



**Roots**

## 721 RCS-J

Part Number – call 816-741-0282

Patented WHISPAIR™ blowers reduce noise and power loss by utilizing an exclusive wrap-around plenum and proprietary WHISPAIR jet to control pressure equalization-feeding backflow in the direction of impeller movement, thereby aiding rotation. This design results in longer bearing life, lower vibration, and reduces noise up to 5 dBA pressure or vacuum.

- Heavy-duty unit with integral-shaft ductile iron impellers with an involute profile
- Rigid one-piece casing, drive end cover, end cover, and headplates are grey iron
- Carburized and ground alloy steel spur timing gears
- Cylindrical roller bearings on drive end
- Ball bearings on gear end
- Piston rings reduce air leakage
- Lip type oil seals prevent lubrication from entering the air chamber.
- Splash oil lubricated gears on drive and gear ends
- Detachable mounting feet
- Horizontal and vertical configurations available

### Also Available in:

- RCS-J with Plugged Impeller Option



816-741-0282



### Quick Specs

Flow Range	to 2410 CFM
Max ΔPressure	15 PSI
Max ΔVacuum	15" Hg
Maximum RPM	2600
Minimum RPM	1180
Max ΔT	230°F
Inlet Connection Size	12" Flange
Discharge Connection Size	10" Flange
Shaft Dia.	2.375"
Min Sheave Dia.	11.8"
Drive End Lubrication	Oil
Gear End Lubrication	Oil
Oil Sump Horiz Config	~225 oz
Oil Sump Vert Config	~120 oz
Bare Unit Weight	1200 lbs
Container	Wood Skid
Skid Size (L x W x H)	54" x 32" x 36"
Shipping Weight on Skid	~1250 lbs
Recommended to Ship Via	Truck



816-741-0282

**700 Series RCS-J Parts**

Item Number	Part Name	Quantity
01	Headplate	2
03	Gearbox	1
04	Gear, Assembly	1
05	Drive End Cover	1
07	Gasket	2
09	Lubrication Label	2
10	Shim Set	1
11	Cylinder	1
12	Impeller & Shaft - Drive	1
13	Impeller & Shaft - Driven	1
14	Bearing Roller	4
16	Dowel Pin	4
17	Drive-Lok Pin	2
19	Key	1
20	Drive Screw	3
21	Plug - Vent	2
22	Drain - filler Plug	8
23	Cap Screw	36 (700)
27	Seal-Lip, Headplate	4
28	Seal-Ring	4
29	Washer, Wavy Spring	2
31	Locknuts	2
32	Capscrew	16
33	Seal, Lip	1
34	Clamp Plate - Drive End	2
35	Lock Washer	16
37	Oil Level Gauge	2
38	Sleeve - Piston Ring	4
40	Slinger - D.E (Top Drive)	1
40	Slinger - D.E. (Bottom Drive)	2
45	Pipe Plug	2
46	Slinger - G.E.	1
54	Clamp Plate - Gear End	2
55	Capscrew-butt. Hd	2
56	Washer	2
60	Capscrew	1
63	Lifting Lug	2
64	Pin, Spr (Top Drive)	1
65	Coupling	2
66	Nipple-pipe (700)	2
71	Scr, Set Soch CP (Bottom Drive)	1
73	Foot - R.H.	2
74	Foot - L.H.	2
78	Capscrew - Hex Hd.	2

**Repair Kits**

Repair kits are bundled with the parts you need to complete a standard repair. It is more cost effective to buy a repair kit than to purchase individual parts. However, if you need parts not listed in the kit, it is recommended that you call Pathfinder Systems for parts pricing.

**Top, Left, or Right Drive Shaft (Bottom Shaft order P/N 710813RK)**

**P/N 710812RK Kit for 700 RCS-J/DVJ/VJ**

Item	Qty	Kit Description	P/N
7	2	Gasket Gearbox/Cover	70869021
10	1	Shim Set	74534020
14	4	Bearing, Roller	10222050
27	4	Seal, Lip (Viton)	10005182
28	4	Piston, Ring Seal	12283009
29	2	Washer, Spring, Wavy	10135027
31	2	Nut, Hex ESNA 1-1/4"-12	10319025
33	1	Seal, Lip	10005181
37	2	Sight, Plug Oil Level, 3/4"	12066001
38	4	Sleeve, DE & GE	71059020
40	1	Slinger, DE 7" RCS J	71152022
46	1	Slinger, DE 7" RCS J	71151022
55	2	Screw Cap, 3/8-16	10219003
56	2	Washer, Plain Flat	10181013
60	1	Screw Cap, 5/8-11	12800002
64	1	Pin, Spring 3/16x1	10068054

**Table 2 - 700 Series RCS-J/RCS-DVJ Approximate Oil Sump Capacities**

Model No./ Drive Shaft Location	Gear Box		Drive End	
	Fl. Oz.	Liters	Fl. Oz.	Liters
700 RCS-J/ RCS-DVJ (left or right)	155	4.59	70	2.07
700 RCS-J/ RCS-DVJ (top or bottom)	80	2.37	40	1.18

**These capacities are provided to assist stocking the correct amount of oil. Exact sump capacity may differ slightly. Review the proper filling instructions as detailed above.**

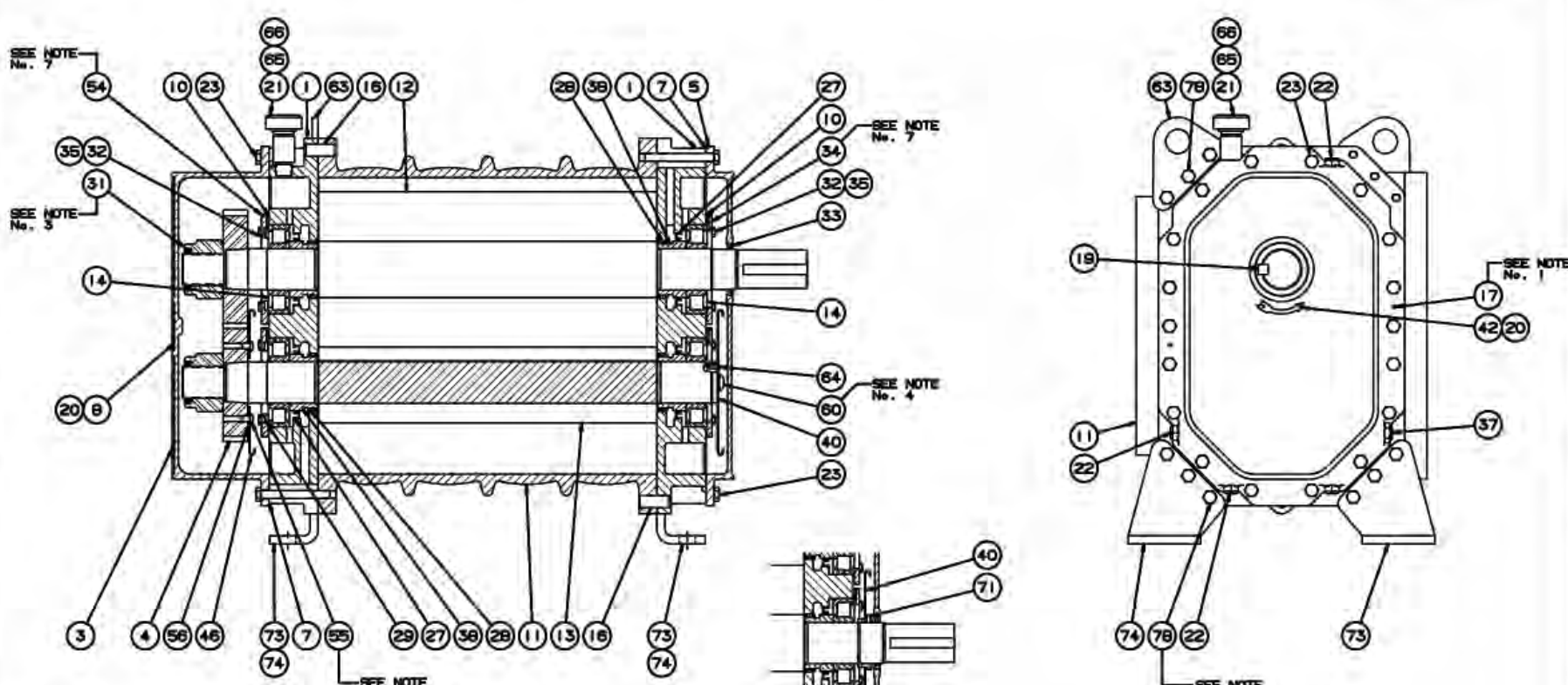
**Table 2 - Recommended Oil Grades**

Ambient* Temperature °F (°C)	ISO Viscosity No.
Above 90° (32°)	320
32° to 90° (0° to 32°)	220
0° to 32° (-18° to 0°)	150
Below 0° (-18°)	100

\*Ambient temperature is defined as the temperature of the space blower and drive are located.

**Due to sludge build-up and seal leakage problems, Roots recommendation is DO NOT USE Mobil SHC synthetic oils in ROOTS blowers.**

<b>ROOTS® Synthetic Oil: ISO-VG-320 Grade</b>	
	<b>Part Number</b>
Quart	13106004
Gallon	13106005
Case (12 qts)	13106007
<b>ROOTS® Synthetic Oil: ISO-VG-220 Grade</b>	
	<b>Part Number</b>
Quart	13106001
Gallon	13106002
Case (12 qts)	13106008
<b>ROOTS® Synthetic Oil: ISO-VG-150 Grade</b>	
	<b>Part Number</b>
Quart	13106020
Gallon	13106021
Case (12 qts)	13106023
5 Gallon Pail	13106022
55 Gallon Drum	13106025
<b>ROOTS® Synthetic Oil: ISO-VG-100 Grade</b>	
	<b>Part Number</b>
Quart	13106011
Gallon	13106012
Case (12 qts)	13106014
5 Gallon Pail	13106013
55 Gallon Drum	13106016

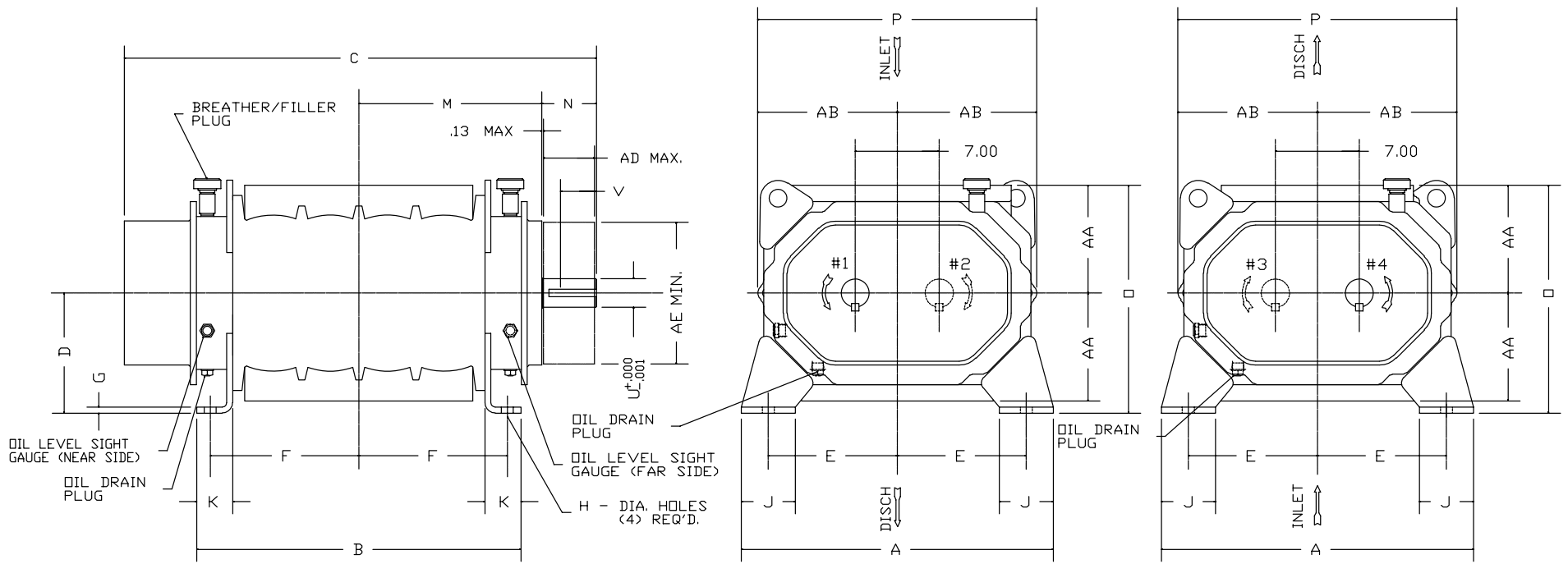


- NOTES:**
1. DRIVE END COVER TO BE PINNED TO HEADPLATE AFTER ALIGNING SEAL BORE TO SHAFT WITHIN .001"
  2. USE JOHN CRANE PLASTIC LEAD No. 2 ON ALL PIPE THREADS
  3. APPLY OIL TO NUT THREADS & NUT FACE AND TORQUE TO 1250 FT-LBS. (IF MOLYKOTE GN PASTE IS USED TORQUE TO 1000 FT-LBS.)
  4. APPLY LOCKTITE TO SCREW THREADS & TORQUE TO 140 FT-LBS.
  5. APPLY LOCKTITE TO SCREW THREADS & TORQUE TO 25 FT-LBS.
  6. APPLY OIL TO SCREW THREADS & TORQUE TO 85 FT-LBS.
  7. ITEMS 34 & 54 MUST BE INSTALLED WITH OIL GROOVE AT TOP.

OPTIONAL BOTTOM DRIVE

CONFIDENTIAL THIS DOCUMENT CONTAINS CONFIDENTIAL INFORMATION OF DRESSER DIVISION, DRESSER INDUSTRIES, INC. IT SHALL BE HELD IN STRICTLY CONFIDENTIAL AND BE LOANED ONLY IN CONNECTION WITH DRESSER DIVISION BUSINESS.		REVISED PER DDVA REVISED: OIL, S. THBERT		DATE/REV. V 03 24	REV. NO. 1 PARTS/LISTED 2711-02
1. APPROVED 2. CHECKED 3. DESIGNED 4. DRAWN 5. ENGINEER	6. DIMENSIONS 7. TOLERANCES 8. FINISHES 9. MATERIALS 10. WEIGHTS 11. FINISHES 12. OTHER	<b>SECTIONAL ASSEMBLY</b> 700 (REV. 1)			
<b>DRESSER</b> Roots		<b>72015023</b>			

Sectional Assembly 700



POSITION #1 FURNISHED  
UNLESS SPECIFIED OTHERWISE

ALTERNATE POSITIONS #2, #3 & #4  
ALSO AVAILABLE

INLET AND DISCHARGE FLANGES TO MATE  
FLUSH AND SQUARE WITH FLAT FACE  
FLANGES ONLY. USE FULL FACE GASKETS

FOR V-BELT DRIVEN UNITS  
MOTOR TO BE LOCATED ON  
DRIVE SHAFT SIDE OF BLOWER

	8"FLG	10"FLG	12"FLG
OPENING	8.00	10.00	12.00
BOLT CIRCLE	11.75	14.25	17.00
FLANGE O.D.	13.50	16.00	19.00
NO TAPPED HOLES	8	12	12
SIZE HOLES	3/4-10	7/8-9	7/8-9
TAP DEPTH	1.13	1.31	1.31

W - INLET  
W' - DISCHARGE  
AD - SHEAVE WIDTH  
AE - SHEAVE DIAMETER  
H

ALL DIMENSIONS IN INCHES

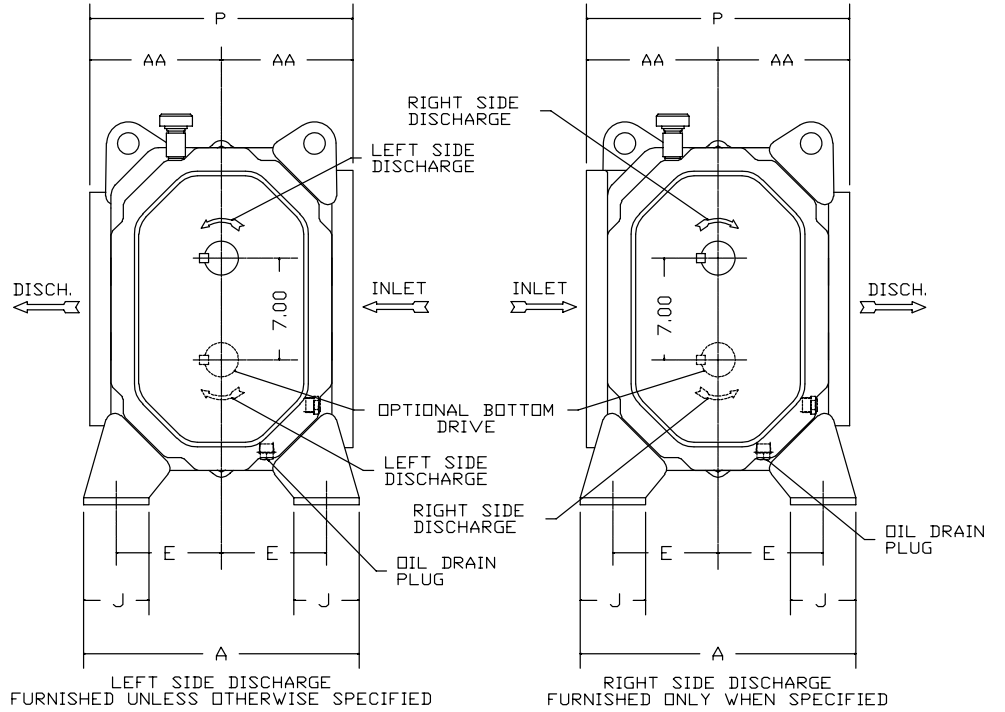
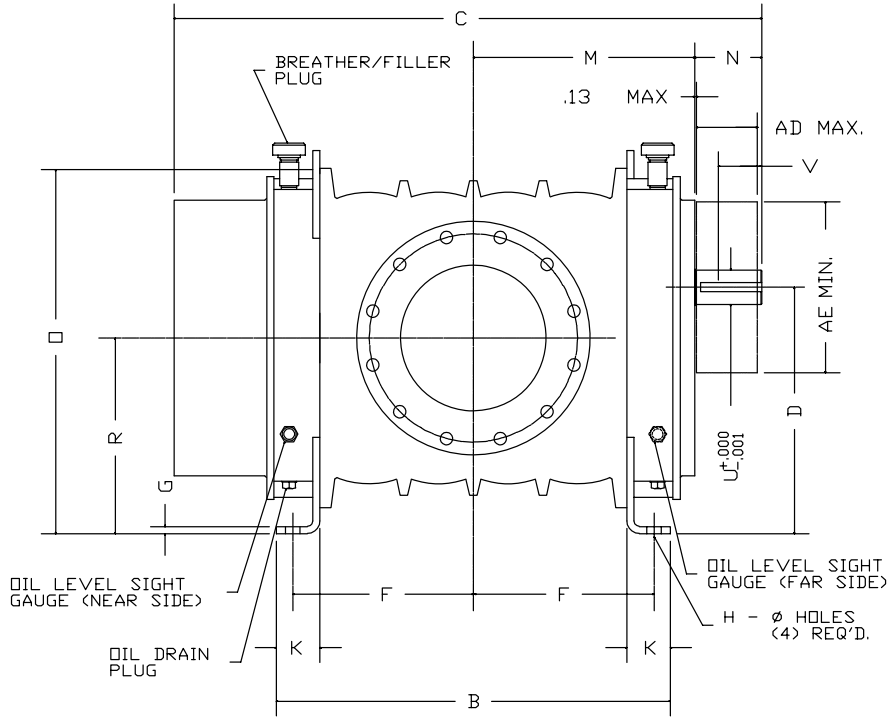
# 700 RCS-JH BLOWER

FRAME SIZE	A	B	C	D	E	F	G	H	J	K	M	N	O	P	U	V	KEYWAY	W	W'	AA	AB	AD	AE	APPROX WEIGHT
715	26.00	21.50	33.88	10.00	10.75	9.63	.50	1.00	4.50	3.00	12.50	4.56	19.00	23.25	2.375	3.00	.625x.313	10"FLG	8"FLG	9.00	11.63	4.43	11.80	1100
721	"	27.00	39.38	"	"	12.38	"	"	"	"	15.25	"	"	"	"	"	"	12"FLG	10"FLG	"	"	"	"	1200

B- REVISED APPROX. WEIGHT JHB 10-21-93  
A- REVISED PER ECN 3698-V RE 2/5/93

FR 2/5/93 DB BA 70899021  
70899a21

/PARTS1/XXAD



INLET AND DISCHARGE FLANGES TO MATE FLUSH AND SQUARE WITH FLAT FACE FLANGES ONLY. USE FULL FACE GASKETS

FOR V-BELT DRIVEN UNITS MOTOR TO BE LOCATED ON INLET SIDE OF BLOWER

## 700 RCS-JV BLOWER

	8"FLG	10"FLG	12"FLG
OPENING	8.00	10.00	12.00
BOLT CIRCLE	11.75	14.25	17.00
FLANGE O.D.	13.50	16.00	19.00
No TAPPED HOLES	8	12	12
SIZE HOLES	3/4-10	7/8-9	7/8-9
TAP DEPTH	1.13	1.31	1.31

W - INLET  
W' - DISCHARGE  
AD - SHEAVE WIDTH  
AE - SHEAVE DIAMETER  
H

ALL DIMENSIONS IN INCHES

FRAME SIZE	A	B	C	D	E	F	G	H	J	K	M	N	O	P	R	U	V	KEYWAY	W	W'	AA	AD	AE	APPROX WEIGHT
715	19.00	21.50	33.88	17.00	7.25	9.63	.50	1.00	4.50	3.00	12.50	4.56	25.13	18.00	13.50	2.375	3.00	.625x.313	10"FLG	8"FLG	9.00	4.43	11.80	1100
721	"	27.00	39.38	"	"	12.38	"	"	"	"	15.25	"	"	"	"	"	"	"	12"FLG	10"FLG	"	"	"	1200

B-REVISED APPROX. WEIGHT JHB 10-21-93  
A-REVISED PER ECN 3698-V RVE 2/5/93

FR  
1/7/91

DB

BA

70898021  
70898a21

/PARTS1/XXAD



## ROOTS<sup>TM</sup> RCS-J WHISPAIR<sup>TM</sup> Rotary Positive Blowers

Frames 715J thru 832J

### BASIC BLOWER DESCRIPTION

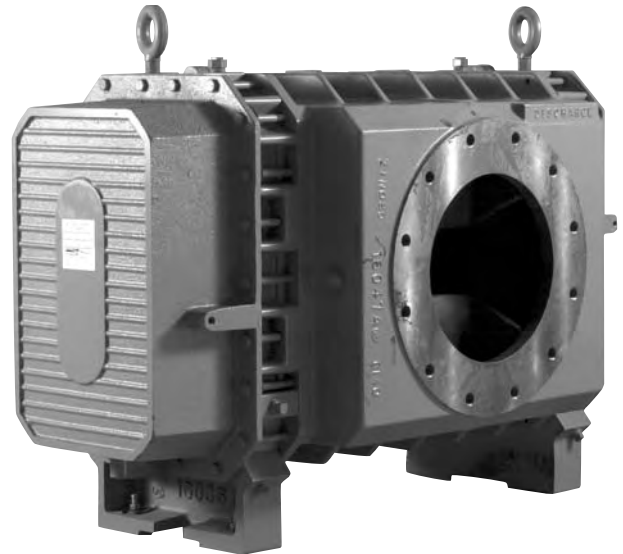
RCS-J WHISPAIR<sup>TM</sup> rotary blowers are heavy-duty units designed with integral-shaft ductile iron impellers having an involute profile. WHISPAIR blowers reduce noise and power loss by utilizing an exclusive wrap-around plenum and proprietary WHISPAIR jet to control pressure equalization – feeding backflow in the direction of impeller movement, thereby aiding rotation.

The headplates, gear cover, drive 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.

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

Frame sizes 715J and 721J are designed with detachable rugged steel mounting feet that permit in-field adaptability to either vertical or horizontal installation requirements.

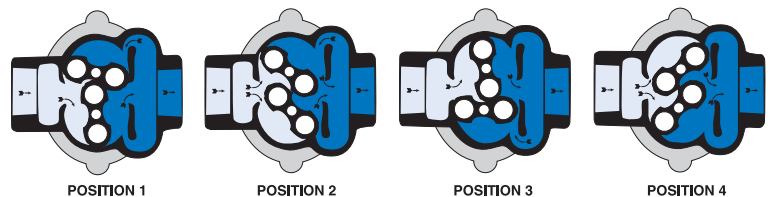
The top shaft is extended for drive on side outlet blowers, and either shaft can be extended for drive on top or bottom outlet blowers.



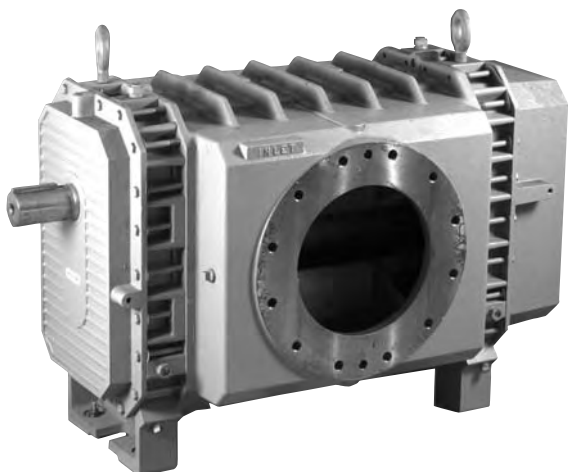
### DESIGN AND CONSTRUCTION FEATURES

1. Low noise level, less operating power required
2. Alloy steel timing gears
3. Cylindrical roller bearings
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



Incoming air is trapped by the impellers. Simultaneously, pressurized air (right) is being discharged. As the lower impeller passes wrap-around flange, Whispair jet equalizes pressure between trapped air and discharge area, aiding impeller movement and reducing power. Impellers move air into the discharge area (right). Backflow is controlled, resulting in reduction of noise relative to conventional blowers.



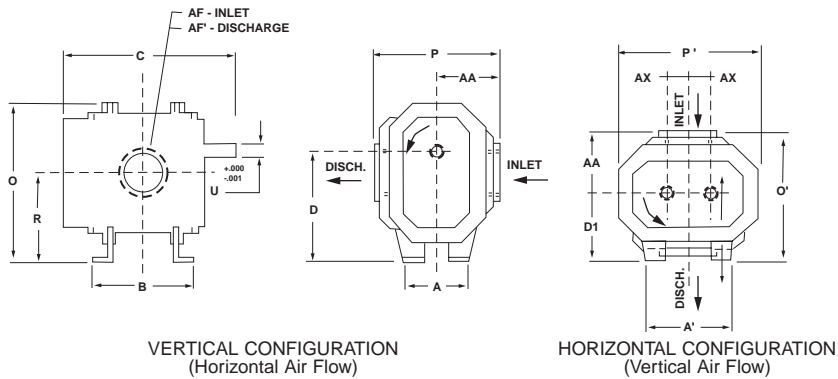
**Roots**

## PERFORMANCE TABLE

FRAME SIZE	SPEED RPM	4 PSI		6 PSI		8 PSI		10 PSI		12 PSI		15 PSI		18 PSI		MAX. VACUUM		
		CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	"Hg	CFM	BHP
715J	1180	935	23.0	870	33.4	815	44.0	766	54.6	722	65.0	663	81.0			14.0	705	37.2
	1770	1548	37.3	1483	53.0	1428	68.8	1379	84.5	1335	100.3	1276	123.9			15.0	1281	61.4
	2600	2410	63.4	2345	86.0	2290	108.5	2241	131.0	2198	153.7	2138	187.5			15.0	2144	95.4
721J	1180	1266	30.5	1178	44.8	1103	59.0	1037	73.5	978	87.8	892	109.2			14.0	955	50.0
	1770	2096	49.1	2008	70.4	1933	91.7	1867	113.1	1808	134.4	1727	166.4			15.0	1735	81.7
	2600	3264	81.4	3176	112.0	3101	142.5	3035	173.1	2976	203.7	2895	249.5			15.0	2903	124.8
817J	880	982	24.9	895	36.8	821	48.7	756	60.6									
	1770	2368	55.0	2280	78.5	2206	102.0	2142	125.4	2083	148.9	2004	184.1	2055	219.4	16.0	1962	95.9
	2250	3116	75.6	3028	105.0	2955	134.0	2890	164.0	2830	193.0	2751	237.0	2680	281.0	16.0	2707	126.0
821J	880	1179	29.6	1074	43.9	985	58.1	907	72.4									
	1770	2842	65.7	2738	93.9	2648	122.1	2571	150.3	2500	178.4	2405	220.7			16.0	2354	114.8
	2250	3740	92.3	3635	127.0	3546	163.0	3468	198.0	3398	233.0	3302	286.0			16.0	3249	153.0
826J	880	1473	37.1	1342	55.0	1231	72.8	1134	90.7									
	1770	3554	81.4	3423	116.7	3311	151.9	3214	187.1	3126	222.3					16.0	2944	142.8
	2250	4676	105.0	4545	156.0	4434	200.0	4336	247.0	4248	288.0					16.0	4062	188.0
832J	880	1768	44.4	1610	65.8	1477	87.2	1360	108.6									
	1770	4264	97.5	4107	139.8	3972	182.0	3857	224.3							16.0	3531	168.4
	2250	5610	134.0	5452	186.0	5320	239.0	5202	292.0							16.0	4874	225.0

- 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.
  3. 800J frame size only – Operation above 15 psi pressure rise, 15" Hg vacuum or 230° F temperature rise requires oil coolers – refer to Factory. Oil cooler not available on 600J and 700J frame sizes.

## OUTLINE DRAWING & DIMENSIONAL TABLE



- 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	AA	AX	Approx. NetWt (lbs)
					D	D1												
715J	19.00	26.00	21.50	33.38	17.00	10.00	25.13	19.00	18.00	23.25	13.50	2.375	.625 x.313	10.0 FLG	8.0 FLG	9.00	3.50	1100
721J	19.00	26.00	27.00	39.38	17.00	10.00	25.13	19.00	18.00	23.25	13.50	2.375	.625 x.313	12.0 FLG	10.0 FLG	9.00	3.50	1200
817J	13.75	22.00	24.25	38.63	21.00	13.00	30.00	25.75	25.50	25.00	17.00	2.750	.625 x.313	10.0 FLG	10.0 FLG	12.75	4.00	1620
821J	13.75	22.00	27.88	42.25	21.00	13.00	30.00	25.75	25.50	25.00	17.00	2.750	.625 x.313	12.0 FLG	10.0 FLG	12.75	4.00	1800
826J	13.75	22.00	33.13	47.50	21.00	13.00	30.00	25.75	25.50	25.00	17.00	2.750	.625 x.313	12.0 FLG	12.0 FLG	12.75	4.00	2075
832J	13.75	22.00	38.50	52.88	21.00	13.00	30.00	25.75	25.50	25.00	17.00	2.750	.625 x.313	14.0 FLG	12.0 FLG	12.75	4.00	2325

**Dresser, Inc.**



**Roots**

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