

Automatic impulse current routine testing of metal oxide arrestors

Introducing the problem

Manufacturers of metal oxide arrestors (ZnO arrestors) are faced with the problem of testing each disc with AC voltage and impulse currents, to check the manufacturing quality and class of each produced block. Often running 3 shifts and 7 days a week, special features are required from the production line test equipment, bearing in mind that Millions of discs can be manufactured & tested every year.

Different Types of ZnO discs



Tests

After manufacture, each disc passes usually through the following test procedure:

- Watt loss measurement at maximum operating voltage
- Rectangular (long duration) impulse current
- Cooling
- Rectangular (long duration) impulse current
- Cooling
- Exponential impulse current
- Class determination (Residual voltage measurement during the exponential current test)
- Reference voltage measurement, at a given current.

After these tests, each disc is printed and packaged.

The solution

Haefely Trench AG delivers specially designed impulse current generators for both the long duration and exponential currents. The test systems are customised and can be integrated into the production line, being remote controlled by a central host computer. The test equipment can be designed to reach a cycle time of min. 3 seconds between discs giving a very high throughput.

The generators are laid out for continuous testing in a production environment, 24 hours a day. The control procedure allows unskilled operators to work with the equipment. The impulse generators require no manual reconnection to change from one disc size to another. They are set-up automatically by pneumatic switches as a function of the charging voltage order. The impulse capacitors and sphere gaps are designed specially for continuous duty and a long life expectancy.

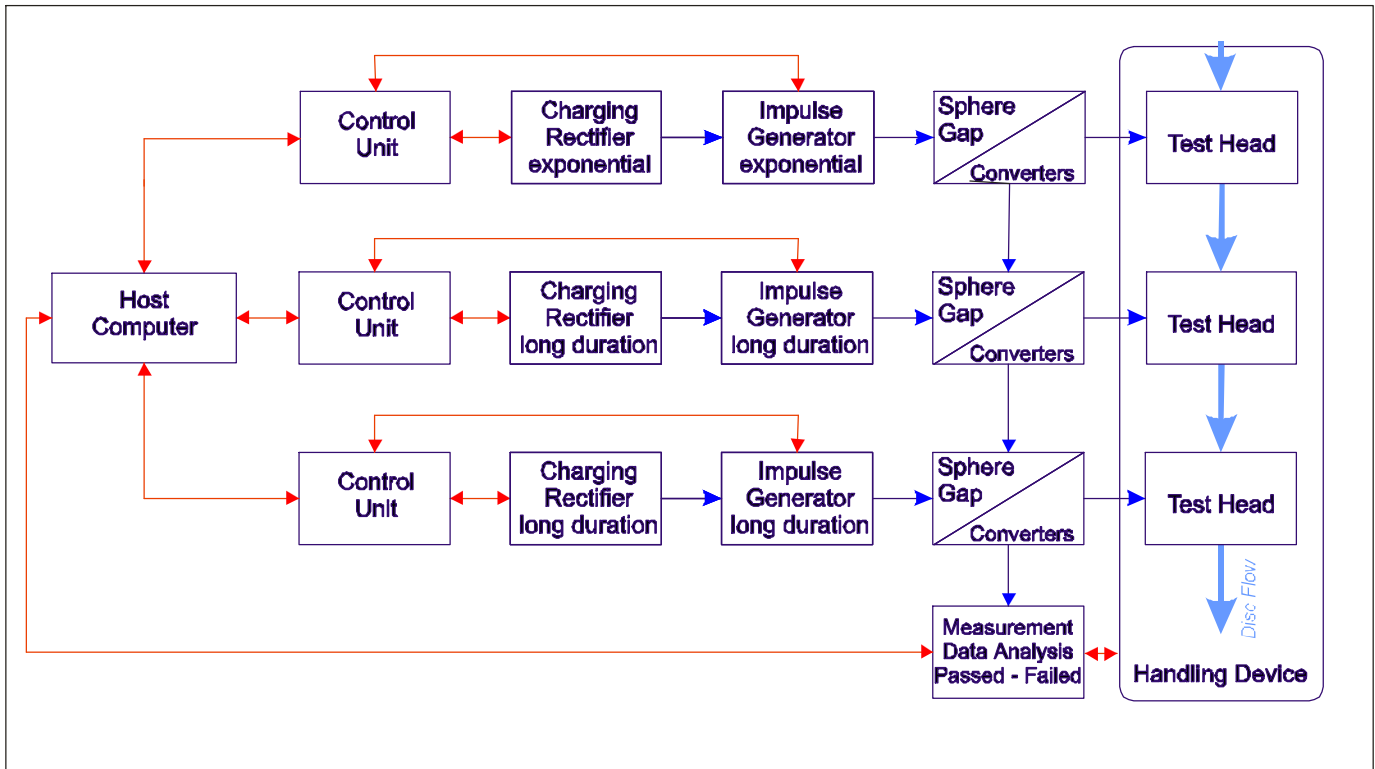
Exponential Impulse Current Generator



Long Duration Impulse Current Generator



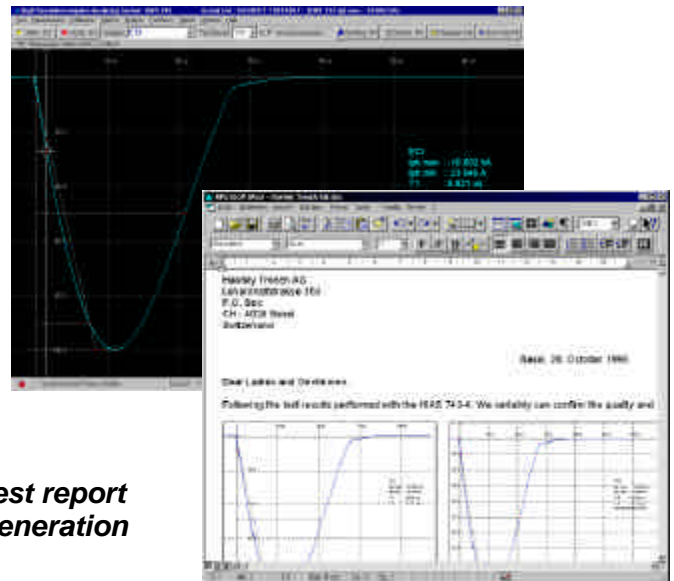
Typical production line test system



Customer benefit

The use of Haefely Trench test systems gives our customers the following advantages:

- Customised design according to client's specification and applicable standards
- Long life expectancy due to specially designed components
- Lowest cycle time
- Low maintenance
- Easy operation, no mechanical reconnection needed for different disc types
- High end safety features
- Automatic report and test certificate generation
- Turn-key system including measurement instruments
- Integration possibility into manufacturing chain
- On-site installation & integration
- Specialised service crew available world-wide



Test report Generation

Haefely Trench AG is the world-leading company in this application and has delivered over 50 impulse current systems. We can therefore provide the customer with a huge experience & reference pool, making customised designs & complete solutions easily available.

Haefely Trench AG is your partner providing you customised solutions for your specific test problem.

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