

# PROCOL

MONITORING AND DIRECTIONAL CONTROL OF SOLIDS

**ROTARY VALVES**

**COMPACT BLOWING SEALS**

**HEAVY DUTY BLOWING SEALS**



THE DOWSON GROUP



## ROTARY VALVES

Procol Rotary Valves are designed to transfer dry granular solids and powders in gravity, pressure or vacuum systems. They are able to operate under adverse conditions whilst maintaining high sealing and feeding efficiencies.

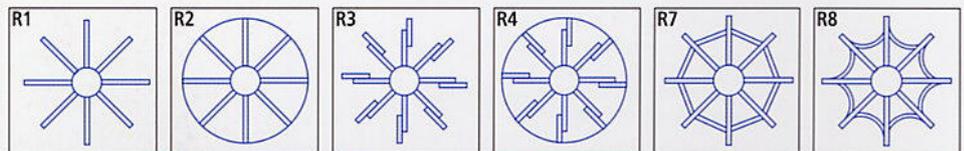
The valves are robustly constructed with body stiffening ribs to prevent

distortion, integral shear planes in the valve inlet to reduce product shearing loads and large capacity rotors with heavy duty shafts to withstand high differential pressures across the valve.

Rotors are supported in sealed ball bearings outriggered from the valve endplates to prevent bearing contamination. Rotor shafts are sealed by packing glands with adjustable seal followers.

Procol standard Rotary Valves incorporate a geared motor mounted from the valve body on a fabricated baseplate with adjustment for the fully guarded drive chain.

Whilst our standard valves are suitable for the majority of applications we offer a wide variety of interchangeable components to enable Procol Rotary Valves to handle almost any product.

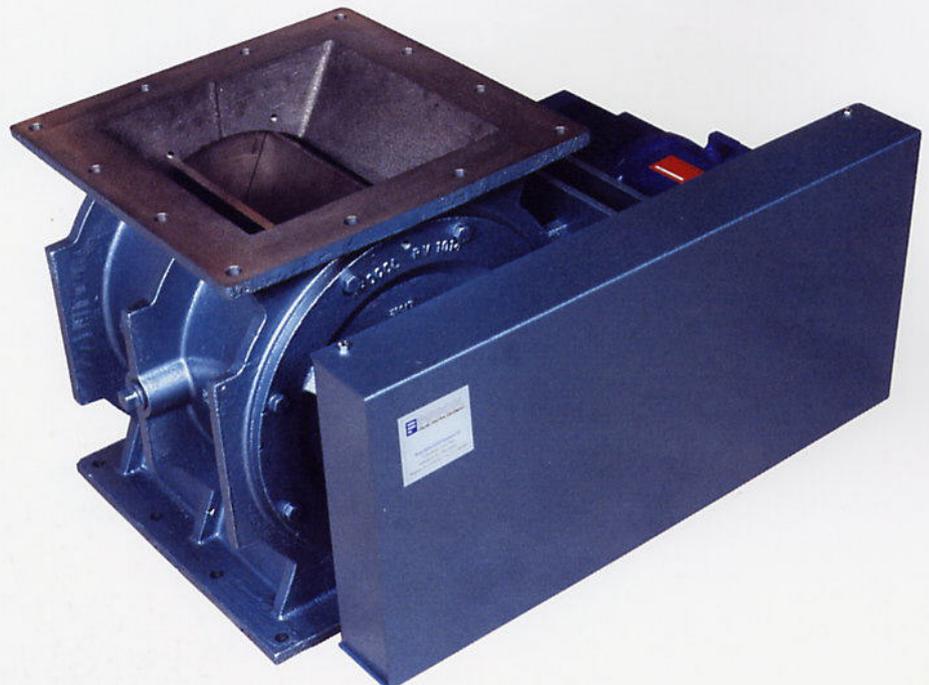


### ROTOR OPTIONS

R1	Fixed Blade Open Rotor	General purpose rotor fitted to the majority of valves. Suitable for none or mildly abrasive products.
R2	Fixed Blade Closed End Rotor	Similar to R1. The end discs reduce valve endplate wear. Suitable for low or moderately abrasive products.
R3	Tipped Blade Open Rotor	Blades fitted with adjustable, replaceable stainless steel tips. Suitable for use with abrasive products.
R4	Tipped Blade Closed End	Similar to R3. the end discs reduce valve endplate wear. Suitable for use with very abrasive products.
R7	Reduced pocket Rotor	Reduces the valve capacity but maintains a large inlet and outlet. Suitable for materials which flow sluggishly.
R8	Scalloped Pocket Rotor	Provides a rounded pocket base to encourage material discharge. Suitable for use with 'sticky' materials. May be PTFE coated to aid discharge.

## OPTIONS

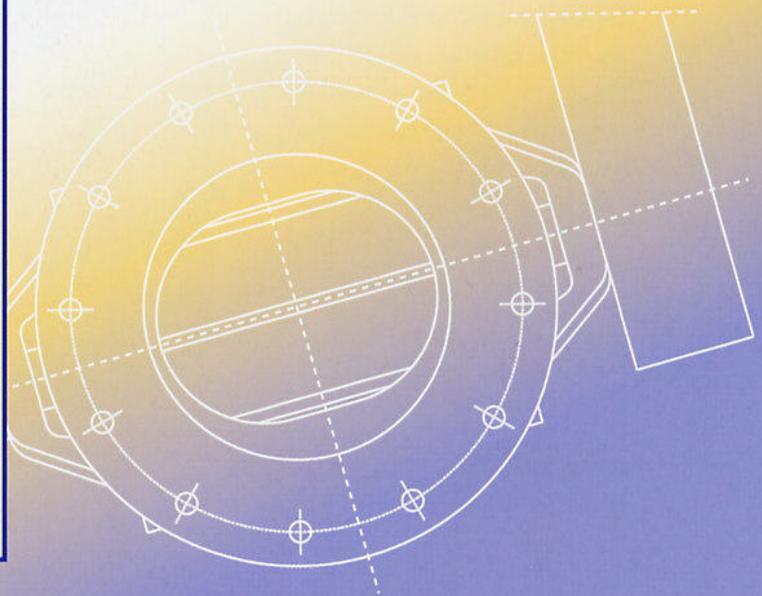
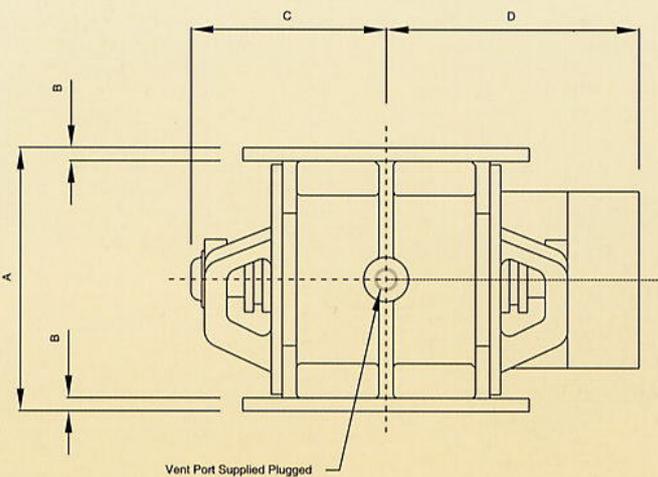
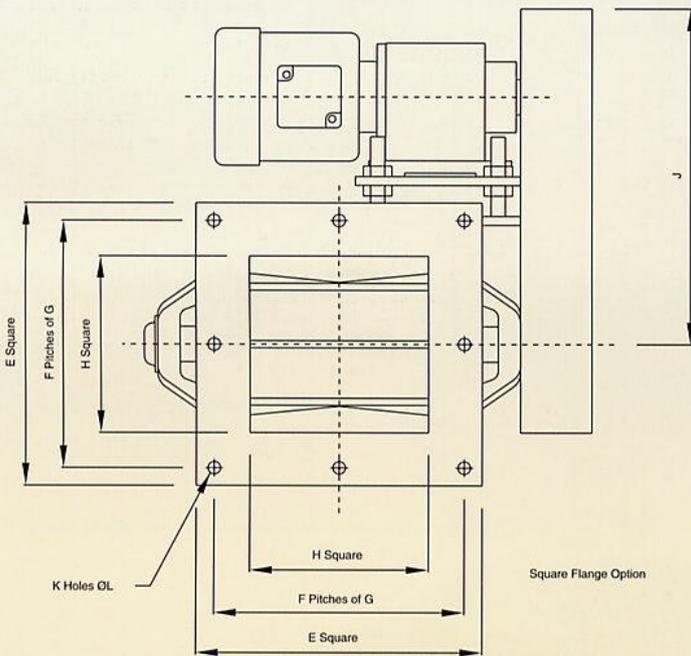
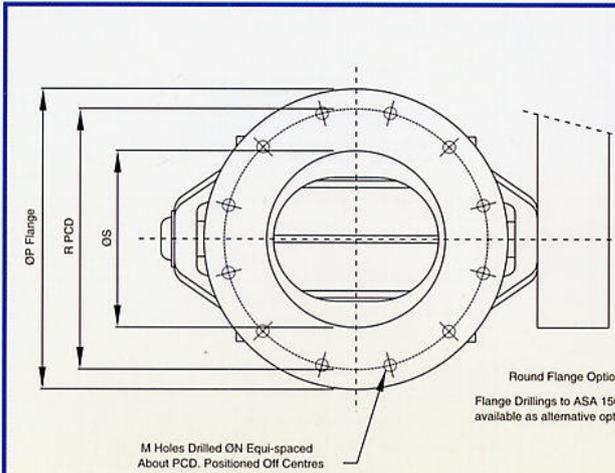
- ▶ Air Purged Shaft Seals
- ▶ High Temperature Bearings.
- ▶ Quick Release Rotor Assembly.
- ▶ Variable Speed Drives.
- ▶ Rotation Monitors.
- ▶ Flameproof, Explosion Proof Motors.
- ▶ Tungsten Carbide Coated Internal Surfaces.
- ▶ Electroless Nickel Plating.



## Valve

## Drive Weight

Size	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	Kw	Kg
125	210	12	170	230	-	-	-	-	235	-	-	8	12	250	210	125	0.37	60
150	240	12	180	240	250	2	105	150	250	8	12	8	12	285	240	150	0.37	75
200	298	15	215	285	320	2	140	200	275	8	14	12	14	340	295	200	0.37	100
250	344	15	245	320	370	3	110	250	325	12	14	12	14	405	355	250	0.75	150
300	450	15	285	355	420	3	126	300	375	12	14	12	14	460	410	300	0.75	200
350	500	20	310	390	490	3	146	350	395	12	18	12	18	520	470	350	0.75	350
400	550	20	340	420	540	4	122	400	420	16	18	8	22	580	525	400	1.1	400
500	650	20	390	465	640	4	147	500	505	16	18	8	22	716	650	500	1.5	550
600	765	25	485	570	750	4	170	600	560	16	18	-	-	-	-	-	2.2	850



## BLOWING SEALS

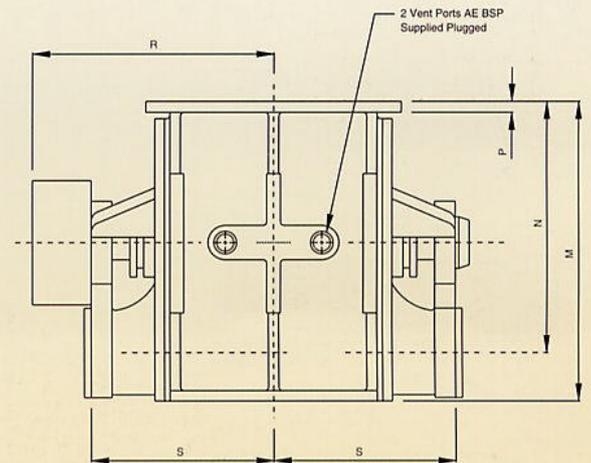
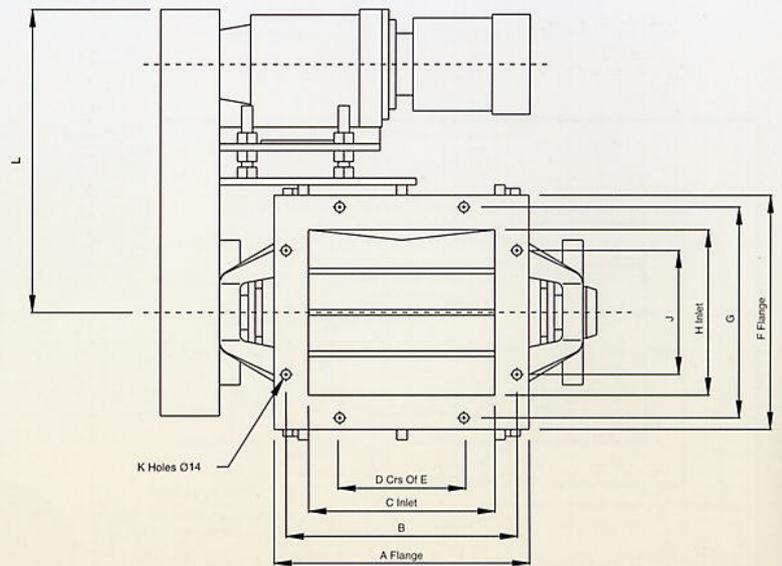
Procol Compact Blowing Seals were originally developed for use beneath flour silos where their compact size is an advantage when space is limited. Heavy duty versions suitable for handling most free flowing products have been developed and we are now able to offer two sizes in both light and heavy duty versions which complement our heavy duty valves.

### Heavy Duty Blowing Seals

Procol Heavy Duty Blowing Seals are designed to feed a wide range of dry granular solids and powders directly into pneumatic conveying systems. Blowing Seals are similar in construction to standard Rotary Valves but have an integral entrainment trough in the valve body and pipeline connection flanges in the valve endplates. This allows conveying air to pass through the Blowing Seal and ensures total product evacuation from the rotor pocket.

High sealing efficiencies ensure a low pressure drop across the valve and this feature allows the Procol Blowing Seals to handle low density products which may be easily fluidised.

The valve body incorporates body venting ports as standard for purging the rotor pockets. These are normally suitable for most products but where less dense materials are to be fed through the valve we recommend an integral vent which gives a more efficient method of rotor venting.



## STANDARD SPECIFICATION

### BODY

Cast Iron, LM25 Aluminium Alloy, 316 Stainless Steel.

### ENDPLATES

Cast Iron, LM25 Aluminium Alloy, 316 Stainless Steel.

### ROTOR

Mild Steel, 304 Stainless Steel, 316 Stainless Steel.

### BEARINGS

Sealed deep groove ball bearings, High temperature bearings (above 150°C)

### SHAFT SEALS

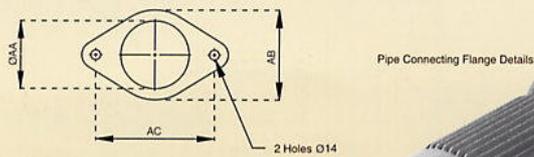
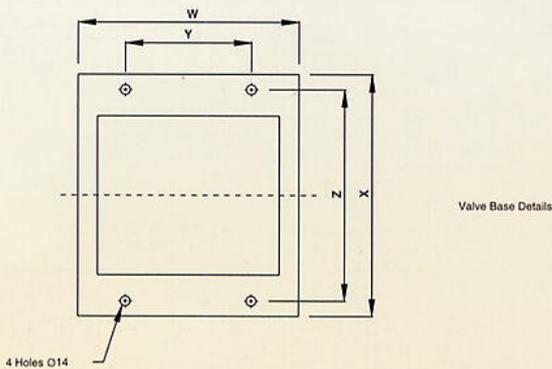
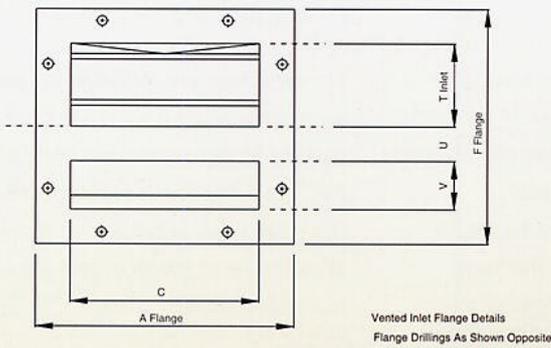
Acrylic PTFE gland packing

### DRIVE

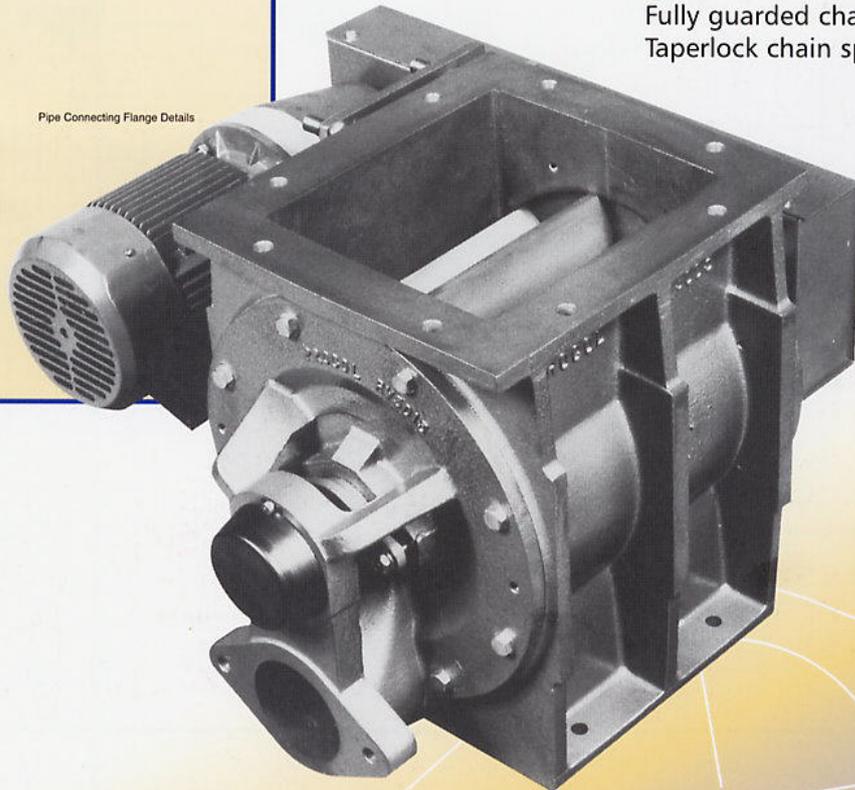
TEFC IP55 coaxial geared motor suitable for AC 415-3-50 supply.

### FINAL DRIVE

Fully guarded chain drive with Taperlock chain sprockets.



## HEAVY DUTY BLOWING SEALS



### Valve

Size	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	Drive Kw	Weight Kg
200	300	270	200	1	130	300	270	200	130	8	390	340	260	12	300	236	100	50	50	224	230	130	190	75	110	130	12	3/4"	0.37	100
240	300	270	200	1	130	280	250	180	100	8	420	370	290	12	300	236	90	45	45	224	265	100	225	75	110	130	12	3/4"	0.75	140
280	370	335	270	1	180	304	306	240	180	8	485	435	365	16	350	274	120	50	70	300	350	180	306	98	110	170	14	1"	0.75	180
360	450	420	350	2	150	350	320	255	220	10	560	510	440	16	390	327	125	50	80	380	360	300	320	100	130	170	14	1"	1.5	350
450	510	480	400	2	160	410	380	310	220	10	585	610	520	16	430	367	155	50	105	460	410	320	380	125	160	200	14	1"	1.5	490

## FABRICATED ROTARY VALVES

Procol standard Fabricated Rotary Valves are designed for use with low density products such as wood shavings, wood dust and textile

fibres. They provide an economic solution for applications which require high feed rates of low density products.

The valve body is fabricated from sheet steel and fitted with a 6 blade rotor having replaceable polyurethane or insertion rubber blades.

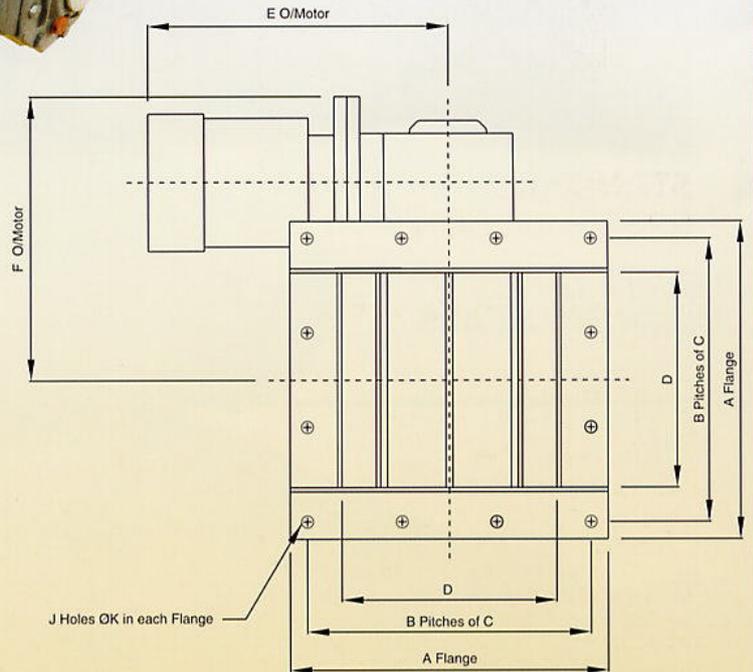
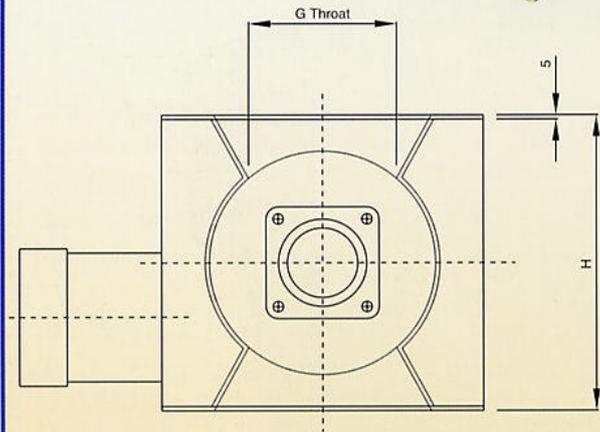
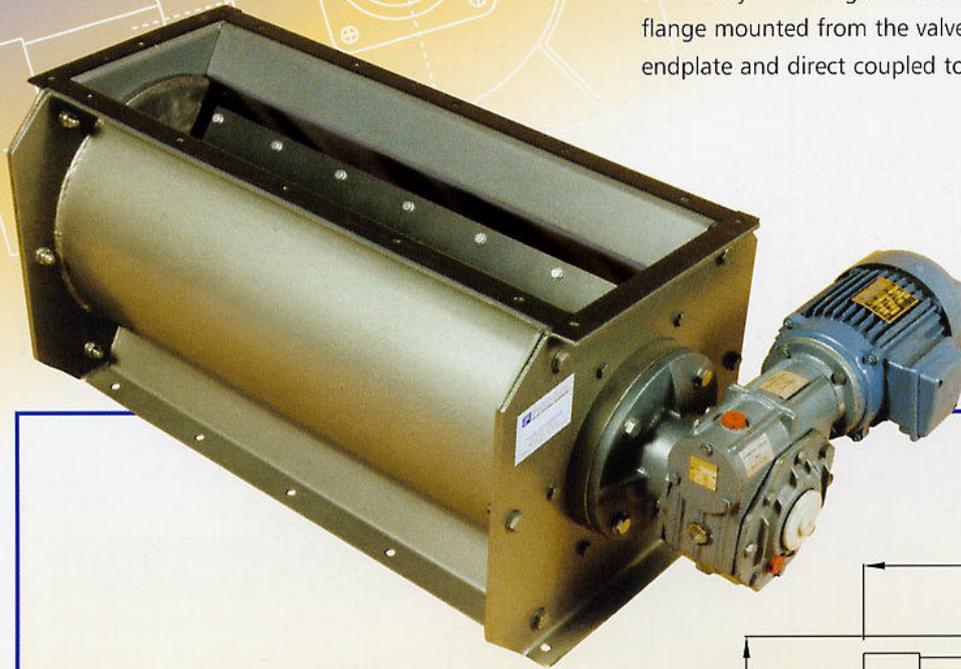
Drive is by a worm geared motor flange mounted from the valve endplate and direct coupled to the

rotor drive shaft.

Capacities for standard Fabricated Rotary Valves are identical to the equivalent cast Rotary Valve.

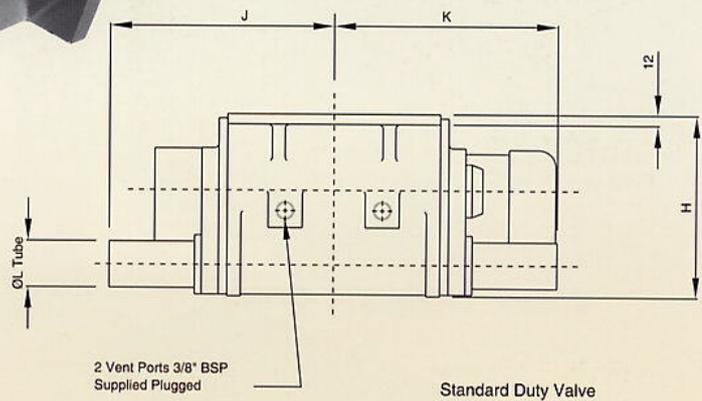
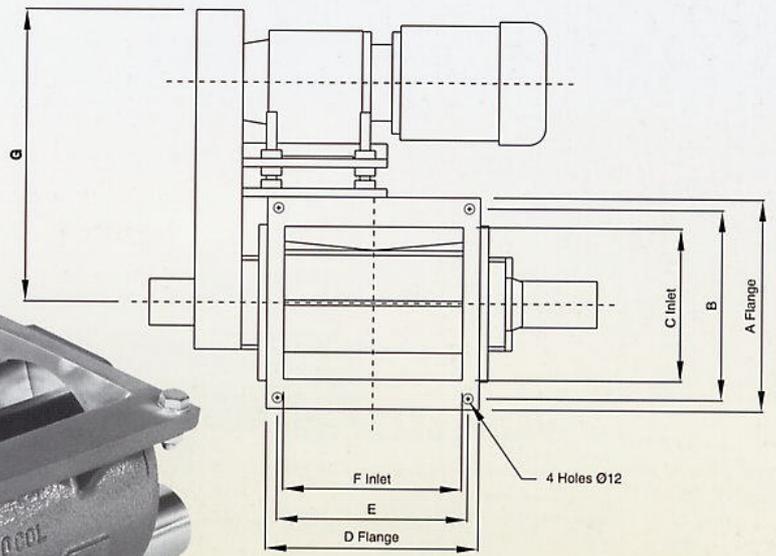
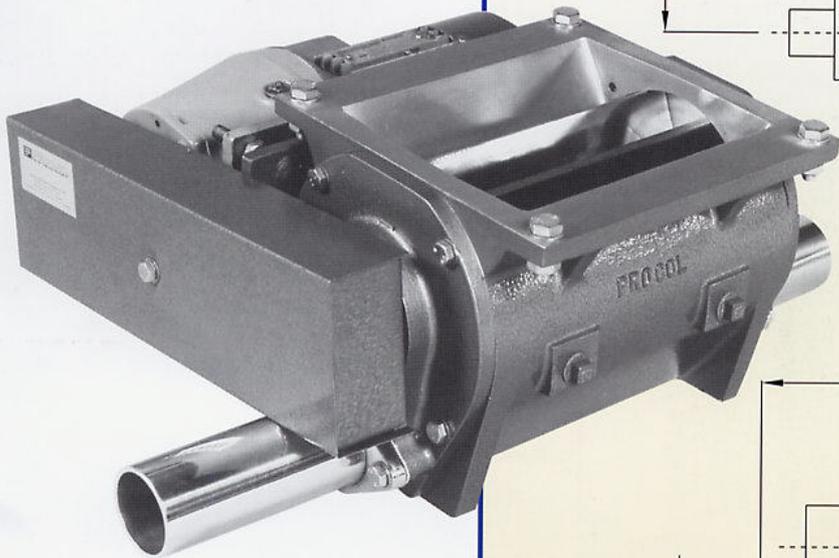
Special valves are available for use with moderately aggressive products such as fibreglass strands or filled PVC granules. For these applications the valve body is fabricated from abrasion resistant steel and the rotor has special rubber blades.

Fabricated Rotary Valves are available in standard sizes as shown in the data sheet and also in none standard sizes up to a maximum rotor size of Ø1000mm x 2500mm long.

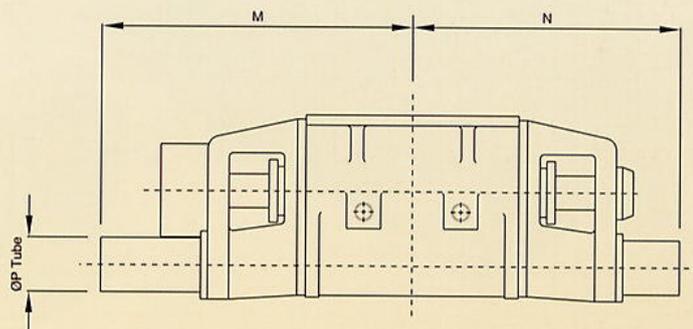


Valve Size	A	B	C	D	E	F	G	H	Drive Kw	Weight Kg
125	225	2	93	125	310	230	86	210	0.37	40
150	250	2	105	150	310	240	100	240	0.37	50
200	320	2	140	200	310	265	140	298	0.37	65
250	370	3	110	250	350	330	170	344	0.75	95
300	420	3	126	300	350	355	200	450	0.75	125
350	490	3	146	350	350	380	240	500	0.75	150
400	540	4	122	400	370	425	280	550	1.1	200
500	640	4	147	500	440	500	350	650	1.5	275
600	750	4	170	600	440	560	410	600	2.2	350





Standard Duty Valve



Heavy Duty Valve

Remaining Details As Standard Duty Valves

## STANDARD SPECIFICATION

### BODY

Fabricated Mild Steel, 304 or 316 Stainless Steel.

### ENDPLATES

Fabricated Mild Steel, 304 or 316 Stainless Steel.

### ROTOR

6 Blade Fabricated Mild Steel, 304 or 316 Stainless Steel.  
Fitted with flexible blades

### BEARINGS

Self aligning sealed deep groove ball bearings.

### DRIVE

Direct coupled worm geared motor. TEFC IP55 suitable for AC 415-3-50 supply.

## COMPACT BLOWING SEALS

Valve Size	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Drive Kw	Weight Kg
150	250	224	180	250	224	210	375	215	305	255	53	365	315	64	0.37	50
180	300	270	230	320	270	280	400	270	340	290	53	400	350	76	0.37	60



THE DOWSON GROUP

## VALVE SELECTION

Various factors affect the actual feed rate of Rotary Valves and Blowing Seals. These factors include but are not limited to:

- Flow characteristics of the material.
- Bulk density of the material.
- Pressure differential across the valve.
- Design of ancillary equipment.
- Air leakage through the valve.

Whilst the following formula may be used to determine the valve size for a particular application the selection should be confirmed by our technical department.

The valve capacity based on 100% rotor fill may be obtained from the capacity chart below.

$$\text{Valve Speed} = \frac{\text{Required Feed Rate (Kg/hr)}}{\text{Loose Bulk Density of Product (Kg/m}^3\text{) x Valve Capacity (m}^3\text{/hr/rpm) x Filling Efficiency}}$$

## VALVE CAPACITY CHART

Rotary Valve	Capacity		Blowing Seal	Capacity	
	m <sup>3</sup> /hr/rpm	ft <sup>3</sup> /hr/rpm		m <sup>3</sup> /hr/rpm	ft <sup>3</sup> /hr/rpm
125	0.076	2.40	0.1	0.170	6.00
150	0.137	4.80	0.2	0.339	12.00
200	0.360	12.72	200	0.360	12.30
250	0.713	25.20	240	0.481	16.98
300	1.224	43.20	280	0.921	32.52
350	1.974	69.60	360	1.869	66.00
400	2.880	102.00	450	3.398	120.00
500	5.940	210.00			
600	9.840	347.00			



PROCOL SALES

10 Purbeck Drive, West Bridgford,  
Nottingham NG2 7AU.  
Tel: 0115 846 9469. Fax: 0115 846 1834.  
E-mail sales@procol.dowsongroup.com

## BRITTON VALVES

- 2 Way Slide Diverters**  
Hand Crank Operated Slide Valves
- 2 Way Vane Diverters**  
Air Operated Slide Valves
- Hand Operated Slide Valves**  
Fabricated Slide Valves

## DOWSON HANDLING

- Standard Screw Conveyors**  
Samplers
- Special Screw Conveyors**  
Automatic Sampling Systems
- Screw Conveyor Components**  
Bin Activators
- Multi Worm Screw Feeders**  
Volumetric Feeders
- Big Bag Loaders**

## HELITEC

- Manufacturers of Screw Conveyor Segments in Mild and Stainless Steel**  
Maximum Diameter: 1800mm  
Maximum Material Thickness: 20mm

## PROCOL SALES

- Rotary Valves**  
Pneumatic Conveying Diverters
- Rotary Blowing Seals**  
PC Divertors (Scale Valves)
- Fabricated Rotary Valves**  
Double Flap Valves
- Heavy Duty Gravity Diverters**  
Butterfly Valves
- 3 Way Gravity Diverters**  
Butterfly Dampers
- Special Slide Valves**  
Slide Dampers

## WRIGHTS (GAMLINGAY) LTD

- STANDARD PRODUCTS**  
Gravity Roller Conveyors  
Powered Roller Conveyors  
Accumulating Roller Conveyors  
Table Top (Slat) Conveyors  
Elevators  
Racking  
Installation  
General Fabrication
- SPECIAL PRODUCTS**  
Consultancy  
Design Studies  
Turnkey Project Management  
Custom Built Conveyor Systems  
All Types of Automation.

www.dowsongroup.com