ADSORPTION DRYERS

These devices are used everywhere the compressed air plants are subjected to freezing or where in critical applications the use of very dry air is required.

The adsorption dryers provide the highest quality compressed air - free of moisture, solid particles and oil. They consist of two columns, filled with activated carbon and operated alternately in the determined time intervals. Adsorption takes place under pressure in the first column while the second column regenerates (adsorption drying).

Depending on the way of the bed regeneration, there are cold and heated regenerative adsorption dryers.

ADSORPTION DRYER
is the complete compressed air treatment station equipped as standard in a set of two filters: coalescing filter of inlet air and dust filter of outlet air

- High quality air with very low relative humidity to effectively prevent water condensation.
- Small compressed air pressure drops thanks to large capacity adsorbent-filled tanks, as well as large diameter supply and receiving collectors. This ensures low speed of compressed air, and thus a small pressure drop.
- Simple design and easy operation.
- High energy efficiency of dehumidifiers equipped with a dew point temperature sensor which allows you to automatically adjust the frequency of dehumidifier cycles to actual conditions, and thus reduce the consumption of compressed air for bed regeneration.

Airpol

COLD REGENERATED ADSORPTION DRYERS

The devices for regeneration of adsorption medium use previously dried compressed air in quantity of approx. 15% of nominal flow.

Pressure dew point, Compressed air purity class according to ISO 8573.1

at 100% load

- -20°C, class 1.3.1 – NDA dryers
- -40°C, class 1.2.1 – OAD dryers
- -70°C, class 1.1.1 – ADU dryers

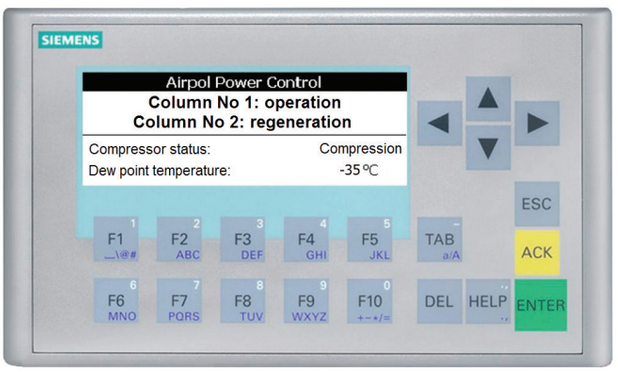
Time control

The microprocessor controller regulates operation of the service valves and regeneration of absorbers in the programmed time intervals.

Adsorption and regeneration phases occur at equal time intervals (every 5 min.).

Dew point control

Control is carried out according to measurement of the pressure dew point at the dryer compressed air outlet. Owing to that loss of dried air is limited, and the entire adsorption cycle is adapted to the changing operation conditions.



Efficient and continuous operation of the dryer

Owing to two columns filled with activated carbon, continuous operation of the adsorption dryer is possible. Its operation is characterised by alternation of adsorption and regeneration phases.

HIGH QUALITY COMPRESSED AIR

Type NDA/OAD ADU	Flaw*	Regeneration consumption* (average)			Outlet flow rate* (minimum)			Power consumption	Power supply	Connection	Overall dimensions			Weight
		NDA	OAD	ADU	NDA	OAD	ADU				L mm	W mm	H mm	
	m^3/h	m^3/h			m^3/h			W	V/Hz/Ph					kg
0005	5	0,7	0,8	1	4,1	4,0	3,8	50	230/50/1	G 1/2	720	495	890	85
0010	10	1,4	1,5	2	8,3	8,2	7,6	50	230/50/1	G 1/2	720	495	890	89
0015	15	2,1	2,3	3	12,4	12,2	11,3	50	230/50/1	G 1/2	720	495	890	93
0025	25	3,5	3,8	5	20,7	20,3	18,9	50	230/50/1	G 1/2	720	495	1350	130
0035	35	4,9	5,3	7	29,0	28,5	26,5	50	230/50/1	G 1/2	720	495	1350	140
0050	50	7,0	7,5	10	41,4	40,8	37,8	50	230/50/1	G 3/4	720	520	1410	180
0080	80	11,2	12	16	66,2	65,2	60,5	50	230/50/1	G 3/4	720	520	1410	185
0100	100	14	15	20	83	82	76	50	230/50/1	G 1	850	530	1840	190
0150	150	21	23	30	125	122	114	50	230/50/1	G 1	850	530	1840	240
0175	175	24	26	35	145	143	133	50	230/50/1	G 1	850	530	1840	250
0225	225	32	34	45	187	184	171	50	230/50/1	G 1	850	530	1840	255
0300	300	42	45	60	249	245	227	50	230/50/1	G 5/4	1000	590	1722	300
0375	375	53	56	75	311	306	284	50	230/50/1	G 5/4	1000	590	1722	320
0550	550	77	83	110	456	448	416	50	230/50/1	G 1 1/2	1070	690	1810	400
0650	650	91	98	130	538	530	492	50	230/50/1	G 1 1/2	1070	690	1810	480
0850	850	119	128	170	704	693	643	50	230/50/1	G 2	1220	726	2129	515
1000	1000	140	150	200	828	816	756	50	230/50/1	G 2	1220	726	2129	550
1350	1350	189	202	270	1118	1102	1021	50	230/50/1	DN 80	1500	925	2300	800
1650	1650	231	247	330	1366	1347	1248	50	230/50/1	DN 80	1800	1120	2170	850
1950	1950	273	292	390	1615	1592	1475	50	230/50/1	DN 100	1800	1120	2170	900
2250	2250	315	337	450	1863	1836	1701	50	230/50/1	DN 100	1900	1290	2600	1300
2750	2750	385	412	550	2277	2244	2079	50	230/50/1	DN 100	2000	1340	2690	1500
3500	3500	490	525	700	2898	2856	2646	50	230/50/1	DN 100	2200	1500	2700	1700
4000	4000	560	600	800	3312	3264	3024	50	230/50/1	DN 150	2450	1650	3000	2500

***Reference conditions:**

Operating pressure	7 bar
Compressed air temperature	35°C
Ambient temperature	20°C
Pressure dew point	-20°C +/- 1 (NDA), -40°C +/- 1 (OAD), -70°C +/- 1 (ADU)

Limit conditions:

Min/max operating pressure	6 bar/10 bar
Max compressed air temp. on the inlet	+45°C
Min/max ambient temperature	+5°C/+40°C
Max oil content on the inlet	3 mg/m^3

Correction factors for operating conditions other than the declared reference conditions							
Compressed air pressure [bar]	4	5	6	7	8	9	10
Correction factor	0,63	0,75	0,88	1,0	1,12	1,25	1,38

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