



Magnesium stearate spraying system
high production reliability
minimum tool stress
clean product surfaces

FETTECOMPACTING *Innovator by Experience*

Pressing adhesive granulates is associated with a range of problems. If particles of product stick on the punches or dies it can lead to severe interruptions of production continuity, particularly at the high production speeds achieved by modern rotary presses. There is also a risk of damaging the tools. Particularly if large batches are produced on production lines that extend from the preparation of the granulates through to packaging, even small stoppages can lead to considerable economic penalties.

The addition of magnesium stearate has been found to be an effective means of reducing granulate adhesion. Magnesium stearate (with a magnesium content of approx. 3.8 - 5 %) consists entirely of materials of vegetable origin, and is a permitted foodstuff additive. Two methods of using it have become popular in practice: inclusion of the material as a component of the granulate, or dusting those parts of the press that come into contact with the product. There are very significant differences in both the procedures and in the results of the two methods.

System comparison: Magnesium stearate in or on the product.

As a component of the granulate:

- Product loses hardness
- Tablet does not dissolve so easily, since magnesium stearate repels water
- Water with dissolved tablet has a milky appearance
- Mixing may not be uniform, possibly causing variations in tablet composition
- Batches may differ
- The proportion of stearate must be kept very low
- Relatively high reject rate
- High consumption of adhesion suppressant

Summary: The inclusion of magnesium stearate as a component in the mixture presents a number of different risks that are hard to quantify and which make validation of the process problematic.

Applied as a dust during pressing:

- Product hardness and consistency remain appropriate for granulates
- Good tablet solubility
- Water with dissolved tablet has a clear appearance
- Mixing is even through the granulate, so tablet composition remains constant
- Batches remain identical
- Quantity of separating agent can be adjusted to the granulate adhesion
- Reject rate approaches zero
- Low consumption of stearate

Summary: The use of magnesium stearate, necessary for certain granulates, has very little influence on the prepartate, and any effect that it does have remains constant across the entire production process, because the supply of separating agent is quantifiable and can be validated.



Dextrose tablets, typical of products with adhesive granulates.

The optional coating of the pressing tools and the compression chamber in tablet presses has been found to be effective in practice. The method has been found to be particularly useful with problematic adhesive granulates. Separation of the product and the pressing tools takes place more reliably and more cleanly, the product surfaces match the moulds, and the reject rate approaches zero.

It is therefore of crucial importance that the application of the magnesium stearate is precisely measured and accurately positioned.

Three coating systems to meet your particular needs are available in our FETTE PKB 3, PKB 2 and PKB 1. The performance of each is designed to accurately match the special requirements of different kinds of product.

The FETTE PKB machines bring high reliability and continuity to your production process. A boost to economy that adds up!



Effective separation with adhesive granulates.

PKB 3 · High-tech for today



2 versions

- Versions for single and double rotary presses
- Volumetric operation
 - the dosage is maintained at a constant level through the controllable rotation speed of the motor
- Gravimetric operation
 - high-precision scales check the rate of supply; if the level is too high or too low, the speed of the application screw is corrected
- The scales provide validation
- The method is reliable, since a large number of data items are evaluated
- Two application screws (double concave profile)
- Double injector system
- Started manually or by the FETTE press
- Can be used on many popular types of press
- Capable of mobile application



GMP like

- Full enclosure for GMP
- The housing prevents any possible external influence on the gravimetric system
- Transparent plexiglas cover can be swung completely out of the way
- Wide access servicing and cleaning
- All connections can easily be dismantled



Precise control and proportioning

- The magnesium stearate values are stable and can be effectively controlled. The most important parameters are
 - dosing rate
 - strength of the suction
 - tableting speed
- The lubrication solvent suspended in air and sprayed onto the compression punches and dies
- The material is sprayed as the lower punch is drawn downwards, in order to exploit the suction effect
- Minimum application rate of 150-200 g/h, extremely fine dosing
- Stearate content of each tablet only 0.03 to 0.05%
- Maximum application rate 2000 g/h
- Very even product surfaces thanks to extremely fine dusting

Minimum possible soiling

- Contamination is minimised by
 - optimised suction adapted for the FETTE presses
 - lower stearate consumption due to the use of punches with a low proportion of chromium to improve stearate adhesion
 - tableting speed
- Minimum application rate of 150-200 g/h, extremely fine dosing
- Stearate content of each tablet only 0.03 to 0.05%
- Compression tools are exposed to a defined spray jet
- Excess lubrication solvent is sucked away

Reliability when working without an operator

- Function of the system is checked via the dosing rate and the pressure in the spray line
- 2 exchangeable Venturi nozzles at each pressing station
- Machine stops automatically if there are problems with the dosing process
- Inactive Venturi nozzles can be changed during operation without a special tool
- An audible warning is sounded if the nozzle become soiled
- Teflon hose suitable for foodstuff

PKB 2 · Validation included

2 versions for the right application

- Volumetric operation
- Gravimetric operation (with scale)
- The scale provide validation
- Two application screws (double concave profile)
- Minimum application rate of 150-200 g/h, extremely fine dosing
- Maximum application rate 2000 g/h
- Started manually or by the FETTE press
- Version only for single rotary presses

Greatly reduced quantity of lubricant solvent

- Very fine coating to the compressed surfaces
- Compressed air pressure may be adjusted

Features

- Can be adjusted for all types of single rotary tablet press
- Capable of mobile application



PKB 1 · The basic solution

Robust, reliable function

- Large storage container for magnesium stearate
- Rotation speed of the conveying screw adjustable by potentiometer
- Rotation speed is not monitored
- High feed volume
- Version for single and double rotary presses
- Illustration: PKB 1, version for double rotary presses

Versatile application

- Suitable for popular tablet presses
- Fast, easy assembly

High-precision feed

- Feed and vacuum nozzles constructed as one unit
- Separate dusting of the upper and lower dies
- Easy assembly and dismantling
- Easy cleaning



Technical data

PKB 3	
Compressed air supply	Dry compressed air approx. 4 - 6 bar
Dimensions	W 1000 x D 600 x H 1485 mm
Electrical supply	330-510 V · 1 ph · 50/60 Hz · 2 A
Weight	300 kg
Lubricant solvent container	12 dm ³
Working capacity (Magnesium stearate)	0,2 - 2 kg/h
PKB 2	
Compressed air supply	Dry compressed air approx. 4 - 6 bar
Dimensions	W 640 x D 540 x H 870 mm
Electrical supply	330-510 V · 50/60 Hz
Weight	50 kg
Lubricant solvent container	12 dm ³
Working capacity (Magnesium stearate)	0,2 - 2 kg/h
PKB 1	
Compressed air supply	Dry compressed air approx. 4 - 6 bar
Dimensions	W 700 x D 400 x H 725 mm
Electrical supply	330-510 V · 50/60 Hz
Weight	35 kg
Lubricant solvent container	7,6 dm ³
Working capacity (Magnesium stearate)	0,2 - 2 kg/h