PTV Series Pneumatic Turbine Vibrators

• Aluminum body allows low noise and high vibration frequency
• Small in size and light-weight
• Sudden power on/off is allowed
• Frequency and amplitude of vibration can be adjusted as required

Series PTV Pneumatic Turbine Vibrators are the best choice of high vibration frequency types for a low noise environment. It is usually installed on a vibrating separator, conveyor, automatic arrangement machine, packing machine, or filling machine.

HOW IT OPERATES

The vibration is produced by centrifugal force which arises from the imbalance of movement when compressed air impacts the tangent of the turbine to make it move. The operation noise is low because of ball bearing supports on the running turbine.

SPECIFICATIONS

Temperature Limit: 212°F (100°C).
Noise Level: 60-75 dBA.
Supply Pressure: 29 to 87 psi (2 to 6 bar).
Air Consumption: See model chart.
Air Connection: BSPT female with NPT female adapter, see dimension chart. Also includes muffler for exhaust port.
Housing Material: Aluminum.

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>Frequency (V.P.M.)</th>
<th>Force lbf (N)</th>
<th>Air Consumption cfm (l/min)</th>
<th>Weight</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Pressure Input</td>
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<td></td>
<td>29 psi (2 bar) 58 psi (4 bar)</td>
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<tr>
<td>PTV-1</td>
<td>27500 35000 37500</td>
<td>189 (840) 312 (1390) 540 (2400)</td>
<td>1.62 (46) 2.83 (80) 4.0 (112)</td>
<td>.56 (0.26)</td>
</tr>
<tr>
<td>PTV-2</td>
<td>26000 30000 33000</td>
<td>315 (1400) 549 (2440) 839 (3730)</td>
<td>4.24 (120) 7.06 (200) 10.2 (290)</td>
<td>1.25 (0.57)</td>
</tr>
<tr>
<td>PTV-3</td>
<td>17000 21500 24000</td>
<td>470 (2090) 710 (3160)</td>
<td>4.24 (120) 7.06 (200) 10.2 (290)</td>
<td>1.28 (0.58)</td>
</tr>
<tr>
<td>PTV-4</td>
<td>17000 20000 23000</td>
<td>488 (2170) 908 (4040) 1241 (5520)</td>
<td>6.53 (185) 11.5 (325) 16.1 (455)</td>
<td>2.4 (1.1)</td>
</tr>
<tr>
<td>PTV-5</td>
<td>12000 15500 17000</td>
<td>477 (2120) 789 (3510) 1140 (5070)</td>
<td>6.53 (185) 11.5 (325) 16.1 (455)</td>
<td>2.4 (1.1)</td>
</tr>
</tbody>
</table>

V.P.M. = vibrations per minute
INSTALLATION

Vibration force transmits more efficiently in a conical hopper tank as opposed to a rectangular hopper. It is recommended that you install two vibrators in rectangular hoppers.
1. Vibrator force can be transmitted more efficiently by using "U" shape steel supports. It can help materials run smoother in the tank or pipe. It also reduces tank damage accidents.
2. To avoid tank wall amplitude caused by the vibrator moving in a left or right direction, use "U" shape steel.
3. Reinforced board is required between "U" shape steel and a thin tank wall.
4. To increase vibration fields in a big hopper tank, criss-cross "U" shape steel.

Attention: Vibration has to be fixed by a high tension bolt, washer, and spring washer. Connect with a security cable if the vibrator is installed onto a hopper.

VIBRATION FORCE CALCULATION

Taking the accumulated situation into consideration, the appropriate vibrator will give 0.2–0.5 G accelerated vibration onto the target object.

\[ F = 0.2 - 0.4GW \]

F: Vibration force (N)
G: Acceleration of gravity
W: Material weight (KG)

MATERIAL WEIGHT CALCULATION

Generally speaking, the hopper portion of the tank should be taken into consideration.

\[ V = \frac{\pi H}{3} (R^2 + Rr + r^2) \]

\[ V = \frac{H}{6} [A(A + a)(B + b) + a \times b] \]

W: Material weight (KG)
V: Chute volume (M³)
\( \gamma \): Specific gravity

MAINTENANCE

Upon final installation of the Series PTV Pneumatic Turbine Vibrator, no routine maintenance is required. A periodic check of the system calibration is recommended. The Series PTV is not field serviceable and should be returned if repair is needed (field repair should not be attempted and may void warranty). Be sure to include a brief description of the problem plus any relevant application notes. Contact customer service to receive a return good authorization number before shipping.

NOTES:

Various tanks are based on application requirement. Customers choose appropriate vibrator types to meet with various applicant demand (tank shape, material, applied material, etc). Suitable vibrators will not only prevent obstruction problems but won't damage the tank walls.