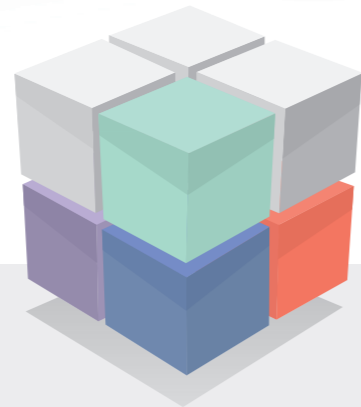


# Building blocks for a successful product

The success of a product depends on a number of factors. Apart from the spark of an idea and a dose of courage, a suitable process and reliable partners are needed. Altogether, they can greatly facilitate market entry.



## The product

The XStraw® is an oral administration device in straw format, specially developed for children and the elderly. The pellet-filled XStraw® provides users who have difficulty swallowing with a convenient and safe alternative to tablets or capsules. The application is very simple. Remove the cap, place the straw in a glass of liquid and drink. Depending on individual taste preferences, almost any cold drink is suitable.



## The right active ingredient

The pellet technology allows taste masking of potentially unpleasant-tasting ingredients. High-precision dosing systems ensure that every XStraw® is filled with an exact amount of the active ingredient. The right concept opens up the possibility to enter new markets. Partner for the development and production of the pellets is Excellence United member Glatt.



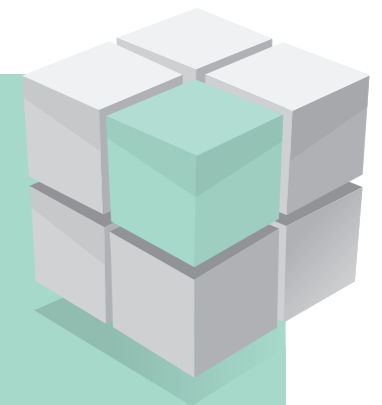
## Perfect functionality

Every component of the XStraw® contributes significantly to its functionality. Raumedic provides an ongoing supply of components for the extrusion of the drinking straws and the injection molded caps. The closing caps with desiccant are supplied by CSP. Porex is responsible for the sophisticated control filter.



## Creative partner

DS Technology GmbH, based in Winnenden near Stuttgart, is the licensor and markets the XStraw® and other medical and pharmaceutical products. Harro Höfliger supplies suitable production solutions. The experts from DS Technology, with many years of experience in the pharmaceutical industry, advise and support interested parties during the entire value creation process. This helps with a fast and safe product launch.





## Scalable processes

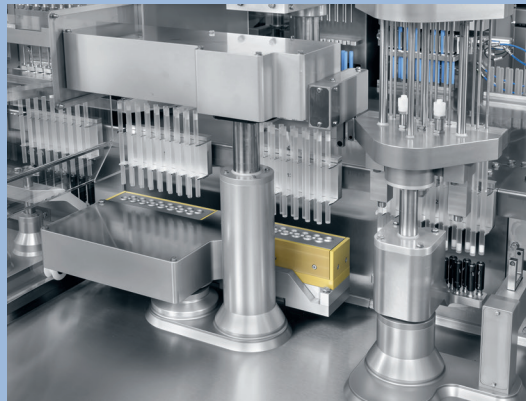
The scalability of processes plays a key role in pharmaceutical manufacturing. Harro Höfliger offers machine solutions for the XStraw® from the laboratory stage to high-performance production.



Filling with vacuum dosator

### Small-scale production

The DST LS for the laboratory stage is a semi-automatic filling and assembly unit with an output of up to 1,000 XStraw® per hour. A workpiece carrier manually loaded with empty straws which contain previously inserted control filters, passes through the filling and assembly processes step by step. The lower end of the tube is deformed, which prevents the control filter from sliding out. At the top, the XStraw® is rounded off. This shaping allows the closure cap to be locked into place and ensures a firm fit. Using a vacuum dosator, the XStraw® is filled with an exact number of pellets before the cap is applied manually.



Inserting the control filters

### Large-scale production

For high-performance production, a fully automatic system consisting of three machine units produces just under 20,000 XStraw® per hour. In addition to the automation of all filling and assembly processes, the intermittent oval motion machine has control stations that check, among other things, the filling and the correct closure of the XStraw® by means of a pull force test. Bad parts are detected and ejected. A connected film packaging machine seals the packaging of the XStraw® in a protective atmosphere, followed by online printing. A downstream cartoner packages defined quantities in folding cartons.