

En Chile: Versol Ltda.

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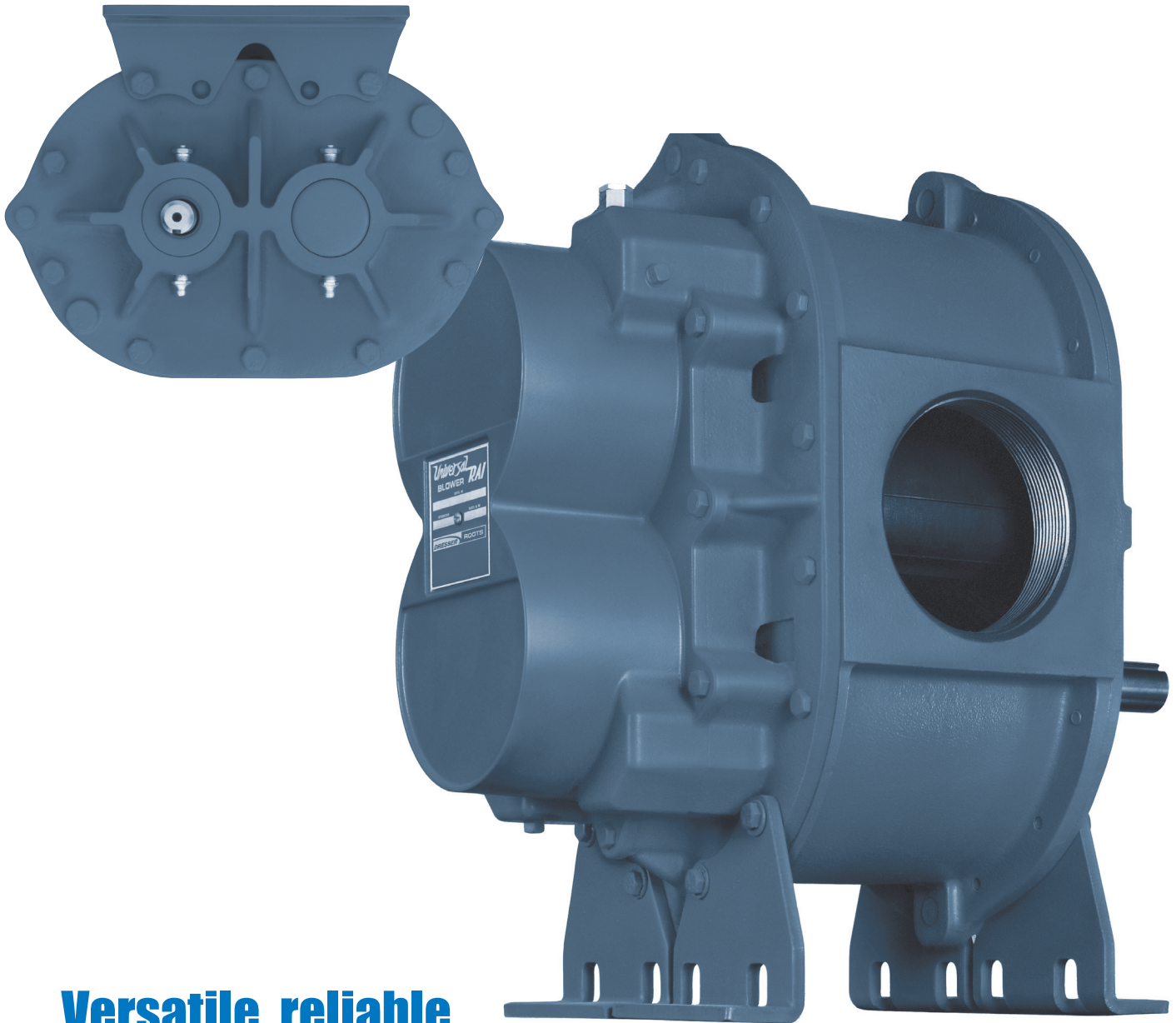
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URAI®

ROTARY POSITIVE BLOWERS/EXHAUSTERS



Versatile, reliable

ROOTS™ Universal RAI® blower

fits your application

Remarkably adaptable

You can mount the Universal RAI® blower upside down or rightside up, with vertical or horizontal flow, and with the drive shaft rotating in either direction. With 17 frame sizes to choose from, you have the perfect blower to fit your application with little or no modification.

More performance, too

Now the Universal RAI® line-up has a broader range and is more rugged than ever, with flows to 2460 CFM, vacuums to 16" Hg and pressures to 15 PSIG. You get a blower that not only fits but gives you the best performance in its class.

Low cost

The ROOTS Universal RAI® line of blowers is designed with the latest engineering technology and built using the most modern manufacturing processes. This results in cost savings we can pass along to you. This genuine ROOTS blower can actually cost less than ordinary competitive units.

Built-in reliability

Each Universal RAI® is precision machined on the latest CNC equipment, assuring close tolerances between the impellers, casing and headplates to minimize “slippage” of air, improving efficiency and reliability. ROOTS exclusive “Figure 8” gearbox design improves oil distribution and lengthens bearing and gear life. Oversize anti-friction bearings support the shaft, and, on the drive, cylindrical roller bearings will resist V-belt pull and extend service life.

Fast delivery

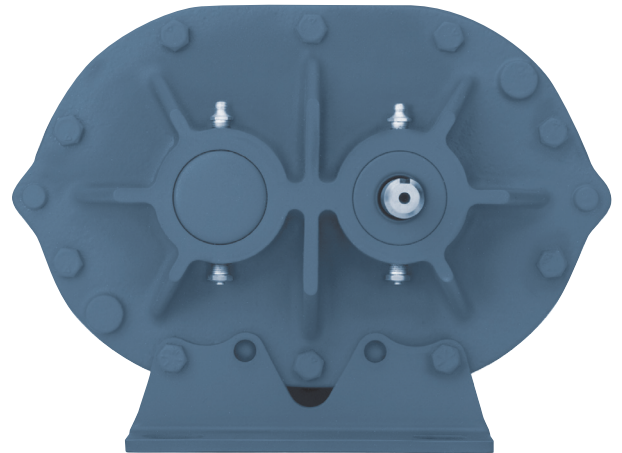
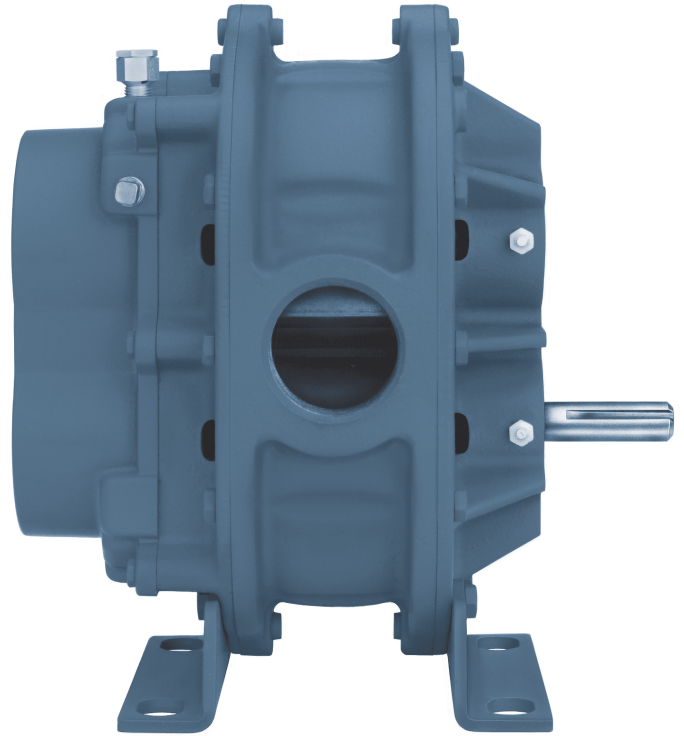
Thanks to over 45 stocking centers throughout North America, you’ll get on-time delivery. You can schedule production, reduce your inventory, anticipate your costs —and meet your deadlines.

Better service

With nearly 100 sales and distribution locations, only ROOTS can offer the kind of responsive service and applications assistance that the industry’s largest service network provides.

Iron-clad warranty

ROOTS is the leader in warranties, too — the first to introduce a full 2 year warranty. We’ll protect you or your customer for a full 24 months after start-up, not to exceed 30 months after shipment.



Greater pressure and flow with proven reliability

You get increased performance through ROOTS' extensive improvement program and life testing.

Here's how...

1. Exclusive gearbox design

"Figure 8" gearbox actually improves oil distribution for longer gear and bearing life with smoother operation.

2. Taper mounted timing gears

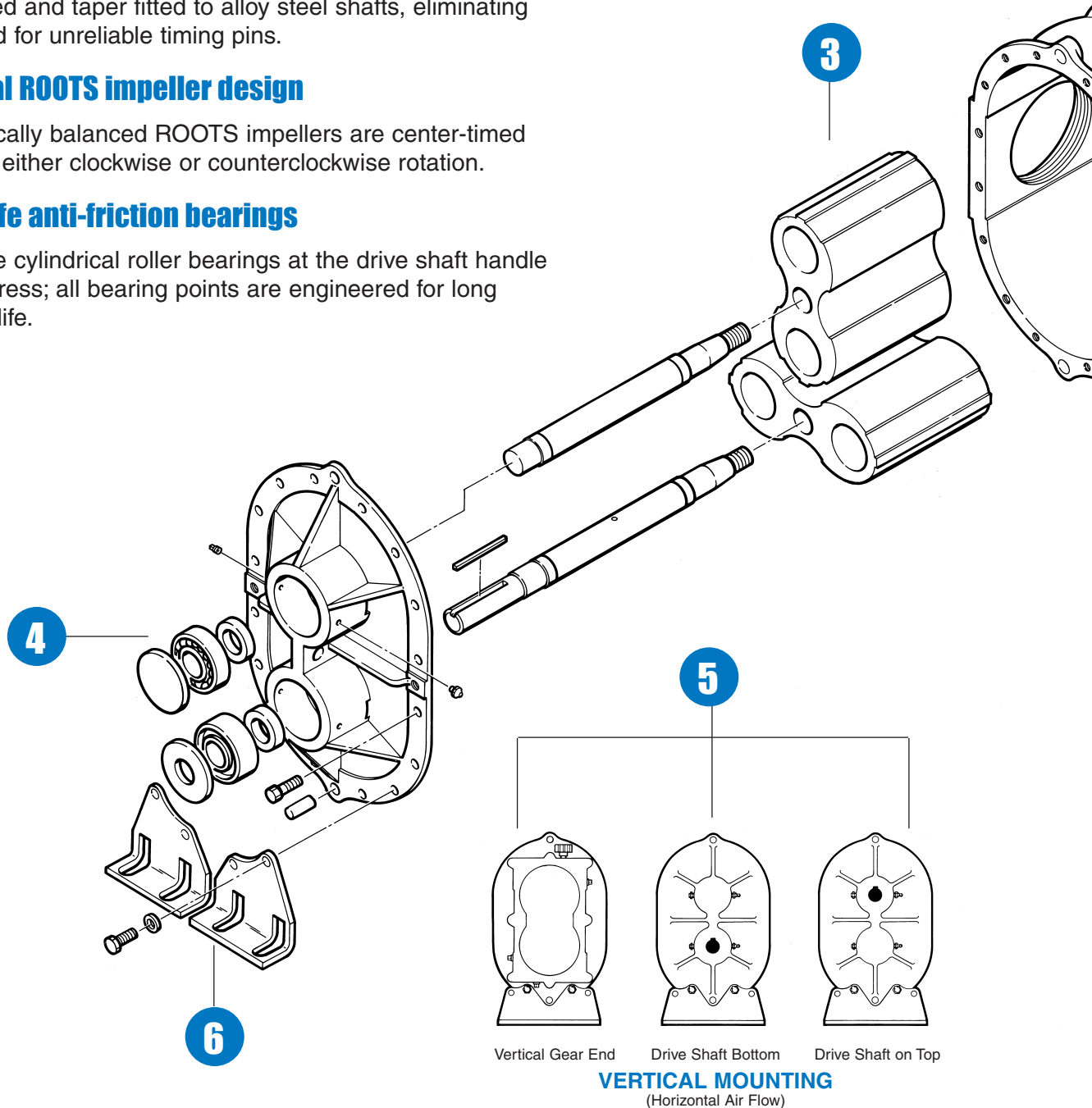
Carburized and ground alloy steel gears are precision machined and taper fitted to alloy steel shafts, eliminating the need for unreliable timing pins.

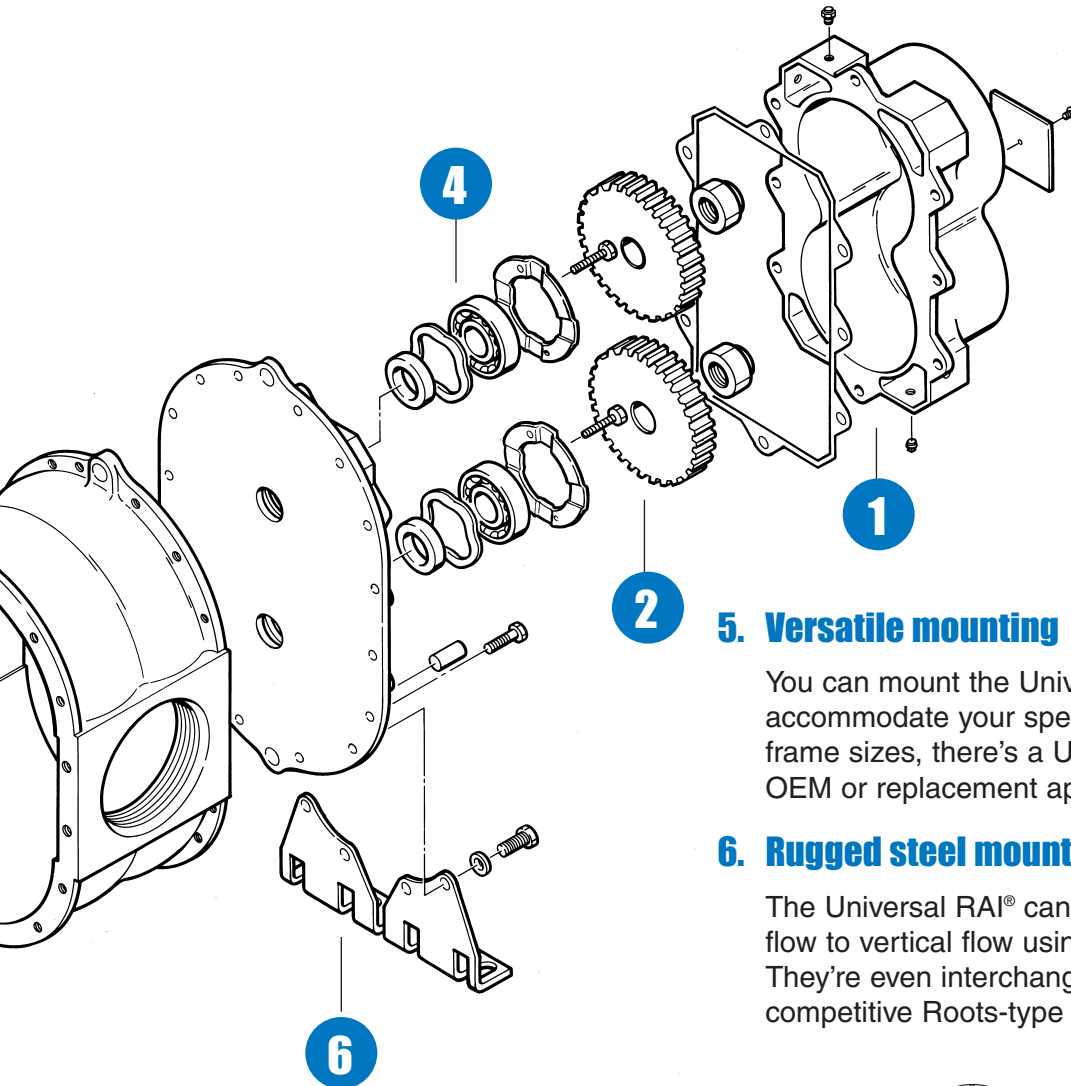
3. Original ROOTS impeller design

Dynamically balanced ROOTS impellers are center-timed to allow either clockwise or counterclockwise rotation.

4. Long-life anti-friction bearings

Oversize cylindrical roller bearings at the drive shaft handle v-belt stress; all bearing points are engineered for long service life.



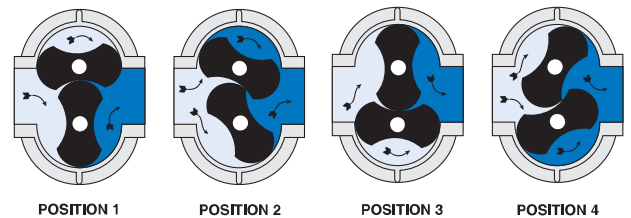


5. Versatile mounting

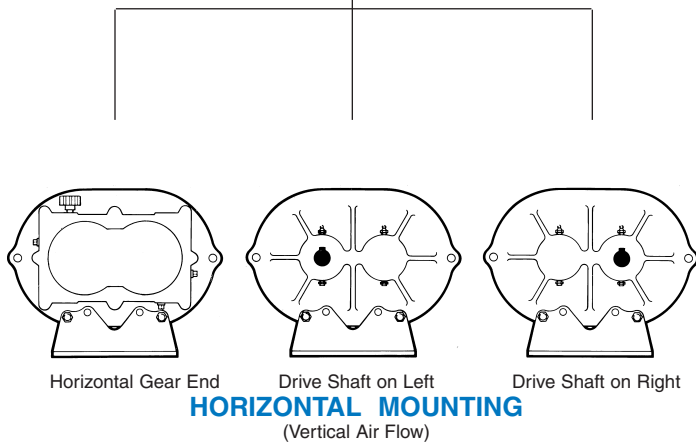
You can mount the Universal RAI® in multiple positions to accommodate your specific needs. With your choice of 17 frame sizes, there's a Universal RAI that fits right into your OEM or replacement application.

6. Rugged steel mounting feet

The Universal RAI® can be easily changed from horizontal flow to vertical flow using the same mounting feet. They're even interchangeable with the mounting holes of competitive Roots-type blowers.



5



Operating Principle

Two “Figure 8” lobe impellers, mounted on parallel shafts, rotate in opposite directions. As each impeller passes the blower inlet, it traps 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 impellers to each other and maintain small but definite clearances. This allows operation without lubrication inside the air casing.

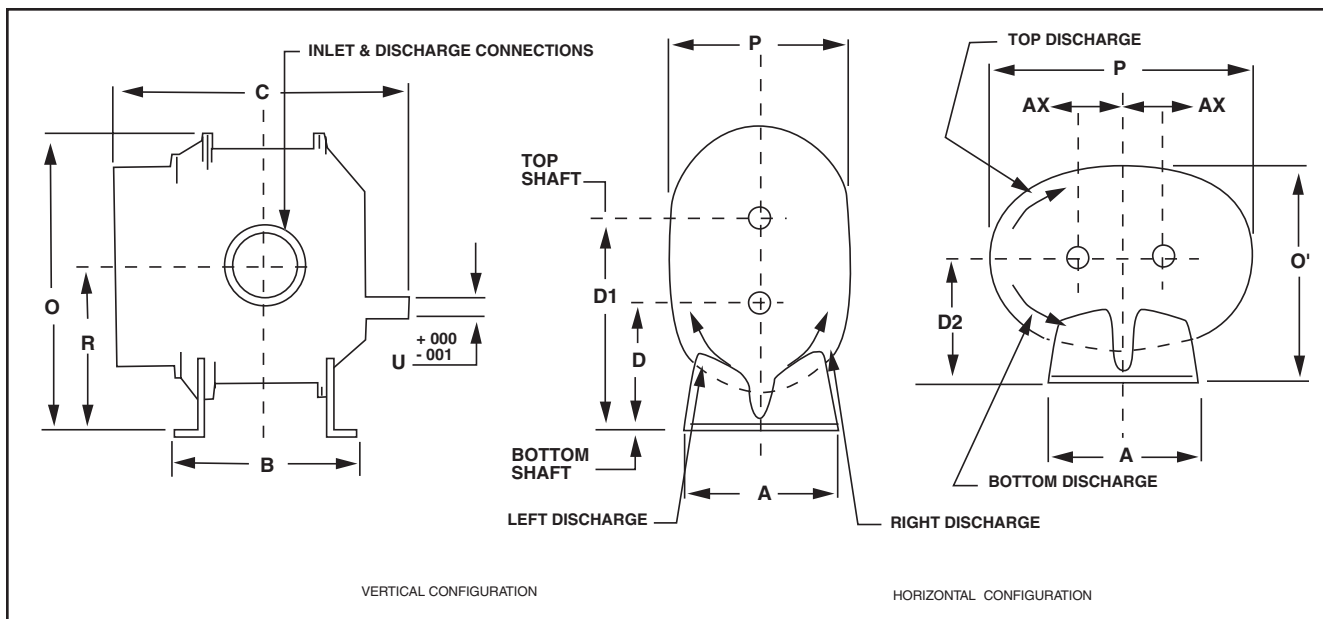
PERFORMANCE TABLE: ROOTS Universal URAI

Frame Size	Speed	4 PSI		5 PSI		6 PSI		7 PSI		8 PSI		9 PSI		10 PSI		12 PSI		13 PSI		14 PSI		15 PSI		VACUUM DATA					
		CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	INHG	CFM	BHP	
22	2950	31	0.9	29	1.1	27	1.3	26	1.5	24	1.7	23	1.9	21	2.1											13	20	1.3	
	3550	40	1.0	39	1.3	37	1.5	34	2.0	34	2.0	32	2.3	31	2.5	28	3.0									14	28	1.7	
	5275	68	1.6	66	2.0	64	2.4	63	2.7	61	3.1	60	3.5	59	3.8	56	4.6									15	53	2.8	
24	2950	68	1.7	65	2.1	63	2.5	60	2.9																	14	48	2.8	
	3550	88	2.0	85	2.5	82	3.0	79	3.5																	14	67	3.4	
	5275	143	3.1	140	3.9	137	4.6	134	5.4																	15	119	5.5	
32	1750	54	1.4	51	1.7	48	2.1	45	2.4	43	2.8	41	3.1	39	3.5	35	4.1									13	37	2.2	
	2950	108	2.4	105	3.0	102	3.6	99	4.2	97	4.7	95	5.3	93	5.9	89	7.1	87	7.6	86	8.2	84	8.8		15	84	4.3		
	3550	135	3.0	132	3.7	129	4.4	126	5.1	124	5.8	122	6.5	120	7.2	116	8.6	114	9.3	113	10.0	111	10.6		16	108	5.6		
33	1750	75	1.9	71	2.4	67	2.9	64	3.3	61	3.8	58	4.3	56	4.7	51	5.7									13	53	3.0	
	2950	149	3.3	145	4.1	141	4.9	138	5.7	135	6.5	132	7.3	130	8.1	125	9.7									15	119	5.9	
	3550	186	4.1	182	5.0	178	6.0	175	6.9	172	7.9	169	8.8	167	9.8	162	11.7									15	156	7.2	
36	1750	132	3.2	126	3.9	121	4.7	117	5.5																	14	95	5.4	
	2950	254	5.5	249	6.8	244	8.1	239	9.4																	15	212	9.8	
	3550	316	6.7	310	8.3	305	9.9	300	11.5																	15	273	11.9	
42	1750	78	1.9	74	2.4	71	2.8	69	3.3	66	3.7	64	4.2	61	4.7	57	5.6									14	55	3.2	
	2950	150	3.3	147	4.1	144	4.9	141	5.7	139	6.5	136	7.2	134	8.0	130	9.6	128	10.3	126	11.1	124	11.9		16	121	6.2		
	3550	187	4.1	183	5.1	180	6.0	177	7.0	175	7.9	172	8.8	170	9.8	166	11.6	164	12.6	162	13.5	160	14.4		16	157	7.6		
45	1750	161	3.8	155	4.7	150	5.6	145	6.6	140	7.5	136	8.4	132	9.3											14	121	6.4	
	2950	306	6.7	300	8.2	295	9.8	290	11.3	285	12.9	281	14.4	277	16.0											16	253	12.5	
	3550	379	8.2	373	10.1	368	12.0	363	13.9	358	15.7	354	17.6	349	19.5											16	326	15.2	
47	1750	215	5.0	208	6.2	201	7.4	195	8.6																	14	165	8.4	
	2950	407	8.8	399	10.8	392	12.9	386	14.9																		15	348	15.4
	3550	502	10.9	495	13.3	488	15.8	482	18.3																	15	444	18.8	
53	1170	113	2.7	108	3.4	103	4.1	99	4.8	96	5.4	92	6.1	89	6.8	82	8.1									13	85	4.3	
	1750	189	4.2	184	5.2	180	6.2	176	7.2	172	8.2	168	9.2	165	10.3	159	12.3	156	13.3	153	14.3				15	151	7.5		
	2850	334	7.4	329	9.0	325	10.7	321	12.3	317	14.0	313	15.6	310	17.2	304	20.5	301	22.1	298	23.8	295	25.4		16	291	13.4		
56	1170	196	4.6	188	5.7	182	6.9	175	8.0	170	9.1	164	10.2	159	11.4	150	13.6									14	146	7.8	
	1750	324	7.0	316	8.7	310	10.4	304	12.1	298	13.8	292	15.5	287	17.2	278	20.5	273	22.2							15	266	12.6	
	2850	567	12.2	560	15.0	553	17.7	547	20.5	541	23.2	536	26.0	530	28.7	521	34.2	517	37.0							16	501	22.4	
59	1170	239	6.7	230	8.4	221	10.0	213	11.7																	14	237	11.4	
	1750	486	10.3	477	12.8	469	15.2	461	17.7																	15	414	18.4	
	2850	842	18.0	832	22.0	824	26.0	816	30.0																	15	770	30.8	
65	1170	223	5.2	215	6.4	208	7.7	202	8.9	196	10.2	190	11.5	185	12.7	175	15.2	171	16.5	166	17.7				14	171	8.7		
	1750	365	8.0	358	9.9	351	11.8	344	13.7	339	15.6	333	17.4	328	19.3	318	23.1	313	24.9	309	26.8	305	28.7		16	297	15.1		
	2350	513	11.4	505	13.9	489	16.4	492	19.0	486	21.5	481	24.0	475	26.5	465	31.6	461	34.1	456	36.6	452	39.1		16	445	20.6		
68	1170	358	8.3	345	10.3	334	12.3	324	14.3	314	16.3	305	18.3	297	20.3	281	24.4	274	26.4	267	28.4				14	275	13.9		
	1750	587	12.7	574	15.7	563	18.7	553	21.8	544	24.8	535	27.8	526	30.8	510	36.8	503	39.8	496	42.9				16	478	24.0		
	2350	824	17.8	811	21.8	800	25.9	790	29.9	781	34.0	772	38.0	763	42.1	747	50.2	740	54.2	733	58.3				16	715	32.8		
615	1170	670	15.4	647	19.1	626	22.9	607	26.7																	11	581	20.5	
	1750	1099	23.4	1076	29.1	1055	34.7	1036	40.4																	12	989	33.7	
	2350	1543	32.4	1520	40.0	1499	47.6	1480	55.2																	12	1433	46.0	
76	1170	393	8.6	383	10.6	374	12.7	367	14.8	359	16.8	352	18.9	346	21.0	333	25.1	328	27.2	322	29.2	317	31.3		15	319	15.4		
	1750	628	13.4	618	16.5	609	19.6	601	22.7	594	25.8	587	28.9	580	32.0	568	38.1	562	41.2	557	44.3	552	47.4		16	543	24.9		
	2050	749	16.2	740	19.8	731	23.4	723	22.0	716	30.6	709	34.3	702	37.9	690	45.1	684	48.7	678	52.4	623	56.0		16	664	29.5		
711	1170	738	15.5	723	19.2	710	23.0	697	26.8	686	30.5	675	34.3	665	38.1											15	623	27.9	
	1750	1166	23.9	1151	29.5	1138	35.2	1125	40.8	1114	46.4	1103	52.0	1093	57.7											16	1035	45.0	
	2050	1387	28.6	1372	35.2	1359	41.8	1347	48.4	1335	55.0	1324	61.6	1314	68.2											16	1256	53.1	
718	1170	1224	25.0	1202	31.1	1183	37.2																			12	1122	36.3	
	1750	1920	38.2	1898	47.4	1879	56.5																			12	1818	54.8	
	2050	2280	45.5	2258	56.2	2239	66.9																			12	2178	64.7	

PERFORMANCE TABLE: ROOTS Universal URAI

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	*HG	CFM	BHP				
32	1200	37	0.2	30	0.4	24	0.7	20	0.9	16	1.1	12	1.4	33	2.9	27	3.6		8	15	0.9	
	1800	64	0.4	57	0.8	51	1.1	47	1.5	43	1.8	39	2.2	64	4.0	59	5.0		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	108	7.3	96	10.8	16	93	5.7
	3600	145	0.9	138	1.6	133	2.3	128	3.0	124	3.7	120	4.4	117	5.1	152	9.9			15	248	12.1
	1200	52	0.3	42	0.6	36	1.0	29.6	1.3	24	1.6	20	1.9	52	3.4	40	4.8			8	23	1.3
33	1800	89	0.5	80	1.0	72	1.5	66.5	1.9	61	2.4	57	2.9	95	4.9	84	6.9			10	51	2.4
	2500	132	0.9	123	1.5	116	2.2	110	2.9	104	3.5	100	4.2	145	11.8	152	9.9			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	208	11.7			15	137	7.3
	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	46	5.3			10	99	4.0
36	2500	224	1.3	211	2.5	201	3.6	192	4.7	185	5.8	178	6.9	172	8.0	88	7.4			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	155	10.9			15	248	12.1
	1200	54	0.3	46	0.6	40	0.9	35	1.3	30	1.6	26	1.9	22	2.2	49	4.8			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			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	85	8.1			13	88	4.3
42	3600	199	1.4	191	2.4	185	3.3	180	4.3	175	5.2	171	6.2	168	7.1	158	10.0			16	140	7.7
	1200	111	0.7	97	1.3	86	2.0	77	2.6	69	3.2	61	3.9	55	4.5	110	9.6			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	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	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	328	19.8			16	297	15.4
45	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
	1200	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
53	1400	157	0.9	145	1.7	136	2.5	129	3.3	122	4.1	116	4.9	111	5.7	96	8.2			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	149	10.6			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	287	17.3			16	262	13.4
	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	176	13.7			10	195	6.7
56	1800	355	2.1	338	3.9	325	5.6	313	7.3	303	9.1	294	10.8	286	12.5	264	17.7			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	496	28.8			16	457	22.4
	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
59	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
	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	206	15.3			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	304	19.9			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	440	26.5			16	457	22.4
65	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	331	24.5			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	489	31.7			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	706	42.1			16	642	32.8
	700	386	2.3	332	4.6	290	6.8	255	9.0	223	11.3			688	32.1					8	215	8.9
615	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

Frame Sizes



Frame	A	A'	B	C	D	D1	D2	M	O	O'	P	P'	R	U	INLET DISCH.	AX	WGT
22	5.13		5.00	9.75	3.75	6.25	3.75		9.63	6.88	6.25	9.25	5.00	.625	1.0 NPT	1.25	32
24	5.13		7.00	11.25	3.75	6.25	3.75		9.63	6.88	6.25	9.25	5.00	.625	2.0 NPT	1.25	43
32	7.25	7.25	6.75	11.25	5.00	8.50	5.00	5.81	12.81	8.88	7.75	12.13	6.75	.750	1.25 NPT	1.75	69
33	7.25	7.25	7.63	12.13	5.00	8.50	5.00	6.25	12.81	8.88	7.75	12.13	6.75	.750	2.0 NPT	1.75	74
36	7.25	7.25	10.00	14.63	5.00	8.50	5.00	7.56	12.81	8.88	7.75	12.13	6.75	.750	2.5 NPT	1.75	102
42	8.00	8.00	7.25	13.00	6.25	10.25	6.25	6.86	15.06	10.63	8.75	13.63	8.25	.875	1.5 NPT	2.00	88
45	8.00	8.00	10.00	15.50	6.25	10.25	6.25	8.00	15.06	10.63	8.75	13.63	8.25	.875	2.5 NPT	2.00	109
47	8.00	8.00	11.75	17.63	6.25	10.25	6.25	9.25	15.06	10.50	8.50	13.63	8.25	.875	3.0 NPT	2.00	128
53	10.50	10.50	8.38	15.38	6.25	11.25	6.75	8.18	17.38	11.88	10.25	17.25	8.75	1.125	2.5 NPT	2.50	143
56	10.50	10.50	11.00	18.00	6.25	11.25	6.75	9.19	17.38	12.25	11.00	17.25	8.75	1.125	4.0 NPT	2.50	170
59	10.50	10.50	14.00	21.18	6.25	11.25	6.75	11.19	17.38	12.25	11.00	17.25	8.75	1.125	4.0 NPT	2.50	204
65	11.00*	11.00	10.00	18.38	8.75	14.75	8.75	9.19	21.63	15.13	12.75	19.75	11.75	1.375	3.0 NPT	3.00	245
68	11.00*	11.00	13.00	21.38	8.75	14.75	8.75	10.82	21.63	15.13	12.75	19.75	11.75	1.375	5.0 NPT	3.00	285
615	11.00*	11.00	20.00	28.38	8.75	14.75	8.75	14.32	21.63	16.25	15.00	19.75	11.75	1.375	6.0 FLG	3.00	425
76	14.00**		11.75	19.94	11.00	18.00	11.00		26.13	20.69	19.38	23.25	14.50	1.562	4.0 NPT	3.50	400
711	14.00**		16.75	25.19	11.00	18.00	11.00		26.13	19.50	17.00	23.25	14.50	1.562	6.0 NPT	3.50	530
718	14.00**		23.75	32.19	11.00	18.00	11.00		26.13	19.50	17.00	23.25	14.50	1.562	8.0 NPT	3.50	650

*17.00 in horizontal configuration
 **21.00 in horizontal configuration

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