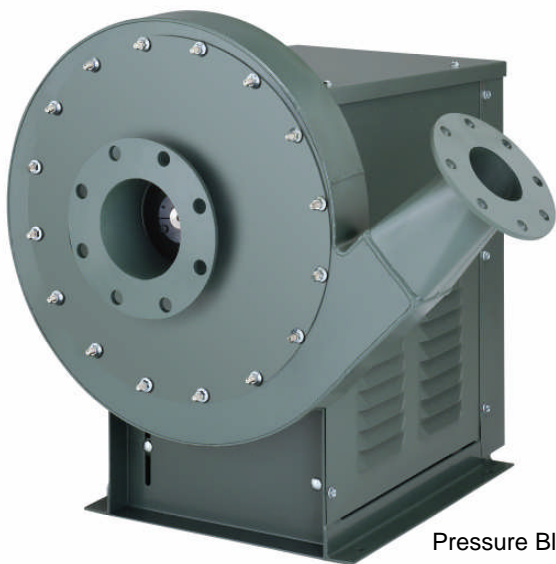


PRESSURE BLOWER AND TYPE HP PRESSURE BLOWER SILENCERS



Pressure Blower

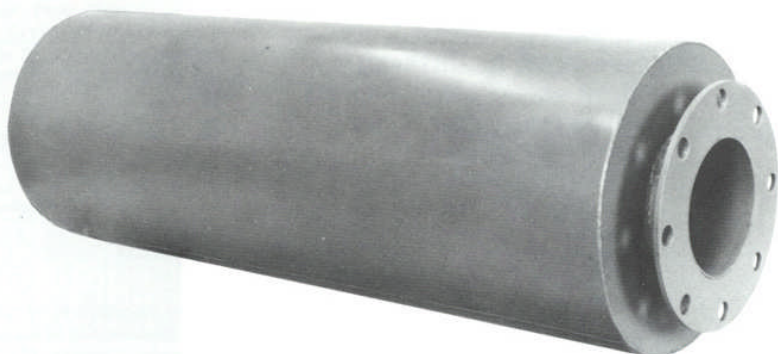
The New York Blower Company offers a wide variety of silencer solutions for its fans and blowers.

The silencers shown in this supplement have been designed specifically for **nyb's** Pressure Blower and Type HP Pressure Blower products. They have been rated for acoustical attenuation with air flowing through them. The term "Dynamic Insertion Loss" is used to express attenuation when silencers are rated by this method, which has come to be recognized as the most accurate method for rating equipment that must handle air as well as attenuate sound.

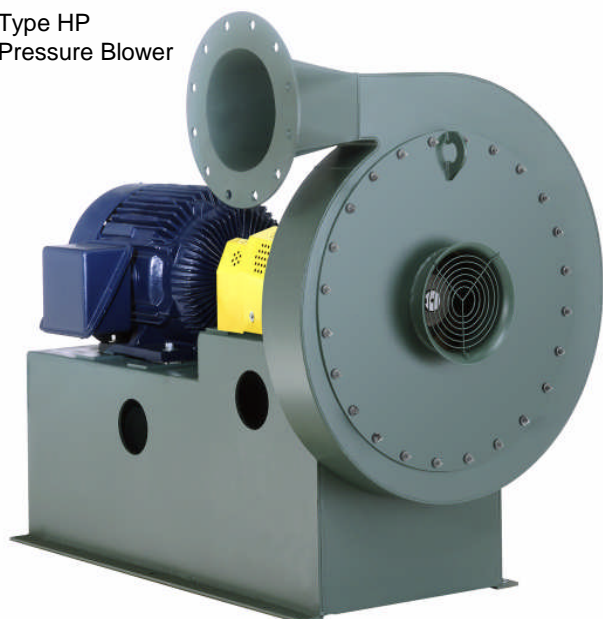
The "Effective Flow Resistance" of a Pressure Blower Silencer is the result of the aerodynamic design of the silencer. The "Effective Flow Resistance" shown in Chart 1 provides a means of correcting for this resistance. However, note that in terms of fan static pressure, this correction becomes insignificant for most applications.

FEATURES

- **Versatile Design** - While **nyb** Pressure Blower/Type HP Pressure Blower Silencers were designed specifically for mounting on the inlet or outlet of the fan, they may also be used elsewhere in the duct.
- **Ease of Installation** - Silencers can be equipped with flanged or slip type connections to fit a variety of mounting arrangements. A venturi inlet with guard is also available for use on the inlet side of the silencer when no duct will be used.



Type HP
Pressure Blower



- **Quality Construction** - Heavy welded steel construction ... casing filled with high density acoustical absorption material.
- **Temperature Capability** - Silencers operate efficiently at temperatures up to 600°F.
- **Accurately Rated** - The ratings in this supplement provide accurate values of sound power attenuation which can be used to calculate the sound power levels of the fan and silencer combination. All data is based on tests conducted in New York Blower's AMCA Certified laboratory using AMCA prescribed test methods.



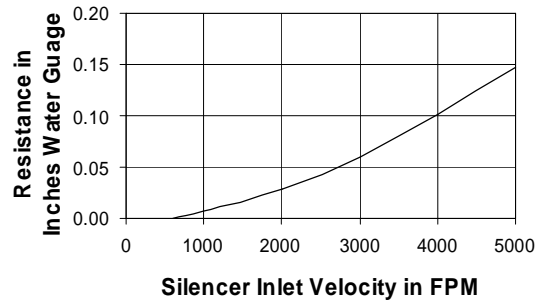
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CHART I

EFFECTIVE FLOW RESISTANCE

NOTE: The values shown in Chart I are flow losses through the silencer.



SELECTING A SILENCER

1. If the silencer is to be mounted on the fan (inlet or outlet), the recommended size is that which corresponds to the flange diameter of the inlet or outlet, depending upon where the silencer will be used. For example, a Size 1704A1^{1/2} Pressure Blower will take a Size 6 Pressure Blower Silencer on the inlet or a Size 4 Pressure Blower Silencer on the outlet. Consult the Pressure Blower Bulletin and the Type HP Pressure Blower Bulletin for inlet and outlet dimensions.
2. If the silencer is to be mounted remotely in the duct, use the Silencer size which corresponds to fan type and duct diameter. Example: 6" I.D. duct requires a Size 6 Silencer.
3. In applications where high duct velocities are present, it is recommended that Self-Noise . . . the sound produced in the silencer itself by the air flowing through it . . . be considered. This may indicate that a larger silencer is required. An appropriate transition must be provided by the customer in this event. Refer to Chart III.

PROPER INSTALLATION OF SILENCERS

1. If maximum attenuation is desired, the silencer should be structurally isolated from the fan and installed with flexible connections. This would necessitate the use of silencers with slip connections and independent supports by the customer.
2. Silencers mounted directly to the fan flange must be supported at the end opposite the fan. For inlet silencers, **nyb** offers a pre-designed support leg. For outlet silencers, the customer must provide the appropriate means of support.
3. Two silencers may be used in series to further reduce noise in the system. However, it should be remembered that each silencer contributes Self-Noise. Eventually, a practical limit is reached where the cumulative Self-Noise level equals or exceeds the Total Sound Power Level.
4. Plain pipe or flanged connections may be ordered on either or both ends of the Silencer.

NOTE: When a silencer is to be used on the inlet of the fan with no additional inlet duct, the use of a venturi inlet is recommended in order to minimize entrance loss. (A venturi inlet is not available on Size 3 or Size 4 Silencers.)

CALCULATING NET SOUND POWER

To determine the Sound Power Level of a fan and silencer combination, use the method shown below.

1. Determine the Fan Inlet or Outlet Sound Power Level from the sound power ratings obtained from **nyb's** Fan-To-Size selection program.
2. Subtract the DIL (Dynamic Insertion Loss) shown in Chart II/III from the values of Step 1. For most applications, this is the new Sound Power Level of the fan and silencer combination.
3. In most industrial applications, Self-Noise is a much lesser concern than in others. The Self-Noise values, however, are shown here for those few installations where extremely low levels result.

Add the Self-Noise to the results of Step 2 **logarithmically**. To do this, find the difference (in db) between the value obtained in Step 2 and the Self-Noise and select the "Logarithmic Addition Value" from Chart V. Add the Logarithmic Addition Value to the Outlet (or Inlet) Sound Power Level, less DIL, or to the Self-Noise, whichever is greater. The sum is the Sound Power Level of the fan and silencer combination.

TYPE HP PRESSURE BLOWER SILENCER

| CHART III DYNAMIC INSERTION LOSS (DIL) IN DECIBELS | Silencer Size | OCTAVE BAND | | | | | | | |
|--|------------------|-------------|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| | 10 | 5 | 7 | 6 | 3 | 3 | 5 | 4 | 3 |
| | 12 | 6 | 7 | 8 | 7 | 6 | 5 | 4 | 4 |
| | 14 | 5 | 6 | 7 | 7 | 6 | 5 | 4 | 5 |

| CHART IV SELF- NOISE IN DECIBELS | Silencer Inlet Velocity (fpm) | OCTAVE BAND | | | | | | | |
|--|--|-------------|----|----|----|----|----|----|----|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| | 1000 | 35 | 29 | 25 | 20 | * | * | * | * |
| | 2000 | 40 | 34 | 29 | 26 | 25 | 22 | * | * |
| | 3000 | 50 | 44 | 39 | 37 | 36 | 34 | 29 | 20 |
| | 5000 | 57 | 51 | 47 | 46 | 45 | 45 | 42 | 35 |
| | 6000 | 60 | 55 | 52 | 51 | 50 | 49 | 48 | 42 |
| | 7000 | 61 | 56 | 54 | 53 | 52 | 52 | 51 | 46 |
| | 8000 | 64 | 59 | 58 | 57 | 57 | 57 | 56 | 51 |

*Values less than 20 db considered negligible.

PRESSURE BLOWER SILENCER

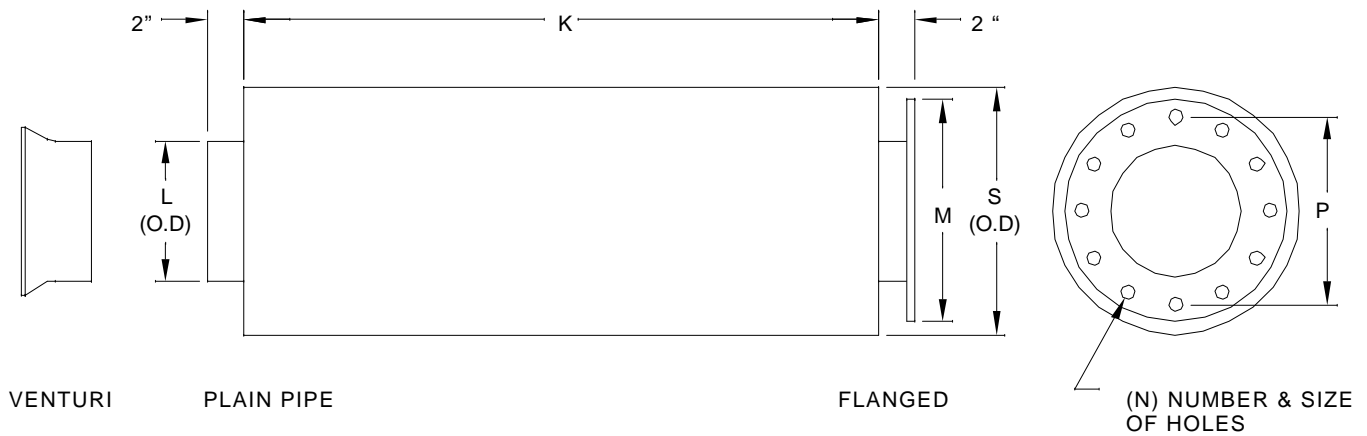
| CHART II DYNAMIC INSERTION LOSS (DIL) IN DECIBELS | Silencer Size | OCTAVE BAND | | | | | | | |
|---|------------------|-------------|----|----|----|----|----|----|----|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| | 3 | | | | | | | | |
| | 4 | 4 | 18 | 26 | 34 | 37 | 30 | 23 | 21 |
| | 5 | | | | | | | | |
| | 6 | 2 | 14 | 23 | 32 | 34 | 29 | 25 | 23 |
| | 8 | 1 | 11 | 21 | 30 | 31 | 29 | 26 | 25 |
| | 10 | 2 | 14 | 23 | 32 | 31 | 28 | 25 | 24 |
| | 12 | 1 | 11 | 24 | 33 | 32 | 28 | 25 | 24 |

| CHART V LOGARITHMIC ADDITION VALUES | Difference Between Sound Levels (db) | 0 | 1 | 2 | 4 | 6 | 9 | 10 or over |
|--|---|---|---|------------------|---|------------------|---|------------------|
| | | Add to Higher Sound Power Level | 3 | 2 ^{1/2} | 2 | 1 ^{1/2} | 1 | 1/2 |

Calculate the Sound Power Level at the open downstream end of the outlet duct of a combination Pressure Blower Silencer and a Size 1910A15 Arrangement 4 Pressure Blower delivering 2100 CFM, 3838 FPM O.V., at 27.5" SP.

EXAMPLE This Pressure Blower has a 10" outlet. Therefore, a Size 10 Pressure Blower silencer will be used. Net Sound Power Level calculations are as follows:

| Line | OCTAVE BAND | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|--|--|----|-----|-----|-----|-----|-----|-----|-----|
| 1. | Outlet Sound Power Level (from the Fan-To-Size selection program). | 90 | 94 | 95 | 96 | 93 | 91 | 89 | 87 |
| 2. | Deduct the DIL (from Chart II/III). | -2 | -14 | -23 | -32 | -31 | -28 | -25 | -24 |
| 3. | Outlet Sound Power Level less DIL (Line 1 plus Line 2). | 88 | 80 | 72 | 64 | 62 | 63 | 64 | 63 |
| When low outlet sound power levels are encountered, it is advisable to complete Steps 4 through 6 to determine the effect of Pressure Blower/Type HP Pressure Blower Self-Noise on the Net Outlet Sound Power Level. | | | | | | | | | |
| 4. | Self-Noise (from Chart IV). | 54 | 48 | 44 | 43 | 42 | 40 | 38 | 30 |
| 5. | Logarithmic Addition Value (from Chart V) based on the difference between Line 3 and Line 4. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6. | Net Pressure Blower/Type HP Pressure Blower Combination Sound Power Level: Greater of Line 3 or 4 plus Line 5. | 88 | 80 | 72 | 64 | 62 | 63 | 64 | 63 |



DIMENSIONS [Inches]

Pressure Blower

| Silencer Size | K | L | M | S | P Bolt Circle | N Number & Size of Holes† | Outer Shell (Gauge) | Weight (Approx. Pounds) | Inlet or Outlet Area [sq. ft.] |
|---------------|----|--------|--------|----|---------------|---------------------------|---------------------|-------------------------|--------------------------------|
| 3 | 36 | 35/8 | 7 1/2 | 14 | 6 | 4 - 3/4 | 14 | 65 | .05 |
| 4 | 36 | 4 1/2 | 9 | 14 | 7 1/2 | 8 - 3/4 | 14 | 70 | .09 |
| 5 | 36 | 5 5/8 | 10 | 14 | 8 1/2 | 8 - 7/8 | 14 | 70 | .14 |
| 6 | 36 | 6 5/8 | 11 | 14 | 9 1/2 | 8 - 7/8 | 14 | 75 | .20 |
| 8 | 36 | 8 5/8 | 13 1/2 | 14 | 11 3/4 | 8 - 7/8 | 14 | 80 | .35 |
| 10 | 36 | 10 3/4 | 16 | 20 | 14 1/4 | 12 - 1 | 14 | 125 | .55 |
| 12 | 36 | 12 3/4 | 19 | 20 | 17 | 12 - 1 | 14 | 130 | .79 |

Type HP Pressure Blower

| Silencer Size | K | L | M | S | P Bolt Circle | N Number & Size of Holes† | Outer Shell (Gauge) | Weight (Approx. Pounds) | Inlet or Outlet Area [sq. ft.] |
|---------------|----|--------|----|----|---------------|---------------------------|---------------------|-------------------------|--------------------------------|
| 10 | 36 | 10 1/4 | 16 | 20 | 14 1/4 | 12 - 1 | 14 | 125 | .55 |
| 12 | 42 | 12 1/4 | 19 | 24 | 17 | 12 - 1 | 14 | 185 | .79 |
| 14 | 42 | 14 | 21 | 24 | 18 3/4 | 12 - 1 1/8 | 14 | 180 | 1.07 |

† ANSI Class 125/1 50 hole pattern . . . flange thickness 3/8"

Tolerance ± 1/8"

Dimension should not be used for construction unless certified.

Weights shown are for silencers with flanged connections.

THE NEW YORK BLOWER COMPANY POLICY REGARDING "SOUND" SPECIFICATIONS

NOTE: This policy statement is presented both as a guide to purchasers of fan equipment and as a resolution of **nyb's** responsibility in cases where the purchaser has requested that **nyb** equipment meet certain noise level specifications.

nyb provides sound power level ratings in each of the eight octave bands, as tested and rated in accordance with Air Movement and Control Association (AMCA) Publication 300. These ratings are statements of the total sound energy levels emanating from the inlet and outlet of the fan itself.

These sound power ratings are considered the only truly accurate basis for comparison, or for further estimating the resultant noise levels within a given system or installation. Refer to **nyb** Engineering Letter 12 for a detailed explanation.

In some cases **nyb** offers silencers for the fan inlet and/or outlet that can be used to attenuate sound power emanating through the fan inlet or outlet. Specific ratings are available to determine the revised sound levels resulting from the use of such silencers.

Though methods are available for estimating values of sound pressure levels by octave band or the single number dBA at points some distance from the fan, these result merely in estimates based on ideal situations that do not take into effect

background noise, other sound producing equipment in an installation, the effective building configuration and construction and/or the effects of ductwork configuration and physical construction.

Specifications demanding guaranteed pressure levels in any form, either adjacent to the fan or at other points in the installation or system, can only be met through qualified analysis of the total system and physical environs by professional Acoustical Consultants or trained Acoustical Engineers - a professional service that is clearly beyond the responsibility of the fan manufacturer.

Consequently, **nyb** offers these sound power level ratings, as tested and rated in accordance with AMCA Publication 300 and 301, as the only qualified tool for meaningful evaluation by the purchaser or his agent. This constitutes an exception to any specification for sound data or guarantees in any form other than sound power level ratings.