SOLUTIONS FOR THE

MARINE & OFFSHORE INDUSTRIES

Bray®

BRAY.COM

THE HIGH PERFORMANCE COMPANY

ENGINEERED FOR THE HARSHEST ENVIRONMENTS

Bray delivers high-performance valve solutions for commercial marine and offshore applications. Our products are engineered to withstand the extreme challenges of the marine environment, providing exceptional resistance to seawater corrosion and ensuring safe, reliable, long-term operation under the most demanding conditions.With advanced engineering and proven performance, Bray's high-performance valves have become critical components in fluid-handling systems across major offshore platforms, production facilities, and vessels worldwide.

KEY APPLICATIONS

Bray products support a comprehensive range of critical systems throughout marine and offshore operations:

Vessel Critical Systems

- Ballast Water Management Systems
- Seawater/Freshwater Cooling Systems
- Fuel Oil and Lubricating Oil Systems
- Marine Boiler Systems
- Cargo Handling Systems

Environmental & New Energy Applications

- Exhaust Gas Scrubber Systems
- LNG / LPG Fuel Supply & Refueling Systems
- Methanol, Ammonia and Other Future Fuel Systems

General & Auxiliary Systems

- Seawater Desalination
- Compressed Air
- General Service Piping

EXCEPTIONAL MATERIAL ENGINEERING CAPABILITIES

We offer a wide range of material options to address corrosion and service-condition requirements, ensuring optimum chemical compatibility and long service life:

- Nickel Aluminum Bronze (NAB): Meets MIL-V-24624 naval specifications; the preferred choice for seawater service.
- Duplex & Super Duplex Stainless Steel: Outstanding corrosion resistance and high mechanical strength.
- Monel® and Nickel-Based Alloys: Ideal for extreme corrosion environments.
- Titanium Alloys: Maximum seawater corrosion resistance with weight-reduction advantages.
- Stainless Steel: A widely used and reliable solution for many marine applications.
- Special Valve Materials: for low-temperature service such as LNG.

Triple Offset Butterfly Valves

High Performance Butterfly Valves

Flanged Ball Valves

Series 3W/3L Resilient Seated Butterfly Valves

Cryogenic Triple Offset Valves

Series S3A Resilient Seated Butterfly Valves

Series S31U Resilient Seated Butterfly Valves

Series 1B Trunnion Mounted Ball Valve

GLOBAL CERTIFICATIONS - CONFIDENCE WITHOUT BORDERS

Bray's products and manufacturing systems are certified by leading international authorities, ensuring full compliance with global marine and offshore requirements.

Classification Society Approvals:

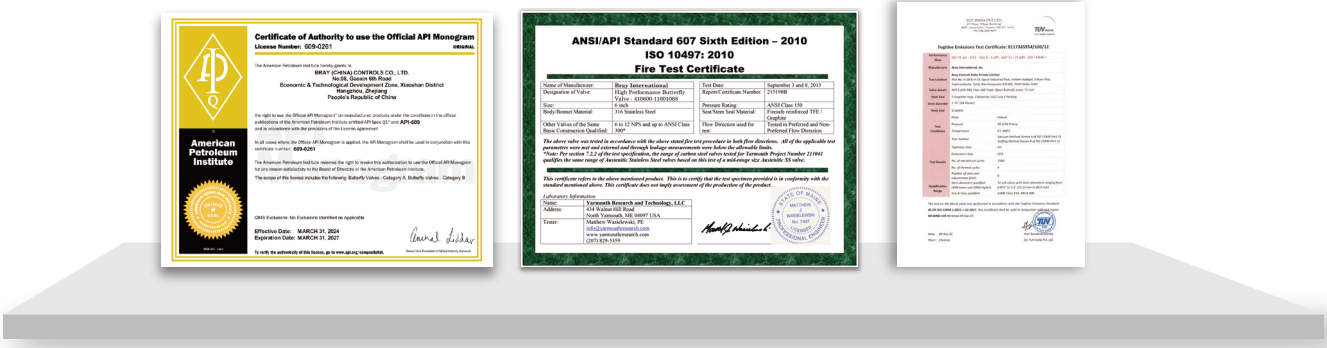
- ABS
- BV
- DNV-GL
- Lloyd's Register, LR
- CCS
- USCG
- NK
- KR
- RINA

Additional Certifications:

- NORSOK M-650 Material Qualification
- API 607, API6FA
- API 641, ISO 15848-1

Management System & Facility Certifications:

- ISO 9001
- ISO 14001
- ISO 45001 / OHSAS 18001
- CE PED
- ATEX
- TSG



TRI LOK® Triple Offset | Butterfly Valves

- Designed for high-temperature, high-pressure and cryogenic service applications.
- Bidirectional, torque seated, metal-to-metal sealing with zero leakage.
- Splined disc-to-stem connection prevents misalignment and minimizes hysteresis.
- Fully adjustable stem sealing system with certified low-emission packing.
- Field-replaceable sealing components minimize maintenance costs and extend valve service life.

Size Range	NPS 3 to 72 (DN80 to DN1800)
Temperature Range	-320°F to 842°F (-196°C to 450°C)
Pressure Ratings	ASME Class 150 | 300 | 600 | 900 | 1500 (PN10-PN100)

TRI LOK® Cryogenic Triple Offset | Butterfly Valves

- Eccentric stem and disc design.
- Metal-to-metal sealing system ensures sealing performance under demanding applications.
- Hardened seat for wear resistance, eliminating the risk of scuffing.
- Field-replaceable seat and seal ring to minimize downtime and ensure lower total cost of ownership.
- Blowout-proof stem; the disc and stem are connected via a spline for robust linkage.
- Minimized fugitive emissions and simplified automation; butt-weld inspection port allows for online maintenance.
- Built-in fire-safe design, certified to API 607.

Size Range	NPS 3 to 48 (DN80 to DN1200)
Temperature Range	-320°F to 842°F (-196°C to 450°C)
Pressure Ratings	ASME Class 150 | 300 | 600 (PN10–PN100)

BRAY MCCANNALOK™ High Performance | Butterfly Valves

- Designed for high-temperature, high-pressure, high-cycle, and critical service applications.
- Energized resilient seat design provides bidirectional, zero leakage shutoff throughout the full pressure range.
- Double offset geometry reduces seat wear and extends valve service life.
- Fully adjustable stem sealing system with certified low-emission packing.
- Optional firesafe and metal seat designs available.

Size Range	NPS 2 to 66 (DN50 to DN1650)
Temperature Range	-320°F to 900°F (-196°C to 482°C)
Pressure Ratings	ASME Class 150 | 300 | 600 (PN10-PN100)

BRAY Series 3W/3L | Butterfly Valves

- Integrally molded and vulcanized seat isolates the valve body's metal components from the media.
- Spherically machined and polished disc edge for zero leakage and longer seat life.
- Upper and lower stem bearings reduce operating torque in high-cycle applications and increase reliability.
- Reliable flange sealing provides tight shutoff against a wide range of industrial flanges.
- End-of-line service capability: lug-style valves provide full-rated shutoff even with the downstream flange removed.

Size Range	NPS 2 to 24 (DN 50 to 600)
Temperature Range	-20°F to 250°F (-29°C to 121°C)
Pressure Ratings	Up to 250 psi / 17.2 bar

BRAY Series 30/31 | Butterfly Valves

- Industry leading bidirectional butterfly valve designs since 1986.
- Streamlined disc engineered for maximum flow (Cv) with minimal resistance.
- Spherically machined and polished disc edge for zero leakage and longer seat life.
- Internal disc-to-stem connection isolates the line media from the valve stem.
- Tongue and groove seat is locked in place, allowing use in dead end services.

Size Range	NPS 2 to 20 (DN 50 to 500)
Temperature Range	-20°F to 400°F (-29°C to 204°C)
Pressure Ratings	Up to 175 psi / 12 bar

BRAY Series S35/S36 | Butterfly Valves

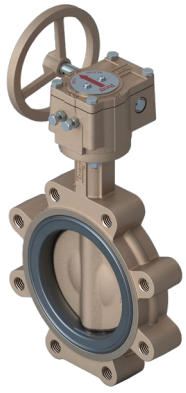
- Engineered as a high-pressure butterfly valve to meet demanding marine service requirements.
- High-strength stem-through-disc design with a tightly fitted double-flat connection
- to drive the disc, preventing fasteners from contacting the medium.
- Spherically machined and polished disc edge for zero leakage and longer seat life.
- Suitable for bidirectional pipeline dead-end service.

Size Range	NPS 22 to 60 (DN 550 to 1500)
Temperature Range	-20°F to 250°F (-29°C to 121°C)
Pressure Ratings	Up to 232 psi / 16 bar

BRAY Series A/3AH | Butterfly Valves

- Double-flange design, applicable for dead end service and as a replacement for a gate valve.
- International compatibility: A single valve can match most flange standards worldwide to meet different requirements of the global market.
- High-strength stem-through-disc design with a tightly fitted double-flat connection to drive the disc, preventing fasteners from contacting the medium.
- Optimized disc profile delivers bidirectional, bubble-tight shutoff with minimal operating torque and extended seat life.
- Unique bonded-seat design using aerospace-grade adhesive; suitable for companion or weld-neck flanges. Tongue and groove seat design fully isolates the valve body from the process media.

Size Range	NPS 2 to 20 (DN 50 to 500)
Temperature Range	-20°F to 400°F (-29°C to 204°C)
Pressure Ratings	Up to 250 psi / 17.2 bar



BRAY Series 31U | Butterfly Valves

- High-quality, high-pressure butterfly valve for today's industrial and marine applications.
- Specifically designed for offshore and marine fire-protection systems, providing reliable performance in high-cycle and high-pressure-drop service.
- Primary and secondary sealing elements completely isolate the media from the valve body and stem.
- Spherically machined and hand-polished disc edge ensures long service life, low operating torque, and bidirectional bubble-tight zero leakage.
- Tongue and groove seat fully isolates the valve body from the process media and reduces required torque.

Size Range	NPS 2 to 12 (DN 50 to 300)
Temperature Range	0°F to 212°F (-18°C to 100°C)
Pressure Ratings	Up to 285 psi / 20 bar

BRAY Series F15/F30 and RF15/RF30 Flanged | Ball Valves

- Available in 2-piece (full port) and 1-piece (standard port) body configurations.
- Adjustable live-loaded stem sealing system with certified low emission packing.
- Seat design ensures bidirectional zero-leakage performance with low operating torque.
- Optional cavity fillers reduce the potential for media entrapment and process contamination.
- Available API 607, API 608, and NACE MR0175 compliance.

Size Range	NPS ½ to 12 (DN 50 to 300)
Temperature Range	-50°F to 750°F (-46°C to 399°C)
Pressure Ratings	ASME Class 150 | 300 (PN10-PN40)

BRAY TRIAD Series 3-Piece Body | Ball Valves

- Modular design available in full or standard port, with a variety of end connections.
- Encapsulated bolting and dual body seals provide added protection against external leakage.
- Adjustable live-loaded stem sealing system with certified low emission packing.
- Optional cavity fillers reduce the potential for media entrapment and process contamination.
- Available API 607, API 608, and NACE MR0175 compliance.

Size Range	NPS ¼ to 4 (DN 8 to 100)
Temperature Range	-50°F to 550°F (-46°C to 287°C)
Pressure Ratings	Up to 2200 psi / 151 bar

BRAY Low & Cryogenic | Ball Valves

- Specialized for media at -196°C (-320°F) and below.
- Made from stainless steel, cryogenic alloys, and other materials with excellent resistance to cold embrittlement, and designed with special structures to compensate for material contraction at low temperatures.
- Uses soft or metal hard seal structures to ensure performance under ultra-low temperature conditions.
- Extended bonnet design prevents packing from freezing and features fire-safe, anti-static, and self-relieving structures.

Size Range	NPS ½ to 24 (DN 15 to 600)
Temperature Range	-320°F to -302°F (-196°C to -150°C)
Pressure Ratings	ASME Class 150 | 300 | 600 (PN16 | 40 | 100)

BRAY Series 7000/8000 3-Piece | Ball Valves

- 3-piece body design provides exceptional flexibility in end connections and seat material options.
- Precision-machined, solid ball with mirror-polished finish to ensure bidirectional zero leakage and reduce operating torque. Ball ports are radiused to minimize seat wear and maximize cycle life. Optional control balls and tri-ported balls are available.
- Investment-cast body, solution annealed/normalized for added strength and superior quality.
- Seat design ensures bidirectional, zero-leakage shutoff with the lowest operating torque. Low-friction geometry minimizes seat wear and reduces torque requirements.
- Live-loaded stem packing with Belleville washers significantly increases the number of cycles between maintenance adjustments.

Size Range	NPS ¼ to 12 (DN 8 to 300)
Temperature Range	-50°F to 550°F (-46°C to 287°C)
Pressure Ratings	Up to 1000 psi / 69 bar

BRAY Series 1B Trunnion Mounted | Ball Valve

- API 6D forged construction is ideally suited for a wide range of applications.
- Self-relieving seat design allows for safe operation without the need for dedicated bleed lines.
- Pressure energized stem sealing system includes sealant injection ports compliant with ISO 15848-1.
- Double block and bleed capable, with standard drain and vent ports.
- Available API 607 and NACE MR0175 compliance.

Size Range	NPS 2 to 32 (DN 50 to 800)
Temperature Range	-320°F to 752°F (-196°C to 400°C)
Pressure Ratings	ASME Class 150 | 300 | 600 | 1500 | 2500 (PN10-PN100)

BRAY Multi-Port Series (MTP/MPC/3HP/MPF) | Ball Valves

- Multi-directional flow control with flanged, threaded, or weld-in end connections.
- 3-way and 4-way configurations in standard or full port, for diverting or mixing applications.
- Live-loaded stem packing design ensures positive sealing to the atmosphere.
- Four-seat design maintains balanced seat loading and proper ball alignment
- Optional cavity fillers reduce the potential for media entrapment and process contamination.

Size Range	NPS ½ to 12 (DN 15 to 300)
Temperature Range	-25°F to 500°F (-31°C to 260°C)
Pressure Ratings	ASME Class 150 | 300 (PN10-PN40)

BRAY/RITE® Model 210/212 Wafer | Check Valves

- Flow-activated, wafer design, swing check valve.
- Resilient or metal seated models offer zero-leakage in all pressure classes
- High-flow, low pressure drop design.
- Limited movement of internal parts reduces wear and enhances service life.
- Full line of accessories available to meet many application needs.

Size Range	NPS 1 to 60 (DN 25 to 1500)
Temperature Range	-50°F to 650°F (-46°C to 343°C)
Pressure Ratings	ASME Class 125 to 2500

SERIES 90/92 PNEUMATIC ACTUATORS

Stainless Steel

Bray Series 90/92 actuators are rack and pinion, opposed-piston actuators available in two versions: double acting for rotation of 90°, 135° and 180°, and spring return for 90° rotation. The actuators were designed primarily for pneumatic operation up to a maximum pressure of 140 psig (10 Bar) and for temperature ranges of -4°F to 200°F(-20°C to 93°C). For higher and lower temperature applications, consult factory.

All double acting and spring return units are suitable for both on/off and throttling applications. Actuators which can be actuated with other media such as hydraulic oil or water are also available as an option.

SERIES 98 SCOTCH YOKE PNEUMATIC ACTUATORS

Bray's Series 98 pneumatic actuator, part of our modular, fully configurable product line optimized for direct mounting on Bray valves for flexibility and efficiency at reduced cost.

Series 98 actuators were designed primarily for pneumatic operation to a maximum pressure of 150 psi(10.3 Bar) and for temperature ranges of -50°F(-46°C)to 300°F(+149°C).

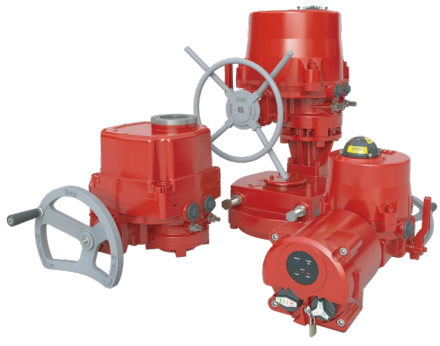
- Compact design offers a high torque to weight ratio
- Modular Design offers easy configuration in the field
- Module alignment ensured by precision machined centering rings
- Torque Output ranging from 2,744 to 885,100 in-lb(310 to 100,000 Nm)
- Spring End Torque ranging from 2,744 to 445,261 in-lb (310 to 50,306 Nm)
- Standard premium epoxy/polyurethane coating

SERIES 70 ELECTRIC ACTUATORS

The Series 70 features on/off or modulating control and offers many advantages over other actuators including:

- Output Torque 300 in-lb(34 Nm)to 18,000 in-lb(2,034
- Nm)
- UL, CSA and CE certification of most units
- Wiring directly to the terminal strip without interference
- from other components
- Simple and unique manual override handwheel system Lowest profile and lightest weight actuator on the market
- Simple finger or screwdriver adjustment of travel limit cams without interference from other components Highly visible valve status display on most units (Heartbeat)

SERIES 76 ELECTRIC ACTUATORS



High performance without compromise. The Series 76 is a heavy-duty, quarter-turn electric actuator ideal for industrial valve automation. Available in various power voltage supplies and designed for on/off and modulating applications for a wide range of markets and industries.

The Bray Series 76 is a quarter-turn industrial electric actuator with manual override for use on any quarter-turn valve or damper requiring up to 79, 000 in-lbs (9,000 Nm) of torque. Operating speeds vary between 17 to 130 seconds depending on torque, voltage, and frequency.

BRAY SERIES 6A ELECTRO-PNEUMATIC POSITIONER

> Smart Digital Positioner for Precise Control of Valve in Various Applications
> Low Air Consumptions Thanks to Zero Bleed Design
> Compatible with Rotary or Linear Actuators for Single and Double Acting Applications
> Various Enclosure Options Available to Withstand Challenging Environmental Conditions
> Equipped with On-Board Diagnostics Checks to Support Preventative and Efficient Maintenance
> Local User Interface for Quick and Easy Positioner Configuration
> Modular Design Capable of Field Upgradeable Options
> Integral Volume Booster Available for Fast Operation of Large Valves
> Fail Safe, Fail in Place, Fail to Open Options Available
> Advanced Communications Via PROFIBUS PA, Foundation Fieldbus and HART

BRAY SERIES 6P PNEUMATIC POSITIONER

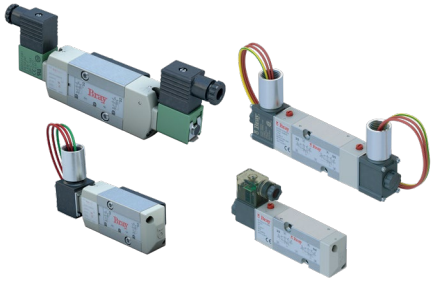
> Pneumatic to Pneumatic Positioner for Single and Double Acting Actuators
> Rugged Aluminum Die Cast Housing for Harsh Environments
> Minimal Setup Time for Zero and Span Adjustment
> Split Range Capabilities
> High Visibility Dome Position Indicator
> Optional 2 x SPDT Mechanical Switches

BRAY SERIES 5A, 5B AND 5C VALVE STATUS MONITORS

> Discrete Status Monitor for Quarter Turn Rotary Actuators
> All Models: NEMA 4, 4X and IP66 and IP67 Ingress Protection
> Model 5A/B Resin and 5C Aluminum:
NEMA 4, 4X and IP66, IP67 and IP68 Ingress Protection
> Intrinsically Safe Or Explosion-Proof Options for Hazardous Locations
> High Visibility Dome Position Indicator
> Up to 6 SPDT Switches or Non-Contacting Proximity Switches
> Switches Pre-Wired to Internal Terminal Block
> Available in Die-Cast Aluminum Housing Coated with 2-Layers of Polyester or Fiberglass Reinforced PBT Housing for Highly Corrosive Environments

BRAY SERIES 54 VALVE PROXIMITY SENSOR

> Dual Proximity Sensors for Valve Position
> IP66, IP67, IP69K Ingress Protection Available
> Available Solenoid Outputs
> 2 or 3 wire DC, AC/DC, intrinsically Safe, and AS-i interface
> Pin Connector or Conduit Versions Available

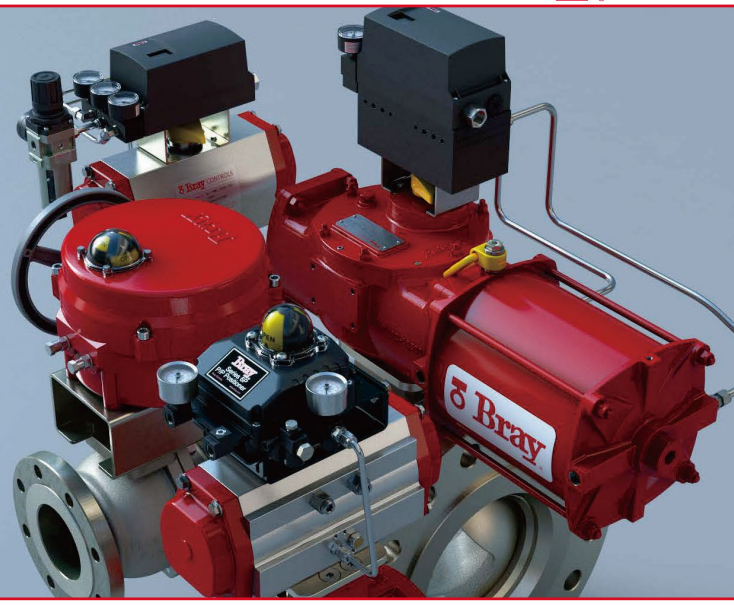


BRAY SERIES 63 SOLENOID VALVES

> Weatherproof NEMA 4, 4X and explosion proof housings available
> Flying leads or DIN connectors, single or dual coil
> 5/2 or 3/2 operation
> NAMUR mounted
> High Flow up to 1.4 Cv
> Intrinsically Safe Versions Available
> Available Voltages: 12, 24 VDC; 24, 110, 220 VAC

Quality
At Every Step.

Quality is integrated into Bray's culture and operations—exceeding expectations throughout all customer touchpoints.



QUALITY IS AN INTEGRAL PART OF EVERYTHING WE DO.

At Bray, Total Quality Management (TQM) is our core framework for driving continuous improvement and operational excellence across our organization. We deliver reliability through "Quality at Every Step."

TQM is a company-wide approach that involves every employee in maintaining high standards and delivering superior products and services. By focusing on customer satisfaction, fostering a culture of quality, and promoting continuous learning, we aim to strengthen our processes, improve efficiency, and enhance the value we provide to our customers.

KEY PRINCIPLES OF BRAY QUALITY:

- **Customer Focus:** Prioritizing customer needs and expectations in everything we do.
- **Employee Ownership:** Delivering excellence through a culture of commitment, collaboration, and continuous improvement.
- **Process Approach:** Optimizing processes for maximum efficiency and effectiveness.
- **Continuous Improvement:** Fostering a mindset of ongoing development and innovation.

Bray ensures that quality is not just a goal, but a way of proactively working—impacting all aspects of our operations. This approach drives improvements that not only elevate our products and services but also strengthen our competitive position in the market.

OUR CORE VALUES DRIVE QUALITY AND RELIABILITY.

SAFETY: By emphasizing continuous improvement, employee training, and adherence to standards, the company fosters a culture that promotes a proactive approach to both product quality and workplace safety.

EXCELLENCE: Quality reflects our commitment to achieving excellence in everything we do. By upholding high standards and attention to detail, we consistently deliver exceptional products and services to our customers.

CUSTOMER FOCUS: Quality ensures that we prioritize the needs and satisfaction of our customers. By maintaining rigorous total quality measures, we demonstrate our dedication to providing them with reliable and superior solutions and highly reliable products exceeding expectations.

VALUED EMPLOYEES: Quality recognizes the expertise and dedication of our employees. By fostering a Culture of Quality, we empower our team members to take pride in their work and contribute to our collective success.

INTEGRITY: Quality embodies our integrity as a company. By adhering to ethical standards and ensuring the reliability of our products, we uphold the trust and confidence of our customers and team members.

INNOVATION: Quality fuels our spirit of innovation. By continuously seeking improvements and embracing new technologies and methodologies, we stay at the forefront of our industry, driving progress and growth.

OUR OPERATIONAL VALUE CHAIN

At Bray, quality at every step is achievable through **ownership of our full value chain.** By establishing and monitoring procedures for all phases of our operations, team members are able to deliver the highest level of customer satisfaction and product reliability.

QUALITY AT EVERY STEP

QUALITY MANAGEMENT SYSTEM

To deliver absolute customer satisfaction, Bray's quality management system is:

- Compliant with globally recognized standards.
- Standardized across all business units.
- Customized to our business model.
- Continuously improved utilizing customer feedback.

INSPECTION & VERIFICATION

Verification of conformance to standards has been at our core since the beginning.

- Internal quality control at each operation.
- State of the art equipment delivers the highest level of accuracy and precision.
- Material verification test labs staffed by engineers with equipment calibrated and verified by third parties.

PRODUCT QUALITY PLANNING

Reliability is embedded in our operations through quality assurance tools, including:

- Failure Modes and Effects Analysis (FMEA) for product and process improvement.
- Process capability studies ensure consistent, high-quality output.
- Quality control plans define requirements, monitoring, and corrective actions.

TRACEABILITY & CERTIFICATIONS

Bray ensures customer confidence through rigorous material traceability and product certifications.

- Robust systems track materials from receipt to installation.
- Materials are traceable to products.
- Transparent material test certificates provided from source suppliers.
- Third-party-auditing of product certifications.

SOURCE QUALITY ASSURANCE

We value our suppliers as partners in delivering customer success.

- Performance is continuously monitored using proprietary tools.
- Suppliers audited by qualified Bray personnel.
- New purchases are validated through a robust First Article inspection process to ensure quality and reliability.

CONTINUOUS IMPROVEMENT

Continuous improvement is a core strength of Bray that is owned by all team members. Robust feedback loops and data driven analytics are used to:

- Define areas of improvement.
- Measure process performance.
- Analyze opportunities.
- Execute improvements.
- Monitor against expected state to ensure highest quality performance.

Learn more about Bray's quality management program at **BRAY.COM/QUALITY.**

SINCE 1986, BRAY HAS PROVIDED FLOW CONTROL SOLUTIONS
FOR A VARIETY OF INDUSTRIES AROUND THE WORLD.

VISIT **BRAY.COM** TO LEARN MORE ABOUT
BRAY PRODUCTS AND LOCATIONS NEAR YOU.

HEADQUARTERS
Bray International, Inc.
13333 Westland East Blvd.
Houston, Texas 77041
Tel: +1.281.894.5454

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BRAY.COM