Dryer Systems

Heatless Regenerating Purification Packages

Oilfreepac® OFP 0050 - 1000

MAIN FEATURES & BENEFITS

- Complete purification package with three pre filters incl. UltraPleat® M und S and UltraPleat® S as after filter
- All pre filters with electronic level-controlled condensate drain incl. function control and alarm message
- Heatless adsorption dryer, activated carbon adsorber for removal of oil vapors and hydrocarbons, afterfilter and shut-off device against oil breakthrough
- All dryers in cabinet construction
- Comprehensive option package:
  Dewpoint depending control, start-up device, bypass, pneumatic control, free of silicone and extractable components, etc.
- Robust design with welded steel vessels and galvanized pipelines and press fittings with aerodynamic and leakage-proof design
- Service-friendly design of shuttle valves and solenoid valves for fast replacement of wear parts

OFP
0050 - 1000

INDUSTRIES

- Chemical and electrical industry

- Machine building industry and plant engineering / construction

- Automotive industry

- PCB assembly and CD manufacturing

Donaldson Filtration Deutschland GmbH
Büssingstr. 1
D-42781 Haan
Tel.: +49 (0) 2129 569 0
Fax: +49 (0) 2129 569 100
E-Mail: CAP-de@donaldson.com
Web: www.donaldson.com

Donaldson® Ultrafilter

F119022_06_2018_ENG

Technical alterations reserved (6/2018)

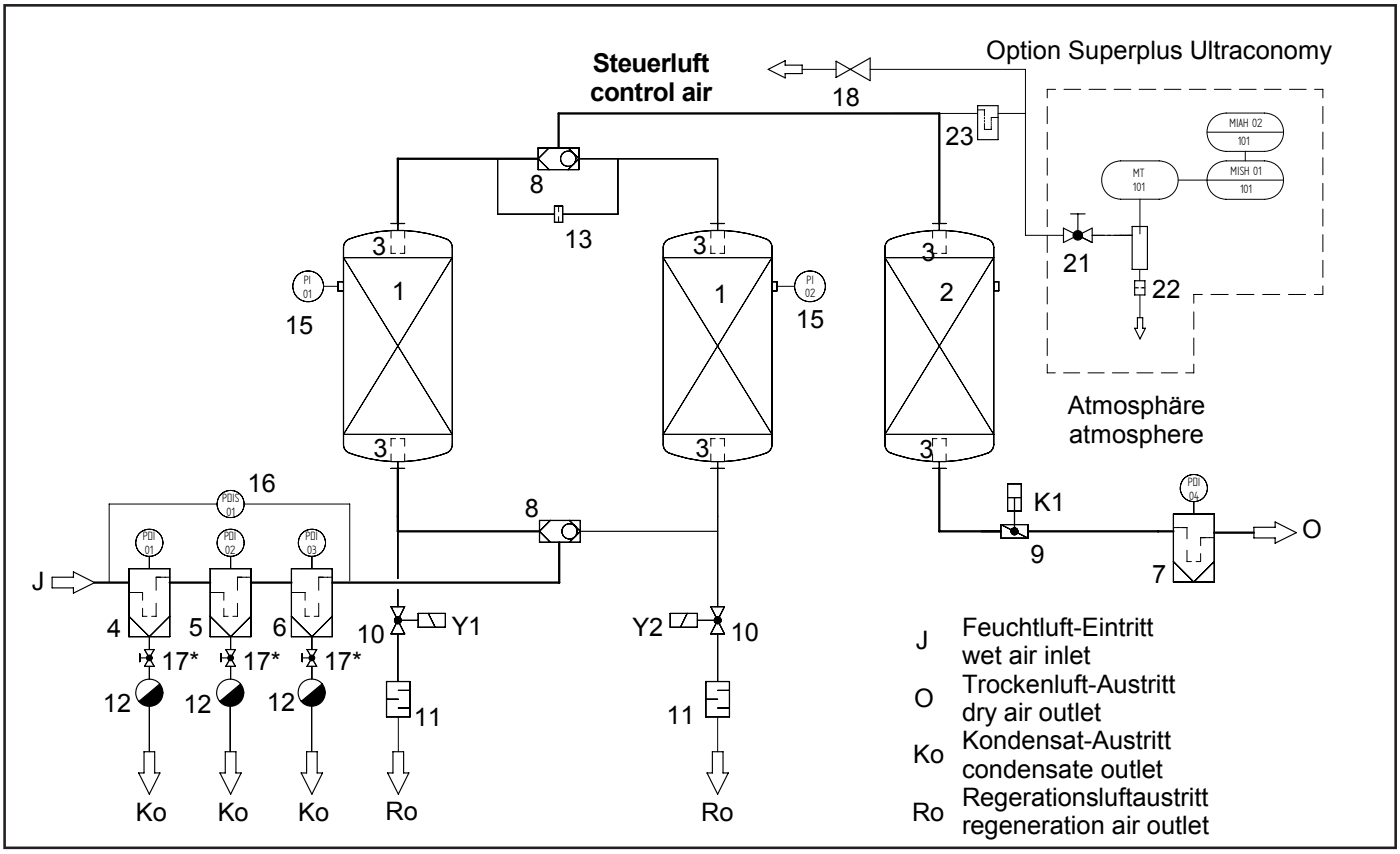
PRODUCT DESCRIPTION

Compressed air is flowing through the inlet of the system (J) into a three stage prefiltration (4, 5, and 6). In these stages, the air is cleaned from particles and condensate down to a residual content of 0.01 mg/m³. The condensate is removed by condensate drains (12). Via a lower shuttle valve (8), the air for drying is lead into the adsorption vessel (1), in which the air is dried down to the required dewpoint. After that, the air is lead through the upper shuttle valve (8) and into an activated carbon tower (2), in which oil vapor and hydrocarbons are retained. Via an afterfilter (7), in which possible abrasion from activated carbon is retained, the clean and oilfree air is led into the compressed air network to the point of use.
While one vessel is in the drying phase (adsorption), the other vessel is being dried again (regeneration).

A partial stream of dried air is expanded to atmospheric pressure via a nozzle (13), lead accross the desiccant bed for regeneration and discharged to atmosphere via a solenoid valve (10) and a silencer (11). As a safety feature against contamination (e.g. oil breakthrough of the compressor), the differential pressure across the prefilter combination is constantly monitored. In case of an immediate increase in differential pressure, the differential pressure gauge (16) triggers the control and a valve (9) is closed.

Typical applications for the purification packages OFP are:

- **Central Purification**
- **Point-of-use applications**



PRODUCT SPECIFICATIONS

Features:	Benefits:
Purification package designed for use with oil lubricated compressors	No need to buy expensive and less energy efficient „oilfree“ compressors
Compressed air quality better than in any „oilfree“ compressor	Use in highly sensitive production possible (food-, beverage-, electronic industry, etc.)
Complete purification package with three pre filters incl. UltraPleat® M and S and UltraPleat® S as after filter	High oil- and water aerosol retention efficiency on pre filter and high particulate retention efficiency on after filter at very low differential pressure
Prefilter with electronic, level controlled condensate drain incl. function control and alarm message	No compressed air losses due to condensate removal, therefore reduction of operating cost
All dryers in cabinet construction	Optimum protection against mechanical damage and against dirt
Generous dimentioned filters	Large filtration surface, therefore lowest possible pressure drop and low operating cost
Safety feature against oil breakthrough, consisting of differential pressure measurement and shut-off valve	High operating safety in combination with use of oil lubricated compressors
Intermittent operation standard	Link between dryer and compressor possible on central applications, therefore saving of compressed air
Welded steel vessels and galvanized pipelines and press fittings	Robust design with aerodynamic and leakage-proof design
Service-friendly design of shuttle valves	Fast replacement of wear parts ensure low service and maintenance cost and reduced downtime
Superplus Version including dewpoint dependent capacity control and text display	Saving of energy and operational cost due to adaption of the purge air consumption to the actual operating conditions. Indication of current dewpoint and function status as well as alarm and service messages on LCD text display in clear text ensures high operating safety of the adsorption dryer.

Technical Data	
Operating pressure:	min. 4 bar (g) / max. 16 bar (g)
Ambient temperature:	min. +4°C / max. +50°C
Medium temperature:	max. +50°C
Medium:	Compressed air / nitrogen
Power supply:	230 V or 110 V AC / 50-60 Hz or 24 V DC
Power consumption	40 W
Declaration of Conformity	
Types 0005 - 0175:	acc. to Directive 2014/35/EU
Types 0225 - 1000:	acc. to PED 2014/68/EU
Pressure vessel – design, manufacture, testing	
Adsorber:	acc. to Directive 2014/29/EU
Filter:	acc. to PED 2014/68/EU

PRODUCT SPECIFICATIONS

OFP	Volume flow m^3/h (1 bar, 20°C)*	Reg. air losses average m^3/h (1 bar, 20°C)	Volume flow out (min.) m^3/h (1 bar, 20°C)	Pressure drop new mbar	Prefilter (afterfilter) V, M, S, (S)
0050	50	10	40,8	105	0210
0080	80	16	65,2	160	0210
0100	100	20	81,6	190	0210
0150	150	30	121,7	290	0210
0175	175	35	142,7	170	0210
0225	225	45	183,2	190	0450
0300	300	60	244,7	240	0450
0375	375	75	306,1	350	0450
0550	550	110	447,9	340	0600
0650	650	130	529,5	405	0750
0850	850	170	692,6	470	1100
1000	1000	200	815,5	410	1100

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

Compressed air quality class according to ISO 8573-1
OFP
1-2 : 1-2 : 1

SIZING

Operating pressure bar (g)	4	5	6	7	8	9	10	11	12	13	14	15	16
Correction factor overpressure (fp)	0,62	0,75	0,88	1,0	1,12	1,25	1,38	1,50	1,63	1,75	1,88	2,0	2,13

Inlet temperature °C	20	25	30	35	40	45	50
Correction factor temperature (f_T)	1,0	1,0	1,0	1,0	0,8	0,7	0,5

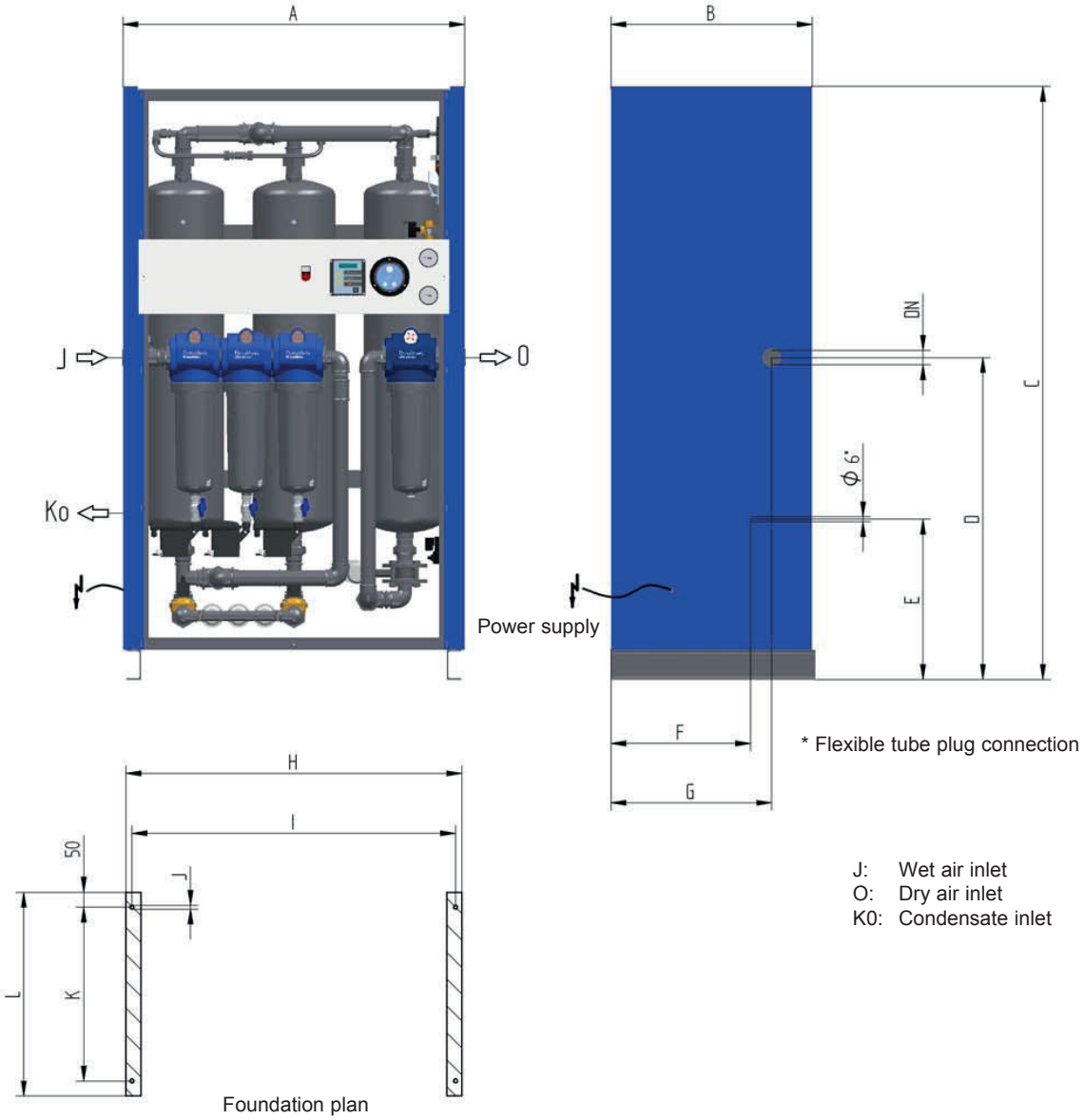
Example:

$\dot{V}_{nom}$ = 200 m^3/h, Inlet temperature = 30°C, operaing pressure = 10 bar (g), PDP = -40°C

$$\dot{V}_{korr} = \frac{\dot{V}_{nom}}{f} = \frac{200\ m^3/h}{1{,}38 * 1{,}0} = 144{,}93\ m^3/h$$

Calculated dryer size:
OFP, type 0150

DIMENSIONS



Type	DN "	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	J mm	K mm	L mm	weight kg
0050	G 3/4	940	460	1610	800	415	315	340	920	880	13	360	460	146
0080	G 3/4	940	460	1610	800	415	315	340	920	880	13	360	460	191
0100	G 1	940	460	1610	800	415	315	340	920	1080	13	360	460	230
0150	G 1	1140	680	1980	1075	535	465	535	1120	1080	13	580	680	270
0175	G 1	1140	680	1980	1075	535	465	535	1120	1080	13	580	680	306
0225	G 11/2	1140	680	1980	1075	535	465	535	1120	1080	13	580	680	376
0300	G 11/2	1140	680	1980	1075	535	465	535	1120	1520	13	580	680	434
0375	G 11/2	1580	770	2190	1250	620	530	620	1560	1520	13	670	770	540
0550	G 2	1580	770	2190	1250	620	530	620	1560	1520	13	670	770	585
0650	G 2	1580	770	2190	1250	620	530	620	1560	1520	13	670	770	684
0850	G 2	1600	880	2350	1450	720	650	720	1580	1540	13	780	880	806
1000	G 2	1600	880	2350	1450	720	650	720	1580	1540	13	780	880	918