RSR-KS

ROTARY AIR BLOWERS
Rotary Air Blowers

Tsurumi’s RSR-KS series rotary air blowers are equipped with a 3-lobe spur rotor. This rotor, as the most important component of a blower, is designed for corrosion resistance, heat resistance and durability, in addition to low noise, low vibration, ease of maintenance and high efficiency, thus providing stable performance, and ensuring smooth operation of the blower over a long period of time.

The product lineup of the RSR-KS series comprises air-cooled types (discharge bore diameter: 50 to 300 mm) and water-cooled types (discharge bore diameter: 80 to 350 mm) as standard models. Whether used under low pressure (0.6 kg/cm² or less) or high pressure (0.6 to 0.8 kg/cm²), the appropriate model can be selected according to application. Use at 0.8 kg/cm² or higher pressure is available as a special specification. In addition, blowers can be equipped with a helical rotor (discharge bore diameter: 80 to 250 mm).

The RSR-KS series is suited for various applications, such as for aeration at wastewater treatment facilities, agitation of wastewater and sewage, decomposition and scum prevention, and oxygen supply at fish farms.

Tsurumi also offers other water treatment equipment besides blowers, including submersible pumps, aerators, mixers, scum skimmers, bar screens and dehydrators. These products have been tested and proven for many years in the field of water treatment, and can be supplied as a total package.
**Blower with 3-lobe Spur Rotor**

- **Rotor**
  The 3-lobe spur rotor is designed for corrosion resistance, heat resistance and durability, in addition to low noise, low vibration and high efficiency operation.

- **Casing**
  Fluid is drawn from the inlet on the upper stage and discharged from the side on the lower stage. This structure reduces noise and provides higher efficiency.

- **Side Cover**
  The side cover supports the bearing and is structured to allow compressed air that has leaked via the shaft to flow out of the casing, without intrusion into other components. With water-cooled type blowers, cooling water is supplied to protect the bearing against temperature rise during operation at high pressure.

- **Shaft**
  The shaft is made of carbon steel for mechanical structure, which has undergone precision machining for shrink-fitting in the rotor.

- **Timing gear**
  The timing gear is made of chromium molybdenum steel. A Class 1 spur or helical gear is used to ensure stable power transmission, resulting in friction noise reduction.

**Applications**
- Aeration in sewage or industrial wastewater treatment plants
- As air-lift pumps in sewage or industrial wastewater treatment plants
- Oxygen supply at aquariums and fish farms
- Pneumatic conveyor

**Installation Diagram**

**Standard Accessories**
- Common Base
- Suction Silencer (with Air Filter)
- Discharge Silencer
- Belt Cover
- Flexi Check or Expansion Joint
- Pressure Gauge
- Safety Valve
- Pulley
- V-belt
- Anchor Bolts

**Optional Accessories**
- Anti-vibration Rubber
- Acoustic Hood
- Indoor Use Drip-proof Motor

**Special Specifications**
- Electroless Nickel Plating
- All Stainless Steel Version (Blower)

**Model Number Designation**

<table>
<thead>
<tr>
<th>Name of the series</th>
<th>Type</th>
<th>Discharge bore in mm</th>
<th>Cooling method</th>
<th>Revision number</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RSR</strong></td>
<td><strong>None</strong>: Normal type</td>
<td><strong>125</strong></td>
<td><strong>Air</strong></td>
<td>2</td>
</tr>
<tr>
<td><strong>L</strong></td>
<td><strong>L</strong>: Large air volume type</td>
<td><strong>125</strong></td>
<td><strong>W</strong>: Water</td>
<td>2</td>
</tr>
</tbody>
</table>

**How To Select The Blower Model**

- The Selection Chart indicates the relationships between blower model, bore, revolutions, discharge pressures, actual air flow rates, and the shaft powers.
- To convert amounts of air under discharge conditions to amounts of air under standard suction conditions indicated on the Selection Chart, use the following formula:

\[
Q_s = Q_d \times \frac{101.3 + P_d}{101.3} \times \frac{273 + t_s}{273 + t_d}
\]

where:
- \(Q_s\): amount of air (m³/min) under standard suction conditions
- \(Q_d\): amount of air (m³/min) under discharge conditions
- \(P_d\): discharge pressure (kPa)
- \(t_s\): suction temperature in °C
- \(t_d\): discharge temperature in °C

4. Using the amount of air and the necessary discharge pressure obtained from the above calculations, determine your blower model, bore, revolution, and shaft power referring to the Selection Chart.

5. Your selectable range can overlap several models. It is recommended that one with a smaller model number be selected for cost economy, or one with a larger model number be selected for lower noise.

6. For necessary motor output, refer to required power (La) in the Selection Chart.
### Selection Chart (for reference)

<table>
<thead>
<tr>
<th>Model (Discharge Bore in mm)</th>
<th>Speed (rpm)</th>
<th>Suction air volume at standard condition (Qs in m³/min) and required power (La in kW)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RSR2-65KS</strong> (50)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1240</td>
<td>1.46</td>
<td>0.74</td>
</tr>
<tr>
<td>1450</td>
<td>1.79</td>
<td>0.87</td>
</tr>
<tr>
<td>1750</td>
<td>2.26</td>
<td>1.02</td>
</tr>
<tr>
<td>2100</td>
<td>2.84</td>
<td>1.24</td>
</tr>
<tr>
<td><strong>RSR2-65KS</strong> (65)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1240</td>
<td>1.90</td>
<td>0.97</td>
</tr>
<tr>
<td>1450</td>
<td>2.35</td>
<td>1.10</td>
</tr>
<tr>
<td>1750</td>
<td>3.04</td>
<td>1.35</td>
</tr>
<tr>
<td>2100</td>
<td>3.81</td>
<td>1.53</td>
</tr>
<tr>
<td><strong>RSR2-65KS</strong> (80)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1240</td>
<td>3.72</td>
<td>1.46</td>
</tr>
<tr>
<td>1450</td>
<td>5.06</td>
<td>1.79</td>
</tr>
<tr>
<td>1750</td>
<td>6.46</td>
<td>2.09</td>
</tr>
<tr>
<td>2100</td>
<td>8.14</td>
<td>2.51</td>
</tr>
<tr>
<td><strong>RSR2-65KS</strong> (100)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1240</td>
<td>5.07</td>
<td>2.00</td>
</tr>
<tr>
<td>1450</td>
<td>6.71</td>
<td>2.18</td>
</tr>
<tr>
<td>1750</td>
<td>8.24</td>
<td>2.55</td>
</tr>
<tr>
<td>2100</td>
<td>10.57</td>
<td>3.05</td>
</tr>
<tr>
<td><strong>RSR2-65KS</strong> (125)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1240</td>
<td>8.56</td>
<td>3.52</td>
</tr>
<tr>
<td>1450</td>
<td>11.50</td>
<td>4.83</td>
</tr>
<tr>
<td>1750</td>
<td>15.13</td>
<td>5.96</td>
</tr>
<tr>
<td>2100</td>
<td>18.28</td>
<td>6.61</td>
</tr>
<tr>
<td><strong>RSR2-65KS</strong> (150)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1240</td>
<td>10.61</td>
<td>4.51</td>
</tr>
<tr>
<td>1450</td>
<td>15.05</td>
<td>5.61</td>
</tr>
<tr>
<td>1750</td>
<td>20.00</td>
<td>6.81</td>
</tr>
<tr>
<td>2100</td>
<td>25.55</td>
<td>7.91</td>
</tr>
<tr>
<td><strong>RSR2-65KS</strong> (200)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1240</td>
<td>14.10</td>
<td>4.86</td>
</tr>
<tr>
<td>1450</td>
<td>23.70</td>
<td>6.56</td>
</tr>
<tr>
<td>1750</td>
<td>35.40</td>
<td>7.70</td>
</tr>
<tr>
<td>2100</td>
<td>49.90</td>
<td>8.56</td>
</tr>
</tbody>
</table>

### Performance Curves (for reference)

**Note:**
- The motor must be selected with 10 to 20% margin from the required power (La in kW).
- The standard condition is defined as a temperature of 20°C, absolute pressure of 101.3kPa, and relative humidity of 70%.
- For blowers with a discharge bore diameter of 80 to 250mm, the 3-side spur motor can be exchanged with a helical spur friction.
- In case of operating at 0.8%BHP (158.8kW), if you need a larger model, contact your dealer or Tsurumi representative.
### Selection Chart (for reference)

<table>
<thead>
<tr>
<th>Model</th>
<th>Discharge Bore (in mm)</th>
<th>Speed (rpm)</th>
<th>Qs / m³/min</th>
<th>Ls / kW</th>
<th>Cooling Water (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSR-200WKS (120)</td>
<td>1150</td>
<td>2.87</td>
<td>3.70</td>
<td>2.39</td>
<td>4.31</td>
</tr>
<tr>
<td></td>
<td>1300</td>
<td>3.35</td>
<td>4.33</td>
<td>3.06</td>
<td>5.13</td>
</tr>
<tr>
<td>RSR-350WKS (180)</td>
<td>1650</td>
<td>4.04</td>
<td>5.69</td>
<td>3.75</td>
<td>5.86</td>
</tr>
<tr>
<td>RSR-125WKS (150)</td>
<td>1950</td>
<td>4.71</td>
<td>6.20</td>
<td>4.91</td>
<td>6.22</td>
</tr>
<tr>
<td>RSR-250WKS (200)</td>
<td>2240</td>
<td>5.38</td>
<td>6.94</td>
<td>5.37</td>
<td>7.84</td>
</tr>
<tr>
<td>RSR-300WKS (250)</td>
<td>2550</td>
<td>5.99</td>
<td>7.71</td>
<td>6.60</td>
<td>8.07</td>
</tr>
<tr>
<td>RSR-500WKS (400)</td>
<td>3170</td>
<td>7.33</td>
<td>9.40</td>
<td>8.30</td>
<td>10.40</td>
</tr>
</tbody>
</table>

Note:
- The motor must be selected with a 10% to 30% margin from the required power (in kW).
- The standard condition is defined as a temperature of 20°C, absolute pressure of 101.3kPa, and relative humidity of 70%.
- For blowers with the discharge bore diameter of 80 to 250mm, the 3-lobe spur rotor can be exchanged with a helical rotor (option).
- In case of rotating at 345kW/160kW (200kW & over), the 3-lobe spur rotor can be exchanged with a helical rotor (option).

---

### Performance Curves (for reference)

<table>
<thead>
<tr>
<th>Model</th>
<th>Discharge Pressure (kg/cm²)</th>
<th>Air Volume (m³/min)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSR-200WKS</td>
<td>60</td>
<td>1100</td>
<td>1750</td>
</tr>
<tr>
<td>RSR-350WKS</td>
<td>125</td>
<td>1550</td>
<td>1850</td>
</tr>
<tr>
<td>RSR-500WKS</td>
<td>160</td>
<td>1950</td>
<td>2150</td>
</tr>
</tbody>
</table>

---

### Technical Specifications

- **RSR-WKS** Water-Cooled Type
- **RSR2** spur rotor
- **Discharge Bore Diameter** 80 to 250mm
- **Temperature** 20°C
- **Absolute Pressure** 101.3kPa
- **Relative Humidity** 70%
## Dimensions

![Diagram of Dimensions](Image)

### Model Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Dm</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>DM</th>
<th>Approx. Weight(kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSR2-50KS</td>
<td>50</td>
<td>135</td>
<td>160</td>
<td>450</td>
<td>100</td>
<td>650</td>
<td>660</td>
<td>210</td>
<td>160</td>
<td>120</td>
<td>260</td>
<td>300</td>
<td>290</td>
<td>14</td>
<td>54</td>
</tr>
<tr>
<td>RSR2-60KS</td>
<td>65</td>
<td>135</td>
<td>160</td>
<td>450</td>
<td>100</td>
<td>650</td>
<td>660</td>
<td>210</td>
<td>180</td>
<td>145</td>
<td>260</td>
<td>300</td>
<td>290</td>
<td>14</td>
<td>57</td>
</tr>
<tr>
<td>RSR2-80KS</td>
<td>85</td>
<td>175</td>
<td>190</td>
<td>550</td>
<td>100</td>
<td>750</td>
<td>775</td>
<td>245</td>
<td>215</td>
<td>125</td>
<td>280</td>
<td>320</td>
<td>380</td>
<td>18</td>
<td>109</td>
</tr>
<tr>
<td>RSR2-100KS</td>
<td>100</td>
<td>175</td>
<td>190</td>
<td>600</td>
<td>100</td>
<td>800</td>
<td>825</td>
<td>280</td>
<td>230</td>
<td>230</td>
<td>240</td>
<td>440</td>
<td>380</td>
<td>18</td>
<td>119</td>
</tr>
<tr>
<td>RSR2-125KS</td>
<td>125</td>
<td>205</td>
<td>235</td>
<td>650</td>
<td>100</td>
<td>850</td>
<td>900</td>
<td>350</td>
<td>280</td>
<td>260</td>
<td>370</td>
<td>420</td>
<td>434</td>
<td>18</td>
<td>201</td>
</tr>
<tr>
<td>RSR2-150KS</td>
<td>150</td>
<td>255</td>
<td>275</td>
<td>750</td>
<td>100</td>
<td>950</td>
<td>1005</td>
<td>360</td>
<td>275</td>
<td>135</td>
<td>430</td>
<td>480</td>
<td>505</td>
<td>18</td>
<td>263</td>
</tr>
<tr>
<td>RSR2-180KS</td>
<td>180</td>
<td>255</td>
<td>275</td>
<td>750</td>
<td>100</td>
<td>950</td>
<td>1005</td>
<td>360</td>
<td>300</td>
<td>165</td>
<td>430</td>
<td>480</td>
<td>535</td>
<td>18</td>
<td>293</td>
</tr>
<tr>
<td>RSR2-200KS</td>
<td>200</td>
<td>300</td>
<td>300</td>
<td>950</td>
<td>125</td>
<td>1100</td>
<td>1155</td>
<td>465</td>
<td>350</td>
<td>210</td>
<td>500</td>
<td>550</td>
<td>535</td>
<td>18</td>
<td>324</td>
</tr>
<tr>
<td>RSR2-250KS</td>
<td>250</td>
<td>350</td>
<td>360</td>
<td>1100</td>
<td>200</td>
<td>1500</td>
<td>1565</td>
<td>600</td>
<td>415</td>
<td>325</td>
<td>580</td>
<td>650</td>
<td>770</td>
<td>23</td>
<td>875</td>
</tr>
<tr>
<td>RSR2-300KS</td>
<td>300</td>
<td>460</td>
<td>415</td>
<td>1300</td>
<td>250</td>
<td>1800</td>
<td>1875</td>
<td>630</td>
<td>550</td>
<td>365</td>
<td>630</td>
<td>700</td>
<td>1000</td>
<td>23</td>
<td>1160</td>
</tr>
</tbody>
</table>

### Motor Output
- Motor Output: 0.75-40 kW
- Air-inlet Bore: 32-150 mm
- Discharge Bore: 50-800 mm

### Treating Capacity
- Treating Capacity: 3-216 kgDS/h

## Sewage & Wastewater Pump

### B series
- Discharge Bore: 50-800 mm
- Motor Output: 0.4-110 kW

### BER series
- Air-inlet Bore: 25-60 mm
- Motor Output: 0.75-5.5 kW

### TRN series
- Discharge Bore: 50 mm
- Motor Output: 0.4-0.75 kW

### FSP series
- Discharge Bore: 50 mm
- Motor Output: 0.4-0.75 kW

### MDQ/MDC/JD series
- Treating Capacity: 3-216 kgDS/h
- Total Motor Output: 0.6-3.15 kW

### MR series
- Propeller Dia.: 145-400 mm
- Motor Output: 0.25-4 kW

### Bar Screen series
- Bar Spacing: 1-50 mm
- Motor Output: 0.09 kW