

Compressed gas standard capacitor

3388/100/25



General

The compressed gas standard capacitor is an indispensable instrument in every high voltage laboratory and test field where it occupies a wide range of important functions. The compressed gas capacitor is used as capacitance standard in bridge circuits to measure the dielectric dissipation factor $\tan \delta$, the dielectric constant ϵ_r respectively the capacitance of cables, ducts, insulators, transformer windings and insulants.

Advantages

- Excellent capacitance constancy
Changes in atmospheric pressure and humidity without influence on capacitance
- Small dielectric dissipation factor $\tan \delta$
- Partial discharge free
- Possibility to neutralize partial capacitances influencing measurements with voltage regulator

Design features

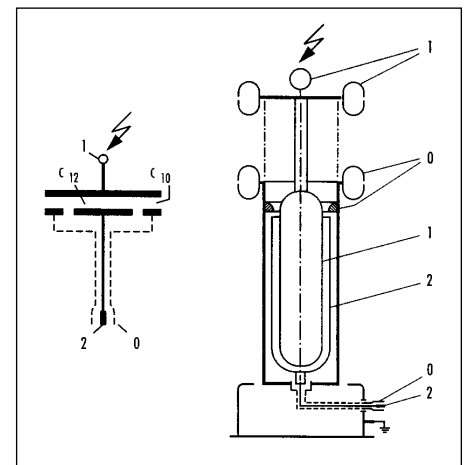
The capacitor consists of the following main elements:

- high-polished cylindrical electrodes
- casing serving as pressure vessel, high voltage connection, duct for test electrode and shield, and gas inlet valve
- metal base with shielded plug and ground screw

The compressed gas capacitor is filled with sulphur hexafluoride SF₆ and under pressure

Application

In combination with a C $\tan \delta$ measuring bridge the standard capacitor is used to measure loss factor and capacitance of a high-voltage test object. By using type 2801 the interfering stray capacitances can be eliminated completely by adjusting the screen system to the input potential of the bridge.



Legend:

- 0 Guard electrode
- 1 High voltage electrode
- 2 Test electrode

Technical specification

Types	3388/100/25
Max. operation voltage E_N	25 kV RMS
Test voltage (1 min.)	30 kV RMS
Rated capacitance C_{12}	100 pF + 5% - 0%
Time constancy of capacitance calibration value after 1 year	< 0.01%
Partial capacitances C_{10}	\approx 20 pF
Test frequency	50/60 Hz
Dissipation factor $\tan \delta$ of C_{12}	$2 \cdot 10^{-5}$
Partial discharge up to rated voltage E_N	< 5 pC
Gas filling	SF ₆
Operating pressure P_{abs} at 20 °C	250 ± 50 kPa
Test pressure P_{abs}	1100 kPa
Temperature coefficient	< $1 \cdot 10^{-4}/^{\circ}\text{C}$
Voltage coefficient (0... E_N)	< $2 \cdot 10^{-5}$
Admissible temperature range	-20...+ 70 °C
Relative humidity (at rated voltage E_N)	max. 75%
Volume pressure vessel	0,8 l
Max. height	500 mm (19,7) ins
Max. diameter	180 mm (7 ins)
weight	5.3 kg (11.77 lbs)

Order specification

Scope of supply

- Compressed gas standard capacitor, 100 pF, 25 kV type 388/100/25
- 1 shielded unipolar plug

Optional supply

- 1 cable, unipolar, shielded, with angular plug, type 101 W
- 1 cable unipolar, double shielded with angular plug type 111 W
- Sockets, unipolar, shielded, for above cables:
 - Socket without insulation no. 7-10691-00
 - Socket with insulation no. 41-12361-00