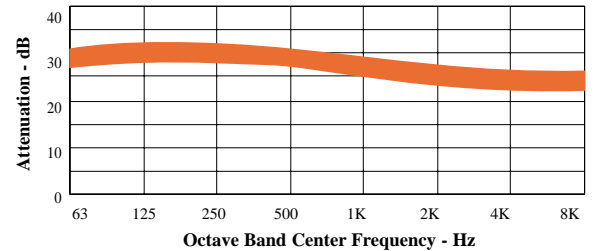


Positive Displacement Blower Silencers

Application

This reactive silencer is used typically on the intake of positive displacement blowers in applications where the blower operates below the critical Pitch Line Velocity.

Typical Attenuation Curve

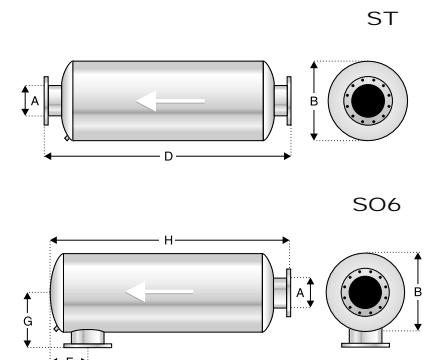


Dimensions

| Model | A | B | D | F(min) | F(max) | G | H | Wt. |
|-----------|----|----|-----|--------|--------|----|-----|------|
| 410-5001* | 1½ | 7 | 32 | 3 | 14 | 8 | 29 | 41 |
| 410-5002* | 2 | 8 | 36 | 4½ | 17 | 8 | 33 | 57 |
| 410-5003* | 2½ | 10 | 40 | 5½ | 19 | 9 | 37 | 80 |
| 410-5004* | 3 | 10 | 48 | 6 | 22 | 9 | 45 | 106 |
| 410-5005* | 3½ | 12 | 52 | 7 | 24 | 10 | 49 | 136 |
| 410-5006 | 4 | 14 | 56 | 7 | 25 | 11 | 52 | 162 |
| 410-5007 | 5 | 16 | 66 | 7 | 31 | 12 | 62 | 211 |
| 410-5008 | 6 | 18 | 72 | 9 | 35 | 13 | 68 | 463 |
| 410-5009 | 8 | 22 | 96 | 11 | 42 | 16 | 92 | 640 |
| 410-5010 | 10 | 26 | 120 | 12 | 50 | 17 | 116 | 998 |
| 410-5011 | 12 | 30 | 136 | 14 | 58 | 19 | 132 | 1649 |
| 410-5012 | 14 | 36 | 160 | 17 | 62 | 23 | 155 | 1954 |
| 410-5013 | 16 | 40 | 172 | 19 | 65 | 25 | 167 | 2340 |
| 410-5014 | 18 | 45 | 184 | 21 | 74 | 27 | 179 | 3101 |
| 410-5015 | 20 | 50 | 200 | 22 | 87 | 30 | 195 | 3899 |
| 410-5016 | 22 | 54 | 212 | 24 | 92 | 32 | 207 | 4531 |
| 410-5017 | 24 | 54 | 236 | 26 | 105 | 32 | 231 | 5444 |
| 410-5018 | 26 | 60 | 260 | 27 | 115 | 35 | 255 | 6362 |
| 410-5019 | 28 | 68 | 280 | 29 | 128 | 40 | 275 | 7558 |
| 410-5020 | 30 | 72 | 300 | 32 | 133 | 42 | 295 | 8536 |

Performance Class Rating

| Class | Minimum IL _A |
|-------|-------------------------|
| 1 | 10 dBA |
| 2 | 15 dBA |
| 3 | 20 dBA |
| 4 | 25 dBA |
| 5 | 30 dBA |
| 6 | 35 dBA |
| 7 | 40 dBA |
| 8 | 45 dBA |



*NPT Connections
Finish-Primer Gray
All flange connections - 150# ANSI

Dimensions in inches, weight in pounds.

Dimensions and weights are nominal and may vary slightly in production models.
Request a certified drawing of a specific model for exact dimensions.

Lit-0090 99-05

Silencer Selection Guide

The following information will enable you to determine the appropriate silencers for your blower application.

Silencer Size

Table 1 provides the normal capacity of Silex silencers, in CFM. The sizes in Column 1 refer to the inlet sizes of silencers, in inches. Capacities are expressed in inlet CFM. Find the column which is equal to or greater than the operating pressure of your blower and then, from that column, find the value which is equal to or greater than the blower's CFM. The appropriate size is the value shown in column 1 of the table.

Calculate the back pressure of your blower using table 3 and formula at right

Table 1

| | | Capacity (Inlet CFM 14.7 PSI & °F) | | | | | |
|------------|----------------|------------------------------------|--------|--------|---------|---------|---------|
| Size | Inlet Silencer | Discharge Silencer | | | | | |
| | | 4 PSIG | 6 PSIG | 8 PSIG | 10 PSIG | 12 PSIG | 15 PSIG |
| 1 | 38 | 39 | 40 | 41 | 43 | 44 | 45 |
| 1.5 | 85 | 88 | 91 | 93 | 96 | 98 | 101 |
| 2 | 151 | 157 | 161 | 165 | 171 | 174 | 180 |
| 2.5 | 237 | 245 | 252 | 259 | 267 | 273 | 281 |
| 3 | 341 | 352 | 363 | 372 | 383 | 392 | 404 |
| 3.5 | 464 | 480 | 494 | 507 | 523 | 534 | 550 |
| 4 | 605 | 625 | 644 | 660 | 681 | 696 | 716 |
| 5 | 944 | 977 | 1006 | 1032 | 1064 | 1088 | 1120 |
| 6 | 1360 | 1408 | 1450 | 1488 | 1534 | 1568 | 1614 |
| 8 | 2423 | 2507 | 2582 | 2649 | 2731 | 2792 | 2874 |
| 10 | 3783 | 3915 | 4032 | 4137 | 4265 | 4360 | 4488 |
| 12 | 5449 | 5639 | 5808 | 5959 | 6143 | 6280 | 6464 |
| 14 | 7427 | 7687 | 7917 | 8123 | 8373 | 8560 | 8811 |
| 16 | 9648 | 9985 | 10285 | 10552 | 10878 | 11120 | 11446 |
| 18 | 12286 | 12715 | 13096 | 13437 | 13851 | 14160 | 14575 |
| 20 | 15132 | 15661 | 16130 | 16550 | 17060 | 17440 | 17952 |
| 22 | 18325 | 18965 | 19533 | 20042 | 20660 | 21120 | 21740 |
| 24 | 21796 | 22557 | 23233 | 23838 | 24573 | 25120 | 25857 |
| 26 | 25544 | 26436 | 27228 | 27937 | 28799 | 29440 | 30304 |
| 28 | 29709 | 30746 | 31668 | 32492 | 33494 | 34240 | 35245 |
| 30 | 34082 | 35272 | 36329 | 37275 | 38424 | 39280 | 40433 |
| Est. Temp. | | | | | | | |
| | 70°F | 115°F | 140°F | 165°F | 190°F | 200°F | 240°F |

Silencer Type

Table 2 groups Silex silencers by silencer type. Determine which models are appropriate for your application based on whether the inlet and/or discharge speeds are above or below transition speeds. If the application has a critical noise specification, use a combination reactive/absorptive model.

Table 2

| Pitch Line Velocity | Inlet | Discharge |
|---------------------|---------|-----------|
| Below Transition | Class 4 | Class 4 |
| | Class 5 | Class 5 |
| | | Class 6 |
| Above Transition | Class 4 | Class 4 |
| | Class 5 | Class 5 |
| | | Class 6 |

Pressure Drop

Table 3 sets out the pressure drop coefficients for Silex blower silencers. Use these coefficients in the equations to calculate the silencer pressure drop.

Table 3

| Type | Silencer Model | Straight Thru | Side Inlet |
|----------------------|----------------|---------------|------------|
| Intake Silencers | Class 4 | 4.20 | 4.60 |
| | Class 5 | 4.80 | 5.30 |
| | Class 7 | 5.50 | 6.00 |
| Discharge Silencers | Class 4 | 4.20 | 4.60 |
| | Class 5 | 4.80 | 5.30 |
| | Class 6 | 5.20 | 5.70 |
| | Class 7 | 5.50 | 6.00 |
| Absorptive Silencers | Class 4 | 0.20 | - |
| | Class 5 | 0.75 | - |
| | Class 6 | 0.80 | - |
| | Class 7 | 0.85 | - |

Pressure Drop

The following formulas may be used to calculate pressure drop through the silencers covered in this catalog.

$$\text{Inlet } \Delta P = \left(\frac{v}{4005} \right)^2 c$$

(assumes silencer inlet is open to atmosphere)

$$\text{Discharge } \Delta P = \left(\frac{v}{4005} \right)^2 c \times \frac{P}{14.7} \times \frac{530}{T}$$

ΔP = Pressure drop through silencer, inches, H₂O

V = Air velocity through silencer, feet per minute

C = Individual Silencer restriction coefficient - empirical constant (See Table 3)

T = Discharge temperature, °R. absolute (operating temperature in degrees F + 460)

P = Discharge pressure, PSIA (operating pressure in PSIG + 14.7)



Silex Inc. Phone 905 612 4000
 6659 Ordan Drive Fax 905 612 8999
 Mississauga, Ontario Web www.silex.com
 L5T 1K6 E-mail info@silex.com