



ROTARY VALVES & AIRLOCKS

ROTOLIN
everything under control...

• ROTARY VALVES & AIRLOCKS •

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 750° F.

We have made specials to handle temperatures covering 2200° F and pressures to 350psi.

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.

Bearings - Sealed-for-life-ball type rigged outboard or high temperature above 475° F.

Shaft Seal - Gland type with PTFE packing.

Drive - TEFC geared motor unit side wall mounted to valve body and complete with taper lock sprockets chain drive all in an enclosed guard.

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.

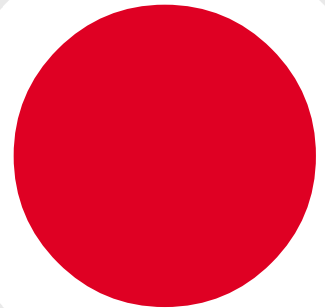
All add up to Rotolok standards.



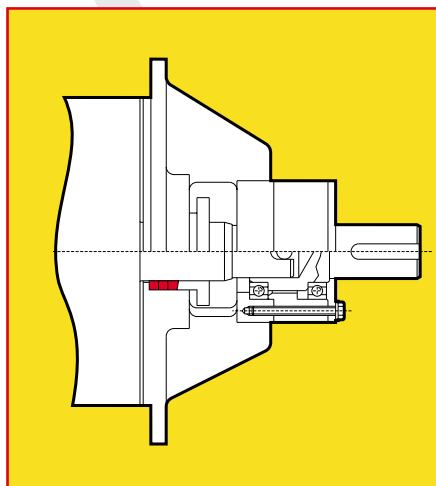
Square Rotary Valve

OPTIONS

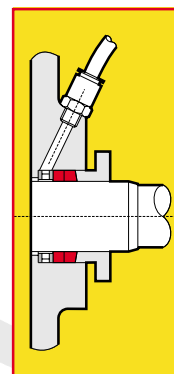
- Quick Release Rotors
- Direct Coupled Drives
- Air Purge Glands
- Body Vents
- Vent Boxes
- Dropout Boxes
- V.S. Drives
- Speed Switches
- Flameproof Motors
- Shear Plate Deflectors
- Electroless Nickel Plating
- Hard Chrome Internals etc.



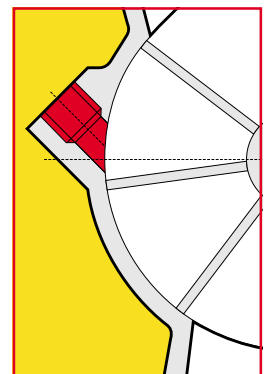
Round Rotary Valve



Quick Release Rotor Detail



Air Purge Gland



Body Vent

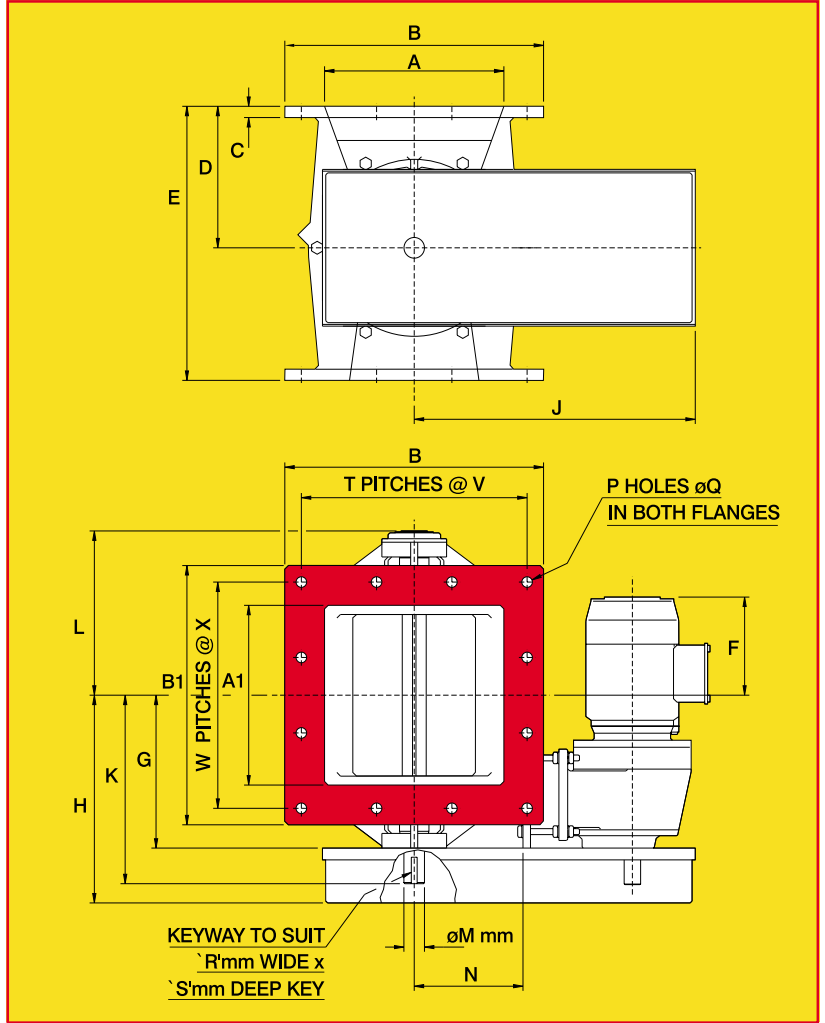
• ROTARY VALVES & AIRLOCKS •

SQUARE INLET



PLANNING-IN DETAIL
FOR GENERAL GUIDANCE ONLY

(TO COVER SAFETY ASPECTS
ASK FOR OUR SAFETY LEAFLETS)



Drillings are Rotolok standards. Variations can be made.

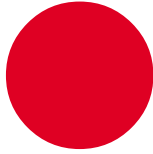
SQUARE ROTARY VALVES

SIZE	A	A1	B	B1	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	V	W	X	H.P.
VALVE SIZE	5	5	8 7/8	8 7/8	1/2	3 7/8	7 3/4	7 7/8	6 1/4	9 1/8	16	8 5/8	7	28	4 5/8	8	9/16	8	7	ON APPLICATION			1/2	
	6	6	9 7/8	9 7/8	1/2	5 1/2	11	7 1/8	6 7/8	9 3/4	16	9 1/4	7 3/4	28	4 5/16	12	1/2	8	7	3	2 3/4	3	2 3/4	1/2
	8	8	11 7/8	11 7/8	5/8	6 1/2	13	6 1/8	7 7/8	10 3/4	16	10 1/4	8 5/8	28	5 5/8	12	1/2	8	7	3	3 9/16	3	3 9/16	1/2
	10	10	13 1/4	13 1/4	5/8	7 1/2	15	7 7/8	9	12 3/4	18 7/8	11 1/2	9 7/8	35	6 5/16	12	9/16	10	8	3	4	3	4	1
	12	12	15 3/4	15 3/4	1/2	9 1/16	18 1/8	6 3/4	10 1/4	13 7/8	18 7/8	12 5/8	11	35	7 11/16	12	1/2	10	8	3	4 11/16	3	4 11/16	1
	14	14	18 1/2	18 1/2	3/4	10 1/8	20 1/4	6 3/8	10 5/8	14 3/8	20 1/8	13	11 3/8	35	8 11/16	12	1/2	10	8	3	5 1/2	3	5 1/2	1
	16	16	21 5/8	21 5/8	3/4	11 7/8	22 7/8	4 1/2	13	16 3/4	24 5/8	15 7/8	13 7/8	50	9 1/4	12	11/16	14	9	3	6 1/2	3	6 1/2	1 1/2
	18	18	24	24	3/4	12 5/8	24 7/8	3 3/8	14	17 3/4	24 5/8	16 7/8	14 7/8	50	11 1/4	12	11/16	14	9	3	7 3/8	3	7 3/8	2
	20	20	25 5/8	25 5/8	3/4	13 3/8	26 3/8	5	15	18 3/4	27 1/2	17 7/8	15 7/8	50	11 3/8	16	11/16	14	9	4	5 13/16	4	5 13/16	2
	24	24	29 1/2	29 1/2	3/4	15	29 1/2	4 1/2	17	20 3/4	27 1/2	19 3/4	17 3/4	50	13 3/16	16	11/16	14	9	4	6 13/16	4	6 13/16	3
	30	29 1/2	29 1/2	39 3/8	39 3/8	1	19 5/8	39 3/8	3	19 3/4	25 1/4	35 3/4	23 7/8	20 1/2	70	17 11/16	24	11/16	20	12	6	5 7/8	6	5 7/8
36	36	36	45 7/8	45 7/8	1	23 5/8	47 1/4	-1	23 7/8	29 1/2	39 3/8	27 7/8	24 5/8	70	21 1/4	24	7/8	20	12	6	6 7/8	6	6 7/8	5

All dimensions in inches.

• ROTARY VALVES & AIRLOCKS •

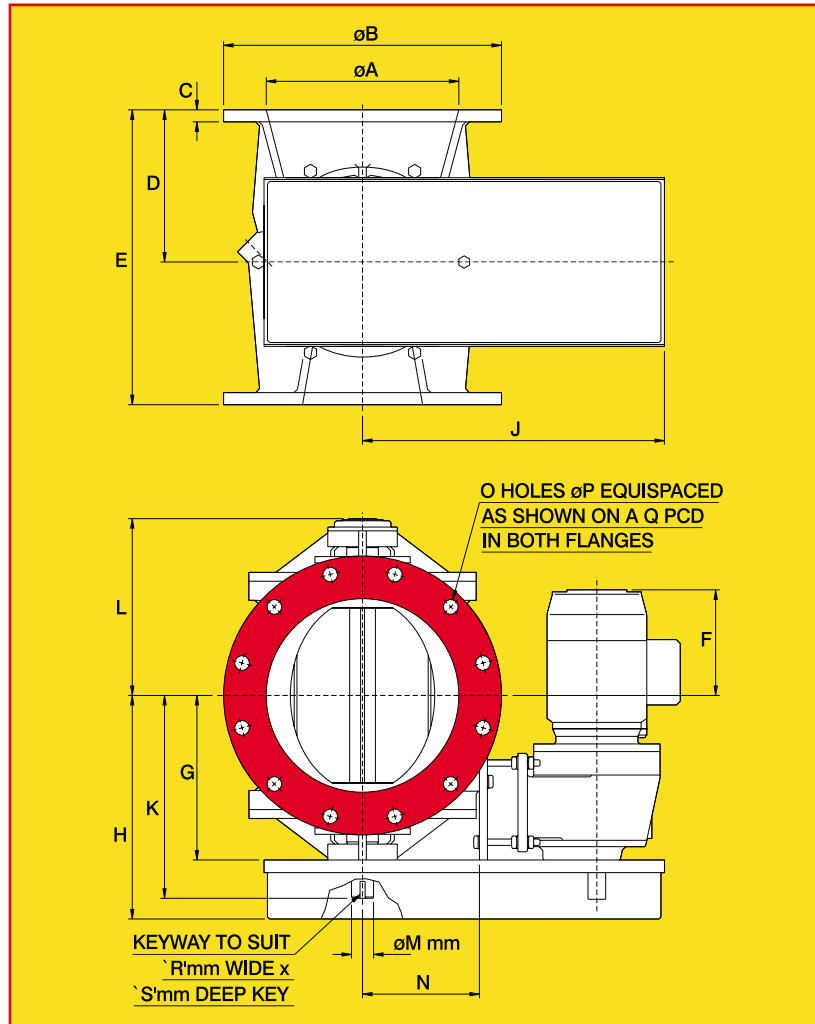
CIRCULAR INLET



PLANNING-IN DETAIL
FOR GENERAL GUIDANCE ONLY

(TO COVER SAFETY ASPECTS
ASK FOR OUR SAFETY LEAFLETS)

Rotolok manufactures and casts other valve sizes with rectangular & other non-standard inlets. If you are looking for something considered special it may be in our library of valves.



Drillings are Rotolok standards. Variations can be made.

ROUND ROTARY VALVES

	SIZE	ØA	ØB	C	D	E	F	G	H	J	K	L	M	N	O	ØP	ØQ	R	S	H.P
VALVE SIZE	2	2	6	3/8	2 3/8	4 3/4	*	3		←	*	*DETAILS ON APPLICATION								→
	3 1/2	3 3/8	7 1/2	3/8	3 1/8	6 1/4	*	4 5/8		←	*	*DETAILS ON APPLICATION								→
	5	5	9 1/2	1/2	4 1/4	8 1/2	7 3/4	6 1/4	9 1/8	16	8 5/8	7	28	5 5/8	8	11/16	7 7/8	8	7	1/2
	6	6	11 1/4	1/2	5 1/2	10 5/8	7 1/8	6 7/8	9 3/4	16	9 1/4	7 5/8	28	5 5/8	8	7/8	9 1/2	8	7	1/2
	8	8	12 1/2	1/2	6 1/4	12 1/4	6 1/8	7 7/8	10 3/4	16	10 1/4	8 5/8	28	5 5/8	8	11/16	11	8	7	1/2
	10	10	14 1/2	5/8	7 7/8	15	8	9	12 3/4	18 7/8	11 3/8	9 3/4	35	6 1/8	8	11/16	12 5/8	10	8	1
	12	12	17 3/8	3/4	9 1/2	18 3/8	6 3/4	10 1/4	13 7/8	18 7/8	12 5/8	11	35	7 11/16	12	7/8	15 1/2	10	8	1
	14	14	21	3/4	10 5/8	20 1/2	6 3/8	10 5/8	14 3/8	20 1/4	13	11 3/8	35	8 11/16	12	7/8	17 1/2	10	8	1
	16	16	21 1/4	3/4	11 7/8	22 7/8	4 3/8	13	16 3/4	24 5/8	15 7/8	13 7/8	50	9 1/4	12	7/8	19 1/2	14	9	1 1/2
	18	18	25	3/4	12 5/8	24 5/8	4	14	17 3/4	24 5/8	16 1/2	14 7/8	50	11 1/4	16	1 1/4	22 3/4	14	9	2
	20	20	27 1/2	3/4	13 3/8	26 3/8	5	15	18 3/4	27 1/2	17 7/8	15 7/8	50	11 3/8	20	1 1/4	25	14	9	2
24	24	32	3/4	15 1/8	30	5	17	20 3/4	27 1/2	19 3/4	17 7/8	50	13 3/16	20	1 3/8	29 1/2	14	9	3	
30	30	38 3/4	1	19 5/8	39 3/8	2	19 3/4	25 1/2	35 7/8	23 7/8	20 1/2	70	17 11/16	28	1 3/8	36	20	12	3	

All dimensions in inches.

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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.

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.

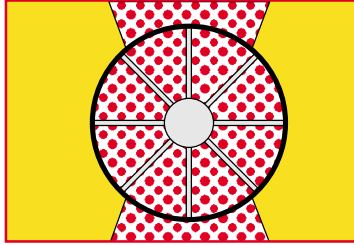
On these considerations the estimated figures are assessed and are more acceptable for selecting the correct valve. e.g. Select a valve to handle 7 tons/hour of flour at 35 lb/cu. ft. Volume required = $7.0 \times 2000 \div 35 = 400$ cu. ft/hr.

From the chart, two valves economically cover this:

1. 10" Valve at 26 rpm.
2. 12" Valve at 12 rpm.

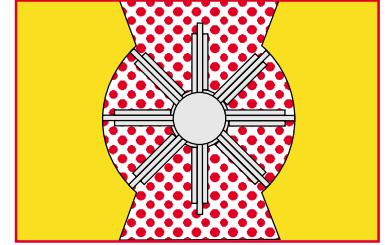
With flour being sluggish and the 10" unit on its uppermost speed, the selection is limited to the 12" unit.

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.



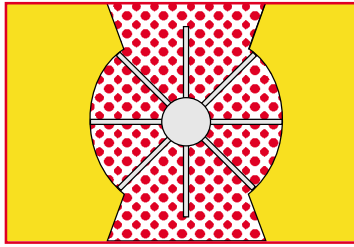
Closed rotor

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



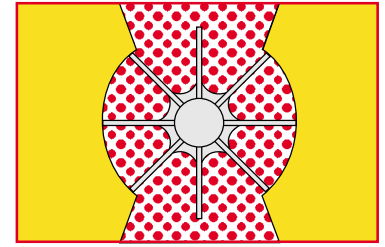
Open adjustable bladed rotor

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.



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 fluon or equal.



Scalloped rotor

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

Capacity Chart in Cubic Feet/Hr													
	1158	5792	9266	11583	13900	16216	18533	20849	23166	25483	27799	30116	100%
36"	1158	5792	8803	10425	12232	13946	15568	16888	18069	18857	19737	20479	Practical
30"	681	3405	5448	6809	8171	9533	10895	12257	13619	14981	16343	17704	100%
	681	3405	5176	6128	7190	8198	9152	9928	10623	11086	11604	12039	Practical
24"	356	1780	2848	3560	4272	4984	5696	6408	7120	7832	8544	9255	100%
	356	1780	2706	3204	3759	4286	4785	5190	5554	5796	6066	6293	Practical
20"	205	1024	1639	2048	2458	2868	3277	3687	4097	4506	4916	5326	100%
	205	1024	1557	1843	2163	2466	2753	2986	3196	3334	3490	3622	Practical
18"	149	743	1189	1487	1784	2082	2379	2676	2974	3271	3568	3866	100%
	149	743	1130	1338	1570	1791	1998	2168	2320	2421	2533	2629	Practical
16"	104	519	830	1037	1245	1452	1660	1867	2075	2282	2490	2697	Practical
	104	519	789	933	1096	1249	1394	1512	1618	1689	1768	1834	Practical
14"	65.2	326	521	652	782	912	1043	1173	1303	1434	1564	1694	100%
	65.2	326	495	587	688	784	876	950	1016	1061	1110	1152	Practical
12"	45.4	227	363	454	545	636	727	818	908	999	1090	1181	100%
	45.4	227	354	409	480	547	611	663	708	739	774	803	Practical
10"	25.6	128	205	256	307	359	410	461	512	564	615	666	100%
	25.6	128	195	230	270	309	344	373	399	417	437	453	Practical
8"	12.7	63	101	127	152	177	203	228	253	279	304	329	100%
	12.7	63	96	114	134	152	171	185	197	206	216	224	Practical
6"	5.0	25	40	50	60	71	81	91	101	111	121	131	100%
	5.0	25	38	45	53	61	68	74	79	82	86	89	Practical
5"	2.8	14	23	28	34	39	45	51	56	62	68	73	100%
	2.8	14	22	25	30	34	38	41	44	46	48	50	Practical
3.5"	.96	4.8	7.7	9.6	11.5	13.4	15.4	17.3	19.2	21.1	23	25	100%
	.96	4.8	7.3	8.6	10.1	11.5	12.9	14	15	15.6	16.3	17	Practical
2"	.228	1.1	1.8	2.3	2.7	3.2	3.6	4.1	4.6	5.0	5.5	5.9	100%
	.228	1.1	1.7	2.1	2.4	2.7	3	3.3	3.6	3.7	3.9	4	Practical
	1	5	8	10	12	14	16	18	20	22	24	26	
	Rotor Speed RPM												

NOTES

Throughput

Certain products when fluidised can greatly exceed the conservative rating and on application, 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

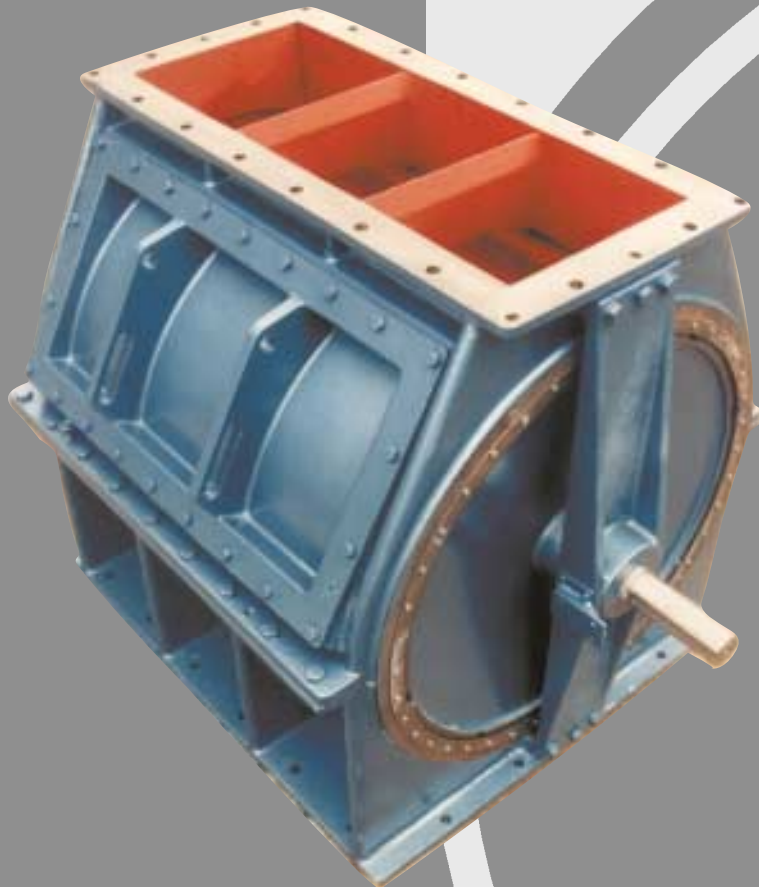
Divide cubic metres/hr by 0.0283 to obtain cubic feet/hr.

Theoretical capacity 100% pocket fillage efficiency.

Conservative estimated throughput.

• OTHER ROTOLOK PRODUCTS •

- Rotary Airlocks
- Conveying Diverters
- Double Dumps
- Blowing Seals
- Fabricated Slides
- Slim Slides
- Rotoslides
- Rotoflex Valves
- Slimflex Valves
- Butterfly Dampers
- Weigh Valves
- Plug Diverters
- Screw Conveyors
- Gravity Diverters
- Rotospeed Switch
- Level Lok
- Pipe Couplings
- Ni Hard Bends
- Special Designs



SPECIAL ROTARY VALVES

Rotolok manufactures other valve sizes with rectangular and other non standard inlets. We have also made specials to handle temperatures of 2200°F and pressures of 350 p.s.i. If you are looking for something special please ask for our ODDBALL Brochure.



Rotolok Valves Inc
Industrial Ventures II, 2711 Gray Fox Road
Monroe, North Carolina, 28110
Tel: (704) 282-4444 Fax: (704) 282-4242
e-mail: sales@rotolok.com
website: www.rotolok.com