

→ Specialty gases in small cylinders

THE LINDE GROUP

*Linde*

Combine flexibility and safety  
with lightweight portability.  
Specialty gases in small cylinders.



# Our specialty gases guarantee precision. Reliable, efficient and convenient.

In most industries, analytical equipment is required to consistently guarantee safe, efficient, reliable and environmentally-friendly production processes. In addition, gas detectors and sensors or gas warning equipment are used to monitor the room air and protect employees from dangerous gases and vapours. The range of possible applications includes testing gas detection equipment, measuring and monitoring environmental emissions, quality control, instrument calibration and process control. The Linde range of specialty gases in small cylinders offers efficient, all-purpose products that show their strengths in many application areas.

## Comprehensive expertise for every application

Linde not only provides you with a broad range of pure gases, high-quality gas mixtures and gas control equipment such as pressure regulators. In addition to a whole host of services, we offer our customers absolute delivery security and an abundance of useful information to ensure you handle our products successfully.

In this brochure, we would like to present the following small cylinders:

- ECOCYL®
- HiQ® MICROCAN
- HiQ® MINICAN
- HiQ® MAXICAN

HiQ® and ECOCYL® are registered trademarks of the Linde Group.





## When mobility matters. Portable success.

The compact size of our cylinders is especially advantageous when light weight, mobility or small gas quantities are required. They are a good alternative to large gas cylinders which can be difficult to transport to multiple testing locations around large sites or in remote locations.

### Faster shipping at an attractive price

Small vessels from Linde fulfil statutory requirements, represent state-of-the-art technology and are environmentally friendly. Goods are shipped directly from the factory, saving you time and money. The HiQ® MINICAN can also be sent by post or parcel service to many locations.

### Professional advice from the HiQ Expert Team

If you have additional questions about our products or have specific requirements, our HiQ Expert Team will be happy to assist you. Our decades of experience and the high demands we place on quality, safety and environmental protection allow us to provide solutions for you that guarantee the greatest possible safety, efficiency and effectiveness in your production plants.

# Greater freedom of movement.

## ECOCYL®.

Linde has developed ECOCYL® as a product line specially tailored to users with small quantity gas requirements. They are gases in small cylinders that are used to inspect gas sensors and calibrate analytical equipment or for chemical synthesis in the laboratories.

### Mobile, flexible and environmentally friendly

Analytical equipment often needs to be used flexibly at many different measurement locations. Gases or gas mixtures that offer mobility can provide significant advantages. ECOCYL® is the only mobile and refillable cylinder for specialty gases that incorporates an integral gas control valve and flow regulator. The ECOCYL® product family currently includes RSH for compressed gases and VSH/VAH liquefied, pressurised gases. The RSH has a built-in, integrated pressure regulator and flow meter. The VSH/VAH has a built-in fine regulating valve.

### Protective guard for safety

To protect the valves and fittings from damage caused by impact or toppling over, the cylinder head is also shielded by a protective shroud. With ECOCYL®, the user only needs to open the cylinder valve and select the suitable flow rate from the numbered flow rates. There is also the option to carry the ECOCYL® with a transport belt or shoulder strap.

### ECOCYL® RSH

|  |   |
|--|---|
| → Length   | 440 mm  |
| → External diameter                              | 95 mm   |
| → Capacity                                       | 1 litre   |
| → Empty weight                                   | 2.4 kg  |
| → Filling pressure (maximum)                     | 150 bar   |
| → Filling quantity (maximum)                     | 0.15 m <sup>3</sup> (depending on gas type)                         |
| → Outlet pressure up to                          | 3.8 bar   |
| → Outlet connection                              | combi-hose nozzle<br>6 and 8 mm diameter                            |
| → Flow<br>(variable with numbered preset values) | 0 to 8 litres/minute<br>(0; 0.25; 0.3; 0.5;<br>1.0; 1.5; 2.5 and 8) |

### ECOCYL® VSH/VAH

|                                    |   |
|------------------------------------|---|
| → Length                           | 390 mm  |
| → External diameter                | 95 mm   |
| → Capacity                         | 1 litre   |
| → Empty weight                     | 2.9 kg  |
| → Filling pressure/outlet pressure | Dependant on vapour pressure of the gas         |
| → Outlet connection                | combi-hose nozzle<br>6 and 8 mm diameter        |
| → Filling quantity                 | 0.4 kg  |
| → Flow                             | Can be adjusted using the fine regulating valve |

### Benefits for you

- High filling quantity: over 50 % more content than most alternative disposable vessels, e.g. lecture bottles
- Optimum effectiveness: no additional pressure regulator or flow controller required
- No disposal or storage costs for empty cylinders
- Can be refilled to help environmental sustainability
- Protective cage for outlet valve and fittings
- Integrated adjustable flow controller
- Batch certificate for mixtures



# Small, but filled to the brim.

## HiQ<sup>®</sup> MICROCAN.



In many sectors and applications, individual components are being developed to become smaller and smaller. This is also true for the dimensions of fuel cells and analytical equipment such as Micro-GC or Micro-FID. This means a product is required that offers maximum gas quantity in the smallest possible space to supply small, portable analytical equipment, especially for field use, or for energy consumers using small fuel cells. In addition, it should be possible to integrate the gas supply into as many devices as possible without taking up a great deal of space.

### Reliable operation — even in the tightest space

HiQ<sup>®</sup> MICROCAN is a small high-pressure cylinder with a maximum filling pressure of 200 bar and miniature pressure regulator. In comparison to typical 50-l high-pressure cylinders, it is therefore only 1/250th of the size. Due to its high filling pressure, HiQ<sup>®</sup> MICROCAN has more gas content than conventional 1-l pressurised gas containers at 12 bar or 34 bar, and is only 1/5th of the size. Its compact design shows its strengths particularly where space is limited.

### Dimensions and properties of the 0.2-l cylinder

|                              |  |
|------------------------------|--|
| → Length (with valve)        | approx. 230 mm                               |
| → External diameter          | approx. 50 mm                                |
| → Capacity                   | 0.2 litres                                   |
| → Empty weight (with valve)  | Approx. 0.49 kg                              |
| → Filling pressure (maximum) | 200 bar                                      |
| → Filling quantity (maximum) | Approx. 40 litres<br>(depending on gas type) |

Additional cylinder sizes are available on request.

### Fittings for HiQ<sup>®</sup> MICROCAN

#### Piston pressure regulator C 210 Micro\*

|                     |  |
|---------------------|--|
| → Material          | Surface-coated brass   |
| → Gas purity        | Up to 5.0, not suitable for corrosive pure gases or corrosive gas mixtures |
| → Outlet connection | Hose barb for 4 mm internal diameter hose                                  |

#### Diaphragm pressure regulator C 260 Micro\*

|                     |                          |
|---------------------|--------------------------|
| → Material          | Chrome-plated brass      |
| → Gas purity        | Up to 6.0                |
| → Outlet connection | 6 mm compression fitting |

Additional connections and pressure regulators are available on request.

\* Single-stage with inlet and outlet pressure gauge (outlet pressure range 0–6 bar).



# Compact all-rounder.

## HiQ<sup>®</sup> MINICAN.



When calibrating and inspecting analytical instruments and detectors, suitable test gases are required. HiQ<sup>®</sup> MINICAN pressurised gas containers are disposable vessels made of aluminium. They are approved according to the German Pressurised Vessel Directive and are used in a multitude of applications, e.g. for ambient air monitoring, automotive exhaust testing or calibration of anaesthetic delivery devices.

### Universal for all gas types

The cylinders with a filling pressure of 12 bar have a protected, automatic closing valve which has the same connection for all gas types. Gas extraction and forwarding is performed using its own fitting program which can be universally used within the HiQ<sup>®</sup> MINICAN system.

### Inexpensive delivery by post

It is especially easy to ship HiQ<sup>®</sup> MINICAN pressurised gas cylinders. Many gases, with the exception of toxic gases such as carbon monoxide, can be sent by post in shipments of up to 10 cylinders. This can significantly reduce both logistical expense and transport costs.

### HiQ<sup>®</sup> MINICAN

|                          |                                  |
|--------------------------|----------------------------------|
| → Length (including cap) | 270 mm                           |
| → External diameter      | 80 mm                            |
| → Capacity               | 1 litre                          |
| → Empty weight           | approx. 140g                     |
| → Filling pressure       | 12 bar                           |
| → Valve connection       | External thread<br>7/16"-28 UNEF |

### Fittings for HiQ<sup>®</sup> MINICAN

- Pressure regulator with dosing valve
- Fine regulation valve
- Compression fitting
- Flow rate measuring device
- Spray nozzle
- Syringe adapter

# Light weight, high content.

## HiQ<sup>®</sup> MAXICAN.

A safe and healthy working environment has become a standard requirement in all industrial sectors.

Gas detectors are used to efficiently measure and evaluate the composition of gases or vapours. Tests must be performed regularly so that these detectors will operate reliably at any time. Due to long distances and high mobility requirements, large gas cylinders are generally too cumbersome for this purpose. In particular, gas detectors are often placed in hard-to-reach locations.

### High performance through high filling pressure

When faced with these requirements, the handy and flexible disposable pressure vessel HiQ<sup>®</sup> MAXICAN is the ideal solution. It is particularly used for calibration tasks for explosion protection and LEL or LFL detectors. Thanks to the filling pressure of 40 bar, which is high for a disposable vessel, HiQ<sup>®</sup> MAXICAN contains a large quantity of gas. This means this calibration gas cylinder fulfils the requirement for a light and handy product that, with 48 l of gas content, can meet a comparatively high gas requirement and can be used as an alternative to small rental cylinders.

### HiQ<sup>®</sup> MAXICAN

|                              |  |
|------------------------------|--|
| → Length (with valve)        | approx. 350 mm                                   |
| → External diameter          | approx. 80 mm                                    |
| → Capacity                   | 1.2 litres                                       |
| → Empty weight (with valve)  | approx. 0.8 kg                                   |
| → Filling pressure (maximum) | 40 bar   |
| → Filling quantity (maximum) | Approx. 48 litres<br>(depending on the gas type) |

### Fittings for HiQ<sup>®</sup> MAXICAN

#### Piston pressure regulator C 210 Maxi\*

|                     |  |
|---------------------|--|
| → Material          | Surface-coated brass   |
| → Gas purity        | Up to 5.0, not suitable for corrosive pure gases or corrosive gas mixtures |
| → Outlet connection | Hose barb for 4 mm internal diameter hose                                  |

#### Diaphragm pressure regulator C 260 Maxi\*

|                     |                          |
|---------------------|--------------------------|
| → Material          | Chrome-plated brass      |
| → Gas purity        | Up to 6.0                |
| → Outlet connection | 6 mm compression fitting |

Additional connections and pressure regulators are available on request.



\* Single-stage with inlet and outlet pressure gauge (outlet pressure range 0–6 bar).

# 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 standardized as well as customized 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 optimization, 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.

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