



## CONDENSATE MANAGEMENT



# Innovative and integrated Systems Solutions

## Filtration Solutions from Donaldson

Donaldson is a leading global manufacturer of filtration systems. The company, which was founded in 1915, is very technology-oriented and provides integrated system solutions for compressed air purification. Donaldson thereby makes an innovative filtration technology and maximum expertise available to ensure the optimum quality and efficiency of your production.

## Reliable Condensate Discharge

Condensate accumulates when producing compressed air. This condensate can contain oil and dirt particles, which must be discharged and treated environmentally safe. In addition, the condensate can accumulate in various quantities, so that this should occur without any compressed air losses.

make it possible that the legal requirements of the environmental aspects are met.



Compressed air filters DF with condensate drain Ultramat® are efficient

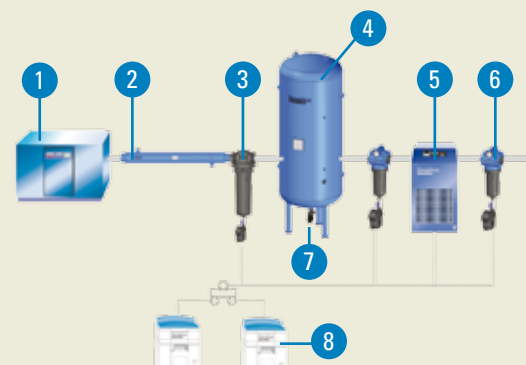
## Compressed Air zero-loss Draining of Condensate at:

- Compressors
- Aftercoolers
- Air receivers and pressure tanks
- Pre-and after-filters of refrigeration compressed air dryers
- Pre-filters of adsorption dryers
- Water and oil separating coalescing filters
- Pipe bends

## Environmentally-friendly Condensate Treatment

The condensate that developed during the compressed air production and possibly contains dirt particles can pollute the environment. In order to obtain water capable of being discharged, a condensate treatment according to the respective legal regulations will be required. Various treatment systems are hereby available from Donaldson which

## Compressed Air Purification System



- |                                      |  |
|--------------------------------------|--|
| 1 Compressor                         | 6 Compressed air filter                |
| 2 Aftercooler                        | 7 Condensate drain Ultramat            |
| 3 Cyclone separator                  | 8 Condensate treatment system Ultrasep |
| 4 Compressed air receiver vessel     |  |
| 5 Refrigeration compressed air dryer |  |
- Compressed air  
— Condensate

A reliable discharge and treatment is guaranteed on all condensate collection points within a compressed air purification system

# Reliable Condensate Discharge without Pressure Losses

## Condensate Discharge without Pressure Losses

You will achieve an especially safe and reliable condensate discharge without pressure loss when using the electronically level-controlled condensate drains Ultramat. The range is distinguished by a compact design and is available in five sizes. A rugged housing design, a low noise development during the discharging process and a high resistance against dirt are only a few of the performance features of the condensate drain. All condensate drains are easy to maintain and functionally tested by the manufacturer.



Condensate drain Ultramat® is available in five sizes

### Features and Benefits

#### Extremely efficient

- Prevention of unnecessary compressed air losses
- Reduction of energy costs
- Condensate discharge depending on the accumulated condensate quantity
- Detection of the condensate type (also pure oil) via sensors
- A safe discharge is guaranteed, even in case of strong contamination
- Low noise development during draining procedure

#### High operational Safety

- Use of corrosion-resistant materials
- Very rugged housing construction
- Insensitive to contamination due to generous internal cross-sections
- Permanent function control with LED display and automatic emergency program mode
- Malfunctions are detected before the condensate accumulates in the compressed air line

#### Easy Installation

- Flexible and easy installation on different pipings possible

## Minimum Expenditure with Service and Maintenance

- Complete replacement of all wear parts and pressurized parts with one-handed operation\*
- Only one spare part is needed
- No assembly of seals and individual parts is required

\* Applies to the condensate drains sizes UFM-D03, UFM-D05 and UFM-D10



Easy maintenance by replacing the service unit with one-handed operation



Function test via test button guarantees a permanent control

# Condensate Purification instead of Disposal

## Oil/Water Separators reduce Disposal Costs

With an oil content of 5 % on average, condensate is too harmful to the environment and must not pass into the wastewater without purification. The specified critical value by legislation is at a maximum of 20 mg/l (measured according to DIN EN ISO 9377-2) – some local regulations of today are even more restrictive. Ultrasep Superplus N oil/water separators fulfil these requirements, reduce disposal costs and protect the environment. Donaldson provides the optimal solution for each application in seven sizes for compressor capacities ranging from 120 Nm<sup>3</sup>/h to 7.200 Nm<sup>3</sup>/h. All sizes are approved by the DIBT Z54.5-179 – Deutsches Institut für Bautechnik (Structural Engineering Institute).



Ultrasep Superplus N is available in seven sizes

### Equipment Ultrasep Superplus N



- |                         |                              |
|-------------------------|------------------------------|
| 1 Maintenance indicator | 4 Sample bottle (Test set)   |
| 2 Sedimentation chamber | 5 Reference glass (Test set) |
| 3 Coalescence Filter    | 6 Oil drain, adjustable      |

## Features and Benefits

### Automatic Maintenance Indication

- The rising float indicates the degree of contamination of the pre-filter and the adsorption filter. Preventative maintenance of the oil/water separator can thus be carried out and will help to save further costs.

### Test Set for operational Safety

- With the test set the purity of the water can be tested. The test set – which is included in the system's cover is available at all times.

### Multi-connections for Condensate Supply

- On the unit cover there are 4 connections with different connection diameters. This simplifies the connection of more than one condensate drain and increases the flexibility during linking up.

### New Oil Draining Concept

- The newly developed oil drain tray enables an uncomplicated adjustment of the oil draining level with a hand valve. The operator does not come into contact with the condensate.

### Conical activated Carbon Adsorber

- The conical form of the container simplifies the exchange of activated carbon.

# Separation Technology without Additives

## Oil/Water Separator for Emulsions

Your expectations: long service intervals, an automatic unit constructed according to the strict quality demands of a company being certified according to DIN EN ISO 9001 since 1991, a separation technology with a filtrate quality guarantee of less than 5mg/l (according to DIN EN ISO 9377-2). ultrafilter international means ultrafiltration, a separation technology without adding chemicals; a virtually indestructible ceramic membrane, a membrane with a pH resistance from 1 to 14 and a temperature range up to 80 °C, is a synonym for a revolutionary adaptive performance control of the filtration process.



ultrafilter international® - separation technology without additives

### Features and Benefits

The comparison INPUT vs. OUTPUT extends the regeneration cycles for the membrane to the latest possible moment. Thus the running costs of the unit are optimised. Automatic regeneration of the membrane means extreme long service intervals.

#### LC-Display

- Clear text messages make service and trouble shooting easy.

#### Ceramic Membrane

- High thermal, mechanic and chemical resistance permits a one year service life guarantee on the membrane.

#### All Sealing from VITON

- Maximum safety for chemicals and often unknown compounds of condensate.

#### Frost Protection for the Membrane

- The operating temperature is continuously monitored, the heater starts automatically to ensure a minimum process temperature to protect the membrane from freezing conditions.

### Easy Maintenance

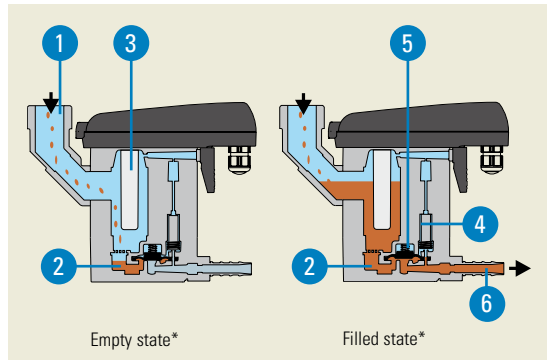
- Remaining maintenance is emptying the oil tank and refilling the cleaner.
- All other discharges are automated by intelligent control.

### Applications

- Wherever there are legal requirements for the disposal of compressor condensate.
- The oil/water separator is used specifically for difficult to separate condensate, e. g. emulsions.

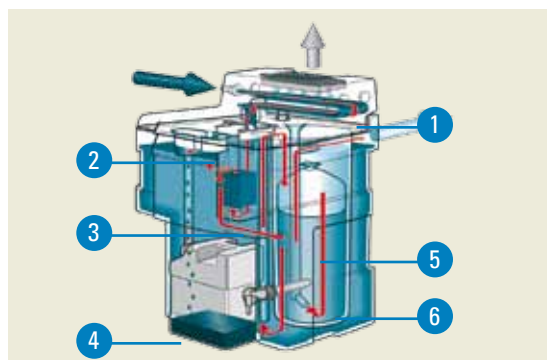
# Function Principles of Condensate Treatment

## Ultramat®



- The condensate flows through the feed line (1) into the condensate drain and collects in the housing (2).
- A capacitive operating sensor (3) permanently monitors the filling level and sends a signal to the electronic control as soon as the container is filled.
- The pilot valve (4) is activated and the membrane (5) opens the discharge line for condensate draining.
- When the condensate drain is emptied, the discharge line (6) is again quickly and tightly closed before unnecessary compressed air losses occur.

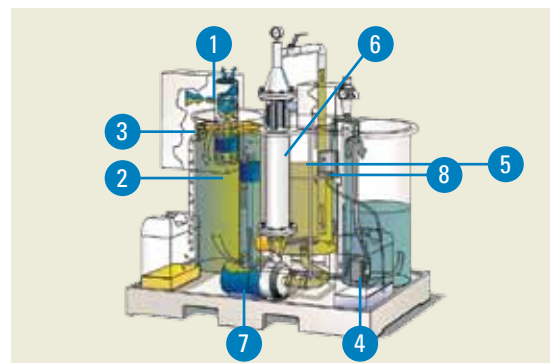
## Ultrasep Superplus N



- Oily concentrated flows into the pressure relief chamber (1).
- The solid pollutants entrained in the condensate collect in the removable sedimentation phase (2).

- A coalescence filter (3) ensures a long service life of activated carbon.
- Free oil is deposited on the surface and is directed into the oil collector (4).
- The pre-treated condensate flows through a pre-adsorber (5), which binds the still remaining oil droplets in the condensate.
- The condensate flows through an activated carbon adsorber (6), which adsorbs the last mineral hydrocarbons and guarantees the specified threshold limit.

## ultrafilter international®



- Condensate and compressed air are separated in the pressure relief chamber (1).
- The following sedimentation phase can be easily removed and cleaned (2).
- Free oil is removed by an overflow (3).
- The feed pump (4) pumps the pre-separated condensate into the process tank (5).
- The membrane module (6) is charged by the process pump (7).
- The filtrate passes through the membrane and leaves the system in a quality proper for the supply.
- Oil and water are pumped into the process tank (5) but only water is filtered. The oil concentration increases continuously, so that the concentrate is ejected prior to cleaning.
- Water and cleaner are now provided to the empty process tank by the metering pump (8). The cleaner can be ejected separately after cleaning.

\* on the example of condensate drain sizes UFM-D03 and UFM-D05

# Technical Data

## Technical Data Ultramat® UFM-D

Technical Data	UFM-D03	UFM-D05	UFM-D10	UFM-D30	UFM-D30HP	UFM-D130
Min./Max. operating pressure	0.8-16 bar				0.8-40 bar	0.8-16 bar
Min./Max. temperature	+ 1 °C bis + 60°C					
Weight (empty)	0.8 kg	1.0 kg	1.65 kg	2.0 kg	2.0 kg	2.9 kg
Condensate	Containing oil or oil-free					
Max. compressor performance <sup>1)</sup>	2.5 m³/min	5 m³/min	10 m³/min	30 m³/min	30 m³/min	130 m³/min
Max. fridge dryer performance <sup>1)</sup>	5 m³/min	10 m³/min	20 m³/min	60 m³/min	60 m³/min	260 m³/min
Max. filtration performance <sup>1)</sup>	25 m³/min	50 m³/min	100 m³/min	300 m³/min	300 m³/min	1300 m³/min
Protection class	IP 54			IP 65		

<sup>1)</sup> Maximum performance for ambient temperature at 20 °C. 50 % r. h.

## Technical Data Ultrasep Superplus N UFS-SP

Maximum compressor performance for a moderate climate				
UFS-SP	Screw and rotary compressor with oil injection		Piston compressor	
	Turbine and VDL oil	Synthetic and VDL oil	Turbine oil	Synthetic and VDL oil
5	2	2	2	2
10N	4	4	4	3
15N	4-8	3-6	3-6	2.5-5
30N	8-16	6-12	6-12	5-10
60N	16-32	12-24	12-24	10-20
120N	32-64	24-48	24-48	20-40
240N	64-128	48-96	48-96	40-80
Maximum compressor performance for a tropical climate				
UFS-SP	Screw and rotary compressor with oil injection		Piston compressor	
	Turbine and VDL oil	Synthetic and VDL oil	Turbine oil	Synthetic and VDL oil
5	0.5-1	0.5-1	0.5-1	0.5-1
10N	1.5-3	1-2	1-2	1-2
15N	2.5-5	2.5-5	1.5-3	1.5-3
30N	5.5-11	4-8	3.5-7	3.5-7
60N	10.5-21	7-14	7-14	6.5-13
120N	21.5-43	16-32	13.5-27	13.5-27
240N	42.5-85	32-64	27.5-55	26.5-53

All data: Nm³/min. Example: Screw compressors, VDL oil, total performance of 20 Nm³/min.: Select UFS-SP 60

## Technical Data ultrafilter international® UFA-AC

UFA-AC	Compressor capacity	
	Continental climate (kW)	Tropical climate (kW)
0008	90	45
0016	160	90
0032	315	160
0064	710	315
0096	1025	550
0128	1420	710
0192	2050	1100
0256	2840	1420



# Everything from a single Source

## Discharge and Treatment from a single Source

Donaldson provides you with a wide range of products for your condensate removal and treatment:

- Condensate drain Ultramat® is available in five sizes
- Oil/water separator Ultrasep Superplus N is available in seven sizes for compressor capacities of 120 Nm³/h up to 7,200 Nm³/h
- Oil/water separators ultrafilter international® for the treatment of oil/water emulsions



## Benefit in the Interest of the Environment

- Maximum operating safety and reliability
- Modern and user-oriented technology
- Cost-saving and economical to use
- Long-term reduction in operating costs
- Particularly maintenance-friendly products
- Regulatory compliance



**Donaldson®**  
**Ultrafilter**

Compressed Air Filtration · Sterile Filtration · Process Filtration · Refrigerant Drying · Adsorption Drying · Condensate Drains · Condensate Purification Systems · Process Air and Gas Processing



**Donaldson®**  
FILTRATION SOLUTIONS

### Total Filtration Management

Donaldson offers a wide variety of solutions to reduce your energy costs, improve your productivity, guarantee production quality and help protect the environment.

### Total Filtration Service

A comprehensive range of services especially designed to keep your production at peak performance and at the lowest total cost of ownership.

Please contact us:

Donaldson Europe B.V.B.A.

Research Park Building No. 1303 · Interleuvenlaan 1

B-3001 Leuven · Belgium

Phone +32(0)16 38 38 11 · Fax +32(0)16 40 00 77

[CAP-europe@donaldson.com](mailto:CAP-europe@donaldson.com) · [www.donaldson.com](http://www.donaldson.com)