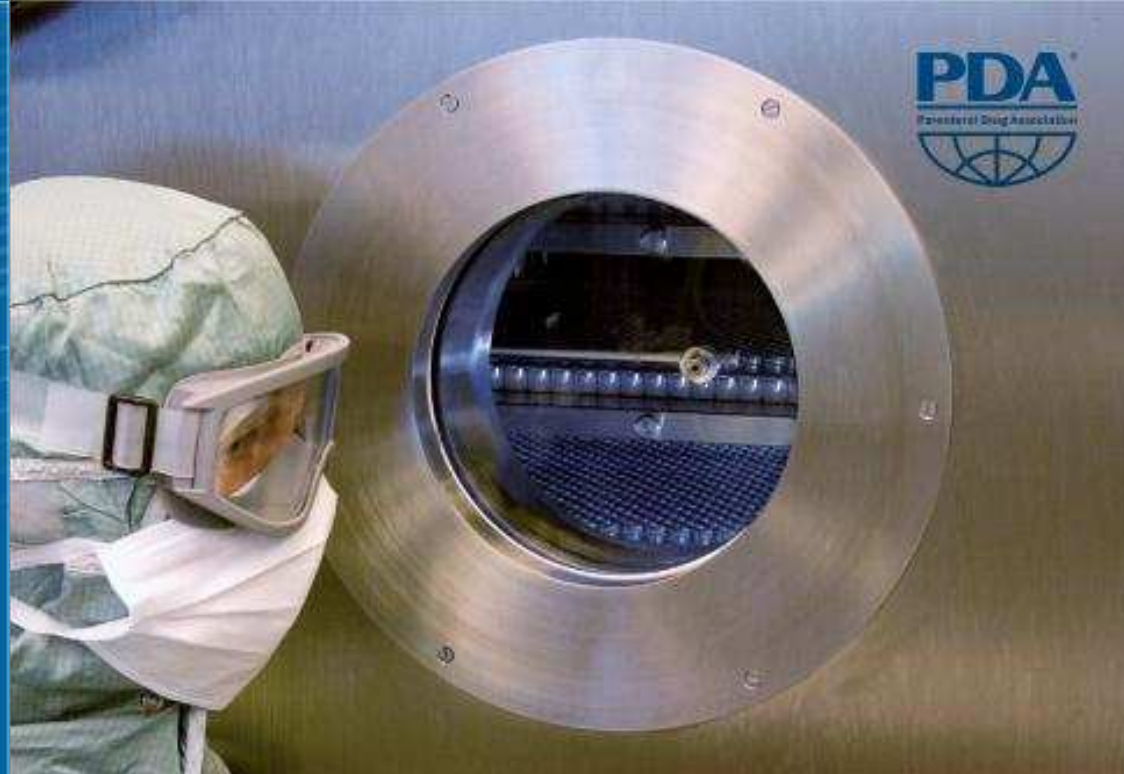




*Connecting People, Science and Regulation*



**2018 PDA Europe**  
**Freeze Drying in Practice**

**23-27 April 2018 | Training Course**

**23-27 April 2018**

Martin Christ Gefriertrocknungsanlagen GmbH  
Osterode (Harz) | Germany

[www.pda.org/URL](http://www.pda.org/URL)



## Company portrait

Lyo Engineering is your partner in pharmaceutical industry and medical engineering in the areas of management / quality assurance / engineering with more than 10 years of experience in pharmaceutical plant engineering and construction in the fields of project handling and quality assurance.

Among other things our business activities include project management for international freeze drying projects in pharmaceutical industry, planning and monitoring of technical transfer projects of fill- / finish areas and all aspects of GMP quality assurance, for instance classification of equipment components in accordance with GMP risk analysis as qualification basis, GMP-based employee training, performance of external and internal audits, planning and monitoring of acceptance tests (FAT / SAT) and qualification phases (DQ / IQ / OQ / PQ), as well as the creation of the pharmaceutical technical documentation.

We gladly support you in the successful implementation of projects in regulated environments from the URS to the handover to the production.



**Lyo Engineering**  
GMP is our passion!



# Loading / unloading

## **Theory 8:**

loading and unloading systems

- type of loading (RR, Frame, Batch)
- design loading and unloading systems in existing lines
- examples for loading and unloading systems





# Loading / unloading

## Series / series loading

- installation in clean rooms class B in a RABS system
- installation in rooms class C with isolator
- feed-in vials over a loading table to the GT storage space





# Loading / unloading

## Batch loading



- Loading of a storage space at once
- **Aufchargierung im Hex Verbund**
- Cooling of product-loading vials
- Loading with e. g. loading-troughs or loading-handlings
- Complete loading of clean rooms class A including LF
- No operator activities in loading rooms



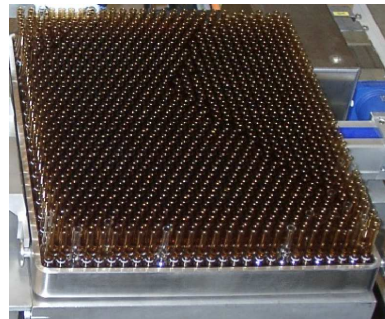
# Loading / unloading

## Frame loading

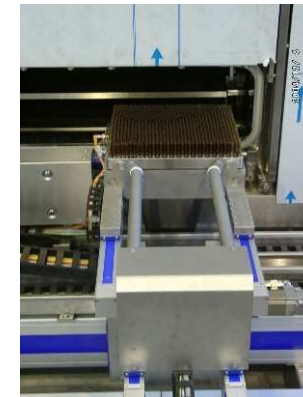
lead of frames to a magazine



Aufchargierung der Vials im  
Hex-Verbund



lead of loading frames to a loading  
system





# Lyo Engineering

GMP is our passion!