



### Theory of Operation

The Erie Pop Top actuators are two-position valve series with spring return actuators. When powered, the actuator moves to the desired end stop position, tensing the spring return system. When power is removed the actuator returns to the normal rest position. The Erie AG/AH Pop Top series actuators can be purchased with a built in auxiliary SPDT end switch for interfacing or signaling the end stop valve position to other equipment.

### Maintenance

PopTop Series two position spring return valves are maintenance free. Replace defective modules. Actuator may be replaced without removing the valve. Regular maintenance of the total system is recommended to assure sustained, optimum performance.

### Part Number Ordering

#### Valves

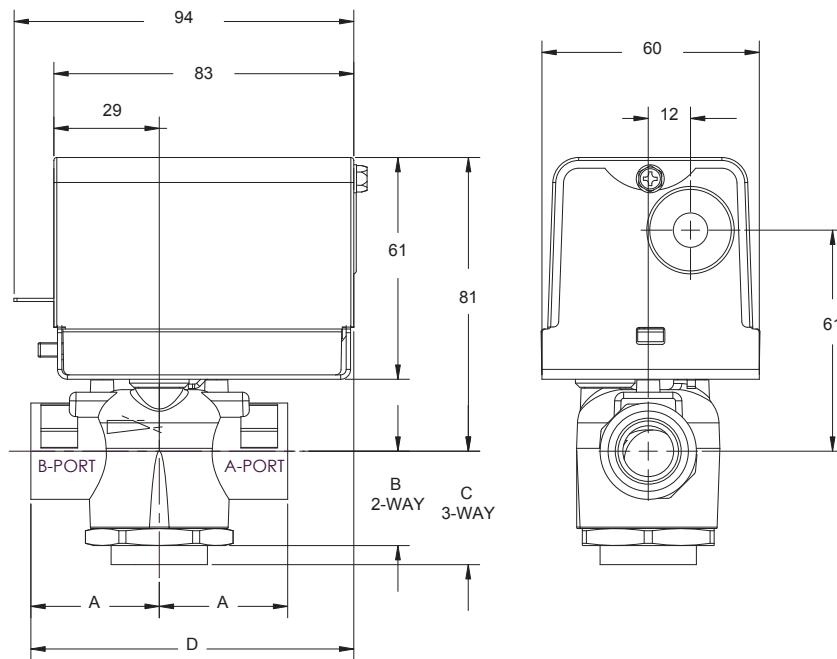
Part Number	Thread	Kvs	Max. ΔPc (kPa)	
			AG Actuator	AH Actuator
2-Way Threaded Valve Bodies				
VT2231	1/2 Rp	0.85	410	515
VT2232		2.2	275	340
VT2233		3	170	205
VT2332	3/4 Rp	2.2	275	340
VT2333		3	170	205
VT2335		4.3	135	170
VT2337		6.5	115	135
VT2437	1 Rp	6.9	115	135
3-Way Threaded Valve Bodies				
VT3231	1/2 Rp	1.3	410	515
VT3232		2.6	275	340
VT3233		3.5	170	205
VT3332	3/4 Rp	2.6	275	340
VT3333		3.5	170	205
VT3335		4.3	135	170
VT3337		6.5	115	135
VT3437	1 Rp	6.9	115	135

#### Actuators

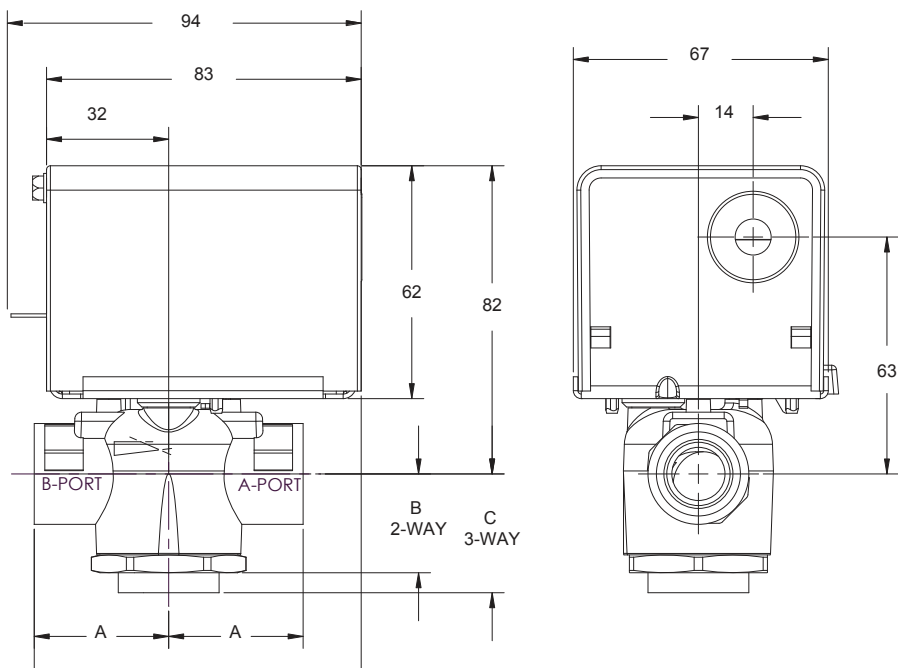
Part Number	Voltage	End Switch	Control	Spring Return Valve Function	Cable
General Close Off Actuators					
AG13A230	24 Vac	-	Two position	Normally Closed	910 mm (36")
AG13A23A		yes			910 mm (36")
AG13U230	230 Vac	-			910 mm (36")
AG13U23A		yes			910 mm (36")
AG23A230	24 Vac	-		Normally Open	910 mm (36")
AG23A23A		yes			910 mm (36")
AG23U230	230 Vac	-			910 mm (36")
AG23U23A		yes			910 mm (36")
High Close Off Actuators					
AH13A230	24 Vac	-	Two position	Normally Closed	910 mm (36")
AH13U230	230 Vac	-			910 mm (36")
AH13U23A		yes			910 mm (36")

**DIMENSIONS (mm)**

VT/AG Assembly



VT/AH Assembly

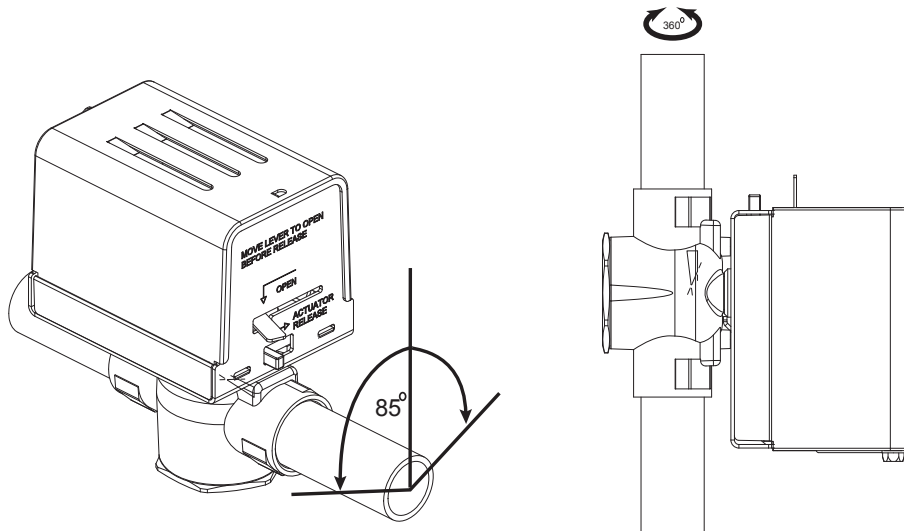


Valve Body Size	A	B	C	D (VT/AG)	D (VT/AH)
1/2 Rp	35	23	33	86	92
3/4 Rp	43	23	37	92	102
1 Rp	47	25	43	94	105

## MOUNTING

The Erie motorized zone valve may be mounted in horizontal or vertical piping configurations.

When installed in horizontal piping, the actuator must be above the valve body. The actuator can be tilted left or right, but it must not be tilted below 85° from vertical.



## Installation Considerations

Install the valve so that the paddle closes against the direction of flow. Flow is from A to B. When installing the actuator to a normally closed valve, place the actuator in the manually open position using the manual operating lever. The first time the valve is operated electrically, the manual operating lever of the actuator transfers to the automatic position. Use the manual operating lever to flush the system after installation. The valves are designed for application in closed hydronic heating and cooling systems. High levels of dissolved oxygen and chlorine found in open systems may attack the valve materials and result in premature failure. Install over a drip pan if condensation in chilled water applications occurs.

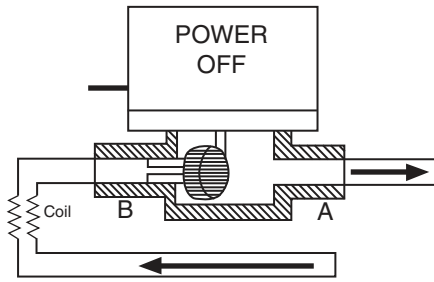
### CAUTION

Do not use in systems that have substantial make-up water (open systems). Follow proper water treatment practices and system procedures.

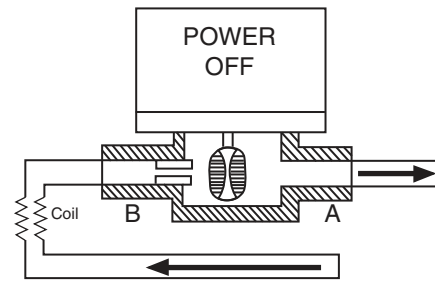
### NOTE

- Three-way valves always require a normally closed actuator.
- Three-way valves are always closed at the B port when no power is applied to the motor.
- On power-up, the valve closes to A port on three-way valves.
- Orientate the three-way valve body as needed for normally open or normally closed flow through the coil.

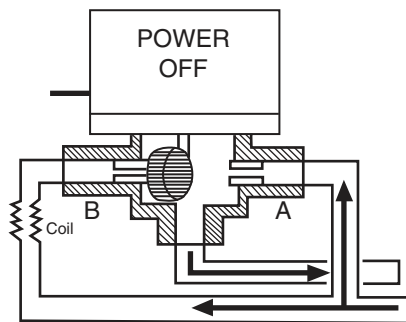
**Application Examples**



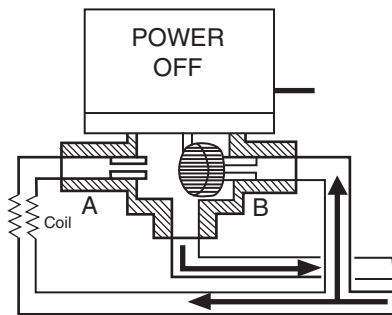
**2-Way Valve with Normally Closed Actuator**



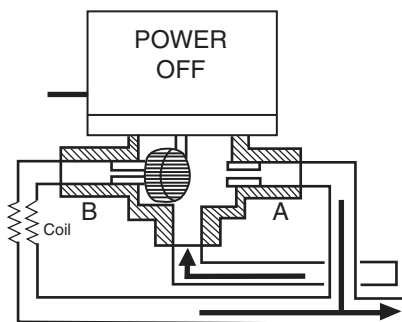
**2-Way Valve with Normally Open Actuator**



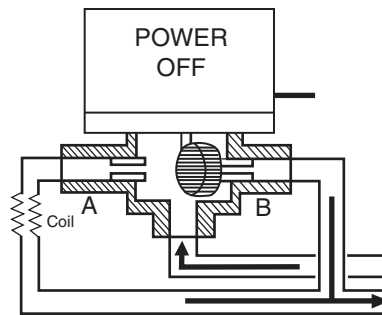
**3-Way Valve in Mixing Configuration, Normally Closed to the Coil**



**3-Way Valve in Mixing Configuration, Normally Open to the Coil**



**3-Way Valve in Diverting Configuration, Normally Closed to the Coil**



**3-Way Valve in Diverting Configuration, Normally Open to the Coil**

**NOTE**

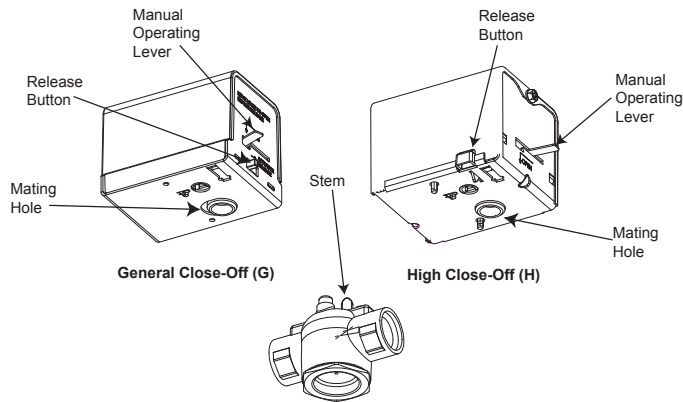
Three-way N.O. applications can be achieved when using a N.C. actuator, by piping the valve in reverse. The three-way examples above show normally closed actuators.

**Threaded Connections:**

Apply Teflon tape to all but the last two threads of male pipe thread. Hand screw the pipe into the valve, turning it as far as it will go. Use a wrench to fully tighten the valve to the pipe. Do not over tighten or strip the threads.

### Installing the Actuator Onto a Valve Body

Slowly latch the manual operating lever in the open, engaged position (AG1 or AH1 only). Depress the release button. Align the body with the actuator to ensure the stem is inserted into the large mating hole on the bottom side of the actuator. Engage the actuator on the body and release the button.



#### CAUTION

Do not use the valve body to manually open the actuator as damage to the valve actuator will result.

#### Installation Checks

1. Make sure the valve stem rotates freely before and after installing the actuator.
2. If the stem does not operate freely it may indicate that the stem was damaged and may require replacement of the valve.
3. After the piping is under pressure, check the valve body and the connections for leaks.
4. After the valve and actuator are installed, power the actuator and check the operation.