

# Healthcare Solutions

What Works and Why

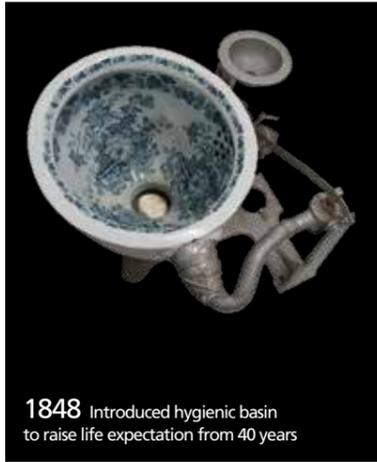
*Armitage  
Shanks*

Continuing to Innovate

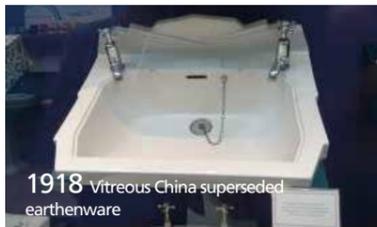
## Armitage Shanks creating bathrooms since 1817

*In the early years of the 19th century the company that would become Armitage Shanks was founded with a simple objective; to produce sanitaryware of exceptional quality.*

*Now, in the early years of the 21st century, this philosophy, supported by investment in technology and traditional manufacturing skills, still remains at the core of our business.*



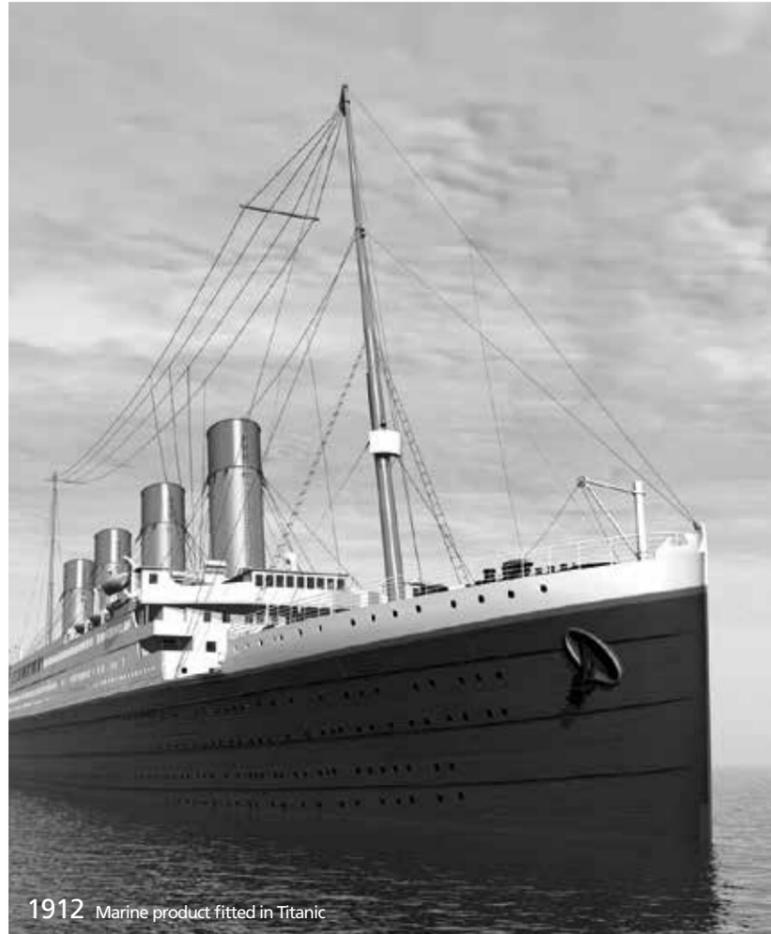
1848 Introduced hygienic basin to raise life expectation from 40 years



1918 Vitreous China superseded earthenware



1928 First sanitaryware colours introduced



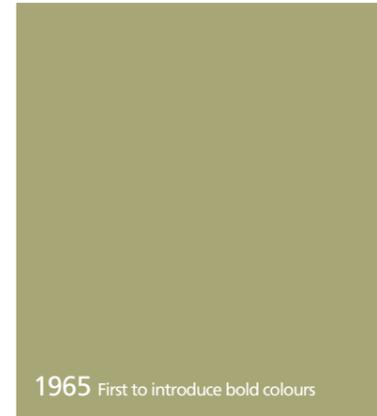
1912 Marine product fitted in Titanic



1955 Export sales topped a million pounds, 50% of total business



1962 The birth of battery casting



1965 First to introduce bold colours



1969 Rimless technology invented



1969 Invented pre-plumbed IPS panel system



1986 First fully automated warehouse in the UK



1993 First to introduce fully compliant less-abled Doc M pack



1996 First pressure casting machine installed



2007 Launch of Portman21



2011 Launch of Markwik21



2014 Invention of Anti-Pseudomonas BioGuard outlet

# Armitage Shanks Continuing to Innovate

Armitage Shanks has a history and pedigree of always innovating. By regularly working with and speaking to users, carrying out detailed studies with user groups and by conducting field tests using product concepts and ideas generated by Armitage Shanks, ensures it is always at the cutting edge of new design.

Examples of firsts for Armitage Shanks include:

- Rimless toilet pans.
- Special IPS panel systems for creating hygienic and easy maintenance wall solutions.
- Markwik21 with it's unique Anti-Pseudomonas outlet.

Over many years Armitage Shanks has had a philosophy of working with some of the World's leading designers and experts – examples of which include:

- Robin Levien RDI (Royal Designer for Industry) has been working with Armitage Shanks since 1999.
- Robert Feeney (Renowned Ergonomic Scientist).
- Dr. Ronald Cutler (Leading Micro-biologist and Expert in Healthcare Infection Control).



Infection Control Officer

*“Infection control and general hygiene are of paramount importance in healthcare. Sanitary fittings that are easy to clean and actively protect patients are vital.”*

*Armitage Shanks has for nearly 200 years been innovating and creating new ideas and products that really make peoples lives safer and better and it will continue to do so through this century and beyond.*

## OUR APPROACH

- Armitage Shanks' whole history is embedded in providing innovative solutions to healthcare ceramics and fittings.
- Armitage Shanks regularly carries out user group research and testing.
- By working with relevant experts Armitage Shanks understands the latest thinking and findings in areas such as infection control.
- Armitage Shanks and its designers conduct field testing of new products to ensure complete compatibility with users needs.



Nurse

*“I want products that are easy to use and deliver hot water safely, are hygienic and meet the latest performance standards.”*



# Infection Control

## Fighting Legionella & Pseudomonas Aeruginosa

The chain of infection which propagates and transmits bacteria in healthcare facilities can be broken by modern technology and common sense procedures.

### LEGIONELLA

**Legionella bacteria are naturally occurring organisms** present in many water systems that can cause the development of Legionnaires' disease in people exposed to them. **The water conditions liable to affect the growth of Legionella in water systems are varied**, however it is commonly agreed upon that:

- Legionella bacteria will not easily multiply at water temperatures below 20°C.
- Legionella bacteria proliferate between water temperatures of 20°C and 45°C.
- Legionella bacteria will die at water temperatures above 60°C.

**Minimising the growth of Legionella is possible** through water system design when supported by regular risk assessments carried out by qualified staff.

**The practices below are critical to the success of any Anti-Legionella program.**

- Water distribution systems should be well maintained and kept in a hygienic condition.
- Water supplies should be distributed to the point of mixing at appropriate temperatures, below 20°C for cold and above 55°C for hot.
- Point of use thermostatic mixers are recommended. Mixing remotely and distributing warm water to multiple points should be avoided.
- Hot water should be stored at or above 60°C. Water temperatures should be monitored throughout the building on a regular basis.
- Hot and cold supplies should be kept separate and properly insulated to maintain safe temperatures prior to mixing.

- In high risk areas specify fittings with a thermal disinfection facility, supported by a regular sanitisation regime.
- In very high risk areas special medical filters could be considered on all sanitary fittings. Filters must be changed regularly to maintain their protection.

*“High levels of Pseudomonas bacteria are often found in the outlets of taps or mixers, especially those fitted with flow modifying devices.”*



Maximise Infection Control with the Markwik21 BioGuard Outlet

### PSEUDOMONAS AERUGINOSA

**Pseudomonas Aeruginosa is a common bacterium that can cause disease in humans.** It is found in soil, water, skin flora, and most man-made environments throughout the world. Because it thrives on most surfaces, **Pseudomonas can be found on, and inside, medical equipment** such as catheters making it a leading cause of healthcare acquired infections (HAI):

- Pseudomonas usually infects people who are immune deficient or whose immune system is suppressed, such as hospital patients.
- Healthy people can usually fight off Pseudomonas very successfully before any symptoms become apparent.

**Pseudomonas can also survive in healthcare water systems.** The bacterium has been found to **colonise the last 2 metres of the water supply system before the outlet.**

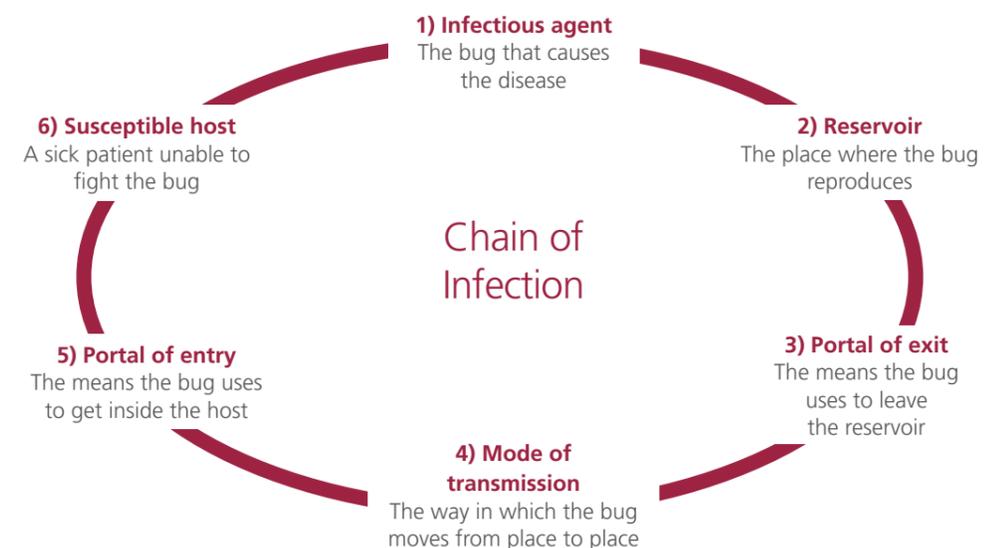
In this scenario it is likely that pipes, isolation valves, strainers and the tap or mixer itself will all become infected. Such contamination may be caused by water that contains Pseudomonas or by the bacteria entering the system via contaminated hands, cloths or medical equipment contacting the outlet.

**To prevent the spread of Pseudomonas several actions are recommended:**

- Regularly check the water supply in all parts of the building for Pseudomonas.
- Use all water fittings such as taps, mixers and showers frequently to eliminate “standing” water, either manually or by electronic duty flush.
- Clean the outlets of all fittings correctly and often.

- The use of medical filters in high-risk areas like intensive care units and oncology could be considered.
- The use of an unrestricted outlet may be appropriate.
- Follow the guidelines of local regulators relating to infection control.
- Implement infection control procedures in appropriate sanitary facilities.

### Breaking the chain of infection



## Advancements in Ceramics & Fittings Technology

Portman21 ceramics (wall basins and toilet pans) are specially designed and developed to help combat HAI's.

### DESIGN-LED SOLUTIONS FOR PATIENT CARE

Best practice states that 'Hospitals should ensure adequate provision of suitable hand wash facilities'.

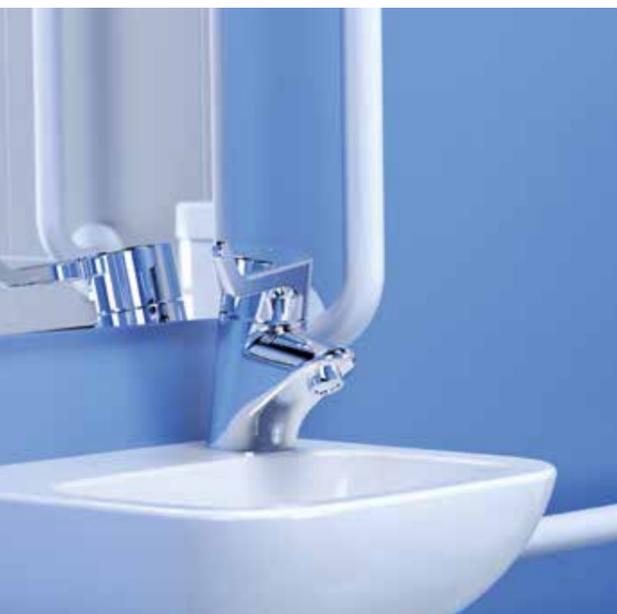
- Basins should be sited, in addition to washroom applications, in all patient areas, treatment rooms, sluices and kitchens.
- In clinical areas they should be fitted with wrist or elbow operated mixer taps or ideally a mixer with automatic 'no touch' operation.
- In addition, specifying products designed to break the chain of infection will produce a safer environment.
- The best way to stop HAI is to eliminate the infectious agent or deny it a reservoir in which to grow. Armitage Shanks products are designed to do just that.

#### The Portman21 Wall Basin

The Portman21 wall basin is available without tapholes and without overflow. There are virtually no 'reservoirs' in which water can promote the growth of bacteria.

#### The Rimless Portman21 Toilet Pan

In most toilet pans the rim serves one function; to guide the flush water around the pan. Unfortunately, it also provides a residence for bacteria. The Rimless Portman21 toilet pan has no rim. A single, easy to disinfect, outlet works with an internal pan design to flush the toilet pan. Performance and hygiene, by design.



Grab rails and mirror not available in Australia

## Infection Control Markwik21

Armitage Shanks healthcare fittings are designed and regularly updated to take into account the latest research and knowledge.

### FIGHTING HEALTHCARE ACQUIRED INFECTIONS (HAI)

Armitage Shanks' range of Markwik21 taps and mixers build on their successful past and utilise the latest technologies and materials to fight HAI:

- Key Markwik21 fittings are supplied with a patent pending Anti-Pseudomonas BioGuard outlet that has no grid and a smooth copper lining (copper acts as a natural bacteria growth inhibitor).
- The Markwik21 thermostatic basin mixer is supplied with copper tails instead of flexible hoses that are known to sometimes harbour bacteria.

Markwik21's Hydro-Purge facility allows quick removal of debris prior to commissioning, which can promote bacterial growth, from water supply pipes without damaging the fitting.

Markwik21 has a demountable body and spout that allows for complete immersed disinfection helping to reduce the risk of Pseudomonas Aeruginosa and Legionella infection.

#### Detachable Spout

The Markwik21 detachable spout allows autoclave cleaning to prevent biofilm attachment and help reduce the risk of bacterial infection.



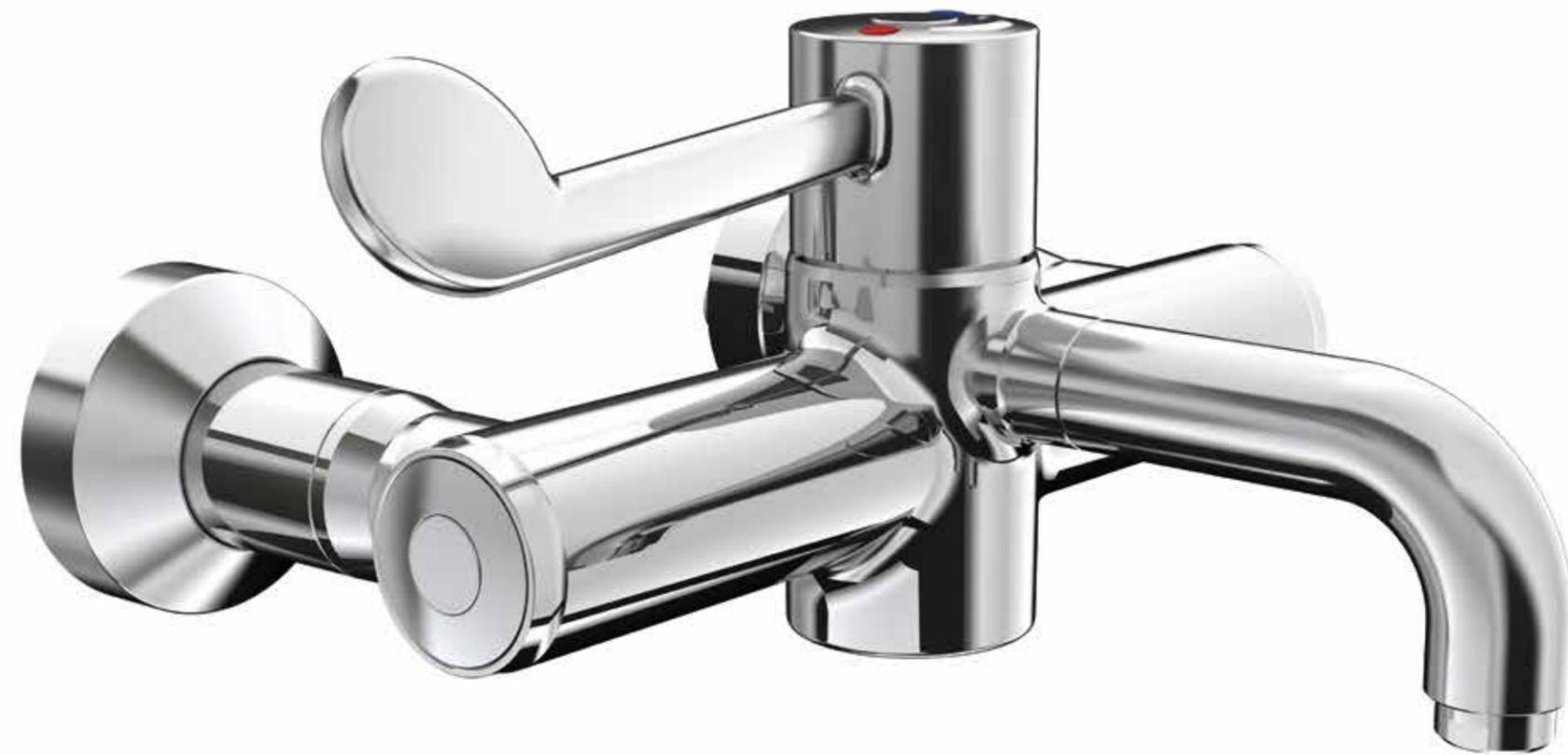
*"Markwik21's new Anti-Pseudomonas BioGuard outlet provides additional protection by reducing the chances of biofilm build-up."*



Markwik21 BioGuard Outlet

# Markwik21 Total Disinfection Control

With an ever-increasing focus on preventing infection, hygiene has never been more important. And nowhere more so than in the water supply where common bacteria like *Pseudomonas aeruginosa* and *Legionella* can be found.



*“Armitage Shanks range of Markwik21 taps and mixers has continually evolved to respond to market demands and today offers the most comprehensive range of disinfection regimes to help you successfully fight bacterial infection.”*

*“We 100% air test our Markwik21 surgeon sets.”*

## MAKING INFECTION CONTROL EASIER

### Markwik21 surgeon sets are 100% Air Tested.

As part of our Total Disinfection Control program no water is used to test our fittings, instead we 100% air test our Markwik21 surgeon sets to ensure products leaving our manufacturing facilities are infection free.

It is widely accepted that *Pseudomonas* has a rapid rate of mutation, which can mean it becomes increasingly resistant to any singular cleaning process. Therefore changing cleaning regimes in the hospital setting between chemical, thermal and high velocity flushing is believed to be the most effective approach.



## Demountable body and spout

Demountable body and spout allows for completely immersed disinfection helping to reduce the risk of Pseudomonas aeruginosa and Legionella infection.



**Inlet caps** prevents contamination during sterilisation



- AS/NZS 4032.1 certified. ✓
- AS2345 (DZR) certified. ✓
- TMV3 certified. ✓
- Watermark approved. ✓
- Approved by NSW Health. ✓

## Detach and sterilise

The Markwik21 detachable spout allows autoclave cleaning to prevent biofilm attachment and help reduce the risk of bacterial infection.



## A fresh start, time and time again

The Markwik21 'Hydro Purge' facility flushes water through pipework and inlets to ensure a debris free system after initial installation or after further installations on the same plumbing system. It also enables flushing after chemical disinfection.



- AS/NZS 4032.1 certified. ✓
- AS2345 (DZR) certified. ✓
- TMV3 certified. ✓
- Watermark approved. ✓
- Approved by NSW Health. ✓

## BioGuard against bacteria

BioGuard patent pending anti-microbial copper outlet helps to prevent biofilm attachment and reduce the risk of Pseudomonas infection.



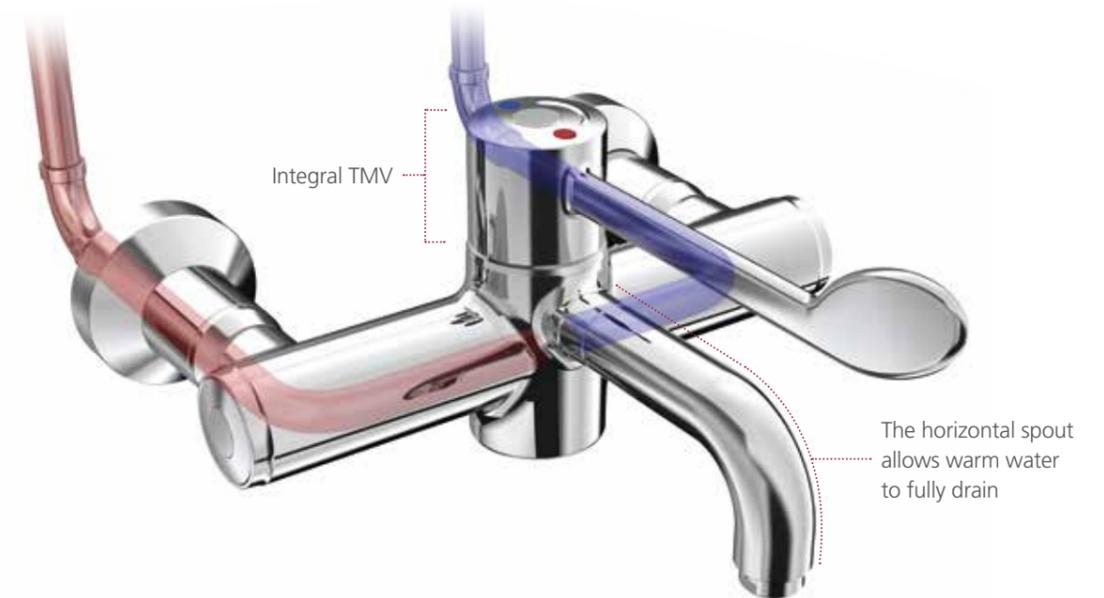
BioGuard patent pending outlet

- AS/NZS 4032.1 certified. ✓
- AS2345 (DZR) certified. ✓
- TMV3 certified. ✓
- Watermark approved. ✓
- Approved by NSW Health. ✓

## Point of use TMV

The Markwik21 integral thermostat enables water to be mixed closer to the point of discharge. The 'dead leg' of cold water is eliminated and the volume of mixed water is reduced, minimising areas of warm water which provides the ideal conditions for bacteria to grow.

*Markwik21 technology eliminates opportunity for bacteria to grow*



*Standard TMV set up enables more instances for bacteria to grow*

- AS/NZS 4032.1 certified. ✓
- AS2345 (DZR) certified. ✓
- TMV3 certified. ✓
- Watermark approved. ✓
- Approved by NSW Health. ✓

## Rimless Toilet Pan

In 1969 Armitage Shanks invented and patented the very first Rimless toilet pan. In conjunction with a highly experienced Architect, Armitage Shanks did what it does best and utilised its hands-on knowledge of the specialist needs of healthcare environments and teamed-up with an expert of the built-environment. This collaboration changed the face of healthcare sanitaryware forever and has possibly saved many lives as a result.

Rimless was one of the great innovations to come out of this design study and meant for the first time that the toilet pan was much easier to clean and as a result more hygienic for users.

In the UK Rimless toilet pans are now the norm in all clinical areas within healthcare buildings, and over the last 10 years the use of Rimless toilet pans across the rest of Europe and the World have been growing at a very fast pace.

Over the years since 1969 Armitage Shanks has not only increased the number and types of toilet pan that use Rimless flushing but has also continued to evolve the technology and innovate. The current patented Rimless 'engine'

has been developed using experienced engineers with a high degree of knowledge and expertise in the field of Rimless flushing. This new design incorporates an injection system that is even easier to clean, providing probably the best flushing performance of any Rimless toilet pan used in Healthcare with particular attention paid to the fast and efficient removal of toilet pan contents.

In addition there is now only an injection system positioned at the back of the toilet pan thus removing any concealed rim or water channel at the sides or front, where dirt or bacteria could hide.

By specifying and installing Armitage Shanks Portman21 Rimless toilet pans in your healthcare building you are ensuring hygiene and patient safety are of primary concern.



360° rinse water distribution for optimal hygiene

WELS rated.   
Watermark approved. 

## Accessible Basin

The Armitage Shanks Portman21 Accessible basin is one of the best and most comfortable basins in existence today for less-abled and wheelchair users and also contains some real innovative design features.

Developed using real-time feedback from less-abled people in focus groups across different regions, the Portman21 Accessible basin features truly ergonomic arm rests which are very important for seated users. Designed by Robin Levien RDI, the basin is not only aesthetically pleasing but with its fully glazed underside and smooth contours it is very easy to clean and hygienic.

**Innovative features include:**

- Using anthropological data, the reach of thousands of different users was analysed and used to calculate the basin dimensions including the crucial tap handle reach which was then fully tested using model basins with different regional user groups.
- Like many Armitage Shanks products the Portman21 Accessible basin has been developed using knowledge, experience, information gained from user trials and testing together with the input of relevant experts.

### ARMITAGE SHANKS PORTMAN21



**Integral Grab Handle**

On the underside of the ceramic basin is an integral grab handle that allows users to pull themselves to the basin when seated in a wheelchair



Basin tap angled so that it won't discharge directly into the waste (reducing splashing)

Basin available with different taphole and overflow configurations

Shallow basin depth and fully glazed underside provides comfort for seated users legs

Comfortable arm rest

Flat front provides important seal between users and the basin helping to prevent splashes on clothes

Integral grab handle

# Markwik21 built-in thermostatic shower with Armaglide2 Handshower

Using the latest safety conscience thermostatic technology the Markwik21 concealed shower provides fully tested and approved delivery of water to patients.

Armitage Shanks was one of the first manufacturers World-Wide to use cycle valve technology – which helps to ensure users always start off with cold-warm water first thus reducing the possibility of the water being too hot for users. By incorporating this technology into the Markwik21 concealed shower it provides maximum protection.

Durability is crucial in all healthcare environments especially where cleaning is concerned. The all metal design – including the back plate, helps to provide longevity and hygiene is not compromised.

The TMV3 point-of-use thermostat helps to ensure the fully hot water can be delivered right up to the shower fitting - reducing the risk of Legionella and Pseudomonas.



- AS/NZS 4032.1 certified. ✓
- AS2345 (DZR) certified. ✓
- TMV3 certified. ✓
- Watermark approved. ✓
- Approved by NSW Health. ✓

## ARMAGLIDE2 HANDSHOWERS

The Armaglide2 Handshowers include single function flow without aeration to help reduce mist that can easily be breathed-in by users and so reduces the risk of breathing in bacteria directly into the lungs – such as Legionella.

Armaglide2 also incorporates dual check valves as standard – eliminating the possibility of potentially harmful back syphonage.



**Armaglide2 with Grab Rail Holder**

**Armaglide2 with Bracket**

**Armaglide2 Slider Kit**

- AS/NZS 4032.1 certified. ✓
- AS2345 (DZR) certified. ✓
- TMV3 certified. ✓
- Watermark approved. ✓
- Approved by NSW Health. ✓
- WELS approved. ✓

## Piccolo21 long lever basin and shower mixer

A basin and shower mixer with special long lever fully conforming to AS1428 for healthcare and less-abled use. Both are installed with the unique water-saving CLICK™ cartridge. Both models have durable easy clean designs with clearly marked (non rub off) hot and cold markings. The basin mixer includes a water-saving outlet, anti-vandal nozzle with maximum 3.78 litre per minute flow and a temperature limiting device.

AS1428 compliant ergonomic handles give precise control even when wet

Lever operation, makes for better ergonomics

Temperature limiting device

Anti-vandal outlet

Laminar flow reduces airbourne water

Ceramic disc technology improves performance and reduces maintenance

SPX hoses have a smooth inner bore making them more resistant to bacteria growth

**CLICK Technology**

The CLICK Cartridge encourages water saving. Lifting the handle to the first stop delivers 50% flow, beyond the first click delivers full flow

CLICK technology reduces water usage by 50%

Clear hot & cold indicators that resist wear from use and cleaning

Ceramic disc technology improves performance and reduces maintenance

Lever operation, makes for better ergonomics

AS1428 compliant ergonomic handles give precise control even when wet

- AS/NZS 4032.1 certified. ✓
- AS2345 (DZR) certified. ✓
- AS1428 compliant. ✓
- Watermark approved. ✓
- Approved by NSW Health. ✓
- WELS approved. ✓

## Sensorflow21

Sensorflow21 taps are hands-free electronic taps that are second to none. Remote sensors detect a user's presence at the basin and control water flow to ensure that it is only released when required. This not only improves hygiene but also improves water economy.

All Sensorflow21 sensors incorporate the technology inside the sensor, which has the advantage of less working parts and takes up less space. The sensor is factory set for run times and sensor detection distances but both can be adjusted either manually or by using a special purpose made remote control.

Sensorflow21 taps also incorporate a number of smart tap features such as the Auto Cleanse facility that can be set to cleanse the tap with fresh water every 6, 12, 24 or 48 hours after the last use. This helps to reduce biofilm and bacteria build-up over weekends or during other times the taps may not be used.

In addition the taps can sense if something has been placed over the sensor, e.g. chewing gum, and will shut the tap off as a precaution against flooding until the obstacle has been removed.

The Smart Clean setting means that sensors can be temporarily turned off and will automatically turn themselves on again once cleaning is completed.

Sensorflow21 taps fully conform to Australian and New Zealand electrical standards and use a transformer to reduce the electrical supply to the tap to a safe 6 volts.

### SENSORFLOW21 DECK MOUNTED ANGLED SPOUT

The Sensorflow21 angled spout features a modern angled design

Anti-vandal outlet

Laminar flow reduces potentially harmful airbourne water

Sensor activated fitting allowing for hands free operation, preventing the spread of hand transferred bacteria

Built-in sensor, proximity activated

- Smart Clean setting
- Dedicated remote control available
- Auto Cleanse feature (remote control required for this feature)
- Auto flow shut off when sensor obstructed
- The 'proximity sensor' has a feature that allows Facility Managers to flush the fitting using a remote control unit. This feature allows the fitting to be flushed through with water at least every 24 hours reducing the risk of bacteria forming

- Requires pre-mixed water

- Mains power

- AS/NZS 4032.1 certified. ✓
- AS2345 (DZR) certified. ✓
- RCM approved. ✓
- Watermark approved. ✓
- Approved by NSW Health. ✓
- WELS approved. ✓





Grab rails and mirror not available in Australia

**A back rest** shall be provided on accessible toilets. The back rest shall be capable of withstanding a force in any direction of 1100 N. It should have a height at the lower edge of the back rest to the top of the toilet pan seat of 120mm to 150mm as shown in Figure 5. The size of back rest itself should be between 150mm and 200mm high and 350mm to 400mm wide. The front edge of the centre of the back rest should be positioned to achieve an angle of 95° to 100° back from the seat hinge location. Back rest to be positioned between 0 and 50mm back from the seat bolt hole, as shown in Figure 6.

**Water closet installation**

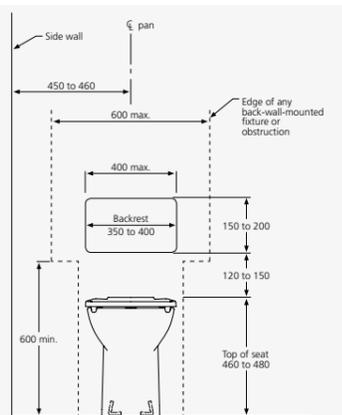


Figure 5

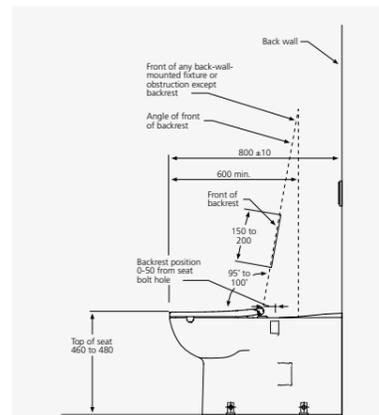


Figure 6

**Zone for position of flushing control**

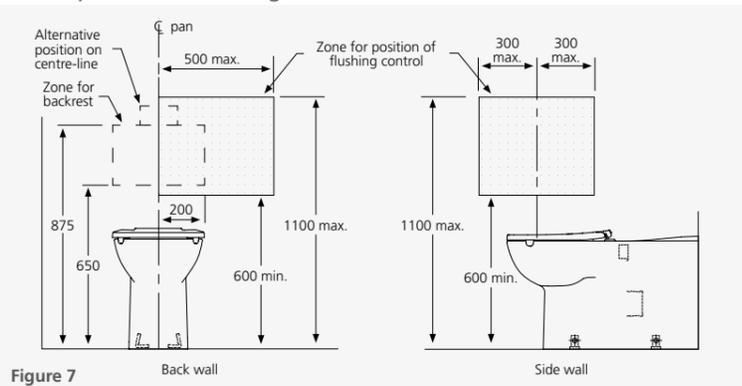


Figure 7

**Flushing controls**, hand-operated or automatic hand-operated, should be used and located within the zone shown in Figure 7, or centred on the centre-line of the toilet completely within the vertical limits of the zone. The position of the control within this zone shall not be within the area required for grab rails or back rest. The flushing control should stand proud of the surface and activate the flush before the button becomes level with the surrounding surface.

**Basin for other than sole-occupancy unit** - the projection of the basin from the wall and the position of taps, toilet pan and drain outlet shall be determined in accordance with Figures 8-10.

The water supply pipes and waste outlet pipes shall not encroach on the required clear space under the basin.

The basin fixture and fittings are the only fixtures permitted in this space.

Shelf space shall be provided adjacent to the basin in one of the following ways:

**As a vanity top:**

- At a height of 800mm to 830mm above the floor.
- With a minimum width of 120mm beside the basin.
- With a minimum depth of 300mm from the front to the rear wall.
- With no encroachment into any knee and toe clearance space for a minimum width of 850mm centred on the basin.

**As a separate fixture:**

- Within any circulation space at a height of 900mm to 1000mm with a minimum underside clearance of 850mm for a width of 120mm to 150mm and length of 300mm to 400mm.
- External to all circulation spaces at a height of 800mm to 1000mm with a minimum width of 120mm and a minimum length of 400mm.

**Wall basin installation - other than for sole occupancy unit**

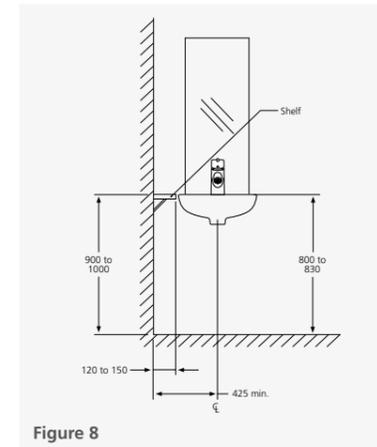


Figure 8

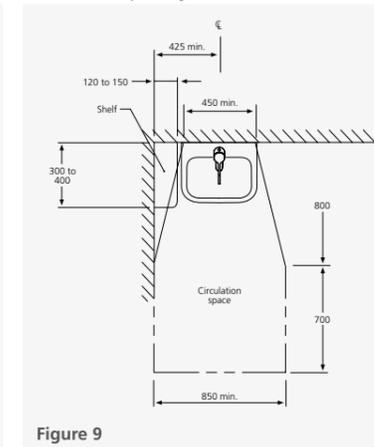


Figure 9

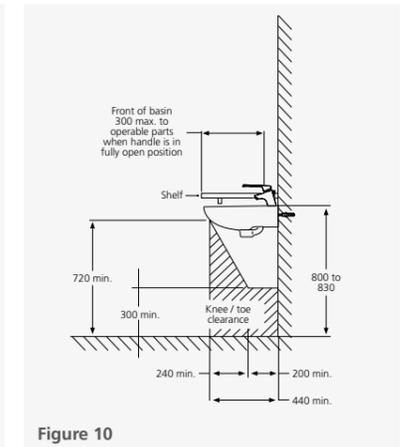


Figure 10

**Sanitary compartment for people with ambulant disabilities**

**General**

Sanitary compartment for people with ambulant disabilities shall be in accordance with Figures 11, 12 & 13.

**Grab Rails**

Grab rails shall be installed in accordance with Figures 11, 12 & 13.

**Signage**

Sanitary compartment for people with ambulant disabilities shall be identified by symbol or words, as specified in Clause 8 AS1428.1 2009.

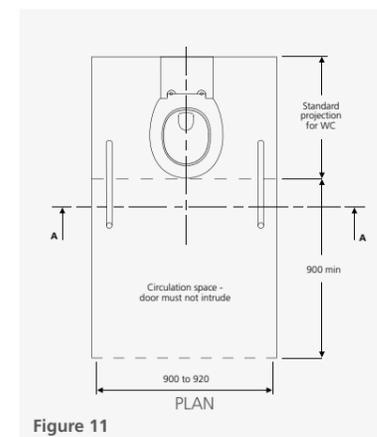


Figure 11

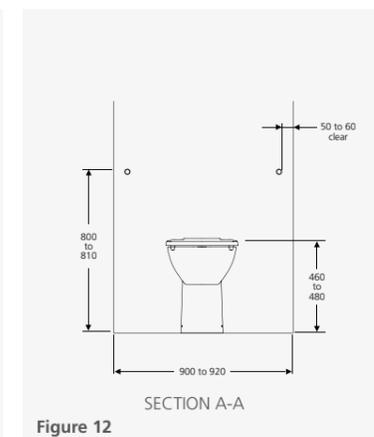


Figure 12

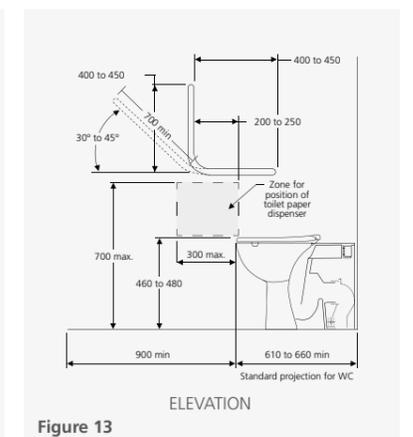


Figure 13

# Australasian Health Facility Guidelines

The Australasian Health Facility Guidelines (AusHFG) enables planners and designers of health facilities throughout Australasia to use a common set of guidelines and specifications for the base elements of health facilities.

## Australasian Health Facility Guidelines, Part D - Infection Prevention and Control 820 - BUILDING ELEMENTS

### HAND BASINS

Hand hygiene compliance is significantly improved when hand basins are visible and accessible. Clinical hand basins must be reserved for hand washing.

Depending on their use, hand basins may be defined as:

- Clinical - large 'scrub' (Type A)
- Clinical - medium (Type B)
- Non-clinical - small or medium (including vanities) (Type C)
- Surgical scrub troughs

Hand basins are required in all patient care areas and in all areas where careful attention to hygiene is essential such as kitchens, laundries, pharmacies, laboratories and amenities for patients, visitors or staff. Reticulated, free-flowing warm and cold water will be provided. Plugs should not be provided other than to hand basins in patient ensembles (e.g. vanity basins).



Grab rails and mirror not available in Australia

### HAND BASIN DESIGN

Design should ensure that hand basins:

- Have no overflow
- Have curved sides, to minimise splashing
- Are large enough to enable good hand hygiene techniques
- Are either sealed to the wall or far enough away from the wall to allow effective cleaning
- Have a waterproof splashback
- Have suitable taps
- Do not include integrated plugs
- Have water delivered at a suitable temperature to allow hand washing under running water

Hand basins should be made of a hard, non-scratch material (usually porcelain) and be easy to clean. Polycarbonate or other moulded plastic materials are not suitable.

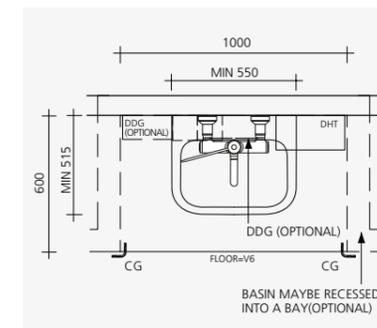
Drainage design should be easy to access internally and externally for regular cleaning of 'S' bends to remove biofilm build-up.

### TYPE A: CLINICAL BASIN - LARGE (SCRUB BASIN)

The Type A clinical scrub basin is required in selected areas requiring clinical hand washing prior to undertaking selected procedures that may occur in non-operating room settings (e.g. delivery room).

The basin is a large wall mounted type, with hands-free taps that may be wall mounted elbow taps, foot/knee operated or electronic sensor taps, with warm and cold water delivered by a common spout. Tap placement should allow washing up to the elbow.

Refer Standard Components: Room Data and Room Layout Sheet - Bay Hand washing Type A.

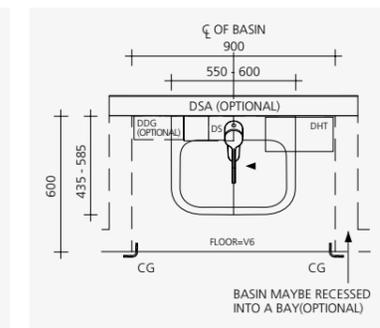


Type A: Clinical Basin (Large)

### TYPE B: CLINICAL BASIN - MEDIUM

This hand basin is used in areas requiring hand hygiene by staff and visitors for patient care situations and aseptic procedures. The basin is a medium wall mounted type. The taps may be either wall mounted or basin mounted with elbow or wrist hands-free operation, and warm/cold free-running water.

Refer to Standard Components: Room Data and Room Layout Sheet - Bay Hand washing Type B.



Type B: Clinical Basin (Medium)

### TYPE C: NON-CLINICAL BASIN - SMALL/MEDIUM

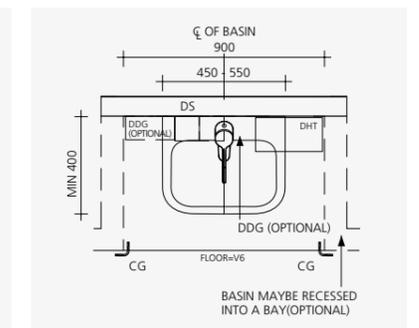
The Type C basin is required in public, patient and staff amenities. Type C is a small wall mounted basin, which may be part of a vanity unit. The taps may be wall mounted or basin mounted. Supply warm and cold water. Cold water-only may be provided to Type C facilities in areas such as public amenities.

For ease of cleaning and use taps should be lever operated as commercially available.

Refer to Standard Components: Room Data and Room Layout Sheet - Bay Hand washing.

### Type C

Basins in accessible toilets must comply with Standards Australia, 2010, AS 1428 (Set) 2010 Design for access and mobility Set (SAI Global).



Type C: Non-Clinical Basin (Small or Medium)

### TAPS AND WATERPOUTS

The use of spray taps and hoses is not supported in clinical environments as they create aerosols.

A domestic style single lever operation is considered an appropriate substitute for a wrist operated tap.

Clinical basins and scrub sinks or troughs should have waterspouts fitted with anti-splash devices. Clinical basins and scrub sinks/troughs should have sufficient space between the waterspout and the basin, sink or trough to enable adequate washing up to the elbow.

Alignment of the waterspout should ensure the water flow does not run directly into the drain aperture, thus avoiding aerosol splashback to the hands and face of the user. The waterspout will be positioned to ensure the water flow hits at the front of the basin, sink or trough. For this reason, the selection of basins and tap ware should be coordinated and approved by clinical staff as a single unit.

For further details relating to taps and waterspouts, refer to the Standard Components of hand basins and scrub sinks.

Healthcare facilities should comply with Standards Australia, 2005, AS/NZS 3718:2005 Water Supply—Tap Ware.



# The Complete Range

## PORTMAN21 WALL BASIN 400MM

Portman21 400mm Wall Basin 1 Centre Taphole with Overflow DN 32 Waste Hole

**9506079**

Portman21 400mm Wall Basin No Overflow 1 Right Hand Taphole DN 32 Waste Hole

**9506078**

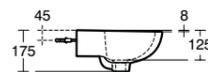
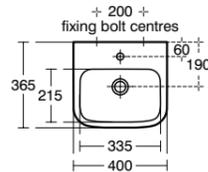
Portman21 400mm Wall Basin No Overflow 1 Left Hand Taphole DN 32 Waste Hole

**9506154**

Portman21 400mm Wall Basin No Taphole No Overflow DN 32 Waste Hole

**9506155**

- Versatile range of taphole and overflow configurations.
- Right and left hand taphole options help reduce splashing and potentially harmful airborne bacteria.
- Easy to clean design.
- No overflow versions - great for clinical area use.



## PORTMAN21 WALL BASIN 500MM

Portman21 500mm Wall Basin 1 Centre Taphole with Overflow DN 32 Waste Hole (Not Aus HFG compliant)

**9506083**

Portman21 500mm Wall Basin No Overflow 1 Right Hand Taphole DN 32 Waste Hole

**9506080**

Portman21 500mm Wall Basin No Overflow 1 Left Hand Taphole DN 32 Waste Hole

**9506156**

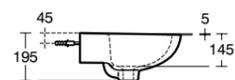
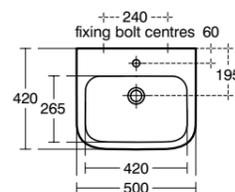
Portman21 500mm Wall Basin No Taphole No Overflow DN 32 Waste Hole

**9506081**

Portman21 500mm Wall Basin 2 Taphole No Overflow DN 32 Waste Hole

**9506082**

- Versatile range of taphole and overflow configurations.
- Right and left hand taphole options help reduce splashing and potentially harmful airborne bacteria.
- Easy to clean design.
- No overflow versions - great for clinical area use.



\* Australasian Health Facility Guidelines (Hand Basin Types and Uses): Type A - clinical, large, Type B - clinical, medium, Type C - non-clinical, small or medium  
† Ideal for disabled and ambulant disabled users

## PORTMAN21 WALL BASIN 600MM

Portman21 600mm Wall Basin 1 Centre Taphole with Overflow DN 32 Waste Hole (Not Aus HFG compliant)

**9506087**

Portman21 600mm Wall Basin No Overflow 1 Right Hand Taphole DN 32 Waste Hole

**9506084**

Portman21 600mm Wall Basin No Overflow 1 Left Hand Taphole DN 32 Waste Hole

**9506157**

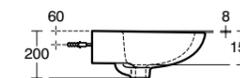
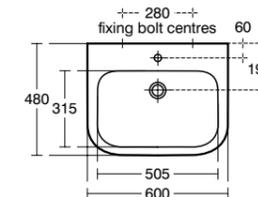
Portman21 600mm Wall Basin No Taphole No Overflow DN 32 Waste Hole

**9506085**

Portman21 600mm Wall Basin 2 Taphole No Overflow DN 32 Waste Hole

**9506086**

- Versatile range of taphole and overflow configurations.
- Right and left hand taphole options help reduce splashing and potentially harmful airborne bacteria.
- Easy to clean design.
- No overflow versions - great for clinical area use.



## PORTMAN21 ACCESSIBLE WALL BASIN 600MM

Portman21 Accessible Wall Basin 600mm 1 Centre Taphole with Overflow DN 32 Waste Hole (Not Aus HFG compliant)

**9506088**

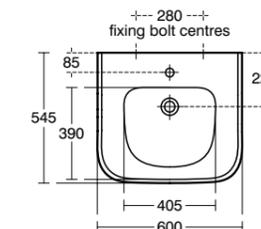
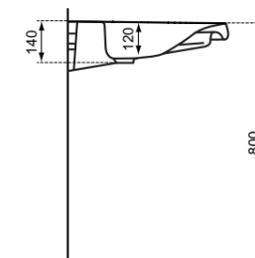
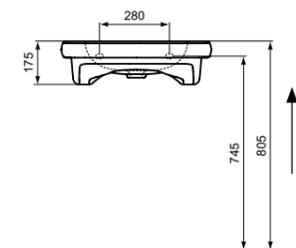
Portman21 Accessible Wall Basin 600mm 1 Centre Taphole No Overflow DN 32 Waste Hole

**9506089**

Portman21 Accessible Wall Basin 600mm No Taphole No Overflow DN 32 Waste Hole

**9506150**

- Innovative grab handle incorporated into the under-basin design allows users to easily and efficiently pull themselves comfortably up to the basin.
- Flat front design helps to provide a seal between the patient and the basin - thus avoiding embarrassing splashes.
- Ergonomically designed for comfortable arm rest and tap use.
- Shallow basin depth and fully glazed underside provides comfort for seated users legs.
- Great for disabled use.



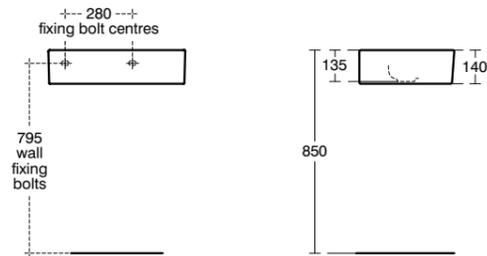
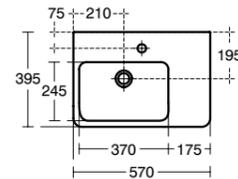
\* Australasian Health Facility Guidelines (Hand Basin Types and Uses): Type A - clinical, large, Type B - clinical, medium, Type C - non-clinical, small or medium  
† Ideal for disabled and ambulant disabled users

# The Complete Range

## PORTMAN21 WALL BASIN 570MM WITH SHELF

Portman21 Wall Basin 570mm  
No Overflow 1 Right Hand Taphole  
DN 32 Waste Hole  
**9506090**

- Easy to clean design.
- Shelf provides useful area.
- Ideal for use in staff/public areas.



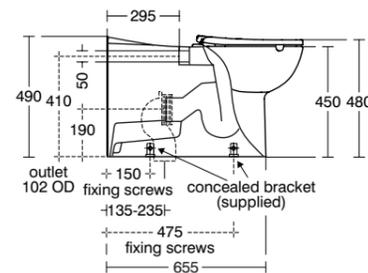
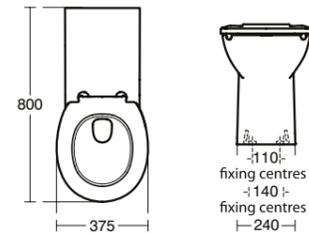
## PORTMAN21 BACK-TO-WALL RIMLESS 800MM PAN

Portman21 Pan Only  
**9505784**

Portman21 Pan with Seat (Pack)  
Single-Flap White  
**9505796**

Single-Flap Steel Blue  
**9505797**

Single-Flap Grey  
**9505798**



Portman21 Back-to-wall Rimless Pan  
raised height 800mm projection

- Truly innovative patented rimless flushing provides ultra hygienic and efficient delivery of water.
- Modern, easy to clean design.
- WELS 4 star, 4.5/3 litre flush.
- Average flush: 3.3 litres.
- Great for disabled use.

† Ideal for disabled and ambulant disabled users

## PORTMAN21 OVERHEIGHT BACK-TO-WALL RIMLESS 610MM PAN

Portman21 Pan Only  
**9506123**

Portman21 Pan with Seat (Pack)  
Double-Flap White  
**9506344**

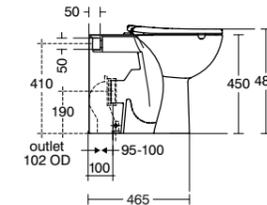
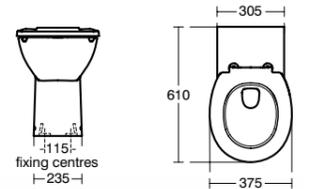
Single-Flap White  
**9506151**

Single-Flap Grey  
**9506152**

Single-Flap Steel Blue  
**9506153**

Portman21 Back-to-wall Rimless Pan  
raised height 610mm projection

- Truly innovative patented rimless flushing provides ultra hygienic and efficient delivery of water.
- Modern, easy to clean design.
- WELS 4 star, 4.5/3 litre flush.
- Average flush: 3.3 litres.
- Great for ambulant use.



## PORTMAN21 SEAT

Portman21 Toilet Seat  
Single-Flap White  
**9505785**

Portman21 Toilet Seat  
Single-Flap Steel Blue  
**9505786**

Portman21 Toilet Seat  
Single-Flap Grey  
**9505787**

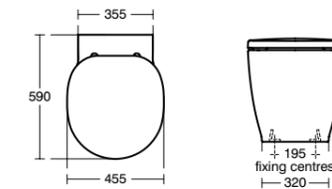
- Single-flap available in 3 colours - ideal for providing colour contrast for sight impairment.
- Strong hinge design.
- Complete with retaining buffers to help prevent sideways movement.
- Ideal for disabled use - no cover to hinder wheelchair transfer.



## PORTMAN21 XL BACK-TO-WALL PAN

Portman21 XL Back-to-wall Pan Only  
**9505788**

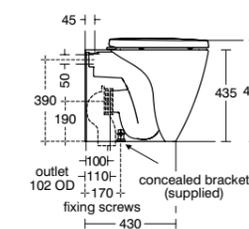
- Extra large toilet pan.
- WELS 4 star, 4.5/3 litre flush.
- Average flush: 3.3 litres.
- Easy to clean design.
- Great for Barriatric use.



Portman21 XL Pan with Seat  
Single-Flap White  
**9505799**

Portman21 XL Toilet Seat  
Double-Flap White  
**9505789**

- Soft close mechanism.
- Strong hinge design.



† Ideal for disabled and ambulant disabled users

▲ Ideal for ambulant disabled users

# The Complete Range

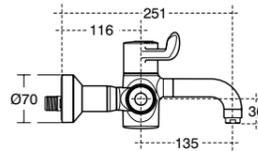
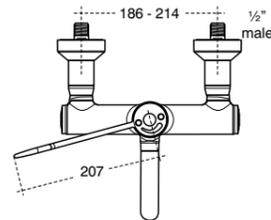
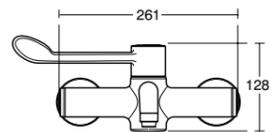
## MARKWIK21 WALL MOUNTED THERMOSTATIC SURGEONS SET



Markwik21 Wall Mount Thermostatic Surgeons Set - Lever Operated with S Connectors

**2500686**

- TMV3 approved point-of-use thermostatic cartridge.
- Removable spout, cartridge and body for easy autoclaving.
- Unique patent pending BioGuard outlet - helping to reduce risk of Pseudomonas bacteria.
- Easy to access and clean filters.
- Cool body using Insulate Technology.



Hydro Purge Kit

**9506138**

- Available for line cleansing when commissioning.



## MARKWIK21 HOB MOUNTED THERMOSTATIC SURGEONS SET

Markwik21 Hob Mount Thermostatic Surgeons Set - Lever Operated

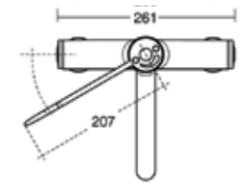
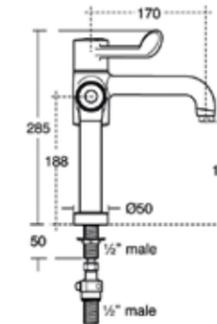
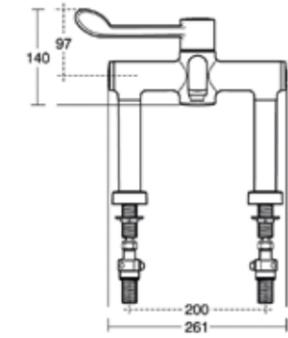
**2500690**

- TMV3 approved point-of-use thermostatic cartridge.
- Unique patent pending BioGuard outlet - helping to reduce risk of Pseudomonas bacteria.
- Removable spout, cartridge and body for easy autoclaving.
- Easy to access and clean filters.
- Cool body using Insulate Technology.

Hydro Purge Kit

**9506138**

- Available for line cleansing when commissioning.

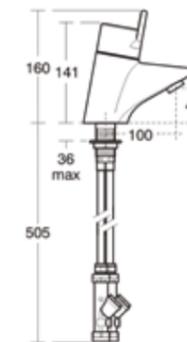


## MARKWIK21 THERMOSTATIC BASIN MIXER

Markwik21 Thermostatic Basin Mixer with Copper Tails

**2500685**

- Basin mixer with extended easy use lever particularly suitable for closed fist operation.
- Suitable for healthcare and less abled bathrooms.
- Sequential operation. To ensure system hygiene and user safety the water is always drawn from first cold and then the hot supply.
- Can be fitted in standard taphole.
- Line strainers included.



BioGuard Outlet

**9506204**

- Available as an optional extra for greater protection against biofilm attachment.



† Ideal for disabled and ambulant disabled users

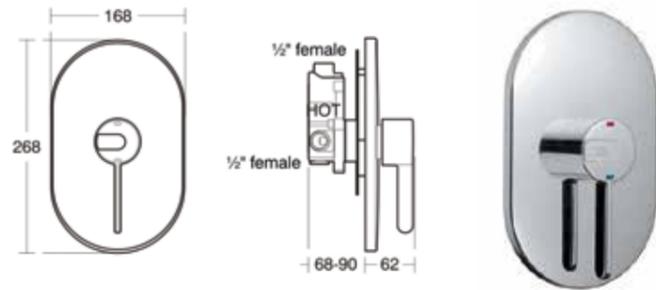
# The Complete Range

## MARKWIK21 CONCEALED THERMOSTATIC SHOWER MIXER

Markwik21 Built-in Thermostatic Shower Mixer

**2500687**

- TMV3 approved point-of-use thermostatic cartridge.
- All metal back plate and handle for increased durability.
- Clear hot/cold identification that won't rub-off.
- Ultra safe and easy to use sequential lever mechanism.

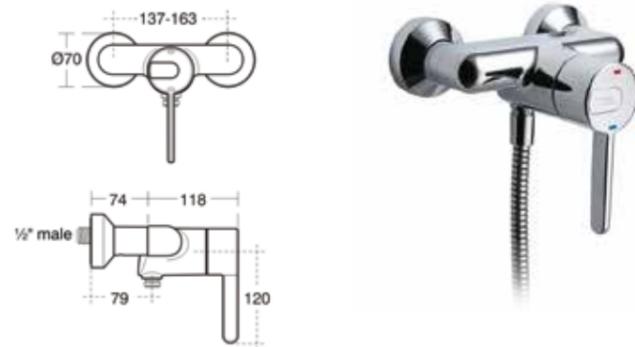


## MARKWIK21 EXPOSED THERMOSTATIC SHOWER MIXER WITH HANDSHOWER OUTLET

Markwik21 Exposed Thermostatic Shower Mixer

**2500688**

- TMV3 approved point-of-use thermostatic cartridge.
- Clear hot/cold identification that won't rub-off.
- Ultra safe and easy to use sequential lever mechanism.

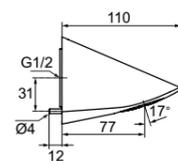


## MARKWIK21 ANTI-VANDAL SHOWER HEAD

Markwik21 Anti-Vandal Shower Head

**9506211**

- Robust solid brass construction.
- Anti-vandal design.
- Anti-ligature for secure use and mental-health use.
- Anti-scale showerhead.
- Female threaded G 1/2" connector for easy installation.
- WELS 3 star, 7.5 Litres/Minute.



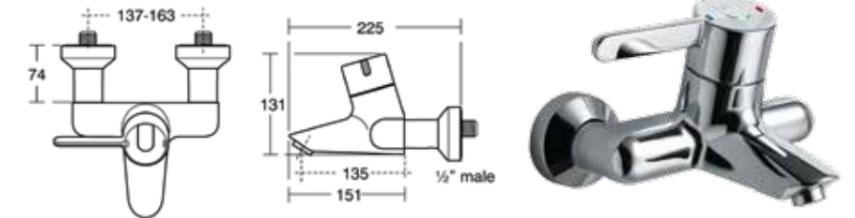
† Ideal for disabled and ambulant disabled users

## MARKWIK21 EXPOSED THERMOSTATIC BATH MIXER WITH OUTLET

Markwik21 Wall Mounted Thermostatic Bath Mixer

**2500689**

- TMV3 approved point-of-use thermostatic cartridge.
- Ultra safe and easy to use sequential lever mechanism.
- Clear hot/cold identification that won't rub-off.
- Laminar flow to help reduce airborne water mist.

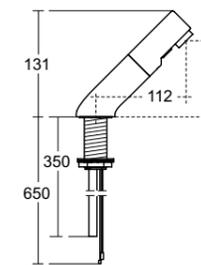


## SENSORFLOW21 DECK MOUNTED COMPACT BASIN SPOUT

Sensorflow21 Deck Mounted Spout

**9506424**

- Modern angled design.
- Ultra hygienic no-touch operation.
- Built-in sensor, proximity activated, auto flow shut off when sensor obstructed.
- Copper tails.
- Auto Cleanse facility (remote control required).
- Smart Clean setting (remote control required).
- Dedicated remote control available.
- Requires pre-mixed water.
- Mains power.
- Anti-vandal outlet.
- Laminar flow reduces airbourne water.
- WELS 6 star, 3.78 Litres/Minute



## REMOTE CONTROL UNIT FOR ELECTRONIC SENSOR MIXERS

Remote Control Unit

**9506468**

- Easy to use.
- Enable various disinfection routines.
- Enable the sensor range and flow timings to be changed.



† Ideal for disabled and ambulant disabled users

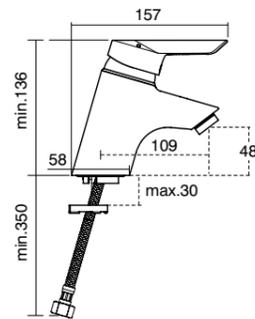
# The Complete Range

## PICCOLO21 SINGLE LEVER BASIN MIXER

Piccolo21 Single Lever Mixer

**9506249**

- Ceramic disc technology improves performance and reduces maintenance.
- Lever operation, makes for better ergonomics.
- CLICK technology reduces water usage by 50%.
- Clear hot & cold indices that resist wear from use and cleaning.
- SPX hoses have a smooth inner bore making them more resistant to bacteria growth.
- Ergonomic handles give precise control even when wet.
- Anti-vandal outlet.
- Laminar flow reduces airbourne water.
- Adjustable Temperature Limiter allows the user to manually set the maximum volume of hot water to help prevent scolding.
- WELS 6 star, 3.78 Litres/Minute.

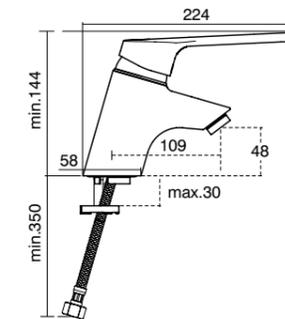


## PICCOLO21 LONG LEVER BASIN MIXER

Piccolo21 Long Lever Mixer

**9506251**

- Ceramic disc technology improves performance and reduces maintenance.
- Lever operation, makes for better ergonomics.
- CLICK technology reduces water usage by 50%.
- Clear hot & cold indices that resist wear from use and cleaning.
- SPX hoses have a smooth inner bore making them more resistant to bacteria growth.
- AS1428 compliant ergonomic handles give precise control even when wet.
- Anti-vandal outlet.
- Laminar flow reduces airbourne water.
- Adjustable Temperature Limiter allows the user to manually set the maximum volume of hot water to help prevent scolding.
- WELS 6 star, 3.78 Litres/Minute.

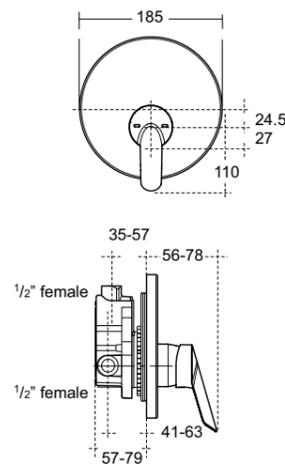


## PICCOLO21 BUILT-IN SHOWER VALVE

Piccolo21 Built-In Shower Valve

**9506250**

- Ceramic disc technology improves performance and reduces maintenance.
- Lever operation, makes for better ergonomics.
- CLICK technology reduces water usage by 50%.
- Clear hot & cold indices that resist wear from use and cleaning.
- Ergonomic handles give precise control even when wet.
- Adjustable Temperature Limiter allows the user to manually set the maximum volume of hot water to help prevent scolding.



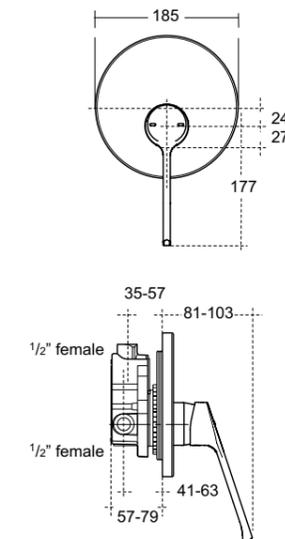
† Ideal for disabled and ambulant disabled users

## PICCOLO21 LONG LEVER BUILT-IN SHOWER VALVE

Piccolo21 Long Lever Built-In Shower Valve

**9506252**

- Ceramic disc technology improves performance and reduces maintenance.
- Lever operation, makes for better ergonomics.
- CLICK technology reduces water usage by 50%.
- Clear hot & cold indices that resist wear from use and cleaning.
- AS1428 compliant ergonomic handles give precise control even when wet.
- Adjustable Temperature Limiter allows the user to manually set the maximum volume of hot water to help prevent scolding.



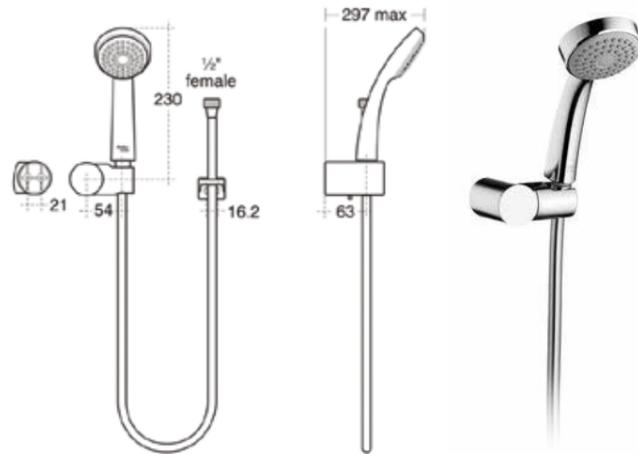
† Ideal for disabled and ambulant disabled users

# The Complete Range

## ARMAGLIDE2 HANDSHOWER WITH WALL BRACKET

Armaglide2 Handshower and Wall Bracket  
**2500691**

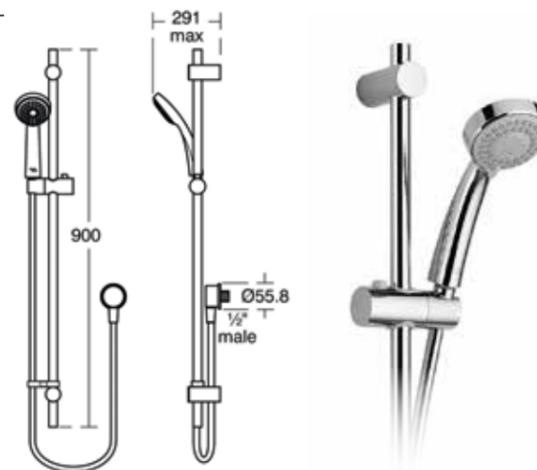
- Dual check valves included as standard – eliminating the possibility of potentially harmful back syphonage.
- Single function flow without aeration to help reduce potentially harmful mist.
- Shower hose retaining clip.
- Easy to clean hose and handset design.
- Complete with wall bracket.
- Complete with hose retaining clip.
- WELS 3 Star, 8.5 Litres/Minute.



## ARMAGLIDE2 HANDSHOWER SLIDER KIT

Armaglide2 Handshower Slider Kit  
**2500761**

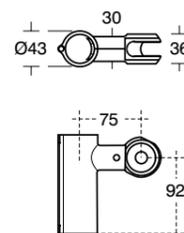
- Dual check valves included as standard – eliminating the possibility of potentially harmful back syphonage.
- Single function flow without aeration to help reduce potentially harmful mist.
- Shower hose retaining clip.
- Easy to clean hose and handset design.
- Complete with wall bracket.
- Complete with hose retaining clip.
- WELS 3 Star, 8.5 Litres/Minute.



## ARMAGLIDE2 HANDSHOWER WITH GRAB RAIL HOLDER

Armaglide2 Handshower and Grab Rail Holder  
**2500763**

- Dual check valves included as standard – eliminating the possibility of potentially harmful back syphonage.
- Single function flow without aeration to help reduce potentially harmful mist.
- Easy to clean hose and handset design.
- Complete with wall bracket.
- WELS 3 Star, 8.5 Litres/Minute.
- Great for disabled use.
- Suitable for use on all 32mm Grab Rails



Hose Retaining Clip

- 9506469**
- Physically ensures an air gap at all times.



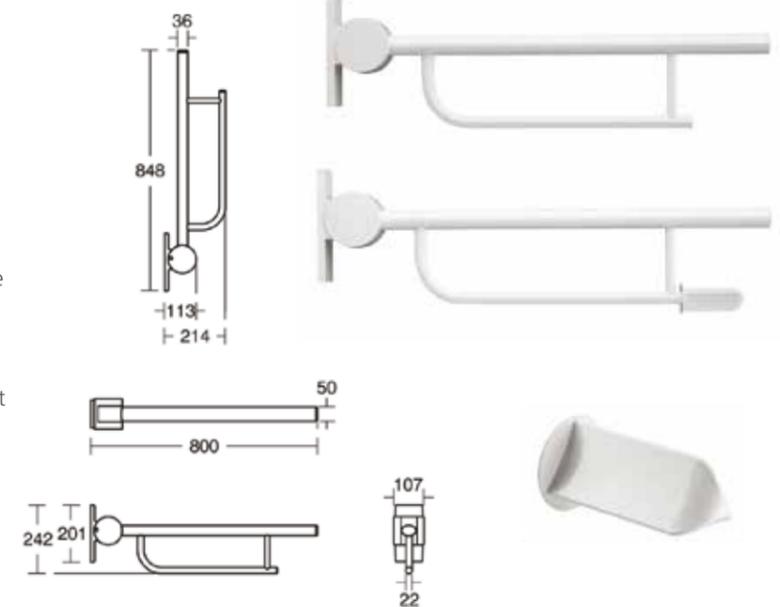
† Ideal for disabled and ambulant disabled users

## PORTMAN21 HINGED SUPPORT RAIL 800MM WHITE

Hinged Support Rail 800mm  
**9506075**

White Toilet Roll Holder for Hinged Support Rail  
**9506076**

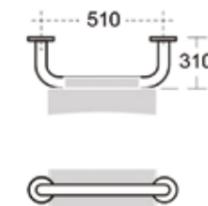
- Rail is made from corrosion resistant aluminium.
- Load tested to 200kg (downwards and sideways).
- Toilet roll holder is designed for single handed use.
- Anti-finger trap hinge design.
- Designed to be easy to clean.
- Friction hinge system helps to prevent rail dropping down.



## PORTMAN21 BACK SUPPORT RAIL AND CUSHION

Portman21 Back Support Rail with Cushion  
**9506140**

- Rail is made from corrosion resistant aluminium.
- Loaded tested to 200kg.
- Nylon fixation ends are included so rails do not require additional earthing.
- Cushion is waterproof and fully sealed.



Portman21 Back Support Rail White

- 9506074**
- Rail is made from corrosion resistant aluminium.
  - Loaded tested to 200kg.
  - Nylon fixation ends are included so rails do not require additional earthing.



Cushion Back Support

- 9506077**
- Cushion is waterproof and fully sealed.



† Ideal for disabled and ambulant disabled users

# The Complete Range

 <p><b>PORTMAN21 WALL BASIN 400MM</b>  <b>9506078</b> - No Overflow 1 Right Hand Taphole  <b>9506154</b> - No Overflow 1 Left Hand Taphole  <b>9506079</b> - 1 Centre Taphole with Overflow  <b>9506155</b> - No Taphole No Overflow</p>	 <p><b>PORTMAN21 SEAT</b>  <b>9505785</b> - Toilet Seat Single Flap White  <b>9505786</b> - Toilet Seat Single Flap Steel Blue  <b>9505787</b> - Toilet Seat Single Flap Grey</p>
 <p><b>PORTMAN21 WALL BASIN 500MM</b>  <b>9506080</b> - No Overflow 1 Right Hand Taphole  <b>9506156</b> - No Overflow 1 Left Hand Taphole  <b>9506083</b> - 1 Centre Taphole with Overflow  <b>9506081</b> - No Taphole No Overflow  <b>9506082</b> - 2 Taphole No Overflow</p>	 <p><b>MARKWIK21 WALL MOUNTED THERMOSTATIC SURGEONS SET</b>  <b>2500686</b> - Wall Mount Surgeons Set  <b>9506138</b> - Hydro Purge Kit</p>
 <p><b>PORTMAN21 WALL BASIN 600MM</b>  <b>9506084</b> - No Overflow 1 Right Hand Taphole  <b>9506157</b> - No Overflow 1 Left Hand Taphole  <b>9506087</b> - 1 Centre Taphole with Overflow  <b>9506085</b> - No Taphole No Overflow  <b>9506086</b> - 2 Taphole No Overflow</p>	 <p><b>MARKWIK21 HOB MOUNTED THERMOSTATIC SURGEONS SET</b>  <b>2500690</b> - Hob Mount Surgeons Set  <b>9506138</b> - Hydro Purge Kit</p>
 <p><b>PORTMAN21 ACCESSIBLE WALL BASIN 600MM</b>  <b>9506088</b> - 1 Centre Taphole with Overflow  <b>9506089</b> - 1 Centre Taphole No Overflow  <b>9506150</b> - No Taphole No Overflow</p>	 <p><b>MARKWIK21 THERMOSTATIC BASIN MIXER</b>  <b>2500685</b> - Basin Mixer  <b>9506204</b> - BioGuard Outlet</p>
 <p><b>PORTMAN21 WALL BASIN 570MM WITH SHELF</b>  <b>9506090</b> - No Overflow 1 Right Hand Taphole</p>	 <p><b>MARKWIK21 EXPOSED THERMOSTATIC BATH MIXER WITH OUTLET</b>  <b>2500689</b> - Bath Mixer</p>
 <p><b>PORTMAN21 BACK-TO-WALL RIMLESS 800MM PAN</b>  <b>9505784</b> - Portman21 Pan Only  <b>9505796</b> - With Seat Single-Flap White  <b>9505797</b> - With Seat Single-Flap Steel Blue  <b>9505798</b> - With Seat Single-Flap Grey</p>	 <p><b>MARKWIK21 EXPOSED THERMOSTATIC SHOWER MIXER WITH HANDSHOWER OUTLET</b>  <b>2500688</b> - Shower Mixer</p>
 <p><b>PORTMAN21 OVERHEIGHT BACK-TO-WALL RIMLESS 610MM PAN</b>  <b>9506123</b> - Portman21 Pan Only  <b>9506344</b> - With Seat Double Flap White  <b>9506151</b> - Single-Flap White  <b>9506152</b> - Single-Flap Grey  <b>9506153</b> - Single-Flap Steel Blue</p>	 <p><b>MARKWIK21 CONCEALED THERMOSTATIC SHOWER MIXER</b>  <b>2500687</b> - Shower Mixer</p>
 <p><b>PORTMAN21 XL BACK-TO-WALL PAN</b>  <b>9505788</b> - Back-to-wall Pan Only  <b>9505799</b> - With Seat Single-Flap White  <b>9505789</b> - With Seat Double Flap White</p>	 <p><b>MARKWIK21 ANTI-VANDAL SHOWER HEAD</b>  <b>9506211</b> - Shower Head</p>

 <p><b>PICCOLO21 SINGLE LEVER BASIN MIXER</b>  <b>9506249</b> - Basin Mixer</p>	 <p><b>ARMAGLIDE2 HANDSHOWER WITH WALL BRACKET</b>  <b>2500691</b> - Handshower and Wall Bracket</p>
 <p><b>PICCOLO21 BUILT-IN SHOWER VALVE</b>  <b>9506250</b> - Shower Valve</p>	 <p><b>ARMAGLIDE2 HANDSHOWER SLIDER KIT</b>  <b>2500761</b> - Handshower and Slider Kit</p>
 <p><b>PICCOLO21 LONG LEVER BASIN MIXER</b>  <b>9506251</b> - Basin Mixer</p>	 <p><b>ARMAGLIDE2 HANDSHOWER WITH GRAB RAIL HOLDER</b>  <b>2500763</b> - Handshower and Grab rail Holder</p>
 <p><b>PICCOLO21 LONG LEVER BUILT-IN SHOWER VALVE</b>  <b>9506252</b> - Shower Valve</p>	 <p><b>HINGED SUPPORT RAIL 800MM</b>  <b>9506075</b> - Hinged Support Rail  <b>9506076</b> - Toilet Roll Holder for Hinged Support Rail</p>
 <p><b>SENSORFLOW21 DECK MOUNTED COMPACT BASIN SPOUT</b>  <b>9506424</b> - Basin Mixer</p>	 <p><b>BACK SUPPORT RAIL AND CUSHION WHITE</b>  <b>9506140</b> - Back Support Rail with Cushion  <b>9506074</b> - White Support Rail  <b>9506077</b> - Cushion Back Support</p>
 <p><b>REMOTE CONTROL UNIT FOR SENSORFLOW21</b>  <b>9506468</b> - Remote Control Unit</p>	 <p><b>HYDRO PURGE KIT</b>  <b>9506138</b> - Hydro Purge Kit</p>

## Product Quality Guarantee

**25** 25 years **all ceramic products**

**5** 5 years **showers, taps, mixers, grab rails and back rests**

**10** 10 years **cartridges**

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