



# Genesis WM

Wall hung condensing boiler



MODELS

5

OUTPUT (kW)

41 - 149

# Genesis WM

The Genesis wall-mounted condensing boiler is available in a range of 5 models from 41kW - 149kW, with a highly durable stainless steel heat exchanger offering an efficiency of up to 108% net.

The Genesis WM boiler has a modulation range of up to 10:1 and is complete with a flue gas non-return valve, removing the need for external valves and reducing the height when installed in a modular configuration. Cascade kits are available up to 6 boilers and 900kW output.



5

5 Year Heat Exchanger Warranty\*

2

2 Year Parts Warranty\*

ErP

ErP Part L Compliant

- Stainless steel heat exchanger
- Natural gas or LPG
- Cascade installations up to 900kW
- Class 6 NOx emissions
- High modulation ratios up to 10:1
- 0-10V control
- Integrated flue gas non-return valve
- Single boiler pipework kit - integrated low loss header
- Cascade kits from 2-6 boilers that can either be free standing or secured to a wall
- Low height frame kit for all outputs
- Balance flue wall & roof terminals
- Twin pipe flue installations
- PPS cascade flue installations
- Ability to connect up to 6 boilers in cascade, with Master-Slave logic



45



60



85



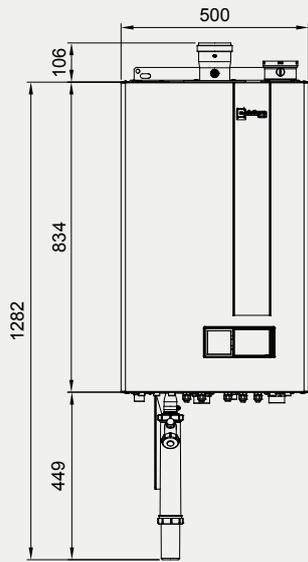
120



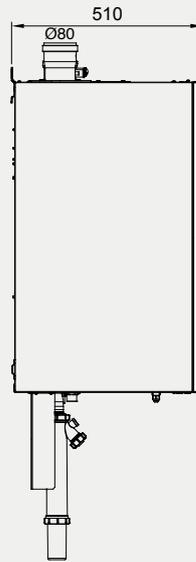
150

# Dimensions

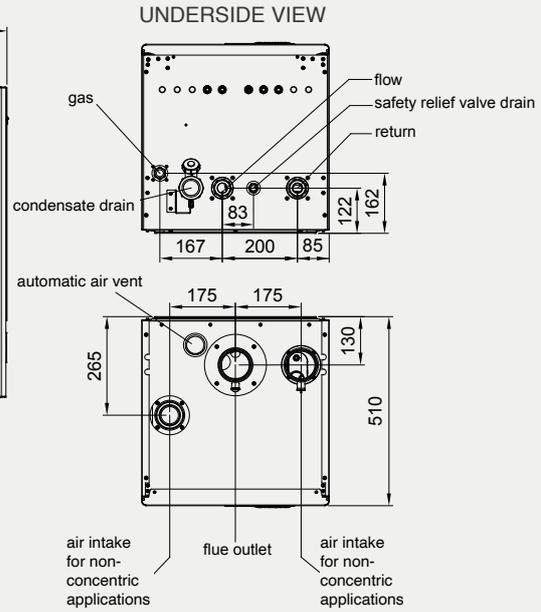
## 45 - 85



FRONT VIEW

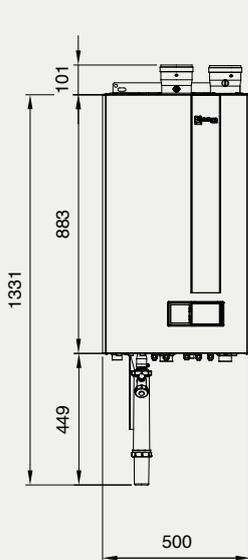


SIDE VIEW

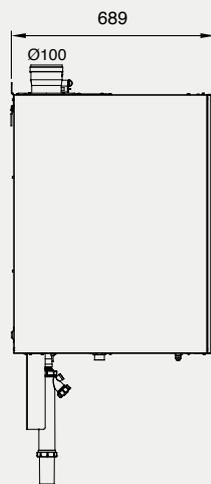


PLAN VIEW

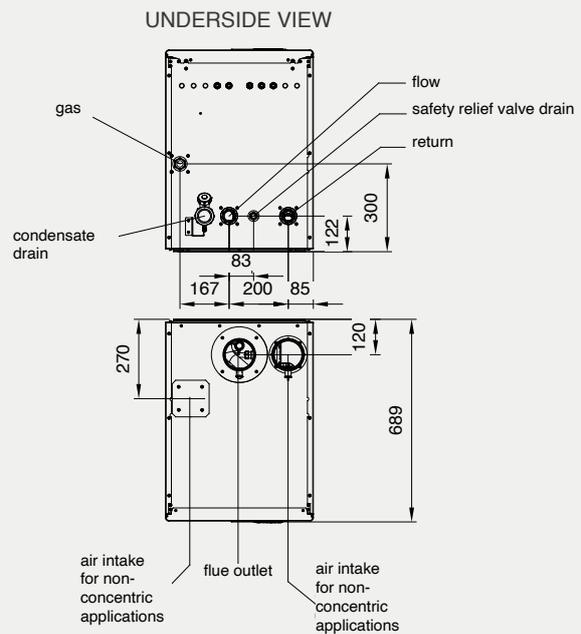
## 120 - 150



FRONT VIEW



SIDE VIEW



PLAN VIEW

		45	60	85	120	150	Clearances		45 - 85	120 - 150
Height of boiler	mm	834	834	834	883	883	Front	mm	800	1000
Width of boiler	mm	500	500	500	500	500	Sides	mm	25	25
Depth of boiler	mm	510	510	510	689	689				
Height to top of concentric flue adaptor	mm	920	920	920	995	995				
Height to top of twin pipe	mm	940	940	940	984	984				
Heating return connection	inches	1¼	1¼	1¼	1¼	1¼				
Heating flow connection	inches	1¼	1¼	1¼	1¼	1¼				
Gas connection	inches	¾	¾	¾	1	1				
Concentric flue size	mm	80/125	80/125	80/125	100/150	100/150				

# Performance data

		45	60	85	120	150
<b>Power</b>						
ErP efficiency rating (modules ≤ 70kW only)		A	A	-	-	-
Maximum boiler output (80-60°C) - NG & LPG	kW	38.5	58.3	77.8	111.3	135.7
Maximum boiler output (50-30°C) - NG & LPG	kW	41.5	62.8	84.8	122	148.7
Minimum boiler output (80-60°C) - NG & LPG	kW	3.8	5.8	8.5	11.1	21.6
Minimum boiler output (50-30°C) - NG & LPG	kW	4.3	6.5	9.7	12.4	23.9
Maximum boiler input (gross) - NG & LPG	kW	40	60	81	115	140
Heat efficiency (50-30°C) - maximum output	%	105.3	104.6	104.8	106.1	106.2
Standby losses	kW	0.085	0.099	0.114	0.097	0.127
Modulation			1:9		1:10	1:6
Building regulations Part L seasonal efficiency {Non Domestic Building}	% gross	95.6	95.9	95.8	96.3	95.8
SAP 2009 Annual efficiency {Natural Gas}	%	88.9	89.0	89.0	89.3	89.0
Sound power level indoors	dB(A)	54	59	63	63	61
<b>Hydraulic</b>						
Water content	litres	2.2	3.3	4.3	6.7	9.2
System design flow rate (30°C AT rise) single boiler	l/s	0.33	0.50	0.68	0.97	1.18
Water side pressure loss (30°C AT rise) single boiler	kPa	18.3	19.6	21.7	21.9	24.4
System design flow rate (20°C AT rise) cascade	l/s	0.50	0.75	1.01	1.46	1.78
Water side pressure loss (20°C AT rise) cascade	kPa	36.5	37.5	44.7	42.9	50.4
Minimum water pressure	bar			0.8		
Maximum water pressure	bar	3.0	3.5		5.0	
Maximum flow temperature setting	°C			80*		
<b>Gas</b>						
Maximum gas flow rate, NG (G20)	m³/hr	4.23	6.35	8.57	12.17	14.81
Maximum gas inlet pressure - NG	mbar			25		
Nominal gas inlet pressure - NG	mbar			20		
Minimum gas inlet pressure - NG	mbar			17		
Maximum gas flow rate - LPG (G31)	m³/hr	1.64	2.45	3.31	4.70	5.73
Nominal gas inlet pressure - LPG	mbar			37		
<b>Flue</b>						
Approx. flue gas volume - NG @ 15°C, 9.1-9.3% CO <sub>2</sub> , @ N.T.P {dry}	m³/hr	46.0	69.8	95.3	135.2	164.7
Approx. flue gas volume - NG @ 15°C, 9.1-9.3% CO <sub>2</sub> , @ N.T.P {wet}	m³/hr	54.5	82.5	112.4	159.6	194.3
Maximum flue gas temperature (80-60°C) - NG {Inlet Air at 20°C}	°C		77.0	65.3	74.0	72.6
Pressure at boiler flue spigot (80-60°C) - NG Single boiler/individual flue applications	Pa	190	150	194	275	290
Pressure at boiler flue spigot (80-60°C) - NG Multiple boilers/combined flue applications	Pa			30		
Approx. flue gas volume - LPG (15°C, 10.3-10.5% CO) @ N.T.P {dry}	m³/hr	47.7	71.5	99.4	138.4	168.5
Approx. flue gas volume - LPG (15°C, 10.3-10.5% CO) @ N.T.P {wet}	m³/hr	54.2	81.3	112.7	157.2	194.8
Maximum flue gas temperature (80-60°C) - LPG {Inlet Air at 20°C}	°C	77.0	77.0	65.3	74.0	72.6
Pressure at boiler flue spigot (80-60°C) - LPG Single boiler/individual flue applications	Pa	190	150	194	275	290
Pressure at boiler flue spigot (80-60°C) - LPG Multiple boiler/combined flue applications	Pa			30		
Dry NO <sub>x</sub> emission (0% excess oxygen, mg/kWh dry air free)	mg/kWh	23	39	36	30	40
<b>Electric</b>						
Electrical supply	V			230-250		
Power consumption - maximum boiler modulation	W	94	119	156	251	310
Start current (per module)	Amp			4.0		
Run current (per module)	Amp			4.0		
<b>Other</b>						
Dry weight	kg	45.5	50.0	74.5	84.5	106.0

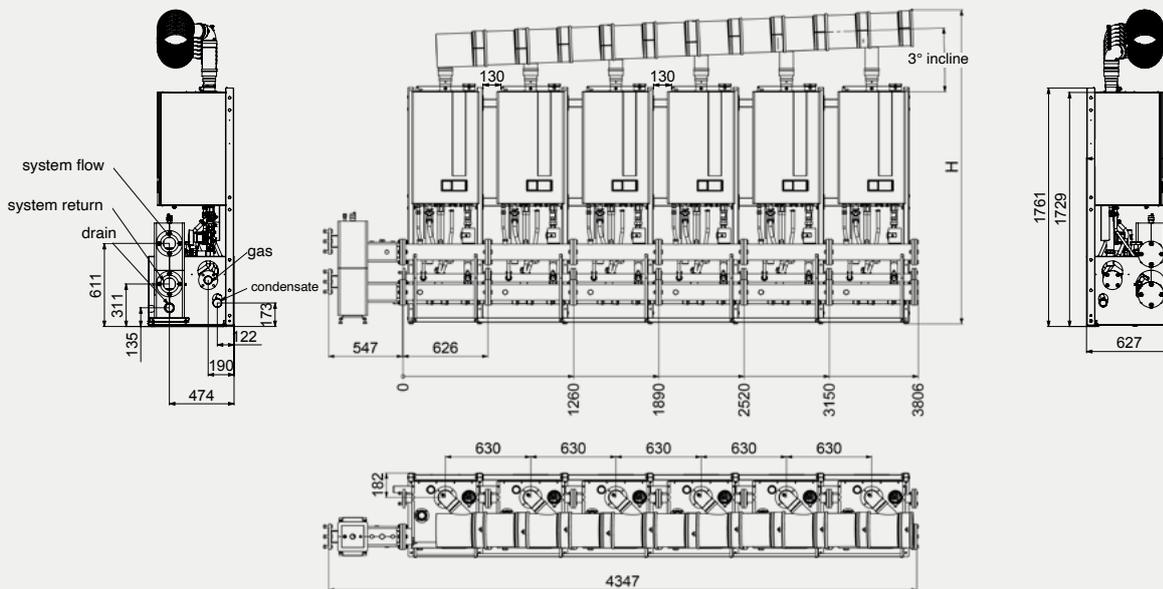


# Cascade kits

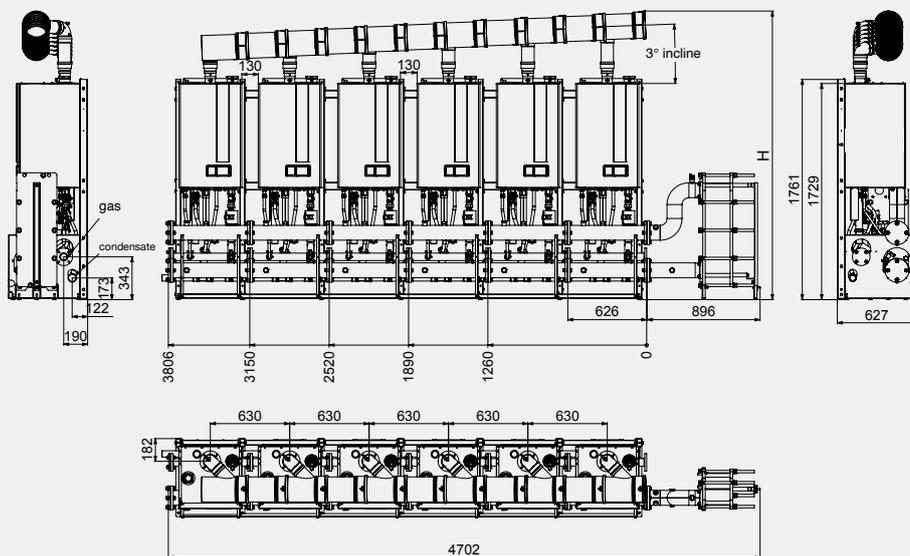
## In-line cascade arrangement

For modular installations, our cascade kits are available from 2-6 boilers, with the low loss header or plate heat exchanger option on the right or the left side.

### With low loss header



### With plate heat exchanger



45 / 60 / 85

120 / 150

		45 / 60 / 85			120 / 150		
Power	kW	<300	<600	<300	<600	<900	
Flue diameter	mm	160	200	160	200	250	
<b>Cascade flue height (H)</b>							
2 boilers	mm	2160	-	2085	2100	-	
3 boilers	mm	2185	-	2109	2134	-	
4 boilers	mm	2205	2241	-	2167	-	
5 boilers	mm	2230	2275	-	2200	2228	
6 boilers	mm	2255	2308	-	-	2258	

# Cascade kits

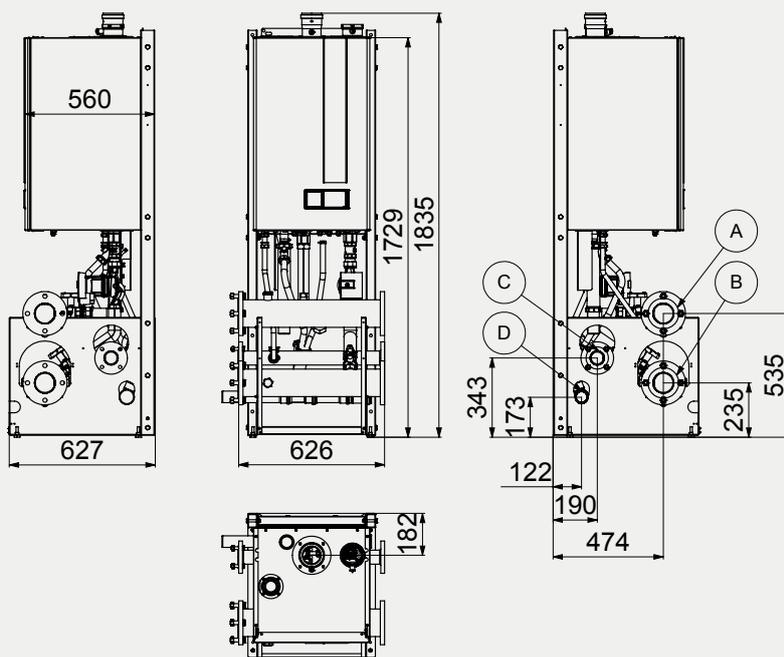
## In-line cascade frame

(up to 6 boilers)

For modular installations, our pipe sets are available from 2-6 boilers, giving a maximum output of 900kW.

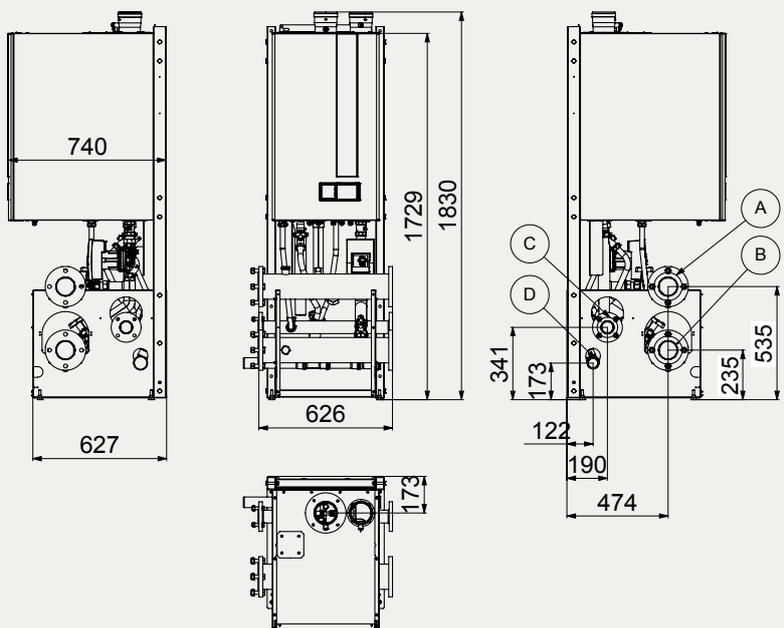
Each set is individual, and can therefore be bolted together. Flow & return headers are DN80 and insulated.

45 / 60 / 85



- A Main flow header  
DN80 Pn6
- B Return flow header  
DN80 Pn6
- C Gas inlet header  
DN50 Pn6
- D Condensate drain system  
50Ø plastic

120 / 150

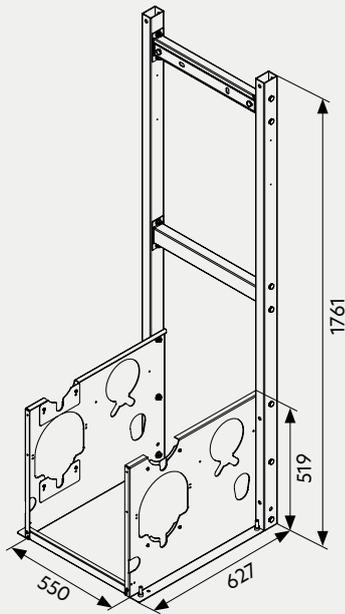


# Cascade kits

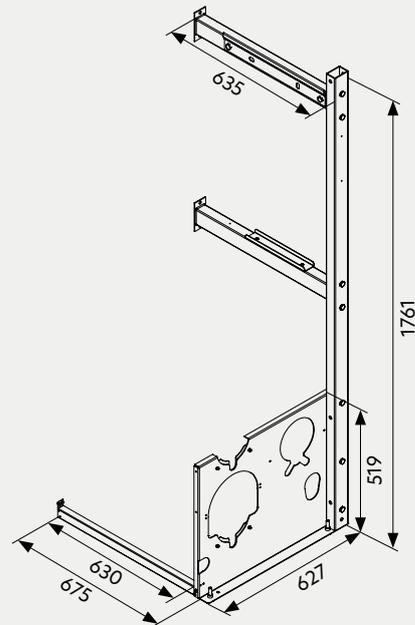
## Free standing frames

Frames can be placed anywhere in the plantroom or against the wall.

**Starting frame**  
(first boiler)

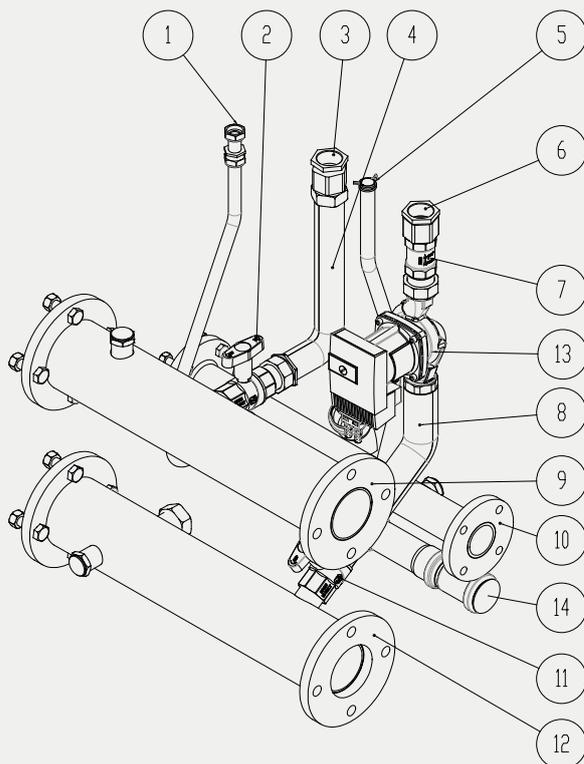


**Expansion frame**  
(second-sixth boiler)



## Hydraulic group

Supplied for each boiler



- 1 Gas connection
- 2 Isolation valve flow
- 3 Main flow connection
- 4 Main flow pipe insulation
- 5 Flexible hose for safety valve
- 6 Return flow connection
- 7 Check valve
- 8 Return flow pipe insulation
- 9 Flow header
- 10 Gas header
- 11 Isolation valve return
- 12 Return header
- 13 High efficiency pump
- 14 Condensate drain manifold

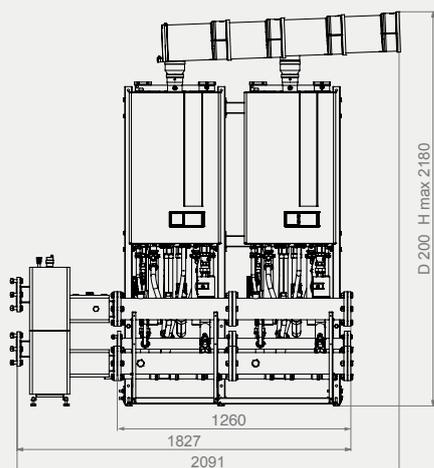
# Cascade kits

## Back to back cascade installation

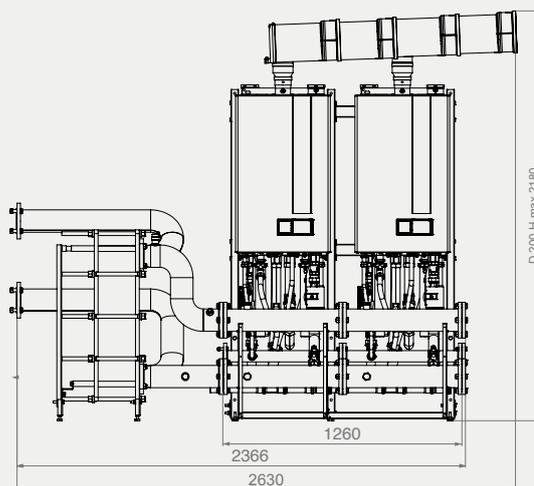
The low loss header and the plate heat exchanger can be installed on the left or right side. The 45/60/85 models can be configured with 2-4 boilers, whereas the 120/150 models can be configured with 2-6 boilers.

45 / 60 / 85

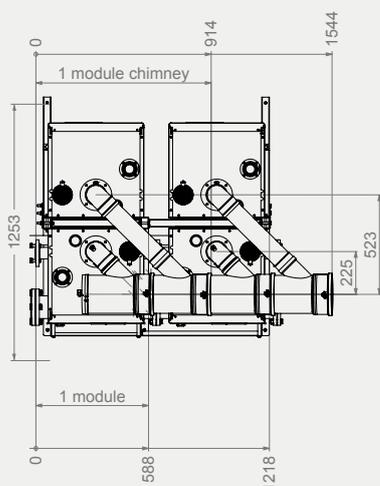
With low loss header



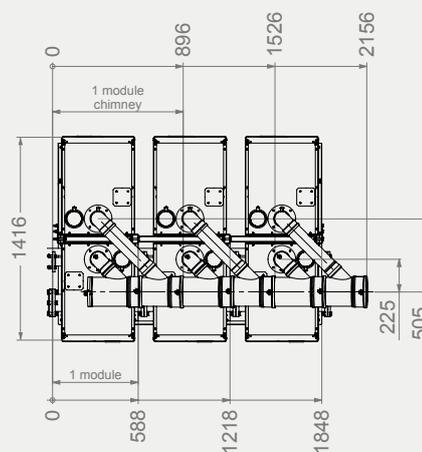
With plate heat exchanger



45 / 60 / 85

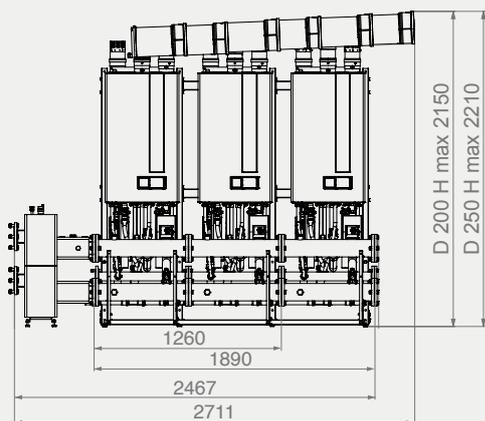


120 / 150

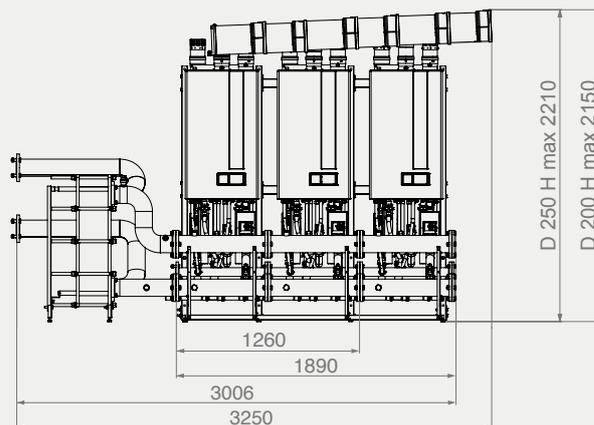


120 / 150

With low loss header



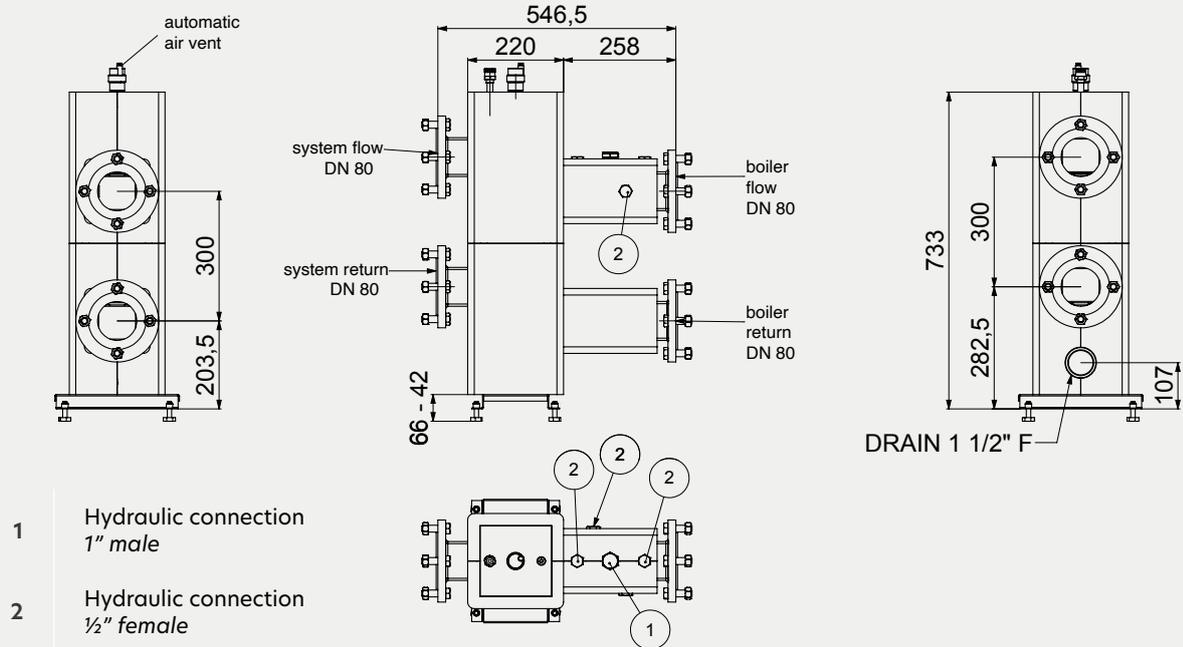
With plate heat exchanger



# Cascade kits

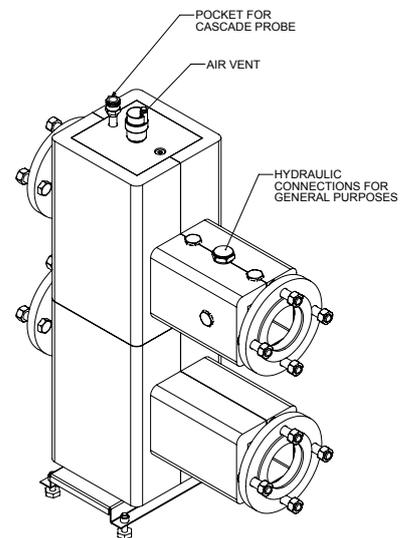
## Low loss header

Optional low loss headers can be utilised when selecting pipework kits. The headers are supplied insulated as standard.



## Pump selection

When selecting either a low loss header or a separation plate heat exchanger, the table below details the boiler pump for the correct application.

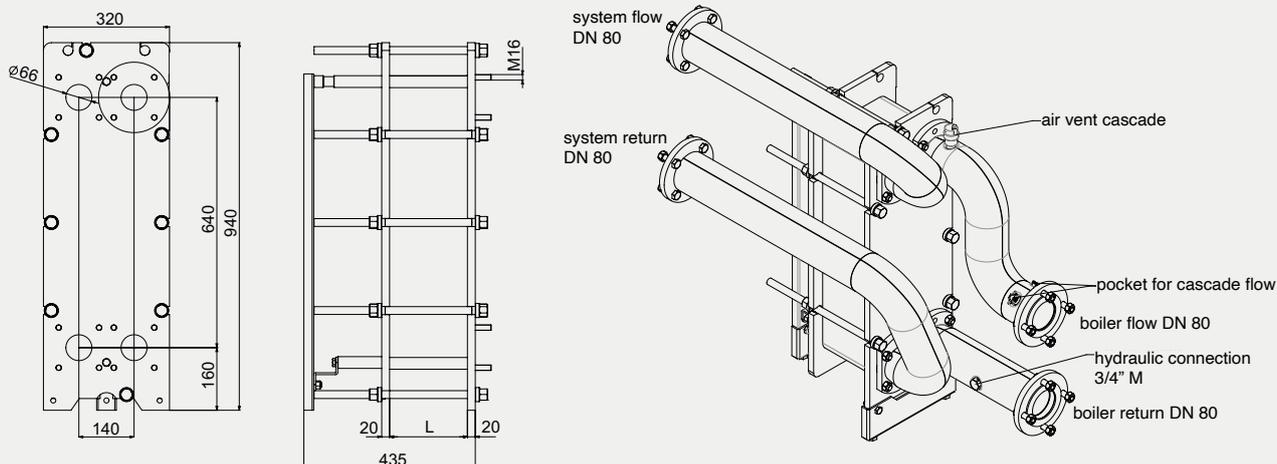


BOILER MODEL	PUMP MODEL	CODE	SINGLE BOILER	LOW LOSS HEADER	PLATE HEAT EXCHANGER
45	Yonos para 25/7.5 PWM	PUMP-01	✓	✓	✓
60	Yonos para 25/7.5 PWM	PUMP-01	✓	✓	
60	UPML25-105-180 PW	PUMP-05			✓
85	UPML25-105-180 PW	PUMP-05	✓	✓	✓
120	UPML25-105-180 PW	PUMP-05	✓	✓	
120	UPMXL25-125-180 PWM	PUMP-07			✓
150	UPMXL25-125-180 PWM	PUMP-07	✓	✓	
150	UPMXXL25-120-180 PWM	PUMP-08			✓

# Cascade kits

## Separation plate heat exchanger

A separation plate heat exchanger can be used on old or dirty systems to protect the boiler's heat exchanger. It is designed as a kit, to bolt onto the flow and return of the cascade manifold.



## Selection table

PART NUMBER	POWER SIZE kW	PLATES QUANTITY	DIMENSION L mm	MAX WORKING PRESSURE bar	WATER VOLUME HEADERS SIDE litres	WATER VOLUME SYSTEM SIDE litres	WEIGHT EMPTY kg	WEIGHT FULL kg
PLATE-01	up to 120	11	27.5	10	1.4	1.4	110	115
PLATE-02	up to 205	21	52.5	10	2.79	2.79	117	124
PLATE-03	up to 300	27	67.5	10	3.63	3.63	121	130
PLATE-04	up to 360	35	87.5	10	4.74	4.74	128	140
PLATE-05	up to 450	41	102.5	10	5.58	5.58	133	146
PLATE-06	up to 540	51	127.5	10	6.98	6.98	141	157
PLATE-07	up to 600	57	142.5	10	7.81	7.81	145	163
PLATE-08	up to 690	63	157.5	10	8.65	8.65	151	171
PLATE-09	up to 780	71	177.5	10	9.76	9.76	157	179
PLATE-10	up to 900	79	197.5	10	10.88	10.88	163	187

PART NUMBER	POWER SIZE kW	HEAT EXCHANGER SURFACE AREA m <sup>2</sup>	HEADERS SIDE °C		SYSTEM SIDE °C		HEADERS SIDE kPa	SYSTEM SIDE kPa
PLATE-01	up to 120	1.35					20	20
PLATE-02	up to 205	2.85					20	20
PLATE-03	up to 300	3.75					20	20
PLATE-04	up to 360	4.95					21	21
PLATE-05	up to 450	5.85	IN	OUT	IN	OUT	21	21
PLATE-06	up to 540	7.35	80	60	50	70	21	21
PLATE-07	up to 600	8.25					21	21
PLATE-08	up to 690	9.15					25	25
PLATE-09	up to 780	10.35					27	27
PLATE-10	up to 900	11.55					34	34

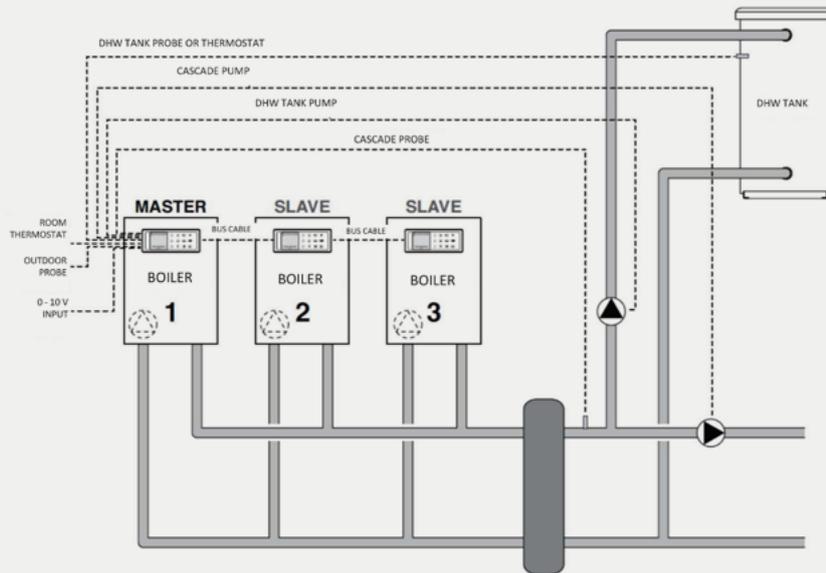
# Controls

## Cascade control

It is possible to connect up to 6 boilers in a cascade system. The system operates with a master-slave logic: the first boiler (master) controls the entire cascade.

## 0-10V

The boiler can be controlled by an external 0-10VDC signal. Control can be performed in terms of power or temperature.



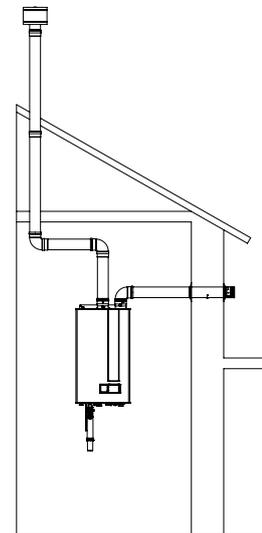
## Twin pipe flue system

The twin pipe flue system contains two separate PPS pipes. One brings in the combustion air from outside, the other exhausts the flue gases. The table below details the maximum flue lengths that can be achieved with the components and their measurements.

Using the drawing & a Genesis 60 boiler as an example:

- A Air intake terminal (1x) - 8.5m reduction
- B 1 metre length (5x) - 5 × 1m reduction
- C 90°C elbow (3x) - 3 × 3m reduction
- D Roofterminal (1x) - 6m reduction

Total reduction is 28.5m, which is less than the maximum length of 75m.



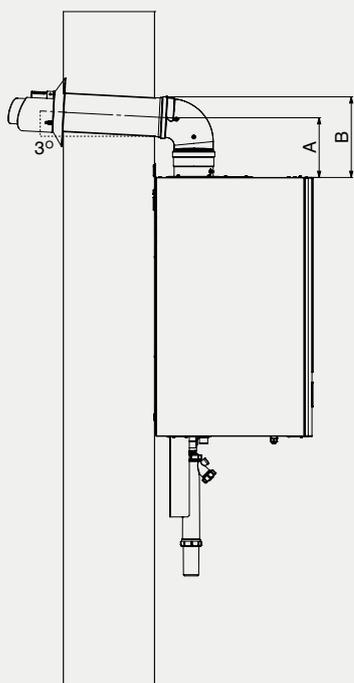
The figures in the table are measured in metres and should be deducted from the max pipe length.

CODE		45		60		85		120		150	
Max pipe length (m)		169		75		62		43		34	
		FLUE	AIR								
80/100 adaptor	PPS-80/100AD	0	1.5	0	2	2	0	-	-	-	-
Air intake terminal Ø100 - 1 metre	PDS-100AIT	-	7.5	-	8.5	-	9	-	10	-	10.5
Flue vent terminal Ø100 - 1 metre	PPS-100FVT	6.5	-	7	-	7.5	-	-	0	-	-
Roof terminal Ø100	PPS-100RT	5.5	-	7	-	6.5	-	7	0	7.5	-
45° elbow Ø100	PDS-100-45B	1.5	2.5	1.5	2.5	3	2	3	2	3	2
90° elbow Ø100	PDS-100-90B	2	3	2	3	2	3.5	3.5	2.5	4	2.5
1 metre length Ø100	PDS-100-1MI	0.5	1	0.5	1	1	0.5	1	0.5	1	0.5

# Flue systems

## Wall terminal

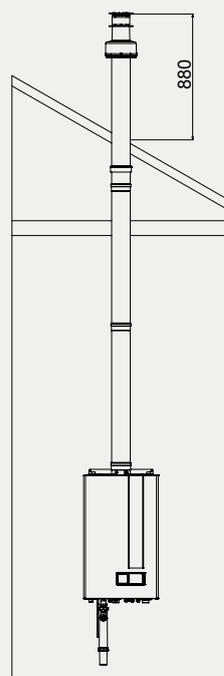
The balance flue wall terminal is either Ø80/125 or Ø100/150 depending on the boiler model. It is designed to terminate horizontally through an external wall, bringing in the combustion air from outside and exhausting the flue gases.



	Ø80/125	Ø100/150
A	195	220
B	260	300

## Roof terminal

The balance flue roof terminal is either Ø80/125 or Ø100/150 depending on the boiler model. It is designed to terminate vertically through the roof, bringing in the combustion air from outside and exhausting the flue gases.



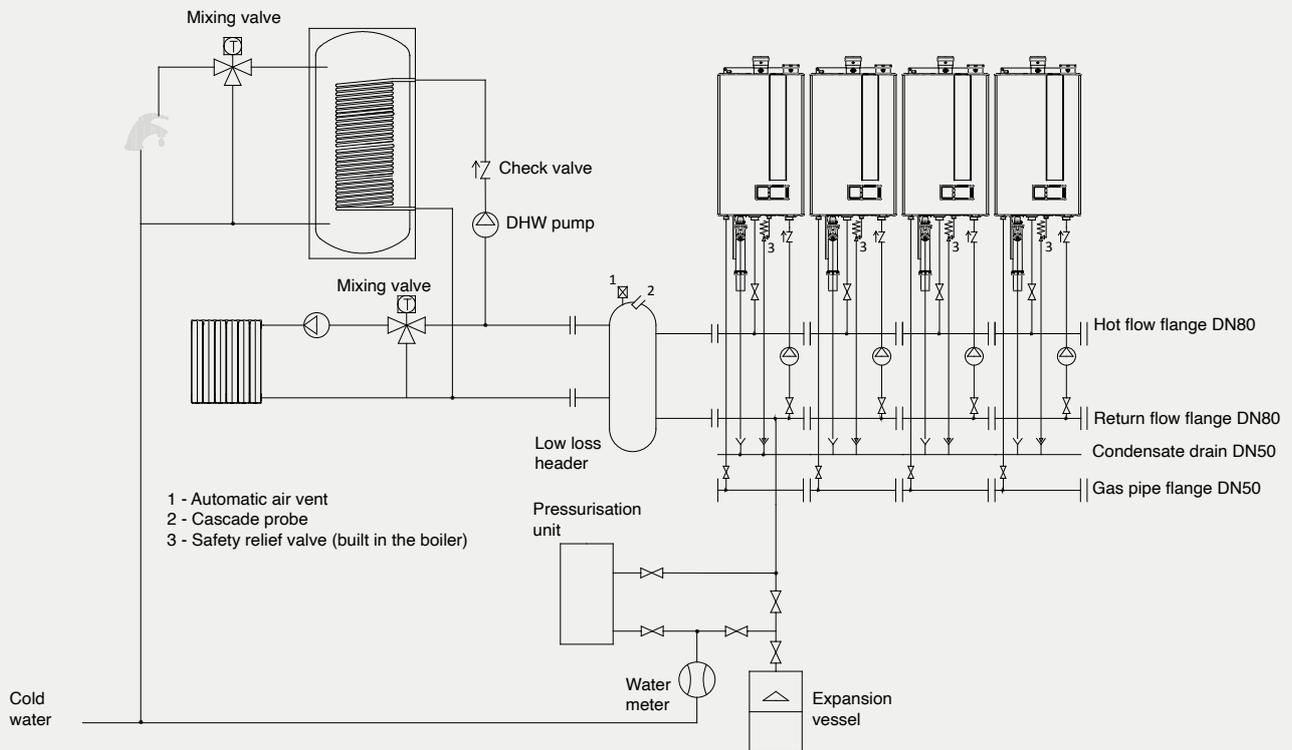
The figures in the table are measured in metres and should be deducted from the maximum pipe length, not to exceed the length.

CODE	SIZE Ø80/125			SIZE Ø100/150				
	16	14	13	39	33	30	30	17
<b>Max pipe length</b>	16	14	13	39	33	30	30	17
<b>MODEL</b>	<b>45</b>	<b>60</b>	<b>85</b>	<b>45</b>	<b>60</b>	<b>85</b>	<b>120</b>	<b>150</b>
Ø80/125 concentric adaptor	CE-80/125CA	0.5	0.5	0	-	-	-	-
Ø80/125 to Ø100/150 concentric adaptor	CF-80-100/150CA	-	-	-	1.5	1.5	1.5	-
Ø100/150 concentric adaptor	CF-100/150CA	-	-	-	-	-	-	0
Ø80/125 wall terminal	CF-80/125WT	6	6.5	7	-	-	-	-
Ø100/150 wall terminal	CE-100/150WT	-	-	-	6.5	7	7.5	8
Ø80/125 roof terminal	CF-80/125RT	6.5	7	7.5	-	-	-	-
Ø100 150 roof terminal	CF-100/150RT	-	-	-	6.5	7	7.5	8
Ø80/125 45° elbow	CF-80/125-45B	1	1	1	-	-	-	-
Ø100/150 45° elbow	CF-100/150-45B	-	-	-	0.5	1	1	1
Ø80/125 90° elbow	CF-80/125-90B	1	1	1.5	-	-	-	-
Ø100/150 90° elbow	CF-100/150-90B	-	-	-	2.5	2.5	3	3
Ø80/125 0.5m length	CF-80/125-05ML	0.5	0.5	0.5	-	-	-	-
Ø100/150 0.5m length	CF-100/150-05ML	-	-	-	0.3	0.5	0.5	0.5
Ø80/125 1m length	CF-80/125-1ML	1	1	1	-	-	-	-
Ø100/150 1m length	CF-100/150-1ML	-	-	-	1	1	1	1

For an example calculation, refer to page 12.

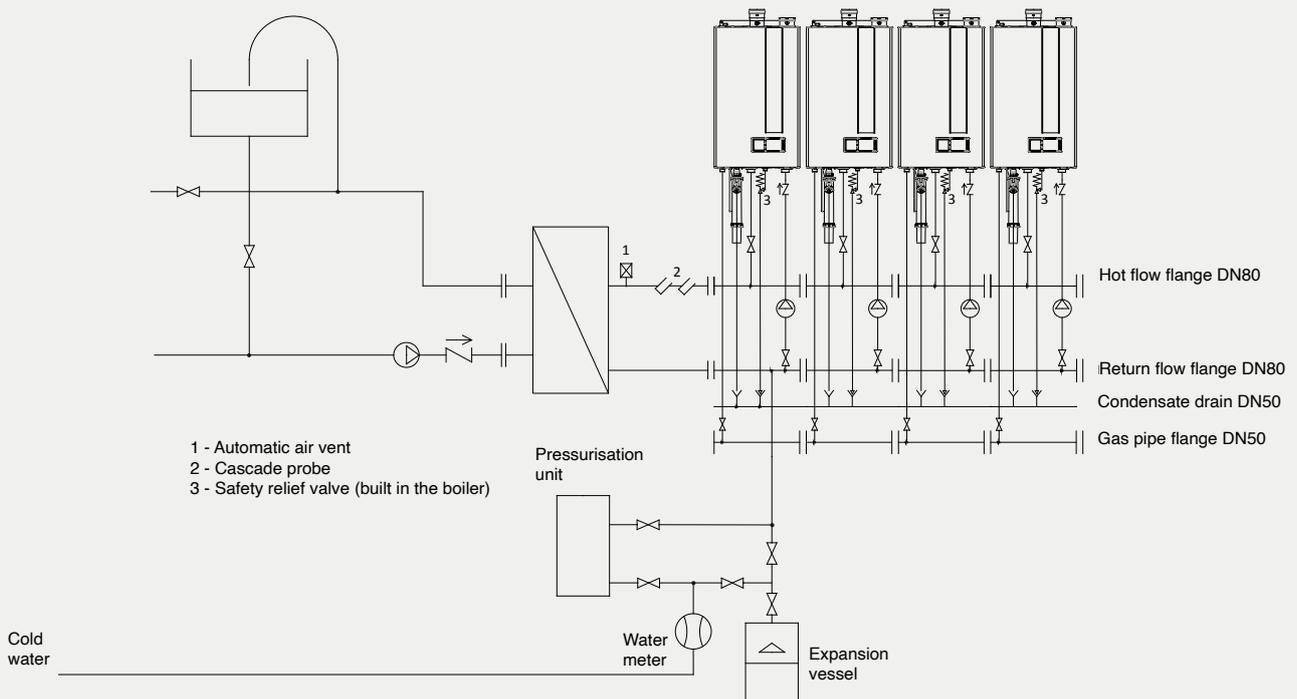
# System schematics

## Sealed system with low loss header



## Sealed system with plate heat exchanger

Sealed primary and open-vented secondary system  
with plate heat exchanger separation.



**Modutherm Limited**  
Unit 4 Genesis  
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