SOLUTIONS FOR THE

WATER INDUSTRY

Bray®

BRAY.COM

THE HIGH PERFORMANCE COMPANY

RELIABLE SOLUTIONS FOR THE **WATER INDUSTRY**

Bray Valves can be produced in accordance with American Iron and Steel (AIS) requirements

Made in the USA

Bray Controls has been successfully providing resilient seated valves for over 35 years for many applications in water, wastewater, filtration and desalination applications.

Bray peroxide cured EPDM seats exhibit outstanding performance in water services. Third party testing of Bray EPDM per ASTM D6284 shows excellent compatibility with chlorine/chloramine additives.

As a manufacturer of electric and pneumatic actuators and accessories, Bray takes full responsibility for the operation of the valve/actuator package. All Bray actuators direct mount to the valves without the need for costly brackets, linkages and couplers. With this breadth of product and experience, Bray is the fastest growing automated valve producer in the water and wastewater industry.

As the leading supplier of automated butterfly valves to the water filter and air blower OEMs, Bray products are standard at many water, wastewater treatment and desalination plants. Using state-of-the-art materials and design, Bray butterfly valves and actuators have been successfully applied in the following applications:

- Ground Water
- Surface Water
- Brackish/Sea Water Desalination
- Water Re-Use
- Desalination
- Microfiltration
- Ultrafiltration
- Reverse Osmosis
- Biological Treatment
- Disinfection

WATER INDUSTRY PRODUCT LINE-UP

	Butterfly Valves	High Performance Butterfly Valves	Triple Offset Valves	Knife Gate Valves	Check Valves	Ball Valves
Feedwater System	■	■	■	■	■	■
Pump Isolation	■	■	■		■	■
Digesters	■	■	■	■	■	■
WaterDistribution	■	■	■	■	■	■
Water Treatment	■	■	■	■	■	■
Chemical Services	■	■	■	■	■	■
Desalination	■	■	■	■	■	■

OUTPERFORMS AWWA VERIFICATION CRITERIA

Service Conditions	**AWWA C504 Specification**	**BRAY Resilient Seated Valves**
Media	Fresh Water	Fresh Water, Wastewater, Seawater & Chemicals
PH Limits	6 to 12	3 to 13
Temperature Limits	125°F (52°C) Maximum	250°F (121°C) Maximum
Velocity Limits-Liquid	16 ft/sec. (4.9 m/sec.)	30 ft/sec. (9.1 m/sec.)

Cycle Test Requirements	**AWWA Minimum Cycles**	**BRAY Resilient Seated Valves Cycles**
3″-72″ (75mm - 1800mm)	1,000 - 10,000	5 - 10 times greater than AWWA

Valve Components	**AWWA C504 Specification**	**BRAY Resilient Seated Valves**
Valve Body	Exposed to Media	Isolated from Media
Valve Disc	Exposed to Media (Ductile Iron with Stainless Steel Edge)	Exposed to Media (NSF/FDA Approved Nylon 11 Coated Ductile Iron)
Valve Stem	Exposed to Media	Isolated from media

BODY STYLES

Wafer and Lug

> Size 2″ - 20″ (50mm - 500mm)

Double Flanged

> Size 3″ - 120″ (80mm - 3050mm)

FEATURES

> NSF/ANSI 61 certified valves.
> Body and stem are isolated from line media.
> Smaller, lighter and a more cost effective solution compared to traditional AWWA butterfly valves.
> Flow capacity is 30% higher on average than traditional AWWA butterfly valves.

POLYESTER COATING

The Bray standard polyester body coating is a hard, gloss red finish. The polyester coating provides excellent corrosion and wear resistance.

> Chemical Resistant - Resistant to dilute acids and alkalies, petroleum solvents, alcohols, greases and oils.
> Weatherability - Resistant to humidity, water and ultraviolet radiation.
> Abrasion and impact resistant.

NYLON 11 COATING

Nylon 11 has superior corrosion resistance and has been used successfully in many applications such as water, cement, food and seawater.

> Weatherability - Bray's Nylon 11 coating has been salt spray tested in excess of 2000 hours and used in seawater immersion service for over 30 years without any deterioration of the coating resulting in no corrosion to the coated metal components.
> Abrasion and impact resistant.

SEAT DESIGN

The seat is designed to seal with slip-on or weld-neck flanges and the molded o-ring eliminates the need for flange gaskets. The tongue and groove locks the seat in place and makes the valve dead-end capable.

Tongue and Groove

INTERNAL DISC/STEM CONNECTIONS

Bray offers three disc-to-stem connections, double 'D' splined and double key. These internal non-wetted connections eliminate typically exposed external disc-to-stem connections such as screws or taper pins which can:

> Result in leak paths, erosion, corrosion and vibration failures.
> Require difficult machining for disassembly.
> Require replacement of disc and stem upon failure, since both are matched for the life of the valve.

Disassembly of Bray's internal connection is performed by simply pulling the stem out of the disc. Bray's precision machining of the disc and the stem connection minimizes hysteresis and produces maximum strength engagements. All stem designs incorporate a blowout proof feature.

The DOUBLE 'D' disc-to-stem connection features matched precision machined flats on the stem and in the disc.
Size 2″– 20″
(50mm–500mm)

The SPLINED disc-to-stem connection features matched precision machined male splines in the stem and female in the disc.
Size 22″– 48″
(550mm–1200mm)

The DOUBLE KEYED disc-to-stem connection features matched double keyways machined into the disc and stem. Keys engage the connection.
Size 52″– 96″
(1300mm–2400mm)

SEAT MATERIALS

SEAT MATERIAL	TEMPERATURE RANGE
Peroxide Cured EPDM	-20°F to 250°F (-29°C to 121°C)
HTEPDM	-20°F to 300°F (-29°C to 150°C)
BUNA-N (Black or White)	0°F to 212°F (-18°C to 100°C)
FKM	0°F to 400°F (-18°C to 204°C)
Polyurethane	-20°F to 175°F (-29°C to 80°C)
Neoprene Seat (Black Or White)	0°F to 180°F (-18°C to 82°C)
PTFE Lined EPDM	-20°F to 250°F (-29°C to 121°C)
PTFE Lined HTEPDM	-20°F to 300°F (-29°C to 150°C)
Virgin PTFE	0°F to 400°F (-18°C to 204°C)
Conductive PTFE	0°F to 400°F (-18°C to 204°C)
UHMWPE	0°F to 185°F (-18°C to 85°C)

PEROXIDE CURED EPDM food grade seats are standard and perfectly suitable for sanitary applications as well as standard industrial uses.

HTEPDM is a proprietary rubber blend offered by Bray to increase the thermal resistance properties of standard EPDM and is formulated to provide long term service at elevated temperatures for hot water. HTEPDM food grade seats are suitable for sanitary applications as well as standard industrial uses.

BUNA-N is an excellent general purpose seat material which is particularly suitable for hydrocarbon service.

FKM has improved acid, oil, and temperature resistance over standard seat materials.

UHMWPE provides exceptional chemical resistance, and are the ideal choice for highly abrasive chemical applications.

POLYURETHANE will withstand severe impact, recover its original shape after distortion and resist abrasion better than other elastomers.

NEOPRENE is an all-purpose polymer with desirable characteristics including high resiliency with low compression, resistance for vegetable and animal oil, and flame resistance. This sealing material is excellent for refrigerants, ammonia and freon, and is principally used in pulp and (non-bleached) paper lines. Neoprene is not recommended for strong oxidizing acids, chlorinated solvents, esters, ketones, aromatic hydrocarbons or hydraulic fluids. White neoprene is generally used in sanitary applications while the black grade provides better abrasion and oil resistance than the white grade neoprene.

PTFE LINED EPDM seats are usually used where BUNA-N and EPDM seats are not chemically suitable, especially in corrosive services.

VIRGIN PTFE inherent molecular bonding provides optimum protection against permeation of the line media.

CONDUCTIVE PTFE seats combine electrostatic discharge protection and the excellent chemical resistance properties of PTFE.

SERIES 3W/3L TECHNICAL SPECIFICATIONS

Size Range	2" – 24" (50mm – 600mm)	
Body Style	Wafer | Lug	
Temperature Range	-20°F to 250°F | -29°C to 121°C	
Pressure Ratings	Bidirectional Bubble Tight Shut Off	High Pressure Disc - 250 psi | 17.2 bar
		Standard Disc NPS 2-12 | DN 50-300 - 175 psi | 12 bar NPS 14-24 | DN 350-600 - 150 psi | 10.3 bar
		Low Pressure Disc - 50 psi | 3.4 bar
Body Materials	Cast Iron | Ductile Iron	
Disc Materials	Nylon 11 Coated Ductile Iron | Aluminum Bronze | 316 SS Duplex Stainless Steel 4A	
Stem Materials	416 SS | Stainless Steel (EN 1.4057)	
Seat Materials	EPDM | BUNA-N | HT-EPDM	
Applications	HVAC | Chilled Water | Desalination | Sour Gas (NACE) Steam | Vacuum	

SERIES 20/21 TECHNICAL SPECIFICATIONS

Size Range	1" – 20" (25mm – 500mm)	
Body Style	Wafer | Lug	
Temperature Range	-20°F to 400°F (-29°C to 204°C)	
Pressure Ratings	Bidirectional Bubble Tight Shut Off	150 psi (10.3 bar)
	Body CWP	250 psi (17.2 bar)
Body Materials	Cast Iron | Ductile Iron | Stainless Steel | Aluminum	
Disc/Stem Materials	Stainless Steel | EPDM Molded over Stainless Steel BUNA-N Molded over Stainless Steel	
Seat Materials	BUNA-N | EPDM | PTFE Lined EPDM | FKM Polyurethane	
Applications	Sanitary Service | Mildly Corrosive | Toxic Media Other Liquids and Gases	

SERIES 30/31 TECHNICAL SPECIFICATIONS

Size Range	2" – 20" (50mm – 500mm)	
Body Style	Wafer | Lug	
Temperature Range	-20°F to 400°F (-29°C to 204°C)	
Pressure Ratings	Bidirectional Bubble Tight Shut Off	175 psi (12 bar)
	Body CWP	250 psi (17.2 bar)
Body Materials	Cast Iron | Ductile Iron | Carbon Steel | Aluminum	
Disc Materials	Nylon 11 Coated Ductile Iron | Aluminum Bronze Stainless Steel | Hastelloy® | Halar® Coated Ductile Iron Duplex Stainless Steel 2205 (4A) Super Duplex Stainless Steel 2507 (5A)	
Stem Materials	Stainless Steel | Monel®	
Seat Materials	BUNA-N | EPDM | FKM | Polyurethane | HTEPDM	
Applications	Water | Wastewater | Seawater | Other Liquids and Gases	

SERIES 3A/3AH TECHNICAL SPECIFICATIONS

Size Range	2″ – 20″ (50mm – 500mm)	
Body Style	Double Flanged	
Temperature Range	-20°F to 400°F (-29°C to 204°C)	
Pressure Ratings	Bidirectional Bubble Tight Shut Off	250 psi (17.2 bar)
	Body CWP	250 psi (17.2 bar)
Body Materials	Cast Iron | Ductile Iron | Carbon Steel	
Disc Materials	Nylon 11 Coated Ductile Iron | Aluminum Bronze Stainless Steel	
Stem Materials	Stainless Steel | Monel®	
Seat Materials	Bonded BUNA-N | Bonded EPDM | Bonded FKM*	
Applications	Water | Wastewater | Seawater | Other Liquids and Gases	

SERIES 32/33 & 35/36 TECHNICAL SPECIFICATIONS

Size Range	S32/33 – 22″ – 36″ (550mm – 900mm) S35/36 – 22″ – 120″ (550mm – 3000mm)	
Body Style	S32/33 Wafer | S35/36 Full Flanged	
Temperature Range	-20°F to 250°F (-29°C to 121°C)	
Pressure Ratings	Bidirectional Bubble Tight Shut Off	150 psi (10.3 bar)
	Body CWP	250 psi (17.2 bar)
Body Materials	Cast Iron | Ductile Iron | Carbon Steel | Stainless Steel	
Disc Materials	Nylon 11 Coated Ductile Iron | Aluminum Bronze Stainless Steel | Duplex Stainless Steel Super Austenitic Stainless Steel | Hastelloy® | Monel® Duplex Stainless Steel 2205 (4A) Super Duplex Stainless Steel 2507 (5A)	
Stem Materials	Stainless Steel | Duplex Stainless Steel Super Austenitic Stainless Steel | Monel®	
Seat Materials	BUNA-N | EPDM | FKM	
Applications	Water | Wastewater | Seawater | Other Liquids and Gases	

SERIES 36H TECHNICAL SPECIFICATIONS

Size Range	22″ – 60″ (550mm – 1500mm)	
Body Style	Full Flanged	
Temperature Range	-20°F to 250°F (-29°C to 121°C)	
Pressure Ratings	Bidirectional Bubble Tight Shut Off	232 psi (16 bar)
	Body CWP	250 psi (17.2 bar)
Body Materials	Ductile Iron	
Disc Materials	Nylon 11 Coated Ductile Iron | 316 Stainless Steel Aluminum Bronze	
Stem Materials	17-4 PH Stainless Steel	
Seat Materials	Bonded BUNA-N | Bonded EPDM	
Applications	High Pressure | HVAC | Dead End Service	

MCCANNALOK SERIES

- Designed for high pressure and high temperature applications.
- Bidirectional zero leakage shutoff rate across full pressure range.
- Designed for dead-end service at full rated pressure.
- Double offset geometry reduces seat wear and extends valve service life.
- Easy field maintenance, seat replacement only requires removing a few bolts.
- Adjustable and field replaceable stem packing.

TECHNICAL SPECIFICATIONS

Size Range	2" - 66" (50mm - 1500mm)
Body Style	Wafer | Lug | Double Flanged
Temp. Range	-62°F to 500°F (-52°C to 260°C)
Pressure Ratings	ASME Class 150, 300 and 600
Shutoff Rating	Zero Leakage
Body Materials	Carbon Steel | Stainless Steel | Duplex Stainless Steel 2205 Super Duplex Stainless Steel 2507
Disc Materials	Stainless Steel
Stem Materials	Stainless Steel
Seat Materials	Standard - RPTFE w/Resilient Energizer Fire Safe - RPTFE w/Resilient Energizer and Inconel® backup Metal Seated - Inconel®
Applications	High Pressure | HVAC | Dead End Service

TRI LOK SERIES

- Nitride hardened seat eliminates the risk of seat and seal galling.
- Bearing protection in stem journals minimize ingress of line media and particulates.
- Field replaceable stem packing, rated to global low fugitive emissions standards.
- Splined disc to stem connection, strongest connection available and provides superior control characteristics.
- Triple offset geometry allows rotary engagement and disengagement of seat and seal ring without interference. Eliminates rubbing between the seat and seal ring.
- Torque seated design to allow a metal-to-metal seal that allows ZERO leakage in the most demanding applications.

TECHNICAL SPECIFICATIONS

Size Range	3" - 48" (80mm - 1200mm)
Body Style	Wafer | Lug | Double Flanged | Gate
Temp. Range	-320°F to 842°F (-196°C to 450°C)
Pressure Ratings	ASME Class 150, 300, 600, 900
Shutoff Rating	Zero Leakage in Normal and Dead End Service
Body Materials	Carbon Steel | Stainless Steel
Disc Materials	Carbon Steel | Stainless Steel
Stem Materials	410 Stainless Steel, 17-4PH, XM-19 (Nitronic®)
Body Seat Material	316SS Hardened
Disc Seal Materials	Laminated 318 Stainless Steel/Graphite Laminated 316 Stainless Steel/Graphite
Applications	High Pressure | High Temperature | Critical Service

SERIES 740 BIDIRECTIONAL KNIFE GATE VALVES

One-piece cast body with flexible wire reinforced elastomer seat for bidirectional zero leakage shutoff in a wide range of industrial applications.

TECHNICAL SPECIFICATIONS

Size Range	NPS 2 to 36 | DN 50 to 900
Body Style	Single Piece - Lug
Pressure Rating	2-24 150psi | 30-36 100psi
	50-600mm 10 bar | 750-900mm 7 bar
Drilling	ASME B16.5 CL150 | ASME B16.47 CL150
Face to Face	MSS SP-81
Certification	CE/PED | Canadian CRN | AWWA C520 (2019)
Design Standard	MSS SP-81
Testing Standard	MSS SP-151

STANDARD CONSTRUCTION

Body	CF8 (304)	CF8M (316)
Gate	304	316
Seat	BUNA-N	BUNA-N
Stem	304	304
Gland	304	304
Packing	PTFE Impregnated Synthetic Fiber	PTFE Impregnated Synthetic Fiber
Topworks	Steel	Steel

SERIES 746HP POLYURETHANE LINED HIGH PERFORMANCE KNIFE GATE VALVES

One-piece, durable ductile iron body is offered in a compact wafer style for ease of handling and installation.

TECHNICAL SPECIFICATIONS

Size Range	NPS 2 to 24 | DN 50 - 600
Pressure Rating	150 psi | 10 bar
Body Style	One-Piece (Wafer)
Design	Manufacturer Standard
Testing	MSS SP-151
Face-to-face	MSS SP-81
Certifications	ATEX | TR CU
Drilling	ASME B16.5 CL150

STANDARD CONSTRUCTION

Body	Ductile Iron
Gate	316 SS
Gland	Carbon Steel
Liner	Polyurethane
Stem	304 SS
Packing	PTFE Impregnated Synthetic Fiber + Quad Seal

SERIES 943/953 UNIDIRECTIONAL KNIFE GATE VALVES

The Series 943 features a full lug and the Series 953 features a semi-lug, single piece cast body for demanding applications.

TECHNICAL SPECIFICATIONS

Size Range	NPS 2 to 24 | DN 50 to 600
Body Style	943 - Single piece | Lug 953 - Single piece | Semi Lug
Pressure Rating	943 - 2-24 150psi | 50-600mm 10 bar 953 - 2-10 150psi | 50-250mm 10bar 12-16 90psi | 300-400mm 6bar 18 75psi | 450mm 5bar 20-24 60psi | 500-600mm 4bar
Drilling	ASME B16.5 CL150
Face to Face	MSS SP-81
Certification	CE/PED | Canadian CRN | AWWA C520 (2019)
Design Standard	943 - MSS SP-81 953 - Manufacturer Standard
Testing Standard	MSS SP-151

STANDARD CONSTRUCTION

	943	**953**
Body	CF8M (316)	Cast Iron
Gate	316	304
Seat	Integral Metal	Integral Metal
Stem	304	304
Gland	CF8	Ductile Iron
Packing	PTFE Impregnated Synthetic Fiber + Quad Seal	PTFE Impregnated Synthetic Fiber + Quad Seal
Topworks	Carbon Steel	Carbon Steel

Series 943

Series 953

CHECK VALVE TECHNICAL SPECIFICATIONS

Size Range	1″ – 60″ (25mm – 1500mm)
Temperature Range	-20°F - 450°F
Pressure Ratings	ASME 125 | 150 | 300 | 600 | 900 | 1500
Body/Disc Materials	ASTM A 126 CLB | ASTM A 395 | ASTM A 216 WCB ASTM A 351 CF8M | Titanium
Seat Materials	BUNA-N | EPDM | PTFE | Viton | A240 - 304
Spacer	PTFE | A479 - 316
Accessories	External Springs | External Weights | Backflush Lever External Position Indicators | Emergency Shutoff Fusible Link | Limit Switch
Applications	Pump Flow Reversal Protection | Eliminate Water Hammer Desalination

Bray/Rite wafer combination swing check valves are flow–activated and Rite Sized. Bray/Rite inlet ports and disc have been shape optimized to achieve a fully open position at low flow rates (3 ft/s on average). Therefore, the Bray/Rite operates exceptionally well in the flow rates typically found in pipelines containing control valves and lines with varying media flows.

FEATURES

- Engineered to accelerate line media through the valve and achieve a virtually unobstructed full opening in low pressure.
- Limited movement of internal parts during operation reduces wear, enhancing the long service life of a Bray/Rite valve
- Bray/Rite valves, either resilient or metal seated, offer zero leakage in all pressure classifications
- SEATS – ZERO LEAKAGE SHUT OFF, even at 0 psi, is achieved through lapped metal seating surfaces, or resilient O-ring seat contained in specially designed groove which protects the seat from extrusion. The seat and the disc edges are precisely machined then hand polished for a perfect fit. The disc hinge provides an even force at the disc-to-seat contact point, ensuring a uniform seal. Controlled tolerances maintain the proper disc-to- seat alignment. The spring assisted closure tension holds the disc in place when line pressure is removed.

Model 210 (ANSI)
205 (API 594)
Class 125/150
1″to 60″

Model SA 50

Series PVC Flanged
Check Valves

Resilient Seat

Metal-To-Metal Seat

Bray's technologically advanced ball valve design is the product of an extensive research and development program. As a result of this program we produce valves of the highest quality and performance. All Bray valves incorporate premium components, are manufactured to industry standards, and are thoroughly inspected before shipment from the factory.

BALL

Bray valves offer a precision machined, solid, stainless steel ball that is polished to a surface finish of 8 Ra or better for bubble-tight shut off and reduced operating torque. The critical ball edge has blended curvatures to reduce seat wear and provide a high cycle life. As an added safety feature, a hole in the stem slot of each ball equalizes pressure between the body cavity and the line media flow.

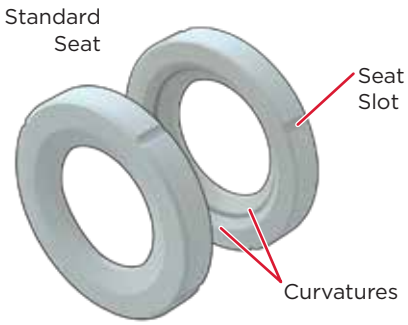
BODY

Valve bodies are investment cast and solution annealed/normalized for the highest quality and added strength. Each body casting is marked with a foundry heat number for full traceability. Body walls are designed to meet ASME B16.34. Valves are available in a full range of styles, sizes, end connections and pressures.

SEAT DESIGN

Bray valves are offered as standard with resilient seats which ensure bidirectional, bubble-tight sealing while providing the lowest possible torque. These specially designed resilient seats feature relief slots or seat O.D. clearance to relieve pressure past the upstream seat.

This design reduces friction, minimizes seat wear and lowers operating torque. Bray seats feature optimally designed curvatures to minimize contact forces between the ball and seat when the valve is in the open position. This design prevents cold flow, lowers torque and reduces wear.

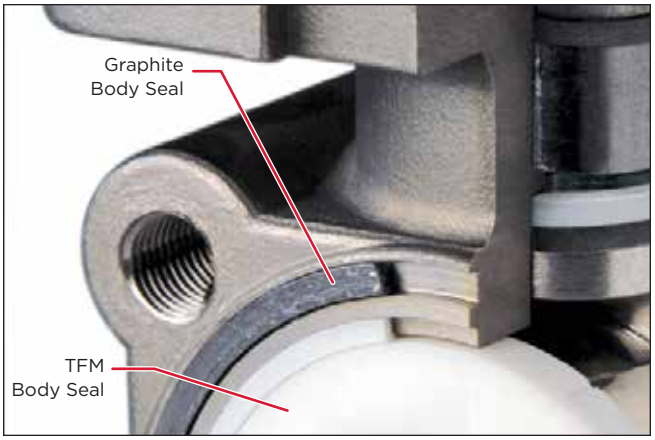


BODY SEALS

A variety of body seal materials are available for reliable, bubble–tight body joint sealing. The Triad Series ball valves feature a redundant graphite body seal for additional protection making them ideal for fire safe and hazardous media applications. Bray's Series 7000 and 8000 valves incorporate a two piece seat and body seal, a very effective and simple design.

MATERIALS

Bray offers a wide selection of body and seat materials to meet almost any service requirement.



STEM ASSEMBLIES

Bray manufactures heavy duty, high quality stems with double “D” connection to ball and operator mounting. Stem and ball design ensure positive contact. All Bray stems are internal entry and blowout proof for maximum safety.

SMART STEM VALVE SIZES UP TO 2"

Bray’s Interchangeable family of valves feature strong, large diameter stems with live-loaded, self-adjusting sealing utilizing Belleville washers which automatically adjust to compensate for changes in temperature and wear.

Manual adjustments which can cause damage to the seal and seat are not required. The assembly is secured by a saddle-type lock washer which prevents stem nuts from unthreading in high cycle automation applications.

STEM PACKING

An adjustable V-ring design creates a multiple seal between the stem and body. Each stem assembly is composed of three or four (dependent on valve size) rings providing a very high cycle life by resisting creep and cold flow. The Thrust Washer and the Thrust Washer Protector combine to provide a primary seal, reduce torque and prevent galling. This arrangement is a Bray exclusive.

BALL VALVE SEAT MATERIALS

SEAT MATERIAL	TEMPERATURE RANGE
Virgin PTFE	50°F to 232°F (-45°C to 150°C)
TFM-1600	-328°F to 500°F (-200°C to 260°C)
Tek-Fil®	-328°F to 650°F (-200°C to 343°C)
PEEK	-70°F to 550°F (-156°C to 287°C)
RPTFE	-50°F to 450°F (-45°C to 232°C)
UHMWPE	-70°F to 200°F (-56°C to 93°C)
50/50 Stainless/PTFE	-20°F to 500 °F (-29°C to 260°C)
Metal Seated	-50°F to 800°F (-45°C to 426°C)

Virgin PTFE - Virgin TFE is a common seat material used in many ball valves. Its chemical compatibility is excellent for almost all applications.

TFM-1600 - TFM 1600 is a modified PTFE that maintains the exceptional chemical and heat resistance properties of conventional PTFE, but has a significantly lower melt viscosity. Features reduced cold flow, lower porosity and permeability, and lower void content. Offers the advantage of smoother surfaces, reduce deformation under load, and improved design flexibility in a FDA approved food grade material suitable for sanitary applications as well as standard industrial uses.

Tek-Fil - Tek-Fil utilizes a special carbon/graphite filled Dyneon TFM™ resin Developed by Bray. Dyneon TFM resin is a second generation modified polytetrafluoroethylene (PTFE). It maintains the exceptional chemical and heat resistance properties that made the first generation PTFE a primary choice for resilient ball valve seats. TekFil maintains the proven characteristics of PTFE with increased compressive strength and geometrical stability at elevated temperature.

Metal - Recommend for abrasive media and high temperature service up to 800°F. Bray's metal seats are lapped to the ball as individually matched sets, assuring line contact between valve ball and seats, resulting in smooth operation and tight shut off. Bray offers metal seats in Shut Off Classes IV, V, and VI. See Technical Bulletin 1010 for details.

PEEK - Poly Ether Ether Ketone. It is a high performance engineered thermoplastic. It offers excellent chemical and water resistance and is unaffected by continuous exposure to hot water or steam. Its temperature stability is good to 550°F and it is a high strength alternative to fluoropolymers used for valve seats. These properties make it a superb seat choice for elevated pressure coupled with elevated temperature. Bray offers PEEK in two grades, unfilled and filled. The filled is a unique blend of carbon/graphite fillers to ensure consistent, uniform material properties. This lowers the coefficient of friction, reducing the operating torque requirements of our valves.

RPTFE - Reinforced PTFE. The standard seat in some Bray valves. 15% glass reinforced PTFE offers good chemical resistance and improved cycle life.

UHMWPE - Ultra-High Molecular Weight Polyethylene. Ideal for use in low level radiation service. This seat also meets the requirements of the tobacco industry where PFE is prohibited and it offers an excellent resistance to abrasive medium.

50/50 - Stainless Steel/PTFE. Combines the strength of metal with the lubricity of PTFE. 50% 316 stainless steel powder combined with 50% PTFE by weight, 15% SS by volume. Offers excellent abrasion resistance with higher pressure and temperature ratings than RPTFE.

SERIES F15 & F30 TECHNICAL SPECIFICATIONS

Body	2 Piece
Full Port	1/2″ through 8″
Materials	Stainless Steel Carbon Steel
Pressure Ratings	F15: ASME Class 150 F30: ASME Class 300

> Firesafe – API 607 (Optional)
> Designed in accordance with ASME B16.34
> Face to face ASME B16.10 long pattern
> ISO 5211 Secure Mount actuator top flange
> NSF/ANSI/CAN - 61
> NSF/ANI - 327

Features include live loaded Smart Stem seals through 2”, anti-static protection and locking safety handles. Larger sized valves feature trunnion-type ball support. Special body and trim materials available.

SERIES RF15 & RF30 TECHNICAL SPECIFICATIONS

Body	1 Piece
Standard Port	1″ through 8″
Materials	Stainless Steel Carbon Steel
Pressure Ratings	RF15: ASME Class 150 RF30: ASME Class 300

> Firesafe – API 607 (Optional)
> Designed in accordance with ASME B16.34
> Face to face ASME B16.10 short pattern
> ISO 5211 Secure Mount actuator top flange
> NSF/ANSI/CAN - 61
> NSF/ANI - 327

These end entry flanged valves feature live loaded Smart Stem seals through 2″, anti-static protection and locking safety handles. Special body and trim materials available.

SERIES 7000 & 8000 TECHNICAL SPECIFICATIONS

Full Port	1/4″ through 4″
Materials	7000 Stainless Steel 8000 Carbon Steel
Pressure Ratings	1/4″ - 4″: 1000 psi WOG 6″ - 12″: 400 psi WOG

> ISO 5211 Secure Mount actuator top flange
> NSF/ANSI/CAN - 61
> NSF/ANI - 327

Features include live loaded Smart Stem seals through 2-1/2″, anti-static protection and locking safety handles. These valves are also available with cavity filler seats for special service requirements. Special body and trim materials available.

SERIES 85 TECHNICAL SPECIFICATIONS

Body	2 Piece
Full Port	1/2″ through 3″
Materials	Stainless Steel
Pressure Ratings	1/2″-3″: 1000 psi WOG/150psi WSG

> ISO 5211 Secure Mount actuator top flange
> NSF/ANSI/CAN - 61
> NSF/ANI - 327

Designed for ease of automation, features include live loaded Smart Stem seals through 2″, anti-static protection, replaceable seats and seals, and safety latch handles.

NOTE: NSF-61 /NSF-372 certification is available on Series F15/F30, Series RF15/RF30 and Series 7000 only with CF8M Stainless Steel.

SERIES 19 SEGMENTED TECHNICAL SPECIFICATIONS

Body	1 Piece | Size 1″-12″
Materials	Stainless Steel Carbon Steel
ASME Class	150 | 300 | 600

> Segmented Ball Valve
> Designed for throttling or on-off applications
> Special body and trim materials available.

The valve features a characterized ball segment for high rangeability with splined stem connection for precise control, maintenance friendly segment-stem assembly, low friction shaft and thrust bearings for longer life, integral actuator mounting pads, and interchangeable seats.

V-CONTROL CHARACTERIZED V-PORT BALLS

90º 60º 30º 15º Slotted

Valves Series	7000 & 8000	F15 & F30	RF15 & RF30
Sizes Available	1/4″ - 12″	1/12″ - 12″	1″ - 12″

When combined with Bray's line of pneumatic and electric actuators and controls, the V-Control delivers exceptional performance.
With characterized V-ports, slotted ports or custom ports, V-Control ball valves provide accurate flow control. Available in 3-piece and flanged bodies, V-Control valves offer superior rangeability, repeatability and high flow capacity. These quarter turn valves are easily automated and make an ideal control element in process piping systems.

AMRESIST ACRIS PFA LINED FULL PORT AND REDUCED PORT BALL VALVES

> Fully PFA lined ball, stem and body.
> Durable, corrosion resistant TFM seat designed for zero leakage, low torque isolation.
> Metal-to-metal body joints protect the locked-in liner from damage caused by external forces.
> Anti-static grounding device prevents static buildup.
> ISO 5211 top mounting plate for easy actuation.

FULL PORT TECHNICAL SPECIFICATIONS

1-Piece Ball and Stem Design	
Size Range	1/2″ to 6″ (15 to 150mm)
Body Style	Flanged Full Port
Temp. Range	
A216 WCB	-20°F to 400°F (-29°C to 204°C)
A351 CF8M	-49°F to 400°F (-45°C to 204°C)
Pressure Rating	Up to 250psi (17bar)
Body Design	ASME B16.34
Flanges	ASME B16.5 Class 150 RF
Face-to-Face	ASME B16.10
Body Materials	Carbon Steel PFA Lined, Epoxy Coated PFA Lined ASTM A-351 CF8M
Stem/Ball Material	304 Stainless over molded with PFA
Seat Material	TFM
Packing Material	PTFE Chevron

STANDARD PORT TECHNICAL SPECIFICATIONS

2-Piece Ball and Stem Design	
Size Range	1″ to 4″ (25 to 100mm)
Body Style	Flanged Standard Port
Temperature	-20°F to 400°F (-29°C to 204°C)
Pressure Rating	Up to 250psi (17bar)
Body Design	ASME B16.34
Flanges	ASME B16.5 Class 150 RF
Face-to-Face	ASME B16.10
Body Material	Carbon Steel PFA Lined, Expoy Coated
Stem/Ball Material	304 Stainless over molded with PFA
Seat Material	TFM
Packing Material	PTFE Chevron

SERIES 70 ELECTRIC ACTUATOR

Low profile, compact, high output actuator for quarter turn applications

- > On/Off or modulating (Servo NXT)
- > Manual declutchable handwheel
- > High visibility dome position indicator
- > Network protocols available
- > Optional Seacorr® coating for harsh environments

Torque	300 to 18,000 lb-ins (34 to 2030 Nm)
Voltage	VAC: 24, 120, 220, | VDC: 12, 24
Standard Enclosure	NEMA Type 4, 4X
Explosion Proof	NEMA Type 4, 4X, 7, 9 Class I, Div 1 & 2, Group C, D Class II, Div 1 & 2, Group E, F, and G.

SERIES 92/93 PNEUMATIC ACTUATOR

Bray rack and pinion actuators available in double acting and spring return

- > Standard units have anodized aluminum bodies with polyester coated end caps
- > Optional Seacorr® coating for harsh environments
- > Integral porting
- > Internal bidirectional travel stops
- > SIL 3 capable

Torque	Double Acting up to: 44,130 lb-in (4,986 Nm) Spring End Torque up to: 14,173 lb-in (1,601 Nm)	
Pressure Range	40 - 140 psi (2.8 - 10 bar)	
Media	Dry Compressed Air/Inert Gas*	
Temperature Range	Standard	-4°F to 200°F (-20°C to 93°C)
	Low	-40°F to 176°F (-40°C to 80°C)
	High	0°F to 300°F (-18°C to 149°C)
	Extreme High	0°F to 482°F (-18°C to 250°C)

*Contact factory for other media or non-standard temperature range.

Torque	Double Acting up to:	885,000 lb-in (100,000 Nm)
	Spring Return (Spring End) up to:	445,261 lb-in (50,306 Nm)
Pressure Range	40 - 150 psi (2.8 - 10.3 bar)	
Media	Dry Compressed Air/Inert Gas*	
Temp. Range	Standard	-4°F to 200°F (-20°C to 93°C)
	High Temperature	Up to 300°F (149°C)
	Low Temperature	Down to -50°F (-46°C)

SERIES 98
SCOTCH YOKE PNEUMATIC ACTUATOR

Bray scotch yoke actuator for quarter turn rotary operation

- > Compact design with a high torque to weight ratio.
- > Modular design offers easy configuration in the field.
- > Optional modular components: manual overrides, hydraulic dampener for fast acting operation, lockout/pst device.
- > Premium epoxy/polyurethane coating as standard.
- > Pressure Equipment Directive (PED) 97/23/EC compliant.
- > Standardized interfaces: ISO 5211, VDI/VDE 3845 for accessories.
- > Optional nylon coating for harsh environments.
- > SIL 3 capable.

*Contact factory for other media or non-standard temperature range.

SERIES 6A ELECTRO-PNEUMATIC POSITIONER

- Precision digital control
- Zero bleed design
- Compatible with rotary or linear actuators for single and double acting applications
- Various housing options available
- Precise, microprocessor driven flow control and advanced communication
- Non-contacting position sensor technology
- Integral volume booster
- Connective and preventative maintenance self-diagnostic checks

SERIES 6P P/P POSITIONER

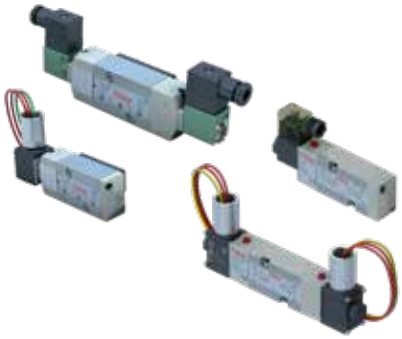
- Pneumatic to pneumatic positioner for single and double acting actuators
- Rugged aluminum diecast housing for harsh environments
- Minimal setup time for zero and span adjustment
- Split range capabilities
- High visibility dome position indicator
- Optional 2 x SPDT mechanical switches

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

- Discrete status monitor for quarter turn rotary actuators
- NEMA 4, 4X and IP66 and IP67 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

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



SERIES 63 HIGH FLOW 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

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.

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