NMG SERIES

PRODUCT ANNOUNCEMENT

SMC has released the NMG Series Nitrogen Membrane Generator, a compact point-of-use solution designed to provide a reliable nitrogen supply without the cost and operational challenges associated with gas cylinders. Utilizing membrane separation technology, the NMG Series generates nitrogen concentrations up to 99.9% with flow capacities up to 108 L/min at this purity using only a compressed air source. Its modular design integrates seamlessly with SMC's AC-D air preparation system, enabling simplified installation and scalable configuration. By producing nitrogen on demand, the NMG Series helps improve process reliability, reduce operating costs, and eliminates downtime associated with cylinder handling and replacement.

BEST PRACTICES / EDITORIAL ARTICLE

On-Demand Nitrogen Generation for Stable, Cost-Efficient Process Gas Supply

Industrial and laboratory operations that depend on nitrogen gas frequently face persistent challenges related to supply reliability, cost, and system complexity. Conventional nitrogen cylinder systems introduce logistical burdens including storage constraints, repeated handling, delivery scheduling, and the risk of unexpected depletion during critical production or testing cycles. These interruptions can directly impact process stability in applications such as inerting, oxidation control, leak testing, and precision manufacturing environments where gas consistency is essential.

SMC addresses these challenges with the NMG Series Nitrogen Membrane Generator, a compact point-of-use solution engineered to supply with on-demand generation directly from compressed air. By utilizing membrane separation technology, the system delivers nitrogen concentrations up to 99.9% at flow rates up to 108 L/min at this purity using only a compressed air source. This enables installation directly at the point of use, reducing infrastructure complexity while ensuring nitrogen availability is aligned with real-time demand.

A key limitation of standard cylinder-based systems is the disconnect between supply logistics and process consumption. Even well-managed cylinder inventories cannot fully eliminate the risk of depletion or pressure variability during peak demand. The NMG Series resolves this by producing nitrogen continuously from plant air, effectively decoupling gas availability from external supply chains. This transition from stored supply to generated supply enhances operational resilience and improves process continuity in environments where downtime is costly.

The NMG Series also introduces a modular design that integrates seamlessly with SMC's AC-D air preparation system. This compatibility enables simplified installation and flexible system design, allowing users to scale capacity as production requirements evolve. Rather than overdesigning initial gas infrastructure, engineers can implement a right-sized system and expand capacity incrementally, improving both capital efficiency and system adaptability.

In addition to operational stability, the elimination of cylinder handling reduces maintenance workload and safety concerns associated with high-pressure gas storage and replacement. The absence of electrical power requirements further simplifies deployment in remote or constrained installations, supporting decentralized process gas strategies across multiple production lines or laboratory zones.

By generating nitrogen on demand at the point of use, the NMG Series improves process reliability, reduces total operating costs, and eliminates downtime associated with cylinder handling and replacement. The result is a more predictable and efficient nitrogen supply strategy that aligns with modern requirements for lean manufacturing, laboratory automation, and distributed production environments.