

ROOTS-FLO® Rotary Blower



Design and construction features

- Cast iron housing per ASTM A-48 Class 30B.
- Shaft sleeves are cast iron ASTM A-48 and hardened.
- Headplates are per ASTM A-48 Class 30B.
- Splash lubricated at both ends.
- Top drive horizontal flow.
- Left hand or right hand drive with vertical flow.

ROOTS-FLO® rotary positive displacement blowers are heavy duty rotary units in a compact, sturdy design engineered for reliable pneumatic conveying of grain and similar products.

Basic Blower Operations

The basic model features a ribbed cast iron casing and rigid headplates, carburized and ground alloy steel spur timing gears secured to steel shafts with a taper mounting and locknut, and ductile iron impellers. Oversized anti-friction bearings are used, with a cylindrical roller bearing at the drive shaft to withstand V-belt pull. Detachable rugged steel mounting feet permit easy in-field adaptability to either vertical or horizontal installation requirements.

The ROOTS-FLO is splash lubricated from oversized oil reservoirs. ROOTS® gearbox design improves oil distribution and lengthens bearing and gear life.

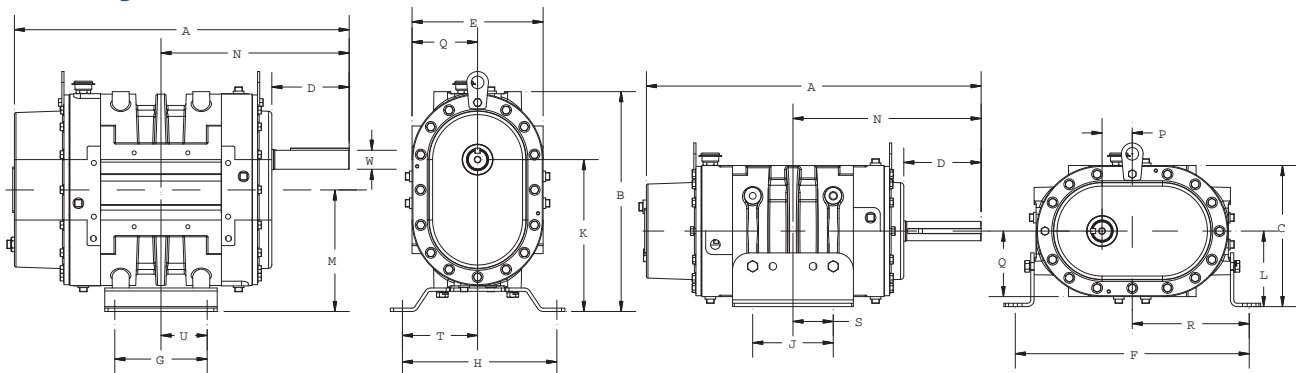
Warranty period

Impellers - Machined and dynamically balanced ductile iron impellers with integral shafts per ASTM 536 Class 60-45-12 and 80-60-3 for additional strength for maximum load operations. Impellers are computer designed for maximum efficiency.

Bearings - At maximum load and speed our extra capacity cylindrical roller drive shaft bearing has 2.5 to 3 times longer bearing life than the competitive units using ball bearings. Gears - Gears are spur type SAI 8620 steel carburized and ground to 58-62RC for tough continuous operations, without inducing harmful thrust loads.

Seals - Main air seals are piston ring type for minimal leakage. Bearing and drive shaft oil seals are Viton lip. All are proven ROOTS design and rated for severe duty.

Outline drawing and dimension table



| Frame | A | B | C | D | E | F | G | H | J | K | L | M | N | P | Q | R | S | T | U | W | WGT |
|-------|-------|-------|------|------|------|------|------|------|------|-------|------|------|-------|------|------|------|-----|------|------|------|-----|
| 404 | 18.43 | 16.37 | 10.5 | 4.19 | 9.75 | 17.5 | 4.88 | 11.5 | 5.0 | 11.35 | 5.62 | 9.10 | 10.02 | 2.25 | 4.88 | 8.75 | 2.5 | 5.75 | 2.44 | 1.44 | 200 |
| 406 | 21.93 | 16.37 | 10.5 | 5.69 | 9.75 | 17.5 | 6.88 | 11.5 | 7.0 | 11.35 | 5.62 | 9.10 | 12.52 | 2.25 | 4.88 | 8.75 | 3.5 | 5.75 | 3.44 | 1.44 | 240 |
| 409 | 24.93 | 16.37 | 10.5 | 5.69 | 9.75 | 17.5 | 6.88 | 11.5 | 7.0 | 11.35 | 5.62 | 9.10 | 14.02 | 2.25 | 4.88 | 8.75 | 3.5 | 5.75 | 3.44 | 1.44 | 280 |
| 412 | 27.93 | 16.37 | 10.5 | 5.69 | 9.75 | 17.5 | 9.88 | 11.5 | 10.0 | 11.35 | 5.62 | 9.10 | 15.52 | 2.25 | 4.88 | 8.75 | 5.0 | 5.75 | 4.94 | 1.44 | 330 |



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Performance Tables

Pressure Performance Table For Air Inlet Temp = 68° F, Barometer = 14.7 PSIA

| Model | RPM | 4 PSIG | | 6 PSIG | | 8 PSIG | | 10 PSIG | | 12 PSIG | | 15 PSIG | |
|-------|------|--------|------|--------|------|--------|------|---------|------|---------|------|---------|------|
| | | CFM | BHP | CFM | BHP | CFM | BHP | CFM | BHP | CFM | BHP | CFM | BHP |
| 404 | 1750 | 133 | 3.5 | 120 | 5.2 | 108 | 6.8 | 99 | 8.5 | 90 | 10.2 | - | - |
| | 2950 | 265 | 6.3 | 252 | 9.1 | 240 | 11.9 | 231 | 14.7 | 222 | 17.6 | 209 | 21.8 |
| | 4000 | 381 | 9.2 | 367 | 13.0 | 356 | 16.8 | 346 | 20.7 | 337 | 24.5 | 333 | 30.3 |
| 406 | 1750 | 207 | 5.2 | 188 | 7.8 | 172 | 10.3 | 158 | 12.9 | 145 | 15.4 | - | - |
| | 2950 | 407 | 9.2 | 388 | 13.6 | 372 | 17.9 | 358 | 22.1 | 345 | 26.5 | 328 | 32.8 |
| | 4000 | 583 | 13.1 | 564 | 19.2 | 548 | 25.0 | 533 | 30.6 | 520 | 36.6 | 503 | 45.2 |
| 409 | 1750 | 313 | 7.8 | 284 | 11.6 | 261 | 15.4 | 240 | 19.2 | 221 | 23.0 | - | - |
| | 2950 | 613 | 13.6 | 584 | 20.0 | 561 | 26.4 | 540 | 32.9 | 521 | 39.3 | 495 | 49.0 |
| | 4000 | 875 | 19.2 | 847 | 28.0 | 823 | 36.7 | 802 | 45.4 | 783 | 54.1 | 758 | 67.2 |
| 412 | 1750 | 426 | 10.3 | 391 | 15.4 | 361 | 20.5 | 335 | 25.6 | 312 | 30.7 | - | - |
| | 2950 | 826 | 17.9 | 791 | 26.5 | 761 | 35.1 | 735 | 43.6 | 711 | 52.2 | 679 | 65.0 |
| | 4000 | 1175 | 25.2 | 1140 | 36.8 | 1111 | 48.5 | 1085 | 60.1 | 1061 | 71.7 | 1029 | 89.1 |

Vacuum Performance Table For Air Inlet Temp = 68° F, Discharge Pressure = 30 HGA

| Model | RPM | 4" HG | | 6" HG | | 8" HG | | 10" HG | | 12" HG | | 15" HG | | 16" HG | |
|-------|------|-------|------|-------|------|-------|------|--------|------|--------|------|--------|------|--------|------|
| | | CFM | BHP | CFM | BHP | CFM | BHP | CFM | BHP | CFM | BHP | CFM | BHP | CFM | BHP |
| 404 | 1750 | 148 | 1.8 | 136 | 2.6 | 124 | 3.4 | 112 | 4.2 | 100 | 5.1 | - | - | - | - |
| | 2950 | 280 | 3.4 | 268 | 4.8 | 256 | 6.1 | 244 | 7.5 | 232 | 8.9 | 211 | 11.0 | - | - |
| | 4000 | 395 | 5.3 | 383 | 7.1 | 371 | 9.0 | 359 | 10.9 | 347 | 12.8 | 326 | 15.6 | 318 | 16.5 |
| 406 | 1750 | 228 | 2.6 | 211 | 3.9 | 194 | 5.1 | 177 | 6.4 | 159 | 7.6 | - | - | - | - |
| | 2950 | 429 | 4.8 | 411 | 7.0 | 394 | 9.1 | 377 | 11.1 | 359 | 13.3 | 329 | 16.4 | - | - |
| | 4000 | 604 | 7.2 | 586 | 10.2 | 570 | 13.1 | 553 | 15.7 | 535 | 18.8 | 505 | 22.9 | 493 | 24.3 |
| 409 | 1750 | 344 | 3.9 | 318 | 5.7 | 293 | 7.6 | 268 | 9.5 | 242 | 11.3 | - | - | - | - |
| | 2950 | 644 | 7.0 | 618 | 10.2 | 593 | 13.3 | 568 | 16.4 | 542 | 19.6 | 498 | 24.3 | - | - |
| | 4000 | 906 | 10.3 | 880 | 14.6 | 855 | 18.9 | 831 | 23.1 | 804 | 27.4 | 760 | 33.8 | 744 | 35.9 |
| 412 | 1750 | 465 | 5.1 | 433 | 7.6 | 402 | 10.0 | 371 | 12.6 | 338 | 15.1 | - | - | - | - |
| | 2950 | 865 | 9.2 | 832 | 13.4 | 801 | 17.1 | 770 | 21.7 | 737 | 25.9 | 682 | 32.2 | - | - |
| | 4000 | 1214 | 13.4 | 1182 | 19.0 | 1151 | 23.7 | 1120 | 30.4 | 1087 | 36.1 | 1032 | 44.6 | 1011 | 47.4 |

| Frame | Inlet and Discharge Connections | Mounting Bolt Hole Diameter |
|-------|---------------------------------|-----------------------------|
| 404 | 4" NPT | 0.69 |
| 406 | 4" NPT | 0.69 |
| 409 | 4" NPT or 5" NPT | 0.69 |
| 412 | 6" NPT | 0.69 |