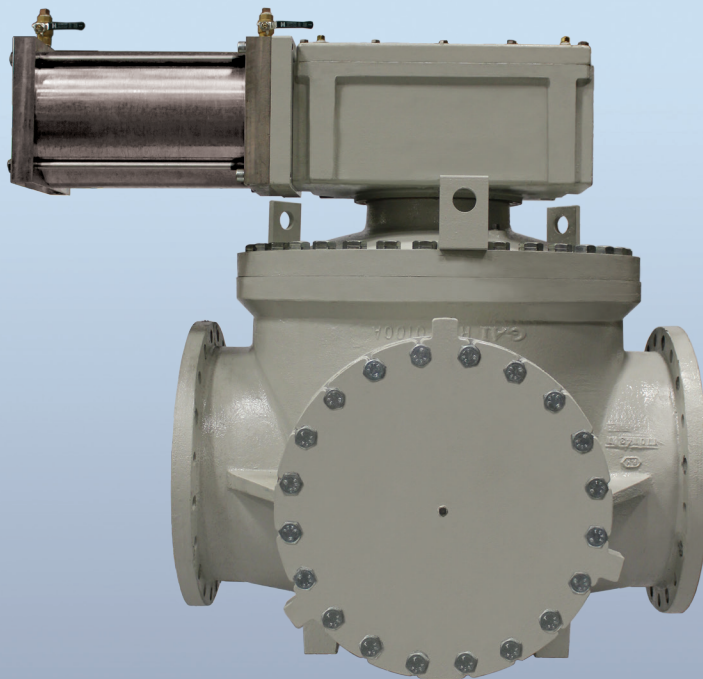


Rotary Pump Control Valve

AWWA Resilient Seated Ball Valve





A Century of Experience

GA valves are known for long term reliability in the most demanding water and wastewater applications. Whether a simple check valve or a complex automatic control valve, each GA valve is built on over 100 years of design, manufacturing and application experience to ensure its dependability and superior performance.

Outstanding Technical Support

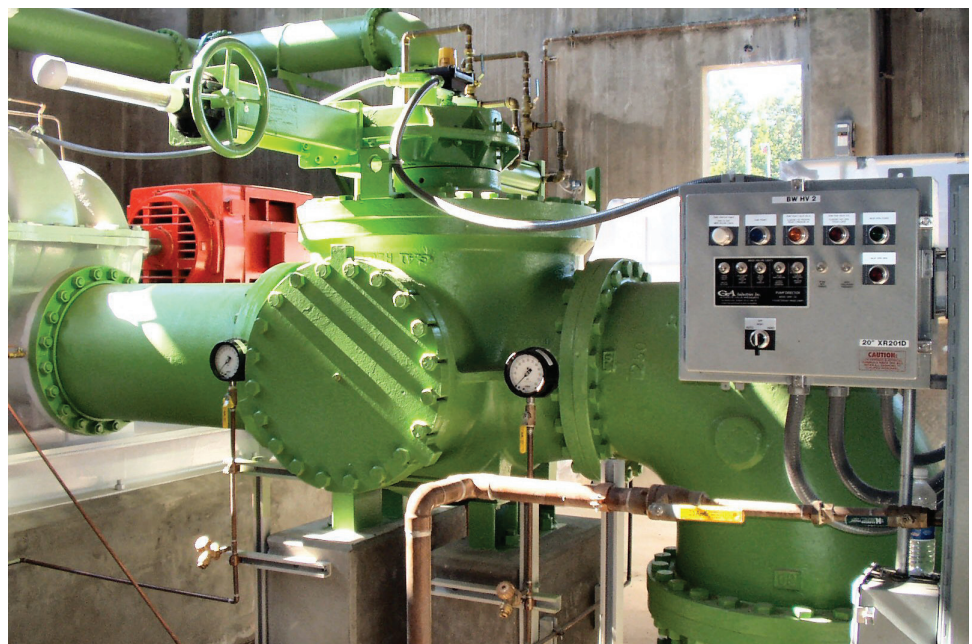
From the factory to the field, GA provides responsive and knowledgeable technical assistance and support. GA application engineers, and our team of trained and experienced sales representatives, work closely with designers to select the right valve from our broad product range to ensure that it meets the system requirements. GA Industries is committed to serving our customers in all phases of the project.

Superior Quality

All GA valves are designed in accordance with AWWA and other industry standards and are precision manufactured from the highest grade materials. Every valve is tested to ensure it meets our high standards and the latest industry requirements so you can be sure it will operate as expected from the minute it is put in service.

Comprehensive Product Range

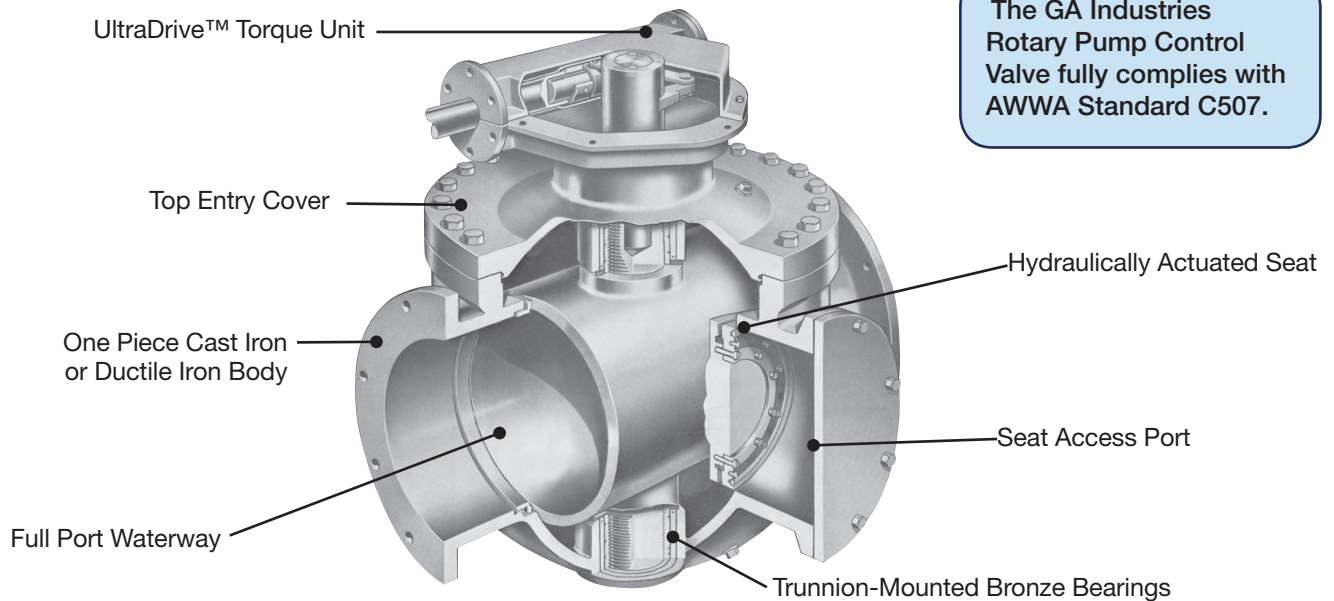
We are continuously expanding and improving our product line to meet the ever-changing needs of the waterworks industry. From standard butterfly and plug valves to sophisticated, highly engineered pump control, check and surge control valves, GA Industries offers one of the broadest ranges of valves specifically suited to the demanding needs of municipal waterworks. Please see the back cover for a complete listing of our product offering.



Rotary Pump Control Valve

AWWA Resilient Seated Ball Valve

The GA Industries Rotary Pump Control Valve is the only AWWA C507 Ball Valve specifically designed for pump control service. With advanced technology and a proven design, the GA Rotary Pump Control Valve offers the ideal combination of surge control during pump start-up/shutdown and virtually zero headloss during pump operation. Its heavy-duty trunnion-mounted design and hydraulically actuated resilient seat provide dependable long-term service under the most severe conditions.



Top Entry Body

Rugged one-piece body with bolted cover, available in ASTM A126 Class B cast iron with integral ANSI Class 125 flanges or ASTM A536 Grade 65-45-12 cast iron with ANSI Class 150, 250 or 300 flanges, sizes 6" to 36".

Trunnion-Mounted Bearings

Integrally cast hubs on the ductile iron rotor are fitted with heavy bronze bearings that ride in precision machined bushings in the body and cover for long-term, low-friction operation. The rigid trunnion-mounted design removes all hydraulic loads from the shaft so that the shaft only transmits rotational forces.

Hydraulically Actuated Seat

The "floating" resilient seat allows the valve to rotate open and closed without seat contact for long-term drop tight seating, whether operating at low or high pressure.

Full Port Waterway

The full pipe diameter and smooth, unobstructed waterway affords virtually zero headloss and thus, reduced pumping costs.

UltraDrive™ Torque Unit

The UltraDrive™ Torque Unit converts the linear motion of the cylinder actuator into a 90-degree rotation of the rotor, providing superior surge control at critical pump start-up and shutdown.

Seat Access Port

The unique side access port allows the resilient seat to be inspected, adjusted or replaced using common tools and without a lengthy disruption of service.

Proven Design

The GA Rotary Pump Control Valve has successfully undergone proof of design testing as required by AWWA C507 and every valve is rigorously tested before it leaves the factory.

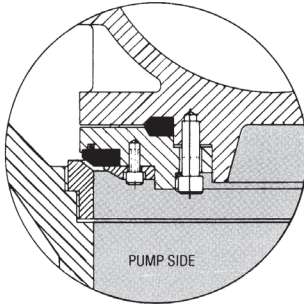
Design Features

The GA Rotary Pump Control Valve is a full ported valve with unique design features that make it dependable and easy to maintain.

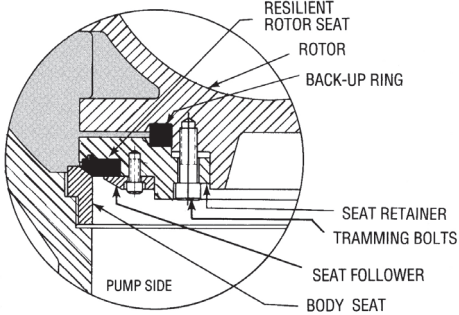
Hydraulically Actuated Seat

Unlike rubber seated ball valves that seal by deforming the rubber seat, GA's innovative UHMWPE hydraulically actuated resilient seat is "position" seated for prolonged seat life and reduced operating torque.

Valve Opening/Closing - Pump Running



Valve Closed - Pump Off



Pump Startup - Valve Opening

The pump starts against a closed valve. The high pump discharge pressure pushes the seat retainer away from the body seat before the valve starts to rotate open so the valve rotates open without seat contact.

Normal Pump Shutdown - Valve Closing

The valve rotates closed against the running pump. Pump discharge pressure increases and system pressure decreases as the valve approaches the seat. The resulting differential pressure keeps the seat retainer away from the body seat allowing the valve to rotate closed without the resilient seat contacting the body seat.

Valve Closed - Pump Off

The pump switches off only after the valve is closed. Downstream pressure pushes the seat retainer toward the pump pressing the resilient seat against the body seat. Seat compression is controlled by the adjustment of "tramming bolts" so that the valve seats drop tight even at very low static pressures.

Maintenance and Seat Accessibility

The GA Rotary Pump Control Valve is the only "top-entry" AWWA ball valve, permitting complete valve disassembly while the valve body remains in the line (Figure 1). Further, its resilient seat can be inspected, adjusted and, if necessary, replaced without disassembling the valve or removing any associated piping. After isolating the valve, relieving internal pressure and rotating it to the fully open position (Figure 2) the resilient seat is accessible by removing the flanged cover on the side port. The resilient seat then can be easily and quickly replaced using common tools. Figure 2 also illustrates the valve's full port unobstructed waterway providing the lowest possible pumping cost.

Figure 1

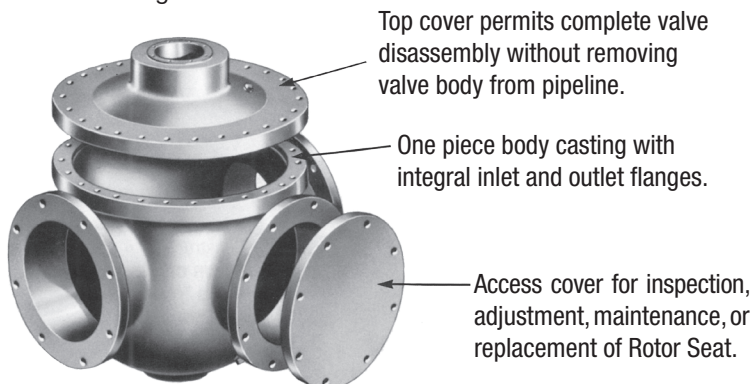
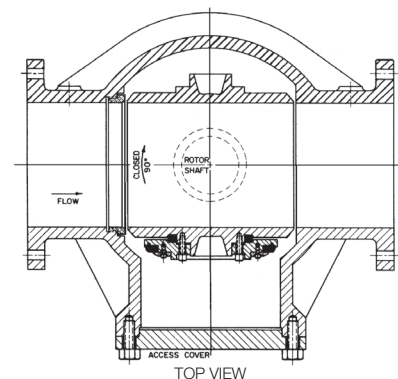
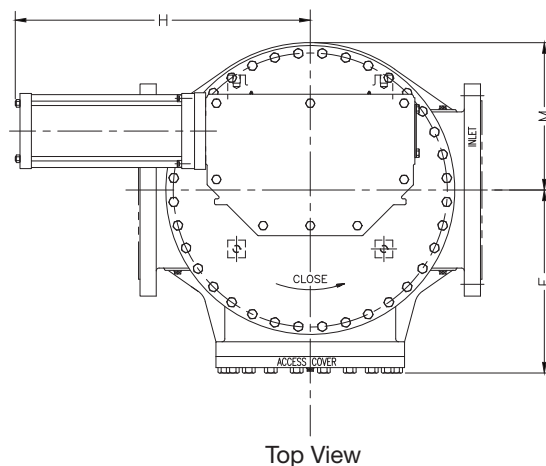
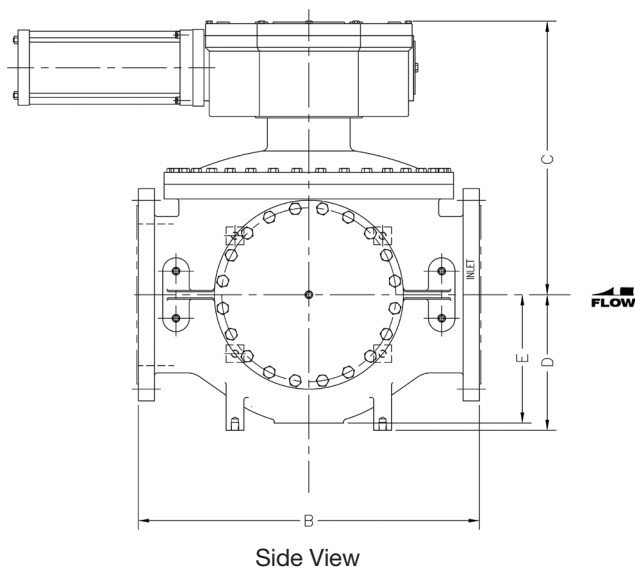


Figure 2





Dimensions (inches)

Size	B (See Note 1)		C	D	E	F	H (See Note 2)	M	Approx. Weight (lbs)
	ANSI Class 125/150	ANSI Class 250/300							
6"	20	20	23	6½	6½	10	41	7	1,100
8"	23½	23½	24	8¼	7¾	12½	41	9¾	1,300
10"	28⅞	28⅞	25	9⅝	9	15	41	10½	1,600
12"	31	32½	26	10⅞	10¾	15½	41	13	2,200
14"	37	37	35	13	12⅞	18½	43	15	3,000
16"	39	41	37	15	12½	22	43	16¼	4,200
18"	43¼	43¼	40	16½	15	23	43	20	4,500
20"	47	49	41	18	16	26½	43	21	5,500
24"	56	57¾	49	21¼	23	31¼	50	25	9,600
30"	70	70	55	27¼	24	40½	50	30	16,000
36"	78	78	57	29	26¾	41½	50	35	24,000

- Note:
1. Dimension B for valves with raised face flanges does not include the raised face height.
 2. Dimension H may vary based on the application.
 3. Access port can be on either side, cylinder actuator can rotate in 90° increments about the valve shaft.
 4. Request certified drawings if dimensions are critical.
 5. Cylinder operated valve depicted. Consult factory for information on valves operated by an air/oil cylinder or an electric motor actuator.

Standard Materials

Body and Cover	Cast Iron, ASTM A126 Class B
	Ductile Iron, ASTM A536 Grade 65-45-12
Body Seat Ring	Stainless Steel, Type 304
	Optional: Stainless Steel, Type 316
Rotor	Ductile Iron, ASTM A536 Grade 65-45-12
Rotor Seat	Ultra High Molecular Weight Polyethylene (UHMWPE)
Bearings/Bushings	Stainless Steel, Type 304
Shaft	Stainless Steel, Type 303
Shaft Packing & Seals	Buna-N
	Optional: EPDM

Other materials are available on special order, consult factory for more information.

Projects

GA Industries Rotary Pump Control Valves provide the ideal combination of excellent surge control and the lowest possible headloss with a dependable and easily maintainable design. These AWWA ball valves can be used in all types of water and sewage applications. Here are a few of our many installations.



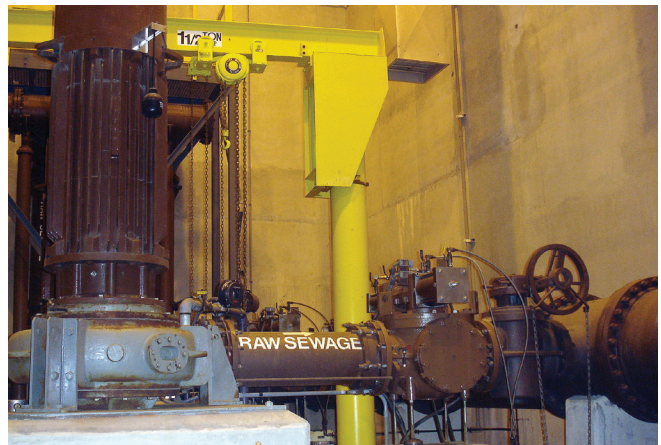
Etowah River Water Treatment Plant, Georgia, USA
6-16" GA Ball Valves with water cylinder actuator



James T. Quarles Water Treatment Plant, Georgia, USA
2-16", 3-20", 2-36" GA Ball Valves with oil cylinder actuator



McLean Booster Pump Station, Saskatchewan, Canada
2-20" GA Ball Valves with air/oil cylinder actuator



Meadowville Sewage Pump Station, Virginia, USA
3-12" GA Ball Valves with air/oil cylinder actuator

Options

- **Pump Director™** – Model 7700A pre-wired control panel to sequence operation of pump motor with the Figure R201 Rotary Pump Control Valve.
- **Double Seats** – Provide drop tight shutoff in either direction. Typically required only when Figure R201 is used as an isolating valve and not for pump control service.
- **Mounting Base** – Facilitates installation on support pier.
- **Manual Operator** – Provides method to close the valve in the event of inoperative hydraulic/pneumatic controls.
- **Electric Motor Actuation** - Quarter-turn with gearbox or multi-turn with UltraDrive, open/close or modulating, AC or DC electric motor actuation is available.



Pump Director™

Specification

Rotary Pump Control Valve with Cylinder Actuator AWWA C507 Ball Valve Sizes 6" to 36"

DESIGN

A. The Rotary Pump Control Valve shall be a trunnion-mounted, resilient seated ball valve especially designed, manufactured and tested for pump control service in accordance with the latest revision of AWWA Standard C507.

B. The ball valve shall be rotated open and closed by a cylinder actuated link and lever drive mechanism and sequenced with the operation of the pump motor by a system of pilot controls. The ball valve, drive mechanism, cylinder actuator and controls shall be factory assembled, tested as a system and ready for installation.

C. The ball valve shall be Pressure Class 150, 250 or 300 and have integral flanged ends per ANSI Class 125, 250 or 300 as listed in the schedule or shown on the plans.

D. When open, the ball valve shall have a full pipe diameter, circular, unobstructed waterway and when closed shall seal drop tight to prevent reverse flow.

CONSTRUCTION

A. The ball valve shall have a one-piece body with bolted top cover so that all internal components can be serviced without removing the valve from the line. Multi-piece body valves are not acceptable. Unless otherwise specified, Pressure Class 150 valves shall be made from ASTM A126 Class B cast iron and Pressure Class 250 and 300 valves shall be made from ASTM A536 Grade 65-45-12 ductile iron. The valve body shall have a single bronze or stainless steel replaceable body seat on the pump side and shall incorporate integral pads to support the weight of the valve.

B. The valve body shall be provided with a seat access port with bolted cover to permit inspection, adjustment or replacement of the resilient rotor seat without valve disassembly or removal of adjacent piping.

C. The rotor (ball) shall be made from ASTM A536 Grade 65-45-12 ductile iron and have integrally cast upper and lower trunnions on the axis of rotation. The trunnions shall be fitted with bronze bearings that mate with bronze bushings in the body and cover and be sealed by removable O-ring cartridges.

D. The rotor shall be connected to the drive mechanism by a Type 303 stainless steel shaft which shall transmit rotational forces only and not be subjected to hydrodynamic side loads or be used as a sealing or bearing surface.

E. The rotor shall have a single, hydraulically actuated seat made from Ultra High Molecular Weight Polyethylene (UHMWPE) that is adjustable and replaceable through the seat access port using common hand tools. The resilient seat ring shall be assembled to a ductile iron seat retainer with a bronze or stainless steel retainer. The seat assembly shall move axially in response to system hydraulic forces. When in the closed position, downstream pressure shall press the seat assembly against the body seat to make a drop tight seal. Pump discharge pressure shall move the seat assembly away from the body seat to minimize wear while the valve is opening and closing. Adjustable tramping bolts shall control the resilient seat compression.

F. The valve shall be rotated open/closed by a specially designed link and lever mechanism that is securely mounted to the valve cover and keyed to the shaft. The mechanism shall convert the linear motion of the cylinder actuator to a characterized valve closure by imparting a decreasing rotational speed as the rotor approaches the closed position for ideal surge control. Visual indication of valve position shall be provided.

Note: Consult GA Industries for specification information on electric motor actuated ball valves, optional construction, and accessories.

ACTUATION

A. The valve shall be operated by a metallic cylinder actuator conforming to AWWA C507 that is attached to the drive mechanism and does not swivel or pivot. Cylinder actuators shall be sized to reliably operate the valve under all conditions.

B. Water cylinder actuators shall have brass, bronze or stainless steel tubes with at least a 16 micro-inch inside surface finish. Cylinder heads and piston shall be made from bronze, stainless steel or other inherently corrosion resistant material. Cylinder rod shall be hard chrome plated stainless steel and equipped with a replaceable rod wiper and rod seal made from Buna-N or other suitable material.

C. Oil cylinder actuators shall have steel tubes with at least a 16 micro-inch inside surface finish and cast iron, ductile iron or steel heads and piston. Cylinder rod shall be hard chrome plated stainless steel and equipped with a rod wiper and replaceable rod seal made from Buna-N or other suitable material.

D. Pneumatic cylinder actuators shall be of the "air/oil" type such that operating forces are provided by the air cylinder but accurate operating speed control is provided by the opposed oil cylinder utilizing a self-contained hydraulic system.

CONTROLS

A. Controls shall consist of a 2-position, 4-way normal solenoid pilot with manual operator, independently adjustable opening and closing speed controls, 2-way emergency solenoid pilots with separate adjustable emergency closing speed control, pilot strainer or filter and pilot isolating valves.

B. Provide SPDT limit switches to indicate full open, full closed and an intermediate "pump motor off" signal.

C. When specified, an auxiliary manual operator shall be provided to close the valve in the event of an inoperative cylinder actuation system.

FUNCTION

A. The Rotary Pump Control Valve shall function to prevent surges associated with the starting and stopping of a pump.

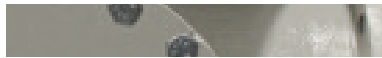
B. The valve shall open at the rotational speed set on the opening speed control valve whenever the normal and emergency solenoids are energized.

C. The valve shall close at the rotational speed set on the normal closing speed control valve whenever the normal solenoid is de-energized but the emergency solenoid is energized. The "pump motor off" limit switch contacts shall open at an adjustable point near the fully closed position which simultaneously de-energizes the emergency solenoid and disengages the pump motor.

D. Should the normal and emergency solenoids simultaneously de-energize during the course of pumping due to a power outage, pump or motor failure, the valve shall rotate closed at the speed set on the emergency closing speed control valve.

MANUFACTURER

A. The Rotary Pump Control Valve shall be Figure R201 as manufactured by GA Industries, LLC, Cranberry Township, PA



GA Industries offers a broad range of valves designed specifically for the waterworks market

AWWA C504

Rubber Seated Butterfly Valves

- Flanged and Mechanical Joint Ends
- Manual and Automatic Actuation

AWWA C507

Ball Valves

- Metal Seated
- Resilient Seated
- Hydraulic, Pneumatic, or Electric Motor Actuation

AWWA C508

Check Valves

- Cushioned Swing Check
- Rubber Flapper Check
- Globe and Wafer Silent Check
- Ball Check
- Foot Valves

AWWA C512

Air Valves for Water and Sewage

- Air Release
- Air and Vacuum
- Combination
- Vacuum Breaking

AWWA C517

Eccentric Plug Valves

- Flanged, Threaded, and Mechanical Joint Ends
- Manual and Automatic Actuation

AWWA C530

Control Valves

- Pump Control for Water and Sewage
- Surge Relief for Water and Sewage
- Level Control
- Pressure Regulating
- Solenoid Operated
- Anti-Cavitation

For more information about GA Industries' products, or to contact a sales representative, visit the GA website (www.gaindustries.com).

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Rodney Hunt, Fontaine, and GA Industries are now the **Valve and Gate Group**. We will continue to market our products under our heritage brands — but the breadth and depth of our product offerings, technology options, and engineering capabilities have expanded exponentially.

Together, we provide the most comprehensive line of flow control solutions in the industry. Learn more about us at www.vag-usa.com.