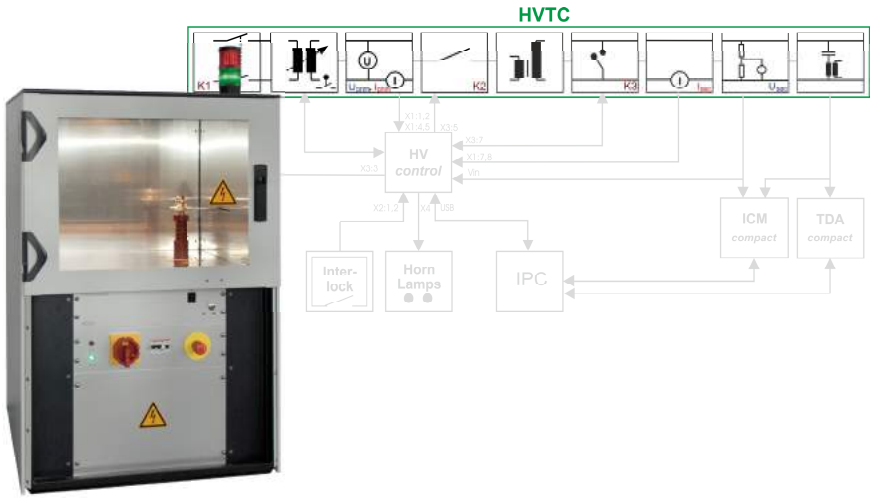
HVTC & TCU



Partial discharge testing – well established for high voltage equipment – becomes increasingly important for insulation systems of a lower voltage level. Changing to switching power supply and to IGBT control of induction motors, for instance, raise demands and testing needs for the insulation system. The modular concept of Power Diagnostix' instruments allows offering customized solutions for automated and semi-automated testing.

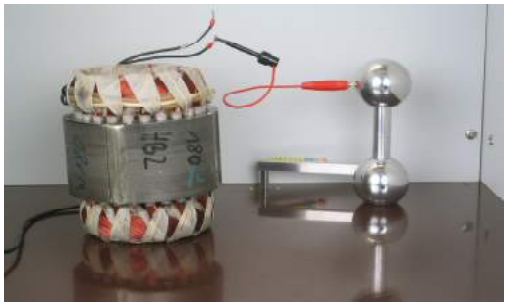
Modular Concept

Different levels of automation can be provided depending on the testing needs. In case of full production testing a high level of automation and simple go/no go decision are needed, whereas manual control offers a higher level of flexibility when testing samples or sample variants during development.

Generally, such test arrangements consist of a test chamber and instruments to control and measure voltage and partial discharge. Different levels of automation are offered combining the HV*control*, the basic HV*compact* for voltage measurement or the STEP*compact* for programming voltage steps, ramps or more complex functions. Installed on an industrial PC, the HV*pilot* software then optionally controls these instruments, and the ICM*compact* for the PD signal and automatically prepares the test report. Additionally, Power Diagnostix designs special test fixtures, dual test chambers for increased performance, and customer specific software.

HVTC

The high voltage test chamber HVTC is designed for PD testing on e. g. transformers, semiconducters, and micro samples. Depending on the built-in HV transformer, testing up to 20 kV_{rms} is possible. The test chamber provides sufficient space to test samples up to a maximum size of 500x500x400 mm^3. The main components of this system are: a high voltage transformer, a regulating transformer, a coupling capacitor of 1 nF, an automatic grounding system, a security interlock loop, and multiple warning lamps.



Testing of stator coils of small induction motors

Control and measurement unit

TCU7,5

HV test cabinet

Depending on the needs the instruments and controls can be compiled in different versions:

Level A:
PD test bench for sample testing consisting of a test chamber and manual voltage control equipped with an ICM*compact* for PD measurement with voltage option or an HV*compact* for voltage measurement.

Level B:
As level A, but with the STEP*compact* instead of the HV*compact* for automated voltage control.

Level C:
As above, but with an industrial PC and the HV*pilot* software for fully automated control and test report generation.

Level D:
Modernization of test rooms using HV*control*, HV*compact* or STEP*compact*, and ICM*compact*. Software control as with level C.

Typical Package

Test set-up for level C:

- 1 x ICM*compact* with gating
- 1 x STEP*compact*, 19'' rack
- 1 x Test chamber HVTC, incl. 10 kV voltage transformer, regulator, manual control buttons, horn, lamps, emergency stop, grounding system, coupling capacitor, ...
- 1 x Industrial PC
- 1 x Software ICM*compact*
- 1 x Impulse calibrator CAL1A
- 1 x Preamplifier RPA1
- 1 x Set of cables

Typical test set

TCU

Power Diagnostix TCU is made for controlling of high voltage transformers. Together with the HV*control* it combines all standard functions required to manually or automatically operate a high voltage transformer, including safety loops, door locks, and all voltage and current measurements.

Examples for TCU models:

Type	Voltage	Power	Current	Connection	Height	Dimensions W x H x D
TCU3	0–230 V	3 kVA	16 A_{max}	CEE 400/16A (L-N)	9 HU	553 x 506 x 600 mm
TCU7.5	0–230 V	7.5 kVA	34 A_{max}	CEE 400/32A (L-N)	9 HU	553 x 506 x 600 mm
TCU10	0–230 V	10 kVA	48 A_{max}	CEE 400/63A (L-N)	9 HU	553 x 506 x 600 mm
TCU10/2	0–400 V	10 kVA	25 A_{max}	CEE 400/63A (L1-L2)	9 HU	553 x 506 x 600 mm
TCU15/2	0–400 V	15 kVA	38 A_{max}	CEE 400/63A (L1-L2)	25 HU	553 x 1218 x 600 mm

Partial discharge testing is increasingly applied for testing insulation systems of lower voltage levels. Power Diagnostix offers ready-to-use test chambers for easy and safe partial discharge testing on components and small samples.