



### ● ***N<sub>2</sub> - PSA Process***

Air compressed by an air compressor is introduced into the bottom of the adsorber. Oxygen, carbon dioxide and moisture are removed in the adsorber, and nitrogen gas comes out of the top as the product gas. Oxygen, carbon dioxide and moisture adsorbed by CMS in the adsorber are desorbed at atmospheric pressure. High-purity Nitrogen gas is generated through pressurization-to-depressurization swing which is performed alternately by two adsorbers.



### ● ***N<sub>2</sub> - PSA Standard Specifications***

- Capacity : 3.0Nm<sup>3</sup>/h ~ 3,000Nm<sup>3</sup>/h
- Nitrogen purity : 95% ~ 99.999%
- Moisture Dew Point : -60 °C(atm)

### ● ***N<sub>2</sub> - PSA Application***

- 1. Blanketing**
  - Blanketing and transportation of explosive or inflammable substances.
- 2. Purging**
  - Purging of tanks, pipes, etc.
- 3. Heat treatment**
  - Adjustment of atmospheric condition for bright hardening, bright annealing, carburizing, nitriding, tempering, etc.
- 4. Atmospheric control**
  - Tire vulcanization system, CA storage, prevention of oxidation of edible oil, etc.
- 5. Food Packing**
  - Prevention of quality deterioration of foods such as tea, instant coffee, coffee, cookies, etc.
- 6. Manufacture of semiconductors, electronic parts, etc.**
- 7. Reflow furnace**

GNG XX-XXX																		
Nitrogen Generation (Nm <sup>3</sup> /h)																		
95%	9.3	16.2	23.6	37.9	55.0	67.4	82.7	100.4	145.8	228.5	301.5	409.3	479.8	648.3	816.7	884.2	1183.3	1268.5
97%	8.6	14.9	21.7	34.9	50.7	62.1	76.1	92.5	134.2	210.4	277.5	376.8	441.7	596.8	751.9	814.0	1089.3	1167.8
98%	8.1	14.2	20.7	33.2	48.3	59.1	72.4	88.0	127.6	200.1	264.0	358.4	420.1	567.7	715.2	774.3	1036.1	1110.8
99% (2N)	7.4	12.9	18.8	30.2	43.9	53.7	65.9	80.0	116.1	182.0	240.1	326.0	382.1	516.3	650.5	704.2	942.4	1010.3
99.50% (2.5N)	6.7	11.7	17.1	27.5	40.0	48.9	60.0	72.9	105.8	165.8	218.7	297.0	348.1	470.4	592.6	641.6	858.6	920.4
99.90% (3N)	5.4	9.5	13.8	22.1	32.2	39.4	48.4	58.7	85.2	133.6	176.3	239.4	280.6	379.1	477.6	517.1	692.0	741.8
99.95% (3.5N)	4.6	8.0	11.6	18.6	27.0	33.1	40.6	49.3	71.5	112.2	147.9	200.9	235.5	318.2	400.9	434.0	580.8	622.6
99.99% (4N)	3.8	6.7	9.2	15.6	22.7	27.7	34.0	41.3	60.0	94.1	124.1	168.5	197.5	266.8	336.2	364.0	487.1	522.2
99.999% (5N)	2.6	4.6	6.7	10.8	15.7	19.2	23.5	28.6	41.5	65.1	85.9	116.6	136.7	184.7	232.7	252.0	337.2	361.5
Dimensions (mm)																		
Length	2,200	2,600	2,800	3,000	3,500	3,600	3,700	3,800	4,100	4,900	5,300	6,000	6,200	6,400	7,000	7,200	8,800	9,000
Width	1,300	1,450	1,750	2,100	2,300	2,450	2,450	2,550	2,700	3,300	3,600	4,100	4,400	4,600	5,200	5,400	5,600	5,800
High	2050	2050	2050	2100	2100	2100	2,300	2,350	2,650	2,700	2,800	3,200	3,250	3,300	3,300	3,350	3,450	3,450
Air Compressor Consumption (Nm <sup>3</sup> /h)																		
Capacity	19	33	48	77	112	137	168	204	296	464	612	831	974	1316	1658	1795	2402	2575
Power Consumption (Kw)																		
Comp.	4	5.5	7.5	11	15	18	22	27	37	55	75	90	110	150	190	220	260	300
Dryer	0.46	0.62	0.68	0.72	1.3	1.3	1.6	1.6	2.1	2.3	3.0	4.6	5.1	8.5	10.0	16.0	16.0	16.0
L.C.P	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Total	5.46	7.12	9.18	12.72	17.3	20.3	24.6	29.6	40.1	58.3	79.0	95.6	116.1	159.5	201	237	277	317
Control Water (Ton)																		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30.0	33.6

### DESIGN DATA

- Ambient temperature 20 °C
- Ambient pressure 1013 mbar
- Working pressure 8.0 bar.G
- Relative humidity 100%
- Inlet air quality ISO8573-1 class 1-4-1

### RANGE

- Inlet temperature 5 °C ~ 45 °C
- Inlet pressure 6 ~ 10 bar.G
- Purity nitrogen 95% ~ 99.999%
- Unit performance ±5% (0°C, 1013 mbar)

### POWER

- 220V / 380V / 440V - 3PH - 50/60HZ

### TYPE

- GNG  $\begin{matrix} \text{XX} \\ \text{---} \\ \text{XXX} \end{matrix}$   $\begin{matrix} \rightarrow \\ \rightarrow \end{matrix}$   $\begin{matrix} \text{Product Flow Rate} \\ \text{Purity} \end{matrix}$

### OPTION

- Upon request for customer
- Engineered products

## Conversion Factors

Inlet Pressure (bar.G)	6	6.5	7	7.5	8	8.5	9	9.5	10
Factors	0.77	0.83	0.88	0.94	1.00	1.05	1.11	1.16	1.17
Inlet temperature (°C)	5	10	15	20	25	30	35	40	45
Factors	0.86	1.04	1.02	1.0	0.98	0.90	0.81	0.73	0.60

### Example

GNG 3N-22.1      99.9%, 8.5bar, 35°C  
 Capacity 22.1 x 1.05 x 0.81 = 18.8 Nm<sup>3</sup>/h  
 Air consumption 77.0 x 1.05 = 80.85 Nm<sup>3</sup>/h

## Nitrogen Generator Basic System



COMPRESSOR



AIR DRYER



AIR FILTER



RECEIVER TANK



N<sub>2</sub> PSA



N<sub>2</sub> GAS HOLDER

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