Deaerating and compacting bulk solids using SIPERM® materials

Fine-grained bulk materials such as colouring pigments, manganese dioxide, soot, cement, coal dust, various ceramic powders, powders for the food industry, pesticides and many other materials are very difficult to handle. They have a very large bulk volume, i.e. a very low bulk density, and produce large amounts of dust when transferred. In these cases compaction of powders is aimed at.

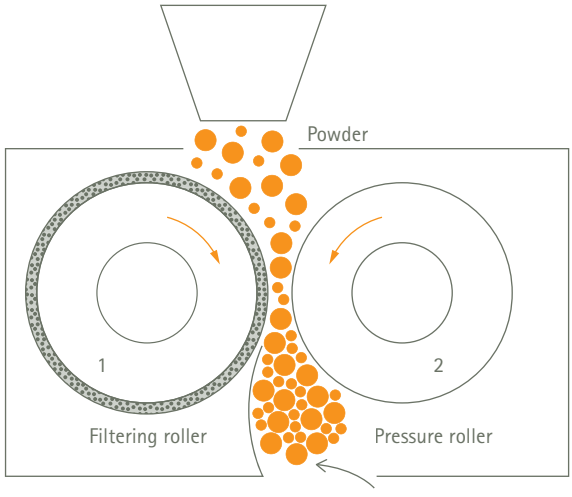
The solution: Vacuum compaction rollers and suction pipes

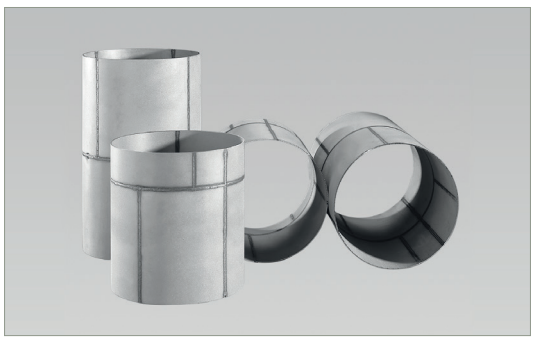
Such fine-grained bulk materials can be compacted down to 20 % of their bulk volume using vacuum compaction rollers or suction pipes made from SIPERM® materials. A distinction is made between two processes:

Compaction by means of vacuum compaction rollers

The powder is compacted through a combination of mechanical pressure and vacuum. Normally, a filtering roller (1) and a pressure roller (2) run against each other. The powder is dispersed between the two rollers and sucked up and pre-compacted by the vacuum roller. The resulting filter cake is then compacted in the gap between the two rollers at a preset pressure. The compacted product is removed from the roller with a stripper and drops into the collecting vessel.

Vacuum compaction rollers are covered with SIPERM® R. The highly porous material is characterized by high compressive strength, temperature stability and chemical resistance, and is, therefore, suitable for a wide range of applications. The highly porous SIPERM® material used for covering the compaction rollers is available in sheet form and can be welded to create larger units and adapted by rolling to the radius of the roller body. This can either be done by the customer himself or by Tridelta Siperm GmbH.





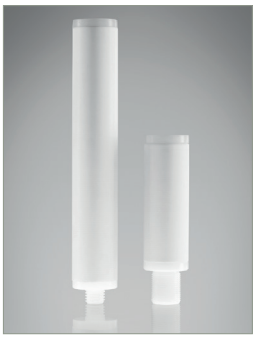
Coverings for compaction rollers made of SIPERM® R

Volume reduction by means of suction pipes

Suction pipes made from SIPERM® are suitable for reducing the volume of bulk materials in bags or vessels. These pipes are dipped in the bulk material to be compacted, either during or after the filling process. By sucking the excess air, the filling volume of the bulk material in the container is significantly reduced.

Depending on application, different materials and filtration grades are used. We supply seamless pipes made from stainless steel, bronze or polyethylene.

Suction pipes made of SIPERM® R and SIPERM® B



SIPERM® HP

SIPERM® R

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