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"Quality Built on Tradition"

Domestic Hot Water Cylinders and Combination Tanks



“Quality Built on Tradition”

Welcome to Telford Copper Cylinders

Telford Copper Cylinders is a family run business which began trading in 1989 from the premises it still occupies today. These premises now acts as its Head Office. The original factory has been extended on a number of occasions since then to keep up with the increased demand for its products. With the advent of new plumbing systems requiring diverse raw materials we now have a second site manufacturing cylinders in stainless steel.

From the beginning, Telford set out to manufacture a broad range of copper cylinders. Our copper division has developed from manufacturing traditional vented cylinders to now include commercial calorifiers and the advanced Tristor thermal store units, which are available as Manual-fill, “Washing machine”, solar recovery and under-floor heating variants.

As the market for plumbing and water storage cylinders has changed, Telford Copper Cylinders have adapted to ensure we are always at the cutting edge of technology, making new products without compromising our first principal of quality. We also

have a commitment to offer a professional after care service, which includes dedicated personnel as well as nationwide support through its team of service engineers.

The traditional vented cylinder has recently undergone a major change. The Building Regulations (Part L in England and Wales, Part J in Scotland) have been altered to ensure domestic hot water system design is more energy efficient than in the past.

This was linked to a revision to the British Standards covering Indirect and Direct copper cylinders.

The standards now call for thicker material to resist corrosion better and larger coils to take advantage of higher efficiency condensing boilers now available.

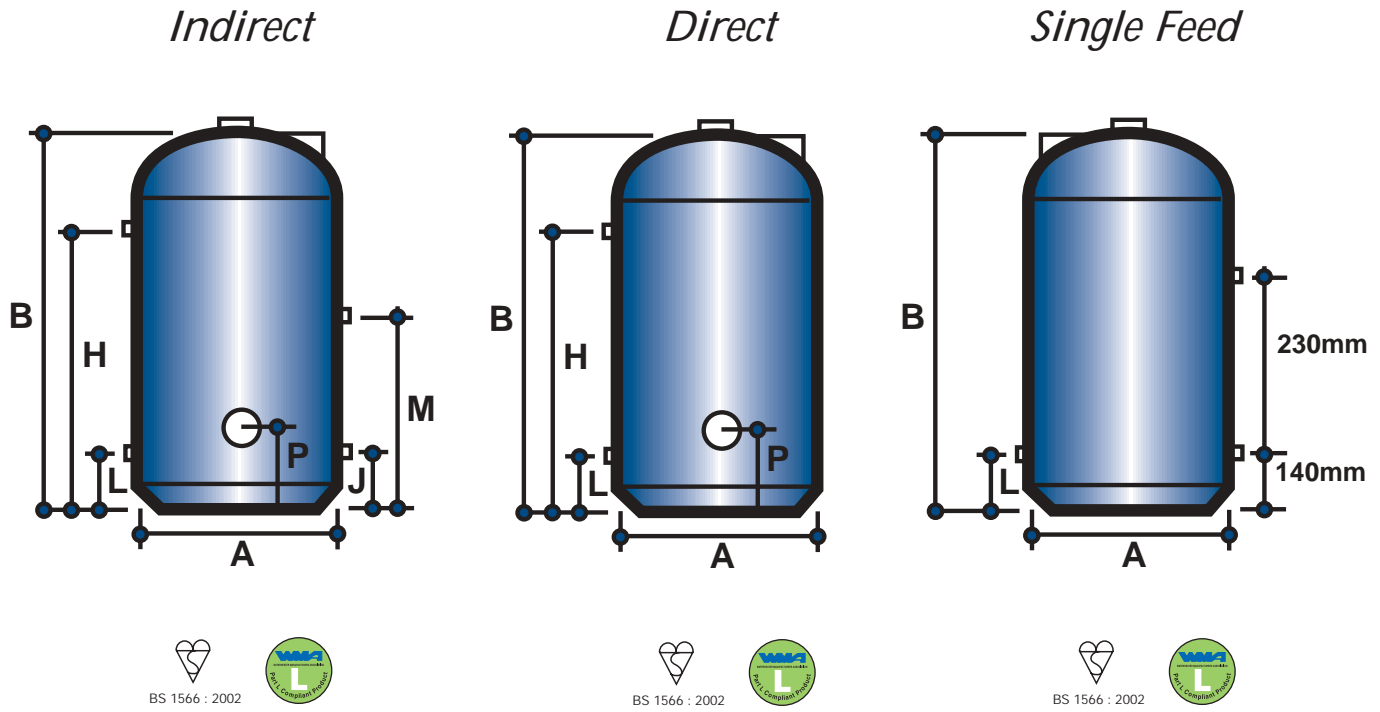
Tapping Chart

Direct

Indirect



Standard Vented Specifications



BS 1566 : 2002



BS 1566 : 2002



BS 1566 : 2002



| Type Reference | External Diameter | Minimum Height | Nominal Storage Capacity | Minimum Heating Area for type G cylinders | Minimum Nominal Thickness of Copper | | | | | | Size of Primary Heater | Preferred Height of Connections Above Datum | | | | | Preferred Size of Secondary Connections | Preferred Size of Primary Connections |
|----------------|-------------------|----------------|--------------------------|---|-------------------------------------|------------------|---------------|------------------|---------------|------------------|------------------------|---|----------------|-----------|-------------------|----------------------|---|---------------------------------------|
| | | | | | Grade 1 | | Grade 2 | | Grade 3 | | | Secondary Return | Primary Return | Cold Feed | Primary Flow | Immersion Heater Bus | | |
| | | | | | Test Pressure | Max Working Head | Test Pressure | Max Working Head | Test Pressure | Max Working Head | | | | | | | | |
| | | | | | 3.65 bar | 25m | 2.20 bar | 15m | 1.45 bar | 10m | | | | | | | | |
| A | B | L | m ² | Concave Bottom | Rest of Shell | Concave Bottom | Rest of Shell | Concave Bottom | Rest of Shell | H | J | L | M | P | Internal (Female) | External (Male) | | |
| | mm | mm | L | m ² | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | |
| 0 | 300 | 1600 | 96 | 0.42 | 1.6 | 1.2 | 1.6 | 0.9 | 1.6 | 0.7 | 22 | 1250 | 100 | 100 | 540 | 150 | G1 | G1B |
| 1 | 350 | 900 | 72 | 0.32 | 1.6 | 1.2 | 1.6 | 0.9 | 1.6 | 0.7 | 22 | 700 | 100 | 100 | 400 | 150 | G1 | G1B |
| 2 | 400 | 900 | 96 | 0.42 | 1.8 | 1.2 | 1.6 | 0.9 | 1.6 | 0.7 | 28 | 700 | 100 | 100 | 400 | 150 | G1 | G1B |
| 3 | 400 | 1050 | 114 | 0.50 | 1.8 | 1.2 | 1.6 | 0.9 | 1.6 | 0.7 | 28 | 800 | 100 | 100 | 470 | 150 | G1 | G1B |
| 4 | 450 | 675 | 84 | 0.37 | 2.0 | 1.6 | 1.6 | 1.0 | 1.6 | 0.7 | 28 | 450 | 100 | 100 | 300 | 150 | G1 | G1B |
| 5 | 450 | 750 | 95 | 0.48 | 2.0 | 1.6 | 1.6 | 1.0 | 1.6 | 0.7 | 28 | 550 | 100 | 100 | 340 | 150 | G1 | G1B |
| 6 | 450 | 825 | 106 | 0.53 | 2.0 | 1.6 | 1.6 | 1.0 | 1.6 | 0.7 | 28 | 625 | 100 | 100 | 370 | 150 | G1 | G1B |
| 7 | 450 | 900 | 117 | 0.61 | 2.0 | 1.6 | 1.6 | 1.0 | 1.6 | 0.7 | 28 | 700 | 100 | 100 | 400 | 150 | G1 | G1B |
| 8 | 450 | 1050 | 140 | 0.70 | 2.0 | 1.6 | 1.6 | 1.0 | 1.6 | 0.7 | 28 | 800 | 100 | 100 | 470 | 150 | G1/4 | G1B |
| 9 | 450 | 1200 | 162 | 0.88 | 2.0 | 1.6 | 1.6 | 1.0 | 1.6 | 0.7 | 28 | 950 | 100 | 100 | 540 | 150 | G1/4 | G1B |
| 9E | 450 | 1500 | 206 | 0.90 | 2.0 | 1.6 | 1.6 | 1.0 | 1.6 | 0.7 | 28 | 1200 | 100 | 100 | 620 | 150 | G1/4 | G1B |
| 10 | 500 | 1200 | 190 | 1.05 | 2.5 | 1.8 | 1.8 | 1.2 | 1.6 | 0.9 | 35 | 950 | 150 | 150 | 540 | 200 | G1/2 | G1/4 B |
| 11 | 500 | 1500 | 245 | 0.87 | 2.5 | 1.8 | 1.8 | 1.2 | 1.6 | 0.9 | 35 | 1200 | 150 | 150 | 670 | 200 | G1/2 | G1/4 B |
| 12 | 600 | 1200 | 280 | 1.32 | 2.8 | 2.0 | 2.5 | 1.4 | 2.0 | 1.2 | 35 | 950 | 150 | 150 | 540 | 200 | G2 | G1/2 B |
| 13 | 600 | 1500 | 360 | 1.68 | 2.8 | 2.0 | 2.5 | 1.4 | 2.0 | 1.2 | 35 | 1200 | 150 | 150 | 670 | 200 | G2 | G1/2 B |
| 14 | 600 | 1800 | 440 | 2.04 | 2.8 | 2.0 | 2.5 | 1.4 | 2.0 | 1.2 | 35 | 1350 | 150 | 150 | 800 | 200 | G2 | G1/2 B |

Dimensions and Details

Notes: BS1566:2002 has within its scope both Indirect and Direct cylinders. Cylinders are designated as type D for Direct, G for Indirect cylinders suitable for both gravity and pumped primaries and type P for cylinders which are only suitable for pumped primary systems. Type P cylinders are new to the standard and are often high performance products offering improved performance over the G type. Within the Telford Copper Cylinder range, ref 2-11 are type G cylinders and suitable for both gravity and pumped primaries. Ref 0-1 and 12-14 are for pumped primaries only. Special cylinders are available should you require these sizes for gravity circulation primaries. Single feed, self-priming units must not be used on pumped primary systems.

- The working head is the vertical distance from the bottom of the cylinder to the water line of the cistern supplying it (1m water = 0.1 bar approximately).
- Secondary return fitted only when ordered by the purchaser.
- Class B external threads may be applied when ordered.
- Storage capacity is shown for Indirect models only and does not include the water content of the primary heater. Direct models contain a small amount of extra water.
- P = preferred location for off-peak / electric water heating immersion heater.

The company reserves the right to change specifications without notice as part of its policy of continuous improvement.

Indirect



Direct



Single Feed



Vented Cylinders

Indirect

Designed to be linked to a remote heat source, such as a gas boiler or coal fire. The water within the central heating system is heated by the remote heat source and is passed through the coil in cylinder. As the primary normally operates at around 80°C, the heat is exchanged into the cylinder and warms the domestic water.

Manufactured and fully approved to the latest British Standard specification BSI566:2002 (Part L).

Direct

When the only energy source available is electricity, a Direct pattern cylinder is the ideal product.

The domestic water is "directly" heated by the immersion heaters which sit inside the cylinder, however, the heat-up and recovery times take longer than an Indirect cylinder.

Manufactured and fully approved to the latest British Standard specification BSI566:2002 (Part L).

Single Feed

A single feed cylinder incorporates a multipurpose heat exchanger. As well as heating the domestic water it also acts to top up the heating circuit, i.e. radiators. As only one cold-water cistern is used to feed the cylinder (including the heating circuit) we refer to it as a single feed Indirect cylinder.

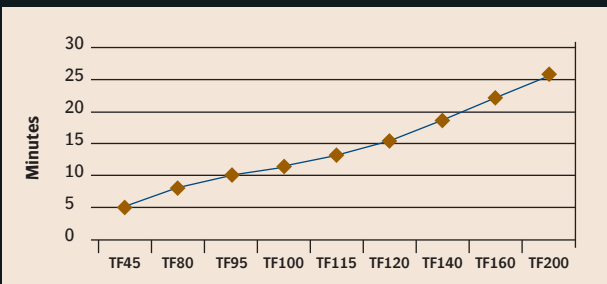
TyphoonCR™



Typhoon Rapid Recovery Cylinder

Corrosion resistant technology is at the heart of this revision to the TyphoonCR product range. Originally designed as an ultra-rapid recovery cylinder it allows plumbers to install small cylinders as a space saving option, without losing performance. TyphoonCR includes corrosion resistant technology, this enables Telford to offer a 10 year guarantee on this product.

Heat Up Times



Predicted heat up times for cylinder based on test procedures defined in BS1566:2002 for type P cylinders.

Dimensions and Details of Typhoon CR

| | Diameter | Height | Capacity |
|-------|----------|--------|----------|
| TF45 | 350 | 600 | 45 |
| TF80 | 400 | 750 | 80 |
| TF95 | 450 | 750 | 95 |
| TF100 | 400 | 900 | 96 |
| TF115 | 400 | 1050 | 114 |
| TF120 | 450 | 900 | 117 |
| TF140 | 450 | 1050 | 140 |
| TF160 | 450 | 1200 | 162 |
| TF200 | 450 | 1500 | 206 |

Whilst sacrificial anodes remain an option on the standard product range, they cannot be specified on Typhoon CR.



Cylinder Selection Guide

Selecting the correct size of cylinder requires consideration of a number of variables, including the volume of water needed, the energy source and the space available. Calculating the volume needed can be achieved by adding together the individual volumes of each appliance that uses hot water and how frequently it is used.

The energy source is the next variable to consider, as it will have a direct impact on the cylinder size. All Indirect cylinders have coils which are designed to allow the contents to be heated up in less than 25 minutes, given an adequate boiler size. High performance products, such as TyphoonCR reduce this time dramatically and can be used to reduce the cylinder size where space is at a premium. Care should be taken in selecting the cylinder size for electrically heated cylinders, as these are slower to recover and often utilise

low tariff supplies during the night. The use of the boost immersion heater during the day is expensive and should be avoided where possible.

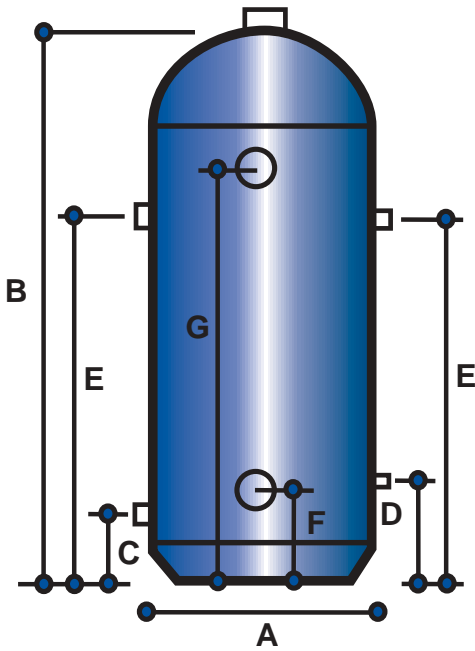
Telford Copper Cylinders, as a member of the Waterheater Manufacturers Association, has been working to establish a simple to use hot water volume calculator. In our research we determined that there were four principle types of user, and two levels of consumer expectation. The table below suggests recommended storage volumes for these options.

Telford Copper Cylinders can provide a design service for all types of development. Please contact our Technical Helpline for assistance or to request your copy of the WMA Hot Water Calculator.

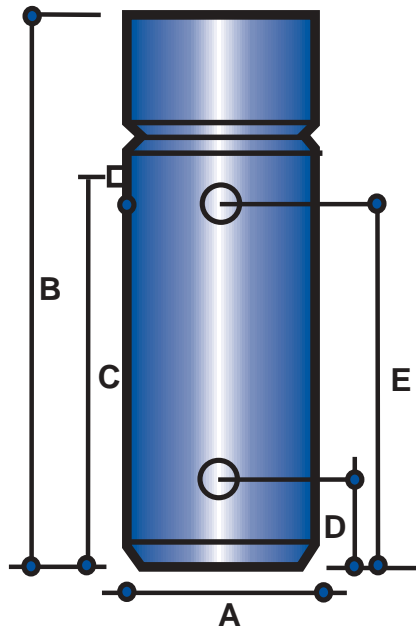
| | | | | | | |
|---|------------|----------------------|-----------------------|------------------------|------------------|-----|
| Standard bath | 70 litres | | | | | |
| Large or corner bath (some manufacturers specify the volume in their literature) | 130 litres | | | | | |
| Shower (based on 5 minute draw off) | 45 litres | | | | | |
| Power shower or shower with large head (based on 5 minutes) | 75 litres | | | | | |
| Wash basin | 7 litres | | | | | |
| Kitchen sink | 12 litres | | | | | |
| | | Shower Only | Shower or Bath | Shower and Bath | Two Baths | |
| 1. The volumes in the table are the hot water requirements at 60°C, and assume a cold water blend for showers to reach a useable temperature of 48°C. | | Good Practice | 80 | 140 | 180 | 210 |
| 2. Dishwashers and washing machines are generally cold feed and can be ignored from this calculation. | | Best Practice | 120 | 140 | 210 | 250 |

- The user types depend upon the bathroom designs in the house. For example a house with a single bath and over shower fits into the category of "Shower or Bath" as it is not practical for the bath and shower to be running simultaneously. At the extremes it is possible in a larger house for two baths to be run either together or in quick succession.
- The recommended volumes assume that the bath is a standard size. The cylinder size would need increasing if larger baths are used.
- Good Practice is the minimum suggested level to give consumer satisfaction. If high performance products are being used, or power showers, we would recommend that Best Practice is adopted.

Maxistore Cylinder



Combination Variant



The insulation of the division between hot and cold water sections ensures that heat transfer is minimal and easily meets the requirements of BS 3198 : 1981 Standard. All cylinders are factory insulated with Envirofoam - 100% C.F.C. free as standard.

Combination Tanks and Maxistore Specifications

| Dimensions and Details of Copper Direct and Indirect Combination Tanks | | | | | |
|--|-------------------|-----------------|------------------------------|-------------------------------|-----------------|
| Comb. Ref. BS 3198 Type | External Diameter | External Height | Nominal Capacity Hot Section | Nominal Capacity Cold Section | Heating Surface |
| mm | mm | mm | litres | litres | m ² |
| Direct | 450 | 900 | 85 | 20 | - |
| Indirect | 450 | 900 | 85 | 20 | 0.35 |
| Direct | 450 | 1050 | 115 | 20 | - |
| Indirect | 450 | 1050 | 115 | 20 | 0.44 |
| Direct | 450 | 1200 | 115 | 40 | - |
| Indirect | 450 | 1200 | 115 | 40 | 0.44 |
| Direct | 450 | 1400 | 144 | 40 | - |
| Indirect | 450 | 1400 | 144 | 40 | 0.52 |
| Direct | 450 | 1850 | 210 | 45 | - |
| Indirect | 450 | 1850 | 210 | 45 | 0.79 |

| Dimensions and Details of Copper Direct and Indirect Cylinders | | | | | | | | |
|--|-----------------|-------------------|-------------------------------|-----|-----|-----|------|----------|
| Preferred Sizes | | | | | | | | |
| BS Type Ref. | External Dia. A | External Height B | Height of Screwed Connections | | | | | Cap. min |
| | | | C | D | E | F | G | |
| | mm | mm | mm | mm | mm | mm | mm | litres |
| 7 | 450 | 900 | 100 | 100 | 475 | 150 | 500 | 120 |
| 8 | 450 | 1050 | 100 | 100 | 545 | 150 | 650 | 144 |
| 9E | 450 | 1500 | 100 | 100 | 695 | 150 | 1100 | 210 |

| Dimensions and Details of Copper Direct and Indirect Combination Tanks | | | | | | |
|--|-------------------|-------------------------------|-----|------|----------------|-----------------|
| Preferred Sizes | | | | | | |
| External Dia. A | External Height B | Height of Screwed Connections | | | Cap. Hot Sect. | Cap. Cold Sect. |
| | | C | D | E | | |
| mm | mm | mm | mm | mm | mm | mm |
| 450 | 1200 | 700 | 150 | 500 | 115 | 40 |
| 450 | 1400 | 850 | 150 | 650 | 144 | 40 |
| 450 | 1850 | 1300 | 150 | 1100 | 210 | 45 |

Combination Tank



Maxistore Cylinder



*Maxistore
Combination*



Combination Tanks

Combination units have been designed to combine the cold water feed and the hot water cylinder into one unit. There are many benefits to installing a combination style cylinder, including reducing labour time when installing the product and freeing up valuable roof space. The incoming supply is connected directly to the top section, this in turn feeds the bottom (hot) section when water is drawn from the hot tap. Our combination cylinders are manufactured to BS3198 and can be ordered as Direct or Indirect variants.

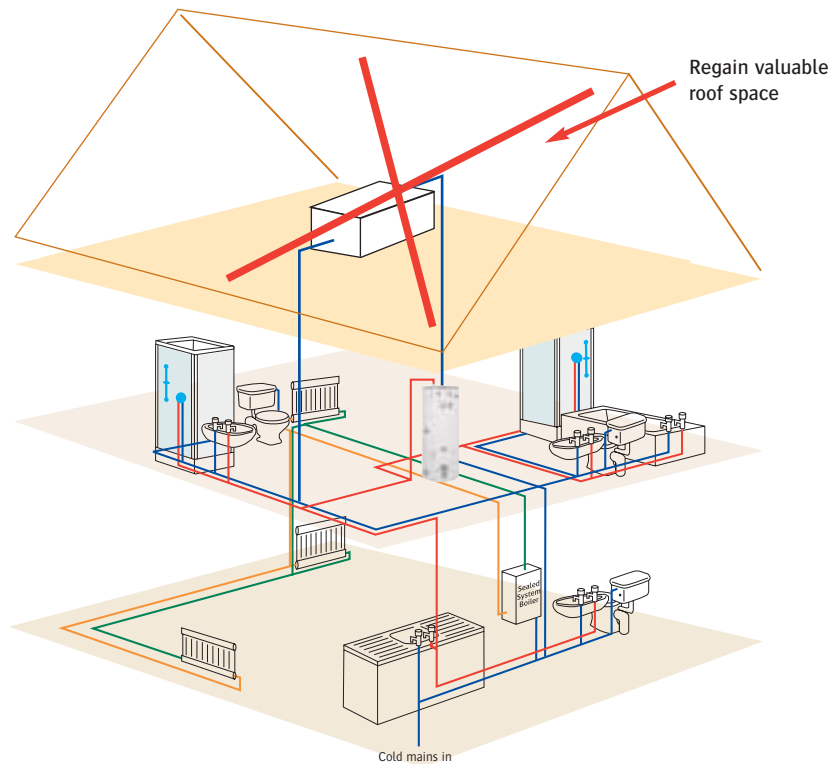
Maxistore Cylinders

Maxistore was developed for use on an open-vented system in electric only applications. The cylinders carry full Economy 7 accreditation and is manufactured to BS1566:2002 (Part L).

To ensure maximum efficiency the cylinder is foamed twice, which reduces the heat-loss values. Two side entry immersion heater connections are fitted as standard to maximise the use of Economy tariff electricity.

Later versions of the Maxistore range incorporated a combination-style variant, to remove the need for a feed tank in the roof space and ease installation. Telford Copper Cylinders can also supply, as a cost option, suitable immersion heaters and economy tariff time clocks. These can be supplied either factory fitted or supplied separate for on-site installation.

Trident



Trident

Conventional plumbing systems require a separate cold water storage tank in addition to feed and expansion tanks. These tanks normally take up valuable roof space. The Trident cylinder removes the need for this by incorporating them within the cylinder. The appearance is similar to a combination unit, but also includes the feed tank to supply the central heating system.

The time required to fit a Trident system is approximately three hours compared to around eight to install a conventional system.

The number of fittings and materials needed for the installation are reduced dramatically and the only component required is the cylinders itself.

1. As with all combination cylinders the rate of flow from a hot water tap is dependent on the height of the tank above the tap. The water level should be 1 metre above the highest hot water tap.
2. A minimum clear space of 205mm should be left above the unit to allow access to the ball-valve for servicing and adjustment.
3. 22mm (G³/4) overflow fittings are supplied fitted.
4. A 15mm (G¹/2) threaded boss for a drain cock is fitted. Drain cock not supplied.
5. The unit should be installed in such a way that the immersion heater can be withdrawn for servicing.

| Capacity - Litres | Nominal Dimensions (mm) |
|--------------------|-------------------------|
| 115 Hot / 40 Cold | 1280 x 350 |
| 144 Hot / 45 Cold | 1400 x 450 |
| 115 Hot / 115 Cold | 1470 x 500 |

Other sizes are available upon request.

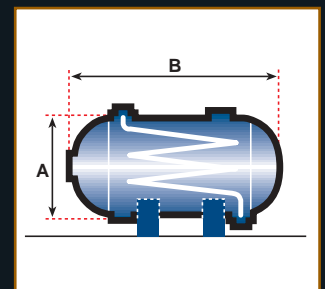
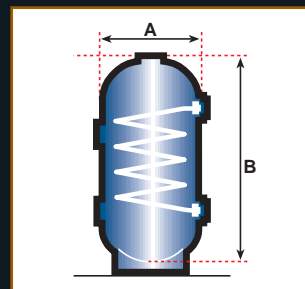


Calorifiers

Telford Copper Cylinders have introduced a range of Calorifiers for commercial and industrial applications. Available as Direct and Indirect variants, in capacities from 280 to 4500 litres. The cylinders are constructed from copper to the requirements of BS2870/1 deoxidised. Coil heater units or removable U-type batter units can be specified as shown.

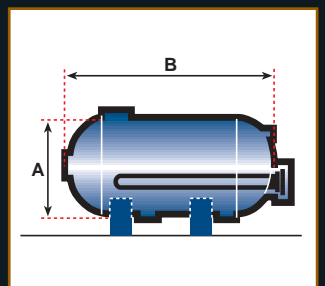
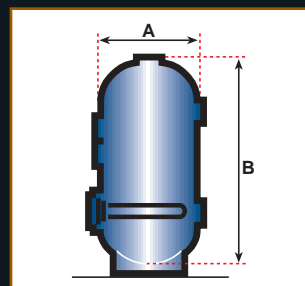
Immersion heaters can also be supplied to order. All Calorifiers are supplied with certified drawings and Test Certificates. Shells and heater units are fully tested prior to despatch to at least 1½ times the normal working pressure.

Coil Heater Units



These units conform to BS853 and can be supplied with a variety of connections. Hot water or steam can be pumped or gravity fed through the circuit.

Removable U-Type Battery Units



Battery units conform to BS853/2/81, BS3274 and M&E No. 3 specification. They are suitable for medium temperature water, low-pressure hot water or steam.