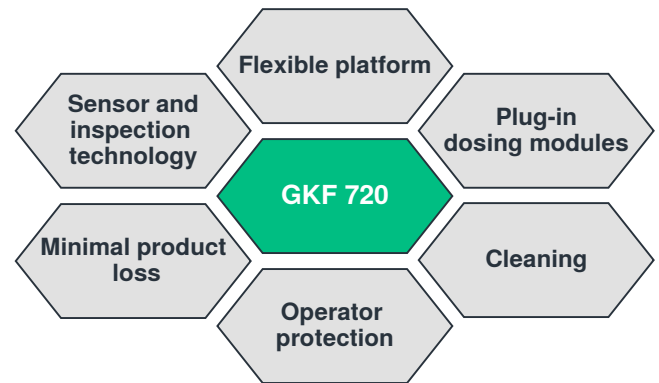


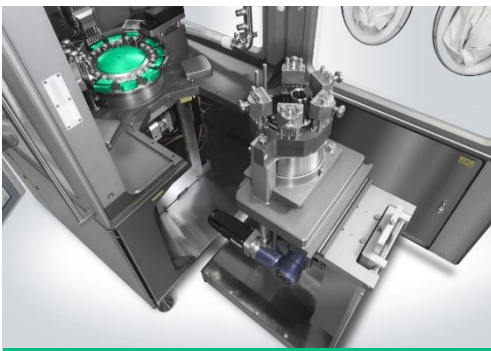
## PHARMA SOLID KNOWLEDGE REPORT

# GKF 720 – Manufacturing Efficiency.

Recent developments in capsule filling technology offer pharmaceutical manufacturers doing more than just filling capsules. Small batches require frequent product changeovers in a short time and thus highly flexible machines. With its modular design and the interchangeable plug-in dosing modules, the GKF720 capsule filling machine is a highly configurable machine platform suitable for a wide range of production requirements and offering an output range from 3,000 – 43,500 capsules/hour. The GKF720 is capable of dosing the full range of fill media up to triple product combinations and provides fast and simple changes between different dosing and inspection technologies. In combination with enhanced sensor technology for process control, a very short setup time, highest flexibility and fast cleaning the GKF720 platform improves the production efficiency as well as yield.



### INTERCHANGEABLE PLUG-IN MODULES



Fast product changeover by plug-in station

The transfer of the plug-in dosing module is performed as follows:

Transfer of the plug-in module from the GKF720 to the filling module rack

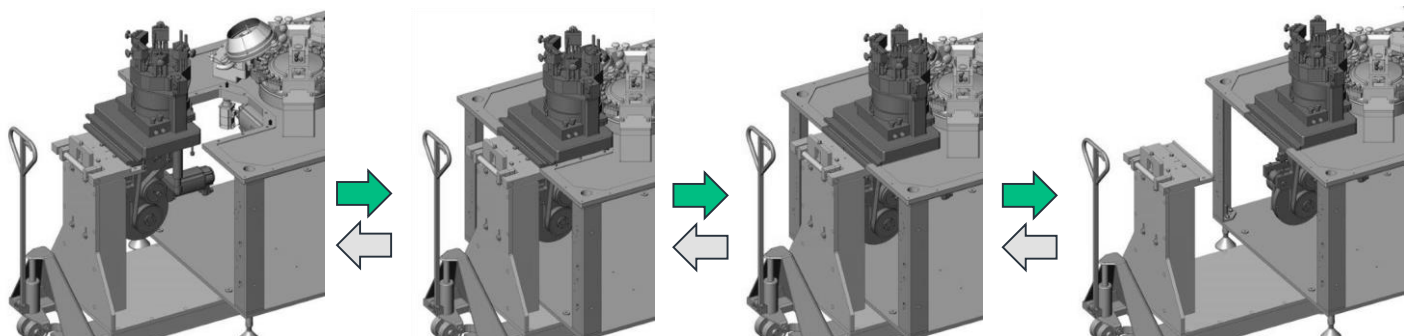
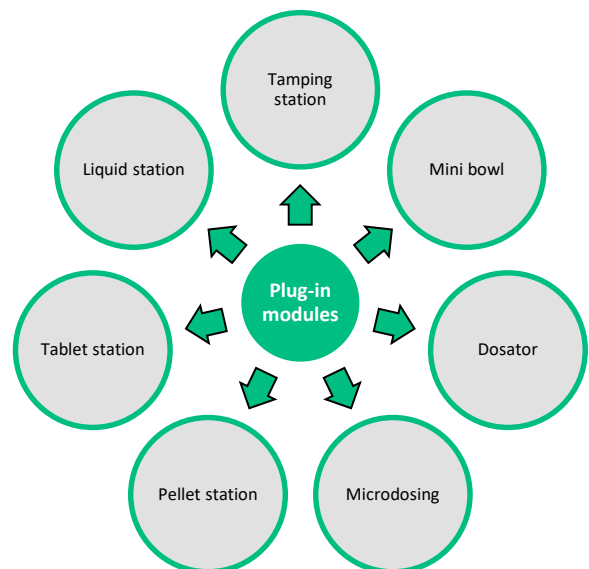
- Decoupling of the plug-in module from the GKF720
- Positioning of pallet truck below segment module and connecting
- Lifting of the segment module and removal from the GKF720
- Transfer of the segment module to the module rack

Transfer of the plug-in module from the module rack to the GKF720

- Positioning of pallet truck below the segment module and connecting
- Transfer of the segment module to the GKF720
- Connecting of the plug-in module to the GKF720

This allows dosing systems to be exchanged fast and easy, e.g. from micro-tablet dosing to liquid dosing. Software is recognizing each plug-in module individually to provide a fully failsafe process.

The interchangeable plug-in dosing modules cover the full range of dosing systems. When changing to a product with different requirements, the plug-in module with the appropriate dosing technology can be prepared offline on the filling module rack while the machine is running. Once the batch is completed, the plug-in module is exchanged in a few minutes.



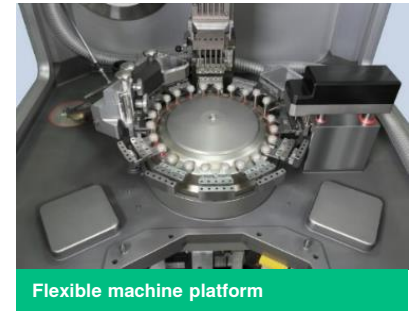
Flexible exchange of plug-in dosing modules by support of a pallet truck within less than 10 minutes

# GKF720 – Manufacturing Efficiency.

## FLEXIBLE MACHINE PLATFORM AND HIGH MACHINE UPTIME

Besides the flexible plug-in module, the GKF720 can be equipped with two more dosing stations (usually for pellets or (micro-)tablets for combination filling, light and handy built for fast and simple exchange within a couple of minutes. A servo motors concept allows each station to be switched on and off independently.

The combination of plug-and-play size parts with tool-less assembly and good accessibility do make change overs fast, easy and save. A full changeover covering a new capsule size as well as a different dosing system is possible within appr. 15 - 30 minutes.



Flexible machine platform

## ENHANCED SENSOR and INSPECTION TECHNOLOGY FOR PROCESS CONTROL

In addition to the flexible machine platform, short setup and cleaning times as well as minimal product loss, the GKF720 can be equipped with a wide range of sensor technology applications for process control:



Integrated balance for fully automated In-process control (IPC)



Process Analytical Technology (PAT) and Syntegon Pharma I4.0

- ❑ Integrated ASB function (automatic troubleshooting)
- ❑ No-Cap No-Fill function
- ❑ Single capsule rejection
- ❑ Height adjustable dosing station

Process Analytical Technology (PAT) and Syntegon Pharma I4.0

- ❑ 100% net weight inspection by capacitive system (NWDS)
- ❑ Powder bed height detection
- ❑ Slug transfer force detection
- ❑ Capsule closing force detection

Syntegon enhanced sensor and inspection technology also allows corrective actions to be carried out automatically during processing. In consequence operator interventions can be minimized and process efficiency as well as yield can be improved to a new level. In combination with the kit for Automated Process Development (APD), these technologies assure to achieve the trending requirements for Quality by Design (QbD).

## Conclusion

GKF720 for increased manufacturing efficiency

- ❑ Provides an open and variable platform with innovative features and dosing technologies
- ❑ Fast exchange of flexible plug-in dosing modules within less than 10 minutes
- ❑ High machine uptime: plug-and-play parts, tool-less assembly and excellent accessibility minimize size changeover time
- ❑ Changeover to a new capsule size and different dosing system possible within appr 15 - 30 minutes
- ❑ Enhanced sensor technology to achieve Quality by Design requirements and minimize operator interventions
- ❑ Syntegon Industry I4.0 and Process Analytical Technology for transparent process understanding and optimization
- ❑ Support during process development from the Syntegon Pharma Service experts

## Please contact us!

You 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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