



## GREEN TRAFO PRODUCTS

### SHR - THREE-PHASE SHUNT REACTOR

Three-phase shunt for compensation of reactive power and stopping of the electric arc of one-phase short circuit. Maximal allowed time of the one-phase short circuit depends on the particular customer requirements and varies between 5 minutes and 8 hours. Applicable in case of overhead lines and power cables. Possible manufacturing with and without regulation.



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

**Technical characteristics of SHR-7,5:**

- Standard: **IEC 60076-6**
- Rated Voltage (kV): **10; 20,5**
- Connection: YN
- Compensative fault Current (A): **5 ... 15**
- X linearity (%): **<2**
- Cooling: **ONAN**
- Frequency (Hz): **50**
- Terminations:
  - a) Open type bushings (**standard solution**)
  - b) Plug-in type bushings (**optional solution**)
- Rated reactive Power (kVAr): **87 ... 178**
- Highest voltage level of equipment (kV): **12; 24**
- Reactive Current per phase (A): **1.67 ... 5**
- R/X (%): **< 1.25**
- Fault duration (min): **120**
- Temperature class: **A**
- SNRO: **57 090 00**

SHR - THREE-PHASE SHUNT REACTOR PDF BROCHURE IS AVAILABLE ON THE [LINK](#)

## GREEN TRAF0 PRODUCTS

### SUBc – GROUNDING REACTOR WITH PETERSEN COIL

Subcomp (SUBc) is a grounding reactor with winding in Z-connection and with variable impedance Petersen coil, both of which are placed in the same tank. In normal operation, Subcomp is characterized by a very small magnetizing current. During a one-phase fault, the fault current is limited by the Petersen coil which is connected to the star-point of the reactor's Z-connection winding. The duration of the fault is usually limited to 300 seconds. Some of the notable technical characteristics of Subcomp are  $R/X < 2,5\%$  and Linearity (diff)  $< 1,5\%$ .



### Technical characteristics of SUBc-20,5kV; 25A-50A:

- Rated Voltage (kV): **20,5**
- Connection: **ZN**
- No-load losses (W): **320**
- R/X (%): **< 2.5**
- Fault duration (min): **5**
- Temperature class: **A**
- Standard: **IEC 60076-6**
- Terminations:
  - a) Open type bushings (**standard solution**)
  - b) Plug-in type bushings (**optional solution**)
- Highest voltage level of equipment (kV): **24**
- Reactive Current per phase (A): **25 ... 50**
- Impedance [ $\Omega$ ]: **474 ... 237**
- X linearity (%): **<1.5**
- Cooling: **ONAN**
- Frequency (Hz): **50**
- SNRO: **57090 00**
- Accordance with: **EN 50180, EN 50386, EN 5038**

SUBc - GROUNDING REACTOR WITH PETERSON COIL PDF BROCHURE IS AVAILABLE ON THE [LINK](#)

## GREEN TRAF0 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: **ZNzn0 (or ZNyn11 +d)**
- R/X (%): **< 2.5**
- Fault duration (min): **120 (or 5)**
- 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**

TIM - TPH - CNT GROUNDING TRANSFORMER WITH PETERSON COIL PDF BROCHURE IS AVAILABLE  
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## GREEN TRAF0 PRODUCTS

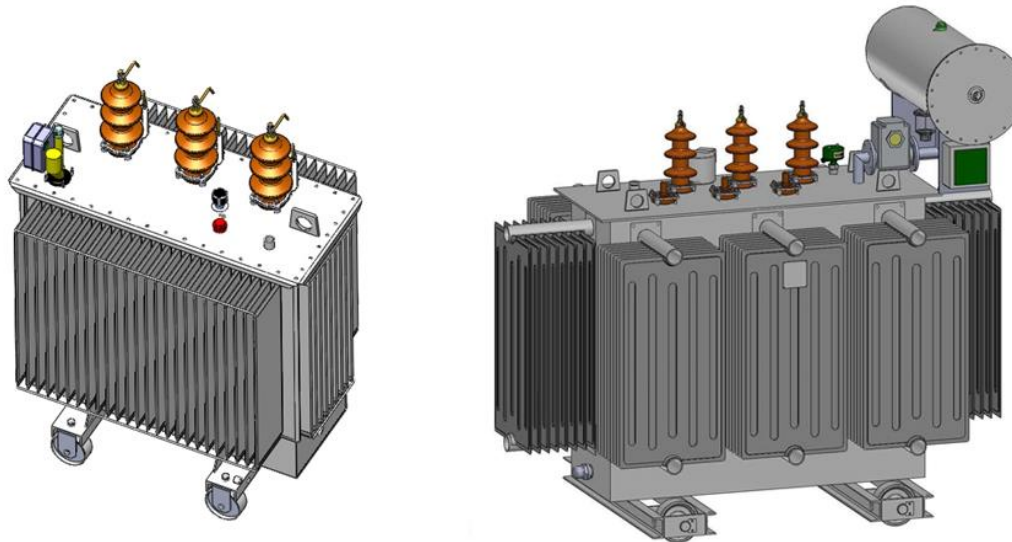
# SSHR – STANDARD THREE PHASE SHUNT REACTOR

Standard Shunt Reactor is globally defined by IEC 60076-6 standard.

It is used for compensation of capacitive energy of network and has no connection between neutral point and ground.

Its function is power factor correction in power lines.

Chooses of different current compensation values are possible.



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

**Technical characteristics:**

Adjustable power compensation: **3:1**

Rated reactive power (kVAr): **up to 3000**

Rated voltage (kV): **10; 20; 20,5**

Highest voltage level of equipment (kV): **12; 24**

Terminations:

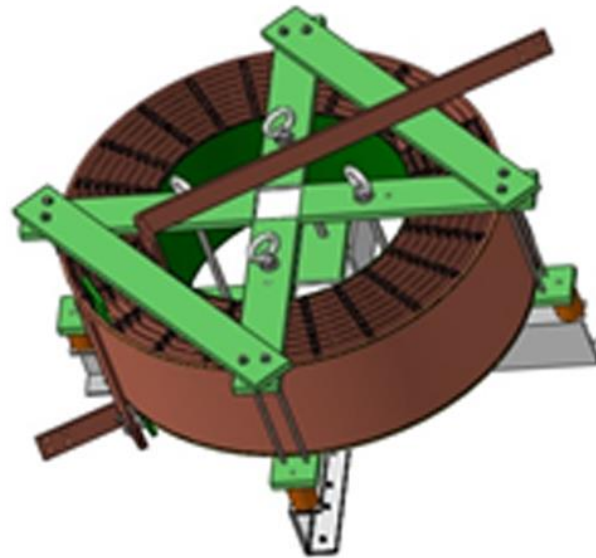
- a) Open type bushings (**standard solution**)
- b) Plug- in type bushings (**optional solution**)

Accordance with: **EN 50180, EN 50386, EN 5038**



**GREEN TRAF0 PRODUCTS**  
**CURRENT LIMITING REACTOR**

Construction consists of three one-phase air reactors which may be assembled into a three-phase unit with possible vertical or horizontal installation. Assembling into a three-phase unit can be done in Green Trafo or at the place of installation.

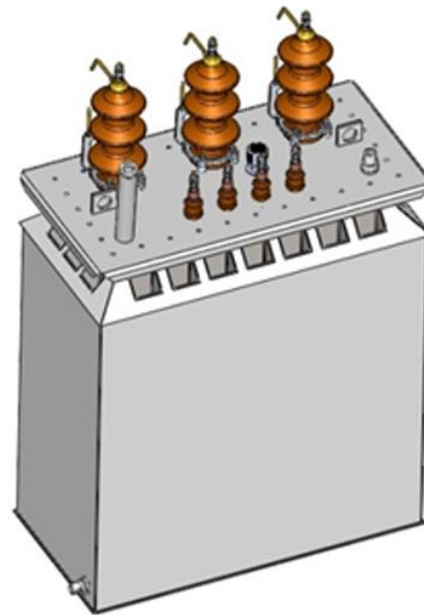


**General technical characteristics:**

- Rated Voltage (kV): **6, 10, 20**
- Rated Current (one-phase) (A): **up to 2000**
- Montage three-phase: **vertical or horizontal**
- Temperature class: **F (155)**
- Standard: **IEC 60076-6**
- Highest voltage level of equipment (kV): **7.2, 12, 24**
- Connection: **III (three single-phase units)**
- Cooling: **AN**
- Frequency (Hz): **50**

**GREEN TRAF0 PRODUCTS**  
**DOUBLE TANK TRANSFORMER (ECO DESIGN)**

The transformer with double tank by its electrical characteristics corresponds to ECO-DESIGN according to *European directive 2009/125/EC, Regulation (EU) n° 548/2014*. In case of leakage or explosion of the internal tank, the external tank is capable of capturing the complete amount of the transformer oil.



The technical characteristics listed below can be adjusted to the particular customer's needs.

**Technical characteristics of GTED-100.20,5:**

- Rated Power (kVA): **100**
- Highest voltage level of equipment (kV): **24**
- No-load losses (W): **145 (A<sub>0</sub>)**
- Impedance voltage (%): **4**
- Temperature class: **A**
- Standard: **IEC 60076-1**
- Double tank design: **In case of leakage in the internal tank, the external tank captures all the leaking oil.**
- Rated Voltage (kV): **20.5/0.410**
- Connection: **Dyn 11**
- Load losses (W): **1750 (C<sub>K</sub>)**
- Cooling: **ONAN**
- Frequency (Hz): **50**

DOUBLE TANK TRANSFORMER (ECO DESIGN) PDF BROCHURE IS AVAILABLE ON THE [LINK](#)

**GREEN TRAF0 PRODUCTS**  
**RAILWAY TRANSFORMER**

Single-phase transformer used in railways for transformation of the primary 27kV voltage to some desired secondary voltage that supplies heating of the railroad switches, signalization and other local needs for electrical energy.



RAILWAY TRANSFORMER PDF BROCHURE IS AVAILABLE ON THE [LINK](#)