



ISO 9001:2015

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**SATURATION PARAMETERS**  
**OF POWER TRANSFORMER 70MVA 132/33 kV**

**1. Transformer basic data:**

1.	Transformer type	Power transformer, Outdoor installation, Non-hazard
2.	Rated power (ONAN/ONAF)	45/70 MVA
3.	Rated voltage	HV side: 132 kV LV side: 33kV
4.	Transformer ratio	132+7x1.75%-9x1.75%/33 kV
5.	Rated frequency	50 Hz
6.	Connection symbol	YNyn0
7.	No load losses	≤39.9 kW
8.	Load losses	≤260 kW

**2. Magnetical characteristics :**

1.	Type of core	Core type, three phases, three leg.
2.	Type of laminate steel	GO electrical steel
3.	Manufacture/ Country	Wisco/China
4.	Grade	23RK080
5.	Core loss	≤0.8w/kg (at 1.7T; 50Hz)
6.	Flux density of core (rate voltage, 50Hz)	≤1.7T

**3. Saturation parameters:**

- Transformer rating : 70MVA.
- Zero sequence impedances R0 [pu] : 0,0073
- Zero sequence impedances X0 [pu] : 0,1298
- Positive sequence leakage reactance X1 [pu]: 0,13



- Eddy current losses (NLL) [pu]: 39.9 kW
- Copper losses (LLL) [pu]: 260kW
- Winding type: YNyn0
- Exciting current [pu]: 0.001
- Saturation parameters: Air core reactance [pu]: 0,035073
- Saturation parameters: Inrush decay time constant [s]: **0,202 s**
- Saturation parameters: Magnetising current [%]: 0.1%
- Saturation parameters: Knee voltage [pu]: 1.16
- Saturation parameters: Remanent flux core 1,2,3 [pu]: 0.7, 0, -0.7
- Saturation parameters: Loop width [%]: 15%
- Saturation parameters: Nominal Flux density [T]: 1.65

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