

Alpha
HEATING INNOVATION

ProTec Plus

HIGH OUTPUT BOILERS
CASCADE SYSTEMS



Make Alpha your first choice

Over the course of nearly 50 years, we have successfully met the heating requirements of a wide variety of projects in the UK, from homes to light commercial buildings.

Alpha Heating Innovation is part of the Italian-owned Immergas Group which, having produced over five million boilers alone, is regarded as one of Europe's leading heating appliance manufacturers.

With some of the most advanced production facilities in the world at our disposal, we are able to continually refine our product range, making the most of new and existing technologies to create genuinely innovative heating solutions.

Together with our insistence on using only the best components, plus exceptionally high manufacturing standards, this ensures our appliances benefit from truly outstanding performance and reliability levels.

We treat each project individually, working closely with our clients to design the perfect bespoke system solution every time.



Whether you need help choosing the right heating appliance, or you experience difficulty during or after installation, we are here to assist.

HELPLINE

Before, during or after installation, you can rely on Alpha to provide you with expert advice. Whether it's a simple query or a more complicated problem, help is only a phone call away.

SERVICE ENGINEERS

In the unlikely event that you experience a problem with one of our products that can't be resolved over the phone, we'll send out one of our nationwide service engineers.

They are equipped with the latest communication technology to keep response times to a minimum.

INSTALLER TRAINING

The Alpha Academy offers installers free training on our products as well as many other aspects of the industry.

Training is available at our head office in Kent, also in Birmingham, Bolton, Stirling and Weston-Super-Mare.

**Technical helpline
0844 871 8764**

ProTec Plus



Alpha ProTec Plus high efficiency condensing boilers are specifically designed for large houses or commercial applications.

Our fan-assisted condensing boilers provide heat for central heating systems that require outputs from 50kW to over 500kW.

Can be wall mounted or fixed to our freestanding frames and are capable of being installed as a single unit or in simple modular formations for even greater outputs.

**3 YEAR
WARRANTY**

Model	CH input net (kW)	CH output condensing(kW)	Minimum Output (kW) 80/60°C	Dimensions (mm)	Weight (kg)	Part L Seasonal Efficiency %	Nox class	Nox (mg/kWh)
ProTec Plus 50	51.3	54.8	5.0	843x442x457	51	96.4	5	38
ProTec Plus 70	69.9	74.5	7.2	1038x600x502	81	96.5	5	25
ProTec Plus 90	92.3	98.8	9.4	1038x600x632	96	96.8	5	20
ProTec Plus 115	114.1	121.7	11.0	1038x600x632	103	96.4	5	31



◀ FEATURES OVERVIEW

- Fully modulating built-in circulator pump
- Stainless steel heat exchanger
- Frost Protection
- Weather Compensation compatible; with external probe
- Fault Code Displayed
- Volt Free switching control or full BUS protocol capability
- Heating and Hot water control with use of the HW diverter kit
- Simple thermostat control or optional zone manager features
- Back-lit LCD interface
- Open or room sealed flueing options

PROTEC AT A GLANCE

CHOICE

- Four models with outputs from 50-115kW
- Can be cascaded for higher output requirements – up to five boilers
- Natural gas or LPG options available

PERFORMANCE

- High energy efficiency
- Wide 1:10 modulation range to enable reduced output when required
- Low emissions [<23PPM low NOx]



Technical data

INSTALLATION

ProTec model		50	70	90	115
Net input	kW	51.3	69.9	92.3	114.1
Nominal output in condensing 30°/50°C	kW	54.8	74.5	98.8	121.7
Minimal output in condensing 30°/50°C	kW	5.0	7.2	9.4	11.0
Nominal output in standard conditions 60°/80°C	kW	49.9	68.0	90.0	111.0
Efficiency at maximum load condensing	%	106.8	106.6	107.0	106.7
Efficiency at part load condensing	%	107.0	107.2	107.8	107.6
NOx emissions	mg/kWh	38	25	20	31
Natural gas consumption (gross)	m ³ /h	5.43	7.4	9.77	12.07
Flue gas temperature rise (max)	°C	53	58	53	56
Flue gas mass flow (max)	kg/h	81	106	146	178
Max flue resistance	Pa	110	305	208	145
Maximum operational electrical consumption	W	155	195	345	385
Stand-by consumption	W	6	5	5	5
Flue connection (Single/Concentric)	mm	80/125	80/125	80/125	80/125
Gas connection (G)	mm[inch]	28[1"]	28[1"]	28[1"]	28[1"]
C.H. Flow/Return (F/R)	mm[inch]	42[1½"]	42[1½"]	42[1½"]	42[1½"]
Protection rating	IP	IPX5D	IPX5D	IPX5D	IPX5D
Min-max water pressure	bar	0.5-3.5	0.5-3.5	0.5-3.5	0.5-3.5
Water content	ltr	3	4	10	11
Gross weight including packaging	kg	51	85	96	103

SYSTEM

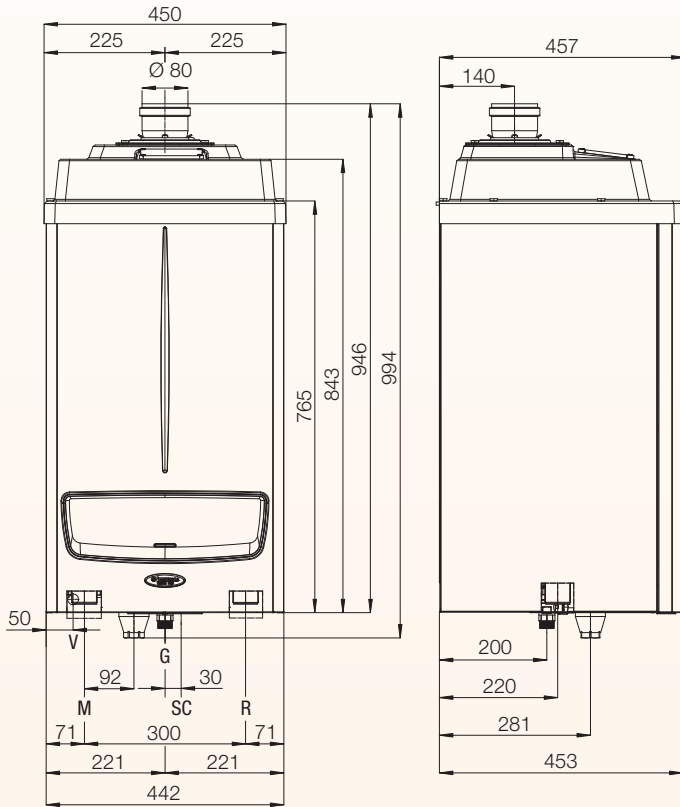
Central heating (sealed system)		
Max working system pressure		3.5 bar
Min system pressure		0.5 bar
Max system temperature	ProTec Plus 50	85°C
	ProTec Plus 70	85°C
	ProTec Plus 90	85°C
	ProTec Plus 115	85°C
Pressure relief valve setting		4 bar [58.8 PSI]
Flow connection		1½" BSP
Return connection		1½" BSP
Relief valve connection		¾" BSP
Recommended system pressure [cold]		1.0 bar
CH water temp. [approx. max.]	ProTec Plus 50	85°C
	ProTec Plus 70	85°C
	ProTec Plus 90	85°C
	ProTec Plus 115	85°C

INSTALLATION

Clearances		
Min clearances for servicing (from casing)	Top	300mm
	Bottom	400mm
	Sides	10mm
	Front	500mm



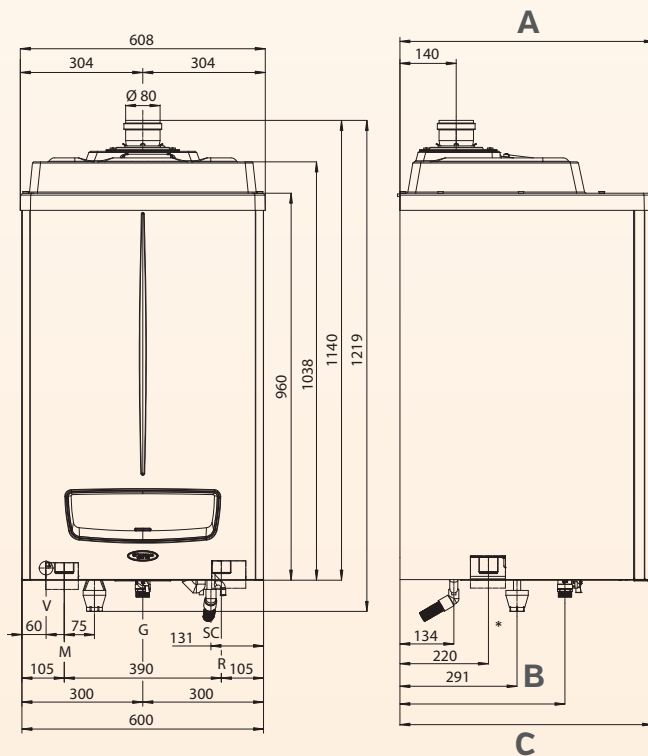
Boiler Dimensions



ALPHA PROTEC 50 MAIN DIMENSIONS AND CONNECTIONS

KEY

V	Electrical connection
G	Gas supply
SC	Condensate drain
M	System delivery
R	System return



ALPHA PROTEC 70/90/115 MAIN DIMENSIONS AND CONNECTIONS*

KEY

V	Electrical connection
G	Gas supply
SC	Condensate drain
M	System delivery
R	System return

KEY	70	90,115
A	502	632
B	265	410
C	497	627

Flueing and ventilation



The high output ProTec Plus range has been designed with siting flexibility in mind and is compatible with our open or concentric push-fit flue systems

The boilers are factory-fitted with a 'B23' type flue configuration, but can be changed to 'C' type by fitting the concentric flue adaptor.

B23 FLUE SYSTEM

80mm CD single pipe flue	Alpha part number
80mm CD horizontal terminal flue kit	6.2004200
80mm CD vertical terminal flue kit	6.2004220
80mm CD 1m flue extension	6.2004210
80mm CD flue bend 90°	6.2004290
80mm CD flue bend 45°	6.2004245
80mm flue support brackets pack 5	6.2004260
80mm flue sealing plates	6.2004270

CONCENTRIC FLUE SYSTEM

80mm CD concentric flue	Alpha part number
80/125mm CD concentric horizontal terminal flue kit	6.2003205
80/125mm CD concentric vertical terminal flue kit + adaptor	6.2003225
125mm flue sealing collar (white)	6.2003280
125mm flue sealing collar (black)	6.2003270
80/125mm CD concentric 1m flue extension	6.2003210
80/125mm CD concentric flue bend 90°	6.2003290
80/125mm CD concentric flue bend 45°	6.2003245
125mm flue support brackets pack 5	6.2003260

For information on cascade flueing see page 10 or for further help on flueing options call our Alpha technical helpline on 0844 871 8764.



Horizontal flue kit 80mm



Vertical flue 80mm



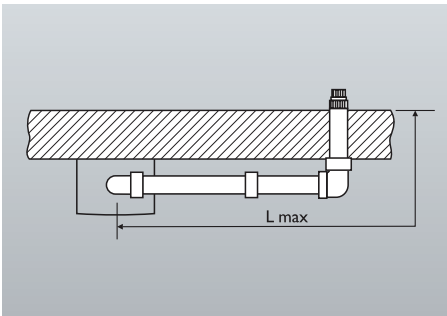
Horizontal flue kit concentric 80/125mm



MAXIMUM FLUE LENGTHS

Model	Single pipe flue				Concentric flue			
	50	70	90	115	50	70	90	115
Maximum length	30m	28m	14m	8.5m	14.5m	11m	8m	5m
90° bend is equivalent to				2.1m				1.9m
45° bend is equivalent to				1.3m				1.4m

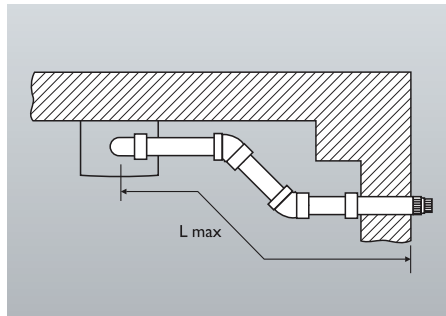
EXAMPLE BASED ON PROTEC 50



Open flue:
80mm dia. single pipe Lmax = 27.9m

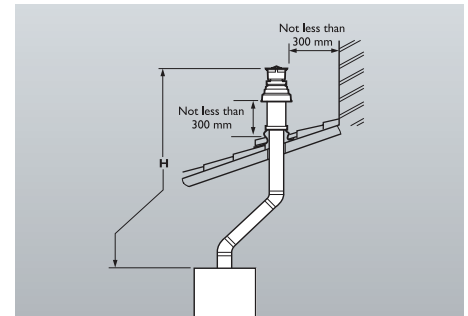
Concentric flue:
80/125mm dia. Lmax = 12.6m

Equivalent maximum flue lengths once bends are allowed for.



Open flue:
80mm dia. single pipe Lmax = 27.4m

Concentric flue:
80/125mm dia. Lmax = 11.7m



Open flue:
80mm dia. single pipe Hmax = 27.4m

Concentric flue:
80/125mm dia. Hmax = 11.7m

VENTILATION 50/70

Open flued (Type B23 flue)

Alpha ProTec Plus 50 and 70 boilers leave the factory with 'B23' type configuration [open chamber and forced draught - single flue pipe] and receive the air for combustion from openings in the rear of the boiler, therefore air supply for combustion and ventilation must be provided in accordance with BS 5440:2.

- If the boiler is installed in a room** - The room must have a permanent air vent either direct to the outside air or to an adjacent room, which itself has a permanent air vent to the outside air. The minimum effective air vent(s) required is:
Alpha ProTec Plus 50: 220 cm² Alpha ProTec Plus 70: 315 cm²
- If the boiler is installed in a cupboard or compartment** - Permanent air vents are required in the cupboard or compartment, one at high level and one at low level, either direct to the outside air or to a room. Both the high and low level air vents must communicate with the same room or must be on the same wall to outside air - in accordance with BS 5540.
- If cascaded** - It must be installed according to BS 6644.

Room sealed (Type C flue)

If the boilers are converted to a 'C' type configuration [sealed chamber and forced draught - concentric flue pipe], air is required for ventilation only.

- If the boiler is installed in a room** - No air vents are required in the room in which the boiler is installed; only air for room ventilation is required, not for combustion.
- If the boiler is installed in a cupboard or compartment** - Permanent air vents for ventilation are required in the cupboard or compartment, one at high level and one at low level, either direct to the outside air or to a room. Both the high and low level air vents must communicate with the same room or must be on the same wall to outside air. Both the high and low level vent must each have a free area as follows. The free area of each vent may be halved if the ventilation is provided directly from outside.
Alpha ProTec Plus 50: 510 cm² Alpha ProTec Plus 70: 700 cm²

The minimum clearances for servicing must always be maintained.

VENTILATION 90/115

Open flued (Type B23 flue)

Alpha ProTec Plus 90 and 115 boilers leave the factory with 'B23' type configuration [open chamber and forced draught - single flue pipe] and receive the air for combustion from openings in the rear of the boiler, therefore air supply for combustion and ventilation must be provided in accordance with BS6644.

Note: Where a boiler installation is to operate in summer months [e.g. DHW], additional ventilation requirements are required if operating more than 50% of the time [refer to BS 6644].

Room sealed (Type C flue)

If the boilers are converted to a 'C' type configuration [sealed chamber and forced draught - concentric flue pipe] only air for room ventilation is required, not for combustion. A minimum of 2 cm² free area per kW of net heat input at both high and low level is required for boiler rooms. For enclosures refer to BS 6644.

The minimum clearances for servicing must always be maintained.

The Cascade System

It is often necessary to add boilers to increase the overall output. It can also be preferable to spread the total heating output required over two or more boilers in a cascade system. Boilers can be mounted side-by-side or back-to-back.

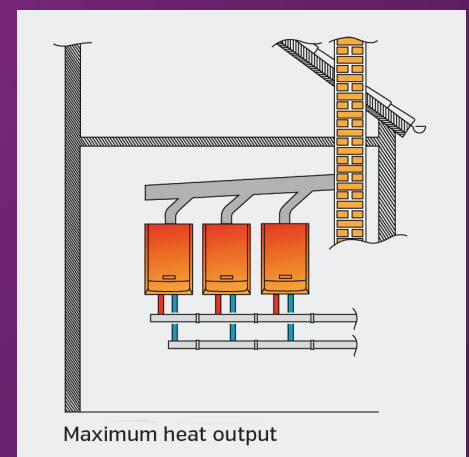
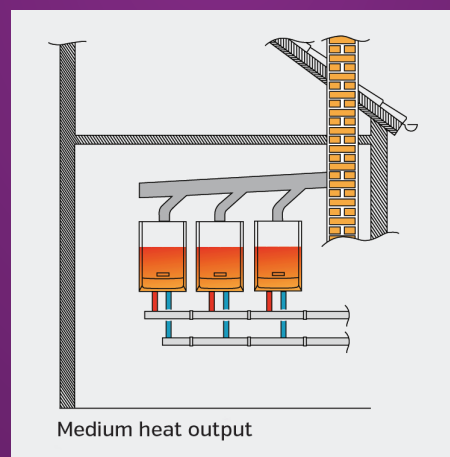
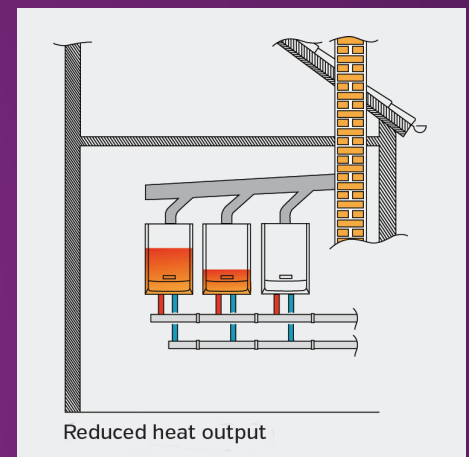
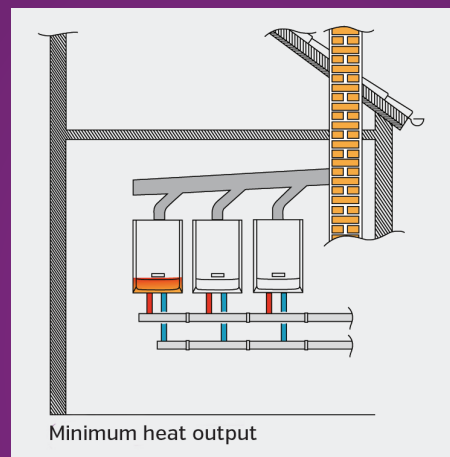
The individual boilers are connected hydraulically, something which can be easily achieved thanks to the availability of a comprehensive Alpha accessories range.

This includes a thermoregulation device which is capable of managing a maximum of eight boilers in sequence.

DISTRIBUTING THE HEAT OUTPUT ACROSS MORE THAN ONE UNIT BRINGS MANY KEY ADVANTAGES:

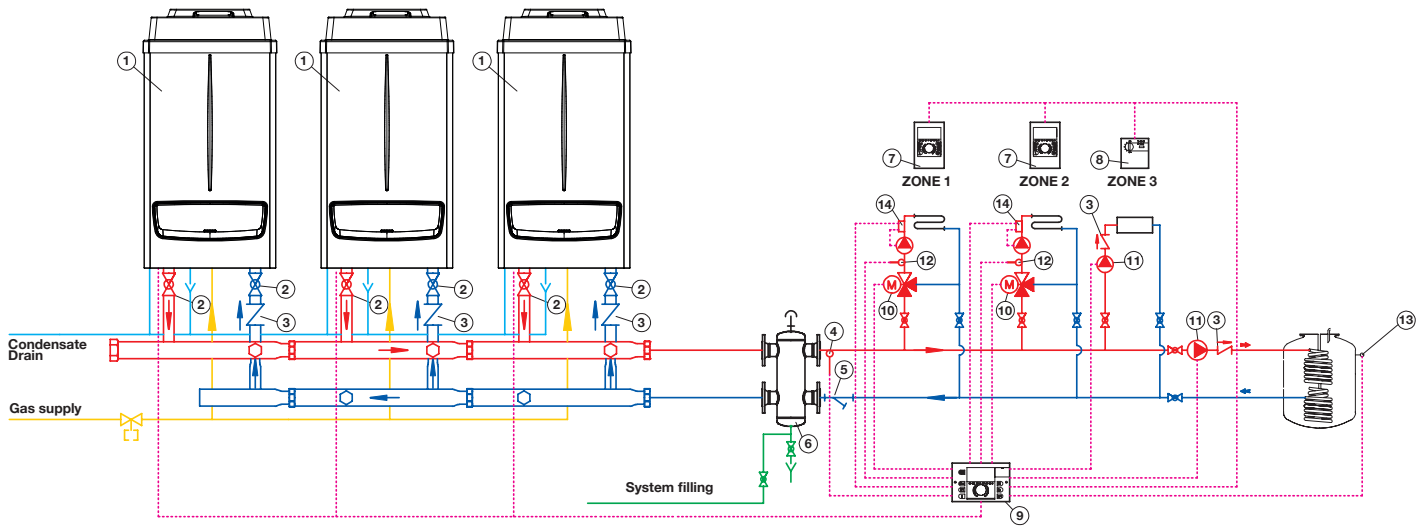
- Higher efficiency compared with the use of a single boiler of higher heat output, which will have to work under a reduced heating load for large periods of the heating cycle, with lower system efficiency.
- Multiple boiler cascade systems can be a very cost effective solution compared to single boiler installation.
- Multiple boiler applications are more reliable than a single stand alone boiler and can maintain the heating function even when maintenance on one of the connected appliances is required. Alpha ProTec Plus boilers are designed to be very easy to service with commonality of parts.
- Even distribution of the heating load on all the appliances, which avoids the premature deterioration of one lead boiler compared to the other.
- Cascade solutions offer a very flexible space saving alternative allowing the use of wall mounted boilers where the total required output may normally only be available from larger floor standing units.

EXAMPLE OF CASCADE FUNCTIONING





**CASCADE SYSTEM EXAMPLE:
MULTIPLE BOILER SUPPLYING TWO MIXED AND ONE DIRECT TEMPERATURE
HEATING ZONES AND STORAGE CYLINDER FOR DOMESTIC HOT WATER.**

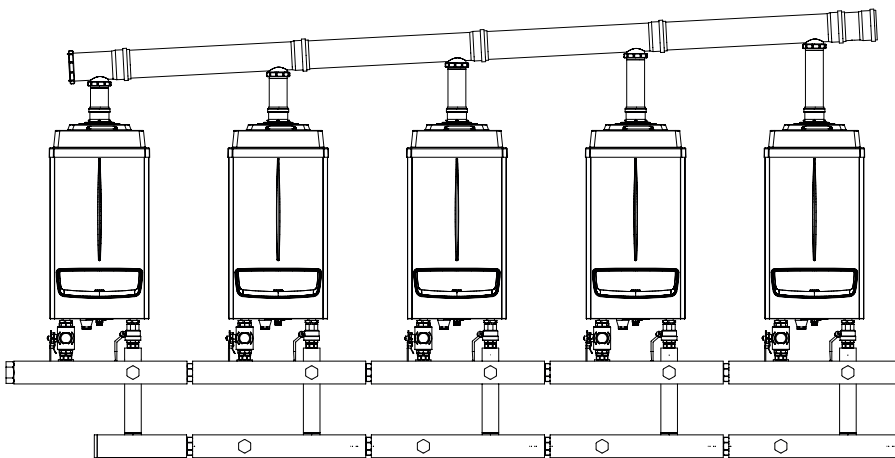


Cascade systems can vary in system design and the number and size of boilers used, with a maximum of 5 x ProTec Plus 115 boilers per Alpha manifold piping kit. This can be connected to the system via a low loss header unit as shown. Alternatively, a barrier heat exchanger can be used to separate the system water and the boiler circulation water; this will require fill, expansion and safety devices to each circuit.

Up to a maximum of eight boilers can be cascaded and controlled by the Alpha Cascade controller with a maximum of four zones.

KEY

1	Alpha boiler
2	Isolation valve
3	Non return valve
4	Flow temperature probe
5	Strainer
6	Low loss header
7	Zone manager
8	Modulating room thermostat
9	Cascade manager
10	Zone mixing valve
11	Circulation pump
12	Zone temperature probe
13	DHW cylinder probe
14	Zone safety thermostat



Accessories



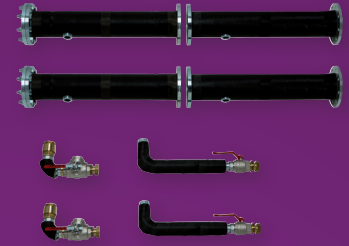
DESCRIPTION

3-Way valve kit to control heating and hot water from a single boiler
3.023950



DESCRIPTION

Hydraulic manifold kit 2 1/2" for 2 ProTec 50
3.023953



DESCRIPTION

Hydraulic manifold kit DN 100 for 2 ProTec 70/90/115
3.023959



DESCRIPTION

70 kW Barrier Heat Exchanger
6.3005070

100 kW Barrier Heat Exchanger
6.3005100

150 kW Barrier Heat Exchanger
6.3005150

200 kW Barrier Heat Exchanger
6.3005200

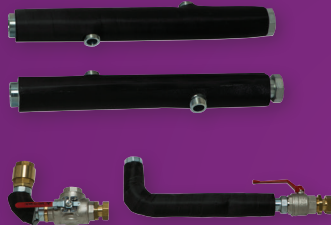
1" BSP Connections

4 x 1" BSP 28mm Solder connection tails for Barrier Heat Exchangers
3.021326

50/70 kW Barrier Insulation Jacket
7.2000017

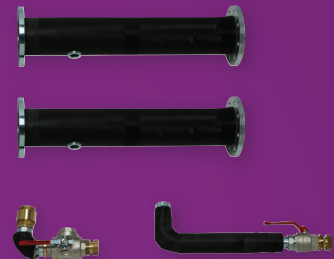
100/150 kW Barrier Insulation Jacket
7.2000018

200 kW Barrier Insulation Jacket
7.2000019



DESCRIPTION

Hydraulic manifold kit 2 1/2" for additional ProTec 50
3.023954



DESCRIPTION

Hydraulic manifold kit DN 100 for additional ProTec 70/90/115
3.023960



DESCRIPTION

Hydraulic manifold kit for ProTec 50
3.023951

Hydraulic manifold kit for ProTec 70/90/115
3.023952



DESCRIPTION

Free standing support frame kit
3.024246



DESCRIPTION

Low Loss Header Unit 12 litre mixing manifold [for 100kW] [4 x 2.5" BSP]

3.020839

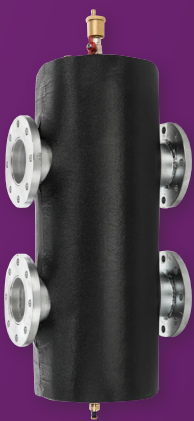
25 litre mixing manifold [for 200kW] [4 x 2.5" BSP]

3.021377

69 litre mixing manifold [for 400kW] [4 x 2.5" BSP - 2x DN65 Flange]

3.021378

All low loss Headers are pre-insulated and supplied with floor and wall mounted kits.



DESCRIPTION

Hydraulic separator for 350kW installations

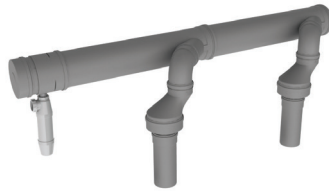
3.023962

Hydraulic separator for 600kW installations

3.023965



CASCADE FLUEING OPTIONS



DESCRIPTION

The basic kit is suitable for connection of two condensing boilers in a line set-up, taking the flue from 80mm to 150mm.

7.200005

200mm 7.200035



DESCRIPTION

One extension kit extends the line set-up with one appliance

150mm 7.200006

200mm 7.200036

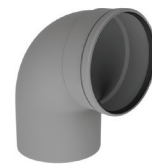


DESCRIPTION

Support elbow Ø 150mm

7.200007

200mm 7.200037



DESCRIPTION

90° flue elbow Ø 150mm

7.200008

200mm 7.200038



DESCRIPTION

45° flue elbow Ø 150mm

7.200009

200mm 7.200039



DESCRIPTION

1m Flue tube for connection on collector pipe up to chimney-top Ø 150mm

7.200010

200mm 7.200040



DESCRIPTION

Wall bracket Ø 150mm

7.200011

200mm 7.200041



DESCRIPTION

Roof terminal Ø 150mm

7.200012

200mm 7.200042

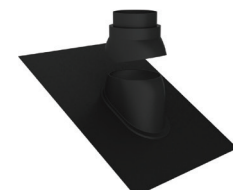


DESCRIPTION

Flat roof flashing kit Ø 150mm

7.200013

200mm 7.200043



DESCRIPTION

Pitched roof flashing kit Ø 150mm

7.200014

200mm 7.200044

Other cascade flueing parts are available. Contact us for further information.

Controls

All Alpha ProTec Plus boilers are provided with new generation electronics, offering the best performances thanks to their regulation flexibility.

In the case of cascade systems, it will be necessary to use a thermoregulation device able to manage the boilers and the system and display the information on the system, in order to meet the best varied operating requirements.

CASCADE MANAGER

The central unit of the thermoregulation system can control, monitor and program the operating sequence up to a maximum of 8 boilers in cascade. The manager controls the boiler's output adjusting it to the system requirements.

The manager can control up to 3 heating zones and a DHW circuit for a separate storage tank. It is also possible to install up to 5 manager's in parallel (of which only the master will be connected to the boilers) to control up to a maximum of 15 heating zones and 5 storage tanks for the domestic hot water production.

ZONE MANAGER

Connected to the cascade manager, it allows control of an individual heating zone from the remote zone manager.

This means that the previously set functioning parameters (turn on/off, temperatures, etc.) can be easily modified by the user, without having to operate the central manager.

SINGLE BOILER CONTROLLER

Can be used on a single boiler to control one heating zone and one DHW zone. It must be used with the Alpha 3-way valve kit.

MODULATING ROOM THERMOSTAT

Connected to the cascade manager, it allows the user to regulate the room temperature of individual zones.

EXTERNAL PROBE

Connected to the lead boiler, it optimises energy consumption, automatically adjusting the system delivery temperature to suit the outdoor temperature variations.

SYSTEM DELIVERY PROBE

Allows the cascade and zones manager to manage the system temperature.

SEPARATE STORAGE TANK PROBE

Allows the cascade manager to control the temperature of a separate storage tank in order to produce domestic hot water.



Cascade manager 3.015244



Zone manager 3.015264
Remote control for single boiler 3.020358



Modulating room thermostat 3.015245



Wallbox for Cascade Manager 3.015265



FEATURES

- Ideal for multi zone heating and hot water cylinders
- Many application possibilities, using purpose designed wiring circuits
- Flexibility with selectable inputs and outputs
- From stand alone to small networked system with two wire communication bus
- Factory set programming reduces setting during installation
- Two-wire communications bus for room units (remote operation)
- Clear illuminated display
- Push button and turn knobs with integrated switching function
- Symbol keys offer fast overview and easy access
- Factory preset basic settings
- User selection for easy access
- Engineering functions are accessible via an access code

Controllers are available with capability of controlling the heating boilers, a domestic hot water calorifier, direct constant temperature heating circuit, and up to two mixed circuits or mixed controlled low temperature underfloor heating circuits.

The cascade manager unit has a greater number of loops with inputs and outputs providing more flexibility.

A typical application for this would be two to five boilers, a domestic hot water calorifier with up to three zones on a weather compensated heating circuit.

Room control of individual heating circuits is also possible by incorporating a zone manager module or room thermostat for each circuit.

The load dependant boiler flow temperatures are monitored by the controllers and are determined by the demands of the downstream heating circuits and domestic hot water temperatures required.

All parameters as well as time programmes are preset with useful basic settings for each control circuit and permit individual parameter adjustment to suit the system and usage requirements.

The controllers can be set up during commissioning to incorporate a legionella prevention DHW temperature cycling function.

When using multiple boilers the cascade manager will spread the load across the boilers according to the demand with sequencing to optimize the running time of each boiler between service intervals.

HEAD OFFICE:

Nepicar House
London Road
Wrotham Heath
Kent
TN15 7RS

SCOTLAND:

Unit 8
Crest Business Centre
2 Glen Tye Road
Stirling
FK7 7LH

USEFUL NUMBERS:

General sales enquiries	0844 871 8760
Order/Delivery enquiries	0844 871 8761
Sales order fax	0844 871 8762
Sales order email	orders@alpha-innovation.co.uk
Training academy	0844 871 8763
Technical helpline	0844 871 8764

www.alpha-innovation.co.uk

