

Clamping technology

Valve giants firmly in control

Manufacturing valves weighing 2 tons? No problem. When producing its large pump protection valves, specialist manufacturer Schroeder Valves relies on chucks from HWR Spanntechnik.



Securely clamped with the "INOFlex VL100," large workpieces, some of which are further away from the clamping point, can be machined reliably.

Photo: HWR Spanntechnik / Mario Irmischer

Reliability and tradition are very important at Schroeder Valves. Founded 125 years ago and specializing in pump protection valves for 75 years, the company has always been family-owned. The specialist company, which has just under 90 employees in Gummersbach, manufactures Automatic Recirculation Valves (ARV), check valves, back-pressure devices, and multi-stage throttles in sizes ranging from 40 mm to 600 mm. These are used in refineries, power plants, the chemical industry, the offshore sector, and in the field of renewable energies all over the world. The all-rounder in the Schroeder Valves range is the "SSV" series, which is suitable for all types of liquids. The "SIP" (Schroeder Intermediate Pressure) series, introduced in 2019, is relatively new and is a pump protection device for applications up to 250 bar.

Pressures up to 500 bar

Schroeder Valves can withstand pressures of up to 500 bar. It goes without saying that they have to be manufactured with an accuracy of a tenth of a millimeter. The North Rhine-Westphalia-based company goes to great lengths to guarantee this precision. "We are the only company in the industry with our own test bench for valves, where the exact flow rate is tested. All other market participants only do this on paper, but we have a test bench," explains manufacturing manager Sebastian Türpitz.

Another challenge is the size of the valves. The largest of them easily weigh 2 tons or more. When 100 mm holes or 60 mm threads are drilled into such a workpiece, enormous forces are generated. In order to be able to machine these steel giants safely and precisely, Schroeder Valves relies on chucks from HWR Spanntechnik.

Schroeder Valves uses the "HWR INOFlex VL100" on a "BFR23" 5-axis milling and turning machine for large-part machining from the Swiss machine manufacturer Reiden. "A great combination," enthuses HWR sales representative Alexander Michel. Sebastian Türpitz is also impressed: "The VL100 enables secure clamping so that we can machine workpieces precisely. We clamp all our larger products on it."

The VL100 is a 4-jaw manual chuck that, according to HWR, is suitable for almost any clamping task on modern machine tools, regardless of the workpiece geometry, type of machining, or material required. Even deformation-sensitive components can be clamped with it. It features centrifugal force compensation and, thanks to its sealed design, is extremely low maintenance. Manufactured in a lightweight construction, it is very light in weight, allowing for a high table load. Nevertheless, it offers maximum clamping force, is clamped with fixed stops, and can also be used as a 2-jaw clamp if required.

High centering accuracy

In conjunction with the patented compensation system, the 4-jaw arrangement makes it possible to clamp round, rectangular, and even geometrically irregular parts in a balanced, centered manner. With this special compensation system, the jaws move toward or away from each other on two parallel axes. This ensures that the same clamping force is applied at all contact points at all times.



*The clamping jaws are adjusted on the toothing of the "INOFlex VL 100" rotary chuck.
Photo: HWR Spanntechnik / Mario Irmischer*

This centering accuracy is also crucial for use at Schroeder Valves. "We have placed the chuck on the machine's rotary table, which ensures that the workpiece is always centered on the axis," emphasizes manufacturing manager Sebastian Türpitz.

HWR Spanntechnik, based in Oyten near Bremen, has specialized in workpiece clamping technology for over 35 years, with a particular focus on clamping deformation-sensitive workpieces and the balanced, concentric clamping of components of any shape. With this wealth of experience and technical expertise, the company says it develops "clamping technology that combines precision, clamping force, and cost-effectiveness, while always keeping pace with the latest innovations in machine tool manufacturing." "We offer maximum flexibility with high process reliability and repeatability," says Michel, summarizing the benefits for customers. "Last but not least, we are known in the industry for our excellent personal service and quick availability."

Chucks in twelve sizes

Schroeder Valves and HWR Spanntechnik first made contact in May 2022. This was followed by an intensive exchange of the specific requirements. The choice finally fell on the "INOFlex VL" rotary chuck: HWR currently offers it with centrifugal force compensation in twelve different sizes, from 325 mm to 2000 mm in diameter. Given the required dimensions, the VL100, the sixth largest with a diameter of 990 mm, was considered. At the same time, Schroeder Valves ordered its new rotary milling machine in July 2023.

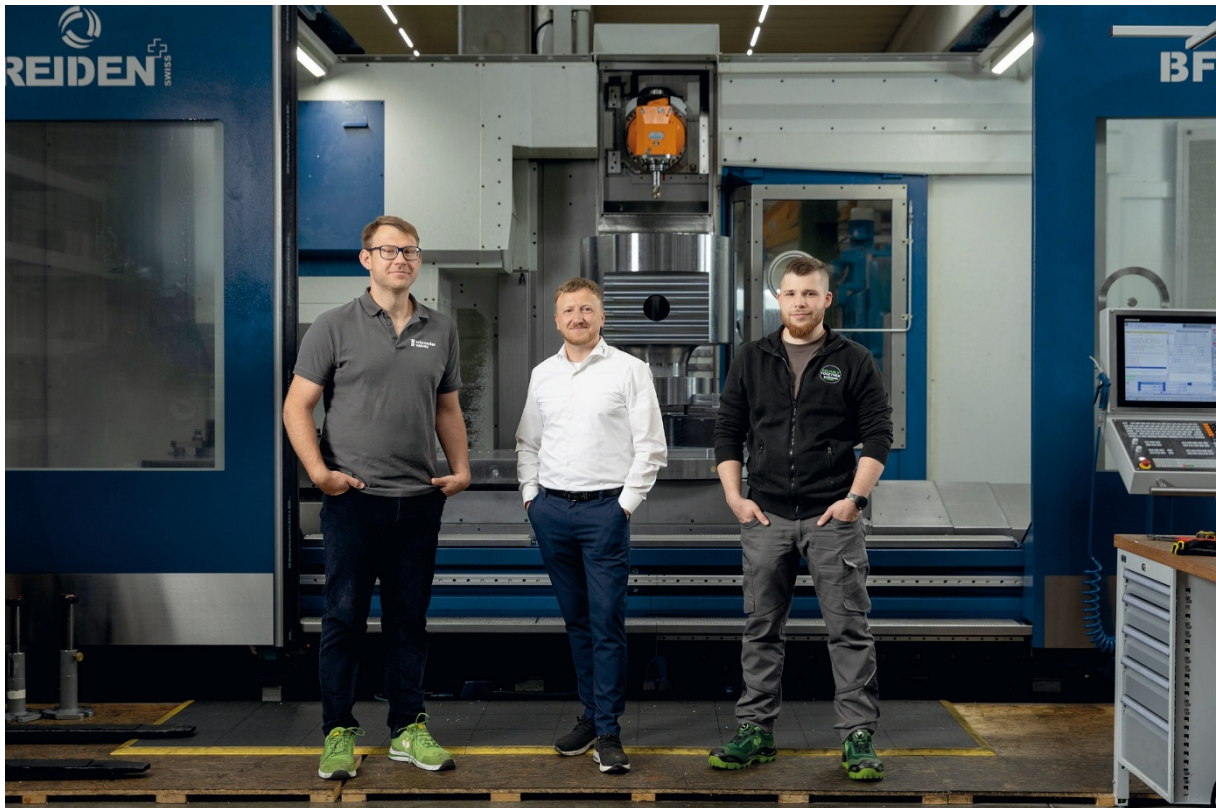
"Since the VL100 is universally applicable, it can be integrated into the customer's production process almost immediately," explains Michel. Schroeder Valves only requested adjustments to the dimensions of the clamping jaws, which were quickly implemented. According to HWR, it has since repeatedly proven its suitability for everyday use at the Gummersbach plant. "It is in use every day and is extremely easy for our machine operators to handle," emphasizes Sebastian Türpitz. Despite its high clamping forces, the VL100 enables fast workpiece changes and thus minimal setup times. "It is user-friendly, durable, and well-designed."



Ben Welsch, machinist at Schroeder Valves (left), and HWR expert Alexander Michel discuss the application directly at the machine.

Photo: HWR Spanntechnik / Mario Irmischer

And if there are any questions, HWR Spanntechnik's customer support is very competent and quick to respond, says Sebastian Türpitz. The 39-year-old manufacturing manager has been working at Schroeder Valves since 2024 and knows Michel, a trained machinist, from his previous job. "We have a very good relationship. Alexander Michel knows what the customer needs," emphasizes Sebastian Türpitz. "If you look at our regular sales alone, we are probably not one of HWR's premium customers. But we are treated like one, and our needs are taken care of quickly."



Task completed, workpiece clamped: Production manager Sebastian Türpitz, Alexander Michel (HWR), and machinist Ben Welsch (from left).

Photo: HWR Spanntechnik / Mario Irmischer

And just like Türpitz and Michel, their two companies also have an excellent relationship with each other. As Schroeder Valves is one of the first in its region to have a VL100, the company is an important reference customer for HWR Spanntechnik. In addition, both are driven by a similar spirit and, according to the press release, share the same values: "Reliability and precision."

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