

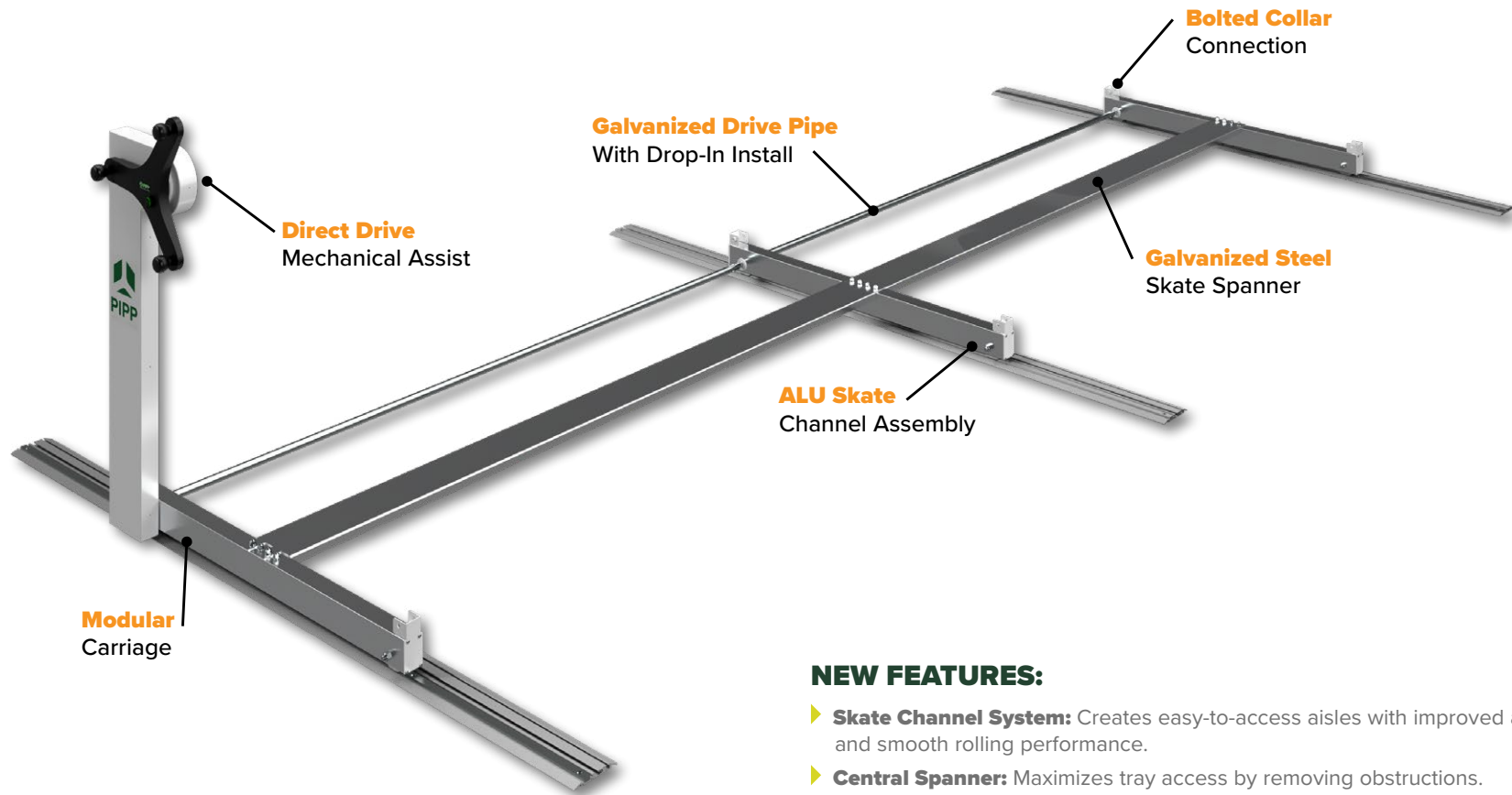


PIPP[®]
MOBILE STORAGE SYSTEMS INC.
HORTICULTURE
pipphorticulture.com

PRODUCT **SPECIFICATION** SHEETS

MODULAR CARRIAGE

Elevate. Cultivate. Grow.®



NEW FEATURES:

- ▶ **Skate Channel System:** Creates easy-to-access aisles with improved alignment and smooth rolling performance.
- ▶ **Central Spanner:** Maximizes tray access by removing obstructions.
- ▶ **Direct Drive Mechanical Assist:** Shifts Drive Box to the left side and reduces connections/failure points.
- ▶ **Drive System:** Extends the maximum length for both driven and manual systems.
- ▶ **Uprights:** Improved connections/ corrosion protection by eliminating the need for self-drilling fasteners.
- ▶ **Drop-In Drive Pipe:** Improves the durability of drive connections and allows for easy installation.

Pipp's Mobile Vertical Racking System features a Modular Carriage with a durable construction and corrosion-resistant materials that increase the lifespan of the carriage and allow it to easily handle the weight load of any cultivation style. These systems are available in custom sizes to optimize your space and adjustable Anti-Tip Mechanisms allow for seismic compliant designs.

TRAK-FREE™ CARRIAGE

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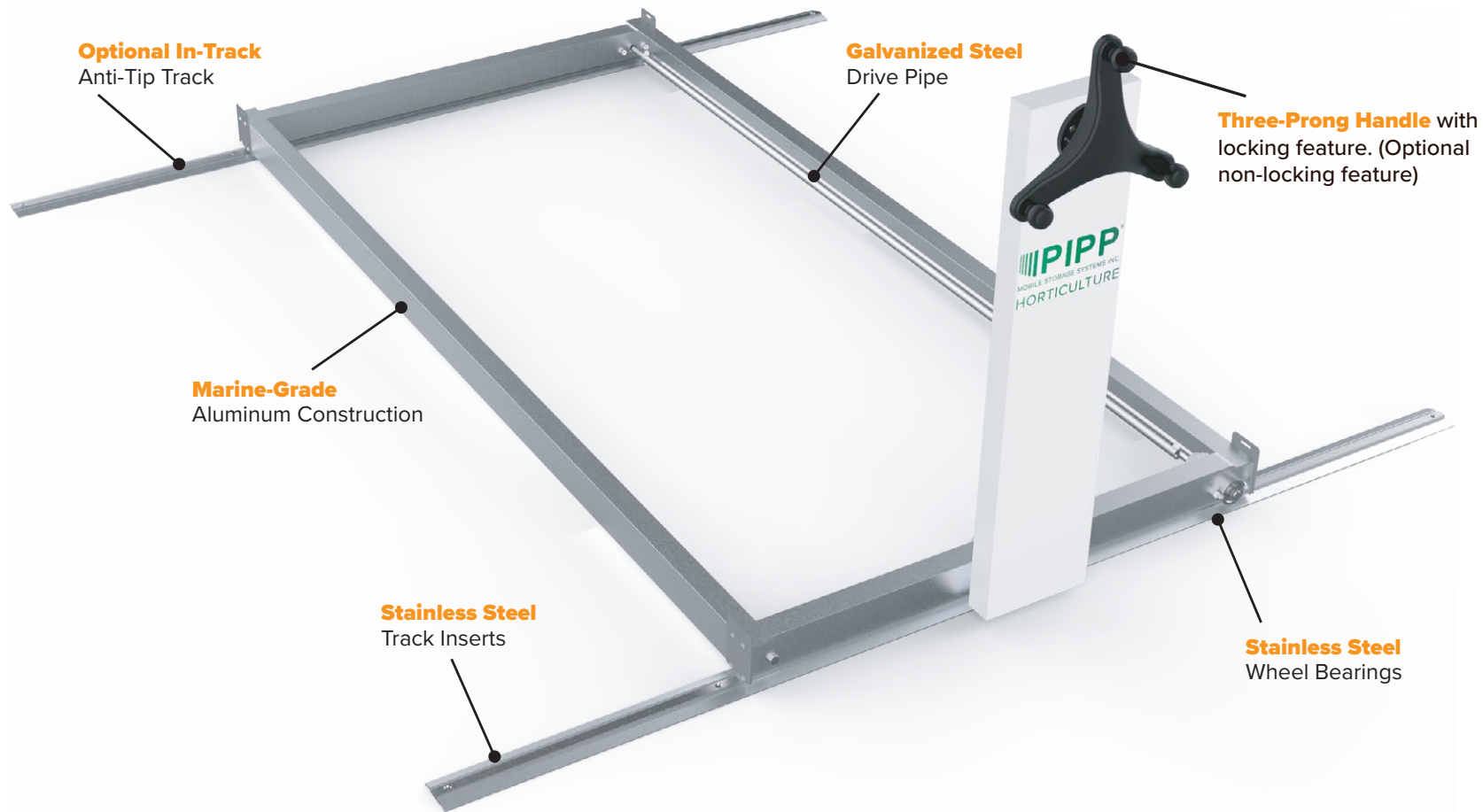
- ▶ Mechanical-Assist Carriage System with locking 3-prong handle for heavier loads like grow rooms.
- ▶ Maximum carriage length: up to 56 feet long. (Longer systems require engineering approval.)
- ▶ Maximum shelving height: up to 18 feet high. (Taller systems require engineering approval.)
- ▶ Maximum 8' section load: 2,000 lbs/maximum 56' long carriage load: 14,000 lbs.
- ▶ In-Track Anti-Tip included.
- ▶ Must be mechanical assist if over 8' long or narrower than 36". Exceptions require engineering approval.
- ▶ Dual drive option available - guide track will be to one end of the carriage (customer to determine/approve which end).
- ▶ Applicable shelving types: Rivet Style Shelving, Wire Shelving, and Bulk Rack.

ROOM REQUIREMENTS:

- ▶ Floor must be smooth and free of pits, cracks and other defects that will interfere with the free flow movement of the wheels.
- ▶ Floor level to within ¼" over 10' in any direction; max variance of the entire carriage room ($\pm 1/2"$). Variations to this require engineering approval.
- ▶ Concrete Flatness: FF=25 and FL=20 (for contractor use).

MECHANICAL-ASSIST CARRIAGE

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- ▶ Lightweight corrosion-resistant construction due to aluminum structural members.
- ▶ Carriage capacity is 1,000 lbs per linear foot of carriage.
- ▶ Maximum carriage length is 56' long. (Longer systems require engineering approval.)
- ▶ Built to order carriages can accommodate any shelving system.
- ▶ Cost effective corrosion resistance in key components.

- ▶ Marine-grade aluminum construction.
- ▶ Stainless steel track inserts and chemically treated wheels are used to resist rust and corrosion.
- ▶ Steel drive pipe utilizes a robust galvanized coating.
- ▶ Mechanical-Assist Drive System allows easy movement of carriage.

VERTICAL GROW RACKS

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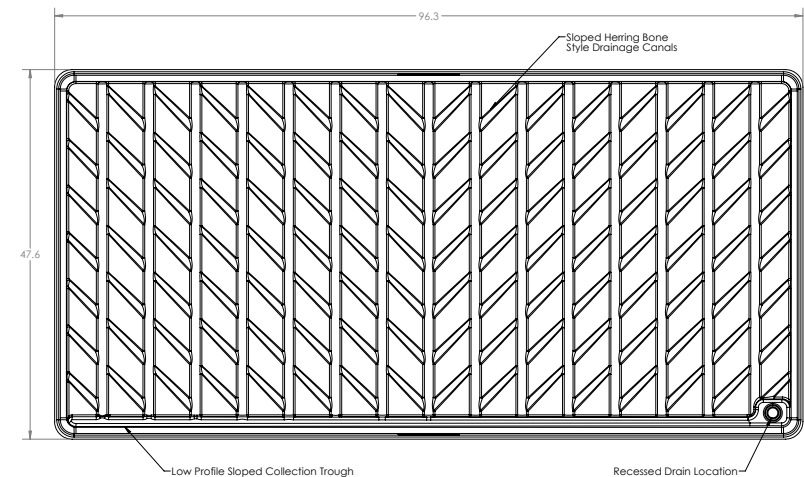
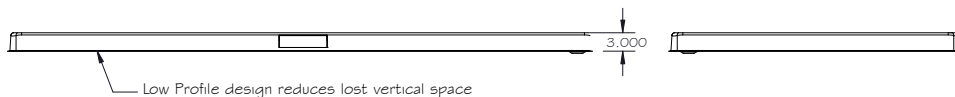
- ▶ Quick and easy shelving assembly.
- ▶ High capacity shelving.
 - ▶ Beams can support 2,150 lbs.
 - ▶ Uprights can support up to 17,000 lbs.
 - ▶ Racks available up to 16' high. (Racks higher than 16' require engineering approval)
- ▶ Constructed from durable 14-gauge steel.
- ▶ Dual Coat Corrosion Protection: An E-Coat base layer provides complete coverage, negating the faraday effect, while a powder coat top layer provides a reflective white color with anti-microbial and anti-fungal properties.
- ▶ Supports a wide variety of growing trays, dry and cure racks, accessories for LED lights and other utilities.
- ▶ Racks have modular uprights and a knock-down design with adjustable cross supports to ensure clear openings are always available for third-party add-on components, and allows for quick and efficient installation.
- ▶ *Bulk Rack - Patent Pending



ABS GROW TRAYS

Elevate. Cultivate. Grow.®

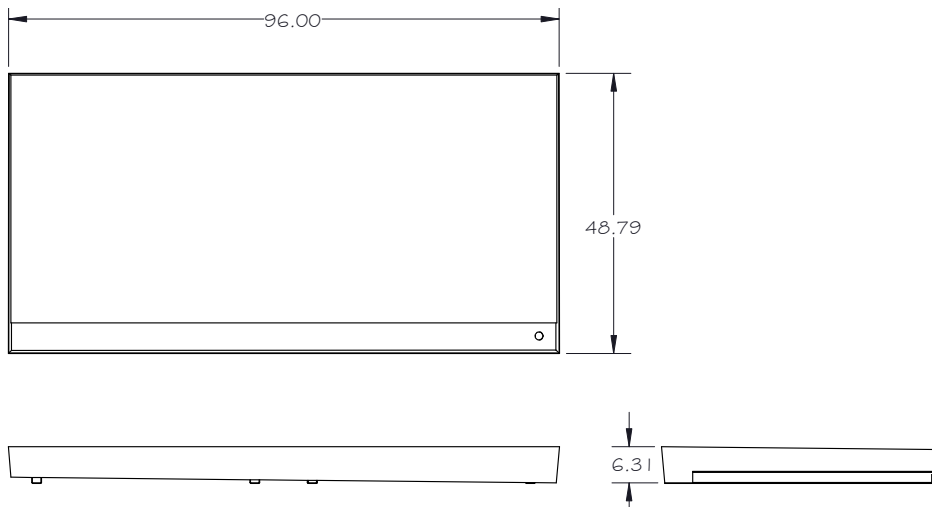
- ▶ ABS Corrugated Grow Trays can be utilized for Drip-to-Drain irrigation styles.
- ▶ Durable ABS construction.
- ▶ 0.187" / 4.75mm thick ABS plastic.
- ▶ Thermoformed with a co-extruded acrylic cap to provide UV-stability, anti-microbial and fungal-resistant properties.
- ▶ Trays have a slight ½" slope from back to front.
- ▶ Sloped deck and network of canals within the tray ensure proper drainage away from plants to drain location.
- ▶ Easy cleanup.
- ▶ Tray capacity not to exceed 15 lbs./f².
- ▶ Available in 8'x4', 8'x3', 4'x4', and 4'x3'.
- ▶ *U.S. Patent No. D906,876 and U.S. Patent No. 11,116,148. Additional U.S. patent pending.



COMBINATION GROW TRAYS

Elevate. Cultivate. Grow.®

- ▶ Trays can be used for drip-to-drain irrigation or ebb & flow.
- ▶ 11ga aluminum with powder coat finish.
- ▶ Built in trough for easy drainage.
- ▶ Optional HDPE Inserts are fungal-resistant and anti-microbial.
- ▶ Capable of flooding to a depth of 4" maximum (without inserts).
- ▶ Built-in struts provide support and attachment points for lights, air circulation, and plumbing.
- ▶ Flood fill location can be added at most convenient location by G.C. or customer.
- ▶ Available in 8'x4', 8'x3', 4'x4', 4'x3' (custom sizes available).
- ▶ Tray capacity not to exceed 20 lbs./f².
- ▶ U.S. Design Patent No. D906,876.
- ▶ **MADE TO ORDER, LONGER LEAD TIMES APPLY.**
Check with your sales person for details.

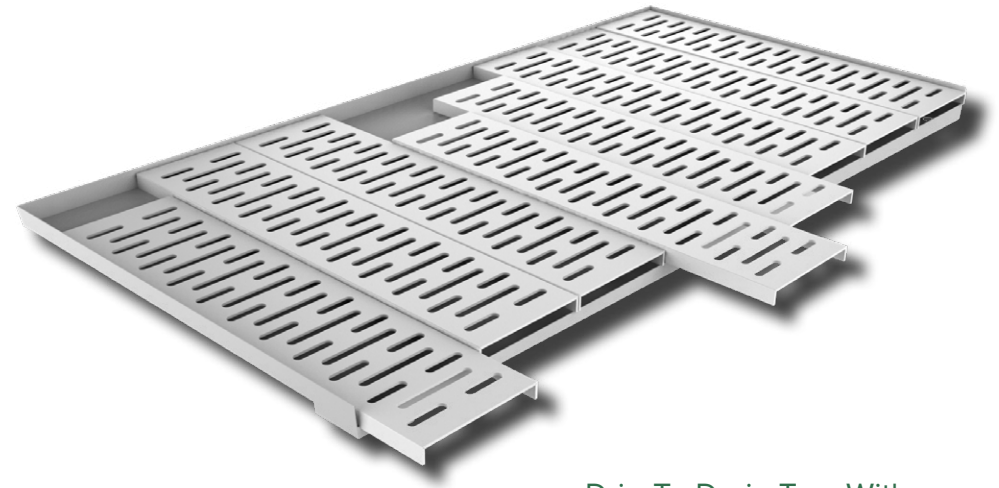
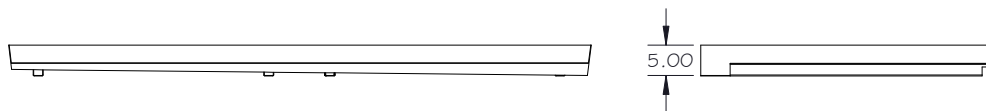
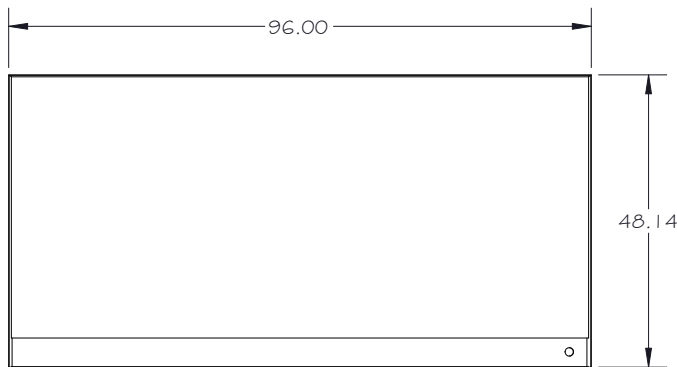


Combination Tray With
Optional HDPE Inserts

DRIP-TO-DRAIN GROW TRAYS

Elevate. Cultivate. Grow.®

- ▶ Tray is designed for use in a drip-to-drain irrigation style.
- ▶ 11ga aluminum with powder coat finish.
- ▶ Built in trough for easy drainage.
- ▶ Optional HDPE Inserts are fungal-resistant and anti-microbial.
- ▶ Inserts easily slide out for access to rear plants and cleaning.
- ▶ Built in struts provide support and attachment points for lights, air circulation, and plumbing.
- ▶ Available in: 8'x4', 8'x3', 4'x4', and 4'x3' (custom sizes available).
- ▶ Tray capacity not to exceed 20 lbs./f²
- ▶ U.S. Design Patent No. D925,392.
- ▶ MADE TO ORDER, LONGER LEAD TIMES APPLY.
Check with your sales person for details.

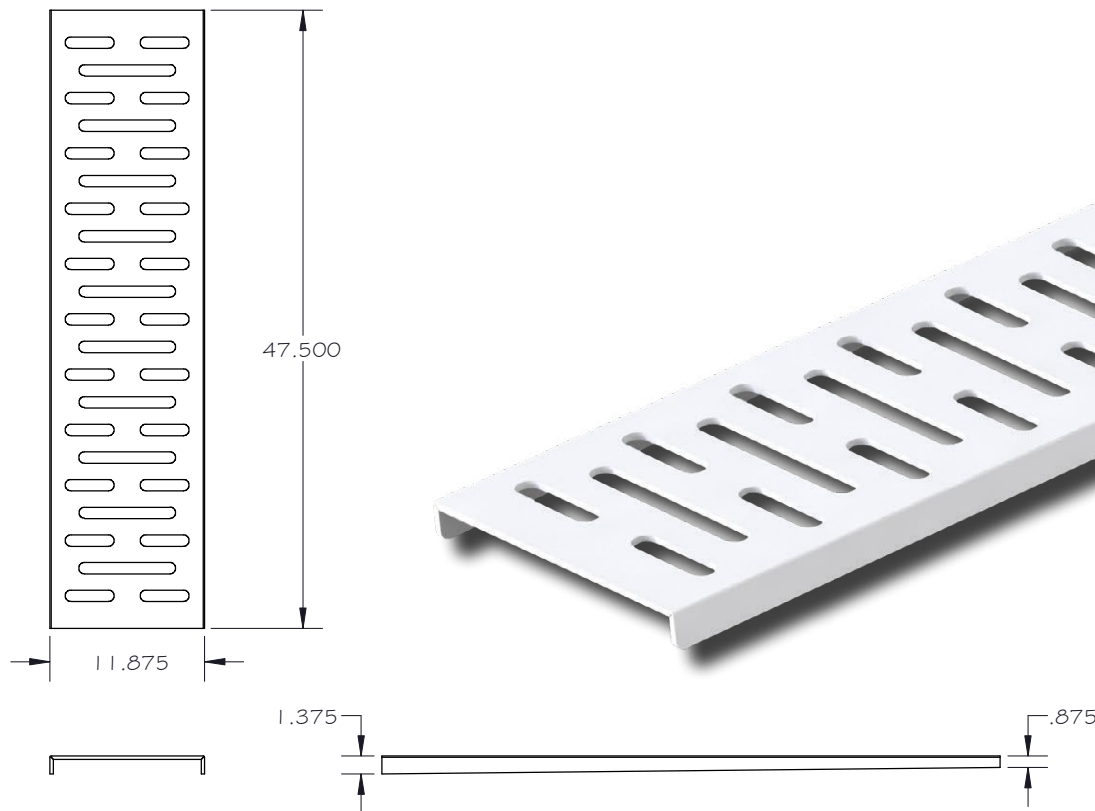


Drip-To-Drain Tray With
Optional HDPE Inserts

HDPE INSERTS

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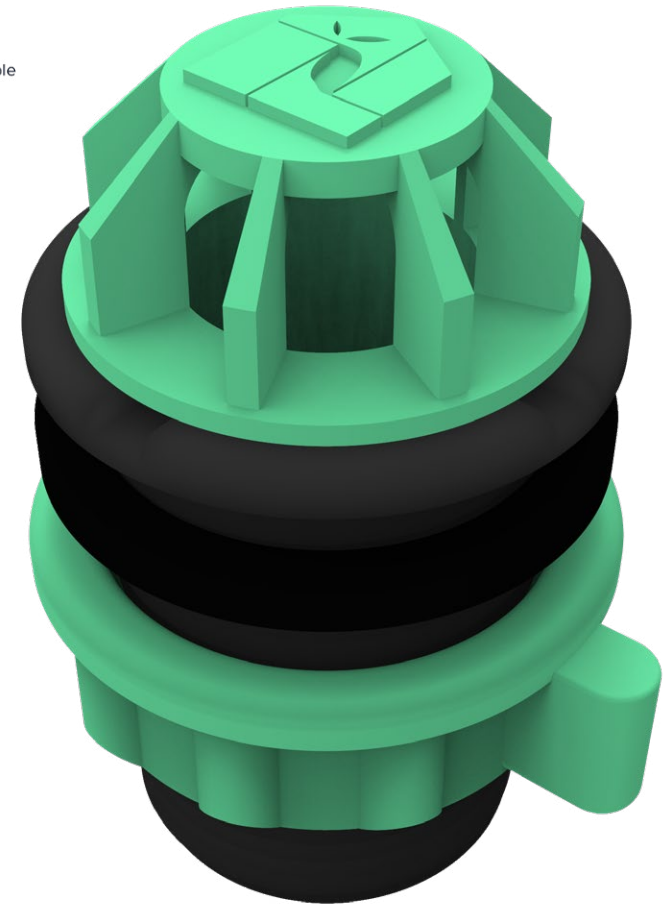
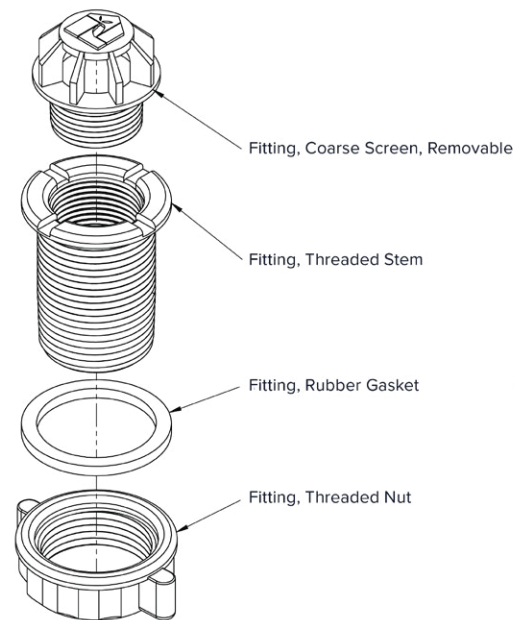
- ▶ Designed for use with Combination or Drip-To-Drain Trays.
- ▶ HDPE material is fungal-resistant and anti-microbial.
- ▶ Tapered design to provide a level surface for plants.
- ▶ Creates space for air circulation and water runoff underneath plants in order to maintain healthy roots.
- ▶ Slides easily for access to rear plants.
- ▶ Easily removable for fast and efficient cleaning.
- ▶ Patent Pending.



STRAIGHT DRAIN FITTING

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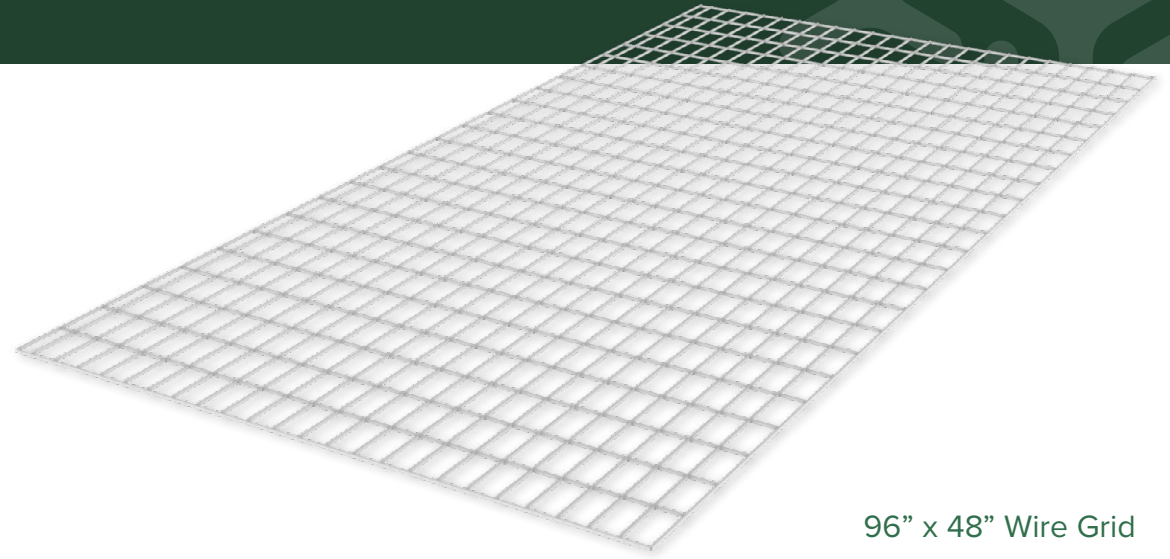
- ▶ 1" Threaded Bulk Head Fitting.
- ▶ Designed for 1.28" Thru Hole.
- ▶ Accepts NPT Fittings.
- ▶ 1" NPT External Stem – for attachment to elbows or couplers.
- ▶ ¾" NPT Internal Stem – for attachment to barbed fitting couplers.
- ▶ Larger bore diameter allows great GPM Flow.
- ▶ Course screen blocks large debris while allowing finer sediments to pass through without clogging drainage.
- ▶ Channels in stem lip require less buildup of water before drainage begins.



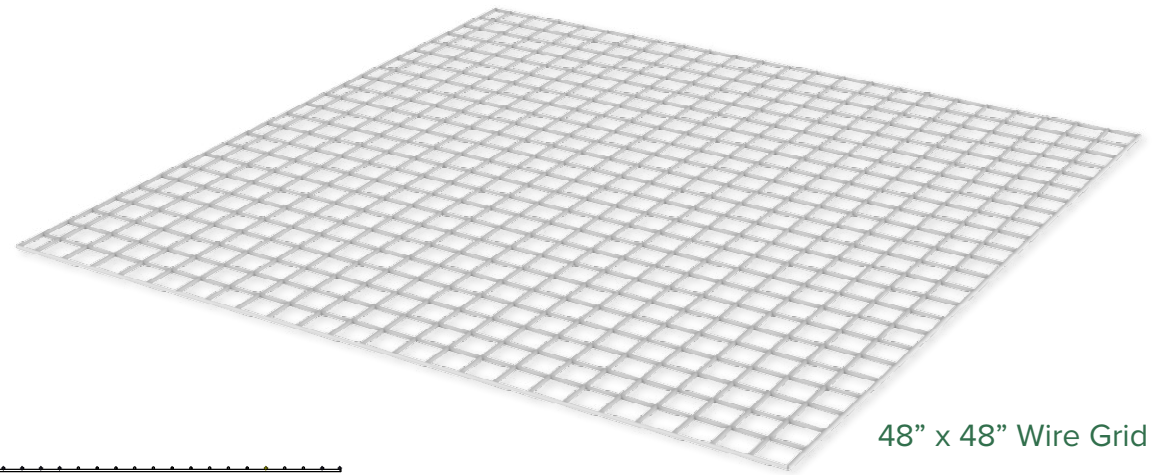
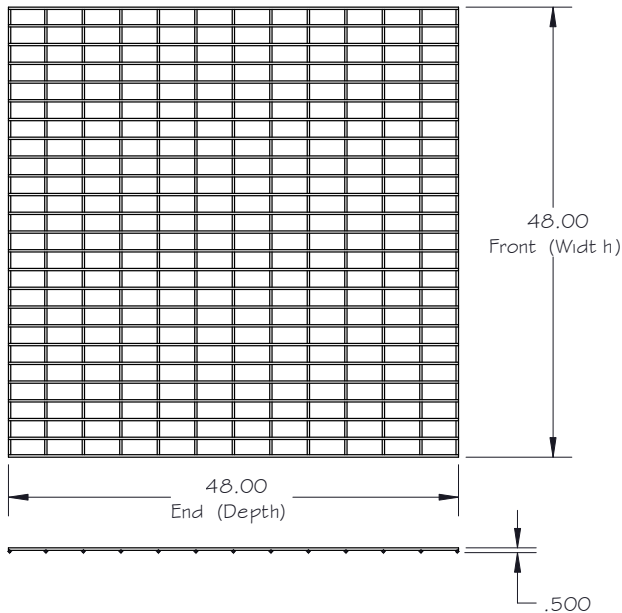
WIRE GRID

Elevate. Cultivate. Grow.[®]

- ▶ Round wire welded in a 2" x 4" pattern.
- ▶ Ideal application for wire grid is as a hanging lattice for drying rooms.
- ▶ Wire grid is available for operations providing their own tray solutions.
- ▶ Includes powder coated steel supports for attachment points for lights, air circulation, and plumbing.
- ▶ Wire is powder coated a light grey.
- ▶ Sizes available: 8'x4', 8'x3', 8'x2', 4'x4', 4'x3', 4'x2'.
- ▶ Wire grid sizes over 48" come in two parts.



96" x 48" Wire Grid



48" x 48" Wire Grid

ELEVATE® PLATFORM SYSTEM

Elevate. Cultivate. Grow.®

The **ELEVATE® Platform System** is a robust, lightweight, and portable deck to allow cultivators to access Pipp's Multi-Tier Mobile Grow Racks quickly, efficiently, and most importantly - safely. This patent-pending system was designed to integrate with Pipp's Bulk Rack Shelving Systems without any modifications. The ELEVATE® Platform System can be installed on new or existing mobile vertical grow racks.

- ▶ Quick and simple setup.
- ▶ Lightweight components allows one person to set up the entire system.
- ▶ Aluminum and galvanized steel components are corrosion resistant.
- ▶ Deck sections are 22" x 49" giving ergonomic access to canopy without giving up overall canopy throughout room.
- ▶ Galvanized steel support rails hold 650 lbs per pair (tested to 4x capacity per OSHA requirements).
- ▶ Purpose built support rails are adjustable and have integrated anti-dislodge protection features to keep beams secure while in use.
- ▶ Multiple people can access and work on the platform at once.
- ▶ Ladders available to cover deck heights between 30" and 120" A.F.F.
- ▶ Mobile Vertical Racking designs that incorporate a 46" or larger mobile access aisle, two separate working rows of the ELEVATE® Platform System may be utilized simultaneously.
- ▶ Patents: U.S. Patent No. 11,478,079



DRY/CURE ROOM

MOBILE STORAGE

Elevate. Cultivate. Grow.[®]

SHELVING SPECIFICATIONS:

- ▶ 14-gauge steel rivet style shelving which is adjustable on 1-1/2" increments.
- ▶ Rack configuration is fully customizable. Typical rack configuration is 24" wide x 16' high with 3 dry levels.
- ▶ *Bulk Rack - Patent Pending

HANG OPTIONS:

- ▶ **Round Hang Bars** - Hang full plants on our hang bar with a simple hook attachment for faster trimming.
- ▶ **Grid Hang** - Hang plants from any position directly on 4" x 4" wire grid spacing, allowing for greater air circulation with built in Flue Space.
- ▶ **Finger Bars** (shown) - Easily hang plants from adjustable cantilever prongs without hooks or wires. The hang attachment comes standard with 12 rods, which easily adjust along the support bracket.



AIR CIRCULATION SYSTEM

Elevate. Cultivate. Grow.®

Vertical Air Solutions' patented In-Rack Airflow System provides canopies with uniform, top-down airflow while homogenizing the climate in a multi-layered rolling rack platform. The first purpose-built air circulation system of its kind, developed by growers for growers. Designed to deliver the airflow your plants need to thrive while saving valuable space in vertical farming applications.

Every component has been fully redesigned and optimized to deliver the highest air velocities possible while maintaining consistent performance across varying row lengths. New materials and construction methods were carefully chosen to simplify installation and reduce costs without sacrificing quality. Highly modular with multiple configurations, this system was designed to meet the airflow needs of your crop.

U.S. Patents

U.S. Patent No. 10,694,682 B2

U.S. Patent No. 10,806,099 B2

U.S. Patent No. 11,632,915

U.S. Patent No. 11,641,810

Other U.S. and foreign patents are pending.

FAN SPECIFICATIONS

Fan Size	Airflow @ 0" H2O	Voltage	Power	Current	Frequency
10"	946 CFM	110-120V AC	126W	1.8A	50/60 Hz
12"	1,662 CFM	110-120V AC	268W	3.5A	50/60 Hz



WEIGHTS & DIMENSIONS

Component	Weight	Dimensions
10" Fan	13.5 lbs	10"D x 8.25"H
12" Fan	25 lbs	12"D x 11.5"H
10" Plenum	3 lbs	15.8"L x 12"W x 13.7"H
12" Plenum	2.5 lbs	15.8"L x 12"W x 11.2"H
8' Duct Section	2.2 lbs	12"W x 3"H x 8' Sections Long
4' Duct Section	1.1 lbs	12"W x 3"H x 4' Sections Long

*Unpacked/installed weights, not shipping weights.

VAS PLANT HANGERS

Elevate. Cultivate. Grow.®

Vertical Air Solutions' Plant Hangers specifically target the needs of cannabis cultivators. With an opening on one side, stalks are placed directly on a horizontal bar, instead of being threaded through the hanger. These hangers are also taller to allow for longer base stems and the indentations on the horizontal bar keep the plants equidistant from each other, assuring even drying and consistent yields. The sturdy, antimicrobial construction of the hangers allow for years of re-use. When combined with rolling racks that can be weighed, and go straight from flower room to drying room, the plants are touched only one time, reducing the risk of damage.

- ▶ More efficient use of labor and space by minimizing handling of the plants and getting more plants per hanger.
- ▶ Less waste due to fewer flowers being lost from multiple handling operations.
- ▶ Even drying rates for all plants, assuring a consistent product for manufacturers and users alike.
- ▶ Cost savings and a lowered environmental impact from the continuous re-use of the production-tested antimicrobial steel hangers.
- ▶ Hanger Dimensions: 19.2" width | 8.75" height | 1.5" hanger hook width
- ▶ U.S. Patent No. US D873,036 S



DRYING CART

Elevate. Cultivate. Grow.[®]

The Pipp Horticulture **Drying Cart** is designed to accommodate hanging plants in order to dry them out for further processing. It has adjustable cantilever-style finger attachments which allow you to configure the cart as needed. The drying cart is an essential part of the cultivation process that can provide an increase in production and help streamline your workflow.

- ▶ 65”H x 60”W x 24”D
- ▶ 14-gauge steel posts and supports.
- ▶ Finish – medium gray E-Coat finish.
- ▶ Option to upgrade to anti-bacterial & anti-microbial white powder coating.
- ▶ Ships unassembled.
- ▶ Assembles with minimal tools.
- ▶ Adjustable hang attachments, carts can utilize 1-3 levels for hanging dry plants.
- ▶ The hang attachment comes standard with 7 rods, which easily adjust along the support bracket.
- ▶ The bottom shelf is a 1/4” HDPE plastic insert with a 1/4” lip on all four sides.
- ▶ Cart has a 1,000 lbs weight capacity.



SHELF CART

Elevate. Cultivate. Grow.[®]

The versatile **Shelf Cart** can be used for both general storage and transporting goods. The shelf levels are adjustable and additional shelves can easily be added to the cart to customize it to suit your needs.

- ▶ 65”H x 60”W x 24”D
- ▶ 14-gauge steel posts and supports.
- ▶ Finish – medium gray E-Coat finish.
- ▶ Option to upgrade to anti-bacterial & anti-microbial white powder coating.
- ▶ Ships unassembled.
- ▶ Assembles with minimal tools.
- ▶ Comes standard with three adjustable shelves and two openings.
- ▶ Additional shelves can easily be added to cart if required.
- ▶ Shelves are a 1/4” HDPE plastic insert with a 1/4” lip on all four sides.
- ▶ Cart has a weight capacity 1,000 lbs.



COMBO CART

Elevate. Cultivate. Grow.[®]

The multi-purpose **Combo Cart** combines our exclusive hanging attachment for drying out plants with adjustable shelves below for general storage and transport needs.

- ▶ 65”H x 60”W x 24”D
- ▶ 14-gauge steel posts and supports.
- ▶ Finish – medium gray E-Coat finish.
- ▶ Option to upgrade to anti-bacterial and anti-microbial white powder coating.
- ▶ Ships unassembled.
- ▶ Assembles with minimal tools.
- ▶ Comes standard with 1 adjustable hanging dry level at the top level and 2 shelf levels at the middle and bottom with 1 opening.
- ▶ The hang attachment comes standard with 7 rods which easily adjust along the support bracket.
- ▶ Shelves are a 1/4” HDPE plastic insert with a 1/4” lip on all four sides.
- ▶ Additional shelves can easily be added to cart if required.
- ▶ Cart has a weight capacity 1,000 lbs.



NESTING DRYING RACK

Elevate. Cultivate. Grow.[®]



The **Nesting Drying Rack** delivers ease of use, safety, and long life. Super heavy-duty construction combined with standard 5" swivel non-marring casters provides a 1,000 lb. total load capacity. Z-Base allows for nesting when not in use.

- ▶ RGR-350 Series: 48"L x 24"W x 72"H
- ▶ RGR-550 Series: 62 ¼"L x 24"W x 72"H
- ▶ Hang rail constructed of 14-gauge steel.
- ▶ 1 ½" Square steel tubing base.
- ▶ Chrome uprights and hang rails.
- ▶ Welded gussets at Z-base corners for added strength.
- ▶ Load capacity – up to 1,000 lbs.
- ▶ Ships knocked-down.
- ▶ Designed for easy assembly.
- ▶ 350 Series and 550 Series can ship UPS.



Nested Z-Racks



**Z-Rack with Optional
Bottom Shelf**



**Z-Rack with Optional
Middle Bar**

WIRE CART

Elevate. Cultivate. Grow.[®]

These durable and highly functional **Wire Carts** are ideal for mobile storage requirements. The open wire construction minimizes dust/dirt accumulation and maximizes airflow as well visibility.

- ▶ Lengths: 24", 30", 36", 42", 48", 60", and 72".
- ▶ Widths: 18", 21", and 24".
- ▶ Heights: 63" and 74".
- ▶ 4 Shelves with split sleeves.
- ▶ 4 Posts.
- ▶ Posts are numbered in 1" increments for ease of assembly.
- ▶ 5" Heavy-duty non-marring swivel casters.
- ▶ Easy to transport and maneuver.
- ▶ Load capacity – up to 1,000 lbs.
- ▶ No tools required.
- ▶ Ships knocked-down.
- ▶ Most sizes can ship UPS.



Available as a
Security Cage

SECURED STORAGE

Elevate. Cultivate. Grow.[®]

- ▶ Robust pry-resistant doors.
- ▶ Fully welded closed tube frame.
- ▶ Three point rod locking mechanism.
- ▶ Tamper proof hardware.
- ▶ Easy visual inspection of product with 1.5" x 1.5" grid spacing.
- ▶ Update security anytime with Interchangeable Cylinder Lock.
- ▶ Secured in place with 3/8" Seismically approved concrete anchors.
- ▶ Store any size product with adjustable shelf spacing on 1-1/2" increments.



GOWNING ROOM LOCKERS

Elevate. Cultivate. Grow.[®]



Box Lockers



Double-Tier



Single-Tier

Widths (inch)

- ▶ 6" - 12"
- ▶ 12" - 18"
- ▶ 30" - 36"
- ▶ 36" - 42"
- ▶ 42" - 48"
- ▶ 66" - 72"
- ▶ 72" - 78"

Depths (inch)

- ▶ 12" - 18"
- ▶ 18" - 24"

Heights (inch)

- ▶ 72" - 78"
- ▶ 78" - 84"

Standard Colors

- ▶ Sand (SND)
- ▶ Medium Grey (MGY)
- ▶ Black (BLK)

Offered with or without legs.



ELEVATE YOUR CULTIVATION



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