

Condensate separation system



OIL VIP

OIL-VIP CONDENSATE SEPARATION SYSTEM

CONDENSATE FORMATION AND INTERACTION OF LUBRICANT

The quantity of condensate collected will depend on the relative humidity of the air drawn in by the compressor. In Central & Southern Europe, this will be approximately 8-10 litres of condensate for every 1000 m³ of compressed air produced. If lubricated compressors are used, the lubricant oil can be finely dispersed and emulsified in the condensate collected. The quantity of oil present in the condensate depends on the type of lubricant, the type of compressor and the frequency of maintenance. In general, this value will be about 2-3% of the condensate produced.

The condensate can contain high quantities of solid and colloidal particles, not only generated by the mechanics of the compressor but also on the air inlet quality. The production of clean condensate requires the effective removal of the oil contamination. The OIL-VIP system is capable of progressively coalescing the micro drops of oil dispersed in the condensate water. It allows the formation of larger droplets, which rise to the surface, where they are conveyed towards an external collection container.

A typical layout of the production and distribution of compressed air (fig.) comprises of one or more lubricated compressors, a storage reservoir, two driers and coalescing filters. Each one of the components is

usually provided with an automatic condensate drain, which periodically allows for the removal of collected water.

In particular, the air reservoirs and the refrigeration driers allow the separation of large quantities of condensate water from the compressed air.

If this water then contains contaminants or dispersed oily particles, and cannot be directly discharged into the drain, then a water purification system is required.

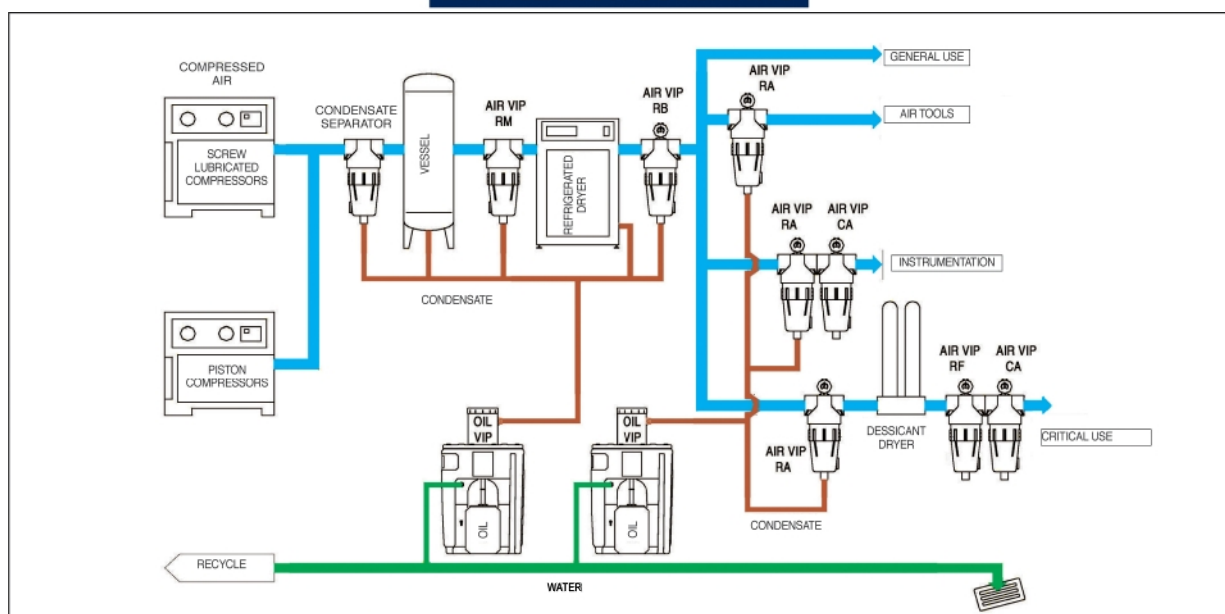
In fact, environmental legislation usually forbids the discharge of mineral oils and finely dispersed lubricants or emulsions into rivers or into municipal sewage systems.

This practice seriously damages both the river's ecosystem and the reliable operation of biological water treatment plants.

Condensate treatment systems have the ability to separate the oily phase from the aqueous phase, which can then be safely discharged. The "OIL-VIP" system represents a tried and tested solution for the treatment of condensate water containing particles of lubricant with LOW EMULSIFIABILITY

In the case of stable emulsions, it is necessary to utilize more complex equipment.

INSTALLATION SCHEMATIC



OIL VIP CONDENSATE SEPARATION SYSTEM

HOW IT WORKS

The "OIL VIP" separation system is constructed of plastic materials, which are completely recyclable and are corrosion & shock resistant.

The condensate water is purified using the combined effects of DECANTATION, COALESCING and finally ADSORPTION using activated carbon.

When under pressure, the oily condensate enters the system (1) of the OIL VIP

It then travels through the patented depressurization chamber (2), where a deflector causes the liquid phase to slow whilst the excess pressure is eliminated without creating turbulence.

The expansion chamber is equipped with a filter impregnated with active carbon, which removes any odors present in the compressed air.

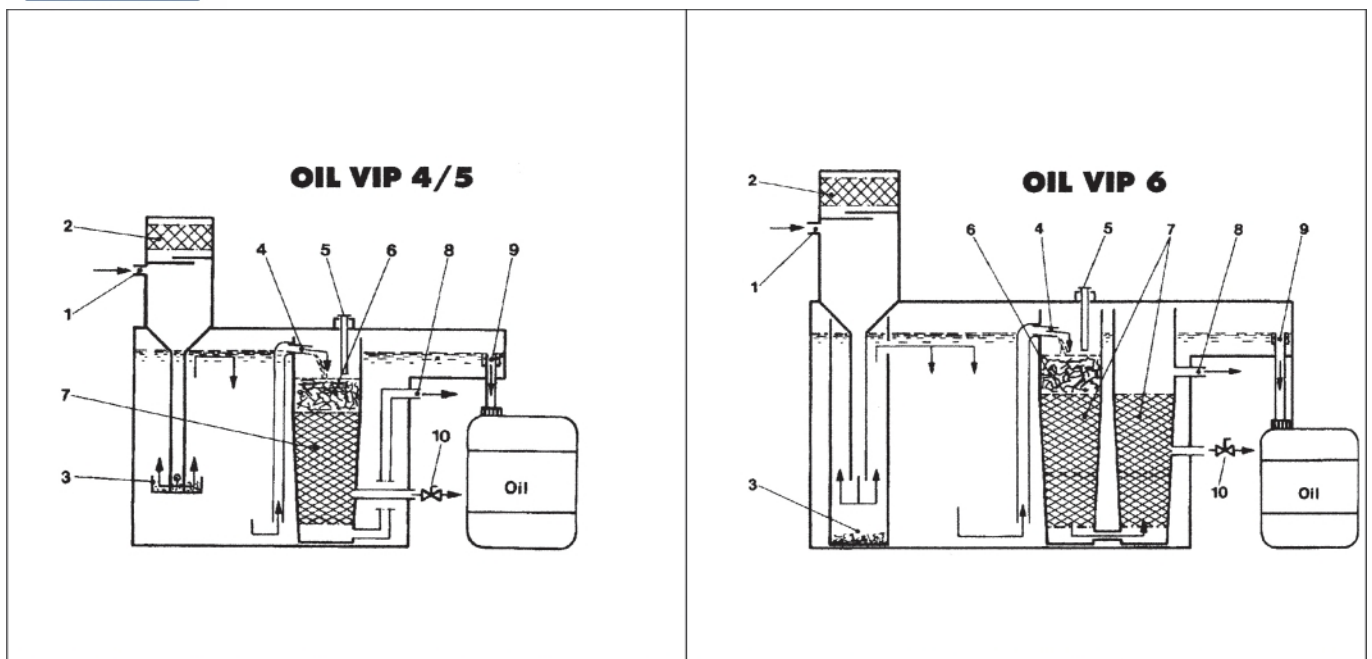
The largest dirt particles are held in the impurities collector, which is removable. (3).

Inside the separator, the condensate water and oil separates due to their different specific gravities. The oil gradually collects on the surface and is channeled through the adjustable discharge conduit (9) into the oil collection tank provided, which also has an overflow prevention device (included in the system).

The partially purified condensate then flows through an oleophilic pre filter (6) and later through an active carbon filter (7) - (OIL VIP 6: 2 active carbon filters).

The pre- filter holds the remaining oil droplets, while the active carbon filter adsorbs any remaining dispersed oil traces.

OPERATION



1 Condensate inlet

2 Expansion chamber

3 Solid particles collector

4 Infeed connection piece

5 Clogging control

6 Coalescing pre-filter

7 Adsorption filter

8 Water discharge

9 Adjustable oil discharge

10 Test valve

OIL VIP CONDENSATE SEPARATION SYSTEM

EFFICIENCY

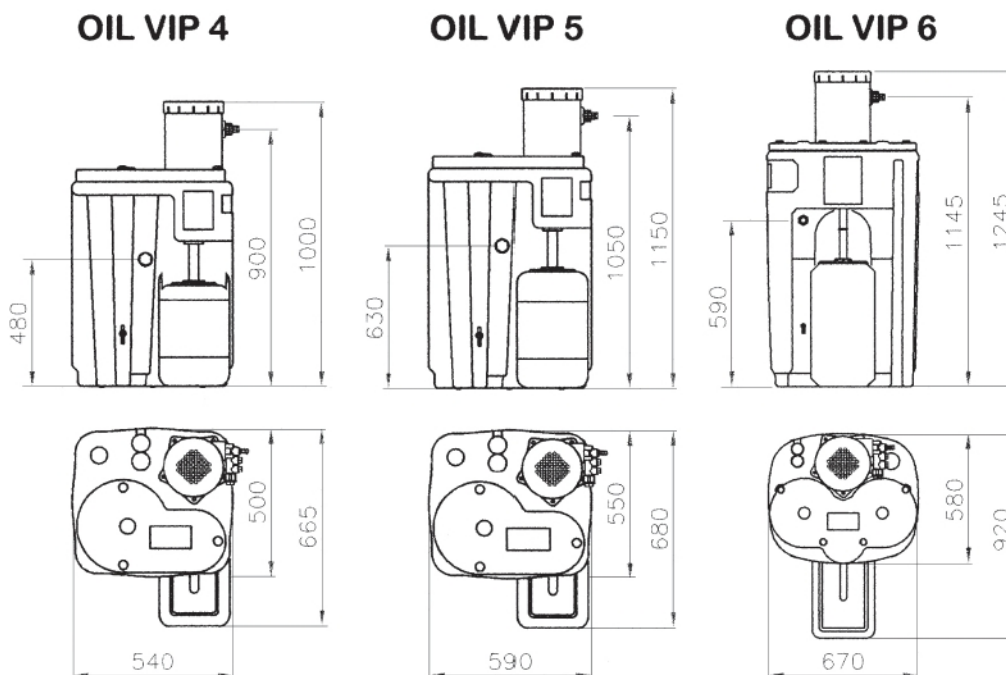
There are many factors to be taken into account when sizing a separator system, such as the type of compressor, the type of lubricant and the oil emulsifiability.

Highly emulsifiable oils require a greater amount of time to separate from the water, therefore requiring a longer retention time in the **OIL VIP**.

TECHNICAL DATA

Performances of the compressor in in Nm ³ /h (Scfm)						
Model	Sliding vane compressors with oil injection cooling				Comp pistdn	i gone ehmessors
	Turbine Oil	VDL Oil	VCL Oil	Synthetic Oil	Turbine Oil	VCL oil & Synthetic oil
OIL VIP 4	510 (306)	480 (285)	330 (195)	330 (195)	264 (155)	198 (115)
OIL VIP 5	990 (590)	870 (520)	660 (390)	660 (390)	528 (315)	390 (230)
OIL VIP 6	1980 (1180)	1800 (1080)	1320 (790)	1320 (790)	1320 (790)	1008 (600)

The performance data is based on the atmospheric conditions and humidity typically found in Central Europe.
(When using the OIL VIP separators in areas with a warmer climate, the condensate quantities will be greater and the values must be reduced accordingly.)



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Through a continuous policy of product development, Bea Technologies reserves the right to alter technical specifications at any time. User is responsible for determining whether the product is fit for particular purpose and suitable for User's method of application.



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