

AshAir Pneumatech **Refrigeration Dryers**







AC & AD Dryers





At Ash Air, it isn't just about the products. We're passionate about performance and service, with more than 50 qualified engineers working throughout the country providing unsurpassed compressed air solutions.

Broad product portfolio of robust compressors & tools

Decades of experience & innovation. Since 1979

24/7 service support with back up and hire equipment

"We are committed to being the easiest company to deal with in the air compressor and vacuum industry."

Energy Saving Solution



7,900 serviceable units

3580 kW



30.6km AIRnet piping installed



combined power of VSD compressors installed

2.1 MWh potential yearly energy



savings identified through leak detection

3.5 MWh
saved with AIRnet and VSD each year



2.2 MTon

CO, emissions eliminated each year

Compressed Air Treatment

Untreated compressed air always contains contaminants because of the nature of the gas and how it is produced. The need for air treatment basically results from 3 characteristics of compressed air.

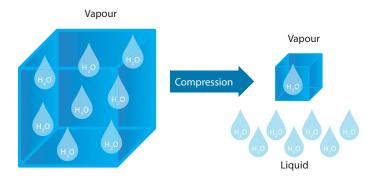
Compressed air is always wet

Contaminants

· Liquid water - water aerosols - water vapor

How are the contaminants formed?

As water is incompressible, the amount of moisture per m³ increases when air is compressed. The maximum amount of moisture per m³ air1 is however limited for a certain temperature. Condensation will thus be formed when air is compressed.



8 m³ ambient air

1 m³ compressed air at 7 bar(e)

What problems can the contaminants cause?

- · Corrosion of pipe lines
- · Bad quality of the end product
- Malfunctioning of controls
- Build-up of ice
- · Cultivation of micro-organisms

The Pneumatech solution

- Water separators
- Drains
- · Refrigeration dryers
- Adsorption dryers

¹The so-called holding capacity of moisture in air.



Compressed air is always contaminated

Contaminants

- · Liquid oil oil aerosols oil vapor
- · Dirt microorganisms pipescale
- Trace gases: carbon monoxide, sulfur dioxide, nitrous oxide

How are the contaminants formed?

Added by the compressor installation through oil lubricated compressors (oil), adsorption dryers and activated carbon filters (dirt), piping network and vessels (pipescale).

Trash in, trash out: oil vapors from car exhausts and industrial processes, atmospheric dirt and microorganisms get sucked in by the compressor. As with water, their concentration – and thus importance – increases significantly after compression.



Contaminants

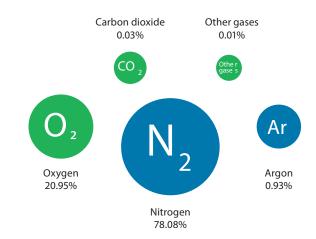
• Oxygen: contaminant if oxidation is unwanted

Compressed air composes of other gases

· Nitrogen: contaminant if oxidation is wanted

How are the contaminants formed?

Dry air is mainly composed of nitrogen (78%) and oxygen (21%). Air will keep the same nitrogen/oxygen ratio after compression, so additional treatment is needed to change this gas mix.



What problems can the contaminants cause?

- Damaged production equipment, leading to inefficiencies and increased costs
- Air pollution, creating unhealthy work environments
- Pollution of the condensate

What problems can the contaminants cause?

- Oxygen causes oxidation, leading to explosions or fire of flammables (fast oxidation) or to rotting processes and corrosion of metals (slow oxidation)
- Nitrogen is an inert gas that can prevent oxidation to happen

The Pneumatech solution

- · Oil coalescing filters
- Oil vapor filters
- Particulate filters
- · Oil-water separators
- · Breathing air units

The Pneumatech solution

- PSA nitrogen generators
- · Membrane nitrogen generators
- · PSA oxygen generators

AD 25 - 3000 - Non-cycling refrigeration dryers

General specifications

- ► Non-cycling refrigeration dryers
- ▶ Operating Pressure:
 - AD25 50: 4-16 bar
 - AD100 3000: 4-13 bar
- ▶ Max. inlet temperature: 55°C
- ► Flow rate: 840 84,000 l/min / 30-2966 cfm⁽¹⁾
- Pressure dew point: 3°C (ISO 8573 - 1:2010 class 4)
- ▶ Power supply:
 - AD25 250: 230V 50 Hz
 - AD300 3000: 400V/50Hz
- Refrigerant: R134a (AD25 50);
 R410A (AD125 1250) & R404a
 (AD100 & AD1600 3000)

Refrigeration Dryers: AD Series (10-3000) Non cycling

AD 25-50



Features & Benefits

- Stable performance and guaranteed dew point of 3°C
- Ingeniously designed components to ensure maximum performance
 - Hot gas bypass valve to prevent freezing at lower loads
 - Zero-loss electronic drain to prevent loss of valuable compressed air
 - Brazed plate heat exchanger with integrated water separator and air-toair heat exchange
- R134a refrigerant gas: low global warming impact, zero ozone depletion
- Digital display with real-time PDP monitoring
- Easy plug-and-play installation

AD 100



Features & Renefits

- Stable performance and guaranteed dew point of 3°C
- Ingeniously designed components to ensure maximum performance
 - Hot gas bypass valve to prevent freezing at lower loads
 - Zero-loss electronic drain to prevent loss of valuable compressed air
 - Aluminium block heat exchanger with integrated water separator and air-toair heat exchange
- Environmental safe refrigerant gases R404a
- Digital display with real-time PDP monitoring
- Easy plug-and-play installation



 $^{^1}$ Flow is measured at reference conditions: ambient pressure of 1 bar (a) and 25°C at operating pressure of 7 bar (g), inlet temperature 35°C .

Pneumatech's AD 10-3000 non-cycling refrigeration dryers are designed to protect your compressed air system by lowering the presence of moisture in the compressed air. With a stable dew point as low as 3°C these dryers provide a highly efficient and reliable solution for your drying needs. Thanks to the new controller with digital display, real time PDP monitoring is possible. The zero-loss electronic drains avoid compressed air losses. The well-designed heat exchangers ensure maximum cooling efficiency, making the AD dryers a genuine air drying solution in industrial applications.

The AD125-1250 range is equipped with the winning combination: rotary compressors and R410A refrigerant. This combination is up to 30% more energy efficient, requires 19% less refrigerant gas and is 100% compliant with European regulation EU No 517 / 2014, hereby significantly reducing the ecological footprint of these dryers. Rotary compressors are moreover very reliable thanks to the low vibration levels and limited mechanical load. R410A guarantees stable evaporation, which makes the pressure dew point of 3°C possible.

AD 125-250



Features & Benefits

- Stable performance and guaranteed dew point of 3°C
- Rotary compressors and R410A refrigerant: the winning combination
 - 30% more energy efficient
 - Requires 19% less refrigerant gas
 - Extremely reliable: low vibration levels and limited mechanical load
- Ingeniously designed components to ensure maximum performance
 - Hot gas bypass valve to prevent freezing at lower loads
 - Zero-loss electronic drain to prevent loss of valuable compressed air
 - Aluminium block heat exchanger with integrated water separator and air-to-air heat exchange
- Digital display with real-time PDP monitoring and voltage-free contact for remote alarm
- Easy plug-and-play installation

AD 360-1250



Features & Benefits

- Stable performance and guaranteed dew point
- Rotary compressors and R410A refrigerant: the winning combination
- 30% more energy efficient
- Requires 19% less refrigerant gas
- Extremely reliable: low vibration levels and limited mechanical load
- Ingeniously designed components to ensure maximum performance
- Hot gas bypass valve to prevent freezing at lower loads
- Zero-loss electronic drain to prevent loss of valuable compressed air
- Aluminium block heat exchanger with integrated water separator and air-to-air heat exchange
- Advanced controlling and monitoring thanks to the controller installed
 - Digital PDP display
 - · Remote start/stop
 - Voltage-free contact for general alarm
- Easy plug-and-play installation

AD1600 - 3000



Features & Benefits

- Stable performance and guaranteed dew point of 3°C.
- Ingeniously designed components to ensure maximum performance
 - Hot gas bypass valve to prevent freezing at lower loads
 - Zero-loss electronic drain to prevent loss of valuable compressed air
 - Aluminium block heat exchanger with integrated water separator and air-to-air heat exchange
- Environmental safe refrigerant gases R404a
- Advanced controlling and monitoring
 - Digital PDP display
- · Remote start/stop
- Voltage-free contact for general alarm
- Easy plug-and-play installation

Options







Bypass Valve

AD 25 - 3000 - Non-cycling refrigeration dryers

Technical sp	ecificat	ions for	AD 10-30	000 50Hz													
Pneumatech Variants → Specifications ↓		AD 25	AD 50	AD 100	AD 125	AD 175	AD 250	AD 360	AD 500	AD 600	AD 750	AD 1000	AD 1250	AD 1600	AD 1800	AD 2500	AD 3000
Flow ^{1}	l/min	840	1,860	3,000	3,600	5,220	7,680	12,000	15,000	18,000	24,000	30,000	34,980	45,000	49,980	70,020	84,000
riow	CFM	30	66	106	127	184	271	424	530	636	848	1,059	1,235	1,589	1,765	2,473	2,966
Nominal electric power	kW	0.19	0.28	0.67	0.65	0.83	1.09	1.63	1.89	2.11	3.26	3.89	4.75	6.71	6.80	10.20	12.30
Voltage / Phase		230 1 ph	400 3 ph														
Max Operating Pressure	Bar	16	16	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Refrigerant Gas		R134a	R134a	R404A	R410A	R404A	R404A	R404A	R404A								
Inlet and Outlet Connections	inches / DIN	R3/4"	R3/4"	R1"	R1 1/2"	R1 1/2"	R1 1/2"	R2"	R2"	R2"	R3"	R3"	R3"	DIN 125	DIN 125	DIN 125	DIN 125
	L (mm)	350	350	370	460	460	580	735	735	735	1020	1020	1020	1020	1020	1020	1020
Dimensions	W (mm)	511	511	515	575	575	604	952	952	952	1082	1082	1082	1123	2099	2099	2099
	H (mm)	484	484	764	789	789	899	1012	1012	1012	1535	1535	1535	1551	1560	1560	1560
Weight	kg	20	27	44	53	65	80	146	158	165	325	335	350	380	550	600	650

Correction factors for a	Correction factors for ambient temperature												
	°C	25	30	35	40	45							
Ambient temperature	l/han h	1.00	0.92	0.84	0.80	0.74	(AD 25-250)						
	Ktmb	1.00	0.91	0.81	0.72	0.62	(AD 360-3000)						

Correction factors for compressed air inlet temperature												
	°C	30	35	40	45	50	55					
Inlet temperature	141	1.24	1.00	0.82	0.69	0.58	0.45	(AD 25-250)				
	Kt	1.00	1.00	0.82	0.69	0.58	0.49	(AD 360-3000)				

Correction factors for co	Correction factors for compressed air inlet pressure													
	bar(g)	5	6	7	8	9	10	11	12	13	14	15	16	
Operating pressure	V	0.90	0.96	1.00	1.03	1.06	1.08	1.10	1.12	1.13	1.15	1.16	1.15	(AD 25-250)
	Кр	0.90	0.97	1.00	1.03	1.05	1.07	1.09	1.11	1.12	-	-	-	(AD 360-3000)



^{1.} Flow is measured at reference conditions: ambient pressure of 1 bar (a) and 25°C at operating pressure of 7 bar (g), inlet temperature 35°C. 2. 380V/60Hz and 460V/60Hz variants are also available for the AD300-3000 range. Please refer to the datasheets or consult Pneumatech for technical data.

Anti-corrosion treatment (available for all refrigerant dryers)

Technical specifications	
Coating type	Aluminum pigmented polyurethane
Color	Champagne
Pretreatment	Degreasing
Temperature Range (dry)	-20 to 150°C
Substrates	Aluminum and Copper
ASTM B117	4000+ hours(neutral-salt spray test)
Kesternich (2.0 ltr SO ₂)	80 cycles
Layer Thickness	25-30 μm (1 mil)
Pressure Drop	0-5% (depending on fin geometry)
Thermal Resistance	0-3% (depending on fin geometry)
UV Resistance	Excellent
Adhesion (cross hatch)	0 (European)
Chemical Resistance	Excellent

Coating resistance of some typical corrosive gas vapors (based on exposure temperature of 20°C/68°F) – maximum concentrations											
Chlorine	64 ppm	Ethanol	320 ppm								
Ammonia	160 ppm	Sulphuric acid	320 ppm								
Phosphoric acid	320 ppm	Seawater	640 ppm								









Problem

Refrigerant dryers can be subjected to severe corrosion when placed in environments rich of e.g ammonia and sulfurs, or close to the seaside. In these cases incompatible metals like copper will be affected since the condenser-fan is blowing a high volume of polluted air through the dryer. Corrosion and pollution of condensers will directly impact the dryer performance. Corrosion can even lead to leaks in the condenser and refrigeration piping.



Solution

Pneumatech offers a long-lasting corrosion protection to the condenser and the refrigerant piping without affecting heat transfer and pressure drop. The heat conductive pigmentation in the coating is oriented in such a way that it creates a very high chemical resistance at a low layer thickness. Therefore it is considered the best available option to prevent refrigeration dryer failure and unnecessary energy consumption.

AC 30 - 600 - Cycling refrigeration dryers

Features & Benefits

- Premium energy efficiency
 - Energy-saving & flow control: adapt energy consumption to the real load
 - Lowest pressure drop over heat exchanger and air piping
 - Zero-loss drains
- ▶ Strong performance & reliability
 - Stable pressure dew point as low as 3°C
 - Guaranteed drying performance in wide range of ambient temperatures
- ▶ Optimal control and monitoring
 - Energy-saving control
 - Voltage-free contact for remote alarm
 - · Auto-restart after voltage-failure
 - Communication via industrial protocols like Modbus, Profibus or Ethernet/IP (for AC300-600 only)
 - Remote internet visualization (for AC300-600 only)
- ► Easy installation and maintenance at low cost
 - Pipe connections on top
 - Long service intervals
 - Easy access to key components



General Specifications

- ► AC refrigeration dryers: cycling type
- ➤ Operating pressure: 4-16 bar/(4-14 bar from AC 125 onwards)
- ► Max. inlet temperature: 60°C
- ► Flow rate: 900-17,100 l/min (32-604 cfm)^{1}
- Pressure dew point: 3°C (ISO 8573-1:2010 class 4)
- ▶ Power supply: 150/230V 50 Hz
- ► Refrigerant: R134a (AC 30-100), R410a (AC 150-600)

Options







Electric panel protection IP 54

 1 Flow is measured at reference conditions: ambient pressure of 1 bar (a) and 25°C at operating pressure of 7 bar (g), inlet temperature 35°C.



Pneumatech's AC range offers premium refrigeration drying technology at the lowest operational costs. All AC dryers are equipped with our proprietary energy saving algorithm, which adapts the energy consumption to the real load by continuously monitoring the ambient temperature and the pressure dewpoint. In this way, the risk of downstream corrosion is reduced to zero at all times. When there is less cooling needed, the refrigerant compressor stops and power consumption is significantly reduced, with savings up to 50%.

AC250-600 dryers are also equipped with a flow switch which detects whether there is flow going through the dryer; and shuts down the refrigerant compressor when there is no flow

(even if the energy saving algorithm would not be activated). To make these energy saving functionalities work, the AC range makes use of advanced controllers, which communicate through voltage-free contacts (for AC15-200) or industrial protocols like Modbus, Profibus or Ethernet/IP (for AC250-600).

Premium energy efficiency is also guaranteed thanks to low pressure drops over the heat exchangers, zero-loss drains and our winning combination: rotary compressors and R410A refrigerant on AC125-600. This combination is up to 30% more energy efficient, requires 19% less refrigerant gas and is 100% compliant with European regulation EU No 517 / 2014.

Technical spe	Technical specifications for AC 15-600 Aircooled											
Pneumatech Variant → Specifications↓	Units	AC 30	AC 65	AC 100	AC 150	AC 200	AC 300	AC 600				
EL (I)	l/min	900	1,800	3,000	4,200	5,700	9,000	17,100				
Flow ^{1}	CFM	32	64	106	148	201	318	604				
Power consumption	kW	0.33	0.41	0.5	0.7	0.89	1	2.2				
Pressure drop over dryer	bar	0.12	0.25	0.2	0.28	0.25	0.15	0.22				
Refrigerant type		R134a	R134a	R134a	R410A	R410A	R410A	R410A				
	L (mm)	496	496	716	792	792	882	948				
Dimensions	W (mm)	377	377	380	500	500	661	802				
	H (mm)	461	461	676	680	680	1015	1026				
Inlet and Outlet Connections		ISO7-R3/4"(m)	ISO7-R3/4"(m)	ISO7-R1"(m)	ISO7-R1"(m)	ISO7-R1"(m)	ISO7-R1 1/2"(m)	ISO7-R2 1/2"(m)				
Weight	kg	32	34	57	82.4	109.4	170	197				

^{1.} Flow is measured at reference conditions: ambient pressure of 1 bar (a) and 25°C at operating pressure of 7 bar (g), inlet temperature 35°C.

K1 Flow correction factors due to compressed air inlet temperature and/or pressure dewpoint (PDP)											
Temperature	°C	25	30	35	40	45	50	55	60		
	3°C	1.2	1.1	1	0.85	0.72	0.6	0.49	0.37		
	5°C	1.35	1.23	1.11	0.94	0.8	0.67	0.55	0.42		
PDP	7°C	1.5	1.35	1.22	1.02	0.88	0.75	0.61	0.47		
	10°C	1.72	1.54	1.38	1.15	1	0.86	0.7	0.54		
	15°C	2.11	1.89	1.68	1.43	1.23	1.03	0.83	0.62		

K2 Flow correction factors due to compressed air inlet pressure (g)													
Air inlet	bar(g)	2	3	4	5	6	7	8	10	12	14		
pressure		0.5	0.63	0.74	0.84	0.92	1	1.05	1.15	1.25	1.31		

Flow correction factor du	e to ambier	nt temperati	ure				
	°C	25	30	35	40	45	50
Temperature		1.00	0.95	0.88	0.81	0.74	0.67

AC 650 - 2100 - Large cycling refrigeration dryers (including VSD solutions)

Features & Benefits

- Premium energy efficiency
 - Energy-saving & flow control: adapt energy consumption to the real load
 - Variable speed range: exact match between energy consumption and actual demand (available for AC 1600-2100)
 - Lowest pressure drop over heat exchanger and air piping
 - Zero-loss drains
- Strong performance & reliability
 - Stable pressure dew point as low as 3°C
 - Rotary refrigerant compressors: limited mechanical load & low vibrations
 - Guaranteed drying performance in wide range of ambient temperatures
 - Refrigeration cycle optimized in all conditions thanks to automatic expansion valve & electronic hot gas bypass valve
- ► Air-cooled as well as water-cooled versions available
- ► Optimal control and monitoring thanks to the PurelogicTM controller
 - Communication via industrial protocols like Modbus, Profibus or Ethernet/IP
 - Internet-based visualization
- ▶ Easy maintenance at low cost
 - Pipe connections on top
 - Long service intervals
 - Easy access to key components

General Specifications

- ► AC refrigeration dryers: cycling type including VSD option (only for AC 1600-2100)
- ▶ Operating Pressure: 4-14 bar
- ► Max. temperature: 50°C
- ▶ Flow rate: 18.6-60.6 m³/min (657-2141 cfm)^{1}
- ▶ Pressure dew point: 3°C
- ▶ Power supply: 400V/50Hz
- ▶ Refrigerant: R410a
- ▶ Cooling type: Air-cooled and water-cooled



Options



IP 54 protection (only for 650-1050; standard on AC1250-2100)

 1 Flow is measured at reference conditions: ambient pressure of 1 bar (a) and 25°C at operating pressure of 7 bar (g), inlet temperature 35°C .



AC 650-2100 is Pneumatech's premium refrigeration dryer range at higher flows: from 1120 up to 3636 $\,\mathrm{m}^3/\mathrm{hr}$ (657-2141 cfm).

As in the small AC range, operating costs are significantly reduced thanks to the energy saving and flow switch algorithms, the zero-loss drains, the low pressure drop over the heat exchangers and the combination of rotary compressors and R410A refrigerant. The refrigeration cycle is further optimized in all working conditions by making use of the automatic expansion valve & electronic hot gas bypass valve.

From AC1600 onwards, dedicated variable speed (VSD) variants have been added to the range. The VSD controller incorporated

in these dryers matches the energy consumption to the actual compressed air demand. This reduces energy used by as much as 70%, compared to conventional dryers. It works by varying the speed of the compressor, hereby ensuring a stable dew point.

The PurelogicTM is installed as standard on all dryers: it ensures maximum reliability by monitoring the most important parameters of the dryer and offers impressive control and monitoring capabilities, like internet-based visualization.

The entire range is available in both air-cooled and water-cooled versions.

Technical sp	ecificatio	ons for A	C650-210	00													
				A	ir Cooled (in	ncluding VS[D)					Wa	ter Cooled (including V	SD)		
Pneumatech Variants → Specifications ↓	Units	AC 650	AC 1250	AC 1600	AC 1600 VSD	AC 1800	AC 1800 VSD	AC 2100	AC 2100 VSD	AC 850	AC 1250	AC 1600	AC 1600 VSD	AC 1800	AC 1800 VSD	AC 2100	AC 2100 VSD
EL (1)	m³/min	18.6	36.6	45.6	45.6	52.2	52.2	60.6	60.6	24.6	36.6	45.6	45.6	52.2	52.2	60.6	60.6
Flow ^{1}	CFM	657	1293	1610	1610	1843	1843	2140	2140	869	1293	1610	1610	1843	1843	2140	2140
Power consumption	kW	2.80	4.80	5.30	5.30	6.60	5.8	7.40	6.6	2.4	3.10	3.60	3.3	4.50	4.2	5.10	5.6
Pressure drop over dryer	mBar	230	170	170	170	140	140	170	170	210	170	170	90	140	120	170	170
Refrigerant type		R410a	R410a	R410a	R410a	R410a	R410a	R410a	R410a	R410a	R410a	R410a	R410a	R410a	R410a	R410a	R410a
Inlet and Outlet Connections	Inch/DN	G3"	DN100	DN100	DN100	DN150	DN150	DN150	DN150	G3"	DN100	DN100	DN100	DN150	DN150	DN150	DN150
	L (mm)	986	1040	1245	1245	1245	1245	1580	1580	1250	1245	1245	1580	1245	1580	1245	1580
Dimensions	W (mm)	850	1060	1060	1060	1060	1060	1060	1060	850	1060	1060	1060	1060	1060	1060	1060
	H (mm)	1190	1580	1580	1580	1580	1580	1580	1580	1375	1580	1580	1580	1580	1580	1580	1580
Weight	kg	200	320	380	380	400	400	460	460	240	350	360	410	370	410	380	410

^{1.} Flow is measured at reference conditions: ambient pressure of 1 bar (a) and 25°C at operating pressure of 7 bar (g). inlet temperature 35°C.

K1 Flow correction factors due to compressed air inlet temperature and/or pressure dewpoint (PDP)											
Temperature	°C	25	30	35	40	45	50	55	60		
	3°C	1.2	1.1	1	0.85	0.72	0.6	0.49	0.37		
	5°C	1.35	1.23	1.11	0.94	0.8	0.67	0.55	0.42		
PDP	7°C	1.5	1.35	1.22	1.02	0.88	0.75	0.61	0.47		
	10°C	1.72	1.54	1.38	1.15	1	0.86	0.7	0.54		
	15℃	2.11	1.89	1.68	1.43	1.23	1.03	0.83	0.62		

K2 Flow corre					•	6 (g)	7	Q	10	12	14
Air inlet pressure	Dai(g)	2	J	7	J	U	,	0	10	12	14
		0.5	0.63	0.74	0.84	0.92	1	1.05	1.15	1.25	1.31

Flow correction factor due to ambient temperature or cooling water temperature										
T	°C	25	30	35	40	45	50			
Temperature		1.00	0.95	0.88	0.81	0.74	0.67			

 $^{2.} Power consumption of the units are specified for max ambient tepertaure of 40 ^{\circ}\text{C}. In case of higher ambient temperatures contact Pneumatech.}$

Ash Air: Efficiency and Innovation for your business since 1979















Piston Compressors

Screw Compressors

Nitrogen & Dryers

Portable Compressors & Generators

Air Tools & Cordless Tools

Vacuum Pumps

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