



Deliverysystems

Go for proven solutions.



Speed up time-to-market with customised platform products.

- Modular and industrialised platform technologies speed up time-to-clinic and time-to-market
- Reduced project risks based on proven, innovative and patented technology
- Automated infrastructure provides rapid access to manufacturing capacity and reduces project investments
- User-tested designs improve patient compliance
- Robust customisation based on modular platform product designs



More confidence. More success. With Ypsomed Delivery Systems.

YPSOMED
SELF CARE SOLUTIONS



Ypsomed Delivery Systems

Leading developer and manufacturer of delivery systems

Ypsomed is a leading, independent developer and manufacturer of injection and infusion systems for self-medication and the preferred partner of biopharmaceutical companies worldwide. From technical development and design to manufacturing and packaging, Ypsomed contributes to the safety and market success of drug products. Its product range reflects over 35 years of experience and competence in delivery systems. This expertise not only helps Ypsomed to stand out in the market – but also helps our customers to stay one step ahead of the competition. Ypsomed offers a broad range of self-injection device platforms compatible with standard cartridges and pre-filled syringes.



Pre-filled and reusable pen systems

Ypsomed's broad range of injection pens covers pre-filled and reusable injection systems for therapy areas such as diabetes, growth disorders, infertility, osteoporosis and other indications where liquid stable drugs are provided in cartridges for frequent injections.



Pre-filled autoinjector systems

Autoinjector systems cover a broad range of syringe-based pre-filled devices for the growing range of infrequently injected and typically antibody-based drugs. Autoinjectors are triggered by push-on-skin activation which is convenient, ergonomic and preferred by patients.



Large volume patch injector systems

Patch injectors solve the need for the infrequent injection of biologics in the 5–10 mL volume range. Ypsomed offers a pre-filled patch injector platform as a new self-injection device class to complement the established and growing markets for pens and autoinjectors.



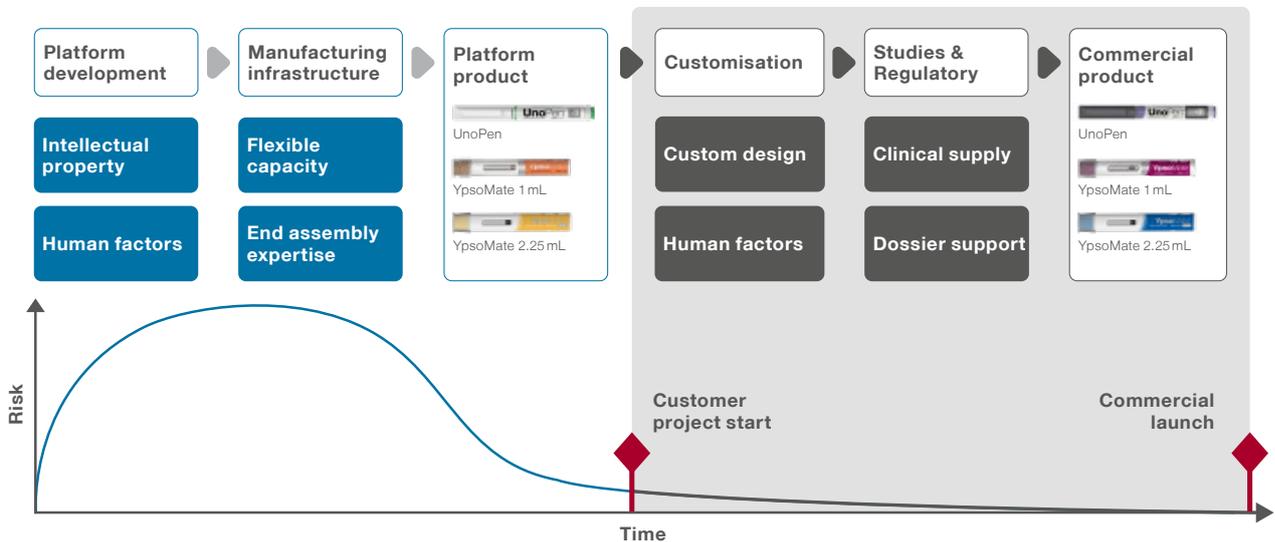
Digital Health

Ypsomed Digital Health create value for customers and patients by improving adherence and overall therapy outcomes. Ypsomed's digital solutions provide secure end-to-end and smart device integration to access therapy-relevant adherence data.



Ypsomed platform products

Fast and low-risk customisation of innovative delivery systems



Platform products enable flexible customisation while minimising project risks and shortening time-to-market.

Biopharmaceutical companies increasingly focus on self-injection devices to differentiate their drug products and at the same time fulfil patients' and payers' needs for convenient, safe, compliant and cost effective drug administration. Responding to customer requirements, Ypsomed has built up a comprehensive range of platform products that each meet key customer needs and are specifically designed to be modified to generate customer-specific commercial products.

Ypsomed decouples the development of new platform products from the customer project and thereby moves risk in-house to cover platform development and installation of manufacturing infrastructure. Each customer project is based on an existing platform with an established patent position and based on proven technology. Driven by patient needs, market intelligence and new innovative technologies, the provision of novel platform products also requires significant investments in manufacturing capacity. Ypsomed supports its

partners not only by customising its platform products to cover individual therapy requirements, but also by incrementally expanding its installed manufacturing infrastructure to match current and future market demand.

For Ypsomed's customers platform products accelerate time-to-market and lower project risk. In combination with its extensive development capabilities Ypsomed is able to manage all processes during the development of innovative injection systems effectively – from early-stage innovation, clinical supply and commercial launch, to customer support throughout the product lifecycle.



Ypsomed platform products

The starting point for your therapy-specific delivery system

Ypsomed offers a broad range of pen, autoinjector and patch injector platforms with optional connectivity for use with standard cartridges and syringes. With this broad portfolio, Ypsomed stands out in the market by being able to serve any customer enquiry independent of the required primary drug container.

Autoinjectors

The YpsoMate family of autoinjectors comprises single dose and pre-filled devices for the delivery of infrequently injected drugs, typically antibody based biologics.

| | YpsoMate® 1.0 | YpsoMate® 2.25 | YpsoMate® 2.25 Pro | YpsoMate® 5.5 | SmartPilot™ for YpsoMate® |
|--------------------------------|--|--|--|--|--|
| |  |  |  |  |  |
| Pre-filled syringe (mL) | 1.0 | 2.25 | 2.25 | 5.5 | 1.0 & 2.25 |
| Type of dosing | Fixed | Fixed | Fixed | Fixed | Fixed |
| Device type | Pre-filled | Pre-filled | Pre-filled | Pre-filled | Reusable |
| No. doses | Single dose | Single dose | Single dose | Single dose | Multidose |
| Min. dose (mL) | 0.2 | 0.4 | 0.4 | 1.5 | 0.2 |
| Max. dose (mL) | 1.0 | 2.0 | 2.0 | 5.5 | 2.0 |
| Connected | | | | ✓ | ✓ |
| Constant force drive | | | ✓ | | |

Pens injectors

Ypsomed's pen injectors are cartridge based devices designed for frequently injected drugs such as insulin, GLP-1, hGH, FSH and PTH.

| | ServoPen® | YpsoPen® | UnoPen™ | FixPen™ |
|----------------------------|---|---|--|---|
| |  |  |  |  |
| Cartridge size (mL) | 1.5 & 3.0 | 1.5 & 3.0 | 1.5 & 3.0 | 1.5 & 3.0 |
| Type of dosing | Variable | Variable | Variable & fixed | Fixed |
| Device type | Reusable | Reusable | Pre-filled | Pre-filled |
| No. doses | Multidose | Multidose | Multidose | Multidose |
| Min. dose (mL) | 0.01 | 0.01 | 0.01 | 0.04 |
| Max. dose (mL) | 0.6 | 0.6 | 0.8 | 0.4 |



Patch injectors

The YpsuDose patch injector is designed for the infrequent injection of high payload antibody based biologics in the 5–10mL volume range.

YpsuDose®



| | |
|-----------------------------|-------------|
| Cartridge size (mL) | 10.0 |
| Type of dosing | Fixed |
| Device type | Pre-filled |
| No. doses | Single dose |
| Min. dose (mL) | 2.0 |
| Max. dose (mL) | 10.0 |
| Connected | ✓ |
| Constant force drive | ✓ |



Human factors

Keeping the patient in focus

Ypsomed cooperates closely with experienced market research and design partners to gain a comprehensive insight into user-based needs and to develop innovative and easy to use solutions. Multidisciplinary design teams apply a mix of analytical and creative methods to ensure user experience and usability factors are aligned with functional requirements throughout the development process. All development activities at Ypsomed are based on an in-depth understanding of patients and their needs. Ypsomed's usability and human factor engineering process maintains this focus throughout the course of every project.



Custom design

Proven technology – unique in appearance

Customers may select a distinct look instead of selecting the standard platform product design without interfering with the mechanics of the device system. This ensures that customers benefit from all the technical advantages of the device platform while at the same time developing a unique appearance for their injection device.



Unparalleled manufacturing competence

Over 35 years of delivery system production experience and reliability

Ypsomed has a very high level of technological integration: From tool design and manufacturing to injection moulding and assembly, all process steps are performed in-house. Ypsomed's fully automated manufacturing infrastructure is located in Switzerland and Germany.

Expertise in tool making

Toolmaking has always been a strategic discipline for both prototype development and commercial tooling. For this reason Ypsomed's state-of-the-art tool centre is located at company headquarters in Switzerland.

Expertise in injection moulding

Ypsomed moulds all plastic components in-house, utilising a broad range of automated handling systems. Over 180 moulding machines are fully integrated into the SAP/ERP systems including tool trending and maintenance programmes.

Expertise in assembly

When developing new platform products Ypsomed ensures that the most reliable manufacturing process is selected. Ypsomed strategically invests in flexible infrastructure based on state-of-the-art and lean manufacturing processes using either flexible, semi-automatic equipment for low annual volumes or high capacity, fully automated equipment for high annual volumes.

Expertise in drug & device assembly

Combination products are only complete when device components and the primary drug container are assembled, labelled and packaged. Drug and device assembly often takes place at the filling site to reduce time, risk and transport costs. Ypsomed works closely with well-known equipment manufacturers to provide ready-to-order final assembly solutions that are tailored to device specific requirements such as assembly forces and in-process controls.



Fully automated tool electrode manufacturing systems



Multi-cavity tool moulding and automated handling systems



Fully automated UnoPen manufacturing



Intellectual property

Managing complex patent landscapes

Through extensive experience with devices, Ypsomed has acquired a profound understanding of the injection device patent landscape. Ypsomed's design engineers work closely with in-house and external patent specialists to ensure that all device solutions have solid intellectual property protection. Ypsomed owns several hundred patent families with granted patents as well as patent applications for innovative delivery system technologies.



Regulatory support

Over 35 years of expertise

Ypsomed has extensive experience in the field of regulatory submissions for injection devices and combination products. The number and broad range of devices Ypsomed has launched with customers speaks for itself. Dossier support is an integral part of each device project. Ypsomed helps customers to streamline the device-related process and allows them to concentrate on the drug-related part of the submission process.



Ypsomed's contribution to your success

Easily customised platforms to create commercial products

Ypsomed's platforms are the result of great innovative energy and tireless commitment driven by the strong wish to provide customers with injection devices that are:

- Easily adapted to accommodate the specific demands of individual drugs including customer specific outer designs.
- Innovative and patented platform products to significantly reduce project risks.
- Safe and reliable as proven by human factor studies during platform development.
- Smart and connected to create value for customers and patients and improve adherence and overall therapy outcomes.
- Affordable in terms of customisation cost and cost of goods due to Ypsomed's significant investment in platform development and manufacturing infrastructure.
- Manufactured with state-of-the-art processes using either high capacity, fully automated equipment for high annual volumes or flexible, semi-automatic equipment for low annual volumes.
- Designed and developed in Switzerland with manufacturing in Switzerland and Germany.



More **confidence.**
More **success.**
With **Ypsomed Delivery Systems.**



Pen systems



Autoinjector systems



Patch injector systems



Digital Health

Ypsomed Delivery Systems provides a complete range of drug delivery products and services to biopharmaceutical companies. We offer everything from development and design to manufacturing and packaging, giving patients and customers more confidence and leading to more market success.