

Bristol Maid™

Hospital Metalcraft Ltd



Supporting the NHS for over 70 years

1953-2024

Making Hospital Furniture Easier To Clean

Reducing The Risk of Infection Through Effective Design



eClean™

"Cleanliness is vital in preventing HCAs"
UK Health Minister

As many as 10% of hospital beds in Sweden are occupied by patients fighting a HCAI

www.upsalabio.se

The added financial burden attributable to healthcare-associated infections is estimated to be between \$28 billion to \$33 billion each year

(United States) Agency for Healthcare Research & Quality

4,544,100 episodes of HCAI every year in Europe

World Health Organisation - Report on the burden of endemic HCAI worldwide

Design
BugsOut

The Design Bugs Out (DBO) project aimed to bring designers and manufacturers together with clinical specialists, patients and frontline staff to help combat infections by making hospital furniture and equipment easier and quicker to clean



The Challenge

The UK Department of Health, NHS Supply Chain and the Design Council launched Design Bugs Out, a challenge to UK's top manufacturers and designers to help control the risk of Healthcare Associated Infections by making hospital furniture and equipment easier and quicker to clean, concentrating particularly on products positioned by, or used in the vicinity of the hospital bed.

Bristol Maid™ took up this challenge with Kinneir Dufort to redesign the traditional Bedside Cabinet. Existing cabinets typically have complex internal spaces, hard to reach surfaces and angular joints, in short, areas which can harbour liquids, dirt and more importantly bacteria. Most designs are also constructed from wood/laminate or other similar materials which cannot be steam cleaned.

The Solution

Working closely with nursing and infection control specialists, pharmacists and patients, we listened to their needs and concerns and, after lengthy and detailed trials, developed our multiple award winning Bedside Cabinet.

Constructed from recyclable polyethylene, with an open / backless body and fully removable drawers, the cabinet can be easily and effectively cleaned. It provides separate areas for patient and staff to use, drawers which can be secured with RFID controlled electronic locks and the flexibility to configure for use on either side of the bed.

- ✓ Must be proven to which in turn imp
- ✓ Aesthetically plea the healing environ
- ✓ New designs supp existing healthcare

Design Bugs Out



Patients who contract MRSA infections in Irish hospitals are 7 times more likely to die in hospital than those that do not have secondary infections

RTE News

eClean™

Since its UK launch in April 2010, the new Bristol Maid™ eClean Bedside Cabinet has been deployed in over 100 NHS Trust hospitals around the UK. Commenting on the cabinet, Diane Simpson, Senior Matron for infection prevention and control at Chesterfield Royal Hospital, said 'This locker has been specifically designed to help us keep the patient area clean. Because the unit has no back, and we can take out the drawers completely, it can be wiped clean in minutes and ready to receive the next patient. A lot of the work we do in promoting good hygiene among our staff is centred on the patient environment and this unit is a part of that. By making things easier to clean we are reducing the risk of seeing potentially-harmful bacteria travelling from patient to patient'

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About Bristol Maid™

Hospital Metalcraft Ltd, established in Bristol during 1953 and currently celebrating 70 years as a family owned business, has grown into a company with over 160 employees and occupying a 10,000m² site in Blandford Forum (Dorset) where we design, manufacture and supply the extensive Bristol Maid™ range of medical furniture and equipment.

The Bristol Maid™ trademark was adopted shortly after the company was established, linking the founding city and the 'nurses head' logo, creating a widely recognised trademark reflecting quality and reliability.

We have developed into a major supplier to the UK National Health Service (NHS) providing a comprehensive medical furniture range including trolleys, cabinets, couches and various storage solutions. Our customer base also includes private healthcare providers/hospitals, pharmacies and a network of Distributors servicing the care home market. We are also exporting to an increasing number of countries around the world and welcome enquiries from potential partners.

In addition to the manufacture of our own brand products, we have developed partnerships with other storage and handling solution providers. We are exclusive distributors for Stanley Healthcare Solutions whilst also representing Metro, Labcold and Numatic.



Bedside Cabinet

Design BugsOut

eClean™

Cabinets Are Available With Or Without RFID Locks

Upper nurse zone/shelf with integral rim to contain any spillages. Ideally positioned for staff to use while standing

Rim prevents spillages from entering the drawers

Middle zone/shelf provides storage area for patient use

Polyethylene construction offers good surface protection against liquid stains and heat marks

Large 100mm twin wheel castors with easily accessible brakes and smooth surfaces to assist cleaning

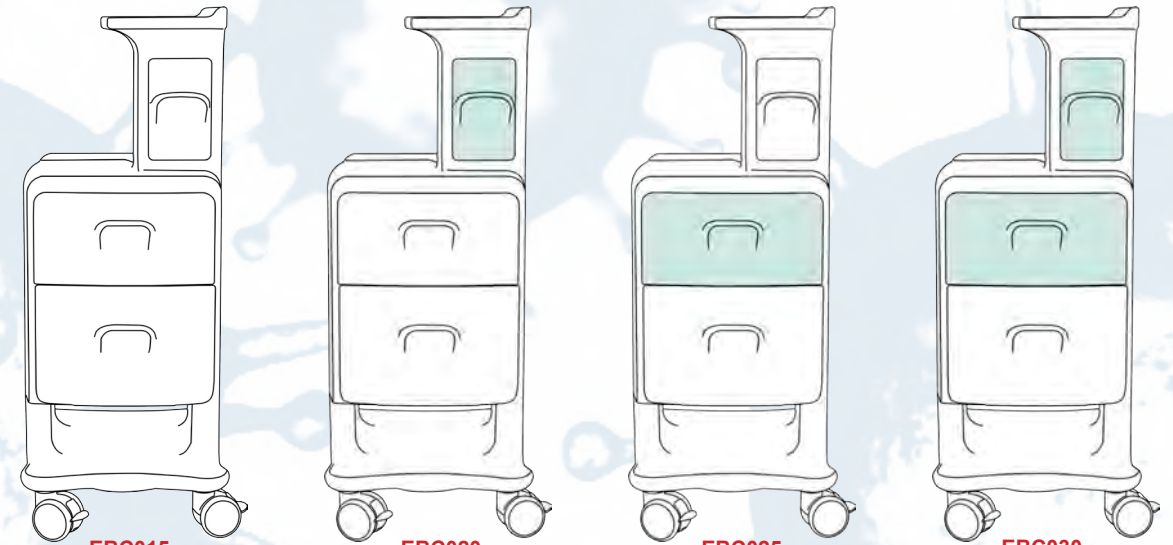
Lower patient storage zone / shelf for washbowl, footwear etc.

Upper and Middle drawers can be fitted with an RFID lock. No key hole to harbour dirt/germs. Can be used in conjunction with medicine management programmes

Open backless design aids thorough cleaning. Drawers can be inserted from either side enabling the cabinet to be positioned on either side of the bed

Rounded edges and contours

Upturned handles ensure that all touch points are clearly visible for effective cleaning



EBC015
No Locks

EBC020
Upper Drawer With Lock

EBC025
Middle Drawer With Lock

EBC030
Upper & Middle Drawers With Lock

The Top and Middle drawers can be fitted with an RFID controlled electronic lock. Use of this technology means that there are no key holes to harbour germs and the drawer fronts are smooth and easy to wipe clean.

Locks can be easily, and independently, programmed on site to operate with individual access cards (keys).

Where hospitals are also planning to store medication etc. within the drawers Staff and Master cards are also available. These can be programmed to operate with all or some of the cabinets within specific wards or directorates and are ideal for use by Nursing and Pharmacy staff.



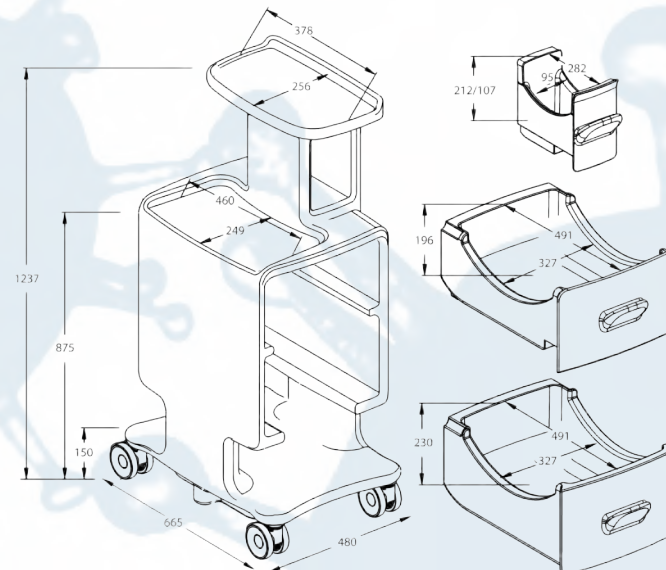
To link a Patient, Staff or Master Card to a lock simply place the programming card near the icon on the drawer front followed by the required access card. Repeat for each additional card.

Standards

The Bedside Cabinet meets the following British Standards

- ✓ BS 3962 Part 6:1980 - Assessment of resistance to mechanical damage
- ✓ BS EN 12720:2009 - Furniture assessment of surface resistance to cold liquids
- ✓ BS EN 12721:2009 - Furniture assessment of surface resistance to wet heat
- ✓ BS EN 12722:2009 - Furniture assessment of surface resistance to dry heat
- ✓ BS 5852:2006 - Methods of the test for assessment of ignitability
- ✓ BS 4875-7:2006 - Domestic and contract storage furniture

There are around 200,000 healthcare associated infections (HAI) in Australian acute healthcare facilities each year
 Cruickshank M & Ferguson J (eds) (2008)



Material	Recyclable Polyethylene	
Colour	Body	Grey White (RAL9002)
	Drawers	Spearmint (RAL6027)
Labelling	Embedded into Plastic	
Castors	100mm Diameter, Twin Wheel Swivel Braking (Non Marking)	
Lock	Keyless RFID Battery Powered (CR123A 3v Lithium)	
Weight (approx)	EBC015	29.0kg
	EBC020	29.1kg
	EBC025	29.1kg
	EBC030	29.2kg
Zone & Drawers	Maximum Load	Floor To Surface Height
Upper Nurse Zone	4kg	1207mm
Middle Patient Zone	5kg	854mm
Lower Patient Storage Zone	10kg	150mm
Upper Drawer	2kg	
Middle Drawer	5kg	
Lower Drawer	5kg	

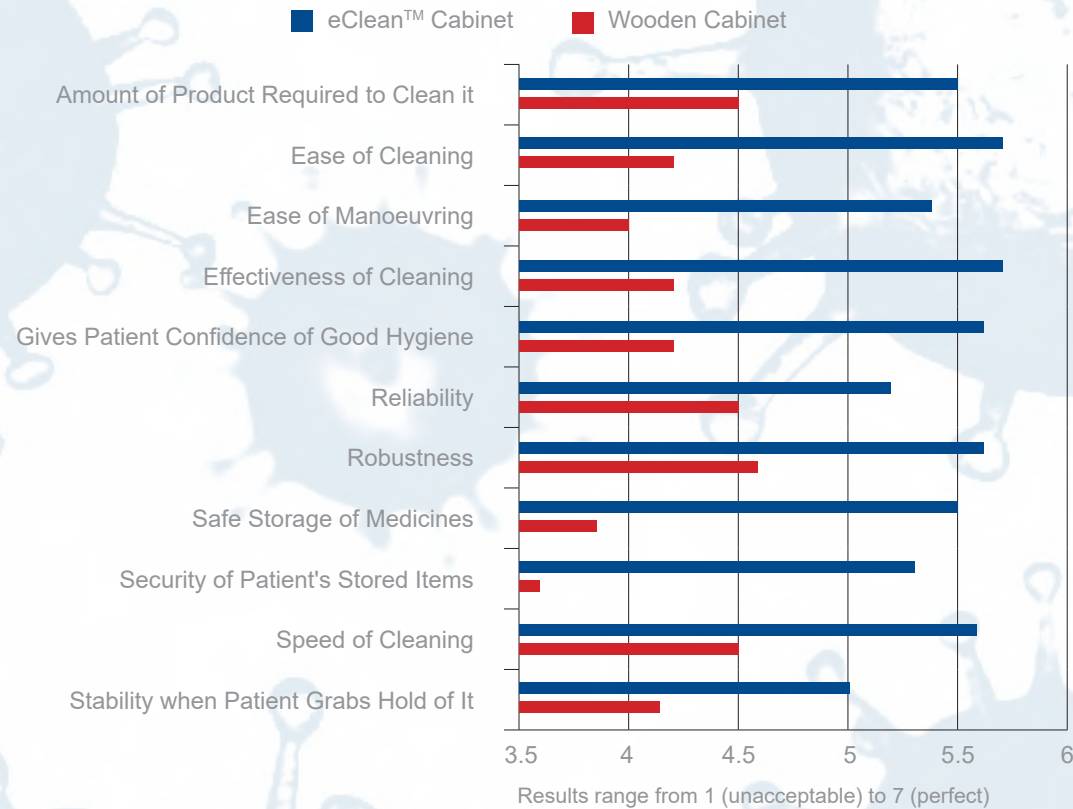
European Patent No. 2 241 215

UK Department of Health Product Evaluation - Bristol Maid™ eClean™ Bedside Cabinet

The UK Department of Health conducted 3 independent studies on the eClean™ bedside cabinet (compared to a traditional wooden bedside cabinet).

1. User research from 8 showcase hospitals
2. Human factor study
3. Laboratory study using ATP and microbiology swabs

User research (highlighted below) concluded that the cabinet does seem easier to clean and includes a number of innovative features that many people appreciate:



An estimated 5,000 people in the UK die each year from infections such as MRSA and costs the NHS £1bn

The National Audit Office

Unfortunately, not all HCAI can be prevented as they are often the price we pay for advances in medicine. But with good practice and careful hygiene it has been estimated that around 15% to 30% could be avoided

<http://www.hcainetwork.org>

Laboratory Assessment of Cleanability

Cleaning methods were assessed using ATP and microbiological testing. The ATP measurements and the log₁₀ reductions in the test organism obtained from the bedside cabinet are shown in tables 1 and 2. Table 3 shows the mean log₁₀ reductions from each individual test site on the cabinet.

In summary, using the recovery of ATP as a marker for residual soiling suggests that the new furniture is generally easier to clean.

Table 1: ATP Measurement

	Test A		Test B		Test C		Test D		Test E		Mean (5 Tests)	
	New	Old	New	Old	New	Old	New	Old	New	Old	New	Old
Detergent Solution (CM1)	4	5	0	11	4	3	1	4	1	9	2.0	6.4
Detergent wipe (CM2)	0	4	1	5	1	40	4	14	4	32	2.0	19.0

Table 2: Log₁₀ Reductions Obtained From Each Item

	Test A		Test B		Test C		Test D		Test E		Mean (5 Tests)	
	New	Old	New	Old	New	Old	New	Old	New	Old	New	Old
Detergent Solution (CM1)	2.48	3.37	4.36	3.15	3.71	3.82	3.21	3.34	3.53	3.01	3.46	3.34
Detergent wipe (CM2)	4.22	3.73	4.54	4.79	4.10	3.46	3.84	4.13	4.15	4.19	4.17	4.06

Table 3: Mean Log₁₀ Reductions Obtained From Each Site

	Detergent Solution (CM1)		Detergent Wipe (CM2)	
	New	Old	New	Old
Top Surface	4.11	3.75	3.62	4.12
Lower Surface	3.98	4.44	3.81	4.01
Upper Handle	3.21	2.35	4.95	3.86
Lower Handle	2.52	2.82	4.28	4.24

New - EBC cabinet
Old - Traditional style cabinet

Cleaning

The cabinet can be effectively cleaned by wiping with mild/neutral detergent in lukewarm water using a soft cotton cloth.

The polyethylene construction material is compatible with hydrogen peroxide, sodium dichloroisocyanurate, hypochlorite, alcohol (ethyl/isopropyl) and other chlorine based cleaning solutions including alcohol surface wipes (following manufacturer's instructions for use on medical products/furniture).



Overbed Table

eClean™

Of every 100 hospitalised patients at any given time, 7 in developed and 10 in developing countries will acquire at least one health care-associated infection
 World Health Organization

Recyclable polyethylene top and column shroud
 Table top will not flake or suffer water damage

Defined surface edges and contours reduces misplacement of objects and contains spillages.
 Maximum load of 20kg

The cantilever design aids patient access whilst the symmetrical top allows use either side of the bed

Safety feature prevents entrapment of the patient between the bed and table

50mm twin wheel castors with smooth surfaces to assist cleaning

Open C shaped base provides a stable design for use with either a chair or bed

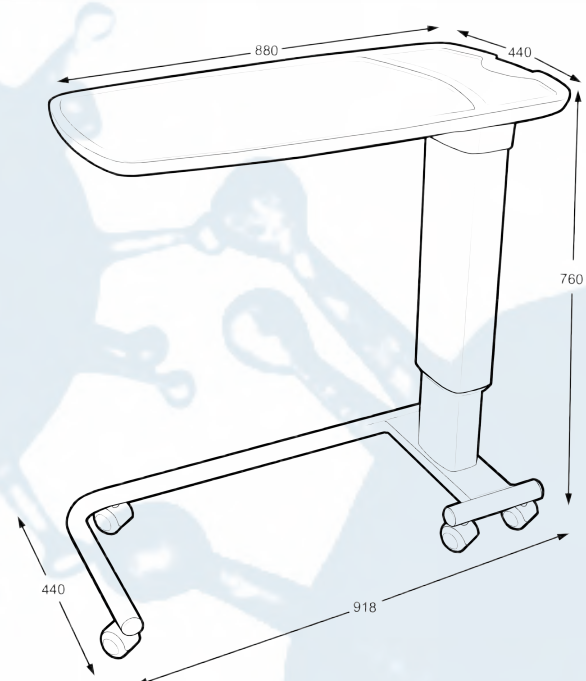


Smooth linear height adjustment using a gas damper

Standards

The Overbed Table meets the following British Standards

- ✓ BS 3962 Part 6:1980 - Assessment of resistance to mechanical damage
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- ✓ BS EN 12721:2009 - Furniture assessment of surface resistance to wet heat
- ✓ BS EN 12722:2009 - Furniture assessment of surface resistance to dry heat
- ✓ BS 5852:2006 - Methods of the test for assessment of ignitability



Item	Description
OCP/SP/S	Overchair Table - Easy Clean

Material	Base & Column Shroud & Table Top	Aluminium Recyclable Polyethylene
Colour	Base, Shroud & TableTop Column	Grey White (RAL9002) Spearmint (RAL6027)
Labelling		Embedded into Plastic
Castors		50mm Diameter, Twin Wheel Swivel (Non Marking)
Height Adjustable		Gas Damper (710 - 1025mm)
Weight (approx)	OCP/SP/S	14.0kg
Maximum Load		25.0kg

Mobile Infusion Stands

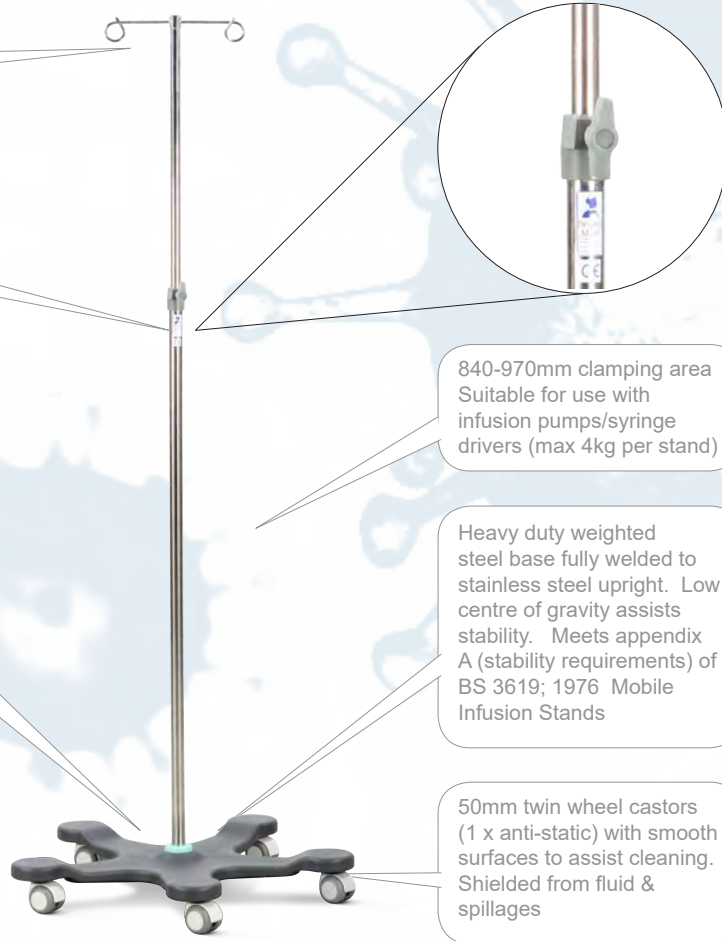
eClean™

Stainless steel pole available with two/four pigtail hooks (max load 4kg per stand)

Height adjustable using a handwheel with clear visible touch points

Seamless polyurethane over moulded base provides a flexible tear & water resistant finish, along with impact protection to the patient & fabric of the building

Colour coded indicators to assist department identification, assist segregation & reduce the risk of cross contamination



840-970mm clamping area Suitable for use with infusion pumps/syringe drivers (max 4kg per stand)

Heavy duty weighted steel base fully welded to stainless steel upright. Low centre of gravity assists stability. Meets appendix A (stability requirements) of BS 3619; 1976 Mobile Infusion Stands

50mm twin wheel castors (1 x anti-static) with smooth surfaces to assist cleaning. Shielded from fluid & spillages

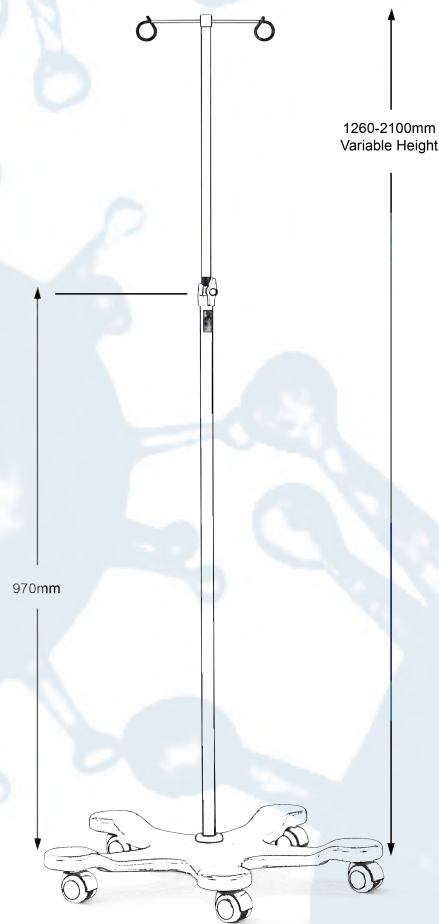


Defined edges & contours ensure that all key surfaces are accessible, allowing for easy & effective cleaning (including steam cleaning)

Description	Base Cap Colours				
	Spearmint	Blue	Green	Red	Yellow
Two Hook	IS/P/2H/SP*	IS/P/2H/BL	IS/P/2H/GR	IS/P/2H/RD	IS/P/2H/YE
Four Hook	IS/P/4H/SP*	IS/P/4H/BL	IS/P/4H/GR	IS/P/4H/RD	IS/P/4H/YE
Two Hook, Handle	IS/P/2H/H/SP*	IS/P/2H/H/BL	IS/P/2H/H/GR	IS/P/2H/H/RD	IS/P/2H/H/YE
Four Hook, Handle	IS/P/4H/H/SP*	IS/P/4H/H/BL	IS/P/4H/H/GR	IS/P/4H/H/RD	IS/P/4H/H/YE

* Standard colour Spearmint

Healthcare-associated infections are the most common complication of hospital care, resulting in 1.7 million infections and 99,000 deaths each year
(United States) Agency for Healthcare Research & Quality



Material	Base Upright, Adjustable Pole & Hooks	Steel with Polyurethane Over Moulding 304 Grade Stainless Steel
Colour	Base Upright, Adjustable Pole & Hooks Handwheel	Spearmint/Blue/Green/Red/Yellow Polished Stainless Steel Grey
Castors		50mm Diameter, Twin Wheel Swivel Braking (Non Marking, 1 x Anti-Static)
Weight, (Approx)	IS/P/2H/SP IS/P/4H/SP IS/P/2H/H/SP IS/P/4H/H/SP	7.8kg 7.9kg 8.2kg 8.3kg
Vertical Clamping Area	IS/P/2H/SP & IS/P/4H/SP IS/P/2H/H/SP & IS/P/4H/H/SP	970mm 840mm
Maximum Load	Hooks Fixed Upright	4.0kg 4.0kg

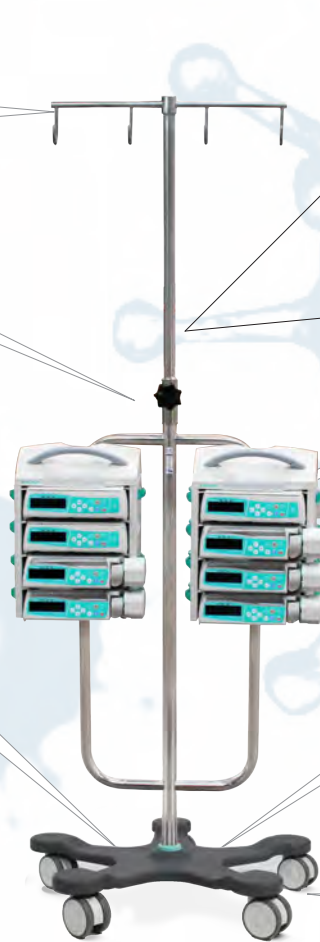
Mobile Pump Stands

eClean™

Stainless steel pole available with four/six u shaped hooks (max load 12kg per stand)

Height adjustable using a handwheel with clear visible touch points

Seamless polyurethane over moulded base provides a flexible tear & water resistant finish, along with impact protection to the patient & fabric of the building



Suitable for use with infusion pumps/syringe drivers (max 12kg per stand)

Heavy duty weighted steel base, fully welded to stainless steel upright. Low centre of gravity assists stability. Meets appendix A (stability requirements) of BS 3619; 1976 Mobile Infusion Stands

75mm twin wheel castors (1 x anti-static) with smooth surfaces to assist cleaning. Shielded from fluid & spillages



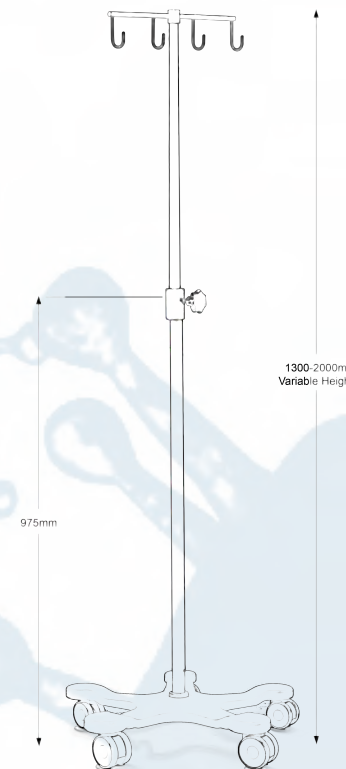
BUGS OUT →



Defined edges & contours ensure that all key surfaces are accessible, allowing for easy & effective cleaning (including steam cleaning)

Item	Description	Weight
PS/P/SC/4H	Mobile Pump Stand - Polyurethane, Easy Clean, Standard Capacity	11.0kg
PS/P/HC/4H	Mobile Pump Stand - Polyurethane, Easy Clean, High Capacity, Four Hook	13.0kg

In high-income countries, approximately 30% of patients in intensive care units (ICU) are affected by at least one health care-associated infection
 World Health Organization



Material	Base	Steel with Polyurethane Over Moulding
	Upright, Adjustable Pole & Hooks	304 Grade Stainless Steel
Colour	Base	Spearmint/Blue/Green/Red/
	Upright, Adjustable Pole & Hooks	Yellow Polished Stainless
	Handwheel	Steel Grey
Castors		75mm Diameter, Twin Wheel Swivel Braking (Non Marking, 1 x Anti-Static)
Weight, (Approx)	PS/P/SC/4H	11.0kg
	PS/P/HC/4H	13.0kg
Vertical Clamping Area	PS/P/SC/4H	975mm
	PS/P/HC/4H	771mm (Inner Pole) 2 x 646mm (Outer Poles)
Maximum Load	Hooks	12.0kg
	Fixed Upright/s	22.0kg per stand

Caretray Trolleys

Carerails fitted to both sides of the trolley, compatible with a wide range of accessories

Frame fully welded eliminating gaps. 304 grade stainless steel or mild steel that is powder coated in a durable epoxy polyester paint

One-piece moulding. Smooth surfaces & rounded edges assist cleaning (compatible with steam cleaning). Runners with positive stops prevent trays from being accidentally withdrawn. Symmetrical design allows tray insertion from either side

One-piece moulding. Smooth surfaces & rounded edges assist cleaning (compatible with steam cleaning). Raised edges on three sides provides defined grab points to act as push handles whilst an integral rim at the front contains spillages

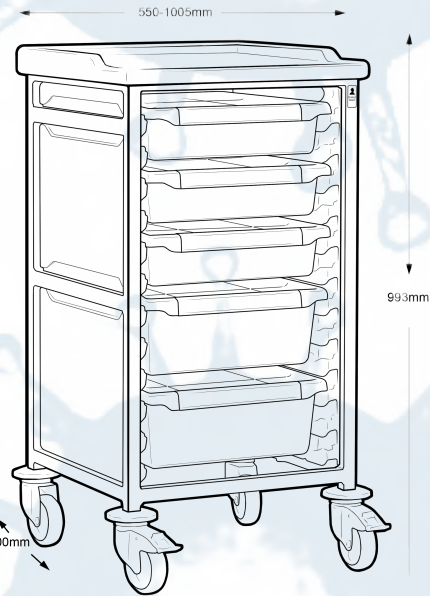
Smooth surfaces & rounded edges assist cleaning (compatible with steam cleaning) & able to withstand high-temperature machine washing

100mm pressed steel or polymer castors (model dependant). Two braking castors fitted as standard. Ring buffers offer protection to both the trolley and fabric of the building



Item	Description
CTM1/10/1S3D	1 x 100mm, 3 x 150mm Trays
CTM1/10/3S2D	3 x 100mm, 2 x 150mm Trays
CTM1/10/4D	4 x 150mm Trays
CTM1/10/4S1D	4 x 100mm, 1 x 150mm Trays
CTM1/10/6S	6 x 100mm Trays

Material	Frame	Steel
	Top and Side Panels	Polypropylene
	Trays	Translucent, High Impact Plastic
Colour	Frame	Spearmint
Castors		100mm Pressed Steel
Weight, (Approx)	CTM1/10/1S3D	27.5kg
	CTM1/10/3S2D	28.6kg
	CTM1/10/4D	27.9kg
	CTM1/10/4S1D	28.3kg
	CTM1/10/6S	29.4kg
Maximum load per tray		5kg



Disassembly & Cleaning

The design of the trolley allows for quick & easy tool-less disassembly providing access for all areas when conducting thorough or deep cleaning programmes. The simple guide below illustrates the disassembly & re-assembly process:



Remove Trays

Remove the trays from the unit



Remove Top

The top is held in place with two thumb screws on the underside of the top. Once removed, the top can be removed with a firm tug



Remove Back Panel

(if fitted)

Once the top has been removed, the back panel can be lifted clear of the cross members on the rear of the frame



Remove Side Panels

The side panels are removed by lifting off the positioning inserts. Double height trolleys require thumb screws at the top of the lower panel to be removed



Clean

The frame, side panels & top can now be cleaned



Reassembly

The trolley is re-assembled by repeating the steps in reverse

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