

ECOVAR® – Standard on-site solutions

ECOVAR® systems

ADSOSS™-N plants

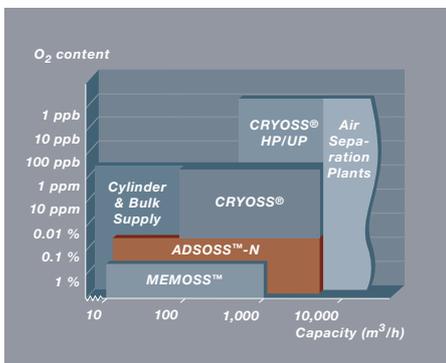
ADSOSS™ - N

Nitrogen generation plants based on the adsorption process

ECOVAR® supply systems encompass the supply of industrial gases with on-site plants. The ADSOSS™-N product line is part of the ECOVAR® portfolio. The plants are built around proven, state-of-the-art components providing maximum cost efficiency and reliability. An integrated back-up supply system ensures a continuous gas supply around the clock.

Linde's ADSOSS™-N plants are very reliable PSA (pressure swing adsorption) generators. These generators are designed for those who require nitrogen volumes from a few m³/h up to more than 5,000 m³/h at purities from 98 % up to 99.99 % or even higher, at a pressure of up to 9 bara. With additional compression, higher pressures may be obtained.

The compact dimensions and light weight simplify installation. The skid mounted unit can be installed either in an existing room or in a shelter placed outside. Each unit contains two molecular-sieve adsorbers together with the necessary air compressor, piping, valves and control system.

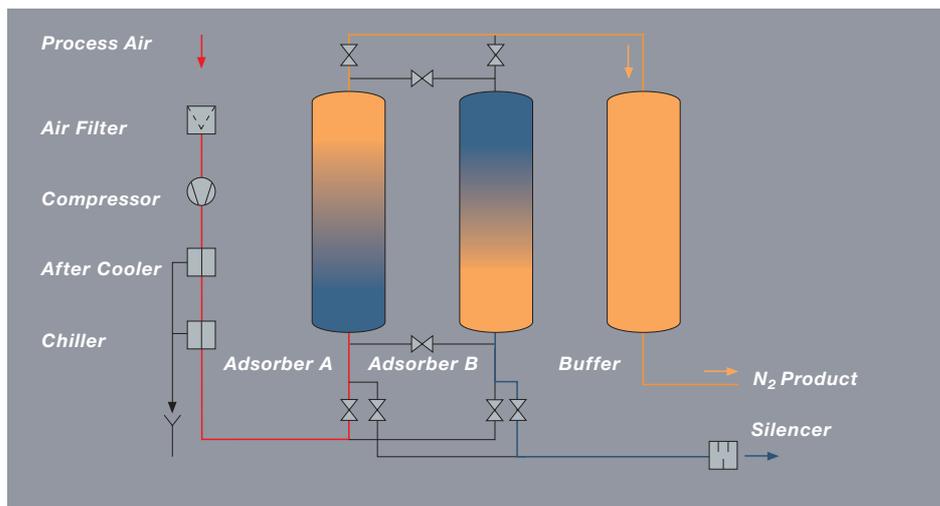


Nitrogen supply solutions



ADSOSS™ - N

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Typical nitrogen PSA flow diagramm

Process and technology

ADSOSS™-N uses the adsorption technology that takes advantage of the ability of porous substances to bind gases. The individual fractions of a gas mixture are adsorbed at different rates and to varying degrees by the large internal surface area of the adsorption agents. This effect is employed in an alternating pressure swing technique for separating a given component out of a gas mixture. For adsorptive extraction of nitrogen from air, carbon molecular sieves (CMS) are used as the adsorption agents. Under pressurized conditions, these adsorb oxygen, water vapour and carbon dioxide, letting the nitrogen pass through the orifices of the sieve. To regenerate the molecular sieve after it has become loaded with oxygen, it is merely necessary to blow it back down to atmospheric pressure and purge it. Production and regeneration phases are performed alternately at periodic intervals. Whilst one adsorber is in the production phase, adsorbing oxygen into the sieve under pressure and allowing the nitrogen to pass through, the other is regenerated by evacuating the pressure to the atmosphere. The nitrogen can be subsequently stored in a buffer vessel before being routed to the site of use, in order to shave consumption peaks.

The performance of a PSA unit depends on the ambient temperature. The required purity and product pressure have an influence on the air demand and, of course, on the energy consumption. The advantages of the ADSOSS™-N PSA solution in comparison with membrane units are: higher purities are achievable, lower specific energy consumption, longer lifetime of the CMS, lower specific product costs for large units. As an additional feature, all units are equipped with PLC and remote control and monitoring.

Applications

- ECOVAR® systems based on ADSOSS™-N plants are typically used for the following applications in the industries described below:
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| Chemical and petrochemical industry
▶ Inerting / Purging
▶ Blanketing
▶ Catalyst regeneration | Pharmaceutical industry
▶ Inerting
▶ Packaging |
| Food industry
▶ Packaging
▶ Controlled atmosphere storage | |