

Pushing back the frontiers of Science
to develop the energy solutions of the future



Air Liquide is involved in:

The
cryogenic
plant for the
ITER Project

- LHe plant
- LN₂ plant
- Cryogenic lines
- MITICA

Broader
approach

- JT-60SA
- IFMIF

Next

- Services, operation & maintenance
- Gas supply

Air Liquide is the world leader in gases, technologies and services for Industry and Health with more than fifty years of technical, industrial and commercial experience in mechanical cold production, liquefaction, storage and distribution of cryogenic fluids at very low temperatures: a benchmark in expertise. Over the years, Air Liquide has also developed associated services to complete its skills and offer a support tailored to its clients' needs.

Our experience at your service

Know-how and capabilities

- Recognized expertise in cryogenics, gas engineering, vacuum and ultra high vacuum
- A unique test center to analyze, control and validate components, materials and products in diverse environments and realize large scales tests
- Support of local teams worldwide, speaking your language, thanks to the international presence of the Air Liquide group
- Possibility of onsite dedicated team
- Certified field engineers for helium leak testing (COFREND or equivalent in other countries)

Spare parts

Supply of original parts
Obsolescence management
Stock or warehouse definition and organization

Maintenance

Compressors
Cold boxes
Vacuum systems

On site Operation

Process & settings
Alarm handling
Spare-parts stock management or warehouse

YOUR M





Cryogenic systems

Design & technical expertise

Refrigeration
Liquefaction
Cryolines

Distribution system
Turnkey solutions

Audits & tests

Gas analysis

Leak tests

Safety regulations

Performance monitoring

Gas supply

See details *

*Gas supply solutions

Air Liquide can supply all types of gases for many applications related to the ITER project and its partners, gases for:

- Test and analysis: pure gases of high precision
- Research: ultra high purity gases and mixtures, based on specific needs
- Helium and cryogenic fluids

Associated services and key benefits:

- Portable or stationary equipment for gas distribution
- Handling on site, gas level monitoring, advice and guidance by our experts on gas consumption and handling, and preventive maintenance for gas dispensers
- Technical and breakdown assistance (24 hours a day, 7 days a week)
- A local and permanent team on ITER's site with a dedicated storage

NEEDS



Some major achievements

Air Liquide participates in the world's largest cryogenic projects in the fields of Industry and Scientific Research:

Two projects in Qatar: the world's largest helium purification and liquefaction unit at Ras Laffan Industrial City, Qatar, and upgrades.

The **CERN's LHC** (Large Hadron Collider) in Switzerland: cryogenic lines, refrigeration units and cryogenic distribution systems. **A dedicated team located on site for maintenance and operation.**

Many references related to **design, fabrication and installation of cryogenic equipment** for the biggest fusion projects over the last 25 years: **Tore Supra (WEST), JET, SST-1, KSTAR and JT-60SA.**

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A world leader in gases, technologies and services for Industry and Health, Air Liquide is present in 80 countries with approximately 66,000 employees and serves more than 3.6 million customers and patients.

