



# INDEPENDENT HEAT CONDENSING BOILER

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 Heating is one of the few true British manufacturers left in the heating industry.



**ideal**  
HEATING

COMMERCIAL

- 4 - 8 Independent Heat  
40 - 150kW
- 9 - 25 Independent Heat Cascade  
40 - 900kW
- 26 - 36 Independent Heat  
Flue Options
- 37 - 39 Notes



British  
Built



Industry  
Trusted

# INDEPENDENT HEAT

## 40 - 150kW

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



Wall Hung



Cascade control



NOx  
Class 6



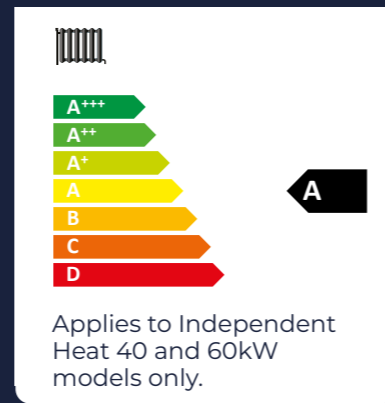
Flueing  
options



Part L  
2022

### FEATURES & BENEFITS

- 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
- Fully compatible with all Evomax 2 accessories
- 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



### DIMENSIONS & CLEARANCES

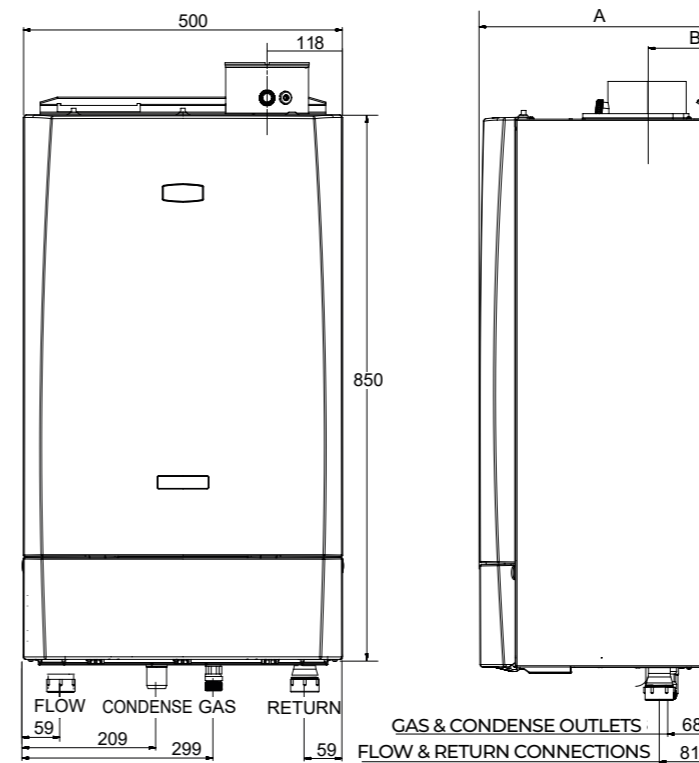
BOILER	DIM A	DIM B
40, 60, 80	360	130
100, 120	520	226
150	610	233

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

### INDEPENDENT HEAT 40 - 150kW (Natural Gas)

MODEL			40	60	80	100	120	150
Boiler Output (non-condensing) Mean 70°C	Max	kW	40	60	80	100	120	150
	Min	kW	8	12	16	20	24	30
Boiler Output (condensing) Mean 40°C	Max	kW	42.0	63.5	84.4	103.9	124.7	158
	Min	kW	8.5	12.7	17.2	21.6	26.0	32.5
Boiler Input Max Rate	Net	kW	40.5	60.8	82.0	102.4	122.9	153.7
	Gross	kW	44.9	67.4	90.9	113.6	136.4	170.5
Boiler Input Min Rate	Net	kW	8.1	12.2	16.4	20.5	24.6	30.7
	Gross	kW	9.0	13.5	18.2	22.7	27.3	34.1
Gas Rate	Max rate	m³/hr	4.3	6.4	8.7	10.8	13.0	16.2
Flue Gas Flow Rate	Max Rate	m³/hr	54.05	80.65	110.10	140.50	173.33	210.70
CO <sub>2</sub> (±0.5%)	Max Rate	%	10.20	9.40	9.30	9.40	9.62	9.44
	Min Rate	%	8.60	8.60	8.70	8.60	8.98	8.51
NOx with O <sub>2</sub> = 0% (gross)	Weighted	mg/kWh	33.2	35.2	34.9	34.8	33.9	35.7
Efficiency	Seasonal	%	96.2	96.4	97.2	96.7	96.6	96.7
	*SEDBUK 2009	%	89.3	89.4	n/a	n/a	n/a	n/a
Operating Temperature Sealed (Open)	Max	°C	85 (82)					

### INDEPENDENT HEAT 40 - 80kW (LPG)

MODEL			40P	60P	80P
Boiler Output (non-condensing) Mean 70°	Max	kW	40	60	80
	Min	kW	8	12	16
Boiler Output (condensing) Mean 40°C	Max	kW	41.2	62.1	82.6
	Min	kW	8.3	12.4	16.8
Boiler Input Max Rate	Net	kW	40.5	60.7	81.9
	Gross	kW	44	66	88.9
Boiler Input Min Rate	Net	kW	8.1	12.0	16.2
	Gross	kW	8.8	13.1	17.5
Gas Rate	Max rate	m³/hr	1.69	2.53	3.41
Flue Gas Flow Rate	Max Rate	m³/hr	61.68	88.66	121.57
CO <sub>2</sub> (±0.5%)	Max Rate	%	11.2	11.4	11.4
	Min Rate	%	9.7	10.2	10.8
NOx with O <sub>2</sub> = 0% (gross)	Weighted	mg/kWh	64.4	67.7	63.2
Efficiency	Seasonal	%	96.7	96.9	97.7
	*SEDBUK 2009	%	90.3	90.5	n/a
Operating Temperature Sealed (Open)	Max	°C	85 (82)		

## GENERAL DATA

### INDEPENDENT HEAT 40 - 150kW (Natural Gas & LPG)

MODEL		40/40P	60/60P	80/80P	100	120	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	61					
Electricity Supply		230V - 50Hz					
Fuse Rating	A	4.0					
Power Consumption	W	81	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 Power Level	dBA	57.7	59	59.9	62	62	59

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

### INCLUDED AS STANDARD

BOILER	INDEPENDENT HEAT
Remote indication (run & 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 EVOMAX 2 KITS FOR INDEPENDENT HEAT

BOILER	INDEPENDENT HEAT
Multi boiler frame & header kits (see pages 9-16)	✓
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	✓



## 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	25°C	30°C	11°C	15°C	20°C	25°C	30°C
Independent Heat 40 / 40P	52.1	38.2	23.9	19.1	875	405	225	163	100
Independent Heat 60 / 60P	78.2	57.3	35.9	28.7	435	180	83	57	30
Independent Heat 80 / 80P	104.2	76.4	47.8	38.2	750	420	180	125	70
Independent Heat 100	N/A	95.6	59.8	47.8	N/A	315	134	97	60
Independent Heat 120	N/A	N/A	71.7	57.3	N/A	N/A	218	149	80
Independent Heat 150	N/A	N/A	89.6	71.7	N/A	N/A	230	158	85

- 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 & SLAVE KITS

Enables cascade control from Independent Heat 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 Independent Heat 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.

# INDEPENDENT HEAT CASCADE

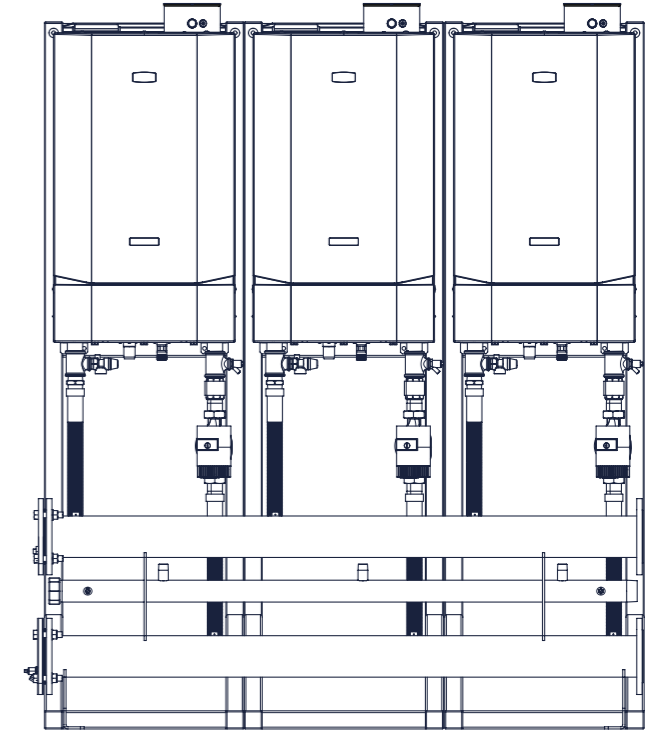
## Frame and Header Kits

For installations requiring more output delivered in a flexible way, up to 6 Independent Heat boilers can be installed in a cascade using Evomax 2 accessories.

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.



Cascade control



### 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, Magentic 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 FOR INDEPENDENT HEAT

## Frame and header Accessories

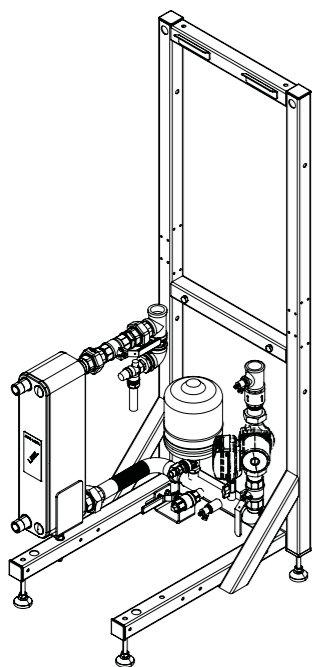
CHOOSE A FRAME KIT
<p><b>Standard Height</b> Up to 6 boilers 206970</p> <p>1 frame required per boiler i.e. a 6 boiler cascade requires 6 frames</p>
<p><b>Low Height Inline</b> Up to 4 boilers Included with Low Height Header Kit</p>

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

EVOMAX 2 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 Evomax 2 boiler and boiler pump to be added.



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

CHOOSE HYDRAULIC SEPARATION
<p><b>Low Loss / Mixing Header</b></p> <p>DN50 209394</p> <p>DN65 209395</p> <p>DN80 219552</p> <p>DN100 219553</p> <p>DN150 219554</p>
<p><b>Magnetic Low Loss / Mixing Header (MLLH)</b></p> <p>DN50 222191</p> <p>DN65 222192</p> <p>DN80 222193</p> <p>DN100 222194</p>
<p><b>Plate Heat Exchanger</b></p> <p>Up to 60kW nominal output (DN50) 222219 Insulation Kit - 234443</p> <p>Up to 60kW nominal output (DN65) 222993 Insulation Kit - 234443</p> <p>Up to 60kW nominal output (DN80) 222220 Insulation Kit - 234444</p> <p>Up to 150kW nominal output (DN50) 222221 Insulation Kit - 234445</p> <p>Up to 150kW nominal output (DN65) 222994 Insulation Kit - 234445</p> <p>Up to 150kW nominal output (DN80) 222222 Insulation Kit - 234446</p> <p>Up to 300kW nominal output (DN65) 222223 Insulation Kit - 234447</p> <p>Up to 300kW nominal output (DN80) 222225 Insulation Kit - 234447</p> <p>Up to 300kW nominal output (DN100) 222995 Insulation Kit - 234448</p> <p>Up to 450kW nominal output (DN80) 222226 Insulation Kit - 234449</p> <p>Up to 450kW nominal output (DN100) 222996 Insulation Kit - 234449</p> <p>Up to 600kW nominal output (DN100) 222227 Insulation Kit - 234450</p> <p>Up to 750kW nominal output (DN100) 222228 Insulation Kit - 234451</p> <p>Up to 900kW nominal output (DN100) 222229 Insulation Kit - 234454</p>

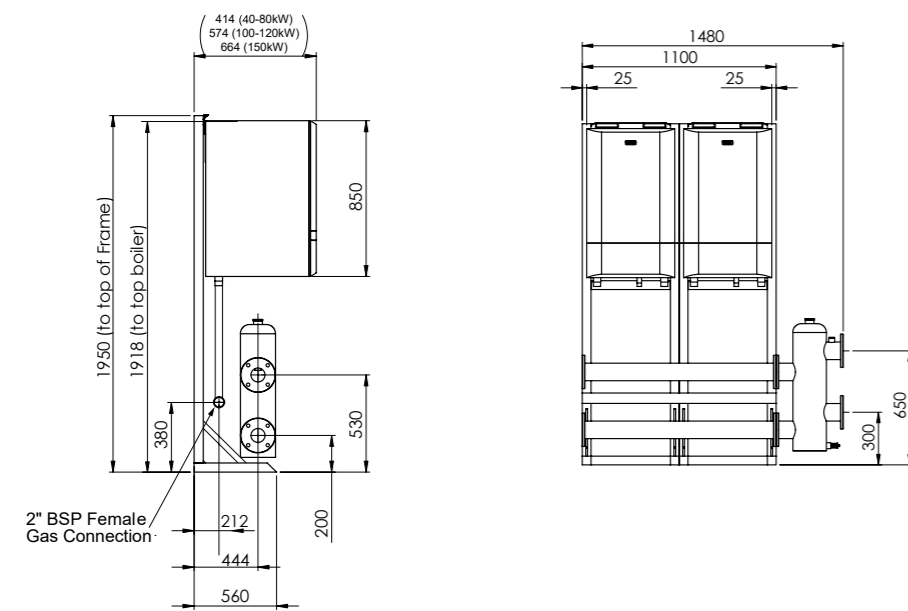
CHOOSE PUMPS
<p><b>Low Loss / Mixing Header Chosen</b></p> <p>Grundfos UPML (M)LLH Pump Kit 222659</p>
<p><b>Plate Heat Exchanger Chosen</b></p> <p>Grundfos UPMXXL PHEX Pump Kit 222660</p> <p>1 pump required per boiler i.e. a 6 boiler cascade requires 6 pumps</p>
<p><b>No Separation Chosen</b></p> <p>Grundfos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

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

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

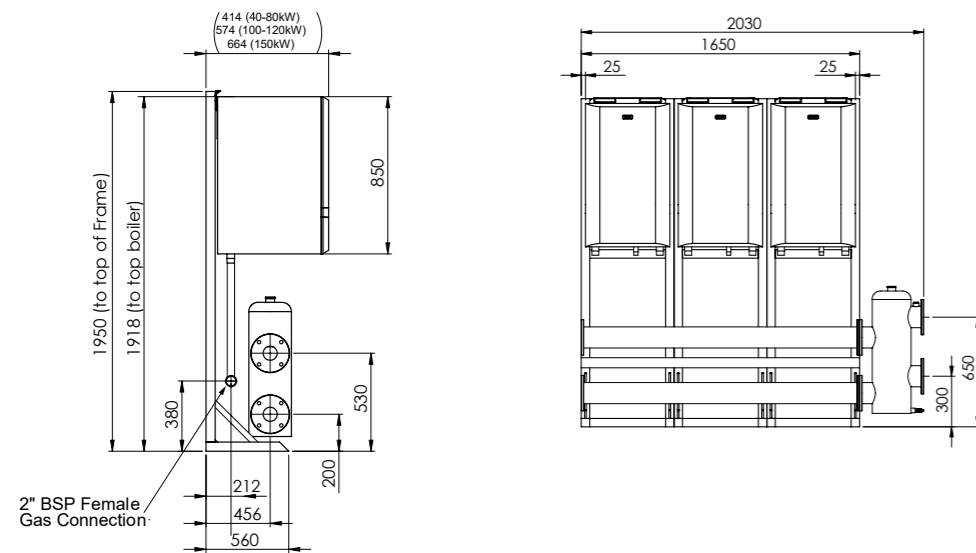
## STANDARD HEIGHT INLINE CASCADES

### 2 X INDEPENDENT HEAT



UIN	DN FLANGE SIZE	SUITABLE FOR
219542	DN80	2 x Independent Heat boilers, 40 – 100kW with PHEX or (M)LLH separation
219547	DN100	2 x Independent Heat boilers, 120 & 150kW with PHEX or (M)LLH separation

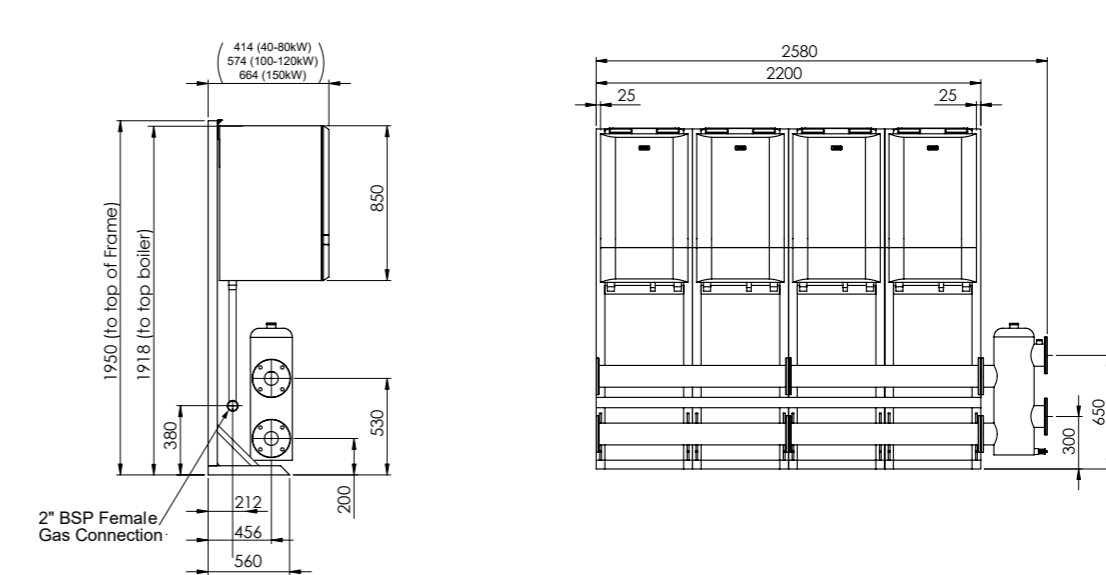
### 3 X INDEPENDENT HEAT



UIN	DN FLANGE SIZE	SUITABLE FOR
219543	DN80	3 x Independent Heat boilers, 40 – 100kW with PHEX or (M)LLH separation
219547	DN100	3 x Independent Heat boilers, 120 & 150kW with PHEX or (M)LLH separation

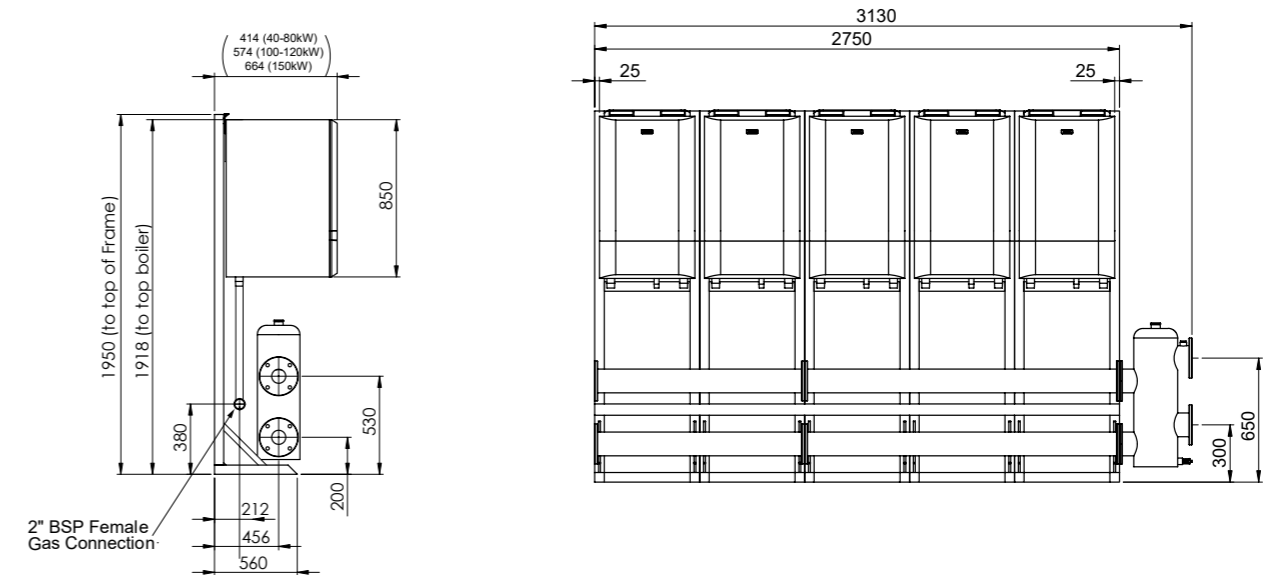
## STANDARD HEIGHT INLINE CASCADES

### 4 X INDEPENDENT HEAT



UIN	DN FLANGE SIZE	SUITABLE FOR
219549	DN100	4 x Independent Heat boilers, 40 – 150kW with PHEX or (M)LLH separation

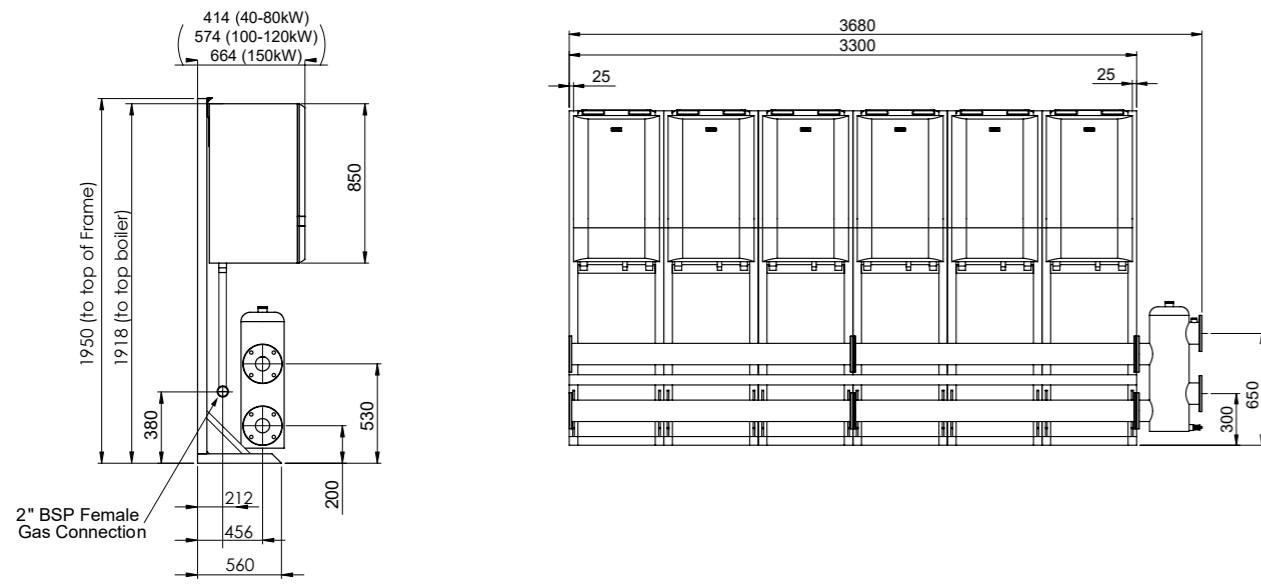
### 5 X INDEPENDENT HEAT



UIN	DN FLANGE SIZE	SUITABLE FOR
219545	DN100	5 x Independent Heat boilers, 40 – 150kW with PHEX separation 5 x Independent Heat boilers, 40 – 100kW with (M)LLH separation
219547	DN150	5 x Independent Heat boilers, 120 & 150kW with LLH separation

## STANDARD HEIGHT INLINE CASCADES

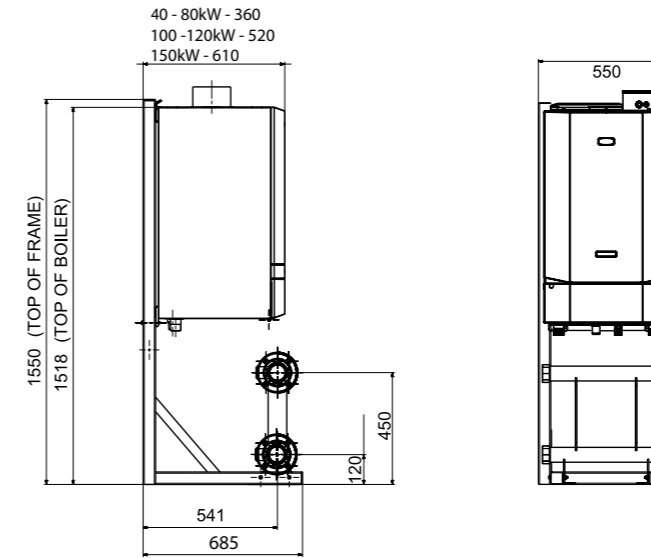
### 6 X INDEPENDENT HEAT



UIN	DN FLANGE SIZE	SUITABLE FOR
219546	DN100	6 x Independent Heat boilers, 40 – 150kW with PHEX separation 6 x Independent Heat boilers, 40 – 100kW with (M)LLH separation
219551	DN150	6 x Independent Heat boilers, 120 & 150kW with LLH separation

## LOW HEIGHT INLINE CASCADES

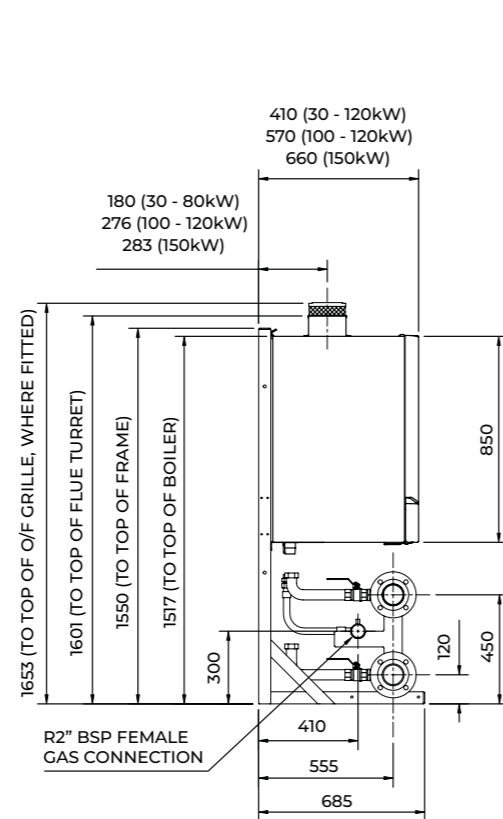
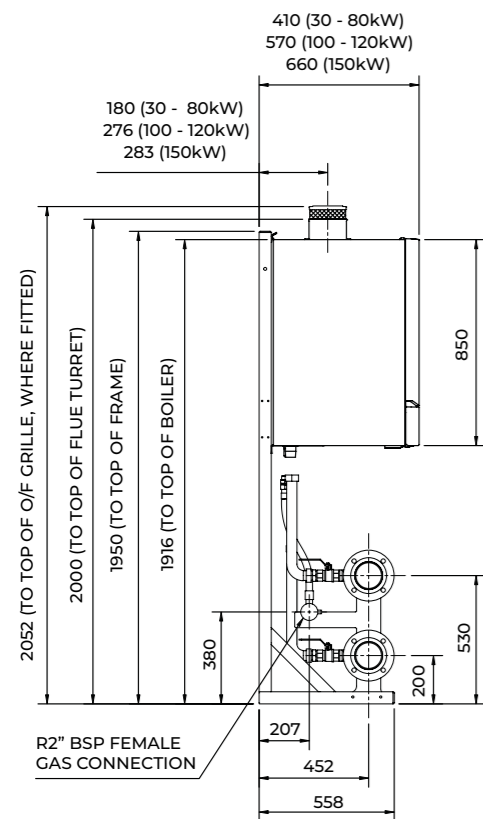
### 1 X INDEPENDENT HEAT



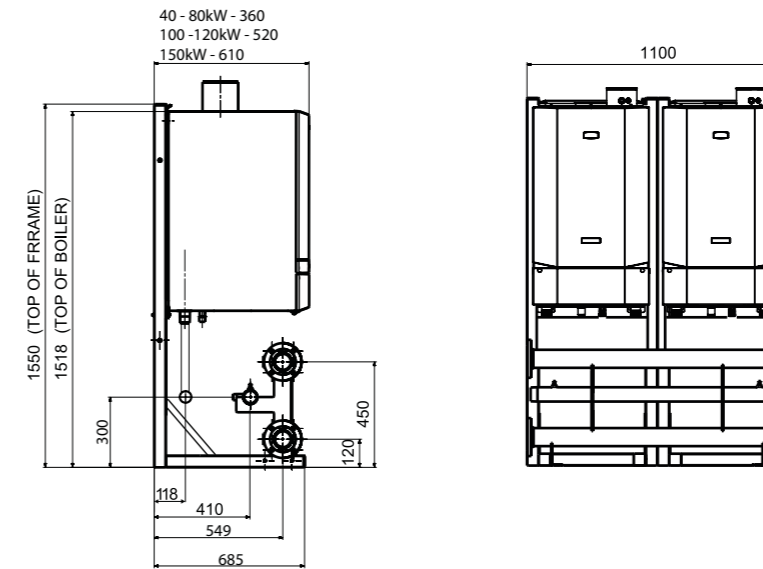
UIN	DN FLANGE SIZE	SUITABLE FOR
221127	DN50	1 x Independent Heat boiler, 40 – 150kW with PHEX or (M)LLH separation

## STANDARD HEIGHT

## LOW HEIGHT



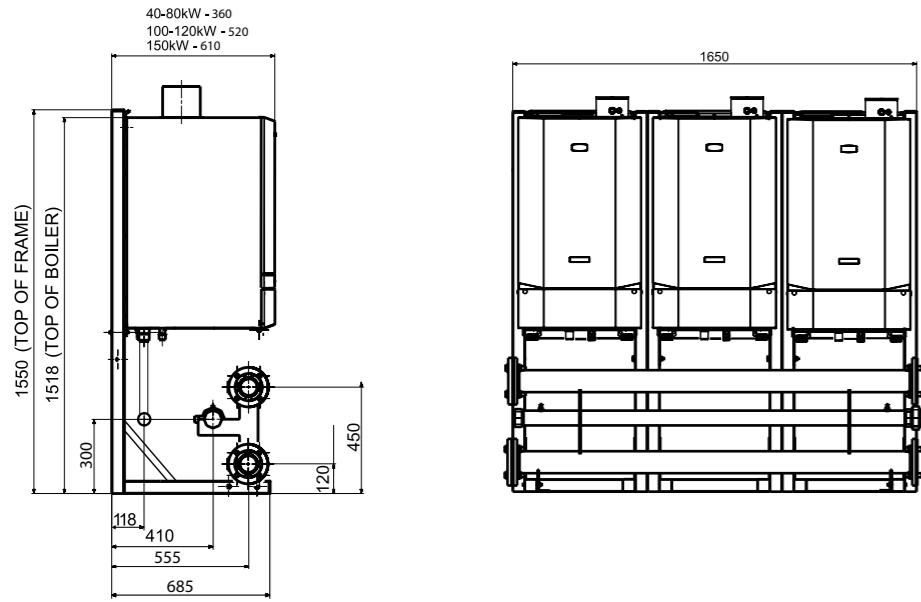
### 2 X INDEPENDENT HEAT



UIN	DN FLANGE SIZE	SUITABLE FOR
221128	DN65	2 x Independent Heat boilers 40 – 150kW with PHEX or (M)LLH separation

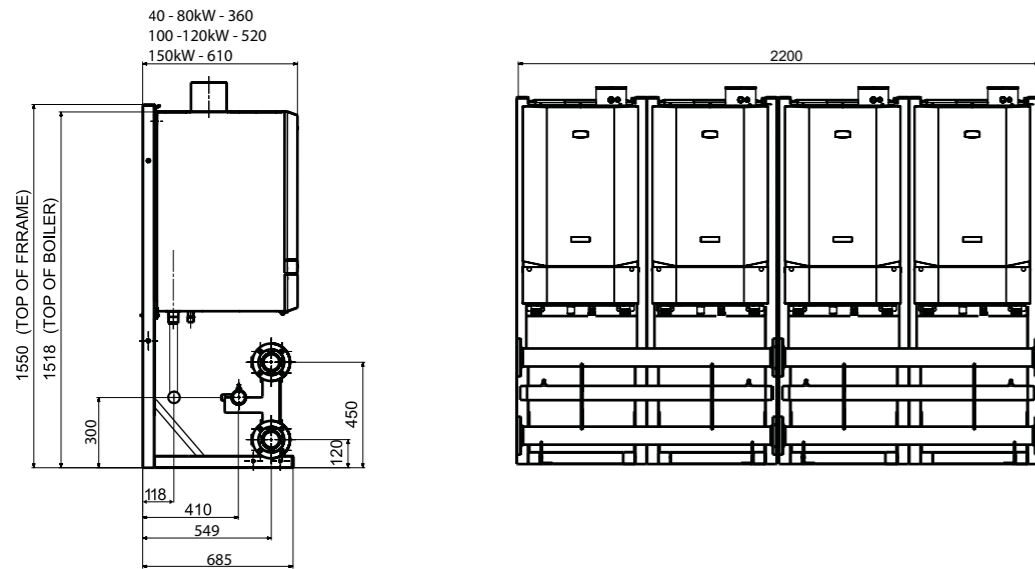
## LOW HEIGHT INLINE CASCADES

### 3 X INDEPENDENT HEAT



UIN	DN FLANGE SIZE	SUITABLE FOR
221129	DN80	3 x Independent Heat boilers, 40 – 150kW with PHEX or (M)LLH separation

### 4 X INDEPENDENT HEAT



UIN	DN FLANGE SIZE	SUITABLE FOR
219561	DN100	4 x Independent Heat boilers, 40 – 150kW with PHEX or (M)LLH separation

Note: all flanges on boiler headers are PN6

## HYDRAULIC SEPARATION

Ideal Heating offer various solutions to hydraulic separation

### PLATE HEAT EXCHANGER



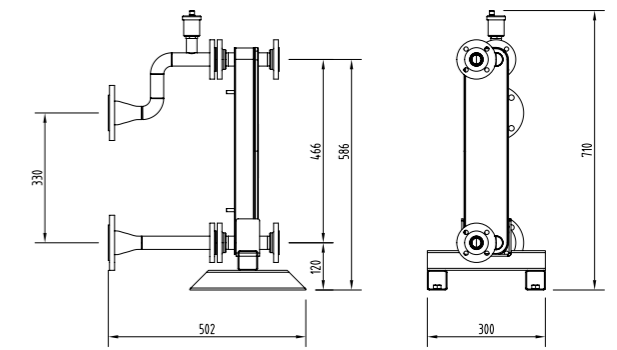
Covering outputs of 60, 150, 300, 450, 600, 750 and 900kW. Brazed Plate Heat Exchangers ensure optimum heat transfer efficiency and low resistance within a compact footprint. To be used with Ideal Heating Frame and Header kits.

#### FEATURES & BENEFITS

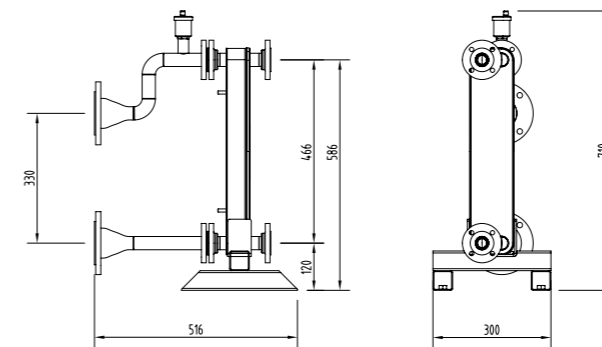
- Compact design
- No gaskets
- Low maintenance and self-cleaning
- All units are pressure tested
- To be used with Ideal Heating Frame and Header kits
- Ensures optimal heat transfer efficiency and pressure resistance
- Separates system water from the boiler
- Ensures the highest performance for longest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

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

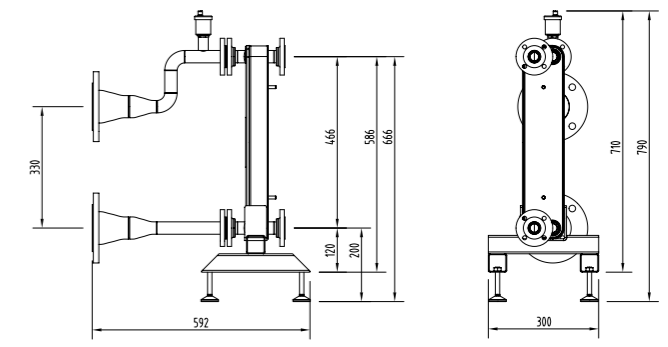
UIN	DN FLANGE SIZE
222219	DN50
222993	DN65
222220	DN80



222219 DN50



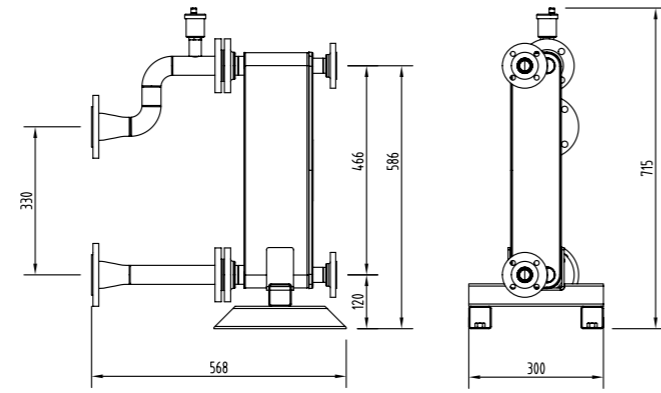
222993 DN65



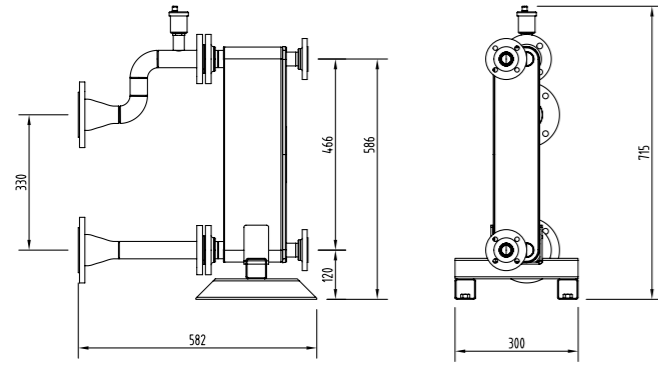
222220 DN80

UP TO 150KW TOTAL OUTPUT  
PLATE HEAT EXCHANGER

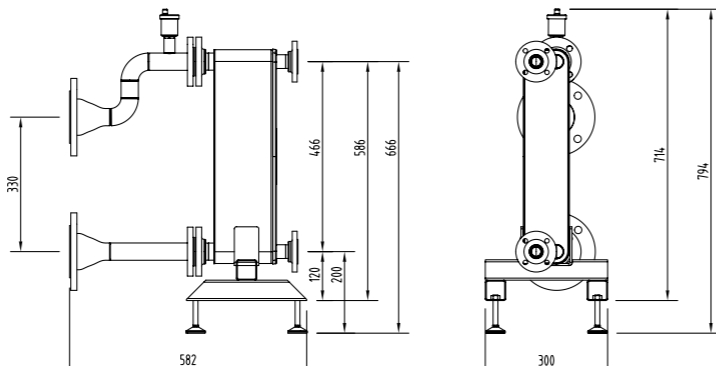
UIN	DN FLANGE SIZE
222221	DN50
222994	DN65
222222	DN80



222221 DN50



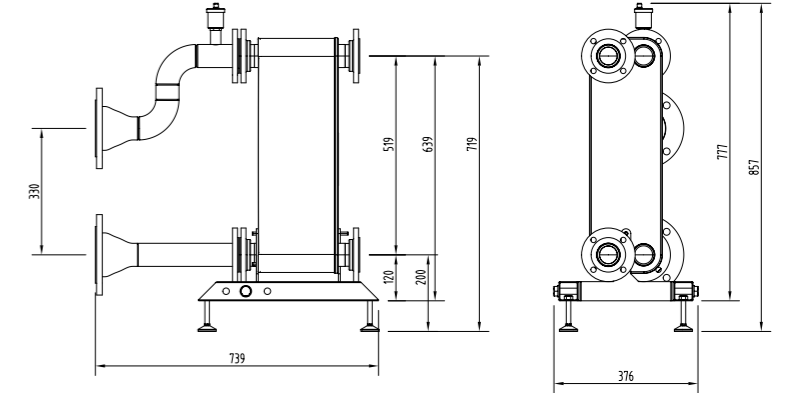
222222 DN80



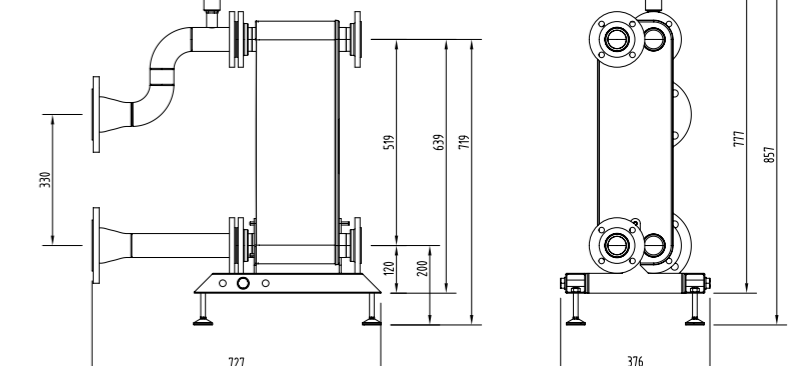
222994 DN65

UP TO 450KW TOTAL OUTPUT  
PLATE HEAT EXCHANGER

UIN	DN FLANGE SIZE
222226	DN80
222996	DN100



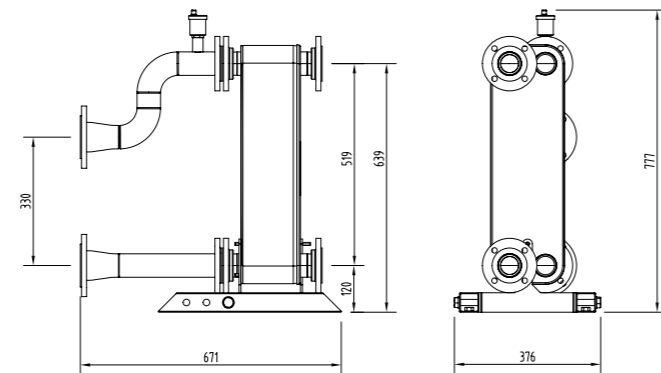
222226 DN80



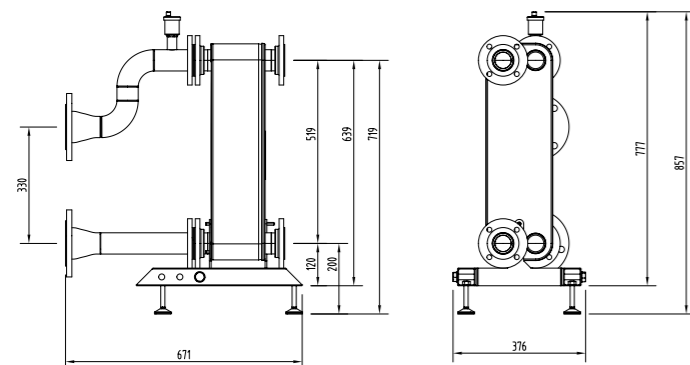
222996 DN100

UP TO 300KW TOTAL OUTPUT  
PLATE HEAT EXCHANGER

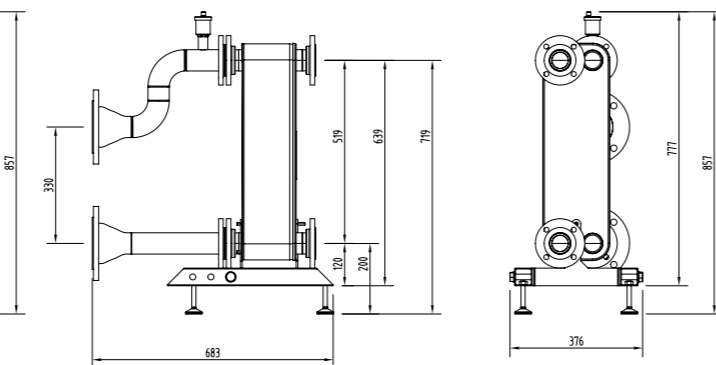
UIN	DN FLANGE SIZE
222223	DN65
222225	DN80
222995	DN100



222223 DN65



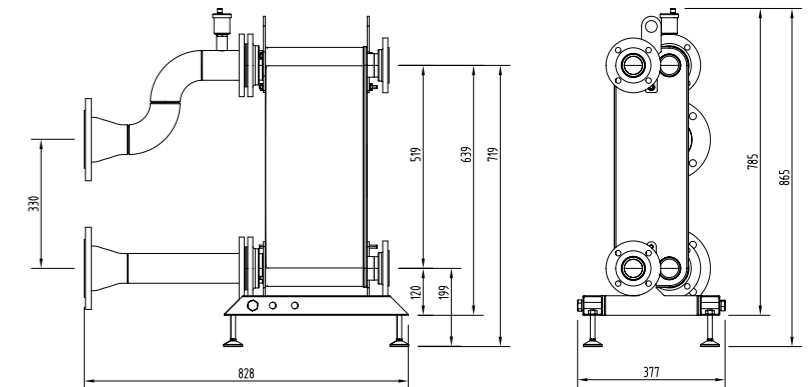
222225 DN80



222995 DN100

UP TO 600KW TOTAL OUTPUT  
PLATE HEAT EXCHANGER

UIN	DN FLANGE SIZE
222227	DN100

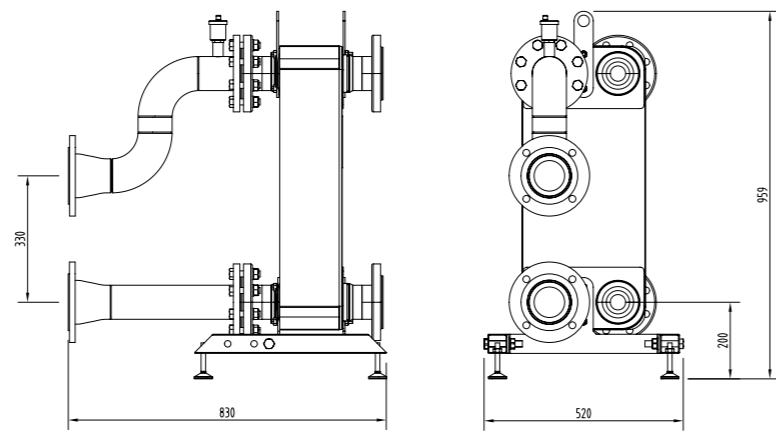


222227 DN100



UP TO 750KW TOTAL OUTPUT  
PLATE HEAT EXCHANGER

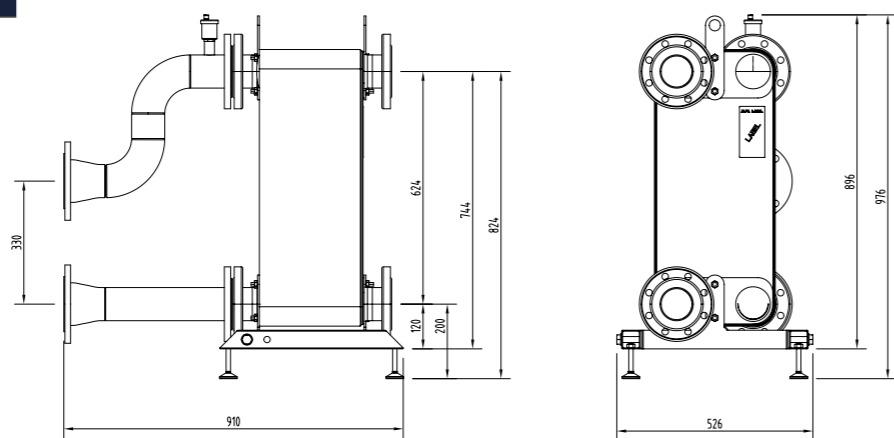
UIN	DN FLANGE SIZE
222228	DN100



222228 DN100

UP TO 900KW TOTAL OUTPUT  
PLATE HEAT EXCHANGER

UIN	DN FLANGE SIZE
222229	DN100



222229 DN100

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

MAGNETIC LOW LOSS HEADER

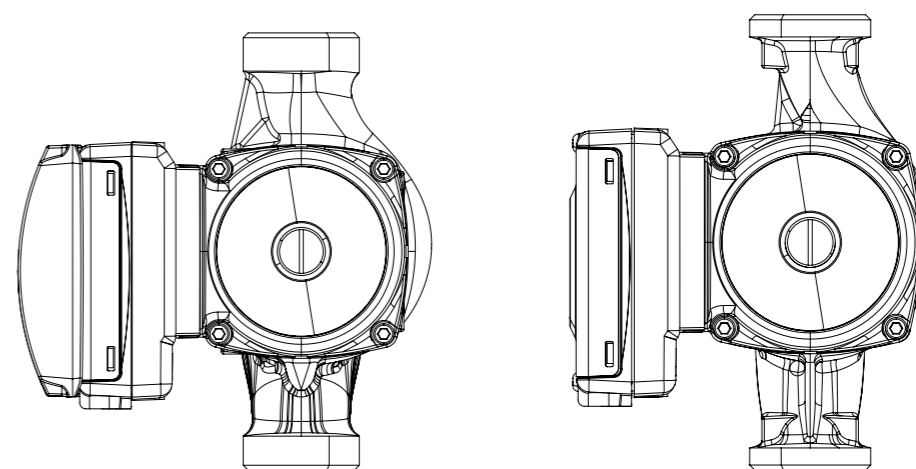
UIN	DN FLANGE SIZE
222191	DN50
222192	DN65
222193	DN80
222194	DN100

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

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.

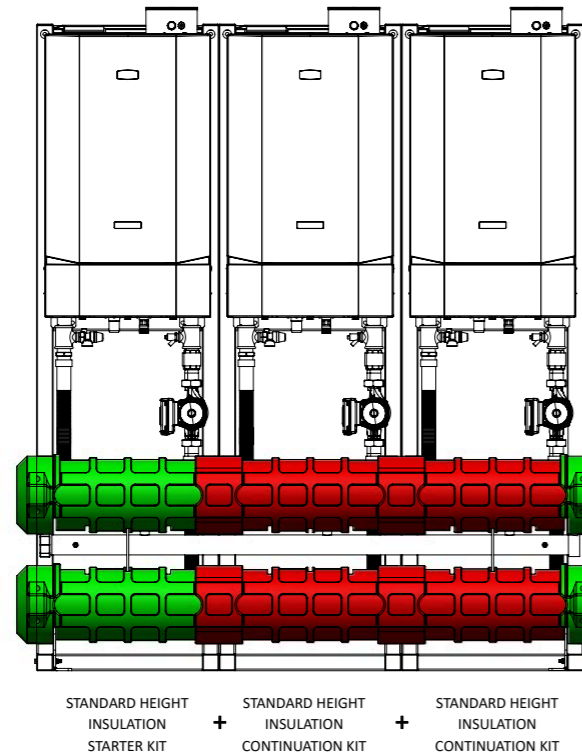


## INSULATION

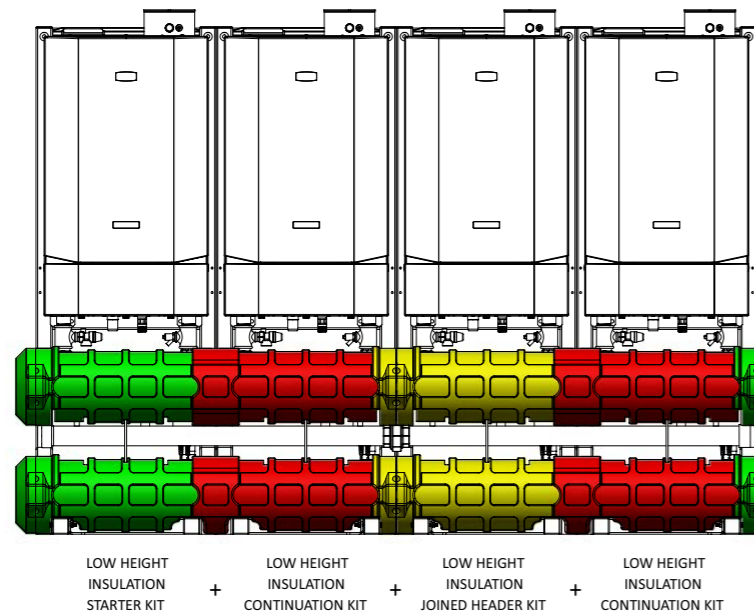
Header kits and Low Loss Headers can be insulated using our robust expanded polypropylene modular insulation range. Insulation is also available for 222659 Grundfos UPML (M)LLH Pump Kit.

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

### DN100 STANDARD HEIGHT IN-LINE HEADER



### DN80 LOW HEIGHT 4 IN-LINE HEADER



### INSULATION FOR STANDARD HEIGHT INLINE 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 & DN100	-	-	1	1
223036	Standard Height Insulation Continuation Kit DN65	-	1	-	-
223039	Standard Height Insulation Continuation Kit DN80 & DN100	-	-	2	2
223040	Standard Height Insulation Joined Header Kit DN80 & 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

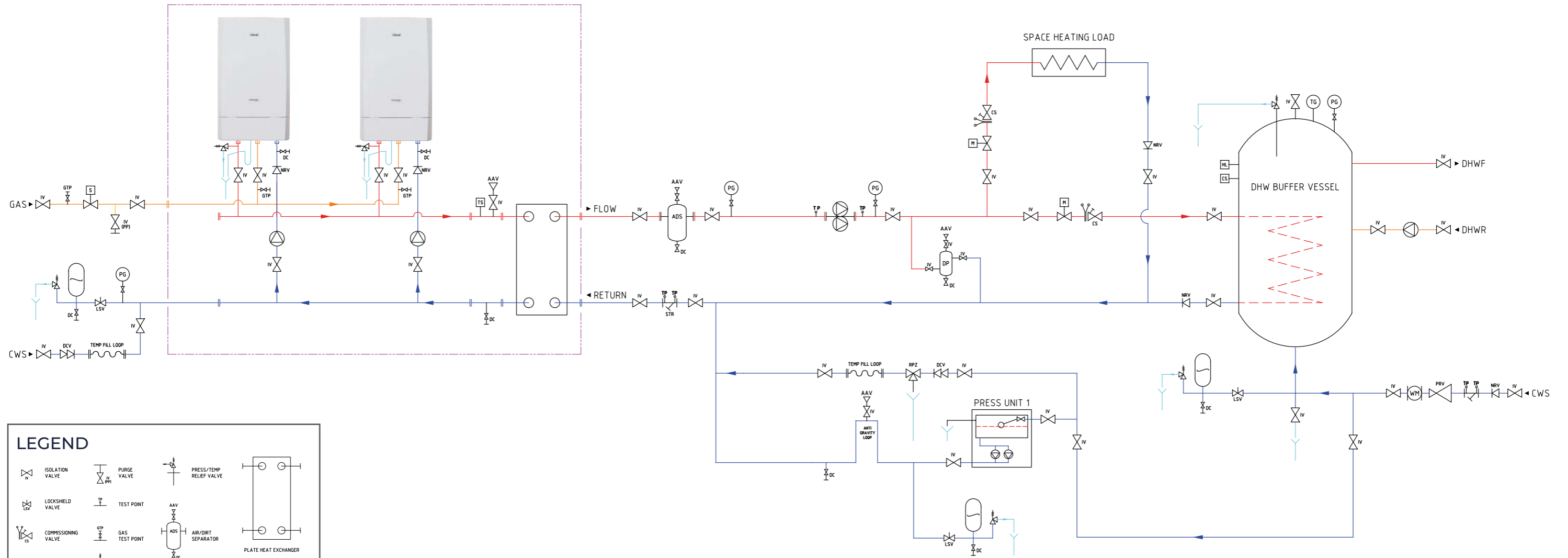
### INSULATION FOR PUMPS

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

### INDEPENDENT HEAT FRAME & HEADER KIT C/W PLATE HEAT EXCHANGER



LEGEND			

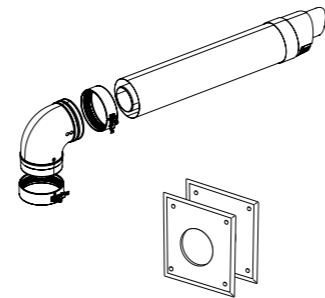
Note: this schematic is an illustration of a hydraulic arrangement for discussion and reference use only.

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.

# CONCENTRIC FLUE OPTIONS (C TYPE)

## HORIZONTAL WALL FLUE KIT

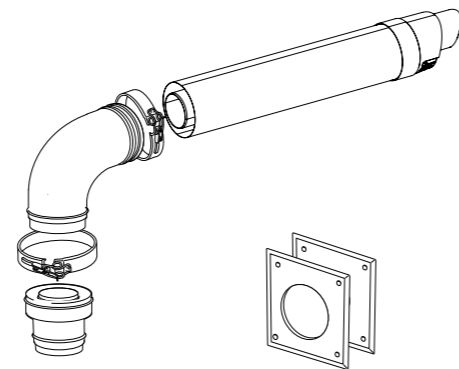
EVOMAX 2 HORIZONTAL CONCENTRIC FLUE APPLICATION ~ MAXIMUM LENGTHS AND PRESSURE DIFFERENTIALS						
Model	40/40P	60/60P	80/80P	100	120	150
Max flue length (m)	30	17.5	10	10	9	6
Flue Size	80/125			100/150		
Wall flue kit No	220919			220921		



### CONTENTS

- 90° elbow
- Terminal
- Locking collars (x2)
- Wall plates (x2)

EVOMAX 2 60 & 80 HORIZONTAL CONCENTRIC FLUES OF LONGER LENGTHS (LARGER FLUE DIAMETER)		
Model	60/60P	80/80P
Max flue length (m)	28	18
Flue Size	100/150	
Wall flue kit No	220920	



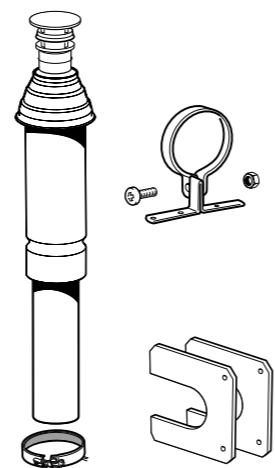
### CONTENTS

- Increaser
- 90° elbow
- Terminal
- Locking collars (x2)
- Wall plates (x2)

To comply with CE certification, Evomax boilers must be fitted with Ideal concentric flues (when using concentric flue type).

## VERTICAL ROOF FLUE KIT

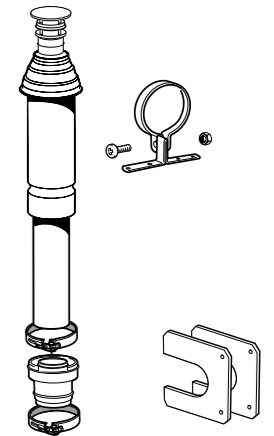
EVOMAX 2 VERTICAL CONCENTRIC FLUE APPLICATION ~ MAXIMUM LENGTHS AND PRESSURE DIFFERENTIALS						
Model	40/40P	60/60P	80/80P	100	120	150
Max flue length (m)	30	17.5	10	10	9	6
Flue Size	80/125			100/150		
Wall flue kit No	220915			220918		



### CONTENTS

- Terminal
- Locking Collar
- Finishing plates (x2)
- Bracket

EVOMAX 2 60 & 80 VERTICAL CONCENTRIC FLUES OF LONGER LENGTH		
Model	60/60P	80/80P
Max flue length (m)	28	18
Flue Size	100/150	
Wall flue kit No	220916	



### CONTENTS

- Increaser
- Terminal
- Locking Collars (x2)
- Finishing plates (x2)
- Bracket

# OPEN FLUE OPTIONS (B TYPE)

EVOMAX 2 VERTICAL CONCENTRIC FLUE APPLICATION ~ MAXIMUM LENGTHS AND PRESSURE DIFFERENTIALS						
Model	40/40P	60/60P	80/80P	100	120	150
Max flue length (m)	70	25	15.3	20	49	32
Max flue press diff (Pa)	227	146	312	220	473	332
Flue Size	80/125			100/150		
Wall flue kit No	221216 + 158771 + 158769			221218 + 158772 + 158770		



### CONTENTS

- 221216 / 221218
- Air inlet grille\*
- 158769 / 158770
- Terminal
- 158771 / 158772
- Extension tube (x2)\*\*

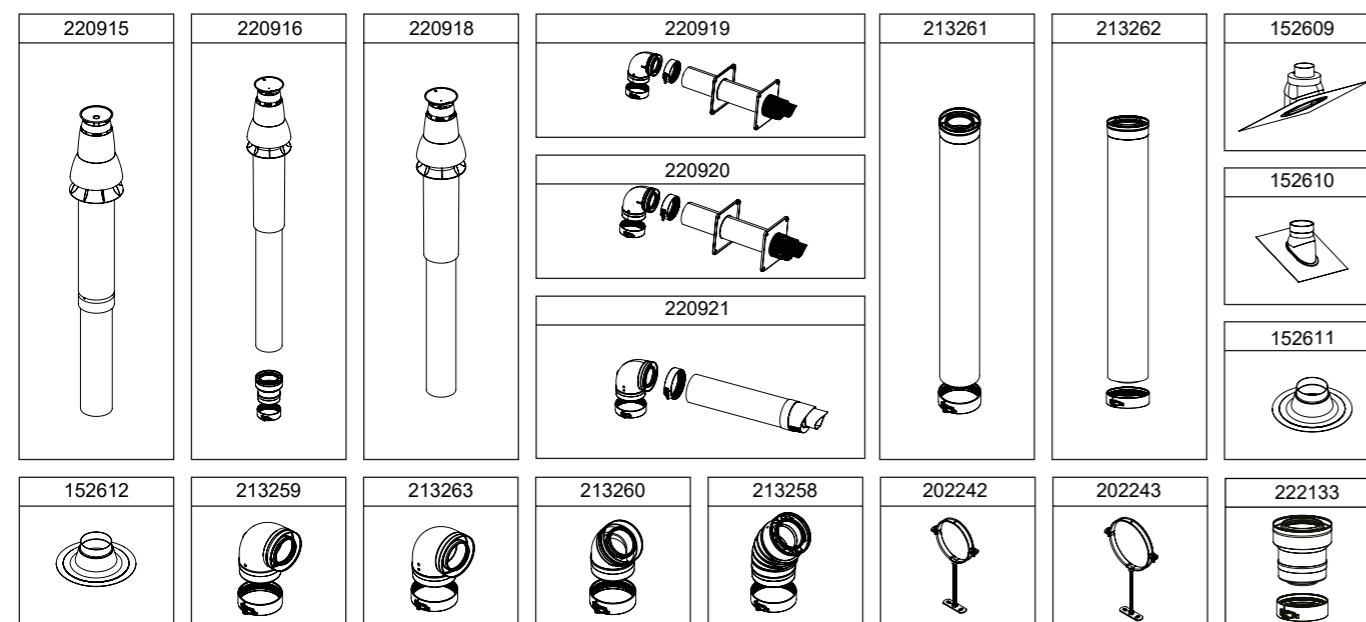
\* The air inlet grille must be fitted to all installations.

\*\* At least 1 off extension tube MUST be used in the installation. This may be suitably cut to length if required.

## FLUE KIT ACCESSORIES

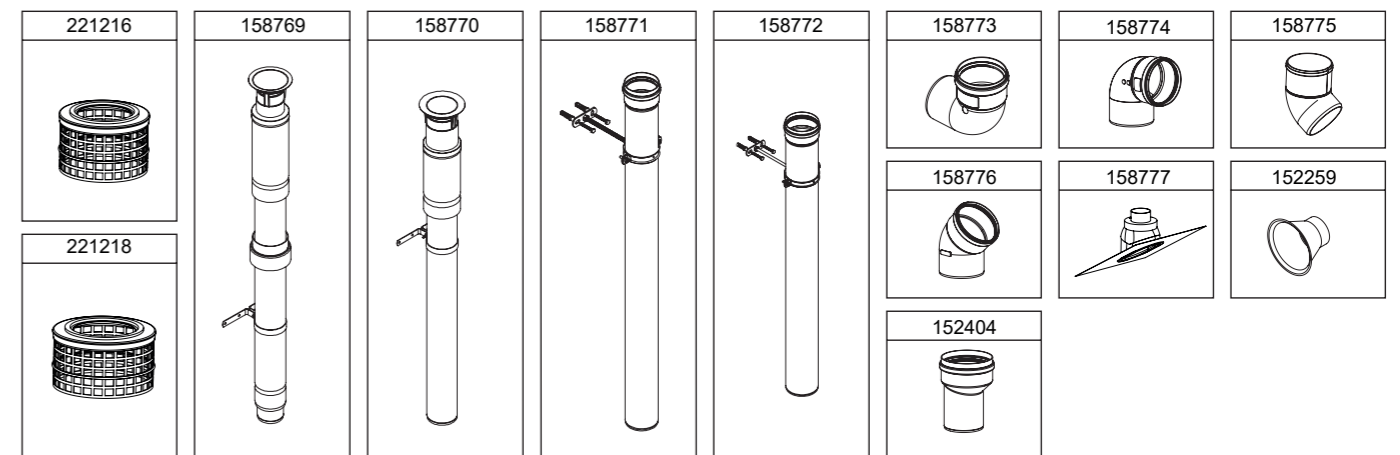
FLUE KITS - CONCENTRIC	UIN
Vertical Roof Flue Kit 80/125 (30 - 80kW)	220915
Vertical Roof Flue Kit 100/150 (60 & 80kW)	220916
Vertical Roof Flue Kit 100/150 (100 - 150kW)	220918
Horizontal Wall Flue Kit 80/125 (30 - 80kW)	220919
Horizontal Wall Flue Kit 100/150 (60 & 80kW)	220920
Horizontal Wall Flue Kit 100/150 (100 & 120kW)	220921
Extension Kit 80/125	213261
Extension Kit 100/150	213262
Pitched Weather Collar 80/125	152609
Pitched Weather Collar 100/150	152610
Flat Weather Collar 80/125	152611
Flat Weather Collar 100/150	152612
90° Elbow 80/125 (single)	213259
90° Elbow 100/150 (single)	213263
90° Elbow 80/125 (Extended)	222004
90° Elbow 100/150 (Extended)	222005
45° Elbow 80/125 (single)	213260
45° Elbow 100/150 (single)	213258
Wall Bracket 125mm	202242
Wall Bracket 150mm	202243
Expander 80/125 - 100/150	222133

## FLUE KITS - CONCENTRIC



FLUE KITS - OPEN FLUE	UIN
Open Flue Kit 80	221216
Open Flue Kit 100	221218
Vertical Flue Terminal 80	158769
Vertical Flue Terminal 100	158770
Extension Pipes 80 (pair)	158771
Extension Pipes 100 (pair)	158772
90° Elbow 80 (single)	158773
90° Elbow 100 (single)	158774
45° Elbow 80 (pair)	158775
45° Elbow 100 (pair)	158776
Pitched Weather Collar 80 & 100	158779
Flat Weather Collar 80 & 100	152259
Increaser 80-100	152404

## FLUE KITS - OPEN FLUE



# FLUE RESISTANCES

## Flue Systems

For concentric flue systems with elbows fitted, use the table to correct the maximum flue extension capability. Alternatively use the table to design the flue system, deducting the individual resistance of components from the maximum pressure drop allowed in the flue for that boiler. The maximum pressure drop allowed in the flue is given below.

### PERMISSIBLE FLUE LENGTH

The maximum permissible flue lengths for each model are shown in Table 1 below, these lengths are inclusive of the terminal resistance. The value shown is the maximum available length for extension. The equivalent length of elbows is shown in Table 2.

TABLE 1

MAX PERMISSIBLE EQUIVALENT FLUE LENGTH (INC TERMINAL RESISTANCE) METRES				
Flue Size	CONCENTRIC		OPEN FLUE	
	80/125	100/150	80	100
Model				
40/40P	30	-	70	-
60/60P	17.5	28	25	-
80/80P	10	18	15.3	-
100	-	10	-	20
120	-	9	-	49
150	-	6	-	32

TABLE 2

Size	EQUIVALENT LENGTH OF ELBOWS (METRES)			
	CONCENTRIC		OPEN FLUE	
	80/125	100/150	80	100
45°	0.85	1.25	0.45	0.60
90°	1.6	1.9	1.0	1.0

EXAMPLES OF FLUE LENGTH CALCULATION							
MODEL	FLUE TYPE	MAX PERMISSIBLE EQUIVALENT LENGTH (TABLE 1)	ELBOWS			TOTAL EQUIVALENT LENGTH	MAX PERMISSIBLE STRAIGHT LENGTH
			TYPE	EQUIVALENT LENGTH (TABLE 2)	NO		
60	80/125	17.5	90	1.6	2	3.2	14.3
60	100/150	28	90	1.9	2	3.8	24.2
80	80/125	10	90	1.6	3	4.8	5.2
120	100/150	9	90	1.9	4	7.6	1.4

FOR OWN BUILT OPEN FLUE USE THIS:

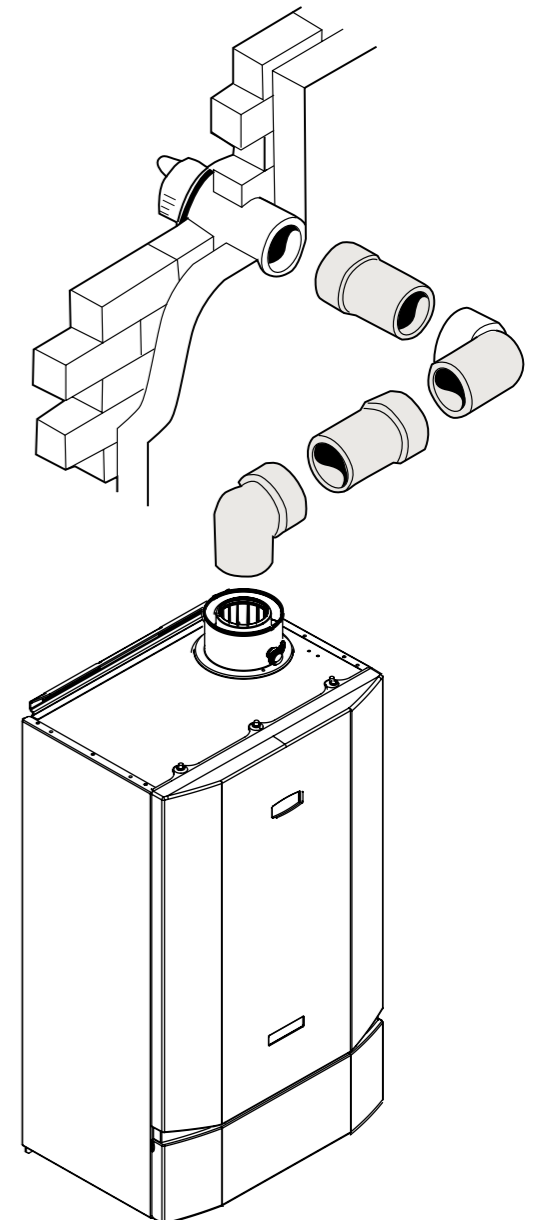
MAXIMUM ALLOWABLE PRESSURE DIFF & FLUE LENGTH FLUES INCLUDING TERMINAL		
MODEL	FLUE SIZE	PRESSURE DIFF (Pa)
40/40P	80/125	227
60/60P	80/125	150
80/80P	80/125	312
100	100/150	220
120	100/150	473
150	100/150	332

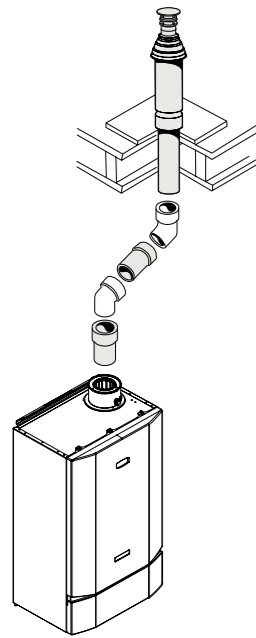
### EXAMPLES OF CALCULATING FLUE RESISTANCES/LENGTHS

#### EXAMPLE 1 (CONCENTRIC)

HORIZONTAL FLUE FOR INDEPENDENT HEAT 40	
	Resistance (m)
Flue size	80/125
Max permissible flue run	30
2 x 90° elbow	2 x 1.6 = 3.2
Total flue length available	30 - 3.2 = 26.8

Therefore this installation is acceptable as only a 2m run.



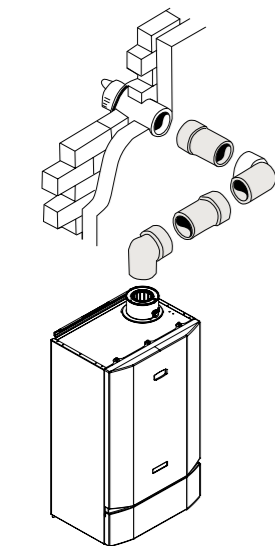


### EXAMPLE 2 (CONCENTRIC)

VERTICAL FLUE FOR INDEPENDENT HEAT 80	
	Resistance (m)
Flue Size	80/125
Max permissible flue run	10
2 x 45°	2 x 0.85 = 1.7
Total Flue Resistance	10 - 1.7 = 8.3

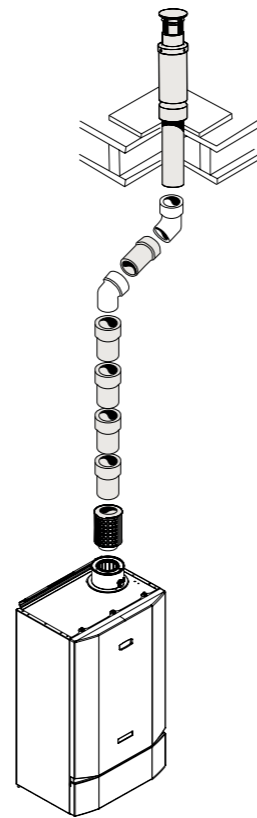
### EXAMPLE 3 (OPEN FLUE)

OPEN FLUE FOR INDEPENDENT HEAT 40	
	Resistance (m)
Flue Size	80
Max permissible flue run	70
2 x 45° elbow	2 x 0.45 = 0.9
Total Flue Resistance	70 - 0.9 = 69.1



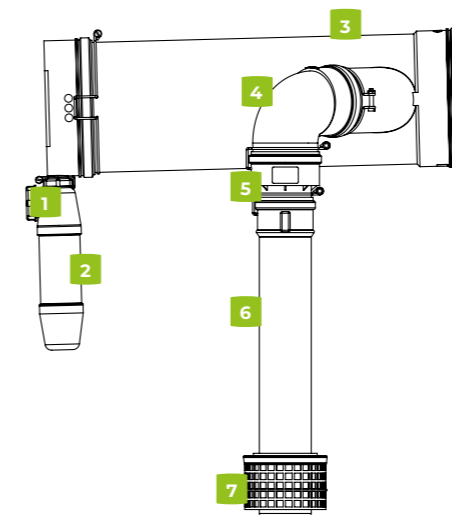
### EXAMPLE 4 (CONCENTRIC)

HORIZONTAL FLUE FOR INDEPENDENT HEAT 120	
	Resistance (m)
Flue Size	100/150
Max permissible flue run	9
2 x 90° elbow	2 x 1.9 = 3.8
Total Flue Resistance	9 - 3.8 = 5.2



# MULTILINE CASCADE

Available for installations up to 600kW as both a starter kit and extension pack the Multiline system enables Independent Heat boilers installed as open flue to be connected via a common flue header. This creates a single flue connection point for a flue specialist to design to knowing that the boiler installation is efficient and safe.



- Simple system ordering with a starter kit and extension kits
- Starter kit includes, appliance connection, non-return flue damper, condensate tee and trap and all clips to secure the flue
- Extension pack includes appliance connection, non-return flue damper, and all clips to secure the flue
- Available for both 80/125 & 100/150 flue adaptor applications
- For installations up to 600kW
- Type B23 flue
- Designed specifically to work efficiently with Independent Heat boilers with commissioning simply completed by selecting Multiline flue from the installer set up menu
- The perfect addition for installations using either the standard height or low frame and header kits

	PRODUCTS	STARTER KIT	EXTENSION KIT
1	End Cap	<input checked="" type="checkbox"/>	
2	Siphon / Condensate trap	<input checked="" type="checkbox"/>	
3	Collector Pipe (200 dia)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4	Elbow (90 x 100)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5	Expander (80/125 flue adaptor kits only)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
6	Flue Extension Tube (80 or 100)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
7	Air Intake Grill	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

The Cascade flue system is supplied in two kits. A Starter Kit & an Extension Kit. Wire retaining clips are also provided to prevent movement of the tube connections due to expansion and contraction. These must be fitted to the ductwork to ensure safe operation of the system.

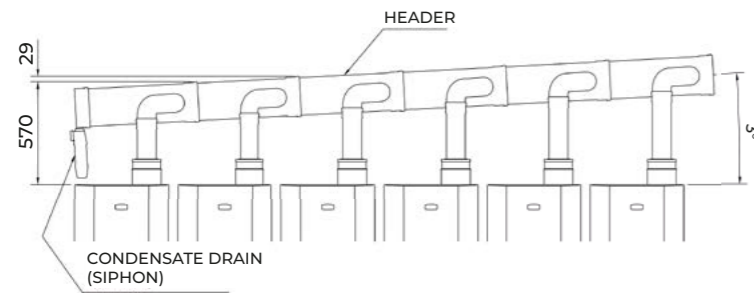
## OPERATION

### SYSTEM CONFIGURATIONS

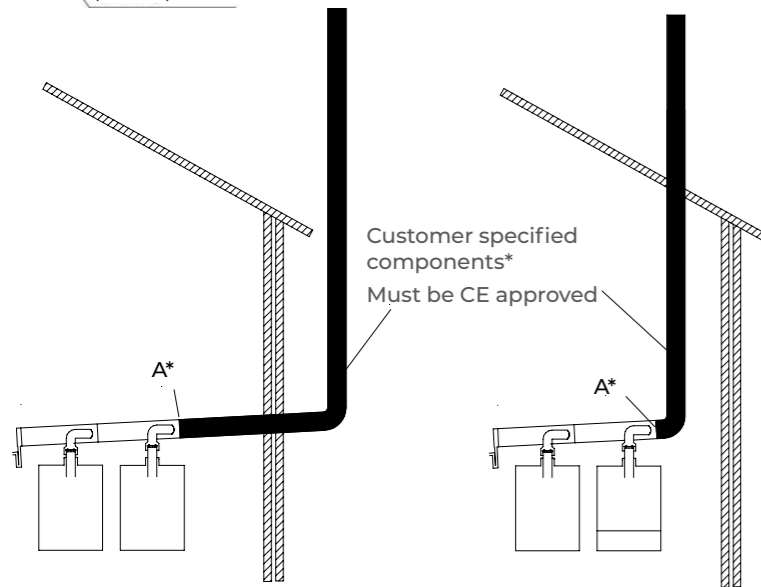
OPTION	GAS TYPE	INDEPENDENT HEAT MODELS	MAX NUMBER OF BOILERS	MAX SYSTEM CAPACITY
1	Natural gas	Combinations of 100, 120, 150	6	600kW
2		Combinations that include a 40, 60 or 80	6	400kW
3	Propane	Combinations of 40P, 60P, 80P	6	400kW



Flue height = 570mm from the top of the first boiler in the system. Increase the height 29mm for each adjacent boiler.



UIN	DESCRIPTION
220925	Multiline Starter Kit 80/125
220926	Multiline Extension Kit 80/125
220927	Multiline Starter Kit 100/150
220928	Multiline Extension 100/150



\*Multiline flue supplied to point A. Customers are to fabricate / supply B type flue system to termination point within flue resistance parameters.

At the maximum system capacity the static pressure generated against the flue resistance at position [A] must not exceed the value Pmax quoted in the table below.

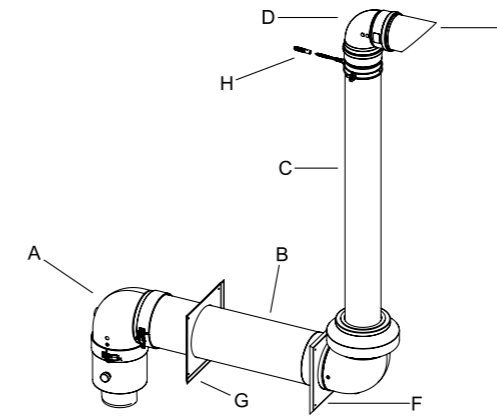
EVOMAX MODEL OUTPUT		CASCADE SYSTEM LIMITS		COMBUSTION PRODUCTS DATA		
Model		Maximum System Capacity	Maximum Permissible Header Pressure 'A' (Static)	Max rate CO <sub>2</sub>	Min rate CO <sub>2</sub>	Temperature Max
Max	Min	Hmax	Pmax	±0.5	±0.5	
kW	kW	kW	Pa	%	%	C
40	10	400	40	9.7	9.0	72
60	15					
80	20					
100	25					
120	30	600	80			
150	37.5					
40P	10	400	40	11.4	10.6	
60P	15					
80P	20					

# PLUME KIT

Available for Independent Heat boilers up to 150kW the Plume Kit can be used to relocate the flue terminal up to 10m.

- Suitable for all Independent Heat up to 150kW
- Available for both 80/125 & 100/150 flue applications
- Plume kit offers terminal relocation up to 10m

- Includes standard appliance connector, horizontal flue kit, special rain collar, external plume kit 1m and terminal
- Offers neat solutions for awkward flue installations where the terminal requires relocation

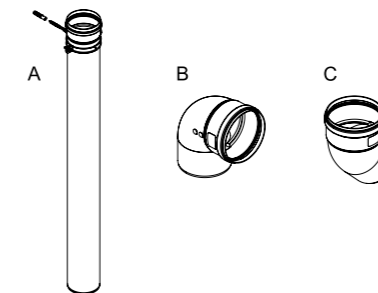


PRODUCTS	
A	Turret elbow
B	Flue terminal with rain cowl & air terminal assembly
C	1 Meter extension tube
D	90 degree elbow
E	Flue terminal end
F	External wall plate
G	Internal wall plate
H	Wall bracket

## OPERATION

### PLUME KIT - PACKAGED OPTIONS

UIN	DESCRIPTION	DRAWING IDENTIFIER	COMPATIBLE WITH INDEPENDENT HEAT 40, 40P, 60, 60P, 80, 80P	COMPATIBLE WITH INDEPENDENT HEAT 100, 120, 150
213274	Plume kit 1m extension 80/125	A	<input checked="" type="checkbox"/>	
213272	Plume kit 90 deg elbow 80/125	B	<input checked="" type="checkbox"/>	
213273	Plume kit 45 deg elbows (pair) 80/125	C	<input checked="" type="checkbox"/>	
213277	Plume kit 1m extension 100/150	A	*	<input checked="" type="checkbox"/>
213275	Plume kit 90 deg elbow 100/150	B	*	<input checked="" type="checkbox"/>
213276	Plume kit 45 deg elbows (pair) 100/150	C	*	<input checked="" type="checkbox"/>



\*Note: The 100/150mm Plume Kit system can also be used on Independent Heat 80, 80P, 60 & 60P model variants if internal concentric wall horizontal flue adaptor is used (Part No. 158660). See Independent Heat installation manual for details.

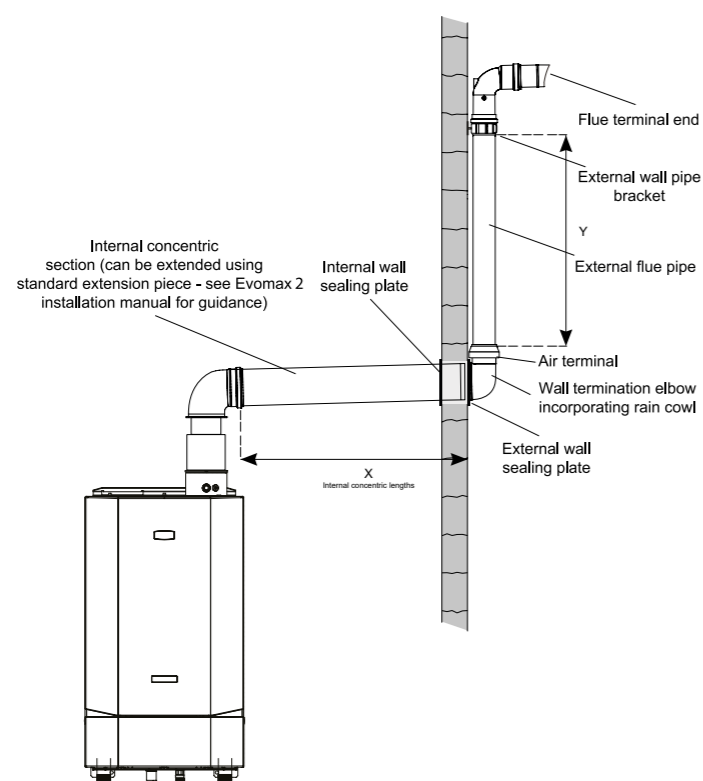


PLUME KIT - 80/125

UIN	DESCRIPTION
220922	Plume kit 80/125
213274	Plume kit 1m extension 80/125
213272	Plume kit 90 deg elbow 80/125
213273	Plume Kit 45 deg elbow 80/125 (Pair)

PLUME KIT - 100/150

UIN	DESCRIPTION
220923	Plume kit 100/150
213277	Plume kit 1m extension 100/150
213275	Plume kit 90 deg elbow 100/150
213276	Plume kit 45 deg elbow 100/150 (Pair)



80 / 125 DIA FLUE ~ MAXIMUM PERMISSIBLE FLUE LENGTHS (M)			
Evomax 2 Model	40/40P	60/60P	80/80P
Y	X		
0.5	27.2	14.7	7.2
2.0	26.5	14.0	6.5
4.0	25.6	13.1	5.6
6.0	24.7	12.2	4.7
8.0	23.8	11.3	3.8
10.0	22.9	10.4	2.9

100 / 150 DIA FLUE ~ MAXIMUM PERMISSIBLE FLUE LENGTHS (M)					
Evomax 2 Model	60/60P	80/80P	100/100P	120/120P	150
Y	X				
0.5	25.0	15.0	7.0	6.0	3.0
2.0	24.6	14.6	6.6	5.6	2.6
4.0	24.0	14.0	6.0	5.0	2.0
6.0	23.5	13.5	5.5	4.5	1.5
8.0	22.9	12.9	4.9	3.9	0.9
10.0	22.4	12.4	4.4	3.4	0.4

# NOTES

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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

#### 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 Commercial Boilers 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 Commercial Boilers 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.

