EVOMAX 2



UIN	DN FLANGE SIZE	SUITABLE FOR
219545	DN100	5 x Evomax 2 boilers, 30 – 150kW with PHEX separation 5 x Evomax 2 boilers, 30 – 100kW with (M)LLH separation
219547	DN150	5 x Evomax 2 boilers, 120 and 150kW with LLH separation

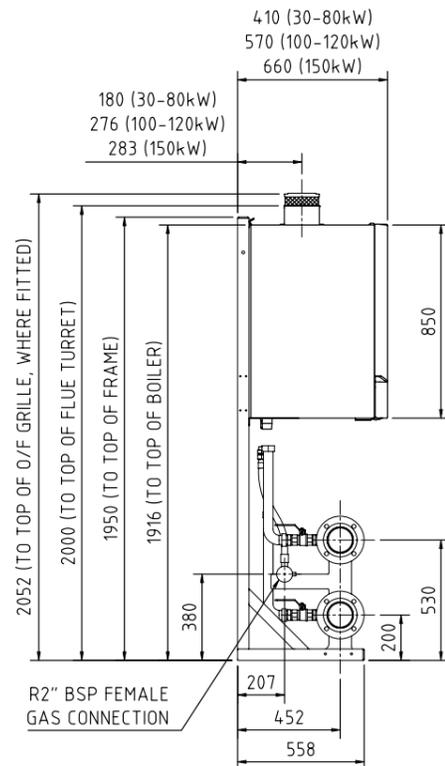
## STANDARD HEIGHT INLINE CASCADES

### 6 X EVOMAX 2

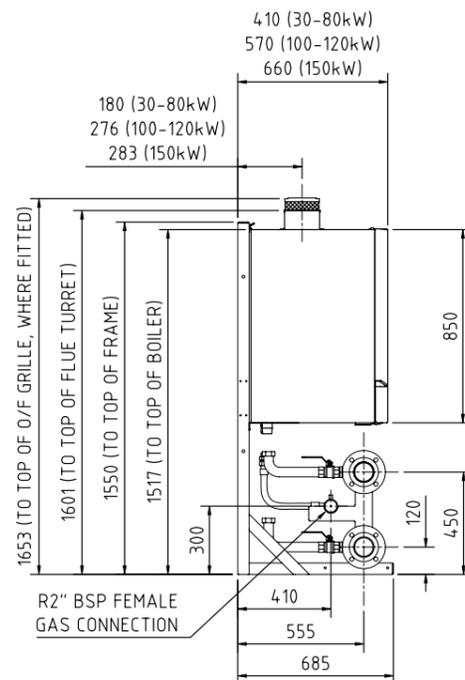


UIN	DN FLANGE SIZE	SUITABLE FOR
219546	DN100	6 x Evomax 2 boilers, 30 – 150kW with PHEX separation 6 x Evomax 2 boilers, 30 – 100kW with (M)LLH separation
219551	DN150	6 x Evomax 2 boilers, 120 and 150kW with LLH separation

## STANDARD HEIGHT

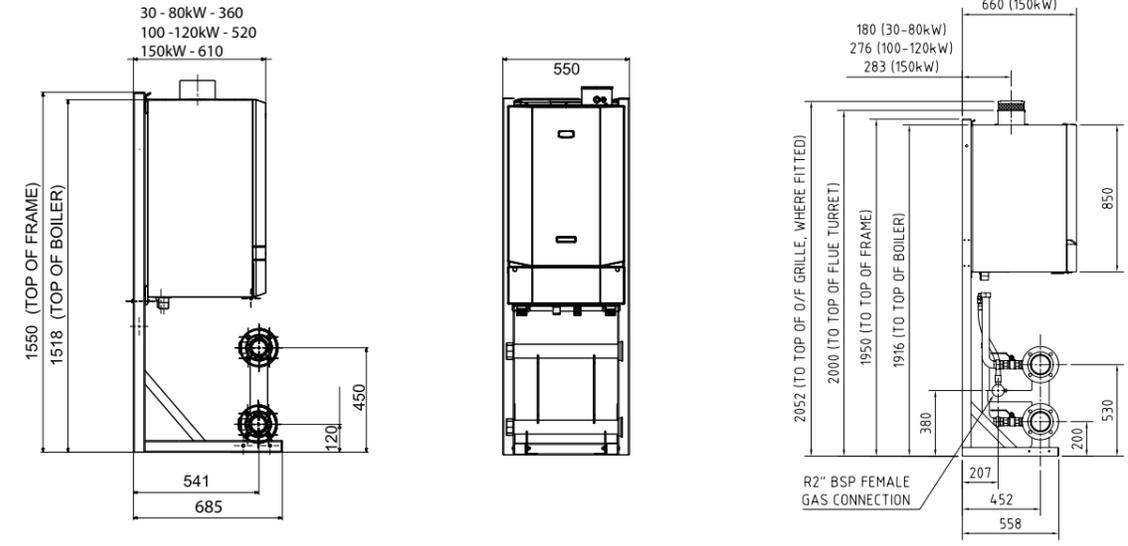


## LOW HEIGHT



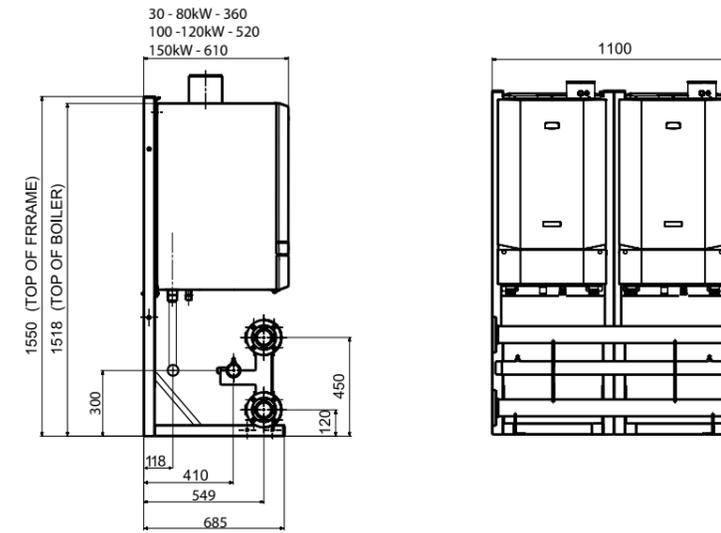
## LOW HEIGHT INLINE CASCADES

### 1 X EVOMAX 2



UIN	DN FLANGE SIZE	SUITABLE FOR
221127	DN50	1 x Evomax 2 boilers, 30 – 150kW with PHEX or (M)LLH separation

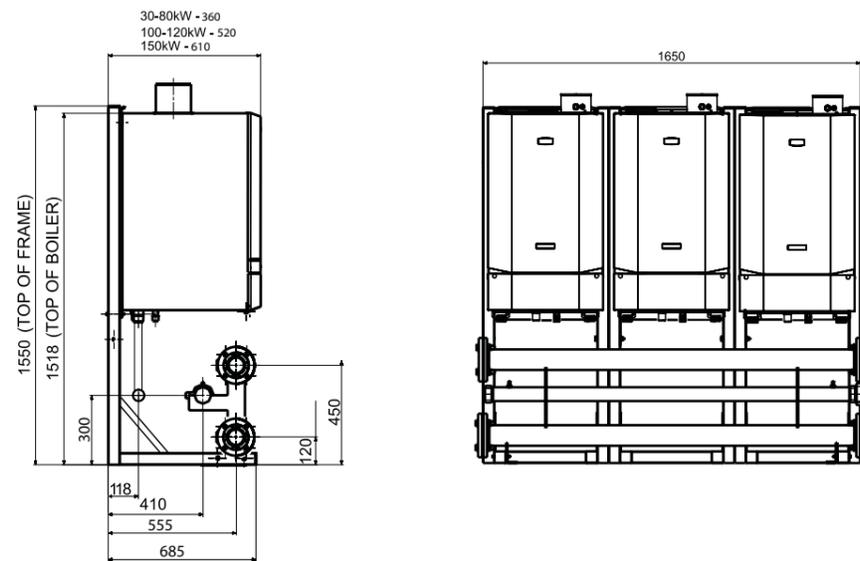
### 2 X EVOMAX 2



UIN	DN FLANGE SIZE	SUITABLE FOR
221128	DN65	2 x Evomax 2 boilers, 30 – 150kW with PHEX or (M)LLH separation

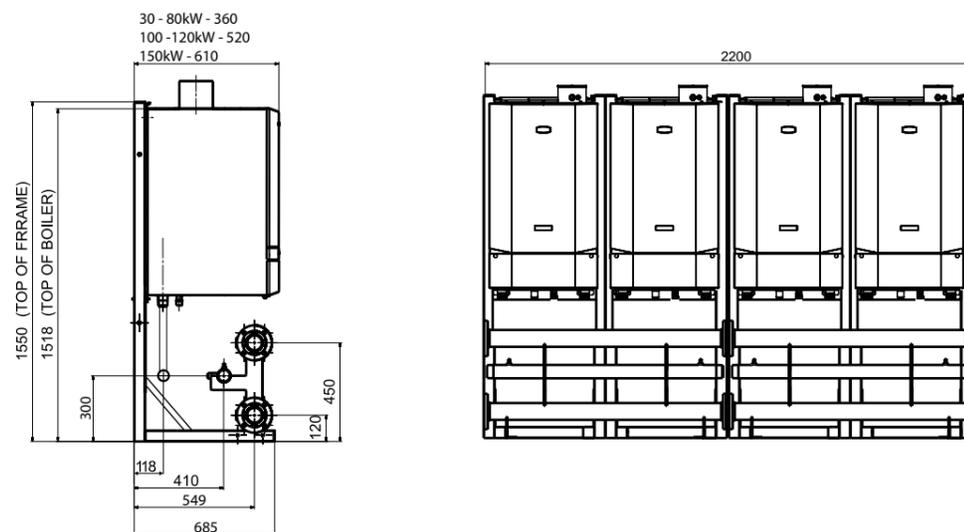
## LOW HEIGHT INLINE CASCADES

### 3 X EVOMAX 2



UIN	DN FLANGE SIZE	SUITABLE FOR
221129	DN80	3 x Evomax 2 boilers, 30 – 150kW with PHEX or (M)LLH separation

### 4 X EVOMAX 2



UIN	DN FLANGE SIZE	SUITABLE FOR
219561	DN100	4 x Evomax 2 boilers, 30 – 150kW with PHEX or (M)LLH separation

Note: all flanges on boiler headers are PN6.

All cascade arrangements are designed around boiler operation with a temperature differential of 20°C. Please consult your local sales representative to confirm alternative operating conditions.

## HYDRAULIC SEPARATION

Ideal Heating offer various solutions to hydraulic separation

### PLATE HEAT EXCHANGER



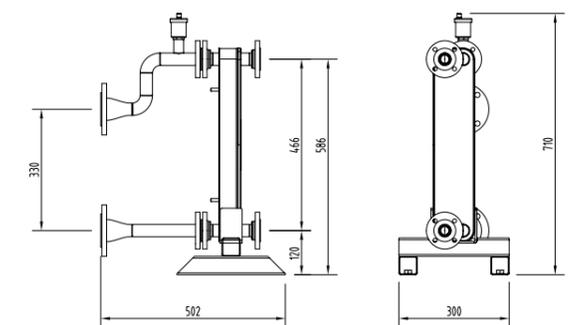
Covering outputs of 60, 150, 300, 450, 600, 750 and 900kW. Brazed Plate Heat Exchangers ensure optimum heat transfer efficiency and low resistance within a compact footprint. To be used with Ideal Heating Frame and Header kits.

#### FEATURES AND BENEFITS

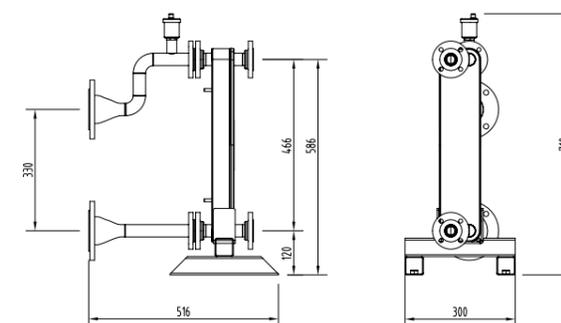
- Compact design
- No gaskets
- Low maintenance and self-cleaning
- All units are pressure tested
- To be used with Ideal Heating Frame and Header kits
- Ensures optimal heat transfer efficiency and pressure resistance
- Separates system water from the boiler
- Ensures the highest performance for longest possible service life

### UP TO 60KW NOMINAL OUTPUT PLATE HEAT EXCHANGER

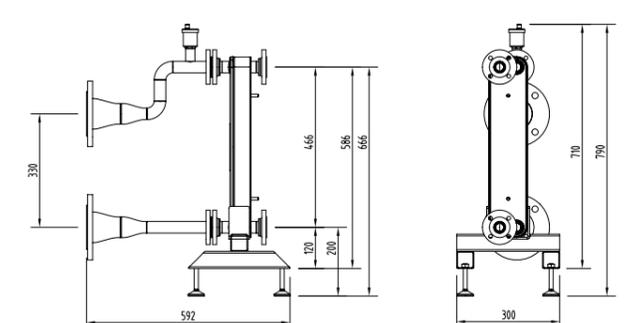
UIN	DN FLANGE SIZE
222219	DN50
222993	DN65
222220	DN80



222219 DN50



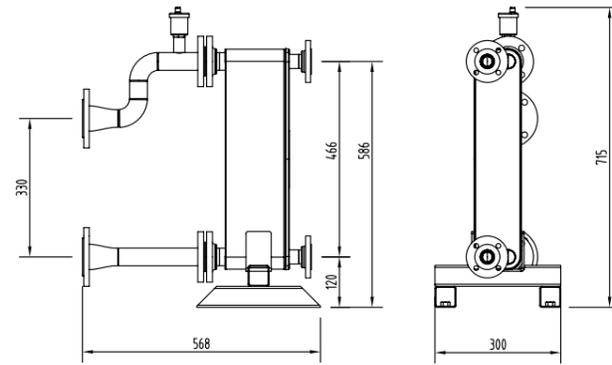
222993 DN65



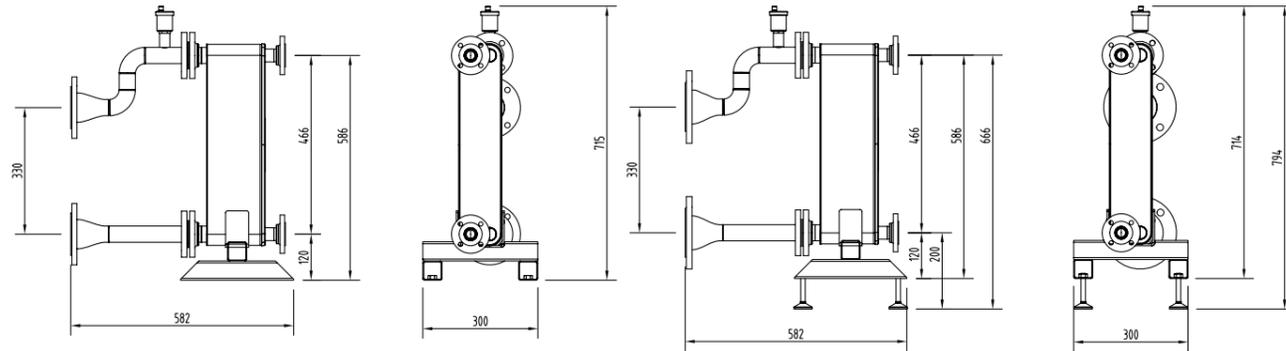
222220 DN80

UP TO 150KW NOMINAL OUTPUT  
PLATE HEAT EXCHANGER

UIN	DN FLANGE SIZE
222221	DN50
222994	DN65
222222	DN80



222221 DN50

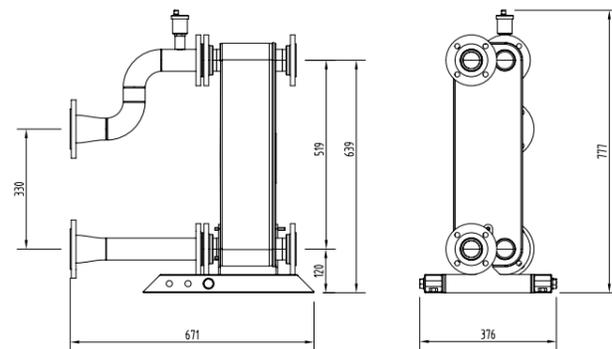


222222 DN80

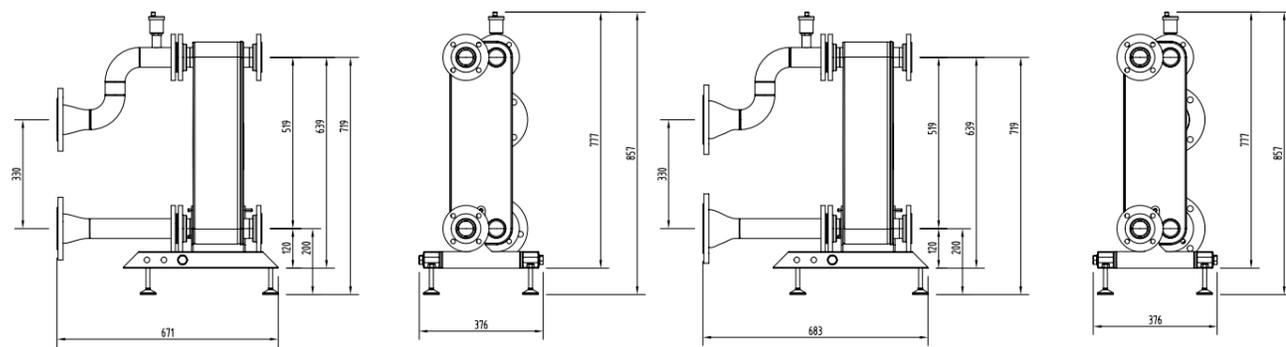
222994 DN65

UP TO 300KW NOMINAL OUTPUT  
PLATE HEAT EXCHANGER

UIN	DN FLANGE SIZE
222223	DN50
222225	DN80
222995	DN100



222223 DN65

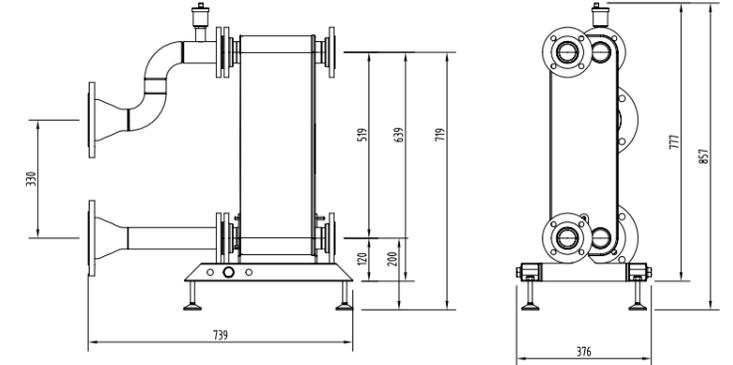


222225 DN80

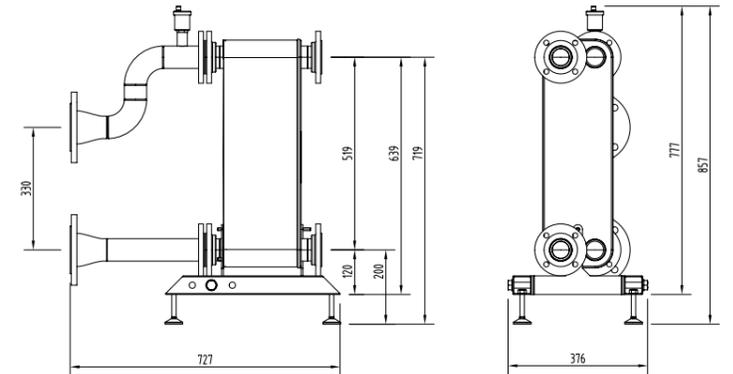
222995 DN100

UP TO 450KW NOMINAL OUTPUT  
PLATE HEAT EXCHANGER

UIN	DN FLANGE SIZE
222226	DN80
222996	DN100



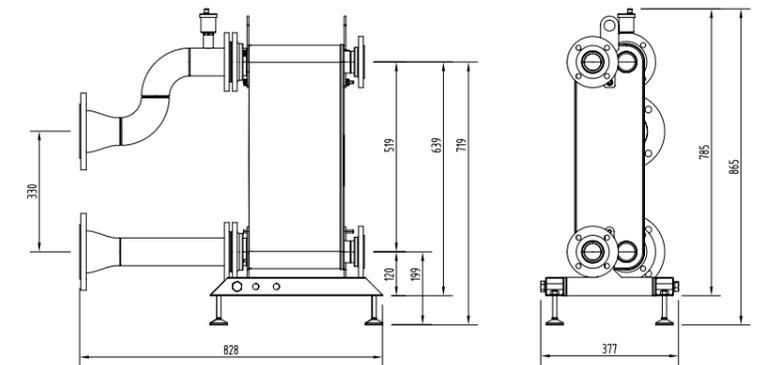
222226 DN80



222996 DN100

UP TO 600KW NOMINAL OUTPUT  
PLATE HEAT EXCHANGER

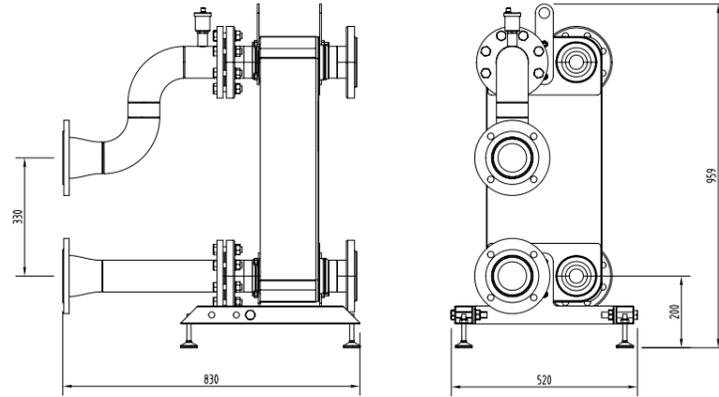
UIN	DN FLANGE SIZE
222227	DN100



222227 DN100

UP TO 750KW NOMINAL OUTPUT  
PLATE HEAT EXCHANGER

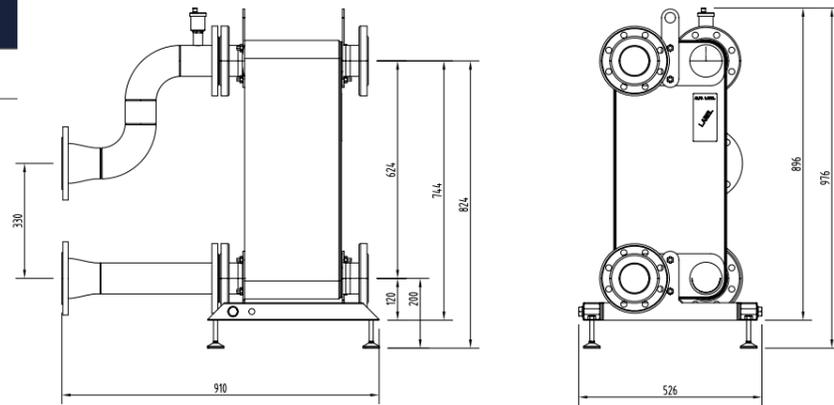
UIN	DN FLANGE SIZE
222228	DN100



222228 DN100

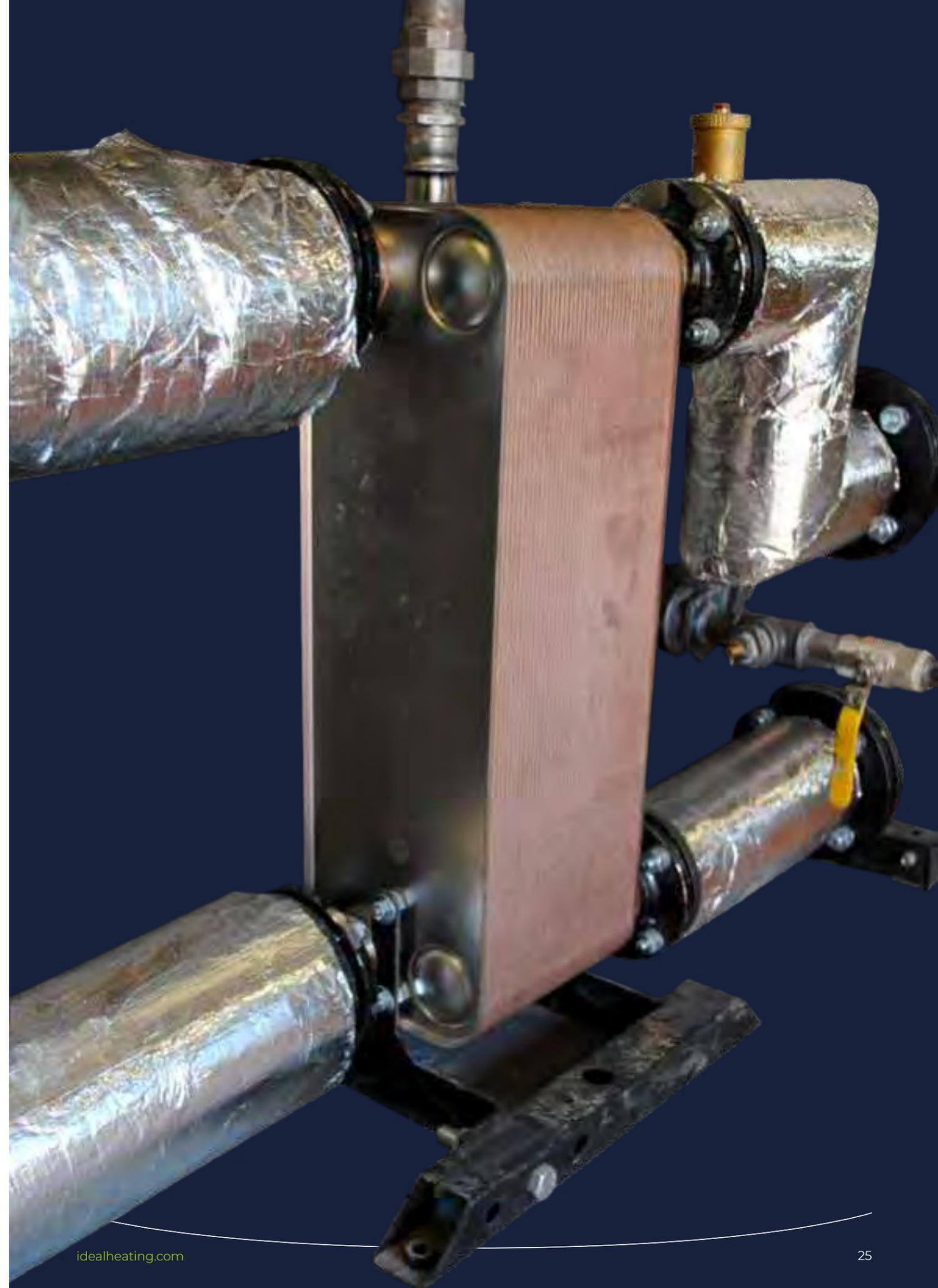
UP TO 900KW NOMINAL OUTPUT  
PLATE HEAT EXCHANGER

UIN	DN FLANGE SIZE
222229	DN150



222229 DN150

Note: refer to PHEX spec sheets for details of secondary flange sizes and PN ratings.



## LOW LOSS HEADER AND MAGNETIC LOW LOSS HEADER

Providing an alternative approach to hydraulic separation, Low Loss Headers (LLH) are available in various sizes to suit the accompanying Header kits. There is also the option of a Magnetic Low Loss Header (MLLH), combining the benefits of a low loss header and a magnetic filter.

### LOW LOSS HEADER

UIN	DN FLANGE SIZE
209394	DN50
209395	DN65
219552	DN80
219553	DN100
219554	DN150

Note: all low loss and magnetic low loss headers use PN6 flanges.

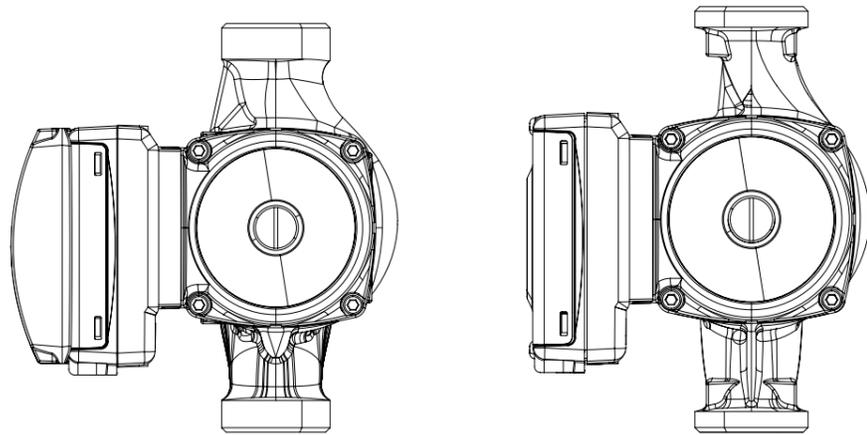
### MAGNETIC LOW LOSS HEADER

UIN	DN FLANGE SIZE
222191	DN50
222192	DN65
222193	DN80
222194	DN100

## PUMPS

To ensure your Evomax 2 Cascade works correctly, it is vital to fit the correct pumps. One pump is required per boiler in the Cascade.

SEPARATION CHOSEN	UIN	PUMP TYPE
(M)LLH or none	222659	Grundfos UPML (M)LLH Pump Kit
PHEX	222660	Grundfos UPMXXL PHEX Pump Kit



Note: pumps with screwed connections are G1.1/2" x 180mm.

## INSULATION

Header kits and Low Loss Headers can be insulated using our robust expanded polypropylene modular insulation range. Insulation is also available for 222659 Grundfos UPML (M)LLH Pump Kit.

The number of boilers in your Cascade will determine the type and number of kits required.

### DN100 STANDARD HEIGHT IN-LINE HEADER



STANDARD HEIGHT INSULATION STARTER KIT + STANDARD HEIGHT INSULATION CONTINUATION KIT + STANDARD HEIGHT INSULATION CONTINUATION KIT

### DN80 LOW HEIGHT 4 IN-LINE HEADER



LOW HEIGHT INSULATION STARTER KIT + LOW HEIGHT INSULATION CONTINUATION KIT + LOW HEIGHT INSULATION JOINED HEADER KIT + LOW HEIGHT INSULATION CONTINUATION KIT

## INSULATION FOR STANDARD HEIGHT INLINE AND BACK TO BACK HEADER KITS

UIN	DESCRIPTION	2 BOILER CASCADE	3 BOILER CASCADE	4 BOILER CASCADE	5 BOILER CASCADE	6 BOILER CASCADE
222960	Standard Height Insulation Starter Kit	1	1	1	1	1
222961	Standard Height Insulation Continuation Kit	1	2	2	3	4
222962	Standard Height Insulation Joined Header Kit	-	-	1	1	1

## INSULATION FOR LOW HEIGHT HEADER KITS

UIN	DESCRIPTION	1 BOILER CASCADE	2 BOILER CASCADE	3 BOILER CASCADE	4 BOILER CASCADE
223032	Standard Height Insulation Starter Kit DN50	1	-	-	-
223035	Standard Height Insulation Starter Kit DN65	-	1	-	-
223038	Standard Height Insulation Starter Kit DN80 and DN100	-	-	1	1
223036	Standard Height Insulation Continuation Kit DN65	-	1	-	-
223039	Standard Height Insulation Continuation Kit DN80 and DN100	-	-	1	1
223040	Standard Height Insulation Joined Header Kit DN80 and DN100	-	-	-	1

## INSULATION FOR LOW LOSS HEADER AND MAGNETIC LOW LOSS HEADER

UIN	DESCRIPTION
222963	DN50 (M)LLH Insulation Kit
222964	DN65 (M)LLH Insulation Kit
222965	DN80/DN100 (M)LLH Insulation Kit

## INSULATION FOR PUMPS

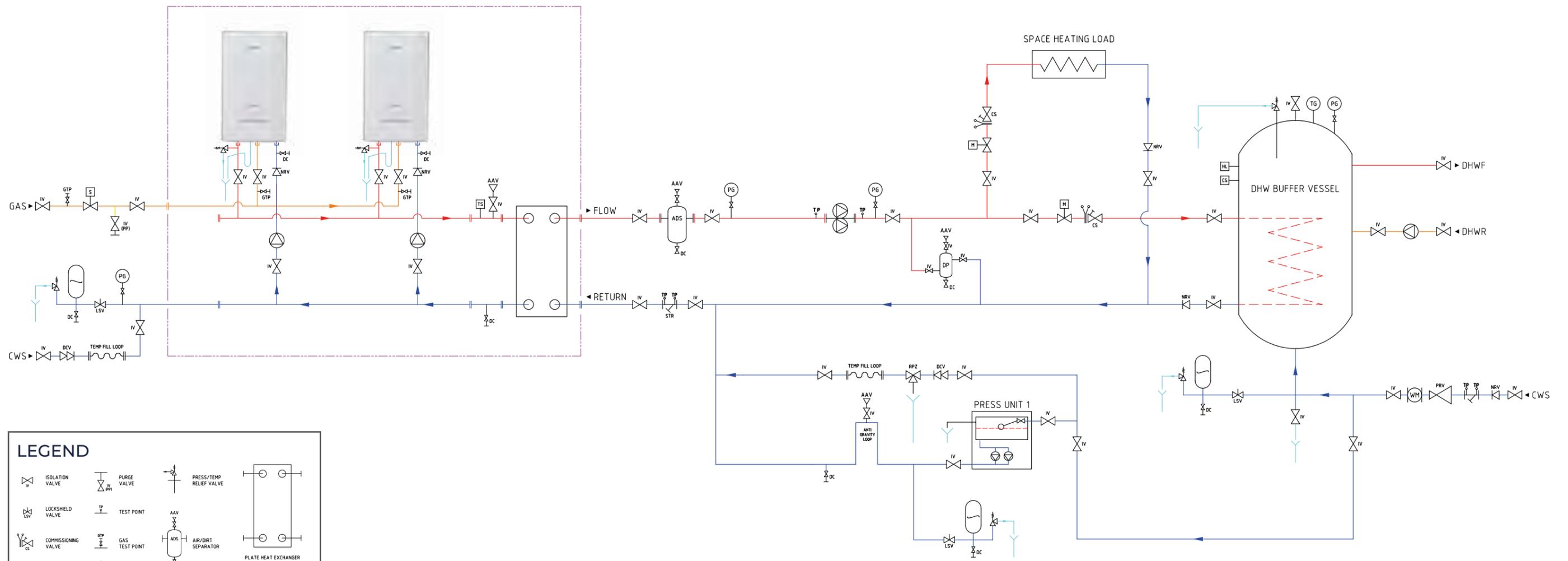
UIN	DESCRIPTION	1 BOILER CASCADE	2 BOILER CASCADE	3 BOILER CASCADE	4 BOILER CASCADE	5 BOILER CASCADE	6 BOILER CASCADE
223032	Grundfos UPML (M)LLH Insulation Kit	1	2	3	4	5	6



# SYSTEM LAYOUT

## TYPICAL SYSTEM BOILER LAYOUT

### EVOMAX 2 FRAME AND HEADER KIT C/W PLATE HEAT EXCHANGER



LEGEND			

Note: this schematic is an illustration of a hydraulic arrangement for discussion and reference use only. The schematic may not accurately describe the actual arrangement required in order for the system to operate correctly and additional components may be required. Under no circumstances should this be used as basis for procurement, production or installation.

# EVO S

50 - 135kW



NOx  
class 6



DOWNLOAD  
THE APP

# reliable



# EVO S

## 50 - 135kW

Available with outputs of 50, 70, 95, 115 or 135kW, EVO S combines the latest stainless steel heat exchanger technology with straightforward installation and maintenance. 50, 70 and 95kW models can be easily converted to run on LPG.



Wall hung



BIM



NOx class 6



Flueing options

### FEATURES AND BENEFITS

- Free commissioning
- 5 year parts and labour warranty\*
- Stainless steel heat exchanger
- Up to 108.9% net efficiency (fully condensing)
- Up to 5:1 turndown
- Compact – one width and height for easy siting
- Simple controls interface with large backlit display
- Low height frame and header kits
- Simple to maintain using quick release internal water and gas couplings
- NOx <40mg/kWh (Class 6)
- Must be installed with a suitable method of system protection, such as a Low Loss Header or Plate Heat Exchanger



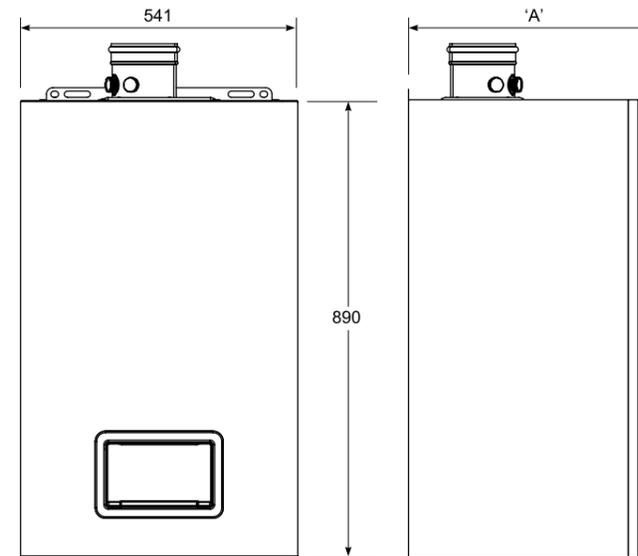
Applies to EVO S 50 and 70kW models only.

### DIMENSIONS AND CLEARANCES

BOILER	DIM A
50	477
70, 95	574
115	692
135	800

All dimensions in mm

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



### BOILER ASSEMBLY INTERNAL VIEW (50kW MODEL SHOWN)

#### KEY

1. Ignition Electrode
2. Ignitor Unit
3. Safety Thermostat
4. Fan
5. Gas Valve
6. Controls Housing
7. Control Panel With Protective Cover

## PERFORMANCE DATA

### EVO S 50 - 135kW

MODEL			50	70	95	115	135
Boiler Output (non-condensing) Mean 70°C (Nat Gas and LPG 50-95, Nat Gas only 115 and 135)	Max	kW	56.4	69.9	95.7	119.5	134.0
	Min	kW	11.5	17.1	19.0	23.9	26.8
Boiler Output (condensing) Mean 40°C (Nat Gas and LPG 50-95, Nat Gas only 115 and 135)	Max	kW	61.0	76.8	104.5	129.5	146.0
Boiler Input Max Rate (Nat Gas and LPG 50-95, Nat Gas only 115 and 135)	Net	kW	58.0	72.1	98.5	123.0	137.9
	Gross	kW	64.4	80.0	109.3	136.5	151.6
Gas Rate, Nat Gas (G20)	Max rate	m³/hr	6.1	7.6	10.4	13.0	14.6
Gas Rate, LPG (G31)	Max rate	m³/hr	2.4	3.0	4.0	N/A	N/A
Flue Gas Flow Rate, Nat Gas	Max Rate	m³/hr	79	98	135	168	189
Flue Gas Flow Rate, LPG	Max Rate	m³/hr	77	96	128	N/A	N/A
CO <sub>2</sub> (±0.1%), Nat Gas	Max Rate	%	9.2				9.0
	Min Rate	%	8.8				8.6
CO <sub>2</sub> (±0.1%), LPG	Max Rate	%	10.4			N/A	N/A
	Min Rate	%	10.0			N/A	N/A
NO <sub>x</sub> with O <sub>2</sub> = 0% (BS EN 15502-1)	Weighted	mg/kWh	35	35	34	36	35
Efficiency	Seasonal	%	96.13	95.50	96.02	95.95	95.75
	*SEDBUK 2009	%	89.2	88.8	89.1	89.1	89.0
Operating Temperature	Max	°C	85				

## GENERAL DATA

### EVO S 50 - 135kW

MODEL		50	70	95	115	135
Gas Supply		G20 to G31			G20	
Gas Supply Connection		G1"				
Flow Connection		G1 ¼"				
Return Connection		G1 ¼"				
Max Pressure (sealed system)	Bar (psi)	4.0 (58)				
Electricity Supply		230V - 50Hz				
Power Consumption	W	138	96	160	206	263
IP Rating		IP24D				
Nominal Flue Size (concentric)	mm	80/125	100/150			
Condensate Drain	mm	24				
Water Content	l	5.0	9.0	10.2	12.8	15.3
Dry Weight	Kg	60	90	95	100	125
Noise emission @1m: @maximum modulation	dB(A)	59.7	57.3	58.5	61.6	59.3
Noise emission @1m: @minimum modulation	dB(A)	35.8	33.5	34.3	35.4	36.8

## OPTIONAL KITS

BOILER	EVO S
Modulating Sequencer kit	✓
Programmable Room Thermostat kit	✓
Outside sensor kit	✓
Tank Sensor kit	✓
Room sensor kit	✓
Multi boiler low height frame and header kits	✓
Clip In kit: +1 circuit, up to 2 per Boiler	✓
LPB Bus Communication Module	✓

## SUGGESTED ENGINEERING SPECIFICATION

The Suggested Engineering Specification is wording designed for specifiers to copy and paste into their specifications to ensure inclusion of Ideal Heating commercial boilers.

### OVERVIEW

The boilers must be fully automatically controlled, wall mounted, fanned, super-efficient condensing appliances utilising a stainless steel heat exchanger and be suitable for connection to a sealed water 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 water system. 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 a maximum operating pressure of 4 bar and be suitable for heating and indirect hot water systems.

### DIMENSIONS

The condensing boiler range must have a universal compact width and height across the range to ensure mixed output cascades maintain the same universal configuration. Maximum permitted wall area of 0.49m<sup>2</sup>.

### MOUNTING

The condensing boilers can be installed either on the wall or into a 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 96.02% and low NOx emissions no greater than 36mg/kWh.

Models <70kW must have a Seasonal Space Heating Energy Efficiency 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 and BS EN 55014-2 for use with Natural Gas. Boilers are certified to meet the requirements of the EC Gas Appliance Directive, Boiler Efficiency Directive, EMC and Low Voltage Directive.

The manufacturer must be ISO 9001 accredited.

### SPECIFICATION

The boiler will be capable of flow rates for common systems using 11°C to 20°C temperature differentials.

### CASCADE

The boiler must be configurable up to 4 boilers (max 540kW) in cascade using a prefabricated frame and header kit.

### WARRANTY

The boiler must be available with a 5 year warranty.

## SYSTEM TEMPERATURE DIFFERENTIALS

Flow rates for common systems using either 11°C, 20°C or 25°C temperature differentials are given in the table below.

BOILER	FLOW RATE (L/S)			HYDRAULIC RESISTANCE (MBAR)		
	11°C	20°C	25°C	11°C	20°C	25°C
EVO S 50	1.2	0.7	0.5	1157	350	224
EVO S 70	1.5	0.8	0.7	909	275	176
EVO S 95	2.1	1.1	0.9	1273	385	246
EVO S 115	2.6	1.4	1.1	1620	490	314
EVO S 135	2.9	1.6	1.3	1700	580	380

## CONTROL KITS

### MODULATING SEQUENCER KIT

Controls up to 15 boilers for cascade operation

### OUTSIDE SENSOR KIT

Provides weather compensation directly or with Programmable Room Thermostat kit.

### TANK/CYLINDER SENSOR KIT

Provides DHW temperature control.

### ROOM SENSOR KIT

Provides room temperature control.

### CLIP IN KIT

Each Clip In give an additional circuit, up to 2 per boiler. Clip In also gives Volt Free run and fault signal

### LPB BUS COMMUNICATION MODULE

1 module per boiler to enable sequencer.

## FLUE SYSTEMS

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

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

The resistance of flue components, together with the maximum flue resistance each boiler can work against, may be used to calculate the total flue resistance of the system, and to determine if they are acceptable to run on the boiler.

Multiple boilers may be installed with a common flue header which should be designed and supplied by a specialist flue company. BS 6644 and IGEN UP/10 provide guidance on design and the drainage of condensate from flue stack and headers. Condensate from a flue stack and header must be collected and drained before entering the boiler.

**For Ventilation requirements please refer to the installation manual and BS 6644.**

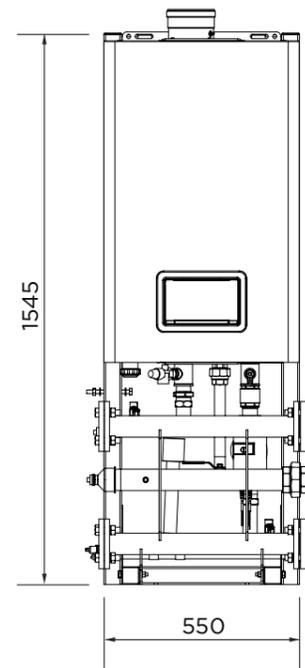
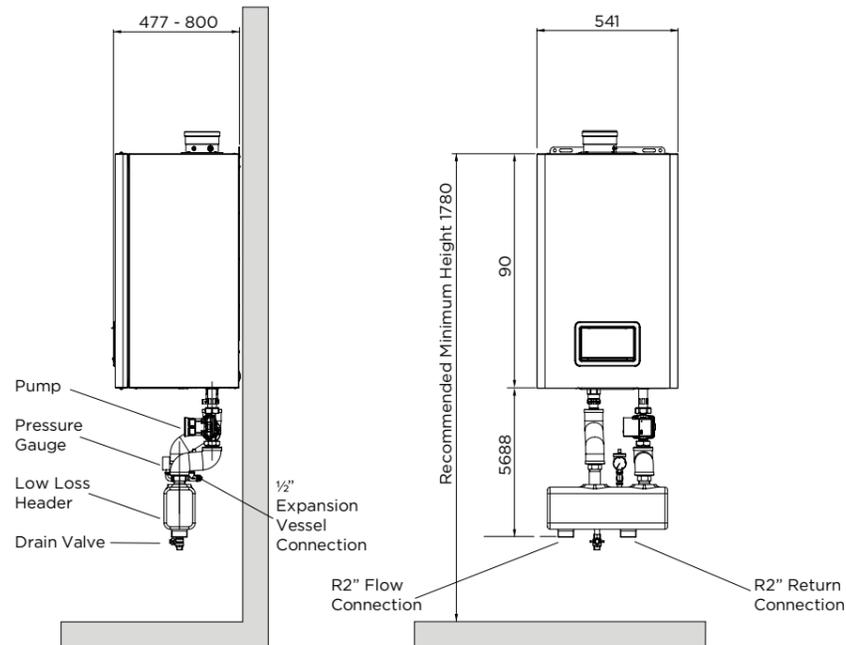
# SINGLE BOILER

## Installations

WHEN INSTALLING A SINGLE EVO S BOILER, THERE ARE WALL HUNG AND FRAME HUNG OPTIONS.

### WALL HUNG SINGLE BOILER WITH LOW LOSS HEADER

A simple pipe kit is available for location directly underneath the boiler. When using this pipe kit, the boiler must be mounted to the wall directly so the combined weight of the boiler and low loss header must be accounted for (boiler + 15kg).



### FRAME HUNG SINGLE BOILER WITH LOW LOSS HEADER

An alternative solution is to use a frame and header kit and a low loss header for installing a single boiler.

FRAME AND HEADER KITS	RATING	HEIGHT (mm)	LENGTH (mm)	DEPTH (mm)	DN FLANGE SIZE	CONCENTRIC FLUE
UIN219468	50kW	1545	550	642	DN50	80/125
	70kW	1545	550	642	DN50	100/150
UIN219472	95 - 135kW	1545	550	642	DN80	100/150

# EVO S CASCADE

## Low Height Frame and Header Kits



### BOILER LOW HEIGHT FRAME AND HEADER KITS

The Frame and Header Kits are suitable for modular (cascade) boiler installations, and are available up to a maximum output of 540kW.

Kits include flow and return headers with gas header and all with fixing brackets. For easy connection flexible stainless steel pipe and connections are supplied together with pressure relief valves, boiler shut off valves and drain cock. An optional low loss header completes the installation, available to suit either DN50 or DN80 pipe kit assemblies.

Appropriately sized ErP modulating shunt pumps are also included. Flow, return and low loss headers together with the flexible boiler connections are all pre insulated.



NOx class 6



BIM



PED COMPLIANT

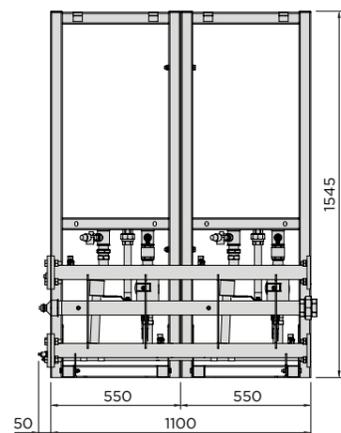
### AVAILABLE OPTIONS

	MODELS	SIZE
2 boilers	50, 70	DN50
2 boilers	95 - 135	DN80
3 boilers	50, 70	DN50
3 boilers	95 - 135	DN80
4 boilers	50, 70	DN50
4 boilers	95 - 135	DN80

For full details of all configurations and specifications, please refer to the installation manual, at [idealheating.com](http://idealheating.com)

Please note, the EVO S boilers are to be ordered separately.

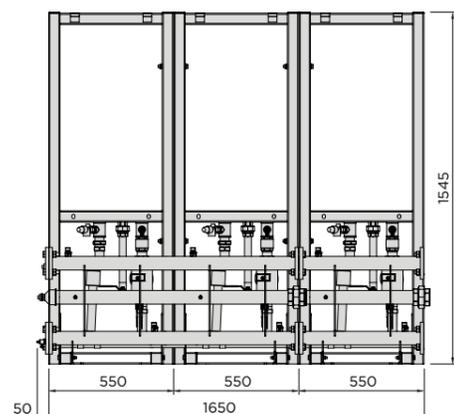
## FRAME AND HEADER KITS



### 2 X EVO S 50 - 135kW

FRAME AND HEADER KITS	RATING	HEIGHT (mm)	LENGTH (mm)	DEPTH (mm)	DN FLANGE SIZE	CON-CENTRIC FLUE
UIN219469	50kW	1545	1100	642	DN50	80/125
	70kW	1545	1100	642	DN50	100/150
UIN 219473	95 - 135kW	1545	1100	642	DN80	100/150

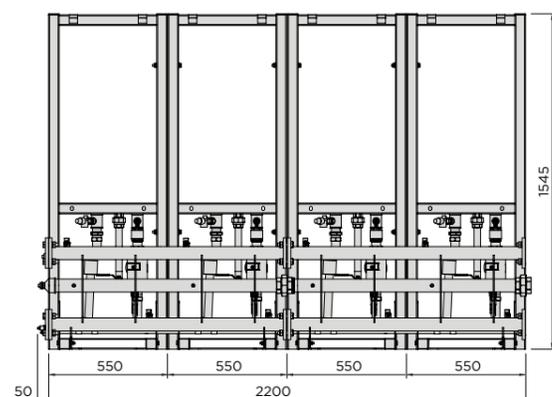
Measurements are without boilers attached.



### 3 X EVO S 50 - 135kW

FRAME AND HEADER KITS	RATING	HEIGHT (mm)	LENGTH (mm)	DEPTH (mm)	DN FLANGE SIZE	CON-CENTRIC FLUE
UIN219470	50kW	1545	1650	642	DN50	80/125
	70kW	1545	1650	642	DN50	100/150
UIN219474	95 - 135kW	1545	1650	642	DN80	100/150

Measurements are without boilers attached.



### 4 X EVO S 50 - 135kW

FRAME AND HEADER KITS	RATING	HEIGHT (mm)	LENGTH (mm)	DEPTH (mm)	DN FLANGE SIZE	CON-CENTRIC FLUE
UIN219471	50kW	1545	2200	642	DN50	80/125
	70kW	1545	2200	642	DN50	100/150
UIN219475	95 - 135kW	1545	2200	642	DN80	100/150

Measurements are without boilers attached.

All dimensions in mm

Note: all flanges on boiler headers are PN6. All cascade arrangements are designed around boiler operation with a temperature differential of 20°C. Please consult your local sales representative to confirm alternative operating conditions.





# IMAX XTRA 2

80 - 280kW



efficient



# IMAX XTRA 2

## 80 - 280kW

The Imax Xtra 2 range of condensing boilers is offered in six models with outputs from 80 to 280 kW. These floor standing boilers can be installed on their own or in a cascade of up to 4 boilers.



Floor standing



BIM



NOx class 6



ErP compliant



Part L 2022

### FEATURES AND BENEFITS

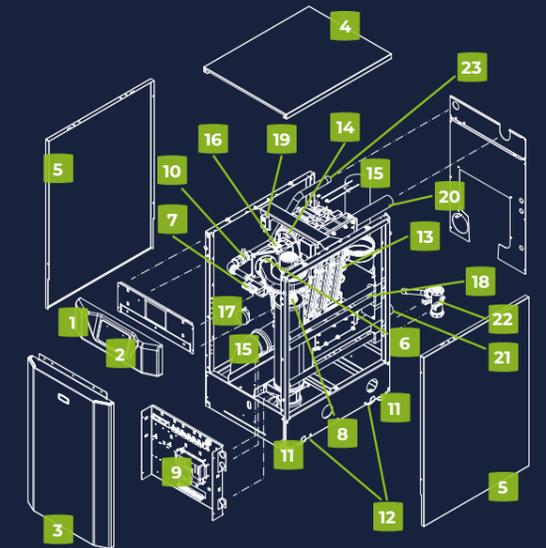
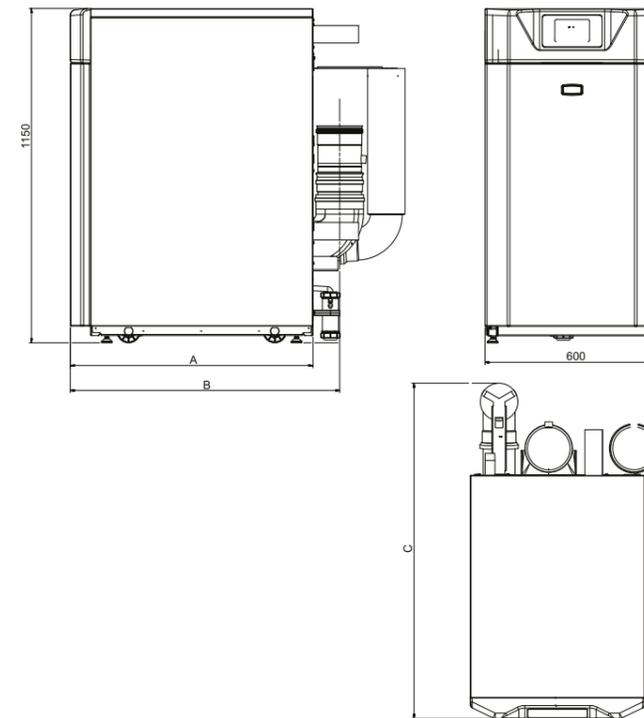
- Free commissioning
- 5 year heat exchanger warranty\*
- Robust cast aluminium silicon alloy heat exchanger
- NOx <40mg/kWh (Class 6) when operating on natural gas
- Full colour touchscreen control
- High 5:1 turndown
- Up to 97.7% full load efficiency
- Up to 108.2% part load efficiency
- Cascade header kits and controls
- Compact size - small footprint and fits through standard doorways
- Fitted with wheels for easy installation
- Capable of operating at up to 30°C ΔT

### DIMENSIONS AND CLEARANCES

BOILER	DIM A	DIM B	DIM C
80, 120, 160	835	927	796
200, 240, 280	1087	1204	1048

All dimensions in mm

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



### BOILER ASSEMBLY EXPLODED VIEW (120kW MODEL SHOWN)

#### KEY

- |                         |                          |
|-------------------------|--------------------------|
| 1. Control fascia panel | 13. Heat exchanger       |
| 2. HMI Touchscreen      | 14. Sightglass           |
| 3. Casing front panel   | 15. Air inlet            |
| 4. Casing top panel     | 16. Burner manifold      |
| 5. Casing side panel    | 17. Air pressure switch  |
| 6. Fan                  | 18. Cable conduit        |
| 7. Gas Valve            | 19. Ignition / detection |
| 8. Venturi              | 20. Manifold - Flow      |
| 9. Control Module       | 21. Manifold - Return    |
| 10. Union Gas cock      | 22. Condensate Traps     |
| 11. Levelling feet      | 23. Gas Connection       |
| 12. Wheels              |                          |

## PERFORMANCE DATA

### IMAX XTRA 2 80 - 280kW

MODEL			80	120	160	200	240	280
Boiler Output (non-condensing) Mean 70°C (80/60)	Max	kW	78.6	118.0	157.3	196.6	235.9	275.2
	Min	kW	23.3	23.3	29.1	43.1	47.0	51.0
Boiler Output (condensing) Mean 40°C (50/30)	Max	kW	82.2	123.4	164.5	207.8	249.4	290.9
	Min	kW	25.8	25.8	32.3	47.3	51.6	55.9
Boiler Input Max Rate	Net	kW	80	120	160	200	240	280
	Gross	kW	88.8	133.3	177.7	222.1	266.5	310.9
Boiler Input Min Rate	Net	kW	24	24	30	44	48	52
	Gross	kW	26.6	26.6	33.3	48.9	53.3	57.7
Gas Rate	Max rate	m³/hr	8.1	12.1	16.1	20.1	24.2	28.2
Approx. flue gas volume (@80°C)	Max Rate	m³/hr	121	182	242	302	363	423
Max. Flue Resistance		Pa	100		150			
Flue Gas CO <sub>2</sub> G20/LNG	Max Rate	%	9.5					
	Min Rate	%	9.3					
NOx with O <sub>2</sub> = 0% (BS EN 15502-1)	Weighted	mg/kWh	26		35		26	
		ppm	15		20		15	
Seasonal Boiler Efficiency (Building Regs L2)		%	95.7					
Operating Temperature	Max	°C	90					

## GENERAL DATA

### IMAX XTRA 2 80 - 280kW

MODEL		80	120	160	200	240	280
Gas Supply		2H - G20 - 20mbar					
Gas Supply Connection		R1"					
Flow Connection		R2"					
Return Connection		R2"					
Hydraulic Resistance ΔT 20 °C	mbar	80	85	90	95	100	105
Hydraulic Resistance ΔT 30 °C	mbar	36	38	40	42	44	47
Max Pressure (sealed system)	bar	6					
Maximum Static Head	m	61					
Boiler Electricity Supply		230V - 50Hz					
Boiler Fuse Rating		13A					
Power Consumption (boiler only)	W	110	150	200	220	240	250
Flue Size dia	mm	150			200		
Condensate drain	mm	21.5					
Boiler dry weight (unpacked)	Kg	141.5	160.5	182.0	224.0	240.0	250.0
Water Content	l	11.0	14.3	17.5	18.4	24.0	27.2
Weighted Sound Power Level	dBA	<53			<60		

## OPTIONAL KITS

BOILER	IMAX XTRA 2	BOILER	IMAX XTRA 2
Multi Boiler Frame and Header Kits	✓	Flow Sensor Strap On Kit	✓
Cascade Control Kit	✓	Single Heating Circuit Kit	✓
Siemens QAA55 Room Unit Kit	✓	Dual Heating Circuit Kit	✓
Outside Sensor Kit	✓	PWN to 10V Pump Converter Kit	✓
Flow Sensor Immersion Kit	✓	Condensate Pump Kit	✓

## SUGGESTED ENGINEERING SPECIFICATION

The Suggested Engineering Specification is wording designed for specifiers to copy and paste into their specifications to ensure inclusion of Ideal Heating commercial boilers.

### OVERVIEW

The boilers must be fully automatically controlled, floor standing, fanned, super-efficient condensing appliances utilising an aluminium silicon alloy heat exchanger and be suitable for connection to fully pumped open vented or sealed water systems.

### CONTROLS

The condensing boilers must have connectivity for common types of BMS integration including 0-10V, switched live and OpenTherm connections. Where no BMS is present or where the BMS only provides a single control signal for multiple boilers, the boilers should provide cascade and sequencing functions through optional controls accessories.

The boiler must be fully modulating with a 5:1 turndown ratio and include control features enabling modulating boiler pump control, set point adjustment, heating circuit control of one constant temperature circuit, 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, up to two additional constant or variable temperature circuits, frost protection, weather or room compensation and modulating 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 flue outlet and air inlet must be situated at the rear of the boiler with the air inlet having a factory fitted filter element and the flue incorporating a condensate collector.

### HYDRAULIC

The condensing boiler must be suitable for connection to fully pumped open vented or sealed water systems. All hydraulic connections including flow return and condensate drain must be located on the rear of the boiler. Hydraulic connections must be of uniform size across the outputs available in the range to ensure ease of installation and maintenance in mixed output cascades. The boiler must have a maximum operating pressure of 6 bar and be suitable for heating and indirect hot water systems.

### CASCADE

The boiler must be configurable up to 4 boilers (max 1120kW) in cascade using a prefabricated header kit, to be hydraulically separated from systems using a range of Low Loss or Magnetic Low Headers or a range of Brazed Plate Heat Exchangers.

### DIMENSIONS

The condensing boiler must fit within maximum permitted floor space of 0.48m<sup>2</sup> (80 – 160kW models) or 0.63m<sup>2</sup> (200 – 280kW models).

### MOUNTING / POSITIONING

The condensing boilers will be floor standing and provide wheels or other integrated means to ease final positioning of the appliance.

### EFFICIENCY

The condensing boilers are capable of high seasonal efficiencies with a minimum requirement of 95.7% and low NOx emissions no greater than 35mg/kWh.

### 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 and BS EN 55014-2 for use with Natural Gas. Boilers are certified to meet the requirements of the EC Gas Appliance Directive, Boiler Efficiency Directive, EMC and Low Voltage Directive.

The manufacturer must be ISO 9001 accredited.

### SPECIFICATION

The boiler will be capable of flow rates for common systems using 11°C to 30°C temperature differentials at maximum rate of fire.

### SOURCING

The condensing boiler must be manufactured or finally assembled in the United Kingdom.

### WARRANTY

The boiler must be available with a 2-year warranty, with the possibility to extend coverage on the heat exchanger to 5-years (TandCs apply).

## SYSTEM TEMPERATURE DIFFERENTIALS

Flow rates for common systems using either 11°C, 20°C or 30°C temperature differentials are given in the table below.

BOILER	FLOW RATE (L/s)			HYDRAULIC RESISTANCE (MBAR)		
	11°C	20°C	30°C	11°C	20°C	30°C
Imax Xtra 2 80	1.78	0.98	0.65	264	80	36
Imax Xtra 2 120	2.68	1.47	0.98	281	85	38
Imax Xtra 2 160	3.57	1.96	1.31	297	90	40
Imax Xtra 2 200	4.51	2.48	1.65	314	95	42
Imax Xtra 2 240	5.42	2.98	1.98	330	100	44
Imax Xtra 2 280	6.32	3.47	2.31	347	105	47

## CONTROL KITS

### CASCADE CONTROL KIT

Enables cascade control from Imax Xtra 2 boiler controls

### ROOM SENSOR KIT

For CH control

### OUTSIDE SENSOR KIT

Provides weather compensation

### HEADER FLOW TANK IMMERSION SENSOR KIT

Ensures boiler provides correct temperature to water in header via immersed sensor

### HEADER FLOW TANK STRAP ON SENSOR KIT

Ensures boiler provides correct temperature to water in header via external sensor

### SINGLE HEATING CIRCUIT KIT

Clip in kit adds an additional variable temperature circuit

### DUAL HEATING CIRCUIT KIT

Clip in kit adds a two additional variable temperature circuits

### PWM TO 10V PUMP CONVERTER KIT

Converts Imax Xtra 2's PWM signal to 0-10V to enable pump control. Included with 226432 Grundfos Magna3 40-80F Pump Kit and 226433 Grundfos Magna3 40-100F Pump Kit

# IMAX XTRA 2 CASCADE

80 - 1120kW

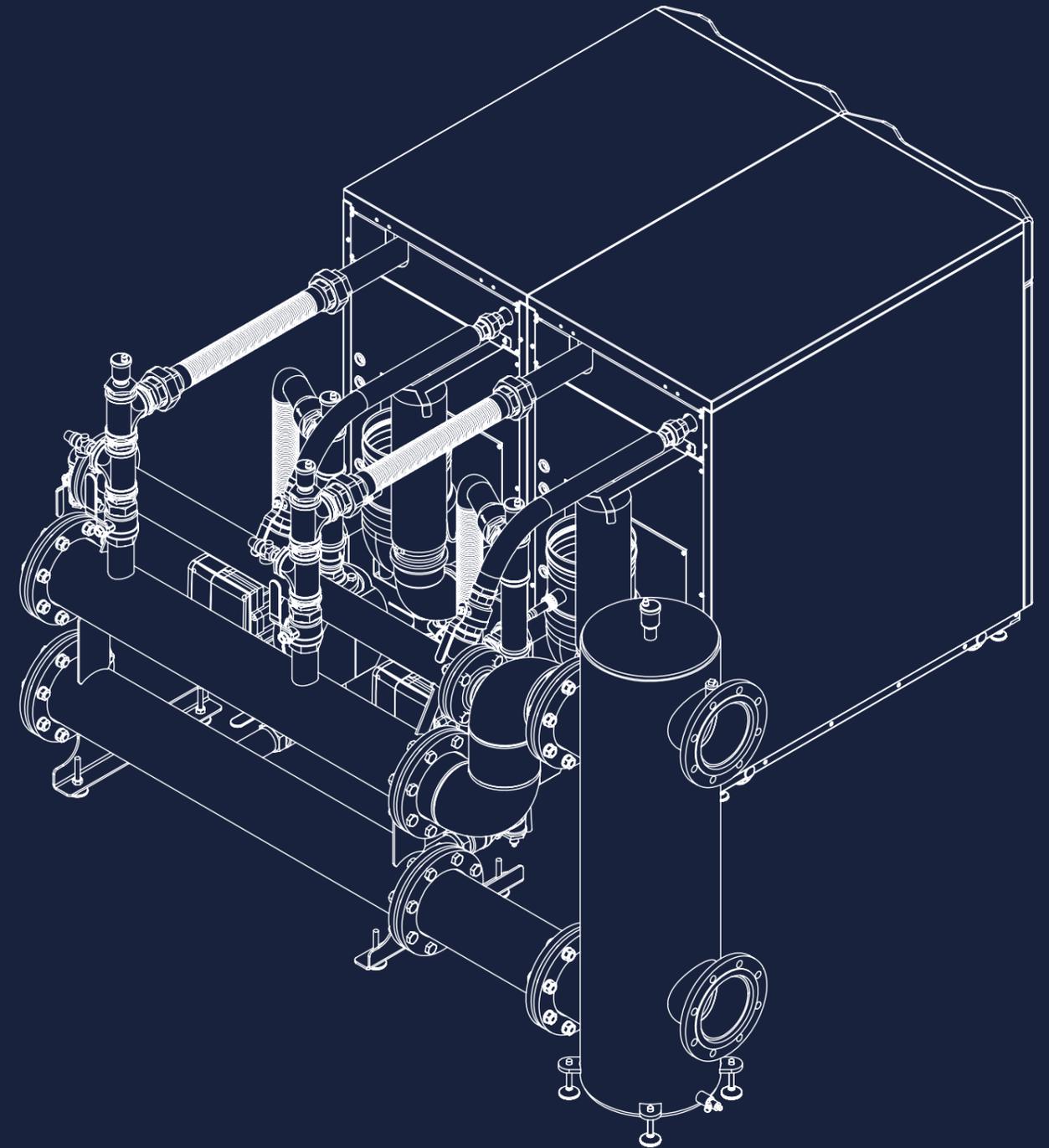


Cascade control



## Header kits

For installations requiring more output delivered in a flexible way, up to 4 Imax Xtra 2 boilers can be installed in a cascade. An output of up to 1120kW is possible with this modular option.



### CHOOSING WHAT YOU NEED IS STRAIGHTFORWARD:

Simply choose the number of boilers in your cascade and then select the Hydraulic Separation and Pumps you require. Please note you will need 1 pump for each boiler in the cascade.

Our Header kits come with all the parts you need for an inline, side-by-side installation. If your installation requires a bespoke cascade, the individual parts can also be purchased.

[idealcommercialboilers.com/imax-xtra2-cascade-configurator](https://idealcommercialboilers.com/imax-xtra2-cascade-configurator)

# IMAX XTRA 2

## Cascade Accessories

CHOOSE A HEADER KIT
1 boiler, 80 - 160kW (DN80) 226397
1 boiler, 200 - 280kW (DN80) 226398
2 boilers, 80 - 160kW (DN80) 226399
2 boilers, 200 - 240kW (DN80) 226400
2 boilers, 280kW (DN100) 226401
3 boilers, 80 - 160kW (DN80) 226402
3 boilers, 200 - 240kW (DN100) 226403
3 boilers, 280kW (DN150) 226404
4 boilers, 80 - 120kW (DN80) 226405
4 boilers, 160kW (DN100) 226406
4 boilers, 200 - 280kW (DN150) 226407

Boilers not included with Header kits; please remember to add them to your order.

CHOOSE HYDRAULIC SEPARATION
<b>Low Loss / Mixing Header</b>
DN80 219552
DN100 219553
DN150 226426
<b>Magnetic Low Loss / Mixing Header (MLLH)</b>
DN80 222193
DN100 222194
<b>Plate Heat Exchanger</b>
Up to 150kW nominal output (DN80) 222222 Insulation Kit - 234446
Up to 300kW nominal output (DN80) 222225 Insulation Kit - 234447
Up to 450kW nominal output (DN80) 222226 Insulation Kit - 234449
Up to 450kW nominal output (DN100) 222996 Insulation Kit - 234449
Up to 600kW nominal output (DN100) 222227 Insulation Kit - 234450
Up to 750kW nominal output (DN100) 222228 Insulation Kit - 234451

Plate Heat Exchanger
Up to 750kW nominal output (DN150) 226427 Insulation Kit - 234452
Up to 900kW nominal output (DN150) 226428 Insulation Kit - 234455
Up to 1200kW nominal output (DN150) 226429 Insulation Kit - 234456

Note: PHEX Insulation Kits Available from Oct 2022.

CHOOSE PUMPS
<b>80 and 120kW boilers, all installations</b>
Grundfos UPML Pump Kit 222659
<b>160kW boilers, all installations</b>
Grundfos UPMXXL Pump Kit 222660
<b>200 - 280kW boilers, (M)LLH chosen or no separation</b>
Grundfos Magna3 40-80F Pump Kit 226432
<b>200 - 280kW boilers, PHEX chosen</b>
Grundfos Magna3 40-100F Pump Kit 226433

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

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

IMAX XTRA 2 HYDRAULIC ACCESSORIES
<b>Headers</b>
1 boiler, DN80, threaded pump 226409
1 boiler, DN80, flanged pump 226408
1 boiler, DN100, threaded pump 226413
1 boiler, DN100, flanged pump 226412
1 boiler, DN150, flanged pump 226416
2 boilers, DN80, threaded pump 226411
2 boilers, DN80, flanged pump 226410
2 boilers, DN100, threaded pump 226415
2 boilers, DN100, flanged pump 226414
2 boilers, DN150, flanged pump 226417
<b>Spacer Spool Kits</b>
DN80 Water, DN65 Gas 226418
DN100 Water, DN65 Gas 226419
DN150 Water, DN65 Gas 226420
<b>Blind Flange Kit</b>
DN150 Water, DN65 Gas 226420
DN100 Water, DN65 Gas 226422
DN150 Water, DN80 Gas 226423

OTHER CASCADE ACCESSORIES
<b>Gas Header PN6 to PN16 Adaptor Spool Kits</b>
DN65 Gas header PN6 to PN16 adaptor 227674
DN80 Gas header PN6 to PN16 adaptor 227675
<b>LPG Gas Header Adaptor Kits</b>
DN65 LPG Gas header reducing adaptor (2 pack) 226424
DN80 LPG Gas header reducing adaptor (2 pack) 226424
<b>Butterfly Valves for Magnetic Low Loss Header</b>
DN80 butterfly valves for MLLH (2 pack) 222125
DN100 butterfly valves for MLLH (2 pack) 222126

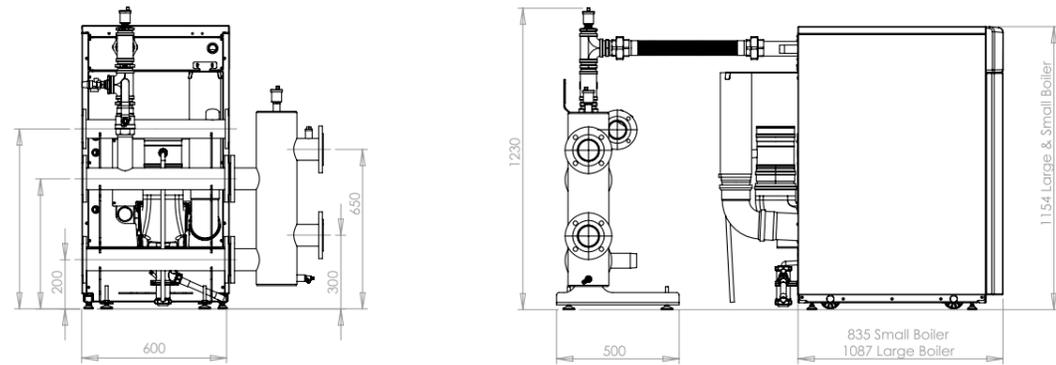
Note: PHEX Insulation Kits Available from Oct 2022.

FLUE DAMPER KITS	UIN
Ø150 Flue Damper	230522
Ø200 Flue Damper	230523

NOTE: When controlling boiler pumps directly from the boiler and including the flue damper the boiler pump must be controlled by a modulating signal from the boiler. Modulating pump control is available as standard with the pump kits offered by Ideal Heating. Where the installer provides their own pump to be controlled by the boiler it must be modulated by PWM from the boiler, or by 0-10V using the additional control accessory UIN 225391.

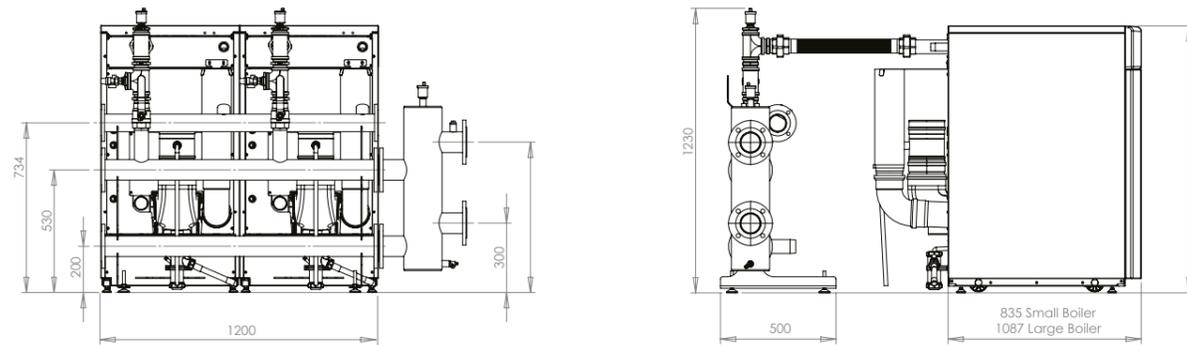
## IMAX XTRA 2 CASCADES

### 1 X IMAX XTRA 2



UIN	DN FLANGE SIZE	SUITABLE FOR
226397	DN80	1 x Imax Xtra 2 boiler, 80 - 160kW
226398	DN80	1 x Imax Xtra 2 boiler, 200 - 280kW

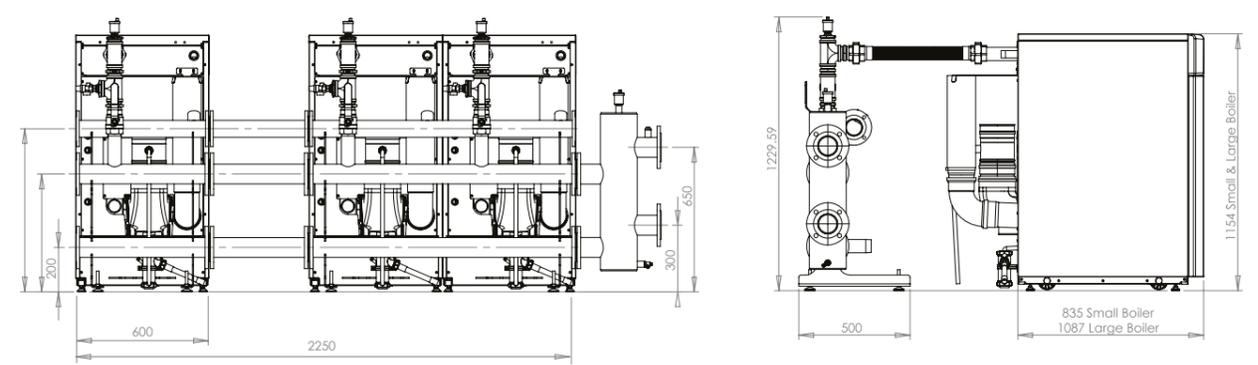
### 2 X IMAX XTRA 2



UIN	DN FLANGE SIZE	SUITABLE FOR
226399	DN80	2 x Imax Xtra 2 boilers, 80 - 160kW
226400	DN100	2 x Imax Xtra 2 boilers, 200 - 240kW
226401	DN100	2 x Imax Xtra 2 boilers, 280kW

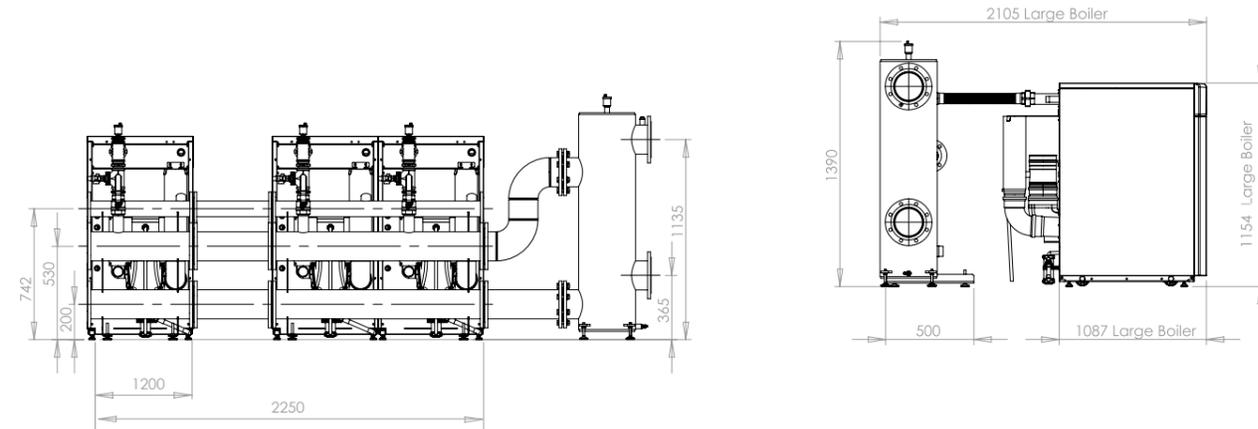
## IMAX XTRA 2 CASCADES

### 3 X IMAX XTRA 2



UIN	DN FLANGE SIZE	SUITABLE FOR
226402	DN80	3 x Imax Xtra 2 boilers, 80 - 160kW
226403	DN100	3 x Imax Xtra 2 boilers, 200 - 240kW

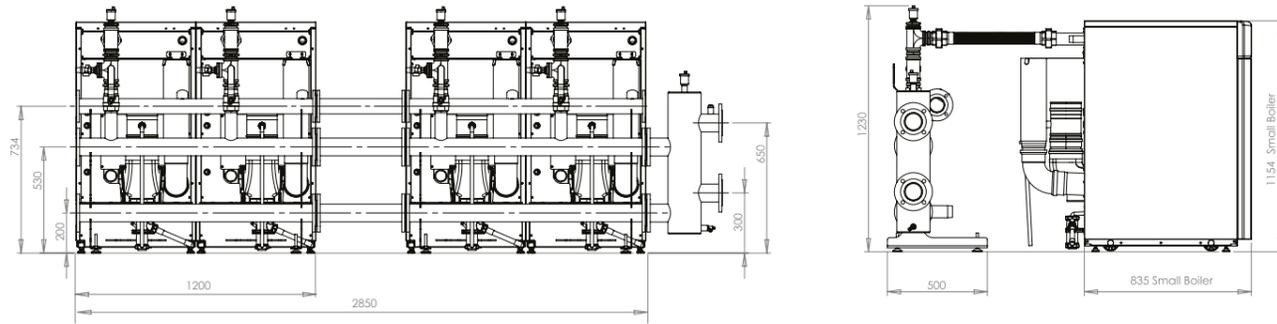
### 3 X IMAX XTRA 2



UIN	DN FLANGE SIZE	SUITABLE FOR
226404	DN150	3 x Imax Xtra 2 boilers, 280kW

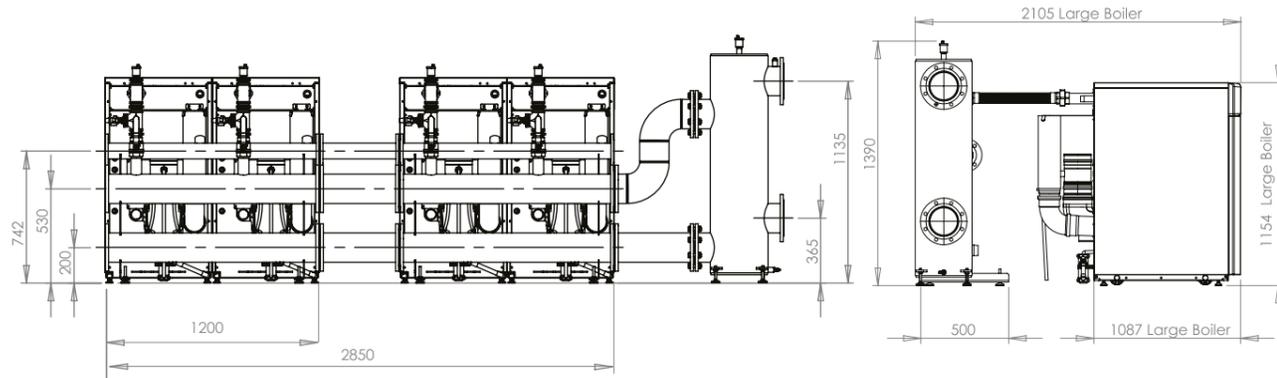
## IMAX XTRA 2 CASCADES

### 4 X IMAX XTRA 2



UIN	DN FLANGE SIZE	SUITABLE FOR
226405	DN80	4 x Imax Xtra 2 boilers, 80 - 120kW
226406	DN100	4 x Imax Xtra 2 boilers, 160kW

### 4 X IMAX XTRA 2



UIN	DN FLANGE SIZE	SUITABLE FOR
226407	DN150	4 x Imax Xtra 2 boilers, 200 - 280kW

Note: all flanges on boiler headers are PN6.

All cascade arrangements are designed around boiler operation with a temperature differential of 20°C. Please consult your local sales representative to confirm alternative operating conditions.

## HYDRAULIC SEPARATION

Ideal Heating offer various solutions to hydraulic separation

### PLATE HEAT EXCHANGER



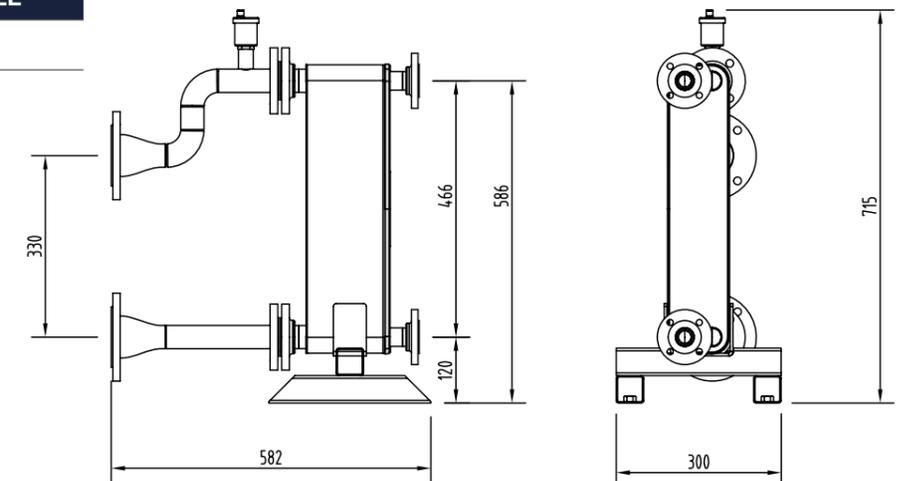
Covering outputs of 150, 300, 450, 600, 750, 900 and 1200kW. Brazed Plate Heat Exchangers ensure optimum heat transfer efficiency and low resistance within a compact footprint. To be used with Ideal Heating Header kits.

#### FEATURES and BENEFITS

- Compact design
- No gaskets
- Low maintenance and self-cleaning
- All units are pressure tested
- To be used with Ideal Heating Header kits
- Ensures optimal heat transfer efficiency and pressure resistance
- Separates system water from the boiler
- Ensures the highest performance for longest possible service life

### UP TO 150KW TOTAL NOMINAL PLATE HEAT EXCHANGER

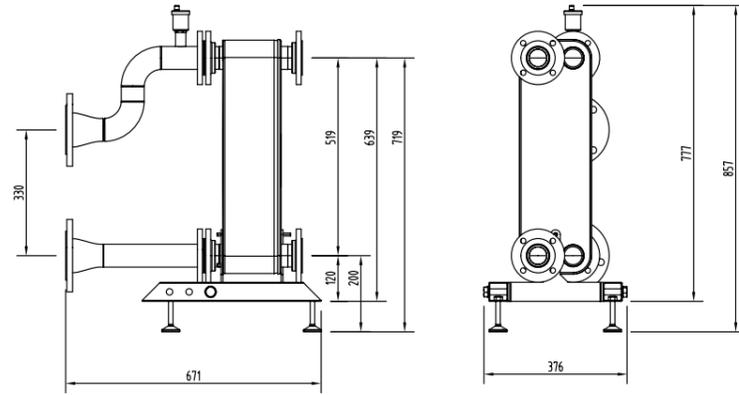
UIN	DN FLANGE SIZE
222222	DN80



222222 DN80

UP TO 300KW NOMINAL OUTPUT PLATE HEAT EXCHANGER

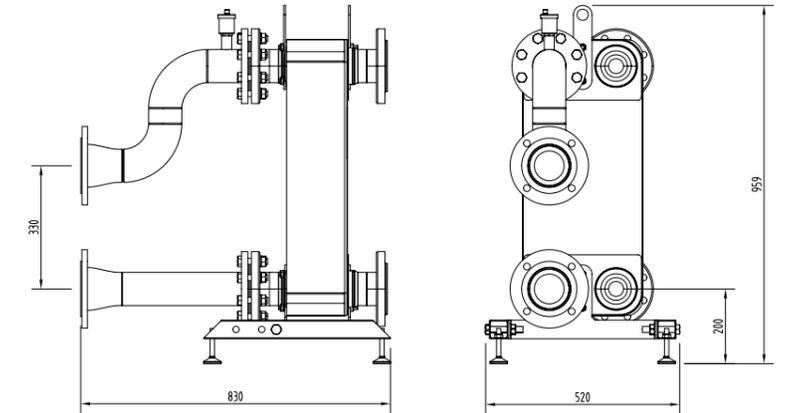
UIN	DN FLANGE SIZE
222225	DN80



222225 DN80

UP TO 750KW NOMINAL OUTPUT PLATE HEAT EXCHANGER

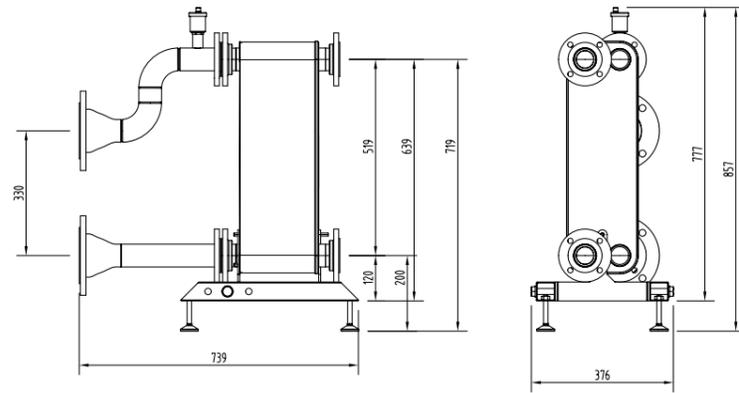
UIN	DN FLANGE SIZE
222228	DN100
226427	DN150



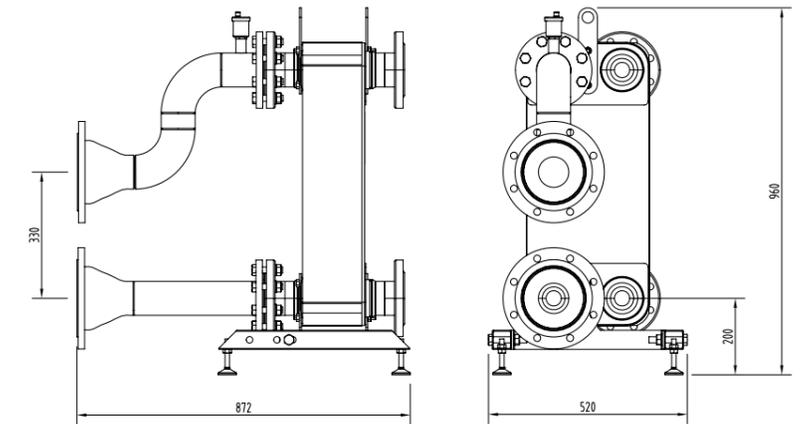
222228 DN100

UP TO 450KW NOMINAL OUTPUT PLATE HEAT EXCHANGER

UIN	DN FLANGE SIZE
222226	DN80



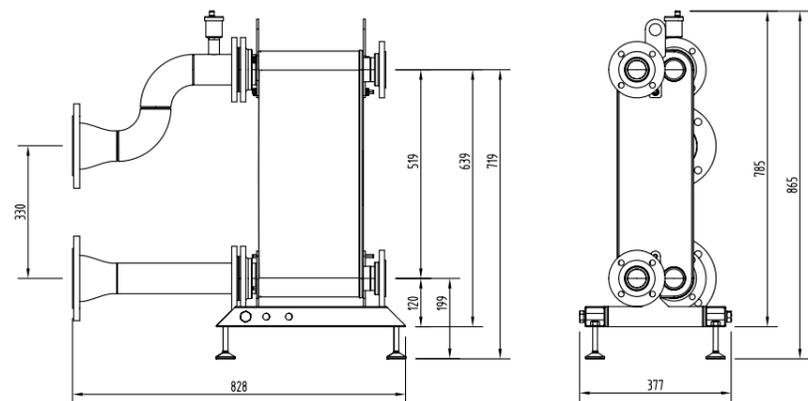
222226 DN80



226427 DN150

UP TO 600KW NOMINAL OUTPUT PLATE HEAT EXCHANGER

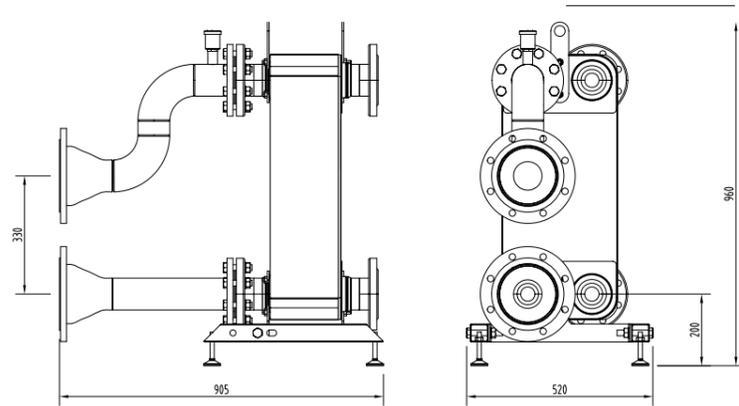
UIN	DN FLANGE SIZE
222227	DN100



222227 DN100

## UP TO 900KW NOMINAL OUTPUT PLATE HEAT EXCHANGER

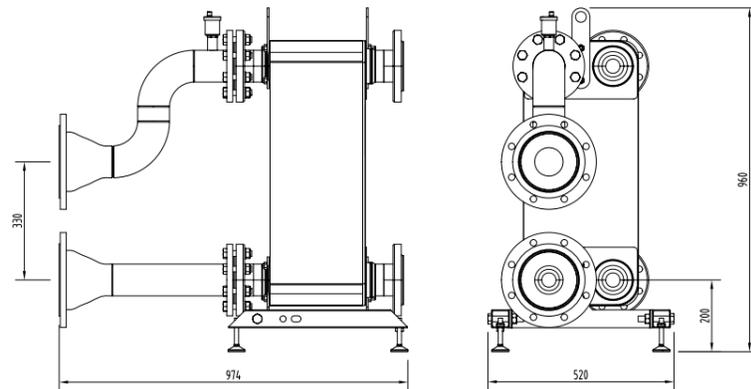
UIN	DN FLANGE SIZE
226428	DN150



**226428 DN150**

## UP TO 1200KW NOMINAL OUTPUT PLATE HEAT EXCHANGER

UIN	DN FLANGE SIZE
226429	DN150



**226429 DN150**

Note: refer to PHEX spec sheets for details of secondary flange sizes and PN ratings.

## LOW LOSS HEADER AND MAGNETIC LOW LOSS HEADER

Providing an alternative approach to hydraulic separation, Low Loss Headers (LLH) are available in various sizes to suit the accompanying Header kits. There is also the option of a Magnetic Low Loss Header (MLLH), combining the benefits of a low loss header and a magnetic filter.

### LOW LOSS HEADER

UIN	DN FLANGE SIZE
219552	DN80
219553	DN100
226426	DN150

### MAGNETIC LOW LOSS HEADER

UIN	DN FLANGE SIZE
222193	DN80
222194	DN100

## PUMPS

To ensure your Imax Xtra 2 Cascade works correctly, it is vital to fit the correct pumps. One pump is required per boiler in the Cascade.

CHOOSE PUMPS
<b>80 and 120kW boilers, all installations</b>
Grundfos UPML Pump Kit 222659
<b>160kW boilers, all installations</b>
Grundfos UPMXXL Pump Kit 222660
<b>200 - 280kW boilers, (M)LLH chosen or no separation</b>
Grundfos Magna3 40-80F Pump Kit 226432
<b>200 - 280kW boilers, PHEX chosen</b>
Grundfos Magna3 40-100F Pump Kit 226433

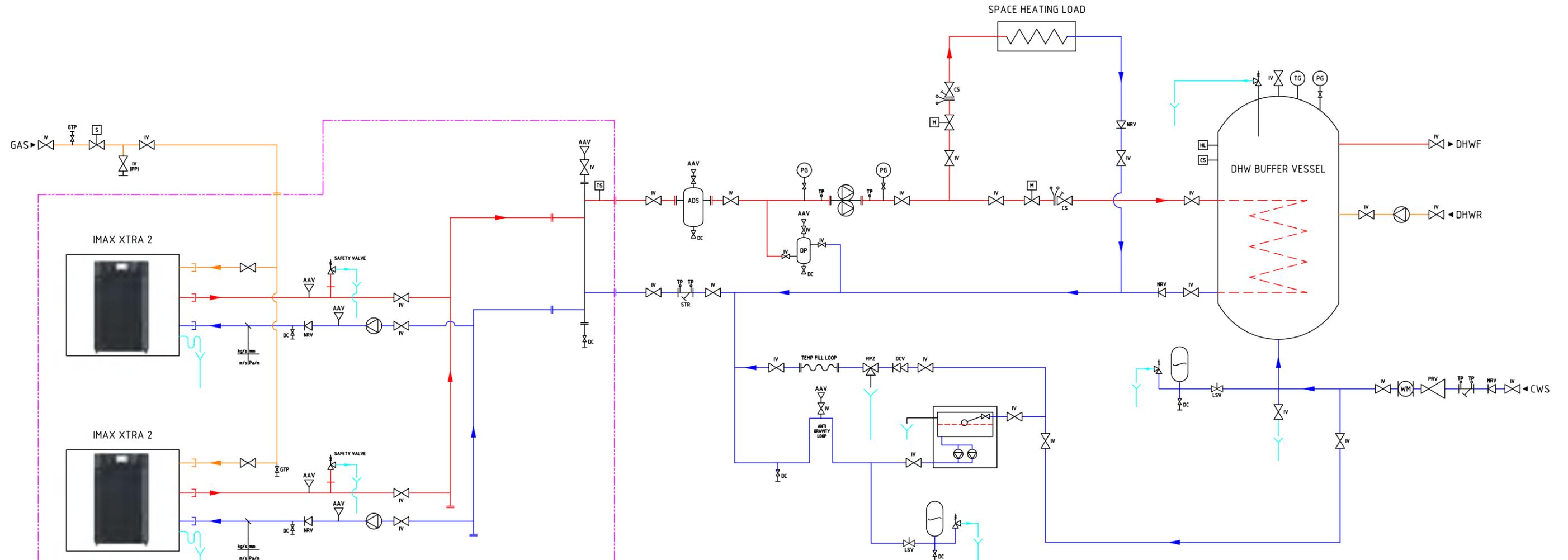
1 pump required per boiler.  
i.e. a 4 boiler cascade requires 4 pumps.

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



Note: pumps with screwed connections are G1.1/2" x 180mm. Pumps with flanged connections are DN40 x 220mm.

SYSTEM LAYOUT  
TYPICAL SYSTEM BOILER LAYOUT



**LEGEND**

	ISOLATION VALVE		PURGE VALVE		PRESS/TEMP RELIEF VALVE		PLATE HEAT EXCHANGER
	LOCKSHIELD VALVE		TEST POINT		AAV		AIR/DIRT SEPARATOR
	COMMISSIONING VALVE		GAS TEST POINT		SAFETY VALVE		DOSING POT
	STRAINER C/W TEST POINTS		RPZ VALVE		TUNDISH		GAS BOOSTER
	NON-RETURN VALVE		TEMPERATURE GAUGE		SINGLE HEAD PUMP		EXPANSION VESSEL
	DOUBLE CHECK VALVE		PRESSURE GAUGE		TWIN HEAD PUMP		TEMP FILL LOOP
	SOLENOID VALVE		TEMPERATURE SENSOR		TEMPORARY FILLING LOOP		WATER METER
	MOTORISED VALVE		CONTROL STAT		PRESSURISATION UNIT		
	PRESSURE REDUCING VALVE		HI-LIMIT STAT				
	AUTO AIR VENT						
	DRAIN COCK						

Note: this schematic is an illustration of a hydraulic arrangement for discussion and reference use only.

The schematic may not accurately describe the actual arrangement required in order for the system to operate correctly and additional components may be required. Under no circumstances should this be used as basis for procurement, production or installation.



# IMAX XTRA EL

320 - 1240kW



DOWNLOAD  
THE APP

performance

# IMAX XTRA EL

## 320 - 1240kW



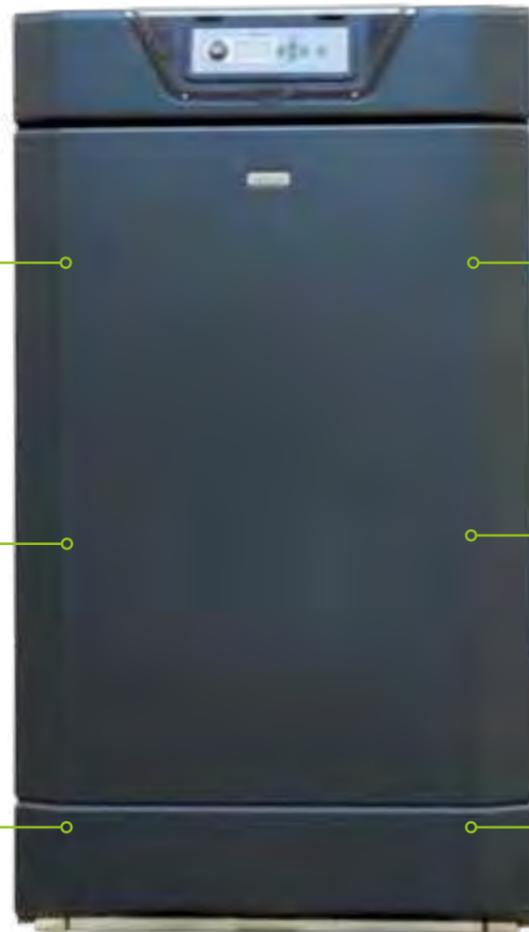
The Imax Xtra EL range of condensing boilers is available in 10 models with outputs from 320 to 1240kW. Suitable for floor standing applications in either single or multiple installations.



Floor standing



BIM



NOx class 6



ErP compliant



Part L 2022

### FEATURES AND BENEFITS

- Free commissioning
- 5 year heat exchanger warranty\*
- Simple control interface with large backlit display
- Volt free contacts
- 0-10V BMS operation standard
- Robust aluminium silicon alloy heat exchanger
- Suitable for single or multiple installations
- Up to 109.8% part load at 30% output
- 2 year parts and labour warranty
- NOx <40mg/kWh (Class 6)
- Natural Gas
- ErP compliant (320 - 395kW)
- Building Regulation Part L2 compliant (470 - 1240kW)
- MCPD compliant (1090 - 1240kW)

### DIMENSIONS AND CLEARANCES

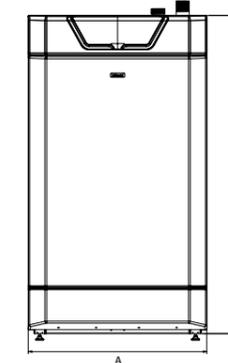
BOILER	DIM A	DIM B	DIM C
320, 395, 470, 545, 620	835	1485	1685
715, 790, 940, 1090, 1240	1674	1485	1685

All dimensions in mm

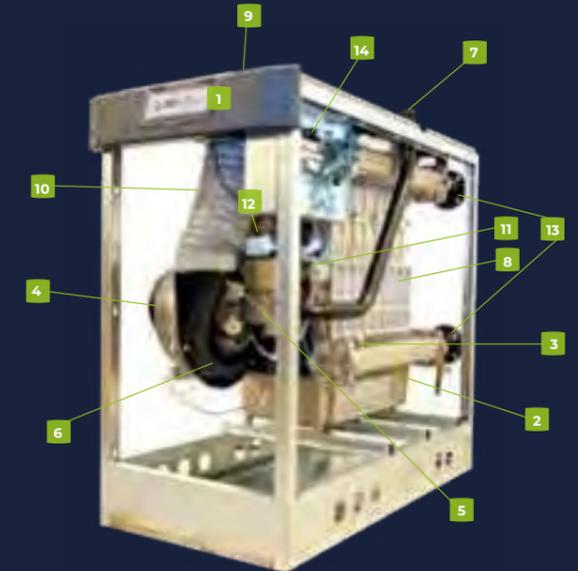
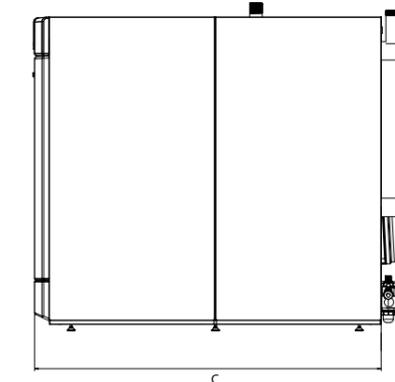
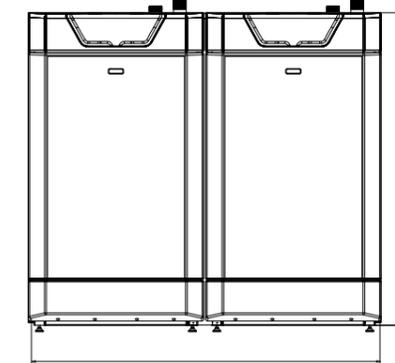
The following minimum clearances must be maintained for operation and servicing:

- ↑ TOP: 700mm
  - ← LEFT SIDE:  
320 - 620kW: 150mm  
715 - 1240kW: 700mm
  - RIGHT SIDE: 700mm
  - ↓ REAR:  
320 - 620kW: 150mm\*  
715 - 1240kW: 1000mm\*\*
  - FRONT: 700mm
- \* From rear of flue \*\* From back of boiler

320 - 620kW



715 - 1240kW



### BOILER ASSEMBLY

#### EXPLODED VIEW

(620kW MODEL SHOWN)

#### KEY

1. Control module
2. External condensate trap
3. Water pressure switch
4. Fan
5. Gas valve
6. Whirlwind
7. Gas inlet
8. Heat exchanger
9. Air inlet
10. Burner manifold
11. Air pressure switches
12. Ignition / detection electrode
13. Manifold - Flow - Return
14. PCB

## PERFORMANCE DATA

### IMAX XTRA EL 320 - 1240kW

MODEL			320	395	470	545	620	715	790	940	1090	1240
Boiler output (non condensing) Mean 70°C	Max	kW	298.4	368.3	438.6	508.6	578.2	666.7	736.6	877.2	1017.2	1156.4
	Min	kW	58.9	72.6	85.2	100.7	114.9	131.5	145.2	170.4	201.4	229.8
Boiler output (condensing) Mean 40°C	Max	kW	323.1	399.5	475.8	552.7	628.9	722.6	799.0	951.6	1105.4	1257.8
	Min	kW	66.7	80.5	95.6	113.0	127.6	147.2	161.0	191.2	226.0	255.2
Boiler Input Max Rate	Net	kW	304.8	376.2	447.6	519.0	590.0	681.0	752.4	895.2	1038.0	1180.0
	Gross	kW	338.3	417.5	496.8	576.0	654.8	755.8	835.0	993.6	1152.0	1309.6
Boiler Input Min Rate	Net	kW	61.0	75.2	89.5	103.8	118.0	136.2	150.4	179.0	207.6	236.0
	Gross	kW	67.7	83.5	99.3	115.2	131.0	151.2	167.0	198.6	230.4	262.0
Gas Rate	Max	m³/hr	32.2	39.8	47.4	54.9	62.2	72.0	79.6	94.8	109.8	124.4
Approx. flue gas volume (@80°C)	Max	m³/hr	472.6	583.3	694.0	804.7	914.8	1055.9	1166.6	1388.0	1609.4	1829.6
	Min	m³/hr	95.2	117.4	139.6	162.0	184.2	212.6	234.8	279.2	324.0	368.4
Approx. flue gas temps 50/30°C	Max	°C	43									
	Min	°C	31									
Approx. flue gas temps 80/60°C	Max	°C	63									
	Min	°C	50									
Max. Flue Resistance		Pa	100									
Flue Gas CO <sub>2</sub> G20/LNG	Max Rate	%	9.5									
	Min Rate	%	9.0									
Maximum Flue Temperature		°C	100									
NOx with O <sub>2</sub> = 0% (BS EN 15502-1)	Weighted	mg/ kWh	39.1	38.6	35.8	38.7	38.0	39.1	38.6	35.8	38.7	38.0
		Class	6									
Boiler Efficiency Full Load 80/60°C		%	97.9	97.9	98.0	98.0	98.0	97.9	97.9	98.0	98.0	98.0
Boiler Efficiency Part Load		%	109.7	109.7	109.8	109.8	109.8	109.7	109.7	109.8	109.8	109.8
Boiler Efficiency Full Load 50/30°C		%	106	106.2	106.3	106.5	106.6	106.1	106.2	106.3	106.5	106.6
Seasonal Boiler Efficiency	(Building Regs L2)	Gross %	96.8	96.8	96.9	96.9	97.0	96.8	96.8	96.9	96.9	97.0
Operating Temperature	Max	°C	90 for sealed system 80 for open vent systems									

## GENERAL DATA

### IMAX XTRA EL 320 - 1240kW

MODEL		320	395	470	545	620	715	790	940	1090	1240	
Gas supply pressure	mbar	20										
Gas Supply Connection	R (in. BSP)	2"					2" x 2"					
Flow Connection	R (in. BSP)	3" - DN80 - PN6*										
Return Connection	R (in. BSP)	3" - DN80 - PN6*										
Hydraulic Resistance @ΔT 20°C	mbar	98.0	96.0	94.0	93.0	92.0	102.9	100.8	98.7	97.65	96.6	
Max system pressure	bar (psi)	6 (87)										
Boiler electrical supply		230v - 50Hz										
Boiler fuse rating	A	7					7 x 2					
Power consumption (boiler only)	W	610	592	670	625	770	1202	1184	1340	1250	1540	
Air Inlet	mm	200					200 x 2*					
Flue Size diameter	mm	250					303			353		
Condensate drain	mm	21.5					21.5 x 2					
Boiler dry weight (unpacked)	kg	417	451	479	507	528	918	952	1008	1066	1106	
Water Content	l	47.3	53.3	59.3	65.3	75.3	94.6	106.6	118.6	130.6	150.6	

\*Optional headers not fitted

## OPTIONAL KITS

BOILER	IMAX XTRA EL	IMAX XTRA EL DUAL	BOILER	IMAX XTRA EL	IMAX XTRA EL DUAL
	320 - 620	715 - 1240		320 - 620	715 - 1240
Modulating Sequencer Kit	✓	✓	Pump Kit	✓	✓
DHW Tank Kit	✓	✓	LONWorks Gateway Kit	✓	✓
Plant Room Sensor Kit	✓	✓	MODBus Gateway Kit	✓	✓
6 Zone Expansion Kit	✓	✓	Remote Access Kit	✓	✓
Programmable Room Thermostat Kit for use with boiler and modulating Sequencer	✓	✓	Sealed System Services Flow Manifold Kit	✓	✓
Programmable Room Thermostat Kit (for use with boiler only)	✓	✓	Inlet Air Filter Kit	✓	✓
Outside Sensor Kit	✓	✓	Condensate Pump Kit	✓	✓
DHW Tank Sensor Kit	✓	✓	Room Sealed Air Duct Kit	✓	✓
Safety Interlock Kit	✓	✓	BACNet Gateway Kit	✓	
Flow and return headers 5" connection		✓			
Gas header 3" connection		✓			
Dual air inlet		✓			

## SUGGESTED ENGINEERING SPECIFICATION

The Suggested Engineering Specification is wording designed for specifiers to copy and paste into their specifications to ensure inclusion of Ideal Heating commercial boilers.

### OVERVIEW

The boilers must be fully automatically controlled, floor standing, fanned, super-efficient condensing appliances utilising an aluminium silicon alloy heat exchanger and be suitable for connection to fully pumped open vented or sealed water systems.

### CONTROLS

The condensing boilers must have connectivity for all common types of BMS integration including 0-10v, volt free and OpenTherm connections. Additional modules may be used for BACnet, LONWorks and MODBUS gateways. Where no BMS is present a modulating sequencer must be available.

The boiler must be fully modulating with a 5:1 turndown ratio and include 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 flue outlet and air inlet must be situated at the rear of the boiler.

### HYDRAULIC

The condensing boiler must be suitable for connection to fully pumped open vented or sealed water systems. All hydraulic connections including flow return and condensate drain must be located on the rear of the boiler. Hydraulic connections must be uniform across the outputs available in the range to ensure ease of installation and maintenance.

The boiler must have a maximum operating pressure of 6 bar and be suitable for heating and indirect hot water systems.

### DIMENSIONS

The condensing boiler must fit within maximum permitted floor space of 1.41m<sup>2</sup> (320 – 620kW models) or 2.82m<sup>2</sup> (715 – 1240kW models).

### MOUNTING / POSITIONING

The condensing boilers will be floor standing.

### EFFICIENCY

The condensing boilers are capable of high seasonal efficiencies with a minimum requirement of 96.8% and low NOx emissions no greater than 38.7mg/kWh.

### APPROVALS

The boilers must be tested and certified by BSI to EN 15502 for use with Natural Gas.

Boilers are certified to meet the requirements of the EC Gas Appliance Directive, Boiler Efficiency Directive, EMC and Low Voltage Directive.

The manufacturer must be ISO 9001 accredited.

### SPECIFICATION

The boiler will be capable of flow rates for common systems using 11°C to 20°C temperature differentials.

### SOURCING

The condensing boiler must be manufactured or finally assembled in the United Kingdom.

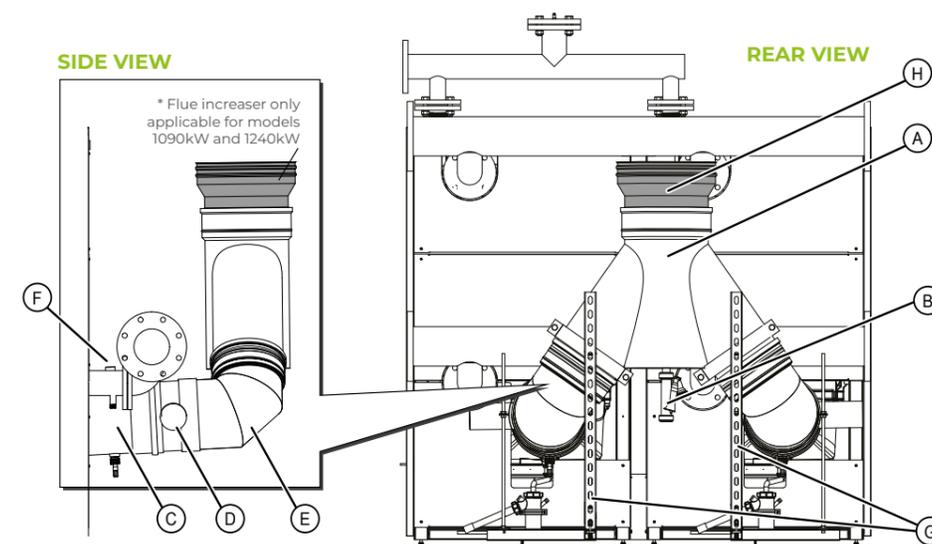
### WARRANTY

The boiler must be available with a 2 year warranty.

## FLUE COMPONENTS

### KEY

- A Flue Manifold
- B Flue Condensate Drain Trap
- C Flue Adapter
- D Non Return Valve
- E Flue Elbow
- F Flue Sample Point
- G Flue Bracket Support
- H Flue Increaser



### FEATURES

- 300mm diameter connection
- Supplied with Boiler
- Rear clearance of 1m from boiler required for installation
- Height of adapter at exit; 1192mm without flue increaser 1355mm with increaser
- Suitable for vertical or horizontal installations

See pages 84-87 for further system requirements

### SYSTEM APPLICATION

Ideal Imax Xtra EL boilers are designed for central heating of commercial premises and also for supplying hot water via a calorifier or plate heat exchanger. They are suitable for fully pumped, open vented or pressurised systems and can be connected to heating and/or hot water systems.

They are not suitable for direct hot water supply or gravity heating/hot water systems.

BOILER	IMAX XTRA EL
Maximum static head:	61 metres (200 feet)
Maximum working pressure:	6 bar (87psi)

Maximum design flow temperature is 80°C Open Vented Adjustable to 90°C for sealed system.

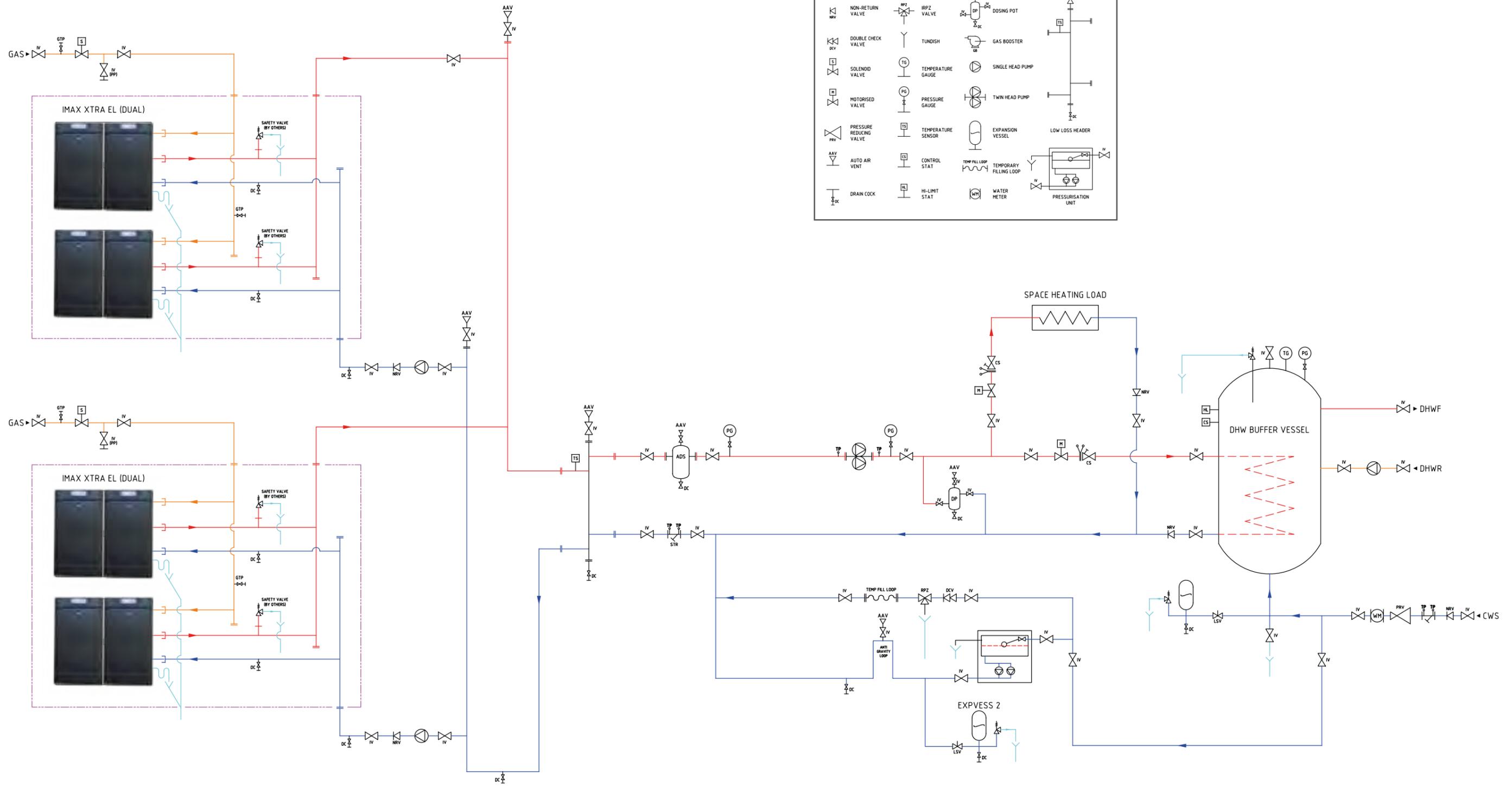
Pump overrun is provided as standard, and a period of 5 minutes must be allowed for in system design.

Frost protection is built into the boiler control, if the boiler sensor falls below 7°C, this will result in the appliance firing.

This will protect the boiler only, not exposed system elements.

# SYSTEM LAYOUT

## TYPICAL SYSTEM BOILER LAYOUT



### LEGEND

	ISOLATION VALVE		PURGE VALVE		PRESS/TEMP RELIEF VALVE
	LOCKSHIELD VALVE		TEST POINT		AIR/DIRT SEPARATOR
	COMMISSIONING VALVE		GAS TEST POINT		PLATE HEAT EXCHANGER
	STRAINER C/W TEST POINTS		SAFETY VALVE		DOSING POT
	NON-RETURN VALVE		RPZ VALVE		GAS BOOSTER
	DOUBLE CHECK VALVE		TUNDISH		SINGLE HEAD PUMP
	SOLENOID VALVE		TEMPERATURE GAUGE		TWIN HEAD PUMP
	MOTORISED VALVE		PRESSURE GAUGE		EXPANSION VESSEL
	PRESSURE REDUCING VALVE		TEMPERATURE SENSOR		LOW LOSS HEADER
	AUTO AIR VENT		CONTROL STAT		TEMP FILL LOOP
	DRAIN COCK		HI-LIMIT STAT		TEMPORARY FILLING LOOP
			WATER METER		PRESSURISATION UNIT

Note: this schematic is an illustration of a hydraulic arrangement for discussion and reference use only.

The schematic may not accurately describe the actual arrangement required in order for the system to operate correctly and additional components may be required. Under no circumstances should this be used as basis for procurement, production or installation.

# EVOMOD

250 - 1000kW



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THE APP

modular



# EVOMOD

## 250 - 1000kW



Available in 250, 500, 750 and 1000kW modules, the Evomod will achieve an output up to 1MW from a single unit solution together with a minimum footprint that enables the product to be installed where space is limited. Each module provides a maximum of 250kW heat output and will modulate down through a sophisticated control system.



### FEATURES AND BENEFITS

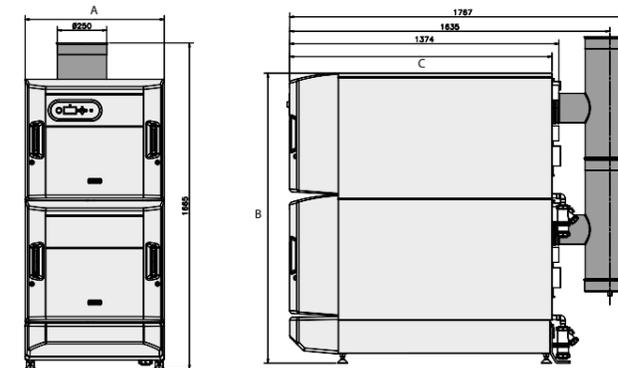
- Free commissioning
- 5 year heat exchanger warranty\*
- Modules up to 3 high stacking
- Stainless steel heat exchanger
- Built in module diagnostics, sequencing and remote indication
- Single flue outlet, system, gas and electrical connections
- Up to 20:1 turndown: 1MW boiler can modulate down to just 46.7kW
- Easy access for servicing
- Minimum footprint with easy site handling and standard doorway access allowing simplified plant replacement
- NOx <40mg/kWh (Class 5)
- 2 year parts and labour warranty
- Up to 108.5% net efficiency (fully condensing)
- Single boiler control for all module options
- ErP compliant (250kW)
- Building Regulation Part L2 compliant (500 - 1000kW)
- MCPD compliant (1000kW)

### DIMENSIONS AND CLEARANCES

BOILER	DIM A	DIM B	DIM C
250	710	860	1339
500	710	1480	1339
750	710	2100	1339
1000	1428	1480	1339

All dimensions in mm

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



### BOILER ASSEMBLY

#### EXPLODED VIEW (500kW MODEL SHOWN)

#### KEY

1. Fan
2. Gas Valve
3. Venturi
4. Mains Connection Box
5. Heat exchanger
6. Thermistor (flow)
7. Thermistor (return)
8. Condensate Blockage Pressure Switch
9. Flue Sampling Point
10. Water Pressure Switch

## PERFORMANCE DATA

### EVOMOD 250 - 1000kW

MODEL			250	500	750	1000
Boiler Output (non-condensing) Mean 70°C (80/60)	Max	kW	232.5	465	697.5	930
	Min	kW	46.7	46.7	46.7	46.7
Boiler Output (condensing) Mean 40°C (50/30)	Max	kW	252.5	505	757.5	1010
	Min	kW	51.4	51.4	51.4	51.4
Boiler Input Max Rate	Net	kW	238	476	714	952
	Gross	kW	264.1	523.2	792.3	1056.4
Boiler Input Min Rate	Net	kW	47.6	47.6	47.6	47.6
	Gross	kW	52.8	52.8	52.8	52.8
Gas Rate	Max rate	m³/hr	25.2	50.4	75.6	100.8
Approx. flue gas volume (@80°C)	Max Rate i.e. non-condensing	m³/hr	391	783	1174	1566
Max. Flue Resistance		Pa	105			
Flue Gas CO <sub>2</sub> G20/LNG	Max Rate	%	9.1 ± 0.2			
	Min Rate	%	8.4 ± 0.2			
NO <sub>x</sub> with O <sub>2</sub> = 0% (BS EN 15502-1)	Weighted	mg/kWh	39.7			
		ppm	22.5			
Seasonal Boiler Efficiency (Building Regs L2)		%	95.9			
Operating Temperature	Max	°C	80			

## INCLUDED AS STANDARD

BOILER	EVOMOD
Remote indication (run and alarm)	✓
Hours run	✓
BMS (0-10v) operation	✓
Pump overrun	✓
Large backlit LCD controls, including 5 line plain text display	✓

## OPTIONAL KITS

BOILER	EVOMOD
Water and gas header assembly packaged	✓
Water and gas header assembly c/w valves packaged	✓
Water connection kit (250)*	✓
Air inlet collar	✓

\* If you do not order the water and gas header assembly c/w valves packaged, you must order the water connection kit.

## GENERAL DATA

### EVOMOD 250 - 1000kW

MODEL		250	500	750	1000
Gas Supply		2H - G20 - 20mbar			
Gas Supply Connection	R (in. BSP)	R1¼	R2	R2	R2½
Flow Connection	R (in. BSP)	2½" PN16	5" PN16		
Return Connection	R (in. BSP)	2½" PN16	5" PN16		
Hydraulic Resistance Δ 20° C	mbar	410			
Hydraulic Resistance Δ 20° C with optional water header pack	mbar	100	105	110	120
Max Press (sealed system)	bar (psi)	6 (87)			
Maximum Static Head	m	61 (200)			
Boiler Electricity Supply		230V - 50Hz			
Boiler Fuse Rating		1 x 5A Internal	2 x 5A Internal	3 x 5A Internal	4 x 5A Internal
Power Consumption (boiler only)	W	350	680	1020	1350
Air Inlet (optional)	O/D mm	300			300 x 2
Flue Size dia	mm	150	250		300
Condensate drain	mm	21.5	2 x 21.5	3 x 21.5	4 x 21.5
Boiler dry weight (unpacked)	Kg	229	420	611	845
Water Content	l	14.8	29.6	44.4	59.2
IP Rating		IP20			

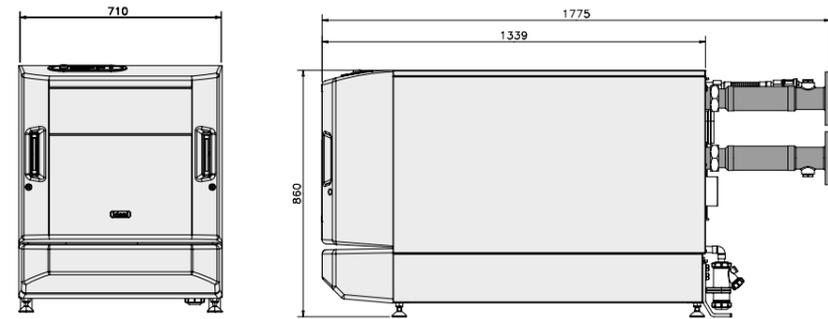
Electricity supply and Fuse rating for pumps etc. refer to manufacturer's instructions.

Note. Natural gas consumption is calculated using a calorific value of 37.8MJ/m<sup>3</sup> (1038Btu/ft<sup>3</sup>) gross or 34 MJ/m<sup>3</sup> (910 Btu/ft<sup>3</sup>) net at 15°C and 1013.25 mbar.

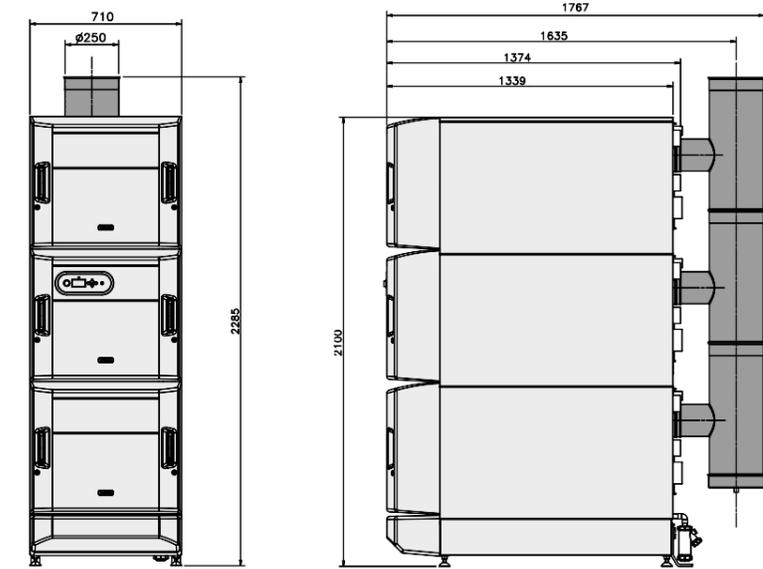
- a. For l/s divide the gross heat input (kW) by the gross C.V. of the gas (MJ/m<sup>3</sup>)
- b. For ft/h<sup>3</sup> divide the gross heat input (Btu/h) by the gross C.V. of the gas (Btu/ft<sup>3</sup>)
- c. For M<sup>3</sup>/h multiply L/S by 3.6.

## DIMENSIONS

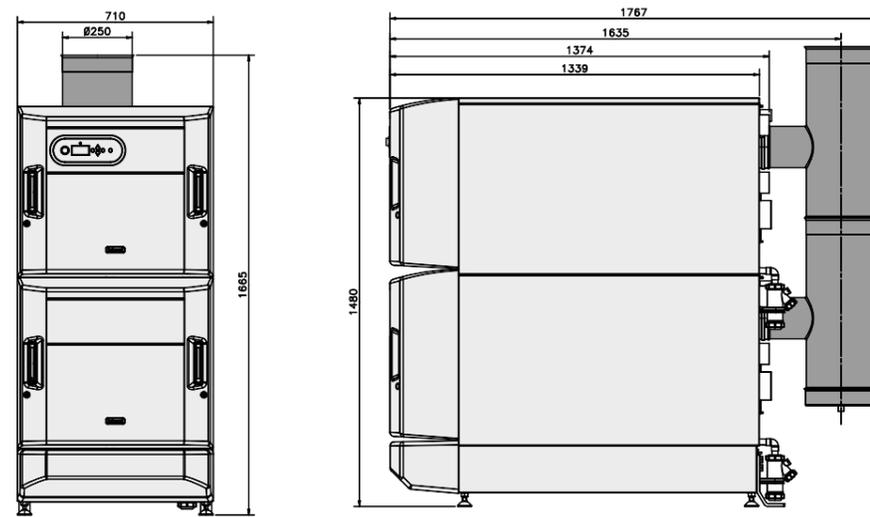
### EVOMOD 250 - 1000kW



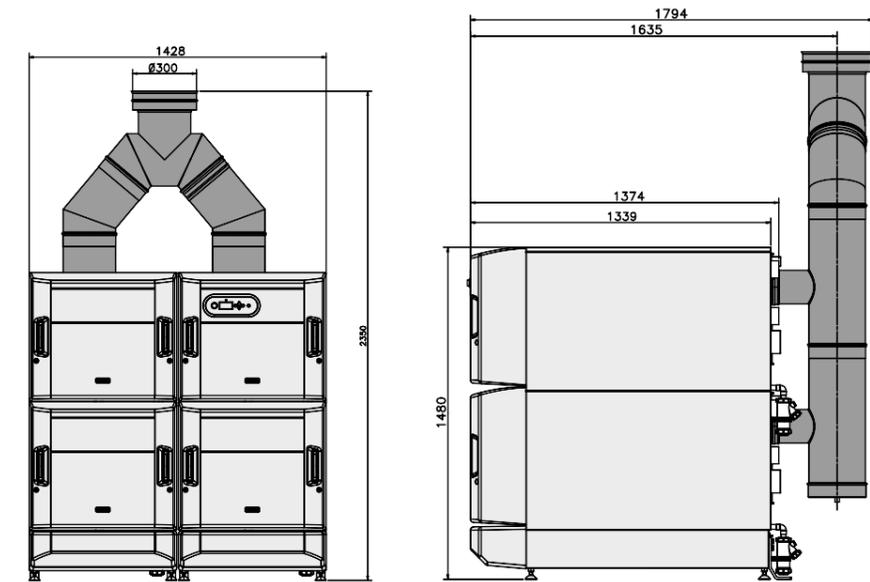
BOILER	HEIGHT (mm)	WIDTH (mm)	DEPTH (mm)
EVOMOD 250kW	860	710	1339



BOILER	HEIGHT (mm)	WIDTH (mm)	DEPTH (mm)
EVOMOD 750kW	2100	710	1339



BOILER	HEIGHT (mm)	WIDTH (mm)	DEPTH (mm)
EVOMOD 500kW	1480	710	1339



BOILER	HEIGHT (mm)	WIDTH (mm)	DEPTH (mm)
EVOMOD 1000kW	1480	1428	1339

## SUGGESTED ENGINEERING SPECIFICATION

The Suggested Engineering Specification is wording designed for specifiers to copy and paste into their specifications to ensure inclusion of Ideal Heating commercial boilers.

### OVERVIEW

The boilers must be fully automatically controlled, floor standing, fanned, super-efficient condensing appliances utilising a stainless steel heat exchanger and be suitable for connection to fully pumped open vented or sealed water systems. The boilers must be modular in design with each module capable of delivering 250kW.

### CONTROLS

The condensing boilers must have connectivity for common types of BMS integration including 0-10v and volt free connections. The boiler must be fully modulating with a 5:1 turndown ratio per 250kW module and include 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 flue outlet and air inlet must be situated at the rear of the boiler.

### HYDRAULIC

The condensing boiler must be suitable for connection to fully pumped open vented or sealed water systems. All hydraulic connections including flow return and condensate drain must be located on the rear of the boiler. Hydraulic connections must be uniform across the modules available in the range to ensure ease of installation and maintenance. The boiler must have a maximum operating pressure of 6 bar and be suitable for heating and indirect hot water systems.

### DIMENSIONS

The condensing boiler must fit within maximum permitted floor space of 0.95m<sup>2</sup> (when installed 1 module wide) or 1.91m<sup>2</sup> (when installed 2 modules wide).

### MOUNTING / POSITIONING

The condensing boilers will be floor standing.

### EFFICIENCY

The condensing boilers are capable of high seasonal efficiencies with a minimum requirement of 95.9% and low NOx emissions no greater than 39.7mg/kWh.

### APPROVALS

The boilers must be tested by BSI and conform to EN656, EN13856 and EN15417 for use with Natural Gas. Boilers are certified to meet the requirements of the EC Gas Appliance Directive, Boiler Efficiency Directive, EMC and Low Voltage Directive.

The manufacturer must be ISO 9001 accredited.

### SPECIFICATION

The boiler will be capable of flow rates for common systems using 20°C temperature differentials.

### SOURCING

The condensing boiler must be manufactured or finally assembled in the United Kingdom.

### WARRANTY

The boiler must be available with a 2 year warranty.

## SYSTEM APPLICATION

Ideal Evomod boilers are designed for central heating of commercial premises and also for supplying hot water via a calorifier or plate heat exchanger.

They are suitable for fully pumped, open vented or pressurised systems and can be connected to heating and/or hot water systems.

They are not suitable for direct hot water supply or gravity heating/hot water systems.

BOILER	EVOMOD
Maximum static head:	61 metres (200 feet)
Maximum working pressure:	6 bar (87psi)

Maximum design flow temperature is 80°C (180°F)

Pump overrun is provided as standard, and a period of 2 minutes must be allowed for in system design.

Frost protection is built into the boiler control, if the boiler sensor falls below 5°C, this will result in the appliance firing.

This will protect the boiler only, not exposed system elements.

## RANGE PACKAGING

### Evomod 250, 500, 750

The boiler is delivered on a wooden pallet with protective cardboard packing pieces at the front. The side panels and bottom side panels are contained within cardboard packs strapped to the sides of the boilers. The footer is contained in a cardboard box, strapped to the boiler, or placed on the flue header pallet. All condensate traps are individually boxed and stored within the footer box. A protective plastic wrap protects the contents of the pallet. The flue components are in a cardboard box on a separate pallet.

The optional water connection kit (250) comes in a separate box, the optional header kits (500, 750, 1000) come on a separate pallet.

### Evomod 1000

This boiler comes packed as above except the boiler is split onto 2 pallets. The header assembly comes split across 2 pallets + a gas manifold.

### LIST OF PACK CONTENTS:

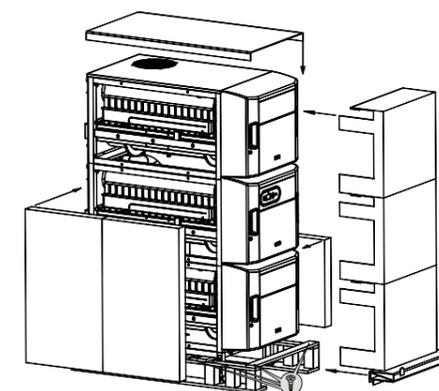
1. Boiler on pallet(s)
2. Side panel pack(s)
3. Footer pack(s) inc. condensate traps
4. Flue components

#### To unpack the boiler:

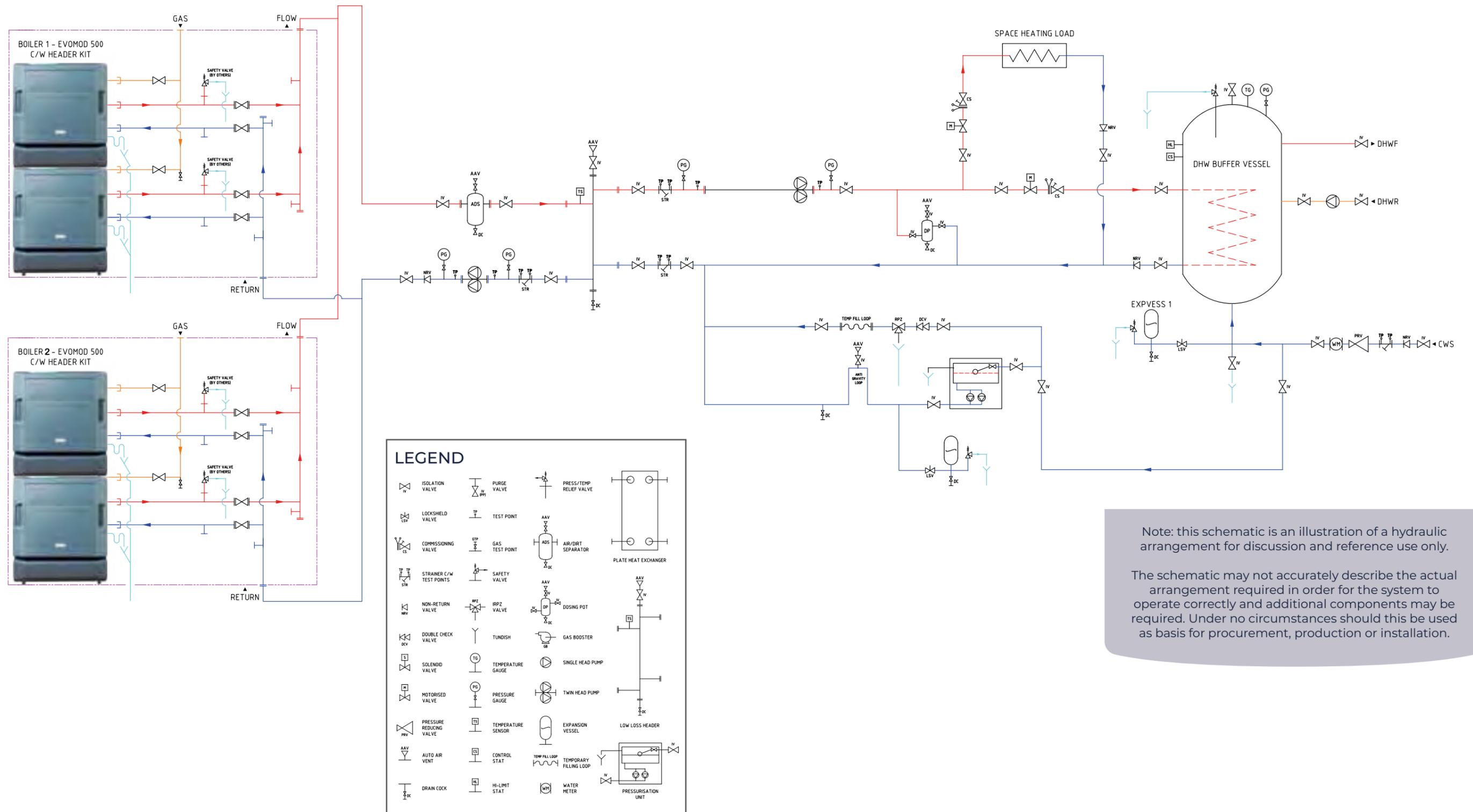
- Remove the plastic wrap
- Unstrap and remove side panel boxes, store in a safe place
- Lift off footer box, store in a safe place

- Retrieve the condensate trap boxes from within the footer box, store in a safe place.
- Remove the protective cardboard packing from the front.
- Remove all screws from the wooden pallet and disassemble the pallet.

**A full commissioning service is available at an extra charge.**



SYSTEM LAYOUT  
TYPICAL SYSTEM BOILER LAYOUT



Note: this schematic is an illustration of a hydraulic arrangement for discussion and reference use only. The schematic may not accurately describe the actual arrangement required in order for the system to operate correctly and additional components may be required. Under no circumstances should this be used as basis for procurement, production or installation.



# EVOJET

150 - 1450kW



Pressure  
Jet



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adaptable

# EVOJET

150 - 1450kW

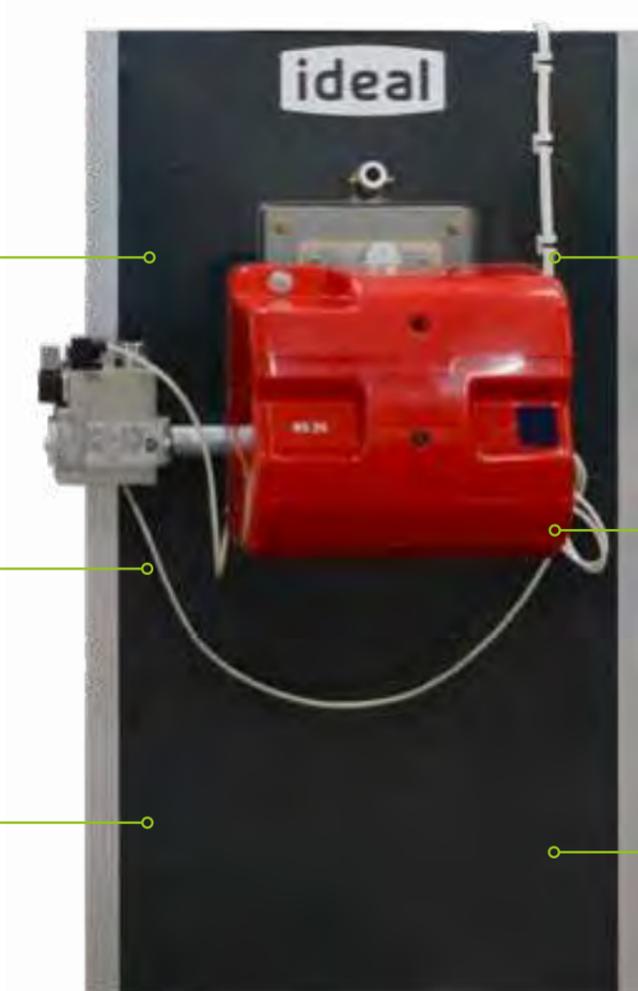
The Evojet condensing range of pressure jet boilers are available in 10 models with outputs from 150 to 1450kW. Floor standing boilers for applications in either single or multiple configurations.



Floor standing



BIM



Pressure jet



Dual fuel



Part L 2022

## FEATURES AND BENEFITS

- Up to 109.3% part load efficiency
- Triple flue pass for high operating efficiencies
- Designed to operate up to 40°C ΔT providing minimum flow rates are achieved
- Multiple burner options available
- Dedicated low temp return
- Modulation via 0-10 volt BMS, or RWF controller
- Stainless steel heat exchanger

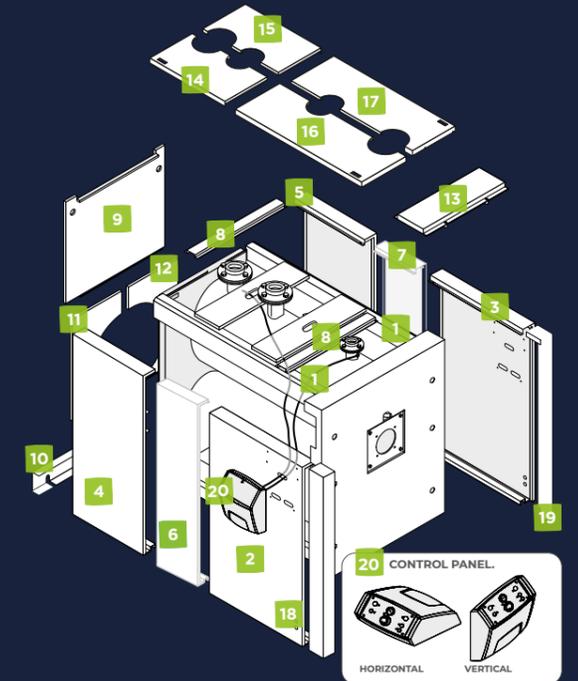
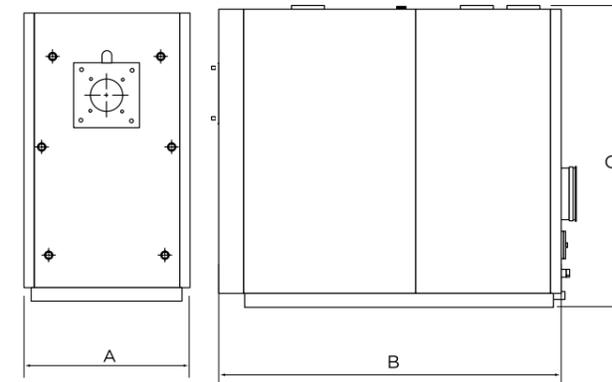
## DIMENSIONS AND CLEARANCES

BOILER	DIM A	DIM B	DIM C
150	740	1455	1315
210	740	1455	1315
270	850	1630	1450
350	850	1830	1450
450	900	2035	1630
600	900	2235	1630
800	1060	2560	1910
1000	1060	2810	1910
1250	1180	3010	2030
1450	1225	3080	2180

All dimensions in mm

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

- ➔ FRONT: BURNER LENGTH
- ↓ REAR: 1000mm
- ↔ SIDES: 150-1250KW 300mm\*  
1450KW 600mm\*



## BOILER ASSEMBLY

### EXPLODED VIEW

#### KEY

- |                         |                       |
|-------------------------|-----------------------|
| 1. Boiler frame         | 11. Bottom rear panel |
| 2. Side Panel           | 12. Bottom rear panel |
| 3. Side Panel           | 13. Front top panel   |
| 4. Rear Panel           | 14. Top panel         |
| 5. Rear Panel           | 15. Top panel         |
| 6. Central side panel   | 16. Top panel         |
| 7. Central side panel   | 17. Top panel         |
| 8. Top cross beams      | 18. Front trim panel  |
| 9. Top rear panel       | 19. Front trim panel  |
| 10. Bottom rear bracket | 20. Control panel     |

## PERFORMANCE DATA

### EVOJET 150 - 1450kW (GAS)

MODEL			150	210	270	350	450	600	800	1000	1250	1450	
Output Power (80/60)	Max	kW	146.6	205.2	264.3	343.7	441.9	589.2	785.6	982.0	1227.5	1423.9	
	Min	kW	108.2	147.1	207.8	264.2	342.2	439.7	586.0	781.0	976.0	1219.7	
Output Power (50/30)	Max	kW	160.5	224.7	288.9	374.5	481.5	642.0	856.0	1070.0	1337.5	1551.5	
Efficiency Pn (80/60)	Max	%	97.7	97.7	97.9	98.2	98.2	98.2	98.2	98.2	98.2	98.2	
	Min	%	97.5	97.7	98.2	98.3	97.5	97.5	97.5	97.5	97.5	97.5	
Efficiency Pn (50/30)	Max	%	107										
Efficiency Part Load		%	108.5	109.3	109.2	108.7	108.7	108.7	108.7	108.7	108.7	108.7	108.7
Losses from stack for sensible heat (Qmax)		%	1.7	1.7	1.5	1.5	1.9	1.9	1.9	1.9	1.9	1.9	
Losses from casing with burner on		%	0.3	0.3	0.5	1.0	0.6	0.6	0.6	0.6	0.6	0.6	

\*Depends on return temperature (30-60°C)

\*\*At Pn max and output T = 80°C, return T = 60°C and CO<sub>2</sub> = 10.3%

## GENERAL DATA

### EVOJET 150 - 1450kW (GAS)

MODEL		150	210	270	350	450	600	800	1000	1250	1450
Fuel		GAS (Natural Gas and LPG compatible)									
Constant pressure drop	%	<1									
Flue gas temperature (ΔT)	°C	< 45+75*									
Flue gas mass flow rate (Q max)**	kg/sec	0.07	0.09	0.12	0.15	0.20	0.26	0.33	0.43	0.54	0.63
Furnace pressure	mbar	2.0	2.7	3.2	4.6	5.0	5.5	5.7	6.3	6.8	7.4
Furnace volume	dm <sup>3</sup>	172	172	241	279	442	496	753	845	1037	1249
Total volume of flue gas side	dm <sup>3</sup>	272	292	413	482	737	860	1290	1454	1763	2097
Heat exchanger surface area	m <sup>2</sup>	8.20	10.40	13.00	16.30	21.80	28.80	39.60	46.50	56.20	62.28
Volumetric heat load (Q max)	kW/m <sup>3</sup>	872	1221	1120	1254	1018	1210	1062	1183	1205	1161
Specific heat load	kW/m <sup>2</sup>	18.0	19.9	20.4	20.9	20.1	20.3	18.5	21.0	21.7	22.6
Maximum condensate production	l/h	18.4	27.4	31.9	40.9	52.2	73.8	88.0	111.4	132.7	159.5
Maximum working pressure	bar	6									
Maximum admissible temperature	°C	110									
Maximum working temperature	°C	95									
Pressure drop ΔT 10°C	mbar	43.2	36.0	54.0	46.4	33.8	30.2	128.7	121.5	100.4	150.1
Pressure drop ΔT 20°C	mbar	11.3	10.2	16.3	13.4	9.0	8.5	28.7	30.6	28.4	36.3
Water capacity	l	323	360	495	555	743	770	1320	1395	1825	1900
Weight of boiler	kg	510	530	677	753	1095	1250	1870	2085	2515	3050
Weight of panelling	kg	50	50	60	70	90	120	140	160	215	230

## PERFORMANCE DATA

### EVOJET 150 - 1450kW (OIL)

MODEL			210	270	350	450	600	800	1000	1250	1450
Output Power (80/60)	Max	kW	203.7	263.8	343.7	441.9	589.2	785.6	982.0	1227.5	1423.9
	Min	kW	147.1	207.8	264.2	342.2	439.7	586.0	781.0	976.0	1219.7
Efficiency Pn (80/60)	Max	%	97.0	97.7	98.2	98.2	98.2	98.2	98.2	98.2	98.2
	Min	%	97.4	98.5	97.5	97.5	97.5	97.5	97.5	97.5	97.5
Losses from stack for sensible heat (Qmax)		%	1.7	1.5	1.5	1.9	1.9	1.9	1.9	1.9	1.9
Losses from casing with burner on		%	0.3	0.5	1.0	0.6	0.6	0.6	0.6	0.6	0.6

\*At Pn max and output T = 80°C, return T = 60°C and CO<sub>2</sub> = 10.3%

## GENERAL DATA

### EVOJET 150 - 1450kW (OIL)

MODEL		210	270	350	450	600	800	1000	1250	1450	
Fuel		Low Sulphur Oil									
Constant pressure drop	%	<1									
Flue gas temperature (ΔT)	°C	75.0									
Flue gas mass flow rate (Q max)*	kg/sec	0.09	0.12	0.15	0.20	0.26	0.33	0.43	0.54	0.63	
Furnace pressure	mbar	2.7	3.2	4.6	5.0	5.5	5.7	6.3	6.8	7.4	
Furnace volume	dm <sup>3</sup>	172	241	279	442	496	753	845	1037	1249	
Total volume of flue gas side	dm <sup>3</sup>	292	413	482	737	860	1290	1454	1763	2097	
Heat exchanger surface area	m <sup>2</sup>	10.40	13.00	16.30	21.80	28.80	39.60	46.50	56.20	62.28	
Volumetric heat load (Q max)	kW/m <sup>3</sup>	1221	1120	1254	1018	1210	1062	1183	1205	1161	
Specific heat load	kW/m <sup>2</sup>	19.9	20.4	20.9	20.1	20.3	18.5	21.0	21.7	22.6	
Maximum working pressure	bar	6									
Maximum admissible temperature	°C	110									
Maximum working temperature	°C	95									
Pressure drop ΔT 10°C	mbar	36.0	54.0	46.4	33.8	30.2	128.7	121.5	100.4	150.1	
Pressure drop ΔT 20°C	mbar	10.2	16.3	13.4	9.0	8.5	28.7	30.6	28.4	36.3	
Water capacity	l	360	495	555	743	770	1320	1395	1825	1900	
Weight of boiler	kg	530	677	753	1095	1250	1870	2085	2515	3050	
Weight of panelling	kg	50	60	70	90	120	140	160	215	230	

## GENERAL DATA

### EVOJET 150 - 1450kW

#### FEATURES AND BENEFITS

- Twin return water connections
- High water content
- Pressurised combustion chamber for smooth burner operation
- Stainless steel turbulator for maximum heat transfer and increased efficiency
- Double insulated boiler housing
- Front door inspection without removing burner
- Complete with control panel
- Triple flue pass for high operating efficiencies

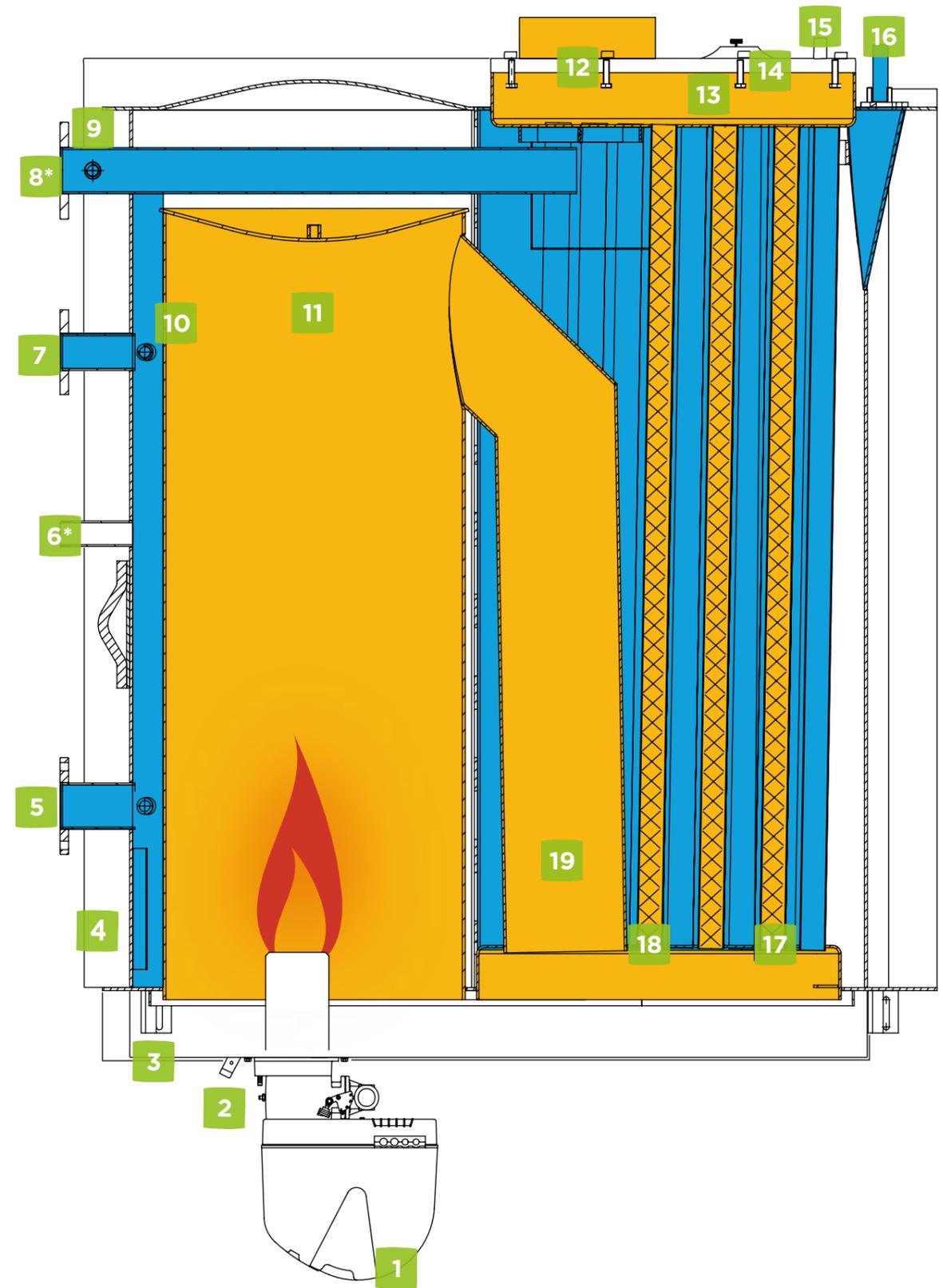
#### KEY

- |  |                                  |
|--|----------------------------------|
| 1. Burner  | 10. Instrument bulb/probe socket |
| 2. Flame inspection window with pressure measurement point | 11. Combustion chamber           |
| 3. Door  | 12. Flue connection              |
| 4. Panelling   | 13. Flue gas box                 |
| 5. Outlet  | 14. Inspection door              |
| 6. Safety device fitting*                                  | 15. Condensate drain             |
| 7. Heating return (high temperature)                       | 16. Boiler drain                 |
| 8. Heating return (low temperature)**                      | 17. Turbulators                  |
| 9. Blind plug  | 18. Third flue pass              |
|  | 19. Second flue pass             |

\*For 1450 models the safety device fitting is flanged.

\*\*For 1450 models the low temperature heating return is located at the rear of the boiler.

## EVOJET CROSS SECTION DIAGRAM



## SUGGESTED ENGINEERING SPECIFICATION

The Suggested Engineering Specification is wording designed for specifiers to copy and paste into their specifications to ensure inclusion of Ideal Heating commercial boilers.

### OVERVIEW

The boiler must fully automatically controlled, floor standing condensing boiler with a triple flue pass stainless steel heat exchanger. While they are designed primarily for central heating purposes, in conjunction with a suitable storage cylinder they can also be used to produce domestic hot water on fully pumped sealed water systems.

All parts that come into contact with the combustion gases are made from titanium stabilised stainless steel to ensure maximum resistance to the corrosive action of acid condensation.

The boiler must incorporate two return water connections to facilitate multiple applications e.g. CH and DHW and enables the optimum operating efficiency to be achieved.

The boilers must be designed to operate with **Natural Gas, LPG or Oil** (delete as required) using pressure-jet or premixed burners. The burner specification will enable the choice of Two Stage / Fully Modulating and Low NOx operation.

### CONTROLS

The boiler control options must be selected at the time of purchase:

- Two Stage Burner
- Modulating Burner
- BMS (Boiler Management System) 0-10V
- Oil and Dual Fuel

The boiler must include control features enabling set point adjustment, heating circuit control of one constant temperature, one variable temperature and one DHW circuit 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 an open flued application in B23 configuration. The B23P configuration can only be used with a premix gas burner.

### HYDRAULIC

The condensing boiler must be suitable for connection to fully pumped sealed water systems. All hydraulic connections including flow return and condensate drain must be located on the bottom or rear of the boiler. The boiler must have a maximum operating pressure of 6 bar and be suitable for heating and indirect hot water systems.

### DIMENSIONS

The condensing boiler must fit within maximum permitted floor space of 0.97m<sup>2</sup> (150 and 210kW models)/1.23m<sup>2</sup> (270 and 350kW models)/1.47m<sup>2</sup> (450 and 900kW models)/2.03m<sup>2</sup> (800 and 1000kW models)/2.40m<sup>2</sup> (1250kW model)/2.67m<sup>2</sup> (1450kW model) (delete as appropriate).

### MOUNTING / POSITIONING

The condensing boilers will be floor standing.

### EFFICIENCY

The condensing boilers are capable of high seasonal efficiencies with a minimum requirement of 95.9% and low NOx emissions no greater than 39.7mg/kWh.

### APPROVALS

The manufacturer must be ISO 9001 accredited.

### SPECIFICATION

The boiler must be capable of the below flow rates:

### WARRANTY

The boiler must be available with a 2 year warranty.

BOILER MODEL	MIN FLOW (L/H)
150	1,700
210	2,400
270	3,100
350	4,000
450	5,100
600	6,800
800	9,100
1000	11,400
1250	14,200
1450	16,500

## PLACE OF INSTALLATION

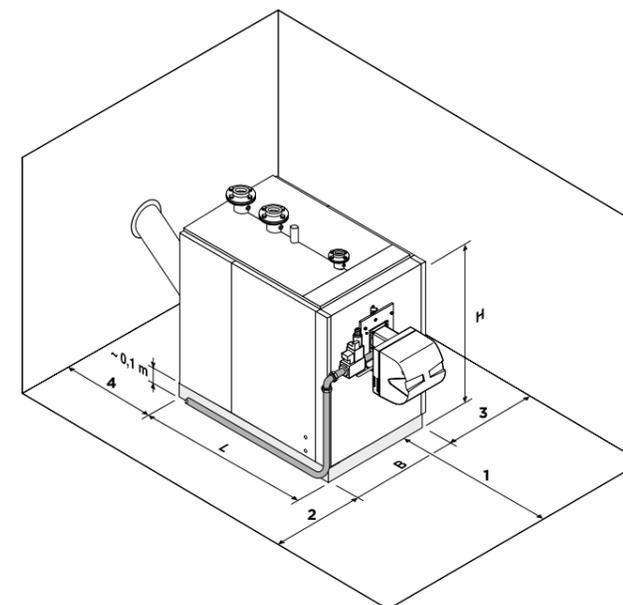
Evojet steel boilers must be installed in a dedicated boiler room, with adequately sized vents, in compliance with BS 6644.

If at all possible, the boiler should be installed on a raised base to stop the burner fan sucking up dust and to facilitate installation of a condensate drain system.

The boiler condensate drain must be located above the height of the lid of the system's condensate neutraliser if fitted.

The gas supply pipe must be installed in such a way that the boiler's panelling can be removed and the front door opened without having to remove the burner.

## CLEARANCES



DESCRIPTION	BOILER MODEL									
	150	210	270	350	450	600	800	1000	1250	1450
B - Width (mm)	750	750	850	850	900	900	1000	1000	1200	1250
L - Depth (mm)	1350	1350	1620	1820	1930	2140	2400	2700	2920	3100
H - Overall height (boiler + base) (mm)	1420	1420	1540	1540	1700	1700	2010	2010	2130	2280
1 - Front clearance (mm) *	1350	1350	1620	1820	1930	2140	2400	2700	2920	3100
2 - Left clearance min (mm)**	300	300	300	300	300	300	300	300	300	600
3 - Right clearance min (mm)**	300	300	300	300	300	300	300	300	300	600
4 - Rear clearance (mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000

\* Front clearance can be reduced dependent on the burner used and consideration for turbulator removal

\*\*For further guidance on clearances refer to the installation manual

## EVOJET TEMPERATURE CONTROL

The standard Evojet boiler controller is suitable for controlling the temperature using a single jet burner.

Control panels can be installed either on the top of the boiler or on one of its side panels in either vertical or horizontal orientations.

### CONTROL PANEL FEATURES INCLUDE:

- Robust ABS housing
- Thermometer
- Overheat lockout / reset button
- Burner lockout indicator
- Compatible with modulating burner controls utilising 0-10 volt BMS
- Compatible with modulating burner controls utilising RWF option

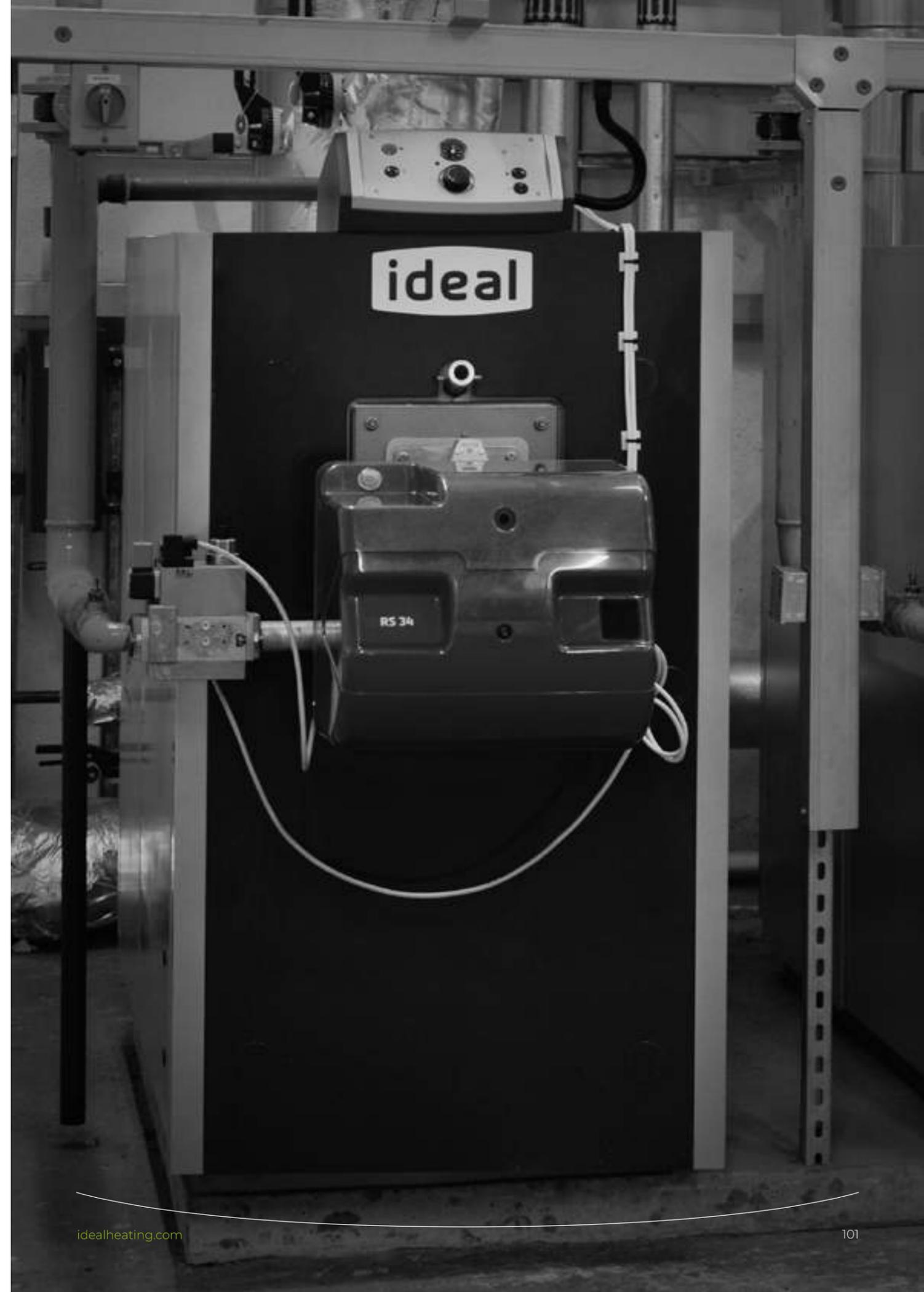


## SYSTEM APPLICATION

Ideal Evojet boilers are designed for central heating of commercial premises and also for supplying hot water via a calorifier or plate heat exchanger. They are suitable for fully pumped, pressurised systems and can be connected to heating and/or hot water systems.

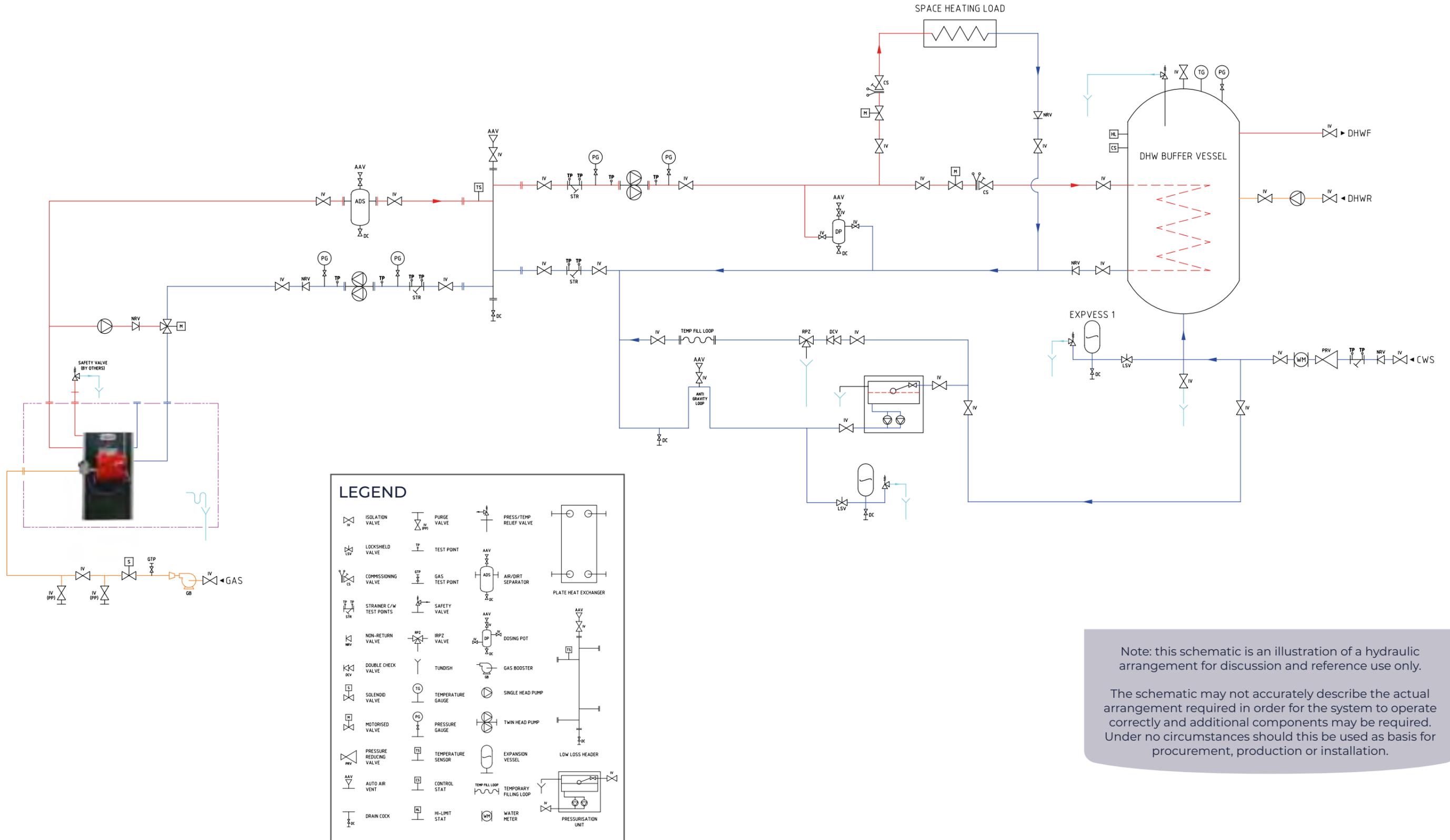
They are not suitable for open vented, direct hot water supply or gravity heating/hot water systems.

BOILER	EVOJET
Maximum static head:	61 metres
Minimum static head:	10 metres
Maximum working pressure:	6 bar
Minimum working pressure:	1 bar
Maximum design flow temperature:	90 °C



# SYSTEM LAYOUT

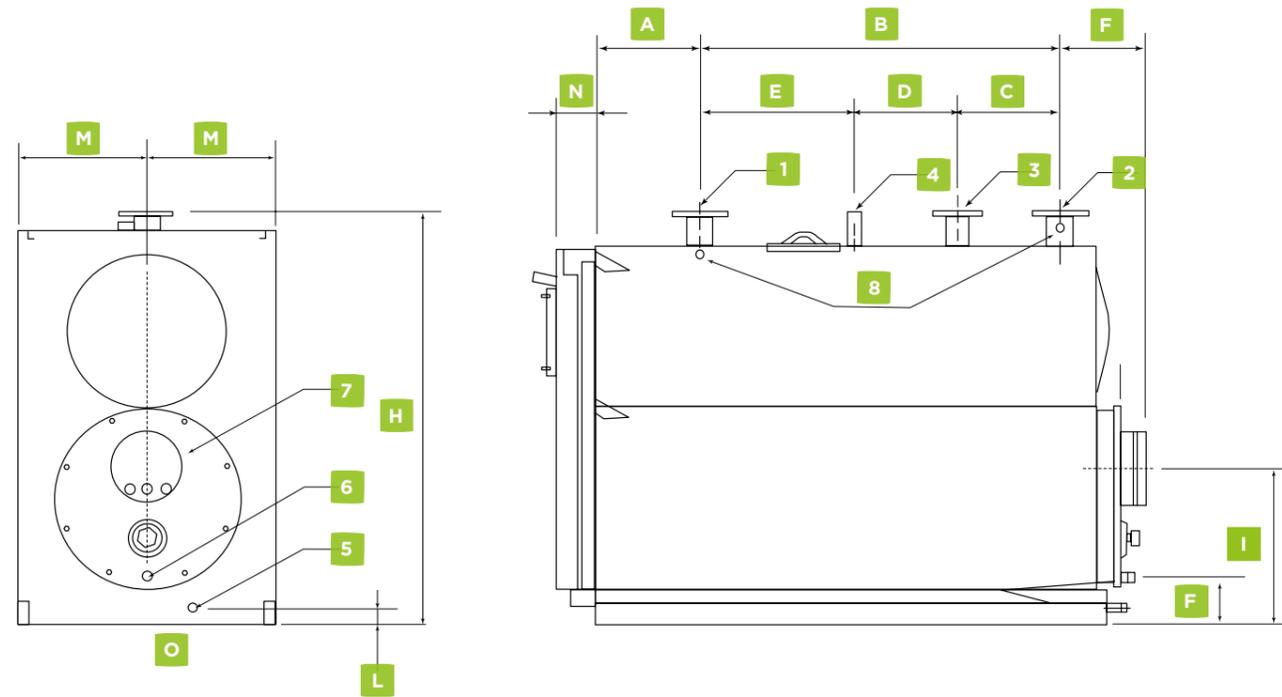
## TYPICAL SYSTEM BOILER LAYOUT



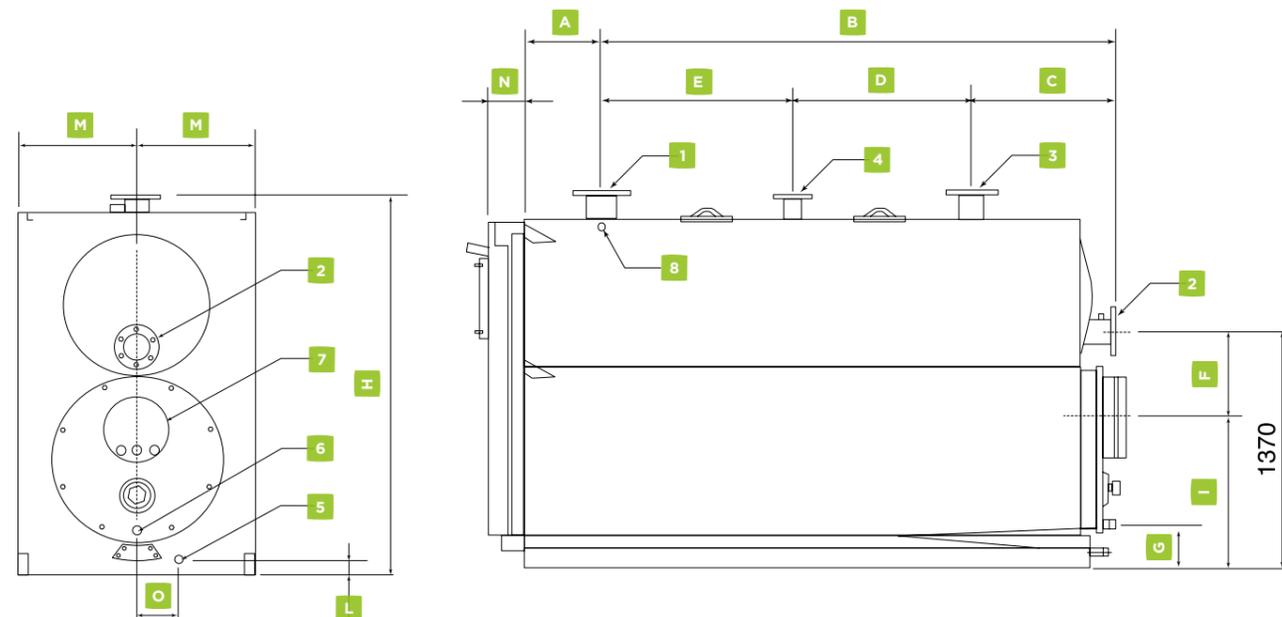
Note: this schematic is an illustration of a hydraulic arrangement for discussion and reference use only.

The schematic may not accurately describe the actual arrangement required in order for the system to operate correctly and additional components may be required. Under no circumstances should this be used as basis for procurement, production or installation.

## EVOJET 150 - 1250 MODELS:



## EVOJET 1450 MODEL:



## SYSTEM CONNECTIONS

Evojet boilers are designed and made for use in central heating installations, but can also be used for domestic hot water production if connected to suitable sub-systems. Water fittings are as specified in the following table:

DESCRIPTION	BOILER MODEL										
	150	210	270	350	450	600	800	1000	1250	1450	
1 - Heating flow*	65	65	65	80	100	100	125	125	150	150	DN
2 - Heating return 1 (Low Temperature)*	65	65	65	80	100	100	125	125	150	150	DN
3 - Heating return 2 (High Temperature)*	50	50	50	65	80	80	80	80	100	100	DN
4 - Safety device fitting	1" 1/4	1" 1/4	1" 1/4	1" 1/4	1" 1/2	1" 1/2	80	80	80	80	Ø"- DN
5 - Boiler drain fitting	1"	1"	1"	1"	1"	1"	1" 1/4	1" 1/4	1" 1/4	1" 1/4	Ø"
6 - Condensate drain fitting	1"	1"	1"	1"	1" 1/4	1" 1/4	1" 1/4	1" 1/4	1" 1/4	1" 1/4	Ø"- DN
7 - Flue gas exhaust fitting	200	200	250	250	300	300	350	350	400	450	Ø" mm
8 - Instrument bulb/probe sockets	3 x 1/2"	3 x 1/2"	3 x 1/2"	3 x 1/2"	3 x 1/2"	3 x 1/2"	3 x 1/2"	3 x 1/2"	3 x 1/2"	3 x 1/2"	n° x Ø"
A - Distance from burner head to heating flow outlet	300	300	300	315	311	311	410	410	430	440	mm
B - Distance from heating flow outlet to return 1	885	885	1050	1235	1400	1600	1800	2050	2200	2585	mm
C - Distance between heating returns 1 and 2	200	200	300	250	250	300	350	350	350	735	mm
D - Distance between heating return 2 and safety device fitting	285	285	300	450	600	700	750	850	850	850	mm
E - Distance between heating flow outlet and safety device fitting	400	400	450	535	550	600	700	855	1000	1000	mm
F - Distance between heating return 1 and flue gas outlet	200	200	225	225	270	270	325	325	345	560	mm
G - Height of condensate drain	160	160	165	165	215	215	195	195	225	235	mm
H - Height of boiler flanges	1340	1340	1450	1450	1630	1630	1910	1910	2030	2180	mm
I - Height of flue gas outlet	405	405	545	545	645	645	680	680	720	805	mm
L - Height of boiler drain fitting	60	60	55	55	75	75	95	95	105	85	mm
M - Boiler centreline	345	345	375	375	395	395	475	475	535	565	mm
N - Distance from burner head to door	110	110	120	120	125	125	125	125	140	150	mm
O - Distance from Boiler drain fitting	132	132	137	137	125	125	175	175	180	180	mm

\*All flanged connections are PN6 according to EN 1092-1

# UNIVERSAL SYSTEM REQUIREMENTS OF COMMERCIAL CONDENSING BOILER RANGE

## OPEN SYSTEMS - (EXCLUDING EVOJET)

The system should be vented directly off the boiler flow pipe, as close to the boiler as possible. The cold feed entry should be inverted and **MUST** be positioned between the pump and the vent, and not more than 150mm (6") away from the vent connection.

There should be a minimum height, 500mm (20") of open vent above the cistern water level. The vertical distance between the highest point of the system and the feed/expansion cistern water level **MUST** not be less than **DIM A**.

The information provided is based on the following assumptions:

The boiler is at the highest point of the circulation system. Systems designed to raise above the flow tappings will, of course, automatically require a minimum static head higher than shown.

The position of the open vent/safety pipe above the expansion cistern water level is given as a guide only. The final position will depend upon particular characteristics of the system. Pumping over of water into the expansion cistern should be avoided.

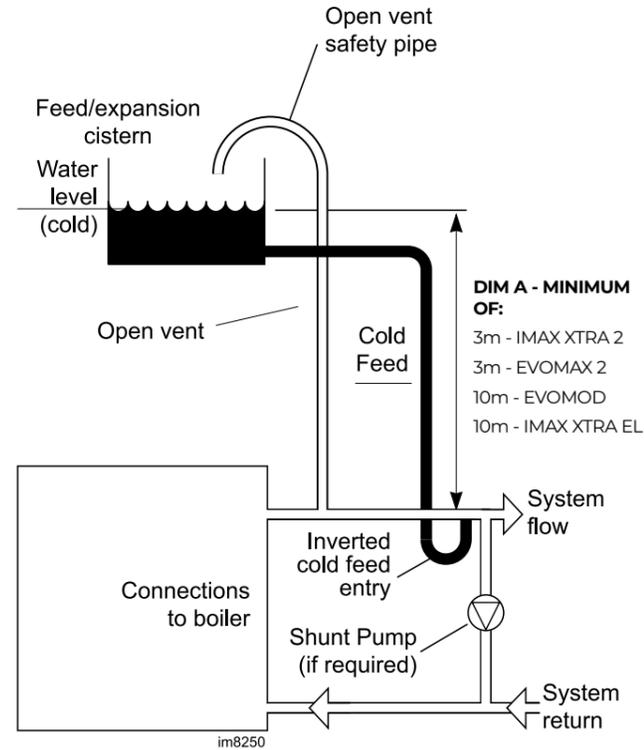
## COLD FEED/OPEN VENT

The independent cold feed and the open vent must comply with BS 6644 and be of the following minimum size:

BOILER OUTPUT (KW)	COLD FEED	OPEN VENT
60 - 150	1" (25mm)	1¼" (32mm)
151 - 300	1½" (38mm)	1½" (38mm)
301 - 600	1½" (38mm)	2" (50mm)
601>	2" (50mm)	A=3.5 x Q <sub>r</sub>

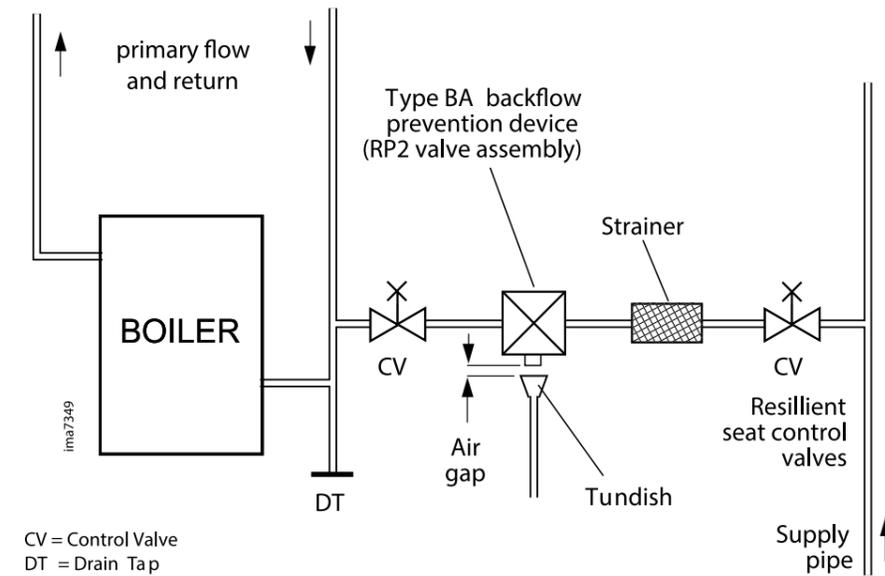
The minimum cross-sectional area of the venting pipe(s), A (in mm<sup>2</sup>) shall be determined using the equation shown here.

Where: Q<sub>r</sub> is the rated heat output (kW)



## SEALED SYSTEMS

**Note.** The method of filling, refilling, topping up or flushing sealed primary hot water circuit from the mains for a non-domestic property is shown below.



## EVOMAX 2 - 30 - 150kW

### GENERAL

- A.** The information and guidance given above is not intended to override any requirements of these publications or the requirements of the local authority, gas or water undertakings.
- B.** The installation should be capable of working with flow temperatures of up to 90°C and a temperature differential of up to 20°C.
- C.** All components of the system, including the heat exchanger of the indirect cylinder, must be suitable for a working pressure of 4 bar/58 psi and temperature of 110°C. Care should be taken in making all connections so that the risk of leakage is minimised.
- D.** The boiler is fitted with an automatic air vent, located in the left top side of the interior. This air vent must never be shut off, as this could result in dry firing of the boiler and subsequent damage to the heat exchanger.

### SAFETY VALVE

A spring loaded safety valve complying with the relevant requirements of BS EN ISO 4126-1 must be fitted in the flow pipe as close to the boiler as possible and with no intervening valve or restriction. The valve should have the following features:

- A.** A non-adjustable preset lift pressure not exceeding 4 bar /58 psi
- B.** A manual testing device.
- C.** Provision for connection of a discharge pipe. The valve or discharge pipe should be positioned so that the discharge of water or steam is visible, but will not cause hazard to user or plant.

### PRESSURE GAUGE

A pressure gauge covering at least the range 0-4bar must be fitted to the system. The gauge should be easily seen from the filling point and should preferably be connected at the same point as the expansion vessel.

### EXPANSION VESSEL

Expansion vessels used must comply with BS EN 13831 Connection to the system must not incorporate an isolating valve.

## FLOOR STANDING BOILERS

Particular reference should be made to:

- BS 6644:2011 *Specification for the installation and maintenance of gas-fired hot water boilers of rated inputs between 70 kW (net) and 1.8 MW (net) (2nd and 3rd family gases)*, BSI Standards Publication, November 2011
- INDG436 *Safe management of industrial steam and hot water boilers*, Health and Safety Executive, October 2011
- BG02 *Guidance on Safe Operation of Hot Water Boilers*, The Combustion Engineering Association and Safety Assessment Federation, May 2019

The information and guidance given below is not intended to override any requirements of either of the above publications or the requirements of the local authority, gas or water undertakings.

In general commercial closed pressurised systems are provided with either manual or automatic water make up. In both instances it will be necessary to fit automatic controls intended to protect the boiler, circulating system and ancillary equipment by shutting down the boiler plant if a potentially hazardous situation should arise.

Examples of such situations are low water level and operating pressure or excessive pressure within the system. Depending on circumstances, controls will need to be either manual or automatic reset. In the event of a shutdown both visual and audible alarms may be necessary.

Expansion vessels used must comply with BS EN 13831:2007 and must be sized on the basis of the total system volume and initial charge pressure.

Initial minimum charge pressure should not be less than detailed in the chart below and must take account of the static head and specification of the pressurising equipment.

BOILER RANGE	INITIAL MINIMUM CHARGE PRESSURE
Imax Xtra and Imax Xtra 2	0.5 bar / 7.2psi
Imax Xtra EL	1.2 bar / 15.0psi
Evomod	1.0 bar / 14.7 psi
Evojet	0.5 bar / 7.2psi

When make up water is not provided automatically it will be necessary to fit controls which shut down the plant in the event of the maximum system pressure approaching to within 0.35bar / 5psi of the safety valve setting.

Other British Standards applicable to commercial sealed systems are:

**BS 6880-2**

**BS EN 13076**

**BS EN 13077**

**BE EN 14451**

**BS EN 1567**

## VENTILATION

### OPEN FLUED APPLICATION

Safe, efficient, and trouble-free operation of conventionally flued gas boilers is vitally dependent on the provision of an adequate supply of fresh air to the room in which the appliance is installed.

Ventilation by grilles communicating directly with the outside air is required at both high and low levels. The minimum free areas of these grilles must be in accordance with BS 6644 or ICE UP10. The use of an extractor fan in the same room as the boiler (or in an adjacent room in communication) can, in certain conditions, adversely affect the safe operation of the boiler. Where such a fan is already fitted, or if an extractor fan is likely to be installed at a later date, then the advice of the gas supplier should be obtained.

### BS 6644 - Inputs greater than 70kW (net)

TOTAL GROSS INPUT RATING OF BOILERS	POSITION OF AIR VENTS	AIR VENT AREAS* (CM <sup>2</sup> ) (AIR DIRECT FROM OUTSIDE)	
		Boiler room	Enclosure
70kW to 1.8MW	High level	2	5
		4	10
70kW to 1.8MW	Low level	4	10
		4	10

\*Required area is cm<sup>2</sup> per kW of net input. Note: where a boiler installation is to operate in summer months (e.g. DHW) additional ventilation requirements are stated. If operating for more than 50% of time refer to BS 6644.

### BALANCED FLUE APPLICATIONS

Room sealed installations require no air from the boiler house for combustion as this is drawn direct from the outside atmosphere.

However, air may be required to ventilate the boiler house and remove any excess heat generated by the boiler (2cm<sup>2</sup> free area per kW net heat input at both high and low level BS 6644).

Imax Xtra boilers have an air inlet connection which may be used with proprietary ducting if required.

A separate flue connection is still required.

## WATER TREATMENT

### IMPORTANT

The application of any other treatment to this product may render the guarantee of Ideal Boilers Limited Invalid.

Ideal Heating recommend Water Treatment in accordance with the Benchmark Guidance Notes on Water Treatment in Central Heating Systems.

If water treatment is used Ideal Heating recommend only the use of Scalemaster Gold 100, Fernox, MB-1, Adey MC1, Sentinel-X100, CALMAG CM100 inhibitors and associated water treatment products, which must be used in accordance with the manufacturers' instructions.

### NOTES

1. It is most important that the correct concentration of the water treatment products is maintained in accordance with the manufacturers' instructions.
2. If the boiler is installed in an existing system any unsuitable additives MUST be removed by thorough cleansing. BS 7593 details the steps necessary to clean a domestic heating system.
3. In hard water areas, treatment to prevent lime scale may be necessary - however the use of artificially softened water is NOT permitted.
4. Under no circumstances should the boiler be fired before the system has been thoroughly flushed.

### For further information contact:

**Fernox Alent plc**  
Forsyth Road, Sheerwater, Woking,  
Surrey GU21 5RZ  
Tel: +44 (0) 870 601 5000

**Sentinel Performance Solutions**  
7560 Daresbury Park  
Daresbury, Warrington  
Cheshire WA4 4BS  
Tel: 0800 389 4670  
www.sentinelprotects.com

**Scalemaster Water Treatment Products**  
Emerald Way, Stone, Staffordshire  
ST15 0SR  
Tel: 01785 811636

**Calmag Ltd.**  
Riverview Buildings  
Bradford Road, Riddlesden,  
Keighley, West Yorkshire  
BD20 5JH  
Tel: +44 (0) 1535 210 320

**Adey Innovation Ltd**  
Unit 2, St Modwen Park, Haresfield,  
Stonehouse GL10 3EX  
Tel: +44 (0) 1242 546700

# COMMERCIAL RANGE OVERVIEW

## CONDENSING BOILERS



### EVOMAX 2

- Wall Hung
- Aluminium Alloy Heat Exchanger
- 30 - 150kW
- 30 - 120kW LPG



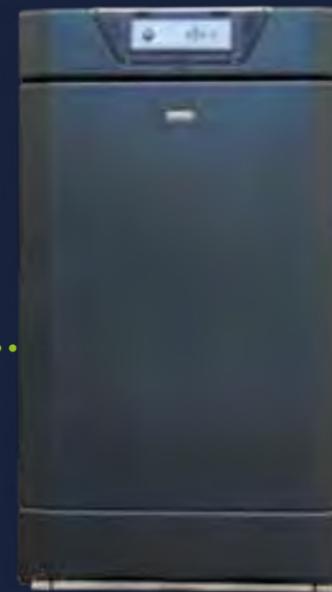
### EVO S

- Wall Hung
- Stainless Steel Heat Exchanger
- 50 - 135kW
- 50 - 95kW LPG



### IMAX XTRA 2

- Floor Standing
- Aluminium Alloy Heat Exchanger
- 80 - 280kW



### IMAX XTRA EL

- Floor Standing
- Aluminium Alloy Heat Exchanger
- 320 - 1240kW



### EVOMOD

- Floor Standing
- Stainless Steel Heat Exchanger
- Modular
- 250-1000kW



### EVOJET

- Floor Standing
- Stainless Steel Heat Exchanger
- 150 - 1450kW
- Condensing Pressure Jet
- Natural Gas, LPG, Oil or Dual Fuel

# POD

## HEAT INTERFACE UNIT BY IDEAL HEATING

### MADE WITH EVERYONE IN MIND

Created with our years of experience in creating domestic boilers, Pod combines the efficiency available from an HIU with the simplicity of use expected from a boiler. Available in Indirect and Direct models, there is a variant for every heat network.

Pod has been designed to look and work like a domestic boiler. It features a straightforward user interface and is easy to control via its OpenTherm compatibility. Also like a domestic boiler, it will fit in a kitchen cupboard.



### HEAT NETWORKS AND HEAT INTERFACE UNITS: A ROUTE TO DECARBONISATION

The need to reduce harmful greenhouse gas emissions is recognised across the world in response to global climate change. With the UK target to achieve Net Zero greenhouse gas emissions by 2050, both Government and customers are focused on a greener future.

There will not be one single technology to enable the UK to achieve its Net Zero target and a diverse range of solutions to decarbonise heat must be considered. These solutions must not only deliver reduced carbon emissions but do so in a way that affords stakeholders the least disruption as possible.

Heat networks, also known as district heating, are one of those solutions. They are energy agnostic; there are many options for the fuel that can be used in the energy centre, from natural gas to renewables and waste heat from other buildings or processes.

An energy centre creates hot water that is then shared via a distribution network. Heat Interface Units (HIUs) act as a conduit to take the energy from the distribution network into each dwelling. Heat networks can be as large as a whole city or as small as a block of flats but all reduce energy consumption and emissions.

# TRUSTED HEATING SOLUTIONS

## HERE FOR YOU

At Ideal Heating, we are committed to delivering the highest levels of customer service. With over a century of experience in the heating industry, we know how important confidence and trust is to our customers.

You can be confident to know that you're partnering with a British manufacturer that's supported by a dedicated national service team, delivering help and advice to you and your customers throughout the year.

### BOILER TRAINING

Our comprehensive one-day courses can be mixed and matched for individual installation and servicing companies. Each course uses a simple step-by-step approach with hands on training to ensure all aspects of commissioning, servicing, and fault finding can be dealt with quickly and efficiently.

### NEED HELP?

Get in touch with us today.

#### **TECHNICAL**

Tel: +44 (0) 1482 498376

Fax: +44 (0) 1482 498621

[commercial.services@idealboilers.com](mailto:commercial.services@idealboilers.com)

#### **SALES**

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# ideal

HEATING

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COMMERCIAL

Sales:

**0844 543 6060**

Technical Help:

**01482 498376**

PO Box 103, National Avenue,  
Kingston upon Hull, East Yorkshire, HU5 4JN,  
United Kingdom

#### APPROVAL

These appliances are certified to G.A.D. 90/396 and B.E.D. 92/42 Safety and Performance Directives for gas boilers. Ideal Heating pursues a policy of continuous improvement in design and performance of its products and reserves the right to vary specification without notice. Statutory rights of the consumer are not affected.

#### PLEASE NOTE:

The information in this brochure was correct at the time of going to print. Ideal Heating reserve the right to make any modifications to product specifications or any other details, without prior notification. For further clarification, please enquire in writing to the head office address (address above).

