BAUR
ensuring the flow

VLF testing on the electricity cable of a dredger

Integrity certified

Customer:

Gasenzer AG based in Hinwil in Switzerland specialises in measurement technology and measurement services relating to fault location, testing and the condition evaluation of cable systems. The company, which has been trading as a joint stock company (AG) since 1991, has more than half a century of experience. In 1961, electrical engineer Hans Gasenzer founded a business partnership which focused on cable measurements and the sale of specialist measurement devices. Gasenzer established a close relationship with BAUR right from the very start and is the exclusive trade partner for BAUR devices in Switzerland.

BAUR Solution:

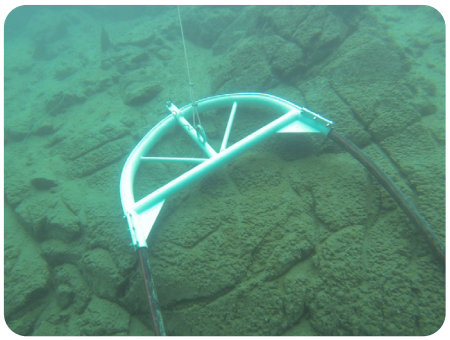
The viola testing and diagnostics unit installed in the cable test van in particular was used for the measurements described in the adjacent section.

Buried or under water – Willi Bohler, Measurement Engineer at Gasenzer AG in Hinwil, has measured countless medium-voltage cables. Yet even he is occasionally surprised by a job, such as the one he was requested to carry out in autumn 2014 at Lake Lucerne in Switzerland.

When he set off, he didn't know whether cable testing or fault location was involved. He only knew that there was a problem with the substation of a gravel quarry: a transformer had exploded. Cable damage was the suspected cause. This assumption wasn't far off, as the connected undersea cable supplied a dredger and was wound and unwound under water according to the position of the dredger. The tensile and bending load placed on the cable loop causes additional stress.

Having arrived at the lake, Willi Bohler and his BAUR cable test van were loaded onto a transport vessel in order to reach the substation where the engineer first of all tested the cable insulation without success. Echometry also failed to show any signs of short circuits or breaks.

Then a subsequent test conducted using the BAUR viola testing device installed in the Gasenzer AG cable test van brought some peace of mind. Once the cable had also withstood VLF cable testing at 3xU0 for more than 30 minutes, those responsible for the infrastructure of the gravel quarry were reassured: the cable wasn't to blame for the faulty transformer – the component itself must have been defective. The substation could then be repaired and quickly put back into operation.



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High-voltage testing and diagnostics device viola/viola TD

The portable, high performance viola high-voltage testing and diagnostics device is available in two different configurations. The standard variant is used for cable and cable sheath testing of electrical equipment and medium-voltage cables up to 35 kV. Another function is insulation testing on electrical equipment. The patented VLF-truesinus® technology (0.1 Hz sine voltage) guarantees a high level of measurement accuracy.

The viola TD model offers additional functions for the tan delta diagnostics (dissipation factor measurement) and the Monitored Withstand Test (MWT) that combines the cable testing and dissipation factor measurement. This allows for an accurate and comprehensive assessment of the cable condition.

An additional partial discharge measurement is possible in combination with the optional PD Portable diagnostics system.

The most important features at a glance:

VLF test (all viola devices)

- Testing of electrical equipment and medium-voltage cables up to 35 kV nominal voltage
- Max. test voltage 42.5 kVeff/60 kVpeak
- Voltage shapes: VLF-truesinus®, VLF rectangular wave voltage and DC voltage
- Load-independent, reproducible sinusoidal high voltage
- Cable testing in accordance with DIN, VDE, CENELEC and IEEE
- Cable sheath testing in accordance with IEC

Dissipation factor measurement and MWT (viola TD only)

- Reliable tan delta diagnostics of electrical equipment and medium-voltage cables up to 35 kV
- High measurement accuracy of 1 x 10-4
- Easy interpretation of measurement results
- Continuous display and evaluation of measurement results
- Monitored Withstand Test (MWT) with fully automatic test sequence
- VLF cable testing and condition evaluation of the cable route in one cycle and in one device
- Minimum cable load due to optimised test duration (depending on cable condition)
- Conclusive measurement results for condition-based maintenance

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