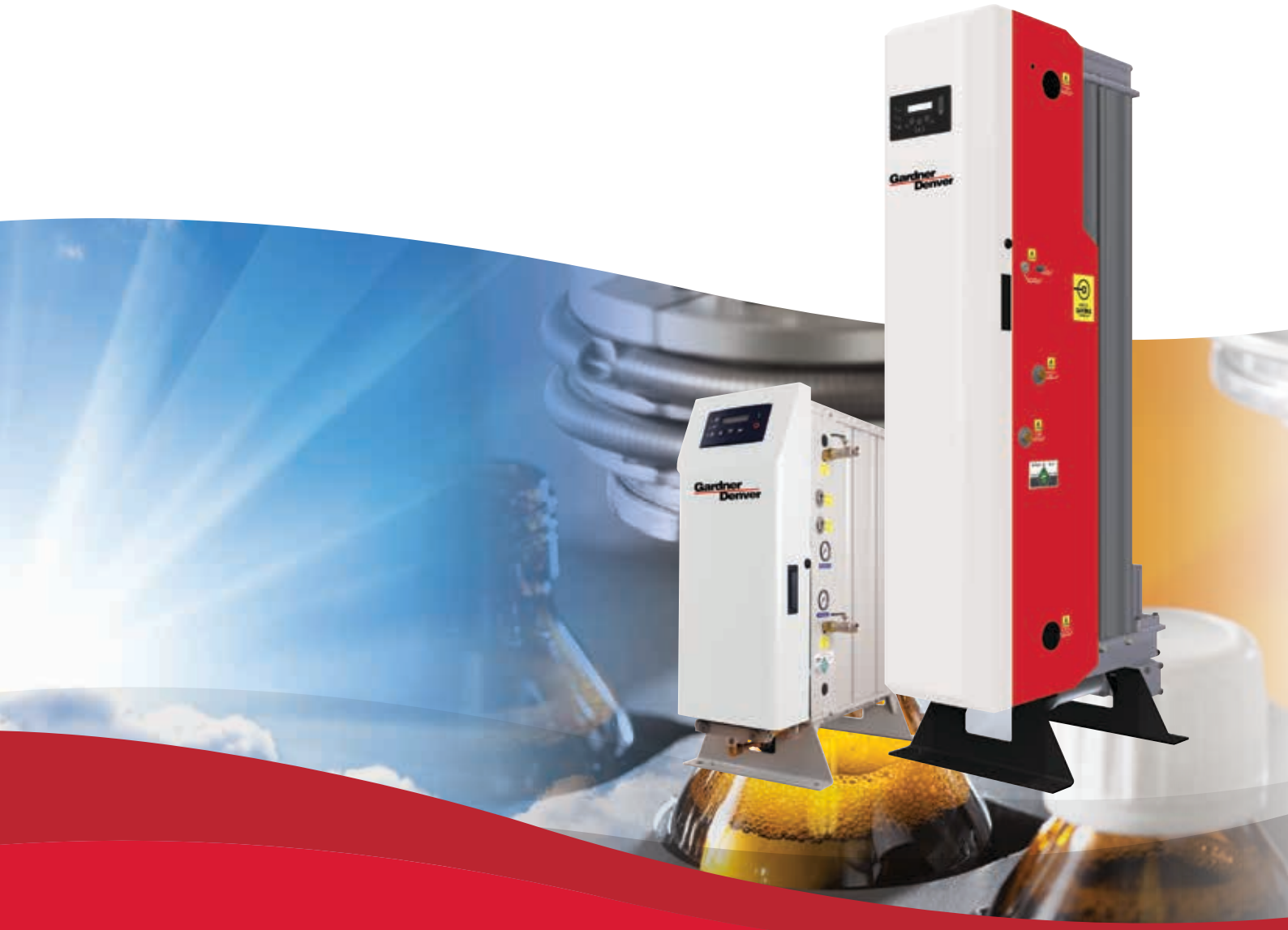
Gardner Denver

# Nitrogen Gas Generators

## Innovative Compressed Air Treatment

GDN2 Series



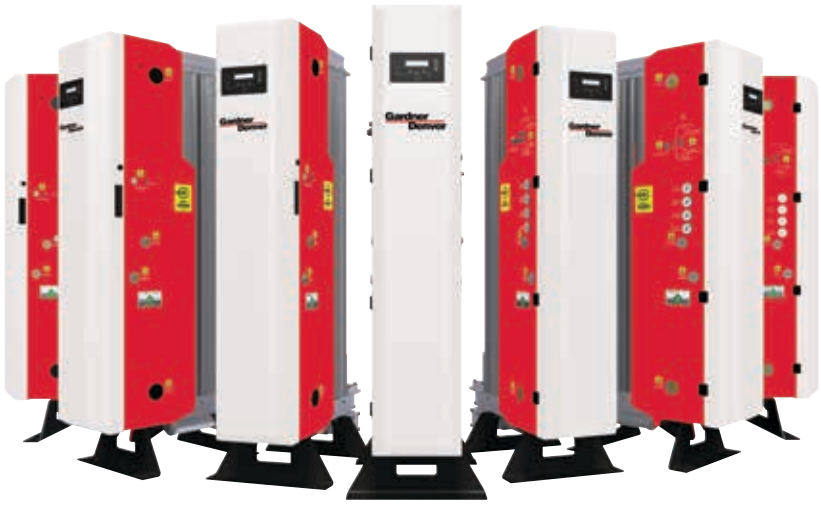
# Obtaining or maintaining a ready supply of nitrogen gas can be problematic and expensive

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

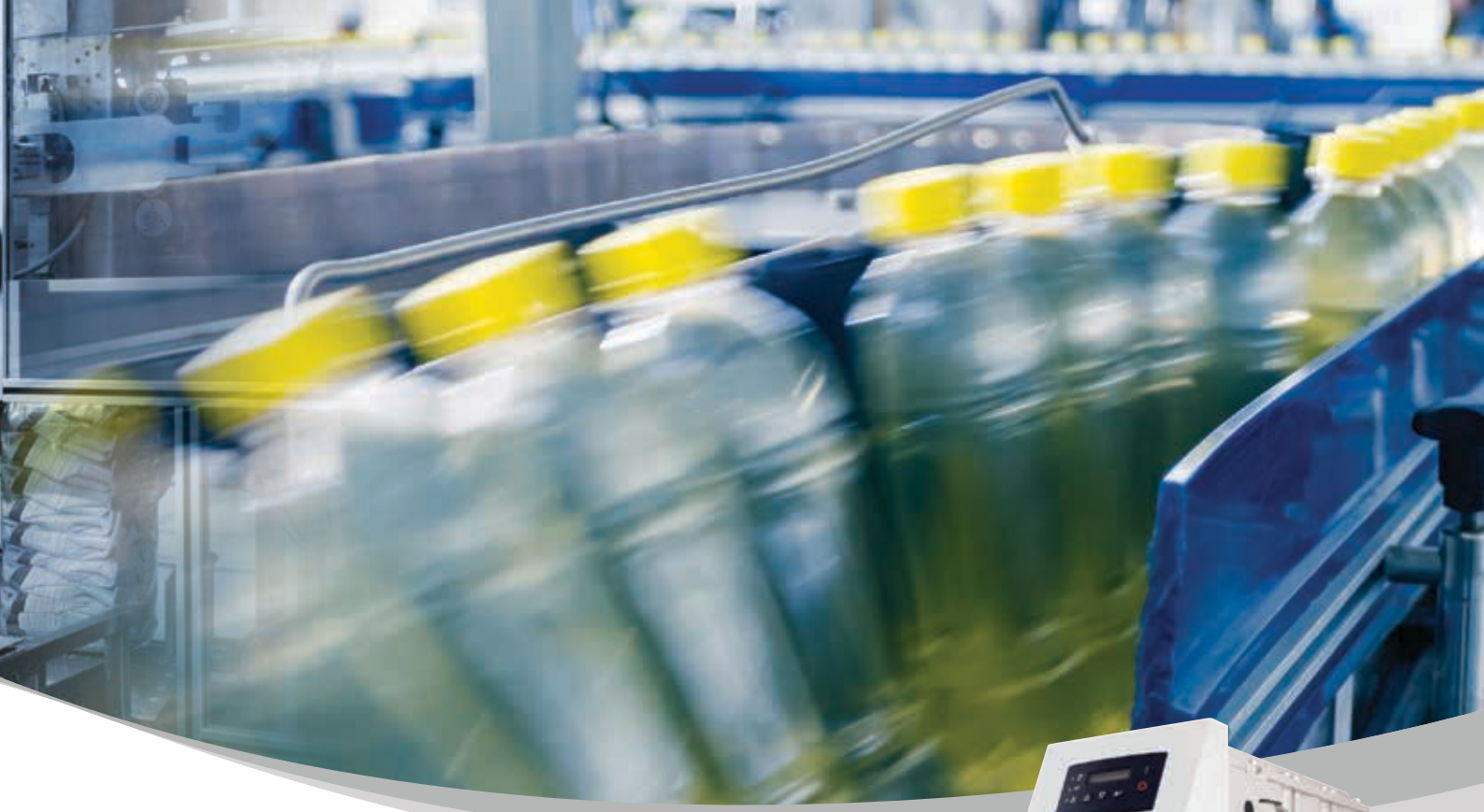
## Continuous supply, ultimate reliability, competitive advantage

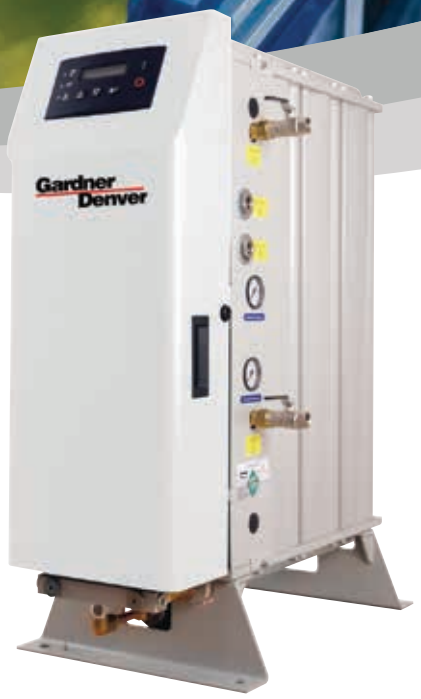
When you switch to gas generation with Gardner Denver, you can expect payback within six to 24 months, depending on your existing arrangements and consumption.



## Lowest total lifetime cost

With unique design and advanced Energy Saving Technology at its core, our market leading on-site generator requires less compressed air to generate more nitrogen than other solutions. This translates into reduced energy consumption. Coupled with Substantially lower servicing costs, reduced Downtime and a longer working life, it adds up to the most cost-efficient nitrogen supply available; Significantly more affordable than traditional sources, and delivering huge savings over the lifetime of the generator.






# On-site nitrogen generation made easy

Using high quality compressed air to supply the nitrogen generators, ensures long and trouble-free service and guarantees optimum performance. Gardner Denver compressors and pre-treatment packages including dryers and filters guarantee the highest quality air supply for nitrogen generation. Nitrogen gas can even be produced from spare capacity in your existing compressed air system with a minimum of additional floor space.

**Lower cost maintenance, very long working life**

The Carbon Molecular Sieve filtration delivers nitrogen more efficiently, leading to a very long working life – and major savings on maintenance and replacements.

**Five year warranty**

Free through Gardner Denver extended warranty, offering the assurance of no unexpected maintenance costs.

PROTECT 5 years
Extended Warranty for Gardner Denver Compressors

**Industry compliance**

Food and pharmaceutical safe, in line with European statute and the USA Food & Drugs Administration (FDA Article 21).

**Energy Saving Technology**

Matches compressed air flow to the nitrogen outlet flow and purity, reducing compressed air use, and saving energy and money.

**Expandable**

Add extra capacity as the application requirement grows.

**Quality control**

- Mass Flow Controller – ensuring correct set pressure and flow.
- Integral Oxygen Analyser – constantly measuring gas purity.
- Off-Gas By-Pass – automatically vents off out-of-specification gas.
- Inlet and outlet pressure regulation – preventing damage to the generator or application.
- Electronic control system – 100% management of all critical generator functions.

# The technology behind the benefits

A number of significant advantages are offered by Gardner Denver on site nitrogen generators over delivered gas options, as well as traditional generator designs.

## Highest efficiency, highest output nitrogen gas generator

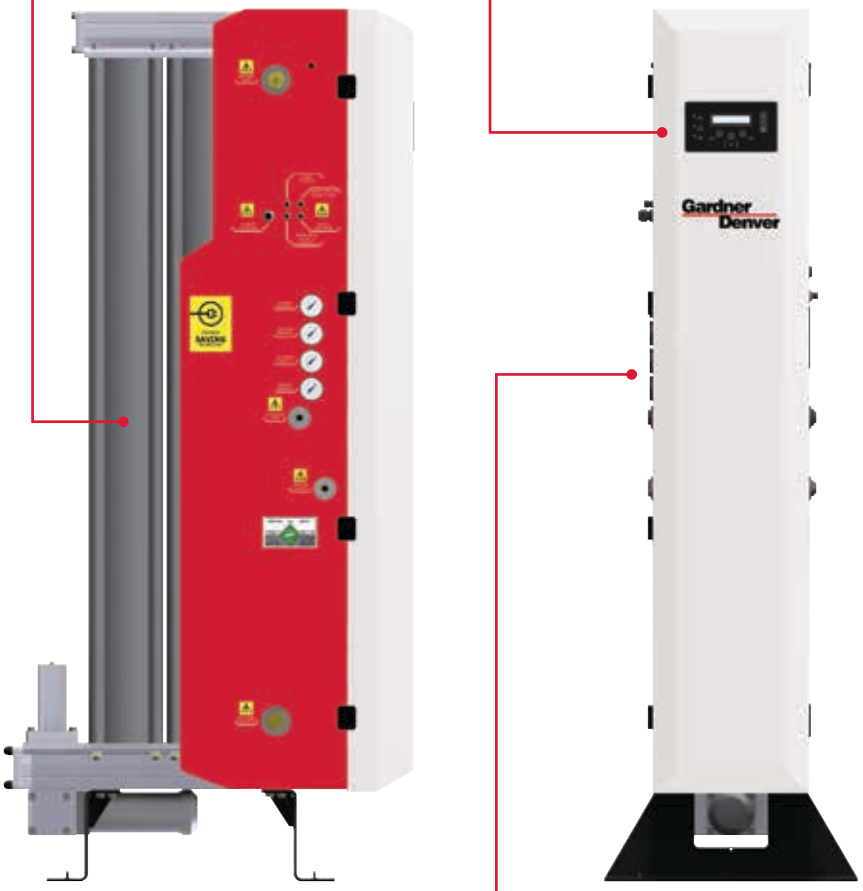
Using less compressed air, Gardner Denver generators produce nitrogen at the lowest unit cost. Through extensive research and design, flow modelling technology, materials and controls system, Gardner Denver can provide the highest efficiency nitrogen generator.

## Carbon Molecular Sieve (CMS)

Utilising the most robust, highest efficiency CMS - is one of the main reasons behind the major performance benefits such as more gas for less compressed air, reduced energy consumption; a very long working life and a more compact unit.

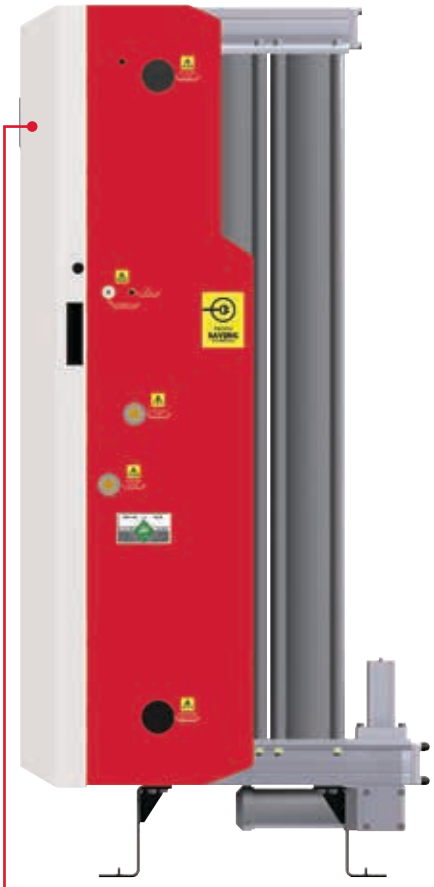
PSA technology utilising Carbon Molecular Sieve - designed for over 10 year's operational life.

Easy-to-use control panel plus mass flow controller and economy stand-by mode.




Modular design for expandability, and compact footprint for maximum versatility and optimum use of factory space.

Unique Energy Saving Technology: Exactly matches compressed air flow with nitrogen gas outlet flow and purity, for lowest energy consumption.



Integral Oxygen Analyser –
Constant monitoring ensuring the correct gas purity.

## Industry compliance, food and pharmaceutical safe

Produces pharmaceutical and food grade nitrogen gas in accordance with European statute.

Manufactured from materials that are safe for gas contact with pharmaceutical and food products, in line with the USA Food & Drugs Administration Article 21 (FDA Article 21).

## Unique Energy Saving Technology (EST)

Dramatically reduces compressed air consumption and energy cost, by ensuring that the inlet compressed air flow is always exactly matched to the nitrogen gas outlet flow and purity.

## Expandable

You can be specified your system for your current requirement, and simply enlarge with additional generators - as and when demand increases. And with 100% back up provided by a single extra generator, there are extra savings on duplicating the complete set up.

## Remote monitoring

With 'MODBUS', single or multiple generators can be connected to proprietary remote management and generator control systems.

## Gas quality control system

- Mass Flow Controller – whatever happens downstream, the generator will continue to deliver the correct set pressure and flow, removing the risk of any over-flow or compromise in nitrogen purity.
- Integral Oxygen Analyser – constantly measures the oxygen content in the output gas stream, ensuring that it is within the set limits and the correct purity gas is delivered.
- Off-Gas-By-Pass – ensures that the correct gas purity is always delivered to the application, by automatically allowing out-of-specification gas to vent to the atmosphere during start up, or in the unusual event of a fault.
- Inlet and outlet pressure regulation – guarantees the correct compressed air-inlet and nitrogen gas-outlet pressures, ensuring maximum operating efficiency and safeguarding both equipment and product from potential damage or spoilage.
- Purpose designed electronic control system – ensures the correct quality, pressure and flow of nitrogen, through 100% control of all critical generator functions, including economy control, monitoring outputs and alarms.

# Nitrogen Generators GDN2 Series

## Technical 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 Gardner Denver for performance under other specific conditions.

| Model | Nitrogen flow rates m³/hr vs Purity (oxygen content) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | unit | 10ppm | 100ppm | 250ppm | 500ppm | 0.10% | 0.50% | 1.00% | 2.00% | 3.00% | 4.00% | 5.00% |
| GDN20033 | m³/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 |
| GDN20072 | m³/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 |
| GDN20090 | m³/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 |
| Outlet pressure | bar g | 5.6 | 5.4 | 5.9 | 5.7 | 5.6 | 5.7 | 6 | 6 | 5.8 | 5.7 | 5.6 |
| | psi g | 81 | 78 | 86 | 83 | 81 | 83 | 87 | 87 | 84 | 83 | 81 |

m³ 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 - 188 psi g |

## Environmental Parameters

| | |
|---|---|
| Ambient Temperature | 5° - 50°C 41° - 122°F |
| Humidity | 50% @ 40°C (80% MAX ≤ 31°C) |
| IP Rating | IP20 / NEMA 1 |
| Pollution Degree | 2 |
| Altitude | Altitude <2000m (6562ft) |
| Noise <80 dB (A) | <80 dB (A) |

## 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 |

## Port Connections

| | |
|---|---|
| Air Inlet | G½" |
| GDN2 Outlet to Buffer | G½" |
| GDN2 Inlet from Buffer | G½" |
| GDN2 Outlet | G½" |

## Weights and Dimensions

| Model | Height | Width | Depth | Weight |
|---|---|---|---|---|
| | (mm) | (mm) | (mm) | (kg) |
| GDN20033 | 1034 | 450 | 471 | 98 |
| GDN20072 | | | 640 | 145 |
| GDN20090 | | | 809 | 196 |

## Packed Weights and Dimensions

| Model | Height | Width | Depth | Weight |
|---|---|---|---|---|
| | (mm) | (mm) | (mm) | (kg) |
| GDN20033 | 612 | 1490 | 950 | 174 |
| GDN20072 | | | | 221 |
| GDN20090 | | | | 272 |

Performance data is based on 7 bar g air inlet pressure and 20°C - 25°C ambient temperature.
Consult Gardner Denver for performance under specific conditions.

| Model | Nitrogen flow rates m³/hr vs Purity (oxygen content) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5ppm | 10ppm | 50ppm | 100ppm | 250ppm | 500ppm | 0.10% | 0.40% | 0.50% | 1% | 2% | 3% | 4% | 5% |
| GDN2-20P | 3.5 | 4.5 | 6.7 | 8.0 | 9.7 | 11.1 | 12.4 | 16.7 | 17.7 | 21.3 | 25.3 | 29.8 | 30.9 | 33.7 |
| GDN2-25P | 5.3 | 6.8 | 10.1 | 12.0 | 14.6 | 16.7 | 18.6 | 25.1 | 26.6 | 32.0 | 38.0 | 44.7 | 46.4 | 50.6 |
| GDN2-35P | 7.0 | 9.0 | 13.4 | 16.0 | 19.4 | 22.2 | 24.8 | 33.4 | 35.4 | 42.6 | 50.6 | 59.6 | 61.8 | 67.4 |
| GDN2-45P | 8.8 | 11.3 | 16.8 | 20.0 | 24.3 | 27.8 | 31.0 | 41.8 | 44.3 | 53.3 | 63.3 | 74.5 | 77.3 | 84.3 |
| GDN2-55P | 10.5 | 13.5 | 20.1 | 24.0 | 29.1 | 33.3 | 37.2 | 50.1 | 53.1 | 63.9 | 75.9 | 89.4 | 92.7 | 101.1 |
| GDN2-60P | 11.6 | 15.0 | 22.3 | 26.6 | 2.3 | 36.9 | 41.2 | 55.5 | 58.9 | 70.8 | 84.1 | 99.1 | 102.7 | 112.1 |
| GDN2-65P | 13.3 | 17.1 | 25.5 | 30.4 | 36.9 | 42.2 | 47.1 | 63.5 | 67.3 | 80.9 | 96.1 | 113.2 | 117.4 | 128.1 |
| GDN2-75P | 14.5 | 18.6 | 27.7 | 33.1 | 40.2 | 46.0 | 51.3 | 69.1 | 73.3 | 88.2 | 104.7 | 123.4 | 127.9 | 139.5 |
| GDN2-80P | 16.1 | 20.7 | 30.8 | 36.8 | 44.6 | 51.1 | 57.0 | 76.8 | 81.4 | 98.0 | 116.4 | 137.1 | 142.1 | 155.0 |

m³ 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 | 5-13 bar g |

## Environmental Parameters

| | |
|---|---|
| Ambient Temperature | 5-50°C |
| Humidity | 50% @ 40°C (80% @ MAX @ 31°C) |
| IP Rating | IP20 / NEMA 1 |
| Pollution Degree | 2 |
| Installation Category | II |
| Altitude | < 2000 m |
| Noise <80 dB (A) | <80 dB (A) |

## Electrical Parameters

| | |
|---|---|
| Generator Supply | 100 - 240 +/- 10% Vac 50/60Hz |
| Power Range | 55 W |
| Fuse | 3.15 A (Anti Surge (T), 250v, 5 x 20mm HBC, Breaking Capacity 1500A @ 250v, IEC 60127, UL R/C Fuse) |

## Port Connections

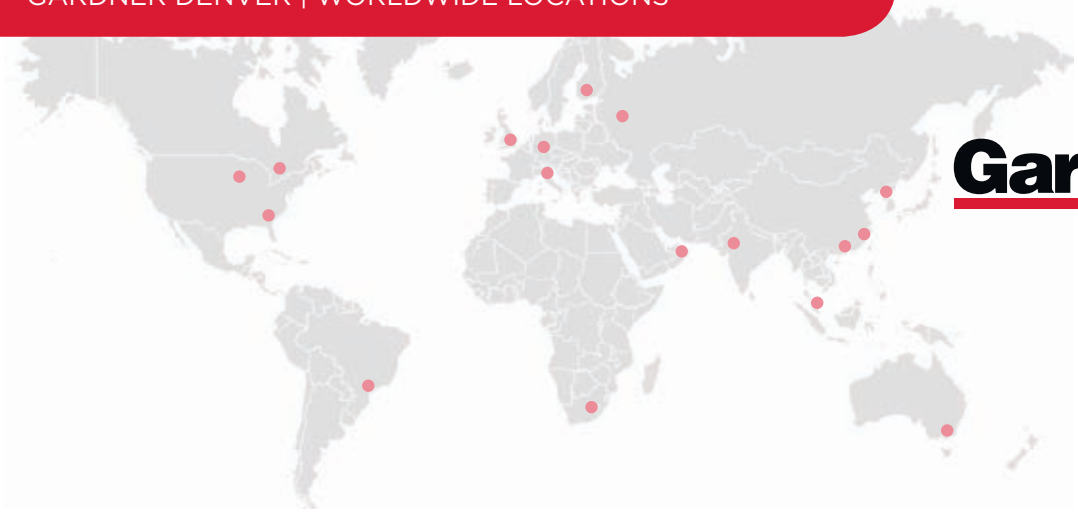
| | |
|---|---|
| Air Inlet | G1 |
| GDN2 Outlet to Buffer | G1 |
| GDN2 Inlet from Buffer | G1 |
| GDN2 Outlet | G1 |

## Weights and Dimensions

| Model | Height (mm) | Width (mm) | Depth (mm) | Weight (kg) |
|---|---|---|---|---|
| GDN2-20P | 1894 | 550 | 881 | 299 |
| GDN2-25P | | | 1050 | 384 |
| GDN2-35P | | | 1219 | 469 |
| GDN2-45P | | | 1388 | 553 |
| GDN2-55P | | | 1557 | 638 |
| GDN2-60P | | | 1726 | 722 |
| GDN2-65P | | | 1895 | 807 |
| GDN2-75P | | | 2064 | 892 |
| GDN2-80P | | | 2233 | 976 |

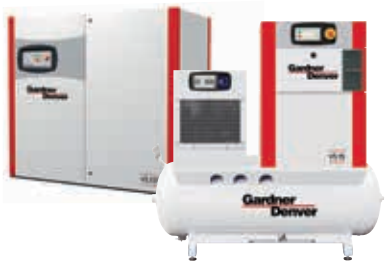
## Packed Weights and Dimensions

| Model | Height (mm) | Width (mm) | Depth (mm) | Weight (kg) |
|---|---|---|---|---|
| GDN2-20P | 729 | 2000 | 1090 | 398.4 |
| GDN2-25P | | | 1260 | 495.4 |
| GDN2-35P | | | 1430 | 580.4 |
| GDN2-45P | | | 1600 | 686.4 |
| GDN2-55P | 832 | | 1770 | 782.4 |
| GDN2-60P | | | 1935 | 897.4 |
| GDN2-65P | | | 2100 | 997.4 |
| GDN2-75P | | | 2275 | 1093.4 |
| GDN2-80P | | | 2445 | 1186.4 |



Gardner Denver

# Global Expertise



The GD rotary screw compressor range from 2.2 – 500 kW, available in both variable and fixed speed compression technologies, are designed to meet the highest requirements which the modern work environment and machine operators place on them.

The oil-free EnviroAire range from 15 – 160 kW provides high quality and energy efficient compressed air for use in a wide range of applications. The totally oil-free design eliminates the issue of contaminated air, reducing the risk and associated cost of product spoilage and rework.

A modern production system and process demands increasing levels of air quality. Our complete **Air Treatment Range** ensures the highest product quality and efficient operation.

Compressor systems are typically comprised of multiple compressors delivering air to a common header. The combined capacity of these machines is generally greater than the maximum site demand. To ensure the system is operated to the highest levels of efficiency, the **GD Connect** air management system is essential.

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For additional information please contact Gardner Denver or your local representative.

Specifications subject to change without notice.


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