

# Blenders

Patterson Kelley (PK) specializes in innovative blending and processing solutions for the pharmaceutical, nutraceutical, food, chemical, plastic, and bio-energy industries. With over a century of experience, PK designs and manufactures a range of blenders engineered for precision, consistency, and reliability to meet the demands of a wide range of applications.

From simple tumble blending in a variety of vessel geometries to intensified blending and wet granulation and drying within a single pot processor, PK Blenders delivers long-term durability and maximum efficiency. Each unit is built with robust construction and advanced features that deliver uniform mixing, reduced production time and simple maintenance, ensuring minimal downtime and smooth production.



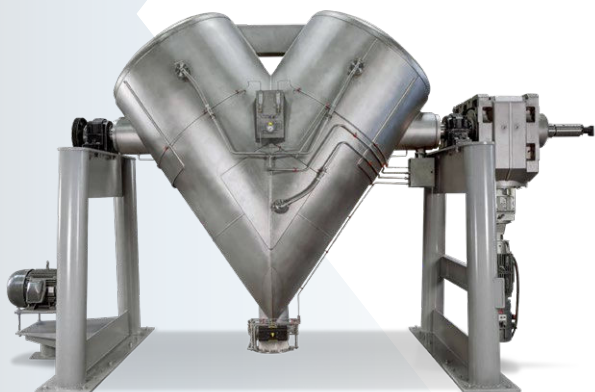
## ***Blending & Powder Processing Solutions***

- Twin Shell Dry Blenders
- Cross-Flow
- Double Cone Tumble Blending
- Slant Cone
- P-K Blend Master Lab Blender
- M.V.P. Blending Systems
- Zig-Zag Continuous Blender
- Aftermarket Parts & Service
- Lab Testing & Pilot Equipment Rentals
- Complete Systems



# Twin Shell Dry Blender®

Twin Shell Dry Blender overcomes discharge problems and creates additional mixing action at the center with two opposed simple cylinders formed in a “V” making for faster, more efficient blending. This blender can handle extremely delicate to heavy abrasive materials.



## Features & Benefits

- Access covers hinge in either direction to allow for easy cleaning.
- Steeper discharge angles produce easier mass flow of powders, eliminating internal material hang-up.
- Full automation option (PLC) can control an entire batch and record parameters during the cycle.
- Air-operated valve and shroud ensure dust-tight product transfer.
- 62lb/ft<sup>3</sup> standard up to 500lb/ft<sup>3</sup> size options to fit most applications.
- 70° or 80° orientation options to fit your needs.

## Cross-Flow® Option

The uneven design of the shell creates a unique axial flow for quick, efficient product exchange, and is the most precise blender available.



## Blending Intensifiers Added to Axis of Rotation

- Addition of a high speed agitator to the axis of rotation propels all material into contacting area.
- Greatly increases blending energy and efficiency.
- Promotes blending of different physical characteristics.
- Available in high speed (17m/s) and ultra-high speed (34m/s).
- Useful for coating applications, wet granulation and intimate dispersion of liquids into powders.
- Used for highly intimate mixing with many constituents and low weight percent components as low as <1% by mass.
- Available types: Pin-I Bar, High Speed Bar, Ultra High Speed Bar, Liquid-Solids Bar, Minimum Attrition Bar.

## Double Cone Tumble Blending

The Double Cone Blender and the slanted Double Cone Blender utilize a vertical cylinder with conical ends which rotates about a horizontal axis. The blenders provide an efficient mixing action when loaded at 50% of its total volume. These blenders offer a solution when vertical headroom is at a premium.



### Features & Benefits

- Low profile design offers a great solution for space constraints.
- Spacious shaped cones allow for ease of cleaning.
- Intensified or non-intensified options to blend the materials with ease.
- 62lb/ft<sup>3</sup> standard up to 500lb/ft<sup>3</sup> size options for application versatility.
- The sloped cone ensures the most efficient discharge of materials.
- Multiple sizes available from 1-300 ft<sup>3</sup> to fit your process.

### Slant Cone® Shell Option

The off-set middle section increases mixing efficiency, resulting in fast, uniform blends. Ideal for mixing sensitive products.



## P-K Blend Master® Lab Blender

PK manufactures the Blend Master series with working volumes up to 16 quarts (15 liters). Designed for use with one of a variety of intensifier bars, these blenders are used for both liquid addition and intimate, homogeneous blending of minor ingredients. Various designs are available to help you achieve precise and efficient blending for all of your R&D, pilot plant, and lab-scale work.



### Features & Benefits

- Versatile drive station handles 4, 8, and 16 qt. acrylic or 316 stainless steel shells for multiple batch sizes.
- Electronic interlock system stops shell rotation when the cover is lifted for enhanced safety.
- Easy to remove shell provides simple cleaning.
- Timer for controlled cycle time delivers consistent blends.
- Manual stop design provides ability to stop mid-cycle for sample testing.
- Shells with HTD timing belt drive eliminates belt adjustments and lubrication.



## M.V.P. Blending System®

Our portable, stand alone Multi-Vessel Processor designs are ideal for small suites and research applications while larger suites may utilize our fixed MVP design configured with post lifts. The adaptable unit accepts multiple sizes and geometries, making for zero down time between batches.

### Features & Benefits

- Accommodates vessels of varying working capacities and geometries for versatility and quick changeovers.
- Adaptable units eliminates the need for multiple blending rooms.
- Each vessel is transportable on its own cart for simple connection to the drive station.
- Sizes available: 16 QT, 1, 2, 3, 5 ft<sup>3</sup> to fit most all applications.
- Best suited for separate blending applications daily, with zero downtime.
- Spacious shaped cones allow for ease of cleaning.



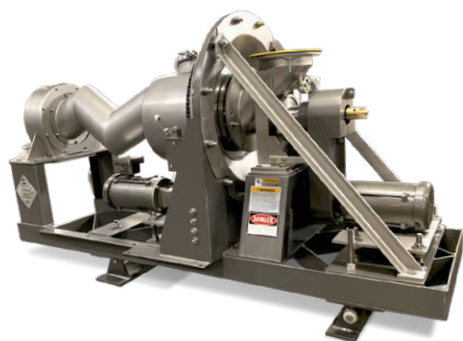
### Vessel Options

The MVP System allows for multiple vessels to connect to the same unit; Twin Shell, Cross Flow, Double Cone & Slant Cone are all accepted.



## Zig-Zag® Continuous Blender

The Zig-Zag blender uses a rotating, eccentric drum and continuous recycling to create uniform blends of liquid-solids and solid-solids. Most blends are completed in under two minutes, with the ability to mix a wide range of powders depending on the inlet chute size. In liquid-solid applications, two liquids can be added at once for efficient integration.



### Features & Benefits

- Produces precise, intimate blends of solids-solids, liquid solids and slurries.
- Short residence times ensure the gentle processing of materials.
- Engineered systems facilitate efficient feeding and discharging of material.
- 2,200-275,000 lbs/hr throughput capacity supporting both pilot-scale and full-scale operations.
- 62 lb/ft<sup>3</sup> to 85 lb/ft<sup>3</sup> max bulk density makes the unit adaptable across industries and materials without equipment strain.

## Aftermarket Parts Sales & Service

PK Blenders understands that timely access to genuine spare parts is essential for maintaining the reliability and performance of your equipment. Our team is available to process your order any time of the day, with inventory readily available for quick delivery.

Field service technicians are available to diagnose machine issues and to train your personnel in proper operation and preventative maintenance. Ask us about our Preventative Maintenance Contracts.

### Parts Available

- Butterfly Valves
- Intensifier Bars
- Access Cover Assembly
- FDA/Non-FDA Valve Liners
- Access Cover Gasket
- Access Cover Filter
- OEM Motors



## Industries We Serve

We proudly support a wide range of industries, whether you're blending fertilizers, lubricants, seasonings, or cleaning agents, we bring precision, consistency, and reliability to your process. Even if your industry is not on our list, we can still help.

Our team thrives on customization and collaboration. If you have a product that needs blended or dried we have the tools and expertise to make it happen.



Plastics



Chemicals



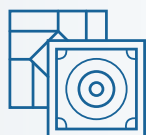
Food Processing



Metal Powders



Soaps



Ceramics



Agricultural  
Chemicals



Pharmaceuticals



Nutraceuticals



Cosmetics

## Lab Testing

PK Blenders offers a testing lab with the complete line of PK equipment, in addition to evaporation and distillation units, dryers, and flakers. This extensive setup allows for full-scale testing and optimization of your material handling and thermal processing needs under real-world conditions.

- Fabrication shop next door
- Auxiliary lab utilities available; boiler, cooling water, compressor
- Wet lab for glassware and analytical testing
- Continued plans for future improvements and additional equipment availability



## Complete Systems Integration

As a subsidiary of Carrier Process Equipment Group (CPEG), PK Blenders can provide additional thermal and dry solids processing equipment to supplement and build out your production line. These machines can be integrated upstream into existing or new process lines. Our team of experts can help determine the most suitable products for your manufacturing line. With a full spectrum of technologies, ancillary components, and automation solutions, customers worldwide rely on us to meet their unique production needs.

- Atmospheric Drum Dryers
- Vacuum Dryers: Drum, Pan, Rotary, Shelf
- Cooling Drum Flakers
- Evaporation, Distillation & Separation
- Tumble Dryers & Rotary Dryers
- Rotary Calciners
- Bin Dischargers & Loading Spouts
- Mixers & Blenders
- Dry & Wet Dust Collectors
- Vibratory & Static Fluid Bed Dryers
- Fluid Bed Coolers
- Dry & Wet Dust Collectors
- Flash, Tornesh, Media Slurry Dryers
- Bulk Material Heat/Cool Exchangers
- Vibratory Feeders & Screw Conveyors
- Vibratory Screeners & Power Sifters
- Size Reduction Equipment
- And More

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