

Dominating a niche

Uth Machinery banks on expertise in fine-mesh straining technology

By Bruce Meyer
Rubber News Staff

FULDA, Germany—When Peter Uth and his brother-in-law Winfried Schutz founded Uth Machinery GmbH in Fulda in 1985, they never dreamed they'd become experts in providing solutions for fine-mesh straining and precise gear pump extrusion.

But that's where the company stands 36 years after its founding, providing machinery for "gentle and clean processing of rubber and silicone," as well as adding new capabilities that widen its appeal to potential customers.

Uth's offerings can be used for serial production, system solutions or custom-made machinery for its clients. Applications are in such sectors as tire manufacturing, automotive parts/other mechanical rubber goods, silicone compounding, threads for wire and cable goods, and adhesives and sealants.

"We are the one with the widest range and with the most successful installed solutions," said Peter Uth, now the firm's managing director and main shareholder (Schutz now owns rubber machinery maker Deguma-Schutz GmbH).

"There are other people in the market that may have one system. There are people in the market who offer a solution that is mostly from screw extruder makers.

"Over the last 25 years, there is a big list of people who have started and also have stopped offering something."

No rubber in sight

Back in 1985, that was hardly the case. Uth Machinery was a two-man operation, developing automation equipment. But there was a small German town not far from Fulda that was a bit like Ohio in its rubber heyday, according to Uth. A lot of tire makers had operations there, including Goodyear, Dunlop and Pirelli.

And the company got a project in the rubber industry to develop automation for mixing and molding equipment. "Until then, we didn't have much knowledge about the rubber industry," the firm's managing director said. "But after doing two or three projects, we got dubbed as 'experts.'"

Uth Machinery got more orders

in the industry, and started rebuilding and refurbishing older equipment to have modern controls and systems. Then they branched out into specialized equipment that wasn't available in the open market.

Right from the early days, there often were issues with impurities contaminating rubber compounds. Uth said the firm's first contact with these issues was with Ford, which was strong on quality. The auto maker found that while rubber averaged roughly 7-8 percent of the weight of a car, the components (including tires) were responsible for more than half of quality issues.

That led to big discussions on how to improve quality in rubber processing. One variable was the process, where consistency and control were necessary.

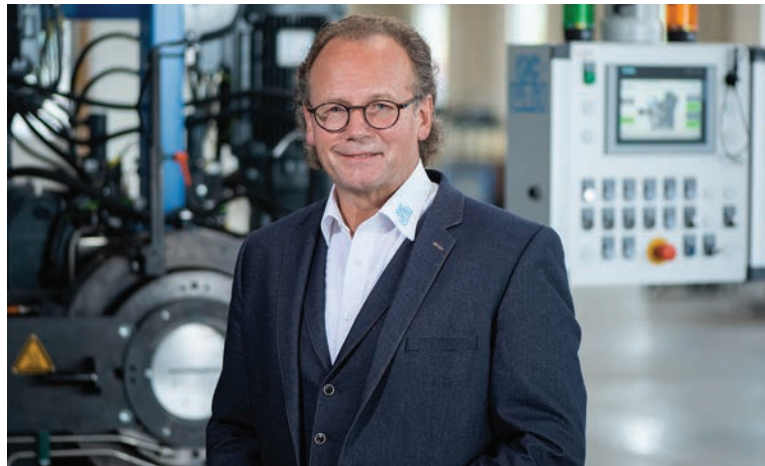
Years later, Uth Machinery had a customer making automotive weatherstripping profiles that won orders for the new BMW series in 1994. But the weatherstrip producer had about 30 percent scrap because it couldn't meet new specifications for the surface of the rubber profile. Uth said the rubber compound needed to be filtered through a fine mesh screen, but that wasn't possible with the extruders available at the time.

"Because it was the final compound—and the final rubber compound is very temperature sensitive—there was no industrial equipment maker available to filter that rubber compound with such fine-mesh screens," he said.

Uth Machinery tried unsuccessfully to find a gear pump in the market to build up high pressure without building up high temperatures. "We were in a position to either stop the idea or look deeper and make a gear pump to process the final rubber compound," Uth said.

The firm decided to look into developing a gear pump that was suitable for rubber compounds. Uth said it took about a year to find a solution, and its first commercial gear pump and fine-mesh strainer for rubber was launched at the 1995 K-Show.

In the beginning, he said the biggest demand was for automotive weatherstripping. Other players tried to encroach on Uth Machin-



Peter Uth co-founded Uth Machinery in 1985, and the firm has developed a reputation for making quality niche products.

ery's new discovery. One machinery firm with more than 100 years in the industry tried to develop a solution once it realized a gear pump could solve the problem. But between the idea stage and implementing it into a 24-hour industrial operation, the competitor couldn't make it work.

In trying to develop a solution, Uth said it "didn't invent the wheel," but it was able to industrialize its fine-mesh strainer. The first machines were small, with about 250 kilograms of throughput per hour, enough to put in an extrusion line to perform in-line straining for the rubber profile industry.

Moving forward

One major step forward was the implementation of a fine-mesh straining process into a high-volume mixing operation. Uth Machinery took on the challenge from an automotive parts supplier that wanted throughput of 3.5 metric tons an hour. After more than a year of development and engineering work, the firm installed the system in February 2003, and that machine still is running to this day, Uth said.

He added that the problem with extruders is that contamination can occur in the die, which in turn causes the profile to go out of dimension. That causes the rubber operation to have to stop the whole line, take off the extrusion head and clean everything.

"This was taken as normal," Uth said. "With the fine-mesh strain compound, there is nearly no major

contamination in the extrusion die anymore. It limits the downtime for the interruption and the production loss with the strained compound, giving additional capacity on the line and improvement of the quality.

"That means today when we talk about the fine-mesh straining in the mixing line, we are talking about fine-mesh straining in the extrusion line, offline with straining cells and within the calendaring line."

The main configurations used in the rubber industry are based on two-roll, screw or twin-screw conical feeders. The gear pumps can run from 250 kilograms per hour, up to 10 tons per hour, with the larger ones mainly used for tire industry applications.

He said the flexibility of Uth Machinery's offerings—many of which are sold under its roll-ex brand—is one of its top benefits, likening it to Lego sets, with standalone components that can be configured as needed. While each application has the same gear pump, the filtering heads, screen diameters and use of a die system to make either strips or sheets all depend on what a customer wants to do after straining.

"This means we have worldwide the widest range to make industrial solutions for the applications," he said. "Nearly every customer application is at least a little different, because every tire or rubber company has its own process history. The system has to match into the existing requirements."

Uth said applications have broadened over the years, with some running a natural rubber masterbatch where it may use lesser-cost materials that can be upgraded by the filtration the strainers provide. Other customers do the same thing with some of the cheaper carbon black grades.

About half of Uth Machinery's business comes from new mixing lines and facilities, with the remainder resulting from retrofitting its systems into existing mixing lines, the company's owner said. Because its components are located between the standard components of a mixing line, they easily can upgrade existing lines by adding the strainer.

It also offers straining systems for use with silicone compounding, which Uth said has processing steps that differ from other traditional rubber compounds.

Having such a wide range of options and offerings sets Uth Machinery apart from its competition. "Our approach is not to supply a machine. It is our aim that we supply the customer a solution," he said. "This is such a sensitive area here that one has to look very deep in all aspects to make it a solution for the customer."

Future looks bright

Europe is Uth Machinery's main base, with all manufacturing, engineering and headquarters in Fulda. It has subsidiaries in Japan, China and India, along with a global sales and service network.

Total employment is about 100, and the company is family-owned. Peter Uth's wife has been involved for more than 30 years, handling human resources, and their oldest daughter is an engineer who is in charge of the research and development and design division.

One area where there is room to grow, he said, is in the U.S. With so much rubber activity shifted to Mexico, many of the main U.S., European and Japanese players have set up operations there as well. "That means we have supplied more systems into Mexico in the last 10 years than we have in the United States and Canada," Uth said.

He added that the firm will look to leverage its relationships with some compounders and automotive parts makers to build up the U.S. business.

New product development also remains a key to the future, Uth said. Some of the newer offerings include:

- the roll-ex MDSE, an integrated solution for batch-mixing and subsequent discharging based on the conical twin screw extruder;
- a polymer dosing system based on the roll-ex gear pump technology, which offers a special solution for the feeding, plasticizing and dosing of polymers of higher viscosity; and
- the TRP 2800 two-roll plasticizer, used for reprocessing and straining of material in tire factories.

Uth said the TRP 2800 can take uncured rubber that went through the factory but was not within specification because of such things as stops and startups of machinery, and work it back into production. It filters the material, runs it through the gear pump system and extrudes it as a sheet.

The COVID-19 pandemic has had a noticeable impact on the business, Uth said, particularly in 2020 when many projects were put on hold. It also was a challenge, when businesses did resume operations, to try to service its machines remotely, leading a customer's staff through the maintenance or service steps.

"We can do a lot by remote, but it's also important that our service engineers are doing inspections for preventive maintenance," he said.

Business isn't back to pre-pandemic levels yet, but with projects that are restarting "we are confident by the end of next year we will be back to our old performance."



Uth Machinery of Fulda, Germany, "didn't invent the wheel," but did add to the industry's ability to produce cleaner rubber with its fine-mesh straining technology.