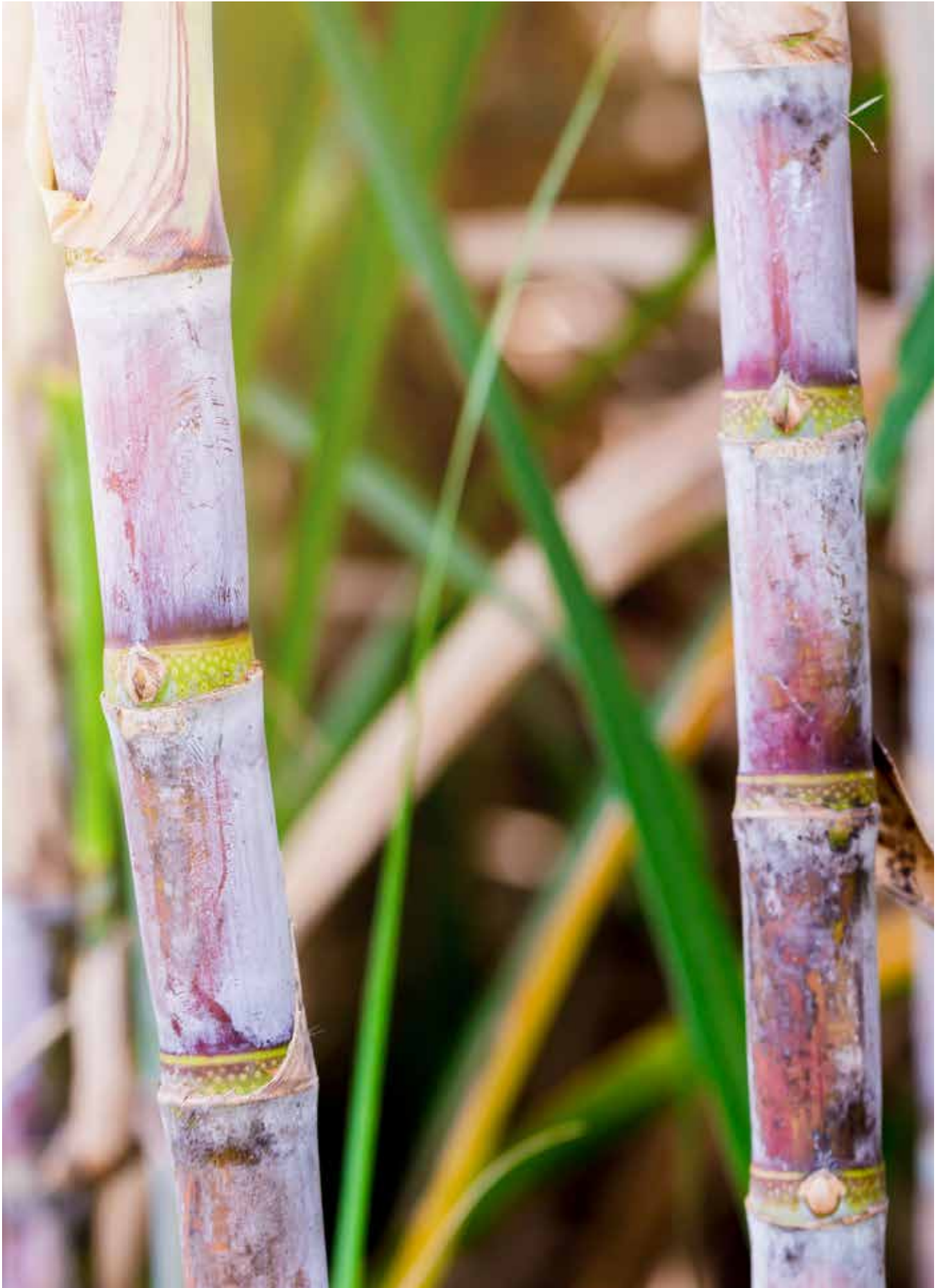

SOLUTIONS FOR THE SUGAR INDUSTRY



Bray®

BRAY.COM

THE HIGH PERFORMANCE COMPANY



RELIABLE SOLUTIONS FOR THE SUGAR INDUSTRY

“WITH OVER 30 YEARS OF EXPERIENCE AND INSTALLED PRODUCT BASE IN THE SUGAR INDUSTRY, BRAY HAS SPECIFICALLY DESIGNED UNIQUE AND INNOVATIVE SOLUTIONS THAT PROVIDE DEPENDABLE AND CONTINUOUS SERVICE IN THE HARSH OF SUGAR PROCESSES.”

The nature of sugar production and refining industry requires uninterrupted and continuous service of the plant for as much as 300 days in a year. This demanding process puts valves, actuators and controls through harsh and tough conditions. Continuous service and up-time are critical to the profitability of the plant and it is essential that those valves and actuators supplied into the sugar industry are able to successfully withstand the conditions. With over 30 years of experience and installed product base in the sugar industry, Bray has specifically designed unique and innovative solutions that provide dependable and continuous service in the harshest of sugar processes.

Bray valve solutions such as the resilient seated butterfly valve and high performance butterfly valve have helped to increase reliability and performance in tough sugar applications with crystals such as discharge pan valves, cut over valves, washout valves, feed/charge valves on centrifugal, massecuite tanks, vacuum pans etc. Bray has a line of specially designed high performance butterfly valves for the Sugar Industry. These valves are structured to handle the low pressure steam of evaporators. This valve incorporates the same proven design features of the standard Bray butterfly valve but in a lighter, more economical configuration specifically designed for the sugar industry steam services. It can be used along with the standard higher pressure Bray butterfly valves and shares the same spare parts, thereby reducing the need for special or different inventory.

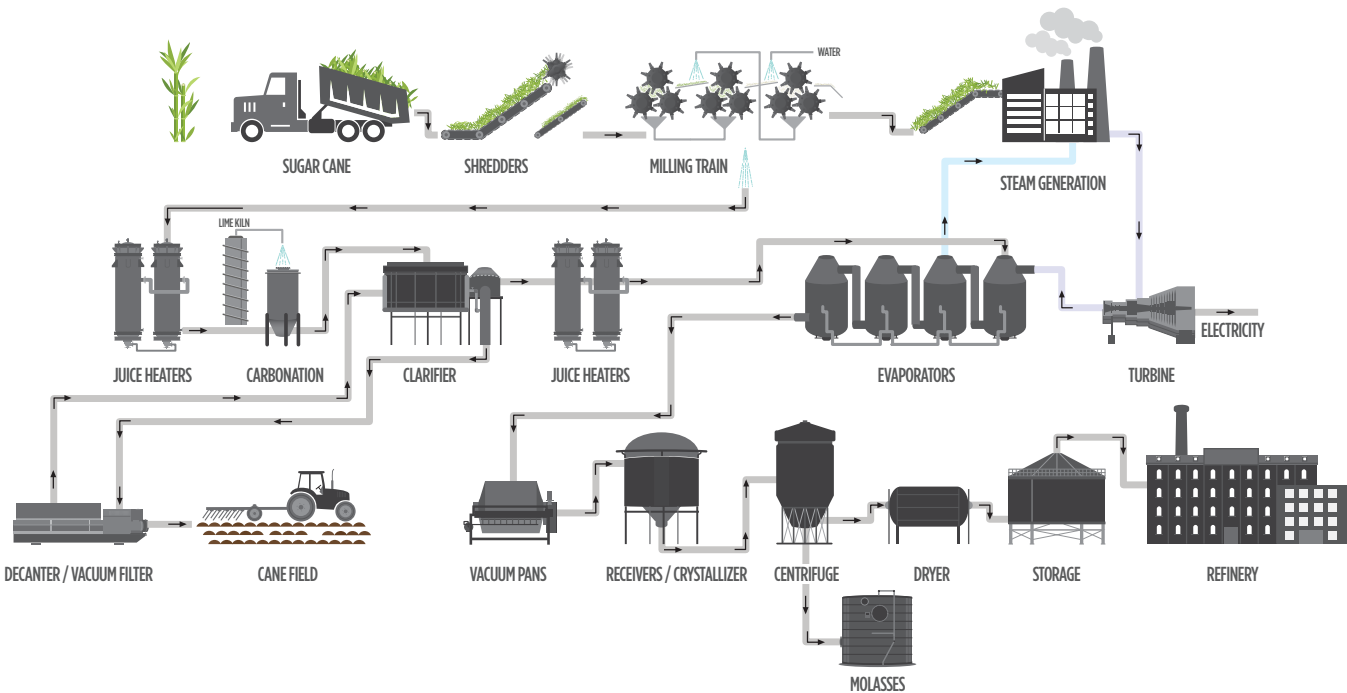
Bray's line of segmented control valve solutions has provided dependable performance on tough abrasive and slurry control applications such as milk of lime, raw juice feed and decanter/rotary vacuum filter mud feed/discharge. Innovative butterfly valve solutions designed

specifically to sugar industry such as optimized disc to seat interference on low pressure and slurry applications allow our customers to size smaller profile actuators which help them achieve cost savings through higher service life and lower cost automation. High performance Severe service ball valve is equipped with a robust drive-train, a 360° mate-lapped ball and seat set, and the most advanced coating materials to provide absolutely zero leakage in the most demanding high pressure and temperature steam applications in the boiler and power generation area.

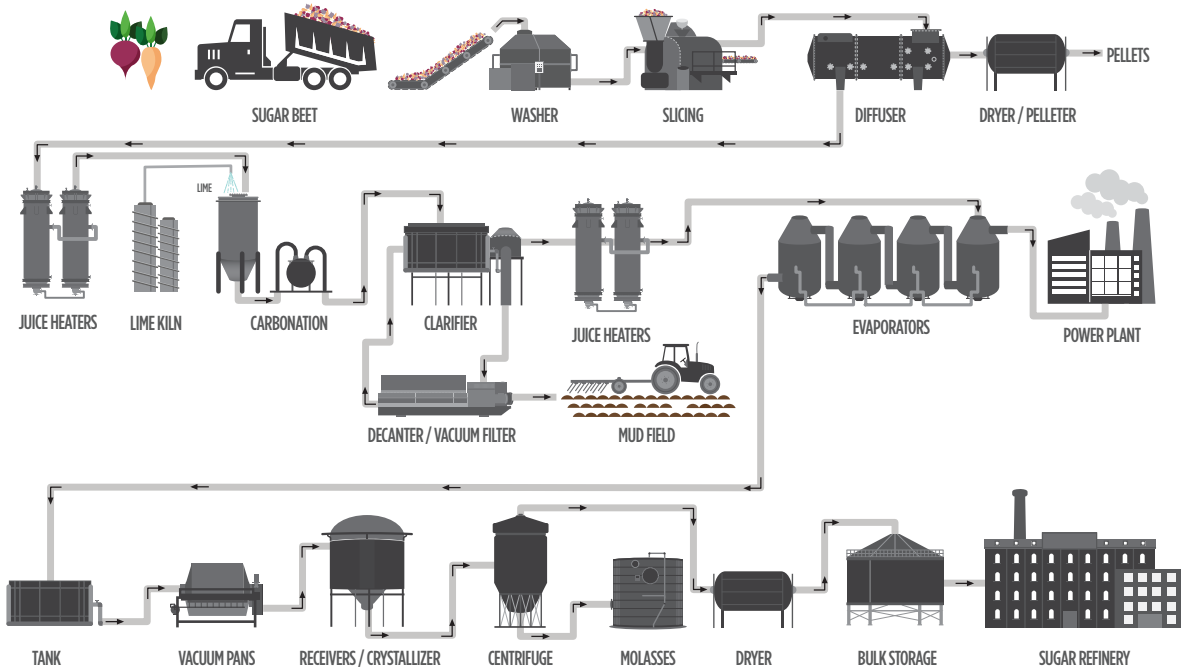
Purge ports on knife gate valves are available to flush out any sugar build up or molasses incrustations to prevent valve jamming issues. Deflection cones on knife gate valves used on centrifugal discharge help redirect flow of sugar crystals away from the seat and towards the center of bore extending service life of seat and gate allowing customer uninterrupted service for the production season. Pneumatic actuation solutions such as the Bray scotch yoke actuator is built tough with hard chrome plated polished internals and self-lubricated bearings to handle the stress from rapid and high cycling applications such as clarifier discharge. Performance parameters such as stroke count, change in position, pneumatic leakage, position histogram and other metrics available on board and remotely through the Bray smart positioner continually provide the plant actionable insights to make proactive decisions on product performance and maintenance.

That's why sugar mills around the world rely on Bray products to keep their sugar processes running. Are you excited to give Bray an opportunity to help optimize your plant performance through our innovative and cutting edge solutions?

SUGAR PROCESSING - SUGAR CANE



SUGAR PROCESSING - SUGAR BEET



Valve Type	Design	Process of Plant										Balance of Plant				
		Cleaning	Milling/Diffusion	Lime Feed	Heating + Carbonation	Clarification	Filtration + Decanters	Evaporation	Crystallization	Centrifuge	Sugar Storage	Refinery	Energy Center/Boiler	Water Treatment	Wastewater Treatment	Cooling Towers
Butterfly Valves	Resilient Seated	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	S41R High Performance				•	•		•				•				
	S41 High Performance		•		•	•	•	•	•	•	•	•	•			•
	Triple Offset							•					•			
Ball Valves	3 Piece				•	•		•				•	•	•		
	Flanged				•	•	•	•	•	•		•	•	•	•	•
	Lined PFA			•									•	•		
	Severe Service M1 & M4												•			
Knife Gate Valves	740	•	•					•	•			•			•	
	940										•	•				
Check Valves	RITE 210				•	•	•	•				•	•	•		•
Control Valves	S19/S19L		•	•	•	•	•	•	•	•		•	•		•	
	V-port				•			•				•		•		•
Actuation + Controls	Pneumatic		•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Valve Status Monitor			•	•	•	•	•	•	•	•	•	•	•	•	•
	Proximity Sensors		•			•		•				•	•	•	•	•
	Positioners		•	•	•	•	•	•		•		•	•	•	•	•
	Electric Actuators													•	•	•

BRAY PRODUCT OFFERING - VALVES

BUTTERFLY VALVES - RESILIENT SEATED



Bray's resilient seated butterfly valve line has been an industry leader for over 30 years. Tongue and groove seat design, double-D shaft to disc connection, and Nylon 11 disc coating are all best in class features which provide a long lasting and quality product.

FEATURES

- > Engineered disc to maximize flow and minimize resistance providing a high Cv.
- > Seat design and internal disc to stem connection isolates the line media from the body and stem.
- > Spherically machined and polished disc edge produces bubble tight shutoff, minimum torque, and longer seat life.
- > Non-corrosive, heavy duty bushing absorbs actuator thrust and extend service life.
- > Various seat material options to handle general to abrasive slurry service.

S20/21, S30/31, S32/33, S35/36

BUTTERFLY VALVES - HIGH PERFORMANCE 41R



Bray's award winning double offset high performance butterfly valve is precision engineered to deliver quality, value and reliability in the most demanding applications.

FEATURES

- > Large Cv
- > Steam Valves for Evaporators
- > Evaporator Steam and Escape Valves
- > Zero leakage shutoff through over 100,000 cycle
- > Body, disc, stem and internals are optimized for lighter weight and cost savings
- > SS polished disc edge on disc to allow for enhanced sealing life and high reliability

BUTTERFLY VALVES - MCCANNALOK HIGH PERFORMANCE



Bray's award winning double offset high performance butterfly valve is precision engineered to deliver quality, value and reliability in the most demanding applications.

FEATURES

- > 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.

S40/41, S42/43

BUTTERFLY VALVES - TRI LOK TRIPLE OFFSET



Bray's Tri Lok triple offset valve is the premier isolation valve for metal-to-metal sealing applications that require ZERO leakage. This field repairable design eliminates costly factory repairs and provides a lower total cost of ownership to our customers.

FEATURES

- > Nitride hardened seat eliminates the risk of seat and seal galling.
- > Bearing protection in stem 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.

BUTTERFLY VALVES - ACRIS PFA LINED (AMRESIST)



Fully PFA lined butterfly valves engineered for bidirectional zero leakage shutoff in demanding corrosive and ultra pure industrial apps.

FEATURES

- > Fully PFA lined disc and body provide unsurpassed resistance to corrosion, permeation and microbial contamination for maximum purity and reliability with minimum maintenance.
- > PFA liner and matching disc interface to form a tight bidirectional seal.
- > Full width 360° energized backup liner provides uniform sealing.
- > Acriseal™ live-loaded, stem sealing system self-adjusts to eliminate leak paths and reduce fugitive emissions for long-term, maintenance-free operation.
- > Extended PFA liner forms a protective sleeve shielding the stem from corrosive media and eliminating leak paths.
- > PFA disc over-molding is mechanically bonded to the base metal for full vacuum capability.
- > Streamlined disc engineered for maximum flow.

BALL VALVES - SEVERE SERVICE



Specifically engineered for the most demanding high pressure and temperature steam applications, Bray's Series M4 and M1 is the culmination of advanced technology, rigorous testing, and decades of industry experience.

FEATURES

- > Utilizing the same material and advanced coating composition for the ball and seat, both parts expand at the same rate during thermal cycling, ensuring reliable tight shutoff.
- > The ball and seat are 360° mate-lapped to create a truly spherical interface, eliminating irregularities found with traditional mate-lapping techniques.
- > Wider sealing surfaces reduce dynamic cycling stresses promoting extended valve life and tight shutoff.
- > Inconel belleville spring exerts continuous force onto the ball and seat maintaining the seal throughout operating temperatures.
- > Set of Inconel belleville springs live load the stem packing for leak prevention.
- > M4 is available with standard 4 yr. performance warranty
- > Robust ISO 5211 mounting bracket supports direct mounting of high temperature actuators or conventional adaptation for standard actuators.
- > Available in raised face, ring joint, butt weld, socket weld, and hub-type configurations.

M1, M4

BALL VALVES - 3 PIECE



Modular valve design provides versatility and easy accessibility for critical applications in a wide variety of general industrial applications.

FEATURES

- > 3 Piece body allows for the center section to be swung out for easy access for maintenance, in-line reparability, and trim removing during welding.
- > Smart Stem features live loaded packing that ensures tight stem packing sealing during changes in environmental conditions and long term wear of the valve.
- > Triad has dual body seals: Inner Teflon seals for tight sealing against standard media and firesafe certified Graphite outer seals for reliable emergency sealing during fire scenarios.
- > Grooves in O.D. of seats to safely relieve excess cavity pressure during moments of unplanned high pressure exceeding specifications.
- > Cavity fillers reduce entrapment of media in body cavity preventing solidifying media buildup and extending service life.

BRAY PRODUCT OFFERING -VALVES

BALL VALVES - FLANGED



Durable split body valve equipped designed for maximum service life in a wide variety of general industrial applications.

FEATURES

- > Smart Stem features live loaded packing that ensures tight stem packing sealing during changes in environmental conditions and long term wear of the valve.
- > Ball support on large sizes elevates the ball to allow for uniform contact with the downstream sealing seat ensuring tight sealing and long service life while preventing premature failure due to uneven wear.
- > Grooves in O.D. of seats to safely relieve excess cavity pressure during moments of unplanned high pressure exceeding specifications.
- > Cavity fillers reduce entrapment of media in body cavity preventing solidifying media buildup and extending service life.

BALL VALVES - ACRIS PFA LINED (AMRESIST)



Fully Lined Valves Engineered for Corrosive & Ultra Pure Industrial Applications

FEATURES

- > Fully PFA lined ball, stem and body offer unsurpassed resistance to corrosion, permeation and microbial contamination for maximum purity and reliability.
- > Full port design ensures an unrestricted flow path for high flow rates with minimal pressure drop.
- > Rugged, high strength one piece ball and stem prevents blowouts and limits hysteresis for dependable operation.
- > Adjustable PTFE chevron packing eliminates leak paths and reduces fugitive emissions.
- > Durable, corrosion resistant PTFE seat designed for zero leakage, low torque isolation.
- > Metal-to-metal body joints protect the locked-in liner from damage caused by external forces.

KNIFE GATE VALVES - UNI & BIDIRECTIONAL



Engineered product for general purpose on/off service and isolation of clean, dirty, corrosive, abrasive, viscous and high temperature media.

FEATURES

- > Deflection cone option for abrasive flow applications to direct flow away from seat.
- > One-piece cast body designed for rugged performance in applications ranging from general purpose to severe media handling.
- > Unidirectional and bidirectional valve options.
- > Various materials available for metal and soft seats.
- > Integral and replaceable seat option.
- > Purge ports are available to flush out any build up.
- > Various actuation options.

740, 940

CHECK VALVES - 210



Rite's 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

CONTROL VALVES - SEGMENTED SERIES 19



Bray's flagship product for precision modulation and handling solids applications.

FEATURES

- > Self-cleaning action of the segment against the seat allows for use in slurry and high fiber media services.
- > One piece body eliminates any leak paths.
- > Self lubricated, maintenance free bearings allow reduced torque profile throughout service life.
- > Double offset geometry reduces seat wear and extends valve service life.
- > Splined stem to segment connection allows control up to 1% of signal.
- > Minimum body cavities reduce build up of media.
- > Specialized materials of construction and coatings available to withstand highly abrasive applications.
- > Reduced contact area between ball segment, seat & trunnion valve design result in lower valve torque requirements and cost savings.
- > Primary in-line sealing occurs on upstream side of valve, shielding the seat sealing surface from the flow and extending service life.

CONTROL VALVES - V-PORT



Modulating valve trim offering a great combination of high rangeability, large flow capacity, and zero leakage shutoff.

FEATURES

- > High Rangeability up to 800:1 allows precise control over a wider flow range.
- > Custom V-cuts allow for precise control of widely ranging flow conditions.
- > Direct replacement of standard balls in core Bray flanged and 3pc product lines lends to product flexibility.
- > Proprietary Bray, Tek-Fil seat and PEEK seat provide hard, durable erosion resistant surface for extended service life while also providing bidirectional zero leakage shutoff.
- > Larger bore provides increased flow capacity over other types of control valves such as globe valves.

BRAY PRODUCT OFFERING - ACTUATORS, CONTROLS & ACCESSORIES

SCOTCH YOKE PNEUMATIC/HYDRAULIC ACTUATOR - SERIES 98



Series 98 scotch-yoke actuator features a modular design with a wide range of modules to suit the required process application. The heart of the Series 98 is the yoke, available in symmetrically or canted, that converts linear motion into rotational motion.

FEATURES

- > Replaceable self lubricating metal backed PTFE bearings for enhanced service life
- > Compact, modular design for ease of maintenance
- > Optional Seacorr® coating for harsh environments
- > Premium epoxy/polyurethane coating
- > Wide range of accessories to mount
- > High torque to weight ratio
- > Easy field configuration
- > Wide range of modules

RACK & PINION PNEUMATIC ACTUATOR - SERIES 92/93



Series 92/93 pneumatic actuators are rack and pinion with reduced overall size requirements and economic savings. In addition, all Bray accessories are fully modular and directly mount to the actuator – providing flexibility and efficiency at reduced cost

FEATURES

- > Anodized aluminum bodies with polyester coated end caps as standard.
- > Permanently lubricated bearings and guides
- > Completely enclosed and self-contained
- > Two independently adjustable travel stops
- > NAMUR accessory compatible
- > Integral porting

ELECTRIC ACTUATOR - SERIES 70



Series 70 features on/off or modulating control and offers easy access to terminal block wiring, cam adjustments and switch installation. Therefore, the time required for field start-up and adjustment is greatly reduced, and maintenance can be performed with assured ease and safety.

FEATURES

- > Optional modulating control using Servo NXT microprocessor
- > Optional Seacorr® coating for harsh environments
- > Easy access for field wiring and adjustment
- > High visibility position indicator, Digital interface available.
- > Manual declutchable hand-wheel, Self locking output drive assembly.
- > Travel limit SPDT switches
- > Captive cover bolts

ELECTRO-PNEUMATIC POSITIONER - SERIES 6A



Precision digital control with proven reliability the Series 6A positioners were designed with ease of installation, simple calibration, efficiency and economy in mind. Units for rotary single acting and double acting actuators are offered as standard. Various housing options and intrinsically safe versions are also available.

FEATURES

- > Zero bleed design
- > Valve and actuator health monitoring as standard
- > Corrective and preventative maintenance self-diagnostic checks
- > LCD monitor
- > Auto calibration
- > Non-contacting position sensor technology
- > Integral volume booster
- > NEMA 4x, explosion proof, intrinsically safe options available

INDUCTIVE PROXIMITY SENSORS - SERIES 54



Series 54 provides position indication for quarter turn valves. Design offers reliable and durable valve monitoring and control solutions for efficient plant operation. The compact Series 54 directly mounts to VDI/VDE 3845 compliant actuators resulting in a smaller, cost saving actuator profile. Various electrical output options allow integration of the Series 54 into all standard process control environments.

FEATURES

- > Two independent sensors for open and close position indication
- > Rugged design resistant to shock, vibration, UV and corrosion
- > Hermetically sealed protects against ingress of liquids or solids
- > Non-contact sensor eliminates the effect of mechanical wear
- > Eliminates potential switch welding, arcing and sparking
- > Quick and easy installation, maintenance free design
- > LED indication for sensor power, switch and solenoid status
- > AS-i sensor available for digital network solution for valve actuator interface
- > DC 2-wire sensor available for hazardous area process environments, optimized for indoor and outdoor use

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

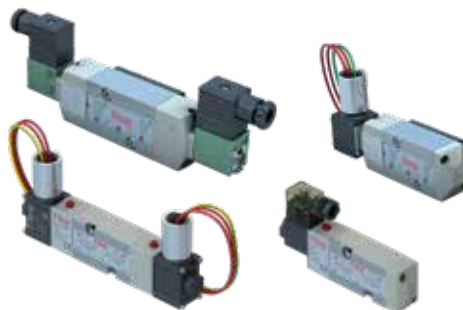


Series 5A, 5B and 5C Valve Status Monitors (VSM) provide visual and electrical indication of position on any VDI/VDE 3845 compliant quarter-turn rotary actuators. The VSMs can be installed in both perpendicular and parallel orientations without changing brackets. Available as general purpose (Series 5A and 5B) or hazardous locations (Series 5C Explosion Proof, and 5A/B Intrinsically safe).

FEATURES

- > Shatter and UV resistant dome. Stainless steel captive cover bolts
- > High visibility position indicator with double seal to prevent water ingress.
- > Splined cams for easy and accurate adjustment without tools.
- > Flexible mounting options with adjustable bracket for NAMUR mounting pads.
- > Available industrial communication protocols module (CommPro) for AS-i, DeviceNet and Profibus DP.
- > Explosion-proof housing or intrinsically safe proximity switches available for hazardous locations.
- > Aluminum or resin body housing materials.

SOLENOID VALVE - SERIES 60/63



These units can be used with either spring return or double acting actuators where on/off electrical operation is required. Units have 1/4" NPT conduit connections and DIN units have cable gland PG9 connectors, also available with 1/2" NPT conduit adapters.

FEATURES

- > Compact, modular design
- > Pilot operated
- > Single or dual coil
- > Low power & Intrinsically safe options
- > Hazardous area option available
- > Convertible from 3-way (32) or 4-way (52)
- > Spool control valve
- > Double or single acting
- > NEMA 4, 4X IP65

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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