

# N<sub>2</sub>

NITROGEN GENERATOR

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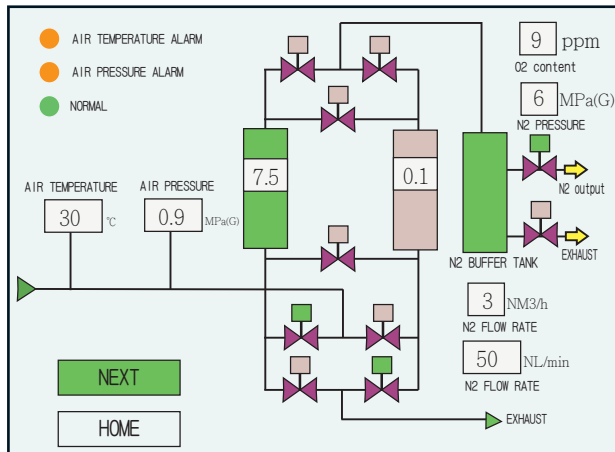


PURITY: 99~99.9995%

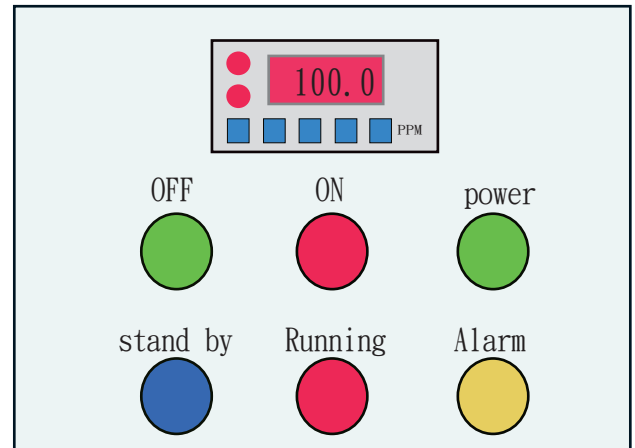
## Feature

### \*Design and Operation of HMI

User can use display to get correct operation information from the machine and get effective control. To touch a button of display, can set a lot of function, operation is very convenient, and no need to appoint a professional to do maintenance work, it can economize cost expenditure even more.



Option



Standard

### \*Compact design

We adopt compact design to save working space; also can design match the proprietor's working environment by the proprietor's demand. Both air compressor and air tank have enough space to set.

### \*Quiet operation environment

We adopt unique noise elimination design, the noise can effective reduce, to rise comfortable working environment and relax an operating staff, to go a step further work efficiency.

### \*Programmable Logic Controller (PLC) for Automatic control

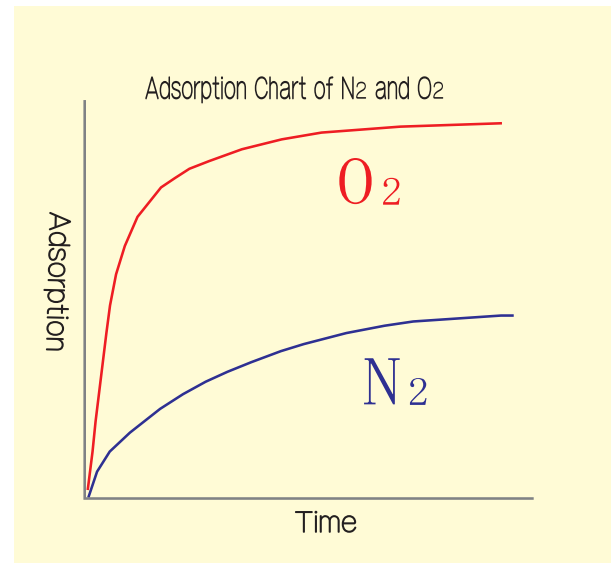
We adopt PLC and A/D Specially Block unit (an analog signal transform to digital unit) to operate in coordination, receive and transmit even more accuracy. Each of the machine parts can occur a chain reaction by programming, because breakdown probability is very low, so service life is long-time.



With enclosure of unit

## Principle of PSA

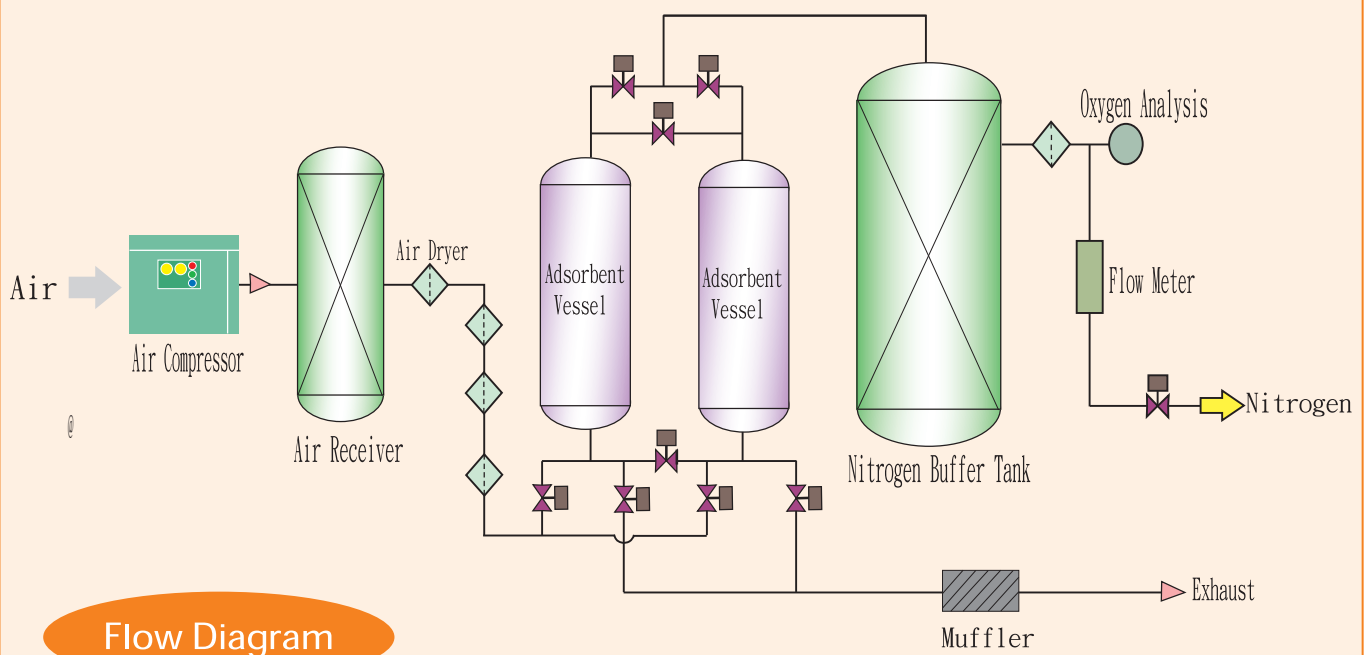
Gas Research CMS (Carbon Molecular Sieve, Please reference picture) it has aperture size is 2.8~4.0Å, oxygen molecule size is 3.8x2.8Å, nitrogen molecule size is 4.2x3.0Å, oxygen molecule is smaller than CMS, and nitrogen is inert gas, therefore adsorption and diffusion speed is smaller than oxygen molecule where enter in adsorbent cylinder, the CMS adsorbent oxygen molecule is saturated, nitrogen molecule also easy to be isolated and separated. Namely "Pressure Swing Adsorption", with the help of gas in CMS tiny aperture different diffusion speed and adsorb ability characteristic, compressed air pressurize adsorbent oxygen at the normal atmospheric temperature, at the same time collect nitrogen, reduce pressure and exhaust oxygen, the cycle is then repeated and circulating, unceasingly regenerated, sustained produce nitrogen, the process called PSA.



## FEATURES OF MCS

Gas Research carbon molecular sieve, its aperture size and distribution is very even, adsorption ability is very excellent, specially separation in oxygen and nitrogen is very excellent, can sustain pressure swing momentum than, not easy smash, intensity and enduring attrition ability consumedly superior, service life is long-time.

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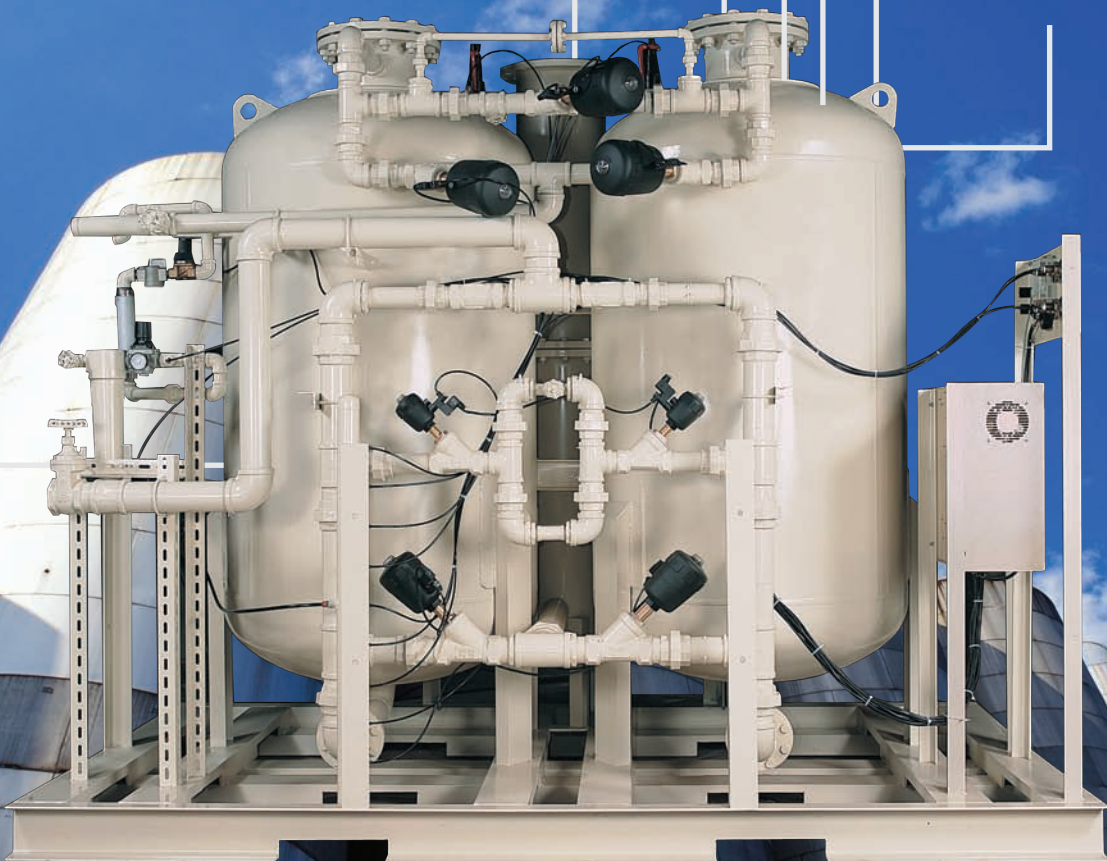


Flow Diagram



## @Application

- \*Semiconductor industry.
- \*Fruits and vegetables for keeping fresh.
- \*Foods and drinks for preventing oxidation.
- \*Nitrogen filling for tyre curin
- \*Save of mobile for flammability
- @material and explosive.
- \*Heat treatment.
- \*Fiber industry.
- \*Natural gas and petroleum industry.
- \*Laser cutting.
- \*Ship welding.
- \*Reflow machine for PCB industry.
- \*Rubber industry.



Without enclosure of unit

## Specification (MCS from Kuraray Chemical ,JAPEN)

| Nitrogen Purity                   | Model     | Produce Nitrogen<br>Nm <sup>3</sup> /h | Size<br>W x D x H(mm) | Air Compressor<br>Kw |
|-----------------------------------|-----------|----------------------------------------|-----------------------|----------------------|
| 99.0%<br>O <sub>2</sub> ≤10000ppm | GRN05-2N  | 05                                     | 750*600*1750          | 3.7                  |
|                                   | GRN10-2N  | 10                                     | 850*750*1900          | 3.7                  |
|                                   | GRN14-2N  | 14                                     | 1350*1100*2000        | 7.5                  |
|                                   | GRN28-2N  | 28                                     | 1450*1150*2150        | 15                   |
|                                   | GRN55-2N  | 55                                     | 1580*1290*2250        | 18                   |
|                                   | GRN90-2N  | 90                                     | 1800*1400*2700        | 37                   |
|                                   | GRN130-2N | 130                                    | 2040*1520*2800        | 55                   |
|                                   | GRN160-2N | 160                                    | 2230*1650*2900        | 75                   |
|                                   | GRN220-2N | 220                                    | 2520*1760*2800        | 90                   |
| 99.9%<br>O <sub>2</sub> ≤1000ppm  | GRN7.5-3N | 7.5                                    | 1350*1100*2000        | 7.5                  |
|                                   | GRN15-3N  | 15                                     | 1450*1150*2150        | 15                   |
|                                   | GRN30-3N  | 30                                     | 1580*1290*2250        | 18                   |
|                                   | GRN60-3N  | 60                                     | 1800*1400*2700        | 37                   |
|                                   | GRN90-3N  | 90                                     | 2040*1520*2800        | 55                   |
|                                   | GRN120-3N | 120                                    | 2230*1650*2900        | 75                   |
|                                   | GRN150-3N | 150                                    | 2520*1760*2800        | 75                   |
| 99.99%<br>O <sub>2</sub> ≤100ppm  | GRN05-4N  | 05                                     | 1350*1100*2000        | 3.7                  |
|                                   | GRN10-4N  | 10                                     | 1450*1150*2150        | 7.5                  |
|                                   | GRN20-4N  | 20                                     | 1580*1290*2250        | 15                   |
|                                   | GRN40-4N  | 40                                     | 1800*1400*2700        | 37                   |
|                                   | GRN60-4N  | 60                                     | 2040*1520*2800        | 55                   |
|                                   | GRN80-4N  | 80                                     | 2230*1650*2900        | 75                   |
|                                   | GRN100-4N | 100                                    | 2520*1760*2800        | 75                   |
| 99.999%<br>O <sub>2</sub> ≤10PPM  | GRN20-5N  | 20                                     | 1800*1400*2700        | 37                   |
|                                   | GRN40-5N  | 40                                     | 2040*1520*2800        | 55                   |
|                                   | GRN80-5N  | 80                                     | 2520*1760*2800        | 75                   |

Notes:

- (1) Products includes little Argon.
- (2) Compressed air pressure must be above 0.9Mpa; nitrogen delivery pressure 0.59Mpa.
- (3) For remarkable advance if altered the specifications of unit, will not advance notification.

## Nitrogen generator cost trial balance

Please complete the following information

### 1. Information of Company

(1) Name of Company:

(2) Address:

(3) Title:

(4) Name:

(5) Telephone number:

(6) Fax number:

(7) E-mail:

### 2. Properties of Nitrogen

(1) Purpose:

(2) Purity:

☐ 99.0% ☐ 99.9% ☐ 99.99% ☐ 99.999%

other  %

(3) Dew point: -  °C

(4) Pressure:  (MPa)

(5) Working time:

hour/day  day/month

day/year

(6) Requested Volume:

Max  Min  Avg  (Nm<sup>3</sup>/H)

(7) Site: ☐ indoor ☐ outdoor

### 3. Utility

(1) electric power:

☐ Single-phase ☐ three-phase

☐ 110V ☐ 200V ☐ 220V ☐ 380V ☐ 440V

other  V

☐ 50Hz ☐ 60Hz

(2) Cooling water:

☐ tap-water ☐ industrial water ☐ temperature  (°C)

(3) compressed air of situation:

Pressure  (MPa) Air Flow  (m<sup>3</sup>/min)

### 4. Cost of Nitrogen

(1) LN<sub>2</sub> Price  dollar/KG

(2) Nitrogen of bottle Price  dollar/1 bottle

### 5. Cost of Utility

(1) electric  dollar/KWH

(2) water  dollar/Ton

(3) interest  %

Agent/Dealer:

## GasResearch

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