

Powder Handling & Process Containment Solutions

From a Single Source



About Dec Group

Welcome to the World of Powder Handling Excellence

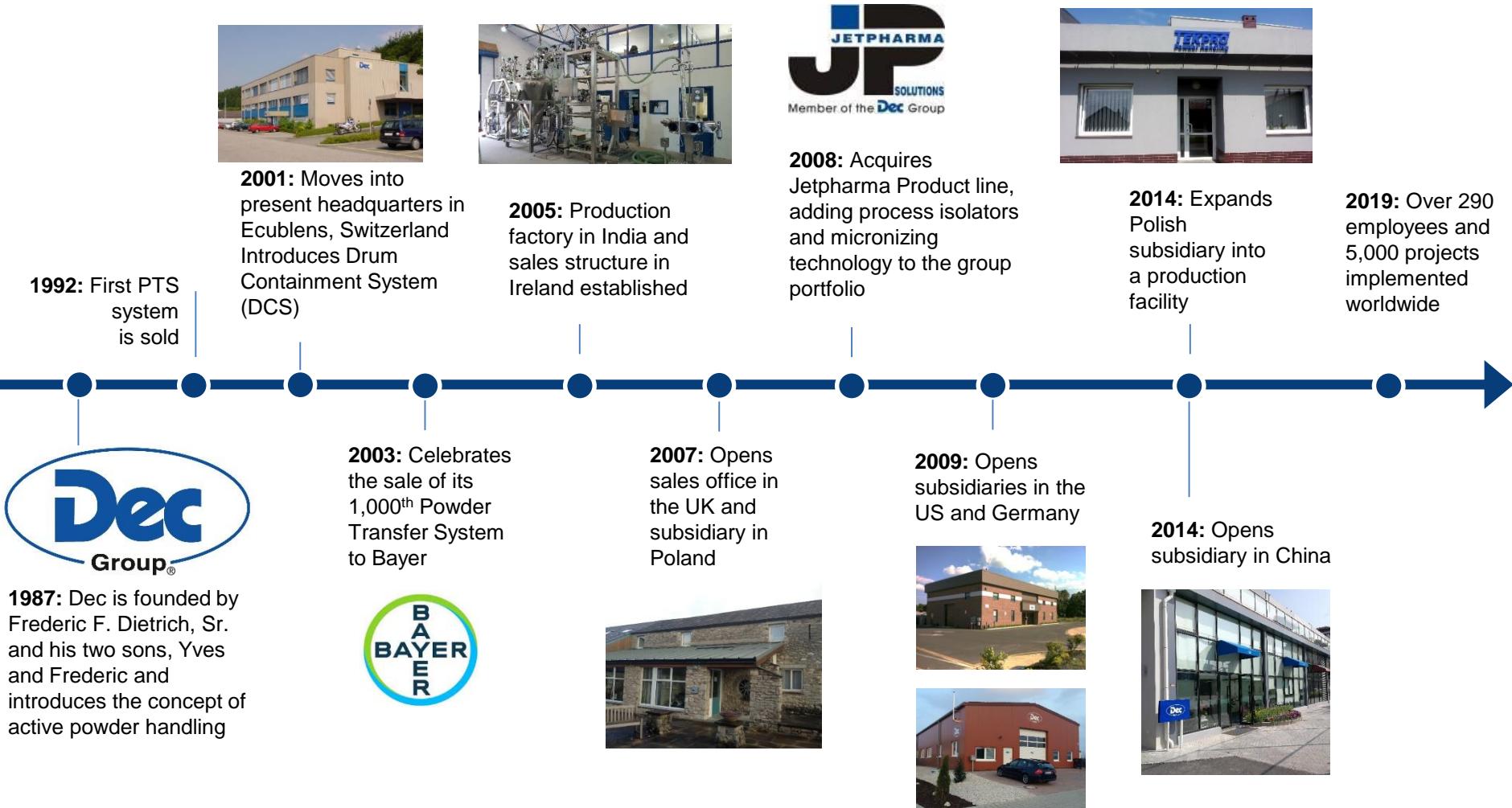


From mg to tons

From the raw material handling to the final product packaging process, Dec act as a global player throughout the production chain.

Customers benefit from comprehensive solutions from feeding reactors to the final drug production stage.

Dec's Key Milestones





Dec Today

- Over 30 years of experience
- 290 employees
- Customer proximity with 8 subsidiaries and an agency network covering 40+ countries
- Over 5000 successfully implemented projects worldwide

Industries

Chemical



Pharma - API



Pharma Secondary



Food



Cosmetic



Material Processing



From mg to tons

Dec provide innovative solutions worldwide for various industries where powder processing under strict and controlled conditions is essential.

Dec's customized solutions fit to specific requirements for customers active in many industries, from chemical and pharma to cosmetic, food and those using special materials such as applied in battery manufacturing processes or by the nuclear industry.

Competencies

Powder Handling



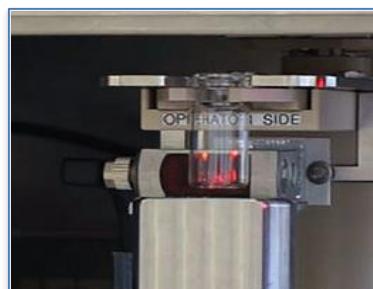
Particle Size Reduction



Containment Solutions



Microdosing



Mixing



Sterile/Aseptic Process



From mg to tons

Over the last 3 decades, Dec has been developing an extensive range of technologies. These include solutions for handling and transforming powders, which are convenient to many types of industries.

From accurately transferring and dosing powders from mg to tons, milling materials from microns to mm or mastering high mixing requirements, Dec provide trendsetting solutions for contained, sterile and safe manufacturing conditions.

Engineered Solutions & Process Support

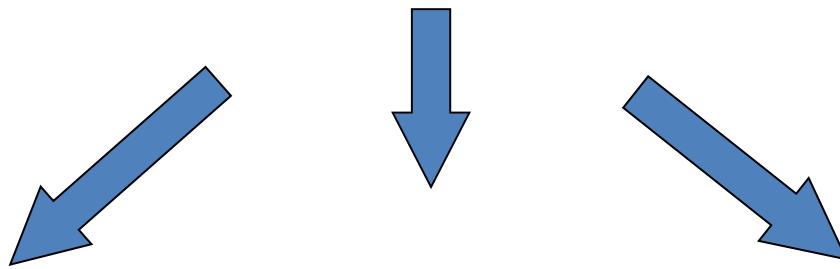


Testing Facilities



Dec Group Capabilities

Product Streams



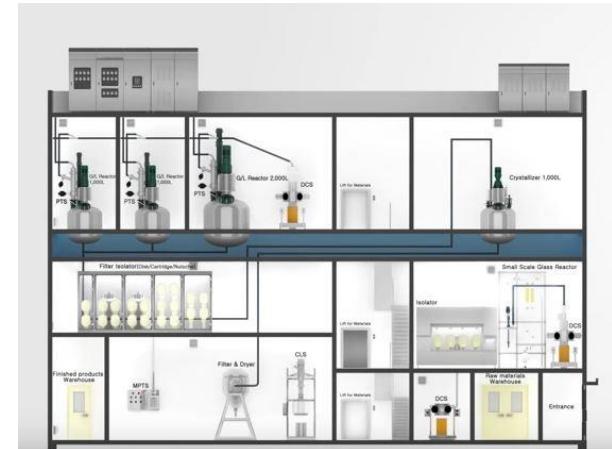
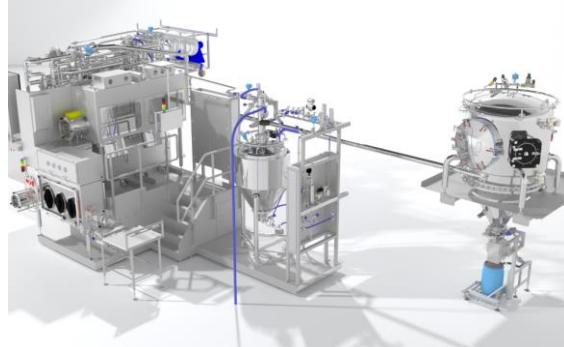
Equipment Sales

Standard Equipment

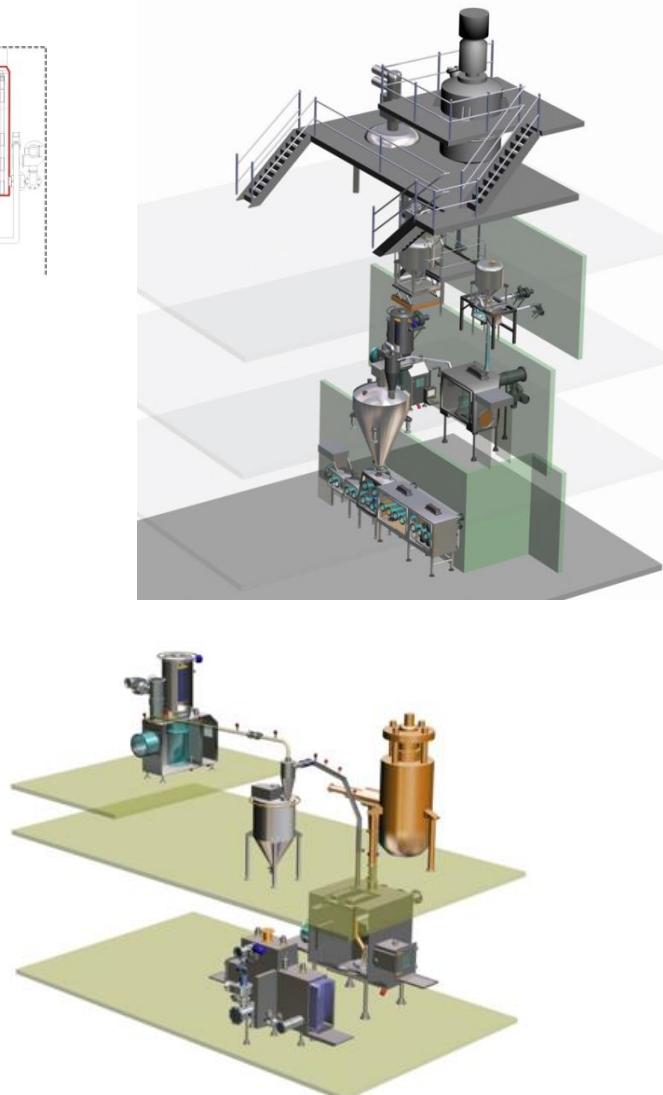
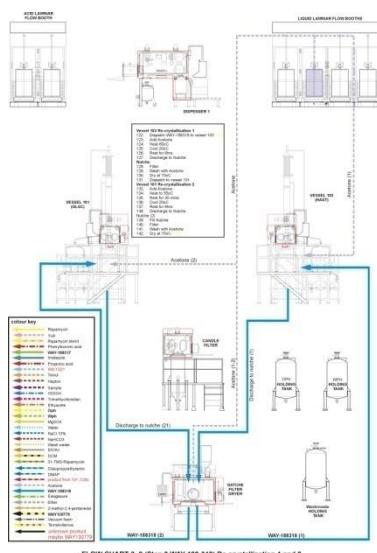
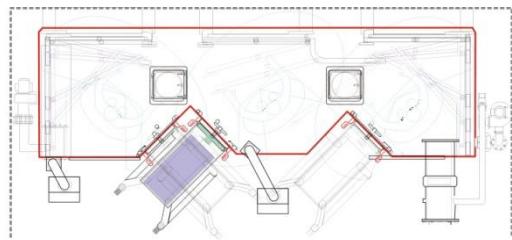
Process Integrated Turn
Key Systems

Process Isolation & Powder
Handling Systems

Consultancy and
Process & System
Development
including R&D

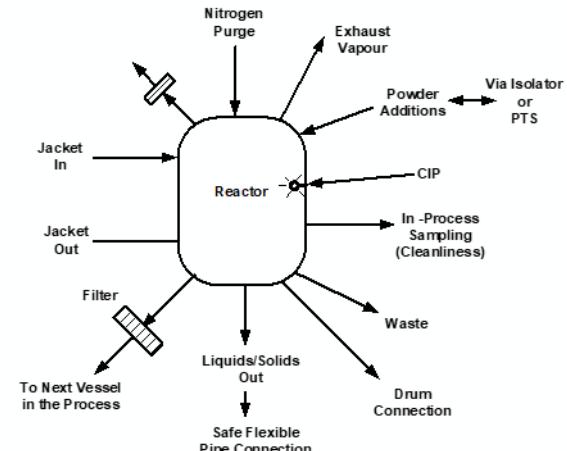


Dec Group Capabilities



Working Closely With Clients on Front End Design Studies and Process Development

Powder Addition To Vessels



Dec Keywords

Dec provide innovative high-end solutions when complexity is involved and when the following keywords are relevant

Keyword	Description	Example
Safety	Prevention of explosion	Charging powder into reactors containing solvents
Containment	Operator protection	Dispensing high potent APIs in the pharmaceutical industry
Hygiene	Avoiding cross contamination by offering high cleaning abilities	Handling powders in multi-purpose operation
Sterility	Guaranteeing product integrity	Packing powder under sterile conditions
Preservation	No changes of product characteristics	Transferring powder without segregation or particles damage
Productivity	Increasing efficiency by process linking	Upgrading plant design from batch to semi-continuous process
Complexity	Solving complex requirements	Dosing powder at mg level with high accuracy

Dec's Key Technologies

PTS Powder Transfer System®



Active Powder Handling

PTS Powder Transfer System for safe reactor charging and efficient powder handling



Operator Safety



High Containment



Explosion Proof



Easy Cleaning



Easy Sterilization

Dec's Key Technologies

DCS® Drum Containment System

Dec sets new standards to empty drums with the introduction of its closed and contamination free DCS® Drum Containment System* – perfectly designed to work in combination with the PTS



Contamination Free



High Containment



Explosion Proof



No Gravity

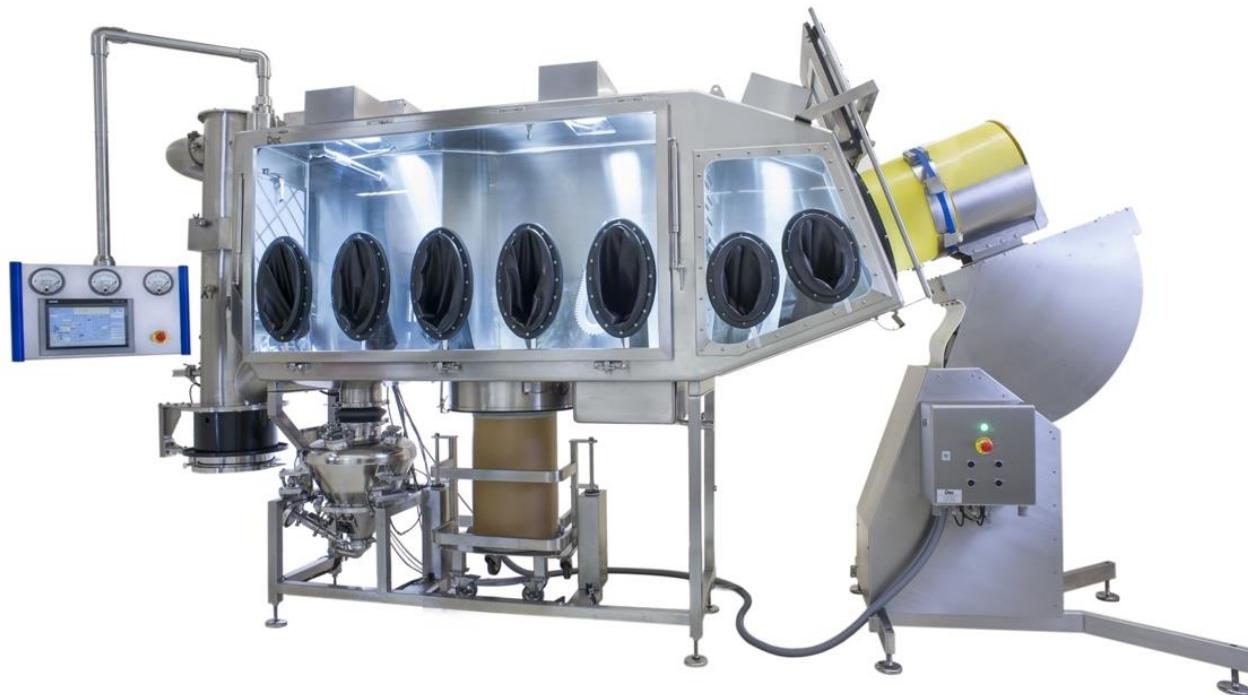


Operator Safety

* Patented

Dec's Key Technologies

Dec Isocharge



High Containment



Contamination Free

Dec Isocharge is the first technology combining the advantages of isolation and laminar flow technology, providing high containment solution for fast dispensing and charging powders into process

Dec's Key Technologies

API Packaging



API pack off station*

With the launch of this high containment conveying, dosing and packing system clean rooms are no longer required



High Containment



Contamination Free

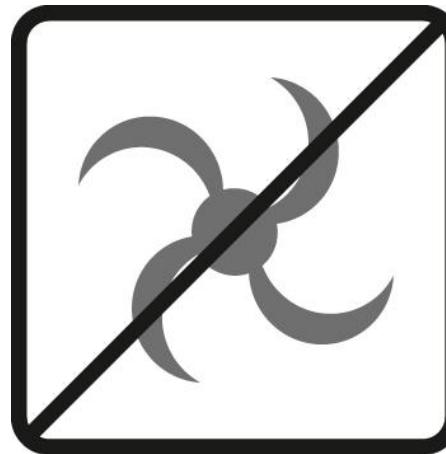
* Patented

Dec's Key Technologies

PTS Batchmixer® *



Dec brings an innovative powder blending solution to the industry. First mixer without moving or rotating parts.



No Rotating Parts



Enhanced Performance



High Containment



Easy Cleaning



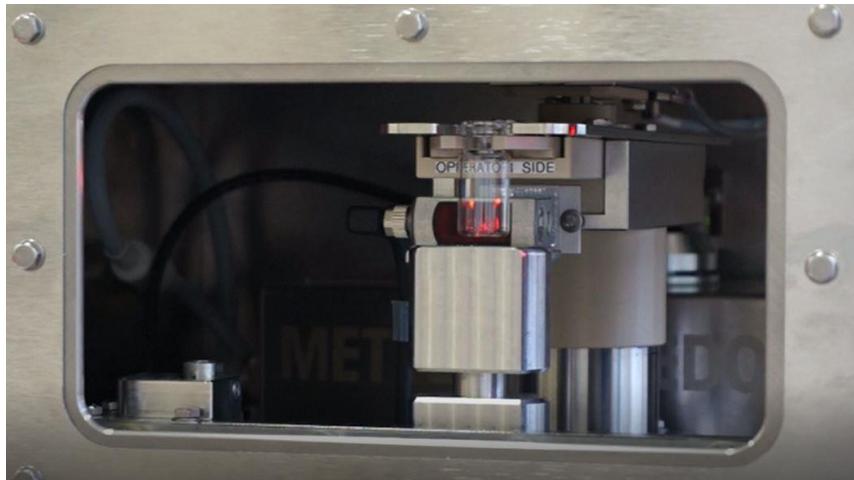
Easy Sterilization

* Patented

Dec's Key Technologies

μ PTS - Microdosing

Dec launches μ PTS* for volumetric dosing of small quantities of powder (milligram range) allowing a rapid dosing process compared to conventional gravimetric systems.



High Accuracy



Time Saving



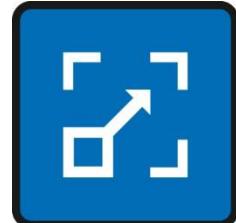
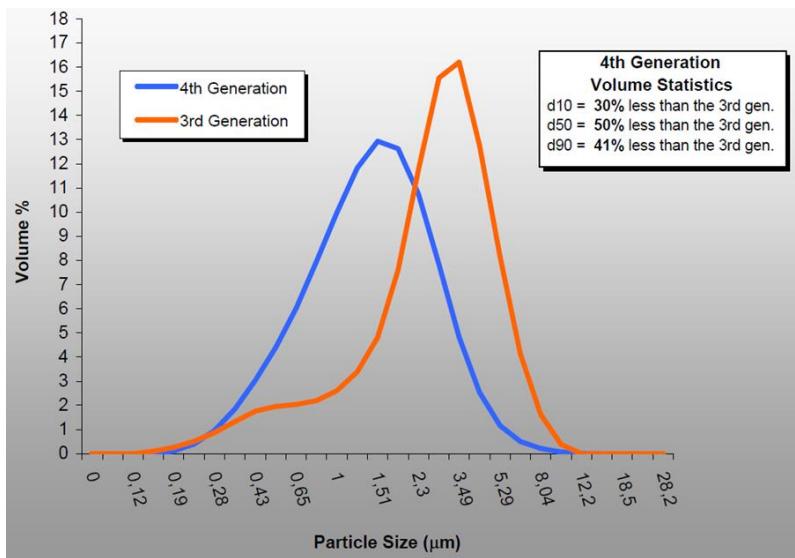
Easy Cleaning

* Patented

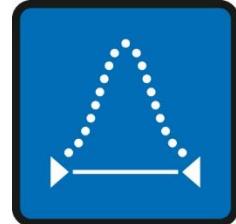
Dec's Key Technologies

MC DecJet® 4th Generation

Dec introduces their 4th generation* jet mills achieving outstanding micronizing results in terms of particle size and PSD (Particle Size Distribution)



Easy Scale up



Narrow PSD



Enhanced Performance



Explosion Proof

Dec's Key Technologies

Isolator Technology

Part of Dec's Product Portfolio - an extensive range of process isolators to safely contain dispensing, micronizing, drying and sterile applications



High Containment



CIP



Easy Cleaning



Easy Sterilization

Some Realizations

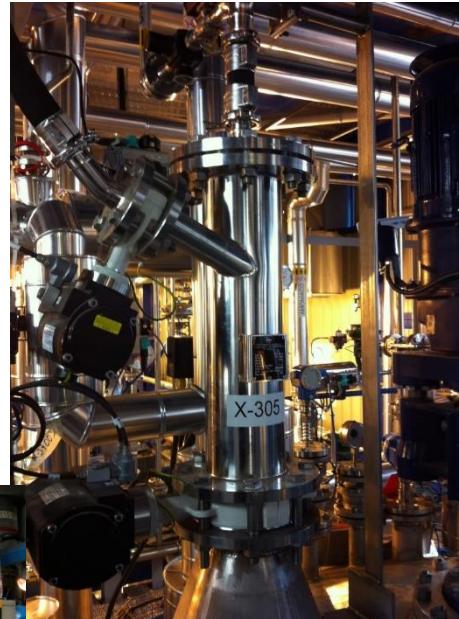
Reactor Charging With Toxic and Highly Corrosive Powder



Big bag station
with DCS®
docking system



PTS in Hastelloy on reactor



Contained charging of cyanuric
chloride from big bags into a
chemical reactor with a PTS

Some Realizations

Multiple Reactors Charging for the Specialty Chemical Industry



Sack cabinet and Isocharge for bag discharge



PTS on reactor with multiple entry

Safe multiple reactors charging solution for toxic and non toxic powders from bags with high capacity over 3 tons/hour

Some Realizations

High Containment API Manufacturing



Dispensing and milling isolator



PTS Batchmixer® above tablet press

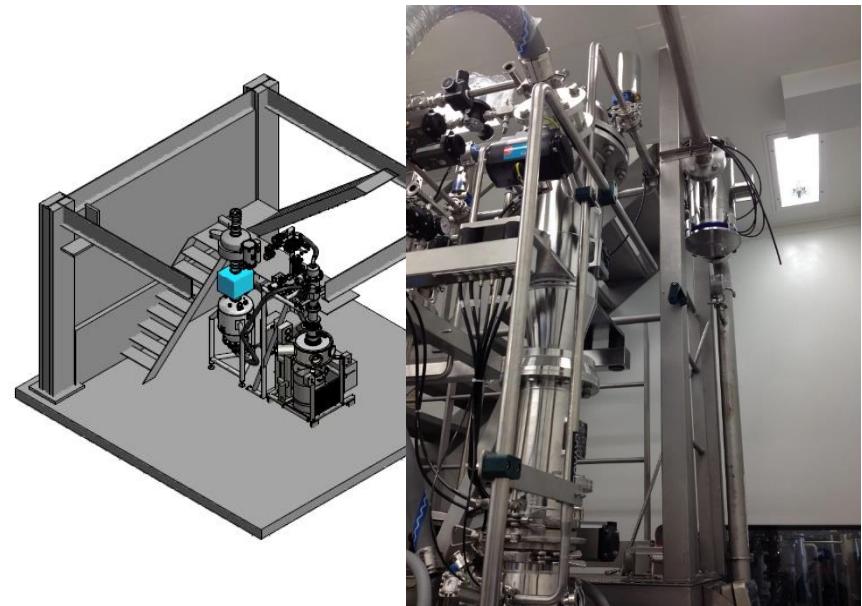
Dispensing/milling, blending
(excipient feeding from LAF) with
online sampling and direct tablet
press feeding

Some Realizations

Highly Contained Pack-Off



Dryer discharge into a sieve, transfer, dosing (+/- 50 g) into drums under controlled argon atmosphere



Some Realizations

High Containment Filter Dryer Discharge and Dispensing Isolator



- Containment performance < 5 ng/m³ (OEB 6)
- Twin chamber system with double endless liner
- Fully integrated pilot scale filter dryer
- Meets class ISO-7 inside

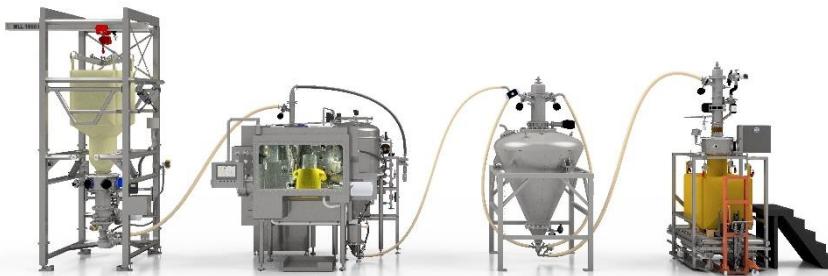


Some Realizations

API Plant From Reactor Feeding to Final Packing



- Multiple reactor charging from big-bags, drums and bags
- Filter dryer discharge and filling into continuous liners or big-bags
- Contained micronization from FIBCs
- Contained blending with PTS Batchmixer® *
- Contained pack-off with CLS Continuous Liner System or into big-bags



* Patented

Some Realizations

HSE & cGMP Compliant Blending

High containment dispensing
& pre-blending isolator
LAF large scale dispensing
& sieving



Some Realizations

HPAPI Manufacturing Facility



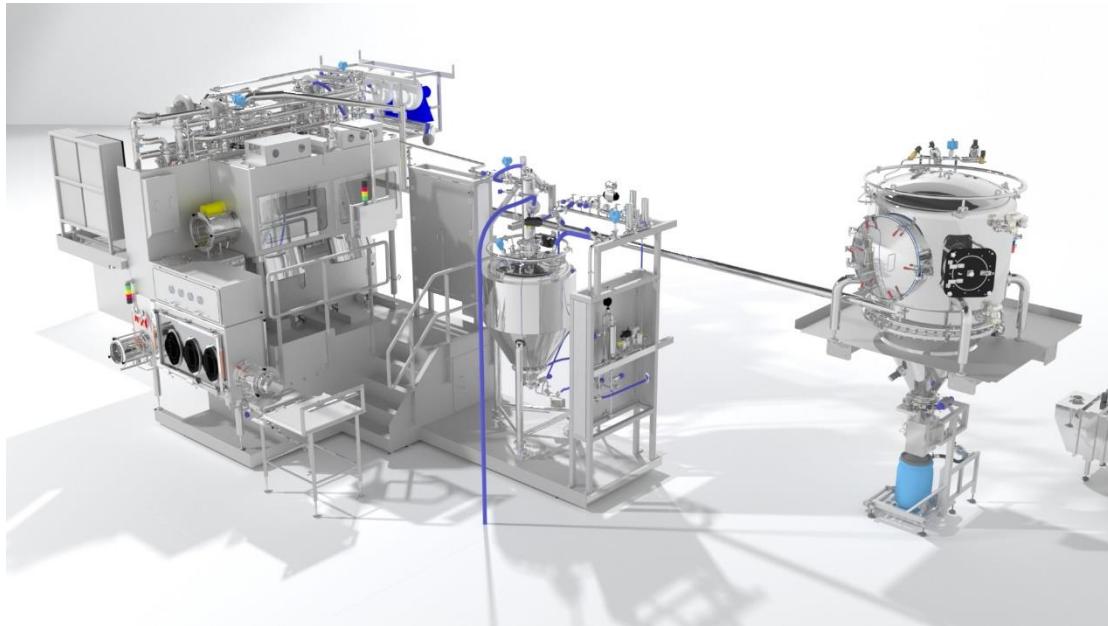
Antibiotics and cytotoxic APIs, flexibly adaptable to different batch sizes.

From raw material sampling, feeding reactors to final packaging



Some Realizations

Sterile Micronizing Facility



Complete sterile/toxic plant from
dryer tray discharge, transfer by
PTS, micronizing and final packing in
liners





Containment out of the Box