INTRODUCTION

The prime function of a rotary airlock 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 airlocks are precision machined for close tolerances and minimal eccentricities. Pressure differentials to 20psi and temperatures to 750°F. We have made specials to handle temperatures covering 2190°F and pressures to 350psi.

STANDARD FEATURES

- Maximum number of blades in contact with body at one time without affecting throughput.
- Good throat opening at airlock 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 airlock speed to 25 rpm -prolonging life, ensuring good throughput.
- Precision machining of components.

SPECIFICATION

BODIES
Cast Iron, Stainless Steel or Aluminum precision bored.

END COVERS
Cast Iron, Stainless Steel or Aluminum spigot located in body for concentricity.

ROTOR
Fabricated Mild or Stainless Steel.

SHAFT SEAL
Gland type with PTFE packing.

BEARINGS
Sealed-for-life ball type rigged outboard or high temperature above 480°F.

DRIVE
NEMA Frame C-Face TEFC motor mounted to parallel shaft gear reducer sidewall mounted to airlock body complete with taper lock sprockets and chain all in an enclosed OSHA approved guard.'
Dimensions are approximate and subject to change without notice. Planning-in detail for general guidance only. (To cover safety aspects, ask us for our safety leaflets.) Drillings are Rotolok standards. Variations can be made.
AIRLOCK 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 airlock 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 airlock throughput efficiency. On these considerations the estimated figures are assessed and are more acceptable for selecting the correct airlock. e.g. Select a airlock to handle 7 tons/hour of flour at 35 lb/cu. ft. Volume required = 7.0 x 2000 + 35 = 400 cu.ft/hr.

From the chart, the 12” unit running at 10 RPM covers this requirement.

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

<table>
<thead>
<tr>
<th>CAPACITY CHART IN CUBIC FEET/HR</th>
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<td>Airlock SIZE</td>
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NOTES

THROUGHPUT
Certain products when fluidised can greatly exceed the conservative rating and on some applications, e.g. cement, 100% pocket fillage has been known to occur - similarly light products up to 15lb/cu. ft. the opposite effect can happen.

TEMPERATURE
Note: On any application above ambient (70°F) it is important to specify operating temperatures so rotor compensation for expansion can be adjusted as necessary.

CONVERSIONS
Divide cubic feet/hr by 35.3 to obtain cubic metre/hr.

Theoretical capacity 100% pocket fillage efficiency.

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.