

ESP Zone Valve

The Taco ESP is the most intelligent zone valve in the world. The unique patented technology in the ESP utilizes a microcircuit based logic to control a gear driven, capacitor powered actuator which drives a ball valve based body design. All this adds up to a zone valve that leads the industry in flow rate capacity, shutoff pressure rating, ease of installation, energy efficiency, diagnostic capability, and the number of valves (12) that can be used per standard 40 VA transformer.



HYDRONIC COMPONENTS & SYSTEMS

Do it once.
Do it right.™ **Taco**®

The Taco ESP Zone Valve™

Driven by reliability.

The heart of the ESP Zone Valve™ is the **E**nergy **S**torage **P**rinciple. The ESP is a gear driven, capacitor powered valve. Its unique, patented technology replaces the typical spring with a Prostar Capacitor for returning the valve to its normal position. Moreover, the old style synchronous AC motor has been replaced with an exceptionally reliable high torque, high efficiency miniature motor. These Taco innovations replace two failure items, the synchronous motor and the spring, to deliver dependability you never thought possible.

The ESP thinks for itself.

Inside the fashionably black box is a microprocessor that monitors the valve's operations. When a thermostat calls, the processor makes sure the capacitor is fully charged, then sends power to the motor. The motor turns a set of gears that rotates the ball valve 90° to the Open position. Once at the Open position, the motor turns off. The LED remains lit as long as the thermostat is calling.

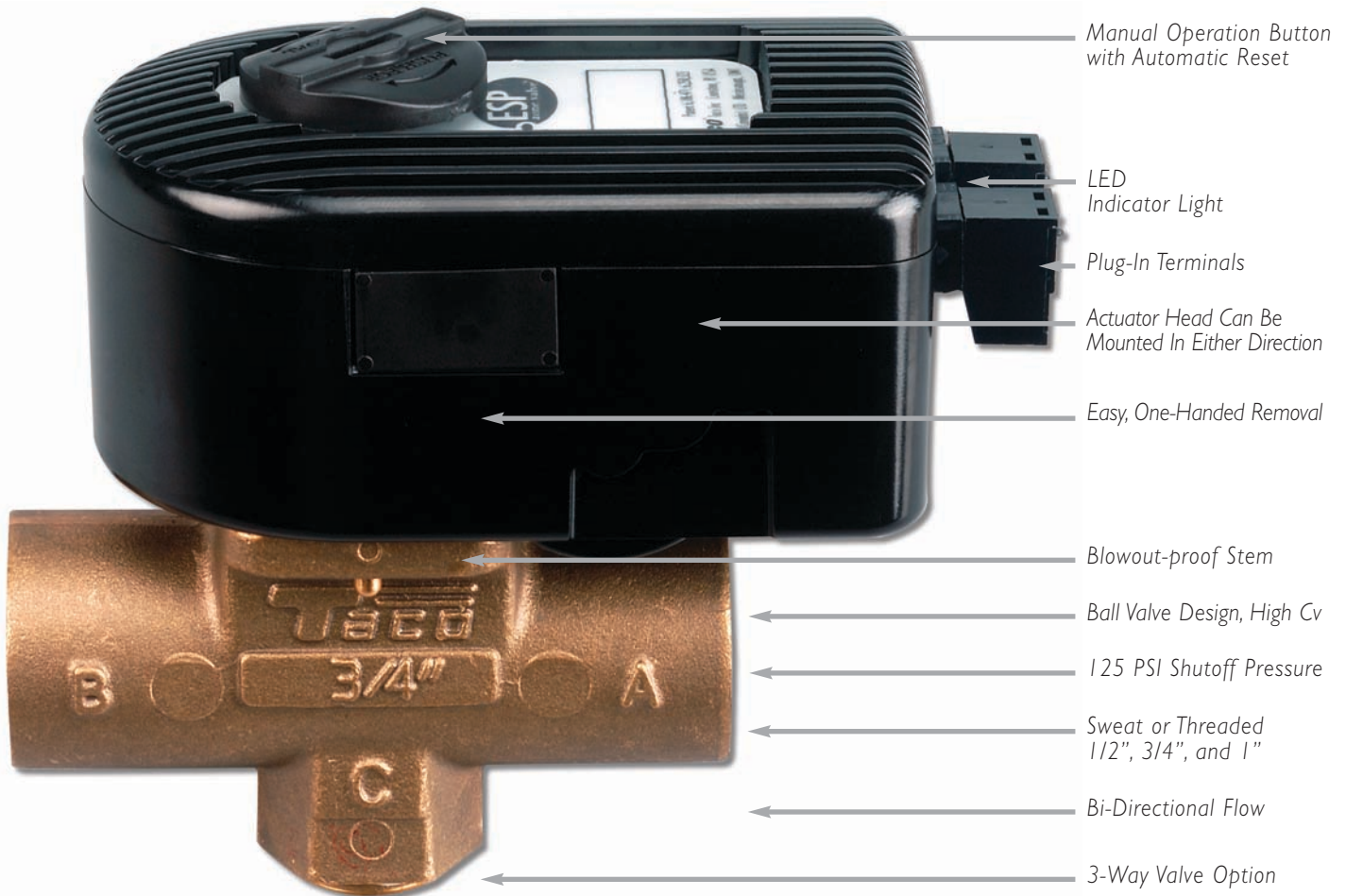
Once the zone has been satisfied, the capacitor discharges a portion of its stored energy and the motor turns the ball valve another 90° to the Closed position. An on-board optical sensor continuously ensures the proper Full Open and Full Closed position of the ball.

Universal thermostat compatibility.

No matter the brand or style of thermostat hanging on the wall, the ESP works with them all. Now you can get all the features you want in a zone valve and a thermostat without having to worry about compatibility issues.

Manual operation is a breeze.

No need to worry about stripping gears or damaging the spring with the ESP. With the push of a button, the gears disengage and the valve can be rotated in any direction, to any position. Just release the button and the gears re-engage. What's more, the valve automatically resets itself to the proper



Smart for a lot of reasons.

ball position once power is restored. So you can't leave the valve open by mistake.

Easy, easy, and easy.

Plug-in screw terminals make the ESP a breeze to install and operate. The valve can be installed in any direction, in any orientation, and features a dependable 1/4 turn one-handed twist lock for easy operator removal. The actuator head is a snap to replace, and can be mounted to the valve body in either direction, great for tight baseboard jobs.

Let there be light.

The external LED shows you the full functionality of the valve's operation and thermostat status, making it a perfect companion to Taco's line of electronic zone valve controls.

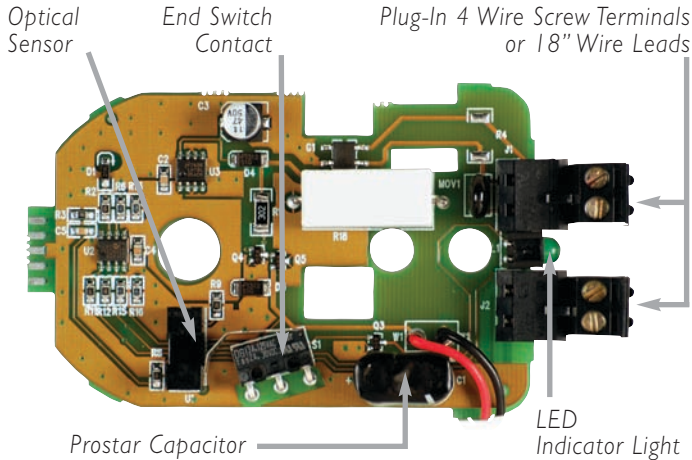
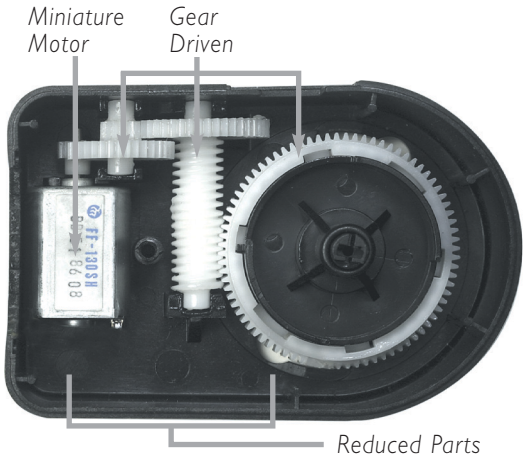
there's no bulky synchronous motor, the ESP has a lower profile to fit into tighter spaces. Last, the ESP features a universal actuator, so it fits all sizes of valves and reduces inventory.

Less is more.

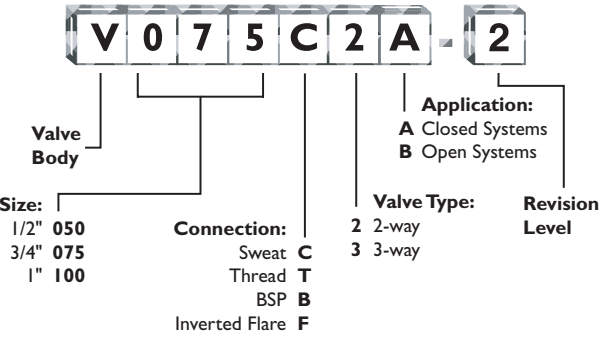
With the ESP, there are fewer parts to wear out, so the life of the valve is greatly increased. Microcircuit technology lowers the amp draw so you can install up to 12 valves per 40 VA transformer, or use a smaller transformer. Either way, you save on transformer costs. And because

A version for all of your needs.

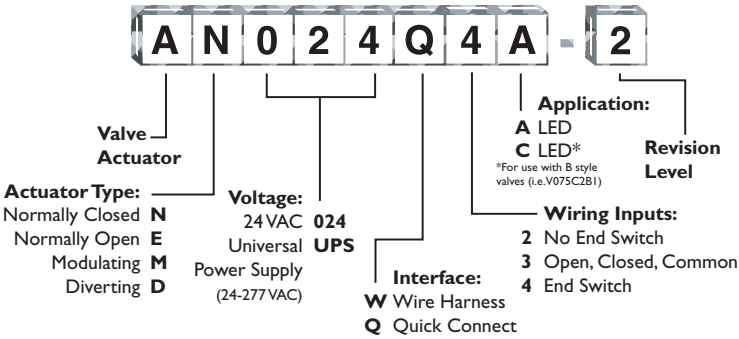
The high flow, low head loss characteristics of the ESP combined with its compact design and 125psi shutoff pressure rating makes the ESP the most flexible valve on the market today. No matter your application, there is an ESP Zone Valve to suit your needs.



Valve Body Numbering System



Actuator Numbering System



To order Body and Actuator as a complete assembly, drop the "A" from the Actuator: (Example:V075C2A2N024Q4A2)

Note: Certain combinations of valves and actuators may not be available. Consult Taco price sheet or a Taco sales representative for current models offered.

Quick Order Part Numbers

- ESP050C2-2 > 1/2" 2-Way, Sweat, 24 VAC, Normally Closed, 4 Input Quick Connects
- ESP075C2-2 > 3/4" 2-Way, Sweat, 24 VAC, Normally Closed, 4 Input Quick Connects
- ESP100C2-2 > 1" 2-Way, Sweat, 24 VAC, Normally Closed, 4 Input Quick Connects

Product Specifications

Maximum Operating Pressure	300 PSI (2,100 kPa)
Maximum Shutoff Pressure	125 PSI (875 kPa)
Fluid Temperature Range	20° to 240°F, (-7° to 115°C) @ 135°F (57°C) ambient
Service	Closed systems Hot and Chilled Water; up to 50% Glycol
Ball Rotation Speed	Full Open to Full Close (90° turn), 4 seconds Full Close to Full Open (90° turn), 6 seconds
Seat Leakage	Drop-Tight Close-Off
Electrical Rating	24 VAC, 60 HZ, 0.54 Amps Do not exceed number of valves per transformer rating. Example: Do not use more than 12 zone valves per 40VA transformer.
Power Consumption, Charging	12.84 Watts, 0.54 Amps Max
Power Consumption, Power On	1.44 Watts, 0.06 Amps Max
Heat Anticipator Setting	0.5 Amps
End Switch Rating	3 Amps @ 24 VAC

Materials of Construction, Actuator

Body	High Performance Engineered Polymer
Gears	High Performance Internally Lubricated Engineered Polymer

Materials of Construction, Valve

Body	Forged Bronze
Stem	Brass
Press Ring	Brass
Ball	Brass (Chrome Plated)
Seat	Modified Teflon
O-rings	EPDM

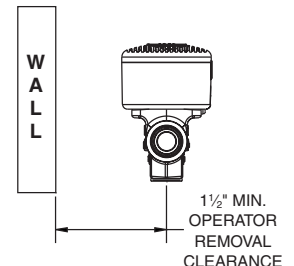
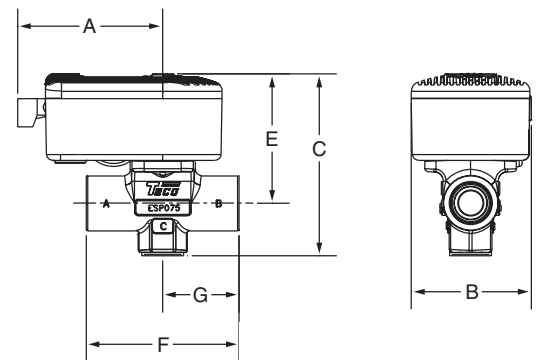
Flow Coefficients and Maximum Close-Off Pressure

VALVE SIZE	2-WAY Cv (Kv)/Ft. of PIPE EQUIV.*	3-WAY Cv (Kv)/Ft. of PIPE EQUIV.*	CLOSE-OFF PSI (kPa)
1/2"	4.9 (4.3) / 9.5	1.5 (1.3) / 101	0-125 psi (0-862 kPa)
3/4"	10.3 (8.9) / 8.4	3.3 (2.1) / 82	0-125 psi (0-862 kPa)
1"	8.9 (7.7) / 47.4	3.0 (1.9) / 417	0-125 psi (0-862 kPa)

* At 4' per second (max. recommended residential flow rate).

Dimensions

VALVE SIZE	A	B	C		E	F	G	WEIGHT (valve + actuator)	
			2-WAY	3-WAY				2-WAY	3-WAY
1/2"	3"	2-3/8"	3-9/16"	4-9/16"	2-9/16"	3-1/8"	1-9/16"	1.15 lbs	1.25 lbs
3/4"	3"	2-3/8"	3-3/4"	4-7/8"	2-5/8"	3-1/8"	1-9/16"	1.20 lbs	1.32 lbs
1"	3"	2-3/8"	3-11/16"	5"	2-5/8"	3-1/8"	1-9/16"	1.55 lbs	1.75 lbs



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