

**SOLUTIONS FOR**  
**TANK TERMINALS**  
PROTECTING YOUR ASSETS



 **Bray**<sup>®</sup>

[BRAY.COM](http://BRAY.COM)

THE HIGH PERFORMANCE COMPANY

# **Safety.** **Quality.** **Reliability.** Products you can trust.



## **SAFETY SYSTEMS DEMAND RELIABILITY**

Automated isolation valves are a fundamental part of safety systems associated with oil and gas, utility and other hazardous processes. These valves are not intended for controlling the process itself but for providing personnel and asset protection. In order to operate safely, facilities must evaluate their systems from a safety and isolation perspective. Risk scenarios are evaluated by the managers of the facility, and scrutinized by a risk management team typically from an insurance company. The most critical scenarios are designated as (SIS) Safety Instrumented Systems, and these systems must meet the highest reliability standards and certifications.

The key factor in evaluating these scenarios is isolation or containment. The read/reaction response must be programmed into the process control system. The process control system is the intelligence and automated isolation valving is the final control element to insure safe conditions.

In the aftermath of major calamities at process plants around the world, standards have been developed to insure proper safety protocols are employed.

## **IEC 61508**

IEC 61508 is an international standard for safety related systems which was published in 2010 and has become the standard in defining safety systems. The standard contains eight parts and Part 5 (IEC 61508-5) outlines requirements for ensuring that systems are designed, implemented, operated and maintained to provide the required Safety Integrity Level (SIL).

IEC 61511 Functional Safety—Safety Instrumented Systems for the Process Industry Sector was released in 2016, and adopted as the U.S. national standard, ISA 61511, in late 2017 by the ISA 84 committee.

SIL is a measure of risk reduction provided by a Safety Instrumented Function (SIF), based on four levels. Each level represents an order of magnitude of risk reduction. Every Safety Instrumented Function (SIF) has an assigned SIL.





## OUR VALUE PROPOSITION

### SINGLE SOURCE SUPPLIER

Work with an industry leader with 30+ years of flow control experience.

- > Single point of contact simplifies decisions, saving time and money.
- > Faster quoting and specifications process.
- > Turnkey, fully-integrated and tested packages available.
- > Quick turnaround assembly, testing, and delivery of automated packages.
- > Value added services to support customers and end users



### VALVE AUTOMATION CENTER (VAC)

Your single source for turnkey automation solutions tailored to fit your applications. From valve and actuator sizing recommendations, to designing and modeling fully integrated controls packages, our application engineers are available to provide immediate technical expertise and support. The VAC follows stringent processes and quality standards, with a full traceability system of certificates, sizing calculations, data sheets, testing documentation, and check-lists. Plus, all Bray products are backed by our three year warranty and worldwide support.

### CAPABILITIES AND SERVICES

- > Engineered solutions tailored for your unique application challenges.
- > Applications team on staff to provide immediate technical expertise and customer support.
- > Full integration, calibration, and testing of Bray and third party products, with complete documentation and traceability.
- > State of the art equipment with full assembly, testing, traceability, and documentation capabilities.

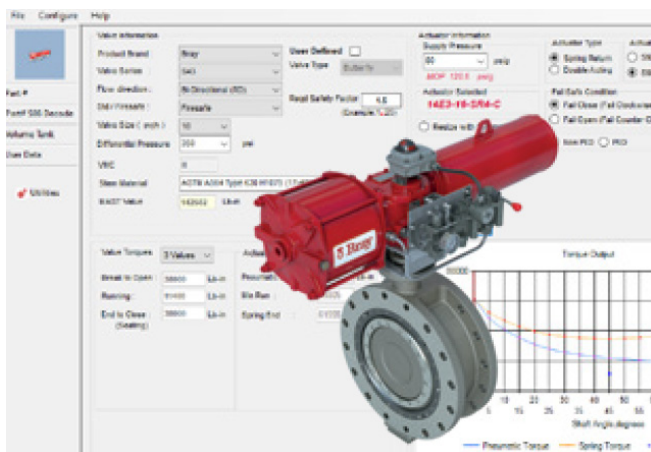
### TECHNICAL EXPERTISE

- > Sizing
- > Selection
- > Troubleshooting
- > Servicing
- > Complex Controls
- > Fail options
- > Speed Control
- > Overrides
- > Smart monitoring
- > Energy efficient
- > Volume tanks
- > Redundant circuits and accessories

### APPLICATION EXPERIENCE

Integrated solutions for various valve and automation applications, including:

- > Isolation
- > Emergency shutdown
- > Control
- > Modulating/throttling
- > High Temperature
- > Cryogenic
- > Pressure swing absorption
- > Blowdown
- > Dribble control
- > Flare combustion
- > Molecular sieve
- > Fugitive emissions

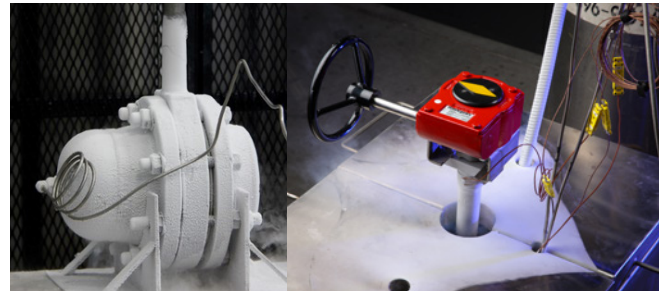


# PROTECTING YOUR ASSETS SOLUTIONS FOR TANK TERMINALS

## ENGINEERING CAPABILITIES

### IN-HOUSE CAPABILITIES

- > Cryogenic Testing
- > 22700 Liter (6,000 gallon) liquid nitrogen tank
- > Certified Clean Room
- > Mass spectrometers
- > Stainless steel test boxes
- > Control panel with remote operation and monitoring



### QUALITY AND TESTING

Valve - All valves are pressure tested to 110% of rated pressure to assure zero-leakage.

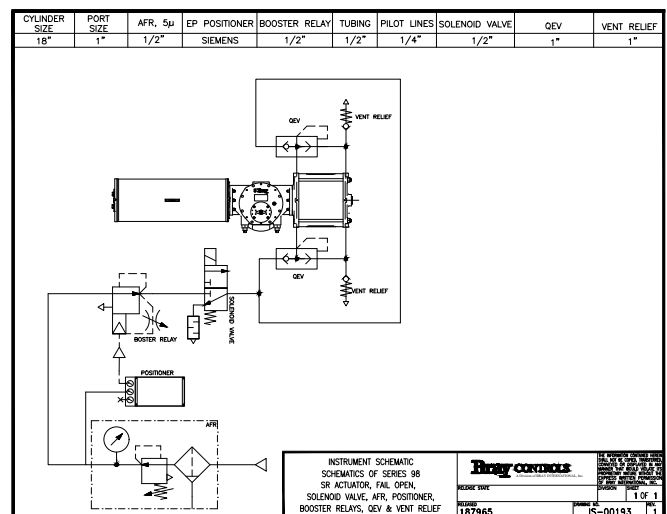
- > Actuator - All actuators are calibrated and tested before shipment. Pneumatic actuators are also pressure tested to assure no leakage.
- > Material Traceability - Material certifications can be provided upon request for all valve pressure containing and valve pressure retaining components.
- > Positive Material Identification (PMI) - As required by PED, materials are subjected to PMI testing to verify material traceability certificates. critical for ESD applications



### PROCESSES AND DOCUMENTATION

Stringent processes are followed and all required commercial/technical documents are provided, including:

- > Functional testing and records for all assemblies
- > Precise calculation sheets
- > Checklists
- > ISA data sheets
- > Traceability
- > Valve hydro-test certificates and full traceability records
- > MTRs
- > Drawings
- > Certificate of origin



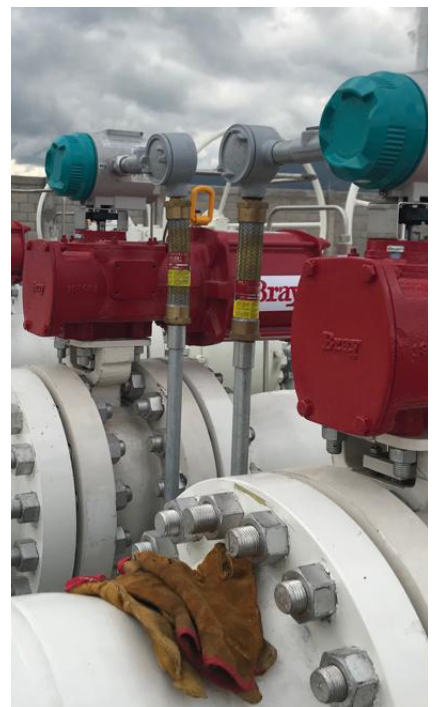
## BRAY EMERGENCY SHUTDOWN VALVES

### FEATURES

- > **Tight Shut Off**  
Tri Lok triple offset butterfly valves and Flow-Tek ball valves offer zero leakage performance.
- > **Fugitive Emissions**  
Bray rotary isolation valves are certified to meet the requirements of API 641 Fugitive Emissions and ISO 15848-1.
- > **Fire Safe**  
In the event of an emergency, process plants may be exposed to fire. Tri Lok and Flow-Tek valves are firesafe and certified to API 607.
- > **Fast Acting**  
The Bray Series 98 scotch-yoke pneumatic and hydraulic actuators provide quick response when speed is critical in reducing the escalation of a hazard. The Bray Series 98 is capable of full-open to full-close in less than one second.
- > **Rugged Design**  
The Bray Series 98 scotch-yoke actuators are designed for reliability and high cycle life and have been cycle tested to over 1 million cycles under load exceeding standards. (EN15714-3 Actuator Performance Standard).
- > **Customizable Configurations**  
Bray offers application solutions to meet specific requirements with accessories like the Bray Valve Status Monitor, proximity sensors, smart positioners and solenoid valves.
- > Manual and Automatic Release Options - Provide flexibility on resumption of system operation after shutdown.
- > **Certified Safety Integrity Level (SIL) per IEC 61508**  
Bray offers both valves and Series 98 scotch yoke actuators certified to SIL Level 3, including accessories.
- > Partial Stroke Test - Bray can provide both an electronic or mechanical partial stroke test to prevent and diagnose potential operational problems.

### TYPICAL APPLICATIONS

- > **Pump Suction Isolation**  
Pump suction fail closed if a pump seal blows out or has a leak.
- > **Compressor Suction Isolation**  
Provides fail closed if the flammable gas compressor has to be isolated from the process.
- > **Compressor Discharge Isolation**  
Provides sealing of the compressor outlet to isolate the compressor from back pressure from the gas pipeline.
- > **Flare Block Valve**  
Emergency flare block valve fails open to release flammable gas to the flare. This valve is required to maintain zero leakage when it is closed which can be most of the time when the process is running.
- > **Turbine Trip Valve**  
A turbine trip valve shuts off flow to the turbine to prevent damage to the turbine in an upset condition to prevent reverse flow.
- > **Over Pressure Protection Valve**  
This process valve will fail open to prevent safety relief valves lifting.





# PROTECTING YOUR ASSETS SOLUTIONS FOR TANK TERMINALS

## SERIES 98 ACTUATORS

### DESIGNED WITH ESD FUNCTIONALITY IN MIND

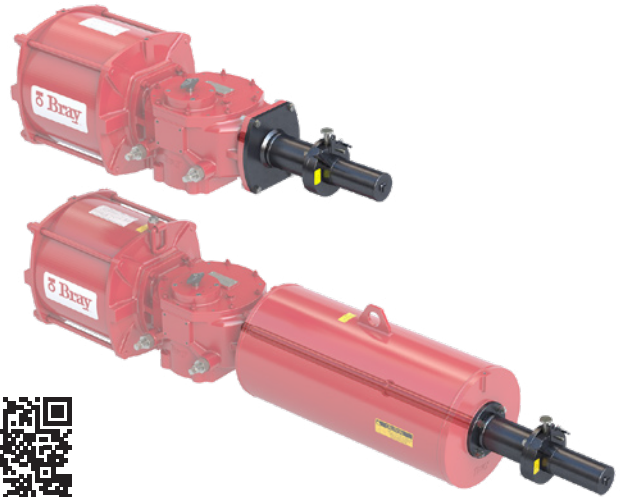
Bray's proprietary mechanical partial stroke device option allows ESD valve function verification without disruption of running process.

### How it Works

With the hand lever set in free mode the push rod is free to move through the device allowing full range of travel. When the hand lever is activated the push rod travel is limited. This travel limit can be adjusted anywhere in the valve rotation profile.

### Application

By manually limiting the rotation of the valve to a small degree of movement the solenoid can be used to activate a partial stroke test. This test can be done at the unit by a technician without the use of outside electronics.



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### HYDRAULIC DAMPENER

Series 98 scotch yoke actuator option provides adjustable cushion before valve seating preventing slamming and seat damage to the valve and vibration shock to the piping.

### How it Works

The hydraulic dampener functions by using a controlled rate of oil displacement in a closed loop. As the piston rod of the dampener is pressed down into the dampener's hydraulic cylinder, oil is displaced by the piston and forced through varying orifices that are progressively closed off as the piston strokes. This results in constant linear deceleration of the piston rod over its stroke.

### Application

By decelerating fast stroking valves, the forces of inertia are controlled, avoiding damage to valves, vibration and shock to piping and piping supports.



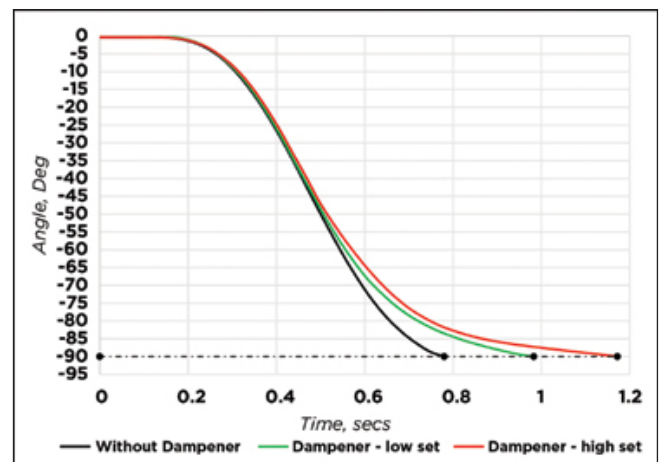
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### OPERATING TIME VS. ANGLE OF DISC ROTATION

Without and With Dampener  
(Example: Tri Lok Triple Offset Valve with Series 98 Spring-Return Pneumatic Actuator).



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for more information



## TRI LOK® TRIPLE OFFSET BUTTERFLY VALVES



|                            |   |
|----------------------------|---|
| <b>Size Range</b>          | 3" - 48"<br>DN 80 - DN 1200   |
| <b>Body Style</b>          | Wafer   Lug   Flanged   Gate  |
| <b>Temperature Range</b>   | -196°C to +450°C  |
| <b>Pressure Ratings</b>    | ASME Class 150   300   600   900<br>EN 1092-1 PN10   16   25   40   100   160 |
| <b>Shutoff Rating</b>      | Zero Leakage  |
| <b>Body Materials</b>      | Carbon Steel   Stainless Steel  |
| <b>Disc Seal Materials</b> | Carbon Steel   Stainless Steel  |
| <b>Stem Materials</b>      | 17-4PH   410 Stainless Steel<br>XM-19 (Nitronic®)                             |
| <b>Body Seat Materials</b> | 316 Stainless Steel Hardened  |
| <b>Seal Material</b>       | 318 Stainless Steel Duplex/Graphite   |

The 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.
- > Field replaceable stem packing, rated to global low fugitive emissions standards.
- > Splined disc to stem connection, strongest connection available and provides superior control characteristics.
- > Torque seated design to allow a metal-to-metal seal that allows ZERO leakage in the most demanding applications.

## McCANNALOK DOUBLE OFFSET BUTTERFLY VALVES



|                          |   |
|--------------------------|---|
| <b>Size Range</b>        | 2" - 66"<br>DN 50 - DN 1500   |
| <b>Body Style</b>        | Wafer   Lug   Double Flanged  |
| <b>Temperature Range</b> | Resilient Seated -52 to +260°C<br>Fire Safe -52 to +260°C<br>Metal Seated up to +482°C  |
| <b>Pressure Rating</b>   | ASME Class 150   300   600<br>EN 1092-1 PN10   16   25   40   63   100  |
| <b>Shutoff Rating</b>    | Resilient Seated Zero Leakage<br>Metal Seated FCI 70-2 Class IV   |
| <b>Body Material</b>     | Carbon Steel   Stainless Steel  <br>Nickel Aluminium Bronze   Duplex<br>Hastelloy®   Titanium   |
| <b>Disc Material</b>     | Stainless Steel   Nickel Aluminium Bronze<br>Monel®   |
| <b>Stem Material</b>     | Stainless Steel   Monel® 500   Inconel® 718   |
| <b>Seat Material</b>     | RPTFE with Resilient Energizer<br>PTFE with Resilient Energizer<br>UMHWPE with Resilient Energizer<br>TFM with Low Temperature Resilient<br>Energizer<br>Fire Safe: Inconel® with RPTFE with Resilient<br>Energizer |

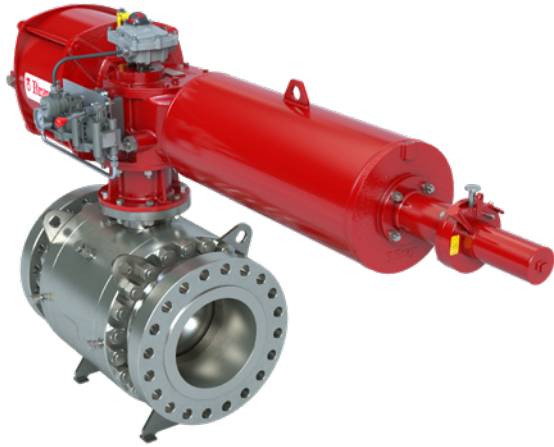
Featuring Bray's patented, award-winning design, this double offset high performance butterfly valve is precision engineered to deliver quality, value, and reliability in the most demanding applications.

### FEATURES

- > Designed for high pressure, high temperature, and critical service applications.
- > Dead-end service, with bidirectional sealing.
- > Low fugitive emissions.
- > Easy field maintenance.
- > Low torque requirements allow smaller actuators than comparably rated valves.

# PROTECTING YOUR ASSETS SOLUTIONS FOR TANK TERMINALS

## FLOW-TEK TRUNNION MOUNTED BALL VALVES



|                          |  |
|--------------------------|--|
| <b>Size Range</b>        | 2" - 24"<br>DN 50 - DN 600   |
| <b>Body Style</b>        | 2 piece   3 piece  |
| <b>Temperature Range</b> | -45°C to +315°C  |
| <b>Pressure Ratings</b>  | ASME Class 150   300   600<br>EN 1092-1 PN 10   16   25   40   100 |
| <b>Port</b>              | Full Port  |
| <b>End Connections</b>   | Flanged   Butt Weld  |
| <b>Body Materials</b>    | ASTM A105   ASTM A350 Gr. LF2<br>ASTM A182 Gr F316                 |
| <b>Seat Materials</b>    | RPTFE   Nylon   Devlon®<br>PEEK   Tek-Fil®   TFM                   |

### FEATURES

- > Primary o-ring stem seal prevents stem leakage in standard operating conditions. Secondary graphite packing ensures proper stem sealing per API 607 in extreme Temperature scenarios.
- > Primary elastomeric seals ensure zero leakage in standard operating conditions. Secondary graphite seals ensure proper body joint sealing per API 607 in extreme Temperature scenarios.
- > The proprietary energizer ring located above the primary o-ring stem seal provides insurance in the rare occasion the o-ring is damaged. The energizer ring would use the media pressure to create an upward compressive force on the packing. This upward force on the packing is combined with the downward compressive force created by tightening the packing gland. This results in a larger net compressive force on the packing and better seal than a typical packing design.

## FLOW-TEK F15/F30 FLANGED BALL VALVES



|                               |  |
|-------------------------------|--|
| <b>Size Range<sup>1</sup></b> | 1/2" - 12"<br>DN 15 - DN 300   |
| <b>Body Style</b>             | Two piece  |
| <b>Temperature Range</b>      | -46°C to +343°C  |
| <b>Pressure Rating</b>        | F15: ASME Class 150<br>EN 1092-1 PN 10   16<br>F30: ASME Class 300<br>EN 1092-1 PN 25   40 |
| <b>Port</b>                   | Full Port  |
| <b>End Connections</b>        | Raised Face Flange<br>(ASME B16.5 and EN 1092-1)<br>Ring Type Joint (ASME B16.5)           |
| <b>Body Materials</b>         | Stainless Steel   Carbon Steel   Alloys  |
| <b>Seat Materials</b>         | Standard: TFM 1600<br>Optional: Tek-Fil®   Peek   RPTFE<br>UHMWPE   Metal                  |

<sup>1</sup> Custom and larger sizes available on request.

### FEATURES

- > Floating ball design for low torque and increased cycle life. As standard, large size valves feature trunnion-type ball support.
- > 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.
- > Smart Stem features live loaded packing that ensures tight stem packing sealing during changes in environmental conditions and long term wear of the valve.
- > Grooves in outside diameter 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.



## BREATHER VENTS

### PRESSURE & VACUUM RELIEF VENTS



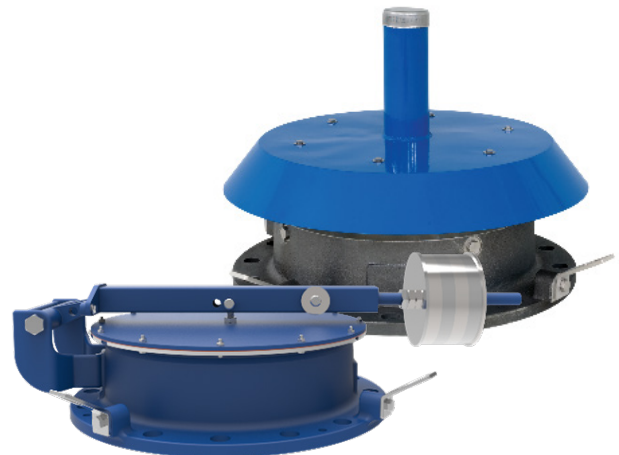
|                           |  |
|---------------------------|--|
| <b>Size Range</b>         | 2" - 12"<br>DN 50 - DN 300   |
| <b>Vent Type</b>          | Pressure & Vacuum Vent<br>Pressure Vent<br>Vacuum Vent<br>Venting to Atmosphere<br>Venting with Pipe away<br>Free Vent<br>Pilot Operated |
| <b>Temperature Range</b>  | -40°C to +204°C  |
| <b>Body Material</b>      | Carbon Steel   Stainless Steel<br>Aluminium   Derakane™ 470   Hetron™ 800  |
| <b>Membrane</b>           | FEP   Buna N   EPDM   FKM  |
| <b>Setting By</b>         | Weight loaded   Spring loaded   Pilot Operated   |
| <b>Flange Drilling</b>    | ASME Class 150<br>EN 1092-1, PN 10   16  |
| <b>Set Point Accuracy</b> | Pressure and vacuum setpoints are calibrated to be within +/-2% of customer requested setting across the range of available settings.    |
| <b>Seat Leakage</b>       | Seat leakage rate of less than 1 SCFH (0,03m <sup>3</sup> /h) of air at 75% of set point.  |
| <b>Certifications</b>     | 2014/34/EU   NACE acc. MR0175  |
| <b>Design</b>             | API 2000   ISO 28300<br>Fully open at 10% over pressure  |

### FEATURES

- > Air-cushion seating provides tight sealing to reduce evaporation losses and the release of toxic vapors.
- > The pallets have outer guiding and center stabilizing stem to provide self-alignment and tight seating.

## EMERGENCY RELIEF VENTS

### MANWAY PRESSURE / VACUUM VENTS



|                           |  |
|---------------------------|--|
| <b>Size Range</b>         | 16" - 24"<br>DN 400 - DN 600   |
| <b>Vent Type</b>          | Emergency relief vent<br>Emergency vacuum vent<br>Emergency pressure & vacuum relief vent  |
| <b>Temperature Range</b>  | -40°C to +204°C  |
| <b>Body Material</b>      | Carbon Steel   Stainless Steel<br>Aluminium   Derakane™ 470   Hetron™ 800  |
| <b>Membrane</b>           | FEP   TFE   Buna-N   EPDM   FKM  |
| <b>Setting By</b>         | Weight loaded   Spring loaded or combined<br>  Pilot operated  |
| <b>Flange Drilling</b>    | ASME Class 150<br>EN 1092-1, PN 10   16<br>API 650 bolting specifications  |
| <b>Set Point Accuracy</b> | Pressure and vacuum setpoints are calibrated to be within +/- 2% of Customer requested setting across the range of available settings. |
| <b>Seat Leakage</b>       | Seat leakage rate of less than 1 SCFH (0,03 m <sup>3</sup> /h ) of air at 75% of set point.  |
| <b>Certifications</b>     | 2014/34/EU   NACE acc. MR0175  |
| <b>Design</b>             | API 2000   ISO 28300<br>Fully open at 10% over pressure  |

### FEATURES

Maintains Accurate Pressure Settings:  
For Models 8920 and 8940 vacuum setting ranges from 2 mbar (0.2 oz/in<sup>2</sup>) to 17,2 mbar (4 oz/in<sup>2</sup>). Vacuum set point pressure can be easily changed without dis-assembly of the vent.

# PROTECTING YOUR ASSETS SOLUTIONS FOR TANK TERMINALS

## FLAME ARRESTOR DEFLAGRATION ARRESTOR



|                                      |   |
|--------------------------------------|---|
| <b>Size Range</b>                    | 3/4" - 12"<br>DN 20 - DN 300  |
| <b>Execution</b>                     | Centric design   Eccentric design   |
| <b>Body Type</b>                     | In line NPT   BSPP   RP<br>Flanged EN or ASME<br>End of line NPT   BSPP   RP<br>Flanged DIN or ASME |
| <b>Body Material</b>                 | Carbon Steel   Stainless Steel  |
| <b>Temperature Range<sup>1</sup></b> | Up to +60°C   |
| <b>Filter Element</b>                | DIN 1.4571  |
| <b>Flange Drilling</b>               | ASME Class 150<br>EN 1092-1 PN 10   16  |
| <b>Certifications</b>                | Designed, manufactured, and tested according to Directive 2014/34/EU (ATEX 114) and ISO 16852       |
| <b>Options</b>                       | Temperature Sensor  |

<sup>1</sup> Higher Temperatures (up to +220°C) available on request.

### FEATURES

- > This deflagration flame arrestor is a passive device with no moving parts. The flame cell element can be easily removed for inspection and cleaning in appropriate solvent solution.
- > Easy Maintenance: This detonation flame arrestor is a passive device with no moving parts. The flame cell element can be easily removed for inspection and cleaning in appropriate solvent solution
- > Cashco flame arrestors are designed on the principle of "quenching gap". The crimped SST metal element allows vapor to pass through in order to allow a vessel to breathe, yet prevents the propagation of a flame from the exposed side to the protected side.
- > Suitable for gasgroup: I (methane), IIA, IIB3 flammable vapor mixtures.

## FLAME ARRESTOR DETONATION ARRESTOR



|                                      |  |
|--------------------------------------|--|
| <b>Size Range</b>                    | Treaded 1/2" - 1/8<br>Flanged 3/4" - 12"<br>DN 20 - DN 300                                     |
| <b>Execution</b>                     | Centric design   Eccentric design  |
| <b>Body Type</b>                     | In line NPT   BSPP   RP<br>Flanged EN or ASME  |
| <b>Body Material</b>                 | Carbon Steel   Stainless Steel   |
| <b>Temperature Range<sup>1</sup></b> | Up to +60°C  |
| <b>Filter Element</b>                | DIN 1.4571   |
| <b>Flange Drilling</b>               | ASME Class 150<br>EN 1092-1 PN 10   16   |
| <b>Certifications</b>                | Designed, manufactured, and tested according to Directive 2014/34/EU (ATEX 114) and ISO 16852. |
| <b>Options</b>                       | Temperature Sensor   |

<sup>1</sup> Higher Temperatures (up to +220°C) available on request.

### FEATURES

- > Stainless Steel (1.4571) element is suitable for explosion group IIA, IIB3 and IIC flammable gases and vapors. Elements for other gas groups are available upon request.
- > The Model 7A00 detonation flame arrestor is a device that can be fitted to the opening of an enclosure or to the connecting pipe work of a system of enclosures. Its primary function is to allow the flow of gases or vapor of flammable liquids through the enclosure, but prevent the transmission of a flame. The element inside the housing provides an extinguishing barrier to the ignited vapor mixture by absorbing heat from the flame.
- > The Model 7A00 is used as an independent safety system to ensure explosion protection.
- > Stainless Steel (1.4571) element is suitable for explosion group IIA, IIB3 and IIC flammable gases and vapors. Elements for other gas groups are available upon request.
- > Suitable for gasgroup: I (methane), IIA, IIB3 flammable vapor mixtures.

## TANK BLANKETING VALVE TYPE 1078



|                               |  |
|-------------------------------|--|
| <b>Size Range</b>             | 1" - 2"<br>DN 25 - DN 50   |
| <b>Connections</b>            | NPT (Female)   1" to 2"<br>Raced face (integral) Class 150   1"<br>Raced face (weld neck) Class 150 & 300   1" to 2"<br>Flanged (weld neck)   DN 25 PN 16/40<br>Special configurations are available on request. |
| <b>Outlet Configuration</b>   | Horizontal or vertical position  |
| <b>Body Material</b>          | Carbon Steel   Stainless Steel   Hastelloy® C  |
| <b>Trim</b>                   | Stainless Steel 316, Hastelloy® C  |
| <b>Diaphragm</b>              | PTFE   |
| <b>Soft seat &amp; seals</b>  | FKM   Buna-N   EPDM   FFKM 1   FFKM 2  |
| <b>Supply pressure</b>        | Minimum 20 psig (1,4 bar)<br>Maximum 200 psig (13,8 bar)   |
| <b>Outlet pressure ranges</b> | Vacuum up to +207 mbar   |
| <b>Maximum back pressure</b>  | 1,7 bar (25 psig)  |
| <b>Options</b>                | Remote Sensing<br>Patented Integral dip tube sensing (Vertical Outlet only)<br>Field calibration kit   |

### FEATURES

- > Compact and light weight yet allows complete access to the valve internals without being removed from the tank. Only time the diaphragm case needs to be disassembled is when replacing the diaphragm.
- > Single valve system offers wide variety of configurations to meet every blanketing application.
- > Self-cleaning flow design.

## BREATHER VENT WITH FLAME ARRESTOR TYPE 6K00 / 3K00



|                           |   |
|---------------------------|---|
| <b>Size Range</b>         | 2" - 12"<br>DN 50 - DN 300  |
| <b>Vent Type</b>          | Pressure & Vacuum Vent with arrestor element  |
| <b>Temperature Range</b>  | -40°C to +204°C   |
| <b>Body Material</b>      | Carbon Steel   Stainless Steel   Aluminium  |
| <b>Diaphragm</b>          | FEP   Buna-N   EPDM   FKM-FEP Covered   |
| <b>Setting by</b>         | Weight loaded, +2,5 mbar up to +75 mbar,<br>-2,5 mbar up to -50 mbar  |
| <b>Flange Drilling</b>    | ASME Class 150<br>EN 1092-1 PN 10   16  |
| <b>Set Point Accuracy</b> | Pressure and vacuum setpoints are calibrated to be within +/-2% of customer requested setting across the range of available settings. |
| <b>Seat Leakage</b>       | Seat leakage rate of less than 1 SCFH (0,03m <sup>3</sup> /h) of air at 75% of set point.   |
| <b>Design</b>             | Designed, manufactured and tested according to Directive 2014/34/EU (ATEX 114) and ISO 16852.<br>Fully open at 10% overpressure       |
| <b>Options</b>            | Without Flame Arrestors (Type 3K00)   |

### FEATURES

- > The Model 6K00 Pressure / Vacuum Vent with Flame Arrestor is designed for use on atmospheric and low-pressure storage tanks where pressure and vacuum relief is required. The design includes a deflagration flame arrestor consisting of a crimped SST metal element bearings for rotational movement. Gall resistant coatings are used to maximize bearing life. These rings are flat-lapped for low friction operation.
- > Suitable for gasgroup: I (methane), IIA, IIB3 flammable vapor mixtures.



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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.

## GLOBAL HEADQUARTERS

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