

Forschung und
Entwicklung
Research and
Development



PROJECT:
VARTA AG

LOCATION:
Ellwangen and Nördlingen,
Germany

COMPLETION:
2020

APPLICATION:
Refrigeration
Compressed air
Vacuum

PRODUCT:
aquatherm blue pipe

THE CHALLENGE

VARTA AG was looking for a piping system that would replace old steel pipes in the application areas of refrigeration piping, compressed air and vacuum, and solve existing problems with corrosion and incrustation.

THE SOLUTION

Thanks to the material polypropylene, aquatherm blue pipe is incrustation- and corrosion-resistant and also scores with its safe and time-saving installation.

VERSATILITY OF AQUATHERM BLUE PIPE PUTS A CHARGE INTO VARTA'S EXPANSION

Everyone knows their products and uses them almost daily: VARTA AG is Germany's most traditional battery company. With around 4000 employees and representatives in more than 75 countries, it is also one of the largest manufacturers of batteries in the world. When expanding its production facilities in Ellwangen (headquarters) in Baden-Württemberg and in Nördlingen, some 40 kilometres away, the company was looking for a piping system that could be used for refrigeration piping as well as for compressed air and vacuum lines and that could be installed safely and quickly. The solution was offered by aquatherm GmbH.

In various building complexes a total of about 5000 metres of the fibre-reinforced pipe system aquatherm blue pipe, in dimensions from 32 to 450 mm, were used.

"With aquatherm we have found a partner we can rely on in all areas of piping," explains Markus Egetenmeier, Head of Facility Services at VARTA. "The material is excellently suited for the refrigeration, vacuum and compressed air lines and the choice of dimensions up to 500 mm is ideal for us."

VARTA has completely converted its refrigeration piping network at the Ellwangen production site, headquarters of VARTA Microbattery GmbH, innovation leader in the field of micro batteries, to the system from Attendorf in South Westphalia and replaced old steel pipes. A big advantage of the aquatherm system is resistance to incrustation and corrosion: even in case of strong oxygen enrichment or chemical additives in the cooling water corrosion has no chance with aquatherm blue pipe. This is made possible by the material polypropylene.



Photo: VARTA AG



“With our old system made of steel we had to struggle with incrustation, which resulted in increased energy consumption and thus additional costs”, says Egetenmeier. “The material polypropylene offered the perfect solution for this”.

Now the production machines, which are cooled by refrigeration systems — consisting of several free coolers with capacities from 180 KW to 300 KW — can reliably do their job.

LOW WEIGHT MAKES FOR EASIER ASSEMBLY UNDER HALL ROOF

In addition to the quality of the material, the safety aspect was particularly important to VARTA.

“Since it is a fully welded system, it is absolutely leak-proof,”

explains Thomas Müller, Managing Director of Dürr und Feil GmbH, who were commissioned for the installation. In detail this means that aquatherm pipes and fittings are connected by heat fusion. The plastic fuses to a homogeneous, material-closed unit and a permanently tight connection.

“In addition, the low weight compared to metallic pipe systems made our work much easier,” says Müller. “Even under the hall roofs with great heights, the pipe network installation succeeded without any problems,” the expert says.

Since no flying sparks are produced during plastic fusion, production did not have to be interrupted during installation. Among other things, a large central distributor with a length of 3.75 metres was prefabricated for cooling distribution in the aquatherm factory in Attendorn according to exact preliminary planning and customer requirements.

“Due to the prefabricated manifolds and special components we saved a lot of time,

which helped us in the ongoing production,”

says Egetenmeier. The distributor was delivered to the construction site ready for installation and only needed to be connected there.

Due to the positive experience, VARTA decided to use the system in other areas as well. In the meantime, not only the refrigeration network, but also vacuum and compressed air lines were executed with aquatherm blue pipe. At the production site Nördlingen, headquarters of VARTA Storage GmbH, one of the leading manufacturers of energy storage solutions for private households and large storage applications, the company has renovated various production facilities and used aquatherm blue pipe in dimensions up to 160 mm for compressed air and vacuum.

FURTHER PROJECTS AT VARTA IN PLANNING

Compressed air is an important component in industrial production. Decisive for trouble-free and effective use as a source of energy is not only the quality of the compressed air, which can be affected by impurities such as dust, oil or moisture, but also the quality of the pipe system with which the air is directed to where it is needed. The vacuum range below 300 millibar, i.e. at a pressure well below atmospheric pressure, demands special properties from the piping system used.

“It was important to us here that the piping system used is highly pressure-resistant and dimensionally stable,” explains Egetenmeier.

The secure connection of the pipes prevents air escaping at the critical connection points, as can happen with mechanical connections. This keeps energy requirements and operating costs low. In addition to the already completed installation work, VARTA is planning further projects with aquatherm products.



aquatherm
state of the pipe

aquatherm GmbH

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