

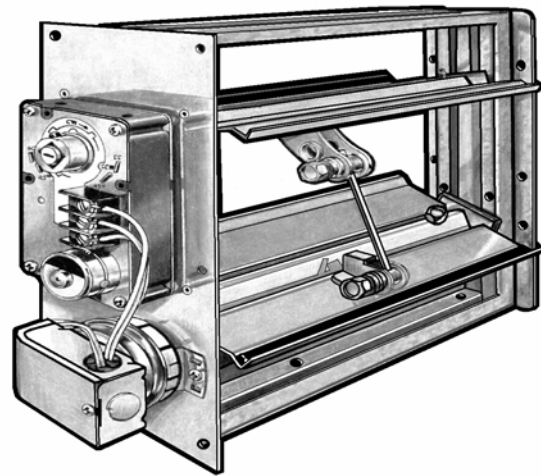
## 3092 Rectangular Bypass Damper

VAV systems control the temperature within a space by varying the volume of supply air. The system delivers air to the space at a fixed temperature. The space thermostat controls the volume of supply air by modulating the supply air damper. As individual zone dampers, diffusers or boxes open and close, system pressure will rise and fall. The Young Regulator 3092 Bypass Damper with static pressure controller regulates the total air flow in the system by diverting the excess air through the bypass into the ceiling plenum for free or ducted return.

Bypass dampers should be used when modulating dampers handle more than 30% of the total airflow of a constant volume system. The Young Regulator 3092 will minimize the chance of over pressurizing the air ducts, improve the performance of modulating dampers and decrease sound levels throughout the HVAC system. Ducting excess air back to the unit will recycle conditioned air to reduce energy consumption and protect the coils from freezing.

### FEATURES

- Approximately ½ the cost of conventional bypass systems. New, low cost solid-state static pressure control design.
- Solves the noise and draft problems caused by increases air velocity inherent in systems using barometric type dampers.
- Units are factory assembled and prewired with only 2 field connections.
- Sensing probe and tubing included.
- Motor change is quick and easy.
- Pressure set point range .17" to 2".
- Can be used as an in-line pressure reducing damper.
- Heavy-duty construction features frames and blades fabricated from galvanized steel.
- Permanently lubricated oilite bronze press fit bearings.
- Equipped with position indicators.
- Built-in LED lights and time delay simplify field adjustment of pressure control.

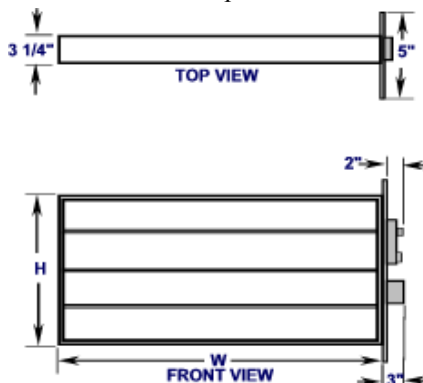


### OPERATION

An increase in static pressure is sensed by the built in static pressure sensor/controller through the probe. At the desired static pressure, sensed by the solid-state pressure controller and adjustable by the installer, the 90 second 24-volt 2.0 VA motor will begin to modulate the damper open to relieve the excess air flow and pressure. The damper will open until the desired static pressure is attained. Damper blade will stall and pressure will be maintained until another change in pressure. If zones are satisfied and more zone dampers close, bypass damper will open further. If zones require more air and zone dampers open, bypass damper sensor will sense a decrease in pressure and the bypass damper will close. A 30 second delay is built into the controller to protect the motor and static pressure switch from short cycling on the close.

### AVAILABLE SIZES – OPTIONAL CONSTRUCTION

Standard sizes range from 12" x 8" through 48" x 48". Please call the factory for intermediate and larger sizes. Type 304 stainless steel option available.



### 3092 RECOMMENDED SIZES FOR PRESSURES

TONNAGE	RECOMMENDED DAMPER SIZE
3-3.5	12" x 8"
4-5	12" x 12"
7.5-10	14" x 12"
12.5	18" x 12"
15-17.5	24" x 12"

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## GENERAL INSTRUCTIONS FOR BYPASS DAMPER ASSEMBLY

### HOW THE BYPASS SYSTEM WORKS

As the individual zone dampers open and close, the system static pressure will rise and fall. In order to maintain proper air flow and static pressure through the HVAC system, a bypass system incorporating a reversible type motorized damper and a static pressure control is used. The static pressure control is equipped with solid state switching and time delay to enhance its operation and improve its reliability.

### INSTALLING THE BYPASS DAMPER AND STATIC PRESSURE CONTROL ASSEMBLY

The bypass damper should be installed with the bypass air being discharged into the return air plenum or above the ceiling if this area is used as a common return (see drawing). The bypass damper must be installed so that the diaphragm of the static pressure control is in the **vertical position**. The high-pressure side of the static pressure control should be connected to the sensing tube and inserted in the main supply plenum, downstream of the bypass damper and at least 2 to 3 feet from the air handling unit in a straight section of duct at the center line. The sensing tube furnished is a 7" (18cm) length of 1/4" (6mm) O.D. rigid tubing to be connected to the pressure control with 3/8" O.D. plastic tubing, inserted and sealed 6" (15cm) into the duct. The sensing tube, plastic tubing, and mounting fittings are furnished with damper assembly.

### ADJUSTING THE STATIC PRESSURE CONTROL

Before adjusting the pressure control, the installer should confirm the following:

1. that the HVAC system has been properly balanced.
2. that all zone dampers are in the open position.

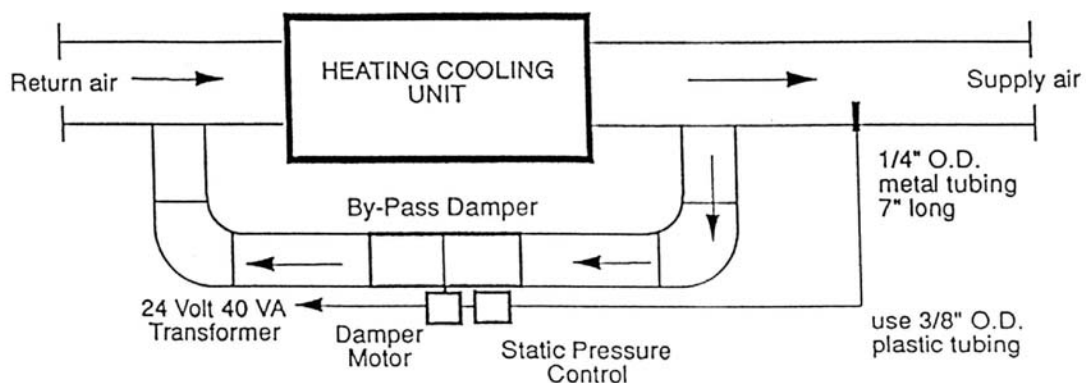
### HOW TO PROCEED

With the air handler running and the bypass damper system powered, turn the static pressure adjusting screw clockwise until the bypass damper just starts to open (green light on) then turn the adjusting screw counter clockwise just enough so that the green light goes out and the damper is fully closed.

### SPECIFICATIONS FOR BYPASS DAMPERS

- Pressure Set Point Range: .17" to 2" (4.3 to 50.8mm) W.C.
- Sensing Element: Neoprene diaphragm
- Electrical Connections: Two field connections.
- Pressure Connections: Barbed for 3/8" O.D. plastic tubing.
- Case: All metal with 1/2" conduit opening.
- Mounting: Damper to be installed with controller diaphragm in a vertical position.

### BYPASS DAMPER AND STATIC PRESSURE CONTROL ASSEMBLY



Note: Bypass damper must be installed so that the diaphragm of the static pressure control is always in the vertical position.

This drawing of bypass damper, static pressure control and related duct work is intended to serve only as a guide. Your actual duct work layout may differ substantially.