

IF YOU HANDLE SAND IN YOUR FOUNDRY, YOU NEED KLEIN IN YOUR FOUNDRY



PLUG FLO® SINGLE PF-100
PNEUMATIC TRANSPORTER



STATORMIX™
BATCH SAND MIXER



PLUG FLO® DUAL PF-100
PNEUMATIC TRANSPORTER



VIBRATORY BATCH
SAND MIXER



PLUG FLO® PF-45
PNEUMATIC TRANSPORTER



PLUG FLO® T-TYPE PF-504
HIGH TEMP
PNEUMATIC TRANSPORTER



FKS FLUID BED
SAND COOLER-SIFTER

About Alb. Klein Technology Group Inc.

If you operate a foundry, use sand and binder to make cores, or if you would like to improve your sand handling operations – you will want to check us out. Our experience and know-how accumulated during all these years are at your complete disposal.

Two generations ago, the Klein enterprise was just a workbench in a small village blacksmith shop. And that goes way back to 1928 when Albert Klein, son of a miner and our founder, started to make and sell sheet metal products for the various factories surrounding his home village. Always interested in how to make things better, Albert Klein soon became a specialist in pneumatic transporter systems serving the cement and lime industries. Branching out into the foundry industry – to move sand by compressed air – he soon realized that conventional transporters, where the material is fluidized for transporting in a pipeline, are not suitable for sand because of the excessive wear of pipelines and degradation of the material caused by the high velocities required to move the sand.

As a result, the Klein PLUG FLO® sand transporter was born – and because of its successful design it became popular in plants worldwide. As a successor company, the Alb. Klein Technology Group today offers a well rounded program of engineered process equipment and expertise covering every phase of the handling and treatment of sand in foundries and related facilities.

BATCH MIXERS

Klein STATORMIX™ Sand Mixer

The Klein STATORMIX™ is a high-efficient batch mixer for precision sand and resin mixing needed for the production of higher strength cores. It also produces a smoother sand flow into the core box for faster core release at shakeout. The STATORMIX™ batch mixers are also easy to operate, calibrate, clean, and maintain.



STATORMIX™
BATCH SAND
MIXER

Advantages:

- Higher strength cores – accurate metering
- Longer production life and abrasion resistant chamber
- Reduced maintenance – automatic cleaning cycle and easy access to parts

Options:

- 3 sizes available: Model 22, Model 52 and Model 122 to meet various batch volumes and required cycle times

Klein Vibratory Batch Mixers

The Klein Vibratory Mixer is the workhorse of batch mixers. No other mixer can provide as many years of worry-free accurate, precision quality mixing operation. Wear parts are minimal and have a long-life as well. This mixer is ideal for cold box or hot box core making applications.

This mixer was developed to ensure economical usage of resin to efficiently mix, blend or coat sand for cores and molds. Less binder use means a better core with a smooth surface, less gas from binders, less vent plugging, easier core shakeout, less core box sticking and reduced operating costs. Precise metering of mix components and fully automatic controls ensure the desired quality of mix with a standard deviation possible of less than 0.1 percent.

Advantages:

- Higher quality cores (with less binder)
- Reduced resin consumption
- Easy to install, clean, maintain – no moving parts
- Automatic operation!

Options:

- Single or double bowl configurations
- Variety of bowl sizes available to meet various batch volumes and required cycle times

PNEUMATIC TRANSPORTERS

Klein PLUG FLO® Pneumatic Transporter Systems

Klein PLUG FLO® Pneumatic Transporters convey foundry sand and other dry granular material at low velocities which significantly reduces material degradation and pipeline wear. They are virtually maintenance-free — providing years of reliable service at greatly reduced operating costs.

Other pneumatic conveying systems require air-fluidization and use problematic pipeline air boosters to transfer granular material at damaging high velocities. This causes significant sand degradation and pipeline wear.

The Klein PLUG FLO® transporter system uses the natural properties of the material to achieve a more efficient and gentler means of material transfer. To transfer materials, compressed air pushes slugs of material formed at the outlet of the blow tank through the pipeline at low velocities — typically 100 to 400 feet per minute. The Klein PLUG FLO® system makes it possible to transport sand through pipe lines with practically no material degradation and nominal pipeline wear. Moreover, the Klein PLUG FLO® systems require only the use of lower cost Schedule 40 piping and fittings, which means a more reliable operation and direct cost-savings.



PLUG FLO® SINGLE PF-100
PNEUMATIC TRANSPORTER

Advantages:

- Reduced downtime/operating costs — conveyed materials, wear parts, and pipelines last longer
- Increased energy savings — low air consumption
- Reduced maintenance — simpler system
- Better quality cores, molds, and castings

Options:

- Single-vessel or dual-vessel transporter systems
- 3", 4", or 5" diameter transfer pipelines
- Klein PF-100 Type transporters for cool dry sand; Klein PF T-Type transporters for hi-temp dry sand

Klein PLUG FLO® PF-45 Low Profile Pneumatic Transporter

Using the incredibly reliable and gentle (meaning less wear on sand transfer piping and no sand degradation) exclusive Klein PLUG FLO® pneumatic conveying technology, the Klein PLUG FLO® PF-45 is an ideal replacement for the often unreliable, high-maintenance and high-cost conveyors such as bucket elevators, screw conveyors and other mechanical systems. Sitting only about 3 feet in height, the Klein PLUG FLO® PF-45 low-profile pneumatic transporter is a great choice for tight spaces under a material feed hopper and is a cost-effective solution for applications where you have lower material transfer capacities and shorter distance material transfer runs.



PLUG FLO® PF-45
PNEUMATIC TRANSPORTER

Advantages:

- Compact design — fits in tight spaces
- Easily installed and low maintenance
- Simpler straight-forward controls

Klein S-Type Pneumatic Transporter for Fine Sand and Powders

The Klein S-Type Pneumatic Transporter systems are ideal for conveying fine grained sands and powdery products (including bentonite and iron oxide), or granular materials with a high percentage of dust.

Unlike conventional dilute-phase (fluidized) systems, the Klein S-Type transporter transfers high-density powdery material with low air volume and low velocity. There are no moving parts which means negligible wear of transporter parts; the transfer pipeline abrasion is minimized; and maintenance is minimal.

Also, continuous material flow results in more cycles, which increases material transfer capacity. Multiple installations can be arranged to provide continuous product flow, resulting in considerable energy savings over long conveying distances.



S-TYPE
PNEUMATIC TRANSPORTER

Advantages:

- Reduced downtime/operating costs — wear parts and pipelines last longer
- Increased efficiency (cycles/capacity) — continuous material flow
- Increased energy savings — low air consumption
- Reduced maintenance — no moving parts and fully enclosed system
- Compact design — space saving

Options:

- 9 different vessel sizes for a variety of materials and capacities
- Cool (below 120° F) and high temperature systems
- 3", 4", or 5" diameter transfer pipelines

Klein FKS-Type Fluid Bed Cooler-Sifter

Using a highly efficient heat exchanger and a low air volume aerator, the Klein FKS-Type Fluid Bed Cooler-Sifter effectively cools sand while gently handling it; thereby maintaining sand integrity and minimizing the generation of fines and dust.

The FKS is both an energy saving and economical concept as only a small amount of air is used to fluidize the sand. There is exceptionally good contact between the sand particles and the heat exchanger tubes.

Advantages:

- Gentle material handling means material degradation is practically eliminated
- Low power consumption for more energy savings
- Simpler, compact design – reduced floor space

Options:

- Built to meet a variety of capacity needs by adding sections for larger capacities



FKS FLUID BED
SAND COOLER-SIFTER

HEATER / COOLERS

Klein KU-Type Gravity Heater/Cooler

The Klein KU-Type Gravity Heater/Cooler is designed for efficient material heating or cooling in the smallest volume. This gravity unit can be installed wherever conditioned sand is required for process control, including tempering core sand before mixing, cooling of hot reclaimed sand, and conditions where loss of fines is undesirable. The KU-Type is ideal for sand and other granular and free-flowing bulk materials.

The operation of the KU-Type Gravity Heater/Cooler is unique, as material flow through the unit is equally distributed across the entire cross section and controlled by a metering device designed to give rate capacity and even material flow. This results in the most consistent heating or cooling.

Advantages:

- High efficiency heat transfer
- No cooling air required (no air emissions and no separation of grain fineness)
- No product degradation (due to gentle material handling)
- Requires minimum floor space (compact vertical design)

Options:

- Built to meet a variety of capacity needs by adding sections
- Heater or Cooler

Your PLUG FLO® system has clearly demonstrated, in theory and by test results, that it is superior and has overcome the associated problems with conventional dense-flow systems.

- D.J., Pell City, AL



GREEN SAND MANAGEMENT SYSTEM

- Systems for the controlled premoisturing on belt applications
- Moisture control systems for coolers and continuous mixers, cooling and shakeout drums
- Moisture control systems for batch mixers
- Detection of mechanical properties including compactability, shear- and compression-strength
- Weighing equipment for belt and hopper scales and water metering control systems
- Silo level control and monitoring
- Custom built control systems
- Laboratory equipment



Advantages:

- In-depth analysis and expert advice on your system
- Project planning for system updates or replacement
- Complete system supply and assembly
- Installation, start up and commissioning
- Service support and maintenance
- Training

I wish all our vendors were as good as Klein, as my job would be a lot easier. Your equipment is built the way we want it and performs as promised. When we call you for service your people are here almost instantly. They show up with the right tools, have all the documentation for troubleshooting, and quickly get us back up-and-running again.

- J.M., Cleveland, OH

My tardiness in writing does not reflect the appreciation I have for your team's professionalism, quick response, product knowledge and system design. It was a pleasure working with all of your people – they all were excellent and made my job easy. I will not hesitate to use your company for any future work.

- R.S., Wooster, OH



ENGINEERED SAND HANDLING SOLUTIONS

Our expertise is in the design, installation and operation of foundry systems with an emphasis on sand handling, sand heating, sand cooling, pneumatic conveying, mixing and reclamation.

Klein will partner with you to develop custom solutions to improve your operation. We offer consulting services to analyze your current operation and develop solutions to take your operation to the next level.

Our proven sand handling solutions are a result of decades of foundry experience and designing systems that simply move sand more reliably, efficiently, and cost effectively.

We are known for developing high performing process solutions that are long-lasting and easily maintained even in the harshest foundry environments.

Advantages:

- Straight-forward consultative approach to understanding clients' complex needs and offering practical solutions
- Several decades of foundry industry and sand handling systems experience
- Will schedule and deliver according to our clients' project timelines
- Partnerships and affiliations with many other foundry equipment/systems providers allows us to provide integrated solutions

“ We couldn't be happier with the performance of the Klein PLUG FLO® sand transporters we installed in the fall, 2014.

- K. Eck, CFM Corporation, Blackwell, OK

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