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## Large Air Separation Units (ASUs)

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**As one of the largest industrial gas companies in the world and the largest in North and South America, Linde has the experience to meet our customers' evolving needs through building and operating safe, efficient, and cost effective large air separation facilities.**

### **Meeting Customer Needs Yesterday, Today, and Tomorrow**

Linde is a preeminent global operator of industrial gas complexes, with more than 400 cryogenic plants worldwide and 18 major pipeline systems in six countries. We bring our customers over a century's worth of experience designing, engineering and constructing air separation units, including some of the largest and most complex ASUs ever built. In addition, with an on-stream reliability of 99%, we are an industry leader in air separation operational processes and technologies.

### **Experience to Handle New Challenges**

No matter where our customers are, or what they envision, Linde knows how to get the job done.

Our experience comes from decades of designing, engineering and constructing ambitious ASU projects in diverse markets and geographies such as: an integrated steel mill in India, an enhanced oil recovery project in Mexico and, most recently, two of the largest single train air separation plants for coal-to-chemical projects in China.

Our experience and flexibility extends beyond geography. Linde has expertise with all drive mechanisms: electric, natural gas, and steam.

Our pipeline complex in Northwest Indiana, the largest industrial gas complex in North America, is a great example of the scope of operations Linde is capable of designing and operating. The system includes 200 miles of low and high pressure pipelines supplying six steel mills, a world-scale refinery, and various forging and manufacturing operations. The Linde control center in East Chicago, Indiana monitors and controls the entire system, which can supply 12,000 tpd (tons per day) of oxygen, 17,500 tpd of nitrogen and 36 MMscfd (million standard cubic feet per day) of hydrogen. The control center manages demand conditions versus plant operations in real time, enabling Linde to optimize production efficiency and energy consumption.

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**Select Linde ASUs****Customer Location Size (tpd)**

CSN, Brazil	2,100
Praxair, IN, USA	2,500
JSW, India	2,700
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Valero, DE, USA	2,900
SOPD, China	3,300
Huayl, China	3,300

**Cost-Effective Quality and Performance**

Linde is focused on providing highly reliable plant designs that meet our stringent quality and performance requirements while maintaining capital discipline. Linde has developed repeatable designs to increase execution efficiency and reduce operating expense. Our global procurement organization takes advantage of key international supply relationships combined with strategic sourcing in low-cost countries. We make full use of modularized shop construction to gain efficiencies over construction in the field.

Our Research and Development is continuously working to optimize plant components and process cycles to support the growing global demand for large air separation units, while studying new ideas in the areas of air compression, purification, distillation and packaging.

Linde is focused on continuous improvement in large ASU engineering, design, construction, and operation. We have the experience and the world-class engineering talent needed to deliver a competitive edge to our customers.

For more information, call us at [1-844-44LINDE](tel:1-844-44LINDE) or visit our website [www.lindeus.com](http://www.lindeus.com).