



**WHITE-RODGERS**

**TYPE 1361**  
**HYDRONIC ZONE VALVES**  
(2 WIRE)  
**INSTALLATION INSTRUCTIONS**

**Operator: Save these instructions for future use!**

**FAILURE TO READ AND FOLLOW ALL INSTRUCTIONS CAREFULLY BEFORE  
INSTALLING OR OPERATING THIS CONTROL COULD CAUSE PERSONAL  
INJURY AND/OR PROPERTY DAMAGE.**

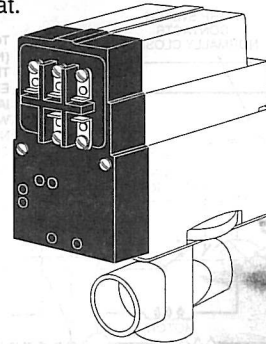
**DESCRIPTION**

These water valves provide a low cost system of zoned temperature control wherever hot water is the heating medium. In new construction, the heating piping system can be laid out to produce any number of independent temperature controlled zones by use of these valves.

In existing buildings, a variety of zone heating combinations can be obtained, depending on the particular -piping lay-outs. Each zone requires one water valve and one thermostat, **but only one circulator is required for the entire system.** New construction properly piped, will not require flow control valves, since the water valve itself performs this function.

Existing construction, where flow control valves have been installed, will operate quite satisfactorily without removing the existing flow control valves.

If in "Closed" position, valve may be opened by turning dial clockwise with your thumb until word "Open" appears. When power is resumed, valve will automatically return to command of room thermostat.



**PRECAUTIONS**

This zone valve motor is intended for use with a low voltage system; do not use this zone valve with a millivolt or line voltage system. If in doubt about whether your wiring is millivolt, line or low voltage, have it inspected by a qualified heating contractor or electrician.

Do not exceed the specification ratings.

All wiring must conform to local and national electrical codes and ordinances.

**⚠ CAUTION**

**To prevent injuries from scalding always drain system before unlatching valve assembly from body.**

**⚠ CAUTION**

**To prevent electrical shock and/or equipment damage, disconnect electric power to system at main fuse or circuit breaker box until installation is complete.**

**⚠ WARNING**

**Do not use on circuits exceeding specified voltages. Higher voltages will damage control and could cause shock or fire hazard.**

**SPECIFICATIONS**

**All guarantees are void if these specifications are exceeded.**

**Maximum water temperature:** 240°F (115°C)

**Maximum system pressure:** 50 PSI

**Differential across valve:** 15 PSI

**Electrical Rating:**

Valve motor: .2 Amp. Max at 25 VAC  
(.40 Amp.) when valve is in open position.

Auxiliary Contacts: Do not exceed 2.0 Amp. at  
25 VAC (Terminals 2 and 3)

**NOTE: The valve motor draws more than .2 Amp. while it is opening. For this reason, do not use more than the**

**recommended number of valves per transformer as shown on pages 3 and 4.**

**Thermostat:** Use two-wire thermostat with .2 Amp. anticipator

**Timing:** From full close to full open—Approx. 45 seconds

From full open to full close—Approx. 60 seconds

**Friction loss equivalents:**

3/4" valves – 2-1/2 ft. copper tubing

1" valves – 4 ft. copper tubing

1-1/4" valves – 7 ft. copper tubing

**PRINCIPLE OF OPERATION**

The zone valve is designed to turn in one direction, stopping every 90° in either the open or closed position, depending on thermostat demand. The motor position is controlled by a wafer switch attached to the motor shaft.

The contact arrangement of the switch is constructed so that when the shaft of the motor revolves 90° a new set of stationary and moving contacts makes, while the old set breaks. Fig.1. The schematic shows the valve in the closed position. As the



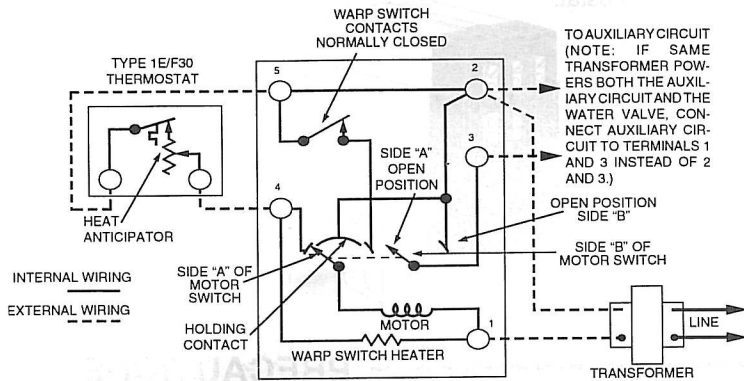
**WHITE-RODGERS DIVISION**  
EMERSON ELECTRIC CO.  
9797 REAVIS RD., ST. LOUIS, MO. 63123  
(314) 577-1300, Fax (314) 577-1517  
9999 HWY. 48, MARKHAM, ONT. L3P 3J3  
(905) 475-4653, FAX (905) 475-4625

Printed in U.S.A.

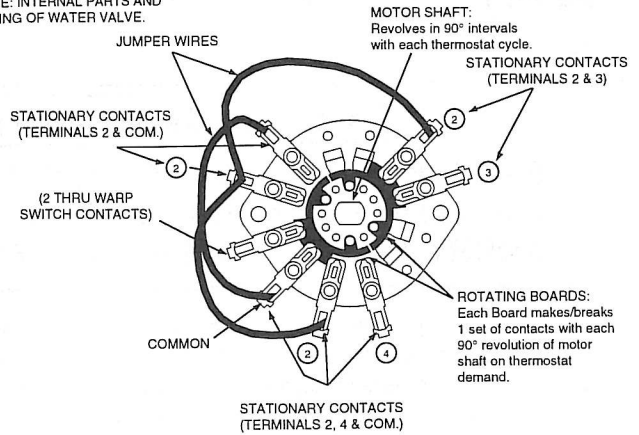
**PART NO. 37-5422B**  
Replaces 37-5422A  
9812

## PRINCIPLE OF OPERATION (CONT.)

thermostat calls for heat, the valve motor is energized by a circuit made through side "A" of the motor switch to terminal "4". Fig. 2. (At the same time, a circuit is made through the warp switch heater.) As the valve begins to open, side "A" of the motor switch makes with a "holding" contact and then breaks from the stationary contact wired to terminal "4". The "holding" contact provides a circuit which prevents the valve from stopping part way through its cycle if the thermostat is changed to the satisfied position. As the valve reaches the full open position, side "B" of the motor switch closes, providing a low voltage auxiliary circuit for starting the burner or circulator. At the same time side "A" of the motor switch makes a circuit through the warp switch contacts to terminal "2". The valve does not continue to rotate since the warp switch opened its contacts before the valve reached the full open position. The warp switch heater remains energized as long as the thermostat calls for heat.



NOTE: INTERNAL PARTS AND WIRING OF WATER VALVE.

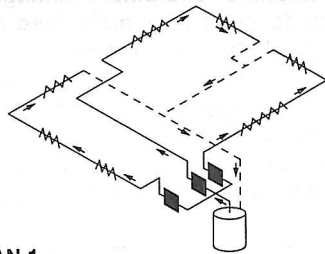


(Valve is shown in the open position)

Fig. 1

When the thermostat is satisfied, the circuit through the warp switch heater is broken, allowing the heater to cool. When the warp switch contacts close, the valve motor is energized, and drives the valve to the closed position. As the valve begins to move to the closed position, side "A" of the motor switch makes the holding circuit. Then side "B" of the motor switch breaks the auxiliary circuit and side "A" of the motor switch makes contact "4" then breaks the holding circuit stopping the valve (in a fully closed position).

## PIPING

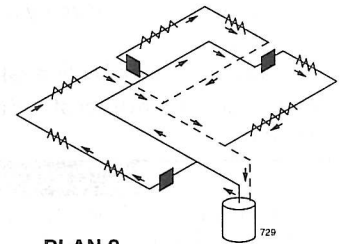


PLAN 1

Water valves installed at the boiler header to provide a separate supply to each zone.

The two most commonly used piping systems are shown below. Plan 1 is popular for new installations, while plan 2 is frequently used when converting two-pipe systems.

This valve does not seal completely. A small amount of leakage through valve is permitted. The amount depends on valve size and pressure differential across closed valve. **Do not use if your application requires complete seal off.** Maximum leakage at rated differential is two, four or six gal. per hour for 3/4", 1" or 1-1/4" valves, respectively.



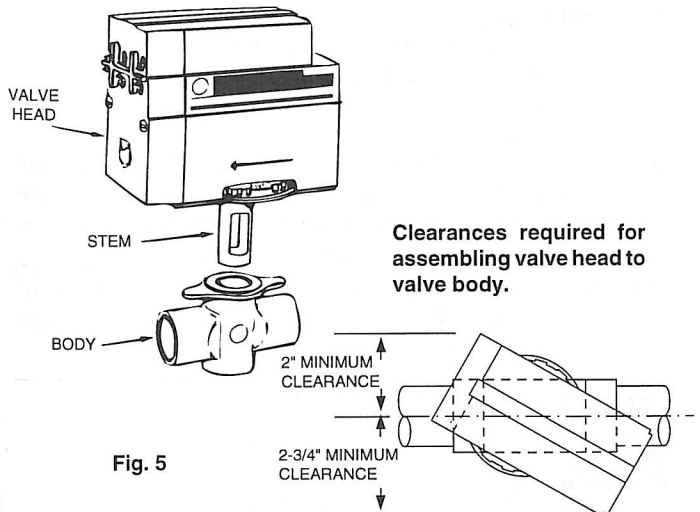
PLAN 2

A common main supplies all zones, with a water valve installed on the riser to each zone.

## INSTALLATION

**ALL GUARANTEES ARE VOID IF THE VALVE IS NOT ASSEMBLED ACCORDING TO THESE INSTRUCTIONS.**

1. Remove body assembly **only** from shipping carton. Valve head and stem should be left in carton at this time for protective purposes. **Do not assemble head to body before attaching body into line.**
2. Mount the valve body in the line in any desired position **except upside down.** **CAUTION:** Provide the necessary clearances for turning valve head sideways when assembling it to valve body (see fig. 5). Note that terminal end of valve head requires more clearance.



Clearances required for assembling valve head to valve body.

### CAUTION

Use only silicone grease, water, or soap suds on O-ring or Valve Body to facilitate assembly. Use of vaseline or any petroleum grease or oil will cause O-ring to deteriorate.