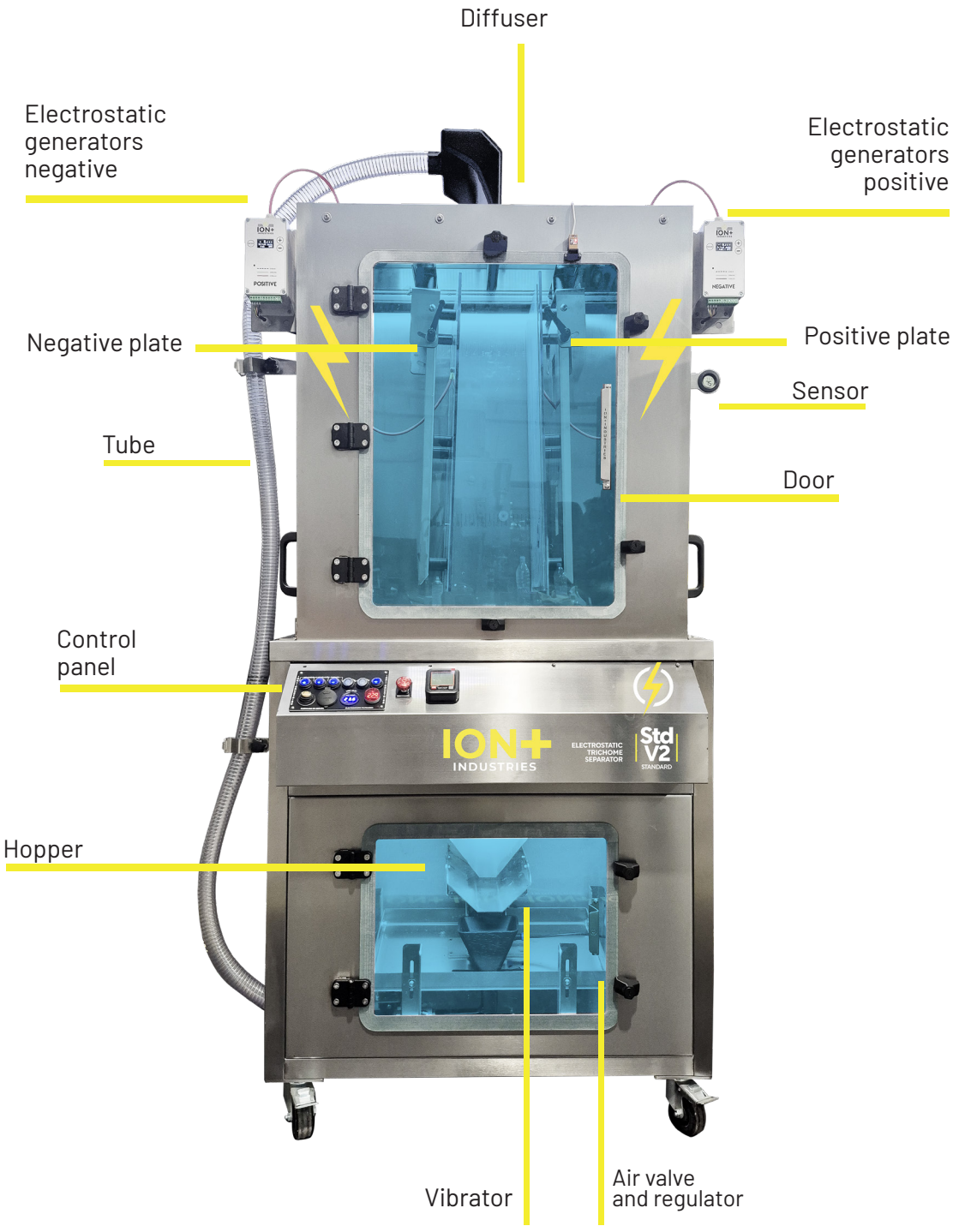
ELECTROSTATIC TRICHOME SEPARATOR

ION+ INDUSTRIES

STANDARD V2

OPERATION AND INSTRUCTION MANUAL



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1. Introduction

Thank you for trusting ION+INDUSTRIES.

This manual contains all the necessary information for the correct installation, operation, maintenance, and safety of the electrostatic separation machine for trichomes and plant material.

Please read these instructions carefully to ensure optimal, efficient, and safe operation of the equipment.

2. Equipment Description

The ION+INDUSTRIES machine is designed to separate trichomes from plant material using the principle of electrostatic attraction.

The system uses two electrically charged plates (one positive and one negative) that generate a high-voltage electrostatic field. During the process, trichomes are attracted to the positive plate, while plant matter adheres to the negative plate, achieving a clean and efficient separation.

Main Components

Structural chassis made of stainless steel.

Positive plate made of anodized aluminum (enhances trichome attraction).

Negative plate made of stainless steel (enhances attraction of plant residues).

Antistatic polycarbonate door, providing visibility and safety.

Upper feed hopper with adjustable vibrator (3 speeds).

Diffuser with integrated compressed air system.

Adjustable electrodes with position locking brake.

Positive and negative electrostatic generators (adjustable up to 20 kV).

Control panel with independent controls.

Decompactor and auxiliary USB output for device charging.

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3. Installation

Place the machine on a stable, level surface.

Connect the power cable to a 220 V single-phase outlet with grounding.

Connect the compressed air line to the rear air inlet of the machine.

Recommended working pressure: 3 bar.

Minimum compressor requirement: 150 L tank and 200 m^3/h for continuous operation.

Ensure the pneumatic circuit is free of moisture and oil.

Check that all doors are properly closed before starting operation.

Recommended environmental conditions:

Temperature Range: Designed to operate efficiently between -6°C and + 12°/15ºC, maintaining consistent separation performance.

Relative Humidity: Recommended range is 35%–45%. This optimizes trichome detachment and prevents clumping, ensuring high efficiency even in cold-room.

An air compressor is required for its operation, with a minimum capacity of 150 L and an air delivery rate of 450 L/min.

4. Electrical and Pneumatic Connections

Electrical supply: 110–220 V single-phase / max. 2.5 A.

Ground connection: mandatory.

Air inlet: quick-connect fitting (3 bar).

Flow regulator: integrated in the internal circuit.

Noise level: 70 dB (peaks up to 75 dB when activating the decompactor).

5. Operating Instructions

Connect the machine to the power supply and compressed air line.

Turn on the internal lighting, open the air valve, and adjust airflow using the integrated regulator.

Recommended airflow setting: between 6 and 8 on the speed dial.

Open the door and load the biomass into the main hopper.

Adjust the distance between electrodes according to the desired separation level.

Lock the electrodes using the brake system and close the door.

Activate the positive and negative electrostatic generators.

Start the hopper vibrator at Speed 1 (low speed).

Speed 2: fast.

Speed 3: full discharge.

Process Description

Once activated, the biomass falls from the main hopper onto the vibrator and then into a secondary hopper made of antistatic PLA.

From there, the material is conveyed through a food-grade silicone tube, where it becomes electrostatically charged before entering the upper diffuser.

Inside the diffuser, the biomass is evenly distributed and falls in the form of a curtain between the two electrostatically charged plates.

Trichome heads are attracted to the positive plate, while plant residues adhere to the negative plate.

Material that does not adhere falls back into the main hopper, automatically repeating the cycle.

The process is continuous, allowing efficient separation without interruptions.

6. Control Panel and Adjustments

The control panel includes:

Main ON/OFF switch.

Internal lighting control.

Vibrator speed selector (1, 2, 3).

Independent activation of positive and negative electrostatic generators.

Decompactor activation button.

Air pressure and flow regulator.

⚠ USB port for device charging.

7. Safety

Important Precautions

Do not operate the machine with the door open.

Do not insert hands or tools into the separation area.

Do not use the machine in humid environments or near flammable liquids.

Disconnect the equipment before performing any cleaning or maintenance.

Ensure proper grounding before operation.

Avoid contact with electrodes during operation.

Keep metallic objects and conductive materials away from the equipment.

Integrated Safety Features

Protective fuses.

Grounding system.

Antistatic polycarbonate doors.

Electrode locking system with brake.

8. Cleaning and Maintenance

Clean the equipment every 8 hours of operation to ensure proper electrostatic adhesion.

Use a dry cloth, compressed air, or isopropyl alcohol to remove dust and biomass residues.

Do not use water, abrasive products, or solvents other than isopropyl alcohol.

Ensure the plates are free of residues before each use.

Periodically check the tightness of screws and electrical connections.

Always disconnect the machine from the power supply before cleaning.

9. Troubleshooting

Problem / Possible Cause / Solution
No separation occurs
Generators switched off, low voltage, or grounding issues
Check generators, adjust to 5.5 kV, and verify proper grounding
Material accumulates in the hopper
Overloading, material too moist, or low air pressure
Reduce biomass quantity, ensure material is dry, or increase airflow
Insufficient vibration
Low speed setting or vibrator malfunction
Check settings or inspect the vibrator component
Excessive noise
Vibrator or decompactor incorrectly adjusted
Check mounting and fastenings
Sparking or electrical discharge
Electrical arcing
Reduce power to 5.5 kV; if the issue persists, contact authorized service
Material sticking to electrodes
Dirt or residue buildup
Clean electrodes with isopropyl alcohol

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10. Technical Specifications

Parameter - Value
Power supply - 110–220 V single-phase
Maximum current consumption - 2.5 A
Operating pressure - 3 bar
Compressor requirement - Minimum 150 L / 200 m³/h
Dimensions - 200 cm (H) × 98 cm (L) × 54 cm (D)
Weight - 100 kg
Noise level - 70 dB (max. 75 dB with decompactor)
Chassis material - Stainless steel
Positive plate - Anodized aluminum
Negative plate - Stainless steel
Doors - Antistatic polycarbonate
Operating mode - Continuous
Air regulator - Integrated

11. Warranty and Technical Service

Electrostatic generators: 5-year warranty.

Vibrator: 10-year warranty.

The warranty does not cover damage caused by improper use, impacts, moisture, or unauthorized modifications.

The use of original ION+INDUSTRIES spare parts is strongly recommended.

Technical Service Contact

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