

# Fisher™ 6010 -- 6015 and Whisper Disk Diffusers

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Figure 1. Typical Fisher Inline and Vent Diffusers



Table 1. Specifications (for Standard Designs)

<p><b>Available Configurations</b></p> <p>6010: Inline diffuser (with integral outlet head)          6011: Inline diffuser (pipe-style)          Whisper Disk: Inline diffuser (flat plate)          6012: Drilled-hole Vent diffuser          6013: Drilled-hole Vent diffuser (with outer shell)          6014: WhisperFlo disc style          6015: WhisperFlo disc style (with outer shell)</p> <p><b>Sizes</b></p> <p>6010: NPS 1 x 3 to NPS 26 x 48 (inlet x outlet)          6011: NPS 2 to NPS 30          Whisper Disk: NPS 2 to NPS 24          6012: NPS 2 to NPS 26          6013: NPS 2 to NPS 26 (outer shell NPS 4 to 36)          6014: Sizes are available to meet your application (see bulletin 80.3:6014)</p>	<p>6015: With outer shell. Sizes are available to meet your application (see bulletin 80.3:6014)</p> <p><b>End Connections</b></p> <p>6010: Any combination of flanged (raised-face, ring-type joint, and flat-face) or welded end (buttweld or socket weld)          6011: Wafer flanged          Whisper Disk: Raised-face or ring-type joint flanged          6012 and 6013: Raised-face flanged, ring-type joint flanged, or buttweld end          6014 and 6015: Raised-face flanged, ring-type joint flanged, or buttweld end</p> <hr/> <p><b>Note</b>          Inline and vent diffusers are not hydrostatically tested.</p>
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## Introduction

### Scope of Manual

This instruction manual includes operation, installation, and maintenance information for the following diffusers:

- 6010, 6011, and Whisper Disk Inline Diffusers. See figure 1
- 6012 and 6013 drilled-hole vent diffusers. See figures 2 and 3
- 6014 and 6015 WhisperFlo disc style vent diffusers. See figures 4 and 5

Do not install, operate, or maintain these diffusers without being fully trained and qualified in valve, actuator, and accessory installation, operation, and maintenance. To avoid personal injury or property damage, it is important to carefully read, understand, and follow all the contents of this manual, including all safety cautions and warnings. If you have any questions about these instructions, contact your [Emerson sales office](#) or Local Business Partner before proceeding.

### Description

Inline and vent diffusers are installed to provide backpressure for control valves, which greatly reduces control valve noise generated by steam, gas, or vapor flow applications. Inline diffusers are placed downstream of the valve and are either placed in or between pipe. Vent diffusers are placed downstream of the valve and vent process to the atmosphere. Fisher inline and vent diffusers are used in gas, vapor, and steam applications.

## Principle of Operation

Inline and vent diffusers are custom designed to match a wide range of valve outlet and/or pipeline size. Furthermore these diffusers are selected to match the application specific conditions including temperature, pressure, and flow capacity. The flexibility of the diffuser types and placement provide a range of installation possibilities. The diffuser is not required to be installed adjacent to the control valve.

The 6010 is an inline diffuser that fits between two different sizes of pipe to meet both downstream and upstream pipe sizes with an integral outlet head. The 6011 is a pipe-style inline diffuser that extends into existing pipe using a wafer flange connection. The Whisper Disk is a flat plate-style inline diffuser that is available with a raised-face flanged connection. The 6012, 6013, 6014, and 6015 are vent diffusers that are designed to reduce noise during process venting applications.

## Piping Considerations

Upstream piping should be the same nominal diameter as the diffuser inlet connection and vice versa.

The drilled hole pattern of the Whisper Disk inline diffuser must be within the inside diameter of the mating flange schedule.

Reducers or elbows are not recommended downstream unless they are at least four to five downstream pipe diameters downstream of the diffuser outlet.

## Installation

Before installation, all piping to the diffuser must be blown clean, so that no particles, such as welding beads, dirt or other foreign matter, are left in the pipeline. Keep foreign matter away from the line openings while preparing the diffuser for installation.

### CAUTION

**Cleanliness of the upstream piping is critical. Debris in the piping can damage the diffuser and severely restrict flow, causing overpressure.**

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Inspect the inside of the diffuser and clean if necessary.

Arrange a lifting sling around the diffuser to safely place it into the mounting position.

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### Note

To avoid flow interaction and reduce noise in 6012, 6013, 6014, and 6015 vent diffuser applications, do not install diffusers in close proximity to support structures and ensure that adjacent diffusers are installed at different heights.

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6013 and 6015 diffusers with shell are provided with mounting brackets for wind and side loads. These mounting brackets also provide support, so the entire weight of the diffuser is not on the inlet connection. The end-user shall provide the necessary support structure to interface with the provided mounting brackets on the diffuser.

**Flanged Connections**—For high temperature applications, grease the flange connection bolts with a high temperature thread lubricant. Install flange gaskets and connection bolts per accepted practices and tighten securely.

Re-tighten bolts after the diffuser has been pressurized. Do not expose the diffuser to undue stresses by installing it in bent pipes or bent flanges.

**Welded Connections**—Welding procedures should be in accordance with the applicable codes and the base materials. For preheat, welding electrodes, and post-weld heat treatment, refer to the standard applicable codes and practices. Materials are specified on the diffuser specification sheet that is delivered together with the diffuser.

## Maintenance

### Servicing

The diffuser has no serviceable parts. However, during routine maintenance intervals it is important to inspect the diffuser for damaged or cracked welds (exclusive of the Whisper Disk diffuser). Your local Emerson Automation Solutions Instrument and Valve Services office can help determine the correct course of action if damage is present. The diffuser is normally welded or bolted in line and not removed unless it requires cleaning or replacement due to damage or wear.

In the event the diffuser is not performing as expected, a bore scope can be used to examine the flow passages for blockages without the need for disassembly and removal. If blockages are present, cleaning can be performed by removing the unit by either cutting of the welds or removal of bolting and using a pressurized water stream to clear any blockages. If blockages are still present after cleaning, the unit will need to be replaced.

## Troubleshooting

Table 2 is intended as a basic first line troubleshooting guide. Contact your [Emerson sales office](#) or Local Business Partner for assistance if you are unable to resolve your field operation problem.

Table 2. Troubleshooting Guide

Problem	Possible Solution
Anticipated backpressure is not reached.	Review valve conditions and opening percentage
	Check for process flow changes and/or Inspect unit.
	Inspect flow passages in diffuser for blockage, clean if necessary
System noise and vibration have suddenly increased above previous levels.	Review operating history to check for process flow changes. Inspect unit.

## Parts Ordering

There are no serviceable spare parts for this unit.

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### Note

Each diffuser is assigned a serial number that can be found on the unit. Refer to the serial number when contacting your [Emerson sales office](#) or Local Business Partner for technical assistance.

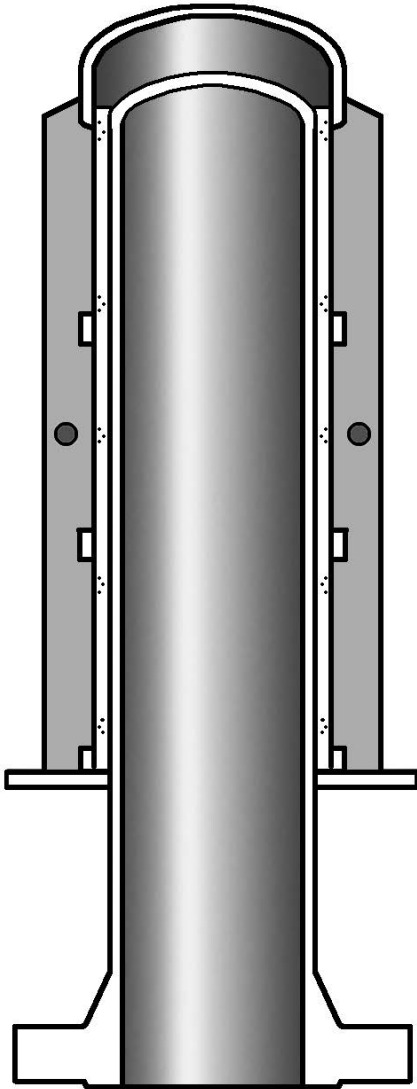
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### WARNING

**Use only genuine Fisher replacement parts. Components that are not supplied by Emerson Automation Solutions should not, under any circumstances, be used in any Fisher valve, because they may void your warranty, might adversely affect the performance of the valve, and could cause personal injury and property damage.**

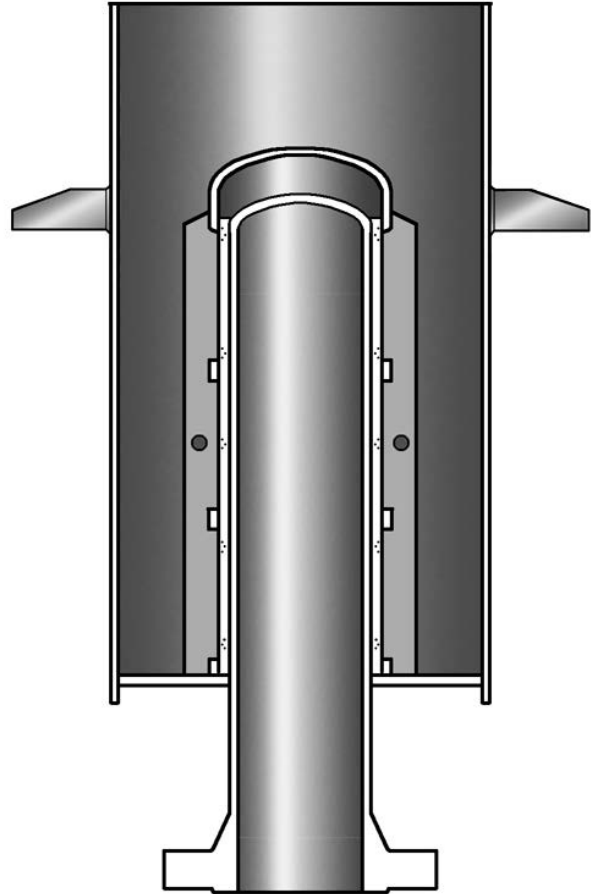
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Figure 2. Fisher 6012 Vent Diffuser



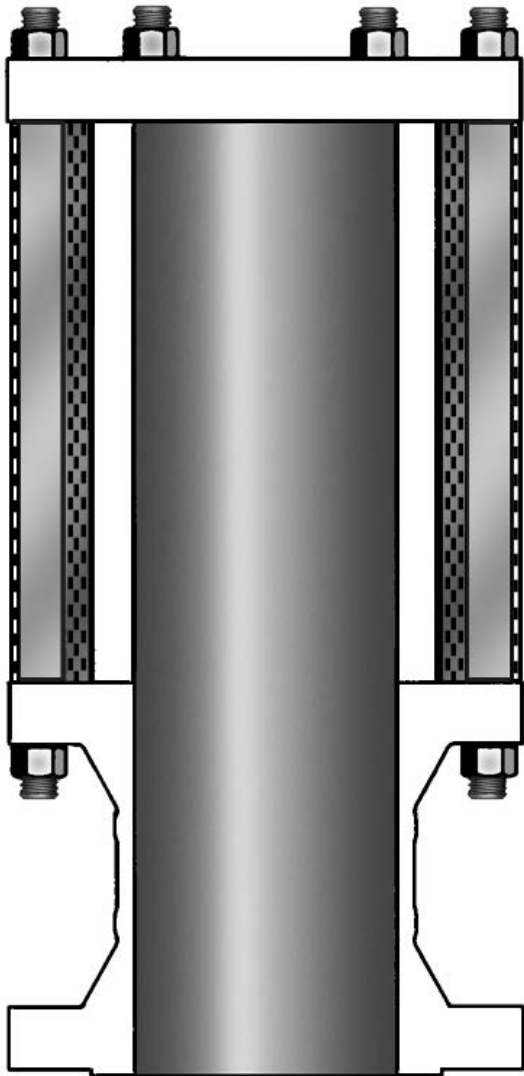
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Figure 3. Fisher 6013 Vent Diffuser



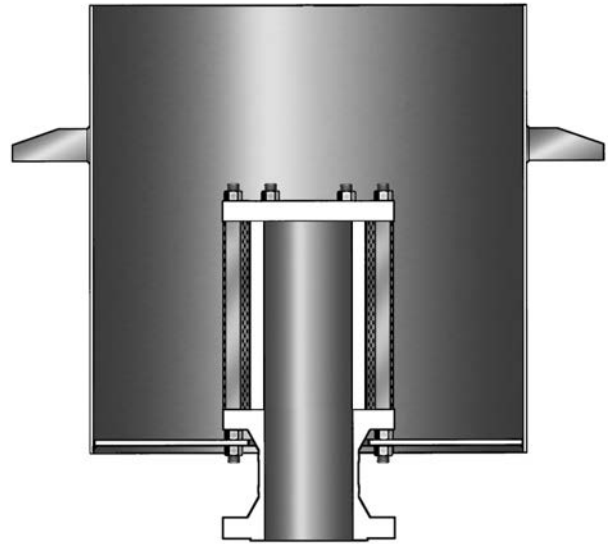
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Figure 4. Fisher 6014 Vent Diffuser



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Figure 5. Fisher 6015 Vent Diffuser



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