LAHTI PRECISION

Lahti Precision

Fluidization System

100 years of experience

The Lahti Precision fluidization system

The patented fluidization system for an optimum silo discharge - also with less easily flowing fine bulk materials

Core flow and arching as well as residue accumulation in the conic section are silo malfunctions which can be prevented by fluidization.

◀ CORE FLOW AND ARCHING

Malfunctions of the level indicator and dosing problems.

RESIDUE ACCUMULATION IN THE WALL SECTION ▶

Residue - which may remain in the silo for several years - can affect the freshly supplied new material.

In the fluidization process, dry compressed air is supplied to the material evenly and well distributed. The optimum quantity of compressed air should correspond to the amount of air which escapes from the material through self-compaction. The material regains its fluid quality and the flow is ensured in the silo.

The different levels in these two indicators demonstrate the self-compacting effect of bulk materials, such ascement, lime, gypsum, etc.

◀ FRESHLY SUPPLIED CEMENT

- loose and flowing
- air around particles
- fluid like liquids
- no solidification

LOWER LEVEL AFTER A FEW DAYS ▶

- compact due to self-compaction
- no air between particles
- a high degree of solidification

The Lahti Precision fluidization system facilitates the flow of the material and ensures its optimum discharge

Efficient fluidization is achieved by the air which flows in small quantities, with an air pressure of 1 – 2 bar, evenly distributed through the fluidization elements in the conic section.

A special nozzle assembly in the infeed of the fluidization element sends an even supply of compressed air to the material. The air is not causing dust problems, because it is carried out of the silo with the material.

Patented EP 0 409 904 B

ECONOMICAL DOSING WITHOUT SCREWS

The fluidization system is activated a few seconds before the dosing of the material begins. The inflowing air reduces adhesion friction, preventing residue accumulation in the conic section. The air supply is active during the dosing process only, which is why the Lahti Precision fluidization system is a very economical discharging method.

No screws are needed in the dosing process and this reduces the number of moving, maintenance requiring parts.

Only a small amount of compressed air is needed in the process. In fact, the supplied air quantity is about the same as the amount that escapes from the material through self-compaction.

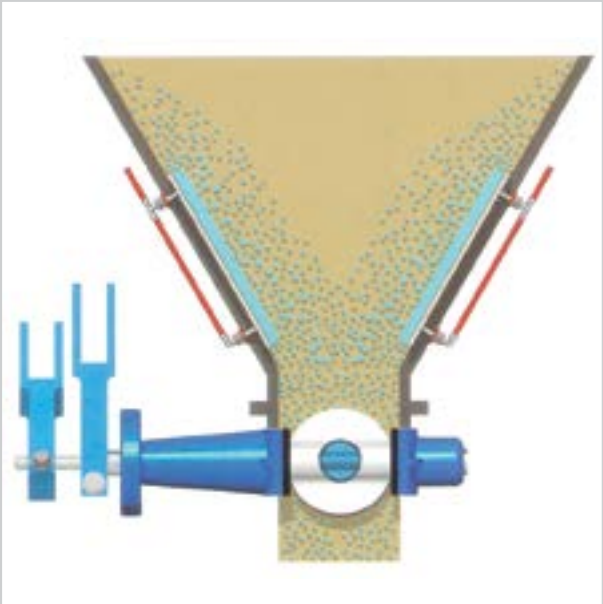
OPTIMUM SILO DISCHARGE ALSO WITH LESS EASILY FLOWING FINE BULK MATERIALS

The material becomes fluid and, with the mass flow, the gauges control the level reliably and precisely.

Lahti Precision provides the facilities for an optimum silo discharge for almost every type of fine bulk materials.

With properly designed fluidization elements fine

The Lahti Precision dosing flap



The Lahti Precision dosing flap with fine feed by a small built-in valve

System closed.

The main valve is opened for the coarse flow-through.

The main valve is closed to operate the small built-in valve for fine feeding.

The Lahti Precision -Trelleborg fluid hose

The new fluid hose concept for fine powders

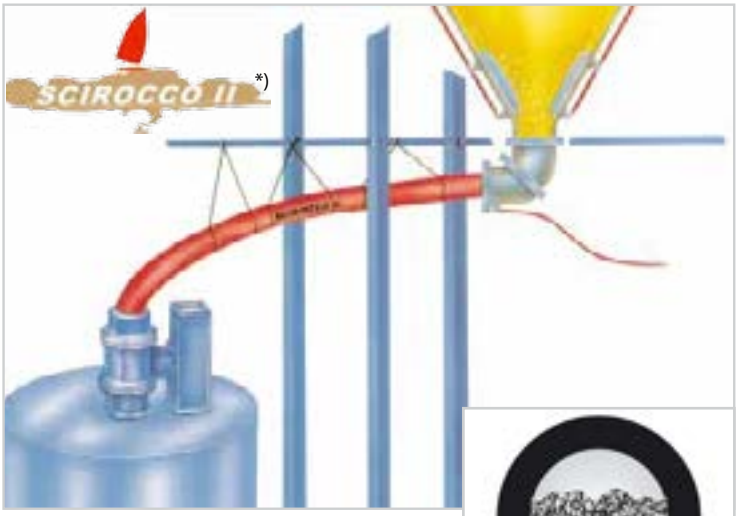
- flexible
- no moving, maintenance requiring hose parts
- easy to change
- a closed conveying system
- space and energy savings

The rubber hose, developed jointly by Lahti Precision and Trelleborg, is equipped with an air permeable texture across the full length. The segments of the rubber hose are filled with air independently of one another, thus fluidizing the powder to be transported, even if the hose is partly filled. The air amount is regulated by the air pressure.

When the air feed is activated, a thin film of air forms between the hose bottom and the powder, reducing the friction to a minimum.

At the same time air enters into the powder, putting the individual particles into free motion. If the hose is now inclined, the powder will flow through almost like a liquid (see diagram).

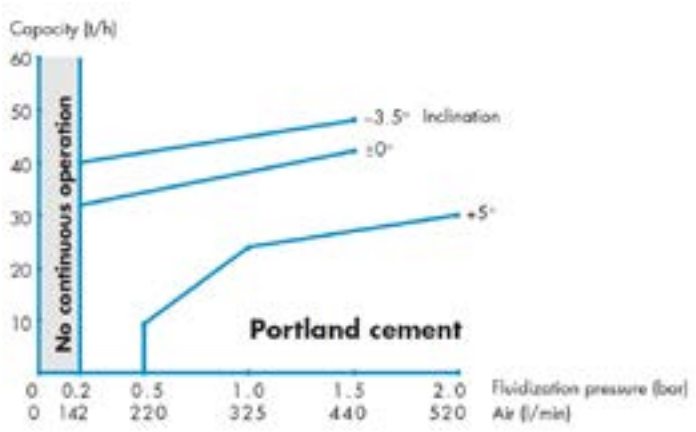
If also the silo discharge hopper is fluidized properly, the powder is pushed by its specific weight pressure through the hose also in a horizontal position.

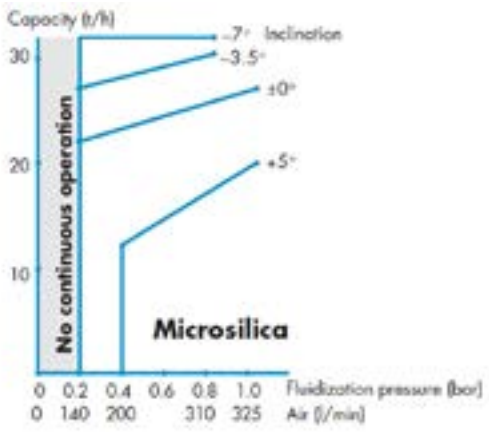


Patented
EP 0 452 378

*) A registered trademark of Trelleborg Industri AB

Measured ratings for dia 102 mm fluid hose, length 6 m





The maximum and minimum flow rates were measured with different inclinations of the hose. These are to be seen as example ratings. The powder pressure, due to the level, has an impact on the flow rate.

Experience that weighs

Lahti Precision started manufacturing scales in 1914. Today our company is an expert in dosing, weighing and mixing applications supplying batching plants for glass industry, drymix plants and services globally. Our vast experience in core technology guarantees excellent dosing accuracy and consistent mixing quality. We help our customers to succeed in their own production by working closely together, finding the best solutions for the actual need. This ensures our customers the lowest cost of ownership.

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