

Data Sheet no. 1.71/3

## Gas-Insulated Test Transformers, Type PEG

### 1. Application

Gas-insulated test transformers, type PEG, are used in metal-clad, gas-insulated HVAC test systems, type WPG...G (see Catalog Sheet 1.70). These systems are used for factory testing of GIS and their metal-clad components, especially instrument transformers. This test system can be used for on-site testing as well. Test transformers, type PEG, are related to test object capacitances in the order of up to 1000 pF and short-time tests (e.g. 15 min at rated parameters per day).

### 2. Design

Test transformers, type PEG, are characterized by a SF<sub>6</sub>-impregnated foil insulation well proven for gas-insulated voltage transformers. The active part is built into a steel tank filled with SF<sub>6</sub> (4.5 bar abs.) and closed by a GIS spacer on the flange of the tank (Fig. 1). This forms the connection to the other components of the metal-clad HVAC test system or to the test object itself. A built-in measuring capacitor with SF<sub>6</sub>-insulation is used as the HV arm of a capacitive divider for HVAC measurement. The electrical design considers the hard stress in case of SF<sub>6</sub> breakdown of the test object, but the application of a protection impedance (Data Sheet 1.74) is recommended. The robust mechanical design, especially the steel tank with eyes for lifting hooks, considers the frequent transportation of on-site test equipment.



Fig. 1: View of a test transformer, type PEG 250/750

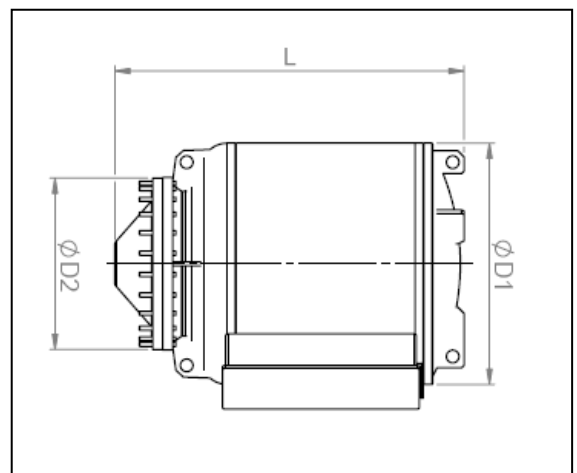


Fig.2: General dimensions

### 3. Main parameters

The main parameters are related to power frequency 50 or 60 Hz, if not otherwise marked. The primary winding is designed for 400 V and divided into two equal parts for series and parallel connection, which enables fine tuning at low voltages (exception is the test transformer for 1000 kV, here input voltage is 1000 V).

**Type designation** for gas-insulated test transformers:

PEG a/b, with a rated power "a" for 15 min and a rated voltage "b"

#### Example:

PEG 90/510 is a gas-insulated test transformer for a 15 min-power of 90 kVA and a rated voltage of 510 kV.

rated voltage kV	current		power for		max. load (50 Hz)		impedance voltage (50 Hz) %	PD level		type	approximate dimensions (Fig. 2)			weight kg
	15 min <sup>1)</sup> A	2 min <sup>1)</sup> A	15 min <sup>1)</sup> kVA	2 min <sup>1)</sup> kVA	15 min pF	2 min pF		0.8 U <sub>r</sub> pC	U <sub>r</sub> pC		diameter D1 mm	diameter D2 mm	length L mm	
230	0.20	0.43	45	100	2600	5900	25	≤2	≤5	PEG 45/230	690	500	1100	470
325	0.09	0.22	30	70	800	2000	17	≤2	≤5	PEG 30/325	690	575	1130	620
510	0.18	0.39	90	200	970	2300	17	≤2	≤5	PEG 90/510	950	770	1455	1050
750	0.33	0.80	250	600	1260	3200	17	≤5	≤20	PEG 250/750	1400	850	2000	2500
1000	0.38	1.00	375	1000	950	2950	19	≤5	≤20	PEG 375/1000	1625	850	2755	4150
	0.50	1.00	500	1000 (5 min)	1350	2900 (5min)	19	≤5	≤20	PEG 500/1000 <sup>2)</sup>				4300

#### Explanations

- 1) The duty cycle of 15 min or 2 min is related to rated voltage and current as well as to a start temperature of 25 °C. For lower voltages and currents correspondingly longer duty cycles can be applied.
- 2) The transformer PEG 500/1000 has a primary winding connected to an external oil-cooler.

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