CompAir

Nitrogen generation for the Pharmaceutical Industry

Pharmaceutical manufacture

Dependable solutions

CompAir have been providing compressed air technologies for a variety of applications within the Pharmaceutical Industry. Some of these applications include: process air, control valves and cylinders, material handling, air curtains, product drying and many other uses. Most recently this high quality compressed air is used in generating high purity nitrogen.

> “Convenient on-demand nitrogen gas at consistently reliable purity levels for blanketing, API production, final drug product manufacture and packaging saves time and money.”

Nitrogen applications

Transfer

High-pressure nitrogen gas can be used to assist safe transfer of substances from one vessel to another. This highly effective solution speeds up the process without causing any dissolution or build-up of substances.

Purging

Manufacturing and analytical equipment can be purged with nitrogen gas to remove oxygen and water vapour from process lines, this can increase product quality and reduce the need for further conditioning treatments.

Blanketing

API’s and final drug products must be stored in the appropriate way to ensure humidity and oxygen do not affect the product and powders do not agglomerate. Blanketing with nitrogen provides an inert atmosphere that suppresses airborne contamination such as moisture and bacteria.

Nitrogen will also provide a blanket to protect potentially reactive materials from contact with oxygen, and so maintain quality.

Nitrogen Purity

Lower nitrogen purities are required for blanketing and other inerting processes than for drug manufacture. However where finished products are exposed to the gas as they enter an atmosphere created with nitrogen the final product must be carefully analysed to check for any adulteration.

Drug manufacture

Nitrogen with a purity of 10ppm oxygen content delivered at a pressure of around 6.5 bar can be used during the manufacture of API's and final drug products such as ophthalmics, LVP's and SVP's.

Nitrogen supplied by CompAir meets the following requirements:

- nitrogen <10ppm oxygen content
- carbon dioxide <1ppm
- carbon monoxide <1ppm
- water vapour <5ppm (-66ºC dewpoint)
- total hydrocarbons <5ppm

Aseptic packaging

Many pharmaceutical products cannot withstand any form of thermal sterilisation, in which case aseptic filtration followed by packaging in pre-sterilised containers in a cleanroom environment is the best solution.

Because aseptic filtration/fill operations are complex, environmental controls are required to maintain standards. Nitrogen gas can be used to provide a suitable atmosphere and for filter integrity testing.

Analytical testing

CompAir's laboratory gas generators produce ultra high purity nitrogen, hydrogen and zero air specifically for use in analytical testing such as LC/MS, GC and nuclear magnetic resonance.

Problems with typical nitrogen supply methods

Obtaining or maintaining a ready supply of nitrogen gas can be problematic and expensive. Typical gas supply methods include high pressure cylinders, liquid mini tanks or bulk storage vessels. However, each of these options introduce a range of problems that need to be solved. If you are already using nitrogen in your MAP processes you may be experiencing some of these problems.

When considering nitrogen supplies, a reliable vendor must be outsourced and valuable space in or outside the company premises needs to be assigned for gas storage. Procedures have to be established to monitor and manage the gas supply and arranging deliveries and payment must also be considered.

Additionally, safety and handling concerns need to be taken into account. The cost of addressing these logistical issues can be high and difficult to budget for, while the price of gas and supplier rates change continually. The environmental impact of truck based deliveries is another important consideration for carbon footprint reduction.

The ideal solution lies in a range of gas generation systems from CompAir, which enable users to produce their total demand for food grade nitrogen gas on their premises, under their complete control. As a result companies can generate as much or as little nitrogen as needed, at a fraction of the cost of having the gas delivered by external supplier.

> “Maintaining a ready supply of nitrogen gas can be problematic and expensive.”

Why gas generation is best

Being able to take control of nitrogen supplies as opposed to having to reply on third party can reduce operational costs significantly.

The range of nitrogen generators from CompAir use pre-treated air from a standard industrial compressor which is essentially "sieved" so that oxygen and other trace gases are removed while nitrogen is allowed to pass through to the application as the product gas. Air separation is not a new idea, but the radical Pressure Swing Adsorption (PSA) design and control systems employed on the CompAir nitrogen generator range have maximised gas output and reduced compressed air consumption to achieve even higher levels of efficiency than before.

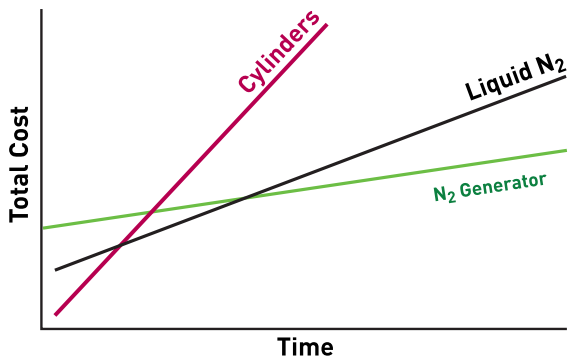
A nitrogen generation system can reduce costs by up to 90% when compared to traditional methods of supply. If a company using liquid nitrogen was to convert to gas generation technology, the new system could be expected to pay for itself in typically less than two years. For a company using cylinders, the payback could be even earlier, less than 12 months in many cases.

The new systems can also make the workplace considerably safer for employees, eliminating the safety risks of storage, handling and changing heavy, high pressure cylinders.

CompAir

> "A nitrogen generation system can reduce costs by up to 90%."

Payback can be less than 1 year when compared to cylinders, 2 to 3 years when compared to liquid nitrogen.



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Performance data

Performance data is based on 7 bar g (100 psi g) air inlet pressure and 20 - 25°C (66 - 77°F) ambient temperature. Consult CompAir for performance under other specific conditions.

CompAir Model Ref	Nitrogen flow rate vs Purity (Oxygen Content)												
	unit	10ppm	50ppm	100ppm	250ppm	500ppm	0.10%	0.50%	1.00%	2.00%	3.00%	4.00%	5.00%
CN20033	m^3/hr	0.55	-	1.2	1.5	1.9	2.4	3.4	4.3	5.8	7.2	8.4	9.4
	cfm	0.3	-	0.7	0.9	1.1	1.4	2	2.5	3.5	4.2	4.9	5.5
CN20072	m^3/hr	1.2	-	2.4	3.2	3.9	4.7	6.9	8.5	11.6	14.3	16.7	18.8
	cfm	0.7	-	1.4	1.9	2.3	2.8	4.1	5	6.8	8.4	9.8	11.1
CN20090	m^3/hr	1.5	-	3.2	4.2	5.3	6.5	9.5	11.5	15.2	18.7	21.7	24.5
	cfm	0.9	-	1.9	2.5	3.1	3.8	5.6	6.8	8.9	11	12.8	14.4
CN20120	m^3/hr	2	3.8	5.5	7.1	8.6	9	14.1	17.8	22	25.8	29	32.2
	cfm	1.2	2.2	3.2	4.2	5	5.3	8.3	10.5	12.9	15.2	17.1	19
CN20180	m^3/hr	3	5.7	8.3	10.7	13	13.4	21.2	26.6	32.8	38.7	43.5	48.3
	cfm	1.8	3.3	4.9	6.3	7.6	7.9	12.5	15.7	19.3	22.8	25.6	28.4
CN20240	m^3/hr	4	7.6	11	14.3	17.3	18	28.3	35.5	43.8	51.6	58	64.4
	cfm	2.3	4.5	6.4	8.4	10.2	10.6	16.7	20.9	25.8	30.4	34.1	37.9
CN20300	m^3/hr	5	9.5	13.8	17.8	21.6	22.4	35.3	44.4	54.7	64.5	72.5	80.4
	cfm	2.9	5.6	8.1	10.5	12.7	13.2	20.8	26.1	32.2	38	42.7	47.3
CN20360	m^3/hr	6	11.3	16.5	21.4	25.9	26.8	42.4	53.3	65.7	77.4	87.1	96.5
	cfm	3.5	6.7	9.7	12.6	15.2	15.8	25	31.4	38.7	45.6	51.3	56.8
CN20474	m^3/hr	7.9	14.4	20.9	27.1	32.8	34	53.7	67.5	83.2	98.1	110.3	122.3
	cfm	4.6	8.5	12.3	15.9	19.3	20	31.6	39.7	49	57.7	64.9	72
CN20588	m^3/hr	9.8	17.4	25.3	32.8	39.7	41.2	65	81.7	100.7	118.7	133.5	148
	cfm	5.8	10.2	14.9	19.3	23.4	24.2	38.3	48.1	59.3	69.9	78.6	87.1

m^3 reference standard = 20°C, 1013 millibar(a), 0% relative water vapour pressure.

Inlet Parameters

Inlet Air Quality	ISO 8573-1: 2010 Class 2.2.2 (2.2.1 with high oil vapour content)
Inlet Air Pressure Range	6 - 15 bar g* 87 -217 psi g

*CN2033 - CN0090 6 - 13 bar g (189 psi g)

Electrical Parameters

Supply Voltage	100 / 240 ± 10% V ac 50/60Hz
Power	80 W
Fuse	(Anti surge (T), 250v, 5 x 20mm HBC, Breaking Capacity 1500A @ 250v, UL Listed)

Environmental Parameters

Ambient Temperature	5° - 50°C 41° - 122°F
Humidity	50% @ 40°C (80% MAX ≤ 31°C)
IP Rating	IP20 / NEMA 1
Altitude	<2000m (6562ft)
Noise	< 80 db (A)

Port Connections

Air Inlet	*G 1"
N2 Outlet to Buffer	*G 1"
N2 Inlet from Buffer	G 1/2"
N2 Outlet	G 1/2"

*CN2033 - CN0090 Inlet and N2 outlet to buffer G 1/2"

Weights and Dimensions

Model	Height (H)		Width (W)		Depth (D)		Weight	
	mm	in	mm	in	mm	in	kg	lb
CN20033	1034	41	450	18	471	19	98	216
CN20072	1034	41	450	18	640	26	145	320
CN20090	1034	41	450	18	809	33	196	432
CN20120	1894	76	550	22	692	28	336	741
CN20180	1894	76	550	22	861	34	394	869
CN20240	1894	76	550	22	1029	41	488	1076
CN20300	1894	76	550	22	1198	48	582	1283
CN20360	1894	76	550	22	1368	55	676	1490
CN20474	1894	76	550	22	1765	71	864	1905
CN20588	1894	76	550	22	2043	82	1052	2319

Packed Weights and Dimensions

Model	Height (H)		Width (W)		Depth (D)		Weight	
	mm	in	mm	in	mm	in	kg	lb
CN20033	612	24	1490	59	950	38	174	383
CN20072	612	24	1490	59	950	38	221	487
CN20090	612	24	1490	59	950	38	272	597
CN20120	800	31	2020	80	1000	39	464	1023
CN20180	800	31	2020	80	1000	39	521	1149
CN20240	800	31	2020	80	1200	47	614	1354
CN20300	800	31	2020	80	1250	49	744	1640
CN20360	800	31	2020	80	1510	60	790	1742
CN20474	800	31	2020	80	1820	72	980	2160
CN20588	800	31	2020	80	2270	90	1360	3015

Onsite nitrogen generation made easy by CompAir

The CompAir product range has all that you need to set up your on site nitrogen generation system whether you have an existing source of compressed air or not. We can help you with a complete system including air compressor, air CompAir know that total reliability is important.

Using high quality compressed air to supply the nitrogen generators ensures long and trouble free service and guarantees optimum performance. purification equipment and the gas generator. If you already have an existing compressor with spare capacity we can help you develop a system around it.

When it comes to compressed air, it's fair to say that we know a thing or two and we like to think that we're experts at what we do! Whatever your requirements, CompAir have the right compressor for you. All of our compressors are designed and manufactured to provide our customers with a reliable source of compressed air with low energy cost and high performance.

It is important that nitrogen generators are provided with the right quality compressed air. CompAir provide a wide range of purification products such as the coalescing filters and adsorptions dryers required to purify your compressed air to the levels required by your nitrogen generator.

CompAir know that total reliability is important. Using high quality compressed air to supply the nitrogen generators ensures long and trouble free service and guarantees optimum performance.

CompAir air compressors and pre-treatment packages include our adsorption dryers and coalescing filters to guarantee the highest quality air supply for the nitrogen generators.

Guaranteed air quality:

Dewpoint: -40°C PDP

Particulate: <0.1 micron

Oil: <0.01 mg/m^3

> "When it comes to compressed air, it's fair to say that we know a thing or two and we like to think that we're experts at what we do!"

Global support delivered locally

Our commitment to customer satisfaction incorporates a wide range of support services including product selection, installation, commissioning, preventative maintenance, validation and product monitoring.

OilFREE

Truly innovative oil-free compressed air technologies

CompAir

CompAir for your industry

CompAir is a leading global manufacturer of compressed air and gas solutions, providing high performance and low operating cost compressors including rotary screw, oil-free, centrifugal, piston and portable units, as well as ancillary products, for a broad range of industries.

With a network of sales companies and distributors across all continents, the company offers global expertise with a local service capability.

CompAir is part of the Gardner Denver Group, a worldwide manufacturer of compressors, pumps and blowers and other fluid transfer equipment.

Contact Us

For more information
email sales@compair.com
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