



BLOWER BRIEFS



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NOISE

REDUCTION TECHNIQUES FOR ROTARY POSITIVE DISPLACEMENT BLOWERS & VACUUM PUMPS

Rotary positive displacement blowers are well known for their ability to generate a substantial amount of noise. Each time the impeller passes the inlet and discharge opening, a pressure pulse is generated. Unsilenced blowers can generate noise levels as high as 120dBA at 3 feet. This is well into the pain zone. The primary frequency generated is approximately 125Hz. Blower components that also contribute to the noise are the gears and bearings which tend to emit noise in the higher band widths.

Typically, the larger the blower or vacuum pump and the greater the differential pressure at which it operates, the greater the noise level. A blower's operating speed contributes significantly to the noise generated.

Several techniques or a combination of techniques can be used to reduce the offending noise levels. These techniques are as follows:

1. The easiest method to reduce noise is by reducing the blower speed. Reducing the speed reduces the number of times the impeller passes the inlet and the discharge. Reducing the air velocity through the connectors is another means of reducing blower noise. Dropping the operating speed will normally put the user in a larger unit with the additional benefits of larger inlet and outlet connections which reduce the velocity through the connectors. An additional benefit of longer equipment life is obtained when using larger, slower blowers. The down side of a larger unit is a greater initial investment. Blower manufacturers continue to increase the maximum allowable operating speeds due to material improvements; however, they have not increased the connector sizes to keep the connector velocities low.

2. Place silencers on the inlet or discharge or both. Several kinds of silencers are available such as a chamber type, absorptive type and chamber absorptive type which combines features of both. The type of silencer used is determined by the operating speed of the blower or vacuum pump. Critical pitch line velocities (gear tip speed) are 3300

fpm for the inlet and 2700 fpm for the discharge. If the pitch line velocity is above the critical, a combination chamber-absorptive type silencer is recommended. If the blower or vacuum pump is operated below the critical, a chamber type silencer is recommended. Absorptive type silencers are typically used for high velocity gas streams where higher frequency noise needs to be attenuated. Vacuum pumps typically require a discharge silencer only due to lower density gas at the vacuum pump inlet. Lower density gases do not transmit the pressure pulsation well. However, an inlet silencer should be used for maximum silencing.

3. Blower cylinder lagging may also be considered. This will eliminate some of the noise generated through the blower cylinder. The lubricant area must typically remain exposed to permit adequate cooling of the gears and the bearings.

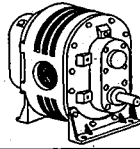
4. Blower flexible connectors or expansion joints may be lagged to prevent noise leakage at these points.

5. Full or partial enclosures may be considered for maximum attenuation. Partial enclosures typically cover the blower and motor to reduce the noise. Adequate ventilation must be provided to assure proper blower and motor cooling. Proper enclosure design can accomplish this. Partial enclosures are typically fabricated from fiberglass, steel or aluminum. Full enclosures are recommended for maximum attenuation. Enclosures are typically made of steel and will surround the unit and its accessory items. The enclosure may be lined with an acoustical material for maximum silencing. Care must be taken to eliminate any noise escape routes.

6. Active noise cancellation technology is available for vacuum systems. Active noise cancellation consists of a microphone pick-up in the discharge stream, speakers mounted around the discharge pipe, a passive silencer and a computer which analyzes the amplitude and frequency of the sound wave and generates a anti-noise signal which cancels the offending noise. These systems work best when the vacuum pump is isolated from other equipment so that extraneous noise sources do not interfere with the equipment, and maximum attenuation can be achieved.

Rotating Engineered Products offers a full line of partial and full enclosures as well as active noise attenuation technology. Fiberglass, aluminum and steel enclosures are available with or without sound attenuation material. Call us at 1-800-536-9933 on how we can reduce your noise problem.

DON'T FOR GET ABOUT THE
AEON PD LUBRICANT FOR
YOUR BLOWERS!!



SUTORBILT LIQUID RING VACUUM PUMPS

The Sutorbilt Liquid Ring Pump is a positive displacement type vacuum pump consisting of a multi-blade impeller eccentrically mounted relative to the casing.

The impeller blades project radially from the hub and form a series of pockets with the pump casing. As the impeller rotates, the liquid is thrown outward by centrifugal force to form a liquid ring which revolves concentrically to the pump casing.

The pockets, when in the top position of rotation, are completely filled with liquid, and as the impeller revolves through half a revolution, the liquid is thrown out of the pockets and is replaced by gas, which is drawn in through the suction port.

As rotation continues, the liquid is forced into the now gas filled pockets, compressing the gas and forcing it through the discharge port.

Since every pocket on the impeller repeats this process, a non-pulsating flow is delivered.

The service liquid, which is normally water, must be admitted continuously to the pump while it is working so that the heat of compression can be eliminated by the liquid ring.

A make-up service liquid supply compensates for the liquid which is discharged from the pump with the compressed gas.

Sutorbilt offers a wide range of liquid ring vacuum pumps in close coupled, single stage and two stage designs.

**Flows from 40 CFM to 2700 CFM
Vacuums to 28.5" Hgg**

THE SUTORBILT LIQUID RING PUMP ADVANTAGES

Vibration Free	Durability
Low Noise Level	V-Drive Capabilities
Condensing Effect	Servicing
Selection of Pumps	Oil Free

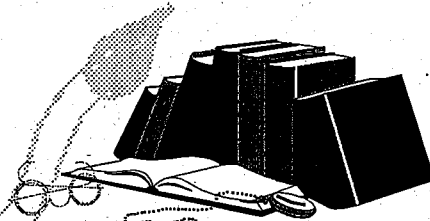
\$\$ BTU TIPS \$\$

Everybody likes to save money. One of the easiest ways to save your power dollars is to keep your inlet filter clean. A dirty inlet filter will require more blower horsepower to overcome the inlet resistance. Your blower will run hotter, your lubricants will breakdown sooner and you will shorten the life of your equipment. If your inlet filter becomes excessively clogged, it may collapse or cause blower failure.

Depending on the filter media used, the element may be blown out and washed with a mild detergent. Make sure you allow time for the element to dry. This process may be completed 2 or 3 times after which you should replace the element.

REP carries filter elements made by Solberg, Universal and Stoddard. Please see our stock lists for filters that are currently in stock in Atlanta. We can special order most brands of filter elements to meet your needs.

SALES & ENGINEERING CATALOGS



REP is pleased to announce the availability of new sales catalogs which provide the information you need to select equipment. Call or write to us at:

Rotating Engineered Products, Inc.
3206 Oakcliff Industrial Street
Atlanta, Georgia 30340
(800)536-9933 or (404)986-9933

COMING ATTRACTIONS IN MAY

- Gardner-Denver Cycloblowers' capabilities and design characteristics.
- Technical brief on blower performance and how it's calculated.

REP specializes in blower and vacuum pump systems