VICTORIA DESIGN

PALADIN RADIATORS

Technical Guide & Specifications

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How to Configure Your Radiators

Configure Your Cast Iron Radiator

- **Find your profile design / height**
- **Find out required output and available room** where you plan to instal your radiator
- **Refer to our tech specs section for outputs/lengths/ measurements.** Remember the lengths do not include valves on the side(s) of the radiator i.e. you need to allow room for those
- **For valves' measurements refer to the section XX**
- **Pick a finish for your radiator** (Paladin Colours, Farrow&Ball Colours, Antiqued, Highlights, Burnished or Polished)
- **Upgrade the bushes if suitable**
- **Confirm the connection type** (from floor, wall, same or opposite ends, or electric)

Pick Metal Finish for Your Accessories

- **Find your valve design***
- **Add matching pipe sleeves**
- **Add wall stays**** (standard colour matched or luxury in matching metal finish)
- **Upgrade the air vent to matching metal finish if you so wish**

Submit your order to sales@victoriadesign.cz and we will be happy to process it for you.

Note: *Availability changes daily. Full payment is required to start production.*

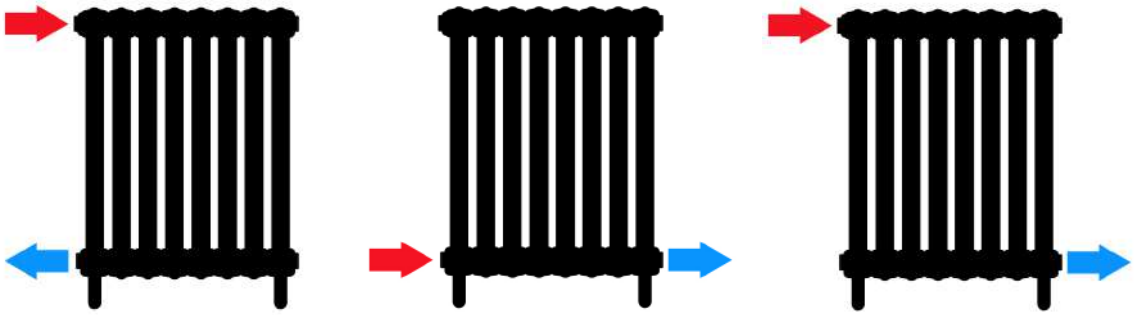
*****Not all valves come in all metal finishes.*

********Wall stays are optional. If required, then 1 wall stay per 10 sections is recommended.*

Connection

Connection Types

Our radiators come connected from the floor on both sides as standard i.e. BBOE (Bottom Bottom Opposite End). We can however adjust your radiators to various types of connections. We highly recommend such connections, for aesthetic reasons, but we also understand that not every home is the same, and sometimes, other connections are required.



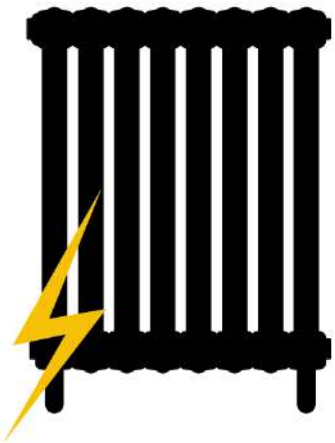
TBSE BBOE TBOE

Please be sure to specify which connection you require when ordering your radiators.

Please note: our pipe sleeves are made to cover a portion of pipe coming from the valve to the floor or the wall. If your pipework is not going directly into a surface and is e.g. exposed, our pipe sleeves will not be able to cover up such entire pipes.

Electric Options

Even with no central heating, you can benefit from the beauty of a cast iron radiator. Our electric radiators are supplied filled, tested and ready for wiring to a fused spur (standard lead length is 1200mm). Our electric cast iron radiators are available in a range of sizes. It is also possible to supply radiators with two elements (one at each end) when more significant outputs are required.



Connecting Bushes

As standard our bushes are 1/2" BSP but can also be 3/4" BSP on request and at a small charge as we have to re-engineer the existing 1/2" bushes.

Standard Outputs

Our radiator outputs are measured as standard on the same criteria under BSEN442. The Delta t (Dt) 50' is derived from the following operating conditions; 75' flow with a 65' return and a 20'C room temperature. That means water temperature between 75 & 65 is 70'C minus the room temp (20) gives the Dt of 50'.

(75+65)/2 - 20 = Dt50

Output Correction Factors

When the heating system is operating under different conditions a Correction Factor (CF) will need to be applied to adjust the output of the radiator in line with the varying conditions. E.g. if you have a system that is operating at 82/71/21 the Dt is 55.5 use the CF 1.145 from the table and multiply the listed output for the radiator.

As an example, a radiator that satisfies 1000 watts under Dt50 conditions, the same will now only satisfy 515 watts under Dt30.

Further examples:

Dt 50' Output = 1234W now multiply it by 1.145 = 1413W this is the new corrected output for the radiator.

If e.g. the temperature of your incoming 55F 45R then based on a 20-degree ambient the figure of Dt is (55+45)/2 - 20 = Dt30. The correctional factor for this is 0.515 meaning you multiply the regular output by this figure to get a corrected one for the parameters.

Dt	CF
60	1.267
59	1.240
58	1.213
57	1.186
56	1.159
55.5	1.145
55	1.132
54	1.105
53	1.079
52	1.052
50	1.000
45	0.872
40	0.748
30	0.515
25	0.406
20	0.304
15	0.209
10	0.123

Getting Ready

Getting Ready

We understand you will want to get your pipework ready beforehand. **We however strongly recommend** finishing the pipe connections and floors/walls around them only when you have your radiators ready on site. Due to the nature of the material all our length measurements are given in good faith and may vary. We cannot accept any responsibility for redoing pipework to fit the final radiator measurements.

Connecting valves will increase the overall space required to instal your radiator. The below measurements indicate how many mm's should be added to the length to get pipe centres distance and overall length incl. valves on the sides.

Note: *the below measurements assume the traditional connection from the floor on both sides of the radiator.*

Valve	Pipe centres length plus (mm)	Overall space req'd length plus (mm)
Canterbury TRV	90	135
Belgravia TRV	94	140
Belgravia Corner TRV	100	150
Buckingham TRV	100	150
Grosvenor TRV	90	125
Canterbury Lever Manual	90	195
Canterbury Manual	94	140
Kingsbury Corner Manual	100	150
Buckingham Manual	94	140
Chelsea Manual	90	120
Eton Manual	100	140
Lambeth Manual	90	155

Handling & Care Instructions

Important! Delivery & Heavy Goods Handling Information:

Please refer to HSE manual handling guidelines before attempting to lift this product.

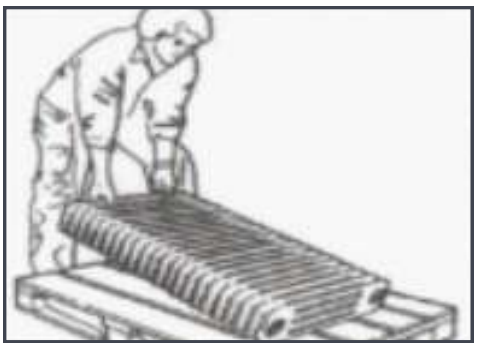
The delivery driver is only able to stop at the closest point on the road (or large lorry accessible hard standing) and, where legally possible, adjacent to the delivery address. Due to health and safety legislation the driver is prohibited from lifting any heavy goods (25kg = max. single person lift). They are **not insured** to enter the property. It is your responsibility to organise the manpower thereafter to be available to move your radiators to a suitable and dry storage area.

Someone must inspect, check and sign for the delivery. If any radiators or ancillaries are not inspected when delivered they must be signed for as 'unchecked'. Please do not sign the delivery sheet if any items are missing. If possible, whilst the driver is still with you, we advise that you unwrap and inspect your radiator(s) to ensure you are in receipt of the correct items including all of the fixtures and fittings.

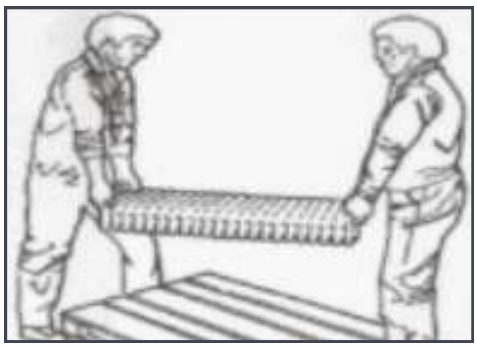
In the unlikely event of there being a discrepancy or if any visible damage or faults are apparent, you must contact your retailer immediately. In respect of signed for (but unchecked) deliveries any queries, visible damage or faults must be reported to your supplier within 24 hours of receipt of the order to record a claim.

It is not possible to accept back any radiator or ancillary on the grounds of suitability, damage or visible faults once it has been installed.

The diagrams below give you **very important** handling information and will help prevent operational issues: Please note and follow them carefully!

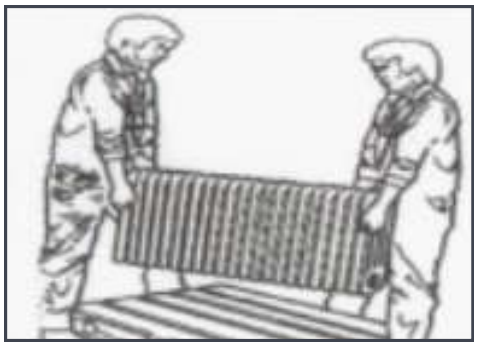


✕ **DO NOT!**
Lift from one end



✕ **DO NOT!**
Carry radiators flat

✓ **ALWAYS!**
Lift in centre



✓ **ALWAYS!**
Keep sections vertical

Handling, Installation & Care

Every Cast Iron radiator has been carefully built by craftsmen to your particular specifications. It has been fully pressure tested to ensure water tightness then finished using high quality materials. We want your delivery and installation to go as smoothly as is possible so please read all of the information provided. If you have any questions or queries please do not hesitate to contact your supplier.

Mishandling after delivery and poor storage or installation can lead to faults and possibly leaks. In order to ensure that your radiators remain in good condition, please read this information sheet carefully and retain for your future records.

Maximum Operating Pressure = 2.5 bar (max. test pressure = 3.3 bar)
Neo Georgian Range Maximum Operating Pressure = 6 bar (max. test pressure = 7.8 bar)

Delivery

Always refer to HSE guidelines when lifting heavy objects. **Never** attempt to lift heavy radiators on your own! Always wear and use suitable protective equipment.

Cast iron radiators are very heavy: Please ensure you have enough manpower available to move your order when it arrives. Whilst your radiator is on a pallet, its full length is supported. Once the radiator is removed from the pallet it must be carried in the upright position (columns vertical) at all times. The gasket seals could become compromised (more likely with longer radiators) if you carry the radiator unsupported horizontally as it creates a considerable strain on the joints and this may result in a leak also please do not drag the radiator around the feet could be snapped off!

Tip: *It may help to insert suitably strong pieces of wood between the sections to aid carrying (Fig.1 opposite).*

1

The Custom Finished Radiator

If you have ordered one of our paint finishes all care has been taken to avoid damage to your radiator during transit however if any light marking has occurred during the handling, unpacking, installation and use of your radiator we provide a colour matched touch up paint pot (for historical or metallic finishes only) with every order. Painted finishes only require occasional light dusting with a lint free cloth, no harsh or abrasive chemicals should be used.

The Hand Polished Radiator

Our specialised expert hand polishing creates a particularly handsome bright finished cast iron surface. It is lacquered to protect the surface and it will only require occasional light dusting with a lint free cloth, no harsh or abrasive chemicals should be used.

Extremely Important! System Water Treatment

Cast iron radiators are suitable for use on sealed or open vented heating systems only. They must not be used on secondary HWS circuits. Upon completion of the installation the entire system must be thoroughly cleaned and flushed to remove debris and flux residues etc. When a chemical cleanser is used it must be thoroughly flushed from the system, following this procedure the system must be dosed with a high-quality water treatment to prevent corrosion. Always use a Buildcert approved inhibitor.

We recommend **Fernox** products for your system water treatment as these products are fully compatible with our radiators. Please note that not all system water treatments available have been tested to be compatible with our products. Always ensure and maintain (for the long term) the correct amount of treatment in your system. Please visit **www.fernox.com** for further information.

System design, flushing and dosing must be in accordance with BS 5449, 1990, BS EN 12828:2003 and BS 7593. We strongly recommend that you do not use artificially softened water in the heating system as this type of treatment may cause excessive corrosion issues. It is important to note that failure to observe these requirements will render the guarantee on the products void. Corrosion inhibitors must be used in accordance with the manufacturer's instructions and recommendations and should take into account the particular metals within the system.

Bush/Valve Installation

Please note that a unique feature of cast iron radiators is that the top and bottom threads on one side of the radiator are Left Hand threaded. This means that any Left Hand threaded bushes tighten into these threads in a counter-clockwise direction. The top air vent bush and the fitting below are Left Hand threads (the female subthread within these bushes is standard Right-Hand thread). Never force a bush into the radiators thread, double check the bush and radiator threads for correct orientation. The bushes on the opposite end of the radiator are Right-Hand threads (so undo/tighten in the usual way).

When fitting a valve tail or air vent into the Left-Hand bush you will need to 'hold against' the bush with a suitable flat faced wrench to prevent this bush from unscrewing/loosening.

The excessive use of jointing materials when making the valve tails/vents into the bushes can sometimes crack the cast iron bush. It is recommended to use the correct amount of PTFE tape to make this joint. Other sealing compounds can be used and care should be taken to ensure they do not come into contact with bush gaskets. Whilst you do need to firmly tighten fittings in please do NOT excessively over tighten as this could lead to failure of the component.

Reminder on Bushes: The male (external) large thread of each bush fitting on the air vent side of the radiator is a Left-Hand thread i.e. turns counter-clockwise to tighten. The internal sub-threads of these bushes are standard Right-Hand thread so screw the valve tail and air vent into these bushes in the usual way (clockwise). The radiator section and bush threads at the opposite end of the radiator are both Right Hand threads.

Valves: For trouble free operation always fit your TRV (Thermostatic Radiator Valve) onto the heating flow pipe work. Failure to fit the TRV on the heating flow will cause unsatisfactory operation and could result in excessively noisy operation (water hammer).

Balancing the System: Your heating engineer will be familiar with the requirement to balance the radiators when they commission the system. Getting this right is important to the operational performance of your radiators. What is trying to be achieved is that each radiator has a sufficient share of the available heated water. This is achieved through adjusting the lock-shield valves on the radiators

(turning down the lock-shield valves on radiators that are closest to the pump and opening the lock-shield valves further from the pump). In this way you 'share' the available heat evenly around the system. Do this with the TRV/wheel-head valves fully open and then use the TRV/wheel-head for local room control of the temperature.

Wall Stay Installation

Wall stays are typically clamped between the rear columns of the radiator and screwed securely to the wall. The threaded rod should then be cut to length to suit final positioning (Fig. 2)

2

Assembly/Breakdown Instructions for Cast Iron Radiators

Place the radiator sections to be joined onto a clean firm and flat surface ensuring that the machined faces and internal threads are perfectly clean.

Sections: Each radiator section has Right-Hand (female) threaded connections on one side and Left-Hand threaded (female) connections on the other.

Nipples: The bithreaded nipples also have a Left and Right Hand male thread made onto each end. For correct assembly you will need to identify the orientation of the connections on the radiator assemblies. For each section to be joined there are 2 joints to be made. Each joint requires one nipple and one gasket. A joining tool will then be used internally to rotate and tighten the nipples.


1


2

Place a gasket on each nipple at the nipples mid-point then (once you have correctly matched the section/nipple threads) screw them by half to one turn a pair of nipples into the end of the radiator section as per Fig.2.

Remember: Only screw these in by half to one turn, do not screw them in fully.


3

Do not apply any jointing pastes or tape (e.g. Boss White, PTFE, hemp etc) to the gaskets, threads of the nipples or to the radiator.

Now slide the other radiator block to align with the nipples (Fig.3)

Lay the joining tool over the top of the radiator so that the head is in line with the nipple to be turned. Mark the key so that when it is inserted, the head aligns and engages inside the nipple.

Slide the key in from the open end of the waterway (Fig.4) until it engages into the nipple that is to be tightened.


4

Pull the section blocks together on the initial tightening to help ensure the nipple/section threads are turning into each other.

By turning the joining tool you will start to draw the two radiator assemblies together. At this stage only rotate each nipple by one turn.

Tighten the joints to firmly compress the gaskets.

Finally fit the bushes with the gaskets (no jointing pastes etc to be applied) ensuring the correct thread orientations are observed and firmly tighten.

Refer to the Help & Information Sheet for Cast Iron Radiator Handling, Installation and Care for guidance on the handling and movement of your radiators.

Maximum Operating Pressure = 3bar
Maximum Test Pressure = 3.9bar

Finally fit the bushes with the gaskets (no jointing pastes etc to be applied) ensuring the correct thread orientations are observed and firmly tighten.

Refer to the Help & Information Sheet for Cast Iron Radiator Handling, Installation and Care for guidance on the handling and movement of your radiators.