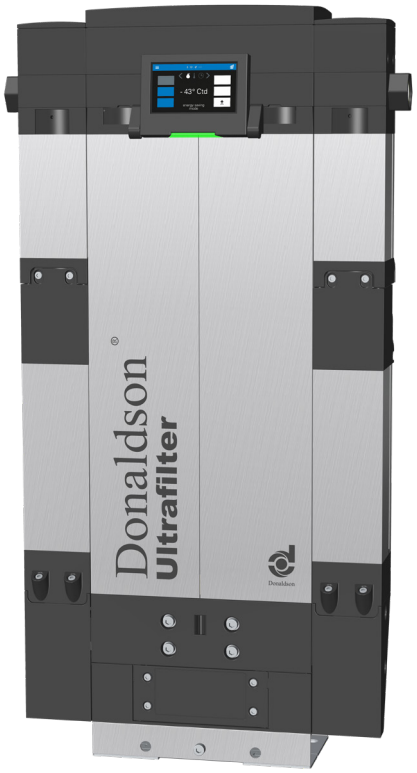
ULTRAPURE **SMART** ALG



SMART

- The new Ultrapure Smart Breathing Air Unit is your smart solution – just plug & play and it will take care of your breathing air
- The new Ultrapure Smart communicates with you – operating your Breathing Air System the smart way
- No space? No Problem! The new Ultrapure Smart will fit exactly where you need it

RELIABLE

- The new Ultrapure Smart stands for a reliable breathing air quality achievement according to DIN EN 12021 and DIN EN ISO 7396-1
- The new Ultrapure Smart stands out through its low maintenance and the extremely long life-time
- The new Ultrapure Smart stands up to the daily challenges with validated dryer performance according to ISO 7183

EFFICIENT

- Highest efficiency with lowest consumption of regeneration air
- The Ultrapure Smart is conserving your resources while in operation
- The new Ultrapure Smart adapts its operation to your needs and switches to energy saving mode whenever beneficial

ULTRAPURE SMART

A new era in breathing air purification

With the Ultrapure Smart a new era in breathing air purification has begun – equipped with a lot of features to make the Ultrapure Smart the exact solution for your needs! Rely on innovative technology when it comes to high quality breathing air needs even under challenging conditions. Validated performance, reliable supply of breathing air in excess of all relevent international standards and a complete new defined purification concept designed to last.

Excellence in Performance – Innovative Concept - Smart Solution – Straightforward in Operation – Flexible to meet your needs!

INDUSTRIES

- Medical

- Painting application and surface finish

- Industrial equipment

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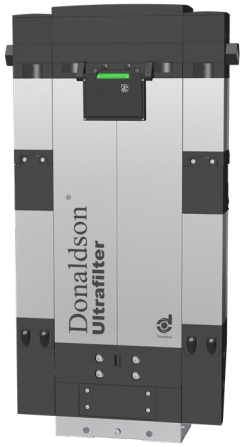
Technical alterations reserved (7/2021)

MODULARITY

Flexible is the new Standard!

The Ultrapure Smart comes with a new feature. With the new modular options, you can find the right location for your breathing air unit the smart way.

The new Ultrapure Smart just fits!



TURNABLE DISPLAY

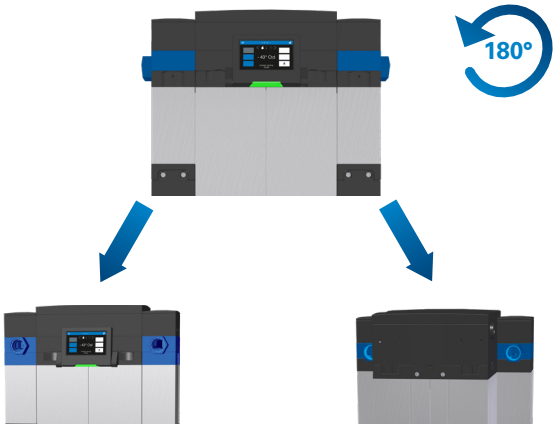
Smart display concept one step further. Protect your dryer display during heavy operation by easily turning it down.

With the display down, you still have the LED status light in sight – The new Ultrapure Smart just fits!

VERTICAL / HORIZONTAL OPERATION

The Ultrapure Smart can be installed either in vertical or horizontal orientation.

Even the smallest space is suitable – The new Ultrapure Smart just fits!



ROTATABLE INLET / OUTLET CONNECTION

Smart and easy inlet / outlet configuration by simply rotating the connection modules to the position that will fit your site.

No modifications, no additional equipment, no investment.

The new Ultrapure Smart just fits!

INDEPENDENT DISPLAY MOUNTING

Smart placement of the display independent from the unit itself.

The new Ultrapure Smart just fits!

QUIET EFFICIENT ECO OPERATIONAL SAFETY

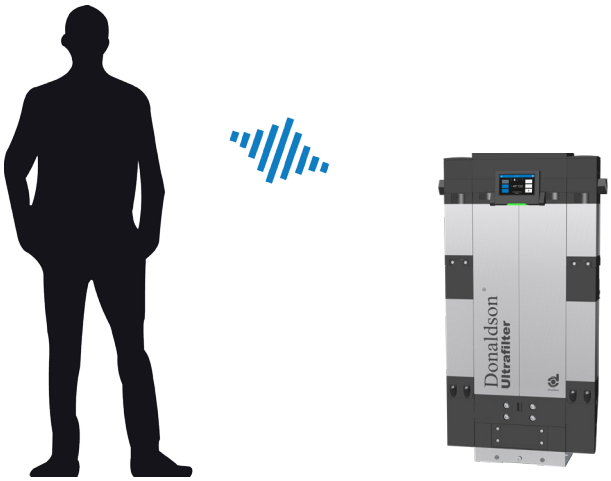
ULTRASILENCER

Silent operation!

The UltraSilencer is a completely new and smart silencer concept that reduces the sound level to a range of 60 dB(A). Enjoy the freedom to choose the best location for your breathing air unit – even directly at workplaces.

No housing or other soundproofing measures are required!

The new Ultrapure Smart – The silent choice!



Determination sound pressure level 1m in front of unit

RESOURCE CONSERVING

Eco operation!

The new Ultrapure Smart is conserving your resources while in operation.

Not only the high efficient components, but also the whole concept with capacity control and intermittent operation leads to highest energy savings and low consumption of regeneration air.

The new Ultrapure Smart – The profitable choice!

DESICCANT CATRIDGES

Reliable operation!

New desiccant cartridge design in consideration of free flow in breathing air units. The flow-optimized design with low pressure drop is resistant against pressure and flow fluctuations. The desiccant is pre-stressed with full utilization of adsorbent even at partial flow. During service the compact desiccant cartridges will be replaced one by one from the adsorption dryer, so only small replacement space is needed. This gives additional advantages for your stock management. Furthermore the highly efficient cartridges give you the confidence of achieving the breathing air quality you need!

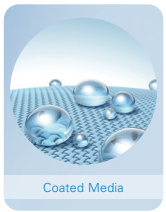
The new Ultrapure Smart – The reliable choice!

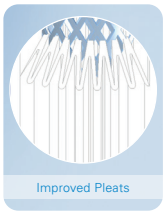
ULTRAPLEAT FILTER ELEMENTS

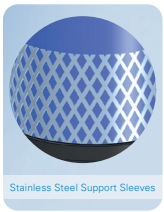
Efficient operation!

The UltraPleat™ filtration technology uses a new structure of coated high-tech fibres that are processed into a pleated filter medium with a high separation efficiency of liquid particles and a huge adsorption capacity for solid particles. The multilayer structure of the new filter medium was designed so that optimal aerodynamic conditions are achieved, simultaneously providing a filter surface that is over 400% larger by comparison with wrapped filter media. For the separation of oil aerosols, an efficiency of up to ≥ 99.9% is achieved.

The new Ultrapure Smart – The efficient choice!


Coated Media


Improved Pleats


Stainless Steel Support Sleeves

Donaldson® Ultrafilter

CONSISTENTLY SMART

Smart Design!

Efficiency

The new Ultrapure Smart is an efficient overall concept! The whole breathing air unit and all components are flow-optimized – high efficiency at lowest pressure drop. Furthermore the intermittent operation ensures minimal consumption of regeneration air. With the dew point dependent capacity control, the Ultrapure Smart adapts regeneration cycles to your actual operation conditions and switches to energy saving mode whenever beneficial.
The new Ultrapure Smart – Conserving your resources the smart way!

Reliable

Rely on the new Ultrapure Smart when it comes to achieving high quality and clean breathing air! The new Ultrapure Smart will achieve breathing air quality in excess of all relevant international standards e.g DIN EN 12021 and DIN EN ISO 7396-1.
The new Ultrapure Smart – Reliability the smart way!

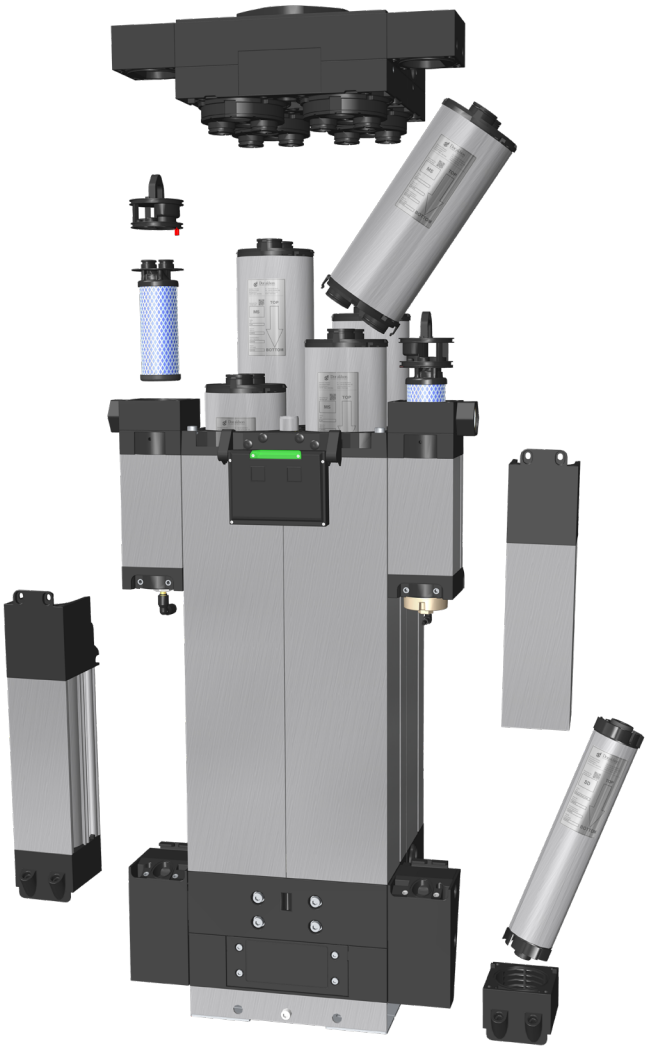
Validation

The new Ultrapure Smart is not only a promise. At Donaldson our approach is to encourage transparency by validation of our complete product portfolio. This gives you the reassuring feeling to rely on a proven concept. Furthermore it makes the performance of the Ultrapure Smart measurable and therefore comparable.
The new Ultrapure Smart – Designed the smart way!

- **Breathing Air Quality DIN EN 12021 & DIN EN ISO 7396-1**
- **Ultrapure Smart Dryer ISO 7183**
- **Ultrapleat Pre- and Afterfilter ISO 12500**
- **Silencer UltraSilencer ISO 3744**

Service-friendly

The new Ultrapure Smart manifests itself through its service-friendliness. During services, the Ultrapure Smart remains firmly installed and within the pipeline, which ensures safe execution and minimum downtime. No special tools are needed and all maintenance parts are easily accessible. The overall concept is designed to keep it simple: all services are self-explanatory and time-saving!
The new Ultrapure Smart – Easy service the smart way!

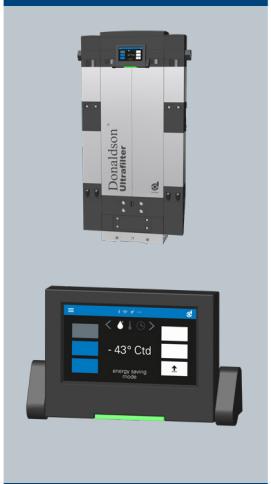


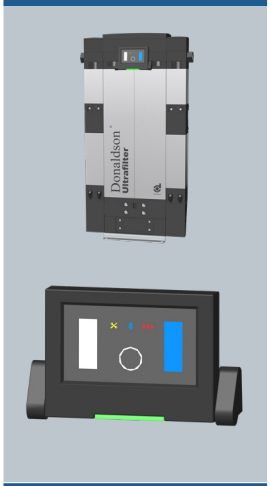
ULTRAPURE SMART VERSIONS

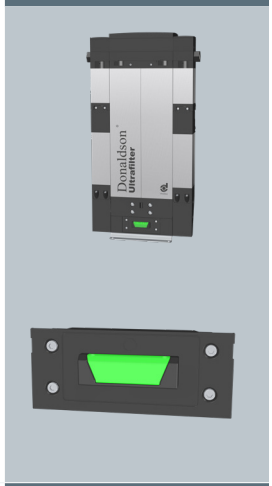
The perfect breathing air unit for you!

The new Ultrapure Smart is available in three versions: Superplus, Plus and Standard.

All variants are highly efficient with lowest differential pressure, minimum regeneration air consumption, and intermittent operation. All models from each version ensure you the reliable achievement of breathing air quality in excess of all relevant international standards. Compile all options you need and choose the version most suitable for your operation!



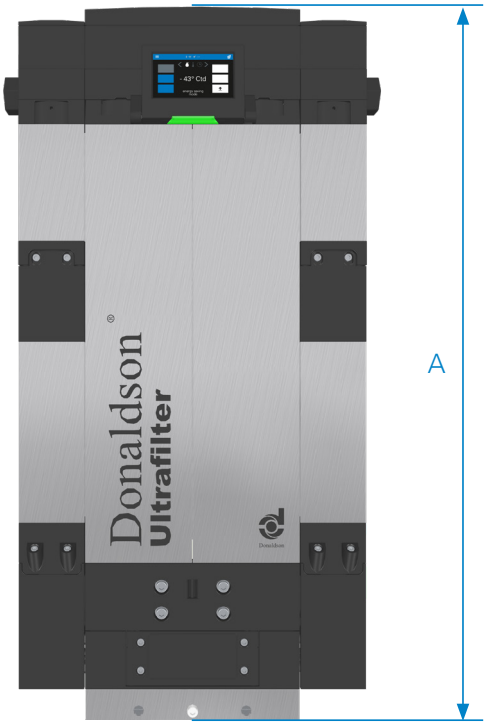


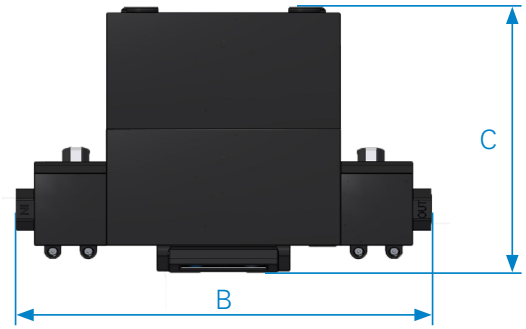


	SUPERPLUS	PLUS	STANDARD
Components			
Purification Cartridges	•	•	•
Silencer UltraSilencer	•	•	•
Pre- & Afterfilter UltraPleat™	•	•	•
LED Status Indicator	•	•	•
Dew Point Transmitter	•		
Orifice Set	•		
Display			
Touch Display	•		
LED Display		•	
Modularity			
Rotatable Connections	•	•	•
Horizontal Operation	•	•	•
Independent Display Mounting (Option)	•	•	
Efficiency			
Low Differential Pressure	•	•	•
Low Regeneration Air Consumption	•	•	•
Breathing Air Quality acc. to DIN EN 12021	•	•	•
Breathing Air Quality acc. to DIN EN ISO 7396-1	•	•	•
Intermittent Operation	•	•	•
Dew Point Control	•		
Easy Service			
All Spare Parts easy accessable	•	•	•
No Special Tools required	•	•	•
Reduced Downtimes	•	•	•
Connectivity			
Alarm Contact	•	•	•
Industry 4.0 ready	•	(•)	
IoT ready	•		

Donaldson® Ultrafilter

ULTRAPURE SMART DIMENSIONS





	Type	A mm		B mm	C mm		Weight kg
		Standard / Plus	Superplus		Standard	Plus / Superplus	
MINI	**0005**	490	497	314	172	191	16
	0010	757	764	314	172	191	26
	0015	1024	1031	314	172	191	38
	0020	1291	1298	314	172	191	48
	0025	1558	1565	314	172	191	58
MIDI	**0035**	849	866	464	276	291	60
	0050	1113	1130	464	276	291	80
	0065	1377	1394	464	276	291	101
	0080	1641	1658	464	276	291	121
	0100	1905	1922	464	276	291	141

TECHNICAL DATA

	Type	Nominal Flow m^3/h	Connection
MINI	**0005 - 0025**	5- 25	1/2"
MIDI	**0035 - 0100**	35-100	1"

PRODUCT DESCRIPTION

Function description

Compressed air is led throught the inlet of the breathing air unit (**I**) and across the prefilter (**1**). At this stage, the air is cleaned from particles and condensate. The condensate is removed via the condensate drain (**2**).

Via the lower shuttle valve (**4**), the air is led into the desiccant cartridges (**3**), in which the air is dried down to the required dew point.

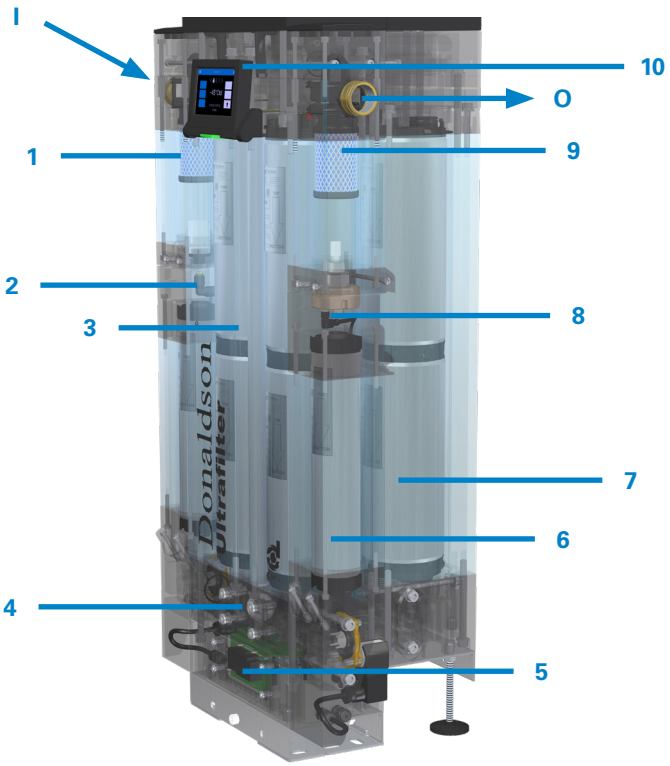
In the following purification stages CO_2, SO_2 and NO_X are adsorbed as well as CO removed by a catalyst. Furthermore oil vapours, hydrocarbons, taste and odours are adsorbed (**7**)

Via the upper shuttle valve, the air gets into an afterfilter (**9**), in which possible particles from the desiccant are retained.

Via the outlet (**O**), the clean and dry breathing air is led into the air network to the point of use.

While one vessel with desiccant cartridge(s) is in the drying phase (adsorption), the cartridge(s) of the other vessel will be dried (regeneration).

A partial flow of dried air is expanded via an orifice and led accross the desiccant cartridges for regeneration and via a solenoid valve and a silencer system (**6**) to the atmosphere.



Main Components

1 Prefilter UltraPleat™
2 Condensate Drain
3 Desiccant Cartridges
4 Lower Shuttle Valve
5 Electrical Controller
6 Silencer UltraSilencer
7 Purification Cartridges
8 Dew Point Transmitter (Superplus)
9 Afterfilter UltraPleat™
10 Touch Display (Superplus)

Air Quality related to standard inlet conditions	
Particles	Class 1-2: ISO 8573-1
Residual Oil Content	< 0,01mg/m³ (Class 1: ISO 8573-1)
Oil Vapour and Hydrocarbons	< 0,003mg/m³ (Class 1: ISO 8573-1)
Water Vapour	PDP-40°C =0,11 g/m³ (Class 2: ISO 8573-1)
CO_2	< 500ppm
CO	< 5 ppm
SO_2	< 1 ppm
NO_X	< 2 ppm
Taste and Odours	Taste and odour free

Donaldson® Ultrafilter

PRODUCT SPECIFICATION

Type	Nominal flow inlet m^3/h	Regeneration air averaged m^3/h	Outlet (min.) m^3/h	Prefilter UltraPleat™ S	Afterfilter UltraPleat™ S	UltraSilencer Cartridges QTY	Desiccant Cartridges QTY/Adsorber	Purification Cartridges QTY/Adsorber
0005	5	0,85	3,95	0035	0035	2	1	1
0010	10	1,70	7,90	0035	0035	2	2	2
0015	15	2,55	11,85	0035	0035	2	3	3
0020	20	3,40	15,80	0035	0035	4	4	4
0025	25	4,25	19,75	0035	0035	4	5	5
0035	35	5,95	27,65	0070	0070	2	2	2
0050	50	8,50	39,50	0070	0070	2	3	3
0065	65	11,05	51,35	0070	0070	4	4	4
0080	80	13,60	63,20	0120	0120	4	5	5
0100	100	17,00	79,00	0120	0120	4	6	6

* related to the intake condition of the compressor +20 °C, 1 bar (abs), at compressed air inlet temperature of +35 °C and 7 bar (g) operating pressure.
Pressure dew point:-40 °C , minimum pressure: 4 bar (g), maximum pressure: 14 bar (g) (type 0005 to 0025), 12 bar (g) (type 0035 to 0100), inlet temperature: min +5 °C, max +55 °C (dimensioning see below)

TECHNICAL CONFIGURATION

°C / bar g	4	5	6	7	8	9	10	11	12	13	14	15	16
20	0,91	0,99	1,08	1,16	1,23	1,30	1,37	1,43	1,49	1,55	1,61	1,66	1,72
25	0,89	0,98	1,07	1,15	1,22	1,29	1,36	1,42	1,47	1,53	1,59	1,65	1,70
30	0,83	0,97	1,06	1,13	1,21	1,27	1,34	1,40	1,46	1,51	1,56	1,62	1,67
35	0,63	0,75	0,88	1,00	1,12	1,25	1,33	1,39	1,45	1,50	1,55	1,60	1,65
40	0,48	0,57	0,67	0,76	0,86	0,95	1,05	1,14	1,24	1,33	1,43	1,52	1,62
45	0,37	0,44	0,51	0,58	0,66	0,73	0,81	0,88	0,95	1,03	1,10	1,17	1,25
50	0,28	0,34	0,40	0,46	0,51	0,57	0,63	0,68	0,74	0,79	0,85	0,91	0,97
55	0,22	0,27	0,31	0,36	0,40	0,44	0,49	0,53	0,58	0,62	0,67	0,71	0,76

* Maximum operating pressure 14 bar (g) (type 0005 to 0025), 12 bar (g) (type 0035 to 0100)

Example: $\dot{V}_{nom}$ = 22 m^3/h, Inlet temperature = 25°C, Operating pressure = 12 bar (g)

$$\dot{V}_{corr} = \frac{\dot{V}_{nom}}{f} = \frac{22\ m^3/h}{1{,}47} = 14{,}97\ m^3/h$$

Calculated breathing air unit: Type 0015

Power Supply	220-230 VAC / 50-60Hz, 110-115 VAC / 50-60Hz, 24 VDC
Power Consumption	Standard: 12W / Plus: 13W / Superplus: 16W
Operating Pressure	min. 4 bar / max. 14 bar (type 0005 to 0025), 12 bar (type 0035 to 0100)
Media	Compressed Air
Media Temperature	max. 55°C
Ambient Temperature	min. 4°C / max. 50°C
Pressure Dew point	-40°C at 100% nominal load
Sound (1m in front)	60 dB(A)
Declaration of Conformity	acc. 2014/35/EU and 2014/68/EU

Donaldson® Ultrafilter