



High efficiency wall hung or free standing condensing boilers with ultra low NOx emission

Outputs: Cascade & Skid Mounted
 Quinta Range (2-6 boilers)

- Q45 80 - 240 kW
- Q65 122 - 366 kW
- Q85 168 - 504 kW
- Q115 214 - 642 kW



Cascade & Skid

Mounted Quinta Range



Introduction

Remeha Cascade & Skid Mounted systems use the Quinta Range, compact, light and efficient condensing boilers. Broag UK have created a new Cascade Kit to increase the simplicity of boiler installations, whilst decreasing the time that the boiler house is inactive.

They have also designed and developed a purpose-built bespoke Skid Mounted boiler assembly that can be wheeled into place and connected to existing on-site services with the minimum of down time.



General description of Cascade systems

Optimum number of boilers in a Cascade

In certain situations it is advantageous to spread the total required heat output over several boilers. This is made possible by means of a "Cascade System". In a Cascade configuration, boilers are connected together hydraulically with sequence or step controls to more accurately follow the property load demand. If the heat demand increases or decreases, boilers are switched on or off respectively.

It is then important to determine the ideal number of boilers for the Cascade. The following factors need to be taken into account when deciding on the number of boilers:

- **Investment;** when boilers are split up, the investment costs (boiler cost including installation, fittings, pipe work, pumps and control equipment) can work out lower or higher. However, this depends to a large extent on the situation.
- **Reliability;** reliability increases with the number of boilers. However, there is a distinct upper limit to this principle. Research has shown that reliability is optimum for systems with four to six boilers in a Cascade.
- **Efficiency;** there is no appreciable difference in terms of efficiency between several small or one or two larger boilers.
- **Maintenance and faults;** there is a greater overall risk of faults in a system with several boilers. However, the priority is lower when a fault occurs. A larger group of engineers can service and maintain smaller boilers.
- **Installation;** the lightweight and compact design means that you have more flexibility when positioning the boilers. Very little floor space is required and there is minimum load on the floor.
- **Control;** when using several boilers and modulating controls, the heat output provided more closely matches the heat output requested.

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Conclusion:

The points mentioned above must be considered to ensure a "Cascade System" is an appropriate solution on a project by-project basis. In practice there are very few installations that cannot benefit from a "Cascade Installation".

Compact Cascade configuration

The Remeha Quinta 45 (40.0 kW*), Quinta 65 (61.0 kW*), Quinta 85 (84.2 kW*) and Quinta 115 (107 kW*) wall-hung boilers are particularly suitable for use in a Cascade configuration. Their width of only 50 cm each means that a large kW output can be installed on a relatively short length of wall. This big difference becomes apparent when comparing Quinta Cascade Systems with floor standing boilers of a similar output. For example, using 6 Remeha Quinta 115's would only require a wall of 3.5 m long to provide a 690 kW output (at 80/60°C).

* nominal output at 80/60°C

Combined nominal output (kW) at 81/70°C

No. of boilers	2	3	4	5	6
Quinta 45	80	120	160	200	240
Quinta 65	122	183	244	305	366
Quinta 85	168	252	336	420	504
Quinta 115	214	321	428	535	642

Note: Larger configurations available on request, please contact our technical help desk for further information.

If the heat demand increases or decreases, boilers are switched on or off respectively.

Advantages at a glance

Quinta boiler

- High efficiency: 110% NCV at 40/30°C (99% GCV)
- Boiler control:
 - a) Modulating (18-100%)
 - b) High/low (18-100%)
 - c) On/off
- Premix burner for clean combustion
- Low NO_x < 25ppm (O₂=0%, dry)
- Quiet operation <48 dBA
- Digital display
- Data file for storing information
- Remote signalling options
- Cast aluminium heat exchanger
- Easy maintenance
- Built-in calorifier control
- Options for modular control and/or weather compensator
- Control 0-10V signal or volt free
- PC connection
- Advanced boiler control, Remeha's 'abc', for reliable heat delivery
- Conventional or "room-sealed" operation
- Cascade packages for up to 6 boilers
- Quick and easy installation
- Space saving
- For use with natural gas and L.P.G. (Some models require a conversion kit)

Cascade configurations: various options

For installing 2 to 6 boilers, Remeha's range of Cascade sets are very comprehensive and easy to assemble and install.

The hydraulic and gas pipework can be put together entirely without welding, by using screw connections, compression connections and flanges.

If you want to fabricate your own Cascade configuration independently, please refer to the information given in the Remeha Quinta Cascade Guide.

Hydraulic isolation – low loss header

Practical experience has shown that a hydraulic isolation between the 'boiler circuit' and the 'system circuit' by means of a low loss header is beneficial in most cases.

This means that a widely varying volume flow on the system side has no influence on the volume flow on the boiler side and vice versa.

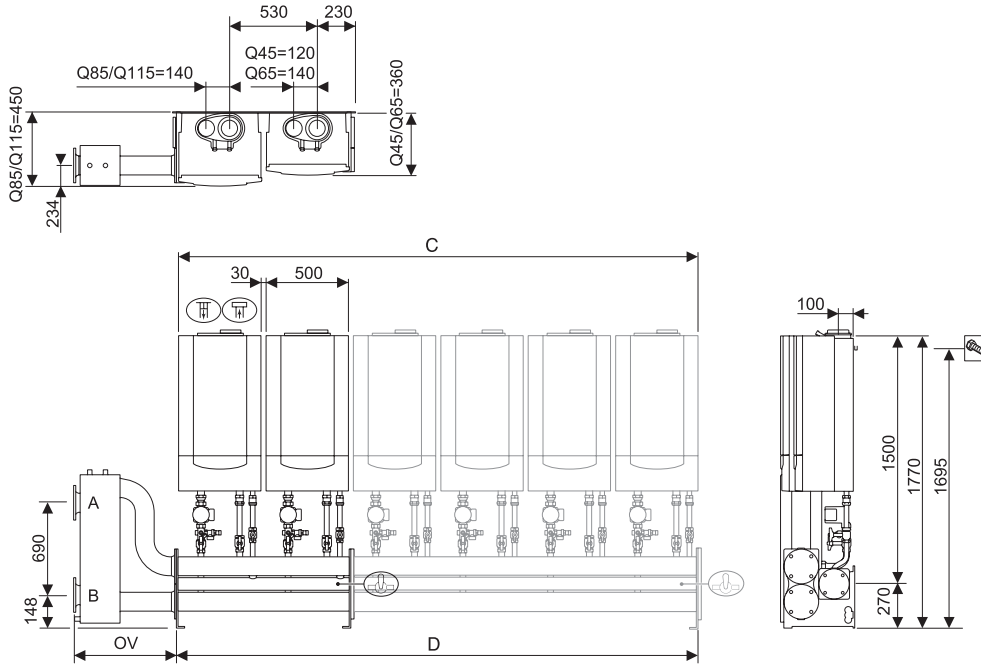
This allows a widely varying volume flow on either side of the low loss header allowing this design to be utilized in both new and refurbishment installations.

In refurbishment installations the use of a low loss header has an additional benefit by allowing the existing system pumps to be either re-used as they are, or replaced at the same duty.

This minimises the need for time consuming calculations in order to determine the actual system resistance to be added to the new boilers resistance in an effort to select the correct pumps.



Cascade wall mounted linear system (LW) – 2 to 6 boilers



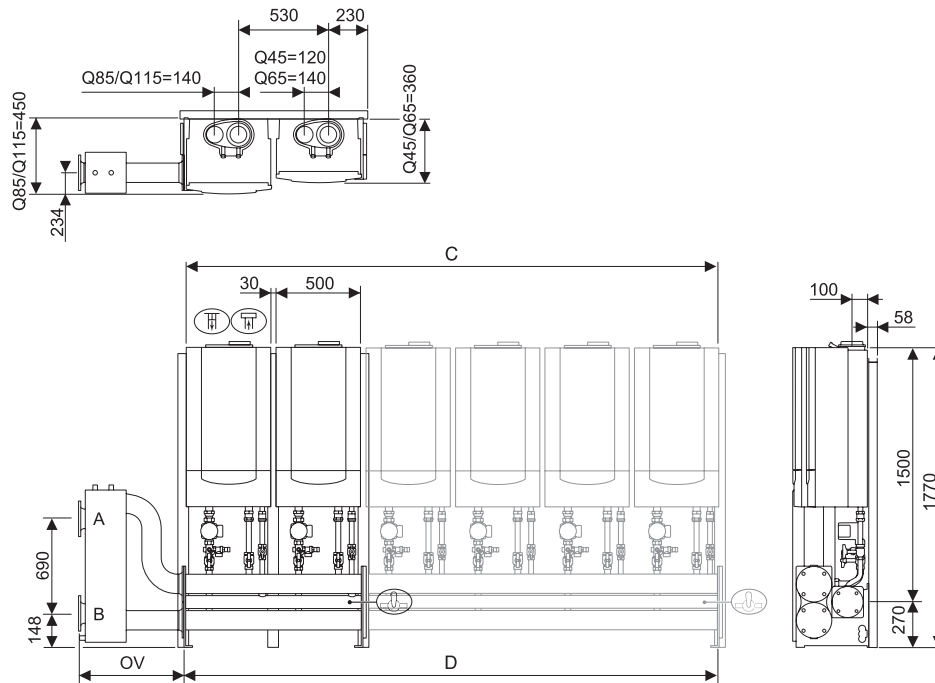
- A System flow; Dn 100 (PN6, DIN 2631; 4 holes).
- B System return; Dn 100 (PN6, DIN 2631; 4 holes).
- Gas supply Dn 50 DIN 2633 (4 holes)
- Air supply (Q45 = 80 mm, Q65/85/115 = 100 mm)
- Flue gas discharge (Q45 = 80 mm, Q65/85/115 = 100 mm)
- Suspension points
- OV Low loss header (Dn65 = 617 mm; Dn100 = 631mm)




Note: The low loss header assembly is shown on the left hand side, this can be moved to the right hand side to suit site conditions. The kit also contains two 90° bends to enable the low loss header to be facing forward or backward as required.

Dimensions (mm)

No. of boilers	2	3	4	5	6
C	1030	1560	2090	2620	3150
D	1060	1590	2120	2650	3180

Cascade free standing linear system (LV) - 2 to 6 boilers



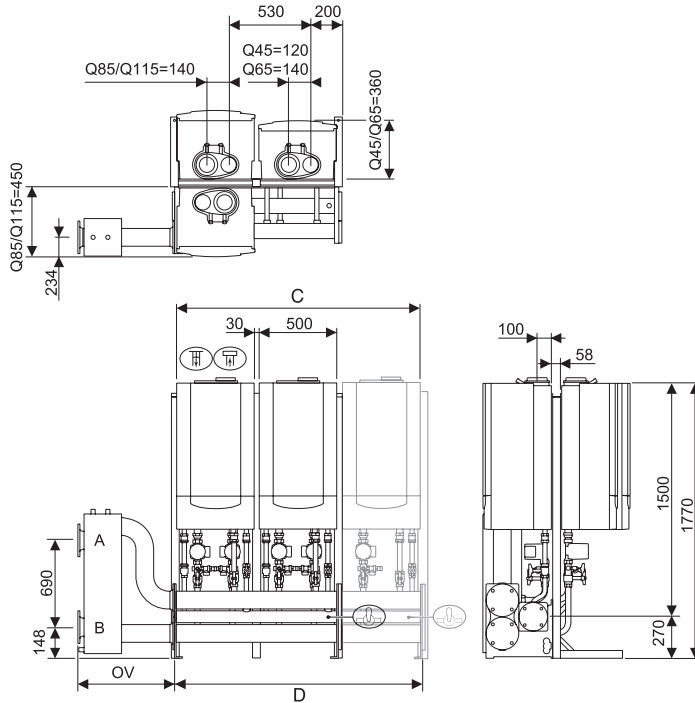
- A System flow; Dn 100 (PN6, DIN 2631; 4 holes).
- B System return; Dn 100 (PN6, DIN 2631; 4 holes).
-  Gas supply Dn 50 DIN 2633 (4 holes)
-  Air supply (Q45 = 80 mm, Q65/85 = 100 mm)
-  Flue gas discharge (Q45 = 80 mm, Q65/85/115 = 100 mm)
- OV Low loss header (Dn65 = 617 mm; Dn100 = 631mm)




Note: The low loss header assembly is shown on the left hand side, this can be moved to the right hand side to suit site conditions. The kit also contains two 90° bends to enable the low loss header to be facing forward or backward as required.

Dimensions (mm)

No. of boilers	2	3	4	5	6
C	1030	1560	2090	2620	3150
D	1060	1590	2120	2650	3180

Cascade free standing back-to-back system (RG) – 3 to 6 boilers



- A System flow; Dn 100 (PN6, DIN 2631; 4 holes).
- B System return; Dn 100 (PN6, DIN 2631; 4 holes).
-  Gas supply Dn 50 DIN 2633 (4 holes)
-  Air supply (Q45 = 80 mm, Q65/85 = 100 mm)
-  Flue gas discharge (Q45 = 80 mm, Q65/85/115 = 100 mm)
- OV Low loss header (Dn65 = 617 mm; Dn100 = 631mm)

Note: The low loss header assembly is shown on the left hand side, this can be moved to the right hand side to suit site conditions. The kit also contains two 90° bends to enable the low loss header to be facing forward or backward as required.

Dimensions (mm)

No. of boilers	3	4	5	6
C	1030	1030	1560	1560
D	1060	1060	1590	1590

Advantages at a glance

Quinta boiler

- High efficiency: 110% NCV at 40/30°C (99% GCV)
- Boiler control:
 - a) Modulating (18-100%)
 - b) High/low (18-100%)
 - c) On/off
- Premix burner for clean combustion
- Low NO_x < 25ppm (O₂=0%, dry)
- Quiet operation <48 dBA
- Digital display
- Data file for storing information
- Remote signalling options
- Cast aluminium heat exchanger
- Easy maintenance
- Built-in calorifier control
- Options for modular control and/or weather compensator
- Control 0-10V signal or volt free
- PC connection
- Advanced boiler control, Remeha's 'abc', for reliable heat delivery
- Conventional or "room-sealed" operation
- Cascade packages for up to 6 boilers
- Quick and easy installation
- Space saving
- For use with natural gas and L.P.G. (Some models require a conversion kit)

General description of Skid Mounted systems (Pre-assembled)



The Skid Mounted package is a complete pre-assembled unit and can be supplied in the following configuration:

Back-to-back or in line configuration (same price for either).

Maximum frame depth 650mm to allow access through a normal door (in line boilers only).

Boilers c/w individual shunt pumps.

Boxed steel tube frame (powder coated) complete with lifting eyes.

Wheeled frame for ease of movement within the plant room.

Fully adjustable legs for levelling after final positioning.

All associated pipe work and fittings, safety valves etc (Safety valves set at 3bar unless stated otherwise).

Boiler Skids designed to suit either 20 degrees or 11 delta T.

Flow and return connections to the system, BSP Thread or Flanged PN16 (left hand connections standard - right handed on request).

Gas connection Flanged PN16.

Condensate Terrain pipe work.

Mini-pressurisation unit c/w expansion vessel (supplied loose).

Lockable isolating switch for the power supply to each boiler.

6ltr Dosing pot.

Control panel with run and fail indicators for all boilers and pressurisation unit.

Volt free contacts for BMS interface within control panel.

Gas valve safety interlock via volt free contacts within control panel.

Description of pressurisation units used on the Skid Mounted Boilers

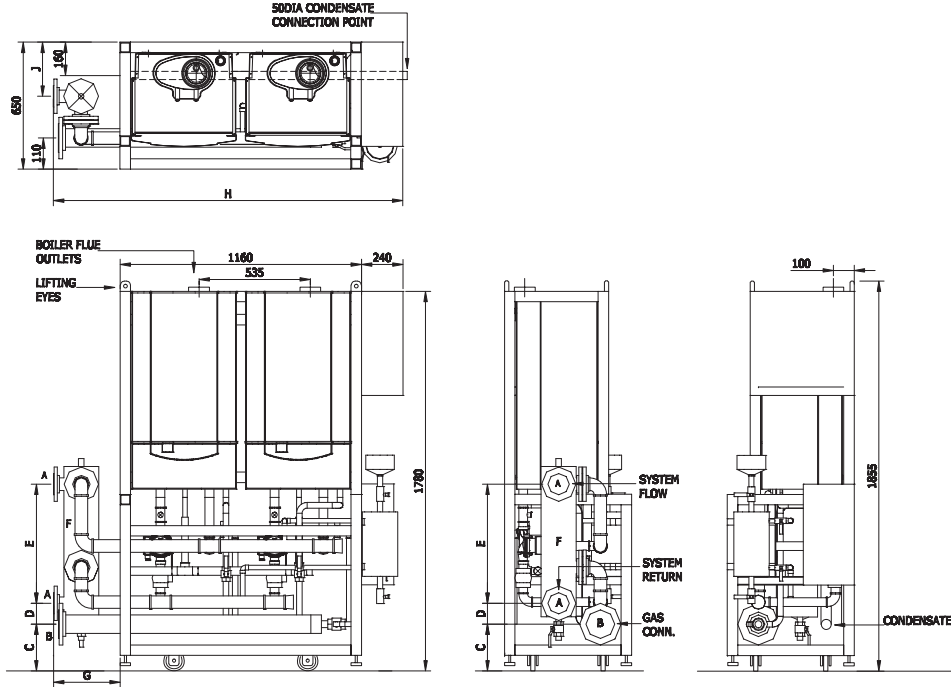
Automatic heating system pressure set c/w with high and low pressure switches. Supplied with a loose pressure vessel, sized to suit the kW rating of boilers at 5M static head and 3 bar operating pressure unless advised otherwise.

Combined nominal output (kW) at 81/70°C

No. of boilers	2	3	4	5	6
Quinta 45	80	120	160	200	240
Quinta 65	122	183	244	305	366
Quinta 85	168	252	336	420	504
Quinta 115	214	321	428	535	642

Note: Larger configurations available on request, please contact our technical help desk for further information.

Skid Mounted linear configuration - 2 boilers



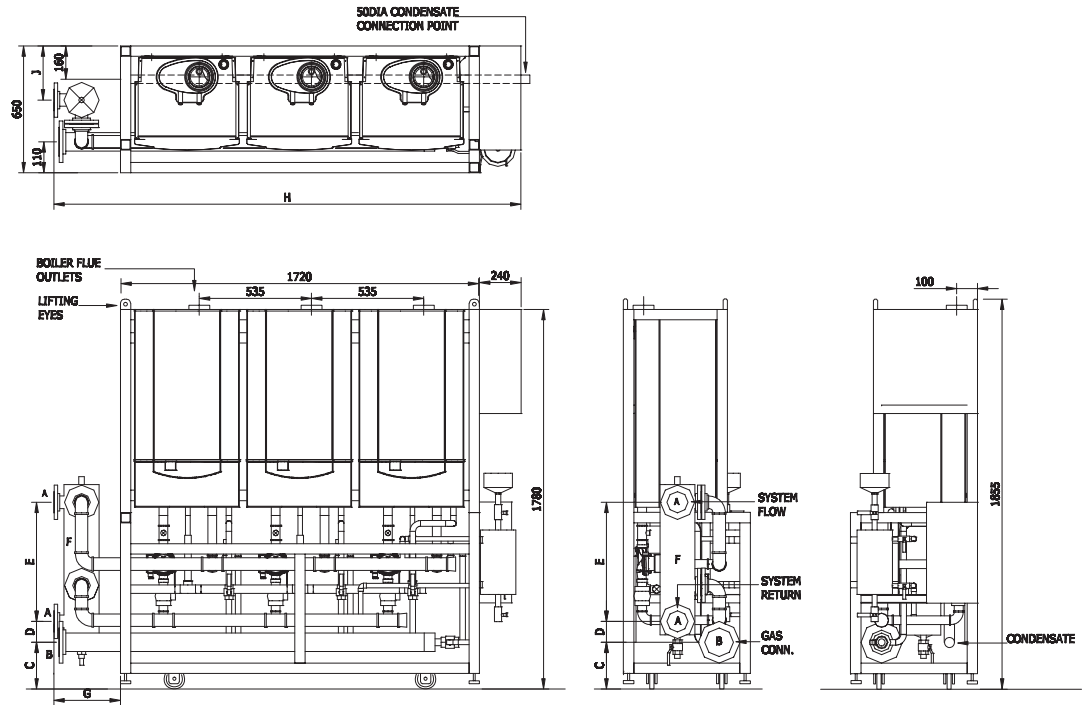
Note: Frame manufactured from fully welded Epoxy Powder Coated 40SQ. Box Section. Frame complete with Adjustable Feet for levelling requirement. All Flanges are PN16.

Dimensions (mm)

Config.	A	B	C	D	E	F	G	H	J
2xQ45	65 dia	50 dia	225	90	500	150 dia	320	1720	260
2xQ65	65 dia	50 dia	225	90	500	150 dia	320	1720	260
2xQ85	65 dia	50 dia	225	90	500	150 dia	320	1720	260
2xQ115	80 dia	50 dia	225	90	650	200 dia	350	1750	200



Skid Mounted linear configuration - 3 boilers

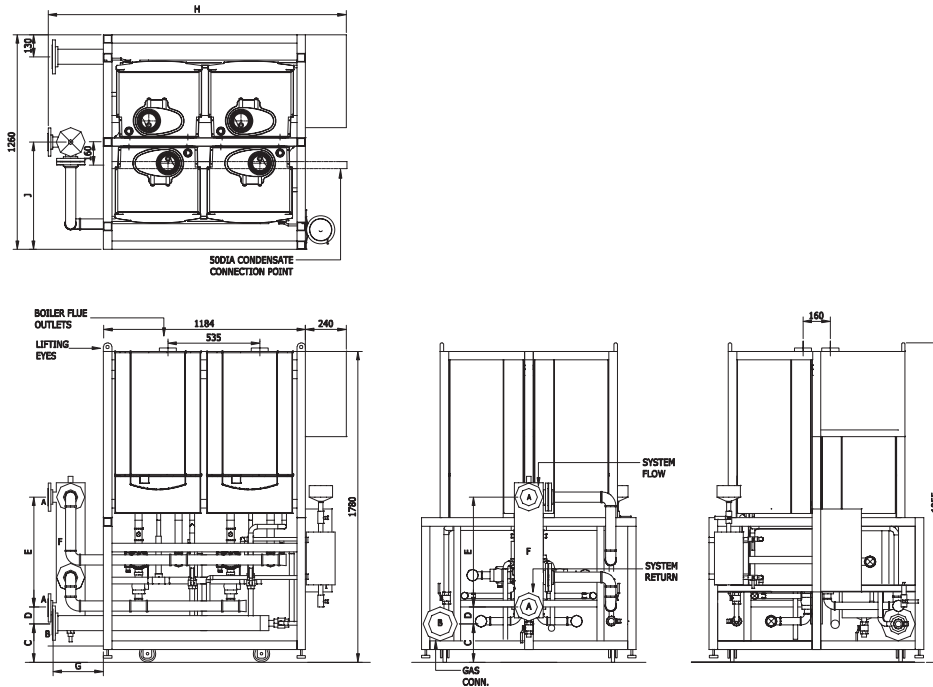


Note: Frame manufactured from fully welded Epoxy Powder Coated 40SQ. Box Section. Frame complete with Adjustable Feet for levelling requirement. All Flanges are PN16.

Dimensions (mm)

Config.	A	B	C	D	E	F	G	H	J
3xQ45	65 dia	50 dia	225	90	500	150 dia	320	2280	260
3xQ65	65 dia	50 dia	225	90	500	150 dia	320	2280	260
3xQ85	100 dia	65 dia	230	100	650	200 dia	350	2310	200
3xQ115	100 dia	65 dia	230	100	650	200 dia	350	2310	200

Skid Mounted back-to-back configuration - 4 boilers



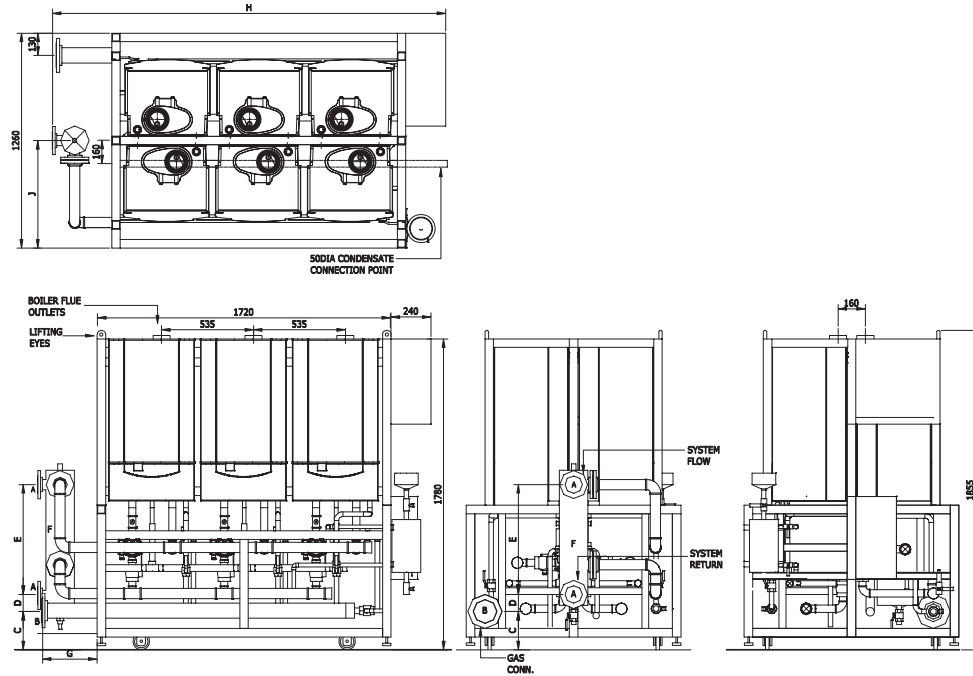
Note: Frame manufactured from fully welded Epoxy Powder Coated 40SQ. Box Section. Frame complete with Adjustable Feet for levelling requirement. All Flanges are PN16.

Dimensions (mm)

Config.	A	B	C	D	E	F	G	H	J
4xQ45	80 dia	50 dia	225	90	650	200 dia	350	1750	630
4xQ65	80 dia	65 dia	230	90	650	200 dia	350	1750	630
4xQ85	100 dia	65 dia	235	90	650	200 dia	350	1750	630
4xQ115	125 dia	80 dia	235	90	800	250 dia	375	1750	630



Skid Mounted back-to-back configuration – 6 boilers



Note: Frame manufactured from fully welded Epoxy Powder Coated 40SQ. Box Section. Frame complete with Adjustable Feet for levelling requirement. All Flanges are PN16.

Dimensions (mm)

Config.	A	B	C	D	E	F	G	H	J
6xQ45	80 dia	65 dia	230	90	650	200 dia	350	2310	630
6xQ65	80 dia	65 dia	230	90	650	200 dia	350	2310	630
6xQ85	125 dia	80 dia	235	90	800	250 dia	375	2335	630
6xQ115	125 dia	80 dia	235	90	800	250 dia	375	2335	630

Flue gas table for combined flue discharge

Dimensioning flue gas discharge linear configuration

The following table is for dimensioning Cascade systems in a series configuration with the most frequently occurring combinations. The table runs from two to six units (in a linear or back-to-back configuration). For unit combinations not described here or a configuration that differs from the drawings, please consult our Sales Support department.

When compiling the tables, we assumed that the units would be switched on and off one by one and that there would be no elbows in the horizontal and vertical collector pipes.

Discharge system diameters: linear configuration, series connection, room ventilated operation

(Please refer to the 'linear configuration illustration' on page 14)

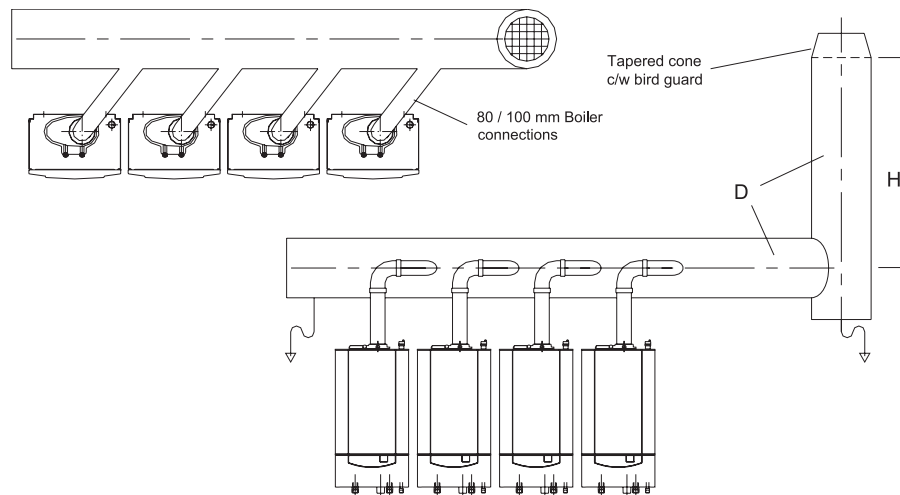
Heat output P kW	Boiler types	Ød=ØD(mm)			
		H=2-5m	H=5-9m	H=9-13m	H=13-17m
80	2xQ45	130	125	125	130
120	3xQ45	180	170	165	165
160	4xQ45	220	205	195	195
200	5xQ45	255	230	220	215
240	6xQ45	280	255	240	235
122	2xQ65	155	145	145	145
183	3xQ65	220	200	195	190
244	4xQ65	265	240	230	225
305	5xQ65	305	275	255	250
366	6xQ65	340	300	280	275
168	2xQ85	175	165	160	160
252	3xQ85	250	225	215	215
336	4xQ85	305	270	255	250
420	5xQ85	350	310	290	280
504	6xQ85	390	345	320	310
214	2xQ115	200	185	180	180
321	3xQ115	285	255	240	235
428	4xQ115	345	305	285	275
535	5xQ115	395	345	323	315
642	6xQ115	440	385	355	345

Note: Connect the boilers to the horizontal header using swept connections.

Linear configuration: series connection, room ventilated operation

(Please refer to the 'discharge system diameters table' on page 13)

(For conventional or open flue systems). Typical multi boiler installation with the flue combined into a single header and riser.



Flue gas discharge

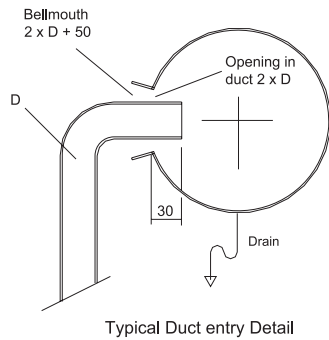
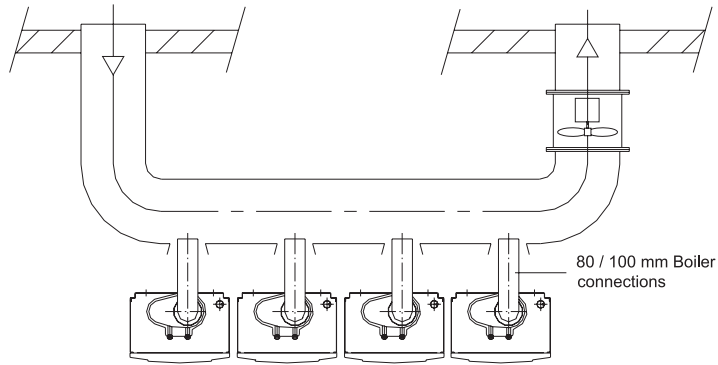
Quinta 45: 80mm Ø

Quinta 65/85/115: 100mm Ø

Note 1: Using 90° boiler connections into the header may result in larger headers and risers being required. Other multi boiler flue combinations for the Quinta 65, 85 and 115 may be available to suit different site conditions – for further information please consult your Area Sales Manager – contact details can be found on our web site www.uk.remeha.com

Note 2: Other flue configurations are possible, please contact our technical help desk for further information.

Quinta 45, 65, 85 and 115 – Multi or single boiler installation on a flue dilution system



Note: Broag is unable to offer a flue dilution system and recommends that the installer contacts a flue specialist to design and manufacture the system in accordance with the requirements of the British Standards and to comply with the guidelines illustrated above.

Typical multi boiler installation for a flue dilution flue system showing the flue break necessary for all pre-mix boilers to prevent the dilution fan affecting the gas/air ratio control system in the boiler.



TreadLightly

ON THE PLANET

QUINTA RANGE
CONDENSING



The data published in this technical sales leaflet is based on the latest information (at date of publication) and may be subject to revisions. It should be read in conjunction with our full technical brochure (available on request). We reserve the right to continuous development in both design and manufacture, therefore any changes to the technology employed may not be retrospective, nor may we be obliged to adjust earlier supplies accordingly.

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