



**domnick hunter**



# **MAXIGAS Nitrogen Supply**

**for brewing**

[www.domnickhunter.com](http://www.domnickhunter.com)

# Reduced oxidation for improved taste and quality

**MAXIGAS from domnick hunter generates high-grade nitrogen gas from compressed air and is a cost effective alternative to other gas sources. There are no on-going costs such as refills, order processing or delivery charges.**

**MAXIGAS gives brewers increased control over flowrates and production downtime is minimised due to the permanent availability of an on-demand nitrogen supply.**

There are various nitrogen gas applications during brewing, some of which are outlined here:

## **Blanketing of ingredients**

Stored ingredients such as hops, flaked maize, malt and other grains are susceptible to damage from ambient air. Nitrogen's inert properties provide an effective blanket against aerobic spoilage and humidity. A constant supply of low pressure nitrogen gas is required, steadily refilling the headspace of storage tanks as the gas disperses.

## **Reduced oxidation**

Beer is quickly oxidised when exposed to air, if quality is to be maintained it needs to be constantly protected. The headspace of tanks can be filled with a protective layer of nitrogen gas to prevent air ingress; a gas delivery system will maintain constant pressure as the temperature and level inside the tank fluctuates.

## **Keg cleaning and filling**

High pressure nitrogen gas is an effective purging method that enables brewers to reduce water consumption. Nitrogen assisted filling increases process speed, protects beer from oxidation, and results in substantially reduced beer losses.

## **Why nitrogen?**

Carbon dioxide is commonly used for blanketing as many breweries can recover the gas from fermentation. However, this must be purified to remove flavour taints. Nitrogen may be considered advantageous for two reasons: it is less soluble than carbon dioxide and the flexibility of a nitrogen gas generator means that it can cater for large fluctuations in demand. Whatever gas is chosen, it should be passed through a sterilising filter to remove any micro-organisms that could cause spoilage of the beer.



Images courtesy of Porterhouse Brewing Co, Ireland



# Purging

## **Purging**

Equipment and pipelines are equally subject to oxygen pick-up, purging with nitrogen will reduce oxygen and limit bacterial growth.

## **Mixing**

Nitrogen gas, which has a very low solubility forms bubbles in liquid that provide effective mixing of lager / ale yeasts and beer in the brewing tank. The bubbles quickly rise to the surface and are dissipated without affecting taste, appearance or aroma. This form of mixing can also be less production intensive than mechanical devices.

## **Pressure transfer**

Nitrogen gas is fast replacing carbon dioxide as a method of providing motive force when discharging beer from storage tanks to filtration.

This is because excess carbon dioxide can affect taste and increase product wastage due to fobbing. Nitrogen delivered at high pressure is less likely to affect carbonation.

## **Filter integrity testing**

Nitrogen gas can be used to test membrane filters without affecting sterility.



# Bottling & Dispensing

## Dispensing systems

The right gas mixture ensures that every single pint of beer pulled from the keg is of the highest quality. Bar Owners get a more efficient operation with less waste and Customers get a better looking and tasting pint.

The right carbon dioxide and nitrogen gas mix can be easily achieved with a compact Mixed Gas Dispense unit from domnick hunter. The unit, which is connected to a domnick hunter MAXIGAS nitrogen generator and CO<sub>2</sub> cylinders produces the perfect gas mixture ratio.

## Packaging

Purging bottles, cans and kegs with nitrogen gas helps to reduce oxidation after packaging and extends shelf-life. Nitrogen gas can also be used to dry bottles after rinsing.



Inconsistent gas mixture



Consistent gas mixture



Mixed Gas Dispense Unit



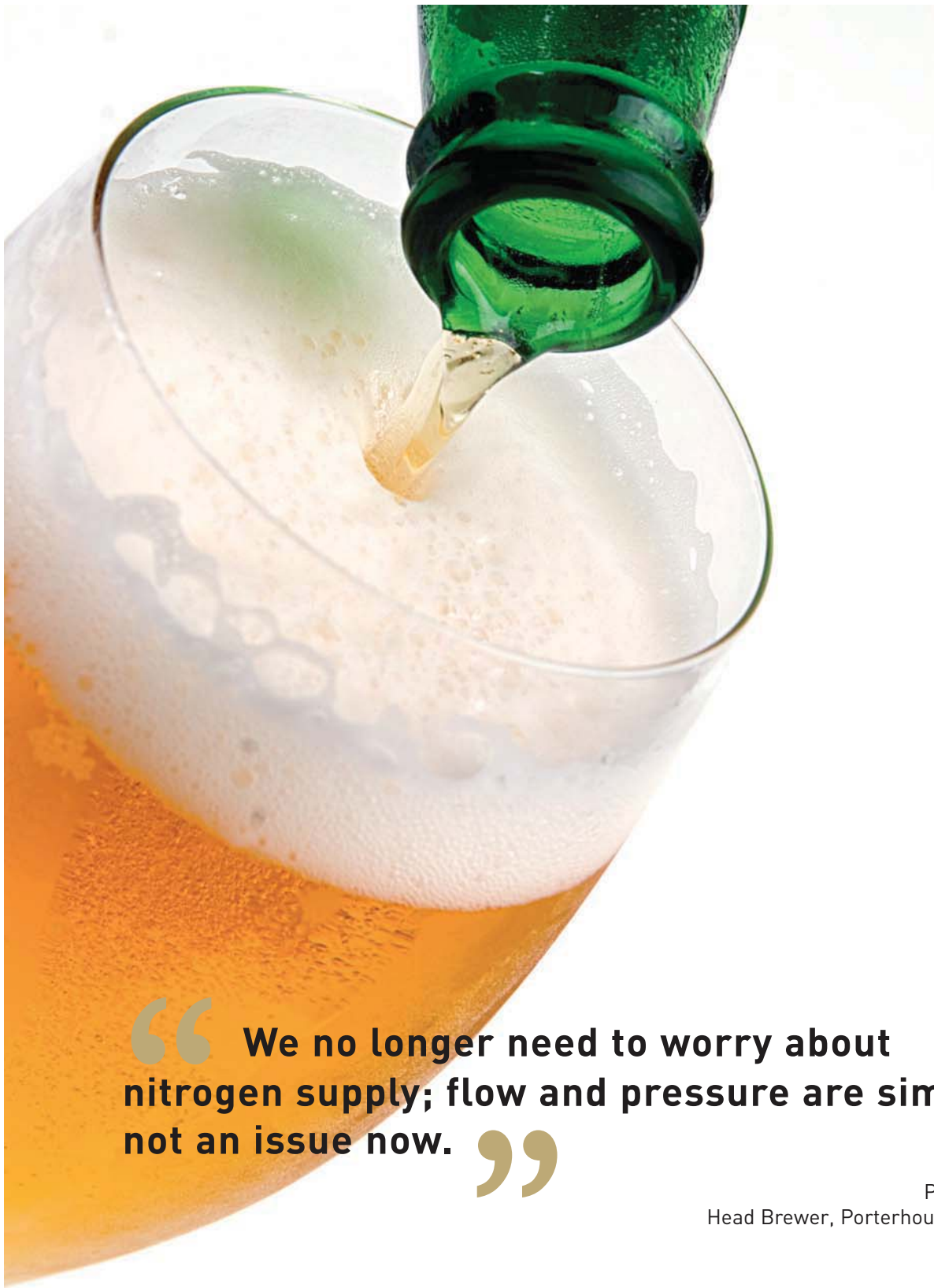
# Clarification

## **Filtration and purification solutions**

In addition to nitrogen generation, domnick hunter offers brewers a total filtration and purification solution from microbiological stabilisation to physical microbiological stabilisation. This helps to ensure international standards and consumer expectations are achieved.

The range includes:

- Clarification and trap filtration for applications that demand absolute particle retention
- Sheet and lenticular filters for clarification and physical microbiological stabilisation
- Long-life filters with high holding capacity that will withstand long-term steam exposure
- Easy to use integrity testing equipment
- CO<sub>2</sub> purification systems
- Sterile gas, vent and steam filters
- Mixed gas dispense systems
- Fridge and desiccant dryers for compressed air refinement
- Advanced membranes for cold microbiological stabilisation prior to packaging



**“ We no longer need to worry about nitrogen supply; flow and pressure are simply not an issue now. ”**

Peter Mosley  
Head Brewer, Porterhouse Brewery,  
Ireland

**“ We are making huge savings thanks to our domnick hunter nitrogen generator which has enabled us to reduce CO<sub>2</sub> usage. ”**

Helmut Sauerhammer  
Master Brewer, Pyraser Beer,  
Germany

# Why MAXIGAS?

MAXIGAS is a cost effective alternative to other nitrogen gas sources, with no on-going costs such as refills, order processing or delivery charges. It is an effective gas delivery system for applications that require high flow rates and pressure levels. It is also a safer alternative that eliminates manhandling of high-pressure cylinders or cryogenic gas tanks.

Production downtime is minimised due to the permanent availability of an on-demand nitrogen supply.

Maxigas gives manufacturers increased control over flow rates and requires minimal maintenance. It can also bring valuable space saving advantages.



## MAXIGAS deliverables

- Nitrogen purity of up to 10ppm oxygen content
- On-demand nitrogen
- Increased control
- No reliance on gas deliveries in remote or congested areas
- Modular space saving design
- Ability to add extra banks of generators
- Simplicity
- Innovative regeneration feature requires minimal maintenance
- domnick hunter global service and support
- Easily retrofitted



## How it works

MAXIGAS is constructed from pairs of extruded aluminium columns filled with carbon molecular sieve (CMS) and operates on the pressure swing adsorption (PSA) principle to produce a continuous stream of nitrogen gas from compressed air. Oxygen and other trace gases are preferentially adsorbed by the CMS, allowing nitrogen to pass through.

Carbon molecular sieve differs from ordinary activated carbons in that it has a much narrower range of pore openings. This allows small molecules such as oxygen to penetrate the pores and be separated from the air stream. The larger molecules of nitrogen by-pass the CMS and emerge as the product gas.

After a pre-set time when the online bed is almost saturated with adsorbed gases, the system automatically switches to regenerative mode, venting the contaminants from the CMS. The second CMS bed then comes online and takes over the separation process. The pair of CMS beds switch between separation and regeneration modes to ensure continuous and uninterrupted nitrogen production.



Carbon molecular sieve

# Product Selection

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

Nitrogen Outlet Capacity (Nm³ / hour) V Oxygen Content												
Model	10ppm	50ppm	100ppm	250ppm	500ppm	0.1%	0.5%	1.0%	2.0%	3.0%	4.0%	5.0%
MIDIGAS 2	0,55	-	1,2	1,5	1,9	2,4	3,4	4,3	5,8	7,2	8,4	9,4
MIDIGAS 4	1,2	-	2,4	3,2	3,9	4,7	6,9	8,5	11,6	14,3	16,7	18,8
MIDIGAS 6	1,5	-	3,2	4,2	5,3	6,5	9,5	11,5	15,2	18,7	21,7	24,5
MAXIGAS 104	2	3,8	5,5	7,1	8,6	9	14,1	17,8	22	25,8	29	32,2
MAXIGAS 106	3	5,7	8,3	10,7	13	13,4	21,2	26,6	32,8	38,7	43,5	48,3
MAXIGAS 108	4	7,6	11	14,3	17,3	18	28,3	35,5	43,8	51,6	58	64,4
MAXIGAS 110	5	9,5	13,8	17,8	21,6	22,4	35,3	44,4	54,7	64,5	72,5	80,4
MAXIGAS 112	6	11,3	16,5	21,4	25,9	26,8	42,4	53,3	65,7	77,4	87,1	96,5
MAXIGAS 116	7,9	14,4	20,9	27,1	32,8	34	53,7	67,5	83,2	98,1	110,3	122,3
MAXIGAS 120	9,8	17,4	25,3	32,8	39,7	41,2	65	81,7	100,7	118,7	133,5	148

Weights and Dimensions				
Model	Height (mm)	Width (mm)	Depth (mm)	Weight (kg)
MIDIGAS 2	1034	450	471	98
MIDIGAS 4	1034	450	640	145
MIDIGAS 6	1034	450	809	196
MAXIGAS 104	1894	550	692	336
MAXIGAS 106	1894	550	861	394
MAXIGAS 108	1894	550	1029	488
MAXIGAS 110	1894	550	1198	582
MAXIGAS 112	1894	550	1368	676
MAXIGAS 116	1894	550	1765	864
MAXIGAS 120	1894	550	2043	1052

Technical Data	
Ambient Temperature Range	: 5-50 °C
Max. Nitrogen Outlet Pressure	: 16,5 barg
Min. /Max. Air Inlet Pressure (MAXIGAS)	: 6-18 barg
Min. /Max. Air Inlet Pressure (MIDIGAS)	: 6-13 barg
Inlet Air Quality:	Dewpoint : - 40 °C
	Particulate : < 0,1 micron
	Oil : < 0,01 mg/m3
Electrical Supply	: 220 V/1ph/50 Hz
Inlet /Outlet Connections	: Air G1 – Nitrogen G½



MIDIGAS Nitrogen Generator



MAXIGAS Nitrogen Generator