

# MEMBRANE NITROGEN GENERATOR NM-GEN

(Membrane Nitrogen Generator)

## DESCRIPTION

The NM-GEN membrane nitrogen generators extract the available nitrogen from the compressed air. Generator use hollow fiber membrane technology to separate nitrogen from other components in compressed air. The membrane uses the principle of selective permeation to produce purity nitrogen. Each gas has a characteristic permeation rate, which is a function of its ability to diffuse through a membrane. Oxygen is a fast gas and is selectively diffused through the membrane wall, while nitrogen is allowed to travel along the inside of the fiber, thus creating a nitrogen-rich product stream. The oxygen-enriched gas, or permeate, is vented from the membrane separator at atmospheric pressure. The driving force for the separation is the difference between the partial pressure of the gas on the inside of the hollow fiber and that on the outside. In the membrane separator, compressed air flows down the inside of hollow fibers. Fast gases—oxygen, carbon dioxide, and water vapor - and a small amount of slow gases, pass through the membrane wall to the outside of the fibers. They are collected at atmospheric pressure as the permeate. Most of the slow gases and a very small amount of the fast gases continue to travel through the fiber until they reach the end of the membrane separator, where the product nitrogen gas is piped to the application.



## APPLICATIONS

- Blanketing of Chemicals and Pharmaceuticals
- Inerting of Flammable Liquids
- Laser Cutting
- Re-flow and Wave Soldering of PCBs
- UV-Curing of Coatings
- Food processing

## TECHNICAL SPECIFICATIONS

Nitrogen pressure	5– 24 barg
Operating temperature (feed air)	35 °C to 55 °C
Dew point (at ambient pressure)	better than -50°C
Voltage, Frequency	110–230 V / 50–60 Hz
Power consumption	<35 W
Sound level	65 dB(A)
Protection class (controller)	IP 65
Compressed air quality (inlet)	Class 1.X.1 acc. to ISO 8573-1 (0,1um ; bellow saturation ; <0,01mg/m3/h)
Inlet filter	Super fine coalescing and activated carbon

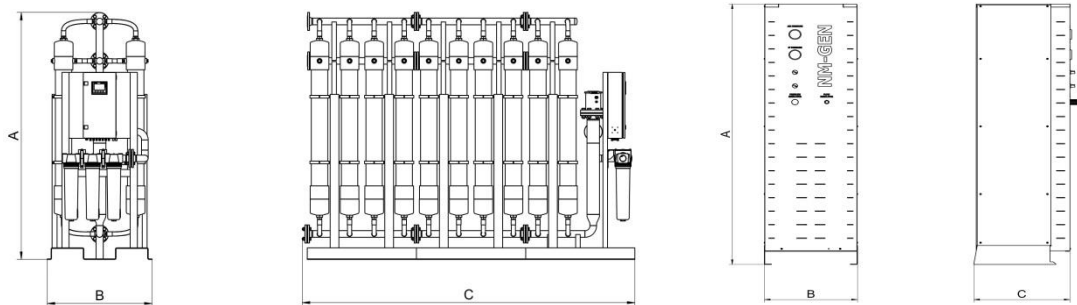
## MATERIALS

Membrane housing	Aluminium and (or) PA
Supporting frame	Carbon steel
Valves	Brass, aluminium
Flexible connection	Nylon
Fittings, Screws, plugs	INOX, brass, steel-zinc plated, PA
Outside protection (frame, cabinet)	Powder paint coated (Epoxy-polyester base)

**SIZES**

Model	Connection IN	Connection OUT	Purge Connection	Height A [mm]	Width B [mm]	Depth C [mm]	Mass [kg]	No. of membranes	
NM-GEN 2	½"	½"	½"	1325	428	530	51	1	Master unit
NM-GEN 4	½"	½"	½"	1325	428	530	52	1	
NM-GEN 6	½"	½"	½"	1325	428	530	55	1	
NM-GEN 10	¾"	¾"	¾"	1925	558	630	103	1	
NM-GEN 25	¾"	¾"	¾"	1925	558	630	112	1	
NM-GEN 50	¾"	¾"	¾"	1925	558	630	130	2	
NM-GEN 75	2"	2"	2"	2253	960	1000	291	3	
NM-GEN 100	2"	2"	2"	2253	960	1000	310	4	Slave unit
NM-GEN 125	2"	2"	2"	2253	960	1000	520	5	
NM-GEN 150	2"	2"	2"	2253	960	1000	539	6	
NM-GEN 175	2"	2"	2"	2253	960	1000	557	7	
NM-GEN 200	2"	2"	2"	2253	960	1000	576	8	
NM-GEN 225	2"	2"	2"	2253	960	1000	594	9	
NM-GEN 250	2"	2"	2"	2253	960	1000	613	10	
NM-GEN 275	2"	2"	2"	2253	960	1000	631	11	
NM-GEN 300	2"	2"	2"	2253	960	1000	650	12	
NM-GEN 325	2"	2"	2"	2253	960	1000	860	13	
NM-GEN 350	2"	2"	2"	2253	960	1000	879	14	
NM-GEN 375	2"	2"	2"	2253	960	1000	897	15	
NM-GEN 400	2"	2"	2"	2253	960	1000	916	16	
NM-GEN 425	2"	2"	2"	2253	960	1000	934	17	Slave unit
NM-GEN 450	2"	2"	2"	2253	960	1000	953	18	
NM-GEN 475	2"	2"	2"	2253	960	1000	971	19	
NM-GEN 500	2"	2"	2"	2253	960	1000	990	20	

<sup>(1)</sup>Volume of 1 vessel



NM-GEN 75 - NM-GEN 500

NM-GEN 2 - NM-GEN 50

**PERFORMANCE**

Nitrogen flow capacity in Nm<sup>3</sup>/h at compressed air temperature 55°C and 9 barg

Model	99,5 % Purity		99 % Purity		98 % Purity		97 % Purity		96 % Purity		95 % Purity		Heater power (W)
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	
NM-GEN 2	4,7	0,8	5,1	1,1	5,7	1,7	6,2	2,2	6,8	2,7	7,4	3,2	250
NM-GEN 4	8,0	1,4	8,6	1,9	9,6	2,8	10,6	3,6	11,5	4,5	12,4	5,4	250
NM-GEN 6	14,2	2,4	15,3	3,4	17,1	5,0	18,7	6,4	20,3	7,9	22,0	9,5	250
NM-GEN 10	23,3	4,0	25,1	5,5	28,0	8,1	30,7	10,5	33,4	12,9	36,2	15,5	250
NM-GEN 25	58,8	9,9	63,6	13,9	70,6	20,3	77,4	26,3	84,1	32,4	91,2	39,0	2400
NM-GEN 50	117,6	19,8	127,2	27,8	141,2	40,6	154,8	52,6	168,2	64,8	182,4	78,0	2400
NM-GEN 75	176,4	29,7	190,8	41,7	211,8	60,9	232,2	78,9	252,3	97,2	273,6	117,0	2400
NM-GEN 100	235,2	39,6	254,4	55,6	282,4	81,2	309,6	105,2	336,4	129,6	364,8	156,0	2400
NM-GEN 125	294,0	49,5	318,0	69,5	353,0	101,5	387,0	131,5	420,5	162,0	456,0	195,0	4800
NM-GEN 150	352,8	59,4	381,6	83,4	423,6	121,8	464,4	157,8	504,6	194,4	547,2	234,0	4800
NM-GEN 175	411,6	69,3	445,2	97,3	494,2	142,1	541,8	184,1	588,7	226,8	638,4	273,0	4800
NM-GEN 200	470,4	79,2	508,8	111,2	564,8	162,4	619,2	210,4	672,8	259,2	729,6	312,0	4800
NM-GEN 225	529,2	89,1	572,4	125,1	635,4	182,7	696,6	236,7	756,9	291,6	820,8	351,0	7200

NM-GEN 250	588,0	99,0	636,0	139,0	706,0	203,0	774,0	263,0	841,0	324,0	912,0	390,0	7200
NM-GEN 275	646,8	108,9	699,6	152,9	776,6	223,3	851,4	289,3	925,1	356,4	1003,2	429,0	7200
NM-GEN 300	705,6	118,8	763,2	166,8	847,2	243,6	928,8	315,6	1009,2	388,8	1094,4	468,0	7200
NM-GEN 325	764,4	128,7	826,8	180,7	917,8	263,9	1006,2	341,9	1093,3	421,2	1185,6	507,0	9600
NM-GEN 350	823,2	138,6	890,4	194,6	988,4	284,2	1083,6	368,2	1177,4	453,6	1276,8	546,0	9600
NM-GEN 375	882,0	148,5	954,0	208,5	1059,0	304,5	1161,0	394,5	1261,5	486,0	1368,0	585,0	9600
NM-GEN 400	940,8	158,4	1017,6	222,4	1129,6	324,8	1238,4	420,8	1345,6	518,4	1459,2	624,0	9600
NM-GEN 425	999,6	168,3	1081,2	236,3	1200,2	345,1	1315,8	447,1	1429,7	550,8	1550,4	663,0	12000
NM-GEN 450	1058,4	178,2	1144,8	250,2	1270,8	365,4	1393,2	473,4	1513,8	583,2	1641,6	702,0	12000
NM-GEN 475	1117,2	188,1	1208,4	264,1	1341,4	385,7	1470,6	499,7	1597,9	615,6	1732,8	741,0	12000
NM-GEN 500	1176,0	198,0	1272,0	278,0	1412,0	406,0	1548,0	526,0	1682,0	648,0	1824,0	780,0	12000

For nitrogen flow capacity at other conditions please contact manufacturer.  
Performance +/- 3%.

**STANDARD EQUIPMENT**

- Set of External Feed Air Filters
- Electric heater
- Supporting frame or cabinet
- Pressure regulator
- Internal Piping
- Nitrogen and Air flow Regulation

**OPTIONAL EQUIPMENT**

- Nitrogen Sterile Filters
- Nitrogen Booster
- Nitrogen Cylinder Filling System

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