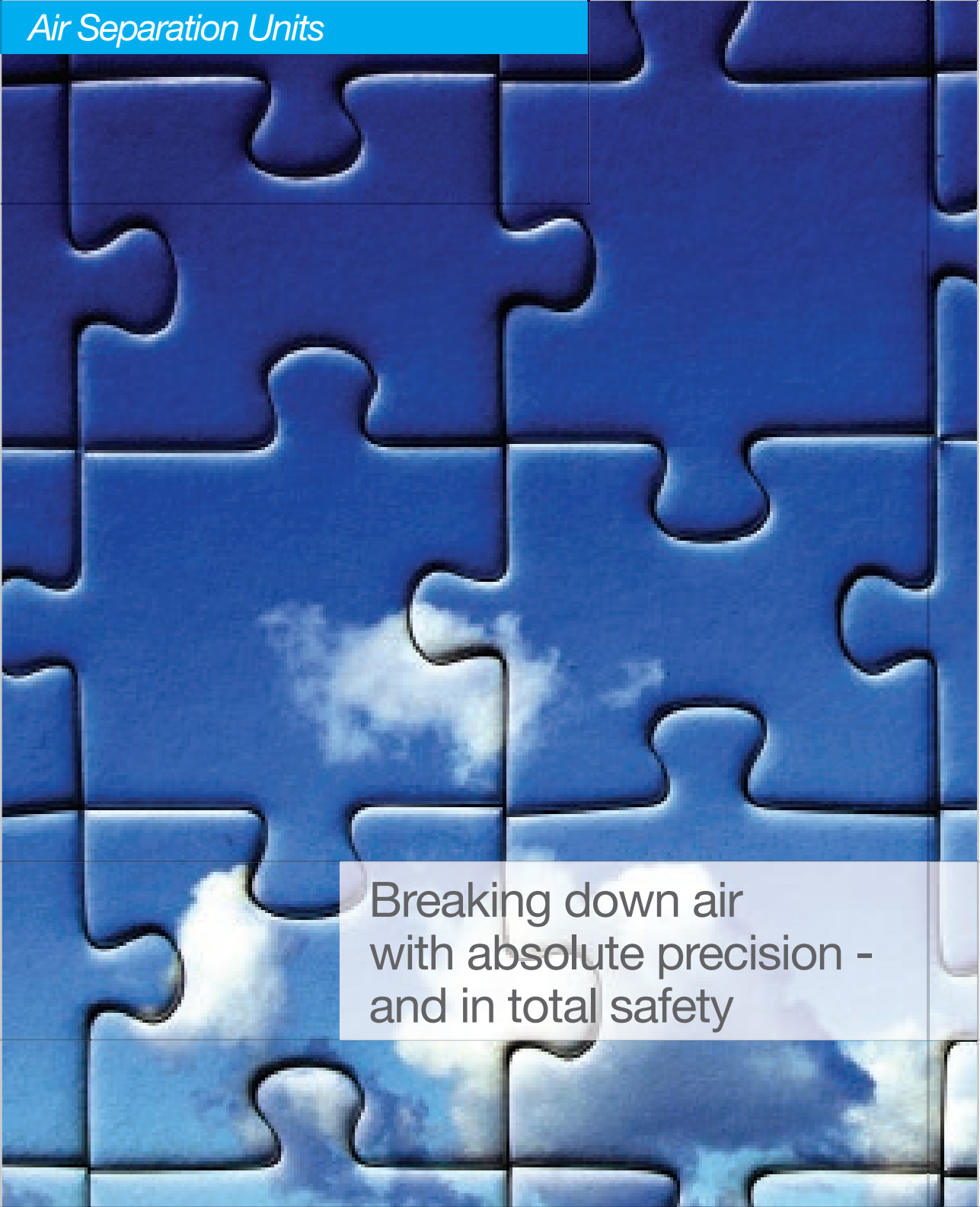


## *Air Separation Units*



Breaking down air  
with absolute precision -  
and in total safety

# Air Separation units (ASU) for producing Oxygen, Nitrogen and Argon

SIAD Macchine Impianti supplies Air Separation Units to the highest quality standards for the liquid or gaseous production of industrial gases using the cryogen process with tray or packing technology.

SIAD Macchine Impianti has developed its own design for selecting and sizing the most flexible equipment and technical solutions. Our strong point is our ability to coordinate our client's requirements with the company's long-standing experience, thus enabling us to provide tailor-made designs based on constant follow-up of project development. This is also made possible by our versatile, expert design team and our network of selected collaborators worldwide

## Technical characteristics

Air Separation units (ASU) with cryogenic technology for producing industrial gases in liquid and gaseous forms.

## Services

- Engineering, feasibility studies;
- supervised commissioning;
- erection, start up and performance test;
- remote control.

Guaranteed continuous supply of Oxygen, Nitrogen and Argon of the highest purity.

### Oxygen, Nitrogen, Argon ASU

|          |                                                                                                                                                                                                       |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Delivery | - Oxygen from 500 Nm <sup>3</sup> /h to 80 000 Nm <sup>3</sup> /h (17 - 2 750 TPD)<br>- Nitrogen from 1 500 Nm <sup>3</sup> /h to 240 000 Nm <sup>3</sup> /h (45 - 7 200 TPD)<br>- Argon recovery 92% |
| Purity   | - Oxygen 99.95% and beyond<br>- Nitrogen < 1 ppm O <sub>2</sub><br>- Argon < 1 ppm O <sub>2</sub>                                                                                                     |

### Oxygen, Nitrogen ASU

|          |                                                                                                                                                                               |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Delivery | - Oxygen from 500 Nm <sup>3</sup> /h to 80 000 Nm <sup>3</sup> /h (17 - 2 750 TPD)<br>- Nitrogen from 1 500 Nm <sup>3</sup> /h to 240 000 Nm <sup>3</sup> /h (45 - 7 200 TPD) |
| Purity   | - Oxygen 99.9% and beyond<br>- Nitrogen < 1 ppm O <sub>2</sub>                                                                                                                |

### Nitrogen ASU

|          |                                                                                       |
|----------|---------------------------------------------------------------------------------------|
| Delivery | - Nitrogen from 250 Nm <sup>3</sup> /h to 50 000 Nm <sup>3</sup> /h (8.5 - 1 500 TPD) |
| Purity   | - Nitrogen < 1 ppm O <sub>2</sub>                                                     |

### OxySTEEL, OxyCEMENT, OxyPAPER

|          |                                                                                                                           |
|----------|---------------------------------------------------------------------------------------------------------------------------|
| Delivery | - Oxygen from 800 Nm <sup>3</sup> /h to 16 000 Nm <sup>3</sup> /h (27 - 540 TPD)<br>- Nitrogen can be supplied on request |
| Purity   | - 95% for gaseous O <sub>2</sub><br>- 99.5% for liquid O <sub>2</sub><br>- 99.9% for gaseous N <sub>2</sub>               |

### Smart Liquid Plant

|          |                                                                                                                                                                                  |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Delivery | - Liquid Oxygen from 330 Nm <sup>3</sup> /h to 2 500 Nm <sup>3</sup> /h (12 - 90 TPD)<br>- Liquid Nitrogen from 600 Nm <sup>3</sup> /h to 3 000 Nm <sup>3</sup> /h (19 - 98 TPD) |
| Purity   | - Oxygen 99.6%<br>- Nitrogen 99.999%                                                                                                                                             |



Courtesy of Premier Cryogenics Limited

# Equipment design features

## Air separation method

Plant perform cryogenic air separation, through low temperature distillation. Characteristics of this method:

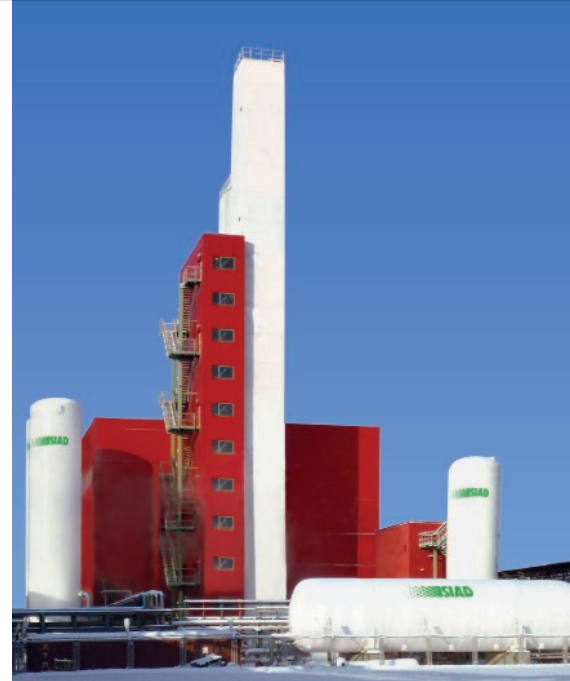
- high purity products;
- high recovery ratio;
- low power consumption;
- production of products in gaseous and liquid forms;
- simultaneous production of more than one product;
- multi-duty operation.

## Materials and components

In plant construction, only high quality and durable materials and components are used. Cryogenic parts and equipment inside distillation columns are isolated with special insulation to minimize heat loss.

## Know-how and innovation

SIAD Macchine Impianti uses its own know-how for the innovative cryogenic plant design. Top priorities: research and development, continuous improvement in efficiency and up-dating technology.



Complete compliance with local and or international standards. Tailor-made solutions to meet all production requirements.

## Automatic control system

Advanced PLC based automation:

- providing maximum effectiveness of the plant (optimization);
- automatic monitoring of normal operation mode (without operator supervision);
- automatic data logging (archives for diagnostics);
- guarantees safety and reliability of the equipment;
- tele-control of the plants from producer's side.

## Easy installation

Plants are shipped in modular section for easy and low cost installation. The equipment is installed as enlarged modules, which are then connected during installation on site with the minimum number of interfaces on pre-fabricated foundations. As a consequence, there is a reduction in the cost of installing and commissioning. An option is available for commissioning test, start-up and performance test, performed on site under the careful supervision and responsibility of SIAD Macchine Impianti's expert site engineers.

For information:  
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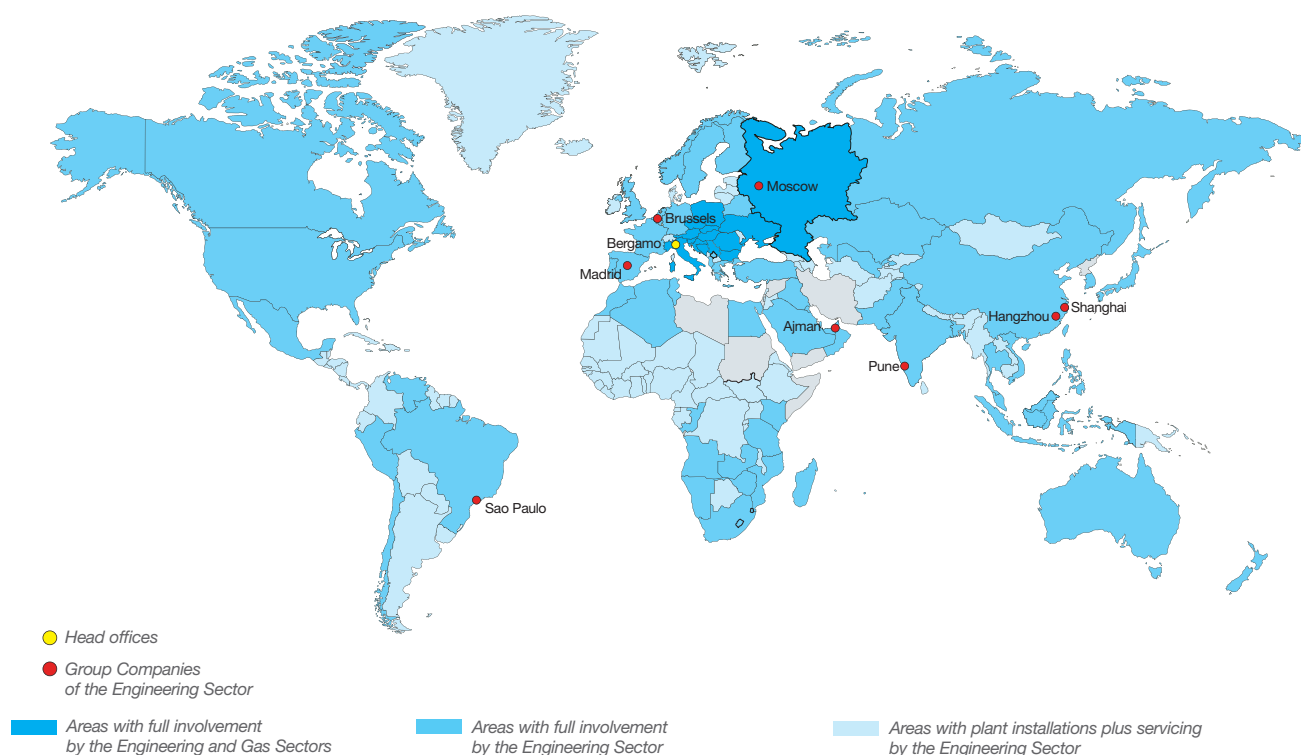
## Applications

The professionalism and know-how of SIAD Macchine Impianti's technical staff is at the disposal of clients every day, in order to respond successfully to their requirements.

The company offers a complete range of plant, satisfying the most sophisticated demands, and continues to develop new and more efficient solutions for the application of technologies involving different industries.

- |                               |                             |
|-------------------------------|-----------------------------|
| • Cement                      | • Glass                     |
| • Chemical                    | • Industrial Gases Industry |
| • Energy and Power Generation | • Metal Production          |
| • Exploration and Production  | • Petrochemical             |
| • Food & Beverage             | • Pulp and Paper            |
|                               | • Refinery                  |

# Engineering: commercial and assistance network and activities areas



## Global Service Division: a complete range of services

To reduce operating costs and to maintain the high efficiency of its Air Separation Units, SIAD Macchine Impianti offers its customers a complete range of services, together with a network of Certified Service Centres in five continents, utilizing skilled technicians.

### ASU maintenance and supply of spare parts:

- supply of spare parts;
- maintenance work;
- preventive and predictive maintenance.

### On-site support:

- commissioning and start up supervision;
- support for unit stop, restart up and tuning.

### Remote assistance for ASU management:

- remote monitoring/parameter checks.

### Training courses:

- on-site theoretical and practical courses;
- theoretical and practical courses at the SIAD Macchine Impianti factory.

Technical assistance  
internationally appreciated  
for top quality.

For assistance:  
[siadmi\\_support@siad.eu](mailto:siadmi_support@siad.eu)



# The SIAD Group

Engineering

Technical gases



LPG and Natural Gas

Healthcare

## Technical gases

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