

# Humphrey 590 Series Electric Air Valves

Humphrey 590 Series electric air valves are of double diaphragm poppet design. Because these "no-stick" valves require no lubrication, they are ideal for use with instrument air and other media which prohibit lubrication. The use of lubrication, however, will not prevent a 590 Series valve from functioning if the lubricant is varied or removed.

590 Series electric valves have no sliding seals subject to cuts or metal seals subject to scratches, so they are also ideal for use with contaminated media and are unaffected by compressor varnish. Constructed of lightweight anodized aluminum, these valves offer 0.625 inch orifices for high flow (312 scfm at 125 psig). 590 Series electric valves are two-position, 2-way or 3-way, single- or double-solenoid valves. They are designed for rugged duty and rapid cycling and can be mounted in any position with body mounting holes.



**590E1** 590E1-3-10-36  
Model 590E1 is a single-solenoid, maintained-contact, spring-return, 2-way or 3-way valve available either normally closed or normally open.



**590AE1** 590AE1-3-10-36  
Model 590AE1 is identical to the 590E1 but has an external air pilot connection for the valving of media below 30 psig. The valve isolates pilot air from valved media such as water, oil, instrument air, or gases.



**590E2** 590E2-3  
Model 590E2 is a double-solenoid, momentary-contact, maintained-position, 2-way or 3-way valve. If AC coils are to be energized longer than 30 seconds, specify Code CD (Continuous Duty) Coils. All coils for DC voltages are Code CD.



## Options for 590 Series Electric Valves

When ordering specify desired option.

- Cover Seal (Code 61) for dirty or wet conditions.
- Continuous Duty Coils (Code CD) for double-solenoid valves.
- Viton A Diaphragms for resistance to mild chemicals and for sustained temperatures to 400°F (204.4°C) and intermittent temperatures to 600°F (315.5°C).
- Brass Body.

## Specifications

**MEDIA:**  
Compressed Air (Consult factory for others)

**PRESSURE RANGE:**  
**E1/E2:** 30 to 125 psig (2.1 to 8.6 bars)  
**AE1/AE2:** 0 to 125 psig (0 to 8.6 bars)  
**External pilot pressure (AE1/AE2):** Equal to valved pressure 30 psig (2.1 bars) Minimum.

**TEMPERATURE RANGE:**  
0 to 125°F (-17.8 to 51.7°C)

**OPERATING SPEEDS:**  
To 600 CPM

**MATERIALS:**  
Cast Aluminum & Brass, Machined Aluminum & Brass, Stainless Steel, Zinc Plated Steel, Buna N

**LUBRICATION** ..... Not required  
**FILTRATION** ..... Not required

### Air Flow to Atmosphere

MODEL	30 PSIG (2.1 BARS)		120 PSIG (8.3 BARS)		Weight	
	CFM	LPM	CFM	LPM	ACTUAL LBS	KGS
590E1/E2	95.0	2688.5	283.0	8008.9	2.1	0.9

### Electrical Specifications

MODEL	VOLTAGE	COIL NUMBER	WATTS	AMPS	OHMS	HEAT RISE (°C)	ON TIME SECONDS	OFF TIME SECONDS
590E1	24 DC	46-8A	6.7	0.296	86	85.9	0.046	0.050
	120 AC	46-4	8.2	0.161	255	102.0	0.034	0.042
590E2	24 DC	46-8A	6.7	0.296	86	85.9	0.039	0.042
	120 AC	46-4	8.2	0.161	255	102.0	0.009	0.041

See Electric Air Valves Introduction, Continuous Duty Coils, for additional voltages.

### Fill/Exhaust Times (Seconds)

MODEL	SUPPLY PRESSURE							
	At 50 psig (3.5 bars)				At 100 psig (7.0 bars)			
	Chamber Fill 0-40 psig (0-2.8 bars)		Exhaust 50-10 psig (3.5-7 bars)		Chamber Fill 0-80 psig (0-5.5 bars)		Exhaust 100-20 psig (7.0-1.4 bars)	
	10 Cubic Inches (164cc)	100 Cubic Inches (1640cc)	10 Cubic Inches (164cc)	100 Cubic Inches (1640cc)	FILL	EXHAUST	FILL	EXHAUST
590E1/E2	0.063	0.069	0.100	0.185	0.063	0.070	0.118	0.225

