



**Your Global Provider  
of Integrated Process  
Solutions**



# True End-to-End Solutions From molecules to final dosage forms

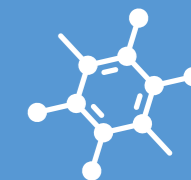


**Dec delivers innovative solutions worldwide to a wide range of industries where the processing of powder and liquid substances under strict and controlled conditions is essential.**

From the raw material handling to the final product packaging process, Dec acts as a global player throughout the production chain. Customers benefit from comprehensive solutions from feeding reactors to the final drug production stage.

## Chemicals

Fine chemicals, Agrochemicals, Specialty polymers, Adhesives, Dyes & Pigments



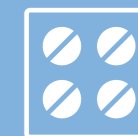
## Pharma API

Process solutions for the manufacture and handling of active pharmaceutical ingredients



## Pharma Secondary Manufacturing

Oral Solid Dosage (OSD), Orally Disintegrating Tablets (ODT), Intravenous Therapy (IV), Dry Powder Inhalers (DPI), Sterile Manufacturing



## Cosmetics

Particle size reduction, blending and handling technologies for powders



## Food

cGMP compliant handling and processing systems for powders, granules and liquids



## Advanced Materials

Battery manufacturing, Automotive industry, Nuclear industry, explosive substances



# Competencies Maximizing Safety and Performance

Our products and services are divided into the following four business areas, which work both individually and harmoniously with each other, if required. With these business areas, we want to be a highly efficient company able to remain successful in an increasingly competitive environment. Our capacities and extensive know-how enable us to act as a trend-setting solution provider and to align our business to today's increasingly demanding customer requirements.

Fully automated high containment two-floor micronization plant (CPT < 25 ng) including drum handling and charging, gas/particle separation, pack-off and inline sampling



## Dec Group Business Divisions

Dec TECHNOLOGY	Dec ENGINEERING	Dec CONSULTING	Dec SERVICES
Standard and patented Dec technologies & equipment	Complex process integrated systems	Provision of consulting services	Worldwide technical customer support
Supply of technically straightforward projects	Supply of engineered & turnkey solutions	Front End Engineering Design studies	After sales services & parts supply
	High degree of project management	Process development & education	Maintenance programs, System upgrades
			Testing facilities
			Training

Dec products offer a high level of safety for both operator and product. Our advanced system concepts, from the unique PTS Powder Transfer System® to highly complex integrated handling and processing equipment, allow you to increase your productivity while respecting current legal requirements. Dec products are divided into the following groups.



## Dec Group Product Divisions

Dec PHT	Dec PST	Dec FST	Dec CST	Dec CPT
<b>Powder Handling Technologies</b>	<b>Particle Size Technologies</b>	<b>Filling Solution Technologies</b>	<b>Containment Solution Technologies</b>	<b>Continuous Processing Technologies</b>
Transfer	Micronization	Primary packaging filling for powder, liquids and gels into various delivery systems including dual-chamber syringes	Barrier systems and isolator technology	End-to-end solutions
Bulk Handling	Mechanical Milling	Secondary packaging	Contained and/or sterile/aseptic isolators	From the raw material handling to reaction, crystallization, continuous filtration and drying to the final dosage form
Dosing	Contained and/or sterile/aseptic milling	Serialization	Downflow Booths, mobile clean rooms and workbenches	
Mixing		Contained and/or sterile/aseptic filling	Nuclear containment/ radiopharmaceuticals	
Sampling				
Contained and/or sterile/aseptic handling				



### Powder Handling Technologies (PHT)

#### High Potency OEB 4 API Production Facility

Fully integrated plant solution featuring DCS® Drum Containment Systems to take samples from the raw materials received in drums and to empty these safely and highly contained by means of a PTS Powder Transfer System® installed on each reactor. PTS allows to safely charge reactors containing solvents or pressurized without risking explosions. The product is then transferred into a crystallizer before entering a filter dryer and is finally conveyed into a CLS Continuous Liner System, where it is packed into bags.

From the incoming materials handling to the final packing stage, Dec offers efficient and safe bulk handling and conveying solutions for highly contained and/or sterile environments.

### Filling Solution Technologies (FST)

#### Aseptic Dual Chamber Syringe Filling Line

Highly complex filling line featuring de-bagging, de-nesting, main transport, liquid filling, powder filling, stoppering, Luer Lock Adapter (LLA) placement, needle placement, an unloading unit and an external washing unit.

Dec offers a range of primary packaging solutions for aseptic filling of vials, syringes, bottles, cartridges as well as Dual Chamber Syringes (DCS) and ready-to-use systems. From small batch and large volume to fully and semi-automated production lines, aseptic DecFill® fill-finish solutions are modular and adapted to your specific needs. Dec's proprietary µPTS and BoMa technologies allow for high precision powder and liquid dosing at levels as low as < 1 mg.



### Particle Size Technologies (PST)

#### High Containment Bag Discharging, Micronizing and Pack-Off Plant

Complex handling, micronizing and packing solution including safe discharge of bags through Dec's Isotube. Direct PTS product transfer into both MC DecJet® 400 spiral jet mill facility and CLS Pack-Off unit. Dec's DosiValve® system allows for accurate product dosing into the bags.

Dec provides a range of particle size reduction technologies from the simple crusher to our mechanical universal milling solution UMS DecMill and our MC DecJet® jet milling range with models for laboratory to production scale. Micronizing and milling devices are available in open stand-alone units or integrated in special process isolators.



### Containment Solution Technologies (CST)

#### High Containment Tray Discharge, Milling, Mixing and Pack-Off Isolator

Fully integrated isolation system for several interlinked process stages guaranteeing closed product handling with a very low Occupational Exposure Level of < 400 ng/m3 featuring Dec's integrated PTS Batchmixer® for homogenization and blending including online sampling options.

Dec designs and supplies standard and custom-made isolator systems for various processes such as filter dryer discharge, dispensing and sampling, micronizing and milling, aseptic and sterility testing, nuclear and radiopharmaceutical systems. Also available in the Containment product line: workbenches, mobile clean rooms and downflow booths.

### Continuous Processing Technologies (CPT)

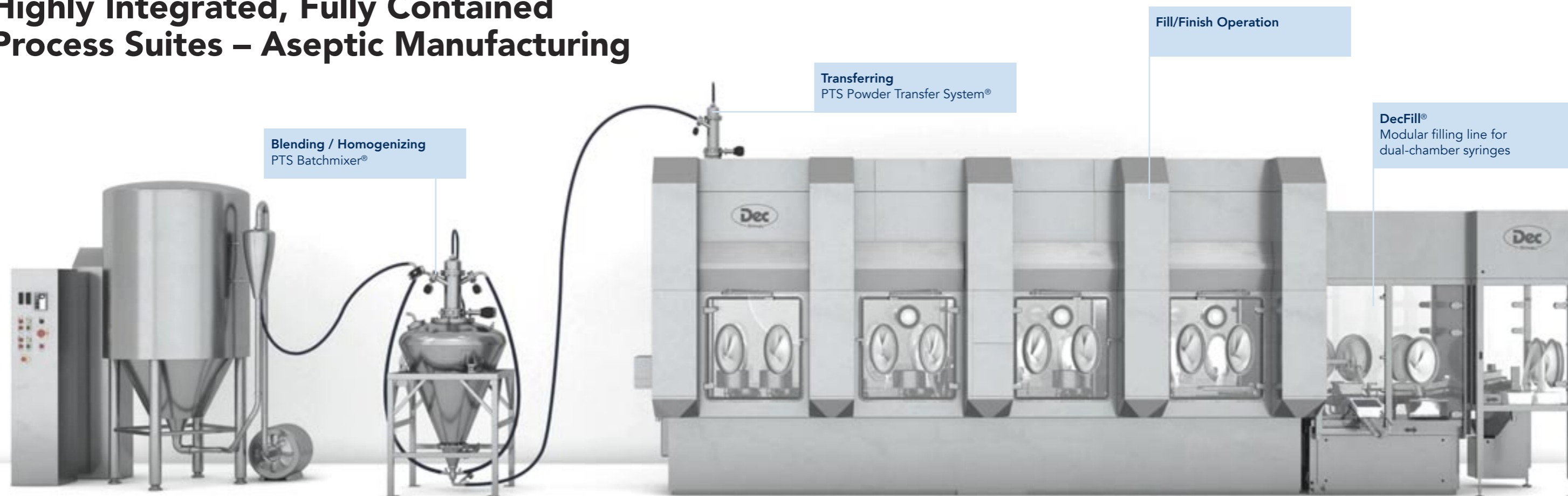
#### Smart Manufacturing with Innovative Flow Chemistry

In an effort to move away from conventional batch production and modernizing the global chemical processing industry, continuous manufacturing (CM) is the common vision and desire with the potential to increase efficiency, quality and flexibility in manufacturing. Dec is one the very few companies able to offer end-to-end CM process solutions from the incoming raw material handling to the API synthesis and processing of the compounded drug into the final dosage form including injectables.

CM is resulting in a faster and cheaper production, with a decreased facility footprint and therefore significant benefits to both industry and patients.



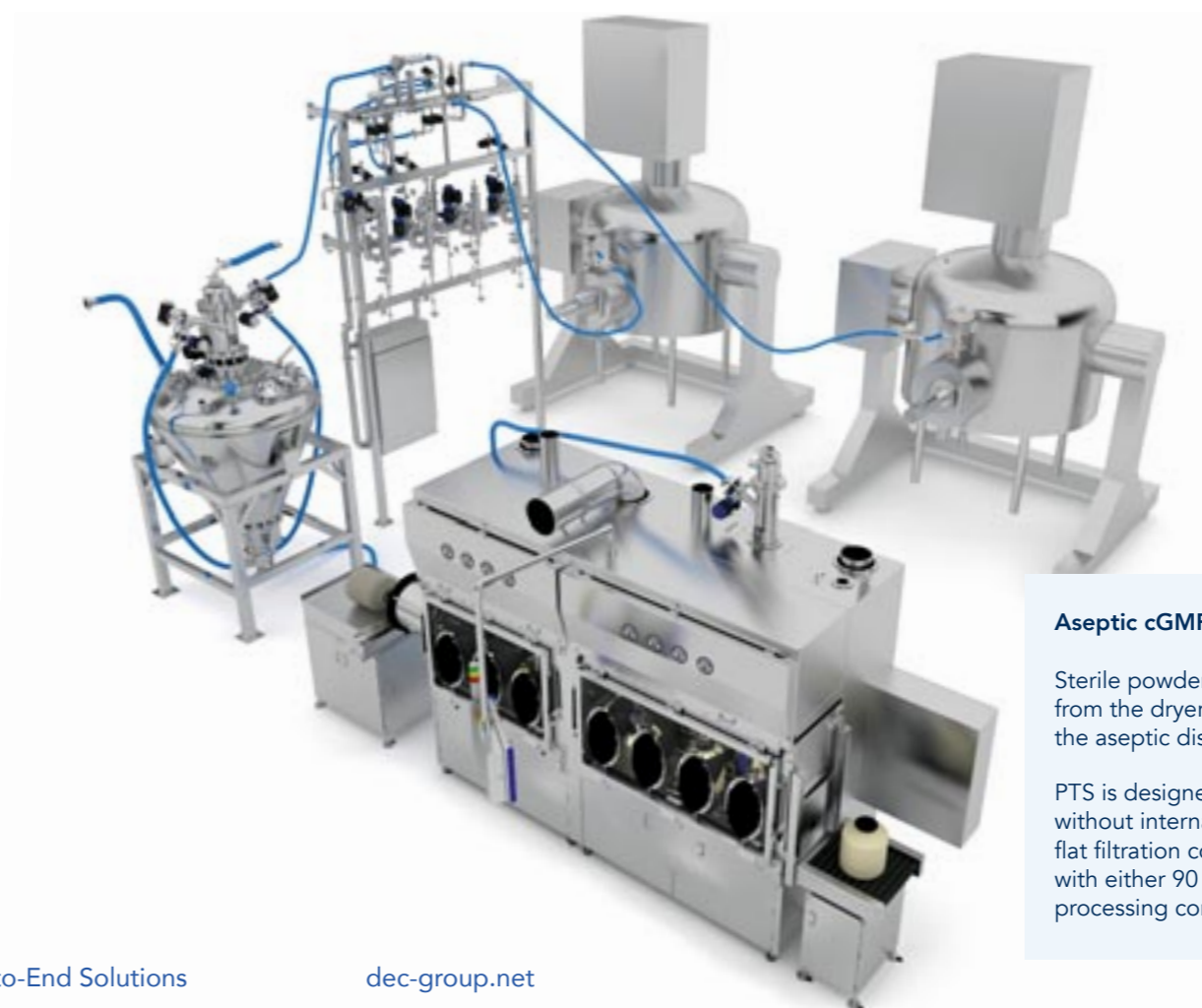
# Highly Integrated, Fully Contained Process Suites – Aseptic Manufacturing



## Aseptic Powder Handling, Blending and Filling Line

Sterile powder transfer from the spray dryer outlet through homogenization within the PTS Batchmixer® to the fill-finish process into vials or dual-chamber syringes. Dec's fully integrated microdosing technologies for both powder and liquids allow for precise and rapid dosing.

Small powder quantities (< 1mg) can be dosed as well with powders of different bulk densities while achieving very high accuracy levels (2 % RSD).



## Aseptic cGMP manufacturing facility

Sterile powder transfer with PTS Powder Transfer System® from the dryer into Dec's blending equipment and transfer into the aseptic dispensing isolator.

PTS is designed according to the latest cGMP requirements without internal parts or inaccessible areas. Due to its unique flat filtration concept, the system can be sanitized or sterilized with either 90 °C hot water or steam therefore allowing aseptic processing conditions throughout the manufacturing suite.



### Dec R&D Center of Excellence and In-House Testing

Understanding the importance of operational and regulatory challenges our customers face, Dec has always been committed to improve process efficiency, productivity and safety. Our R&D Center of Excellence with a size of over 2,000 sqm includes state-of-the-art testing equipment to ensure innovation, high performance as well as regulatory compliance.



### Technical support, Maintenance, Training & Workshops

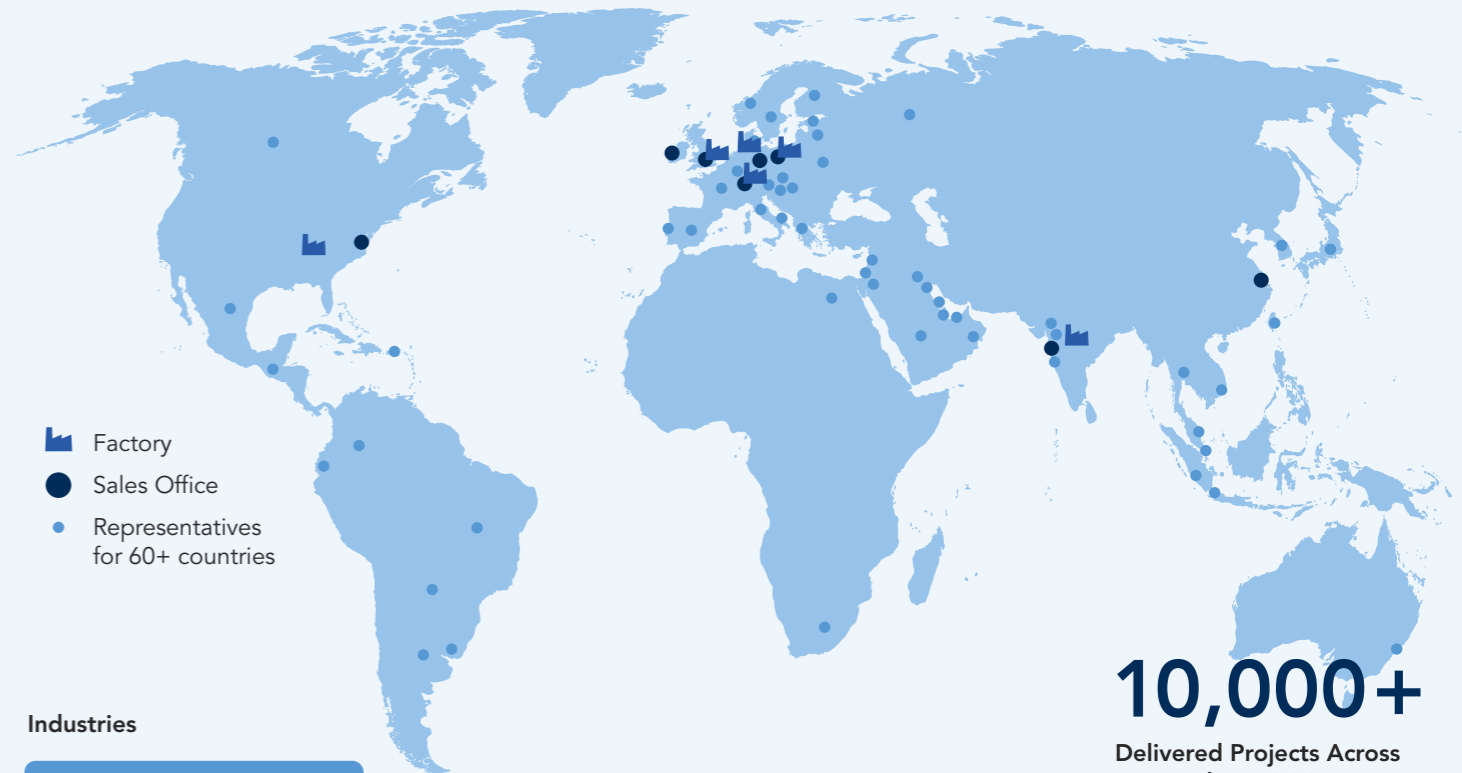
At Dec, customer service is an important part of every project. We accompany our customers over the entire life cycle of their project. Dec's support team will provide professional support to any problem worldwide.

All Dec equipment is designed for optimal performance and durability. However, parts of every machine are subject to wear and tear. We offer spare parts and various maintenance models to enhance production efficiency and productivity.

Dec provides various training sessions from workshops on existing workplace equipment to teach operators how to effectively do their job to inhouse seminars or convenient webinars.

The depth of Dec's knowledge and their ability to develop innovative new technologies make them an invaluable partner for both multinationals and specialist organizations. With true worldwide coverage through subsidiaries in Switzerland, Germany, Great Britain, Ireland, Netherlands, Poland, USA, India, China, its recent acquisitions of advanced containment and aseptic solution provider Extract Technology and AWL, specializing in continous manufacturing solutions as well as agents covering more than 60 countries, the Dec Group provides its customers with global expertise in process containment technologies and a reliable network for local support.

#### Dec Worldwide Factories, Sales Offices and Representatives



#### Industries

- Chemicals
- Pharma
- Cosmetics
- Food
- Advanced Materials

#### Certificates

- ✓ ISO 9001
- ✓ ISO 14001



**10,000+**

Delivered Projects Across our Product Divisions

- PHT** Powder Handling Technologies
- PST** Particle Size Technologies
- FST** Filling Solutions Technologies
- CST** Containment Solutions Technologies
- CPT** Continous Processing Technologies

Employees  
**800+**

## Dec Group Main Locations

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