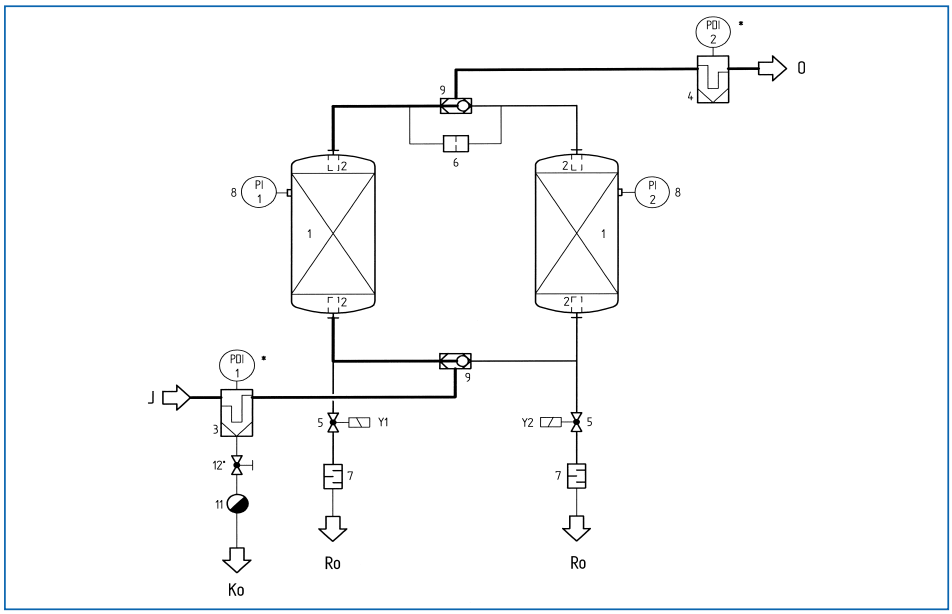
ultrapac HED/ALD/MSD (type 0005 to 1000)

Complete purification package with heatless adsorption dryer, pre, afterfilter and level-controlled electronic condensate drain.

ultrapac HED/ALD/MSD



Compressed air is lead through the inlet of the dryer (J) and across the prefilter (3). At this stage, the air is cleaned from particles and condensate. The condensate are removed via the condensate drain (11). Via the lower shuttle valve (9), the air is lead into the adsorption vessel (1), in which the air is dried down to the required dewpoint. Via the upper shuttle valve (9), the air is let into an afterfilter (4), in which possibly released particles from the desiccant bed are retained. Via the outlet (O), the clean and dry air is lead into the compressed air network and 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 an nozzle (6) and lead across the desiccant bed for regeneration and via a solenoid valve (5) and a silencer (7) to the atmosphere.

ultrapac HED/ALD/ MSD	Volume flow in m^3/h (1 bar, 20 °C)*	Regeneration air losses (average) m^3/h (1 bar, 20 °C)			Volume flow out (min.) m^3/h (1 bar, 20 °C)			Pressure loss initial mbar	Prefilter (Afterfilter) MF (PE)
		HED	ALD	MSD	HED	ALD	MSD		
0005	5	0,7	0,8	1	4,1	4,0	3,8	50	03/05
0010	10	1,4	1,5	2	8,3	8,2	7,5	60	03/05
0015	15	2,1	2,3	3	12,4	12,2	11,3	90	03/05
0025	25	3,5	3,8	5	20,7	20,3	18,9	90	04/10
0035	35	4,9	5,3	7	29,0	28,5	26,4	100	04/10
0050	50	7,0	7,5	10	41,4	40,8	37,7	90	05/20
0080	80	11,2	12,0	16	66,2	65,2	60,3	110	05/20
0100	100	14,0	15,0	20	82,8	81,6	75,4	120	05/25
0150	150	21,0	23,0	30	124,2	121,7	113,1	170	05/25
0175	175	24,5	26,25	35	144,9	142,7	132,0	100	05/25
0225	225	31,5	34,0	45	186,3	183,2	170,0	125	07/30
0300	300	42,0	45,0	60	248,3	244,7	226,2	160	07/30
0375	375	52,5	56,0	75	310,4	306,1	282,8	190	07/30
0550	550	77,0	83.0	110	455,3	447,9	414,7	180	10/30
0650	650	91,0	98,0	130	538,1	529,5	490,1	220	10/30
0850	850	119,0	128,0	170	703,6	692,6	640,9	260	15/30
1000	1000	140,0	150,0	200	827,8	815,5	754,0	180	20/30

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

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ultrapac HED/ALD/MSD

Features ultrapac HED/ALD/MSD:	Benefits:
Purification package complete with pre-, afterfilter and condensate drain	Turnkey system, no additional installation required, all components from one hand, technically perfectly matched to each other
Prefilter mit electronic, level controlled condensate drain UFM-T	No compressed air losses due to condensate removal, therefore reduction of operating cost
All dryers in cabinet construction	Optimum protection against mecanical damage and against dirt.
Filters oversized	Large filtration surface, therefore low pressure drop and low operating cost
Display of 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
17 sizes available, matched to the compressor flows, with 3 pressure dewpoints each, for choice	Custom made solutions possible, matching exactly customer's requirements; no oversizing of compressors neccessary, since lowest possible regeneration sir requirements

sizing:

Operating pressure bar (g)	4	5	6	7	8	9	10	11	12	13	14	15	16
Correction factor overpressure (f_p)	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

Type	Pressure-Dewpoint	Residual water content	Inlet temperature °C	20	25	30	35	40	45	50
HED	–20 °C	0.88 g/m³	Correction factor HED temperature (f_T)	–1,2	1,2	1,1	1,0	—	—	—
			Pressure dewpoint (°C)	–20	–20	–20	–20	—	—	—
ALD	–40 °C	0.11 g/m³	Correction factor ALD temperature (f_T)	–1,2	1,2	1,1	1,0	—	—	—
			Pressure dewpoint (°C)	–40	–40	–40	–40	—	—	—
MSD	–70 °C	0.0027 g/m³	Correction factor MSD temperature (f_T)	–1,0	–1,0	1,0	1,0	0,8	0,7	0,5
			Pressure dewpoint (°C)	–70	–70	–70	–70	–65	–55	–50

$V_{corr} = \frac{V_{nom}}{f_p \cdot f_T}$; Example: V_{nom} = 200 m³/h, inlet temperature = 30 °C, operating press = 10 bar (g), PDP –40 °C

$V_{corr} = \frac{200\ m^3/h}{1.38 \cdot 1.1}$ = 131,8 m³/h, calculated dryer size: ultrapac ALD, Type 0150

Technical data

Product description:

Complete purification package with heatless adsorption dryer, which works on the basis of pressure swing adsorption, with integrated pre- and afterfilter and electronic, level controlled condensate drain.

Medium:

Compressed air/nitrogen

Pressure dewpoint:

HED: –20 °C, ALD: –40 °C, MSD: –70 °C at 100% load

Operating pressure:

min. 4 bar (g), max. 16 bar (g)

Medium temperature:

min. 5 °C, max. 50 °C

Ambient temperature:

min. 4 °C, max. 50 °C

Compressed air losses:

HED: 14%, ALD: 15%, MSD: 20% of the rated volume flow of the corresponding dryer size.

Power supply:

230 V/50 Hz, other voltages upon request

Noise level:

ultrapac HED/ALD/MSD 80 dB(A)

Vessel approval:

Types 0025 to 1000:
EN 286-1 with declaration of conformity.

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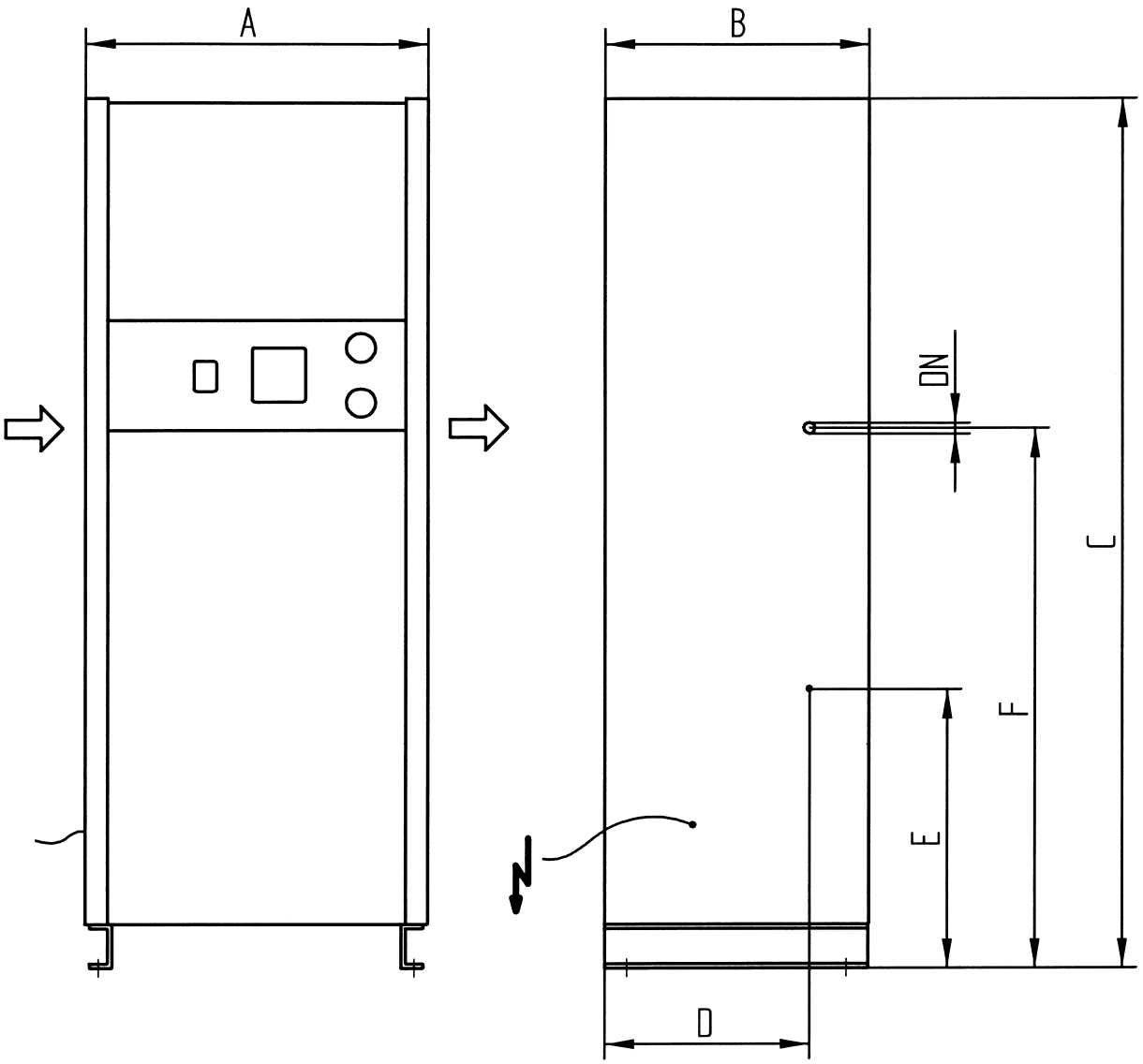
Dimension Sheet

HED/ALD/MSD 0005-1000



Type	Connection R”	A mm	B mm	C mm	D mm	E mm	F mm
5	R 3/8	470	340	700	255	145	440
10	R 3/8	470	340	700	255	145	440
15	R 3/8	470	340	1060	255	310	700
25	R 1/2	470	340	1060	255	310	700
35	R 1/2	470	340	1060	255	310	700
50	R 3/4	670	450	1610	315	415	900
80	R 3/4	670	450	1610	315	415	900
100	R 1	670	450	1610	315	415	900
150	R 1	770	600	1980	465	535	1125
175	R 1	770	600	1980	465	535	1125
225	R 1 1/2	770	600	1980	465	535	1125
300	R 1 1/2	770	600	1980	465	535	1125
375	R 1 1/2	950	700	2190	530	660	1250
550	R 2	950	700	2190	530	660	1250
650	R 2	950	700	2190	530	660	1250
850	R 2	1100	800	2350	650	650	1500
1000	R 2 1/2	1100	800	2350	650	650	1500

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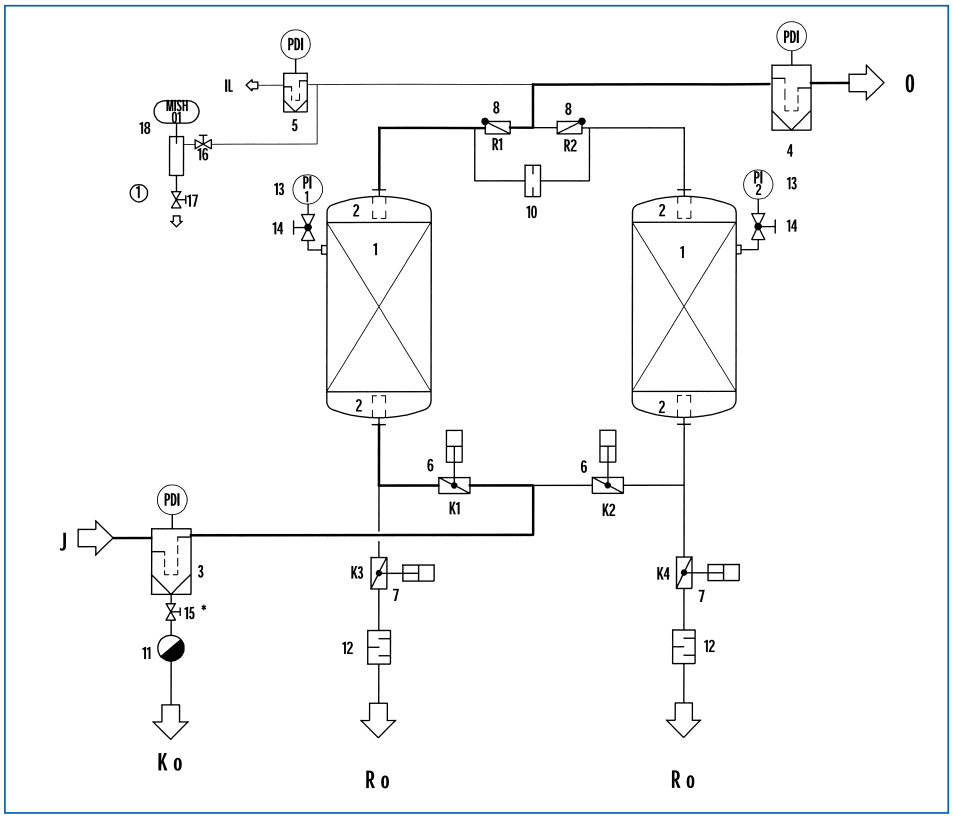
ultrapac HED/ALD/MSD (Type 1350 to 8750)

Complete purification package with heatless adsorption dryer, pre-, afterfilter and level-controlled, electronic condensate drain.

ultrapac HED/ALD/MSD



Compressed air is lead through the inlet of the dryer (J) via the prefilter (3). At this stage, the air is cleaned from particles and condensate. The condensate are removed by a condensate drain (11). Via a butterfly valve (6), the air 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 a non-return-valve (8) and an afterfilter (4), in which possibly released particles from the desiccant are retained. Via the dryer outlet (O), the clean and dry air is let 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 an nozzle (10) and lead across the desiccant bed for regeneration and via a butterfly valve (7) and a silencer (12) to the atmosphere.

ultrapac HED/ALD/ MSD	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 (Afterfilter) MF (PE)
		HED	ALD	MSD	HED	ALD	MSD		
1350	1350	189	202.5	270	1102,77	1093,95	1013	190	30/30
1650	1650	231	247.5	330	1347,71	1336,93	1238	230	30/30
1950	1950	273	292.5	390	1592,65	1579,91	1463	160	30/50
2250	2250	315	337.5	450	1837,59	1822,89	1688	180	30/50
2750	2750	385	412.5	550	2245,83	2227,86	2063	240	30/50
3500	3500	490	525	700	2857,63	2834,77	2625	280	3-20/30
4000	4000	560	600	800	3265,84	3239,74	3000	140	4-30/30
5000	5000	700	750	1000	4082,33	4049,68	3750	170	4-30/30
6000	6000	840	900	1200	4898,80	4859,61	4500	220	4-30/30
7000	7000	980	1050	1400	5715,27	5669,55	5250	260	4-30/30
8750	8750	1225	1312.5	1750	7144,63	7087,47	6563	160	8-30/30

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

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ultrapac HED/ALD/MSD

Features ultrapac HED/ALD/MSD:	Benefits:
Purification package complete with pre-, afterfilter and condensate drain	Turnkey system, no additional installation required, all components from one hand, technically perfectly matched to each other
Prefilter with electronic, level controlled condensate drain UFM-T	No compressed air losses due to condensate removal, therefore reduction of operating cost
Easy serviceable butterfly valves	Short service downtime
Display of operating status on panel	High operating safety, since all operating status can be detected easily at any time
Filters oversized, large vessel diameters	Large filtration surface, therefore slow flow speed and low pressure drop and low operating cost
Intermittent operation standard	Link between dryer and compressor possible on central applications, therefore saving of compressed air
11 sizes available, matched to the compressor flows, with 3 pressure dewpoints each	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, changeover-control, etc.	Flexibility in application, well thought-out package for economical operation and safe system installation in the compressed air network

Sizing:

Operating pressure bar (g)	4	5	6	7	8	9	10
Correction factor pressure (f_p)	0,63	0,75	0,88	1,0	1,12	1,25	1,38

Type	Pressure-dewpoint	Residual water content	Inlet temperature °C	20	25	30	35	40	45	50
HED	–20 °C	0.88 g/m³	Correction factor HED temperature (f_T)	1,2	–1,2	1,1	1,0	—	—	—
			Pressure dewpoint °C	–20	–20	–20	–20	—	—	—
ALD	–40 °C	0.11 g/m³	Correction factor ALD temperature (f_T)	1,2	1,2	1,1	1,0	—	—	—
			Pressure dewpoint °C	–40	–40	–40	–40	—	—	—
MSD	–70 °C	0.0027 g/m³	Correction factor MSD temperature (f_T)	1,0	1,0	1,0	1,0	0,8	0,7	0,5
			Pressure dewpoint °C	–70	–70	–70	–70	–65	–55	–50

$V_{corr} = \frac{V_{nom}}{f_p \cdot f_T}$; Example: V_{nom} = 2000 m³/h, inlet temperature = 30 °C, operating press. = 10 bar (g), PDP –40 °C

$V_{corr} = \frac{2000\ m^3/h}{1.38 \cdot 1.1}$ = 1318 m³/h, calculated dryer size: ultrapac ALD, Type 1350

Technical data

Product description:

ultrapac HED/ALD/MSD
Complete purification package with heatless adsorption dryer, which works on the basis of pressure swing adsorption, with integrated pre- and afterfilter and electronic, level controlled drain.

Medium:

Compressed air/nitrogen

Pressure dewpoint:

HED: –20 °C, ALD: –40 °C, MSD: –70 °C at 100% load

Operating pressure:

min. 4 bar (g), max. 10 bar (g)

Medium temperature:

min. 5 °C, max. 50 °C

Ambient temperature:

min. 4 °C, max. 50 °C

Compressed air losses:

HED: 14%, ALD: 15%, MSD: 20% of the rated volume flow of the corresponding dryer size.

Power supply:

230 V/50 Hz, other voltages upon request

Power consumption:

approx. 40 W

Noise level:

ultrapac HED/ALD/MSD 80 dB(A)

Vessel approval:

Types 1350 to 2750:
EN 286-1 with declaration of conformity;
types 3500 to 8750: TÜV

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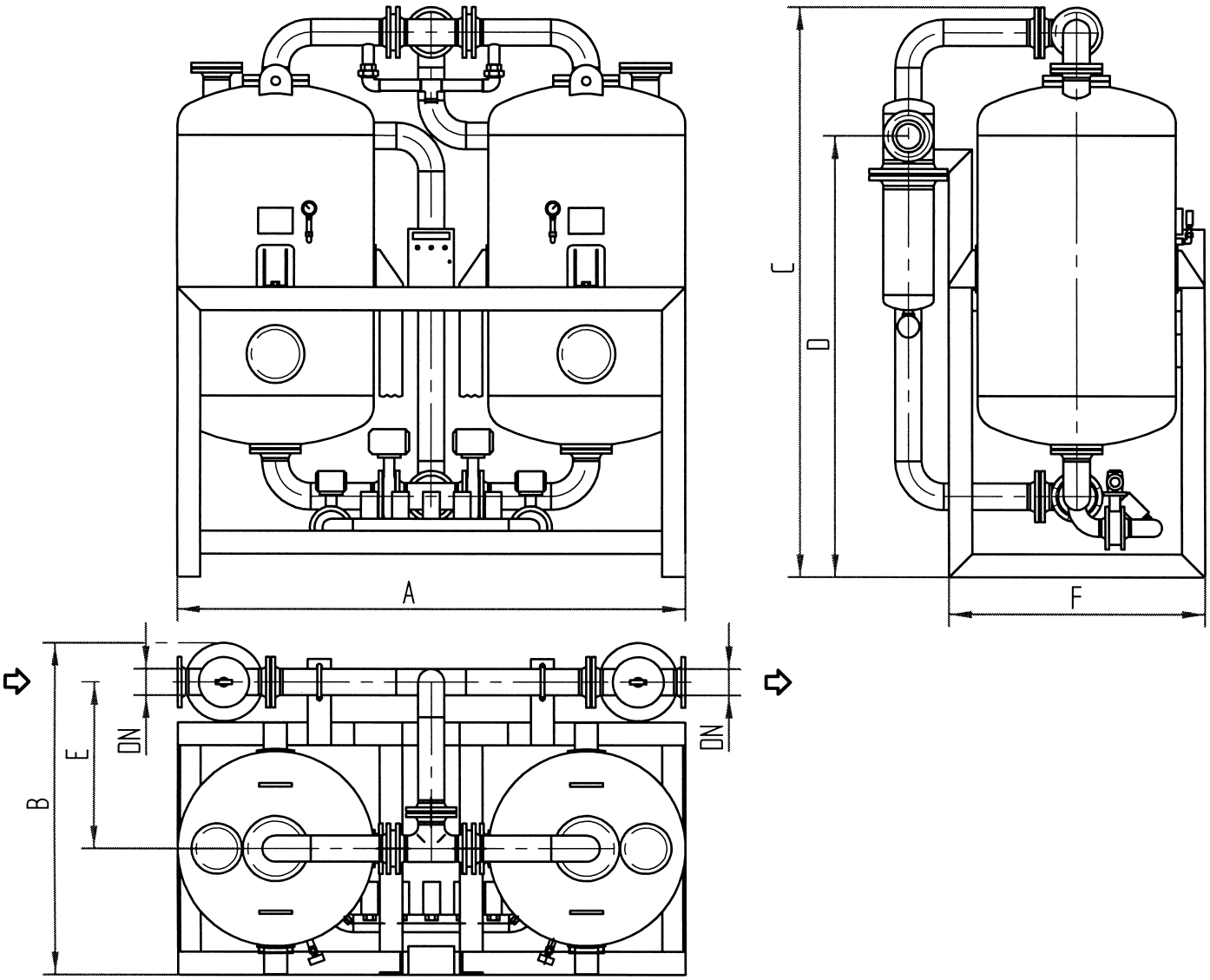
Dimension Sheet HED/ALD/MSD 1350-8750



Type	DN mm	A mm	B mm	C mm	D mm	E mm	F mm
1350	80	1500	950	2555	1800	475	700
1650	80	1700	1050	2365	1800	525	800
1950	100	1800	1163	2585	1900	595	850
2250	100	1900	1290	2605	1900	645	950
2750	100	2000	1340	2695	1900	670	1000
3500	100	2200	1490	2680	1900	745	1150
4000	150	2400	1630	2980	2250	825	1200
5000	150	2600	1715	3030	2250	860	1300
6000	150	2800	1815	3070	2250	910	1400
7000	150	3000	1915	3080	2250	960	1500
8750	200	3400	2290	3280	2300	1150	1700

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