PREMAGNETIZING TRANSFORMERS

TRANSFORMATOREN Wesemann

DATASHEET

INTRODUCTION

During the energizing process of power transformers problems can arise with high inrush currents up to sometimes 20 to 30 times the nominal current. This inrush period can last for more than 10 seconds and may cause a continuing heavy noise and also may cause fysical tensions on the construction of the transformers.

WEAK NETWORKS

When this power transformer is used on a so called "weak network" (i.e. electrical network on board of a ship or oil rig) the inrush peak will be lower because of the damping on the primary network. This will reduce the needed amount of time to magnetize the transformer. On the other hand the big disadvantage of this weak network is this damping issue. On offshore networks as well as for industrial networks some standards are applicable when energizing a transformer and specifically the limits of the inrush currents. Concluding most of the problems occur with the inrush currents caused by power transformers used on weak networks.

HOW THIS SYSTEM IS USED

The premagnetizing systems prepares the power transformer by premagnetizing before primary switching on the power transformer. In this case there will be no need for an inrush current. The transformer is energized immediately without damping on the supplying network and preventing the heavy tensions on the fysical construction. Also the main switch gear primary to the transformer is less pressured. The inrush current of the transformer will be lower than the nominal current by using this premagnetizing system.

Wesemann can provide compact premagnetizing systems for all power transformers including switchgear with a terminal box for controlling and returning a status signal of the premagnetizing system. Every premagnetizing system is specifically designed and custom made because of the specific characteristics of every single power transformer.

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SOME DETAILS:

Strong network (Shore) characteristics:

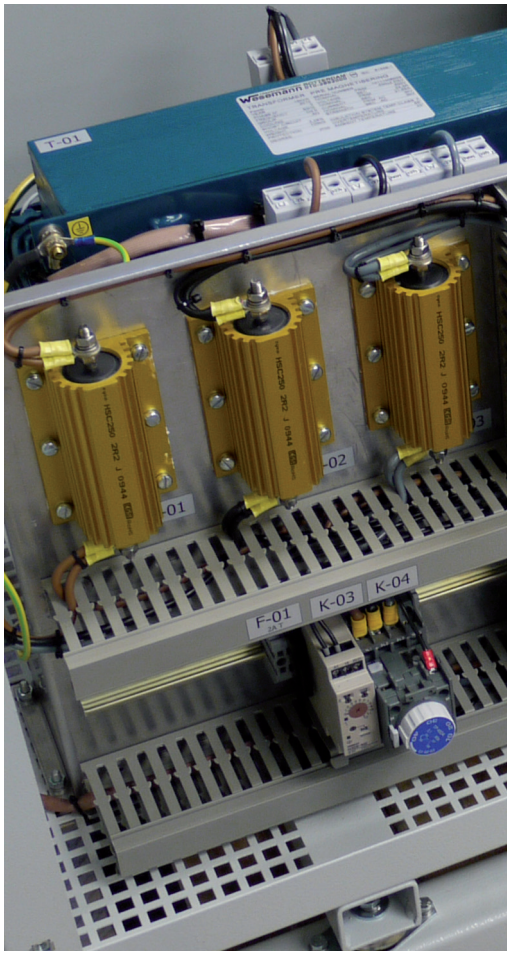
- Heavy inrush current: 30 times nominal current and higher
- Long lasting inrush current up to >10 seconds
- Heavy fysical tension on transformer construction and cabling on power transformer
- Heavy and loud noise during energizing
- Heavy load on applied switching gear

Weak network (offshore) characteristics:

- Less higher peak inrush currents: 10 - 20 times nominal current
- Damping on primary supplying network and dips below allowed values
- Depending on the switching moment

ADVANTAGES OF USING PREMAGNETIZING SYSTEMS:

- Low inrush current <1x nominal current
- After premagnetizing process no inrush behaviour by connected power transformer
- No additional heavy fysical forces on construction and cabling of the power transformer
- Low load on the used switch gear and increased life time
- No additional damping on the input voltage normally caused by switching on the power transformer
- Inrush current is no longer depending on the moment of energizing or the remaining magnetic flows in the power transformer
- Compact and complete solution for every type of power transformer:
  - Distribution transformers
  - Step down / step up medium voltage transformers
  - Rectifier transformers
  - Phase shifted transformers (like 24-pulse transformers)
- Custom made design for specific switching and protections



Wesemann BV is specialized in the manufacture of sophisticated electrical equipment for the professional industrial market. Wesemann is market leader for customized transformers and induction coils in the Netherlands, built according to customer specifications.

Since April 2003, Wesemann Elektrotechniek BV is ISO 9001:2000 certified while we also possess various product certifications such as KEMA and UL.

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