

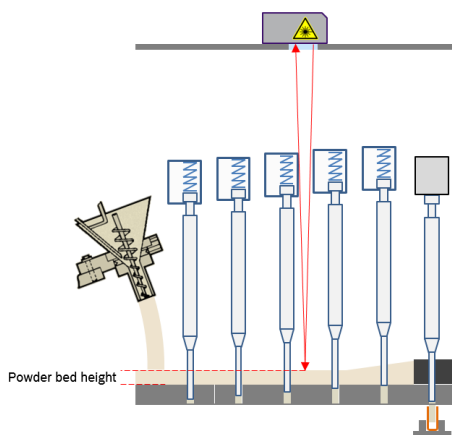
## PHARMA SOLID KNOWLEDGE REPORT

# FDA requirement: safe, reliable and robust production.

### SYNTEGON SOLUTION

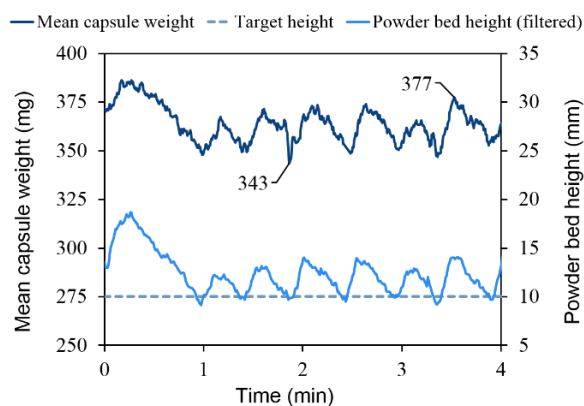
The PAT Classic is integrated in the new capsule filling platform GKF 720. The following explains the features of Process Analytic Technology.

### POWDER BED HEIGHT MONITORING



Schematic of the laser measurement of powder bed height. Delivers the possibility to directly monitor the powder bed height.

**Option:** Automatic regulation of powder bed height (through auger speed) and thereby improvement of filling weight accuracy.

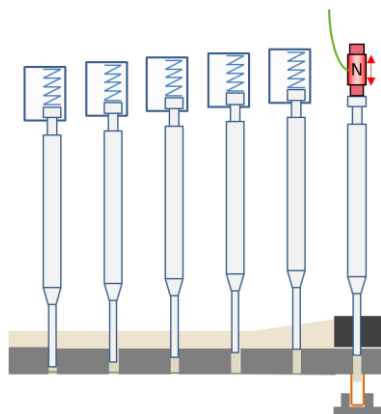


An example of the influence of powder bed height. In this special application (low powder bed height, bad flowing product) the powder bed level needs to be controlled accurately to ensure a good filling process.

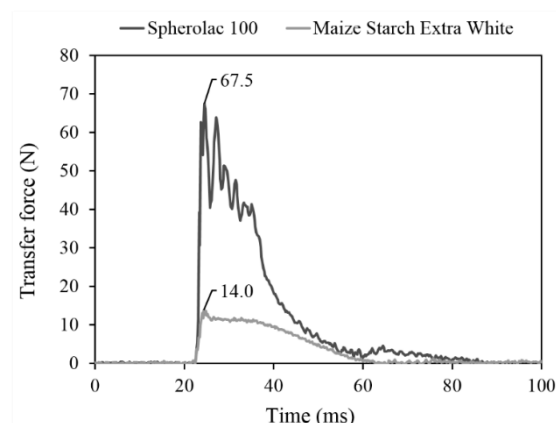
- ❑ Detailed insight into powder bed height, which is a critical process parameter
- ❑ Sensor outside of the product area
- ❑ Simplifies process development

- ❑ Increases yield, reduces product waste during the machine start-up
- ❑ Easily adjustable refill strategy for powder

### TRANSFER-FORCE DETECTION



Schematic of the transfer force measurement. With this option, transfer forces can be measured in both directions: Positive force needed to push the powder plug out of the dosing disk and negative force to pull the pin back into its upper position.



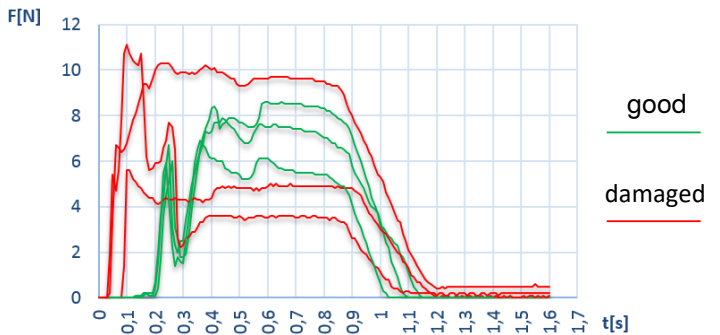
Transfer forces of two excipients, maize starch and lactose. One shows a significantly higher transfer force. In both experiments, the same process parameter settings were used.

- ❑ Sensor for process monitoring
- ❑ Data mining (batch report)
- ❑ Supports formulation development
- ❑ Adjustment and identification of critical process parameters

- ❑ Helps optimize the formulation
- ❑ Detection of sticking and accumulating product in dosing bores and on transfer pins
- ❑ Increases machine safety: Automatic alert when exceeding a critical transfer force

# Our focus is on your product. Our solutions for your filling needs.

## CLOSING-FORCE DETECTION



Different measured closing forces.

Green: Capsules with no defect.

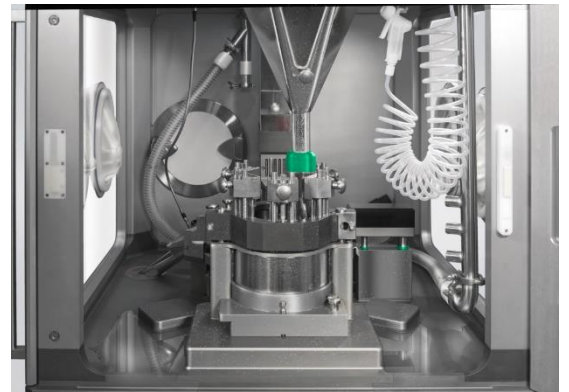
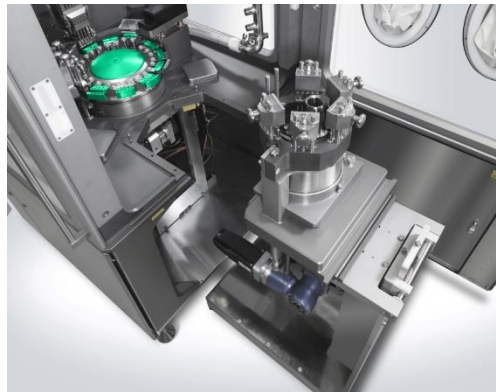
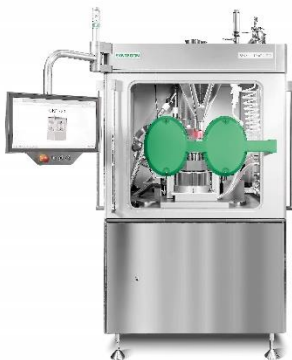
Red: Capsules with closing defect.

- Analyzing 100% of the closing forces
- System detects those capsules, which exceed the predefined force and path limits

- Statistical monitoring of the closing process
- Force sensors can be calibrated

## Technical data GKF 720

Output	43.500 capsules/h
Segment bores:	5
Machine cycles	Max. 140 cycles/min
Dosing systems	Powder, Pellet, (Micro-)Tablet, Micro- dosing, Liquids, Combinations



## More Questions?

You also have processes for optimization?

Please contact us. Our "Engineering Pharmaceutical Service" team will be available with all our experience of over 50 years:

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