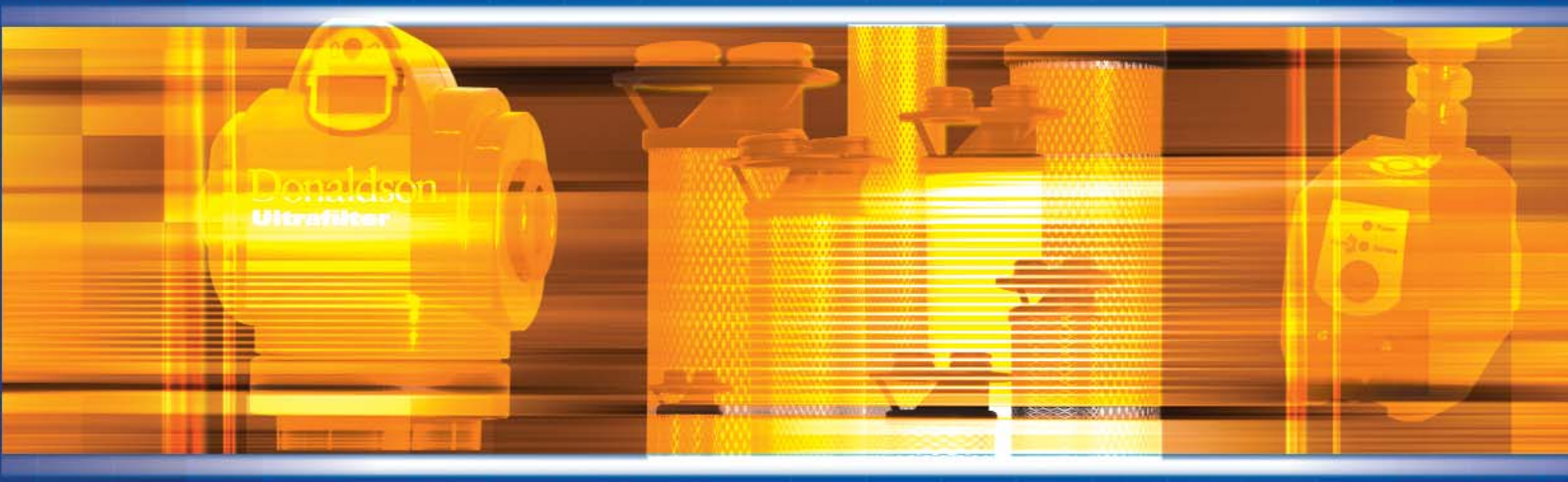
Donaldson®
AirCel™

Donaldson®
Ultrafilter™

Ultra-Filter™ Compressed Air Filter

DF Series



The highest standards in the industry.
Built to Exceed

Donaldson

Ultra-Filter™ Compressed Air Filter

Leading the Way in Air Purification

As one of the world's leading manufacturers of compressed air purification equipment, 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 drying and filtration equipment using innovative designs that focus on energy efficient operation and reliable performance. Our patent pending Donaldson Ultra-Filter™ compressed air filter reduces pressure loss by 50%, increases filtration efficiency, and is easy to install and use.

The Donaldson Ultra-Filter (DF) Filters are designed for high quality filtration of compressed air or gas in a wide range of applications. The total filter design concept of the filter combines high performance, efficiency, ease of use, flexibility, and safety.

Features & Benefits

- Reduced pressure drop by 50% uses less energy consumption.
- Coalescing filter elements performance data validated according to ISO 12500-1 assuring reliable achievement of compressed air quality according to ISO 8573-1.
- Filter element can be removed together with filter bowl, reducing overall installation height requirements.
- Changing the code clip inside the filter bowl changes the flow direction through the element so that the filter can be either used as a coalescing filter (inside to outside flow) or a particulate filter (outside to inside flow).
- The integrated differential pressure indicator can be easily rotated in the filter head.
- The bayonet lock ensures that the filter cannot be opened under pressure for increased safety.
- Filter housings are immersion-coated ensuring long-term protection against corrosion.
- Nine sizes, six filter element types, and available options perfectly meet virtually all industrial air purification application requirements.

Ultra-Filter DF Series
Superplus Version

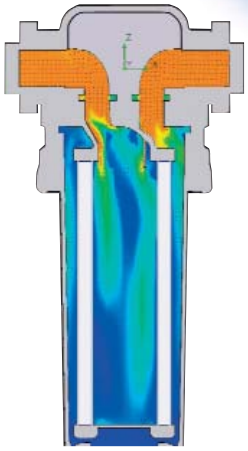
* For more information on the Donaldson Ultra-Filter elements, please refer to respective brochures.

Ultra-Filter™ Compressed Air Filter

The New Design — Innovative to the Core

Unrivaled high performance. Donaldson Ultra-Filter was developed on the basis of worldwide experiences and innovative design resulting in a highly efficient and economic filtration concept.

- Flow-optimized filter design provides minimum pressure loss.
- Innovative filtration technology ensures high separation efficiency.
- Total filter design concept delivers unrivaled efficiency.

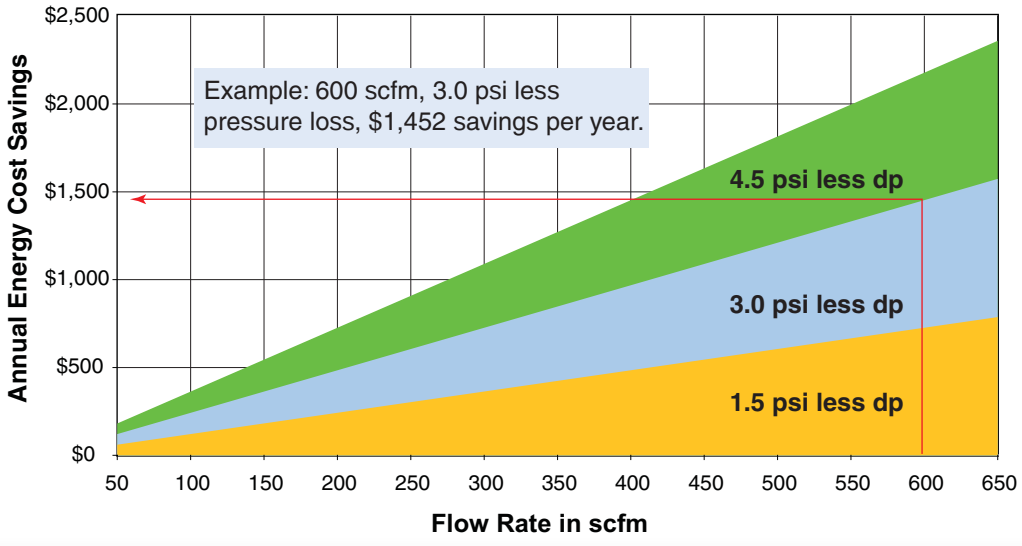


Flow Optimized Airflow

Computer-aided simulation was the basis for the turbulence-free design with optimized airflow through the filter housing and into the element. This ensures low pressure losses. The core of each filtration system is the filter element. Careful selection of filtration media, optimized pleating, and advanced production technology, produce a reduction of pressure loss by 50% while concurrently increasing separation efficiency. The element coalescing drainage layer is fixed in place by the outer support sleeve ensuring a constant cross-section between the element and housing at all times.

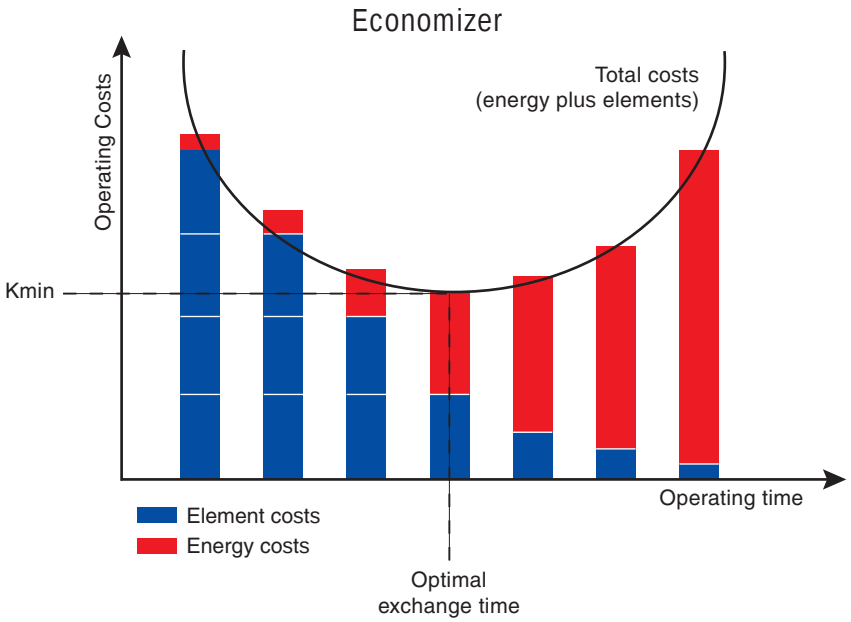
Unrivaled Efficiency. The economic efficiency is clearly indicated by the reduction in differential pressure. A 3.0 PSI lower differential pressure over 8000 operating hours at 600 scfm saves $1,452 per year (based on 100 psig operating pressure, 120 kW installed power and $0.08/kWh.) This practical example shows that the investment in optimizing the compressed air system rapidly pays for itself.

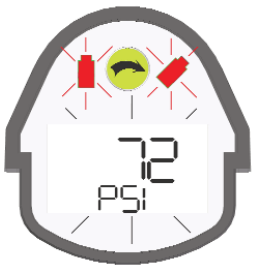
Energy Cost Savings Through Reduction of Differential Pressure



The New Revolution — Energy Savings

Energy Savings. Further energy savings are achieved by the timely replacement of used filter elements. The most economic time for filter changeout is determined by the Economizer that continuously measures the differential pressure. An integrated microprocessor evaluates the measurement data and compares the higher energy costs caused by pressure loss with the costs of a new filter element. The most cost-effective element replacement time is calculated and LEDs then signal that filter changeout is necessary.



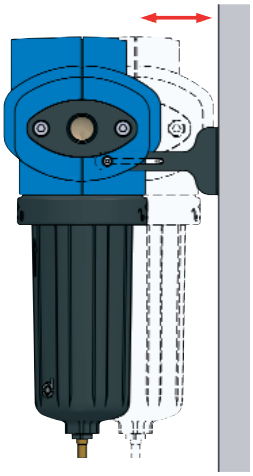


Economizer

Unrivaled Ease of Use. The new Donaldson Ultra-Filter is unrivaled in its ease of use both during installation and filter element replacement. The filter bowl is rotated slightly via a bayonet lock and can be removed together with the filter element requiring only an inch of ground clearance. The integrated condensate drain allows new element changeout without disconnecting power and condensate drains. The cover with integrated differential pressure displays can be rotated so that the display stays visible from the selected side.

The New Flexibility — Ease of Use

Unrivaled Flexibility. All filters can be used either as coalescing filters (flow through the element from the inside to the outside) or as particulate filters (outside to inside flow). If the requirements change, the filter head does not need to be rotated. Changing the coding clip inside the filter bowl allows the filter element to be rotated and changes the flow direction. The coalescing filter becomes a particulate filter in seconds – and vice versa. Optional wall supports are available on request for flexible wall mounting. The telescopic design of the support provides broad adjustability. A series of filters with different element types maybe installed with connection adapters. The Ultra-Filter is simple to mount and fits into the smallest space.



With nine sizes, the new Donaldson Ultra-Filter covers the performance range from 20 to 647 scfm flow rate corresponding to conventional compressor capacities between 2 and 120 kW. The Ultra-Filter compressed air filter is available in two models:

- Standard with float condensate drain and Econometer.
- Superplus with UFM-T zero air-loss condensate drain and Economizer.

Coalescing, particulate, and activated carbon elements are available in different grades to fit your application needs.

Unrivaled Safety. The bayonet lock ensures that the filter cannot be operated under pressure. Lock and unlock symbols on the filter head clearly indicates the filter's seal.

Capacity Correction Factors

The published standard capacities for compressed air Ultra-Filter DF Series filters are based on 100 psig inlet pressure and 100°F inlet temperature. When these conditions vary, a given Ultra-Filter DF Series filter will be able to purify either more or less compressed air than its standard capacity. There are two ways in which this information can be used. The first is to start with a specific Ultra-Filter DF Series filter size and recalculate its capacity based on the known operating conditions using the correction factors given below. The other, with a given set of operating conditions, is to select the proper Ultra-Filter DF Series filter size based on applying the correction factors to the flow rate. Examples based on applying the correction factors are shown below.

Capacity correction factors for differing system air pressure (C1)

System Pressure (psig)	15	30	45	60	75	90	100	115	130	150	160	175	190	200	220	250
Correction Factor	0.26	0.39	0.52	0.65	0.78	0.91	1	1.13	1.26	1.44	1.52	1.65	1.78	1.87	2.05	2.31

Capacity correction factors for differing system air temperature (C2)

System Temperature (°F)	-20	0	20	40	60	80	100	120	140	150
Correction Factor	1.52	1.41	1.31	1.22	1.14	1.07	1	0.94	0.88	0.86

To Size the Ultra-Filter Model Capacity for Actual Conditions

Adjusted Capacity = scfm x C1 x C2

To calculate the capacity of a given Ultra-Filter DF Series filter based on non-standard operating conditions, multiply the standard capacity by the appropriate correction factor(s).

EXAMPLE:
Ultra-Filter DF Series Model: DF 0210 MK
Standard Capacity: 123 scfm
Actual Operating Conditions: 75 psig inlet pressure: C1 = 0.78
120°F inlet temperature: C2 = 0.94

Adjusted Capacity = 123 scfm x 0.78 x 0.94 = 90 scfm

To Select the Ultra-Filter Model for Actual Conditions

Adjusted Capacity = scfm/C1/C2

To choose a Ultra-Filter DF Series filter based on a given flow at non-standard operating conditions, divide the given flow by the appropriate correction factor(s).

EXAMPLE:
Given Flow: 500 scfm
Actual Operating Conditions: 130 psig inlet pressure: C1 = 1.26
60°F inlet temperature: C2 = 1.14

Adjusted Capacity = 500 scfm /1.26/1.14 = **348** scfm
Selected Ultra-Filter Model = DF 0600 MK

Donaldson® AirCel™

Donaldson® Ultrafilter™

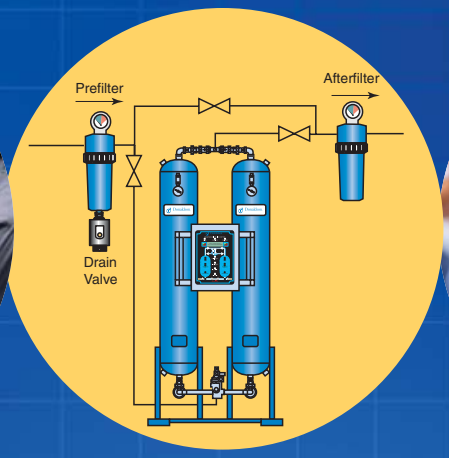
Trust Donaldson Compressed Air & Gas to deliver a complete range of compressed air purification solutions that improve air quality throughout your plant – from the compressor room to all points of use. With over 30 years of expertise in compressed air filtration and separation, Donaldson manufactures 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

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Donaldson® Filtration Solutions

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Printed in U.S.A. on recycled paper
Bulletin No. UFSB0140 Ultra-Filter 11-07