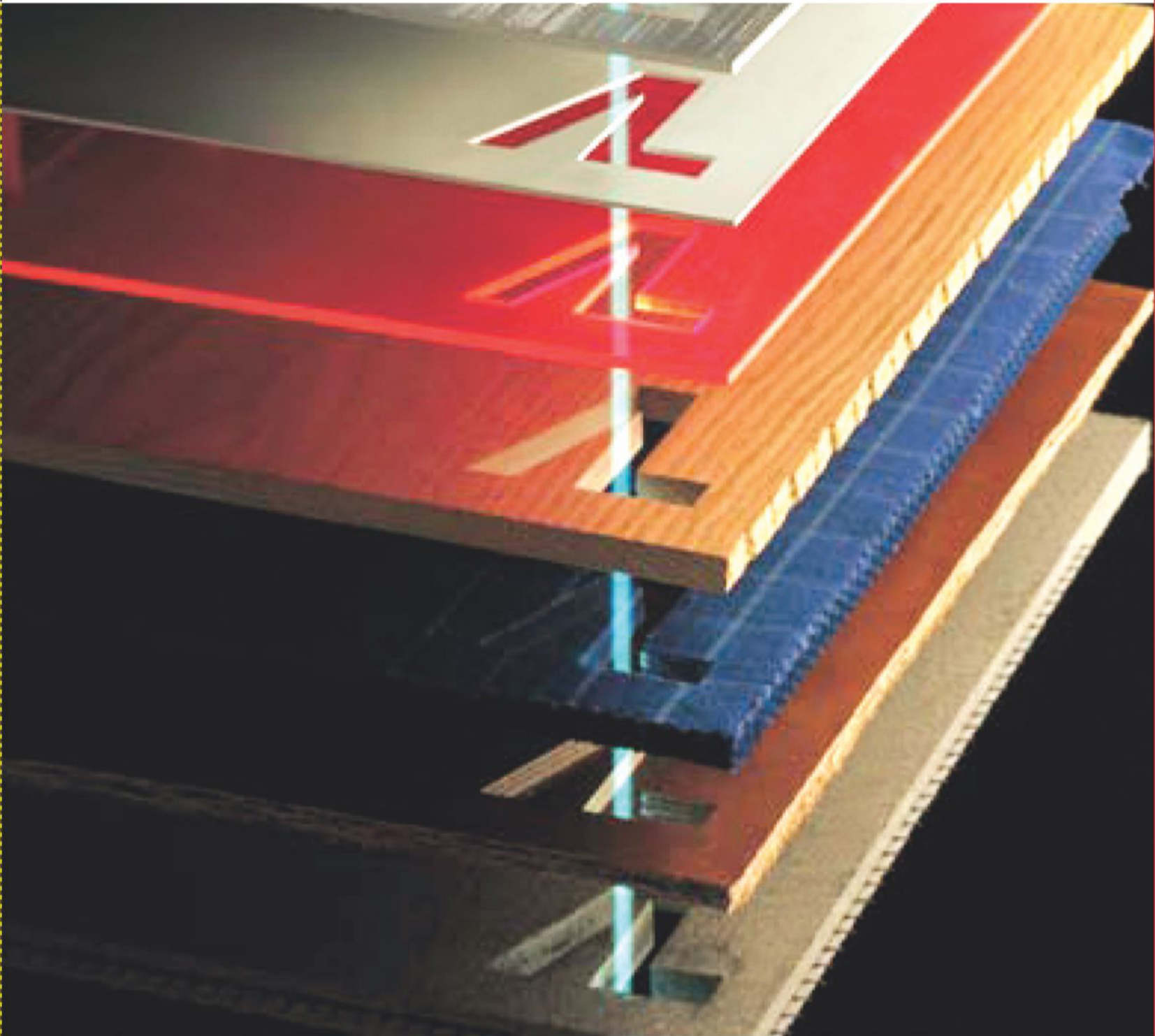


# **LASAL**<sup>™</sup> – Total Solution for LASER Applications





**Air Liquide provides a full range of lasing and assist gases in convenient packages designed to ensure the optimal performance of your laser.**



## **LASAL™ – A Complete Range of Lasing and Assist Gases**

All our gases have been developed by AIR Liquide's CENTRE TECHNIQUE DES APPLICATIONS DU SOUDAGE according to laser manufacturer requirements to ensure peak performance from your laser. The choice of gas will determine the reliability of your laser, the lifespan of your optics and output power.

- **Lasing Gases:** Our full LASAL range of single component gases and multi-component mixtures are designed with the ultimate performance of your laser in mind. A detailed table covering the LASAL range appears overleaf enabling you to select the right gas for your machine.
- **Assist Gases:** Process gases are available in convenient packages designed to ensure peak cutting performance by optimising pressure and flow rates. A choice of purities and package sizes are available with higher purity gases available for more demanding applications.

## **The Importance of Gas Purity**

Air Liquide understand that gas purity is essential in achieving peak laser performance. All LASAL gases are strictly controlled to minimise the content of such impurities such as moisture and hydrocarbons which reduce laser power and overall performance. Every cylinder or cylinder pack is a strictly dedicated package for the LASAL product line to ensure product purity is maintained at all times.

## **LASAL Packaging**

The LASAL range offers advanced cylinder packaging, designed for safer, more reliable operation.

LASAL cylinders for lasing feature:

- **SCANDINA™ Cap** for easy manoeuvring to reduce risk of accidents
- **Residual Pressure Valves (RPV)** maintain gas quality by preventing back flow into cylinder
- Stringent **impurity tolerances** ensure your laser operates at its very best
- **Strict Batch Control** and labeling ensuring full traceability

## **Assist Gases are available in:**

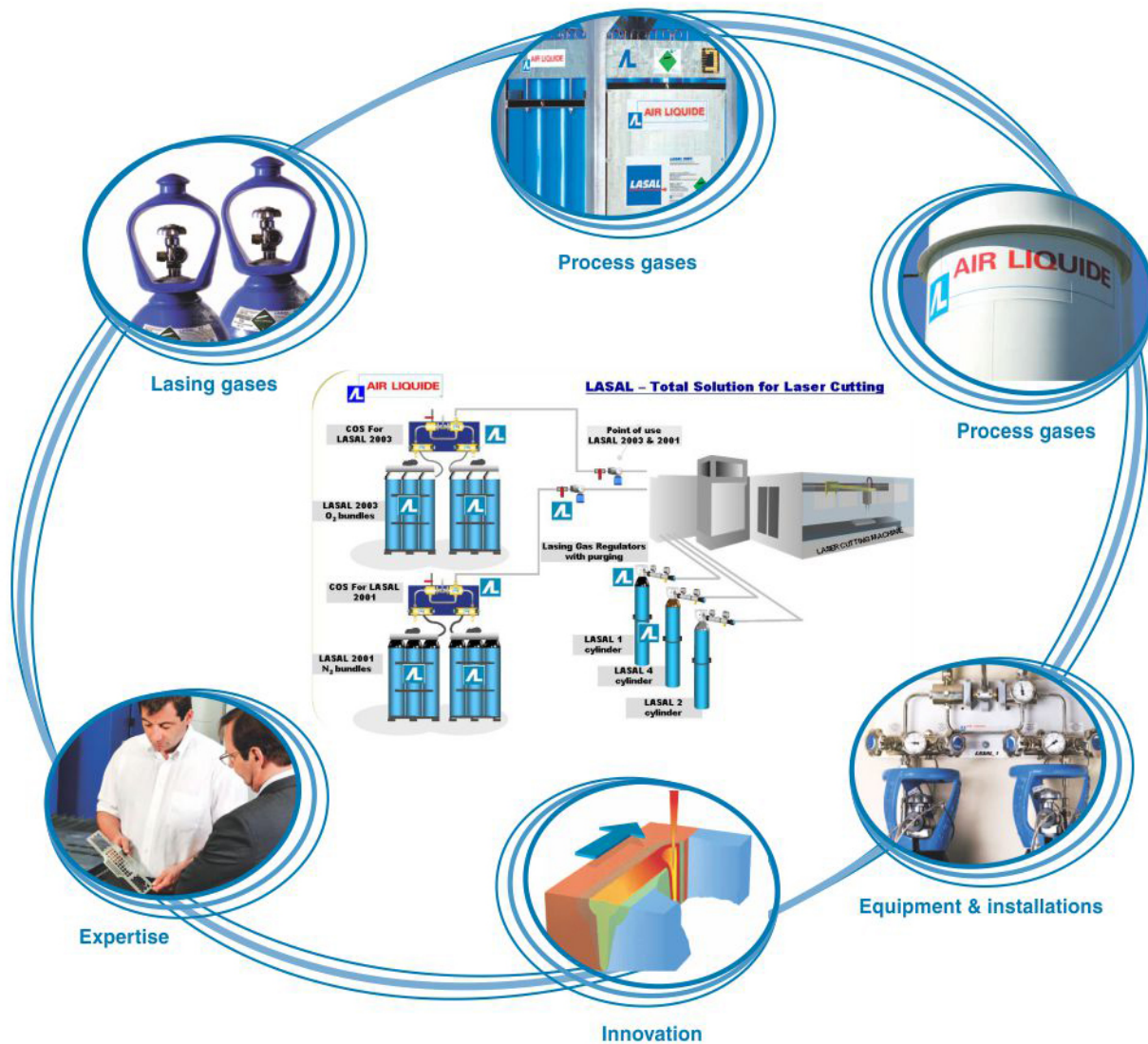
- **High pressure, high flow Nitrogen** packs to meet ever more demanding applications
- **High purity Oxygen** enabling faster, cleaner cutting



Air liquide's **LASAL™** range is not only a laser generation / laser cutting gas but a total solution comprising of:

- ▶ Gas product – Lasing / Cutting Gas
- ▶ Service & Reliability
- ▶ Gas Equipment & Installation
- ▶ Expertise

**LASAL™** backed with over 25 years of R&D by *Air Liquide* ensures you achieve unparalleled quality and consistency.



Boost your performance with **LASAL™**, proven and creative solutions for maximizing performance!



## ENHANCED SAFETY AND RELIABILITY

- Gas and equipment compliant with most stringent standards
- Services such as gas stock management with remote monitoring
- Preventive and ongoing maintenance of gas distribution installations
- Safety communication & awareness training

## CONSISTENT QUALITY IMPROVEMENTS

- Specifically developed lasing and process gases strictly controlled and filled in dedicated packages
- Selected equipment and optimum installation to feed your laser systems with required gas quality, pressure and flow rate
- The best technical support for your gas distribution system



## PRODUCTION COST EFFECTIVENESS

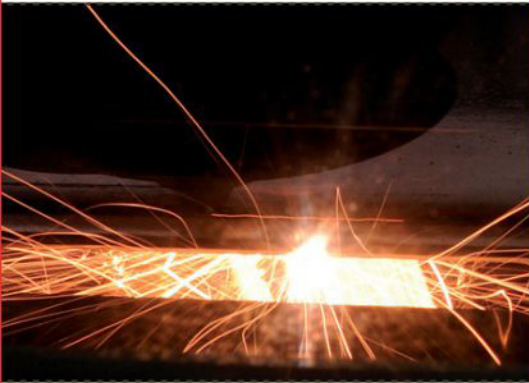
- LASAL™ 2000 is a range of assist gases for cutting, optimized to reduce your production costs by increasing productivity with laser-quality fabrication (edge quality, surface appearance)
- LASAL™ 4000 are the most advanced and cost effective laser welding shielding gas mixtures



## EXPERTISE AND INNOVATION TO INCREASE YOUR PERFORMANCE

- LASAL™ Service provides you:
  - Process optimization by setting of gas and parameters
  - Training of laser operators
  - Digital beam analysis
- The BIFOCAL™ solution enables double digit percent gains in cutting speed
- Range of LASAL™ nozzles allow for considerable improvement of mechanical properties of welding bead





**A laser generation / laser cutting gas range specially designed for laser application with the benefit from 25 years of experience in cutting & welding with lasers.**

## LASAL LASING GASES

The active media of a CO<sub>2</sub> laser source is a mixture of at least three components: carbon dioxide (CO<sub>2</sub>), nitrogen (N<sub>2</sub>) and helium (He); in some cases additional gases are used. These gases designated as lasing gases can be supplied either separately or premixed, depending on the laser source used. The composition is determined by the type of source used. LASAL lasing gases compositions are strictly compliant with laser manufacturer's requirements.

## Lasing Gases Purity

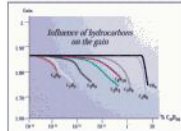
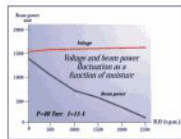
Air Liquide has studied the effect of many impurities on the laser efficiency.

It shows that the presence of low levels of:

- ♦ Hydrocarbons
- ♦ H<sub>2</sub>O (moisture)
- ♦ Particles

will affect the laser performance:

- ♦ Reduction of the output power level
- ♦ Laser beam instability
- ♦ Reduced lifetime of optics and electrodes



And induce a risk of damaging the laser resonator.

On the other hand usual levels of Ar, CO, O<sub>2</sub>, carbonyl sulfide (COS) and sulfur dioxide (SO<sub>2</sub>) have no effect.

Reduce the size as per table and ensure readability.

## LASAL CUTTING (ASSIST / PROCESS) GAS RANGE:

### LASAL 2001

Ensures clean cut:

LASAL 2001



Industrial N<sub>2</sub>



Delivered in:

Pressure 150/200 bar

MAWP 32 Bar



## Product Specification

LASAL	Laser Manufacturer	Laser Source
LASAL 1	Trumpf-Bystronic-Prima	Trumpf-Bystronic Prima
LASAL 2	Trumpf-Bystronica Prima	Trumpf-Bystronic Prima
LASAL 4	Trumpf-Bystronic-Prima	Trumpf-Bystronic-Prima
LASAL 66	Amada-LVD-Mazak	Fanuc
LASAL 83	Amada-LVD-Mazak	Fanuc
LASAL 201	All Manufacturers who used Rofin Sinar sources	Rofin Sinar Slab Laser
LASAL P51	Mazak	Panasonic
LASAL P61	Mazak	Panasonic

Product Name	Laser Manufacturer	Laser source	Application
LASAL 2001	All	All	Al, SS
LASAL 2003	All	All	Carbon Steel

### LASAL 2003

Gain on cutting speed 10 to 30%

LASAL 2003



Industrial O<sub>2</sub>



Delivered in:

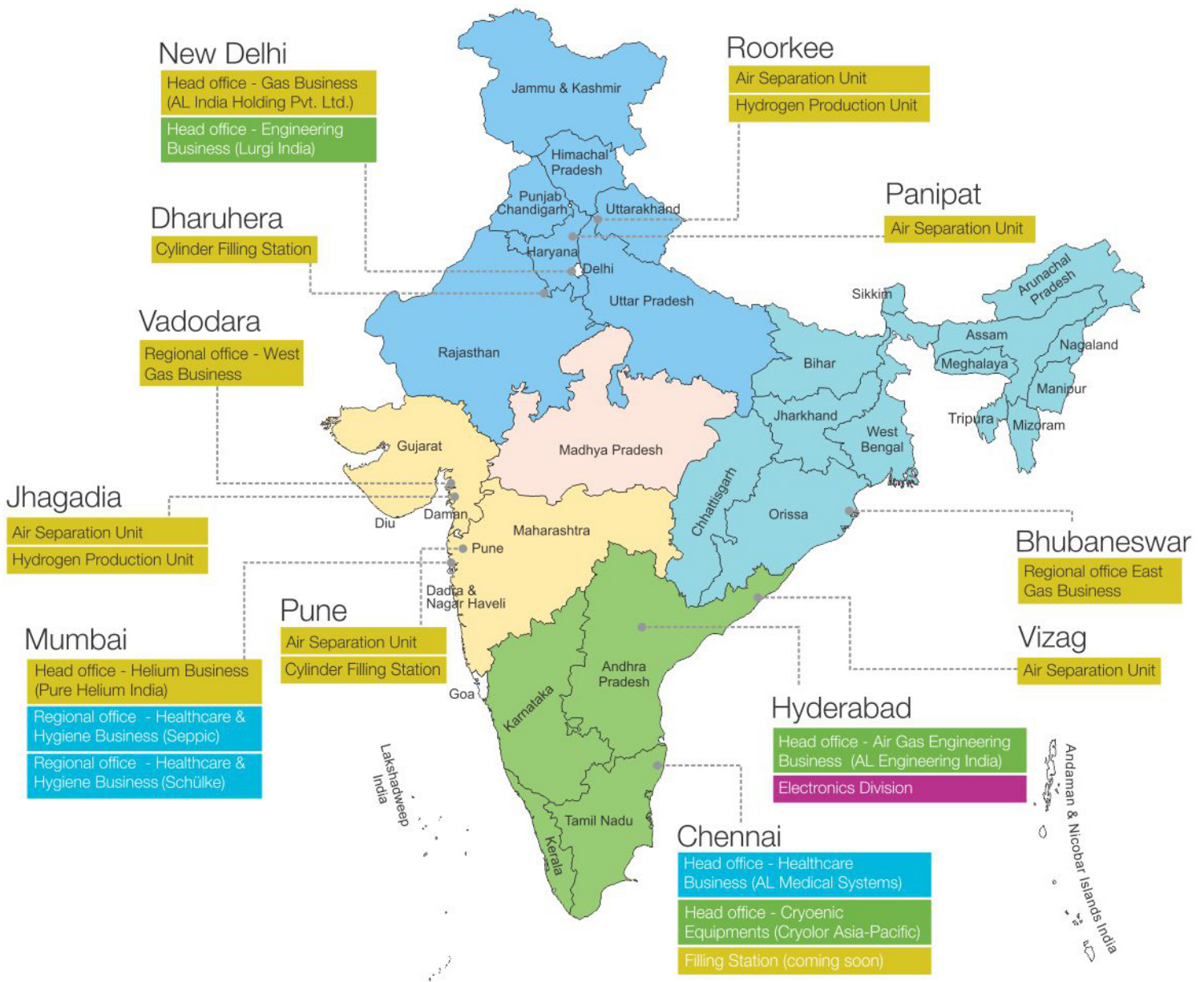
Pressure 150/200 bar

MAWP 17 Bar





# AIR LIQUIDE in India



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