

## Laboratory and series production printing with micrometer accuracy

### Inkjet printers with high-precision SCHNEEBERGER guideways

*Our customer takes precision very seriously. Their inkjet printers achieve a repeat accuracy of one micrometer over the entire printing area and are therefore preferably used in sophisticated industries such as photovoltaics, electronics manufacturing and medical technology. The sturdy machine construction and the profiled linear guideways from the innovation leader SCHNEEBERGER in Germany are crucial for the high level of accuracy.*

Some time ago, the founding partners had the idea of establishing their own company in order to develop, produce and market high-precision inkjet printers for a wide range of applications in research, development and production. After appropriate preparation, our customer started business operations in October 2012. The entire team benefits from many years of experience gained from the development and production of inkjet printers for the solar industry, which they are using to realize many ideas available for applications and concepts jointly with their customers. With a small, efficient and highly qualified team, customer requirements are met flexibly and quickly.

As a basic technology for the application of industrial inks, inkjet printers are used in many application areas. Examples include photovoltaics, photo-chemical machining, printed electronics, coating and masking prints, and much more. A constantly growing market that, like some areas of medical technology, promises significant growth.

To ensure the required flexibility in terms of printer size, construction and features, our customer uses a modular concept for its n.jet series. The special machine manufacturer is able to integrate the highly popular piezo print heads entirely according to customer needs. The machines come with one to four heads as standard. If more heads are required for space or automation reasons, it is not a problem: "We can also extend our machines to eight or ten heads."

### **n.jet series achieves repeat accuracies of 1 µm**

Thanks to the flexible construction, users receive perfectly balanced products. Moreover, the manufacturer guarantees that n.jet printers not only work reliably and precisely under laboratory conditions, but also under series production conditions. This is by no means a matter of course in the market, assures the managing director: "We use the same components in our production machines as in our laboratory printers. Due to the modular design, the transition is smooth. If a process is developed with our laboratory printer on a small scale, there is no additional risk when upscaling and transitioning to the production inkjet printer because it uses the same software, hardware and printing strategy as the laboratory machines."

Although the customer has only been on the market for almost two years, the company already has a good reputation. The flexibility of the company and its machines contributes to this, as does the process accuracy. Expressed in numbers, the n.jet series achieves repeat accuracies of 1 µm and positioning accuracies of 3 µm over the entire work space of the respective machines. This is primarily due to several factors. The sturdy base frame and air cushioned, heavy granite worktop form the basis. The heads in the n.jet series are attached to a gantry drive that, thanks to the high-tech carbon material, is particularly light and sturdy. This smart construction ensures the highest precision, even under high dynamic conditions, and makes the machines highly insensitive to influences such as temperature variations and externally induced vibrations.

The profiled linear guideways used in all linear axes are just as important for smooth, jerk-free motion. Here as well, design manager did not want to make any compromises. He relies entirely on products from the innovation leader SCHNEEBERGER Linear Technology in Germany. The BM25 profiled linear guideway with ball bearings, which is designed for high precision and clean working environments, is primarily used.

## **Corrosion-resistant coated profiled linear guideways from an innovation leader**

The expertise acquired by the management team at their previous employer was decisive for the choice of supplier. Products of consistently high quality, a short response time and extremely reliable delivery are important factors for the special machine manufacturer. Furthermore, SCHNEEBERGER offers profiled linear guideways with an anti-corrosion coating. For the customer, this is crucial because inkjet printer operators also use media containing corrosive agents or solvents. "In such cases, the glide properties of guideways are quickly lost without corrosion protection. Faulty production, machine downtime and expensive repairs would be the logical consequence."

The SCHNEEBERGER BM25 has extraordinary running properties thanks to the component design, choice of materials and ball guideway configuration. Friction is low, and pulsation is minimal. SCHNEEBERGER ball guideways are designed for extreme smoothness – which is very important for inkjet systems. The trapezoidal rail profile and high rigidity of the guideway are also important in this respect. Smooth-running wipers ensure that any ink splatter is removed automatically without disrupting the production process. In combination with the linear motors, the profiled linear guideways achieve a minimal break-away torque. This in turn results in optimal synchronization and positioning characteristics, which ensure optimal printing results.

## **Captions**

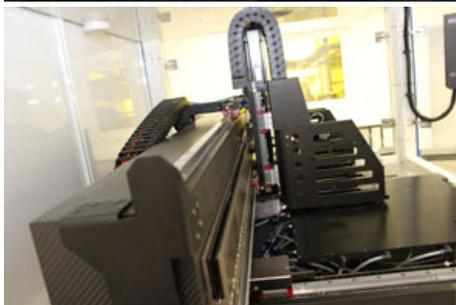


Inkjet printers are used in various industries where fluid substrates or inks are applied with high-precision – from the solar industry to electronics manufacturing and medical technology.



All available piezo print heads can be integrated into the n.jet series of inkjet printers to exactly suit customer requirements and applications.

Positioning accuracies of 3  $\mu\text{m}$  are achieved over the entire work space of the machines. In addition to sturdy construction, the SCHNEEBERGER profiled linear guideways used in all linear axes play an important role: they ensure consistently high-precision and jerk-free motion.



SCHNEEBERGER BM25 high-precision, anti-corrosion coated profiled linear guideways are used in all linear axes of the n.jet printers.



The SCHNEEBERGER BM25 has extraordinary running properties thanks to the component design, choice of materials and ball guideway configuration.