

Fisher™ 6060 WhisperTube Model Attenuator



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Section 1: Introduction

1.1 Scope of the Manual

This instruction manual provides installation, maintenance and parts ordering information for the NPS 2 through 12 Fisher WhisperTube modal attenuator.

1.2 Description

The WhisperTube is a passive reactive silencer designed for installation downstream of the control valve or other equipment contributing to system noise. Requiring negligible pressure drop across the device, the WhisperTube achieves system noise reduction across a wide range of fluid flow rates, pressures and temperatures.

Figure 1. Fisher 6060 WhisperTube



Table 1. Specifications

Valve Sizes and End Connection Style	Temperature Capability
NPS 2, 3, 4, 6, 8 and 12 with CL150, CL300 or CL600 raised-face flanges compatible with ASME B16.5	-46 to +371°C / -50 to +700°F
Maximum Inlet Pressure ⁽¹⁾	Weights and Threaded Lifting Provision Size
Consistent with CL150, CL300 or CL600 pressure-temperature ratings per ASME B16.34	See Table 3
Construction Materials	Design Standards
See Table 2	The WhisperTube pressure boundary is designed in accordance with ASME Boiler and Pressure Vessel Code, Section VIII, Division 2.
1. The pressure/temperature limits in this manual and any applicable standard limitations should not be exceeded.	

Table 2. Construction Materials

PART	MATERIAL	TEMPERATURE LIMITS	
		°C	°F
Body	WCC / LCC ⁽¹⁾	-46 to +427	-50 to +800
Retainer ⁽²⁾	LF2	-46 to +427	-50 to +800
Retainer gasket ⁽²⁾	Laminated Graphite	-254 to +427	-425 to +800
Screen	S30400	-254 to +427	-425 to +800
Wave spring	N07750	-254 to +371	-425 to +700
Studs ⁽³⁾	B7M	-48 to +427	-55 to +800
Nuts ⁽³⁾	2HM	-48 to +427	-55 to +800
Spiral wound gasket ⁽³⁾	N06600/Graphite	-254 to +454	-425 to +850

1. WCC and LCC dual certified.

2. NPS 2 through NPS 6 constructions only.

3. NPS 8 through NPS 12 constructions only.

Table 3. Assembly Weight and Threaded Lifting Provision Size

VALVE SIZE, NPS	PRESSURE CLASS	WEIGHT		THREADED LIFTING PROVISION	
		kg	lbs	Size	Quantity
2	150	30	67	3/8-16 UNC	1
	300	32	70		
	600	33	73		
3	150	48	105	3/8-16 UNC	1
	300	52	115		
	600	55	120		
4	150	102	224	3/8-16 UNC	2
	300	109	239		
	600	118	259		
6	150	205	452	1/2-13 UNC	2
	300	224	492		
	600	246	542		
8	150	464	1020	1/2-13 UNC	2
	300	500	1100		
	600	614	1350		
10	150	750	1650	5/8-11 UNC	2
	300	811	1785		
	600	966	2125		
12	150	1025	2255	3/4-10 UNC	2
	300	1109	2440		
	600	1264	2780		

Table 4. Recommended Line Bolting Lengths

WHISPERTUBE SIZE, NPS	PRESSURE CLASS	NUMBER OF STUDS	BOLTING SIZE, IN.	LENGTH OF STUDS	
				mm	in.
2	150	8	5/8	82	3.25
	300	16	5/8	88	3.50
	600	16	5/8	107	4.25
3	150	8	5/8	95	3.75
	300	16	3/4	107	4.25
	600	16	3/4	127	5.00
4	150	16	5/8	95	3.75
	300	16	3/4	114	4.50
	600	16	7/8	146	5.75
6	150	16	3/4	101	4.00
	300	24	3/4	127	5.00
	600	24	1	177	7.00
8 ⁽¹⁾	150	16	3/4	107	4.25
	300	24	7/8	139	5.50
	600	24	1-1/8	196	7.75
10 ⁽¹⁾	150	24	7/8	120	4.75
	300	32	1	158	6.25
	600	32	1-1/4	222	8.75
12 ⁽¹⁾	150	24	7/8	120	4.75
	300	32	1-1/8	177	7.00
	600	40	1-1/4	228	9.00

1. Two-piece body constructions (NPS 8 to 12) use larger size bolting to connect the two body halves, see Table 5 for body flange bolting information.

1.3 Specifications

Specifications for the WhisperTube Model Attenuator are listed in Tables 1, 2, 3 and 4.

1.4 Education Services

Emerson's Education Services
 Phone: 800-338-8158
 Email: education@emerson.com
emerson.com/mytraining

Section 2: Installation



WARNING

Always wear protective gloves, clothing and eyewear when performing any installation operations to avoid personal injury.

To avoid personal injury or property damage resulting from the sudden release of pressure, do not install the WhisperTube assembly where service conditions could exceed the limits given on the 6060 nameplate. Use pressure-relieving devices as required by accepted industry, local, state or federal codes and good engineering practices.

Check with your process or safety engineer for any additional measures that must be taken to protect against process media.

If installing into an existing application, also refer to the WARNING at the beginning of the Maintenance section in this instruction manual.

Use proper lifting and rigging practices while moving the WhisperTube. Failure to utilize safe lifting practices may result in equipment damage and/or personal injury.

Avoid personal injury or property damage caused by uncontrolled movement or dropping of the WhisperTube assembly.

The threaded lifting provisions are for installation of hoist rings or lifting eye bolts and are sized for lifting the 6060 only. Do not use lifting provisions to lift the WhisperTube if piping or other equipment is attached.

1. If the WhisperTube will be placed in storage prior to installation, protect the flanges and keep the inside of the body dry and clear of foreign material.
2. Install a three-valve bypass around the 6060 assembly if continuous operation will be necessary during inspection and maintenance.
3. Inspect the WhisperTube body for damage and be certain the body internal cavities are free of foreign material.
4. Be certain that adjacent pipelines are free of any foreign material, such as pipe scale or welding slag, that could damage the WhisperTube.
5. The standard flow direction is with the wave spring (key 4) facing upstream.
6. The WhisperTube may be installed in any orientation and achieve system noise reduction. The recommended orientation for a horizontal pipeline is with the pipe plug and drain port facing down to allow removal of any potential process liquid buildup.
7. Install suitable line flange gaskets and insert the 6060 assembly between the pipeline flanges.
8. Center the WhisperTube by making sure the mating flanges are aligned. Insert flange studs and tighten nuts in a star pattern to ensure the flange gaskets are compressed evenly.

Section 3: Maintenance

WARNING

Avoid personal injury or damage to property from sudden release of pressure or uncontrolled process fluid. Before starting disassembly:

- **Always wear protective gloves, clothing and eyewear when performing any maintenance operations to avoid personal injury.**
- **Use bypass valves or completely shut off the process to isolate the WhisperTube from process pressure.**
- **Remove process pressure and drain the WhisperTube if necessary.**
- **Use lock-out procedures to be sure that the above measures stay in effect while you work on the equipment.**
- **Check with your process or safety engineer for any additional measures that must be taken to protect against process media.**

Disassembly

1. Isolate the WhisperTube from the process pressure, relieve all process pressure and drain any internal liquid buildup if necessary.
2. Remove the WhisperTube from the pipeline.

Follow steps 3 to 5 for a single piece body construction (NPS 2 to 6).

3. Remove the screen retainer (key 8) by loosening the two retainer screws (key 11).
4. Remove the wave spring (key 4) and perforated screen tube (key 2).
5. Inspect the perforated screen tube, wave spring and internal surfaces of the WhisperTube body (key 1) and replace damaged components as necessary. Visually inspect the flange serrated surfaces for any damage that may prevent proper sealing.

Follow steps 6 to 9 for the two-piece body construction (NPS 8 to 12).

6. Set the WhisperTube in a vertical position with one flange resting on a clean soft surface. Use caution to protect the flange serrated surfaces. Separate the two body halves by removing the body flange studs and nuts (keys 13 and 14).
7. Remove the spiral wound gasket (key 12) and perforated screen tube (key 3).
8. The wave spring (key 4) may be accessed and removed from the inlet flange end of the WhisperTube body.
9. Inspect the perforated screen tube, wave spring and internal surfaces of the WhisperTube body (key 1) and replace damaged components as necessary. Visually inspect the flange serrated surfaces for any damage that may prevent proper sealing.

Assembly

Follow steps 10 to 13 for a single piece body construction (NPS 2 to 6).

10. Ensure the old flat sheet gasket (key 9) is removed.
11. Re-insert the perforated screen tube into the body bore until the end of the tube seats against an internal ledge in the body at the outlet flange end.
12. Re-install the wave spring.
13. Center a new flat sheet gasket (key 9) on the screen retainer sealing surface and install on the body. Secure the retainer with washers (key 10) and retainer screws (key 11).

Follow steps 14 to 20 for the two-piece body construction (NPS 8 to 12).

14. Install the wave spring (key 4) in the groove at the flange end of the inlet body half.
15. Assembly is easiest if the parts are oriented vertically. Place the inlet body half flange end down on a clean soft surface. Use caution to protect the flange end serrated surfaces.
16. Install the perforated screen tube in the inlet body half until it contacts the wave spring.
17. Center the spiral wound gasket (key 12) on the inlet body flange serrated surface.
18. Lower the outlet body half over the screen. Ensure the drain pipe plugs and the threaded lifting lugs are aligned and located on the same side of the body in both the inlet and outlet halves.
19. Apply anti-seize lubricant compound to the face and threads of the hex nuts and to the threads of the studs. Install the nuts and studs. Use an appropriate torque device to apply the final torque specification (see Table 5). Tighten nuts in a star pattern to ensure the spiral wound gasket is compressed evenly.

Table 5. Body Flange Torque Specifications

Valve Size, NPS	Pressure Class	Stud Material	Stud Size, in.	Torque, ft-lbs
8	150, 300	B7M	1-1/8 to 8 x 6.75	525
	600		1-1/4 to 8 x 8.75	695
10	150, 300		1-1/4 to 8 x 7.50	695
	600		1-1/2 to 8 x 10.00	1220
12	150, 300		1-1/4 to 8 x 7.70	695
	600		1-5/8 to 8 x 10.75	1570

Section 4: Parts

4.1 Parts Ordering

Always mention the WhisperTube serial number when corresponding with your [Emerson sales office](#) regarding this equipment.

WARNING

Use only genuine Fisher replacement parts. Components that are not supplied by Emerson 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.

4.2 Parts List

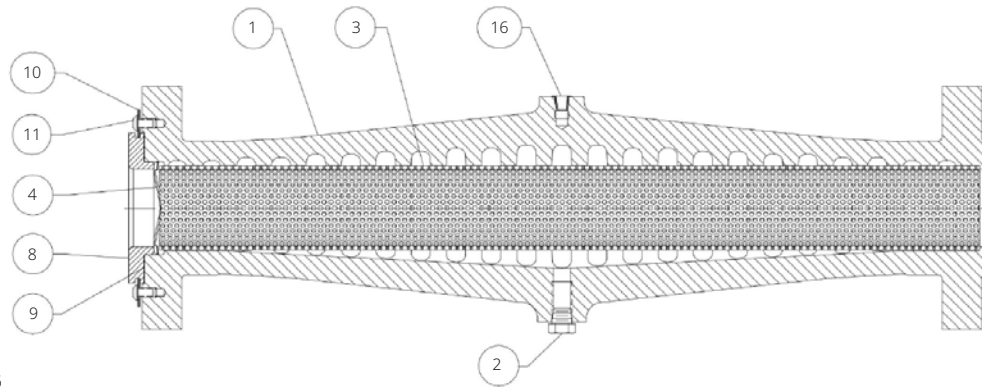
NOTE

Contact your [Emerson sales office](#) for Part Ordering information.

Table 6. Parts List

Key	Description	Key	Description
1	Body If a WhisperTube body is needed as a replacement part, order by size, pressure class, serial number and desired material.	10	Washer
2	Pipe plug	11	Socket head cap screw
3	Screen	12*	Spiral wound gasket
4	Wave spring	13	Stud
5	Nameplate (not shown)	14	Heavy hex nut
6	Drive screw (not shown)	15	Anti-seize lubricant
7	NACE tag (not shown)	16	Thread protector plug
8	Retainer	17	Flow arrow (not shown)
9*	Retainer gasket	---	---
*Recommended spare parts			

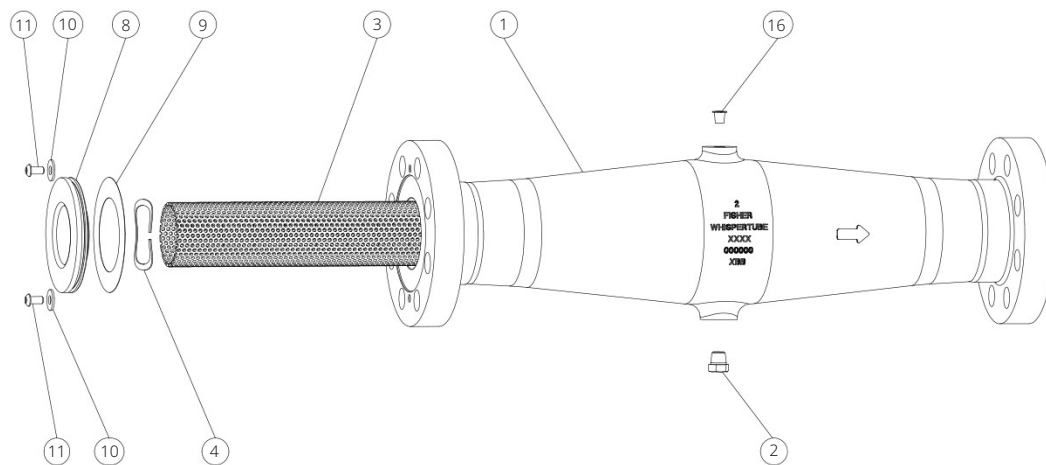
Figure 2. Fisher WhisperTube Cross Sectional View, NPS 2 through 6



GH13406

NOTE: KEY NUMBERS NOT SHOWN ARE 5, 6 AND 7.

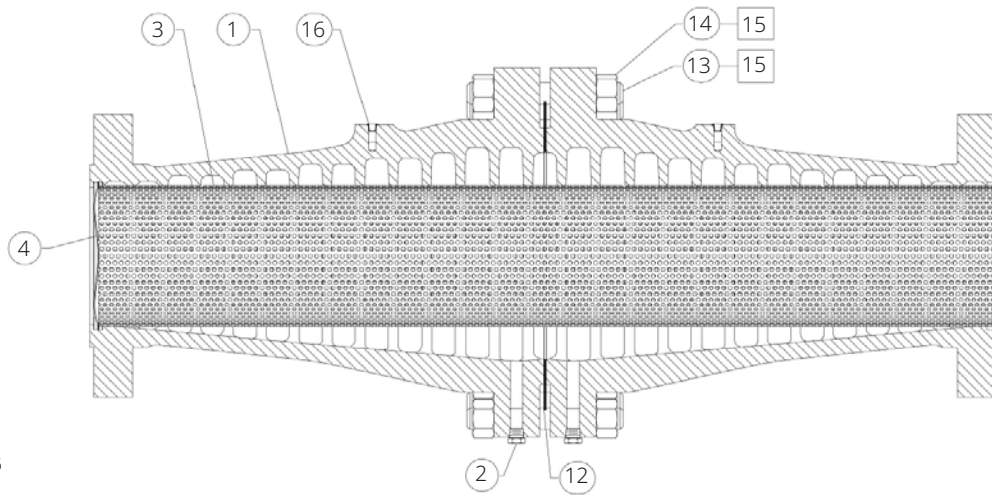
Figure 3. Fisher WhisperTube Exploded View, NPS 2 through 6



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NOTE: KEY NUMBERS NOT SHOWN ARE 5, 6 AND 7.

Figure 4. Fisher WhisperTube Cross Sectional View, NPS 8 through 12

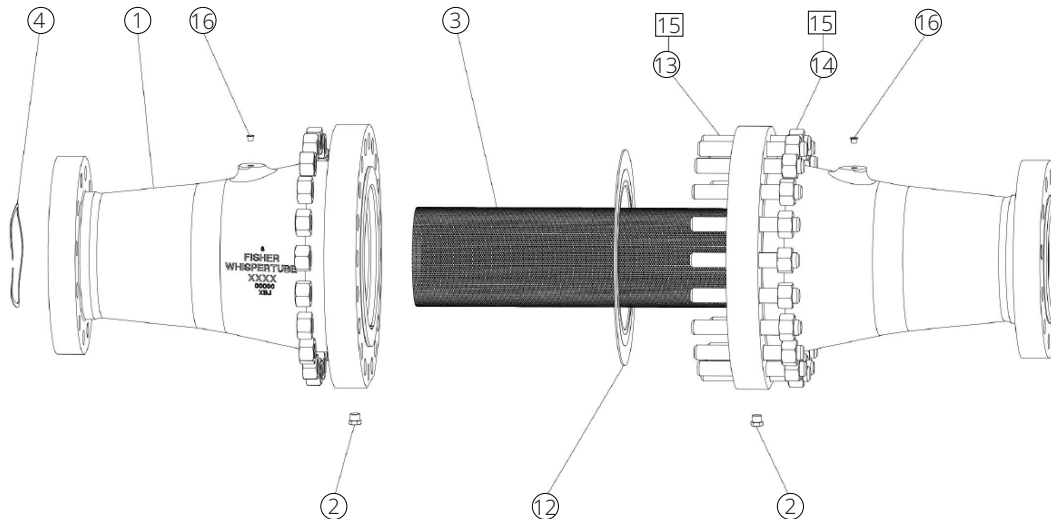


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☐ APPLY LUB

NOTE: KEY NUMBERS NOT SHOWN ARE 5, 6, 7 AND 17.

Figure 5. Fisher WhisperTube Exploded View, NPS 8 through 12



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☐ APPLY LUB

NOTE: KEY NUMBERS NOT SHOWN ARE 5, 6, 7 AND 17.

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