ecosep® SL

ZANDER®

The Problem

Discharging oil contaminated condensate from compressed air systems is not only harmful to the environment, it is probably illegal.

Why is oil a problem?

Water we have used and contaminated with oil finds its way back to the natural water courses and degrades the source of our supply.

Rigid legislation exists in most countries to protect the environment and drinking water resources against oil contamination. The limits are almost less than 10 ppm oil content!

Compressor Condensate

Definition: condensate is the liquid formed from water vapour in the air as a result of a drop in temperature and/or an increase in pressure. Most times it is an oil/water mixture, sometimes it is formed as an oil/water emulsion!

This liquid mixes with atmospheric hydrocarbon contaminants as well as oil carried over from lubricated compressors to form an acidic,oily condensate sludge. A 28.3 m^3 /min compressed air system operating at a pressure of 7 bar g in a 25°C, 65% RH environment and fitted with a refrigeration dryer can produce up to 220,000 litres of oil contaminated condensate per year !

The solution

After the oily condensate has been efficiently removed from the compressed air system it cannot be discharged directly to the foul sewer without the oil content being reduced to within legal disposal limits.

The simple economical and environmental solution is a *ZANDER* ***ecosep SL*** oil/water separator.

User Benefits

- Helps to protect and maintain the environment
- Efficiently separates oil and water on-site and returns up to 99.9% of the condensate to foul sewers.
- Meet trade effluent discharge regulations
- Rapid payback over conventional disposal methods
- Simple to install, operate and maintain

Operation

Oil/water separators are designed to separate compressor oil from condensate with high efficiency without the use of external power. Oily compressed air condensate should be effectivly removed from the system by a level controlled drain like the *ZANDER* ***ecodrain***.

Condensate from the system will enter under pressure, into the specially designed centrifugal inlet chamber.

Liquid will drop out of the air stream as it impinges on the chamber walls and the vortex generator, draining without turbulence into the primary settlement chamber below.

Dirt particles suspended in the condensate will settle to the bottom of the primary settlement chamber and the accumulating condensate will then flow into the main settlement tank.

Entrained droplets of oil dispersed in water will rise to the surface due to the lower specific gravity of the oil, eventually coalescing to form a thick layer on the surface.

An adjustable oil funnel allows the oil to be continuously skimmed off the surface. Drained oil is collected in the external oil container where it can be disposed of according to legal requirements.

Cleaner water taken from the bottom of the tank flows into the carbon stage, through a prefilter, into the top of the carbon bags.

Any entrained droplets of oil remaining are then removed by adsorption.

The cleaned water can now be safely discharged to the foul sewer through the outlet.

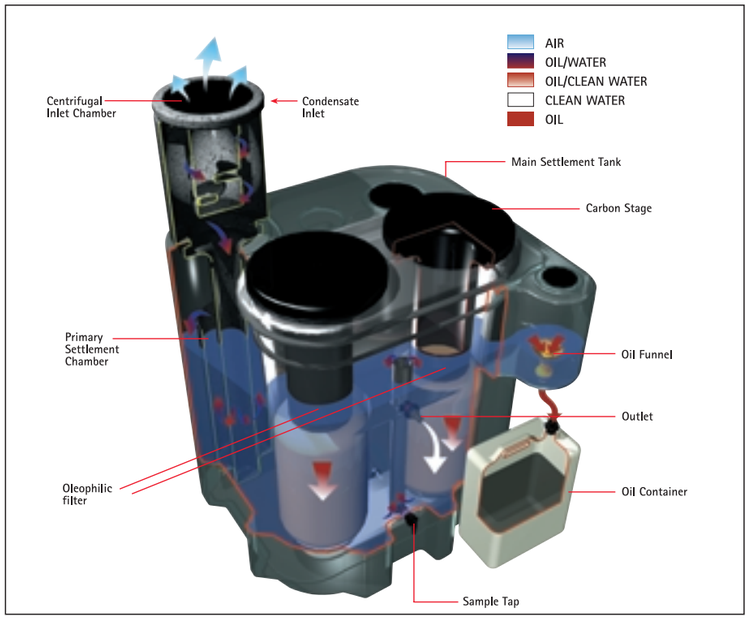
Standard Features

ecosep SL oil/water separators: the responsible and very economical way to remove and dispose of oil contaminated compressor condensate.

- Large single piece units
- Robust roto moulded polyethylene construction.
- Ribs included for extra strength
- Large centrifugal inlet chamber for effective venting of compressed air energy.
- Centrifugal inlet chamber has two inlets ports and four positions for ease of installation
- Large, easily cleaned primary settlement chamber for the accumulation and removal of dirt particles.
- Large main settlement tank for increased settlement time and reduced oil carry-over to carbon stage.
- Large internal galleries to reduce risk of internal blockage.
- Pre-filter for carbon bag protection.
- Generous carbon stage for increased contact time, improving water quality and extending carbon life
- High specification carbon for improved service intervals.
- Adjustable oil outlet funnel for the efficient removal of separated oil.
- Sealed external oil container for easy disposal.
- Sample tap for easy testing of outlet water quality.
- Optional flashing overflow indicator, or remote alarm contacts available.

Options

- Remote overflow alarm connection (ESOA).
- Overflow indicator (ESOI).
- Flow splitter available on request.
- Heater for outside installations.



To simplify the selection, lubricant classifications have been split into three bands depending upon their ability to separate within a static type oil/water separator. The oil type affects the efficiency of separation!

Band A:

Turbine Oil, Additive Free Oil

Band B:

Mineral, Poly alpha olefins (PAO) Trimethylolpropane Ester (TMP), Pentaerythrityl Ester (PE)

Band C:

Diesters, Triesters,Polyoxyalkylene glycol (PAG) inseparable using Static system

Inseparable using Static Separation: Techniques: Automatic transmission fluid (ATF)

Drain Type

The condensate should be removed from the compressed air system using a drainage method that does not cause emulsification of the condensate and is appropriate for the unit. Usual methods include :

Level Operated Electronic Drain Float Drain

ZANDER recommends the use of the ecodrain range of condensate drains. Manual and Thermodynamic Disc trap drains must not be used with the ***ecosep SL*** range of oil/water separators.

Notes:

Timed solenoid drains

*If the use of Timed Solenoid Drains is unavoidable, steps must be taken to reduce the air loss as this has an emulsifying effect on the condensate.

Refrigeration Dryers

A refrigeration dryer installed in a compressed air system can significantly increase the condensate produced. The oil/ water separator must be sized appropriately to cope with this extra condensate loading. Flow rates are shown without a refrigeration dryer. The compressor flow capacities must be reduced by 25 % to accommodate the extra condensate produced by the dryer.

Technical data

NO REFRIGERATION DRYER INSTALLED IN SYSTEM		OIL TYPE					
		Band A Turbine, Additive Free		Band B Mineral, PAO, TMP, PE		Band C Diesters, Triesters, PAG	
Compressor Type	Model	m³/min	m³/hr	m³/min	m³/hr	m³/min	m³/hr
Rotary Screw, Vane	ecosep SL 1	1.2	74	1.0	62	0.9	51
	ecosep SL 2	2.1	126	1.8	108	1.6	97
	ecosep SL 5	5.4	324	4.7	281	3.8	227
	ecosep SL 8	7.6	456	6.3	378	5.2	313
	ecosep SL15	15.2	912	12.8	766	10.4	626
	ecosep SL 30	30.1	1806	25,6	1536	20,9	1253
	ecosep SL 60	59.8	3588	50.9	3056	41.4	2484

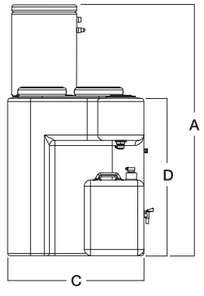
System Conditions
Ambient Temperature at Compressor Inlet: 25°C
System Pressure: 7 bar g
Relative Humidity: 65%
(For conditions other than show, e.g. higher ambient temperatures, please contact ZANDER)

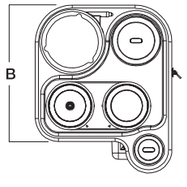
Important Note:
Static oil/water separators are unable to separate stable emulsions or oils that are miscible in water. In such cases use the reliable ZANDER emulsion separation system aquafil-K.

Higher flow rates on request
For systems using refrigeration dryers multiply compressor flow by 0,75 and select separator from chart.

For systems using 1 or 2 stage piston/reciprocating compressors multiply compressor flow by 1.4 and select separator from srew compressor flow rates shown, ensuring due consideration is given to oil type.. For 3 or 4 stage piston/reciprocating compressors, please contact ZANDER.

Model	ecosep SL 1	ecosep SL 2	ecosep SL 5	ecosep SL 8	ecosep SL 15	ecosep SL 30	ecosep SL 60
Inlet Hose Connection (I/D)	19 mm (3/4“)	19 mm (3/4“)	19 mm (3/4“)	25 mm (1“)	25 mm (1“)	25 mm (1“)	25 mm (1“)
Outlet Hose Connection (I/D)	19 mm (3/4“)	19 mm (3/4“	19 mm (3/4“)	25 mm (1“)	25 mm (1“)	25 mm (1“)	25 mm (1“)
Settlement Tank Capacity (L)	N/V	30	75	125	185	335	485
Max. Pressure		16 bar g (232 psi g)					
Min./Max. Temperature °C	5° to 35°	5° to 35°	5° to 35°	5° to 35°	5° to 35°	5° to 35°	5° to 35°
Material (Re-cyclable)		Polyethylene					
Weight kg Empty	6	13	18	27	36	70	97
Weight kg full	24.5	39.5	93.5	159	217	400	550
Dimensions mm A	842	847	803	1195	1195	1535	1535
Dimensions mm B	550	299	350	650	650	860	860
Dimensions mm C	316	550	450	500	650	700	1000
Dimensions mm D	220	316	675	750	750	1090	1090





ZANDER produces:
Microfilters for oil-free and clean compressed air and gases · Activated-carbon adsorbers for odour-free and neutral compressed air · Sterilizing filters for aseptic compressed air · Steam filters · Ventilation filters · Autoclave filters · Vacuum filters · High-pressure filters up to 350 bar · Microfilter mufflers · MIN-DRY terminal dryers Electronically controlled condensate drain: series ecodrain · Oil/Water separating systems: series ecosep-S, aquafil-K · Heat regenerated adsorption dryers: series WI, WVN · Heatless regenerated adsorption dryers: series KEN/ KEA, KM/KMA · Adsorption drying installations for special gases, such as CO_2, natural gas, inert gas · Refrigeration dryers · Breathing air processing equipment ALB, KMB · Dew point meter

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Oil Water Separator

Series ecosep® SL