Dryer Systems

Heatless Regenerating Purification Packages

Oilfreepac® OFP 0005 - 0035

MAIN FEATURES & BENEFITS

- Complete purification package with triple prefiltration and level controlled electronic condensate drains
- 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.
- 5 sizes available, matched to the compressor flows

OFP
0005 - 0035

INDUSTRIES

- Chemical and electrical industry

- Machine building industry and plant engineering / construction

- Automotive industry

- PCB assembly and CD manufacturing

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Donaldson® Ultrafilter

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Technical alterations reserved (6/2018)

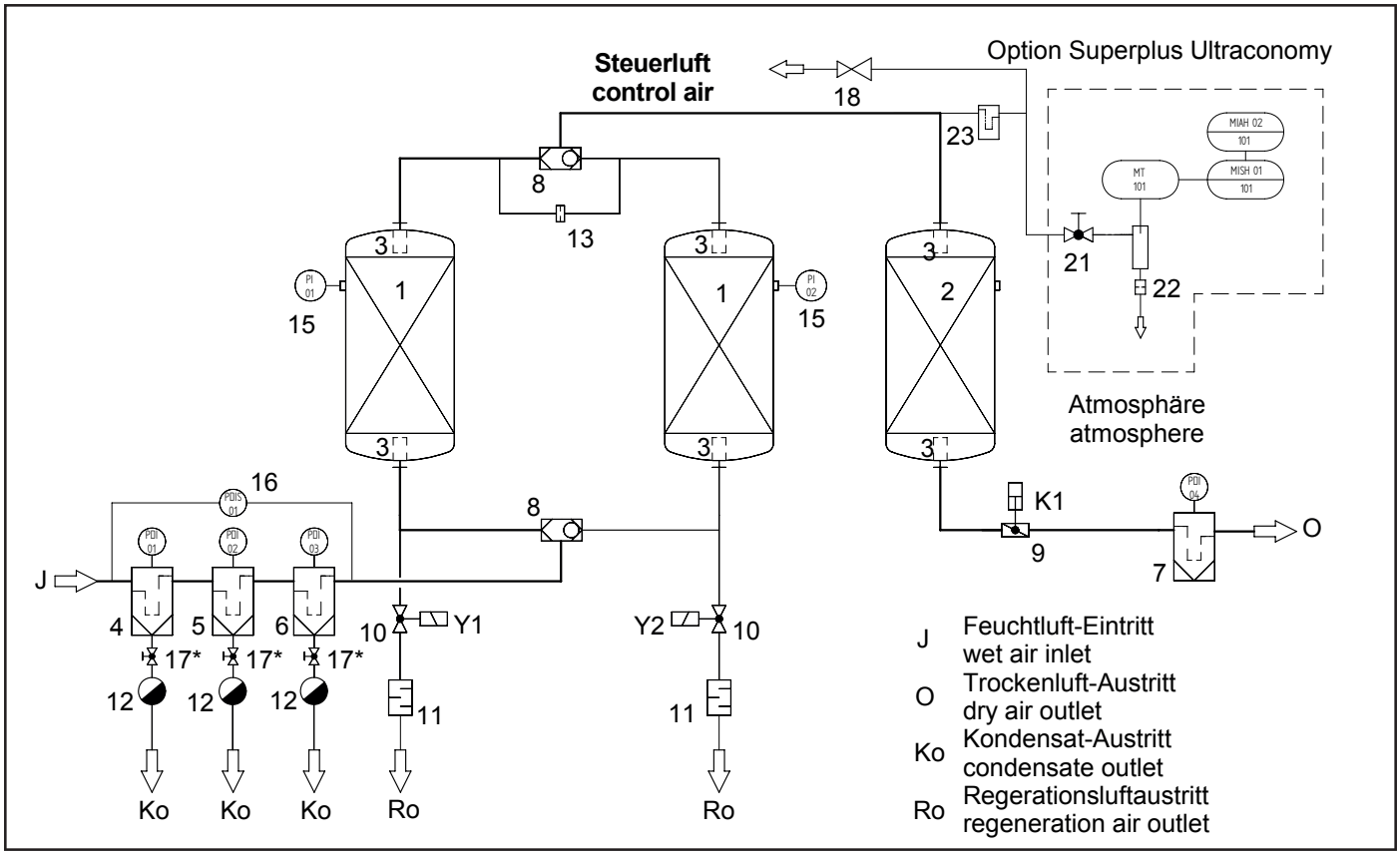
PRODUCT DESCRIPTION

Compressed air is flowing through the inlet of the system (J) into a three stage prefiltration V, M, S (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.)
Purification package complete with pre-, afterfilter and condensate drains	Turnkey system, no additional installation required, all components from one hand, technically perfectly matched to each other
Prefilter with electronic, level controlled con-den- sate 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
5 sizes available, matched to the compressor flow	Custom made solutions possible, matching exactly customers‘ requirements; no oversizing of compressors neccessary, since lowest possible regeneration air requirements
Comprehensive option package: Dewpoint depending control, start-up device, bypass, pneumatics control, free of silicone, etc.	Flexibility in application, well thought option package for economi-cal operation and safe system installation in the compressed air network
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 - 0035:	acc. to Directive 2014/35/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	Pfrefilter (afterfilter) V, M, S, (V)
0005	5	1	4,0	70	0035
0010	10	2	8,2	70	0035
0015	15	3	12,2	120	0035
0025	25	5	20,3	120	0070
0035	35	7	28,5	150	0070

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

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

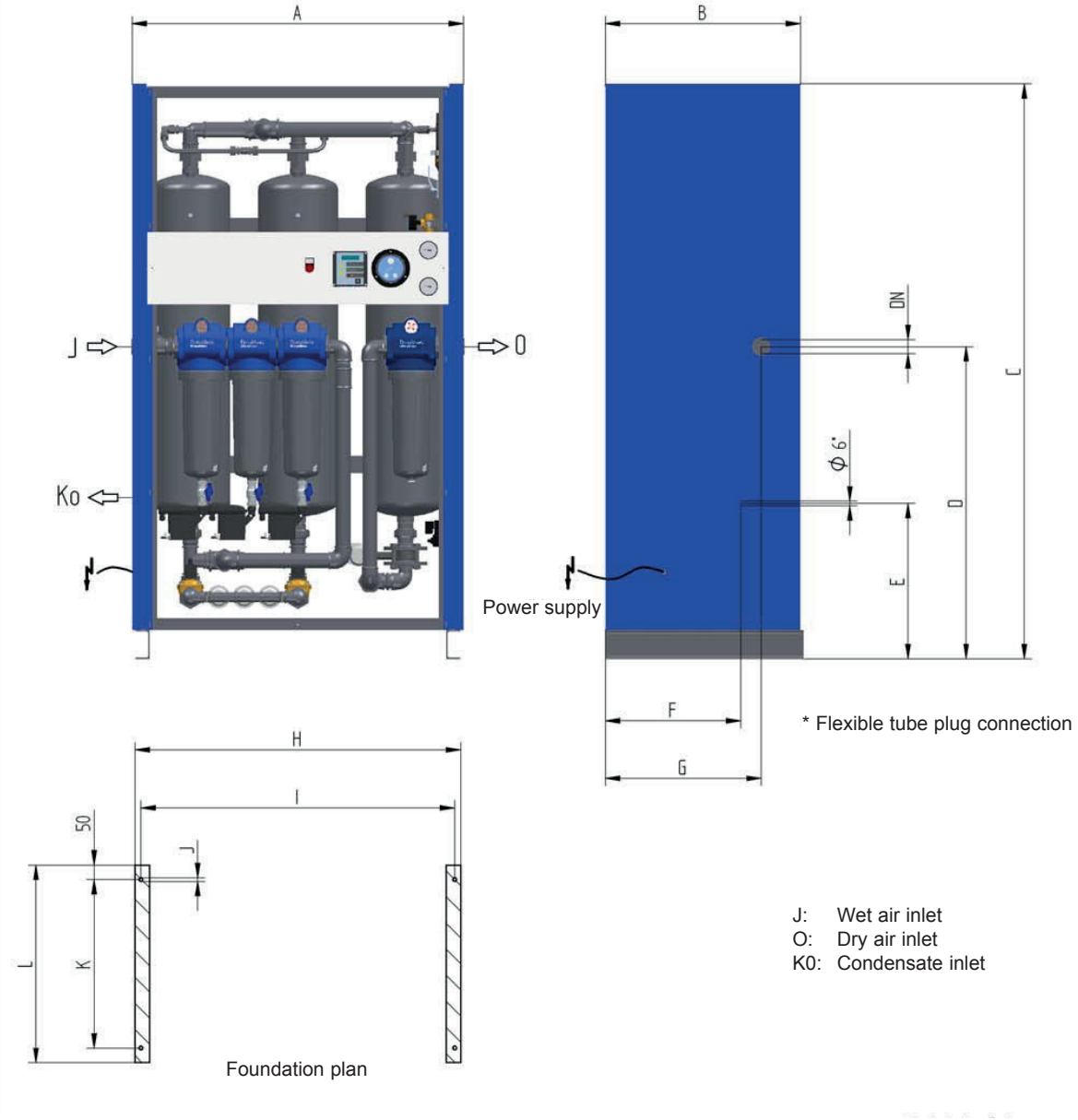
Example:

$\dot{V}_{nom}$ = 50 m^3/h, Inlet temperature = 30°C, operaing pressure = 10 bar (g), PDP = -40°C

$$\dot{V}_{korr} = \frac{\dot{V}_{nom}}{f} = \frac{50\ m^3/h}{1{,}38 * 1{,}0} = 32{,}9\ m^3/h$$

Calculated dryer size:
OFP, type 0035

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
0005	G 3/8	650	340	700	390	145	255	255	640	620	6.5	215	315	36
0010	G 3/8	650	340	700	390	145	255	255	640	620	6.5	215	315	45
0015	G 3/8	650	340	1060	700	310	255	255	640	620	6.5	215	315	59
0025	G 1/2	650	340	1060	700	310	255	255	640	620	6.5	215	315	63
0035	G 1/2	650	340	1060	700	310	255	255	640	880	6.5	215	315	65