

# SIEMENS

*Ingenuity for life*

Customer Services for Transformers

# Transformer Spare Parts



Spare Parts

## Scope of work / deliverable

- Advice on operating your transformer, and on its maintenance and general performance
- Take advantage of a spare parts program from Siemens tailored to your needs
- OEM technology

## Introduction

Rising cost and performance pressures are forcing many operators to increase the utilization capacity of their transformers. Moderately aged transformers and network couplers are increasingly being operated at higher rates and in many cases using nominal power for the first time.

At the same time, operating down-times planned for maintenance have been reduced or completely eliminated.

Siemens Customer Services offer specific planning and prompt delivery of high quality spare parts and components.

## Features

Spare parts from Siemens offer:

- Stringent quality assurance standards to ensure that spare parts are manufactured in accordance with the Siemens OEM specifications
- Continuous improvement of technology and materials
- Outage planning and support based on customized spare parts programs

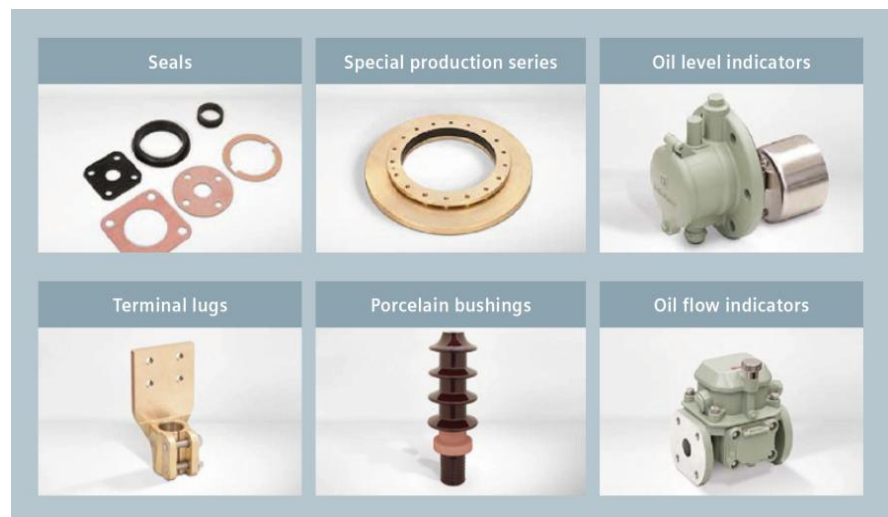
A central aspect of the spare parts program is outage planning. Our experienced specialists provide specific recommendations for spare parts for

planned maintenance work, and ensure that they are delivered on time.

What's more, in the event of an outage there is always a spare parts specialist on hand to help you before, during and after the shutdown phases.

## Benefits

- Increased availability and reliability
- Extended maintenance intervals
- Cost savings due to extended service life
- Higher operational safety
- Lower outage costs due to immediate supply of spares



## Technical details

Description	Estimated operating time	Degree of impact	Probability of fault	Possible effects
DIN bushing	20–30 years	Very high	Low	The most likely fault to occur in a porcelain bushing is a mechanical malfunction. Breaking or cracking could possibly result in oil leaking, electric discharge or even fire.
Capacitor bushing	15–20 years	Very high	Medium	Capacitive bushing faults can result in contamination of the active part, oil leaking and explosions.
Gasket	10–15 years	Medium	High	Oil leaking could lead to pollution of the environment and fire or impair the continuation of the workflow process.
Valves (slide valves)	10–15 years	Medium	Medium	Leakages due to wear caused by ageing.
Pump	10–15 years	High	Medium	A pump fault interrupts the flow of oil in the cooling circuit and results in overheating and interruption of function.
Fan	5–10 years	Medium	Medium	A ventilator fan fault interrupts the flow of air to the cooling circuit and could result in overheating and interruption of function.
Rubber bag	10–15 years	Medium	Medium	Warning/disconnection by oil level indicator.
Buchholz relay	5–15 years	High	Medium	Gases occurring in the transformer oil are not indicated. Serious faults cannot be detected.
Oil level indicator	10–15 years	Medium	Medium	The exact oil level is important for the correct operation of the transformer. If the oil level indicator fails, this can result in unscheduled shutdown and even do damage to the windings.
Oil and winding thermometer	10–15 years	Medium	Medium	High temperatures influence the properties of the oil and accelerate ageing of the transformer.
Air dehumidifier	10–15 years	Low	High	Moisture accumulates in the transformer oil, leading to reduced breakdown strength and to accelerated ageing of the solid insulation.
Pressure relief valve	5–10 years	High	Medium	A fault in the pressure relief valve could lead to a catastrophic explosion or cause the welds on the tank to crack.
Oil/water flow indicator	10–15 years	Medium	Medium	The nonfunctioning of these indicators can lead to overheating. In serious cases, this might even destroy parts of the equipment.

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Subject to change without prior notice. The information in this document contains general descriptions of the technical options available, which may not apply in all cases.

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