Manual and Actuated Butterfly Valves

Butterfly Valves offer great durability and ease of use for a wide range of services.

Easy to install and maintain, butterfly valves close under pressure to form a leak-tight seal.

Features:
- All Stainless Construction: Forged, precision-machined body and electropolished disc
- Sanitary finish
- FDA-Approved materials: choice of elastomeric seats
- Complete line of manual and air actuators with control top options
- Symmetric, metal-to-metal body interface will not over-compress body gasket
- Visual indication of open/closed position
- Open bottom stem seal for positive leak detection

Options:
- Choice of 304SS or 316SS with sanitary finishes
- Valve/Connection size: ½", ¾", 1", 1½", 2", 2½", 3", 4", 5"
- Connection types: S-Line or Butt weld (others on application)
- Seat material: EPDM, White Silicone, or Fluoroelastomer (Viton®)
- Manual handles available in 7 functional designs
- Automatic (air operated) Actuators available in 6 designs with control top options
- Other special designs are available upon request: (Double block and bleed for product separation and protection or Three-piece design with intermediate flanges)

Applications:
- Start/stop flow; plus throttling capability
- Max. pressure: ½" to 1½" = 260 psi (17.9 bar), 2" to 6" = 174 psi (12 bar)
- Max. temperature: 275° F (135° C); steam, short term: 284° F (140° C)
## Manual and Actuated Butterfly Valve Dimensions

### Inches

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<thead>
<tr>
<th>Size</th>
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Manual and Actuated Ball Valves

Ball valves offer great durability for a wide range of services. Easy to install and maintain, ball valves have positive loaded seals to provide leak-proof dependability.

Full ported, straight-through ball valves free the flow path from obstructions. As a result, pressure drops across the valves are the lowest of any valve type.

Features:
- All Stainless Construction: Forged Body and ball
- Full port opening for unrestricted flow in the open position
- Sanitary finish
- Three-piece design with positive-backed seals
- FDA-Approved materials: reinforced PTFE seats, EPDM O-Rings
- Cavity flush feature allows natural flushing action within the valve cavity

Options:
- Choice of 304SS or 316SS
- Valve/Connection size: ½", ¾", 1", 1½", 2", 2½", 3", or 4"
- Connection types: S-Line or Butt weld (others on application)
- Manual handles available in 5 functional designs
- Automatic (air operated) Actuators available in 6 designs with control top options
- Other special designs are available upon request

Applications:
- Start/stop flow (not recommended for throttling)
- Max. pressure: ½" to 1½" = 260 psi (17.9 bar), 2" to 4" = 174 psi (12 bar)
- Max. temperature: 275° F (135° C); steam, short term: 284° F (140° C)
- Contact factory for product recovery (pigging) applications
- Commonly used for air, water and other utilities

Used in Dressing & Sauce, Beverage, and Candy Applications.
## Manual and Actuated Ball Valve Dimensions

### Size and Dimensions

#### Inches

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<thead>
<tr>
<th>Size (Inches)</th>
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Ball and Butterfly Valve Actuators

The rotary actuators for both Butterfly and Ball Valves are designed for rugged dependability and easy maintenance. All stainless steel construction and available in 4” and 5” sizes. Valve Actuators rotate 0° to 90°. The actuators are designed to be field retrofitted to allow addition of control components. The actuators disassemble easily for quick inspection and maintenance. Standard and special couplings are available.

Manual Actuators

Trigger Handle, 4-Position
- Sturdy; made entirely of stainless steel
- Secure latching engagement
- Fully switchable 4 x 90° positions
- Standard on ball valves
- Optional switch bracket available

Intermediate Handle
- Sturdy; made entirely of stainless steel
- Fine adjustment notch selection
- Integrated limit stops 0° and 90°
  Secure latching with self-locking at 9 X 90° positions
- Standard on butterfly valves

Pull Style Handle
- Ball pull with positive, latching engagement
- Sturdy, large-dimensional components
- Low switching play
- Integrated limit stops and automatic latching for secure 90° switching
- Non-loosening yellow draw-button pull
- Switching direction and handle orientation freely selectable 4 X 90° positions
- Choice of sizes
- Single or double position indication
- Padlock travel stop available
- Optional switch bracket available

Stepless Rotary Handle
- Sturdy, made entirely of stainless steel
- Locks securely in any position between 0° and 90°
- One small rotation of handle releases or tightens quickly
- Integrated limit stops

Automatic Actuators

Pneumatic Rotary Actuators
- Sturdy, piston to rotary actuation with 2-stage torque generation for opening/closing power
- 2 styles available: Standard and Namur
  - Each available in 4” and 5” sizes
  - Each available in Air-to-Air and Air-to-Spring configurations
  - Actuator with standard Namur mounting
  - Standard Actuator
  - For top mounted control top enclosures
Control Options

- Namur Selections -

Top Mounted Control Enclosures

- Characteristic: Watertight or Explosion Proof

- Switch Options:
  - 2 Micro Switches AC/DC
  - 2 Viper Proximity Switches AC/DC
  - 2 Viper Proximity Intrinsically Safe

- Communication Card:
  - Asi
  - DeviceNET

- Wire Connectors:
  - Hard wiring with S/O Cord
  - Mini-Fast
  - Euro-Fast

- Solenoids: Quantity 1
  - 24 Volt DC
  - 110 Volt AC
  - Exterior mounted to control enclosure

- Standard Selections -

Exterior Mounted Controls

- Micro Switch Options:
  - (4” and 5” External Bracket Mounted Switches)
    - Integrated Micro Switch AC/DC (without Solenoid)
    - Integrated Micro Switch 24 Volt DC (with Solenoid)

- Solenoids: Quantity 1 or 2
  - 24 Volt DC
  - 110 Volt AC
  - Intrinsically Safe DC

- Programmable Switches:
  - 1 Prox, DC only closed
  - 1 Prox, DC only open
  - 2 Prox, DC only
  - 1 Prox, AC, open
  - 1 Prox, AC, closed
  - 2 Prox, AC
  - 1 Intrinsic Prox, closed
  - 1 Intrinsic Prox, open
  - 2 Intrinsic Prox
Plug Valves

Plug valves have the longest service history of sanitary valves still in common use. They are manually operated and simple and easy to use. Plug Valves consist of a stainless steel body and a conical plug that is rotated in the body to stop or divert the flow.

- 10C: 2-Way Plug Valve is used only as a Shutoff Valve
- 11C: 3-Way Plug Valve may be used as a divert to change the flow direction or as a Shutoff Valve

Note: This is a special feature of this valve as most Divert Valves cannot be used as Shutoff Valves.

Plug Valves are available with 17-4PH Stainless Steel plugs, or rubber plugs.

Operating Instructions: To turn the valve, you must loosen the bottom wing nut and then ‘rap’ the bottom stud to break the seal on the valve, handle stays attached. Do not run the pump while changing valve actuation.

Features:
- Durable, sanitary construction meeting 3A requirements
- Body materials in 316SS
- Plug material is either buna rubber covered or metal (17-4PH)
- Removeable handle for easy service.

Options:
- Connections: S-Line, I-Line, Q-Line, Bevel seat, or Butt weld
- Connection sizes: 1", 1½", 2", 2½", or 3"

Applications:
- Low pressure valves used mainly in dairy plants
- To stop flow: use the 2-Way 10C or the 3-Way 11C
- To divert flow: use the 3-Way 11C only
- Low pressure; 25 psi (1.7 bar) maximum
- Low temperature; 100°F (38°C) maximum
- COP (take-apart) cleaning
Plug Valve Dimensions

2-Way with Metal or Rubber Cover

3-Way with Metal or Rubber Cover

Nomenclature De-Coder Chart

Valve Type
10C 2-Way
11C 3-Way

Connection
S = S-Line
MI = Male I-Line
I = Female I-Line
Q = Q-Line
W = Bevel Seat
B = Butt weld

Rubber Seat
R = Buna Rubber only indicate for rubber seat

DIM. | Valve Model | 1.50 Inches | 38.1 mm | 2.00 Inches | 50.8 mm | 2.50 Inches | 63.5 mm | 3.00 Inches | 76.2 mm
--- | --- | --- | --- | --- | --- | --- | --- | --- | ---
A | 10CMP-11CMP-10CMPR-11CMPR | 2.90 | 73.7 | 3.40 | 86.4 | 4.12 | 104.6 | 4.71 | 119.6
A | 10Ci-11Ci-10CIR-11CIR | 2.93 | 74.4 | 3.37 | 85.6 | 4.09 | 103.9 | 4.71 | 119.6
A | 10CQ-11CQ-10CQR-11CQR | 2.87 | 72.9 | 3.37 | 85.6 | 3.87 | 98.3 | 4.50 | 114.3
A | 10C-11C-10CR-11CR | 2.90 | 73.7 | 3.40 | 86.4 | 4.12 | 104.6 | 4.71 | 119.6
A | 10CWR-11CWR | 5.12 | 130.0 | 5.59 | 142.0 | 6.18 | 157.0 | 6.75 | 171.5
B | ALL VALVE MODELS | 2.50 | 63.5 | 2.87 | 72.9 | 3.25 | 82.6 | 3.62 | 91.9
C | ALL VALVE MODELS | 4.81 | 122.2 | 4.62 | 117.3 | 5.25 | 133.4 | 5.68 | 144.3
D | ALL VALVE MODELS | 5.37 | 136.4 | 5.37 | 136.4 | 6.50 | 165.1 | 6.50 | 165.1
Sample Valves

W30 Sample Valves

- Machined from solid bar 316L, the W30 Sample Valve can be used in a wide range of applications.
- The body and actuator arrangement are designed for high pressure applications.
- The Teflon O-Ring Seat is used for full shut off.
- The Optional SIP Flushing Port on the back side of the body is for high purity applications, where it is necessary to sterilize or flush the body of the valve prior to taking a sample. This valve is ideal for installation on high temperature process lines. Lined with a non-galling stainless steel alloy.
- Nylon Actuator Knob insulates against temperature.
- Available with “S” Clamp inlet from ½” -2” size with outlets in “S” Clamp or hose barb.

30SA Sample Valves

- The 30SA and K30SA are spring loaded Sample Valves that are commonly mounted on the door of a storage tank.
- Easy Push Operation
- The valve body is machined from 316L stainless steel, and comes in “S” Clamp (K30SA style) and Bevel Seat (30SA style). The “S” Clamp or Bevel Seat (nut) is used to attach the valve to a mating ferrule which is permanently attached to the tank.
- The valve is spring hold closed and is opened by pushing the stem toward the tank against the spring force.

Features:
- Meets 3A Standards
- 316L SS Wetted Parts

Actuation
- W30 - Nylon Actuator Knob
- 30SA/30SA - push button with spring return

Options:

**Inlet Connection:**
- W30 - ½", ¾", 1½", or 2" S-Line
- 30SA - 1½", or 2" S-Line

**Outlet Connection:**
- W30 - ¼", 3/8", or ½" hose barb; or ½" S-Line

Applications:
- Pressure: up to 100 psi (6.9 bar) service rating
- Temperature: up to 180°F (80°C) maximum
- CIP (Clean-In-Place) Cleaning
Sampling Valve Dimensions

W30 Sample Valve

Inlet Sizes

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Material 316L

Body Styles Available:
- Standard Tee
- SIP .125” Tube OD

Seat Material PTFE

Outlet Connections Available:
- S-Line (only available with .5” outlet size)
- Butt Weld
- Hose Barb

30SA & K30SA

Material 316L

Sizes Available: 1.5” or 2”

S-Line Inlet Standard

FKM Rubber Stem Plug

Outlet Sizes

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Check Valves

45 Spring Check Valves

- Waukesha Cherry-Burrell W45 Check Valves are ‘wafer-style’, where product flow pushes the valve disc away from the seat. In the absence of forward flow pressure, the electropolished spring returns the disc and holds it closed against the seat. Back flow pressure also pushes the disc into the closed position.
- Two available seal options: O-Ring or Tri-Ring; in the disc OD provides tight closure while metal-to-metal contact between the disc and seat allows for long-lasting, durable operation.
- Machined from 316L stainless steel bar with all polished surfaces < 32 Ra, the W45 Check Valve has smooth internal surfaces for superior cleaning.
- When free-draining is required, the W45 must be vertically mounted.

45 Spring Check Valve Dimensions

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<th>A (mm)</th>
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Features:
- Positive O-Ring Seal and metal-to-metal seating for robust, “soft seat” closure
- High Cv, low pressure drop design, the spring requires only 1.4 psi to open
- CIP capable, 3A Design in 1”-4” sizes
- Machined from bar 316L body construction with sanitary polish
- Electro-polished spring for ease in cleaning and longer life
- Spider-guided with long guide-bearing area

Options:
- Choice of gasket materials: EPDM or FKM
- Connections: S-Line or Butt weld
- Connection sizes: 1½”, 2”, 2½”, 3”, and 4”
- Tri-Ring seal option for high velocity applications

Applications:
- Stops or checks reverse flow in a pipeline
Check Valves

45HMP Horizontal Check Valve

- Waukesha Cherry-Burrell 45HMP Check Valves are 'wafer-style', where product flow pushes the valve disc away from the seat. In the absence of forward flow pressure, the electropolished spring returns the disc and holds it closed against the seat. Back flow pressure also pushes the disc into the closed position.
- Eccentric design allows free draining when mounted in the horizontal position.

45HMP Horizontal Check Valve Dimensions*

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<td>12.7</td>
</tr>
<tr>
<td>2.00</td>
<td>5.06</td>
<td>128.5</td>
<td>0.50</td>
<td>12.7</td>
</tr>
<tr>
<td>2.50</td>
<td>6.27</td>
<td>159.3</td>
<td>0.75</td>
<td>19.1</td>
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<tr>
<td>3.00</td>
<td>6.44</td>
<td>163.6</td>
<td>0.75</td>
<td>19.1</td>
</tr>
</tbody>
</table>

*Dimensions shown are for S-Line connection only, for other types of connection dimensions contact factory.

Features:
- Eccentric body construction for free draining in the horizontal position
- 316L body construction with sanitary polish
- CIP capable

Options:
- Choice of gasket materials: Buna, EPDM or FKM
- Connections: S-Line, I-Line, Q-Line, Bevel Seat or Butt weld
- Connection sizes: 1½”, 2”, 2½”, and 3”

Applications:
- Stops or checks reverse flow in a pipeline
Check Valves

45BY Ball Check Valves

- Waukesha Cherry-Burrell Ball Check Valves have a 316L stainless steel body with a curved offset ball trap. Product flow pushes the ball up into the trap and out of the product stream for full diameter flow.
- This valve is well suited to applications where there is pulsing flow and should not be used for sticky, adhesive products, or those with excessive viscosities where the ball can be held in the offset tube.
- Vertical installations, are preferred where product must flow bottom to top to gravity seat the ball.
- For horizontal installations, the curved offset must be upright and perpendicular to the plane of the pipeline for free-draining and proper ball seating. A minimum liquid pressure is required to seal ball.
- Waukesha Cherry-Burrell Ball Check Valves use larger diameter balls for the tube size than those used by competitors; eliminating the possibility of jamming the ball in the product tube, which can otherwise occur when subjected to high back pressure or hydraulic shock.
- Choose the ball material to suit various applications; either (Buna-N, Viton, or EPDM) or solid nylon.

45BY Ball Check Valve Dimensions

<table>
<thead>
<tr>
<th>Size (Inches)</th>
<th>A (Inches)</th>
<th>A (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.50</td>
<td>8.62</td>
<td>218.9</td>
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<tr>
<td>2.00</td>
<td>10.19</td>
<td>258.8</td>
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<tr>
<td>2.50</td>
<td>11.50</td>
<td>292.1</td>
</tr>
<tr>
<td>3.00</td>
<td>12.37</td>
<td>314.2</td>
</tr>
</tbody>
</table>

45BY Air Blow Option

Ball check with 62 air blow check is used to isolate upstream equipment for air-recover of downstream product. A combination of two manual valves can be sold as an assembly.

NOTE: Air Blow is .5” larger than ball check size

Features:
- CIP capable, fully drainable design
- Meets 3A Standards
- 316L body material
- Sanitary polish
- Non-jam, large diameter balls
- Air-blow option

Options:
- Choice of ball materials: solid nylon or rubber covered (Buna-N, EPDM, or FKM)
- Connections: S-Line, I-Line (male or female), Q-Line, Bevel seat, Butt weld, SMS, or DIN
- Connections: S-Line, I-Line, Q-Line, Bevel seat, or Butt weld

Applications:
- Stops or checks reverse flow in a pipeline
- Air blow for product recovery
Check Valves

62B Air Blow Check Valves

- Waukesha Cherry-Burrell 62B Air Blow Check Valves are ‘plug-style’, where air pressure pushes the bonded rubber plug away from the seat. In the absence of air pressure, the spring returns the plug and holds it closed against the seat.
- For 3A applications the Waukesha Cherry-Burrell 62B Air Blow Check Valve must be used with the incorporated filter disc and suitable air to be in contact with product.
- Air usage: estimated air volume usage will depend upon the pipeline vessel to be evacuated. The Waukesha Cherry-Burrell 62B is rated up to 1600 Ft³/Hr. air flow.

NPT Adapter Style Dimensions

NPT Air Inlet
Available in sizes 1½, 2, 2½, 3, 3½, 4, 4½ with S-Line, Male I-Line, and Q-Line product connections.

Hose Adapter Style

Hose Barb Air Inlet
Available in sizes 1½, 2, 2½, 3, 3½, 4, 4½ with S-Line, Male I-Line, and Q-Line product connections.

Features:
- Fail-safe operation: spring-loaded plug design prevents back flow of product or CIP solution by a simple air-to-open, spring-to-close design
- Meets 3A standards with 316L SS product Contact Surfaces
- Clamped body for easy assembly and disassembly
- Bonded Viton plug for effective, robust sealing
- 40 Micron air filter disc and Bun gasketed back-up screen for incoming air
- Conforms to 3A standard practice for applications requiring final filtering of air prior to product contact
- 1.5”-4.5” sizes

Options:
- Product Connections: S-Line, I-Line, and Q-Line
- Air Connections: 3/8 “, ½”, and ¾” NPT or OD hose barb
- Ball-Check / Air-Blow Valve assembly

Applications:
- Spring-loaded plug-style check for air-entry into product pipelines
- Evacuation of process pipelines for product recovery and/or drainage
- Air agitation of product in pipelines, tanks, and other equipment
- Air drying of process lines and equipment for corrosion resistance/formation of protective oxide films
Relief Valves

60R Series Relief Valves
Versatile, manually-adjustable Relief Valve for pipeline protection.
Durable, compact, and easy to operate.

Features and Options:
- Manually adjustable, lockable cap for setting the relief pressure
- 316L sanitary construction with No. 4 internal polish
- Choice of seats: PTFE O-Ring or metal
- Choice of spring pressures: 50 lb., 100 lb., or 300 lb.
- Choice of body styles: single outlet ‘T’ style or cross body
- Connections: S-Line, Q-Line, Bevel Seat, or Butt-Weld
- Connection sizes: 1½” or 2”

- This valve is a manually adjustable over-pressure device in which the product pushes against the plug of the valve stem. The stem is held in the closed position by the spring, which is adjusted in holding force by an external lockable cap.

- Each spring has a force range, dependent upon how much it is compressed. The more compression, the higher the pressure at which the valve will open.

- Choose the spring rating large enough to comfortably achieve the desired setting without compressing the spring down to the stack height. Tightening down the adjustable cap to the maximum pressure will limit the stroke of the valve.

- For cleaning, unload the valve by turning the cap and backing off the spring pressure.

60RMP Relief Valve Dimensions

<table>
<thead>
<tr>
<th>Size (Inches)</th>
<th>A (Inches)</th>
<th>A (mm)</th>
<th>B (Inches)</th>
<th>B (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.50</td>
<td>2.69</td>
<td>68.3</td>
<td>8.06</td>
<td>204.7</td>
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<tr>
<td>2.00</td>
<td>3.03</td>
<td>77.0</td>
<td>8.69</td>
<td>220.7</td>
</tr>
</tbody>
</table>

*Dimensions shown are for S-Line connection only, for other types of connection dimensions contact factory.

Nomenclature De-Coder Chart
Relief Valves

16AMP-AR Air Relief Valves

- Compact and mounted in an S-Line Clamp Connection, the 16AMP-AR relieves air/vapor pressure and is most commonly used on the inlet of a Centrifugal Pump so when the pump is operating, the valve is sealed by the low suction pressure. However, when the pump is “air locked,” the pressure increases and the valve opens to let the air out of the system.

- Comprised of a Nylon poppet valve with a Buna O-Ring seal, the valves can be supplied with 304 Stainless Steel, or 316L Stainless Steel cap bodies.

- The valve is supplied in sizes 1½”-3”.

- NOT FOR USE IN TANKS.

<table>
<thead>
<tr>
<th>Size (Inches)</th>
<th>A (Inches)</th>
<th>A (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.50</td>
<td>1.98</td>
<td>50.3</td>
</tr>
<tr>
<td>2.00</td>
<td>2.52</td>
<td>64.0</td>
</tr>
<tr>
<td>2.50</td>
<td>3.05</td>
<td>77.5</td>
</tr>
<tr>
<td>3.00</td>
<td>3.60</td>
<td>91.4</td>
</tr>
</tbody>
</table>

16AMP-VB Vent Valves

- Compact and mounted in an S-Line Clamp Connection, the 16AMP-VB Vacuum Breaker is used to prevent the formation of a vacuum in process lines.

- Comprised of a Nylon poppet valve with a Buna O-Ring seal, the valves can be supplied with 304 Stainless Steel, or 316L Stainless Steel cap-like bodies.

- The valve is supplied in sizes 1½”-3”.

- A common application is on HTST pasteurizers where the 16AMP-VB Valve is installed in the pasteurized side of the system. Raw (unpasteurized) milk must drain toward the raw supply and not in the pasteurized direction. The 16AMP-VB Vacuum Breaker is installed at the highest point in the piping, so that the product will drain in two directions from point of installation.

- NOT FOR USE IN TANKS.

<table>
<thead>
<tr>
<th>Size (Inches)</th>
<th>A (Inches)</th>
<th>A (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.50</td>
<td>1.98</td>
<td>50.3</td>
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<tr>
<td>2.00</td>
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<td>77.5</td>
</tr>
<tr>
<td>3.00</td>
<td>3.60</td>
<td>91.4</td>
</tr>
</tbody>
</table>
Relief Valves

40CF-AR Air Vent Valves
- For installation on pump suction lines, the 40CF-AR Air Vent Valve is designed to operate as a CIP return air relief, and operates against either vacuum or positive pressure. For proper operation, the valve should be mounted vertically.

- The 40CF-AR is available in 1"-4" sizes. S-Line connections are standard other connections are available on request.

- The 40CF-AR has a polypropylene ball that acts between the upper and lower machined seats. The valve body is machined stainless steel, either 304 or 316.

- Buna gaskets or FKM.

Operation:
- In suction lines when the 40CF-AR valve is under vacuum, the ball is pulled down against the bottom seat and seals against air entry.
- When the vacuum is relieved in the process line, the ball loses its seal on the bottom seat, and any air in the process line is allowed to pass through the body of the valve and out of the system.
- When flooded with liquid, the floating nylon ball is held closed against the upper seat by pressure.
- Should the process line fill with air, the body of the valve will also fill with air. The ball falls from the top seat and the air is allowed to escape.
- NOT FOR USE IN TANKS.

Transport and VAT Valves

60 TTF Transport Valve
- Transport Valves 3" valve-split bonnet, Rubber Seat.

63 CV Vat Valve
- Sizes Available: 3" or 4"

For additional details contact the factory.
Other Waukesha Cherry-Burrell Products

Mix Proof and Single Seat Valves

Positive Displacement Pumps

Centrifugal Pumps

Scraped Surface Heat Exchangers Votator®

SPX Process Equipment
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Phone: (262)728-1900 or (800)252-5200 Fax: (262)728-4904 or (800)252-5012
E-mail: wcb@spx.com

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