



Donaldson®
FILTRATION SOLUTIONS

SECHEUR A ADSORPTION SANS CHALEUR ULTRAPAC® SMART





COMPRESSED AIR PURIFICATION IN THREE STAGES

Adsorption drying - why?

Compressed air is an important process and energy medium applied in all areas of industrial production. The compressor inlet suction air contains contaminants, dirt particles and humidity e.g. water vapour, which condenses in the compressed air systems. This condensate can lead to considerable costs (corrosion, freezing etc.).

These costs can be avoided by the application of an Ultrapac® Smart adsorption dryer.

This complete and compact purification package Ultrapac® Smart is equipped with a prefilter and afterfilter with UltraPleat® technology.

- 1 The integrated prefilter retains solid particulates and liquid aerosols (oil/water).
- 2 The adsorption dryer next in line adsorbs the moisture in the compressed air up to a pressure dew point of -40 °C.
- 3 Finally, remaining solid particulates are retained in the integrated afterfilter.

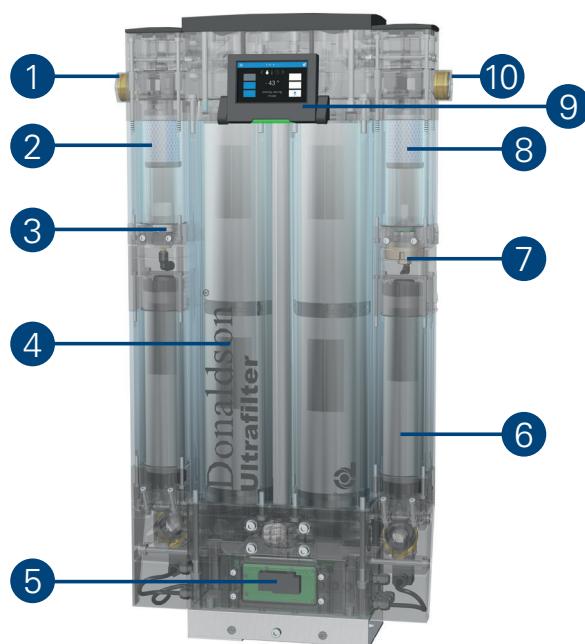
Due to the three-stage purification system a compressed air quality in accordance to ISO 8573-1:2010 is reliably achieved, which corresponds to the quality classes 1:2:1-2:1-2

Compressed air quality classes	Solid particles			Water	Oil (liquid and steam)
	Maximum particle count per m³ (particle size, d in µm)			Pressure dew point	Concentration
	0.10 < d ≤ 0.5	0.5 < d ≤ 1.0	1.0 < d ≤ 5.0	°C	mg/m³
0	Specified according to application and better than Class 1				
1	20,000	400	10	≤ -70	≤ 0.01
2	400,000	6,000	100	≤ -40	≤ 0.1
3	n.a.	90,000	1,000	≤ -20	≤ 1
4	n.a.	n.a.	10,000	≤ +3	≤ 5
5	n.a.	n.a.	100,000	≤ +7	> 5

Compressed air quality classes according to ISO 8573-1:2010

n.a. = not specified

Adsorption dryer Ultrapac® Smart



Compact design

1. Dryer inlet
2. Integrated UltraPleat® prefilter
3. Condensate drain
4. Desiccant cartridge
5. Electronic control
6. UltraSilencer
7. Dew point transmitter (Superplus version)
8. Integrated UltraPleat® afterfilter
9. Touch display (Superplus version)
10. Dryer outlet

WELL THOUGHT-OUT

Validated performance data: Stable pressure dew point at minimal regeneration air requirements (ISO 7183), innovative UltraPleat® filtration technology ensure a high filtration efficiency (ISO 12500).

Smart Communication:
Internet of Things (IoT)
and Industry 4.0-ready.
Bluetooth, app and current communication
interfaces ensure a secure exchange of data.



Saving regeneration air through a capacity control and compressor coupling, lower differential pressure through UltraPleat® compressed air filter.



The newly developed UltraSilencer ensures quiet operation (ISO 3744).



The adsorption dryer can be flexibly configured and installed, as well as integrated in machines and equipment.



Reliable achievement of compressed air quality suitable for the application in accordance to ISO 8573-1:2010.

Validations in accordance to ISO 7183 Ultrapac® Smart, ISO 12500-1 and 12500-3 UltraPleat®, ISO 3744 UltraSilencer.



The all-round package includes easy handling of maintenance and service. All relevant components are easily accessible, filter elements and desiccant cartridge can fast and easily be and fast exchanged.



MODULAR, VARIABLE, COMPACT

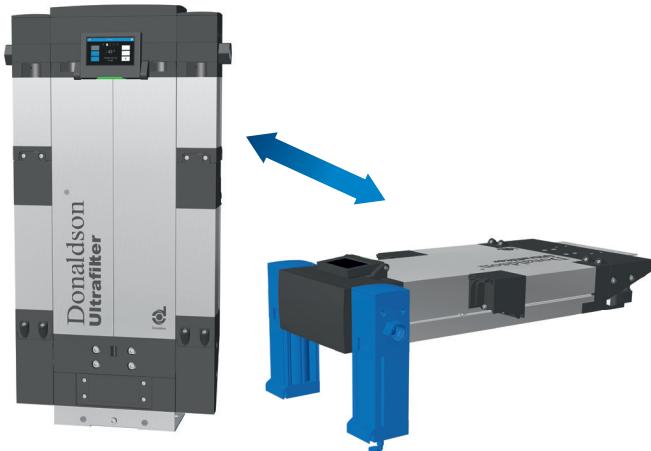
Modular design

The Ultrapac® Smart impresses through its variably arranged modules and flexible installation variants. Whether standing, vertical, horizontal or attached to the wall: The Ultrapac® Smart always fits the spatial conditions.

Additionally the inlet and outlet compressed air connections can be aligned in different directions and the prefilter and afterfilter are integrated into the adsorption dryer.

Space-saving application through compact design and modular arrangement

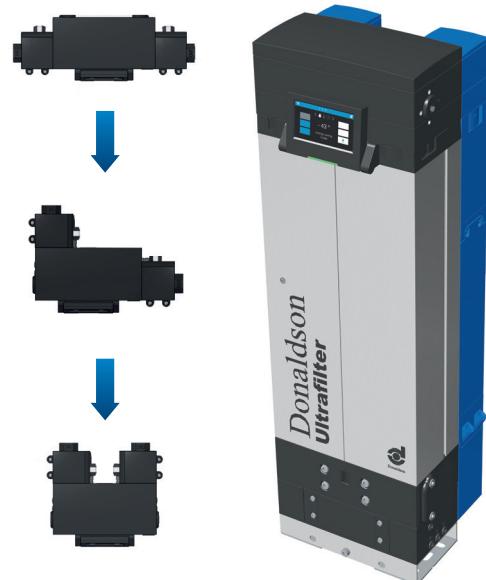
Vertical and horizontal alignment



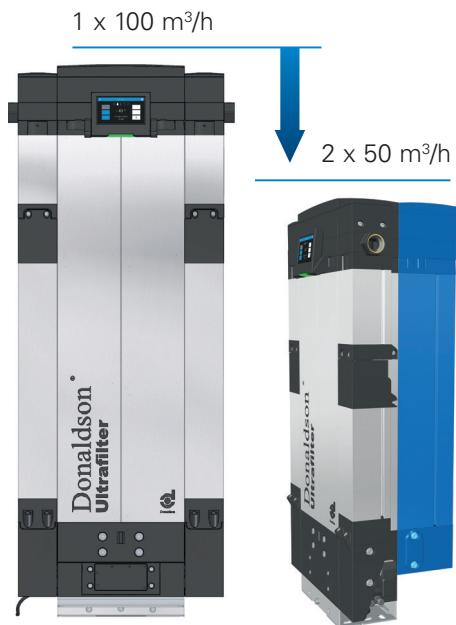
Inlet and outlet variable rotatable



Variable, compact arrangement



Height reduction



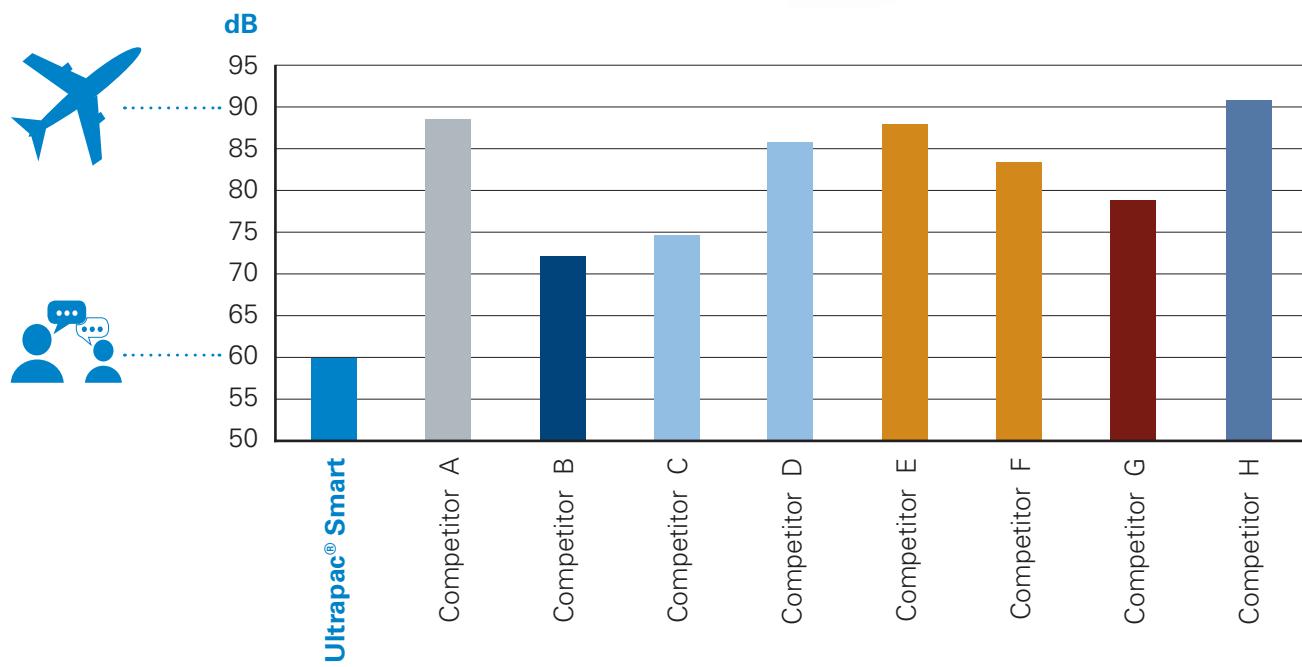
QUIET, CLEVER, STABLE



New silencer, quiet sounds

The Ultrapac® Smart is significantly quieter than comparable adsorption dryers. It operates with noise emissions in the range of just 60 dB. This matches the volume of a normal conversation and effectively leads to a noise reduction in the work place.

The noise minimization is made possible by the development of the powerful UltraSilencer.



Service-friendly cartridge, stable pressure dew point

The desiccant has a high adsorption capacity and excellent regeneration capabilities. The flow-optimized design leads to an optimum utilization of the desiccant volume even in partial load operation.

An additional plus point is the spring-loaded desiccant bed, which prevents abrasion of the desiccant and extends service life. The desiccant is protected against external influences such as pressure shocks by spring-loading.

Switching between adsorption and regeneration of the cartridges takes place thanks to a dew point transmitter integrated in the Superplus variant only when the desiccant is saturated. The pressure dew point remains stable at below -40 °C. This leads to high efficiency and operational safety.

Clean and easy exchange of the desiccant cartridge



READY TO CONNECT



Smart Communication

IoT and Industry 4.0-ready: The data can be read via Bluetooth and app, as well as interfaces (for example bus systems, WLAN). Thus dew point, cycle times or temperature can easily be read off.

Controller variants

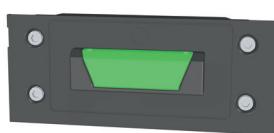
**Superplus
Touch Display**



**Plus
LED Display**



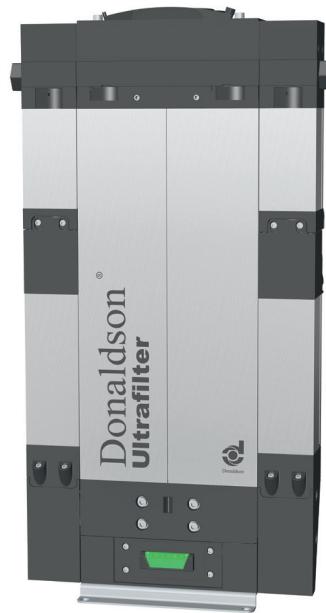
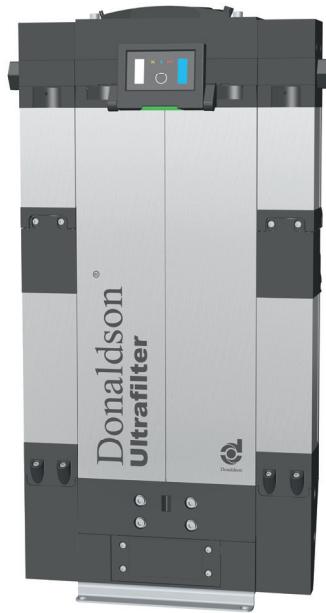
**Standard
LED Signal**



- Bluetooth
- Full connectivity
- Ultraconomy (dew point control)
- Intermittent operation (compressor coupling)

- Bluetooth
- Alarm contact
- Intermittent operation (compressor coupling)

- Alarm contact
- Intermittent operation (compressor coupling)



EXTENSIVE APPLICATION OPTIONS



Adsorption dryers are always applied where highly purified and dry compressed air is required in accordance with ISO 8573-1.

Examples of application areas:

- Food processing
- Beverage
- Pharmaceutical
- Medical
- Industrial machinery
- Plastic industry
- Laser cutting
- Packaging and bottling
- Optical measuring machines
- Automotive
- Energy



Feel free to send your request to CAP-europe@donaldson.com

Food processing



Automotive



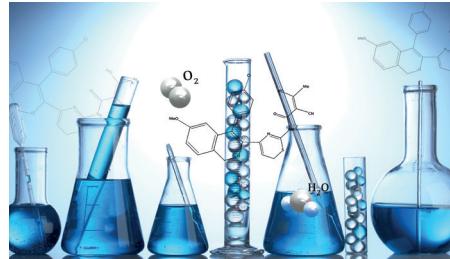
Energy



Pharmaceutical



Chemical



Medical



Packaging and bottling



Beverage



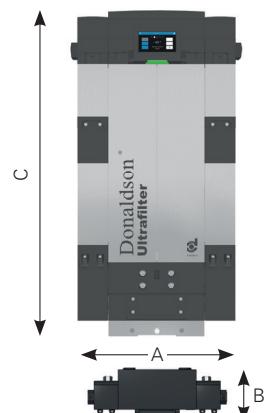
Industrial machinery



ULTRAPAC® SMART TECHNICAL DATA

Ultrapac® Smart Superplus		Volume flow rate* inlet m³/h	Regeneration air consumption* m³/h	Compressed air connection Inch	Dimensions		
					Width (A) mm	Height (C) mm	Depth (B) mm
Mini	0005	5	0.85	1/2	314	497	114
	0010	10	1.70	1/2	314	764	114
	0015	15	2.55	1/2	314	1031	114
	0020	20	3.40	1/2	314	1298	114
	0025	25	4.25	1/2	314	1565	114
Midi	0035	35	5.95	1	464	866	168
	0050	50	8.50	1	464	1130	168
	0065	65	11.05	1	464	1394	168
	0080	80	13.60	1	464	1658	168
	0100	100	17.00	1	464	1922	168

Explanations: *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: 16 bar (g) inlet temperature: min +5 °C, max +55 °C (dimensioning see below).

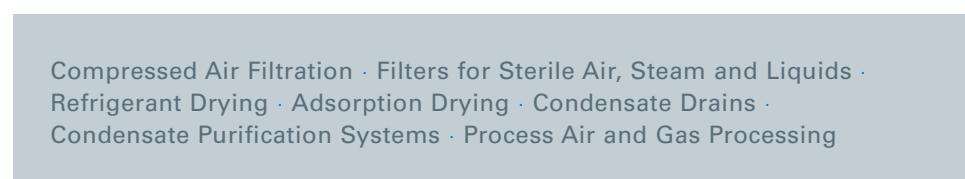


Sizing

f	4 bar (g)	5 bar (g)	6 bar (g)	7 bar (g)	8 bar (g)	9 bar (g)	10 bar (g)	11 bar (g)	12 bar (g)	13 bar (g)	14 bar (g)	15 bar (g)	16 bar (g)
20 °C	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 °C	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 °C	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 °C	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 °C	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 °C	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 °C	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 °C	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

$\dot{V}_{corr} = \frac{\dot{V}_{nom}}{f}$ Example: $\dot{V}_{nom} = 22 \text{ m}^3/\text{h}$, inlet temperature = 25 °C, operating pressure = 12 bar (g)

$\dot{V}_{corr} = \frac{22}{1.47} \text{ Nm}^3/\text{h} = 14,97 \text{ Nm}^3/\text{h}$
calculated dryer size: **Ultrapac® Smart, type 0015**



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 keeps your production at peak performance and at the lowest total cost of ownership.

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