

Frames 22 thru 718

ROOTS® Universal RAI™ Metric Series



Design and Construction Features

- Detachable steel mounting feet
- Rigid one-piece cast iron casing
- Anti-friction bearings
- Carburized and ground alloy steel spur timing gears are precision machined and taper fitted to the shafts
- Connections in standard pipe sizes
- Ground steel shafts
- Straight, precision machined two-lobe impeller



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Universal RAI™ metric blowers are heavy-duty rotary blowers designed with detachable rugged steel mounting feet that permit easy, in-field adaptability to vertical or horizontal installation requirements.

Basic blower description

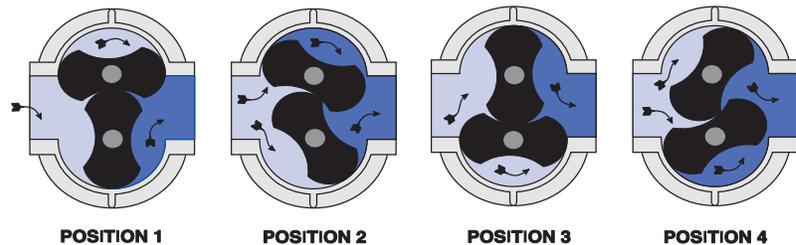
The detachable mounting feet allow these units to be easily adapted to any of four drive shaft positions: right, left, bottom, or top. The compact, sturdy design is engineered for continuous service when operated in accordance with speed and pressure ratings.

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 antifriction bearings are used, with a cylindrical roller bearing at the drive shaft to withstand V-belt pull.

The Universal RAI Metric features splash oil lube on the gear end and grease lube on the drive end. ROOTS exclusive "figure-eight" gearbox design improves oil distribution to maximize gear and bearing life. After testing, the unit is sprayed with a protective paint, and boxed or skid mounted for delivery.

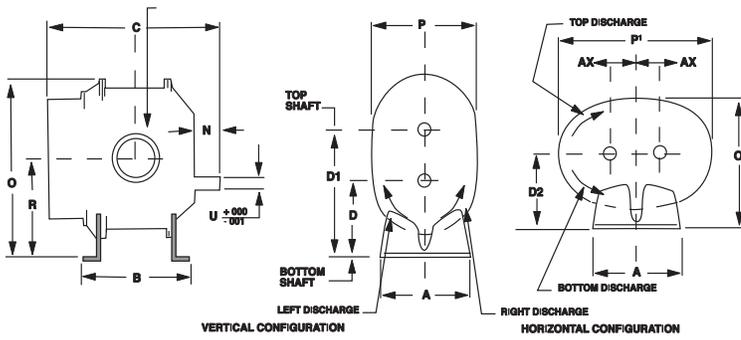
Available accessories include driver, relief valve, inlet and discharge silencers, inlet filter, check valve, extended base, V-belt or flexible coupling and drive guards.

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 or temperature.

Timing gears control the impellers relative positions and maintain small but definite clearances. This allows operation without lubrication requirements inside the unit casing.



Outline drawing of ROOTS Universal RAI.

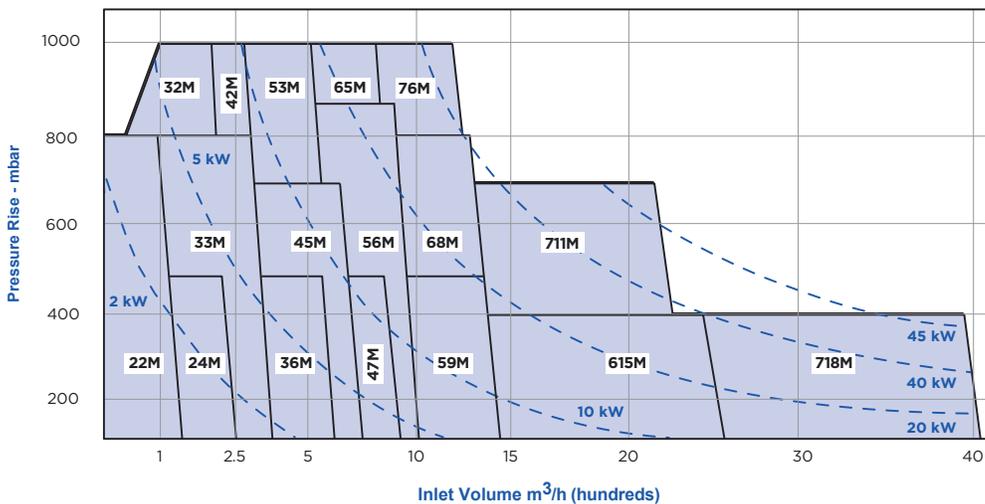
Dimensional Table All dimensions in millimeters except BSP connections which are in inches.

Frame Size	A	B	C	Drive Shaft Location			O	OI	P	R	U	Keyway	Inlet & Discharge	AF	AX	Approx. Net Wt. (kg)
				D Bottom Shaft	D1 Top Shaft ¹	D2 Horiz. Shaft										
22M	130	127	248	95	159	95	245	175	159	127	16 j6	5 x 5	1 BSP/ISO	235	31.7	15
24M	130	178	298	95	159	95	245	175	159	127	16 j6	5 x 5	2 BSP/ISO	235	31.7	20
32M	184	171	286	127	216	127	325	225	197	171	19 j6	6 x 6	1 1/4 BSP/ISO	308	44.5	31
33M	184	194	308	127	216	127	325	225	197	171	19 j6	6 x 6	2 BSP/ISO	308	44.5	34
36M	184	254	372	127	216	127	325	225	197	171	19 j6	6 x 6	2 1/2 BSP/ISO	308	44.5	46
42M	203	184	330	159	260	159	383	270	222	210	24 j6	8 x 7	1 1/2 BSP/ISO	346	50.8	40
45M	203	254	394	159	260	159	383	270	222	210	24 j6	8 x 7	2 1/2 BSP/ISO	346	50.8	49
47M	203	298	448	159	260	159	383	267	216	210	24 j6	8 x 7	3 BSP/ISO	346	50.8	58
53M	267	213	391	159	286	171	442	302	260	222	28 j6	8 x 7	2 1/2 BSP/ISO	438	63.5	65
56M	267	280	457	159	286	171	442	311	280	222	28 j6	8 x 7	4 BSP/ISO	438	63.5	77
59M	267	355	533	159	286	171	442	311	280	222	28 j6	8 x 7	4 BSP/ISO	438	63.5	93
65M	280 *	254	467	222	375	222	550	384	324	298	32 k6	10 x 8	3 BSP/ISO	502	76.2	111
68M	280 *	330	543	222	375	222	550	384	324	298	32 k6	10 x 8	5 BSP/ISO	502	76.2	129
615M	280 *	508	721	222	375	222	550	413	381	298	32 k6	10 x 8	150 NP 10	502	76.2	193
76M	356 **	298	507	280	457	280	664	525	492	368	38 k6	10 x 8	4 BSP/ISO	590	88.9	181
711M	356 **	425	640	280	457	280	664	495	432	368	38 k6	10 x 8	150 NP 10	590	88.9	240
718M	356 **	603	818	280	457	280	664	495	432	368	38 k6	10 x 8	200 NP 10	590	88.9	295

Notes:

- * 432 in horizontal configuration
- ** 533 in horizontal configuration

Performance Map



Notes:

- Performance based on inlet air at standard pressure of 1013 mba, standard temperature of 20°C.
- Universal RAI blowers may also be used on vacuum service. For performance charges, contact sales office.