

Data Sheet 1.11/5

Insulating Case Test Transformers and Transformer Cascades, Type PEOI

Description

The design with an insulating case characterizes this series of high-voltage (HV) test transformers. The oil-filled case is a glass-fiber-reinforced plastic (GRP) tube with steel covers. The lower cover is connected to the grounded base frame, the upper cover carries the HV potential and is connected to the top electrode.

Insulating case transformers are mainly provided for indoor operation. Temporary outdoor operation under fair weather conditions, e.g. for HV on-site testing, can be guaranteed. Usually, they are provided for lower currents (up to 1 A) and short-time operation (see Table 3). Continuous operation requires reduced parameters or external cooling for the rated parameters, both can be provided on special request.

Insulating case transformers are usually designed with two high-voltage coils and an iron core connected to the midpoint potential, which corresponds to the output of the lower and the input of the upper coil. The exciter winding is divided into two parts. For the rated voltage the two parts are switched in parallel, for voltages up to 50 % they might be switched in series to improve the voltage adjustment.

The internal partial-discharge (PD) level of insulating case transformers is very low. Therefore, they are well suited for PD measuring circuits. The PD level is specified for the complete HV test system and therefore not mentioned in this data sheet.

Insulating case transformers with a transfer winding are very well suited for HV transformer cascades for higher voltages. Two or three transformers, one above the other, form the cascade column. Such columns enable also the parallel connection of two or three transformers for higher currents.

This data sheet supplies the main data of insulating case transformers and related cascades.

For more details, please, ask HIGHVOLT directly.

Table 1: Operating conditions

Temperature range	°C	5 ... 40
Relative humidity	%	≤ 90
Height above sea level	m	≤ 1000
Installation		indoor ¹⁾

¹⁾ outdoor application on request

Table 2: Reference atmospheric conditions for bushing

Temperature	°C	20
Absolute pressure	hPa	1013
Absolute humidity	g/m ³	11

Table 3: Main parameters

Type	Rated output voltage	Rated output current	Rated output power	Input voltage	Duty cycle ²⁾	Impedance voltage	
	kV	A	kVA	V		50 Hz	60 Hz
						%	%
PEOI 40/100	100	0.4	40	400	1 h ON - 1 h OFF, 6 times per day	14	17
PEOI 125/125	125	1	125	400	1 h ON - 1 h OFF, 6 times per day	7	8.4
PEOI 20/140	140	0.14	20	400	1 h ON - 1 h OFF, 6 times per day	7.2	8.6
PEOI 75/150	150	0.5	75	400	1 h ON - 1 h OFF, 6 times per day	5	6
PEOI 20/200	200	0.1	20	400	1 h ON - 1 h OFF, 6 times per day	5.3	6.4
PEOI 40/200	200	0.2	40	400	Continuous operation	5.5	6.6
PEOI 100/220	220	0.45	100	400	1 h ON - 1 h OFF, 6 times per day	6.2	7.5
PEOI 100/250t	250	0.4	100	400	1 h ON - 1 h OFF, 6 times per day	5.4	6.48
PEOI 250/250	250	1	250	500	1 h ON - 1 h OFF, 6 times per day	10.5	12.5
PEOI 60/300	300	0.2	60	400	1 h ON - 1 h OFF, 6 times per day	8.2	9.8
PEOI 150/300t	300	0.5	150	500	1 h ON - 1 h OFF, 6 times per day	5.5	6.6
PEOI 300/300	300	1	300	500	1 h ON - 1 h OFF, 6 times per day	10.5	12.6
PEOI 500/300t	300	1.67	500	5500	1 h ON - 1 h OFF, 6 times per day	5.9	7
PEOI 175/350t	350	0.5	175	500	1 h ON - 1 h OFF, 6 times per day	5.9	7
PEOI 350/350	350	1	350	500	1 h ON - 1 h OFF, 3 times per day	11	13.4
PEOI 200/400	400	0.5	200	500	1 h ON - 1 h OFF, 6 times per day	7.5	9
PEOI 500/400t	400	1.25	500	5500	1 h ON - 1 h OFF, 6 times per day	5.7	6.8
PEOI 500/500t	500	1	500	5500	1 h ON - 1 h OFF, 6 times per day	5.7	6.8
2 x PEOI 100/250t	500	0.3	150	400	1 h ON - 1 h OFF, 3 times per day	19.4	23.28
2 x PEOI 150/300t	600	0.5	300	500	1 h ON - 1 h OFF, 3 times per day	19.4	23.3
2 x PEOI 500/300t	600	1.67	1000	5500	1 h ON - 1 h OFF, 3 times per day	21.2	25.4
2 x PEOI 175/350t	700	0.5	350	500	1 h ON - 1 h OFF, 3 times per day	21.1	25.3
3 x PEOI 175/350t	1000	0.2	200	500	1 h ON - 1 h OFF, 2 times per day	20	24
2 x PEOI 500/400t	800	1.25	1000	5500	1 h ON - 1 h OFF, 3 times per day	21.1	25.3
2 x PEOI 500/500t	1000	1	1000	5500	1 h ON - 1 h OFF, 3 times per day	21	25

²⁾ The duty cycle depends on the load. The given duty cycles are related to the rated power at 40°C ambient temperature. For reduced power longer duty cycles can be used as well as for higher power reduced duty cycles can be defined. Instead of the given ON / OFF modes different ON / OFF modes up to continuous operation for a certain time are allowed (e.g. 20 h ON at 20°C instead of 6x 1h ON / 1h OFF, after that cooling down to environmental temperature). Information is supplied on special request.

Type designation

N x PEOI a/b t

N = cascade column with N transformers

a = rated output power in kVA

b = rated output voltage in kV

t = equipped with transfer winding for cascades