Ryberg Omnia®

360 UV-C disinfection

Whitepaper:

Key Benefits of Ryberg's Omnia UV-C Disinfection Robot over Fogging

Autonomous.

Reliable.

Effective.

RYBERG OMNIA: ENGINEERED TO REDEFINE INFECTION PREVENTION

Ryberg is revolutionizing healthcare with cutting-edge UV-C technology. Designed for efficiency, built for impact. Omnia UV-C Disinfection Robot is an autonomous data driven Robot eliminating pathogens with unrivaled precision.

Founded in 2020, Ryberg leads the fight against healthcare-associated infections and antimicrobial resistance. Advanced engineering meets smart automation.

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Introduction

Infection control remains a top priority for healthcare facilities worldwide, as healthcare-associated infections (HAIs) contribute to prolonged hospital stays, increased medical costs, and higher patient morbidity rates. Traditional room decontamination methods, such as vaporized hydrogen peroxide (HPV) fogging, have been widely used but present significant challenges, including long processing times, potential health hazards, and high operational costs.

In contrast, Ryberg's UV-C Disinfection Robot offers a cutting-edge solution that is Autonomous, Reliable, safer, and more cost-effective.

This white paper explores the advantages of UV-C technology over traditional fogging methods,

The Challenge: Limitations of Traditional Fogging Methods

HPV fogging has been a commonly used method for terminal disinfection in healthcare settings. However, studies and real-world applications reveal several drawbacks:

- Time-Consuming: The HPV process can take up to four hours per room, including pre-treatment setup, fogging, aeration, and re-entry waiting periods. This extended downtime reduces patient throughput and operational efficiency (Otter et al., 2013).
- Health Hazards: Exposure to vaporized hydrogen peroxide can cause respiratory irritation, skin burns, and other health risks to hospital staff. Strict safety protocols, including room sealing and personal protective equipment (PPE), are necessary (Centers for Disease Control and Prevention [CDC], 2021).
- High Operational Costs: The ongoing expenses of purchasing hydrogen peroxide refills, maintaining equipment, and training specialized personnel make HPV a costly disinfection method over time (Rutala & Weber, 2016).
- Potential Material Damage: Hydrogen peroxide vapor has been linked to the gradual degradation of medical equipment, electronics, and furnishings, leading to higher replacement and maintenance costs (Kramer et al., 2006).

The Solution: Ryberg Omnia UV-C Disinfection Technology

Ryberg's Omnia UV-C Disinfection Robot provides an innovative, science-backed alternative to HPV fogging, addressing its inefficiencies while enhancing overall infection control.

Why Ryberg's UV-C Technology Stands Out

- Enhanced Safety: Unlike HPV systems that emit potentially harmful fumes, UV-C disinfection is entirely chemical-free. It allows hospital staff to re-enter rooms immediately after the cycle, reducing downtime and eliminating exposure risks (Andersen et al., 2006).
- Superior Efficiency: With a cycle time as short as 20 minutes per room, Ryberg's UV-C system dramatically improves room turnaround, enabling healthcare facilities to accommodate more patients without compromising cleanliness.
- Cost-Effectiveness: Ryberg's UV-C technology eliminates the need for consumables such as hydrogen peroxide, making it a long-term economical solution with significantly lower maintenance costs (Boyce et al., 2016).
- Material Compatibility: Unlike HPV, UV-C light does not cause material degradation, making it safe for use on all hospital surfaces, including medical equipment, electronics, and furniture (Lemmen et al., 2015).
- Comprehensive Coverage: Ryberg's advanced UV-C technology ensures deep penetration into surfaces, effectively reaching high-touch areas and eliminating pathogens in locations that traditional fogging may miss. Studies have demonstrated UV-C's ability to inactivate a wide spectrum of pathogens, including MRSA, Clostridioides difficile, and SARS-CoV-2 (ECRI, 2020).

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Comparative Analysis: UV-C vs. HPV Fogging

Feature	Ryberg UV-C Disinfection	HPV Fogging
Disinfection Time	~20 minutes per room	~4 hours per room
Chemical Usage	None	Hydrogen peroxide
Room Downtime	Minimal	High
Health Risks	None	Respiratory irritation, PPE required
Material Safety	Non-corrosive	Corrosive to equipment and surfaces
Operational Costs	Low (no consumables)	High (chemical refills, PPE, staff training)

Conclusion: The Future of Hospital Disinfection

For hospitals striving to enhance infection control, reduce costs, and prioritize patient safety, Ryberg's Omnia UV-C Disinfection Robot presents the optimal solution. By integrating autonomous technology with scientifically validated UV-C effectiveness, Omnia ensures superior disinfection, improved hospital workflow efficiency, and a safer environment for patients and healthcare staff alike.

With growing evidence supporting the advantages of UV-C over traditional fogging methods, healthcare facilities should consider transitioning to this advanced, cost-effective, and environmentally friendly disinfection approach.

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