



ECOflo

Technical Specification Guide

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Andrews. Built to perform.

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For further information on the ECOflo and other Andrews Water Heater products, contact your Specification Manager today. Details can be found at andrewswaterheaters.co.uk

Welcome to Andrews Water Heaters

Andrews Water Heaters is the market leading manufacturer of commercial gas-fired water heaters. Established in 1976, Andrews has a comprehensive range, meaning we have the solution for any commercial and industrial application, however large or small.

Our water heaters are energy efficient and fully compliant with water byelaws and Part L of the Building Regulations.

With a specialist team, and a reputation for quality, reliability and high performance products, Andrews can provide hot water delivery to meet the requirements of the most demanding applications.

Six reasons it has to be Andrews



Britain's No.1

Established in 1976, Andrews is the leading supplier of gas-fired commercial water heaters in the UK.



Unrivalled design support

Technical data sheets, BIM and CAD files are available online, 24 hours a day, 365 days a year.



Market-leading expertise

As active members of CIBSE, SOPHE and ICOM, we are at the forefront of setting industry standards, keeping our customers one step ahead of changing legislation.



Expert technical advice

You can rely on our dedicated team every step of the way from planning and commissioning to servicing and maintenance. We offer on and off-site assistance, including expert advice on system design and hydraulic schematics.



Reliability you can trust

Our products are built to perform, even in the most demanding environments. We have a focus on innovation and our range is continually evolving to answer customer needs and exceed building regulations.



Exceptional aftersales service

You can trust in our continued support with commissioning visits and in-warranty service and repairs – and if you need expert engineer support, we're here for you round the clock with our 24/7 hotline.

Andrews is an Investors in People organisation. All of our systems and procedures meet the highest standards, including ISO 9001 (quality management) and ISO 14001 (environmental management).

Andrews. Built to perform.

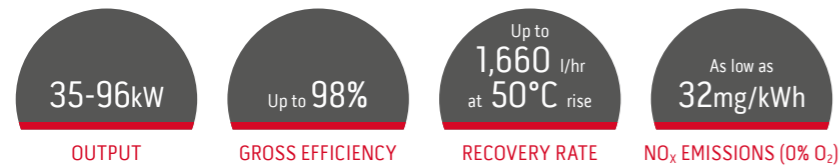
Introducing the ECOflo Condensing Water Heater

The ECOflo range of storage water heaters are fully condensing, offering excellent energy efficiency, low NO_x and exceptional hot water recovery rates.

The Vitraglas® with Microban® lined, thermally efficient tanks are protected by Correx® maintenance free, non-sacrificial anodes, and are equipped with a Hydrojet® sediment reduction system which enhances the performance and prolongs the life of the product.

ECOflo is suitable for installation on a conventional flue or a concentric balanced flue.

Technical specification



Features

Up to 98% gross efficiency

Recovery rates of up to 1,660 litres per hour

Vitraglas® with Microban® lined storage tank and maintenance free, factory fitted Correx® anodes

Factory installed Hydrojet® sediment reduction system

Two storage capacities available

Room-sealed balanced or conventional flue

Triple pass flue system (unique)

Ultra-quiet operation

Electronic controls

Factory installed Correx® powered anode system

Large inspection opening

Vitraglas® with Microban® antimicrobial product protection

Benefits

For energy efficient, cost effective operation

Can satisfy the most demanding applications

Offering protection to the steel storage tank

Gives a longer and more efficient working life

Increased siting flexibility – larger storage option for peak demand

Ease of installation

Increased efficiency

Increased comfort

Ease of use and maintenance

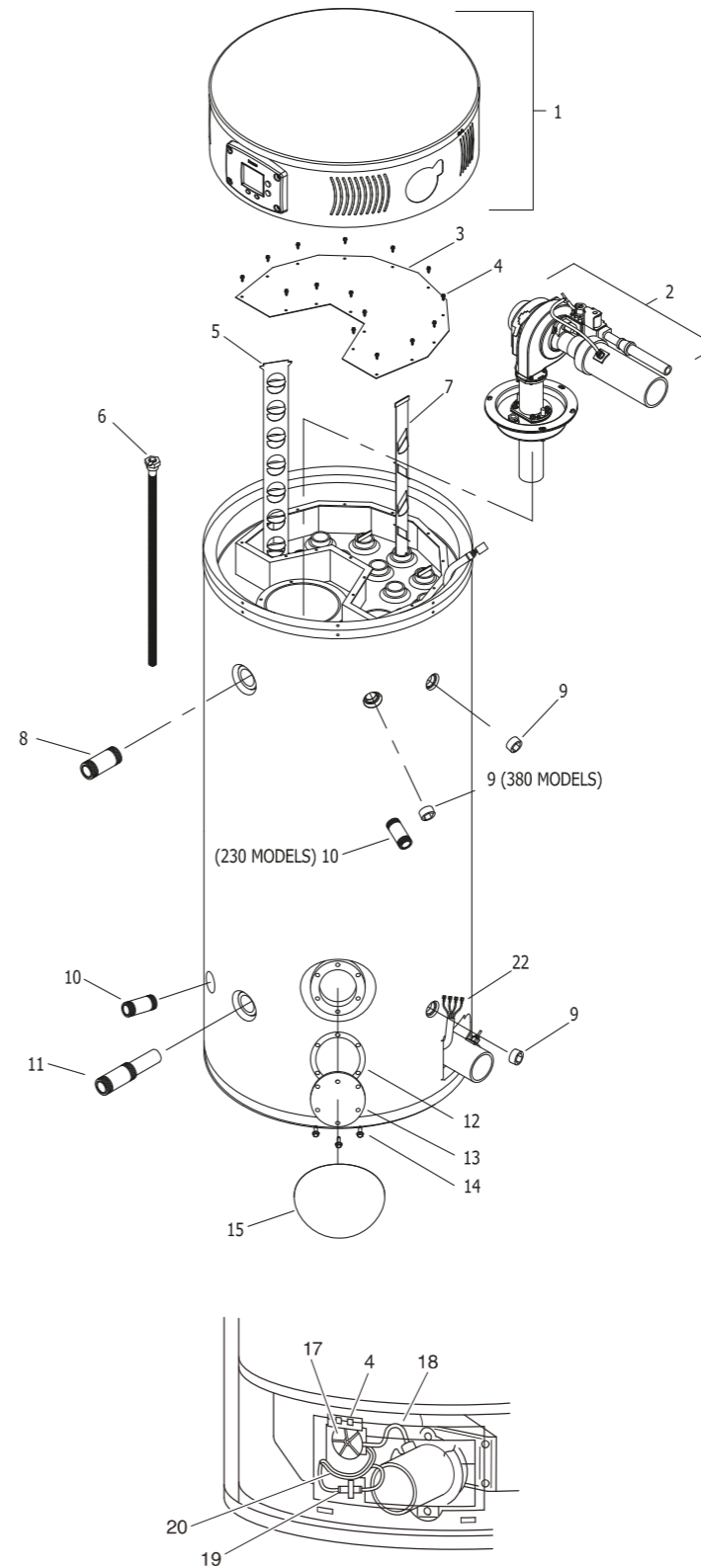
Maintenance free

Easy inspection and cleaning

Prevents growth of bacteria, mould and mildew on the surface of the tank lining

Microban® antimicrobial product protection helps prevent the growth of bacteria, mould and mildew that may affect the product. The built-in antimicrobial properties do not protect users or others from disease-causing organisms. Microban® is a registered trademark of Microban Products Company.

Water Heater Construction



- 1 Combustion Surround Assembly
- 2 Combustion System Assembly
- 3 Collector Cover Second Pass
- 4 Screw-Second Pass Collector Cover
- 5 Baffle - 2 x 4"
- 6 Correx® Anode Rod
- 7 Baffle - 8 x 2"
- 8 Hot Outlet Nipple (Front)
- 9 Nipple
- 10 Plug or Nipple (Dependent on model)
- 11 Nipple
- 12 Inlet Tube Hydrojet (Front connect)
- 13 Inspection Clean-out Gasket
- 14 Inspection Clean-out Cover
- 15 Screws
- 16 Inspection Clean-out Access Cover
- 17 Exhaust Pressure Switch
- 18 Silicone Tubing
- 19 Re-settable Limit Switch
- 20 Hi-Limit & P.S Harness

Technical Information

		Model								
		EC230/600	EC230/700	EC230/960	EC380/740	EC380/980	EC380/1220	EC380/1400	EC96/380	
Product Code		A441	A442	A443	A444	A445	A446	A447	7763224	
Energy	Heat Input (Gross)	kW	36.6	43.9	8.3	43.9	58.3	73.2	85	102.6
	Heat Output (Gross)	kW	35.1	41.3	54.2	43	57.1	71	79.1	96.4
	Gross Thermal Efficiency	%	96%	94%	93%	98%	98%	97%	93%	94%
	Standby Heat Loss	kWh/day	0.0012	0.0013	0.00135	0.00094	0.00098	0.00115	0.00122	0.00128
ErP	NO _x Emissions (0% O ₂)	mg/kWh	33	37	40	32	40	40	55	40
	NO _x Emissions (0% O ₂)	ppm	25	25	25	25	25	25	25	25
	ErP Efficiency Rating	Class	A	A	A	A	A	A	A	A
	Water Heater Efficiency	%	92	89	88	95	100	89	91	94
	Noise Level	dBA	52	56	55	53	62	62	62	61
Water	Storage Capacity	litre	230	230	230	380	380	380	380	380
	Recovery Rate Through 50°C Δt	litre/hr	600	700	960	740	980	1220	1400	1660
	Recovery Rate Through 56°C Δt	litre/hr	537	632	830	658	874	1087	1211	1482
	Operating Pressure (Unvented)	bar	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
	Maximum Operating Pressure (Unvented)	bar	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
	Minimum Working Pressure	bar	1	1	1	1	1	1	1	1
	Maximum Pressure	bar	10	10	10	10	10	10	10	10
	Maximum Outlet Temperature	°C	80	80	80	80	80	80	80	80
Flue	Maximum Flue Gas Volume	m ³ /hr	40	49	63	49	63	75	86	128
	Maximum Flue Gas Temperature	°C	60	60	60	60	60	60	60	60
	Flue Diameter – Conventional Flue	mm	100	100	100	100	100	100	100	100
	Flue Diameter – Concentric Flue	mm	100/150	100/150	100/150	100/150	100/150	100/150	100/150	100/150
	Maximum flue run (concentric)	m	16	16	16	16	16	16	16	16
	Maximum flue run (conventional)	m	32	32	32	32	32	32	32	32
Electrical	Fuse Rating	Amp	5	5	5	5	5	5	5	5
	Electrical Power Consumption	W	120	120	120	120	210	210	210	210
	Electrical Requirements	V	230V/50HZ	230V/50HZ	230V/50HZ	230V/50HZ	230V/50HZ	230V/50HZ	230V/50HZ	230V/50HZ
Water Heater Weights	Weight – Full	kg	455	455	455	765	765	765	765	788
	Weight – Empty	kg	225	225	225	385	385	385	385	408
Shipping Dimensions	Shipping Width	mm	819	819	819	819	819	819	819	819
	Shipping Depth	mm	889	889	889	889	889	889	889	889
	Shipping Height	mm	1664	1664	1664	2197	2197	2197	2197	2197
	Shipping Weight	kg	259	259	259	408	408	408	408	430
Service Clearances	Front	mm	800	800	800	800	800	800	800	800
	Right Side	mm	500	500	500	500	500	500	500	500
	Left Side	mm	100	100	100	100	100	100	100	100
	Rear	mm	100	100	100	100	100	100	100	100
	Above	mm	450	450	450	450	450	450	450	450

ECOflo Suggested Engineer Specification

Construction

The ECOflo is a high efficiency condensing floor standing storage water heater. The internal surface of the steel storage tank shall be lined with a Vitraglass® silica enamel coating to provide protection against the corrosive effect of water. The water heater shall be ErP compliant and ultra-low NO_x.

It shall have a downward firing burner located at the top of the water heater within a submerged combustion chamber.

The water heater shall have a vertical triple pass heat exchanger to facilitate the maximum transfer of heat from the products of combustion into the water. This heat exchanger shall comprise a single first pass 8" diameter tube, two second pass 4" diameter tubes and eight third pass 2" diameter tubes.

The second and third pass heat exchanger tubes shall incorporate stainless-steel baffles to help slow the products of combustion and create turbulence, increasing the rate of heat transfer into the water tank, improving efficiency and reducing the flue gas outlet temperature.

The 8 number flue tubes within the third pass heat exchanger shall be lined with a Vitraglass® silica enamel coating on the combustion side to provide protection against the corrosive effects of flue condense.

After the final pass the combustion gases enter an exhaust collector sited at the base of the water heater and shall exhaust into a 100mm flue outlet spigot.

The unit shall incorporate a clean out opening on its side and towards its base to facilitate and aide inspection and servicing and have factory fitted dielectric DZR brass fittings for extended water heater life. The unit shall have a 1" non CFC foam insulation and a painted steel outer jacket.

Gas and connections

The water heater shall be designed for boosted, direct mains and open vented water systems and shall be suitable for operating on systems up to a maximum pressure of 10.3 bar.

The cold water inlet and hot water outlet connections shall be 1 1/2" BSP and be located on the side of the water heater. The cold water inlet connection shall incorporate a factory fitted Hydrojet® sediment reduction system.

Additional protection shall be provided by the factory fitted Correx® non-sacrificial powered anode, providing protection against the effects of electrolytic action.

The water heaters shall have a 3/4" BSP gas connection (1" BSP for model EC96/380) and be suitable for Natural Gas or LPG*.

The water heater shall be suitable for use with either conventional flue or concentric room sealed balanced flue systems.

ECOflo shall be sited on a plinth a minimum 150mm above finished floor level in order to accommodate the flue condense trap.

*LPG via Conversion Kit

Operation

ECOflo shall have a downward firing premix burner with stainless-steel mesh outside knit and self-compensating negative pressure pre mix combustion. The burner shall be located at the top of the water heater within a submerged combustion chamber.

When demand for heat is enabled air and gas will be mixed within the burner fan and forced into the burner where ignition occurs. The flame sensor signals to the ignition module that a flame is present.

The combustion gases shall pass through the heat exchanger via a series of flue tubes. At the bottom of the tank a refractory lined plenum chamber redirects the flue gasses from the first pass tube into the second pass tubes, and up towards the top of the tank where the flue gasses are redirected via a plenum chamber, down the third pass tubes to the bottom of the tank. After the final pass the combustion gases enter a stainless-steel exhaust collector where the flue gases condensate and exit through a 100mm pipe for connection onto the flue system.

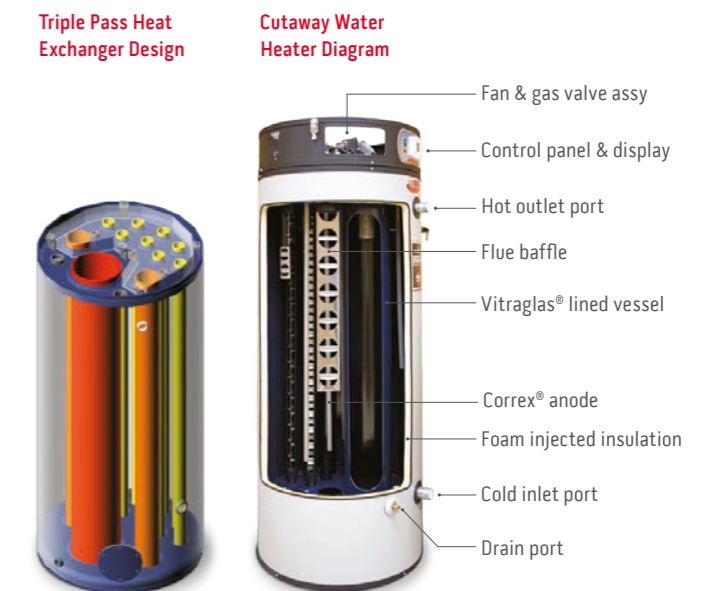
Controls

The water heater shall have the ability to be connected to an external BMS enable via a volt free connection and provides a volt free contact for remote fault indication. ECOflo requires a 230V single phase electrical supply and a fuse rating of 5 Amps.

The water heater shall have an adjustable electronic thermostat between 27°C and 82°C and automatic Energy Cut Off device (manually resettable) isolating the gas supply to the burner and pilot if the water temperature exceeds 93°C (EC96/380 via Mechanical thermostat).

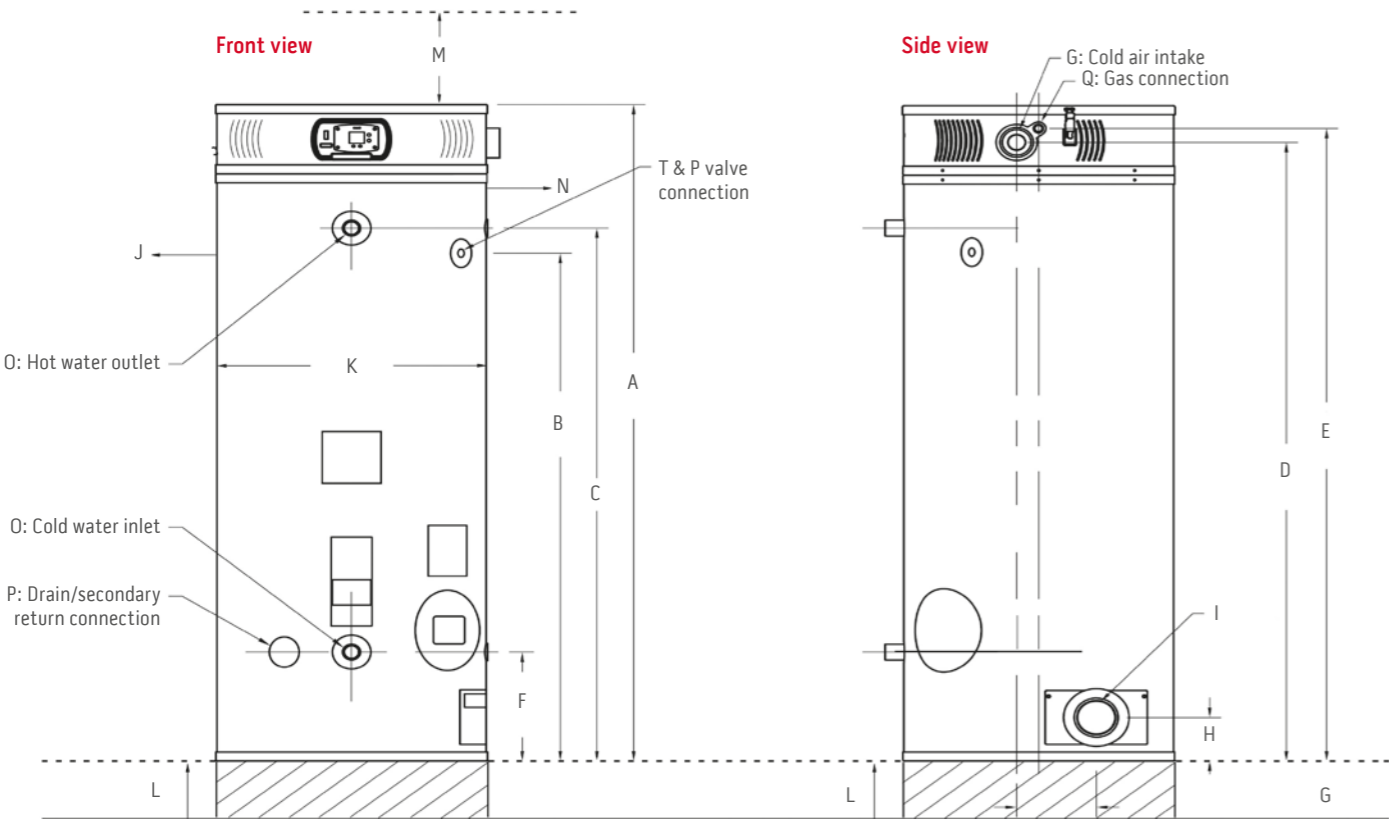
ECOflo shall have a direct spark ignition system for improved operation and durability (hot surface ignition control for model EC96/380).

ECOflo shall be CE, GAR and Regulation 4 approved.



Dimensions and Connections

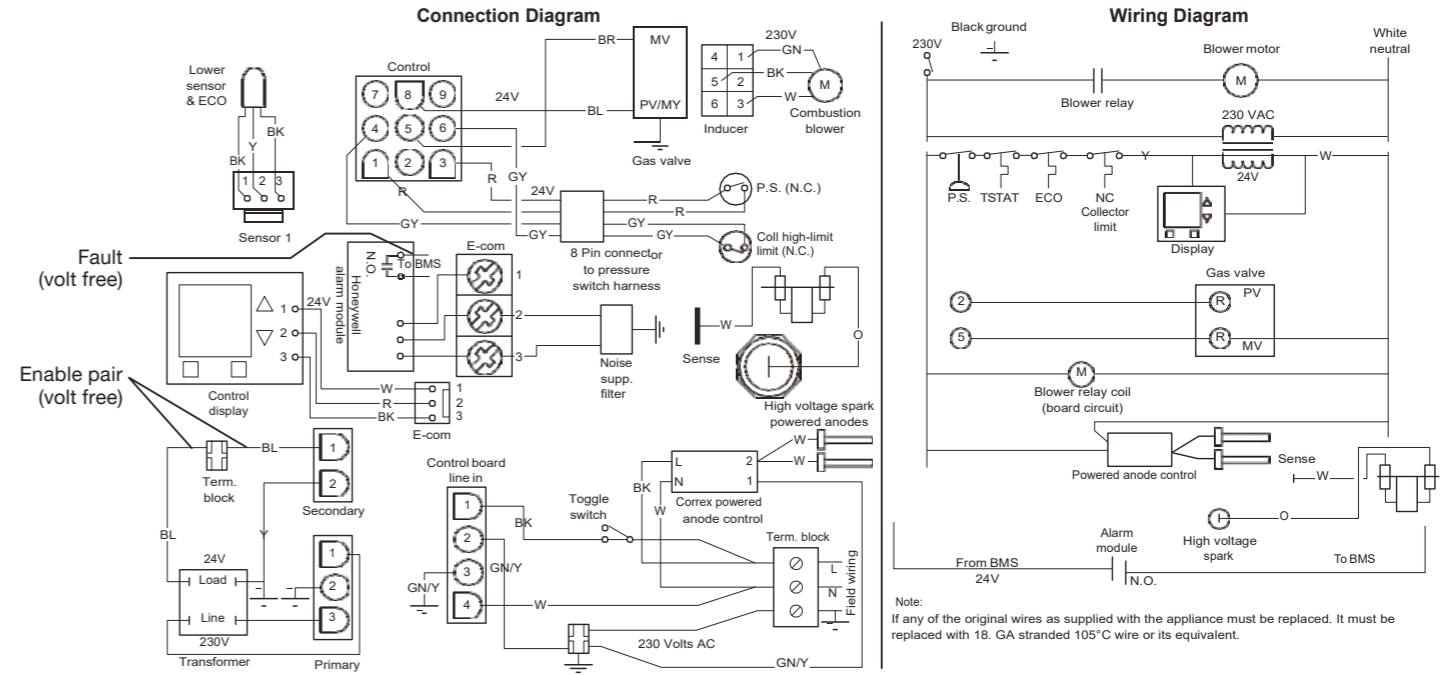
	Model								
		EC230/600	EC230/700	EC230/960	EC380/740	EC380/980	EC380/1220	EC380/1400	EC96/380
A: Top of unit	mm	1,448	1,448	1,448	1,972	1,972	1,972	1,972	1,972
B: T&P connection valve	mm	1,016	1,016	1,016	1,527	1,527	1,527	1,527	1,527
C: Hot water outlet	mm	1,080	1,080	1,080	1,588	1,588	1,588	1,588	1,588
D: Centre of air intake	mm	1,334	1,334	1,334	1,857	1,857	1,857	1,857	1,857
E: Height of gas connection	mm	1,359	1,359	1,359	1,899	1,899	1,899	1,899	1,899
F: Cold water inlet	mm	327	327	327	327	327	327	327	327
G: Air inlet to flue exhaust outlet	mm	210	210	210	210	210	210	210	210
H: Flue exhaust outlet (from top of plinth)	mm	130	130	130	130	130	130	130	130
I: Flue diameter	mm	100/150	100/150	100/150	100/150	100/150	100/150	100/150	100/150
J: Left and rear clearance	mm	100	100	100	100	100	100	100	100
K: Diameter	mm	718	718	718	718	718	718	718	718
L: Plinth	mm	150	150	150	150	150	150	150	150
M: Top service clearance	mm	450	450	450	450	450	450	450	450
N: Right side clearance	mm	500	500	500	500	500	500	500	500
O: Hot and cold water connection	inch	1½	1½	1½	1½	1½	1½	1½	1½
P: Secondary return connection	inch	1	1	1	1	1	1	1	1
Q: Gas connection diameter	BSP	¾	¾	¾	¾	¾	¾	¾	1



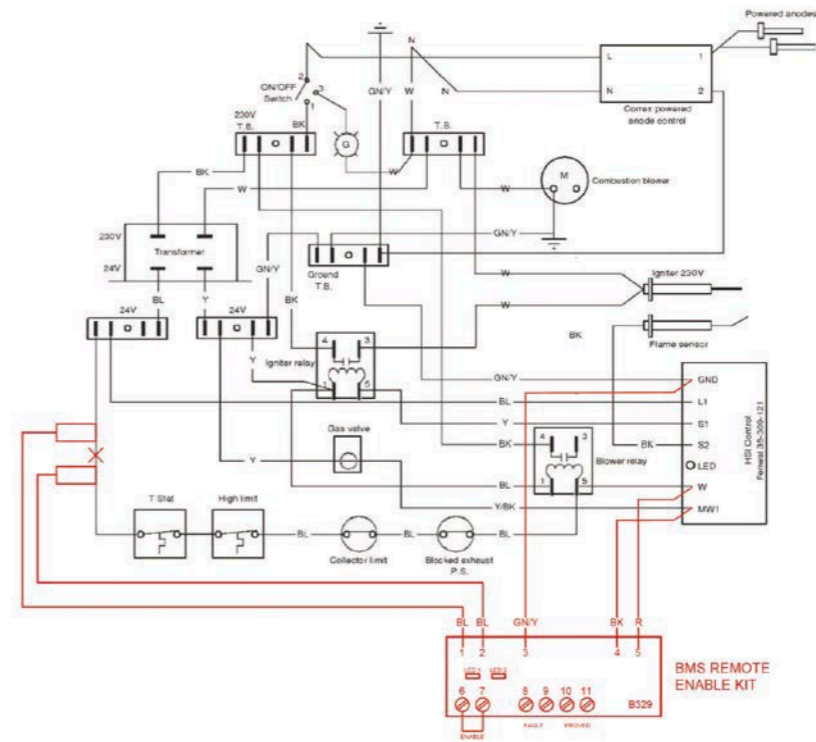
NB: Heights are given from the bottom of the heater and exclude a plinth. ECOflo must be sited 150mm above finished floor level in order to fit the flue condensate trap. Andrews Water Heaters can supply a suitable fabricated plinth (Sales Code E923).

Wiring Information

Wiring diagram for ECOflo (excluding 96/380)



Wiring diagram for ECOflo 96/380



If remote enable function is required for model EC96/380, please specify BMS Remote Enable Kit (part number B329). Functionality is inbuilt with all other models.

Complete Unvented System Kit

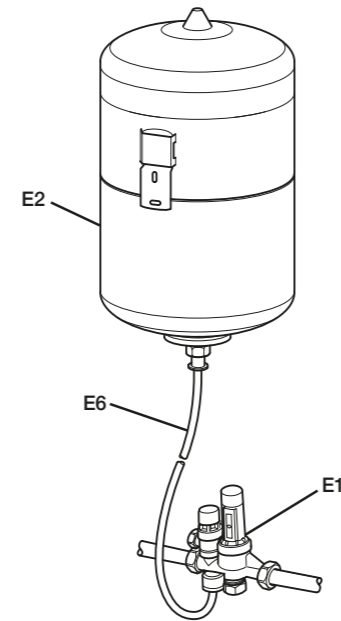
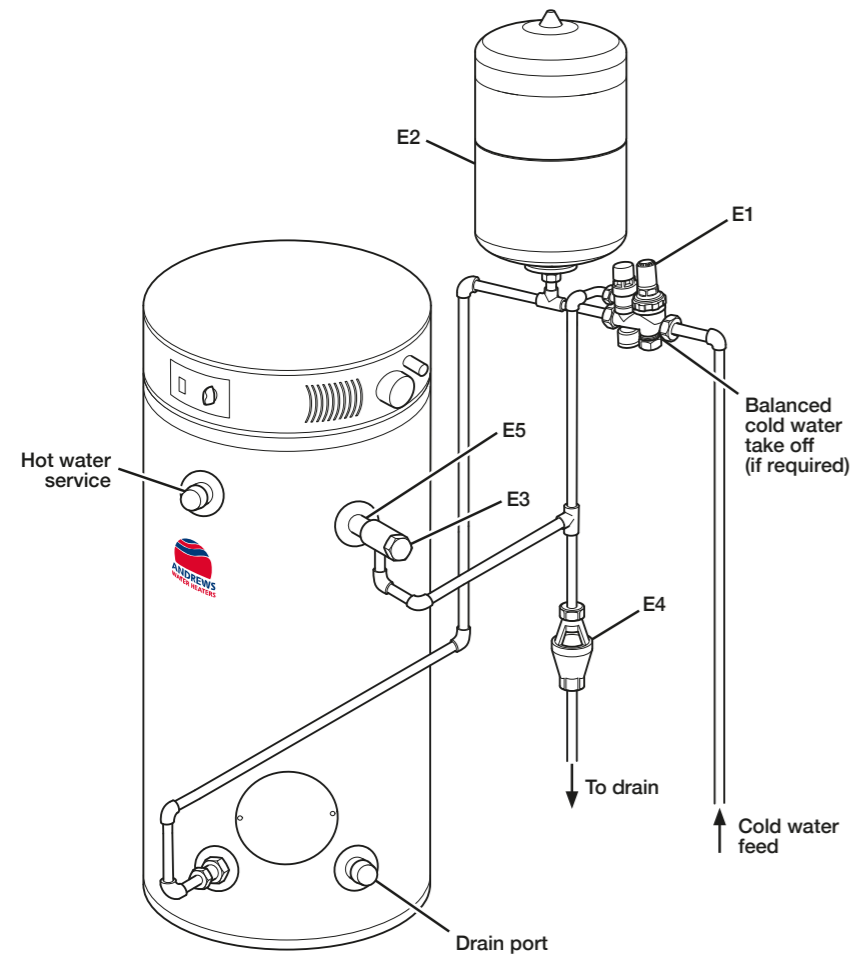


Diagram showing the recommended set up for an unvented system with the ECOflo and using unvented system kit on part numbers 7703930 and 7775743 with components listed.

Accessories

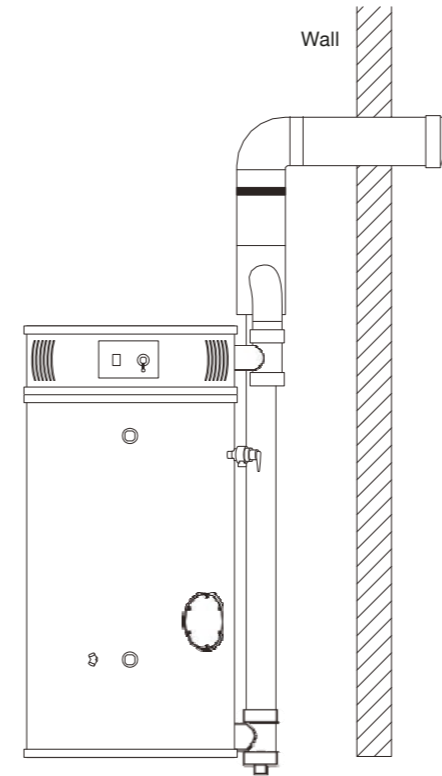
Sales Code

Complete Unvented System Kit	7703930 / 7775743
E1 One-piece Inlet Control (pressure reducing valve 3.5 bar, check valve, pressure relief valve 6 bar) 28mm comp	
E2 Expansion Vessel (24 litre) c/w bracket ¾" BSP	
E3 Temperature/Pressure Relief Valve 7 bar/95°C 1" BSP	
E4 Tundish 1"-1¼" BSP	
E5 T/P Brass Valve Adaptor 1"	
E6 Hose Assembly ¾" BSP	

Typical Flue Installation

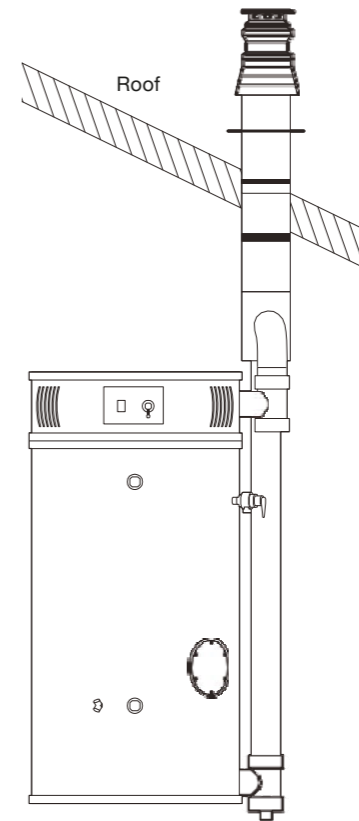
Concentric balanced flue

This will be horizontal termination

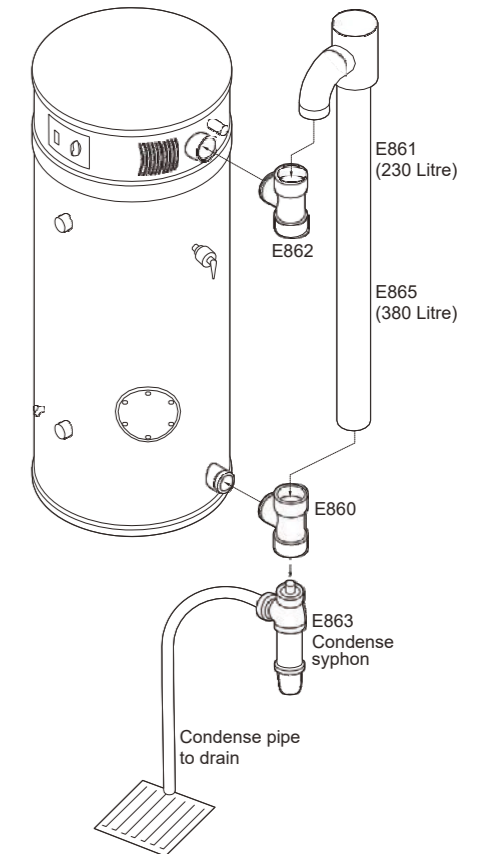


Concentric balanced flue

This will be vertical termination



Water heater flue connections



The route of the flue is critical when planning the horizontal runs, potential condense traps must be avoided. When calculating maximum flue runs, a reduction must be made of 1.2 metre run per 90° elbow and 0.7 metre run per 45° elbow. The maximum equivalent flue runs are 16 metres for concentric flues and 32 metres for conventional.

The siting of the flue terminal is critical with respect to the performance of the water heater. Areas where the discharge of products of combustion would cause a nuisance should be avoided.

Flueing

	230L models	380L models
	Sales Code	Sales Code
Horizontal flue kit	B342	B343
Vertical flue kit	B344	B345
1 metre cuttable flue	5136159	5136159
0.5 metre flue	5136160	5136160
90° bend	5136162	5136162
45° bend	5136161	5136161
Flat roof plate	E207	E207
Angled roof plate	E208	E208
Wall clamp	5136163	5136163
Flue condensate trap	E210	E210
Siphon	E211	E211
Wall terminal guard	E105	E105

Accessories

Description	Sales Code
Plinth (150mm, required for all ECOflo models*)	E923
Unvented system kit	7703930 / 7775743
LPG conversion kit for EC230/600	7697588
LPG conversion kit for EC230/700	7697589
LPG conversion kit for EC230/960	7697590
LPG conversion kit for EC380/740	7697591
LPG conversion kit for EC380/980	7697592
LPG conversion kit for EC380/1220	7697593
LPG conversion kit for EC380/1400	7697594
LPG conversion kit for EC96/380	7763225
BMS remote enable kit for EC96/380**	B329

*The ECOflo range must be sited 150mm above finished floor level in order to fit the condense trap. Andrews Water Heaters can supply a suitable fabricated plinth.

**This kit is only for ECOflo E96/380 and provides a remote interface to on/off (enable) and four fault contact points for connection into building management systems or other remote control systems.

An additional enable kit is not needed with the other ECOflo models. The wiring diagrams on page 9 show the volt free and enable contacts locations available on those water heaters.

Technical Support and Declaration of Compliance

From brochures to CAD drawings and BIM files, you can access all the information you need at andrewswaterheaters.co.uk. Contact our Specification and Area sales manager on 0345 070 1057

We can provide you with:

- Brochures
- Technical sheets
- Case studies
- Installation manuals
- CAD and BIM files
- Size-it – sizeit.co.uk
- Energy-related products directive data
- Commissioning
- Technical information
- Free training courses and CPDs, available at andrewswaterheaters.co.uk/training
- 24/7 Out of Hours Engineer Support

**24/7 OUT-OF-HOURS
ENGINEER SUPPORT**
In an emergency, we offer
technical advice*
0345 070 1058

*Andrews Water Heaters come with a 24 month parts and labour warranty from date of commissioning if commissioned by Andrews Water Heaters (a 12 month warranty if not commissioned by Andrews Water Heaters).

The water heater must be installed in accordance with the following regulations:

BS 5440: Installation of flues and ventilation for gas appliances of rated output not exceeding 60kW.

Part 1: Specification for installation of flues.

Part 2: Specification for installation of ventilation for gas appliances.

BS 5546: Installation of gas hot water supplies for domestic purposes.

BS 6891: Installation of low pressure gas pipework of up to 35mm in domestic premises.

BS EN 806 (Parts 1 – 5): Specifications for installations inside buildings conveying water for human consumption.

BS 6644: Installation of gas-fired water boilers of rated inputs between 70kW and 1.8MW.

BS EN 12897 Water Supply: Specification for indirectly heated unvented (closed) storage water heaters.

IGE/UP/1A,1B: Strength/tightness testing and direct purging.

IGE/UP/2: Installation pipework.

IGE/UP/10 – 1 (Edition 4): Installation of gas appliances in industrial and commercial premises.

BS 8558: Guide to the design, installation, testing and maintenance of services supplying water for domestic use within buildings and their curtilages. Complementary guidance to BS EN 806.

HSE L8: Control of legionella bacteria in water systems.

HSG247 – Part 2: The control of legionella bacteria in hot and cold water systems.

Building Regulations Part G: Sanitation, hot water safety and water efficiency.

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Andrews Water Heaters Range Overview

Condensing



MAXXflo EVO

Delivers superior flow outputs and low NO_x for a class-leading performance, and is future-proofed with advanced BMS connectivity.

Available in 30-120kW outputs.



SUPAflo EVO

Produces a continuous supply of hot water and is designed for high demand environments that need high volumes of instant hot water.

Available in 142-539kW outputs.



ECOflo

Fully-condensing direct-fired efficient water heater suitable for large commercial properties where there's a high demand for hot water.

Available in 35-96kW outputs.



ECOflo COMPACT

High efficiency condensing floor-standing storage water heater designed to meet your toughest installation challenges and hot water demands.

Available in 20kW outputs.



COMBiflo

A range of condensing stainless-steel water heaters. With space heating capability, it produces both hot water and heating from a single heat generator and storage vessel enclosed in one cabinet.

Available in 100-150kW outputs.



FASTflo PLUS

Wall-hung condensing instant water heater. It's very easy to install with only three simple connections to fit.

Available in 56kW outputs.

Non-condensing



Hiflo EVO

High efficiency floor-standing storage water heater designed for bigger applications that require larger quantities of hot water.

Available in 30-65kW outputs.



CLASSICflo

Standalone gas-fired water heater that can be installed on vented or unvented systems. It's quick and easy to install, particularly as a replacement for existing water heaters.

Available in 10-20kW outputs.



CLASSICflo FAN FLUED

Has the addition of a fan assisted flue, making them the perfect choice for installations where longer flue runs are required.

Available in 13-18kW outputs.



CLASSICflo BALANCED

Offers all the advantages of the CLASSICflo but with the additional benefit of a balanced flue. The concentric flue system draws air from outside the building, making it suitable for properties where the air might be contaminated.

Available in 9kW outputs.



FASTflo

High efficiency, direct gas-fired, wall-hung continuous flow water heater, offering a very flexible, reliable and robust solution for where a continuous flow of hot water is required.

Available in 49kW outputs.



Cylinders and Buffers

For our full range of cylinders and buffers contact our Area Sales Managers or visit our website andrewswaterheaters.co.uk



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Sales 0345 070 1055

Technical 0345 070 1057

Web andrewswaterheaters.co.uk

 [linkedin.com/company/andrews-water-heaters](https://www.linkedin.com/company/andrews-water-heaters)

 @AndrewsWH

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Andrews. Built to perform.

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HEATRAESADIA

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Residential and
commercial heating
and hot water solutions