ideal HEATING

LOW 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 where you can download the relevant information in PDF format.

November 2020
UIN 220379 A02

This kit is suitable for the following boilers:

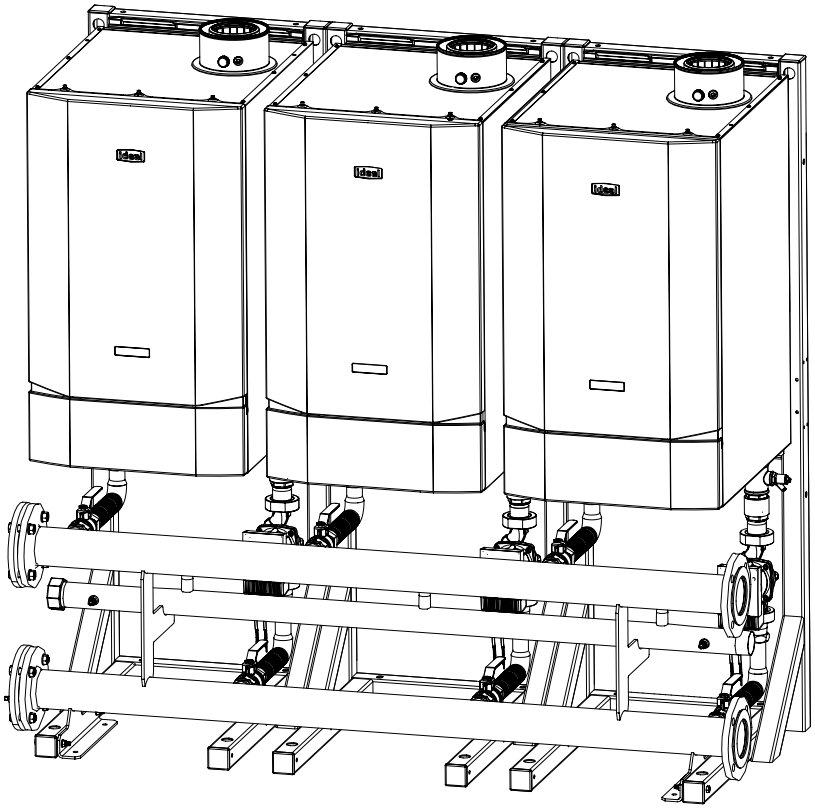
Evomax 30, 40, 60, 80, 100, 120, 150, 30P, 40P, 60P, 80P
Evomax 2 30, 40, 60, 80, 100, 120, 150, 30P, 40P, 60P 80P, 100P, 120P

CONTENTS

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 and assembly of a cascade system kit for the Evomax & Evomax 2 ranges.

These low height rig kits have been designed to enable them to be fitted in a standard height room leaving ample space for flue installations and are supplied with gas and water header kits designed for use with a low loss header system.

They are based around a single frame structure with provision to bolt multiple frames side by side up to 4 wide, along with all the necessary mounting holes to enable the fitting of the header kits and frame securing bolts.

This manual contains all the technical and dimensional data required to install these kits.

GENERAL DESCRIPTION OF FRAME AND HEADER KITS

These are a compact system with four single frame configurations and integrated water and gas headers, affording floor mounting capability to the entire range of products. These systems are adapted to incorporate the use of low loss headers, plate heat exchangers and optional sequencer control systems.

All these kits are supplied with the relevant number of necessary parts needed to connect these kits to the separately purchased appliances.

Boiler pumps are an accessory, and must be selected for either low loss headers or plate heat exchangers.

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.

UNPACKING

Check the kit contents with the list below.

Kit Contents					
	Frame	**Water Header**	**Hardware Pack Connection**	**Hardware Pack Misc**	**Pump**
DN50	1 off	1 off	1 off	n/a	1 off
DN65	2 off	1 off	1 off	1 off	2 off
DN80	3 off	1 off	1 off	1 off	3 off
DN100	4 off	2 off	1 off	1 off	4 off

2 GENERAL DESCRIPTION OF SYSTEMS

A single boiler system is defined as fitting one appliance on a single frame with a DN50 water header.

A two, three and four boiler system (cascade) is defined as fitting two, three or four appliances on single frames that are bolted together and share a common water and gas header (DN65, DN80 & DN100).

2.1 FRAME AND HEADER KIT DESIGN OPTIONS

1. These water headers and pumps (accessory) are designed for use with a low loss header system (option), or plate heat exchangers only (option).
2. Appliances are not provided with these kits and will be required to be purchased separately.

Available Rig Configurations	Total Output Required (KW)	Number of boilers and Frames	Footprint Size WxDxH (mm)	Header Kit	
	Range			Size	Prod No.
Single Frame Configurations	30 to 150	1	550 x 685 x 1550	DN50	221127
Twin Frame Configurations	60 to 300	2	1100 x 685 x 1550	DN65	221128
Triple Frame Configurations	90 to 450	3	1650 x 685 x 1550	DN80	221129
Quad Frame Configurations	120 to 600	4	2200 x 685 x 1550	DN100	219561

Note.
When fitted with 150 appliance, D=666 (from rear frame bolt to front of boiler).

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)			
DN50	**DN65**	**DN80**	**DN100**
209394	209395	219552	219553

2.2 MULTIPLE BOILER INSTALLATIONS

When sizing multiple appliance installations, the minimum and maximum system heat load requirements need to be matched to the minimum and maximum appliance load capabilities.

These water header & pump kits are design to supply the optimum water flow around the appliance water circuit only and must be used in conjunction with a suitably sized low loss header (mixing header) or plate heat exchanger.

2.3 HYDRONIC ISOLATION: LOW LOSS HEADER & PLATE HEAT EXCHANGER

A low loss header 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 and 4 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 SYSTEM COMPONENTS

3.1 GENERAL

- Frames: These are provided in a single frame format and are designed to be bolted side by side up to a maximum of four frames and must be bolted together using the bolts provide.
- Water header with built in gas header cradles and mounting brackets that allow its connection to the frames can be obtained in DN50 single boiler format, DN65 two boiler format, DN80 three boiler format or DN100 four boiler format.
- 2” gas header with inlet test points
- All the pumps, associated safety controls, pipes and fittings required to connect the water and gas header to the appliances are supplied.

3.2 MAIN WATER HEADERS

The main water header consists of un-insulated water flow and return pipes incorporating location and frame mounting brackets sized to cater for the range of products available for use with these kits.

The Single unit water header is a DN50 pipe system with threaded connections. (Threaded flanges are provided with DN50 low height Low loss header kit).

The twin water header is a DN65 pipe system with PN6 flange and is available with the DN65 low height Low loss header kit.

The three unit system uses a DN80 pipe system with PN6 flange and is available with the DN80 low height Low loss header kit.

The four unit system uses a DN100 pipe system with PN6 flange and is available with the DN100 low height Low loss header kit.

3.3 GAS HEADER

The gas header consists of a 2” manifold tailored to fit the two, three or four unit versions available and is located in the cradle incorporated in the water header bracket structure.

All the pipe work and connections are provided to connect the header to the required appliance.

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.

3.4 LOW LOSS HEADERS (MIXING HEADERS)

All variants of these kits (optional) must be fitted to suitably sized low loss header.

Note; Bespoke low loss headers may not be able to connect directly to these headers due to the change in pitch and position of the header pipe work used in these kits. (See frame fit low loss header)

Ideal recommend:- DN50 – 209394, DN65 – 209395,

DN80 - 219552, DN100 - 219553.

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

These boiler connections are un-insulated and contain the following:

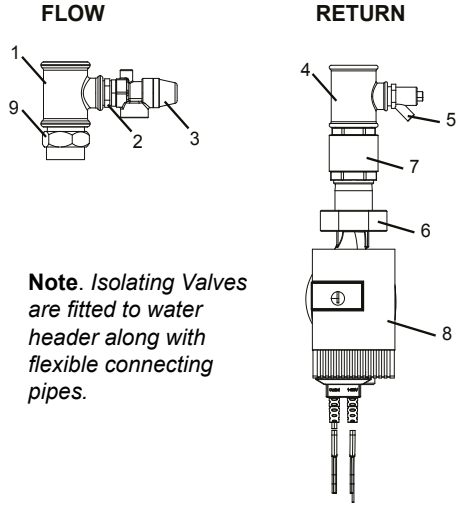
LEGEND

1. Tee 1 $^{1}/_{4}$" X $^{3}/_{4}$" X 1 $^{1}/_{4}$"
2. Close Taper Nipple
3. Safety relief valve 3 bar
4. 1 $^{1}/_{4}$" X $^{1}/_{2}$" X 1 $^{1}/_{4}$" Tee
5. Drain cock
6. Pump union
7. Non return valve
8. Pump inc. gaskets
9. 1 $^{1}/_{4}$" taper male to 1 $^{1}/_{4}$" parallel hex adapter

Note. For boiler connection assembly, refer to Frame 4.4

3.7 FREE-STANDING FRAMES

The low height frames are designed to provide a compact floor mounted structure capable of having any of the range of appliances fitted to them. Incorporating all the required mountings



Note. *Isolating Valves are fitted to water header along with flexible connecting pipes.*

and assembly systems to bolt up to four frames together in a side by side format and mount the relevant water and gas heater kits.

Provision is also provided to allow the frames to be bolted to the floor.

Note: Floor mounting bolts are NOT provided.

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 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, 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 218536) 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, which comes with the Frame & Header kit.

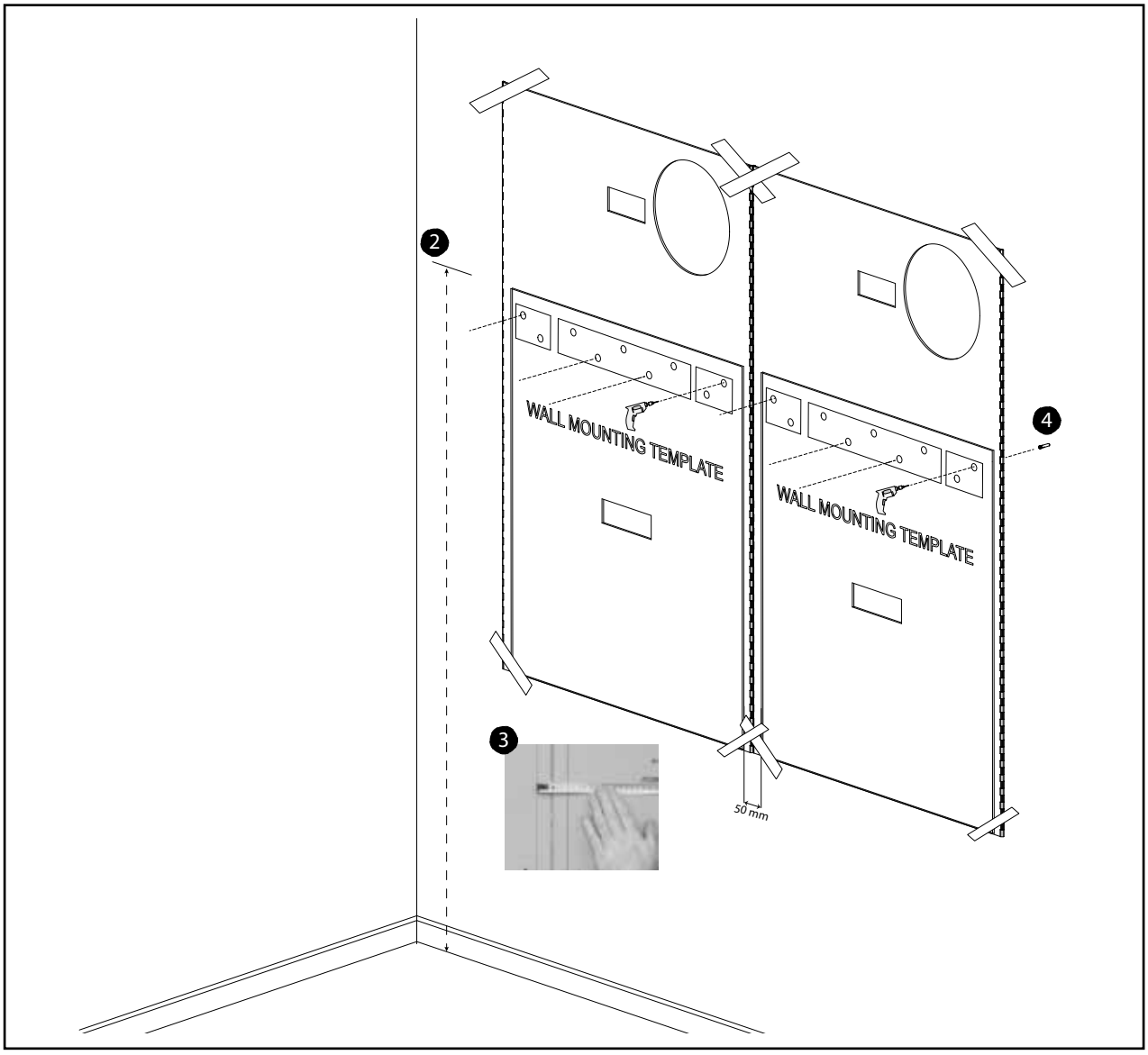
Allowances must be made for installation where skirting boards or other features are in place that may affect the nominal installation conditions.

4 INSTALLATION PROCEDURE

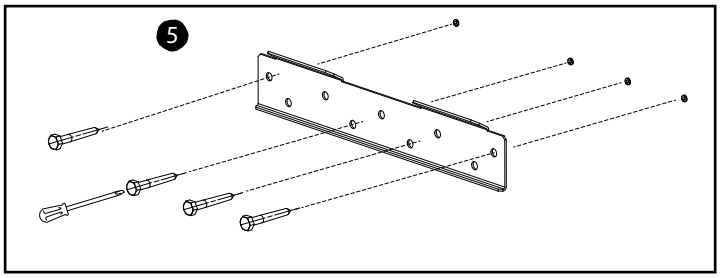
4.1 WALL MOUNTED SIDE BY SIDE OPTION

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 1518mm.
3. Tape the template/s to the wall ensuring the 50mm side clearance per boiler requirement is adhered to.



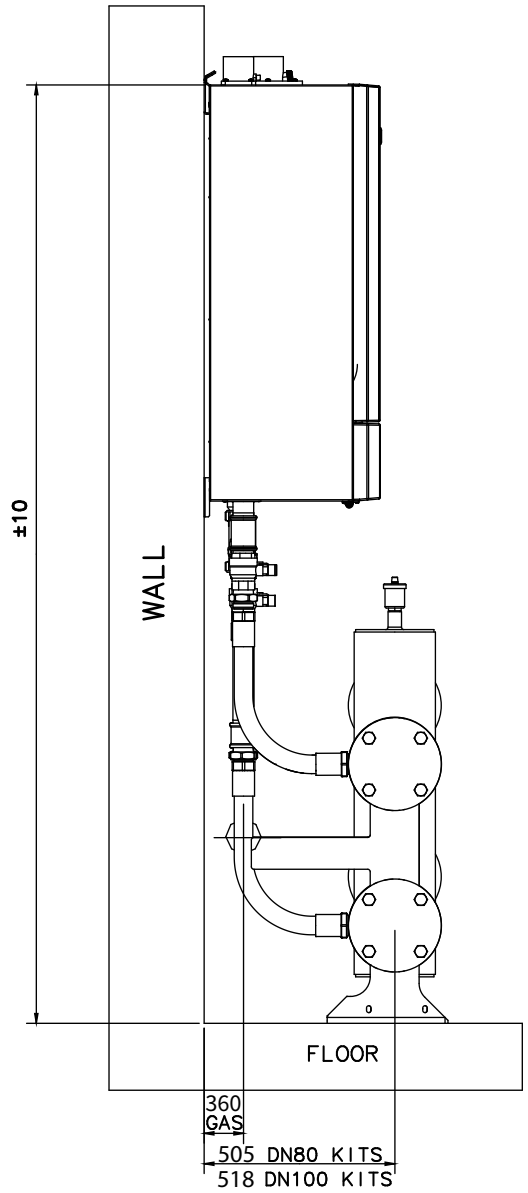
4. Drill the required holes in the wall to fit the wall mounting plate plugs. (See boiler Installation Instructions for details)
5. Screw the wall mounting plate(s) to the wall.



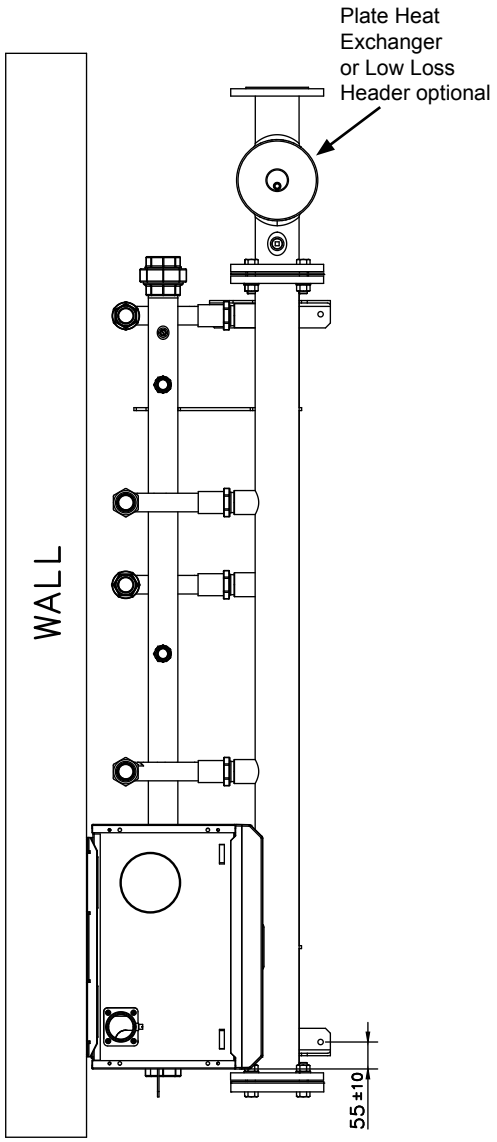
continued . . . . .

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

SIDE VIEW



PLAN VIEW

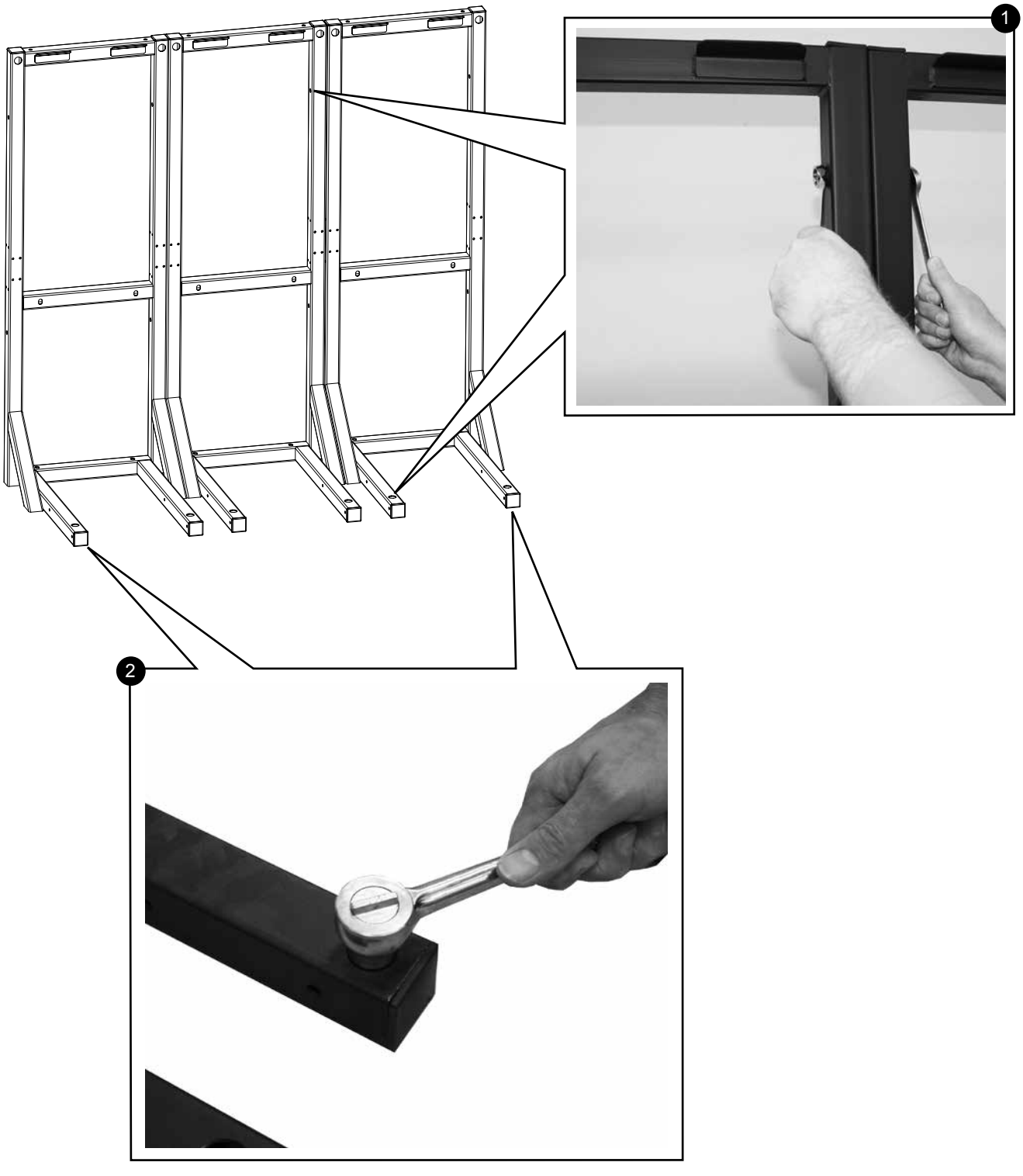


Careful consideration MUST be given to the installation tolerances. If these are not adhered to, hoses may become kinked or connections may not fit.

4.2 SIDE BY SIDE FRAME KIT MOUNTING PROCEDURE

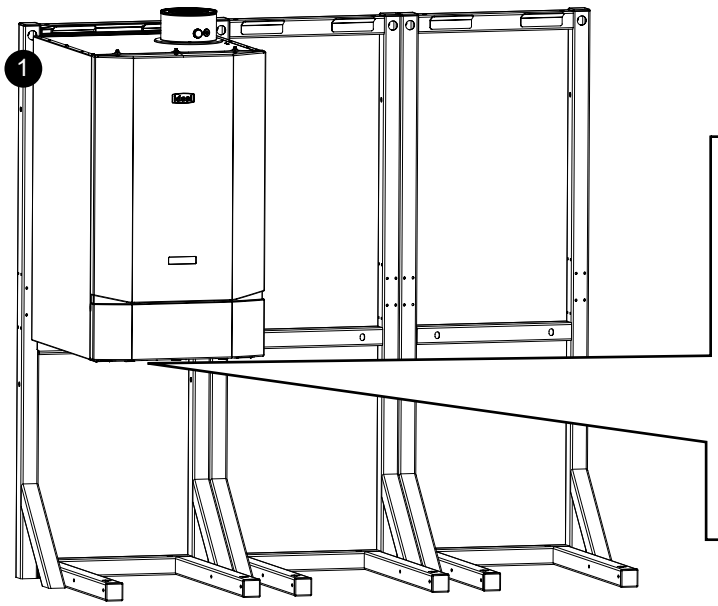
1. Place the frame kit sections in the required position and bolt them together at the top and bottom with the bolts, nuts and washers provided.
2. Drill and fit the required floor bolt's (not provided) through the hole provided in the front of the frame feet. (Note, this must be done before fitting water headers)

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

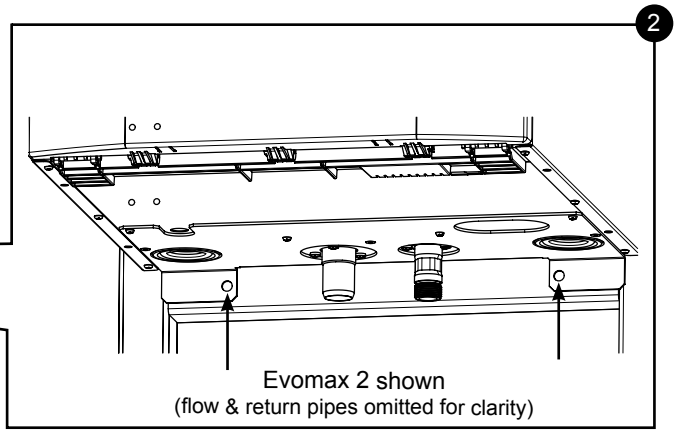


4.3 BOILER MOUNTING

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.

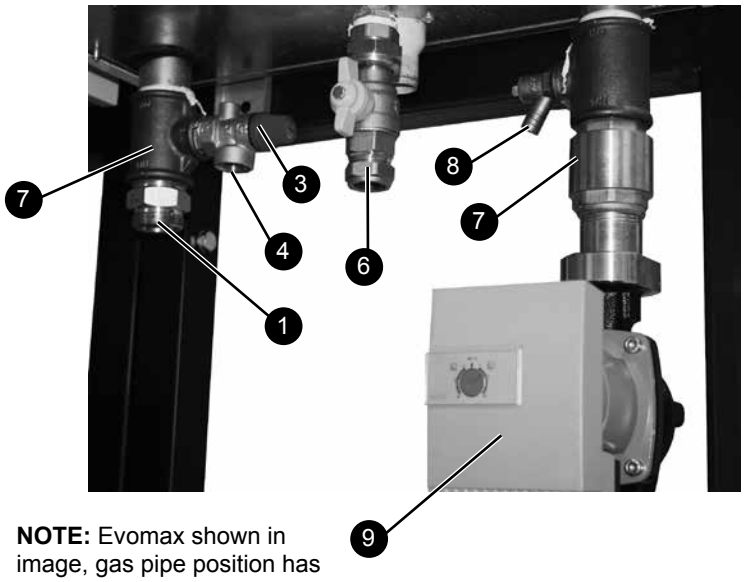


Evomax 2 shown
(flow & return pipes omitted for clarity)

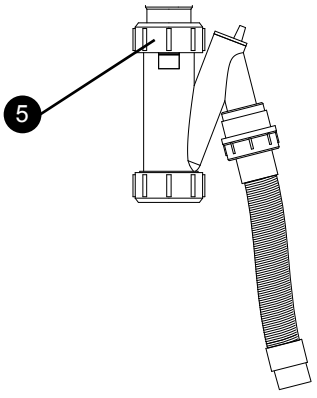
BOILER LOWER FIXING POSITIONS

4.4 BOILER ASSEMBLY

1. Fit adaptor into the tee for flexible hose connection.
2. Attach tee to boiler flow.
3. Fit pressure relief valve. (If fitted to the tee before it will foul on the frame).
4. Attach pressure relief pipe and terminate in a safe place. (See appliance manual).
5. Fit condensate trap and pipe work (See appliance instruction, pipe runs must have 1:20 slope away from the appliance).
6. Fit gas connection & tap.
7. Fit tee with pre-assembled non return valve and pump union to the return ensuring the flow arrow is point toward the base of the appliance.
8. Attach the drain cock to the return tee ensuring the connection and activation point are accessible.
9. Fit Pump (check the flow arrow is pointing towards the base of the appliance and the correct rubber washer is fitted in the connection union).



NOTE: Evomax shown in image, gas pipe position has been moved for Evomax 2.



Evomax 2 shown

4.5 HEADER KIT ASSEMBLY (OPTIONAL ACCESSORY)

FITTING MIXING HEADER AND BLANKING FLANGES

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

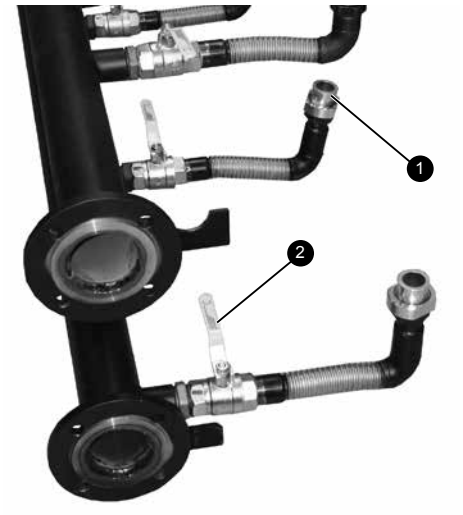
   Note. Mixing header can be located either LHS or RHS of the headers.

Blanking Flange

Mixing Header

4.6 HEADER ASSEMBLY

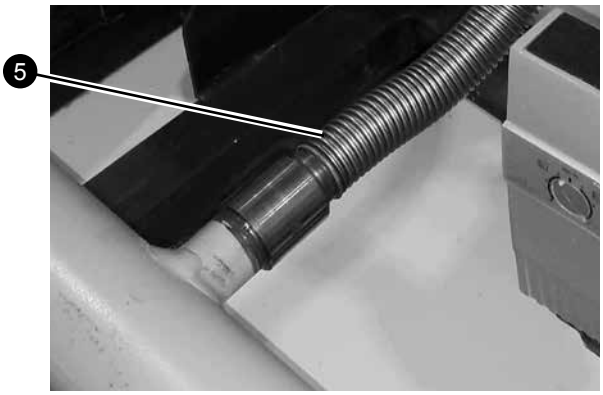
1. Check lower pump connection is fitted.
2. Check valves are operational.
3. Fit water header blanking flanges and gaskets.



NOTE: Blanking plates supplied with 3/4" BSP hole.

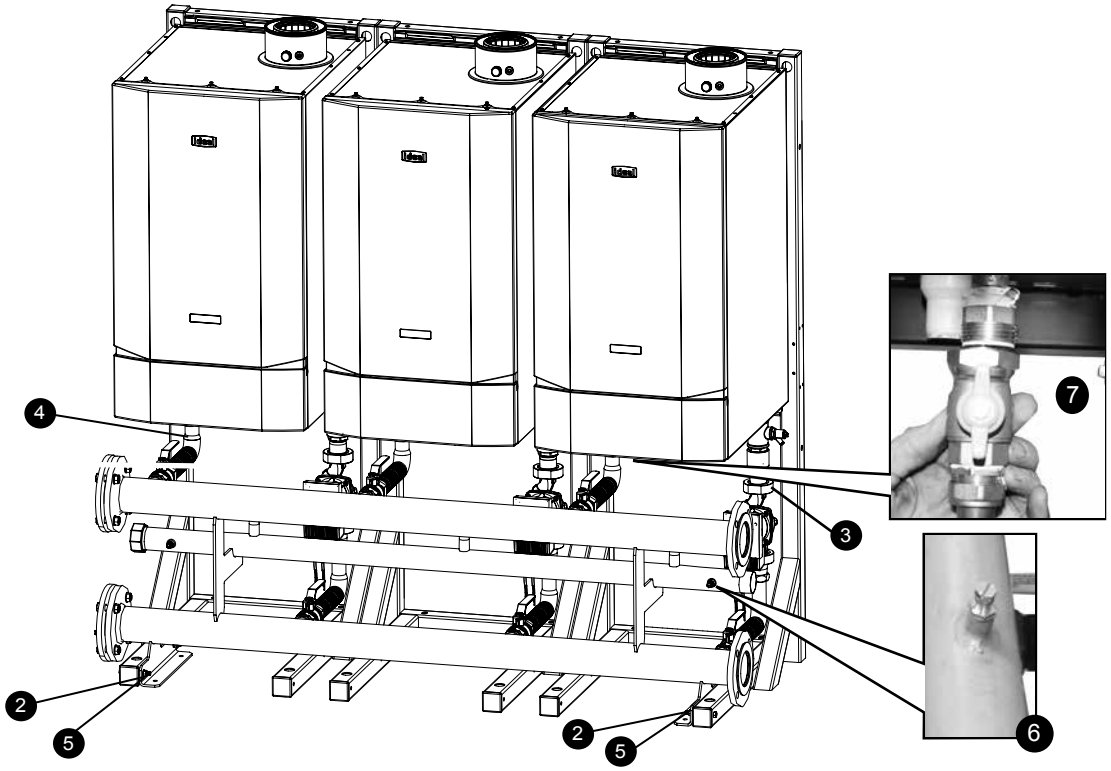
4.7 FITTING THE GAS HEADER

1. Fit the blanking cap to the required end
2. Place the gas header in the pre-cut cradle to the rear of the header.
3. Fit male/male conical set adapter to gas valve.
4. Fit gas valve to the boiler, ensuring the valve is facing forwards.
5. Connect flexible gas hose to the conical end of the conical set.



4.8 ASSEMBLE HEADER ONTO FRAME

1. Locate header into required position on the frame legs.
2. Align bolt holes and fit bolts (loosely).
3. Connect the return pump union to the pump (ensuring the correct rubber washer is used).
4. Connect the flow connector to the boiler flow pipe adaptor (ensuring the fibre washer provided is correctly fitted).
5. Tighten the header bolts on to the frame.
6. Ensure the test points on the gas header are accessible. (**Note:** the test point nearest the inlet to the rigs is deemed as the appliance pressure test point for the appliances fitted).
7. Fit coupler, gas valve and gas pipe to boiler, then tighten and test all gas joints.



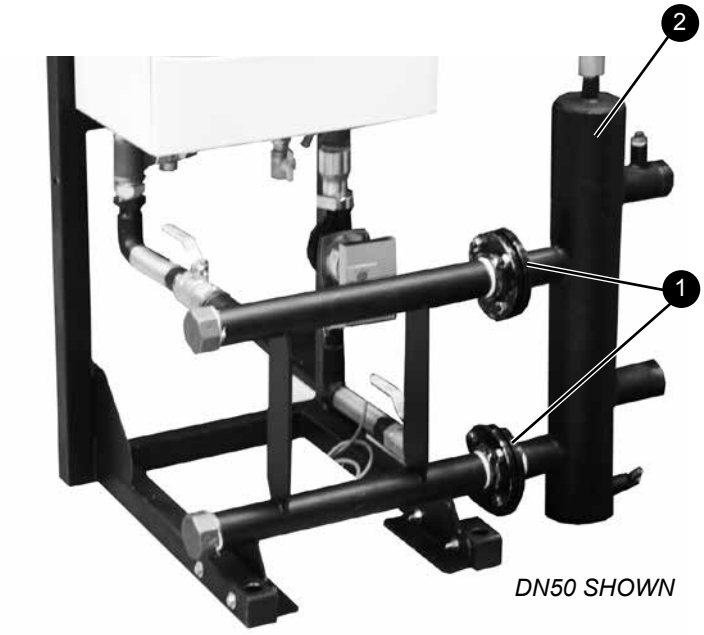
4.9 FIT LOW LOSS HEADER (NOT SUPPLIED WITH FRAME & HEADER KIT)

1. Four threaded PN6 flanges are provided with the low height low loss header DN50 kit to enable its connection to the DN50 water header.
2. Fit low loss header to the water header using the bolts and gaskets provided.
3. Wire pumps to boiler termination (see appliance instructions).

NOTE:

In multi boiler applications the pumps will remain on until the switched demand to the appliance is met, it is from this point the 4 minute pump over run time will commence.

The switch demand is normally control by associated control / sequencers.



DN50 SHOWN

5 INSTALLATION DRAWINGS FOR BOILER SYSTEMS

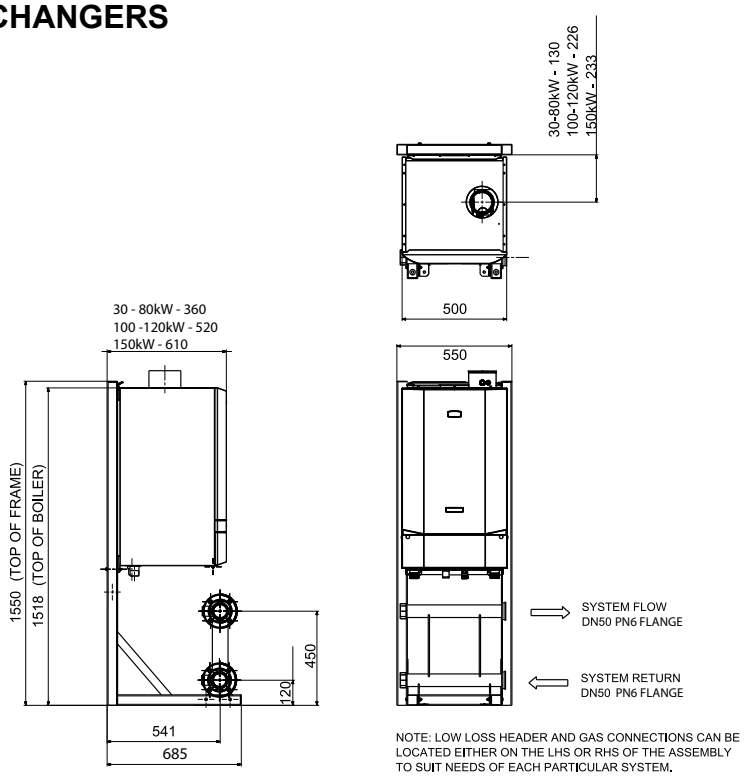
5.1 GENERAL

The boiler systems are available in side by side format:

- 1 to 4 boilers in a linear configuration, mounted on a free-standing frame.

These boiler and cascade systems are sized to provide a flow and return differential of 20ºΔT.

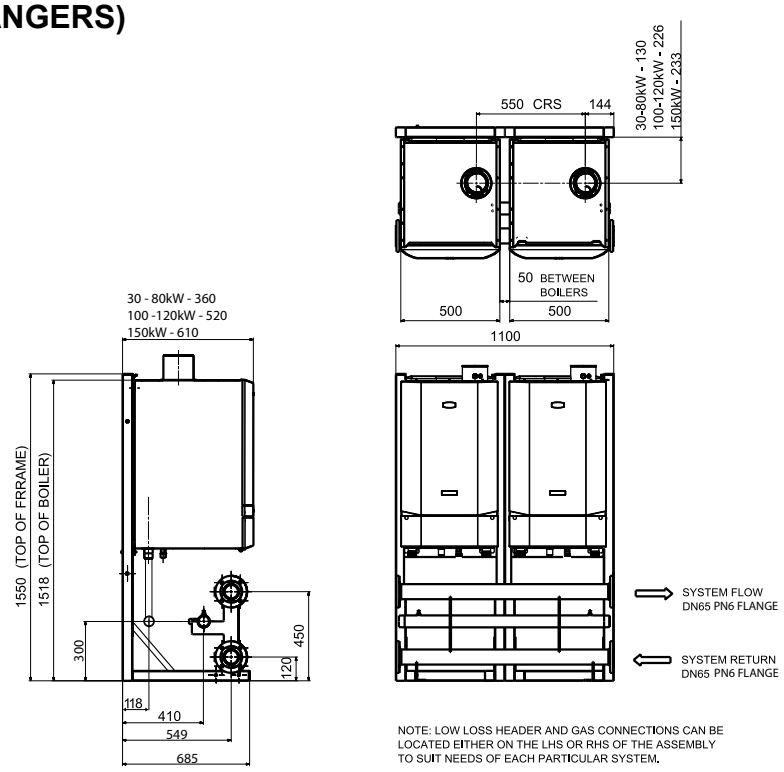
5.2 INSTALLATION DRAWING WITH 1 30-150 BOILER (LOW LOSS HEADERS OR PLATE HEAT EXCHANGERS



NOTE: LOW LOSS HEADER AND GAS CONNECTIONS CAN BE LOCATED EITHER ON THE LHS OR RHS OF THE ASSEMBLY TO SUIT NEEDS OF EACH PARTICULAR SYSTEM.

ALL DIMENSIONS ARE IN MM

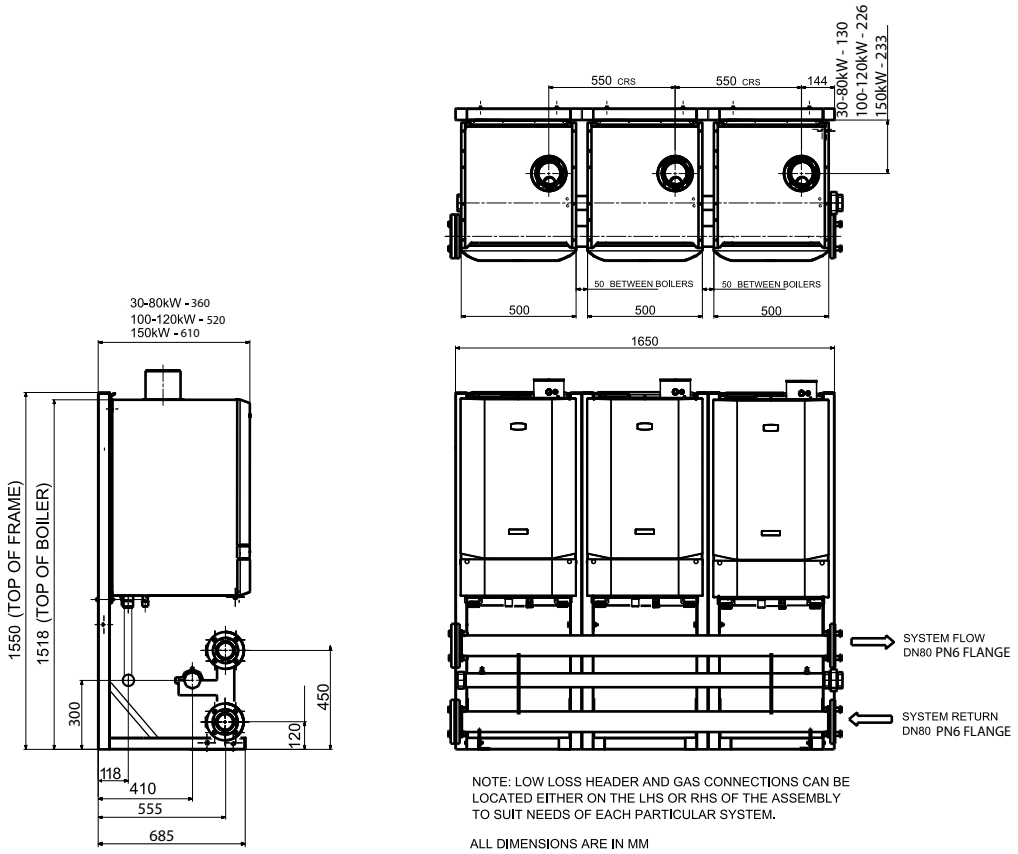
5.3 INSTALLATION DRAWING WITH 2 30-150 BOILERS (LOW LOSS HEADERS OR PLATE HEAT EXCHANGERS)



NOTE: LOW LOSS HEADER AND GAS CONNECTIONS CAN BE LOCATED EITHER ON THE LHS OR RHS OF THE ASSEMBLY TO SUIT NEEDS OF EACH PARTICULAR SYSTEM.

ALL DIMENSIONS ARE IN MM

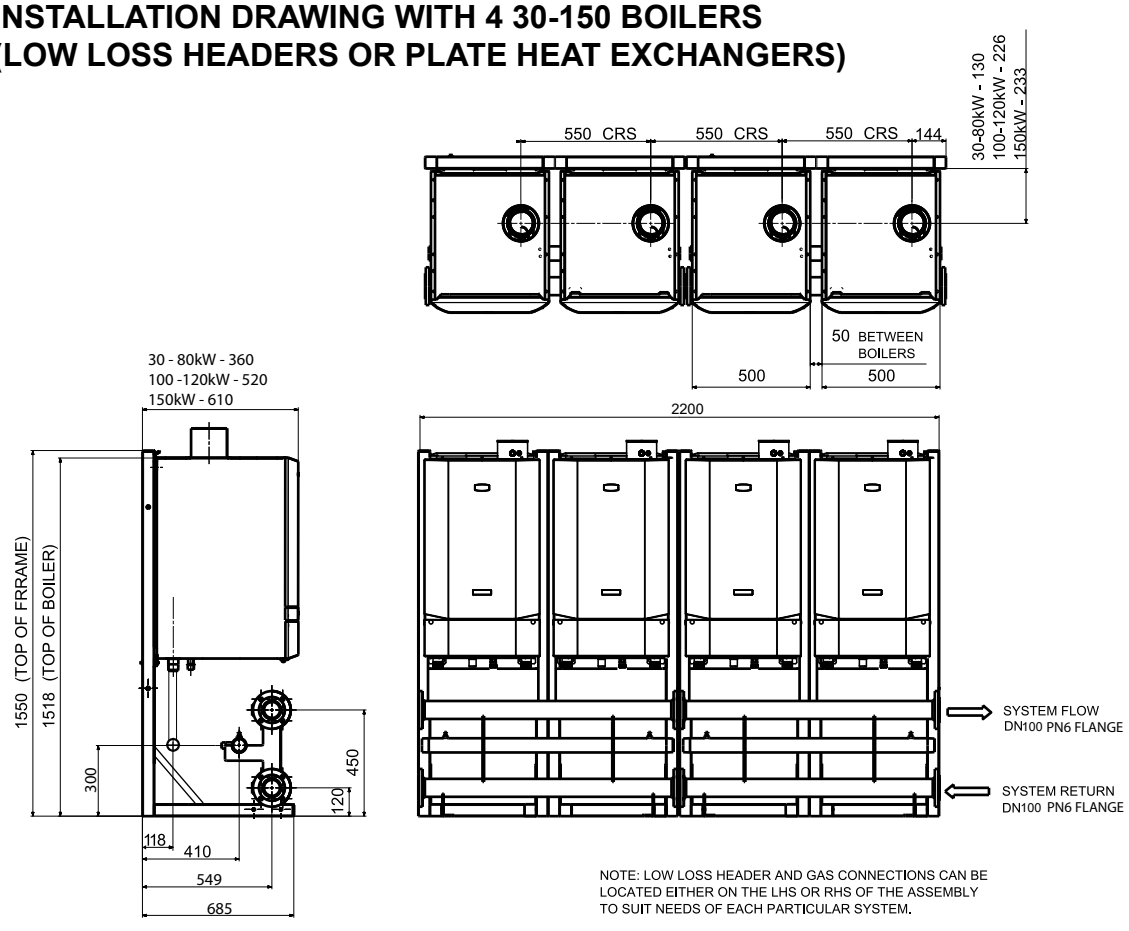
5.4 INSTALLATION DRAWING WITH 3 30-150 BOILERS (LOW LOSS HEADERS OR PLATE HEAT EXCHANGERS)



NOTE: LOW LOSS HEADER AND GAS CONNECTIONS CAN BE LOCATED EITHER ON THE LHS OR RHS OF THE ASSEMBLY TO SUIT NEEDS OF EACH PARTICULAR SYSTEM.

ALL DIMENSIONS ARE IN MM

5.5 INSTALLATION DRAWING WITH 4 30-150 BOILERS (LOW LOSS HEADERS OR PLATE HEAT EXCHANGERS)



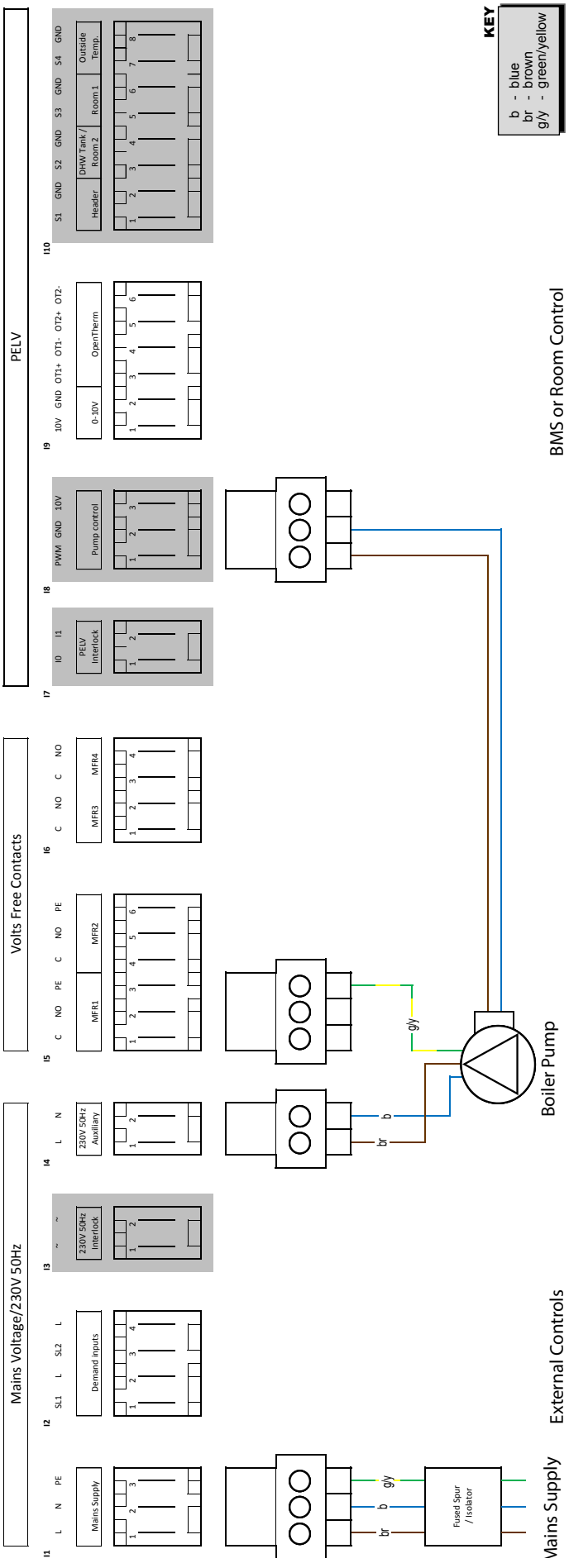
NOTE: LOW LOSS HEADER AND GAS CONNECTIONS CAN BE LOCATED EITHER ON THE LHS OR RHS OF THE ASSEMBLY TO SUIT NEEDS OF EACH PARTICULAR SYSTEM.

ALL DIMENSIONS ARE IN MM

6 ELECTRICAL CONNECTIONS & WIRING DIAGRAM

Boiler Pump Speed Control via PWM output

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



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.

7 COMMISSIONING AND TESTING

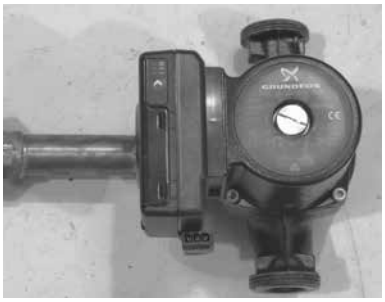
1. Electrical and gas safety checks must be carried out on completion of installation as with individual boiler commissioning.

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 .

FM 59915
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