



N2 Generator

RXT3000

Manual

PSA series nitrogen making machine

Purpose and scope of use

Nitrogen is widely used in food, medicine, electronics, chemical, petroleum, metallurgy, machinery manufacturing and other industries. Empty"

Nitrogen equipment provides nitrogen for a variety of equipment in these industries. For example, metal sintering, 3D printing, laser drilling, air-controlled preservation and nitrogen-filled packaging in food, protective gas for semiconductor devices in the electronics industry and other sectors that need nitrogen.

PSA series air separation nitrogen machine main specifications and technical parameters are as follows:

Main specifications and parameters

Nitrogen production model		Main specifications and parameters nitrogen purity % and output m ³ /h					net weight	Contour dimension
		99.999	99.99	99.9	99.5	99	KG	mm
BDL-SP1	nitrogen	/	/	1.5	2	3	80	650*550*1280
BDL-SP2		/	/	3	4	6	110	600*550*1280
BDL-1000L		/	0.2	0.3	0.6	0.8	110	600*550*1280
BDL-YT3		1	1.5	3	4	6	400	1450*1000*1330
BDL-YT5		2	3	5	6	8	500	1600*1100*1330
BDL-3000L		2	3	5	6	8	160	700*600*1350
BDL-3D	gas	4	5	8	10	12	240	500*800*1580
BDL-A1	production	1	1.5	3	4	6	110	600*550*1280
BDL-A3		3	4	7	9	11	220	900*750*1330
BDL-A5		5	10	15	20	25	465	1100*1000*1580
BDL-A8		8	11	18	25	28	580	1100*1100*1800
BDL-A10		10	15	20	25	30	730	1200*1200*1800
BDL-A15		15	20	30	35	40	780	1350*1350*1850
BDL-A20	Quantity	20	25	35	50	60	1200	1550*1550*1900
BDL-A30		30	35	50	70	80	1400	1700*1500*2200
BDL-A50		50	55	80	120	130	1300	2500*1500*2300
BDL-A60		60	65	100	150	160	2200	3000*1200*2350
BDL-A70		70	80	120	170	190	2400	3100*1200*2350
BDL-A80		80	95	140	200	220	2600	3300*1500*2500
BDL-A90		90	110	160	230	260	3000	3300*1600*2500
BDL-A100		100	120	200	270	300	3300	3500*1600*2500

Main technical parameters

Nitrogen	Nitrogen gas purity	99-99.999%
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	Nitrogen production	See the table above
	Nitrogen outlet pressure	0.6-0.7MPA
	Dew poin	-35 °C
compressed air	pressure	0.6-1.0MPA
	Dew poin	-30 °C
	Air oil content	oil <0.01 PPM
Control box	The power supply	AC220 50HZ
	power	30W
other	Indoor te m peratu re/hu m id ity	54TC/M80%
	Optimumoperating temperature	20-25°C
	Mode of operation	Fully automatic
	Installation environment	indoor

Working principle and structure

Pressure Swing Adsorption (PSA) nitrogen making machine is the compressed air after purification and pretreatment as raw gas, into the Adsorption tower equipped with adsorbent (carbon molecular sieve), according to the different Pressure, nitrogen oxygen in compressed air in the Adsorption amount of adsorbent so as to separate available nitrogen. When the pressure is increased, oxygen is absorbed in the adsorbent, and nitrogen flows out of the adsorption tower into the nitrogen storage tank; When depressurization adsorbent deoxygenation regeneration; In this way, the two adsorption towers alternate and separate nitrogen and oxygen, thus continuously producing the required nitrogen for use. Nitrogen production device is mainly composed of compressed air pretreatment, compressed air buffer treatment, adsorption separation treatment, nitrogen buffer treatment, and control components.

Equipment installation and use

1. The air separation nitrogen production equipment is placed on the cement plane. After unpacking the equipment, check whether the spare parts, accessories, operation instructions and other relevant items are complete.
2. Pipelines should be connected strictly in accordance with the process flow, and the inlet and outlet pipelines of air compressor, air storage tank, cold drying machine, filter, nitrogen making machine and nitrogen storage tank should be connected according to the process flow chart of the system.
3. Check the air tightness of the air path system connection of the device.
4. Connect the power supply of air compressor, cold drying machine and nitrogen making machine, and the equipment must be grounded.
5. The system should be installed in a clean, dry, well-ventilated room, and ensure that there is enough space for operation and maintenance, avoid space closure, the ground should be smooth and firm.

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Procedure for starting the device normally

1. Open air compressor, compressed air into the air tank (users can customize).
2. Turn on the cold dry power source, and the compressed air enters the nitrogen making machine after being processed by the cold dry machine and the filter, and the indicator of each pressure gauge rises gradually.
3. Turn on the nitrogen generator power switch and the detector switch. After 10 seconds, press the start button to enter the normal working state.
4. When the product gas is generated, open the nitrogen outlet (automatic model comes with automatic emptying device, no need to manually), the purity meets the user's requirements, can be directly used. (Automatic nitrogen making machine adopts PLC control to automatically close and open according to purity setting, customers can choose models)
5. Nitrogen making machine is equipped with manual/automatic function. In automatic mode, when nitrogen pressure reaches the set value (factory default 0.6MP), nitrogen making machine stops nitrogen making, when the pressure is lower than the set value (factory default 0.45MP), start the work flow, and work continuously in manual mode. Note: the pressure in automatic mode can be set according to customer needs, and the start and stop buttons can only be controlled in manual mode.(3, 4, 5 for BDL-3000L— A300)

Equipment normal shutdown steps (optional)

1. Close the nitrogen outlet, keep nitrogen at the highest pressure (nitrogen purity rises faster when it is used again) close the detector switch, switch from automatic mode to manual mode, press the stop button, and turn off the nitrogen generator power switch one minute later.
2. Turn off the power switch of the cold-dry machine.
3. Power off the air compressor.

Emergency shutdown steps for equipment failure

1. Press the emergency stop button. (Optional model)
2. Turn off the power switch of the nitrogen generator.
3. Close the nitrogen outlet.

A-Describes the normal running status of the device

1. The power indicator is on and the startup indicator is on.
2. The indicator light of PLC or time relay (optional by users) works alternately, and the solenoid valve and pneumatic valve work alternately.
3. Tower A and Tower B work alternately, the pressure of nitrogen meter rises, and the purity of nitrogen detector rises.

Note :(2, 3 for bdl-3000l -A300 model)

Operation precautions Maintenance and maintenance

- 1 According to customer requirements, the flow rate and purity have been debugged at the factory. If there is no special need, please do not adjust at will. It is especially suggested that if the nitrogen machine needs to be transferred, please contact the company's engineers or technical personnel before operation.
2. The flow valve in front of the purity detector has been adjusted before delivery. Please do not adjust it at will. (Flow range 400-600ml /Min)
3. Do not arbitrarily mobilize the electrical components in the control cabinet, do not arbitrarily dismantle pipelines and solenoid valves, pneumatic valves and other valves, so as to avoid danger and damage to the equipment and affect the normal use.
4. When the machine is stopped in automatic mode, do not switch to manual mode, otherwise the purity will fluctuate. The machine can switch between manual mode and automatic mode freely in running state.(Suitable for BDL-3000L— A300)
5. Regularly observe outlet pressure, flowmeter indication and nitrogen purity, and compare with the required value to find problems and solve them in time.

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6. Drain the drying equipment regularly, and replace the activated carbon filtration equipment once every 5000 hours.

7. Enter the nitrogen machine must be through dry compressed air filtering processing of anhydrous oil-free dry gas (filter drainage system is automatic, best manual drainage) it's hard to do regular water, oil will directly affect the nitrogen purity nitrogen machine and service life, found that the air pressure regulating valve with water, oil, please stop using immediately, check the air handling system.

8. Maintenance and maintenance

To ensure the long-term stable and reliable operation of each device in the system, users must do some routine maintenance. The manual of each equipment in the system is described in detail, please be sure to follow the requirements of the manual for maintenance. These include:

- 1) whether the solenoid valve works normally;
- 2) Whether the pipes and fittings of each equipment in the system are damaged or leaked;
- 3) Whether the wiring of the electrical control part of the system equipment is firm, and whether the electrical components are normal;
- 4) Clean the equipment with dust removal;
- 5) The filter element of the filter should be replaced regularly. (It is recommended that the replacement time not exceed 4000 hours)

Note: the filter core should be replaced when the system stops running and the air pressure in the pipeline must be removed. Otherwise, serious injury may result.

Common equipment failures and handling

(Common faults of different models vary)

fault phenomenon	cause of the problem	Elimination method
If you turn on the power switch, the power indicator is off	1. The power supply is not connected 2. The power switch is damaged 3. Intake pressure is low	1. Switch on the power supply 2. Replace the power switch
Tower A and tower B cannot be converted normally	1. Control solenoid valve is damaged 2. The air inlet valve is not opened 3. Pneumatic valve damage	1. Repair or replace the solenoid valve 2. Check pipe valve, repair or replace if there is fault
The pressure of tower A and tower B is not balanced when the pressure is equalized	1. The control pressure equalizing solenoid valve is damaged 2. Pressure regulating valve does not open (working pressure 0.4mp-0.5mp)	1. Repair or replace the solenoid valve 2. Check the pipe valve and repair or replace it if there is any fault 3. Repair or replace the pressure regulating valve to
The muffler does not stop exhaust, while the pressure of the adsorption tower does not rise	1. The back-blowing valve is too open 2. Pneumatic valve replacement is not in place	1. Adjust the back-blowing valve to higher 2. Repair or replacement

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Nitrogen purity fluctuates during operation	1. Low air pressure 2. Big gas consumption 3. Sample gas is too large or too small 4. Nitrogen sensor damage	1. Maintenance and repair of air compressor to check the air supply system 2. Keep the gas consumption below nitrogen production and adjust the flow meter
The nitrogen analyzer is inaccurate	1. Air is mixed in 2. Oxygen electrode failure	1. Check the purity measurement system 2. Replace detector

Equipment maintenance record form

Maintenance time	If there is something wrong	The operator	The fault phenomenon	Troubleshooting Contents

Quality guarantee clause

1. The warranty period of the nitrogen making machine and the equipment produced by our company is 12 months. Outside the warranty period, our company will also be responsible for the paid maintenance service of the equipment until the equipment is scrapped.

2. Product (warranty period) Under the normal operation and use of the user, the failure or failure of the equipment or instrument caused by the quality problems of some parts of the equipment or instrument, these are free warranty scope.

For the parts, equipment and instruments that need to be replaced free of charge, please inform us in time when the equipment or instruments are faulty, and please keep the faulty parts as they are and replace them in time after our company sends someone or calls to confirm.

Special declaration: our company is only responsible for the warranty of the products provided by our company in the nitrogen making system, and will not undertake the joint and several compensation liability for other losses caused by the damage of the nitrogen making equipment.

Service

1. Pre-sales service

To introduce the company's products to customers truthfully and in detail, and provide perfect related technical information, to assist the relevant design units to carry out technical exchanges, to provide users with reasonable improvements, to meet the reasonable requirements of users, to provide customers with optimal solutions.

2. After-sales service

The company has after-sales service, timely to provide customers with good after-sales service, to ensure the safe operation of the system, the establishment of user files, so that the company has a reference, master the operation of equipment.

Safety Precautions

1. In the process of connecting the air path system, the nitrogen making equipment should be shut down and no air pressure.

2. Nitrogen making machine will produce nitrogen-rich gas and oxygen-rich gas. A large number of inhalation of nitrogen-rich gas will cause suffocation, and the increase of oxygen-rich gas will cause fire.

3. The device must be grounded reliably. Otherwise, normal operation of the device and operator safety may be affected.

4. High pressure gas may cause serious injury. Do not operate in violation of regulations to avoid injury to equipment or personnel.

5. Do not use pipe fittings without safety certification, and do not disassemble control valves without

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permission.

Schedule 1

Equipment list of PSA series nitrogen making machine (different models with different configurations)

Serial number	The name of the	The number of	unit	note
1	Air compressor	1	set	
2	Drying machine	1	set	
3	Air buffer tank	1	set	
4	Adsorption device	1	set	
5	Nitrogen buffer tank	1	set	
6	Electric drain valve	1	set	
7	PLC controller	1	set	
8	Filter unit	1	set	

Schedule 2

List of technical data(Different configurations for different models)

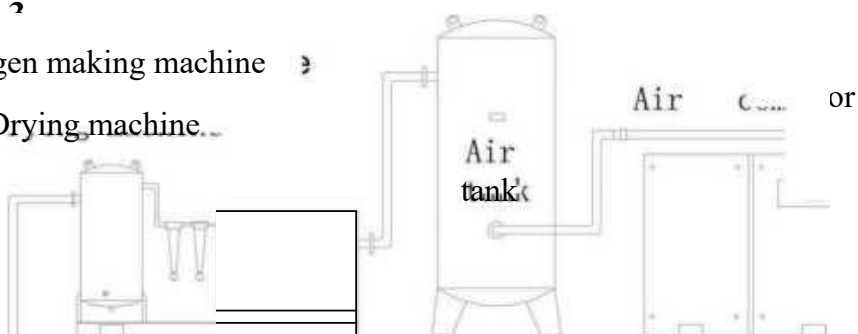
serial number	name	content	number of
1	Air compressor (or customer's own)	Manual, certificate of quality (or provided by users)	1
2	Nitrogen gas tank	Test report and instruction manual	1
3	Nitrogen analyzer	Certificate of quality, specification	1
4	Drying machine	Certificate of quality, specification	1
5	Pressure switch	Certificate of quality, specification	1

Nitrogen
storage
tank

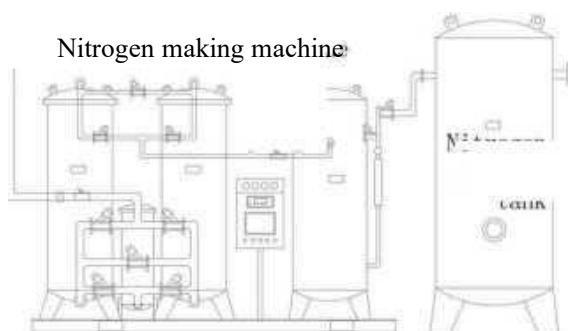
Schedule 2

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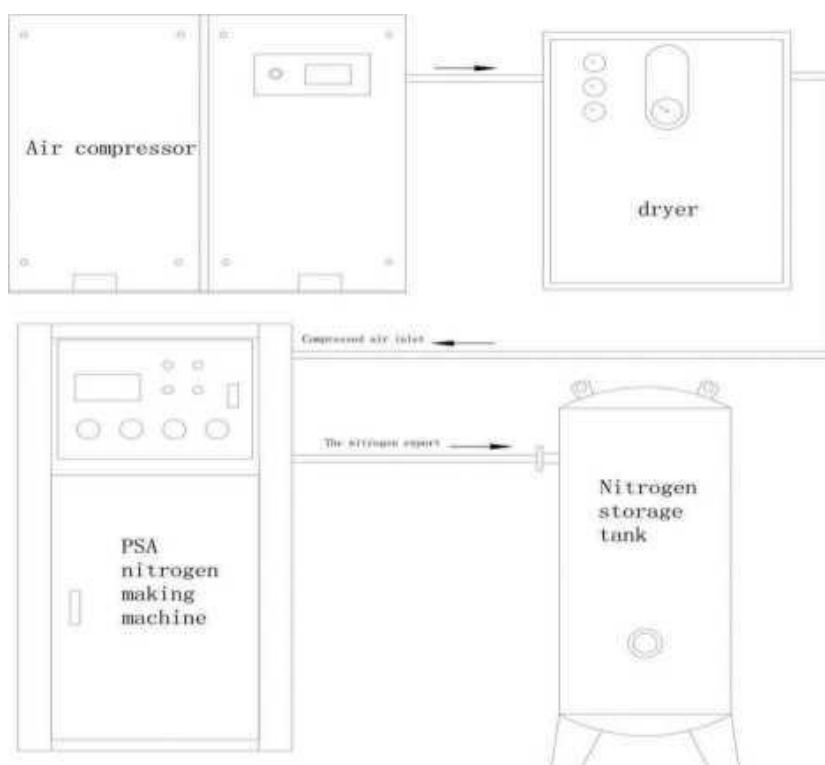
Drying machine



Nitrogen making machine

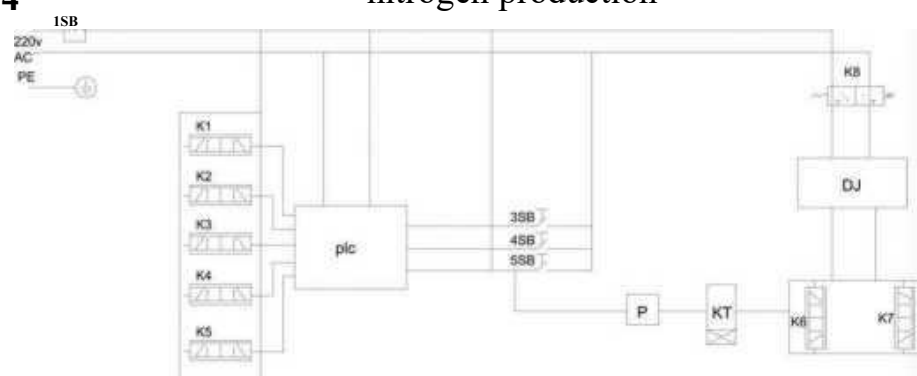


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Schematic diagram of adsorption
nitrogen production

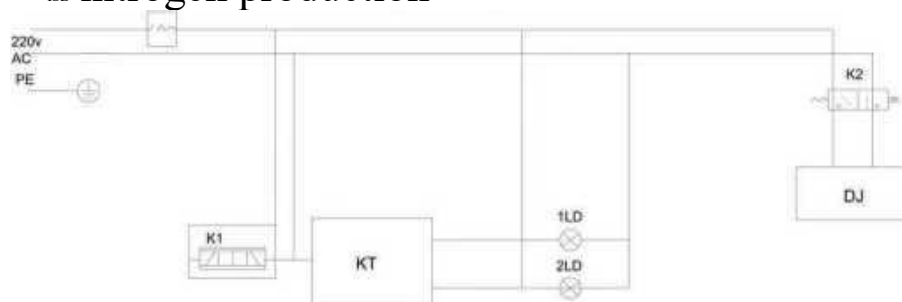
Schedule 4



name of the			
1SB	abrupt stop switch	K4	B tower inlet solenoid valve
2SB	With lamp switch	K5	A tower inlet solenoid valve
3SB	Switch with light start button	K6	Nitrogen outlet solenoid valve
4SB	Switch with light stop button	K7	Empty the solenoid valve
5SB	Manual/automatic switch	DJ	Nitrogen detector
K1	A tower inlet solenoid valve	P	Pressure switch
K2	B tower exhaust solenoid valve	KT	Miniature relay
K3	Equalizing solenoid valve	PLC	PLC

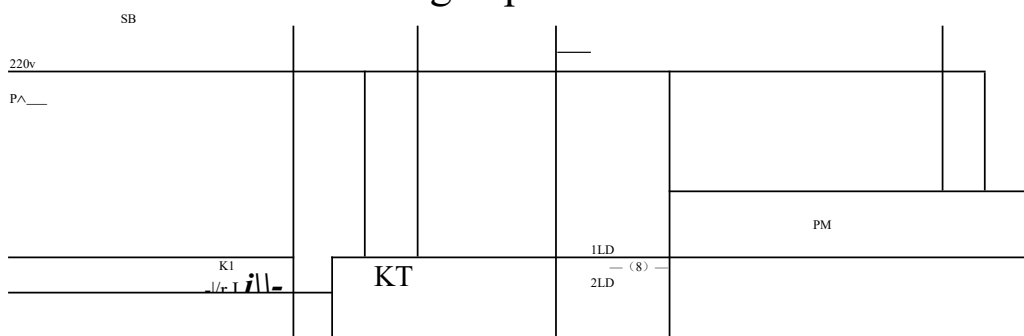
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Schematic diagram of adsorption nitrogen production



name			
1SB	With lamp switch	K2	Flow solenoid valve of detector
1LD	A tower indicator light	DJ	Nitrogen detector
2LD	B tower indicator light	K1	Intake solenoid valve of tower A and B
KT	Time relay		

Schematic diagram of adsorption nitrogen production



name			
SB	With lamp switch	PM	Purity simulator
1LD	A tower indicator light	KT	Time relay
2LD	B tower indicator light	K1	A/B tower inlet/outlet solenoid valve