

Donaldson®
AirCel™

Donaldson®
Ultrafilter™

Oil/Water Separators

DS



The highest standards
in the industry
**Built to
Exceed**



DS Oil/Water Separators

Leading the Way in Air Purification

As one of the world's leading manufacturers of compressed air purification equipment in the world, Donaldson has built a comprehensive engineering, manufacturing, and customer support network to meet the most demanding applications. With over 30 years of expertise in compressed air filtration and separation technologies, Donaldson manufactures a complete line of oil/water separators to effectively and efficiently separate oil from compressed air condensate.

The need for condensate management occurs when liquid condensate is generating at several points throughout a compressed air system, including the outlet of the compressors itself, within accumulator tanks, cyclone separators, coalescing filters and refrigerated air dryers. Whenever condensate forms, it must be removed from the compressed air system and discharged in a manner that is both environmentally sound and economical.

The amount of condensate generated within a compressed air system can be surprising. As an example, a 500 scfm system operating in ambient conditions of 60°F and 65% relative humidity can generate nearly 2 gallons of liquid condensate per hour. That condensate, however, will be generated at a number of points within the system. All of this condensate must be removed from the compressed air system. This is accomplished with the use of drain valves.*

When oil is present, as with oil lubricated compressors, the condensate must be purified to legal levels of residual oil content before it can be discharged to public water treatment systems. Typically, condensate will contain on the order of 5% oil. That level must be reduced to 20 ppm or lower, depending on local ordinances.

Donaldson DS Oil/Water Separators utilize gravity to separate oil/water mixtures and purify the condensate to a residual oil content of 20 ppm or lower. Designed to meet or exceed those discharge levels as efficiently and economically as possible. The DS Oil/Water Separator is available in seven models ranging from 70 to 4,500 scfm.



DS Oil/Water Separators

* For more information on the Donaldson condensate drain valves, please refer to respective brochure.

DS Oil/Water Separators

Easy to Install, Operate and Maintain

Features & Benefits

- **Removable Pre-Sedimentation Tank**



Before liquid condensate enters the large settling tank, where oil separation will take place, it first passes through a removable pre-sedimentation

tank. This allows solids to separate out before they can foul the larger tank. The pre-sedimentation tank is small enough to be removed easily for cleaning.

- **Tapered Carbon Bag Chambers**



DS Oil/Water Separators utilize integrated carbon adsorbers to further purify condensate as it exits the settling tank. The chambers that hold these carbon bags are tapered for easier removal of the bags from the unit.

- **Pre-Adsorber Protects Carbon Adsorbers**

To lengthen the life of the integral carbon adsorbers, DS Oil/Water Separators are equipped with pre-adsorbers that protect the carbon adsorbers from liquid oil and other contaminants. This prefiltration greatly enhances the life of the adsorbers.

- **Multiple Condensate Connection Ports**

Each DS Oil/Water Separator allows for up to four condensate sources to be connected.

- **Unique Knob-Adjustable Oil Drain Tray**



Because oil content of condensate is not consistent from one plant to the next, DS Oil/Water Separators incorporate an adjustable oil drain tray

so that each unit can be fine-tuned to the needs of the specific facility where it is in operation. The unique design of this oil drain tray assures that the operator's hands do not come into contact with condensate while adjusting the unit.

- **Water Purity Sample Port and Test Kit**

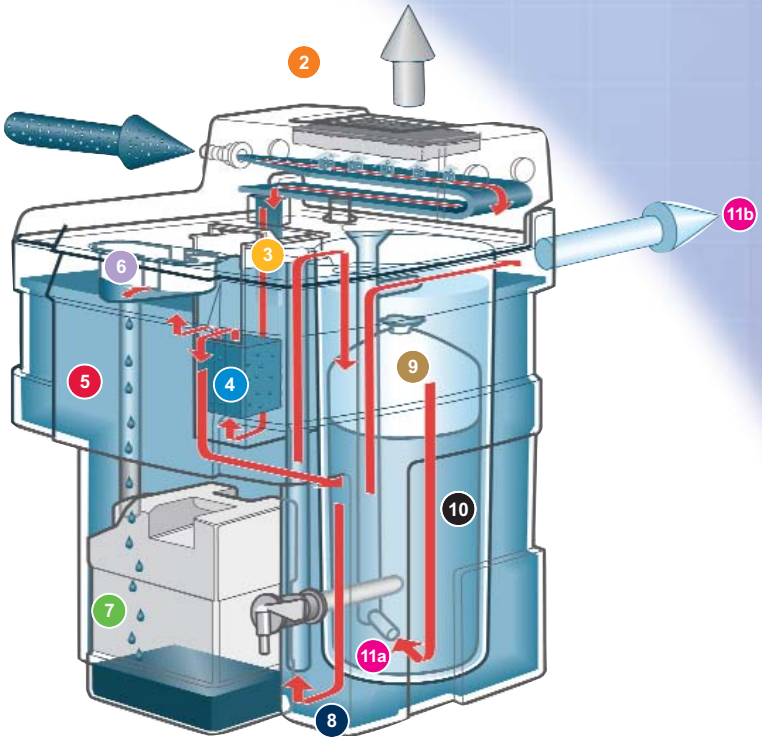


A sample port built into DS Oil/Water Separators allows operators to draw a small sample of purified condensate into a clear jar for comparison against an etched reference glass, all of which are included with each unit.

DS Oil/Water Separators

How The DS Oil/Water Separator Works

- 1 Liquid condensate and compressed air enter the pressure relief chamber at the top of the unit.
- 2 A foam coalescing pad captures condensate droplets that are entrained in the expanding and exhausted air stream, which exits the top of the unit.
- 3 Liquid condensate enters a removable pre-sedimentation chamber where solid particles are separated and captured.
- 4 Condensate exits the pre-sedimentation chamber by passing through a coalescing foam block which begins the process of oil-water separation.
- 5 Condensate flows into and fills the primary settling chamber where gravity separation of liquid oil and water takes place.
- 6 Separated oil is skimmed from the surface of the settling chamber through an adjustable oil drain tray.
- 7 Oil is captured in a removable container and held for proper disposal.
- 8 Separated water is drawn from the bottom of the settling chamber for final purification.
- 9 Separated water flows downward through a pre-adsorber that captures additional oil and protects the carbon bag(s) that follow.
- 10 Activated carbon removes oil to a residual level of 20 ppm or lower. Depending on the size of the unit, one or two carbon adsorption chambers will be present.
- 11a Purified water is drawn from the bottom of the carbon adsorption chamber and then either exits the unit (11b) or passes into the second carbon adsorption chamber if present.



Sizing

Consider these factors when sizing an oil/water separator:

- The capacity of the compressed air system
- The type of compressor in use
- The type of lubricant used by the compressor
- Whether or not a refrigerated air dryer is in use
- Ambient temperature
- Relative humidity

DS Oil/Water Separators

Dimensions & Specifications

Model Number	Compressor Capacity Nominal (scfm)	Volume (gal.)				Dimensions (inches)			Weight (lbs)
		Vessel	Preadsorber	Activated Carbon	Oil Container	H	W	D	
DS0070	70	6.6	0.24	0.8	0.7	22	14	13	19
DS0145	145	13.2	0.85	2.1	1.3	26	18	17	43
DS0265	265	19.8	1	3.2	2.6	29	20	18	52
DS0530	530	39.6	1.3	2 x 2.9	5.3	33	27	20	77
DS1060	1060	79.2	1.5	2 x 4	5.3	39	31	26	148
DS2120	2120	159	2 x 1.5	4 x 4	2 x 5.3	39	70	26	300
DS4240	4240	317	4 x 1.5	8 x 4	4 x 5.3	39	148	26	600

Model Selection Table

Maximum Compressor Capacity (cfm) for Moderate Climates*				
Model	Screw & Rotary Vane Compressors with Oil Injection Cooling		Piston Compressors	
	Mineral Oil	Synthetic Oil	Mineral Oil	Synthetic Oil
DS0070	71	71	71	71
DS0145	147	147	147	106
DS0265	282	212	212	177
DS0530	565	424	424	353
DS1060	1131	848	848	707
DS2120	2262	1696	1696	1413
DS4240	4523	3392	3392	2827

Notes

- Only for compressed air condensate.
- Donaldson guarantees a residual oil content of less than 20 ppm in accordance to EN ISO 9377-2 with DS Oil/Water Separators.
- The warranty only applies to:
 - Proper use with an oil/water mixture.
 - Use of original replacement and spare parts.
 - Proper installation and commissioning according to the manual.

* Moderate climate (68°F, 70° RH). For tropical climate (100°F, 90° RH), reduce capacity by 1/3.

Optional Accessories

Thermostat Controlled Heater

If the DS Oil/Water Separator is installed in an area where the ambient temperature might go below 34°F, use the optional thermostat-controlled heating unit to prevent freezing of the condensate.

Condensate Distribution Manifolds

Often more than one separator will be required to meet the needs of a given operation. In those instances, distribution manifolds are available to assure that condensate is evenly distributed among the connected oil/water separators.

Trust Donaldson Compressed Air & Gas to deliver a complete range of compressed air purification solutions that improve air quality throughout your plant – from the compressor room to all points of use. With over 30 years of expertise in compressed air filtration and separation, Donaldson manufactures a complete line of drying and filtration equipment using innovative designs that focus on energy efficient operation and reliable performance.

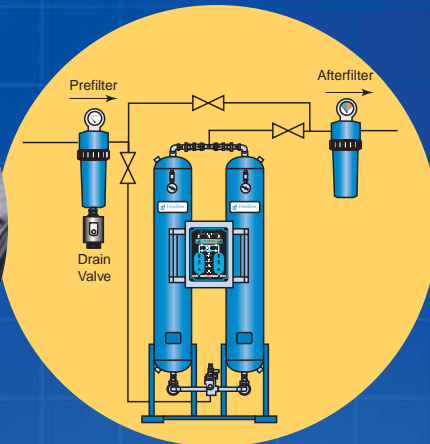
Donaldson has built a comprehensive engineering, manufacturing, and customer support network to meet the most demanding applications.

Leading Technology



- 550 engineers worldwide
- More than 500 patents held by Donaldson employees
- Custom designed solutions

Engineered Solutions



- Total system solutions
- Air capacities from 3 to 50,000+ scfm
- High pressure systems up to 10,000 psig

Knowledgeable Service



- Broad range of innovative filters and dryers
- Ready-to-ship filters and dryers within 48 hours
- Technical expertise and support