

Record-breaking union

The Swiss manufacturer SERTO Ltd is the only company in the world to make pipe and tube connections that can be mounted and dismantled radially. The inventors of the metal-to-metal seal offer customer-specific solutions in addition to their standard line of products. These Swiss products have even been to record-breaking depths of the sea.

"Good connections are important to us," says Umberto Dünki meaningfully. As Managing Director of SERTO Ltd, he is referring to connections to partners and customers as well as the products themselves. Since 1952 the SERTO brand name has stood for pipe and tube connections - the only ones in the world with radial mounting and dismantling. In 1960 these unions made in Switzerland accompanied Jacques Piccard on his record-breaking dive 11,000 meters below the sea. The company has been publicly owned under the SERTO name since 2001.

The radial mounting has come a long way

When in 1952 the first EGA pipe union came on the market, the radial mounting was viewed with considerable scepticism. After all, the basic elements of the fitting did not protrude into the pipe but were joined flush with the pipe via the compression ferrule. However, the father of this invention, Edmund Gressel from Aadorf (EGA), was determined to prove the benefits of his invention. Today, the SERTO Group has an annual turnover of 45 million Swiss francs (ca. 32 mil euros) and employs about 150 persons worldwide.

Edmund Gressel founded the Gressel company (Ltd since 1943) in 1923 at which time mainly clamping tools were produced. Generations of apprentices in metalworking are familiar with the vices manufactured by Gressel since 1933. Other products were added later, such as the pipe bending machine. When the inventor Gressel was asked about connecting elements at an exhibition of the chemical industry, he began to investigate the idea of a metal-to-metal seal with radial mounting.

Patented solutions for a good cup of coffee

"With the traditional, standardised fittings, hoses for example cannot be joined without bending or straining," explains René Glaus, Marketing Manager and Product Manager. "Our products are easy to install without the need for force." The fact that the patented unions are "always a wrench size smaller than comparable products" render the Swiss-made

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unions very popular in applications with limited space.

All the major manufacturers of professional coffee machines are among SERTO's valued customers. Others, such as La Cimbali, Schaerer, Bremer or WMF, to name but a few, swear by the brass products from Aadorf. One of our newest customers, Thermoplan, equips the coffee machines for the Starbucks chain of coffee shops with the new patented SERTO unions. High pressures and extreme temperatures in addition to the limited space called for a special solution.

From plumbing to industrial supplier

From 2 to 35 mm outer diameter and in a variety of materials, such as brass, steel, stainless steel or plastic, a broad range of products is on offer. "One of our guiding principles," adds Managing Director Dünki, "is to provide solutions for our customers, so naturally we are a multi-product supplier." And that is why Siemens Medical Products, Braun Melsungen, Bombardier, or the manufacturer of wafer steppers AMSL in the Netherlands have joined the ranks of our satisfied customers.

Over time, SERTO has evolved from a supplier to craftsmen, mainly from the plumbing sector, to an industrial supplier and OEM supplier. Our own department for special products handles customer solutions, which are not available on the market. Key Account Manager Peter Giger is responsible for tailor-made solutions and develops special designs, components or ready-made lines. At the present time, brake lines for railcar bogies are being designed for Bombardier in Great Britain. And in Taiwan the braking fluid of trains flows through assembled lines including unions from SERTO. And if Liebherr requires moulded or pressed parts with a complex geometry for their refrigerators, then Peter Giger will find a solution.

Development of the company

While the first fittings were regarded critically by the market, the compression union made its breakthrough in 1956. The compression ferrule, which is impossible to mount incorrectly, renders gaskets obsolete – and that was how the first metal-to-metal union came to be. Not only can various materials be joined with the compression ferrule, but also different diameters. The reduction in the compression ferrule means that no other basic element is required, and this marked the birth of an intelligent modular system. The increasing demand soon led to sales offices opening in Germany, Holland and Italy.

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Nearly 30 years later, the company was still going strong, when three deaths in the course of six months threatened to put an end to the continuity of the family business. "Only when the daughter and the brother-in-law of the deceased son of the founder, René Gressel, took the helm in 1985 was the continuity warranted," reminisces Hansjörg Gaupp, longstanding proxy to the company. Subsidiaries were established in Birmingham, Paris and Fuldabrück (D) in the years 1986, 1987 and 1993. The one in Germany was actually the acquisition of the plant founded by a former SERTO technician Fredy Jacob in 1957. Expanding the distribution paths meant that, in addition to the high quality of the products, the fast and reliable delivery service propelled SERTO to the forefront.

Only one drop in 44 years

It is Pirmin Westermann's job to make sure the connections are tight and leak-proof. "The name SERTO actually stems from the French word 'serrer' which means to tighten or clamp," explains the head of technology. All the products are tested rigorously in our own test lab. Besides a tensile test and a climatic exposure test, which simulates conditions from 0 – 100 % relative humidity and –40 to +140° C, there is also a leakage test station. A pressure of 10 bar is built up inside the pipes and unions, while at the same time on the outside a vacuum is created. Our standard for the helium used in the test is 1 ppb (parts per billion). The highest standard in the industry is 10 ppb, and this signifies only one drop of water in 44 years!

When a test is started in the special pressure chamber, there is a great deal of suspense. Pipes and connections are placed under water and subjected to a pressure of up to 2,000 bar. "If the pipe bursts, then we have won," says Westermann, "because that means the pipe unions are stronger than the pipe material itself." In order to provide customers with the highest degree of safety, the Swiss specialists test each product at least ten times, even though the standards stipulate only six successful tests.

If doesn't hold at 2,000 bar then it gets rejected

SERTO's commitment to the best quality and the highest level of safety soon made them a highly demanded supplier in the chemical industry. Meanwhile, other industries with security relevant areas, such as ex-zones, also rely on the pipe unions from Aadorf. Constant market analysis and innovative ideas make sure that our products keep pace with the latest developments.

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Noteworthy at this time is our new SAE union, traditionally used in refrigeration and air-conditioning, with a special compression fitting. Because the conventional flared pipe ends or soldered pipes are being prohibited in a large number of countries, new solutions were sought. The flexible structure of our organisation with teams overlapping the different divisions promotes the exchange of ideas and shorter development times.

A clean service: oil and grease-free

Products aren't the only thing that is continuously developed and improved at SERTO. The newest service we offer are the oil and grease-free cleaned pipe unions for oxygen applications. The unions cleaned in an environmentally friendly process, packaged individually, and documented according to a certified process have a guaranteed level of cleanliness of < 33 mg which is significantly lower than the required 66 mg. "Many customers clean our unions themselves before installing them in oxygen systems," explains René Glaus, "but then of course they don't know the actual level of cleanliness." Inevitably, some degree of uncertainty remains.

SERTO's product manager has the solution. The new cleaning service is available for copper, brass and stainless steel products. The cleaning facility works with environmentally friendly and degradable acids, alkali solutions and DI-18 water instead of trichlorine. The collected and treated "waste water" is later disposed of normally in the sewage system. "Our customers trust us because of our expertise and because we exercise utmost care," says Managing Director Umberto Dünki. "We don't have to break a new record every time, like we did when our unions went with Jacques Piccard to the deepest point in the ocean."

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