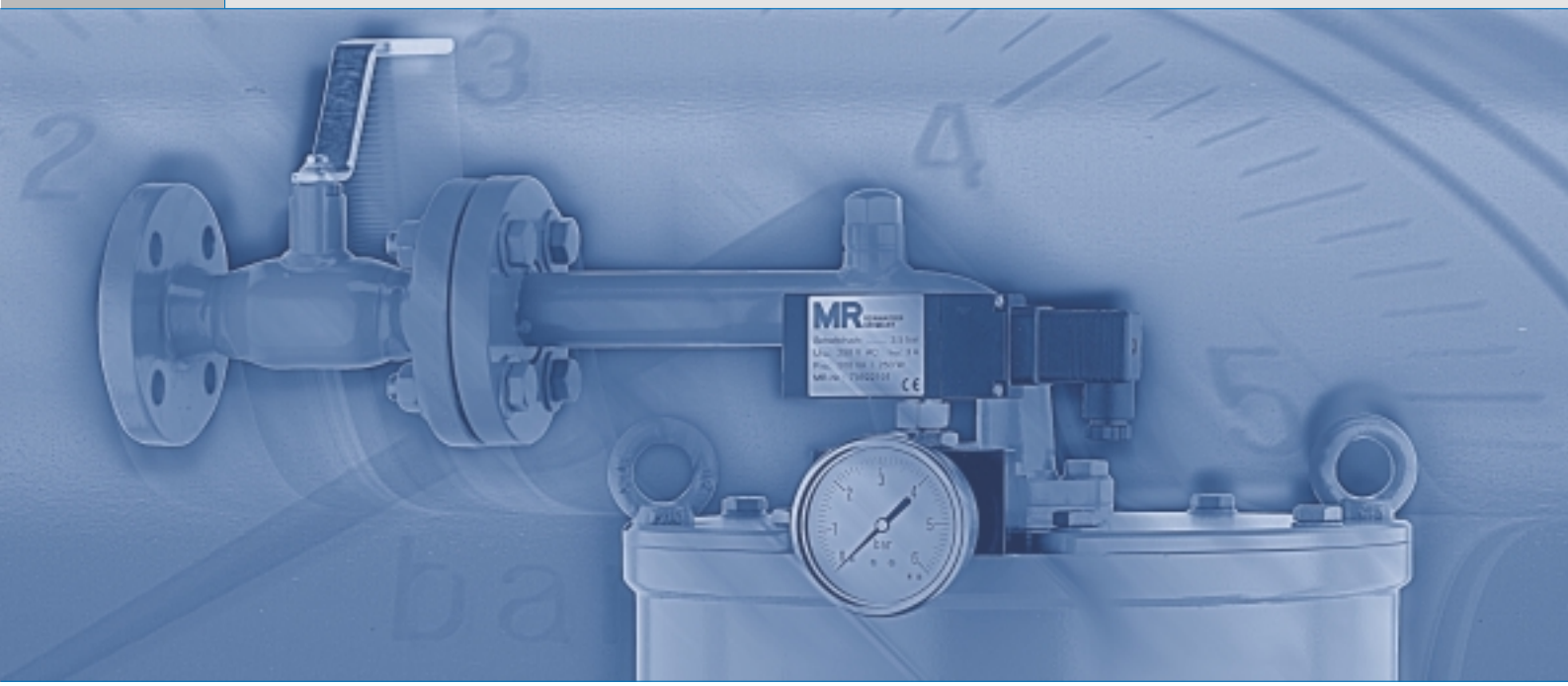
www.reinhausen.com

OF 100

Oil Filter Unit



The problem

The problem is known. When on-load tap-changers are operated in power transformers, the switching oil takes on water. With OILTAP® on-load tap-changers, arcing also causes contamination. This can be extremely harmful to the reliability of tap-changer and transformer.

The solution

Under normal operating conditions, routine maintenance is completely sufficient to ensure reliable operation. The OF 100 oil filter unit is available to meet more demanding environments. It cleans and dries the switching oil while the transformer is in operation.

The design

In its cylindrical tank, the pump unit contains the feed pump, the pump motor and the filter cartridge.

The flange connections for the oil feed/return pipes are installed on the upper and lower cover of the tank. This ensures clear arrangement of the pipes between pump unit and on-load tap-changer head.

A pressure switch and a manometer monitor permissible working pressure. A temperature switch is available for low temperature operation as a special feature.

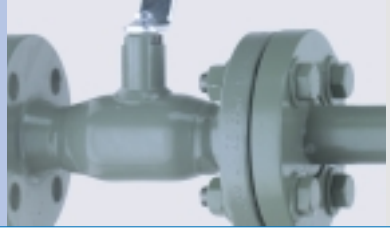
Easily accessible when the upper cover is removed, the filter insert is simple to replace when necessary with the existing lifting handles.

The pump unit is connected by pipes on the on-load tap-changer head. The head is equipped with flange connections for oil feed (suction pipe) and oil return.

The complete electrical control of the OF 100 is installed in the housing of the ED motor drive. Providing protection from splashed water and dust with its corrosion-resistant cast aluminum housing (IP 66), it has been successfully used thousands of times.

The controller of the OF 100 is also available in a special model in a separate cabinet made of corrosion-protected sheet steel.

Oil Filter Unit OF 100



The function

With each diverter switch action, the OF 100 automatically handles the filtering and drying of the switching oil. The pump motor starts up and suctions the oil into the oil filter via the suction line of the on-load tap-changer and the pipe.

The oil enters the filter tank from the bottom and is pressed with the feed pump through the filter insert (paper or combi filter). The purified oil leaves the pressure tank from the upper cover and flows back through the pipe to the on-load tap-changer head.

The working pressure between feed pump and filter insert can be read with the manometer. This working pressure increases with time due to the accumulation of solid materials in the filter insert. When the increasing pressure exceeds the set maximum value, the filter insert must be changed. When the pressure switch triggers, a signal contact is activated which tells the control room that the maximum value has been reached.

Criteria for use

Criteria vary depending on type of tap-changer, use of the on-load tap-changer in the transformer winding and the operating conditions. For notes and recommendations, please see the technical data of the individual types of tap-changers.

Type Designations

Type Designation	Description
OF 100 DC	Oil filter unit with control unit in the motor drive unit and combination filter
OF 100 DP	Oil filter unit with control unit in the motor drive unit and paper filter
OF 100 D	Control unit for oil filter unit without pump and without filter unit
OF 100 SC	Oil filter unit with separate control cabinet and combination filter
OF 100 SP	Oil filter unit with separate control cabinet and paper filter
OF 100 S	Control unit for oil filter unit in separate control cabinet without pump and without filter unit
OF 100 NC	Oil filter unit with combination filter, without control unit
OF 100 NP	Oil filter unit with paper filter, without control unit

Delivery Designs

Design	Thermoswitch		Control Unit	
	with	without	integrated in motor drive ED	separate control cabinet
Standard design		●	●	
Special design	●			●

Technical data

Pump motor (standard)	Power	1.1 kW
	Voltage	3 AC 230 / 400 V (further voltages on request)
	Rated current	4.5 / 2.6 A
	Frequency	50-60 Hz
	Synchronous speed	3000 1/min (50 Hz), 3600 1/min (60 Hz)
Feed pump	centrifugal pump feed volume approx. 65 l/min (35 l/min) at a counter pressure of 0.5 bar (3.5 bar)	

©Maschinenfabrik Reinhausen GmbH
Falkensteinstrasse 8
93059 Regensburg, Germany

Phone (+49) 9 41/40 90-0
Fax (+49) 9 41/40 90-1 11
E-Mail: sales@reinhausen.com

Technical data

Filter cartridges (alternative)	paper filter for cleaning the switching oil, filter fineness approx. 9 µm combination filter for cleaning and drying the switching oil, filter fineness approx. 9 µm water absorption capacity ca. 400 g
Tank	steel cylinder with top and bottom, outdoor design dimensions (W x H x D) = 410 x 925 x 406 mm, outer coating RAL 7033, test pressure 6 bar, flange connection for feed and return pipes manometer (built onto the tank) pressure switch (built onto the tank) • adjustment range 0 ... 6 bar, set to 3.5 bar • switching capacity AC 250 V, I_{max} = 3 A • P_{max} = 500 VA / 250 W weight of pump unit (dry) approx. 75 kg oil filling volume 35 l
Control unit in motor drive of tap changer	components installed in the swing frame of the motor drive unit (IP 66) control by potential-free contacts of the motor drive operating time: • by time delay relay factory-set • set by control switch to continuous operation voltage AC 230 V electrical safety equipment: a motor protective switch with thermal and magnetic overcurrent trip for each pump unit
Control unit in separate control cabinet (special design)	components installed in a separate control cabinet (IP 55) dimensions (W x H x D) = 400 x 600 x 210 mm, coating RAL 7033, weight approx. 10.5 kg control by potential-free contacts of the motor drive operating time: • by time delay relay factory-set • set by time switch up to 24 hours • set by control switch to continuous operation voltage AC 230 V heating: voltage AC 230 V, power 15 W electrical safety equipment • a motor protective switch with thermal and magnetic overcurrent trip for each pump unit • automatic cut-out for control curcuit electrical monitoring equipment • hours counter, 5 digits (records operating duration) • pulse counter, 6 digits (records frequency of pump use)

IN173/03en – 05/03/1500 – 173/03/01/0 – F0021203 · Printed in Germany