

Swedish Neutral

Premium Power Protection

Grounding Transformer



Introduction

A Grounding Transformer is used to provide a physical neutral for a power transformer with a delta connected downside. The Grounding Transformers neutral point has low impedance and is suitable for different grounding systems such as solid earthing, NER earthing (resistor) and resonance earthing (Arc Suppression Coil).

The Grounding Transformer can also be equipped with a low voltage auxiliary winding to be used as local power supply to the substation.

Swedish Neutral has together with SGB Germany delivered Grounding Transformers since 1991.

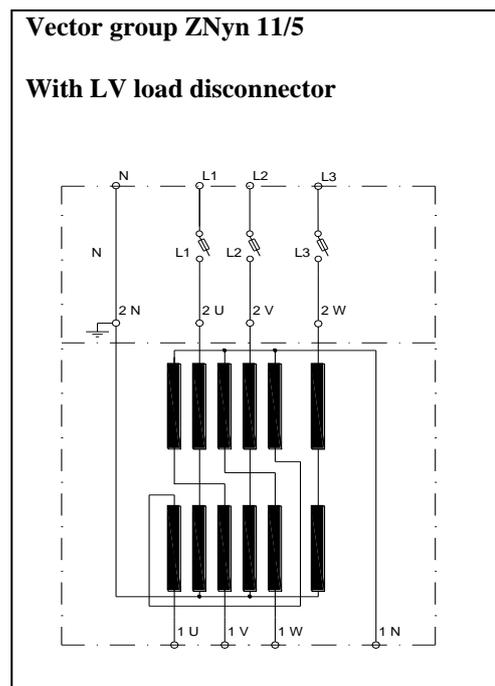
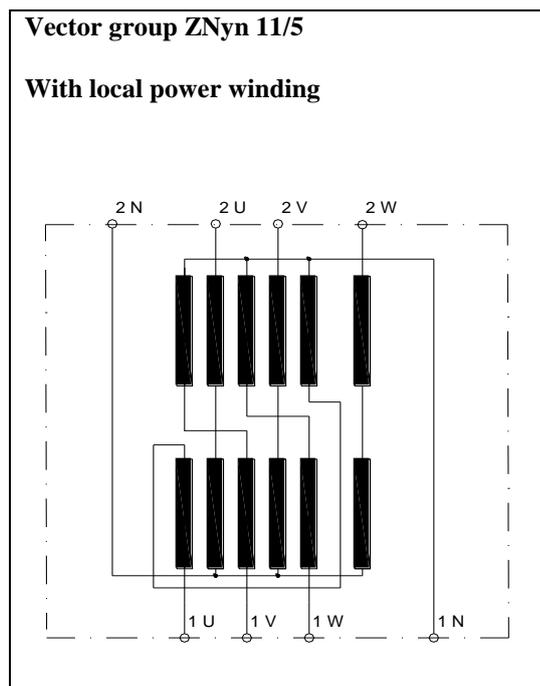
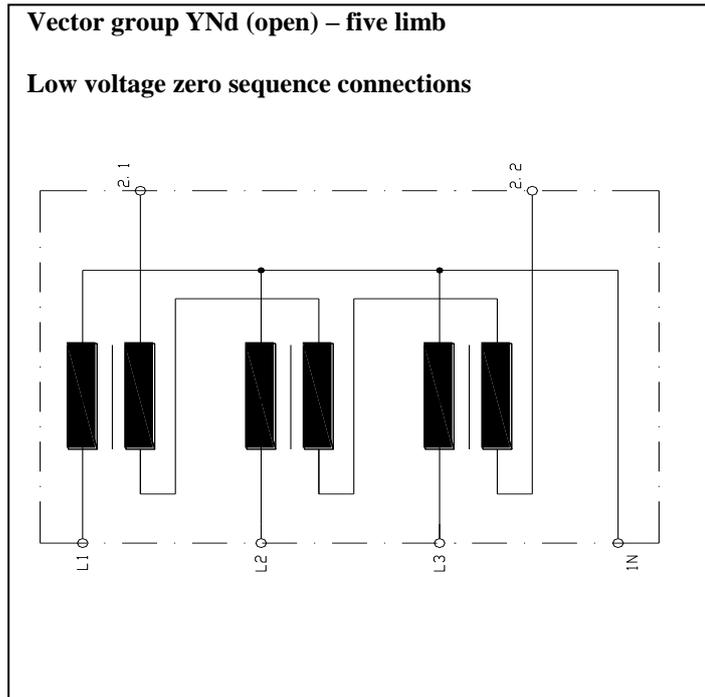
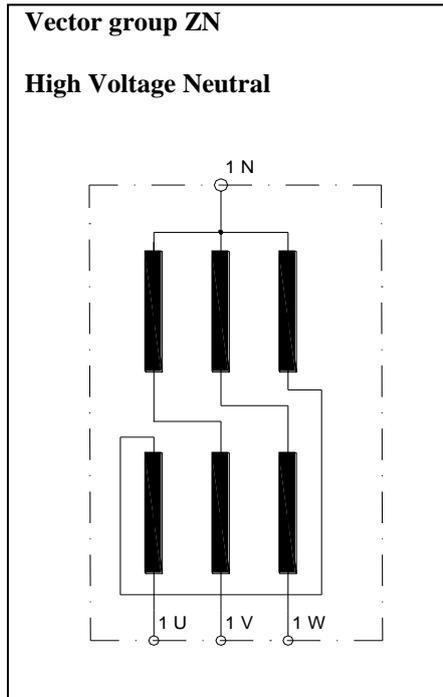


Grounding Transformer

A Grounding Transformer provides a physical neutral where one is needed. A Grounding Transformer with built in local power supply can be used as a local transformer.

Swedish Neutral also offers five limb YNd (open) connected Grounding Transformers, suitable for neutral grounding of smaller industry grids.

Different Grounding Transformers

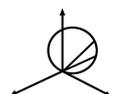


Swedish Neutral Grounding Transformer

- Manufactured by SGB Germany – one of Europe’s biggest transformer manufacturers
- Hermetically sealed design (oil cooled)
- Available for both indoor and outdoor duty (oil cooled / cast resin)
- Can be delivered with integrated Neutral Earthing Resistor
- Fused load switch for local power supply as option

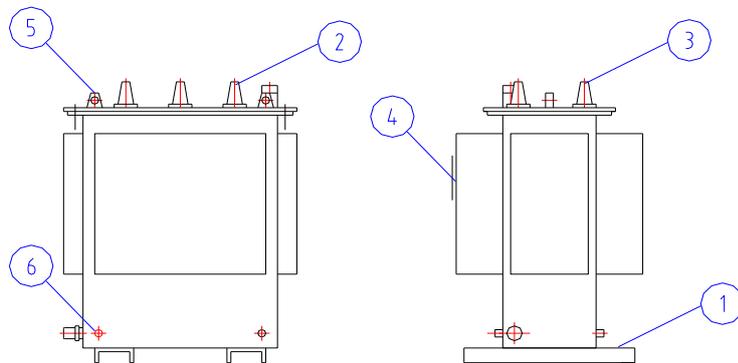


Delivery of Grounding Transformer (left) and Arc Suppression Coil (right)



Layout

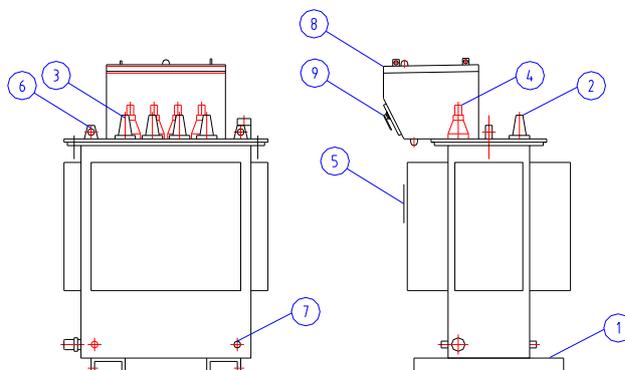
Grounding Transformer - outdoor



Legend

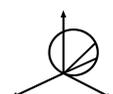
1. Mounting holes (16mm) for fitting of the Grounding Transformer to the foundation (optional wheels)
2. High voltage bushing – Elastimold: Load break/Dead break, DIN, Pfisterer
3. Neutral bushing – Elastimold: Load break/Dead break, DIN, Pfisterer
4. Rating plate (movable)
5. Lifting lugs
6. Protective earth

Grounding Transformer with local power supply - outdoor

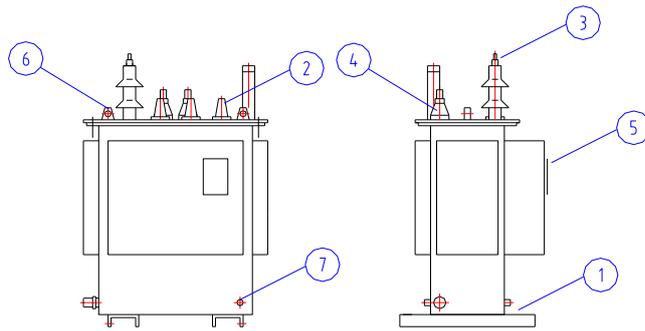


Legend

1. Mounting holes (16mm) for fixation of the Grounding Transformer to the foundation (optional wheels)
2. High voltage bushing – Elastimold: Load break/Dead break, DIN, Pfisterer
3. Neutral bushing – Elastimold: Load break/Dead break, DIN, Pfisterer
4. Low voltage bushing – DIN
5. Rating plate (movable)
6. Lifting lugs
7. Protective earth
8. Cabinet low voltage bushings
9. Fused load switch (optional)



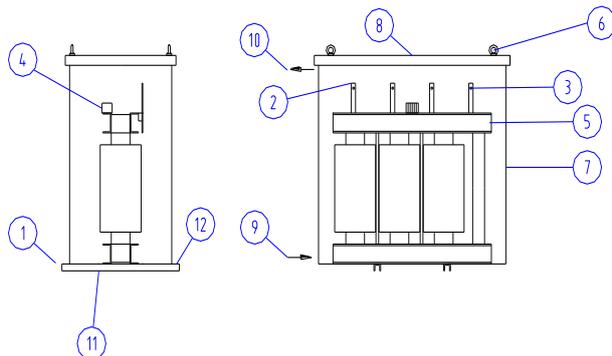
Grounding Transformer YNd (open) - outdoor



Legend

1. Mounting holes (16mm) for fitting of the Grounding Transformer to the foundation (optional wheels)
2. High voltage bushing – Elastimold: Load break/Dead break, DIN, Pfisterer
3. Neutral bushing – Elastimold: Load break/Dead break, DIN, Pfisterer
4. Low voltage bushing – DIN
5. Rating plate (movable)
6. Lifting lugs
7. Protective earth

Grounding Transformer with auxiliary power supply YNd (open) - indoor



Legend

1. Mounting holes (16mm) for fitting of the Grounding Transformer to the foundation (optional wheels)
2. High voltage bushing - M12
3. Neutral bushing - M12
4. Low voltage bushing – terminals
5. Rating plate (movable)
6. Lifting lugs
7. Enclosure
8. Service hatch
9. Air in
10. Air out
11. Cable bushing for HV cable from bottom
12. Protective earth



Technical specification

Voltage	Up to 130 kV
Current	Up to 1000A
Duty	Continuous or short time (2 hours)
Cooling methods for Hermetically sealed Indoor:	ONAN (ANSI/IEE C57.12.00) Class AA or Class AFA (ANSI/IEE C57.12.01)
Frequency	50 or 60 Hz
Installation	Indoor or Outdoor
Secondary winding voltage	400/420 V
Insulation level	According to the rated voltage (IEC70076-3)
Ambient temperature	-40 to +40 °C, other temperatures on request
Insulation oil in hermetically sealed	Nynas: Nytro Taurus Starke & Sohn: Transformer Oil U M&I Materials Ltd: Midel 7131 Other oils on request

Routine Tests

- Visual inspection (SS-EN 60439)
- Protective earth continuity test (SS-EN 60439)
- Verification of correct wiring (SS-EN 60439)
- Verification of correct function (SN routine test)
- Rated voltage / current test (IEC 60076-6)
- HV insulation test (IEC 60076-6)
- LV winding insulation test (3kV ~ 60s) (IEC 60076-6)
- Measurement of losses (IEC 60076-1)

Type tests

According to IEC 60076-1

- Measurement of current at rated voltage
- Temperature rise test
- Dielectric test

Special tests

- On request, as per agreement



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