OCU-V - Constant separation efficiency

Oil cleaning units with vacuum dehydration

Application

The OCU-Vs have been designed to remove contaminant particles, solid impurities and free water, as well as dissolved moisture and gases, from any kind of mineral oils, including:

- insulating oils
- lubricating oils
- turbine oils
- hydraulic oils
- coolant and cutting oils
- compressor oils

Concept

The basic OCU-V comprises:

- an oil feed pump
- an electric oil heater
- a solid bowl separator
- a vacuum pump and tank
- an extraction pump
- a control panel with a PLC for the process control
- complete, fully-assembled and factory-tested module

Optional: roadworthy and weather-proof trailer for mounting the OCU-V unit.

Features

- High speed centrifuging to ensure separation of particles and free water
- High vacuum for dissolved water and gas removal
- Capable of removing massive water contamination
- Wide operating flow range according to application

Benefits

- Parts that ensure particle retention do not require frequent change
- Effective free water removal
- Constant separation efficiency
- Simple operation with user-friendly monitoring control panel
- Worldwide Alfa Laval service

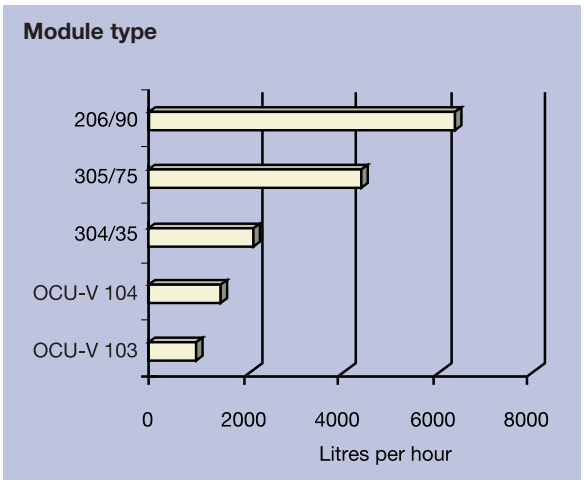

Fig. 1 Throughput capacities*

* The throughput capacity is typically 10% of the system volume.

Working principle
The system consists of two main stages: high-speed centrifugation and vacuum spraying.

Centrifugation
The oil to be treated is pumped through a mesh filter to the electric heater, where it is heated up to the preset process temperature. A three-way valve and a flow indicator permit control of the oil flow to the heater.

The heated oil then proceeds to the bowl of the separator, where any solid particles and free water are separated out.

The separator finally discharges the treated oil into the vacuum tank, under pressure.

Vacuum spraying
A full-cone spraying nozzle transforms the flow of oil into many small-diameter droplets. This means that a large surface area of oil is exposed to the high vacuum. The dissolved water and gases are then extracted by the vacuum pump.

An external sight glass with a light allows visual inspection of the spray cone and foam level. A foam control device also adjusts the vacuum in order to prevent any damage to the vacuum pump due to the accidental pumping of oil foam.

The dehydrated and degassed oil is finally pumped out of the vacuum tank to the outlet by a multistage centrifugal recycling pump.

System control
The process is controlled by a panel fitted with a PLC. Vacuum, pressure and temperature readings are displayed on the control panel.

A temperature controller and a power switch make it possible to achieve the required process temperature value. The process temperature is controlled by a PT-100 temperature sensor, thyristor modules and contactors via the PLC.

All push buttons and pilot lamps are located on a Synoptic Diagram, ensuring easy operation and control of the equipment.

System lay-out

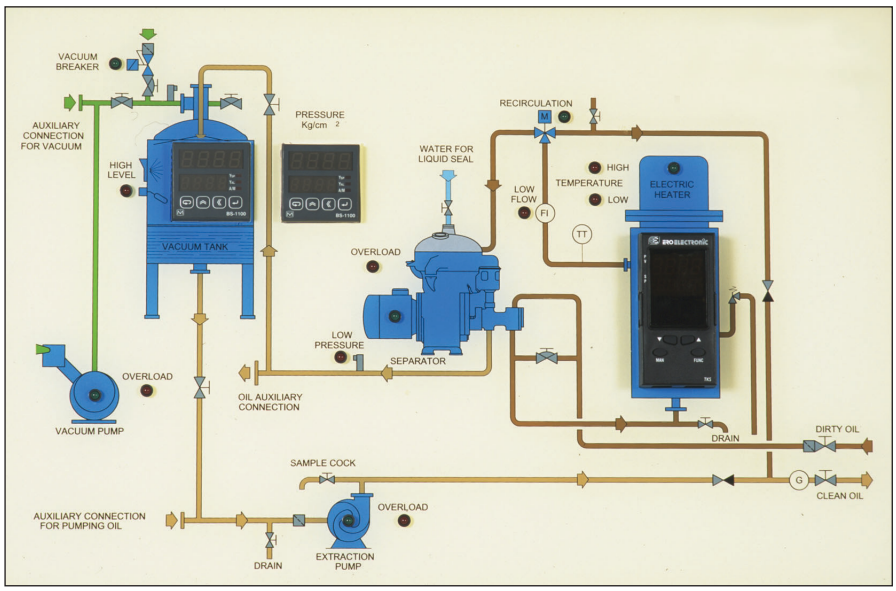

Fig. 2 System lay-out as shown on the control panel

Shipping data

Module type	OCU-V 103	304/35	305/75	206/90	OCU-V 104
Maximum size unpacked (mm)	1400x1200x2010	2000x1650x2300	2000x1650x2300	3400x2300x2780	1400x1200x2010
Maximum size packed (mm)	1670x1420x2300	2250x1800x2550	2250x1800x2550	3600x2400x3000	1550x1260x2200
Net weight empty (kg)	1300	1650	1650	3900	1350
Net operating weight (kg)	1350	1750	1750	4200	1450
Gross weight packed (kg)	1350	1830	1830	4150	1400