PRECISION

PRECISION MACHINE & MANUFACTURING, INC.

MADE IN THE USA

Moving Materials Better and More Efficiently!

Company Overview

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Company Overview

- Located in Eugene, Oregon
- Found in 1977 to support the local wood products industry.
- Has steadily expanded throughout North America.
- Expanded into Central & South America in 2022.
  - Added Authorized Distributor: VYSISA, https://vysisa.com.mx/ for Mexico, Jamaica and Panama
- **100% USA production!**

Application Overview

- **The more difficult the better!**
  - Abrasive
  - Corrosive
  - Wet & Sticky
  - High/low temperature

Precision Machine & Manufacturing focuses on the most difficult material handling challenges!

Products

- **Rotary feeders**
  - Industry specific, durable, extreme functionality.
- **Rotary Valves**
  - The only modular, 100% machined rotary valve on the market.
- **Screw Conveyors**
  - Engineered & Designed to meet the unique specifications of the application.
- **Specialized Machining**
  - OEM support

Industry Focus

- **Biomass & coal-fired power generation**
  - Pulverized coal, fly ash & bottom ash, lime systems, waste wood feed systems, pet coke feed systems, alternative fuels, organic materials.
- **Metals & minerals processing**
  - Calcium carbonate, activated carbon, talc & wollastonite, lime, gypsum, metallurgical coal, silica, diatomaceous earth, borax, sandpaper abrasives, limestone, perlite, pumice
- **Cement manufacturing**
  - Raw material & clinker feeding, dust collection systems, lime handling, alternative fuel power generation.
- **Ingredient & Agriculture processing**
  - Raw material processing, dust collection, waste disposal.
- **Wood products**
  - Pulp & paper, sawmills, charcoal, pellet mills, OSB & plywood board plants
- **OEM**
  - Specialty built rotary feeders and specialized machining for original equipment manufacturers.
- **Plastics & chemical Manufacturing**
  - Pharma production, roofing materials, vinyl production, various abrasive, corrosive applications.
- **Machining**
  - Specialized machining for wood production.

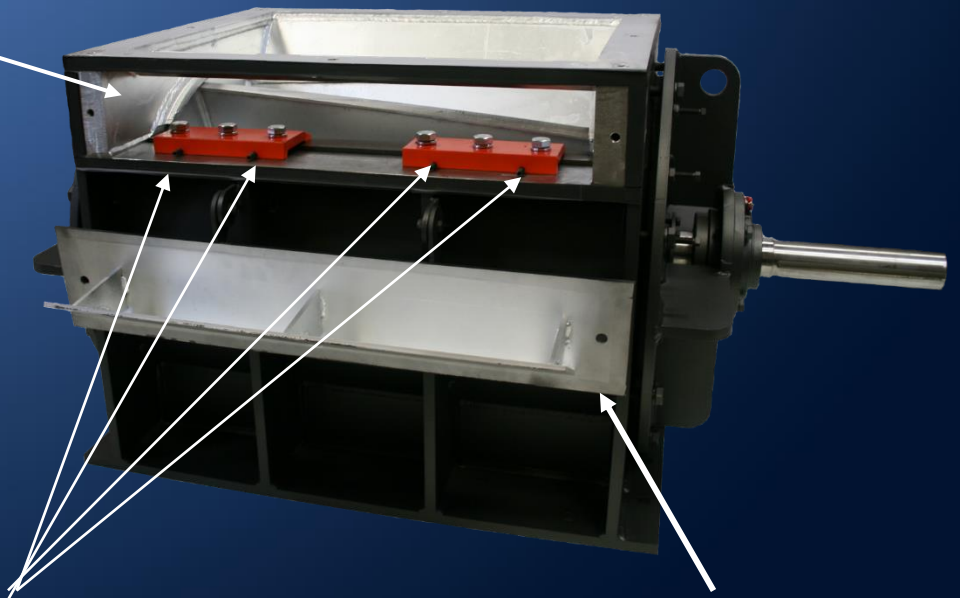
Product Overview-Rotary Feeder

Rotary Feeders

- Designed for feeding various types of organic materials into various material handling systems.
  - For applications requiring a hardened tool knife for shearing material.
- **Upgradable**
  - Built from mild steel or a special, abrasion resistant, USA sourced alloy.

Product Overview-Rotary Feeder

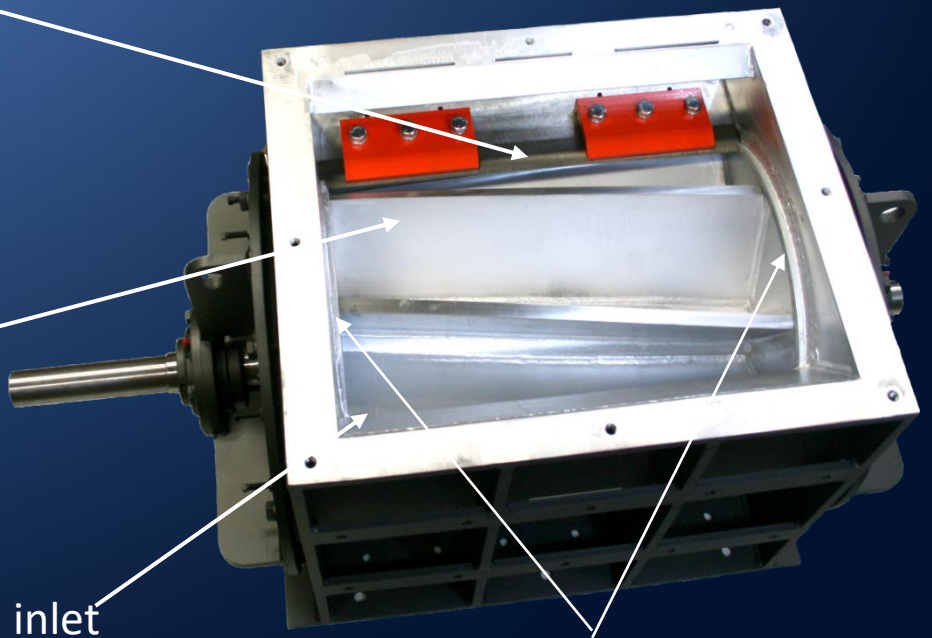
- Access point for adjusting or replacing the knife
- Note adjusting screws on the back of each knife clamp for adjusting knife-to-rotor clearance



Hinged knife door in open position

Product Overview-Rotary Feeder

- **Hardened tool steel upper knife**
  - Shown here with two clamps.
  - Larger feeders have three to four clamps.
- **Helical rotor design**
  - CCW or CW available.



Slope plate on the inlet opposite of the knife to help with material flow

"Eyebrows" over each end of the rotor to prevent fuel/dust from migrating over the rotor end

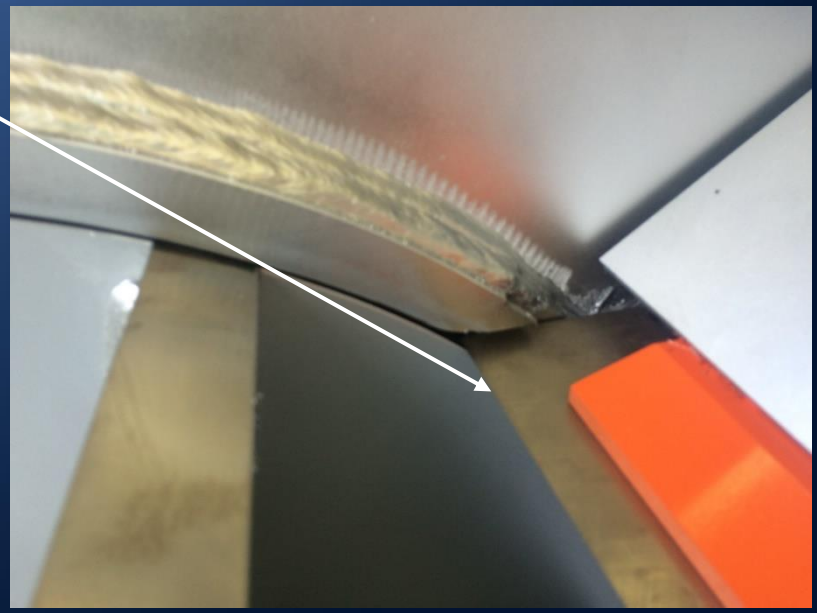
Product Overview-Rotary Feeder

Adjustment makes all the difference!

- Using a feeler guage- Recommend setting knife-to-rotor clearance to be 0.008”

- Ensuring your rotary feeder is equipped with a sharp, properly adjusted knife will:
  - Provide excellent shearing action
  - Extend the overall life of the feeder
  - Maximize throughput while minimizing maintenance.

  - **WARNING:** Keep hands and fingers away!!!



Product Overview-Rotary Feeder

Rebuilding-The ROI continues over the life of the product!

- Precision runs an active rebuilding business.
- We provide a budgetary quote for “standard rebuilds,” sight-unseen.
  - Subject to onsite inspection.
- Disassembly, inspection, and a report on the feeder’s condition with a detailed rebuilding quote will be provided after the unit has arrived onsite in Eugene, Oregon.
  - Customer pays the shipping
- Standard rebuilds are typically 70%-80% of a new feeder’s cost.
- Rebuilds carry a **new feeder warranty**
  - **12-months**

Typical scope of work:

Bore the feeder housing to a “clean-up” diameter
Ring-and-vane rotor with 3-6” of new steel on vanes and rotor ends; machine rotor OD to match new housing ID
Inspect and repair endbells
New knife; new bearings; new brass seals
Prime and paint

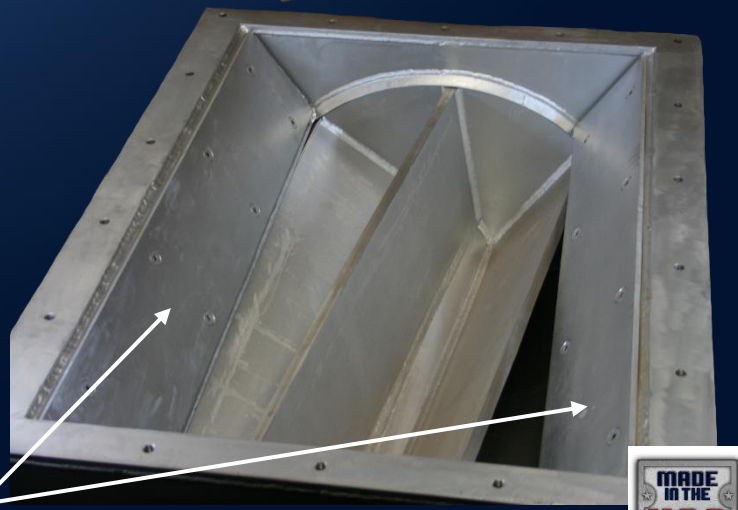
Common adders:

Replace shaft and/or barrel.

Product Overview-Rotary Feeder

Double-Slope Rotary Feeder (No knife)-

- Designed for feeding all types of dry products – ash, cement raw meal, cement raw materials, minerals
  - Volume per dollar is higher than for a rotary valve but internal clearances are not as tight
  - Not well-suited for pneumatic applications
- "Double-slope" inlet with replaceable abrasion-resistant wear plates on both sides
- Two configurations:
  - Helical rotor with V-shaped pockets
  - Straight-vaned rotor with U-shaped pockets



Slope vs. Knife makes this feeder perfect for powdery, abrasive, dry materials

Product Overview-Rotary Feeder

Cement Raw Mill Rotary Feeder- Big Volume!

- **Developed for the Cement Industry**
  - 150 to 1000 TPH
- **Compact Design**
  - Typically lower height than Loesche, Polysius, or FLS feeders
  - Upper transitions to “fill” the height envelope, to manage the offset in the European feeders, and provide a wear surface above the feeder itself
- **Open-Core/Hot-Gas Rotor Available**
  - Ports in both endbells and a “ring-in-a-ring” air seal to direct gas through rotor

PMCA-60 at Ash Grove Chanute *has run 5 million tons of material, 10,000,000,000 lbs., at 99.95% uptime over a two-year period*

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Product Overview-Rotary Valves

Rotary Valves:

- The difference between a feeder and a valve is the knife and how they are produced.
- **Let the revolution begin…**
  - The FIRST and ONLY rotary valve in the world that **does not use a casting** for the valve body
- Standard replaceable parts so the entire valve does not have to be rebuilt
  - Increasing the ROI over the life of the product.
- Exceptional materials and surface treatments chosen for maximum durability
- Components are machined to **precise tolerances** for **maximum performance** and to ensure replacement parts fit correctly.

NFPA Compliant:

PMV valves, along with PMDS self-cleaning valves, are compliant with NFPA 69 and NFPA 85

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Product Overview-Rotary Valves

Modularity provides Flexibility AND reduces cost!

- **Replaceable Parts…No Throw-Away Valves**
  - Built with a special abrasion-resistant "***tank armor***" alloy to provide greater life and more unform wear of components.
- **Interchangeable Parts**
  - Rotary Valve components by size are STANDARD! Do not need to worry about mixing older and newer valves components. Same model parts always fit!
- **Symmetrical Barrel Sides**
  - The right and the left side are identical and can be swapped for one another
  - Each barrel side can also be rotated CW or CCW and reinstalled…in most applications, wear tends to be concentrated at the top of the valve

Maintenance & rebuild costs are significantly reduced as PMM Rotary Valves are quickly rebuilt and/or worn components replaced, which reduced production downtime.

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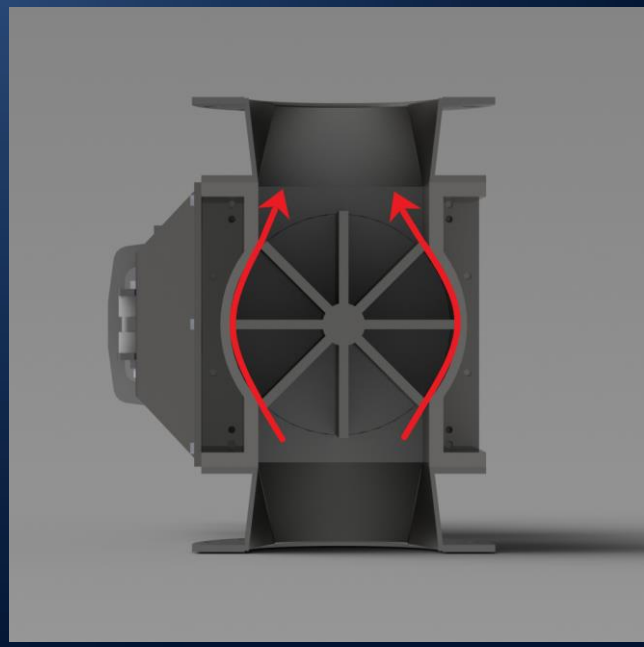
Product Overview-Rotary Valves

“Blow-By” or “Leakage” is a Problem!

Every rotary valve “leaks” when conveying air. We have made it our mission to minimize this leakage!

- Leakage grows over time as the internal components of the rotary valve are worn.
- Wear is a product of the amount of air leakage and the abrasiveness of the material.
- High-pressure situations with highly-abrasive materials effectively “sandblasts” the internal components, which accelerates wear.
- Highly abrasive materials can be handled with much less component wear if the valve is manufactured from the right materials and with special surface treatments that will protect the component.
- Limiting high-pressure air or surging air pressure as much as possible will also slow wear down.



Product Overview-Rotary Valves

Machining versus Casting:

- Machining allows us to achieve much tighter tolerances than a casted rotary valve can offer.
- The best casting process in the world cannot achieve the tolerances that machining can achieve.
  - **Tighter tolerances= Greater airlock capability!**

Product Overview-Rotary Valves

Self-Cleaning Rotary Valve

- A solution for feeding sticky or high moisture materials that might build-up in the rotor, including lignite coal
- Upper rotor pockets are a special, shallow u-shaped design
- Lower clean-out rotor is gear-driven to “sweep” the pocket of the upper rotor every rotation

Product Overview-Rotary Valves

Self-Cleaning Rotary Valve

- A variety of sizes and even double-lengths available!
- Say “Good-Bye” to production systems plant stoppages due to material blockages!
- Maintain a consistent feed rate to the mill.
- Bi-directional!
- Modular
- Machined, which provides greater airlock functionality!

Production Specifications:

Material Size: Up to 3”

Moisture Content: 20%+

Throughput: Up to 100K lbs./per hour

Material Temperature: Up to 1,000 degrees F.

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Product Overview-Rotary Valves

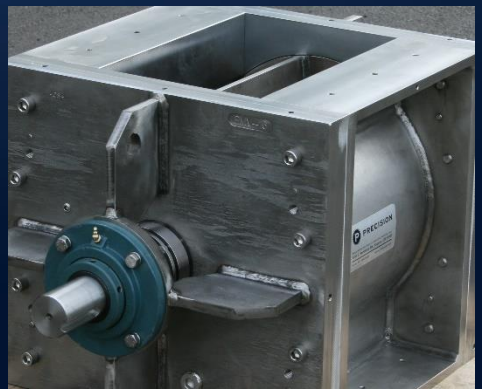
We offer a number of specialized rotary valves for specific applications

Micro Rotary Valves: 2”-4”

Double Length

Classified!

Stainless Steel Rotary Valves



Side Entry Rotary Valves

Product Overview-Screw Conveyors

Screw Conveyors, Flights, Troughs, and/or Complete Systems- The more difficult the better!

- The Application ALWAYS determines what we build and how it's built!
- Each Screw Conveyor and related components are designed to maximize throughput and functionality while reducing wear!
- We do not take a "one size fits all" approach!
- Screw conveyors are constructed from a variety of material types:
  - Mild steel
  - AR400 or AR500
  - Tri-Braze-Abrasion resistant 500 Brinell alloy.
  - Tricon Super-C (chromium carbide)- For this toughest applications.
  - Stainless steel

Configurations:

- Capable of having various flight configurations on the same pipe.
- With/without trough systems.
- Flanged drives or bushing & shafts
- Hard facing surface treatment.
- Variable pipe and flight sizing.

REBUILDABLE!!

Product Overview-Screw Conveyors

When it comes to building Screw Conveyors, nobody is as precise!

We build Screws that will simply outlast the competition!

Product Overview-Screw Conveyors

CAPEX Improvements- Helix Flight Press

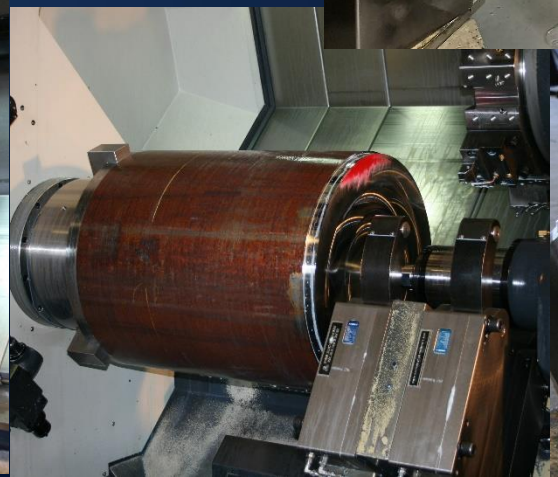
- PMM's Screw conveyor business has grown so much, we made a significant investment in technology by acquiring a flight press from https://www.helixflight.com/.

- Reduces flight pressing labor by 75%!
- **March/2022: Came online and started pressing metal.**

Product Overview-Custom Machining

PMM's Machinist are among the best "craftsman" in the region. Combine this level of knowledge and experience with top-of-the-line CNC lathes and milling equipment, and many of the country's top OEM have come to rely on PMM to support the needs of their business.

If it is made of metal and it can be machined, welded, fabricated, formed and/or bored, **PMM is the preferred provider.**



Product Options- Flexibility is the key!

Optional Equipment

- Transitions (upper & Lower)
- Gearmotor
- Zero speed sensor
- VFD
- T-Injectors
- Flanges
- Air purge kits
- Rotor types:
  - Beveled
  - Helical
  - Straight
  - Rubber tipped

Made in the USA!

We Never Compromise!

We build components that have been designed and engineered for each specific application.

The end result is a material handling component that **operates longer**, with **greater functionality** while **providing superior throughput** than the competition!