

# PSA type Nitrogen Gas Generator for Laser Beam Machine

PSA Type Nitrogen Gas generator  
**BELLSWING**



 AIR WATER INC.

# N2-PSA SYSTEM

20050621

**BELLSWING,  
PSA type nitrogen gas  
generator for laser beam  
machine**

## Features

- Reduced gas cost
  - \* BELLSWING's ultra-long continuous operating hours make the gas cost considerably less.  
The longer it operates, the cheaper the unit gas cost.
  - \* Two energy saving methods are available for reducing running cost.
- The compactifying design, which uses unique adsorbent of our own development, reduces installation space to half that of conventional types.
- All models are equipped with a touch panel for centralized control of various information.
- Just a single touch of a button and nitrogen gas is provided in about 10 minutes after start-up.
- Bothersome work of replacing compressed gas cylinders or replenishing tanks are dispensed with. Thanks to the incessant gas supply, there is no worry of running out of gas during the night.
- A wide variety of products to accommodate different works.

## Specifications

		Low-pressure standard types		Medium to high-pressure types; High purity type; Energy saving types (can be freely assorted)				
		KN4-18MHP	KN4-30MHP	KN5-30SP-CH	KN5-40SP-CH	KN5-50SP-CH	KN5-60SP-CH	KN5-100SP-CH
Nitrogen gas specifications	Purity(%) ※ 1	99.99%		99.999% (10 ppm or lower residual oxygen concentration made possible by hydrogen-added purification method)				
	Volume generated (Nm <sup>3</sup> /h)	18	30	30	40	50	60	100
	Gas pressure (MPa)	0	0	Max. 3.0 for medium pressure; Max. 4.5 for high pressure				
	Energy saving method	No-load running method	-		No-load running during suspension of gas supply implements a 70% energy saving.			
	Accumulator method	-		Shutdown during accumulated status implements a nearly 100% energy saving.				
PSA device	Type/Specifications	Pressure Swing Adsorption · Energy saving, package type noiseproof model						
	Dimensions (m)	1.2×1.1×2.0	1.2×1.3×2.0	1.4×0.8×1.8	1.6×0.9×1.9	1.7×1.0×1.9	1.7×1.0×2.0	1.6×1.6×2.5
Compressor	Type	Equipped with dryer/air cooling/lubrication necessary/screw type						
	Motor output(kw)	15	22	22	30	37	45	75
Purifier	Type	-		Hydrogen addition type (hydrogen gas to be prepared by user)				
Pressurizer	Type	-		Air-cooling/lubrication necessary/reciprocating (single stage compression for medium pressure; two-stage compression for high pressure)				
	Motor output(kw)	-		5.5	5.5/7.5	5.5/7.5	7.5	11/15
Buffer tank	Type	Housed in main body		Installed separately from main body. A 200 - 1,200 liter high pressure tank prepared depending on the type of energy saving method.				

※ 1 Nitrogen gas purity: Purity of product gas with oxygen component removed is represented by nitrogen gas, the major remaining component.

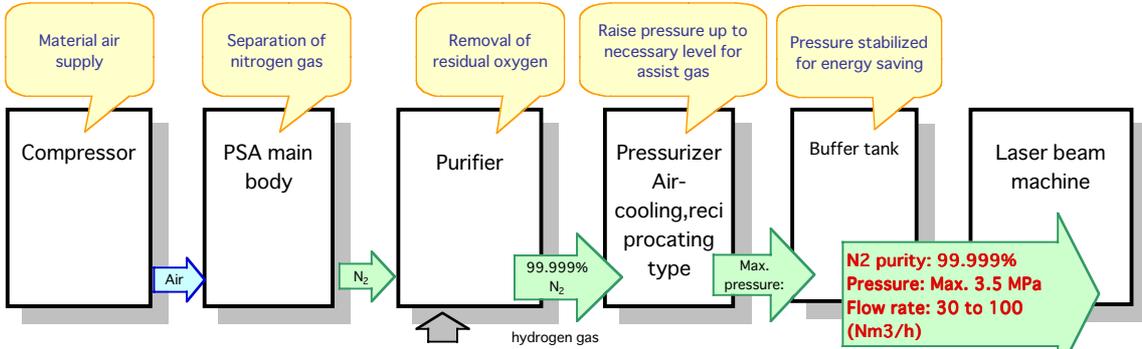
※ Listed above is a typical example. Please ask for other specifications.

※ Specifications are subject to change without notice.

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**Medium to High Pressure, High Purity Type**

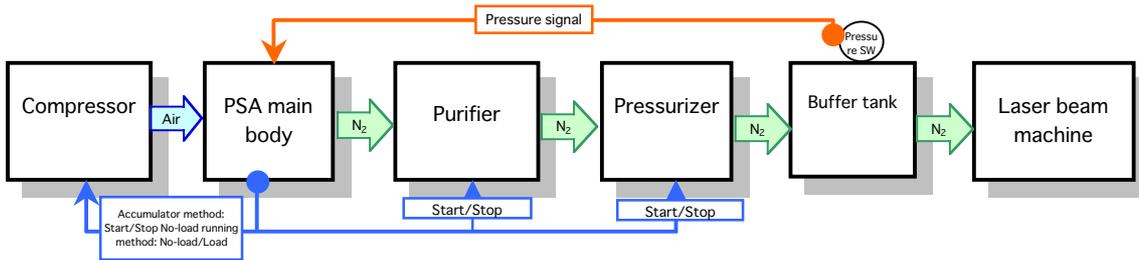
**Continuous supply of nitrogen gas with 99.999% purity (10 ppm or lower residual oxygen concentration) and maximum pressure of 3.5 MPa can be realized.**



- BELLSWING uses hydrogen-addition type nitrogen gas purifier to generate high purity nitrogen gas with 10 ppm or lower residual oxygen concentration.
- Air-cooling, reciprocating type pressurizer, which excels in cost-effectiveness, is employed to accumulate medium pressure (3.5 MPa) to high pressure (4.5 MPa) nitrogen gas.
- Medium pressure (3.5 MPa) to high pressure (4.5 MPa) high purity nitrogen gas can be continuously supplied to the laser beam machine.

**Energy saving method**

**Two methods, 'No-load running method' and 'Accumulator method' are available.**



**Accumulator method (Eco-Pressure)**

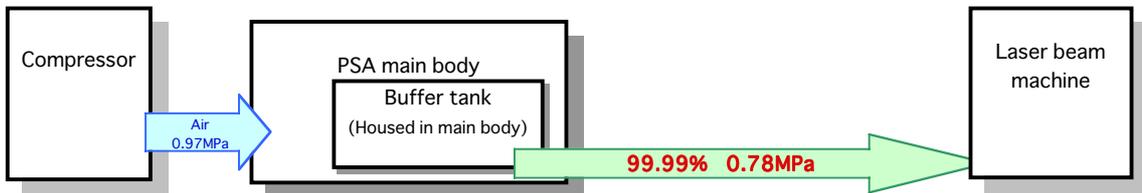
Nitrogen gas is accumulated in a large volume tank (1,200 liter) up to a high pressure of 4.5 MPa, then the compressor and pressurizer are halted until the pressure inside the tank decreases to a prescribed level, thus realizing a nearly 100% energy saving.

**No-load running method (Eco-Cycle)**

PSA senses gas-supply status, suppressing air consumption if gas supply is suspended, thus implementing about a 70% energy saving by no-load running of the compressor. Large volume tank can be dispensed with, offering increased cost-effectiveness.

**Low Pressure Type**

**Purity: 99.99%; Gas pressure: 0.78 MPa  
Continuous supply: 18Nm<sup>3</sup>/h (300 NL/min) - 30Nm<sup>3</sup>/h (500 NL/min)**



- Housing the buffer tank in the PSA main body allowed substantial space-saving in installation.
- A simple system configuration that does not involve pressurizer.

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**INFOMAP**

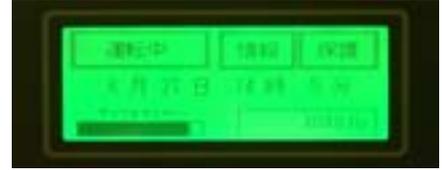
A touch-panel display presents various operational information. Also various settings can be made on the display screen.

○ Information displayed

- Storing and display of causes of starts and stops (most recent 10 incidents).
- Storing and display of causes of anomalies
- Display of running status
- Display of maintenance information

○ Settings and controlling functions

- Unattended operation by weekly-timer
- Automatic control by detecting coupled operation with external devices and weighing the value of incoming information
- Changing of preset values (protected by password)



INFOMAP display during operation

**PSA Sales Section, Sales Department, AIRWATER INC.**

Osaka office      7th Flr., Toa Bldg.  
5-7, Minamihonmachi 4-chome  
Chuo-ku, Osaka 541-0054, Japan  
Phone: +81-6-4704-3049  
Fax: +81-6-6243-4337

Tokyo office      8th Flr., Toranomom Marine Bldg.  
18-9, Toranomom 3-chome  
Minato-ku, Tokyo 105-0001  
Phone: +81-3-3578-7834  
Fax: +81-3-3578-7838

