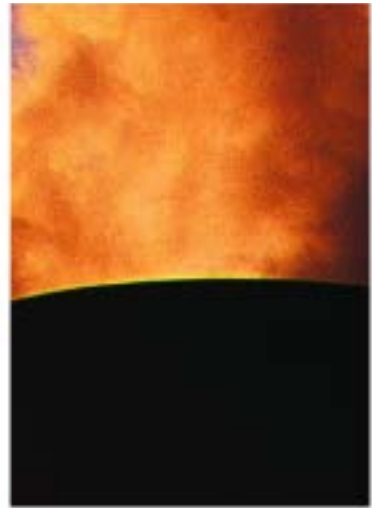


Fisher® Sky Vent Solutions



Severe Service



EMERSON
Process Management

Application Discussion

Valves within the sky vent system of a combined cycle plant serve one of the more important control functions. During initial operation of the HRSG, these valves bypass steam (HP/HRH/LP) around the steam turbine to ensure that the unit doesn't come up to temperature too quickly. This is done as the process lines are warmed prior to admitting steam through the turbine bypass valves that dump to the condenser.

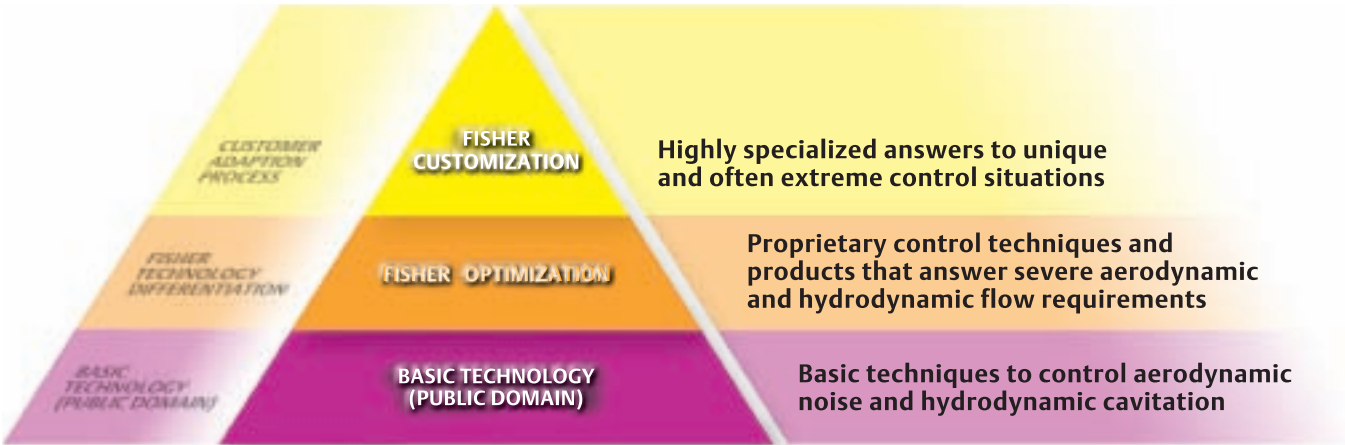
The large pressure differential across the sky vent valve can cause high noise levels that need to be attenuated. To reduce the noise potential, the pressure drop is split between the valve and a downstream diffuser or silencer. The pressure split also serves to optimize the size of each component. Other key challenges to this application are:

- High temperatures (1065°F) require the use of high-alloy materials and thermally compensated trim designs
- Valve leakage due to inadequate seat load, with the leakage causing reduced plant load and efficiency as well as valve damage
- Fast opening in case of a plant upset condition
- Properly addressing noise for two separate noise sources (valve and diffuser or silencer)

Emerson offers specific Fisher-engineered solutions for various sky vent designs. The sky vent system is optimized for each application to maximize performance from the valve and diffuser or silencer, while minimizing size and weight. Noise attenuation is accomplished by utilizing unique pressure control of flow through the valve and diffuser or silencer. Also, since the valve is closed after startup, tight shutoff (ANSI Class V or greater) is critical. Any leakage can reduce unit capacity and increase heat rate, along with causing damage to the valve.

To ensure proper operation after installation, a Fisher FIELDVUE® Digital Valve Controller can be utilized on the sky vent valve to monitor valve performance. The FIELDVUE DVC provides diagnostic reviews that can be conducted without interrupting the process in order to identify potential performance issues. This helps to ensure proper operation and tight shutoff over the normal service life of the valve.

Severe Service Control Hierarchy



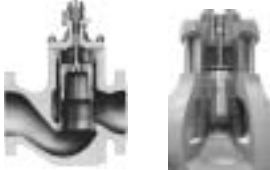
Sky Vent – Control Valve Solutions

FISHER CUSTOMIZATION

A specially-designed sky vent system that uniquely combined a control valve, diffuser and downstream silencer met the criteria of maximum noise attenuation, minimum valve size and least total weight. See [D351054X012](#) at www.Fishersevereservice.com for additional details.

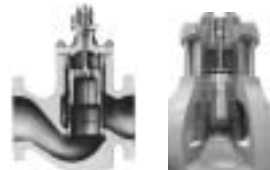
FISHER OPTIMIZATION

HP Sky Vent – Whisper Trim® III or WhisperFlo® Trim with C-Seal



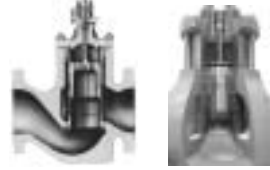
- Whisper Trim utilizes multiple orifices of special shape, size and spacing to achieve noise reductions to 30 dBA
- WhisperFlo incorporates patented, three-dimensional flow path, pressure staging and special passage shapes that combine to achieve up to a 40 dBA noise reduction
- Utilizes 4"-8" Class 2500 EH valve constructed of C12A chrome-moly steel and equipped with high-temperature C-seal
- Additional attenuation secured using a downstream diffuser/silencer

IP/HRH Sky Vent – Whisper Trim® III or WhisperFlo® Trim with C-Seal



- Whisper Trim utilizes multiple orifices of special shape, size and spacing to achieve noise reductions to 30 dBA
- WhisperFlo incorporates patented, three-dimensional flow path, pressure staging and special passage shapes that combine to achieve up to a 40 dBA noise reduction
- IP utilizes 6"-8" ED valve constructed of WC9 chrome-moly steel and equipped with high-temperature C-seal
- HRH utilizes 6"-12" EH or EU valve constructed of C12A chrome-moly steel and equipped with high-temperature C-seal
- Additional attenuation secured using a downstream diffuser/silencer

LP Sky Vent – Whisper Trim® III or WhisperFlo® Trim



- Whisper Trim features multiple orifices of special shape, size and spacing to achieve noise reductions to 30 dBA
- WhisperFlo incorporates patented, three-dimensional flow path, pressure staging and special passage shapes that combine to achieve up to a 40 dBA noise reduction
- Utilizes 6"-12" Class 600 ET valve constructed of WCC steel and equipped with high-temperature shutoff trim
- Additional attenuation secured using a downstream diffuser/silencer

BASIC TECHNOLOGY



- Standard trim control valve or automated block valve
- Tight shutoff construction
- Reinforced parts to resist vibration damage
- Noise addressed with path treatments

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The way you manage your key production assets directly affects your plant's performance and profitability. Emerson's Asset Optimization capabilities deliver world-class services and innovative technologies to increase the availability and performance of mechanical equipment, electrical systems, process equipment, instruments and valves for improved bottom-line results. Asset Optimization helps you improve process availability and attain peak performance, which means wherever you are in your plant's life cycle—startup, maximizing operations or life extension—by relying on Emerson's Asset Optimization capabilities, you'll be on the path to realizing the true potential of your plant's instruments and valves.

The Next Step

Contact your local Emerson Process Management sales office or sales representative location for more information or to make a purchase.

For severe service solutions, see us at www.FisherSevereService.com



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