

MISSION-CRITICAL
INTERCONNECT
SOLUTIONS



SERIES 83

Pneumatic Technologies for Pure Air Applications

**High-Pressure Contact and Piping Assemblies,
Rotary Joints, and Solenoid Valves**

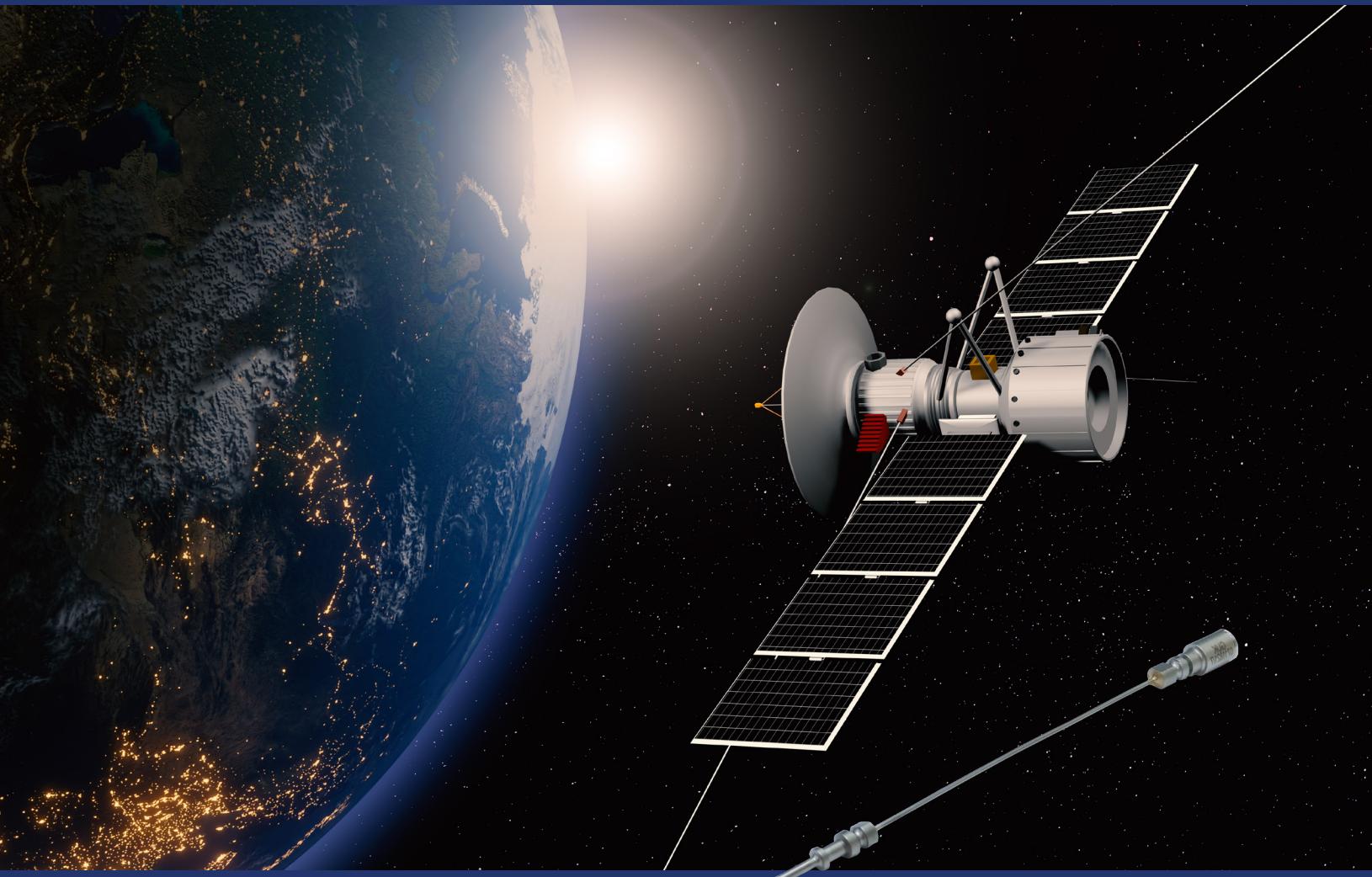
JULY 2025

A GLENAIR SIGNATURE



CRITICAL COMPONENT

Pure Air/Nitrogen Cooling Systems: Complete Systems and Ancillaries for IR Guided Weapons, Weapons Ejection, and Space Applications



Glenair high pressure pure-air/nitrogen gas solutions are designed and performance-tested for use in a wide variety of defence and aerospace applications, including cooling of infrared detectors, missile seekers, and all high pressure pneumatic actuation and deployment systems. Products include sealed for life gas supply systems, re-chargeable gas supply systems,

high pressure solenoid valves (miniature and low voltage), small bore pipe assemblies, relief valves, integrated manifold assemblies, charge valves, and high pressure vessels. All systems and ancillaries are designed for direct incorporation into Joule Thompson (JT) cryogenic systems and all applications that require reliable pressurization, blow down, actuation, and IR cooling. Glenair pure-air and high pressure systems and components are designed to exact customer requirements and specifications.



- Ultraminiature and lightweight pneumatic components and sub-assemblies
- Quality-control performance tested to 10K psi
- Pure air and nitrogen (DEF STAN 58-96)
- High-pressure cylinders, solenoid valves, manifolds, and complete sub-assemblies

ADVANCED PERFORMANCE Pneumatic Products for Pure Gas Applications



Pure Air Assemblies are used in mission-critical applications, including missile ejection systems and space thrusters, and require clean, pure air to function correctly.

Glenair production test equipment is capable of testing cleanliness to DEF STAN 58-96, the governing standard for pure gases used in weapons systems and ejector cooling applications.



Cleanliness is paramount to ensure that the gas is delivered to the Joule-Thompson (JT) Cryostat in its purist condition.

By carrying out these processes, in line with DEF STAN 58-96, Glenair guarantees the gas is free of any contaminants, moisture, or particles left over from the manufacturing process.



All Pure Air Assemblies are precision-manufactured using induction coil brazing facilities to certify precision and repeatable joints, whilst micro-blasting allows for selective finishing.

All of these processes are needed to support the production of reliable gas pipe components for these harsh applications.



Once manufactured, all parts are thoroughly tested to ensure they meet the stringent requirements needed for these applications.

The testing includes hydrostatic and flow rate, the latter of which is critical in guaranteeing the final flow rate of the finished pipe assembly.

ADVANCED PERFORMANCE Pneumatic Products for Pure Gas Applications



High-Pressure Assemblies for Pure Air Pneumatic / Cryogenic Applications



Glenair high-pressure pure gas solutions are designed and performance-tested for use in a wide variety of defense, space, and aerospace applications, including cooling of infrared detectors, missile seekers, and all high-pressure pneumatic actuation and deployment systems.

Products include Sealed for Life Gas Supply Systems, Re-chargeable Gas Supply Systems, High Pressure Solenoid Valves (miniature and low voltage), Small Bore Pipe Assemblies, Relief Valves, Integrated Manifold Assemblies, Charge Valves, and High Pressure Vessels.

All systems and ancillaries are designed for direct incorporation into Joule Thompson (JT) cryogenic systems and all applications that require reliable pressurization, blow down, actuation, and IR cooling. Glenair pure-air and high pressure systems and components are designed to exact customer requirements and specification.

Glenair pure air / nitrogen systems and sub-assemblies provide passage of nitrogen and other pure, pressurized gases through precision-machined components such as pressure regulating valves, solenoids, and JT cryogenic cooling systems.

Assemblies feature precision stainless steel pipeworks and tubing, which are fabricated using a flux-free brazing process and are ultrasonically cleaned and packaged in a sealed, dust-free environment. Electromechanical components are also precision-machined with material properties and dimensional attributes per customer specifications.

Contact Glenair to discuss your custom design requirements.

- **Manifold Assemblies – including charging valves, relief valves or burst discs, pressure gauges, control valves**
- **Pipework Sub-Assemblies connecting cylinders to manifolds or components**
- **Pressure Regulating Valves**
- **Solenoid Valves – manifold or in-line; single or two-stage**
- **Manifolds to other sub-assemblies**

PERFORMANCE DATA

■ Pressure Range

Working Pressures (WP) from 3,000 PSI (207 bar) to 10,000 PSI (690 bar).

■ Pipe Sizes Currently Available

1/32", 1/16", 1/8", 1/4", 3mm and 6mm.

■ For Use with the Following Gases

Nitrogen, Pure Air and Argon.

■ CNC Forming Available

For 1/4" and 6mm diameter pipe.

■ Additional Requirements

Please consult us for performance requirements outside of the above current listing.

MATERIAL AND FINISH

- Contact Body: Passivated Stainless Steel
- Internal O-Ring (Socket): High-Pressure Rated Elastomer
- Internal Washer (Socket): Temperature and Chemically Resistant Polymer
- Particle Filter (Socket): Stainless Steel
- Braze Material: Silver Alloy
- Tubing: 304 or 316 Stainless Steel

Please consult the Glenair factory for made-to-order Nitrogen / Pure Air contacts, hermetics, mixed contact AWG assemblies, point-to-point tubing assemblies with unique route and bend requirements as well as integrated cable harnesses that combine our Nitrogen / Pure Air contacts with standard electrical and / or fiber optic media.

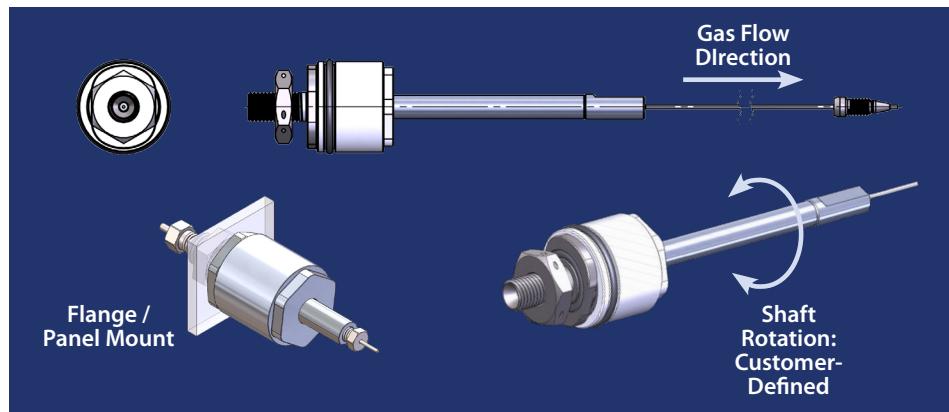
ADVANCED PERFORMANCE Pneumatic Products for Pure Gas Applications



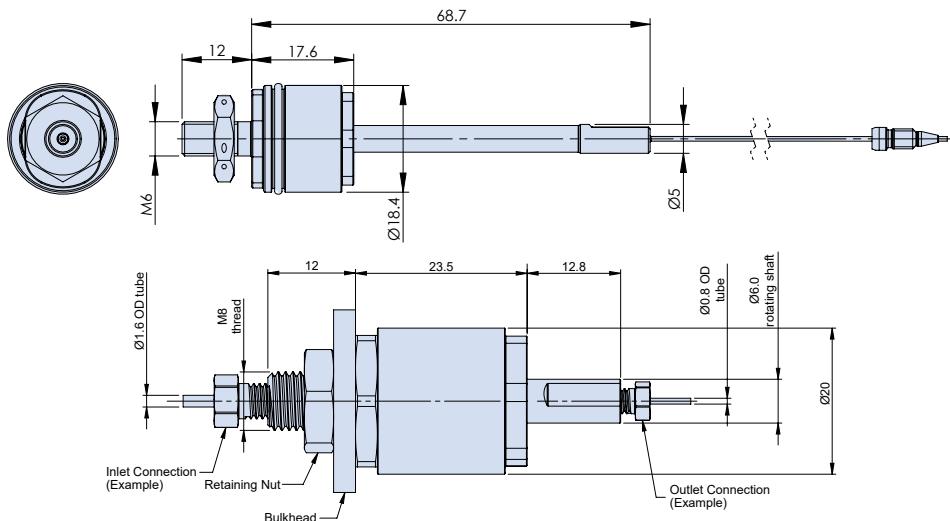
Single-Passage Pneumatic Rotary Joints for Guided Weapons Cooling

Glenair high-pressure Pure Gas Rotary Joint solutions are designed and performance-tested for use in a wide variety of defense and aerospace applications, including cooling of infrared detectors, missile seekers and all high-pressure pneumatic actuation systems.

These compact, lightweight rotary devices incorporate small-bore pipe assemblies for low friction and low external-leakage for pure gas rotary applications.



DIMENSIONAL DRAWINGS, CUSTOM DESIGN (TOP) AND GENERIC CONFIGURATION



TYPICAL PERFORMANCE

Flow Rate	Typical Flow Rate is 5 liters per minute (lpm) @ 150 PSI.
Operating Temperature	-65°C +175°C for all applicable mechanical requirements.
Physical Shock	No loosening of parts, cracking or other deleterious results hindering further part operation after 300 G's in each of 3 mutually perpendicular planes.
High Impact Shock	All components withstand high impact shock per MIL-S-901.
Vibration	All components withstand high-vibration with no evidence of cracking, breaking or loosening of parts.

TYPICAL PERFORMANCE - ROTARY JOINTS FOR GUIDED WEAPONS COOLING

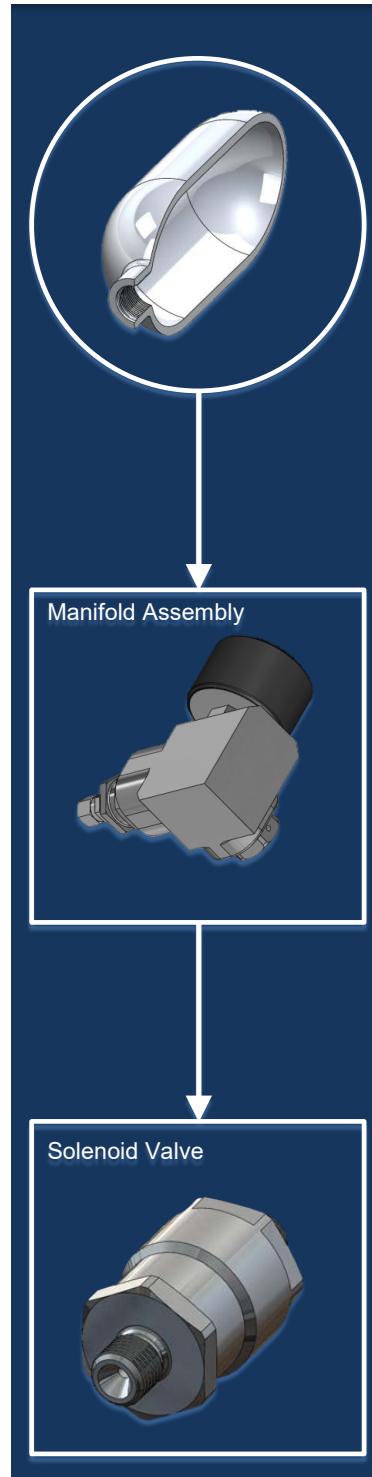
Nominal Operating Pressure	480 bar at 20°C
Maximum Operating Pressure	600 bar at 60°C
Operating Temperature	-40°C +60°C for all applicable mechanical requirements
Normal Rotation Speed	100 RPM; increasing to 800 RPM
Typical Mass	34 grams

ADVANCED PERFORMANCE Pneumatic Products for Pure Gas Applications

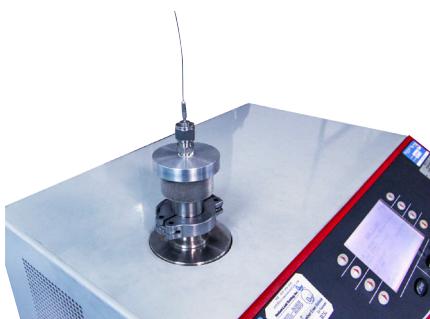


- **Gases:** Pure Air (DEF STAN 58-96), Nitrogen
- **Small Pneumatics Components and Sub-Assemblies** – modular or integral
– for High-Pressure Pneumatic Applications
- **Designed** to Specific Requirements
- **Stainless Steel Cylinders** – Pressures to 500 bar
- **Manifold Assemblies** – options include Charging Valves, Relief Valves or
Burst Discs, Pressure Gauges, Control Valves
- **Pressure** Regulating Valves
- **Solenoid Valves** – manifold or in-line; single or two-stage
- **Pipework Sub-Assemblies** connecting cylinders to manifolds or components;
or manifolds to other sub-assemblies
- **Applications:**
 - Thermal Imaging
 - Pressurisation
 - Blowdown
 - Actuation

Solutions built to exact customer requirements and specifications



Pressure test rig



Gas tube helium leak test equipment



Pure air compatibility test equipment



Brazing control panel

ADVANCED PERFORMANCE Pneumatic Products for Pure Gas Applications



High-Pressure Assemblies for Pure Air Pneumatic / Cryogenic Applications



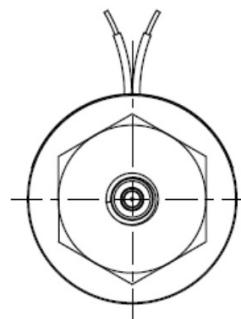
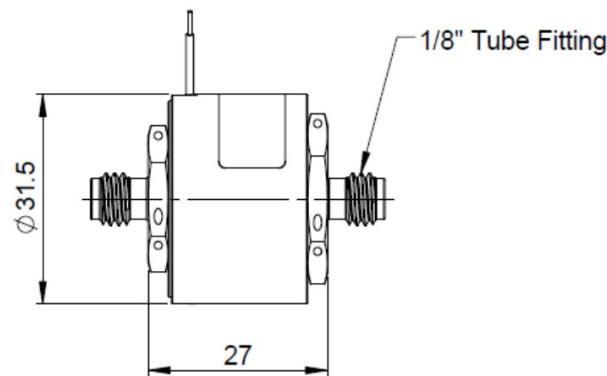
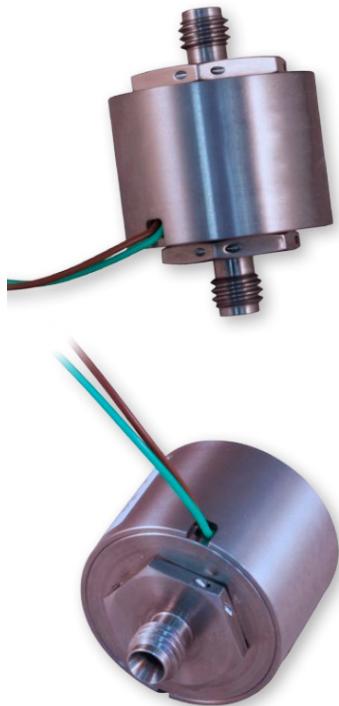
Glenair manufactures a variety of solenoid valves that can be used in a wide range of mission-critical applications including defense, aerospace and space.

The standard valve is designed to be used with compression type fittings but can be adapted as required to suit customer interface connections.

It's designed to be used with clean gases such as nitrogen and pure air, but Glenair can design new valve configurations to suit the customers media requirements, including lower or higher pressure.

Solenoid Valve applications can include IR guided missiles, small satellites (thruster valves and ground based systems), and gas supply systems.

Contact Glenair to discuss your custom design requirements.



OUTLINE SPECIFICATION

- Gases: Pure Air, Nitrogen, and Argon
- Inlet Pressure: 7,250 PSI (500 Bar)
- Flow Area: 0.5mm diameter (through valve)
- Proof Test Pressure: 10,850 PSI (750 bar) gauge
- Leakage Test: To Be Defined - Subject to Application (for a specific gas, "bubble" test or maximum flow rate)
- Temperature Range: - 40°C to 70°C
- Voltage Range: 18 - 32 Volts (dc)
- Coil Resistance: 105 Ohms (nominal) at 20°C

- Maximum Power: 10 W at 20°C
- Operation: For continuous operation of the valve illustrated, the current is reduced after opening to a holding value. To operate continuously at the maximum voltage, a longer valve would be required. Similar designs are possible, with a different coil resistance and maximum power, affecting the time to open the valve
- Fittings (shown): Tube fitting ends (Swagelok-type) for 1/8" OD tube; other options would be possible, subject to pressure rating
- Mass: 116 grams (excluding the flying wires)



MISSION-CRITICAL INTERCONNECT SOLUTIONS



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