

# Baths



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## Generic Industry Guide

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Welcome to the Baths Generic Industry Guide one in a series of Industry Guides which are available free of charge from the Bathroom Academy Web Site.

We have aimed to make the contents of the Guides both informative and relevant and hope you will consider them a valuable aid to your continuing professional development and that of your colleagues, within the Bathroom Industry.

Each Guide has been written by experts and contains the same five elements:

- Right choice of product for end user needs
- Generic industry design
- Generic industry installation
- Frequently asked questions
- Generic industry terminology

The Baths Generic Industry Guide looks at the vast range of baths that are available and offers essential information which will allow the Retailer, Merchant and Installer to provide items best suited to the end user needs, whilst the customer's major considerations will be cost, functionality, durability and aesthetics. It is also essential to consider a number of important additional factors; available space, storage requirements and the materials used to manufacture the furniture and its' suitability and compatibility with the bathing and/or showering suite within the bathroom.

Other guides in the series are:

- Bathroom Furniture
- Brassware
- Domestic Water Systems
- Sanitaryware and Fittings
- Shower Controls
- Shower Enclosures
- Shower Trays
- Thermostatic Mixing Valves
- Wetrooms

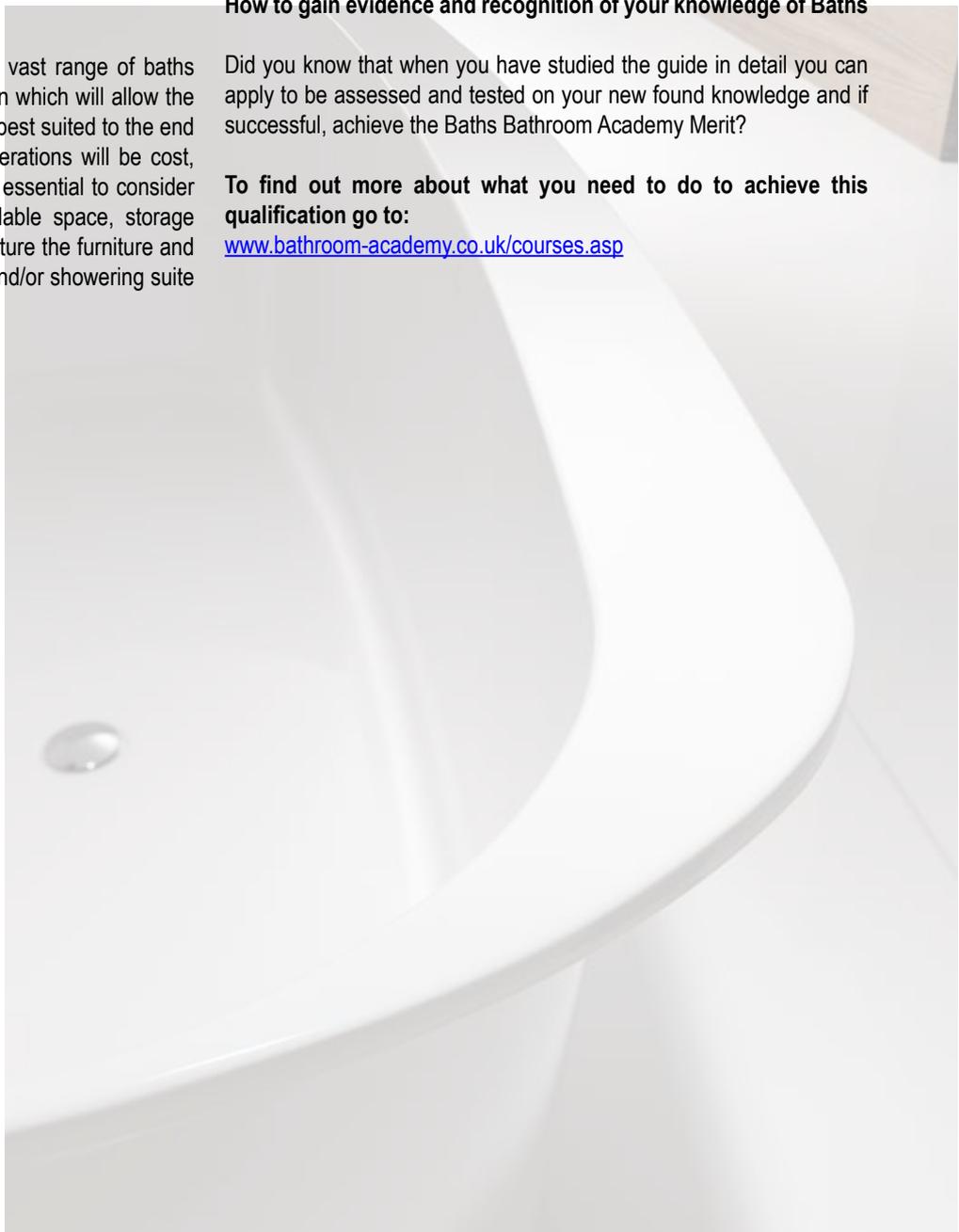
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# Introduction

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## Baths

There are three main types of materials used in the construction and production of baths:

- Cast Acrylic
- Porcelain Enamel Steel
- Enamelled Cast Iron

Each has specific characteristics which influence their design and application. For example Cast Acrylic is easily moulded into a wide variety of shapes and styles. Steel and Cast Iron baths can be more robust but because of the nature of the material they tend to be of more traditional design.



# Section 1

## Cast Acrylic Baths

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### Cast Acrylic Baths with Glass Reinforced Plastic

Cast acrylic baths have been manufactured for over fifty years and have the following characteristics:

- Warm to the touch
- Retain water temperature longer than baths made from other materials
- Lightweight
- Easily transported
- Easily located and installed
- Available in a wide range of colours
- Hardwearing
- Excellent resistance to water staining
- A comprehensive range of tap and grip scope for a wide range of designs and size
- Easy to clean.

### Cast Acrylic Bath Designs and Types

#### Standard Bath

Rectangular in shape, with numerous size options. Rectangular baths can be supplied with front and end panels. These panels are usually made from plastics and are lightweight and easy to cut to fit into various installation situations.

#### Corner Bath

These baths fit into a corner of the bathroom usually with each side being of equal lengths. Front panels are usually made from plastics and come in a variety of designs which, like the standard bath end panels, are easily cut and trimmed to fit specific installations/conditions.

#### Off-set Corner Bath

These baths fit into a corner of the bathroom but have sides of unequal length. This optimises bathing space whilst occupying less of the available space. Off-set corner baths fit into left or right hand corners of the bathroom as required. They are available in a range of styles and colours.

#### Double End Bath

These baths are usually rectangular in shape with a facility for fitting the taps on one of the sides rather than at either end. This allows two people to bathe together or for a number of children to be bathed at the same time.

#### Shower Bath

Shower baths provide conventional bathing with the additional facility of an over the bath shower. The showering end of the bath generally displays a 'bulge' or widening to maximise space for showering. These baths are available in left or right handed options to fit into most bathroom layouts.

#### Tapered Bath

Tapered baths are designed to be used in bathrooms where space is at a premium. These baths are wider at one end. Often a shower is fitted at the wider end. Available in a range of colours and sizes. These baths are supplied with matching side panels.

#### Roll Top (Free Standing) Bath

These baths are designed to be free standing on feet, not fitted against a wall. Roll top baths are often considered to be the 'traditional' look although they are available in contemporary designs. They are heavily reinforced with glass reinforced plastic (GRP) for strength and therefore do not require an external cradle for additional support.



## Construction

### Material

Cast Acrylic baths are moulded from a single acrylic sheet and reinforced for strength and rigidity. Generally reinforcement is provided by spraying glass reinforced plastic (GRP) to the underside.

The baths are manufactured from a range of acrylic sheets having different thicknesses typically 4mm, 5mm, 8mm or 10mm. As a rule, the greater the thickness, the less GRP reinforcement is needed on the underside.

After manufacture, the acrylic sheet will always thin down in certain areas such as the internal corners and stay thickest at the rim.

### Cradle

A steel or wooden frame supports and strengthens a cast acrylic bath from the underside. The cradle has adjustable feet for levelling on uneven floors. The cradle forms part of the bath package. It is usually packed with the bath and requires assembling prior to installation. However, some cast acrylic baths come with cradles ready assembled, speeding up installation.

### Baseboard

The baseboard comes fixed onto the underside of the bath. The baseboard itself is usually made of chip board but other materials can be used. The purpose of the baseboard is to add strength and rigidity to the base of the bath. In some bath designs the baseboard is fully encapsulated and is underneath the bath, covered with glass reinforced plastic.

### Adjustable Feet

Cast Acrylic baths are supplied with adjustable feet which serve two functions. They allow the bath to be levelled during installation and they enable the height to be adjusted within a limited range.

### Wall Fixings

When wall fixings are supplied by the manufacturer it is important that they are used. Their purpose is to prevent movement or 'play' at the point where the bath meets the wall. Any movement of the bath relative to the wall can lead to leakage, particularly if a shower is used over the bath.



# Section 2

## Porcelain Enamel Steel Baths

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Fundamentally, porcelain enamel is a form of glass bonded to metal at high temperature. It is the highest quality, most durable and with a sanitary finish available for metallic surfaces. The advantages are:

- Smooth and evenly finished
- Resistant to chipping and abrasives
- Easy to install, generally having no cradle
- Good rigidity
- Resistant to acids and alkalis
- Capable of supporting heavy weights
- Long lasting (flame proof, fade proof, corrosion resistant)

### Designs and Types

#### Standard Baths

These baths are rectangular in shape and are available in a wide range of sizes. Panels are usually supplied in plastics to finish the front and ends.

#### Construction

##### Materials

Porcelain Enamel Steel baths are pressed from a steel sheet to form their shape. From pressing, the bath is taken through a cleansing process to ensure the perfectly clean surface needed to accept the enamel coating. The vitreous porcelain enamel coat is applied by spraying. Baths are then fired at a very high temperature to make a strong chemical bond between the steel and the enamel.

##### Support

Porcelain enamel steel baths have inherent strength and generally do not need a supporting cradle or a baseboard.

##### Feet

Porcelain enamel steel baths are supplied with adjustable feet. They allow levelling on uneven floors and some adjustment of the installation height.

# Section 3

## Enamelled Cast Iron Baths

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Historically this is an older form of bath and is now less common in the UK. Enamelled Cast Iron Baths have similar properties to steel baths:

- Immensely strong
- Very rigid
- Coated with porcelain enamel
- Associated with traditional bathrooms
- Durable with a long life
- Easy to clean

### Designs and Types

#### Standard Bath

These baths are rectangular in shape and are available in a range of sizes.

#### Free Standing Bath

These baths are generally free standing with decorative feet, sometimes called claw feet.

#### Construction

Enamelled Cast Iron baths as their name suggests are cast in a mould from iron. After forming they are subject to a cleaning process to ensure that they bond with the porcelain enamel sprayed on to their surface. Baths then undergo treatment at high temperatures in a kiln to bond the coating to the surface.

Enamelled Cast Iron baths do not require cradles or baseboards because of their inherent strength.

# Section 4

## Whirlpool Baths

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'Whirlpool' is a general term for the two different methods of activating water in a bath:

- Spa Bath
- Whirlpool Bath

### Spa Bath

A pump forces air upwards through the bath water via jets located in the bath, the flow rate is governed by a control panel.

### Whirlpool Bath

Jets are located around the sides of the bath. The water from the bath is drawn by a pump and returned through the jets at high pressure. The stop/start, mixture of air and water and flow rate is adjusted by a control panel located on the rim or remotely.

Whirlpool/Spa baths are available in numerous shapes and styles and are mostly manufactured in Acrylic. As with 'standard' baths they are supported by a cradle which also acts as a convenient location for the pump and associated pipework.



# Section 5

## Installation - All Bath Types

Essentially the methods of installing baths are the same for the different types of materials used in their manufacture but there are variations which must be considered and therefore manufacturers' instructions will vary for different models and between different manufacturers, so always read the specific instructions carefully before commencing work.

### Cast Acrylic Bath Installation

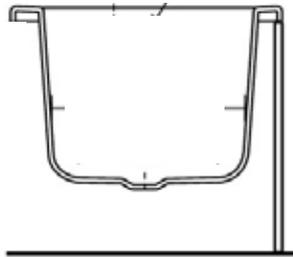
Before fixing a new cast acrylic bath or its panels, remove the protective covering and check thoroughly that all the components required have been supplied by the manufacturer.

### Baseboard

To add stiffness, most moulded plastic baths have a baseboard bonded separately to the underside or incorporated into a moulding in the base of the bath and often with an additional wooden frame bonded beneath the rim.

### Cradle

A cradle kit is usually supplied which will need to be fitted to the underside of the bath. The easiest way to do this is to invert the bath, but put a cloth sheet on the floor first so as not to scratch the surface of the bath. Following the manufacturer's instructions, fit the cradle legs to the frame and baseboard and also fit the centre support leg, if supplied. Attach the wall-fixing brackets (if supplied) to the underside of the rim-support frame. Fit any hand grip(s) to the rim if supplied at this point so you have easy access to the securing nuts and washers.



### Fitting

Now turn the bath back onto its feet. Initially place the bath in the required position to adjust the bath to the correct height by using the adjustable feet. When you are satisfied that the overall height is correct ensure that the bath is level by using a spirit level across the top rim width and length of the bath. 'Fine Tune' to the correct level and when satisfied tighten the locking nuts on all of the feet.

Pull the bath away from the wall and install the other components.

Place the hot and cold taps or a mixer- tap set through the pre-cut holes on the bath rim, ensuring the rubber/plastic washers are located under the body of the taps against the bath. Attach and tighten the locking nuts from the underside. For baths with undrilled tap holes – follow manufacturer's instructions on how to drill for cast acrylic baths only. It is not recommended that Steel or Cast Iron are cast by the installer.

**Caution:** Do not overtighten these nuts as it may cause cracking. Attach flexible connecting pipes to the tap tails - this allows for any misalignment when you connect up with the supply pipes.

Fit the overflow outlet and waste outlet into the bath, again ensuring all the necessary washers are located in their correct position. Connect them to the combined waste/overflow and trap unit. When all the components have been correctly fitted, place the bath back in its desired position and secure to the wall with the brackets and the feet to the floor. Connect the water supply and wastepipes. If soldering joints, be careful when using a blow torch near the GRP bath surface.

### Fixing

Before completing the installation it is recommended that the bath is fully filled with warm water to allow it to 'settle' on the frame and fittings, as acrylic material tends to flex slightly.

### Sealing

It is recommended that tiling is completed after the bath has been fixed to the wall so that the tiles overlap onto the bath rim which will produce a joint which can be made watertight. Seal the joint between the wall and bath using a proprietary waterproof flexible silicone sealant while the bath is still full of water.

### Panels

'Test fit' the bath panel(s) to the bath to see how much (if any) they will need trimming to ensure a neat and tidy finish. Panels are commonly supplied slightly larger than required so that they can be trimmed to individual installation requirements. Always use a fine toothed saw being careful not to scratch the surface of the panel. Individual manufacturers' panels are fitted in different ways so read their specific installation instructions carefully.

### Porcelain Enamel Steel Bath Installation

Installation of a Porcelain Enamel Steel bath follows the same principles as for Cast Acrylic baths but there are a few differences.

Normally, because a Porcelain Enamel Steel bath is inherently more rigid than Cast Acrylic bath, it is supported by a cradle fixed to the base of the bath, rather than one which supports the whole of the bath.

All the same fixing instructions apply except it is not necessary to fill the bath prior to sealing as the steel bath will not deform when filled. Bear in mind that a steel bath will probably be heavier than its' acrylic equivalent.

### Enamelled Cast Iron Bath Installation

Installation of an Enamelled Cast Iron bath again will follow the same principles as for Porcelain Enamel Steel baths but, it is supported by the feet which are an integral part of the casting or attached separately. There is no additional cradle for support as an Enamelled Cast Iron bath is completely rigid and self-supporting.

Commonly, because there is no cradle which needs to be hidden, these baths are of a 'free standing' design in luxury style bathrooms i.e. they are not attached to any walls. As Enamel Cast Iron baths are considerably heavier than Cast Acrylic and Porcelain Enamel Steel, make sure that the floor is strong enough to take the load of the bath water and occupant, especially if on chipboard floors or older properties where the floor joists may not be up to modern standards. If installing a larger Enamel Cast Iron bath in an upstairs room, it may be advisable to consult a structural engineer beforehand.

### Whirlpool Bath Installation

Because of their more complex nature whirlpool baths must be installed by professional qualified plumbers and electricians.

Typically Whirlpool baths are manufactured from acrylic so the same basic principles of installation apply as to 'standard' Cast Acrylic baths.

### Fixing

Do not lift or move the bath with any part of the pipework. Always allow access to service the whirlpool or spa after installation.

Install the bath in such a manner that will allow for its removal without the necessity to remove tiles.

Check that the pump unions are hand tight only and nothing has been moved in transit. Fit stop valves in to the water supply to allow the water to be turned off when necessary. Inspect the bath for damage before installation.

Never run the whirlpools system without water in the bath as this can damage the pump.

### Electrical Requirements

The installation MUST be carried out by a qualified electrician.

1. Mains supply via a 30 MAmp, 30 Msec RCD.
2. Use a 13Amp fused spur from the ring main.
3. Use 2.5 Twin and earth cable.

### RCD (Residual Current Device)

1. The RCD must not be fitted under the bath.
2. The RCD must not be fitted within reach of the bath.
3. The RCD must be positioned in an accessible position to allow for testing and can be used to isolate the bath.

The bath and whirlpool pump must be correctly earthed.

### Safety Issues

Safety is of paramount importance in the installation and use of Whirlpool baths as the combination of water and electricity is potentially a major hazard. Professional installation is a major priority to ensure highest safety standards are adhered to. Some baths are fitted with a safety cut off unit in the event of the pump inlet becoming covered or with a safety suction cover. All whirlpool systems should comply with [BS EN60335-2-60:2003+A12:2010](#).

### Additional Information

Pregnant women should not use a Whirlpool bath. People with a medical condition should consult their doctor before taking a whirlpool bath or spa bath. Never leave children, the very elderly or the infirmed unattended.

The Water Supply (Water Fittings) Regulations 1999 state that any bath exceeding 230 litres, measured to the centre line of the overflow, must be notified to the local water authority prior to installation as a notifiable device.



# Section 6

## Frequently Asked Questions

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### Is the quality of Cast Acrylic baths as good as others?

Yes. They all should meet BS EN198:2008 and BS EN14516:2006+A1:2010 so their quality is guaranteed and they are less costly to produce because of lower raw material cost and the manufacturing process.

### What is the best way to clean an acrylic bath?

A soft cloth and soapy water is all that is needed to get a good finish. Rinse with clean water and wipe dry.

### Can I choose my bath from one supplier and the wash basin and toilet from other sources - will the colours match?

This is not recommended but it is possible to obtain bathroom products from more than one source.

### I like to soak in the bath, which bath keeps the water temperature warm for longest?

Cast Acrylic baths have good insulation properties and keep the water warmer for longer.

### Which type of bath gives more choice of style?

Cast Acrylic baths have good design flexibility and are produced in the widest range of shapes and sizes.

### My bathroom has limited space, what are the options for fitting a bath?

Several manufacturers produce baths with the smaller bathroom in mind. Consider a shower bath.

### Are colours available in porcelain enamel steel?

Yes, the range is not as wide as the range for cast acrylic baths because of the colour matching process.

### Will my local domestic water supply stain my porcelain enamel steel bath?

Whilst porcelain enamel steel and cast acrylic baths are generally excellent in their ability to withstand water soluble materials, Enamel Cast Iron baths can be affected over time. Cleaning after use will help reduce any problems.

### I want to change the position of my taps when I install a new bath, is that possible?

Yes, with the wide range of designs available taps can be located in various positions to suit any bathroom.

### I wish to install a bath with taps mounted on the wall, are baths available without tap holes?

Yes, most manufacturers have baths in their range with no pre-cut tap holes.

### How do I make sure that I have a water tight seal between the bath and the wall when it is installed?

Follow the instructions from the manufacturer. Importantly, use the wall brackets if provided to fix the bath to the wall. A silicone sealant can be used to make a neat seal. A good tip is to fill the bath with water before applying the sealant.

### Is it better to fit the bath panels before or after the bathroom flooring is laid?

Generally speaking the flooring should run under the edge of the bath. The panel when fitted on top of the flooring gives a neat finish.

### Do baths come with a guarantee?

It varies between different manufacturers, some offer a 25 year guarantee.

### Do you need a special water supply to have a Whirlpool bath?

No, Whirlpool baths utilise standard hot and cold supplies found in all households.

### Are Whirlpool baths expensive to run?

Not really, because they utilise the heat in the water more efficiently, therefore there is less wastage of energy.

### Are Whirlpool baths noisy?

No, if installed correctly they should work quietly and efficiently.

### Do I need a big bathroom for a Whirlpool bath?

No, they are available in a full range of sizes, all the plumbing and the pump is usually hidden beneath the bath or within an airing cupboard so they don't take up more space than a standard bath.

### Do Whirlpool baths need specialist fitters?

Yes. They are best installed by professional plumbers/electricians.

### Do patterns incorporated in the bottom of baths prevent slip?

No. Water plus soaps, shower gels, shampoos, etc. cause slipperiness. Consideration should be given to the use of wall grips and/or anti-slip mats to provide assistance in preventing slip.



# Section 7

## Industry Terminology

### Adjustable Feet

Devices by which baths are supported above the floor, incorporating a mechanical adjustment facility which accommodates unevenness in the floor and usually provides adjustment of the rim height within a limited range.

### Anti-Entrapment device

When the water suction inlet is covered the system cuts out.

### Combination Systems

Whirlpool and Spa systems combined into one bath.

### Conventional Baseboard

Usually made of chipboard. Bonded to the bottom of a bath to provide support and rigidity.

### Corner Bath

Bath designed to fit into the corner of a bathroom usually with sides of equal length, with the bathing area positioned diagonally across the corner.

### Cradle

Metal support arrangement for baths which usually accommodate feet for supporting a bath above the floor.

### Double End Bath

Bath designed for use by two people, usually with provision for taps to be fixed along one of the sides.

### Encapsulated Baseboard

Usually made of chipboard bonded to the bottom of a bath to provide support and rigidity but also completely 'sealed in' by the reinforcing material.

### Enamleed Cast Iron

Metal, formed by traditional casting technique. Very strong and rigid. Surface is coated with porcelain enamel to provide attractive, easy clean finish.

### Glass Reinforced Plastic (GRP)

Reinforcing material comprising strands of glass fibre and high quality resin (sometimes known as Glass Reinforced Polyester).

### Manual Controls

Buttons/knobs operated by hand to control the functions of a whirlpool bath e.g. on/off.

### Off-set Corner Bath

Bath designed to fit into the corner of a bathroom with one side longer than the other, with the bathing area positioned parallel to the longer side.

### Panels

Covers usually made from plastics, to conceal the underside of a bath and it's connecting pipe-work.

### Whirlpool Pipe-work

Either flexible or rigid, for conveying air/water to the jets in the bathing area.

### Porcelain Enamel

A glazed finish produced by the application of a powdered inorganic glass either dry or suspended in water, to cast iron parts, subsequently fused by application of high temperature.

### Pump Immobiliser

A device to prevent the whirlpool pump in a whirlpool bath from running without water (which will damage the pump).

### RCD (Residual Circuit Device)

The professional installation of which instantly cuts off the power supply if water has contact with the electrical system. This must be fitted by law and is provided with the system by some suppliers.

### Roll Top Bath

Traditional in appearance with rounded profile to the top of the rim.

### Self-draining pipe work system (Whirlpool)

When not in use the system leaves almost no residual water in the pipework. There are degrees of self-draining.

### Shower Bath

Bath designed to also be used with a shower, often provided with increased space and 'profiling' in the base for increased stability in the area intended for showering.

### Spa Jet

The device in the bottom of the bath where air is forced into the bath.



### Steel Bath

Bath formed from pressed sheet steel with a surface coated with vitreous enamel.

### Tapered Baths

Baths designed to optimise the use of space in a bathroom, usually narrower at the foot end.

### Touch Pad Control

Electronic control which engages the functions of the system i.e. intensity of bubbles, by pressing the Keypads.

### Whirlpool Jet

Device for allowing air/water to enter the bathing area of a whirlpool bath.

### Whirlpool Pipe-work

Either flexible or rigid, for conveying air/water to the jets in the bathing area.

# Section 8

## References

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### BSI British Standards

BSI British Standards' publications give recommendations on a wide range of building and construction matters including materials, testing, health and safety, access and regulations. They are essential reference for architects, developers, building owners, site managers, building contractors, structural engineers, materials specifiers and other interested parties.

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

### BS EN 200:2008

General specification for single taps and mixer taps (nominal size 1/2) PN10. Minimum flow pressure of 0.05MPa (0.5 bar).

### Water Supply (Water Fittings) Regulations 1999

The Water Fittings Regulations (or Byelaws 2000 in Scotland) are national requirements for the design, installation and maintenance of plumbing systems, water fittings and water-using appliances. Their purpose is to prevent misuse, waste, undue consumption or erroneous measurement of water and to prevent contamination of drinking water.

<http://www.legislation.gov.uk/ukSI/1999/1148/contents/made>

Note: References to water regulations apply to England and Wales. Data may vary for Scotland and Northern Ireland – please check for specific regulations applicable.

### BS EN 198:2008

Sanitary appliances. Baths made from crosslinked cast acrylic sheets. Requirements and test methods.

### BS EN 232:2012

Baths. Connecting dimensions.

### BS 1390: 1990

Specification for baths made from vitreous enamelled sheet steel.

### BS 1189: 1986

Specification for baths made from porcelain enamelled cast iron.

### BS EN 60335-2-60:2003 + A2:2010

Whirlpool baths

For baths for indoor use, including equipment for circulating air or water to baths. To be read in conjunction with BS EN 60335-1:2012 + A11:2014.

### BS EN 12764:2004 + A1:2008

Sanitary appliances. Specification for whirlpool baths.

### BS EN 14516:2006 + A1:2010

Baths for domestic purposes.

### BS EN 263:2008

Sanitary appliances. Crosslinked cast acrylic sheets for baths and shower trays for domestic purposes.

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