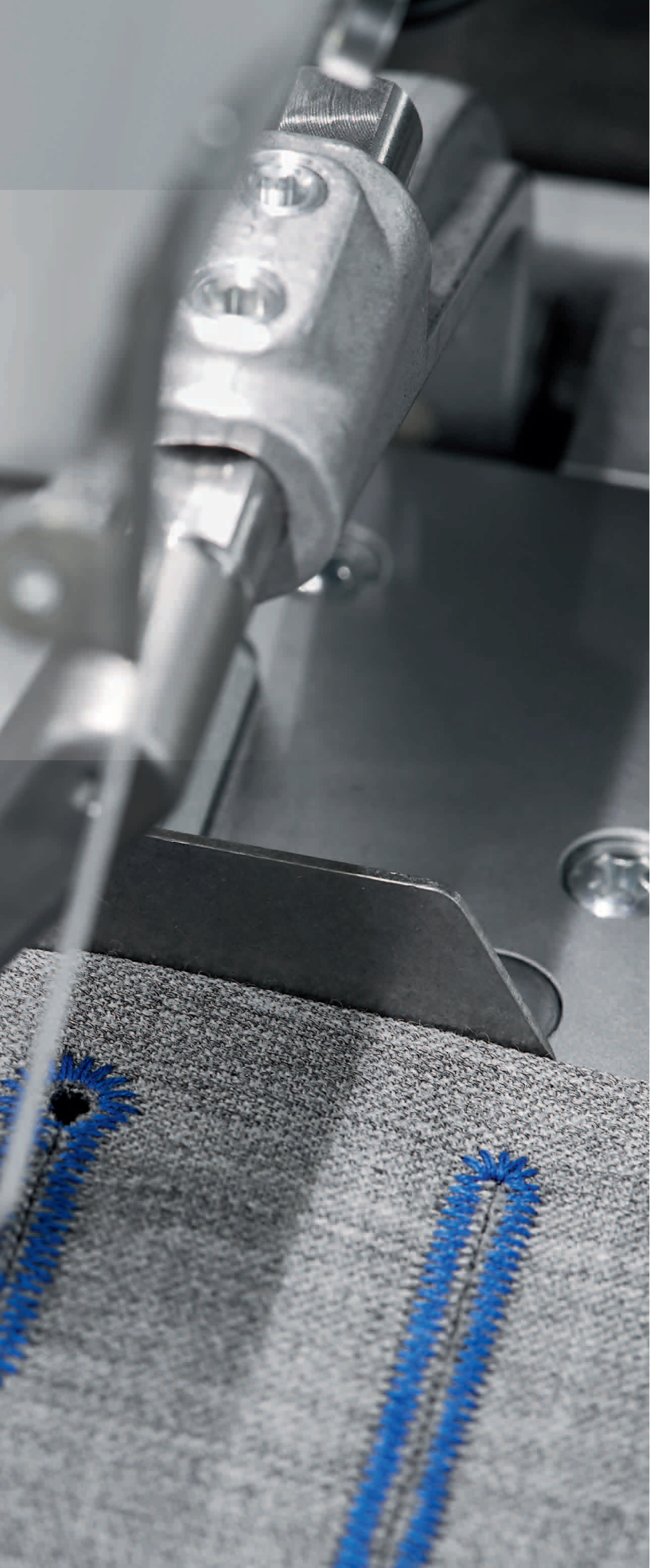
Production of eyelet buttonholes with solenoid valves VUVG

A stitch in time

Buttonholes are not only functional but also have a visual aspect. However, in textile manufacturing there is generally very little time to produce them. The new automatic eyelet buttonholer 581 from Dürkopp Adler delivers the necessary speed. Thanks to the compact Festo solenoid valves VUVG, it takes just under four seconds to create a buttonhole.



Innovation meets tradition at Dürkopp Adler. Dürkopp designed his first sewing machine in 1861. Over the next 20 years, the city of Bielefeld became one of the most important centres of the sewing machine industry in Germany. By 1880, there were 19 sector-related companies operating in the area, among them Dürkopp Adler. Today, the company has a worldwide service and sales organisation and is a global leader in the sewing machine and automatic sewing machine market.

Dürkopp Adler's automatic sewing machines are much more than just sewing machines. The high-tech automatic machines feature state-of-the-art control technology, multiple thread feeds and automatic cutting systems which cut through the fabric at lightning speed after the buttonhole shape is stitched. The shape and length of the buttonholes are set on the operating panel of the machine. The premium automatic double-chainstitch eyelet buttonholer 581 is equipped with a multiflex cutting system, which allows different buttonholes to be cut without changing knives. Festo solenoid valves VUVG are an important component of these ultra-modern sewing machines. They enable the fabric to be handled and processed extremely quickly and precisely, with the fastest variant for making jeans having a cycle time of just under four seconds.

Based on partnership

Festo has been a key pneumatic partner of Dürkopp Adler for many years. The high quality and performance of the solenoid valves VUVG prompted the sewing machine manufacturer to intensify cooperation with Festo during the redesign of the automatic double-chainstitch eyelet buttonholer 581 around two years ago. Among the features of the solenoid valve series VUVG that impressed Dürkopp Adler was its wide range of variants. →

“Our automatic double-chainstitch eyelet buttonholer 581 is the fastest of its kind in the world thanks to Festo technology.”

Markus Richter, Head of Development at Dürkopp Adler

Compact, fast and flexible: the solenoid valve VUVG has reduced cycle times by around a second.

Solenoid valve VUVG

Powerhouse in a small space

Compact, high flow rate and low cost. The solenoid valve VUVG is ideal for small parts assembly and electronics and for the food and packaging industry. Electrically and pneumatically actuated, the solenoid valve VUVG can be used as both an individual valve and a valve terminal. One of the unique characteristics of this valve is its optimised footprint with an excellent size/performance ratio. Compact and made from lightweight aluminium, the VUVG saves space in the system and reduces weight. Its 10 bar technology ensures accelerated cycle times, smaller cylinder sizes and a higher energy density. The patented cartridge principle makes the solenoid valve VUVG extremely durable and very reliable.

Meeting of automation experts: Dürkopp Adler Head of Development Markus Richter (centre) and Development Engineer Artur Hinkelmann (left) together with Viktor Peters, Sales Engineer Automation Technology at Festo.

With a modular design that makes them suitable for use as both a valve terminal and individual valves, solenoid valves VUVG combine high performance with short switching times and minimum space requirements. Another important argument in favour of choosing Festo as a technology partner was the global availability of spare parts.

As innovative technology partners and suppliers of high-quality products, Festo and Dürkopp Adler both benefited from stepping up their cooperation. For example, as the relative humidity in textile production facilities in the Far East requires greater protection for machines, the IP class of the solenoid valves VUVG was increased to IP65.

Speed and force
The high energy density of pneumatic components comes into its own when operating different industrial sewing machines. In addition to greater speed, the high pneumatic forces ensure clean cutting. Cutting blades, punching tools and cutting blocks cut through even the strongest of fabrics in a matter of seconds. Compact and with high flow rates, solenoid valves VUVG can be integrated not only into new product developments, but also into existing automatic sewing machines. In the automatic double-chainstitch eyelet buttonholer 581, the solenoid valves type VUVG control all pneumatically driven functions. These include cutting and punching to separate the fabric as well as the pneumatic adjustment of the cutting/punching device itself depending on the size and type of buttonhole. The spreading and clamping of the fabric before stitching the buttonhole are also pneumatically controlled. A further pneumatic clamping mechanism stops the fabric after the buttonhole is produced and pulls it forward slightly so that the thread can be cut off. The thread tensioning is then switched off by a pneumatic cylinder.

Good prospects
The new automatic double-chainstitch eyelet buttonholer 581 is, according to Dürkopp Adler, the world's fastest machine of its kind. The faster the system, the greater the customer benefits and therefore the company's competitive edge. The increasing degree of automation in the garment industry also means opportunities for textile firms in European countries to move production back closer to home. A good 90 per cent of the technology used in the textile market in the Far East is high-tech made in Germany.

Dürkopp Adler believes there is potential for further cooperation with Festo, and hopes to build on the relationship in the future. The newly developed basic solenoid valve VUVG-...-S has a crucial role to play. It features a selection of core functions and significantly reduces cost pressure, particularly in the production of automatic sewing machines with a minimal range of functions. ■

www.festo.com/vuvg

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Area of business:
Development and production of modern sewing technology