



# STANDARD HEIGHT FRAME & HEADER KITS

**EVOMAX**  
**30 - 150, 30P - 80P**

**EVOMAX 2**  
**30 - 150, 30P - 120P**

When replacing any part on this appliance, use only spare parts that you can be assured conform to the safety and performance specification that we require. Do not use reconditioned or copy parts that have not been clearly authorised by Ideal Heating.

For the very latest copy of literature for specification and maintenance practices visit our website [idealheating.com](http://idealheating.com) where you can download the relevant information in PDF format.



This kit is suitable for the following boilers:

**Evomax 30, 40, 60, 80, 100, 120, 150, 30P, 40P, 60P 80P**

**Evomax 2 30, 40, 60, 80, 100, 120, 150, 30P, 40P, 60P 80P, 100P, 120P**

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## **IMPORTANT**

**THESE KITS CAN BE USED IN CONJUNCTION WITH  
LOW LOSS HEADERS & PLATE HEAT EXCHANGERS  
SUPPLIED AS PART OF THE EVOMAX OPTIONS RANGE**

# 1 INTRODUCTION

This technical data contains information for dimensioning & assembly of a cascade system kit for the Evomax and Evomax 2 ranges.

Header and Frame kits are available in both 'in line' (6 boilers long) and back to back options (3 boilers long).

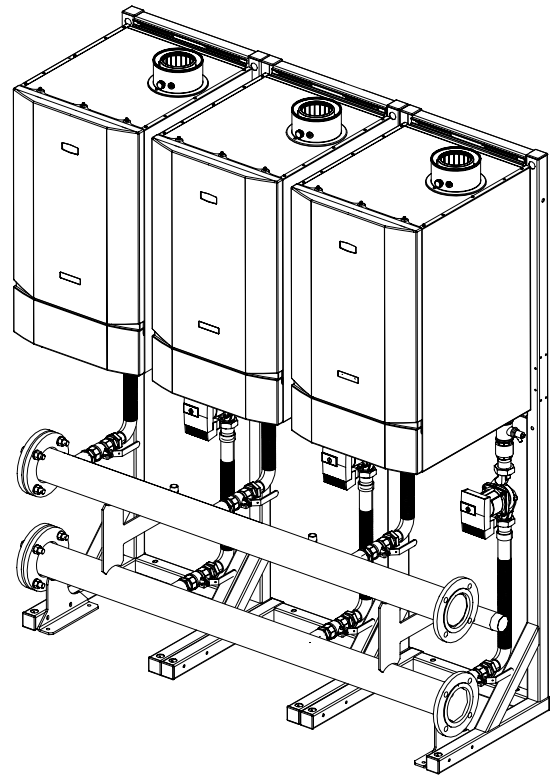
## GENERAL DESCRIPTION OF FRAME & HEADER KITS

A requirement to spread the total required heat output over several boilers can be accommodated by the use of the Evomax multiple boiler frame & header kit options.

The Varican optional accessory can be installed (1 per boiler) for cascade control, see Varican Installation Instructions for further information.

The flue configurations for the range of appliances using these system kits are C13, C33 & B23 (See appliance manual). **Note.** In the case of the 150kW boiler, this must be flued in accordance to the Clean Air Act.

All headers and pipe work should be insulated in accordance with the Non Domestic Building Services Compliance Guide. To ensure compliance with the maximum heat loss criteria, insulation thickness should be calculated according to BS EN ISO 12241 using standardised assumptions.



# 2 GENERAL DESCRIPTION OF CASCADE SYSTEMS

## 2.1 FRAME AND HEADER KIT DESIGN OPTIONS

The Evomax boilers are suitable for use in a multiple boiler configuration. The Evomax multiple boiler system is available in both side by side and back to back options giving the opportunity to choose the optimum footprint size or wall space for a given output. Frame 7 states available and gives the minimum number of appliances required, the appropriate floor space & the kit product number (N.B. The kits do not include the boilers).

Standard height kits do not include the support frame as the boilers can be wall mounted but a frame kit is available if wall space etc. does not facilitate boiler/header wall mounting.

Available Evomax 2 Appliances	
kW (NG)	Product No.
Ideal Evomax 2 30	220814
Ideal Evomax 2 40	220815
Ideal Evomax 2 60	220816
Ideal Evomax 2 80	220817
Ideal Evomax 2 100	220818
Ideal Evomax 2 120	220819
Ideal Evomax 2 150	220820
kW (Propane)	Product No.
Ideal Evomax 2 30 Propane	220823
Ideal Evomax 2 40 Propane	220824
Ideal Evomax 2 60 Propane	220825
Ideal Evomax 2 80 Propane	220826
Ideal Evomax 2 100 Propane	220827
Ideal Evomax 2 120 Propane	220828

**Note.**

All boilers need to be sized in accordance to the total required heat load and the modulation capabilities of the appliances.

Low Loss Header Accessories (Mixing Header)		
DN80	DN100	DN150
219552	219553	219554

continued . . . . .

## 2.2 MULTIPLE BOILER INSTALLATIONS

For installing 2 to 6 boilers, the product range includes water and gas headers capable of assembly using threaded socket, compression and PN6 flange connections.

## 2.3 HYDRONIC ISOLATION: LOW LOSS HEADER & PLATE HEAT EXCHANGER

A low loss header or plate heat exchanger allows flow separation within a hydronic system.

This allows two flow circuits to operate with their own flow and pressure drop environments whilst effectively transferring heat to its adjoined water circuit.

This enables the modern high resistant, high efficiency boilers to operate under their optimum conditions, while the main heating circuit operates to its own controlled optimum requirements.

## 2.4 OUTPUT CONTROL

All pumps are designed to be wired to the appliance to allow a controlled pump over run.

If using an external pump control system the capability of a timed pump over run signal provided by the appliance must be maintained at all times.

The optional Varican accessory control can be installed (1 per boiler) to enable cascade control.

## 2.5 GAS SUPPLY

For Evomax the 30, 40, 60, 80, 100, 120 & 150 boilers are configured for use with natural gas. The 30P, 40P, 60P & 80P boilers are configured for use with LPG / Propane.

For Evomax 2 the 30, 40, 80, 60, 100, 120 & 150 boilers are configured for use with natural gas. The 30P, 40P, 60P, 80P, 100P & 120P boilers are configured for use with LPG / Propane.

Connection to the gas supply must be in accordance to with all the applicable regulations.

A single frame and DN50 water header kit will require the gas inlet to be made up to the gas tap provided, connecting it to the inlet of the appliance.

2, 3, 4 and 6 boiler units will be supplied with a 2" gas header and all the necessary components and pipe work to connect it to the appliances.

Note: Test points are provided at each end of the 2" gas header. The test point nearest to the gas inlet is intended to be used as the appliance inlet pressure point.

## 2.6 ASSEMBLY

The frames must be located in a suitable place that affords a flat and level floor-area of suitable load bearing capacity. Care must be taken when locating the frames that space is available for the servicing, installation and maintenance of the appliance and all of the associated connections and equipment. (See Appliance manuals)

When using multiple frames they must be bolted together and where necessary secured to the floor.

## 2.7 SAFE HANDLING

Installation may require 2 or more operatives to move it to its installation site, remove it from its packaging base and during movement into its installation location. Manoeuvring may include the use of a sack truck and involve lifting, pushing and pulling.

Caution should be exercised during these operations.

Operatives should be knowledgeable in handling techniques when performing these tasks and the following precautions should be considered:

- Grip the boiler at the base.
- Be physically capable.
- Use personal protective equipment as appropriate, e.g. gloves, safety footwear.

During all manoeuvres and handling actions, every attempt should be made to ensure the following unless unavoidable and/or the weight is light.

- Keep back straight.
- Avoid twisting at the waist.
- Avoid upper body/top heavy bending.
- Always grip with the palm of the hand.
- Use designated hand holds.
- Keep load as close to the body as possible.
- Always use assistance if required.



## 3 MULTIPLE BOILER SYSTEM COMPONENTS

### 3.1 GENERAL

The multiple boiler systems consist of the following components:

- Frame kit (optional 1 per boiler)
- Boiler gas header.
- Boiler flow and return headers supported on mounting skid
- Low loss mixing header (optional)
- Hardware pack (includes essential connection and valve components)
- Plate Heat exchanger kit (optional)
- Boiler Shunt pump (MUST be used, sold seperately)

### 3.2 MAIN WATER HEADERS

The main water headers consist of: water flow, water return headers custom sized for all boilers. It is possible to extend the system to a maximum of 6 boilers in a linear configuration or 2 x 3 boilers in a back-to-back configuration. In a back-to-back configuration with an odd number of boilers, the unused connections must also be capped off using blanking caps provided.

Each header kit provides water flow and return headers sized either DN80, DN100 or DN150 dependent on total maximum combined heating output required.

### 3.3 GAS HEADER

The Gas header consists of a custom manufactured 2" manifold. This is located in a cradle incorporated within the header mounting skid.

### 3.4 LOW LOSS HEADERS (MIXING HEADER) OPTION

The mixing headers are supplied with an auto air vent and drain point as standard.

### 3.5 BOILER SHUNT PUMP

Pump kits and External pump controls (**sold separately**) are designed to provide the optimum flow around the appliance water circuit ensuring the maximum flow rates are contained within the design constrains of the appliance.

It is not recommended to fit additional pumps directly to the appliance circuit unless they have been designed to ensure the maximum permissible appliance flow rate is not exceeded.

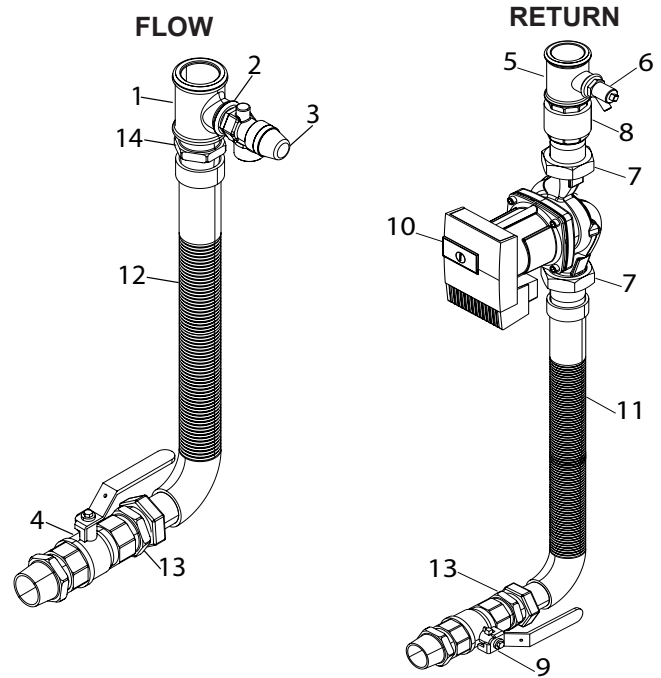
### 3.6 BOILER CONNECTION KITS

The connection kit contains the following components:

1. Boiler return leg complete with isolating valve, pump, non return valve, drain cock and fibre seals.
2. Boiler flow leg complete with isolating valve, pressure relief valve and fibre seals.
3. Header blanking flanges, fasteners and gaskets
4. Mixing header fasteners and gasket

#### LEGEND

1. 1 1/4" X 3/4" X 1 1/4" Tee
2. Close taper nipple
3. Safety relief valve 3 bar
4. Isolation valve
5. 1 1/4" X 1/2" X 1 1/4" Tee
6. Drain cock
7. Pump union
8. Non return valve
9. Isolation Valve
10. Pump inc. gaskets
11. Boiler return flexible connection from header
12. Boiler flow flexible connection from header
13. 1 1/4" taper male to 1 1/4" parallel hex adapter
14. 1 1/4" male hex nipple



**Gas Connection:** Conical Adapter, Flexi-hose

### 3.7 FREE-STANDING FRAMES

If boilers in cascade are positioned in-line the installer has the option to either wall mount the boilers or mount boilers on optional frame kits available. If mounting in-line product on frames, optional frame kit UIN 206970 must be specified in the correct quantity, one frame kit for each boiler installed in cascade for in-line and back to back.

### 3.8 INSTALLATION AREA AND DIMENSIONS

Care must be taken to ensure adequate access for boiler / cascade system installation and servicing.

A minimum of 450mm clearance must be provided from the front of the installed boilers in cascade to facilitate boiler servicing. Additional clearance must also be considered in the event of boiler replacement.

Consideration to connecting heating flow and return pipework, gas supply and condensate drainage must be given. Routing of the condensate drain must be made to allow a minimum fall of 1 in 20 away from the installed boilers in cascade, throughout its length. Adequate room above the boilers must be provided to install and service the boiler flue system. Further information with respect to flue and condensate drain connection is provided in the installation and servicing instructions provided within the boilers packaging carton.

# IMPORTANT POINTS

## Before commencing installation:

### If Wall mounting;

- Ensure wall is capable of supporting the weight of boilers to be mounted
- Mark drill points of header using floor mounting template
- Mark height on to the wall from the floor to the top of the boiler
- Ensure floor is flat and level and is of suitable load bearing capacity

### If Frame mounting;

- The frames must stand on a flat and level floor of suitable load bearing capacity.
- If using a frame kit (UIN 206970) the header must be bolted to the frame before the hoses are connected to the boiler.

## **MOUNTING FRAME MUST BE SECURED TO THE FLOOR WITH BOLTS**

These Installations refer to perpendicular wall and floor. If walls are not perpendicular, it is recommended that a frame kit be used. The correct number of frames should be ordered (1 per boiler).

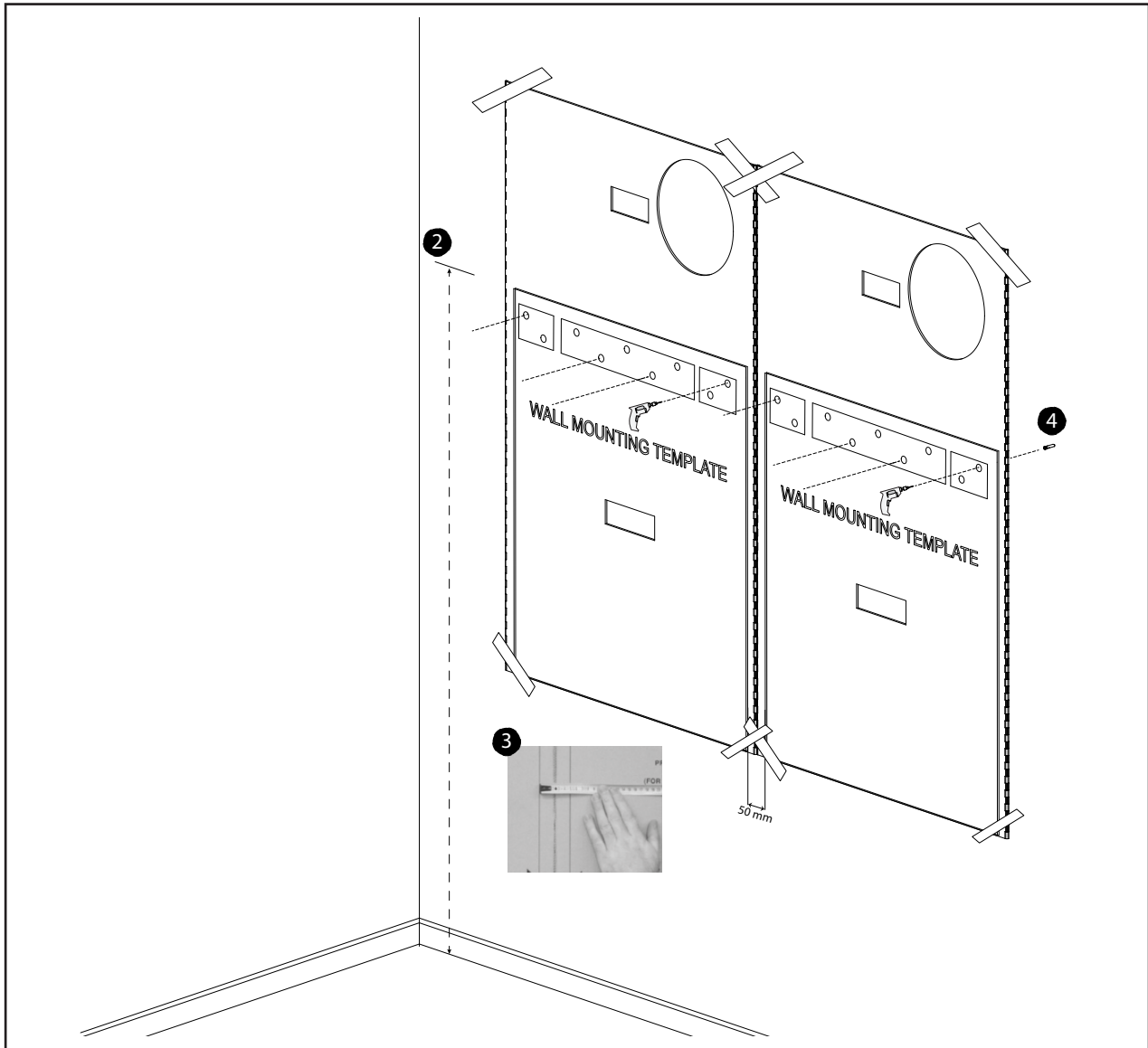
Allowances must be made for installation where skirting boards or other features are in place that may affect the nominal installation conditions.

## 4 WALL MOUNTED INSTALLATION PROCEDURE

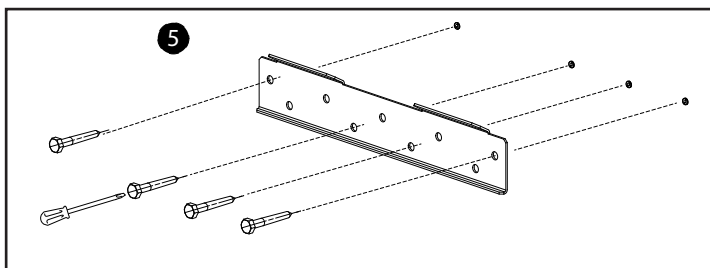
### 4.1 WALL MOUNTED SIDE BY SIDE OPTION

Ensure wall is capable of supporting the weight of boilers to be mounted. Note. boiler weights can found in the boiler Installation Instructions.

1. Cut the sides off the cardboard wall mounting template/s (found in the boiler packaging) to create the 50mm side clearance required.
2. Mark the height on to the wall from the floor to the top of the boiler 1919mm.
3. Tape the template/s to the wall ensuring the 50mm side clearance per boiler requirement is adhered to.

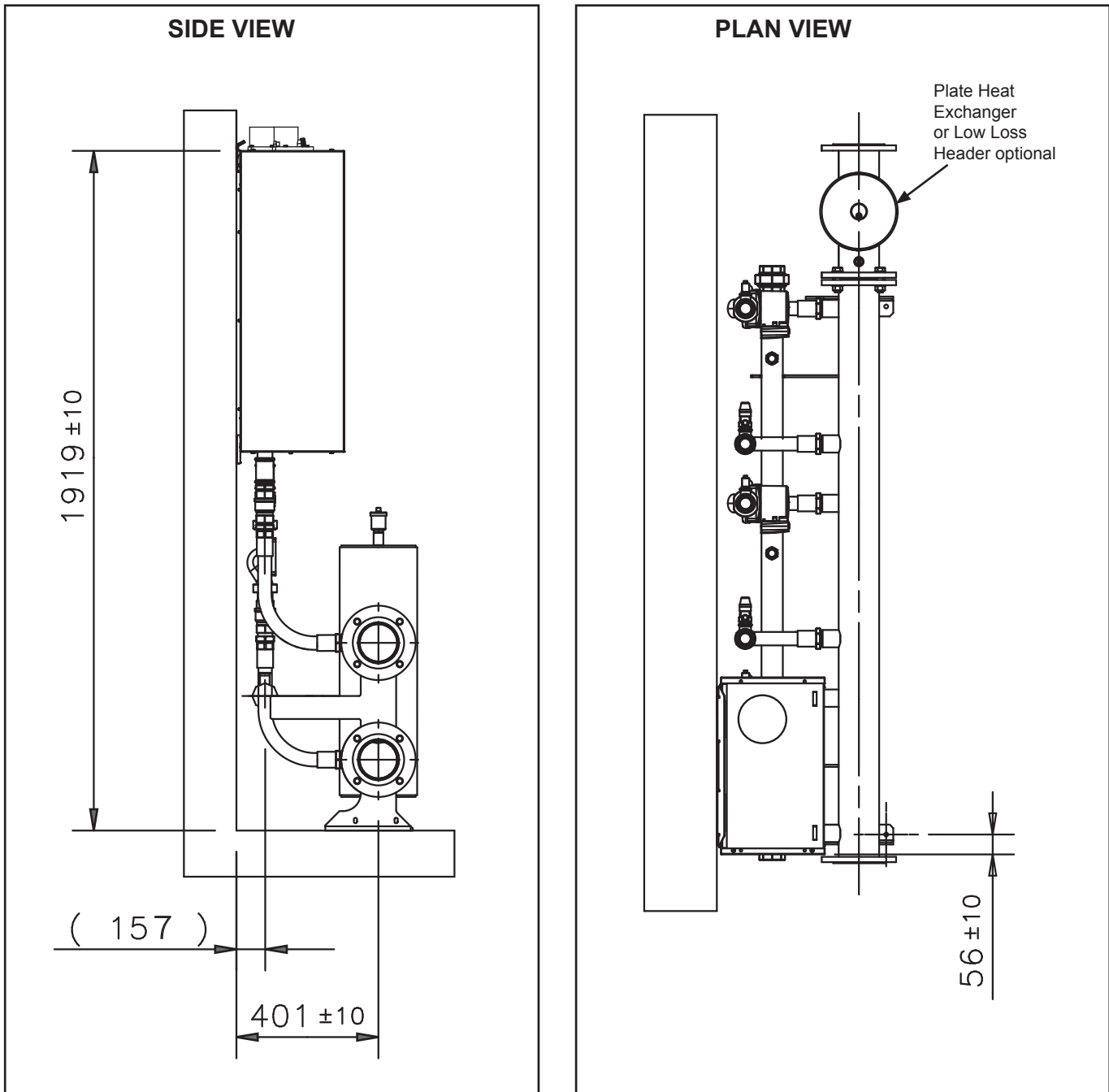


4. Drill the required holes in the wall to fit the wall mounting plate plugs. (See boiler Installation Instructions for details)
5. Screw the wall mounting plate(s) to the wall.



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#### 4.1 WALL MOUNTED SIDE BY SIDE OPTION CONT'D.....



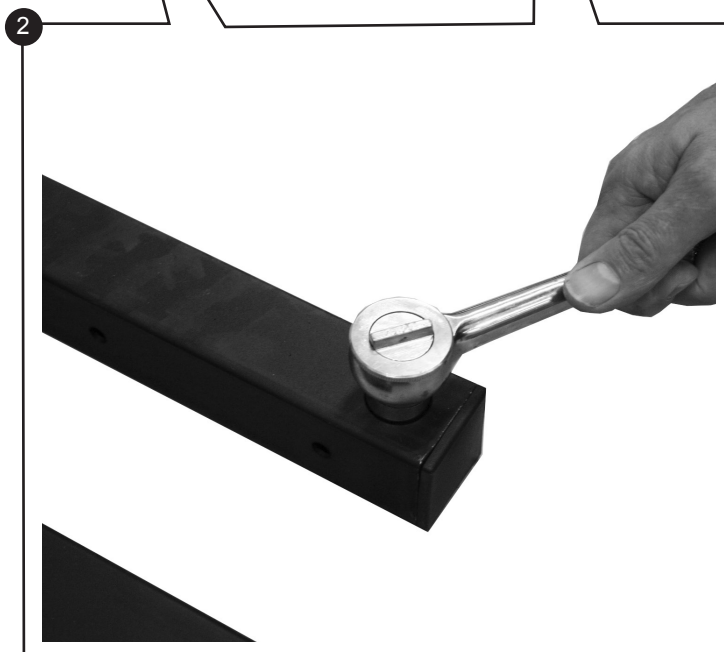
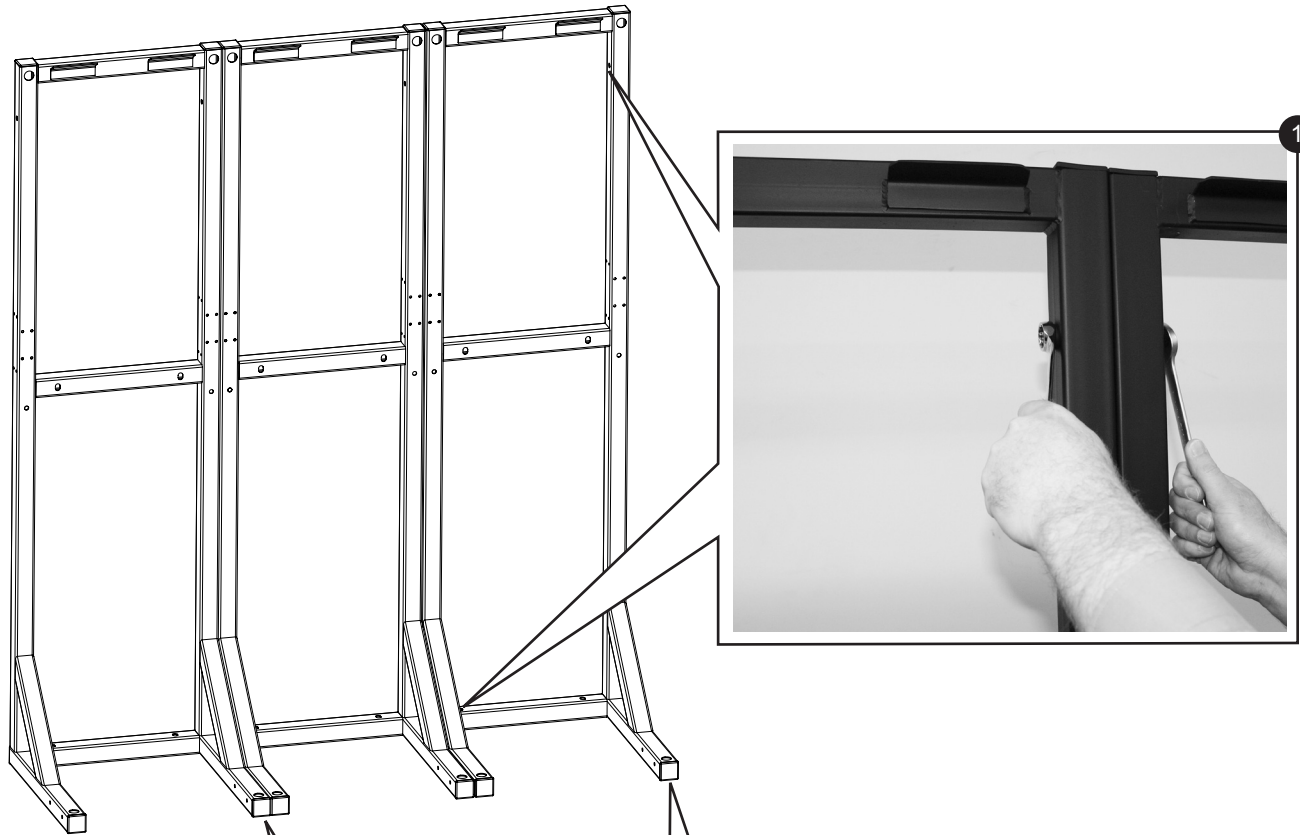
**Careful consideration MUST be given to the installation tolerances. If these are not adhered to, hoses may become kinked or connections may not fit.**

## 5 FRAME KIT INSTALLATION PROCEDURE

### 5.1 SIDE BY SIDE FRAME KIT MOUNTING PROCEDURE

1. Place the frame kit sections in the required position and bolt them together at the top and bottom with the bolts, nuts and washers provided.

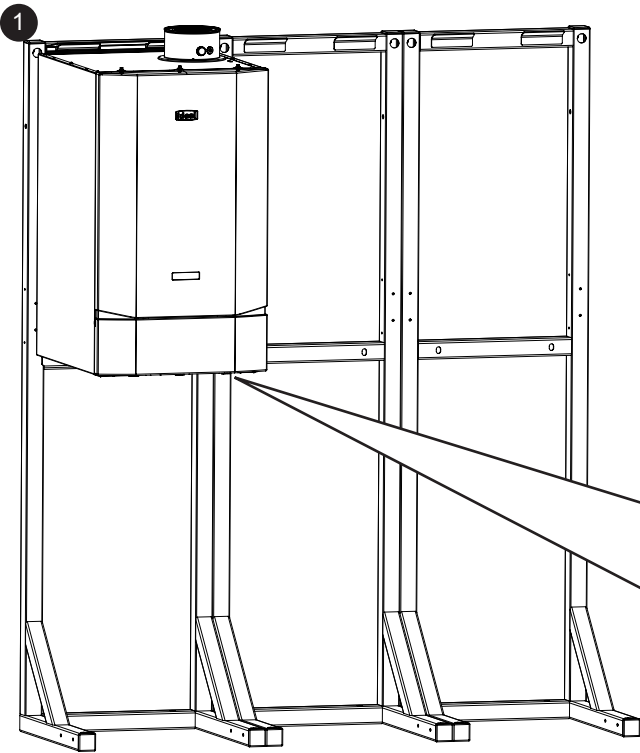
**IMPORTANT: MOUNTING FRAME MUST BE SECURED TO THE FLOOR WITH BOLTS**



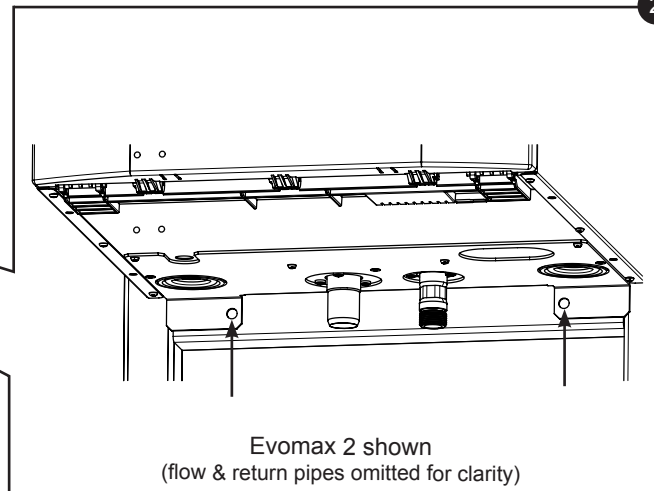
2. If additional stability is required remove the plastic foot covers and drill the floor in order to floor bolt the frame assembly to its required location. (Bolts not supplied in kit)

## 5.2 BOILER MOUNTING

1. As appropriate mount the boilers onto either the wall plates or the side by side frame kit.



2. Ensure the boiler bottom fixing bracket is screwed to the frame or wall.



## 6 HEADER KIT ASSEMBLY (OPTIONAL ACCESSORY)

### 6.1 FITTING MIXING HEADER AND BLANKING FLANGES

1. Fit the mixing header and blanking flanges in the chosen positions.

*Note. Mixing header can be located either LHS or RHS of the headers.*



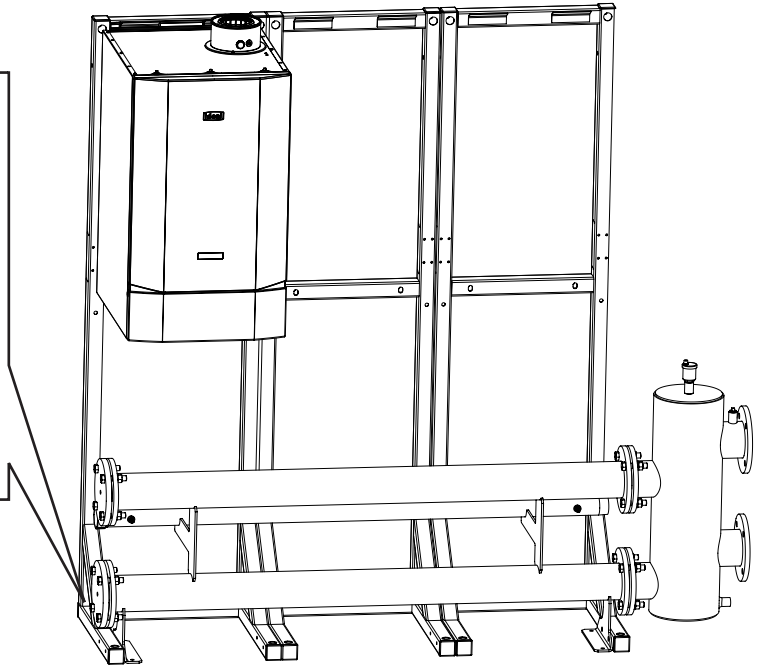
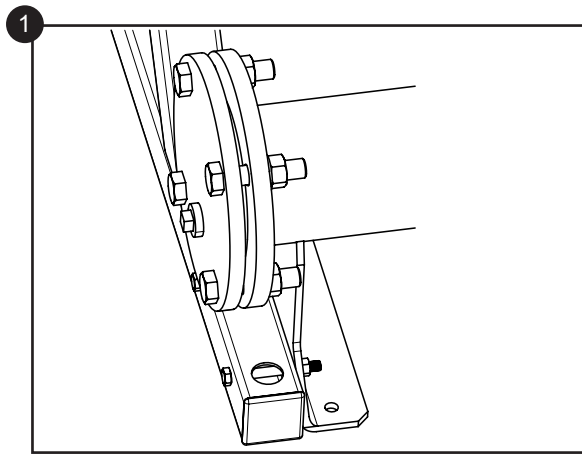
Mixing Header



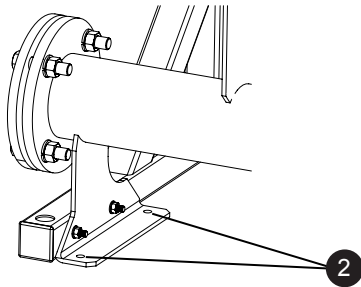
Blanking Flange

## 6.2 FITTING HEADER KIT ASSEMBLY

1. Slide the header kit assembly between the frame legs but do not screw the header kit to the frame at this stage.

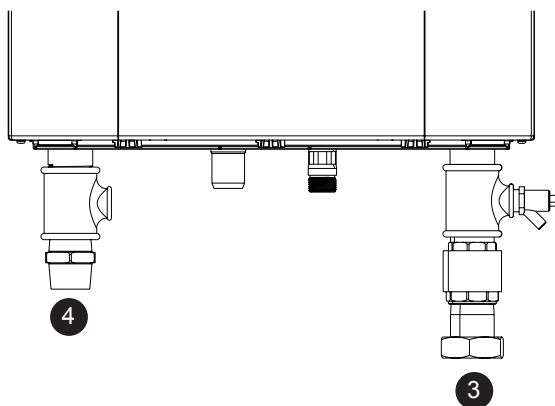


2. Screw the header legs to the frame feet with the bolts, nuts & washers provided.



3. Connect the pump assembly to the boiler RH boiler return connection (refer to Frame 3.6).

4. Connect the tee and male flex assembly (refer to Frame 3.6).



5. Fit the two flexible header connections to the boiler pump connection and the isolating valve connection ensuring the sealing washers are fitted.

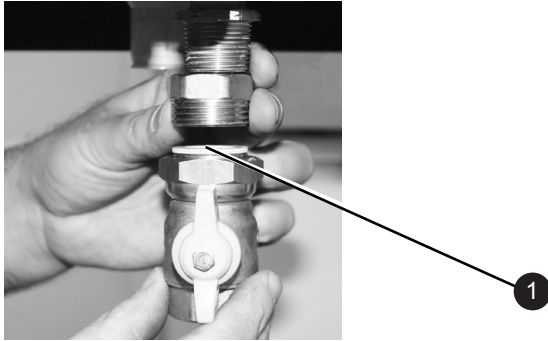




### 6.3 FITTING GAS CONNECTION

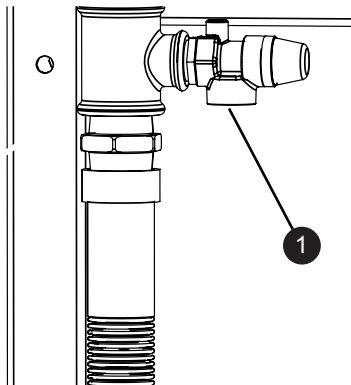
**NOTE:** Gas Isolation Valve is supplied with the boiler.

1. Fit the conical male adapter to the gas isolation valve.
2. Fit the gas isolation valve assembly to the boiler gas connection ensuring the sealing washer is fitted.
3. Fit the flexi gas pipe to the header then connect to the isolation valve.



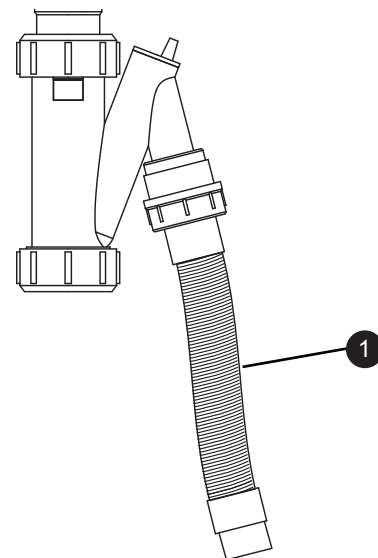
### 6.4 PRESSURE RELIEF VALVE CONNECTION

1. Ensure each boiler pressure relief connection is piped to safety.



### 6.5 CONDENSATE SIPHON FITTING

1. Fit the condensate siphon to the boiler and pipe to drain following the recommendations contained in the boiler Installation instructions.



## 7 INSTALLATION DRAWINGS FOR MULTIPLE BOILER SYSTEMS

### 7.1 GENERAL

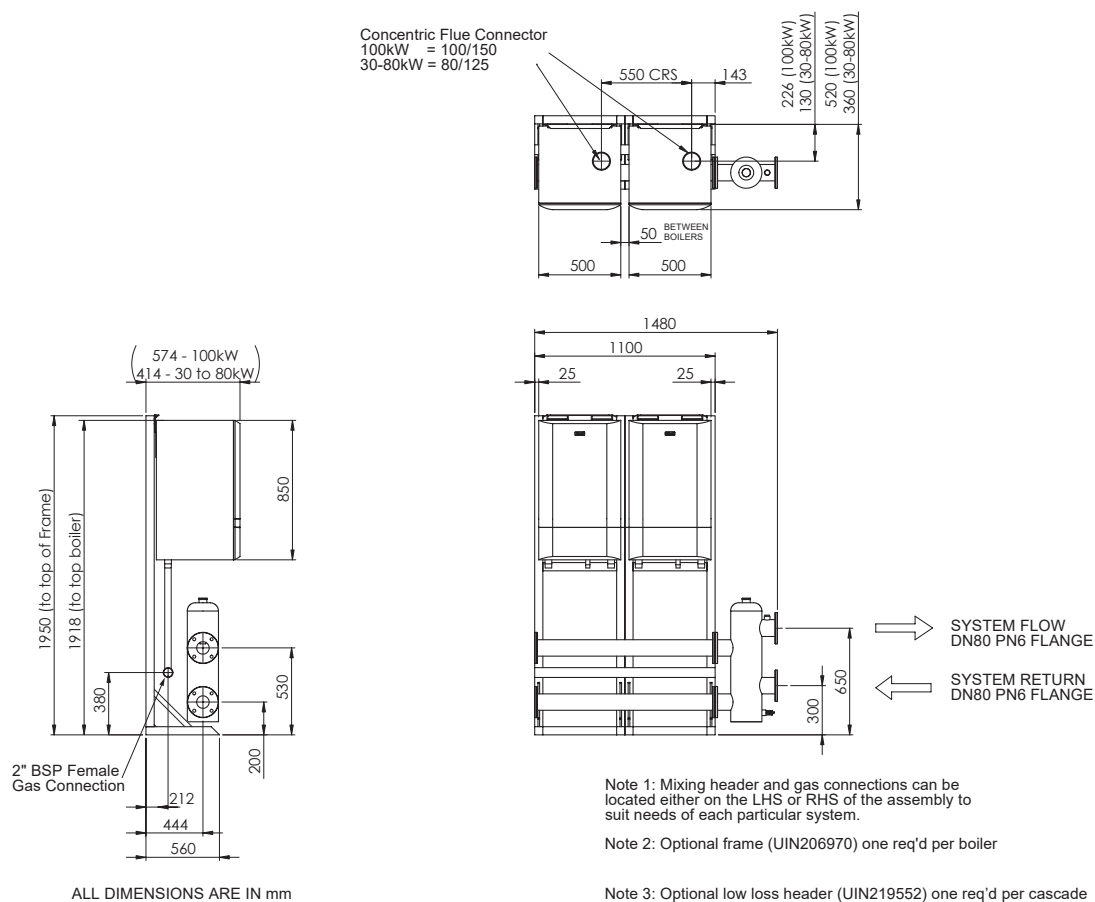
The multiple boiler systems are available in three formats:

- 2 to 6 boilers in a linear configuration, mounted on a wall.
- 2 to 6 boilers in a linear configuration, mounted on a free-standing frame.
- 2 to 6 boilers in a back-to-back configuration, mounted on a freestanding frame.

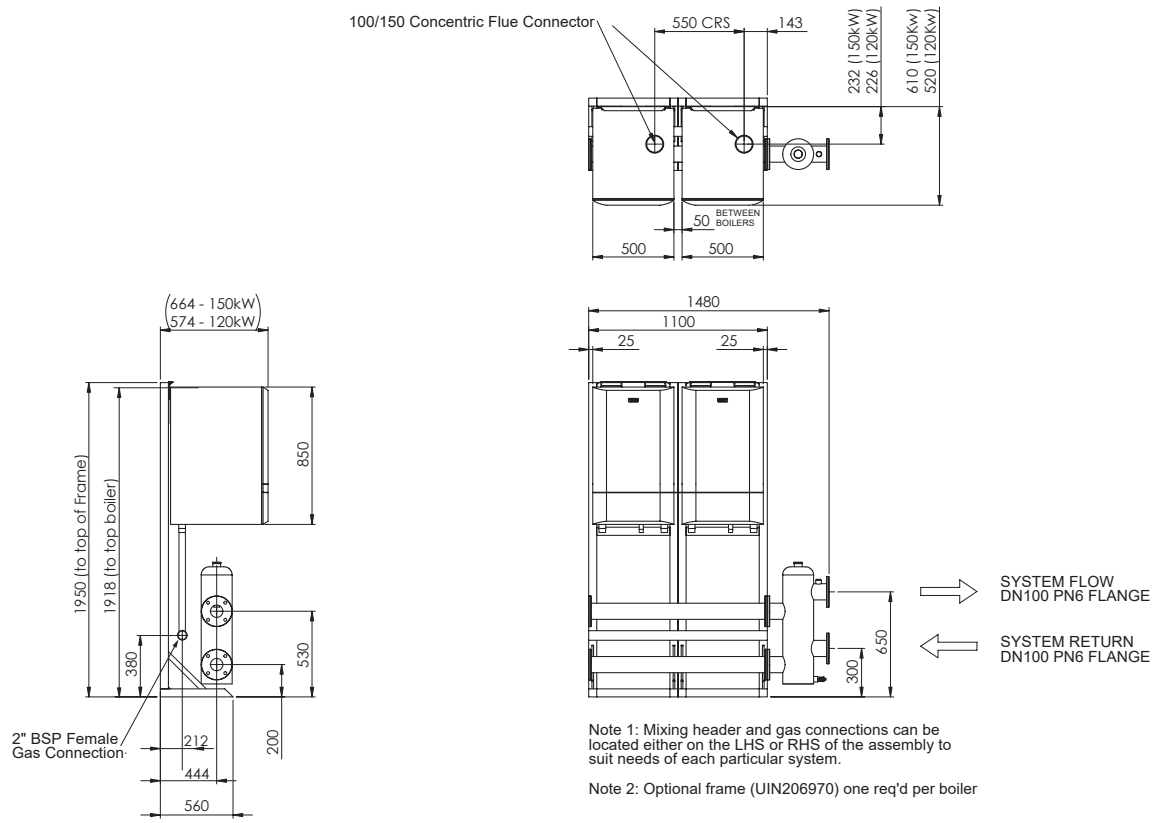
**The boiler side of the cascade systems is sized to water flow and return differential  $20\Delta T$ .**

## 7.2 SIDE BY SIDE FRAME KIT CONFIGURATION

### 7.2.1 INSTALLATION DRAWING WITH 2 – 30-100 BOILERS (SIDE BY SIDE) LOW LOSS HEADERS OR PLATE HEAT EXCHANGERS

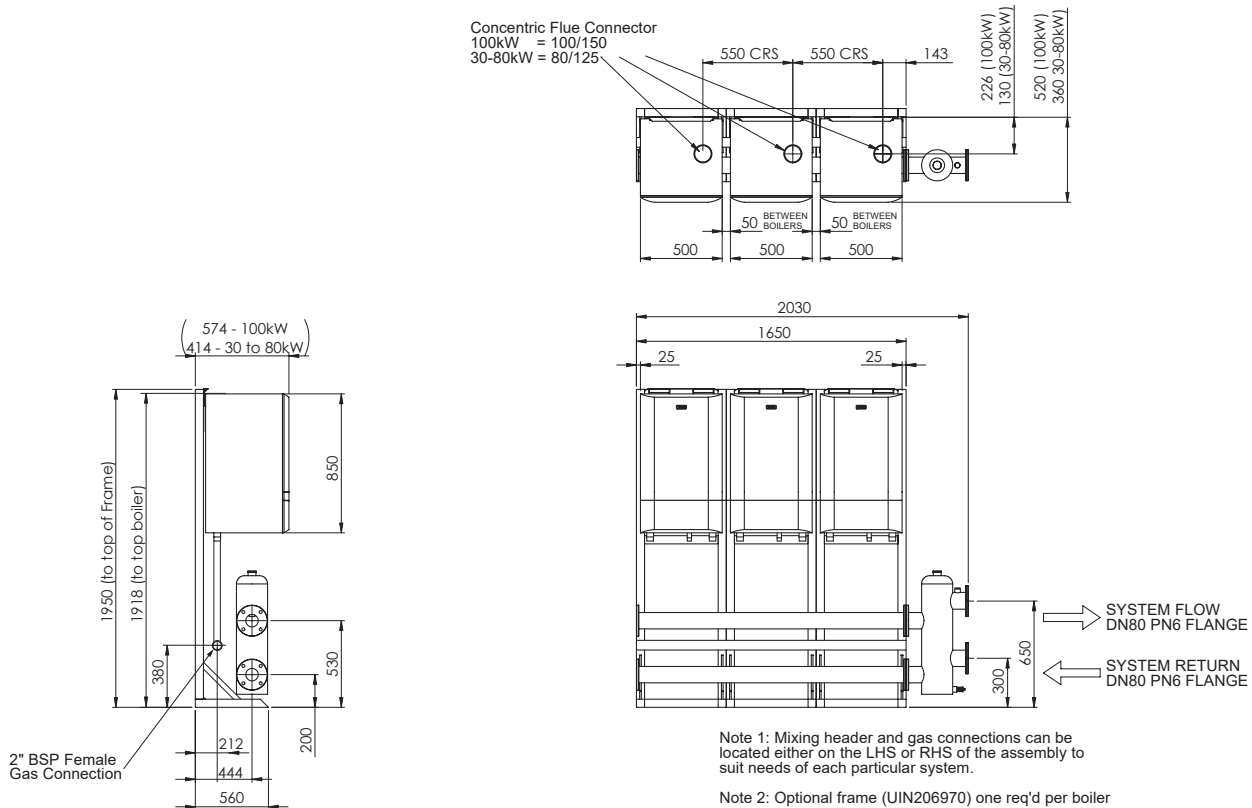


### 7.2.2 INSTALLATION DRAWING WITH 2 - 120/150 BOILERS (SIDE BY SIDE) LOW LOSS HEADERS OR PLATE HEAT EXCHANGERS



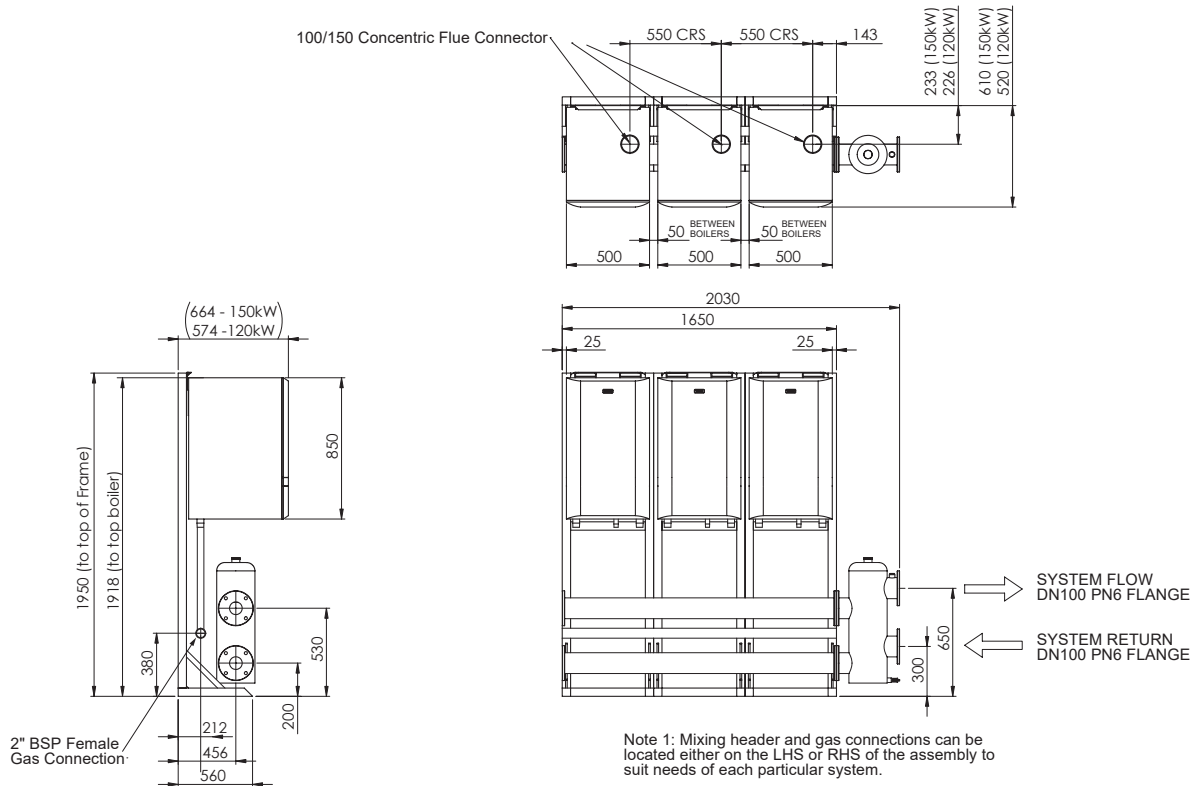
ALL DIMENSIONS ARE IN mm

### 7.2.3 INSTALLATION DRAWING WITH 3 - 30-100 BOILERS (SIDE BY SIDE) LOW LOSS HEADERS OR PLATE HEAT EXCHANGERS



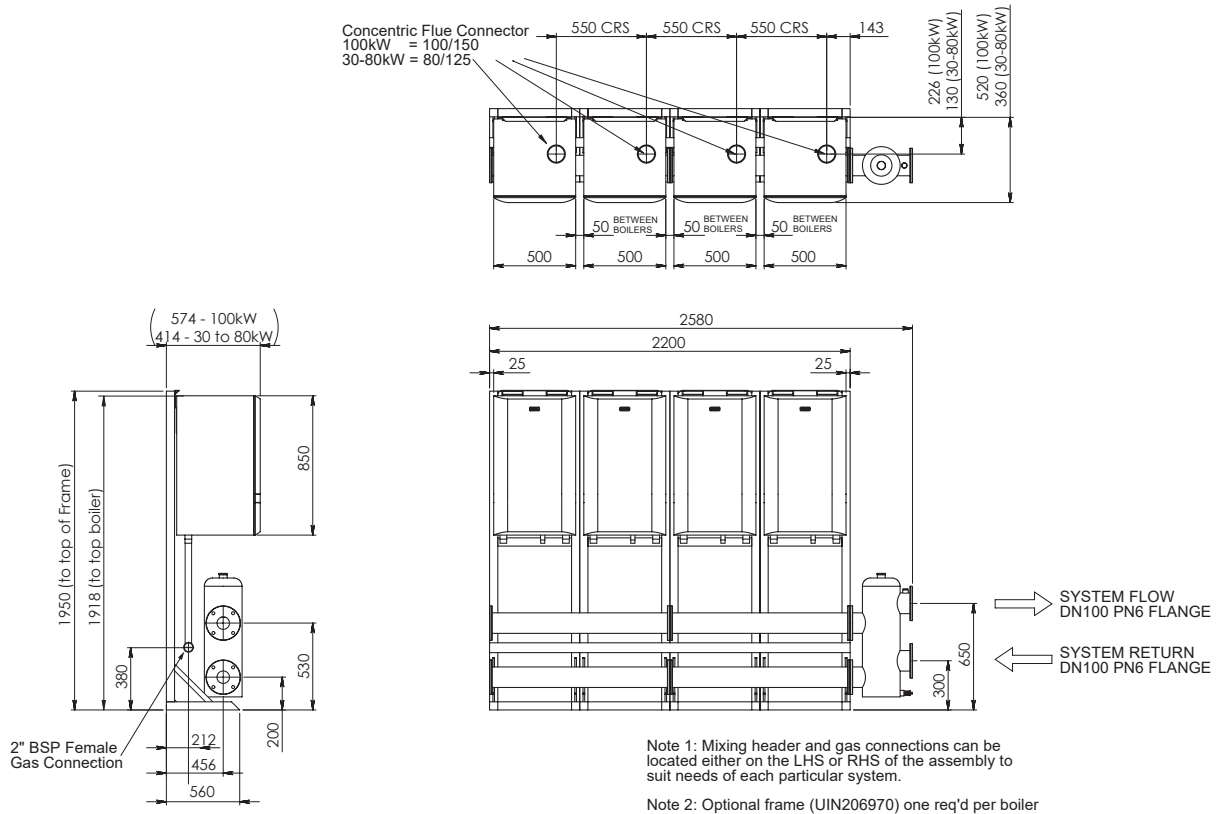
ALL DIMENSIONS ARE IN mm

## 7.2.4 INSTALLATION DRAWING WITH 3 – 120/150 BOILERS (SIDE BY SIDE) LOW LOSS HEADERS OR PLATE HEAT EXCHANGERS



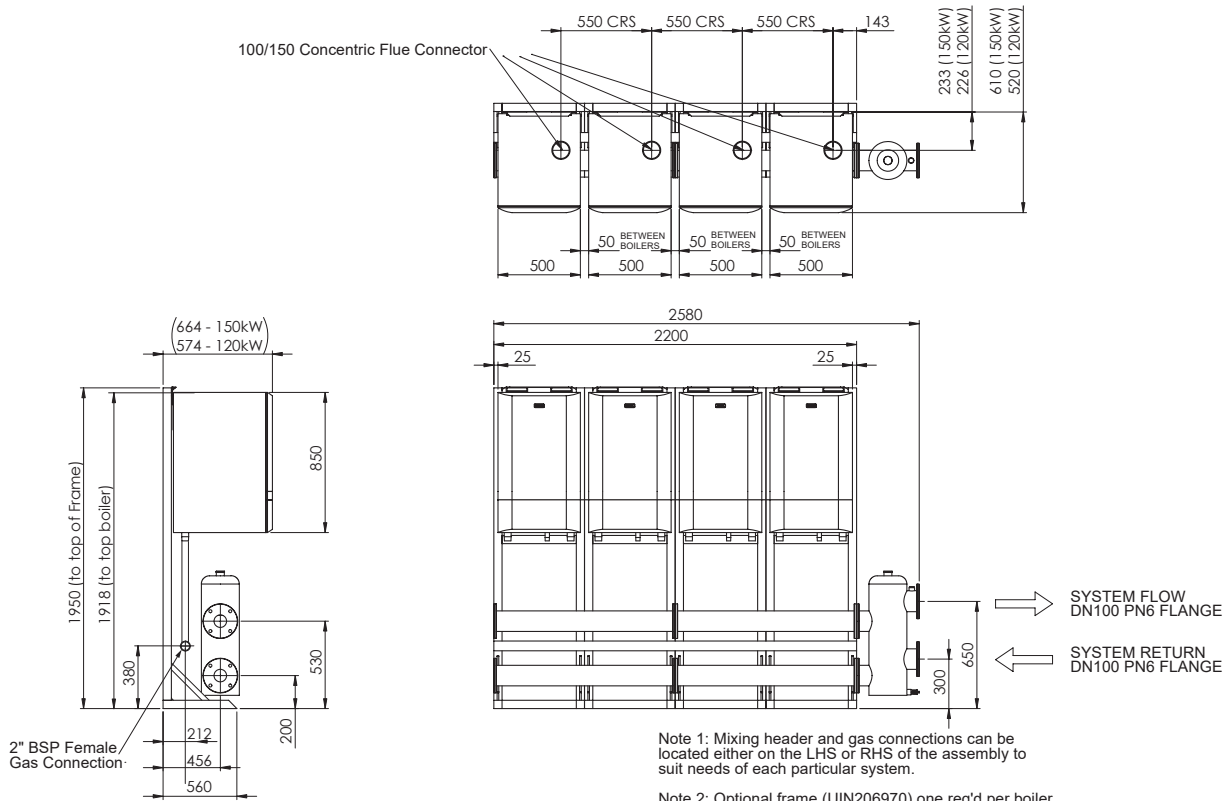
ALL DIMENSIONS ARE IN mm

## 7.2.5 INSTALLATION DRAWING WITH 4 – 30-100 BOILERS (SIDE BY SIDE) LOW LOSS HEADERS OR PLATE HEAT EXCHANGERS



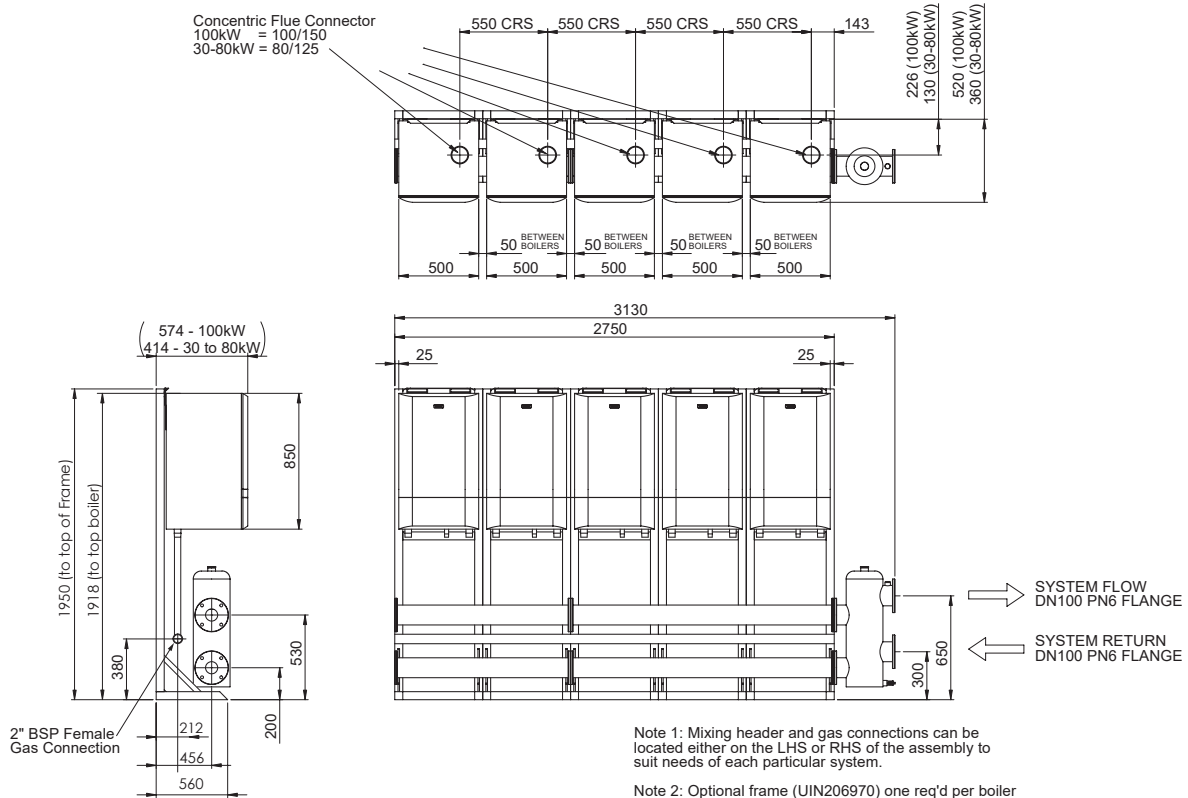
ALL DIMENSIONS ARE IN mm

## 7.2.6 INSTALLATION DRAWING WITH 4 – 120/150 BOILERS (SIDE BY SIDE) LOW LOSS HEADERS OR PLATE HEAT EXCHANGERS



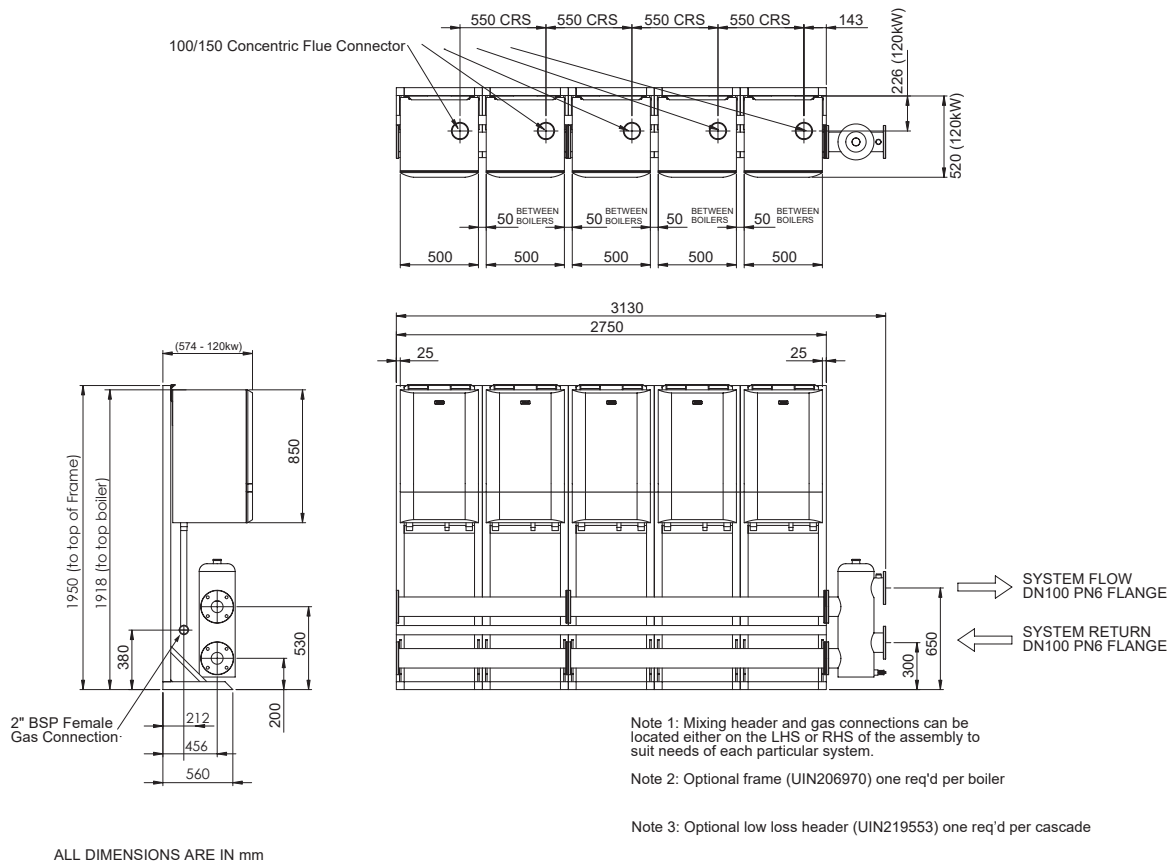
ALL DIMENSIONS ARE IN mm

## 7.2.7 INSTALLATION DRAWING WITH 5 – 30-100 BOILERS (SIDE BY SIDE) LOW LOSS HEADERS OR PLATE HEAT EXCHANGERS

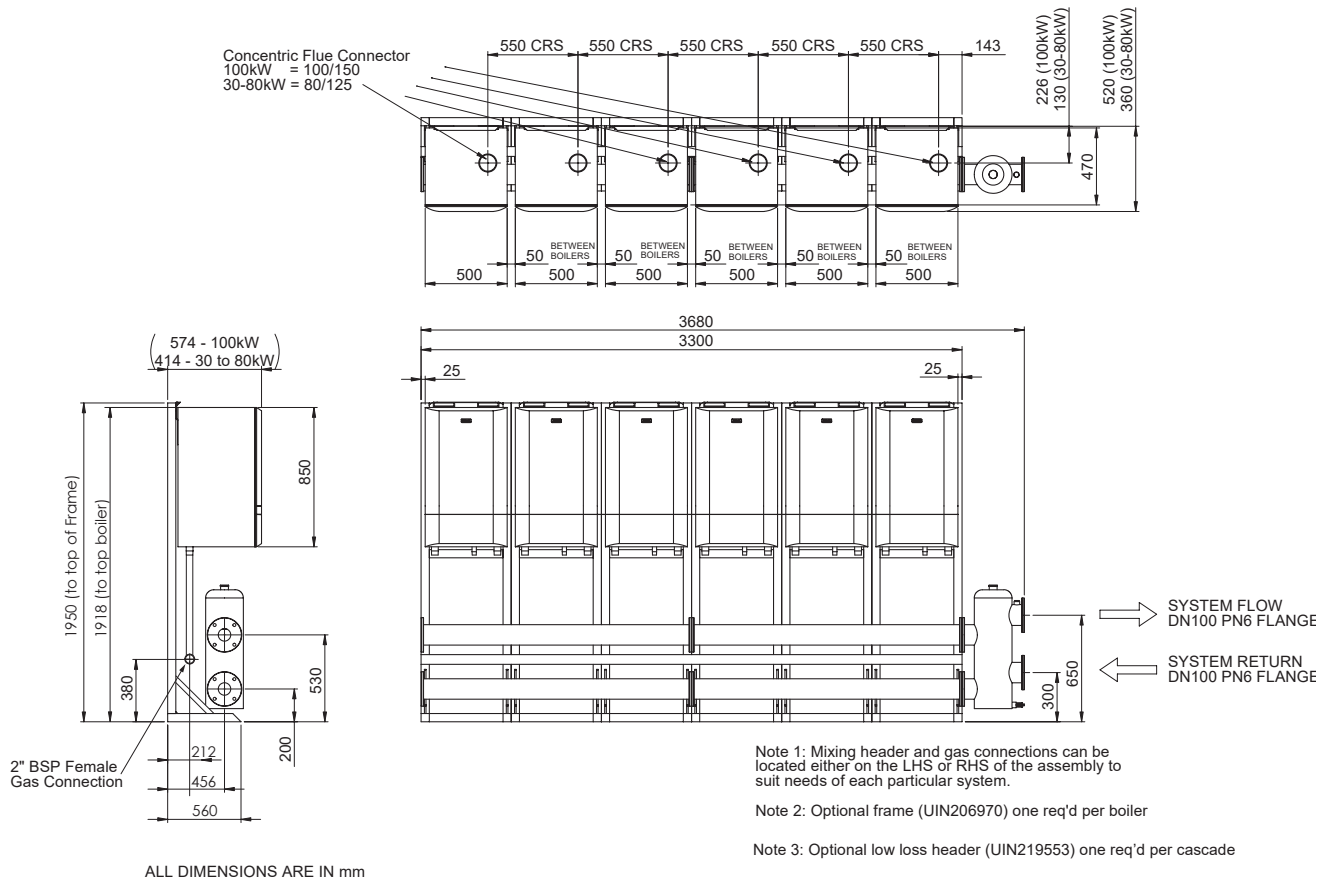


ALL DIMENSIONS ARE IN mm

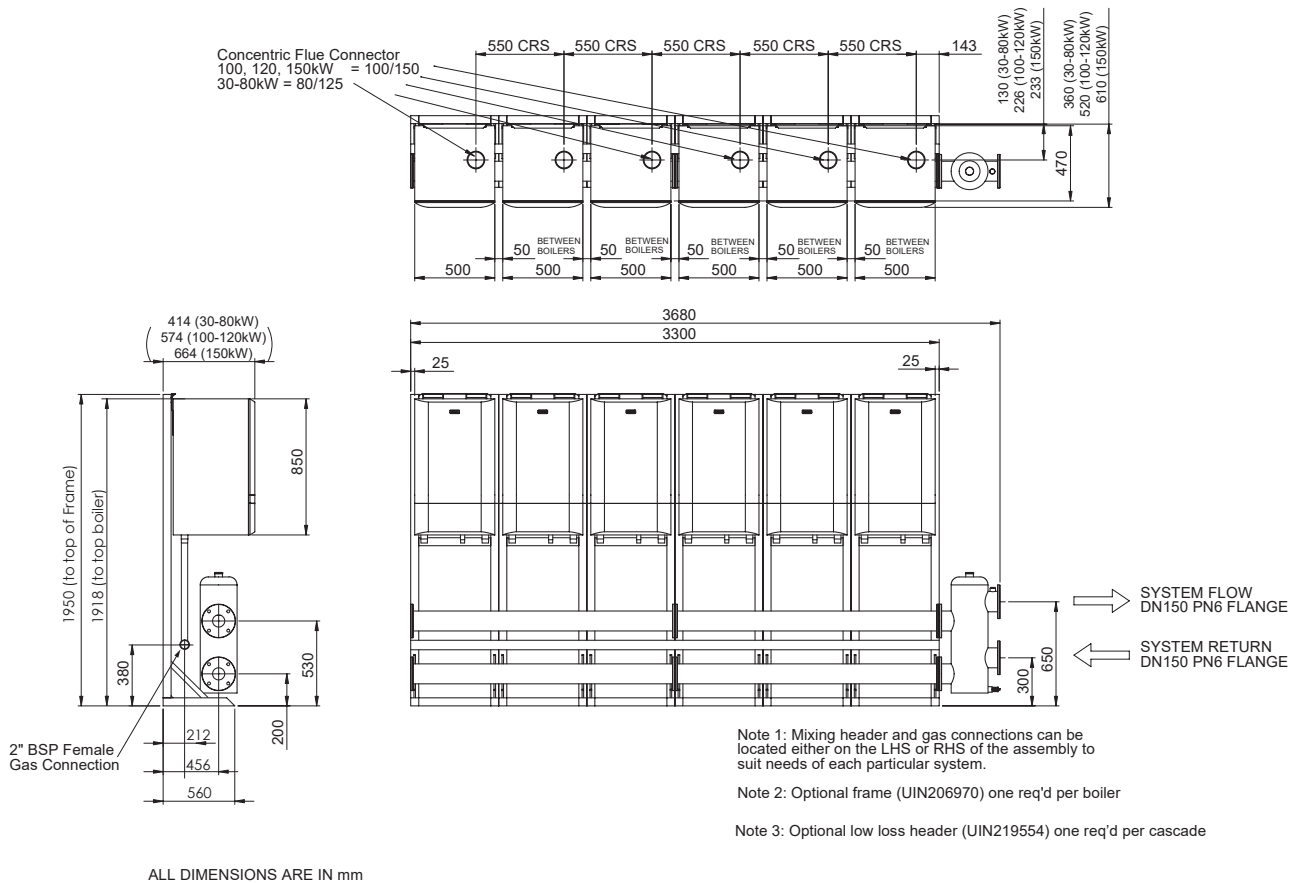
## 7.2.8 INSTALLATION DRAWING WITH 5 - 120 BOILERS (SIDE BY SIDE) LOW LOSS HEADERS OR PLATE HEAT EXCHANGERS



## 7.2.9 INSTALLATION DRAWING WITH 6 - 30-100 BOILERS (SIDE BY SIDE) LOW LOSS HEADERS OR PLATE HEAT EXCHANGERS

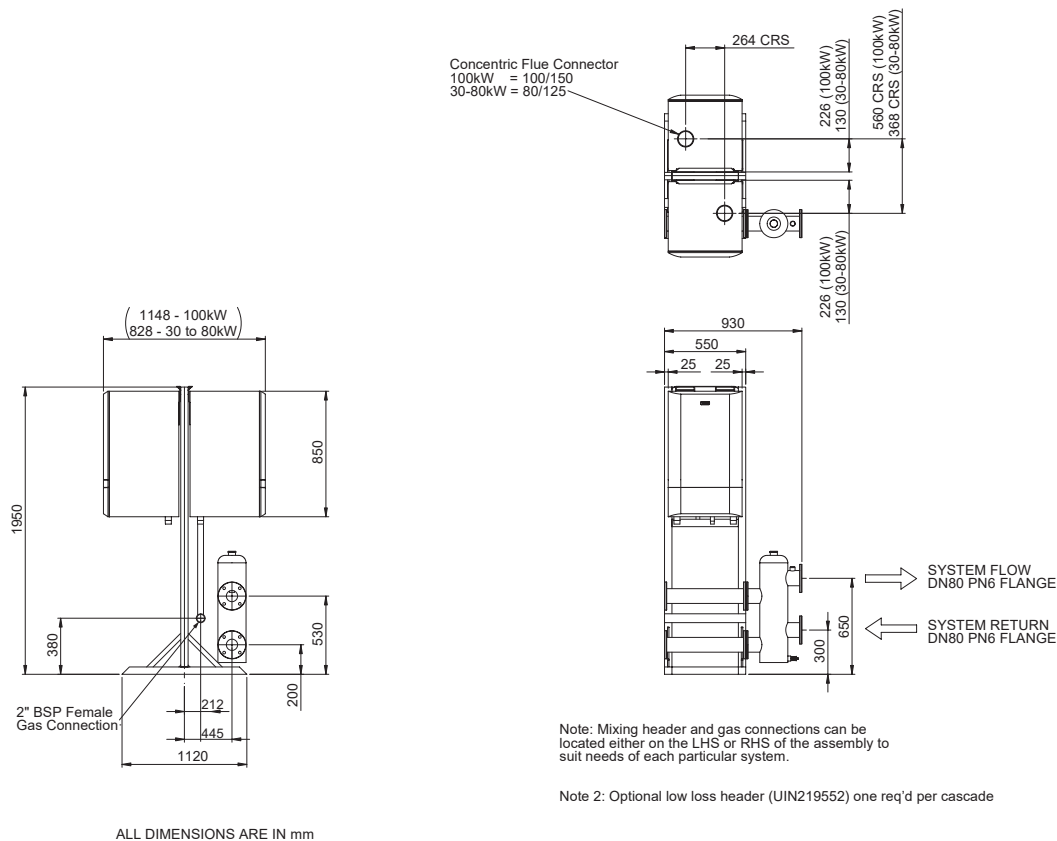


## 7.2.10 INSTALLATION DRAWING WITH 6 – 30-150 BOILERS (SIDE BY SIDE) LOW LOSS HEADERS

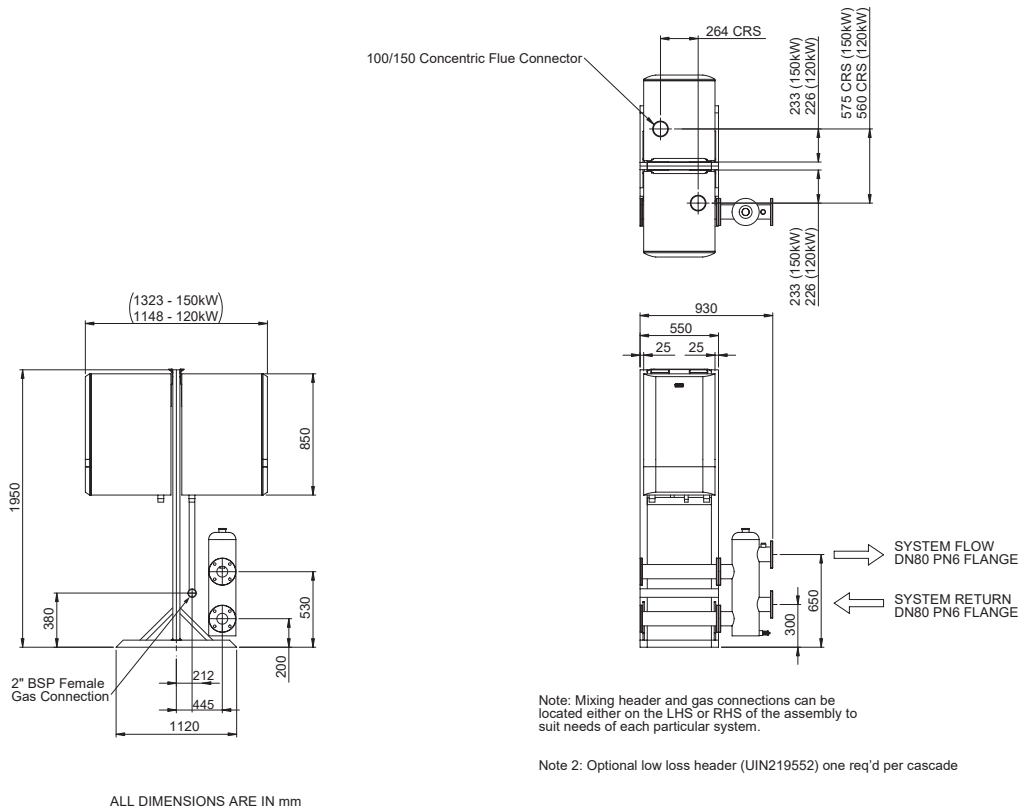


## 7.3 BACK TO BACK FRAME KIT CONFIGURATION

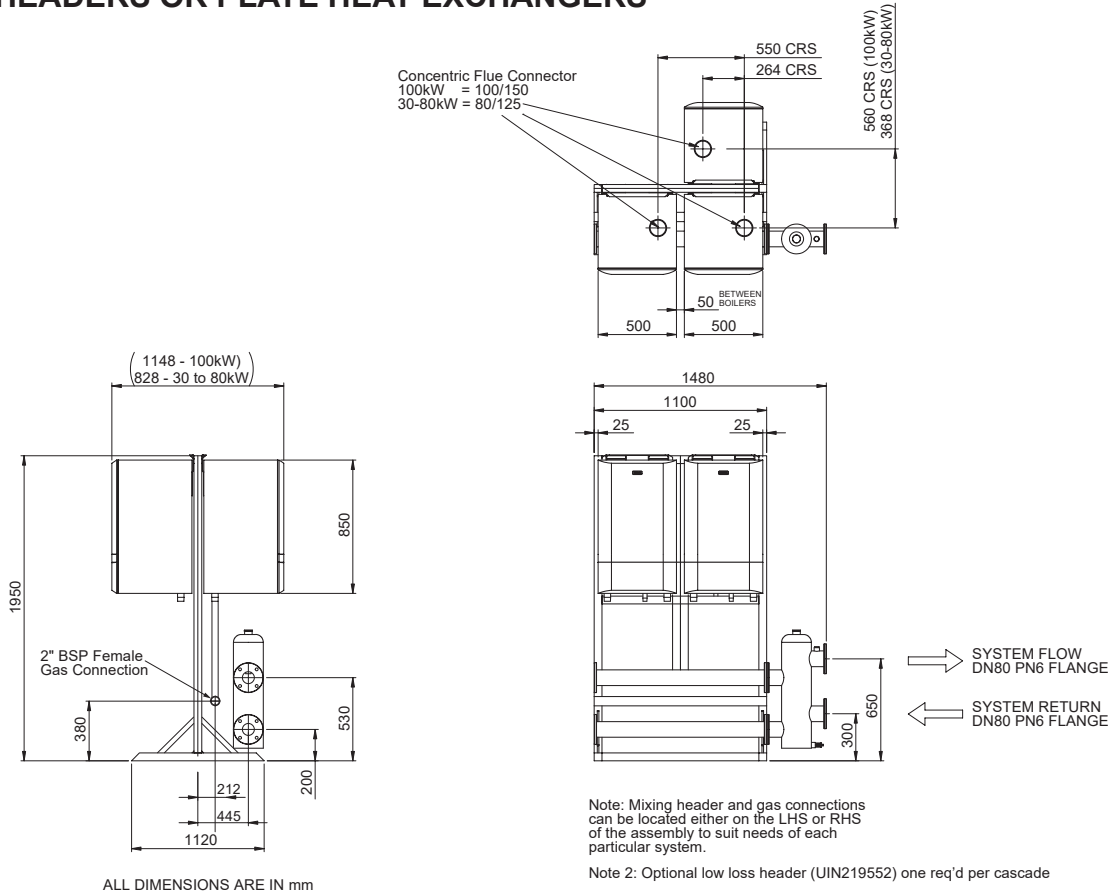
### 7.3.1 INSTALLATION DRAWING WITH 2 – 30-100 BOILERS (BACK TO BACK) LOW LOSS HEADERS OR PLATE HEAT EXCHANGERS



### 7.3.2 INSTALLATION DRAWING WITH 2 – 120/150 BOILERS (BACK TO BACK) LOW LOSS HEADERS OR PLATE HEAT EXCHANGERS

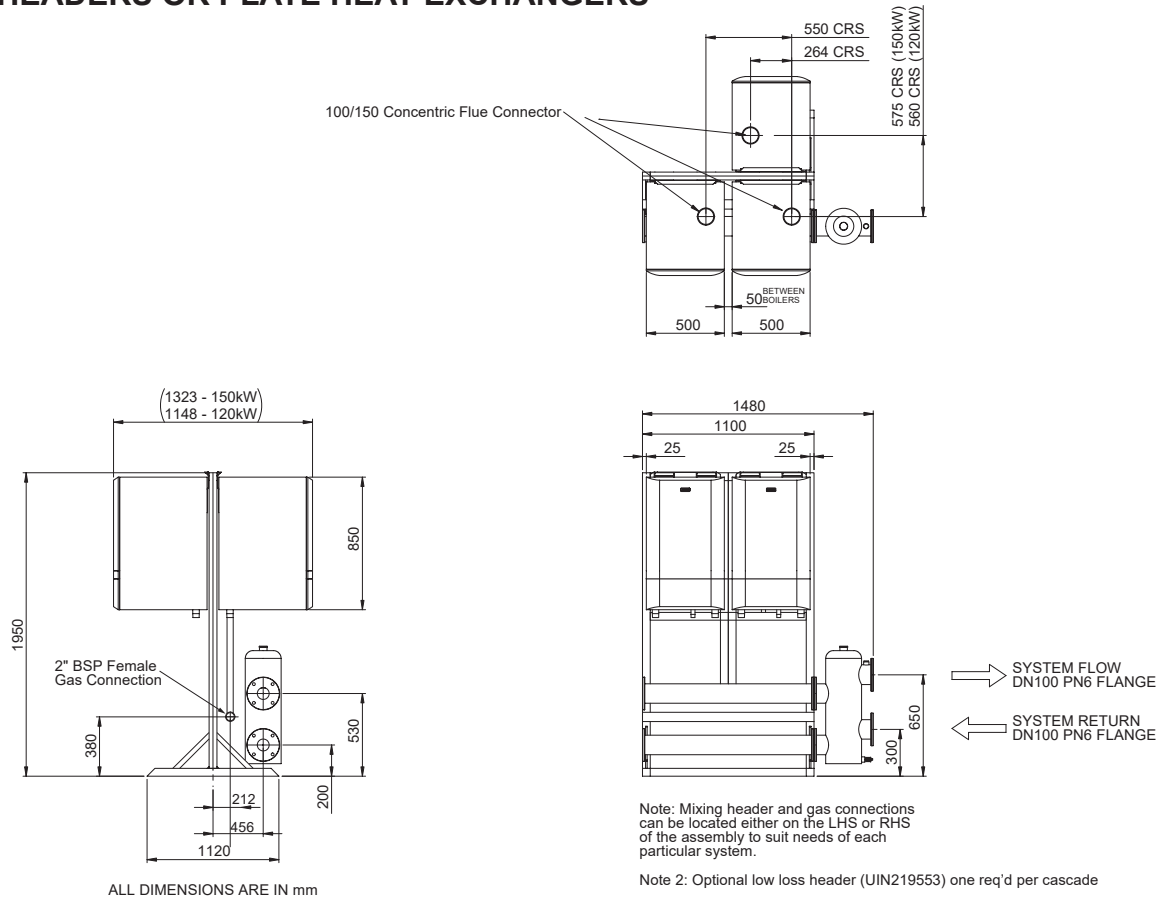


### 7.3.3 INSTALLATION DRAWING WITH 3 – 30-100 BOILERS (BACK TO BACK) LOW LOSS HEADERS OR PLATE HEAT EXCHANGERS

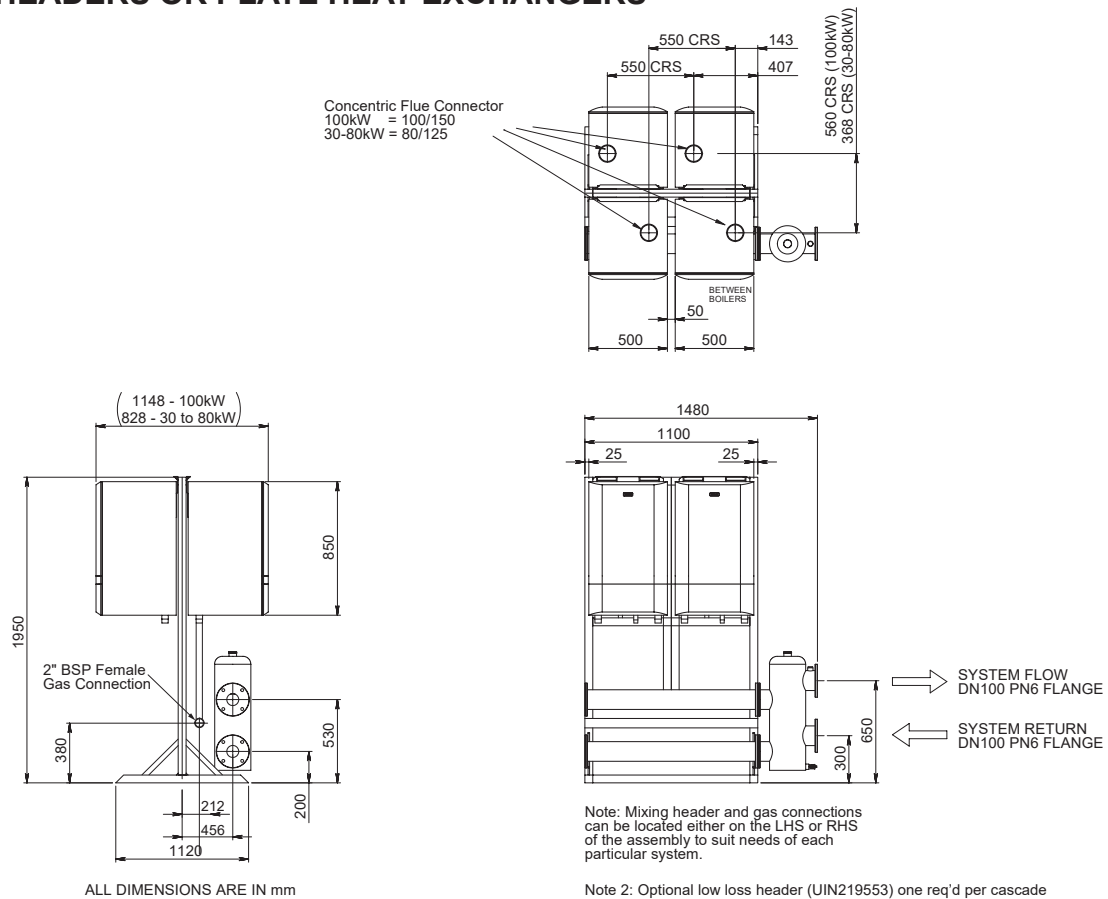




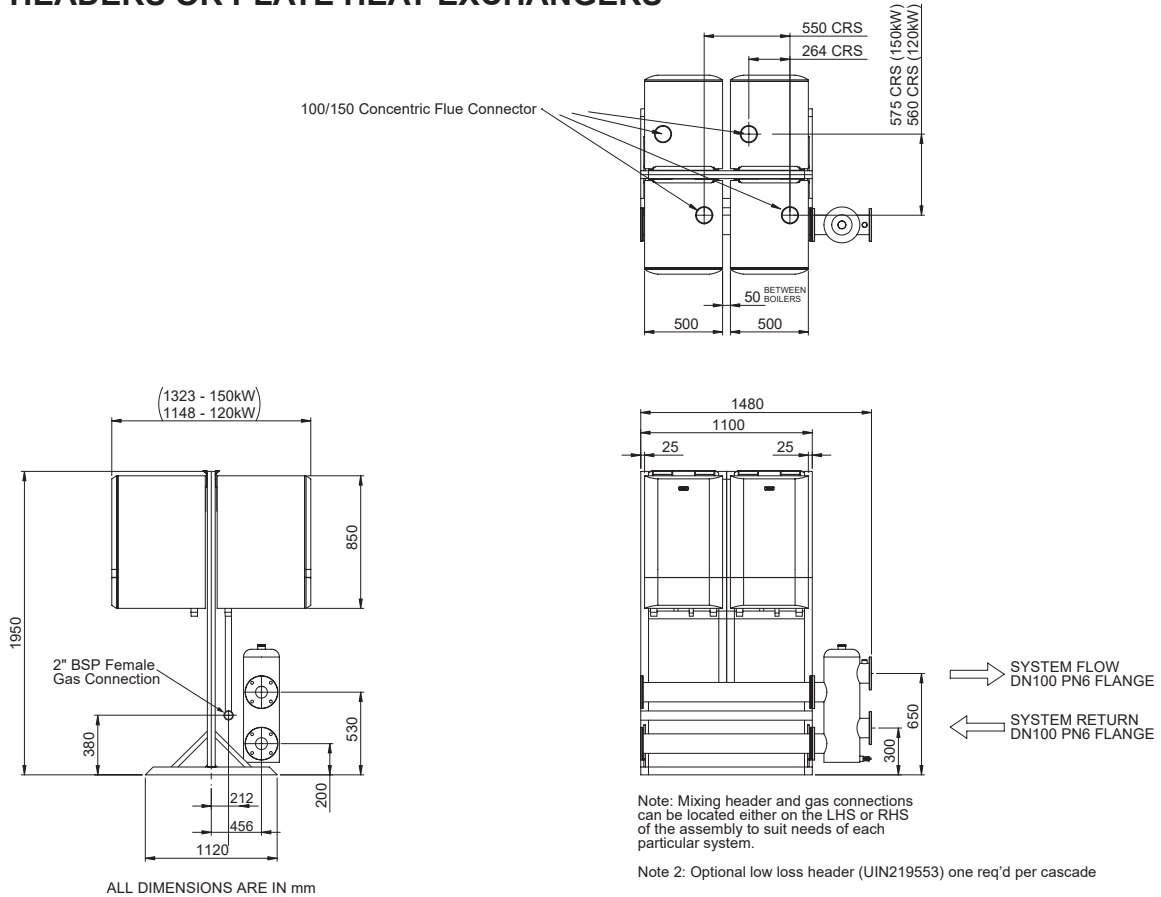
### 7.3.4 INSTALLATION DRAWING WITH 3 – 120/150 BOILERS (BACK TO BACK) LOW LOSS HEADERS OR PLATE HEAT EXCHANGERS



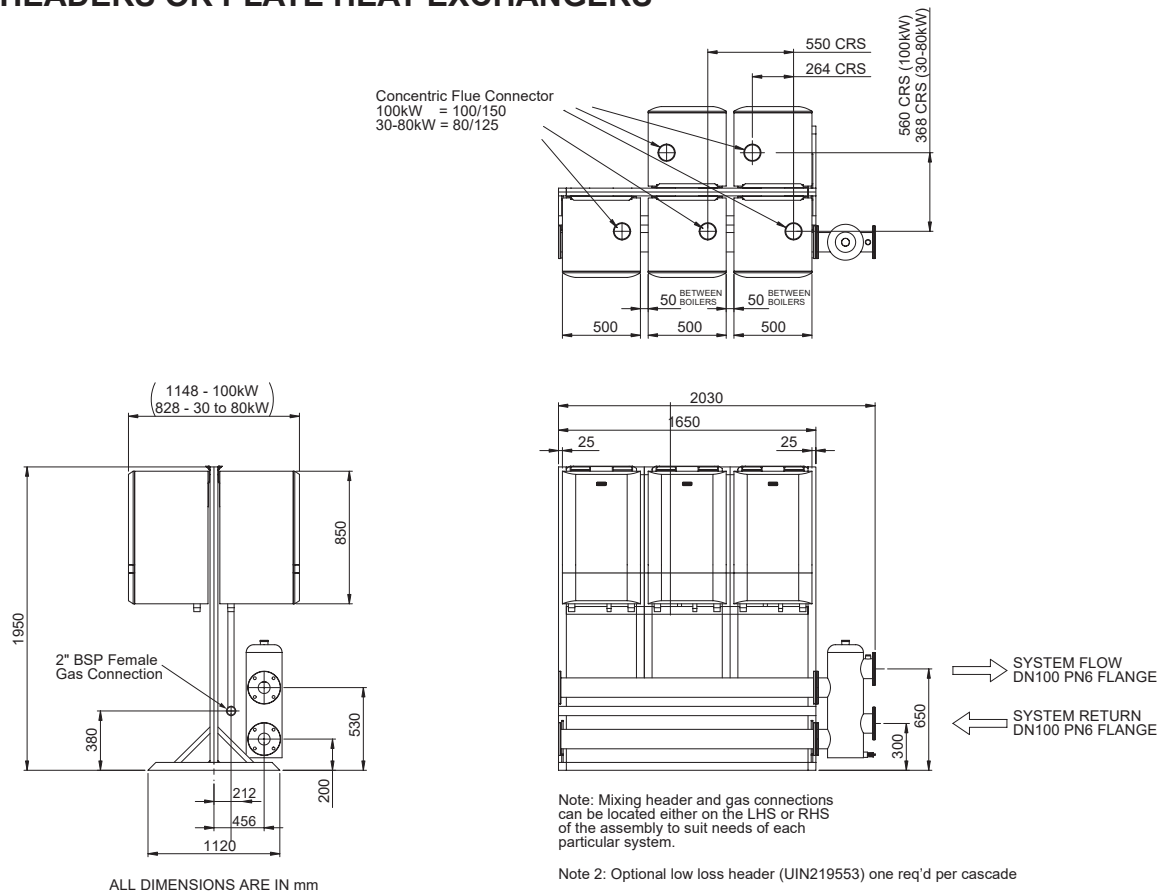
### 7.3.5 INSTALLATION DRAWING WITH 4 – 30-100 BOILERS (BACK TO BACK) LOW LOSS HEADERS OR PLATE HEAT EXCHANGERS



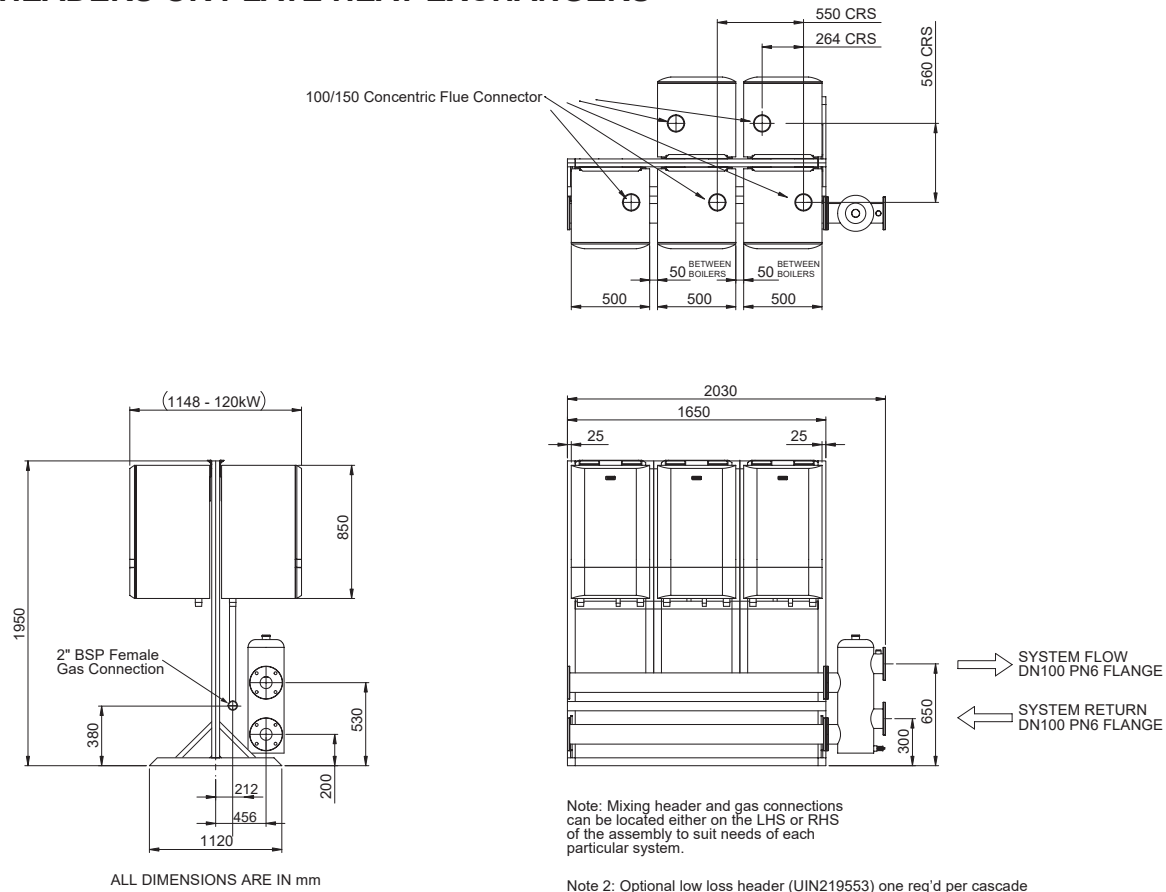
### 7.3.6 INSTALLATION DRAWING WITH 4 – 120/150 BOILERS (BACK TO BACK) LOW LOSS HEADERS OR PLATE HEAT EXCHANGERS



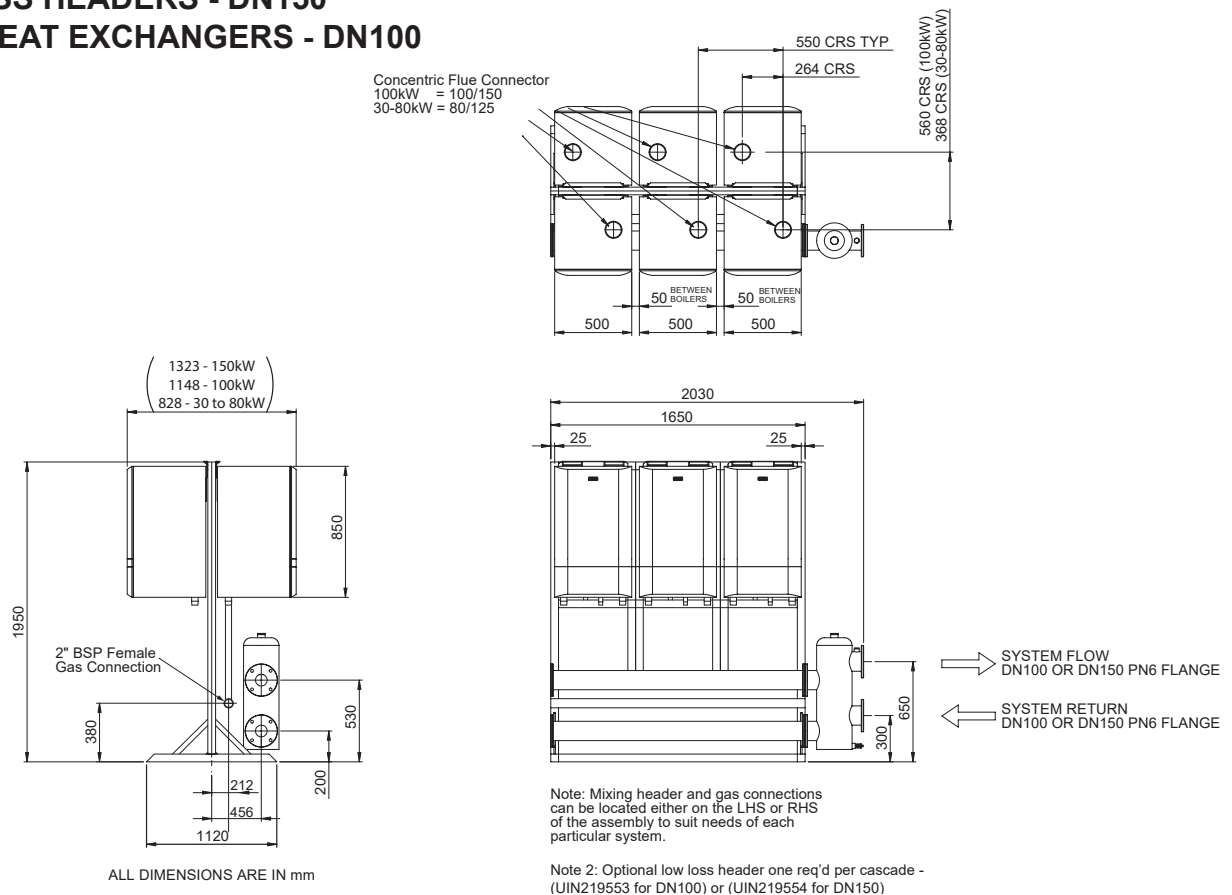
### 7.3.7 INSTALLATION DRAWING WITH 5 – 30-100 BOILERS (BACK TO BACK) LOW LOSS HEADERS OR PLATE HEAT EXCHANGERS



### 7.3.8 INSTALLATION DRAWING WITH 5 – 120 BOILERS (BACK TO BACK) LOW LOSS HEADERS OR PLATE HEAT EXCHANGERS



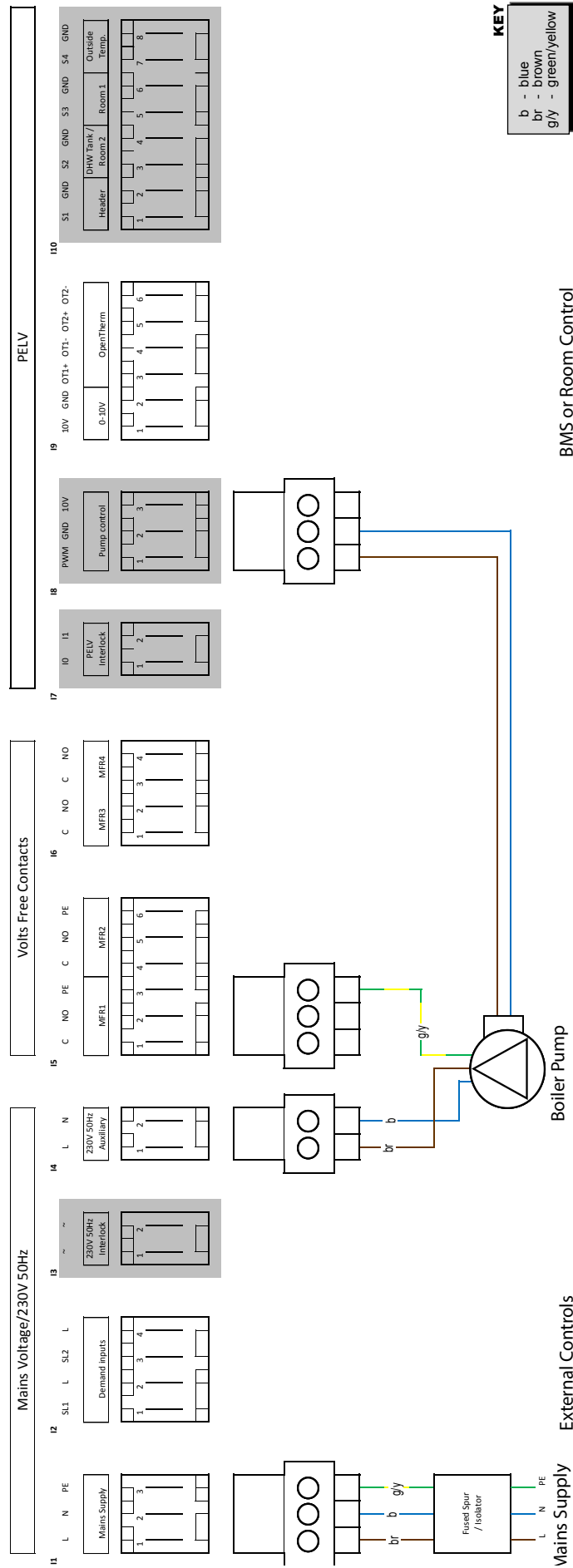
### 7.3.9 INSTALLATION DRAWING WITH 6 – 30-150 BOILERS (BACK TO BACK) LOW LOSS HEADERS - DN150 PLATE HEAT EXCHANGERS - DN100



# 8 ELECTRICAL CONNECTIONS & WIRING DIAGRAM

## Boiler Pump Speed Control via PWM output

Note: Refer to the boiler Installation Manual for boiler pump control configuration



Refer to the Wiring Connection section in the boiler Installation Instructions for wiring details.

**IMPORTANT:** Ensure the boiler pumps are wired to the boiler in order to ensure the boiler pump overrun facility is provided.

## 9 COMMISSIONING AND TESTING

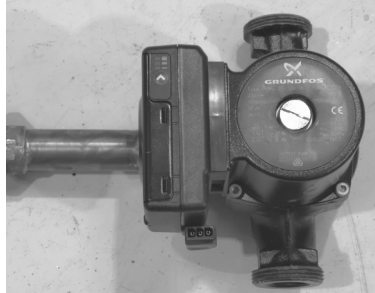
1. Electrical and gas safety checks must be carried out on completion of installation as with individual boiler commissioning.
2. Pump setting - follow instructions on pump types shown below;

EVOMAX



Adjust red control potentiometer fully clockwise to position 8, as shown. This is the constant pressure modulation function.

EVOMAX 2



UPML for use with Low Loss Headers

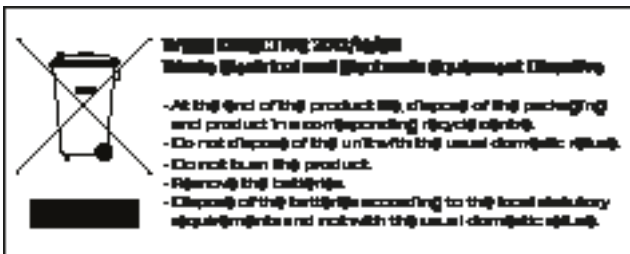


UPMXXL for use with Plate Heat Exchangers

**IMPORTANT:** PWM Control to be wired directly to the boiler PCB & **MUST** be wired in last. For pump and external pump control wiring refer to this instruction & the boiler Installation Manual.

## NOTES

## NOTES



The code of practice for the installation, commissioning & servicing of central heating systems

At Ideal Heating we take our environmental impact seriously, therefore when installing any Ideal Heating product please make sure to dispose of any previous appliance in an environmentally conscious manner. Households can contact their local authority to find out how. See <https://www.gov.uk/managing-your-waste-an-overview> for guidance on how to efficiently recycle your business waste.

**Technical Training**

Our Expert Academy offer a range of training options designed and delivered by our experts in heating. For details please visit: [expert-academy.co.uk](http://expert-academy.co.uk)

Ideal Heating Ltd., pursues a policy of continuing improvement in the design and performance of its products. The right is therefore reserved to vary specification without notice.

Ideal is a trademark of Ideal Heating.

Registered Office

Ideal Boilers Ltd., National Avenue, Hull, East Yorkshire, HU5 4JB

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Registration No. London 322 137

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Ideal Parts: 01482 498665

[idealheating.com](http://idealheating.com)







idealheating.com

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**Technical Training**

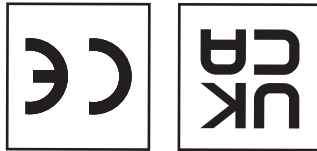
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**WEEE DIRECTIVE 2012/19/EU**

- At the end of the product life, dispose of the packaging and product in a corresponding recycle centre.
- Do not dispose of the unit with the usual domestic refuse.
- Do not burn the product.
- Remove the batteries.
- Dispose of the batteries according to the local statutory requirements and not with the usual domestic refuse.





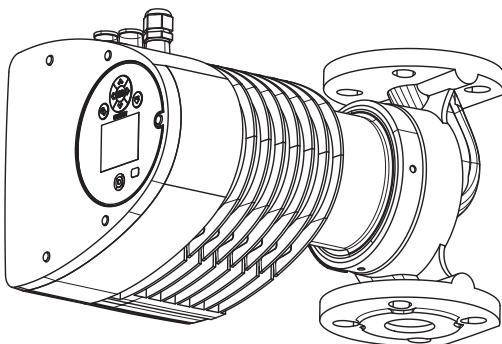


## 8 COMMISSIONING AND TESTING

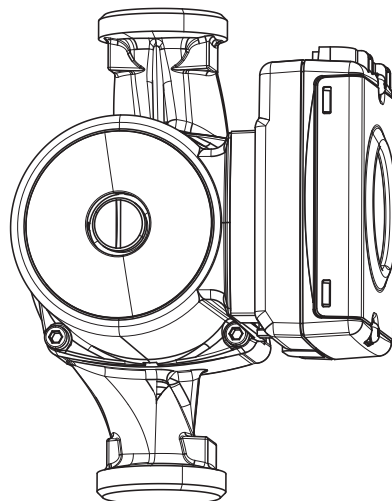
1. Electrical and gas safety checks must be carried out on completion of installation as with individual boiler commissioning.
  2. Ensure sealing washers/ gaskets are in place on all pumps.
- Refer to the boiler Installation Manual.

**IMPORTANT:** PWM Control to be wired directly to the boiler PCB. For pump and external pump control wiring refer to this instruction & the boiler Installation Manual.

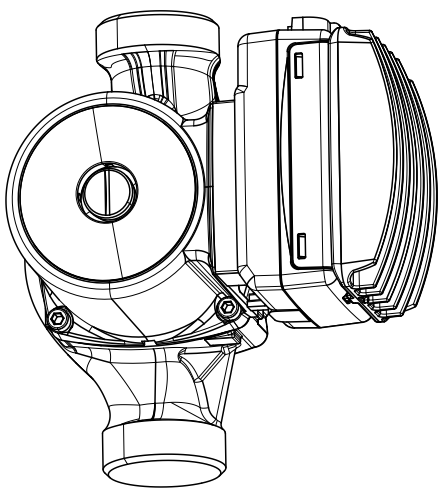
MAGNA3 40-80 F



'U.P.M.L.' for use with Low Loss Headers and on 80 and 120 with plates

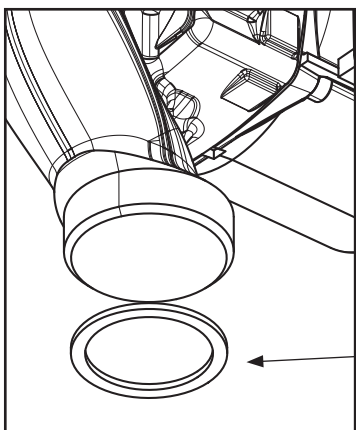


'U.P.M.XXL' for use with Plate Heat Exchangers and low loss headers

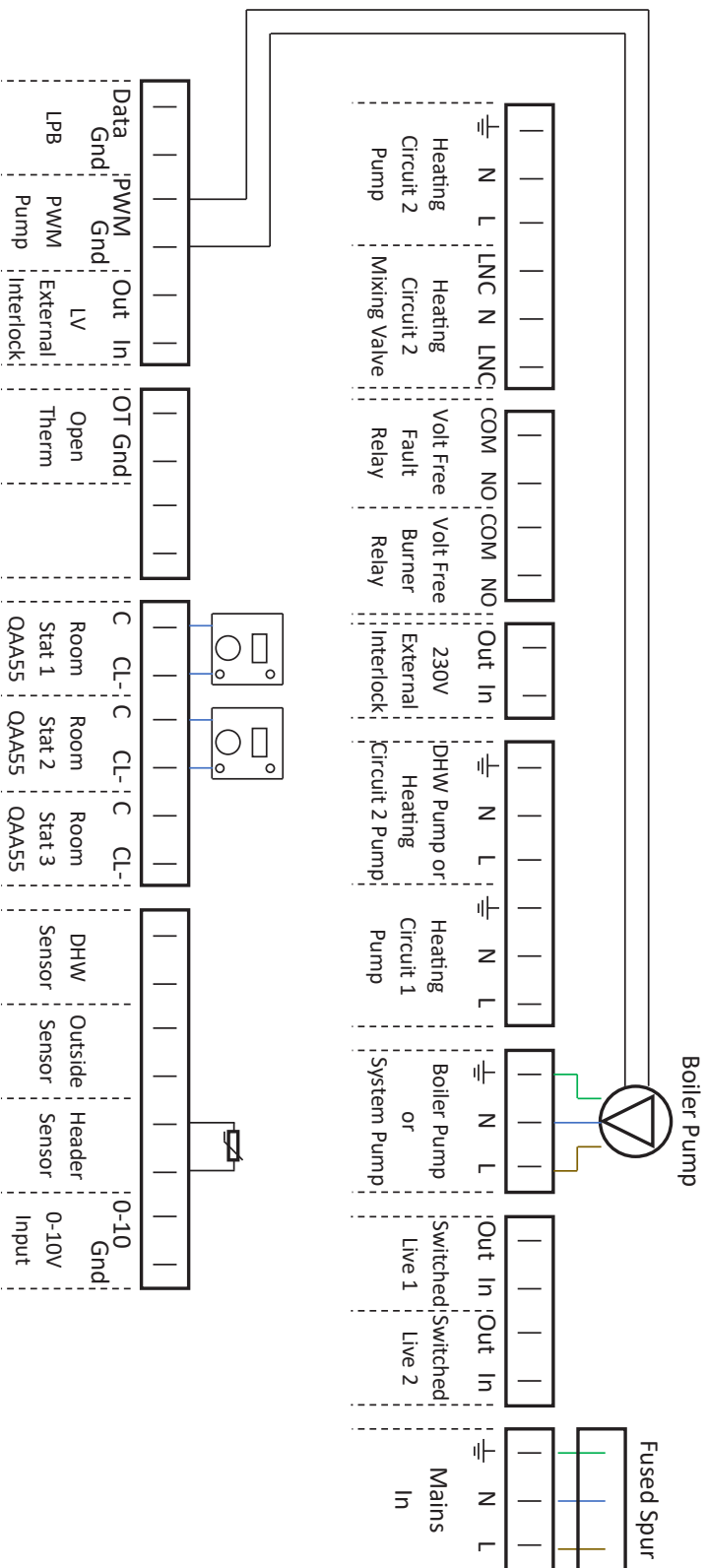


## 7 PUMP OPTIONS

1. On the threaded pumps ensure that the sealing washers are used when connecting either side.
2. Ensure sealing washers/ gaskets are in place on all pumps.



### Boiler Pump Speed Control via PWM Output



Refer to the Wiring Connection section in the boiler Installation Instructions for wiring details.

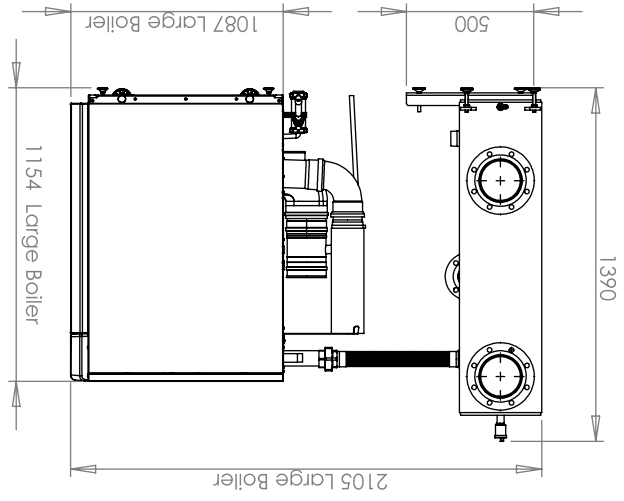
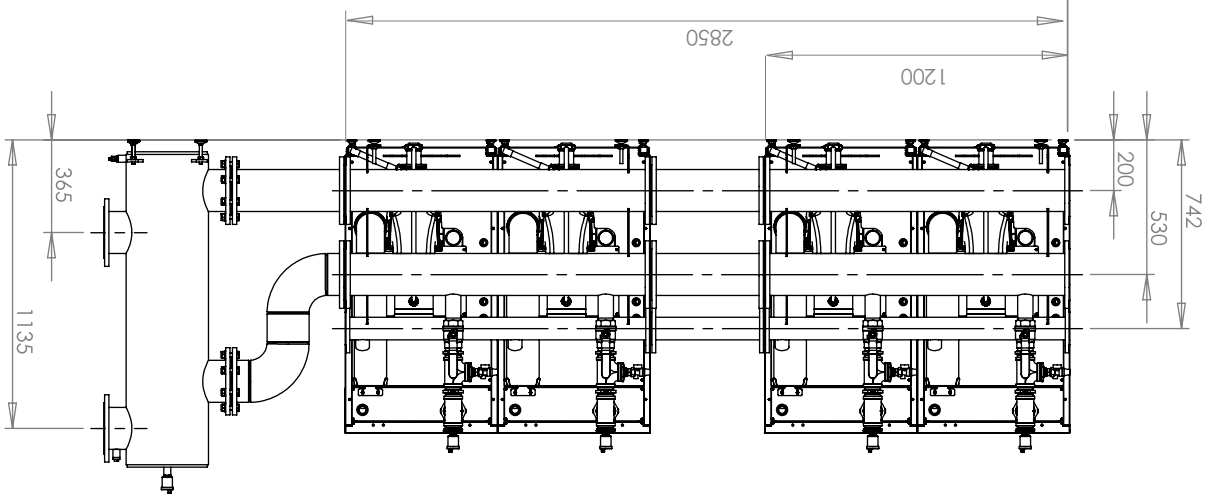
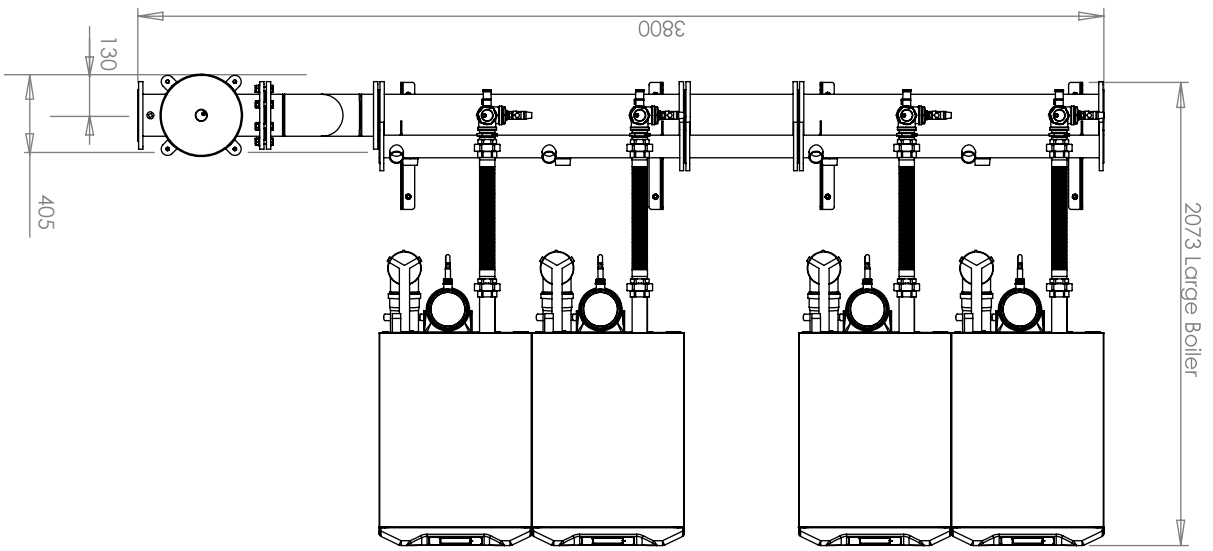
**IMPORTANT: Ensure the boiler pumps are wired to the boiler in order to ensure the boiler pump overrun facility is provided.**

For the Imax Xtra 2 80KW and 120KW, it is recommended to use the Grundfos UPML Pump as the boiler pump. This needs to either be controlled by the Boiler/System Pump Connection, for On/Off Control direct from the boiler, or supplied with a permanent live supply on the same phase as the boiler and controlled by the PWM Pump Connection, for Modulation Control.

For the Imax Xtra 2 160KW, it is recommended to use the Grundfos UPMXXL Pump as the boiler pump. This needs to either be operated by an external relay, controlled by the Boiler/System Pump Connection, or supplied with a permanent live supply on the same phase as the boiler and controlled by the PWM Pump Connection, for Modulation Control.

For the Imax Xtra 2 200KW, 240KW and 280KW, it is recommended to use the Grundfos Magna 3 Pump as the boiler pump. This needs to either be operated by an external relay, controlled by the Boiler/System Pump Connection, or supplied with a permanent live supply on the same phase as the boiler and controlled by the 0-10V Pump Connection (which requires the optional extra 0-10V Pump Kit), for Modulation Control.

5.2.6 INSTALLATION DRAWING WITH 4 BOILERS - DN150 KITS AND HEADER SPACER



**Note 1:** Mixing header and gas connections can be located either on the LHS or RHS of the assembly to suit needs of each particular system.

**Note 2:** To assist with stability when installing the DN150 kit ensure that the following assembly order is followed:

1. Headers
2. LLH Low Loss Header
3. Flow and Return LLH spools.

Boiler Output (kW)	200-280
Chassis Size	Large

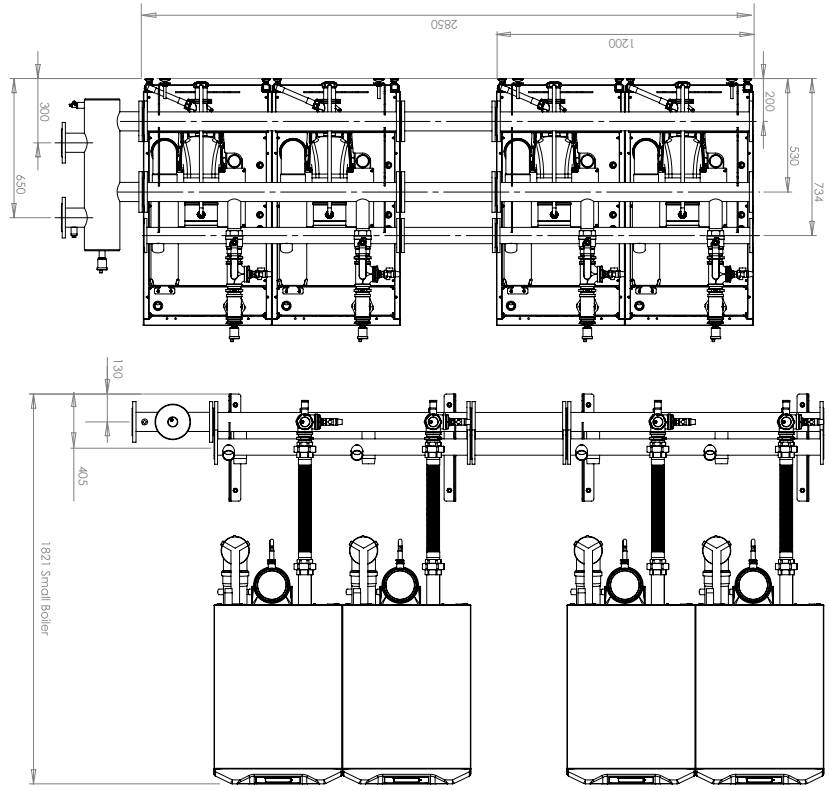
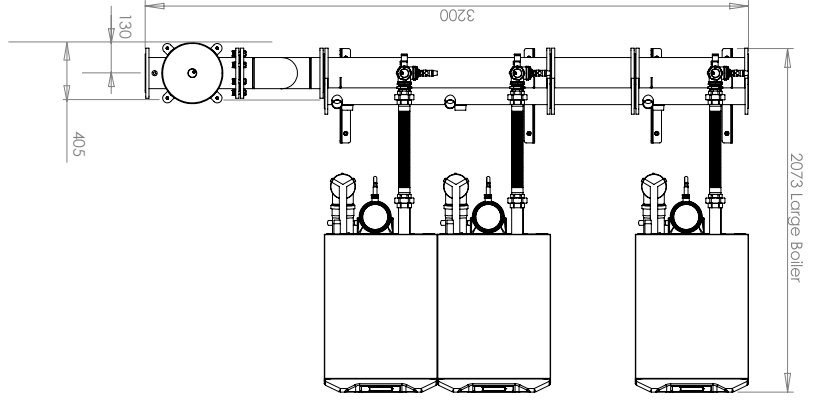
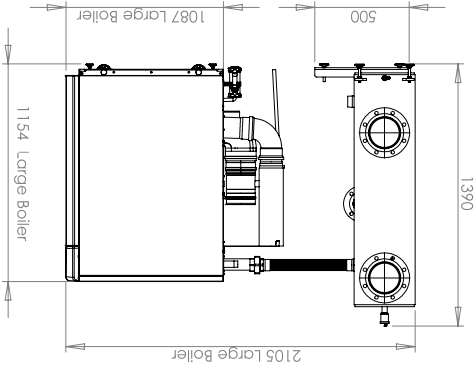
**5.2.5 INSTALLATION DRAWING WITH 3 BOILERS - DN150 KITS AND HEADER SPACER**

**Note 1:** Mixing header and gas connections can be located either on the LHS or RHS of the assembly to suit needs of each particular system.

**Note 2:** To assist with stability when installing the DN150 kit ensure that the following assembly order is followed.

1. Headers
2. LLH Low Loss Header
3. Flow and Return LLH spoils.

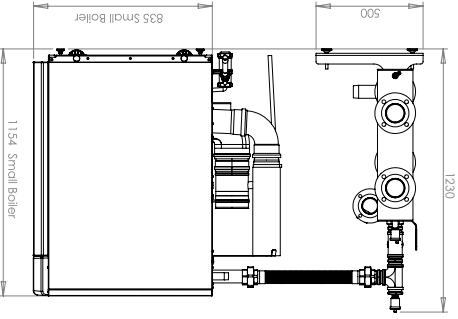
Boiler Output (kW)	280
Chassis Size	Large



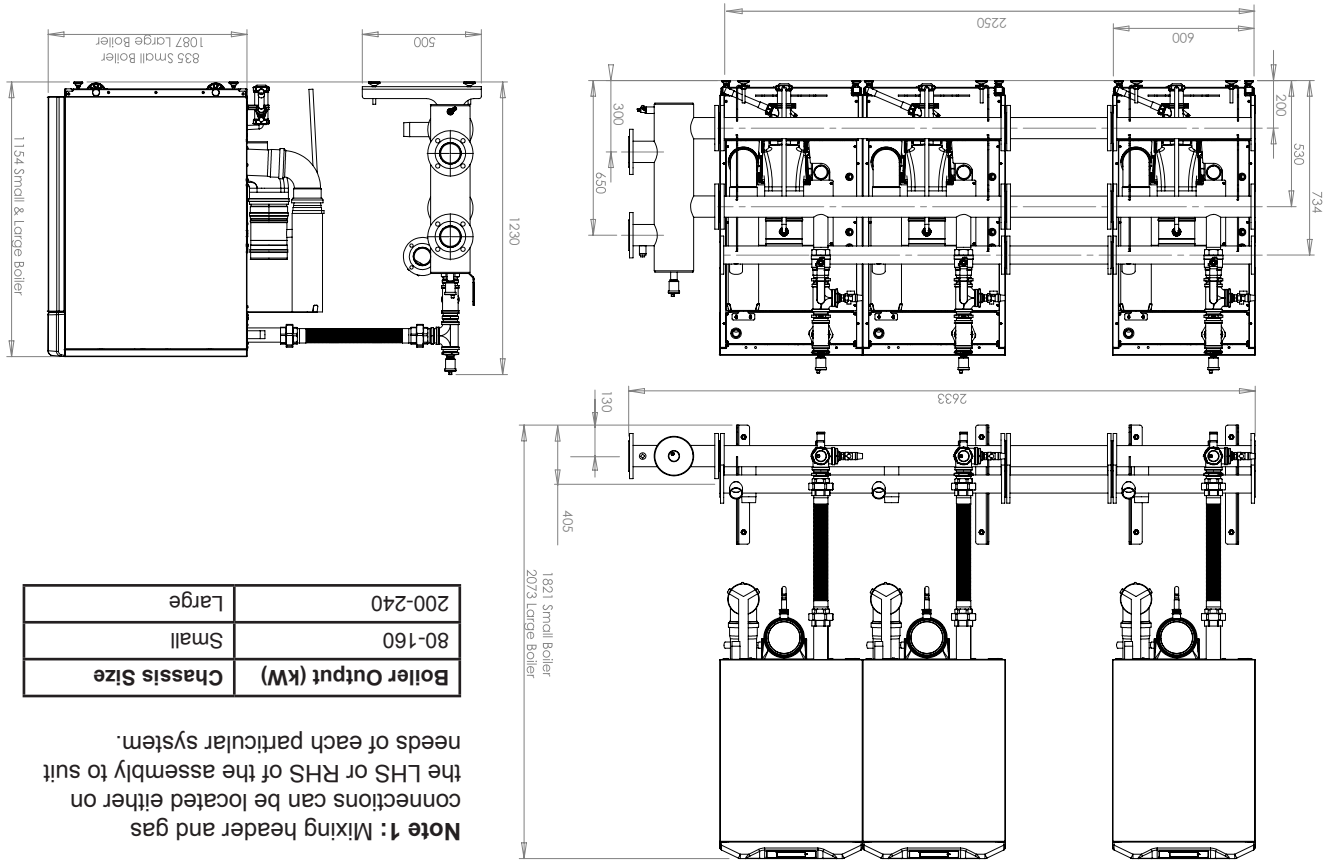
**5.2.4 INSTALLATION DRAWING WITH 4 BOILERS - DN80 / DN100 KITS AND HEADER SPACER**

**Note 1:** Mixing header and gas connections can be located either on the LHS or RHS of the assembly to suit needs of each particular system.

Boiler Output (kW)	80-160
Chassis Size	Small



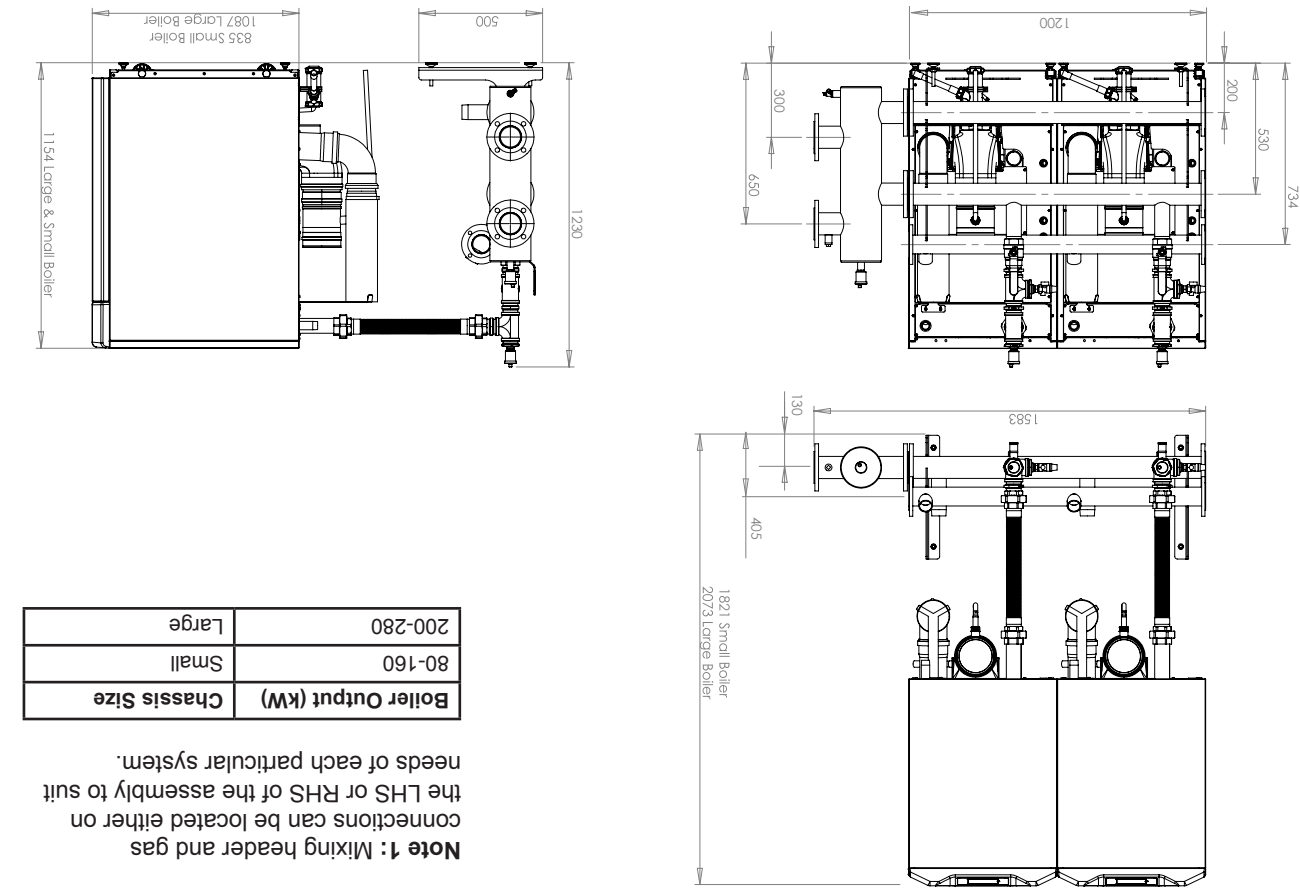
### 5.2.3 INSTALLATION DRAWING WITH 3 BOILERS - DN80 / DN100 KITS AND HEADER SPACER



Boiler Output (kW)	Chassis Size
80-160	Small
200-240	Large

**Note 1:** Mixing header and gas connections can be located either on the LHS or RHS of the assembly to suit needs of each particular system.

### 5.2.2 INSTALLATION DRAWING WITH 2 BOILERS - DN80 / DN100 KITS



Boiler Output (kW)	Chassis Size
80-160	Small
200-280	Large

**Note 1:** Mixing header and gas connections can be located either on the LHS or RHS of the assembly to suit needs of each particular system.

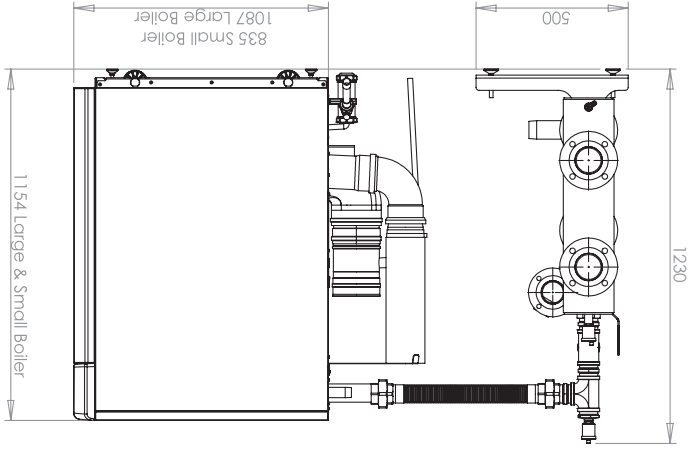
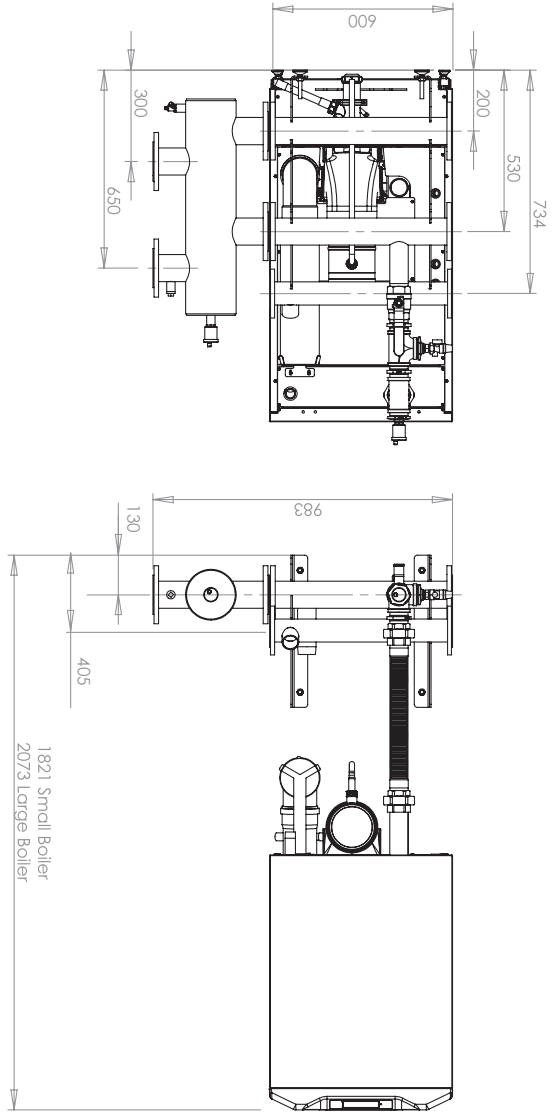


## 5.2 FRAME KIT CONFIGURATION

### 5.2.1 INSTALLATION DRAWING WITH 1 BOILER - DN80 / DN100 KITS

**Note 1:** Mixing header and gas connections can be located either on the LHS or RHS of the assembly to suit needs of each particular system.

Boiler Output (kW)	Chassis Size
80-160	Small
200-280	Large



1154 Large & Small Boiler

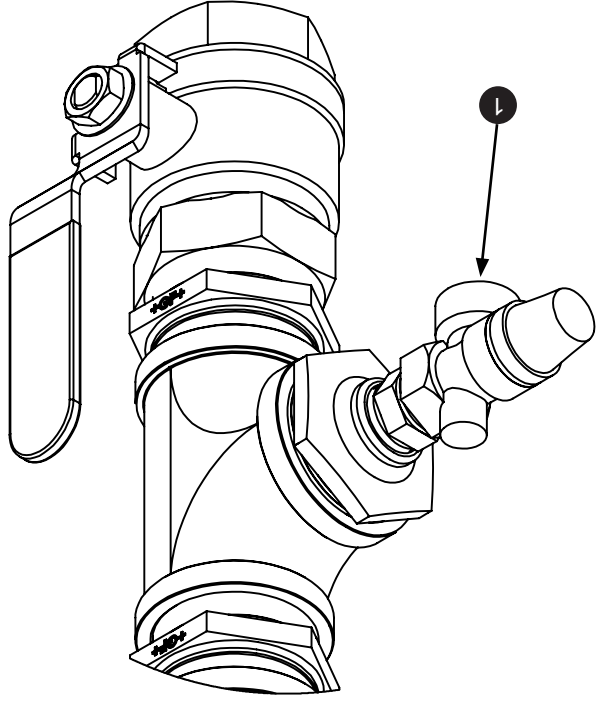
## 5 INSTALLATION DRAWINGS FOR MULTIPLE BOILER SYSTEMS

### 5.1 GENERAL DATA

The boiler side of the cascade systems is sized to water flow and return temperature differential 20ΔT.

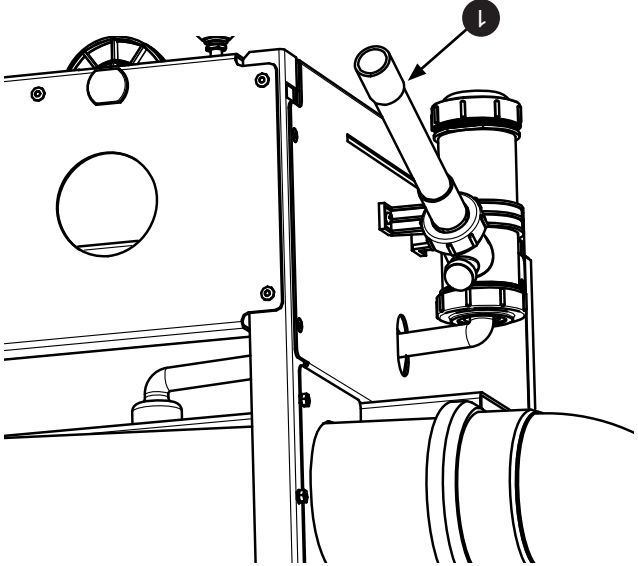
Boiler Model	Number	Total kW	Water Header Size	Gas Header Size	Pump LLH	Pump PHEX
Imax Xtra 2 (80kW)	1	80	DN80	DN65	UPML 25-105	UPML 25-105
Imax Xtra 2 (120kW)	1	120	DN80	DN65	UPML 25-105	UPML 25-105
Imax Xtra 2 (160kW)	1	160	DN80	DN65	UPMXXL 25-105	UPMXXL 25-105
Imax Xtra 2 (200kW)	1	200	DN80	DN65	Magna3 40-80F	Magna3 40-100F
Imax Xtra 2 (240kW)	1	240	DN80	DN65	Magna3 40-80F	Magna3 40-100F
Imax Xtra 2 (280kW)	1	280	DN80	DN65	Magna3 40-80F	Magna3 40-100F
Imax Xtra 2 (80kW)	2	160	DN80	DN65	UPML 25-105	UPML 25-105
Imax Xtra 2 (120kW)	2	240	DN80	DN65	UPML 25-105	UPML 25-105
Imax Xtra 2 (160kW)	2	320	DN80	DN65	UPMXXL 25-105	UPMXXL 25-105
Imax Xtra 2 (200kW)	2	400	DN100	DN65	Magna3 40-80F	Magna3 40-100F
Imax Xtra 2 (240kW)	2	480	DN100	DN65	Magna3 40-80F	Magna3 40-100F
Imax Xtra 2 (280kW)	2	560	DN100	DN65	Magna3 40-80F	Magna3 40-100F
Imax Xtra 2 (80kW)	3	240	DN80	DN65	UPML 25-105	UPML 25-105
Imax Xtra 2 (120kW)	3	360	DN80	DN65	UPML 25-105	UPML 25-105
Imax Xtra 2 (160kW)	3	480	DN100	DN65	UPMXXL 25-105	UPMXXL 25-105
Imax Xtra 2 (200kW)	3	600	DN100	DN65	Magna3 40-80F	Magna3 40-100F
Imax Xtra 2 (240kW)	3	720	DN150	DN80	Magna3 40-80F	Magna3 40-100F
Imax Xtra 2 (280kW)	3	840	DN150	DN80	Magna3 40-80F	Magna3 40-100F
Imax Xtra 2 (80kW)	4	320	DN80	DN65	UPML 25-105	UPML 25-105
Imax Xtra 2 (120kW)	4	480	DN100	DN65	UPML 25-105	UPML 25-105
Imax Xtra 2 (160kW)	4	640	DN100	DN65	UPMXXL 25-105	UPMXXL 25-105
Imax Xtra 2 (200kW)	4	800	DN150	DN80	Magna3 40-80F	Magna3 40-100F
Imax Xtra 2 (240kW)	4	960	DN150	DN80	Magna3 40-80F	Magna3 40-100F
Imax Xtra 2 (280kW)	4	1120	DN150	DN80	Magna3 40-80F	Magna3 40-100F

### 4.5 PRESSURE RELIEF VALVE CONNECTION



1. Ensure each boiler pressure relief valve is piped to a suitable location to prevent the discharge of steam/ water causing injury.

### 4.6 CONDENSATE TRAP CONNECTION

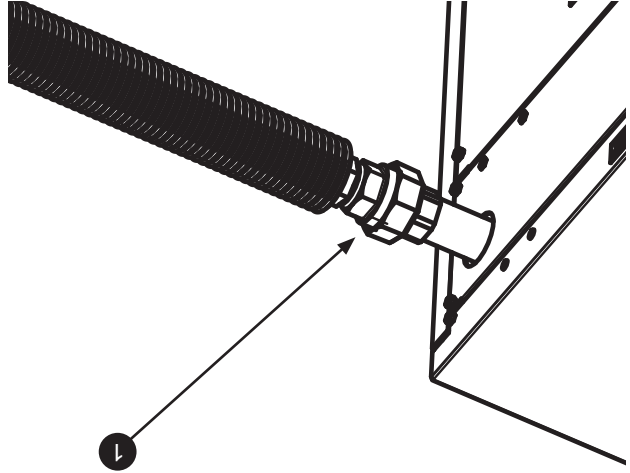


1. Fit the condensate traps to the boiler and pipe to drain following the recommendations contained in the boiler installation instructions.

### 4.4 FITTING GAS CONNECTION

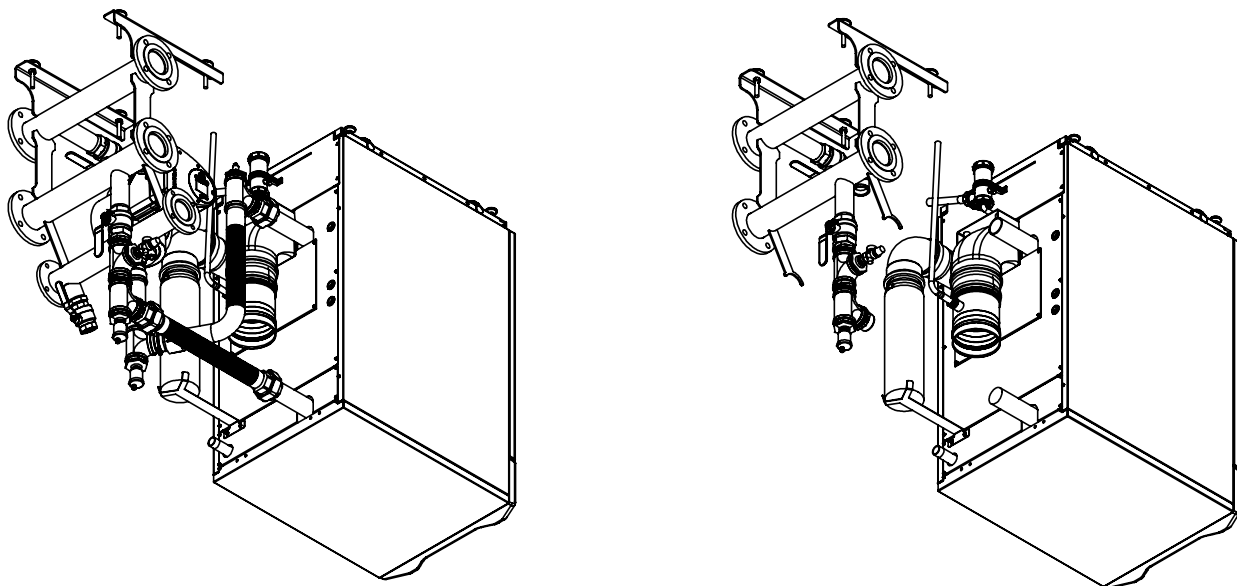
**NOTE:** Gas Isolation Valve is supplied with the Header Kit.

1. Fit the Gas Hose Union to the boiler gas connection.
2. Fit the flexi gas pipe to the header isolation valve.
3. Connect the flexi gas pipe to the union fitted in step 1.



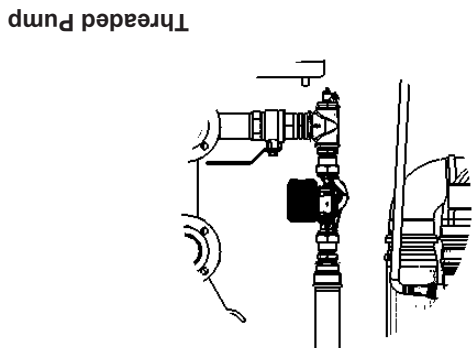
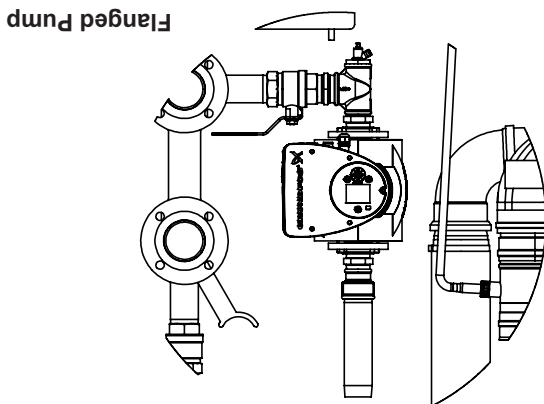
### 4.3 FITTING HEADER KIT ASSEMBLY

1. Position Header Kit relative to boiler. Adjustable feet are provided to allow for uneven floor surface (minimal adjustment).

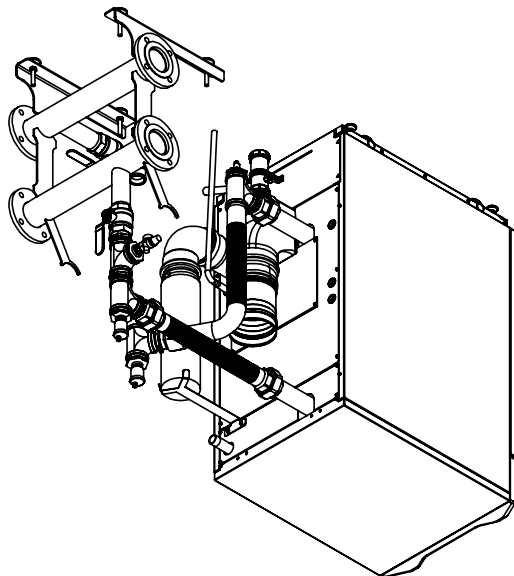


4. Install Gas Header.

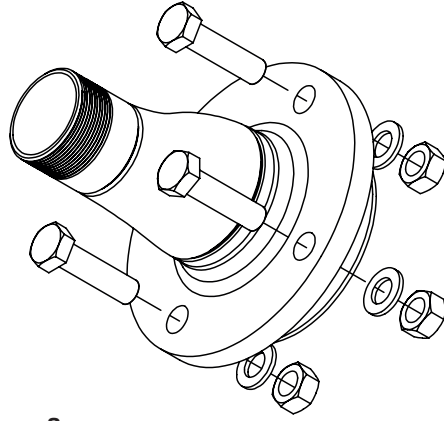
2. Install Pump Kit, ensuring gaskets are fitted and correctly seated.



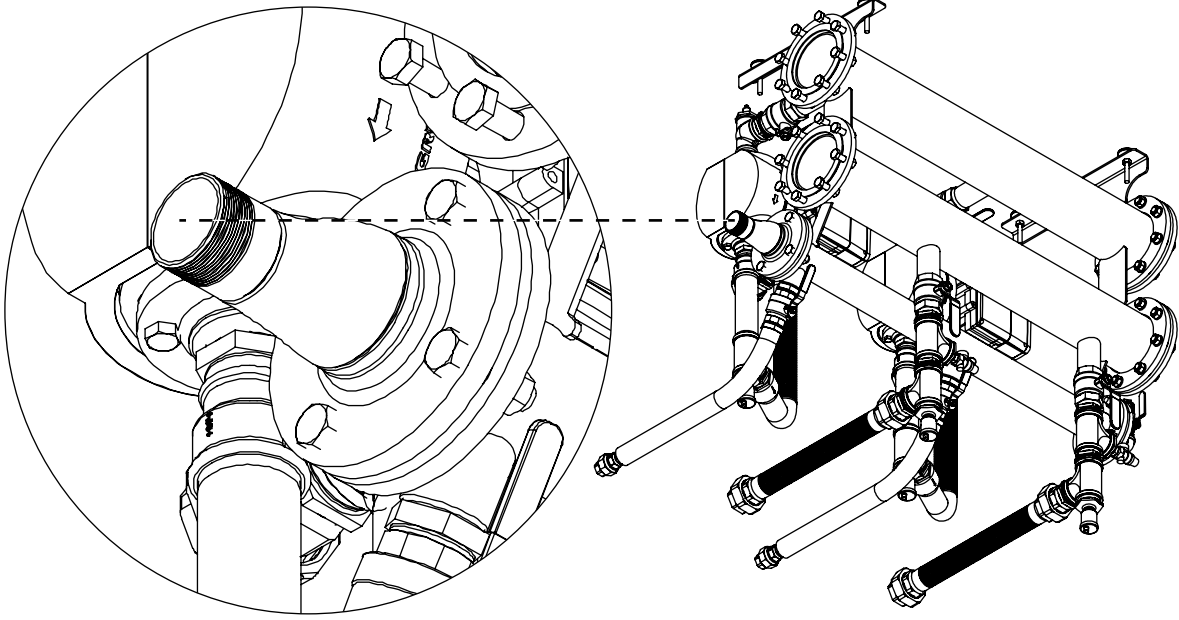
3. Install Flow and Return connections.



Gas Header	Adaptor	2"BSPT 226424	DN65	2"BSPT 226425	DN80
------------	---------	---------------	------	---------------	------



NG/LPG gas header reducing adaptor



Note. NG/LPG gas header reducing adaptor can be located either LHS or RHS of the headers.

1. Fit the NG/LPG gas header reducing adaptor in the chosen position.

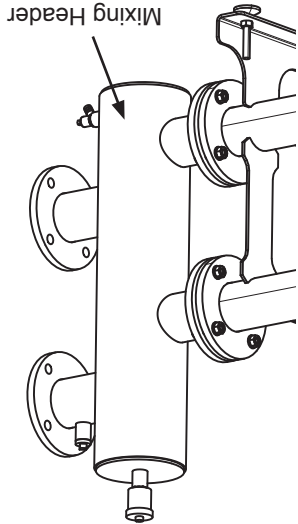
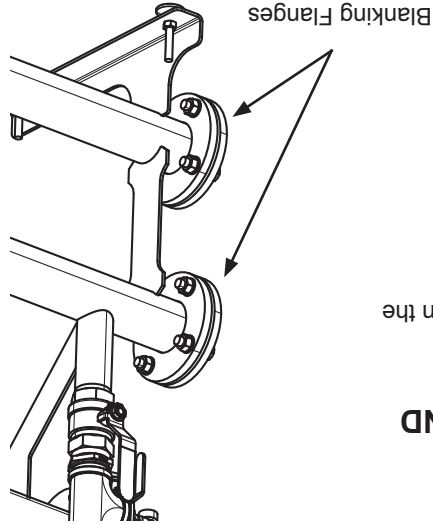
#### 4.2 FITTING NG/LPG GAS HEADER REDUCING ADAPTOR

### 4 HEADER KIT ASSEMBLY (OPTIONAL ACCESSORY)

#### 4.1 FITTING MIXING HEADER AND BLANKING FLANGES

1. Fit the mixing header and blanking flanges in the chosen positions.

Note. Mixing header can be located either LHS or RHS of the headers.



Header kits must stand on a flat and level floor of suitable load bearing capacity. Minimal adjustment/leveling is achieved with adjustable feet.

# IMPORTANT POINT Assembly:

The connection kit contains the following components:

- Boiler return leg complete with isolating valve, pump, non return valve, drain cock and fibre seals
- Boiler flow leg complete with isolating valve, pressure relief valve and fibre seals
- Header blanking flanges, fasteners and gaskets
- Mixing header fasteners and gasket

## 3.8 BOILER CONNECTION KITS

### LEGEND

1. 2" x 1 1/4" x 1 1/4" Tee

2. Nipple

3. Isolation Valve

4. Pump inc. Gaskets

5. Pump Fastener Kit

6. Threaded Flange

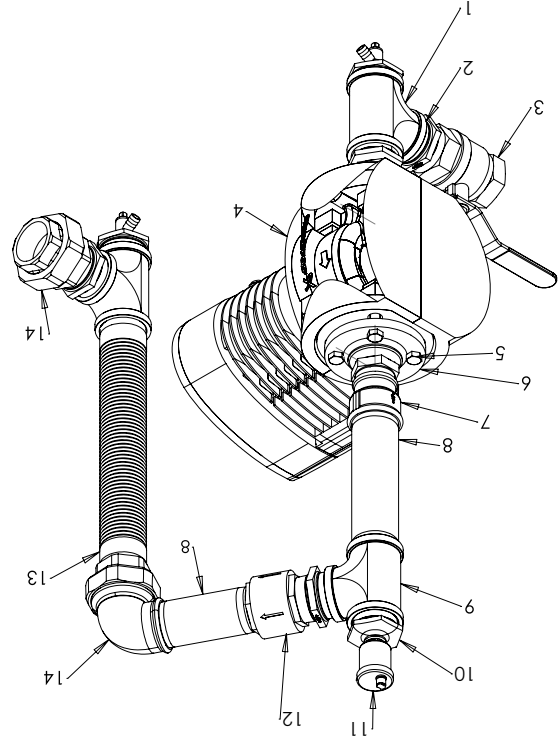
7. 2" - 1 1/4" Reducing Socket

8. 2" Hard Pipe

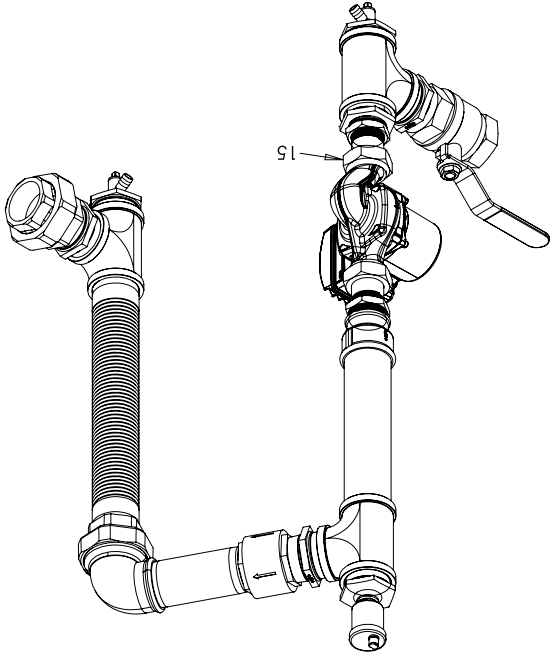
9. 2" Equal Tee

10. Reducer

### RETURN - Flanged Pump Variant

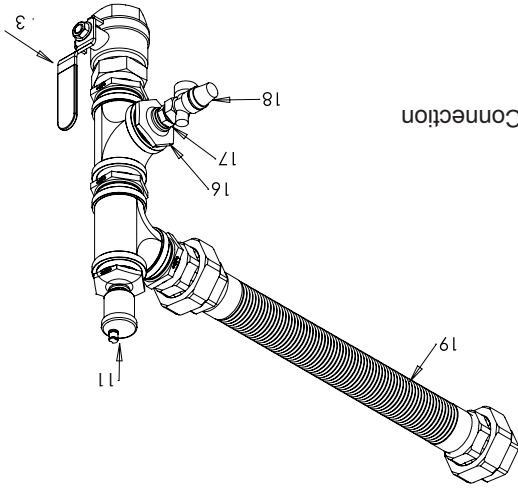


### RETURN - Threaded Pump Variant



11. Auto Air Vent  
12. Non Return Valve  
13. Boiler Return Flexible Connection from Header  
14. 2" Union  
15. Pump Union  
16. Reducer  
17. Nipple  
18. Safety Relief Valve 6 Bar  
19. Boiler Flexible Connection from Header

**Gas Connection:** Flexi-hose from header



FLOW

## 3 MULTIPLE BOILER SYSTEM COMPONENTS

### 3.1 GENERAL

The boiler kit system consist of the following components:

- Gas header.
- Boiler flow and return headers supported on mounting skid
- Low loss mixing header (optional)
- Hardware pack (includes essential connection and valve components)
- Plate Heat exchanger kit (optional)
- Boiler Shunt pump (MUST be used, sold separately to match boiler)

### 3.2 MAIN WATER HEADERS

The main water headers consist of: water flow, water return headers custom sized for all boilers. It is possible to extend the system to a maximum of 4 boilers in a linear configuration.

Each header kit provides water flow and return headers sized either DN80, DN100 or DN150 dependent on total maximum combined heating output required.

Water Header Size	Max Combined Output (kW)
DN150	1120
DN100	640
DN80	360

### 3.3 GAS HEADER

The Gas header consists of a custom manufactured manifold. This is located in a cradle incorporated within the header mounting skid. Up to 640kW DN65, 720kW to 1120kW DN80.

### 3.4 LOW LOSS HEADERS (MIXING HEADER) OPTION

The mixing headers are supplied with an auto air vent and drain point as standard.

### 3.5 BOILER SHUNT PUMP

Pump kits and External pump controls (**sold separately**) are designed to provide the optimum flow around the appliance water circuit ensuring the maximum flow rates are contained within the design constrains of the appliance. It is not recommended to fit additional pumps directly to the appliance circuit unless they have been designed to ensure the maximum permissible appliance flow rate is not exceeded.

### 3.6 HEADER SPACER

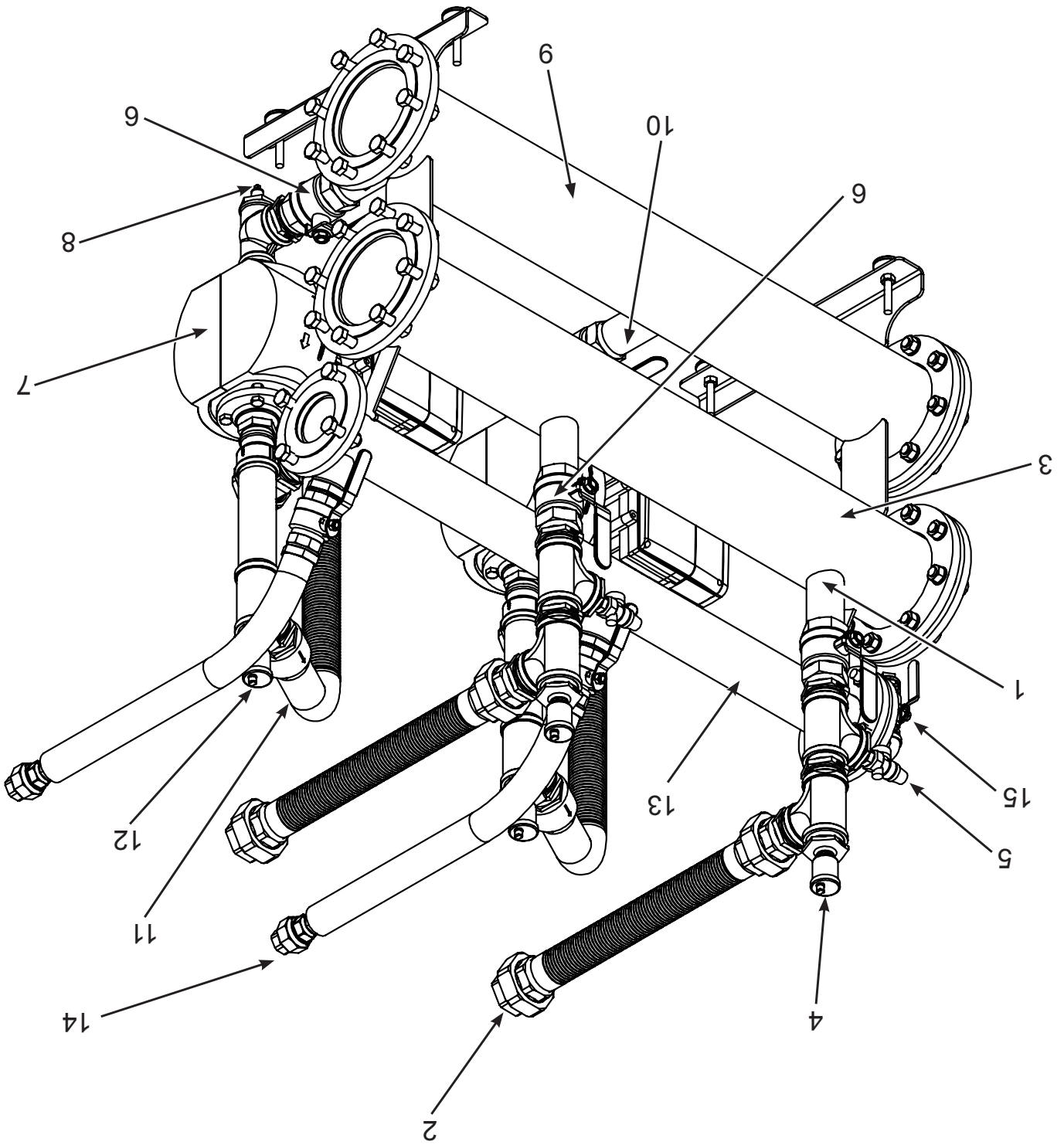
When installing more than 2 boilers, an optional header spacer 450mm long, can be supplied to allow further access for maintenance.

Water Header Size	Header Spacer Product No.
DN80	226418
DN100	226419
DN150	226420

### 3.7 INSTALLATION AREA AND DIMENSIONS

Care must be taken to ensure adequate access for boiler / cascade system installation and servicing.

A minimum of 600mm and a maximum of 1000mm clearance must be provided from the front of the installed boilers in cascade to facilitate boiler servicing. Additional clearance must also be considered in the event of boiler replacement. Consideration to connecting heating flow and return pipework, gas supply and condensate drainage must be given. Routing of the condensate drain must be made to allow a minimum fall of 1 in 20 away from the installed boilers in cascade, throughout its length. Adequate room above the boilers must be provided to install and service the boiler flue system. Further information with respect to flue and condensate drain connection is provided in the installation and servicing instructions provided within the boilers packaging carton.



**2.8 HEADER ASSEMBLY**

- 1. Flow Pipework
- 2. Flow Connection
- 3. Flow Header
- 4. Auto Air Vent
- 5. Pressure Relief Valve
- 6. Isolation Valve
- 7. Pump
- 8. Drain Cock
- 9. Return Header
- 10. Return Pipework
- 11. Return to Boiler
- 12. Auto Air Vent
- 13. Gas Header
- 14. Gas Connection
- 15. Gas Header Test & Purge Point



Full stability is achieved when complete, ensure support where necessary during assembly.

- Always use assistance if required
- Keep load as close to the body as possible
- Use designated hand holds
- Always grip with the palm of the hand
- Avoid upper body/top heavy bending
- Avoid twisting at the waist
- Keep back straight

weight is light.

During all manoeuvres and handling actions, every attempt should be made to ensure the following unless unavoidable and/or the

- Be physically capable
  - Use personal protective equipment as appropriate, e.g. gloves, safety footwear
- Operators should be knowledgeable in handling techniques when performing these tasks and the following precautions should be considered: Caution should be exercised during these operations.

Installation may require 2 or more operators to move it to its installation site, remove it from its packaging base and during movement into its installation location. Manoeuvring may include the use of a sack truck and involve lifting, pushing and pulling.

## 2.7 SAFE HANDLING

The header kits must be located in a suitable place that affords a flat and level floor-area of suitable load bearing capacity. Care must be taken when locating the kits that space is available for the servicing, installation and maintenance of the appliance and all of the associated connections and equipment. (See Appliance manuals and drawing with this manual).

## 2.6 ASSEMBLY

**Note:** Option Kit DN65 flange 2" threaded comes as standard with the DN80 water header

GAS HEADERS	
Water Header	Size
NG / LPG Header	DN150
	DN80 (3")
	DN80 / DN100
	DN65 (2 1/2")

Test and purge point is provided in the header blanking flange and is intended to check the total installation pressure drop.

**Note:** Boilers operating with Propane must have the dedicated conversation kit installed.

Connection to the gas supply must be in accordance to with all the applicable regulations.

For Imax Xtra 2 the 80, 120, 160, 200, 240, 280 boilers are configured for use with natural gas. The 80P, 120P, 160P, 200P, 240P boilers are configured for use with LPG.

## 2.5 GAS SUPPLY

The optional OCI 345 accessory control can be installed (1 per boiler) to enable cascade control upto a maximum of 4 boilers.

at all times.

If using an external pump control system the capability of a timed pump over run signal provided by the appliance must be maintained

All boiler pumps are designed to be wired to the appliance to allow a controlled pump over run.

## 2.4 OUTPUT CONTROL

different system pressures.

operates to its own controlled optimum requirements. A plate heat exchanger will allow primary and secondary circuits to operate at This enables the modern high resistant, high efficiency boilers to operate under their optimum conditions, while the main heating circuit adjoined water circuit.

This allows two flow circuits to operate with their own flow and pressure drop environments whilst effectively transferring heat to its A low loss header or plate heat exchanger allows flow separation within a hydronic system.

## 2.3 HYDRONIC ISOLATION: LOW LOSS HEADER & PLATE HEAT EXCHANGER

flange connections.

For installing 1 to 4 boilers, the product range includes water and gas headers capable of assembly using threaded socket and PN6

## 2.2 MULTIPLE BOILER INSTALLATIONS

# 1 INTRODUCTION

This technical data contains information for dimensioning & assembly of a cascade system kit for the Imax Xtra 2 range. Header kits are available 'in line' (4 boilers long).

## GENERAL DESCRIPTION OF HEADER KITS

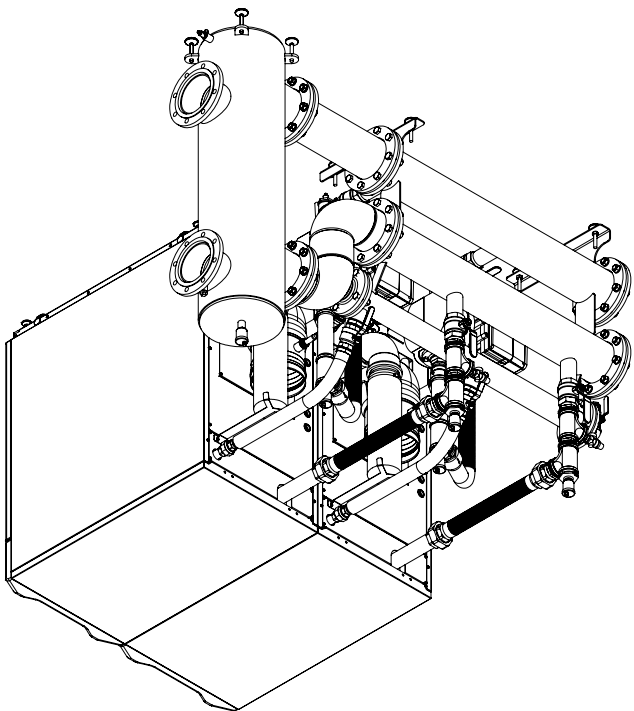
A requirement to spread the total required heat output over more than one boiler can be accommodated by the use of the Imax Xtra 2 multiple boiler header kit options.

The OC1345 can be installed (1 per boiler) for cascade control, see Imax Xtra 2 cascade kit instructions for further information.

The flue configurations for the range of appliances using these system kits are B23, C53 & C63 (See appliance manual).

*Note. Particular care should be taken in the case of large outlet boiler installations, complying with the requirements of the Clean Air Act.*

All headers and pipe work should be insulated in accordance with the Non Domestic Building Services Compliance Guide. To ensure compliance with the maximum heat loss criteria, insulation thickness should be calculated according to BS EN ISO 12241 using standardised assumptions.



## 2 GENERAL DESCRIPTION OF CASCADE SYSTEMS

### 2.1 FRAME AND HEADER KIT DESIGN OPTIONS

The Imax Xtra 2 boilers are suitable for use in a multiple boiler configuration. The Imax Xtra 2 multiple boiler system is available in side 1 and 2 kit options giving the optimum footprint size for a given output. Frame 5 states available and gives the minimum number of appliances required, the appropriate floor space & the kit product number (N.B. The kits do not include the boilers).

Available Imax Xtra 2 Appliances	
Product No.	KW (NG)
225464	Ideal Imax Xtra 2 80
225465	Ideal Imax Xtra 2 120
225466	Ideal Imax Xtra 2 160
225467	Ideal Imax Xtra 2 200
225468	Ideal Imax Xtra 2 240
225469	Ideal Imax Xtra 2 280
Product No.	KW (Propane)
225464	Ideal Imax Xtra 2 80P
225465	Ideal Imax Xtra 2 120P
225466	Ideal Imax Xtra 2 160P
225467	Ideal Imax Xtra 2 200P
225468	Ideal Imax Xtra 2 240P

Low Loss Header Accessories (Mixing Header)		
DN80	DN100	DN150
219552	219553	226426

All boilers need to be sized in accordance to the total required heat load and the modulation capabilities of the appliances.

Boilers operating with Propane must have the dedicated conversion kit installed.

**Note.**

continued . . . . .

PLEASE READ THIS MANUAL ALONGSIDE THE IMAX XTRA 2 INSTALLATION MANUAL  
THESE KITS CAN BE USED IN CONJUNCTION WITH LOW LOSS HEADERS & PLATE  
HEAT EXCHANGERS SUPPLIED AS PART OF THE IMAX XTRA 2 OPTIONS RANGE

# IMPORTANT

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This kit is suitable for the following boilers:  
Imax Xtra 2 80, 120, 160, 200, 240 & 280  
80P, 120P, 160P, 200P & 240P



When replacing any part on this appliance, use only spare parts that you can be assured conform to the safety and performance specification that we require. Do not use reconditioned or copy parts that have not been clearly authorised by Ideal Heating. For the very latest copy of literature for specification and maintenance practices visit our website [idealheating.com](http://idealheating.com) where you can download the relevant information in PDF format.

# HEADER KITS

**IMAX XTRA 2**  
**80 120 160 200 240 280**  
**80P 120P 160P 200P 240P**

