### PRESS RELEASE

**Advanced process for efficient nitrogen production**

Generating nitrogen independently and significantly lowering energy consumption

Increasing purity, lowering costs – with the ingenious combination of a nitrogen generator and hydrogen converter, INMATEC now offers an efficient duo for nitrogen generation. Users are able to save money on the investment as well as during operation.

Maximum-purity nitrogen is required as process and inert gas not only in the chemical industry but also in other sectors such as food and beverages. Companies then have the choice whether to procure the gas from third parties or to generate it themselves. The benefits of generating it independently are obvious: the quantity, purity and pressure can be easily controlled and perfectly adapted to requirements. This also avoids costs for delivery and storage, and the gas is available when needed. Purity is monitored continuously – another advantage of onsite generation.

The two elements of an ingenious concept

Combining a modified PN nitrogen generator (PNK) and an H2KAT hydrogen converter INMATEC, which is part of the BOGE Group, offers a highly efficient and effective system for the independent generation of maximum-purity nitrogen (0.001% O2 [degree of purity 5.0]). A portfolio with suitable compressors and treatment components is available for the required compressed air. The compressed air is filtered and dried before the nitrogen is separated from the ambient air using Pressure-Swing-Adsorption(PSA) technology and a high-quality carbon molecular sieve. The generated nitrogen, which has a purity of 0.1% O2 (degree of purity 3.0), is first stored in a buffer receiver, then enriched with tiny quantities of hydrogen in the H2KAT. Residual oxygen molecules are removed from the nitrogen and bound with hydrogen to produce water vapour. The nitrogen then has a purity of 0.001% O2 (degree of purity 5.0). The H2KAT is available in eight versions with free air delivery of up to 300 Nm³/h. To match these, there are eight PNK models with their technology being perfectly adapted to the relevant H2KAT.

Significantly lower investment and operating costs

The advantage of this two-stage process for nitrogen generation is a significant reduction in compressed air consumption by about 40 to 50% compared with the traditional generation of nitrogen with a purity of 0.001% O2 (degree of purity 5.0). The generator has been designed for a fixed purity of 0.01% O2 (degree of purity 3.0). The required quantity of compressed air can therefore be reduced by almost half. This has an impact on investment costs because compressed air stations, treatment components and the generator can be much smaller. By reducing the quantity of compressed air provided, energy costs can also be saved as well as CO2 emissions lowered. Another advantage: Customers will receive the entire system consisting of compressor, compressed air treatment, nitrogen generator and hydrogen converter from one source. Thanks to the combination of INMATEC technology and BOGE compressors, customers are provided with a reliable complete system that guarantees a continuous and particularly efficient nitrogen supply.

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**Picture: 2 (Source: BOGE)**

**Caption 1:** Combining a modified PN nitrogen generator (PNK) and an H2KAT hydrogen converter, INMATEC offers a highly efficient and effective system for the independent generation of maximum-purity nitrogen. In the nitrogen generator, the nitrogen is separated from the ambient air using Pressure-Swing-Adsorption(PSA) technology and a high-quality carbon molecular sieve.

Caption 2: The generated nitrogen, which has a purity of 0.1% O2 (degree of purity 3.0), is first stored in a buffer receiver, then enriched with tiny quantities of hydrogen in the H2KAT. It then has a purity of 0.001% O2 (degree of purity 5.0).

**About INMATEC**

With its systems for the onsite generation of gases, INMATEC GaseTechnologie GmbH & Co.KG is a global market leader. The company has its headquarters in Herrsching and has been developing, manufacturing and delivering nitrogen and oxygen generators to the whole world since being established in 1993. Since August 2023, Inmatec has been part of the BOGE Group and can, in addition to its own team, fall back on BOGE’s international sales and service organisation.

**About BOGE**

As one of Germany’s oldest manufacturers of compressors and compressed air systems, BOGE KOMPRESSOREN Otto Boge GmbH & Co. KG offers over 115 years’ experience. The company is also one of the market leaders. Whether screw compressors, piston compressors, scroll compressors or turbo compressors, complete systems or individual devices, BOGE meets the most diverse requirements and highest standards, with precision and quality always at the forefront. The family-run company operates around the globe and employs around 800 co-workers with Olaf Hoppe and Dr. Sebastian Göbel at the helm. With numerous sales offices and subsidiaries, BOGE offers its international customers comprehensive service. The company supplies its products and systems to over 120 countries worldwide.

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