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Sterilisation Container Systems

Proud to partner with Bahadir Medical Devices

BAHADIR Sustainable solutions for healthcare

Bahadir sterile containers:

Durable, reusable, sustainable

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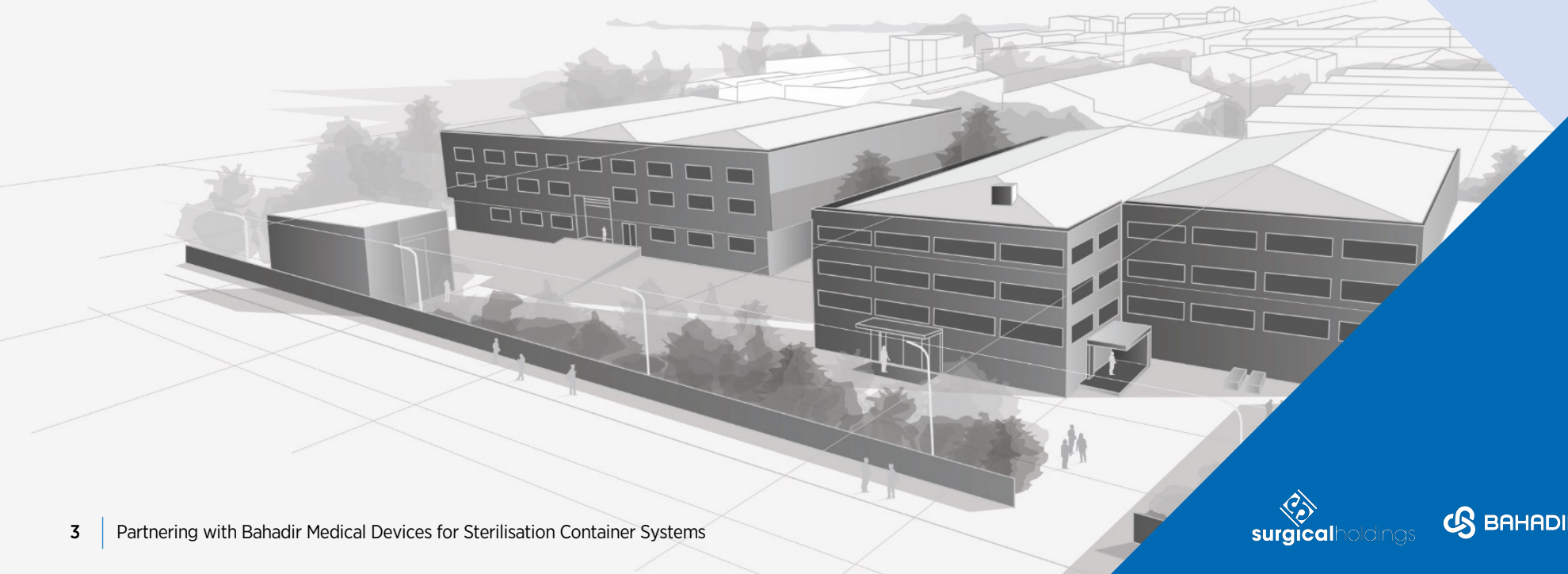
Who is Bahadir Medical Devices?

Bahadir Medical Devices is a leading manufacturer of high-quality Surgical Instruments and Sterilisation Container Systems. With FDA-approved products, innovative solutions, and a global presence, we are committed to enhancing patient safety and surgical efficiency.

Bahadir contributes to the healthcare sector with innovative and eco-friendly Sterilisation Containers, designed to ensure safety, efficiency, and reliability in infection control. Committed to sustainability and quality, we help healthcare institutions maintain the highest standards while reducing environmental impact.



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An overview of sterilisation containers

Our sterilisation containers set a new standard in safety, durability, and sustainability.

We offer durable and reusable solutions for safely sterilising surgical instruments. Made from materials such as aluminium or stainless steel, they significantly reduce waste compared to single-use options like blue wraps.

Their long lifespan minimises the need for frequent replacements and lowers resource consumption. Although they require energy for cleaning, their sustainability and reduced carbon footprint over time make them a more eco-friendly choice.

In addition to environmental advantages, sterilisation containers ensure high levels of safety and efficiency in maintaining sterility, making them a reliable and sustainable option for healthcare facilities.

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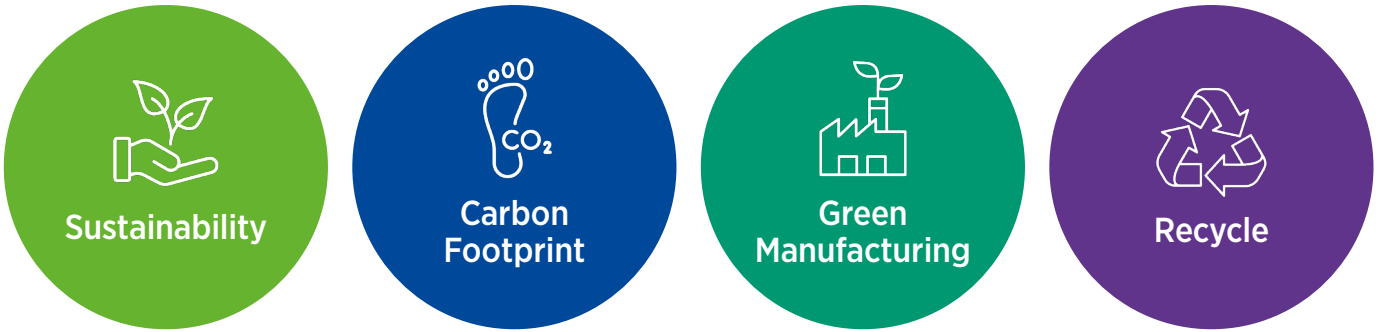
Why sustainability?

Sustainability is about meeting today's needs without compromising future generations' ability to meet theirs.

Healthcare is a resource-intensive industry, responsible for 4.4% of global CO_2 emissions. Sustainable practices improve long-term health outcomes by reducing pollution and promoting healthier environments.

Reusable medical devices, like surgical instruments and sterile containers, reduce biohazard waste.



Sustainibility in healthcare is not just an option: it is a responsibility.

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Reducing waste in healthcare

The healthcare sector contributes 5.5% to national carbon footprints globally, with developed countries reaching up to 8%.

Operating rooms (ORs) are significant contributors to waste, producing an average of 12 kg per operation.

Reusable rigid sterilisation containers (RSCs) have a significantly lower environmental impact compared to single-use blue wraps. Blue wraps generate large amounts of waste and require considerable resources for production and disposal. In contrast, RSCs are durable, reducing waste and resource consumption over time. While RSCs require energy for cleaning and Sterilisation, their long-term use minimises the need for new materials, offering a more sustainable and eco-friendly solution with a lower carbon footprint.

Find greener alternative

Improve the processes

Adopt a greener mindset

Reduce the waste

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Material technology

While blue wraps are made from plastic and require significant resources for single-use production, Sterilisation containers are durable, made from materials like aluminium or steel, and reusable. This reduces resource consumption and waste over time, making containers a more sustainable choice.

PP production accounts for 88% of its eco-costs.

Aluminium production contributes significantly but is less impactful over its lifecycle.

Although RSCs have a higher environmental impact during production, their long lifespan (5000 cycles) makes them significantly more eco-friendly compared to single-use blue wraps, which generate continuous waste. Over time, RSCs result in much less environmental pollution.

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Durable and long-lasting solutions

Environmental impact during the usage phase

RSCs consume more energy and water during the usage phase, they cause less environmental harm in the long run compared to blue wraps, which generate continuous waste.

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Recycling process

Blue wraps generate 1869 kg CO2e over 5000 cycles when incinerated, but recycling reduces this to 883 kg CO2e.

In comparison, reusable Sterilisation containers (RSCs) produce only 285 kg CO2e when sent to landfill, with recycling further lowering the impact. The break-even point for RSCs occurs after just 68 cycles, making them the more sustainable option over time.

RSCs are more environmentally friendly compared to blue wraps, particularly in terms of human health and ecosystem impact.

ReCiPe indicator evaluates three key environmental impacts; human health, ecosystems, and resource depletion.

The environmental impact of blue wrap is mainly driven by CO2 emissions, affecting human health significantly, as it contributes to climate change. RSCs have a lower overall ReCiPe score due to reduced CO2 emissions, though water usage and fine dust are additional contributors. However, their overall environmental impact is still much lower than that of blue wrap.

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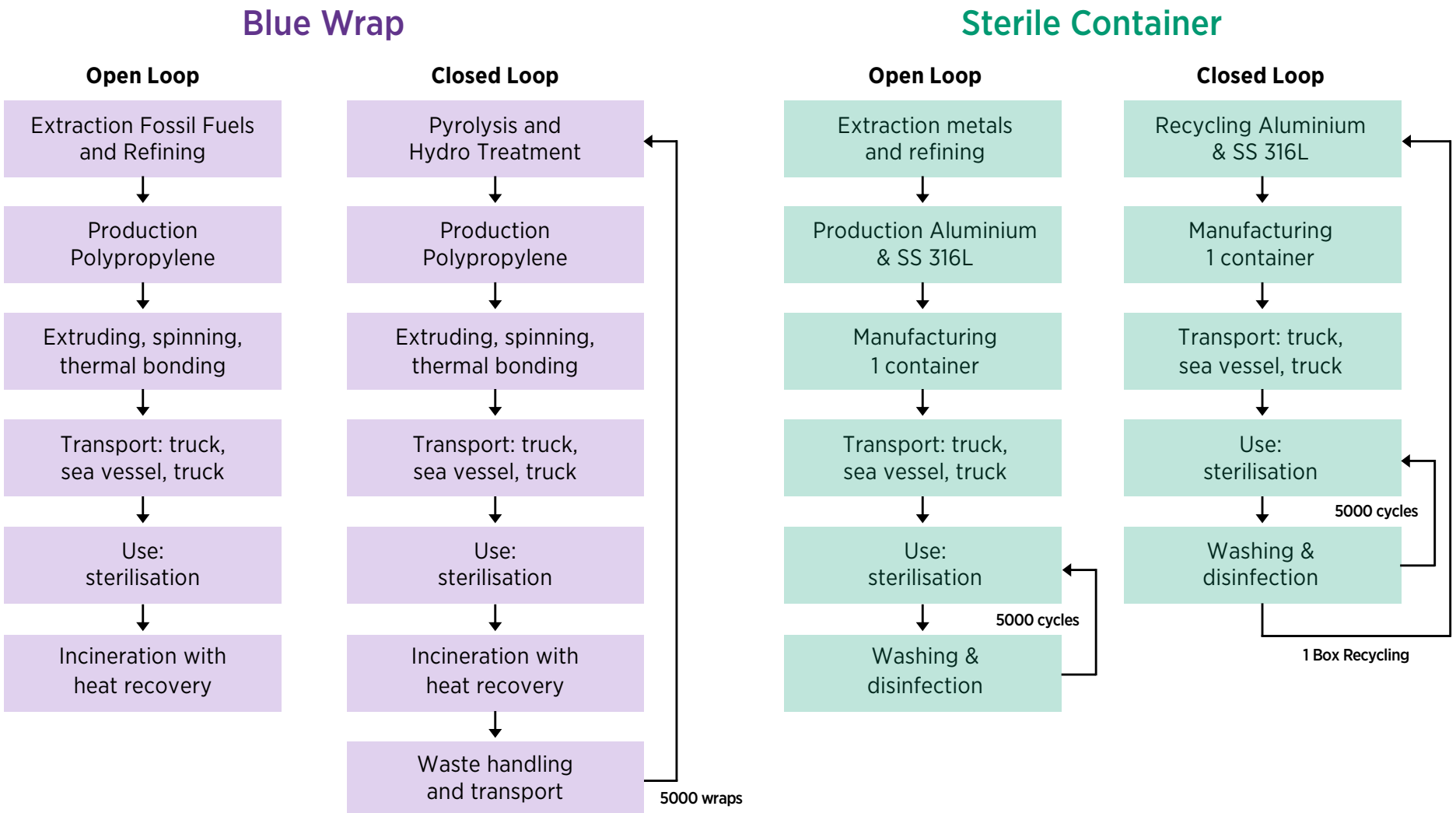
Maximising efficiency



Blue wrap open and closed loop and RSC open and closed loop. (A Comparative Life Cycle Assessment of Disposable versus Reusable Systems Herman J. Friedericy)

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Advantages of the RSCs based on the ReCİPe score

Lower Environmental Impact

Reduced Human Health Risks

Less Resource Depletion

Long-Term Durability

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Economically efficient

RSCs are cost-effective in the long run. While they require a higher initial investment, typically costing between $300 to $500 per container, their long lifespan up to 15 years, means they are far more economical than continuously purchasing disposable blue wrap.

They also reduce single-use materials' ongoing labour and disposal costs, further enhancing their financial viability.

	Disposable Wrap	Rigid Container
Annual Number of Sets Reprocessed	39,780	40,973
Material Cost	**$/Year**	**$/Year**
Wrap cost per use	$81,947	
Indicator tape	$4,917	
Towel cost	$16,389	
Other material	$4,097	
Processing pack cost (filter, locks, indicator cards)		$13,923
Total Material Cost	**$107,350**	**$13,923**
Labor hours per year	2,049	232
Labor rate per hour	$17	$17
Total Annual Labor Cost	$34,827	$3,945
Total Cost	**$142,178**	**$17,868**

Outpatient Surgery Magazine-William DeLuca

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We proudly comply with these standards to deliver high-quality, sustainable solutions

RSCs are manufactured in accordance with CE, ISO, and FDA standards to ensure safety and environmental sustainability. ISO 13485 encourages eco-friendly design and resource efficiency in medical devices, while CE marking complies with EU directives that focus on waste reduction.

Additionally, FDA 21 CFR Part 820 promotes sustainable practices in production. By adhering to these standards, our containers are designed for long-term use, thereby minimising waste and reducing environmental impact.

FDA Approved

Compliance with FDA safety and quality regulations is ensured.

CE Certified

Ensuring compliance with European Union safety and quality standards.

ISO Certified

Meeting global standards for quality, safety, and environmental management.

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Future outlook

With over 300 million surgeries performed globally each year, the healthcare sector contributes substantially to waste and carbon emissions. Transitioning to sustainable solutions like RSCs is essential to reduce environmental footprints.

The adoption of reusable options is critical for a more sustainable healthcare future.

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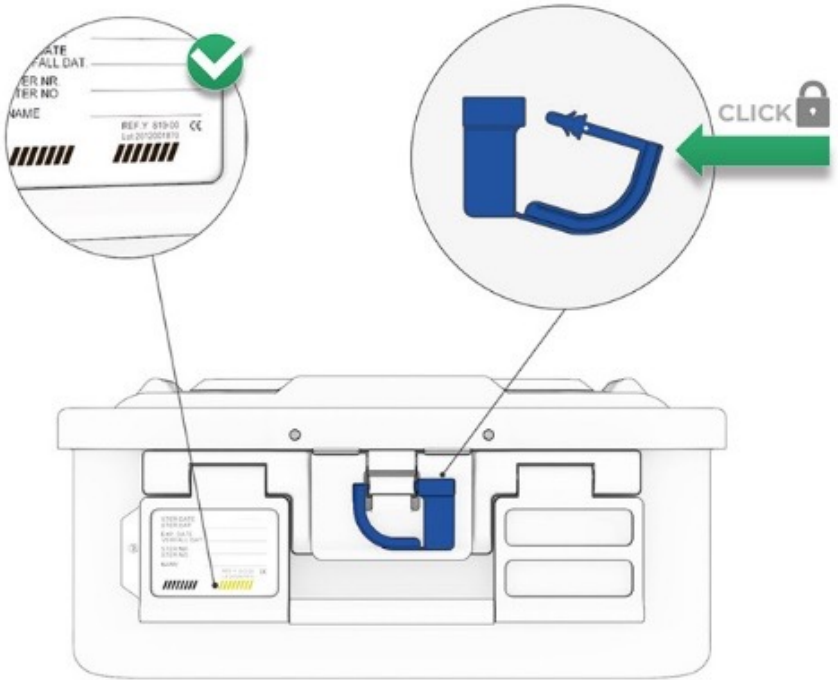
Useful information

Containers can serve their purpose as long as they are regularly maintained, used according to their intended purpose, protected from damage, and stored and cared for under appropriate conditions.

500 cycles are considered the minimum service life for containers, and silicone gaskets can be used throughout this service period.

Before each use, products must undergo functional and visual inspections. Products that do not pass these inspections should not be used.



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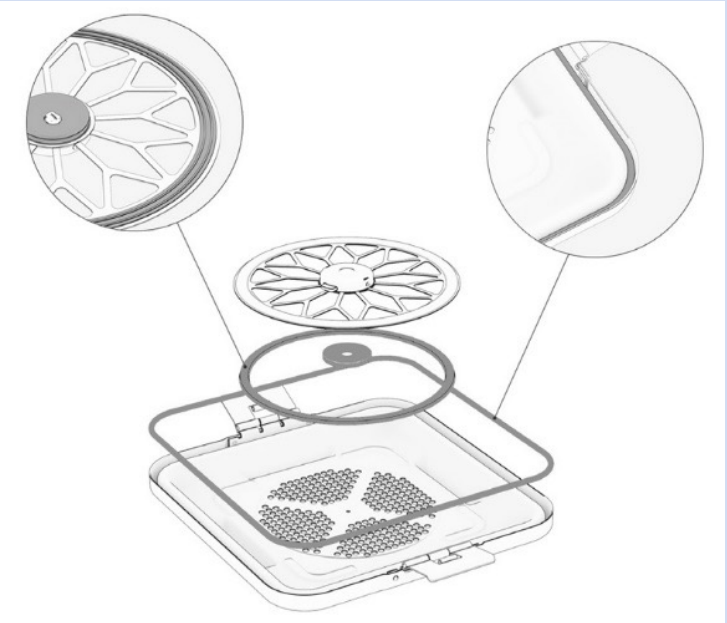
Maintenance and care

Ensure that the products are thoroughly cleaned before starting maintenance. Visually and physically inspect the products for any blood or protein residues.

Care products must meet the following criteria: paraffin/white oil-based, biocompatible, suitable for steam sterilisation, and vapour-permeable. Allow the products to cool down to room temperature before application.

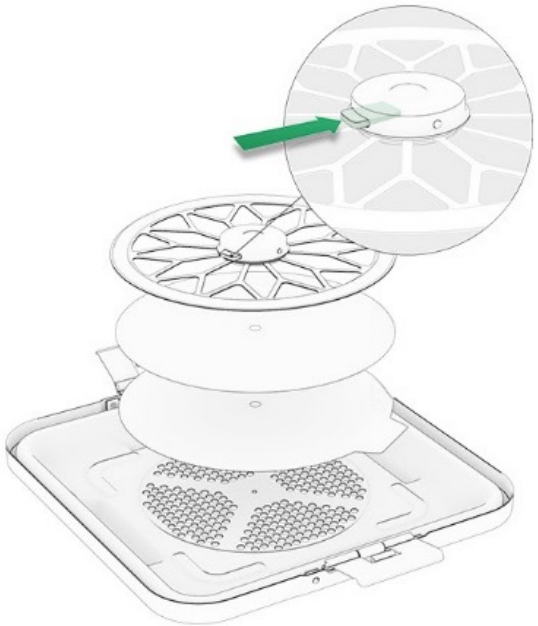
Apply the care product directly to joints, hinges, and friction surfaces. Actuate moving mechanisms several times to distribute the care product evenly. Wipe off any excess care product with a lint-free cloth to prevent residue build-up.



Maintenance and care

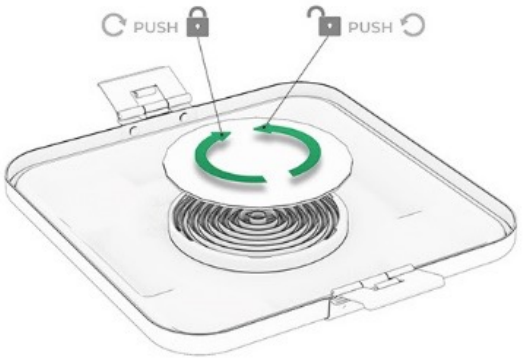
Visual and Functional Checks

- Ensure the laser marking is readable or scannable.
- Inspect the surface for cracks, fractures, wear, burrs, discolouration, rust, or corrosion.
- Check for loose, bent, broken, or worn parts.
- Verify coating integrity, especially for anodised or coloured surfaces.



Gasket Inspection

- Silicone gaskets last up to 500 sterilisation cycles.
- Check for cracks, tears, and proper seating in the groove.
- Replace the gasket if necessary.
- Test sealing effectiveness before each use.



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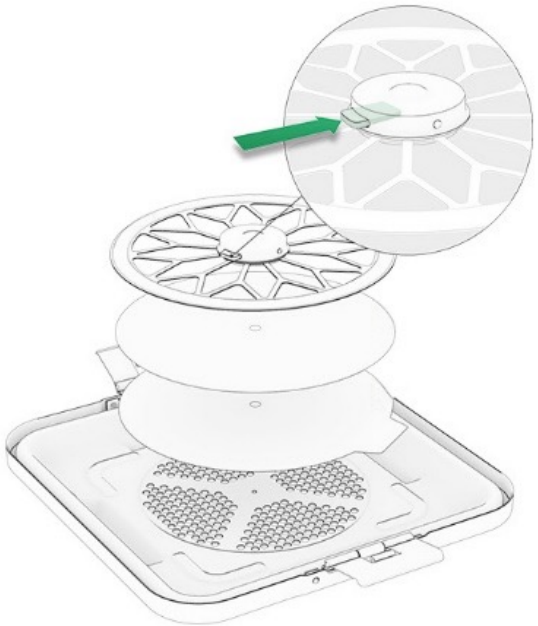
Maintenance and care

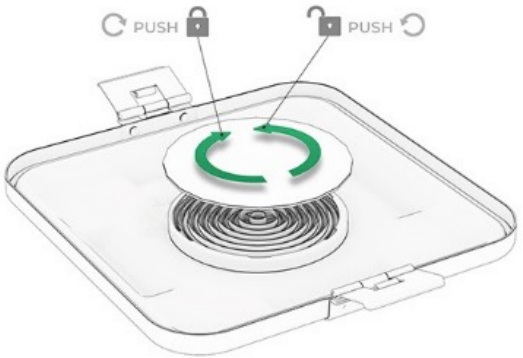
Functionality Check

- Ensure moving parts function smoothly without sticking or rubbing.
- Assemble components and verify their compatibility and proper function.

Next steps

- If any issue is found during the checks, avoid using the product and contact us for support.
- Repairs for damaged products should only be performed by the manufacturer or authorised services.





To summarise

Containers will perform effectively as long as they are regularly maintained, used according to their intended purpose, protected from physical damage, and stored in optimal conditions to prevent wear.

The minimum service life for containers is typically 500 cycles, and during this period, silicone gaskets can be used reliably without compromising the container's performance, ensuring that it remains fully functional throughout its lifespan. Proper care and adherence to usage guidelines are key to maintaining their durability.

The visual and functional inspections of the containers should be carried out as outlined in the manufacturer's usage instructions.

For extended service life and effective Sterilisation cycles, it is crucial to adhere strictly to the guidelines for washing and disinfection, loading capacities, recommended washing solutions and chemicals, as well as details such as water usage.

To summarise

- Cleaning and disinfection standards must be followed.
- Appropriate physical and visual inspections should be performed.
- Loading should not exceed the recommended loading capacity.
- Storage does not exceed the recommended storage conditions.
- Any issues requiring repair or maintenance should be reported us.

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Thank you for your time

If you have any enquiries please email **info@surgicalholdings.co.uk**
or call our team on **01702 602050**

Sources: Data from various online resources, Reducing the Environmental Impact of Sterilisation Packaging for Surgical Instruments in the Operating Room: A Comparative Life Cycle Assessment of Disposable versus Reusable Systems Joost G. Vogtländer 3, Anne C. van der Eijk 4 and Frank Willem Jansen 5,6,