ARS-ALTMANN SYSTEMS

Vacuum Separator VS-07

ON-POWER DEGASSING OF TRANSFORMERS

FOR VERY HEAVY WORKING CONDITIONS

LIFE EXTENSION OF TRANSFORMER

STRIPPING KIT FOR EFFECTIVE REMOVAL OF FAULT GASES

REMOTE PROCESS CONTROL AND MONITORING

EASY CHECK OF FUNCTION VIA YOUR HANDY

PLUG & PLAY INSTALLATION

MINIMUM SUPERVISION AND/OR MAINTENANCE

C:\PROSPECTS\VS-07 \ VERSION 2021

Fa. Ing. Altmann, ARS–Altmann Group, **Machova 142, 344 01 Domazlice, Czech Republic, European Union,** Tel:+ 20-379 738 778, Fax:+420-379 738 775, Cell phone:+420-602 362 157
email:altmann@iol.cz, www.ars-altmann.com

Online degassing of transformers

The presence of gases in the transformer harms its immediate reliability (Buchholz trip) and inevitably invokes the aging of oil and its hard insulants. Online degassing methods can substantially reduce that deterioration.

Regardless of how efficient any method of **oil degassing** might be - the first law for the long-term degassing of **a transformer** is always :

no negative impact on oil properties

The standard degassing process & method using **high vacuum pumps** :

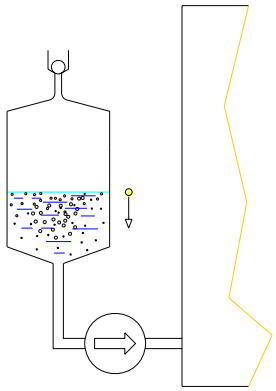
- **removes the light fractions from the oil**
- **inevitably and negatively changes the oil properties**
- **produces aging of the oil filling and the subsequent aging of all hard insulants**.

The VS-07 works without these drawbacks, thanks to the "Liquid Piston principle":

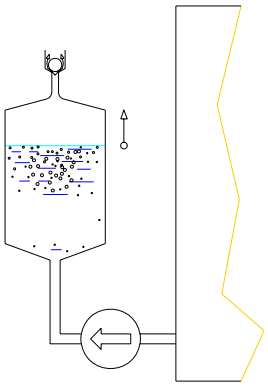
- **no degradation of oil properties guaranteed**
- **only the gases are expelled into the surroundings**

WHAT IS A LIQUID PISTON PRINCIPLE ?

The Liquid Piston principle, which substitutes the vacuum pump, is created by the rising and falling of oil level which, is caused by the cyclic operation of the robust gear pump.



The first stage (***evacuation***) shows the picture on the left. The oil is drawn from the vessel by the gear pump. The sinking oil level acts as a piston and creates the basic vacuum necessary to separate the gases and vapors from the oil



The second stage (***compression***) shows the picture on the right. The run of the gear pump is reversed and the liberated gas-vapour mixture is gradually compressed by the rising oil level (upward motion of the liquid piston). When the pressure rises, first, the condensation of oil vapors takes place, and the **condensed light fractions are automatically mixed back into the oil. Only this way can it be guaranteed that under on-line long-term degassing of a transformer that there is "no-impact on oil properties".** Subsequently, the gases are released via the non-return valve into the atmosphere. This process continues until the whole apparatus is filled with oil, then the gear pump is switched on into the direct run again, and the next vacuum stage begins.

The Vacuum Separator VS-07 is suitable for mobile and preventative use on transformers with more than 2 - 2.5% of gases in the oil and the reduction of their particle contamination. The **quick restoration of safe operational conditions, life-extending features, and remote control** also form part of this concept. The system is especially suitable for the degassing of transformers situated in narrow, hardly accessible spaces or for permanent installation on the main tank of a transformer.

Main features of VS-07

- **Easy and safe installation and commissioning: all procedures are computer-controlled to avoid any human lapses and errors**
- **No disconnection of the transformer under treatment, usually not even during installation (Plug & Play design)**
- **No air venting after installation: hydraulical interconnections to a transformer oil filling are set under vacuum and subsequently rinsed by oil**
- **Gas contents and particles content can be reduced to the level of a new transformer**

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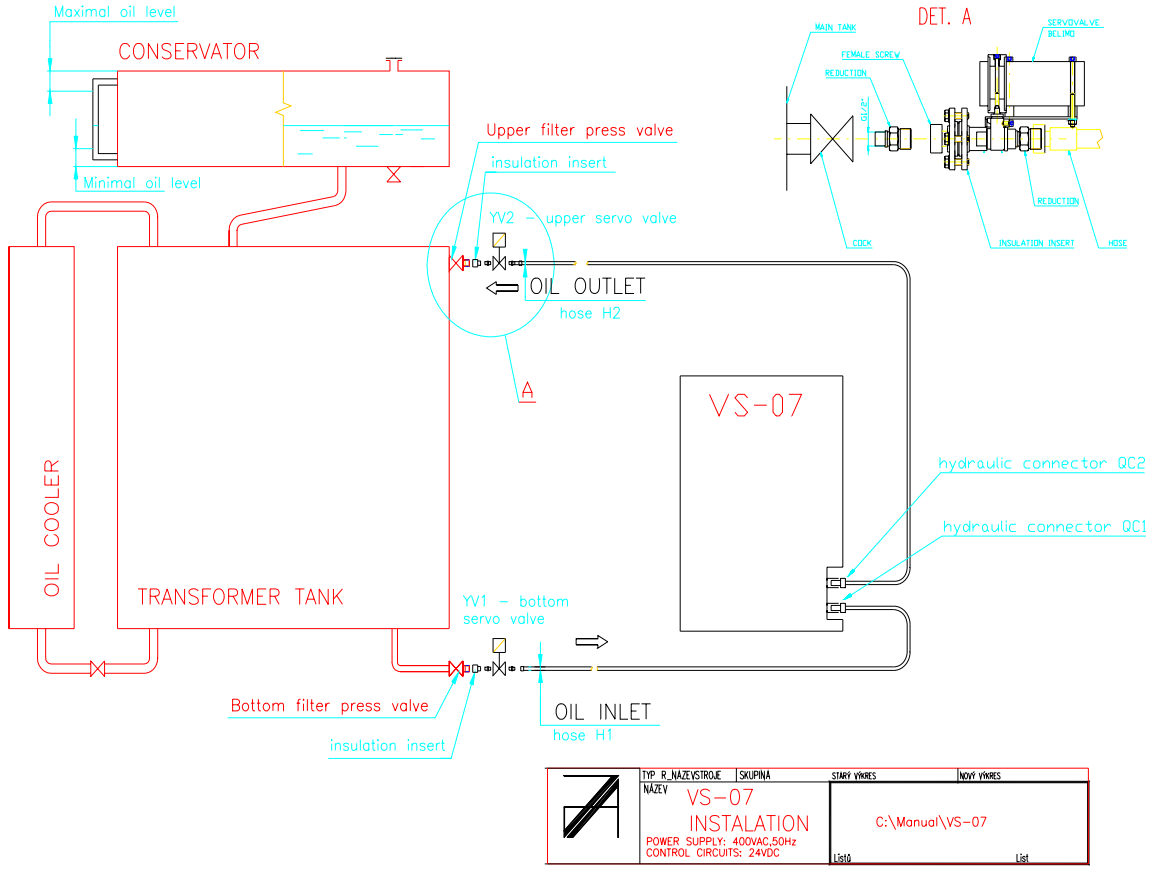
- **Quick restoration of safe operation conditions**
- **Minimum moving parts, the gear pump works like an oil pump or a vacuum pump**
- **No impact on the insulating oil properties**
- **Direct check of degassing efficiency based on the amount of removed gases**
- **Easy control of function by SMS via your handy**
- **Remote monitoring & control of the degassing process: all relevant data are recorded and displayed (printed) as comprehensive time-related diagrams**

Specification

Power supply voltage	400 VAC (or on request)
Power supply frequency	50 Hz (or on request)
Power consumption:	300W
Oil throughput	10 m^3 per day, maximum
Outlet gas content	1% nominal, 0.3 % minimum
Outlet filtering grade	1 µm
Weight	165 kg
Dimensions:	650 x 700 x 1400 (mm)
Hydraulical connection	2 x flexible 1/2“ hose
Communication:	faxmodem, GSM modem LAN, SMS , Internet

Installation



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The VS-07 installation at an oven transformer.

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