

The new standard for helium liquefiers  
and refrigerators.

# L-Series.





## More capacity, less consumption.

**When it comes to helium liquefaction and refrigeration, Linde Kryotechnik can draw on decades of experience. World-renowned research laboratories, universities and gas suppliers rely on proven equipment from Linde Kryotechnik. The company's success is based above all on its extensive experience and the way it has put that experience to work in advancing and optimising helium plant technology and systems.**

Linde Kryotechnik developed the L-Series specially to meet the needs of universities, research institutes and gas suppliers. The L-Series is a standardised range of products with liquefaction capacities between 20 and 290 litres per hour (equivalent available refrigeration capacities from 100 to 900 W at 4.4 K).

What is more, the liquefaction and refrigeration capacities can be tailored to customer requirements. Helium is cooled in gas-bearing turboexpanders. Not only do these machines offer very high efficiency, they are also tremendously robust. This means that the purchaser achieves efficient use of resources plus high availability of the system as a whole.

The L-Series thus establishes a new benchmark for helium liquefaction and refrigeration equipment the world over.



Sophisticated design – compact, flexible installation.



Reliable turbine technology – excellent efficiency.



User-friendly – fully automated.



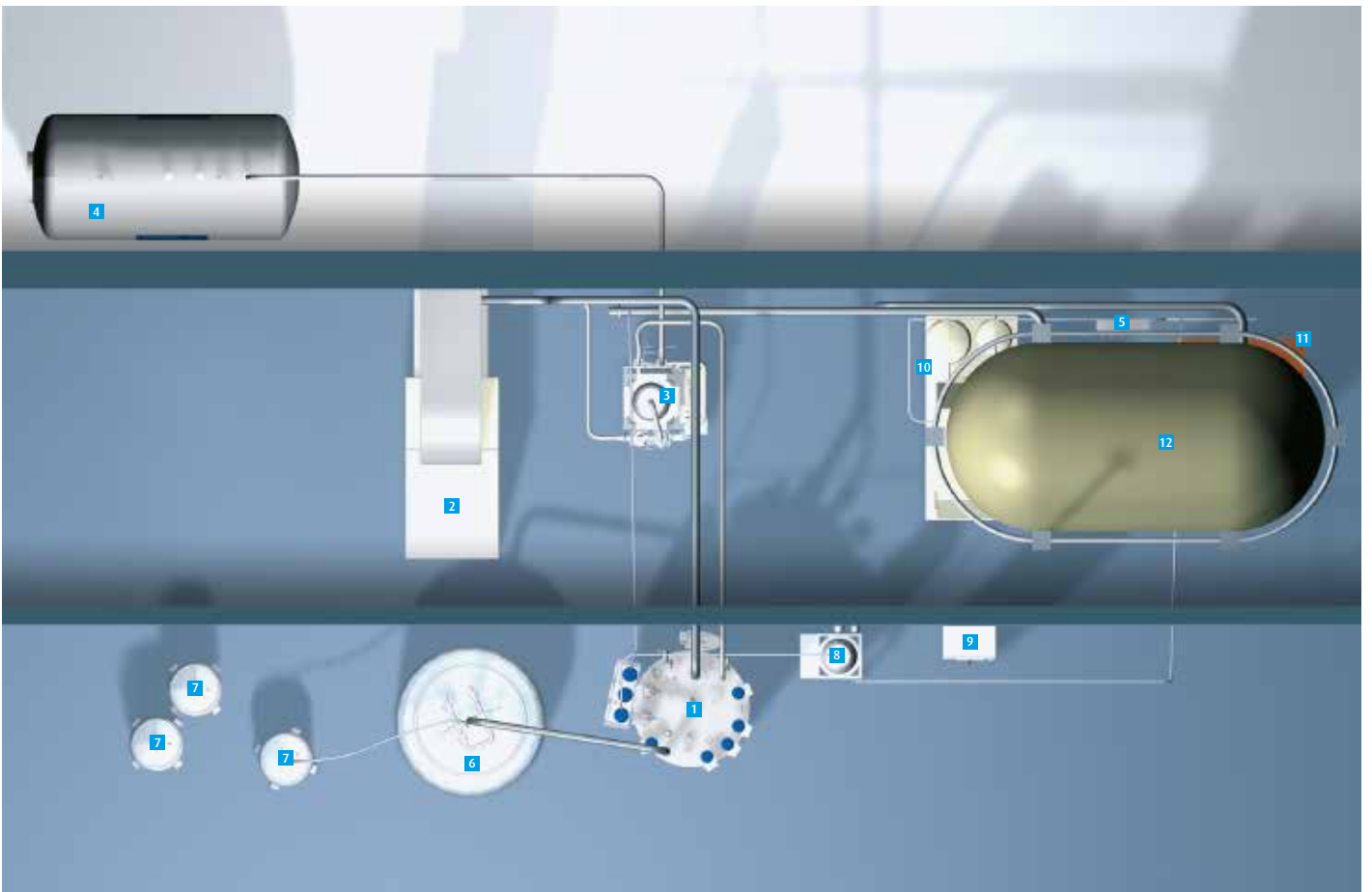
Low maintenance costs – optimal protection for your investment.

A further plus for the efficient L-Series is the extremely short cooling time before the system is ready for production. This quality is reflected in extremely low power and liquid nitrogen consumption levels. The compact, modular coldbox design with integrated freeze-out purifier (which reliably removes all impurities) helps control the cost of installation. The standalone peripherals of the control hardware allow flexible “plug & run” installation.

Regardless of whether your helium liquefier is an L70, L140 or L280, the coldbox goes through factory inspection before shipment. Comprehensive training of operating personnel, both at our facilities and at your site, accompanies every installation and commissioning. Our highly trained staff will be glad to provide you with prompt and reliable after-sales service anywhere in the world.

### Outstanding features of the L-Series

- Excellent plant efficiency
- Optimal cost/performance ratio
- High reliability, low maintenance costs
- Compact design, great flexibility in layout
- Full automation, easy operation



Helium liquefaction plant (top view)

- |                             |                                 |                                   |                                    |
|-----------------------------|---------------------------------|-----------------------------------|------------------------------------|
| <b>1</b> Liquefier          | <b>4</b> Buffer tank            | <b>7</b> Mobile dewar             | <b>10</b> H.P. recovery compressor |
| <b>2</b> Compressor         | <b>5</b> Pressure control panel | <b>8</b> Line drier               | <b>11</b> Cylinder bundle          |
| <b>3</b> Oil removal system | <b>6</b> Dewar                  | <b>9</b> Standalone control panel | <b>12</b> Gas bag                  |



Helium liquefaction plant (side view)

# A model of performance and efficiency.

## Capacities of L70/LR70, L140/LR140, L280/LR280.

The L-Series offers excellent performance across the full model range (13 bar at 4.4 K).

|       | Without LN <sub>2</sub> precooling | With LN <sub>2</sub> precooling |
|-------|------------------------------------|---------------------------------|
| L70   | 20–35 l/h                          | 40–70 l/h                       |
| L140  | 45–70 l/h                          | 90–140 l/h                      |
| L280  | 100–145 l/h                        | 200–290 l/h                     |
| LR70  | on request                         | 130–190 Watt                    |
| LR140 | 210–290 Watt                       | 255–400 Watt                    |
| LR280 | 445–640 Watt                       | 560–900 Watt                    |



# Engineering excellence – every step of the way.

Linde Kryotechnik AG and Linde Cryogenics are the world's leading cryogenic technology and engineering companies, bundling low-temperature know-how and cutting-edge technologies with value-add services for scientific research and industrial organisations around the globe. Highly skilled Linde teams partner with customers to develop and deliver innovative cryogenic solutions for liquefaction and refrigeration systems at temperatures below 80 K (-193°C).

Linde Engineering is a leading player in the international plant engineering business, covering every step in the design, project management and construction of turnkey industrial plants. Drawing on its extensive, proven process know-how, this division sets the standards for innovation, flexibility and reliability with ground-breaking concepts and a dedication to engineering excellence.

## Core competencies of Linde Kryotechnik AG and Linde Cryogenics:

- Helium liquefiers
- Helium refrigerators
- Helium recovery systems
- Hydrogen liquefiers
- Storage and distribution systems
- After sales services
- Special cryogenic plant engineering services

## Get in touch – find the best solution.

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