

# + LOW HEIGHT FRAME & HEADER KITS

## EVOMAX

30 - 150

30P - 80P

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](http://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**

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## **IMPORTANT**

**THESE KITS MUST ONLY BE USED IN CONJUNCTION WITH  
LOW LOSS HEADERS**

**IDEAL PROVIDE 3 OPTIONAL LOW LOSS HEADER KITS**

**DN50 - UIN 209394**

**DN65 - UIN 209395**

**DN80 - UIN 252437**

# 1 INTRODUCTION

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 3 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 three single frame configurations and integrated water and gas headers, affording floor mounting capability to the entire Evomax range of products. These systems are adapted to incorporate the use of low loss headers and optional sequencer control systems.

All these kits are supplied with the relevant number of energy efficient pumps and necessary parts needed to connect these kits to the separately purchased Evomax appliances.



The flue configurations for the Evomax 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

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

### 2.1 FRAME AND HEADER KIT DESIGN OPTIONS

1. These water headers and pumps are designed for use with a low loss header system only.
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	
				Size	Prod No.
	<b>Range</b>				
Single Frame Configurations	30 to 150	1	550 x 642 x 1550	DN 50	210012
Twin Frame Configurations	60 to 300	2	1100 x 642 x 1550	DN 65	210029
Triple Frame Configurations	90 to 450	3	1650 x 642 x 1550	DN 80	210020

**Note.**

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

Available Evomax Appliances	
kW (NG)	Product No.
30	205957
40	205958
60	205959
80	205960
100	205961
120	205962
150	205963
kW (Propane)	Product No.
30P	205964
40P	205965
60P	205966
80P	205967

**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		
DN50	DN65	DN80
209394	209395	252437

## 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).

## 2.3 HYDRONIC ISOLATION: LOW LOSS HEADER

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 provided 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 signalled provided by the appliance must be maintained at all times.

External sequencers can be used with these appliances and are available as an option.

## 2.5 GAS SUPPLY

The 30, 40, 60 & 80 kW boilers are suitable for use with both natural gas and propane, category II2H3P. The 100 120 & 150kW boiler are only available for natural gas I2H.

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 and 3 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 three 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, DN 65 two boiler format or a DN 80 three 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 Evomax range of products available for use with these kits.

The Single unit water header is a DN 50 pipe system with threaded connections. (Threaded flanges are provided with DN50 Evomax low height Low loss header kit).

The twin water header is a DN 65 pipe system with flanged connections and is available with the DN65 Evomax low height Low loss header kit.

The three unit system uses a DN 80 pipe system with flanged connections and is available with the DN 80 Evomax low height Low loss header kit.

### 3.3 GAS HEADER

The gas header consists of a 2" manifold tailored to fit the two or three 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 must be fitted to suitably sized low loss header.

The Evomax low height low loss headers have been designed to match the lower positioned water headers used in these kits. This has required the drain point to be moved the lowest side point available.

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:- DN 50 – 209394, DN 65 – 209395, DN 80 - 252437.

### 3.5 BOILER SHUNT PUMP

The pumps supplied with these kits are design to provide the optimum flow around the appliance water circuit ensuring the maximum flow rates are contain 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.

It is recommended that the appliance circuit pumps are set to Constant Pressure setting.

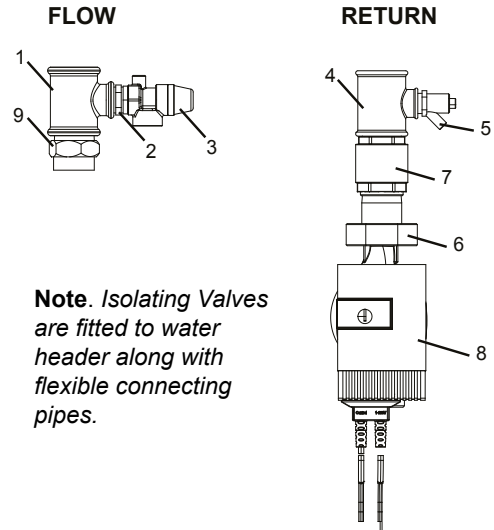
Pumps supplied with these rigs are designed to be connected to the relevant appliance electrical connections to ensure pump over run capability is available to manage the appliances operation.

### 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. Brass union 3/4" X 3/4"
3. Safety relief valve 3 bar
4. 1 1/4" X 1/2" X 1 1/4" Tee
5. Drain plug
6. Pump fitting
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 5.3

### 3.7 FREE-STANDING FRAMES

The low height frames are designed to provide a compact floor mounted structure capable of having any of the Evomax range of appliances fitted to them. Incorporating all the required mountings and assembly systems to bolt up to three 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 must be provided from the front of the installed boilers to facilitate boiler servicing.

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:**

**MOUNTING FRAME(S) MUST STAND  
ON A FLAT AND LEVEL FLOOR.**

**WHEN ASSEMBLING THE HEADER KIT  
THE HEADER MUST BE BOLTED TO THE  
FRAME BEFORE THE FLEXIBLE HOSE  
CONNECTIONS ARE MADE.**

## 4 INSTALLATION DRAWINGS FOR BOILER SYSTEMS

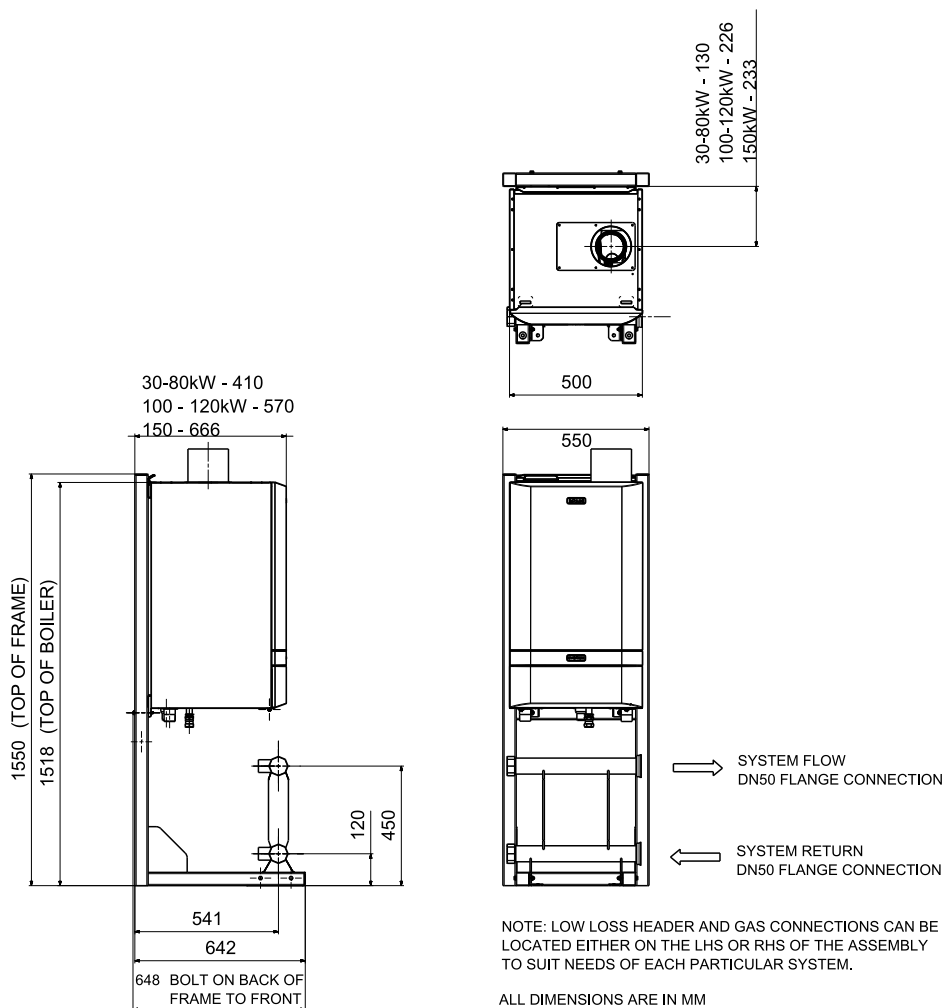
### 4.1 GENERAL

The boiler systems are available in side by side format:

- 1 to 3 boilers in a linear configuration, mounted on a free-standing frame.

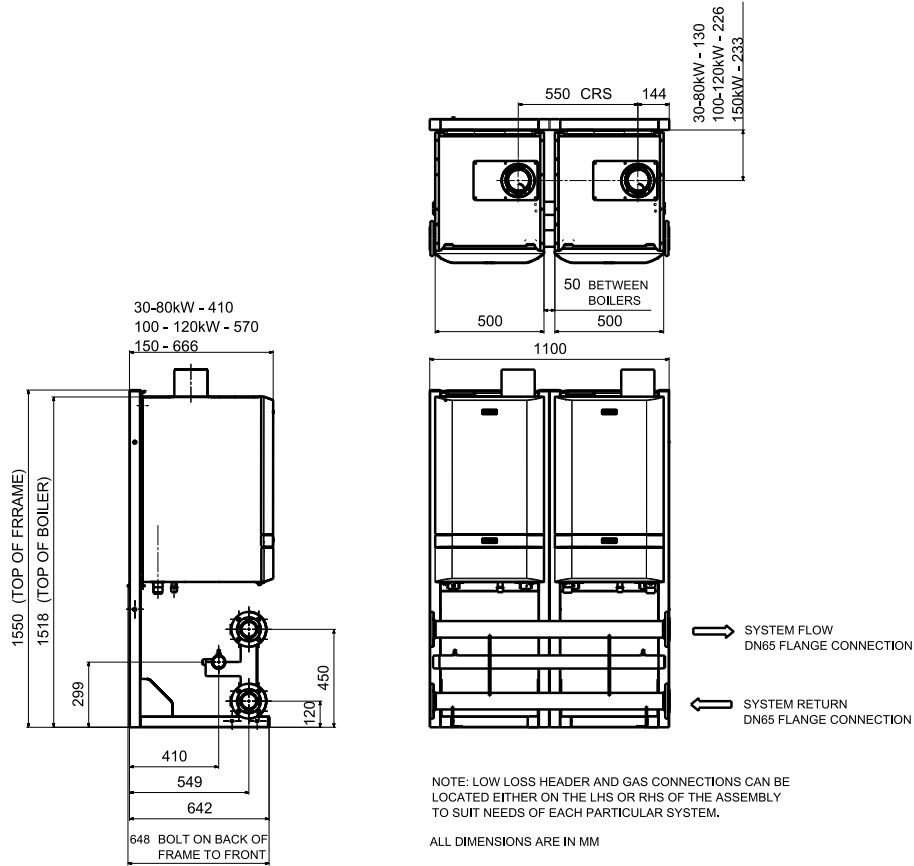
These boiler and cascade systems are sized to provide a flow and return differential of  $20^{\circ}\Delta T$ .

### 4.2 INSTALLATION DRAWING WITH 1 30-150 BOILER

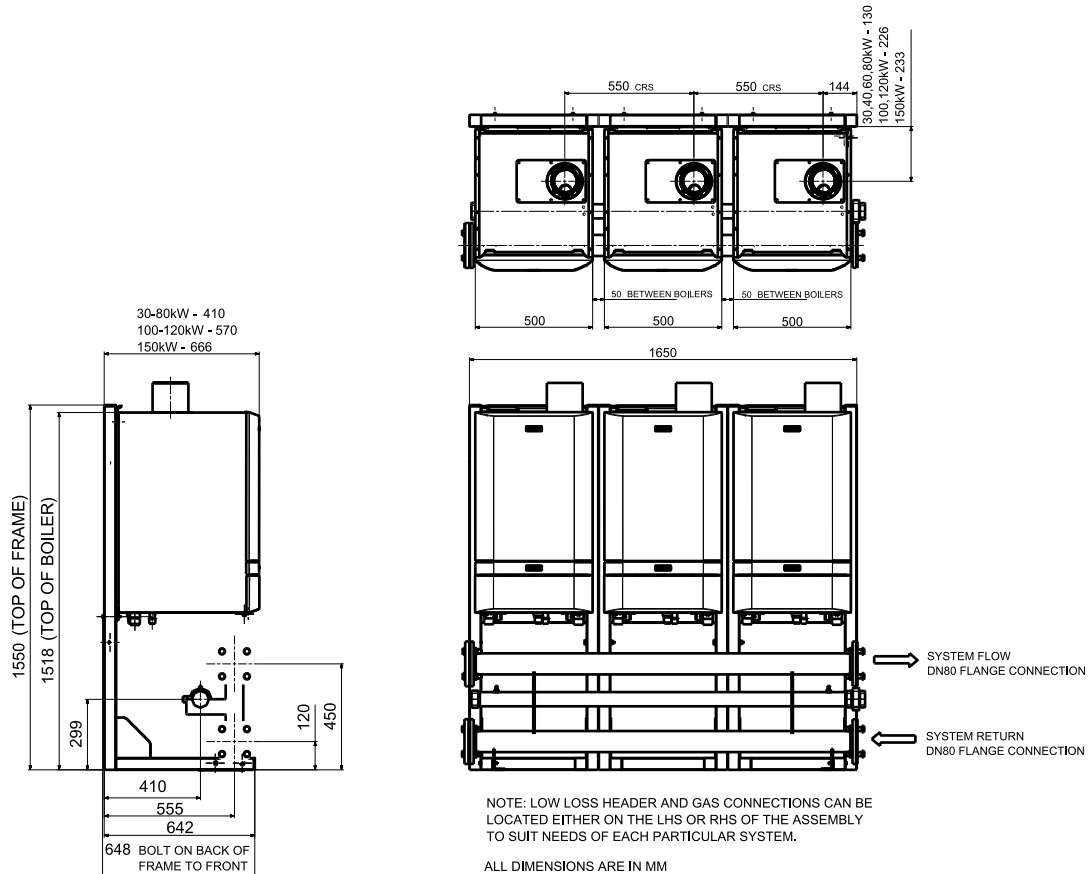




### 4.3 INSTALLATION DRAWING WITH 2 30-150 BOILERS



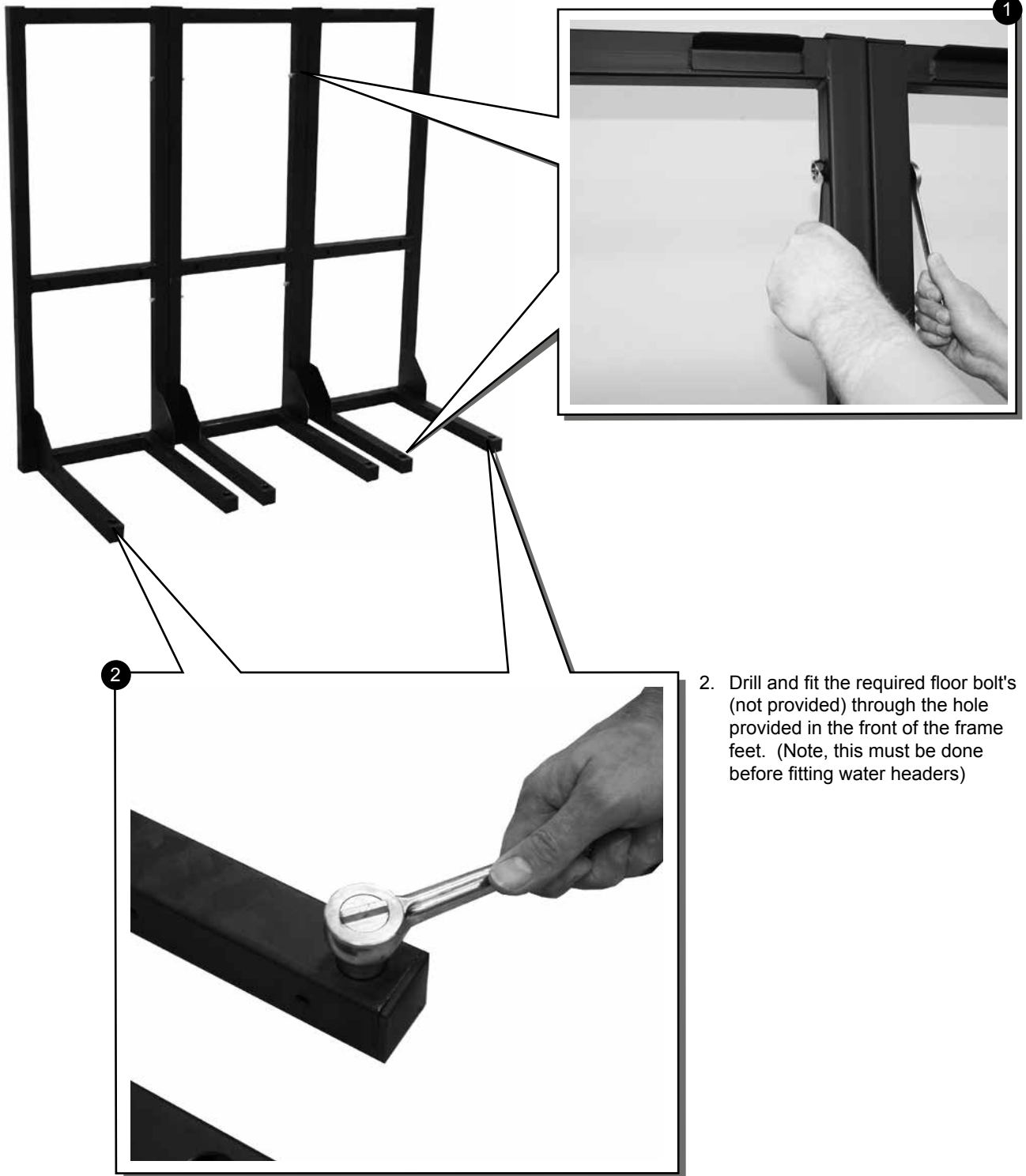
### 4.4 INSTALLATION DRAWING WITH 3 30-150 BOILERS



## 5 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.



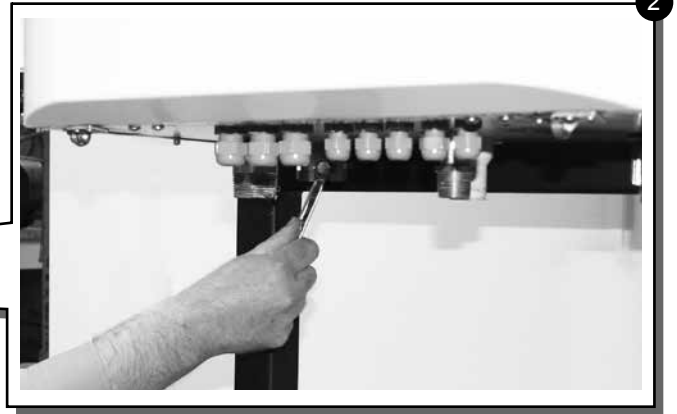
2. Drill and fit the required floor bolt's (not provided) through the hole provided in the front of the frame feet. (Note, this must be done before fitting water headers)

## 5.2 BOILER MOUNTING

1. As appropriate mount the boilers onto the frame kit.

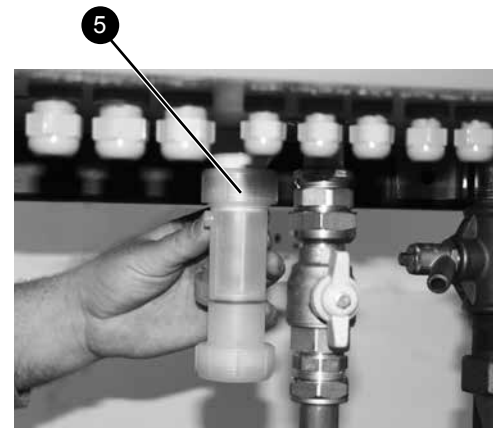
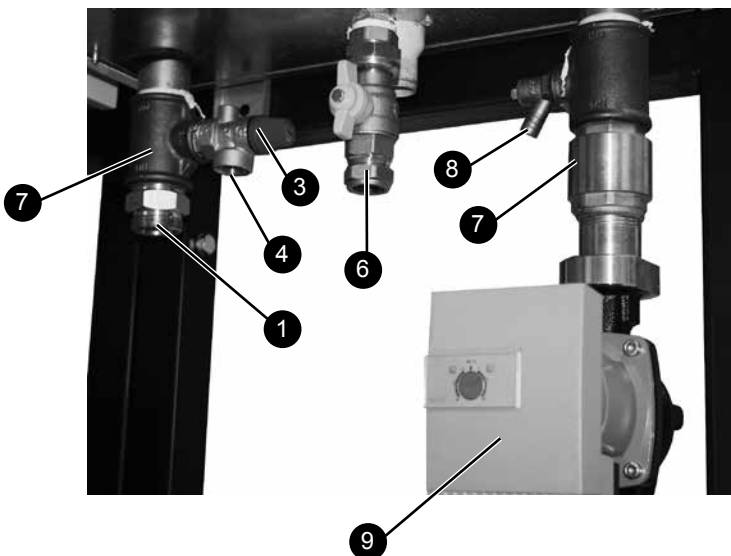


2. Ensure the boiler bottom fixing bracket is screwed to the frame.



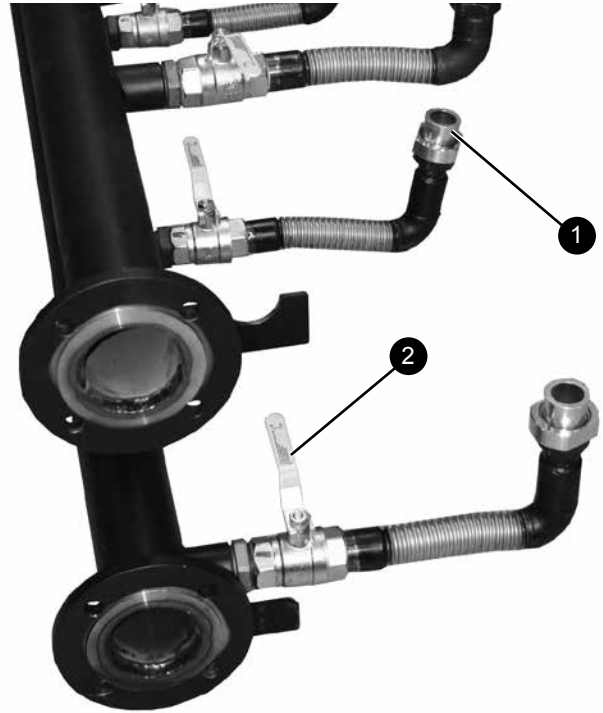
## 5.3 BOILER ASSEMBLY

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 tap 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 wash is fitted in the connection union).



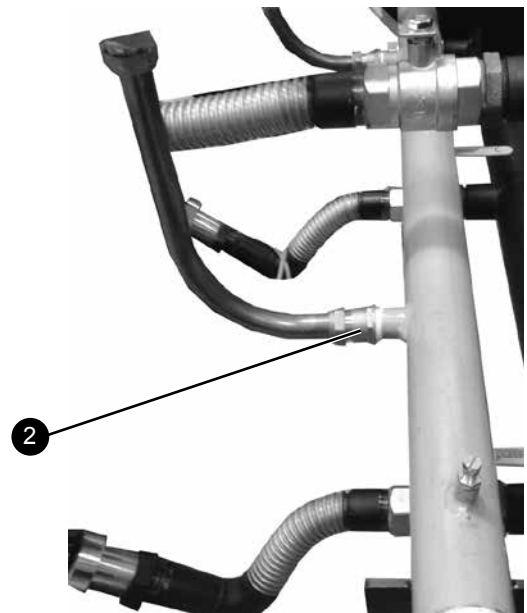
## 5.4 HEADER ASSEMBLY

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



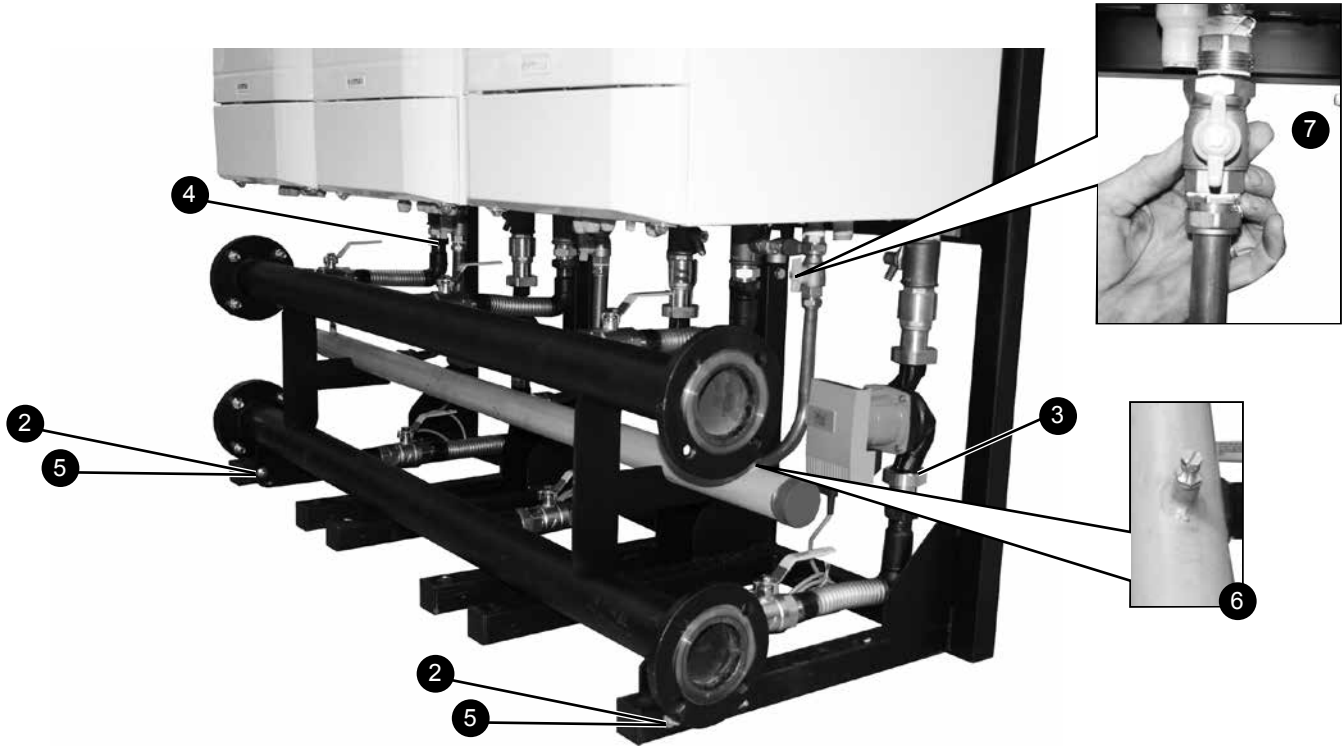
## 5.5 FITTING THE GAS HEADER

1. Fit the blanking cap to the required end.
2. Fit 3/4" female to 22 compression fitting to 3/4" stub pipe on the side of the gas header.
3. Place the gas header in the pre-cut cradle to the rear of the header.



## 5.6 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 heater 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. Cut copper pipe to length, fit gas tap onto boiler and tighten up and test all gas joints.



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

1. Four threaded flanges are provided with the Evomax low height low loss header DN50 kit to enable its connection to the DN 50 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.



## 6 ELECTRICAL CONNECTIONS

1. Refer to the Installer Wiring Connection section in the boiler Installation Instructions for wiring details.
2. Ensure the boiler shunt 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 adjustment. Follow instructions on pump type shown below;

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





## Technical Training

The Ideal Boilers 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 498 432

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