# Spence™ Noise Suppressor

***Figure 1.*** *Noise Suppressor*

## Features

- Noise attenuation up to 26 dBA
- Expansion fittings not required
- Straight through design minimizes pressure drop, permitting normal valve sizing
- Effective over a broad frequency band up to 12,000 Hz

## Introduction

The Noise Suppressor is designed to attenuate the noise generated by a pressure reducing station.

These devices are particularly effective in limiting the propagation of valve generated noise into the downstream piping. Being of the dissipative reactive type, they are effective over a broad frequency band (up to 12,000 Hz). Depending upon the flow and piping configuration, noise attenuation of up to 20 decibels is obtainable.

The Noise Suppression equipment is a dissipative reactive type. Suppressors do not induce back pressure. It has expanded outlet flange for attachment to downstream piping. Equipment provides a minimum of 10 dBA reduction in noise.

# Noise Suppressor

## Specifications

The Specifications section gives some general specifications for the Noise Suppressor. The nameplates give detailed information for a specific noise suppressor as built in the factory.

**Available Sizes**
NPS 3/8 to 8 / DN 10 to 200

**Temperature Rating(1)**
500°F / 260°C

**Frequency band**
Up to 12,000 Hz

**Noise Attenuation**
Up to 26 dBA

**Maximum Outlet Velocity**
See Table 1

**Suppressor Ends**
NPT x NPT
NPT x CL150 FF
NPT x CL300 RF
CL150 FF x CL150 FF
CL300 RF x CL150 FF
CL300 RF x CL300 RF

**Construction Materials**
**Pressure Shell:** Welded steel components
**Acoustic Material:** Stainless steel

**Approximate Weights**
See Table 4

1. The pressure/temperature limits in this Bulletin and any applicable standard or code limitation should not be exceeded.

## Principle of Operation

The fluid flows to the inlet of the Noise Suppressor then pass through the acoustic material where the noise attenuation of up to 20 decibels is obtained depending on the flow and piping configuration. Installed at the regulator outlet, the suppressor absorbs noise generated by the pressure regulator and limits its propagation through the piping system.

## Installation

Install the noise suppressor at the reducing valve outlet. Ensure that it is insulated to reduce condensation formation in the acoustic material.

**Note**

**It is recommended that the Noise Suppressor be insulated to reduce condensation formation in the acoustic material.**

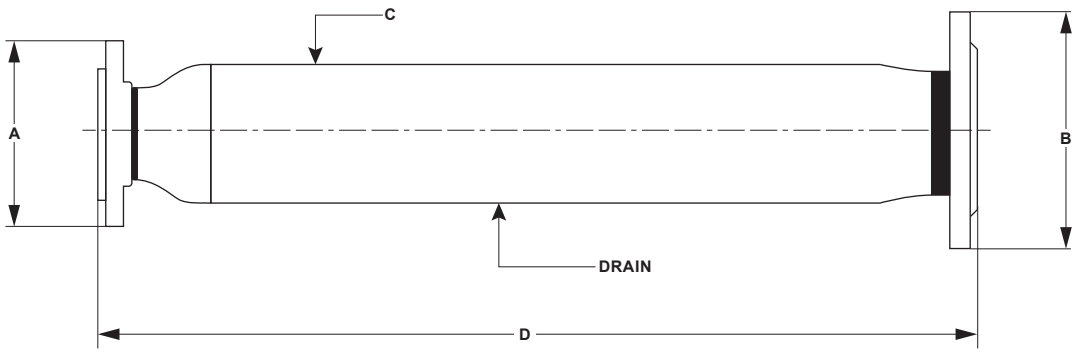


***Figure 2.*** *Noise Suppressor Dimension*

***Table 1.*** *Noise Suppressor Maximum Outlet Velocity*

| SIZE | | MAXIMUM OUTLET VELOCITY | |
|---|---|---|---|
| **NPS** | **DN** | **ft/min** | **m/min** |
| 0 to 2 | 0 to 50 | 17,000 | 5182 |
| 2-1/2 to 8 | 65 to 200 | 11,000 | 3353 |
| >8 | >200 | 9000 | 2743 |

# Noise Suppressor

***Table 2.*** *Noise Suppressor Average Attenuation*

| SIZE | | | | | | AVERAGE ATTENUATION |
|---|---|---|---|---|---|---|
| A (INLET) | | B (OUTLET) | | C (SHELL) | | |
| NPS | DN | NPS | DN | In. | mm | dBA[1] |
| 3/8 | 10 | 3/4 | 20 | 2 | 50.8 | 16 |
| | | 1 | 25 | 2 | 50.8 | 16 |
| | | 1-1/2 | 40 | 2-1/2 | 63.5 | 22 |
| 1/2 | 15 | 1 | 25 | 2 | 50.8 | 12 |
| | | 1-1/4 | 32 | 2-1/2 | 63.5 | 15 |
| | | 1-1/2 | 40 | 2-1/2 | 63.5 | 20 |
| 3/4 | 20 | 1-1/4 | 32 | 2-1/2 | 63.5 | 16 |
| | | 2 | 50 | 3 | 76.2 | 16 |
| 1 | 25 | 1-1/2 | 40 | 2-1/2 | 63.5 | 12 |
| | | 2 | 50 | 3 | 76.2 | 13 |
| 1-1/4 | 32 | 2 | 50 | 3 | 76.2 | 14 |
| | | 3 | 80 | 4 | 102 | 14 |
| 1-1/2 | 40 | 3 | 80 | 4 | 102 | 12 |
| 2 | 50 | 3 | 80 | 4 | 102 | 10 |
| | | 4 | 100 | 5 | 127 | 14 |
| 2-1/2 | 65 | 4 | 100 | 6 | 152 | 16 |
| | | 5 | 125 | 6 | 152 | 16 |
| 3 | 80 | 4 | 100 | 6 | 152 | 14 |
| | | 5 | 125 | 6 | 152 | 14 |
| | | 6 | 150 | 8 | 203 | 19 |
| 4 | 100 | 5 | 125 | 6 | 152 | 12 |
| | | 6 | 150 | 8 | 203 | 16 |
| | | 8 | 200 | 10 | 254 | 21 |
| 5 | 125 | 6 | 150 | 8 | 203 | 14 |
| | | 8 | 200 | 10 | 254 | 19 |
| | | 10 | 250 | 12 | 305 | 26 |
| 6 | 150 | 8 | 200 | 10 | 254 | 17 |
| | | 10 | 250 | 12 | 305 | 24 |
| 8 | 200 | 10 | 250 | 12 | 305 | 21 |

1. Consult factory for specifications.

***Table 3.*** *Noise Suppressor Dimensions*

| SIZE | | | | | | D[1] | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A (INLET) | | B (OUTLET) | | C (SHELL) | | NPT x NPT | | NPT x NPT | | CL 150RF x CL 150RF | | CL 300RF x CL 300RF | |
| NPS | DN | NPS | DN | In. | mm | In. | mm | In. | mm | In. | mm | In. | mm |
| 3/8 | 10 | 3/4 | 20 | 2 | 50.8 | 18 | 457 | - - - - | - - - - | - - - - | - - - - | - - - - | - - - - |
| | | 1 | 25 | 2 | 50.8 | 18-5/12 | 468 | - - - - | - - - - | - - - - | - - - - | - - - - | - - - - |
| | | 1-1/2 | 40 | 2 1/2 | 63.5 | 26-5/8 | 676 | - - - - | - - - - | - - - - | - - - - | - - - - | - - - - |
| 1/2 | 15 | 1 | 25 | 2 | 50.8 | 21-5/16 | 541 | 19-7/8 | 505 | - - - - | - - - - | 20-1/6 | 512 |
| | | 1-1/4 | 32 | 2-1/2 | 63.5 | 23-15/16 | 608 | 22-1/8 | 562 | - - - - | - - - - | 22-5/8 | 575 |
| | | 1-1/2 | 40 | 2-1/2 | 63.5 | 27-1/16 | 687 | 22-5/8 | 575 | - - - - | - - - - | 22-1/16 | 560 |
| 3/4 | 20 | 1-1/4 | 32 | 2-1/2 | 63.5 | 28-3/8 | 721 | 26-5/8 | 676 | - - - - | - - - - | 27-1/8 | 689 |
| | | 2 | 50 | 3 | 76.2 | 28-5/8 | 727 | 26-5/8 | 676 | - - - - | - - - - | 27-1/8 | 689 |
| 1 | 25 | 1-1/2 | 40 | 2-1/2 | 63.5 | 25-3/4 | 654 | 23-7/8 | 606 | - - - - | - - - - | 24-3/8 | 619 |
| | | 2 | 50 | 3 | 76.2 | 36 | 914 | 34 | 864 | - - - - | - - - - | 34-1/2 | 876 |
| 1-1/4 | 32 | 2 | 50 | 3 | 76.2 | 36-1/16 | 916 | 34-1/16 | 865 | - - - - | - - - - | 34-5/8 | 879 |
| | | 3 | 80 | 4 | 102 | - - - - | - - - - | 34-5/16 | 872 | - - - - | - - - - | 35 | 889 |
| 1-1/2 | 40 | 3 | 80 | 4 | 102 | - - - - | - - - - | 31-7/16 | 799 | - - - - | - - - - | 32-1/16 | 814 |
| 2 | 50 | 3 | 80 | 4 | 102 | - - - - | - - - - | 31-1/2 | 800 | - - - - | - - - - | 32-1/8 | 816 |
| | | 4 | 100 | 5 | 127 | - - - - | - - - - | 39-3/4 | 1010 | - - - - | - - - - | 40-3/8 | 1026 |
| 2-1/2 | 65 | 4 | 100 | 6 | 152 | - - - - | - - - - | - - - - | - - - - | 47 | 1194 | 47 | 1194 |
| | | 5 | 125 | 6 | 152 | - - - - | - - - - | - - - - | - - - - | 47-1/2 | 1207 | 48-1/8 | 1222 |
| 3 | 80 | 4 | 100 | 6 | 152 | - - - - | - - - - | - - - - | - - - - | 47 | 1194 | 47-3/4 | 1213 |
| | | 5 | 125 | 6 | 152 | - - - - | - - - - | - - - - | - - - - | 47-1/2 | 1207 | 48-1/4 | 1226 |
| | | 6 | 150 | 8 | 203 | - - - - | - - - - | - - - - | - - - - | 58-9/16 | 1487 | 59-5/16 | 1507 |
| 4 | 100 | 5 | 125 | 6 | 152 | - - - - | - - - - | - - - - | - - - - | 47-3/4 | 1213 | 48-1/8 | 1222 |
| | | 6 | 150 | 8 | 203 | - - - - | - - - - | - - - - | - - - - | 54-3/4 | 1391 | 55-1/2 | 1410 |
| | | 8 | 200 | 10 | 254 | - - - - | - - - - | - - - - | - - - - | 66-1/4 | 1683 | 67 | 1702 |
| 5 | 125 | 6 | 150 | 8 | 203 | - - - - | - - - - | - - - - | - - - - | 55-1/4 | 1403 | 56 | 1422 |
| | | 8 | 200 | 10 | 254 | - - - - | - - - - | - - - - | - - - - | 66-3/4 | 1695 | 67-1/2 | 1715 |
| | | 10 | 250 | 12 | 305 | - - - - | - - - - | - - - - | - - - - | 89-5/16 | 2269 | 90-5/16 | 2294 |
| 6 | 150 | 8 | 200 | 10 | 254 | - - - - | - - - - | - - - - | - - - - | 66-3/4 | 1695 | 67-1/2 | 1715 |
| | | 10 | 250 | 12 | 305 | - - - - | - - - - | - - - - | - - - - | 83-3/4 | 2127 | 84-3/4 | 2153 |
| 8 | 200 | 10 | 250 | 12 | 305 | - - - - | - - - - | - - - - | - - - - | 84-1/4 | 2140 | 85-1/4 | 2165 |

1. ± NPS 1/4 / DN 6.35 for 8 in. / 203 mm Shell and under, otherwise ± NPS 3/8 / DN 10.

# Noise Suppressor

***Table 4.*** *Noise Suppressor Approximate Weights*

| SIZE | | | | | | APPROXIMATE WEIGHT | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A (INLET) | | B (OUTLET) | | C (SHELL) | | NPT x NPT | | NPT x CL150 FF | | NPT x CL300 RF | | CL150 FF x CL150 FF | | CL300 RF x CL150 FF | | CL300 RF x CL300 RF | |
| NPS | DN | NPS | DN | In. | mm | lbs | kg | lbs | kg | lbs | kg | lbs | kg | lbs | kg | lbs | kg |
| 3/8 | 10 | 3/4 | 20 | 2 | 50.8 | 8 | 4 | 9 | 4 | 10 | 5 | ---- | ---- | ---- | ---- | ---- | ---- |
| | | 1 | 25 | 2 | 50.8 | 8 | 4 | 10 | 5 | 11 | 5 | ---- | ---- | ---- | ---- | ---- | ---- |
| | | 1-1/2 | 40 | 2-1/2 | 63.5 | 12 | 5 | 15 | 7 | 18 | 8 | ---- | ---- | ---- | ---- | ---- | ---- |
| 1/2 | 15 | 1 | 25 | 2 | 50.8 | 8 | 4 | 10 | 5 | 11 | 5 | 12 | 5 | 12 | 5 | 13 | 6 |
| | | 1-1/4 | 32 | 2-1/2 | 63.5 | 12 | 5 | 13 | 6 | 16 | 7 | 15 | 7 | 15 | 7 | 17 | 8 |
| | | 1-1/2 | 40 | 2-1/2 | 63.5 | 12 | 5 | 15 | 7 | 18 | 8 | 16 | 7 | 16 | 7 | 19 | 9 |
| 3/4 | 20 | 1-1/4 | 32 | 2-1/2 | 63.5 | 12 | 5 | 14 | 6 | 16 | 7 | 15 | 7 | 16 | 7 | 18 | 8 |
| | | 2 | 50 | 3 | 76.2 | 16 | 7 | 21 | 10 | 23 | 10 | 22 | 10 | 23 | 10 | 25 | 11 |
| 1 | 25 | 1-1/2 | 40 | 2-1/2 | 63.5 | 13 | 6 | 16 | 7 | 19 | 9 | 18 | 8 | 19 | 9 | 22 | 10 |
| | | 2 | 50 | 3 | 76.2 | 16 | 7 | 21 | 10 | 23 | 10 | 23 | 10 | 24 | 11 | 26 | 12 |
| 1-1/4 | 32 | 2 | 50 | 3 | 76.2 | 16 | 7 | 21 | 10 | 23 | 10 | 23 | 10 | 25 | 11 | 27 | 12 |
| | | 3 | 80 | 4 | 102 | ---- | ---- | 40 | 18 | 47 | 21 | 42 | 19 | 45 | 20 | 51 | 23 |
| 1-1/2 | 40 | 3 | 80 | 4 | 102 | ---- | ---- | 39 | 18 | 44 | 20 | 43 | 20 | 46 | 21 | 52 | 24 |
| 2 | 50 | 3 | 80 | 4 | 102 | ---- | ---- | 40 | 18 | 46 | 21 | 45 | 20 | 47 | 21 | 53 | 24 |
| | | 4 | 100 | 5 | 127 | ---- | ---- | 66 | 30 | 76 | 34 | 72 | 33 | 74 | 34 | 84 | 38 |
| 2-1/2 | 65 | 4 | 100 | 6 | 152 | ---- | ---- | ---- | ---- | ---- | ---- | 97 | 44 | ---- | ---- | 109 | 49 |
| | | 5 | 125 | 6 | 152 | ---- | ---- | ---- | ---- | ---- | ---- | 99 | 45 | ---- | ---- | 115 | 52 |
| 3 | 80 | 4 | 100 | 6 | 152 | ---- | ---- | ---- | ---- | ---- | ---- | 99 | 45 | ---- | ---- | 103 | 47 |
| | | 5 | 125 | 6 | 152 | ---- | ---- | ---- | ---- | ---- | ---- | 101 | 46 | ---- | ---- | 119 | 54 |
| | | 6 | 150 | 8 | 203 | ---- | ---- | ---- | ---- | ---- | ---- | 150 | 68 | ---- | ---- | 181 | 82 |
| 4 | 100 | 5 | 125 | 6 | 152 | ---- | ---- | ---- | ---- | ---- | ---- | 105 | 48 | ---- | ---- | 129 | 59 |
| | | 6 | 150 | 8 | 203 | ---- | ---- | ---- | ---- | ---- | ---- | 162 | 73 | ---- | ---- | 178 | 81 |
| | | 8 | 200 | 10 | 254 | ---- | ---- | ---- | ---- | ---- | ---- | 256 | 116 | ---- | ---- | 299 | 136 |
| 5 | 125 | 6 | 150 | 8 | 203 | ---- | ---- | ---- | ---- | ---- | ---- | 180 | 82 | ---- | ---- | 167 | 76 |
| | | 8 | 200 | 10 | 254 | ---- | ---- | ---- | ---- | ---- | ---- | 289 | 131 | ---- | ---- | 247 | 112 |
| | | 10 | 250 | 12 | 305 | ---- | ---- | ---- | ---- | ---- | ---- | 455 | 206 | ---- | ---- | 428 | 194 |
| 6 | 150 | 8 | 200 | 10 | 254 | ---- | ---- | ---- | ---- | ---- | ---- | 295 | 134 | ---- | ---- | 299 | 136 |
| | | 10 | 250 | 12 | 305 | ---- | ---- | ---- | ---- | ---- | ---- | 451 | 205 | ---- | ---- | 490 | 222 |
| 8 | 200 | 10 | 250 | 12 | 305 | ---- | ---- | ---- | ---- | ---- | ---- | 468 | 212 | ---- | ---- | 507 | 230 |

## Ordering Information

When ordering, complete the ordering guide on this page. Refer to the Specifications section. Review the description to the right of each specification and the information in each referenced table or figure. Specify your choice whenever a selection is offered.

## Ordering Guide

**Inlet Size** (Select One)

- ☐ NPS 3/8 / DN 10
- ☐ NPS 1/2 / DN 15
- ☐ NPS 3/4 / DN 20
- ☐ NPS 1 / DN 25
- ☐ NPS 1-1/4 / DN 32
- ☐ NPS 1-1/2 / DN 40
- ☐ NPS 2 / DN 50
- ☐ NPS 2-1/2 / DN 65
- ☐ NPS 3 / DN 80
- ☐ NPS 4 / DN 100
- ☐ NPS 5 / DN 125
- ☐ NPS 6 / DN 150
- ☐ NPS 8 / DN 200

**Outlet Size** (Select One)

- ☐ NPS 3/4 / DN 20
- ☐ NPS 1 / DN 25
- ☐ NPS 1-1/4 / DN 32
- ☐ NPS 1-1/2 / DN 40
- ☐ NPS 2 / DN 50
- ☐ NPS 3 / DN 80
- ☐ NPS 4 / DN 100
- ☐ NPS 5 / DN 125
- ☐ NPS 6 / DN 150
- ☐ NPS 8 / DN 200
- ☐ NPS 10 / DN 250

**Suppressor Ends**

- ☐ NPT x NPT
- ☐ NPT x CL150 FF
- ☐ NPT x CL300 RF
- ☐ CL150 FF x CL150 FF
- ☐ CL300 RF x CL150 FF
- ☐ CL300 RF x CL300 RF

# Noise Suppressor

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