ERNE NEWS

Mürzzuschlag factory: How Erne became a one-stop-shop for butt-weld fittings

Our headquarters in Schlins and our factory in Mürzzuschlag are located on either side of Austria, 618 km or 6.5 hours' drive apart.

Erne Fittings has been producing pipe fittings using cold forming procedures in Mürzzuschlag since 1988. Located in Styria in south-east Austria, the factory manufactures a range of products to complement our production operations in Schlins, including elbows, tees and reducers in a huge variety of materials, in sizes up to 12 inches.

Originally, Erne Fittings specialised exclusively in the production of elbows using the Hamburg bending process and made a name for itself as a leading supplier of these products. Then, at the end of the 1970s, the company took the strategic decision to expand its operations to cover all butt-weld fittings and set about finding suitable partners for this venture. In 1985, Erne Fittings GmbH signed an exclusivity agreement with Vereinigte Edelstahl-Werke (VEW), a subsidiary of the VOEST-Alpine Group, for the sale of all non-stainless steel products. Just a few years earlier, VEW had set up its own production company for pipe fittings, which was manufacturing predominately stainless steel butt-weld fittings at its factory in Mürzzuschlag. The factory used a cold forming procedure known as liquid bulge forming, which VEW had successfully implemented on an industrial scale. More importantly, the factory was able to process the carbon steel and medium-alloy steels used by Erne, and so a partnership between the two companies was born.

Three years later, despite being the 'smaller' partner, Erne Fittings took over the whole VEW factory for butt-weld fittings, including all 40 employees, and finally achieved its goal of becoming a one-stop-shop for these products. Following the acquisition, the company also changed its name from 'Josef Erne Rohrbogenwerk GmbH' to 'Erne Fittings GmbH'. Today, it continues to employ 100 employees in Mürzzuschlag.

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Editorial

Dear Customers, Business Partners and Employees,

2020 has been the most unpredictable and unsettling year that any of us have ever faced. But with the support of my management colleagues, my team, and all of you, it has been a privilege to guide Erne through these challenging times since joining you in May. The experience, energy and tireless commitment of my staff have given me strength and the belief that, together, we can overcome the challenges and emerge from the crisis stronger than ever before.

Over the last few weeks, we have invested much time and effort in making our processes more efficient across the board, from sales to production and logistics. We will be rolling out many new initiatives over the coming weeks and months, with the aim of strengthening our financial position and ensuring we remain competitive in the long term. I am confident that we are on the right path and that, together with our customers and partners, we can get Erne back firing on all cylinders once more.

I would like to take this opportunity to offer my personal thanks to all our staff. Throughout the coronavirus crisis, you have all had to make sacrifices and be extremely flexible to ensure we continued to meet our delivery commitments and provided our customers with the best quality service, despite working reduced hours. That takes real commitment and I thank every one of you for your efforts. I would also like to thank our customers and business partners for their loyalty and the trust they have shown in us over the years. I am looking forward to getting to know you in person, but for now I wish you a very Happy Christmas and all the very best for the New Year. Take good care of yourselves!

Matthias Kaufmann
CEO

Imprint

Publisher: Erne Fittings GmbH, Hauptstraße 48, 6824 Schlins, Austria, T +43 5524 501–0
Editorial: Katrin Tegel, Marketing at Erne Fittings
Design and Layout: Weber, Mathis + Freunde, Dornbirn, AT
Edition 2/2020, company assumes no liability for misprints.

Our products in use

La Hague nuclear reprocessing plant

Since 2018, Erne Fittings has been supplying large volumes of pipe fittings, produced at our factory in Mürzzuschlag, for the nuclear fuel reprocessing plant in La Hague in northern France.

The plant, which is operated by Orano (previously Areva), is one of the largest nuclear fuel reprocessing plants in the world. Reprocessing plants use chemical and physical processes to extract reusable radioactive fission and activation products from spent nuclear fuel. Plutonium and some uranium can be recycled as fresh fuel, and any remaining radioactive waste then processed further and disposed of.

There are two plants in operation at the La Hague site, which are specially designed for reprocessing oxide fuel from light water reactors. The plants, which have been running since 1976, can process around 1700 tonnes of spent fuel per year and recycle up to 96% of the material. As well as reprocessing fuel for the 58 nuclear power plants in France, La Hague also recycles material from plants in Germany, Switzerland, Belgium, Italy and the Netherlands.

As part of the European Economic Interest Grouping GNMS (Global Nuclear Metal Supply), Erne Fittings was commissioned at the start of 2018 to supply fittings for the expansion work taking place at the La Hague nuclear reprocessing plant. To date it has supplied elbows, tees, reducers and caps from DN15 to DN250, in the following materials: P265GH, 1.4306 and 1.4404.

All the products are produced using cold forming procedures at our factory in Mürzzuschlag in south-east Austria, in line with the customer's individual specifications. These specifications require that all the fittings meet the Areva Standards, which have been modified specifically for this project, including limits on chemical

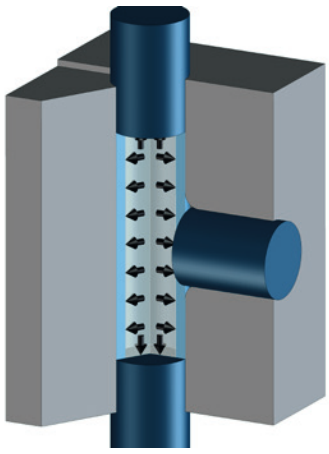
How to turn a pipe into a tee usi

We use several different cold forming procedures to produce our butt-weld fittings at our factory in Mürzzuschlag. Without doubt, the most exciting is the liquid bulge procedure that we use to make our tees.

In contrast to hot forming, cold forming is any process where the material is shaped below its recrystallization temperature. The material is not heated (or only very slightly) and is instead forced into a particular shape by squeezing, bending or drawing. One advantage of cold forming is that the resulting material is stronger, thanks to the cold work hardening that occurs during the manufacturing process. This means products are more durable than parts produced using other techniques. The surface quality is also better, as is the geometrical accuracy of cold-formed parts. Moreover, with a cold forming procedure, you have the luxury of using tubes with the same diameter as the finished product.

At Erne Fittings, we use three different cold forming procedures. For tees, we use the liquid bulge procedure, for elbows the EPC (Erne Pressure Conformity) procedure, and for reducers the aptly named reducer procedure.

Let's take a closer look at how the liquid bulge procedure works. First the pipe is cut to the required length for the production process and then inserted into a mold. The pipe is then sealed, flooded with water and



Liquid bulge procedure: The pipe is flooded with water and clamped into the mold.

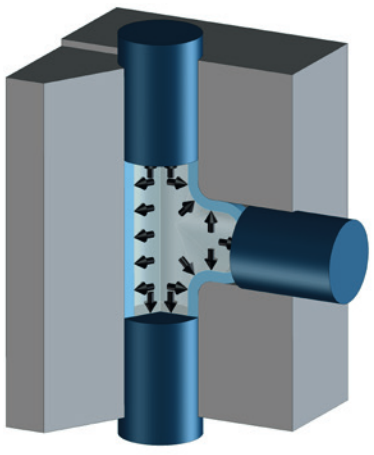
analyses, specific measurement tolerances and specialist tests. Another quality assurance and quality management requirement is that we follow an 'Inspection Matrix', which must be stamped and signed by an authorised staff member at each stage in the production process. There are also special surface finishes and specific markings for the nuclear industry that we must apply, as well as particular requirements for packaging and delivery that we must follow.

We are extremely proud to be involved in this project and delighted that the customer trusts in the quality of our products for such a critical application.

ng cold forming

clamped into the mold using a hydraulic press. The pressure created inside the pipe provides support during the forming process and ensures the final product retains its round shape. Next, two pistons press down on each end of the pipe, while a third side piston is pulled outwards. The material expands along the internal walls of the cavity created by the side piston to create a T-shape. The enclosed end of the extruded section is removed and all the ends finished off in a later step.

The advantage of this procedure is that it can be used for a wide range of applications, for ferritic steels, stainless steels and non-ferrous metals. Pipes can also be cut to size, no internal tools are required and the liquid pressure does not need to be generated externally. That said, this procedure does require some very expensive and complicated forming machinery and tools. Due to the high pressures exerted during the process, the level of cold work hardening is also very high, so heat treatment after shaping may be required for some end products. As part of the final quality control checks, the finished tees undergo a magnetic particle or dye penetrant test to check for any cracks in the areas most altered during the forming process, namely the side wall area. Then, once a few more quality checks are complete and the final markings are applied, the tees are ready for dispatch.



Two pistons press down on each end of the pipe, while a third side piston is pulled outwards.

Introducing ...

Martina Gogg

Senior Production Manager for the Forming team in Mürzzuschlag
Joined Erne Fittings in April 2019

Martina Gogg is one of the production team leaders at our factory in Mürzzuschlag. In this interview, we talk to her about her work at Erne and what advice she would give to any women embarking on a technical career path.

Martina, it's 18 months since you became team leader for one of the Erne production teams. What exactly does your job involve?

Communication is the most important part of my role as a team leader. It's my job to make sure that the members of my team understand what's expected of them and are motivated to do their job to the best of their ability and, likewise, that they have the resources they need to do that. I am also responsible for organising my team's shifts and annual leave and ensuring all the work processes run as seamlessly as possible, so that only quality products leave the stamping plant and everything is delivered on time.

That sounds like an interesting job, but also very challenging.

It certainly is! I'm responsible for 29 employees, so one of the biggest challenges is managing lots of different personalities. It's fun, though, and I'm really pleased to have the opportunity to be a team leader. For many years in my earlier career, I was in a position where I felt I had no influence. Now, I have the opportunity, in my own small way, to actually make change happen, to make things better and to make a real difference. That's what I really love about my job.

Now, I have the opportunity to make a real difference.

I can imagine it's not always easy to be a woman working in production. How do you find working in what's traditionally considered a 'man's world'?

I don't know any different, because I've always worked with men ever since I began my career at 16. For me it's normal and that's exactly how it should be. Over the years, I've learnt to hold my own when chatting to male colleagues and I don't think I'd make a very convincing princess these days (she laughs). But seriously... I just can't imagine anything different.

It has to be all or nothing, not somewhere in between.

What advice would you give to any women who are interested in following a technical career like you?

I'd tell them not to expect anything to be handed to them on plate. And that's exactly as it should be! You have to really want it and not be afraid of things going against you. If you're ambitious and driven, then you can achieve anything, but you also have to embrace all the responsibilities. You can't just cherry pick the best bits and play the girl card when things get tough. It has to be all or nothing, not somewhere in between. If you understand that, everything will fall into place and you'll find your way.

Many thanks for your time!

Impressive 42 inch elbows

Whistler Pipeline, USA

Measuring 450 miles in length and 42 inches in diameter, the enormous Whistler Pipeline will transport almost 2 billion cubic feet of natural gas, every day, from Waha in western Texas to the Gulf Coast in the south of the state.

The new Whistler Pipeline is built to meet the growing demand for natural gas and provide direct access to markets and consumers in southern Texas. Work on the intrastate pipeline began in 2020 and is due to be completed in summer 2021. The 450 miles long and 42-inch intrastate pipeline will transport almost 2 billion cubic feet of natural gas, every day, from Waha in the Permian Basin (near Coyanosa) to the Agua Dulce hub on the Gulf Coast. The project also includes a 50 miles, 36-inch lateral to provide connectivity for gas processors in the Midland Basin.

Whistler Pipeline LLC is a joint venture between White Water Midstream, MPLX LP, West Texas Gas and Stonepeak. The project management, engineering, procurement and construction planning are being provided by Mott MacDonald.

At the end of 2019, Erne Fittings was commissioned to supply several 42" × 0.617" WPHY R=3D elbows, in various segments ranging from 20° bis 90°, in line with the customers' requirements. The advantage of this approach is that the pipes do not need to be segmented on site, which can prove very time-consuming. In addition, the outside of the elbows was epoxy coated, to ensure protection against rust and mechanical damage. In June 2020, Erne Fittings successfully delivered the 42 inch elbows in time for the various construction stages for the Whistler Pipeline.

Merry Christmas and Happy New Year!

Christmas is going to be very different this year, but however you spend it, we wish you and your loved ones a restful and relaxing festive break. Perhaps this year is a chance to slow down, escape the usual hectic festivities and take a step back from our busy lives – an opportunity to spend more time with the people we love, doing the things that make us happy. We wish you all health, happiness and all the very best for the year ahead.

"We can look back on our history with pride and look forward to the future with confidence and optimism."

Matthias Kaufmann, CEO

Did you know?

The roots of our modern elbow production date back to the Second World War when Josef Erne produced elbows for the fuel supply lines for the arms industry.

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