



ENERGOREMONT PRODUCTS

TIM - TPH - CNT

GROUNDING TRANSFORMERS WITH PETERSEN COILS

Grounding transformer with Petersen coil is a transformer with ZNzn0 (or ZNyn11+d) connection and variable impedance. The high-voltage side of the transformer is characterized by low zero-sequence impedance (less than 30 ohm). On the low-voltage side (410V) the zn or yn+d connection allows exploitation of three-phase and one-phase voltage. Compensative current is adjustable in 5 steps. The allowed time of a one-phase fault is up to 120 minutes.

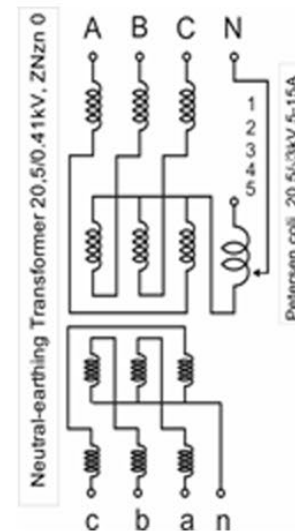


All technical characteristics can be adjusted to the particular customer's needs.

Remark: In comparison to the TIM-TPH Series, the CNT Series involve the maximal duration of the fault which is 5 minutes (instead of 120 minutes of TIM-TPH) and ZNyn11+d connection (instead of ZNzn0).

General technical characteristics of TIM-TPH-CNT series:

- Rated Power (kVAr): **50, 100, 200, 315, 500**
- Rated Low Voltage (kV): **0,410; 0,420**
- Connection: **ZNzn 0 (or ZNyn 11 +d)**
- R/X (%): **< 2.5**
- Fault duration (min): **120**
- Temperature class: **A**
- Standard: **IEC 60076-6**
- Rated High Voltage (kV): **10; 11; 20,5; 22; 33**
- Highest voltage level of equipment (kV): **12; 24; 36**
- Compensative fault Current (A): **5 ... 15**
- Total variation Zo (%): **<2**
- Cooling: **ONAN**
- Frequency (Hz): **50**
- SNRO: **57090 00**



TECHNICAL DATA – TIM 100, TPH 200, TPH 315, TPH 500

Manufacturer			ENERGOREMONT, Belgrade			
Transformer type			oil-immersed			
Transformer kind			hermetically sealed			
Standard			IEC EN 60076			
Types			TIM 100	TPH 200	TPH 315	TPH 500
1	Rated power	[kVA]	100	200	315	500
2	Number of phases		3			
3	Rated frequency	[Hz]	50			
4	Highest voltage level of	[kV]	24			
5	Rated insulating level	[kV]	LI 125 AC 50/AC1010			
Grounding transformer						
6	Rated primary voltage	[kV]	20.5			
7	Rated secondary	[kV]	0.410			
8	Connection symbol		ZNzn0			
10	Rated impedance	[%]	4			
11	Regulation	[%]	±2x2,5			
12	Noise level	[dB(A)]	≤ 59			
13	No-load losses	[W]	210	400	520	720
14	Load losses at 75 °C	[W]	1750	3000	5000	6500
Petersen coil						
15	Rated power	[kVAr]	59	89	118	148
16	Highest voltage level	[kV]	24			
17	The max. duration of	[min]	120			
18	Rated voltage	[kV]	20,5			
19	Voltage drop	[kV]	20,5/√3			
20	Connection symbol		YN			
 						
21	Taps		1	2	3	4
22	Currents for taps (Fault	[A]	5	7,5	10	12,5

23	Impedance for taps	[Ω]	2367	1578	1183	947	789
Grounding Transformers with Petersen Coils							
24	R/X at 75 °C	[%]	≤ 2.5				
25	Zo linearity up to	[%]	≤ 2				
26	Zero sequence impedance for taps	[Ω]	7100	4734	3550	2840	2367
Temperature rises, conditions of use and installation							
27	Maximal ambient	[C]	40				
28	Maximal temp. rise of	[K]	65 and IEC 60076-5:2006.				
29	Maximal temperature	[K]	60 and IEC 60076-5:2006.				
30	Thermal class of		A				
31	Type of cooling		ONAN				
32	Installation height	[m]	≤ 1000				
33	Type of terminal connection		HV and LV : DIN Bushing Plug in type Euromold - 1 pcs. (N)				
34	Place of installation		Outdoor/indoor				
Maximal dimensions and masses							
35	Maximal dim. of the transformer:						
	a) length	[mm]	942	990	1150	1280	
	b) wide	[mm]	925	990	1080	1080	
	c) height	[mm]	1381	1420	1560	1730	
36	Approx. mass of oil	[kg]	350	450	530	650	
37	Approx. mass of the	[kg]	1310	1750	2020	2600	