SERVICE BULLETIN SB-14

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High Voltage Test Unit HV 60-50

High Voltage Testing of Vacuum Capacitors
If the occasion arises to test and evaluate a capacitor in regard to the hold off voltage capability, proper procedures should be followed. On each capacitor a label is affixed, giving the type, capacitance and voltage rating (see Service Bulletin SB-2 Labelling of COMET Vacuum Capacitors). On the label two voltage ratings are shown. The first value is the peak test voltage and the second value the peak working voltage. By international standards the high voltage testing is done with either a 50 or 60 Hz sine wave source with a current limiting resistor >500 KOhm. **The peak test voltage shall only be an AC signal, never DC.**

Some customers have only a DC source (so called "high pot tester") at their disposal and want to use the same for the evaluation. In this case the test must not exceed the peak working voltage. The DC charging current must never exceed 100 □A (micro Ampere), otherwise the capacitor can be damaged permanently. This can be accomplished for instance by putting a resistor in series with >100 MOhm.

A new capacitor should not have a DC leakage current of more than 10 µA. It may be necessary to test a new capacitor prior to the evaluation of a used one in order to gain experience with this type of equipment when evaluating vacuum capacitors. High humidity or finger smudges on the insulating ceramic can at times adversely affect the readings. By adhering to this procedure one can avoid accidental damage of a capacitor, causing unnecessary losses and expenses. For additional information please refer to Service Bulletin SB-28.

COMET High Voltage Tester HV 60-50
Our well known high voltage test unit HV-75 has given good service for many years to a large number of manufacturers, distributors as well as end users on all five continents. It has been designed prior to 1980 when the needs of our customers and especially the safety standards were quite different from what they are now.

It is for these reasons that we have started to design and develop a new generation of high voltage testers about two years ago. We solicited ideas and inputs from numerous customers. As you can see from the enclosed data sheet, the new tester is quite different from the old one in size, weight and especially in its capabilities.

Some of the salient product characteristics are:

- Pulse mode operation for spot knocking of vacuum components
- Peak HV measurement directly at the object
- HV measurement for AC **and DC** (both directions)
- Measurement of DC leakage current (both directions)
- Multiple uses for vacuum capacitors, tubes, resistors, transformers, cables, oil and insulating materials of any kind
- External measuring possible
- Electrical safety features including zero start feature, safety interlocks, grounding bar, overload protection
- X-ray radiation shielding

The new COMET HV tester is available now. There is also a detailed description of this versatile instrument in the operation manual.

Encl.: Data sheet

High Voltage Test Unit HV 60-50

A few years ago, COMET TECHNIK AG has designed and developed a new generation of high voltage test units. Many ideas and inputs were collected from the market and designed into the device to cover our customers requirements to a maximum.

We are pleased to introduce the HV 60-50 high voltage test units to operate in quality departments and for maintenance work.

The present high voltage tester generate an AC voltage of 60 kVp.

COMET HV Test Unit HV 60-50

The frequency is that of the line voltage, either 50 or 60 Hz.

Depending on the selected test mode, the voltage applied to the test object can be AC or a positive or negative polarized DC (half wave rectified).

The actual test voltage is displayed as peak value, no regarding the selected test mode. In order to avoid damage to the tested device, the DC output voltage is limited to 50 kV.

For AC current measurements a 30 mA and 1 mA range is available. The current through the tested device is displayed as a true rms value. In the DC mode and while checking a purely ohmic test device this is a half wave sine shape, while for capacitor measurements the current is mainly due to the periodic re-charge current.

In the 100 µA range the leakage current of a capacitor can be measured**.** It must be noted that the DC voltage applied is pulsed (half wave rectification). Therefore the indicated current is a result of two currents, the leakage current and the charge current. Depending on the capacitance value and the level of the leakage current, the effect of the latter can be ignored.

Depending on the charge current and the leakage current present, the voltage on the capacitor is more or less affected by a ripple. The current shown is the average leakage current, depending on the ripple experienced.

Safety Provisions:

- All high voltage components and connections contained within one envelope
- Safety interlocks on all access openings
- No high voltage connection outside the safety enclosure
- HV zero start feature
- X-ray radiation shielding
- Overload protection
- Grounding bar
- Provisions for external interlocks

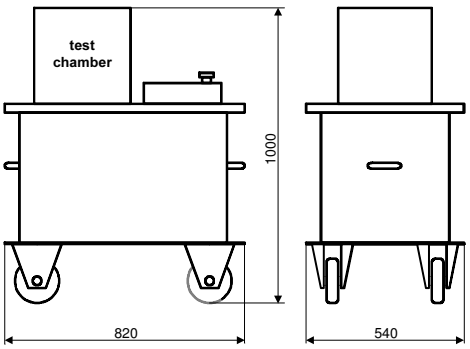
Specifications:	**Type HV 60-50 with LVO**
Electrical:	
Output AC	0 - 60 kV_{pk}/50 mA
DC	0 - 50 kV_{pk} /1.0 mA (incl. ripple)
Measurment Ranges: AC	0 - 50 mA_{rms}
AC	0 – 1 mA_{rms}
DC	0 - 100 µA
Measurement Accuracy:	
Voltage DC/AC	2 %
Current DC/AC	20 %
Modes of Operation: AC	continuous or intermitting
DC	positive or negative Polarity
Period Length of intermitting Operation	1 s (standard)
ON-Time versus Period Length	1/2 (standard)
Optional Operating Mode (external)	- Voltage Measurement - Voltage Source
Line Input Requirements (to be specified at the time of order)	230 V or 115 V AC 50/60 Hz
Power Consumption	2150 VA
Mechanical:	
Control Unit	
Dimensions (L x W x H)	640 x 445 x 205 mm^3
Weight	28 kg
HV Tank	
Dimensions (L x W x H)	820 x 450 x 1000 mm^3
Weight	200 kg
TOTAL	345 kg incl. wooden crack

LVO = Low Voltage Option:

- Reduction of the output voltage to approx. 20 %
- Increase of the sensitivity of the arc detector

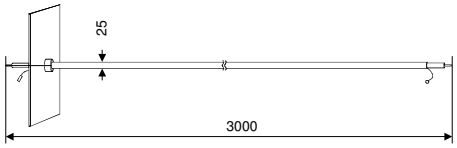
Optional Accessories:	**Part Number**
– External measurement set, including:3m HV cable 100 kV	91500
– Remote display unit, including: Voltmeter and Amperemeter	91540

HV-Tank



Control Unit

Shielded HV Cable 100 kV



All dimensions are in mm

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