

Pneumatic Products™



PSA Nitrogen
Generators
NGPHS Series

Pneumatic Products™

Increase Profits And Reduce Costs!

The easiest way to decrease nitrogen-related costs and thus increase profits is to implement an in-house nitrogen generator to supply nitrogen to meet your gas demands. Designed to be the most reliable, durable and efficient system on the market, the NGPHS Series of Pressure-Swing Adsorption (PSA) nitrogen generators offer unmatched performance and air purity. With a rich list of features, the NGPHS is the workhorse of the Pressure-Swing Adsorption world.

Major Features:

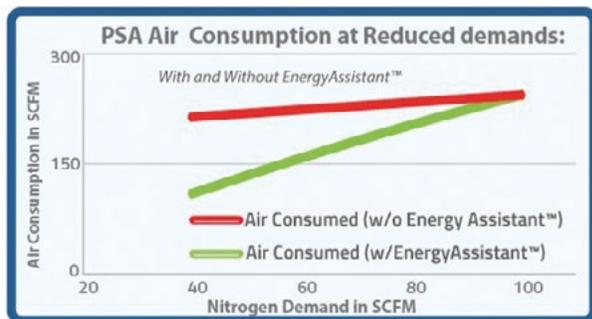
- Industry and market-leading purity options ranging from 95 - 99.999% (5% residual O₂ - 5 ppm residual O₂)
- Low power consumption - helps to reduce customer electrical costs by offering the lowest compressed air consumption, which reduces compressor horsepower
- Modbus TCP/IP standard for connection to customer, with the addition of other protocols available upon request
- EnergyAssistant™ included in every NGPHS PSA model
- O₂ analyzer with zirconia sensor, which guarantees long sensor life, with no calibration needed
- Password-protected screens and tamper-resistant controls for maximum protection
- Molecular Sieve - “The active ingredient” is formulated to last several years with proper maintenance
- Adsorbers designed for a life span of 20+ years
- Durable and reliable mechanical valves - 2 1/2” and below rated for 5 million cycles (10+ years), 3” and above rated for 3 million cycles (6+ years)

Energy Assistant™ - Savings tailored to the customer need

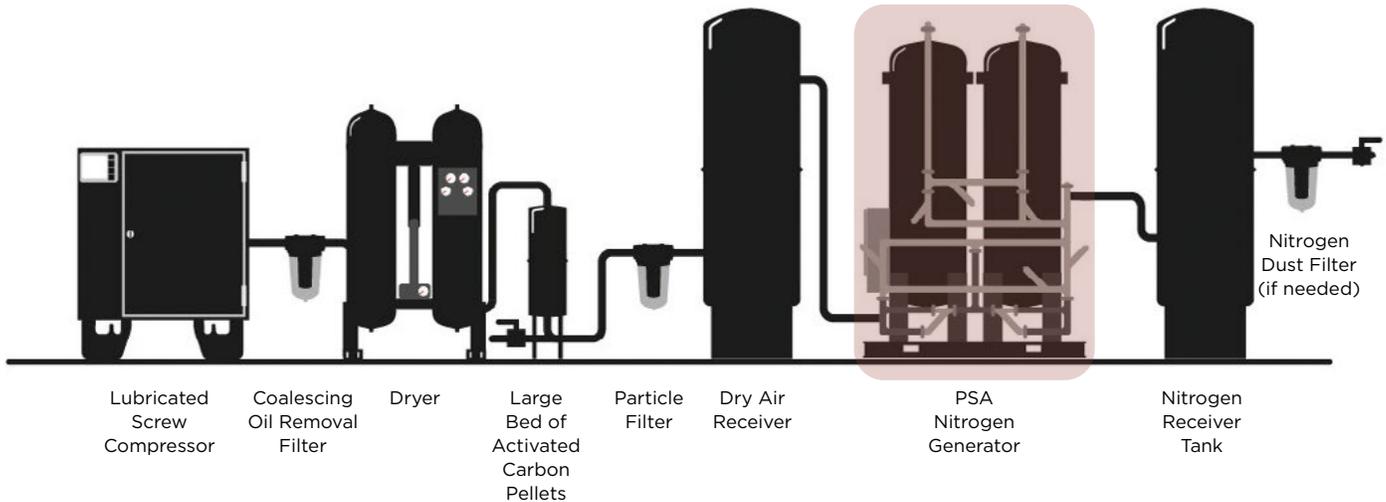
Our PSA nitrogen generators consume the least compressed air possible and, therefore, the least electricity. We make this happen by only using the highest-quality, most efficient carbon molecular sieve in our PSA machines. Due to their intelligent design, our PSAs will also detect when you aren't using any nitrogen and stop using any electricity at all.

But what about when you are using something in between? Traditionally, standard PSA nitrogen generators will consume nearly the same amount of compressed air when they are running, regardless of the customer's actual demand.

EnergyAssistant™ is built into every NGPHS PSA system and adjusts on the fly so that the compressed air demand decreases at a nearly 1:1 rate with your nitrogen usage between 40%-100%. You will still experience significant energy savings, even below 40% of full capacity. EnergyAssistant™ allows customers with fluctuating nitrogen demands to maximize their energy savings in all usage profiles.



Pneumatic Products™

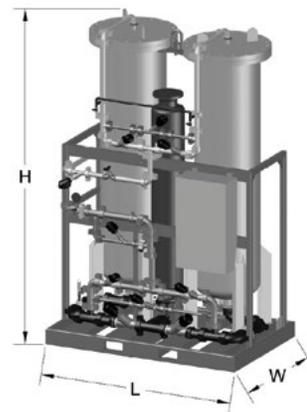


NGPHS PSA General Specifications

- 100 - 230V - 1 ph - 50/60 Hz- max 120W
- Standard systems are for indoor use only, but outdoor options under sun/rain shelter are available with a control panel heater.
- Unless otherwise noted, a forklift is typically required at the destination. If a crane is needed at the origin or destination for larger systems and machines, this is the buyer's expense. Models are shipped horizontally and partially disassembled, which is why a crane or forklift is required to reorient and reassemble them.
- Clean, dry, oil-free compressed air (ISO 8573 Class 1.4.1 or better with an activated carbon absorber tower must be used if the compressor isn't oil-free). Above is a diagram that shows a typical arrangement when lubricated screw compressors are used.

NGPHS PSA Physical Characteristics (Dimensions in inches, weight in pounds)

Model Number	Max Inlet Pressure (psig)	Inlet (in.)	Outlet (in.)	Length (In.)	Width (In.)	Height (In.)	Weight (lb.)
132NGPHS	150	1.5	1.5	76	48	124	3,450
144NGPHS	150	1.5	1.5	76	48	132	3,610
159NGPHS	150	1.5	1.5	76	48	142	3,810
174NGPHS	150	2	1.5	76	48	108	4,870
191NGPHS	150	2	1.5	76	48	115	5,090
212NGPHS	150	2	1.5	76	48	124	5,380
232NGPHS	150	2	1.5	76	48	133	5,710
259NGPHS	150	2	1.5	76	48	144	5,930
285NGPHS	135	2	2	76	48	119	6,120
315NGPHS	135	2	2	76	48	128	6,430
347NGPHS	135	2	2	76	48	137	6,760
382NGPHS	135	2	2	76	48	147	7,120
418NGPHS	135	2	2	76	48	157	7,480
456NGPHS	135	3	2	95	53	125	8,030
503NGPHS	135	3	2	95	53	135	8,510
550NGPHS	135	3	2	95	53	143	8,990
606NGPHS	135	3	2	95	53	153	9,550
668NGPHS	135	3	2	95	53	164	10,170
735NGPHS	135	3	2	95	53	177	10,870
809NGPHS	150	4	3	111	60	148	14,090
894NGPHS	150	4	3	111	60	159	15,010
982NGPHS	150	4	3	111	60	171	15,980
1071NGPHS	150	4	3	111	60	182	16,910
1176NGPHS	130	4	3	120	66	158	17,430
1306NGPHS	130	4	3	120	66	170	19,200
1438NGPHS	130	4	3	120	66	183	20,540
1588NGPHS	130	4	3	120	66	197	22,030
1765NGPHS	135	4	4	120	66	213	23,760
1929NGPHS	135	6	4	135	76	190	28,620
2130NGPHS	135	6	4	135	76	204	30,650
2353NGPHS	135	6	4	135	76	220	32,950



Notes:

* N2 pressure will typically be 25 psi lower than compressor outlet pressure (with reasonable pressure drop for filters included). In some cases, lower pressure drop may be possible. Please consult factory for details where critical.

Scope of Supply

- ASME VIII Div 1 adsorber vessels filled with Carbon Molecular Sieve
- Relief valves
- Air actuated switching valves
- Pressure gauges
- Control panel with:
 - Terminal blocks supplied for hard-wired power connection (cannot be plugged into wall outlet included unless otherwise stated)
 - On/Off power switch
 - PLC control with touch-screen interface (HMI)
 - Switching for continuous or standby operation (HMI feature)
 - Operating hours recorder (displayed on HMI)
 - Electrical terminal blocks & wiring
 - Solenoid valves (for switching valves)
 - N2 pressure sensing transducer for automatic standby operation
 - Oxygen analyzer sampling system and oxygen analyzer and sensor
- Manual control valves for setting N2 flow and purity
- Manual isolation valves
- Silencer for waste gas
- Digital Operating and maintenance Manual (digital only, unless otherwise agreed)
- Fittings, Piping, and tubing
- N2 flow limiting device
- All above equipment to be pre-assembled and pre-tested mounted on a painted steel skid for easy site installation and quick startup

Pneumatic Products™

NGPHS PSA Performance -70°F (Flows Listed in SCFM)

Model Number	95%	96%	97%	98%	99%	99.5%	99.9%	99.95%	99.99%	99.995%	99.999%
132NGPHS	119.5	108.7	100.2	84.3	67.9	60.0	45.2	40.0	30.1	26.1	19.6
144NGPHS	130.1	118.3	109.1	91.8	73.9	65.3	49.2	43.5	32.7	28.4	21.4
159NGPHS	143.3	130.4	120.2	101.1	81.5	71.9	54.2	47.9	36.1	31.3	23.5
174NGPHS	149.5	136.0	125.5	105.5	85.0	75.1	56.5	50.0	37.6	32.7	24.6
191NGPHS	163.8	149.0	137.4	115.6	93.1	82.2	61.9	54.8	41.2	35.8	26.9
212NGPHS	182.2	165.8	152.9	128.6	103.6	91.5	68.9	60.9	45.9	39.8	29.9
232NGPHS	200.6	182.5	168.3	141.6	114.0	100.7	75.8	67.1	50.5	43.8	32.9
259NGPHS	223.1	202.9	187.1	157.4	126.8	112.0	84.3	74.6	56.1	48.7	36.6
285NGPHS	245.0	222.8	205.5	172.9	139.3	123.0	92.6	81.9	61.6	53.5	40.2
315NGPHS	271.8	247.2	228.0	191.8	154.5	136.4	102.7	90.9	68.4	59.4	44.6
347NGPHS	298.6	271.6	250.5	210.7	169.8	149.9	112.9	99.9	75.1	65.3	49.0
382NGPHS	328.4	298.7	275.5	231.8	186.7	164.9	124.1	109.8	82.6	71.8	53.9
418NGPHS	358.2	325.8	300.5	252.8	203.6	179.8	135.4	119.8	90.1	78.3	58.8
456NGPHS	392.3	356.8	329.1	276.9	223.0	196.9	148.3	131.2	98.7	85.7	64.4
503NGPHS	434.7	395.4	364.7	306.8	247.1	218.2	164.3	145.4	109.4	95.0	71.4
550NGPHS	477.2	434.1	400.3	336.8	271.3	239.5	180.4	159.6	120.1	104.3	78.4
606NGPHS	524.3	477.0	439.8	370.1	298.1	263.2	198.2	175.4	131.9	114.6	86.1
668NGPHS	576.2	524.1	483.4	406.7	327.6	289.2	217.8	192.7	145.0	125.9	94.6
735NGPHS	637.5	579.9	534.8	449.9	362.4	320.0	241.0	213.2	160.4	139.3	104.7
809NGPHS	697.0	634.0	584.7	491.9	396.2	349.9	263.5	233.1	175.4	152.3	114.5
894NGPHS	771.3	701.6	647.0	544.3	438.5	387.2	291.6	257.9	194.1	168.5	126.7
982NGPHS	852.3	775.3	715.0	601.5	484.5	427.8	322.2	285.0	214.4	186.3	140.0
1071NGPHS	926.6	842.8	777.3	654.0	526.7	465.1	350.3	309.9	233.1	202.5	152.2
1176NGPHS	1017.9	926.0	853.9	718.4	578.7	511.0	384.8	340.4	256.1	222.4	167.2
1306NGPHS	1129.1	1027.1	947.2	796.9	641.9	566.8	426.8	377.6	284.1	246.7	185.4
1438NGPHS	1249.6	1136.7	1048.2	881.9	710.4	627.3	472.4	417.9	314.4	273.1	205.2
1588NGPHS	1379.3	1254.7	1157.1	973.5	784.1	692.4	521.4	461.3	347.0	301.4	226.5
1765NGPHS	1528.5	1390.4	1282.2	1078.8	868.9	767.3	577.8	511.2	384.6	334.0	251.0
1929NGPHS	1673.1	1521.9	1403.5	1180.8	951.1	839.9	632.5	559.5	421.0	365.6	274.7
2130NGPHS	1841.7	1675.3	1545.0	1299.9	1047.0	924.5	696.2	615.9	463.4	402.5	302.4
2353NGPHS	2034.5	1850.7	1706.7	1435.9	1156.6	1021.3	769.1	680.4	511.9	444.6	334.1
Air Factor	1.817	1.887	1.976	2.100	2.312	2.522	3.002	3.234	3.849	4.107	4.693

* Performance and air factor listed is for ambient temperature 70°F and inlet pressure 110 psig.
Please consult Pneumatic Products for performance at other conditions. Air factor listed may vary by ±5%.

NGPHS PSA Performance -95°F (Flows Listed in SCFM)

Model Number	95%	96%	97%	98%	99%	99.5%	99.9%	99.95%	99.99%	99.995%	99.999%
132NGPHS	112.5	104.0	93.0	79.8	64.1	55.7	41.2	36.2	26.8	23.5	17.4
144NGPHS	122.4	113.2	101.2	86.8	69.8	60.6	44.9	39.4	29.2	25.6	19.0
159NGPHS	134.9	124.7	111.5	95.7	76.9	66.8	49.4	43.4	32.1	28.2	20.9
174NGPHS	140.8	130.2	116.4	99.8	80.3	69.7	51.6	45.3	33.5	29.5	21.8
191NGPHS	154.2	142.6	127.5	109.4	88.0	76.3	56.5	49.6	36.8	32.3	23.9
212NGPHS	171.6	158.6	141.8	121.7	97.8	84.9	62.9	55.2	40.9	35.9	26.6
232NGPHS	188.9	174.6	156.1	133.9	107.7	93.5	69.2	60.8	45.0	39.5	29.3
259NGPHS	210.0	194.2	173.6	148.9	119.8	103.9	76.9	67.6	50.0	44.0	32.6
285NGPHS	230.6	213.2	190.6	163.6	131.5	114.1	84.5	74.2	55.0	48.3	35.7
315NGPHS	255.9	236.6	211.5	181.5	145.9	126.6	93.7	82.4	61.0	53.6	39.7
347NGPHS	281.1	259.9	232.4	199.4	160.3	139.1	103.0	90.5	67.0	58.9	43.6
382NGPHS	309.2	285.9	255.6	219.3	176.3	153.0	113.3	99.5	73.7	64.7	47.9
418NGPHS	337.2	311.8	278.8	239.2	192.3	166.9	123.5	108.5	80.4	70.6	52.3
456NGPHS	369.3	341.5	305.3	261.9	210.6	182.8	135.3	118.9	88.0	77.3	57.2
503NGPHS	409.2	378.4	338.3	290.3	233.4	202.5	149.9	131.7	97.5	85.7	63.4
550NGPHS	449.2	415.3	371.3	318.6	256.2	222.3	164.6	144.6	107.0	94.0	69.6
606NGPHS	493.6	456.4	408.0	350.1	281.5	244.3	180.8	158.9	117.6	103.3	76.5
668NGPHS	542.4	501.5	448.4	384.7	309.3	268.5	198.7	174.6	129.3	113.6	84.1
735NGPHS	600.2	554.9	496.1	425.7	342.2	297.0	219.9	193.2	143.0	125.7	93.0
809NGPHS	656.1	606.7	542.4	465.4	374.2	324.7	240.4	211.2	156.4	137.4	101.7
894NGPHS	726.1	671.3	600.2	515.0	414.0	359.3	266.0	233.7	173.0	152.0	112.5
982NGPHS	802.3	741.9	663.3	569.1	457.5	397.1	294.0	258.3	191.2	168.0	124.4
1071NGPHS	872.3	806.5	721.1	618.7	497.4	431.7	319.6	280.8	207.9	182.6	135.2
1176NGPHS	958.3	886.0	792.2	679.7	546.5	474.3	351.1	308.5	228.4	200.6	148.5
1306NGPHS	1063.0	982.8	878.7	753.9	606.2	526.1	389.4	342.1	253.3	222.5	164.8
1438NGPHS	1176.4	1087.7	972.5	834.3	670.8	582.2	431.0	378.7	280.3	246.3	182.3
1588NGPHS	1298.5	1200.6	1073.4	920.9	740.5	642.6	475.7	418.0	309.4	271.9	201.3
1765NGPHS	1438.9	1330.5	1189.5	1020.6	820.6	712.2	527.2	463.2	342.9	301.3	223.0
1929NGPHS	1575.0	1456.3	1302.0	1117.1	898.2	779.5	577.0	507.0	375.3	329.8	244.1
2130NGPHS	1733.8	1603.1	1433.3	1229.7	988.7	858.1	635.2	558.1	413.2	363.0	268.7
2353NGPHS	1915.3	1770.9	1583.3	1358.4	1092.2	947.9	701.7	616.5	456.4	401.0	296.9
Air Factor	1.924	2.002	2.103	2.245	2.485	2.722	3.266	3.568	4.340	4.665	5.401

* Performance and air factor listed is for ambient temperature 95°F and inlet pressure 110 psig.
Please consult Pneumatic Products for performance at other conditions. Air factor listed may vary by ±5%.



NGPHS PSA Nitrogen Generators

**At Pneumatic Products,
your satisfaction is our top priority.**

As specialists in providing on-site, cutting-edge nitrogen (N₂) generator systems for a variety of industries and applications, we understand exactly what our customers are looking for. Driven by a focus on performance, efficiency, reliability and innovation, we are your ultimate provider of everything nitrogen.

Pneumatic Products are experts at designing bespoke solutions that match your exact needs and requirements rather than simply providing a standard, one-size-fits-all system. We will work alongside you to get it right, developing a high-performance system that helps to solve all of your application challenges. Let Pneumatic Products be your valued N₂ generation partner!

 **Pneumatic
Products**TM

Pneumatic Products Headquarters

4647 SW 40th Avenue
Ocala, Florida 34474-5788 U.S.A.

Tel.: (724) 745-1555

Fax: (724) 745-6040

pneumaticproducts.com