



# Pulp Maceration For Healthcare: The DDC Dolphin Difference





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## What Is A Pulp Macerator?

**Pulp macerators are machines which pulverise and dispose of single-use medical pulp containers and human waste.**

The technology of choice for thousands of healthcare facilities around the world, a macerator is a fast and easy to use human waste disposal solution, providing safe and efficient alternative to washing bedpans by hand, or using a washer disinfectant.

Macerators are opened and closed using hands-free technology. This allows a pulp container - along with its contents - to be placed inside the machine without the need to wash or dispose of items elsewhere. Once the lid is closed, the maceration cycle will be complete in as little as 65 seconds - giving your staff much more time to care for your patients or care home residents.

During the maceration process, the pulp container and its contents are quickly and effectively pulverised into a watery slurry, using high speed rotating blades. The slurry is discharged into the main sewage system, similar to a conventional toilet.



### Key Benefits

- Reduce cross-contamination of infectious materials and minimise the risk of HCAI outbreaks. NHS England's 2011 survey on healthcare-associated infections and antimicrobial use estimated that 300,000 patients a year in England acquire a healthcare-associated infection because of care within the NHS.<sup>1</sup>
- Reduce your facility's budget spend with low operating costs (a macerator can use as little as 9.5 litres of water per cycle) and prevention of facility shutdowns due to infections. In 2016/2017, HCAs were estimated to have cost the NHS an estimated £2.1 billion.<sup>2</sup>
- Save clinicians' time and increase productivity by removing the need for cleaning reusable items. The DDC Dolphin Pulpmatic Uno has a cycle time of just 65 seconds - 88% quicker than the 9-minute cycle time of the average bedpan washer.<sup>3</sup>

<sup>1</sup> Infection prevention and control, NICE, <https://www.nice.org.uk/guidance/qs61/chapter/introduction>

<sup>2</sup> 'Modelling the annual NHS costs and outcomes attributable to healthcare-associated infections in England', Julian F Guest, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7045184/>

<sup>3</sup> p.762, S. Hatt et al. / American Journal of Infection Control 48 (2020) 761-764, 'Washer disinfectant and alkaline detergent efficacy against C. difficile on plastic bedpans'





# What Makes Us The Market Leader?

DDC Dolphin is a specialist sluice/dirty utility room equipment manufacturer and global supplier with 30 years' experience - providing bedpan washer disinfectors, medical pulp macerators and innovative infection control solutions to healthcare facilities around the world.



**We currently serve 6 continents, 50 countries and over 5000 sites across the globe.**

We provide the most advanced service and maintenance offering available in the UK, with factory trained partners looking after machines in our extensive international markets, as well as a growing range of complimentary infection control products – all of which are designed to both advance and streamline your existing strategy.

From the leading technology of our pulp macerators to flushable care wipes and UV air purification systems, **we will help your facility to thrive.**

At DDC Dolphin, we don't let a drop of knowledge go to waste. We're constantly listening to the people who use our products and remain dedicated to creating practical solutions that make a tangible difference to the everyday.

No matter what kind of healthcare environment you work in, our unique innovations will spark positive change for your clinical workforce, infection control experts, facilities staff, financial control teams and more.



# Our Pulp Macerator Range

DDC Dolphin's range of Pulpmatic macerators underpin the infection control strategy of thousands of facilities around the world.

Our innovative and unique technology is showcased across three market-leading models, designed and built to serve a host of needs across the healthcare sector.

You can expect:

- **The most environmentally friendly**, economical and hygienic macerator technology on the market.
- **Large capacity machines**, disposing of up to six items per cycle.
- **Quick maceration cycles** from just 65 seconds.
- **Antimicrobial technology in polymer surfaces**, featuring antimicrobial additives to stop the growth of harmful bacteria.
- **Low water consumption**, from 9.5litres per cycle.
- **Completely contactless operation**, reducing the risk of cross-contamination.
- **Continuous, free-flowing output of waste to drain**, through DDC Dolphin's advanced open flow maceration technology.
- **High quality materials and components**, including high grade stainless steel.
- **Automatic drain flush**, which can be programmed during low use times to limit the build-up of stagnant water and remove the possibility of Legionnaires' disease
- **Various start options** to suit each facility's requirements, ranging from self to auto start.
- **Reduced operating noise**, with advanced materials to absorb energy for quieter operating noise.
- **Audio annunciation** – helpful voice guidance available in any language, decreasing costly training requirements and reducing the number of staff errors.



# Insight Into The Pulpmatic Range





## Pulpmatic Ultima

The Pulpmatic Ultima is our largest capacity bedpan macerator, suitable for busy hospital wards and care homes, capable of disposing of up to 6 pulp items per cycle.

The unique nine bladed macerator technology allows for a rapid disposal cycle of just 120 seconds, without compromising on efficiency, water usage or noise levels.



### Benefits

-  Reduce cross contamination of infectious materials and minimise the risk of ward outbreaks, keeping staff and patients safe.
-  Save clinicians' time and increase productivity by reducing the need for cleaning of reusable items.
-  Exceptionally economical, using little water and energy to operate.
-  Reduce hospital budget spend with low operating costs and prevention of ward shut-downs due to infections.






## Pulpmatic Uno

The Pulpmatic Uno is our low-use bedpan macerator for smaller hospital wards and care home environments. Capable of processing 1-2 pulp items per cycle, it provides a quieter, economical solution where maceration is a requirement, but demand is minimal.

The Uno's seven blade macerator disc provides rapid, low-noise maceration for minimal disruption to a small ward setting, with a cycle lasting just 65 seconds.



### Benefits

-  Reduce cross contamination of infectious materials and minimise the risk of ward outbreaks, keeping staff and patients safe.
-  Save clinicians' time and increase productivity by reducing the need for cleaning of reusable items.
-  Exceptionally economical, using little water and energy to operate.
-  Reduce hospital budget spend with low operating costs and prevention of ward shut-downs due to infections.
-  Versatile unit for low demand areas, be it a dirty utility room or a private patient room.

## Pulpmatic Eco+





The Pulpmatic Eco+ is the most environmentally friendly, economical and hygienic macerator on the market.

Featuring enhanced chemical dosing, powerful antimicrobial surfaces and fully hands-free operation, you can be certain that this sluice machine will prevent the spread of infection in your facility.

It is perfectly suited for medium capacity wards or care homes, processing up to 4 pulp items per cycle. Its advanced five blade macerator disc provides rapid, low-noise, finer maceration in a cycle lasting from just 85 seconds.



### Benefits

-  Our most economical machine, using very little water and energy to operate.
-  Reduce cross contamination of infectious materials and minimise the risk of ward outbreaks, keeping staff and patients safe.
-  Save clinicians' time and increase productivity by eliminating the need for cleaning of reusable items.
-  Reduce hospital budget spend with low operating costs and prevention of ward shut-downs due to infections.

The culmination of more than 30 years' experience in sluice room product development, the Pulpmatic Eco+ is a market-leading medical pulp macerator which builds on DDC Dolphin's expansive knowledge of user and facility requirements to launch a new standard in infection control



# Which Pulpmatic Is Best For Your Facility?

	Pulpmatic Uno	Pulpmatic Eco+	Pulpmatic Ultima
Capacity	Up to 2 items	Up to 4 items	Up to 6 items
Cycle Time	From 65 seconds	From 85 seconds	From 120 seconds
Machine Dry Weight	66.5 Kilos	79 Kilos	72 Kilos
Dimensions	400 x 975 x 510mm (Lid clearance 1500mm)	500 x 1040 x 623mm (Lid clearance 1400mm)	500 x 1040 x 600mm (Lid clearance 1500mm)
Water Consumption	From 9.5L	From 13L	From 26L
Electrical Consumption per cycle	0.011 kW	0.021 kW	0.025 kW
Programmable Options	Yes	Yes	Yes
Contactless Operation	Yes	Yes	Yes
Programmable Audio	Yes	Yes	Yes
Automatic Drain Flush	Yes	Yes	Yes
Automatic Chemical Dosing	Yes	Yes	Yes
Advanced Open Flow Technology	Yes	Yes	Yes
Visual Machine Status Display	Yes	Yes	Yes
Typical Location	ICU, Patient Bedroom	Care Facility/Hospital	Care Facility/Hospital

Pulpmatic macerator technology is unlike any other brand on the market. Let’s take a closer look...

# User Benefits

Patient health and quality of care pivots on the effectiveness of clinicians and care giving teams. That’s why every Pulpmatic macerator is built to maximise user efficiency and safety, equipping clinicians with the technology they need to provide exceptional care.

### Hands-Free, Hygienic Operation

In healthcare settings, cross-contamination can be fatal.

The World Health Organisation report that HCAs annually account for 37,000 attributable deaths in Europe and potentially many more that could be related, as well as 99,000 deaths in the USA.<sup>4</sup>

Major effort has, therefore, been put into improving hand hygiene standards for healthcare providers to manage hospital internal sources of contamination.<sup>5</sup>

Every Pulpmatic macerator is built with hands-free operation, including foot cup opening and auto close functionality. Not only will this save time for busy clinicians, but it will ensure that human waste disposal is kept free of unnecessary touch points that allow bacteria to spread.

### Reliability You Can Depend On

If sluice room machinery breaks down, there’s a lot at stake. The safety and efficiency of your clinicians, as well as the health of your patients, could be negatively impacted

Pulpmatic macerators incorporate pioneering technology to prevent machine downtime because of user error.

Clinicians will find the Eco+ easy and intuitive to use, thanks to a one-of-a-kind, 5-inch LCD antimicrobial screen, which guides the user through the status of a maceration cycle, correct items to load, cycle time remaining and, when required, error information. These visual instructions will overcome language barriers and prevent breakdowns through accidental misuse.

In addition, every Pulpmatic can take advantage of unique, customisable audio annunciation in any language, providing an additional layer of support for clinicians and reducing costly training requirements.

### Prioritise Patient Comfort With Quiet Confidence

A calm environment can be key to recovery.

Complete with bespoke noise reduction, Pulpmatic macerators are versatile enough to be installed where you need them most - including small wards, isolation rooms and en-suite bathrooms.

Furthermore, advanced materials absorb energy for quieter operating noise.

### Maximise Each Task with Large Capacities and Rapid Cycle Times

The Pulpmatic Ultima turbo-powers efficiency by macerating up to 6 items in 120 seconds, making it the ideal workhorse for high-demand environments.

Meanwhile, the Eco+ has the capability to process up to 4 items in just 85 seconds, allowing clinicians to reduce wait times and return to hands-on patient care, quicker.

Of course, high standards of infection control aren’t just reserved for the busiest wards. For areas with low patient demand, the Pulpmatic Uno will macerate up to 2 items in a mere 65 seconds, providing fast waste disposal.

<sup>4</sup> World Health Organization, Health Care Associated Infections Fact Sheet, [https://www.who.int/gpsc/country\\_work/gpsc\\_ccisc\\_fact\\_sheet\\_en.pdf](https://www.who.int/gpsc/country_work/gpsc_ccisc_fact_sheet_en.pdf)

<sup>5</sup> Examination of cross contamination risks between hospitals by external medical staff via cross-sectional intercept survey of hand hygiene, Hank Schiffrers, Sarah Zaatreh, Wolfram Mittelmeier, and Rainer Bader, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4141635/#R1>



# Infection Control Strengths

## Easy Clean Surfaces and Antimicrobial Additives

Surfaces on our machines contain an antimicrobial additive.

When a microbe lands on a surface which is impregnated with antimicrobial additives, the microbe is destroyed or damaged, rendering it unable to reproduce. Its use can therefore reduce the spread of HCAs by eliminating cross-contamination routes. This is particularly effective in the sluice room environment, where both clean and dirty items are handled.

The antimicrobial additive is tested to ISO 22196 and JIS Z 2801:2000 standards, demonstrating fast inhibition or elimination of bacteria. Better yet, this protection will remain active for the expected service life of the machine.

The result? Reliable reduction of the number of bacteria within the medical environment, allowing you to ensure more effective protection against the spread of infection.

## Reduced Aerosolisation

The Pulpmatic range of machines have **been independently tested and proven<sup>6</sup> to release no aerosolised bacteria** during the maceration cycle. This will give you the confidence that your clinicians and patients are working and recovering in safe environments that aren't compromised by airborne pathogens.

## Smart Chemical Use

We all know that strong chemicals can kill bacteria – however, when and how you use them is often what makes the critical difference to your infection control strategy.

All Pulpmatic macerators feature **variable chemical dosing modes**, allowing you to choose the most economical and effective way to use your macerator chemicals, including increased dosing when an outbreak of infection occurs.

In addition, the Eco+ macerator features status updates when the chemical is running low, allowing you to ensure that the machine is always well-equipped to work at its optimum.

Specially formulated disinfectants are also available in selected markets.



# Pioneering Blockage Prevention & Uptime

DDC Dolphin's Pulpmatic macerators are specially engineered to minimise build-up of pulp residue within the drainage pipes, delivering a smooth and steady flow of water through the system.

Our macerator cycle offers critical innovations, exclusive to DDC Dolphin, which ensure that blockages are prevented and potential maintenance issues are simple to mitigate and resolve.



## Open Flow System

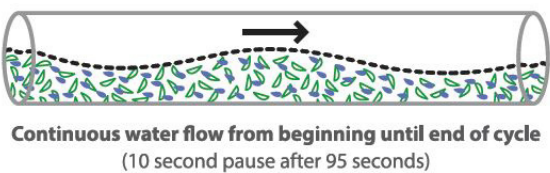
Some other macerators on the market are designed to fill with water before each cycle starts.

Large volumes of water and pulp are then discharged to the drain over a short period of time, which can cause overloading and pulp residue build-up. This will soon lead to obstructions.

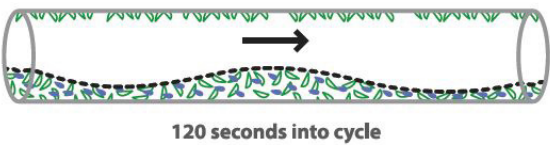
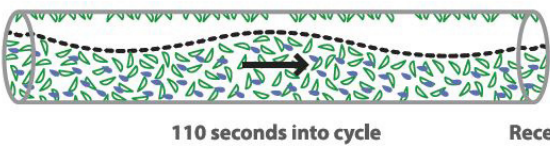
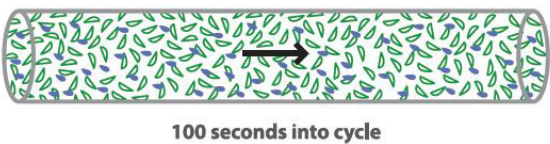
By contrast, Pulpmatic machines feature open flow maceration during each cycle, promoting the steady flow of wastewater.

Continuous, free flowing maceration technology is kinder to the drains than other forms of 'dumping' maceration technology. Only finely macerated, small particles of <4ml can exit the macerator chamber, resulting in a reduced risk of foreign objects entering the drainage system, as well as minimising furred pipework.

### Pulpmatic Ultima



### Competitor



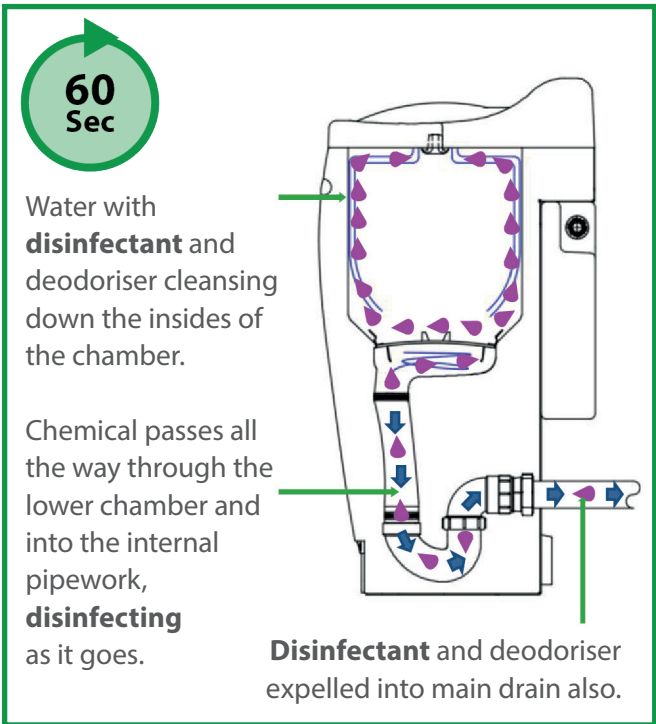
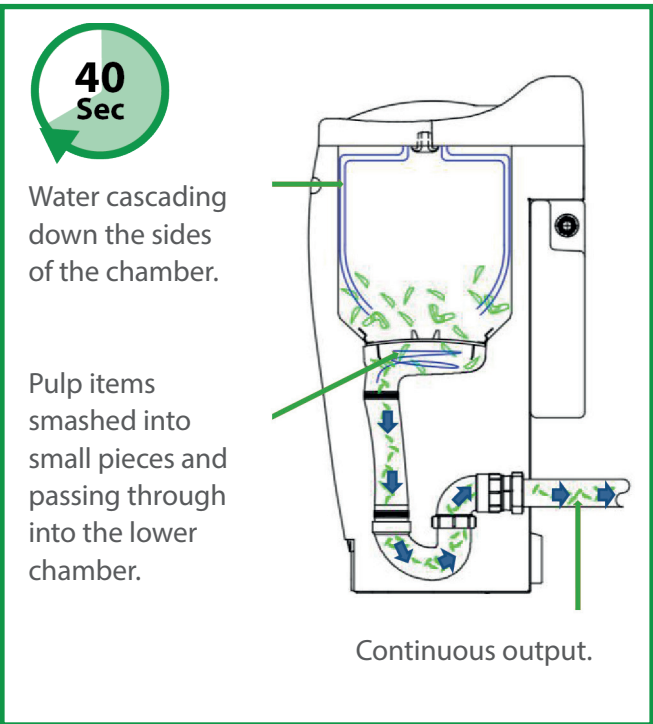
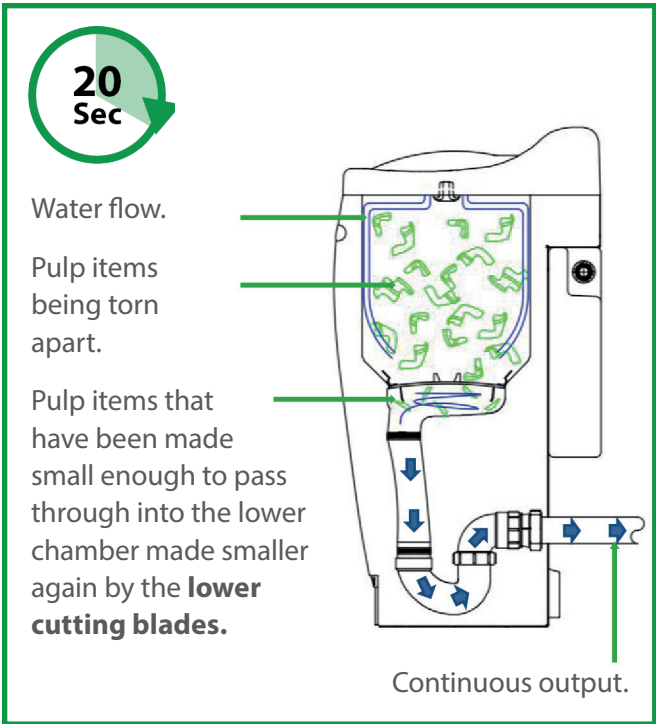
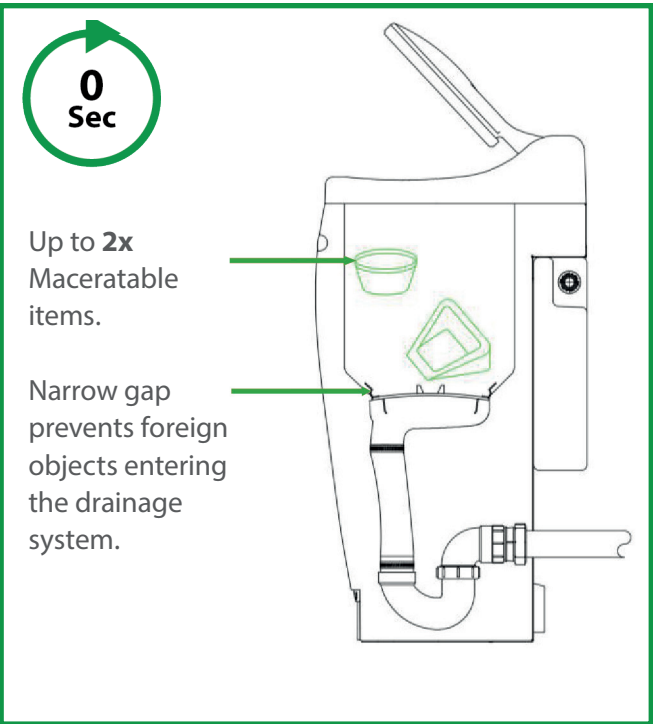
<sup>6</sup> There is currently no formal standard for the determination of aerosols from Medical Macerators, therefore, the following study was developed in conjunction with DDC Dolphin Ltd using standard microbiological techniques and utilising guidance from ISO 15883-1 : 2009/A1 : 2014 (Ref 3), ISO 15883-5: 2021, and adapting the methodology described in the Environment Agency Document - Healthcare Waste: Appropriate Measures for Permitted Facilities (July 2020).



## Free Flowing Drainage

Where some other macerators have a one-size-fits-all solution to release water into the drain, we make no assumptions regarding your facility's drainage capabilities.

DDC Dolphin macerators can be configured to suit complex drainage systems by extending the cycle time to ensure that all macerated waste is flushed away without risk of pipework becoming obstructed.



## Foreign Object Catchment System

Pulp macerators are designed to dispose of pulp items only. However, despite best efforts to train staff, it's inevitable that **unsuitable items could find their way into the machine. If allowed to move out of the macerator chamber and into the drains, these foreign objects could cause a major plumbing issue.**

A foreign object catchment system is built into each Pulpmatic macerator. A small gap of 4mm between the upper loading chamber and the lower discharge chamber will ensure that only macerated pulp will pass into the drains.

Other macerators feature 'dump' systems which have a 12mm gap and will not accommodate this. They will allow every item from the macerator drum to pass into the drainage system, no matter what it is, resulting in costly plumbing issues.

## Advanced Blade System

**No Pulpmatic macerator will ever rely on water alone to break down your pulp waste.**

We understand that, to prevent blockages and keep your care processes moving, your macerator must pulverise waste to create a fine slurry. That's why every Pulpmatic features advanced blade technology, so waste can be processed into tiny particles and eliminated through the drain with ease.

The average particle size of pulp macerated by a Pulpmatic macerator is **less than 3mm**.

## Drain Flush

**Every Pulpmatic features a self-cleaning drain flush.**

An automatic drain flush is programmed during low use times to limit the build-up of stagnant water and remove the possibility of Legionnaires' disease.

## On-Screen Fault Resolution Guidance

**Pulpmatic macerators maximise uptime with clear fault guidance, allowing minor maintenance issues – often caused by mis or over-loading of the machine – to be resolved, quickly and easily.**

The GUI screen on the Pulpmatic Eco+ offers an **enhanced control system**. In normal service, the screen will cycle through 3 key screens to indicate the status of a maceration cycle, the items to load in the machine, and the exact error if an issue arises.

For efficient and quick engineering resolution and configuration, an engineer can access the software menu for adjustment of the machines operating parameters.

## Flexible Installation

**We want you to benefit from the maceration power of Pulpmatic, exactly where you need it.**

Each Pulpmatic is simple to install, with flexible drain heights and positioning to guarantee the best fit for your facility and its individual requirements.

In addition, we offer in-depth Installation Preparation Guides, to help ensure that your site is fully prepared and ready for your new macerator to be installed.





# Chemical Alarm Monitoring System

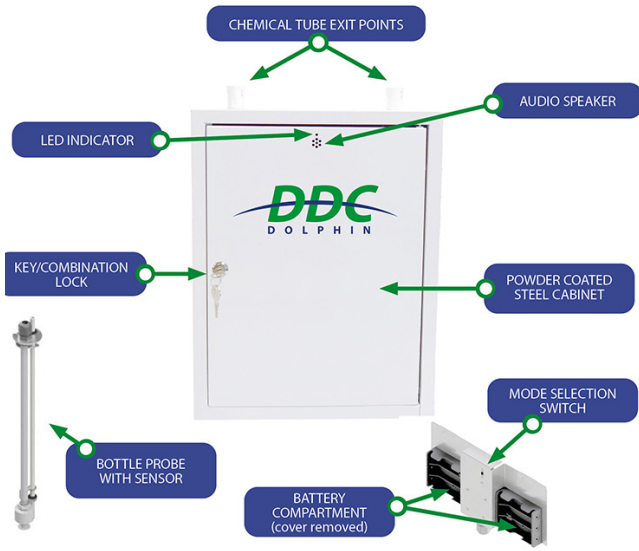
A sluice machine left to run without chemicals will not only impact on infection control but also the life of the machine.

Our Chemical Alarm Monitoring System takes the guess work out of when to replace chemical, providing an audio and visual warning when the chemical bottle is empty.

With this simple solution you will know the instant your chemical needs replacing, ensuring that your machine is always kept clean and working to its optimum level, whilst reinforcing your infection control procedures.



## Features



## How it Works

Tubes are inserted through conduits on the top of the cabinet and connected to a probe which is inserted into the chemical bottle. The probe monitors the chemical levels and when the bottle is empty a warning sound is triggered to alert the operator.

The alarm can be set to either a loud or a softer pulsed beep, and there is also the option to switch to night mode which emits a red flashing light as a warning so as not to disturb patients or residents sleep.

Easy to fit, the Chemical Alarm Monitoring System is available with a standard key lock or combination lock and is a valuable addition to your sluice room equipment.

## Advantages

- Clear warning when chemical bottle needs replacing, alerting the staff on the wards
- Audio and visual alarm, including night mode so as not to disturb sleep
- Powder coated steel cabinet, anti- corrosive and easy to clean
- Standard or combination lock options for added security
- Increased machine life-cycle
- Easy to fit, can be retrofitted to existing system

# Financial Advantages

Managing a healthcare facility responsibly means balancing budgets carefully, while always looking for the most cost-efficient solution – without compromising on quality.

## Utility Costs

**Pulpmatic macerators are engineered to be as economical as possible, without sacrificing their exceptional levels of performance.**



The Pulpmatic Eco+ uses around 13 litres of water per cycle, which is almost 50% less than multi-item machines by other brands. The Vernacare Vortex+, for example, uses 24 litres of water per cycle.

Pulpmatic macerators also excel when it comes to frugal energy consumption. The Pulpmatic Uno, for example, uses just 0.011 kWh per cycle.





**DDC Dolphin are your  
infection control experts.**

To discover more about the pioneering range of Pulpmatic macerators and how they can benefit your facility, contract us today.



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### Accreditations

