



Trocknung von Transformatoren: Vapour-Phase oder LFH

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Trocknung von Transformatoren: Vapour-Phase oder LFH

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Drying of Transformers
with Vapour Phase or Low Frequency

by Meier Prozesstechnik GmbH

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About Meier Prozesstechnik GmbH

- located in Bocholt, Germany
- owned by Mr. Aloys Meier himself
- about 100 employees, about 250 within the Meier-Group
- more than 30 years of international experience
- system solutions for the electrical industry
- close partnership to the electrical industry
- tailor-designed systems to customers needs – made in Germany

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Drying of Transformers

with Vapour Phase Technology

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Advantages of Vapour Phase Drying Technology



- Most efficient method for power transformers from 100 MVA up to the top range
- Energy saving due to shorter and more efficient drying method
- Less depolymerisation of insulation paper due to drying under vacuum
- Cleaning of the active part from old transformer oil during heating up and drying
- Less residual moisture in the insulation - compared to conventional drying (<0,3%)

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Difficulty of Vapour Phase Drying Technology

Due to the supplied solvent vapour (kerosine), dangerous situations may occur

Solution

Safety measures for plants operating with explosive media are available and minimize the risks. Meier Prozesstechnik has been developing and using these safety measures for years.

Official Certificate from DEKRA

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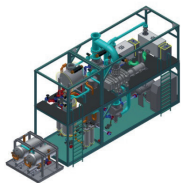
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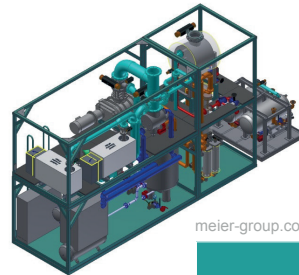
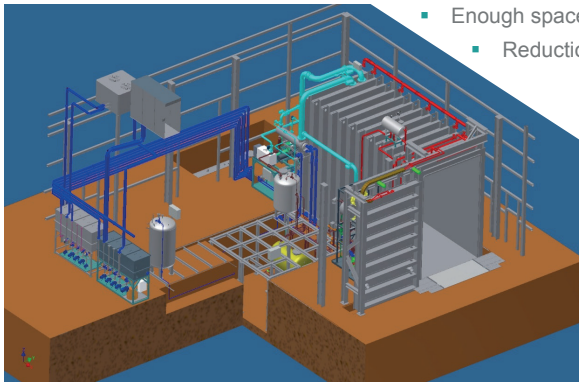
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Features of Vapour Phase Equipment, example given:

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- New Design approved
 - Completely preassembled
 - Only small pit necessary
 - Enough space for maintenance
 - Reduction of installation time



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Vapour Phase Equipment

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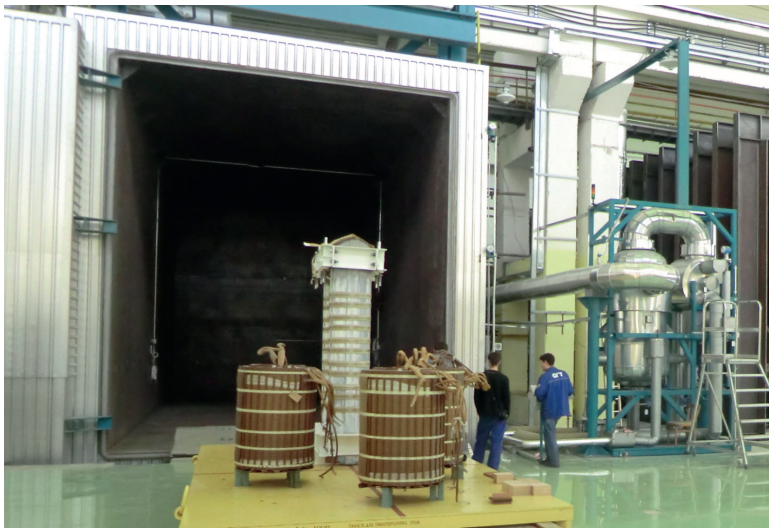


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Vapour Phase Equipment



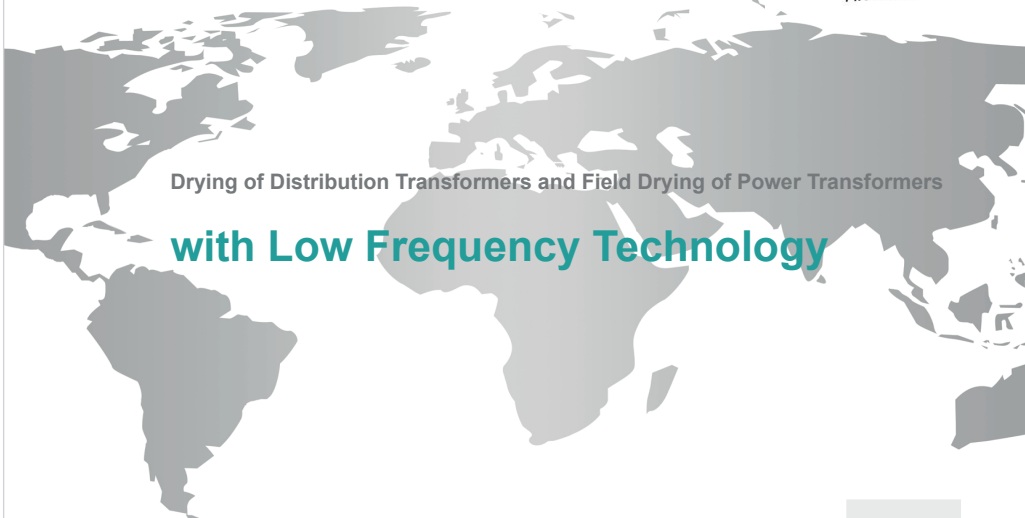
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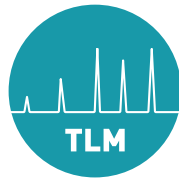


Drying of Distribution Transformers and Field Drying of Power Transformers

with Low Frequency Technology



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Advantages of Low Frequency Drying Technology



- Most effective drying method for distribution transformers up to 2,5 MVA
- Energy saving due to heating up windings and insulation material only
- Short process time and with this, workshop place saving
- Less depolymerisation of insulation paper (due to drying and filling under vacuum, without aeration)
- Clean process
- Applicable for drying of power transformers in the field

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Features of Low Frequency Equipment



- Tailor-designed autoclaves
- Regulation of oil filling speed
 - corresponding pipelines will be emptied automatically after filling
- Quick-Connectors (for copper bus bars and LF cables)
- Control of the dryness is done with a pressure rising test
- Provision of preheated dry air from the compressed air supply
 - to prevent corrosion on the core and the transformer housing
- Winding-temperature is calculated from the measured resistance of the winding
- Integration of a DC-measurement in addition to the AC-Measurement system:
 - for checking the AC measurement
 - characterised by high quality and accuracy
 - comparable with the measurement system of a testing field
- Manually, semi- or fully automatic process possible
- Quality Management System to record all process steps

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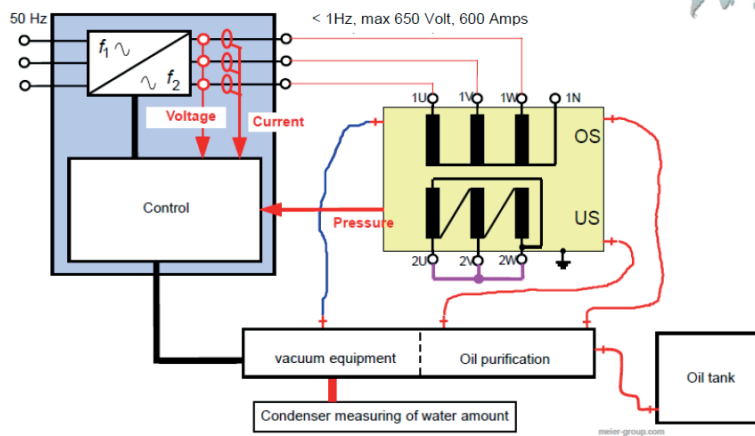


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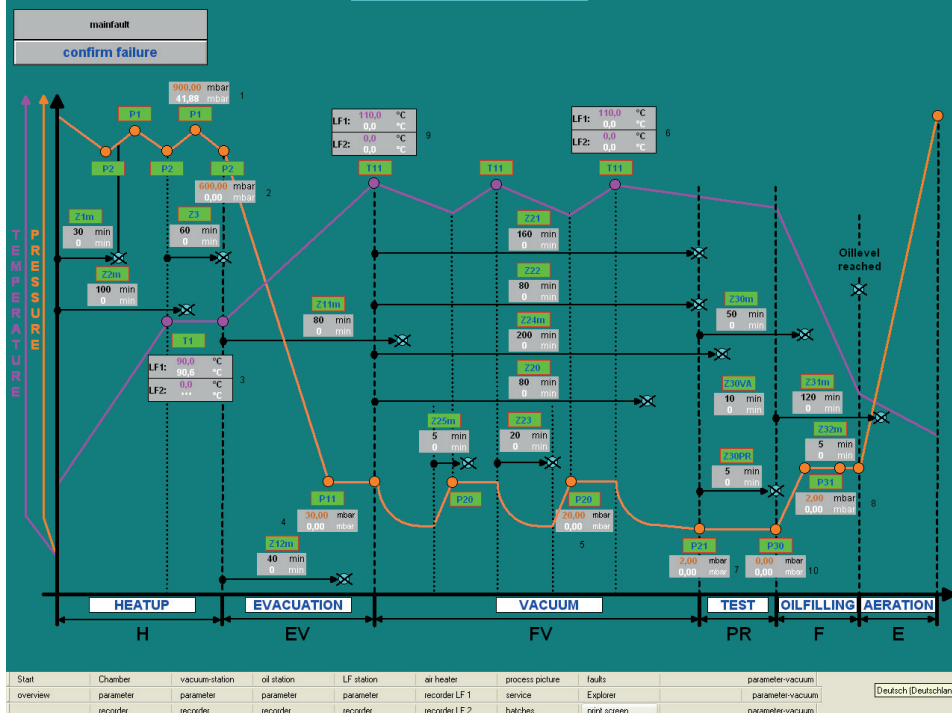
Schematic arrangement of Low Frequency Equipment



Schematic diagram of a low frequency installation

PROCESS OVERVIEW

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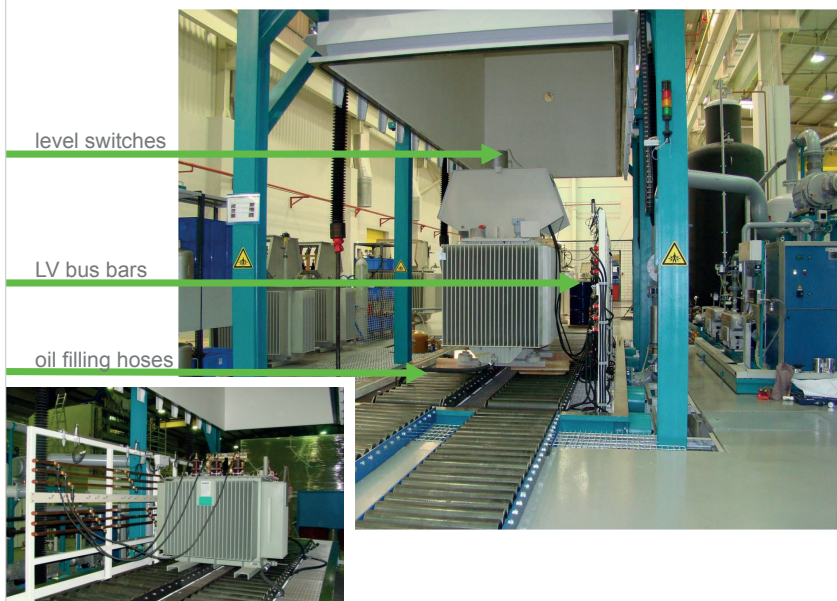


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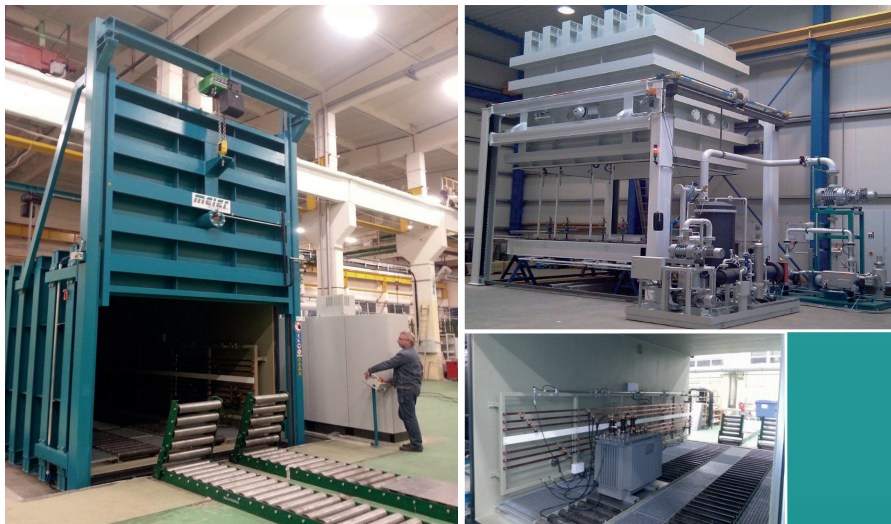
Features of Low Frequency Equipment, example given:



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Low Frequency Equipment



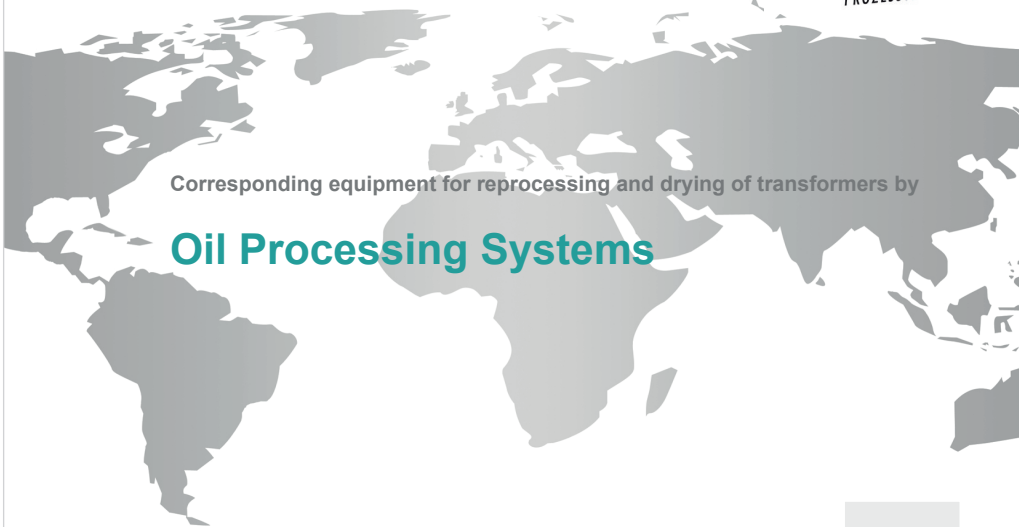
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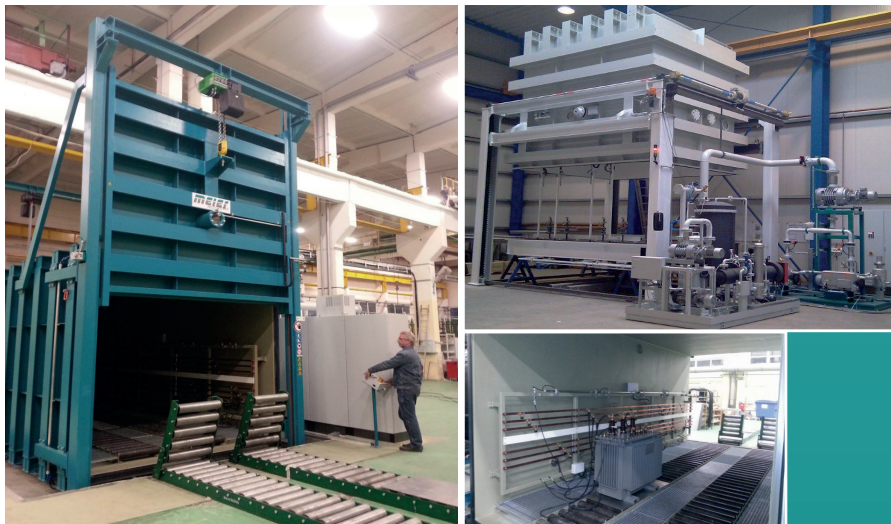


Corresponding equipment for reprocessing and drying of transformers by
Oil Processing Systems

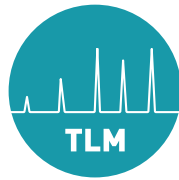
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Low Frequency Equipment



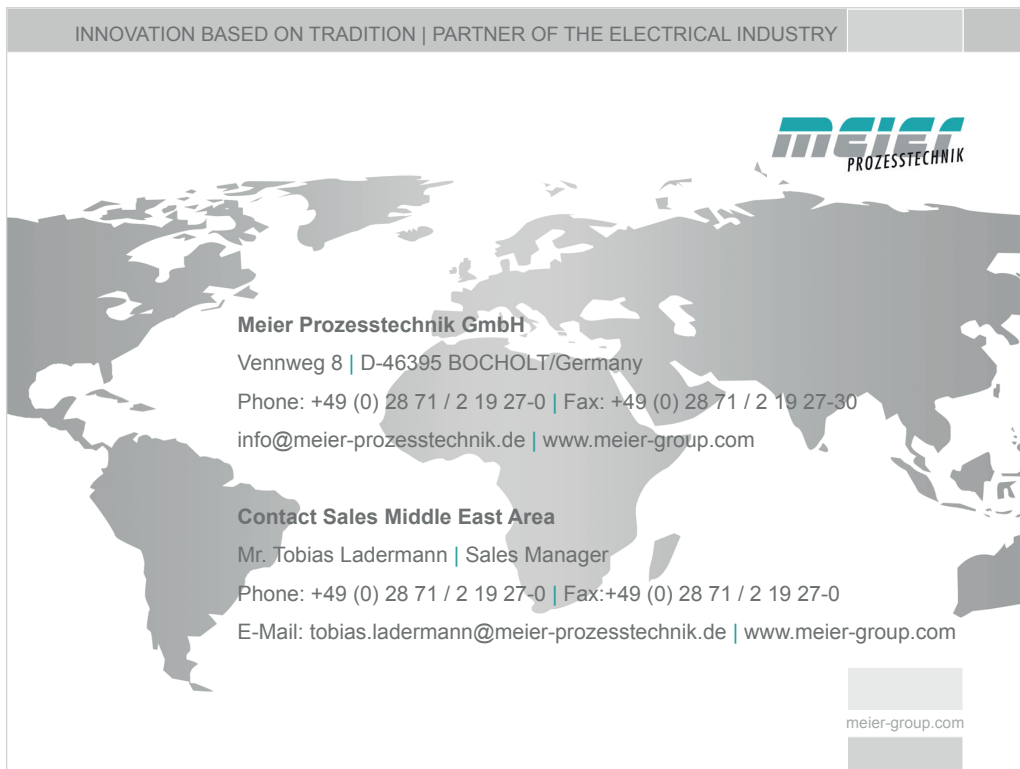
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