

Making our world more productive



ECOGAN containerized supply solutions for gaseous and liquid nitrogen

ECOGAN is the latest addition to our compact on-site nitrogen supply portfolio with an innovative, energy-efficient design. It is an attractive alternative to bulk deliveries, giving you independence from gas suppliers and full control over your individual gas requirements.

Mission-critical role of gases

Across a host of industries from electronics and paper to petrochemicals and heat treatment, a steady, predictable non-stop stream of gases such as nitrogen is essential to ensure production continuity. The purity of these gases can also be mission-critical. In the electronics industry, for example, fabricators often require ultra-pure gases in order to develop semiconductor innovations capable of meeting tomorrow's mobility and energy efficiency challenges.

Reliability matters

ECOGAN is a modular, containerized cryogenic plant for the production of high-purity gaseous nitrogen based on an extremely efficient and reliable double-column, double-condenser design. It uses liquid inject (LIN assist) technology as a means of refrigeration and rapid cooling. This makes it a highly cost-effective solution to operate.

In addition, ECOGAN can be equipped with turbines to provide the refrigeration energy or to produce liquid nitrogen, which can be stored and subsequently vaporized to provide strategic reserves of gas.

Experience you can rely on

Having already successfully supplied and commissioned over 250 air separation plants including a considerable number of ECOGAN plants in recent years worldwide, Linde CryoPlants is renowned for its engineering excellence, innovative technologies and strong commitment to customer service.

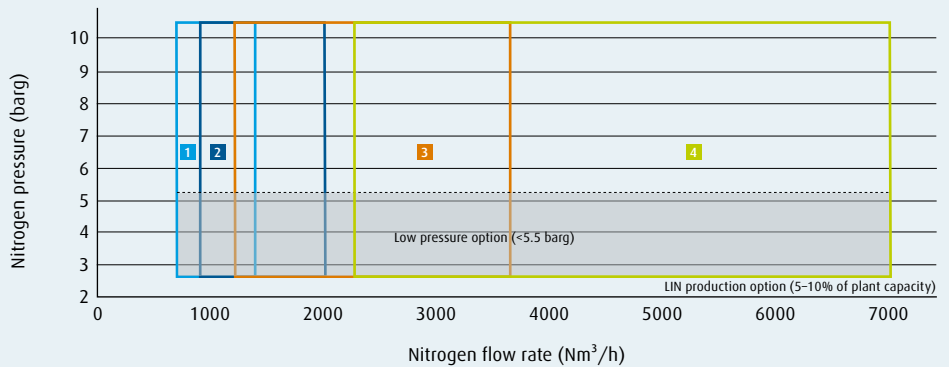
Plant models

ECOGAN is available in a range of sizes and can be customized to individual requirements to ensure the perfect fit for your specific application challenges. It supports capacities of up to 6,990 Nm³/h at purity levels of up to 99.99999% (0.1 ppm) as standard.

ECOGAN 1-5 performance envelope

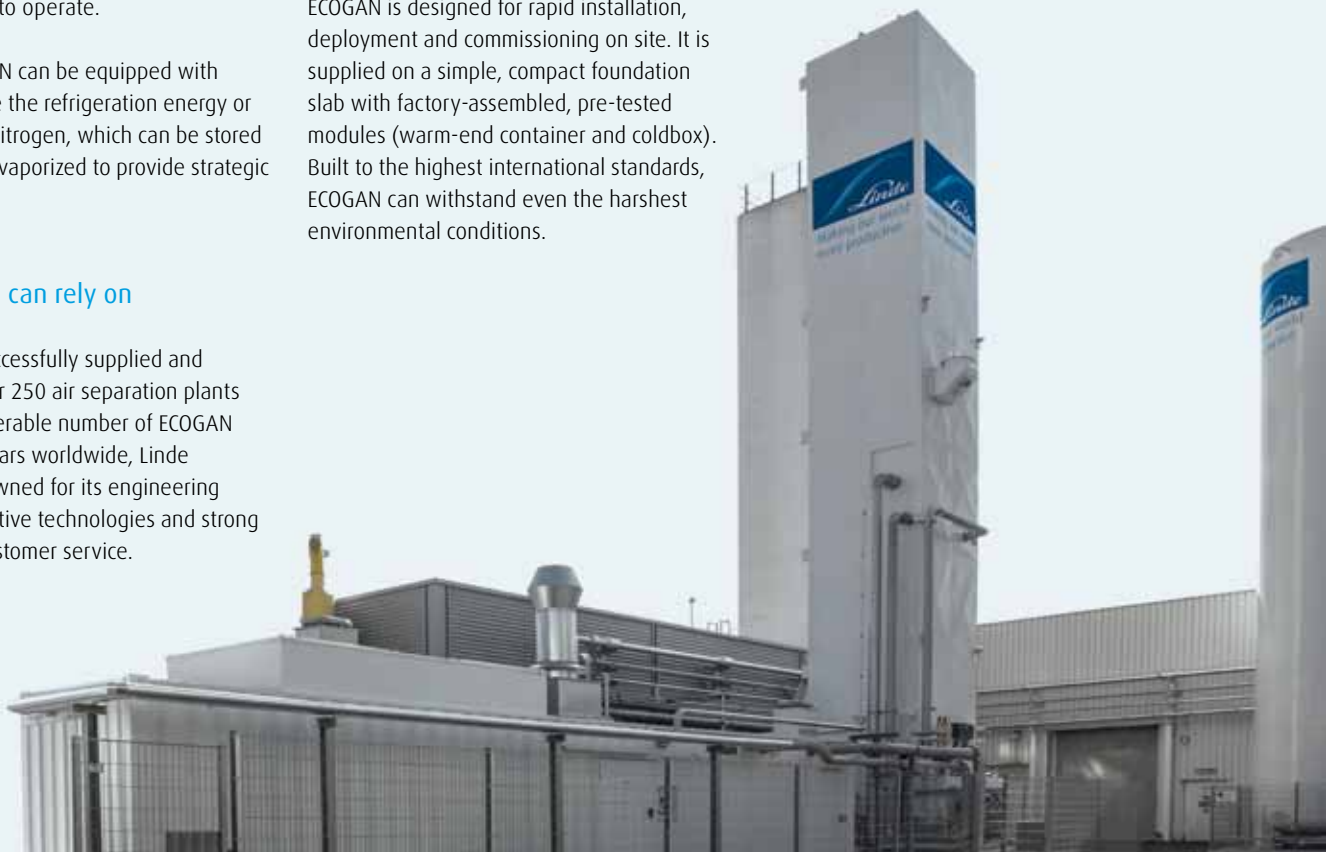
- 1 ECOGAN1 max production 1380 (Nm³/h) GAN
- 2 ECOGAN2 max production 1995 (Nm³/h) GAN

- 3 ECOGAN3 max production 3642 (Nm³/h) GAN
- 4 ECOGAN5 max production 6990 (Nm³/h) GAN



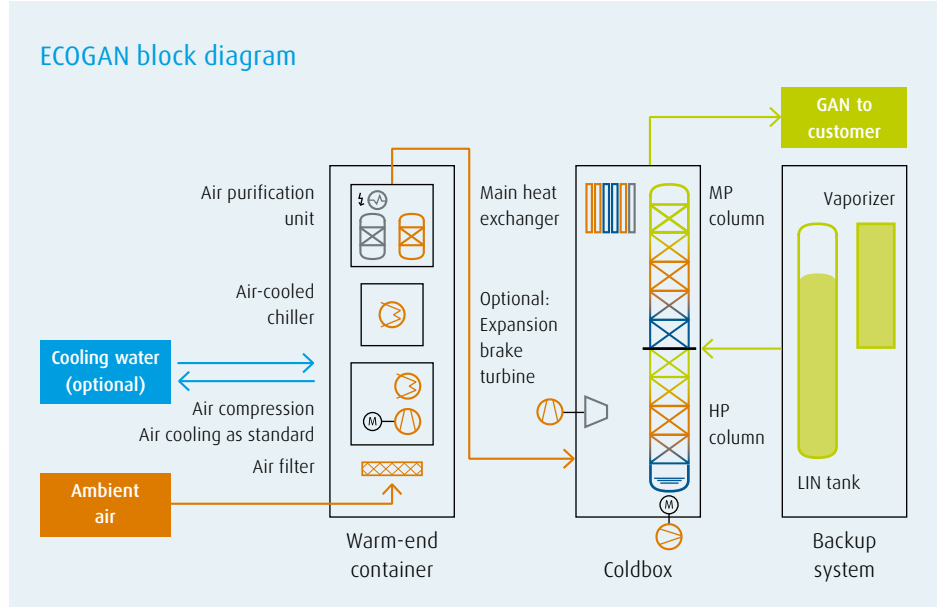
Speedy installation

ECOGAN is designed for rapid installation, deployment and commissioning on site. It is supplied on a simple, compact foundation slab with factory-assembled, pre-tested modules (warm-end container and coldbox). Built to the highest international standards, ECOGAN can withstand even the harshest environmental conditions.



Optimized process flow

Regardless of the model, ECOGAN systems consist of multiple process steps – each of which is dimensioned to support the target flow and pressure requirements. For added flexibility and additional reserves of liquid nitrogen, the design can include a backup system.



Technical features

- Ambient temperature from -35°C to $+45^{\circ}\text{C}$
- LIN assist operation
- Optional expansion turbine to produce liquid nitrogen
- Safe shutdown in case of power failure
- All-weather outdoor installation using climate-controlled warm-end containers
- Alarm and pre-alarm signals
- Air-cooled or water-cooled oil-free screw or turbo compressor(s) depending on turndown/efficiency requirements
- Remote communication and control for unattended operation
- Low-noise option
- Online oxygen analyzer
- Standard O_2 purity of 100 ppb
- Product pressure from 5.5 to 10.5 barg, down to 2.7 barg on request
- More than 50% turndown

