



# Insulating oil testing

**BAUR**  
ensuring the flow

**Precise and reliable**

# Safety has a long tradition

When insulating liquids are used for cooling and electrical insulation, impurities or ageing can massively impact their effectiveness and lead to plant shutdown, or, in the worst-case scenario, to an accident. For this reason, it is required for critical applications to regularly test the insulating liquid.

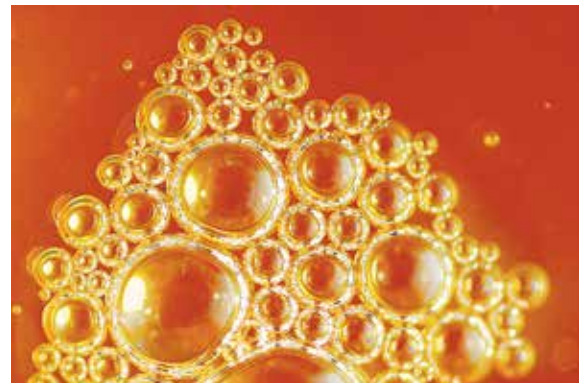
We committed ourselves over 70 years ago to not only making quick testing and assessment of the insulating oils possible but especially to ensuring accurate testing. Since then, laboratories, industrial companies and the service departments of notable manufacturers have relied on and put their trust in BAUR insulating oil testers.

When testing the quality of insulating liquids, you are able to decide, based on the results, whether the insulating effect of transformers makes it possible to reutilise the oil or if it is required to recondition or change the oil. The diagnostic testing of the oils provides information on the quality of the refining, the purity of the oil, ageing and dielectric losses.

## Solutions for testing and assessment

We offer two series of devices for carrying out breakdown voltage tests and dissipation factor measurement. For both series, the provided BAUR ITS Lite software simplifies the processing of the measurement results, the customer-specific reporting as well as the data archiving.

The BAUR ITS Lite software is used for the automatic transfer of measurement results and for the design and archiving of measurement logs from the BAUR DPA 75 C, DTA 100 C and DTL C oil testers. The logs can be saved in PDF format or as a flexible text file (\*.txt). Extensive language support and the integration of customised logos permit professional log generation.



**Report Manager**

BAUR Report Manager is used to automatically transfer measurement logs from BAUR oil testers to a USB drive.

**Reproducible and precise**

Precise measurement results are essential for the analysis of insulating oil. Our insulating oil testing and diagnostics devices and the ITS Lite software are therefore optimised for

- easy and faultless handling
- automatic test cycles that conform to the standards
- low measurement tolerance for reproducible results
- clear, unambiguous display of the results
- clearly arranged reports and user-friendly archiving

**Accurate results for many decades**

Even after decades of use, BAUR devices deliver precise measurement results in terms of insulating oil testing and diagnostics because they are designed for hundreds of thousands of oil sample measurements.

This has two advantages. Firstly, when using these devices you can rely on the fact that you will get comparable measurement results, irrespective of the device used. Secondly, the comparison of current measurement results with those from the past permits trend assessments – even if the historic data were established using a device of a previous generation.

**A global leader for good reason**

BAUR works with engineers from universities, laboratories and standardisation and test institutes to advance insulating material testing and their standards. The expertise acquired over the last six decades in the development of our insulating oil testing devices has been incorporated in national and international standards, which today define the industry standard.



# Devices for determining the breakdown voltage

## Efficient and reliable

The insulation capacity of insulating liquids is assessed using breakdown voltage testing. The test results indicate whether any ageing of the oil has taken place, e.g. due to excessive water content, impurities or oxidation of the oil.

### The perfect device for all applications

The BAUR DPA 75 C is a breakdown voltage tester designed for both laboratory and mobile use. The larger DTA 100 C unit is designed for continuous operation in the laboratory. The latter is also available in the form of the DTA IL for the constant monitoring of the insulation capacity.

You can rely on top quality with all breakdown voltage testing devices, for example:

- Measurement technology and power electronics designed for long service life
- Glass test vessels
- Precise, reliable and reproducible measurement results over very long periods



### DPA 75 C

The mobile DPA 75 C device is optionally available with a battery. This makes it suitable for use in a laboratory as well as for in situ measurements on power transformers. The device delivers a maximum test voltage of 75 kV<sub>rms</sub> symmetric.

- Test cell according to IEC 60156 with micrometer to set the electrode distance.



### DTA 100 C and DTA IL

The DTA 100 C is intended for use in a laboratory and provides a maximum test voltage of 100 kV<sub>rms</sub> symmetric. This device is therefore also capable of testing oils used in transformers of the transmission network. As an inline version (IL), the DTA 100 C also tests the breakdown strength of insulating liquids during production, making it an ideal choice for manufacturers of insulating liquids.

## Simple and stable

Easy and accurate test cycles are guaranteed for all BAUR breakdown strength test devices. The testing is carried out completely automatically based on current, global test standards. It is also possible to save and call up user-specific test sequences.

### Automatic test sequences

The combination of extremely short switch-off times during breakdowns and the easy oil sample handling facilitate high quality statements and conclusions on the insulating oil quality. Furthermore, features such as temperature measurement of the insulating liquid, the precise setting of electrode distances according to the standard and automatic self-testing ensure robust measurement results.

### Precise voltage control

The voltage is measured directly at the device's high-voltage generator, meaning that very precise measurement results can be achieved. It also permanently monitors the voltage rise. Our "Real Breakdown Monitoring" (RBM) has proven itself excellent in practice.



# Devices for dissipation factor measurement

## Condition evaluation through analysis

The well-founded analysis and diagnostic testing of insulating liquids with the BAUR DTL C device play an important role in research and development, and in practical applications. Knowledge on the current state of insulating materials is gaining importance for cost-optimised, safe mains operation. The values measured using the BAUR DTL C device can be used to detect contamination of the oil, as well as undesired oxidation by-products or the presence of internal partial discharges in the equipment.

### Automatic analysis results

The device measures the dissipation factor, the specific resistance and the relative permittivity of insulating liquids in a fully automatic manner. The BAUR DTL C device comes with twelve different test sequences corresponding to the standards (most common according to IEC 60247 as well as to IEC 61620) for quick, comprehensive analysis results. It is also possible to programme up to ten individual test sequences.



### Perfection in detail

The dissipation factor measurement ( $\tan \delta$ ) can be determined with a level of accuracy of up to  $1 \times 10^{-6}$ . The analysis devices have rapid cell induction heating with very accurate temperature control that ensures extremely reliable, precise and standards-compliant results. The automatic calibration of the empty cell and the provided test sequences enable a swift analysis process.

Additional product properties:

- Measurement of the specific resistance with positive or negative voltage up to 100 TΩm
- Cell draining for multiple measurement via magnet discharge valve
- Contactless sample exchange at operating temperature



Technical information and data sheets for each of our products are available at [www.baur.eu/insulatingfluidstesting](http://www.baur.eu/insulatingfluidstesting)

# Function matrix



Try the product advisor on our website at:  
[www.baur.eu/productadvisor](http://www.baur.eu/productadvisor)

## Application/measurement methods

### Insulating oil testing

Breakdown voltage testing	Dissipation factor measurement / specific resistance measurement	Inline measurement (continuous testing during production)	Measured data management with ITS Lite software
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## Products

Mobile device	DPA 75 C	■			■
Laboratory equipment	DTA 100 C	■			■
	DTA IL	■		■	■
	DTL C (tan δ)		■		■

## Professional consultation and service worldwide

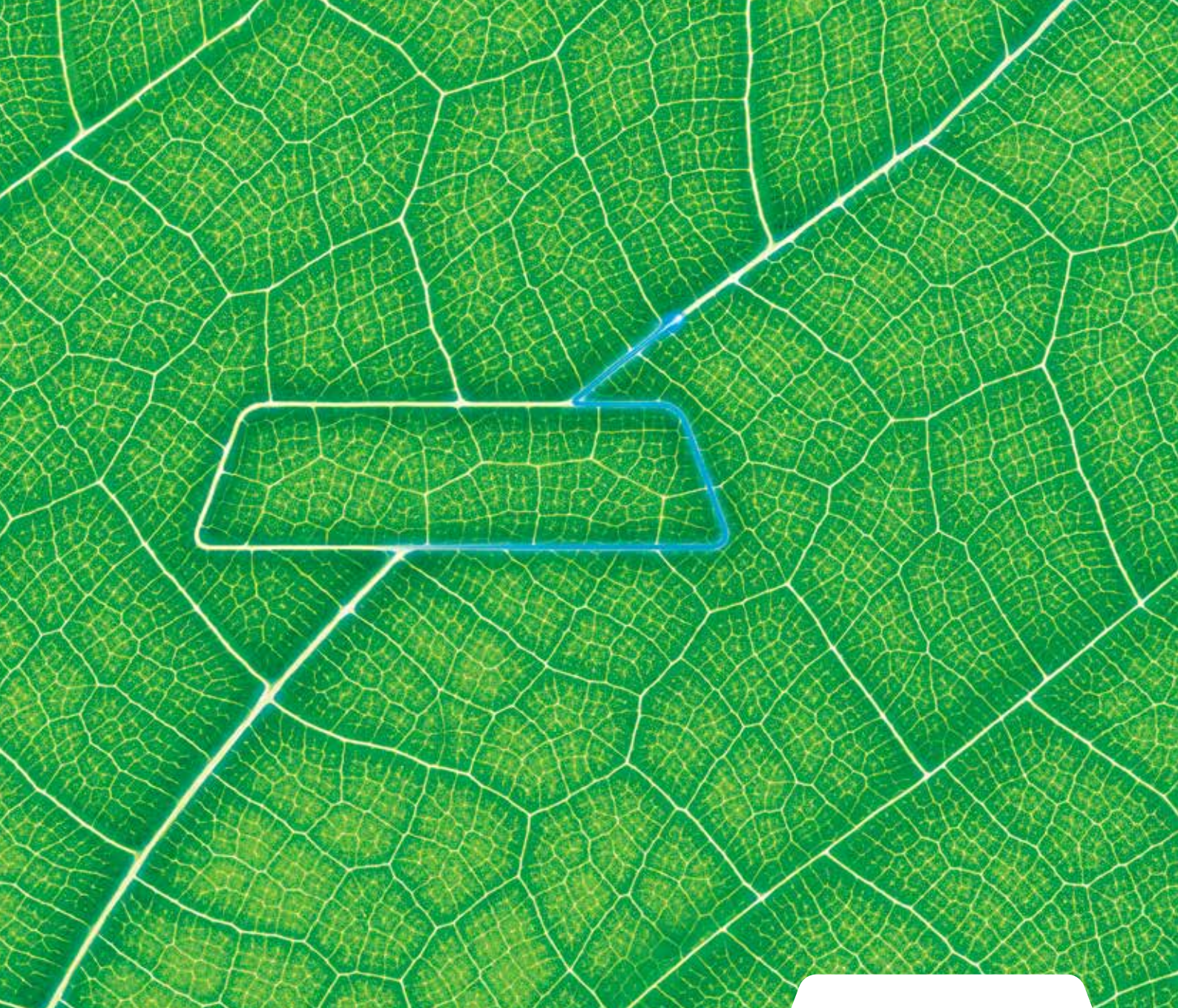
We offer reliable service by competent experts and a comprehensive range of services. We are happy to offer assistance in the following areas:

- Technical support for questions on devices, software or applications
- Maintenance and repair of devices
- Calibration and measurement
- Training



For further information or competent consultation, contact us at:

[www.baur.eu/services](http://www.baur.eu/services)



## Other BAUR Brochures



BAUR company brochure



BAUR product overview



Cable testing and diagnostics



Cable fault location



Cable test vans and systems



Our brochures and manuals are also available online at: [www.baur.eu/brochures](http://www.baur.eu/brochures)