

**Bray**<sup>®</sup>



**VALVES / ACTUATORS**  
COMPLETE PRODUCT LINE / BRAYLINE ACCESSORIES

# BRAY CONTROLS

Bray Controls is proud to offer our high performance, highest quality product lines. Through years of field application experience, research and development, we have designed products that meet the stringent requirements of today's fluid process industry. Bray has earned a reputation of excellence by creating products of superior value and quality, providing personalized customer service and on-time deliveries. Our success has always been the direct result of our fully integrated, full range butterfly valve and control product lines. Rugged and reliable, our products are engineered to provide years of trouble free service.

Bray products are used in a wide range of industries world wide, including:

Chemical, Pharmaceutical, Petroleum Refining and Oilfield, Microelectronics, Pulp and Paper, Power Generation and Distribution, Water and Waste Water Treatment, Government Agencies, Brewing, Food Processing, Beverages, Transportation, Marine, Mining, Irrigation, Textile, Steel Production and HVAC.

Assuring product quality, precision manufacturing and internal process integrity, Bray Controls has been certified to ISO 9001 quality standards. The certification of compliance was issued by Lloyd's Register Quality Assurance (LQRA), a worldwide independent certifier.

Bray is committed to customer support. Our extensively trained staff is knowledgeable in all aspects of Bray's product lines applications and give personal attention to each customer. In addition, Bray has established a unique network of experienced distributors with proven track records to serve our customers worldwide.

The Bray modular product lines offer the best in compatibility, economy and quality performance in the industry today.

# VALVES

## RESILIENT SEATED

Bray Controls offers a complete line of resilient seated butterfly valves for a wide range of applications. Rugged and reliable, Bray valves are built to last.

One unique feature is the international compatibility of our valves with most world flange standards, therefore one valve design can be used in many markets worldwide. Another feature is our *tongue-and-groove* seat design which provides complete isolation of flowing media from the body and stem by a totally encasing design. Most standard bodies are epoxy coated ensuring excellent corrosion and wear resistance to the valve's surface. All Bray valves have extended necks which allow for at least 2" piping insulation. Valve mounting top flanges meet ISO 5211 standards for direct mounting of manual operators and power actuators. Wafer, lug and double flanged bodies are offered. All meet ANSI Class 125/150 flange standards.



### SERIES 20/21 25mm-500mm (1"-20")

The Bray sanitary and chemical applications valve. This valve features a one-piece disc/stem. The thin profile, spherically machined hand polished disc provides a very high  $C_v$  and greater pressure recovery plus superior abrasion and erosion resistance in slurry or dry media applications. The Series 20, a wafer version, and the Series 21 the companion lug, are both rated from 7 bar (100 psi) to 10 bar (150 psi) for 25mm-500mm bodies. Dead end service ratings are 75 psi (5 bar) for 50mm-300mm bodies and 3.5 bar (50 psi) for 350mm-500mm bodies. The split body design makes field replacement of the seat simple



and fast. 316 Stainless Steel bodies, investment cast 25mm-150mm and sand cast 200mm-300mm, in both wafer and lug styles are available. All Series 20/21 valves are offered with 316 Stainless Steel or Hastelloy C disc/stems and a variety of moulded disc/stem and seat materials including PTFE and elastomers.



### SERIES 22/23 50mm-600mm (2"-24")

The Bray HPV-High Performance Valve is ideal for highly corrosive, conductive, abrasive and ultra pure water applications. PTFE seats and encapsulated stainless steel discs are moulded from virgin, unfilled PTFE with a minimum of 3mm thickness. Conductive PTFE and UHMWPE seats and moulded over stainless steel discs are available. Moulded HPV seats feature computer designed machined contours that reduce part wear by minimizing contact forces. Bray's patented sealing design provides bubble tight shut-off and absolute stem sealing capability. The Series 22, a wafer version, and the Series 23, the lug version, are both rated for 10 bar (150 psi) service.

**SERIES 30/31** 50mm-500mm (2"-20")  
 Bray's general purpose valve. This valve has a high strength through-stem design. Its precision double "D" disc to stem connection drives the disc without the need of screws or pins. This design allows for higher  $C_v$ , easy disassembly and reduced disc to stem failure. The stem is retained in the body by means of a S.S. retaining ring. The Series 30, a wafer version, and the Series 31 the companion lug, are both rated 12 bar (175 psi) for 50mm-300mm bodies and 10 bar (150 psi) for 350mm-500mm bodies. Dead end service ratings are 5 bar (75 psi) for 50mm-300mm bodies, and 3.5 bar (50 psi) for 350mm-500mm bodies.



**SERIES 32/33** 600mm-900mm (24"-36")  
 Large diameter economical wafer valve. The Series 32 valve is rated 5 bar (75 psi), and the Series 33 valve is rated 150 psi (10 bar). [Photo not shown].

**SERIES 35/36** 600mm-1800mm (24"-72")  
 Large diameter double flanged valve. Features a through-stem design with adjustable packing and bubble-tight shutoff. The Series 35 valve is rated 5 bar (75 psi), and the Series 36 is rated 10 bar (150 psi).



**SERIES 31H/36H** 50mm-600mm (2"-24")  
 Bray's economical high pressure butterfly valve features an elastomer seat which is bonded to the valve body by an aerospace adhesive. The seat is designed to seal with slip-on or weld neck flanges. The Series 31H lug (50mm-500mm) has a bidirectional and dead end pressure rating of 250 psi. The Series 36H double flanged (600mm) is rated 150 psi for both bidirectional and dead end service.



**SERIES 40** 65mm-1400mm (2.5"-54")  
 The Bray/McCannalok high-performance, high-pressure, high and low temperature butterfly valve. Full rated ANSI Class 150, 300 & 600 valves in wafer and lug bodies are offered. The unique, two part seat design features an energized O-ring fully encapsulated in the RTFE seat for bidirectional bubble-tight shut-off under high pressure, low pressure and vacuum. A double offset stem and disc design reduces seat wear, extends service life and reduces torque. A superior Fire Safe version is available. The temperature range of the Series 40 is from -29°C (-20°F) to 260°C (500°F) with operating pressures up to 102 bar (1480 psi).



### CONTROL BUTTERFLY VALVES

Bray Control Valves offer precision control and bubble-tight shut off combined in one valve. These valves feature fast response times to control signals due to advanced digitally controlled actuators plus the inherent strengths of butterfly valves. Other features include high flow capacity, ease of maintenance and exceptional interface with PLCs and computer command signals.

Bray's resilient seated control butterfly valves range from 25mm-600mm (1"-24") and are available with a variety of body materials in both wafer, lug and flanged styles. Disc materials include Nylon 11 powder coated ductile iron, aluminum, bronze, stainless steel, or PTFE and UHMWPE moulded over stainless steel discs. Pressure ratings are available from vacuum to 175 psi (12 bar) and ASME/ANSI Class 150, 300 & 600 ratings. Non-Fire Safe valves and Fire Safe valves certified to API 607 4th Edition are offered.

Bray's Series 92/93 Pneumatic Actuators supply the torque to power Bray Control Valves in the most demanding flow control applications. This line of rugged, rack and pinion actuators can be matched to Bray electro-pneumatic positioners and advanced control accessories for precise valve positioning. Both analog and microprocessor-controlled digital positioners are available. The digital positioners are available in various industrial fieldbus versions.

The Bray Series 70 Electric Actuator can also be used to accurately position high performance Bray Control Valves for superior flow control. This compact and powerful series of actuators may be equipped with servos that accept standard analog input signals, or serial bus communication, such as DeviceNet.

# OPERATORS

## SERIES 1 HANDLE & NOTCH PLATE KIT

Bray offers two handles for on-off and throttling service – one for resilient seated valves from 25mm-300mm (1"-12"), and a high torque handle for high pressure valves from 65mm-200mm (2 1/2"- 8"). These quarter turn handles have a locking spring design and a directional pointer for valve disc position indication. Bolted notch plates are offered. For resilient seated valves a 10 position plate is standard. For high pressure valves an 8 position plate is standard. Both contain on-off stops to prevent over rotation of the valve. Optionally available are an infinite position plate, a 180° notch plate, a memory stop and a 50mm square nut version.



**Padlock Kit** allows the customer to lock the valve in the full open or closed position, tamper proofing the valve. By drilling a new hole in the top plate, the handle can be locked in mid travel.



## SERIES 4 GEAR OPERATOR

For heavy duty on-off and throttling service of 50mm-1200mm (2"-48") valves, the Series 4 is self lubricated for smooth, trouble free operation. The rugged, cast iron body with O-ring body seals is weatherproof to IP65. A self-locking worm and worm gear drive holds the valve in the desired position. Features include a readily accessible handwheel, a valve position indicator and mechanical travel stops which permit field adjustment of valve movement to specific degrees of rotation. Optionally available are chainwheel accessories, padlock kits and



50mm square nut versions. A Stainless Steel Gear Operator is also available for valve sizes 25mm-400mm.



## SERIES 5 DECLUTCHABLE GEAR OPERATOR

Available for 50mm-900mm (2"-36") valves, the Series 5 offers the same superior features as the Series 4 gear operator with the added ability to manually override pneumatic actuators or rotate the valve when air pressure is not available. During pneumatic operation of the valve, 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. Reverse rotation of the lever disengages the unit. Excellent for safe handling of spring return actuators.



## DIRECT-MOUNTING OF ACTUATORS TO VALVES

Due to a modular concept of design, all Bray handles, manual gear operators, and pneumatic or electric actuators mount directly to Bray valves. No brackets or adapters are required. This allows for simple installation in the field and minimizes possible misalignment.

# ACTUATORS

## SERIES 92/93 PNEUMATIC

Bray pneumatic actuators are rack and pinion, opposed-piston actuators available in two versions: double acting and spring return. Series 92/93 actuators feature two independently adjustable travel stop screws and a cam on the output shaft to permit precise bidirectional adjustment of movement in both the open and closed positions for quarter turn valves. They have a maximum pressure rating of 10 bar (140 psi) and a temperature range of -40°C (-40°F) to +95°C (+200°F).

Bray's unique acetal piston guides and rings have a very low coefficient of friction and absorb

the side thrusts of the pistons. Other features include integral porting, manual override, and position indicator. To save both cost and space, the Series 93 spring return units are designed with the same housing length as the Series 92 double



## SERIES 70 ELECTRIC

The Series 70 is a low profile, compact and powerful actuator with unique, customer-friendly features. Bray's rugged electric actuators are powered by high-torque, permanent split-capacitor, reversible induction motors. All motors have UL approved thermal overload protection. Output torque ranges from 34Nm to 734Nm. All models have a manual override handwheel. Standard features include two travel limit switches, high visibility valve position display, and externally adjustable mechanical travel stops. Standard motor voltages are 120 VAC and 220 VAC – optional voltages are available. Optional accessories include SPDT auxiliary switches, anti-condensation heaters, and bidirectional torque switches. The actuator carries UL listing and CSA approval. The polyester coated housings are weatherproof to NEMA 4 and 4X. Explosion proof housings compliant to NEMA 4, 4X, 7 and 9 are available in selected torque ranges.



An optional microprocessor controlled Servo is available for precise modulating control of valve position in response to an analog input signal. The Servo provides an analog output signal proportional to actual valve position as standard. This analog signal is configurable to either current or voltage output and drives a 250-Ohm load without requiring an additional instrument power supply. Input signals may be 4-20 mA DC, 0-10 VDC, 0-5 VDC, or a potentiometer 135 Ohms or greater. All inputs to the Servo have voltage surge protection, including the power line input. The Servo has an

Autocalibration function enabled by the push of a single button. There are no zero and span potentiometers requiring multiple adjustments. Several optional features and parameters may be accessed through the Configuration Tool software and cable. A special mechanism drives the 10k Ohm feedback potentiometer to prevent damage from over rotation.

## SERIES 73 ELECTRIC

Bray's economical, high performance electric actuator. The Series 73 is a low-profile, compact actuator which features a customer friendly design for ease of field wiring and cam adjustment. Installation and maintenance are easy and safe. Bray's Series 73 electric actuators have a UL listed 120 or 220 VAC single phase permanent split-capacitor reversible induction motor with internal brake. 12 or 24 VDC motors are available upon request. Output torque from 11Nm to 67Nm with speeds ranging from 2 to 60 seconds for 90° operation. Two SPDT travel limit switches are standard. Features include manual override, a valve position pointer, and LEDs which light up either red or green at end of travel when the valve reaches the open and closed positions. Available in weatherproof (NEMA 4, 4x, IP65) housings.



## SERIAL BUS COMMUNICATION

Bray offers several products featuring serial bus communication. Some are accessories to standard products, such as the Series 52 Digital Actuator Interface, and the Series 66 Analog Actuator Interface. Some are completely integrated, such as the Series 52 Valve Status Monitor with AS-i communication. These products, in addition to Series 70 DeviceNet Servos, represent the future of industrial valve control.



acting units. The Series 93 spring cartridges are inherently safe. The standard spring cartridge system is available for 40, 60, 80 and 100 psi services (3, 4, 5, 6 and 7 bar). NAMUR interface of air supply ports is standard on all Series 92/93 actuators. In addition, Bray actuators comply with ISO 5211 and VDI/VDE 3845 (NAMUR recommendations) dimensions and mount directly to Bray valves without using external linkages. Standard units have anodized aluminum bodies with polyester coated end caps. Stainless Steel and Electroless Nickel plated aluminum actuators are available.



Stainless Steel Actuator

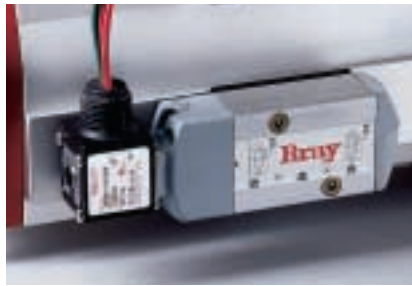
## SERIES 50 VALVE STATUS MONITOR

The Series 50 signals actuator and valve position to local and remote stations. The compact valve status monitor mounts directly to the top of the actuator. Features include finger-touch control cams, captive cover bolts, local position indicator and two conduit entries for easy

wiring. Rated for 15 amps at 125 or 250 volts AC, the Series 50 is provided with internal travel switches that are prewired to a terminal block. Standard switches are two single pole double throw (SPDT) micro switches. Available switch options are 4 micro switches, 2 proximity switches, 2 pneumatic switches or potention-meter for continuous read out. The housing is available in waterproof (UL listed and CSA, CE certified NEMA 4, 4X) or explosion proof (CSA certified NEMA 4, 4X, 7, 9). A high visibility valve status display is available as an option.



Series 52



## SERIES 63 4-WAY AND 3-WAY SOLENOID VALVE

For electrical operation of pneumatic actuator on-off functions, Bray 4-Way Series 63 solenoids are direct mounted to the actuator by NAMUR interface, with no external tubing required. Both waterproof (NEMA 4, 4X) and explosion proof (NEMA 4, 4X, 7, 9) housings are standard. NPT and IP65 DIN connections are offered with both single and dual coils. The coils are UL listed and CSA certified. All Series 63 solenoids carry the CE mark. The air supply connection is 1/4" NPT. The electrical connection is 1/2" NPT or IP65 DIN. A manual override lever is located on the top of the valve body. A 3-Way Solenoid and Series 55 speed control for independent control of speed in both directions of actuator travel are available.

## SERIES 52 VALVE STATUS MONITOR

The Bray 2N1 ProxSensor provides 2 inductive proximity sensors in 1 self-contained, fully sealed, compact enclosure. The 2 sensors are completely encapsulated with epoxy resin in a nylon enclosure for superior moisture, chemical and corrosion protection. Features include LED indicators, high visibility pointer for local position indication, non-magnetic target and multi-pin electrical cable connector. The Series 52 mounts directly to Bray actuators or can be mounted to signal valve position of manually operated valves. AC, DC and NAMUR intrinsically safe versions are available. AC Sensor units operate on 20-250 VAC with a maximum load current of 500mA. DC Sensor units operate on 10-65VDC with a maximum load current of 200mA.

## SERIES 67 ELECTRO-PNEUMATIC & PNEUMATIC POSITIONERS

The Bray Series 67 positioners feature a modular design that allows the units and accessories to be freely combined. For use with either double or single acting actuators, they provide direct or reverse operating modes and zero and range adjustments can be set separately. The electro-pneumatic analog positioner accepts either a 0-20 mADC or 4-20 mADC input signal. Advanced micro-processor controlled Digital Smart and BusSmart Intelligent electro-pneumatic positioners are offered for digital control.



## SERIES 64 PNEUMATIC POSITIONER

For modulating services, the Bray Series 64 positioner automatically positions the output shaft to precise valve angles between 0° and 90°. The standard positioner input signal is 3-15psi. It can function as double acting or single acting for spring return requirements and is adaptable for applications where reversible or split range is required.



DISTRIBUTOR

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 applied for in U.S. and foreign countries.

Bray® is a registered trademark of BRAY INTERNATIONAL, Inc.

# Bray

## CONTROLS (UK)

A Subsidiary of BRAY INTERNATIONAL, Inc.  
16-18 Fountain Crescent, Inchinnan Business Park  
Inchinnan PA4 9RE Scotland

Tel: +44(0)141 812 5199 Fax: +44(0)141 812 6199 [www.bray.com](http://www.bray.com)

© 2005 Bray International. All rights reserved.

B-1008 4/05