

Motion and Flow Controls for Space Systems

**RELIABILITY WITHOUT
COMPROMISE**

 **MAROTTA**



When it comes to reliable, high-performance controls for space applications, manufacturers around the world rely on Marotta Controls. We offer products with 50 years flight-proven heritage for human-rated and unmanned applications.

Fluid Controls for Space Technologies



Our customized motion and flow control components and sub-systems play a vital role in pressurization systems, thruster controls and propulsion systems for commercial and military space applications.



Marotta Controls is the only small business to have earned the George M. Low Award for Quality and Excellence, TWICE.

GEORGE M. LOW AWARD



The Marotta Controls' originated balanced poppet design sets the standard for reliability and performance. The balanced poppet requires a relatively small actuator, which conserves power and minimizes the space required for installation.

FLUIDS

Air, CO₂, DI Water, GCH₄, GH₂,
GHe, GN₂, GOX, H₂O, H₂O₂ (90%),
Hydraulic Oil, Hydrazine, Inert Gas,
LNG, MMH, N₂O₄, LOX, RP-1,
TEA-TEB, Xenon

LINE SIZES*

Line Size: 1/4" to 1"
Tube Stub: 1/8" to 1/4"

**Ask about our*

MINIATURE SOLENOID VALVES

Solenoid Valves

Pilot Operated and Direct Acting

FEATURES / BENEFITS

- Balanced poppet design
- Quick response
- Compact, lightweight
- High performance to weight ratio

OPTIONS

- Position indicator
- Latching mechanism
- Proportional control
- Internally or externally piloted
- Manual override
- Special cleaning

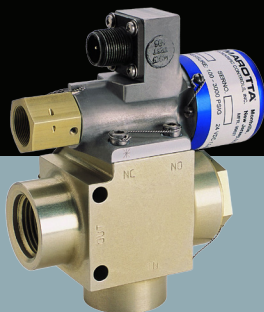
APPLICATIONS

- Pneumatic systems
- Hydraulic systems
- Fuel pressurization systems
- Reaction control systems
- Oxygen vent valves
- Fill and drain valves
- Umbilical retract systems



PRESSURE RANGES

0 to 10,000 psig



PROGRAM EXPERIENCE

AEOLUS, Apollo, Atlas, Delta II, IV, Dragon, Falcon 1,9 & Heavy, GX, H2A, H2B, ISS, RL-10, Saturn, Space Shuttle, SRB, ST-5, Taurus, X-33

Check Valves

Low Pressure-Drop Designs



Our check valves incorporate a poppet with internal flow passages for minimal pressure drop. These rapid response, low pressure-drop designs are ideal for applications that require a compact, lightweight package.

FLUIDS

GCH_4 , GHe , GN_2 , H_2O ,
Inert Gas, IPA, LN_2 , LNG

LINE SIZES

Line Size: 1/4" to 2"

The poppet features a large L/D ratio which maximizes poppet guide and minimizes chatter, resulting in a very smooth operation.

FEATURES

- Straight, smooth flow path
- Male and female ports
- Corrosion resistant materials

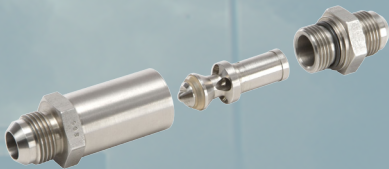


APPLICATIONS

- High-pressure pneumatic and hydraulic systems
- Cryogenic and non-cryogenic fluids
- Fuel oxidizer and purge line

BENEFITS

- Manifold applications
- Low cracking pressure
- Minimal pressure drop
- Rapid response
- Bubble tight seal



PRESSURE RANGES

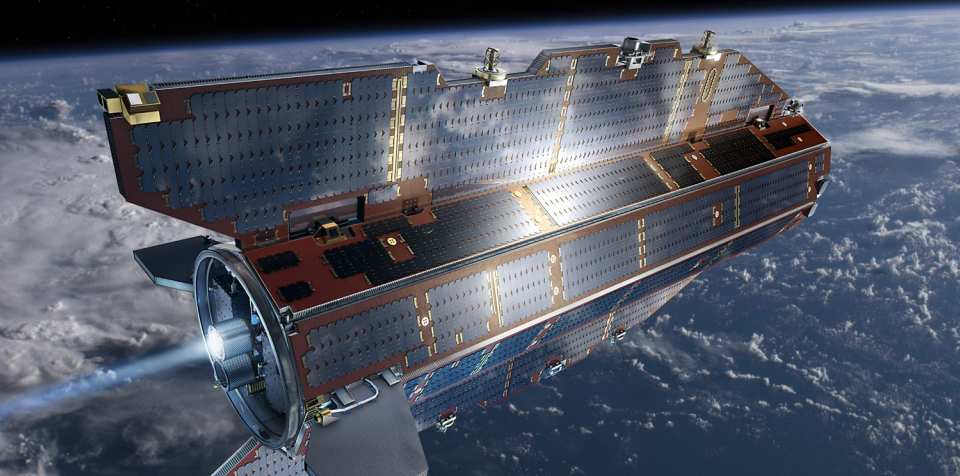
0 to 6,000 psig

PROGRAM EXPERIENCE

Apollo, Delta II, IV,
Falcon 1, 9, GX, Saturn

Pressure Regulators

With Integrated Filters or Relief Valves



Our compact regulators with integrated filters precisely control the pressure to propellant feed systems. These regulators are designed to handle high operating pressures and are qualified for use in dynamic spacecraft and missile environments.

FLUIDS

Air, CO₂, GH₂, GHe, GN₂,
GOX, Helium, Xenon

LINE SIZES

Inlet Range: 1/4" to 1"
Outlet Range: 1/4" to 2"
Tube Stub: 1/4" to 1/2"

These regulators are designed for high operating pressures to meet a wide range of potential applications.

OPTIONS

- Downstream pressure relief valve
- Separate inlet filter
- Variety of materials

APPLICATIONS

- Fuel pressurization
- Cold and warm gas propulsion
- Reaction control systems
- Attitude control systems
- Missile pressurization systems

FEATURES / BENEFITS

- High operating pressure
- High turn-down ratio



PRESSURE RANGES

Inlet: up to 10,000 psig
Outlet: designed to requirements

PROGRAM EXPERIENCE

Antares, Apollo, ARC, ARGOS,
DMSP, Gemini, GX, LandSat,
Pegasus, Saturn, Taurus, TIROS,
Titan, TRMM, X-33

Specialty Valves

Complexity in Design and Manufacturing Methods



Marotta Controls' special purpose valves feature more complexity in design and manufacturing methods, use a wider variety of materials, and are used to control the more difficult, mission critical applications.

FLUIDS

Ammonia, GHe, GN₂, Inert Gas,
LH₂, LOX, MMH, N₂H₄, N₂O₄

LINE SIZES

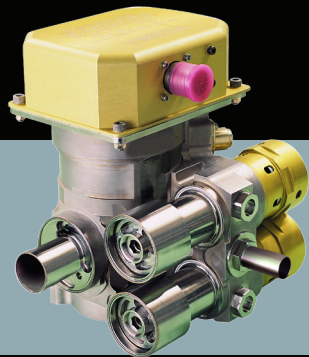
Line Size: 1/2" to 2.5"
Tube Stub: 1/2" to 1.5"



PRESSURE RANGES

Designed to requirements

These valves are often hybrid combinations of other valves and can be engineered to meet any requirements or operating conditions.



PROGRAM EXPERIENCE

International Space Station,
Dragon Capsule
RL-10 Engine



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