



USER MANUAL • ORIGINAL INSTRUCTIONS

Tray Washer (Push-Through)

Washes 10x20 trays to channels, up to 13.5" wide and 3" tall

Needs Your own pressure washer, 4 GPM and 2000 PSI



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Introduction

Thank you for choosing the Rooted Robotics Push-Through Tray Washer. Designed for everything from 10" x 20" trays to channels, this machine simplifies the cleaning process—boosting efficiency, consistency, and ease of use. Built for durability and flexibility, the Push-Through Tray Washer is a valuable addition to any controlled environment agriculture operation, regardless of size. Its high-pressure spray system and adjustable guide rails allow for thorough cleaning across various tray types without the need for excessive manual labor.

This manual will walk you through setting up the washer, adjusting the guide rails, and performing regular maintenance. By simplifying a traditionally time-consuming task, the Push-Through Tray Washer reduces water use, labor costs, and cleaning time—helping you maintain a clean operation and focus more on growing.

Product overview

The Rooted Robotics Push-Through Tray Washer arrives fully assembled and ready to use. Operators will need to supply a compatible pressure washer, either by using an existing one or selecting from our recommended options based on available power and water flow. To get started, simply unbox the machine and connect your pressure washer. There is no motor and nothing to plug in: trays are pushed through the wash chamber by hand, and the guide rails at the mouth of the chamber adjust to fit anything from 10x20 trays to channels. The straightforward design makes the washer easy to clean and maintain, offering a reliable, long-lasting solution for farms looking to reduce labor and streamline tray sanitation.

Key benefits

Using the Rooted Robotics Push-Through Tray Washer brings a range of benefits to your farm, helping you cut labor costs, save time, and maintain a clean operation:

- **Fast ROI:** Pressure washing trays in a dedicated chamber significantly reduces labor hours and water usage, allowing farms to recover their investment quickly.
- **Consistent Cleaning Results:** With adjustable guide rails, the washer delivers reliable, thorough cleaning for different soil levels and tray types.
- **Ease of Use:** With no motor or controls, the washer minimizes training time and fits seamlessly into your workflow.
- **Durability and Low Maintenance:** Built from stainless steel and off-the-shelf parts, the washer is corrosion-resistant, easy to clean, and made for long-term use with minimal upkeep.

How this manual helps

This manual is designed to guide you through the setup of your Push-Through Tray Washer. It provides the essential steps to get your machine operational, including connecting a pressure washer and setting the guide rails for your trays. Achieving the best results will require some fine-tuning based on how soiled your trays are and how your workflow runs. By testing how quickly you push trays through, you will find the pace that cleans thoroughly without slowing your line. Regular cleaning and maintenance will ensure long-term reliability and minimal downtime.

About us

Rooted Robotics is committed to providing innovative automation solutions for controlled environment agriculture. Our team of engineers, designers, and industry experts works to develop affordable and effective tools that empower growers to operate more efficiently and profitably. With our expertise in automation and farm operations, we are dedicated to equipping farms with intelligent, interfacing machines that enhance productivity and sustainability.

Intended use

The Push-Through Tray Washer is designed for cleaning, removing dirt and root media, and sanitizing grow trays, from standard 1020 trays to channels (up to 13.5 inches wide and 3 inches tall), in controlled environment agriculture facilities.

Intended Operators	Trained Adult operators in commercial agriculture settings.
Intended Environment	Indoor, dry, temperature-controlled facility.

- Do NOT operate with guards removed.
- Do NOT use outdoors or in wet conditions.
- Do NOT use with trays exceeding 3 inches in height or 13.5 inches in width.
- Do NOT operate the machine without reading this manual and watching setup videos.
- Do NOT allow untrained or unsupervised persons to operate the machine.

Safety information

Signal Words and Symbols

DANGER	Indicates a hazardous situation that, if not avoided, will result in death or serious injury.
WARNING	Indicates a hazardous situation that, if not avoided, could result in death or serious injury.
CAUTION	Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

Residual Risk Warnings

- High-pressure water sprays inside the wash chamber while the pressure washer is running. Push trays from their trailing edge and keep hands out of the chamber openings.

Recommended Personal Protective Equipment (PPE)

- Cut resistant gloves for normal operation.
- Safety glasses for normal operation, cleaning with compressed air, cleaning with sanitizers.
- Hearing protection for compressed air use.
- Closed toed shoes for all stages of machine life cycle.

Stopping the washer

- The washer has no motor, controls or E-stop of its own. Spraying stops when the pressure washer stops.
- Turn off the pressure washer any time an unsafe condition is observed, when any injuries occur, and before routine cleaning and maintenance.

Transport, handling and storage

- Always use designated lifting points and grip locations.
- **WARNING:** Sharp edges inside packaging – wear cut resistant gloves during unpacking and setup.
- Stability requirements for work surface: minimum surface dimensions, level, non-slip.
- Storage conditions: indoor, dry, ambient temperature.
- Clear workspace of tripping hazards (packaging materials) before positioning machine.

Workstation

- The Operator(s) for the Push-Through Tray Washer machine should place the washer at a comfortable working height, with the tray intake shelf located around chest level. Ensure the washer is located on a stable surface on dry floor to prevent slipping.
- The operator(s) should be located at the infeed side of the machine when loading trays into the washer and the outfeed side when collecting the washed trays.
- Allow multiple feet of space between the machine and all walls or other machinery to allow for smooth operation, maintenance and cleaning.
- Before operation of the machine, ensure no untrained bystanders are in the operating zone of the machine.

Setup and calibration

The Rooted Robotics Push-Through Tray Washer arrives mostly assembled, requiring minimal setup to begin use. Follow these steps to properly set up and calibrate your machine:

1. Pre-soak trays in a dilute acidic cleaner solution such as a quat cleaner to vastly improve the machine's performance, and we recommend this for all users. This step will loosen stubborn roots and media as well as softening enzymatic films that are difficult to pressure wash off with water alone.
2. Place the washer on a level surface and confirm clear drain flow.
3. Connect your pressure washer and water supply. The unit uses a separate pressure washer for operation, while the machine itself is cleaned with a hose, not a pressure washer.
4. Adjust the guide rails at the mouth of the wash chamber to the width of the trays or channels you are washing. Push one through and confirm that it travels straight through the chamber without binding.



Your pressure washer

We recommend a unit, or a combination of two smaller ones, that puts out no less than **4 gpm and 2000 psi** to run this machine. We recommend one of these two:

- Canpump Electric Pressure Washer: 7.5 hp Nicolini Motor 230/460 V, Triplex Pump
- Canpump Cold Water Sewer Jetter: 13 hp Engine, 3600 psi at 4.7 US gpm

Running trays

- **Push trays through by hand.** Set each tray on the intake shelf, push it steadily through the wash chamber, and pull it out clean on the other side.
- **Pace.** Push slower when dealing with tougher debris, and faster for lightly soiled trays.
- **Guide rails** are set by hand. Set them once for the tray type you run, as described in setup, and re-check them whenever you change tray type.
- **Pre-soaking pays off.** Trays soaked in a dilute acidic cleaner come out cleaner at any speed, and let you run faster.



Cleaning procedures

Caution

Always be sure that the pressure washer is turned off before attempting to perform inspection and maintenance.

Purpose

Keep tray path and interior surfaces free of debris so spray coverage and tray travel remain consistent.

Approved agents and methods

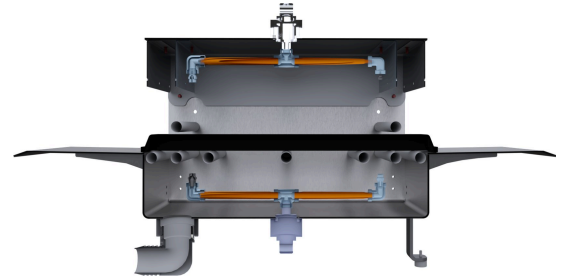
- Use potable water, food grade detergents, peroxide or peracetic acid based sanitizers per label.
- Do not use chlorinated cleaners.
- Wipe or hose with a handheld nozzle. Do not use a pressure washer to clean the outside of the machine.

Routine cleaning during operation

- Periodically hose inside the chamber until water runs clear. Keep nozzles and the tray inlet and outlet areas free of debris.

End of day cleaning

1. Turn off the pressure washer.
2. Open the chamber by removing the red thumb screws on the sides of the machine, then lift off the chamber top. Spray inside the washer to clear debris from the washer basin.
3. Remove the rubber splash guard on each opening by undoing its thumb screws, and hose both guards down. Failure to clean them will present a food safety risk.
4. Clean exterior panels and touch points by hosing off debris and then wiping down with a cleaning cloth.
5. Apply a food grade sanitizer (we recommend a peracetic acid based cleaner) and follow sanitizer manufacturer directions.



Deep cleaning (as needed)

- With the chamber top and both splash guards removed, spray the interior surfaces and corners.
- Inspect and clear drain paths so water cannot pool.

Do and do not

- Do lift off the chamber top daily and spray inside the washer.
- Do remove the splash guards for deep access when buildup persists.
- Do not use chlorinated cleaners.
- Do not use a pressure washer on the outside of the machine.

Maintenance and replacement intervals

Before each use

- Check for leaks at hose connections and for loose thumb screws at the chamber top, splash guards, and guide rails.

Weekly	• Inspect nozzle condition and pattern; replace clogged or damaged tips.
Every 5,000 trays	• Inspect tray guides and rubber splash guards for wear or warping that affects tray travel; replace as needed. • Verify torque on enclosure and guard fasteners; replace damaged hardware.
As needed	• Replace worn tray guides or shields that cause misalignment or drag.
Notes	• Do not use chlorinated cleaners. • Do not use a pressure washer.

Troubleshooting

Assessment after a problem

After turning off the pressure washer and before resuming operation, conduct the following assessment:

1. Visually inspect the machine for any obvious damage, debris, or misalignment.
2. Check the wash chamber for jammed or damaged trays.
3. Inspect the spray bar nozzles for blockages or physical damage.
4. If a tray is jammed, clear the jam following the tray jam procedure below before restarting.

Tray jam clearance procedure

1. Turn off the pressure washer.
 2. Wearing protective gloves, carefully remove the jammed tray. If the tray is wedged, gently work it back and forth — do not use excessive force as this may damage the guide rails.
 3. Inspect the guide rails and wash chamber for any debris or damage resulting from the jam.
 4. Make any necessary adjustments to correct it.
 5. Turn the pressure washer back on and perform a test run with an empty tray before resuming production.
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Decommissioning and disposal

Preparing the machine for decommissioning

1. Turn off the pressure washer and disconnect it from the machine.
2. Shut off and disconnect the water supply. Drain all water from the wash chamber, hoses, and drain tub. Allow the system to drain completely.
3. Run a final rinse cycle with clean water, if possible, to flush residual chemicals from internal components.
4. Allow the machine to dry thoroughly. If the machine will be stored before disposal, leave all covers and access panels open to promote ventilation and prevent mold or corrosion.

End-of-life procedures

- Frame and structural components: stainless steel recycling.
 - Transport safety during removal: same lifting requirements as installation.
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Technical specifications

Features

- **Powerful Cleaning:** Uses two spinning pressure washer bars for thorough interior and exterior coverage.
- **Simple Operation:** No motor, no controls and nothing to plug in: connect a pressure washer and push trays through.
- **Adjustable Guide Rails:** Fit anything from 10x20 trays to channels.
- **Durable Construction:** Built to withstand long-term use.
- **Low Maintenance:** Easy to maintain, clean, and store.

Physical specifications

Material	STAINLESS STEEL
Tray compatibility	1020 GROW TRAYS TO CHANNELS, UP TO 13.5" WIDE AND 3" TALL

Water requirements

Pressure washer GPM (or collective GPM)	4 GPM
Pressure washer PSI (or collective PSI)	2000 PSI

Applications Microgreens Baby greens Micro herbs
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Customer support

For additional assistance or troubleshooting about your Push-Through Tray Washer, our team is here to help. Please contact us at:

EMAIL customer-support@rootedrobotics.com	PHONE +1 (720) 999-9927	WEBSITE www.rootedrobotics.com
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