# High Capacity Mechanical Vacuum Boosters

<table>
<thead>
<tr>
<th>Models</th>
<th>Capacity M3/hr.</th>
<th>Operating Speed RPM (Approx.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KVB 3012</td>
<td>11543</td>
<td>1000</td>
</tr>
<tr>
<td>KVB 3612</td>
<td>12633</td>
<td>1500</td>
</tr>
<tr>
<td>KVB 3514</td>
<td>12564</td>
<td>1000</td>
</tr>
<tr>
<td>KVB 4816</td>
<td>15215</td>
<td>960</td>
</tr>
<tr>
<td>KVB 3818</td>
<td>23825</td>
<td>750</td>
</tr>
<tr>
<td>KVB 5418</td>
<td>30783</td>
<td>960</td>
</tr>
<tr>
<td>KVB 4820</td>
<td>39500</td>
<td>960</td>
</tr>
<tr>
<td>KVB 6420</td>
<td>55738</td>
<td>960</td>
</tr>
</tbody>
</table>

The drive motor rating would depend on booster pressure differential & on its operating speed. The pumping capacities at speeds other than indicated may be obtained from the manufacturer. The speed specified is considering a motor of 50 Hz Frequency & speed would change for 60 Hz and accordingly capacity will change.

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Mastery in Pressure & Vacuum Technology
Kay Vacuum Boosters are dry-running Vacuum Boosters that are used together with backing pumps in all rough and fine vacuum applications where large suction volumes are required.

Kay Vacuum Boosters work completely contact-free Dry mechanical Vacuum Boosters.

**Features**

- The lack of reciprocating parts allows a perfect dynamic balancing with fine grade because the rotors are processed by numerical control machine tool and balanced. There is fine clearance between the two rotors. The pump house and end cover is processed by special machine tool. It has high precision clearance between the two rotors. The pump house and end cover is processed by special machine tool. It has high precision clearance between the two rotors.

- Lubrication or oil media is not required in KVB Series roots type vacuum boosters as there is no contact between rotors, rotor and housing, that prevent oil vapours from polluting high vacuum systems.

- Good Reliability characteristic. The inherent overflow valve play auto-protective role.

- Compact structure, low footprint design, it offers Flexibility in gas outlet ports. There are two gas outlet ports at right and bottom.

- The KVB series root type vacuum boosters with by pass valve can start under the atmospheric pressure because the overflow valve is able to open automatically when the working pressure exceeds the maximum differential pressure, so that the gas flow re back to protect the KVB series roots type vacuum booster to avoid long period run over pressure condition so that mechanical vacuum booster should not be over heated.

- Mechanical Vacuum Boosters can be started quickly and in short time ultimate vacuum is reached with suitable back up pump.

**FUNCTION OF THE BYPASS VALVE**

The bypass valve consists of a connection between suction and pressure side of the Kay Vacuum Booster which is located outside of the conveying chamber. A mechanical valve is built into this connection and opens when the pressure difference is exceeding the determined maximum value. This ensures that part of the pumped gas is returned to the inlet.

This bypass valve allows the operation of the Vacuum Booster together with the backing pump at atmospheric pressure avoiding any overload of the pump or the motor. The main advantage of this bypass valve is to increase significantly the pump down speed of the vacuum pump system.

**Features**

- **ECONOMICAL**
  - Thanks to the large selection of design sizes, the suction capacity and ultimate pressure can be designed optimally in economic terms and matched exactly to the process conditions.

- **SAFE OPERATION**
  - Thanks to the tried-and-tested engineering and sturdy design, the integrated by pass valve makes operations possible for atmospheric pressure onwards.

- **APPLICATION ORIENTED**
  - Thanks to variable, horizontal or vertical pumping direction, ATEX-certified versions and a version for pumping oxygen are available.

- **USE IN VACUUM SYSTEM**
  - Kay Vacuum Boosters are used together with other vacuum pumps (backing pumps) in vacuum systems or vacuum pump groups. Liquid ring vacuum pumps or dry screw vacuum pumps are suitable as backing pumps. With the Combi series, Kay supplies standardised vacuum pump systems that use Kay Vacuum Booster. The different types of vacuum pumps that can be used as backing pumps and the large number of design sizes result in almost endless possible combinations with Kay Vacuum Boosters with a suction capacity of 200 to 55000 m³/h and more. This allows Combi Vacuum Pump Systems to be tailor-made for the respective application case.

**Performance & Operating Range of Kay Vacuum Boosters**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>KVB (P) 300</th>
<th>KVB (P) 1000</th>
<th>KVB (P) 2800</th>
<th>KVB (P) 5800</th>
<th>KVB (P) 11000</th>
<th>KVB (P) 25000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suction Capacity (m³/h)</td>
<td>200/280</td>
<td>540/600</td>
<td>1080/1200</td>
<td>2600/2900</td>
<td>4320/4800</td>
<td>9000/10000</td>
</tr>
<tr>
<td>Max. Pressure Tolerance (mbar)</td>
<td>80</td>
<td>45</td>
<td>45</td>
<td>30</td>
<td>30</td>
<td>80</td>
</tr>
<tr>
<td>Speed (RPM) (50/60 Hz)</td>
<td>1000/1600</td>
<td>1500/2400</td>
<td>2000/3600</td>
<td>5500/8000</td>
<td>3000/5600</td>
<td>5500/8000</td>
</tr>
<tr>
<td>DI (mm)</td>
<td>Inlet 50</td>
<td>80</td>
<td>100</td>
<td>150</td>
<td>150</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>Outlet 50</td>
<td>80</td>
<td>100</td>
<td>150</td>
<td>150</td>
<td>300</td>
</tr>
<tr>
<td>Weight (Kg) with standard Motor</td>
<td>50</td>
<td>320</td>
<td>540</td>
<td>1230</td>
<td>1760</td>
<td></td>
</tr>
<tr>
<td>Power (kW) (50/60 Hz)</td>
<td>0.75/11</td>
<td>2.2/3.7</td>
<td>3.7/7.5</td>
<td>5.5/7.5</td>
<td>11/15</td>
<td>22/30</td>
</tr>
</tbody>
</table>

**Applications**

- Chemical and Pharmaceutical Industry
- Drying and Impregnating
- Thin-film Technology
- Plastics Industry
- Semiconductor Industry
- Vacuum Packaging
- Electrical Engineering/Electronics
- Research and Laboratory
- Metallurgy
- Central Vacuum Supply
- Metalizing industries
- Oil Filtration
- Cement Industries
- Automobile Industries
- Transformer & Cable Drying
- Vacuum Distillation
- Lamps and Tubes Industries