

## 4. Adsorption Dryers Heatless Desiccant Dryers

**AK-DAB-66-20°C – AK-DAB-320000-20°C**

**AK-DAB-33-40°C – AK-DAB-160000-40°C**

**AK-DAC-33-70°C – AK-DAC-160000-70°C**

### **CNK Dew Point Controller**

Controls the dew point of the compressed air. The CNK automatically organizes the flow of the compressed air in the towers before the dew point reaches higher values than the set dew point. Therefore, the outlet dew point of the compressed air gets down to a lower value.

The CNK prevents compressed air loss by extending the operation time, depending on the dew point. The CNK provides cost savings up to 75% by organizing operation times of the towers depending on the dew point.

### **Alarm function warns when necessary**

The CNK is used as an accessory in the AK-DAB and AK-DAC systems and comes readily available.

### **AK-DAB and AK-DAC Adsorption Dryers**

Two towers are filled with adsorbent materials. They are designed to filter H<sub>2</sub>O molecules by sieving. H<sub>2</sub>O molecules which adhere to the surface of the adsorbent material can be easily separated by the interaction of molecular forces from where they are held. While the first tower dries the incoming air, the second tower is regenerated with the reverse-direction regenerative air. This is a physical reaction and can be repeated countless times.

This operation is alternated between two towers, usually at 10-minute intervals. The process goes in the order of drying, balancing and regenerating. The amount of air used for regeneration is approximately -15% for the AK-DAB model, -30% for the AK-DAC model and -15% for the AK-DAB-20°C model. This means that during the balancing operation, the air in one tower is discharged.

The adsorbent material is designed for these kinds of applications. When the system is protected from contamination from compressor oil (which is at levels less than 0.003mg/m<sup>3</sup>) of protection, replacement is suggested after a period of 5 years.

### **Operation**

With the help of these applications, it is possible to reach -40°C (0.117 gr/m<sup>3</sup>) pressure dew point with the AK-DAB model, -70°C (0.0033 gr/m<sup>3</sup>) pressure dew point with the AK-DAC model and -20°C (0.88 gr/m<sup>3</sup>) pressure dew point with the AK-DAB-20°C.

### **Standard Accessories**

Electronic controller, at inlet; water separator with zero loss, oil alarm sensor, 1 micron dust and 0.5mg/m<sup>3</sup> oil at outlet filter, 0.1-micron dust filter, 0.01 mg/m<sup>3</sup> oil filter.



## 4. Adsorption Dryers -20 °C

ADSORPTION AIR DRYER (HEATLESS GENERATION) TECHNICAL DATA							
Model Dew Point: -20°C	Air Flow m³/min	Connexion Size BSP	Power V/PH/Hz	Length (mm)	Height (mm)	Width (mm)	Weight (kg)
AKDAB-66-20C	0.066	1/4"	230/1/50	150	450	350	15
AKDAB-266-20C	0.26	1/4"	230/1/50	150	550	350	22
AKDAB-534-20C	0.53	1/2"	230/1/50	200	600	430	25
AKDAB-800-20C	0.8	1/2"	230/1/50	200	870	430	40
AKDAB-1000-20C	1	1/2"	230/1/50	350	500	1200	45
AKDAB-1600-20C	1.8	1/2"	230/1/50	350	1200	580	47
AKDAB-2000-20C	2	1/2"	230/1/50	350	1400	580	55
AKDAB-2400-20C	2.4	1/2"	230/1/50	350	1600	580	60
AKDAB-3200-20C	3.2	3/4"	230/1/50	420	590	2020	90
AKDAB-4000-20C	4	3/4"	230/1/50	390	1260	840	100
AKDAB-5344-20C	5.34	1"	230/1/50	390	1460	840	125
AKDAB-6400-20C	6.4	1"	230/1/50	390	1730	840	150
AKDAB-8000-20C	8	1"	230/1/50	390	2030	840	180
AKDAB-10000-20C	10	1 1/4"	230/1/50	390	2100	840	200
AKDAB-12000-20C	12	1 1/2"	230/1/50	390	2250	840	225
AKDAB-14000-20C	14	1 1/2"	230/1/50	650	1800	900	300
AKDAB-16000-20C	16	2"	230/1/50	650	1850	900	400
AKDAB-19000-20C	19	2"	230/1/50	650	1950	900	460
AKDAB-21000-20C	21	2"	380/3/50	700	2150	1000	525
AKDAB-24000-20C	24	2"	380/3/50	750	2300	1050	650
AKDAB-32000-20C	32	2 1/2"	380/3/50	860	2400	1120	780
AKDAB-40000-20C	40	2 1/2"	380/3/50	1010	2290	1300	950
AKDAB-50000-20C	50	3"	380/3/50	1010	2547	1300	1220
AKDAB-60000-20C	60	3"	380/3/50	1190	2650	1300	1300
AKDAB-80000-20C	80	3"	380/3/50	1410	2245	1800	1550
AKDAB-100000-20C	100	NW100	380/3/50	1410	1450	1800	2150
AKDAB-150000-20C	150	NW125	380/3/50	1410	2550	1920	2850
AKDAB-190000-20C	190	NW150	380/3/50	1800	2750	2500	3750
AKDAB-240000-20C	240	NW200	380/3/50	1800	3200	2500	4350
AKDAB-320000-20C	320	NW200	380/3/50	2000	3800	2750	5350

### Reference Conditions

Operating Pressure	7 Bar
Operating Temp.	36°C
Room Temp.	25°C
Pressure Dewpoint	-20°C

Correction Factors										
Correction factors for different working pressures										
BAR	4	5	6	7	8	9	10	11	12	13
Fc:T	0.6	0.74	0.86	1	1.1	1.2	1.3	1.35	1.4	1.46

### Limit Conditions

Max. Working Pressure	13 Bar
Max. Operating Temp.	60°C
Max. Room Temp.	50°C

Correction factors for intel temp. working pressure						
°C	25	30	35	40	45	50
Fc:T	1.1	1.05	1	0.9	0.7	0.6

## 4. Adsorption Dryers -40 °C

ADSORPTION AIR DRYER (HEATLESS GENERATION) TECHNICAL DATA							
Model Dew Point: -40°C	Air Flow m <sup>3</sup> /min	Connection Size BSP	Power V/PH/Hz	Length (mm)	Height (mm)	Width (mm)	Weight (kg)
AKDAB-33	0.033	1/4"	230/1/50	150	450	350	15
AKDAB-133	0.13	1/4"	230/1/50	150	550	350	22
AKDAB-267	0.26	1/2"	230/1/50	200	600	430	25
AKDAB-400	0.4	1/2"	230/1/50	200	870	430	40
AKDAB-533	0.53	1/2"	230/1/50	350	500	1200	45
AKDAB-800	0.8	1/2"	230/1/50	350	1200	580	47
AKDAB-1000	1	1/2"	230/1/50	350	1400	580	55
AKDAB-1200	1.2	1/2"	230/1/50	350	1600	580	60
AKDAB-1600	1.6	3/4"	230/1/50	420	590	2020	90
AKDAB-2000	2	3/4"	230/1/50	390	1260	840	100
AKDAB-2667	2.67	1"	230/1/50	390	1460	840	125
AKDAB-3200	3.2	1"	230/1/50	390	1730	840	150
AKDAB-4000	4	1"	230/1/50	390	2030	840	180
AKDAB-5000	5	1 1/4"	230/1/50	390	2100	840	200
AKDAB-6000	6	1 1/2"	230/1/50	390	2250	840	225
AKDAB-7000	7	1 1/2"	230/1/50	650	1800	900	300
AKDAB-8000	8	2"	230/1/50	650	1850	900	400
AKDAB-9500	9.5	2"	230/1/50	650	1950	900	460
AKDAB-10500	10.5	2"	380/3/50	700	2150	1000	525
AKDAB-12000	12	2"	380/3/50	750	2300	1050	650
AKDAB-16000	16	2 1/2"	380/3/50	860	2400	1120	780
AKDAB-20000	20	2 1/2"	380/3/50	1010	2290	1300	950
AKDAB-25000	25	3"	380/3/50	1010	2547	1300	1220
AKDAB-30000	30	3"	380/3/50	1190	2650	1300	1300
AKDAB-40000	40	3"	380/3/50	1410	2245	1800	1550
AKDAB-50000	50	NW100	380/3/50	1410	1450	1800	2150
AKDAB-75000	75	NW125	380/3/50	1410	2550	1920	2850
AKDAB-95000	95	NW150	380/3/50	1800	2750	2500	3750
AKDAB-120000	120	NW200	380/3/50	1800	3200	2500	4350
AKDAB-160000	160	NW200	380/3/50	2000	3800	2750	5350

Reference Conditions	
Operating Pressure	7 Bar
Operating Temp.	36°C
Room Temp.	25°C
Pressure Dewpoint	-40°C

Correction Factors										
Correction factors for different working pressures										
BAR	4	5	6	7	8	9	10	11	12	13
Fc:T	0.6	0.74	0.86	1	1.1	1.2	1.3	1.35	1.4	1.46

Limit Conditions	
Max. Working Pressure	13 Bar
Max. Operating Temp.	60°C
Max. Room Temp.	50°C

Correction factors for intel temp. working pressure						
°C	25	30	35	40	45	50
Fc:T	1.1	1.05	1	0.9	0.7	0.6

# Adsorption Dryers -70 °C

ADSORPTION AIR DRYER (HEATLESS GENERATION) TECHNICAL DATA							
Model Dew Point: -70°C	Air Flow m <sup>3</sup> /min	Connection Size BSP	Power V/PH/Hz	Length (mm)	Height (mm)	Width (mm)	Weight (kg)
AKDAC-33	0.033	1/4"	230/1/50	150	450	350	15
AKDAC-133	0.13	1/4"	230/1/50	150	550	350	22
AKDAC-267	0.26	1/2"	230/1/50	200	600	430	25
AKDAC-400	0.4	1/2"	230/1/50	200	870	430	40
AKDAC-533	0.53	1/2"	230/1/50	350	500	1200	45
AKDAC-800	0.8	1/2"	230/1/50	350	1200	580	47
AKDAC-1000	1	1/2"	230/1/50	350	1400	580	55
AKDAC-1200	1.2	1/2"	230/1/50	350	1600	580	60
AKDAC-2667	2.67	3/4"	230/1/50	420	590	2020	90
AKDAC-3200	3.2	3/4"	230/1/50	390	1260	840	100
AKDAC-4000	4	1"	230/1/50	390	1460	840	125
AKDAC-5000	5	1"	230/1/50	390	1730	840	150
AKDAC-6000	6	1"	230/1/50	390	2030	840	180
AKDAC-7000	7	1 1/4"	230/1/50	390	2100	840	200
AKDAC-8000	8	1 1/2"	230/1/50	390	2250	840	225
AKDAC-9500	9.5	1 1/2"	230/1/50	650	1800	900	300
AKDAC-10500	10.5	2"	230/1/50	650	1850	900	400
AKDAC-12000	12	2"	230/1/50	650	1950	900	460
AKDAC-16000	16	2"	380/3/50	700	2150	1000	525
AKDAC-20000	20	2"	380/3/50	750	2300	1050	650
AKDAC-25000	25	2 1/2"	380/3/50	860	2400	1120	780
AKDAC-30000	30	2 1/2"	380/3/50	1010	2290	1300	950
AKDAC-40000	40	3"	380/3/50	1010	2547	1300	1220
AKDAC-50000	50	3"	380/3/50	1190	2650	1300	1300
AKDAC-75000	75	3"	380/3/50	1410	2245	1800	1550
AKDAC-95000	95	NW100	380/3/50	1410	1450	1800	2150
AKDAC-120000	120	NW125	380/3/50	1410	2550	1920	2850
AKDAC-160000	160	NW150	380/3/50	1800	2750	2500	3750

Reference Conditions	
Operating Pressure	7 Bar
Operating Temp.	36°C
Room Temp.	25°C
Pressure Dewpoint	-70°C

Correction Factors											
Correction factors for different working pressures											
BAR	4	5	6	7	8	9	10	11	12	13	
Fc:T	0.6	0.74	0.86	1	1.1	1.2	1.3	1.35	1.4	1.46	

Limit Conditions	
Max. Working Pressure	13 Bar
Max. Operating Temp.	60°C
Max. Room Temp.	50°C

Correction factors for intel temp. working pressure						
°C	25	30	35	40	45	50
Fc:T	1.1	1.05	1	0.9	0.7	0.6