aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding

Nitrogen Gas Generators

Parker domnick hunter

ENGINEERING YOUR SUCCESS.

Overcoming problems with typical nitrogen supply methods

Obtaining a continuous and secure supply of nitrogen gas can be troublesome and expensive. Typical supply methods include high pressure cylinders, liquid mini tanks or bulk storage vessels, however, each of these options introduces a range of problems that need to be solved.

Typical supply methods such as high pressure cylinders, liquid mini tanks or bulk storage vessels present considerable logistical issues. Furthermore, the costs can be relentless, arising from the price of gas itself, its transportation, cylinder or tank rental, and the resources required to manage the replenishment process.

The cost of lost production due to running out of gas, late deliveries and logistics / administration problems can cause concern.

Wasted money due to loss of gas from liquid 'boil off' or gas returned unused in cylinders is another significant issue.

Health and safety regulations also surround the movement and storage of heavy high pressure cylinders and managing the large volumes of extremely cold (-196°C), skin damaging liquid, that can also rapidly produce thousands of cubic metres of asphyxiant gas, is another major consideration.

Nitrogen constantly surrounds us, forming approximately 78% of the air we breathe at sea level.

The problem is that air also contains approximately 21% oxygen, an essential gas for sustaining life, but a major contributor to the unwanted oxidization of products, degradation of food stuffs and sustaining fire or explosion risk for flammable or reactive products.

Other contaminants such as moisture and dirt particulate also need to be considered.

If these unwanted components of ambient air could be removed at point of use, then an abundant feed stock of nitrogen gas would be available to any user, produced at their premises, adjacent to their application, on demand and without the need to rely on expensive gas cylinders or liquid nitrogen.

Modular nitrogen gas generators – A dedicated solution for every application

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

Membrane Gas Generators

NitroSource

NitroFlow HP

PSA Gas Generators

MIDIGAS

MAXIGAS

Multi-banked installation

Benefits:

Correct purity always
Provides the right purity for the application. This ensures lowest energy consumption and maximum savings on unit gas cost.

Energy efficient
Gas on demand with automatic stand-by mode (using zero compressed air) ensures lowest operating costs.

Multi bank cascading to reduce energy with varying demand applications – provides flexibility and lowest operating costs.

Compressed air pre-treatment
A dedicated pre-treatment package means the system can operate from any compressed air source, safely and securely ensuring maximum service life with lowest cost of ownership.

Smaller, more compact and lightweight
Modular construction means less than half the size of conventional designs providing lowest cost installation and saving on valuable floor space.

Modular design
100% stand-by at a fraction of the cost.
10 year guarantee on pressure envelope (PSA).
Constant nitrogen quality due to snow storm filling (PSA).
Easy add on sub units (membrane).
Controller / receptor configuration (membrane).

Easy and flexible Installation
Fits through standard doorway (no need for structural work).
Minimum footprint.

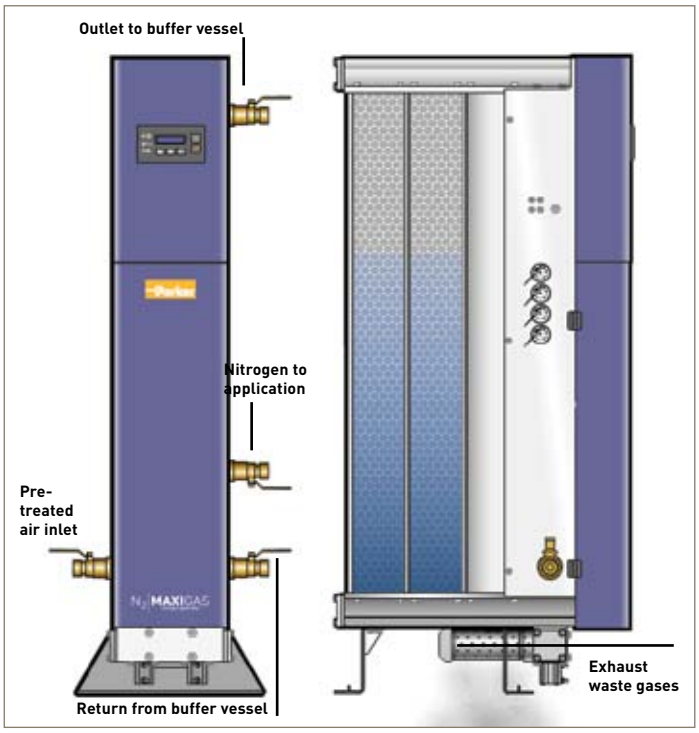
Reliable and easy to maintain
Very few consumable components. In multibank installations, individual modules can be isolated for maintenance without disruption to production - Reducing downtime and providing lowest cost of ownership.

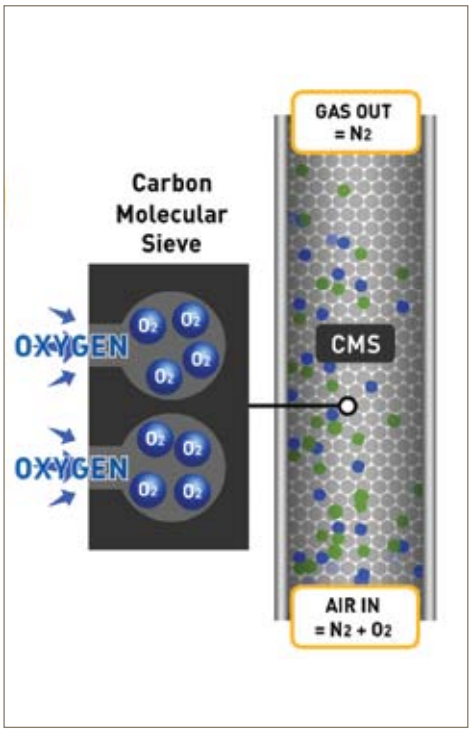
Industry Compliant Gost-R
PED, CE, UL, CRN, FDA Article 21*, EIGA Food & Pharmaceutical *.

*Independently tested by accredited UKAS laboratory. CRN - MAXIGAS.

PSA nitrogen generators - How they work

MAXIGAS and MIDIGAS nitrogen generators comprise of high tensile aluminium columns, each containing twin chambers of Carbon Molecular Sieve, (CMS), a material which removes oxygen and trace gases from compressed air by molecular adsorption, allowing nitrogen to pass through as the product gas.





Clean, dry compressed air from a Parker domnick hunter pre-treatment package enters the lower inlet manifold and into the operational set of chambers. As the air passes over the CMS, oxygen is preferentially adsorbed into the CMS pores leaving an outlet stream of nitrogen gas. This nitrogen gas passes into the top outlet manifold, into a process buffer vessel and then through the generator control system to regulate pressure, flow and monitor purity before being released to the application.

The CMS in the opposite set of chambers has previously adsorbed oxygen and by releasing the pressure rapidly to atmosphere, oxygen is removed from the CMS and the cycle is ready to begin again.

This cycle operates on a continuous basis, ensuring a constant stream of nitrogen gas, 24/7 if required.

The modular aluminium design eliminates the need for complex valves and interconnecting piping as used in conventional designs.

CMS is not considered to be a regular replacement component and is expected to have a minimum service life of at least 10 years, subject to correct operation and maintenance.

PSA nitrogen generation systems MAXIGAS and MIDIGAS

A robust and reliable design is your guarantee of performance. With the proven benefits of advanced aluminium forming technology, Parker domnick hunter has developed a range of nitrogen gas generators which is typically 60% of the size and weight of conventional designs.

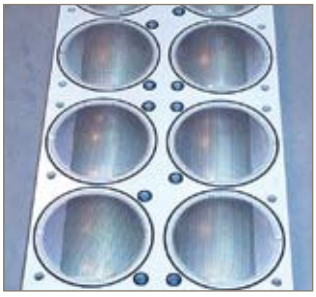
These advanced nitrogen gas generators provide one of the most simple and reliable solutions available.

Engineers at Parker domnick hunter have developed MAXIGAS and MIDIGAS using innovative aluminium forming technology which has been proven over many years with the world famous PNEUDRI compressed air dryer ranges. This expertise has produced a nitrogen generation system which is extremely compact and does not require any special foundations or plant structural work.

The pressure envelope has been Lloyds tested and approved for a minimum of 10 years continuous cyclic operation.

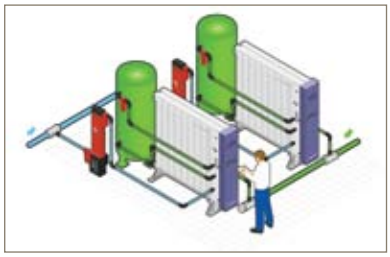
Unlike welded carbon steel nitrogen generators, the length to diameter ratio of the internal voids and non-welded construction, means that MAXIGAS and MIDIGAS do not require periodic inspections for insurance purposes. This further enhances the ability to provide maximum uptime with minimum disruption to your production.

CMS Adsorption Columns



Distribution manifold

Greater flexibility with multi-banking



Multi-banking
Unlike traditional designs, MAXIGAS models can be multi-banked to provide extra nitrogen capacity should demand increase in the future. There is no need to replace the generator with a larger unit. Additional capacity can be facilitated by simply adding extra bank(s).

Flexibility during maintenance
Multi-banking allows individual generator banks to be easily isolated for routine service work, whilst maintaining the nitrogen supply.

100% stand-by
Compared to conventional designs, 100% standby is available at a fraction of the cost as only one extra gas generator bank is required.

Fits through a standard doorway
MAXIGAS will fit through a standard doorway, eliminating the need for special access or facility structural dismantling during installation.

MAXIGAS and MIDIGAS – Five key features to guarantee nitrogen quality

1 PNEUDRI pre-treatment package

All PSA nitrogen generators must have the correct air inlet quality to ensure stable operation and a long service life. Although refrigerant dried air is acceptable for lower purity applications, we believe that protecting your investment and ensuring trouble-free operation is important. Quite simply, in Parker domnick hunter's long experience of manufacturing and installing PSA nitrogen generators, a PNEUDRI desiccant dryer will provide better protection to the CMS, typically, extending the service life to 10 years and beyond.

This means that MAXIGAS and MIDIGAS generators can operate from virtually any compressed air supply.

In addition, the pre-treatment package is controlled by the nitrogen generators, so that when it enters economy stand-by mode, the dryer also switches into economy stand-by mode. This consumes zero compressed air to save energy and significantly reduce running costs.

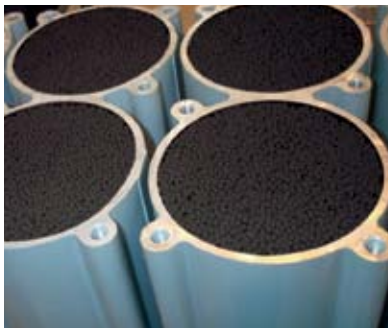
Good quality compressed air = good quality nitrogen

2 Specially selected CMS materials provide:

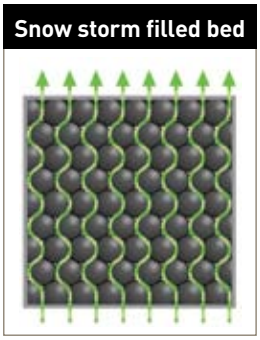
- **Optimum gas productivity and regeneration to ensure consistent purity.**
- **High crush strength to prevent attrition and breakdown of the CMS.**
- **Low air to nitrogen ratios to reduce air consumption.**
- **Wide purity range for customer flexibility.**

3 Modular aluminium design

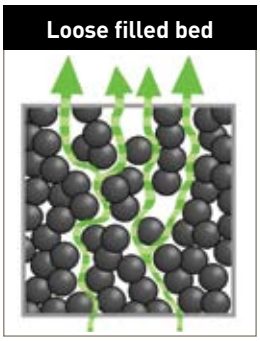
Modular aluminium construction is used throughout for the CMS chambers and distribution manifolds. This innovative design allows the CMS material to be 'snowstorm filled' and then retained by spring loading to provide absolute maximum packing density. This prevents bed movement during transportation and operation to eliminate attrition, breakdown and leakage paths which could lead to premature failure or loss of nitrogen purity.



4 'Snow storm' filling ensures consistent nitrogen purity



Consistent gas generation with no CMS attrition



Inconsistent gas generation with CMS attrition

Parker domnick hunter PSA nitrogen generators utilises a technique known as 'snow storm filling' to charge the adsorption columns with CMS.

Benefits:

- **Achieves maximum packing density for the CMS material, fully utilising all of the available space envelope.**
- **Less CMS required and prevents compressed air channelling through the CMS as experienced with most conventional designs. Due to channelling, conventional designs require more CMS to achieve an identical purity, increasing physical size, operational and maintenance costs.**
- **Prevents CMS attrition which can lead to dusting, blocked filters and silencers and catastrophic loss of nitrogen purity.**
- **Allows 100% of the available CMS material to be used for producing nitrogen, therefore reducing the amount of CMS required and overall lifetime costs.**
- **100% of CMS is regenerated ensuring a very stable and consistent nitrogen purity.**
- **Provides a low, equal resistance to flow, allowing multiple CMS chambers and multiple generator banks to be used.**

5 Nitrogen generator control system

The MAXIGAS and MIDIGAS ranges of nitrogen gas generators have a comprehensive integral control system fitted as standard with the following benefits:

Integral oxygen analyser – This ensures that the nitrogen purity is constantly maintained and gives an instant visual confirmation of the output gas quality. 4-20mA outputs facilitate remote monitoring if required and the possibility to data log for complete traceability.

Mass flow controller – The mass flow controller stops the generator being overflowed and ensures the required purity and pressure are maintained regardless of downstream conditions. Consistently overflowing a nitrogen generator can cause irreversible damage to the CMS and affect its ability to recover gas purity.

Outlet pressure regulator – Controls nitrogen pressure to match system requirements and ensures that your process is protected against overpressure.

Economy control – During periods of 'no nitrogen' usage, the generator senses this and enters economy stand-by mode. As soon as nitrogen use is resumed again, the generator reverts to operational mode.

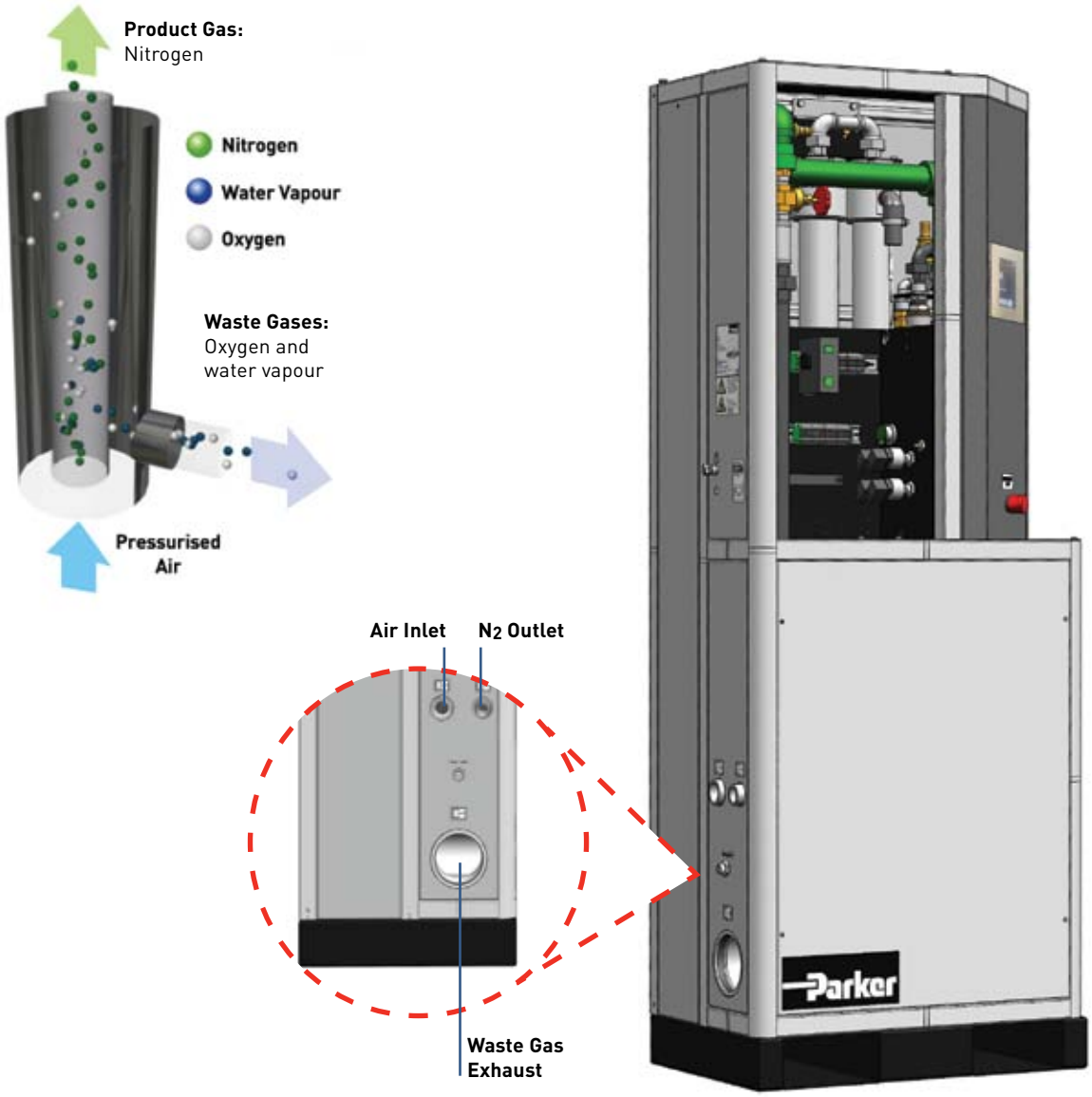
During economy stand-by, zero compressed air is consumed by the generator and the associated pre-treatment package. This results in reduced energy consumption and significant operating cost reductions.

Membrane nitrogen generators
How they work

NitroSource and NitroFlow nitrogen generators consist of hollow-fibre membrane modules arranged in a convenient housing with a control system and integral filtration.

Dried compressed air (+3°C pdp) enters the gas generator inlet port where it passes through 1 micron and 0.1 micron filtration, then through a carbon tower to remove oil odour, vapour and ozone, a dust filter and then into the membrane modules.

The membrane modules are designed to remove unwanted gases such as oxygen and water vapour through the hollow fibre wall and out to atmosphere, whilst retaining nitrogen as the product gas that is fed through to the application.



Membrane nitrogen generation systems NitroSource and NitroFlow

The concept of gas separation by hollow-fibre membranes is simple. A small hollow tube allows unwanted gases such as oxygen and water vapour to permeate through its walls whilst the product gas, nitrogen is retained for use as the product gas.

In reality, molecular separation is slightly more complex. Parker domnick hunter's team of polymer scientists has refined and developed the advanced hollow-fibre technology to achieve extremely high levels of performance and stability.

Parker domnick hunter hollow-fibre membranes are produced from a very strong engineering polymer – Polyphenylene Oxide, (PPO). As well as being robust, the PPO is also very permeable. This means that fewer fibres are needed for a given volume of nitrogen production and a much lower inlet air pressure is required for gas production to take place. In fact Parker domnick hunter membranes are the most permeable produced anywhere in the world.

Parker domnick hunter generators require fewer membranes	**Parker domnick hunter membranes require lower compressed air pressure**	**Parker domnick hunter membrane fibres are very robust**
Compact design Less weight	Generators are designed for lower inlet air pressure	Less sensitive to contamination
Smaller generators saving space	Smaller compressor required	Longer fibre life
Lower investment in membrane modules	No heater required to facilitate permeation	Less maintenance
Less cost	Less noise and heat produced	**Less cost**
	Lower energy consumption Energy saving	

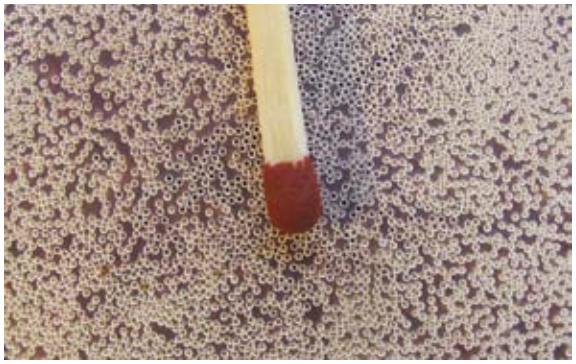
Membrane technology uses bundles of hollow-fibres contained within a tube. The walls of these special fibres selectively separate compressed air by diffusing oxygen and other waste gases to atmosphere whilst retaining nitrogen and allowing it to pass through the centre of the fibres to the application.

Parker domnick hunter = Low cost of ownership

NitroSource and NitroFlow – Four key features to guarantee nitrogen quality

1 Integral compressed air filtration

NitroSource and NitroFlow nitrogen generators have integral filtration to purify the incoming compressed air. Unlike PSA technology, Parker domnick hunter membrane fibres are less susceptible to water vapour, so refrigeration drying is acceptable as a pre-treatment package.



PPO Fibres 0.5mm diameter

2 Parker domnick hunter PPO fibres

Parker domnick hunter manufactures and controls it's own gas separation hollow-fibre membranes and module production. This means that every nitrogen generator produced using these modules is matched and tested to achieve the required flow and purity with a tolerance of -0% +10%. Therefore the nitrogen generator will always perform to or better than specification.

Packed fibres have a larger diameter of 0.5mm. This means they are unlikely to block and will have a very long service life.

Pre-aging of membranes

3 Membrane fibres pre-aged

Parker domnick hunter PPO membrane fibres are pre-aged immediately after production for five weeks.

When polymer membranes are manufactured, the molecular structure takes time to 'settle' into its final state. Unlike competing membranes that can take over a year to 'settle', the Parker domnick hunter fibre only takes five weeks. This means that when the modules are built into a Parker domnick hunter generator the performance is fixed for the life of the unit and will not deteriorate or consume more compressed air.

NitroSource touch screen controlller

4 Nitrogen generator control system

The integral control system with an oxygen analyser ensures that the output nitrogen gas is always to the right quality.

Economy control prevents air consumption when no gas is required and an outlet pressure regulator ensures that the downstream process is protected against over pressurisation.

What nitrogen quality do I need?

The majority of applications that use nitrogen gas do not need the 10ppm, (99.999%) purity supplied by the traditional gas companies as bulk liquid or gas (cylinders). Providing customers with ultra-high purity nitrogen in all instances is an unnecessary waste of money and energy.

What do we mean by 'purity'?
By purity Parker domnick hunter means the maximum remaining oxygen content in the output nitrogen gas. Parker domnick hunter nitrogen technology when combined with Parker domnick hunter compressed air pre-treatment, guarantees the nitrogen gas to be commercially sterile, oil free, dry and particulate free. (Within the specifications defined in the product information data contained in this brochure.)

The maximum remaining oxygen content required will vary with every application.

Maximum cost and energy savings = maximum oxygen level permissible

High Purity
10 ppm to 1000ppm (99.999% to 99.9%)

Laser cutting
50ppm to 500ppm

Heat Treatment
10ppm to 1000ppm

Electronics Soldering
50ppm to 500ppm

Pharmaceutical
10ppm to 5000ppm

Mid Purity
0.1% to 1% (99.9% to 99%)

Food MAP
0.1% to 1%

Food processing
0.1% to 1%

Beer dispense
0.5%

Wine blanketing
0.5%

Oil sparging
0.5%

Brazing
0.5%

Injection molding
0.5% to 1%

Wire annealing
0.5%

Aluminium sparging
0.5%

Low Purity
1% to 5% (99% to 95%)

Fire prevention
5%

Explosion prevention
2% to 5%

Pressure testing
5%

Gas seal blanketing
5%

Pigging
5%

Chemical blanketing
1% to 5%

Autoclaves
5%

Laser Sintering
2%

Dry boxes
2%

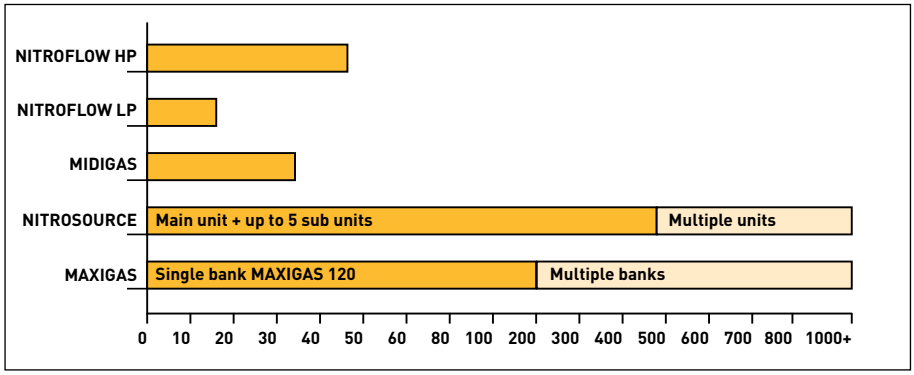
What nitrogen generator do I require?

Parker PSA and membrane technologies each offer unique benefits and value. There are many factors which affect the ultimate choice of generator, not just pressure, flow and purity. Ease of installation, footprint, location, application, and personal preferences are only a few of the other considerations.

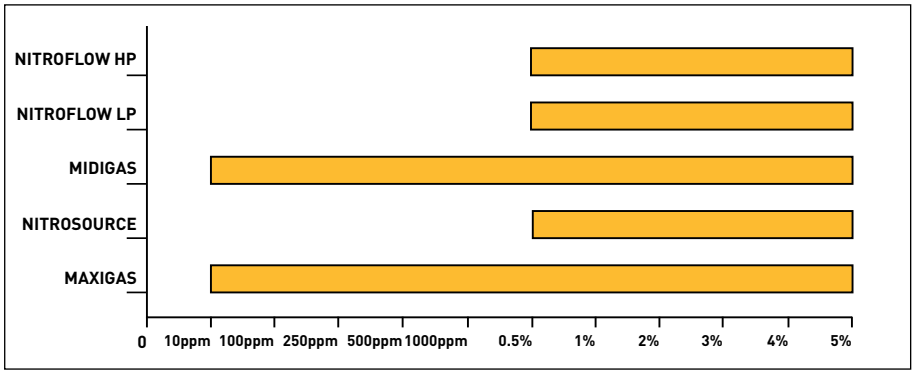
In general, membrane technology is better suited to low purity applications and PSA technology to higher purity applications.

If required, your local Parker domnick hunter Sales Company or their authorised distributor can assist in the selection of a suitable solution for your application.

Nitrogen generator model vs flow m^3/hr



Nitrogen generator model vs maximum remaining oxygen content



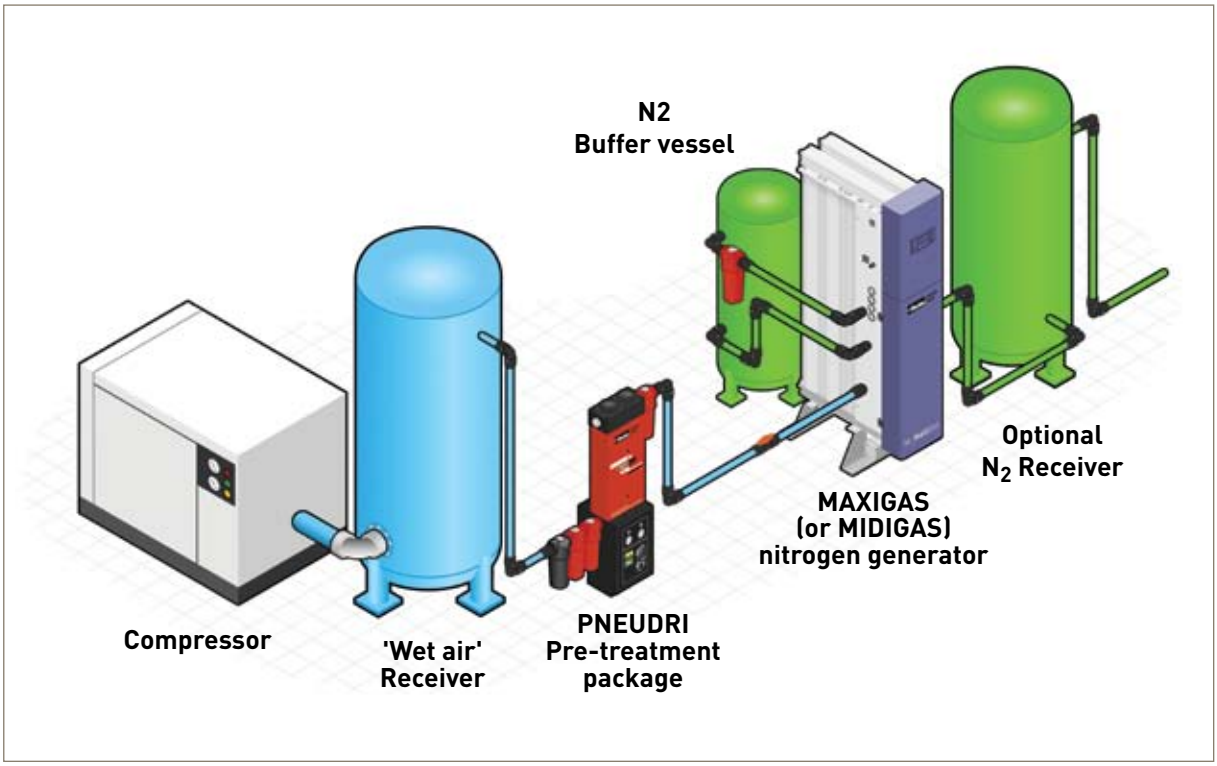
Membrane strengths

Instant purity on start-up
No storage for start-up
No buffer vessels
Refrigeration dryer; zero purge
Easy expansion
Low service costs
Ideal 'plug and play' solution
Simple installation
Simple in-situ purity adjustment
Operation to 40°C air inlet temperature
Silent operation

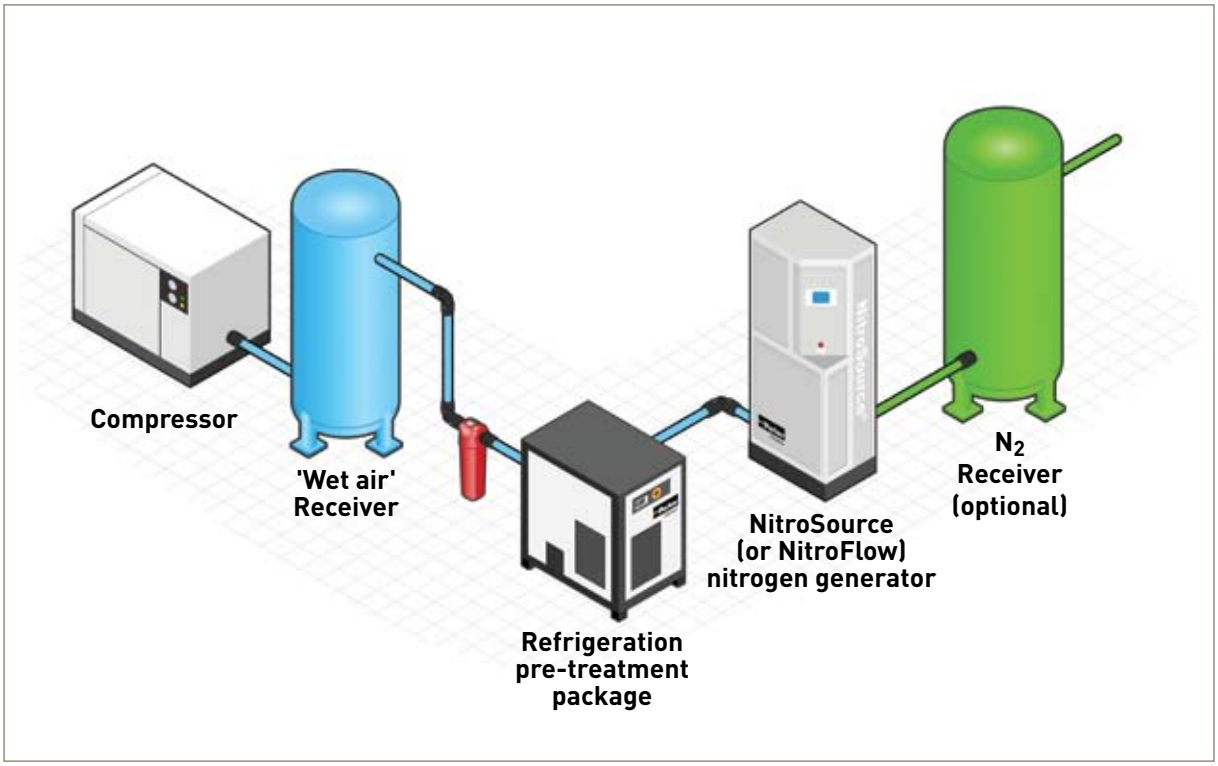
PSA strengths

Easily achieves very high purity
Stable flow, pressure and purity
Long service life – 10 years +
Low Air / N_2 ratios
Expandable
Multi bank - cascading
Low service costs
Ideal - high tech applications
Operation to 50°C ambient
Food grade approvals

Typical PSA installation



Typical membrane installation



Security of nitrogen supply and energy saving

The unique benefits of Parker PSA and membrane nitrogen gas generators offer users some really significant value when compared to conventional designs.

Multi-banking of the gas generator modules has three major benefits:

1 Stand-by or back up capability:

With a conventional design, if 100% back-up is required, for example to allow for maintenance or a breakdown, then an additional unit of the same size would be needed, doubling the initial purchase and installation costs along with the maintenance requirements.

The MAXIGAS and NitroSource gas generators from Parker domnick hunter overcome this dilemma by facilitating the use of a back-up unit for a fraction of the cost.

For example in a four bank installation, the addition of just one extra bank would ensure 100% back-up for only 25% the cost of a traditional solution.

2 Variable demand and energy reduction

A traditional generator solution is relatively energy efficient when the gas usage is at or about maximum flow. However, with variable demand conditions, because of the fixed timing cycle of most PSA gas generators and the set permeation rate of membrane units, the compressed air consumption is practically the same whether running at 100% flow or 10% flow.

Using a multi-bank MAXIGAS or NitroFlow solution will enable the possibility of cascading, where the generator banks are set to cut in and out of economy stand-by depending on the system pressure. In economy stand-by, the generators consume only a few Watts of electrical energy and use zero compressed air. This results in massive energy and cost savings.

3 Expandability

Because of the modular concept of MAXIGAS and NitroSource, expanding your system to meet future increased demand for nitrogen gas has never been easier. By adding extra banks at a later date, saves money now and gives you peace of mind that your system will be 'future proof' with a lower cost up-grade if your demand increases.

NitroSource main unit can easily be expanded with up to 5 sub modules. Then additional banks of main and sub modules can be added as required. Each additional bank as a stand alone unit or configured in controller and receptor mode.

A six bank MAXIGAS installation. (Five generators in view) satisfy the peak demand, each capable of supplying 20% of the output. The banks cascade on and off load as the flow varies with factory production requirements. This saves significant energy costs during low flow periods, in the form of lower compressed air demand. The sixth bank provides 100% back-up and allows for 100% up-time during maintenance.

MIDIGAS

Nitrogen Gas Generators

The cost-effective, reliable and safe solution for small to medium nitrogen requirements.

Product Selection

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

Nitrogen flow rate m^3/hr vs Purity (Oxygen Content)												
Model	**Unit**	**10ppm**	**100ppm**	**250ppm**	**500ppm**	**0.1%**	**0.5%**	**1.0%**	**2.0%**	**3.0%**	**4.0%**	**5.0%**
MIDIGAS2	**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	2.0	2.5	3.5	4.2	4.9	5.5
MIDIGAS4	**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	5.0	6.8	8.4	9.8	11.1
MIDIGAS6	**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	11.0	12.8	14.4
Outlet Pressure	**bar g**	5.6	5.4	5.9	5.7	5.6	5.7	6.0	6.0	5.8	5.7	5.6
	psi g	81	78	86	83	81	83	87	87	84	83	81

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 - 13 bar g 87 - 217 psi g

Electrical Parameters

Supply Voltage	115 / 230 ±10% V ac 50/60Hz
Power	80 W
Fuse	3.15A (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 (6562 ft)
Noise	< 80 dB (A)

Port Connections

Air Inlet	G1/2"
N_2 Outlet to Buffer	G1/2"
N_2 Inlet from Buffer	G1/2"
N_2 Outlet	G1/2"

Weights and Dimensions

Model	**Height (H)**		**Width (W)**		**Depth (D)**		**Weight**	
	mm	**in**	**mm**	**in**	**mm**	**in**	**kg**	**lb**
MIDIGAS2	1034	41	450	18	471	19	98	216
MIDIGAS4	1034	41	450	18	640	26	145	320
MIDIGAS6	1034	41	450	18	809	33	196	432

Packed Weights and Dimensions

Model	**Height (H)**		**Width (W)**		**Depth (D)**		**Weight**	
	mm	**in**	**mm**	**in**	**mm**	**in**	**kg**	**lb**
MIDIGAS2	612	24	1490	59	950	38	174	383
MIDIGAS4	612	24	1490	59	950	38	221	487
MIDIGAS6	612	24	1490	59	950	38	272	597

MAXIGAS

Nitrogen Gas Generators

The cost-effective, reliable and safe solution for medium to large nitrogen requirements.

Product Selection

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Nitrogen flow rate m^3/hr vs Purity (Oxygen Content)													
Model	**Unit**	**10ppm**	**50ppm**	**100ppm**	**250ppm**	**500ppm**	**0.1%**	**0.5%**	**1.0%**	**2.0%**	**3.0%**	**4.0%**	**5.0%**
MAXIGAS104	**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	19.0
MAXIGAS106	**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
MAXIGAS108	**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
MAXIGAS110	**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	38.0	42.7	47.3
MAXIGAS112	**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
MAXIGAS116	**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	20.0	31.6	39.7	49	57.7	64.9	72.0
MAXIGAS120	**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
Outlet Pressure	**bar g**	5.5	6.1	6.1	6.1	6.1	6.1	6.0	5.9	5.8	5.7	5.7	5.6
	psi g	80	88	88	88	88	88	87	86	84	83	83	81

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

Electrical Parameters

Supply Voltage	100 - 240 ±10% V ac 50/60Hz
Power	80 W
Fuse	3.15A (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 (6562 ft)
Noise	< 80 dB (A)

Port Connections

Air Inlet	G1"
N_2 Outlet to Buffer	G1"
N_2 Inlet from Buffer	G1/2"
N_2 Outlet	G1/2"

Weights and Dimensions

Model	Height (H)		Width (W)		Depth (D)		Weight	
	mm	in	mm	in	mm	in	kg	lb
MAXIGAS104	1894	76	550	22	692	28	336	741
MAXIGAS106	1894	76	550	22	861	34	394	869
MAXIGAS108	1894	76	550	22	1029	41	488	1076
MAXIGAS110	1894	76	550	22	1198	48	582	1283
MAXIGAS112	1894	76	550	22	1368	55	676	1490
MAXIGAS116	1894	76	550	22	1765	71	864	1905
MAXIGAS120	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
MAXIGAS104	800	31	2020	80	1000	39	464	1023
MAXIGAS106	800	31	2020	80	1000	39	521	1149
MAXIGAS108	800	31	2020	80	1200	47	614	1354
MAXIGAS110	800	31	2020	80	1250	49	744	1640
MAXIGAS112	800	31	2020	80	1510	60	790	1742
MAXIGAS116	800	31	2020	80	1820	72	980	2160
MAXIGAS120	800	31	2020	80	2270	90	1360	3015

NitroFlow Basic

Nitrogen Gas Generators

The cost-effective, reliable and safe solution for small to medium nitrogen requirements.

Product Selection

NitroFlow Basic LP and HP have an integral compressor requiring normal clean ambient air at 10°C – 35°C, ← 90% relative humidity

			Oxygen Content							
Model	**Unit**	**Max. N_2 Pressure**	**0.1%**	**0.3%**	**0.5%**	**1.0%**	**2.0%**	**3.0%**	**4.0%**	**5.0%**
NitroFlow Basic LP Mobile	**L/min**	**2 bar g**	10	15	18	24	31	35	40	43
	cfh		21.2	31.8	38.2	50.8	65.7	74.2	84.8	91.2
NitroFlow Basic HP Mobile	**L/min**	**8 bar g**	7.6	12	13	18	23	26	30	32
	cfh		16.1	25.4	27.6	38.2	48.8	55.1	63.6	67.8
NitroFlow Basic LP Wall Mount	**L/min**	**2 bar g**	10	15	18	24	31	35	40	43
	cfh		21.2	31.8	38.2	50.8	65.7	74.2	84.8	91.2
NitroFlow Basic HP Wall Mount	**L/min**	**8 bar g**	7.6	12	13	18	23	26	30	32
	cfh		16.1	25.4	27.6	38.2	48.8	55.1	63.6	67.8
NitroFlow Basic HP Wall Mount + Mixer add on	**Mixed gas outlet 7 bar g**		Please see table below							

Litre reference standard = 20°C, 1013 millibar (absolute), 0% relative water vapour pressure

CO_2	**10%**	**20%**	**30%**	**40%**	**50%**	**60%**	**70%**
Conversion Factor	1.11	1.25	1.42	1.67	2.0	2.5	3.33

To calculate total mixed gas outlet flow rate when using NitroFlow Basic HP wall mount + Mixer add on, multiply the corresponding nitrogen outlet capacity of the standard NitroFlow Basic HP by the conversion factor in the table above.

Technical Data

	NitroFlow Basic LP Mobile	**NitroFlow Basic HP Mobile**	**NitroFlow Basic LP Wall Mount**	**NitroFlow Basic HP Wall Mount**	**NitroFlow Basic HP Wall Mount + Mixer add on**
Ambient Temperature Range	10°C – 35°C				
Maximum Nitrogen Outlet Pressure	2 bar g	8 bar g	2 bar g	2 bar g	7 bar g mixed gas
Air Inlet Quality	Normal clean ambient air < 90% Relative Humidity				
Electrical Supply	Available as 120VAC/1ph/60Hz or 240VAC/1ph/50Hz				
Power Consumption	1.4kW				
Inlet / Outlet Connections	Nitrogen & Permeate Outlet – G1/4 or 1/4 NPT				

Weights and Dimensions

Model	**Height (H)**		**Width (W)**		**Depth (D)**		**Weight**	
	mm	**in**	**mm**	**in**	**mm**	**in**	**kg**	**lb**
NitroFlow Basic LP Mobile	700	27.6	310	12.2	900	35.4	92.5	204
NitroFlow Basic HP Mobile	700	27.6	310	12.2	900	35.4	92.5	204
NitroFlow Basic LP Wall Mount	775	30.5	380	15.0	380	15.0	75	166
NitroFlow Basic HP Wall Mount	775	30.5	380	15.0	380	15.0	75	166
NitroFlow Basic HP Wall Mount + Mixer add on	Dependant upon Mixer Position						80	177

NitroFlow

Nitrogen Gas Generators

The cost-effective, reliable and safe solution for medium nitrogen requirements.

Product Selection

Performance data for HP models is based on 7 bar g (100 psi g) air inlet pressure and 20°C - 30°C air inlet temperature. Consult Parker domnick hunter for performance under other specific conditions. NitroFlow LP has a in-built compressor requiring normal clean ambient air at 10°C - 35°C, ← 90% relative humidity

		Oxygen Content					
Model	**Unit**	**0.5%**	**1.0%**	**2.0%**	**3.0%**	**4.0%**	**5.0%**
NitroFlow LP1	**m^3/hr**	1.1	1.5	2.2	2.7	3.1	3.5
	cfm	0.65	0.9	1.3	1.6	1.8	2.1
NitroFlow LP2	**m^3/hr**	2.2	3.0	4.5	5.3	6.0	6.8
	cfm	1.3	1.6	2.6	3.1	3.5	4.0
NitroFlow LP3	**m^3/hr**	3.4	5.3	6.6	7.8	9.0	10.2
	cfm	2.0	3.1	3.9	4.6	5.3	6.0
NitroFlow LP4	**m^3/hr**	n/a	n/a	n/a	10.3	12.0	13.6
	cfm	n/a	n/a	n/a	6.1	7.0	8.0
NitroFlow HP1	**m^3/hr**	1.7	2.5	3.8	5.0	6.3	7.5
	cfm	1.0	1.5	2.2	3.0	3.7	4.4
NitroFlow HP2	**m^3/hr**	3.4	5.0	7.6	10.0	12.6	15.0
	cfm	2.0	3.0	4.5	6.0	7.4	9.0
NitroFlow HP3	**m^3/hr**	5.1	7.5	11.4	15.0	18.9	22.5
	cfm	3.0	4.4	6.7	9.0	11.1	13.3

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

Technical Data

		LP1	LP2	LP3	LP4	HP1	HP2	HP3
Temperature Range		10°C – 35°C Ambient				10°C - 40°C Compressed Air Inlet		
Nitrogen Outlet Pressure		2 bar g				Air inlet minus 2 bar g		
Air Inlet Pressure Range		N/A - built in compressor				5 - 13 bar g		
Air Inlet Quality	**Pressure Dewpoint**	< 90% Relative Humidity				< +5°C		
	Particulate					5 Micron		
	Oil					< 3.0mg/m^3		
Electrical Supply		230VAC/1ph/50Hz		400VAC/3ph+N+E/50Hz		100-115-230VAC/1ph/50Hz-60Hz		
Power Consumption		1.7kW	3.2kW	4.8kW	6.3kW	30W		
Inlet / Outlet Connections		Nitrogen and Permeate G1				Air Inlet, Nitrogen Outlet and Permeate G1		

Weights and Dimensions

Model	**Height (H)**		**Width (W)**		**Depth (D)**		**Weight**	
	mm	**in**	**mm**	**in**	**mm**	**in**	**kg**	**lb**
NitroFlow LP1	1224	48.2	540	21.3	725	28.5	150	331
NitroFlow LP2	1224	48.2	540	21.3	725	28.5	200	441
NitroFlow LP3	1224	48.2	810	31.9	725	28.5	320	706
NitroFlow LP4	1224	48.2	810	31.9	725	28.5	370	816
NitroFlow HP1	1224	48.2	270	10.6	725	28.5	85	187
NitroFlow HP2	1224	48.2	270	10.6	725	28.5	95	209
NitroFlow HP3	1224	48.2	270	10.6	725	28.5	105	232

NitroSource HiFluxx

Nitrogen Gas Generators

The cost-effective, reliable and safe solution for medium to large nitrogen requirements.

Product Selection

Performance data is based on 7 bar g (100 psi g) air inlet pressure and 20°C - 30°C air inlet temperature. Consult Parker domnick hunter for performance under other specific conditions.

		Oxygen Content					
Model	**Unit**	**0.5%**	**1.0%**	**2.0%**	**3.0%**	**4.0%**	**5.0%**
Main Unit	**m^3/hr**	6.0	9.4	16.2	22.0	28.0	34.0
	cfm	3.5	5.5	9.5	12.9	16.5	20.0
Main + 1 Sub	**m^3/hr**	12.0	18.8	32.4	44.0	56.0	68.0
	cfm	7.1	11.1	19.1	25.9	33.0	40.0
Main + 2 Subs	**m^3/hr**	18.0	28.2	48.6	66.0	84.0	102.0
	cfm	10.6	16.6	28.6	38.9	49.5	60.0
Main + 3 Subs	**m^3/hr**	24.0	37.6	64.8	88.0	112.0	136.0
	cfm	14.1	22.2	38.2	51.8	66.0	80.0
Main + 4 Subs	**m^3/hr**	30.0	47.0	81.0	110.0	140.0	170.0
	cfm	17.7	27.7	47.7	64.8	82.5	100.0
Main + 5 Subs	**m^3/hr**	36.0	56.4	97.2	132.0	168.0	204.0
	cfm	21.2	33.2	57.3	77.8	98.9	120.0

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

Technical Data

Air Inlet Temperature Range		10 - 40°C
Maximum Nitrogen Outlet Pressure		11 bar g
Air Inlet Pressure Range		4-13 bar g
Air Inlet Quality	**Pressure Dewpoint**	<+5°C
	Particulate	<5 micron
	Oil	<3 mg/m^3
Electrical Supply		90-250 VAC/50-60Hz
Inlet / Outlet Connections - Main		Air inlet G1 1/4, N_2 Outlet G1, Premeate Vent 110mm
Outlet Connection - Sub Unit		N_2 Outlet G1, Premeate Vent 110mm

Weights and Dimensions

Model	**Height (H)**		**Width (W)**		**Depth (D)**		**Weight**	
	mm	**in**	**mm**	**in**	**mm**	**in**	**kg**	**lb**
Main Unit	1928	75.9	725	28.5	490	19.3	180	397
Main + 1 Sub	1928	75.9	725	28.5	760	29.9	275	607
Main + 2 Subs	1928	75.9	725	28.5	1030	40.6	370	816
Main + 3 Subs	1928	75.9	725	28.5	1300	51.2	465	1025
Main + 4 Subs	1928	75.9	725	28.5	1570	61.8	560	1235
Main + 5 Subs	1928	75.9	725	28.5	1840	72.4	655	1444

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