MÖLLER® TURBUFLOW®
Transport System

Using the MÖLLER® Technology, FLSmidth® has developed a pneumatic conveying system which is especially suitable for fine bulk materials. The patented system is characterized by the inner pipe, which gives the process an advantage due to its special design over conventional pipes. Due to high operational reliability and very low operational and maintenance costs the MÖLLER TURBUFLOW® System is one of the most economical systems in pneumatic conveying technology.

Characteristics of the TURBUFLOW® conveying system:
- A patented TURBUFLOW® conveying pipe with an inner tube.
- A secondary inner tube with inlet and outlet openings and an integrated disk.
- Consequently creation of local turbulence for blockage-free dense phase conveyance.
- Specific design of the secondary tube for various applications.
- Maximized conveyance capacities at minimal operational costs.
- Low conveyance velocities.

Applications for TURBUFLOW:
- Pneumatic pressure vessel conveying, in power stations, aluminium smelters, cement works and similar industrial branches worldwide.
- Single-, twin- and triple pressure vessel systems.
- As a Multi-TTS conveying system for economical ash removal of electrostatic precipitators (ESP) and fabric filters.
- For fine-grained and inorganic bulk materials.
- Proven successful for fly ash, alumina, cement, and other fluidizable materials.

Method of operation of the TURBUFLOW conveying process:
- The carrier gas (typically compressed air) flows from left to right through the TURBUFLOW pipe (fig. 1). Turbulence of the flow through the pipe is maintained through orifice plates.
- If a lump forms somewhere in the TURBUFLOW pipe, the flow through the secondary pipe is increased. Upon release at the next opening, the lump or material clot is fluidized by the turbulence.
- This results in an immediate reduction in the flow resistance of the material being conveyed. The material is thus conveyed compactly, slowly and highly efficiently without danger of pipe blockages occurring.
- The TURBUFLOW transport system can therefore be restarted even with a full pipe.

Fig. 1: Principle of dense phase conveyance in a TURBUFLOW® pipe
• Due to the continuous and intensive mixing of conveying material and air it is possible to have high loading capacities (kg material/kg air) at low conveying velocities.
• Conveying velocities from 2-4 m/s at the start and 10–12 m/s at the end of the conveying pipe can be achieved and ensure reduced wear.
• Depending on the conveying pressure, the material flow into the TURBUFLOW conveying system is controlled, so that the system always operates at a high pressure level and thus at the optimal operating point.

Take advantage of the benefits of the TURBUFLOW system:
• Slow and therefore wear-resistant movement of the material.
• No blockages, re-start possible with a full pipe.
• Low maintenance and high reliability.
• Highly efficient conveying process.
• Reduced air requirement, therefore small compressors and filters.
• Low energy requirements.
• Self-regulating, no additional valves along the pipe.
• Choosing TURBUFLOW will give you:
  - low maintenance costs
  - low energy costs
  - low operating costs

Wear factor in relation to conveyance velocity