



## Cast Iron Seats

Cast iron seats have a visual appeal that is impossible to achieve with other materials, and are widely specified in environmentally sensitive areas.

We manufacture three designs of seats, the Georgian, the Victorian, and the Grafton. The Georgian and the Grafton are also available as benches (without backs). Standard and heavy-duty versions of all three designs are available, and most options can be specified with timber, steel or recycled plastic slats. All designs come in a variety of lengths, and special configurations are available that will enhance any landscape scheme. We also offer enhanced finish options for these seats, to improve their durability in aggressive environmental conditions (see page 25).

**Standard versions** use grade 250 grey cast iron for the castings, which is cost effective and durable, and suitable for most normal purposes. It has considerable strength, but will break if subjected to sudden severe shocks, such as those caused by traffic accidents, or extreme vandalism. Standard versions have generously sized boards to give a comfortable sitting position.



The boards on timber slatted versions have an intermediate stainless steel reinforcing strap on the back and base.

**Heavy-Duty versions** have grade 450/10 malleable spheroidal graphite (ductile) iron castings, which are even stronger than the grade 250 grey iron used in our standard versions. Ductile iron is virtually unbreakable in even extreme circumstances, so will withstand the worst vandalism. Our timber slatted heavy duty seats have thicker base boards than the standard versions (except for the Grafton which has thick boards in both versions), and two sets of reinforcing straps, to make them even more rigid.

On both versions the boards can be renewed individually, should they become damaged, without dismantling the whole seat, which greatly facilitates maintenance.

End frames can be provided with a crest or logo, or with the date, if preferred. The 130mm diameter of the plaque enables the logo to be clearly seen at a distance, when compared with the smaller plaques generally found on other manufacturers' products.

Standard fastenings are stainless steel countersunk socket screws with nyloc nuts. Pin-in-socket security screws are available as an option. The feet have cast-in slots for bolting down, and a variety of installation kits are available (see illustrations on page 26).

These seats are frequently specified for commemorative purposes for which several types of plaque are available (see page 4 - 9).

# Cast Iron Seats with wooden boards

## Georgian Seat

This seat pays tribute to the classic age of simple, elegant proportions and is equally suited to town centre or park use. The base and back are gently curved, for maximum comfort, and the seat height is perfect for most users. The leading edge of the front board has been 16mm radius pencil rounded, again for comfort.

Standard versions have:

- Boards 32 x 70mm finished
- Boards available in iroko or seasoned oak
- See pages 82 - 83 for timber specifications and finishes
- Standard length 1800mm, weight approx 91kg.
- Stainless steel central reinforcing straps to back and base
- Heavy duty version also available, see opposite
- K5 (225mm long), K11 (400mm long), or K17 (240mm long) galvanised ground fixing extensions are available to concrete the seat in
- K2 rawl bolts, K4 extended rawl bolts, or K12 extended rawl bolts are available to bolt the unit down
- Supplied fully assembled
- For installation recommendations see page 26



1800 Georgian Standard Seat



1800 Victorian Standard Seat

## Victorian Seat

This seat uses quarterfoils and other architectural detailing to create a more overtly elaborate design typical of the Victorian era. This design looks particularly effective in a formal park environment in dark green 14C40, which is a standard colour option. The basic shape and seat height etc. are the same as the Georgian seat.

Standard versions have:

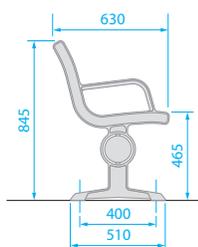
- Boards 32 x 70mm finished
- Boards available in iroko or seasoned oak
- See pages 82 - 83 for timber specifications and finishes
- Standard length 1800mm, weight approx 91kg.
- Stainless steel central reinforcing straps to back and base
- Heavy duty version also available, see opposite
- K5 (225mm long), K11 (400mm long), or K16 (240mm long) galvanised ground fixing extensions are available to concrete the seat in
- K2 rawl bolts, K4 extended rawl bolts, or K12 extended rawl bolts are available to bolt the unit down
- Supplied fully assembled
- For installation recommendations see page 26



1800 Grafton Standard Seat

## Grafton Seat

This seat combines the quality and longevity of cast iron with a design equally applicable to contemporary environments, and to areas with more traditional architecture. Substantial frames and very heavy boards make even the standard version of this seat particularly suitable for high usage areas. The curved back board illustrated is now standard on this design, and the current date is also cast in as standard. Heavy duty version also available, see below.



Standard versions have:

- Boards 45 x 65mm finished
- Boards available in iroko or seasoned oak
- See pages 82 - 83 for timber specifications and finishes
- Standard length 1800mm, weight approx 100kg.
- Stainless steel central reinforcing strap
- K5 (225mm long), K11 (400mm long), or K18 (240mm long) galvanised ground fixing extensions are available to concrete the seat in
- K2 rawl bolts, K4 extended rawl bolts, or K12 extended rawl bolts are available to bolt the unit down
- Supplied fully assembled
- For installation recommendations see page 26

## Heavy-Duty Seats & Benches



1800 Georgian Heavy-Duty Seat

For rigorous environments, we offer heavy-duty versions of all of our wooden boarded cast iron seat and bench designs. These seats offer considerable improvements in specification over our standard versions, and should be considered in areas particularly prone to severe vandalism, or if damage caused by vehicles is likely.

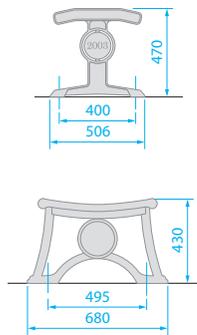
The following improvements in specification apply;

- Castings made from grade 450/10 ductile iron
- Seat base boards 45 x 70mm finished (Grafton boards 45 x 65mm finished)
- Stainless steel reinforcing straps at two intermediate positions on boards
- Standard length 1800mm, weight approx 97kg. (Georgian, Victorian, Grafton seat)
- For installation recommendations see page 26

## Georgian and Grafton Bench

Designed to match the Georgian and Grafton seats, these benches enable sitters to face either way. The Grafton bench has the current date cast in as standard.

- Boards Georgian 32 x 70mm finished, Grafton 45 x 65mm finished
- Boards available in iroko or seasoned oak
- See pages 82 - 83 for timber specifications and finishes
- Standard length 1800mm, weights approx. Georgian 64 kg, Grafton 58kg.
- Stainless steel central reinforcing straps on boards
- Heavy duty version also available, see page 18
- K5 (225mm long), K11 (400mm long) galvanised ground fixing extensions are available to concrete the benches in
- K2 rawl bolts, K4 extended rawl bolts, or K12 extended rawl bolts are available to bolt the units down
- Supplied fully assembled
- For installation recommendations see page 26



1800 Grafton Standard Bench

1800 Georgian Standard Bench with optional date plates



2400 Victorian Standard Central Frame Seat

### Central Frame Seats

Both the Georgian and Victorian design can be specified with an additional frame in the centre of the seat in 1800, 2400mm and other lengths. The advantages of central frames are:

- Significantly increased strength
- Extra arm for the elderly and disabled
- Discourages vagrants from sleeping on the seat

# Special Feature Seating

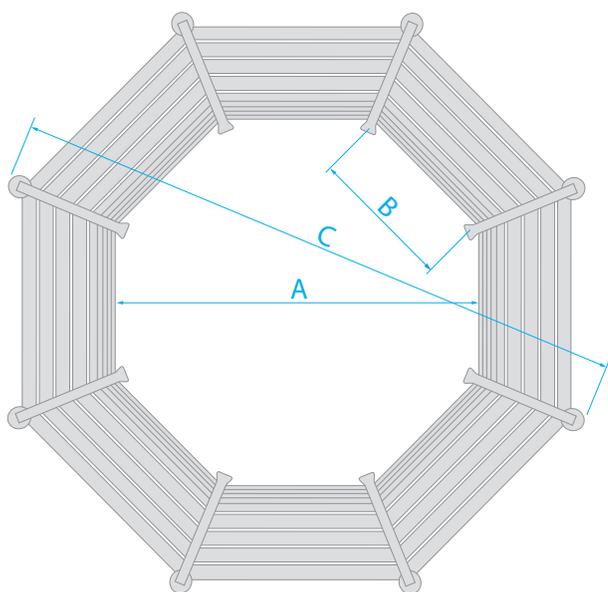
Double flanged castings for our Georgian and Victorian designs facilitate the production of more complex seating arrangements, which can greatly enhance a landscape project.

## Octagonal Seating Units

Octagonal units are ideal for encircling planters, trees or other architectural features, and are supplied in four standard sizes, with boards in either iroko or seasoned oak. Intermediate sizes can also be supplied, and larger sizes, up to a clear internal diameter of 5600mm are possible.

Octagonal units based on Georgian and Victorian castings are available, as are both standard and heavy-duty versions. Segments of octagons can also be supplied, giving further seating options. The sitters face outwards as standard, though segments of octagons can be specified enabling the sitter to face inwards at no extra cost.

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Summary of standard octagon sizes

Size	Seating capacity per sector	A Clear internal diameter (mm)	B Length of top back board (mm)	C Maximum outside diameter (mm)
1	1	1250	500	2650
2	2	2200	890	3675
3	3	3150	1280	4705
4	4	4115	1680	5750

(Size 4 has 45mm base boards in both Standard and Heavy Duty versions)



## Extended Seating Units

Both the Georgian and Victorian castings can be used to build continuous seats of any length. Pictured here is a 7.2 metres long Georgian unit outside Tavistock Town Hall. General specifications are as for the Georgian and Victorian Seats on page 18



# Cast Iron Seats with steel boards

Cast iron seats with steel boards are increasingly specified to address vandalism problems. Although the seats can be cold to sit on, this furniture will survive where other types will not.

All three of our cast iron ended styles - the Georgian, the Victorian and the Grafton - can be specified with steel slats, in either standard or heavy-duty versions, with either Acrylic Coating, or Street-Tough finish on the boards. Full specifications of these finish options are described on page 87.

The heavy-duty versions have an identical specification to the standard versions, except for having grade 450/10 ductile iron castings. When painted dark brown the steel slats approximately resemble wood visually, but have the vandal resistant advantages of steel. Both the castings and the slats can be finished in the same colour if required, to facilitate future maintenance, or to create a distinctive effect.

- Boards 80 x 40 x 3mm rectangular hollow (Grafton boards 60 x 40 x 3mm and 80 x 40 x 3mm rectangular hollow)
- Boards finished in Street-Tough as standard, or Acrylic Coating
- Boards finished in brown 08B29, and castings in black as standard.
- Eleven other colour options available at no extra cost (see page 90). Also available in any other B.S. or RAL colour for a surcharge
- Standard length 1800mm, other lengths available
- Weights approx 1800 Georgian seat 148kg, 1800 Victorian seat 148kg, 1800 Grafton seat 148kg
- Heavy duty version has grade 450/10 ductile iron castings
- Georgian and Grafton benches with steel boards also available
- K5 (225mm long), K11 (400mm long) galvanised ground fixing extensions are available to concrete the benches in
- K2 rawl bolts, K4 extended rawl bolts, or K12 extended rawl bolts are available to bolt the units down
- Supplied fully assembled
- For installation recommendations see page 26

1800 Grafton Standard Seat with steel boards



1800 Georgian Standard Seat with steel boards



1800 Victorian Standard Seat with steel boards

# Cast Iron Seats with recycled plastic boards

Our Georgian and Victorian designs are available with recycled plastic boards made from a range of waste plastics containing low and high density polyolefins.

In certain circumstances, particularly if an accelerant such as petrol is used, this material may catch fire and burn.

Both standard and heavy-duty versions are available. The heavy-duty versions have an identical specification to the standard versions, except for having grade 450/10 ductile iron castings. To obtain the necessary strength the boards are fully supported by an unobtrusive galvanised steel sub frame, finished in Street-Tough (See page 87).



1800 Victorian Standard Seat with recycled plastic boards

These seats can be used for commemorative purposes and supplied with a flush mounted stainless steel or cast bronze plaque, attached through the plastic and secured from the rear with tamper resistant fastenings.

Cast Iron Seats

- Boards 25 x 100mm, in black or brown
- Boards riveted and bolted to substantial welded steel sub frame galvanised and finished in Street-Tough
- Stainless steel fastenings as standard, tamper resistant pin-in-socket fastenings available as an option
- Standard length 1800mm, weight approx. 140kg. (Georgian and Victorian 1800 seat)
- K5 (225mm long), K11 (400mm long) galvanised ground fixing extensions are available to concrete the benches in
- K2 rawl bolts, K4 extended rawl bolts, or K12 extended rawl bolts are available to bolt the units down
- Supplied fully assembled
- For installation recommendations see page 26



1800 Georgian Standard Seat with recycled plastic boards

## Recycled Plastic Benefits

- Ecologically attractive
- Long lasting & durable
- Knot and splinter free
- No painting required
- Maintenance free
- Water resistant, rot free
- Comfortable to sit on
- Through coloured

### Summary of installation kits available for cast iron seats

	K2	K2T	K4	K4T	K5	K5C	K5T	K11	K11C	K11T	K12	K16T	K17T	K18T
Georgian Seat	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	
Victorian seat	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Grafton Seat	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
Georgian Bench	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	
Grafton Bench	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓

# Crests and Logos

Crests and logos enhance the appearance of all our cast iron ended seat and bench designs, as well as making the items more individual and identifiable.

The two types of cast plaques we offer are a traditional way of personalising cast iron items and are robust and durable options.

All of our cast iron ended seats and benches have a 130mm diameter plaque space available in each end frame.

## Cast Iron Plaques

Georgian and Victorian designs can be supplied with cast iron plaques depicting the current year for a small additional charge. Grafton seats and benches are supplied as standard with current year plaques at no additional cost. Some other previous years are also available. Alternative designs or customer's own crests or logos cannot normally be supplied in cast iron due to the cost of small production runs.

### Highlighting

After the castings are painted the date can be highlighted by hand in gold, silver or any B.S. or RAL colour at a small additional cost.



## Cast Bronze Plaques

These plaques are cast in solid bronze, and after stove enamelling have the top surfaces machined off. They are then stove enamelled in a clear lacquer. The images are very clear, attractive and are durable. Alternative dates and customer's own crests or logos can be supplied, even for a single seat, in this material. Three costs are incurred: design work, manufacturing and fixing costs, and highlighting.



### Design work.

Artwork is scanned and sized to best fit the plaque using a computer, so this cost is not great. If clear black on white artwork is provided this cost is further reduced. Design work costs only occur once; subsequent orders for identical plaques incur no further charges. We recommend the use of simple logos as these have the greatest visual impact.

### Manufacturing and fixing.

After manufacture the bronze plaques are fixed into the seat frames. They are glued and screwed to a flat landing cast or welded into the frames from the rear so no fixings are visible. Manufacturing and fixing costs remain at the same cost per unit however many units are ordered, so there is no substantial cost dysfunction to having a small number of units with a cast bronze plaque.

### Highlighting.

The way these plaques are machined and lacquered means that in most instances highlighting is not required. However, if required, logos can be highlighted by hand in any B.S. or RAL colour at additional cost. Simple logos highlighted in one colour are inexpensive; complex crests in several colours take much longer for our skilled craftsmen to do and so cost considerably more.

# Finish Options

Even in Standard Finish Specification our cast iron seats are well finished and supplied with stainless steel fastenings, so are superior to those offered by most of our competitors.

We pay particular attention to the fettling of the castings, especially in such critical areas as the arms and back, to ensure that they have a smooth finish. The sprayed top coat, which is the same for all three finish options, is durable and resistant to the "chalking" action of ultra-violet light.

This paint allows the castings to be refinished on site with any ordinary paint in the future, and is available in any of twelve standard colours at no extra cost (see page 90). It is also available in any other B.S. or RAL colour for a surcharge, giving specifiers a huge colour choice.

However, there are some environments (such as sea front promenades) which are particularly aggressive, where a higher standard of finish should be considered. Both the 'Sea Front Specification' and 'Sea Front PLUS Specification' described below will reduce the amount of maintenance required during the first few years after installation.

It is important to point out that neither of these two options will make seats maintenance free. To keep seats looking good for an extended period of time their condition should be reviewed at the beginning and end of the season, and action taken as required to remedy any defects which are apparent.

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Acrylic PLUS Coating System

## Standard Finish Specification

### Castings

As standard the castings are finished in our Acrylic PLUS Coating, which provides an effective and durable finish, and consists of:

1. Priming with high build two pack epoxy
2. Intermediate coat of high build two pack epoxy
3. Top coating with two pack satin finish acrylic polyurethane

### Boards

Recycled plastic boards require no finishing. Iroko boards are finished in two coats of Cuprinol exterior wood stain. Steel boards are finished in Street-Tough, which consists of:

1. Hot dipped galvanising to ISO 1461
2. Chemical etching to provide key for paint
3. Priming with high build two pack epoxy
4. Top coating with two pack satin finish acrylic polyurethane

## Sea Front Specification

Both the castings and boards are given an extra top coat with this specification, which makes the finish more robust and resistant to the abrasive effects of wind blown sand, at a relatively low additional cost. This specification consists of:

### Castings

1. Priming with high build two pack epoxy
2. Intermediate coat of high build two pack epoxy
3. Top coating with two pack satin finish acrylic polyurethane
4. Additional top coat of two pack satin finish acrylic polyurethane

### Boards

Recycled plastic boards require no finishing. Iroko boards are finished in three coats of Cuprinol exterior wood stain. Steel boards are finished in:

1. Hot dipped galvanising to ISO 1461
2. Chemical etching to provide key for paint
3. Priming with high build two pack epoxy
4. Top coating with two pack satin finish acrylic polyurethane
5. Additional top coat of two pack satin finish acrylic polyurethane

## Sea Front PLUS Specification

This has all the advantages of the Sea Front Specification, but in addition the castings are galvanised, to make them more resistant to the corrosive effects of salt. The castings are then chemically etched by fully immersing them in a phosphoric acid wash, to provide the perfect key for paint. Etching primers are nothing like as effective as this method.

If any of the paint should become damaged, or eroded by wind blown sand, the galvanising will protect the iron for a considerable while, so they will not be subject to the same rusting problems during the first few years after installation. This specification consists of:

### Castings

1. Hot dipped galvanising to ISO 1461
2. Chemical etching to provide key for paint
3. Priming with high build two pack epoxy
4. Intermediate coat of high build two pack epoxy
5. Top coating with two pack satin finish acrylic polyurethane
6. Additional top coat of two pack satin finish acrylic polyurethane

### Boards

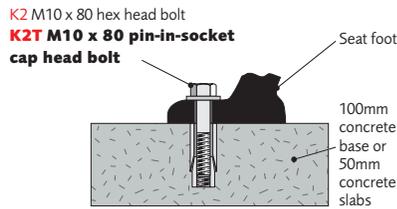
Recycled plastic boards require no finishing. Iroko boards are finished in three coats of Cuprinol exterior wood stain. Steel boards are finished in:

1. Hot dipped galvanising to ISO 1461
2. Chemical etching to provide key for paint
3. Priming with high build two pack epoxy
4. Top coating with two pack satin finish acrylic polyurethane
5. Additional top coat of two pack satin finish acrylic polyurethane

# Installation Recommendations

## 1. Rawl bolts (K2 or K2T)

Seats can be rawl bolted to an existing surface of sound concrete, or well laid traditional size concrete or stone slabs, using these M10 x 80 rawl bolts. This method enables seats to be moved, should the need arise, though is not normally suitable for installing seats onto small block pavours. All the bolts in these options are stainless steel.



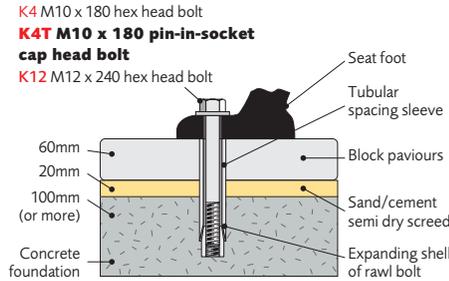
- K2 have hex head bolts
- K2T have tamper resistant pin-in-socket socket cap head bolts to reduce the risk of unauthorised removal



Ground fixing into concrete

## 2. Extended rawl bolts and spacers (K4, K4T or K12)

For the installation of seats (which might need to be removed), on small block pavours, typically 60mm thick, we recommend either the K4 or K4T rawl bolts, or K12 extended rawl bolts, with semi collapsible spacing tubes. The spacing tubes hold the rawl bolt shell in the concrete (which must be laid beneath the pavours) whilst the bolt is being tightened. It is recommended that the pavours in the area of the seat are bedded on top of the concrete using a semi dry sand cement screed about 20mm thick. These kits are also suitable for fixing seats onto surfaces of bituminous macadam, laid on top of concrete. All the bolts in these options are stainless steel. The K4 options are 180mm long, and the K12 option is 240mm long.



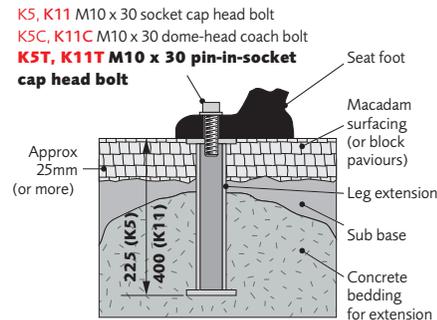
- K4 and K12 have hex head bolts
- K4T have tamper resistant pin-in-socket socket cap head bolts to reduce the risk of unauthorised removal



Ground fixing on block pavours

## 3. Galvanised ground fixing extensions (K5, K5C, K5T, K11, K11C or K11T)

These extensions have the advantage of offering a very strong and permanent installation, though they are more work than the K2 or K4 fixing kits. This means of fixing is suitable for grassed areas, small block pavours and macadam surfaces. The extensions are bolted to the feet of the seat and then accurately positioned in the concrete bedding, using the seat as a template. After the concrete securing the extensions has set, the seat is removed, and the final surface is laid to the tops of the extensions. The seat is then returned to the site and finally bolted down. All the bolts in these options are stainless steel. The K5 options are 225mm long, and the K11 options are 400mm long.



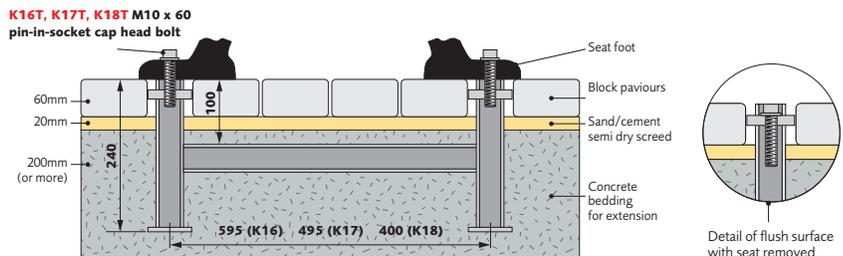
- K5 and K11 have socket cap head bolts.
- K5C and K11C have coach bolts (which are very tamper resistant, but difficult to remove if ever the seat needs to be moved).
- K5T and K11T have tamper resistant pin-in-socket socket cap head bolts to reduce the risk of unauthorised removal.



Ground fixing extension

## 4. 'H' section galvanised ground fixing extensions (K16T, K17T or K18T)

These 225mm extensions have been specially designed for locations where cast iron seats need to be regularly removed, such as sea front promenades or streets where markets are held. After the seats have been removed the tamper resistant pin-in-socket cap head bolts are returned to the threaded holes, which are recessed into the ground fixings, to prevent them filling with dirt. After replacement they are flush with the ground, so nothing protrudes to trip over when the seats have been removed.



The ground fixings have 12mm of M10 internal thread, so the threads will not easily strip, and are suitable for many years' use. Care must be taken not to cross thread the bolts, and to grease the threads during every installation. All the bolts in these options are stainless steel.

- K16 and K16T are for the Victorian seat
- K17 and K17T are for the Georgian seat and bench
- K18 and K18T are for the Grafton seat and bench.