UPTON FLOOR STANDING BOILER PIPE KITS

Installation & Commissioning Instructions

Suitable for Boiler Models:
UF200-2, UF300-2, UF400-2, UF500-2, UF600-2, UF700-2
UF300-3, UF450-3, UF600-3, UF750-3, UF900-3, UF1050-3

IMPORTANT NOTE

THESE INSTRUCTIONS MUST BE READ AND UNDERSTOOD BEFORE INSTALLING, COMMISSIONING THESE PIPE KITS

Hamworthy

Customer After Sales Services

Telephone: **01202 662555** E-mail: **service@hamworthy-heating.com** Fax: **01202 662522**

Technical Enquiries

To supplement the detailed technical brochures, technical advice on the application and use of products in the Hamworthy Heating range is available from our technical team in Poole and our accredited agents.

Site Assembly

Hamworthy offer a service of site assembly for many of our products where plant room access is restricted. Using our trained staff we offer a higher quality of build and assurance of a boiler built and tested by the manufacturer.

Commissioning

Commissioning of equipment by our own engineers, accredited agents or specialist sub-contractors will ensure the equipment is operating safely and efficiently.

Service Contracts

Regular routine servicing of equipment by Hamworthy service engineers inspects the safety and integrity of the plant, reducing the risk of failure and improving performance and efficiency. Service contracts enable you to plan and budget more efficiently.

Breakdown service, repair, replacement

Hamworthy provide a rapid response breakdown, repair or replacement service through head office at Poole and accredited agents throughout the UK.

Spare Parts

We offer a comprehensive range of spare parts, providing replacement parts for both current and discontinued products. Delivery options are available to suit you. Please refer to our website for more details.

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1.0 GENERAL INSTRUCTIONS

These instructions MUST be read in conjunction with the Upton Floor Standing Installer's Guides HHL Part No. 500001340.

SAFETY NOTE: All safety instructions referred to in the Installer's Guide must be adhered to, and a competent person must carry out all works referred to in this instruction.

The Hamworthy Heating Ltd pipe work kit is designed to provide a complete primary circuit system for two and three high stacked modules. Multiple stacked units can be connected together to provide large output arrays. The basic kit consists of a flow and return manifold to which can be fitted a combined low loss header and dirt air separator, blanking flanges and a secondary manifold for three heating circuits.

- The flow and return manifold is supplied with matched primary circuit pumps, isolating valves, gas manifold, condensate drain and boiler safety relief valves. An automatic air vents is fitted to the top of the flow header and the vertical flow and return manifold have connection points for flushing the system, plus drain and air bleed valves. Flexible hoses connect the manifold to the flow and return ports on the boilers.

- The combined low loss header and dirt air separator has an adjustable support stand, sensor pockets in the flow and return ports to control the mixed flow temperature, automatic air vent and drain valve for sludge removal. The low loss header can be fitted to either the side of the flow and return pipe kit using the flanged pipes supplied.

- Blanking flanges for the flow and return headers are provide with connection points for system safety relief valve in the top flange and for an expansion vessel and/ or pressurisation unit in the lower flange.

- The secondary circuit manifold allows for up to three separate heating circuits to be connected to the low loss header. Fixing bolts and gaskets are provided with the manifold.

All pipe kit components are pressure tested prior to despatch.

The manifolds are available in three pipe sizes. DN100, DN150 & DN200. EN 1092-1 Type 1 B1 flanges rated to PN16 are used on the pipe kits. The pumps on the pipe kits are matched to the boiler models. The DN 150 has two pump options. The larger pump option is suitable for the UF300 & UF350 for up to six modules. If more than six modules are required use the DN200 pipe kit.

Table 1.0- Pipe Kit Data

Boiler Model		UF100/150		UF200/250		UF300/350		UF300/350	
Stack size		3 high	2 high	3 high	2 high	3 high	2 high	3 high	2 high
Manifold pipe size	mm	DN100		DN150		DN150		DN200	
Maximum number of modules		12		12		6		12	
Maximum output @ 20°C ΔT	MW	1.8		3.0		2.0		4.0	
Maximum pressure	bar	6							
Minimum pressure	bar	1.0		1.2		1.5		1.5	
Maximum flow rate	Kg/s	21.5		35.8		25.1		50.2	
Pump residual head	m	3		4		5		5	
Weights									
Flow and return manifold kit	kg	179	130	254	186	284	206	318	241
Low loss header and pipe work	kg	132	125	349	338	349	338	438	416
Secondary circuit manifold kit	kg	15		30		30		43	
Blanking flanges kit	kg	15		28		28		43	
Water content									
Flow and return manifold	l	36	27	65	50	65	50	87	73
Low loss header and pipe work	l	40	34	100	88	100	88	169	148

Table 1.1 Pipe Kit Section Table

Boiler Model	Maximum Number of Boilers in Cascade	Manifold kit (1 per boiler)	Blanking Flanges (1 pair per Cascade)	Low Loss Header (1 per Cascade)	Secondary Circuit Manifold (1 per Cascade)	Manifold Pipe Size
UF200-2	6	223857	223874	223865	223871	DN100
UF300-2						
UF400-2		223859	223875	223867	223872	DN150
UF500-2						
UF600-2	3	223861	223875	223867	223872	DN150
	6	223863	223876	223869	223873	DN200
UF700-2	3	223861	223875	223867	223872	DN150
	6	223863	223876	223869	223873	DN200
UF300-3	4	223858	223874	223866	223871	DN100
UF450-3						
UF600-3		223860	223875	223868	223872	DN150
UF750-3						
UF900-3	2	223862	223875	223868	223872	DN150
	4	223864	223876	223870	223873	DN200
UF1050-3	2	223862	223875	223868	223872	DN150
	4	223864	223876	223870	223873	DN200

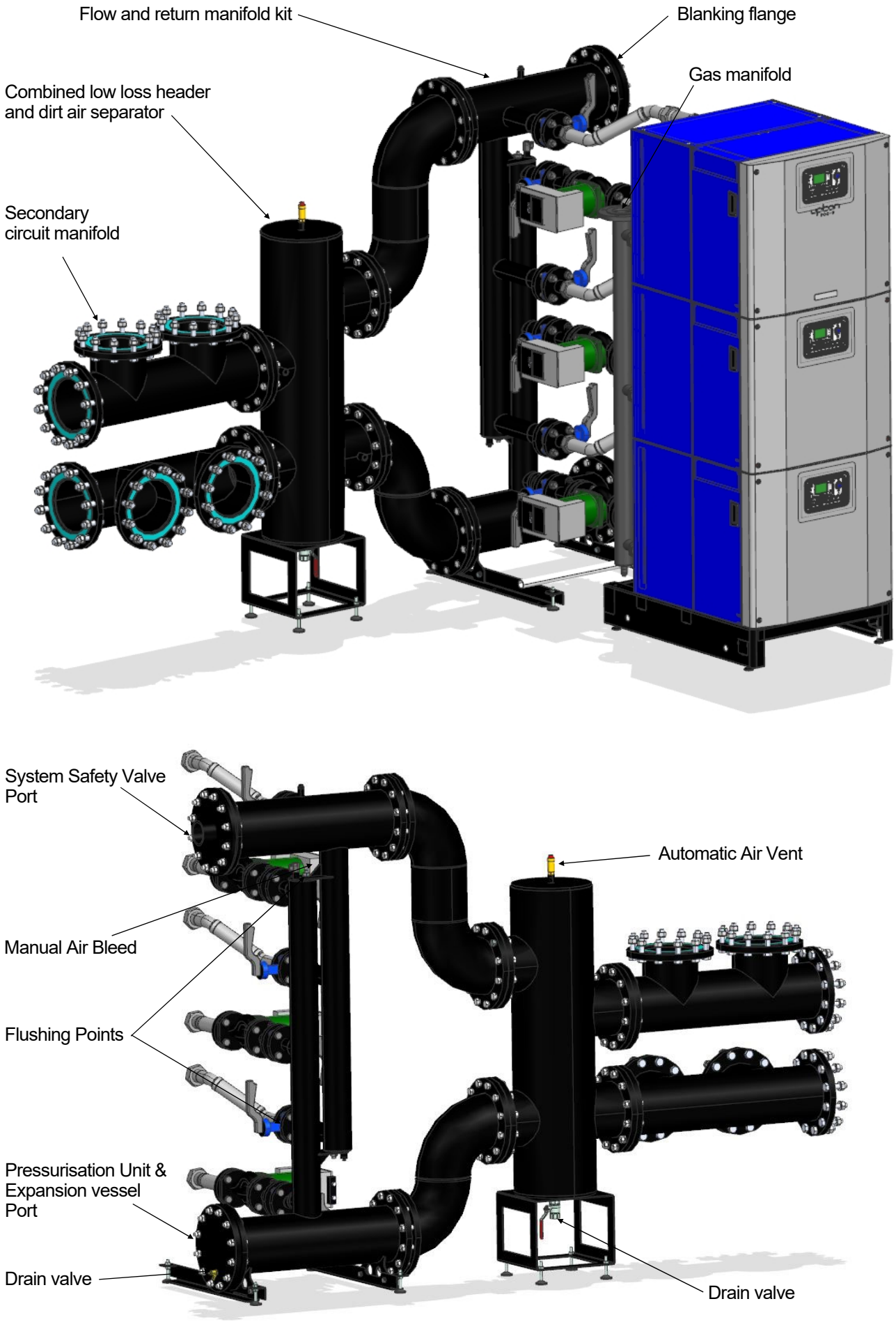


Figure 1.1 – Primary circuit and Gas manifold pipe kit

Size and Space Requirements

The Upton boiler range has been designed to utilise minimum floor space, therefore it is important that the plant room has sufficient ceiling hight to allow for installation and connection to the flue system allowing for sufficient access at sides and behind the boiler for pipe work connections. See Figure 1.1.1.

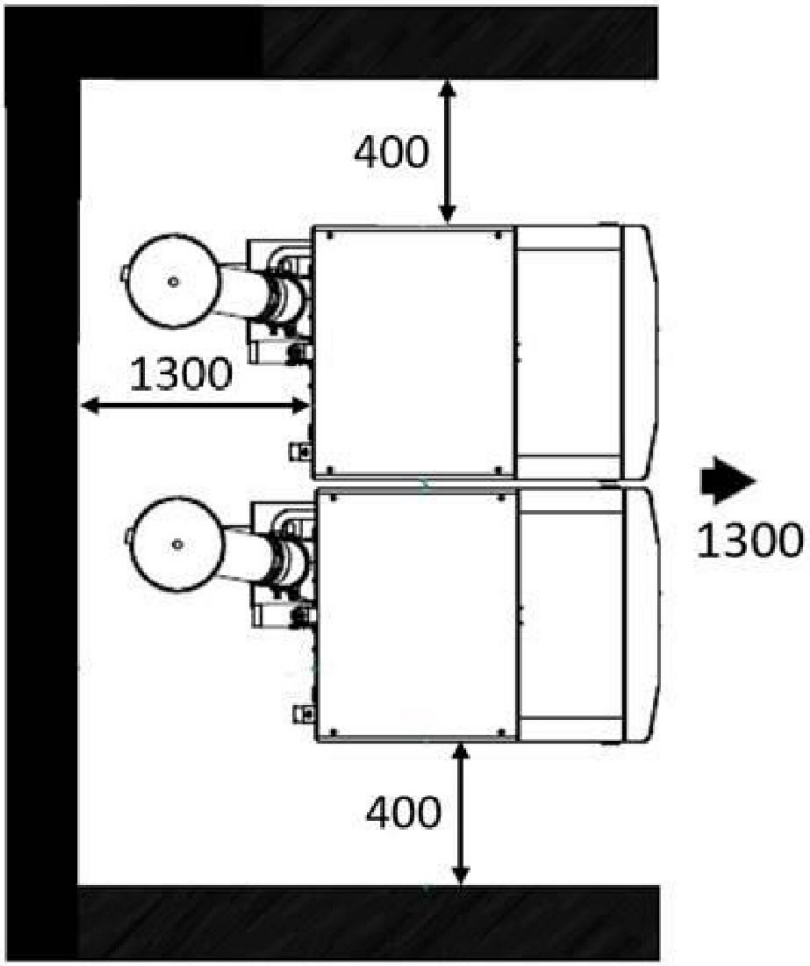


Figure 1.1.1 Minimum Clearances

DN100 2H / 3H Primary circuit and Gas manifold pipe kit

Refer to Table 1.1 for maximum number of modules allowed.

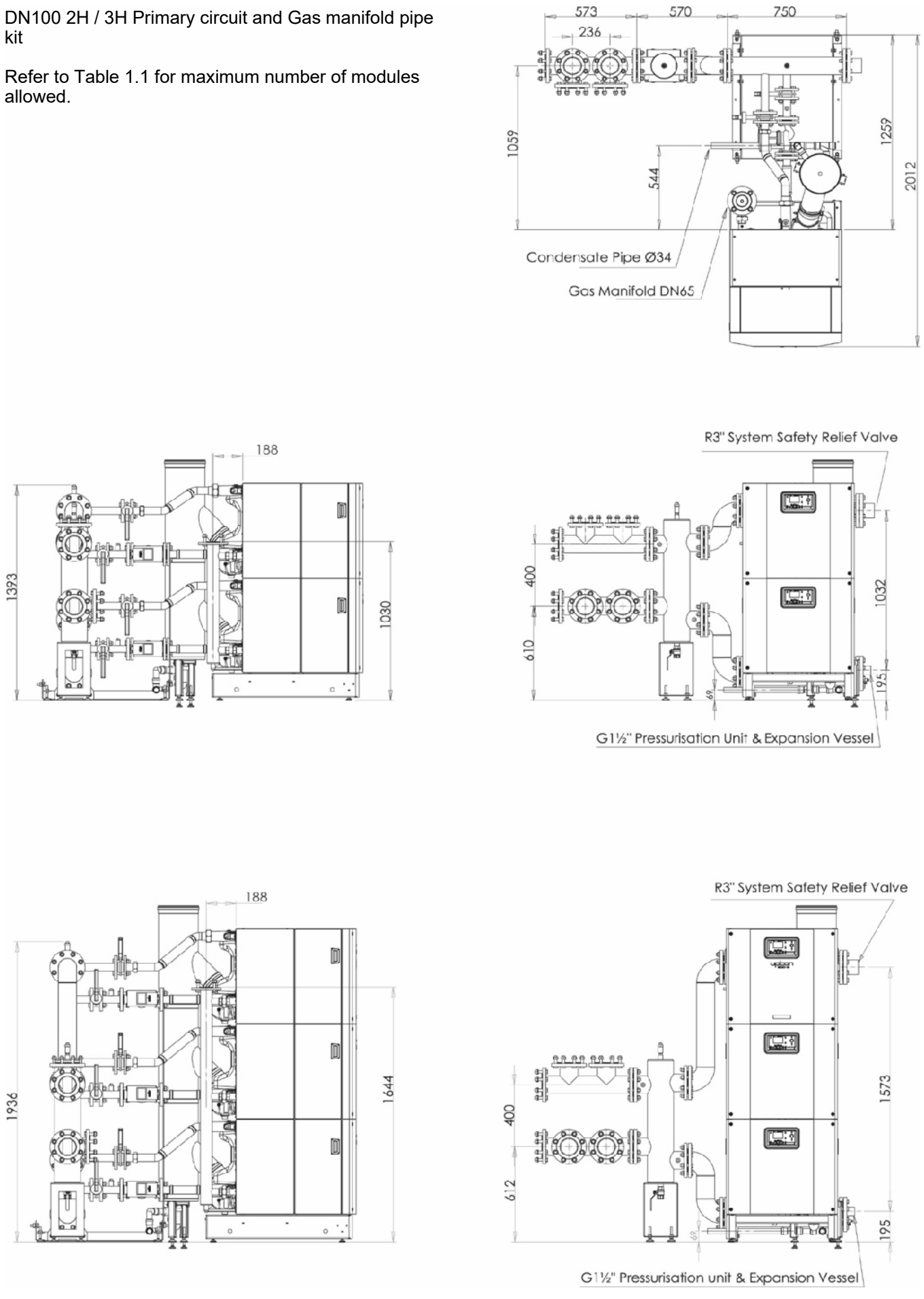


Figure 1.2.1 – DN100 2H / 3H Primary circuit and Gas manifold pipe kit

DN150 2H / 3H Primary circuit and Gas manifold pipe kit

Refer to Table 1.1 for maximum number of modules allowed.

*2417—if the Installation has 300 / 350 modules.

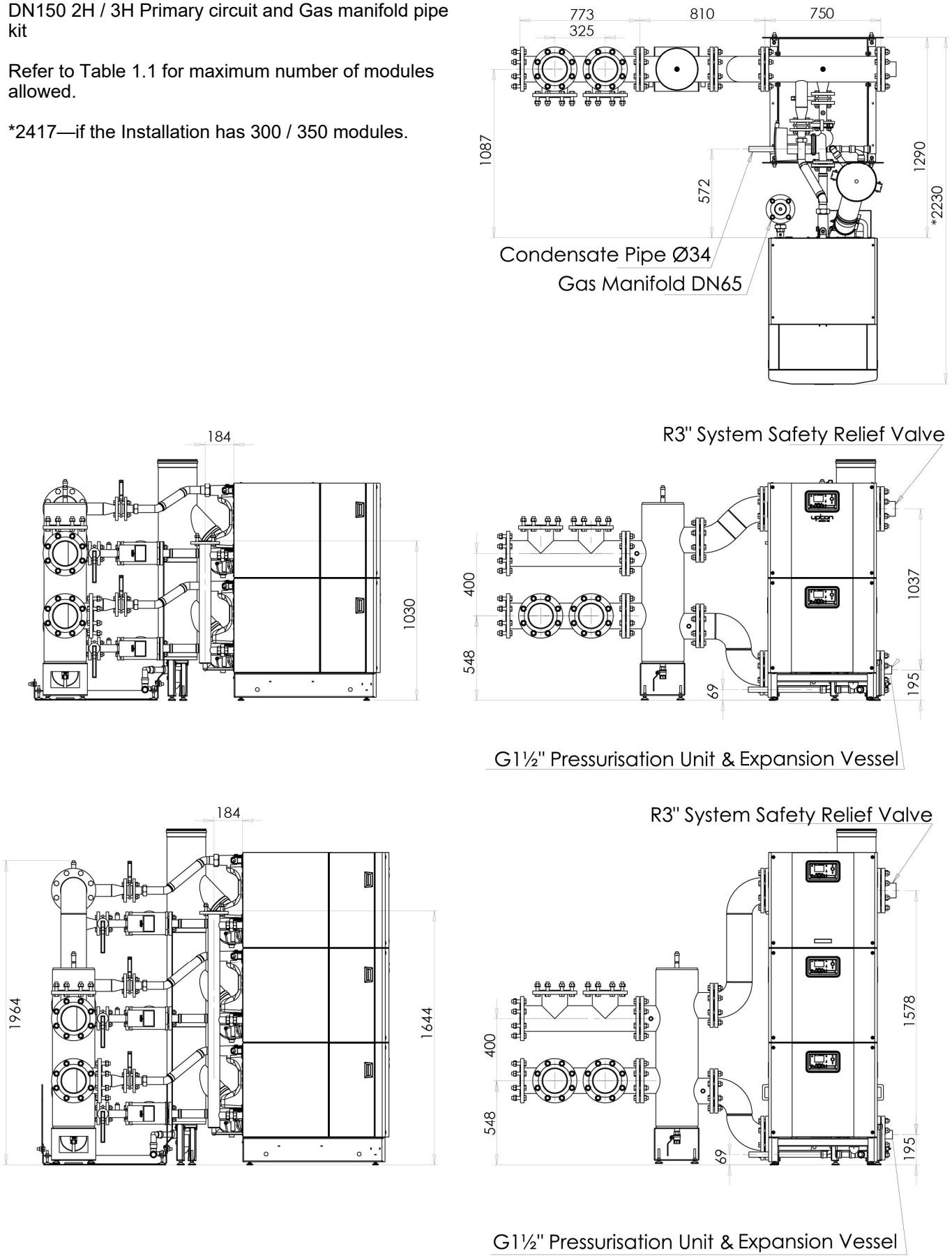


Figure 1.2.2 – DN150 2H / 3H Primary circuit and Gas manifold pipe kit

DN200 2H / 3H Primary circuit and Gas manifold pipe kit

Refer to Table 1.1 for maximum number of modules allowed.

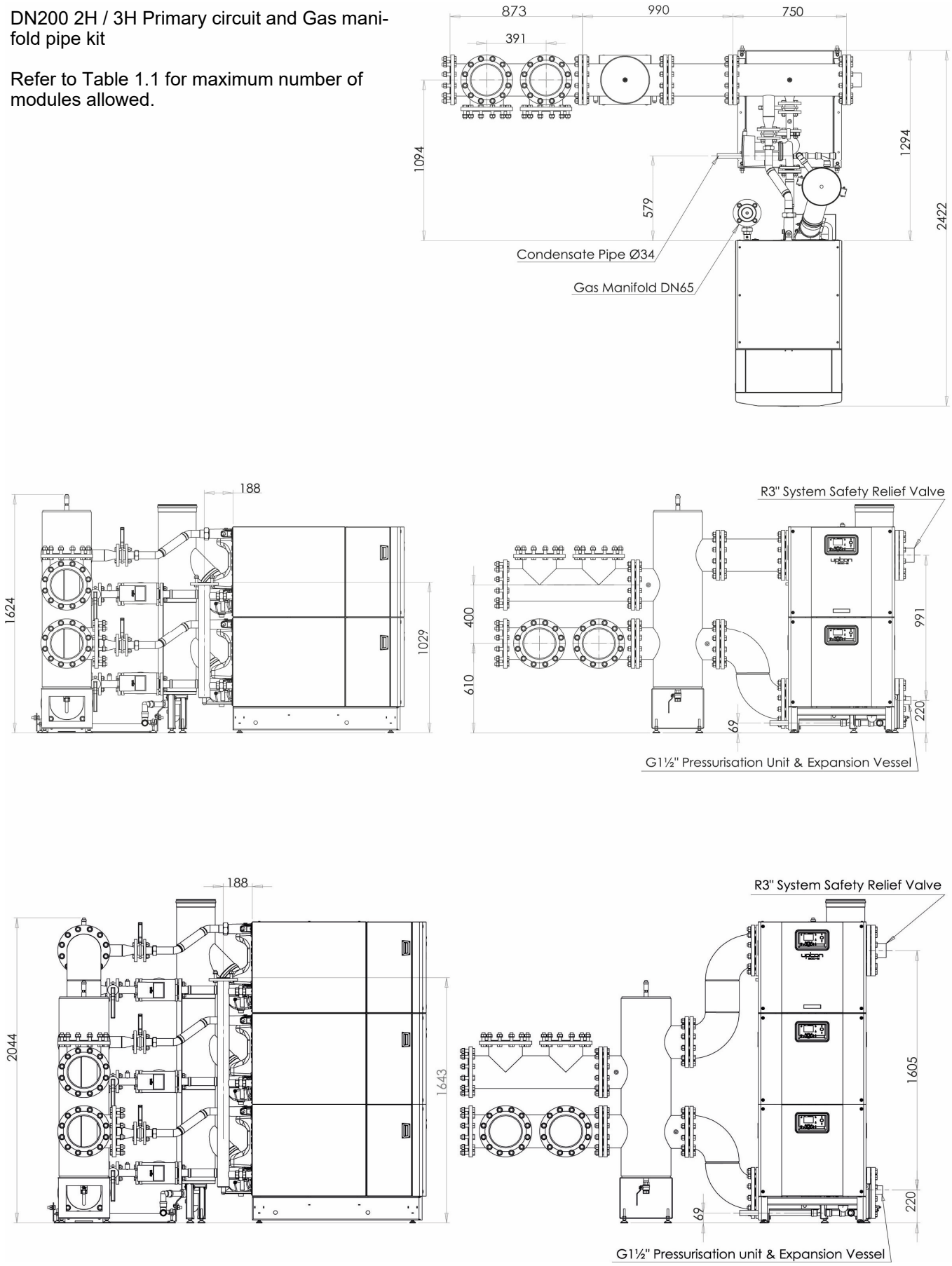


Figure 1.2.3 – DN200 2H / 3H Primary circuit and Gas manifold pipe kit

2.0 Delivery

All kits are supplied trapped to wooden pallets. On receiving goods remove any packing materials and, referring to Table Nos. 2.1 to 2.15, inspect the equipment to ensure that all parts are present and undamaged. If in any doubt, DO NOT USE THE EQUIPMENT. Instead, contact HHL Technical Department.

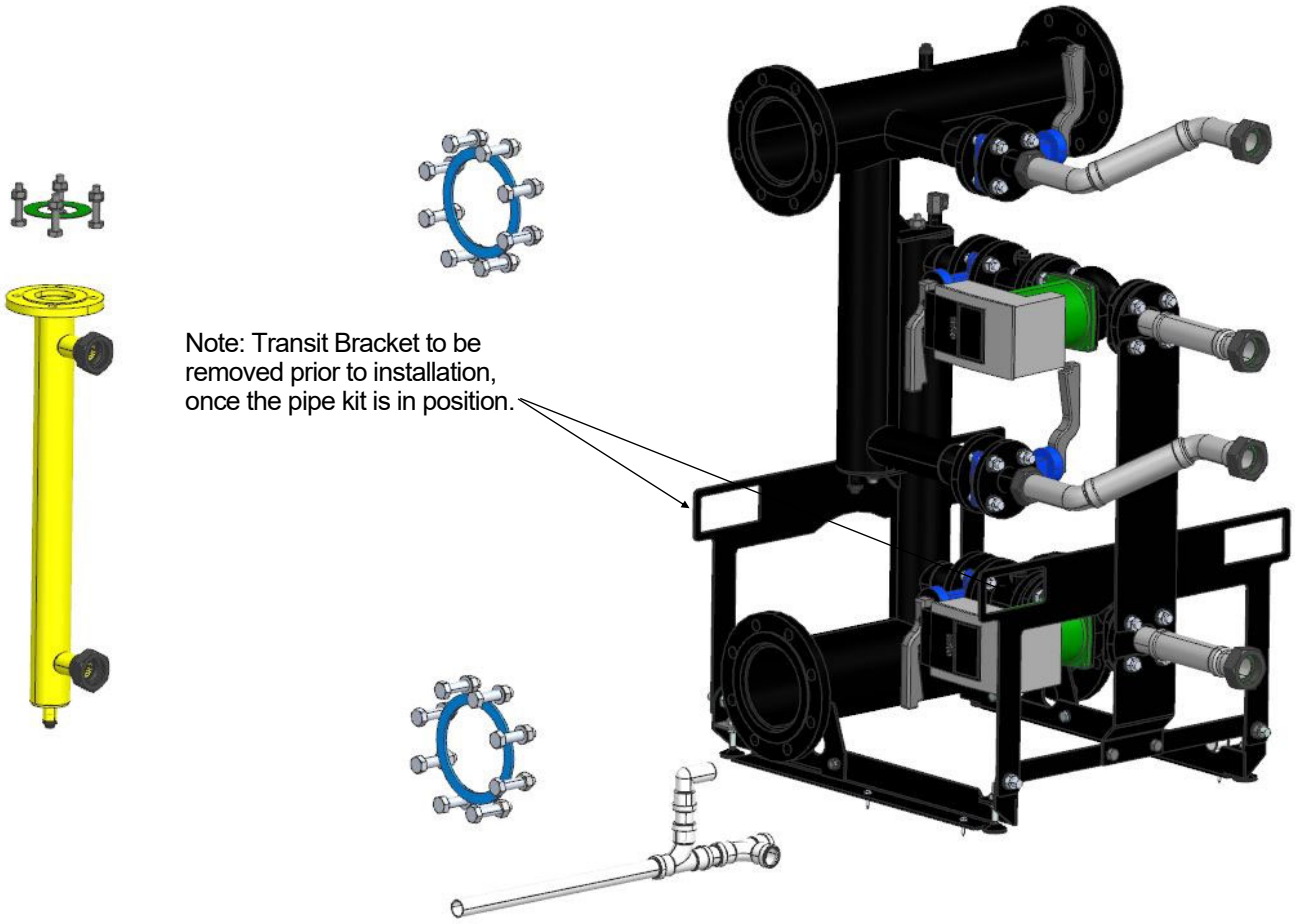


Figure 2.1 Loose items supplied with Manifold Kit

Table No. 2.1 Loose items supplied with Manifold Kit DN100 2High - 223857

Description	Quantity
Manifold Assembly with pumps and hoses	1
Bolt set 16 off M16x70	1
4in PN16 Gasket	2
Condensate Pipe ASSY	1
Upton Vertical 2H Gas Header Assembly	1
DN65-2.5" PN16 GASKET to BS2815B	1
M16 x 70mm Bolt	4
M16 Hex Nut	4
M16 Spring Washer	4
DN50 2" Gasket Washer	4
SRV	2
Adaptor	2

Table No. 2.2 Loose items supplied with Manifold Kit DN100 3High - 223858

Description	Quantity
Manifold Assembly with pumps and hoses	1
Bolt set 16 off M16x70	1
4in PN16 Gasket	2
Condensate Pipe ASSY	1
Upton Vertical 3H Gas Header Assembly	1
DN65-2.5" PN16 GASKET to BS2815B	1
M16 x 70mm Bolt	4
M16 Hex Nut	4
M16 Spring Washer	4
DN50 2" Gasket Washer	6
SRV	3
Adaptor	3

Table No. 2.3 Loose items supplied with Manifold Kit DN150 3High - 223860 & 223862

Description	Quantity
Manifold Assembly with pumps and hoses	1
Bolt set 16 off M20x70	1
6in PN16 Gasket	2
Condensate Pipe ASSY	1
Upton Vertical 3H Gas Header Assembly	1
DN65-2.5" PN16 GASKET to BS2815B	1
M16 x 70mm Bolt	4
M16 Hex Nut	4
M16 Spring Washer	4
DN50 2" Gasket Washer	6
SRV	3
Adaptor	3

Table No. 2.4 Loose items supplied with Manifold Kit DN150 2 High - 223859 & 223861

Description	Quantity
Manifold Assembly with pumps and hoses	1
Bolt set 16 off M20x70	1
6in PN16 Gasket	2
Condensate Pipe ASSY	1
Upton Vertical 2H Gas Header Assembly	1
DN65-2.5" PN16 GASKET to BS2815B	1
M16 x 70mm Bolt	4
M16 Hex Nut	4
M16 Spring Washer	4
DN50 2" Gasket Washer	4
SRV	2
Adaptor	2

Table No. 2.5 Loose items supplied with Manifold Kit DN200 2 High - 223863

Description	Quantity
Manifold Assembly with pumps and hoses	1
Bolt set 24 off M20x80	1
8in PN16 Gasket	2
Condensate Pipe ASSY	1
Upton Vertical 2H Gas Header Assembly	1
DN65-2.5" PN16 GASKET to BS2815B	1
M16 x 70mm Bolt	4
M16 Hex Nut	4
M16 Spring Washer	4
DN50 2" Gasket Washer	4
SRV	2
Adaptor	2

Table No. 2.6 Loose items supplied with Manifold Kit DN200 3 High - 223864

Description	Quantity
Manifold Assembly with pumps and hoses	1
Bolt set 24 off M20x80	1
8in PN16 Gasket	2
Condensate Pipe ASSY	1
Upton Vertical 3H Gas Header Assembly	1
DN65-2.5" PN16 GASKET to BS2815B	1
M16 x 70mm Bolt	4
M16 Hex Nut	4
M16 Spring Washer	4
DN50 2" Gasket Washer	6
SRV	3
Adaptor	3

Table No. 2.7 Loose items supplied with Blanking Flange Kit DN100 - 223874

Description	Quantity
Top Flange	1
Bottom Flange with Drain Cock	1
Bolt set 16 off M16x70	1
4in PN16 Gasket	2

Table No. 2.8 Loose items supplied with Blanking Flange Kit DN150 - 223875

Description	Quantity
Top Flange	1
Bottom Flange with Drain Cock	1
Bolt set 16 off M20x70	1
6in PN16 Gasket	2

Table No. 2.9 Loose items supplied with Blanking Flange Kit DN200 - 223876

Description	Quantity
Top Flange	1
Bottom Flange with Drain Cock	1
Bolt set 24 off M20x80	1
8in PN16 Gasket	2

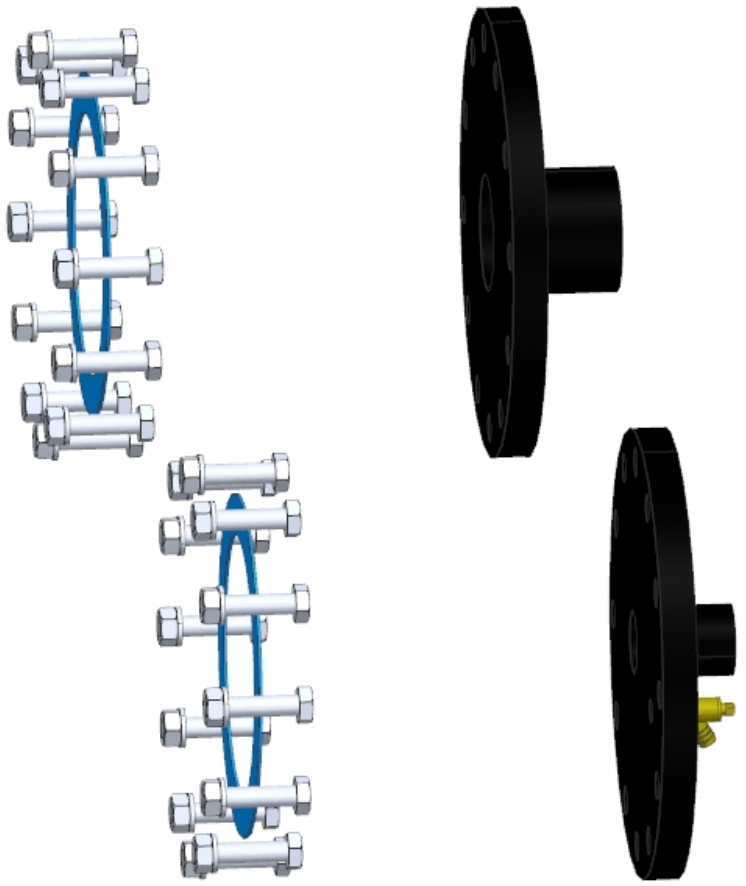


Figure 2.2 Loose items supplied with Blanking Flange Kit

Table No. 2.10 Loose items supplied with Low Loss Header & Pipe Work DN100 - 223865 & 223866

Description	Quantity
Low Loss Header	1
Lower Pipe work	1
Upper Pipe Work	1
Bolt set 16 off M16x70	2
4in PN16 Gasket	4
Upton Vertical LLH-4 Support Fabrication	1

Table No. 2.11 Loose items supplied with Low Loss Header & Pipe Work DN150 - 223867 & 223868

Description	Quantity
Low Loss Header	1
Lower Pipe work	1
Upper Pipe Work	1
Bolt set 16 off M20x70	2
6in PN16 Gasket	4
Upton Vertical LLH-6 Support Fabrication	1

Table No. 2.12 Loose items supplied with Low Loss Header & Pipe Work DN200 - 223869 & 223870

Description	Quantity
Low Loss Header	1
Lower Pipe work	1
Upper Pipe Work	1
Bolt set 24 off M20x80	2
8in PN16 Gasket	4
Upton Vertical LLH-8 Support Fabrication	1

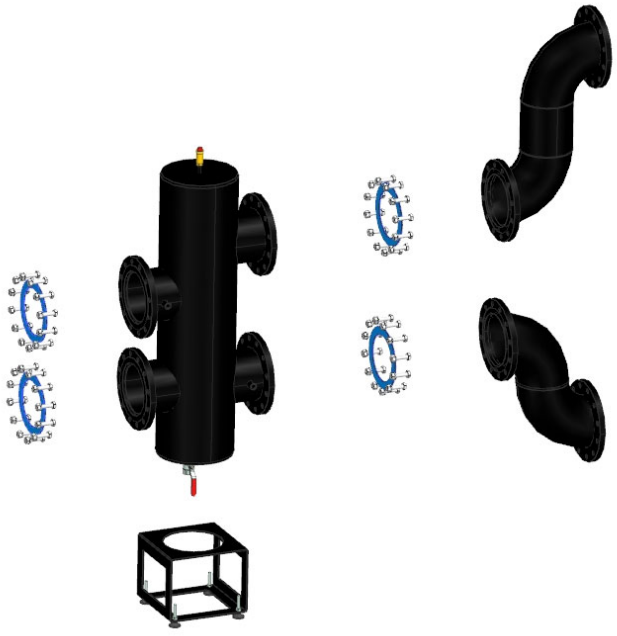


Figure 2.3 Loose items supplied with Low Loss Header & Pipe Work

Table No. 2.13 Loose items supplied with Secondary Manifold DN100 - 223871

Description	Quantity
Secondary Manifold	2
Bolt set 16 off M16x70	3
4in PN16 Gasket	6

Table No. 2.14 Loose items supplied with Secondary Manifold DN150 - 223872

Description	Quantity
Secondary Manifold	2
Bolt set 16 off M20x70	3
6in PN16 Gasket	6

Table No. 2.15 Loose items supplied with Secondary Manifold DN200 - 223873

Description	Quantity
Secondary Manifold	2
Bolt set 24 off M20x80	3
8in PN16 Gasket	6

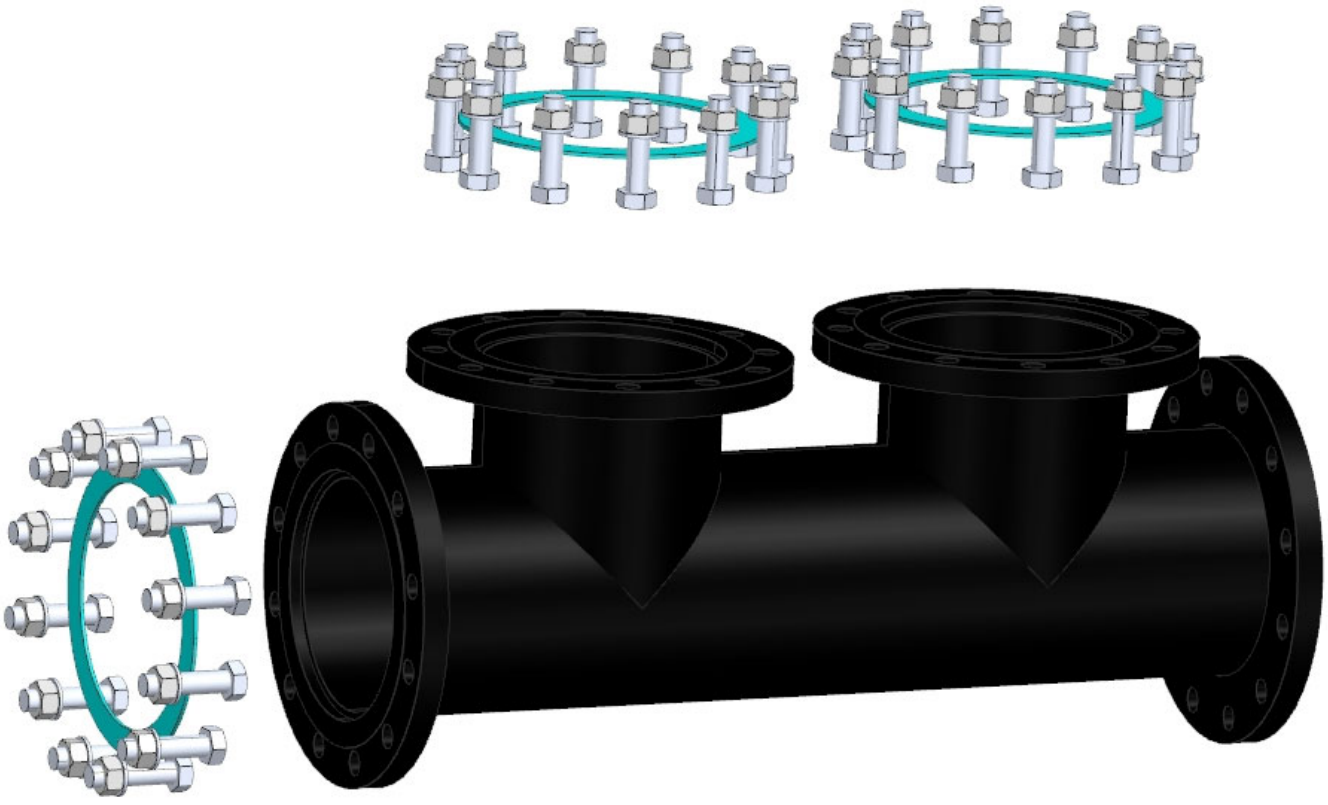


Figure 2.4 Loose items supplied with Secondary Manifold

3.0 SITE LOCATION AND PREPARATION

3.1 Site Location.

- The floor or plinth for the pipe work kit must be both flat and level to ensure correct alignment of fittings and connections.
- The floor or plinth must be sufficiently strong to support the weight of both the boilers and pipe work kit where used.
- The floor or plinth must be fireproof in accordance with BS 6644.
- The plant room must have sufficient space for installation of boilers, pipe work, pumps controls, flues ventilation, access and servicing and other items of plant.

3.2 Gas Supply.

- Gas supply pipes must be in accordance with BS 6891 or IGE/UP/2
- Gas supply connections to the boiler must not be smaller than the connection on the boiler - DN65 all models.
- Gas installation must be soundness tested to BS 6891 or IGE/UP/1 & IGE/UP/1A.
- Gas installation must be purged to BS 6891 or IGE/UP/1 & IGE/UP/1A.
- Boiler inlet gas pressure; nominal 20mbar (minimum 17.5mbar) for Natural Gas or nominal 37 mbar (minimum 25mbar) for LPG dynamic at the connection to the boiler.
- Boiler house gas isolation valve must be clearly identified and installed close to the entrance / exit.

3.3 Water Supply

- Pressurised system to comply with BS 7074.
- The Upton boiler has an aluminium heat exchanger. It is a requirement that the system & pipe work are flushed at least twice before adding water treatment and before installing the boiler. The system water MUST be treated and maintained with an appropriate inhibitor (eg. Sentinel X100) and the PH MUST be managed between 7 & 8.5.
- In hard water areas (>180mg $CaCO_3$/litre) precautions such as water treatment are strongly recommended to prevent the build up of sludge and scale.
- Leaks in the system pipework should be fixed to prevent dilution of water treatment. To monitor the volume of make-up water entering the system, a water meter must be fitted and readings recorded in a log book to be retained on site. Do not top up with more than 5% of the installation's water content in any one year.
- Maximum working water pressure is 5.3bar.
- Minimum water pressure refer to Table 1.0.

3.4 Condensate Connections

- Provision must be made for removal of condensate from the boiler and flue system.
- Condense is mildly acidic, typically pH3 - pH5.
- Condense pipe work must be non-corrosive and not copper. Hamworthy recommends Polypropylene plastic waste pipe.
- Condense may be discharged to a standard drain subject to National or Local regulations.
- Location of condense pipe work should prevent freezing within tundishes, traps and pipe work.
- The connection to the boiler condense drain accepts a straight push-fit coupling for 34mm o.d. (1¼") Polypropylene plastic waste pipe.
- Maximum condensate production - 15 l/h per 100kW firing capacity

4.0 ASSEMBLY INSTRUCTIONS

4.1 Position the Flow and Return Manifold that will be nearest to the Low Loss Header first. Adjust the levelling feet so that there is a 25mm gap between the floor and the underside of the Manifold foot. Level the lower horizontal Return Manifold using the rear levelling feet, by raising up the lowest side and then set the Return Branch vertical by adjusting the front levelling feet.

4.2 If an additional Flow and Return Manifold is required it should now be positioned next to the previous Manifold Kit. Align the connecting flanges on the Lower and Upper Manifolds allowing a small gap to insert the Flange Gasket. Note: It may be necessary to loosen the Nuts securing the Upper Flow Manifold to the Lower Return Manifold, if it is difficult to align the top Flange. Fit Flange Gaskets and fasteners to the Lower

and Upper Flanges. Using some of the fasteners pull the Flange faces together so that they are parallel to each other and trap the Gasket. Do not full tighten the fasteners at this stage. If another Flow and Return Manifolds is required, it should be positioned now and the process repeated.

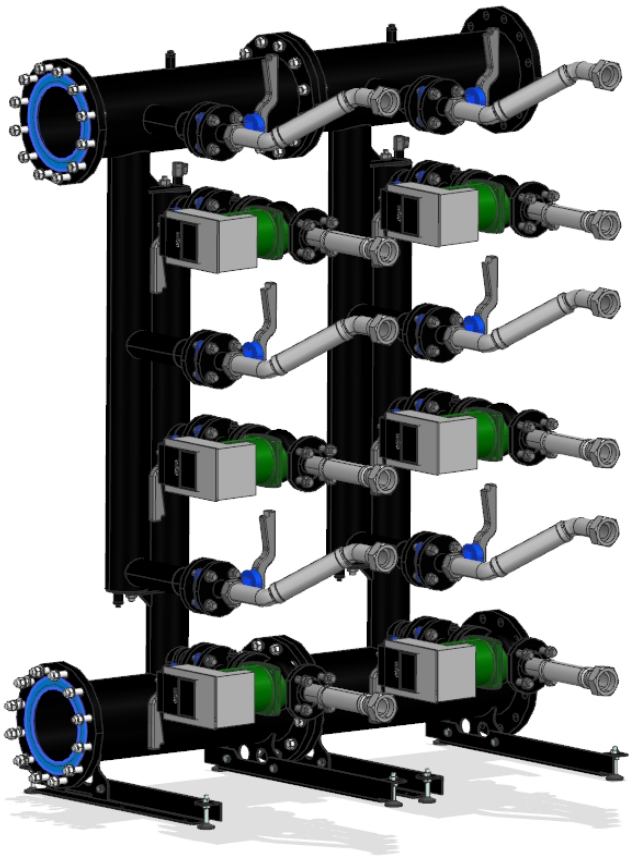


Figure 4.1 Additional Flow and Return Manifold

4.3 Check the horizontal and vertical alignments of the Manifolds and make any necessary adjustments. Fit Blanking Flanges and gaskets to closed end of manifold. Full tighten all Flange fasteners.

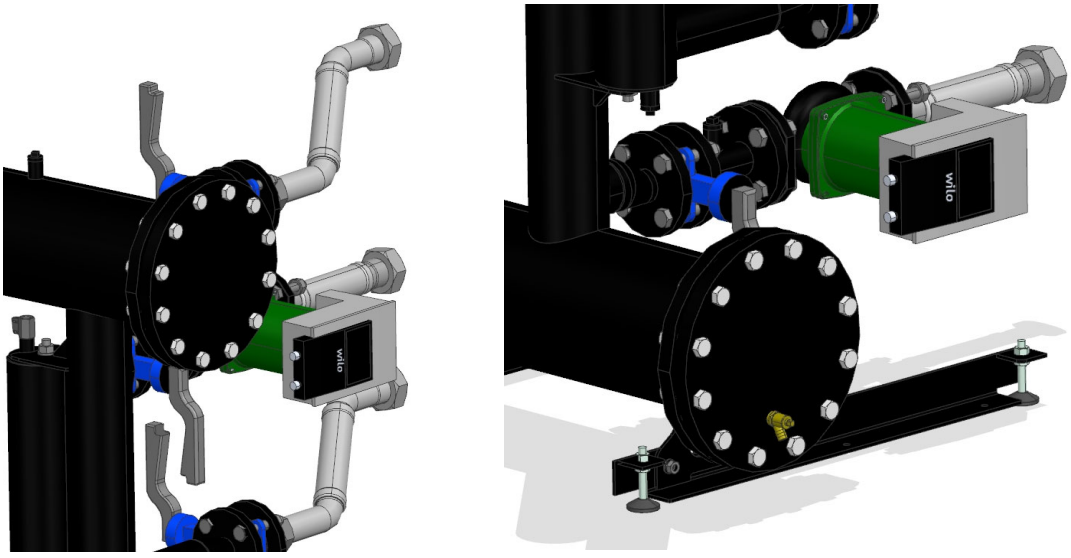


Figure 4.2 Blanking Flange Position

4.4 Using suitable handling equipment lift the Upper Flow Pipe into position. Insert the Flange Gasket and fasteners. Using some of the fastener to trap the Gasket in position. Do not full tighten the fasteners at this stage.

4.5 Fit the Lower Return Pipe to the bottom Flange on the Return Manifold. Insert the Flange Gasket and fasteners. Using some of the fastener to trap the Gasket in position. Do not full tighten the fasteners at this stage.

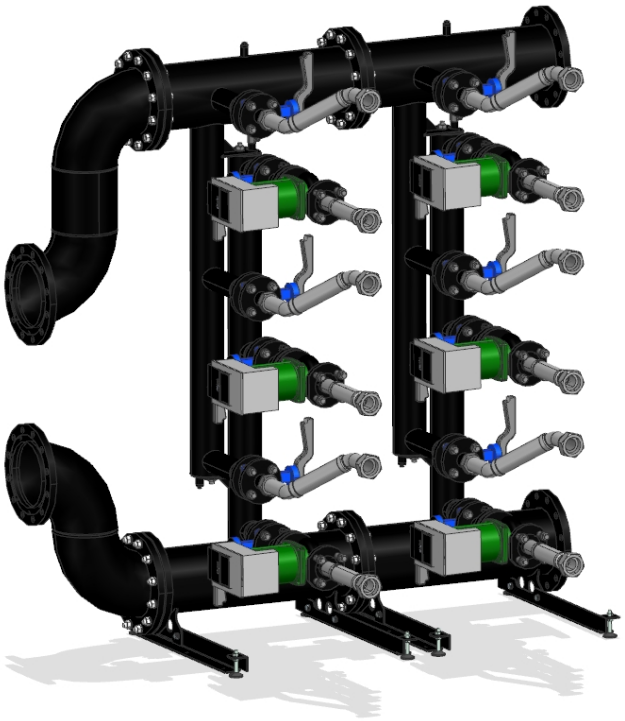


Figure 4.3 Upper & Lower Pipe Positions

Caution: With the Upper & Lower Pipe fitted the Manifold Assembly is unstable and could tip sideway. The Lower Return Pipe must be supported to prevent the Manifold Assembly falling over.

4.6 Position the Low Lost Header Support Frame next to the Lower Return Pipe. Lower the Low loss Header onto the Support Frame and align the Upper & Lower Flanges using the adjustable feet on the Support Frame. Insert the Flange Gasket and fasteners. Using some of the fastener to trap the Gasket in position. Check alignment of the Upper and Lower Pipes and fully tighten all fasteners. Make any final adjustments to the Low Loss Header Support Frame.

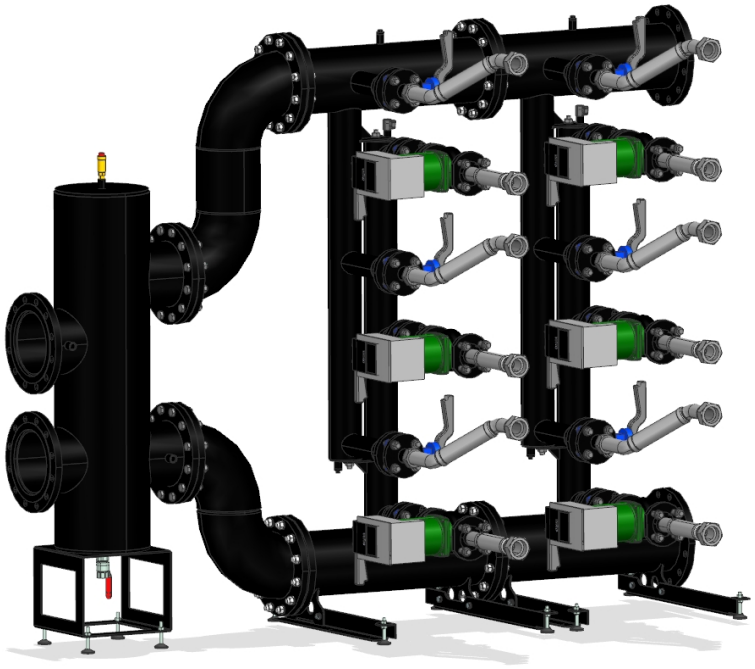


Figure 4.4 Low Loss Header Positions

4.7 If required the Secondary Circuit Three Port Manifolds can now be connected to the Low Loss Header.

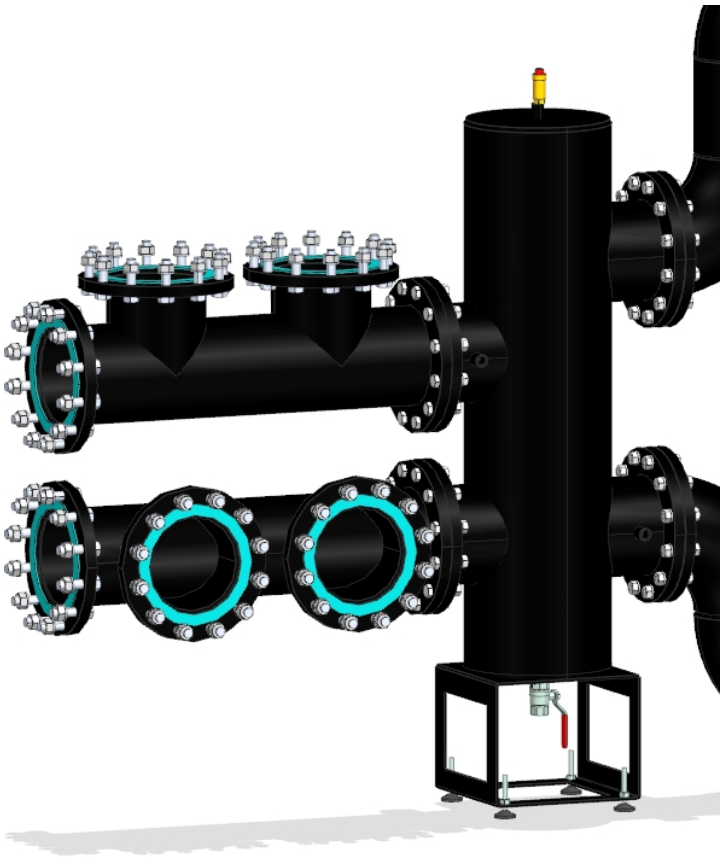


Figure 4.5 Secondary Circuit Manifold Position

4.8 Fit the Condensate Pipe Assembly to the base of the Flow and Return Manifold. Any additional Condensate Pipe Assemblies can be connected together. All joints are push fits. The end not connected to the drain will need to be Capped off. If there is a risk that the drain end could freeze or become blocked, replace the Blanking Cap with an up turned Elbow. This will prevent low level non firing Boilers from filling with water in the event of a blocked for frozen drain.

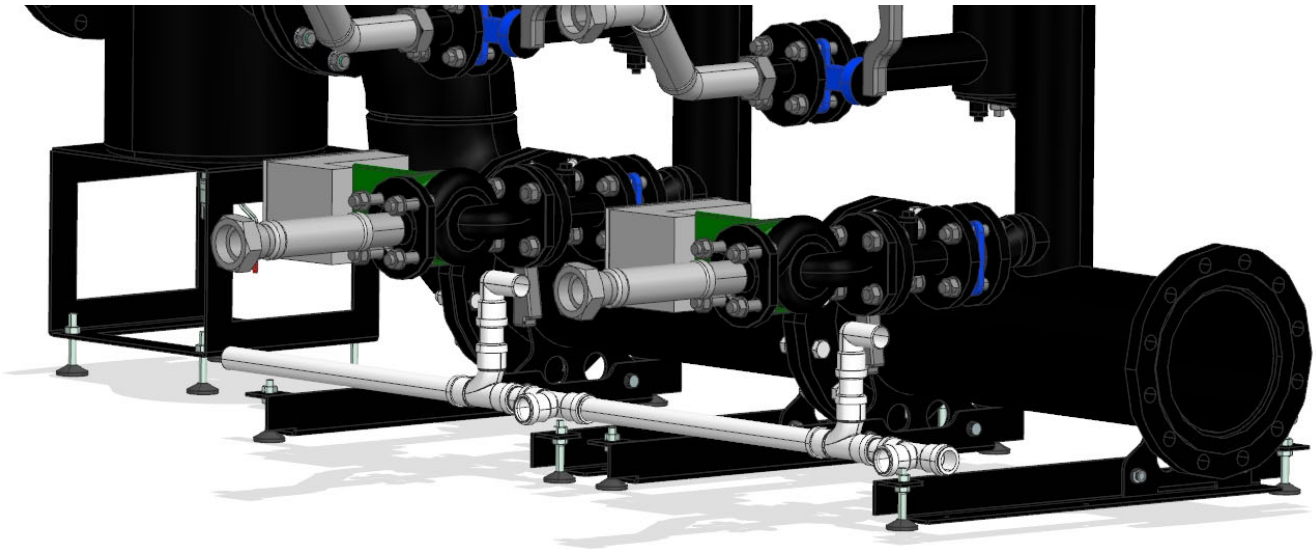


Figure 4.6 Condensate Pipe Position

4.9 Fit the Condensate Traps provided with the boiler to each module's Flue Elbow. Remove the plug on the lower Traps drain port and connect Condensate Traps together using the vertical Drain Hose. Fit the short Drain Hose to the bottom trap and the fit the Drain Adaptor to the Hose.

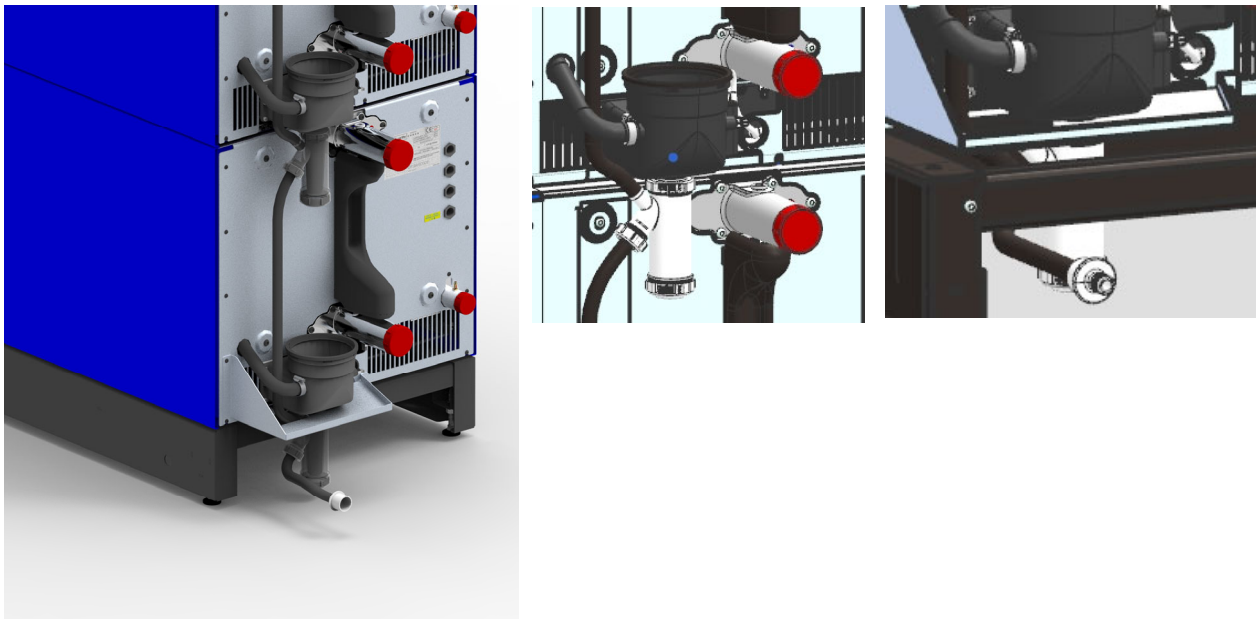


Figure 4.7 Condensate Trap and Drain Hoses

4.10 Apply EN 751-1 Gas Approved thread sealant to the male of the gas inlet connection on each boiler module. Screw one half of each female union from the Gas Manifold to the gas inlet connection on each boiler module. Making sure that it's position matches it's mating half position on the Gas Manifold. The screws retaining the gas inlet pipes on each module can be loosen to provide addition clearance when installing the Gas Manifold. When installing multiple arrays of Boilers, the Gas Manifold should be installed with it's connecting Flange facing upwards to ensure there is sufficient access to connect to the gas supply.

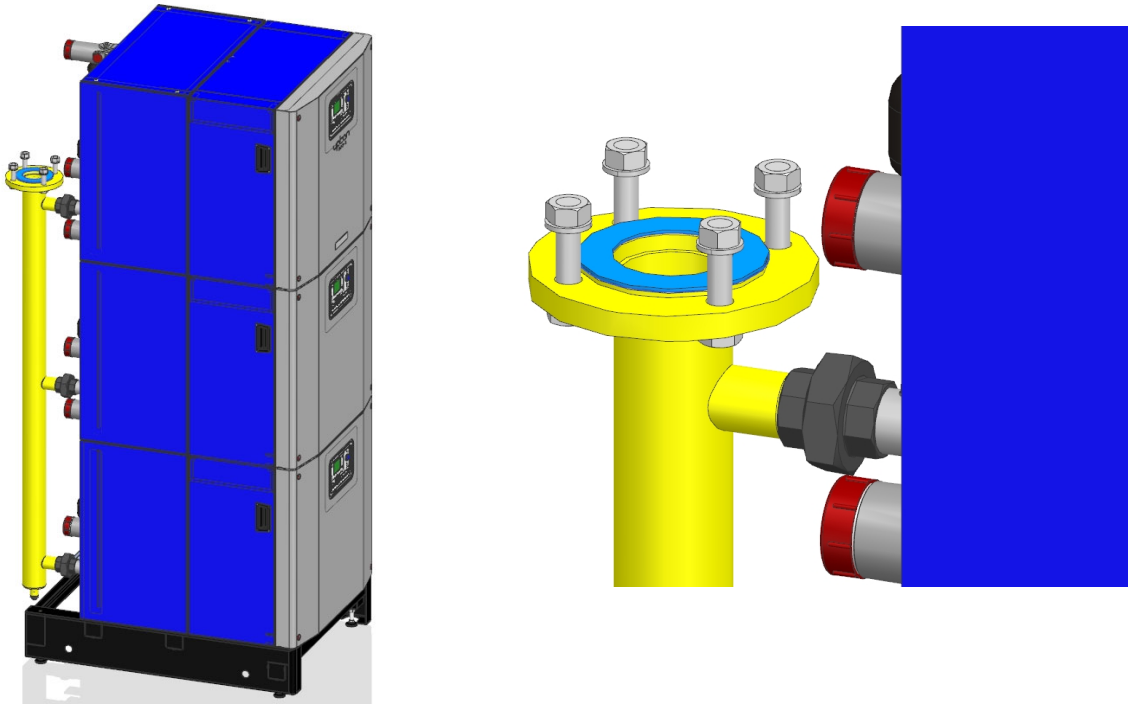


Figure 4.8 Gas Manifold Position

4.11 Apply thread sealant to the 3/4” male - male Nipples and screw the Boiler Safety Relief Valves in to each of the side port of Boiler Module Flow ports. Position the Safety Relief Valve so that it vents to a safe and visible position.

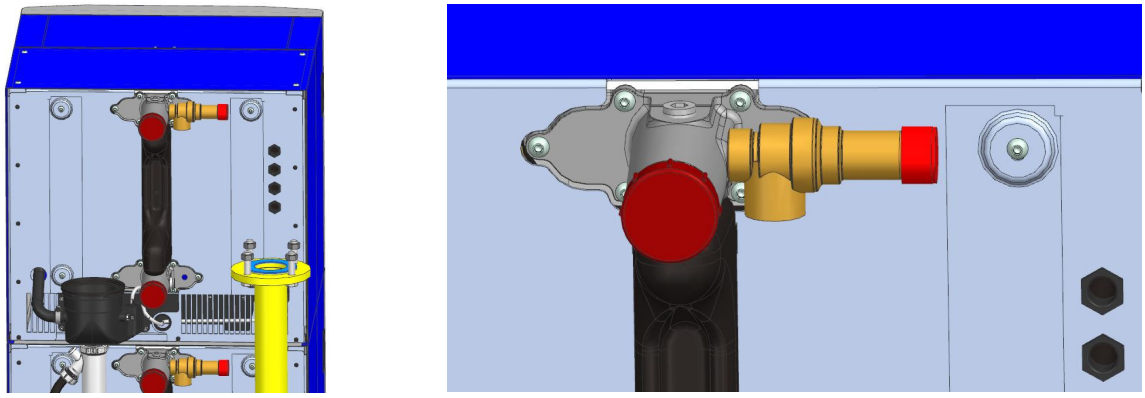


Figure 4.9 Safety Relief Valve Position

4.12 The Boiler can now be move to its final position. The base of the boiler has been purposely designed so that a standard pallet truck can be used for manoeuvring purposes. When installing multiple arrays of Boilers position the first Boiler on the left hand side. Is will ensure that there is sufficient access fit the Flue Cascade Manifold. Position the Boiler as per the recommend distances as shown in figures 1.2.1 to 1.2.4. Place one of each sealing washer (supplied) into the nuts of each of flexible hose and screw the nut of the flexible hoses onto the matching hydraulic connections on the back of the boiler & tighten to produce a leak proof seal.

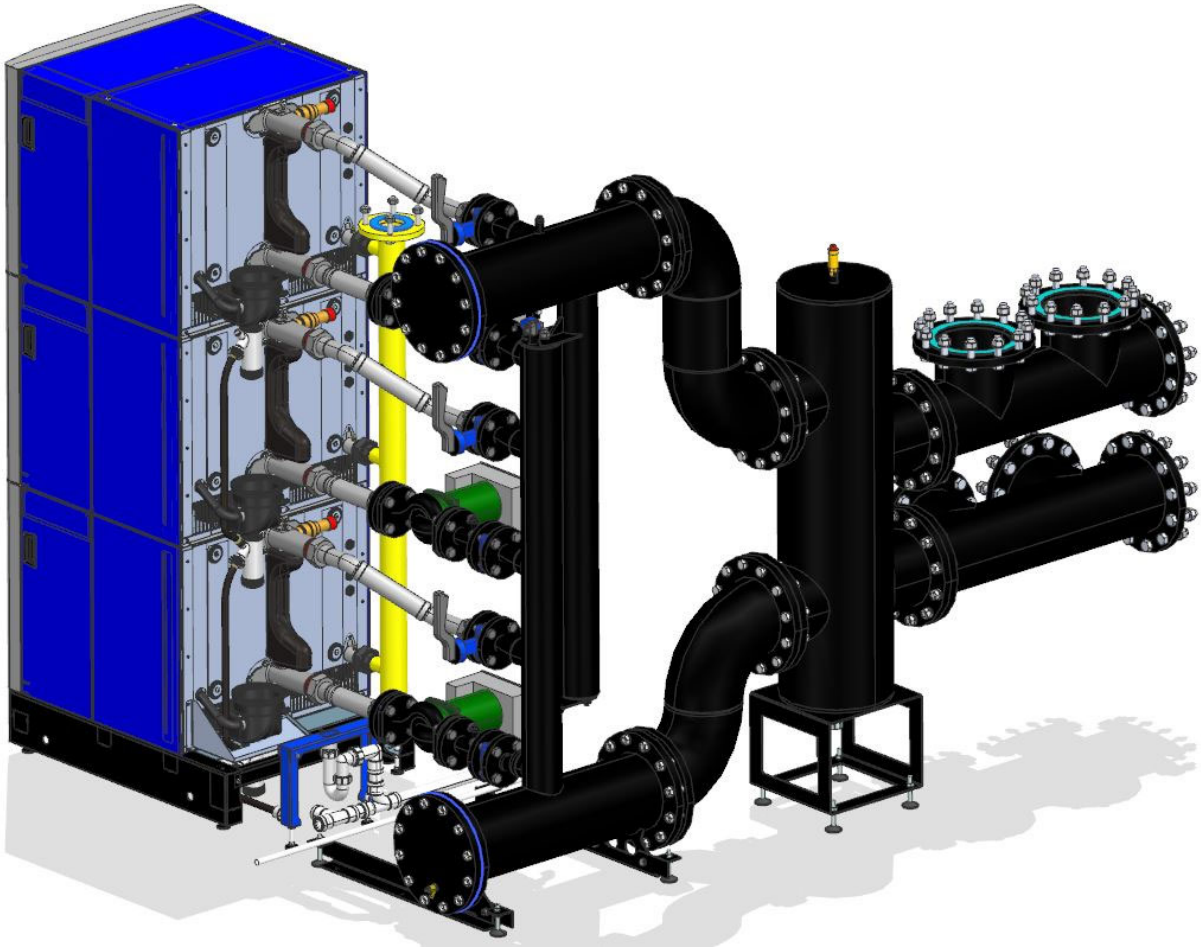


Figure 4.10 Boiler Position

4.13 Assemble the Flue Header ensuring all the Tee's are inline. Lubricate the seals in the Flue Elbow at the back of the Boiler with Silicon Grease (Do not use Petroleum based Grease). Push the Tee's into the Flue Elbows ensuring they are fully engaged and the seals have not been displaced. Position the Flue to its final position. Fit the Flue Support and adjust the feet so that it supports the weight of Flue manifold. Fit the Condensate P-Trap to the Flue Manifold. Connect the P-Trap on the Flue and Condensate Adaptor from the Boiler to the Condensate Drain Pipe work.

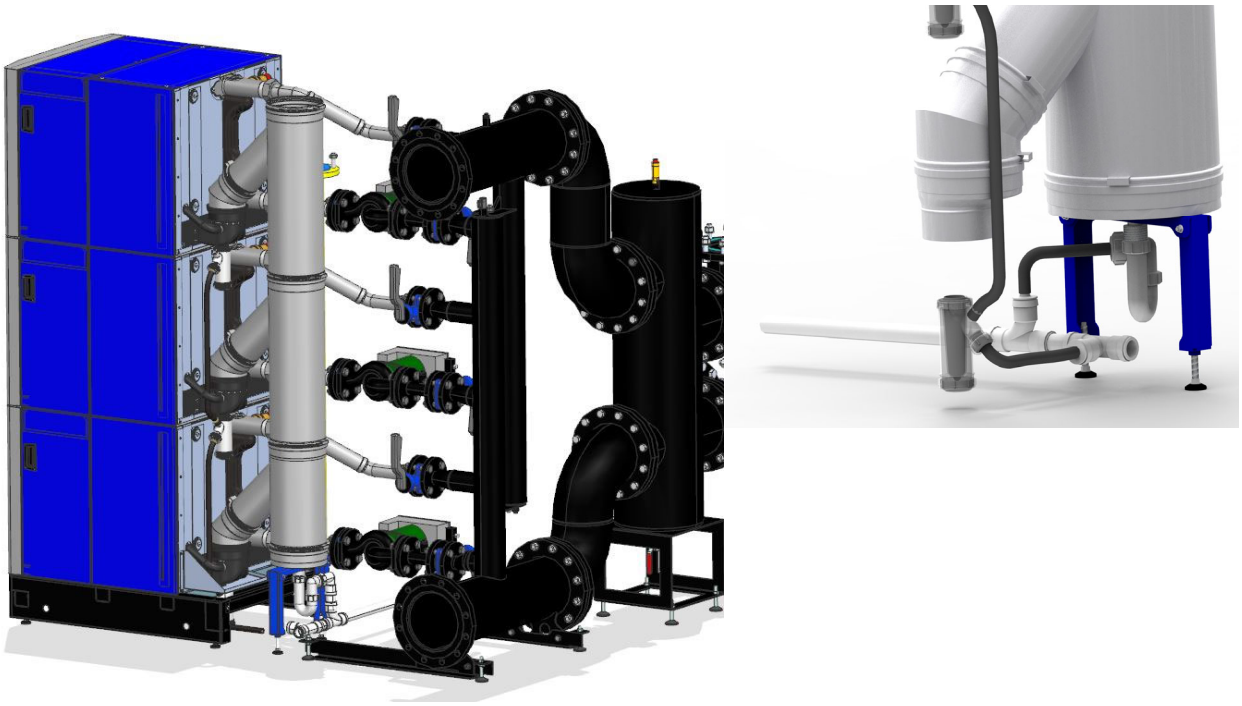


Figure 4.11 Flue Manifold and Drain Pipe Work

4.14 The next Boiler can now be positioned. Ensure that the recommended distances between boilers are maintained.

5.0 FILLING & VENTING HYDRAULIC PIPE WORK

5.1 Pipe kits are pre-assembled with an Automatic Air Vent. During filling all valves on the pipe kits should be open & the Automatic Air Vent caps should be loose for fast venting. It is recommended that the guidance given in BS6644:2005 is followed & that a check is made with the Local Authority for any specific local requirements.

5.2 To ensure that the Pumps are fully blead, there is a manual bleed point before each of the pumps, these should be blead before running the pumps.

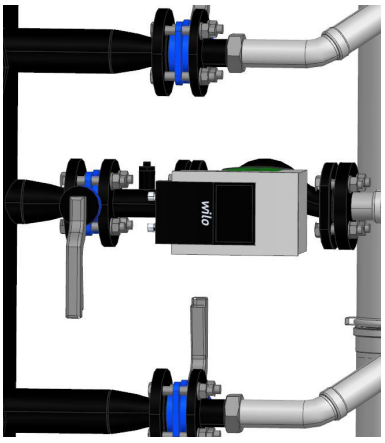


Figure 4.12 Pump Manual Bleed Point

6.0 TESTING & PURGING GAS PIPE WORK

6.1 Once the gas supply pipe has been connected to the manifold, the gas pipe work must be strength & tightness tested to IGE/UP/1 & 1A.

6.2 To purge the gas installation to IGE/UP/1 & 1A an isolating valve (not HHL supply) will need to be fitted instead of the R1/2" plug assembled to the socket at the base of the Gas Manifold Pipe. The gas pipe work can then be purged by connecting to this isolating valve.

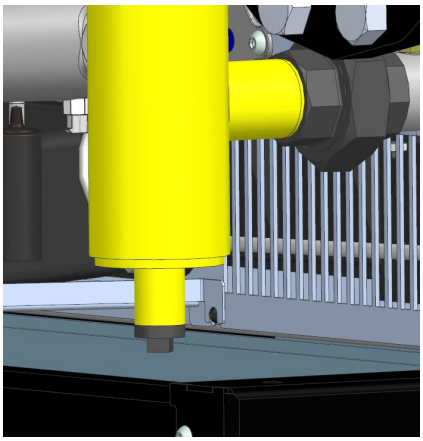


Figure 4.13 Gas Manifold Purge Point

7.0 ELECTRICAL SUPPLY TO PUMPS

- The current type and voltage of the mains connection must correspond to the specifications on the name plate.
- The electrical connection must be established via a fixed power cable (3 x 1.5 mm2 minimal cross-section), equipped with a plug and socket connector or an all-pole switch with a minimum contact opening width of 3 mm.
- The following minimum requirements are to be met if shutdown takes place by means of an onsite network relay: nominal current ≥ 10 A, nominal voltage250 VAC.
- Fuse protection: 10/16 A, slow-blow or automatic fuse with C characteristic
- A motor protection switch supplied by the customer is not required. Nevertheless, if such a protection switch is available in the installation, it must be bypassed or set to the highest possible current.
- Leakage current per pump Ieff ≤ 3.5 mA (as per EN 60335)
- It is recommended to safeguard the pump with a residual-current-operated protection switch. Labeling: FI -  or 
- When dimensioning the residual-current-operated protection switch, take the number of pumps connected and their nominal motor currents into account.
- All connection cables must be installed so that they do not touch the pipe and/or the pumps or motor housing.
- In order to ensure drip protection and strain relief on the threaded cable connection, cables with a sufficient outer diameter (see Table 7.2) must be used and must be screwed sufficiently tightly. In addition, the cables near the screwed connection are to be bent to form a drainage loop, to drain any accumulated
- drips. Unused threaded cable connections should be blanked off with the sealing plates provided, and screwed tight.

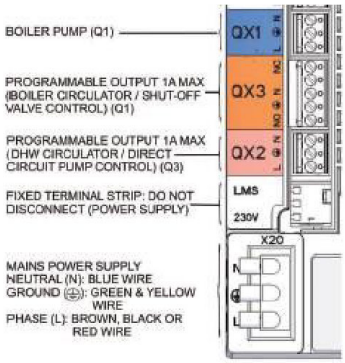
DANGER! Risk of fatal electrical shock! There may be dangerous contact voltage at the contacts of the IF Module interface. If no IF Module (accessory) is plugged into the module compartment, the stopper must cover the IF Module interface so that it cannot be touched. Make sure that it is seated correctly.

- Commission pumps only if they are fitted with the correct modular cover. Check that the cover seal is correctly seated.

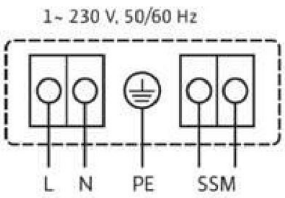
8.0 PUMP SPEED CONTROL SETTINGS

Model	Size	Alternative Pump	Max current rating
Upton 100 to 150	DN100	Yonos Maxo 25/0.5-12	1.33A
Upton 200 to 250	DN150	Yonos Maxo 40/0.5-12	2.40A
Upton 300 to 350	DN150	Yonos Maxo 40/0.5-16	3.50A
Upton 300 to 350	DN200	Yonos Maxo 40/0.5-16	3.50A

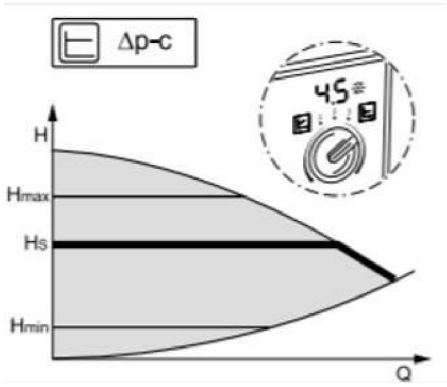
Each pump will be controlled from the boiler, the boiler will give a 230v controlled signal out of terminal connection QX1 which will energise a contactor/relay **(not supplied via Hamworthy).**



The contactor/relay will need a separate 230v supply, rated at the correct pump current rating to feed the pump terminals at the pump L, N & E (PE). The signal from QX1 will operate the contactor/relay to operate the pump.



Set the pump control dial to Δp-c - constant differential pressure.
Adjust the dial which will increase the pump speed.
Rotate the dial to achieve the 20°Δt across the boiler which is equivalent to the minimum water flow rate requirement for the boiler module for the boiler.



Check that the pump has a five minute over run when the boiler is disabled, this can be extended in the parameter setting as required.

Please contact Hamworthy Heating if this is required or for any other enquiries.

Figure 4.14 Pump Speed Control

9.0 RECOMMENDED SPARES

SPARES ITEMS

Rear Hose 4 inch
Rear Hose 6 & *8 inch
Pump Yonos Maxo 25/0.5-12 G1.5”
Pump Yonos Maxo 40/0.5-12 PN6-10 DN40
Pump Yonos Maxo 40/0.5-16 PN6-10 DN40
DN40 Butterfly Valve
2&3H-4 Pump Inlet Fabrication
2&3H-6 Pump Inlet Fabrication
2&3H-8 Pump Inlet Fabrication
DN32-1,1/4" PN16 RF Plate Flange BSP Threaded
2&3H-4 Top Hose Assy
2&3H-4 Bottom Hose Assy
2&3H-6 Top Hose Assy
2&3H-6 Bottom Hose Assy
2&3H-8 Top Hose Assy
2&3H-8 Bottom Hose Assy
2H Gas Header Assembly
3H Gas Header Assembly
2&3H Condensate Kit
3/4 in Relief Valve Caleffi 311560 6 Bar Rated
3/4 x 1 in Relief Valve - 6 Bar Rated
Bolt set 16 off M16x70
Bolt set 16 off M20x70
Bolt set 24 off M20x80
DN100-4" PN16 GASKET to BS7351
DN150-6" PN16 GASKET to BS7351
DN200-8" PN16 GASKET to BS7351
DN65-2.5" PN16 GASKET to B7351
DN50 2" Gasket Washer 56x45x2
Auto Air Relief Valve
Foot Adjustable M12x70

Notes

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Notes

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