



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.

For the very latest copy of literature for specification and maintenance practices visit our website www.idealcommercialboilers.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).

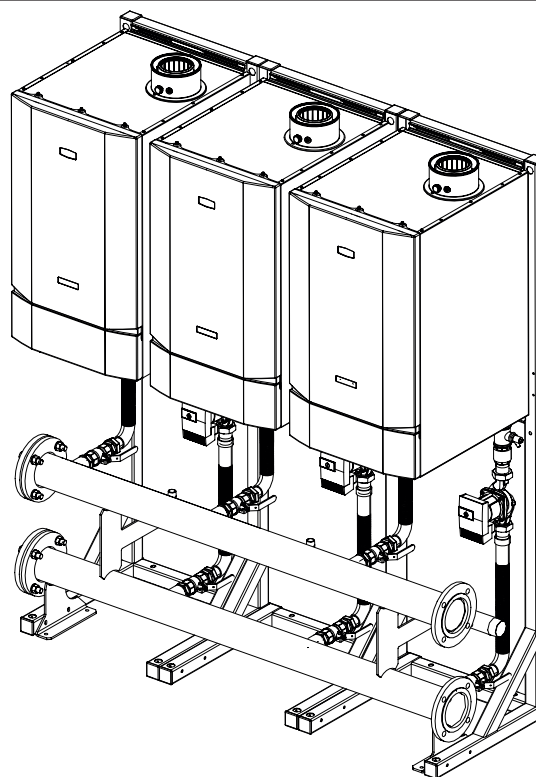
GENERAL DESCRIPTION OF FRAME & HEADER KITS

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	220919
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 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 separately)

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 constraints 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.

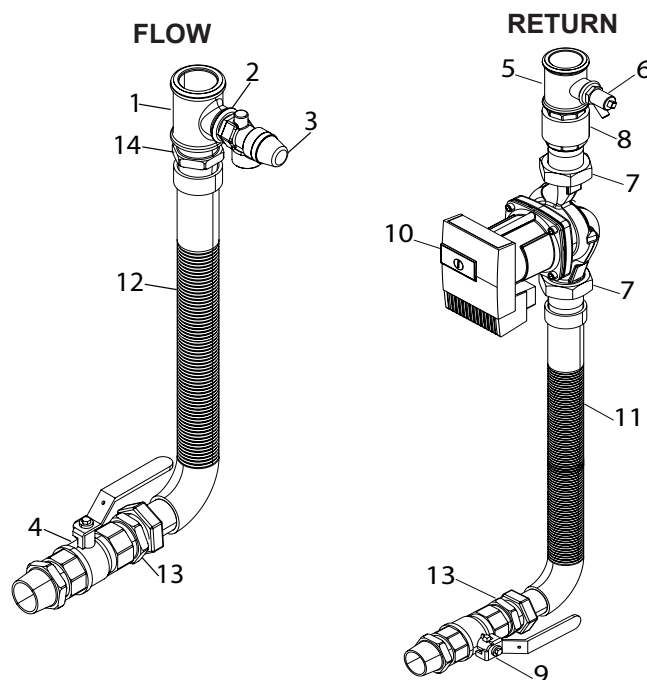
3.6 BOILER CONNECTION KITS

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. $1\frac{1}{4}" \times \frac{3}{4}" \times 1\frac{1}{4}"$ Tee
2. Close taper nipple
3. Safety relief valve 3 bar
4. Isolation valve
5. $1\frac{1}{4}" \times \frac{1}{2}" \times 1\frac{1}{4}"$ 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. $1\frac{1}{4}"$ taper male to $1\frac{1}{4}"$ parallel hex adapter
14. $1\frac{1}{4}"$ 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).

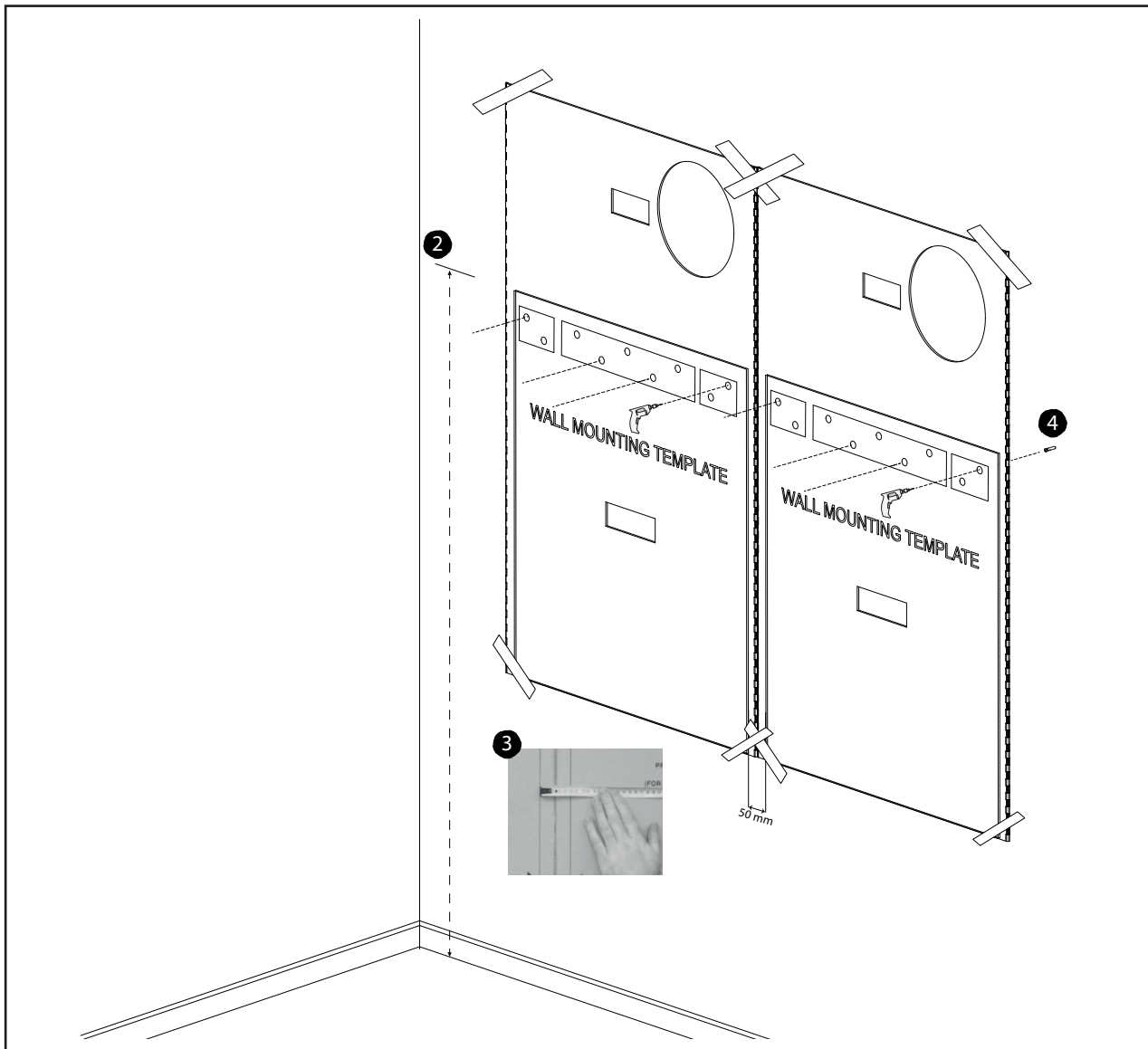
Allowances must be made for installation where skirting boards or other features are in place that may affect the nominal installation conditions.

4 WALL MOUNTED INSTALLATION PROCEDURE

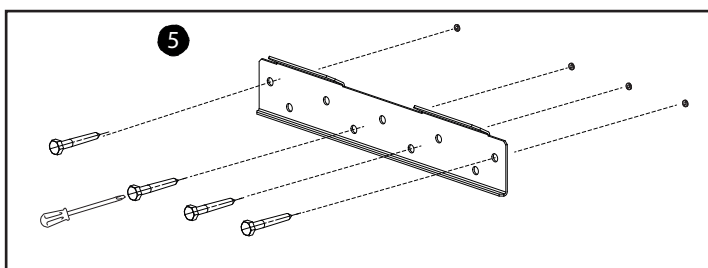
4.1 WALL MOUNTED SIDE BY SIDE OPTION

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.

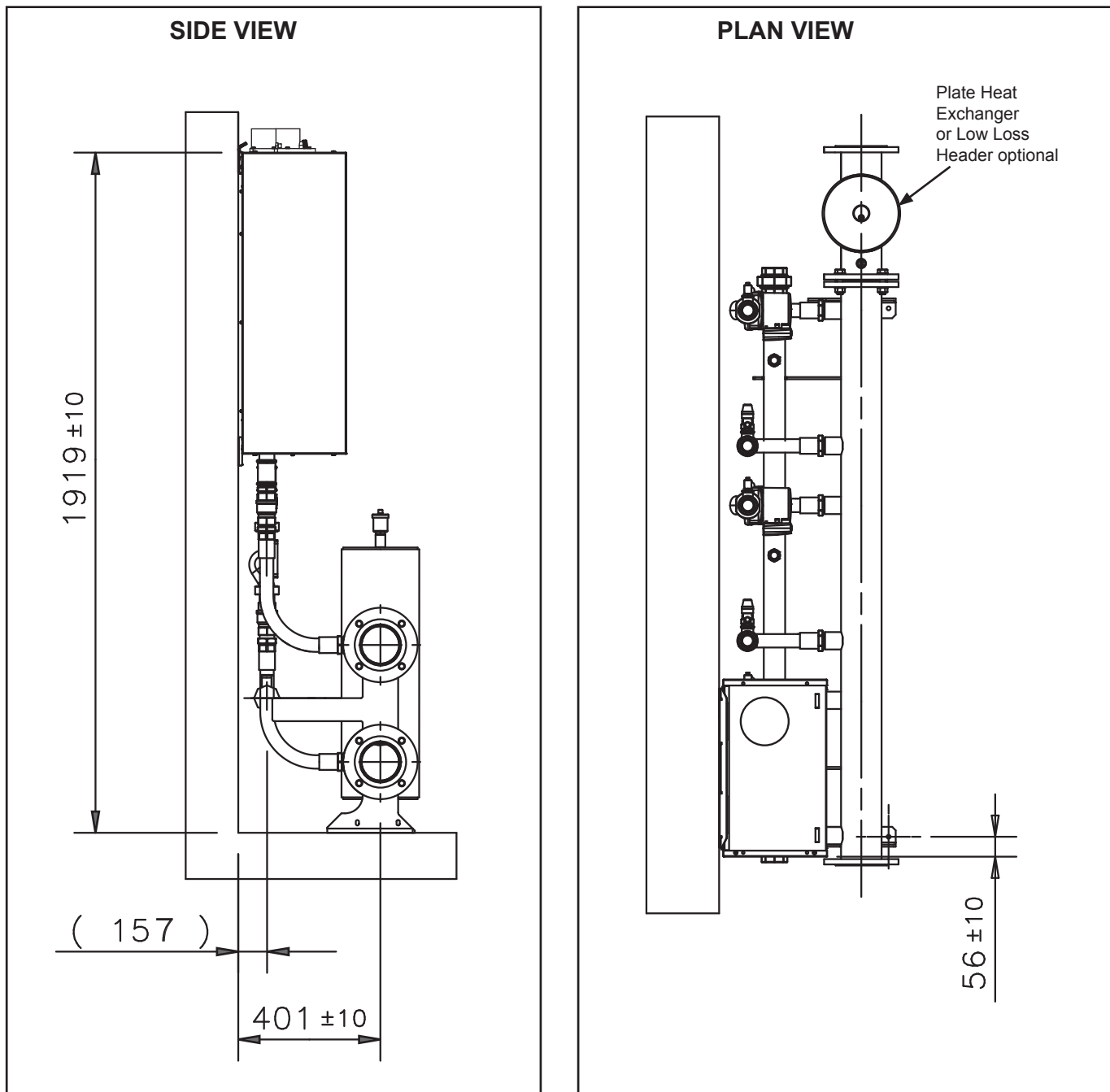


4. Drill the required holes in the wall to fit the wall mounting plate plugs. (See boiler Installation Instructions for details)
5. Screw the wall mounting plate(s) to the wall.



continued

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



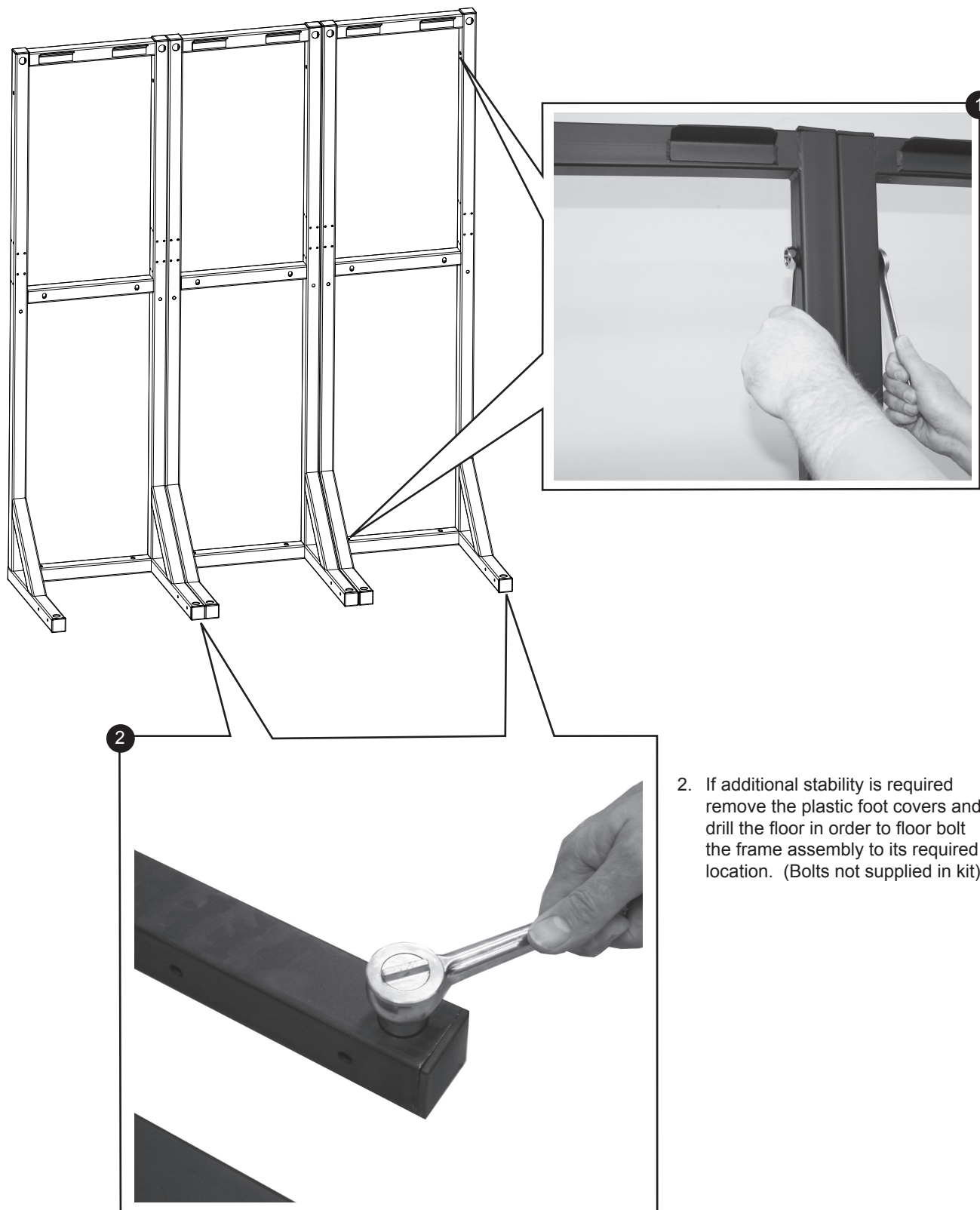
Careful consideration MUST be given to the installation tolerances. If these are not adhered to, hoses may become kinked or connections may not fit.

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.

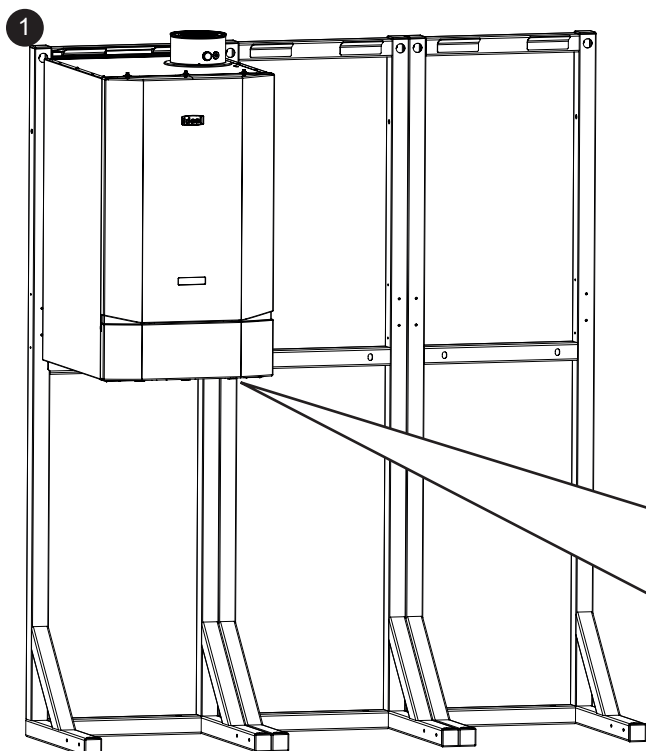
IMPORTANT: MOUNTING FRAME MUST BE SECURED TO THE FLOOR WITH BOLTS



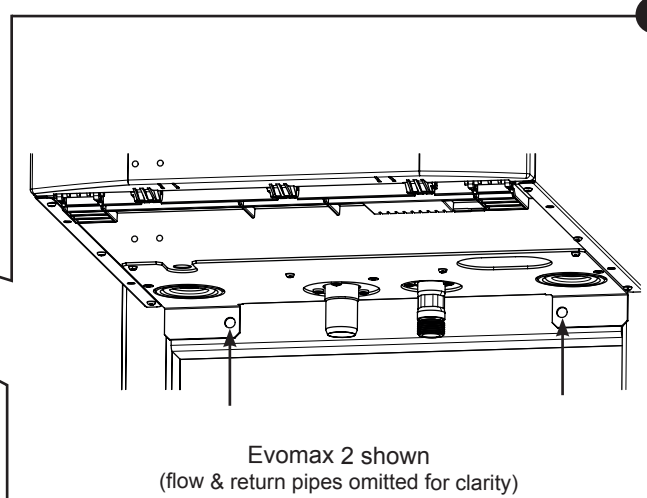
2. If additional stability is required remove the plastic foot covers and drill the floor in order to floor bolt the frame assembly to its required location. (Bolts not supplied in kit)

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.



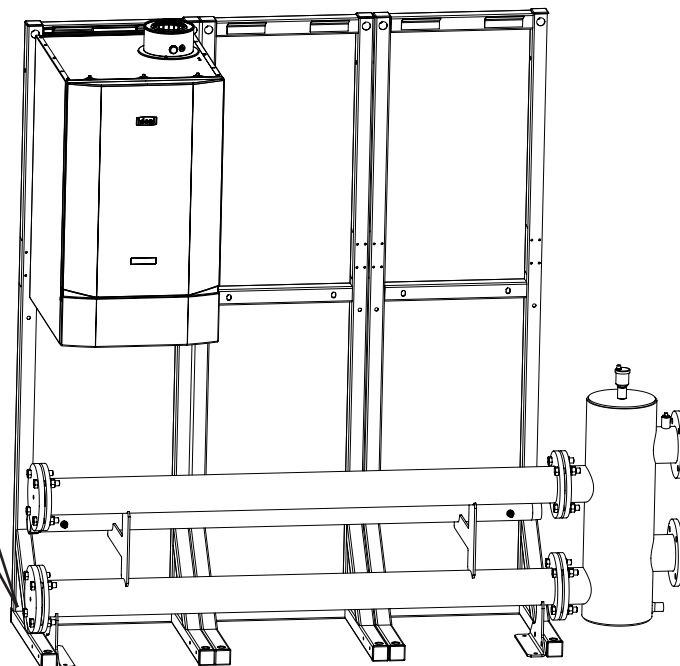
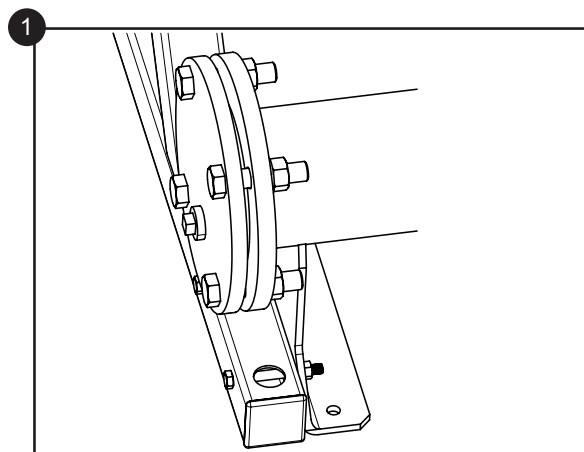
Mixing Header



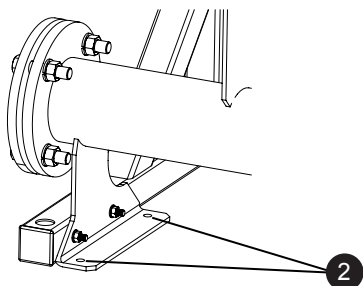
Blanking Flange

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.



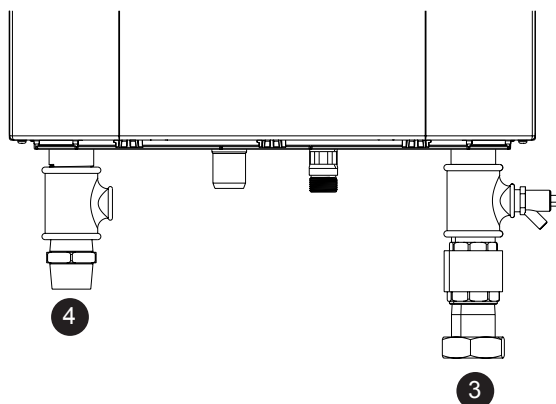
2. Screw the header legs to the frame feet with the bolts, nuts & washers provided.



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).

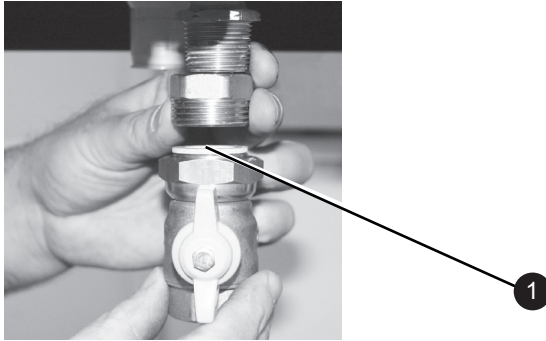
5. Fit the two flexible header connections to the boiler pump connection and the isolating valve connection ensuring the sealing washers are fitted.



6.3 FITTING GAS CONNECTION

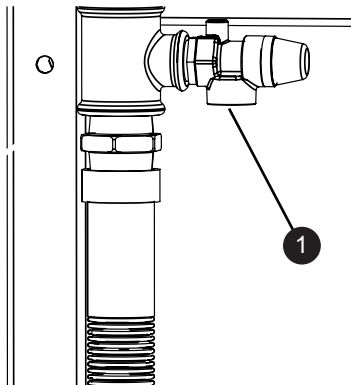
NOTE: Gas Isolation Valve is supplied with the boiler.

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.



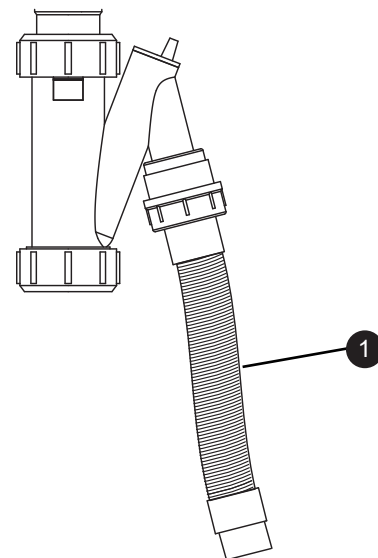
6.4 PRESSURE RELIEF VALVE CONNECTION

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

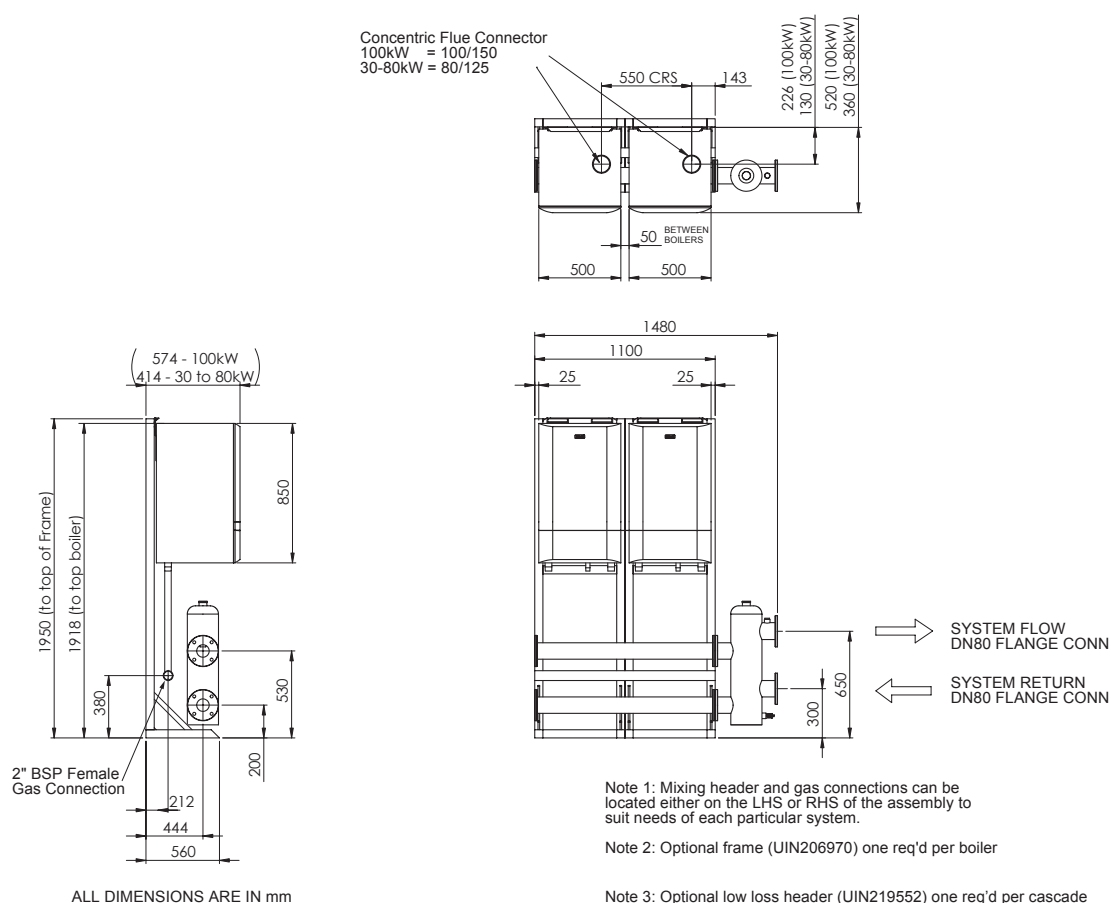
The multiple boiler systems are available in three formats:

- 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.

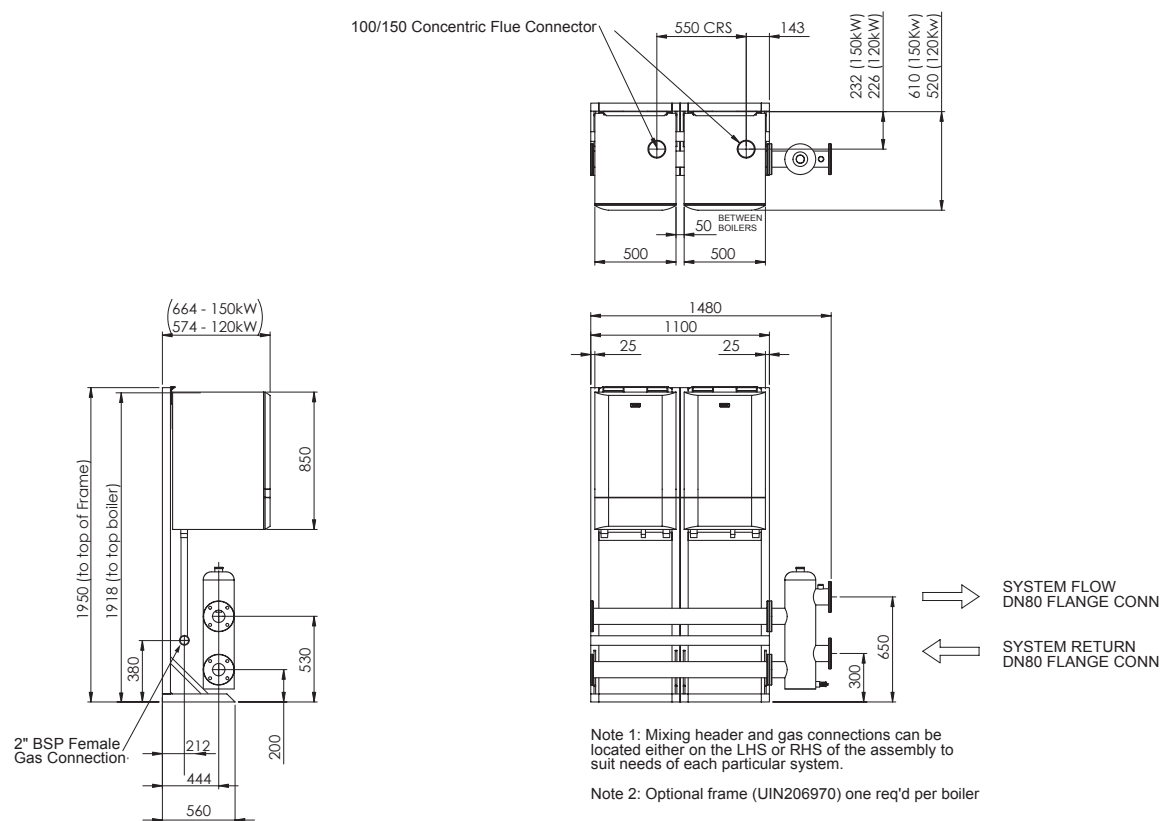
The boiler side of the cascade systems is sized to water flow and return differential $20\Delta T$.

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

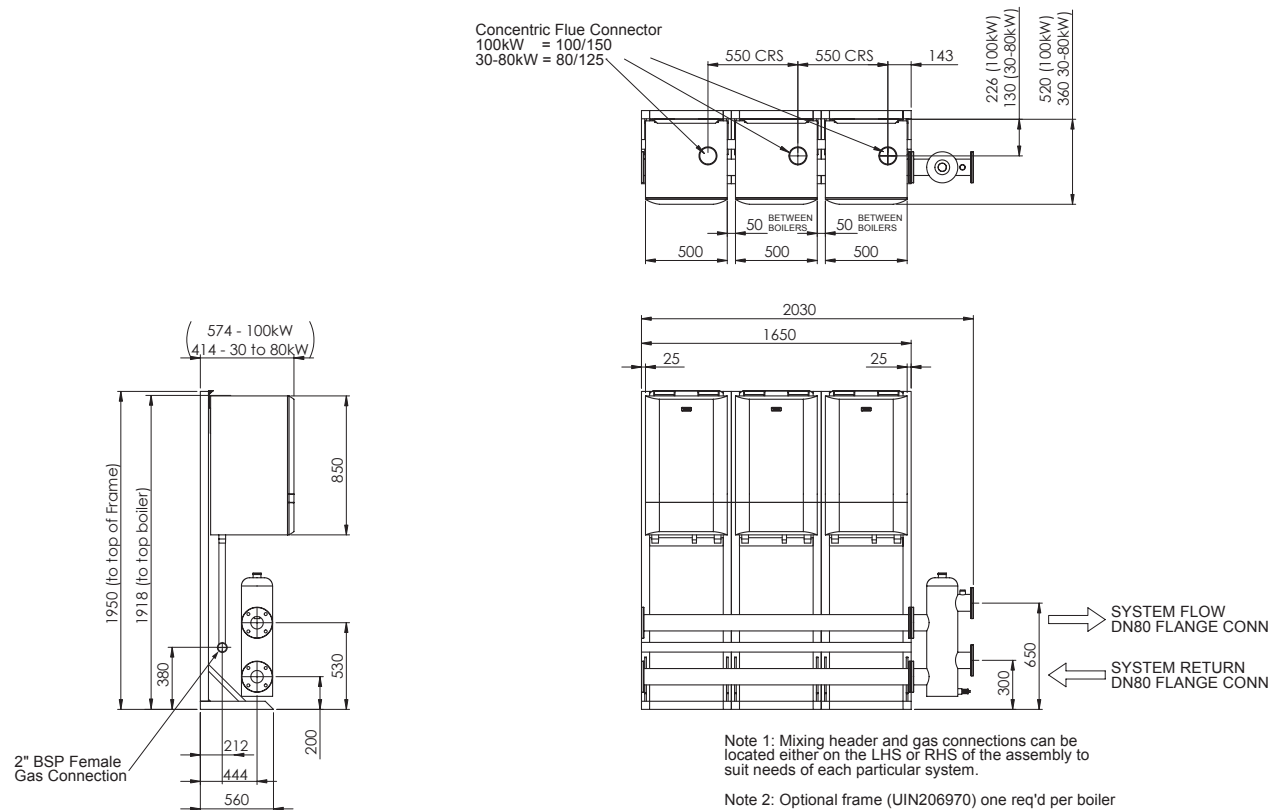


7.2.2 INSTALLATION DRAWING WITH 2 - 120/150 BOILERS (SIDE BY SIDE) LOW LOSS HEADERS OR PLATE HEAT EXCHANGERS



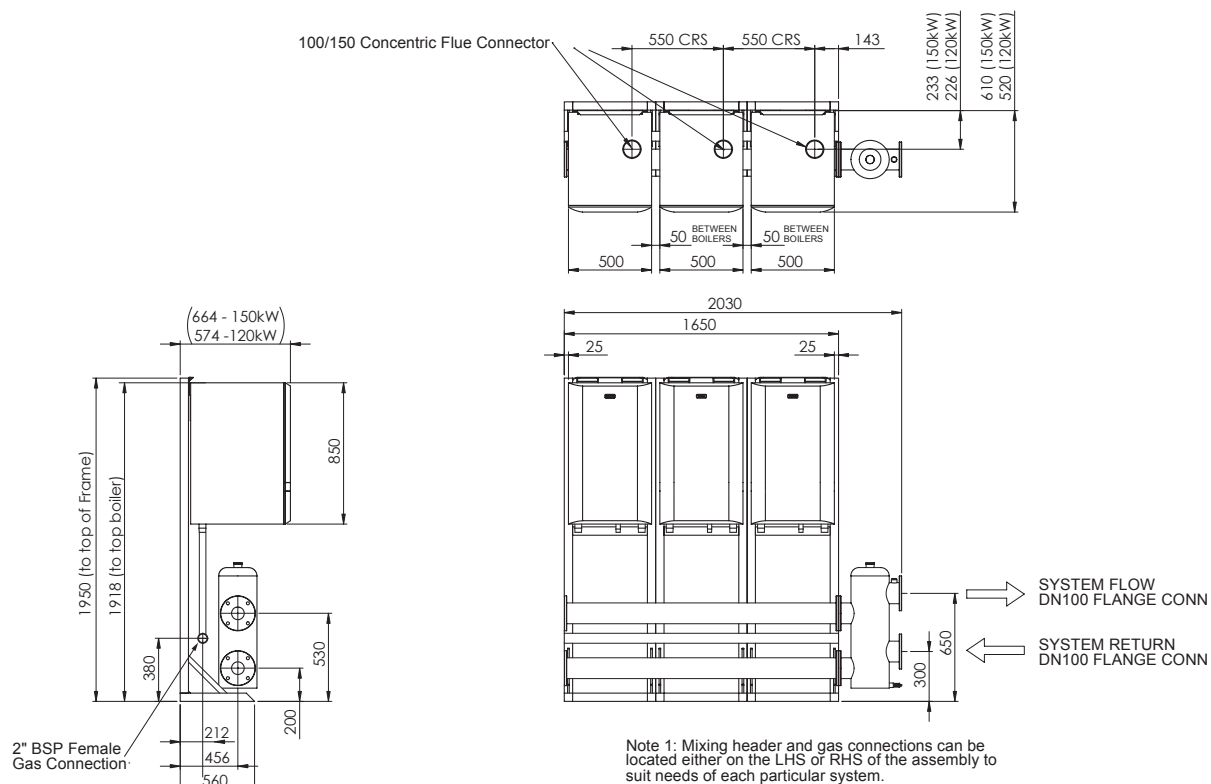
ALL DIMENSIONS ARE IN mm

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



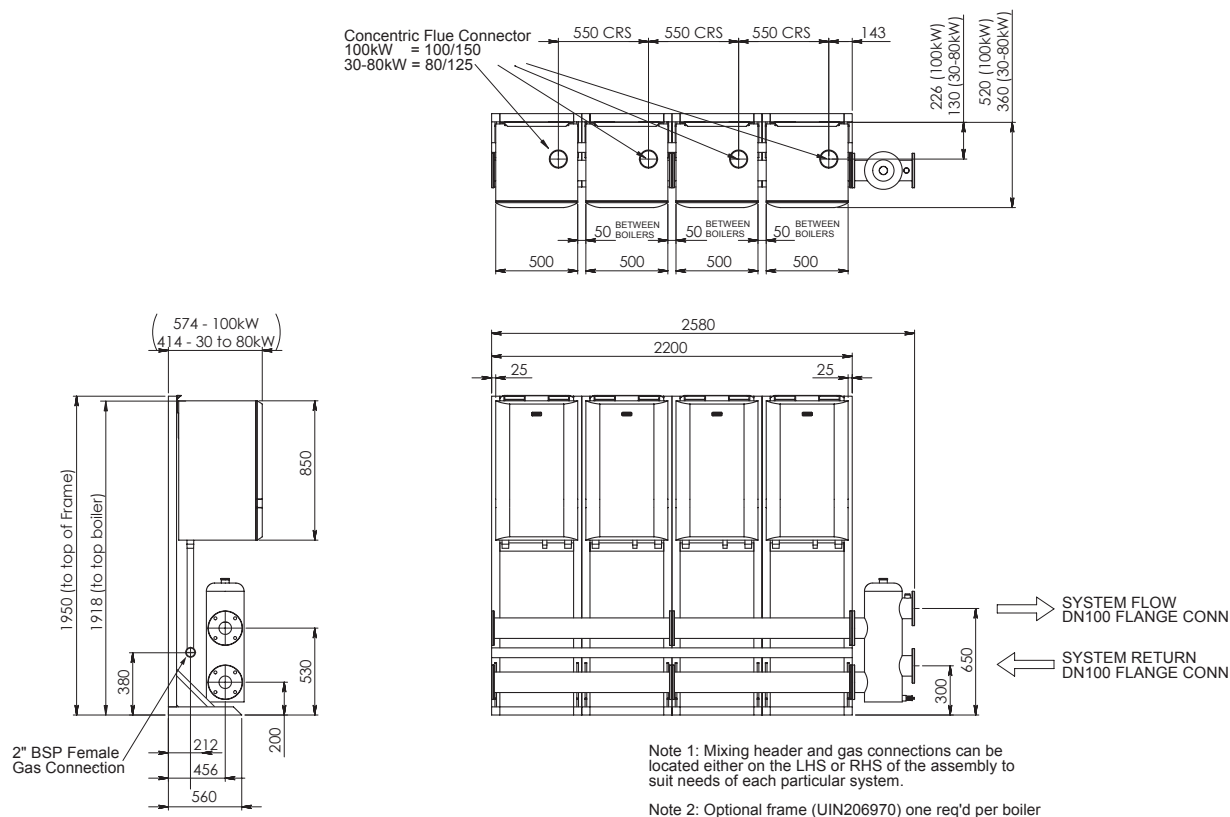
ALL DIMENSIONS ARE IN mm

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



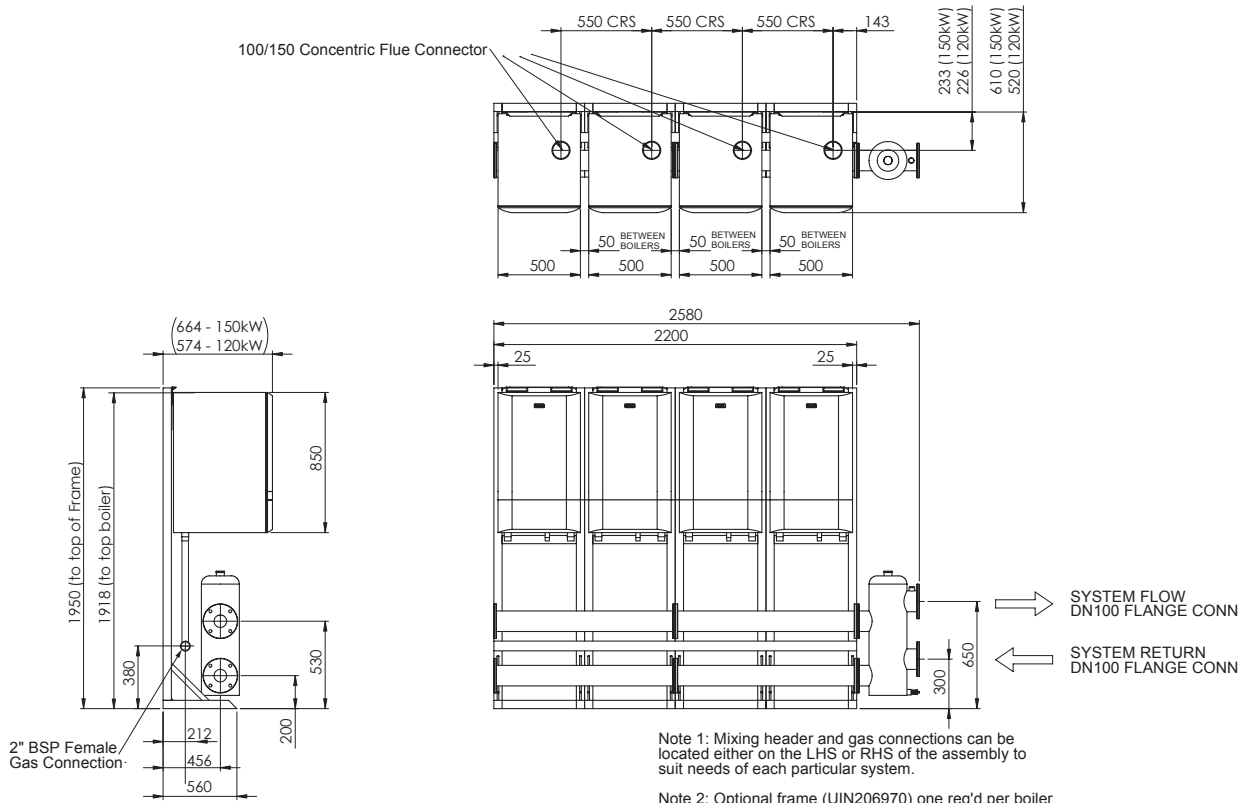
ALL DIMENSIONS ARE IN mm

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



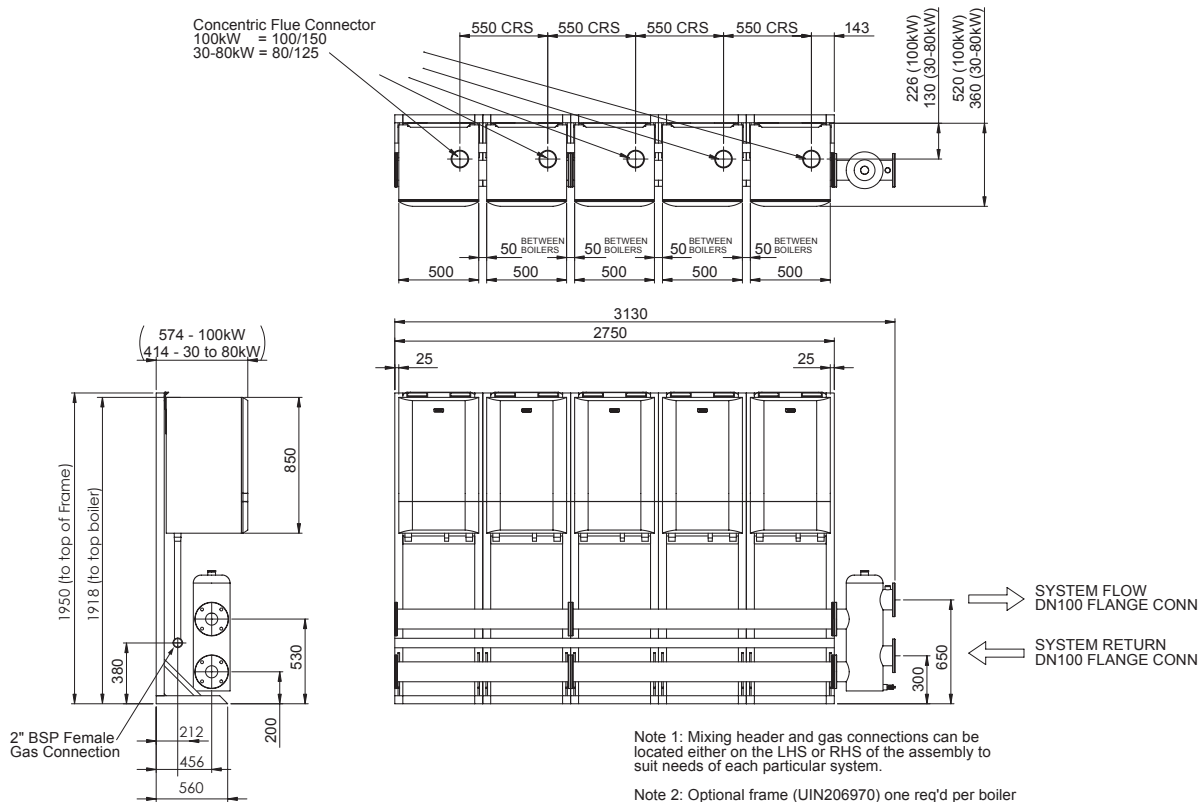
ALL DIMENSIONS ARE IN mm

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



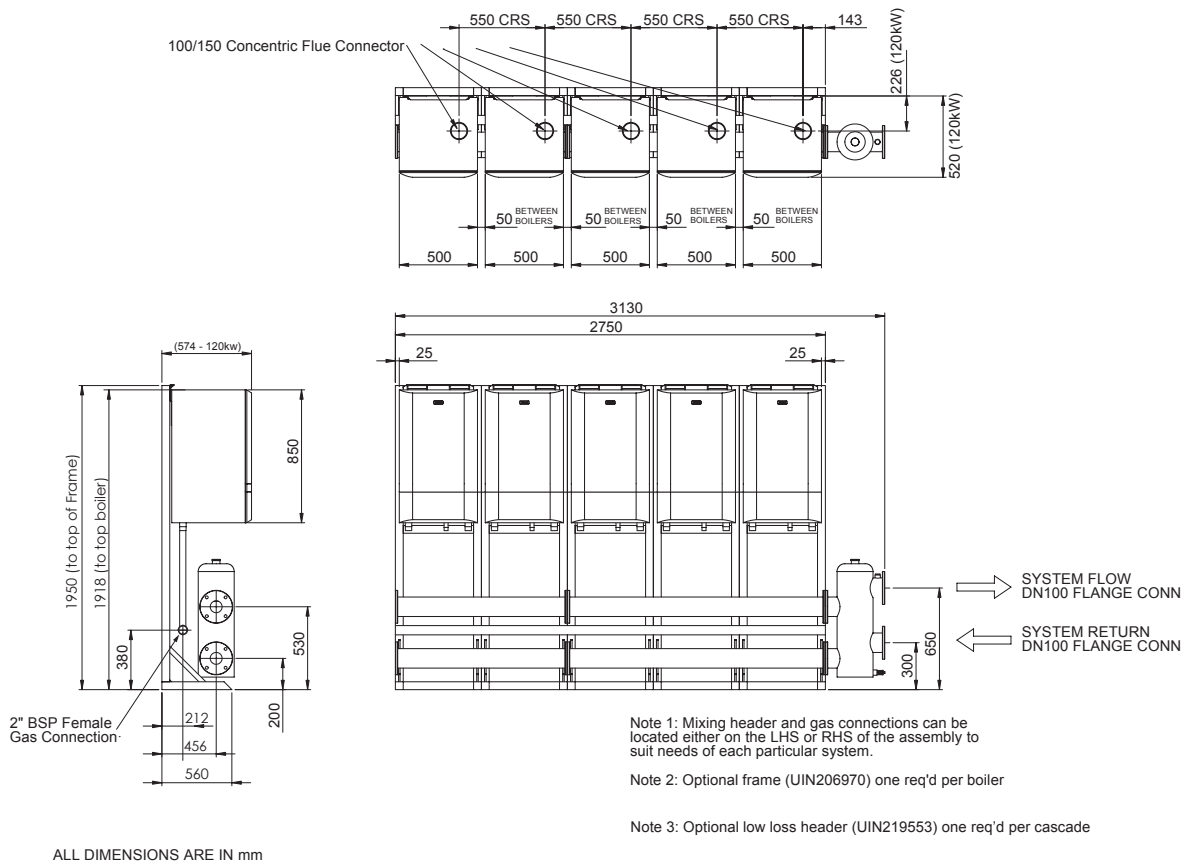
ALL DIMENSIONS ARE IN mm

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

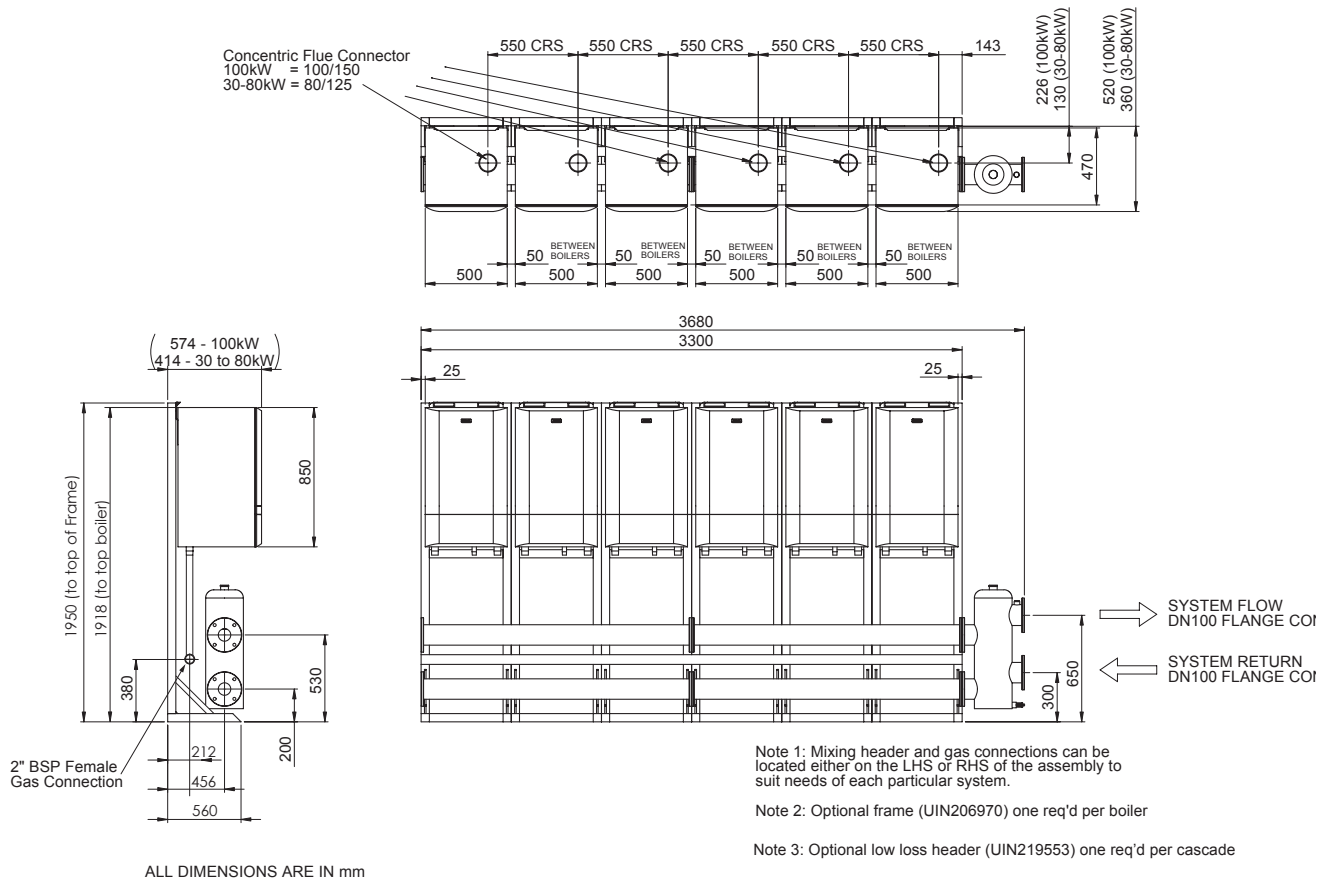


ALL DIMENSIONS ARE IN mm

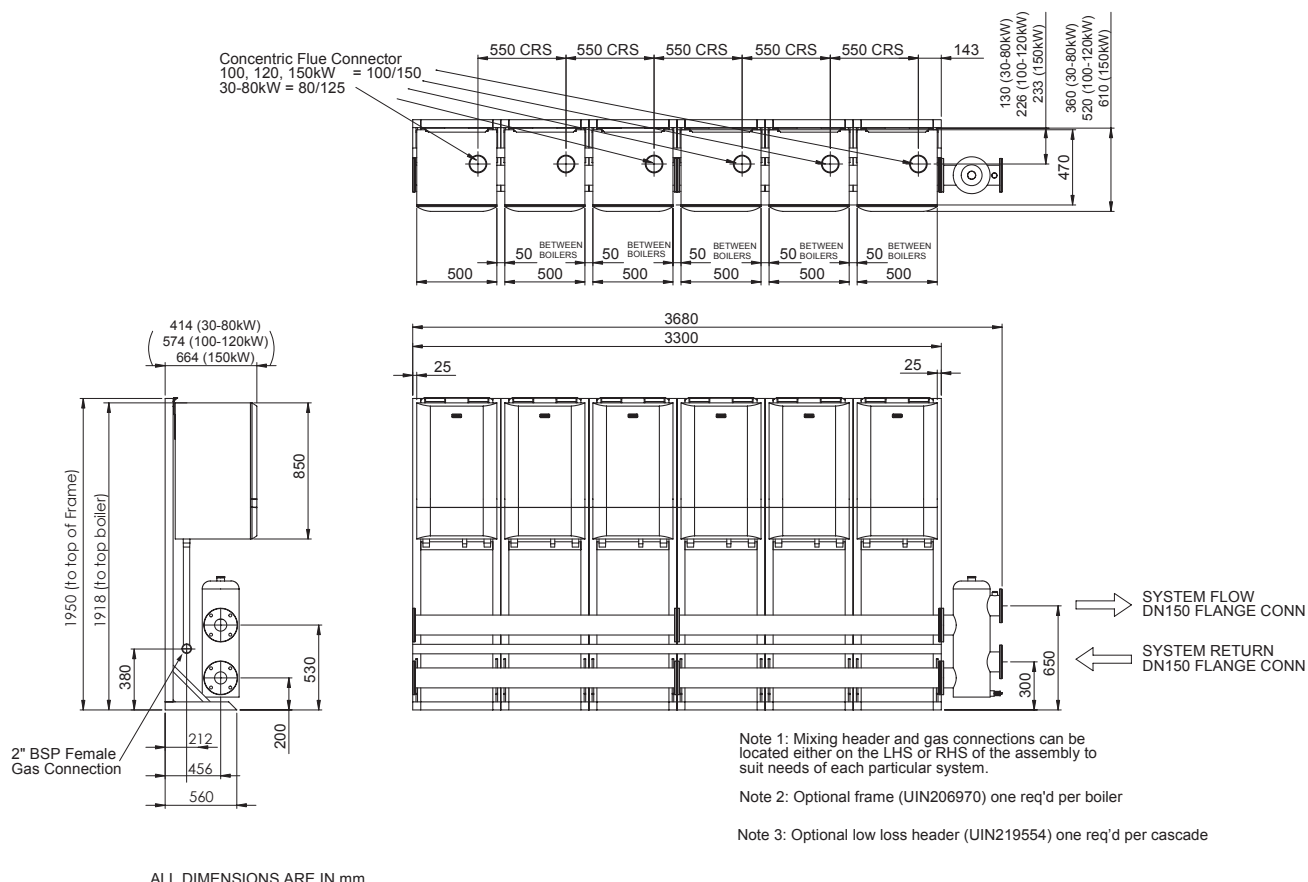
7.2.8 INSTALLATION DRAWING WITH 5 - 120 BOILERS (SIDE BY SIDE) LOW LOSS HEADERS OR PLATE HEAT EXCHANGERS



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

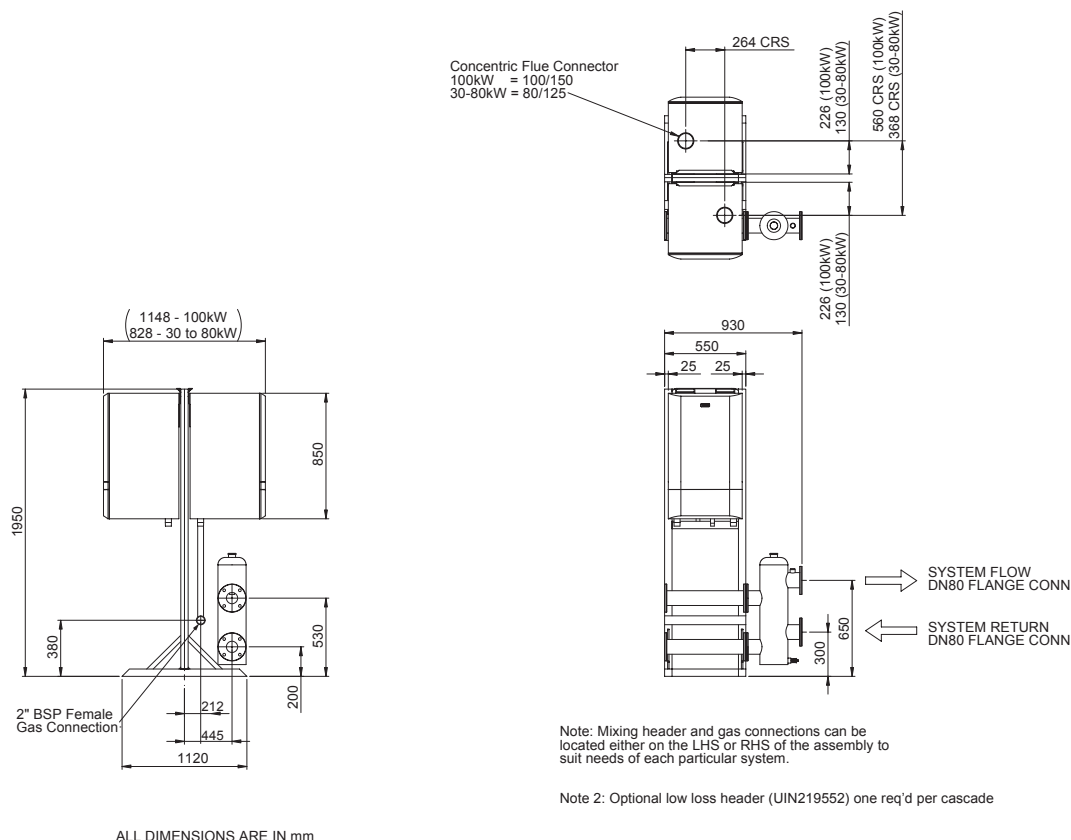


7.2.10 INSTALLATION DRAWING WITH 6 – 30-150 BOILERS (SIDE BY SIDE) LOW LOSS HEADERS

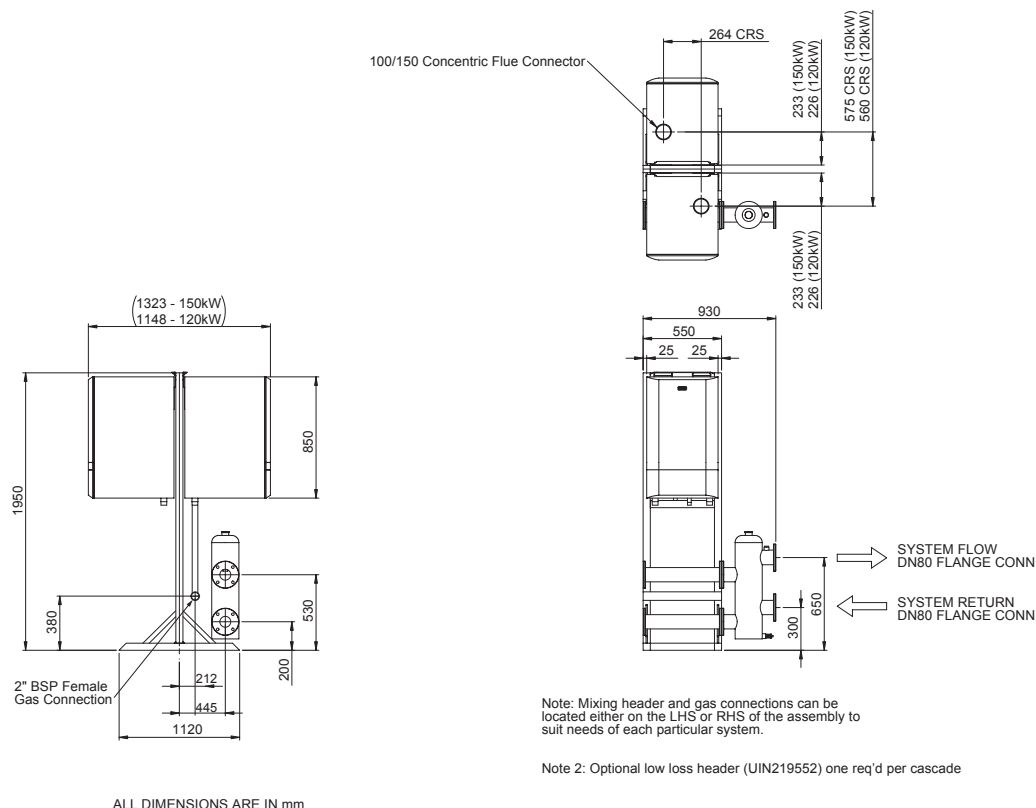


7.3 BACK TO BACK FRAME KIT CONFIGURATION

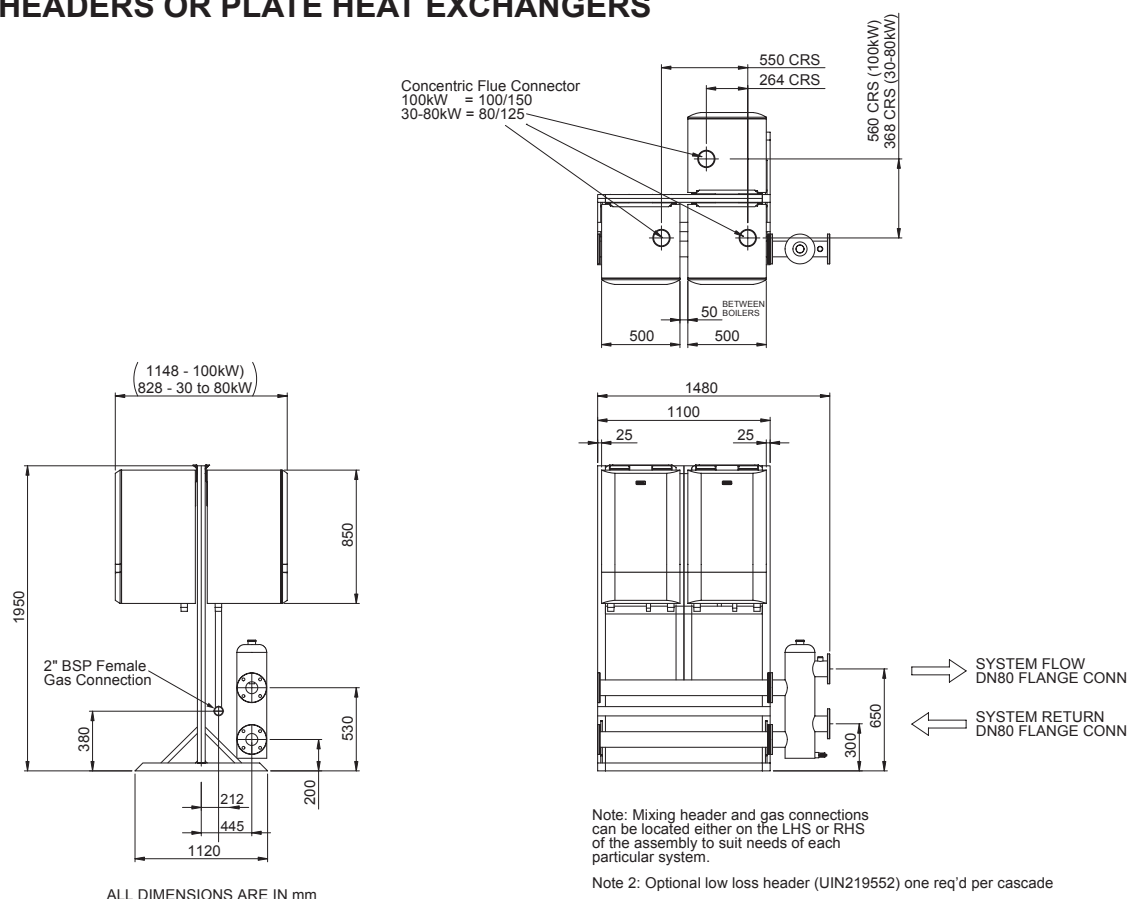
7.3.1 INSTALLATION DRAWING WITH 2 – 30-100 BOILERS (BACK TO BACK) LOW LOSS HEADERS OR PLATE HEAT EXCHANGERS



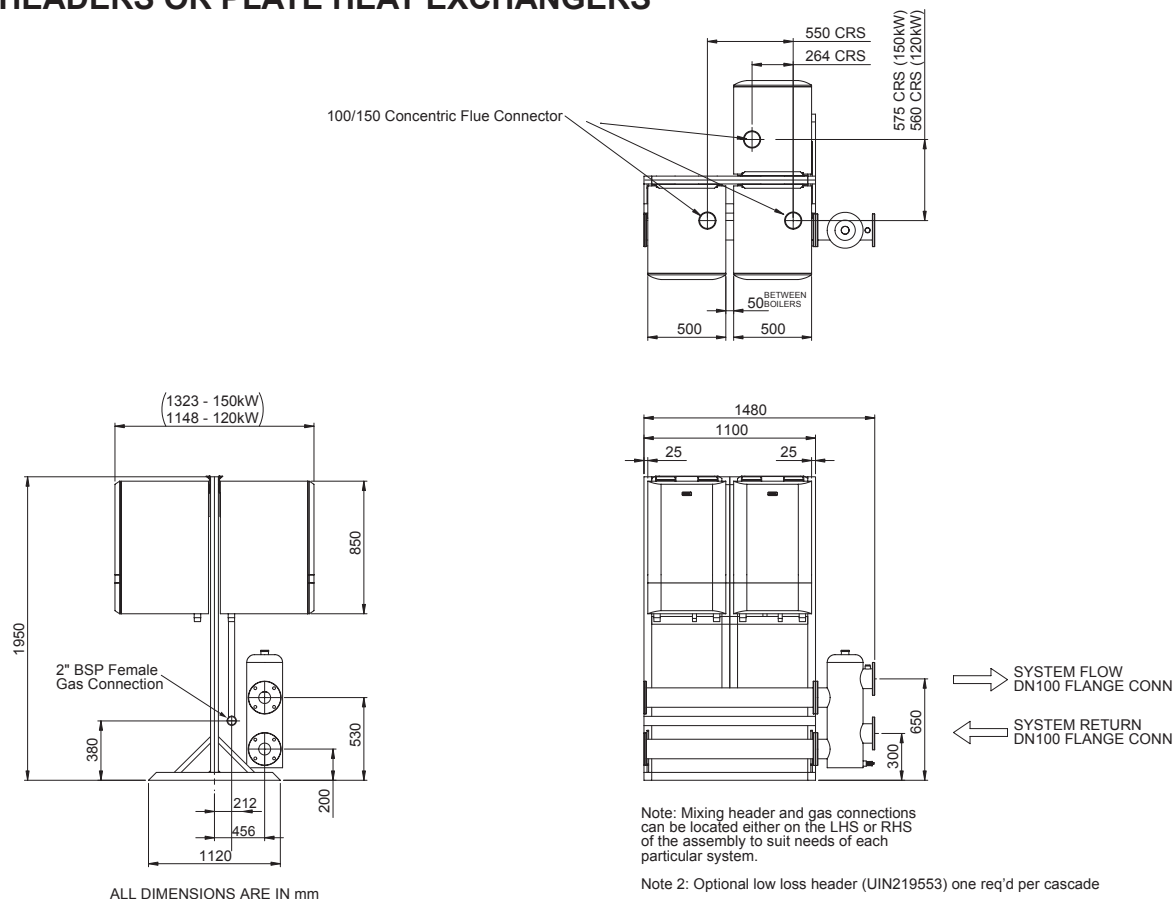
7.3.2 INSTALLATION DRAWING WITH 2 – 120/150 BOILERS (BACK TO BACK) LOW LOSS HEADERS OR PLATE HEAT EXCHANGERS



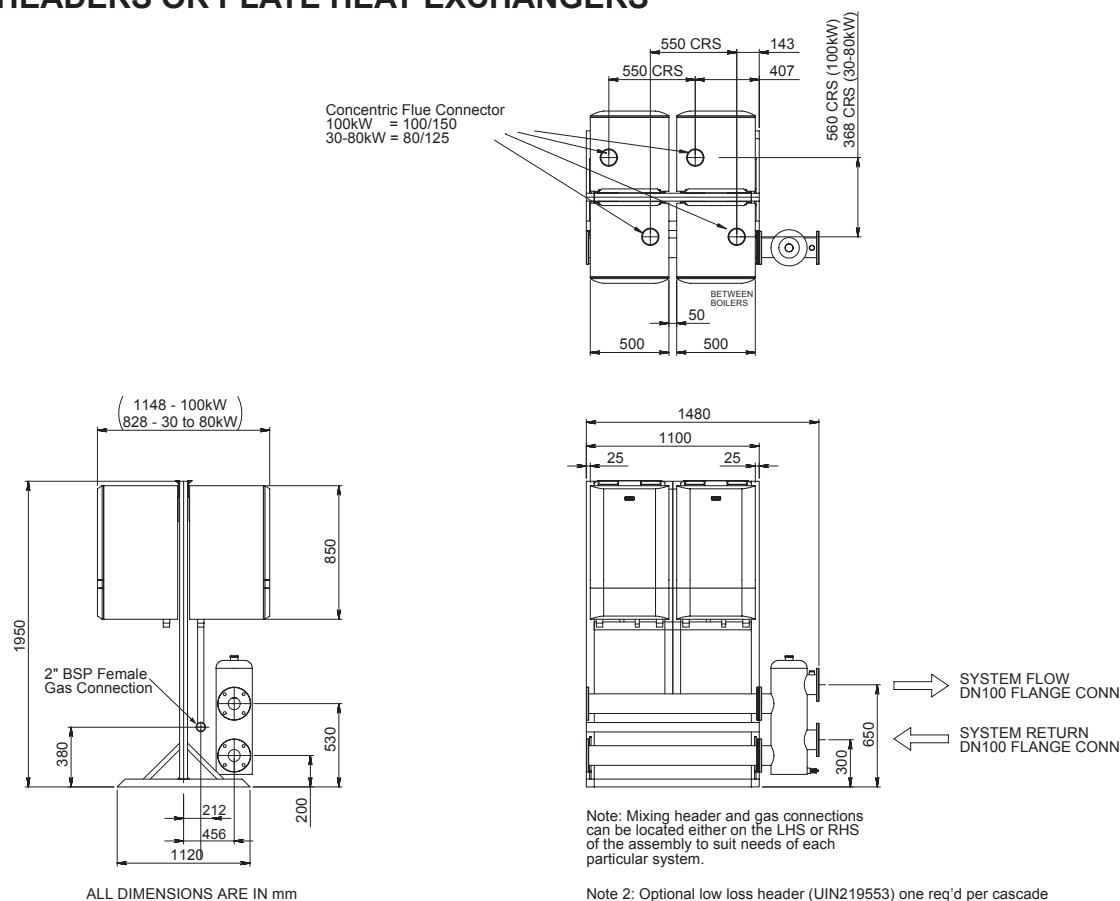
7.3.3 INSTALLATION DRAWING WITH 3 – 30-100 BOILERS (BACK TO BACK) LOW LOSS HEADERS OR PLATE HEAT EXCHANGERS



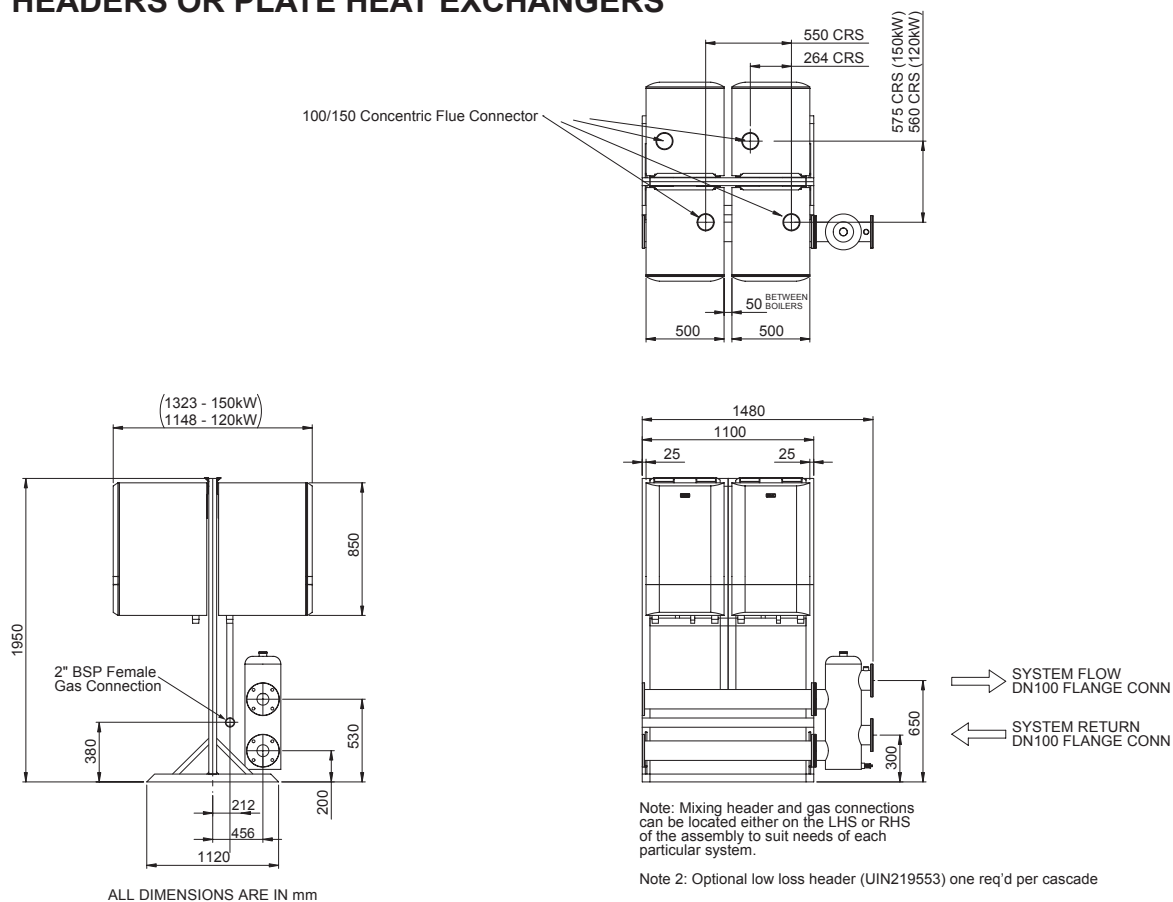
7.3.4 INSTALLATION DRAWING WITH 3 – 120/150 BOILERS (BACK TO BACK) LOW LOSS HEADERS OR PLATE HEAT EXCHANGERS



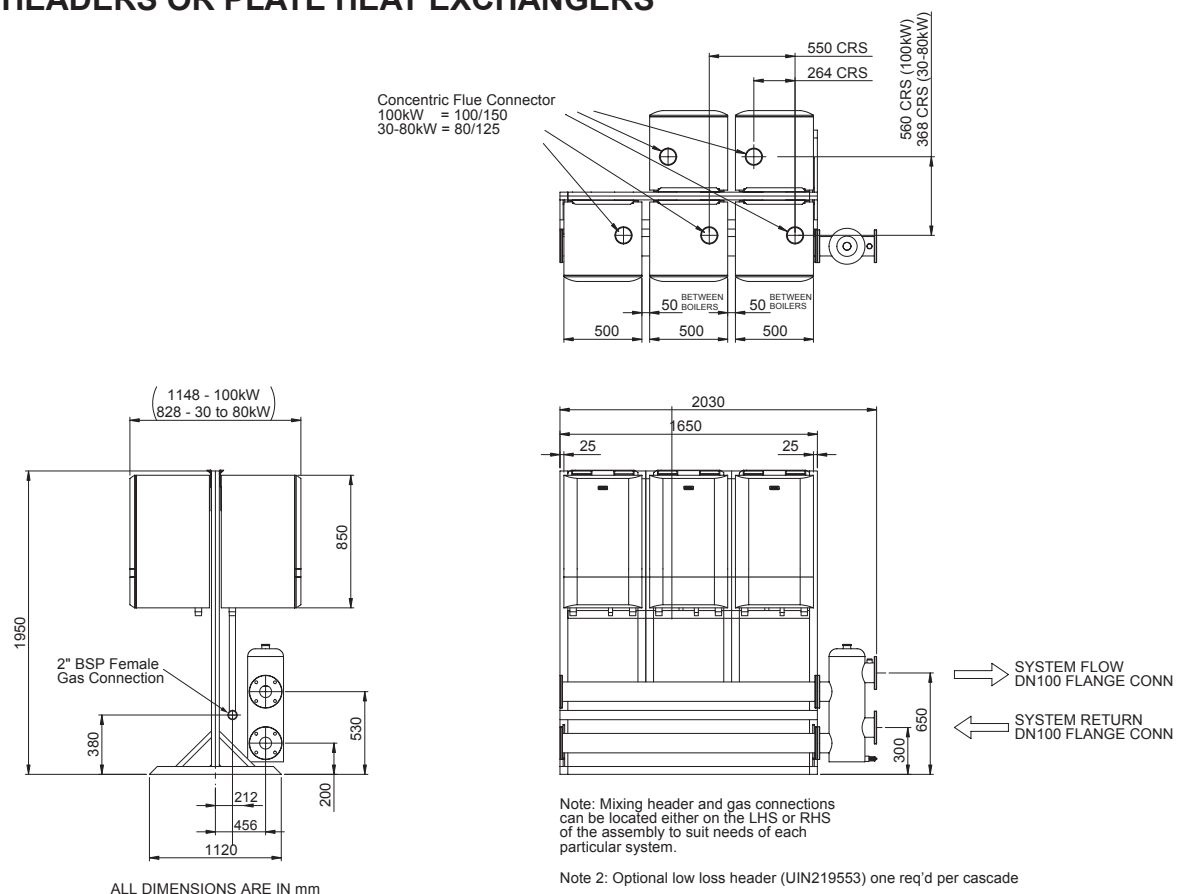
7.3.5 INSTALLATION DRAWING WITH 4 – 30-100 BOILERS (BACK TO BACK) LOW LOSS HEADERS OR PLATE HEAT EXCHANGERS



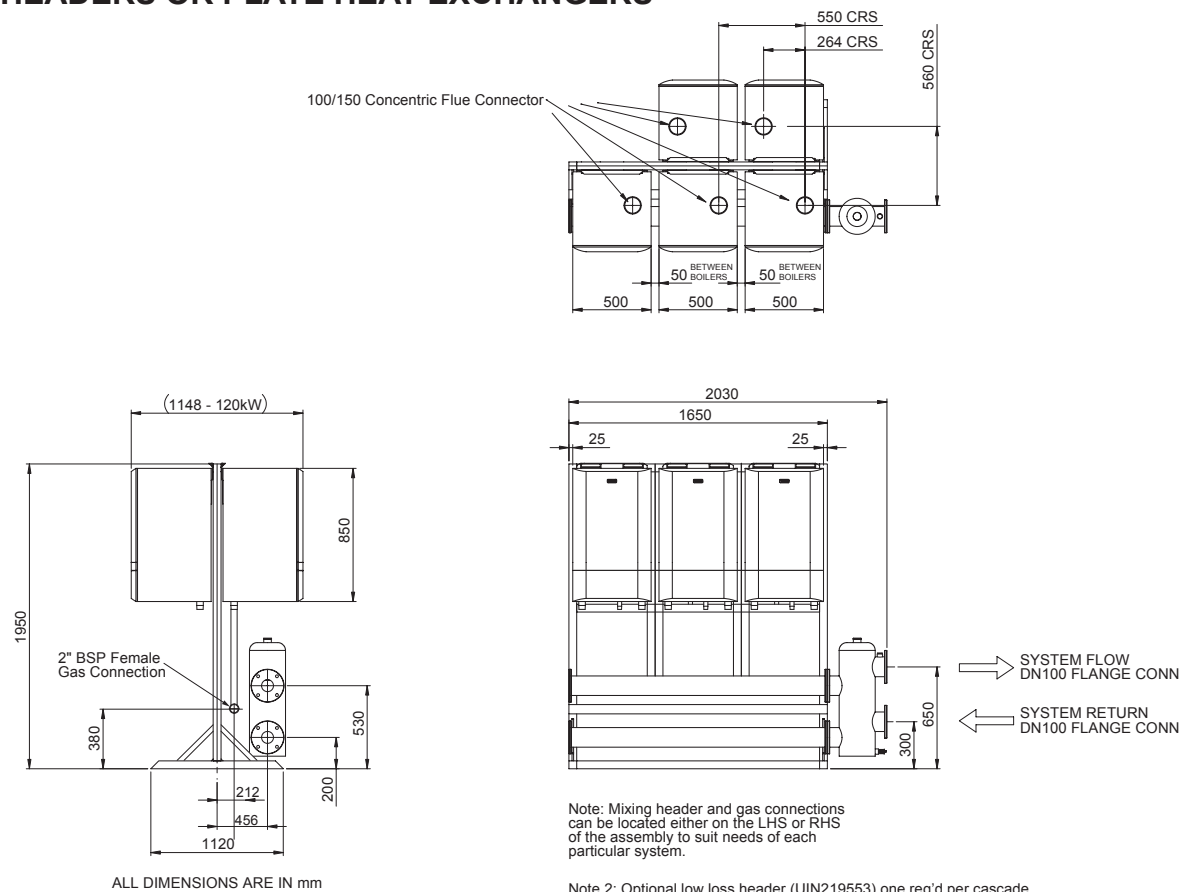
7.3.6 INSTALLATION DRAWING WITH 4 – 120/150 BOILERS (BACK TO BACK) LOW LOSS HEADERS OR PLATE HEAT EXCHANGERS



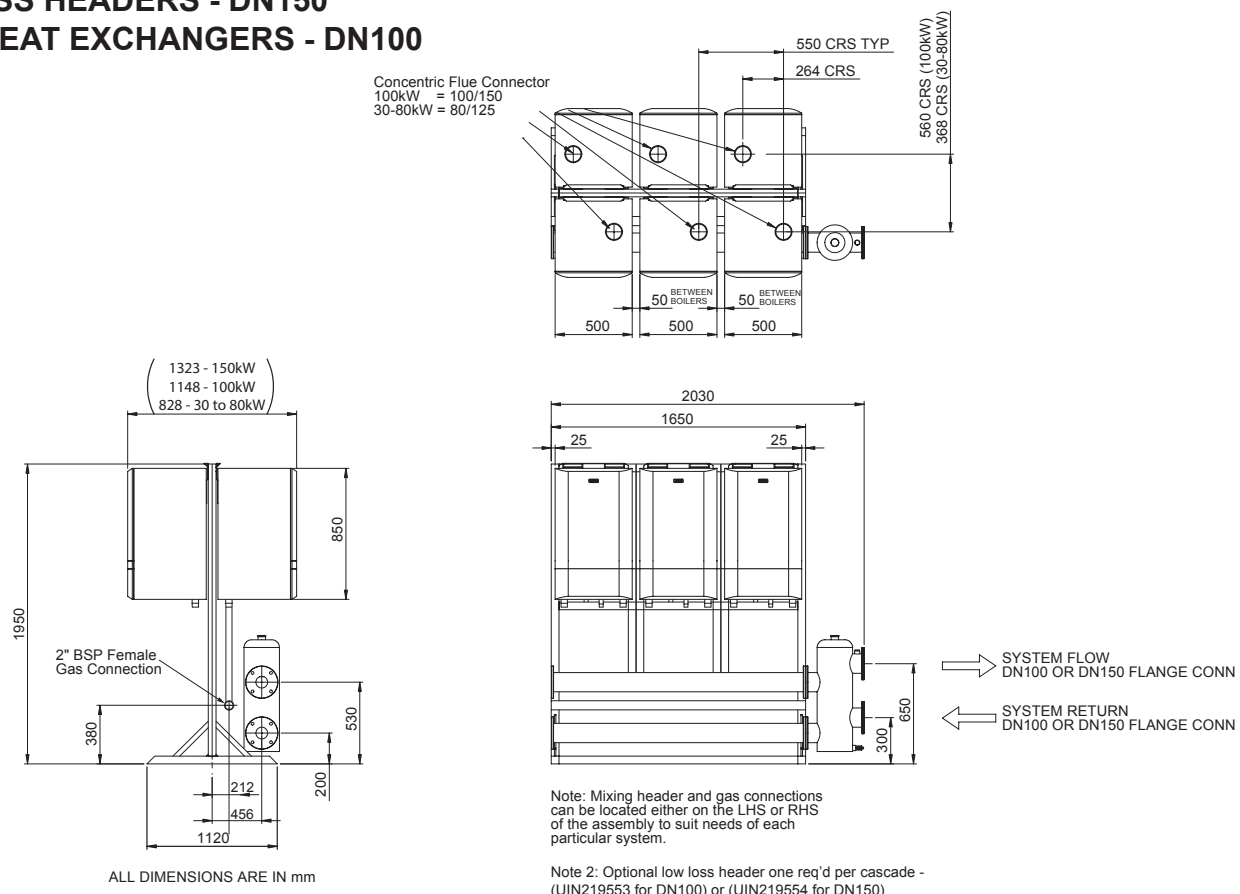
7.3.7 INSTALLATION DRAWING WITH 5 – 30-100 BOILERS (BACK TO BACK) LOW LOSS HEADERS OR PLATE HEAT EXCHANGERS



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



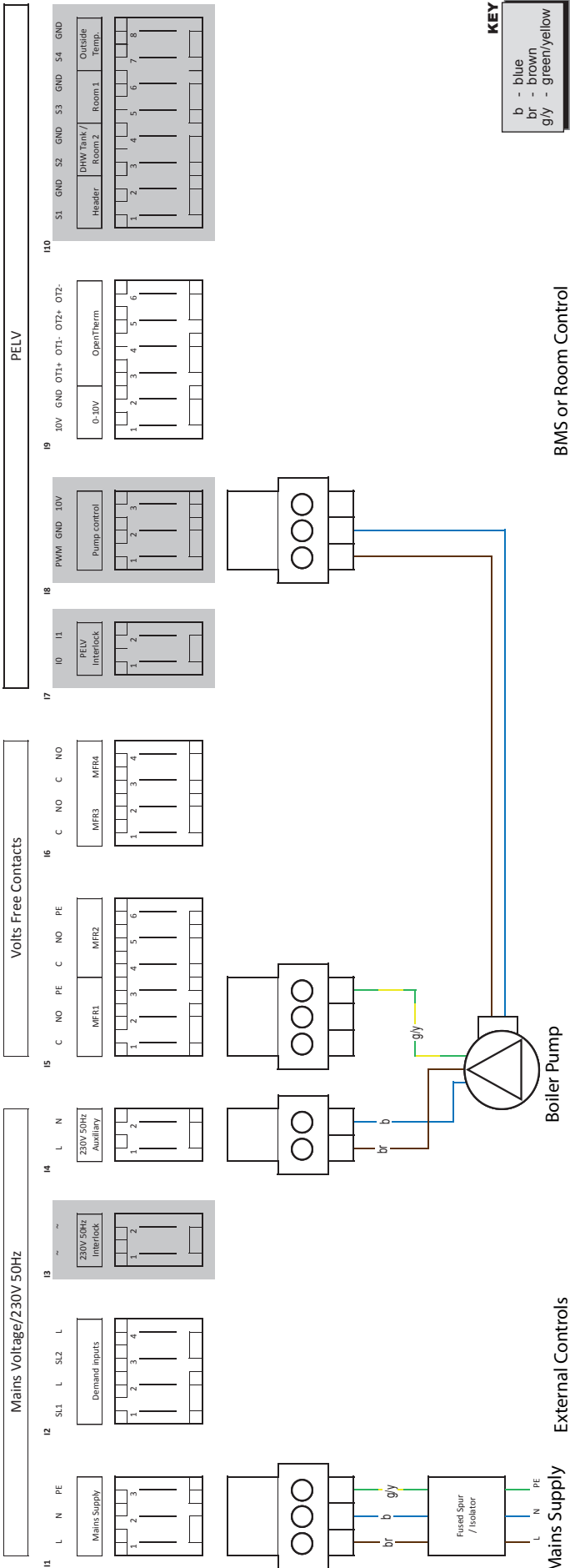
7.3.9 INSTALLATION DRAWING WITH 6 – 30-150 BOILERS (BACK TO BACK) LOW LOSS HEADERS - DN150 PLATE HEAT EXCHANGERS - DN100



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

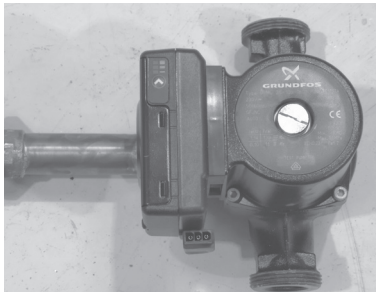
1. Electrical and gas safety checks must be carried out on completion of installation as with individual boiler commissioning.
2. Pump setting - follow instructions on pump types shown below;

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

Technical Training

The Ideal Technical Training Centre offers a series of first class training courses for domestic, commercial and industrial heating installers, engineers and system specifiers.

For details of courses please ring:..... 01482 498432



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