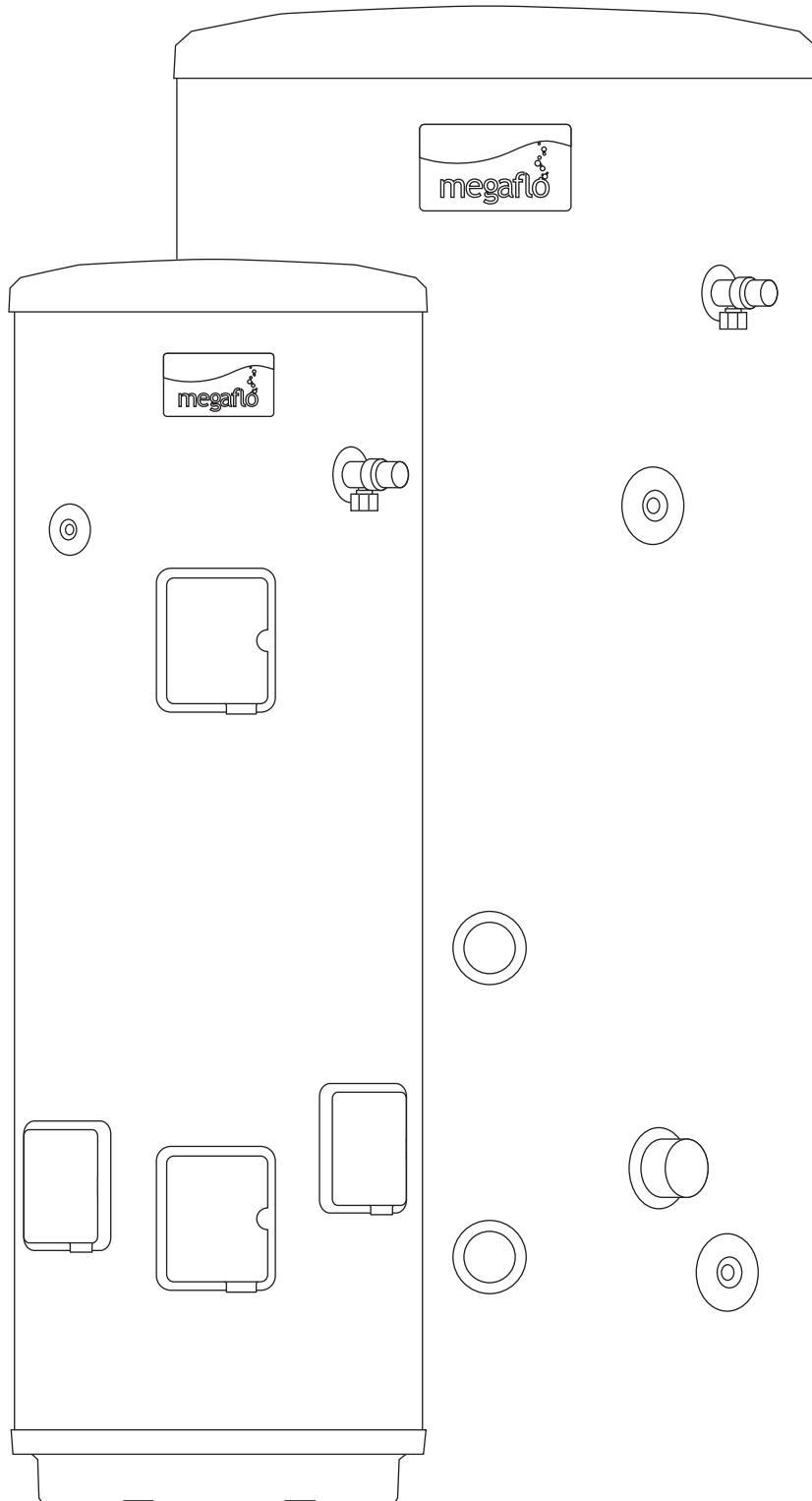




MEGAFLO **Eco Plus**  
Technical data



FOR THE ULTIMATE IN HOT WATER PERFORMANCE AND COMFORT





# MEGAFLO **Eco Plus**

## Technical data

### COMPONENTS

THE FOLLOWING COMPONENTS ARE SUPPLIED AS STANDARD WITH MEGAFLO **Eco Plus**

FACTORY FITTED IMMERSION HEATER(S) AND THERMAL CONTROLS

DIRECT - 4 x 3kW

INDIRECT - 1 x 3kW

LONG-LIFE TITANIUM AND SUPERLOY ELEMENTS DEPENDANT ON MODEL

COLD WATER INLET CONTROL KIT COMPRISING OF:

0.35 MPa (3.5 bar) PRESSURE REDUCING VALVE

0.8 MPa (8 bar) PRESSURE RELIEF VALVE (BS EN 1567, BS EN1491, EN 13959)

¼ TURN ISOLATING VALVE

LINE STRAINER

NON-RETURN VALVE

FACTORY FITTED TEMPERATURE AND PRESSURE RELIEF VALVE SET AT 90°C / 1 MPa (10 bar)  
(BS EN 1490)

22/28mm TUNDISH

ADDITIONAL THERMOSTAT AND THERMAL CUT OUT (INDIRECT MODELS ONLY)

DRAIN VALVE

WIRING CENTRE (INDIRECT MODELS ONLY)

28mm 2 PORT MOTORISED VALVE – (INDIRECT MODELS ONLY)

EXPANSION VESSEL INCLUDING BRACKET





# MEGAFLO Eco Plus

## Technical data

### TECHNICAL SPECIFICATION

Maximum supply pressure to incoming mains cold water combination valve (supplied)	1.6 MPa (16 bar)
Minimum recommended supply pressure and flow rate	0.15 MPa (1.5 bar) – 50 litres per minute
Operating pressure	0.35 MPa (3.5 bar)
Inner water container	High grade Duplex stainless steel
Thermal insulation	CFC/HCFC free, fire retardant expanded polyurethane foam with zero ozone depletion Global warming potential (GWP) = 3.1 Nominal thickness: 250/300 units – 60mm 400/500/570 units – 100mm
Pressure relief valve	0.8 MPa (8 bar)
Immersion heater rating (AC supply only)	3kW @ 240V 2.8kW @ 230V
Primary coil hydraulic resistance @ 15 l/min	0.0002 MPa (0.002 bar)
Connections	28mm male connections 250L & 300L 1" BSP female connections 400L, 500L & 570L Secondary return ½" female connection 250L & 300L Secondary return 1" female connection 400L, 500L & 570L 0.8mm internal diameter – 292mm length sensor pocket connection 400L, 500L & 570L

The unit must be fitted by a suitably qualified installer in accordance with current building regulations. Please contact your local Building Control Body for further advice.

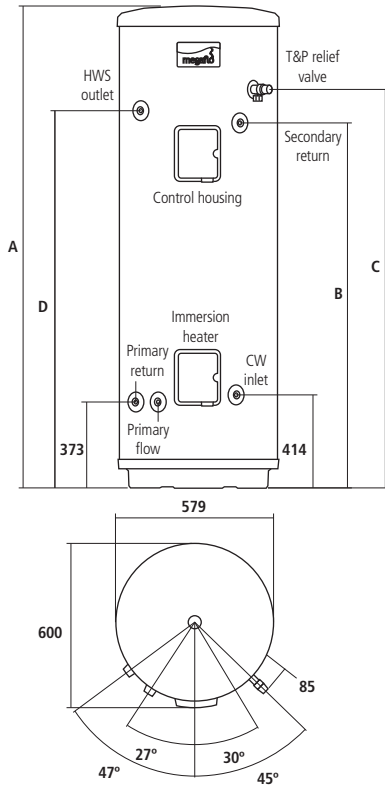




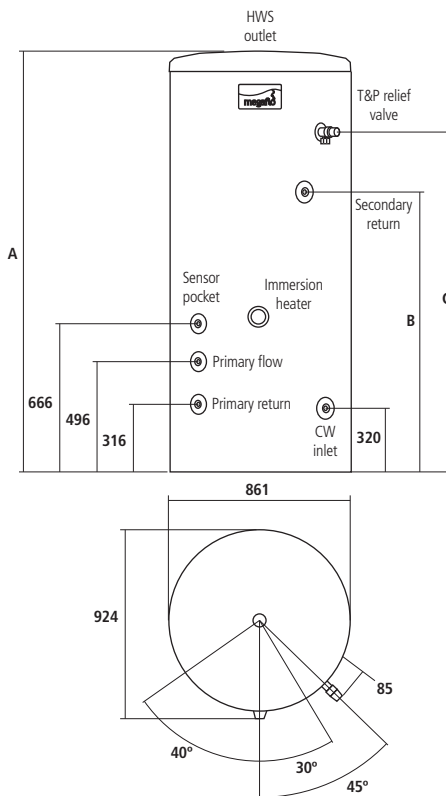
# MEGAFLO Eco Plus

## Indirect models

### 250 i EP AND 300 i EP MODELS



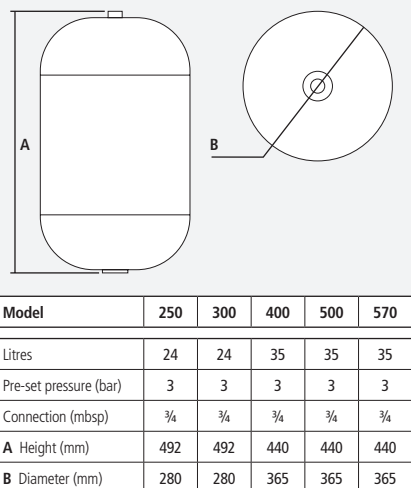
### 400 i EP, 500 i EP AND 570 i EP MODELS



Model	250 i EP	300 i EP	400 i EP	500 i EP	570 i EP
<b>A</b> Height (mm)	1737	2052	1502	1802	1997
<b>B</b> Secondary return (mm)	1321	1635	932	1132	1327
<b>C</b> T&P valve (mm)	1441	1755	1116	1416	1611
<b>D</b> HWS outlet (mm)	1366	1681	-	-	-
<b>Product code</b>	95050710	95050711	95050712	95050713	95050714
Nominal capacity (litres)	250	300	400	500	570
Expansion vessel (litres)	24	24	35	35	35
Insulation thickness (mm)	60	60	100	100	100
Immersion heater rating (kW)	1x3	1x3	1x3	1x3	1x3
Weight empty (kg)	59	66	105	110	115
Weight full (kg)	309	366	505	610	685
Coil heat transfer primary flow 60l/min* (kW)	42.2	42	56.9	54.3	53.6
Coil heat transfer primary flow 30l/min* (kW)	34.1	34.4	41.9	40	39.1
Coil heat transfer primary flow 15l/min* (kW)	25.3	25.4	28.2	27.6	27
Standing heat loss (kWh/24hrs)	1.67	1.89	1.72	2.14	2.44
Standing heat loss (kWh/year)	609.6	689.9	624.9	781.1	890.5
Max flow at 6 bar** (l/min)	176	176	176	176	176
Max flow at 3.5 bar** (l/min)	130	130	130	130	130
Max flow at 1 bar** (l/min)	79	79	79	79	79
1st hour performance Δt 45K' (l/hr)	898	956	1201	1263	1314
Continuous performance Δt 45K' (l/hr)	648	656	801	763	744
Heat up time Δt 45k primary flow 60l/min* (mins)	19	23	21	28	30
Heat up time Δt 45k primary flow 30l/min* (mins)	24	28	29	38	44
Heat up time Δt 45k primary flow 15l/min* (mins)	32	37	43	55	68

\*At primary flow temperature 80°C. \*\*MCWS static pressure. †Calculated using nominal capacities.  
All MEGAFLO Eco Plus cylinders are manufactured from high grade Duplex stainless steel.

### POTABLE WATER EXPANSION VESSEL



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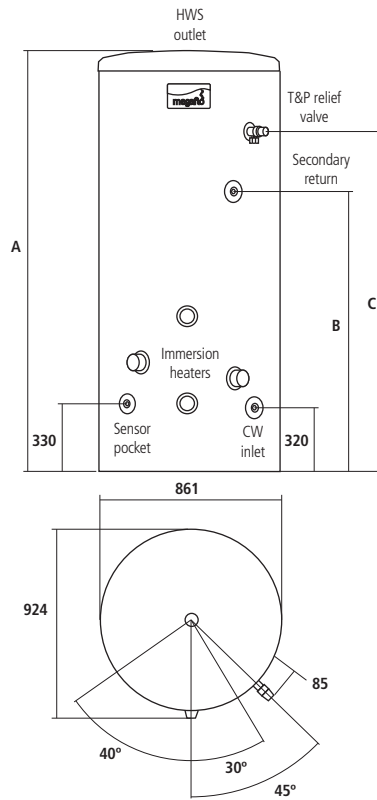
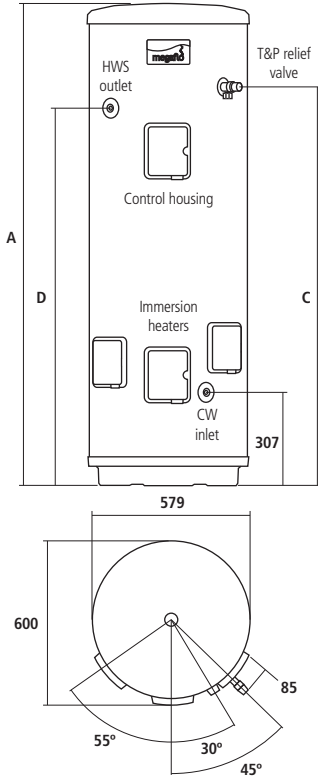


# MEGAFLO Eco Plus

## Direct models

### 250 DDDD EP AND 300 DDDD EP MODELS

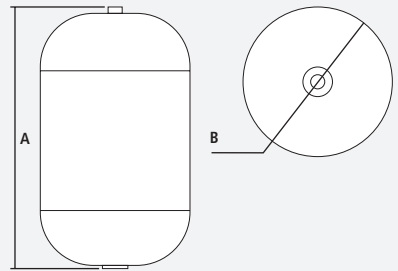
### 400 DDDD EP, 500 DDDD EP AND 570 DDDD EP MODELS



Model	250 DDDD EP	300 DDDD EP	400 DDDD EP	500 DDDD EP	570 DDDD EP
<b>A</b> Height (mm)	1737	2052	1502	1802	1997
<b>B</b> Secondary return (mm)	-	-	832	1132	1327
<b>C</b> T&P valve (mm)	1322	1573	1116	1416	1611
<b>D</b> HWS outlet (mm)	1366	1681	-	-	-
<b>Product code</b>	95050700	95050701	95050702	95050703	95050704
Nominal capacity (litres)	250	300	400	500	570
Expansion vessel (litres)	24	24	35	35	35
Insulation thickness (mm)	60	60	100	100	100
Immersion heater rating (kW)	4x3	4x3	4x3	4x3	4x3
Weight empty (kg)	50	57	95	100	105
Weight full (kg)	296	346	495	600	670
Standing heat loss (kWh/24hrs)	1.67	1.89	1.72	2.14	2.44
Standing heat loss (kWh/year)	609.6	689.9	624.9	781.1	890.5
Max flow at 6 bar** (l/min)	176	176	176	176	176
Max flow at 3.5 bar** (l/min)	130	130	130	130	130
Max flow at 1 bar** (l/min)	79	79	79	79	79
1st hour performance Δt 45K <sup>1</sup> (l/hr)	479	529	629	729	799
Continuous performance Δt 45K <sup>1</sup> (l/hr)	229	229	229	229	229
Heat up time direct Δt 45K (mins)	65	78	104	131	149

\*\*MCWS static pressure. <sup>1</sup>Calculated using nominal capacities. Assuming all elements are energised.  
All MEGAFLO Eco Plus cylinders are manufactured from high grade Duplex stainless steel.

### POTABLE WATER EXPANSION VESSEL



Model	250	300	400	500	570
Litres	24	24	35	35	35
Pre-set pressure (bar)	3	3	3	3	3
Connection (mbsp)	3/4	3/4	3/4	3/4	3/4
<b>A</b> Height (mm)	492	492	440	440	440
<b>B</b> Diameter (mm)	280	280	365	365	365



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# MEGAFLO Eco Plus

## Installation guidance

### TYPICAL HOT WATER USAGE

Typical hot water volumes	
Handwashing	1 to 2.5 litres per person (40°C)
Kitchen sink	2 to 7 litres per meal (60°C)
Cleaning	10 litres per day (60°C)
Bath	60 litres per bath (60°C)
Hairdressing	10 litres per shampoo (40°C)
Dishwasher	2 litres per meal (60°C)
Washing machine	20 litres per cycle (60°C)
Showers	48 litres (40°C) per 4 minute shower at 12 litres per minute

The above quantities are intended as a guideline. Individual installation requirements should be calculated before selecting the correct water heater.

### OUTLET / TERMINAL FITTINGS

The MEGAFLO Eco Plus can be used in conjunction with most types of terminal fittings.

It is advantageous in many mixer showers to have balanced hot and cold supplies, in these instances the balanced cold water supply should be teed off the supply to the MEGAFLO Eco Plus immediately after the cold water combination valve (see illustration on page 7). Branches to cold drinking outlets should be taken before the valve.

Outlets situated higher than the MEGAFLO Eco Plus will give outlet pressures lower than that at the heater, a 10m height difference will result in a 1 bar pressure reduction at the outlet fitting.

**NOTE:** Terminal fittings should have a rated operating pressure of at least 0.8 MPa (8 bar).

### LIMITATIONS

The MEGAFLO Eco Plus unvented water heater should not be used in any of the following circumstances:

Solid fuel boilers or any other boiler in which the energy input is not under effective thermostatic control unless additional and appropriate measures are installed.

Gravity circulation primaries.

Steam heating plant unless additional and appropriate safety devices are installed.

Ascending spray type bidets or any class 5 back syphonage risk requiring that a type AA, AB, AD or AG air gap is employed.

Water supplies that have either inadequate pressure / flow rate or where the supply may be intermittent.

Situations where it is not possible to safely convey any discharging water from the safety valves.

Areas where water consistently contains a high proportion of solids, e.g. suspended matter that could block the strainer, unless adequate filtration can be ensured.

### INSTALLATION REQUIREMENT

The installation must be carried out in accordance with the appropriate Building Regulations & Technical Standards. Building Regulations Part G and Part L (England and Wales). Scottish Building Standards Section 4 and Section 6. Building Regulations (Northern Ireland) Parts F1 and F2 and Part P. Water Supply (Water Fittings) Regulations (England and Wales). The Water Byelaws 2004 (Scotland). Water Supply (Water Fittings) Regulations (Northern Ireland).

### WATER SUPPLY

It should be noted that the incoming mains water supply will be supplying both the hot and cold water requirements.

It is recommended that the maximum water demand is assessed and the water supply checked to ensure the demand can be met.

**NOTE:** A high mains water pressure will not always guarantee high flow rates.

Wherever possible the main supply pipe should be in 28mm or greater.

The minimum mains water supply requirements should be 0.15 MPa (1.5 bar) working pressure and 50 litres per minute flow rate. At these values outlet flow rates may be unsatisfactory if several outlets are used simultaneously. The higher the available pressure and flow rate the better the system performance will be.

The MEGAFLO Eco Plus has an operating pressure of 3.5 bar which is controlled by the Cold Water Combination Valve. This valve can be connected to a maximum mains supply pressure of 1.6 MPa (16 bar).

The water supply must be of wholesome water quality (Fluid Category 1 as defined by the Water Regulations 1999).

The MEGAFLO Eco Plus is to be used for the storage of wholesome water (max.250mg/l chloride).

### ELECTRICAL SUPPLY

The MEGAFLO Eco Plus must be earthed.

The MEGAFLO Eco Plus is suitable for AC supply only.

Electrical installation must be carried out by a competent electrician and be in accordance with the latest I.E.E. wiring regulations.

### SECONDARY CIRCULATION

If a secondary circulation system is required using an indirect cylinder it is recommended that it be connected to the MEGAFLO Eco Plus as shown in the diagram on page 7.

If a secondary circulation system is required using a MEGAFLO Eco Plus 250/300 Direct cylinder it is recommended that it be connected via a swept tee joint into the cold feed to the cylinder.

The secondary return pipe bore should be sized accordingly and fitted with an appropriate check valve to prevent backflow. A suitable WRAS approved bronze circulation pump will be required.

**NOTE:** On larger systems, due to the increase in water content, it may be necessary to fit additional expansion volume to the secondary system by fitting an external expansion vessel to the circuit. This should be done if the capacity of the secondary system exceeds 10 litres.

As a guide:

Pipe capacities  
15mm O/D = 0.13 litres per metre  
(10 litres = 77m)

22mm O/D = 0.38 litres per metre  
(10 litres = 26m)

28mm O/D = 0.55 litres per metre  
(10 litres = 18m)

In direct electric installations where a secondary circulation is required particular attention should be paid by the installer to maintain the return water temperature (guidelines state that a minimum of 55° return temperature is advisable). Factors such as, but not limited to, secondary circulation flow rates, minimising heat loss of all secondary circuit pipework and timed operation during periods of high demand are critical to the correct operation and longevity of the heating element(s) and thermostats.

**NOTE:** Secondary circulation is not recommended for direct electric units using off-peak tariffs where the secondary circulation is not controlled in conjunction with the heat source as performance can be affected.

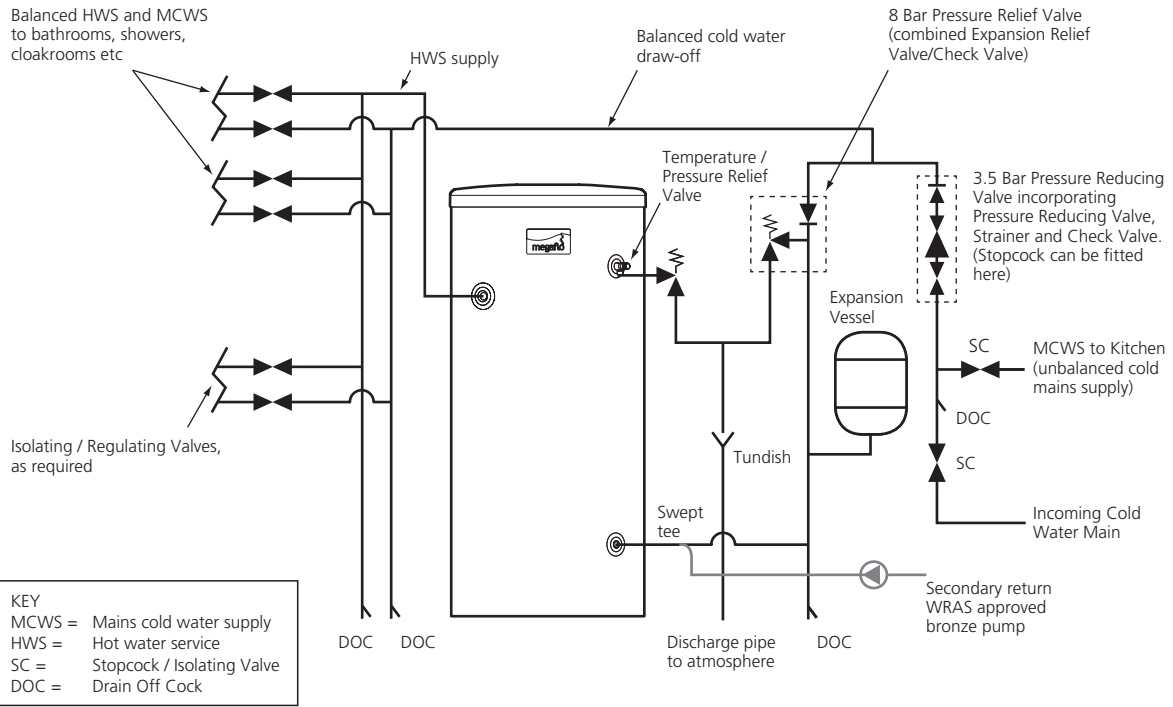




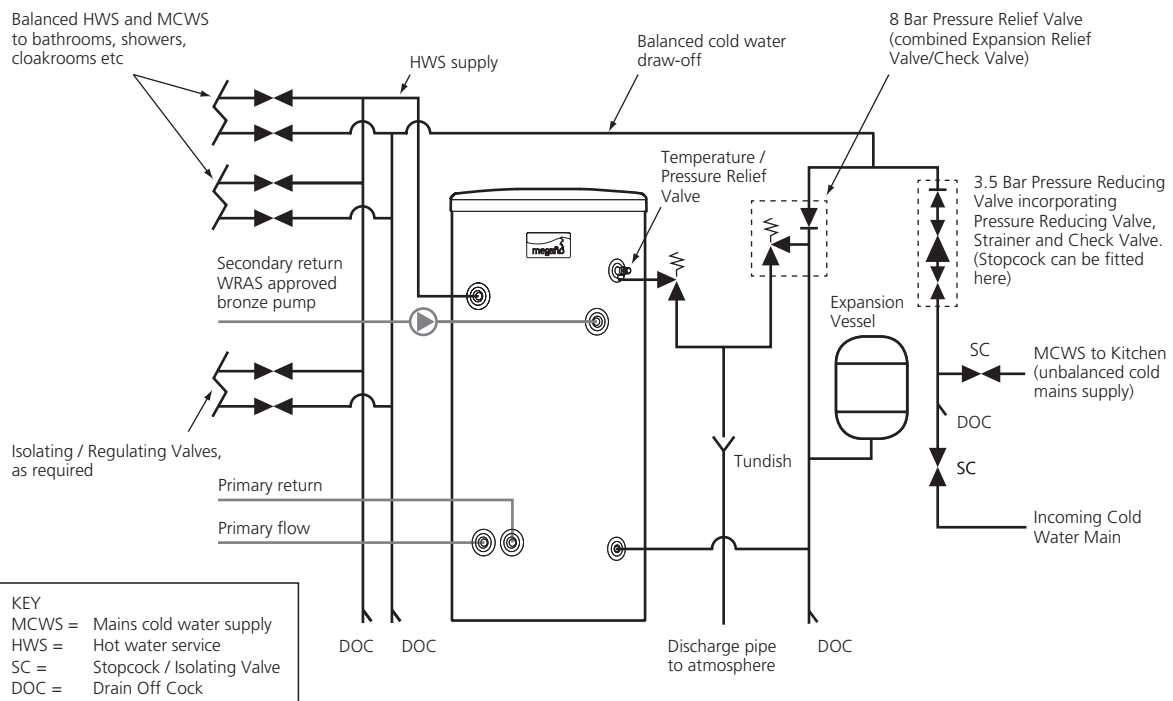
# MEGAFLO Eco Plus

## Installation guidance

### TYPICAL INSTALLATION – 250 / 300 DIRECT



### TYPICAL INSTALLATION – 250 / 300 INDIRECT



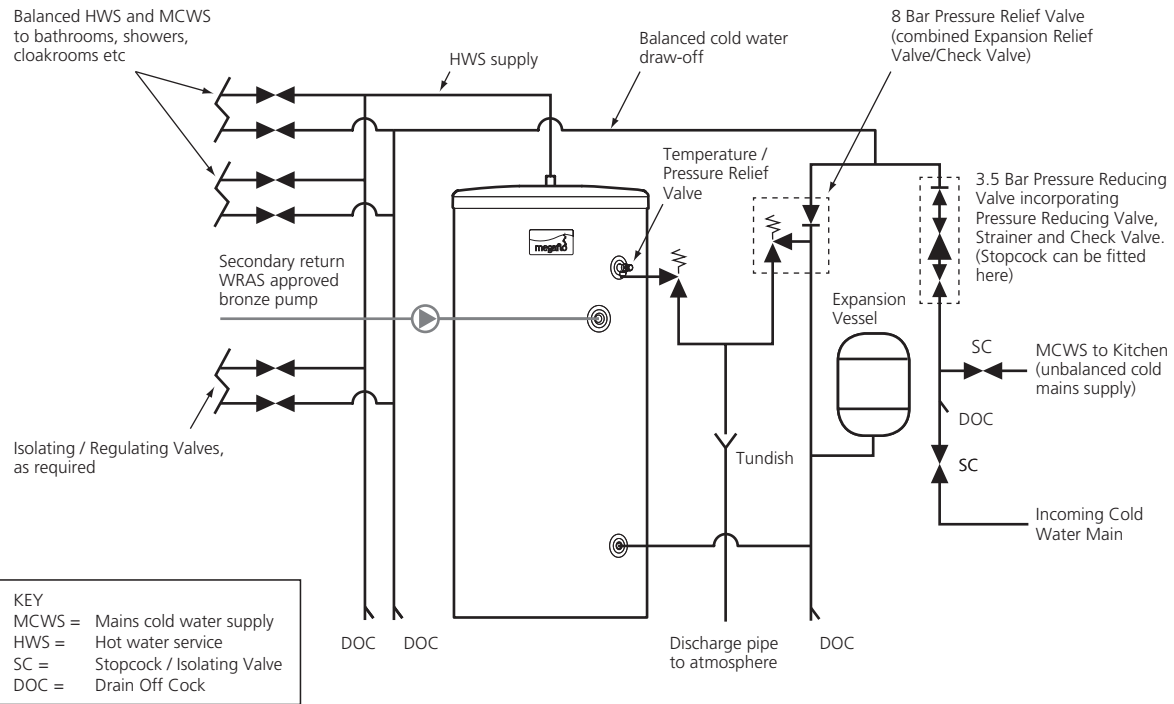
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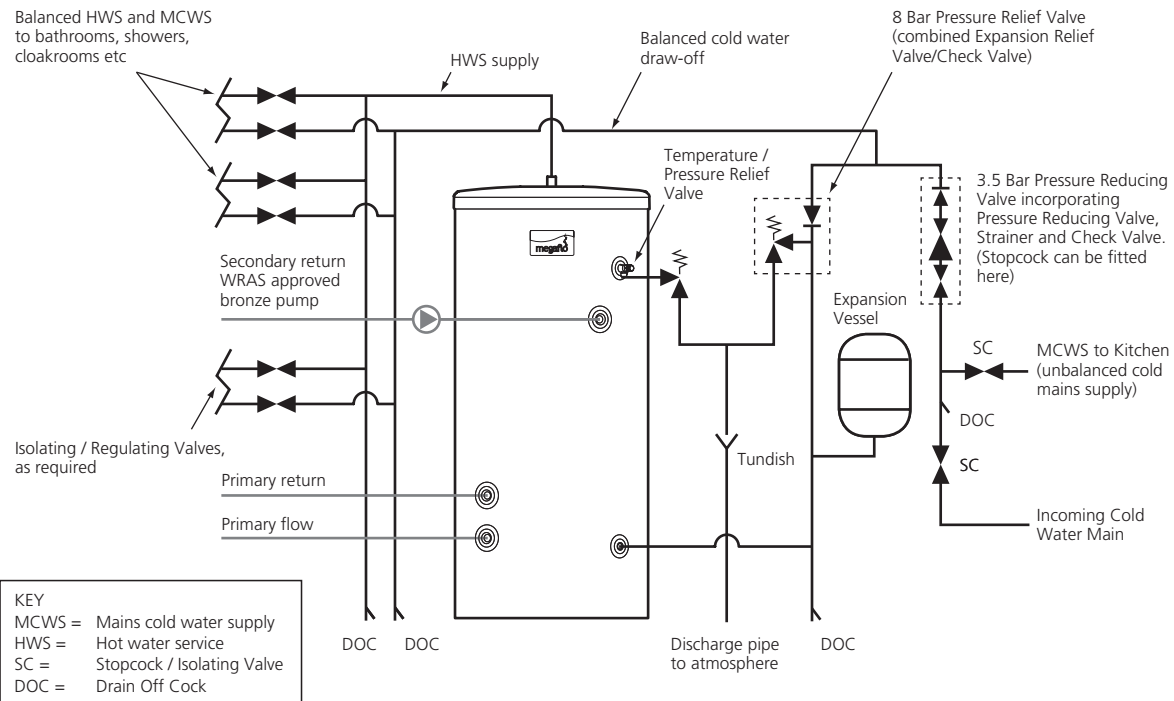
# MEGAFLO Eco Plus

## Installation guidance

### TYPICAL INSTALLATION – 400-570 DIRECT



### TYPICAL INSTALLATION – 400-570 INDIRECT







## MEGAFLO Eco Plus

# Codes of practice / legislation

### EU DIRECTIVES:

- Pressure Equipment Directive 97/23/EC.
- Low Voltage Directive (LVD) 2006/95/EC.
- Electromagnetic Compatibility (EMC) Directive 2004/108/EC.

### LEGISLATION:

- Building Regulations Part G and Part L (England and Wales).
- Scottish Building Standards Section 4 and Section 6.
- Building Regulations (Northern Ireland) Parts F1 and F2 and Part P.
- Water Supply (Water Fittings) Regulations (England and Wales).
- The Water Byelaws 2004 (Scotland).
- Water Supply (Water Fittings) Regulations (Northern Ireland).

### STANDARDS:

- Relevant clauses of the following standards are complied with:
  - EN 12897 – Specification for indirectly heated unvented cylinders.
  - EN 60335-2-21 – Safety-Particular requirements for storage water cylinders.
- The stainless steel materials used comply with the relevant clauses of:
  - EN 10088 – Technical delivery conditions for sheet/plate and strip of corrosion resisting steels for general purposes.

### COMPONENTS SUPPLIED COMPLY WITH THE FOLLOWING STANDARDS:

- BS EN 1490 Building Valves – Combined Temperature and Pressure Relief Valves.
- BS EN 1491 Building Valves – Expansion Valves.
- BS 6144 Specification for Expansion Vessels Using An Internal Diaphragm For Unvented Water Supply Systems.
- BS EN 1567 Building Valves – Water Pressure Reducing Valves and Combination Reducing Valves.
- BS EN 60730-1 Automatic Electrical Controls – For households and similar use. Part 1: General Requirements.
- BS EN 60730-2-8 Automatic Electrical Controls – Particular Requirements for Electrically Operated Water Valves.
- BS EN 13959 Anti-pollution Check Valves.

### THE USE OF THESE WATER HEATERS WILL AID IN COMPLIANCE WITH:

- Health and Safety Executive Approved Code of Practice L8: The control of legionella bacteria in water systems.
- BS EN 806 Parts 1 to 5: Specification for installations inside buildings conveying water for human consumption.
- BS 8558 Guide to the design, installation, testing and maintenance of services supplying water for domestic use within buildings.
- Chartered Institute of Building Services Engineers Guide B and Guide F.

### MANUFACTURED IN A FACTORY APPROVED TO:

- BS EN ISO 9001.
- OHSAS 18001.
- ISO 14001.

### APPROVALS:

- Kiwa Certification Number: 1403700.
- Nemko Certification Number: P13217797.





# Notes

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MEGAFLO, HURRICANE WAY,  
NORWICH, NORFOLK, NR6 6EA

MEGAFLO may introduce modifications to their products from time to time. Consequentially the details given in this brochure are subject to alteration without notice.

## Contacts

Specification Advice Hotline

T: 01603 420220

F: 01603 420229

E: [specifier@heatraesadia.com](mailto:specifier@heatraesadia.com)

[www.heatraesadia.com](http://www.heatraesadia.com)



Please recycle this product once you have finished with it.

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