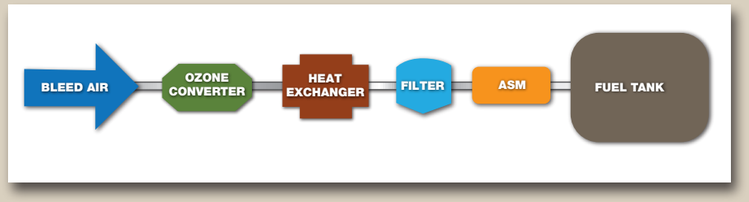
Comparing current and new inerting technology

Conventional inerting

Hollow fiber membrane-based air separation module technology has been the dominant technology for aircraft fuel tank inerting systems for the last 20 years.

In general, ASM-based inerting systems are significantly better than historical fuel tank inerting technologies, such as LN2, Halon, pressure swing adsorption, and reticulated foam. However, ASM-based systems need high-pressure air in order to function.

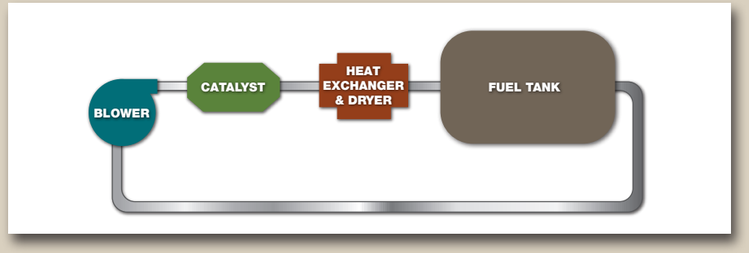
Typically, this high-pressure air is taken from the aircraft pneumatic system.



Catalytic inerting

The recirculating catalytic inerting system draws ullage gas from the fuel tank, reacts the gas stream in a catalyst, cools the gas stream, removes the water, and returns the inert products of the reaction back to the fuel tank.

The catalytic inerting system requires no bleed air or attachment to the aircraft pneumatic system, which can be a significant advantage for aircraft powered by turboshaft, turboprop, or small turbofan engines.



An exclusive aerospace license

Parker Aerospace and Phyre Technologies have signed an exclusive license agreement to explore Phyre's patented catalytic inerting technology. Parker will bring its 50-plus years of fuel tank inerting expertise to bear as both organizations collaborate on the product development necessary to bring catalytic inerting to the marketplace.

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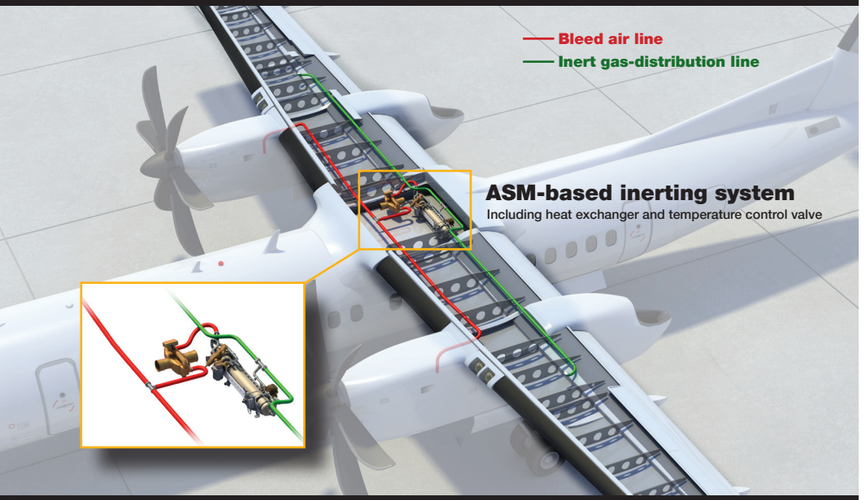
The next-generation inerting solution

The significant benefits of catalytic inerting

Parker Aerospace

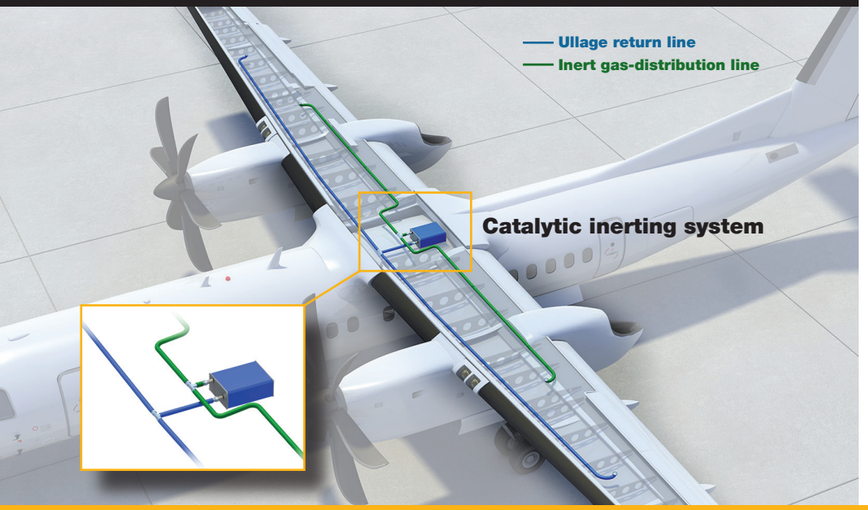
ASM-based inerting system

- Requires bleed air
- Requires conditioning of bleed air
- Powerplant performance penalty



Catalytic inerting system

- No bleed air or connection to pneumatic/environmental system required
- Integrated within fuel system



Catalytic inerting: an impressive solution with broad applications

Today's aerospace manufacturers and operators understand the importance of incorporating fuel tank inerting systems into their aircraft platforms. Inerting technology enhances the safety of the fuel tanks on both military and commercial aircraft.

Parker Aerospace is the world leader in fuel tank inerting technology, with an unmatched pedigree of over 50 years of experience in providing inerting systems on both military and commercial aircraft for the world's fleet. Our expertise supports programs ranging from military programs such as the C-17, F-22, F-35, P-8A, and A400M to commercial platforms including the A320, A330, A340, and A350 XWB; 737, 747, 757, 767, and 777; C Series, and C919.

Parker Aerospace is the global leader in current ASM technology

Our highly experienced inerting engineering team continually evaluates new methods and technology, to provide continuous development and enhancement of our inerting capabilities. Catalytic inerting advances the current state-of-the-art technology with impressive solutions that offer a number of benefits, including the ability to be used across a variety of aircraft and helicopter platforms.

Current fuel tank inerting equipment forces engine-generated bleed air through air separation modules (ASMs) in order to generate inert gas. With catalytic inerting, ullage gas is pulled from the fuel tank and passed through a catalyst, producing inert products of reaction. The inert product gas stream is then cooled and dried before being returned to the fuel tank to inert the ullage space.

This unique and self-contained system is completely decoupled from the aircraft pneumatic system and produces fewer efficiency losses than the current ASM-based inerting technology.

No high-pressure air source required

Catalytic inerting holds the promise of generating inert gas onboard the aircraft with a system that does not require a source of high-pressure air. The system only requires interfaces with the aircraft fuel tank and electrical system.

Bleeding engines to supply a conventional ASM-based inerting system can be particularly burdensome for aircraft powered by engines that have little or no bleed air available, such as turboshafts (helicopters), small turbofans (business jets), and turboprops (short-haul transports). Catalytic inerting avoids this issue entirely.

Evolution of fuel tank inerting technology