Pressure Swing Adsorption (PSA) type Nitrogen Generation System that is used to separate and enrich nitrogen from oxygen employs CMS (Carbon Molecular Sieve) as adsorbent.

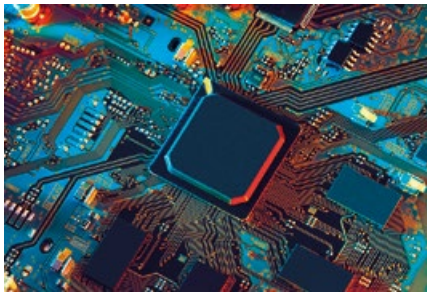
CMS adsorbs oxygen and water vapor molecules under a certain pressure while allowing nitrogen to pass through in the line.

M-MNG-PRO Series is a Modular Adsorber System

The Nitrogen Generator consists of couple of modules filled with CMS. Clean and dry air is directed to adsorber module beds where oxygen and water vapor are adsorbed faster than nitrogen in the pore structure of the CMS, resulting in increased nitrogen purity of the product gas stream to the desired level (95-99.999% as required by customer).

Applications

- Electronic industry
- Metal industry
- Chemical industry
- Cleaning Process
- Plastic industry
- Charge nitrogen gas in tires
- Production process and storage of food



FEATURES

Standard

- Nitrogen Modules
- Silence
- Mini PLC
- Manometers
- Proportional Valve
- Pressure Transmitter
- ECO Mode
- T Filter
- Piston Valves
- Valve Control Regulator

Optional

- Dew Point Sensor Kit
- Flowmeter Kit
- Carbolescer
- Oxygen Analyzer Kit
- 3-Way By-Pass Valve Kit
- HMI Color Touch Screen PLC
- Buffer Tank
- Oil Indicator

Advantages

- Simple structure, compact design, full automated operation
- Replaces manifold usage (see pic .1)
- Touch Screen PLC for controlling the complete system (see pic. 2)
- PLC Screen for monitoring and visualizing the progress
- Rapid start-up and safety system
- Superior silencer design gives low noise levels during depressurization and purge
- Durable piston valves for long-life operation (see pic. 5)
- On-demand production with low costs
- High performance
  *The purity and capacity of nitrogen gas is designed to meet customer requirements
  (Nitrogen Purity 95%~99.999% is available)
- Minimum maintenance cost.
- Lower air-to-nitrogen (A/N) ratios and energy consumption
- Superior air distribution for the high-quality nitrogen gas production
- High-sensitive sensor technologies (see pic 3)
- Effective Integrated Filtration (see pic. 4)

Replaces Manifold Usage - Pic. 1

Mini PLC - Pic. 2

Dew Point Sensor - Pic. 3

Air Filter - Pic. 4

Long Life Piston Valve - Pic. 5

Reference Conditions

Pressure Drop	Inlet Compressed Air Pressure	Outlet Nitrogen Pressure	Ambient Temperature	Inlet Air Dew Point
1.5 barg	7.5 barg	6 barg	25°C	≤ 3°C

Technical Specifications

Mikropor Model	Air Demand @ Following Purity Level (m^3/h)									
	95%	97%	98%	99%	99.50%	99.90%	99.95%	99.99%	99.995%	99.999%
M-MNG-PRO-20	6.9	6.2	5.8	5.3	4.0	4.3	4.3	3.6	3.5	3.3
M-MNG-PRO-40	11.2	10.0	9.4	8.5	8.1	6.9	6.9	5.7	5.6	5.3
M-MNG-PRO-70	20.6	18.4	17.3	15.6	14.2	12.7	12.7	10.6	10.4	9.7
M-MNG-PRO-123	34.3	30.7	28.9	26.0	24.3	21.2	21.1	17.6	17.3	16.2
M-MNG-PRO-210	59.1	52.9	49.7	44.8	42.1	36.5	36.4	30.3	29.8	27.9
M-MNG-PRO-285	78.9	70.6	66.4	59.9	56.2	48.7	48.6	40.5	39.8	37.3
M-MNG-PRO-340	96.5	86.4	81.2	73.3	68.8	59.6	59.5	49.6	48.7	45.6
M-MNG-PRO-555	153.6	137.4	129.2	116.6	109.5	94.9	94.7	78.8	77.5	72.6
M-MNG-PRO-735	203.3	181.9	171.0	154.3	144.9	125.6	125.3	104.3	102.6	96.1
M-MNG-PRO-990	274.8	245.8	231.2	208.6	195.9	169.7	169.4	141.0	138.6	129.9
M-MNG-PRO-1130	314.7	281.6	264.8	238.9	224.4	194.4	194.0	161.5	158.8	148.7
M-MNG-PRO-1260	349.5	312.7	294.1	265.3	249.2	215.9	215.5	179.4	176.3	165.2
M-MNG-PRO-1650	457.4	409.3	384.9	347.3	326.2	282.5	282.0	234.8	230.8	216.2

Technical Specifications

Mikropor Model	Free Nitrogen Delivery @ Following Purity Level (m^3/h)									
	95%	97%	98%	99%	99.50%	99.90%	99.95%	99.99%	99.995%	99.999%
M-MNG-PRO-20	4.3	3.9	3.3	2.8	2.1	1.7	1.6	0.7	0.7	0.4
M-MNG-PRO-40	7.0	6.3	5.4	4.6	4.1	2.8	2.5	1.2	1.1	0.7
M-MNG-PRO-70	12.9	11.5	9.9	8.4	7.2	5.1	4.7	2.2	2.1	1.3
M-MNG-PRO-123	21.5	19.2	16.5	14.0	12.3	8.5	7.8	3.7	3.5	2.2
M-MNG-PRO-210	37.0	33.1	28.5	24.2	21.3	14.6	13.5	6.3	6.0	3.8
M-MNG-PRO-285	49.4	44.2	38.0	32.3	28.5	19.4	18.0	8.5	8.0	5.0
M-MNG-PRO-340	60.4	54.1	46.5	39.5	34.9	23.8	22.0	10.3	9.7	6.1
M-MNG-PRO-555	96.1	86.0	74.0	62.8	55.5	37.9	35.0	16.5	15.5	9.8
M-MNG-PRO-735	127.2	113.8	98.0	83.2	73.5	50.1	46.3	21.8	20.5	12.9
M-MNG-PRO-990	172.0	153.8	132.4	112.4	99.3	67.7	62.6	29.5	27.7	17.5
M-MNG-PRO-1130	197.0	176.2	151.7	128.7	113.7	77.6	71.7	33.7	31.8	20.0
M-MNG-PRO-1260	218.8	195.7	168.4	143.0	126.3	86.2	79.7	37.5	35.3	22.2
M-MNG-PRO-1650	286.3	256.1	220.4	187.1	165.3	112.8	104.3	49.0	46.2	29.1

A/N Ratios for All M-MNG-PRO Models (TBA)**

Purities	95%	97%	98%	99%	99.50%	99.90%	99.95%	99.99%	99.995%	99.999%
Air/N_2 Ratio	1.2 – 1.6	1.4 – 1.8	1.4 – 1.8	1.9 – 2.3	2.1 – 2.6	2.6 – 3.0	2.5 – 3.2	4.1 – 5.0	5.4 – 6.2	6.8 – 7.5

** The A/N Ratios are to be advised according to the desired models and purities.

Technical Specifications

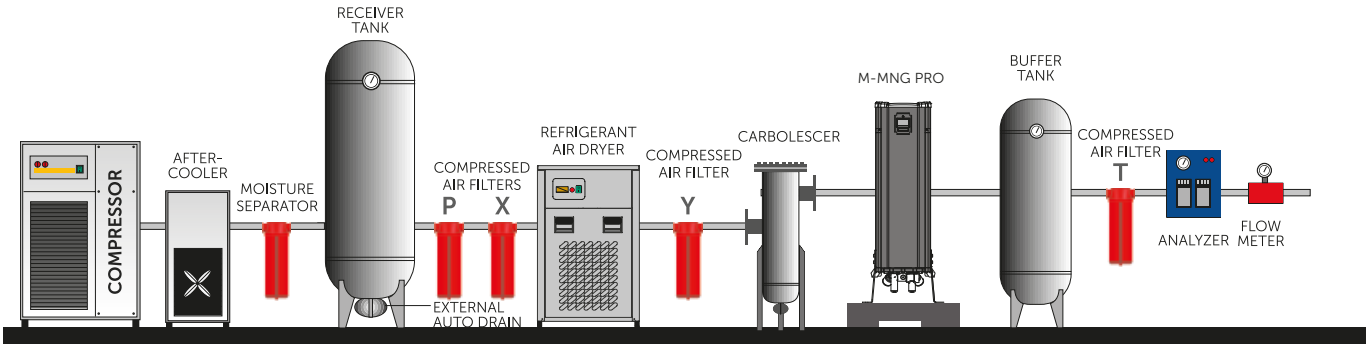
Mikropor Model	Recommended Buffer Tank Volumes (Liter)									
	95%	97%	98%	99%	99.50%	99.90%	99.95%	99.99%	99.995%	99.999%
M-MNG-PRO-20	10	10	10	5	10	5	5	5	5	1
M-MNG-PRO-40	20	15	15	10	10	5	5	5	5	5
M-MNG-PRO-70	30	25	25	20	15	10	10	5	5	5
M-MNG-PRO-123	50	45	40	30	30	20	20	10	10	5
M-MNG-PRO-210	85	75	65	55	50	35	30	15	15	10
M-MNG-PRO-285	110	100	85	75	65	45	40	20	20	15
M-MNG-PRO-340	135	120	105	90	80	55	50	25	25	15
M-MNG-PRO-555	215	190	165	140	125	85	80	40	35	25
M-MNG-PRO-735	285	255	220	185	165	110	105	50	50	30
M-MNG-PRO-990	385	345	295	250	225	155	140	65	65	40
M-MNG-PRO-1130	440	395	340	290	255	175	160	75	70	45
M-MNG-PRO-1260	485	435	375	320	280	190	180	85	80	50
M-MNG-PRO-1650	640	570	490	415	370	250	235	110	105	65

Correction Factor

Inlet Pressure (bar)	F1	Ambient Temp. (°C)	F2
5	0.68	5	0.85
5.5	0.73	10	1
6	0.79	15	1
6.5	0.88	20	1
7	0.90	25	1
7.5	1	30	0.91
8	1.04	35	0.82
8.5	1.08	40	0.74
9	1.15	45	0.6
9.5	1.18	-	-
10	1.2	-	-

To determine the nitrogen generator model in the reference conditions divide the nitrogen flow rate to the factors mentioned in the correction table.

AIR LINE DESIGN



AIR LINE DESIGN