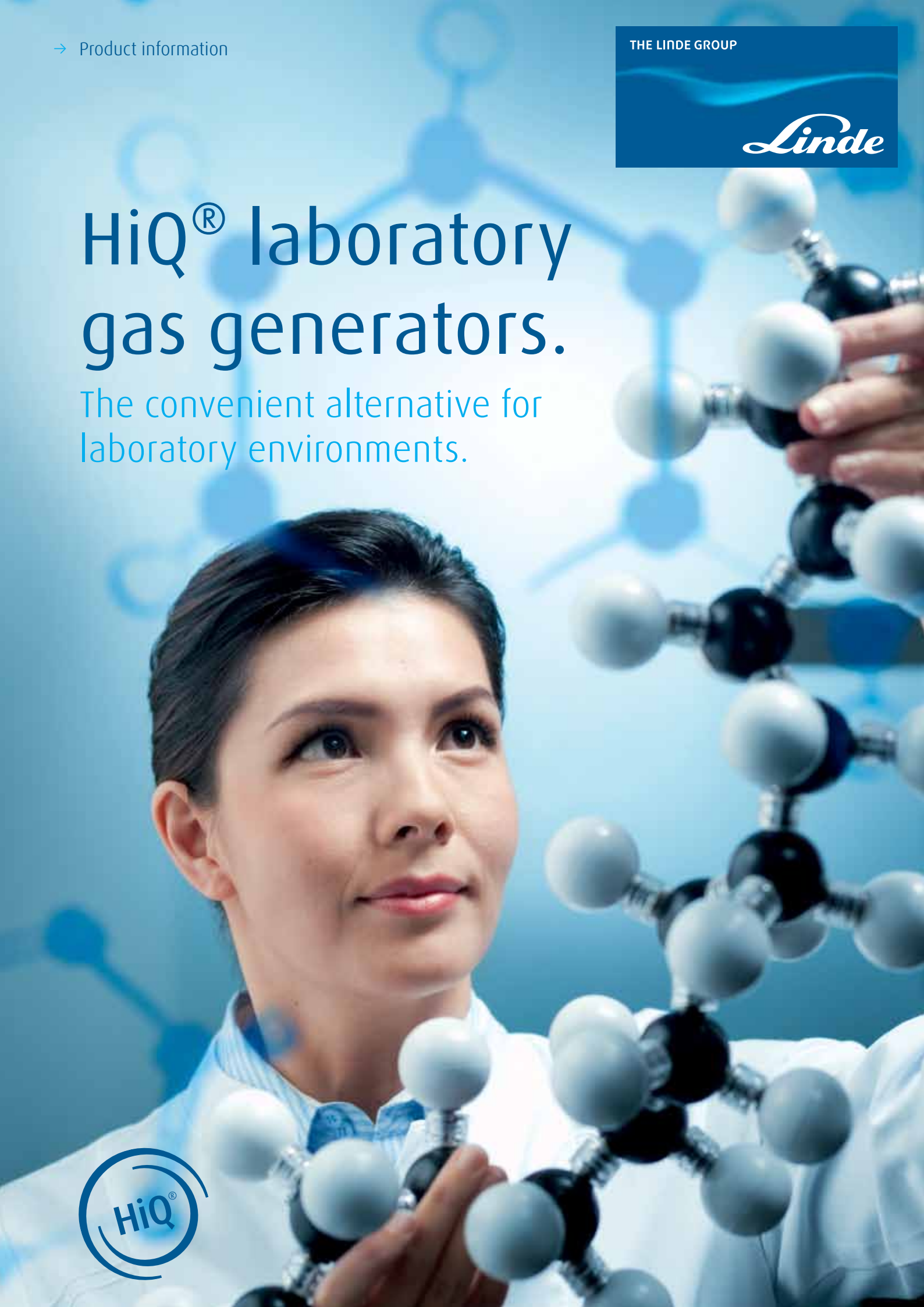
→ Product information

THE LINDE GROUP

Linde

HiQ® laboratory gas generators.

The convenient alternative for laboratory environments.



HiQ laboratory gas generators. Designed with safety and convenience in mind.

Specialty gases are an integral part of today's laboratory. Gas cylinders, however, are not always ideal in a lab setting for transportation, storage, safety or other practical reasons.

HiQ is the gold standard for high-purity gases, process and calibration gas mixtures, precision-engineered gas supply solutions and high-quality services. The HiQ range of supply options offers an attractive alternative to gas cylinders in the form of laboratory gas generators. Compact, safe and reliable, these generators provide gas on site for instant use. In the event of a power failure, they shut off the gas supply automatically. Variable flow rates are available, depending on the gas purity required.

Keeping your gas chromatograph running smoothly. HiQ hydrogen gas generators.

Hydrogen is used in gas chromatography (GC) both as a carrier gas and as a fuel for flame ionisation detectors (FID) or flame photometric detectors (FPD). It is delivered in regular gas cylinders or – if cylinders are not practical – produced on site. On-site production ensure a continuous supply for small volume requirements.

The HiQ hydrogen laboratory gas generator is the solution of choice for on-site production. It is safe to operate due to its small contained volume (< 40 ml). In the event of an internal error, for example, the unit automatically switches to standby. Selectable, multiple alarms indicate undesirable changes in the operating conditions such as low water level, poor water quality, low pressure (leak) and power supply outage.

HiQ hydrogen laboratory gas generators are an economical alternative to high-pressure gas cylinders in laboratories. Purities of up to 99.9999 % are available and the generators offer silent operation at pressures up to 10.5 bar (155 psi).

The generators require just deionised or distilled water to produce hydrogen. There is no need for caustic solutions or cell maintenance. Hydrogen from the HiQ PGH_2 model is the ideal fuel gas for GC-FIDs or reactor gas for other types of GC detectors. The HiQ NMH_2 model has been designed to replace helium or nitrogen as a carrier gas.

Hydrogen from the HiQ NMH_2 generator offers important advantages over helium and nitrogen in terms of speed analysis, sensitivity and resolution. Other hydrogen applications include total hydrocarbon analysers, sulfur analysers and air-pollution monitoring systems.

HiQ PGH_2 and HiQ NMH_2 hydrogen generators are designed as zero maintenance systems with a small footprint. In addition, both models are optionally available with cascading and remote control capabilities. These unique and exclusive features open up a wide range of new applications.

In short, HiQ hydrogen laboratory gas generators are very compact, ergonomic and cost effective. In addition to their high safety performance (hydrogen is only produced when required), the generators have been designed to the highest quality and reliability standards.

HiQ hydrogen gas generator

The hydrogen PG series for FID fuel

PG series	Flow rate
HiQ PGH_2-100	100 ml/min
HiQ PGH_2-160	160 ml/min
HiQ PGH_2-250	250 ml/min
HiQ PGH_2-300	300 ml/min
HiQ PGH_2-500	500 ml/min
HiQ PGH_2-600	600 ml/min

Hydrogen purity: 99.999 % (5.0), total hydrocarbons < 0.1 ppm
Delivery pressure: 0.5 – 10.5 bar (7 – 155 psi)

The hydrogen NM series for carrier gas

NM series	Flow rate
HiQ NMH_2-100	100 ml/min
HiQ NMH_2-160	160 ml/min
HiQ NMH_2-250	250 ml/min
HiQ NMH_2-300	300 ml/min
HiQ NMH_2-500	500 ml/min
HiQ NMH_2-600	600 ml/min
HiQ NMH_2-1000	1000 ml/min

Hydrogen purity: 99.9999 % (6.0), moisture <1 ppm and total hydrocarbons <0.1 ppm. Delivery pressure: 0.5 – 10.5 bar (7 – 155 psi)

The ultimate choice for your LC/MS instrumentation. HiQ nitrogen gas generators.

Nitrogen is commonly used in laboratories for a variety of applications. Some demand higher purities, like gas chromatography; others are less purity-dependent. Typical examples include nitrogen as a nebulising gas for liquid chromatography coupled with mass spectrometry (LC/MS) or evaporative light-scattering detectors (ELSD). Other uses for nitrogen include specific solvent evaporations and low-purity purging .

Nitrogen for LC/MS instrumentation

HiQ LC/MS nitrogen gas generators are able to deliver a continuous stream of nitrogen at up to 8 bar pressure and 98 – 99.5 % purity depending on the inlet pressure and flow rate (the higher the flow, the lower the purity and vice versa). These generators are ideal for laboratory applications such as LC/MS instrumentation and other applications that require an inert gas.

HiQ MISTRAL LC/MS nitrogen gas generators include integral oil-free air compressors as standard. They deliver up to 35 litres of nitrogen per minute. HiQ MISTRAL LC/MS generators use pressure swing adsorption (PSA) to remove oxygen, carbon dioxide and water from compressed air.

HiQ MISTRAL Hybrid LC/MS nitrogen gas generators feature very silent integral compressors and is designed to deliver higher flow rates of nitrogen and zero air for atmospheric pressure ionisation (API) LC/MS instrument operation. Using the latest PSA technology, this model is able to provide the required source gas (air) at up to 7 bar pressure, exhaust air at up to 7 bar pressure and also the curtain gas (nitrogen) at up to 5 bar pressure.

LC/MS generators	Flow rate	Purity
HiQ N_2-MISTRAL LC/MS C	35 L/min	98.5 %
HiQ N_2-MISTRAL Hybrid LC/MS	10 L/min nitrogen + 26 L/min source gas (air) + 10 L/min exhaust air	98 %

HiQ MISTRAL LC/MS nitrogen gas generator

HiQ WHISPER LC/MS nitrogen gas generator

The HiQ WHISPER LC/MS 0 nitrogen gas generator range is intended for use where compressed air is available from an external source. No electrical installation is required. The system is built around an integral membrane system and can deliver flow rates of up to max. 120 litres of nitrogen per minute depending on the model.

LC/MS generators	Flow rate	Purity
HiQ N_2-Mini WHISPER LC/MS 0 – 8L	8 L/min	98.5 %
HiQ N_2-WHISPER LC/MS 0 – 40L	40 L/min	98.5 %
HiQ N_2-WHISPER LC/MS 0 – 80L	80 L/min	98.5 %
HiQ N_2-WHISPER LC/MS 0 – 120L	120 L/min	98.5 %

High-purity nitrogen for laboratory applications

HiQ high-purity nitrogen gas generators use pressure swing adsorption technology. The resulting stream of nitrogen is ideal for all low-flow applications in the laboratory, including as a carrier and make-up gas for GC, inductively coupled plasma (ICP), ELSD or incubators. The generators deliver a continuous stream of up to 4 L/min (5 bar) pure nitrogen gas of up to 99.999 % purity with a low residual oxygen content (less than 10 ppm in the HPN_2-500 and HPN_2-750 models, less than 100 ppm in the HPN_2-1300 model and less than 2 % in the HPN_2-4000 model) and remove 99.99 % of the particles down to 0.5 microns, eliminating the need for secondary purification. In addition, moisture is reduced to less than 40 ppm (dew point –50 °C/–58 °F) in all models. The HiQ high-purity nitrogen generators will deliver zero grade nitrogen (total hydrocarbons < 0.1 ppm) if the scrubber option is included. They are available with or without compressors.

High-purity nitrogen generators	Flow rate	Purity
HiQ HPN_2-500	0.5 L/min	99.999 %
HiQ HPN_2-750	0.75 L/min	99.999 %
HiQ HPN_2-1300	1.3 L/min	99.99 %
HiQ HPN_2-4000	4 L/min	98 %

The C model includes an internal oil-free air compressor and the NC model requires an external source of compressed air.

HiQ HPN_2 NC nitrogen gas generator

HiQ HPN_2 C nitrogen gas generator

When pure air is just not good enough.
HiQ zero air gas generators.

Pure air is commonly used in the chromatographic world – mainly as fuel for flames in gas chromatography detectors such as flame ionisation or flame photometric detectors. Pure air can be delivered in regular gas cylinders or produced on site from oil-free compressed air. These systems can generate purified and hydrocarbon-free air from an existing in-house oil-free compressed air supply.

Abolishing high-purity air cylinders saves valuable laboratory floor space and eliminates the need to regularly buy replacement cylinders. An on-site gas generator also eliminates the need to purge systems or recalibrate instruments after replacing empty cylinders with full ones. Generators consume low levels of electricity. HiQ zero air and HiQ ultra zero air generators deliver a continuous stream of zero air at up to 9 bar pressure (depending on the inlet pressure). The generators can also be wall mounted, providing yet another way of saving space.

HiQ zero air and HiQ ultra zero air generator models utilise a multi-stage process to purify ambient air into high-purity analytical-grade air. All main components are manufactured with high-grade stainless steel and carefully installed in cabinets for easy of access and service.

HiQ zero air generator

HiQ zero air series

Zero air gas generators	Flow rate
HiQ ZAGC-1500	1.5 L/min
HiQ ZAGC-3000	3 L/min
HiQ ZAGC-6000	6 L/min
HiQ ZAGC-15000	15 L/min
HiQ ZAGC-30000	30 L/min

HiQ zero air (ZAGC) gas generators reduce total hydrocarbon pollutants and carbon monoxide to less than 0.1 ppm and remove particles down to 0.1 micron (99.99 % is removed down to 0.5 micron).

HiQ ultra zero air generator

HiQ zero air station
with integral compressor

HiQ ultra zero air series

Ultra zero air gas generators	Flow rate
HiQ ZAU-1500	1.5 L/min
HiQ ZAU-3000	3 L/min
HiQ ZAU-6000	6 L/min
HiQ ZAU-15000	15 L/min
HiQ ZAU-30000	30 L/min

The advantage of HiQ ultra zero air gas generators (ZAU) is that they help create a truly flat baseline. These models reduce total hydrocarbon pollutants and carbon monoxide to less than 0.1 ppm and remove particles down to 0.1 micron (99.99 % is removed down to 0.5 micron). In addition, nitric oxides (NOx), sulfur oxides (SOx) and ozone is reduced to less than 0.1 ppm, moisture to less than 2.5 ppm (dew point less than −70 °C/−94 °F) and carbon dioxide (CO_2) to less than 5 ppm.

HiQ zero air generators with integral compressors

Zero air stations	Flow rate
HiQ ZAS-6	6 L/min
HiQ ZAS-30	30 L/min

HiQ Zero Air (ZAS) stations deliver zero air at up to 6 bar (90 psi) pressure and reduce total hydrocarbon pollutants and carbon monoxide to less than 0.1 ppm and remove particles down to 0.1 micron (99.99 % is removed down to 0.5 micron).

Ultra zero air stations	Flow rate
HiQ UZAS-6	6 L/min
HiQ UZAS-30	30 L/min

HiQ Ultra Zero Air (UZAS) stations deliver ultra zero air at up to 5 bar (75 psi) pressure and reduce total hydrocarbon pollutants and carbon monoxide to less than 0.1 ppm and remove particles down to 0.1 micron (99.99 % is removed down to 0.5 micron). In addition, nitric oxides (NOx), sulfur oxides (SOx) and ozone is reduced to less than 0.1 ppm and carbon dioxide (CO_2) to less than 5 ppm. Moisture is reduced to dew point less than −50 °C (−58 °F).

Getting ahead through innovation.

With its innovative concepts, Linde is playing a pioneering role in the global market. As a technology leader, it is our task to constantly raise the bar. Traditionally driven by entrepreneurship, we are working steadily on new high-quality products and innovative processes.

Linde offers more. We create added value, clearly discernible competitive advantages and greater profitability. Each concept is tailored specifically to meet our customers' requirements – offering standardised as well as customised solutions. This applies to all industries and all companies regardless of their size.

If you want to keep pace with tomorrow's competition, you need a partner by your side for whom top quality, process optimisation and enhanced productivity are part of daily business. However, we define partnership not merely as being there for you but being with you. After all, joint activities form the core of commercial success.

Linde – ideas become solutions.

Visit the HiQ smartphone site:

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