

Whisper Trim[®] III Cages

Whisper Trim III cages (figure 1) provide effective attenuation of aerodynamic noise in vapor, gas, or steam applications involving high pressure drops or high pressure drop ratios. Using a Whisper Trim III cage in conjunction with a properly-sized valve body can substantially reduce the noise level of the control application.

Aerodynamic noise is generated by the turbulence created in the flow of vapor, gas, or steam as the fluid passes through a control valve. To achieve effective noise attenuation, a Whisper Trim III cage utilizes multiple orifices of a special shape, size, and spacing. These orifices break up turbulent fluid streams, reducing noise-producing interactions.

Whisper Trim III cages are available for a variety of valve body types (see table 1). Please refer to the appropriate valve body bulletin for additional construction details.

Note

Neither Emerson, Emerson Process Management, nor any of their affiliated entities assumes responsibility for the selection, use and maintenance of any product. Responsibility for the selection, use, and maintenance of any product remains with the purchaser and end-user.

Features

- **Outstanding Noise Control**—Use of a Whisper Trim III cage in a properly sized valve can result in a noise reduction up to 30 dBA compared to the same valve with standard trim. Such a reduction would be similar to the reduction in noise level noticed when moving away from the noise source 94m (308 feet).

(continued on page 2)

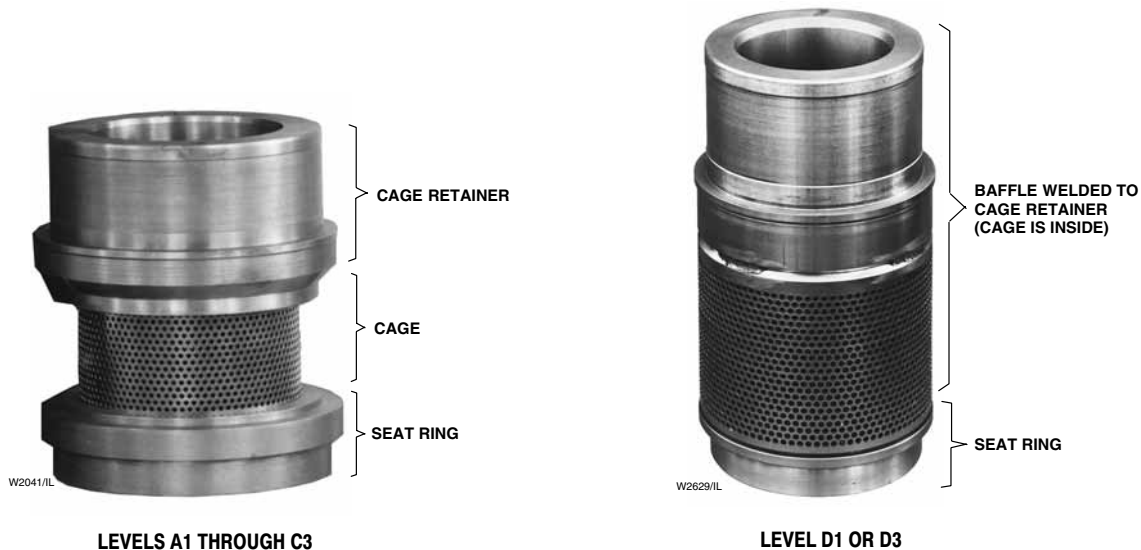


Figure 1. Typical Whisper Trim[®] III Constructions



Features (continued)

- **Optimum Performance**—Use of a Whisper Trim III cage provides excellent noise reduction and high flow capacity with the proven control and durability offered by standard Fisher® valve trims. The result: optimum overall performance at a minimum investment.
- **Easy Maintenance**—Quick change trim allows fast and easy inspection of the cage without taking the valve body out of the pipeline. Whisper Trim III is interchangeable with standard control valve trim.
- **Long Trim Life**—Hardened materials of construction are standard to provide exceptional wear resistance. For more information about trim materials, see the appropriate valve body bulletin.

Installation

In any installation, the valve must be oriented so the flow complies with the arrow on the side of the valve body. Flow is always up through the seat ring.

Because the Whisper Trim III cage design utilizes a multiple-orifice design, a strainer should be installed upstream of any Whisper Trim III application.

The level A1 through D1 cages have 3.2 mm (0.125 inch) diameter orifices. The level A3 through D3 have 1.6 mm (0.0625 inch) diameter orifices.

Ordering Information

When ordering, please specify:

1. Required C_v
2. Trim material
3. Valve body design
4. Valve body size
5. Valve materials of construction
6. Service conditions and all other information requested in the valve body bulletin

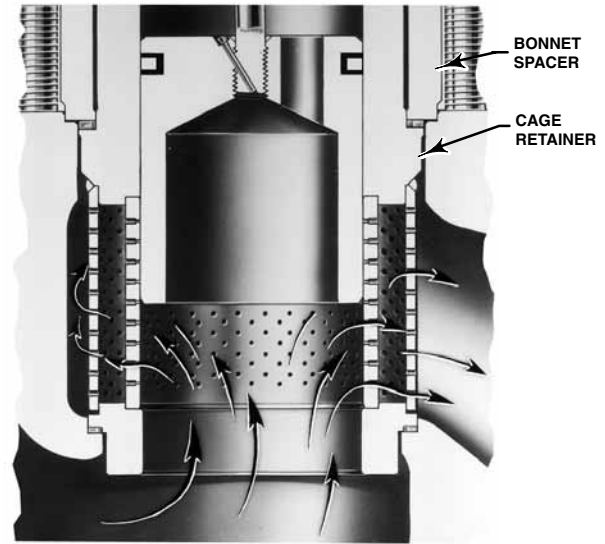


Figure 2. Whisper Trim® III Cage in NPS 6 Design ED Valve

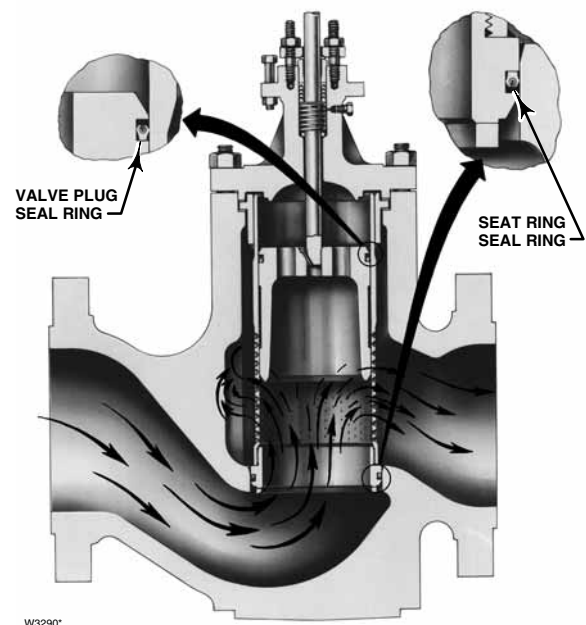


Figure 3. Whisper Trim® III Cage in NPS 12 x 8 Design EWNT-2 Valve with Seat Ring Threaded Into the Cage

Table 1. Valve Body Constructions with Whisper Trim® III Cages

VALVE DESIGN	VALVE SIZE, NPS ⁽³⁾	PRESSURE RATING	PORT DIAMETER		VALVE PLUG, TRAVEL		PERFORMANCE LEVEL, MAX Δ P/P ₁ ⁽⁴⁾							
			mm	Inch	mm	Inch	0.60		0.75		0.85		0.99	
							A1	A3	B1	B3	C1	C3	D1	D3
GX	DN 80 (NPS 3)	PN 10 - PN 40 (CL150, 300)	70	---	40	---	X							
	90		40		X									
	DN 100 (NPS 4)		70 ⁽⁵⁾		40		X							
	DN 150 (NPS 6)		136		60		X							
			90 ⁽⁵⁾		40		X							
ED, ES, ET	1	CL150, 300, 600	33	1.3125	19	0.75	X							
	1-1/2	CL150, 300, 600	19	0.75	29	1.125	X				X		X	
			27	1.875	19	0.75	X							
	2	CL150, 300, 600	33	1.3125	32	1.25	X			X		X		
			59	2.3125	29	1.125	X							
	3 ⁽²⁾	CL150, 300, 600	59	2.3125	38	1.5	X	X		X		X		
			87	3.4375	38	1.5	X							
4 ⁽²⁾	CL150, 300, 600	87	3.4375	51	2	X	X		X		X			
		111	4.375	51	2	X								
6 ⁽¹⁾⁽²⁾	CL150, 300, 600	136	5.375	76	3	X	X		X		X			
		178	7	51	2	X								
8	CL150, 300, 600	203	8	51	2	X								
		203	8	76	3	X								
		203	8	102	4	X								
EHD, EHS, EHT	1	CL2500	19	0.75	38	1.5	X							
	2	CL2500	25	1	29	1.125	X							
			38	1.5	38	1.5	X			X		X		
	3 x 2	CL2500	38	1.5	38	1.5	X							
	3	CL2500	33	1.3125	51	2	X	X	X				X	
			59	2.3125	38	1.5	X		X					
	4 x 3	CL2500	59	2.3125	38	1.5	X		X					
	4	CL2500	59	3.3125	51	2	X			X			X	
			73	2.875	51	2	X							
	6 x 4	CL2500	73	2.875	51	2	X		X	X				
	6	CL2500	111	4.375	76	3	X	X	X	X			X	
	8 x 6	CL2500	111	4.375	76	3	X			X			X	
8, 10	CL1500	178	7	178	7	X	X	X	X	X	X	X		
	CL2500	136	5.375	146	5.75									
12, 14	CL1500	254	10	184	7.25	X	X	X	X	X	X	X		
	CL2500	178	7	178	7									
EWD, EWS, EWT	4 x 2	CL150, 300, 600	33	1.3125	32	1.25	X			X		X		
			59	2.3125	29	1.125	X							
	6 x 4	CL150, 300, 600	87	3.4375	51	2	X	X		X		X		
			111	4.375	51	2	X			X		X		
	8 x 4	CL150, 300, 600	87	3.4375	51	2	X	X		X		X		
			111	4.375	51	2	X			X		X		
	8 x 6 ⁽¹⁾⁽²⁾	CL150, 300, 600, 900	136	5.375	127	5	X	X		X		X		
			178	7	51	2	X							
			178	7	102	4	X	X		X		X		
	12 x 6 ⁽¹⁾⁽²⁾	CL150, 300, 600	136	5.375	165	6.5	X	X		X		X		
178			7	51	2	X								
178			7	102	4	X	X		X		X			
10 x 8	CL150, 300, 600	178	7	152	6							X		
		203	8	152	6	X	X		X		X			
12 x 8	CL150, 300, 600, 900	178	7	152	6							X		
		178	7	203	8							X		
		203	8	152	6	X	X		X		X			
		203	8	203	8	X	X		X		X			

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Whisper Trim III

Table 1. Valve Body Constructions with Whisper Trim® III Cages (continued)

VALVE DESIGN	VALVE SIZE, NPS ⁽³⁾	PRESSURE RATING	PORT DIAMETER		VALVE PLUG, TRAVEL		PERFORMANCE LEVEL, MAX Δ P/P ₁ ⁽⁴⁾							
			mm	Inch	mm	Inch	0.60		0.75		0.85		0.99	
							A1	A3	B1	B3	C1	C3	D1	D3
EWD-1, EWT-1	12 x 8	CL900	197	7.75	146	5.75	X		X	X	X	X		
			172	6.75	146	5.75							X	X
EWND-1, EWNT-1	8 x 6	CL900	136	5.375	127	5	X	X		X		X		X
	12 x 8	CL900	197	7.75	203	8	X	X	X	X	X	X		
EWND-1, EWNT-2	12 x 8	CL300, 600	197	7.75	203	8	X	X	X	X	X	X		
			172	6.75	203	8							X	X
EU	12, 16, and 20	Consult bulletin 51.1:EU												
EW	16 x 12 thru 24 x 20	Consult bulletin 51.1:EU												
FBD, FBT	8 x 12 thru 24 x 24	Consult bulletin 51.1:FB					X	X	X	X	X	X	X	X
	16 x 30 thru 36 x 36	Consult bulletin 51.1:FB					X		X	X	X	X	X	X
HPD, HPS, HPT	1	CL1500, 2500	19	0.75	29	1.125	X							
			25	1	19	0.75	X							
	2	CL1500, 2500	19	0.75	29	1.125	X					X		
			25	1	19	0.75	X					X		
	3	CL1500	48	1.875	51	2	X					X		X
			73	2.875	51	2	X		X					
4	CL1500	73	2.875	51	2	X			X	X	X		X	
		92	3.625	51	2	X		X	X	X	X			
6	CL1500	111	4.375	76	3									
		136	5.375	76	3	X	X		X		X			

1. Please note that the body/bonnet height may be greater after installing a Whisper Trim III cage. A spacer is required for ED, ET, EWD, and EWT configurations.
2. Other sizes may be available—consult your Emerson Process Management sales office.
3. Two-number valve body size designation for EH, EW, and EWN Series valves indicates end connection size by trim size, but for FB Series valves, it indicates inlet size by outlet size.
4. The X indicates performance level available for given body-trim configuration. Other cage/body configurations available to meet specific applications.
5. GX unbalanced, restricted trim.

Specifications

Availability

See table 1

Trim Material and Selection

See appropriate valve body bulletin

Pressure/Temperature Capability

See appropriate valve body bulletin

Maximum Pressure Drops

As shown in appropriate valve body bulletin, except where further limited by the maximum $\Delta P/P_1$ ratio given in table 1.

(Application limitations are based on calculations of the maximum $\Delta P/P_1$ ratio. Excessive noise levels could occur if application conditions exceed the maximum $\Delta P/P_1$ ratio for a given cage level.)

Flow Characteristic⁽¹⁾

Linear (restricted linear cages, modified parabolic cages, and special, characterized cages are available--consult your Emerson Process Management sales office)

Flow Direction

Up--through the seat ring and out through the cage orifices

Noise Attenuation

See Catalog 12, section 3 for calculation procedure

Sizing Coefficients⁽¹⁾

See Catalog 12, section 1 for actual values

Shutoff Classification

See appropriate valve body bulletin

1. For additional sizing information, contact your Emerson Process Management sales office.

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