

**Rotary Airlocks**



the power  
in  
powders

# Rotary Airlocks

“valves are vital  
for successful  
flow regulation.”

Carolina Conveying may appear to be a new company, but it has carefully selected a team of engineers with considerable experience in design, application and after sales service to give customers confidence. No matter whether the product is abrasive, fluffy, fibrous, sticky or granular; free flowing or sluggish, dry or sometimes even damp, Carolina Conveying will meet the challenge.

Carolina Conveying Inc. have designed three types of Rotary Airlocks to meet industry demands:

- **Drop Thru Valves**
- **Blow Thru Valves**
- **Side Entry Valves**

**Drop Thru :** for standard applications e.g. cyclones, filters and conveying

**Side Entry :** for applications with stringy, lumpy products minimizing shear and shocks loads.

**Blo-Thru :** for compact, standard non-abrasive applications with low pressure drop.

## Airlocks have three main functions:

- Feeder applications with no pressure used purely to feed product from a bin or hopper
- Filter applications e.g. cyclones, baghouses and various collectors where fine dust must be collected whilst maintaining an air seal.
- Pneumatic conveying applications where feeding material into a system against pressure or vacuum.

Carolina Conveying has the philosophy of meeting these demands with Heavy Duty Airlocks as standard. Furthermore, with the introduction of sophisticated CNC machining equipment, volume sales and stock production needs can be achieved, and prompt delivery and competitive price are offered with no compromise on quality.

**Remember Heavy Duty, quality features, design flexibility and rotor interchangeability are a pre requisite in solving your problems.**

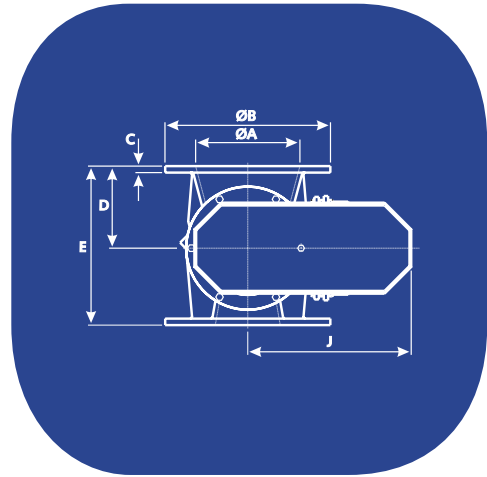
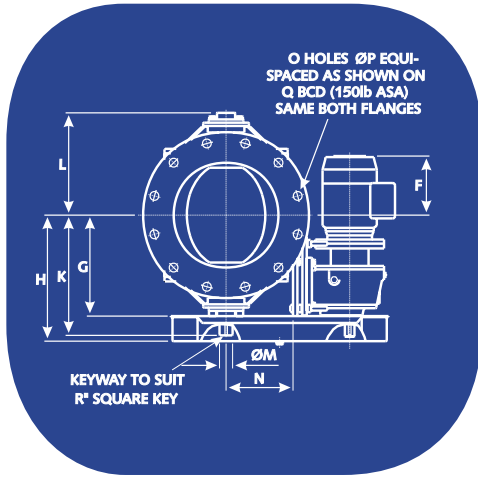


## standard features

- Heavy Duty castings for body and end covers.
- Rotor robustly constructed to ensure tolerances are held. Fixed blade bevelled edges and closed type are offered as standard although numerous variations are available.
- End covers spigotted into body for concentricity.
- Grease packed ball type bearings, mounted outboard.
- PTFE packing glands with design flexibility for air purging.
- Drives by spur in line gearheads that will accommodate any C Flange motor whether it's standard, flameproof, chemical duty etc. Spur gears have higher efficiency transmission than the industrial standard worm types used by most of our competitors.
- Simple rotor centralization is achieved with grub screws located in bearings (only non drive end is locked)
- Compact assembly units ready to be installed. All imperial construction wherever possible.



## Round Inlet Rotary Airlocks



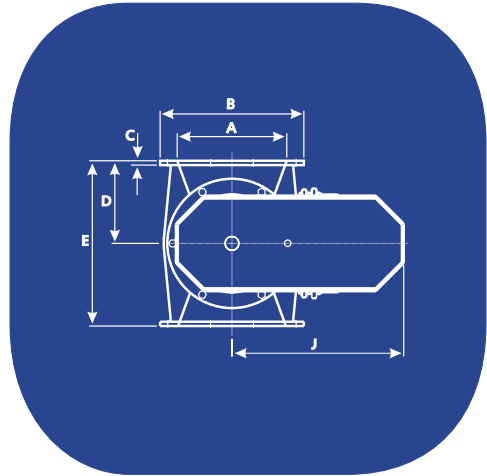
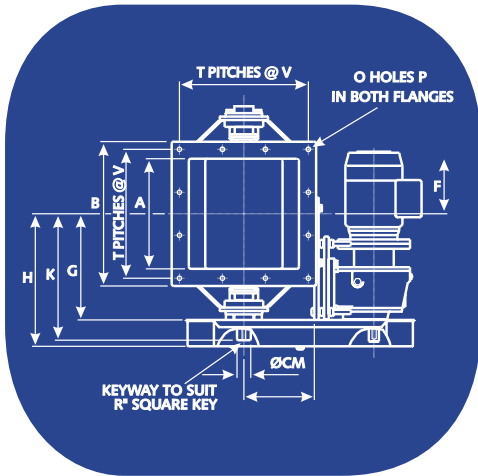
### dimensions

SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	HP
6"	6	11 <sup>1</sup> / <sub>4</sub>	1/2	5 <sup>1</sup> / <sub>2</sub>	10 <sup>5</sup> / <sub>8</sub>	8 <sup>1</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	16	10 <sup>1</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>4</sub>	5 <sup>5</sup> / <sub>8</sub>	8	7/8	9 <sup>1</sup> / <sub>2</sub>	1/4	1/2
8"	8	13 <sup>1</sup> / <sub>2</sub>	1/2	6 <sup>5</sup> / <sub>16</sub>	12 <sup>3</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>4</sub>	9 <sup>1</sup> / <sub>4</sub>	12 <sup>1</sup> / <sub>2</sub>	16	11 <sup>1</sup> / <sub>4</sub>	9 <sup>3</sup> / <sub>16</sub>	1 <sup>1</sup> / <sub>4</sub>	5 <sup>5</sup> / <sub>8</sub>	8	7/8	11 <sup>3</sup> / <sub>4</sub>	1/4	1/2
10"	10	16	9/16	7 <sup>7</sup> / <sub>8</sub>	15	8 <sup>5</sup> / <sub>8</sub>	10 <sup>3</sup> / <sub>8</sub>	13 <sup>5</sup> / <sub>8</sub>	18 <sup>3</sup> / <sub>16</sub>	12 <sup>5</sup> / <sub>8</sub>	10 <sup>9</sup> / <sub>16</sub>	1 <sup>1</sup> / <sub>2</sub>	6 <sup>1</sup> / <sub>8</sub>	12	1	14 <sup>1</sup> / <sub>4</sub>	3/8	1
12"	12	19	3/4	9 <sup>7</sup> / <sub>16</sub>	18 <sup>5</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>4</sub>	11 <sup>5</sup> / <sub>8</sub>	14 <sup>7</sup> / <sub>8</sub>	18 <sup>7</sup> / <sub>8</sub>	13 <sup>3</sup> / <sub>4</sub>	11 <sup>3</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>2</sub>	7 <sup>11</sup> / <sub>16</sub>	12	1	17	3/8	1
14"	14	21	3/4	10 <sup>5</sup> / <sub>8</sub>	20 <sup>1</sup> / <sub>2</sub>	7	12	15 <sup>1</sup> / <sub>4</sub>	20 <sup>1</sup> / <sub>4</sub>	14 <sup>3</sup> / <sub>16</sub>	12 <sup>1</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>2</sub>	8 <sup>11</sup> / <sub>16</sub>	12	1 <sup>1</sup> / <sub>8</sub>	18 <sup>3</sup> / <sub>4</sub>	3/8	1
16"	16	23 <sup>1</sup> / <sub>2</sub>	3/4	11 <sup>13</sup> / <sub>16</sub>	22 <sup>13</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>8</sub>	14 <sup>5</sup> / <sub>8</sub>	19	24 <sup>5</sup> / <sub>8</sub>	18	14 <sup>7</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>2</sub>	9 <sup>1</sup> / <sub>4</sub>	16	1 <sup>1</sup> / <sub>8</sub>	21 <sup>1</sup> / <sub>4</sub>	5/8	1 <sup>1</sup> / <sub>2</sub>
18"	18	25	3/4	12 <sup>5</sup> / <sub>8</sub>	24 <sup>5</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>8</sub>	15 <sup>5</sup> / <sub>8</sub>	20	24 <sup>5</sup> / <sub>8</sub>	19	15 <sup>7</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>2</sub>	11 <sup>1</sup> / <sub>4</sub>	16	1 <sup>1</sup> / <sub>4</sub>	22 <sup>3</sup> / <sub>4</sub>	5/8	1 <sup>1</sup> / <sub>2</sub>
20"	20	27 <sup>1</sup> / <sub>2</sub>	3/4	13 <sup>3</sup> / <sub>8</sub>	26 <sup>3</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>4</sub>	16 <sup>5</sup> / <sub>8</sub>	21	27 <sup>1</sup> / <sub>2</sub>	19 <sup>7</sup> / <sub>8</sub>	16 <sup>7</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>2</sub>	11 <sup>3</sup> / <sub>8</sub>	20	1 <sup>1</sup> / <sub>4</sub>	25	5/8	2
24"	24	32	3/4	15 <sup>1</sup> / <sub>8</sub>	29 <sup>15</sup> / <sub>16</sub>	3 <sup>3</sup> / <sub>8</sub>	18 <sup>9</sup> / <sub>16</sub>	23	27 <sup>1</sup> / <sub>2</sub>	21 <sup>7</sup> / <sub>8</sub>	18 <sup>3</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>2</sub>	13 <sup>3</sup> / <sub>16</sub>	20	1 <sup>3</sup> / <sub>8</sub>	29 <sup>1</sup> / <sub>2</sub>	5/8	3

All dimensions in inches

Dimensions subject to change without notice

## Square Inlet Rotary Airlocks



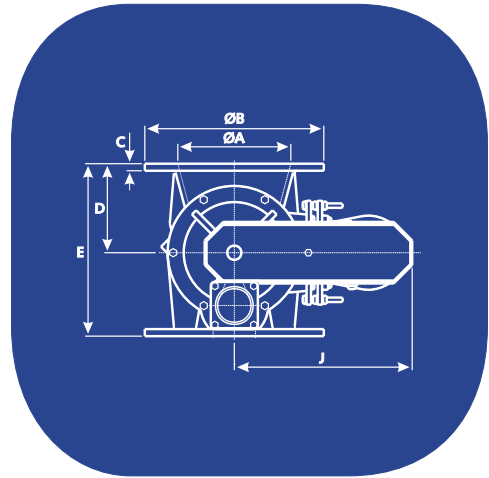
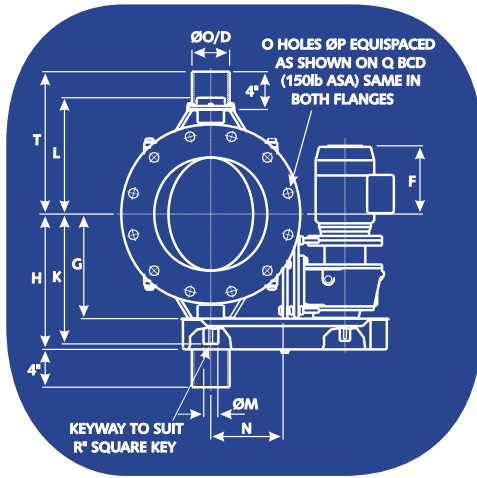
### dimensions

SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	R	T	V	HP
6"	6	9 <sup>7</sup> / <sub>8</sub>	1/2	5 <sup>1</sup> / <sub>2</sub>	11	8 <sup>1</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	16	10 <sup>1</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>4</sub>	5 <sup>5</sup> / <sub>8</sub>	12	1/2	1/4	3	2 <sup>3</sup> / <sub>4</sub>	1/2
8"	8	11 <sup>13</sup> / <sub>16</sub>	5/8	6 <sup>1</sup> / <sub>2</sub>	13	7 <sup>1</sup> / <sub>4</sub>	9 <sup>1</sup> / <sub>4</sub>	12 <sup>1</sup> / <sub>2</sub>	16	11 <sup>1</sup> / <sub>4</sub>	9 <sup>3</sup> / <sub>16</sub>	1 <sup>1</sup> / <sub>4</sub>	5 <sup>5</sup> / <sub>8</sub>	12	1/2	1/4	3	3 <sup>3</sup> / <sub>16</sub>	1/2
10"	10	13 <sup>1</sup> / <sub>4</sub>	9/16	7 <sup>1</sup> / <sub>2</sub>	15	8 <sup>5</sup> / <sub>8</sub>	10 <sup>3</sup> / <sub>8</sub>	13 <sup>5</sup> / <sub>8</sub>	18 <sup>3</sup> / <sub>16</sub>	12 <sup>5</sup> / <sub>8</sub>	10 <sup>9</sup> / <sub>16</sub>	1 <sup>1</sup> / <sub>2</sub>	6 <sup>1</sup> / <sub>8</sub>	12	9/16	3/8	3	4	1
12"	12	15 <sup>3</sup> / <sub>4</sub>	1/2	9 <sup>1</sup> / <sub>16</sub>	18 <sup>1</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>4</sub>	11 <sup>5</sup> / <sub>8</sub>	14 <sup>7</sup> / <sub>8</sub>	18 <sup>7</sup> / <sub>8</sub>	13 <sup>3</sup> / <sub>4</sub>	11 <sup>3</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>2</sub>	7 <sup>11</sup> / <sub>16</sub>	12	1/2	3/8	3	4 <sup>11</sup> / <sub>16</sub>	1
14"	14	18 <sup>1</sup> / <sub>2</sub>	3/4	10 <sup>1</sup> / <sub>8</sub>	20 <sup>1</sup> / <sub>4</sub>	7	12	15 <sup>1</sup> / <sub>4</sub>	20 <sup>1</sup> / <sub>4</sub>	14 <sup>3</sup> / <sub>16</sub>	12 <sup>1</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>2</sub>	8 <sup>11</sup> / <sub>16</sub>	12	1/2	3/8	3	5 <sup>1</sup> / <sub>2</sub>	1
16"	16	21 <sup>5</sup> / <sub>8</sub>	3/4	11 <sup>13</sup> / <sub>16</sub>	22 <sup>13</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>8</sub>	14 <sup>5</sup> / <sub>8</sub>	19	24 <sup>5</sup> / <sub>8</sub>	17 <sup>15</sup> / <sub>16</sub>	14 <sup>7</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>2</sub>	9 <sup>1</sup> / <sub>4</sub>	12	11/16	5/8	3	6 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub>
18"	18	24	3/4	12 <sup>11</sup> / <sub>16</sub>	24 <sup>13</sup> / <sub>16</sub>	3 <sup>3</sup> / <sub>8</sub>	15 <sup>5</sup> / <sub>8</sub>	20	24 <sup>5</sup> / <sub>8</sub>	19	15 <sup>7</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>2</sub>	11 <sup>1</sup> / <sub>4</sub>	12	11/16	5/8	3	7 <sup>3</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>2</sub>
20"	20	25 <sup>9</sup> / <sub>16</sub>	3/4	13 <sup>3</sup> / <sub>8</sub>	26 <sup>3</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>4</sub>	16 <sup>5</sup> / <sub>8</sub>	21	27 <sup>1</sup> / <sub>2</sub>	19 <sup>7</sup> / <sub>8</sub>	16 <sup>7</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>2</sub>	11 <sup>3</sup> / <sub>8</sub>	14	11/16	5/8	4	5 <sup>13</sup> / <sub>16</sub>	2
24"	24	29 <sup>1</sup> / <sub>2</sub>	3/4	14 <sup>15</sup> / <sub>16</sub>	29 <sup>1</sup> / <sub>2</sub>	3 <sup>3</sup> / <sub>8</sub>	18 <sup>9</sup> / <sub>16</sub>	23	27 <sup>1</sup> / <sub>2</sub>	21 <sup>7</sup> / <sub>8</sub>	18 <sup>3</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>2</sub>	13 <sup>3</sup> / <sub>16</sub>	14	11/16	5/8	4	6 <sup>13</sup> / <sub>16</sub>	3

All dimensions in inches

Dimensions subject to change without notice

## Round Inlet Blow Thru Rotary Airlocks



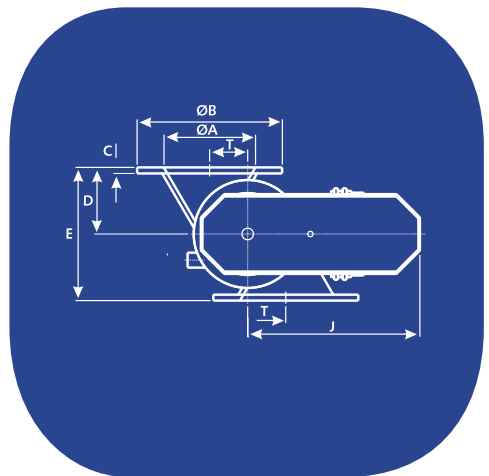
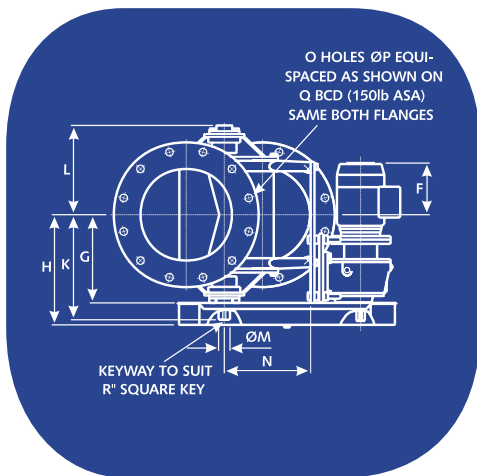
### dimensions

SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	T	O/D	HP
6"	6	11 <sup>1</sup> / <sub>4</sub>	1/2	5 <sup>1</sup> / <sub>2</sub>	10 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>5</sup> / <sub>8</sub>	10 <sup>3</sup> / <sub>4</sub>	14 <sup>3</sup> / <sub>8</sub>	10 <sup>1</sup> / <sub>4</sub>	8 <sup>13</sup> / <sub>16</sub>	1 <sup>1</sup> / <sub>4</sub>	5 <sup>5</sup> / <sub>8</sub>	8	7/8	9 <sup>1</sup> / <sub>2</sub>	1/4	11 <sup>5</sup> / <sub>8</sub>	2 <sup>3</sup> / <sub>8</sub>	1/2
8"	8	13 <sup>1</sup> / <sub>2</sub>	1/2	6 <sup>5</sup> / <sub>16</sub>	12 <sup>3</sup> / <sub>16</sub>	7 <sup>7</sup> / <sub>8</sub>	8 <sup>5</sup> / <sub>8</sub>	11 <sup>7</sup> / <sub>8</sub>	14 <sup>3</sup> / <sub>8</sub>	11 <sup>1</sup> / <sub>4</sub>	9 <sup>7</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>4</sub>	5 <sup>5</sup> / <sub>8</sub>	8	7/8	11 <sup>3</sup> / <sub>4</sub>	1/4	12 <sup>5</sup> / <sub>8</sub>	2 <sup>7</sup> / <sub>8</sub>	1/2
10"	10	16	9 <sup>1</sup> / <sub>16</sub>	7 <sup>7</sup> / <sub>8</sub>	15	9	9 <sup>15</sup> / <sub>16</sub>	13 <sup>9</sup> / <sub>16</sub>	17 <sup>3</sup> / <sub>8</sub>	12 <sup>5</sup> / <sub>8</sub>	11 <sup>1</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>2</sub>	6 <sup>1</sup> / <sub>8</sub>	12	1	14 <sup>1</sup> / <sub>4</sub>	3/8	13 <sup>15</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>2</sub>	1
12"	12	19	3/4	9 <sup>7</sup> / <sub>16</sub>	18 <sup>5</sup> / <sub>16</sub>	7 <sup>7</sup> / <sub>8</sub>	11 <sup>1</sup> / <sub>8</sub>	14 <sup>7</sup> / <sub>8</sub>	18 <sup>7</sup> / <sub>8</sub>	13 <sup>3</sup> / <sub>4</sub>	12 <sup>3</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>2</sub>	7 <sup>11</sup> / <sub>16</sub>	12	1	17	3/8	15 <sup>1</sup> / <sub>8</sub>	4	1
16"	16	23 <sup>1</sup> / <sub>2</sub>	3/4	11 <sup>13</sup> / <sub>16</sub>	22 <sup>13</sup> / <sub>16</sub>	3 <sup>3</sup> / <sub>4</sub>	13 <sup>3</sup> / <sub>4</sub>	19	22 <sup>3</sup> / <sub>8</sub>	17 <sup>15</sup> / <sub>16</sub>	15 <sup>3</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>2</sub>	9 <sup>1</sup> / <sub>4</sub>	16	1 <sup>1</sup> / <sub>8</sub>	21 <sup>1</sup> / <sub>4</sub>	5/8	17 <sup>11</sup> / <sub>16</sub>	5 <sup>9</sup> / <sub>16</sub>	1 <sup>1</sup> / <sub>2</sub>

All dimensions in inches

Dimensions subject to change without notice

## Round Inlet Side Entry Airlocks



### dimensions

SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	T	HP
8"	8	13 <sup>1</sup> / <sub>2</sub>	5/8	6 <sup>1</sup> / <sub>2</sub>	13	7 <sup>1</sup> / <sub>4</sub>	9 <sup>1</sup> / <sub>4</sub>	12 <sup>1</sup> / <sub>2</sub>	18 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>4</sub>	9 <sup>3</sup> / <sub>16</sub>	1 <sup>1</sup> / <sub>4</sub>	7 <sup>7</sup> / <sub>4</sub>	8	7/8	11 <sup>3</sup> / <sub>4</sub>	1/4	3 <sup>3</sup> / <sub>8</sub>	1/2
10"	10	16	3/4	7 <sup>1</sup> / <sub>2</sub>	15	8 <sup>5</sup> / <sub>8</sub>	10 <sup>3</sup> / <sub>8</sub>	13 <sup>5</sup> / <sub>8</sub>	22 <sup>7</sup> / <sub>16</sub>	12 <sup>5</sup> / <sub>8</sub>	10 <sup>9</sup> / <sub>16</sub>	1 <sup>1</sup> / <sub>2</sub>	9 <sup>3</sup> / <sub>4</sub>	12	1	14 <sup>1</sup> / <sub>4</sub>	3/8	4 <sup>1</sup> / <sub>4</sub>	1
12"	12	19	3/4	8 <sup>3</sup> / <sub>4</sub>	17 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>4</sub>	11 <sup>5</sup> / <sub>8</sub>	14 <sup>7</sup> / <sub>8</sub>	22 <sup>5</sup> / <sub>8</sub>	13 <sup>3</sup> / <sub>4</sub>	11 <sup>3</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>2</sub>	11 <sup>5</sup> / <sub>16</sub>	12	1	17	3/8	5	1
14"	14	21	7/8	10 <sup>1</sup> / <sub>2</sub>	21	7	12	15 <sup>1</sup> / <sub>4</sub>	25 <sup>3</sup> / <sub>8</sub>	14 <sup>3</sup> / <sub>16</sub>	12 <sup>1</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>2</sub>	13	12	1 <sup>1</sup> / <sub>8</sub>	18 <sup>3</sup> / <sub>4</sub>	3/8	5 <sup>1</sup> / <sub>2</sub>	1
20"	20	29 <sup>9</sup> / <sub>16</sub>	1	14	28	5 <sup>1</sup> / <sub>8</sub>	16 <sup>5</sup> / <sub>8</sub>	21	29 <sup>3</sup> / <sub>4</sub>	19 <sup>7</sup> / <sub>8</sub>	16 <sup>7</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>4</sub>	21 <sup>1</sup> / <sub>4</sub>	20	1 <sup>1</sup> / <sub>4</sub>	25	5/8	7 <sup>7</sup> / <sub>8</sub>	2

All dimensions in inches

Dimensions subject to change without notice

## Calculating your correct valve size

Valves are sized on volumes. Throughput is usually expressed in lbs or tons / hour, but for valves selection it must be converted into cubic feet / hour.

- To calculate a valve throughput per hour:  

$$\frac{\text{Throughput lbs / hr}}{\text{Bulk Density lbs / cu. ft.}} = \text{cu. ft. / hr. capacity}$$
- Based on, say, 240,000 lbs / hr. at a bulk density of 80 lb. / cu. ft.

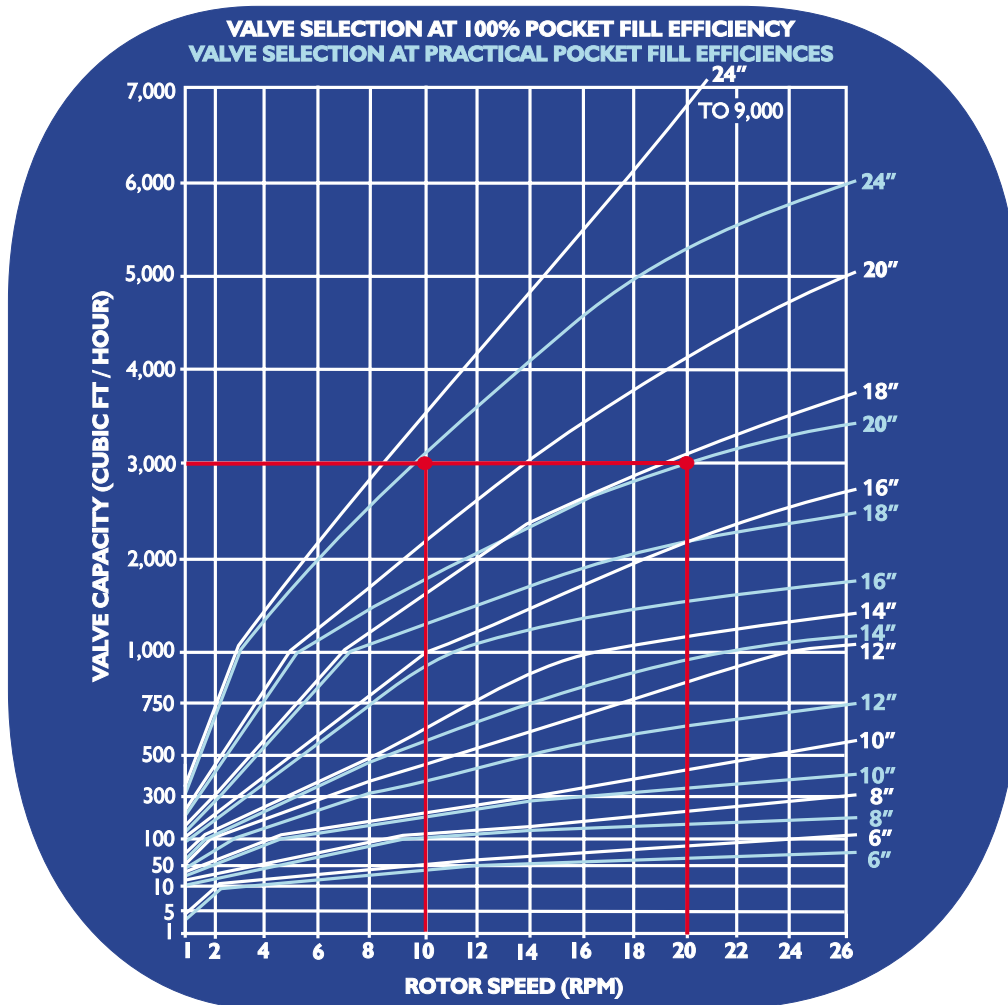
Valve throughput required  

$$= \frac{240,000 \text{ lb / hr.}}{80 \text{ lb / cu. ft.}} = 3000 \text{ cu. ft. / hr.}$$

From the chart draw a horizontal line (depicted on the chart in red) starting at 3000 cu. ft. / hr. until it reaches valve efficiency curves.

On this application two valves can be selected:

- (a) 24" Valve @ 10 RPM
  - or (b) 20" Valve @ 20 RPM
- on cost basis (b) would be selected





## Carolina Conveying

### Specialists

in powder handling components and systems. We offer a very comprehensive range of products including Rotary Airlocks, IBC Systems, Diverter Valves, Silo Dischargers, Volumetric and Weighing Systems, Aero-mechanical Conveyors and Dense Phase Conveying Systems.

## Carolina Conveying

### Technology

product test facility with our complete range of machines allowing prospective clients to visit and witness trials. State of the art CAD and manufacturing facilities for material handling systems.

## Carolina Conveying

### Design

products are always designed to suit your particular application and requirements.

## Carolina Conveying

### Philosophy

it is our company policy to supply customers with products which conform to the highest quality specifications, are fit for their intended purpose, and offer a wide range of support services including installation, commissioning and service contracts.



**Bin Activators**

**Soliflo™ Dischargers**

**Solibin™ IBC Systems**

**FIBC Systems**

**Rite Rate™ Feeders**

**Rite Weight™ Feeders**

**DiscAir™  
Aeromechanical  
Conveyors**

**Blo-Bin™ Dense Phase  
Pneumatic Conveying**

**Blo-Bend™ Ni Hard  
Bends**

**Rotary Valves**

**Side Entry Rotary  
Valves**

**Blow Thru Rotary  
Valves**

**Double Dumps**

**Flexible Conveying  
Diverters**



Carolina Conveying Inc.  
P.O. Box 1208, Beaverdam Industrial Park  
162 Great Oak Drive, Canton, NC 28716  
Tel: (828) 235-1005 Fax: (828) 235-1006

[www.carolinaconveying.com](http://www.carolinaconveying.com)  
email: [sales@carolinaconveying.com](mailto:sales@carolinaconveying.com)