



Dryer Systems

Breathing Air Units

Ultrapure

ALG 35 S

MAIN FEATURES & BENEFITS

- Breathing Air System with adsorption dryer, CO - CO₂ – NO_x – and SO₂ removal, pre- and afterfilters and automatic condensate drains.
- Guaranteed and validated separation efficiency
- Optimal adaptation and generous dimensioning of the components, long life-times of the processing stages, low differential pressure of the unit; result: low operation costs
- All units in cabinet construction



ALG 35 S

INDUSTRIES



- Medical application



- Paint and finish industry



- Machine building industry and plant engineering / construction

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Donaldson®
Ultrapure

PRODUCT DESCRIPTION

At the inlet (J) compressed air reaches a two stage filter combination (6,7). In this stage the air is separated from particles and condensate. The condensate is drained off the system via the electronic condensate drain (12).

The following desiccant dryer reduces the water vapour content of the compressed air down to a pressure dew point of $-40\text{ }^{\circ}\text{C}$ (equivalent to a remaining water content of $0,11\text{ g/m}^3$). In the following processing stages (SP, AK, OX) CO_2 is reduced below 500 ppm, SO_2 is reduced to a level below 1 ppm and the content of NO_x below 2 ppm.

In addition to that oil vapour, hydrocarbon, tastes and odours are held back in the AK-stage up to a residual content below $0,003\text{ mg/m}^3$.

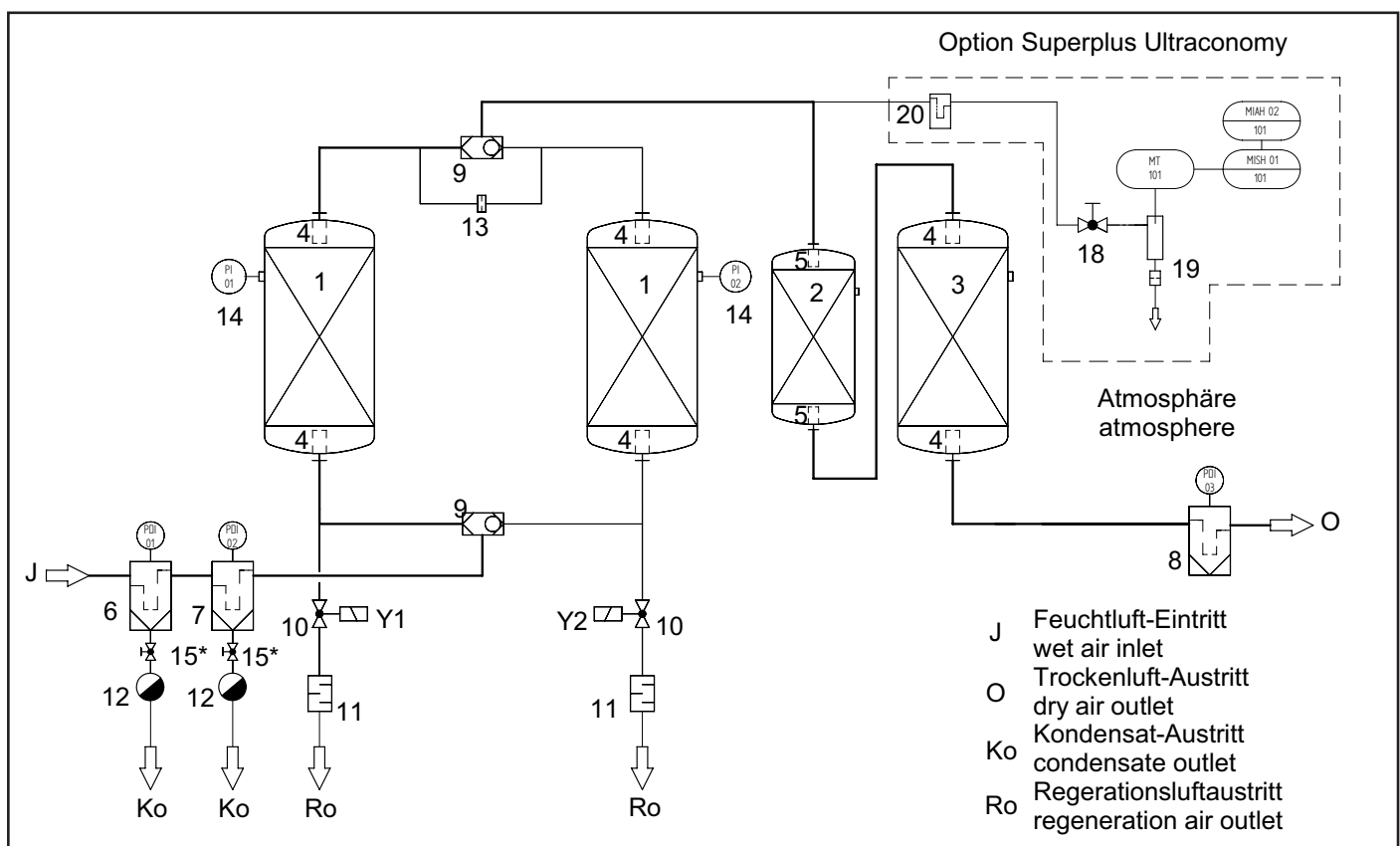
In the OX-stage the existing CO is transformed into CO_2 through a catalytic reaction. In this way the CO content is reduced to $< 5\text{ ppm}$.

In the after filter (dust filter) possible abrasion of the absorbent is removed.

Typical applications for the breathing air units are:

- **Breathing air:**

Removal of oil and particles as well as tastes and odours, CO, CO_2 , SO_2 and NO_x



PRODUCT SPECIFICATIONS

Features:	Benefits:
Breathing air package incl. absorption dryer, CO, CO ₂ -, NOx and SO ₂ removal, pre- and after filter and automatic level controlled condensate drain	Turnkey system, no additional installation required, all components from one hand, technically perfectly matched to each other
Guaranteed and validated separation efficiency	Breathing air quality in compliance with all relevant international standards, e.g. Pharmacopée Européenne; DIN EN 12021; DIN EN ISO 7396-1; BS4275; ANSI/CGA G.7.1; Z180, 1 M85; AS2299-1979; NZL5813
All dryers are in cabinet construction	Optimum protection against mechanical damage and against dirt
Display of the operating status by LED	High operating safety, since all operating status can be detected easily at any time
Intermittend operation standard	Link between dryer and compressor possible on central applications, therefore saving of compressed air
Optimal adaptation and generous dimensioning of the components	Long life-times of the processing stages, low differential pressure of the unit; result: low operation costs
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
Power supply:	230 V or 115 V AC / 50 – 60 Hz or 24 V DC
Power consumption	approx. 40 W
Declaration of Conformity	
Type 35 S:	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

ALG	Nominal flow inlet m ³ /h (1 bar, 20°C)*	Regeneration air flow average m ³ /h (1 bar, 20°C)	Air outlet (min.) m ³ /h (1 bar, 20°C)	Pressure drop new mbar	Prefilter (Afterfilter) M (V)
35 S	35	7	28,5	160	0070

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

residual content of impurity at standard condition at the entry	
Particle	category 2, ISO 8573-1
Oil (liquid phase)	< 0,01 mg/m ³
Oil vapour and hydrocarbon	< 0,003 mg/m ³
Water vapour	DTP -40°C (= 0,11 g/m ³)
CO ₂	< 500 ppm
CO	< 5 ppm
SO ₂	< 1 ppm
NOx	< 2 ppm
tastes and odours	tasteless and odourless

SIZING

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

Entrance temperature °C	20	25	30	35	40	45	50
Correction value temperature (f _t)	1,1	1,1	1,1	1,0	0,8	0,7	0,5

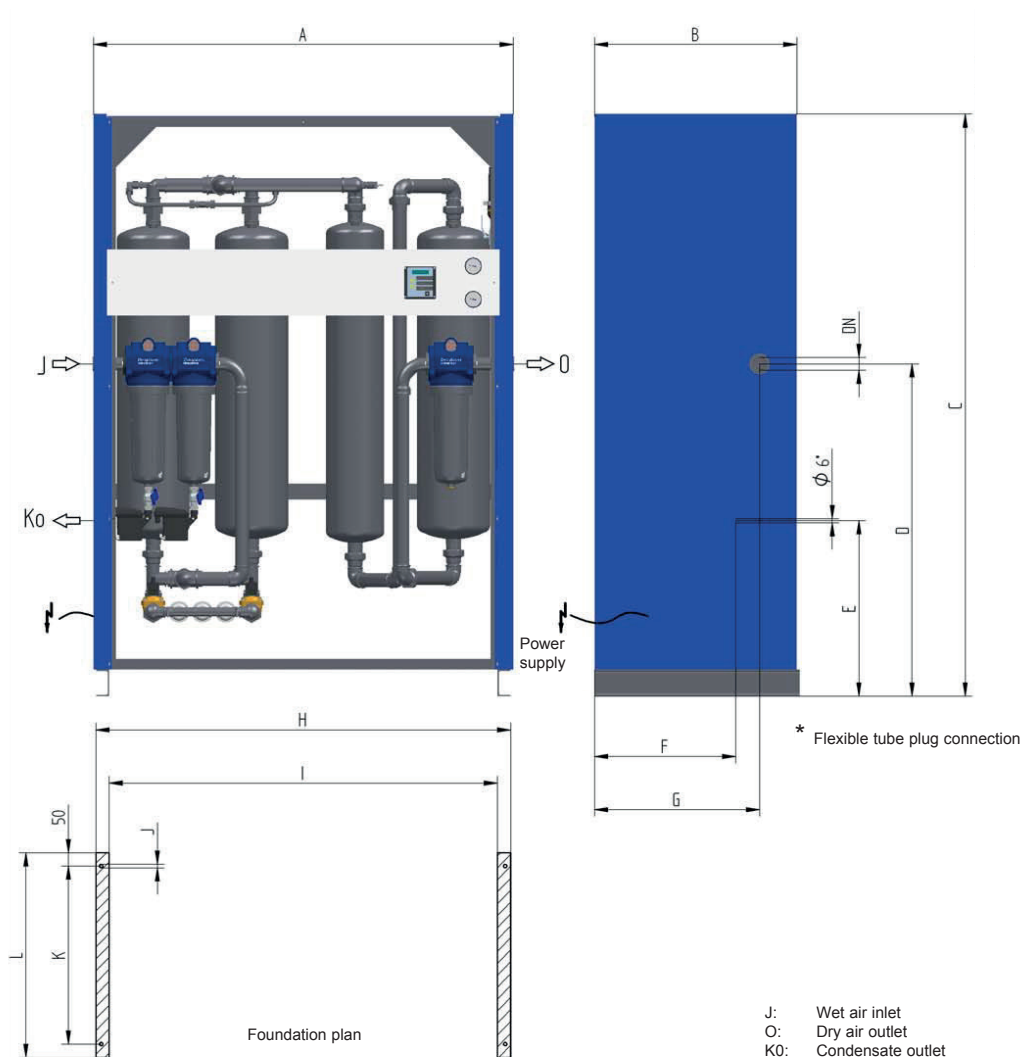
Example:

$\dot{V}_{nom} = 50 \text{ m}^3/\text{h}$, inlet temperature = 30°C, operating pressure = 10 bar (g),

$$\dot{V}_{korr} = \frac{\dot{V}_{nom}}{f} = \frac{50 \text{ m}^3/\text{h}}{1,38 * 1,1} = 32,94 \text{ m}^3/\text{h}$$

Calculated dryer size:
ALG, type 35 S

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
35 S	G 1/2	650	340	1060	700	310	255	255	640	620	6.5	215	315	70



Dryer Systems

Breathing Air Units

Ultrapure

ALG 80 S - 375 S

MAIN FEATURES & BENEFITS

- Breathing Air System with adsorption dryer, CO - CO₂ - NO_x - and SO₂ - removal
- Two 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
- Guaranteed and validated separation efficiency
- Optimal adaptation and generous dimensioning of the components, long life-times of the processing stages, low differential pressure of the unit; result: low operation costs
- All units in cabinet construction
- 6 sizes available, matched to the compressor flows
- 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



ALG 80 S - 375 S

INDUSTRIES



- Medical application



- Paint and finish industry



- Machine building industry and plant engineering / construction

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Donaldson®
Ultrafilter

PRODUCT DESCRIPTION

At the inlet (J) compressed air reaches a two stage filter combination (6,7). In this stage the air is separated from particles and condensate. The condensate is drained off the system via the electronic condensate drain (12).

The following desiccant dryer reduces the water vapour content of the compressed air down to a pressure dew point of $-40\text{ }^{\circ}\text{C}$ (equivalent to a remaining water content of $0,11\text{ g/m}^3$). Further the CO_2 content is reduced below 500 ppm and the content of SO_2 is reduced to a level below 1 ppm and NO_x below 2 ppm.

Oil vapour, hydrocarbon, tastes and odours are held back in the AK-stage up to a residual content below $0,003\text{ mg/m}^3$.

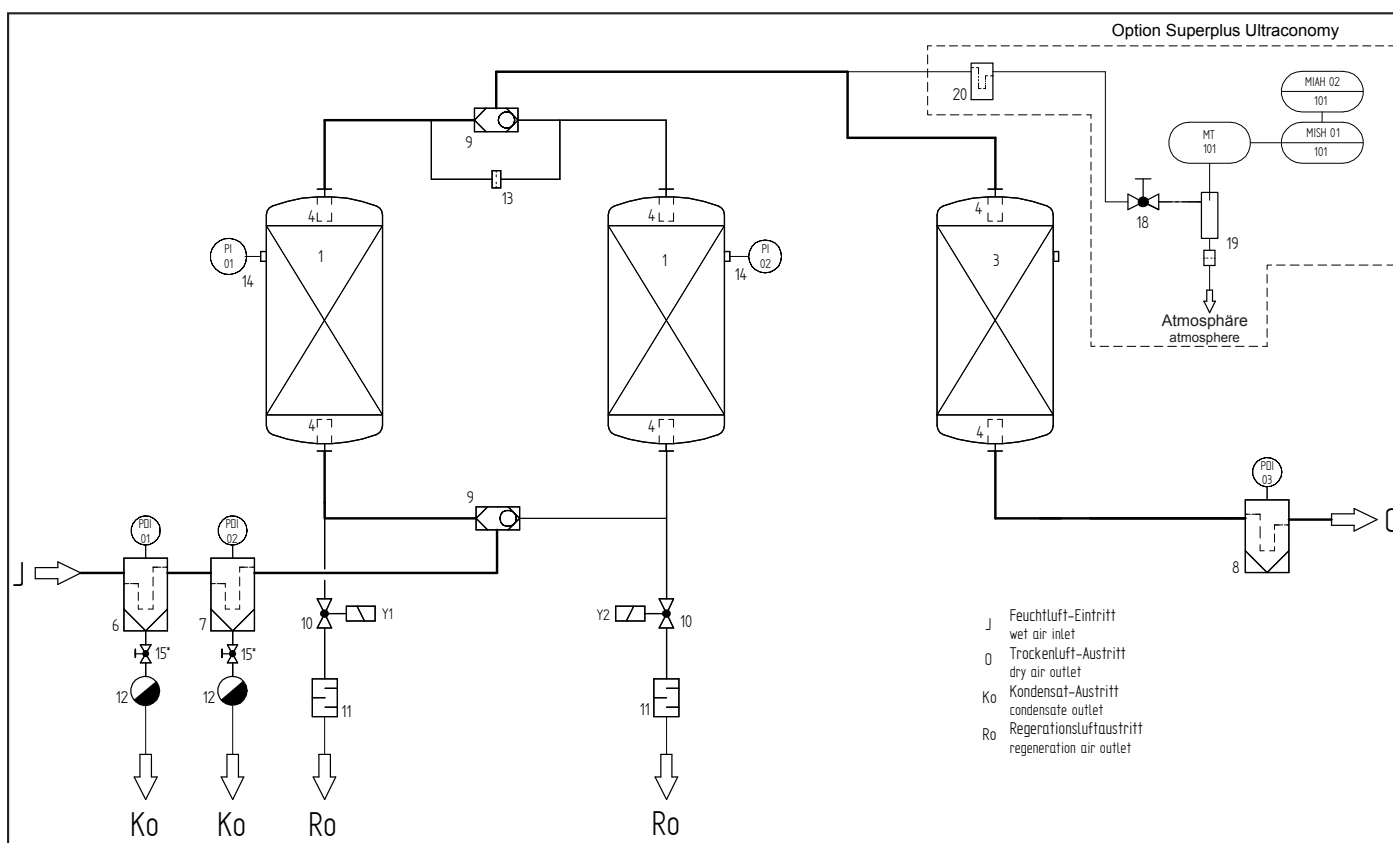
In the OX-stage the existing CO is transformed into CO_2 through a catalytic reaction. In this way the CO content is reduced to $< 5\text{ ppm}$.

In the after filter (dust filter) possible abrasion of the absorber is removed.

Typical applications for the breathing air units are:

- **Breathing air:**

Removal of oil and particles as well as tastes and odours, CO, CO_2 , SO_2 and NO_x



PRODUCT SPECIFICATIONS

Features:	Benefits:
Breathing air package incl. absorption dryer, CO -, CO ₂ -, NOx - and SO ₂ - removal	Turnkey system, no additional installation required, all components from one hand, technically perfectly matched to each other
Two 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
All prefilters 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
Guaranteed and validated separation efficiency	Breathing air quality in compliance with all relevant international standards, e.g. Pharmacopée Européenne; DIN EN 12021; DIN EN ISO 7396-1; BS4275; ANSI/CGA G.7.1; Z180, 1 M85; AS2299-1979; NZL5813
All dryers are in cabinet construction	Optimum protection against mechanical damage and against dirt
Display of the operating status by LED	High operating safety, since all operating status can be detected easily at any time
Intermittent operation standard	Link between dryer and compressor possible on central applications, therefore saving of compressed air
Optimal adaptation and generous dimensioning of the components	Long life-times of the processing stages, low differential pressure of the unit; result: low operation costs
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
Power supply:	230 V or 115 V AC / 50 – 60 Hz or 24 V DC
Power consumption:	approx. 40 W
Declaration of Conformity	
Types 80 S - 150 S:	acc. to Directive 2014/35/EU
Types 225 S - 375 S:	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

ALG	Nominal flow inlet m³/h (1 bar, 20°C)*	Regeneration air flow average m³/h (1 bar, 20°C)	Air outlet (min.) m³/h (1 bar, 20°C)	Pressure drop new mbar	Prefilter (Afterfilter) M, S (S)
80 S	80	16	65,2	145	0210
100 S	100	20	81,6	175	0210
150 S	150	30	121,7	275	0210
225 S	225	45	183,2	175	0450
300 S	300	60	244,7	225	0450
375 S	375	75	306,1	295	0450

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

residual content of impurity at standard condition at the entry	
Particle	class 1-2 : ISO 8573-1
Oil (liquid phase)	< 0,01 mg/m³ (class 1, ISO 8573-1)
Oil vapour and hydrocarbon	< 0,003 mg/m³ (class 1, ISO 8573-1)
Water vapour	DTP -40°C (= 0,11 g/m³) (class 2, ISO 8573-1)
CO ₂	< 500 ppm
CO	< 5 ppm
SO ₂	< 1 ppm
NOx	< 2 ppm
tastes and odours	tasteless and odourless

SIZING

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

Entrance temperature °C	20	25	30	35	40	45	50
Correction value temperature (f _T)	1,1	1,1	1,1	1,0	0,8	0,7	0,5

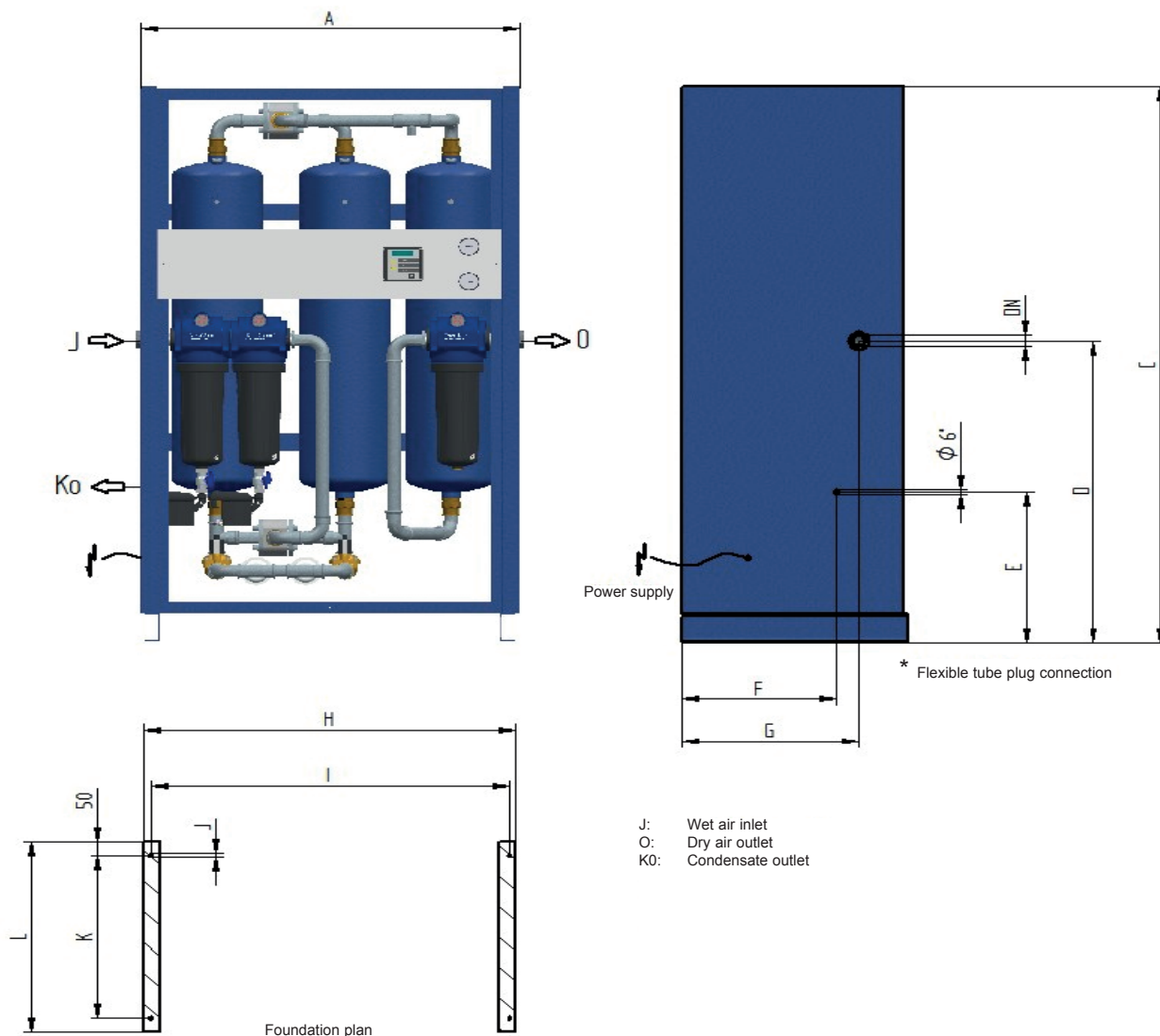
Example:

$\dot{V}_{nom} = 100 \text{ m}^3/\text{h}$, inlet temperature = 30°C, operating pressure = 10 bar (g),

$$\dot{V}_{kor} = \frac{\dot{V}_{nom}}{f} = \frac{100 \text{ m}^3/\text{h}}{1,38 * 1,1} = 65,8 \text{ m}^3/\text{h}$$

Calculated dryer size:
ALG, type 80 S

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
80 S	G ¾	940	460	1610	800	415	315	340	920	880	13	360	460	199
100 S	G 1	940	460	1610	800	415	315	340	920	880	13	360	460	240
150 S	G 1	1140	680	1980	1075	535	465	535	1120	1080	13	580	680	288
225 S	G 1½	1140	680	1980	1075	535	465	535	1120	1080	13	580	680	420
300 S	G 1½	1580	770	2190	1250	660	530	620	1560	1520	13	670	770	530
375 S	G 1½	1580	770	2190	1250	660	530	620	1560	1520	13	670	770	795