



**Industrial Gas Turbine  
Products**



# FUELING INNOVATION FOR TURBINE SYSTEMS WORLDWIDE

## About JASC

JASC is a provider of innovative solutions for today's most advanced and challenging applications in the gas turbine, aerospace and aviation industries.

JASC has proven experience developing reliable and cost-effective solutions for turbine users' problems including:

- Liquid fuel check valve designs which established the industry standard.
- Purge air check valves which provide reliable operation in contaminated environments.
- Water injection system check valves which eliminate high exhaust temperature spreads and trips.
- Elimination of liquid fuel system component coking.

- The ability to perform component maintenance at scheduled outages.
- Dual fuel system start-up and transfer reliability.

JASC's comprehensive product lines were specifically designed to achieve the best overall operational performance for gas turbine engines of any size or age.

Dual fuel turbine operators using JASC water-cooled technology have realized reliability rates of over 98% for both start-up and transfer.

JASC is ISO 9001/2008 and AS9100 Certified.



### Three-Way Purge Valve

This valve combines the features of a liquid fuel check valve and purge air check valve into a single component, adding reliability and reducing maintenance costs.



**NEW**

### Water Cooled Three-Way Purge Valve

This water cooled version of the standard JASC three-way purge valve was specifically designed to provide gas turbine owners currently utilizing three-way purge valves a means of eliminating coke formation while gaining turbine reliability and availability. Water cooling capability is added during refurbishment with bolt-on hardware. Existing turbine purge air, liquid fuel, instrument air piping and valve flange connections remain the same, making conversion much more cost effective than other upgrade options.



**NEW**

### Smart Fluid Monitor

The Smart Fluid Monitor automatically monitors cooling water flow, temperature and leakage. It prevents coking and waxing of water-cooled fuel components, eliminates condensation on flame detectors and prevents damage to industrial gas turbine engines from cooling system water leaks. The Smart Fluid Monitor is capable of operating several remote units on a turbine engine simultaneously. The multifunctional controller monitors water flow within user-adjustable limits and provides water system shut off with an audible alarm should a flow discrepancy of 0.1 gpm or higher occur in cooling water circuits.



### Water Cooled Liquid Fuel Check Valve

This valve features all the benefits of the standard liquid fuel check valve plus the added benefits of water cooling to effectively eliminate internal coking. A drop-in replacement for liquid fuel check valves. Uses water from existing water system.





#### Liquid Fuel Check Valve

This valve features a high flow/zero leak design. Added benefits include elimination of chatter and instability which adversely affect liquid fuel system reliability and maintainability.



#### Thermal Relief Valve

This passive valve is designed to relieve fuel pressure build-up due to fuel heating (thermal expansion) yet remains closed during normal liquid fuel system operation.



#### Purge Air Check Valve

This valve is designed for continuous through-air operation and zero-leak in the check direction. Also operates on Stoddard solvent, naphtha, jet fuel, diesel fuel and hydraulic oil.



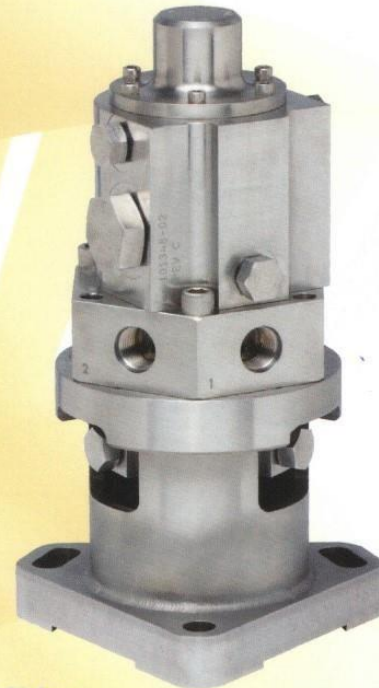
#### Water Injection Check Valve

This valve provides stable operation and can be operated continuously. High-temperature seals provide long-life sealing capability when the valve is not flowing water.



#### Water Proportioning Valve

This valve's design adds stability along with the ability to handle mixed water/air flow to minimize can-to-can temperature spreads and is designed to operate continuously in water injection systems.



#### Combining Valve

This valve is water cooled to prevent coking of spools, valve seals and the internal fuel volume. It provides single-point delivery/switching for both fuel and purge air distribution for up to six combustion zones. For improved starts, the combining valve can deliver staged light-off flow to any combination of the six fuel ports. Uses water from existing water system.

## **NEW** Introducing **NEW** JASC INSTALLATIONS

JASC is now providing turnkey fuel system upgrades, project management and technical support for customer liquid fuel system projects of any size or scope.

Installation services for our patented designs—covering liquid fuel, purge air and water injection systems—improve the operational capability of the most problematic liquid fuel system. Our customer base is operating with virtually 100% transfer success.

Our proven products are the answer to your most demanding application.



# Got Leaks?

## Copper Crush Gaskets: The Replacement for Elastomeric Seals

For decades elastomeric materials have been utilized in a wide range of gas turbine sealing applications. Unfortunately, the shortcomings of this sealing methodology in our industry are well documented. Failure modes are primarily manifested as leaks at o-ring sealed flanges, check valve seals and other integral components which may have SAE connections.

JASC's development of a copper crush gasket, which can be used as a replacement for Viton o-rings in these high temperature environments, offers a significant improvement by eliminating temperature as a limiting factor in long term operational capability.

While copper crush gaskets are not a new to the industry, JASC's special processes provide a sealing material design which can be taken apart and reconnected multiple times without needing to be replaced. Accordingly, the integrity of a copper crush gasket seal is not dictated by the length of time or maximum temperatures of the environment in which it resides.



### Metal to Metal Seal Benefits

- Can operate indefinitely at temperatures of 700°F with pressures as high as 2000 psi.
- Connections utilizing metal seals can be taken apart and reconnected multiple times without loss of sealing integrity.
- SAE and other connections which utilize o-rings or gaskets are candidates for metal seals.
- Metal to metal seals can withstand excursions up to 900°F.
- Superior chemical resistance.

### O-ring Liabilities

- Maximum operating temperature rating of 400°F.
- Extended periods of operation at high temperatures result in loss of elasticity, cause o-rings to take a permanent set, and allow cracks to form.
- These conditions ultimately result in leaks which require utilities into forced outages so that these failed components can be replaced.



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# **Zero Emission Equipment**

## **Operational Readiness for Liquid Fuel Operation**

- **Meet O.E.M. liquid fuel system test requirements with:**
  - **Zero emissions**
  - **Zero trips**
  - **Zero fuel cost**
- **Create an operational scenario that utilizes components of the fuel metering and delivery system to simulate an actual startup and run sequence**
- **Validate turbine fuel flows from light-off up to full speed no-load/full load**
- **Add Zero Emissions Equipment capability to existing water cooled fuel systems**



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