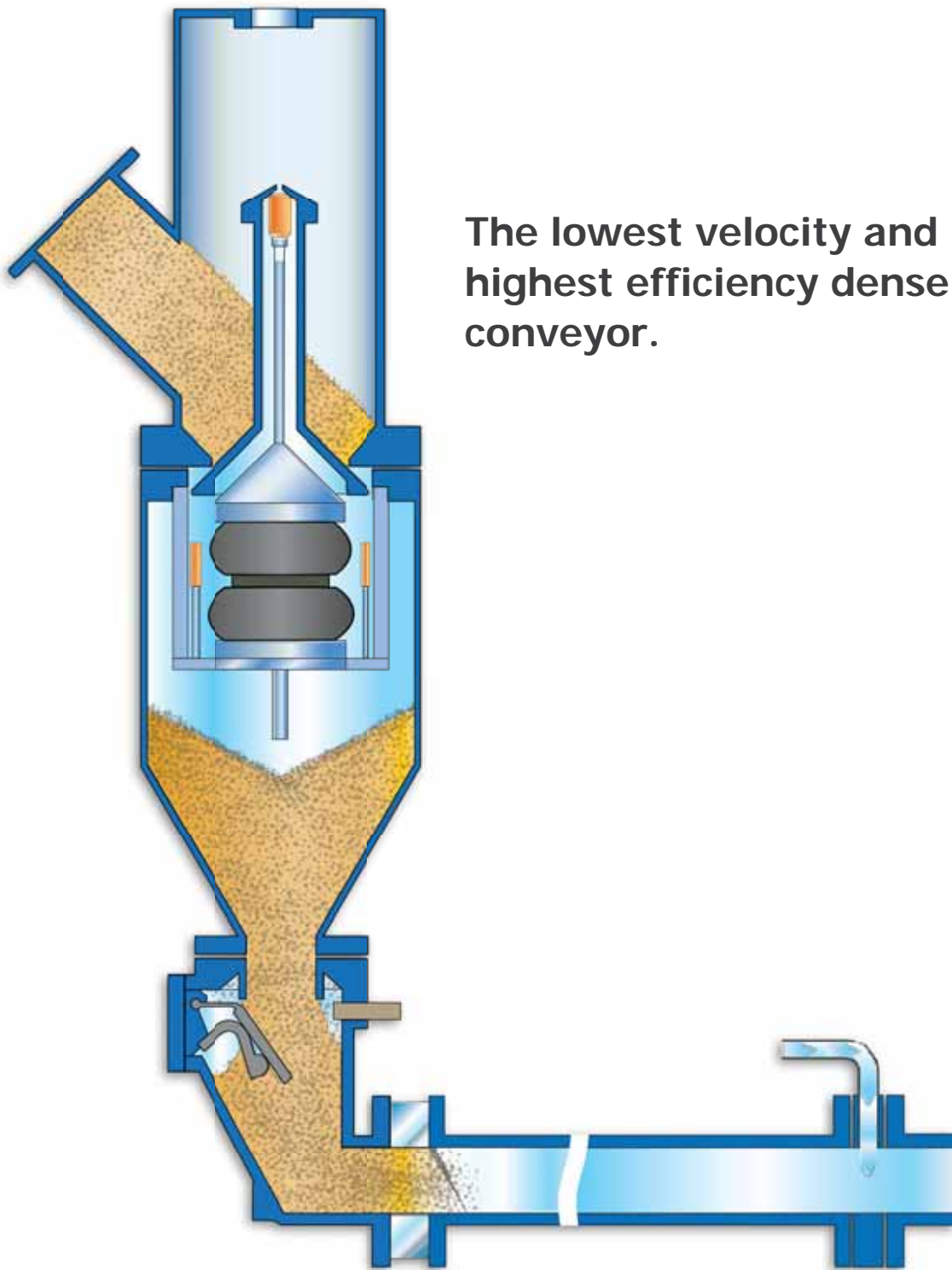


Klein Plug Flo[®] Pneumatic Conveyors

Ideal for foundry sand and abrasive material conveying



The lowest velocity and highest efficiency dense-phase conveyor.

A Sand Conveyor Like No Other...

Unlike conventional "dense-phase" pneumatic conveying systems, the KLEIN PLUG FLO® system requires no fluidization or boosters to move sand or other abrasive materials through a conveying pipe line.

Instead, the PLUG FLO® system uses the natural flow properties of the granular sand to achieve efficient, low-velocity transport, typically 100 - 400 ft/min (0.5-2 m/s). The PLUG FLO® conveyor's unique design features make it possible to transport sand and other free flowing materials through pipelines with essentially no material degradation and minimal pipeline wear.

This careful and gentle transport of sand results in a number of quality and cost saving advantages:

- Use 45% less air and energy compared to other "dense-phase" conveyors.
- Preserve the sand quality and size, eliminating dust generation.
- Make better quality cores, molds and castings when you start with better sand.
- Use less resin in your cores when you prevent dust generation in your sand.

"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."

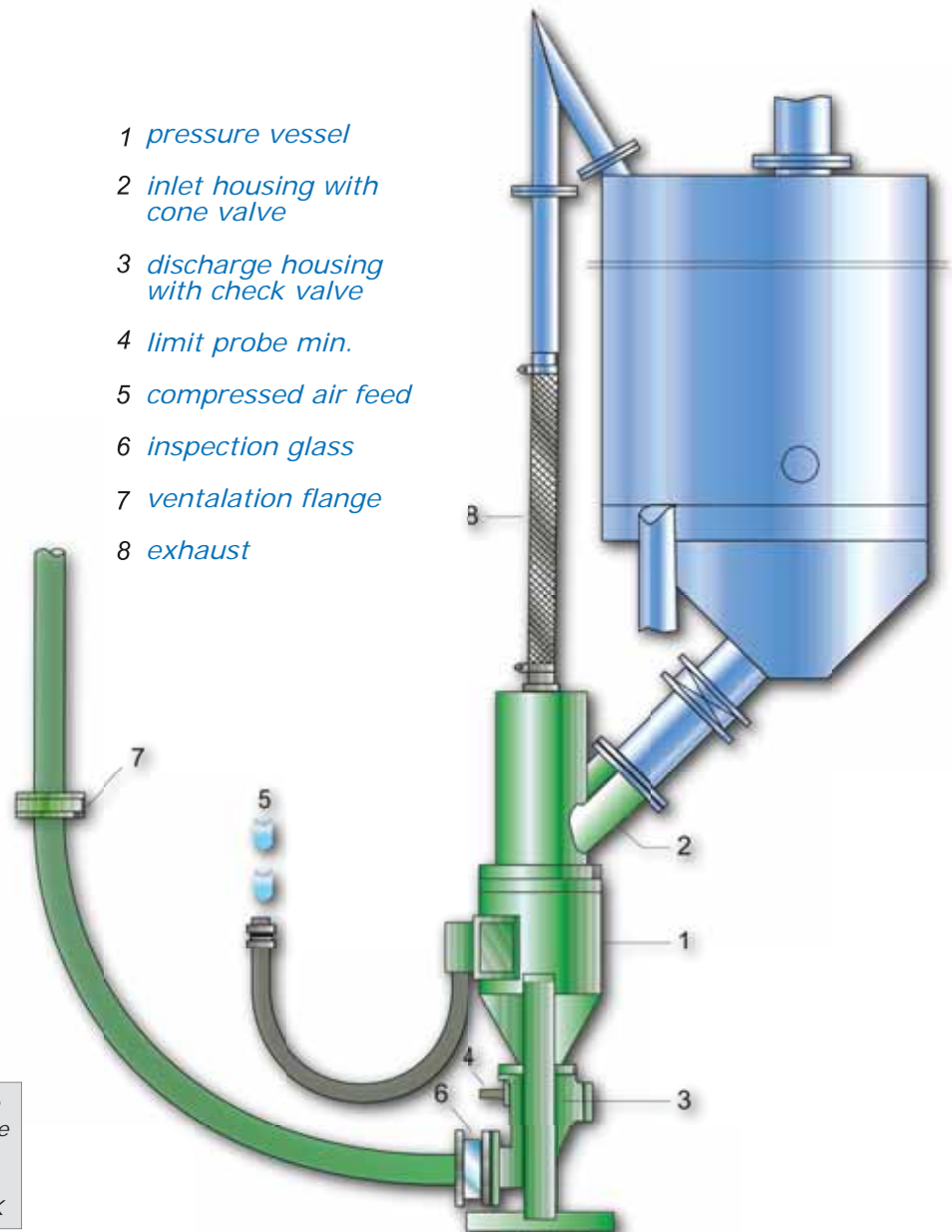
-D.J., Pell City, AL

Standard Model Sizes:

Model Series	Pipe Size	Capacity
PF-100/3	3 inch sch 40	5 - 9 TPH
PF-100/4	4 inch sch 40	6 - 10 TPH
PF-100/5	5 inch sch 40	9 - 11 TPH
PF-100 Dual	5 inch sch 40	11-20 TPH

* Capacity varies based on conveying distance
And pipeline design.

- 1 *pressure vessel*
- 2 *inlet housing with cone valve*
- 3 *discharge housing with check valve*
- 4 *limit probe min.*
- 5 *compressed air feed*
- 6 *inspection glass*
- 7 *ventilation flange*
- 8 *exhaust*



"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

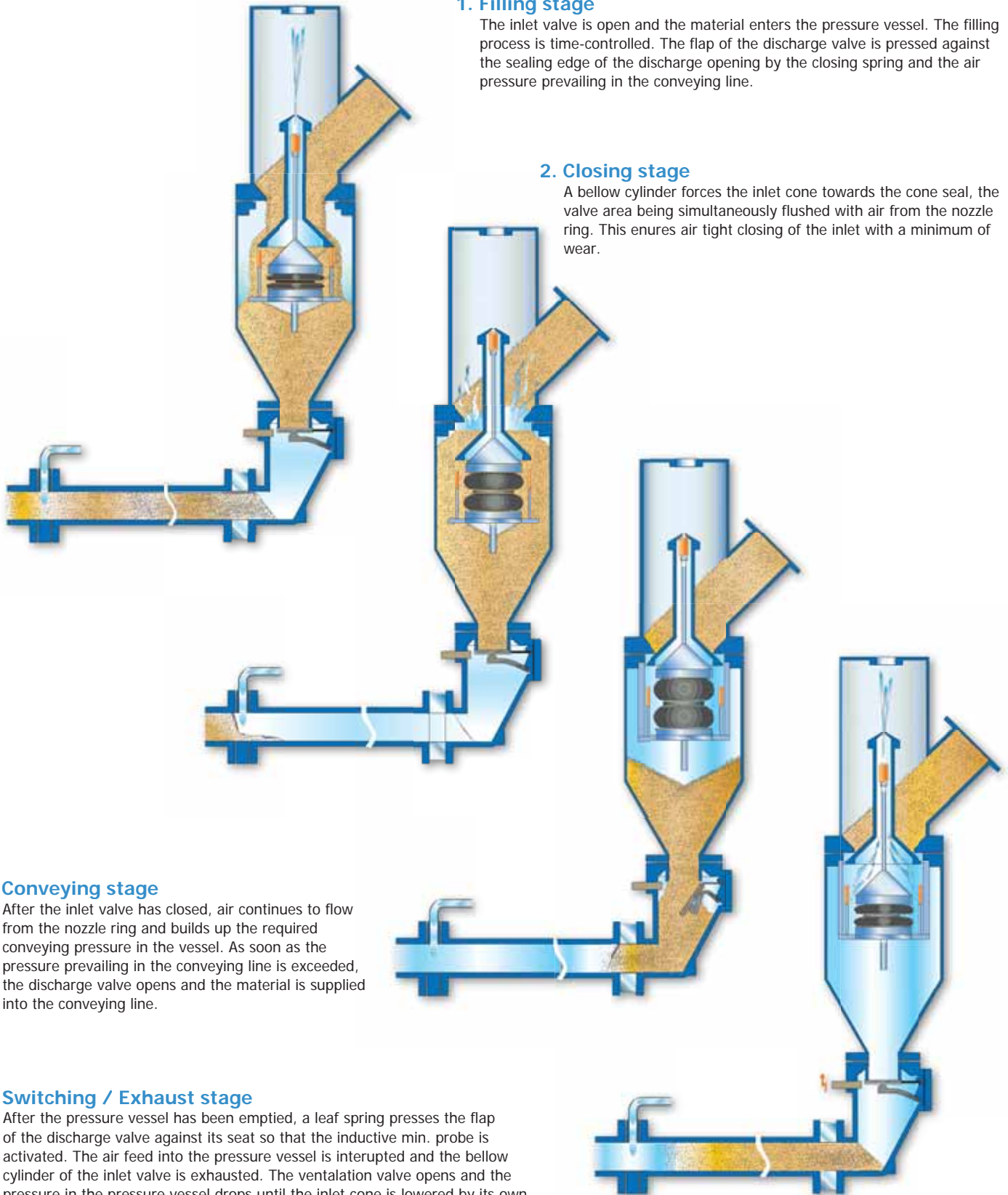
The operating mode of KLEIN PLUG FLO[®] conveyors: continuous, simple, smooth

1. Filling stage

The inlet valve is open and the material enters the pressure vessel. The filling process is time-controlled. The flap of the discharge valve is pressed against the sealing edge of the discharge opening by the closing spring and the air pressure prevailing in the conveying line.

2. Closing stage

A bellows cylinder forces the inlet cone towards the cone seal, the valve area being simultaneously flushed with air from the nozzle ring. This ensures air tight closing of the inlet with a minimum of wear.



3. Conveying stage

After the inlet valve has closed, air continues to flow from the nozzle ring and builds up the required conveying pressure in the vessel. As soon as the pressure prevailing in the conveying line is exceeded, the discharge valve opens and the material is supplied into the conveying line.

4. Switching / Exhaust stage

After the pressure vessel has been emptied, a leaf spring presses the flap of the discharge valve against its seat so that the inductive min. probe is activated. The air feed into the pressure vessel is interrupted and the bellows cylinder of the inlet valve is exhausted. The ventilation valve opens and the pressure in the pressure vessel drops until the inlet cone is lowered by its own weight, thus clearing the passage for the next filling cycle.



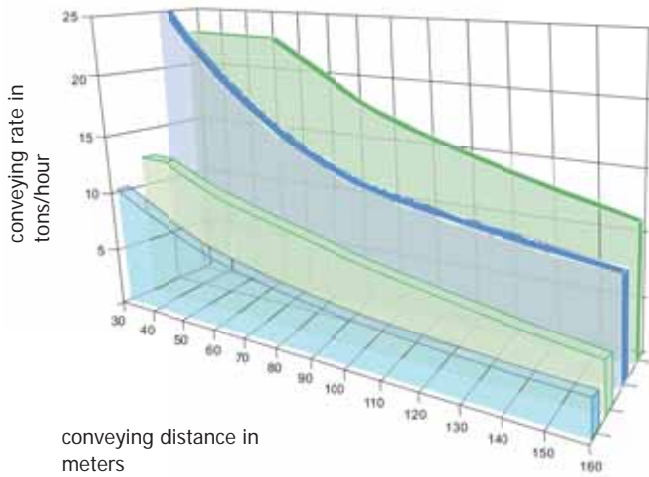
PF-100 Dual
Capacity up to 20 Tons/hr



PF-100/3 Single
Capacity up to 9 Tons/hr

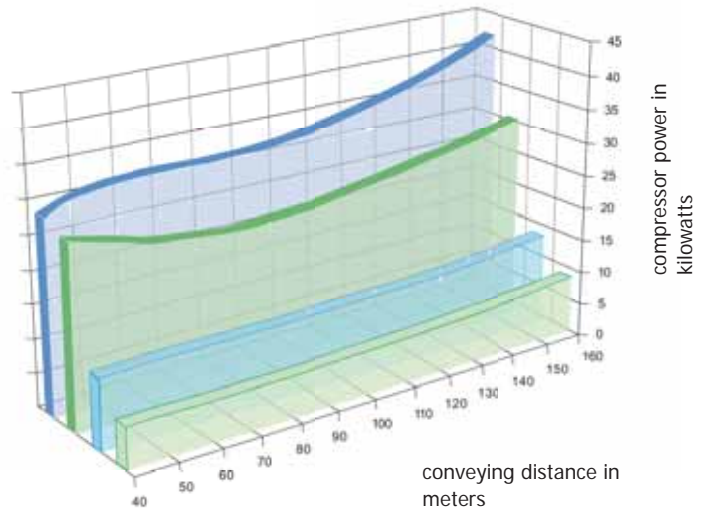
Greater capacity using less energy compared to conventional conveyors

Achievable conveying rates of conventional sand conveyors compared to the PF-100



- Dual PF-100/5, 5" Pipe
- T-type conveyor, 5" Pipe
- PF-100/3, 3" Pipe
- T-type conveyor, 3" Pipe

Energy saving features of the PF-100 compared to conventional conveyors



- T-type conveyor, 5" Pipe
- Dual PF-100/5, 5" Pipe
- T-type conveyor, 5" Pipe
- PF-100/3, 3" Pipe

The above mentioned figures are related to the achievable conveying rate of a conventional conveyor over a certain conveying distance and the electric energy consumed by the compressor to achieve this conveying rate. The comparison illustrates the saving potential of the Plug Flo®.