



Donaldson
FILTRATION SOLUTIONS

Compressed Air Filtration

Oilfreepac® 2000 Standard / Superplus
Mini / Midi

Types 0005-0100

MAIN FEATURES & BENEFITS

- Complete purification package including adsorption dryer, activated carbon adsorber, pre-, afterfilter and condensate drain
- Indications for filter elements and desiccant/ purifier cartridges replacement
- Version Superplus with capacity control
- Version Superplus with Economizer Function, online calculation of optimum exchange point of filter elements by continuous evaluation of energy cost versus cost of replacement filter element
- Multifunction unit - all moving parts and all electronic components integrated in a function block, therefore easy and efficient maintenance



Oilfreepac® 2000 Standard

INDUSTRIES



- Chemical



- Food and beverage



- Paint and finish



- Environmental



- Machine building and
plant engineering / construction

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Donaldson®
Ultrafilter

PRODUCT DESCRIPTION

The Oilfreepac® 2000 purification packages are purification units based on adsorption dryers Ultrapac® 2000 to supply clean, dry and oilfree compressed air. Compressed air is led through the inlet of the unit (J) and across the prefilter (2). At this stage, the air is cleaned from particles and condensate.

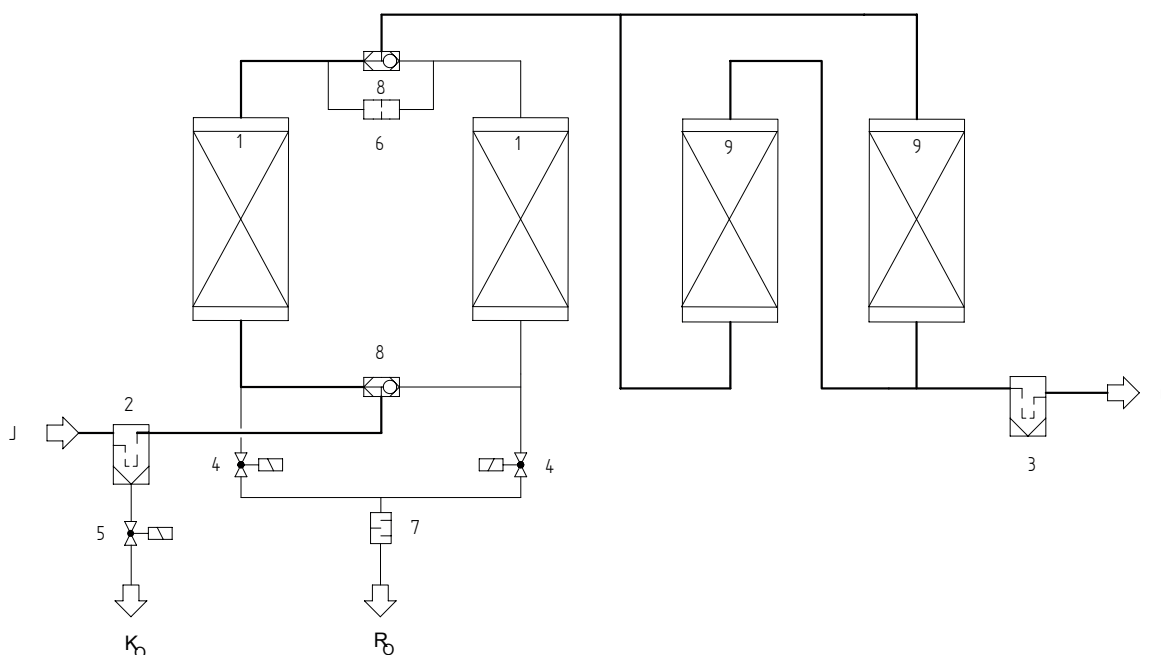
The condensate is removed via a membrane condensate drain (5). Via the lower shuttle valve (8) the air is led into desiccant cartridges (1) in which the air is dried down to a pressure dew point of -40°C (equivalent to a remaining water content of 0.11 g/m^3). In the following activated carbon purification stage (9) oil vapours, hydrocarbons, taste and odours are adsorbed to a level far below $0,003\text{ mg/m}^3$.

The final particle filter (3) removes all particles which might be carried over from the adsorption stages. While one vessel with desiccant cartridges is in the drying phase (adsorption), the other cartridge is being dried again (regeneration).

A partial stream of dried air is expanded to atmospheric pressure via an orifice (6) and led across the desiccant cartridge for regeneration and via a solenoid valve and a silencer system to atmosphere.

The Oilfreepac® 2000 is designed and developed for the following applications:

- **Laser units:**
Purification of cutting gas ore purging gas
- **Breathing air:**
Removal of oil and particles as well as smells and odours
- **Downstream equipment:**
Creation of oil and particle free compressed air for various downstream equipment applications, e.g. packaging machinery



PRODUCT SPECIFICATIONS

Features Oilfreepac® 2000 series	Benefits
Purification package including adsorption dryer, activated carbon adsorber, pre-, afterfilter and automatic condensate drain	Turnkey System, no additional installation cost; all components from one hand, therefore perfect technical match
Compressed air quality better than on any „oilfree“ installation	Use is highly sensitive production possible (food-, beverage-, electronic industry etc.)
Desiccant in cartridges	Easy storage, transport and Installation; optimum fixation of desiccant; no risk of fluidizing of desiccant
Compact, space saving design	Installation in smallest spaces, possible also as retrofit
Component exchange display	High operating safety, due to calculation of optimum exchange point for filter elements and desiccant cartridges.
Unique Multifunction Block	All moving parts and all electronic components integrated in a function block, therefore easy and efficient maintenance

Features Oilfreepac® 2000 Superplus	Benefits
Intermittent operation standard	Link between dryer and compressor possible on central applications, therefore saving of regeneration air
Capacity control	Adjustment of adsorption cycles to the actual inlet water load, therefore saving of regeneration air and reduction of operating cost
Self-Diagnosis-System	Sensor-controlled monitoring of regeneration air flow, therefore without-gap-monitoring of dryer functions and of system pressure
Text Display	Display of all operating status, of fault indication and maintenance intervals in clear text messages
Info-Channel	Interface for transmission of alarm- and maintenance messages
Economizer-Function	Online calculation of optimum exchange point of filter elements by continuous evaluation of energy cost versus cost of replacement filter element

SIZING / TECHNICAL DATA

Oilfreepac® 2000	Volume flow in m³/h (1 bar, 20°C)*	Regeneration air losses (average) m³/h (1 bar, 20°C)	Volume flow out (min.) m³/h (1 bar, 20°C)	Pressure loss initial mbar	Prefilter MF	Afterfilter PE	Quantity of cartridges
0005	5	0,85	3,94	80	02/05	02/05	2+2
0010	10	1,70	7,88	120	03/05	03/05	4+4
0015	15	2,55	11,82	145	04/10	04/10	6+6
0025	25	4,25	19,70	320	06/10	06/10	10+10
0035	35	5,95	27,60	95	04/20	04/20	4+4
0050	50	8,50	39,40	120	05/20	05/20	6+6
0065	65	11,05	51,20	155	05/25	05/25	8+8
0080	80	13,60	63,00	280	07/25	07/25	10+10
0100	100	17,00	78,80	450	07/25	07/25	12+12

*Related to 1 bar (abs) and 20 °C at intake of compressor and 7 bar (g) and 35 °C inlet temperature

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)
25°C	0.69	0.82	0.96	1.10	1,24	1,38	1,50	1,50	1,50	1,50	1,50	1,50	1,50
30°C	0.69	0.82	0.96	1.10	1,24	1,38	1,50	1,50	1,50	1,50	1,50	1,50	1,50
35°C	0.63	0.75	0.88	1.00	1,13	1,26	1,38	1,50	1,50	1,50	1,50	1,50	1,50
40°C	0.48	0.58	0.68	0,77	0,87	0,96	1,06	1,16	1,25	1,35	1,45	1,50	1,50
45°C	0.38	0.45	0.53	0,60	0,68	0,75	0,83	0,90	0,98	1,05	1,13	1,20	1,28
50°C	0.30	0.36	0.42	0,48	0,54	0,60	0,66	0,72	0,78	0,84	0,90	0,96	1,02

$$\dot{V}_{\text{corr}} = \frac{\dot{V}_{\text{nom}}}{f}$$

Example: $\dot{V}_{\text{nom}} = 22 \text{ m}^3/\text{h}$, Inlet temperature = 30°C, Operating pressure = 10 bar (g)

$$\dot{V}_{\text{corr}} = \frac{22 \text{ m}^3/\text{h}}{1,50} = 14,66 \text{ m}^3/\text{h}$$

Calculated dryer size: Type 0015

Technical Data

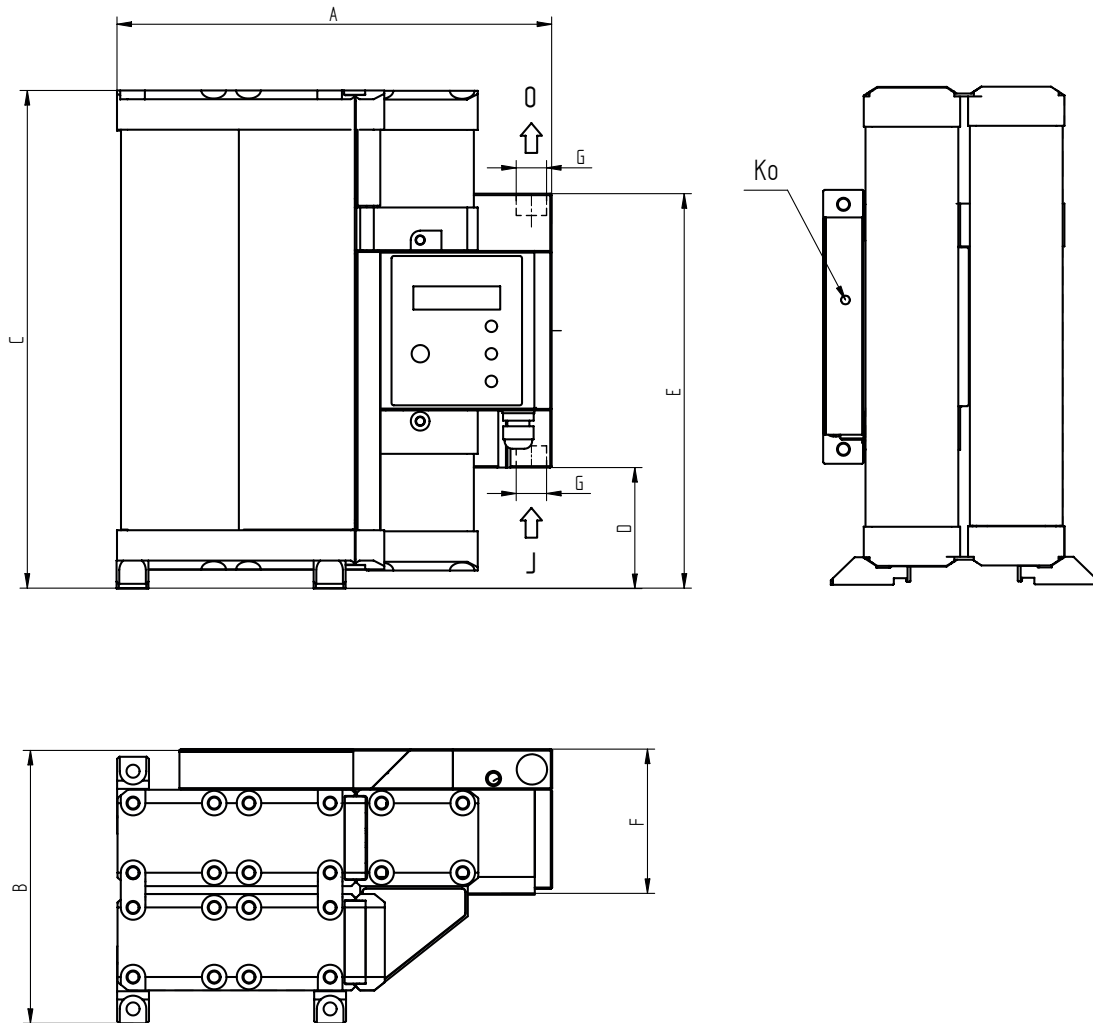
Power consumption:	230 V/50 -60 Hz AC; 110 V/50 -60 Hz AC 24 V DC; 24 V AC on request
Power consumption:	approx. 4 W
Operating pressure:	min. 4 bar, max. 16 bar
Medium:	Compressed air
Medium temperature:	min. 5 °C, max. 50 °C
Ambient temperature:	min. 4 °C, max. 50 °C
Compressed air consumption:	17% of the rated flow, in average
Declaration of conformity:	acc. to 2014/35/EU and 2014/68/EU

Air quality related to standard inlet conditions:

Particles	< 25 µm
Residual oil content	< 0,01 mg/m³
Oil vapour and hydrocarbons	< 0,003 mg/m³
Water vapours	PDP -40°C (= 0,11 g/m³)
Taste and odours	taste and odour free

DIMENSIONS / MATERIALS

Oilfreepac® 2000 Standard / Superplus Mini

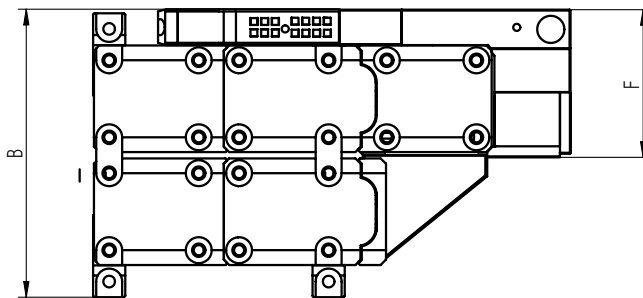
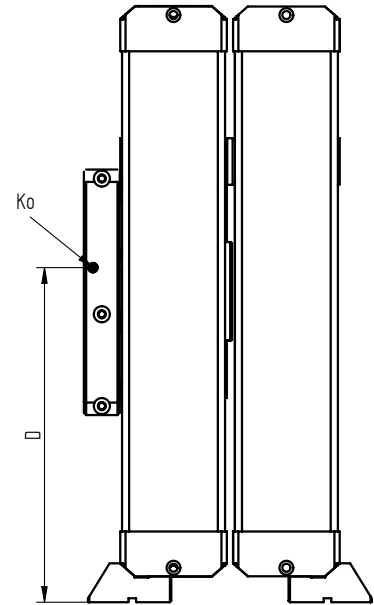
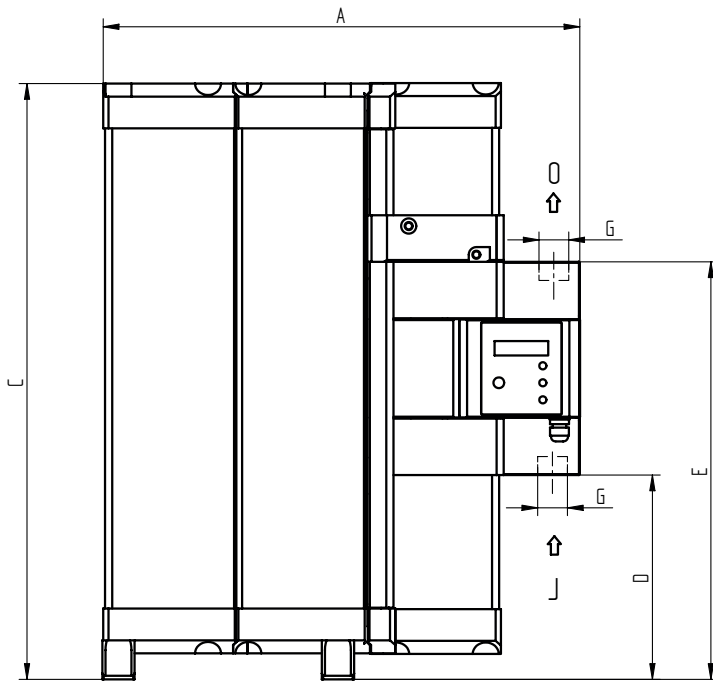


Materials	
Extruded Profiles:	Anodized Aluminium
Adsorber and Filter lids:	Glass fiber enforced polyamide

Dimensions							
Type	G "	A mm	B mm	C mm	D mm	E mm	F mm
0005	G 1/2	300	189	343	84	272	100
0010	G 1/2	300	189	591	208	396	100
0015	G 1/2	300	189	853	339	527	100
0025	G 1/2	300	189	1377	601	788	100

DIMENSIONS / MATERIALS

Oilfreepac® 2000 Standard / Superplus Midi



Materials	
Extruded Profiles:	Anodized Aluminium
Adsorber and Filter lids:	Glass fiber enforced polyamide

Dimensions							
Type	G "	A mm	B mm	C mm	D mm	E mm	F mm
0035	G 1	532	322	665	230	465	165
0050	G 1	532	322	920	355	595	165
0065	G 1	532	322	1170	485	720	165
0080	G 1	532	322	1420	606	845	165
0100	G 1	532	322	1670	730	970	165