## SOLUTIONS FOR THE
# INDUSTRIAL GAS INDUSTRY

Bray®

BRAY.COM

THE HIGH PERFORMANCE COMPANY

## YOUR PROCESS CONTROL PARTNER

| | | |
|---|---|---|
| PRESSURE / VACUUM SWING ADSORPTION | WARM AIR SEPARATION | CRYOGENIC AIR SEPARATION |
| HYCO SYNGAS | BLUE HYDROGEN | GREEN HYDROGEN |

The Industrial Gas industry involves a diverse collection of processes, with demanding applications and extreme service conditions. Our broad portfolio of high-performance valves, actuators, and controls ideally positions Bray to meet these challenging needs — from high cycle to cryogenic service. With products engineered for safety, reliability, and performance, you can count on Bray as your technical partner of choice — to provide innovative solutions for years to come.

### SAFETY SYSTEMS DEMAND RELIABILITY

For your critical Safety Instrumented System (SIS) needs, Bray offers custom engineered solutions featuring our line of reliable valves, actuators, and controls.

Packages can be configured and certified for safety applications including Emergency Shut Down (ESD), High Integrity Pressure Protection Systems (HIPPS), SIL, and others.

### SAFETY INSTRUMENTED SYSTEM (SIS) CAPABILITIES

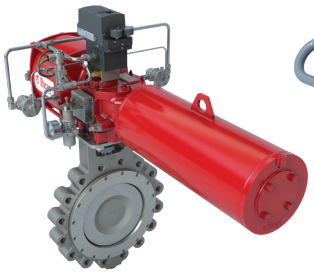
Partnering with Bray for your SIS needs offers many advantages, such as:

- Single-source OEM responsibility for complete automated valve packages.
- Safety Integrity Level 3 (SIL 3) certified valve assemblies.
- Customizable configurations, including adaptation of Bray automation to non-Bray valves.
- Custom control panel designs.
- 3D CAD modeling.
- Valve flow modeling.
- Finite Element Analysis (FEA).

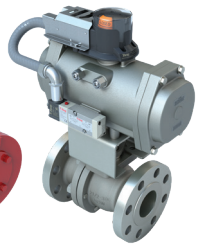
### AUTOMATED VALVE ASSEMBLIES

Capabilities of Bray's automated valve assemblies include:

- Rugged actuator design — Bray's S98 scotch yoke pneumatic actuator is cycle tested up to 4X the required standard (EN15714-3 Actuator Performance Standard).
- Fast acting actuation — <1 second.
- Partial stroke test (local and remote).
- Positive Material Identification (PMI) — to verify materials on critical applications.
- Fugitive emissions certification to API 641 and ISO 15848-1.
- Firesafe certification to API 607.



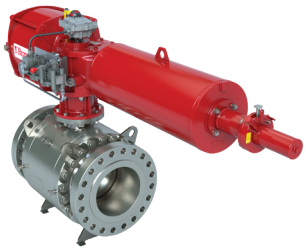
Triple Offset Butterfly Valves



Flanged Ball Valves

Metal Seated Ball Valves

Scotch Yoke Pneumatic Actuators



Trunnion Mounted Ball Valves

# KEEPING OUR AIR CLEAN

Recognizing the importance of sustainability, socially responsible organizations have begun looking for ways to mitigate the environmental impact of their operations. These efforts have brought attention to the volume of volatile organic compounds released by industrial manufacturing processes. With unintentional leaks from industrial equipment (such as valves) comprising the vast majority of these fugitive emissions, environmental agencies have been forced to establish emissions standards — often imposing heavy fines on those in violation.

Bray is committed to helping organizations around the world tighten their grip on fugitive emissions. Our industry leading range of low-emissions, quarter-turn valves are certified for maximum compliance with minimum environmental impact. Certification and testing standards include:

- API 641
- ISO 15848
- TA Luft VDI 2440


Bray Research & Development facilities in Houston, India, and China include safe, dedicated areas with extensive gas leakage detection equipment — used for product development, validation, and production testing.


Run by trained and experienced fugitive emissions specialists, our facilities include:

- Helium mass spectrometer.
- Tracer gas leak standards with calibrated depletion rates — for accurate and precise testing and pressures up to 6,000 psi (414 bar).
- Measurement capabilities at extreme temperatures from -320°F to 1,000°F (-196°C to 538°C).


## GLOBAL FACILITIES

Bray's cleanroom facilities offer a single source for precision cleaned valves, from automated packages to assemblies and spare parts. With global cleaning capabilities from ISO Class 9 through ISO Class 6, multiple service levels are available to meet a variety of international certifications and standards.

## SUPPORTED INDUSTRIES

- Aerospace
- Air Separation
- Automotive
- Biotechnology & Pharma
- Chemical
- Chlor-Alkali
- Cryogenics
- Food & Beverage
- Industrial Gas
- Semiconductor
- Ultrapure Water

## THE BRAY ADVANTAGE

- Factory direct cleaned valve & automation packages.
- Reduced logisitical risk provides faster delivery.
- Trained and experienced technicians provide consistent product cleanliness.
- Cleaning procedures validated by third party labs.

## CERTIFICATIONS & STANDARDS

| | |
|---|---|
| **EIGA 33/18** | Cleaning of Equipment for Oxygen Service |
| **ISO 14644-1** | Certification of Air Cleanliness |
| **MSS-SP-140** | Preparation of Valves and Fittings for Silicone-Free Service |
| **VDMA 24364** | Testing for Paint Wetting Impairment Substances (LABS-Conformity) |

## AVAILABLE CLEANING LEVELS

| CLEANING SERVICE | LEVEL | | METHOD | | INSPECTION | | | PACKAGING | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Component | Valve | Mechanical | Solution | White Light | UV Light | Wipe Test | Single Bag | Double Bag | Desiccants |
| **Oxygen Ready** | ■ | | ■ | ■ | ■ | ■ | ■ | | ■ | ■ |
| **Ultrapure** | ■ | | | ■ | ■ | | | | ■ | |
| **Process Clean** | ■ | | ■ | ■ | ■ | | ■ | | ■ | ■ |
| **Silicone-Free** | ■ | | | ■ | ■ | ■ | | | ■ | |
| **LABS-Free** | | ■ | | ■ | ■ | ■ | | | ■ | |
| **EC 1935** | | ■ | | ■ | ■ | | | ■ | | |
| **Clean & Degreased** | | ■ | | ■ | ■ | | | ■ | | |

# BRAY PROVIDES RAPID DELIVERY FOR HIGH CYCLE VALVES IN HYDROGEN PRODUCTION


## CUSTOMER

A leading global industrial gas supplier for hydrogen pressure swing adsorption (PSA) and oxygen vacuum swing adsorption (VSA) processes.

## CHALLENGE

PSA and VSA processes require equipment that ensures safe operation, reliable performance, and continuous availability. The demanding processes call for valves that must maintain zero leakage, endure high cycle counts, and provide an extended service life to optimize return on investment. Valves for these demanding applications are often subjected to extensive endurance tests to validate their performance in specific operating conditions.

Recently, a Bray customer presented requirements for switch valves in their hydrogen pressure swing adsorption application. These requirements included:

- Service life of at least 1 million cycles (cycle = open + close)
- Design pressure well above typical PSA requirements (750 psi vs 450 psi)
- Rapid cycling (<3 seconds per stroke)

In addition, an accelerated product delivery schedule was required, reduced approximately 40 percent from typical leadtimes.

## SOLUTION

To meet the performance and endurance requirements, Bray's engineering team proposed our ASME Class 600 high performance butterfly valve (Series 44) with spring return scotch yoke pneumatic actuator (Series 98). The trim was upgraded based on the success of our ASME Class 300 package (Series 42 + Series 98), which was previously qualified to 1 million cycles. Finite Element Analysis (FEA) was used to verify internal component integrity, providing the customer with detailed information needed to move forward without additional testing

## RESULTS

Bray provided a total of 32 automated valve assemblies (see product details sidebar) to meet the upgraded requirements, and all units were shipped within the required timeframe.

As the customer continues to push the hydrogen production limits within PSA, Bray has been selected as the primary switch valve supplier for all ASME Class 600 skids moving forward, based on our record of success for product qualification and rapid delivery

### PROCESS CONDITIONS

| | |
|---|---|
| **Process** | Hydrogen production |
| **Application** | Pressure swing adsorption |
| **Media** | Gaseous hydrogen |
| **Operating Temperature** | -29°C to 65°C<br>-20°F to 150°F |
| **Operating Pressure** | 52 bar<br>750 psi |
| **Leakage Rate** | EN 12266 Rate A |

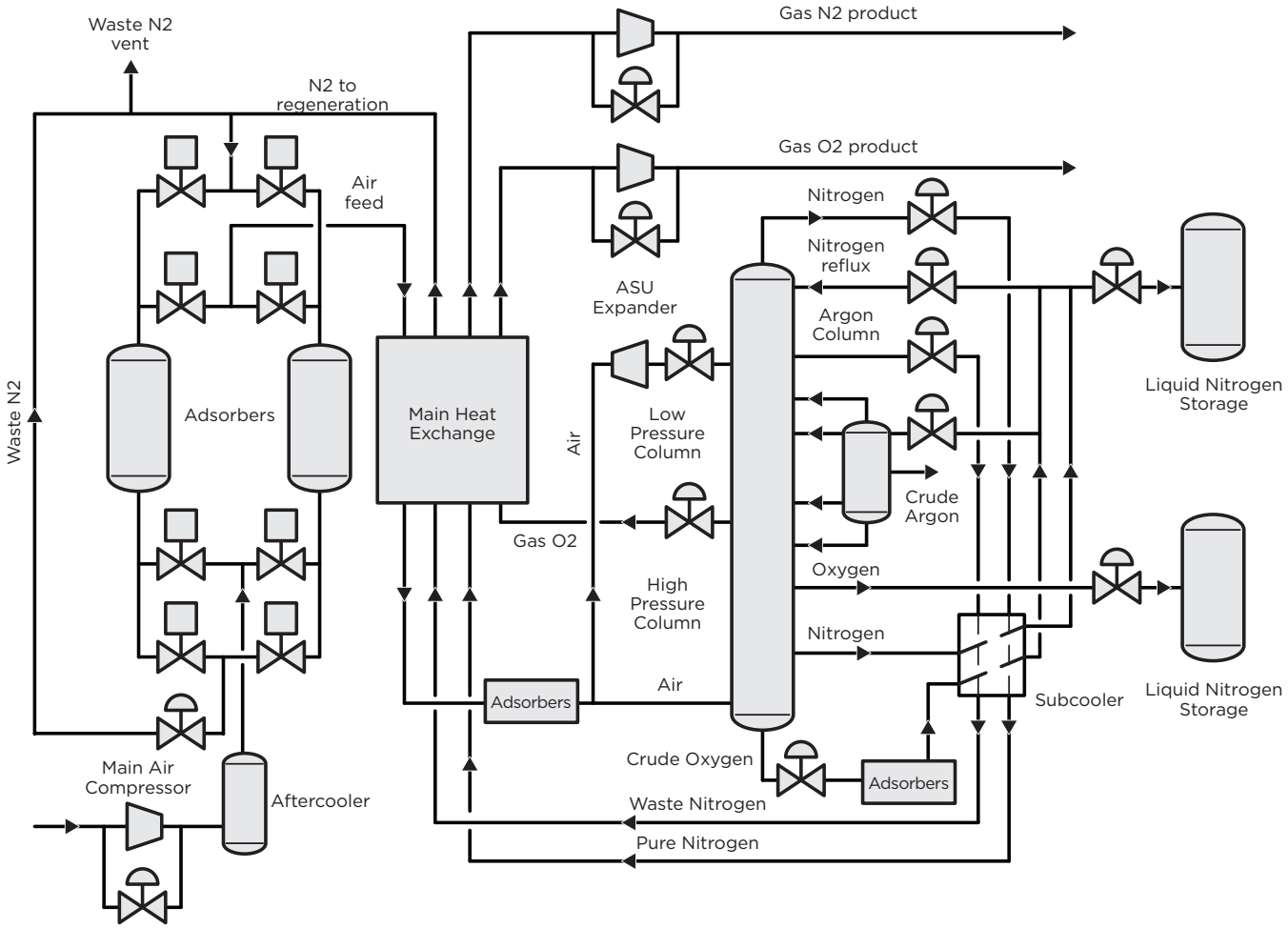
### BRAY PRODUCT DETAILS

| | |
|---|---|
| **Valve** | Series 4X High Performance Butterfly Valve |
| **Upgrades** | High-cycle trim |
| **Size** | NPS 8 \| DN 200<br>NPS 16 \| DN 400<br>NPS 20 \| DN 500 |
| **Seat** | RPTFE (Energized) |
| **Actuation** | Series 98 Spring Return Scotch Yoke Pneumatic |
| **Accessories** | Filter Regulator, Switch Box, Solenoid, Positioner (by others) |

| INDUSTRIAL GAS | | | | PROCESS | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Pressure/ Vacuum Swing Adsorption (PSA/VSA/ VPSA) | | | Air Separation (ASU) – Warm | | | Air Separation (ASU) – Cryogenic | | | HyCO Syngas | | | Blue Hydrogen | | | Green Hydrogen | | |
| PRODUCT | BRAND | TYPE | MODEL | Isolation | Control | Utility | Isolation | Control | Utility | Isolation | Control | Utility | Isolation | Control | Utility | Isolation | Control | Utility | Isolation | Control | Utility |
| BUTTERFLY VALVES | Bray | Resilient Seated | Series 30/31/ 32/33/35/36 | | | ■ | | | | | | | | | ■ | | | ■ | | | ■ |
| | | Resilient Seated | Series 3W/3L | | | ■ | | | | | | | | | ■ | | | ■ | | | ■ |
| | | High Performance | McCannaLok | ■ | ■ | | ■ | ■ | | ■ | ■ | | ■ | ■ | | ■ | ■ | | ■ | ■ | |
| | | High Performance | Series 41R | ■ | | | | | ■ | | | | | | ■ | | | ■ | | | ■ |
| | | Triple Offset | Tri Lok | ■ | ■ | | ■ | ■ | | ■ | ■ | | ■ | ■ | | ■ | ■ | | ■ | ■ | |
| BALL VALVES | Bray/Flow-Tek | Severe Service | Series M1 | | | | | | | | | | | | | ■ | | | ■ | | |
| | | Severe Service | Series M4 | | | | | | | | | | | | | ■ | | | ■ | | |
| | | Flanged (2-piece) | Series F15/F30 | | | ■ | | | ■ | | | | | | ■ | | | ■ | | | ■ |
| | | Flanged (1-piece) | Series RF15/RF30 | | | ■ | | | ■ | | | | | | ■ | | | ■ | | | ■ |
| | | Trunnion Mounted | 1B | ■ | | | ■ | | | | | | ■ | | | ■ | | | ■ | | |
| | | Segmented Ball | Series 19/19L | | ■ | | | ■ | | | | | | | | | ■ | | | ■ | |
| CHECK VALVES | Rite | Swing Check | Series 205 | | | | ■ | | ■ | ■ | | ■ | | | ■ | | | ■ | | | ■ |
| | | Swing Check | Series 210 | | | | ■ | | ■ | ■ | | ■ | | | ■ | | | ■ | | | ■ |
| ACTUATORS | Bray | Pneumatic Scotch Yoke | Series 98 | ■ | ■ | | ■ | ■ | | ■ | ■ | | ■ | ■ | | ■ | ■ | | ■ | ■ | |
| | | Electrohydraulic Scotch Yoke | Series 98EH | | | | | | | | | | ■ | | ■ | ■ | | ■ | ■ | | ■ |
| | | Pneumatic Rack & Pinion | Series 92/93 | ■ | | | ■ | | | ■ | | | ■ | | | ■ | | | ■ | | |
| | | Gear Operator | Series 04, 05 | ■ | | ■ | ■ | | ■ | ■ | | ■ | ■ | | ■ | ■ | | ■ | ■ | | ■ |

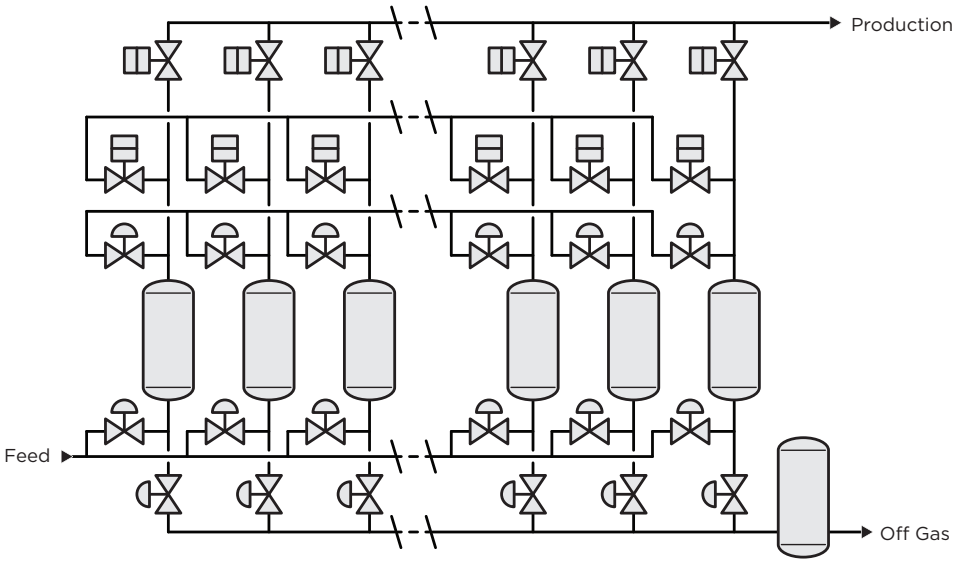
 



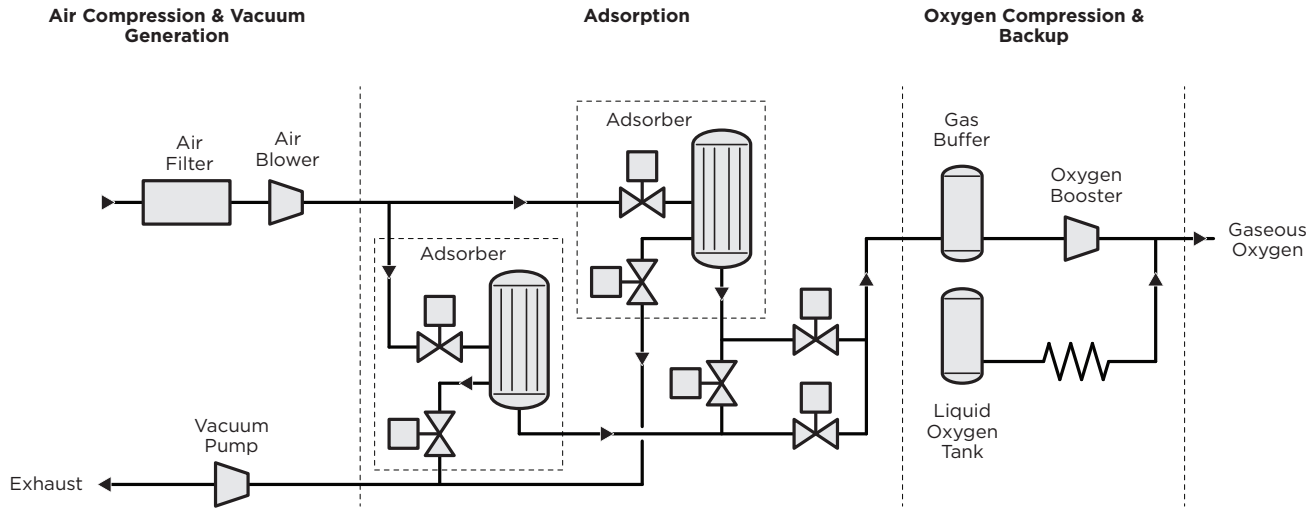

| | Challenges | Bray Solutions | Benefits |
|---|---|---|---|
| **Cold Box** | > Cool down weight<br>> Minimal heat absorption<br>> Packing box freeze up | > Absence of flange joints in cold box areas<br>> Trilok metal seated and McCannalok high-performance butterfly valves provide minimal heat absorption due to their small valve body plus low temperature conduction through neck extension and stem<br>> WHA/BAM certified packing sets | > Extensive cycle capabilities due to McCannalok design and bearings<br>> Actuators capable of special stroking requirements for long periods without maintenance |
| **Yard Valves** | > Provide reliable, light weight valves for on/off and control outside of the cold box | > Trilok metal seated and McCannalok high-performance butterfly valves | > Standardization across complete ASU as well as light weight and compact positive shut-off |
| **Vent Valves** | > High noise potential | > Control noise on vent lines | > S19 segmented ball valve with NoiseShield permits a system to vent large volumes of gas without exceeding required noise levels |
| **Expander Trip** | > Fast stroke speed requirements as well as controlability<br>> Expander trip valves need 1.0 sec closing speed and slow opening speed | > Trilok metal seated and McCannalok high-performance butterfly valves | > Effective on-off stroking with modulating capabilties to support stroke speed requirements and positive shut-off |

## SIX BED HYDROGEN PSA

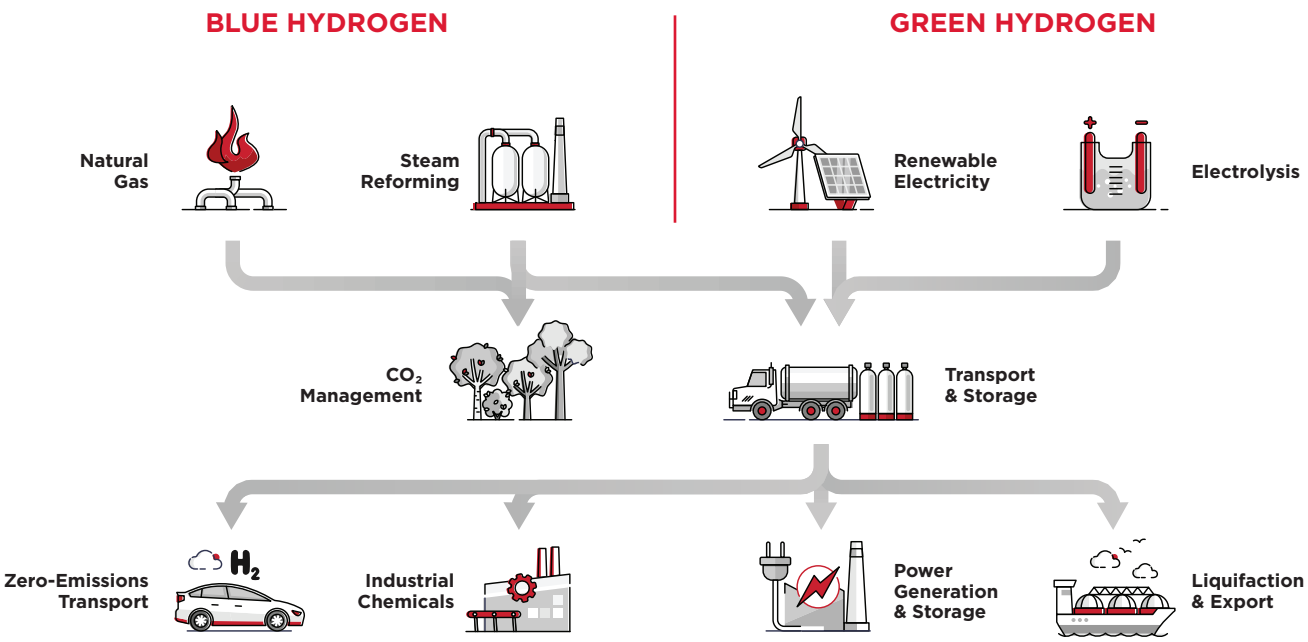



## VSA OXYGEN GENERATION




| | Challenges | Bray Solutions | Benefits |
|---|---|---|---|
| **Pressure Swing Adsorption (PSA)** | > Maintain tight seal over millions of cycles<br>> Stroke speeds less than 3 seconds open & close | > McCannalok (Class 150, 300 or 600) with high cycle trim and S98 scotch yoke actuator (optional: 6A positioner) | > Extensive cycle capabilities due to McCannalok design and bearings qualified for 1,000,000 cycles<br>> Actuators capable of special stroking requirements for long periods without maintenance |
| **Vacuum Swing Adsorption (VSA)** | > Maintain tight seal over millions of cycles at low cost<br>> Stroke speeds less than 1 second open & close | > McCannalok (Class 150) with high cycle trim and S98 scotch yoke actuator (optional: 6A positioner) | > Extensive cycle capabilities due to McCannalok design and bearings qualified for over 1,000,000 cycles in low pressure applications like VSA<br>> Actuators capable of special stroking requirements for long periods without maintenance |
| **Temperature Swing Adsorption (TSA)** | > Long reliable life at high regeration temperatures upstream of ASU | > Trilok metal seated and McCannalok high-performance butterfly valves | > Bray offers both lower cost McCannalok soft-seat for lower temperature applications and Trilok metal seat valves for high temperature regeneration, permitting standardization of topworks and other single-source advantages |




In the **blue hydrogen** production process, $CO_2$ capture and storage are critical to reducing the carbon footprint. The captured $CO_2$ is separated from the hydrogen, compressed, and then either stored underground or utilized in other industrial processes, making blue hydrogen a more environmentally friendly option compared to traditional hydrogen production methods without $CO_2$ capture.The CO2 produced during the reforming process needs to be separated from the hydrogen. This process can be two ways:

- Using technologies like amine-based chemical absorption, where $CO_2$ is captured by amine solvents and later released through heating.
- Other methods include Pressure Swing Adsorption (PSA), where $CO_2$ is adsorbed onto a solid material under high pressure and then released under low pressure, or membrane separation technologies. The CO2 VPSA sits in front of the H2 PSA. The Vacuum pump pulls the CO2 off the PSA at low pressure then sends it to two CO2 compressors. In between the low pressure CO2 compressor and the high pressure CO2 compressor there is a moisture separator/drier system. The high pressure CO2 compressor operates around 1200 PSI requiring 600# ANSI valves.

Both of these production methods fits within Bray's product portfolio using either our Trilok metal-seat products or McCannalok soft-seat high performance butterfly valves.

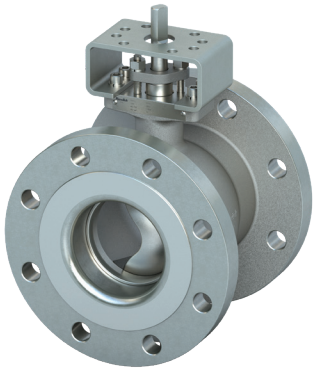
**Green hydrogen** is primarily produced through electrolysis, a method where water ($H_2O$) is split into hydrogen ($H_2$) and oxygen ($O_2$) using an electric current. Purified/desalinated water is fed into the electrolyzer and the electrical current is applied to split the water molecules.

The hydrogen produced may undergo purification to remove any impurities or excess water vapor, ensuring high purity levels for various applications.

Hydrogen is then stored under high pressure, as a liquid at low temperatures, or in chemical forms (e.g., ammonia or metal hydrides) for easy transportation and future use.

Currently, green hydrogen production is more expensive than hydrogen produced from fossil fuels, mainly due to the cost of electrolyzers and renewable energy; however, advances in electrolyzer technology and increased availability of cheap renewable energy are expected to reduce costs. In addition, government incentives and investments are likely to play a crucial role in scaling up green hydrogen production.

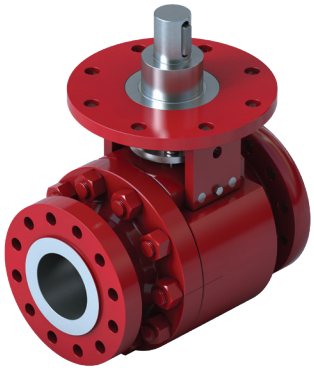


Flow-Tek Series 19

## CONTROL VALVES | SEGMENTED BALL

- Segmented ball valve for modulating control and on-off applications in gas, liquid, and slurry services.
- Uninterrupted flow path with customizable profiles and trim materials is ideal for handling solids and viscous media.
- Splined stem-to-segment connection provides precise control with low hysteresis.
- Optimized seat design provides constant sealing force, even at low differential pressures.
- Optional replaceable liners and hard coatings for highly abrasive applications.

| | | |
|---|---|---|
| Size Range | NPS 1 to 16 | DN 25 to 400 |
| Temperature Range | -50°F to 500°F | -46°C to 260°C |
| Pressure Ratings | ASME Class 150 \| 300 \| 600 | |
| Fugitive Emissions | ISO 15848-1 | |

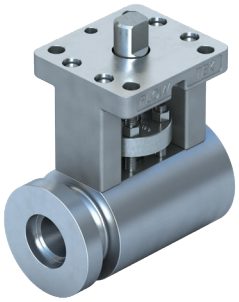


Flow-Tek Series M1

## BALL VALVES | SEVERE SERVICE (2-PIECE AND 3-PIECE BODY)

- Application-specific designs for extreme process conditions in unidirectional and bidirectional applications.
- Energized ball & seats with wide sealing surfaces ensure reliable performance during all operating conditions.
- 360° mate-lapped ball & seats provide uninterrupted sealing and extend valve life.
- Matched trim materials and hard coatings equalize thermal expansion rates to improve performance and extend valve life.
- One-piece blowout-proof stem with gall resistant dual thrust bearings protect against actuator misalignment and stem sideloading.
- Adjustable live-loaded stem sealing system with certified low emission packing.

| | | |
|---|---|---|
| Size Range | NPS ½ to 36 | DN 15 to 900 |
| Temperature Range | Up to 1100°F | Up to 593°C |
| Pressure Ratings | ASME Class 150 to 4500 | |
| Fugitive Emissions | API 641 \| ISO 15848-1 | |



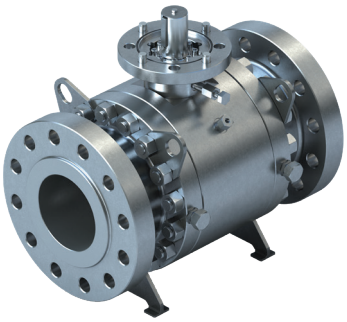
Flow-Tek Series M4

## BALL VALVES | SEVERE SERVICE (UNIBODY)

- Forged heavy-wall unibody design for extreme pressures and temperatures in unidirectional applications.
- Energized ball & seats with wide sealing surfaces ensure reliable performance during all operating conditions.
- 360° mate-lapped ball & seats provide uninterrupted sealing and extend valve life.
- One-piece blowout-proof stem with upper bearing protects against actuator misalignment and stem sideloading.
- Standard 4-year performance warranty.

| | | |
|---|---|---|
| Size Range | NPS ½ to 4 | DN 15 to 100 |
| Temperature Range | Up to 1100°F | Up to 593°C |
| Pressure Ratings | ASME Class 1700 to 4500 | |

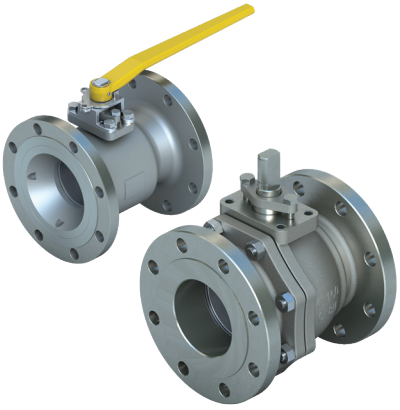


Flow-Tek Series 1B
SIL 3 Capable

## BALL VALVES | TRUNNION MOUNTED

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

| | | |
|---|---|---|
| Size Range | NPS 2 to 24 | DN 50 to 600 |
| Temperature Range | -50°F to 600°F | -45°C to 315°C |
| Pressure Ratings | ASME Class 150 \| 300 \| 600 | |
| Fugitive Emissions | ISO 15848-1 | |

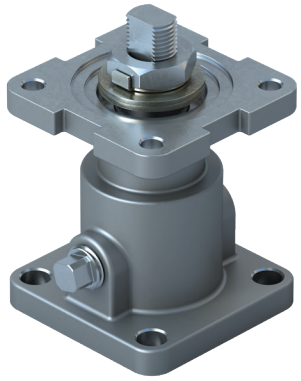


Flow-Tek Series RF15/RF30, F15/F30

## BALL VALVES | FLANGED

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

| | | |
|---|---|---|
| Size Range | NPS ½ to 12 | DN 15 to 300 |
| Temperature Range | -50°F to 750°F | -46°C to 399°C |
| Pressure Ratings | ASME Class 150 \| 300 | |
| Fugitive Emissions | API 641 \| ISO 15848-1 \| TA Luft VDI 2440 | |



## MEDIA CONTAINMENT UNIT

Flow-Tek's Media Containment Unit (MCU) has been engineered to provide increased environmental protection and plant safety, through a secondary seal — which can be monitored for early detection of stem leaks.

- Designed for both automated and manual service with Flow-Tek's modular line of automation accessories.
- Available sealant injection system for emergency shut-off or third seal.
- Investment cast stainless steel unit is highly corrosion-resistant.
- Easily installed in the field onto existing Flow-Tek ball valves.
- Lowers operating costs by reducing lost production time due to fugitive emissions and unscheduled maintenance.

Bray Series 30/31
SIL 3 Capable

## BUTTERFLY VALVES | RESILIENT SEATED (1-PIECE BODY)

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

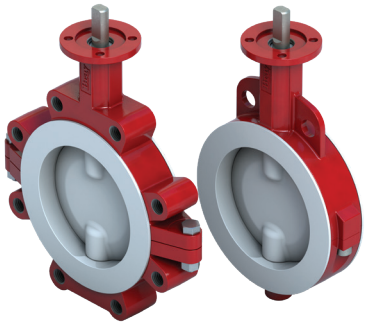
| | | |
|---|---|---|
| Size Range | NPS 2 to 20 | DN 50 to 500 |
| Temperature Range | -20°F to 400°F | -29°C to 204°C |
| Pressure Ratings | Up to 175 psi | Up to 12 bar |

Bray Series 20/21
SIL 3 Capable

## BUTTERFLY VALVES | RESILIENT SEATED (2-PIECE BODY)

> 2-piece wafer or lug style allows for ease of assembly and maintenance.
> Engineered disc maximizes flow and minimizes resistance, providing a high Cv.
> Spherically machined and polished disc edge for zero leakage and longer seat life.
> 1-piece disc/stem design provides complete protection from particle entrapment.
> Tongue and groove seat is locked in place, allowing use in dead end services.
> Available with stainless steel body for corrosive environments.

| | | |
|---|---|---|
| Size Range | NPS 1 to 20 | DN 25 to 500 |
| Temperature Range | -20°F to 400°F | -29°C to 204°C |
| Pressure Ratings | Up to 150 psi | Up to 10 bar |



Bray Series 22/23

## BUTTERFLY VALVES | PTFE LINED (2-PIECE BODY)

> 2-piece wafer or lug style body with epoxy coating.
> Stainless steel disc can be encapsulated in a variety of materials.
> Blowout proof stem and disc are pressed together for a positive connection.
> PTFE seat is isostatically molded to provide superior chemical resistance.
> Resilient seat energizer provides uniform force for bubble tight shutoff.

| | | |
|---|---|---|
| Size Range | NPS 2 to 24 | DN 50 to 600 |
| Temperature Range | 0°F to 392°F | -18°C to 200°C |
| Pressure Ratings | Up to 150 psi | Up to 10 bar |

Tri Lok
SIL 3 Capable

## BUTTERFLY VALVES | TRIPLE OFFSET

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

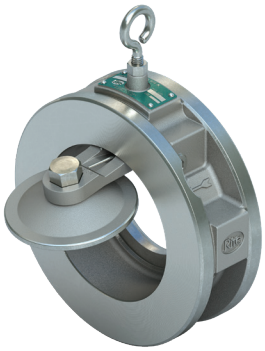
| | | |
|---|---|---|
| Size Range | NPS 3 to 48 | DN 80 to 1200 |
| Temperature Range | -320°F to 842°F | -196°C to 450°C |
| Pressure Ratings | ASME Class 150 \| 300 \| 600 \| 900 | |
| Fugitive Emissions | API 641 \| ISO 15848-1 \| TA Luft VDI 2440 | |

McCannalok
SIL 3 Capable

## BUTTERFLY VALVES | HIGH PERFORMANCE

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

| | | |
|---|---|---|
| Size Range | NPS 2 to 66 | DN 50 to 1650 |
| Temperature Range | -320°F to 842°F | -196°C to 450°C |
| Pressure Ratings | ASME Class 150 \| 300 \| 600 | |
| Fugitive Emissions | API 641 \| ISO 15848-1 \| TA Luft VDI 2440 | |



Bray / Rite 210

## CHECK VALVES | SWING CHECK

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

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

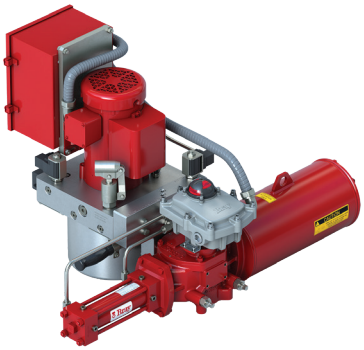
Bray Series 98 Pneumatic
SIL 3 Capable

Bray Series 98 Hydraulic
SIL 3 Capable

## ACTUATOR | PNEUMATIC & HYDRAULIC SCOTCH YOKE

- Modular design allows for a wide range of configurations, for both single and double acting applications.
- Designed for reliable, high-cycle operation with simplified maintenance.
- Compact design offers a high torque-to-weight ratio, with easy field configuration.
- Symmetrical or canted yokes provide optimized torque output.
- ATEX, SIL 3 capable, IP66/IP67M; PED upon request.

| | | |
|---|---|---|
| Torque Output Range | 2,744 to 885,100 in-lb | 310 to 100,000 Nm |
| Temperature Range | -50°F to 300°F | -46°C to 149°C |
| Pressure Ratings | 40 to 150 psi | 2.8 to 10.3 bar |



Bray Series 98 Electro-Hydraulic

## ACTUATOR | ELECTRO-HYDRAULIC SCOTCH YOKE

- Electro-hydraulic actuators are available for all Bray valves, or any non-Bray rotary, linear, multi-turn, and damper valves — including field retrofitting services
- Completely self contained; Zero emissions capability
- Can be operated by solar or wind charged power packs, ideal for remote locations

| | | |
|---|---|---|
| Torque Output Range | 1,177 to 863,089 in-lb | 132 to 97,515 Nm |
| Temperature Range | -50°F to 212°F | -46°C to 100°C |
| Pressure Ratings | 150 - 3000 psi | 10 - 207 bar |

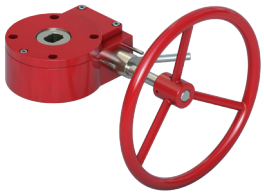
Bray Series 92/93
SIL 3 Capable

## ACTUATOR | PNEUMATIC RACK & PINION

- Modular design available for single or double acting applications.
- Enclosed and self-contained construction with internal air porting.
- Permanently lubricated, with independently adjustable travel stops.
- Anodized aluminum body with polyester coated end caps; special materials and coatings available for added corrosion resistance.
- ATEX, SIL 3 capable, PED.

| | | |
|---|---|---|
| Torque Output Range | Up to 44,130 in-lb | 4,986 Nm |
| Temperature Range | -40°F to 350°F | -40°C to 149°C |
| Pressure Ratings | Up to 140 psi | Up to 10 bar |



Bray Series 04, 05

Flow-Tek Series FTG

## ACTUATOR | MANUAL GEAR

- Heavy duty, self-lubricating, self-locking design for on/off or modulating applications.
- Valve position indicator with independently adjustable travel stops.
- Declutch, chainwheel, lockout, square nut, and stainless steel housing options available.

| | | |
|---|---|---|
| Torque Output Range | 2,000 to 70,000 in-lb | 226 to 7,900 Nm |
| Temperature Range | Up to 250°F | Up to 120°C |

## CONTROL ACCESSORIES | INDUSTRIAL GAS INDUSTRY

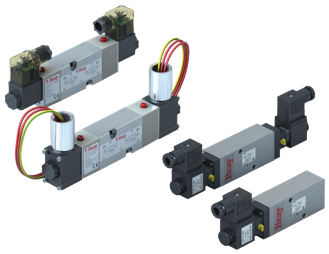
Bray Series 6A
Electro-Pneumatic Sensor
SIL 2 Capable

Bray Series 6A Explosion Proof
Electro-Pneumatic Sensor
SIL 2 Capable


Bray Series 6P
Pneumatic Positioner
SIL 2 Capable

Bray Series 5A, 5B, 5C
Valve Status Monitor
+ Optional Resin Housing

Bray Series 54
Inductive Proximity Sensor
SIL 2 Capable



Bray Series 60, 63
Solenoid

Bray Series 55
Filter Regulator


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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