

Pneumatic conveying system for powder and granular materials that abhor crushing and powdering

THRUST FLOW

Thrust Flow provided by Denka Consultant & Engineering Co., Ltd., (DCE) is a low-speed and high solids loading ratio pneumatic conveying system that can convey powder and granular materials that abhor crushing and powdering.

The system cleared the various conditions required for the conveyance of powder and granular materials with abrasiveness and powder and granular materials for food that abhor crushing and powdering, with a low-speed plug type conveyance mechanism.

Since the fluidization mechanism is incorporated into the blow tank, the system can convey powder and granular materials at high solids loading ratio and low-speed.

By injecting compressed air into the middle of the piping, natural soft plugs are installed in the pipe.

Features of Thrust Flow

- Due to the low speed conveyance (from 0.5[m/s])
 - (1) The system does not crush powder and granular materials.
 - (2) The system does not accelerate the adherence of powder and granular materials.
 - (3) The system minimizes the abrasion of the piping.
 - (4) The system minimizes the amount of air required for conveyance.



Comparison of the percentage of granular materials powdered

	Low-pressure convey	High solids loading ratio and high pressure convey	Thrust Flow (low-speed)
Average flow rate (m/s)	20~25	3~20	0.5~8
Pressure (MPa)	~0.07	0.1~0.7	0.2~0.5
Ratio of percentage of granular material powdered	100	70	30

Since the percentage of granular material powdered varies according to the type of powder and granular material, it will be confirmed by the test using actual samples.

- Plug installation is simple and does not require complicated adjustment.
- Frequent maintenance is not required since the system does not have a special mechanism.
- Countermeasures for power failure are not required since there is no clogging of conveyance, and stoppage and re-start can be implemented freely during conveyance.

Application

- For conveying materials with abrasiveness (silica sand, alumina, breeze, raw materials of glass and ceramics, mill scale, and iron sand)
- For conveying delicate and brittle materials (food, grain, malt, ceramics, carbonaceous materials and super absorbent polymer)
- For conveying plastic (such as PE and PP), resins and pellets, which tend to produce plastic waste such as snake skin.

System Structure of Thrust Flow

Install natural soft plugs by injecting compressed air into the middle of the piping

