

Table 4 - Dielectric Insulation levels for all windings of Class II power transformers, and Class I power transformers when partial discharge testing is specifically requested, voltages in kV

Maximum system voltage (kV rms)	Nominal system ^a voltage (kV rms)	Applied voltage test ^g (kV rms)			Induced voltage test ^{b,c} (phase to ground) (kV rms)		Winding line-end BIL ^d (kV crest)				Neutral BIL ^{e,g} (kV Crest)	
		Delta and fully Insulated wye	Grounded wye	Impedance grounded wye or grounded wye with higher BIL	Enhanced 7200 cycles	One hour	Minimum	Alternates			Grounded wye	Impedance grounded wye or grounded wye with higher BIL
Col 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13
Class I power transformers with partial discharge testing												
1.5	1.2	10	10	10	1.4	1.2	30	45			45	45
3.5	2.5	15	15	15	2.9	2.5	45	60			60	60
6.9	5	19	19	19	5.8	5.1	60	75			75	75
11	8.7	26	26	26	10	8.8	75	95			95	95
17	15	34	34	34	17	15	95	110			95	110
26	25	50	34	40	29	25	150				95	125
36	34.5	70	34	50	40	35	200				95	150
48	46	95	34	70	53	46	200	250			110	200
73	69	140	34	95	80	70	250	350			110	250
Class II power transformers												
<=17	<=15	34	34	34	16	14	110				110	110
26	25	50	34	40	26	23	150				110	125
36	34.5	70	34	50	36	32	200				110	150
48	46	95	34	70	48	42	200	250			110	200
73	69	140	34	95	72	63	250	350			110	250
121	115	173	34	95	120	105	350	450	550		110	250
145	138	207	34	95	145	125	450	550	650		110	250
169	161	242	34	140	170	145	550	650	750	825	110	350
242	230	345	34	140	240	210	650	750	825	900	110	350
362	345	518	34	140	360	315	900	1050	1175		110	350
550	500	N/A	34	140	550 ^f	475 ^f	1425	1550	1675		110	350
765	735	N/A	34	140	880 ^f	750 ^f	1950 ^f	2050			110	350
800	765	N/A	34	140	885 ^f	795 ^f	1950 ^f	2050			110	350

^aFor nominal system voltage greater than maximum system voltage, use the next higher voltage class for applied test levels.

^bInduced voltage tests shall be conducted at 1.58 x nominal system voltage for one hour and 1.8 x nominal system voltage for enhanced 7200 cycle test.

^cColumn 6 and Column 7 provide phase-to-ground test levels that would normally be applicable to wye windings. When the test voltage level is to be measured phase-to-phase (as is normally the case with delta windings), the levels in Column 6 and Column 7 must be multiplied by 1.732 to obtain the required phase-to-phase induced-voltage test level.

^dBold typeface BILs are the most commonly used standard levels

^eY-Y connected transformers using common solidly grounded neutral may use neutral BIL selected in accordance with the line-voltage winding rating.

^fFor 500 kV to 765 kV nominal system voltages, induced voltage test levels do not follow rules in footnote b, and 1950 kV BIL is not a standard IEEE level.

^gIf user specifies a different BIL for the neutral than indicated above, the applied test voltage shall also be specified.