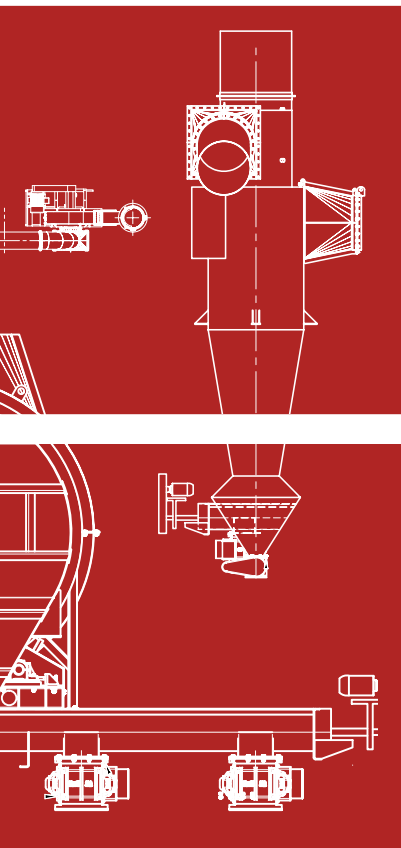


# Rotary Dryers & Coolers

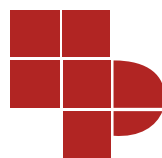
Heyl Patterson rotary dryers and coolers are among the most versatile powder and bulk solids processing equipment available. Considered the workhorses of the powder and bulk solids processing industry, they efficiently handle a wide range of materials from powders, bulk solids and liquid sludges to the most demanding material handling applications.

Our rotary dryers and coolers can be configured to meet a wide range of specifications and applications. Custom configurations such as direct and indirect heat sources and parallel flow or counter flow designs provide uniform drying and cooling. Regardless of the material properties you need to process, Heyl Patterson will design and manufacture a rotary dryer and cooler to meet your application objectives.



## Typical Industries & Applications:

- Agricultural/Hemp
- Alternative Fuels
- Biomass/Torrefaction
- Ceramics
- Chemicals
- Coals
- Environmental
- Fertilizers
- Filter Cakes & Sludges
- Fly Ash
- Food
- Glass
- Lithium Ore
- Metals
- Mining & Minerals
- Petroleum
- Plastics
- Pulp & Paper
- Waste Recycling



**HEYL PATTERSON**  
THERMAL PROCESSING

## Features & Benefits:

- Versatile, highly-efficient, low-energy use design for accelerated processing without product degradation
- Adjustable retention time for precise temperature and moisture control
- Air-cooled designs process non-dusty granular or crystalline materials
- High capacity design accommodates difficult-to-handle materials and variations in feed surges with little flow resistance
- Full penetration shell welds, shell alternating seam welds, continuous flighting welds, and solid steel tire, trunnion and thrust rollers for low abrasion wear on rotating components and long-lasting durability



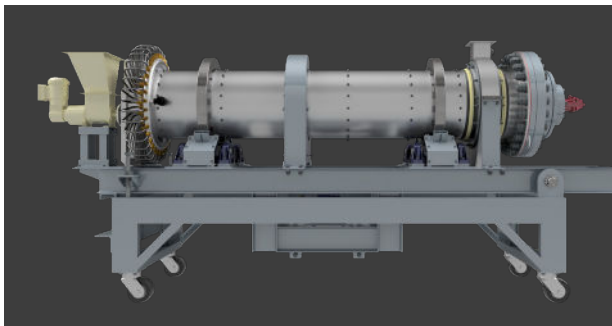
Heyl Patterson rotary dryers & coolers can be direct-fired with natural gas, LPG, fuel oils or coal and indirectly heated using steam. Waste heat sources such as furnace exhaust or boiler flue gas can also be utilized.



## Options:

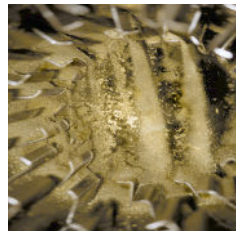
### Variable Speed & Inclination

Custom designed rotary drums can provide short or long retention times for reaction processes through rotation speed and inclination and declination.



### Spiral & Lifting Flights

Straight, saw, gusseted or completely customized flights. Alternating 45° and 90° tip flights in all rows provide uniform showering through the shell cross-section, while alternating rows of flights provide uniform showering along the shell length. This reduces short circuiting of the gas through the shell to maximize drying performance.



### Cooling Designs

Cooling design options include counter-current air swept, internal or external water-cooled, or a combination of air and water-cooled.

### Size & Capacity

Sizes available up to 16 feet in diameter and over 100 feet in length to meet the most demanding process requirements.

### Air Flow Systems

Available air flow systems include induced-draft, forced-draft and combination air flow systems.

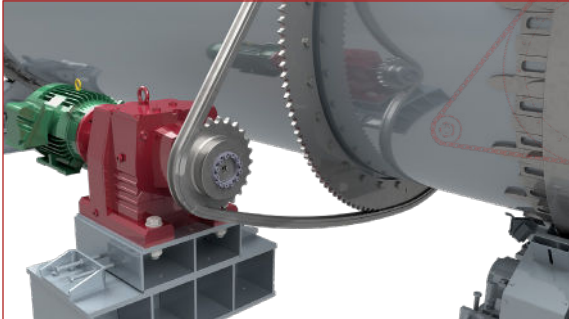
### Control Systems

Burner management by complete PLC-based process controls are available.

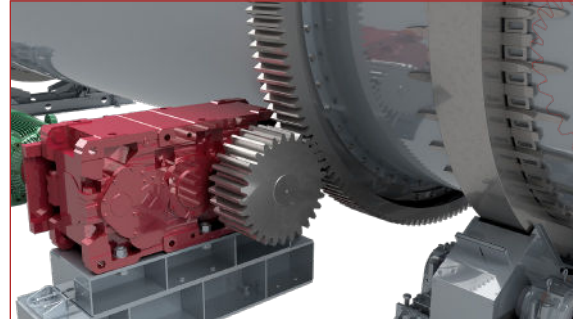
## Chain VS. Gear Drive Systems

Heyl Patterson rotary dryers and coolers can be designed with either a chain and sprocket drive or a gear and pinion drive. Chain and sprocket drives are more economical and are suitable for smaller rotary drums. Gear and pinion drives are ideal for heavy-duty drums, providing better wear for demanding applications.

Chain & Sprocket



Gear & Pinion



*Standard designs utilize both direct and indirect heat sources and are available in either parallel flow or counter flow configurations.*

### Rotary Shell Features:

- Full penetration shell welds, shell alternating seam welds and thickened shell plate at tire and drive support locations
- Multiple lifter flying designs including 90°, 45°, straight, saw and gusseted
- Various shell drive systems including chain and sprocket, gear and pinion, hydraulic, and friction designs



### Support System Features:

- Solid steel, through-hardened tires and trunnion with solid steel thrust rollers for reliability and long-lasting durability
- High and low temperature tire designs
- Shaft mounted support system with separate and unitized frames



## Complete Customization & Integrated Systems

From designs to handle specific process atmospheres and multiple heating zones for temperature profiling, to special materials of construction and automated PLC-based units, Heyl Patterson rotary dryers and coolers are expertly designed for productivity, reliability, and profitability.

Heyl Patterson can provide complete systems including material feeding equipment and air pollution and emissions control equipment such as baghouses, scrubbers, cyclones, and thermal oxidizers.



# Engineering & Manufacturing

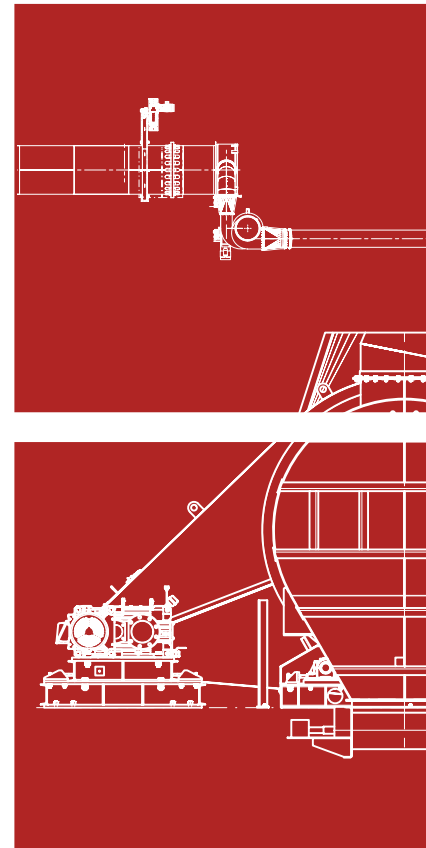
- Equipment designs are verified using Finite Element Analysis (FEA) to ensure trouble-free service and long life
- 3D equipment modeling
- State-of-the-art manufacturing facilities on 3 continents with robotic cutting and welding
- Manufacturing expertise working with mild steel, various grades of stainless steel, duplex steels and other exotic alloys for specialty applications
- Welders certified to ASME & AWS standards
- ISO 9001:2015 certified



## Lab Testing

Be confident that your processing equipment is efficient with CPEG's 15,000 ft<sup>2</sup> state-of-the-art test lab. With our lab, you have access to the most extensive testing capabilities in the industry. Multiple pieces of equipment can be combined for multistep and multistage testing to simulate field operation, validate new equipment designs, and provide complete process solutions. Combined with our full analysis of material characteristics and measurements of material behavior in specific processing applications, you are assured an efficient, reliable and safe solution, all backed by our process warranty.

Field testing with rental equipment is available when lab testing would not effectively simulate process operating environments.



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