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TRANSEC

Online Drying Solution
For Oil Insulated Transformer

www.streamer-electric.com

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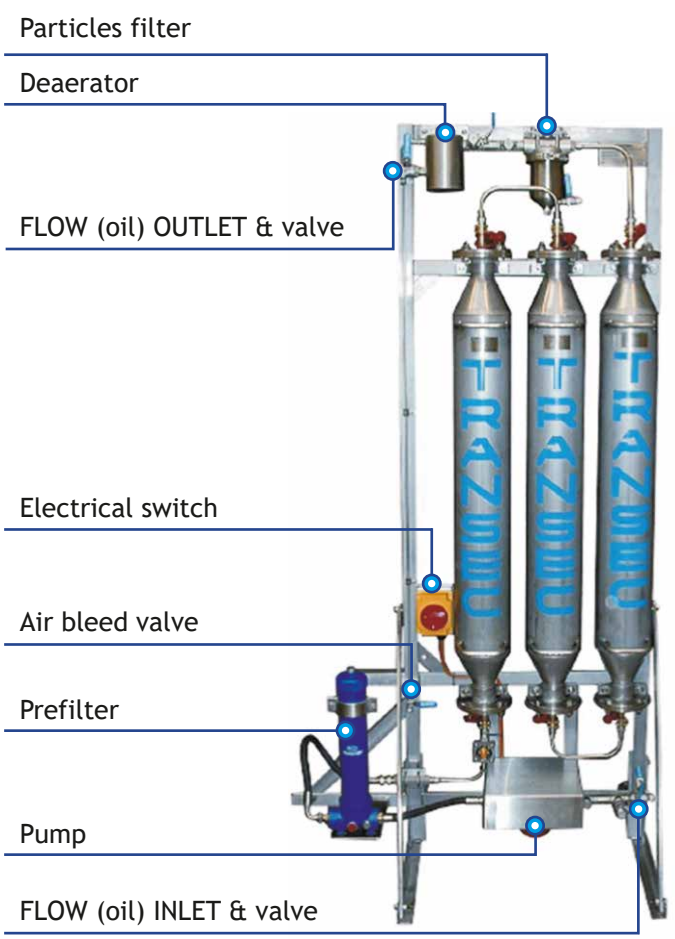
BENEFITS

- Increases life expectancy of Transformers
- Easy Transformer maintenance without outage – no shutdown, no transport
- Cost effective solution
- Drying Transformer continuously during operation
- Effective to dry Power Transformers
- Moisture PPM monitoring available
- Stand-Alone unit, only low-voltage power supply requested



FUNCTION

TRANSEC is a system to dry Power Transformers of all sizes. The Problem of wet Transformer is already well known. Due to moisture and oxygen, the insulation paper within the Transformer degenerates. One of the products of this chemical process is H_2O. While only a small part of the moisture is absorbed by the Transformer oil, more than 95% of the moisture becomes diffused in the tons of insulation paper. Depending on the percentage of moisture, the aging of the Transformer increases and failures such as flashovers between the windings, treeing, and creeping discharges occur. Temperature changes of the oil during the operation even increase the risk of an outage.

Once the oil in the Transformer gets dried by TRANSEC, it dehumidifies the insulation paper and returns back again to the unit. Using this cycle effect, TRANSEC keep the insulation paper permanently dry, ensure a faultless operation and elongates the life expectancy of the Transformer significantly. Comparing to other solutions, the Transformer can be dried during its operation. There is no need to transport or switch it off.

OPERATION PRINCIPLE

TRANSEC is an online drying sieves. The unit consists of an electrical pump, special water absorber cylinders and measuring sensors to monitor the amount of removed water. The System can either be mounted directly on a Power Transformer or can be installed next to it. Two pipes are connected to the upper and lower part of the Transformer body. After the unit is installed and switched on, the pump continuously cycles the transformer oil through the cylinders. Within the cylinders, water absorbing material removes the moisture from the oil. After this process, the oil goes through a particle filter to ensure its cleanliness before it returns back to the Transformer. An inbuilt deaerator insures, that no air will enter the tank. Every TRANSEC unit includes sample / measuring points at the inlet and outlet (to check the moisture content in the oil). An additional prefilter and a monitoring system can be added to the unit as an option.

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TECHNICAL CHARACTERISTICS

	CL3		CL1
	in Frame	in Cabinet	in Frame
Weight (kg)	220	350	90
Dimension (HxWxD, mm)	1950x705x320	2300x915x435	1950x455x320
Material	304 grade stainless steel		
Environmental condition	0°C to + 90°C		
Water capacity	3 x 4 litre = 12 litre		4 litre
Transformer size	>10 MVA		<10 MVA
Protection class of cabinet/frame	Designed to comply with IP64 (in frame) / IP65 (in enclosure)		
Installation time	5h - 6h (with two qualified person)		
Max oil temp	110°C		
Pump capacity	90 l/hr		
Electrical supply for pump	240V; 50Hz; 0.27kW / (120V; 60Hz - possible)		
Pipes	Stainless steel pipes bent on site or hydraulic flexible pipes; Flange adaptors, non-return valves and bleed valve		
Modules (optional)	Output: Analogue 0-20mA or 4-20mA for SCADA		
	Temperature and moisture probes at inlet and outlet with local LCD		
	Monitoring for ppm and temperature		
	IEC61850 SCADA integration via Ethernet or fibre optic		
Type Test	System pressurised to 3 bar for 1 hour at 110°C (pump not running) to prove leak free		
Routine Test	Each unit is tested pressurised to 2 bar for 30 minutes at 60°C to prove leak free		

DID YOU KNOW?

To monitor the PPM of moisture in your Transformer oil it is not mandatory to take an oil sample and perform a lab test.

With the **VAISALA MM70** you can measure the water content directly on site.

The device is available with one or two probes, able to estimate the ppm of moisture in less than 15 min!

The VAISALA sensors are very accurate and robust - that's why we are also using them in our monitoring module.

Ordering Code:
VAISALA MM70

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TWO DIFFERENT MODELS FOR TRANSMISSION OR DISTRIBUTION TRANSFORMER

CL3

- high capacity water extraction (12 litre)
- for Transformer >10 MVA
- long operation duration without maintenance
- in frame or in cabinet
- PPM measuring and monitoring module available

CL1

- low weight, easy to move
- for Transformer <10 MVA
- cost effective and flexible to operate on different transformer
- measuring and monitoring module available

INSTALLATION

CL3 For Transmission Transformer >10 MVA

CL1 For Distribution Transformer <10 MVA

• Directly on the Transformer

• Aside, stand alone next to the Transformer

• In aluminum or stainless steel enclosure

• Single unit - mobile and flexible

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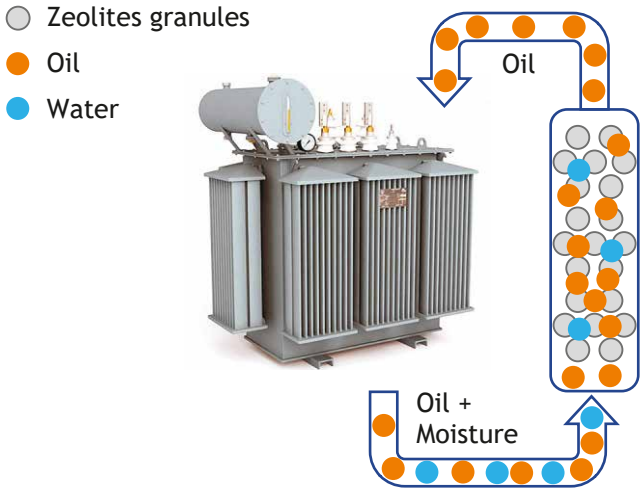
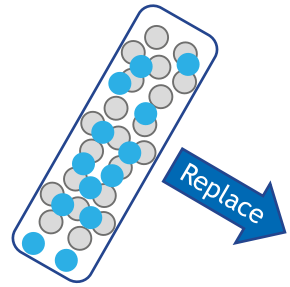
CYLINDER REGENERATION

When TRANSEC is retrofitted on an existing transformer with high percentage of moisture (>2% of moisture in paper), the filter-cylinders will extract their maximum capacity within 6 to 24 months depending of moisture level at installation date, of the transformer load and temperature. The filter-cylinders will have then to be replaced and a new cycle of filtration will start. The following regenerations will happen after a longer period of filtration as the overall moisture level in the transformer has decreased.
On a new or very dry transformer (<1% of moisture in paper) the filtration time will be longer (at least a couples of years) before the filter-cylinders are saturated.

Saturated cylinders can easily be identified by using the inbuilt measuring module or by measuring manually on the in- and output of TRANSEC. If the proportion of the water in the oil remains the same, the filter needs to be changed.
The replacement of the Filter-Cylinders can be done on the installed device. Two valves, on the income and the outcome of TRANSEC need to be closed and the remained oil needs to be caught. The cylinders can directly be replaced by new types while the saturated cylinders can be shipped back to TRANSEC for the regeneration process. This operation takes approx. 30 min per cylinder and can be done while the Transformer is running and operational.





ORDERING REFERENCES

REFERENCE	DESCRIPTION
TR.CL.1.0.OT.00.WW	Transec CL1A Mounting on Transformer
TR.CL.1.0.SF.00.WW	Transec CL1A on Standing Frame
TR.CL.3.0.OT.00.WW	Transec CL3A Mounting on Transformer
TR.CL.3.0.SF.00.WW	Transec CL3A Standing Frame
TR.CL.3.0.AE.00.WW	Transec CL3A in Alu Enclosure
TR.CL.3.0.SE.00.WW	Transec CL3A in Stainless Steel Enclosure
TR.CL.3.M.OT.00.WW	Transec CL3A with Monitoring Mounting on Transformer

REFERENCE	DESCRIPTION
TR.CL.3.M.SF.00.WW	Transec CL3A with Monitoring Standing Frame
TR.CL.3.M.AE.00.WW	Transec CL3A with Monitoring in Alu Enclosure
TR.CL.3.M.SE.00.WW	Transec CL3A with Monitoring in Stainless Steel Enclosure
TR.CL.REGE.01.WW	Regeneration of 1 Cylinder
TR.CL.REGE.03.WW	Regeneration of 3 Cylinders
TR.CL.CYLI.03.WW	3 New Cylinders
TR.CL.IKIT.00.WW	Installation Kit 2x Flange Adaptor, 15mm Cold Drawn Seamless Annealed Pipe, Male Stud Coupling

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