ROOTS™ Universal RAI®-G Rotary Positive Gas Blowers

Frames 32 thru 615

BASIC BLOWER DESCRIPTION

Universal RAI®-G gas blowers are heavy duty rotary blowers designed with mechanical seals. The detachable rugged steel mounting feet, permit adaptability to either vertical or horizontal installation requirements. The compact, sturdy design is engineered for continuous service when operated in accordance with speed and pressure ratings.

The basic model consists of a cast iron casing, carburized and ground alloy steel spur timing gears secured to steel shafts with a taper mounting and locknut, and cast iron involute impellers. Oversized anti-friction bearings are used, with a cylindrical roller bearing at the drive shaft to withstand V-belt pull. The Universal RAI®-G features splash oil lube on the gear end and grease lube on the drive end.

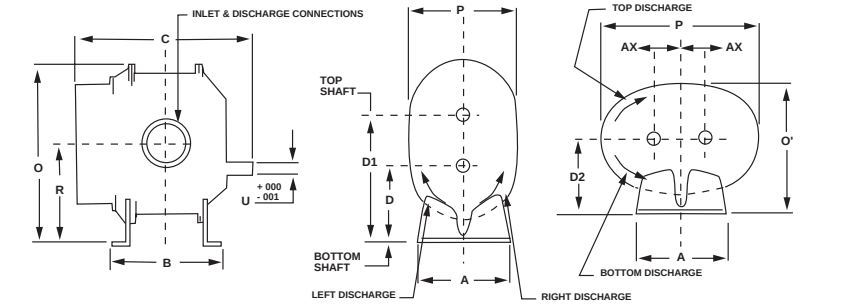
Accessories are available through our distributors.

ROOTS™ Synthetic Oil and grease is recommended to maintain warranty.

DESIGN AND CONSTRUCTION FEATURES

1. Mechanical seals
2. Rigid one-piece cast iron casing
3. Anti-friction bearings
4. Splash oil lubricated spur timing gears
5. Connections in standard pipe sizes
6. Straight, precision machined two-lobe impellers
7. Ground steel shafts
8. Detachable steel mounting feet

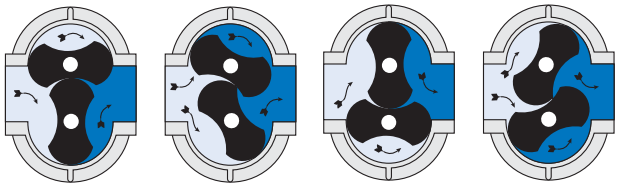
OUTLINE DRAWING & DIMENSIONAL TABLE



VERTICLE CONFIGURATION HORIZONTAL CONFIGURATION

Frame Size	A	B	C	Drive Shaft Location			O	O'	P	P'	R	U	Keyway	Inlet & Disch. Dia	AX	Approx. Net Wt. (lbs.)
				D	D1	D2										
32	7.25	6.75	11.25	5.00	8.50	5.00	12.81	8.88	7.75	12.13	6.75	.750	.188 x .094	1.25 NPT	1.75	69
33	7.25	7.63	12.13	5.00	8.50	5.00	12.81	8.88	7.75	12.13	6.75	.750	.188 x .094	2.0 NPT	1.75	74
36	7.25	10.00	14.63	5.00	8.50	5.00	12.81	8.88	7.75	12.13	6.75	.750	.188 x .094	2.5 NPT	1.75	102
42	8.00	7.25	13.00	6.25	10.25	6.25	15.06	10.63	8.75	13.63	8.25	.875	.188 x .094	1.5 NPT	2.00	88
45	8.00	10.00	15.50	6.25	10.25	6.25	15.06	10.63	8.75	13.63	8.25	.875	.188 x .094	2.5 NPT	2.00	109
47	8.00	11.75	17.63	6.25	10.25	6.25	15.06	10.50	8.50	13.63	8.25	.875	.188 x .094	3.0 NPT	2.00	128
53	10.50	8.38	15.38	6.25	11.25	6.75	17.38	11.88	10.25	17.25	8.75	1.125	.250 x .125	2.5 NPT	2.50	143
56	10.50	11.00	18.00	6.25	11.25	6.75	17.38	12.25	11.00	17.25	8.75	1.125	.250 x .125	4.0 NPT	2.50	170
59	10.50	14.00	21.18	6.25	11.25	6.75	17.38	12.25	11.00	17.25	8.75	1.125	.250 x .125	4.0 NPT	2.50	204
65	11.00*	10.00	18.38	8.75	14.75	8.75	21.63	15.13	12.75	19.75	11.75	1.375	.312 x .156	3.0 NPT	3.00	245
68	11.00*	13.00	21.38	8.75	14.75	8.75	21.63	15.13	12.75	19.75	11.75	1.375	.312 x .156	5.0 NPT	3.00	285
615	11.00*	20.00	28.38	8.75	14.75	8.75	21.63	16.25	15.00	19.75	11.75	1.375	.312 x .156	6.0 FLG	3.00	425

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 gas and carries it around the case to the blower outlet, where the gas 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 gas casing.

DRESSER Roots

PERFORMANCE TABLE

FRAME	SPEED	1 PSI		2 PSI		3 PSI		4 PSI		5 PSI		6 PSI		7 PSI		8 PSI		10 PSI		11 PSI		12 PSI		13 PSI		14 PSI		15PSI		Max. Vacuum		
SIZE	RPM	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	*HG	CFM	BHP
32	1200	37	0.2	30	0.4	24	0.7	20	0.9	16	1.1	12	1.4																	8	15	0.9
	1800	64	0.4	57	0.8	51	1.1	47	1.5	43	1.8	39	2.2	36	2.5	33	2.9	27	3.6											10	35	1.7
	2500	95	0.6	88	1.1	83	1.6	78	2.1	74	2.5	71	3.0	67	3.5	64	4.0	59	5.0	56	5.5	54	6.0	51	6.5					13	56	3.2
	3600	145	0.9	138	1.6	133	2.3	128	3.0	124	3.7	120	4.4	117	5.1	114	5.9	108	7.3	106	8.0	103	8.7	101	9.4	98	10.1	96	10.8	16	93	5.7
33	1200	52	0.3	42	0.6	36	1.0	29.6	1.3	24	1.6	20	1.9																	8	23	1.3
	1800	89	0.5	80	1.0	72	1.5	66.5	1.9	61	2.4	57	2.9	52	3.4	48	3.9	40	4.8											10	51	2.4
	2500	132	0.9	123	1.5	116	2.2	110	2.9	104	3.5	100	4.2	95	4.9	91	5.6	84	6.9	80.4	7.6	77	8.2							13	80	4.3
	3600	200	1.2	190	2.1	183	3.1	177	4.1	172	5.0	167	6.0	163	7.0	159	7.9	152	9.9	148	10.8	145	11.8							15	137	7.3
36	1200	91	0.6	78	1.1	68	1.6	60	2.2	52	2.7	46	3.2	39	3.8															8	50	2.1
	1800	152	0.9	139	1.7	129	2.5	121	3.3	113	4.1	107	4.9	101	5.7															10	99	4.0
	2500	224	1.3	211	2.5	201	3.6	192	4.7	185	5.8	178	6.9	172	8.0															13	150	7.2
	3600	336	2.1	323	3.7	313	5.3	304	6.9	297	8.5	290	10.1	284	11.7															15	248	12.1
42	1200	54	0.3	46	0.6	40	0.9	35	1.3	30	1.6	26	1.9	22	2.2															8	29	1.3
	1800	90	0.6	82	1.0	76	1.5	71	2.0	66	2.5	62	2.9	59	3.4	55	3.9	49	4.8	46	5.3									10	58	2.4
	2500	132	0.8	124	1.5	118	2.2	113	2.8	109	3.5	105	4.1	101	4.8	98	5.5	91	6.8	88	7.4	85	8.1	83	8.8	80	9.4	77	10.1	13	88	4.3
	3600	199	1.4	191	2.4	185	3.3	180	4.3	175	5.2	171	6.2	168	7.1	164	8.1	158	10.0	155	10.9	152	11.9	149	12.8	147	13.8	144	14.7	16	140	7.7
45	1200	111	0.7	97	1.3	86	2.0	77	2.6	69	3.2	61	3.9	55	4.5	49	5.1													8	67	2.5
	1800	184	1.0	170	2.0	159	2.9	150	3.9	142	4.8	134	5.8	128	6.7	121	7.7	110	9.6											10	126	4.7
	2500	268	1.6	254	3.0	243	4.3	234	5.6	226	6.9	219	8.2	212	9.6	206	10.9	195	13.5											13	189	8.6
	3600	402	2.7	387	4.6	377	6.5	367	8.4	359	10.3	352	12.2	345	14.1	339	16.0	328	19.8											16	297	15.4
47	1200	148	0.9	131	1.7	117	2.5	105	3.4	95	4.2	86	5.0	78	5.9															8	92	3.3
	1800	244	1.4	226	2.6	213	3.9	201	5.1	191	6.4	182	7.6	173	8.9															10	171	6.2
	2500	356	2.1	338	3.8	324	5.6	313	7.3	303	9.1	293	10.8	285	12.5															13	255	11.3
	3600	531	3.6	513	6.1	500	8.6	488	11.1	478	13.6	469	16.1	460	18.6															15	410	19.1
53	800	77	0.4	66	0.9	57	1.3	49	1.8	43	2.2	37	2.7	32	3.2															8	41	1.8
	1400	157	0.9	145	1.7	136	2.5	129	3.3	122	4.1	116	4.9	111	5.7	106	6.5	96	8.2	92	9.0	88	9.8							10	109	4.0
	1800	209	1.3	198	2.3	189	3.4	181	4.4	175	5.4	169	6.5	163	7.5	158	8.6	149	10.6	145	11.7	141	12.7	137	13.7	133	14.8			13	144	6.7
	2850	348	2.5	336	4.2	327	5.8	320	7.5	313	9.1	307	10.7	302	12.4	297	14.0	287	17.3	283	18.9	279	20.6	275	22.2	271	23.8	268	25.5	16	262	13.4
56	800	134	0.8	117	1.5	104	2.3	92	3.1	82	3.9	73	4.6	64	5.4	57	6.2													8	79	3.0
	1400	267	1.6	250	2.9	236	4.3	225	5.6	215	6.9	206	8.3	197	9.6	190	11.0	176	13.7	169	15.0	163	16.4	157	17.7					10	195	6.7
	1800	355	2.1	338	3.9	325	5.6	313	7.3	303	9.1	294	10.8	286	12.5	278	14.3	264	17.7	257	19.5	251	21.2	245	22.9					13	257	11.2
	2850	588	4.0	570	6.8	557	9.5	545	12.3	535	15.0	526	17.8	518	20.5	510	23.3	496	28.8	490	31.5	483	34.3	477	37.0					16	457	22.4
59	800	205	1.2	183	2.4	166	3.5	152	4.6	137	5.7	128	6.9	118	8.0															8	136	4.4
	1400	399	2.3	377	4.3	360	6.2	346	8.2	333	10.2	322	12.1	312	14.1															10	309	9.8
	1800	528	3.1	506	5.6	489	8.1	475	10.7	462	13.2	451	15.7	441	18.3															13	404	16.5
	2850	867	5.9	845	9.9	828	13.9	814	18.0	802	22.0	790	26.0	780	30.0															15	718	30.8
65	700	128	0.8	110	1.5	96	2.3	85	3.0	74	3.8	65	4.5	56	5.3	48	6.0													8	71	3.0
	1400	301	1.8	282	3.3	269	4.8	257	6.3	246	7.8	237	9.3	229	10.8	221	12.3	206	15.3	199	16.8	193	18.3	187	19.8	181	21.3			10	226	7.5
	1800	399	2.5	381	4.4	367	6.4	355	8.3	345	10.2	336	12.2	327	14.1	319	16.0	304	19.9	298	21.8	291	23.8	285	25.7	279	27.6	273	29.5	13	297	12.7
	2350	534	3.8	516	6.3	502	8.9	491	11.4	480	13.9	471	16.4	462	18.9	454	21.5	440	26.5	433	29.0	426	31.5	420	34.1	414	36.6	409	39.1	16	400	20.6
68	700	206	1.2	177	2.5	155	3.7	136	4.9	119	6.1	104	7.3	91	8.5															8	115	4.8
	1400	483	2.7	454	5.2	431	7.6	412	10.0	396	12.4	381	14.8	367	17.2	354	19.7	331	24.5	320	26.9	309	29.3	300	31.7	290	34.1			10	363	12.0
	1800	641	3.8	612	6.9	589	10.0	570	13.1	554	16.2	539	19.3	525	22.4	512	25.5	489	31.7	478	34.8	467	37.9	458	41.0	448	44.1			13	477	20.2
	2350	858	5.6	829	9.7	806	13.7	788	17.8	771	21.8	756	26.2	742	29.9	729	34.0	706	42.1	695	46.1	685	50.2	675	54.2	665	58.3			16	642	32.8
615	700	386	2.3	332	4.6	290	6.8	255	9.0	223	11.3																			8	215	8.9
	1400	904	5.0	850	9.5	808	14.0	773	18.5	741	23.0	713	27.5	688	32.1															10	681	22.4
	1800	1200	6.7	1146	12.6	1104	18.4	1069	24.2	1037	30.0	1009	35.8	984	41.6															12	922	34.7
	2350	1607	9.7	1553	17.3	1511	24.8	1476	32.4	1444	40.0	1416	47.6	1391	55.2															13	1300	49.7

Notes: 1. Performance based on inlet methane at standard pressure of 14.7 psia, standard temperature of 68°F, and specific gravity of 0.55.
2. Vacuum ratings based on inlet methane at standard temperature of 68°F, discharge pressure of 30" Hg and specific gravity of 0.55.

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