

The problem

Whenever air is compressed for technical applications, the process always produces condensate. Even small compressors produce considerable quantities of oily, acidic condensate.

The reliable separation of condensate in a compressed air system is therefore very important. Even small amounts of condensate have a considerable damaging effect on downstream equipment and reduce the quality of the compressed air.

No compromises

Conventional solenoid drains allow considerable amounts of compressed air to escape and energy is wasted. What initially appeared to be a cheap solution is actually an expensive problem, because the operating costs are much higher than the investment costs.

For example, in a system with a single solenoid valve for condensate drainage, the air loss can be about 0.062m³ on each actuation. This means an air loss of about 12,498 m³ over one year's continuous operation.

In terms of energy consumption, this loss through a single valve would amount to 3581 kWh. The total annual loss (calculated by multiplying this figure by the number of solenoid valves in the system) is an unnecessary expense.



ecodrain LS 11

With an ecodrain LS condensate drain, you will certainly save money and keep your compressor air cleaner

The fully electronic ecodrain LS condensate drain from ZANDER only allows the unwanted condensate out of the compressed air system. The intelligent, dependable control system prevents the escape of compressor air and therefore saves enormous running costs.

The ecodrain LS ensures efficient, automatic drainage, taking into account fluctuations in condensate due to temperature, pressure, system load etc.

The intelligent quantity monitoring function works on all types of compressed air condensate, from 100 % oil to 100 % water. As the ecodrain LS range is internally and

externally corrosion-proof, they are also suitable for handling aggressive oilfree condensate.

The ecodrain LS range of condensate drains is a further development of the popular proven ZANDER ecodrain products.



ecodrain LS 5

How does the ecodrain LS work?

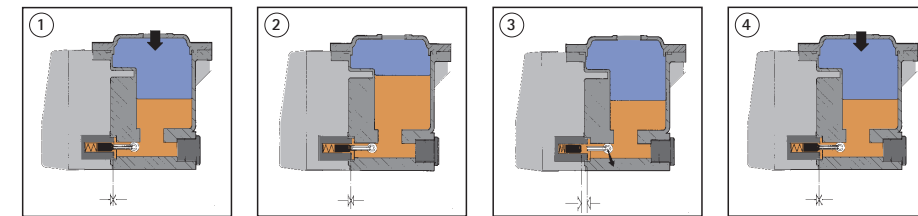
The condensate separated from the compressed air system flows into the collecting tank where a level sensor continuously monitors the condensate level. When the condensate level reaches the upper sensor threshold, the solenoid valve opens for the programmed time until the condensate level has dropped to the lower sensor threshold. The condensate is exhausted from the collecting chamber. Because a small amount of condensate still remains in the tank when the valve closes, no compressed air reaches the condensate outlet.

The alarm is activated if a fault arises due to excessive amounts of condensate (overload) or blockage of the drain-

age line. A flashing LED indicates alarm status. In alarm status the drainage valve remains open in order to continue draining the condensate from the collecting tank as much as possible. The electronic control system reverts from alarm status to normal operation when the liquid level in the collecting tank is back to normal.

From the ecodrain LS the condensate flows into the ecosep oil-water separator or, if the condensate is present as stable emulsion, into the aquafil-K oil emulsion separator.

Both systems ensure condensate processing in accordance with statutory regulations.



Special functions of ecodrain LS 22, ecodrain LS 102, ecodrain LS 1005



ecodrain LS 22

- Standard models are suitable for 24 V/110/230V AC 50/60 Hz
- Integrated valve protection filter
- Protected control air supply
- Simple assembly and installation
- No additional mounting brackets required

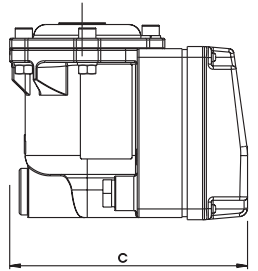
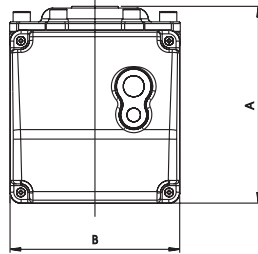
The advantages of the ecodrain LS are:

- Liquid condensate is separated efficiently
- No loss of valuable compressed air
- Saving air saves energy
- Significant reduction of operating costs (compressor running time)
- Prevents condensate flooding
- Reliable protection of downstream devices
- Self-monitoring intelligent control system
- 2 condensate drain connections also for low floor clearance
- No additional cost for being corrosion-proof, also treats more aggressive compressor condensates
- Intelligent acquisition system - reliable performance with all types of condensate ranging from 100 % oil to 100 % water
- Protection class IP 65
- Large inlet opening prevents blocking or air drainage
- Suitable for tropical climates
- Remote alarm function for fault display
- No control air loss

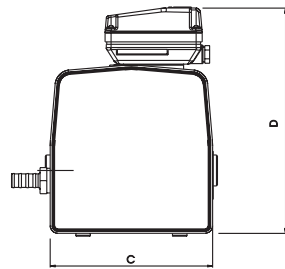
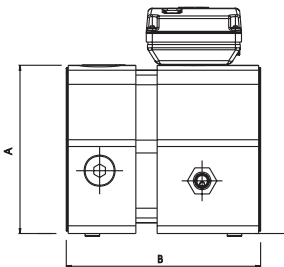
- Various drain connections available
- Suitable for flexible and rigid-mounted pipework
- Manually actuated safety valve allows pressure relief in the case of power supply failure
- Tank heater prevents frozen or condensate damage

Technical Data

ecodrain LS 5/11



ecodrain LS 22/102/1005



Type	Compressor air capacity		Design parameter
	m ³ /min	m ³ /h	
ecodrain LS 5	5,25	315	Ambient temperature at compressor inlet: 25°C
ecodrain LS 11	10,5	630	Relative humidity at compressor inlet: 65% RH
ecodrain LS 22	21,6	1296	Compressor inlet temperature: 35°C
ecodrain LS 102	102	6120	System pressure: 7 bar
ecodrain LS 1005	1005	60300	Dew point of refrigeration dryer: 2°C

Sizing example for filters and dryers: Multiply the flow rates above by the following factors:
For refrigeration dryers: x 2.3 = max. capacity
For filters: x 11.0 = max. capacity

The above product selection tables specify the maximum flow rates for each ecodrain LS under the specified climatic conditions. When selecting the flow rates for refrigeration dryers, microfilters and WA-water separators it is assumed that suitable condensate separation at the inter-/aftercooler and the air receivers of the compressor is guaranteed.

Type	Connections		Voltage AC		Frequency Hz	Current (Activated)	Nominal Fuse	Operating Pressure		Operating Temperature	
	Inlet	Outlet	Single Phase	Tol.				Max.	Min.	Max.	Min.
ecodrain LS5	1 x G1/2 und 1 x G1/4	10 mm (3/10") Innendurchmesser Schlauch	110/230	±10%	50/60	110 VAC/200 mA/26 W 230 VAC/140 mA/26 W	3 A	16 bar	2 bar	66°C	2°C
ecodrain LS 11	2 x G1/2	8 mm (3/8") Innendurchmesser Schlauch	110/230	±10%	50/60	110 VAC/200 mA/26 W 230 VAC/140 mA/26 W	3 A	16 bar	2 bar	66°C	2°C
ecodr. LS 22 ecodr. LS 102 ecodr. LS 1005	3 x G3/4 3 x G1	12 mm (1/2") Innendurchmesser Schlauch	24/110/230	±10%	50/60	24 VAC/310 mA/5,5 W 110 VAC/156 mA/14,6 W 230 VAC/90 mA/17,5 W	3 A	16 bar	2 bar	66°C	2°C

Standard units can be supplied with BSP thread connections. NPT-connections are also available.
ecodrain LS 5, 11 optional in 24 VAC design available. ecodrain Series also available for 40 bar operation.

Type	Dimensions					Weight
	A	B	C	D		
ecodrain LS 5	118 mm	75 mm	117 mm	N/V	0,8 kg	
ecodrain LS 11	114 mm	98,4 mm	132 mm	N/V	0,9 kg	
ecodrain LS 22	179 mm	201 mm	168 mm	230 mm	6,5 kg	
ecodrain LS 102	179 mm	231 mm	168 mm	230 mm	7,4 kg	
ecodrain LS 1005	179 mm	651 mm	168 mm	230 mm	13,6 kg	

Efficient and practical

The ecodrain LS5 and LS 10 are condensate drains supplementing the ZANDER high performance microfilters, heat exchangers water separators and small refrigeration dryers.
The ecodrain LS 22, LS 100 and LS 1005 have been designed for draining largers amounts of condensate eg. in systems with compressor intercooler, compressor aftercooler, compressed air receivers and large water separators.

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, WKN · Heatless regenerated adsorption dryers: series KEN/KEA, KM /KMA · HDK · Adsorption drying installations for special gases, such as CO₂, natural gas, inert gas · Refrigeration dryers · Breathing air processing equipment ALB, KMB · Dew point meter

We reserve the right to change design and dimensions

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Condensate Drain



Series **ecodrain** LS