MOGAS is well known throughout the power industry because we solve issues that routinely plague power plants – leaking valves, seat erosion, blown packing, and the inability to isolate critical equipment – all of which contribute to significant heat rate loss and safety concerns.

Field Proven Experience
Through years of field experience, working with major power producers and a sophisticated performance analysis procedure, MOGAS has developed a product line dedicated to absolute isolation of critical equipment, dependable on/off operation for drains and vents, as well as longer valve life for increased run-time.

MOGAS provides its advanced technology to the power industry with the iRSVP, PORV, C-Series, SC-3 Piece and GEN-X lines to handle high-temperatures, high-pressures, high-cycling, thermal shock and abrasive media.

In addition to our product line, custom requests are part of our legacy. Unique bore sizes, different end connections and special trim materials are accomplished through our engineered products group.

Certifications
MOGAS severe service ball valves are certified PED compliant for the European Union. When used as Power Operated Relief Valves, MOGAS PORV valves may be stamped with the ASME “V” Stamp, to ensure they have been designed, manufactured, inspected and tested to meet the requirements of ASME Code Section I.

Testing
- Leakage rates per MSS SP-61
- Shell tests performed at 1.5 x maximum cold working pressure
- Seat closure tests performed at 1.1 x maximum cold working pressure

Service
When you select MOGAS products, service is a big part of what comes with them. The MOGAS commitment to service means more than basic repairs. It also means timely access to our knowledgeable and experienced team of experts—anytime, anywhere in the world. And when our team becomes part of your team, you can trust that we will do everything we can to come through for you.

Guaranteed Performance
Years of valve performance analysis, field reports and statistical service data from around the globe provide the information required to guarantee the performance of our valves for an application-specific time period. Every MOGAS valve comes with a PERFORMANCE GUARANTEE...plus a Lifetime Warranty on materials and workmanship.
MOGAS Design
Solves Common Valve Concerns In Power Plants

Ball Valves Outperform and Outlast the Alternatives
• Gate and globe valves are multi-turn, torque seated valves that must seal against line pressure. The MOGAS iRSVP is a quarter-turn, position seated ball valve that utilizes pressure assisted sealing.

• Since drain valves remain open during start-up and shut-down, gate and globe valves can experience rapid erosion and wear due to primary sealing components being in the flow path of high pressure steam. The MOGAS iRSVP offers a straight-through bore path and protects the sealing components from the flow path.

Prevents Leaks to Atmosphere
The quick quarter-turn, radial operation of the MOGAS ball valve greatly reduces wear and friction in the packing area. By contrast, the multi-turn rising stem of a globe valve often pulls destructive high pressure steam and pipe scale up through the packing interior diameter damaging the packing material. Additionally, the MOGAS iRSVP offers live loading as a standard. The five-ring packing set includes two anti-extrusion rings and three expanded graphite rings with an adjustable, two-piece packing gland.
Resolves Seat Erosion
The MOGAS ball valve protects the main sealing surface by keeping the seat out of the flow path when the valve is in the open and closed position. The only time the seats are exposed to flow is during cycling, which is brief due to the quick, quarter-turn operation of the valve. In contrast, Y-pattern globe valves have a turbulent flow path and place primary sealing components in the flow path leading to plug and seat erosion. By protecting your sealing surfaces, you maintain tighter shutoff and extend the service life of the valve.

Eliminates Valve Seizure
MOGAS ball valves withstand thermal shock even when subjected to sudden swings from minimum to maximum design temperatures or vice versa. The sealing surfaces are of the same materials ensuring the same rate of expansion due to sudden heat.

Maintains Absolute Shutoff
The MOGAS ball valve is a floating ball design, which incorporates a Bellville spring behind the upstream seat that provides a mechanical force to push the ball into the downstream seat, thus creating a tight seal. In addition to this mechanical spring force, the floating design enables line pressure to assist in the sealing of the ball and seat, versus the needed torque required in globe valves. Furthermore, the MOGAS ball and seat sealing areas are precision lapped to achieve 100% contact over the entire seat surface, eliminating areas for leaks to develop.

Avoids Galled Seats
Our experience leads us to choose materials with higher hardness, producing less chance of galling while increasing wear resistance. The MOGAS seating surface has a hardness up to 69 HRC that ensures protection from scratches and particulate impregnation that can lead to galling and the development of dangerous leak paths. Through continual metallurgical R&D efforts, MOGAS has developed technology to overcome many galling problems.
**MOGAS Valve Applications**

Typical Fossil Fueled Power Plant

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**Water/Steam Flow Loop**

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**A Condensate System**
- Deaerator Vent / Instrument Isolation
- Isolation Valves on Bypass Lines
- Extraction Steam Drain / Orifice Isolation
- Feedwater Heater Drain / Vent
- Shell Side Instrument Isolation

**B HP Feedwater**
- BFP Discharge Isolation
- BFP Shell or Case Drain
- BFP Minimum Flow Isolation
- BFP Warming Line Isolation / Drain
- Reheat / Superheat Isolation
- Feedwater Heater Isolation / Bypass
- Bypass Valves
- Shell Side Vent / Instrument Isolation
- Tube Side Drain / Instrument Isolation
- Economizer Drain

**C Boiler System**
- Drum Blowdown Root Valve / Isolation Vents
- Drum Instrument Isolation
- Sight-Glass Isolation / Drain
- Water Wall Drain / Vent / Instrument Isolation
- Tandem Blowdown
- Mass Boiler Blowdown
- Primary Superheat Drain / Vent / Instrument Isolation
- Secondary Superheat Drain / Vent / Instrument Isolation
- Reheat Drain / Vent / Instrument Isolation
- Superheat Spray Isolation
- Superheater Spray Automated Blocking
- Reheater Spray Isolation Blocking

**D HP Turbine Steam Supply and Extraction Systems**
- Supply & Extraction Systems
- Main Steam Drain / Root Drain
- Main Steam Before & After Seat Drain / Root Drain
- Main Steam Lead Drain / Root Drains
- Turbine Bypass Isolation
- Bypass Valves

**E IP & LP Turbine Steam Supply and Extraction Systems**
- Supply Extraction Systems
- Hot Reheat Drain / Root Drain
- Hot Reheat at the CRV Drain / Root Drain
- Intermediate Pressure and Low Pressure Turbine Extraction Drain / Orifice Isolation

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**Auxiliary Systems**

- **Sootblower Piping System**
  - Sootblowing Header Isolation / Blocking
  - Sootblower Regulator Automated Isolation
  - Blocking Valves after the Control Valves
  - Sootblower System Crossover Header Isolation
  - Sootblower Bank Isolation
  - Individual Sootblower Isolation
  - Air Heater Sootblower Steam Supply Line Shutoff
  - Sootblower Thermal Drains / Bypass

- **HP & LP Steam Supply System to the BFP Turbine**
  - Main Steam Supply Isolation Valve
  - HP BFP Steam Supply Drain / Root Drain
  - HP BFP Below & Above Seat Drain / Root Drain
  - Isolation Valves on the Bypass Lines
  - Extraction Steam Supply to Low Pressure BFP Turbine Drains
  - Low Pressure BFP Below & Above Seat Drain

- **Inerting Steam System**
  - Inert Steam Inlet to Pulverizer Blocking / Automated Isolation
  - Steam Supply to Inerting System Pressure Regulator Isolation
  - Extraction Steam Supply Line to the Inerting Steam Header
  - Isolation Valves on the Bypass Lines
  - Inerting System Steam Header Thermal Drain
Typical Combined Cycle Power Plant

A  Feedwater System
   - Deaerator Vent / Instrument Isolation
   - Isolation Valves on Bypass Lines
   - Extraction Steam Drain / Orifice Isolation

B  HRSG
   - BFP Discharge Isolation
   - BFP Shell or Case Drain
   - BFP Minimum Flow Isolation
   - BFP Warming Line Isolation / Drain
   - Reheat / Superheat Spray Root Isolation
   - Feedwater Heater Isolation / Bypass
   - Bypass Valves
   - Shell Side Vent / Instrument Isolation
   - Tube Side Drain / Instrument Isolation
   - Drum Blowdown Root Valve / Isolation Vents
   - Drum Instrument Isolation
   - Sight-Glass Isolation / Drain
   - Water Wall Drain / Vent / Instrument Isolation
   - Tandem Blowdown
   - Mass Boiler Blowdown
   - Primary Superheat Drain / Vent / Instrument Isolation
   - Secondary Superheat Drain / Vent / Instrument Isolation
   - Reheat Drain / Vent / Instrument Isolation
   - Superheat Spray Isolation
   - Superheater Spray Automated Blocking
   - Reheater Spray Isolation Blocking
   - Low Pressure Section HRSG Tube Drains
   - Intermediate Pressure Section HRSG Tube Drains
   - High Pressure Section HRSG Tube Drains
   - Automated Bottom Blowdown
   - SCR Steam Induction Isolation

C  HP Turbine Steam Supply and Extraction Systems
   - Supply & Extraction Systems
   - Main Steam Drain / Root Drain
   - Main Steam Before & After Seat Drain / Root Drain
   - Main Steam Lead Drain / Root Drain
   - Turbine Bypass Isolation
   - Bypass Valves

D  IP & LP Turbine Steam Supply and Extraction Systems
   - Supply Extraction Systems
   - Hot Reheat Drain / Root Drain
   - Hot Reheat at the CPV Drain / Root Drain
   - Intermediate Pressure and Low Pressure
   - Turbine Extraction Drain / Orifice Isolation

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MOGAS Valves for Power Applications
Solutions for Isolation and Control

RSVP-UK
- ASME 600 / 900 / 1500 Limited Class
- 1/2 to 3/4 inch (15 to 20 DN)
- Uni-directional sealing
- Lightweight

PORV
- ASME 1500 / 2500 / 4500 Class
- 2-1/2 to 4 inch (65 to 100 DN)
- Power operated relief valve
- ASME “V” stamp available
- Wear-resistant proprietary coating
- Complete with automation package

iRSVP
- ASME 600–4500 Limited Class
- 3/4 to 2-1/2 inch (15 to 65 DN)
- Uni-directional sealing
- Forged uni-body design
- Mechanical precision stop
- Diffusion seat available

SC–3 Piece
- ASME 600 to 4500 Class
- 2 to 24 inch (50 to 600 DN)
- Critical isolation
- In-line repairable
- 3-piece forged body

Gen-X
- ASME 600 / 900 / 1500 Limited Class
- 2 to 3 inch (50 to 80 DN)
- 1.87 or 2.00 inch bore
- 2-piece body
- Designed to meet TDP-1 2013

C–Series
- ASME 150 – 4500 Class
- 1/2 to 42 inch (15 to 1050 DN)
- Valve engineered specifically for customer application
- 2-piece or 3-piece forged body
- Blowout proof stem

MAX-Series
Customized Solutions
For unique operational requirements, MOGAS offers MAX-Series valves that involve strong collaboration between your engineering, operations and maintenance staff, along with MOGAS personnel. Site visits, technical discussions and/or specific testing are often required. These customized valves are special, one-of-a-kind solutions to satisfy your specific valve challenges. To learn more, contact a MOGAS representative today.

Diffusion Seat (DS)
Manual Throttling Applications
Our DS trim allows for manual throttling in iRSVP valves to control flow velocity and reduce pressure. Available in a standard configuration or customizable to meet required pressure reduction.

FlexStream® Control Technology
Variable Characterization
A unique application-specific trim designed for the demands of severe service conditions, the patented FlexStream rotary control technology is custom engineered for individual applications to provide:
- Superior velocity control
- Variable characterization
- Exceptionally high rangeability
- Precision modulation

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Predictive Maintenance Inspection
Power Walkdown

Severe service valves, and the equipment they protect, represent significant capital investments in your plant. To protect those investments and to improve performance of your facility, we offer the MOGAS power walkdown — an inspection of your critical valves using contemporary technology and technical experience.

Reducing Costs through Increased Efficiencies
Reduced operation and maintenance costs can increase process reliability, resulting in greater efficiency and profits. Plants using high-volume steam should routinely check their valves for leaks, and repair or replace inefficient ones. Adoption of a MOGAS power walkdown can result in substantial cost savings, higher system reliability and increased personnel safety.

When performing a MOGAS power walkdown, our experienced inspectors will use a proven process:

- **Capture**
  - valve performance data, such as temperatures along the bore path.

- **Analyze**
  - the information gathered from the valve performance data and visual inspection.

- **Report**
  - findings on our Unit Walkdown Report and, upon request, our Power Walkdown Thermography Inspection Report.

- **Recommend**
  - action to repair or replace underperforming valves.

A MOGAS power walkdown identifies valve leakage issues and their severity. Our report provides data so you can prioritize critical issues immediately, while budgeting and scheduling potential problems for a more appropriate time.

Leak-by is Proven in Thermal Imagery
The above thermal image is of two traditional, globe drain valves in the closed position. Line 1 (L1) is used to develop a histogram and heat profile. As can be seen from the image, the upstream valve (MK2) is experiencing complete leak-by. The downstream valve (MK1) is holding better than the upstream valve, but is also experiencing extreme leak-by.

This leak-by was evidenced by the temperature and visible steam at the outlet of the downstream valve.

Contact your MOGAS representative today to learn more about how your plant can benefit from a Power Walkdown.
Confidence for Tomorrow
A Warranty is Not a Performance Guarantee

CONFIDENCE
PREDICTABILITY
RISK FREE DECISIONS
IMPROVED SAFETY
ENHANCED RELIABILITY
LESS DOWNTIME
ANTICIPATED BUDGETS

Only from MOGAS

Continuous years of research and development, design innovation, advanced manufacturing techniques and field experience allow us to offer an application-specific PERFORMANCE GUARANTEE on our metal seated isolation and control valves…plus a lifetime warranty on materials and workmanship.
Severe Service
The MOGAS Definition

- Extreme temperatures
- High pressures
- Abrasive particulates
- Acidic products
- Heavy solids build-up
- Critical plant safety
- Large pressure differentials
- Velocity control
- Noise control