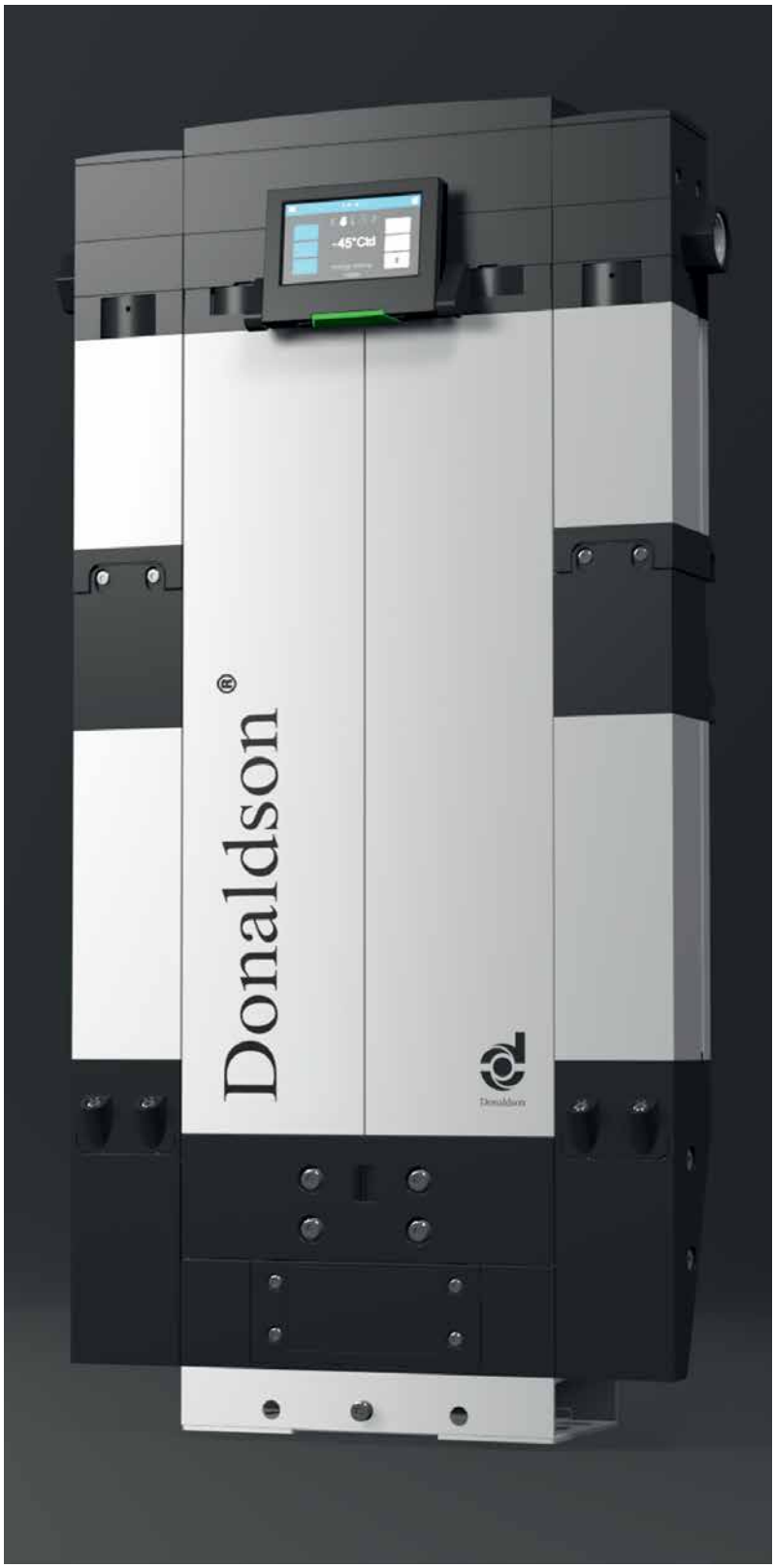
Donaldson
FILTRATION SOLUTIONS

ULTRAPAC™ SMART

HEATLESS REGENERATED ADSORPTION DRYERS

Process Filtration



COMPRESSED AIR PURIFICATION IN THREE STAGES

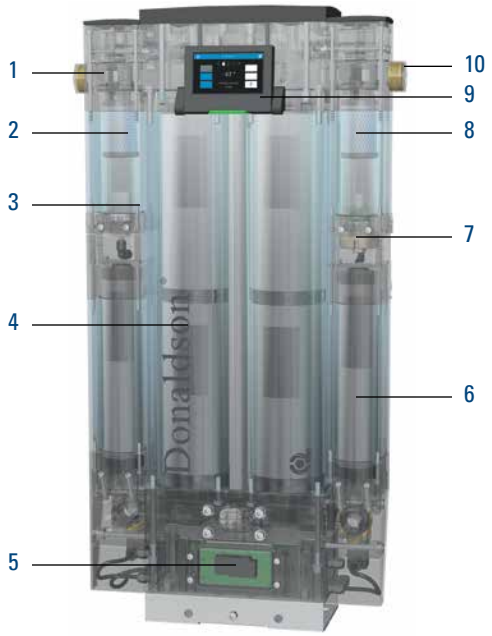
Compressed air is an important process and energy medium applied in all areas of industrial production. The compressor inlet suction air contains contaminants, dirt particles and humidity e.g. water vapor, which condenses in the compressed air systems. This condensate can lead to considerable costs (corrosion,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

The Ultrapac™ Smart dryer is a complete and compact purification package that provides high purity compressed air with three stages of separation:

1. The integrated prefilter retains solid particulates and liquid aerosols (oil/water).
2. The desiccant adsorbs moisture from the compressed air and lowers the dew point to -40F.
3. Finally, remaining solid particulates are retained in the integrated after-filter.

Due to the three-stage purification system, a compressed air quality in accordance with 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	° F	mg/m³	mg/ft³
0	Specified according to application and better than Class 1						
1	20,000	400	10	≤ -70	≤ -94	≤ 0.01	≤ 0.35
2	400,000	6,000	100	≤ -40	≤ -40	≤ 0.1	≤ 3.53
3	NA	90,000	1,000	≤ -30	≤ -4	≤ 1	≤ 35.31
4	NA	NA	10,000	≤ +3	≤ +37	≤ 5	≤ 176.6
5	NA	NA	100,000	≤ +7	≤ +45	> 5	> 176.6



Ultrapac Smart Adsorption Dryer

No.	Description
1	Dryer inlet
2	Integrated UltraPleat™ pre-filter
3	Condensate drain
4	Desiccant cartridge
5	Electronic control
6	UltraSilencer
7	Dew point transmitter (Superplus version)
8	Integrated UltraPleat™ after-filter
9	Touch display (Superplus version)
10	Dryer outlet

INNOVATIVE FEATURES

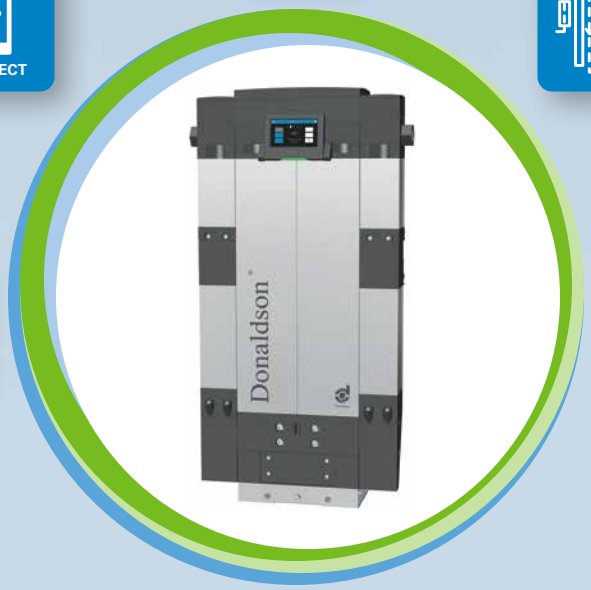
Validated performance data: Stable pressure dew point at minimal regeneration air requirements (ISO 7183) and innovative UltraPleat™ filtration technology provides a high filtration efficiency (ISO 12500).

EFFICIENT

Smart Communication: Internet of Things (IoT) and Industry 4.0-ready.

CONNECT

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



QUIET

The newly developed UltraSilencer keeps noise emissions at or below 60 db

MODULAR

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

ISO CERTIFIED

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 dryer, ISO 12500-1 and 12500-3 UltraPleat after-filter, ISO 3744 UltraSilencer technology.

EASY SERVICE

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

MODULAR, VARIABLE, COMPACT

MODULAR DESIGN

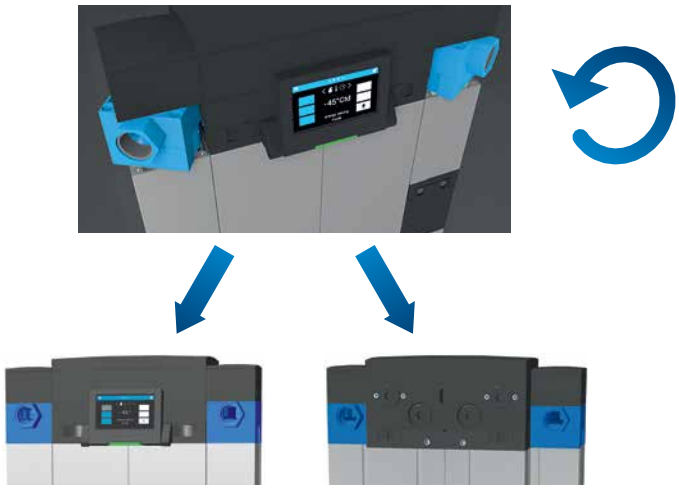
The Ultrapac Smart dryer impresses through its variably arranged modules and flexible installation variants. Whether standing, vertical, horizontal or attached to the wall, the dryer can be customized to fit most spatial conditions.

Additionally the inlet and outlet compressed air connections can be aligned in different directions and the pre-filter and after-filter are integrated into the dryer to provide maximum flexibility during installation.

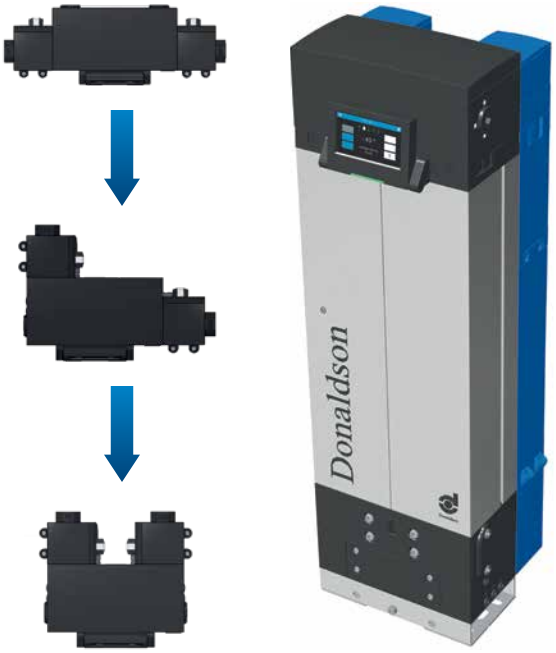
SPACE-SAVING APPLICATION THROUGH COMPACT DESIGN AND MODULAR ARRANGEMENT

Vertical and horizontal alignment

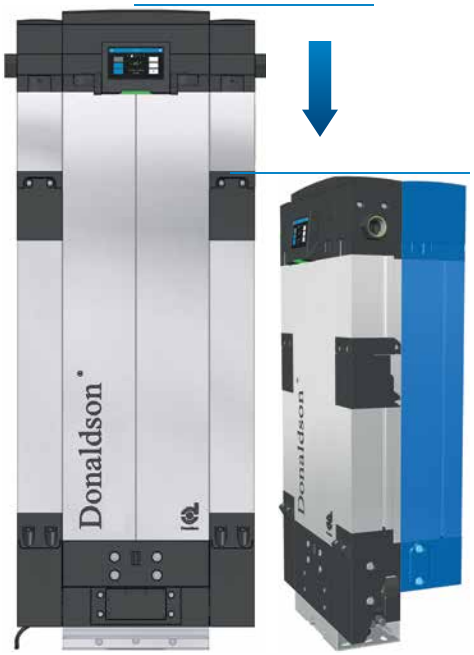
Rotatable inlet and outlet



Variable, compact arrangement



Height reduction

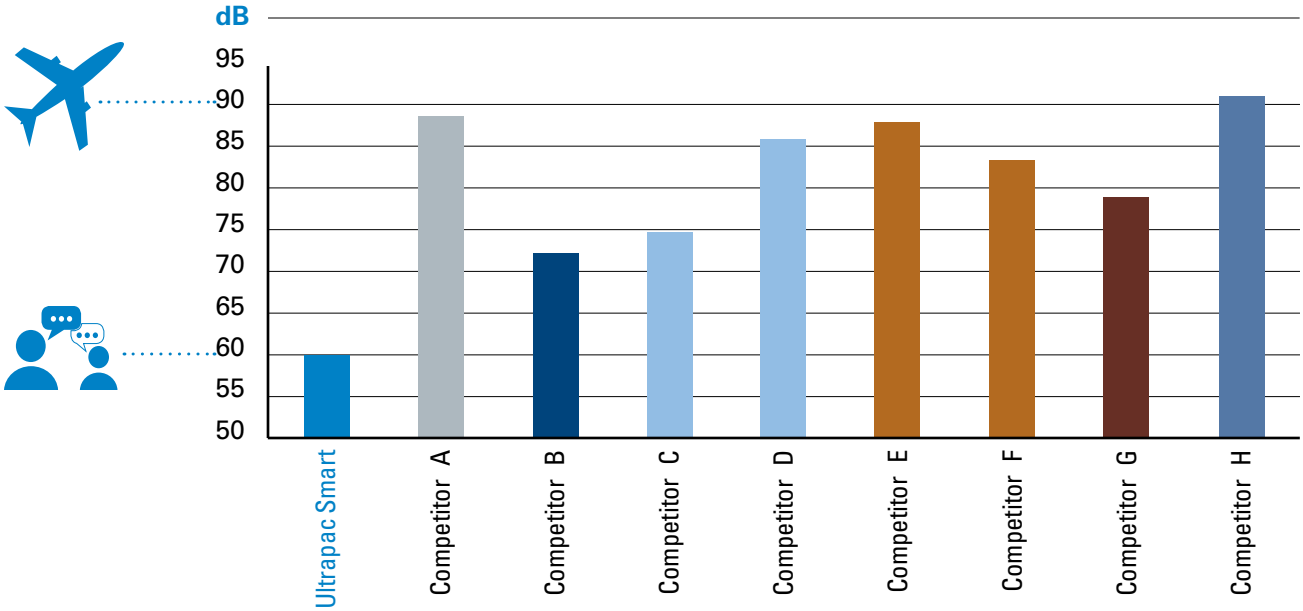


QUIET, CLEVER, STABLE

QUIET

NEW SILENCER, QUIET OPERATION

With the addition of the UltraSilencer, the Ultrapac Smart dryer is significantly quieter than comparable adsorption dryers. It operates with noise emissions in the range of just 60 dB. This is roughly the volume of a normal conversation and helps to reduce noise in the workplace.



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 efficient utilization of the desiccant volume even in partial load operation.

An additional innovation 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.

The Superplus model has a built in dew point transmitter that automatically switches between adsorption to regeneration when the desiccant is saturated. This added feature leads to a more efficient operation.

Clean and easy exchange of the desiccant cartridge

EASY SERVICE

READY TO CONNECT

SMART COMMUNICATION

IoT and Industry 4.0-ready: The data can be shared with interfaces, such as bus systems and WLAN so dew point, cycle times or temperature can easily be read.

CONTROLLER VARIANTS

Superplus
Touch Display

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

Plus
LED Display

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

Standard
LED Signal

- Alarm contact
- Intermittent operation (compressor coupling)

EXTENSIVE APPLICATION OPTIONS

ISO CERTIFIED

Adsorption dryers are applied where highly purified and dry compressed air is required in accordance with ISO 8573-1. Some examples of industries with these applications:

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

Food Processing

Automotive

Energy

Pharmaceutical

Chemical

Medical

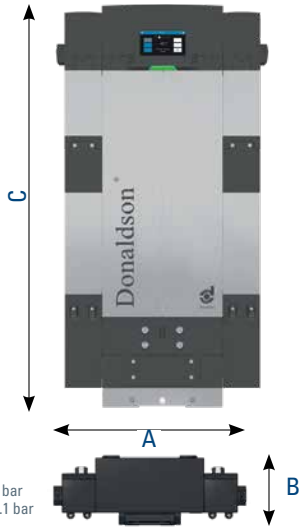
Packaging & Bottling

Beverage

Industrial Machinery

TECHNICAL DATA

Ultrapac Smart dryer		Volume flow rate* inlet @ 6.9 bar (100 psig)		Regeneration air consumption*		Compressed air connection FNPT		Dimensions					
								Width A		Height C		Depth B	
		m³/hr	scfm	m³/hr	scfm	mm	in.	mm	in.	mm	in.	mm	in.
Mini	UPS03	5.1	3	0.8	0.5	13	1/2	315	12.4	498	19.6	1143	45
	UPS06	10.2	6	1.7	1.0	13	1/2	315	12.4	765	30.1	1143	45
	UPS09	15.3	9	2.5	1.5	13	1/2	315	12.4	1031	40.6	1143	45
	UPS12	20.4	12	3.4	2.0	13	1/2	315	12.4	1298	51.1	1143	45
	UPS15	25.5	15	4.2	2.5	13	1/2	315	12.4	1565	61.6	1143	45
Midi	UPS20	34.0	20	5.9	3.5	25	1	465	18.3	866	34.1	168	6.6
	UPS30	51.0	30	8.5	5.0	25	1	465	18.3	1130	44.5	168	6.6
	UPS40	68.0	40	11.0	6.5	25	1	465	18.3	1394	54.9	168	6.6
	UPS50	85.0	50	13.6	8.0	25	1	465	18.3	1659	65.3	168	6.6
	UPS60	101.9	60	17.0	10.0	25	1	465	18.3	1923	75.7	168	6.6



*Volume flow rate represents standard temperature and pressure atmospheric air at compressor inlet 20° C, 1.0 bar (68° F, 14.7 psia), and a dryer inlet conditions of 35° C at 6.9 bar (95° F at 100 psig) operating pressure. Dryer outlet pressure dew point: -40° C (-40° F). Allowable operating pressures and temperatures: 4.1-16.0 bar (60-232 psig) (MINI); 4.1-12.1 bar (60-175 psig) (MIDI) at inlet temperatures 4°-54° C (40-130° F). Please consult table below for volume flow correction factors to be used at non-standard operating conditions.

SIZING

f		4.1 bar	5.2 bar	6.2 bar	7.3 bar	8.3 bar	9.3 bar	10.4 bar	11.4 bar	12.4 bar	13.5 bar	14.5 bar	15.5 bar	16.6 bar
° C	° F	60 psig	75 psig	90 psig	105 psig	120 psig	135 psig	150 psig	165 psig	180 psig	195 psig	210 psig	225 psig	240 psig
18	65	0.94	1.02	1.12	1.20	1.27	1.34	1.42	1.48	1.54	1.60	1.67	1.71	1.78
24	75	0.92	1.01	1.11	1.19	1.26	1.33	1.41	1.47	1.52	1.58	1.64	1.70	1.76
29	85	0.86	1.00	1.10	1.17	1.25	1.31	1.39	1.45	1.51	1.56	1.61	1.67	1.73
35	95	0.65	0.78	0.91	1.03	1.16	1.29	1.38	1.44	1.50	1.55	1.60	1.65	1.71
41	105	0.50	0.59	0.69	0.79	0.89	0.98	1.09	1.18	1.28	1.38	1.48	1.57	1.68
46	115	0.38	0.46	0.53	0.60	0.68	0.76	0.84	0.91	0.98	1.07	1.14	1.21	1.29
49	120	0.29	0.35	0.41	0.48	0.53	0.59	0.65	0.70	0.77	0.82	0.88	0.94	1.00
54	130	0.23	0.28	0.32	0.37	0.41	0.46	0.51	0.55	0.60	0.64	0.69	0.73	0.79

$\dot{V}corr = \frac{\dot{V}nom}{f}$ Example: Vnom = 25.5 m³/hr (15 scfm), inlet temperature = 35° C (95° F), operating pressure = 10.4 bar (150 psig)

$\dot{V}korr = \frac{25.5\ m^3/hr\ (15\ scfm)}{1.38} = 18.5\ m^3/hr\ (10.87\ scfm)$ calculated dryer size: **Ultrapac Smart dryer, type 0020**

SUPPORTING PROCESS AND PRODUCT INTEGRITY

Extensive Product Portfolio

- Process air, steam and liquid filtration products
- Performance engineered to sanitary guidelines
- Wide range of filtration media for any application
- Housings, elements, and parts in-stock, ready to ship

Advanced Technology

- Optimized filtration performance and efficiency
- Extensive research and development capabilities
- Advanced design and testing capabilities
- Over 1,000 engineers and scientists worldwide

Unrivaled Support and Expertise

- Expert technical specialists available as resource
- Comprehensive pre- and post-sale support
- Extensive filter analysis and trouble-shooting
- 100 years of successful global manufacturing

Registered Standard No. 10-04* Member of Member of Member of

Important Notice
Many factors beyond the control of Donaldson can affect the use and performance of Donaldson products in a particular application, including the conditions under which the product is used. Since these factors are uniquely within the user's knowledge and control, it is essential the user evaluate the products to determine whether the product is fit for the particular purpose and suitable for the user's application. All products, specifications, availability and data are subject to change without notice, and may vary by region or country.

Donaldson Company, Inc.
Minneapolis, MN

donaldson.com
shop.donaldson.com

Australasia 61-02-4350-2066
marketing.australia@donaldson.com

Brazil 55-11-4894-6035
vendas.brasil@donaldson.com

China 86-400-921-7032
info.cn@donaldson.com

EMEA 49-2129-569-0
cap-europe@donaldson.com

India 91-124-4807-400
indiainquiries@donaldson.com

Japan 81-42-540-4123
ndl-ultrafilter-web@donaldson.com

Korea 82-2-517-3333
cap-kr@donaldson.com

Latin America 52-449-300-2442
industrialair@donaldson.com

North America 800-543-3634
processfilters@donaldson.com

South Africa 27-11-997-6000
samarketing@donaldson.com

Southeast Asia 65-6311-7373
sea.salesenquiry@donaldson.com

F117064 ENG (05/22) Ultrapac Smart Heatless Regenerated Adsorption Dryers ©2017-2022 Donaldson Co., Inc. All Rights Reserved. Donaldson and the color blue are marks of Donaldson Company, Inc. All other marks belong to their respective owners. {Contains Donaldson proprietary technology.}