



RECIRCULATING PAINT BOOTH

Pre Delivery, Delivery, Installation, Commissioning & Maintenance

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Introduction

This provides detailed guidance on the preparation, delivery, installation, commissioning, and maintenance of the Recirculating Paint Booth. Designed to meet high-performance and safety standards, the paint booth integrates advanced features such as real-time monitoring, VOC sensor systems, and a multi-stage filtration system to ensure optimal air quality and operational efficiency.

This is structured to support technicians, site managers, and operators through every stage of the process, from initial planning to ongoing maintenance. By following the outlined instructions, you can ensure safe installation, compliance with local regulations, and reliable long-term performance of the booth.

This document includes:

- **Pre-Delivery Requirements:** Information on shipping dimensions, floor conditions, and utility connections to prepare the installation site.
- **Delivery Procedures:** Guidance on vehicle access, equipment requirements, and personnel needed for unloading components.
- **Installation and Assembly:** Step-by-step instructions for setting up the booth, including tools and equipment specifications.
- **Commissioning and Testing:** Procedures to validate system functionality, test extraction efficiency, and integrate the booth with the Service and Support System (SAS).
- **Maintenance:** Schedules and methods for regular upkeep, filter replacement, and system servicing to ensure long-term reliability.

By adhering to the procedures in this manual, you can ensure the Recirculating Paint Booth operates safely, efficiently, and in full compliance with applicable standards.

Please refer to the manual of each the components for additional details

Pre-Delivery

1. Detailed Dimensions (Shipping Sizes & Weights)

- The paint booth components include:
 - Roof sections & Pipe assemblies = 130,00 KG – L240cm * B 110cm * H 70cm
 - SmartWall & Filters = 375,00 KG – L 210cm * B 80cm * H 150cm

2. Minimum Sizes for Doorways/Apertures

- The minimum dimensions of doorways must accommodate the largest component.
 - **Estimate:** Doorways with a clearance of **2m (width)** and **2.5m (height)** should suffice for most installations.
- For tight spaces, pre-disassembly of certain components may be required.

3. Suitable Floor Conditions

- **Surface requirements:**
 - **Level:** Verify the floor is perfectly horizontal using a spirit level.
 - **Non-carpeted:** Concrete or tile flooring is recommended.
 - **Anti-static:** Strongly recommended to mitigate risks from VOCs. Anti-static tiles provide:
 - Replaceable sections for maintenance.
 - Anti-fatigue properties.
 - Compliance with safety regulations regarding potential explosive atmospheres.

4. Power Requirements

- The SmartWall and filterbank require:
 - **Voltage:** 220V or 110V (region-dependent).
 - **Power draw:** Up to **800W per fan**, with two fans in each booth.
- **Proximity to power supply:**
 - Ensure a power source is located within **5 meters** of the booth.

5. Internet Connection Requirements

- The booth connects to the **Service and Support System (SAS)** via **RJ45 Ethernet cable**.
- **Internet speed:**
 - Minimum **2 Mbps upload/download** for stable monitoring and alarms.
- **Optional:**
 - Cellular connectivity may be available as an alternative.

Delivery

1. Delivery Vehicle Access

- Ensure access for large delivery vehicles or articulated lorries:
 - **Length:** Up to **10m or larger** for palletized shipments.
 - **Clearance:** Loading/unloading areas must be free from obstructions.

2. Lifting Equipment

- **Side-loaded shipments:** Require a forklift.
- Always confirm the heaviest component's weight before selecting lifting equipment.

3. Minimum People Required On-Site

- A minimum of **2 individuals** is required for unloading and positioning:
 - Ensure all personnel follow safety protocols (e.g., gloves, steel-toe boots).

Installation/Assembly

1. Minimum Number of People

- A team of **4 technicians** is recommended. Larger components, such as the roof section, may require additional personnel.

2. Lifting Equipment

- Necessary tools and equipment include:
 - **Ladders** for roof assembly.
 - **Forklift or hoist** for lifting heavy sections.
 - **Trolleys** for moving components.

3. Required Tools

- Tools required for installation:
 - Drill with **Ø4.2 metal bit**.
 - Rivet gun.
 - Spirit level.

4. Step-by-Step Instructions

1. Assemble individual components (e.g., SmartWall, filterbank).
2. Secure the roof section using provided steel wires to the building structure.
3. Use a spirit level to ensure the roof is level.
4. Install curtains (side and front) and inlet filters.
5. Mount the LED light and neatly route its cable.
6. Wire the LED light to the SmartWall's electrical system.
7. Install the VOC sensor within the roof section.
8. Verify compliance with local building codes.

Commissioning/Testing

1. Operating Instructions

- Modes of operation:
 - **Prep Mode:** For sanding (60% fan speed).
 - **Spray Mode:** For painting (80% fan speed).
 - **Dry Mode:** Automatically switches off after a set duration (40% fan speed).
- Controlled via the **LED button** or **SAS interface**.

2. Testing Extraction

- Ensure airflow and pressure align with specifications:
 - Differential pressure must remain between **20 Pa and 200 Pa**.

3. Internet Connection Testing

- Verify the RJ45 connection and real-time updates in the SAS dashboard.

4. Machine Identification in SAS

- The SAS provides details on:
 - Filter conditions.
 - VOC levels.
 - Historical data for compliance

Maintenance

To ensure **optimal performance, air quality, and compliance** with safety and environmental regulations, the **Recirculating Spray Booth** must undergo regular maintenance. Proper servicing **prevents equipment failure, minimizes downtime, and extends the lifespan of critical components.**

This section outlines the required **quarterly and annual maintenance procedures**, including **filter replacement schedules, system inspections, and troubleshooting guidelines.**

⚠ Important: Only trained and authorized personnel should perform maintenance on the spray booth. Before conducting any servicing, ensure that the booth is **powered off and locked out** to prevent accidental activation.

Maintenance Schedule

The following table outlines the required maintenance tasks at **quarterly and annual** intervals:

Quarterly Maintenance (Every 3 Months)

Task	Description
Filter Replacement	Replace Micro Panel Filters (Pleated Box, 3 required) to maintain proper filtration.
Exhaust System Inspection	Inspect exhaust ducts and ventilation for blockages or obstructions. Clean if necessary.
Airflow Performance Check	Verify differential pressure readings to detect airflow restrictions.
Fan	Inspect, clean motor assemblies.
Electrical Connections	Inspect and tighten electrical terminals and wiring.
Emergency System Test	Verify that emergency shutoff buttons and alarms are operational.

Annual Maintenance (Every 12 Months)

Task	Description
Filter Replacement	Check Active Coal Filters (26 required) via SAS to maintain VOC control.
Inlet Filter Replacement	Replace Inlet Filters to ensure clean air intake.
Deep Cleaning	Conduct full booth cleaning , including walls, floors, and exhaust plenums .
Airflow Performance Test	Perform airflow and pressure verification to ensure system efficiency.
Full Electrical Inspection	Check wiring, fuses, and grounding systems for wear or corrosion.
Structural Inspection	Inspect booth panels, metal framework for rust or damage.

Filter Replacement Schedule

Proper filter maintenance is essential for **ensuring clean air, reducing VOC emissions, and optimizing spray quality**. Filters must be replaced at the following intervals:

Filter Type	Function	Avg. Replacement Frequency
Front Paper Filter	Captures large paint particles	Every 2-4 weeks
Front Foam Filter (2x)	Traps fine airborne dust	Every 2-4 weeks
Micro Panel Filter (3x)	Pre-filters micro-particles and dust	Every 3 months
Active Coal Filter (26x)	Absorbs VOCs and odors	Every 12-18 months
Inlet Filters	Ensures clean air intake	Every 12-18 months

⚠ Caution: Used filters must be disposed of **in accordance with local environmental regulations** for hazardous waste.