

# Our Focus: Your Products



**Aseptic  
Processes**



**Capsule Filling  
& Weighing**



**Diagnostic  
Products**



**Eye Care**



**Inhalation  
Products**



**Microneedles**



**New Drug Delivery  
Systems**



**Ostomy &  
Continence Care**



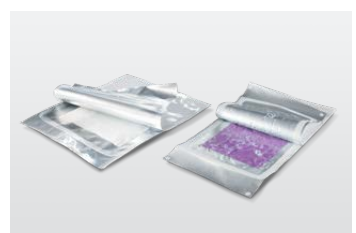
**Packaging**



**Portion  
Packs**



**Surgical  
Sutures**



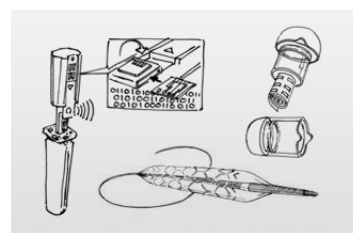
**Wound &  
Skin Care**



**Transdermal & Oral  
Delivery Systems**



**Medical & Pharmaceutical  
Device Assembly**



**Customized Products  
& Solutions**

# Aseptic Processes

## Extensive experience with processes in sterile conditions

Whether it is injectables, liquid applications, drug delivery devices or soft mist inhalers, when it comes to processes requiring aseptic liquid dosing or sterile packaging processes, Harro Höfliger is the right partner. We offer custom-fit liquid dosing systems that fill many different dosage forms, including IV bags, single and dual-chamber containers such as syringes, auto-injectors and tubes, as well as cartridges for liquid-based inhalers. Customized barrier technology for maximum product and/or user protection rounds out our portfolio perfectly.

## Our knowledge

- + Dosing systems for liquid media with various viscosities and characteristics
- + Complete aseptic and aseptic-toxic concepts
- + Combined filling and assembly equipment
- + Manual, semi-automatic and fully automatic machines
- + Optional expansion to turn-key solutions



# Capsule Filling & Weighing

## Extensive expertise in capsule filling processes

Flexibility and efficiency for filling hard capsules – this is one of Harro Höfliger's core competencies. In our capsule filling machinery with outputs up to 200.000 capsules per hour, we use dosing stations that are ideally matched to the requirements of your pharmaceutical and inhalation products. We are dosing specialists for powder in micro- and macro-dosages, tablets, micro-tablets, pellets,

capsules, liquids or combinations of various fill media. Highly precise weighing modules, sensors and control systems guarantee the highest quality of products. The experts in our Pharma Services support you during process development with their product knowledge. Manual devices for lab tests and special applications supplement our portfolio.

## Our knowledge

- ✚ An extensive range of dosing and micro-dosing stations for any type of fill media
- ✚ Competent support during process development from our Pharma Services experts
- ✚ Scalable, reliable processes from the lab to high speed production
- ✚ Complete turnkey solutions up to final packaging
- ✚ Integrated and stand-alone machines for process and quality monitoring
- ✚ Barrier systems for operator and product protection



# Diagnostic Products

## Solutions for high-quality diagnostic products

Whether it is film-based products, such as diagnostic strips or cuvettes, PCR strips, test dispensers or point-of-care testing systems (lab-on-a-chip, lab-on-a-disc) – Harro Höfliger offers a wide range of platforms for the assembly and manufacture of diagnostic products.

Highest precision during all processes and in-process controls ensure that all testing devices provide utmost reliability. The pipetting of suspensions and liquids, as well as the microdosing of liquids and powder, pellets or lyophilisate-pellets are handled by our proven dosing systems. Assembly in a clean room environment with integration of different protection concepts is our daily business.

Our modular concepts enable us to cover our customers' entire process chain from complex filling, sealing, handling, assembling to the final packaging of diagnostic products.

## Our knowledge

- + High-precision automation technology for assembly of diagnostic products
- + Micro-filling and dosing technologies for liquids, suspensions and powder
- + High speed foil processing for the conversion of multi-layer products
- + Expertise in laminating, coating, cutting and sealing of foil materials
- + Various protection concepts for assembly in cleanroom environment
- + Consistent scaling from proof-of-principle to high-speed production





# Eye Care

## Production and packaging of ophthalmic products

Harro Höfliger has gained more than 20 years of experience in the design and development of production and packaging lines for ophthalmic products.

Our focus is on machines which are able to produce and pack contact lenses as well as to label and package eye drops in blow-fill-seal strips. Even very special processes, e.g. for adjustable spectacles and ophthalmic injectors for active ingredients can be realized.

## Our knowledge

- ✚ Equipment for sterile applications
- ✚ Feeding and transfer systems
- ✚ Filling, processing, sealing and checking equipment
- ✚ Dosing systems
- ✚ Precise assembly processes (implant syringe, optical lenses)
- ✚ Primary, secondary and tertiary packaging
- ✚ Late stage customization

When it comes to contact lenses, we have the knowledge to cover the entire process chain from lens manufacturing, primary packaging in blisters, dosing of liquids, inspection, sealing and secondary packaging in cartons as well as tertiary packaging in shipping cartons. Also various solutions for logistic centers have been realized.



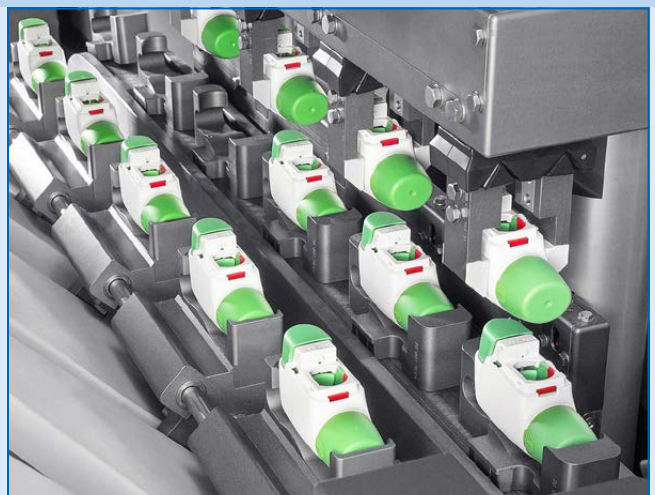
# Inhalation Products

## Sophisticated processes from dosing to inhaler assembly

For filling dry powder into powder inhalers (DPI) or liquids into soft mist inhalers (SMI), we provide you with the ideal dosing technology for your product. Our processes are designed to handle blisters, capsules, disks, reservoirs, powder and liquid cartridges. You can benefit from our process and product knowledge: Our Pharma Services experts support you in all aspects relating to the development and optimization of your inhaler product. We are with you every step of the way, offering machine technology from the laboratory level to production of test samples to high-volume commercial manufacturing.

## Our knowledge

- + Precise micro-dosing in different primary packaging containers
- + Filling technology optimized for your product
- + High degree of reliability through IPC inspections
- + Assembly, control and inspection systems for inhalers can be added
- + Short time-to-market periods through development support
- + Consistent scaling from proof-of-principle to production



# Microneedles

## Innovative process solutions for innovative products

Microneedle systems and Microneedle Array Patches (MAP) are a promising platform for the delivery of drug substances and are being intensively researched. They could be a quick and easy alternative to conventional vaccine delivery via syringes. The extremely fine needles, which are nearly invisible to the human eye, penetrate the uppermost skin layer (the dermis) pain-free for the patient and deliver the active substances through the skin locally or into the body via the blood-stream. In addition to drug-coated or hollow filled microneedles, which are applied and removed using an individual device or a patch, there are also developments of needles that dissolve completely after application. They consist of API embedded into a soluble matrix.

As a specialist for innovative process solutions, Harro Höfliger actively supports the development of this future technology together with universities and partners along the entire development chain.

## Our knowledge

- + Experience in the development of innovative processes and devices from PoC to commercialization and production lines
- + Flexible solutions for aseptic lab and production processes
- + Expertise in the gentle handling of sensitive products
- + High-precision coating and assembly processes
- + Process reliability through scale-up from laboratory to commercial production





# New Drug Delivery Systems

## Speed-to-market concept and innovative technology

User-friendly single-use drug delivery systems offering exact dosage and safe oral, nasal or pulmonary application are gaining in importance. Many years of experience with various delivery systems and our technical solution competence define us as the ideal partner to support you in the development of your new device or drug-device combination product. We offer optimization of design according to the requirements of drug application and also manufacturing processes on semi-automatic equipment to help you with a fast and safe product launch.



We also supply production solutions for products licensed by DS Technology, like the pellet-filled XStraw®. This is an oral administration device in straw format, specially developed for children and the elderly. Or a unit dose nasal applicator by MetP®, together with a formulation of a semisolid gel matrix, suited for human care and protection against air pollution, as well as for hormones and brain active molecules.

## Our knowledge

- + Manufacturing processes on semi-automatic or commercial-scale equipment
- + Transfer of device know-how to optimize the delivery system
- + Packaging of device, documentation and manufacturing equipment
- + Support in drug development and approval process (Pharma Services)
- + Speed-to-market concept
- + Devices for high-potent prescription drugs, OTC products or nutraceuticals





# Ostomy & Continence Care

## State-of-the-art solutions for complex production processes

Manufacturers of ostomy bags with convex and non-convex barriers plus catheter products continuously refine their products to ensure the highest possible level of comfort and safety for patients with a stoma or a voiding dysfunction. Thanks to our solid expertise in the field of patient attached devices (PAD), stoma bags, intermittent catheters and accessories, we offer state-of-the-art solutions for the most complex manufacturing processes and production. The modular design of each line enables our customers to react flexibly to future developments.

Depending on customer requirements, both open and closed multi-layer stoma bags can be produced and high-tech filters can be integrated. All extrusion, laminating, forming, sealing and cutting processes are continuously monitored by control systems to ensure utmost quality. When it comes to products for self-catheterization, our technology allows, among others, precise assembly and hydration processes, funnelling, eye punching, sleeving and funnelling in combination with innovative packaging.

## Our knowledge

- ✚ Many years of expertise in the field of ostomy and continence care products
- ✚ Production platform for closed and open drainable pouches
- ✚ Proven dedicated technology for mitigation
- ✚ Support from product development through PoPs and pilot scale to production
- ✚ Modular system for highly flexible production
- ✚ Reliable process and in-line control of critical areas



# Packaging

## Customized and reliable packaging solutions

A wide range of products to be packed and a huge number of different package types lead to a large number of packaging process solutions. Cartoning machines and other packaging machinery for a wide format range are the basis of Harro Höfliger. For over 40 years, Harro Höfliger has delivered all kind of packaging equipment to the industry. As a result of handling multiple customer requirements in the areas of Pharma, Medical, Consumer, Chemical & Technical, we have acquired vast knowledge and experience. Our experts will gladly assist you with your packaging processes and development.

We complement our well-engineered, proven standard platforms with individual modules adapted to your requirements – from the product infeed to the shipping case. This allows us to provide you with customized and reliable solutions for your specific packaging process, including special carton types, unique forms, sophisticated closure types and much more. In order to meet serialization and UDI requirements, all commonly used coding, labeling and inspection systems can easily be integrated.



## Our knowledge

- + Extensive platform and technology options
- + Support in packaging development
- + Advice on packaging development
- + Feeding technologies and handling systems adapted to the product
- + All conventional carton closure types, such as tuck-in, glue, special closures and safety closures
- + Comprehensive visual and sensor-type inspections
- + Fully integrated or stand-alone equipment for serialization, UDI and tamper-evident requirements
- + Stand-alone machines as well as turnkey packaging lines



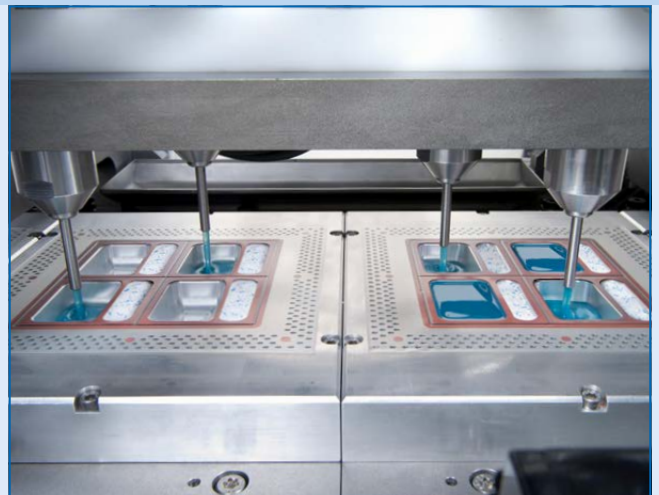
# Portion Packs

## Technology supply from development to production

Single-dose or multiportion packs are an attractive and convenient packaging solution for a wide range of consumer goods, such as detergents and cleaning agents, as well as instant drinks and nutritions. Whether it is aluminum foil or difficult to handle PVOH film (polyvinyl alcohol), cold forming or thermal forming – Harro Höfliger offers proven technology that is perfectly customized for the specific product. Pre-dosed pouches for the dishwasher or the washing machine are made of water-soluble film that is thermoformed to shape and filled with powder, gel or liquid at high speeds. Our experience in film processing is reflected in every process, from feeding, forming, dosing, sealing, perforation, punching or cutting to packaging.

## Our knowledge

- ✚ High process reliability from decades of experience and many successfully implemented projects
- ✚ Expertise in handling difficult materials such as PVOH
- ✚ Different shapes and formats including multi-chamber packages and triangular pack styles
- ✚ Technology supply from process development to high output solutions





# Surgical Sutures

## From joining needle and suture to tertiary packaging

In the production of modern surgical sutures, several different and complex processes must intertwine smoothly: Joining needle and suture (crimping), winding the needle-suture combination into the tray, applying a carton lid, followed by secondary packaging in an aluminium blister with Tyvek® window. After sterilisation, the blister is sealed with a sealer blanker and cut before the final leak test.

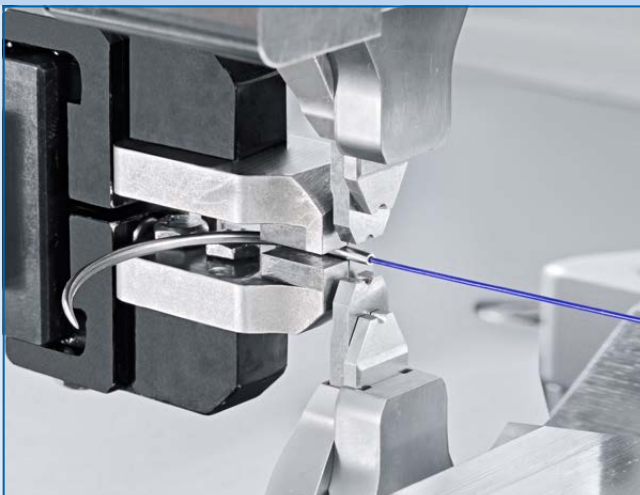
Harro Höfliger's range of machinery covers the entire process chain in the manufacturing of sutures, including

in-line printing and in-line quality control, right through to tertiary packaging of the blister in carton. A huge number of needle shapes, needle and suture sizes, as well as trays in different geometries and designs can be processed.

Harro Höfliger also supplies the complete technology for the XTray® licensed by DS Technology. With this device, which can be used for 80 percent of all needle-suture combinations, customers can launch their product on the market without any development effort of their own.

## Our knowledge

- + Swaging, winding, printing and process control in-line
- + Database connection possible
- + Know-how and experience in the complete process
- + Solutions for all needle geometries and thread sizes
- + Trays in various designs





# Wound & Skin Care

## Flexible processes for classic as well as innovative products

Patient and user-friendly wound care products suited for acute or chronic, non-healing wounds or sores continue to evolve. In addition to classic wound dressings with a great diversity of formats, Harro Höfliger's modular machine concepts allow the flexible production and packaging of advanced wound care systems that feature complex structures. Included among them are foams, hydrocolloids, hydrogels and alginates as well as antimicrobial dressings for state-of-the-art wound management.

Our flexible and adaptable processes also allow to fit dressings with onboard technology for added value. These "smart" high-tech products can detect how well a wound is healing and send data to medical experts.

All processes for manufacturing wound dressings, as well as skin care products such as corn plasters and heel care dressings, can be scaled to run not only on machines for labs and small batches, but also on high-performance machinery.

## Our knowledge

- ✚ Adaptable and flexible processes for a large variety of product variants
- ✚ Expertise in multi-layered pads and complex laminated products
- ✚ High competence in handling sensitive and innovative materials
- ✚ Wet and liquid dosing based combinations
- ✚ High degree of productivity and product safety
- ✚ In-line packaging for primary and secondary packaging applications



# Transdermal & Oral Delivery Systems

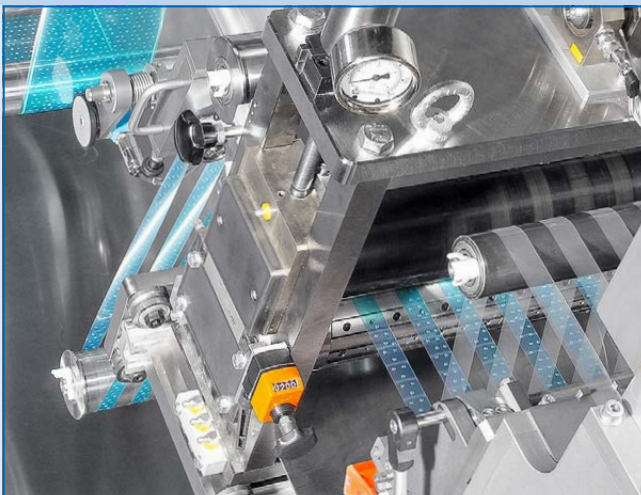
## Processes in compliance with highest pharmaceutical standards

Transdermal therapeutic systems (TTS/TDS) and oral (ODF) or mucoadhesive buccal (MBF) film strips are highly effective alternatives to traditional drug delivery systems. Transdermal patches are applied to the skin, and the active ingredients are delivered directly into the body through the skin. Oral and buccal film strips are placed on or under the tongue or inside the cheek. The active ingredients enter the bloodstream directly via the oral mucosa.

All processes for manufacturing these products are designed towards high product safety and careful handling of the active ingredients. TTS/TDS such as matrix and reservoir patches as well as oral and buccal film strips are manufactured in compliance with pharmaceutical standards and are securely packaged in four-side sealed sachets, which are designed to be easy and intuitive for the user to open.

## Our knowledge

- + High competence in handling and processing of sensitive web and film materials
- + Precise transfer of patches and film strips onto the packaging material
- + Diverse in-line inspection systems and vision system applications for highest quality
- + Complete validation of equipment
- + Modular system concept for highly flexible production
- + Combination of our expertise with experience of technology partners for the coating technique



# Medical & Pharmaceutical Device Assembly

## Extensive expertise in complex assembly processes

Medical technology products require assembly processes that are performed with utmost care in order to ensure the safety and proper functionality of the products. Whether it is pre-assembly or final assembly, simple or complex devices, our assembly automation specialists support you in all aspects relating to your product. Flexible modular systems ensure highly precise assembly of a large range of medical and diagnostic devices.

In-process controls guarantee flawless quality of pens, auto-injectors and inhalers, as well as tubes, cartridges, lab-on-a-chip systems and many other products. Our portfolio ranges from semi-automatic machines for samples and small batches to fully automatic solutions. A broad spectrum of feeding and handling systems, in addition to modules for filling, labeling and packaging, round out the perfectly coordinated system solutions.



## Our knowledge

- + High-quality special solutions based on proven technologies and platforms
- + Project processing and validation oriented strictly according to GMP relevance
- + Semi-automatic to fully automatic equipment
- + Highly efficient tray handling and feeding systems
- + Extensive inspections relating to product safety and functionality
- + Turnkey solutions for ready-to-use products





# Turnkey solutions

## Multiple production steps. One partner.

Benefit from our decades-long experience and know-how that is built into our sophisticated, well-engineered technology platforms. Our broad range of expertise and competencies helps us to bring you complete turnkey systems that are completely geared towards meeting your requirements.

## Modular design

Our platform-based machine design flexibly adjusts to the product and production environment.

## Efficient processes

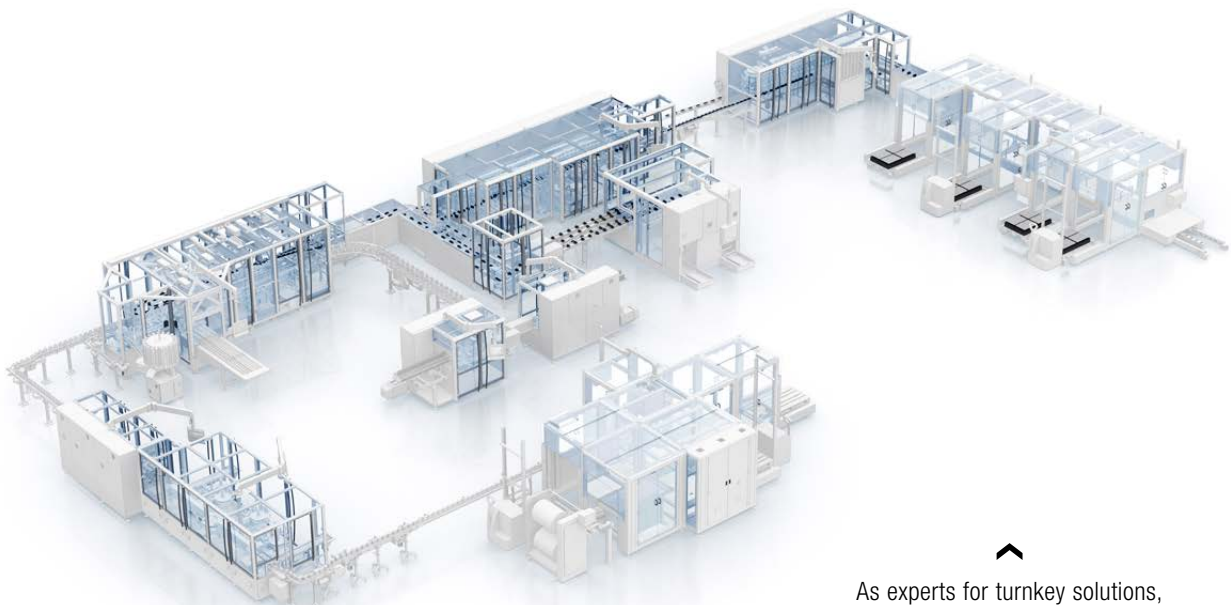
Uniform interfaces and operation ensure maximum cost-efficiency across all production steps.

## Optimum support

Our qualified experts provide advice and support at every phase of the project and even after launch.

## Your Benefits

- ✚ A well-thought-out overall concept from a single source – from development to high-performance manufacturing
- ✚ Consistent operation through uniform HMIs and simple maintenance
- ✚ Standardized production processes, combined with customized special solutions
- ✚ Remote maintenance possible in all areas of the facility via the Excellence United Service Portal



As experts for turnkey solutions,  
we offer reliable production  
systems for every stage of your  
manufacturing process.



# Product life cycle

## From the feasibility study to production readiness

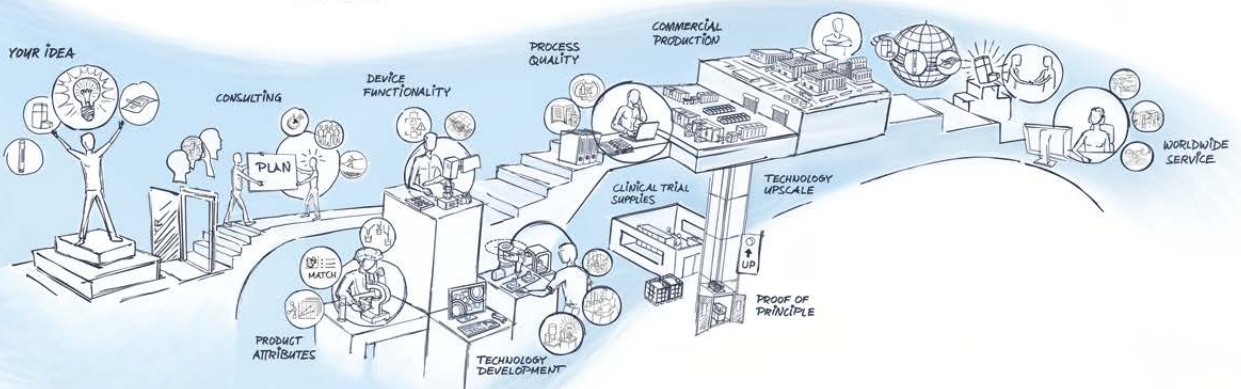
We offer you support services over the entire life cycle of your product. Comprehensive services for all your production and packaging system needs – that is what our motto, ALL YOU NEED, means to us.

We are by your side right from the early project phases – we support you from the time you develop the product idea, and continue through the development of optimum processes, the technical implementation and validation, and all the way to the successful launch of your product.

## Services along your product life cycle

- + Consulting – advice and expertise regarding product ideas, technology and processes
- + Pharma Services – product characterization and technical sample production under production conditions
- + Engineering & Innovation Services – technical development of new processes and procedures
- + Device Services – support in developing and optimizing your devices
- + Validation Services – risk-based approach to ensuring product quality
- + Project Management – internal and external project implementation and communication
- + Customer Service – comprehensive support for machines and production

WE TAKE YOUR IDEAS FROM LAB TO PRODUCTION.





A member of

Excellence United

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