

TORO

Count on it.

P-220 Series Valves

With Spike-Guard™ Solenoid Technology

These heavy-duty debris resistant valves are designed for maximum flows and pressures, but also have the ability to regulate downstream pressure to ensure sprinklers perform at their optimum pressures.

COMMERCIAL

*P-220-27-00**P-220-27-08**P-220-27-06**P-220-27-04*

INNOVATION

- Solenoid amperage draw is the lowest in the industry for a plastic valve—0.1 A
- Downstream pressure regulation installed dry or wet

PERFORMANCE

- Rated from 10 to 220 psi
- Proven to operate in dirty water applications

RELIABILITY

- Glass Filled Nylon Construction
- Lightning Resistant Solenoid
- 5 Year Warranty

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Precise Pressure Regulation

An accurate and visibly adjustable dial, coupled with a forward flow valve design allows the 220 Series with the EZReg® module to regulate with precision. It can regulate with flows of only 5-GPM (1" valve) and it only requires 10 psi differential to operate. The pressure regulator is perfect for retrofit projects and can be easily and quickly installed—even under pressure, with no danger of water geysers from the removed solenoid area or opening of the valve. The EZReg regulates in the manual mode, should-power be unavailable. A standard, Schrader type valve permits quick verification of downstream operating pressure.



Features and Benefits

- The Spike-Guard™ solenoid features very low power consumption, which reduces wire size requirements, allows twice as many valves to run simultaneously on a transformer and lowers power costs
- With a lightning rating exceeding 20,000 volts, the P-220 Series valves offer nearly three times the lightning protection of competitive products
- Precise, pressure control option with compact EZReg™ (can be factory installed) dial design. Technology does not effect friction loss unlike competitive valves.
- Tough, glass-filled nylon and stainless steel construction
- 1", 1½", 2" and 3" (25mm, 40mm, 50mm and 75mm) female inlet/outlet
- External manual bleed
- Pressure regulates in electric or manual modes and is serviceable under pressure
- No external tubing for either electric or pressure-regulating models
- Internal downstream manual bleed allows for manually setting pressure regulation
- Standard, built-in Schrader-type valve for downstream pressure verification
- Flow control independent of solenoid
- Self-aligning bonnet to ensure correct installation
- Self-cleaning, stainless steel metering rod
- Low-flow capability down to 5 GPM (20 LPM) with EZReg
- Low-power requirement for longer wire runs
- Recycled water solenoid and warning tag
- Five-year warranty

Specifications

- Flow range:
 - 1"—5–35 GPM (25mm—20–159 LPM)
 - 1½"—30–110 GPM (40mm—114–400 LPM)
 - 2"—80–180 GPM (50mm—300–600 LPM)
 - 3"—150–300 GPM (75mm—568–1100 LPM)
- Operating pressure:
 - Electric—10–220 psi (0,7–15,2 Bar)
- Pressure regulating:
 - Outlet: (EZR-30) 5–30 psi ± 3 psi (0,3–2,0 Bar ± 0,2 Bar)
 - Outlet: (EZR-100) 5–100 psi ± 3 psi (0,3–7,0 Bar ± 0,2 Bar)
 - Inlet: 15–220 psi (1,0–15 Bar)
- Minimum pressure differential (between inlet and outlet): 10 psi (0,7 Bar)
- Burst pressure safety rating: 750 psi (51,7)
- Body styles:
 - Globe valve—1", 1½", 1½", 2" (25mm, 32mm, 40mm, 50mm) female threads
 - Angle valve—2½", 3" (65mm, 75mm) female threads
- Solenoid: 24 V ac (50/60 Hz) (standard)
 - Inrush: 50 Hz: 0.17 amps, 60 Hz: 0.12 amps
 - Holding: 50 Hz: 0.15 amps, 60 Hz: 0.1 amps
- Dimensions:
 - 1"—6¾" H x 3 5/8" W (25mm—171mm x 92mm)
 - 1½"—7¼" H x 3 5/8" W (40mm—184mm x 92mm)
 - 2"—9½" H x 6 1/8" W (50mm—241mm x 156mm)
 - 3"—10¾" H x 6 1/8" W (75mm—273mm x 156mm)

Valve Wire Sizing							
Maximum One-way Distance (ft.) Between Controller and Valve Using Spike-Guard™ Solenoid*							
Ground Wire	Control Wire						
	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	5620	8300	11800	16060	20800	25540
6	3860	5960	8960	13180	18700	25540	33080

* Solenoid Model: 24 V ac / Pressure: 150 psi / Voltage Drop: 4 V Min. / Op. Voltage: 20 V / Amperage (peak): 0.12 A



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P-220 Series Friction Loss Data*—U.S.

Size	Configuration	GPM Flow																						
		5	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	180	200	225	250	275	300	
1" (25mm)	Globe	4.00	4.20	3.20	4.10																			
	Angle	4.00	4.20	3.10	2.70																			
1½" (40mm)	Globe				1.60	2.30	3.60	5.20	7.00															
	Angle				1.30	1.60	2.80	4.00	5.50															
2" (50mm)	Globe									2.10	2.70	3.30	4.00	4.80	5.60	6.50								
	Angle									1.20	1.60	2.00	2.40	2.80	3.30	3.90								
3" (75mm)	Globe																2.50	3.00	4.10	5.30	6.70			
	Angle																1.90	2.40	3.30	4.30	5.50			

Note: For optimum performance when designing a system, be sure to calculate total friction loss to ensure sufficient downstream pressure. For optimum regulation performance, size regulating valves toward the higher flow ranges. Flow rates are recommended not to exceed 5 psi loss. Values shown in psi.

P-220 Series Friction Loss Data*—Metric

Size	Configuration	LPM Flow																						
		40	60	80	100	120	140	160	180	200	250	300	350	400	450	500	550	600	700	800	900	1000	1100	
25mm (1")	Globe	0,29	0,25	0,25	0,26	0,32	0,43	0,55	0,69															
	Angle	0,29	0,35	0,21	0,20	0,21	0,29	0,38	0,49															
40mm (1½")	Globe					0,12	0,14	0,18	0,23	0,28	0,43	0,62												
	Angle					0,09	0,10	0,13	0,17	0,22	0,34	0,48												
50mm (2")	Globe											0,14	0,20	0,32	0,40	0,48								
	Angle											0,08	0,12	0,15	0,19	0,24	0,29							
75mm (3")	Globe																	0,18	0,24	0,32	0,41	0,52	0,65	
	Angle																	0,14	0,19	0,26	0,34	0,43	0,54	

Note: For optimum performance when designing a system, be sure to calculate total friction loss to ensure sufficient downstream pressure. For optimum regulation performance, size regulating valves toward the higher flow ranges. Flow rates are recommended not to exceed 0,3 bar loss. Values shown in bar.

For kPa values, multiply tabular values by 100. For Kg/cm² values, multiply tabular values by 1,02.

* Data taken with EZReg pressure regulation device installed. Data remains the same with or without pressure regulation.

Specifying Information

P220 2X X X

Type	Configuration	Solenoid	Size
P220—P-220 Series Plastic Valve	26—NPT, Electric	0—Solenoid	4—1" (25m)
	27—NPT, Pressure-regulated (5–100)	6—Less Solenoid 9—DC Latching Solenoid	6—1½" (40mm) 8—2" (50mm) 0—3" (75mm)

Options for P-220 Series

EZR-30	EZReg, 5–30 psi Regulator Module
EZR-100	EZReg, 5–100 psi Regulator Module
RW60-Kit	Recycled Water (Lavender) Solenoid Assembly (24 V ac, 60 Hz) and Warning Tag)
DCLS-P	Potted DC Latching Solenoid Assembly

Example: A 1" (25mm) P-220 Series plastic electric, pressure-regulating valve with a 60 Hz solenoid, would be specified as: **P220-27-04**

Note: Less solenoid available in 1" (25mm), 1½" (40mm), 2" (50mm) and 3" (75mm) electric NPT and BSP versions only.

Combined internal and external (flush) manual bleed screw

Ergonomic manual flow control handle

EZReg® pressure-regulating module or port plug

Standard Schrader valve for operating pressure readings

Anchored studs and nut design

Tough GPN bonnet 220-psi rating

Globe and Globe/Angle for 1" to 3" sizes

Aerospace locknut

Spike-Guard™ solenoid with box plunger and spring

Debris skirt

Internal manual bleed

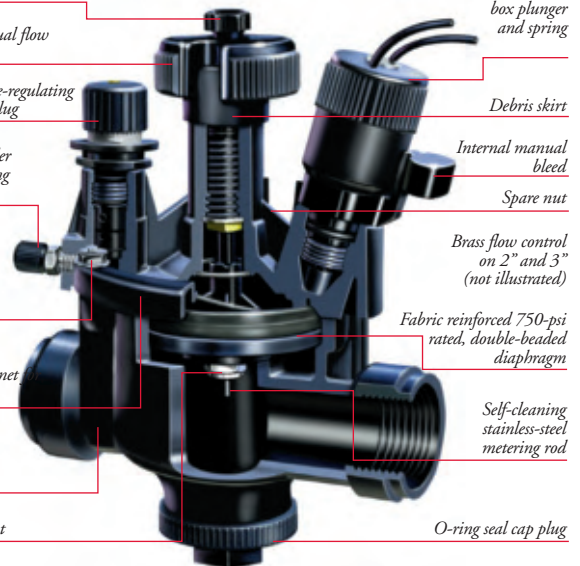
Spare nut

Brass flow control on 2" and 3" (not illustrated)

Fabric reinforced 750-psi rated, double-beaded diaphragm

Self-cleaning stainless-steel metering rod

O-ring seal cap plug





**WATER
SMART**

Solutions for Smart Irrigation

For more than 80 years, Toro has been the leader in producing innovative irrigation technologies for residential, municipal, commercial, industrial, and sports field applications. Water conservation is a challenge that Toro takes seriously. The controller is one part of an irrigation system.

Look for these other products to give you a complete WaterSmart irrigation solution:



RAINSENSORS

- Cost-effective wired RainSensors
- Wireless RainSensors with Water Conservation Modes that intelligently extend the irrigation delay and save more water than traditional sensors
- Wireless RainSensors with LCD for easy programming and setup including signal strength and battery-life bar graphs
- Wireless Rain/Freeze Sensors with digital freeze setpoint

TFS FLOW SENSORS

- Plastic Tee Sizes from 1/2" to 4"
- Options for accurate flow sensing down to 1.2 GPM
- Accurate flow sensing for water use tracking or monitoring for system damage
- Compatible with competitor control systems



570 SERIES SPRAYS

- X-Flow Shutoff - eliminates wasted water if nozzle mowed off or vandalized
- In-riser Pressure Regulation maximizes irrigation efficiency and saves water at the same time
- Zero Flush Seal
- Matched Precipitation Rate Nozzles
- Variable Arc Nozzles

TR50/70 ROTORS

- Trujectory Adjustment - allows fine tuning radius requirements for the exact area
- TruArc Adjustment
- MPR Nozzle Set - allows running various arcs together while maintaining the same precipitation rate
- X-Stop Shutoff
- Full-circle and Part-circle Adjustments
- Pre-installed Check Valve



VALVES

- EZReg Pressure Regulation
- Manual Flow Control
- Anti-Siphon Feature
- Brass, Glass-filled Nylon, or Plastic construction

MICRO-IRRIGATION

- DL2000 drip line with ROOTGUARD
- Pressure Compensating Emitters
- Self-flushing emitters
- Micro-sprinklers



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The Toro Company • Irrigation Division

An ISO 9001 Certified Facility

5825 Jasmine St. Riverside, CA • 92504 • 877.345.TORO (8676)

P/N 490-3166 Specifications subject to change without notice.

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