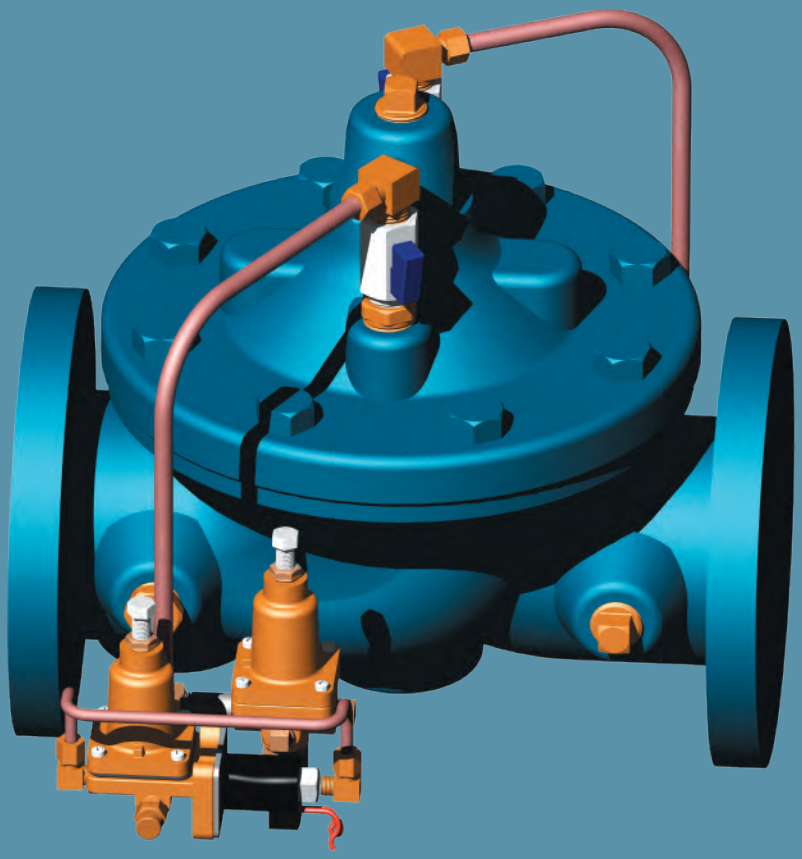
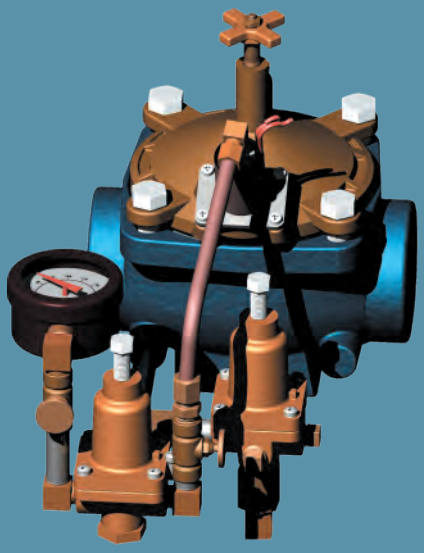
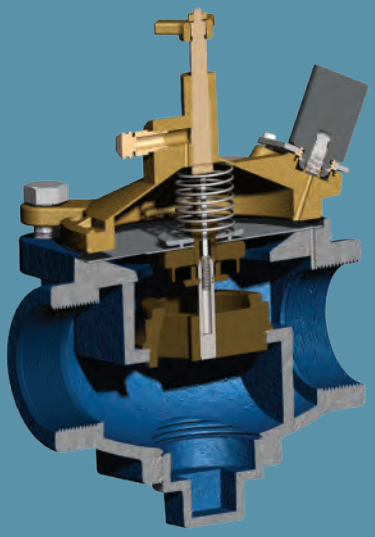
GRISWOLD® CONTROLS
A FlowCon International/Griswold Controls LLC. Company

IRRIGATION







Absolute Control. Optimized Efficiency.

Absolute Control. **Optimized Efficiency.**

Established in 1960 and headquartered in Irvine California, Griswold Controls has become known for its high quality line of irrigation products. Griswold was the first company to introduce Automatic Flow Limiting Valves, which balance flow distribution for hydronic applications in HVAC systems.

David Griswold, founder of Griswold Controls, had an extensive background in the valve and irrigation industry that started before World War II

Griswold Controls entered the irrigation market with a valve that was slow closing and self-cleaning. The slow closing prevented water-hammer, which could damage an irrigation system, and self cleaning was achieved without internal filters or screens, simplifying the maintenance of the valve. Add to that an option for a low wattage solenoid, allowing long wire runs from the controller, and the 2000 Series was born. Still viable today, more innovations have been added such as pressure regulation, internal bleed and even several types of surge anticipation valves.

Over the years, two more valve series were added, based on the same principles of slow closing and self cleaning, completing a valve line that is ideal for any application, including the use of reclaimed water. Most recently Griswold Controls introduced Irrigation Piping Packages that include strainers and isolation valves to make installation of the complete system simple and quick.

As for the future, Griswold Controls is committed to its major objectives — offering a unique product line that solves problems and features superior quality and high performance.

2803 Barranca Parkway, Irvine, CA 92606
(949) 559-6000 Fax (949) 559-6088
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GRISWOLD® CONTROLS
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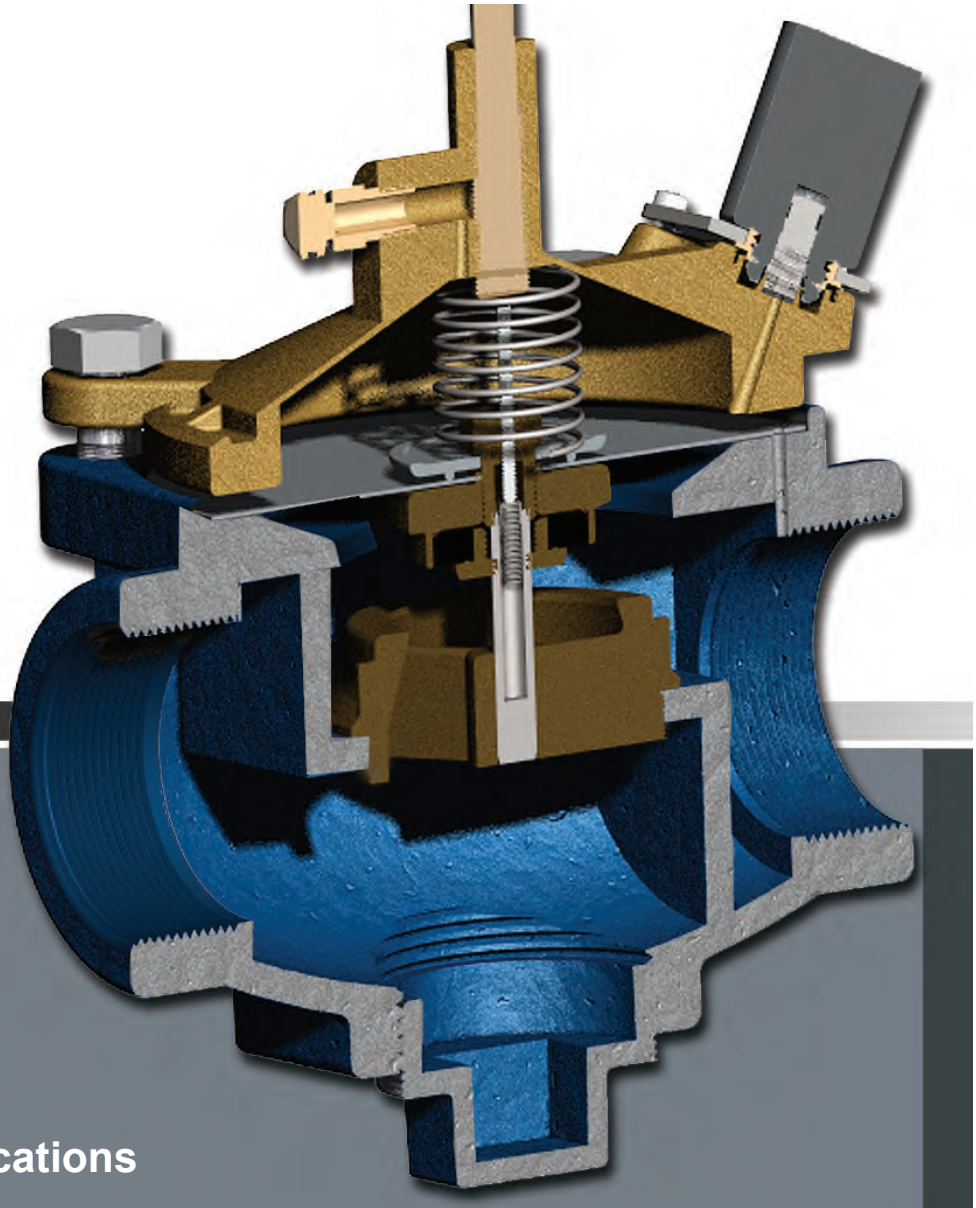
2000 Series
Heavy-Duty Irrigation Valves



MADE IN THE USA
ALL VALVES MEET "BUY AMERICA" ACT
GRISWOLD CONTROLS

Recommended Applications

- Golf Courses
- Landscapes
- Parks
- Right-of-ways

Absolute Control. Optimized Efficiency.

Features and Installation

- Self-cleaning: No filters or screens to replace
- Slow closing and slow opening: Minimizes stress to pipes, pipe joints and sprinkler heads
- Heavy-duty cast iron, bronze, stainless steel and copper construction
- Five year warranty

For maximum durability and performance, no other remote control irrigation valve can compare! Griswold Controls' unique design allows the 2000 Series valve line to serve dependably under the most adverse conditions. Designed to resist most water–borne contaminants such as dirt, algae and other organic and inorganic materials, the 2000 Series' self–flushing design allows most foreign materials to harmlessly pass through the valve without impeding its operation.

Numerous control adjustment features are available, a variety of which are standard with each valve model. Depending upon the valve selected, precise pressure and flow control adjustments can be made to the exact requirements of any given watering system. Furthermore, every 2000 Series valve features a "slow–to–open" and "slow–to–close" action characteristic that minimizes stress to pipes, pipe joints, and sprinkler heads.

The regular operation of a water system involves the constant expansion and contraction of all components as varying water pressures and flow rates pass through the system. The 2000 Series valves reduce that stress by its unique way of applying water flow and pressure at a slower rate. No other valve is as versatile or has the potential to save thousands of dollars in future pipe repair and maintenance costs!

Another unique option available is a self–draining feature allowing the valve and water system to be cleared prior to a cold weather freeze. This is useful in cold weather climates where ground freezing can cause serious damage to pipes and sprinkler heads that would otherwise be filled with ice.

Epoxy powder coating is available for all 2000 Series valves. Epoxy coating greatly preserves the cast iron valve body and significantly extends the valve body's life. To order Epoxy coating, simply add the letter "E" suffix to the valve model number and size you are selecting.

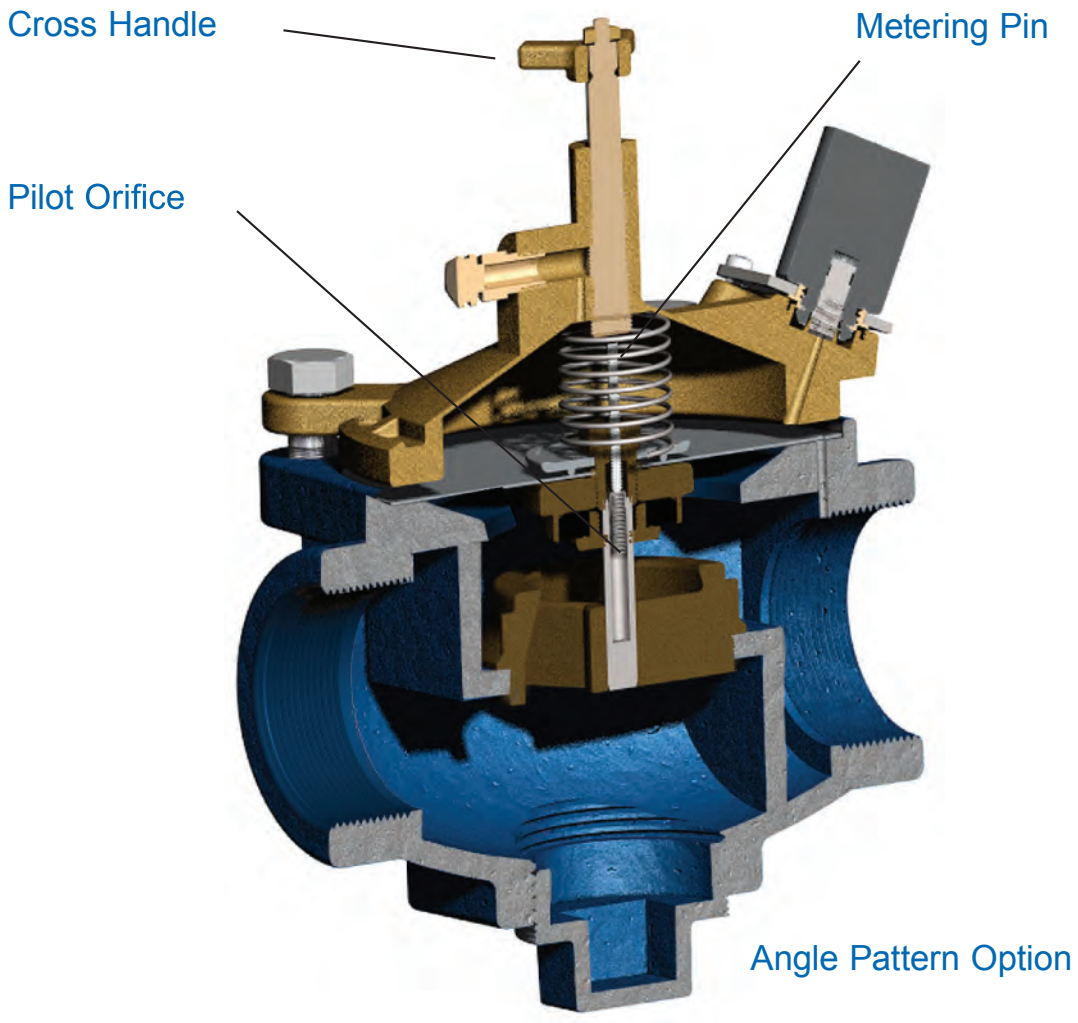
Griswold Controls 2000 Series remote control valves are made of solid cast iron, brass, and copper, and can be installed above or below grade level. They are extremely durable, designed for years of sustained regular use. An optional Epoxy powder coating is available that is highly resistant to corrosive elements, adding even more years of useful life to the valve body.

2000 Series valves are specifically designed to minimize pipe and sprinkler head stress caused by the pressure fluctuations occurring in typical water lines. A unique slow opening and slow closing feature accomplishes this. Depending upon the valve model selected, 2000 Series valves are highly adjustable and can be adapted to control most any water line pressure condition.

Another key advantage to the 2000 series valve is it's unique solenoid. Griswold Controls' .07 Amp solenoid requires much less electrical energy to actuate. This is ideal when parallel or multiple valve watering is required or for solar battery applications. In cases when limited water window restrictions are mandated and large areas need to be watered in a short period of time, this allows more valves to be run at the same time. Generally, an irrigation controller that has 1–1/2 Amps of available current for valves can run as many as 12 Griswold Controls' low energy solenoids, while most other manufacturers' valves would be limited to running only about four.

Valve sizes larger than eight inches are also available and include the same features as the smaller sizes described here. Contact your factory representative for more information. Both globe and angle pattern configurations are available.

Opening and Closing Speed Control Components



- Operating pressure: 3 to 300 psi
- Flow range: 0.01 to 3,000 gpm +
- Manual on–off control
- Combination straight and angle pattern body
- Wide control range for pressure-reducing valves
- Upstream pressure variations: 3 to 300 psi
- Downstream pressure adjustment: 5 to 125 psi
- Pressure accuracy: plus or minus 5%
- Optional Epoxy–fused coating
- Optional British standard pipe threads (BSPT)
- Available valve sizes: 1, 1–1/4, 1–1/2, 2, 2–1/2, 3, 4, 6 and 8 inches. Larger sizes are available.

Ask your dealer for more information

Nominal Dimensions and Flow Rates

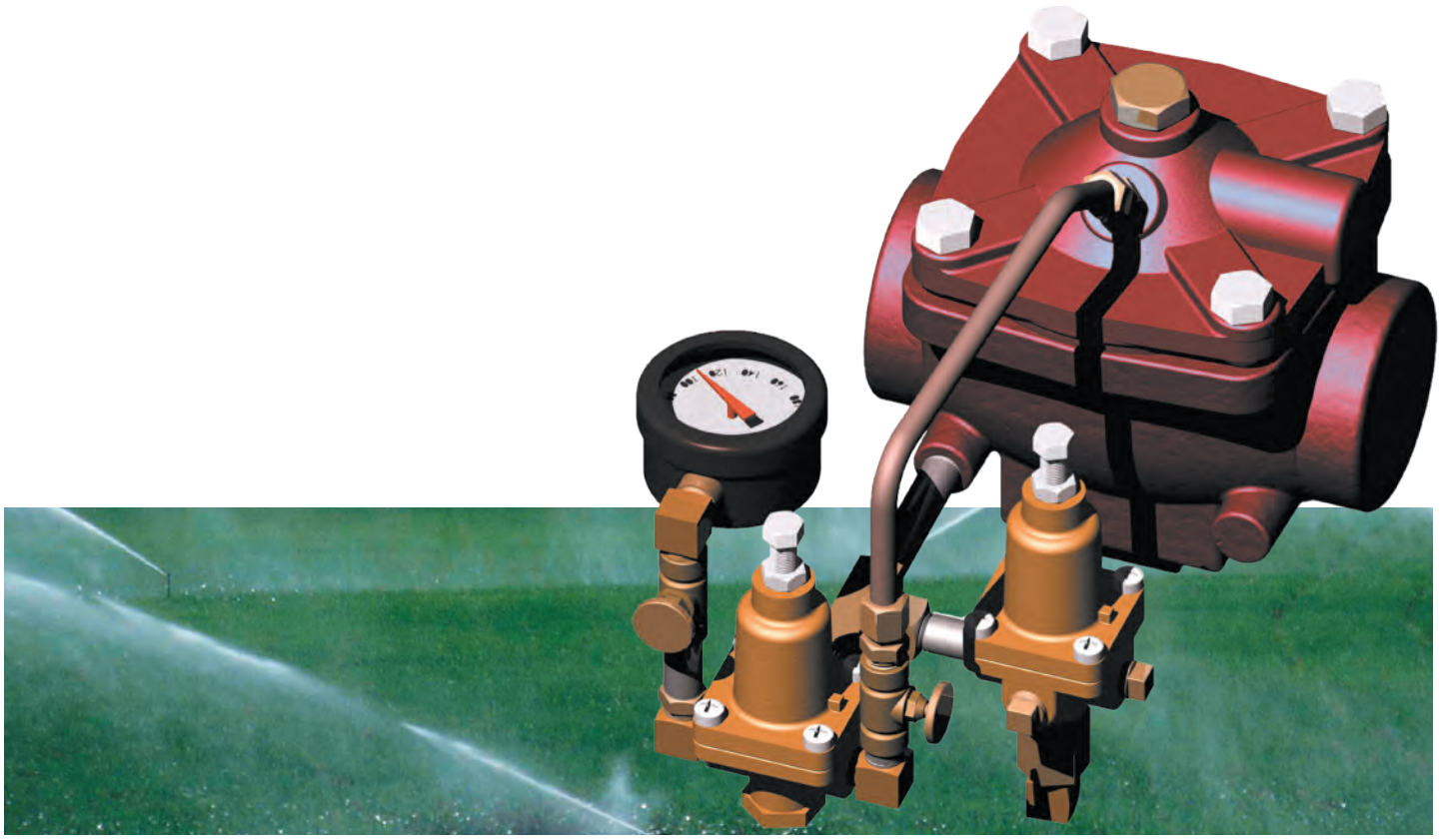
Size	Model Size	Overall Dimensions (in inches)						Flow Range
				Width				
NPT/ BSP	Suffix	Length	Height	2000 and 2030	2160 and 2260	2230	2250, 2265	(GPM)
1	H	4.5	6.8	4.0	4.5	8.0	10.0	0.01–60
1–1/4	J	4.5	6.8	4.0	4.5	8.0	10.0	0.01–70
1–1/2	K	5.5	8.3	4.8	5.5	9.5	10.0	0.01–100
2	L	7.5	9.5	6.0	7.5	10.0	12.0	0.01–200
2–1/2	M	7.5	9.5	6.0	7.5	10.0	12.0	0.01–300
3	N	8.5	10.5	6.0	8.5	10.5	12.5	0.01–400
4	P	15.0	11.1	15.5	15.5	15.5	17.5	200-900
6	Q	20.0	18.9	19.8	19.8	19.8	21.8	400-2100
8	R	25.4	22.8	24.0	24.0	24.0	26.0	700-3400

Number of Valves	18 Gauge Wires	16 Gauge Wires	14 Gauge Wires	12 Gauge Wires	10 Gauge Wires
1	1,500	2,400	3,800	6,000	9,600
2	750	1,220	1,900	3,000	4,800
3	250	407	633	1,000	1,600
4	63	102	158	250	400

Distance (in feet) vs. Wire Size:
Standard Solenoid (used on 2000, 2160, 2260 and 2265 models)

Number of Valves	18 Gauge Wires	16 Gauge Wires	14 Gauge Wires
1	7,000	11,000	17,000
2	3,500	5,500	8,500
3	2,300	3,600	5,500
4	1,750	2,700	4,200
5	1,400	2,200	3,400
6	1,160	1,800	2,800

Distance (in Feet) vs. Wire Size:
LOW ENERGY Solenoid (used on 2030, 2230 and 2250 models)



Size	Flow Pattern	Flow Rate (GPM)																															
		10	15	20	25	30	35	40	45	50	55	60	65	70	80	90	100	120	140	160	180	200	225	250	275	300	325	350	375	400
1"	Straight	1.0	1.24	2.2	3.4	5.0	6.7	8.8	11.1	13.7	16.6	19.7																		
	Angle			1.7	2.7	3.9	5.2	6.8	8.7	10.7	12.9	15.4																		
1–1/4"	Straight			1.5	2.3	3.3	4.5	5.8	7.4	9.1	11.0	13.1	15.3	17.8																
	Angle			1.3	2.0	2.8	3.9	5.1	6.4	7.9	9.6	11.4	13.3	15.5																
1–1/2"	Straight					1.3	1.8	2.4	3.0	3.7	4.5	5.0	5.4	6.3	9.5	12.0	14.8													
	Angle						1.5	1.9	2.4	3.0	3.6	4.3	5.9	6.8	7.6	9.7	11.9													
2"	Straight												1.6	1.8	2.4	3.0	3.7	5.3	7.3	9.5	12.0	14.8								
	Angle												1.3	1.5	2.0	2.5	3.1	4.5	6.1	7.9	10.0	12.3								
2–1/2"	Straight												1.0	1.2	1.5	1.9	2.4	3.4	4.6	6.1	7.7	9.5	12.0	14.8	17.9	21.3				
	Angle														1.2	1.6	1.9	2.8	3.8	4.9	6.3	7.7	9.8	12.0	14.6	17.4				
3"	Straight															1.2	1.5	2.1	2.8	3.7	4.7	5.8	7.3	9.1	11.0	13.1	15.3	17.8	20.4	23.2
	Angle															1.0	1.2	1.7	2.3	3.0	3.8	4.7	6.0	7.4	8.9	10.6	12.5	14.5	16.6	18.9

Pressure Loss

Use 1 psi drop in this range

Consult with factory in this range

Pressure Loss (in psi) at Various Flow Rates (minimum flow rate .01 GPM)

Size		Flow Rate (GPM)																												
		100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	3000	3100	3200	3300	3400
4"			1.0	2.3	4.0	6.3	9.0	12.3	16.0	20.3																			
6"					0.8	1.2	1.7	2.3	3.0	3.8	4.7	5.7	6.8	8.0	9.3	10.6	12.1	13.7	15.3	17.1	18.9	20.8							
8"								0.8	1.1	1.4	1.7	2.0	2.4	2.9	3.3	3.8	4.3	4.9	5.5	6.1	6.7	7.4	8.2	15.2	16.2	17.3	18.4	19.5

Pressure Loss

Use 1 psi drop in this range

Consult with factory in this range

Irrigation Valves 1” to 3” Applications

2000 Solenoid Valve

- Remote control valve (RCV)
- Master valve
- Ideal for all landscapes, parks, right-of-ways, golf courses

2030 Low Power Solenoid Valve

- Remote control valve (RCV)
- Master valve
- Long wire will run solar battery powered controllers
- Ideal for all landscapes, parks, right-of-ways, golf courses
- Parallel or multiple–open valve operation

2160 Solenoid Valve

- Master valve
- Ideally implemented when flow sensitive controller with flow sensor is used

2230 Pressure Reducing Solenoid Valve

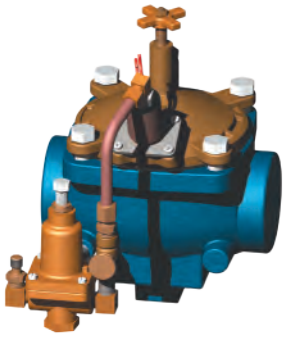
- Remote control valve (RCV)
- Master valve
- Designed for low precipitation sprinklers, spray heads and drip systems
- Perfect for slopes, banks and hilly terrain
- Long wire will run solar battery powered controllers
- Parallel or multiple–open valve operation
- Works well in high inlet pressure conditions that need to be reduced

2250 Pressure Reducing/Surge Anticipation

- Master valve for systems with high supply pressur
- Perfect for slopes, banks and hilly terrain
- Long wire will run solar battery powered controllers
- Ideal for all landscapes, parks, right-of-ways, golf courses
- Parallel or multiple open valve operation
- Surges above settings are automatically relieved

2260 Solenoid Valve

- Master valve
- Perfect for slopes, banks and hilly terrain
- Perfect when flow sensitive controller with flow sensor is used
- Works well in high inlet pressure conditions that need to be reduced



2265 Pressure Reducing/Surge Anticipation

- Master valve
- Perfect for slopes, banks and hilly terrain
- Ideal for all landscapes, parks, right-of-ways, golf courses.
- Perfect when flow sensitive controller with flow sensor is used
- Surges above settings are automatically relieved

Irrigation Valves 4” to 8” Applications

2000 Solenoid Valve

- Remote control valve (RCV)
- Master valve
- Ideal for all landscapes, parks, right-of-ways, golf courses

2030 Low Power Solenoid Valve

- Remote control valve (RCV)
- Master valve
- Long wire will run solar battery powered controllers
- Ideal for all landscapes, parks, right-of-ways, golf courses
- Parallel or multiple-open valve operation

2160 Solenoid Valve

- Master valve
- Ideally implemented when flow sensitive controller with flow sensor is used

2230 Pressure Reducing Solenoid Valve

- Remote control valve (RCV)
- Master valve
- Designed for low precipitation sprinklers, spray heads and drip systems
- Perfect for slopes, banks and hilly terrain
- Long wire will run solar battery powered controllers
- Parallel or multiple-open valve operation
- Works well in high inlet pressure conditions that need to be reduced

2250 Pressure Reducing/Surge Anticipation Solenoid Valve

- Master valve for systems with high supply pressur
- Perfect for slopes, banks and hilly terrain
- Long wire will run solar battery powered controllers
- Ideal for all landscapes, parks, right-of-ways, golf courses
- Parallel or multiple open valve operation
- Surges above settings are automatically relieved

2260 Solenoid Valve

- Master valve
- Perfect for slopes, banks and hilly terrain
- Perfect when flow sensitive controller with flow sensor is used
- Works well in high inlet pressure conditions that need to be reduced

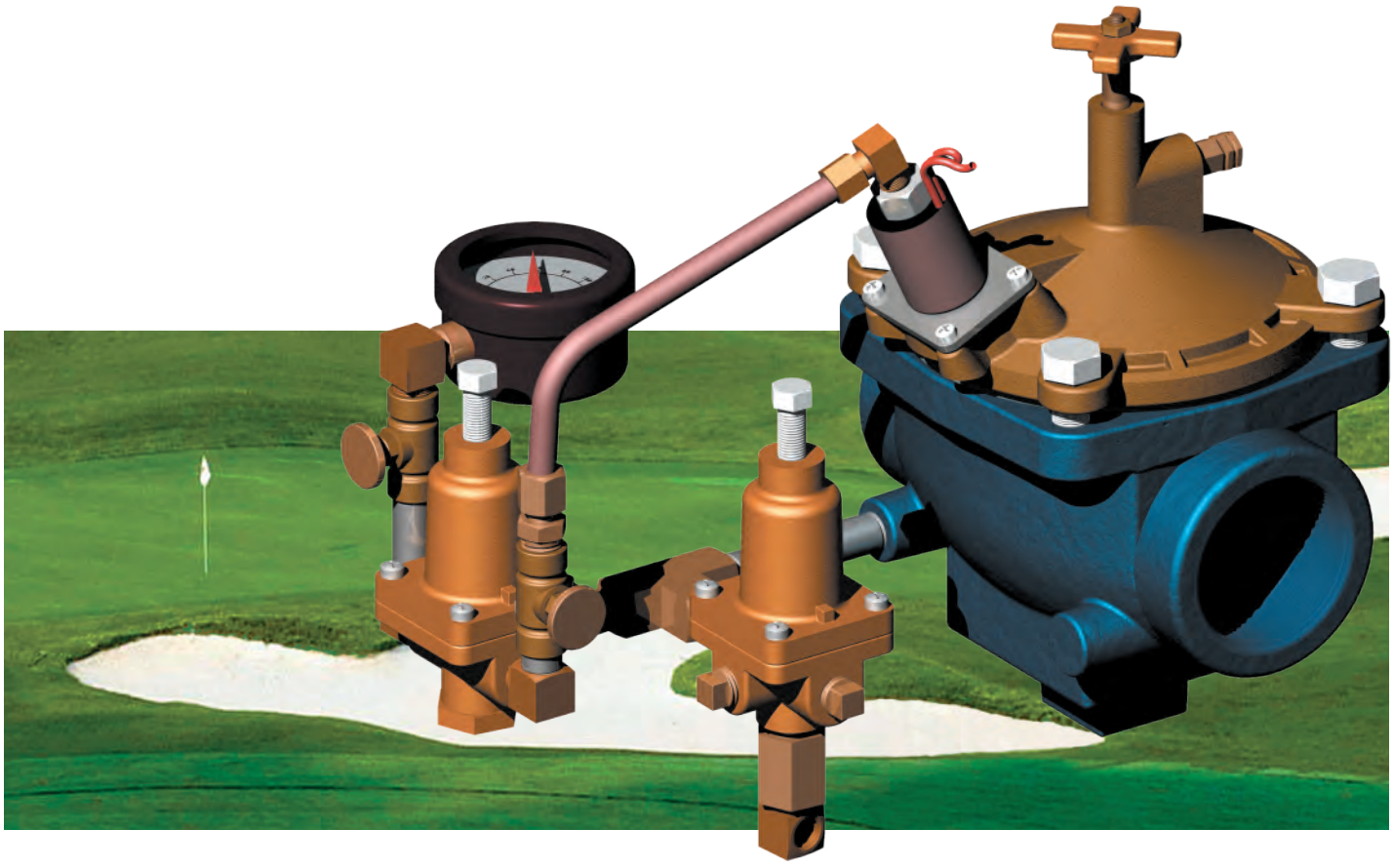
2265 Pressure Reducing / Surge Anticipation Solenoid Valve

- Master valve
- Perfect for slopes, banks and hilly terrain
- Ideal for all landscapes, parks, right-of-ways, golf courses.
- Perfect when flow sensitive controller with flow sensor is used
- Surges above settings are automatically relieved

Specifications

Fail safe position	Valve	Size	Voltage Operating Range (VAC)	Standard Regulating Range	Internal Manual Bleed	Current Requirement	Pressure Gauge
Normally closed	2000	1–8”	17–40	N/A	No	0.40A at 24 VAC	N/A
	2030	1–8”	16–40	5–125 psi[1]	No	0.07A at 24 VAC	N/A
	2230	1–8”	16–40	5–125 psi	Yes	0.07A at 24 VAC	N/A
	2250	1–8”	16–40	5–125 psi	Yes	0.07A at 24 VAC	N/A
Normally open	2160	1–8”	17–40	N/A	No	0.40A at 24 VAC	N/A
	2260	1–8”	17–40	5–125 psi[1]	Yes	0.40A at 24 VAC	N/A
	2265	1–8”	17–40	5–125 psi[1]	Yes	0.40A at 24 VAC	Standard

1 Higher regulating range also available (Optional)



Griswold Controls Representative

GRISWOLD CONTROLS®

2803 Barranca Parkway • Irvine CA 92606 | Phone 800 838 0858 • Fax 800 543 8662

E-mail info@griswoldcontrols.com | www.griswoldcontrols.com

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2230 MP Series Combination Solenoid and Pressure Reducing Valves

Performance Specifications

Control valves shall be a combination pressure reducing and solenoid control consisting of a main valve, a pressure reducing pilot, a solenoid control pilot and a manual bypass pilot valve. The main valve shall: (1) be cast iron body with removable seat and have two inlet tappings for either angle or straight installation, (2) be mechanically self-cleaning and automatically self-purging without the use of screens or filters, (3) have a mechanically guided diaphragm assembly, (4) be self-bleeding when installed horizontally, (5) have a manual flow stem to adjust the speed of closure and provide internal flushing. The pressure reducing pilot must: (1) be diaphragm actuated for positive action without the use of pistons or sliding seals, (2) have a single adjusting stem for pressure setting provided with a tamper-proof cover, (3) have a tire-type valve to provide for quick-disconnect pressure measurement. A very low power, 0.07 amp at 18 Volt RMS, lightning protected solenoid must be provided. A pilot bypass shall provide manual operation with automatic pressure regulation. Converting the valve to a non-pressure reducing type shall not be readily possible. All valve components shall be serviceable from the top without removing the main valve body and pilot bodies.

2030 Series Solenoid Control Valves

Performance Specifications

Remote control valves shall be cast iron body with removable seat and have two inlet tappings for either angle or straight installation.

The internal control system of the valves must be mechanically self-cleaning and automatically self-purging without the use of screens or filters.

The diaphragm assembly unit must be hydraulically balanced and be mechanically guided in all positions. Upon opening, the internal control port shall enlarge in size to purge, and gradually reduce during closure to reduce hammer and chatter. A manual flow stem to adjust the closing speed and internal flushing must be provided. When installed with the flow system up, energizing the solenoid shall automatically exhaust all trapped air in the cover chamber. A drip-tight, resilient seated petcock must be provided for manual opening without electricity. The solenoid pilot must be corrosion proof, molded in epoxy and encased in brass housing. The electrical requirements shall not exceed 70mA at 24 Volts RMS, 60 Hz, when the line pressure is 150 PSIG. The power factor shall be greater than 0.9.

2000 Series Solenoid Control Valves

Performance Specifications

Remote control valves shall be cast iron body with removable seat and have two inlet tappings for either angle or straight installation.

The internal control system of the valves must be mechanically self-cleaning and automatically self-purging without the use of screens or filters.

The diaphragm assembly unit must be hydraulically balanced and be mechanically guided in all positions. Upon opening, the internal control port shall enlarge in size to purge, and gradually reduce during closure to reduce hammer and chatter. A manual flow stem to adjust the closing speed and internal flushing must be provided. When installed with the flow system up, energizing the solenoid shall automatically exhaust all trapped air in the cover chamber. A drip-tight, resilient seated petcock must be provided for manual opening without electricity. The solenoid pilot must be corrosion proof, molded in epoxy and encased in brass housing.

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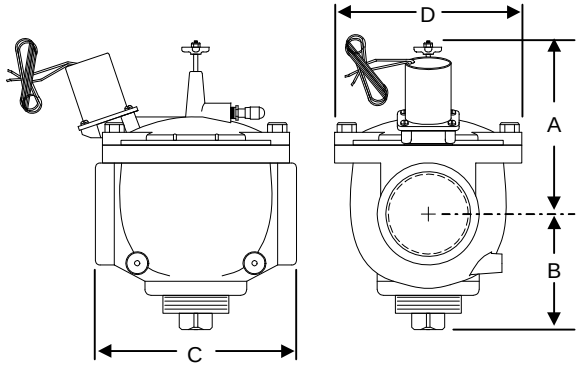

SPECIFICATIONS:

Operating Pressure:	2 to 200 PSI
Material:	Cast Iron and Bronze
End Connections:	NPT (BSPT Optional)
Voltage Operating Range:	22-28 VAC
Low Current Requirement:	0.40 A at 24 VAC
Assembly:	Valve comes fully assembled
Optional:	Purple Handle for Reclaimed Water
Optional:	Epoxy Coating

DIMENSIONS & WEIGHTS (NOMINAL)

SIZE	MODEL NO.	A (IN)	B (IN)	C (IN)	D (IN)	APPROX SHIP WT IN LBS
1”	2000H	4.25	2.50	4.50	4.00	7.75
1-1/4”	2000J	4.25	2.75	4.50	4.00	7.50
1-1/2"	2000K	6.00	3.00	5.50	4.80	12.25
2"	2000L	6.00	3.25	7.50	6.00	19
2-1/2"	2000M	6.25	3.25	7.50	6.00	22
3"	2000N	6.50	4.50	8.50	6.00	26

PRESSURE LOSS (PSI) AT VARIOUS FLOWRATES

SIZE	FLOW PATTERN	Cv	FLOWRATE (GPM)																															
			10	15	20	25	30	35	40	44	50	55	60	65	70	80	90	100	120	140	160	180	200	225	250	275	300	325	350	375	400
1"	STRAIGHT	13.50	1.0	1.24	2.2	3.4	5.0	6.7	8.8	11.1	13.7	16.6	19.7																		
	ANGLE	15.30			1.7	2.7	3.9	5.2	6.8	8.6	10.7	12.9	15.4																		
1-1/4”	STRAIGHT	16.60			1.5	2.3	3.3	4.5	5.8	7.4	9.1	11.0	13.1	15.3	17.8				**CONSULT WITH FACTORY IN THIS RANGE**												
	ANGLE	17.80			1.3	2.0	2.8	3.9	5.1	6.4	7.9	9.6	11.4	13.3	15.5																
1-1/2"	STRAIGHT	26.00					1.3	1.8	2.4	3.0	3.7	4.5	5.0	5.4	7.3	9.5	12.0	14.8													
	ANGLE	29.00					1.1	1.5	1.9	2.4	3.0	3.6	4.3	5.9	6.3	7.6	9.7	11.9													
2"	STRAIGHT	52.00												1.6	1.8	2.4	3.0	3.7	5.3	7.3	9.5	12.0	14.8								
	ANGLE	57.00												1.3	1.5	2.0	2.5	3.1	4.4	6.1	7.9	10.0	12.3								
2-1/2"	STRAIGHT	65.00		**USE 1 PSI DROP IN THIS RANGE**										1.0	1.2	1.5	1.9	2.4	3.4	4.6	6.1	7.7	9.5	12.0	14.8	17.9	21.3				
	ANGLE	72.00														1.2	1.6	1.9	2.8	3.8	4.9	6.3	7.7	9.8	12.0	14.6	17.4				
3"	STRAIGHT	83.00															1.2	1.5	2.1	2.8	3.7	4.7	5.8	7.3	9.1	11.0	13.1	15.3	17.8	20.4	23.2
	ANGLE	92.00															1.0	1.2	1.7	2.3	3.0	3.8	4.7	6.0	7.4	8.9	10.6	12.5	14.5	16.6	18.9

APPLICATIONS

The 2000 Solenoid Control Valve offers maximum performance combined with the reliability you have come to expect from Griswold Controls. Intended for use in a wide variety of irrigation systems, the valve is ideally suited for use as either an On-Off Solenoid Valve or as a General Purpose Master Valve. The 2000_R can be used with Reclaimed Water.

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GRISWOLD CONTROLS®

MODEL NUMBER SELECTION

2 0 0 0 ____ ____ ____

Select a Housing Size (1"=H, 1-1/4"=J, 1-1/2"=K, 2"=L, 2-1/2"=M, 3"=N)

Add an "R" for Reclaimed Water
Add an "E" for Epoxy

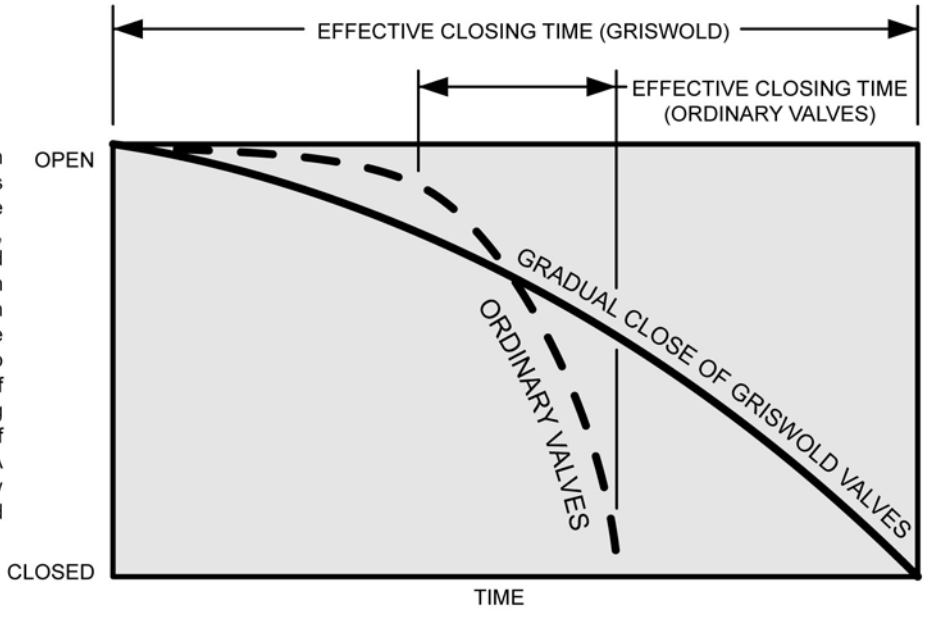
Add an "A" for Angle Configuration

DESCRIPTION:

- Normally Closed: Energize Solenoid to Open Valve, De-Energize to Close Valve
- On/Off Solenoid Control Valve
- Watertight Epoxy Molded Solenoid Coil
- Slow Closing
- "No Surge or Hammer" Operation
- Will Throttle Against Flow Without Chatter
- Diaphragm-Disc Assembly Guided by Stainless Steel Stem in all Positions
- Completely Serviceable Without Removing Valve Body from the System

HAMMER-FREE, CHATTER-FREE CLOSING:

Instead of an abrupt, sudden closure, Griswold valves close gradually to eliminate water hammer and chatter, regardless of the throttled position of the diaphragm assembly. Notice in the graph how the closing action of the Griswold Valve compares to the abrupt closing action of ordinary valves. Closing speed depends on the size of the valve and flow velocity. A minimum of 5 seconds may be expected from Griswold Valves.



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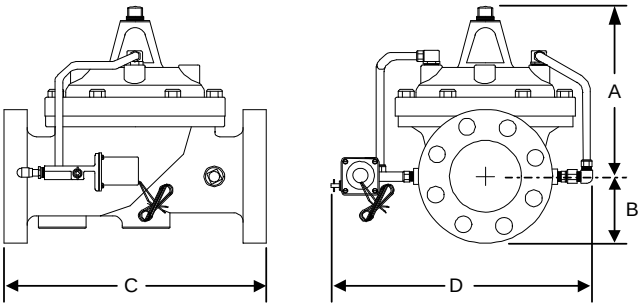

SPECIFICATIONS:

Operating Pressure: 2 to 200 PSI
Voltage Operating Range: 22-28 VAC
Low Current Requirement: 0.40 A at 24 VAC
Assembly: Valve comes fully assembled

MATERIALS

End Connections: Flanged 150 ANSI
Stem, Nut & Spring: Stainless Steel
Diaphragm: Nylon-Reinforced Buna-N
Disc: Buna-N
Disc Retainer: Cast Iron
Diaphragm Washer: Cast Iron
Disc Guide Seat: Bronze
Cover Bearing: Bronze

DIMENSIONS & WEIGHTS (NOMINAL)

SIZE	MODEL NO.	A (IN)	B (IN)	C(IN)	D (IN)	APPROX SHIP WT IN LBS
4”	2000P	10.62	4.50	15.00	15.50	140
6”	2000Q	13.38	5.50	20.00	19.75	280
8”	2000R	16.00	6.75	25.38	24.00	500

PRESSURE LOSS (PSI) AT VARIOUS FLOWRATES

SIZE	FLOWRATE (GPM)																												
	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	3000	3100	3200	3300	3400
4"		1.0	2.3	4.0	6.3	9.0	12.3	16.0	20.3													CONSULT WITH FACTORY							
6"	USE 1 PSI			0.8	1.2	1.7	2.3	3.0	3.8	4.7	5.7	6.8	8.0	9.3	10.6	12.1	13.7	15.3	17.1	18.9	20.8	IN THIS RANGE							
8"	DROP IN THIS RANGE						0.8	1.1	1.4	1.7	2.0	2.4	2.9	3.3	3.8	4.3	4.9	5.5	6.1	6.7	7.4	8.2	15.2	16.2	17.3	18.4	19.5		

APPLICATIONS

The 2000 Solenoid Control Valve offers maximum performance combined with the reliability you have come to expect from Griswold Controls. Intended for use in medium to large irrigation systems, the valve is ideally suited for use as either an On-Off Solenoid Valve or as a General Purpose Master Valve.

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MODEL NUMBER SELECTION

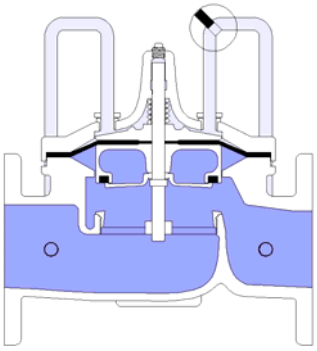
2 0 0 0 ___

Select a size (4"=P, 6"=Q, 8"R)

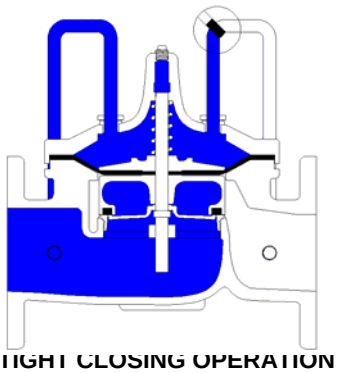
DESCRIPTION:

- Normally Closed: Energize Solenoid to Open Valve, De-Energize to Close Valve
- On/Off Solenoid Control Valve
- Watertight Epoxy Molded Solenoid Coil
- Slow Closing
- "No Surge or Hammer" Operation
- Will Throttle Against Flow Without Chatter
- Diaphragm-Disc Assembly Guided by Stainless Steel Stem in all Positions
- Completely Serviceable Without Removing Valve Body from the System

THEORY OF OPERATION



FULL OPEN OPERATION
When pressure in the cover chamber is relieved to a zone of lower pressure, the line pressure at the valve inlet opens the valve, allowing full flow.



TIGHT CLOSING OPERATION
When pressure from the valve inlet is applied to the cover chamber, the valve closes drip-tight.

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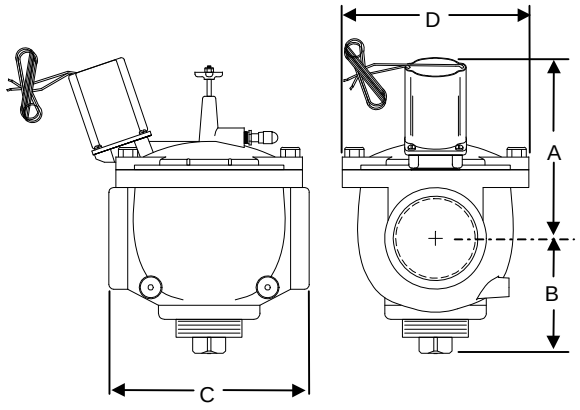
LOW POWER SOLENOID

NORMALLY CLOSED VALVE



SPECIFICATIONS:

Operating Pressure:	3 to 80 PSI
Material:	Cast Iron and Bronze
End Connections:	NPT (BSPT Optional)
Voltage Operating Range:	22-28 VAC
Low Current Requirement:	0.10 A at 24 VAC
Assembly:	Valve comes fully assembled
Optional:	Purple Handle for Reclaimed Water
Optional:	Epoxy Coating

DIMENSIONS & WEIGHTS (NOMINAL)

SIZE	MODEL NO.	A (IN)	B (IN)	C (IN)	D (IN)	APPROX SHIP WT IN LBS
1”	2030H	4.25	2.50	4.50	4.00	8.50
1-1/4”	2030J	4.25	2.75	4.50	4.00	8.25
1-1/2"	2030K	6.00	3.00	5.50	4.80	13.25
2"	2030L	6.00	3.25	7.50	6.00	19.75
2-1/2"	2030M	6.25	3.25	7.50	6.00	22.75
3"	2030N	6.50	4.50	8.50	6.00	27

PRESSURE LOSS (PSI) AT VARIOUS FLOWRATES

SIZE	FLOW PATTERN	Cv	FLOWRATE (GPM)																																	
			10	15	20	25	30	35	40	44	50	55	60	65	70	80	90	100	120	140	160	180	200	225	250	275	300	325	350	375	400						
1"	STRAIGHT	13.50	1.0	1.24	2.2	3.4	5.0	6.7	8.8	11.1	13.7	16.6	19.7																							
	ANGLE	15.30			1.7	2.7	3.9	5.2	6.8	8.6	10.7	12.9	15.4																							
1-1/4”	STRAIGHT	16.60			1.5	2.3	3.3	4.5	5.8	7.4	9.1	11.0	13.1	15.3	17.8				**CONSULT WITH FACTORY IN THIS RANGE**																	
	ANGLE	17.80			1.3	2.0	2.8	3.9	5.1	6.4	7.9	9.6	11.4	13.3	15.5																						
1-1/2"	STRAIGHT	26.00					1.3	1.8	2.4	3.0	3.7	4.5	5.0	5.4	7.3	9.5	12.0	14.8																			
	ANGLE	29.00					1.1	1.5	1.9	2.4	3.0	3.6	4.3	5.9	6.3	7.6	9.7	11.9																			
2"	STRAIGHT	52.00												1.6	1.8	2.4	3.0	3.7	5.3	7.3	9.5	12.0	14.8													
	ANGLE	57.00												1.3	1.5	2.0	2.5	3.1	4.4	6.1	7.9	10.0	12.3													
2-1/2"	STRAIGHT	65.00		**USE 1 PSI DROP IN THIS RANGE**										1.0	1.2	1.5	1.9	2.4	3.4	4.6	6.1	7.7	9.5	12.0	14.8	17.9	21.3									
	ANGLE	72.00														1.2	1.6	1.9	2.8	3.8	4.9	6.3	7.7	9.8	12.0	14.6	17.4									
3"	STRAIGHT	83.00															1.2	1.5	2.1	2.8	3.7	4.7	5.8	7.3	9.1	11.0	13.1	15.3	17.8	20.4	23.2				
	ANGLE	92.00															1.0	1.2	1.7	2.3	3.0	3.8	4.7	6.0	7.4	8.9	10.6	12.5	14.5	16.6	18.9				

APPLICATIONS

The 2030 Solenoid Valve offers maximum performance combined with the reliability you have come to expect from Griswold Controls. The valve is intended for use in a wide variety of irrigation systems and its low power consumption solenoid makes it the ideal choice for areas needing remote wiring. The 2030_R can be used with Reclaimed Water.

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GRISWOLD CONTROLS®

MODEL NUMBER SELECTION

2 0 3 0 ____ ____ ____

Select a Housing Size (1"=H, 1-1/4"=J, 1-1/2"=K, 2"=L, 2-1/2"=M, 3"=N)

Add an "R" for Reclaimed Water
Add an "E" for Epoxy

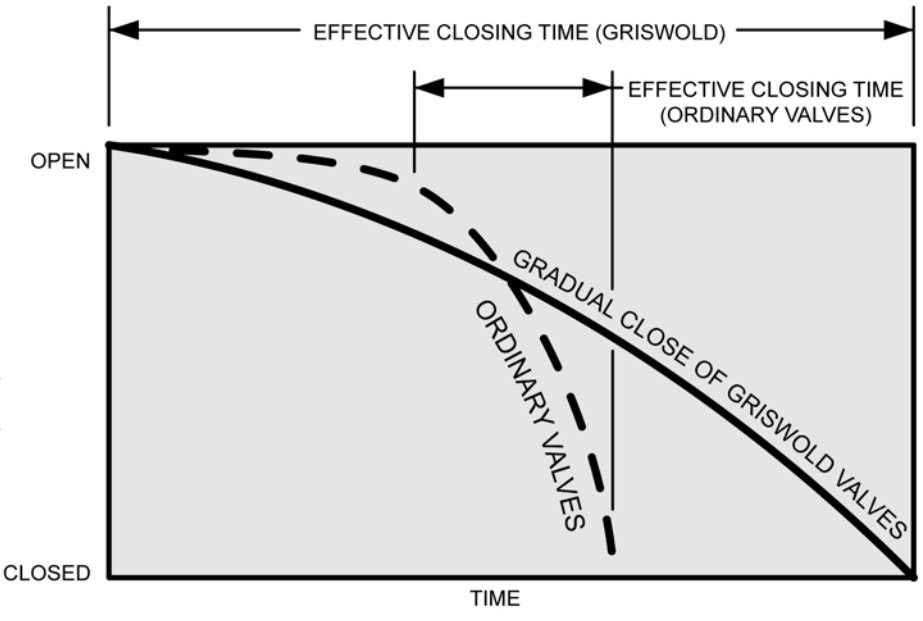
Add an "A" for Angle Configuration

DESCRIPTION:

- Normally Closed: Energize Solenoid to Open Valve, De-Energize to Close Valve
- On/Off Solenoid Control Valve
- Watertight Epoxy Molded Solenoid Coil
- Lightning Protected
- Slow Closing
- "No Surge or Hammer" Operation
- Will Throttle Against Flow Without Chatter
- Diaphragm-Disc Assembly Guided by Stainless Steel Stem in all Positions
- Completely Serviceable Without Removing Valve Body from the System
- Patented Super Low Energy Solenoid

HAMMER-FREE, CHATTER-FREE CLOSING:

Instead of an abrupt, sudden closure, Griswold valves close gradually to eliminate water hammer and chatter, regardless of the throttled position of the diaphragm assembly. Notice in the graph how the closing action of the Griswold Valve compares to the abrupt closing action of ordinary valves. Closing speed depends on the size of the valve and flow velocity. A minimum of 5 seconds may be expected from Griswold Valves.



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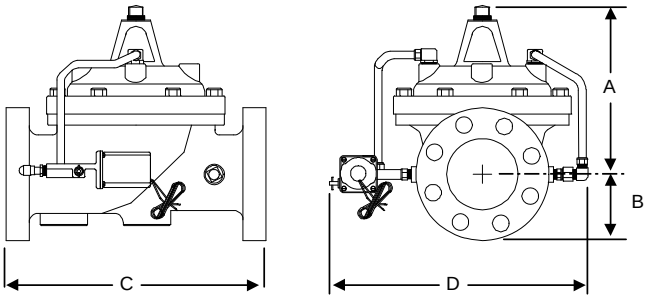
LOW POWER SOLENOID

NORMALLY CLOSED VALVE



SPECIFICATIONS:

Operating Pressure: 2 to 200 PSI
Voltage Operating Range: 22-28 VAC
Low Current Requirement: 0.10 A at 24 VAC
Assembly: Valve comes fully assembled

MATERIALS
End Connections: Flanged 150 ANSI
Stem, Nut & Spring: Stainless Steel
Diaphragm: Nylon-Reinforced Buna-N
Disc: Buna-N
Disc Retainer: Cast Iron
Diaphragm Washer: Cast Iron
Disc Guide Seat: Bronze
Cover Bearing: Bronze

DIMENSIONS & WEIGHTS (NOMINAL)

SIZE	MODEL NO.	A (IN)	B (IN)	C (IN)	D (IN)	APPROX SHIP WT IN LBS
4"	2030P	10.62	4.50	15.00	15.50	140
6"	2030Q	13.38	5.50	20.00	19.75	280
8"	2030R	16.00	6.75	25.38	24.00	500

PRESSURE LOSS (PSI) AT VARIOUS FLOWRATES

SIZE	FLOWRATE (GPM)																												
	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	3000	3100	3200	3300	3400
4"		1.0	2.3	4.0	6.3	9.0	12.3	16.0	20.3													CONSULT WITH FACTORY						
6"	USE 1 PSI			0.8	1.2	1.7	2.3	3.0	3.8	4.7	5.7	6.8	8.0	9.3	10.6	12.1	13.7	15.3	17.1	18.9	20.8	IN THIS RANGE						
8"	DROP IN THIS RANGE						0.8	1.1	1.4	1.7	2.0	2.4	2.9	3.3	3.8	4.3	4.9	5.5	6.1	6.7	7.4	8.2	15.2	16.2	17.3	18.4	19.5	

APPLICATIONS

The 2030 Pressure Reducing Solenoid Valve offers maximum performance combined with the reliability you have come to expect from Griswold Controls. The valve is intended for use in medium to large irrigation systems and its low power consumption solenoid makes it the ideal choice for areas needing remote wiring.

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MODEL NUMBER SELECTION

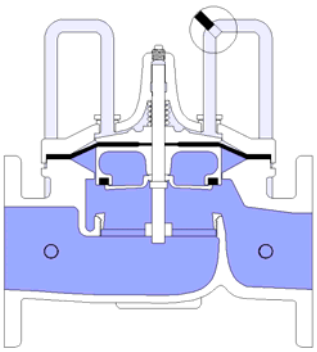
2 0 3 0 _

Select a size (4"=P, 6"=Q, 8"R)

DESCRIPTION:

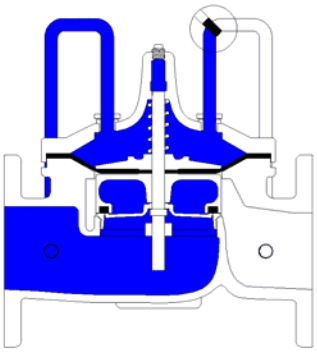
- Normally Closed: Energize Solenoid to Open Valve, De-Energize to Close Valve
- On/Off Solenoid Control Valve
- Watertight Epoxy Molded Solenoid Coil
- Lightning Protected
- Slow Closing
- "No Surge or Hammer" Operation
- Will Throttle Against Flow Without Chatter
- Diaphragm-Disc Assembly Guided by Stainless Steel Stem in all Positions
- Completely Serviceable Without Removing Valve Body from the System

THEORY OF OPERATION



FULL OPEN OPERATION

When pressure in the cover chamber is relieved to a zone of lower pressure, the line pressure at the valve inlet opens the valve, allowing full flow.



TIGHT CLOSING OPERATION

When pressure from the valve inlet is applied to the cover chamber, the valve closes drip-tight.

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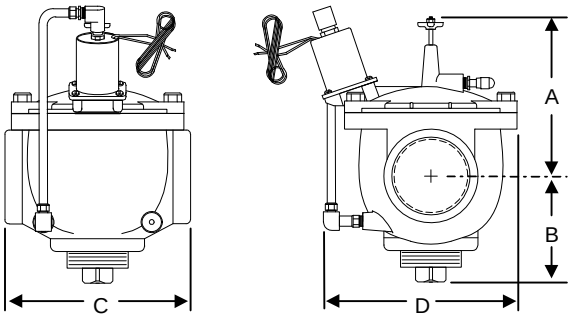

SPECIFICATIONS:

Operating Pressure:	2 to 200 PSI
Material:	Cast Iron and Bronze
End Connections:	NPT (BSPT Optional)
Voltage Operating Range:	22-28 VAC
Low Current Requirement:	0.40 A at 24 VAC
Assembly:	Valve comes fully assembled
Optional:	Purple Handle for Reclaimed Water
Optional:	Epoxy Coating

DIMENSIONS & WEIGHTS (NOMINAL)

SIZE	MODEL NO.	A (IN)	B (IN)	C (IN)	D (IN)	APPROX SHIP WT IN LBS
1”	2160H	4.25	2.50	4.50	4.50	7.75
1-1/4”	2160J	4.25	2.75	4.50	4.50	7.50
1-1/2"	2160K	6.00	3.00	5.50	5.50	12.25
2"	2160L	6.00	3.25	7.50	7.50	19
2-1/2"	2160M	6.25	3.25	7.50	7.50	22
3"	2160N	6.50	4.50	8.50	8.50	26

PRESSURE LOSS (PSI) AT VARIOUS FLOWRATES

SIZE	FLOW PATTERN	Cv	FLOWRATE (GPM)																																
			10	15	20	25	30	35	40	44	50	55	60	65	70	80	90	100	120	140	160	180	200	225	250	275	300	325	350	375	400					
1"	STRAIGHT	13.50	1.0	1.24	2.2	3.4	5.0	6.7	8.8	11.1	13.7	16.6	19.7																						
	ANGLE	15.30			1.7	2.7	3.9	5.2	6.8	8.6	10.7	12.9	15.4																						
1-1/4”	STRAIGHT	16.60			1.5	2.3	3.3	4.5	5.8	7.4	9.1	11.0	13.1	15.3	17.8				**CONSULT WITH FACTORY IN THIS RANGE**																
	ANGLE	17.80			1.3	2.0	2.8	3.9	5.1	6.4	7.9	9.6	11.4	13.3	15.5																				
1-1/2"	STRAIGHT	26.00					1.3	1.8	2.4	3.0	3.7	4.5	5.0	5.4	7.3	9.5	12.0	14.8																	
	ANGLE	29.00					1.1	1.5	1.9	2.4	3.0	3.6	4.3	5.9	6.3	7.6	9.7	11.9																	
2"	STRAIGHT	52.00												1.6	1.8	2.4	3.0	3.7	5.3	7.3	9.5	12.0	14.8											
	ANGLE	57.00												1.3	1.5	2.0	2.5	3.1	4.4	6.1	7.9	10.0	12.3											
2-1/2"	STRAIGHT	65.00		**USE 1 PSI DROP IN THIS RANGE**										1.0	1.2	1.5	1.9	2.4	3.4	4.6	6.1	7.7	9.5	12.0	14.8	17.9	21.3							
	ANGLE	72.00														1.2	1.6	1.9	2.8	3.8	4.9	6.3	7.7	9.8	12.0	14.6	17.4							
3"	STRAIGHT	83.00															1.2	1.5	2.1	2.8	3.7	4.7	5.8	7.3	9.1	11.0	13.1	15.3	17.8	20.4	23.2		
	ANGLE	92.00															1.0	1.2	1.7	2.3	3.0	3.8	4.7	6.0	7.4	8.9	10.6	12.5	14.5	16.6	18.9		

APPLICATIONS

The 2160 Solenoid valve offers maximum performance combined with the reliability you have come to expect from Griswold Controls. The valve is intended for use in a wide variety of irrigation systems. The 2160 is designed for use as a normally-open master valve. The 2160_R can be used with Reclaimed Water.

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MODEL NUMBER SELECTION

2 1 6 0 ___ ___ ___

Select a Housing Size (1"=H, 1-1/4"=J, 1-1/2"=K, 2"=L, 2-1/2"=M, 3"=N)

Add an "R" for Reclaimed Water
Add an "E" for Epoxy

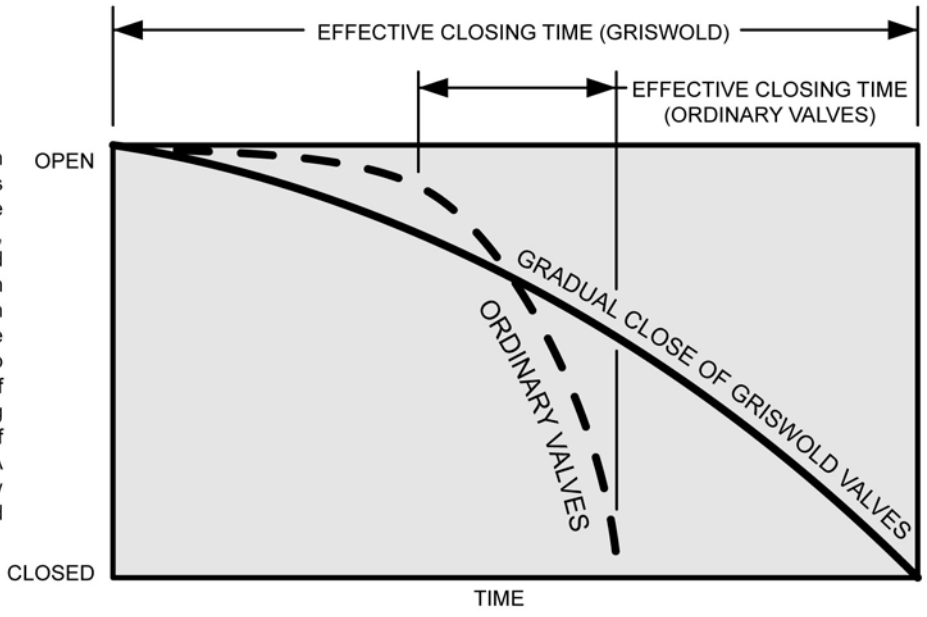
Add an "A" for Angle Configuration

DESCRIPTION:

- Normally Open: Energize Solenoid to Close Valve, De-energize to Open Valve
- On/Off Solenoid Control Valve
- Watertight Epoxy Molded Solenoid Coil
- Slow Closing
- "No Surge or Hammer" Operation
- Will Throttle Against Flow Without Chatter
- Diaphragm-Disc Assembly Guided by Stainless Steel Stem in all Positions
- Completely Serviceable Without Removing Valve Body from the System

HAMMER-FREE, CHATTER-FREE CLOSING:

Instead of an abrupt, sudden closure, Griswold valves close gradually to eliminate water hammer and chatter, regardless of the throttled position of the diaphragm assembly. Notice in the graph how the closing action of the Griswold Valve compares to the abrupt closing action of ordinary valves. Closing speed depends on the size of the valve and flow velocity. A minimum of 5 seconds may be expected from Griswold Valves.



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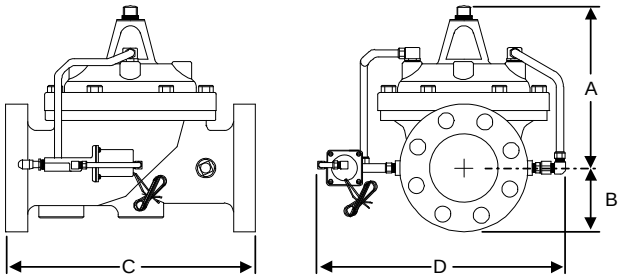

SPECIFICATIONS:

Operating Pressure: 2 to 200 PSI
Voltage Operating Range: 22-28 VAC
Low Current Requirement: 0.40 A at 24 VAC
Assembly: Valve comes fully assembled

MATERIALS
End Connections: Flanged 150 ANSI
Stem, Nut & Spring: Stainless Steel
Diaphragm: Nylon-Reinforced Buna-N
Disc: Buna-N
Disc Retainer: Cast Iron
Diaphragm Washer: Cast Iron
Disc Guide Seat: Bronze
Cover Bearing: Bronze

DIMENSIONS & WEIGHTS (NOMINAL)

SIZE	MODEL NO.	A (IN)	B (IN)	C (IN)	D (IN)	APPROX SHIP WT IN LBS
4"	2160P	10.62	4.50	15.00	15.50	140
6"	2160Q	13.38	5.50	20.00	19.75	280
8"	2160R	16.00	6.75	25.38	24.00	500

PRESSURE LOSS (PSI) AT VARIOUS FLOWRATES

SIZE	FLOWRATE (GPM)																												
	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	3000	3100	3200	3300	3400
4"		1.0	2.3	4.0	6.3	9.0	12.3	16.0	20.3													CONSULT WITH FACTORY						
6"	USE 1 PSI			0.8	1.2	1.7	2.3	3.0	3.8	4.7	5.7	6.8	8.0	9.3	10.6	12.1	13.7	15.3	17.1	18.9	20.8	IN THIS RANGE						
8"	DROP IN THIS RANGE						0.8	1.1	1.4	1.7	2.0	2.4	2.9	3.3	3.8	4.3	4.9	5.5	6.1	6.7	7.4	8.2	15.2	16.2	17.3	18.4	19.5		

APPLICATIONS

The 2160 Solenoid valve offers maximum performance combined with the reliability you have come to expect from Griswold Controls. The valve is ideally suited for use medium to large irrigation systems. The 2160 is designed for use as a normally-open master valve.

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GRISWOLD CONTROLS®

MODEL NUMBER SELECTION

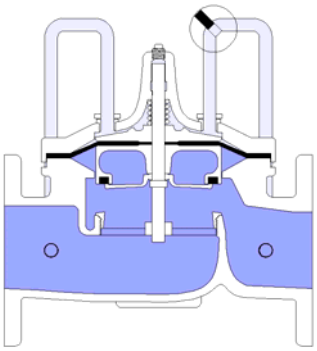
2 1 6 0 _

Select a size (4"=P, 6"=Q, 8"R)

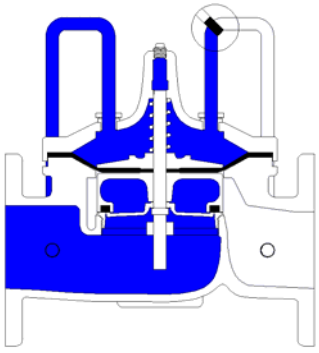
DESCRIPTION:

- Normally Open: Energize Solenoid to Close Valve, De-Energize to Open Valve
- On/Off Solenoid Control Valve
- Watertight Epoxy Molded Solenoid Coil
- Slow Closing
- "No Surge or Hammer" Operation
- Will Throttle Against Flow Without Chatter
- Diaphragm-Disc Assembly Guided by Stainless Steel Stem in all Positions
- Completely Serviceable Without Removing Valve Body from the System

THEORY OF OPERATION



FULL OPEN OPERATION
When pressure in the cover chamber is relieved to a zone of lower pressure, the line pressure at the valve inlet opens the valve, allowing full flow.



TIGHT CLOSING OPERATION
When pressure from the valve inlet is applied to the cover chamber, the valve closes drip-tight.

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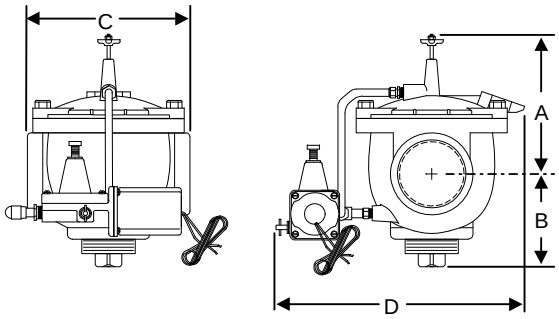
PRESSURE REDUCING

NORMALLY CLOSED VALVE



SPECIFICATIONS:

Operating Pressure:	3 to 200 PSI
Regulating Range:	5 to 125 PSI
Pressure Accuracy:	± 5%
Material:	Cast Iron and Bronze
End Connections:	NPT (BSPT Optional)
Voltage Operating Range:	22-28 VAC
Low Current Requirement:	0.10 A at 24 VAC
Assembly:	Valve comes fully assembled
Optional:	Purple Handle for Reclaimed Water
Optional:	Epoxy Coating

DIMENSIONS & WEIGHTS (NOMINAL)

SIZE	MODEL NO.	A (IN)	B (IN)	C (IN)	D (IN)	APPROX SHIP WT IN LBS
1”	2230H	4.25	2.50	4.50	8.00	12
1-1/4”	2230J	4.25	2.75	4.50	8.00	11
1-1/2"	2230K	6.00	3.00	5.50	9.50	19
2"	2230L	6.00	3.25	7.50	10.00	23
2-1/2"	2230M	6.25	3.25	7.50	10.00	27
3"	2230N	6.50	4.50	8.50	10.50	29

PRESSURE LOSS (PSI) AT VARIOUS FLOWRATES

SIZE	FLOW PATTERN	Cv	FLOWRATE (GPM)																															
			10	15	20	25	30	35	40	44	50	55	60	65	70	80	90	100	120	140	160	180	200	225	250	275	300	325	350	375	400
1"	STRAIGHT	13.50	1.0	1.24	2.2	3.4	5.0	6.7	8.8	11.1	13.7	16.6	19.7																		
	ANGLE	15.30			1.7	2.7	3.9	5.2	6.8	8.6	10.7	12.9	15.4																		
1-1/4”	STRAIGHT	16.60			1.5	2.3	3.3	4.5	5.8	7.4	9.1	11.0	13.1	15.3	17.8				**CONSULT WITH FACTORY IN THIS RANGE**												
	ANGLE	17.80			1.3	2.0	2.8	3.9	5.1	6.4	7.9	9.6	11.4	13.3	15.5																
1-1/2"	STRAIGHT	26.00					1.3	1.8	2.4	3.0	3.7	4.5	5.0	5.4	7.3	9.5	12.0	14.8													
	ANGLE	29.00					1.1	1.5	1.9	2.4	3.0	3.6	4.3	5.9	6.3	7.6	9.7	11.9													
2"	STRAIGHT	52.00												1.6	1.8	2.4	3.0	3.7	5.3	7.3	9.5	12.0	14.8								
	ANGLE	57.00												1.3	1.5	2.0	2.5	3.1	4.4	6.1	7.9	10.0	12.3								
2-1/2"	STRAIGHT	65.00		**USE 1 PSI DROP IN THIS RANGE**										1.0	1.2	1.5	1.9	2.4	3.4	4.6	6.1	7.7	9.5	12.0	14.8	17.9	21.3				
	ANGLE	72.00														1.2	1.6	1.9	2.8	3.8	4.9	6.3	7.7	9.8	12.0	14.6	17.4				
3"	STRAIGHT	83.00															1.2	1.5	2.1	2.8	3.7	4.7	5.8	7.3	9.1	11.0	13.1	15.3	17.8	20.4	23.2
	ANGLE	92.00															1.0	1.2	1.7	2.3	3.0	3.8	4.7	6.0	7.4	8.9	10.6	12.5	14.5	16.6	18.9

APPLICATIONS

The 2230 Pressure Reducing Solenoid Valve offers maximum performance combined with the reliability you have come to expect from Griswold Controls. The valve is intended for use in a wide variety of irrigation systems and can be used on slopes, banks, or hilly terrain with no performance loss, and is lightning-proof, making it the right choice for golf course irrigation. The 2230 is designed for use as a remote control master valve. The 2230_R can be used with Reclaimed Water.

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MODEL NUMBER SELECTION

2 2 3 0 ___ ___ ___

Select a Housing Size (1"=H, 1-1/4"=J, 1-1/2"=K, 2"=L, 2-1/2"=M, 3"=N)

Add an "R" for Reclaimed Water
Add an "E" for Epoxy

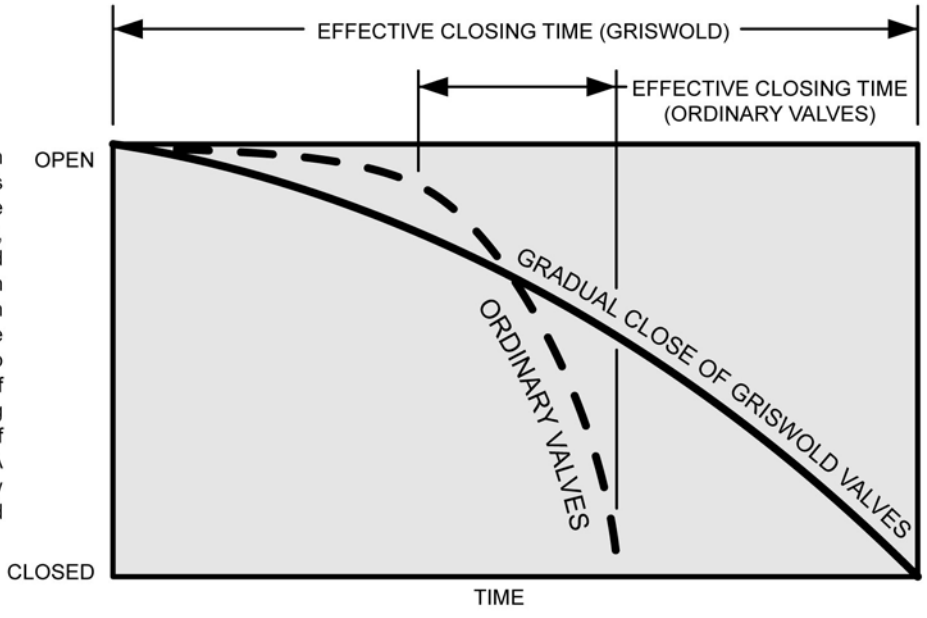
Add an "A" for Angle Configuration

DESCRIPTION:

- Normally Closed: Energize Solenoid to Open Valve, De-Energize to Close Valve
- On/Off Solenoid Control Valve
- Watertight Epoxy Molded Solenoid Coil
- Lightning Protected
- Slow Closing
- "No Surge or Hammer" Operation
- Will Throttle Against Flow Without Chatter
- Diaphragm-Disc Assembly Guided by Stainless Steel Stem in all Positions
- Completely Serviceable Without Removing Valve Body from the System
- Patented Super Slow Energy Solenoid

HAMMER-FREE, CHATTER-FREE CLOSING:

Instead of an abrupt, sudden closure, Griswold valves close gradually to eliminate water hammer and chatter, regardless of the throttled position of the diaphragm assembly. Notice in the graph how the closing action of the Griswold Valve compares to the abrupt closing action of ordinary valves. Closing speed depends on the size of the valve and flow velocity. A minimum of 5 seconds may be expected from Griswold Valves.



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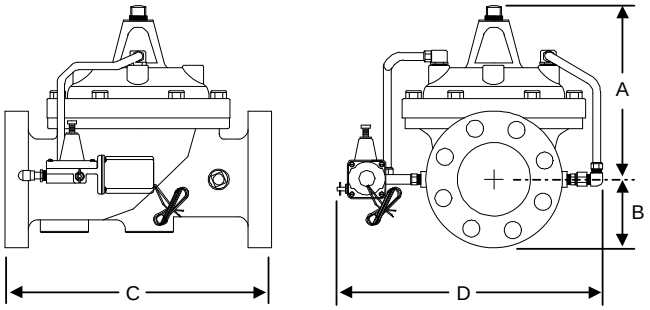
PRESSURE REDUCING

NORMALLY CLOSED VALVE



SPECIFICATIONS:

Operating Pressure: 2 to 200 PSI
Regulating Range: 5 to 125 PSI
Voltage Operating Range: 22-28 VAC
Low Current Requirement: 0.10 A at 24 VAC
Assembly: Valve comes fully assembled

MATERIALS
End Connections: Flanged 150 ANSI
Stem, Nut & Spring: Stainless Steel
Diaphragm: Nylon-Reinforced Buna-N
Disc: Buna-N
Disc Retainer: Cast Iron
Diaphragm Washer: Cast Iron
Disc Guide Seat: Bronze
Cover Bearing: Bronze

DIMENSIONS & WEIGHTS (NOMINAL)

SIZE	MODEL NO.	A (IN)	B (IN)	C (IN)	D (IN)	APPROX SHIP WT IN LBS
4”	2230P	10.62	4.50	15.00	15.50	140
6”	2230Q	13.38	5.50	20.00	19.75	280
8”	2230R	16.00	6.75	25.38	24.00	500

PRESSURE LOSS (PSI) AT VARIOUS FLOWRATES

SIZE	FLOWRATE (GPM)																												
	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	3000	3100	3200	3300	3400
4"		1.0	2.3	4.0	6.3	9.0	12.3	16.0	20.3													CONSULT WITH FACTORY						
6"	USE 1 PSI			0.8	1.2	1.7	2.3	3.0	3.8	4.7	5.7	6.8	8.0	9.3	10.6	12.1	13.7	15.3	17.1	18.9	20.8	IN THIS RANGE						
8"	DROP IN THIS RANGE						0.8	1.1	1.4	1.7	2.0	2.4	2.9	3.3	3.8	4.3	4.9	5.5	6.1	6.7	7.4	8.2	15.2	16.2	17.3	18.4	19.5		

APPLICATIONS

The 2230 Pressure Reducing Solenoid Valve offers maximum performance combined with the reliability you have come to expect from Griswold Controls. The valve is intended for use in medium to large irrigation systems, can be used on slopes, banks, or hilly terrain with no performance loss, and is lightning-proof, making it the right choice for golf course irrigation. The 2230 is designed for use as a remote control master valve.

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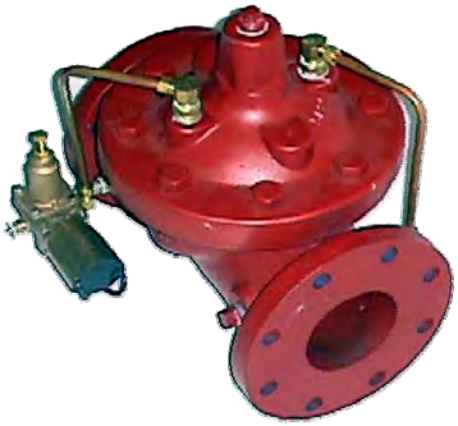
MODEL NUMBER SELECTION

2 2 3 0 _____

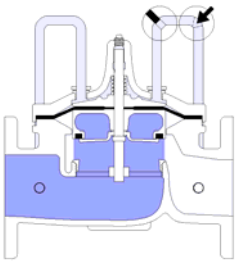
Select a size (4"=P, 6"=Q, 8"R)



DESCRIPTION:

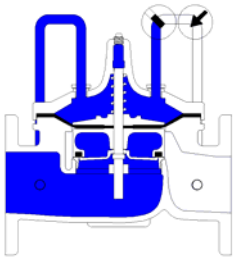
- Normally Closed: Energize Solenoid to Open Valve, De-Energize to Close Valve
- On/Off Solenoid Control Valve
- Watertight Epoxy Molded Solenoid Coil
- Lightning Protected
- Slow Closing
- "No Surge or Hammer" Operation
- Will Throttle Against Flow Without Chatter
- Diaphragm-Disc Assembly Guided by Stainless Steel Stem in all Positions
- Completely Serviceable Without Removing Valve Body from the system

THEORY OF OPERATION



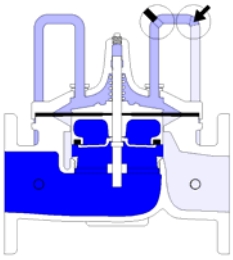
FULL OPEN OPERATION

When pressure in the cover chamber is relieved to a zone of lower pressure, the line pressure at the valve inlet opens the valve, allowing full flow.



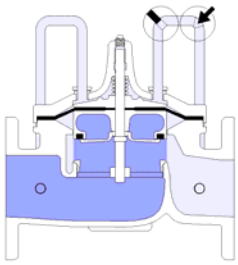
TIGHT CLOSING OPERATION

When pressure from the valve inlet is applied to the cover chamber, the valve closes drip-tight.



PRESSURE REDUCTION

When the pressure in the system increases, the regulating pilot restricts the amount of fluid leaving the upper chamber. This causes the diaphragm to decrease the flow through area of the valve, reducing pressure system to its preset point.



PRESSURE COMPENSATION

When the flow demand in the system increases, the regulating pilot allows more fluid to leave the upper chamber. This causes the diaphragm to increase the flow through area of the valve, raising pressure system to its preset point.

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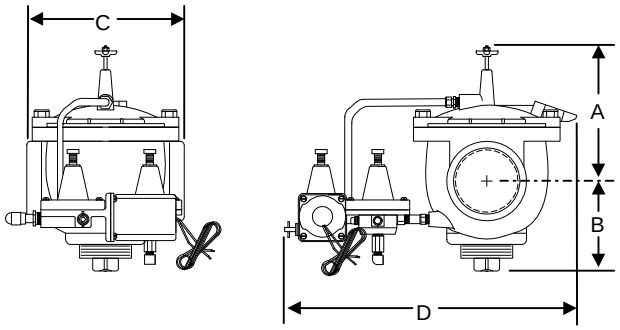
PRESSURE REDUCING

NORMALLY CLOSED VALVE



SPECIFICATIONS:

Operating Pressure:	2 to 200 PSI
Regulating Range:	5 to 125 PSI
Material:	Cast Iron and Bronze
End Connections:	NPT (BSPT Optional)
Voltage Operating Range:	22-28 VAC
Low Current Requirement:	0.40 A at 24 VAC
Assembly:	Valve comes fully assembled
Optional:	Purple Handle for Reclaimed Water
Optional:	Epoxy Coating

DIMENSIONS & WEIGHTS (NOMINAL)

SIZE	MODEL NO.	A (IN)	B (IN)	C (IN)	D (IN)	APPROX SHIP WT IN LBS
1”	2250H	4.25	2.50	4.50	10.00	14
1-1/4”	2250J	4.25	2.75	4.50	10.00	13
1-1/2"	2250K	6.00	3.00	5.50	10.00	22
2"	2250L	6.00	3.25	7.50	12.00	25
2-1/2"	2250M	6.25	3.25	7.50	12.00	29
3"	2250N	6.50	4.50	8.50	12.50	31

PRESSURE LOSS (PSI) AT VARIOUS FLOWRATES

SIZE	FLOW PATTERN	Cv	FLOWRATE (GPM)																															
			10	15	20	25	30	35	40	44	50	55	60	65	70	80	90	100	120	140	160	180	200	225	250	275	300	325	350	375	400
1"	STRAIGHT	13.50	1.0	1.24	2.2	3.4	5.0	6.7	8.8	11.1	13.7	16.6	19.7																		
	ANGLE	15.30			1.7	2.7	3.9	5.2	6.8	8.6	10.7	12.9	15.4																		
1-1/4”	STRAIGHT	16.60			1.5	2.3	3.3	4.5	5.8	7.4	9.1	11.0	13.1	15.3	17.8				**CONSULT WITH FACTORY IN THIS RANGE**												
	ANGLE	17.80			1.3	2.0	2.8	3.9	5.1	6.4	7.9	9.6	11.4	13.3	15.5																
1-1/2"	STRAIGHT	26.00					1.3	1.8	2.4	3.0	3.7	4.5	5.0	5.4	7.3	9.5	12.0	14.8													
	ANGLE	29.00					1.1	1.5	1.9	2.4	3.0	3.6	4.3	5.9	6.3	7.6	9.7	11.9													
2"	STRAIGHT	52.00												1.6	1.8	2.4	3.0	3.7	5.3	7.3	9.5	12.0	14.8								
	ANGLE	57.00												1.3	1.5	2.0	2.5	3.1	4.4	6.1	7.9	10.0	12.3								
2-1/2"	STRAIGHT	65.00		**USE 1 PSI DROP IN THIS RANGE**										1.0	1.2	1.5	1.9	2.4	3.4	4.6	6.1	7.7	9.5	12.0	14.8	17.9	21.3				
	ANGLE	72.00														1.2	1.6	1.9	2.8	3.8	4.9	6.3	7.7	9.8	12.0	14.6	17.4				
3"	STRAIGHT	83.00															1.2	1.5	2.1	2.8	3.7	4.7	5.8	7.3	9.1	11.0	13.1	15.3	17.8	20.4	23.2
	ANGLE	92.00															1.0	1.2	1.7	2.3	3.0	3.8	4.7	6.0	7.4	8.9	10.6	12.5	14.5	16.6	18.9

APPLICATIONS

The 2250 Pressure Reducing Surge Anticipation Solenoid valve offers maximum performance combined with the reliability you have come to expect from Griswold Controls. The valve is intended for use in a wide variety of irrigation systems and can be used on slopes, banks and hilly terrain with no performance loss. The 2250 is designed as a normally closed master valve for systems with high supply pressure and fast-acting valves. The 2250_R can be used with Reclaimed Water.

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MODEL NUMBER SELECTION

2 2 5 0 ____ ____ ____

Select a Housing Size (1"=H, 1-1/4"=J, 1-1/2"=K, 2"=L, 2-1/2"=M, 3"=N)

Add an "R" for Reclaimed Water
Add an "E" for Epoxy

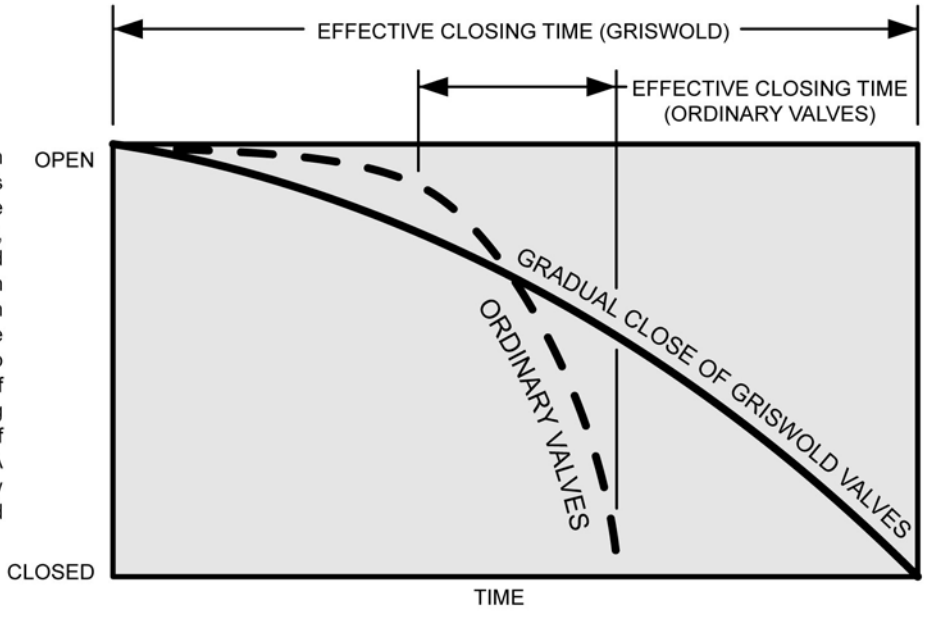
Add an "A" for Angle Configuration

DESCRIPTION:

- Normally Closed: Energize Solenoid to Open Valve, De-Energize to Close Valve
- Lightning protected
- Watertight Epoxy Molded Solenoid Coil
- Slow Closing
- Surges Above Setting Are Automatically Relieved
- "No Surge or Hammer" Operation
- Will Throttle Against Flow Without Chatter
- Diaphragm-Disc Assembly Guided by Stainless Steel Stem in all Positions
- Completely Serviceable Without Removing Valve Body from the System

HAMMER-FREE, CHATTER-FREE CLOSING:

Instead of an abrupt, sudden closure, Griswold valves close gradually to eliminate water hammer and chatter, regardless of the throttled position of the diaphragm assembly. Notice in the graph how the closing action of the Griswold Valve compares to the abrupt closing action of ordinary valves. Closing speed depends on the size of the valve and flow velocity. A minimum of 5 seconds may be expected from Griswold Valves.



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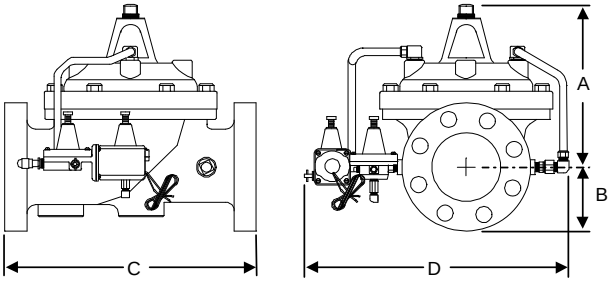
GRISWOLD CONTROLS®

PRESSURE REDUCING/SURGE ANTICIPATION

NORMALLY CLOSED VALVE



SPECIFICATIONS:

Operating Pressure: 2 to 200 PSI
Regulating Range: 5 to 125 PSI
Voltage Operating Range: 22-28 VAC
Low Current Requirement: 0.40 A at 24 VAC
Assembly: Valve comes fully assembled

MATERIALS

End Connections: Flanged 150 ANSI
Stem, Nut & Spring: Stainless Steel
Diaphragm: Nylon-Reinforced Buna-N
Disc: Buna-N
Disc Retainer: Cast Iron
Diaphragm Washer: Cast Iron
Disc Guide Seat: Bronze
Cover Bearing: Bronze
Optional: Purple Solenoid for Reclaimed Water

DIMENSIONS & WEIGHTS (NOMINAL)

SIZE	MODEL NO.	A (IN)	B (IN)	C (IN)	D (IN)	APPROX SHIP WT IN LBS
4”	2250P	10.62	4.50	15.00	17.50	140
6”	2250Q	13.38	5.50	20.00	21.75	280
8”	2250R	16.00	6.75	25.38	26.00	500

PRESSURE LOSS (PSI) AT VARIOUS FLOWRATES

SIZE	FLOWRATE (GPM)																												
	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	3000	3100	3200	3300	3400
4"		1.0	2.3	4.0	6.3	9.0	12.3	16.0	20.3													CONSULT WITH FACTORY						
6"	USE 1 PSI			0.8	1.2	1.7	2.3	3.0	3.8	4.7	5.7	6.8	8.0	9.3	10.6	12.1	13.7	15.3	17.1	18.9	20.8	IN THIS RANGE						
8"	DROP IN THIS RANGE						0.8	1.1	1.4	1.7	2.0	2.4	2.9	3.3	3.8	4.3	4.9	5.5	6.1	6.7	7.4	8.2	15.2	16.2	17.3	18.4	19.5	

APPLICATIONS

The 2250 Pressure Reducing Surge Anticipation Solenoid valve offers maximum performance combined with the reliability you have come to expect from Griswold Controls. Intended for use in medium to large irrigation systems, the valve can be used on slopes, banks and hilly terrain with no performance loss, making it the right choice for golf course irrigation. The 2250 is designed as a normally closed master valve for systems with high supply pressure and fast-acting valves. The 2259_R can be used with Reclaimed Water.

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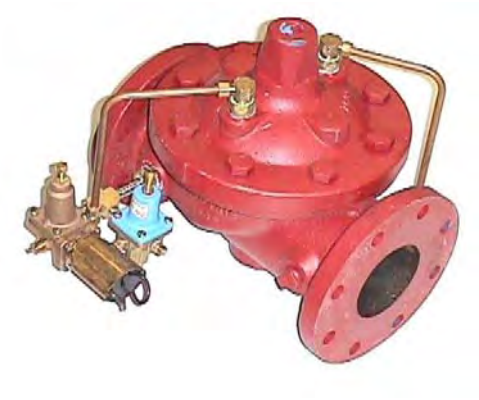
GRISWOLD CONTROLS®

PRESSURE REDUCING/SURGE ANTICIPATION

MODEL NUMBER SELECTION

2 2 5 0 ___

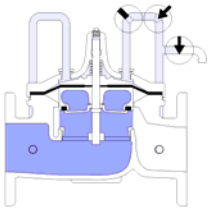
Select a size (4"=P, 6"=Q, 8"R)



DESCRIPTION:

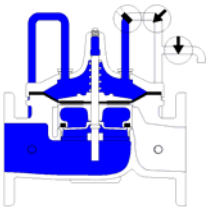
- Normally Closed: Energize Solenoid to Open Valve, De-Energize to Close Valve
- Lightning Protected
- Watertight Epoxy Molded Solenoid Coil
- Slow Closing
- Surges Above Setting Are Automatically Relieved
- "No Surge or Hammer" Operation
- Will Throttle Against Flow Without Chatter
- Diaphragm-Disc Assembly Guided by Stainless Steel Stem in All Positions
- Completely Serviceable Without Removing Valve Body from the system

THEORY OF OPERATION



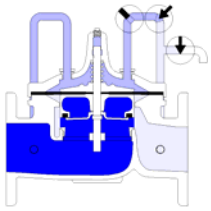
FULL OPEN OPERATION

When pressure in the cover chamber is relieved to a zone of lower pressure, the line pressure at the valve inlet opens the valve, allowing full flow.



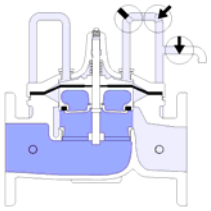
TIGHT CLOSING OPERATION

When pressure from the valve inlet is applied to the cover chamber, the valve closes drip-tight.



PRESSURE REDUCTION

When the pressure in the system increases, the regulating pilot restricts the amount of fluid leaving the upper chamber. This causes the diaphragm to decrease the flow through area of the valve, reducing pressure system to its preset point.



PRESSURE COMPENSATION

When the flow demand in the system increases, the regulating pilot allows more fluid to leave the upper chamber. This causes the diaphragm to increase the flow through area of the valve, raising pressure system to its preset point.

SURGE ANTICIPATION

In the event of a surge, the regulating pilot restricts the amount of pressure to the upper chamber, closing the valve. To prevent Hammer, a relief pilot opens to relieve the surge pressure.

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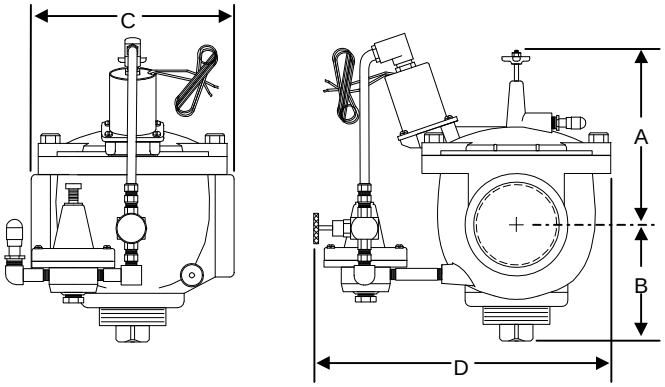
GRISWOLD CONTROLS

PRESSURE REDUCING SOLENOID
NORMALLY OPEN VALVE



SPECIFICATIONS:

Operating Pressure:	3 to 200 PSI
Regulating Range:	3 to 200 PSI
Pressure Accuracy:	± 5%
Material:	Cast Iron and Bronze
End Connections:	NPT (BSPT Optional)
Voltage Operating Range:	22-28 VAC
Low Current Requirement:	0.40 A at 24 VAC
Assembly:	Valve comes fully assembled
Optional:	Purple Handle for Reclaimed Water
Optional:	Epoxy Coating

DIMENSIONS & WEIGHTS (NOMINAL)

SIZE	MODEL NO.	A (IN)	B (IN)	C (IN)	D (IN)	APPROX SHIP WT IN LBS
1”	2260H	4.25	2.50	4.50	8.00	8.50
1-1/4”	2260J	4.25	2.75	4.50	8.00	8.25
1-1/2"	2260K	6.00	3.00	5.50	9.50	13.25
2"	2260L	6.00	3.25	7.50	10.00	19.75
2-1/2"	2260M	6.25	3.25	7.50	10.00	22.75
3"	2260N	6.50	4.50	8.50	10.50	27

PRESSURE LOSS (PSI) AT VARIOUS FLOWRATES

SIZE	FLOW PATTERN	Cv	FLOWRATE (GPM)																															
			10	15	20	25	30	35	40	44	50	55	60	65	70	80	90	100	120	140	160	180	200	225	250	275	300	325	350	375	400
1"	STRAIGHT	13.50	1.0	1.24	2.2	3.4	5.0	6.7	8.8	11.1	13.7	16.6	19.7																		
	ANGLE	15.30			1.7	2.7	3.9	5.2	6.8	8.6	10.7	12.9	15.4																		
1-1/4”	STRAIGHT	16.60			1.5	2.3	3.3	4.5	5.8	7.4	9.1	11.0	13.1	15.3	17.8				**CONSULT WITH FACTORY IN THIS RANGE**												
	ANGLE	17.80			1.3	2.0	2.8	3.9	5.1	6.4	7.9	9.6	11.4	13.3	15.5																
1-1/2"	STRAIGHT	26.00					1.3	1.8	2.4	3.0	3.7	4.5	5.0	5.4	7.3	9.5	12.0	14.8													
	ANGLE	29.00					1.1	1.5	1.9	2.4	3.0	3.6	4.3	5.9	6.3	7.6	9.7	11.9													
2"	STRAIGHT	52.00												1.6	1.8	2.4	3.0	3.7	5.3	7.3	9.5	12.0	14.8								
	ANGLE	57.00												1.3	1.5	2.0	2.5	3.1	4.4	6.1	7.9	10.0	12.3								
2-1/2"	STRAIGHT	65.00		**USE 1 PSI DROP IN THIS RANGE**										1.0	1.2	1.5	1.9	2.4	3.4	4.6	6.1	7.7	9.5	12.0	14.8	17.9	21.3				
	ANGLE	72.00														1.2	1.6	1.9	2.8	3.8	4.9	6.3	7.7	9.8	12.0	14.6	17.4				
3"	STRAIGHT	83.00															1.2	1.5	2.1	2.8	3.7	4.7	5.8	7.3	9.1	11.0	13.1	15.3	17.8	20.4	23.2
	ANGLE	92.00															1.0	1.2	1.7	2.3	3.0	3.8	4.7	6.0	7.4	8.9	10.6	12.5	14.5	16.6	18.9

APPLICATIONS

The 2260 Pressure Reducing Solenoid Valve offers maximum performance combined with the reliability you have come to expect from Griswold Controls. Intended for use in a wide variety of irrigation systems, the valve can be used on slopes, banks, and hilly terrain with no performance loss, making it the right choice for golf course irrigation. The 2260 is designed for use as a normally-open master valve. The 2260_R can be used with Reclaimed Water.

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GRISWOLD CONTROLS®

MODEL NUMBER SELECTION

2 2 6 0 ____ ____ ____

Select a Housing Size (1"=H, 1-1/4"=J, 1-1/2"=K, 2"=L, 2-1/2"=M, 3"=N)

Add an "R" for Reclaimed Water
Add an "E" for Epoxy

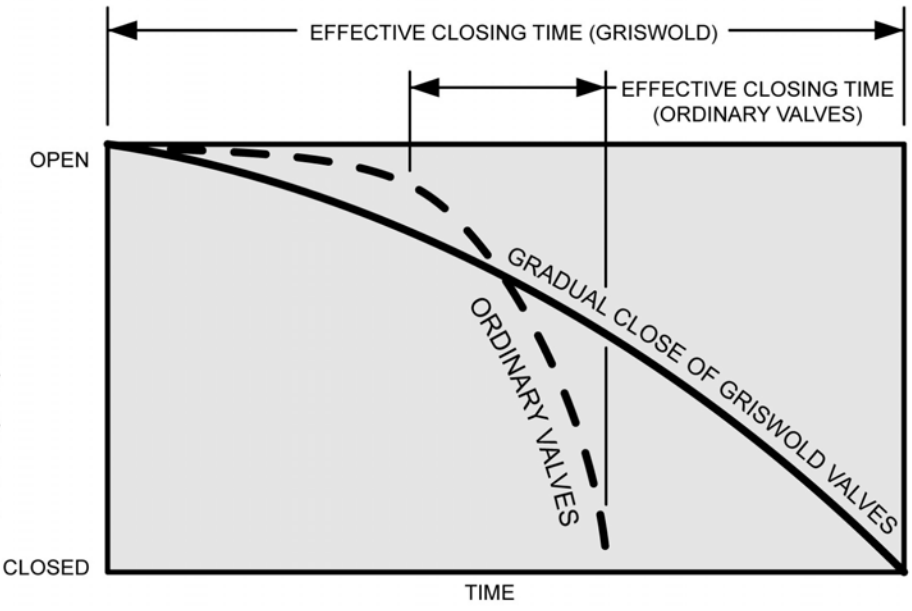
Add an "A" for Angle Configuration

DESCRIPTION:

- Normally Open: Energize Solenoid to Close Valve, De-Energize to Open Valve
- On/Off
- Solenoid Control Valve
- Watertight Epoxy Molded Solenoid Coil
- Slow Closing
- "No Surge or Hammer" Operation
- Will Throttle Against Flow Without Chatter
- Diaphragm-Disc Assembly Guided by Stainless Steel Stem in all Positions
- Completely Serviceable Without Removing Valve Body from the System

HAMMER-FREE, CHATTER-FREE CLOSING:

Instead of an abrupt, sudden closure, Griswold valves close gradually to eliminate water hammer and chatter, regardless of the throttled position of the diaphragm assembly. Notice in the graph how the closing action of the Griswold Valve compares to the abrupt closing action of ordinary valves. Closing speed depends on the size of the valve and flow velocity. A minimum of 5 seconds may be expected from Griswold Valves.



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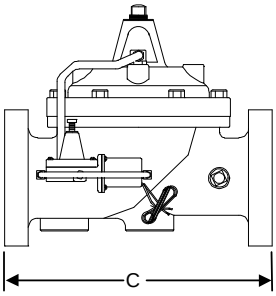
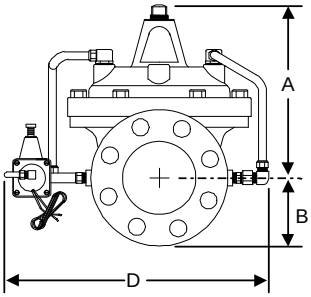
GRISWOLD CONTROLS®

PRESSURE REDUCING/SURGE ANTICIPATION

NORMALLY OPEN VALVE





SPECIFICATIONS:

Operating Pressure:	2 to 200 PSI
Regulating Range:	5-125 PSI
Voltage Operating Range:	22-28 VAC
Low Current Requirement:	0.10 A at 24 VAC
Assembly:	Valve comes fully assembled

MATERIALS

End Connections:	Flanged 150 ANSI
Stem, Nut & Spring:	Stainless Steel
Diaphragm:	Nylon-Reinforced Buna-N
Disc:	Buna-N
Disc Retainer:	Cast Iron
Diaphragm Washer:	Cast Iron
Disc Guide Seat:	Bronze
Cover Bearing:	Bronze

DIMENSIONS & WEIGHTS (NOMINAL)

SIZE	MODEL NO.	A (IN)	B (IN)	C (IN)	D (IN)	APPROX SHIP WT IN LBS
4”	2260P	10.62	4.50	15.00	15.50	140
6”	2260Q	13.38	5.50	20.00	19.75	280
8”	2260R	16.00	6.75	25.38	24.00	500

PRESSURE LOSS (PSI) AT VARIOUS FLOWRATES

SIZE	FLOWRATE (GPM)																											
	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	3000	3100	3200	3300	3400
4"		1.0	2.3	4.0	6.3	9.0	12.3	16.0	20.3														CONSULT WITH FACTORY					
6"	USE 1 PSI			0.8	1.2	1.7	2.3	3.0	3.8	4.7	5.7	6.8	8.0	9.3	10.6	12.1	13.7	15.3	17.1	18.9	20.8		IN THIS RANGE					
8"	DROP IN THIS RANGE						0.8	1.1	1.4	1.7	2.0	2.4	2.9	3.3	3.8	4.3	4.9	5.5	6.1	6.7	7.4	8.2	15.2	16.2	17.3	18.4	19.5	

APPLICATIONS

The 2260 Pressure Reducing Solenoid Valve offers maximum performance combined with the reliability you have come to expect from Griswold Controls. The valve is intended for use in medium to large irrigation systems and can be used on slopes, banks, and hilly terrain with no performance loss. The 2260 is designed for use as a normally-open master valve.

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GRISWOLD CONTROLS®

PRESSURE REDUCING/SURGE ANTICIPATION

MODEL NUMBER SELECTION

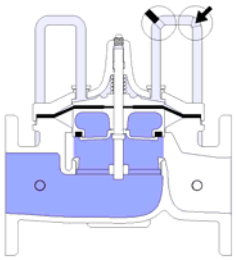
2 2 6 0 ___

Select a size (4"=P, 6"=Q, 8"=R)

DESCRIPTION:

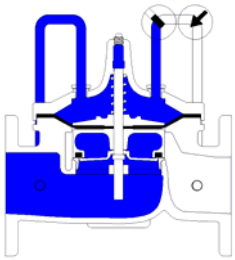
- Normally Closed: Energize Solenoid to Open Valve, De-Energize to Close Valve
- Lightning Protected
- Watertight Epoxy Molded Solenoid Coil
- Slow Closing
- Surges Above Setting Are Automatically Relieved
- "No Surge or Hammer" Operation
- Will Throttle Against Flow Without Chatter
- Diaphragm-Disc Assembly Guided by Stainless Steel Stem in All Positions
- Completely Serviceable Without Removing Valve Body from the system

THEORY OF OPERATION



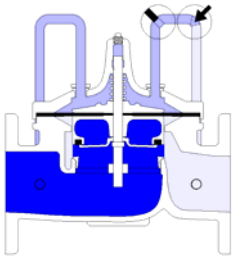
FULL OPEN OPERATION

When pressure in the cover chamber is relieved to a zone of lower pressure, the line pressure at the valve inlet opens the valve, allowing full flow.



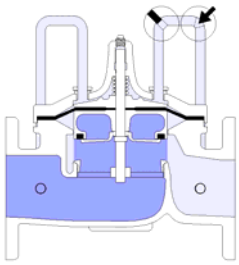
TIGHT CLOSING OPERATION

When pressure from the valve inlet is applied to the cover chamber, the valve closes drip-tight.



PRESSURE REDUCTION

When the pressure in the system increases, the regulating pilot restricts the amount of fluid leaving the upper chamber. This causes the diaphragm to decrease the flow through area of the valve, reducing pressure system to its preset point.



PRESSURE COMPENSATION

When the flow demand in the system increases, the regulating pilot allows more fluid to leave the upper chamber. This causes the diaphragm to increase the flow through area of the valve, raising pressure system to its preset point.

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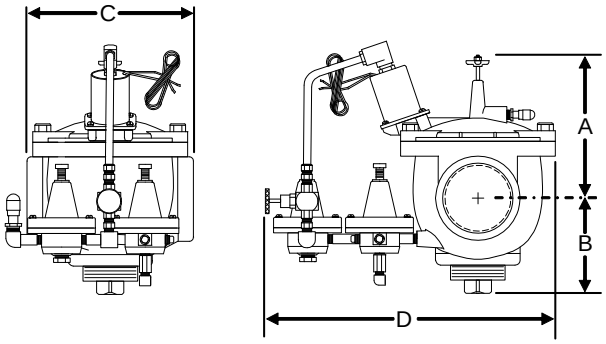
GRISWOLD CONTROLS

PRESSURE REDUCING/SURGE ANTICIPATION SOLENOID

NORMALLY OPEN VALVE



SPECIFICATIONS:

Operating Pressure:	2 to 200 PSI
Regulating Range:	5 to 125 PSI
Material:	Cast Iron and Bronze
End Connections:	NPT (BSPT Optional)
Voltage Operating Range:	22-28 VAC
Low Current Requirement:	0.40 A at 24 VAC
Assembly:	Valve comes fully assembled
Optional:	Purple Handle for Reclaimed Water
Optional:	Epoxy Coating

DIMENSIONS & WEIGHTS (NOMINAL)

SIZE	MODEL NO.	A (IN)	B (IN)	C (IN)	D (IN)	APPROX SHIP WT IN LBS
1”	2265H	4.25	2.50	4.50	10.00	12
1-1/4”	2265J	4.25	2.75	4.50	10.00	11
1-1/2"	2265K	6.00	3.00	5.50	10.00	19
2"	2265L	6.00	3.25	7.50	12.00	23
2-1/2"	2265M	6.25	3.25	7.50	12.00	27
3"	2265N	6.50	4.50	8.50	12.50	29

PRESSURE LOSS (PSI) AT VARIOUS FLOWRATES

SIZE	FLOW PATTERN	Cv	FLOWRATE (GPM)																																
			10	15	20	25	30	35	40	44	50	55	60	65	70	80	90	100	120	140	160	180	200	225	250	275	300	325	350	375	400
1"	STRAIGHT	13.50	1.0	1.24	2.2	3.4	5.0	6.7	8.8	11.1	13.7	16.6	19.7																		
	ANGLE	15.30			1.7	2.7	3.9	5.2	6.8	8.6	10.7	12.9	15.4																		
1-1/4”	STRAIGHT	16.60			1.5	2.3	3.3	4.5	5.8	7.4	9.1	11.0	13.1	15.3	17.8				**CONSULT WITH FACTORY IN THIS RANGE**												
	ANGLE	17.80			1.3	2.0	2.8	3.9	5.1	6.4	7.9	9.6	11.4	13.3	15.5																
1-1/2"	STRAIGHT	26.00					1.3	1.8	2.4	3.0	3.7	4.5	5.0	5.4	7.3	9.5	12.0	14.8													
	ANGLE	29.00					1.1	1.5	1.9	2.4	3.0	3.6	4.3	5.9	6.3	7.6	9.7	11.9													
2"	STRAIGHT	52.00												1.6	1.8	2.4	3.0	3.7	5.3	7.3	9.5	12.0	14.8								
	ANGLE	57.00												1.3	1.5	2.0	2.5	3.1	4.4	6.1	7.9	10.0	12.3								
2-1/2"	STRAIGHT	65.00		**USE 1 PSI DROP IN THIS RANGE**										1.0	1.2	1.5	1.9	2.4	3.4	4.6	6.1	7.7	9.5	12.0	14.8	17.9	21.3				
	ANGLE	72.00														1.2	1.6	1.9	2.8	3.8	4.9	6.3	7.7	9.8	12.0	14.6	17.4				
3"	STRAIGHT	83.00															1.2	1.5	2.1	2.8	3.7	4.7	5.8	7.3	9.1	11.0	13.1	15.3	17.8	20.4	23.2
	ANGLE	92.00															1.0	1.2	1.7	2.3	3.0	3.8	4.7	6.0	7.4	8.9	10.6	12.5	14.5	16.6	18.9

APPLICATIONS

The 2265 Pressure Reducing Surge Anticipation Solenoid Valve offers maximum performance combined with the reliability you have come to expect from Griswold Controls. The valve is intended for use in a wide variety of irrigation systems and can be used on slopes, banks, and hilly terrain with no performance loss, making it the right choice for golf course irrigation. The 2265 is designed as a normally-open master valve for systems with high supply pressure and fast-acting valves. The 2265_R can be used with Reclaimed Water.

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GRISWOLD CONTROLS®

PRESSURE REDUCING/SURGE ANTICIPATION SOLENOID

MODEL NUMBER SELECTION

2 2 6 5 ____ ____ ____

Select a Housing Size (1"=H, 1-1/4"=J, 1-1/2"=K, 2"=L, 2-1/2"=M, 3"=N)

Add an "R" for Reclaimed Water
Add an "E" for Epoxy

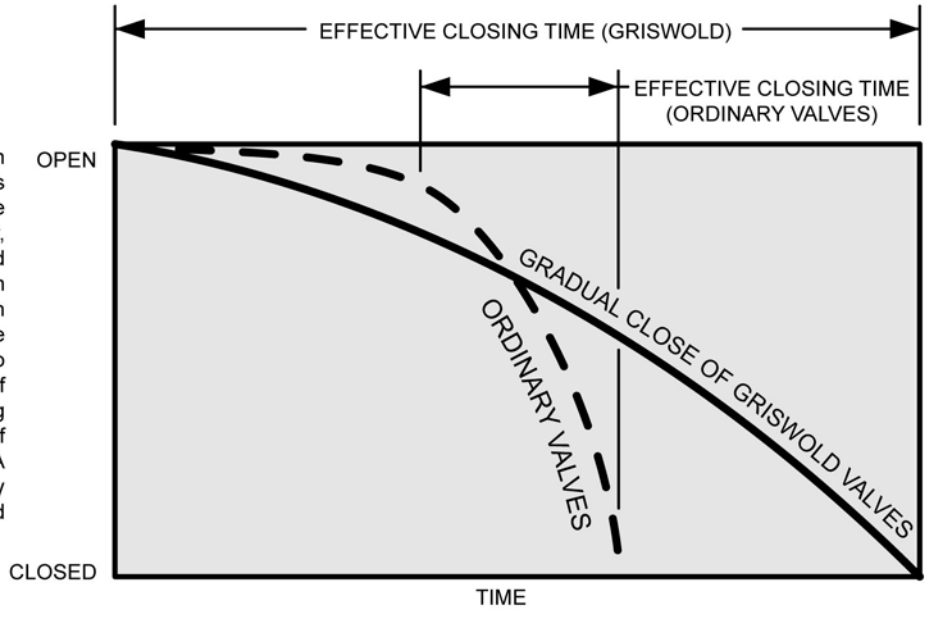
Add an "A" for Angle Configuration

DESCRIPTION:

- Normally Open: Energize Solenoid to Close Valve, De-Energize to Open Valve
- Lightning protected
- Watertight Epoxy Molded Solenoid Coil
- Slow Closing
- Surges Above Setting Are Automatically Relieved
- "No Surge or Hammer" Operation
- Will Throttle Against Flow Without Chatter
- Diaphragm-Disc Assembly Guided by Stainless Steel Stem in all Positions
- Completely Serviceable Without Removing Valve Body from the System

HAMMER-FREE, CHATTER-FREE CLOSING:

Instead of an abrupt, sudden closure, Griswold valves close gradually to eliminate water hammer and chatter, regardless of the throttled position of the diaphragm assembly. Notice in the graph how the closing action of the Griswold Valve compares to the abrupt closing action of ordinary valves. Closing speed depends on the size of the valve and flow velocity. A minimum of 5 seconds may be expected from Griswold Valves.



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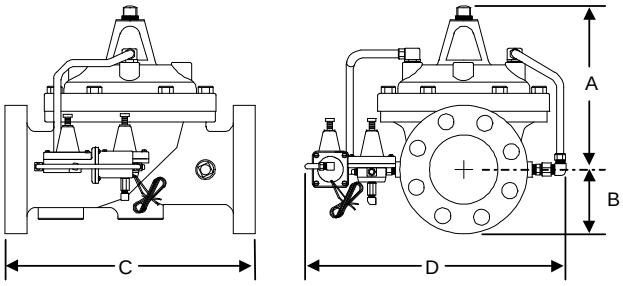
GRISWOLD CONTROLS®

PRESSURE REDUCING/SURGE ANTICIPATION SOLENOID

NORMALLY OPEN VALVE



SPECIFICATIONS:

Operating Pressure:	2 to 200 PSI
Regulating Range:	5 to 125 PSI
Voltage Operating Range:	22-28 VAC
Low Current Requirement:	0.10 A at 24 VAC
Assembly:	Valve comes fully assembled

MATERIALS

End Connections:	Flanged 150 ANSI
Stem, Nut & Spring:	Stainless Steel
Diaphragm:	Nylon-Reinforced Buna-N
Disc:	Buna-N
Disc Retainer:	Cast Iron
Diaphragm Washer:	Cast Iron
Disc Guide Seat:	Bronze
Cover Bearing:	Bronze
Optional:	Purple Handle for Reclaimed Water
Optional:	Epoxy Coating

DIMENSIONS & WEIGHTS (NOMINAL)

SIZE	MODEL NO.	A (IN)	B (IN)	C (IN)	D (IN)	APPROX SHIP WT IN LBS
4”	2265P	10.62	4.50	15.00	17.50	140
6”	2265Q	13.38	5.50	20.00	21.75	280
8”	2265R	16.00	6.75	25.38	26.00	500

PRESSURE LOSS (PSI) AT VARIOUS FLOWRATES

SIZE	FLOWRATE (GPM)																												
	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	3000	3100	3200	3300	3400
4"		1.0	2.3	4.0	6.3	9.0	12.3	16.0	20.3														CONSULT WITH FACTORY					
6"	USE 1 PSI			0.8	1.2	1.7	2.3	3.0	3.8	4.7	5.7	6.8	8.0	9.3	10.6	12.1	13.7	15.3	17.1	18.9	20.8		IN THIS RANGE					
8"	DROP IN THIS RANGE						0.8	1.1	1.4	1.7	2.0	2.4	2.9	3.3	3.8	4.3	4.9	5.5	6.1	6.7	7.4	8.2	15.2	16.2	17.3	18.4	19.5	

APPLICATIONS

The 2265 Pressure Reducing Surge Anticipation Solenoid valve offers maximum performance combined with the reliability you have come to expect from Griswold Controls. The valve is intended for use in medium to large irrigation systems and can be used on slopes, banks and hilly terrain with no performance loss. The 2250 is designed as a normally open master valve for systems with high supply pressure and fast-acting valves. The 2265_R can be used with Reclaimed Water.

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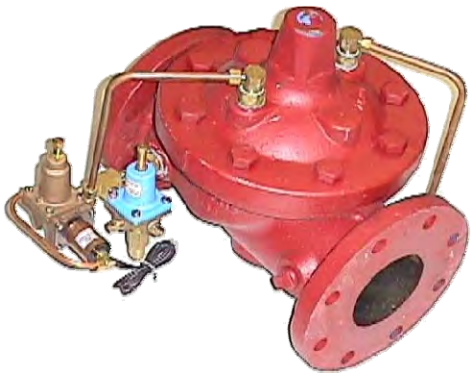
PRESSURE REDUCING/SURGE ANTICIPATION SOLENOID

MODEL NUMBER SELECTION

2 2 6 5 ___ ___

Select a size (4"=P, 6"=Q, 8"R)

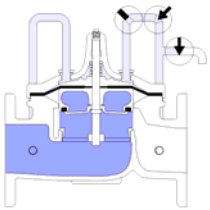
Add an "R" for Reclaimed Water
Add an "E" for Epoxy



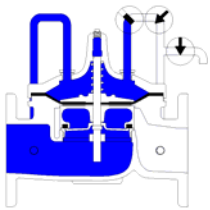
DESCRIPTION:

- Normally Open: Energize Solenoid to Close Valve, De-Energize to Open Valve
- On/Off Solenoid Control Valve
- Watertight Epoxy Molded Solenoid Coil
- Slow Closing
- Surges Above Setting Are Automatically Relieved
- "No Surge or Hammer" Operation
- Will Throttle Against Flow Without Chatter
- Diaphragm-Disc Assembly Guided by Stainless Steel Stem in All Positions
- Completely Serviceable Without Removing Valve Body from the System

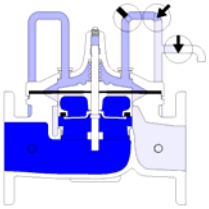
THEORY OF OPERATION



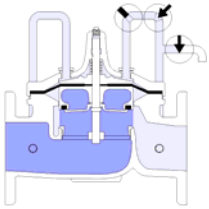
FULL OPEN OPERATION
When pressure in the cover chamber is relieved to a zone of lower pressure, the line pressure at the valve inlet opens the valve, allowing full flow.



TIGHT CLOSING OPERATION
When pressure from the valve inlet is applied to the cover chamber, the valve closes drip-tight.



PRESSURE REDUCTION
When the pressure in the system increases, the regulating pilot restricts the amount of fluid leaving the upper chamber. This causes the diaphragm to decrease the flow through area of the valve, reducing pressure system to its preset point.



PRESSURE COMPENSATION
When the flow demand in the system increases, the regulating pilot allows more fluid to leave the upper chamber. This causes the diaphragm to increase the flow through area of the valve, raising pressure system to its preset point.

SURGE ANTICIPATION
In the event of a surge, the regulating pilot restricts the amount of pressure to the upper chamber, closing the valve. To prevent Hammer, a relief pilot opens to relieve the surge pressure.

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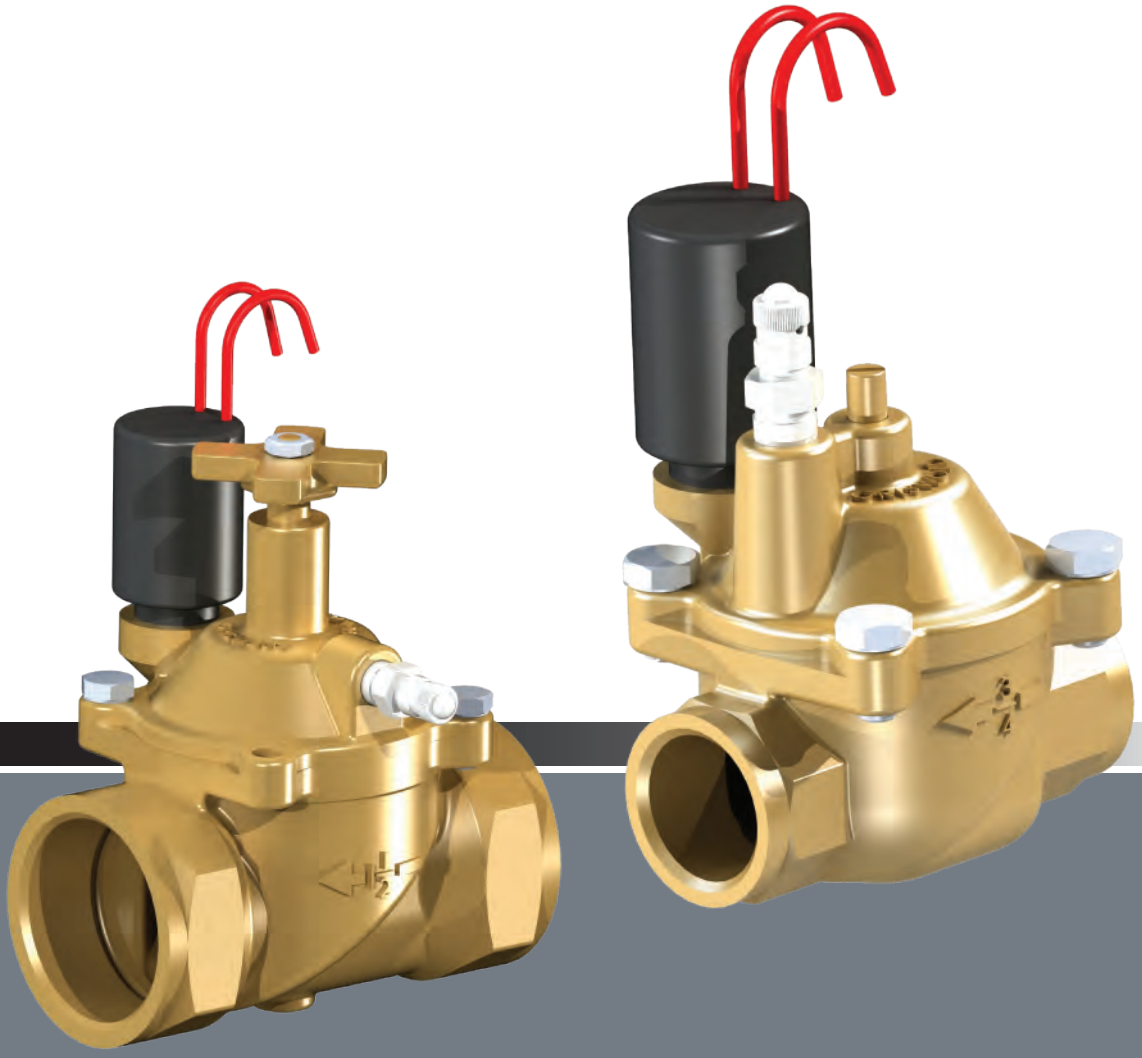
GRISWOLD CONTROLS

GRISWOLD® CONTROLS
A FlowCon International/Griswold Controls LLC. Company

DW Series
Reclaimed Water Irrigation Valves



MADE IN THE USA
ALL VALVES MEET BUY AMERICA ACT
GRISWOLD CONTROLS

Ideal For Use With Reclaimed Or "Dirty" Water

- **Self-Cleaning ~ No Filters or Screens to Clean or Replace**
- **Slow-Closing and Opening ~ No Pipe-Damaging Water Hammer**
- **Long Lasting Bronze Construction**
- **Five Year Warranty**

Absolute Control. Optimized Efficiency.

- **Ideal For Use With Reclaimed Or "Dirty" Water**
- **Self-Cleaning ~ No Filters or Screens to Clean or Replace**
- **Slow-Closing and Opening ~ No Pipe-Damaging Water Hammer**
- **Long Lasting Bronze Construction, Five Year Warranty**

Your best choice for maximum irrigation performance is Griswold Controls DW Series valve. The DW Series valve, similar to the more advanced 2000 Series valve, has numerous integrated features.

• *Unique diaphragm* made of a special EPDM material. The unique design of the valve with this material assures long life.

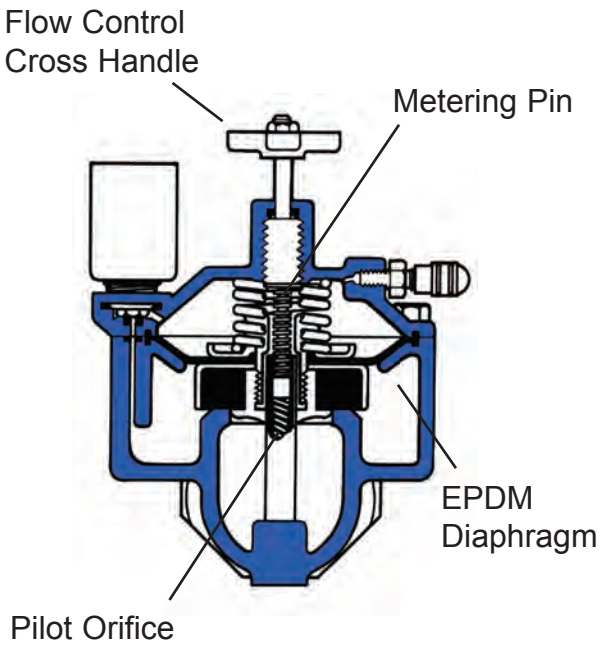
• *Griswold's "slow to open – slow to shut" feature* providing the ultimate in controllability. The possibility of system failures or breaks are minimized by reducing pressure surges or "water hammering". Slowing the opening and closing force of a valve reduces water hammer and long term wear and fatigue on plastic irrigation pipes, joints, couplings and sprinkler heads.

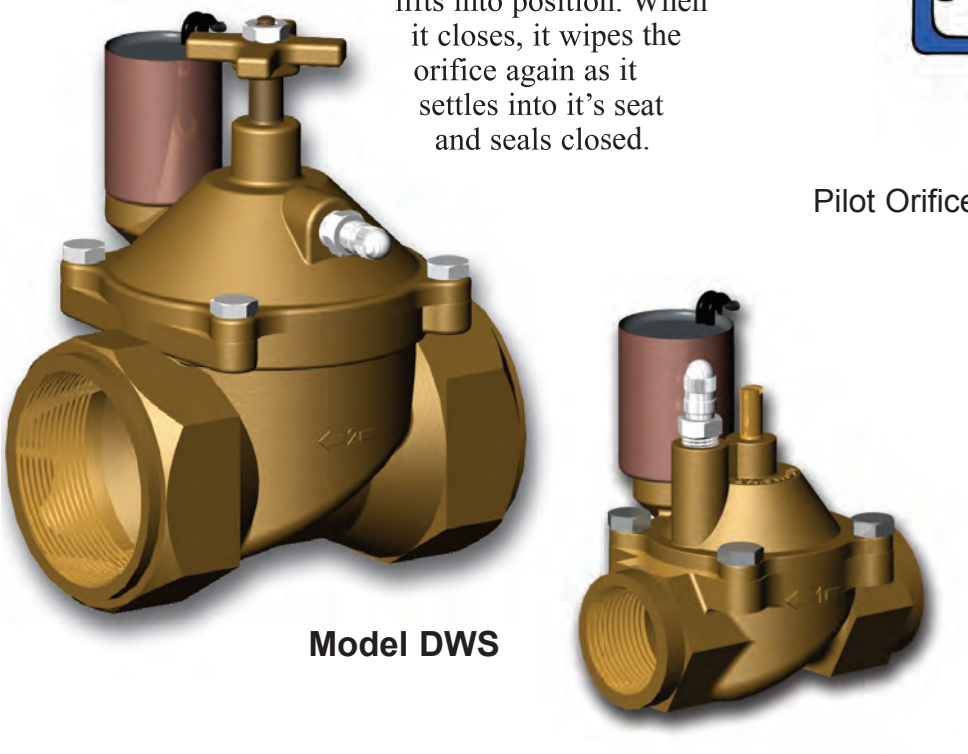
• *Self cleaning design without filters and screens* in an industrial quality body. Most foreign elements found in reclaimed or pumped water will pass through the valve without any problem and will not accumulate. The pilot orifice is kept clean by the opening and closing action of the valve. When it is opened, for example, the disc assembly simply wipes the orifice clean as it lifts into position. When it closes, it wipes the orifice again as it settles into it's seat and seals closed.

These features make the DW Series ideal for:

• *Residential and Commercial Landscapes*
• *Municipal landscapes and parks*
• *Schools and universities landscapes*
• *Golf courses*
• *Hospitality Industry landscapes*

Opening and Closing Speed Control Components





Model DWS

DW-PRV on-off pressure reducing solenoid valve

- **Heavy Duty Machined Bronze Construction ~ No Plastic Components Used**
- **Adjustable Downstream Pressure Control**
- **Internal Manual Bleed**
- **Stainless Steel Schraeder Valve for Easy Pressure Gauge Connection**

The DW-PRV Pressure Reducing Valve adds downstream pressure regulation as an important feature for optimum irrigation flow control. Steady controlled flow is the key to proper pressure regulation.

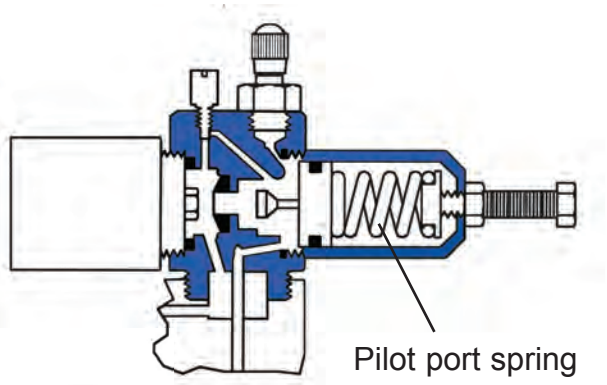
• *The Forward-Flowing design* of Griswold Controls valves ensures the maintenance of constant downstream pressure. The DW-PRV provides pressure independent steady water flow, independent of variations or pulsations in the main water supply. The valves can regulate the pressure to any value between 5 and 125 psi with the simple adjustment of a screw. The constant pressure supplied by the upstream water against the bottom of the diaphragm assembly guarantees a smooth regulation of downstream pressure.

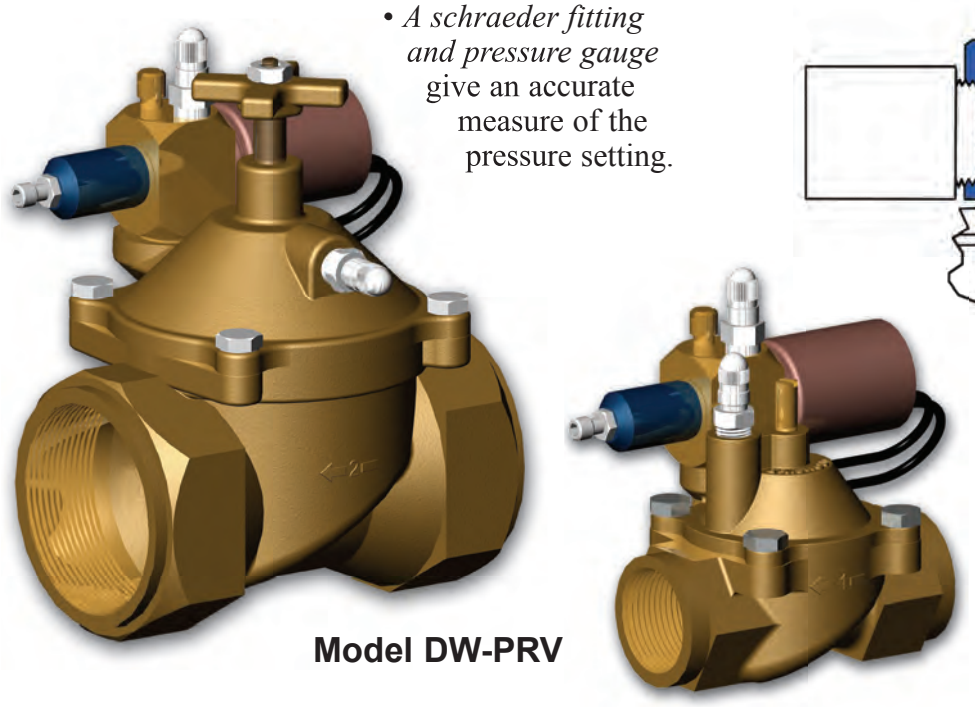
• *A schraeder fitting and pressure gauge* give an accurate measure of the pressure setting.

The DW-PRV valve maintains the pressure within +/- 5% despite system pressures up to a 200 psi maximum. Regulation is maintained under both manual and remote operations. Pressure in the downstream side of the line is increased or decreased to an accuracy of +/- 5% by simply adjusting the force of the pilot-port spring.

These features make the DW PRV Series ideal for controlling high pressure conditions caused by severe topographical elevation changes

Pressure regulating control





Model DW-PRV

Technical Features:

- Operating Pressure - 3 to 200 psi
- Flow Range - 0.01 to 160 gpm
- Manual On-Off Control
- Wide control range for pressure-reducing valves
- British Standard Threads (BSPT) - Optional
- Upstream pressure variations ~ 3 to 200 psi
- Downstream pressure adjustment ~ 5 to 125 psi
- Pressure accuracy ~ plus or minus 5%
- Cross handle for 3/4”, 1”, 1-1/4” sizes - Optional
- Available valve sizes ~ 3/4", 1", 1.25", 1.5", 2"
- 12 volt latching solenoid - Optional

Installation Data

Griswold DW Series remote-control valves can be installed below ground level at any convenient location in the irrigation system. To provide easy access for manually operating the valve or adjusting the closing speed (all valves) and downstream pressure (DW-PRV valves), install the valve in a valve box. Valve dimensions are given in Tables A and B.

Multiple valves connected to single clock-controller should be wired in parallel. The valves are designed to operate with a nominal 24 VAC at the valve connection. Table C lists the minimum voltage and current requirements as a function of the upstream water pressure. Table D gives the required wire size as a function of both distance and the number of valves on the circuit.

Another factor to consider is the pressure loss within the DW-PRV pressure control valves. The optimum size valve may or may not be the same as the pipe size. First estimate the gallons per minute (GPM) that must flow through the valve. Then subtract the desired downstream pressure from the minimum upstream pressure. Pressure loss caused by the pressure regulation function should be less than this figure. Table E indicates the minimum size valve you can select for a given flow rate.

A. DIMENSIONS (INCHES):MODEL DWS VALVES

SIZE	MODEL NO.	LENGTH	HEIGHT	WIDTH
3/4”	75 DWS	3.5	4.5	3.0
1”	100 DWS	3.5	4.5	3.0
1-1/4”	125 DWS	3.8	4.5	3.0
1-1/2”	150 DWS	4.5	5.5	4.5
2”	200 DWS	5.5	6.2	4.5

B. DIMENSIONS (INCHES):MODEL DW-PRV VALVES

SIZE	MODEL NO.	LENGTH	HEIGHT	WIDTH
3/4”	75 DWS-PRV	3.5	4.5	3.0
1”	100 DWS-PRV	3.5	4.5	3.0
1-1/4”	125 DWS-PRV	3.8	4.5	3.0
1-1/2”	150 DWS-PRV	4.5	5.5	4.5
2”	200 DWS-PRV	5.5	6.2	4.5

C. MINIMUM POWER TO ACTIVATE VALVE

PRESSURE (PSI)	VOLTAGE (60 Hz RMS)	CURRENT (60 Hz RMS)
100	21.0 vac	375 mA
125	22.0 vac	390 mA
150	23.0 vac	405 mA

D. DISTANCE(FEET) VS. WIRE SIZE (AT 150 PSI)

NO OF VALVES	18 GAUGE WIRES	16 GAUGE WIRES	14 GAUGE WIRES	12 GAUGE WIRES	10 GAUGE WIRES
1	1,500	2,440	3,800	6,000	9,600
2	750	1,220	1,900	3,000	4,800
3	250	407	633	1,000	1,600
4	63	102	158	250	400

E. PRESSURE LOSS (IN PSI) AT VARIOUS FLOW RATES (MINIMUM FLOW RATE: .01 GPM)

VALVE SIZE		FLOW RATE (GPW)												
		1-8	10	15	20	30	40	50	60	80	100	120	140	160
3/4”	PRESSURE LOSS	2.9	4.7	5.6	7.5	10.8								
1”		2.9	4.4	5.4	7.0	9.2	10.3	13.7						
1 1/4”		2.9	4.1	5.1	6.0	8.1	9.1	12.2	16.3					
1 1/2”		2.3	2.5	2.6	2.8	3.4	3.6	4.4	7.0	11.1	14.2			
2”		2.3	2.3	2.4	2.5	2.5	2.6	2.7	2.9	3.4	5.0	5.7	8.0	11.5

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GRISWOLD CONTROLS

DWS Series

Performance Specifications

Remote control valves shall be brass body, straight pattern, forward flowing and two-way solenoid operated. The internal control port of the valves shall be mechanically self-cleaning and automatically self-purging without the use of screens or filters. The diaphragm assembly shall be guided in all positions. Upon opening, the internal control port shall enlarge in size to purge and gradually reduce in size during closure to prevent water hammer. A manual flow stem to adjust the closing speed and allow for internal flushing shall be provided. A drip-tight resilient seated petcock shall be provide for manual opening without electricity. All valve porting shall be internal without the use of exterior tubing. All valve components shall be corrosion proof, metallic and be serviceable from the top.

DWS-PRV Series

Performance Specifications

Remote control valves shall be brass body, forward flowing, combination pressure regulating and solenoid operated. The internal control port of the valves shall be mechanically self-cleaning and automatically self-purging without the use of screens or filters. The diaphragm assembly shall be guided in all positions. Upon opening, the internal control port shall enlarge in size to purge and gradually reduce in size during closure to prevent water hammer. The pressure regulating pilot shall be adjustable from 5 to 100 psi and be capable of maintain a constant downstream pressure to within 5% of its setting. A pilot bypass valve shall provide for manual operation. When manually opened, the valve shall regulate and maintain constant downstream pressure. All valve porting shall be internal without the use of exterior tubing. All valve components shall be corrosion proof, metallic and be serviceable from the top.

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The Griswold Model DW-PRV valve consists of (1) a main valve, (2) a pressure regulating pilot, (3) a solenoid control pilot, (4) a manual on-off pilot, (5) a Schrader valve to allow for downstream pressure measurement, and (6) a manual on-off bleed on the cover.

The DW-PRV valve is a normally closed valve. With its manual on-off pilot in closed position and its solenoid de-energized, the valve remains shut. Energizing the solenoid or opening the manual on-off pilot valve causes the valve to open.

Once open, the valve supplies constant downstream pressure with fluctuating or excessive upstream pressure. Desired downstream pressure is adjustable from 5 to 100 PSI.

A flow stem (cross handle) on the valve is provided for emergency shut off and for reducing closing time of the valve under low flow applications.

The on-off bleed on the cover of the valve allows for bleeding air out of the cover chamber and activates the valve without pressure regulation (for checking purposes)

Required Tools to Set the Valve
1) Standard Screwdriver
2) 0-150 psl gauge equipped with quick-connect fitting for attachment to tire type (Schrader) valve.

To Set the Valve

1) Remove the cap off the Schrader valve

2) Attach the gauge kit to the Schrader valve.

3) Turn the flow stem on the valve cover all the way out (counter-clockwise)

4) Open the DW-PRV valve by turning its manual on-off pilot counter-clockwise two turns. DO NOT unscrew the bleed screw all the way. If no flow occurs, check for closed valves upstream of the DW-PRV.

5) With water flowing through the valve, turn the adjusting screw on the regulating pilot until desired downstream pressure is observed on the gauge. Turning the adjusting screw “in” (clockwise) increases pressure, “out” (counter-clockwise) decreases pressure.

NOTE: If turning the adjusting screw clockwise does not increase downstream pressure, upstream pressure may be too low. Check upstream pressure under flowing conditions.

6) Turn off the DW-PRV valve by shutting off it's manual on-off pilot valve. If the valve takes too long to close, turn the flow stem on the valve cover clockwise two turns.

7) Open the valve by energizing its solenoid. After one minute, de-energize the solenoid. The valve should begin to close. If it is too slow, turn the cross handle clockwise 2 or 3 more turns.

8) Disconnect the gauge kit; replace the Schrader cap. The valve is now set for normal operations.

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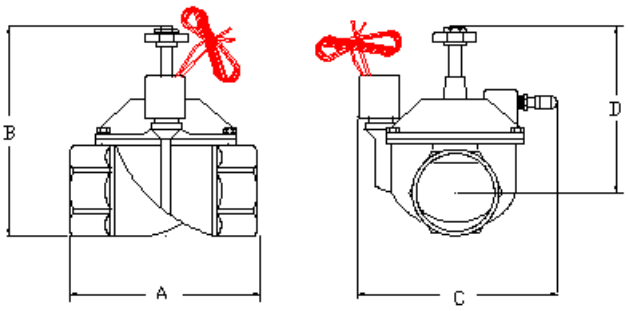

SPECIFICATIONS:

PSI/Temperature Rating:	200 PSI / 180° F
Voltage Operating Range:	17 - 40 VAC
Assembly:	Factory Assembled
End Connections:	FNPT / BSP Optional

MATERIALS

Body and Cover:	Brass
Stem, Disc Retainer:	Stainless Steel
Metering Pin & Spring:	Stainless Steel
Diaphragm Washer:	Stainless Steel
Disc Guide Seat:	Brass
Diaphragm:	Peroxide Cured EPDM
Disc Seat:	Buna-N

DIMENSIONS & WEIGHTS (NOMINAL)

SIZE	A (INCHES)	B (INCHES)	C (INCHES)	D (INCHES)	WEIGHT (LBS)
3/4"	3.5	4.5	3.0	3.9	2.00
1"	3.5	4.5	3.0	3.7	2.00
1-1/4"	3.8	4.5	3.0	3.5	2.25
1-1/2"	4.5	5.5	4.5	4.3	4.00
2"	5.5	6.2	4.5	4.6	6.25

MINIMUM POWER TO ACTIVATE VALVE

PRESSURE (PSI)	VOLTAGE (60Hz RMS)	CURRENT (60Hz RMS)
100	21 VAC	375 mA
125	22 VAC	390 mA
150	23 VAC	405 mA

PRESSURE LOSS (IN PSI) AT VARIOUS FLOW RATES (MIN. FLOW RATE: .01 GPM)

VALVE SIZE	1-8	10	15	20	30	40	50	60	80	100	120	140	160
3/4"	2.9	4.7	5.6	7.5	10.8								
1"	2.9	4.4	5.4	7.2	9.2	10.3	13.7						
1-1/4"	2.9	4.1	5.1	6.0	8.1	9.1	12.2	16.3					
1-1/2"	2.3	2.5	2.6	2.8	3.4	3.6	4.4	7.0	11.1	14.2			
2"	2.3	2.3	2.4	2.5	2.5	2.6	2.7	2.9	3.4	5.0	5.7	8.0	11.5

MODEL NUMBER

SIZE	Normally Closed	Normally Closed/ Reclaimed Water[1]	Normally Closed/ Pressure Reducing	Normally Closed/ Copper Solenoid	Normally Closed/ Internal Bleed	Normally Open
3/4"	DWS-75	DWS-75R	75DW-PRV	DWS-75C	DWS-75I	9991-80
1"	DWS-100	DWS-100R	100DW-PRV	DWS-100C	DWS-100I	9991-81
1-1/4"	DWS-125	DWS-125R	125DW-PRV	DWS-125C	DWS-125I	9991-82
1-1/2"	DWS-150	DWS-150R	150DW-PRV	DWS-150C	DWS-150I	9991-83
2"	DWS-200	DWS-200R	200DW-PRV	DWS-200C	DWS-200I	9991-84

SIZE	Normally Closed DC Latching Solenoid	Normally Closed/ Reclaimed Water/ DC Latching Solenoid	Normally Closed/ Pressure Reducing/ DC Latching Solenoid
3/4"	DWS-75-LS	DWS-75R-LS	75DW-PRV-LS
1"	DWS-100-LS	DWS-100R-LS	100DW-PRV-LS
1-1/4"	DWS-125-LS	DWS-125R-LS	125DW-PRV-LS
1-1/2"	DWS-150-LS	DWS-150R-LS	150DW-PRV-LS
2"	DWS-200-LS	DWS-200R-LS	200DW-PRV-LS

NOTES

[1] Purple handle for reclaimed water is shipped loose for installation in the valve in the field.

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Irrigation Solutions that *fit*

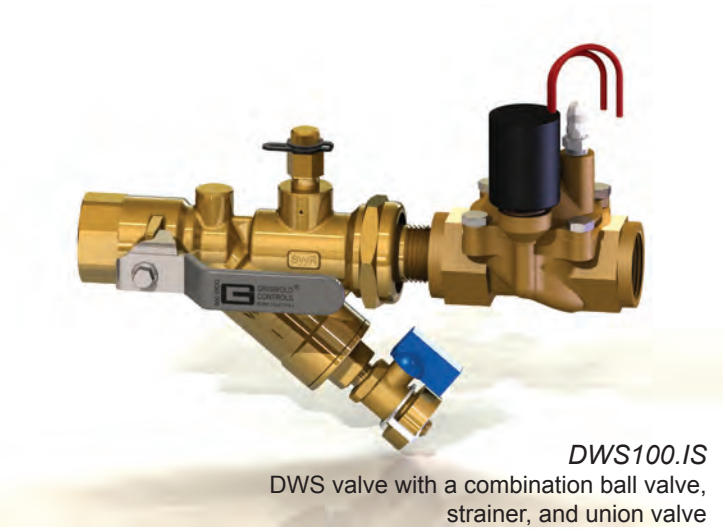
Introducing Griswold Controls' Irrigation Piping Packages (IPP)

Griswold Controls' Irrigation Piping Packages offer a wide selection of components a contractor or landscape professional needs along with a high quality diaphragm valve all in one compact package. These packages save time, labor, and money, ensure quick and easy distribution and installation on the job, and offer the convenience of using just one supplier for multiple elements on a system. The components are placed in their exact required configuration along with the Griswold Controls valve, then tagged, boxed, and foam-packed for added protection during shipment. The Irrigation Piping Package arrives pre-assembled and ready to install.

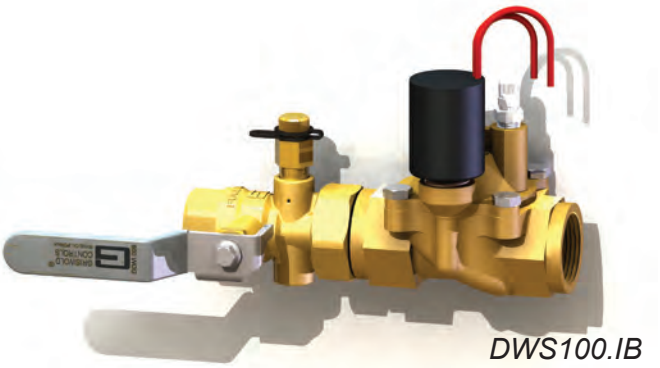
- Components available for inclusion in Irrigation Piping Packages are strainers, ball valves, and unions
- The wide selection of pre-assembled, easy-to-order configurations all include Griswold Controls' trusted brass and cast iron diaphragm valve
- Irrigation Piping Packages are individually shrink-wrapped and tagged for fast and simple distribution at job site
- 100 mesh stainless steel strainer and packing gland ball valve are ideal for dirty water applications as they allow for simple cleaning and maintenance

To order: Add the "component code" from the table below to the end of any standard model number.

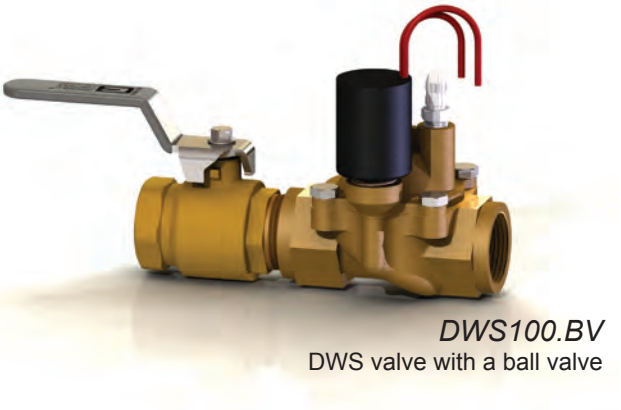
Component	*Code*
Ball valve	.BV
Union ball valve	.IB
Union	.IU
Combination ball valve and strainer	.IS



DWS100.IS
DWS valve with a combination ball valve, strainer, and union valve



DWS100.IB
DWS valve with a union ball valve



DWS100.BV
DWS valve with a ball valve

Example: 2000H.IB is a 2000 series valve with a union ball valve on the inlet.

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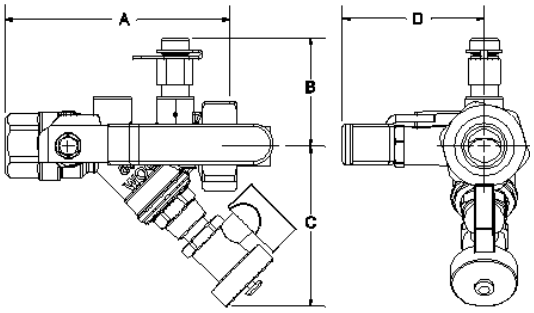
F-5468

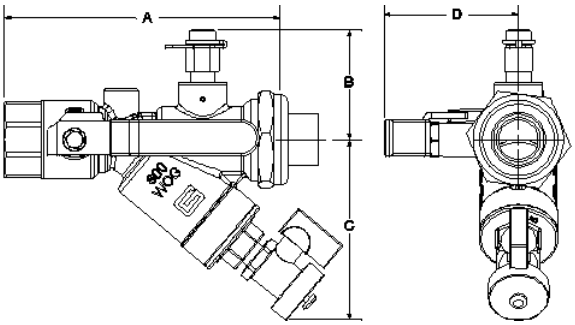
1/2" & 3/4" Housing



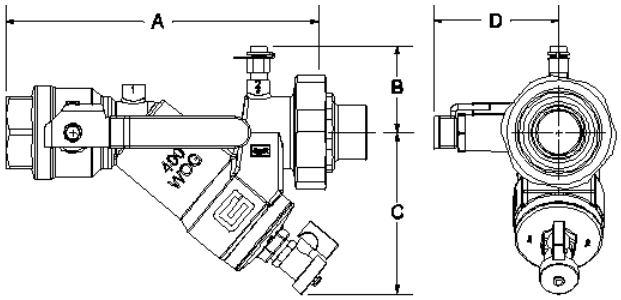
SPECIFICATIONS:

PSI/Temperature Rating:	1/2"–1-1/2": 400 PSI/250º F 1-1/2"L–3": 275 PSI/250º F
Body Material:	1/2"–1-1/2": Forged Brass ASTM B283-06 1-1/2"L–3": Cast brass
End Connections:	Brass – NPT, Sweat, ProPress[1], Grooved[2]
Ball Valve Seals:	Teflon
Union Seal:	EPDM O-Ring
Body Tappings[3]:	Boss for CPTA and Drain Valve
Ball Valve:	Nickel-plated brass ball Optional: Stainless Steel ball
Field Repairable Stem:	Dual Teflon seals and EPDM O-ring
Strainer:	20 mesh stainless steel
Assembly:	Valve comes fully assembled
Options:	Combination P/T Test Valve and Manual Air Vent (CPTA), Drain Valve, or 1/2" Bypass[4]. Insulation Option

3/4"L – 1-1/2" Housing



1-1/2"L - 3" Housing



DIMENSIONS & WEIGHTS (NOMINAL)

SIZE	A - FIXED END CONNECTION		UNION END CONNECTION[5]						B	C	D	Cv[6]	WEIGHT (LBS.)
	FNPT	SWT	FNPT		MNPT		SWT						
1/2"	3.9	3.8	1/2":1.0	3/4":N/A[7]	1/2":1.0	3/4":1.2	3/8",1/2":0.8	3/4":1.1	1.9	2.9	2.5	4.7	0.9
3/4"	3.9	4.0											
3/4"L	5.4	5.4	1/2",3/4":1.0	1":N/A[7]	1/2"-3/4":1.0	1":1.4	3/8",3/4": 1.0	1/2":0.7 1":1.3	2.2	3.6	2.6	9.1	2.3
1"	5.4	5.6											
1-1/4"	7.6	7.7	1",1-1/4",1-1/2":1.7		1",1-1/4",1-1/2":1.7[8]		1",1-1/4":1.7	1-1/2":1.4	2.5	3.1	3.1	24.6	5.0
1-1/2"	7.5	7.9											
1-1/2"L, 2"	9.3	9.8	1-1/4", 1-1/2":1.6	2": N/A[7]	1",1-1/4":1.8	1-1/2", 2":1.6	1-1/4",2":1.6	1-1/2":1.7	2.6	3.7	3.7	35	8.8
2"L	10.9	11.2	2": 2.5		2": 1.6		2": 1.6		2.9	4.0	4.0	60	12.4
2-1/2"	11.1	N/A	N/A[9]										
3"	11.3	N/A											

For ProPress connections add 3.1" (1/2") 3.6" (3/4", 3/4"L), 4.1" (1") to the FNPT length (A) listed for a valve. These are for planning purpose only, contact factory for actual measurement at time of order.

NOTES

[1] ProPress is available on ½" to 1" valves only.
[2] Grooved End connection is available on 2-1/2" and 3" valves only.
[3] Body Tappings for accessories are a leak proof metal to metal seal and do not require pipe dope or tape. Tape or dope should not be used.
[4] Bypass is only available on 1/2" to 1-1/2" valves.
[5] For overall length, add union end connection length to body length.
[6] Cv's are based on a clean 20 mesh stainless steel strainer.
[7] Tailpiece is not available for this size. Male tailpiece used with coupling.
[8] 1-1/4"–1-1/2" valves can also take 1/2"–3/4" MNPT tailpieces.
[9] 2-1/2" and 3" Valves are fixed end by fixed end connection. Union connection is not available.

Replaces form F-4079E, F-4279C, F-4201F, F-4380B 11/12

 F-5387G

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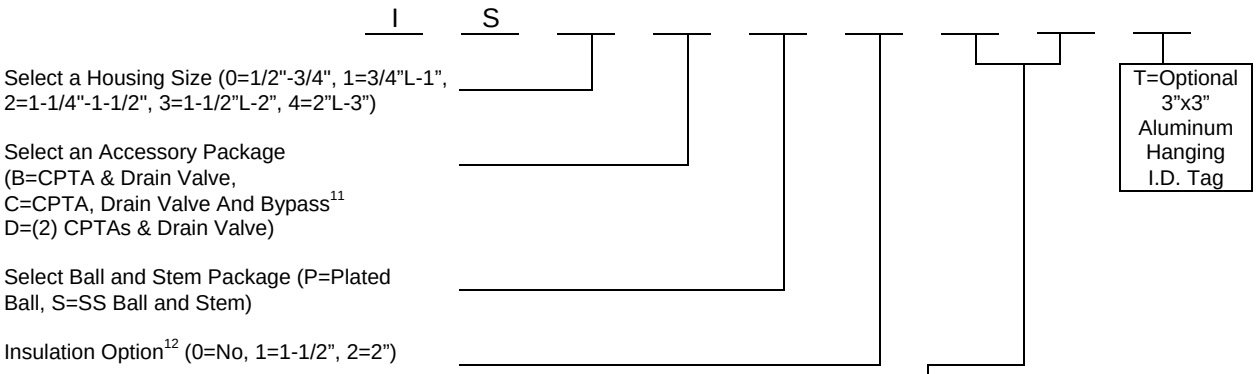
MODEL NUMBER SELECTION[10]



	FIXED END OR UNION END[13] (No Union Tailpiece=Z)			UNION END ONLY[13]
Valve	Female Threaded	Female Sweat	ProPress[14]	Male Threaded
IS0	1/2"=E, 3/4"=F[15]	3/8"=K[16], 1/2"=L, 3/4"=M	1/2"=2, 3/4"=3	1/2"=H, 3/4"=I
IS1	1/2"=E[16], 3/4"=F, 1"=G[15]	3/8"=K[16], 1/2"=L[16], 3/4"=M, 1"=N	1/2"=2[16], 3/4"=3, 1"=1	1/2"=H, 3/4"=I, 1"=J
IS2	1"=G[16], 1-1/4"=P, 1-1/2"=Q	1"=N[16], 1-1/4"=K, 1-1/2"=W	N/A	1/2"=H, 3/4"=I, 1"=J, 1-1/4"=S, 1-1/2"=T
IS3	1-1/4"=P[16], 1-1/2"=Q, 2"=R[15]	1-1/4"=K[16], 1-1/2"=W, 2"=Y	N/A	1-1/4"=S , 1-1/2"=T, 2"=U
IS4[13] (Union)	2"=L	2"=Y	N/A	1-1/4"=S , 1-1/2"=T, 2"=U
IS4[13] (Fixed End)	2"=L, 2-1/2"=M, 3"=N[17]	N/A	N/A	N/A

NOTES

[10] Model no. and flow rate are indicated on label affixed to body.
[11] C option with bypass is only available for 1/2" to 1-1/2" size.
[12] Insulation Option includes handle cover and Accessory extensions.
[13] Select the Fixed End First and the Union End Second. For 2-1/2" and 3" size select a 2nd fixed end instead of a union end.
[14] ProPress option is a tailpiece on the union side and/or a FNPT valve with a ProPress adapter on the fixed end side.
[15] Tailpiece is not available for this size. Male tailpiece used with coupling.
[16] Fixed end not available for this size. Union tailpiece only.
[17] For Grooved End option use MG=2-1/2" and NG=3"

Replaces form F-4079E, F-4279C, F-4201F, F-4380B 11/12

 F-5387G

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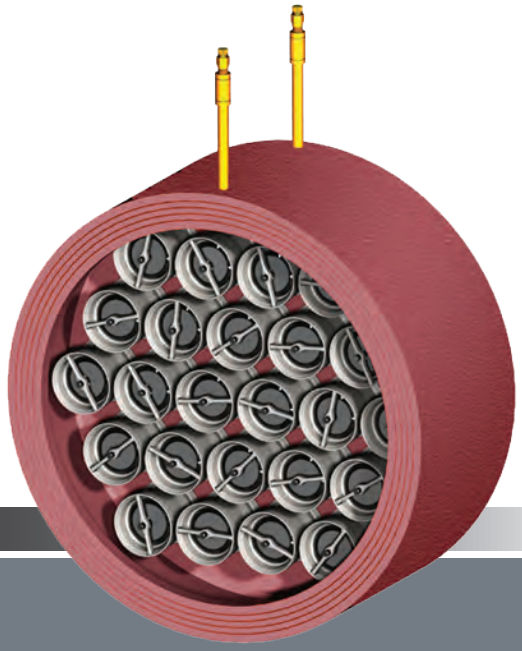
IRRIGATION

High Limit Constant Flow Valves



Valve Benefits:

- No more overflow or underflow problems - flow is guaranteed to +/-5% regardless of pressure changes in the system
- No need to adjust the valve - flowrate comes preset from factory
- Easy to change the flowrate - in the 1/2”-3” size you don’t need to remove the valve from the line to make a flowrate change
- Corrosion resistant - brass housing in 1/2”-3” valve and epoxy coated housing in 3”-20” valves.
- Easy to select - pick your desired flowrate and size

Absolute Control. Optimized Efficiency.

Irrigation Solutions that *fit*

Introducing Griswold Controls' Irrigation High Limit Constant Flow Valves

Griswold Controls' Irrigation High Limit Constant Flow Valves limit the flowrate (gallons per minute) to your exact need.

Today a maintenance person can change the flow on an irrigation zone by easily adjusting the valve with the handle, increasing or decreasing that particular zone. This is a problem because the system is designed for a certain flow rate and by adjusting the valve you now are changing the performance of that particular zone.

Limiting the flowrate to design flow gives the designer and property manager the confidence that their system is performing to their criteria.

Overflow is also prevented which helps meet California Law AB1881 that requires flowrate to be accurate and reduced. This is especially important for any high flow device like large flowrate rotors or guns for artificial fields, large pump stations and large manifolds of RCVs with pressure regulators. Overflow in those systems can overdraw old municipal mainlines so it must be prevented.

Valve Benefits:

- No more overflow or underflow problems - flow is guaranteed to +/-5% regardless of pressure changes in the system
- No need to adjust the valve - flowrate comes preset from factory
- Easy to change the flowrate - in the 1/2"-3" size you don't need to remove the valve from the line to make a flowrate change
- Corrosion resistant - brass housing in 1/2"-3" valve and epoxy coated housing in 3"-20" valves.
- Easy to select - pick your desired flowrate and size

K Valve
1/2"-3"
Forged Brass Housing with Stainless Steel Cartridge

Wafer Valve
3"-20"
Epoxy Coated Iron Wafer Housing with Stainless Steel Cartridge(s)

GSA Contract Holder
Contract GS-07F-0234X

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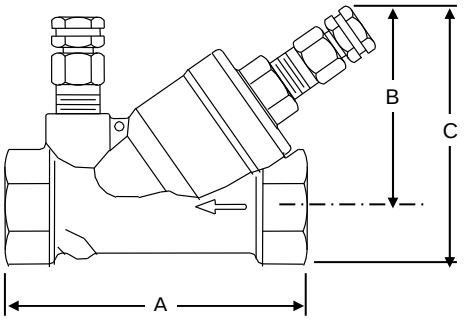
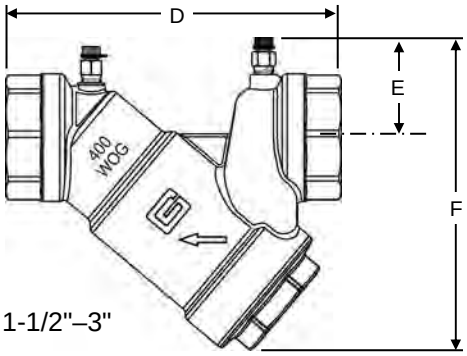
03/11
F-5516A

1/2"–1-1/2"





1-1/2"–3"

ACCESSIBLE CARTRIDGE

SPECIFICATIONS:

PSI / Temperature Rating:	400 PSI / 250º F
Cartridge:	AISI Type 304 stainless steel AISI Type 17-7 PH stainless steel spring
Body Material:	Forged brass (No Lead[1] Brass Available) (1/2" to 1-1/2") Cast brass (1-1/2"L to 3")
End Connections:	Female NPT (Sweat Available on 1/2" to 3/4" Housing)
Seals:	EPDM O-Rings
Body Tappings[2]:	P/T Test Valve (CPTA)
Assembly:	Valve comes fully assembled.

ACCESSORY OPTIONS:

Strainer[3]:	20 mesh stainless steel

FLOW RATES (+/-5%)

SIZE	MODEL NO.	HEAD LOSS IN FEET[4]	PSID RANGE	GPM
1/2"	3K02__	7.4	2-32	0.25, 0.33, 0.50, 1.00, 1.50, 2.00, 2.50, 3.00
	3K04__	13.4	4-57	0.50, 1.00, 1.50, 2.00, 2.50, 3.00
1/2"L, 3/4"L,1"	3801__	3.5	1-14	0.33, 0.50, 0.67, 1.00, 1.33, 1.67, 2.00, 2.33, 2.67, 3.33, 4.00, 4.67, 5.00
	3802__	7.4	2-32	0.55, 0.75, 1.00, 1.50, 2.00, 2.50, 3.00, 3.50, 4.00, 5.00, 6.00, 7.00, 8.00
	3804__	13.4	4-57	0.75, 1.00, 1.33, 2.00, 2.67, 3.33, 4.00, 4.67, 5.33, 6.67, 8.00, 9.33, 10.00
	3808__	30.0	8-128	1.10, 1.50, 2.00, 3.00, 4.00, 5.00, 6.00, 7.00, 8.00, 10.0, 12.0, 14.0, 16.0
1"L,1-1/4", 1-1/2"	3811__	3.5	1-14	5.33, 6.00, 6.67, 7.33, 8.00, 8.67, 9.33, 10.00, 10.67, 11.33, 12.00, 12.67, 13.33, 14.00, 14.67
	3812__	7.4	2-32	8.0, 9.0, 10.0, 11.0, 12.0, 13.0, 14.0, 15.0, 16.0, 17.0, 18.0, 19.0, 20.0, 21.0, 22.0
	3814__	13.4	4-57	10.67, 12.00, 13.33, 14.67, 16.00, 17.33, 18.67, 20.00, 21.33, 22.67, 24.00, 25.33, 26.67, 28.00, 29.33
	3818__	30.0	8-128	16.0, 18.0, 20.0, 22.0, 24.0, 26.0, 28.0, 30.0, 32.0, 34.0, 36.0, 38.0, 40.0, 42.0, 44.0

SIZE	MODEL NO.	HEAD LOSS IN FEET[4]	PSID RANGE	GPM			HEAD LOSS IN FEET[4]	PSID RANGE	HIGHER FLOW RATES/ NO INCREMENTS
				MIN.	INCREMENT	MAX			
1-1/2"L, 2", 2-1/2", 3"	3831	3.5	1-20	14.0	2.0	60	9.2	4-20	90, 110, 130
	3832	7.4	2-32	17.5	2.5	75	18.4	8-32	110, 135, 160
	3834	13.4	4-57	23.33	3.33	100	NONE		
	3838	30.0	8-128	35.0	5.0	150			

NOTES

[1] Contains less than 0.25% lead content by weight on wetted surfaces.
[2] Body Tappings for accessories are a leak proof metal to metal seal and do not require pipe dope or tape. Tape or dope should not be used.
[3] The optional strainer is internal and does not affect the dimensions. Strainer is available only on 1/2"L to 1-1/2" models.
[4] Head Loss in Feet is provided for pump head calculations. (1 PSI = 2.307 Feet of Water)

Replaces form F-2852 and F-4356 10/15

 F-2852Y

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DIMENSIONS & WEIGHTS (NOMINAL)

SIZE	MODEL NO.	A	B	C	WEIGHT (LBS.)
1/2"	3K0_	2.6	2.2	2.9	0.6
1/2"L	380_	3.5	2.4	2.9	2
3/4"		3.8	2.5	3.0	2
1"		4.1	2.6	3.4	2
1"L	381_	5.9	3.4	3.7	3
1-1/4"		6.1	3.5	4.2	3
1-1/2"		6.1	3.5	4.2	3
SIZE	**MODEL NO.**	**D**	**E**	**F**	**WEIGHT (LBS.)**
1-1/2"L	383_	9.1	2.7	8.5	10
2"		8.9	2.7	8.5	10
2-1/2"		9.8	2.7	8.5	10
3"		10.2	2.7	8.5	10

MODEL NUMBER SELECTION[5]

1/2"

3 K 0 _ _ _ _

- Select a PSID control range (2=2-32 and 4=4-57)
- Select Housing Material (B=Standard Brass, L=No Lead[6] Brass)
- Add an "S" for Sweat, leave blank for FNPT[9]
- Extension Kit (0=No, 1=1-1/2", 2=2")[10]

1/2"L to 3"

3 8 _ _ _ _ _ _

- Insert 0 for 1/2"L, 3/4", and 1"
  Insert 1 for 1"L, 1-1/4", and 1-1/2"
  Insert 3 for 1-1/2"L, 2", 2-1/2", and 3"[7]
- Select a PSID control range (1=1-14/1-20/ 4-20, 2=2-32/8-32, 4=4-57, 8=8-128)
- Select a size (1/2"=E, 3/4"=F, 1"=H, 1-1/4"=J, 1-1/2"=K, 2"=L, 2-1/2"=M, 3"=N)
- Select Housing Material (B=Standard Brass; D=Standard Brass and Strainer; L=No Lead[6] Brass; M=No Lead[6] Brass and Strainer)[8]
- Add an "S" for sweat, leave blank for FNPT[9]
- Extension Kit (0=No, 1=1-1/2", 2=2")[10]

NOTES

[5] Model no. and flow rate are indicated on label affixed to body.
[6] Contains less than 0.25% lead content by weight on wetted surfaces.
[7] Large Housing "3" (1-1/2"L-3") is not available in No Lead Brass. Only 1/2" to 1-1/2" is available in No Lead Brass.
[8] Strainer is available only on 1/2"L–1-1/2" models. Only 1/2" to 1-1/2" is available in No Lead Brass with strainer.
[9] Sweat ends are available only on 1/2" to 3/4" models.
[10] Extension Kit is available for standard brass models only.

Replaces form F-2852 and F-4356 10/15

 F-2852Y

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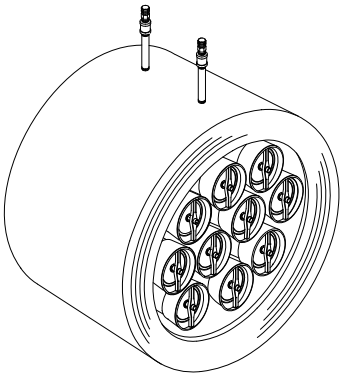
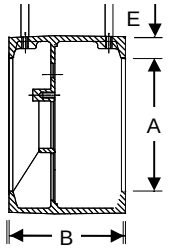
EPOXY COATED CLASS 150 WAFER

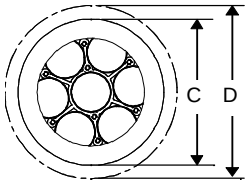


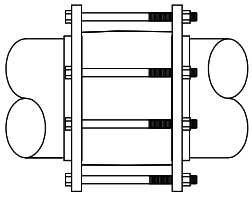
SPECIFICATIONS

PSI/Temperature Rating:	200 PSI / 250º F
Cartridge:	AISI Type 304 stainless steel AISI Type 17-7 PH stainless steel spring
Body Material:	**3"-14":** Ductile Iron ASTM A536 GR60-40-18, **16"-20":** Gray Iron ASTM A126-61T, Class 20
Body Tappings:	1/4" NPT with P/T test valves
Assembly:	Valve comes fully assembled. Pressure and temperature extensions are shipped loose.
Options:	3M Scotchkote Epoxy coated interior. Approved for potable water to 160°F

Flanges: *Sizes 4" - 20" are compatible with ANSI B 16.5-1968 150 lb. steel flanges. Cast Iron flanges are compatible with ANSI B 16.1-1967 125 lb.*







DIMENSIONS & WEIGHTS (NOMINAL)

A LINE SIZE	MODEL NO.	B (+/-.030)	C (+/-.060)	D REF ONLY FLG. DIA.	E	STUDS[1] (SUPPLIED BY GRISWOLD)		WEIGHT (LBS.)
						QTY	SIZE	
3	329_	6.8	5.4	7.5	5.5	4	5/8	17
4	332_	7.8	6.9	9.0	5.5	8	5/8	33
6	334_	7.3	8.6	11.0	5.5	8	3/4	42
8	337_	7.3	10.9	13.5	5.5	8	3/4	57
10	368_	8.0	13.5	16.0	5.5	12	7/8	93
12	369_	8.0	16.0	19.0	5.5	12	7/8	137
14	339_	8.0	17.6	21.0	5.5	12	1	177
16	384_	9.5	20.1	23.5	5.5	16	1	291
18	385_	9.5	21.5	25.0	5.5	16	1-1/8	405
20[2]	338_	11.0	23.9	27.5	5.5	20	1-1/8	520

MODEL NUMBER SELECTION[3]

3

Select a size (3=29, 4=32, 6=34, 8=37, 10=68, 12=69, 14=39, 16=84, 18=85, 20=38)

Select a PSID control range (STD: 1=1-20 or 4-20, 2=2-32 or 8-32, 4=4-57, 8=8-128; HI-FLOW: 3=3-18, 5=5-32, 7=7.5-32)

Insert "A" for pressure taps, "B" for pressure/temperature taps

Insert "E" for Epoxy Coating

T=Optional 3" Aluminum Hanging I.D. Tag

NOTES

[1] Plated Steel Studs and Nuts are supplied by Griswold.
[2] 20" and is supplied with an eyebolt for lifting.
[3] Model no. and flow rate are indicated on label affixed to body.

Replaces form F-4044 10/12

 F-4044H

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GRISWOLD CONTROLS

RATE TABLES PER TYPE OF CARTRIDGE (+/- 5%)

TYPE OF CARTRIDGE:			*STANDARD FLOW*			
LINE SIZE	MODEL NO.	CONTROL RANGE (PSID)	1-20	2-32	4-57	8-128
		MAX. PRES. DIFF. (PSI)	20	32	57	128
		HEAD LOSS IN FEET[4]	3.0	7.4	13.4	30.0
		MIN. AVAILABLE GPM	14	17.5	23.33	35
		GPM INCREMENTS	2.0	2.5	3.33	5.0
3	329_	Maximum GPM	60	75	100	150
4	332_	Maximum GPM	120	150	200	300
6	334_	Maximum GPM	240	300	400	600
8	337_	Maximum GPM	420	525	700	1,050
10	368_	Maximum GPM	660	825	1,100	1,650
12	369_	Maximum GPM	900	1,125	1,500	2,250
14	339_	Maximum GPM	1,140	1,425	1,900	2,850
16	384_	Maximum GPM	1,440	1,800	2,400	3,600
18	385_	Maximum GPM	1,860	2,325	3,100	4,650
20	338_	Maximum GPM	2,220	2,775	3,700	5,550

TYPE OF CARTRIDGE:			*STANDARD FLOW HIGH CAPACITY*	
LINE SIZE	MODEL NO.	NOMINAL CONTROL RANGE (PSID)	4-20	8-32
		MAX. PRES. DIFF. (PSI)	20	32
		HEAD LOSS IN FEET[4]	9.2	18.4
		GPM INCREMENTS	20.0	25.0
3	329_	Minimum GPM	90	110
		Maximum GPM	130	160

TYPE OF CARTRIDGE:				*HI - FLOW*				
LINE SIZE	MODEL NO. CLASS 150	MODEL NO. CLASS 300	CONTROL RANGE (PSID)	3-18 (LOW INCREMENTS)	3-18 (NO INCREMENTS)	5-32 (LOW INCREMENTS)	5-32 (NO INCREMENTS)	7.5-32 (NO INCREMENTS)
			MAX. PRES. DIFF. (PSI)	18	18	32	32	32
			HEAD LOSS IN FEET	5.8	5.8	11.5	11.5	17.5
			GPM INCREMENTS	2.0	SEE ACTUAL FLOWS	2.5	SEE ACTUAL FLOWS	SEE ACTUAL FLOWS
3	329_	345_	Minimum GPM	N/A	N/A	N/A	N/A	N/A
			Maximum GPM	N/A		N/A		
4	332_	346_	Minimum GPM	114	200	152.5	335, 360,	500, 600
			Maximum GPM	160		275	400	
6	334_	347_	Minimum GPM	114	400	152.5	735, 760,	1000, 1200
			Maximum GPM	360		675	800	
8	337_	348_	Minimum GPM	114	700	152.5	1335, 1360,	1800, 2100
			Maximum GPM	660		1,275	1400	
10	368_	343_	Minimum GPM	114	1100	152.5	2135, 2160,	2400, 3000,
			Maximum GPM	1,060		2,075	2200	3300
12	369_	344_	Minimum GPM	114	1500	152.5	2935, 2960,	3500, 3900
			Maximum GPM	1,460		2,875	3000	4500
14	339_	349_	Minimum GPM	114	1900	152.5	3735, 3760,	4500, 5100
			Maximum GPM	1,860		3,675	3800	5700
16	384_	N/A	Minimum GPM	114	2400	152.5	4735, 4760,	5400, 6000
			Maximum GPM	2,360		4,675	4800	6600, 7200
18	385_	N/A	Minimum GPM	114	3100	152.5	6135, 6160,	6900, 7500, 8100
			Maximum GPM	3,060		6,075	6200	8700, 9300
20	338_	350_	Minimum GPM	114	3700	152.5	7335, 7360,	8700, 9300, 9900,
			Maximum GPM	3,660		7,275	7400	10500, 11100

NOTES

[4] Head Loss in Feet is provided for pump head calculations. (1 PSI = 2.307 Feet of Water)

Replaces form F-4044 10/12

 F-4044H

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Griswold Controls agrees to repair or replace, at Griswold Controls' option, any Product found to be defective in workmanship or material during the warranty period. Griswold Controls Limited Warranty does not include labor or additional materials to repair or replace defective Product. Claims under this warranty will only be honored if written notice is given to Griswold Controls immediately upon discovery of the defect and within the specified warranty period from the date of shipment. A Product is not defective unless it fails to perform according to Griswold Controls' written specifications, but in the event Griswold Controls has not drafted or adopted written specifications for a particular Product, a Product will be defective if it fails to perform as would be expected of the same or similar Product in the industry. Customer shall pay freight charges for return.

There is no warranty for any Product that has been (i) subjected to misuse, neglect or accident, or (ii) altered or repaired in an improper manner. Refer to Griswold Product Installation, Operation, and Maintenance instructions for proper handling and use. Questions regarding Warranty Returns should be directed to your Customer Service Representative at (949) 559-6000 or via fax at (949) 559-6088.

Disclaimer of Liability

THIS WARRANTY IS IN PLACE OF ALL OTHER WARRANTIES EXPRESS OR IMPLIED, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

THIS IS GRISWOLD'S ONLY LIABILITY TO ANYONE FOR ANY CLAIM IN CONNECTION WITH THE PRODUCTS. GRISWOLD SHALL NOT BE LIABLE FOR INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR FOR DAMAGES IN AN AMOUNT EXCEEDING THE COST OF ANY DEFECTIVE PRODUCT(S) EVEN IF GRISWOLD HAS BEEN TOLD IN ADVANCE OF THE POSSIBILITY OF SUCH DAMAGES. IT IS AGREED THAT THE BUYER'S SOLE REMEDY AGAINST GRISWOLD IN CONNECTION WITH THE PRODUCT IS REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCT OR REFUND OF THE PURCHASE PRICE OF THE PRODUCT.
No agent, distributor or any other person is authorized to modify or extend the terms of this warranty in any manner whatsoever. Some states do not allow the exclusion or limitation of incidental or consequential damages, nevertheless, the foregoing paragraph should be construed to limit Griswold Controls' liability to the fullest extent permitted under the laws of any particular jurisdiction, as applicable. This warranty gives you specific legal rights and you may also have other legal rights which vary from state to state. This warranty applies only to Products installed in the United States.

To obtain service under this Limited Warranty write to:

Griswold Controls
2803 Barranca Parkway,
Irvine, California 92606.

Products may be returned for replacement or credit due to Product failure or defect during the standard warranty period. Griswold Controls Standard Product Warranty Periods are as follows:

Product Category	**Warranty Period**
Diaphragm Valves	5 Years

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F-5566
6/16

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