Surge arresters made in Europe

INNOVATION BASED ON TRADITION
From the Delta Bell across ZnO manufacturing to the HV surge arrester

When the first overhead lines for the transmission of electricity were built at the end of the 19th century, the demand for porcelain insulators rose dramatically. The present name of TRIDELTA goes back to the „Delta Bell“, a porcelain insulator developed by this company in 1897.

Other milestones in the history of the company were developments in high-voltage test equipment. In 1923, Prof. Marx developed the world’s first patented impulse generator.

The market of electrical power supply requires the constant expansion of the product portfolio. Soulé in France was the first to start the production of surge arresters for low and medium voltage systems in the 1940s. After many years of development in the field of technical ceramics, TRIDELTA in Germany started the production of medium and high-voltage surge arresters in 1961.

The first SiC surge arresters for the French railways were developed in 1943. In the 1980s, gapless metal oxide arresters were added to the available range, and gradually entered series production.

The production of the VARISIL® arresters in silicone technology started in 1991. The in-house production of ZnO varistors was taken up only one year later. The first tube-design surge arresters with silicone insulation were launched in 1997; cage design arresters followed in 2007.

Today, we supply a wide range of metal oxide arresters for voltages from 1 kV to 800 kV. This range is complemented by special-purpose arresters and an extensive assortment of accessories for analysis of the qualitative and quantitative state of arresters.

After several changes of ownership, today, TRIDELTA Überspannungsableiter (after HESCHO and KWH) and TRIDELTA Parafoudres (after Soulé, Alstom and Areva) are important members of the independent family-owned TRIDELTA company group.
Surge arresters are available in either porcelain or polymer housings. These arresters have been developed to protect outdoor equipment, overhead transmission lines, transformers and other equipment from atmospheric and system related overvoltage.

TRIDELTA has installed new, modern production lines and uses the very latest measuring equipment. These are the basis for efficiency and the highest quality in the production of surge arresters in the very centre of Europe. The combined effect of many years of experience and modern science and technology are the basis of the success of this traditional company.

Arresters, specially developed for service in all climates around the world

Every year TRIDELTA produces several ten thousand HV arresters up to 800kV and more than 300,000 medium voltage arrester.

A wide range of porcelain and polymer housings is the basis for the optimum application of our arresters. This versatility allows us to select the most suitable arrester to match the requirements in the specifications and meet the extremes of the different climate zones of the world.

Three different designs of polymer arresters like cage-design arresters or the VARISIL® arrester types grant an outstanding price-performance ratio.

Our production of ZnO varistors developed in cooperation with universities and well-known institutes has gone up to over 1.5 million units a year. The process comprises the complete range from mixing the zinc oxide with other metal oxides, pressing, sintering, mechanical finishing, encapsulation as well as individual testing and classification. This ensures that all customer specifications are met.

Polymer arresters are manufactured on state-of-the-art machines combining the outstanding properties of silicone housings with the proven electrical characteristics of metal oxide varistors tested by TRIDELTA.
Close cooperation with technical universities and renowned international test labs is the starting point for any new developments with customer focus.

For example, our 800kV arresters were tested for resistance to earthquakes up to 1g.

**Testing equipment:**
- Impulse generator up to 1.2 MV (1.2/50)μs
- Power frequency voltage transformer 600 kV
- Varistor test system with:
  - High current impulse generator 100kA (4/10)μs
  - Long duration current impulse generator 3000 A ; 3.2ms
  - Lightning residual voltage test facility 40kA (8/20)μs
  - Switching residual voltage test facility 5kA (40/100)μs
- 5000h weather aging test facility
- Climatic chamber -40°C to +100°C
- Mechanical bending and tensile testing system 50,000 N

TRIDELTA has a modern and highly efficient HV test lab where type tests according to IEC 60099–4 can be carried out. Before leaving the factory, each surge arrester is tested for compliance with IEC 60099–4 using the latest test equipment by qualified test engineers.

Development and production

Our engineers have developed and tested surge arresters for over 50 years.

The constant interaction between development and production ensures the highest standard of the arresters. Tridelta arresters are highly reliable and require no maintenance over the lifetime of the arresters.
TRIDELTA has installed a process oriented quality management system according to DIN ISO EN 9001. The system, all processes, technologies, procedures and activities are described in the manual, process instructions and related operating instructions. These documents define the requirements of all business processes, in particular, quality planning and the development, manufacture and testing of high-quality products. Customer satisfaction is a benchmark by which quality is gauged. To ensure that every customer can rely on the quality of our products, all arresters are manufactured in compliance with IEC 60099-4 and tested before being shipped from the factory.

All tests are made with calibrated measuring instruments. A test certificate confirms the quality of our products.

In our continuous improvement process, we are guided by:
- the requirements of the market,
- the satisfaction of our customers,
- the quality of our products,
- the satisfaction of our employees,
- the cooperative partnership with suppliers and
- the efficiency of the company.

To this effect, all business processes are analyzed and evaluated regularly.

„Customer satisfaction and constant process improvement – the road to a safe future“
TRIDELTA going global

TRIDELTA surge arresters are currently in reliable service in 100 countries all over the world.

We have agents who provide local technical service for our products in all regions of the world. We encourage customer loyalty by maintaining close contact between our agents and our customers.

Technical proposals will be submitted to you by our sales engineers from our headquarters in Germany.

Thank you for your interest in our products and we look forward to hearing from you soon.