everything under control...

ROTOROVALVES & AIRLOCKS

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INTRODUCTION
The prime function of a rotary valve is to regulate the flow from one chamber to another while maintaining a good airlock condition. The product is mainly in dry powder or granular form.

In the dust filtration field good airlocks are essential on cyclone and bag filter applications in order that the manufacturer’s quoted high dust collection efficiencies can be maintained. Airlocks are also important in the pneumatic conveying industry, where product is regulated into a high pressure conveying line while minimising air leakage.

With Rotolok there are no double standards, all our standard valves are precision machined for close tolerances and minimal eccentricities. Pressure differentials to 20psi and temperatures to 400°C. We have made specials to handle temperatures covering 1200°C and pressures to 350psi.

Rotolok Rotary Valves and Airlocks have ATEX Covered
Following successful completion of the rigorous testing process Rotolok can offer a complete range of Rotary Valves certified as suitable for use as an explosion barrier to a maximum of 10 bar and for explosion isolation for ST1 and ST2 dusts.

STANDARD FEATURES
- Maximum number of blades in contact with body at one time without affecting throughput.
- Good throat opening at valve entry allowing high pocket filling efficiency.
- Minimum clearance at rotor tips and sides with body.
- Robust body adequately stiffened to prevent distortion.
- Heavy shaft diameters minimising deflection.
- Outboard bearings for non-contamination.
- Packing gland type seals.
- Maximising valve speed to 25 rpm - prolonging life, ensuring good throughput.
- Precision machining of components.

OPTIONS
- Quick Release Rotors
- Direct Coupled Drives
- Air Purge Glands
- Body Vents
- Vent Boxes
- Dropout Boxes
- V.S. Drives
- Speed Switches
- Electroless Nickel Plating
- Hard Chrome Internals etc.

SPECIFICATION
- BODIES
  Cast Iron, Stainless Steel or Aluminium precision bored.
- END COVERS
  Cast Iron, Stainless Steel or Aluminium spigot located in body for concentricity.
- ROTOR
  Fabricated Mild or Stainless Steel.
- BEARINGS
  Sealed-for-life ball type riged outboard.
- SHAFT SEAL
  Gland type with PTFE packing.
- DRIVE
  TEFC geared motor unit side wall mounted to valve body and complete with taper lock sprockets and chain drive all in an enclosed guard.

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Drillings are Rotolok standards. Variations can be made.

(To cover safety aspects ask for our safety leaflets)

Dimensions are approximate and subject to change without notice

Planning-in detail for general guidance only

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VALVE SELECTION

The chart below gives theoretical and estimated throughputs on the basis of rotor speed. The theoretical figure is determined by the swept volume of the valve and is calculated on a pocket fillage of 100%. In practice this is seldom achieved as density, product characteristics, pressure differential, feeding methods, all affect the valve throughput efficiency. On these considerations the estimated figures are assessed and are more acceptable for selecting the correct valve. e.g. Select a valve to handle 7 1/2 tonnes/hour of flour at 545kg/cu.metre. Volume required = 7.5 x 1000/545 = 13.75 cu.metre/hrs.

From the chart the 300 unit running at 1.4 RPM covers this requirement.

Factors other than throughput can sometimes determine valve selection. This is particularly true on cyclone and filter applications where the valve inlet size to prevent bridging can become the governing factor, always with the proviso that the potential valve discharge rate exceeds the collecting rate.

<table>
<thead>
<tr>
<th>VALVE SIZE</th>
<th>THROUGHPUT</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>915</td>
<td>32.8 164 263 328 394 459 525 591 656 722 788 853 100%</td>
<td>Practical</td>
</tr>
<tr>
<td>750</td>
<td>19.3 96 154 193 231 270 308 347 385 424 462 501 100%</td>
<td>Practical</td>
</tr>
<tr>
<td>600</td>
<td>10.1 101 141 161 181 202 222 242 262 282 300 314 328 341 100%</td>
<td>Practical</td>
</tr>
<tr>
<td>500</td>
<td>5.82 29 45 59 62 70 78 85 90 95 99 103 100%</td>
<td>Practical</td>
</tr>
<tr>
<td>450</td>
<td>4.2 21 34 42 50 59 67 76 84 92 101 109 100%</td>
<td>Practical</td>
</tr>
<tr>
<td>400</td>
<td>2.94 15 24 29 35 41 47 53 59 65 71 76 100%</td>
<td>Practical</td>
</tr>
<tr>
<td>350</td>
<td>1.86 9.3 14 17 19 22 26 30 33 37 41 45 48 100%</td>
<td>Practical</td>
</tr>
<tr>
<td>300</td>
<td>1.26 6.3 10 13 15 18 20 23 25 28 30 33 100%</td>
<td>Practical</td>
</tr>
<tr>
<td>250</td>
<td>0.720 3.6 5.8 7.2 8.6 10 12 13 14 16 17 19 100%</td>
<td>Practical</td>
</tr>
<tr>
<td>200</td>
<td>0.358 1.8 2.9 3.6 4.3 5.0 5.7 6.4 7.2 7.9 8.6 9.3 100%</td>
<td>Practical</td>
</tr>
<tr>
<td>150</td>
<td>0.143 0.72 1.1 1.4 1.7 2.0 2.3 2.6 2.9 3.2 3.4 3.7 100%</td>
<td>Practical</td>
</tr>
<tr>
<td>125</td>
<td>0.080 0.40 0.64 0.8 0.96 1.1 1.3 1.4 1.6 1.7 1.9 2.1 100%</td>
<td>Practical</td>
</tr>
<tr>
<td>85</td>
<td>0.027 0.13 0.21 0.28 0.32 0.38 0.43 0.49 0.54 0.59 0.65 0.70 100%</td>
<td>Practical</td>
</tr>
<tr>
<td>50</td>
<td>0.007 0.033 0.053 0.066 0.079 0.11 0.11 0.12 0.13 0.14 0.16 0.17 100%</td>
<td>Practical</td>
</tr>
</tbody>
</table>

Open fixed bladed rotor
Suitable for general range of products and particularly suitable on conveying systems to pressure of 15 psi. Sealing is by packing gland type with standard packing being fluidation or equal.

Open adjustable bladed rotor
Suitable for most products and pressure differentials to 20 psi. Blades are adjustable, reversible and replaceable and can be supplied in mild steel, PVC rigid, PTFE, stainless steel etc. to suit particular product. Can be adapted to suit highly abrasive materials.

Scalloped rotor
Particularly suitable for “sticky” materials and discharge can be further aided by the application of PTFOF coating, generally used in food processes where no product build-up can be tolerated. Pressures to 15 psi are applicable.

Closed rotor
Suitable for general use on filters, cyclones, silos, screw conveyors and on low pressure conveying systems. Sealing by means of packing gland.

**NOTES**

**THROUGHPUT**
Certain products when fluidised can greatly exceed the conservative rating and on some application, e.g. cement, 100% pocket fillage has been known to occur - similarly light products up to 240kg/cu.m. the opposite effect can happen.

**TEMPERATURE**
Note: On any application above ambient (21°C) it is important to specify operating temperatures so rotor compensation for expansion can be adjusted as necessary.

**CONVERSIONS**
Multiply cubic metres/hr by 35.31 to obtain cubic feet/hr.

Theoretical capacity 100% pocket fillage efficiency.
Conservative estimates throughout.

**STANDARD ROTORS**
Rotolok basically manufactures four types of rotor as outlined, but to give the plant engineer flexibility many variations can be accommodated, e.g. closed/tipped, reduced volume, staggered blades etc. We will make a rotor to suit your application - not our production.