TORO Count on it.

220G Series Brass Valve Installation and Operating Instructions

Introduction

The 220G Series provides a full family of brass valves are designed specifically to meet the challenging needs of today's golf course irrigation systems. Featuring precision pressure regulation, the 220G Series brass valve delivers the optimum pressure and flow to every sprinkler on the zone, ensuring maximum uniformity of the water to the turf.

The EZ-Reg pressure regulating system, a standard feature on all 220G valves, provides consistant operating pressure. From low-pressure/flow applications of drip irrigation, to the high-pressure/flow requirements of high-volume sprinklers, the EZ-Reg adjusts easily with the micro-adjust dial and indicator, to provided constant downstream pressure 5–100 psi.

Also standard on the 220G series, is the heavy-duty SpikeGuard™ solenoid. Providing 20,000-volt lightning protection – the SpikeGuard solenoid has proven to minimize down time and service costs, even in the severe lightning-prone regions.

Note: *The 220G valve should be installed below grade in a valve box or vault to provide service access and vandal resistance. The valve installation site should be readily accessible by grounds maintenance personnel and well clear of hardscape features, cart paths and foot traffic areas.*

Specifications

- **Configuration:**
  - Globe, forward flow
  - Ingot brass and stainless steel construction
  - 1", 1¼", 1½", 2" NPT and BSP models
  - Electric actuation
  - Pressure regulating
  - 1"- 5¾" H x 5" W
  - 1½" 6½" H x 6" W
  - 1¼" 6½" H x 6" W
  - 2" 7½" H x 5" W
- **Flow Range:**
  - 1" 5—40 GPM
  - 1¼" 20—100 GPM
  - 1½" 20—120 GPM
  - 2" 30—180 GPM
- **Operating Pressure Range:**
  - Inlet: 15—220 psi
  - Outlet: 5—100 ± 3 psi
  - Minimum inlet/outlet differential: 10 psi
  - Burst pressure safety rating: 750 psi
- **SpikeGuard™ Solenoid:**
  - 24 VAC, 50/60 Hz
  - Inrush – 0.12 amps
  - Holding – 0.10 amps
- **DC-latching Solenoid** (option)
  - For Golf Decoder Control (GDC) application
- **Diaphragm:**
  - Double-beaded, fabric-reinforced
- **Filter Screen:**
  - 120-mesh stainless steel screen
  - Self-flushing, contamination resistant
- **Manual Flow Control:**
  - Adjustable to zero flow
- **Manual Bleed Screw:**
  - Enables manual valve operation
  - Bleeds off water internally downstream
- **EZReg Pressure Regulator:**
  - Compact, precision-dial design
  - Regulates during automatic and manual operation
  - Serviceable while valve is pressurized
  - Poppet valve (Schrader-type) for downstream pressure verification

Friction Loss Chart

GPM -	5	10	15	20	30	40	50	60	70	80	100	120	150	170	180
1"	2.0	2.5	1.5	2.5	5.5	7.0									
1¼"				5.5	6.5	7.5	8.0	9.0	9.0	13.0	16.0				
1½"				4.0	5.2	5.4	6.0	6.5	7.0	8.0	10.0	15.0			
2"					1.0	2.0	2.0	2.5	3.0	3.5	6.0	7.5	10.0	12.0	14.0

Note: Friction loss values shown in psi. Operating valve outside prescribed flow range is not recommended.

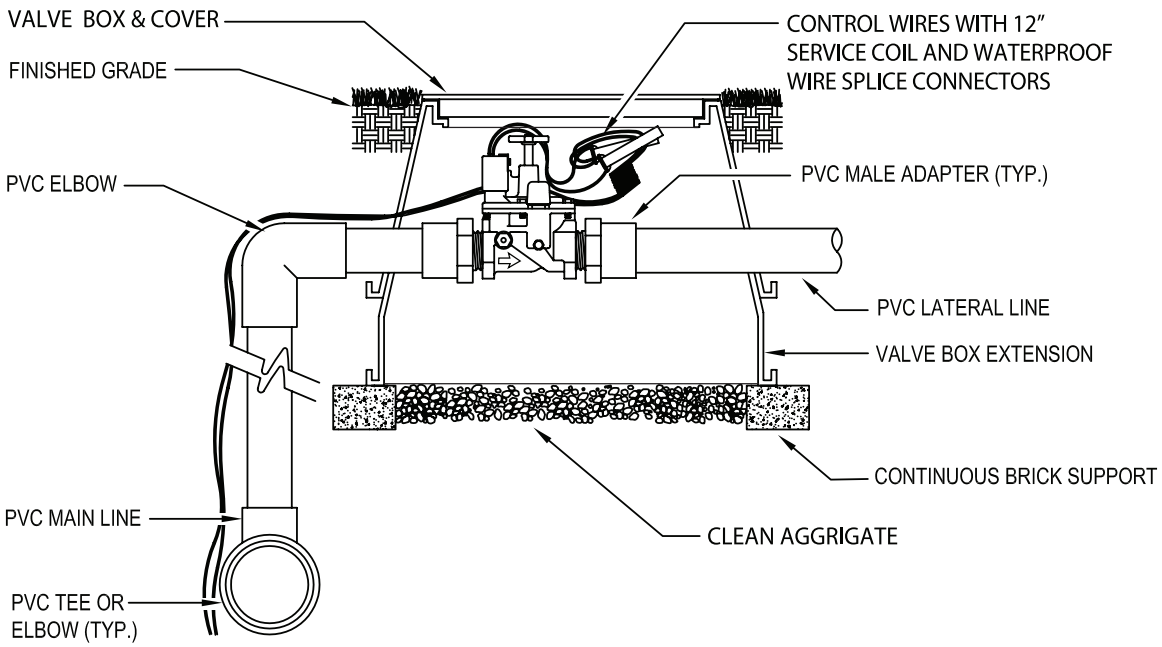
Installation Guidelines

- Note the flow direction arrow in the side of the valve body and install accordingly.
- The valve can be installed at any angle without affecting operation.
- Use direct-burial irrigation control wire for connection from the controller to valves.
- Leave a 12" wire expansion loop at each valve location on long-run wire lengths.
- Waterproof wire splice connectors are absolutely essential for proper electric control system operation. Follow the installation instructions provided by the connector manufacturer for optimum performance.

Common Wire Gauge Size	Control Wire Gauge Size						
	18	16	14	12	10	8	6
18	2040	2520	2940	3280	3540	3720	3860
16	2520	3260	4000	4660	5220	5620	5920
14	2940	4000	5180	6360	7420	8300	8960
12	3280	4660	6360	8240	10100	11800	13180
10	3540	5220	7420	10100	13180	16060	18770
8	3720	5260	8300	11800	16060	20800	25540
6	3860	5960	8960	13180	18700	25540	33080

Note: Values indicate maximum one-way distance (in feet) between controller and valve solenoid under the followig conditions: minimum voltage - 20 VAC amperage - 0.12A and operating pressure - 150 psi.

Typical Installation Detail



Valve Adjustment Procedures

- Close the valve by turning the Flow Control Handle fully clockwise, *just until resistance is felt - do not overtighten!*
- Remove the EZReg dial protective cover (if installed). Turn the control dial until the pointer indicates the desired downstream pressure (5 to 100 psi).
  Note: *One revolution of the control dial adjusts the pressure setting approximately 10 psi. A minimum of 10 psi pressure differential between the valve inlet and outlet is required for proper EZReg operation.*
- Pressurize the main supply line to the valve. Confirm that all pipe connections are properly sealed.
- Actuate the valve either electrically at the controller, or manually by turning the Manual Bleed knob counterclockwise sloely until the valve opens.
- Turn the Flow Control Handle slowly counterclockwise to adjust sprinkler operation.
- To confirm outlet pressure, remove the poppet valve cap, located directly below the EZReg. Attach a water-pressure test gauge to the poppet valve for a direct reading. Adjust pressure as preferred.

  ⚠ Important: The EZReg assembly can be removed for service while the valve is pressurized. However, the valve must not be operated with the EZReg assembly removed.
- Close Manual Bleed knob (if necessary) to close valve.