

220 kV Inductive voltage transformer technical requirements

Item	Description	Required by NPC “Ukrenergo”	Guaranteed by the Manufacturer
	Basic parameters		
1.	Manufacturer		
2.	Factory type (make)		
3.	Standard technical conditions	IEC standards, valid at the moment of equipment manufacture	
4.	Transformer design type (Inductive)	single-phase, electromagnetic, with 3 secondary windings, fire and explosive safe	
5.	Internal insulation type	SF6 gas (gas mixture)	
6.	External insulation type	Polymer	
7.	Rated operating phase voltage, kV	220/ $\sqrt{3}$	
8.	Maximum operating phase voltage, kV, not less than	252 / $\sqrt{3}$	
9.	Rated frequency, Hz	50	
10.	Number of secondary windings	3	
11.	Rated voltages of secondary windings:		
	- main winding(No.1), V	100/ $\sqrt{3}$	
	- additional main winding (No. 2), V	100/ $\sqrt{3}$	
	- additional winding (No. 3), V	100	
12.	Secondary windings parameters: - for metering (No. 1) accuracy class rated load, VA - for measurements and relay protection (No.2) accuracy class rated load, VA - additional winding (No.3) accuracy class rated load, VA	0.2 100 3P 250 3P 400	

Item	Description	Required by NPC “Ukrenergo”	Guaranteed by the Manufacturer
	Technical requirements to design		
13.	Allowable value of mechanical load caused by horizontal wires stress, N, not less than	1000	
14.	SF6 gas leakage, % per year, not more than	0.5	
	Climatic design		
15.	Climatic design and location category	U1	
16.	Ambient air temperature, °C - operating maximum - operating minimum	+40 -40	
17.	Maximal wind velocity under ice conditions, m/s	15	
18.	Maximal wind velocity without ice conditions, m/s	40	
19.	Ice thickness, mm	20	
20.	Installation altitude, m, not more than	1000	
21.	Seismic stability, number of points as per MSK scale	6	
	Insulation requirements		
22.	Full lightning impulse withstand voltage, kV	950	
23.	Chopped lightning impulse withstand voltage (for electromagnetic VTs), kV	1100	
24.	One-minute test voltage at 50 Hz, kV	395	
25.	Specific creepage distance of external insulation, cm/kV (measured at maximum operating phase to -phase voltage in the grid), not less than	2.5	
	Manufacturer's warranty		
26.	Operation warranty period from the date of commissioning, years, not less than	3	

Item	Description	Required by NPC “Ukrenergo”	Guaranteed by the Manufacturer
27.	Warranty period from the date of goods acceptance at Employer's warehouse, years, not less than	3.5	
Scope of supply of voltage transformer			
28.	Voltage transformer assembly, (yes, no)	yes	
29.	Operating documents,	yes	
30.	Cylinder (cylinders) with SF6 gas (gas mixture) for refilling up to rated pressure and further maintenance.	yes	
31.	Certificates: - of compliance;	yes	
32.	Installation drawings with installation instruction	yes	
33.	Factory acceptance tests reports	yes	
34.	Passport	yes	