

## ROOTS<sup>TM</sup> RCS Rotary Positive Blowers

Frames 817 thru 827

### BASIC BLOWER DESCRIPTION

RCS rotary blowers are heavy-duty units designed with integral-shaft ductile iron impellers having an involute profile. The headplates, gear cover, end cover and rigid, one-piece casing are grey iron. Carburized and ground alloy steel spur timing gears are taper mounted on the shafts, secured with a locknut. Cylindrical roller bearings are used on the drive end with ball bearings on the gear end.

Piston rings reduce air leakage through the shaft openings in the headplates, and lip-type oil seals prevent lubricant from entering the air chamber. The RCS incorporates thrust control, with splash oil lubrication at both ends of the blower.

All units are designed with detachable rugged steel mounting feet which permit in-field adaptability to either vertical or horizontal installation requirements.

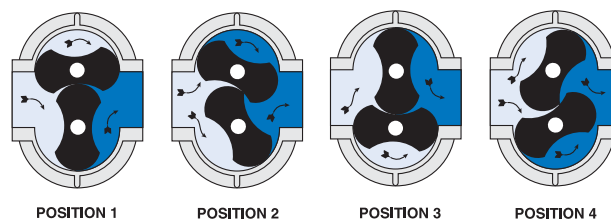
The top shaft is extended for drive on side outlet blowers, and either shaft can be extended for drive on top or bottom outlet blowers. All frame sizes are center-timed to allow rotation in either direction.



### DESIGN AND CONSTRUCTION FEATURES

1. Center-timed for rotation in either direction
2. Alloy steel timing gears
3. Cylindrical roller bearings (Ball bearings on drive end of 800 frame sizes)
4. Piston ring air seals
5. Lip-type oil seals
6. Splash oil lubrication
7. High volumetric efficiency
8. Horizontal and vertical configurations available

### OPERATING PRINCIPLE



Two figure-eight lobe impellers mounted on parallel shafts rotate in opposite directions. As each impeller passes the blower inlet, it traps a definite volume of air and carries it around the case to the blower outlet, where the air is discharged. With constant speed operation the displaced volume is essentially the same regardless of pressure, temperature or barometric pressure.

Timing gears control the relative position of the impellers to each other and maintain small but definite clearances. This allows operation without lubrication being required inside the air casing.



## PERFORMANCE TABLE

FRAME SIZE	SPEED RPM	4 PSI		6 PSI		8 PSI		10 PSI		12 PSI		15 PSI		MAX. VACUUM		
		CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	"Hg	CFM	BHP
817	880	982	24.9	895	36.8	821	48.7	756	60.6					12.0	761	35.7
	1770	2368	55.5	2281	79.5	2207	103.5	2142	127.6	2083	151.6	2003	187.7	16.0	1959	101.4
	2250	3116	78.7	3028	109.2	2955	139.8	2890	170.4	2831	200.9	2751	246.8	16.0	2707	137.1
824	880	1326	33.1	1207	49.2	1108	65.4	1020	81.5					12.0	1028	48.2
	1770	3198	74.8	3080	107.2	2980	139.7	2892	172.2	2813	204.7	2705	253.4	16.0	2646	136.8
	2250	4208	105.6	4090	147.2	3990	188.5	3902	229.8	3823	271.1	3715	333.0	16.0	3656	184.9
827	880	1519	37.9	1383	56.4	1269	74.9	1169	93.4					12.0	1178	55.2
	1770	3665	85.5	3529	122.7	3415	159.9	3314	197.1	3223	234.3			16.0	3032	157.0
	2250	4822	120.9	4687	168.2	4572	215.5	4472	262.8	4381	310.1			16.0	4189	212.3

**Notes:** 1. Pressure ratings based on inlet air at standard pressure of 14.7 psia, standard temperature of 68° F, and specific gravity of 1.0.  
2. Vacuum ratings based on inlet air at standard temperature of 68°F, discharge pressure of 30" Hg and specific gravity of 1.0.

## OUTLINE DRAWING & DIMENSIONAL TABLE

**VERTICAL CONFIGURATION**  
(Horizontal Air Flow)

**HORIZONTAL CONFIGURATION**  
(Vertical Air Flow)

**NOTES:**  
1. All dimensions are in inches.  
2. Do not use for construction.

FRAME SIZE	A	A'	B	C	Drive Shaft Location		O	O'	P	P'	R	U	Keyway	AF Inlet Diameter	AF' Discharge Diameter	AX	Approx. NetWt (lbs)
					D	D1											
817	19.00	27.00	24.25	38.44	18.00	10.00	28.38	20.38	19.00	25.25	14.00	2.750	.625 x.313	10.0 FLG	10.0 FLG	4.00	1200
824	19.00	27.00	30.50	44.69	18.00	10.00	28.38	20.38	19.00	25.25	14.00	2.750	.625 x.313	12.0 FLG	12.0 FLG	4.00	1330
827	19.00	27.00	34.00	48.19	18.00	10.00	28.38	20.38	19.00	25.25	14.00	2.750	.625 x.313	14.0 FLG	14.0 FLG	4.00	1600

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S-5283  
February 2004

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