

Fly Ash Beneficiation

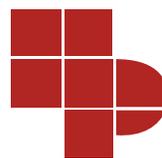
A common waste product, fly ash can be mitigated with the proper drying and calcining equipment. Heyl Patterson's rotary dryer and calciner systems are highly efficient in the fly ash beneficiation process. Our drying and calcining equipment can reclaim fly ash from slurry ponds and landfills by recycling it into a consistent, high-quality product for use in the concrete industry and other industrial applications.

Recycling and encapsulating fly ash into concrete, grout, gypsum and other building and construction products provides many well-documented benefits. From improved workability and durability of concrete to a more cost-effective and sustainable product, Heyl Patterson dryers and calciners deliver consistent process beneficiation of both wet and dry fly ash.



Industries & Applications:

- Ready-Mix Concrete
- Concrete Block & Brick
- Cement & Grout
- Asphalt & Structural Mineral Filler
- Soil Stabilization
- Other Specialty Applications



HEYL PATTERSON
THERMAL PROCESSING

Rotary Dryers

Heyl Patterson rotary dryers are customized for each individual application and can handle a wide variety of bulk solids material with varying moisture content, including wet and dry fly ash. High heat and mass-transfer rates produce the desired final moisture requirement, resulting in a consistent high-quality product that can be used as a direct, cost-efficient replacement to general purpose portland cement in most applications.



Features:

- Accelerated processing without product degradation
- Low abrasion wear on rotating components
- Wide application range
- Customized for every application
- Low energy consumption
- High capacity and heat recovery for improved efficiency
- Small flow resistance
- Variable speed & inclination
- Various flighting designs
- Custom materials of construction such as carbon steel, stainless steel & special alloys
- Emissions control and product cooling

Rotary Calciners

Heyl Patterson rotary calciners provide drying and calcining of fly ash through an indirect heat source. Indirect heating technology maintains process atmospheres including inert, oxidizing, and reducing. It also provides complete separation of the heat source from the fly ash, resulting in the highest quality product without degradation from heat sources.

Features:

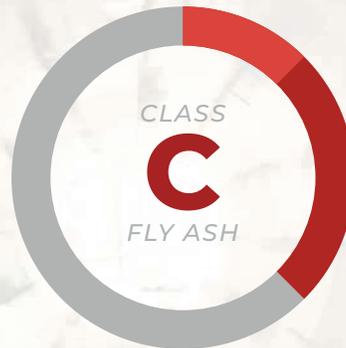
- Feed systems featuring closed hoppers or pressurized tanks
- Expandable and dust-tight seals for special atmospheres
- Custom internals for maximum heat and mass transfer
- Plug flow operation for product uniformity
- Movement can be parallel flow or counter flow
- Off-gas handling and collection systems
- Electric, fossil fuel, or waste heat sources
- Heat zones to provide independent temperature control areas
- Integral coolers to cool prior to discharge



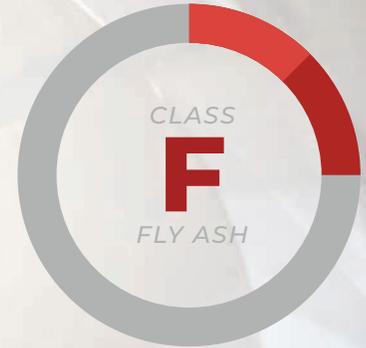
Recycle, Reclaim & Reuse: Benefits of Fly Ash Beneficiation

Whether recycling and encapsulating current fly ash production or reclaiming legacy fly ash from ash ponds or landfills, Heyl Patterson's Fly Ash Beneficiation equipment delivers proven solutions.

- Meet the ASTM C-618 qualification for loss of ignition (LOI)
- Provide an environmentally-friendly solution for recycling fly ash
- Reduce moisture, hydrate content, loss of ignition (LOI), activated carbon, ammonia, and other contaminants for quality, reusable fly ash
- Separate heavy metals such as arsenic and mercury
- Eliminate ash ponds, landfills and subsequent air-space expenses
- Consistently deliver the highest quality fly ash product based on specific application requirements



Typically used at dosages of **15 to 40 %** by mass



Typically used at dosages of **15 to 25 %** by mass

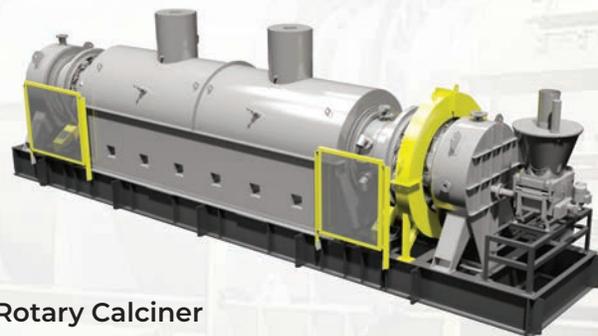


Expertly-Designed for Fly Ash Beneficiation

Heyl Patterson fly ash drying and calcining systems are designed to reduce air velocity and ash carryover and are specifically engineered to process fly ash. This provides a consistent product that is easy to transport, store and handle.



Rotary Dryer



Rotary Calciner

Additional Fly Ash Beneficiation Equipment

In addition to rotary dryers and calciners, Heyl Patterson can provide full system integration of product coolers, milling/classifiers, conveyors, feeders, dust collection systems and wet scrubbers that can be used upstream in the fly ash beneficiation process.



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 fly ash is being handled efficiently with CPEG's 15,000 ft² 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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