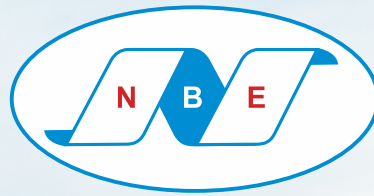


N_2 O_2

**SUPPORTING INDUSTRIES WITH
THE PURE ESSENTIAL GASES**

H_2



NUBERG GPD
TRUSTED NAME FOR GAS PLANTS



Nuberg Engineering Limited | Gas Plant Division

A Legacy of Excellence: The Nuberg Group

Incepted as OEM for Nitrogen Gas Generators in 1996, Nuberg Engineering Limited have become a global leader for Nitrogen gas plants, project engineering, technology solutions, turnkey projects for Nitrogen Gas Plants solutions, specialising in industrial plants for chemicals, petrochemicals, and fertiliser units. Driven by innovation and customer-centricity, the Nuberg Group has earned its reputation as a reliable partner, shaping industries and enabling growth across continents.

NUBERG GROUP

Nuberg GPD

Start-up year - 1996

Delivering cutting-edge gas generation systems, empowering industries with reliability and precision.

Nuberg EPC

Introduced in the year 2001

Pioneering project solutions for chemicals, petrochemicals, and beyond.

Nuberg HFD

Established in the year 2009

Advancing heavy fabrication and process equipment with unmatched expertise and innovation.

Nuberg Gas Plant Division (GPD)

Known as the Mother Unit of Nuberg Group

Our Approach; Excellence, Innovation and Global Support

Nuberg GPD stands as India's foremost manufacturer of Gas Generation Systems, catering to diverse industry needs across the spectrum. With over **4,000 successful installations** in more than 35 countries across Asia, Africa, the Middle East, Australia, Europe, and South America, we have built a legacy of excellence, reliability, and innovation on a global scale.



Relentless Focus on R&D:

Continuous innovation to stay ahead in technology and performance.



Expert Teams:

Proven expertise in delivering high-capacity, high-purity gas plants worldwide.



Integrated Approach:

A single-source solution for process development, project engineering, and plant manufacturing.



Round-the-Clock Support:

24/7 customer assistance from offices in NCR (HQ), Madhya Pradesh, Maharashtra, Andhra Pradesh, Telangana, and Gujarat.

Join hands with Nuberg GPD

your partner in unravelling superior gas generation solutions tailored for today's dynamic industrial landscape.

Nuberg's Sterling Gas Plant

Nitrogen Gas Plant

Nuberg GPD employs the exemplary **Pressure Swing Adsorption (PSA)** technique to extract ultra-pure Nitrogen. Our generators deliver nitrogen with purity levels ranging from **96% to 99.9999%** and capacities designed to handle industrial-scale demands with unmatched efficiency.



Hydrogen Gas Plant

Nuberg GPD takes pride in its global footprint, delivering cutting-edge hydrogen generation solutions to industries worldwide. With expertise in distinct production techniques, we offer tailored hydrogen generation solutions to suit specific client needs.

Oxygen Gas Plant

Our PSA Oxygen Gas Plants are engineered to produce **ultra-pure oxygen up to 99%**, with flow rates ranging from **1 to 200 NM³/hr**. Leveraging the PSA process, we deliver high-efficiency oxygen generation systems ideal for various industries.



Gas/Air Purification Systems

Nuberg GPD offers a comprehensive range of **large-scale gas / air-drying solutions** with capacities ranging from **1 to 35,000 NM³**. Achieving dew points of **(-)40°C to (-)80°C**, our advanced dryer systems ensure optimal performance and energy efficiency, making them ideal for a wide array of industrial applications.

Ammonia Cracker

The Ammonia Cracker extracts hydrogen gas in a **75% hydrogen to 25% nitrogen ratio** using a Nickel Catalyst. For higher purity needs, hydrogen can be further processed through a Purification Unit.



PSA Nitrogen Gas Generation Plant

Nuberg GPD's PSA Nitrogen Gas Generation System is built on cutting-edge BF Technology, offering unmatched efficiency and precision. Utilising premium Carbon Molecular Sieves (CMS) from Carbotech JEC, Japan, our systems deliver nitrogen gas with purity up to 99.9999%.

The ABC of Nuberg's Nitrogen Gas System

A - Automatic Plant

Seamlessly automated for continuous, hassle-free operation.

B - BF Technology

Employing advanced process technology for superior results.

C - Customisable

Tailored to meet the specific needs of diverse industries.

Nitrogen Production Phases

Adsorption Phase

Compressed atmospheric air pass through a 4-Stage Air Filtration and the adsorption tower. Inside, Carbon Molecular Sieves (CMS) adsorb oxygen while alumina removes residual moisture, ensuring precise nitrogen separation.

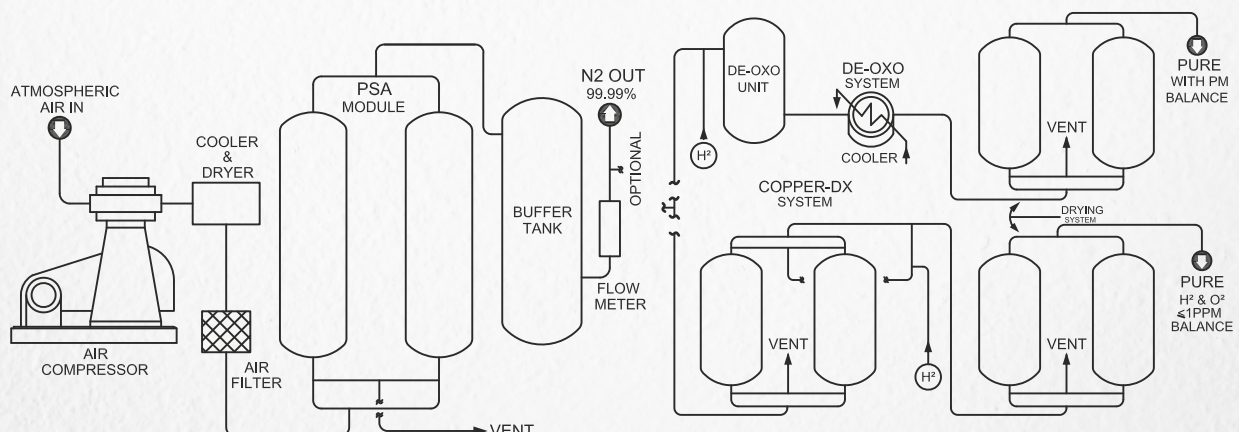
Pressure Equalisation Phase

Before the second adsorber begins in-line, pressure is equalised between the two towers, pre-pressurizing the second adsorber for seamless operation.

Desorption Phase

The first adsorber undergoes desorption, releasing adsorbed oxygen as pressure is released. This ensures the absorber is ready for the next cycle.

The process alternates between adsorbers, ensuring a continuous and reliable supply of high-purity nitrogen gas for diverse industrial applications.



Exclusive Module of PSA Nitrogen Gas Plants

Nuberg GPD offers a versatile range of PSA Nitrogen Gas Generators, engineered to meet an extensive range of industrial needs with exceptional efficiency and reliability.

MX Model

- ▶ The MX Model provides a convenient and cost-effective solution for extracting pure nitrogen, with purity levels ranging from **96% to 99.99%**.

MS-H Model

- ▶ As a part of advancement, a newly developed special grade CMS is used to generate highly pure N₂ gas of **99.999%** quality directly from the PSA unit.

DX Model

The **DX Model** elevates nitrogen purification by blending PSA-generated nitrogen with hydrogen, which is then passed through a **Deoxo Unit (Catalyst Reactor)** filled with a categorised catalyst.

- ▶ The **exothermic reaction** of oxygen and hydrogen produces water vapours are removed via a gas Dryer, and releases heat. $2H_2 + O_2 \rightarrow 2H_2O + \Delta$
- ▶ Hence, high-purity **nitrogen gas up to 99.9997%** is achieved.

CU-DX Model

The **Copper Deoxo Model (CU-DX)** has enhanced purification capabilities through two reactors and additional steps

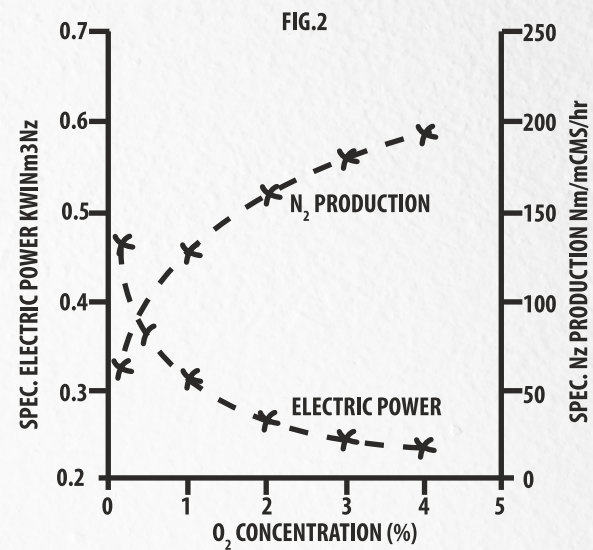
- ▶ **Oxidation Phase:** An exothermic reaction between residual oxygen and copper in the first reactor removes oxygen, producing nitrogen with **purity levels up to 99.9999%**.
 $Cu + O_2 \rightarrow 2CuO + \Delta$
- ▶ **Regeneration Phase:** The copper oxide is reduced using hydrogen. i.e $CuO + H_2 \rightarrow Cu + H_2O + \Delta$
Hence, continuous operation and reliable high-purity nitrogen supply is achieved.

Technical Specification

TECHNICALITIES	MX MODEL	DX MODEL	CU-DX MODEL	MS - H
Flow Rates	1-5000 Nm3/Hr	1-5000 Nm3/Hr	1-5000 Nm3/Hr	1-200 Nm3/Hr
Nitrogen	96% to 99.99%	99.9997%	99.9999%	99.999%
Oxygen	4% - 0.01%	≤ 1PPM	≤ 1PPM	≤ 10 PPM
Hydrogen	Nil	0.3% - 5.0% (Adjustable)	≤ 1PPM	Nil
Dew Point	-40°C to -60°C	-60°C to -80°C	-60°C to -80°C	-60°C to -80°C
Pressure	Above 5 Bar	Above 5 Bar	Above 5 Bar	Above 5 Bar

Advantages of PSA Nitrogen Plants

- ▶ **Cost-Effective Technique:** The PSA system offers a highly economical process for producing nitrogen without compromising on quality.
- ▶ **Four-Stage Filtration System:** Equipped with a **four-stage filter** to effectively remove dust, moisture, and oil contaminants, ensuring the delivery of clean air to produce pure Nitrogen gas.
- ▶ **In-House Nitrogen Supply:** Enables a **continuous, uninterrupted supply** of quality nitrogen gas on-site, eliminating the need for external resources.
- ▶ **TDR (Turndown Ratio) Technology:** Features a **Turndown (TDR) arrangement**, allowing the system to operate at **50% capacity**, and offering significant energy savings.



Hydrogen Gas Plants

Nuberg GPD offers a comprehensive range of Hydrogen Gas Generators utilising state-of-the-art technologies to deliver high-purity hydrogen for a wide array of industrial applications.

Hydrogen Gas Plant – Bipolar Alkaline Water Electrolysis.

- ▶ Our hydrogen plant harnesses renewable electricity, resulting in zero carbon emissions, making it a green hydrogen solution for companies transitioning towards green energy sources.
- ▶ Employs well-established **water electrolysis technology** to produce **99.999% pure hydrogen gas** with a Dew Point lower than (-) 70°C.
- ▶ Fully automatic, sustainable, and easy to operate.
- ▶ Compatible with DCS monitoring systems for seamless integration into industrial processes.

Hydrogen Purification and Recovery Systems

- ▶ Operates on a twin-tower PSA system with dew point up to (-)80°C and pressure of 3.4 to 25 bar at a single point.
- ▶ Designed to obtain highly pure hydrogen gas, meeting specialised industrial requirements.

PSA Oxygen Plants.

Nuberg GPD's **PSA Oxygen System** delivers efficient and cost-effective solutions for **high-purity oxygen production**. This system ensures a continuous supply of oxygen, tailored to meet the demands of various industries. Compressed air is passed through a synthetic zeolite bed that selectively adsorbs nitrogen, leaving behind **91-93% pure oxygen** available at the battery limit.

STEEL & METAL PROCESSING

SEMI-CONDUCTOR

STEEL & METAL PROCESSING

SEMI-CONDUCTOR

AUTOMOBILE

Industries We Serve

CHEMICAL

FOOD PROCESSING

PETROCHEMICAL

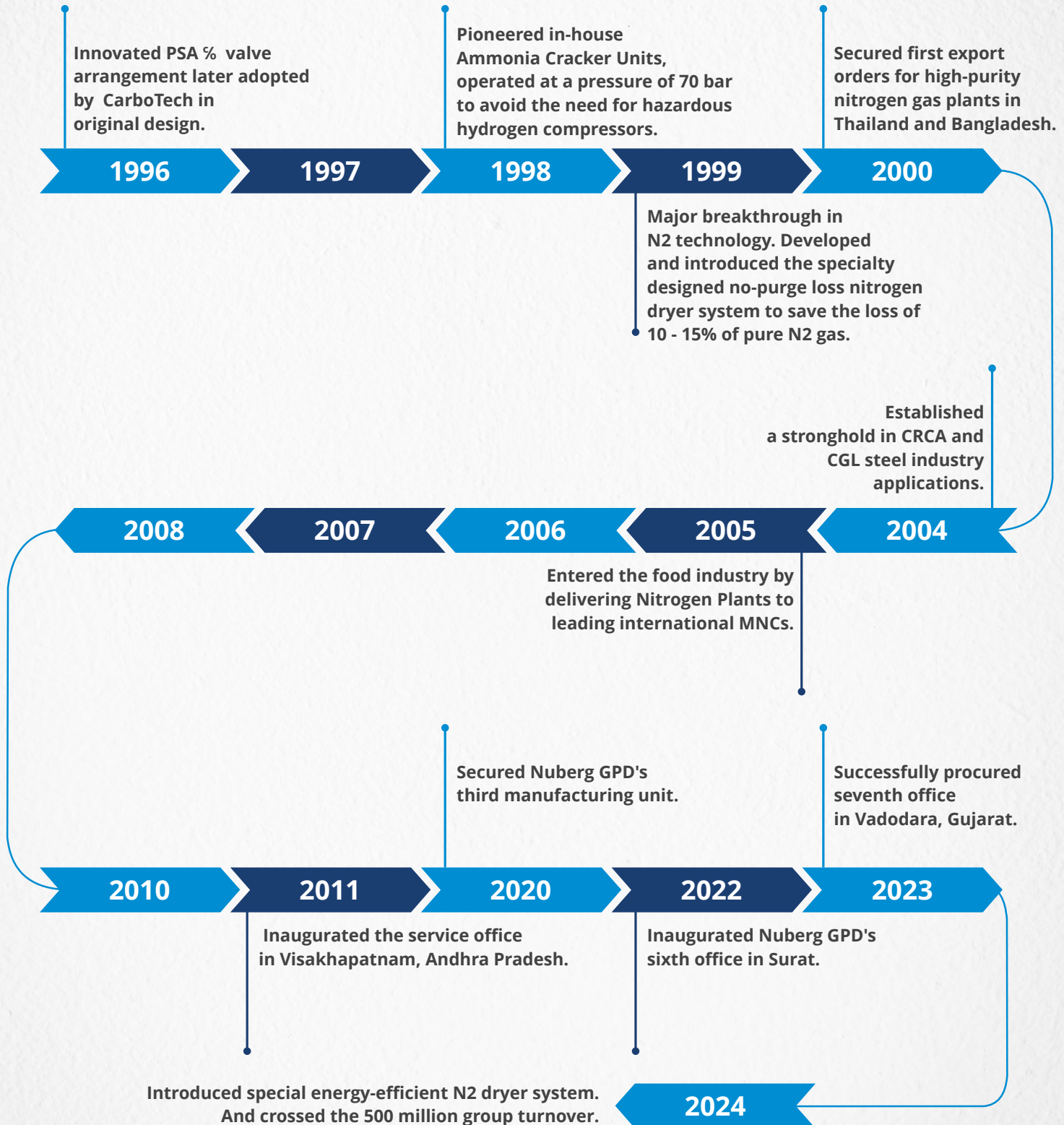
POLYESTER AND TEXTILE INDUSTRY

PHARMACEUTICAL

OIL & GAS

Nuberg GPD's Milestones of Excellence

Nuberg GPD's Achievement Timeline





Nuberg GPD
(Gas Plant Division)
Nuberg Engineering Limited



Hydrogen Gentech
Private Limited



PYG Lifesciences
Private Limited

