NAILI

NAILI Co.,Ltd

AFTER-TREATMENT EQUIPMENT FOR COMPRESSED AIR SYSTEM

AIR DRYER
COMPRESSED AIR FILTER
AIR COOLED - AFTER COOLED

NAILI

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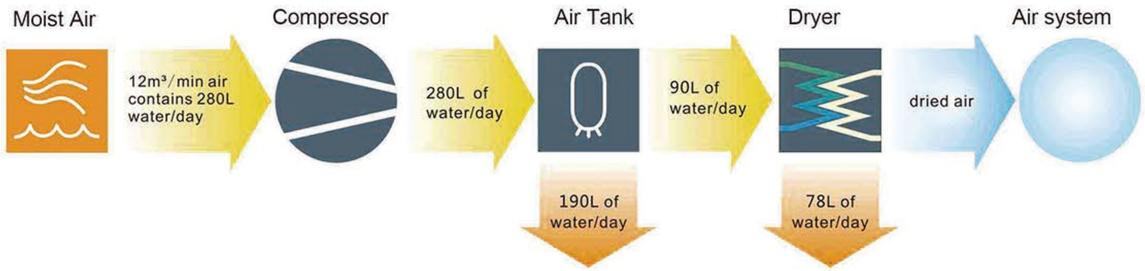
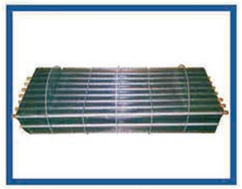
WHY Need To Use The Refrigerated Air Dryer



- Usually compressed air contains 100% vapor, these vapors are condensed together when the air would be cooled,The condensed water not only damages the compressor system,reduces tool efficiency,but also destroys your terminal products,corrodes piping and increases your maintenance costs.
- More than 90L water will enter into the compressor system everyday if without the air dryer.NAILI refrigerated air dryer removes appromimately 90% of water and ensures your application in good performance.

- Transport and install conveniently, all pipes and wires of NAILI refrigerated air dryer are connected before leaving manufactory.
- No need to make any special installation foundation, just connect the power and turn the start button,the air dryer can be operated once.
- Stabilized and clear pressure dew-point.
- We adopt thickness 0.5mm heat-exchanger and evaporator,thickness 1.0mm connected cooper pipe and thickness 4.5mm seamless barrel to minimize the leakage rate.
- Stong fan and advanced welding process, improve the cooling effect.

1

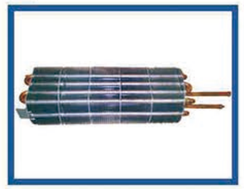


Pre-Cooler(Heat Exchanger)

Inter air and outlet air exchanges temperature in here which result in hot inlet air gets cool and cool outlet air gets warm.

Reducing the stress of the air dryer,prolong the service life of dryer. Soving the pipe frosting problem.

2



Evaporator

The core component of the air dryer.-Most vapor are condensed into liquid water due to compressed air is cooled by refrigerant,then water is discharged.

Evaporator is made from aluminum plate and thickness 0.5mm cooper pipe.It oversize and long cooling distance which result in good cooling effect.

Good welding technology that greatly reduce the refrigerant leakage rate.

3

Air-cooled Condenser

Refrigerant flows with S-shaped, cooling area increased greatly.

continual cooling process,good cooling performance.

4

Refrigerant Compressor

The "HEART" of the air dryer,and refrigerant like "BLOOD".

We adopt Japan Panasonic refrigerant compressor,stable and high efficiency.

5

High Pressure Switch
High/Low Pressure Switch

An Important protective device.

Prevent fan and compressor from burning caused by high outlet pressure or low inlet pressure.

Ps:all model with a high pressure switch.Model BL0080-BL0500 with a high/low pressure switch.

6

Dry Filter

Filtering the impurities in the refrigerant,it ensures the cooling system not effected by moisture and impurity,it protects the compressor,prolongs the service life of refrigerant.

7

Expansion Valve

It is one of the basic component of refrigerant system.It reduces the pressure and controls the flow rate of refrigerant to improve the cooling efficiency.

Ps:model BL0080-BL0500 with an expansion valve.

8

Hot Gas Bypass Valve

While air capacity of air dryer decrease,inner temperature of an evaporator will be down to 0℃.Meanwhile the pipe will be blocked caused by the comdensate water feeze-up.
Hot gas bypass valve can solve this freeze-up problem,ensure air dryer operate smoothly.
Ps:Model BL0080-BL0500 with a hot gas bypass valve.

9

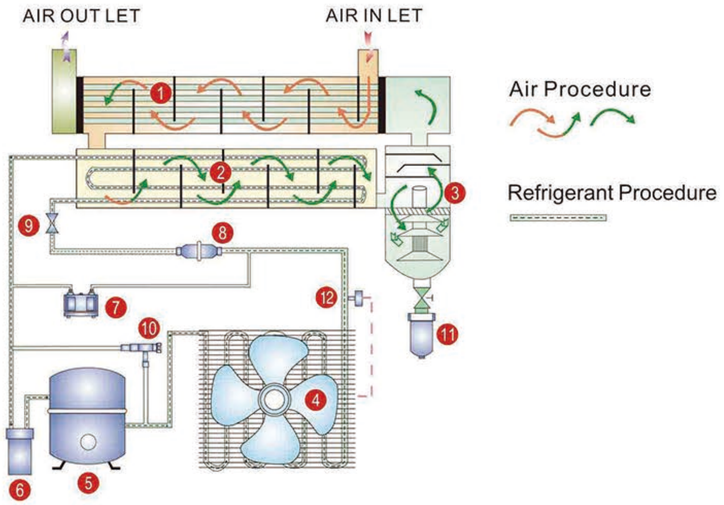
Electric Auto-Drain

Dischage the condenser water from air dryer automatically.
Discharge time and interval time can be adjusted by users.
It's automatc,intelligent and low failure rate.

REFRIGERATED Air Dryer

▶ Operation Process

1. Pre-cooler / Heat Exchanger
2. Evaporator
3. Air / Water Separator
4. Air-cooled Condenser
5. Refrigerant Compressor
6. Refrigerant Reservoir
7. High-low Pressure switch
8. Dry Filter
9. Expansion Valve (Capillary)
10. Hot Gas Bypass Valve
11. Electric Auto-Drain
12. High Pressure Switch



Air Procedure:

The compressed air form “AIR INLET” enters into air dryer and goes through (1)Pre-cooler, the compressed air will be pre-cooled first,after that it flows through (2)Evaporator to get further cooler,the vapor of the compressed air is condensed bacause the air gets cool,when the cooled compressed air passed(3)Air/water separator,water will be discharged by (11) Electric auto-drain automatically, At last the dry and cool compressed air enters into the copper pipe of (1)Pre-cooler again,the outlet air and inlet air exchange the temperature in pre-cooler. Dry compressed air out from “AIR OUTLET”.

Refrigerant Procedure:

The refrigerant will be compressed by (5)Refrigerant compressor,after that it is in a high temperature and high pressure vapor,the refrigerant vapor enters into(4)Air-cooled condenser to gets lower temperature,this moment refrigerant from a vapor to a liquid state,and then liquid refrigerant go through (8)Dryer filter to get purer,and then it pass by the (9)Expansion valve,the pressure of refrigerant becomes lower.Gas and liquid mixed refrigerant flow into copper pipe of (1)Evaporator to low down the compressed air temperature ,finally refrigerant gets back to (6)Refrigerant reservoir, this is a circular process.

REFRIGERATED Air Dryer Technical Parameters

Model	Air Flow Rates		Compressor Power	Air Connection	N.W	Dimension(L×W×H)
--	m³/min	CFM	HP	--	kg	mm
BL0005	0.8	28	0.25	DN20(G3/4")	50	400x700x640
BL0010	1.8	64	0.35	DN20(G3/4")	55	400x700x640
BL0020	2.8	99	0.5	DN25(G1")	65	400x700x780
BL0030	3.8	134	0.75	DN25(G1")	68	400x700x780
BL0040	5.5	194	1.25	DN40(G1-1/2")	90	500x860x880
BL0060	6.8	240	1.5	DN40(G1-1/2")	95	500x860x880
BL0080	8.8	311	2	DN50(G2")	130	700x900x1000
BL0100	11.5	406	2.5	DN50(G2")	135	700x900x1000
BL0120	14	494	3	DN65(G2-1/2")	160	700x1000x1000
BL0150	16	565	4	DN65(G2-1/2")	165	800x1000x1000
BL0200	22.8	805	5	DN80(F3)	250	800x1300x1160
BL0250	28.5	1007	6	DN80(F3)	300	800x1300x1160
BL0300	35	1236	8	DN80(F3)	400	1800x1000x1360
BL0400	45	1589	10	DN100(F4)	500	2000x1000x1360
BL0500	55	1943	12.5	DN100(F4)	600	2200x1100x1480

Operating Range:

- Working Pressure:0.6-1.3Mpa
- Max.Inlet Temperature:＜80℃
- Ambient Temperature: 5-45℃

Standard Conditions:

- Air Inlet Temperature:38℃
- Ambient Temperature:35℃
- Working Pressure:0.7Mpa
- Pressure Dew Point:2-10℃
- Refrigerant:R-22
- Cooling Method:air-cooled
- Power supply: BL0005-BL0120:220v/50hz/1ph
  BL0150-BL0500:380v/50hz/3ph
- If need the refrigerated air dryer is not in standard, please contact with the supplier.

The Components of Adsorption Air Dryer

Adsorption Tower

Reasonable dsign and gooddrying efficiency.There is a large air diffuser inside the tower that can ensure compressed air contacts with the absorbent more than 5 seconds,also make sure compressed air 100% through the absorbent.
Tower can be used more than 10 years because of the rust prevention treatment.

Check Valve

It prevent compressed air backflow,low compressed air consumption and save energy.It is sensitive and stable.

Pneumatic Valve
Pneumatic Butterfly Valve

Control compressed air enter into A/B tower intelligently.It is long service life time and reliable.
Ps:B0005-BX0150 with pneumatic valves,BX0200-BX0500 with pneumatic Butterfly valve.

Controler

The controller is consisted of several of microprocessor chips.
Very simple and easy to handle the controller,The operation cycle and swith state are showed by LED display clearly.

Absorbent

Prefect match of activated alumina and molecular sieves that result in high performance.
Durable and high quality absorbent.

Solenoid Valve
Pneumatic Control Valve

Best cooperation of solenoid valve and spneumatic control valve,they ensure inlet pressure above 0.4MPa to guarantee the absorption air dryer operate smoothly.

Muffler

It maximize to low down the exhaust noise.

Throttle valve

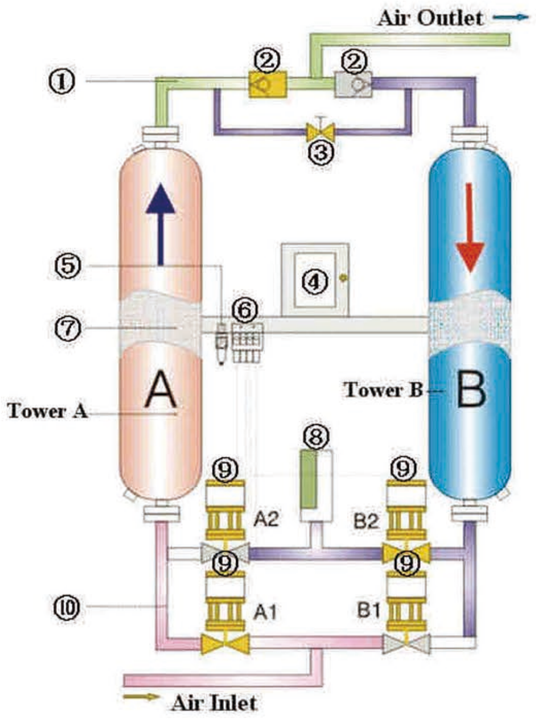
It adjust the regeneration air flow rate to reduce the compressed air consumption.

Heater

Only need 7% compressed air as regeneration air to revive the absorbent if air dryer with a heater.Due to that compressed air is saved greatly.
The low hot adsorption air dryer suit for the user who need a large number of compressed air.
(ps:low hot adsorption air dryer with a heater)

HEATLESS ADSORPTION Air Dryer

1. Upper Tube System
2. Check Valve
3. Throttle Valve
4. Controller
5. Pneumatic Control Valve
6. Solenoid Valve
7. Absorbent (activated alumina and molecular sieves)
8. Muffler
9. Pneumatic(Valve A1、A2、B1、B2
10. Underside Tube System



Operation process

Adsorption—the compressed air enters into tower A from (9) Pneumatic valve A1, and then flows past the (7) Adsorbent from bottom to top, after that the compressed air comes out from the (1) Upper tube.

Regeneration—a part of dry compressed air (about 14%) as regeneration air enters into the tower B from (3) Throttle valve, it flows past the (7) absorbent from top to bottom, absorbent in tower B recovers the adsorption function. After that regeneration air will be discharged from (9) Pneumatic valve B2 and (8) Muffler.

Pressure equalizing—finish the regeneration program, (9) Pneumatic valve B2 turn off, the pressure of tower B rises to working pressure, and it ready to adsorb.

Task switch— (9)Pneumatic valve B1 turns on, A1 turns off, A2 turns on and B2 turns off. Task of tower A & B is changed, tower B adsorbs vapor and tower A regenerates absorbent. The operation task and time are controlled by controller automatically.

ADSORPTION Air Dryer Technical Parameters

Model	Air Flow Rates		Air connection	Net Weigh	Dimension (L×W×H)
--	Nm^3/min	CFM	mm	kg	mm
BX0005	0.8	28	DN15	70	560x350x1420
BX0010	1.8	64	DN20	80	600x350x1720
BX0020	2.8	99	DN20	100	700x450x1750
BX0030	3.8	134	DN25	130	800x450x1800
BX0040	5.5	194	DN40	250	1000x650x1800
BX0060	6.8	240	DN40	280	1000x650x1800
BX0080	8.8	311	DN50	450	1060x760x2000
BX0100	11.5	406	DN50	500	1160x760x1900
BX0120	14	494	DN65	550	1160x750x2050
BX0150	16	565	DN65	580	1260x800x2000
BX0200	22.8	805	DN80	860	1500x1000x2050
BX0250	28.5	1007	DN80	1200	1600x1000x2180
BX0300	35	1236	DN80	1600	1700x1100x2200
BX0400	45	1589	DN100	1900	1800x1100x2400
BX0500	55	1943	DN100	2300	2100x1100x2500
BX0600	65	2296	DN125	2800	2400x1200x2650
BX0800	85	3002	DN150	3400	2600x1300x2900
BX1000	105	3709	DN150	4100	3000x1500x3000
BX1200	120	4238	DN200	4500	3200x1600x3000
BX1600	160	5651	DN200	6000	3800x1800x3000
BX2000	200	7064	DN250	7500	4200x2000x3000

(Back View) (Front View)

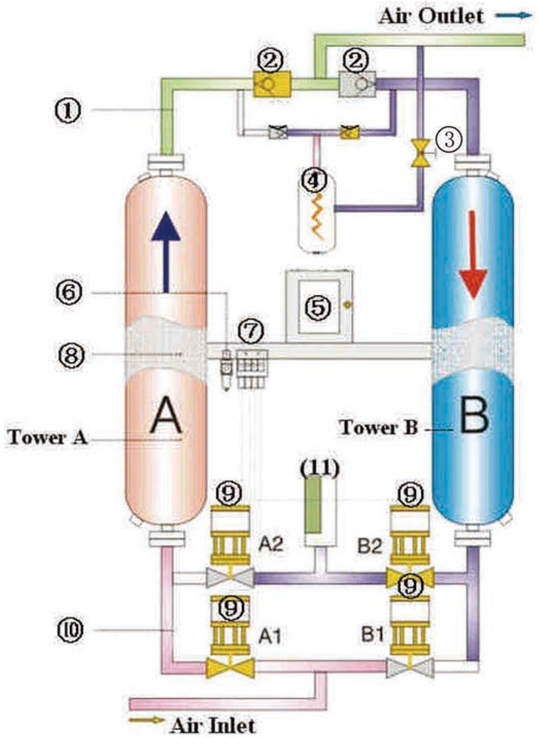
Standard Condition

- Working pressure: 0.6-1.0Mpa
- Pressure dew point: - 20℃ ~ -40℃
- Air inlet temperature: 0℃ ~ 45℃
- Compressed air consumption:≤14%
- Pressure drop:≤0.025Mpa
- Absorbent: activated alumina & molecular sieves
- Power supply: BX0005-BX0120: 220v/50hz/1ph
  BX0150-BX2000: 380v/50hz/3ph

If need the heatless adsorption air dryer is not in standard, please contact the supplier.

LOW HOT ADSORPTION Air Dryer

1. Upper Tube System
2. Check Valve
3. Throttle Valve
4. Heater
5. Controller
6. Pneumatic Control Valve
7. Solenoid Valve
8. Absorbent
   (actiavated alumina and molecular sieves)
9. Pneumatic Valve (A1、A2、B1、B2)
10. Underside Tube System
11. Muffler



Operation process

Adsorption—the compressed air enters into tower A from (9) Pneumatic valve A1, and then flows past the (7) Adsorbent from bottom to top, after that the compressed air comes out from the (1) Upper tube.

Regeneration—a bit of dry compressed air (about 7%) as regeneration air will be warmed up by (4) Heater and then enters into the tower B from (3) Throttle valve, it flows past the (7) absorbent from top to bottom, absorbent in tower B recovers the adsorption function. After that regeneration air will be discharged from (9) Pneumatic valve B2 and (11) Muffler.

Pressure equalizing—finish the regeneration program, (9) Pneumatic valve B2 turn off, the pressure of tower B rises to working pressure, and it ready to adsorb.

Task switch— (9)Pneumatic valve B1 turns on, A1 turns off, A2 turns on and B2 turns off. Task of tower A & B is changed, tower B adsorbs vapor and tower A regenerates absorbent. The operation task and time are controlled by controller automatically.

ADSORPTION Air Dryer Technical Parameters

Model	Air Flow Rates		Air connection	Heater Power	Net Weigh	Dimension (L×W×H)
--	Nm³/min	CFM	mm	kw	kg	mm
BX0020LH	2.8	99	DN20	0.5	120	700x450x1750
BX0030LH	3.8	134	DN25	0.75	140	800x450x1800
BX0040LH	5.5	194	DN40	1.25	270	1000x650x1800
BX0060LH	6.8	240	DN40	1.5	300	1000x650x1800
BX0080LH	8.8	311	DN50	2	480	1060x760x2000
BX0100LH	11.5	406	DN50	2.5	530	1160x760x1900
BX0120LH	14	494	DN65	3	580	1160x750x2050
BX0150LH	16	565	DN65	3.75	620	1260x800x2000
BX0200LH	22.8	805	DN80	5	900	1500x1000x2050
BX0250LH	28.5	1007	DN80	6.25	1250	1600x1000x2180
BX0300LH	35	1236	DN80	7.5	1700	1700x1100x2200
BX0400LH	45	1589	DN100	10	2000	1800x1100x2400
BX0500LH	55	1943	DN100	12.5	2500	2100x1100x2500
BX0600LH	65	2296	DN125	15	3000	2400x1200x2650
BX0800LH	85	3002	DN150	20	3800	2600x1300x2900
BX1000LH	105	3709	DN150	25	4500	3000x1500x3000
BX1200LH	120	4238	DN200	30	5000	3200x1600x3000
BX1600LH	160	5651	DN200	40	6500	3800x1800x3000
BX2000LH	200	7064	DN250	50	8000	4200x2000x3000

Standard Condition

- Working pressure: 0.6-1.0Mpa
- Pressure dew point: - 20℃ ~ -40℃
- Air inlet temperature: 0℃ ~ 45℃
- Compressed air consumption:≤7%
- Pressure drop:≤0.025Mpa
- Absorbent: activated alumina & molecular sieves
- Power supply: BX0020LH-BX0120LH: 220v/50hz/1ph
  BX0150LH-BX2000LH: 380v/50hz/3ph

If need the low hot adsorption air dryer is not in standard, please contact the supplier.

Refrigerated & Adsorption Air Dryer

COMBINE AIR DRYER

Working Process

- Hot and humidity Inlet compressed air exchanges temperature with cool & dry compressed air in the heat exchanger of refrigerated air dryer. After preliminary cooling, inlet compressed air will be cool again by refrigerant, most of water will be condensed together and will be discharge. At this time dew point of compressed air about 2-10℃.
- In order to get lower dew point compressed air, compressed air enter into adsorption air dryer to have further drying. After four processes: adsorption, regeneration, pressure equalizing and task exchange, the dew point of compressed air about -20 ~ -40℃. At last cool & dry compressed air flow through heat exchanger to low down the inter air compressor, thus we get dry and low dew point compressed air.

Advantages

- Low pressure dew point: Compressed air is treated by refrigerated air dryer and adsorption air dryer, due to that the dew point can be -20 ~ -40℃. Combine air dryers are widely used in high precision product line.
- Best Adaptable: No ambient temperature limited.
- Low consumption: Only need 3-5% compressed air to revive the absorbent, low compressed air consumption.
- Integrative structure design: Refrigerated air dryer and adsorption air dryer are connected before leaving manufactory, save space. All pipes are connected, no need to install the foundation, just put it on the flat ground and connect the power, the combine dryer can be operated.

Technical Parameters

Model	Air Flow Rates		Air connection	Net Weigh	Dimension (L×W×H)
--	Nm³/min	CFM	mm	kg	mm
BC0030	3.8	134	DN25	220	1150x700x1800
BC0040	5.5	194	DN40	370	900x1300x1800
BC0060	6.8	240	DN40	400	1000x1300x1800
BC0080	8.8	311	DN50	600	1060x1400x2000
BC0100	11.5	406	DN50	650	1160x1400x1900
BC0120	14	494	DN65	800	1160x1600x1900
BC0150	16	565	DN65	900	1260x1600x2000
BC0200	22.8	805	DN80	1500	1500x2000x2050
BC0250	28.5	1007	DN80	1700	1700x2000x2180
BC0300	35	1236	DN80	2100	1700x2000x2220
BC0400	45	1589	DN100	2500	2000x2100x2400
BC0500	55	1943	DN100	3100	2200x2100x2500
BC0600	65	2296	DN125	3500	2400x2200x2650
BC0800	85	3002	DN150	4200	2600x2600x2900
BC1000	105	3709	DN150	5200	3000x2800x3000
BC1200	120	4238	DN200	5800	3200x3000x3000
BC1600	160	5651	DN200	7600	3800x3300x3000
BC2000	200	7064	DN250	9500	4200x3500x3000

Standard Condition

- ◆ Working pressure: 0.6-1.0Mpa
- ◆ Pressure dew point: - 20℃ ~ -40℃
- ◆ Air inlet temperature: 0℃ ~ 45℃
- ◆ Power supply: BC0030-BC0120: 220v/50hz/1ph
  BC0150-BC2000: 380v/50hz/3ph
- ◆ Compressed air consumption:≤5%
- ◆ Pressure drop:≤0.025Mpa
- ◆ Absorbent: activated alumina & molecular sieves

If need the combine air dryer is not in standard, please contact with the supplier.

FILTER product Classification Series

Model	Connection Size (Inch)	F.A.D		Size (mm)			
		M3/min	Cfm	A	B	C	D
F0020	1/2''	0.57	20	95	220	197	95
F0021	3/4''	0.57	21	95	220	197	95
F0045	1/2''	1.3	45	95	220	197	110
F0046	3/4''	1.3	46	95	220	257	110
F0070	3/4''	2	70	95	280	257	145
F0100	3/4''	2.8	100	95	280	290	175
F0125	1''	3.5	125	125	320	290	185
F0126	1-1/2''	3.5	126	125	320	290	185
F0180	1''	5.1	180	125	320	290	185
F0181	1-1/2''	5.1	181	125	320	370	185
F0265	1-1/2''	7.5	265	125	400	370	230
F0370	1-1/2''	10.5	370	125	400	478	270
F0515	2''	14.6	515	170	520	658	390
F0745	2''	21.1	745	170	700	938	570
F0900	2-1/2''	25.5	900	200	995	938	570
F0901	3''	25.5	901	200	995	938	570
F1060	2-1/2''	30	1060	200	995	938	630
F1061	3''	30	1061	200	995	938	630
F1280	3''	36.3	1280	200	995	938	700
F1650	3''	46.7	1650	200	995	938	700

FEATURES:

Wide range of models and filtration level for every kind of industry application Certified performances. The body configuration, with an innovation design, is able to reduce pressure drops assuring high energy savings Increase of efficiency and reduction of productions stops. Reductions of maintenance costs Tools and machinery protection.

COMPRESSED AIR Purification System