
SOLUTIONS FOR THE ETHANOL INDUSTRY



 **Bray**[®]

BRAY.COM

THE HIGH PERFORMANCE COMPANY



At Bray our business is helping our customers with their flow control requirements. Our modular product line offers the best compatibility, economy and quality performance in the flow control industry.

Through years of field application experience, research and development, Bray has designed products that meet the stringent requirements of today's flow control industry. We have earned a reputation for excellence by creating products of superior value and quality, providing personalized customer service and emphasizing on-time deliveries. Our success has always been the direct result of our fully integrated range of valve, actuator and control products. Rugged and reliable, our products are engineered to provide years of trouble free service.

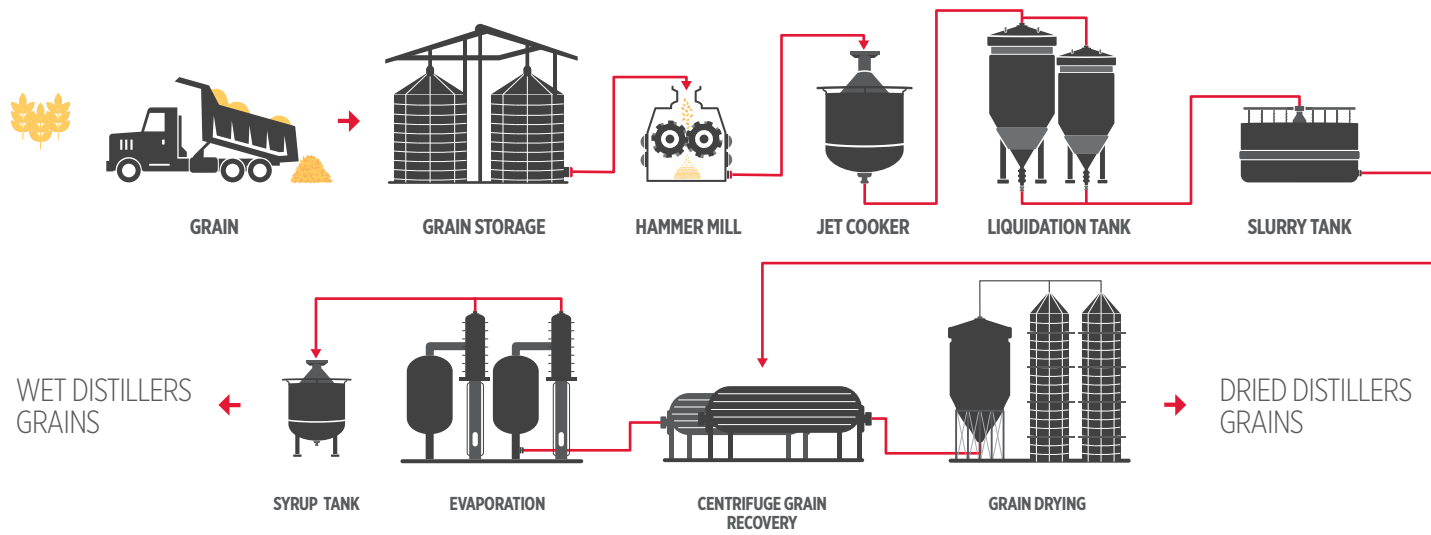
Bray manufacturing facilities are certified to ISO 9001 quality standards, assuring product quality, precision manufacturing and internal process integrity.

Bray is committed to customer support. Our extensively trained staff is knowledgeable in all aspects of Bray's products and their applications and provide personal attention to every customer. To serve you locally, each region maintains a factory certified sales and service network for all Bray International products.

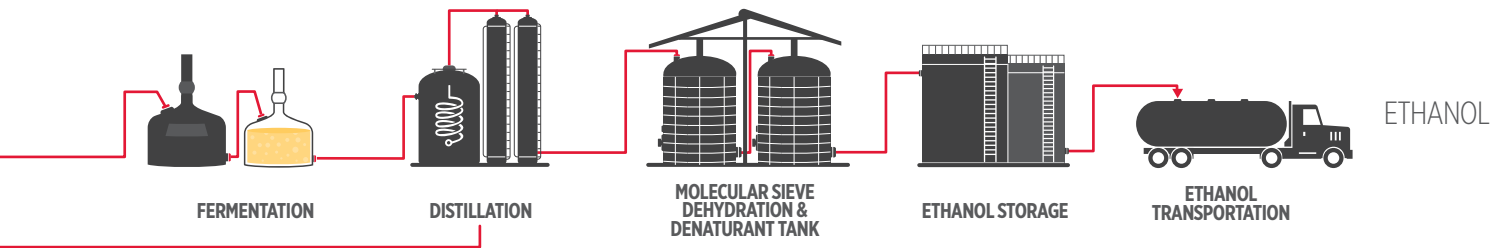
Bray recognizes that "our customers make us successful" and they have a choice of many manufacturers when selecting valves, actuators and accessories for their applications. Since many manufacturers have access to the same materials of construction for these products, Bray believes that a customer's purchase decision is heavily influenced by the following key factors:

- > Trust in the Manufacturer
- > Confidence in the Quality Assurance and Integrity of the Manufacturer
- > Proven Industry Experience
- > Features and Benefits of the Product
- > Delivery
- > Customer Service
- > Cost of Ownership

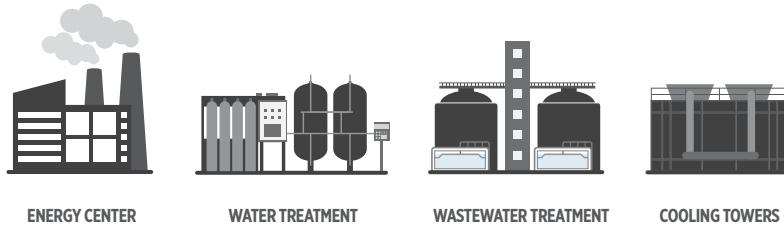
GRAIN TO ETHANOL PROCESS



VALVE TYPE	DESIGN
BUTTERFLY VALVES	Resilient Seated
	High Performance
	Triple Offset
	Acris PFA Lined
BALL VALVES	3 Piece
	Flanged
	Segmented Series 19 On/Off
KNIFE GATE VALVES	Acris PFA Lined
KNIFE GATE VALVES	Unidirectional/Bidirectional
CHECK VALVES	Rite 210
CONTROL VALVES	V-Port
	Segmented Series 19
ACTUATION + CONTROLS	Pneumatic Actuators
	Valve Status Monitor
	Proximity Sensors
	Positioners
	Electric Actuators



BALANCE OF PLANT



PROCESS OF PLANT

BALANCE OF PLANT

	GRAIN STORAGE	MIXING + COOKING	LIQUEFACTION	FERMENTATION	BEER WELL	DISTILLATION	CENTRIFUGE	EVAPORATION	SYRUP	DRYING DDGS	MOLECULAR SIEVE DRYING	ETHANOL STORAGE	OIL PRODUCTION	ENERGY CENTER	WATER TREATMENT	WASTEWATER TREATMENT	COOLING TOWERS
		•	•	•		•		•		•	•	•	•	•		•	•
		•	•	•	•	•		•	•	•	•	•		•		•	•
														•			
		•		•										•		•	
		•	•	•	•	•	•	•		•				•	•	•	•
						•		•	•	•	•		•	•	•	•	•
		•			•						•						
•	•	•			•		•		•	•						•	
				•	•	•				•		•	•	•		•	•
	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
							•			•				•		•	•
		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
•																	



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 side 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 - 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

- > Independently field replaceable seat and seal ring reducing maintenance, downtime and cost.
- > 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.



BUTTERFLY VALVES - ACRIS PFA LINED (AMRESIST)

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

FEATURES

- > Fully PFA lined disc and body provide unsurpassed resistance to corrosion, permeation and microbial contamination for maximum purity and reliability with minimum maintenance.
- > Durable, spherically molded 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 - 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.



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 - UNIDIRECTIONAL/BIDIRECTIONAL

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

FEATURES

- > 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.
- > Deflection cone option for abrasive flow applications directs flow away from seat.
- > Unrestricted flow path design with minimal pressure drop achieved through full port design.
- > Clevis design with horizontal bolting stabilizes gate to ensure proper alignment.
- > Various actuation options.



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



Flow-Tek'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 and trunnion valve design result in lower valve torque requirements and actuator cost savings.
- > Primary in-line sealing typically 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 Flow-Tek flanged and 3pc product lines lends to product flexibility.
- > Proprietary Flow-Tek 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 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

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



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

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



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

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



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
- > On-line adaptive control
- > Corrective and preventative maintenance self-diagnostic checks
- > LCD monitor
- > Auto calibration
- > Friction clutch locking device
- > Non-contacting position sensor technology
- > Integral volume booster



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.



SOLENOID VALVE - SERIES 60/62/63

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



VALVE STATUS MONITORS - SERIES 5A, B, C

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
- > Easy access terminals
- > 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



DECLUTCHABLE GEAR OPERATOR - SERIES 05

This operator is excellent for the safe handling of spring return actuators. During pneumatic operation, the worm of the gear unit is disengaged. Should the valve require opening or closing in the event of power loss, manual rotation of the declutch lever will provide a camming action and engage the worm to the segmented worm gear, allowing rotation of the valve using the handwheel.

FEATURES

- > Heavy duty on/off service
- > Self-locking to hold any position
- > Field-adjustable travel stops
- > Locking kits

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

VISIT [BRAY.COM](https://www.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

All statements, technical information, and recommendations in this bulletin are for general use only. Consult Bray representatives or factory for the specific requirements and material selection for your intended application. The right to change or modify product design or product without prior notice is reserved. Patents issued and applied for worldwide. Bray® is a registered trademark of Bray International, Inc.

© 2022 BRAY INTERNATIONAL, INC. ALL RIGHTS RESERVED. BRAY.COM

EN_B-1072_Ethanol Industry_20220207



THE HIGH PERFORMANCE COMPANY

BRAY.COM