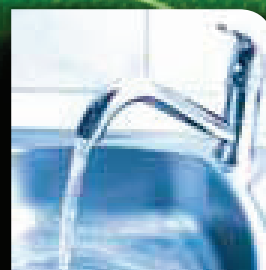




CI/SFB (54)

Tried. Tested. Trusted.

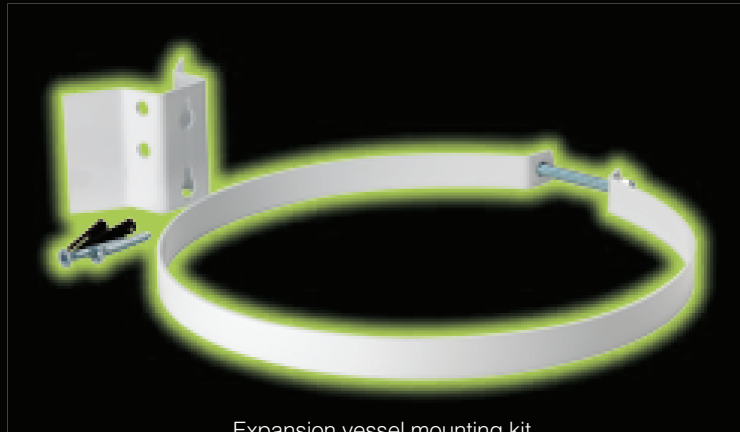


Unvented Hot Water Cylinders

Mains pressure hot water with full eco-credentials

What's included:

- **Cold Water Inlet Set**
consisting of:
 - Inline strainer
 - PRV (3bar)
 - ERV (6bar)
 - Non-return valve
 - Balanced cold water supply port
 - 22mm connection for expansion vessel
- **Large Surface Area Coil Heat Exchanger**
- **Environmentally Friendly Insulation**
- **External Expansion Vessel, Fixing Kit and Connection Hose**
- **Tundish**
- **Installation and User Instructions**
- **Optional Extras**
 - Titanium elements
 - 5 year warranty
 - Only to be fitted by an authorised contractor



Expansion vessel mounting kit



Expansion vessel hose



Thermostat



Tundish



Two port valve



Expansion vessel

EC-Eau is supplied complete with all the fittings required to complete installation

● Indirect Cylinders

- Inlet control set
- Temperature and Pressure relief valve
- Expansion vessel and mounting kit
- Tundish
- 1 x 3kW immersion heater
- Two port valve
- Dual thermostat
- Installation and user instructions

● Direct Cylinders

- Inlet control set
- Temperature and Pressure relief valve
- Tundish
- Expansion vessel and mounting kit
- 2 x 3kW immersion heaters (1 on 100l)
- Installation and user instructions



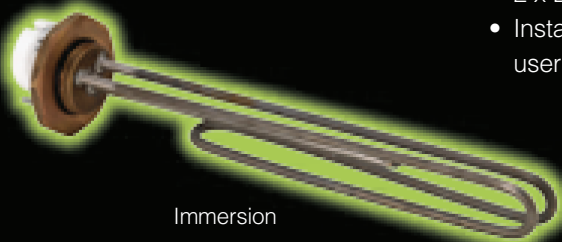
Inlet group

● Indirect Solar Cylinders

- Inlet control set
- Temperature and Pressure relief valve
- Expansion vessel and mounting kit
- Tundish
- 1 x 3kW immersion heater
- Two port valve
- 2 x Dual thermostats
- Installation and user instructions

● Direct Solar Cylinders*

- Inlet control set
- Temperature and Pressure relief valve
- Tundish
- Expansion vessel and mounting kit
- 2 x 3kW immersion heaters (1 on 100l)
- Dual thermostat
- Installation and user instructions



Immersion

● Heat Pump Cylinders

- Inlet control set
- Temperature and Pressure relief valve
- Tundish
- Expansion vessel and mounting kit
- 1 x 3kW immersion heater
- Dual thermostat
- Installation and user instructions



Temperature and pressure valve

*And Solar Heat Pump Cylinder

Specifications

● Materials

- Inner cylinder – Duplex stainless steel
- Outer casing – Black HIPS/ABS (from recycled materials)
- Inlet/outlet – Stainless steel
- Coils – Corrugated stainless steel
- Insulation – 60mm PU foam (GWP=1, ODP = 0)

● Max Operating Conditions

- Potable water temperature – 70°C
- Heating water temperature – 90°C
- Operating pressure – 3bar

● Cold Water Supply

- Minimum dynamic pressure – 1.5 bar
- Maximum pressure – 12 bar
- Minimum flow rate – 15l/min

● Connections

- Cold water inlet – 22mm stainless steel
- Hot water outlet – 22mm stainless steel
- Coil flow/return – 22mm / 28mm stainless steel
- Sensor – surface mounted
- T&P valve – ½" F BSP
- Immersion heater – 1¾" F BSP

● Immersion Heaters

- Indirect (standard and solar) – 1
- Direct (standard and solar) – 2 (1 on 100l standard)
- Heat pump – 1

● Thermostatic control

● Standard Cylinders

- **Indirect**
 - 1 x integrated surface mounted twin thermostat
 - 1 x integrated immersion heater thermostat and thermal cut out
- **Direct**
 - 2 x integrated immersion heater thermostats and thermal cut out (1 on 100l)

● Solar Cylinders

- **Indirect**
 - 2 x integrated surface mounted twin thermostat
 - 1 x integrated immersion heater and thermal cut out
- **Direct**
 - 2 x integrated immersion heater thermostats and thermal cut out
 - 1 x integrated surface mounted twin thermostat

● Solar/Heat Pump Cylinder

- 2 x integrated surface mounted twin thermostat
- 1 x integrated immersion heater and thermal cut out

● Heat Pump Cylinders

- 1 x integrated surface mounted twin thermostat
- 1 x integrated immersion heater and thermal cut out

● Safety Components

- Pressure reducing valve and strainer – 3 bar
- Expansion relief valve – 6 bar
- T&P valve – 7 bar / 90°C
- Factory pressure tests – 12 bar
- Expansion – external

● Approvals

- KIWA

● Guarantee

- Inner cylinder – 25 years
- Immersion heaters – 2 years excluding the effects of limescale
- Other components* – 2 years

*Excluding expansion vessel membrane



EC-Eau indirect cylinders



DIMENSIONS

Model	Height (mm)	Diameter (mm)	T&P valve (mm)	Coil Return (mm)	Coil Flow (mm)	Thermostat (mm)	Immersion (mm)	Weight Empty (mm)	Weight Packaged (mm)
ECSi100-580	810	580	580	190	325	430	208	23	33
ECSi125-580	960	580	730	190	325	430	208	25	36
ECSi150-580	1130	580	900	190	325	430	208	29	40
ECSi175-580	1280	580	1050	190	405	430	208	32	44
ECSi210-580	1504	580	1275	190	405	430	208	36	49
ECSi250-580	1780	580	1550	190	405	430	208	42	55
ECSi300-580	2080	580	1850	190	405	430	208	47	51

All measurements are taken from the bottom of the cylinder to the centreline on the component.

PERFORMANCE

Model	Capacity (litres)	Coil size (kW)	Coil surface area (m ²)	Expansion vessel (l)	Number of immersions	Reheat (mins)	Heat loss in 24 hrs (kW/24hr)
ECSi100-580	100	14 ⁽ⁱ⁾	0.5	12	1	22 ⁽ⁱ⁾	0.9
ECSi125-580	125	13 ⁽ⁱ⁾	0.5	12	1	25 ⁽ⁱ⁾	0.95
ECSi150-580	150	12 ⁽ⁱ⁾	0.5	12	1	33 ⁽ⁱ⁾	1.10
ECSi175-580	175	18 ⁽ⁱ⁾	0.8	19	1	27 ⁽ⁱ⁾	1.12
ECSi210-580	210	19 ⁽ⁱ⁾	0.8	19	1	31 ⁽ⁱ⁾	1.41
ECSi250-580	250	18 ⁽ⁱ⁾	0.8	24	1	40 ⁽ⁱ⁾	1.51
ECSi300-580	300	18 ⁽ⁱ⁾	0.8	24	1	49 ⁽ⁱ⁾	1.96

(i) Determined in accordance with EN12897-2006.

Data

Usages of hot water

• Handwashing	1 to 2.5 litres per person (40°C)
• Kitchen sink	3 to 8 litres per meal (60°C)
• Cleaning	10 litres per day (60°C)
• Bath	60 litres per bath (60°C)
• Hairdressing	10 litres per shampoo (60°C)
• Dishwasher	2 litres per cycle (40°C)
• Washing machine	20 litres per cycle (60°C)
• Showers	13 litres per person (60°C) per 5 minutes

Useful formulae

Time and Loading Calculations (Excluding Heat Losses)

Time in minutes to heat water	$= \frac{\text{Litres} \times \text{Temp Rise } ^\circ\text{C}}{\text{kW loading} \times 14.3}$
	$= \frac{\text{Gallons} \times \text{Temp Rise } ^\circ\text{F}}{\text{kW loading} \times 5.7}$
kW loading required to heat water	$= \frac{\text{Litres} \times \text{Temp Rise } ^\circ\text{C}}{\text{Time in minutes} \times 14.3}$
	$= \frac{\text{Gallons} \times \text{Temp Rise } ^\circ\text{F}}{\text{Time in minutes} \times 5.7}$

Mean Temperature of Mixed Water

Mean Temp	$= \frac{(\text{Litres Hot} \times \text{Temp Hot}) + (\text{Litres Cold} \times \text{Temp Cold})}{\text{Total (Hot + Cold) Litres}}$
	$= \frac{(\text{Galls Hot} \times \text{Temp Hot}) + (\text{Galls Cold} \times \text{Temp Cold})}{\text{Total (Hot + Cold) Gallons}}$

Capacity of Tank or Cylinder

Litres	$= \frac{\text{Dia} \times \text{Height (dimensions in cm)}}{1273}$
Gallons	$= \frac{\text{Dia} \times \text{Height (dimensions in cm)}}{353}$
Litres	$= \frac{\text{Length} \times \text{Breadth} \times \text{Height (dimensions in cm)}}{1000}$
Gallons	$= \frac{\text{Length} \times \text{Breadth} \times \text{Height (dimensions in cm)}}{277}$

Temperature Conversion

$$^\circ\text{C} = (^\circ\text{F} - 32) \times 5/9 \quad ^\circ\text{F} = (^\circ\text{C} \times 9/5) + 32$$

Physical constants

Length:	1m = 3.28ft 1ft = 30.5cm
Volume:	1gal = 4.54lits 1lit = 0.22gals = 277 cu ins = 1000cc = 10lbs = 1kg 1000lits = 1m ³
Weight:	1lb = 0.45kg 1kg = 2.21lbs
Volume:	1bar = 14.5psi = 100kN/m ² 1ft head of water = 0.434psi 1m head of water = 9.8kN/m ²

1 kilo calorie (kC) is the heat required to raise 1kg of water through 1°C = 4187 Joules = 3.97 Btu.

1 British Thermal Unit (Btu) is the heat required to raise 1lb of water through 1°F = 17.6 watt mins = 0.252kC.

1kW Hour = 3412 Btu = B60kC.

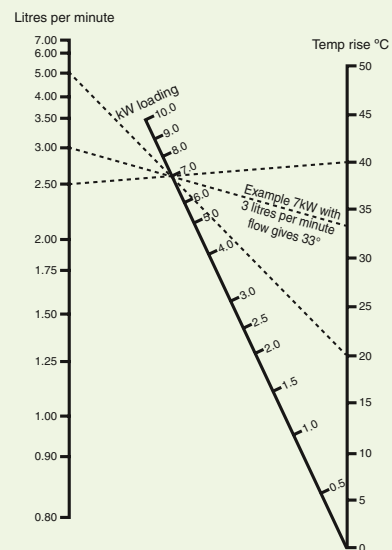
1 Joule = 1 watt second (Ws).

Instantaneous performance calculations

Temp rise °C	$\frac{\text{kW loading} \times 14.3}{\text{Litres per minute flow}}$
Litres per minute flow	$\frac{\text{kW loading} \times 14.3}{\text{Temp Rise } ^\circ\text{C}}$
Temp rise °F	$\frac{\text{kW loading} \times 5.7}{\text{Gallons per minute flow}}$
Gallons per minute flow	$\frac{\text{kW loading} \times 5.7}{\text{Temp Rise } ^\circ\text{F}}$

Instantaneous heaters

(Flow-Load and Temperature Rise Chart)



RECOVERY CHART (Approximate time in minutes to heat water)

Gallons heated through 100°F

Loading Kilowatts		1	1.5	2	3	5	12	15	20	30	40	50	60	80	100	125
	0.75	24	40	50	75	120	265	-	-	-	-	Time in minutes				
	1.0	18	27	40	55	90	215	265	-	-						
	1.5	12	18	24	40	60	145	180	235	355	-					
	2.0	9	14	18	27	45	110	135	180	265	355					
	3.0	6	9	12	18	30	75	90	120	180	235	295	355	470	590	735
	4.0	5	7	9	14	22	55	70	90	135	180	220	265	355	440	555
	6.0	3	5	6	9	15	40	45	60	90	120	150	180	235	295	370
	8.0	3	4	5	7	11	27	35	45	70	90	110	135	180	220	280
	9.0	2	3	4	6	10	24	30	40	60	80	100	120	160	200	245
12.0	2	3	3	5	8	18	22	30	45	60	75	90	120	150	185	
15.0	2	2	3	4	6	15	18	24	40	50	60	75	95	120	150	
18.0	1	2	2	3	5	12	15	20	30	40	50	60	80	100	125	
24.0	1	2	2	3	4	9	11	15	22	30	40	45	60	75	95	
36.0	1	1	1	2	3	6	8	10	15	20	25	30	40	50	65	

Litres heated through 50°C

Loading Kilowatts		5	7	10	15	30	60	80	100	150	200	250	300	400	600	800	1000
	1.0	18	25	35	55	105	210	280	-	-	-	-	Time in minutes				
	2.0	9	13	18	27	55	105	140	175	265	-	-					
	3.0	6	9	12	18	35	70	95	120	175	235	295					
	4.0	5	7	9	14	27	55	70	90	135	175	220	265	-	-	-	-
	6.0	3	5	6	9	18	35	50	60	90	120	150	175	235	350	470	585
	8.0	3	4	5	7	14	27	35	45	70	90	110	135	185	265	350	440
	9.0	2	3	4	6	12	24	35	40	60	80	100	120	160	235	315	390
	12.0	2	2	3	5	9	18	24	30	45	60	75	90	120	175	235	295
	15.0	2	2	3	4	7	14	19	24	35	50	60	70	95	140	190	235
18.0	1	2	2	3	6	12	16	20	30	40	50	60	80	120	160	195	
24.0	1	1	2	3	5	9	12	15	22	30	40	45	60	90	120	150	
36.0	1	1	1	2	3	6	8	10	15	20	25	30	40	60	80	100	

Pressure in pounds per square inch for different heads of water

Head feet	Pressure lb/in ²	Head feet	Pressure lb/in ²	Head feet	Pressure lb/in ²	Head feet	Pressure lb/in ²
1	0.4	26	11.3	51	22.1	76	32.9
2	0.9	27	11.7	52	22.5	77	33.4
3	1.3	28	12.1	53	23.0	78	33.8
4	1.7	29	12.6	54	23.4	79	34.2
5	2.2	30	13.0	55	23.8	80	34.7
6	2.6	31	13.4	56	24.3	81	35.1
7	3.0	32	13.9	57	24.7	82	35.5
8	3.5	33	14.3	58	25.1	83	36.0
9	3.9	34	14.7	59	25.6	84	36.4
10	4.3	35	15.2	60	26.0	85	36.8
11	4.8	36	15.6	61	26.4	86	37.3
12	5.2	37	16.0	62	26.9	87	37.7
13	5.6	38	16.5	63	27.3	88	38.1
14	6.1	39	16.9	64	27.7	89	38.6
15	6.5	40	17.3	65	28.2	90	39.0
16	6.9	41	17.8	66	28.6	91	39.4
17	7.4	42	18.2	67	29.0	92	39.9
18	7.8	43	18.6	68	29.5	93	40.3
19	8.2	44	19.1	69	29.9	94	40.7
20	8.7	45	19.5	70	30.3	95	41.2
21	9.1	46	19.9	71	30.8	96	41.6
22	9.5	47	20.4	72	31.2	97	42.0
23	10.0	48	20.8	73	31.6	98	42.5
24	10.4	49	21.2	74	32.1	99	42.9
25	10.8	50	21.7	75	32.5	100	43.4

Pressure in Kilonewtons per square metre for different heads of water

Head metres	Pressure kN/m ²	Head metres	Pressure kN/m ²
0.5	5	11	108
1.0	10	12	118
1.5	15	13	127
2.0	20	14	137
2.5	25	15	147
3.0	29	16	157
3.5	34	17	167
4.0	39	18	177
4.5	44	19	186
5.0	49	20	196
5.5	54	21	206
6.0	59	22	216
6.5	64	23	226
7.0	69	24	235
7.5	74	25	245
8.0	76	26	255
8.5	83	27	265
9.0	88	28	275
9.5	93	29	284
10.0	98	30	294